WASTE MANUAL

NEBRASKA DEPARTMENT OF ROADS
MAINTENANCE FACILITIES

Terracon Project No. 05027033
September 16, 2002

Prepared for:

NEBRASKA DEPARTMENT OF ROADS
Lincoln, Nebraska

Prepared by:

TERRACON
Omaha, Nebraska

September 16, 2002

Nebraska Department of Roads
1500 Nebraska Highway N-2
P.O. Box 94759
Lincoln, NE 68509-4759

Attention: Mr. Maurice Bonne

Re: Nebraska Department of Roads (NDOR)
Maintenance Facilities
Waste Manual
Terracon Project No. 05027033

Dear Mr. Bonne:

Enclosed is the Waste Manual for the NDOR maintenance facilities. The Waste Manual is designed to provide NDOR maintenance facilities with the information necessary to maintain RCRA compliance.

Terracon recommends the following actions be performed or implemented by the NDOR to improve and maintain RCRA compliance at the NDOR maintenance facilities:

- Small Quantity Generator (SQG) and Large Quantity Generator (LQG) facilities should implement a universal waste program for batteries, cathode ray tubes, mercury-containing lights, mercury thermostats, and pesticides. The universal waste program may reduce the quantity of hazardous waste generated as well as allowing simpler storage and handling requirements for the universal wastes. The universal waste program is described in Section 3.4 and in Appendix C.

- SQG and LQG facilities should use aerosol can and cylinder depressurization units to limit the quantity of hazardous waste produced at the site. If the NDOR performs aerosol cans and cylinder depressurization, Terracon recommends the NDOR maintenance facility maintain a log of aerosol products depressurized in the aerosol can depressurization unit. If aerosol can depressurization units are not used, aerosol cans and cylinders should be collected, handled, stored and disposed as hazardous waste.

- SQG and LQG facilities should consider a “rag contract” to avoid having to separate out contaminated rags and dispose of the contaminated rags as hazardous waste. A list of shop rag and wiper laundering contractors is included in Appendix D, under the “Hazardous Waste Service Providers” tab, on page 28 under the “Shop Rag and Wiper Laundering Contractors” tab.

- SQG and LQG facilities should not ship hazardous waste off-site unless the transport company is a permitted transporter of hazardous waste. A list of permitted transporters of hazardous waste is included in Appendix D, under the “Hazardous Waste Service Providers” tab, on page 29 under the “Hazardous Waste Transporters” tab.

- Antifreeze can not be shipped from SQG and LQG sites unless it has been tested and determined to be non-hazardous. The NDOR may want to consider transporting the antifreeze recycling unit to each yard.

If you have questions or require additional information, please call me at (402) 330-2202.

Sincerely,
TERRACON

Brian Wanzenried, P.E.	Paul Johnson
Project Engineer	Program Manager

BLW/PWJ:blw/yms

Enclosure

Copies to: Addressee (1)

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NEBRASKA DEPARTMENT OF ROADS
MAINTENANCE FACILITIES

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1.0 INTRODUCTION

Terracon has been contracted by the Nebraska Department of Roads (NDOR) to develop a Waste Management Program for the NDOR maintenance facilities located across Nebraska. This Waste Manual serves as a guidebook for implementation of the Waste Management Program. The Waste Manual was developed specifically for the NDOR maintenance facilities. The regulatory interpretations, and waste characterizations, handling procedures, and disposal requirements were tailored specifically to the NDOR maintenance facilities.

2.0 ORGANIZATION AND USE OF THIS MANUAL

Terracon has organized this manual to make it easier for the NDOR to look up waste information. The body of this manual is designed to provide background information on RCRA to aid Maintenance Supervisors, and others performing RCRA related work. The appendices are designed to provide easy to find, specific information on wastes and waste handling practices.

The Waste Manual has been provided in a three ring binder to allow the NDOR to make copies of forms and to add laboratory analyses to the waste profiles in Appendix G.

Sections 2.1 to 2.10 detail the various parts of this waste manual.

2.1 Report Body

The body of the Waste Manual report contains details on the waste regulations as they apply to the NDOR maintenance facilities. Included in the body of the Waste Manual are sections on:

- Hazardous Waste Regulations,
- Waste Generator Status,
- Waste Generator Requirements,

- Waste Identification,
- Generator Status Calculations,
- Rules for Managing Hazardous Wastes,
- Asbestos, and
- Used Oil.

The body of the report is provided as background information to aid the NDOR in understanding various waste regulations.

2.2 Standard Operating Procedures

Appendix A contains Standard Operating Procedures (SOPs) for waste related activities. The SOPs are designed to provide guidelines for waste handling and storage as well as consistency between various NDOR maintenance facilities. SOPs in Appendix A include:

- Aerosol Can Depressurization,
- Aerosol Can filter and Drum Replacement,
- Cloth Rag Recycling,
- Disposal or Surplus of Computer Monitors,
- Handling an Accumulation Drum of Hazardous Waste,
- Handling and Disposal of Asbestos Waste,
- Handling Hazardous Waste,
- Hazardous Waste Transport,
- Light Ballasts Containing PCBs,
- Monthly Hazardous Waste Accumulation Area Inspection,
- Pesticide Container Disposal, and

- Storage and Handling of Used Vehicular Lead Acid Batteries.

2.3 Land Disposal Restriction Information

The Land Disposal Restrictions (LDRs) require hazardous wastes to be treated prior to land disposal. As part of the LDRs, the NDOR is required to send certification statements and chemical concentration information along with hazardous waste shipments. Appendix B contains background information on the LDR requirements as well as a blank form for the certification statements and chemical concentration information. Terracon has developed LDR certification statements and chemical concentration information for some wastes (i.e., waste that have enough information to develop the LDR form). The developed LDR certification statements and chemical concentration information are included in Appendix G with the applicable Waste Profile.

2.4 Waste Generator Information

The waste regulations have different requirements depending upon a facilities generator status (i.e., how much waste a facility produces) and types of waste. Terracon has gathered relevant information to aid the NDOR in maintaining compliance with the waste regulations and placed the information in Appendix C. Information in Appendix C includes the following:

- Generator Requirements,
- Large Quantity Generator Requirements,
- Small Quantity Generator Requirements, and
- Universal Waste Generator Requirements.

2.5 Disposal Companies and Sites

Because the NDOR maintenance facilities are located throughout Nebraska, Terracon could not identify a single treatment and disposal company or site that could conveniently be used for waste treatment and disposal. Therefore, Terracon has included in Appendix D several lists of treatment and disposal companies and sites in and around Nebraska. The various types of treatment and disposal companies and sites include:

- Municipal Waste Landfills,
- Construction and Demolition Debris Landfills,

- Materials Recovery Facilities,
- Scrap Tire Permittees, and
- Hazardous Waste Service Providers.

2.6 Compatibility

Incompatible wastes should not be stored together. Appendix E contains chemical compatibility information and a chemical compatibility chart and that describes types of wastes that can not be stored together. To aid the NDOR in determining chemical compatibility, the Waste Profiles in Appendix G have the chemical compatibility group identified.

2.7 Waste Analysis

Some wastes need to be analyzed to determine if the waste is a hazardous waste. Appendix F contains information on the waste analyses. Also included in Appendix F are tables of concentrations to compare the waste analysis results. Appendix D, Hazardous Waste Service Providers, Analytical Laboratories.

2.8 Waste Profiles

The Waste Profiles in Appendix G provide the NDOR with the information necessary for proper handling, storage, transportation, and treatment and disposal of wastes. Appendix G contains an explanation of how to look up Waste Profiles as well as a detailed index of the various wastes included in the Waste Profile section.

2.9 Notification of Waste Activities

The NDOR is required to submit a Notification of Waste Activities form when an NDOR yard has a change in the quantity or type of wastes generated on-site. Appendix H contains a blank Notification of Waste Activities form along with instructions on completing the form.

2.10 Waste Log

Terracon has provided the NDOR with a Waste Log so that the NDOR yards can track their hazardous waste generation.

3.0 RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

3.1 Overview of RCRA

The Resource Conservation and Recovery Act (RCRA) (EPA 40 CFR 260 to 265) regulates solid wastes, which includes garbage, refuse, trash, and industrial and hazardous wastes. According to RCRA, a solid waste is a hazardous waste if the solid waste is included on a list of hazardous waste streams identified by the Environmental Protection Agency (EPA) or if the solid waste exhibits a hazardous characteristic (e.g., ignitable, corrosive, reactive, or toxic). Depending upon the amount of hazardous waste generated by a facility, different hazardous waste regulations apply to that facility. Generally, the RCRA regulations govern the storage, handling, record keeping, transportation and disposal of the hazardous waste.

3.2 Hazardous Waste

3.2.1 Generator Status

The hazardous waste regulations divide facilities that generate hazardous waste into three categories (i.e., generator status) based on the weight of hazardous waste produced at the facility in a month. Table 1 provides the generator status and corresponding hazardous waste production thresholds.

Table 1: Hazardous Waste Generator Status

Generator Status	Hazardous Waste Produced (pounds per month)	Acute Hazardous Waste Produced (pounds per month)
Conditionally Exempt Small Quantity Generators (CESQG)	Less than or equal to 220.5 pounds	Less than or equal to 2.2 pounds
Small Quantity Generators (SQG)	Between 220.5 pounds and 2,205 pounds	Between 2.2 pounds and 22 pounds
Large Quantity Generators (LQG)	Greater than or equal to 2,205 pounds	Greater than or equal to 22 pounds

Generator status applies during the month the facility exceeded the threshold and may change from month to month depending upon the facility's hazardous waste production. Therefore, a NDOR facility may be a CESQG facility one month and a SQG the next month. A facility is subject to different regulatory requirements, depending on the facility's generator status. NDOR maintenance facilities are anticipated to be either CESQG's and SQG's.

It may not be practical for a NDOR facility to try to switch generator status from month to month, unless it is routine and subject to predictable seasonal changes at the facility. Each generator status has different paperwork and hazardous waste handling and disposal requirements. Generally, the SQG has more requirements and restrictions than the CESQG, and the LQG has more requirements and restrictions than the SQG. If a NDOR facility's generator status varies from month to month, Terracon recommends that the facility follow the requirements of the more restrictive generator status.

3.2.2 Generator Requirements

CESQG's are exempt from the hazardous waste management regulations if they identify all hazardous waste that is generated, store less than 2,200 pounds of non-acute wastes, and send hazardous wastes that are generated to an appropriate off-site treatment or disposal facility.

The following table summarizes requirements for each RCRA Generator class.

Table 2: Comparison of RCRA Generator Requirements

Comparison of RCRA Generator Requirements			
Requirement	**CESQG**	**SQG**	**LQG**
Identify Hazwaste	Yes	Yes	Yes
Generation Limits of Non-acute wastes (lbs/month)	< 220.5	220.5 to 2,205	> 2,205
Facility Receiving Waste	State approved or RCRA permitted	RCRA-permitted facility	RCRA-permitted facility
USEPA ID Number	Not required	Required	Required
RCRA Personnel Training	Not required	Familiarization required	Required
DOT Training	Required	Required	Required
Exception Report	Not required	Required > 60 days	Required > 45 days
Biennial Report	Not required	Not required	Required
On-site accumulation limits (without permit)	≤ 1,000 kg (2,204.62 lb)	≤ 6,000 kg (13,227.73 lb)	Any quantity
Accumulation Time Limits (without permit)	None	≤ 180 days or ≤ 270 days if > 200 miles to disposal area	≤ 90 days + 30 days granted by USEPA
Storage Requirements	None	Basic requirements with technical standards for containers or tanks	Full compliance with management of containers or tanks
Arrangements With Local Authorities	None	Required (Chapter 17)	Required (Chapter 17))

Comparison of RCRA Generator Requirements			
Requirement	**CESQG**	**SQG**	**LQG**
Emergency Equipment & Communications	None	Required (Chapter 17)	Required (Chapter 17)
Contingency Plan	None	None	Required
Emergency Coordinator	None	Required	Required
Telephone Information	None	Post information by phone	In Contingency Plan
Use Manifests	No	Yes, unless waste is reclaimed under contractual agreement	Yes

kg – kilogram lb – pound ≤ equal to or less than > greater than
USEPA ID – United States Environmental Protection Agency Identification
DOT – Department of Transportation

3.2.3 Waste Identification

Terracon used site visit observations and data from questionnaires to identify wastes at NDOR maintenance facilities. Wastes identified at the NDOR maintenance facilities include:

- Used solvents,
- Used aerosol cans,
- Used paint containers,
- Paint debris,
- Used oil,
- Used tires,
- Broken lead wheel weights,
- Used rags,
- Pesticide rinsate,
- Used antifreeze,
- Used batteries,
- Used air and oil filters,
- Scrap steel parts,
- Used coolant,
- Burned-out lights,
- Burned-out light ballasts,
- Used brake pads and shoes,
- Used computers,
- Used computer monitors,
- Used solder,
- Spill cleanup debris,

- Oil-water separator sludge,
- Construction and demolition waste,
- Roadside debris.

Descriptions of these wastes are included on the Waste Profiles included in Appendix G

3.2.4 Waste Classifications

Solid and hazardous waste classifications apply to materials, chemicals, products that are no longer useable for their originally intended purpose without processing (e.g., used antifreeze needs to be processed in an antifreeze recycling unit prior to re-use and is therefore a waste). Surplus items are not wastes.

NDOR generates hazardous wastes of broadly two types: “characteristic” hazardous wastes and “listed” hazardous wastes.

Characteristic hazardous wastes exhibit one or more of the following four characteristics: ignitability, corrosivity, reactivity, or toxicity. Characteristic hazardous wastes are designated with waste codes beginning with the prefix “D”. For example, chromium-based paint waste may be considered toxic and may be designated with waste code D008.

Listed hazardous wastes have been designated hazardous by the EPA because they are known to threaten human health or the environment. There are four such lists, having prefixes “F,” “K,” “U,” and “P.”

F-wastes are from non-specific sources. For example, spent halogenated solvents used in degreasing, containing 10% or more of trichloroethylene before use, are designated with waste code F001. Terracon has not identified F-wastes at the NDOR maintenance facilities.

P- and U-wastes consist of commercial chemical products, intermediates, and residues. An example of a P-waste is spilled or unused tetraethyl lead waste (i.e., a leaded gasoline additive). P-wastes are acute hazardous wastes and, as shown in Table 1, are considered separately when determining generator status. NDOR is not expected to generate P-wastes, because, due to their toxicity, they are not found in commercial products used by the NDOR.

An example of a U-waste is spilled or unused xylene waste. NDOR may generate U-wastes if they spill or no longer need a commercial chemical product with a U-waste ingredient.

K-wastes arise from specific industrial sources. These wastes are not expected to be generated by NDOR maintenance facilities because the maintenance facilities do not perform the specific industrial operations.

3.2.5 Generator Status Calculations

In order to determine generator status, quantities of hazardous waste generated should be tracked. The monthly total determines generator status, as per Table 1. A worksheet for recording waste generation is provided in Appendix I (i.e., the Monthly Waste Generation Tracking Form).

3.2.6 Hazardous Waste Testing

In cases where the NDOR does not know whether a waste is characteristic, or cannot provide documentation substantiating waste characteristics, analytical testing should be performed. Analytical testing can include testing for ignitability, corrosivity, reactivity, or toxicity.

For ignitability, a flash point test may be used to determine whether the waste can independently ignite at a temperature below 140°F. An aqueous waste is considered corrosive if a pH meter establishes that the pH is less than or equal to 2 or is greater than or equal to 12.5. The only reactive waste that NDOR maintenance facilities are expected to generate are aerosol cans or cylinders. Aerosol cans and cylinders can be rendered non-reactive by puncturing them.

A test called "toxicity characteristic leaching procedure" (TCLP) is used to simulate landfill conditions and, thereby, determine whether a waste contains "toxicity characteristic" (TC) constituents at sufficient concentrations to be considered hazardous waste under the D-list (see Table 3). If NDOR personnel know which TC constituents are contained in a waste, then the TCLP can be performed only for those constituents of concern, rather than the 40 TC constituents, thus reducing the cost of the test. For example, the only TC constituent contained in waste antifreeze is lead, so the TCLP can be limited to testing for lead. If NDOR possesses any wastes of unknown composition ("toxic waste not otherwise classified"), then a TCLP must be performed for the 40 TC constituents.

A less expensive alternative to a TCLP is to do a "totals" analysis for the constituents of concern. A totals analysis indicates total concentration of the constituent(s) of concern. If the waste is a liquid, then the totals analysis is equal to the TCLP result, and the concentration can be compared to the limits in Table 3 in order to determine whether the waste is hazardous. If the waste is a solid, the result of the totals analysis should be divided by 20 to estimate the TCLP result. Note that a totals analysis should only be performed if the waste is either completely solid or completely liquid. Also, if NDOR personnel believe that concentration of a constituent of concern may be within a close margin of the allowable limit, it may be advisable to perform a TCLP in order to obtain a conclusive determination.

It is generally unnecessary to conduct analytical testing for hazardous wastes under the F-, K-, P-, and U-lists. Wastes under these lists are not determined hazardous based on concentration, therefore, determining concentration (through TCLP or totals analysis) would not be useful. Under the F-, K-, P-, and U-lists, wastes are considered hazardous based on the source of the waste.

Table 3: Toxicity Characteristic (D List)

Chemical Name	CAS Number	RCRA D Code	RCRA TCLP (mg/L)	Category
1,2-Dichloroethane	107-06-2	D028	0.5	Chlorinated Solvent
1,4-Dichlorobenzene	106-46-7	D027	7.5	Chlorinated Solvent
2,4,5-Trichlorophenol	95-95-4	D041	400	Chlorinated Solvent
2,4,6-Trichlorophenol	88-06-2	D042	2	Chlorinated Solvent
2,4-D	94-75-7	D016	10	Pesticide
2,4-Dinitrotoluene	121-14-2	D030	0.13	Non-Chlorinated Solvent
Arsenic	7440-38-2	D004	100	Metal
Barium	7440-39-3	D005	100	Metal
Benzene	71-43-2	D018	0.5	Non-Chlorinated Solvent
Cadmium	7440-43-9	D006	1	Metal
Carbon tetrachloride	56-23-5	D019	0.5	Chlorinated Solvent
Chlordane	57-74-9	D020	0.03	Pesticide
Chlorobenzene	108-90-7	D021	100	Chlorinated Solvent
Chloroform	67-66-3	D022	6	Chlorinated Solvent
Chromium	7440-47-3	D007	5	Metal
Cresol (mixed isomers)	1319-77-3	D026	200	Non-Chlorinated Solvent
Endrin	72-20-8	D012	0.02	Pesticide
Heptachlor	76-44-8	D031	0.008	Pesticide
Heptachlor epoxide	1024-57-3	D031	0.008	Pesticide
Hexachloro-1,3-butadien	87-68-3	D033	0.5	Chlorinated Solvent
Hexachlorobenzene	118-74-1	D032	0.13	Chlorinated Solvent
Hexachlorocyclohexane	58-89-9	D013	0.4	Pesticide
Hexachloroethane	67-72-1	D034	3	Chlorinated Solvent
Lead	7439-92-1	D008	5	Metal
m-Cresol	108-39-4	D024	200	Non-Chlorinated Solvent
Mercury	7439-97-6	D009	0.2	Metal
Methyl ethyl ketone	78-93-3	D035	200	Non-Chlorinated Solvent
Nitrobenzene	98-95-3	D036	2	Non-Chlorinated Solvent
o-Cresol	95-48-7	D023	200	Non-Chlorinated Solvent
p-Cresol	106-44-5	D025	200	Non-Chlorinated Solvent
Pentachlorophenol	87-86-5	D037	100	Chlorinated Solvent
Pyridine	110-86-1	D038	5	Non-Chlorinated Solvent
Selenium	7782-49-2	D010	1	Metal

Chemical Name	CAS Number	RCRA D Code	RCRA TCLP (mg/L)	Category
Silver	7440-22-4	D011	5	Metal
Silvex (2,4,5-TP)	93-72-1	D017	1	Pesticide
Tetrachloroethylene	127-18-4	D039	0.7	Chlorinated Solvent
Toxaphene	8001-35-2	D015	0.5	Pesticide
Trichloroethylene	79-01-6	D040	0.5	Chlorinated Solvent
Vinyl chloride	75-01-4	D043	0.2	Chlorinated Solvent
Vinylidene chloride	75-35-4	D029	0.7	Chlorinated Solvent

CAS Number is the unique identification number applied by the Chemical Abstract Service
mg/L is milligrams per liter or one part per million

3.3 Rules for Managing Hazardous Wastes

3.3.1 Satellite Accumulation

Satellite accumulation occurs prior to moving the waste to the main accumulation area when small quantities of waste are stored at the location where the waste is initially generated. There is no limit on the number of satellite accumulation areas (SAA's).

Each SAA should be "under the control of the operator of the process generating the waste." In practice, it is recommended that the SAA located within sight of the operator. The SAA should also be "at or near the point of waste generation."

Up to 55 gallons of each type of waste may be accumulated at a SAA before it must be moved to the main accumulation area. When the 55-gallon limit is reached, the date (termed the "date of excess accumulation") must be marked on the container, and the container must be moved to the main accumulation area within three days.

Each container in the SAA should be kept closed at all times except when adding waste. Each container in the SAA should be marked "Hazardous Waste" or marked with other words identifying the contents.

Although not required, it is recommended that each SAA be designated in some way. For example, a SAA could be designated with lines painted on the floor, a sign, a rope around the area, or a memo sent to personnel to inform them about the SAA.

3.3.2 Mixture Rule

If hazardous wastes become mixed with other materials, the resulting mixture may or may not be considered a hazardous waste, depending on the following stipulations:

- If a characteristic hazardous waste is mixed with a non-hazardous waste, the resulting mixture is hazardous unless it does not exhibit a characteristic.
- If a hazardous waste was listed in the F-, K-, P-, or U-list solely because it exhibits the characteristics of ignitability, corrosivity, or reactivity, and it is mixed with a non-hazardous waste, the resulting mixture is hazardous unless it does not exhibit a characteristic. NDOR maintenance facilities are not expected to produce any such wastes.
- If an F-, K-, P-, or U-listed hazardous waste, other than those discussed in section (2) above, is mixed with a non-hazardous waste, the resulting mixture is a hazardous waste.

Note that the mixture rule applies only to mixtures of wastes. If a hazardous waste is mixed with a product (usable solvent, for example) or is mixed with soil, groundwater, or surface water, the mixture rule does not apply. In such cases, the contained-in policy, discussed in the following section, applies.

3.3.3 Contained-In Policy

If a hazardous waste becomes mixed with soil, groundwater, or other environmental media, the resulting, contaminated media is subject to the "contained-in policy." The contained-in policy considers the contaminated media to be hazardous waste if:

- The media exhibit a characteristic of the hazardous waste, or

- Hazardous constituents from listed wastes are present in the media at concentrations that are above health-based levels (e.g., Clean Water Act, Maximum Contaminant Levels, or Preliminary Remediation Goals)

3.3.4 Cradle-to-Grave Tracking

NDOR maintenance facilities remain responsible for all waste from the time that it is generated until its ultimate disposal. Giving the waste to a contractor for transport and disposal does not absolve NDOR of responsibility for appropriate handling and disposal. The required waste manifests provide a mechanism to keep a record of those who handle NDOR hazardous waste.

3.3.5 Empty Containers

Empty containers may have residues of hazardous wastes or materials that may be hazardous wastes when used. The residue in a container that held a hazardous waste or a material that, when used is a hazardous waste, is considered “empty” (i.e., also referred to as “RCRA empty”) even if it contains a residue if the following conditions are met:

- The container was emptied using commonly employed practices, and
- Less than 3% by weight (0.3% for containers greater than 110 gallons) of the total capacity of the container remains as residue in the container, or
- Less than one inch of residue in the container.

An exception to the “RCRA empty” conditions identified above is for pressurized containers such as aerosol cans and cylinders. Unless punctured, aerosol cans are considered reactive wastes even if the spray nozzle is depressed and nothing appears to exit out of the aerosol can. Cylinders are also considered reactive wastes unless punctured even if nothing appears to exit the cylinder.

3.4 Universal Wastes

A few common wastes, known as “universal wastes,” do not have to be handled by generators as stringently as other wastes, although disposal requirements remain the same as for other hazardous wastes. The Universal Waste Rule is intended to encourage four goals:

- Recycling and collection programs (including manufacturer take-back programs);
- Proper disposal;
- Reduced amount of hazardous waste going to municipal solid waste landfills; and
- Reduced amount of hazardous items that households and small businesses discard.

Universal wastes include the following:

- Used batteries, such as nickel-cadmium (Ni-Cad), mercuric-oxide, and lithium batteries, found in many items common to small business and households. These batteries are from items such as electronic equipment, cellular telephones, portable computers, and emergency generator back-up lighting. Note that vehicle batteries are not a universal waste. If returned to the manufacturer, they are not considered waste. If broken or damaged, they must be considered hazardous waste.

- Pesticides that have been recalled (suspended and canceled as part of a voluntary or mandatory recall) and stocks or other unused pesticides that are collected and managed as part of a waste pesticide collection program.

- Old mercury-containing thermostats, which are located in many buildings, including commercial, industrial, agricultural, community, and household buildings.

- Spent mercury-containing lamps, such as fluorescent, high pressure sodium, mercury vapor, and metal halide lamps that are located in commercial, industrial, agricultural, community, and household buildings.

There are two types of handlers of universal wastes, small quantity (accumulates less than 5,000 kilograms of universal waste) and large quantity (accumulates 5,000 kilograms or more or universal waste). The NDOR maintenance facilities are expected to be small quantity handlers of universal waste.

Following is a summary of the Universal Waste Regulations, as they apply to NDOR small quantity handlers of universal waste:

- Universal wastes should not be disposed of, diluted, or treated prior to being given to the transporter.

- There are no notification requirements, such as having to inform the NDEQ of universal waste generation.

- Universal wastes should be managed in a manner that prevents releases to the environment. This management can consist of simple measures such as storing used lamps intact, in their original boxes, in a safe, dry indoor area.

- Universal wastes or their containers should be labeled or marked to identify universal wastes types. This can consist of simple measures such as marking a box, “Used fluorescent light”.

- Universal wastes may be accumulated for up to one year. Aside from this time limit, each NDOR facility should maintain on-site accumulation below 5,000 kilograms at any one time in order to remain a small quantity handler of universal wastes.

- Employees should be informed of proper handling of wastes and emergency procedures.

- Releases from universal wastes (e.g. broken light, broken thermometer, or leaking battery) should be contained and the residue handled properly (i.e. handled as a hazardous waste).

- NDOR should send universal waste only to destination facilities or to other universal waste handlers.

- Universal wastes do not have tracking requirements (i.e. no hazardous waste manifest required).

- Universal wastes may be transported by common carriers instead of hazardous waste transporters.

- Universal wastes may be accumulated without having to be counted as part of the hazardous waste generation rate. This could help NDOR maintain some facilities as Conditionally Exempt Small Quantity Generators instead of Small Quantity Generators or maintain some facilities as Small Quantity Generators instead of Large Quantity Generators.

3.5 Special Situations

3.5.1 Spent Solvents

Waste classification of spent solvents can be confusing. Waste codes F001 through F009 include spent solvents. However, NDOR is not expected to have F-wastes, mainly due to the stipulation that most of the spent solvent mixtures must have contained at least 10% solvent before use in order to be F-listed.

Spent solvents can also fall under the D-list as characteristic wastes due to toxicity or ignitability. It is expected that the NDOR's spent solvents will be classified according to this criterion.

When a solvent has been mixed with another substance, such as oil, the resulting mixture is considered a hazardous waste. This could be a characteristic waste due to toxicity. Additionally, a mixture could be a hazardous waste with more than one waste code.

3.5.2 Contaminated Rags

Used rags may be considered hazardous waste, depending on what they are contaminated with. At NDOR maintenance facilities, rags may be contaminated with solvents, paint, oil, gasoline, cleaning compounds, and other substances. Such contaminants could make the contaminated rags hazardous waste due to the characteristics of toxicity or ignitability.

NDOR has three options with regard to contaminated rags. The first is that NDOR could simply assume used rags are hazardous waste and handle and dispose of the used rags accordingly. The second option is to have the rags analyzed, performing a TCLP to identify toxic constituents and a flash point test to determine ignitability. Depending on the results, rags can be handled and disposed of accordingly. The third option is to establish a “rag contract” with a firm that will collect used cloth rags, launder the used cloth rags, and supply laundered cloth rags to replace the collected used cloth rags. This would allow NDOR maintenance facilities to avoid having to separate contaminated rags and dispose of the contaminated rags as hazardous waste.

3.5.3 Computers and Electronic Equipment

Computers and electronic equipment (e.g., calculators, telephones, and radios) contain materials that are hazardous waste when discarded (e.g., lead in the solder, and cadmium, chromium and silver in the circuit boards). Depending upon the condition of the computer or electronic equipment, the storage and handling requirements for these wastes may differ from other hazardous wastes.

If functioning equipment is sold as surplus or is donated, it is not considered a waste. If non-functioning electronic equipment is believed to be repairable, the NDOR may provide the electronic equipment to a refurbisher, and the electronic equipment is not considered a waste. Computers and electronic equipment set aside for sale, donation or transport to a refurbisher should be handled and stored in a manner befitting new computers and electronic equipment (e.g. shelved in a dry, safe place). The equipment should not be disassembled at NDOR maintenance facilities unless disassembly is a part of an NDOR standard practice (i.e., NDOR personnel are trained or experienced and equipped to conduct the disassembly).

If the equipment is physically damaged (e.g. broken into pieces) or is known to be beyond practical repair, it is a hazardous waste due to the characteristic of toxicity. It should be stored, handled, and disposed of in the same manner as other hazardous wastes. This includes storage in a container such as a drum, use of a hazardous waste manifest, and transport by a licensed waste handler to a TSDF.

3.6 Other Wastes

3.6.1 Asbestos

The NDOR maintenance facilities work with asbestos brake pads and shoes. The wastes associated with the asbestos brake work, including used brake pads and shoes, spent solvent used with the wet wipe method, and used filters used with the vacuum method, need to be labeled and containerized and disposed at an EPA-approved disposal site. Additionally, waste shipment records must be documented and maintained. Appendix A contains an SOP for Handling and Disposal of Asbestos Waste.

3.6.2 Used Oil

The used oil regulations (EPA 40 CFR 279 and NDEQ Title 128 and 129) have three categories for used oil depending upon the concentration of contaminants in the used oil:

- Specification
- Off-specification, and
- Hazardous waste.

Specification used oil has constituents/properties at or below the levels listed in Table 4

Table 4: Used Oil Specification Levels

Constituent/Property	Allowable Level (ppm)
Arsenic	5
Cadmium	2
Chromium	10
Lead	100
Flashpoint	100°F Minimum
Total Halogens	4,000

Used oil with constituents/properties above the levels listed in Table 4 is considered off-specification oil. Laboratory analysis is required to determine the levels of the constituents/properties.

Used oil is classified as hazardous waste if the used oil has been mixed, whether intentionally or not, with hazardous waste (e.g., halogenated degreasing solvents, waste paints and thinners).

Generators of used oil may burn used oil in used oil-fired space heaters provided that:

- The oil-fired space heater burns only used oil generated on-site or used oil received from household do-it-yourself used oil generators;
- The heater is designed to have a maximum capacity of not more than 0.5 million British Thermal Units (BTU) per hour; and
- The combustion gases from the heater are vented to the ambient air (i.e., outside).

4.0 GENERAL COMMENTS

Terracon has developed the Waste Manual for the NDOR maintenance facilities. This Waste Manual was developed to aid the NDOR in improving environmental compliance at the NDOR maintenance facilities. No warranties, express or implied, are intended or made. The limitations of this Waste Manual should be recognized as the client establishes spill control measures at the facility.

The development of the Waste Manual relied primarily upon readily available information, verbal and written reports of others, visual observations at representative facilities, and questionnaires completed by the NDOR maintenance facilities. Terracon is not responsible for changes at the NDOR maintenance facilities that may affect environmental compliance. Terracon is also not responsible for the implementation of the recommendations included in the Waste Manual. Terracon's review of the NDOR's environmental programs was not intended to evaluate the adequacy of the program as it pertains to other requirements (i.e., safety, fire prevention, spill cleanup). Terracon does not warrant the work of third parties supplying information, which may have been used during the preparation of this report.

Terracon accepts no responsibility or liability to any person or organization for any claim, for loss or damage (including attorney's fees) caused, or believed to be caused, directly or indirectly by: conditions revealed or not revealed by the Waste Manual; fines levied by regulatory agencies; and releases and spills of oils and hazardous substances.

STANDARD OPERATING PROCEDURE

AEROSOL CAN FILTER AND DRUM REPLACEMENT

1.0 PURPOSE

NDOR punctures used and broken (e.g., no nozzle) aerosol cans and cylinders to remove and collect the propellant (i.e., pressure) and allow the can to be recycled as scrap metal. The aerosol can depressurization unit is equipped with an activated carbon filter, which requires periodic replacement. Additionally, the drum used to collect the aerosol can waste is a hazardous waste drum.

2.0 SCOPE

Affects personnel who maintain depressurization units.

3.0 SAFETY AND HEALTH

The aerosol can depressurization unit drum and activated carbon filter may contain toxic, ignitable, corrosive and reactive wastes. Care should be used when handling the drum and activated carbon filter.

4.0 PROCEDURES AND RESPONSIBILITIES

4.1 Filter Replacement

4.1.1 The activated carbon filters on the aerosol can depressurization units should be replaced according to the carbon filter instructions.

4.1.2 The entire activated carbon filter, including the plastic casing should be removed by unscrewing it from the drum and placed inside the drum with the aerosol can waste.

4.1.3 The new activated carbon filter should be screwed into the three-quarter inch opening on the drum (i.e., not the two-inch opening).

4.2 Aerosol Can Waste Drum Replacement

4.2.2 When the level of the liquid in the aerosol can depressurization unit drum approaches two inches from the top, the aerosol can depressurization

units and the activated carbon filter should be removed from the drum, and the bungs placed back in the drum lid.

4.2.3 The date that the aerosol can depressurization unit and activated carbon filter were removed from the drum should be marked on the hazardous waste label after the heading “Accumulation Start Date”.

4.2.4 Within three days of removing the aerosol can depressurization unit and activated carbon filter, the drum should be moved, using proper drum handling techniques, to the hazardous waste accumulation point.

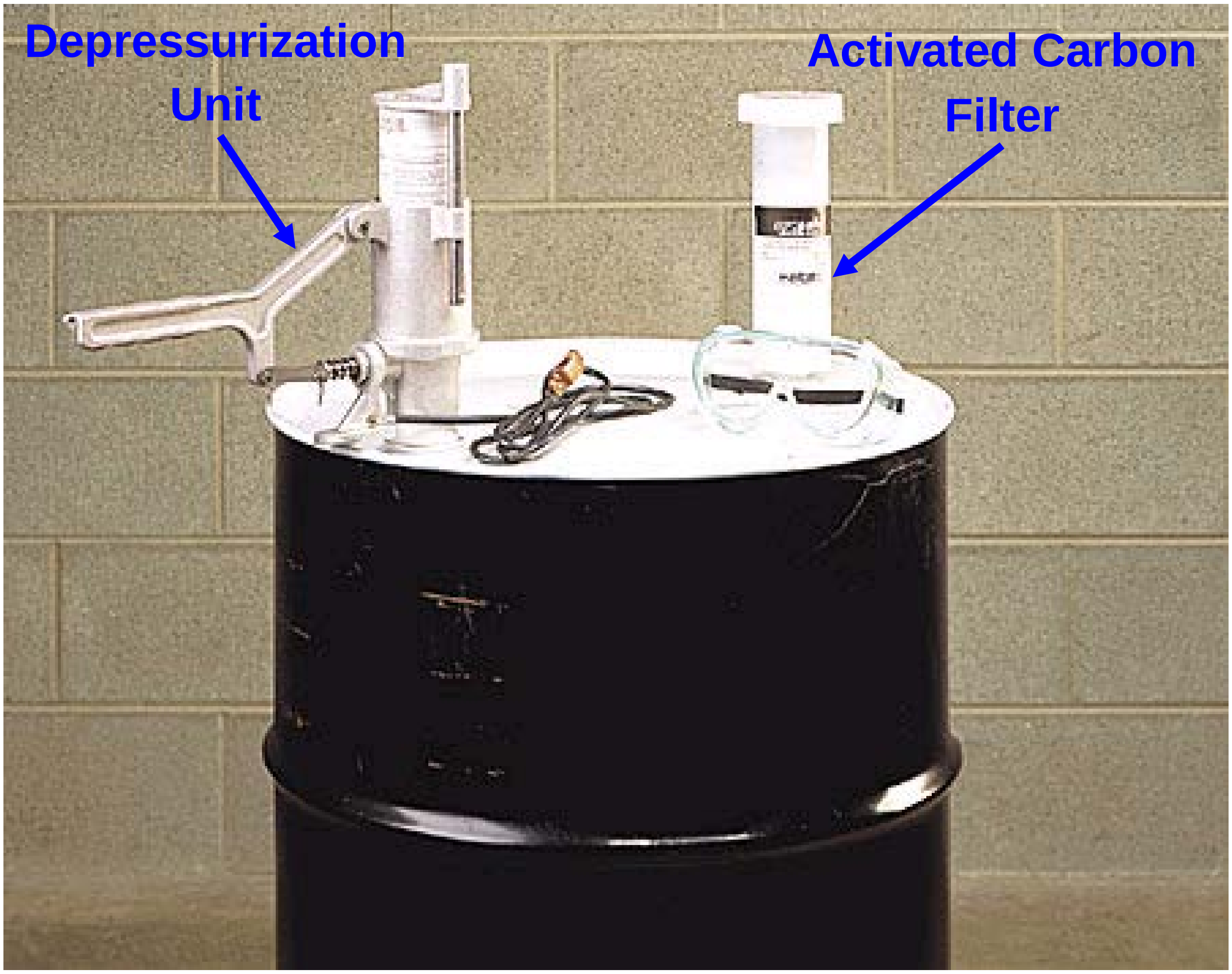
4.2.5 The full drum should be replaced by an empty drum. The empty drum should not contain residual that might be incompatible with the contents of the aerosol cans that will be punctured. The empty drum should also not contain residual that might require additional waste codes (e.g., paint with chromium).

4.2.6 Remove the bungs from the empty drum and place the bungs on top of the drum.

4.2.7 Screw the aerosol can depressurization unit and the filter unit (activated carbon filter) in the bung holes. The aerosol can depressurization unit and filter unit should be screwed in tight enough to prevent vapors from escaping from the drum.

4.2.8 Re-connect the grounding wire if removed during this procedure.

Figure 1: Aerosol Can Depressurization System



STANDARD OPERATING PROCEDURE

RECYCLING AND DISPOSAL OF COMPUTERS, MONITORS AND ELECTRONIC EQUIPMENT

1.0 PURPOSE

Manage used and broken computers, monitors and electronic equipment to minimize generation of waste and maintain compliance with environmental regulations.

2.0 SCOPE

Affects employees who may replace electronic equipment, computers, monitors or electronic equipment.

3.0 SAFETY AND HEALTH

Computers and electronic equipment contain cadmium, chromium, lead and silver. Monitors with cathode ray tubes contain lead. If a computer, circuit board or monitor is damaged, than a potential exists for exposure to these chemicals.

4.0 PROCEDURE AND RESPONSIBILITES

4.1 Handling of working computers, monitors and electronic equipment should be handled in the following order:

4.1.1 Computers, monitors and electronic equipment that are in working condition should be set aside for use at other NDOR sites, or as backup equipment.

4.1.2 If the computers, monitors and electronic equipment are not suitable as back-up equipment, they should be set aside for sale as surplus government property or donation.

4.1.3 Computers, monitors and electronic equipment that are not saleable as surplus and can not be donated should be handled as 'Non-Working Computers, Monitors and Electronic Equipment'.

4.2 Handling of non-working computers, monitors and electronic equipment:

4.2.1 Some non-working computers and monitors may be sold or donated according to 4.1.

4.2.2 Personnel should not attempt to remove electronic equipment from non-working computers and electronic equipment unless they are familiar with the equipment and the materials in the equipment. Some hazardous waste materials are located in connectors and are not limited to the electronic equipment.

4.3 Storage

4.3.1 Broken or used computers, monitors and electric equipment should be handled and stored in the same manner as new computers, monitors and electric equipment (i.e., care should be taken not to damage or break the computer, monitor or electrical equipment during storage).

4.4 Disposal

4.4.1 Non-working computers, monitors and electronic equipment should **not** be disposed of in the normal trash.

4.4.2

STANDARD OPERATING PROCEDURE

HANDLING AN ACCUMULATION DRUM OF HAZARDOUS WASTE

1.0 PURPOSE

Hazardous wastes are collected in drums at the point of accumulation or at satellite accumulation sites until the 55-gallon collection drum is filled. At this time it is moved to the Hazardous Waste Storage Area for holding until transportation to a TSDF facility.

2.0 SCOPE

Affects all employees adding hazardous wastes to accumulation collection drums, and employees who move hazardous waste drums.

3.0 SAFETY AND HEALTH

Hazardous wastes may contain toxic, corrosive, ignitable or reactive materials. Care should be taken when handling hazardous wastes.

4.0 PROCEDURE AND RESPONSIBILITES

4.1 Starting a New Hazardous Waste Accumulation Drum

4.1.1 Select a drum to contain the hazardous waste that is in good condition. The drum should not have sharp dents or holes. The drum should not have liquid or dried waste on the top or side. The drum and lid should not be distorted.

4.1.2 Paint out or remove labels and markings on the drum.

4.1.3 Place a hazardous waste label on the drum and list the drum contents.

4.1.4 DO NOT enter the accumulation start date until the drum is full or prepared for movement to the Hazardous Waste Storage Area (i.e., no more waste will be added to the drum even if it is not full).

4.1.5 If the contents of the drum are liquid, it must be placed on a spill containment pallet.

4.1.6 Place material in the drum and cover with a snap-ring or bolt-on sealing lid or drum bung.

4.1.7 The lid or bungs must be in-place and locked on within 15 minutes of adding the waste to the drum. If the time span between adding waste will exceed 15 minutes, the lid must be placed and locked on in between adding the waste.

4.2 Putting Materials in a Hazardous Waste Collection Drum

4.2.1 Remove the drum lid or drum bung.

4.2.2 Place the material in the drum being careful not to spill or splash the material.

4.2.3 Do not fill the drum completely. Allow at least two inches between the material and the top of the drum.

4.2.4 The lid or bungs must be in-place and locked on within 15 minutes of adding the waste to the drum. If the time span between adding waste will exceed 15 minutes, the lid must be placed and locked on in-between adding the waste.

4.2.5 If the drum is damaged or excessive material is spilled on the drum, contact the Maintenance Supervisor (i.e., the hazardous waste may need to be transferred to another drum).

4.3 Handling a full drum

4.3.1 A drum is considered full once it has been filled to within two inches of the top.

4.3.2 The lid must be in-place and locked on, or the bungs should be in-place and tightened.

4.3.3 The date that the drum was filled should be marked on the hazardous waste label after the heading “Accumulation Start Date”.

4.3.4 Within three days of filling the drum, the drum should be moved to the nearest hazardous waste storage area.

4.3.5 A full drum can be placed in the Hazardous Waste Storage Area by the person or persons filling the drum or by janitorial services.

4.3.6 If the contents of the drum are liquid, it should be placed on a spill containment pallet in the Hazardous Waste Storage Area.

STANDARD OPERATING PROCEDURE

HANDLING HAZARDOUS WASTE

1.0 PURPOSE

Hazardous wastes are collected in containers at the point of accumulation or at satellite accumulation sites until the container is filled. At this time it is moved to the Hazardous Waste Storage Area for holding until transportation to a TSDF facility.

2.0 SCOPE

Affects all employees adding hazardous wastes to containers and all employees who move hazardous waste containers.

3.0 SAFETY AND HEALTH

Hazardous wastes may contain toxic, corrosive, ignitable or reactive materials. Care should be taken when handling hazardous wastes.

4.0 PROCEDURE AND RESPONSIBILITES

4.1 Placing Materials into a Hazardous Waste Collection Container

- 4.1.1 Remove the lid or bung.
- 4.1.2 Place the material in the container being careful not to spill or splash the material.
- 4.1.3 Do not fill the container completely. Allow at least two inches between the material and the top of the container.
- 4.1.4 The lid or bungs must be in-place and locked on within 15 minutes of adding the final waste batch to the container. If the time span between adding waste batches will exceed 15 minutes, the lid must be placed and secured in place in-between batches.
- 4.1.5 If the container is damaged or excessive material is spilled on the container, contact the Maintenance Supervisor (i.e., the hazardous waste may need to be transferred to another container).

4.2 Handling a full container

- 4.2.1 A container is considered full once it has been filled to within two inches of the top.
- 4.2.2 The lid must be secured in-place or the bungs should be in-place and tightened.

4.2.3 The date that the container was filled should be marked on the hazardous waste label after the heading “Accumulation Start Date”.

4.2.4 Within three days of filling the container, the container should be moved to the nearest hazardous waste storage area.

4.2.5 A full container can be placed in the Hazardous Waste Storage Area by the person or persons filling the container.

4.2.6 If the contents of the container are liquid, it should be placed on a spill containment pallet in the Hazardous Waste Storage Area.

STANDARD OPERATING PROCEDURE

DISPOSAL OR SURPLUS OF COMPUTER MONITORS

1.0 PURPOSE

Maintain compliance with hazardous waste regulations as they pertain to replacement, storage and disposal or surplus of monitors (i.e., computer or television monitors with cathode ray tubes).

2.0 SCOPE

Affects employees who may replace or handle computer monitors.

3.0 SAFETY AND HEALTH

Monitors with cathode ray tubes contain lead. If a cathode ray tube is damaged (e.g., the screen is cracked or broken open), than a potential exists for lead exposure.

4.0 PROCEDURE AND RESPONSIBILITES

4.1 Working Monitors that are no longer needed, or have been replaced should be handled accordingly:

4.1.1 Working monitors should be stored in the same manner as a new monitor.

4.1.2 Care should be taken not to damage or break the monitors during storage.

4.2 Non-Working Monitors.

4.2.1 Non-working monitors should **not** be disposed of in the normal trash.

4.2.2 Non-working monitors should be stored in the same manner as a new monitor.

4.2.3 Care should be taken not to damage or break the monitors during storage.

4.3 Broken Monitors

4.3.1 Badly damaged monitors should be placed in drums and handled according to the SOP for Handling an Accumulation Drum of Hazardous Waste.

4.3.2 The lid to the drum should be kept closed except when adding a monitor to the drum.

STANDARD OPERATING PROCEDURE

MONTHLY HAZARDOUS WASTE ACCUMULATION AREA INSPECTION

1.0 PURPOSE

Maintain compliance with hazardous waste generator storage requirements by checking accumulation times, observing storage conditions and documenting the number of drums.

2.0 SCOPE

NDOR supervisors and their designees.

3.0 SAFETY AND HEALTH

Hazardous wastes may contain toxic, corrosive, ignitable or reactive materials. Care should be taken when handling hazardous wastes.

4.0 PROCEDURE AND RESPONSIBILITES

4.1 Accumulation Times

4.1.01 The hazardous waste drum labels should be observed and the accumulation start date and type of waste should be noted.

4.1.02 The accumulation start date should be less than 180 days old (i.e., when compared to present date).

4.1.03 If the accumulation start dates are more than 4 months old, the schedule for the next hazardous waste pickup should be consulted to assure the 180 day storage time is not exceeded.

4.2 Hazardous Waste Storage Drums

4.2.01 The drums should be closed.

4.2.02 The drums should have hazardous waste labels with the name of the waste and the accumulation start date.

4.2.03 The drums should not be leaking

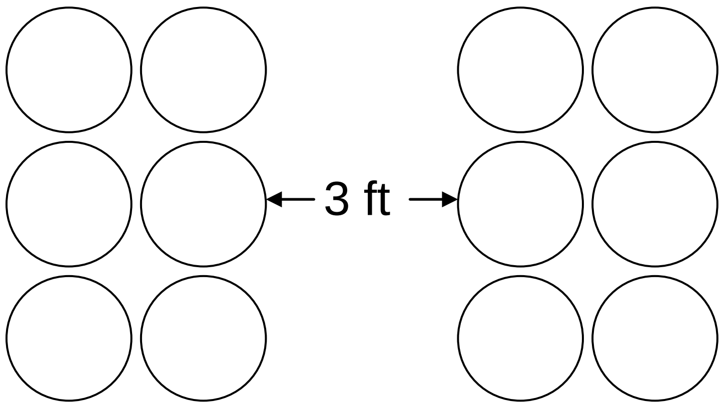
4.2.04 The drums should be in good condition.

4.2.05 The drums should have adequate aisle space (e.g., 3 feet) so that each drum can be accessed (Figure 1 shows an example of proper aisle space).

4.3 Recording Keeping

4.3.01 Record data on the container data sheet, as per the hazardous waste accumulation area inspection checklist.

Figure 1: Example of Three Foot Separation Distance Allowing Access to Each Drum



STANDARD OPERATING PROCEDURE

LIGHT BALLASTS CONTAINING PCBs

1.0 PURPOSE

To aid NDOR personnel in identifying polychlorinated biphenyls (PCB) containing light ballasts and maintaining compliance with PCB handling and storage requirements.

2.0 SCOPE

NDOR personnel who change light ballasts.

3.0 SAFETY AND HEALTH

PCBs are toxic and appropriate personnel protective equipment should be used when handling leaking PCB containing light ballasts.

4.0 PROCEDURE AND RESPONSIBILITES

4.1 PCB Determination

4.1.1 Prior to removing a light ballast, look for a label or mark on the ballast identifying the contents as “NO PCBs.” (Ballasts manufactured after 1999 do not contain PCBs. These may not have a “NO PCBs” label.)

4.1.2 If such a label or mark is visible, proceed with the procedure for handling non-PCB containing light ballasts.

4.1.3 If no label or mark is visible and it was manufactured prior to 1999, assume the ballast contains PCBs.

4.2 Removing & Storing Non-Leaking PCB-Containing Ballasts

If a PCB-containing ballast is not leaking, follow the following procedure:

4.2.1 Make sure the power to the light is off. Remove the lamp fixture and metal covering to access the ballast. Cut the electrical wires and remove it in a way to prevent release of PCBs.

4.2.2 Mark the date of ballast removal on the ballast.

4.2.3 Non-leaking PCB-containing ballast storage duration is not federally regulated as long as there is a notation attached to the PCB item or PCB container indicating the date the item was removed from service.

4.2.4 PCB-containing ballasts shall be properly stored to prevent damage or leaks. Place ballast into non-leaking storage container, allocated for their storage.

4.2.4.1 The storage areas should be marked with visible labels identifying the area as a PCB storage area.

4.2.4.2 The storage containers should be closed.

4.2.4.3 The containers should have appropriate PCB identification labels and should be marked with the date the first ballast placed in the container was removed from service.

4.2.4.4 The container should not be leaking and should be in good condition.

4.2.4.5 Mark both storage and shipping containers with the words: *PCB Ballasts for Recycling.*

4.2.5 Storage containers for PCB-containing ballasts should be placed within a secondary containment device to prevent contamination in the event of a spill.

4.2.6 Inspect the storage area regularly to assure ballasts/containers are not leaking. (Inspections do not need to be documented.) If ballasts are leaking, repackage them and manage them as leaking PCB-containing ballasts.

4.2.6.1 Check for proper labeling that meets requirements. Look for indications that the equipment may be leaking, such as:

- Oil stains near the equipment.
- Weep marks on the equipment.
- Gross physical damage.

4.3 Handling & Storing Leaking PCB-Containing Ballasts

If a PCB-containing ballast is leaking, follow the following procedure:

4.3.1 If a ballast has leaked from a light fixture, turn off the light, evacuate, and ventilate the area until the ballast cools (about 30 minutes).

4.3.2 Leaking PCB-containing ballasts and contaminated areas should be cleaned up within 24 hours of discovery of the leak. Do not eat or drink in areas where there are leaking PCB-containing ballasts.

4.3.3 Wear personal protective equipment including skin and respiratory protection. Protective equipment may include goggles, neoprene, butyl or nitrile rubber gloves, apron, boots, and a chemical cartridge respirator with an organic vapor cartridge.

4.3.4 Absorbent types of material (e.g. carpets) visibly contaminated with residue that has leaked from the ballast cannot be cleaned easily. In the case of carpeting, the carpet should be removed in a six-inch radius around the contamination point.

4.3.5 Clean non-absorbent contaminated surfaces in addition to a 1-foot buffer zone around the spill according to the following:

4.3.5.1 Remove spilled PCB oil with a rag, paper towel or by scraping with a putty knife.

4.3.5.2 Wipe twice with a rag containing mineral spirits, kerosene, turpentine, or rubbing alcohol.

4.3.5.3 Wipe once with a full-strength solution of a trisodium phosphate-based cleaner such as Soilex ™ or Spic'n Span ™.

4.3.6 Wrap PCB-contaminated materials (leaking ballast, rags, gloves, absorbent materials) in newspaper. Place in double plastic bags.

4.3.7 If PCBs get on your skin, remove contaminated clothing and wash contaminated skin thoroughly with soap and water. Contact the Maintenance Supervisor and inform them of the exposure.

4.3.8 Store PCB containing light ballasts in a Department of Transportation (DOT)-approved, non-leaking container with absorbent material.

4.3.9 Using a 6-inch yellow PCB label, label as PCB-contaminated hazardous waste.

4.3.10 Record your name, date, time, location, event, and clean up methods used. Maintain this record for 5 years.

4.3.11 Ship off-site within 30 days of the spill.

4.4 The following records of PCB article storage shall be maintained:

4.4.1 Quantity of PCB articles,

4.4.2 Date the first PCB-containing article was placed into the storage container, and

4.4.3 Date PCB articles are shipped off-site.

STANDARD OPERATING PROCEDURE

PESTICIDE CONTAINER DISPOSAL

1.0 PURPOSE

Pesticides containers have special disposal requirements.

2.0 SCOPE

Affects personnel using and disposing of pesticides, including, but not limited to, the following:

- Mosquito repellent (e.g., ‘Off’),
- Bug spray (roach, spider, ant, fly insecticides),
- Weed killer, and
- Other pesticides

3.0 SAFETY AND HEALTH

Pesticide containers may contain toxic, ignitable or corrosive materials and should be handled according to the label instructions.

4.0 PROCEDURES AND RESPONSIBILITIES

4.1 Pesticides disposal procedures should be persistent with label requirements (i.e., following the disposal instructions on the pesticide container label). If the label requirements differ from these procedures, consult the Maintenance Supervisor.

4.2 Pesticides containers should be used until they are empty. If a pesticide is no longer needed, consult the Maintenance Supervisor prior to initiating disposal procedures. An attempt may be made to find other areas to use the pesticide.

4.3 Aerosol Pesticide Containers

4.3.1 Aerosol cans should be used until the can will no longer spray out pesticide.

4.3.2 Prior to disposal, the aerosol can should be completely wrapped in newspaper or paper towels (e.g., paper towels taped together).

4.3.3 After wrapping the aerosol can, it may be disposed of in the normal trash.

4.4 Non-Aerosol Pesticide Containers

4.4.1 Non-aerosol containers should be used until they are empty.

4.4.2 Non-aerosol containers should be triple rinsed:

- The container should be partially filled with water.
- The container should be shaken to provide contact between the container and the water.
- The rinse-water should be handled and poured out as if it were the pesticide (e.g., weedkiller herbicide should be poured onto weeds). Do not dump the rinse-water continually in one place.
- Repeat the rinsing procedure two more times (i.e., for a total of three rinses).

4.4.3 Crush or perforate the non-aerosol container. The non-aerosol container should be crushed or perforated to prevent it from being reused.

4.4.4 Dispose of the crushed or perforated container in the normal trash.

STANDARD OPERATING PROCEDURE

CLOTH RAG RECYCLING

1.0 PURPOSE

Maintain compliance with hazardous waste regulations related to cloth rags and assure proper recycling of cloth rags.

2.0 SCOPE

Personnel who use cloth rags.

3.0 SAFETY AND HEALTH

Used cloth rags may be contaminated with toxic, ignitable, and possibly corrosive and reactive materials. Care should be used when handling used rags.

4.0 PROCEDURE AND RESPONSIBILITES

4.1 Cloth Rag Use

4.1.1 Cloth rags may be used to clean up or wipe down equipment.

4.1.2 Cloth rags may be used with solvents, paints, oils, greases, cleaners, etc., as long as they are properly recycled.

4.2 Cloth Rag Recycling

4.2.1 The used cloth rags must be stored in rag recycling cans.

4.2.2 The rags should not be thrown into regular trash cans or dumpsters.

4.2.3 The rags should not be saturated with liquid. If, at the end of the use of the rag, it is still saturated with liquid, wring out the rag into the liquid's original container or the waste container prior to placing the rag into the rag recycling can.

4.2.4 The rags should not have excess waste or other materials on them. Excess material should be wiped off and disposed of accordingly.

STANDARD OPERATING PROCEDURE

STORAGE AND HANDLING OF USED VEHICULAR LEAD ACID BATTERIES

1.0 PURPOSE

Maintain used vehicular lead acid batteries in a manner preventing and containing spills and leaks and allowing for proper recycling.

2.0 SCOPE

Affects employees who may replace or handle used vehicular batteries.

3.0 SAFETY AND HEALTH

3.1 Vehicular lead acid batteries that are being replaced may contain lead and sulfuric acid.

3.2 The appropriate personal protective equipment (PPE) including safety eyewear, neoprene or polyvinyl chloride (PVC) gloves and apron should be used by personnel if a sulfuric acid leak has occurred.

4.0 PROCEDURE AND RESPONSIBILITES

4.1 Vehicular batteries that no longer recharge should be handled as if they are new batteries (i.e., stored and handled to prevent damage).

4.1.01 Batteries should be placed on pallets in an indoor area designated for the storage of spent vehicular lead acid batteries.

4.1.02 Spent lead acid batteries should **not** be disposed of in the normal trash.

4.1.03 Care should be taken not to damage the batteries during storage. Damage could result in spilled battery acid.

4.1.04 Batteries will be collected and recycled at a local vehicular battery supplier.

4.2 Damaged vehicular lead acid batteries that are leaking acid should be handled as follows:

4.2.01 Don the appropriate personal protective equipment (PPE) including safety eyewear, neoprene or polyvinyl chloride (PVC) gloves and apron.

4.2.02 Place the leaking battery into an approved containment device (i.e., spill pallet, plastic or plastic lined drum) with the leaking side up. If placed inside a drum, the drum should be labeled “used lead acid batteries”.

4.2.03 Absorb spilled acid with a neutralizing absorbent material. Collect the absorbent and hold for analysis. Contact the Maintenance Supervisor for instructions on sending a sample of the absorbent material for analysis.

STANDARD OPERATING PROCEDURE

AEROSOL CAN DEPRESSURIZATION

1.0 PURPOSE

Provide general guidance on puncturing most used and broken (e.g., no nozzle) aerosol cans, removing and collecting the propellant (i.e., pressure) and recycling the can as scrap metal.

2.0 SCOPE

Affects personnel using aerosol cans.

3.0 SAFETY AND HEALTH

The aerosol can depressurization process may result in exposure to toxic, ignitable, corrosive and reactive wastes. Care should be used when puncturing the aerosol cans to avoid allowing aerosol can product to spray out of the drum.

4.0 PROCEDURES AND RESPONSIBILITIES

4.1 Allowable Aerosol Cans

4.1.1 The following aerosol cans may be punctured:

- spray paint
- lubricants
- air fresheners

4.1.2 The following cans may not be punctured unless not prohibited on the label:

- insecticides
- pesticides

4.2 Depressurization Procedure

4.2.1 Personnel take the aerosol can to the aerosol can depressurization unit. The unit has a Hazardous Waste Label which identifies its contents as “Aerosol Can Content Wastes.”

4.2.2 Remove plastic lid and discard lid in normal trash can.

4.2.3 Open the pressure release valve if the activated carbon filter is equipped with a pressure release valve.

4.2.4 Loosen sliding plate locking mechanism and move the sliding plate to the side.

4.2.5 Insert aerosol can, spray nozzle end first (i.e., upside down).

4.2.6 Place sliding plate on top of aerosol can and tighten the locking mechanism. The sliding plate should hold the can securely in place and not allow it to move.

4.2.7 Press down on handle (i.e., this punctures the bottom of the can) to allow the aerosol can to de-pressurize and release quickly to prevent the contents from splattering against the depressurization unit.

4.2.8 If the can sounds like it is still depressurizing, wait till the sound stops before releasing the sliding plate. This may occur with broken cans that had a significant quantity of product in them. Loosen the sliding plate locking mechanism and move the sliding plate to the side.

4.2.9 Remove the aerosol can being careful not to spill or drip any residual product.

4.2.10 Place the aerosol can in a scrap steel bin or container.

4.2.11 Close the pressure release valve if the activated carbon filter is equipped with a pressure release valve..

4.2.12 Place the sliding plate back on the aerosol can depressurization unit and tighten the locking mechanism so it forms a tight seal and does not allow vapors to leak out.

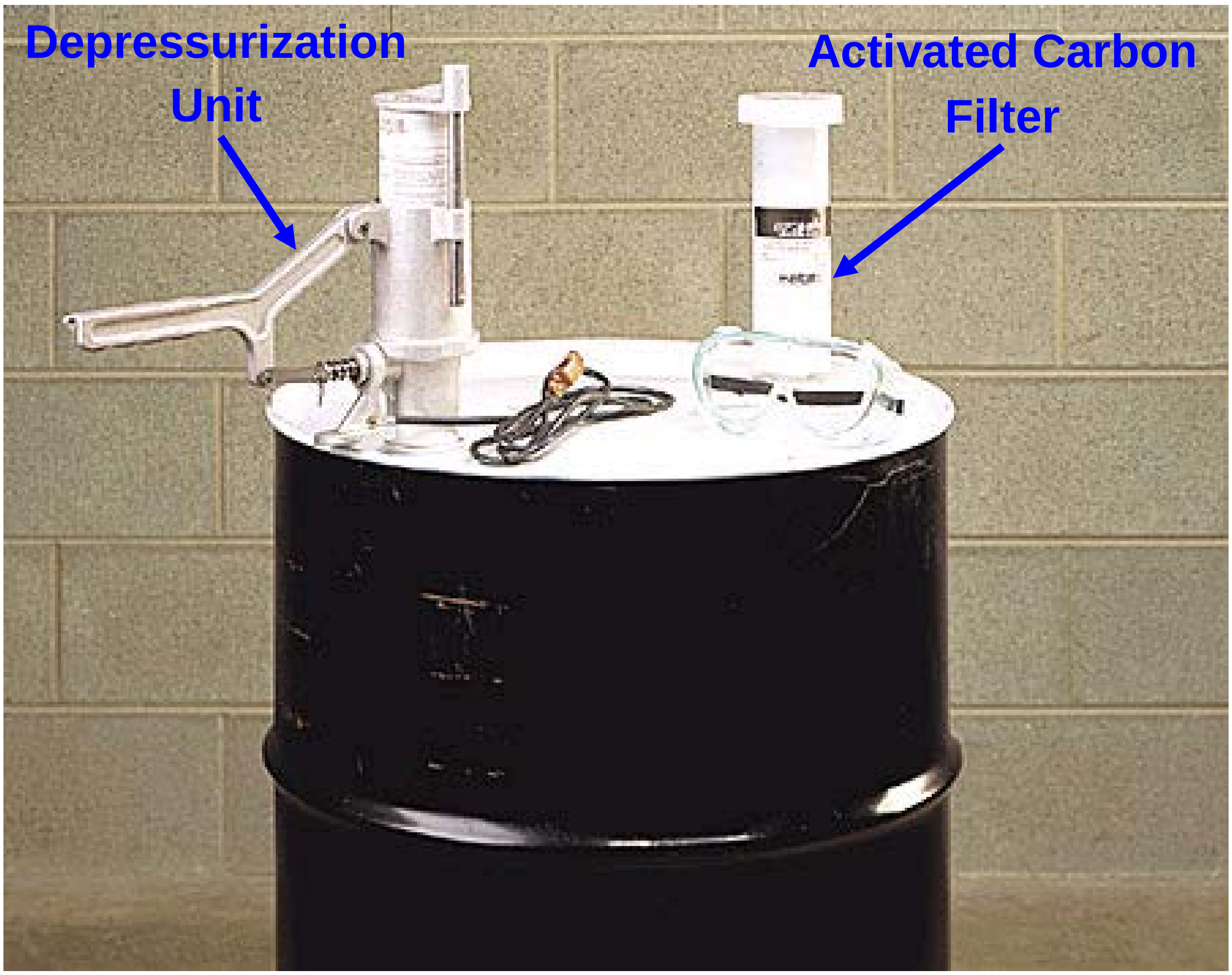
4.3 Routine Maintenance and Inspections

4.3.1 Check the grounding wire on the aerosol can depressurization unit to assure it is properly connected and free from kinks and defects.

4.3.2 Observe the outside of the aerosol can depressurization unit and drum for signs of paint and other material spills. Cleanup spills or leaks with a disposable towels or recycleable rags if safe to do so. Disposable towels

may be placed inside the drum with the aerosol can waste. Recycleable rags, if dry and free of large chunks or pieces of waste may be placed in the recycleable rag containers. Large chunks or pieces of waste removed from the outside of the aerosol can depressurization unit or drum should be place inside the drum with the aerosol can waste.

Figure 1: Aerosol Can Depressurization System



STANDARD OPERATING PROCEDURE

HANDLING AND DISPOSAL OF ASBESTOS WASTE

1.0 PURPOSE

This procedure addresses the handling and disposal of asbestos containing waste from brake maintenance operations.

2.0 SCOPE

Affects personnel who perform brake-servicing tasks. The wastes are limited to asbestos containing brake pads, brake dust that adheres to brake parts, and brake dust that collects in the drum.

3.0 SAFETY AND HEALTH

Inhalation of asbestos is a health hazard. Asbestos should be wetted according to the Procedures identified in Section 4.0 prior to handling.

4.0 PROCEDURES AND RESPONSIBILITIES

4.1 Apply a wetting solution containing the following to the waste:

- Water
- Wetting agent (50% polyoxyethylene ether and 50% polyoxyethylene ester or equivalent)

4.2 Immediately place the wetted waste in a tightly sealed container

4.2.1 Clear plastic bag not less than 6 mil thick unless the waste contains rigid or heavy objects likely to tear the bags.

4.2.1.1 Close the bag using a “goosenecking” technique and duct tape to seal

4.2.1.2 Place in another clear plastic bag not less than 6 mil thick

4.2.1.3 Close the bag using a “goosenecking” technique and duct tape to seal again.

4.2.2 If bag damage is likely to occur, place the waste in a fiber or metal container lined with a plastic bag not less than 6 mil thick and having a tight-fitting lid that can be fastened firmly in position.

4.2.3 Attach asbestos danger, generator and transport labels securely to the container

- OSHA label – *"DANGER Contains Asbestos Fibers Avoid Creating Dust Cancer and Lung Disease Hazard Avoid Breathing Airborne Asbestos Fibers"*
- Generator label – generator's name and location
- DOT label – *"Asbestos NA2212, Class 9"*

4.3 Carefully handle each waste container to prevent damage, breakage or opening

4.4 If a waste container breaks or cannot contain the waste, immediately transfer the waste into another container that complies with 4.2

4.4.1 Saturate any asbestos-containing material (ACM) waste that escapes from the original container with a wetting solution and place in the replacement container

4.4.2 Clean contaminated areas free of all visible residue and place in a waste container

4.5 Until delivery to an approved asbestos waste disposal site, store any ACM waste in a secure holding facility or location

4.6 Waste shall be transported off the site in vehicles operated by or escorted by a certified asbestos worker or supervisor

4.7 Retain handling responsibility for ACM waste until the waste is delivered to and accepted by the operator of a Department of Environmental Quality (DEQ) licensed and approved asbestos waste disposal site and a written receipt is received.

STANDARD OPERATING PROCEDURE

HAZARDOUS WASTE STORAGE

1.0 PURPOSE

Maintain hazardous waste storage in accordance with RCRA regulations.

2.0 SCOPE

Affects personnel involved in hazardous waste storage.

3.0 SAFETY AND HEALTH

Hazardous wastes may contain toxic, corrosive, ignitable or reactive materials. Care should be taken when handling hazardous wastes.

4.0 PROCEDURES AND RESPONSIBILITIES

4.1 Starting a new hazardous waste storage container

4.1.1 Inspect the container to ensure it is in good condition (i.e. no dents, holes, etc.), and that it is compatible with expected contents. If the container is unacceptable, replace it with one that is in good condition and is compatible with expected contents.

4.1.2 Mark the container "hazardous waste".

4.2 Maintaining storage container

4.2.1 Ensure the container is always closed when not being filled.

4.2.2 Ensure the container is properly handled. (See Hazardous Waste Handling Procedure.)

4.2.3 Regularly inspect container for leaks, rust, damage, or other problems.

4.3 Maintaining storage at point of generation

4.3.1 Ensure no more than 55 gallons of waste are stored at the point of generation.

4.3.2 Upon filling container to 55 gallons, mark accumulation date on container.

4.3.3 After container is filled to 55 gallons, move container to storage area within three days.

4.4 Maintaining storage area

4.4.1 If hazardous waste is ignitable or reactive, ensure it is kept away from ignition sources.

4.4.1.1 Post “no smoking” signs in the area of ignitable hazardous wastes.

4.4.1.2 Ensure area is safe from ignition sources and sources of reactivity.

4.4.1.3 If NDOR Yard is Large Quantity Generator, keep all reactive or ignitable hazardous wastes at least 50 feet away from the property line.

4.4.2 Ensure that fire extinguishers are kept nearby the hazardous waste storage area.

4.4.3 Ensure that spill control equipment is nearby and readily available.

4.4.4 Ensure that there is aisle space of at least 3 feet between containers.

4.4.5 For NDOR Large Quantity Generator Yards, ensure that no more than 6,000 kg of hazardous waste are stored on-site at any time.

4.4.6 Maintain emergency information next to telephone (i.e. name and number of emergency coordinator, fire department number, location of fire extinguishers, and spill control material)

4.4.7 Test and maintain emergency equipment, where applicable.

4.5 Time Limits

4.5.1 When container is full, write accumulation date on container.

4.5.2 Ensure container is not stored more than 180 days for Small Quantity Generator Yards and 90 days for Large Quantity Generator Yards

4.6 Record Keeping

4.6.1 Retain hazardous waste manifests for three years.

4.6.2 Retain biennial report for three years.

4.6.3 Retain waste test results and analyses for three years after waste was last sent.

4.7 Training

4.7.1 Ensure personnel are properly trained.

Hazardous Waste Checklist (from 40 CFR):

<u>Hazardous Waste Storage areas (Initial and Accumulation)</u>

Containers: [262.34(a)(1)(i)]

________ Marked "Hazardous Waste"? [262.34(a)(3)]

________ In good condition? [262.34(a)(1)(i) & 262.34(c)(1)(i) => 265.171]

________ Compatible with contents? [262.34(a)(1)(i) & 262.34(c)(1)(i) => 256.172]

________ Always closed? [262.34(a)(1)(i) & 262.34(c)(1)(i) => 265.173(a)]

________ Properly handled? [262.34(a)(1)(i) => 256.173(b)]

________ Ignitables/Reactives > 50 ft. from property line? *LQG* [262.34(a)(1)(i) => 265.176]

________ Ignitables/Reactives kept away from ignition sources? [262.34(a)(1)(i) => 265.176]

- ________ "No Smoking" signs? [262.34(a)(1)(i) => 265.176 => 265.17(a)]
- ________ Safe storage? [262.34(a)(1)(i) => 265.176 => 265.17(b)]

<u>Preparedness and Prevention</u> [subpart C]

________ Fire extinguishers? [265.32(c)]

________ Spill control equipment? [265.32(c)]

________ Decontamination equipment? [256.32(c)]

________ Required aisle space? [265.35]

<u>Storage Time</u>

________ No more than 55 gallons of waste at point of generation? [262.34(c)(1)]

________ When 55 gallons of waste is reached, not held more than 3 days? [262.34(c)(2)]

________ Date when 55 gallons reached? [262.34(c)(2)]

________ No more than 6,000 kg on site at any time? [262.34(d)]

<u>Secondary Containment</u> (Drip Pads [262.34(a)(1)(iii) => 265.440 to 265.445], Containment Building [262.34(a)(1)(iii) => 265.1100 to 265.1110])

________ Leaking or spilled waste removed every 90 days? [262.34(a)(1)(iii)(A)]

________ Containment properly sloped? [262.34(a)(1)(iii) => 265.443(a)(2)]

________ Sufficiently impermeable, no cracks? [262.34(a)(1)(iii) => 265.443(a)(4)]

<u>Accumulation Site</u> [262.34]

________ Not stored more than 90/180 days? [262.34(a)]

________ Accumulation date written on container? [262.34(a)(2)]

________ Emergency Information posted next to phone? [262.34(d)(5)(ii)]

(Name and number of emergency coordinator, fire department number, location of fire extinguishers and spill control material)

<u>Contingency Plan [Subpart D, 265.20]</u>

________ Testing and maintenance of emergency equipment? [265.33]

<u>Storage</u>:

________ Regular inspections of hazardous waste containers? [265.174]

________ Procedures to so that 90/180 day storage limit? [262.34(a)(iv)(A)]

________ Documentation unit is emptied every 90/180 days? [262.34(a)(iv)(B)]

Secondary Containment (Drip pads, containment buildings)

________ Documentation of spills and leaks and cleanup including:

- ________ Quantity, date and time? [262.34(a)(1)(iii), 265.440(c)(1)(ii)]
- ________ Kept for three years? [265.440(c)(1)(iii)]
- ________ Properly managed? [265.440(c)(1)(iv)]
- ________ Installation documentation including P.E. Certification? [265.441]

Hazardous Waste Records [262.40]

________ Hazardous waste manifests kept for 3 years? [262.40(a)]

________ Biennial report kept for 3 years? [262.40(b)]

________ Waste test results and analyses kept for 3 years since waste was last sent? [262.40(c)]

Training [262.34(a)(4) => 265.16]

________ Personnel are properly trained? [265.16]

STANDARD OPERATING PROCEDURE

HAZARDOUS WASTE TRANSPORT

1.0 PURPOSE

Transport hazardous wastes in accordance with DOT and EPA regulations.

2.0 SCOPE

Affects generator personnel involved in preparing hazardous waste for transport and hazardous waste manifests.

3.0 SAFETY AND HEALTH

Hazardous wastes may contain toxic, corrosive, ignitable or reactive materials. Care should be taken when handling hazardous wastes.

4.0 PROCEDURES AND RESPONSIBILITIES

4.1 Contact transporter and designated treatment, storage, and disposal facility to verify that they have EPA identification numbers.

4.2 Labeling

4.2.1 DOT labels

4.2.1.1 Classify the waste according to hazard class criteria and select an appropriate Proper Shipping Name from Column 2 of the Hazardous Materials Table (refer to 49 CFR 172.101)

4.2.1.2 From Column 6 of the Hazardous Materials Table, determine the required labels. The label codes in Column 6 are explained in 49 CFR 172.101. The general labeling requirements are explained in 49 CFR 172.400.

4.2.1.3 From Column 3 of the Hazardous Materials Table, determine the Hazard Class/Division number. This number corresponds to the label for the primary hazard, and this number must be displayed at the bottom corner of the label. The labels for the subsidiary hazards must not display the Class/Division number.

4.2.1.4 Generally, one label for each hazard is required. It must be located on the outside surface of the container near the markings for the Proper Shipping Name. It must be visible, in contrast with the background surface, and unobstructed from attachments. Do not place labels on the bottom of the container.

4.2.2 Hazardous Waste Labels

4.2.2.1 Affix hazardous waste label onto any hazardous waste container of 110 gallons or less capacity. The hazardous waste label must include the following information (and may include additional information):

- “HAZARDOUS WASTE – Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the US Environmental Protection Agency.
- Generator’s name and address:_________
- Manifest Document number:____________”

See attached example of hazardous waste label.

4.3 Marking

4.3.1 Mark each container with the Proper Shipping Number and the UN number, as per the Hazardous Materials Table.

4.3.2 If liquid hazardous waste is being shipped, mark container with arrows indicating the top of the container and/or mark with “This End Up.”

4.4 Complete a hazardous waste manifest.

4.5 Ensure the transporter displays placards similar to the appropriate DOT labels.

4.6 Comply with record-keeping requirements.

4.7 Prior to relinquishing waste to transporter, ensure containers are in good condition and that closures are tight.


HAZARDOUS WASTE
FEDERAL LAWS PROHIBIT IMPROPER DISPOSAL
IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY AUTHORITY OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY
GENERATOR INFORMATION:
NAME
ADDRESS
CITY
STATE
ZIP
EPA ID NO.
EPA WASTE NO.
ACCUMULATION START DATE
MANIFEST DOCUMENT NO.
HANDLE WITH CARE!

Date ____________________

Treatment or Disposal Facility: ____________________

Street Address: ____________________

City, State Zip: ____________________

Attention: ____________________

Dear: ____________________

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the following waste: ____________________ The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on this LDR UHC review, please call me at: ____________________

Thank You,

Name	Signature
Title	Date

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: ______________________________

Source: ______________________________

Waste Code(s): ______________________________

☐ *This waste IS NOT SUBJECT to the LDRs and does not require treatment prior to land disposal. A certification statement is attached.*

☐ *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest Number: ______________________________

Date: ____________________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard[1] (mg/kg)	Not Believed to be Present	Believed to be Present	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4			
Acenaphthene	83-32-9	3.4			
Acetone	67-64-1	160			
Acetonitrile	75-05-8	38			
Acetophenone	96-86-2	9.7			
2-Acetylaminofluorene	53-96-3	140			
Acrolein	107-02-8	NA			
Acrylamide	79-06-1	23			
Acrylonitrile	107-13-1	84			
Aldicarbsulfone	1646-88-4	0.28			
Aldrin	309-00-2	0.066			
4-Aminobiphenyl	92-67-1	NA			
Aniline	62-53-3	14			
Anthracene	120-12-7	3.4			
Aramite	140-57-8	NA			
alpha-BHC	319-84-6	0.066			
beta-BHC	319-85-7	0.066			
delta-BHC	319-86-8	0.066			
gamma-BHC	58-89-9	0.066			
Barban	101-27-9	1.4			
Bendiocarb	22781-23-3	1.4			
Benomyl	17804-35-2	1.4			

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard[1] (mg/kg)	Not Believed to be Present	Believed to be Present	Concentration in Waste (mg/kg)
Benzene	71-43-2	10			
Benz(a)anthracene	56-55-3	3.4			
Benzalchloride	98-87-3	6.0			
Benzo(b)fluoranthene	205-99-2	6.8			
Benzo(k)fluoranthene	207-08-9	6.8			
Benzo(g,h,i)perylene	191-24-2	1.8			
Benzo(a)pyrene	50-32-8	3.4			
Bromodichloromethane	75-27-4	15			
Bromomethane	74-83-9	15			
4-Bromophenylphenylether	101-55-3	15			
n-Butylalcohol	71-36-3	2.6			
Butylate	2008-41-5	1.4			
Butyl benzyl phthalate	85-68-7	28			
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5			
Carbaryl	63-25-2	0.4			
Carbenzadim	10605-21-7	1.4			
Carbofuran	1563-66-2	0.4			
Carbofuranphenol	1563-38-8	1.4			
Carbon disulfide	75-15-0	4.8 mg/l TCLP			
Carbon tetrachloride	56-23-5	6.0			
Carbosulfan	55285-14-8	1.4			
Chlordane	57-74-9	0.26			
p-Chloroaniline	106-47-8	16			
Chlorobenzene	108-90-7	6.0			
Chlorobenzilate	510-15-6	NA			
2-Chloro-1,3-butadiene	126-99-8	0.28			
Chlorodibromomethane	124-48-1	15			
Chloroethane	75-00-3	6.0			
bis(2-Chloroethoxy)methane	111-91-1	7.2			
bis(2-Chloroethyl)ether	111-44-4	6.0			
Chloroform	67-66-3	6.0			
bis(2-Chloroisopropyl)ether	39638-32-9	7.2			
p-Chloro-m-cresol	59-50-7	14			
2-Chloroethylvinylether	110-75-8	NA			
Chloromethane	74-87-3	30			
2-Chloronaphthalene	91-58-7	5.6			
2-Chlorophenol	95-57-8	5.7			
3-Chloropropylene	107-05-1	30			
Chrysene	218-01-9	3.4			
o-Cresol	95-48-7	5.6			
m-Cresol	108-39-4	5.6			
p-Cresol	106-44-5	5.6			
m-Cumenylmethylcarbamate	64-00-6	1.4			
Cyclohexanone	108-94-1	0.75 mg/l TCLP			
o,p'-DDD	53-19-0	0.087			
p,p'-DDD	72-54-8	0.087			
o,p'-DDE	3424-82-6	0.087			
p,p'-DDE	72-55-9	0.087			
o,p'-DDT	789-02-6	0.087			

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard[1] (mg/kg)	Not Believed to be Present	Believed to be Present	Concentration in Waste (mg/kg)
p,p'-DDT	50-29-3	0.087			
Dibenz(a,h)anthracene	53-70-3	8.2			
Dibenz(a,e)pyrene	192-65-4	NA			
1,2-Dibromo-3-chloropropane	96-12-8	15			
1,2-Dibromoethane	106-93-4	15			
Dibromomethane	74-95-3	15			
m-Dichlorobenzene	541-73-1	6.0			
o-Dichlorobenzene	95-50-1	6.0			
p-Dichlorobenzene	106-46-7	6.0			
Dichlorodifluoromethane	75-71-8	7.2			
1,1-Dichloroethane	75-34-3	6.0			
1,2-Dichloroethane	107-06-2	6.0			
1,1-Dichloroethylene	75-35-4	6.0			
trans-1,2-Dichloroethylene	156-60-5	30			
2,4-Dichlorophenol	120-83-2	14			
2,6-Dichlorophenol	87-65-0	14			
2,4-Dichlorophenoxyaceticacid	94-75-7	10			
1,2-Dichloropropane	78-87-5	18			
cis-1,3-Dichloropropylene	10061-01-5	18			
trans-1,3-Dichloropropylene	10061-02-6	18			
Dieldrin	60-57-1	0.13			
Diethylphthalate	84-66-2	28			
p-Dimethylaminoazobenzene	60-11-7	NA			
2-4-Dimethylphenol	105-67-9	14			
Dimethylphthalate	131-11-3	28			
Di-n-butylphthalate	84-74-2	28			
1,4-Dinitrobenzene	100-25-4	2.3			
4,6-Dinitro-o-cresol	534-52-1	160			
2,4-Dinitrophenol	51-28-5	160			
2,4-Dinitrotoluene	121-14-2	140			
2,6-Dinitrotoluene	606-20-2	28			
Di-n-octylphthalate	117-84-0	28			
Di-n-propylnitrosamine	621-64-7	14			
1,4-Dioxane	123-91-1	170			
Diphenylamine	122-39-4	13			
Diphenylnitrosamine	86-30-6	13			
1,2-Diphenylhydrazine	122-66-7	NA			
Disulfoton	298-04-4	6.2			
Dithiocarbamates6	NA	28			
Endosulfan I	959-98-8	0.066			
Endosulfan II	33213-65-9	0.13			
Endosulfansulfate	1031-07-8	0.13			
Endrin	72-20-8	0.13			
Endrin aldehyde	7421-93-4	0.13			
EPTC6	759-94-4	1.4			
Ethyl acetate	141-78-6	33			
Ethyl benzene	100-41-4	10			
Ethyl cyanide	107-12-0	360			
Ethyl ether	60-29-7	160			

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard[1] (mg/kg)	Not Believed to be Present	Believed to be Present	Concentration in Waste (mg/kg)
Ethyl methacrylate	97-63-2	160			
Ethylene oxide	75-21-8	NA			
Famphur	52-85-7	15			
Fluoranthene	206-44-0	3.4			
Fluorene	86-73-7	3.4			
Formetanate hydrochloride	23422-53-9	1.4			
Heptachlor	76-44-8	0.066			
Heptachlorepoxide	1024-57-3	0.066			
Hexachlorobenzene	118-74-1	10			
Hexachlorobutadiene	87-68-3	5.6			
Hexachlorocyclopentadiene	77-47-4	2.4			
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001			
HxCDFs (Hexachlorodibenzofurans)	NA	0.001			
Hexachloroethane	67-72-1	30			
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4			
Iodomethane	74-88-4	65			
Isobutyl alcohol	78-83-1	170			
Isodrin	465-73-6	0.066			
Isosafrole	120-58-1	2.6			
Kepone	143-50-0	0.13			
Methacrylonitrile	126-98-7	84			
Methanol	67-56-1	0.75 mg/l TCLP			
Methapyrilene	91-80-5	1.5			
Methiocarb	2032-65-7	1.4			
Methomyl	16752-77-5	0.4			
Methoxychlor	72-43-5	0.18			
3-Methylcholanthrene	56-49-5	15			
4,4-Methylene bis(2-chloroaniline)	101-14-4	30			
Methylene chloride	75-09-2	30			
Methyl ethyl ketone	78-93-3	36			
Methyl isobutyl ketone	108-10-1	33			
Methyl methacrylate	80-62-6	160			
Methyl methanesulfonate	66-27-3	NA			
Methyl parathion	298-00-0	4.6			
Metolcarb	1129-41-5	1.4			
Mexacarbate	315-18-4	1.4			
Molinate	2212-67-1	1.4			
Naphthalene	91-20-3	5.6			
2-Naphthylamine	91-59-8	NA			
o-Nitroaniline	88-74-4	14			
p-Nitroaniline	100-01-6	28			
Nitrobenzene	98-95-3	14			
5-Nitro-o-toluidine	99-55-8	28			
o-Nitrophenol	88-75-5	13			
p-Nitrophenol	100-02-7	29			
N-Nitrosodiethylamine	55-18-5	28			

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard[1] (mg/kg)	Not Believed to be Present	Believed to be Present	Concentration in Waste (mg/kg)
N-Nitrosodimethylamine	62-75-9	2.3			
N-Nitroso-di-n-butylamine	924-16-3	17			
N-Nitrosomethylethylamine	10595-95-6	2.3			
N-Nitrosomorpholine	59-89-2	2.3			
N-Nitrosopiperidine	100-75-4	35			
N-Nitrosopyrrolidine	930-55-2	35			
Oxamyl	23135-22-0	0.28			
Parathion	56-38-2	4.6			
Total PCBs	1336-36-3	10			
Pebulate	1114-71-2	1.4			
Pentachlorobenzene	608-93-5	10			
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001			
PeCDFs (Pentachlorodibenzofurans)	NA	0.001			
Pentachloroethane	76-01-7	6.0			
Pentachloronitrobenzene	82-68-8	4.8			
Pentachlorophenol	87-86-5	7.4			
Phenacetin	62-44-2	16			
Phenanthrene	85-01-8	5.6			
Phenol	108-95-2	6.2			
Phorate	298-02-2	4.6			
Phthalic acid	100-21-0	28			
Phthalic anhydride	85-44-9	28			
Physostigmine	57-47-6	1.4			
Physostigmine salicylate	57-64-7	1.4			
Promecarb	2631-37-0	1.4			
Pronamide	23950-58-5	1.5			
Propham	122-42-9	1.4			
Propoxur	114-26-1	1.4			
Prosulfocarb	52888-80-9	1.4			
Pyrene	129-00-0	8.2			
Pyridine	110-86-1	16			
Safrole	94-59-7	22			
Silvex/2,4,5-TP	93-72-1	7.9			
1,2,4,5-Tetrachlorobenzene	95-94-3	14			
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001			
TCDFs (Tetrachlorodibenzofurans)	NA	0.001			
1,1,1,2-Tetrachloroethane	630-20-6	6.0			
1,1,2,2-Tetrachloroethane	79-34-5	6.0			
Tetrachloroethylene	127-18-4	6.0			
2,3,4,6-Tetrachlorophenol	58-90-2	7.4			
Thiodicarb	59669-26-0	1.4			
Thiophanate-methyl	23564-05-8	1.4			
Toluene	108-88-3	10			
Toxaphene	8001-35-2	2.6			
Triallate6	2303-17-5	1.4			

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard[1] (mg/kg)	Not Believed to be Present	Believed to be Present	Concentration in Waste (mg/kg)
Tribromomethane/Bromoform	75-25-2	15			
2,4,6-Tribromophenol	118-79-6	7.4			
1,2,4-Trichlorobenzene	120-82-1	19			
1,1,1-Trichloroethane	71-55-6	6.0			
1,1,2-Trichloroethane	79-00-5	6.0			
Trichloroethylene	79-01-6	6.0			
Trichlorofluoromethane	75-69-4	30			
2,4,5-Trichlorophenol	95-95-4	7.4			
2,4,6-Trichlorophenol	88-06-2	7.4			
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9			
1,2,3-Trichloropropane	96-18-4	30			
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30			
Triethylamine	121-44-8	1.5			
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10			
Vernolate	1929-77-7	1.4			
Vinyl chloride	75-01-4	6.0			
Xylenes-mixed	1330-20-7	30			
Antimony	7440-36-0	1.15 mg/l TCLP			
Arsenic	7440-38-2	5.0 mg/L TCLP			
Barium	7440-39-3	21 mg/L TCLP			
Beryllium	7440-41-7	1.22 mg/L TCLP			
Cadmium	7440-43-9	0.11 mg/L TCLP			
Chromium	7440-47-3	0.60 mg/L TCLP			
Cyanides	57-12-5	590			
Cyanides (Amenable)	57-12-5	30			
Fluoride[2]	16984-48-8	NA			
Lead	7439-92-1	0.75 mg/L TCLP			
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP			
Mercury (All Others)	7439-97-6	0.025mg/l TCLP			
Nickel	7440-02-0	11 mg/L TCLP			
Selenium[2]	7782-49-2	5.7 mg/L TCLP			
Silver	7440-22-4	0.4 mg/L TCLP			
Sulfide[2]	18496-25-8	NA			
Thallium	7440-28-0	0.20 mg/L TCLP			
Vanadium[2]	7440-62-2	1.6 mg/L TCLP			
Zinc[2]	7440-66-6	4.3 mg/L TCLP			

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Non-wastewater standards are the treatment standards specified in 40 CFR Part 268 Subpart D.
2. Not an Underlying Hazardous Constituent (UHC).

LAND DISPOSAL RESTRICTION NOTIFICATION

☐ No certification required because this waste requires treatment prior to land disposal.

☐ The following certification statement is required because this waste does not require treatment prior to disposal:

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Antifreeze - Spilled antifreeze debris. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Antifreeze - Spilled antifreeze debris or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Antifreeze -Spilled antifreeze debris*

Source: *Spills or leaks of antifreeze cleaned up with rags, floor dry, sorbent, or cat litter.*

Waste Code(s): *D008, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: ____________________

Date: ____________________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*
Bendiocarb	22781-23-3	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*
3-Chloropropylene	107-05-1	30	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*
Isobutyl alcohol	78-83-1	170	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*
Pebulate	1114-71-2	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	7440-43-9	0.11 mg/L TCLP	*NBP*
Chromium	7440-47-3	0.60 mg/L TCLP	*NBP*
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Antifreeze - Used antifreeze. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Antifreeze - Used antifreeze or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Antifreeze -Used antifreeze*

Source: *Antifreeze recovered from automobile coolant systems.*

Waste Code(s): *D008, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: __________

Date: __________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*
Bendiocarb	22781-23-3	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*
3-Chloropropylene	107-05-1	30	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*
Isobutyl alcohol	78-83-1	170	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*
Pebulate	1114-71-2	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	7440-43-9	0.11 mg/L TCLP	*NBP*
Chromium	7440-47-3	0.60 mg/L TCLP	*NBP*
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Batteries - Used automotive batteries. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Batteries - Used automotive batteries or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Batteries -Used automotive batteries*

Source: *Replacement of batteries from automobiles.*

Waste Code(s): *D002, D008, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: ________

Date: ________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*
Bendiocarb	22781-23-3	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*
3-Chloropropylene	107-05-1	30	*NBP*

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*
Isobutyl alcohol	78-83-1	170	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*
Pebulate	1114-71-2	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	7440-43-9	0.11 mg/L TCLP	*NBP*
Chromium	7440-47-3	0.60 mg/L TCLP	*NBP*
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Circuit boards - Broken circuit boards. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Circuit boards - Broken circuit boards or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Circuit boards -Broken circuit boards*

Source: *Replacement of circuit boards in electronic equipment, and broken electronic equipment and computers.*

Waste Code(s): *D006, D007, D008, D011, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: ____________________

Date: ____________________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Bendiocarb	22781-23-3	1.4	*NBP*
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
3-Chloropropylene	107-05-1	30	*NBP*
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isobutyl alcohol	78-83-1	170	*NBP*
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pebulate	1114-71-2	1.4	*NBP*
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	**7440-43-9**	**0.11 mg/L TCLP**	***BP***
Chromium	**7440-47-3**	**0.60 mg/L TCLP**	***BP***
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	**7440-22-4**	**0.4 mg/L TCLP**	***BP***
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Circuit boards - Used circuit boards. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Circuit boards - Used circuit boards or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Circuit boards -Used circuit boards*

Source: *Used electronic equipment and computers.*

Waste Code(s): *D006, D007, D008, D011, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: ____________________

Date: ____________________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*
Bendiocarb	22781-23-3	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*
3-Chloropropylene	107-05-1	30	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*
Isobutyl alcohol	78-83-1	170	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*
Pebulate	1114-71-2	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	**7440-43-9**	**0.11 mg/L TCLP**	***BP***
Chromium	**7440-47-3**	**0.60 mg/L TCLP**	***BP***
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	**7440-22-4**	**0.4 mg/L TCLP**	***BP***
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Computer monitors - Broken computer monitors. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Computer monitors - Broken computer monitors or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Computer monitors -Broken computer monitors*

Source: *Replacement of broken computer monitors.*

Waste Code(s): *D008, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #:

Date:

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*
Bendiocarb	22781-23-3	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*
3-Chloropropylene	107-05-1	30	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*
Isobutyl alcohol	78-83-1	170	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*
Pebulate	1114-71-2	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	7440-43-9	0.11 mg/L TCLP	*NBP*
Chromium	7440-47-3	0.60 mg/L TCLP	*NBP*
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Computer monitors - Used computer monitors. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Computer monitors - Used computer monitors or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Computer monitors -Used computer monitors*

Source: *Replacement of older, used computer monitors with newer monitors.*

Waste Code(s): *D008, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: ______

Date: ______

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*
Bendiocarb	22781-23-3	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*
3-Chloropropylene	107-05-1	30	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*
Isobutyl alcohol	78-83-1	170	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*
Pebulate	1114-71-2	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	7440-43-9	0.11 mg/L TCLP	*NBP*
Chromium	7440-47-3	0.60 mg/L TCLP	*NBP*
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

"I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Filters - Used paint booth air filters. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Filters - Used paint booth air filters or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Filters -Used paint booth air filters*

Source: *Used paint booth filters from a paint booth where chromium, lead, or barium-containing paints, or paints with methyl ethyl ketone or perchloroethylene solvent were applied.*

Waste Code(s): *D005, D007, D008, D035, D039, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: ____________________

Date: ____________________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Barban	101-27-9	1.4	*NBP*
Bendiocarb	22781-23-3	1.4	*NBP*
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
2-Chlorophenol	95-57-8	5.7	*NBP*
3-Chloropropylene	107-05-1	30	*NBP*
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Iodomethane	74-88-4	65	*NBP*
Isobutyl alcohol	78-83-1	170	*NBP*
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	**78-93-3**	**36**	***BP***
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Total PCBs	1336-36-3	10	*NBP*
Pebulate	1114-71-2	1.4	*NBP*
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	**127-18-4**	**6.0**	***BP***
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	**7440-39-3**	**21 mg/L TCLP**	***BP***
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	7440-43-9	0.11 mg/L TCLP	*NBP*
Chromium	**7440-47-3**	**0.60 mg/L TCLP**	***BP***
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP — No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP — **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

LAND DISPOSAL RESTRICTION NOTIFICATION

1. Not a UHC.

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Filters - Used welding area filtration system air filters. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Filters - Used welding area filtration system air filters or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Filters -Used welding area filtration system air filters*

Source: *Used welding or soldering area air filtration system where cadmium or chromium fumes may have been collected on the air filter.*

Waste Code(s): *D006, D007, D008, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: ______________________

Date: ______________________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Bendiocarb	22781-23-3	1.4	*NBP*
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
3-Chloropropylene	107-05-1	30	*NBP*
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isobutyl alcohol	78-83-1	170	*NBP*
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pebulate	1114-71-2	1.4	*NBP*
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	**7440-43-9**	**0.11 mg/L TCLP**	***BP***
Chromium	**7440-47-3**	**0.60 mg/L TCLP**	***BP***
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Lead - Lead not otherwise classified. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Lead - Lead not otherwise classified or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Lead -Lead not otherwise classified*

Source: *Used terne-plated oil filters, broken lead wheel weights, and used lead-containing solder.*

Waste Code(s): *D008, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: ______________________

Date: ______________________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Bendiocarb	22781-23-3	1.4	*NBP*
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
3-Chloropropylene	107-05-1	30	*NBP*
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isobutyl alcohol	78-83-1	170	*NBP*
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pebulate	1114-71-2	1.4	*NBP*
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	7440-43-9	0.11 mg/L TCLP	*NBP*
Chromium	7440-47-3	0.60 mg/L TCLP	*NBP*
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Mercury - Mercury waste not otherwise classified. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Mercury - Mercury waste not otherwise classified or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Mercury -Mercury waste not otherwise classified*

Source: *Broken (i.e., cracked open) mercury-containing lights (fluorescent, mercury vapor, sodium vapor, metal halide), thermometers, thermostats and switches.*

Waste Code(s): *D009, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: ______

Date: ______

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Bendiocarb	22781-23-3	1.4	*NBP*
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
3-Chloropropylene	107-05-1	30	*NBP*
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isobutyl alcohol	78-83-1	170	*NBP*
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pebulate	1114-71-2	1.4	*NBP*
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	7440-43-9	0.11 mg/L TCLP	*NBP*
Chromium	7440-47-3	0.60 mg/L TCLP	*NBP*
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	7439-92-1	0.75 mg/L TCLP	*NBP*
Mercury (Nonwastewater Retort)	**7439-97-6**	**0.20 mg/L TCLP**	***BP***
Mercury (All Others)	**7439-97-6**	**0.025mg/l TCLP**	***BP***
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Oil - Off-specification used oil. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Oil - Off-specification used oil or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Oil -Off-specification used oil*

Source: *Used oil collected from automobiles or oil-filled equipment, contaminated with halogenated solvents or metals.*

Waste Code(s): *F002, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: ______________________

Date: ______________________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Bendiocarb	22781-23-3	1.4	*NBP*
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	**56-23-5**	**6.0**	***BP***
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	**67-66-3**	**6.0**	***BP***
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
3-Chloropropylene	107-05-1	30	*NBP*
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	**75-34-3**	**6.0**	***BP***
1,2-Dichloroethane	**107-06-2**	**6.0**	***BP***
1,1-Dichloroethylene	**75-35-4**	**6.0**	***BP***
trans-1,2-Dichloroethylene	**156-60-5**	**30**	***BP***
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isobutyl alcohol	78-83-1	170	*NBP*
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	**75-09-2**	**30**	***BP***
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pebulate	1114-71-2	1.4	*NBP*
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	**127-18-4**	**6.0**	***BP***
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*
1,1,1-Trichloroethane	**71-55-6**	**6.0**	***BP***
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	**79-01-6**	**6.0**	***BP***
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	**7440-43-9**	**0.11 mg/L TCLP**	***BP***
Chromium	**7440-47-3**	**0.60 mg/L TCLP**	***BP***
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	7439-92-1	0.75 mg/L TCLP	*NBP*
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	**7440-02-0**	**11 mg/L TCLP**	***BP***
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	**7440-66-6**	**4.3 mg/L TCLP**	***BP***

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

Site Information

Facility Name:	*Salt Valley Yard*
Site Contact Name:	*Maurice Bonne*

Waste Information

Waste Name:	
Manifest Number:	
Source:	
F, K, P and U Waste Codes (if known):	

Sample Date:
Specific Gravity at 25°C:
pH (standard units):
Ignitability (°F):
Paint Filter Test:

Chemical Name	Not Detected (i.e., <)	Concentration	Units	RCRA Regulatory Level (mg/L)	Believed Present
1,1-Dichloroethylene	☐		mg/L ppm	0.7	☐
1,2-Dichloroethane	☐		mg/L ppm	0.5	☐
Methyl ethyl ketone (2-butanone)	☐		mg/L ppm	200	☐
Benzene	☐		mg/L ppm	0.5	☐
Carbon tetrachloride (perchloromethane)	☐		mg/L ppm	0.5	☐
Chlorobenzene	☐		mg/L ppm	100	☐
Chloroform (trichloromethane)	☐		mg/L ppm	6.0	☐
Tetrachloroethene (perchloroethylene, perc)	☐		ppm mg/L	0.7	☐
Trichloroethene (TCE)	☐		mg/L ppm	0.5	☐
Vinyl chloride	☐		mg/L ppm	0.2	☐
1,4-Dichlorobenzene (para dichlorobenzene)	☐		mg/L ppm	7.5	☐
2,4,5-Trichlorophenol	☐		mg/L ppm	400	☐
2,4,6-Trichlorophenol	☐		mg/L ppm	2.0	☐
2,4-Dinitrotoluene	☐		mg/L ppm	0.13	☐
Total cresols	☐		mg/L ppm	200	☐
Hexachlorobutadiene	☐		mg/L ppm	0.5	☐
Hexachlorobenzene	☐		mg/L ppm	0.13	☐
Hexachloroethane (perchloroethane)	☐		mg/L ppm	3.0	☐
Nitrobenzene	☐		mg/L ppm	2.0	☐
Pentachlorophenol (PCP)	☐		mg/L ppm	100	☐
Pyridine	☐		mg/L ppm	5.0	☐
Arsenic	☐		mg/L ppm	5.0	☐
Barium	☐		mg/L ppm	100	☐
Cadmium	☐		mg/L ppm	1.0	☐
Chromium	☐		mg/L ppm	5.0	☐
Lead	☐		mg/L ppm	5.0	☐
Mercury	☐		mg/L ppm	0.2	☐
Selenium	☐		mg/L ppm	1.0	☐
Silver	☐		mg/L ppm	5.0	☐

Chemical Name	CAS Number	Believed Present?
Acenaphthylene	208-96-8	☐
Acenaphthene	83-32-9	☐
Acetone	67-64-1	☐
Acetonitrile	75-05-8	☐
Acetophenone	96-86-2	☐
2-Acetylaminofluorene	53-96-3	☐
Acrolein	107-02-8	☐
Acrylamide	79-06-1	☐
Acrylonitrile	107-13-1	☐
Aldicarbsulfone	1646-88-4	☐
Aldrin	309-00-2	☐
4-Aminobiphenyl	92-67-1	☐
Aniline	62-53-3	☐
Anthracene	120-12-7	☐
Aramite	140-57-8	☐
alpha-BHC	319-84-6	☐
beta-BHC	319-85-7	☐
delta-BHC	319-86-8	☐
gamma-BHC	58-89-9	☐
Barban	101-27-9	☐
Bendiocarb	22781-23-3	☐
Benomyl	17804-35-2	☐
Benz(a)anthracene	56-55-3	☐
Benzalchloride	98-87-3	☐
Benzo(b)fluoranthene	205-99-2	☐
Benzo(k)fluoranthene	207-08-9	☐
Benzo(g,h,i)perylene	191-24-2	☐
Benzo(a)pyrene	50-32-8	☐

Bromodichloromethane	75-27-4	☐
Bromomethane	74-83-9	☐
4-Bromophenylphenylether	101-55-3	☐
n-Butylalcohol	71-36-3	☐
Butylate	2008-41-5	☐
Butyl benzyl phthalate	85-68-7	☐
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	☐
Carbaryl	63-25-2	☐
Carbenzadim	10605-21-7	☐
Carbofuran	1563-66-2	☐
Carbofuranphenol	1563-38-8	☐
Carbondisulfide	75-15-0	☐
Carbosulfan	55285-14-8	☐
Chlordane	57-74-9	☐
p-Chloroaniline	106-47-8	☐
Chlorobenzilate	510-15-6	☐
2-Chloro-1,3-butadiene	126-99-8	☐
Chlorodibromomethane	124-48-1	☐
Chloroethane	75-00-3	☐
bis(2-Chloroethoxy)methane	111-91-1	☐
bis(2-Chloroethyl)ether	111-44-4	☐
bis(2-Chloroisopropyl)ether	39638-32-9	☐
p-Chloro-m-cresol	59-50-7	☐
2-Chloroethylvinylether	110-75-8	☐
Chloromethane	74-87-3	☐
2-Chloronaphthalene	91-58-7	☐
2-Chlorophenol	95-57-8	☐
3-Chloropropylene	107-05-1	☐
Chrysene	218-01-9	☐
m-Cumenylmethylcarbamate	64-00-6	☐

Cyclohexanone	108-94-1	☐
o,p'-DDD	53-19-0	☐
p,p'-DDD	72-54-8	☐
o,p'-DDE	3424-82-6	☐
p,p'-DDE	72-55-9	☐
o,p'-DDT	789-02-6	☐
p,p'-DDT	50-29-3	☐
Dibenz(a,h)anthracene	53-70-3	☐
Dibenz(a,e)pyrene	192-65-4	☐
1,2-Dibromo-3-chloropropane	96-12-8	☐
1,2-Dibromoethane	106-93-4	☐
Dibromomethane	74-95-3	☐
m-Dichlorobenzene	541-73-1	☐
o-Dichlorobenzene	95-50-1	☐
Dichlorodifluoromethane	75-71-8	☐
1,1-Dichloroethane	75-34-3	☐
trans-1,2-Dichloroethylene	156-60-5	☐
2,4-Dichlorophenol	120-83-2	☐
2,6-Dichlorophenol	87-65-0	☐
2,4-Dichlorophenoxyaceticacid	94-75-7	☐
1,2-Dichloropropane	78-87-5	☐
cis-1,3-Dichloropropylene	10061-01-5	☐
trans-1,3-Dichloropropylene	10061-02-6	☐
Dieldrin	60-57-1	☐
Diethylphthalate	84-66-2	☐
p-Dimethylaminoazobenzene	60-11-7	☐
2-4-Dimethylphenol	105-67-9	☐
Dimethylphthalate	131-11-3	☐
Di-n-butylphthalate	84-74-2	☐
1,4-Dinitrobenzene	100-25-4	☐

4,6-Dinitro-o-cresol	534-52-1	☐
2,4-Dinitrophenol	51-28-5	☐
2,6-Dinitrotoluene	606-20-2	☐
Di-n-octylphthalate	117-84-0	☐
Di-n-propylnitrosamine	621-64-7	☐
1,4-Dioxane	123-91-1	☐
Diphenylamine	122-39-4	☐
Diphenylnitrosamine	86-30-6	☐
1,2-Diphenylhydrazine	122-66-7	☐
Disulfoton	298-04-4	☐
Dithiocarbamates6	NA	☐
Endosulfan I	959-98-8	☐
Endosulfan II	33213-65-9	☐
Endosulfansulfate	1031-07-8	☐
Endrin	72-20-8	☐
Endrin aldehyde	7421-93-4	☐
EPTC6	759-94-4	☐
Ethyl acetate	141-78-6	☐
Ethyl benzene	100-41-4	☐
Ethyl cyanide	107-12-0	☐
Ethyl ether	60-29-7	☐
Ethyl methacrylate	97-63-2	☐
Ethylene oxide	75-21-8	☐
Famphur	52-85-7	☐
Fluoranthene	206-44-0	☐
Fluorene	86-73-7	☐
Formetanate hydrochloride	23422-53-9	☐
Heptachlor	76-44-8	☐
Heptachlorepoxide	1024-57-3	☐
Hexachlorocyclopentadiene	77-47-4	☐

HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	☐
HxCDFs (Hexachlorodibenzofurans)	NA	☐
Indeno (1,2,3-c,d) pyrene	193-39-5	☐
Iodomethane	74-88-4	☐
Isobutyl alcohol	78-83-1	☐
Isodrin	465-73-6	☐
Isosafrole	120-58-1	☐
Kepone	143-50-0	☐
Methacrylonitrile	126-98-7	☐
Methanol	67-56-1	☐
Methapyrilene	91-80-5	☐
Methiocarb	2032-65-7	☐
Methomyl	16752-77-5	☐
Methoxychlor	72-43-5	☐
3-Methylcholanthrene	56-49-5	☐
4,4-Methylene bis(2-chloroaniline)	101-14-4	☐
Methylene chloride	75-09-2	☐
Methyl isobutyl ketone	108-10-1	☐
Methyl methacrylate	80-62-6	☐
Methyl methanesulfonate	66-27-3	☐
Methyl parathion	298-00-0	☐
Metolcarb	1129-41-5	☐
Mexacarbate	315-18-4	☐
Molinate	2212-67-1	☐
Naphthalene	91-20-3	☐
2-Naphthylamine	91-59-8	☐
o-Nitroaniline	88-74-4	☐
p-Nitroaniline	100-01-6	☐
5-Nitro-o-toluidine	99-55-8	☐
o-Nitrophenol	88-75-5	☐

p-Nitrophenol	100-02-7	☐
N-Nitrosodiethylamine	55-18-5	☐
N-Nitrosodimethylamine	62-75-9	☐
N-Nitroso-di-n-butylamine	924-16-3	☐
N-Nitrosomethylethylamine	10595-95-6	☐
N-Nitrosomorpholine	59-89-2	☐
N-Nitrosopiperidine	100-75-4	☐
N-Nitrosopyrrolidine	930-55-2	☐
Oxamyl	23135-22-0	☐
Parathion	56-38-2	☐
Total PCBs	1336-36-3	☐
Pebulate	1114-71-2	☐
Pentachlorobenzene	608-93-5	☐
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	☐
PeCDFs (Pentachlorodibenzofurans)	NA	☐
Pentachloroethane	76-01-7	☐
Pentachloronitrobenzene	82-68-8	☐
Phenacetin	62-44-2	☐
Phenanthrene	85-01-8	☐
Phenol	108-95-2	☐
Phorate	298-02-2	☐
Phthalic acid	100-21-0	☐
Phthalic anhydride	85-44-9	☐
Physostigmine	57-47-6	☐
Physostigmine salicylate	57-64-7	☐
Promecarb	2631-37-0	☐
Pronamide	23950-58-5	☐
Propham	122-42-9	☐
Propoxur	114-26-1	☐
Prosulfocarb	52888-80-9	☐

Pyrene	129-00-0	☐
Safrole	94-59-7	☐
Silvex/2,4,5-TP	93-72-1	☐
1,2,4,5-Tetrachlorobenzene	95-94-3	☐
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	☐
TCDFs (Tetrachlorodibenzofurans)	NA	☐
1,1,1,2-Tetrachloroethane	630-20-6	☐
1,1,2,2-Tetrachloroethane	79-34-5	☐
2,3,4,6-Tetrachlorophenol	58-90-2	☐
Thiodicarb	59669-26-0	☐
Thiophanate-methyl	23564-05-8	☐
Toluene	108-88-3	☐
Toxaphene	8001-35-2	☐
Triallate	2303-17-5	☐
Tribromomethane/Bromoform	75-25-2	☐
2,4,6-Tribromophenol	118-79-6	☐
1,2,4-Trichlorobenzene	120-82-1	☐
1,1,1-Trichloroethane	71-55-6	☐
1,1,2-Trichloroethane	79-00-5	☐
Trichlorofluoromethane	75-69-4	☐
2,4,5-Trichlorophenoxyaceticacid	93-76-5	☐
1,2,3-Trichloropropane	96-18-4	☐
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	☐
Triethylamine	121-44-8	☐
tris-(2,3-Dibromopropyl) phosphate	126-72-7	☐
Vernolate	1929-77-7	☐
Xylenes-mixed	1330-20-7	☐
Antimony	7440-36-0	☐
Beryllium	7440-41-7	☐
Cyanides	57-12-5	☐

Cyanides (Amenable)	57-12-5	☐
Fluoride[1]	16984-48-8	☐
Nickel	7440-02-0	☐
Sulfide[1]	18496-25-8	☐
Thallium	7440-28-0	☐
Vanadium[1]	7440-62-2	☐
Zinc[1]	7440-66-6	☐

Nebraska Department of Roads

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Name: 0

Source: 0

Waste Code(s): Non-wastewater

Manifest Number: 0

Statement: This waste IS NOT SUBJECT to the LDRs and does not require treatment prior to land disposal.

Sample Results

Sample Date:

Specific Gravity at 25°C: 1

Corrosivity (pH Standard Units):

Ignitability (PMCC, °F):

Paint Filter Test:

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	NBP
Acenaphthene	83-32-9	3.4	NBP
Acetone	67-64-1	160	NBP
Acetonitrile	75-05-8	38	NBP
Acetophenone	96-86-2	9.7	NBP
2-Acetylaminofluorene	53-96-3	140	NBP
Acrolein	107-02-8	NA	NBP
Acrylamide	79-06-1	23	NBP
Acrylonitrile	107-13-1	84	NBP
Aldicarbsulfone	1646-88-4	0.28	NBP
Aldrin	309-00-2	0.066	NBP
4-Aminobiphenyl	92-67-1	NA	NBP
Aniline	62-53-3	14	NBP
Anthracene	120-12-7	3.4	NBP
Aramite	140-57-8	NA	NBP
alpha-BHC	319-84-6	0.066	NBP
beta-BHC	319-85-7	0.066	NBP
delta-BHC	319-86-8	0.066	NBP
gamma-BHC	58-89-9	0.066	NBP
Barban	101-27-9	1.4	NBP
Bendiocarb	22781-23-3	1.4	NBP
Benomyl	17804-35-2	1.4	NBP
Benzene	71-43-2	10	NBP
Benz(a)anthracene	56-55-3	3.4	NBP
Benzalchloride	98-87-3	6	NBP
Benzo(b)fluoranthene	205-99-2	6.8	NBP
Benzo(k)fluoranthene	207-08-9	6.8	NBP

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Benzo(g,h,i)perylene	191-24-2	1.8	NBP
Benzo(a)pyrene	50-32-8	3.4	NBP
Bromodichloromethane	75-27-4	15	NBP
Bromomethane	74-83-9	15	NBP
4-Bromophenylphenylether	101-55-3	15	NBP
n-Butylalcohol	71-36-3	2.6	NBP
Butylate	2008-41-5	1.4	NBP
Butyl benzyl phthalate	85-68-7	28	NBP
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	NBP
Carbaryl	63-25-2	0.14	NBP
Carbenzadim	10605-21-7	1.4	NBP
Carbofuran	1563-66-2	0.14	NBP
Carbofuranphenol	1563-38-8	1.4	NBP
Carbondisulfide	75-15-0	4.8 mg/L TCLP	NBP
Carbon tetrachloride	56-23-5	6	NBP
Carbosulfan	55285-14-8	1.4	NBP
Chlordane	57-74-9	0.26	NBP
p-Chloroaniline	106-47-8	16	NBP
Chlorobenzene	108-90-7	6	NBP
Chlorobenzilate	510-15-6	NA	NBP
2-Chloro-1,3-butadiene	126-99-8	0.28	NBP
Chlorodibromomethane	124-48-1	15	NBP
Chloroethane	75-00-3	6	NBP
bis(2-Chloroethoxy)methane	111-91-1	7.2	NBP
bis(2-Chloroethyl)ether	111-44-4	6	NBP
Chloroform	67-66-3	6	NBP
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	NBP
p-Chloro-m-cresol	59-50-7	14	NBP
2-Chloroethylvinylether	110-75-8	NA	NBP
Chloromethane	74-87-3	30	NBP
2-Chloronaphthalene	91-58-7	5.6	NBP
2-Chlorophenol	95-57-8	5.7	NBP
3-Chloropropylene	107-05-1	30	NBP
Chrysene	218-01-9	3.4	NBP
o-Cresol	95-48-7	5.6	NBP
m-Cresol	108-39-4	5.6	NBP
p-Cresol	106-44-5	5.6	NBP
m-Cumenylmethylcarbamate	64-00-6	1.4	NBP
Cyclohexanone	108-94-1	0.75 mg/L TCLP	NBP
o,p'-DDD	53-19-0	0.087	NBP
p,p'-DDD	72-54-8	0.087	NBP
o,p'-DDE	3424-82-6	0.087	NBP
p,p'-DDE	72-55-9	0.087	NBP
o,p'-DDT	789-02-6	0.087	NBP
p,p'-DDT	50-29-3	0.087	NBP
Dibenz(a,h)anthracene	53-70-3	8.2	NBP
Dibenz(a,e)pyrene	192-65-4	NA	NBP
1,2-Dibromo-3-chloropropane	96-12-8	15	NBP
1,2-Dibromoethane	106-93-4	15	NBP
Dibromomethane	74-95-3	15	NBP
m-Dichlorobenzene	541-73-1	6	NBP

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
o-Dichlorobenzene	95-50-1	6	NBP
p-Dichlorobenzene	106-46-7	6	NBP
Dichlorodifluoromethane	75-71-8	7.2	NBP
1,1-Dichloroethane	75-34-3	6	NBP
1,2-Dichloroethane	107-06-2	6	NBP
1,1-Dichloroethylene	75-35-4	6	NBP
trans-1,2-Dichloroethylene	156-60-5	30	NBP
2,4-Dichlorophenol	120-83-2	14	NBP
2,6-Dichlorophenol	87-65-0	14	NBP
2,4-Dichlorophenoxyaceticacid	94-75-7	10	NBP
1,2-Dichloropropane	78-87-5	18	NBP
cis-1,3-Dichloropropylene	10061-01-5	18	NBP
trans-1,3-Dichloropropylene	10061-02-6	18	NBP
Dieldrin	60-57-1	0.13	NBP
Diethylphthalate	84-66-2	28	NBP
p-Dimethylaminoazobenzene	60-11-7	NA	NBP
2-4-Dimethylphenol	105-67-9	14	NBP
Dimethylphthalate	131-11-3	28	NBP
Di-n-butylphthalate	84-74-2	28	NBP
1,4-Dinitrobenzene	100-25-4	2.3	NBP
4,6-Dinitro-o-cresol	534-52-1	160	NBP
2,4-Dinitrophenol	51-28-5	160	NBP
2,4-Dinitrotoluene	121-14-2	140	NBP
2,6-Dinitrotoluene	606-20-2	28	NBP
Di-n-octylphthalate	117-84-0	28	NBP
Di-n-propylnitrosamine	621-64-7	14	NBP
1,4-Dioxane	123-91-1	170	NBP
Diphenylamine	122-39-4	13	NBP
Diphenylnitrosamine	86-30-6	13	NBP
1,2-Diphenylhydrazine	122-66-7	NA	NBP
Disulfoton	298-04-4	6.2	NBP
Dithiocarbamates6	NA	28	NBP
Endosulfan I	959-98-8	0.066	NBP
Endosulfan II	33213-65-9	0.13	NBP
Endosulfansulfate	1031-07-8	0.13	NBP
Endrin	72-20-8	0.13	NBP
Endrin aldehyde	7421-93-4	0.13	NBP
EPTC6	759-94-4	1.4	NBP
Ethyl acetate	141-78-6	33	NBP
Ethyl benzene	100-41-4	10	NBP
Ethyl cyanide	107-12-0	360	NBP
Ethyl ether	60-29-7	160	NBP
Ethyl methacrylate	97-63-2	160	NBP
Ethylene oxide	75-21-8	NA	NBP
Famphur	52-85-7	15	NBP
Fluoranthene	206-44-0	3.4	NBP
Fluorene	86-73-7	3.4	NBP
Formetanate hydrochloride	23422-53-9	1.4	NBP
Heptachlor	76-44-8	0.066	NBP
Heptachlorepoxide	1024-57-3	0.066	NBP
Hexachlorobenzene	118-74-1	10	NBP

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Hexachlorobutadiene	87-68-3	5.6	NBP
Hexachlorocyclopentadiene	77-47-4	2.4	NBP
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	NBP
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	NBP
Hexachloroethane	67-72-1	30	NBP
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	NBP
Iodomethane	74-88-4	65	NBP
Isobutyl alcohol	78-83-1	170	NBP
Isodrin	465-73-6	0.066	NBP
Isosafrole	120-58-1	2.6	NBP
Kepone	143-50-0	0.13	NBP
Methacrylonitrile	126-98-7	84	NBP
Methanol	67-56-1	0.75 mg/L TCLP	NBP
Methapyrilene	91-80-5	1.5	NBP
Methiocarb	2032-65-7	1.4	NBP
Methomyl	16752-77-5	0.14	NBP
Methoxychlor	72-43-5	0.18	NBP
3-Methylcholanthrene	56-49-5	15	NBP
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	NBP
Methylene chloride	75-09-2	30	NBP
Methyl ethyl ketone	78-93-3	36	NBP
Methyl isobutyl ketone	108-10-1	33	NBP
Methyl methacrylate	80-62-6	160	NBP
Methyl methanesulfonate	66-27-3	NA	NBP
Methyl parathion	298-00-0	4.6	NBP
Metolcarb	1129-41-5	1.4	NBP
Mexacarbate	315-18-4	1.4	NBP
Molinate	2212-67-1	1.4	NBP
Naphthalene	91-20-3	5.6	NBP
2-Naphthylamine	91-59-8	NA	NBP
o-Nitroaniline	88-74-4	14	NBP
p-Nitroaniline	100-01-6	28	NBP
Nitrobenzene	98-95-3	14	NBP
5-Nitro-o-toluidine	99-55-8	28	NBP
o-Nitrophenol	88-75-5	13	NBP
p-Nitrophenol	100-02-7	29	NBP
N-Nitrosodiethylamine	55-18-5	28	NBP
N-Nitrosodimethylamine	62-75-9	2.3	NBP
N-Nitroso-di-n-butylamine	924-16-3	17	NBP
N-Nitrosomethylethylamine	10595-95-6	2.3	NBP
N-Nitrosomorpholine	59-89-2	2.3	NBP
N-Nitrosopiperidine	100-75-4	35	NBP
N-Nitrosopyrrolidine	930-55-2	35	NBP
Oxamyl	23135-22-0	0.28	NBP
Parathion	56-38-2	4.6	NBP
Total PCBs	1336-36-3	10	NBP
Pebulate	1114-71-2	1.4	NBP
Pentachlorobenzene	608-93-5	10	NBP
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	NBP
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	NBP
Pentachloroethane	76-01-7	6	NBP

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pentachloronitrobenzene	82-68-8	4.8	NBP
Pentachlorophenol	87-86-5	7.4	NBP
Phenacetin	62-44-2	16	NBP
Phenanthrene	85-01-8	5.6	NBP
Phenol	108-95-2	6.2	NBP
Phorate	298-02-2	4.6	NBP
Phthalic acid	100-21-0	28	NBP
Phthalic anhydride	85-44-9	28	NBP
Physostigmine	57-47-6	1.4	NBP
Physostigmine salicylate	57-64-7	1.4	NBP
Promecarb	2631-37-0	1.4	NBP
Pronamide	23950-58-5	1.5	NBP
Propham	122-42-9	1.4	NBP
Propoxur	114-26-1	1.4	NBP
Prosulfocarb	52888-80-9	1.4	NBP
Pyrene	129-00-0	8.2	NBP
Pyridine	110-86-1	16	NBP
Safrole	94-59-7	22	NBP
Silvex/2,4,5-TP	93-72-1	7.9	NBP
1,2,4,5-Tetrachlorobenzene	95-94-3	14	NBP
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	NBP
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	NBP
1,1,1,2-Tetrachloroethane	630-20-6	6	NBP
1,1,2,2-Tetrachloroethane	79-34-5	6	NBP
Tetrachloroethylene	127-18-4	6	NBP
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	NBP
Thiodicarb	59669-26-0	1.4	NBP
Thiophanate-methyl	23564-05-8	1.4	NBP
Toluene	108-88-3	10	NBP
Toxaphene	8001-35-2	2.6	NBP
Triallate	2303-17-5	1.4	NBP
Tribromomethane/Bromoform	75-25-2	15	NBP
2,4,6-Tribromophenol	118-79-6	7.4	NBP
1,2,4-Trichlorobenzene	120-82-1	19	NBP
1,1,1-Trichloroethane	71-55-6	6	NBP
1,1,2-Trichloroethane	79-00-5	6	NBP
Trichloroethylene	79-01-6	6	NBP
Trichlorofluoromethane	75-69-4	30	NBP
2,4,5-Trichlorophenol	95-95-4	7.4	NBP
2,4,6-Trichlorophenol	88-06-2	7.4	NBP
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	NBP
1,2,3-Trichloropropane	96-18-4	30	NBP
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	NBP
Triethylamine	121-44-8	1.5	NBP
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.1	NBP
Vernolate	1929-77-7	1.4	NBP
Vinyl chloride	75-01-4	6	NBP
Xylenes-mixed	1330-20-7	30	NBP
Antimony	7440-36-0	1.15 mg/L TCLP	NBP
Arsenic	7440-38-2	5.0 mg/L TCLP	NBP
Barium	7440-39-3	21 mg/L TCLP	NBP

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Beryllium	7440-41-7	1.22 mg/L TCLP	NBP
Cadmium	7440-43-9	0.11 mg/L TCLP	NBP
Chromium	7440-47-3	0.60 mg/L TCLP	NBP
Cyanides	57-12-5	590.0	NBP
Cyanides (Amenable)	57-12-5	30.0	NBP
Fluoride[1]	16984-48-8	NA	NBP
Lead	7439-92-1	0.75 mg/L TCLP	NBP
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	NBP
Mercury (All Others)	7439-97-6	0.025 mg/L TCLP	NBP
Nickel	7440-02-0	11 mg/L TCLP	NBP
Selenium[1]	7782-49-2	5.7 mg/L TCLP	NBP
Silver	7440-22-4	0.14 mg/L TCLP	NBP
Sulfide[1]	18496-25-8	NA	NBP
Thallium	7440-28-0	0.20 mg/L TCLP	NBP
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	NBP
Zinc[1]	7440-66-6	4.3 mg/L TCLP	NBP

NBP = No analysis has been performed, but the chemical is Not Believed to be Present based on process knowledge and material safety data sheets.

BP = No analysis has been performed, but the chemical is Believed to be Present based on process knowledge and material safety data sheets

< Indicates below detection level.

1 Not an Underlying Hazardous Constituent.

Laboratory results converted from mg/L (ppm) to mg/kg using the specific gravity in the following manner:

$$\frac{\left(X\,\frac{mg}{L}\right)}{(specific gravity)\left(1\frac{g}{ml}\right)\times\left(\frac{1kg}{1000g}\right)\times\left(\frac{1000ml}{1\mathrm{L}}\right)} = X\,/\,(specific gravity)\frac{mg}{kg}$$

Laboratory results converted from ug/L (ppb) to mg/kg using the specific gravity in the following manner:

$$\frac{\left(X\,\frac{ug}{L}\right)}{(specific gravity)\left(1000\frac{\mu g}{g}\right)\left(1\frac{g}{ml}\right)\times\left(\frac{1kg}{1000g}\right)\times\left(\frac{1000ml}{1\mathrm{L}}\right)} = X\,/\left[1000\times(specific gravity)\right]\frac{mg}{kg}$$

Certification Statement:

'I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.'

Maurice Bonne	______________________	____________
Name	Signature	Date

United States
Environmental Protection
Agency

EPA530-F-99-043
December 1999
www.epa.gov

Solid Waste and Emergency Response

EPA

Land Disposal Restrictions for Hazardous Wastes

A Snapshot of the Program

EPA
United States
Environmental Protection Agency
(5306W)
Washington, DC 20460

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The mission of the U.S. Environmental Protection Agency (EPA) is to protect human health and the environment—air, water, and land. One way EPA fulfills this mission is by regulating the management and disposal of hazardous wastes under a law known as the Resource Conservation and Recovery Act (RCRA).

Congress passed RCRA in 1976 to ensure hazardous waste is safely managed from generation to disposal. In 1984, Congress updated RCRA by prohibiting land disposal of certain hazardous wastes, and, as a result, EPA developed the Land Disposal Restrictions (LDR) program. The LDR program requires that protective treatment standards must be met before hazardous waste is land disposed. This brochure provides a brief introduction to the LDR requirements and identifies sources of more information.

What Is Land Disposal?

Currently, about 23 million tons of hazardous waste are land disposed each year. Land disposal can be either in or on the ground—in a landfill, injection well, or other land-based unit.

Even though landfill units are equipped with safeguards, when hazardous waste is not properly treated before land disposal, it can contaminate groundwater. Rain can penetrate and pass through hazardous waste and can leach out and carry hazardous chemicals into the groundwater.

What Is the LDR Program?

The LDR program ensures that land disposed hazardous waste does not pose a threat to human health and the environment. EPA accomplishes this by setting treatment standards for all hazardous waste bound for land disposal. These treatment standards ensure hazardous waste is properly treated to destroy or immobilize hazardous chemical components before it is land disposed.

What Are the Program's Major Components?

The LDR program has three major components, which address hazardous waste disposal, dilution, and storage.

The Disposal Prohibition states that, before a hazardous waste can be land disposed, treatment standards specific to that waste material must be met. A facility may meet such standards by either:

- Treating hazardous chemical constituents in the waste to meet required treatment levels. Any method of treatment can be used to bring concentrations to the appropriate level except dilution.

OR

- Treating hazardous waste using a treatment technology specified by EPA. Once the waste is treated with the technology required under LDR, it can be land disposed.

The Dilution Prohibition states that waste must be properly treated and not simply diluted in concentration by adding large amounts of water, soil, or non-hazardous waste. Dilution does not reduce the toxicity of the hazardous constituents.

The Storage Prohibition states that waste must be treated and cannot be stored indefinitely. This prevents generators and treatment, storage, and disposal facilities from storing hazardous waste for long periods to avoid treatment. Waste may be stored, subject to the LDR, in tanks, containers, or containment buildings—but only for the purpose of accumulating quantities necessary to facilitate proper recovery, treatment, or disposal.

When Do the Restrictions Apply?

As soon as a hazardous waste is generated, it is subject to the three LDR prohibitions described above, unless the waste generated is at concentrations already below the LDR treatment standards. If a business generates hazardous wastes that are above the LDR treatment standards, it must either treat the wastes on site before having them disposed of, or send them off site for proper treatment and ultimate disposal. If the hazardous waste meets the LDR treatment standards, further treatment is not necessary prior to disposal. A generator must always inform the receiving treatment, storage, and disposal facility of the status of the hazardous waste and ensure that it is handled safely.

Who Is Impacted by the LDR Program?

The LDR program impacts many small and large businesses that generate, store, transport, treat, and dispose of hazardous waste. If a business or service produces more than 220 pounds of hazardous waste (or 2.2 pounds of acutely hazardous waste) in a calendar month, it must properly identify the waste and determine if it has to be treated before land disposal. The LDR program also requires all treatment, storage, and disposal facilities to follow strict standards when managing the hazardous waste they receive.

For More Information

For more information on the LDR program, treatment standards or technologies, or on the RCRA program in general, call the RCRA Hotline at 800 424-9346 or TDD (hearing impaired) 800 553-7672. In the Washington, DC, area, call 703 412-9810 or TDD 703 412-3323. You also can find more information on EPA's Web site at <www.epa.gov/epaoswer/hazwaste/ldr>.

What Is Hazardous Waste?

The U.S. Environmental Protection Agency (EPA) uses the term "hazardous waste" to identify wastes that could be harmful to human health and the environment. The Resource Conservation and Recovery Act (RCRA) regulates waste as "hazardous" if it meets the RCRA definition of solid waste (see box) **and** is specifically listed as hazardous **or** exhibits a characteristic of hazardous waste.

What Is "Solid Waste"?

Solid waste is discarded material including garbage, refuse, and sludge, and can be solid, semisolid, liquid, or contain gaseous materials.

Listed Wastes

A solid waste is regulated as hazardous if it is included on specific EPA lists:

- Wastes from specific industry sectors, such as certain petroleum refining wastes.
- Wastes from general industrial processes, such as spent solvents used for cleaning or degreasing.
- Discarded chemicals that are threatening to human health in low doses, even when managed properly.

Characteristic Wastes

A solid waste also is regulated as hazardous if it exhibits one or more of the following characteristics: catches fire readily, corrodes steel, explodes readily, or has toxic constituents.

Exclusions

Some wastes that meet the RCRA definitions of solid and hazardous wastes are specifically excluded or exempted from the hazardous waste regulations. For example, some oil and gas exploration and mining wastes are excluded, as are some hazardous wastes that have been recycled.

GENERATION AND MANAGEMENT OF CESQG WASTE

Office of Solid Waste
Municipal and Industrial Solid Waste Division
U.S. Environmental Protection Agency

July 1994

Prepared under contract no. 68-W3-0008 by:

ICF Incorporated
9300 Lee Highway
Fairfax, VA 22031

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EXECUTIVE SUMMARY

This report summarizes existing data on the waste generation and management practices of conditionally-exempt small quantity generators (CESQGs) to help EPA satisfy the RCRA Section 4010(c) mandate for non-municipal facilities that may receive CESQG waste.[1] The data included in this report are summarized from seven national, state, and local studies on CESQGs. These data sources are described in greater detail in Exhibit A-1 of Appendix A. One of these sources, the *National Small Quantity Hazardous Waste Generator Survey* (National SQG Survey), provides a comprehensive overview of CESQG waste generation and management practices nationwide. This survey was conducted from 1983 to 1984. Findings from the *National SQG Survey* are summarized below:

- **Number of CESQGs**. The total number of CESQGs in both manufacturing and non-manufacturing sectors nationwide is approximately 455,000.

- **CESQG Waste Volume**. The total waste volume generated by all CESQGs nationwide is approximately 201,600 tons per year (tons/yr).

The remaining findings of this survey are based on detailed data collected from establishments in 125 targeted SIC codes. These industries were targeted because they were identified as most likely to be CESQGs. The 125 SIC codes were grouped into 22 industry groups for comparison purposes.

- **Major CESQG Waste Generating Industries**. For the 22 industry groups, approximately 80 percent of establishments are in the non-manufacturing sector and these establishments generate approximately 88 percent of the CESQG waste volume. The remaining 20 percent of establishments are in the manufacturing sector, generating approximately 12 percent of the CESQG waste volume. The vehicle maintenance industry is the largest industry both in terms of number of generators (approximately 54 percent of all generators) and waste volume (approximately 71 percent of waste volume) for the 22 industries surveyed. Other major non-manufacturing industries include laundries, construction, and pesticide application services and end users. Key manufacturing industries include metals manufacturing and printing and ceramics.

- **Major CESQG Waste Types**. The major CESQG waste types for the 22 industry groups surveyed are used lead-acid batteries, spent solvents and still bottoms, perchloroethylene, and photographic wastes.

- **CESQG Waste Management Practices**. For the 22 industry groups surveyed, approximately 80 percent of CESQG waste is managed off-site, with the remainder managed on-site. The predominant off-site management methods include:

  -- Recycling (73 percent of waste managed off-site or 69,900 tons/yr);

  -- Disposal at a non-hazardous solid waste landfill[2] (Ten percent of waste managed off-site, or 9,300 tons/yr), either by direct haul or mixture with the solid waste stream at the point of generation; and

  -- Disposal at a permitted Subtitle C landfill (two percent of the waste managed off-site, or 2,000 tons/yr).

  The predominant on-site management methods for the 22 industries surveyed include:

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[1] Code of Federal Regulations (CFR), Title 40, Section 261.5 defines CESQGs as generators of less than 100 kilograms per month (kg/mo) of hazardous waste or 1 kg/mo of acutely hazardous waste.

[2] The *National Small Quantity Hazardous Waste Generator Survey* does not distinguish between a municipal or non-municipal (e.g., industrial, construction and demolition landfill).

-- Disposal in the sewer and/or septic system (56 percent of the waste managed on-site, or 14,600 tons/yr); and

-- Disposal in a non-hazardous solid waste landfill (two percent of the waste managed on-site, or 509 tons/year).

Although EPA believes that the *National SQG Survey* provides a relatively comprehensive and national picture of CESQG waste generation and management practices, the Agency feels that the findings should be viewed in context; the data for the survey were collected during 1983 and 1984, nearly a decade ago. EPA believes that the current situation regarding CESQG waste generation and management practices is substantially different from when these data were collected. Significant changes have taken place over the past few years, for example:

- ♦ New wastes have entered and exited the hazardous waste system;
- ♦ The methodology for identifying characteristic wastes has changed;
- ♦ Superfund liability concerns have become an important factor for industry to consider when determining waste management options; and
- ♦ New regulatory activities, such as reporting under the Toxics Release Inventory, have been catalysts for industry to change manufacturing processes and other practices to reduce waste volumes and toxicity.

Other data sources reviewed in this report present findings that are both similar and dissimilar from the *National SQG Survey*. The findings of these data sources should also be viewed in context. For example, some sources are narrow in scope (i.e., state and local data), making comparisons difficult. In addition, several sources conducted surveys on a limited number of industries or on one sector (e.g., manufacturing sector).

One data source reviewed in this report, *Hazardous Waste From Small Quantity Generators* (SQG book), provides further information on state requirements for CESQGs. This source finds that 34 states[3] had one or more requirements for CESQGs that were more stringent than Federal regulations for CESQGs. Specifically, 22 states require all or some CESQGs to manage their hazardous waste at a permitted Subtitle C facility, thus going beyond Federal regulations and prohibiting disposal at a municipal or industrial solid waste facility.[4]

[3] For the purpose of this report "states" includes the 50 states and the District of Columbia.

[4] Among other options, 40 CFR 261.5(g) requires CESQGs to manage their hazardous waste in an on-site or off-site management facility that is a permitted or interim status Subtitle C Hazardous waste management facility, or is a state permitted, licensed, or registered municipal or industrial solid waste management facility.

SECTION I. INTRODUCTION

BACKGROUND

In 1980, EPA promulgated regulations pursuant to RCRA that, among other things, delineated responsibilities for hazardous waste generators, transporters, and management facilities (treatment, storage, and disposal facilities, or TSDFs). Additionally, the regulations established a conditional exclusion from full regulation for generators that generated less than 1,000 kg/mo of hazardous waste .

In the 1984 amendments to RCRA (the Hazardous and Solid Waste Amendments (HSWA)), Congress added specific provisions pertaining to generators of less than 1,000 kg/mo, including lowering the exclusion level to 100 kg/mo. This action created three classes of generators: (1) large quantity generators, generators of greater than 1,000 kg/mo; (2) small quantity generators, generators of 100 to 1,000 kg/mo; and (3) generators of less than 100 kg/mo, which at the time were referred to as very small quantity generators. Congress gave EPA the discretion as to whether to promulgate new requirements for the very small quantity generators.

EPA has since defined generators of less than 100 kg/m as conditionally-exempt small quantity generators, or CESQGs. This conditional exemption does not require CESQGs to comply with several regulations specified for generators of more than 100 kg/mo, such as requirements to obtain an EPA identification number, use a manifest when shipping hazardous waste, report to EPA on a biannual basis, or send their hazardous waste to a permitted or interim status Subtitle C facility. CESQGs, however, are responsible for the proper management of their hazardous waste, which, among other things, includes the options to manage their hazardous waste in a state permitted, licensed, or registered municipal or industrial solid waste management facility, or in a permitted or interim status Subtitle C management facility.

Section 4010(c) of RCRA (as amended by HSWA in 1984) requires EPA to promulgate new regulations for all solid waste (i.e., non-hazardous) facilities that may receive hazardous household wastes or hazardous wastes from conditionally-exempt small quantity generators. In October 1991, EPA promulgated revised criteria pursuant to Section 4010(c) for municipal solid waste landfills (codified at 40 CFR Part 258). These revised criteria fulfilled EPA's obligation with respect to one waste category, household hazardous wastes. Municipal solid waste landfills, however, may also accept CESQG waste; and to the extent that they do, EPA's obligation with respect to this class of waste has also been fulfilled. To complete fulfillment of the statutory mandate, EPA is currently reviewing regulatory options to revise criteria for non-municipal facilities that may receive CESQG waste.

This report summarizes existing data on CESQG waste generation and management practices to assist EPA in analyzing regulatory options. In addition, Exhibit C-1 in Appendix C presents the results of a brief search for available pollution prevention opportunities for some of the major CESQG waste generating industries.

METHODOLOGY AND DATA SOURCES

This report identifies and analyzes the findings and results of seven studies that address CESQG waste generation and management practices. A more detailed discussion of each study, including the study's data source, scope, year of completion, methodology, and response rate, if applicable, can be found in Exhibit A-1 of Appendix A. The studies are summarized as follows:

(1) ***National Small Quantity Hazardous Waste Generator Survey*** **(National SQG Survey)**. This is a survey of 22 manufacturing and non-manufacturing industries conducted during 1983 and 1984 for EPA's Office of Solid Waste. The survey targeted those industries whose firms were thought to be significant generators of less than 1,000 kg/mo of hazardous waste. The survey distinguishes CESQGs from SQGs.

(2) ***Screening Survey of Industrial Subtitle D Establishments*** **(Telephone Screening Survey (TSS))**. During 1987, EPA conducted a survey of 17 manufacturing industries that generate significant quantities of non-hazardous waste and dispose of this waste on-site in land-based units (i.e., surface impoundments, landfills, waste piles, and land application units). Among those firms that disposed non-hazardous waste on-site in land-based units, the survey sought information on whether the firms also generated CESQG waste and whether they managed this waste in on-site, land-based units as well.

(3) ***Hazardous Waste From Small Quantity Generators*** **(SQG book).** This book, published in 1990, is primarily a guide for businesses and governments on the proper management of hazardous waste from small quantity generators. The book, however, is useful for this report because it gives an estimate of the number of CESQG establishments and details state requirements for CESQGs as of 1990.

(4) ***Moderate Risk Waste: A Progress Report*** **(Washington CESQG Report)**. This report, prepared in December 1990 by the State of Washington, details the State's progress in managing moderate risk waste, which the state defines to include CESQG waste.

(5) ***Washington 1988 Hazardous Waste Annual Report Summary*** **(Washington HW Summary)**. The State of Washington requires CESQGs, as well as all other hazardous waste generators, to report annually on their waste generation and management practices. This summary provides data for those CESQGs that submitted reports in 1988.

(6) ***Survey of Conditionally Exempt Small Quantity Generators of Hazardous Waste in Montgomery County, Maryland*** **(Montgomery County Survey)**. In 1993, Montgomery County, Maryland surveyed firms in seven industries that were thought to be major CESQG waste generating industries. This report details the waste generation and management practices of CESQGs responding to the survey.

(7) ***Hazardous Waste From CESQGs in the Municipal Waste Stream: A Literature Review*** **(Literature Review)**. Prepared for EPA in September 1993, this is a literature review of several state and local studies that have characterized CESQG waste generation and management practices, as well as requirements for CESQGs in several states and municipalities.

OUTLINE OF THE REMAINDER OF THE REPORT

The remainder of this report is organized into the following five sections:

- **Section II** summarizes the major findings of the national studies of CESQG waste generation and management practices;

- **Section III** summarizes the major findings of state and local studies of CESQG waste generation and management practices;

- **Section IV** discusses Federal and state requirements for CESQGs;

- **Section V** briefly discusses methods required by four states to screen out CESQG waste at off-site non-hazardous waste management facilities; and

- **Section VI** presents conclusions for this report.

In addition, this report includes three appendices:

- **Appendix A** provides summary data tables for the information presented in Sections II and III;

- **Appendix B** provides a summary data table for Federal and State requirements for CESQGs, discussed in Section IV; and

- **Appendix C** presents the results of a brief search for available pollution prevention opportunities for some of the major CESQG waste generating industries.

SECTION II. CHARACTERIZATION OF CESQGs: MAJOR FINDINGS FROM NATIONAL STUDIES

This section summarizes the major findings from three national studies regarding CESQG waste generation and management practices. These three studies are:

- ***National Small Quantity Hazardous Waste Generator Survey*** **(National SQG Survey);**
- ***Screening Survey of Industrial Subtitle D Establishments*** **(TSS); and**
- ***Hazardous Waste From Small Quantity Generators*** **(SQG book).**

The scope and methodology, as well as other information, for each of these three studies are presented in Exhibit A-1 of Appendix A. EPA believes that of these three data sources, the *National SQG Survey* presents the most comprehensive information on CESQG waste generation and management practices nationwide. However, the Agency believes that the findings of this survey should be viewed with caution, since the data for this survey were collected in 1983-1984, nearly a decade ago. Over the past few years several significant changes have taken place that have affected CESQG waste generation and management practices, for example:

- New waste types are generated while others may no longer be generated;
- The methodology for identifying characteristic wastes has changed;
- Superfund liability concerns have become an important factor for industry to consider when determining waste management options; and
- New regulatory activities (e.g., reporting under the Toxics Release Inventory) have been catalysts for industry to change manufacturing processes and other practices to reduce waste volumes and toxicity.

Other data limitations of the *National SQG Survey* and the other two national sources are discussed below in conjunction with a summary of the sources' major findings.

A. NUMBER OF CESQGS AND WASTE VOLUME

Exhibit 1 summarizes the findings from the three national studies regarding the number of CESQG establishments nationwide and the total volume of CESQG waste.

Number of CESQGs

As Exhibit 1 indicates, the number of all CESQGs nationwide is estimated to range from 455,000 to 700,000. The *National SQG Survey* estimates that there are 455,000 CESQG establishments nationwide. This data source bases this estimate on an extrapolation of data collected from a survey of 22 manufacturing and non-manufacturing industries thought to be significant generators of hazardous waste in quantities of less than 1,000 kg/mo. The data for this survey were collected in 1983-1984. The second estimate of the total number of CESQGs nationwide, 700,000, is found in the *SQG book*. The *SQG book* bases this estimate on an extrapolation of data provided by two sources: (1) marketing figures from waste management firms; and (2) CESQG data from five states and 11 counties. One limitation with the *SQG book's* estimate of 700,000 is that the data were not collected from a scientific national survey, as is the

EXHIBIT 1
Number of CESQGs and CESQG Waste Volume[5]
(national studies)

Title of National Study	Scope of Study	Number of CESQGs	CESQG Waste Volume (tons/yr)
National Small Quantity Hazardous Waste Generator Survey	All Industries	455,000	201,600
Hazardous Waste From Small Quantity Generators	All Industries	700,000	--
Screening Survey of Industrial Subtitle D Establishments	17 MFR[6] Industries	3,742	--

case with the *National SQG Survey*. Further, the five states and 11 counties are not identified in the book, making it difficult to determine whether these studies provided an appropriate sample from which to extrapolate national estimates, or to identify the age of the data collected for these studies.

The third national study, the *TSS*, estimates that there are 3,742 CESQG establishments nationwide. This estimate is significantly different than the other two national estimates for the following reasons:

- ♦ Whereas the other two data sources estimate the total number of CESQGs in both manufacturing and non-manufacturing sectors, the *TSS* estimates the total number of CESQG establishments in 17 manufacturing industries only; and

- ♦ Further, these 3,742 establishments are the number of establishments in 17 manufacturing industries that in addition to generating and managing non-hazardous waste in on-site, land-based units, also generate CESQG waste. (Exhibit A-2 in Appendix A diagrams the sequence of questions used in the *TSS*.)

This source is significant, however, since an estimated 605 of the 3,742 establishments also dispose of their CESQG waste in on-site, land-based units. These estimates should also be viewed with caution since the *TSS* was conducted in 1987. Since then some of these establishments may have ceased disposal of CESQG waste in on-site, land-based units due to state regulatory changes or increased liability concerns. Nonetheless, to the extent that establishments continue to dispose of their CESQG waste in on-site, land-based units, any revisions to criteria under Section 4010(c) of RCRA that EPA may consider for facilities managing CESQG waste may impact how these establishments manage their CESQG waste.

CESQG Waste Volume

As Exhibit 1 indicates, only one national study, the *National SQG Survey* estimates total CESQG waste volume nationwide, 201,600 tons per year (tons/yr). At the time that the data for this study were collected, 1983-1984, this total CESQG waste volume represented only 0.07 percent of the total amount of hazardous waste generated

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[5] The findings in this exhibit are taken directly from the associated study or have been calculated using other results included in the study.

[6] MFR denotes "manufacturing" and N-MFR denotes "non-manufacturing."

by all generators (conditionally-exempt, small quantity, and large quantity), estimated at approximately 290,000,000 tons/yr.

More recent state and local studies suggest that these national estimates for the number of CESQG establishments and total CESQG waste volume, however, appear to be low. For example, according to the Washington Department of Ecology, Washington State alone had approximately 43,000 CESQGs generating 53,200 tons/yr of hazardous waste in 1990. This waste volume amount represents nearly one-third of the total national waste volume estimate. State and local studies are discussed in greater detail in Section III.

B. MAJOR CESQG WASTE GENERATING INDUSTRIES AND WASTE TYPES

Exhibit 2 lists the major CESQG waste generating industries and CESQG waste types identified by two national sources; the *SQG book* did not provide estimates for these data elements.

EXHIBIT 2
Major CESQG Waste Generating Industries and Waste Types
(national studies)

Title of National Study	Scope of Study	Major CESQG Generating Industries	Major CESQG Waste Types[7]
National SQG Survey	(22 MFR, N-MFR* Industries)	♦ vehicle maintenance ♦ metals manufacturing ♦ laundries ♦ printing/ceramics ♦ other services ♦ pesticide users/appliers ♦ construction	♦ lead-acid batteries (61%) ♦ spent solvents/still bottoms (18%) ♦ dry cleaning filter residues (5%) ♦ photographic wastes (4%) ♦ formaldehyde (3%) ♦ acids and akalides (2%)
TSS	(17 MFR Industries)	♦ stone, clay, glass, and concrete ♦ food and kindred products ♦ primary steel and iron ♦ textile manufacturing ♦ pulp and paper	Not Provided in Report

* MFR denotes "manufacturing" and N-MFR denotes "non-manufacturing."

Major CESQG Waste Generating Industries

As Exhibit 2 indicates, the *National SQG Survey* identifies the vehicle maintenance industry as the largest CESQG industry (from the 22 industry groups surveyed) both in terms of number of CESQGs (54 percent) and waste volume (71 percent). This data source finds that the following industries are also major CESQG waste generating industries:

♦ **Metals Manufacturing** generates the second highest amount of CESQG waste for the industries surveyed, approximately 6.1 percent, and nearly one half of the CESQG waste volume in the manufacturing sector alone;

♦ **Laundries** generate approximately 4.8 percent of total CESQG waste volume for the industries surveyed;

[7] Percentages in parentheses shows the percent of total waste volume for the waste types as reported in the associated study or determined through calculations using other findings reported in the study.

- **Printing/Ceramics** generates nearly 4.8 percent of total CESQG waste volume for the industries surveyed, and nearly 39 percent of CESQG waste in the manufacturing sector alone;

- **Pesticide End Users and Application Services** generate approximately 2.1 percent of all CESQG waste volume for the industries surveyed;

- **Construction** generates 1.9 percent of CESQG waste for the industries surveyed; and

- **Photography** generates approximately 1.8 percent of total CESQG waste for the industries surveyed.

Exhibit 3 compares these industries both in terms of number of generators and waste volume. This exhibit indicates that according to the *National SQG Survey*, non-manufacturing industries dominate both in terms of number of CESQG establishments and waste volume. More recent state and local studies (discussed in Section III) also find that major CESQG industries are predominantly in the non-manufacturing sector. Three of these studies find that the vehicle maintenance industry is the largest or second largest CESQG industry. Comparing state and local findings with those of the *National SQG Survey* should be done with caution, however, since these studies may or may not include used motor oil or used lead-acid batteries as a waste type for the vehicle maintenance industry, thus affecting the relative significance of this industry. The *National SQG Survey*, for example, did not include used motor oil as a waste type, while some state and local studies did.

The other national data source reviewed was the *TSS*. Again, it should be noted that this study surveyed 17 manufacturing industries only, and only identified establishments as CESQGs if, in addition to disposing non-hazardous waste in on-site, land-based units, they also generated CESQG waste. This survey found that 605 of the 3,742 CESQGs in these 17 manufacturing industries disposed of their waste in on-site, land-based units. The following five industries were identified as having a significant number of establishments that in addition to generating CESQG waste, also disposed of this waste in on-site, land-based units:

- Stone, Clay, Glass, and Concrete (26 percent of CESQG establishments that dispose of CESQG waste in on-site, land-based units);

- Food and Kindred Products (22 percent);

- Primary Iron and Steel (eight percent):

- Textile Manufacturing (eight percent); and

- Pulp and Paper (seven percent).

CESQG waste volumes are not reported in this study.

Comparing the results of the *TSS* to the *National SQG Survey* is problematic, considering that the *TSS* surveyed manufacturing industries only, while the *National SQG Survey* looked at both manufacturing and non-manufacturing industries. The only comparison between the two studies that can be made is for the textile manufacturing and pulp and paper industries. The *National SQG Survey* estimates that each of these two industries generates approximately 0.05 percent of the total CESQG waste volume. As a result of this waste generation amount, the *National SQG Survey* found both industries to be relatively small

Contains Data for

Postscript Only.

generators of CESQG waste. None of the state and local studies identified any of the industries listed in the *TSS* as major CESQG waste generating industries.

CESQG Waste Types

As Exhibit 2 indicates, only one national data source, the *National SQG Survey*, identified major CESQG waste types. This major waste types are presented in Exhibit 4.

Contains Data for

Postscript Only.

With the exception of spent solvents/still bottoms and acids and alkalides, these waste types are generally specific to one industry (formaldehyde is a significant waste type for the funeral service and crematory industry). Spent solvents/still bottoms and acids and alkalides, however, are significant waste types in several industries. Many state and local studies (see Section III) identified used motor oil as the largest CESQG waste type. The *National SQG Survey*, however, did not include this waste type, which probably accounts for the discrepancy. Several state and local studies found that spent solvents/still bottoms, used lead-acid batteries, and photographic wastes were major CESQG waste types. Again, comparing state and local studies to the *National SQG Survey* should be done with caution. Some state and local studies, for example, used *National SQG Survey* results to target their surveys, thus one might expect the results to be similar.

C. CESQG WASTE MANAGEMENT PRACTICES

Exhibit 5 summarizes the results of the *National SQG Survey* and the *TSS* regarding CESQG waste management practices.

EXHIBIT 5
CESQG Waste Management Practices[8]
(national studies)

Title of National Study	Scope of Study	Method of Management: Off-Site	Method of Management: On-Site
National Small Quantity Hazardous Waste Generator Survey	22 MFR and NMFR industries	80% of CESQG waste for the industries surveyed (95,226 tons/yr)	20% of CESQG waste for the industries surveyed (26,176 tons/yr)
		Recycling (73%) Unknown (13%) Solid Waste Landfill[9] (10%) Permitted Subtitle C Landfill (2%)	Sewer (46%) Septic System (10%) Solid Waste Incineration (3%) Solid Waste Landfill (2%).
Screening Survey of Industrial Subtitle D Establishments	17 MFR industries	84% of CESQG establishments in industries surveyed	16% of CESQG establishments in industries surveyed
		Subtitle C Facility Incineration Energy Recovery Tanks Recycling	Landfills Surface Impoundments Land Application Waste Pile

General CESQG Waste Management Practices

For the 22 industries surveyed, the *National SQG Survey* found that approximately 80 percent of the CESQG waste is managed off-site, while approximately 20 percent is managed on-site. The predominant off-site management methods for the 22 industries surveyed are:

- ♦ Recycling (73 percent of waste managed off-site or 69,900 tons/yr);

[8] The findings in this exhibit are found in the associated study or calculated using other results provided in the study. The waste amounts managed, as reported by the *National SQG Survey*, do not add up to 201,600 tons, since the managed amounts are based on data collected from the 22 surveyed industries, while the 201,600 figure is a national estimate extrapolated from the survey data.

[9] The study does not distinguish between municipal and non-municipal landfills.

- Disposal at a non-hazardous solid waste landfill[10] (ten percent of waste managed off-site, or 9,300 tons/yr), either by direct haul or mixture with the solid waste stream at the point of generation; and

- Disposal at a permitted Subtitle C landfill (two percent of the waste managed off-site, or 2,000 tons/yr).

The predominant on-site management methods for the 22 industries surveyed are:

- Disposal in the sewer and/or septic system (56 percent of the waste managed on-site, or 14,600 tons/yr); and

- Disposal in a non-hazardous solid waste landfill (two percent of the waste managed on-site, or 509 tons/year).

With regard to the data from the *National SQG Survey* four significant data limitations apply:

- The data on waste management methods is for only the 22 industries surveyed. Together these industries represented approximately 60 percent of total CESQG waste nationwide. No extrapolations of waste management data to a national level were given.

- A substantial portion of the CESQG waste from some industries is not allocated to any waste management method and no explanation for these data gaps is offered.

- The survey reports that approximately 13 percent of waste managed off-site by the 22 industries is managed in an "unknown" facility. "Unknown" is not defined.

- For off-site solid waste landfills, the study does not differentiate between municipal and non-municipal (e.g., industrial or construction and demolition landfill). This is an important distinction considering that EPA has revised criteria for municipal facilities, requiring these facilities to meet more stringent design and operating criteria than non-municipal facilities.

The *National SQG Survey* estimates that 1,956 generators in eight industries dispose of their CESQG waste at on-site solid waste landfills (509 tons/yr). These industries and the amount of waste disposed are listed in Exhibit A-3 of Appendix A. The estimates for disposal in on-site solid waste landfills for these eight industries, however, may be unreliable based on the fact that the study does not define the term "on-site solid waste landfill," and it seems unlikely that some of the industries cited (i.e., laundries, and pesticide end users) would have sufficient industrial solid waste to warrant an on-site landfill.

The other national study identified in Exhibit 5, the *TSS*, estimates that 605 (16 percent) of 3,742 CESQG establishments in 17 manufacturing industries dispose of their waste in an on-site, land-based unit that also receives non-hazardous waste. (Exhibit A-4 in Appendix A presents the results of this study.) The top five industries in terms of the total number of CESQG establishments that dispose CESQG waste in on-site, land-based units are identified in Exhibit 6. Again, the *TSS* does not provide waste volumes, only number of establishments. Also, the data for this survey were collected in 1987. Since then CESQGs may have ceased disposal of CESQG waste in on-site, land-based units due to changes in state requirements or increased liability concerns.

The only industries that overlap between the *TSS* and the *National SQG Survey* are textile manufacturing and pulp and paper. The *National SQG Survey* estimates that 14 generators in the **textile manufacturing** industry dispose of their CESQG waste in an on-site landfill. Although the *TSS* estimates that 50 generators in this industry dispose of their CESQG waste in an on-site, land-based unit, none of the generators use a landfill. Rather the study estimates that

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[10] The *National Small Quantity Hazardous Waste Generator Survey* does not distinguish between a municipal or non-municipal (e.g., industrial, construction and demolition landfill).

all 50 use a surface impoundment. Within the **pulp and paper** industry, the *National SQG Survey*, estimates that no generators dispose of their waste in an on-site solid waste landfill. The *TSS*, in contrast, estimates that six of the 43 CESQGs that dispose CESQG waste in an on-site, land-based unit manage this waste in a landfill. Again, these discrepancies are indicative of the difficulty in comparing these two national data sources. As discussed in Exhibit A-1 of Appendix A, each study had a different methodology and scope, which may be the underlying factors leading to these discrepancies.

Waste Management Practices in the Major CESQG Waste Generating Industries

The *National SQG Survey* provides information on the management practices of the major CESQG waste generating industries identified above. Exhibit 7 graphically shows the CESQG waste management practices of these industries.

Exhibit 7 illustrates that all industries send some portion of their CESQG waste to an off-site solid waste landfill (e.g., 49.5 percent of CESQG waste generated by laundries is sent to an off-site solid waste landfill, the largest amount of the seven industries). Again, the *National SQG Survey* does not distinguish between a municipal or a non-municipal solid waste landfill. With regard to disposal of CESQG waste in an on-site solid waste landfill, three industries (vehicle maintenance, printing/ceramics, and photography) do not use this management method, while the other four do. The construction industry, for, example, manages approximately 10.3 percent of its CESQG waste (263 tons/yr) in an on-site solid waste landfill. These estimates should be viewed with caution since the study does not define "on-site solid waste landfill."

generators of CESQG waste. None of the state and local studies identified any of the industries listed in the *TSS* as major CESQG waste generating industries.

CESQG Waste Types

As Exhibit 2 indicates, only one national data source, the *National SQG Survey*, identified major CESQG waste types. This major waste types are presented in Exhibit 4.

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With the exception of spent solvents/still bottoms and acids and alkalides, these waste types are generally specific to one industry (formaldehyde is a significant waste type for the funeral service and crematory industry). Spent solvents/still bottoms and acids and alkalides, however, are significant waste types in several industries. Many state and local studies (see Section III) identified used motor oil as the largest CESQG waste type. The *National SQG Survey*, however, did not include this waste type, which probably accounts for the discrepancy. Several state and local studies found that spent solvents/still bottoms, used lead-acid batteries, and photographic wastes were major CESQG waste types. Again, comparing state and local studies to the *National SQG Survey* should be done with caution. Some state and local studies, for example, used *National SQG Survey* results to target their surveys, thus one might expect the results to be similar.

C. CESQG WASTE MANAGEMENT PRACTICES

Exhibit 5 summarizes the results of the *National SQG Survey* and the *TSS* regarding CESQG waste management practices.

EXHIBIT 5
CESQG Waste Management Practices[8]
(national studies)

Title of National Study	Scope of Study	Method of Management	
		Off-Site	**On-Site**
National Small Quantity Hazardous Waste Generator Survey	22 MFR and NMFR industries	80% of CESQG waste for the industries surveyed (95,226 tons/yr)	20% of CESQG waste for the industries surveyed (26,176 tons/yr)
		Recycling (73%) Unknown (13%) Solid Waste Landfill[9] (10%) Permitted Subtitle C Landfill (2%)	Sewer (46%) Septic System (10%) Solid Waste Incineration (3%) Solid Waste Landfill (2%).
Screening Survey of Industrial Subtitle D Establishments	17 MFR industries	84% of CESQG establishments in industries surveyed	16% of CESQG establishments in industries surveyed
		Subtitle C Facility Incineration Energy Recovery Tanks Recycling	Landfills Surface Impoundments Land Application Waste Pile

General CESQG Waste Management Practices

For the 22 industries surveyed, the *National SQG Survey* found that approximately 80 percent of the CESQG waste is managed off-site, while approximately 20 percent is managed on-site. The predominant off-site management methods for the 22 industries surveyed are:

- Recycling (73 percent of waste managed off-site or 69,900 tons/yr);

[8] The findings in this exhibit are found in the associated study or calculated using other results provided in the study. The waste amounts managed, as reported by the *National SQG Survey*, do not add up to 201,600 tons, since the managed amounts are based on data collected from the 22 surveyed industries, while the 201,600 figure is a national estimate extrapolated from the survey data.

[9] The study does not distinguish between municipal and non-municipal landfills.

- Disposal at a non-hazardous solid waste landfill[10] (ten percent of waste managed off-site, or 9,300 tons/yr), either by direct haul or mixture with the solid waste stream at the point of generation; and

- Disposal at a permitted Subtitle C landfill (two percent of the waste managed off-site, or 2,000 tons/yr).

The predominant on-site management methods for the 22 industries surveyed are:

- Disposal in the sewer and/or septic system (56 percent of the waste managed on-site, or 14,600 tons/yr); and

- Disposal in a non-hazardous solid waste landfill (two percent of the waste managed on-site, or 509 tons/year).

With regard to the data from the *National SQG Survey* four significant data limitations apply:

- The data on waste management methods is for only the 22 industries surveyed. Together these industries represented approximately 60 percent of total CESQG waste nationwide. No extrapolations of waste management data to a national level were given.

- A substantial portion of the CESQG waste from some industries is not allocated to any waste management method and no explanation for these data gaps is offered.

- The survey reports that approximately 13 percent of waste managed off-site by the 22 industries is managed in an "unknown" facility. "Unknown" is not defined.

- For off-site solid waste landfills, the study does not differentiate between municipal and non-municipal (e.g., industrial or construction and demolition landfill). This is an important distinction considering that EPA has revised criteria for municipal facilities, requiring these facilities to meet more stringent design and operating criteria than non-municipal facilities.

The *National SQG Survey* estimates that 1,956 generators in eight industries dispose of their CESQG waste at on-site solid waste landfills (509 tons/yr). These industries and the amount of waste disposed are listed in Exhibit A-3 of Appendix A. The estimates for disposal in on-site solid waste landfills for these eight industries, however, may be unreliable based on the fact that the study does not define the term "on-site solid waste landfill," and it seems unlikely that some of the industries cited (i.e., laundries, and pesticide end users) would have sufficient industrial solid waste to warrant an on-site landfill.

The other national study identified in Exhibit 5, the *TSS*, estimates that 605 (16 percent) of 3,742 CESQG establishments in 17 manufacturing industries dispose of their waste in an on-site, land-based unit that also receives non-hazardous waste. (Exhibit A-4 in Appendix A presents the results of this study.) The top five industries in terms of the total number of CESQG establishments that dispose CESQG waste in on-site, land-based units are identified in Exhibit 6. Again, the *TSS* does not provide waste volumes, only number of establishments. Also, the data for this survey were collected in 1987. Since then CESQGs may have ceased disposal of CESQG waste in on-site, land-based units due to changes in state requirements or increased liability concerns.

The only industries that overlap between the *TSS* and the *National SQG Survey* are textile manufacturing and pulp and paper. The *National SQG Survey* estimates that 14 generators in the **textile manufacturing** industry dispose of their CESQG waste in an on-site landfill. Although the *TSS* estimates that 50 generators in this industry dispose of their CESQG waste in an on-site, land-based unit, none of the generators use a landfill. Rather the study estimates that

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[10] The *National Small Quantity Hazardous Waste Generator Survey* does not distinguish between a municipal or non-municipal (e.g., industrial, construction and demolition landfill).

all 50 use a surface impoundment. Within the **pulp and paper** industry, the *National SQG Survey*, estimates that no generators dispose of their waste in an on-site solid waste landfill. The *TSS*, in contrast, estimates that six of the 43 CESQGs that dispose CESQG waste in an on-site, land-based unit manage this waste in a landfill. Again, these discrepancies are indicative of the difficulty in comparing these two national data sources. As discussed in Exhibit A-1 of Appendix A, each study had a different methodology and scope, which may be the underlying factors leading to these discrepancies.

Waste Management Practices in the Major CESQG Waste Generating Industries

The *National SQG Survey* provides information on the management practices of the major CESQG waste generating industries identified above. Exhibit 7 graphically shows the CESQG waste management practices of these industries.

Exhibit 7 illustrates that all industries send some portion of their CESQG waste to an off-site solid waste landfill (e.g., 49.5 percent of CESQG waste generated by laundries is sent to an off-site solid waste landfill, the largest amount of the seven industries). Again, the *National SQG Survey* does not distinguish between a municipal or a non-municipal solid waste landfill. With regard to disposal of CESQG waste in an on-site solid waste landfill, three industries (vehicle maintenance, printing/ceramics, and photography) do not use this management method, while the other four do. The construction industry, for, example, manages approximately 10.3 percent of its CESQG waste (263 tons/yr) in an on-site solid waste landfill. These estimates should be viewed with caution since the study does not define "on-site solid waste landfill."

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SECTION III. CHARACTERIZATION OF CESQGs: MAJOR FINDINGS FROM STATE AND LOCAL STUDIES

This section summarizes the major findings from four state and local studies regarding CESQG waste generation and management practices. These studies are:

- ***Moderate Risk Waste: A Progress Report*** **(Washington CESQG Report)**;
- ***Washington 1988 Hazardous Waste Annual Report Summary*** **(Washington HW Summary)**;
- ***Survey of Conditionally Exempt Small Quantity Generators of Hazardous Waste in Montgomery County, Maryland*** **(Montgomery County Survey)**;
- ***Hazardous Waste From CESQGs in the Municipal Solid Waste Stream: A Literature Review*** **(Literature Review)**. This source includes several state and local studies. These studies are identifies in the relevant sections below.

The scope and methodology, as well as other information, for each of these studies is presented in Exhibit A-1 of Appendix A.

A. NUMBER OF CESQGS AND WASTE VOLUME

Exhibit 8 lists the number of CESQGs and CESQG waste volume found in several state and local studies.

Number of CESQGs

Seven studies listed in Exhibit 8 identify the number of CESQG establishments in the areas covered by the study. The studies listed in Exhibit 8 present a wide range of estimates for the number of CESQGs (from a low of 2,318 establishments in New Hampshire to a high of 43,000 establishments in Washington).[11] This wide range of estimates demonstrates the difficulty in extrapolating to national estimates based on state and local studies. State estimates of the number of CESQG establishments may be dependent upon various factors, such as how the state defines and counts CESQGs.

CESQG Waste Volume

One state and three local studies provide information on the volumes of CESQG waste in the areas covered by the study. Only Washington State provides an estimate of CESQG waste volume statewide, thus comparisons can not be made. Three local studies present varying results for CESQG waste volume, which may be attributed to varying demographics (rural versus urban), populations, and economic structure (manufacturing versus non-manufacturing industries). Again, the findings of these studies point out the difficulties in extrapolating to a national level.

Notwithstanding, the data limitations of these studies, the *Washington CESQG Report* indicates that the national estimates of the number of CESQGs (455,000) and CESQG waste volume (approximately 200,000 tons/yr) may be underestimates.[12]

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[11] Although the *Washington CESQG Report* indicates that there are 240,000 CESQG establishments statewide, this estimate has since been revised downward to 43,000. The amount of waste generated, however, remains the same, 53,000 tons/yr. (Telephone conversation with Mr. William Green, Washington Department of Ecology, May 4, 1994.)

[12] The National SQG Survey did not include used motor oil at all.

EXHIBIT 8
Number of CESQGs and CESQG Waste Volume[13]
(state and local studies)

Title of State or Local Study	Scope of Study	Number of CESQGs	CESQG Waste Volume (tons/yr)
Moderate Risk Waste: A Progress Report (State of Washington)	State (All Industries)	43,000	53,200
Hazardous Waste From CESQGs in the Municipal Waste Stream: A Literature Review			
State of Maine	State (All Industries)	5,000-10,000	
State of Massachusetts	State (All Industries)	13,500	
State of New Hampshire	State (All Industries)	2,318	
State of Vermont	State (All Industries)	2,500-12,000	
Central Vermont Solid Waste Management District	Counties (All Industries)	658	739
Thurston County, Washington	County (All Industries)		864
Survey of Conditionally Exempt Small Quantity Generators of Hazardous Waste in Montgomery County, Maryland	County (All Industries)	800-2,000	255-484

Moreover, Thurston County's report helps to understand the significance of including or excluding used motor oil, oil filters, and/or lead-acid batteries. For example, Thurston County calculated a total waste volume of 864 tons/yr when the waste stream included motor oil, oil filters, and lead-acid batteries for all industries. Excluding these components from the waste stream for all industries, however, significantly decreased CESQG waste volume to 115 tons/yr. Based on these results, it is apparent that had the *National SQG Survey* included waste oil, CESQG waste volumes may have been higher than reported.

B. MAJOR CESQG WASTE GENERATING INDUSTRIES AND WASTE TYPES

Exhibit 9 lists the major CESQG waste generating industries and waste types from state and local studies.

EXHIBIT 9
Major CESQG Waste Generating Industries and Waste Types
(state and local studies)

[13] The findings in this exhibit are taken directly from the associated study or have been calculated using other results included in the study.

Title of State or Local Study	Scope of Study	Major CESQG Generating Industries	Major CESQG Waste Types[14]
Moderate Risk Waste: A Progress Report (State of Washington)	State (All Industries)	Not Provided in Report	♦ oil (53%) ♦ paints and solvents (14%) ♦ batteries (14%) ♦ antifreeze (6%)
Washington 1988 Hazardous Waste Annual Report Summary	State (All Industries)	♦ business services ♦ human services ♦ wholesale and retail trade ♦ public administration	Not provided in Report
Hazardous Waste From CESQGs in the Municipal Waste Stream: A Literature Review			
State of Oregon	State (All Industries)	Uses National Figures	♦ lead-acid batteries (61%) ♦ spent solvents/still bottoms (23%) ♦ photographic waste (4%)
2 Counties in Vermont	Counties (All Industries)	♦ auto repair ♦ trucking ♦ firms with own truck fleet	♦ used motor oil (66%) ♦ solvents (16%) ♦ lead-acid batteries (7%) ♦ photographic wastes (4%) ♦ antifreeze (2%)
Central Vermont Solid Waste Management District	Counties (All Industries)	Not Provided in Report	♦ used motor oil (54%) ♦ solvents and degreasers (27%)

[14] Percentages in parentheses shows the percent of total waste volume for the waste types as reported in the associated study or determined through calculations using other findings reported in the study.

EXHIBIT 9 (continued)
Major CESQG Waste Generating Industries and Waste Types
(state and local studies)

Title of Study	Scope of Study	Major CESQG Generating Industries	Major CESQG Waste Types
Hazardous Waste From CESQGs in the Municipal Waste Stream: A Literature Review (continued)			
Thurston County, Washington	County (All Industries)	♦ auto repair ♦ auto dealer ♦ transportation ♦ miscellaneous wholesale ♦ miscellaneous business	♦ spent solvents ♦ used motor oil ♦ lead-acid batteries ♦ photographic waste ♦ antifreeze
Olmstead County, Minnesota	County (All Industries)	Not Provided in Study	♦ motor oil, antifreeze, brake/transmission fluids ♦ lead-acid batteries ♦ diesel, gas, kerosene ♦ spent solvents/still bottoms ♦ paint removers ♦ oil-based paints
Survey of Conditionally Exempt Small Quantity Generators of Hazardous Waste in Montgomery County, Maryland	County (7 MFR, N-MFR Industries)	♦ dry cleaners ♦ auto services ♦ printing and publishing ♦ photography ♦ landscapers/pesticides control ♦ general building contractors ♦ woodworking/painters	♦ perchloroethylene (31%) ♦ antifreeze (23%) ♦ solvents (17%) ♦ photography wastes (10%) ♦ inks/paints (7%) ♦ motor oil (7%)

Major CESQG Waste Generating Industries

As shown in Exhibit 9, state and local studies identify various types of industries as major CESQG waste generating industries. A limitation in comparing the major generating industries across studies is the basis for which a study determines the major industries. For example, the *Washington HW Summary*, which finds business and human services, wholesale and retail trade, and public administration as major CESQG generating industries, is based on those establishments that submitted the required annual report. Of the approximate 43,000 CESQGs in the State, only 143 submitted the annual report in 1988. This small sample size precludes the use of this study to determine major CESQG industries. Additionally, Montgomery County, Maryland only surveyed firms in seven industries that were thought to be the largest contributors of CESQG waste. With regard to the major CESQG waste generating industries identified in Section II, the state and local studies listed in Exhibit 9 show the following:

- **Vehicle Maintenance.** Thurston County, Washington reports that the vehicle maintenance industry generates 56 percent of CESQG waste in the county if used motor oil, oil filters, and lead-acid batteries are included and 31 percent when these three waste types are excluded. In both instances, vehicle maintenance is the largest generating industry in the county. In addition, the *Montgomery County Survey*, which excluded used motor oil and lead-acid batteries for the vehicle maintenance industry, reports that this industry still generates nearly one-fourth of total waste volume for the businesses surveyed, second only to laundries. Two county studies in Vermont found vehicle maintenance to be a major CESQG industry, however, neither offered an estimate of the relative size of the industry.

- **Laundries**. Only the *Montgomery County Survey* identified this industry as a major CESQG waste generating industry. In Montgomery County, Maryland laundries generate the most CESQG waste of the industries surveyed, 31 percent.

- **Printing/Ceramics**.[15] Again, only the *Montgomery County Survey* identified this industry as a major CESQG waste generating industry. Montgomery County, Maryland finds that printing and publishing, without ceramics, generates approximately 19 percent of CESQG waste for the industries surveyed.

- **Pesticide End Users and Application Services**. Montgomery County, Maryland surveyed businesses that use pesticides and other chemicals in the treatment of lawns and homes and found that these businesses generate 7.1 percent of CESQG waste volume for the industries surveyed. No other study identified these industries as major CESQG waste generating industries.

- **Construction**. In Montgomery County, Maryland and Thurston County, Washington this industry generates 6.4 and 2.6 percent of the CESQG waste volume, respectively.

- **Photography**. In Montgomery County, Maryland this industry generates approximately 7.3 percent of the total CESQG waste for the industries surveyed. No other study identified this industry as a major CESQG waste generating industry.

Thus, two or more state and local studies listed in Exhibit 9 concur with the results of the *National SQG Survey* (discussed in Section II) for two industries only (vehicle maintenance and construction).

CESQG Waste Types

Exhibit 9 lists several studies that identify major CESQG waste types and the relative significance of the waste types to the study's total CESQG waste volume. A significant factor limiting the comparison of these studies is how used motor oil and lead-acid batteries are classified. Current RCRA regulations exclude these waste types from regulations in the hands of the generator provided that the waste types are to be recycled or reused. As a result, some of the studies excluded these waste types from the vehicle maintenance industry, which reclaims these materials. This reduced the relative significance of these waste types in these studies. On the other hand, some studies included both waste types in the vehicle maintenance industry, which greatly increased their relative significance. All studies, however, included these waste types in other industries. As noted below, non-vehicle maintenance industries (photography, woodworking/painting, and general building contracting) generate significant quantities of used motor oil and lead-acid batteries.

These studies find that the following waste types are major CESQG waste types:

- **Used Motor Oil**. Six of the studies listed in Exhibit 9 identify used motor oil as a major CESQG waste type. The percentage of total waste volume attributed to this single waste type varies from 66 percent in one of the two county studies in Vermont to seven percent in Montgomery County, Maryland. This wide variance is attributed to the fact that some studies include used motor oil as part of the CESQG waste stream for the vehicle maintenance industry, while other studies do not. The two counties in Vermont, for example, included used motor oil for vehicle maintenance industry, while the *Montgomery County Survey* did not. Most importantly, however, used motor oil is a significant CESQG waste type for many industries outside of vehicle maintenance. For

[15] Both the *Montgomery County Survey* and the *National SQG Survey* included these two separate industries as a single industry group.

example, the *Montgomery County Survey* found that used motor oil is a significant waste type in the photography, woodworking/painting, general building contracting, and landscaping/pest control industries.

- ♦ **Used-Lead Acid Batteries**. Five of the studies found this waste to be a major waste type, ranging from 61 percent to seven percent of the total CESQG waste volume estimated in the studies. Again, this wide variance is due to the fact that some studies included this waste type for the vehicle maintenance industry (State of Oregon), while other studies did not (*Washington CESQG Report* and the two county study in Vermont). Outside of the vehicle maintenance industry, the *Montgomery County Survey* finds that used-lead acid batteries are a significant waste type for the general building contracting industry.

- ♦ **Antifreeze**. As is the case with used motor oil and lead-acid batteries, the relative importance of this waste type varies depending on whether the study includes it as part of the waste stream for the vehicle maintenance industry. In the *Washington CESQG Report*, the State does not include antifreeze in the vehicle maintenance industry but reports that this waste type is six percent of the total CESQG waste volume. The *Montgomery County Survey*, however, includes antifreeze in the vehicle maintenance industry and reports that this waste type is 23 percent of the total CESQG waste volume.

- ♦ **Spent Solvents and Still Bottoms.** All of the studies that listed waste types in Exhibit 9 identified spent solvents and still bottoms as a significant waste type, representing a fairly consistent portion of the total CESQG waste stream across all studies (ranging from one-seventh to one-fourth of the total CESQG waste volume estimated in the studies). More importantly, the *Montgomery County Survey* finds that this waste type is significant in several industries surveyed.

- ♦ **Perchloroethylene**. Only one of the studies listed in Exhibit 9 identifies perchloroethylene as a major CESQG waste type, 31 percent of the total CESQG waste volume for the industries surveyed in Montgomery County, Maryland All of this waste is generated by laundries.

- ♦ **Photographic Wastes**. Four of the studies listed in Exhibit 9 find wastes from the photography industry to be major CESQG waste types, ranging from ten percent of the total CESQG waste volume in Montgomery County to four percent in the other studies. As is the case with perchloroethylene, only one industry generates these wastes, the photography industry.

C. CESQG Waste Management Practices

Exhibit 10 lists CESQG waste management practices identified by two state and one local study.

General CESQG Waste Management Practices

As Exhibit 10 indicates, one state and one local study both conclude that the majority of CESQG waste from the industries included in the studies is managed **off-site** (84 percent in the *Montgomery County Survey*, and 88 percent in the *Washington CESQG Report*, assuming that all CESQG waste stored on-site is ultimately sent to an off-site management facility). The major off-site management methods are recycling, disposal in a permitted Subtitle C landfill, and disposal in a solid waste landfill, either by direct haul to the facility or mixture with solid waste at the site of generation.

EXHIBIT 10

CESQG Waste Management Practices[16]

Title of State and Local Study	Scope of Study	Method of Management	
		OFF-SITE	**ON-SITE**
Hazardous Waste From CESQGs in the Municipal Waste Stream: A Literature Review State of Oregon	State (all industries)	Percentages not given Recycling Disposal in solid waste landfill Disposal in permitted Subtitle C landfill	Percentages not given Disposal in sewer, septic system, and dry wells Treatment on-site Evaporation Burning
Moderate Risk Waste: A Progress Report (State of Washington)	State (all industries)	88% of State CESQG waste On-site Storage (50%)[17] Recycling (21%) Collection and treatment (7%) Disposal in solid waste landfill (2%)	12% of State CESQG waste Disposal in sewer (7%) Dumping on ground (5%)
Survey of Conditionally Exempt Small Quantity Generators of Hazardous Waste in Montgomery County, Maryland	County (seven industries surveyed)	84% of waste from industries surveyed Disposal in a Subtitle C landfill (36%) Recycling (33%) Disposal in a solid waste landfill (13%)	16% of waste from industries surveyed Disposal in sewer (13%) Evaporation (3%)

The *Montgomery County Survey* and the *Washington CESQG Report* estimate that 13 and two percent of CESQG waste from the industries surveyed, respectively, is disposed at an off-site solid waste landfill. None of the studies listed in Exhibit 10, however, differentiates between a municipal and non-municipal solid waste landfill.

The *Montgomery County Survey* and the *Washington CESQG Report* estimate that 16 and 12 percent of CESQG waste is managed on-site, respectively. None of the three studies listed in Exhibit 10 indicate that any CESQG waste is disposed in an on-site landfill. This is in contrast to the *National SQG Survey*, which found that at least some CESQG establishments in eight industries managed CESQG waste in an on-site

[16] The findings in this exhibit are taken from the associated study or calculated using other results provided in the study.

[17] This assumes that all waste stored on-site is eventually shipped off-site for management.

landfill. This is a possible indication of changes in waste management practices since 1985, the year in which the *National SQG Survey* was published.

CESQG Waste Management Practices in the Major Generating Industries

With regard to the use of on-site and off-site landfills to manage waste from the major CESQG waste generating industries, identified previously, state and local studies indicate the following:

- **Vehicle Maintenance**. The *Montgomery County Survey* finds that none of the waste from this industry is managed at either an on-site or off-site solid waste landfill. The waste is recycled, put into the sewer system, or sent to a permitted Subtitle C facility. Thurston County, Washington found that two percent of the waste from this industry is "mismanaged." [18]

- **Laundries**. The *Montgomery County Survey* is the only state or local study to identify the waste management practice of this industry. The county finds that <u>all</u> CESQG waste generated by this industry is recycled or managed at an off-site Subtitle C landfill.

- **Printing/Ceramics**. The *Montgomery County Survey* finds that 13 percent of the waste from this industry is managed at an off-site landfill, while none is managed in an on-site solid waste landfill.

- **Pesticide Application Services and End Users**. The *Montgomery County Survey* finds that business using pesticides and chemicals on lawns or in homes manage more than one-third of their waste in off-site solid waste landfills and none in an on-site solid waste landfill.

- **Construction**. The *Montgomery County Survey* finds that 18 percent of the CESQG waste from this industry is managed in an off-site solid waste landfill, while none is managed in an on-site landfill. Counting used motor oil, oil filters, and lead-acid batteries, Thurston County, Washington finds that only two percent of the waste from this industry is "mismanaged." Excluding these three waste types, however, Thurston County finds that <u>all</u> of the remaining CESQG waste is "mismanaged."[18]

- **Photography**. The *Montgomery County Survey* finds that none of the CESQG waste is managed in either an on-site solid or an off-site waste landfill. Thurston County, Washington finds that 75 percent of the waste from this industry is "mismanaged."[18]

The state and local studies did not discuss waste management practices for the metals manufacturing industry.

Although no direct comparisons with the *National SQG Survey* are presented in this section, such comparisons should be made with caution for two reasons: (1) the data for the *National SQG Survey* were collected approximately ten years prior to the data for the reports from Montgomery County, Maryland and Thurston County, Washington, as a result, CESQG waste management practices may have changed in the interim, and (2) it is difficult to compare the results of a comprehensive, national survey with surveys from only two specific counties.

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[18] Thurston County, Washington defines "mismanaged" as "not recycled, reused, or sent to a permitted Subtitle C facility." Other examples of mismanagement are not given.

SECTION IV. FEDERAL AND STATE REQUIREMENTS FOR CESQGs

A. FEDERAL REQUIREMENTS

Federal regulations delineate three categories of hazardous waste generators based on the amount of kilograms of hazardous waste generated per month (kg/mo): generators of waste greater than 1,000 kg/mo are large quantity generators (LQGs), generators of 100 kg/mo to 1,000 kg/mo are small quantity generators (SQGs), and generators of less than 100 kg/mo are conditionally exempt small quantity generators, or CESQGs.[19] CESQGs are exempt from several requirements with which larger generators must comply. For example, unlike larger generators, CESQGs do not need to:

- Obtain an EPA identification number;
- Use a manifest when shipping hazardous waste;
- Report to EPA on a biannual basis; or
- Send their hazardous waste to a permitted or interim status Subtitle C waste management facility.

CESQGs, however, are required to comply with the following requirements of 40 CFR 261.5(g):

- They must determine whether their waste is hazardous according to 40 CFR 262.11;

- They may accumulate hazardous waste on-site indefinitely provided that the total amount of waste accumulated does not exceed 1,000 kg at any one time; and

- They must manage their hazardous waste either in an on-site or off-site waste management facility that is permitted or in interim status under the Subtitle C hazardous waste management facility standards; is a state permitted, licensed, or registered municipal or industrial solid waste facility; or is a facility that beneficially uses, reuses, or legitimately recycles or reclaims waste, or treats waste prior to beneficial use, reuse, or legitimate recycling or reclamation.

B. STATE REQUIREMENTS

At a minimum, state requirements for CESQGs must be at least as stringent as Federal requirements. States, however, may establish more stringent requirements for CESQGs within their jurisdiction. For example, 34 states have one or more requirements for CESQGs that are more stringent than Federal requirements, see Exhibit 11. Moreover, these requirements vary from state to state. Appendix B, Exhibit B-1 lists the CESQG requirements for all 50 states and the District of Columbia. Significant findings are described below.[20]

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[19] 40 CFR 261.5 also classifies generators as conditionally-exempt if they generate less than 1 kg/mo of certain acutely hazardous wastes listed in 40 CFR 261.31, 261.32, and 261.33(e). This section does not discuss Federal and state requirements for CESQGs of acutely hazardous waste. It should be noted, that in some cases (e.g., on-site accumulation), requirements for these generators are different from those for generators of non-acute hazardous waste.

[20] Information on state CESQG requirements discussed in this section and listed in Exhibit B-1 of Appendix B is adapted from Hazardous Waste From Small Quantity Generators, Seymour I. Schwartz and Wendy B. Pratt, Island Press, c. 1990; and *Hazardous Waste From Conditionally Exempt Small Quantity Generators in the Municipal Solid Waste Stream: A Literature Review*, U.S. EPA., September 1993.

Contains Data for

Postscript Only.

State CESQG Generator Size Categories

As noted previously, Federal regulations characterize hazardous waste generators of less than 100 kg/mo as conditionally-exempt. Most states use the same exclusion level (100 kg/mo); however, the following three states use a lower exclusion level:[21]

- ♦ The **District of Columbia's** exclusion level is 50 kg/mo. Thus, a generator is considered conditionally-exempt only if they generate less than 50 kg/mo of hazardous waste. Moreover, the District has some requirements for these generators that are more stringent than Federal requirements (see Exhibit B-1, Appendix B and discussion below). Generators of greater than 50 kg/mo are fully regulated. Thus, all generators of 50 kg/mo or more must comply with requirements that are the same as Federal requirements for LQGs.

- ♦ **Kansas** has established an exclusion level of 25 kg/mo. Thus, a generator is considered conditionally-exempt only if they generate less than 25 kg/mo of hazardous waste. Moreover, Kansas has some requirements for these generators that are more stringent than Federal requirements (see Exhibit B-1, Appendix B and discussion below). Under Kansas law, generators of 25 to 100 kg/mo must comply with requirements that are equal to those for Federally-defined SQGs.

- ♦ **Rhode Island** fully regulates all hazardous waste generators and does not provide any conditional exemptions. Thus, generators of less than 100 kg/mo must meet state requirements that equal Federal requirements for LQGs.

State Hazardous Waste Identification Number

Unlike the Federal government, seven states (California, Illinois, Louisiana, Maine, Minnesota, Rhode Island, and West Virginia) require all generators of less than 100 kg/mo to obtain a state hazardous waste identification number. Texas requires only industrial (i.e., manufacturing) CESQGs to obtain an identification number. Also, the District of Columbia and Kansas require generators of waste amounts ranging from 50 kg/mo to 100 kg/mo and 25 kg/mo to 100 kg/mo, respectively, to obtain identification numbers. Generators of less than 50 kg/mo in the District of Columbia and 25 kg/mo in the State of Kansas, because they are conditionally-exempt in these states, are not required to obtain an identification number, as is the case under Federal regulations for CESQGs.

State Storage Time Limits and On-site Waste Accumulation Limits

The storage time limit is the maximum amount of time a generator can hold hazardous waste on-site without a storage permit. Federal regulations allow CESQGs to store waste on-site indefinitely, provided that the maximum amount stored does not exceed 1,000 kg in one calendar month. Once the 1,000 kg/mo limit is exceeded, all waste accumulated is subject to Federal requirements for small quantity generators (i.e., 40 CFR Part 262.34), which include a maximum storage time limit of 180 days, a maximum on-site accumulation limit of 6,000 kg/mo, and other storage requirements. Unlike Federal requirements for CESQGS, some states have a limited storage time and/or a lower maximum storage limit. For example, five states (California, District of Columbia, Louisiana, Mississippi, and Rhode Island) restrict storage time for all CESQGs. California, Louisiana, and Mississippi each require a maximum storage period of 365 days. Rhode Island restricts the storage period for all CESQGs to a maximum of 90 days. In addition, the District of Columbia restricts the storage time to a maximum of 180 days for generators of less than 50 kg/mo and 90 days for generators between 50 kg/mo and 100 kg/mo.

With regard to maximum on-site quantity limits, 11 states (California, Colorado, District of Columbia, Maine, Maryland, Massachusetts, Nebraska, New Hampshire, New Jersey, Rhode Island, and Washington) have a

[21] Because these three states use a lower exclusion level than Federal regulations, some generators of less than 100 kg/mo are regulated and not conditionally-exempt.

maximum on-site quantity limit of less than 1,000 kg/mo for all CESQGs. Both Rhode Island and the District of Columbia, because they fully regulate all generators and generators of 50 to 100 kg/mo, respectively, require these generators to comply with Federal accumulation requirements for LQGs. For generators of less than 50 kg/mo, the District of Columbia's accumulation limit is 300 kg.

State Licenses Required for Hauling Wastes and Generator Self-Transport Limits

Eleven states (Arkansas, District of Columbia, Louisiana, Maine, Minnesota, New Hampshire, Ohio, Rhode Island, Texas, West Virginia, and Wisconsin) require all generators of less than 100 kg/mo to use a licensed commercial hazardous waste hauler or to obtain a license if they self-transport the waste themselves. In addition, Michigan and New Jersey require CESQGs to use a licensed hauler or obtain a license only for the transport or self-transport of liquid industrial waste and waste oil, respectively. Also, Kansas requires the use of a licensed hauler or a license for self-haul if the generator generates between 25 and 100 kg/mo; generators of less than 25 kg/mo need not use a licensed hauler or obtain a license for self-transport. In Massachusetts, CESQGs who wish to self-transport their waste need only to register with the State.

Unlike Federal regulations, 12 states (California, Colorado, Florida, Kentucky, Maryland, Massachusetts, Missouri, Nebraska, New Jersey, New York, South Carolina, and Washington) have limits on the amount of waste that CESQGs may self transport. Self-transport limits range from 23 kg in California to 999 kg in Colorado.

State CESQG Manifest Requirements

Under Federal regulations, CESQGs are exempt from using a manifest. Seven states (California, Louisiana, Maine, Minnesota, New Hampshire, Pennsylvania, and Rhode Island), however, require all generators of less than 100 kg/mo to use a manifest. Michigan requires a manifest only for liquid industrial waste and Texas requires only industrial (i.e., manufacturing) CESQGs to use a manifest. In addition, generators of 50 to 100 kg/mo and 25 to 100 kg/mo in the District of Columbia and Kansas, respectively, are also required to use a manifest.

States Mandating CESQG Waste Management in a Permitted Subtitle C TSDF Only

Federal regulations allow generators of less than 100 kg/mo to manage their hazardous waste in a Subtitle C treatment, storage, and disposal facility (TSDF); or in a municipal or industrial solid waste facility, or a recycler. Seventeen states (California, Colorado, Connecticut, Illinois, Kentucky, Louisiana, Maine, Massachusetts, Minnesota, New Hampshire, New Mexico, North Carolina, Ohio, Pennsylvania, Rhode Island, West Virginia, and Wisconsin), however, require these generators to manage their hazardous waste in a permitted Subtitle C TSDF, thus prohibiting disposal in a municipal or industrial waste landfill or other municipal, industrial facility. In addition, the District of Columbia and Kansas require generators generating between 50 and 100 kg/mo and 25 and 100 kg/mo, respectively, to manage their waste in a permitted Subtitle C TSDF. (Generators of less than 50 kg/mo in the District of Columbia and 25 kg/mo in Kansas may dispose of their waste in a municipal or industrial waste facility.) Also, three states (Michigan, New Jersey, and North Dakota) require CESQGs to manage liquid industrial and ignitable wastes in a permitted Subtitle C TSDF.

State CESQG Reporting Requirements

Federal regulations do not require CESQGs to submit annual or biannual reports. Six states (Arizona, California, Louisiana, Minnesota, Rhode Island, and Washington), however, have reporting requirements for all generators of less than 100 kg/mo. California and Rhode Island require CESQGs to report every two years. Arizona, Louisiana, Minnesota, and Washington have annual reporting requirements. In addition, Arkansas requires only those CESQGs with a state identification number to report annually, and Texas requires CESQGs to submit monthly reports and a copy of the manifest only if waste is sent out of the State. The District of Columbia requires generators of 50 to 100 kg/mo to submit reports annually, while Kansas requires generators of 25 to 100 kg/mo to submit reports biennially. Generators of less than 50 kg/mo in the District of Columbia and 25 kg/mo in the State of Kansas are not required to report, as is the case under Federal regulations.

SECTION V. SCREENING MECHANISMS

As discussed in Sections II and III, several studies on CESQGs find that a portion of CESQG waste is disposed at off-site solid waste landfills. These studies, however, do not indicate whether the type of landfill receiving this CESQG waste is a municipal, industrial, or construction and demolition (C&D) debris landfill. This distinction is important in order to understand the potential risks and issues associated with CESQG waste management practices. While municipal solid waste landfills must meet newly promulgated revised criteria under 40 CFR Part 258, all other types of solid waste disposal facilities or practices remain subject to the less stringent, "minimum" criteria under 40 CFR Part 257 as well as applicable individual state requirements.

This section focuses on the procedures that four states require to screen out (i.e., exclude) CESQG waste from C&D landfills, which is one type of disposal option available to CESQGs.[22] There are approximately 1,800 C&D landfills operating nationwide.[23] Seven states have promulgated regulations requiring C&D landfills to meet the criteria for municipal solid waste landfills. Forty-three states, however, have promulgated separate, less stringent regulations for C&D landfills.[24] In some instances, these regulations prescribe mechanisms for C&D landfills to screen out incoming hazardous waste. This section presents the results of a review of the separate C&D regulations of four states (Arkansas, Connecticut, Delaware, and Florida) chosen at random, to determine the types of screening mechanisms prescribed.

Arkansas

Arkansas has established four classes of solid waste landfills, two of which may receive C&D wastes, Class III and Class IV. Both landfill classes may receive CESQG waste (defined as "special materials") for disposal only with the written approval of the State. The only mechanism for screening out prohibited wastes is the requirement that Class III and Class IV landfills operate in accordance with approved plans (which may or may not include screening mechanisms depending on approval from the State), including the requirement that unloading at the site must be supervised. (Arkansas Solid Waste Management Code, Chapter 4.)

Connecticut

C&D landfills in the State of Connecticut are regulated as "special waste" landfills. Connecticut prohibits disposal of hazardous wastes (including CESQG waste) in these landfills. The regulations do not include specific screening mechanisms. Operators of special waste landfills, however, are required to submit to the State operating procedures that include specific personnel training in the unique characteristics and handling requirements of special wastes to be disposed at the landfill. Additionally, for each specific waste disposed at the landfill, the State requires the operator to submit a report on the physical, chemical, and leachate potential characteristics. (Connecticut Solid Waste Management Regulations, Title 22a, Chapter 209.)

Delaware

C&D landfills in Delaware are regulated as "dry waste" landfills, with dry wastes defined as those wastes with reduced potential for environmental degradation and leachate production. The Delaware Solid Waste Authority's solid waste licensing and disposal regulations prohibit disposal of hazardous waste in any solid waste management

[22] States may require screening mechanisms for off-site commercial industrial landfills and on-site industrial non-hazardous waste management facilities, as well; however, these procedures are not discussed in this section.

[23] "Construction Waste & Demolition Debris Recycling . . . A Primer," Gershman, Brickner & Bratton, Inc., October, 1993.

[24] Ibid.

facility, including a dry waste landfill. Under the Authority's operating procedures for solid waste facilities, the Authority reserves the right to require unloading of the contents of the vehicle hauling the waste for inspection. If hazardous wastes are found, the Authority reserves the right to sanction the hauler of the waste. (Delaware Solid Waste Disposal Regulations and Delaware Solid Waste Authority - Solid Waste Licensing and Disposal Regulations.)

Florida

Florida's regulations for C&D landfills are the only regulations of the four states reviewed that detail specific screening mechanisms. In Florida, C&D landfills may operate under one of two permits, a solid waste facility permit or a general permit. Operators under both permits may not accept hazardous waste, including CESQG waste, for disposal. Florida's regulations describe screening procedures for facilities operating under a solid waste permit as follows: (1) at least one trained operator must be at the landfill during all hours of operation; (2) at least one spotter must be at each working face at all times when the landfill receives waste to detect unauthorized wastes; (3) an operational plan must detail the control of waste received at the site, including inspection procedures, number and location of spotters at each working face, and procedures to be followed if prohibited wastes are discovered; and (4) each facility must undertake a load checking program, whereby the operator must examine at least three loads of waste per week. If any hazardous wastes are identified by random load checking, or otherwise, the landfill operator must notify the State, the hauler, and the generator. If the generator or the hauler cannot be identified, the landfill operator is responsible for delivery of the waste to a permitted hazardous waste facility. Subsequent shipments from sources identified as responsible for previous delivery of hazardous wastes are subject to precautionary measures.

Florida's regulations for C&D landfills operating under a general permit do not describe any screening procedures. (Florida Administrative Code, Title 17, Chapter 701.)

SECTION VI. CONCLUSIONS

EPA is currently reviewing regulatory options to revise criteria under Section 4010(c) of RCRA for non-municipal solid waste facilities that may receive CESQG waste. The purpose of this report is to compile existing information on CESQG waste generation and management practices to be used as background for the proposed regulation.

Overall, the data sources reviewed for this report provide information on the number of CESQG establishments, how much CESQG waste they generate, the major CESQG waste types, and how this waste is managed. The most comprehensive, national data source reviewed for this report, the *National SQG Survey*, uses data that is nearly ten years old. EPA believes that the current situation regarding CESQG waste generation and management practices is significantly different from when the data for this study were collected.

With regard to the other data sources reviewed for this report, EPA is reluctant to use them to draw overall conclusions at the national level for two primary reasons:

- ♦ Some studies focus on a narrow subset of CESQGs (e.g., the *TSS* focuses on manufacturing industries only and the *Montgomery County Survey* focuses on seven industries only), making it difficult to compare these studies to the more comprehensive *National SQG Survey*; and

- ♦ The state and local studies are limited in geographic area and are too few in number, which precludes a sufficient sample size from which to extrapolate to the national level.

Notwithstanding future EPA regulations, many states have already begun to address proper management of CESQG waste in a variety of ways, for example:

- ♦ **Seventeen** states prohibit disposal of CESQG waste at municipal and industrial solid waste landfills, requiring that all CESQG waste be disposed at permitted Subtitle C facilities.

- ♦ Many states, and EPA, have developed numerous technical assistance and outreach programs targeted at CESQGs to encourage them to first reduce their use of hazardous waste and, secondly, to manage the hazardous waste they generate properly.

- ♦ **Seven** states require non-municipal landfills, such as C&D landfills, to meet the regulatory requirements for municipal landfills.

- ♦ Moreover, states, such as Florida, may also require non-municipal facilities to screen out CESQG waste from the incoming waste stream. Even without specific state screening requirements, landfill operators may implement screening procedures due to potential liability concerns.

Appendix A

This Appendix contains four exhibits used to support the summary of major findings of the national and state and local findings presented in Sections II and III.

EXHIBIT A-1
Data Sources

Title	Date Published/ Author	Scope	Methodology	Response Rate	Comments
National Small Quantity Hazardous Waste Generator Survey	February 1985 EPA's Office of Solid Waste	National survey of 48,849 small quantity hazardous waste generators in 125 SIC codes, condensed into 22 MFR[25] and NMFR industry groups.	(1) developed survey sample using available data sources; (2) developed written questionnaire seeking information on waste generation and management practices; (3) developed estimates of generators in non-surveyed industries by analogy to surveyed industries and review of available data sources; and (4) extrapolated results to national level.	Survey responses totaled 18,648	Most comprehensive, national data source on CESQGs. However, data is nearly ten years old and should be viewed with caution considering the number of significant changes that have occurred in hazardous waste management since the data were collected. (See Executive Summary)
Screening Survey of Industrial Subtitle D Establishments	December 29, 1987 EPA's Office of Solid Waste	National survey of 18,051 establishments in 17 MFR industry groups with on-site Subtitle D land-based units.	(1) developed survey sample from available data sources; (2) narrowed sample frame to 17 MFR industry groups believed to generate 99 percent of all industrial process waste; (3) developed and administered a telephone survey (sequence of questions found in Exhibit A-2); and extrapolated results to the national level.	99 percent. Survey was mandatory.	Purpose of survey was to determine number of establishments generating industrial D waste and managing this waste in on-site, land-based units. Only those establishments that managed industrial D waste on-site were asked whether they also generated CESQG waste. Thus, industrial D generators who managed this waste off-site were not asked if they were CESQGs. For this reason, this study does not provide a complete picture of CESQGs in these 17 industry groups.

[25] "MFR" denotes manufacturing and "NMFR" denotes non-manufacturing.

EXHIBIT A-1 (continued)
Data Sources

Title	Date Published/ Author	Scope	Methodology	Response Rate	Comments
Hazardous Waste From Small Quantity Generators	Copyright 1990, Island Press Seymour I. Schwartz and Wendy B. Pratt	Discusses strategies and solutions for businesses and governments to reduce improper management of hazardous waste from small quantity generators.	Telephone interviews with 300 people in state and local government, waste management industry, and trade associations.	Not Applicable	Provides limited data on CESQGs. Only data used in this report are an estimate of the number of CESQGs and state requirements for CESQGs.
Moderate Risk Waste: Volumes 2-1 and 2-2	December 15, 1990 Washington State Department of Ecology	Documents the scope of moderate risk waste (including CESQG waste) in the State of Washington and examines progress of State and local governments in addressing these wastes.	To determine volumes and composition of waste stream, State tallied waste figures from 26 statewide planning areas and developed estimates for remaining seven planning areas. Also, conducted comparative study of planning areas to characterize waste management methods.	Not Applicable	Study is limited to one state, Washington. Information on how planning areas obtained information is not given.
Washington State 1988 Hazardous Waste Annual Report Summary	June 1991 Washington State Department of Ecology	Summarizes statewide generation and management data for generators of dangerous wastes (including hazardous waste).	Data is obtained from annual reports submitted by generators and management facilities pursuant to State statute.	143 CESQGs submitted reports.	Because number of CESQGs reporting is small (143 of estimated 43,000), the data included in this study is not used in this report.

EXHIBIT A-1 (continued)
Data Sources

Title	Date Published/ Author	Scope	Methodology	Response Rate	Comments
Survey of Conditionally Exempt Small Quantity Generators of Hazardous Waste in Montgomery County, Maryland	May 21, 1993 Montgomery County Department of Environmental Protection	Survey of 1,009 firms located in the county grouped into seven industry groups.	(1) targeted firms in seven industry groups expected to generate majority of county CESQG waste; (2) sent written questionnaires to obtain information on CESQG waste generation and management practices and conducted follow-up telephone calls; (3) and extrapolated results of survey to county level.	Collected 374 usable responses, of which 125 (12 percent of those surveyed) were CESQGs.	Data is limited to one county, Montgomery County, Maryland. Further, the County surveyed only seven industry groups.
Hazardous Waste from Conditionally Exempt Small Quantity Generators in the Municipal Solid Waste Stream: A Literature Review	September 1993 EPA	Summarizes available information on CESQGs obtained from a literature review of state and local studies.	Conducted literature review and contacted state government officials responsible for CESQG programs in their states.	Not Applicable	Information on methodology and response rates of studies summarized in review is too limited to describe accurately. The studies, however, are cited in the review. This original source material was not reviewed for this report.

Exhibit A-2
Sequence of Questions for *Screening Survey of Industrial Subtitle D Establishments*

Contains Data for

Postscript Only.

EXHIBIT A-3
Generators Disposing CESQG Waste in On-Site Solid Waste Landfills[26]

Industry	Number of CESQG Establishments in Industry Disposing CESQG Waste in On-Site Solid Waste Landfill	Percent of Total CESQG Establishments in Industry	Total Waste Volume (tons/yr)
Metals Manufacturing	677	2.6	101
Pesticide Application Services	406	5.2	54
Construction	366	3.2	239
Laundries	178	1.3	93
Wholesale/Retail Trade	112	2.2	22
Educational/Vocational Establishments	104	3.2	3
Pesticide End Users	99	7.1	7
Textile Manufacturing	14	9.4	1
TOTAL FOR ALL 22 INDUSTRIES	**1,956**	**0.75**[27]	**520**

[26] Source: *National Small Quantity Hazardous Waste Generator Survey*.

[27] This exhibit lists only those eight industries of the 22 surveyed that have any CESQGs disposing their CESQG waste in an on-site solid waste landfill. The percentages in the exhibit represent the percent of CESQG establishments within each of the eight industries that dispose of their CESQG waste in an on-site solid waste landfill. Of the estimated 250,000 CESQG establishments in <u>all</u> 22 industries surveyed, 1,956, or 0.75 percent, dispose of their CESQG waste in on-site solid waste landfills.

EXHIBIT A-4
Number of CESQGs Disposing CESQG Waste in On-Site, Land-Based Units[28]

Industry	Estimated Number of CESQGs in Industry	Estimated Number of CESQGs Disposing CESQG Waste in On-Site, Land-Based Unit	Percent of Total CESQGs in Industry Group
Stone, Clay, Glass, and Concrete	1266	160	12.6
Food and Kindred Products	896	131	14.6
Textile Manufacturing	207	50	24.2
Primary Iron and Steel	182	48	26.4
Pulp and Paper	169	43	25.4
Rubber and Miscellaneous Products	48	30	62.5
Petroleum Refining	196	28	14.3
Selected Chemical and Allied Products	31	25	80.6
Primary Nonferrous Metals	148	24	16.2
Electric Power Generation	224	22	9.8
Water Treatment	111	15	13.5
Transportation Equipment	53	15	28.3
Fertilizer and Agricultural Chemicals	45	5	11.1
Plastics and Resins Manufacturing	19	4	21.1
Organic Chemicals	13	3	23.1
Inorganic Chemicals	122	2	1.6
Leather and Leather Products	12	0	---
TOTAL FOR ALL 17 INDUSTRIES	**3,742**	**605**	**16.2**

[28] Source: *Screening Survey of Industrial Subtitle D Establishments*.

Appendix B

This Appendix contains an exhibit listing requirements for CESQGs in all 50 states and the District of Columbia. This exhibit corresponds to Section IV. Information in this exhibit was obtained from *Hazardous Waste From Small Quantity Generators* (Seymour Schwartz and Wendy Pratt, Island Press, c. 1990) and *Hazardous Waste From Conditionally Exempt Small Quantity Generators in the Municipal Solid Waste Stream* (USEPA, September 1993).

EXHIBIT B-1
State Requirements For CESQGs That Are More Stringent Than Federal Regulations
(1990, except where noted)

State	CESQG Generator Size (kg/mo)	State ID# Required	Limited Storage Period (Days)	Accumulation Limit On-site (kg)	Licensed Hauler or License Required for Hauling	Generator Self-Transport Limit (kg)	Manifest Required	Disposal only at Permitted Subtitle C TSDF	Reporting Required
FEDERAL	**0-100**	**No**	**Indefinite**	**1,000**	**No**	**None**	**No**	**No**	**No**
Alabama	0-100	State requirements no more stringent than Federal regulations.							
Alaska (1993)	0-100	State requirements no more stringent than Federal regulations.							
Arizona	0-100								Annual[1]
Arkansas	0-100				Yes				Annual[2]
California (1993)	0-100	Yes	365	100		23	Yes	Yes	Biennial
Colorado	0-100			999		999		Yes	
Connecticut (1993)	0-100							Yes	
Delaware	0-100	State requirements no more stringent than Federal regulations.							
District of Columbia	50-100 0-50	Yes	90 180	 300	Yes Yes		Yes	Yes	Annual
Florida (1993)	0-100					100			
Georgia	0-100	State requirements no more stringent than Federal regulations.							
Hawaii	0-100	State requirements no more stringent than Federal regulations.							
Idaho	0-100	State requirements no more stringent than Federal regulations.							
Illinois	0-100	Yes						Yes	
Indiana	0-100							Yes[3]	
Iowa	0-100	State requirements no more stringent than Federal regulations.							
Kansas	25-100 0-25	Yes			Yes	 25	Yes	Yes	Biennial
Kentucky	0-100					100		Yes	

EXHIBIT B-1
State Requirements For CESQGs That Are More Stringent Than Federal Regulations
(1990, except where noted)

State	CESQG Generator Size (kg/mo)	State ID# Required	Limited Storage Period (Days)	Accumulation Limit On-site (kg)	Licensed Hauler or License Required for Hauling	Generator Self-Transport Limit (kg)	Manifest Required	Disposal only at Permitted Subtitle C TSDF	Reporting Required
FEDERAL	**0-100**	**No**	**Indefinite**	**1,000**	**No**	**None**	**No**	**No**	**No**
Louisiana	0-100	Yes	365		Yes	-	Yes	Yes	Annual
Maine (1993)	0-100	Yes		100	Yes	-	Yes	Yes	
Maryland	0-100			100		100			
Massachusetts (1993)	0-100			600		200		Yes	
Michigan	0-100				Yes[4]		Yes[4]	Yes[4]	
Minnesota (1993)	0-100	Yes			Yes	-	Yes	Yes	Annual
Mississippi	0-100		365						
Missouri	0-100					100			
Montana	0-100	State requirements no more stringent than Federal regulations.							
Nebraska	0-100			100		100			
Nevada	0-100	State requirements no more stringent than Federal regulations.							
New Hampshire (1993)	0-100			100	Yes	-	Yes	Yes	
New Jersey	0-100			100[5]	Yes[6]	100		Yes[4]	
New Mexico	0-100							Yes	
New York	0-100					100			
North Carolina	0-100							Yes	
North Dakota	0-100							Yes[4]	
Ohio	0-100				Yes	-		Yes	
Oklahoma	0-100	State requirements no more stringent than Federal regulations.							
Oregon (1993)	0-100	State requirements no more stringent than Federal regulations.							

EXHIBIT B-1
State Requirements For CESQGs That Are More Stringent Than Federal Regulations
(1990, except where noted)

State	CESQG Generator Size (kg/mo)	State ID# Required	Limited Storage Period (Days)	Accumulation Limit On-site (kg)	Licensed Hauler or License Required for Hauling	Generator Self-Transport Limit (kg)	Manifest Required	Disposal only at Permitted Subtitle C TSDF	Reporting Required
FEDERAL	**0-100**	**No**	**Indefinite**	**1,000**	**No**	**None**	**No**	**No**	**No**
Pennsylvania	0-100						Yes	Yes	
Rhode Island (1993)	No CESQG	Yes	90	-	Yes	-	Yes	Yes	Biennial
South Carolina	0-100					100			
South Dakota	0-100	State requirements no more stringent than Federal regulations.							
Tennessee	0-100	State requirements no more stringent than Federal regulations.							
Texas	0-100	Yes[7]			Yes	-	Yes[7]		Monthly[8]
Utah	0-100	State requirements no more stringent than Federal regulations.							
Vermont (1993)	0-100	State requirements no more stringent than Federal regulations.							
Virginia	0-100	State requirements no more stringent than Federal regulations.							
Washington (1993)	0-100			100		100			Annual
West Virginia	0-100	Yes			Yes			Yes[9]	
Wisconsin	0-100				Yes	-		Yes	
Wyoming	0-100	State requirements no more stringent than Federal regulations.							

[1] First page of annual report only.
[2] Only CESQGs with State identification numbers need to report annually.
[3] Ignitable or infectious waste may not be disposed of in non-hazardous waste landfills.
[4] Required for liquid industrial waste only.
[5] 100 kg of hazardous waste or 1,001 gallons of waste oil.
[6] License required to haul waste oil only.
[7] Not required for non-industrial CESQG waste.
[8] Only if waste is sent out of state.
[9] Disposal at out of State MSWLFs are permissible; regulation is under review.

Appendix C

Exhibit C-1 lists available Federal and state documents that encourage pollution prevention and proper waste management by CESQGs in some CESQG waste generating industries. Those documents that are available from the Pollution Prevention Information Clearinghouse (PPIC) may be obtained by contacting PPIC at the following address:

PPIC
Environmental Protection Agency
401 M St, SW (7409)
Washington, D.C. 20460
PPIC Reference and Referral: (202) 260-1023
PPIC Fax Line: (202) 260-0178

EXHIBIT C-1
Available Pollution Prevention and Proper Waste Management Documents

Industry	Title of Document	Source
Vehicle Maintenance	Pollution Prevention Tips for Automotive Maintenance Shops	Alaska Department of Conservation, Pollution Prevention Office (907) 465-5275
	Environmental Guidelines and Pollution Prevention for the Automotive Service Industry	Colorado Department of Health, Pollution Prevention Waste Reduction Programs (303) 692-3003
	A Pollution Prevention Guide for Automotive Repair Shops	Delaware Department of Natural Resources and Environmental Control, Pollution Prevention Program (302) 739-5071/3822
	Waste Management Practices of Vehicle Maintenance Businesses and Local Government Vehicle Fleet Management Operations	District of Columbia, Metropolitan Washington Council of Governments, Department of Environmental Programs (202) 962-3355
	Waste Minimization Works for Businesses and Iowa - leaflet on vehicle maintenance operations	Iowa Department of Natural Resources, Waste Management Authority Division (515) 281-8941
	Case Study: Waste Minimization in the Auto Repair Sector Pollution Prevention in the Commercial Sector: A Waste Stream Assessment in the Vehicle Service and Repair Sector	University of Nebraska - Lincoln Center for Infrastructure Research (402) 472-5022
	Waste Management and Reduction for Automotive Repair Shops	University of Nevada, Reno, Small Business Development Center, Business Environmental Program (702) 784-1717
	Model Toxics Use and Hazardous Waste Reduction Plan for Oregon Automotive Services Industries, 1992	Oregon Department of Environmental Quality, Hazardous Waste Reduction and Technical Assistance Program (503) 229-6585

EXHIBIT C-1 (continued)
Available Pollution Prevention and Proper Waste Management Documents

Industry	Title of Document	Source
Metals Manufacturing	Waste Minimization Works for Businesses and Iowa - leaflet on metals fabrication/farm equipment manufacturing	Iowa Department of Natural Resources, Waste Management Authority Division (515) 281-8941
	Case Study: Alpha Metal Finishing Company - fact sheet	Michigan Department of Natural Resources, Office of Waste Reduction Services, Environmental Services Division (517) 335-1178
	Waste Minimization in a Metal-Finishing Industry: A Pilot Project	University of Nebraska - Lincoln Center for Infrastructure Research (402) 472-5022
	NJTAP Literature Review, Metals Finishing	New Jersey Institute of Technology, New Jersey Technical Assistance Program, Hazardous Substance Research Center (201) 596-5864
	Waste Reduction Assessment Report, The Forging Company Case Study of Waste Minimization at a Metal Fabricating Facility Case Study of Waste Minimization at a Metal Machining Facility	Ohio Environmental Protection Agency, Division of Hazardous Waste Management, Pollution Prevention Section (614) 644-3969
	Fabricated Metal Products Industry, Pollution Prevention Information Packet	Pennsylvania, Center for Hazardous Materials Research, University of Pittsburgh (412) 826-5320

EXHIBIT C-1 (continued)
Available Pollution Prevention and Proper Waste Management Documents

Industry	Title of Document	Source
Metals Manufacturing (continued)	Guidelines for Waste Reduction and Recycling: Metals Finishing, Electroplating, Printed Circuit Board Manufacturing	PPIC
	Case Studies for Metals Finishing	PPIC
	Pollution Prevention In Metals Manufacturing: Saving Money Through Pollution Prevention	PPIC
	Pollution Prevention Options in Metals Fabricated Products Industries: A Bibliographic Report	PPIC
	A Practical Guide to Pollution Prevention Planning for the Iron and Steel Industries	PPIC
	Waste Minimization in Metals Parts Cleaning	PPIC
Laundries	Dry Cleaning and Laundries	Colorado Department of Health, Pollution Prevention Waste Reduction Programs (303) 692-3003
	Pollution Prevention Guide for the Dry Cleaning Industry Pollution Prevention Success Story: Capitol Cleaners	Delaware Department of Natural Resources and Environmental Control, Pollution Prevention Program (302) 739-5071/3822
	Pollution Prevention in the Commercial Sector: A Waste Stream Assessment in the Solvent Based Dry Cleaning Industry	University of Nebraska - Lincoln Center for Infrastructure Research (402) 472-5022
	Dry Cleaning Project	PPIC
	Multiprocess Wet Cleaning: Cost Performance Comparison of Conventional Dry Cleaning and an Alternative Process	PPIC
	Multiprocess Wet Cleaning Demonstration Study: Background and Results	PPIC

EXHIBIT C-1 (continued)
Available Pollution Prevention and Proper Waste Management Documents

Industry	Title of Document	Source
Printers	Print Shops	Colorado Department of Health, Pollution Prevention Waste Reduction Programs (303) 692-3003
	A Pollution Prevention Guide for the Printing Industry	Delaware Department of Natural Resources and Environmental Control, Pollution Prevention Program (302) 739-5071/3822
	Waste Minimization Works for Businesses and Iowa	Iowa Department of Natural Resources, Waste Management Authority Division (515) 281-8941
	Pollution Prevention for the Commercial Printing Industry Winning Environmental Strategies for Printers	University of Nevada, Reno, Small Business Development Center, Business Environmental Program (702) 784-1717
	Pollution Prevention, Commercial Printing Industry	New Jersey Institute of Technology New Jersey Technical Assistance Program, Hazardous Substance Research Center (201) 596-5864
	Case Studies in Printing	PPIC
	Pollution Prevention in Printing and Allied Industries: Saving Money Through Pollution Prevention	PPIC
	Case Study #1: Managing Solvents and Wipes	PPIC
	Case Study #2: Reducing the Use of Reclamation Chemicals in Screen Cleaning	PPIC
	EPA Chemical Lists for the Printing Industry	PPIC
	Federal Environmental Regulations Potentially Affecting the Commercial Printing Industry	PPIC
	Printing Project	PPIC
	Use Cluster Analysis of the Printing Industry - Executive Summary	PPIC

EXHIBIT C-1 (continued)
Available Pollution Prevention and Proper Waste Management Documents

Industry	Title of Document	Source
Pulp and Paper	Results of the 1988 Toxics Release Inventory Reporting for the Pulp and Paper Industry in New England	Massachusetts, Northeast Waste Management Officials' Association (NEWMOA) (617) 367-8558
	Handbook on Pollution Prevention Opportunities for Bleached Kraft Pulp and Paper Mills	PPIC
	Pollution Prevention Technologies for the Bleached Kraft Segment of the U.S. Pulp and Paper Industry	PPIC
Petroleum Refining	Case Study of Minimization of Photolithiography and Ink Wastes in an Ink and Printer Manufacturing Facility	Ohio Environmental Protection Agency, Division of Hazardous Waste Management, Pollution Prevention Section (614) 644-3969
	Pollution Prevention Options in Petroleum Refining: A Bibliographic Report	PPIC
Pesticides	Indiana Pesticides News	Indiana Department of Environmental Management, Office of Pollution Prevention and Technical Assistance (317) 232-8172
	The Label, Purdue Pesticide Programs newsletter	Purdue University Cooperative Extensions Service, Indiana Pollution Prevention Program, Environmental Management and Education Program (317) 494-5038
	Pollution Prevention Pesticide Container Management Pollution Prevention at Agrichemical Dealerships	Missouri Department of Natural Resources, Hazardous Waste Program, Division of Environmental Quality (314) 751-3176
	Waste Management in Rural Sectors with Emphasis on Farm Cooperatives and Pesticide Applicators	University of Nebraska - Lincoln Center for Infrastructure Research (402) 472-5022
	Guide to Pollution Prevention: Non Agricultural Pesticide Users	Center for Environmental Research Information (CERI) 26 West Martin Luther King Drive Cincinnati, OH 45268 Phone (513) 569-7562 Fax (513) 569-7566

00-060 06/2000

Chemical Waste Disposal Options for Small Businesses

To identify ways that your waste may be disposed, select the appropriate column according to how your waste is regulated, then choose the appropriate row based on the physical state of your waste. The type of facility or treatment process that may be used to manage the waste is denoted in italics. For the purposes of this document, small businesses are defined as anything other than large quantity generators.

SQG HAZARDOUS WASTE	CESQG HAZARDOUS WASTE	NON-HAZARDOUS WASTE
LIQUIDS		
• *Recycling facility*, must handle as hazardous waste until sent for recycling. • *Sanitary sewer* if approved by sewer plant operator; can treat first to render more suitable for sewer. • *Treat on-site* to render non-hazardous, if: 1) submit waste analysis plan to NDEQ; 2) treat in closed containers within 180 days. Then handle as non-hazardous; must notify receiving facility of treatment. • *Hazardous waste management facility*.	• *Recycling facility*. • *Sanitary sewer* if approved by sewer plant operator; can treat first to render more suitable for sewer. • Mix combustible waste with used oil and *burn on-site* in a space heater. • *Solidify*, then handle as a solid. • *Treat on-site* to render non-hazardous, then handle as non-hazardous. • *Hazardous waste management facility*.	• *Recycling facility*. • *Sanitary sewer* if approved by sewer plant operator; can treat first to render more suitable for sewer. • *Sanitary landfill* in small quantities, similar to those found in households; or with a special waste permit. • Mix combustible waste with used oil and *burn on-site* in a space heater. • *Solidify*, then handle as a solid. • *Land application area* with a special waste permit. • *Hazardous waste management facility*.
SOLIDS		
• *Recycling facility*, must handle as hazardous waste until sent for recycling. • *Treat on-site* to render non-hazardous, if: 1) submit waste analysis plan to NDEQ; 2) treat in closed containers within 180 days.	• *Recycling facility* • *Sanitary landfill* in amounts less than 43 pounds, or 5 gallons by volume, per day. • *Treat on-site* to render non-hazardous, then handle as non-hazardous. • *Hazardous waste*	• *Recycling facility*. • *Sanitary landfill* -- may need a special waste permit. • *Land application area* with a special waste permit. • *Hazardous waste management facility*.

Then handle as non-hazardous; must notify receiving facility of treatment. • *Hazardous waste management facility*.	*management facility*.	

Waste may only go to a sanitary sewer or sanitary landfill with the approval of the operator. Contact your city treatment works or regional landfill for more information.

LQG means a **l**arge **q**uantity **g**enerator of hazardous waste according to Title 128. A LQG is a business that generates waste in amounts greater than that of small quantity generators (SQGs), as listed below.

SQG means a **s**mall **q**uantity **g**enerator of hazardous waste according to Title 128. A SQG is a business that:

- generates greater than 220 and less than 2200 pounds of non-acute hazardous waste per month
- accumulates less than 13,200 pounds of non-acute hazardous waste on site at any one time.
- handles acute hazardous waste in accordance with the limits listed below.

CESQG means a **c**onditionally **e**xempt **s**mall **q**uantity **g**enerator of hazardous waste according to Title 128. A CESQG is a business that:

- generates no more than 220 pounds of non-acute hazardous waste per month
- accumulates less than 2200 pounds of non-acute hazardous waste on-site at any one time
- handles acute hazardous waste in accordance with the limits listed below.

Acute hazardous waste, as specifically listed at Title 128, Chapter 3, Section 015, Table 6, is subject to large quantity generator requirements unless the person or business handles acute wastes in the amounts listed below:

- generates less than 2.2 pounds of acute hazardous waste per month; or
- generates less than 220 pounds of spill residue from acute hazardous waste per month
- accumulates less than 2.2 pounds of acute hazardous waste on-site at any one time
- accumulates less than 220 pounds of acute hazardous waste spill residue on-site at any one time.

All *hazardous waste generated by SQGs* must be handled according to the requirements in Title 128, Chapter 9.

All *hazardous waste generated by CESQGs* is exempt from Title 128, as long as the CESQG:

1. determines whether the waste is hazardous,
2. handles the waste in an appropriate manner, which is included on the chart.

These requirements, and the exemption for CESQGs, are fully described in Title 128, chapter 8.

All *used oil burned in space heaters* must be handled according to the requirements in Title 128, Chapter 7, 009, including used oil that is mixed with hazardous waste from CESQGs. (See Guidance Documents: Used Oil Collection Condsiderations # 00-056 and Used Oil and Used Oil Filters Management # 00-058.)

Household hazardous waste is not subject to the requirements of Title 128.

Recycling is the preferred method of handling wastes.

For more information:

- Title 128 - Rules and Regulations Governing Hazardous waste Management in Nebraska: Call NDEQ Waste Management Section at (402) 471-4210

Title 132 - Integrated Solid Waste Management Regulations: Call Waste Management Section at (402) 471-4210

- Directory of Hazardous Waste Management Facilities: Call Waste Management Section at (402) 471-8308 for a copy. This directory will be available on the website in late 2000.
- Recyclers: Call NDEQ at (402) 471-2186 and ask for a copy of the Nebraska Recycling Directory.
- Materials Exchange Program: Call Keep Nebraska Beautiful at (402) 486-4562.

Useful websites:

Titles 128, & 132: *http://www.deq.state.ne.us*/ click on "Rules and Regulations"

* This Material is intended for guidance purposes only. It is not meant to substitute for the regulations found in Title 128 - Rules and Regulations Governing Hazardous Waste in Nebraska and Title 132 - Integrated Solid Waste Management Regulations or other applicable Nebraska environmental regulations.

Produced by: Nebraska Department of Environmental Quality, P.O. Box 98922, Lincoln, NE 68509-8922; phone (402)471-4210. To view this, and other information related to our agency, visit our web site at ***www.deq.state.ne.us***.

This Publication is also available as an Adobe Acrobat (PDF) file. File size is 35 KB	

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Lincoln, Nebraska 68509
(402) 471-2186 FAX (402) 471-2909

U.S. Environmental Protection Agency

GO

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Nebraska Department of Environmental Quality

Fact Sheets

This information is provided by the Nebraska Department of Environmental Quality to assist the public and regulated community.

00-055 07/2000

Comparison of Hazardous Waste Generator Requirements

The chart below provides a comparison of requirements for three categories of waste generators: Conditionally Exempt Small Quantity Generator (CESQG); Small Quantity Generator (SQG); and Large Quantity Generator (LQG). Chapters listed at the top of the columns refer to Title 128, Rules and Regulations Governing Hazardous Waste management in Nebraska.

Requirement	CESQG (Chap 8)	SQG (Chap 9)	LQG (Chap 10)
Identify Hazwaste (Chap 4)	Yes	Yes	Yes
Generation Limits	≤ 100 kg/mo (≤ 220 lb/mo)	100 to 1,000 kg/mo (220 to 2,200 lb/mo.)	≥ 1,000 kg/mo (≥ 2,200 lb/mo)
Acute Waste Limits	≤ 1 kg/mo (≤ 2.20 lb/mo)	≤ 1 kg/mo (≤ 2.20 lb/mo)	> 1kg/mo > 2.2lb/mo
Facility Receiving Waste	State approved or RCRA permitted	RCRA-permitted facility	RCRA-permitted facility
USEPA ID Number (Chap 4)	Not required	Required	Required
RCRA Personnel Training	Not required	Familiarization required	Required
DOT Training (49 CFR)	Required	Required	Required
Exception Report	Not required	Required > 60 days	Required > 45 days
Biennial Report	Not required	Not required	Required
On-site accumulation limits (without permit)	≤ 1,000 kg (≤ 2,200 lb)	≤ 6,000 kg (≤ 13,200 lb)	Any quantity
Accumulation Time Limits (without permit)	None	≤ 180 days or ≤ 270 days if > 200 miles to disposal area	≤ 90 days + 30 days granted by USEPA
Storage Requirements	None	Basic requirements with technical standards for containers or tanks	Full compliance with management of containers or tanks
Arrangements With Local Authorities	None	Required (Chap 17)	Required (Chap 17)
Emergency Equipment & Communications	None	Required (Chap 17)	Required (Chap 17)
Contingency Plan	None	None	Required (Chap 18)
Emergency Coordinator	None	Required	Required
Telephone Information	None	Post information by phone	In Contingency Plan

Use Manifests	No	Yes, unless waste is reclaimed under contractual agreement	Yes

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Planet Protectors

For Kids!

United States Environmental Protection Agency

Solid Waste and Emergency Response (5305W)

EPA530-F-96-032
June 1996

EPA

Hazardous Waste Requirements for Large Quantity Generators

If you are a Large Quantity Generator (LQG) of hazardous waste, you must comply with the full set of federal hazardous waste regulations. You are considered an LQG if you generate more than 2,200 lbs (1,000 kg) of hazardous waste or more than 2.2 lbs (1 kg) of acute hazardous waste per calendar month. To assist your business in learning about these requirements, the U.S. Environmental Protection Agency (EPA) has prepared this summary fact sheet. **This is only a summary and does not include all of the LQG requirements.**

For more information, call the RCRA Hotline at 800 424-9346 or TDD 800 553-7672 (hearing impaired). Callers in the Washington, D.C., metropolitan area may dial 703 412-9810 or TDD 703 412-3323. Additionally, you can refer to Title 40 of the *Code of Federal Regulations* Part 262 (40 CFR Part 262) or EPA's handbook, *Understanding Hazardous Waste Rules: A Handbook for Small Businesses—1996 Update* (EPA document number 530-K-95-001), for a more detailed discussion of some of these issues. Be sure to check with your state hazardous waste agency as well, as some states have additional or more stringent requirements than the federal government.

Identifying the Hazardous Wastes You Generate

40 CFR 262.10 and Part 268

You must determine if any of the solid wastes you generate are hazardous so that you will be able to manage, report, and track them properly. Hazardous wastes can be:

- **Listed wastes.** These wastes will appear on one of four lists published in 40 CFR Part 261.
- **Characteristic wastes.** Certain wastes are considered hazardous if they are ignitable, corrosive, reactive, or toxic.

To determine if your wastes exhibit a characteristic, you may use EPA-approved test methods or apply your knowledge of the waste. If waste is to be land disposed, you must determine if your wastes exhibit any characteristics, even if they are listed wastes. Under the Land Disposal Restrictions (LDRs), most hazardous wastes may not be land disposed until they meet "treatment standards." It is your responsibility to ensure that your waste is treated to these standards. To learn about these requirements, call the RCRA Hotline or your state agencies or Regional Office.

Determining Your Generator Category

40 CFR 262.10(b) and 261.5(b) and (c)

If you are not sure if you are an LQG, you should measure the amount of hazardous waste you generate per calendar month. Be sure to measure wastes that are:

- Accumulated on site for any time before disposal or recycling.
- Placed directly into an on-site treatment or disposal unit.
- Generated as still bottoms or sludges and removed from product storage tanks.

Obtaining an EPA Identification Number

40 CFR 262.12

Identification numbers are required for persons that generate or manage hazardous waste, including small and large quantity generators, transporters, and treatment, storage, and disposal facilities. You will need an EPA identification number for each site that generates hazardous waste.

To find out where to call to obtain an identification number, contact the RCRA Hotline. Once you have contacted the proper authority, you will be sent EPA Form 8700-12, Notification of Regulated Waste Activity. Fill out the form and send it to the contact listed with the form. An EPA identification number will be returned to you for each location.

Preparing Hazardous Waste for Shipment Off Site

40 CFR 262.30—262.33

You must package, label, and mark your waste containers and placard vehicles that carry the wastes, following Department of Transportation (DOT) Hazardous Materials Transportation Act requirements (49 CFR Parts 172, 173, 178, and 179). Commercial waste handlers can advise you on the proper procedure, but you remain responsible for compliance.

For further information, call the DOT Hazardous Materials Information Line at 202 366-4488.

Obtaining a Manifest

40 CFR 262.20—262.23, 262.42

A hazardous waste manifest must accompany all hazardous waste that is shipped off site. A manifest is a multipart form designed to track hazardous waste from the time it leaves the generation site until it reaches the TSDF specified on the manifest. The manifest will help you to track your waste during shipment and make sure it arrives at the proper destination.

You should use the manifest form from the destination state. If the destination state does not print the manifest form, then use one from the state of origin or another source, if the state of origin does not print the manifest. The federal form is the Uniform Hazardous Waste Manifest (EPA Form 8700-22). The transporter and the permitted facility that treats or disposes of your waste must sign the manifest and send a copy back to you.

Managing Hazardous Waste On Site

40 CFR 262.34

You may accumulate any quantity of waste in containers, tanks, drip pads, and containment buildings for up to 90 days without a permit, provided that you meet the technical standards for the containment unit. LQGs that meet all technical standards for hazardous waste accumulation also may treat the waste without obtaining a RCRA permit. Generators must clearly mark the date that accumulation begins on each container storing hazardous waste so that it is visible for inspection.

LQGs are also responsible for complying with "preparedness and prevention" requirements in the event of emergencies. In addition, you must prepare a written contingency plan and train employees on hazardous waste management and emergency response.

If your facility accumulates wastes for more than 90 days, it is considered a storage facility and must follow regulations described in 40 CFR Parts 264 and 270, unless you have been granted an extension by your EPA Regional Administrator.

Reporting

40 CFR 262.41—262.43

Biennial Reporting

You are responsible for submitting a Biennial Report to your EPA Regional Office. Reports submitted for offsite shipping must include your EPA identification number, information for the transporter and permitted facility, a description and quantity of waste, actions you have taken to reduce the volume and toxicity of the waste, and the results of those actions. These reports give EPA a better understanding of national hazardous waste generation and disposal. They can also be used to promote pollution prevention. Some states might require you to report annually.

If you only export hazardous wastes, you are not required to submit a Biennial Report. You do, however, have to submit an annual report (40 CFR 262.56). Call the RCRA Hotline for more information.

Exception Reporting

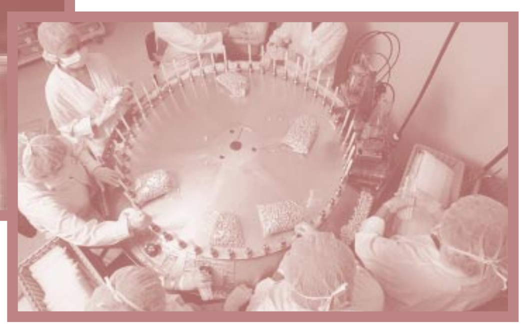
If you do not receive a signed manifest from the final destination of your hazardous waste:

- After 35 days, you must attempt to locate the hazardous waste by contacting the permitted facility.
- After 45 days, you must submit to your EPA Regional Office an Exception Report that contains a copy of the original manifest and a cover letter describing your efforts to locate the shipment and the results of your efforts.

Recordkeeping

40 CFR 262.40

Be sure to retain the following records at the facility for at least 3 years: signed manifests, biennial and exception reports, test results, and waste analyses. The 3-year period is automatically extended during the course of any unresolved enforcement actions.



Complying with Land Disposal Restrictions

40 CFR Part 268

Wastes must meet certain treatment standards prior to land disposal. When you transport your waste to a treatment facility, you must send a notice informing the facility that the waste does not yet meet treatment standards. The notice should contain enough information about the waste and the applicable standards so that the facility can make sure that the appropriate standards are met before disposal. A certification is required in some situations. You can contact the RCRA Hotline, your state agency, or EPA Regional office for help with notification and certification requirements. If you treat your waste on site, you must maintain a waste analysis plan.

Export/Import Requirements

40 CFR Part 262, Subpart E

If you plan to export hazardous wastes, you will have to notify EPA 60 days before the intended date of shipment to obtain written consent. Also, EPA's "Acknowledgement of Consent" document, which is filled out by the receiving country, must accompany the shipment at all times.

Hazardous waste management facilities receiving waste from a foreign source must notify the EPA Regional office of the shipment at least four weeks before receiving it. Importers of hazardous waste must be U.S. citizens and must certify that the shipment is in compliance with all applicable rules under the Toxic Substances Control Act (TSCA). For more information on TSCA, call EPA's TSCA Assistance Hotline at 202 554-1404 or TDD 202 554-0551.

EPA

United States Environmental Protection Agency
401 M Street, SW. (5305W)
Washington, DC 20460

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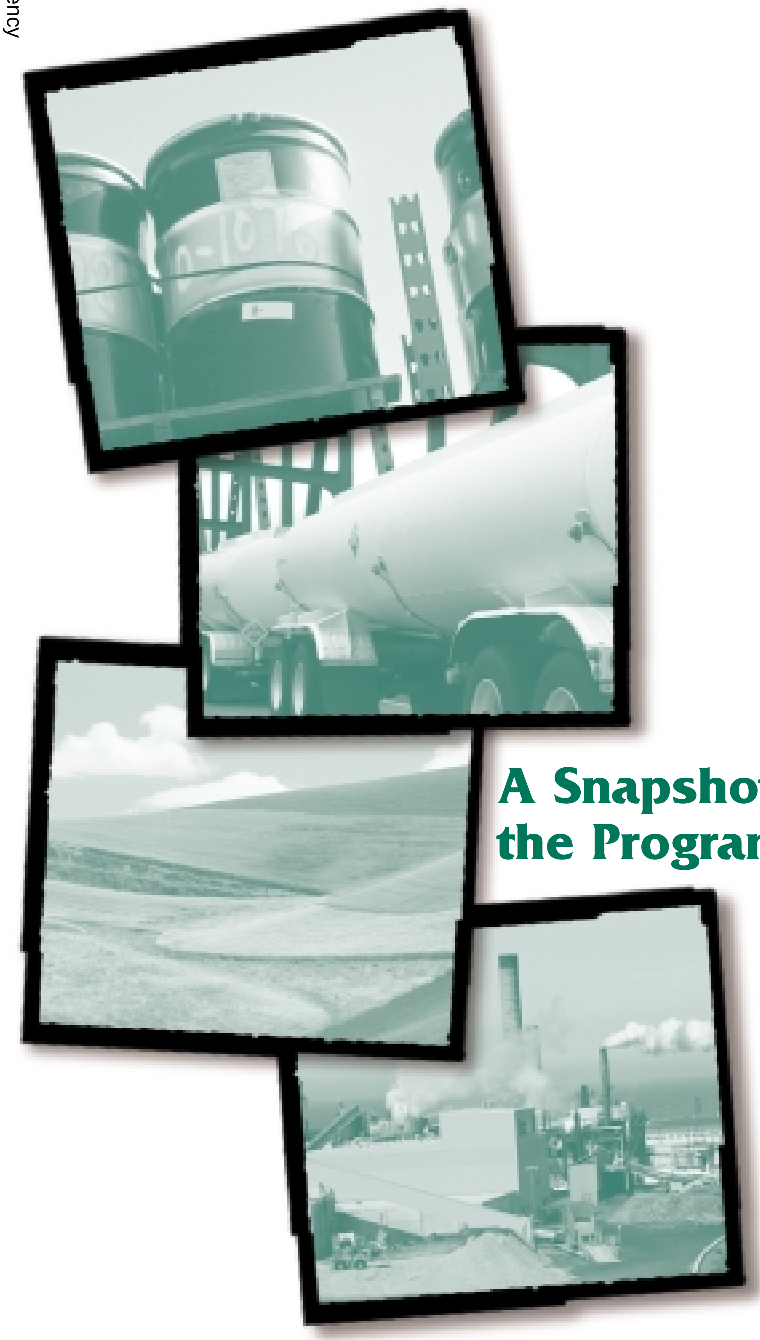
United States
Environmental Protection
Agency

EPA530-F-99-043
December 1999
www.epa.gov

Solid Waste and Emergency Response

Land Disposal Restrictions for Hazardous Wastes



A Snapshot of the Program

United States
Environmental Protection Agency
(5306W)
Washington, DC 20460

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The mission of the U.S. Environmental Protection Agency (EPA) is to protect human health and the environment—air, water, and land. One way EPA fulfills this mission is by regulating the management and disposal of hazardous wastes under a law known as the Resource Conservation and Recovery Act (RCRA).

Congress passed RCRA in 1976 to ensure hazardous waste is safely managed from generation to disposal. In 1984, Congress updated RCRA by prohibiting land disposal of certain hazardous wastes, and, as a result, EPA developed the Land Disposal Restrictions (LDR) program. The LDR program requires that protective treatment standards must be met before hazardous waste is land disposed. This brochure provides a brief introduction to the LDR requirements and identifies sources of more information.

What Is Land Disposal?

Currently, about 23 million tons of hazardous waste are land disposed each year. Land disposal can be either in or on the ground—in a landfill, injection well, or other land-based unit.

Even though landfill units are equipped with safeguards, when hazardous waste is not properly treated before land disposal, it can contaminate groundwater. Rain can penetrate and pass through hazardous waste and can leach out and carry hazardous chemicals into the groundwater.

What Is the LDR Program?

The LDR program ensures that land disposed hazardous waste does not pose a threat to human health and the environment. EPA accomplishes this by setting treatment standards for all hazardous waste bound for land disposal. These treatment standards ensure hazardous waste is properly treated to destroy or immobilize hazardous chemical components before it is land disposed.

What Are the Program's Major Components?

The LDR program has three major components, which address hazardous waste disposal, dilution, and storage.

The Disposal Prohibition states that, before a hazardous waste can be land disposed, treatment standards specific to that waste material must be met. A facility may meet such standards by either:

- Treating hazardous chemical constituents in the waste to meet required treatment levels. Any method of treatment can be used to bring concentrations to the appropriate level except dilution.

OR

- Treating hazardous waste using a treatment technology specified by EPA. Once the waste is treated with the technology required under LDR, it can be land disposed.

The Dilution Prohibition states that waste must be properly treated and not simply diluted in concentration by adding large amounts of water, soil, or non-hazardous waste. Dilution does not reduce the toxicity of the hazardous constituents.

The Storage Prohibition states that waste must be treated and cannot be stored indefinitely. This prevents generators and treatment, storage, and disposal facilities from storing hazardous waste for long periods to avoid treatment. Waste may be stored, subject to the LDR, in tanks, containers, or containment buildings—but only for the purpose of accumulating quantities necessary to facilitate proper recovery, treatment, or disposal.

When Do the Restrictions Apply?

As soon as a hazardous waste is generated, it is subject to the three LDR prohibitions described above, unless the waste generated is at concentrations already below the LDR treatment standards. If a business generates hazardous wastes that are above the LDR treatment standards, it must either treat the wastes on site before having them disposed of, or send them off site for proper treatment and ultimate disposal. If the hazardous waste meets the LDR treatment standards, further treatment is not necessary prior to disposal. A generator must always inform the receiving treatment, storage, and disposal facility of the status of the hazardous waste and ensure that it is handled safely.

Who Is Impacted by the LDR Program?

The LDR program impacts many small and large businesses that generate, store, transport, treat, and dispose of hazardous waste. If a business or service produces more than 220 pounds of hazardous waste (or 2.2 pounds of acutely hazardous waste) in a calendar month, it must properly identify the waste and determine if it has to be treated before land disposal. The LDR program also requires all treatment, storage, and disposal facilities to follow strict standards when managing the hazardous waste they receive.

For More Information

For more information on the LDR program, treatment standards or technologies, or on the RCRA program in general, call the RCRA Hotline at 800 424-9346 or TDD (hearing impaired) 800 553-7672. In the Washington, DC, area, call 703 412-9810 or TDD 703 412-3323. You also can find more information on EPA's Web site at <www.epa.gov/epaoswer/hazwaste/ldr>.

What Is Hazardous Waste?

The U.S. Environmental Protection Agency (EPA) uses the term "hazardous waste" to identify wastes that could be harmful to human health and the environment. The Resource Conservation and Recovery Act (RCRA) regulates waste as "hazardous" if it meets the RCRA definition of solid waste (see box) **and** is specifically listed as hazardous **or** exhibits a characteristic of hazardous waste.

What Is "Solid Waste"?

Solid waste is discarded material including garbage, refuse, and sludge, and can be solid, semisolid, liquid, or contain gaseous materials.

Listed Wastes

A solid waste is regulated as hazardous if it is included on specific EPA lists:

- Wastes from specific industry sectors, such as certain petroleum refining wastes.
- Wastes from general industrial processes, such as spent solvents used for cleaning or degreasing.
- Discarded chemicals that are threatening to human health in low doses, even when managed properly.

Characteristic Wastes

A solid waste also is regulated as hazardous if it exhibits one or more of the following characteristics: catches fire readily, corrodes steel, explodes readily, or has toxic constituents.

Exclusions

Some wastes that meet the RCRA definitions of solid and hazardous wastes are specifically excluded or exempted from the hazardous waste regulations. For example, some oil and gas exploration and mining wastes are excluded, as are some hazardous wastes that have been recycled.

The Universal Waste Rule

- Eases regulatory burdens on businesses.
- Promotes proper recycling or disposal of hazardous waste batteries, pesticides, thermostats, and lamps which will reduce the amount of hazardous waste items in the municipal solid waste stream.
- Provides for collection opportunities for communities and businesses.

REINVENTING ENVIRONMENTAL REGULATIONS

As part of the U.S. Environmental Protection Agency's (EPA's) commitment to reinvent environmental regulations, the Agency recently issued the "Universal Waste Rule." This rule is designed to reduce the amount of hazardous waste items in the municipal solid waste (MSW) stream, encourage recycling and proper disposal of certain common hazardous wastes, and reduce the regulatory burden on businesses that generate these wastes.

By reducing administrative requirements, this rule is expected to save companies more than $70 million per year in compliance costs and reduce the amount of time spent on paperwork requirements by over 500,000 hours per year. Administrative reductions also would help encourage collection and recycling programs, thereby reducing the amount of these common hazardous items that are thrown into the trash by households and small businesses. Removing these materials from municipal landfills and incinerators will prevent a potential threat to public health and the environment.

This rule was promulgated by EPA as an amendment to the Resource Conservation and Recovery Act (RCRA) regulations. States that are authorized to implement the RCRA program are strongly encouraged to adopt this rule.

WHAT ARE UNIVERSAL WASTES?

Universal wastes include:

Agricultural pesticides that have been recalled or banned from use, are obsolete, have become damaged, or are no longer needed due to changes in cropping patterns or other factors. They often are stored for long periods of time in sheds or barns.

Batteries such as nickel-cadmium (Ni-Cd) and small sealed lead-acid batteries, which are found in many common items in the business and home setting, including electronic equipment, mobile telephones, portable computers, and emergency backup lighting.

- Battery Act
- Battery Act Booklet
  Adobe Acrobat PDF File || ASCII Text File || *About . . .*

Cathode Ray Tubes, the video display components of television and computer monitors, typically contain lead. **Mercury** is contained in several types of instruments that are commonly used by electric utilities, municipalities, and households. Among others, these devices include barometers, meters, temperature gauges, pressure gauges, sprinkler system contacts, and parts of coal conveyor systems.

- **Federal Register Notice**
  Adobe Acrobat PDF File [KB] HTML
- **More Recycling and Reuse Proposed For Electronic Wastes and Mercury-Containing**

Equipment [Fact Sheet]
Adobe Acrobat PDF File [12 KB]

Lamps, which typically contain mercury and sometimes lead, and are found in businesses and households. Examples of common types of lamps include fluorescent, high intensity discharge (HID), neon, mercury vapor, high pressure sodium, and metal halide lamps.

- **Federal Register Notice**
  Adobe Acrobat PDF File [172 KB] || HTML
- **Environmental Fact Sheet: Some Used Lamps Are Universal Wastes**
  Adobe Acrobat PDF File [13 KB] || ASCII text file

An opportunity is available for non-profit organizations to apply for a cooperative agreement [PDF File, 18 KB] to create an outreach program to increase recycling of mercury-containing lights, particularly the fluorescent lights.

Thermostats, which can contain as much as 3 grams of liquid mercury and are located in almost any building, including commercial, industrial, agricultural, community, and household buildings.

WHO IS AFFECTED BY THIS RULE?

Businesses
Universal wastes are generated by small and large businesses that are regulated under RCRA and have been required to handle these materials as hazardous wastes. The Universal Waste Rule eases the regulatory burden on businesses that generate these wastes. Specifically, it streamlines the requirements related to notification, labeling, marking, prohibitions, accumulation time limits, employee training, response to releases, offsite shipments, tracking, exports, and transportation. For example, the rule extends the amount of time that businesses can accumulate these materials on site. It also allows companies to transport them with a common carrier, instead of a hazardous waste transporter, and no longer requires companies to obtain a manifest.

Many industries strongly support this new rule because they have identified easy collection of universal wastes as a priority to ensure sound environmental management. This rule will make it easier for companies to establish collection programs and participate in manufacturer take-back programs required by a number of states. Many large manufacturers and trade associations are already planning national and regional collection programs for their products.

The rule does not apply to businesses that generate less than 100 kilograms of universal wastes per month (Conditionally Exempt Small Quantity Generators). EPA encourages these businesses to participate voluntarily in collection and recycling programs by bringing these wastes to collection centers for proper treatment and disposal.

Households.
Universal wastes also are generated by individual households, which are not regulated under RCRA and are allowed to dispose of these wastes in the trash. While new MSW landfills are designed to handle small amounts of hazardous wastes, these wastes can be better managed in a designated program for collection or recycling. EPA encourages residents to take these items to collection sites located at nearby businesses and other centers for proper recycling or disposal.

Communities.
Communities in states that adopt this rule can work with both businesses and residents to facilitate proper recycling or disposal of universal wastes. By easing the regulatory burden on businesses, more collection sites will be available. Communities can establish collection programs or assist collection programs set up by area businesses.

WHAT IS THE STATES ROLE?

Like most federal environmental legislation, RCRA encourages states to develop and run their own hazardous waste programs as an alternative to direct EPA management. When EPA issues a new rule, such as the Universal Waste Rule, states that are authorized to implement the RCRA program must adopt the rule in a separate state rulemaking for it to be effective. Because the Universal Waste Rule is less stringent than the current requirements under RCRA, state adoption is optional. EPA strongly encourages state adoption, however, to foster better management of universal wastes in each state. Quick state adoption will make interstate issues less complex. Consistent programs among states will facilitate implementation of national and regional collection programs.

States may adopt the entire rule or portions of it, including:

- General provisions
- Provisions for batteries, pesticides, thermostats, and lamps
- Provisions allowing the addition of new universal wastes

If states adopt the petition provision, they will be allowed to add wastes to their universal waste programs without EPA having to add the wastes at the federal level. The rule will go into effect immediately in states and territories that are not RCRA-authorized including Iowa, Alaska, Hawaii, and Puerto Rico.

State adoption is **strongly encouraged.**

FOR MORE INFORMATION

The initial universal waste rule was published in the May 11, 1995, Federal Register and is found in the Code of Federal Regulations at 40 CFR Part 273. The rule adding hazardous waste lamps to the universal waste program was published in the July 6, 1999, Federal Register.

A brochure is available as an Adobe Acrobat PDF file and en Español. There is a Fact Sheet about Universal Waste available in ASCII text format.

Universal Waste Information Collection Request EPA ID No. 1597.02
The Environmental Protection Agency (EPA) is planning to submit Information Collection Request (ICR) Number 1597.02, Office of Management and Budget (OMB) Control Number 2050-0145 to OMB. The Paperwork Reduction Act (PRA) requires that EPA prepare Information Collection Requests (ICRs) to explain and justify any activity that involves collecting information from ten or more non-federal respondents. PRA also requires that EPA submit ICRs to OMB for approval and that EPA make them available to the public for comment. The currently approved ICR for the federal Universal Waste rule expires May 31, 1998. In order to continue its authority to request information required under the Part 273 federal standards, EPA must renew the existing Universal Waste ICR. This ICR does not create any new reporting and recordkeeping requirements for affected entities.

Federal Register Notice
ASCII Text File

Supporting statement for EPA information collection request - reporting and record keeping requirements for Universal Waste September 26, 1997
Adobe Acrobat PDF File || *About...*

Integrated Waste Management
List of Permitted Facilities

Updated January 17, 2002

Construction and Demolition Waste Landfills

Abe's Trash Service, Inc.	Omaha	(402) 571-4926
Anderson Excavating & Wrecking Co. Calhoun Road	Omaha	(402) 345-8811
Bud's Sanitary Service	Newman Grove	(402) 447-6472
Butler County Landfill, Inc.	David City	(402) 367-4662
City of Alliance C & D Landfill	Alliance	(308) 762-5400
City of Kimball	Kimball	(308) 235-3639
City of Lincoln North 48th Street	Lincoln	(402) 441-7867
City of O'Neill	O'Neill	(402) 336-3090
City of Plainview	Plainview	(402) 582-4928
Gage County C & D Waste Disposal Facility	Beatrice	(402) 223-4011
Hawkins Construction Co.	Omaha	(402) 342-1607
Lexington Area Solid Waste Agency (LASWA)	Lexington	(308) 324-2341
Loup Central Landfill Assoc.	Elba	(308) 863-2122
NPPD Gerald Gentleman Station	Sutherland	(402) 563-5355
PAD LLC	Hastings	(402) 463-4545
Sidney Area Solid Waste Agency	Sidney	(308) 254-5300
Southwest NE Solid Waste Agency	Imperial	(308) 882-4368
Stewart Construction	Indianola	(308) 345-7070
Village of Arnold	Arnold	(308) 848-2228

For more information, contact
MoreInfo@NDEQ.state.NE.US

Nebraska Department of Environmental Quality
1200 "N" Street, Suite 400
PO Pox 98922
Lincoln, Nebraska 68509
(402) 471-2186 FAX (402) 471-2909

This list was obtained from the website of the Nebraska Department of Environmental Quality (NDEQ). For the most recent list, go to
http://www.deq.state.ne.us/IntList.nsf/Web%20List?OpenView&Start=1&Count=125&Expand=2 .

Nebraska Department of Environmental Quality
Waste Management Section

Hazardous Waste Service Providers Directory

August 2001

*** IMPORTANT NOTICE ***

This directory has been compiled from names provided to the Department of Environmental Quality (NDEQ) by interested firms. The directory is for informational purposes only. It is strongly recommended that you call in advance to assure that the firm can and will handle your particular hazardous waste.

NDEQ makes no representations whatsoever regarding the character or quality of the firms listed nor does it endorse or recommend the hazardous waste services provided. Generators and other businesses using this list are solely responsible for determining the adequacy of the hazardous waste services and should determine that any company or product they use complies with all applicable environmental laws.

This directory is by no means inclusive. Changes to the lists may be initiated by writing

Nebraska Department of Environmental Quality
Waste Management Section
1200 'N' St., Suite 400
Box 98922
Lincoln, Nebraska 68509-8922
or by calling (402) 471-4210.

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ANALYTICAL LABORATORIES

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EA ENGINEERING SCIENCE AND TECHNOLOGY, INC.
121 S. 13 th St., Suite 204
Lincoln, NE 68528
(402) 476-3766

E & I LABORATORIES, INC.
3920 N.W. 39 th St.
Lincoln, NE 68524
(402) 470-2255

KEOWN & ASSOCIATES
353 S.W. 20 th St.
Lincoln NE 68522-1014
(402) 435-5707

MIDWEST LABORATORIES, INC.
(NED981126824)
13611 "B" St.
Omaha, NE 68144
(402) 334-7770
www.midwestlabs.com

NEBRASKA ANALYTICAL TESTING
4123 S. 67 th St.
Omaha, NE 68117
(402) 331-0935

PHILIP ANALYTICAL SERVICES CORPORATION
4418 Pottsville Pike
Reading, PA 19665
(800) 345-4026
www.contactpsc.com

SERVI-TECH INDUSTRIES
PO Box 169
Hastings, NE 68901
(402) 463-3522
www.servi-techinc.com

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ACZ LABORATORIES, INC.
2773 Downhill Dr.
Steamboat Springs, CO 80487-9400
(970) 879-6590
www.acz.com

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LLC
1005 S. 120 th St.
Lafayette, CO 80026
(303) 673-9444
Fax: (303) 673-0444
www.heritage-enviro.com

STL DENVER INC.
4955 Yarrow St.
Arvada, CO 80002
(303) 736-0100
www.stl-inc.com

TECHNOLOGY LAB, INC.
PO Box 8221
Fort Collins, CO 80526
(970) 490-1414

WALSH ENVIRONMENTAL SCIENTISTS
AND ENGINEERS, INC.
4888 Pearl E. Circle, #108
Boulder, CO 80301
(303) 443-3282
Fax: (303) 443-0367

ILLINOIS

PDC LABORATORIES
2231 W. Altorfer Drive
Peoria, IL 61614
(309) 692-9688

SET ENVIRONMENTAL, INC.
450 Sumac Road
Wheeling, IL 60090
(800) 634-6856
Fax: (847) 537-9265
www.setenv.com

TESTAMERICA, INC.
850 West Bartlett Road
Bartlett, IL 60103
(630) 289-3100
(800) 378-5700
Fax: (630) 289-5445
www.testamericainc.com

STL CHICAGO INC.
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University Park, IL 60466
(708) 534-5200
www.stl-inc.com

IOWA

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PO Box 1472
30 N. 5th St.
Keokuk, IA 52632-1472
(319) 524-8273
(800) 833-3878
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www.heiconsultants.com

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35 W. Lincolnway
Nevada, IA 50201
(800) 362-0855
www.execpc.com/~mvtlmilw

Q.C. METALLURGICAL LAB, INC.
17048 215th St.
Davenport, IA 52804
(319) 386-7827
www.qcmetaltesting.com

TESTAMERICA, INC.
704 Enterprise Drive
Cedar Falls, IA 50613
(319) 277-2401
(800) 750-2401
Fax: (319) 277-2425
www.testamericainc.com

UNIVERSITY OF IOWA-STATE HYGIENIC LAB
102 Oakdale Campus H101 OH
Iowa City, IA 52242
(319) 335-4500
www.uhl.uiowa.edu

KANSAS

A & E ANALYTICAL LABORATORY SERVICES
3031 West Pawnee, Suite 500
Wichita, KS 67213
(316) 943-3447

CONTINENTAL ANALYTICAL SERVICES
1804 Glendale Road
Salina, KS 67401
(800) 535-3076
http://biznet.maximizer.com/caslab/

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Topeka, KS 66601
(785) 233-1860

KEYSTONE LABORATORIES, INC.
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(913) 321-7856

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PO Box 19321
Topeka, KS 66619
(785) 862-3500

PACE ANALYTICAL SERVICES
9608 Loiret Boulevard
Lenexa, KS 66219
(913) 599-5665
www.pacelabs.com

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Pittsburg, KS 66762
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SDK LABORATORIES, INC.
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(316) 665-5661
www.sdklabs.com

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(316) 328-3222

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(800) 829-4374
Fax: (816) 453-0180
www.heritage-enviro.com

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www.eeienv.com

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(937) 294-6856
(800) 572-9839
Fax: (937) 294-7816
www.testamericainc.com

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Miami, OK 74354
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www.epi-tech.com

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Broken Arrow, OK 74012
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www.swlab.com

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PO Box 2470
Rapid City, SD 57709
(605) 341-7284
www.energylab.com

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www.maximusa.com

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(414) 353-1156
(800) 234-1156
Fax: (414) 353-1822
www.eoge.com

WYOMING

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2393 Salt Creek Highway
PO Box 3258
Casper, WY 82602
(888) 235-0515
(307) 235-0515
www.energylab.com

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Gillette, WY 82716
(866) 686-7175
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Valley, NE 68064
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220379 Sunset Dr.
Gering, NE 69341
(308) 436-2600
www.safety-kleen.com

SAFETY-KLEEN CORPORATION
(NED053316535)
2700 West 2nd St.
Grand Island, NE 68803
(308) 384-1616
www.safety-kleen.com

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13915 “A” Plaza
Omaha, NE 68144
(402) 333-6321
www.safety-kleen.com

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(402) 733-3266
www.chemcare.com

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ENVIRONMENTAL SYSTEMS CO.
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www.enscoinc.com

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Omaha, NE 68135
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Lincoln, NE 68521-4108
(402) 474-1991

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(317) 888-3889
Fax: (317) 888-3890
www.lightingresources.com

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Indianapolis, IN 46225
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Des Moines, IA 50309
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www.sqsenvironmental.com

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www.fcballast.com

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(405) 399-2401

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245 Portersville Road
Ellwood City, PA 16117
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www.inmetco.com

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HAZARDOUS WASTE BROKERS

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www.esilink.com

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2700 West 2nd St.
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Omaha, NE 68144
(402) 333-6321
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El Dorado, AR 71730
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Fax: (870) 864-3730
www.enscoinc.com

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Lafayette, CO 80026
(303) 673-9444
Fax: (303) 673-0444
www.heritage-enviro.com

ILLINOIS

AMERICAN WASTE PROCESSING
LTD.
(ILD000716894)
2100 Madison St.
Maywood, IL 60153
(708) 681-3999

PDC ENVIRONMENTAL SERVICES
(PEORIA DISPOSAL COMPANY)
(ILD000805812)
Corporate Office
4700 N. Sterling Avenue
PO Box 9071
Peoria, IL 61612-9071
(309) 686-8033

INDIANA

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2000 Michigan
Hammond, IN 46320
(219) 932-7651

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LWD, INC.
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Calvert City, KY 42029
(270) 395-8313
Fax: (270) 395-8153
www.lwd-inc.om

MASSACHUSETTS

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ENVIRONMENTAL SERVICES, INC.
Customer Service
1501 Washington St.
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(781) 849-1800
Fax: (781) 357-1527
www.cleanharbors.com
E-mail: **Service@Cleanharbors.com**

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36255 Michigan Avenue
Wayne, MI 48184
(734) 329-8000
Fax: (734) 329-8140
www.eqonline.com

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(MOD981505555)
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Kansas City, MO 64161
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(800) 829-4374
Fax: (816) 453-0180
www.heritage-enviro.com

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(800) 765-8732
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Milwaukee, WI 53223
(414) 353-1156
Fax: (414) 353-1822
www.eoge.com

WRR/ENVIRONMENTAL SERVICES CO., INC
(WID990829475)
5200 State Road 93
Eau Claire, WI 54701
(715) 834-9624
Fax: (715) 836-8785

HAZARDOUS WASTE CONSULTANTS

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Fax: (402) 697-9170
www.atc-enviro.com

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(308) 632-3123
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(308) 382-6421

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(402) 331-7230
www.cjsengineering.com

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(402) 466-2268

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(402) 441-3022
www.emr-inc.com

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9144 S. 147 th St.
Omaha, NE 68138-3600
(402) 896-3600
Fax: (402) 894-2444
www.esilink.com

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(NED986383164)
3826 Arch Avenue
Grand Island, NE 68803-5003
(308) 381-1987
Fax: (308) 381-2467
www.gsinetwork.com

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7050 S. 110 th St.
Omaha, NE 68128-5716
(402) 339-6104
Fax: (402) 339-6297
www.gsinetwork.com

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Lincoln, NE 68507
(402) 466-8154
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www.hws-con.com

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www.maximusa.com

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www.nesllc.com

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www.safety-kleen.com

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Gering, NE 69341
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www.safety-kleen.com

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2700 West 2nd St.
Grand Island, NE 68803
(308) 384-1616
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13915 A Plaza
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(IN0000646943)
4343 Kennedy Avenue
E. Chicago, IN 46312
(219) 397-3951
Fax: (219) 397-6411
www.pollutioncontrol.com

IOWA

HEI CONSULTANTS, INC.
PO Box 1472
30 N. 5th St.
Keokuk, IA 52632
(319) 524-8273
(800) 833-3878
Fax: (319) 524-9019
www.heiconsultants.com

KANSAS

CLEAN HARBORS
ENVIRONMENTAL SERVICES, INC.
9854 Pflumm Road
Kansas City, KS 66215
(913) 492-6983
www.cleanharbors.com

MISSOURI

HERITAGE ENVIRONMENTAL
SERVICES,
LLC
(MOD981505555)
8525 N.E. 38th St.
Kansas City, MO 64161
(816) 453-4321
(800) 829-4374
Fax: (816) 453-0180
www.heritage-enviro.com

PHILIPS SERVICES CORPORATION
(MOD000610766)
PO Box 014035
700 Mulberry
Kansas City, MO 64101
(816) 474-1391
(800) 765-8732
www.contactpsc.com

OHIO

ENVIRONMENTAL ENTERPRISES,
INC.
10163 Cincinnati-Dayton Road
Cincinnati, OH 45241
(513) 772-2818
www.eeienv.com

SOUTH DAKOTA

SAFETY-KLEEN CORPORATION
2000 N. Westport Avenue
Sioux Falls, SD 57107
(605) 332-0231
www.safety-kleen.com

WISCONSIN

ADVANCED WASTE SERVICES
1126 S. 70th, Suite N508B
West Allis, WI 53214
(800) 842-9792

EOG ENVIRONMENTAL, INC.
(WID988580056)
5611 W. Hemlock St.
Milwaukee, WI 53223
(414) 353-1156
(800) 234-1156
Fax: (414) 353-1822
www.eoge.com

MEDICAL WASTE

NEBRASKA

ENVIRONMENTAL HEALTH
SYSTEMS
6100 N. 60th St.
Lincoln, NE 68507
(402) 464-5348
Fax: (402) 464-5391
www.ehs-1.com

WOODS PARK MEDICAL MANAGEMENT
5440 South St. #100
Lincoln, NE 68506
(402) 434-6040
Fax: (402) 434-6047

IOWA

GRP & ASSOCIATES
PO Box 94
Clear Lake, IA 50428
(888) 346-6037
Fax: (641) 357-4063
www.sharpsdisposal.com

STERICYCLE
PO Box 796
Johnston, IA 50131
(515) 279-1141
www.stericycle.com

KANSAS

ENGINEERED RECOVERY SYSTEMS
PO Box 3220
Shawnee Mission, KS 66203
(800) 246-7786
Fax: (913) 268-9813

SOUTH DAKOTA

MEDICAL WASTE TRANSPORT INC.
910 North Main Avenue
Sioux Falls, SD 57104
(800) 392-8718

MERCURY RECYCLERS

NEBRASKA

ENVIRONMENTAL COMPLIANCE ENTERPRISES
(NER000007682)
1321 N. 68th St.
Lincoln, NE 68505
(402) 466-2268

WESCO DISTRIBUTION
3100 N. 33 rd St.
Lincoln, NE 68504
(402) 467-5311
Fax: (402) 467-3779
www.wescodist.com

INDIANA

LIGHTING RESOURCES, INC.
498 Park 800 Drive
Greenwood, IN 46143
(317) 888-3889
Fax: (317) 888-3890
www.lightingresources.com

MERCURY WASTE SOLUTIONS, INC.
1304 West Troy Ave.
Indianapolis, IN 46225
(888) 988-4050
Fax: (317) 780-4778
www.mwsi.com

IOWA

A-TEC RECYCLING, INC.
PO Box 7391
Des Moines, IA 50309
(800) 551-4912
Fax: (515) 263-6970
www.a-tec-recycling.com

MICHIGAN

SQS, INC.
7522 Baron Drive
Canton, MI 48187
(734) 459-3800
www.sqsenvironmental.com

MINNESOTA

NATIONAL ENVIRONMENTAL SERVICES, LLC
PO Box 390407
Minneapolis, MN 55439
(952) 830-1348
www.nesllc.com

SUPERIOR SPECIAL SERVICES, INC.
A division of Onyx Environmental Services
401 W. 86th St.
Bloomington, MN 55420
(800) 831-2852
(952) 948-0626
www.superspecial.com

MISSOURI

HAZ-MAT RESPONSE DISPOSAL
6300 Stadium Drive
Kansas City, MO 64129
(888) 429-9278 ext.428
www.haz-matresponse.com

NEW YORK

FULL CIRCLE, INC.
An Environmental Technologies Company
509 Manida St.
Bronx, NY 10474
(800) 775-1516
www.fcballast.com

OHIO

ENVIRONMENTAL ENTERPRISES, INC.
4650 Spring Grove Avenue
Cincinnati, OH 45232
(513) 541-1823
Fax: (513) 541-1638
www.eeienv.com

PENNSYLVANIA

ADVANCED ENVIRONMENTAL RECYCLING
2591 Mitchell Avenue
Allentown, PA 18103
(800) 554-2372

WISCONSIN

EOG ENVIRONMENTAL, INC.
(WID988580056)
5611 W. Hemlock St.
Milwaukee, WI 53223
(414) 353-1156
(800) 234-1156
Fax: (414) 353-1822
www.eoge.com

MIXED WASTES-
(Radioactive Hazardous Waste)

ADCO SERVICES, INC.
(800) 282-2326
Fax: (708) 429-9759

DSSI (DIVERSIFIED SCIENTIFIC SERVICES
INC.)
A subsidiary of Perma-Fix Environmental
(865) 376-0084
Fax: (865) 376-0087

ENVIROCARE OF UTAH, INC.
(801) 532-1330

PERMA-FIX ENVIRONMENTAL SERVICES
(800) 365-6066
Fax: (352) 372-8963

PCB SERVICES

IOWA

HEI CONSULTANTS, INC.
PO Box 1472
30 N. 5th St.
Keokuk, IA 52632-1472
(319) 524-8273
(800) 833-3878
Fax: (319) 524-9019
www.heiconsultants.com

KANSAS

SAFETY-KLEEN CORPORATION
2474 Highway 169 North
Coffeyville, KS 67337
(316) 251-4459
www.safety-kleen.com

MINNESOTA

DYNEX ENVIRONMENTAL, INC.
4751 Mustang Circle
St. Paul, MN 55112
(763) 784-4040
www.dynex.com

MISSOURI

HAZ-MAT RESPONSE DISPOSAL, INC.
6300 Stadium Drive
Kansas City, MO 64129
(888) 429-9278
www.haz-matresponse.com

NEVADA

US ECOLOGY, INC.
PO Box 678
Beatty, NV 89003
(800) 239-3943
Fax: (775) 553-2742
www.americanecology.com

OHIO

ENVIRONMENTAL ENTERPRISES, INC.
4650 Spring Grove Avenue
Cincinnati, OH 45232
(513) 541-1823
Fax: (513) 541-1638
www.eeienv.com

WISCONSIN

EOG ENVIRONMENTAL, INC.
(WID988580056)
5611 W. Hemlock St.
Milwaukee, WI 53223
(414) 353-1156
(800) 234-1156
Fax: (414) 353-1822
www.eoge.com

SCRAP METAL RECYCLERS

NEBRASKA

A & A AUTO RECYCLERS
(accepts empty aerosol cans)
1325 Grace St.
Omaha, NE 68110
(402) 342-1324

AK-SAR-BEN SCRAP METAL
1308 Webster St.
Omaha, NE 68110
(402) 341-3796

ALL METALS MARKET
1225 County Road Y
Fremont, NE 68025
(402) 721-2985

ALTER NEBRASKA CORPORATION
1119 E. 4th St.
Grand Island, NE 68801
(308) 381-0600
Fax: (308) 381-1829
www.altertrading.com

ALTER NEBRASKA CORPORATION
(accepts punctured aerosol cans)
525 “N” St.
Lincoln, NE 68508
(402) 476-3306
Fax: (402) 476-2330
www.altertrading.com

ALTER NEBRASKA CORPORATION
500 Washington St.
Norfolk, NE 68701
(402) 371-2200
Fax: (402) 371-6583
www.altertrading.com

CITY IRON & METAL CO.
200 S. Burlington Avenue
Hastings, NE 68901
(402) 462-6016
Fax: (402) 462-6096

J & M STEEL
East Industrial Park
Building 35
PO Box 204
Hastings, NE 68902
(402) 461-3815

KRAMER’S AUTO PARTS & IRON CO.
3405 N. U.S. Highway 281
Grand Island, NE 68803
(308) 384-1116

MIDWEST ALUMINUM CANS
(Non-ferrous metals only)
1624 Clark St.
Omaha, NE 68110
(402) 345-6624
Fax: (402) 345-5835

NORTHWESTERN METAL CO.
(accepts empty aerosol cans)
3900 Industrial Avenue
Lincoln, NE 68504
(402) 464-6341

COLORADO

ACTION RECYCLING CORPORATION
(Non-ferrous metals only)
7610 W. 42nd Avenue
Wheat Ridge, CO 80033
(303) 424-1600

ARVADA RECYCLING
9630 Ralston Road
Arvada, CO 80004-5021
(303) 423-4189

BENSON & BENSON METALS COMPANY
6885 Lowell Boulevard
Denver, CO 80221-2652
(303) 650-6312

ROCKY MOUNTAIN RECYCLING
4431 E. 64th Avenue
Commerce City, CO 80022-3106
(303) 288-6867

WESTERN ALUMINUM RECYCLING
(Non-ferrous metals only)
3280 Valmont Road
Boulder, CO 80301-2112
(303) 447-0252

ILLINOIS

CHEMETCO, INC.
(Non-ferrous metals only)
3576 Chemetco Ln.
Hartford, IL 62048
(708) 339-5700
(800) 444-5564
Fax: (708) 339-0219
www.chemetco-inc.com

IOWA

ALTER SCRAP PROCESSING
9603 9th Avenue
PO Box 441
Council Bluffs, IA 51502
(712) 328-2601
Fax: (712) 328-1346
www.altertrading.com

KANSAS

M & N IRON & METAL
301 Cedar St.
Concordia, KS 66901-1717
(785) 243-4262

SOUTH DAKOTA

TJN ENTERPRISES
5501 W. 9th St.
Sioux Falls, SD 57107
(605) 334-7001

WYOMING

CANMAN RECYCLING
1500 Seymour Avenue
Cheyenne, WY 82001-4769
(307) 635-5891

SHOP RAG & WIPER LAUNDERING CONTRACTS

AMERIPRIDE SERVICE
7515 D St.
Omaha, NE 68124
(402) 392-1161

HUNT CLEANERS, INC.
PO Box 12
Cozad, NE 69130
(800) 262-4568
Fax: (308) 784-4169

IDEAL LINEN SUPPLY
PO Box 1114
North Platte, NE 69101
(308) 534-0755

IDEAL LINEN SUPPLY & CLEANERS
506 S. Beltline Hwy. E.
Scottsbluff, NE 69361
(308) 632-7197

JACKSON SERVICES, INC.
PO Box 706
Columbus, NE 68601
(800) 642-2824

PARAMOUNT LINEN & UNIFORM
525 E. 25th St.
Kearney, NE 68847
(800) 848-3228

PARAMOUNT LINEN & UNIFORM
837 S. 27th St.
Lincoln, NE 68510
(402) 435-4313

SERVALL TOWEL & LINEN SUPPLY
126 N. 3rd St.
Norfolk, NE 68701
(402) 371-9715
(800) 999-3353

SPIC & SPAN LINEN SUPPLY
1228 S. 16th St.
Omaha, NE 68108
(402) 342-7181

UNISERVICE, INC.
115 S. Denver Ave.
Hastings, NE 68901
(402) 463-4594

UNISERVICE, INC.
1702 Webster St.
Omaha, NE 68102
(402) 330-4620

TRANSPORTATION FORMS

NEBRASKA

FIRST EDITION PRESS
5919 Maple St.
Omaha, NE 68104
(402) 558-5041

ILLINOIS

LABELMASTER
Dept. IRQ-Marketing
5724 N. Pulaski Rd.
Chicago, IL 60646
(800) 621-5808
(773) 487-0900
Fax: (800) 723-4327
www.labelmaster.com

WISCONSIN

J. J. KELLER & ASSOCIATES, INC.
PO Box 368
Neenah, WI 54957
(800) 558-5011
Fax: (800) 727-7516
www.jjkeller.com

HAZARDOUS WASTE TRANSPORTERS

NEBRASKA

BURLINGTON NORTHERN AND SANTA FE RAILROAD
(Bulk only)
Customer Service
(800) 289-2673
(402) 458-7633
www.bnsf.com

ENVIRONMENTAL COMPLIANCE ENTERPRISES
(NER000007682)
1321 N. 68th St.
Lincoln, NE 68505
(402) 466-2268

ENVIRONMENTAL SOLUTIONS, INC.
(NER000008128)
9144 S. 147th St.
Omaha, NE 68138
(402) 896-3600
Fax: (402) 894-2444
www.esilink.com

INDUSTRIAL SERVICES, INC.
(NET320010226)
6201 N. 70th St.
Lincoln, NE 68507
(402) 467-3581

NEBRASKA TRANSPORT CORPORATION
(NET320010325)
1225 Country Club Road
Gering, NE 69341
(308) 635-1214

SAFETY-KLEEN CORPORATION
(NED000687178)
220379 Sunset Dr.
Gering, NE 69341
(308) 436-2600
www.safety-kleen.com

SAFETY-KLEEN CORPORATION
(NED053316535)
2700 West 2nd St.
Grand Island, NE 68803
(308) 384-1616
www.safety-kleen.com

SAFETY-KLEEN CORPORATION
(NED981495724)
13915 A Plaza
Omaha, NE 68144
(402) 333-6321
www.safety-kleen.com

SMITH SYSTEMS
TRANSPORTATION INC.
(NED986382133)
PO Box 2455
Scottsbluff, NE 69363-2455
417 9th Avenue
Scottsbluff, NE 69361
(308) 632-5148

UNION PACIFIC RAILROAD
(Bulk only)
(800) 255-4914
www.uprr.com

VOPAK USA, INC.
(NED000809483)
3002 “F” St.
Omaha, NE 68107
(402) 733-3266
www.chemcare.com

CALIFORNIA

C&L RICHARDSON TRANSPORT
(CAR000092767)
1521 Leanne Terrace
Walnut, CA 91789
(909) 594-4251
Fax: (909) 468-9619

COLORADO

HERITAGE ENVIRONMENTAL
SERVICES,
LLC
1005 S. 120th St.
Lafayette, CO 80026
(303) 673-9444
Fax: (303) 673-0444
www.heritage-enviro.com

VOPAK USA, INC.
Denver Distribution Facility
PO Box 5287
Denver, CO 80217-5287
4300 Holly St.
Denver, CO 80216-4533
(303) 388-5651
www.chemcare.com

ILLINOIS

PDC ENVIRONMENTAL SERVICES
(PEORIA DISPOSAL COMPANY)
(ILD000805812)
Corporate Office
4700 N. Sterling Avenue
PO Box 9071
Peoria, IL 61612-9071
(309) 686-8033

SET ENVIRONMENTAL, INC.
450 Sumac Road
Wheeling, IL 60090
(800) 634-6856
Fax: (847) 537-9265
www.setenv.com

IOWA

BARTON SOLVENTS
2135 9th Avenue
PO Box 456
Council Bluffs, IA 51502
(712) 322-2509
www.barsol.com

HEI CONSULTANTS, INC.
PO Box 1472
30 N. 5th St.
Keokuk, IA 52632-1472
(319) 524-8273
(800) 833-3878
Fax: (319) 524-9019
www.heiconsultants.com

WS SUPPLIES
A division of Merrill's, Inc.
PO Box 114
Woodbine, IA 51579
(800) 728-0696

KENTUCKY

LWD, INC.
(KYD981477821)
PO Box 327
Calvert City, KY 42029
(270) 395-8313
Fax: (270) 395-8153
www.lwd-inc.com

MICHIGAN

EQ-THE ENVIRONMENTAL QUALITY CO
CORPORATE OFFICE
36255 Michigan Avenue
Wayne, MI 48184
(734) 329-8000
Fax: (734) 329-8140
www.eqonline.com

MINNESOTA

ENVIROSOTA, INC.
6135 Kellogg Avenue South, Suite 223
Minneapolis, MN 55424-1802
(952) 929-2670
Fax: (952) 929-3873

MISSOURI

HERITAGE ENVIRONMENTAL SERVICES, LLC
(MOD981505555)
8525 N.E. 38th St.
Kansas City, MO 64161
(816) 453-4321
(800) 829-4374
Fax: (816) 453-0180
www.heritage-enviro.com

PHILIPS SERVICES CORPORATION
(MOD000610766)
PO Box 014035
700 Mulberry
Kansas City, MO 64101
(816) 474-1391
(800) 765-8732
www.contactpsc.com

R&R TRUCKING CO.
(Will transport low level radioactive waste)
PO Box 545
Duenweg, MO 64841
(800) 625-6885

TRI-STATE MOTOR TRANSIT CO.
P.O. Box 113
Joplin, MO 64802
(417) 624-3131
www.trism.com

OHIO

MIDWEST ENVIRONMENTAL TRANSPORT,
INC.
A subsidiary of Environmental Enterprises, Inc.
(OH0000000539)
10163 Cincinnati-Dayton Road
Cincinnati, OH 45241
(513) 772-2818
www.eeienv.com

OKLAHOMA

PERMA-FIX TREATMENT SERVICES, INC.
2700 S. 25th West Avenue
Tulsa, OK 74107
(918) 582-9595
Fax: (918) 582-6618
www.perma-fix.com

SOUTH DAKOTA

SAFETY-KLEEN CORPORATION
2000 N. Westport Avenue
Sioux Falls, SD 57107
(605) 332-0231
www.safety-kleen.com

WISCONSIN

ADVANCED WASTE SERVICES
1126 S. 70th, Suite N508B
West Allis, WI 53214
(800) 842-9792
www.advancedwasteservices.com

EOG ENVIRONMENTAL, INC.
(WID988580056)
5611 W. Hemlock St.
Milwaukee, WI 53223
(414) 353-1156
(800) 234-1156
Fax: (414) 353-1822
www.eoge.com

TSD FACILITIES

NEBRASKA

CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
(308) 235-4012
Fax: (308) 235-4307

SAFETY-KLEEN CORPORATION
(308) 436-2600

SAFETY-KLEEN CORPORATION
(308) 384-1616

SAFETY-KLEEN CORPORATION
(402) 333-6321

ALABAMA

WASTE MANAGEMENT, INC.
(205) 652-9721

ARIZONA

WESTATES CARBON-ARIZONA
(520) 669-5758

ARKANSAS

ENVIRONMENTAL SYSTEMS CO. (ENSCO)
(870) 864-3680
Fax: (870) 864-3730

COLORADO

SAFETY-KLEEN CORPORATION
(970) 386-2293

ONYX ENVIRONMENTAL SERVICES
A division of Waste Management, Inc.
(303) 289-4827

IDAHO

US ECOLOGY, INC.
(800) 274-1516
Fax: (208) 834-2997

ILLINOIS

AMERICAN WASTE PROCESSING, LTD.
(708) 681-3999

BEAVER OIL COMPANY, INC.
(708) 354-4040

CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
(800) 678-4244
(773) 646-6202
Fax: (773) 646-6381

ONYX ENVIRONMENTAL SERVICES
A division of Waste Management, Inc.
(618) 271-2804
Fax: (618) 271-2128

PDC ENVIRONMENTAL SERVICES
(PEORIA DISPOSAL COMPANY)
(309) 686-8033

SAFETY-KLEEN CORPORATION
(708) 849-4850

SET ENVIRONMENTAL, INC.
(800) 634-6856
Fax: (847) 537-9265

INDIANA

HERITAGE ENVIRONMENTAL SERVICES, LLC
(800) 827-4374

POLLUTION CONTROL INDUSTRIES
(219) 397-3951
Fax: (219) 397-6411

RHODIA ECO SERVICES
(219) 932-7651

KANSAS

ASH GROVE CEMENT PLANT
(316) 431-4500

SAFETY-KLEEN CORPORATION
(316) 942-5001

SYSTECH ENVIRONMENTAL CORPORATION
(800) 778-7224
Fax: (316) 378-4505

KENTUCKY

LWD, INC.
(270) 395-8313
Fax: (270) 395-8153

LOUISIANA

SAFETY-KLEEN CORPORATION
(800) 628-3443

MICHIGAN

EQ-THE ENVIRONMENTAL QUALITY CO.,
Michigan Disposal Waste Treatment Plant
(734) 697-2200
Fax: (734) 699-3499

Also at above location and phone number:
WAYNE DISPOSAL, INC.

EQ-THE ENVIRONMENTAL QUALITY CO.
MICHIGAN RECOVERY SYSTEMS, INC.
(734) 326-3100
Fax: (734) 326-9375

MISSOURI

HAZ-MAT RESPONSE DISPOSAL, INC.
(888) 429-9278 ext. 428

HERITAGE ENVIRONMENTAL SERVICES,
LLC
(816) 453-4321
(800) 829-4374
Fax: (816) 453-0180

ICI EXPLOSIVES ENVIRONMENTAL
(800) 651-0505

PHILIPS SERVICES CORPORATION
(816) 474-1391
(800) 765-8732

OHIO

ENVIRONMENTAL ENTERPRISES INC.
(513) 541-1823
Fax: (513) 541-1638

OKLAHOMA

PERMA-FIX TREATMENT SERVICES, INC.
(918) 582-9595
Fax: (918) 582-6618

SAFETY-KLEEN CORPORATION
(580) 697-3500

TENNESSEE

SAFETY-KLEEN CORPORATION
(800) 251-1227

TEXAS

GNI GROUP
(361) 852-8284

WISCONSIN

ONYX ENVIRONMENTAL SERVICES
A division of Waste Management, Inc.
(800) 255-5092

WRR/ENVIRONMENTAL SERVICES CO., INC.
(715) 834-9624
Fax: (715) 836-8785

USED OIL RECYCLING & DISPOSAL

COUNTIES WITH USED OIL COLLECTION PROGRAMS

GAGE COUNTY:
Beatrice Area Solid Waste Agency
3426 West Locust Road
Beatrice, NE
Call for Appointment: (402) 223-2267
Office hours: Monday-Saturday 8:30am-2:30pm (Closed Wednesday)

Beatrice Recycling Center
11th & Caldwell
Beatrice, NE
Office hours: Monday-Friday 12pm-6pm
Saturday 8am-6pm

HASTINGS:
City of Hastings Landfill
For more information contact: Jack Newlun, Jr. @
(402) 461-2308

JOHNSON COUNTY:
Johnson County Roads Department
813 North 1st St.
Tecumseh, NE 68450
Hours of collection:
1st & 3rd Friday 11am-2pm
For more information & Mobile Trailer sites contact: Keith Weber @ (402) 335-3789

NEMAHA COUNTY:
Nemaha County Roads Department
1619 27th St.
Auburn, NE 68305
Hours of collection: Saturday 10am-4pm
For more information & Mobile Trailer sites contact: Harry Bowman @ (402) 274-4019

Humboldt County Shop
305 South Nemaha St.
Hours of collection: 3rd Wednesday 10am-2pm
For more information contact: Terry Frank @ (402) 245-2614

SALINE COUNTY:
Saline County Shop
320 West 16th St.
Crete, NE
Hours of collection: 1st & 3rd Monday 7am-11am
For more information contact: Bruce Filipi @ (402) 821- 2737

Mobile Trailer Collection Sites:
Monday, Tuesday, & Wednesday of the 1st FULL week of each month at county shop.
Friend: Monday, 8am-10:30am
Dorchester: Monday, 11am-1:30pm
Dewitt: Tuesday, 8am-10:30am
Wilber: Tuesday, 11am-1:30pm
Tobias: Wednesday, 8am-10am
Western: Wednesday, 10:30am-12:30pm
Swanton: Wednesday, 1pm-3pm

OTOE COUNTY:
5150 Hwy 2
Nebraska City, NE
Hours of collection: 1st & 3rd Saturday 10am-3pm
For more information contact: Bob Fleming @(402) 873-9586

Syracuse County Shop
240 North 30th Rd.
Syracuse, NE
Hours of collection: 1st & 3rd Saturday 10am-3pm
For more information contact: Rich Kuenning @ (402) 269-2476

PAWNEE COUNTY:
Pawnee County Shop
342 5th St.
Pawnee City, NE
Hours of collection: Monday & Friday 8:00am-11:00am
For more information contact: Bill Hansel @ (402) 852-2981

Mobile Trailer Collection Sites:
Steinauer: Schmit's Garage
8am-9am, 1 st Tues.
Lewiston: County Shed
10am-11am, 1 st Tuesday
Burchard: County Shed
12pm-1pm, 1 st Tuesday
Table Rock: County Shed
2pm-3pm, 1 st Tues.
Dubois: County Shed
8am-9am, 1 st Wednesday

RICHARDSON COUNTY:
Richardson County Roads Department
West 21 st St.
Falls City, NE

Check **www.knb.org/oil_collection.html** for more locations within the year.

NEBRASKA

SAFETY-KLEEN CORPORATION
(NED000687178)
220379 Sunset Dr.
Gering, NE 69341
(308) 436-2600
www.safety-kleen.com

SAFETY-KLEEN CORPORATION
(NED053316535)
2700 West 2 nd St.
Grand Island, NE 68803
(308) 384-1616
www.safety-kleen.com

SAFETY-KLEEN CORPORATION
(NED981495724)
13915 A Plaza
Omaha, NE 68144
(402) 333-6321
www.safety-kleen.com

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3002 "F" St.
Omaha, NE 68107-1599
(402) 733-3266
www.chemcare.com

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www.enscoinc.com

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Algona, IA 50511
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1701 S. 3 rd St.
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1420 S. Cement Road
Fredonia, KS 66736
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Fax: (316) 378-4505
www.sysenv.com

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RETROFIT RECYCLING
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Little Canada, MN 55117
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(651) 766-7422
Fax: (651) 766-9000

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PHILIPS SERVICES CORPORATION
(MOD000610766)
PO Box 014035
700 Mulberry
Kansas City, MO 64101
(816) 474-1391
(800) 765-8732
www.contactpsc.com

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Cincinnati, OH 45232
(513) 541-1823
Fax: (513) 541- 1638
www.eeienv.com

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SAFETY-KLEEN CORPORATION
2000 N. Westport Avenue
Sioux Falls, SD 57107
(605) 332-0231
www.safety-kleen.com

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(WID988580056)
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Milwaukee, WI 53223
(414) 353-1156
(800) 234-1156
Fax: (414) 353-1822
www.eoge.com

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PO Box 2999
Milwaukee, WI 53201
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(414) 540-5469 English/Español

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www.legiblesigns.com

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Arvada, CO 80001
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Fax: (800) 255-0883
www.stonehousesigns.com

WORLD WIDE WEB RESOURCES & PHONE NUMBERS

GOVERNMENT

NDEQ HAZARDOUS WASTE COMPLIANCE ASSISTANCE
Jim Harford
(402) 471-8308

NDEQ WASTE MANAGEMENT SECTION
(402) 471-4210

NDEQ SPILL RESPONSE
During working hours: (402) 471-2186
After hours: (402) 471-4545

NEBRASKA ENVIRONMENTAL RULES AND REGULATIONS
www.deq.state.ne.us. then click on "Rules and Regulations" at the side of the page

NDEQ GENERAL INFORMATION
(402) 471-2186
www.deq.state.ne.us

THE EPA RCRA, SUPERFUND AND EPCRA HOTLINE
(The Environmental Protection Agency Resource Conservation and Recovery Act, Superfund and Emergency Planning and Community Right-to-know Act Hotline)
(800) 424-9346
www.epa.gov/epaoswer/hotline/hotintro.htm

EPA PCB HOME PAGE
www.epa.gov/opptintr/pcb

PCB WASTE QUESTIONS
EPA Region VII: David Phillippi
(913) 551-7395

EPA INTERNET DIRECTORY OF SMALL BUSINESS COMPLIANCE ASSISTANCE CENTERS
www.epa.gov/oeca/main/compasst/compcenters.html

EPA NATIONAL COMPLIANCE ASSISTANCE CLEARINGHOUSE
www.epa.gov/clearinghouse

FEDERAL INSECTICIDE, FUNGICIDE, RODENTICIDE ACT
EPA Office of Pesticide Programs
www.epa.gov/pesticides

NEBRASKA PESTICIDE ACT
Nebraska Department of Agriculture
(402) 471-2341
www.agr.state.ne.us/division/bti/pes/pest1.htm

<u>MATERIALS EXCHANGE</u>

KEEP NEBRASKA BEAUTIFUL
3201 Pioneers Boulevard, Suite 306
Lincoln, NE 68502-5963
(800) 486-4562
(402) 486-4622
www.knb.org

<u>MATERIAL SAFETY DATA SHEETS AND INFORMATION</u>

CORNELL UNIVERSITY MSDS SEARCH
http://msds.pdc.cornell.edu/msdssrch.asp

MSDS-SEARCH
www.msdssearch.com

<u>CHEMICAL INFORMATION</u>

CONSOLIDATED LIST OF CHEMICALS SUBJECT TO THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT (EPCRA)
www.epa.gov/ceppo/pubs/title3.pdf

CHEMFINDER
www.chemfinder.com

AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY
US Department of Health & Human Services
www.atsdr.cdc.gov

<u>SOLVENT ALTERNATIVES GUIDES</u>

SAGE
http://clean.rti.org

<u>COATING ALTERNATIVES GUIDES</u>

COATINGS GUIDE
http://cage.rti.org

<u>RECYCLING INFORMATION</u>

NEBRASKA STATE RECYCLING ASSOCIATION
www.discoveromaha.com/community/groups/nsra/

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
www.lamprecycle.org
This Directory was compiled and updated by NDEQ Intern, Elizabeth Sommer, May-August 2001

Integrated Waste Management
List of Permitted Facilities

Updated January 17, 2002

Materials Recovery Facilities

Beatrice Area Solid Waste Agency (BASWA)	Beatrice	(402) 228-5248
Butler County Landfill, Inc.	David City	(402) 367-4662
City of O'Neill	O'Neill	(402) 336-3090
Lexington Area Solid Waste Agency (LASWA)	Lexington	(308) 324-3351
River City Recycling	Omaha	(402) 731-0414
Tracy Enterprises	Bradshaw	(402) 736-4475

For more information, contact
MoreInfo@NDEQ.state.NE.US

Nebraska Department of Environmental Quality
1200 "N" Street, Suite 400
PO Pox 98922
Lincoln, Nebraska 68509
(402) 471-2186 FAX (402) 471-2909

This list was obtained from the website of the Nebraska Department of Environmental Quality (NDEQ). For the most recent list, go to
http://www.deq.state.ne.us/IntList.nsf/Web%20List?OpenView&Start=1&Count=125&Expand=5 .

Integrated Waste Management
List of Permitted Facilities

Updated January 17, 2002

Municipal Solid Waste Landfills		
Beatrice Area Solid Waste Agency (BASWA)	Beatrice	(402) 228-5248
Butler County Landfill, Inc.	David City	(402) 367-4662
City of Alliance	Alliance	(308) 762-5400
City of Gering	Gering	(308) 436-5096
City of Grand Island	Grand Island	(308) 385-5433
City of Hastings Landfill/Wood Waste Facility	Hastings	(402) 461-2308
City of Holdrege Prairie Hill Landfill	Holdrege	(308) 995-8681
City of Kimball	Kimball	(308) 235-3639
City of Lincoln Bluff Road Landfill	Lincoln	(402) 441-7867
G&P Development, Inc. Landfill/ Waste Connections, Inc.	Milford	(402) 761-3451
J Bar J Land, Inc. Waste Connections of NE	Ogallala	(308) 284-4990
Kearney Area Solid Waste Agency	Kearney	(308) 233-3238
Lexington Area Solid Waste Agency (LASWA)	Lexington	(308) 324-3351
Loup Central Landfill Assoc.	Elba	(308) 863-2122
L.P. Gill Inc.,	Jackson	(402) 632-4238
Nebraska Ecology Systems, Inc. /Waste Connections, Inc.	Geneva	(402) 643-2054
Northeast Nebraska Solid Waste Coalition (NNSWC)	Clarkson	(402) 644-8715
Sarpy County	Springfield	(402) 253-2371
Sidney Area Solid Waste Agency	Sidney	(308) 254-5300
Solid Waste Agency of Northwest Nebraska (SWANN)	Chadron	(308) 432-4245
Valentine Area Solid Waste Agency (VASWA)	Valentine	(402) 376-2323
Waste Management of NE /Douglas County Recycling and Disposal Facility	Bennington	(402) 478-5196
Waste Management of NE, Inc./Pheasant Point	Bennington	(402) 478-5196
York Area Solid Waste Agency (YASWA	York	(402) 363-2600

For more information, contact
MoreInfo@NDEQ.state.NE.US

Nebraska Department of Environmental Quality
1200 "N" Street, Suite 400
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Lincoln, Nebraska 68509
(402) 471-2186 FAX (402) 471-2909

This list was obtained from the website of the Nebraska Department of Environmental Quality (NDEQ). For the most recent list, go to http://www.deq.state.ne.us/IntList.nsf/Web%20List?OpenView&Start=1&Count=125&Expand=6 .

HAZARDOUS WASTE COMPATIBILITY CLASSES

Group 1A	**Group 1B**
Acetylene sludge	Acid sludge
Alkaline caustic liquids	Acid and water
Alkaline cleaner	Battery acid
Alkaline corrosive liquids	Chemical cleaners
Alkaline corrosive battery	Electrolyte, acid
Caustic wastewater	Etching acid liquid or solvent
Lime sludge and other corrosive alkalines	Pickling liquor and other corrosive acids
Lime wastewater	Spent acid
Lime and water	Spent mixed acid
Spent caustic	Spent sulfuric acid

Potential consequences: Heat generation; violent reaction.

Group 2A	**Group 2B**
Aluminum	Any waste in Group 1A or 1B
Beryllium	
Calcium	
Lithium	
Magnesium	
Potassium	
Sodium	
Zinc powder	
Other reactive metals and metal hydrides	

Potential consequences: Fire or explosion; generation of flammable hydrogen gas.

Group 3A	**Group 3B**
Alcohols	Any concentrated waste in Groups 1A or 1B
Water	Calcium
	Lithium
	Metal hydrides
	Potassium
	SO_2Cl_2, $SOCl_2$, PCl_3, CH_3SiCl_3
	Other water-reactive waste

Potential consequences: fire, explosion, or heat generation; generation of flammable or toxic gases.

Group 4A	Group 4B
Alcohols	Concentrated Group 1A or 1B wastes
Aldehydes	Group 2A wastes
Halogenated hydrocarbons	
Nitrated hydrocarbons	
Unsaturated hydrocarbons	
Other reactive organic compounds and solvents	

Potential consequences: Fire, explosion, or violent reaction.

Group 5A	Group 5B
Spent cyanide and sulfide solutions	Group 1B wastes

Potential consequences: Generation of toxic hydrogen cyanide or hydrogen sulfide gas.

Group 6A	Group 6B
Chlorates	Acetic acid and other organic acids
Chlorine	Concentrated mineral acids
Chlorites	Group 2A wastes
Chromic acid	Group 4A wastes
Hypochlorites	Other flammable and combustible wastes
Nitrates	
Nitric acid, fuming	
Perchlorates	
Permanganates	
Peroxides	
Other strong oxidizers	

Potential consequences: Fire, explosion, or violent reaction.

Source: "Law, Regulations, and Guidelines for Handling of Hazardous Waste". California Department of Health, February 1975. Reprinted as Appendix V of 40 CFR Part 265.

Wastes should be stored in compatible groups to prevent spills or releases of incompatible chemicals or materials from coming into contact with each other. Contact between incompatible waste chemicals or materials can lead to chemical reactions, fires, explosions and evolution of toxic gases.

To avoid contact between waste incompatible chemicals or materials, Terracon has identified compatibility groups based on a reference provided in the hazardous waste regulations (i.e., 40 CFR 265, Appendix V). The compatibility groups are identified on the Appendix E Table 2 as well as on the Waste Profiles in Appendix G.

Waste chemicals and materials that are incompatible should not be stored within three feet of each other and should not be located in the same containment area (e.g., on the same spill pallet).

It should be noted that non-hazardous wastes (i.e., recycleable materials and materials that may be disposed of in the normal trash) are generally non-reactive. Therefore, compatibility classes may not be a concern (i.e., wastes in different compatibility classes may be disposed of or stored together).

Acceptable compatibility groupings are identified on Appendix E Table 1. Prior to grouping wastes together, each waste should be reviewed individually for acceptable categories. For example, Group 2B can be stored with Group 1A and Group 1B, but not both Group 1A and 1B because Group 1A and 1B are incompatible.

Appendix E Table 1: Compatibility Groupings

Category	Acceptable Categories	Unacceptable Categories
1A	2B, 3B, 4B	1B, 2A, 3A, 4A,
1B	2B, 3B, 4B, 5B	1A, 2A, 3A, 4A, 5A,
2A	4B	1A, 1B, 2B, 4A, 6A
2B	1A, 1B	2A
3A	4A, 5A, 6B	1A, 1B, 3B
3B	1A, 1B	3A
4A	3A, 5A, 6B	1A, 1B, 2A, 4B, 6A
4B	1A, 1B, 2A	4A
5A	3A, 4A	1B, 5B
5B	1B	5A
6A		2A, 4A, 6B
6B	1B, 3A, 4A	6A

Acceptable categories can be stored next to each other and on the same spill pallet.
Unacceptable categories should be segregated by at least three feet and should not be stored in the same containment area.

Appendix E Table 2: COMPATIBILITY CLASS

General Waste Category	Specific Waste Category
Group 1A	
Asbestos containing materials	Brake pads and shoes
Asbestos containing materials	Asbestos containing materials not otherwise classified
Characteristic waste	Characteristic waste not otherwise classified (Corrosives with pH > 12.5, but not normally ignitable, reactive and toxic wastes)
Corrosive	Corrosive wastes not otherwise classified (Corrosives with pH > 12.5)
Glass	Glass not otherwise classified
Salt	Salt not otherwise classified
Group 1B	
Batteries	Used alkaline batteries
Batteries	Universal waste batteries
Batteries	Used automotive batteries
Characteristic waste	Characteristic waste not otherwise classified (Corrosives with pH < 2, but not normally ignitable, reactive and toxic wastes)
Corrosive	Corrosive wastes not otherwise classified (Corrosives with pH < 2)
Group 2A	
Aluminum	Scrap aluminum
Characteristic waste	Characteristic waste not otherwise classified (Metals, but not ignitable wastes, corrosive wastes, solvents and pesticides)
Circuit boards	Broken circuit boards
Circuit boards	Used circuit boards
Computer monitors	Used computer monitors
Computer monitors	Broken computer monitors
Lead	Lead not otherwise classified
Mercury	Mercury waste not otherwise classified
Mercury	Mercury-containing thermostats
Mercury-containing lamps	Spent mercury-containing lamps
Scrap metal	Scrap metal not otherwise classified
Scrap metal	Scrap steel
Toxic wastes	Toxic wastes not otherwise classified (Metals, but not solvents and pesticides)
Group 3A	
Antifreeze	Used antifreeze
Antifreeze	Spilled antifreeze debris
Pesticides	Pesticide rinsate
Salt	Salt solutions not otherwise classified
Water	Wastewater not otherwise classified
Group 4A	
Characteristic waste	Characteristic waste not otherwise classified (Fuels, solvents and pesticides, but not oxidizers, and reactive and corrosive wastes)
Ignitable wastes	Ignitable wastes not otherwise classified (Fuels, solvent and pesticides, but not oxidizers)
Non-specific listed wastes	Non-specific listed wastes not otherwise classified
Toxic wastes	Toxic wastes not otherwise classified (Fuels, solvents and pesticides, but not metals)

General Waste Category	Specific Waste Category
Group 6A	
Reactive wastes	Reactive wastes not other-wise classified
Group 6B	
Cardboard	Cardboard not otherwise classified
Filters	Used paint booth air filters
Filters	Used welding area filtration system air filters
Ignitable wastes	Ignitable wastes not otherwise classified (Except oxidizers, which are 6A)
Medical wastes	Medical wastes not otherwise classified (Except medical wastes with bleach debris, which are 6A)
Oil	Specification used oil
Oil	Off-specification used oil
Paper	General paper
PCBs	Leaking PCB containing light ballasts
PCBs	PCB containing light ballasts
Pesticides	Universal waste pesticides
Pesticides	Rinsed pesticide containers
Pesticides	Pesticide containers not rinsed
Pesticides	Spilled pesticide debris
Plastic	Plastic not otherwise classified
Rags	Contaminated rags
Rags	Rags used as part of a rag contract
Rags	Non-contaminated rags
Solid waste	Solid waste not otherwise classified
Tires	Used tires
Depends on Material/Conditions	
Commercial product wastes	Commercial product wastes not otherwise classified
Containers	Non-RCRA empty containers
Containers	Pressurized containers
Containers	RCRA empty containers

APPENDIX F

WASTE ANALYSIS

Appendix F Tables 1, 2 3 and 4 contain the Toxicity Characteristic Leachate Procedure Concentrations (TCLP) for the chemicals included on the RCRA D list (i.e., the Tables are the same lists, but organized in different orders). The laboratory results may be compared to the chemical concentrations under the heading RCRA TCLP (mg/L). If the concentration of a chemical in a waste exceeds the RCRA TCLP value, the waste is a hazardous waste.

Appendix F Table 1: Toxicity Characteristic by CAS Number

CAS Number	Chemical Name	RCRA D CODE	RCRA TCLP	Category
56-23-5	Carbon tetrachloride	D019	0.5	Chlorinated
57-74-9	Chlordane	D020	0.03	Pesticide
58-89-9	Hexachlorocyclohexane	D013	0.4	Pesticide
67-66-3	Chloroform	D022	6	Chlorinated
67-72-1	Hexachloroethane	D034	3	Chlorinated
71-43-2	Benzene	D018	0.5	Non-Chlorinated
72-20-8	Endrin	D012	0.02	Pesticide
75-01-4	Vinyl chloride	D043	0.2	Chlorinated
75-35-4	Vinylidene chloride	D029	0.7	Chlorinated
76-44-8	Heptachlor	D031	0.008	Pesticide
78-93-3	Methyl ethyl ketone	D035	200	Non-Chlorinated
79-01-6	Trichloroethylene	D040	0.5	Chlorinated
87-68-3	Hexachloro-1,3-butadiene	D033	0.5	Chlorinated
87-86-5	Pentachlorophenol	D037	100	Chlorinated
88-06-2	2,4,6-Trichlorophenol	D042	2	Chlorinated
93-72-1	Silvex (2,4,5-TP)	D017	1	Pesticide
94-75-7	2,4-D	D016	10	Pesticide
95-48-7	o-Cresol	D023	200	Non-Chlorinated
95-95-4	2,4,5-Trichlorophenol	D041	400	Chlorinated
98-95-3	Nitrobenzene	D036	2	Non-Chlorinated
106-44-5	p-Cresol	D025	200	Non-Chlorinated
106-46-7	1,4-Dichlorobenzene	D027	7.5	Chlorinated
107-06-2	1,2-Dichloroethane	D028	0.5	Chlorinated
108-39-4	m-Cresol	D024	200	Non-Chlorinated
108-90-7	Chlorobenzene	D021	100	Chlorinated
110-86-1	Pyridine	D038	5	Non-Chlorinated
118-74-1	Hexachlorobenzene	D032	0.13	Chlorinated
121-14-2	2,4-Dinitrotoluene	D030	0.13	Non-Chlorinated
127-18-4	Tetrachloroethylene	D039	0.7	Chlorinated
1024-57-3	Heptachlor epoxide	D031	0.008	Pesticide
1319-77-3	Cresol (mixed isomers)	D026	200	Non-Chlorinated

CAS Number	Chemical Name	RCRA D CODE	RCRA TCLP	Category
7439-92-1	Lead	D008	5	Metal
7439-97-6	Mercury	D009	0.2	Metal
7440-22-4	Silver	D011	5	Metal
7440-38-2	Arsenic	D004	100	Metal
7440-39-3	Barium	D005	100	Metal
7440-43-9	Cadmium	D006	1	Metal
7440-47-3	Chromium	D007	5	Metal
7782-49-2	Selenium	D010	1	Metal
8001-35-2	Toxaphene	D015	0.5	Pesticide

CAS Number is the unique identification number applied by the Chemical Abstract Service
mg/L is milligrams per liter or one part per million

Appendix F Table 2: Toxicity Characteristic by Chemical Name

Chemical Name	CAS Number	RCRA D CODE	RCRA TCLP (mg/L)	Category
1,2-Dichloroethane	107-06-2	D028	0.5	Chlorinated Solvent
1,4-Dichlorobenzene	106-46-7	D027	7.5	Chlorinated Solvent
2,4,5-Trichlorophenol	95-95-4	D041	400	Chlorinated Solvent
2,4,6-Trichlorophenol	88-06-2	D042	2	Chlorinated Solvent
2,4-D	94-75-7	D016	10	Pesticide
2,4-Dinitrotoluene	121-14-2	D030	0.13	Non-Chlorinated Solvent
Arsenic	7440-38-2	D004	100	Metal
Barium	7440-39-3	D005	100	Metal
Benzene	71-43-2	D018	0.5	Non-Chlorinated Solvent
Cadmium	7440-43-9	D006	1	Metal
Carbon tetrachloride	56-23-5	D019	0.5	Chlorinated Solvent
Chlordane	57-74-9	D020	0.03	Pesticide
Chlorobenzene	108-90-7	D021	100	Chlorinated Solvent
Chloroform	67-66-3	D022	6	Chlorinated Solvent
Chromium	7440-47-3	D007	5	Metal
Cresol (mixed isomers)	1319-77-3	D026	200	Non-Chlorinated Solvent
Endrin	72-20-8	D012	0.02	Pesticide
Heptachlor	76-44-8	D031	0.008	Pesticide
Heptachlor epoxide	1024-57-3	D031	0.008	Pesticide
Hexachloro-1,3-butadien	87-68-3	D033	0.5	Chlorinated Solvent
Hexachlorobenzene	118-74-1	D032	0.13	Chlorinated Solvent
Hexachlorocyclohexane	58-89-9	D013	0.4	Pesticide
Hexachloroethane	67-72-1	D034	3	Chlorinated Solvent
Lead	7439-92-1	D008	5	Metal
m-Cresol	108-39-4	D024	200	Non-Chlorinated Solvent
Mercury	7439-97-6	D009	0.2	Metal
Methyl ethyl ketone	78-93-3	D035	200	Non-Chlorinated

Chemical Name	CAS Number	RCRA D CODE	RCRA TCLP (mg/L)	Category
				Solvent
Nitrobenzene	98-95-3	D036	2	Non-Chlorinated Solvent
o-Cresol	95-48-7	D023	200	Non-Chlorinated Solvent
p-Cresol	106-44-5	D025	200	Non-Chlorinated Solvent
Pentachlorophenol	87-86-5	D037	100	Chlorinated Solvent
Pyridine	110-86-1	D038	5	Non-Chlorinated Solvent
Selenium	7782-49-2	D010	1	Metal
Silver	7440-22-4	D011	5	Metal
Silvex (2,4,5-TP)	93-72-1	D017	1	Pesticide
Tetrachloroethylene	127-18-4	D039	0.7	Chlorinated Solvent
Toxaphene	8001-35-2	D015	0.5	Pesticide
Trichloroethylene	79-01-6	D040	0.5	Chlorinated Solvent
Vinyl chloride	75-01-4	D043	0.2	Chlorinated Solvent
Vinylidene chloride	75-35-4	D029	0.7	Chlorinated Solvent

CAS Number is the unique identification number applied by the Chemical Abstract Service
mg/L is milligrams per liter or one part per million

Appendix F Table 3: Toxicity Characteristic by D Code

RCRA D CODE	CAS Number	Chemical Name	RCRA TCLP (mg/L)	Category
D004	7440-38-2	Arsenic	100	Metal
D005	7440-39-3	Barium	100	Metal
D006	7440-43-9	Cadmium	1	Metal
D007	7440-47-3	Chromium	5	Metal
D008	7439-92-1	Lead	5	Metal
D009	7439-97-6	Mercury	0.2	Metal
D010	7782-49-2	Selenium	1	Metal
D011	7440-22-4	Silver	5	Metal
D012	72-20-8	Endrin	0.02	Pesticide
D013	58-89-9	Hexachlorocyclohexane	0.4	Pesticide
D015	8001-35-2	Toxaphene	0.5	Pesticide
D016	94-75-7	2,4-D	10	Pesticide
D017	93-72-1	Silvex (2,4,5-TP)	1	Pesticide
D018	71-43-2	Benzene	0.5	Non-Chlorinated Solvent
D019	56-23-5	Carbon tetrachloride	0.5	Chlorinated Solvent
D020	57-74-9	Chlordane	0.03	Pesticide
D021	108-90-7	Chlorobenzene	100	Chlorinated Solvent
D022	67-66-3	Chloroform	6	Chlorinated Solvent
D023	95-48-7	o-Cresol	200	Non-Chlorinated Solvent
D024	108-39-4	m-Cresol	200	Non-Chlorinated Solvent
D025	106-44-5	p-Cresol	200	Non-Chlorinated Solvent
D026	1319-77-3	Cresol (mixed isomers)	200	Non-Chlorinated Solvent

RCRA D CODE	CAS Number	Chemical Name	RCRA TCLP (mg/L)	Category
D027	106-46-7	1,4-Dichlorobenzene	7.5	Chlorinated Solvent
D028	107-06-2	1,2-Dichloroethane	0.5	Chlorinated Solvent
D029	75-35-4	Vinylidene chloride	0.7	Chlorinated Solvent
D030	121-14-2	2,4-Dinitrotoluene	0.13	Non-Chlorinated Solvent
D031	1024-57-3	Heptachlor epoxide	0.008	Pesticide
D031	76-44-8	Heptachlor	0.008	Pesticide
D032	118-74-1	Hexachlorobenzene	0.13	Chlorinated Solvent
D033	87-68-3	Hexachloro-1,3-butadien	0.5	Chlorinated Solvent
D034	67-72-1	Hexachloroethane	3	Chlorinated Solvent
D035	78-93-3	Methyl ethyl ketone	200	Non-Chlorinated Solvent
D036	98-95-3	Nitrobenzene	2	Non-Chlorinated Solvent
D037	87-86-5	Pentachlorophenol	100	Chlorinated Solvent
D038	110-86-1	Pyridine	5	Non-Chlorinated Solvent
D039	127-18-4	Tetrachloroethylene	0.7	Chlorinated Solvent
D040	79-01-6	Trichloroethylene	0.5	Chlorinated Solvent
D041	95-95-4	2,4,5-Trichlorophenol	400	Chlorinated Solvent
D042	88-06-2	2,4,6-Trichlorophenol	2	Chlorinated Solvent
D043	75-01-4	Vinyl chloride	0.2	Chlorinated Solvent

CAS Number is the unique identification number applied by the Chemical Abstract Service
mg/L is milligrams per liter or one part per million

Appendix F Table 4: Toxicity Characteristic by Chemical Category

Category	Chemical Name	CAS Number	RCRA D CODE	RCRA TCLP (mg/L)
Chlorinated Solvent	Tetrachloroethylene	127-18-4	D039	0.7
Chlorinated Solvent	Pentachlorophenol	87-86-5	D037	100
Chlorinated Solvent	Hexachloro-1,3-butadien	87-68-3	D033	0.5
Chlorinated Solvent	Carbon tetrachloride	56-23-5	D019	0.5
Chlorinated Solvent	Trichloroethylene	79-01-6	D040	0.5
Chlorinated Solvent	1,4-Dichlorobenzene	106-46-7	D027	7.5
Chlorinated Solvent	1,2-Dichloroethane	107-06-2	D028	0.5
Chlorinated Solvent	Vinylidene chloride	75-35-4	D029	0.7
Chlorinated Solvent	Chlorobenzene	108-90-7	D021	100
Chlorinated Solvent	Vinyl chloride	75-01-4	D043	0.2
Chlorinated Solvent	2,4,6-Trichlorophenol	88-06-2	D042	2
Chlorinated Solvent	Hexachlorobenzene	118-74-1	D032	0.13
Chlorinated Solvent	2,4,5-Trichlorophenol	95-95-4	D041	400
Chlorinated Solvent	Hexachloroethane	67-72-1	D034	3
Chlorinated Solvent	Chloroform	67-66-3	D022	6
Metal	Lead	7439-92-1	D008	5
Metal	Mercury	7439-97-6	D009	0.2
Metal	Silver	7440-22-4	D011	5
Metal	Arsenic	7440-38-2	D004	100
Metal	Barium	7440-39-3	D005	100
Metal	Cadmium	7440-43-9	D006	1
Metal	Chromium	7440-47-3	D007	5

Category	Chemical Name	CAS Number	RCRA D CODE	RCRA TCLP (mg/L)
Metal	Selenium	7782-49-2	D010	1
Non-Chlorinated Solvent	Methyl ethyl ketone	78-93-3	D035	200
Non-Chlorinated Solvent	Benzene	71-43-2	D018	0.5
Non-Chlorinated Solvent	o-Cresol	95-48-7	D023	200
Non-Chlorinated Solvent	p-Cresol	106-44-5	D025	200
Non-Chlorinated Solvent	m-Cresol	108-39-4	D024	200
Non-Chlorinated Solvent	Pyridine	110-86-1	D038	5
Non-Chlorinated Solvent	2,4-Dinitrotoluene	121-14-2	D030	0.13
Non-Chlorinated Solvent	Cresol (mixed isomers)	1319-77-3	D026	200
Non-Chlorinated Solvent	Nitrobenzene	98-95-3	D036	2
Pesticide	Silvex (2,4,5-TP)	93-72-1	D017	1
Pesticide	2,4-D	94-75-7	D016	10
Pesticide	Toxaphene	8001-35-2	D015	0.5
Pesticide	Heptachlor	76-44-8	D031	0.008
Pesticide	Endrin	72-20-8	D012	0.02
Pesticide	Heptachlor epoxide	1024-57-3	D031	0.008
Pesticide	Hexachlorocyclohexane	58-89-9	D013	0.4
Pesticide	Chlordane	57-74-9	D020	0.03

CAS Number is the unique identification number applied by the Chemical Abstract Service
mg/L is milligrams per liter or one part per million

Appendix F Tables 5, 6 and 7 contain the chemicals on the P and U list (i.e., the Tables are the same lists, but organized in different orders). The laboratory results may be compared to the chemical names or CAS (Chemical Abstract Service) Numbers to determine if a commercial chemical product was present in a waste. If the chemical is identified in the waste, than the corresponding P or U code may apply to the waste if the chemical was the sole active ingredient in the waste.

Appendix F Table 5 RCRA P & U Codes by Chemical Name

RCRA Code	Chemical Name	CAS Number
P001	Warfarin	81-81-2
P002	1-Acetyl-2-thiourea	591-08-2
P003	Acrolein	107-02-8
P004	Aldrin	309-00-2
P005	Allyl alcohol	107-18-6
P006	Aluminum phosphide	20859-73-8

RCRA Code	Chemical Name	CAS Number
P007	5-(Aminomethyl)-3-isoxazolol	2763-96-4
P008	4-Aminopyridine	504-24-5
P009	Ammonium picrate	131-74-8
P010	Arsenic acid	7778-39-4
P011	Arsenic pentoxide	1303-28-2
P012	Arsenic trioxide	1327-53-3
P013	Barium cyanide	542-62-1
P014	Benzenethiol	108-98-5
P015	Beryllium	7440-41-7
P016	Bis(chloromethyl) ether	542-88-1
P017	Bromoacetone	598-31-2
P018	Brucine	357-57-3
P020	Dinitrobutyl phenol	88-85-7
P021	Calcium cyanide	592-01-8
P022	Carbon disulfide	75-15-0
P023	Chloroacetaldehyde	107-20-0
P024	p-Chloroaniline	106-47-8
P026	Thiourea, (2-chlorophenyl)-	5344-82-1
P027	3-Chloropropionitrile	542-76-7
P028	Benzyl chloride	100-44-7
P029	Copper cyanide	544-92-3
P030	Cyanides (soluble salts and complexes)	57-12-5
P031	Cyanogen	460-19-5
P033	Cyanogen chloride	506-77-4
P034	2-Cyclohexyl-4,6-dinitrophenol	131-89-5
P036	Dichlorophenylarsine	696-28-6
P037	Dieldrin	60-57-1
P038	Diethylarsine	692-42-2
P039	Disulfoton	298-04-4
P040	O,O-Diethyl O-pyrazinyl phosphorothioate	297-97-2
P041	Diethyl-p-nitrophenyl phosphate	311-45-5
P042	Epinephrine	51-43-4
P043	Diisopropylfluorophosphate	55-91-4
P044	Dimethoate	60-51-5

RCRA Code	Chemical Name	CAS Number
P045	Thiofanox	39196-18-4
P046	Benzeneethanamine, alpha,alpha- dimethyl	122-09-8
P047	4,6-Dinitro-o-cresol	534-52-1
P048	2,4-Dinitrophenol	51-28-5
P049	2,4-Dithiobiuret	541-53-7
P050	Endosulfan	115-29-7
P051	Endrin	72-20-8
P054	Ethyleneimine	151-56-4
P056	Fluorine	7782-41-4
P057	Fluoroacetamide	640-19-7
P058	Fluoroacetic acid, sodium salt	62-74-8
P059	Heptachlor	76-44-8
P060	Isodrin	465-73-6
P062	Hexaethyl tetraphosphate	757-58-4
P063	Hydrogen cyanide	74-90-8
P064	Methyl isocyanate	624-83-9
P065	Mercury fulminate	628-86-4
P066	Ethanimidothioic acid,	16752-77-5
P067	Propyleneimine	75-55-8
P068	Methyl hydrazine	60-34-4
P069	2-Methyllactonitrile	75-86-5
P070	Aldicarb	116-06-3
P071	Methyl parathion	298-00-0
P072	ANTU	86-88-4
P073	Nickel carbonyl	13463-39-3
P074	Nickel cyanide	557-19-7
P075	Nicotine	54-11-5
P076	Nitric oxide	10102-43-9
P077	p-Nitroaniline	100-01-6
P078	Nitrogen dioxide	10102-44-0
P081	Nitroglycerin	55-63-0
P082	Methanamine, N-methyl-N-nitroso-	62-75-9
P084	N-Nitrosomethylvinylamine	4549-40-0
P085	Diphosphoramide, octamethyl-	152-16-9

RCRA Code	Chemical Name	CAS Number
P087	Osmium tetroxide	20816-12-0
P088	Endothall	145-73-3
P089	Parathion	56-38-2
P092	Phenylmercuric acetate	62-38-4
P093	Phenylthiourea	103-85-5
P094	Phorate	298-02-2
P095	Phosgene	75-44-5
P096	Phosphine	7803-51-2
P097	Famphur	52-85-7
P098	Potassium cyanide	151-50-8
P099	Potassium silver cyanide	506-61-6
P101	Ethyl cyanide	107-12-0
P102	Propargyl alcohol	107-19-7
P103	Selenourea	630-10-4
P104	Silver cyanide	506-64-9
P105	Sodium azide (Na(N3))	26628-22-8
P106	Sodium cyanide (Na(CN))	143-33-9
P108	Strychnine	57-24-9
P109	Sulfotep	3689-24-5
P110	Tetraethyl lead	78-00-2
P111	TEPP	107-49-3
P112	Methane, tetranitro-	509-14-8
P113	Thallic oxide	1314-32-5
P114	Selenious acid, dithallium(1+) salt	12039-52-0
P115	Thallium(I) sulfate	7446-18-6
P116	Thiosemicarbazide	79-19-6
P119	Ammonium vanadate	7803-55-6
P120	Vanadium pentoxide	1314-62-1
P121	Zinc cyanide	557-21-1
P122	Zinc phosphide	1314-84-7
P123	Toxaphene	8001-35-2
P127	Carbofuran	1563-66-2
P128	Mexacarbate	315-18-4
P185	Carbamic acid, methyl-,	26419-73-8

RCRA Code	Chemical Name	CAS Number
P188	Physostigmine, salicylate (1:1)	57-64-7
P189	Carbosulfan	55285-14-8
P190	Metolcarb	1129-41-5
P191	Dimetilan	644-64-4
P192	Isopropylmethylpyrazolyl	119-38-0
P194	Oxamyl	23135-22-0
P196	Manganese,	15339-36-3
P197	Formparanate	17702-57-7
P198	Formetanate hydrochloride	23422-53-9
P199	Methiocarb	2032-65-7
P201	Promecarb	2631-37-0
P202	Phenol, 3-(1-methylethyl)-, methylcarbamate	64-00-6
P203	Aldicarb sulfone	1646-88-4
P204	Physostigmine	57-47-6
P205	Ziram	137-30-4
U001	Acetaldehyde	75-07-0
U002	Acetone	67-64-1
U003	Acetonitrile	75-05-8
U004	Acetophenone	98-86-2
U005	2-Acetylaminofluorene	53-96-3
U006	Acetyl chloride	75-36-5
U007	Acrylamide	79-06-1
U008	Acrylic acid	79-10-7
U009	Acrylonitrile	107-13-1
U010	Mitomycin C	50-07-7
U011	Amitrole	61-82-5
U012	Aniline	62-53-3
U014	C.I. Solvent Yellow 34	492-80-8
U015	Azaserine	115-02-6
U016	Benz[c]acridine	225-51-4
U017	Benzal chloride	98-87-3
U018	Benz[a]anthracene	56-55-3
U019	Benzene	71-43-2
U020	Benzenesulfonyl chloride	98-09-9

RCRA Code	Chemical Name	CAS Number
U021	Benzidine	92-87-5
U022	Benzo[a]pyrene	50-32-8
U023	Benzoic trichloride	98-07-7
U024	Bis(2-chloroethoxy) methane	111-91-1
U025	Bis(2-chloroethyl) ether	111-44-4
U026	Chlornaphazine	494-03-1
U027	Bis(2-chloro-1-methylethyl)ether	108-60-1
U028	Di(2-ethylhexyl) phthalate	117-81-7
U029	Bromomethane	74-83-9
U030	4-Bromophenyl phenyl ether	101-55-3
U031	n-Butyl alcohol	71-36-3
U032	Calcium chromate	13765-19-0
U033	Carbonic difluoride	353-50-4
U034	Acetaldehyde, trichloro-	75-87-6
U035	Chlorambucil	305-03-3
U036	Chlordane	57-74-9
U037	Chlorobenzene	108-90-7
U038	Chlorobenzilate	510-15-6
U039	p-Chloro-m-cresol	59-50-7
U041	Epichlorohydrin	106-89-8
U042	2-Chloroethyl vinyl ether	110-75-8
U043	Vinyl chloride	75-01-4
U044	Chloroform	67-66-3
U045	Chloromethane	74-87-3
U046	Chloromethyl methyl ether	107-30-2
U047	2-Chloronaphthalene	91-58-7
U048	2-Chlorophenol	95-57-8
U049	4-Chloro-o-toluidine, hydrochloride	3165-93-3
U050	Benzo(a)phenanthrene	218-01-9
U051	Creosote	8001-58-9
U052	Cresol (mixed isomers)	1319-77-3
U052	m-Cresol	108-39-4
U052	o-Cresol	95-48-7
U052	p-Cresol	106-44-5

RCRA Code	Chemical Name	CAS Number
U053	2-Butenal, (e)-	123-73-9
U053	Crotonaldehyde	4170-30-3
U055	Cumene	98-82-8
U056	Cyclohexane	110-82-7
U057	Cyclohexanone	108-94-1
U058	Cyclophosphamide	50-18-0
U059	Daunomycin	20830-81-3
U060	DDD	72-54-8
U061	DDT	50-29-3
U062	Diallate	2303-16-4
U063	Dibenz[a,h]anthracene	53-70-3
U064	Benzo(rst)pentaphene	189-55-9
U066	1,2-Dibromo-3-chloropropane	96-12-8
U067	1,2-Dibromoethane	106-93-4
U068	Methylene bromide	74-95-3
U069	Dibutyl phthalate	84-74-2
U070	1,2-Dichlorobenzene	95-50-1
U071	1,3-Dichlorobenzene	541-73-1
U072	1,4-Dichlorobenzene	106-46-7
U073	3,3'-Dichlorobenzidine	91-94-1
U074	1,4-Dichloro-2-butene	764-41-0
U075	Dichlorodifluoromethane	75-71-8
U076	Ethylidene Dichloride	75-34-3
U077	1,2-Dichloroethane	107-06-2
U078	Vinylidene chloride	75-35-4
U079	1,2-Dichloroethylene	156-60-5
U080	Dichloromethane	75-09-2
U081	2,4-Dichlorophenol	120-83-2
U082	2,6-Dichlorophenol	87-65-0
U083	1,2-Dichloropropane	78-87-5
U084	1,3-Dichloropropylene	542-75-6
U085	Diepoxybutane	1464-53-5
U086	Hydrazine, 1,2-diethyl-	1615-80-1
U087	O,O-Diethyl S-methyl dithiophosphate	3288-58-2

RCRA Code	Chemical Name	CAS Number
U088	Diethyl phthalate	84-66-2
U089	Diethylstilbestrol	56-53-1
U090	Dihydrosafrole	94-58-6
U091	3,3'-Dimethoxybenzidine	119-90-4
U092	Dimethylamine	124-40-3
U093	4-Dimethylaminoazobenzene	60-11-7
U094	7,12-Dimethylbenz[a]anthracene	57-97-6
U095	3,3'-Dimethylbenzidine	119-93-7
U096	Cumene hydroperoxide	80-15-9
U097	Dimethylcarbamyl chloride	79-44-7
U098	1,1-Dimethyl hydrazine	57-14-7
U099	Hydrazine, 1,2-dimethyl-	540-73-8
U101	2,4-Dimethylphenol	105-67-9
U102	Dimethyl phthalate	131-11-3
U103	Dimethyl sulfate	77-78-1
U105	2,4-Dinitrotoluene	121-14-2
U106	2,6-Dinitrotoluene	606-20-2
U107	n-Dioctylphthalate	117-84-0
U108	1,4-Dioxane	123-91-1
U109	1,2-Diphenylhydrazine	122-66-7
U110	Dipropylamine	142-84-7
U111	N-Nitrosodi-n-propylamine	621-64-7
U112	Ethyl acetate	141-78-6
U113	Ethyl acrylate	140-88-5
U114	Ethylenebisdithiocarbamic acid, salts &	111-54-6
U115	Ethylene oxide	75-21-8
U116	Ethylene thiourea	96-45-7
U117	Ethane, 1,1'-oxybis-	60-29-7
U118	Ethyl methacrylate	97-63-2
U119	Ethyl methanesulfonate	62-50-0
U120	Fluoranthene	206-44-0
U121	Trichlorofluoromethane	75-69-4
U122	Formaldehyde	50-00-0
U123	Formic acid	64-18-6

RCRA Code	Chemical Name	CAS Number
U124	Furan	110-00-9
U125	Furfural	98-01-1
U126	Glycidylaldehyde	765-34-4
U127	Hexachlorobenzene	118-74-1
U128	Hexachloro-1,3-butadiene	87-68-3
U129	Hexachlorocyclohexane (gamma isomer)	58-89-9
U130	Hexachlorocyclopentadiene	77-47-4
U131	Hexachloroethane	67-72-1
U132	Hexachlorophene	70-30-4
U133	Hydrazine	302-01-2
U134	Hydrofluoric acid	7664-39-3
U134	Hydrofluoric acid (conc. 50% or greater)	7664-39-3
U134	Hydrogen fluoride	7664-39-3
U135	Hydrogen sulfide	7783-06-4
U136	Cacodylic acid	75-60-5
U137	Indeno(1,2,3-cd)pyrene	193-39-5
U138	Methyl iodide	74-88-4
U140	Isobutyl alcohol	78-83-1
U141	Isosafrole	120-58-1
U142	Kepone	143-50-0
U143	Lasiocarpine	303-34-4
U144	Lead acetate	301-04-2
U145	Lead phosphate	7446-27-7
U146	Lead subacetate	1335-32-6
U147	Maleic anhydride	108-31-6
U148	Maleic hydrazide	123-33-1
U149	Malononitrile	109-77-3
U150	Melphalan	148-82-3
U151	Mercury	7439-97-6
U152	Methacrylonitrile	126-98-7
U153	Methyl mercaptan	74-93-1
U154	Methanol	67-56-1
U155	Methapyrilene	91-80-5
U156	Methyl chlorocarbonate	79-22-1

RCRA Code	Chemical Name	CAS Number
U157	3-Methylcholanthrene	56-49-5
U158	4,4'-Methylenebis(2-chloroaniline)	101-14-4
U159	Methyl ethyl ketone	78-93-3
U160	Methyl ethyl ketone peroxide	1338-23-4
U161	Methyl isobutyl ketone	108-10-1
U162	Methyl methacrylate	80-62-6
U163	Guanidine, N-methyl-N'-nitro-N-nitroso-	70-25-7
U164	Methylthiouracil	56-04-2
U165	Naphthalene	91-20-3
U166	1,4-Naphthoquinone	130-15-4
U167	alpha-Naphthylamine	134-32-7
U168	beta-Naphthylamine	91-59-8
U169	Nitrobenzene	98-95-3
U170	4-Nitrophenol	100-02-7
U171	2-Nitropropane	79-46-9
U172	N-Nitrosodi-n-butylamine	924-16-3
U173	N-Nitrosodiethanolamine	1116-54-7
U174	N-Nitrosodiethylamine	55-18-5
U176	N-Nitroso-N-ethylurea	759-73-9
U177	N-Nitroso-N-methylurea	684-93-5
U178	N-Nitroso-N-methylurethane	615-53-2
U179	N-Nitrosopiperidine	100-75-4
U180	N-Nitrosopyrrolidine	930-55-2
U181	5-Nitro-o-toluidine	99-55-8
U182	Paraldehyde	123-63-7
U183	Pentachlorobenzene	608-93-5
U184	Pentachloroethane	76-01-7
U185	Quintozene	82-68-8
U186	1,3-Pentadiene	504-60-9
U187	Phenacetin	62-44-2
U188	Phenol	108-95-2
U189	Sulfur phosphide	1314-80-3
U190	Phthalic anhydride	85-44-9
U191	2-Methylpyridine	109-06-8

RCRA Code	Chemical Name	CAS Number
U192	Pronamide	23950-58-5
U193	Propane sultone	1120-71-4
U194	n-Propylamine	107-10-8
U196	Pyridine	110-86-1
U197	Quinone	106-51-4
U200	Reserpine	50-55-5
U201	Resorcinol	108-46-3
U202	Saccharin (manufacturing)	81-07-2
U203	Safrole	94-59-7
U204	Selenious acid	7783-00-8
U205	Selenium sulfide	7488-56-4
U206	Streptozotocin	18883-66-4
U207	1,2,4,5-Tetrachlorobenzene	95-94-3
U208	1,1,1,2-Tetrachloroethane	630-20-6
U209	1,1,2,2-Tetrachloroethane	79-34-5
U210	Tetrachloroethylene	127-18-4
U211	Carbon tetrachloride	56-23-5
U213	Furan, tetrahydro-	109-99-9
U214	Thallium(I) acetate	563-68-8
U215	Thallium(I) carbonate	6533-73-9
U216	Thallium chloride TlCl	7791-12-0
U217	Thallium(I) nitrate	10102-45-1
U218	Thioacetamide	62-55-5
U219	Thiourea	62-56-6
U220	Toluene	108-88-3
U221	Diaminotoluene	496-72-0
U221	Diaminotoluene	823-40-5
U221	Diaminotoluene (mixed isomers)	25376-45-8
U222	o-Toluidine hydrochloride	636-21-5
U223	Toluenediisocyanate (mixed isomers)	26471-62-5
U225	Bromoform	75-25-2
U226	1,1,1-Trichloroethane	71-55-6
U227	1,1,2-Trichloroethane	79-00-5
U228	Trichloroethylene	79-01-6

RCRA Code	Chemical Name	CAS Number
U234	1,3,5-Trinitrobenzene	99-35-4
U235	Tris(2,3-dibromopropyl) phosphate	126-72-7
U236	Trypan blue	72-57-1
U237	Uracil mustard	66-75-1
U238	Carbamic acid, ethyl ester	51-79-6
U239	m-Xylene	108-38-3
U239	o-Xylene	95-47-6
U239	p-Xylene	106-42-3
U239	Xylene (mixed isomers)	1330-20-7
U240	2,4-D	94-75-7
U243	Hexachloropropene	1888-71-7
U244	Thiram	137-26-8
U246	Cyanogen bromide	506-68-3
U247	Methoxychlor	72-43-5
U249	Zinc phosphide (conc. <= 10%)	1314-84-7
U271	Benomyl	17804-35-2
U278	Bendiocarb	22781-23-3
U279	Carbaryl	63-25-2
U280	Barban	101-27-9
U328	o-Toluidine	95-53-4
U353	p-Toluidine	106-49-0
U359	2-Ethoxyethanol	110-80-5
U364	Bendiocarb phenol	22961-82-6
U367	Carbofuran phenol	1563-38-8
U372	Carbendazim	10605-21-7
U373	Propham	122-42-9
U387	Carbamothioic acid, dipropyl-,	52888-80-9
U389	Triallate	2303-17-5
U394	Ethanimidothioic acid,	30558-43-1
U395	Ethanol, 2,2'-oxybis-, dicarbamate	5952-26-1
U404	Triethylamine	121-44-8
U408	2,4,6-Tribromophenol	118-79-6
U409	Thiophanate-methyl	23564-05-8
U410	Thiodicarb	59669-26-0

RCRA Code	Chemical Name	CAS Number
U411	Propoxur	114-26-1

CAS Number is the unique identification number applied by the Chemical Abstract Service

Appendix F Table 6 RCRA P & U Codes by CAS Number

CAS Number	Chemical Name	RCRA P & U CODE
50-00-0	Formaldehyde	U122
50-07-7	Mitomycin C	U010
50-18-0	Cyclophosphamide	U058
50-29-3	DDT	U061
50-32-8	Benzo[a]pyrene	U022
50-55-5	Reserpine	U200
51-28-5	2,4-Dinitrophenol	P048
51-43-4	Epinephrine	P042
51-79-6	Carbamic acid, ethyl ester	U238
52-85-7	Famphur	P097
53-70-3	Dibenz[a,h]anthracene	U063
53-96-3	2-Acetylaminofluorene	U005
54-11-5	Nicotine	P075
55-18-5	N-Nitrosodiethylamine	U174
55-63-0	Nitroglycerin	P081
55-91-4	Diisopropylfluorophosphate	P043
56-04-2	Methylthiouracil	U164
56-23-5	Carbon tetrachloride	U211
56-38-2	Parathion	P089
56-49-5	3-Methylcholanthrene	U157
56-53-1	Diethylstilbestrol	U089
56-55-3	Benz[a]anthracene	U018
57-12-5	Cyanides (soluble salts and	P030
57-14-7	1,1-Dimethyl hydrazine	U098
57-24-9	Strychnine	P108
57-47-6	Physostigmine	P204
57-64-7	Physostigmine, salicylate (1:1)	P188
57-74-9	Chlordane	U036
57-97-6	7,12-Dimethylbenz[a]anthracene	U094
58-89-9	Hexachlorocyclohexane (gamma	U129
59-50-7	p-Chloro-m-cresol	U039
60-11-7	4-Dimethylaminoazobenzene	U093
60-29-7	Ethane, 1,1'-oxybis-	U117
60-34-4	Methyl hydrazine	P068
60-51-5	Dimethoate	P044
60-57-1	Dieldrin	P037
61-82-5	Amitrole	U011
62-38-4	Phenylmercuric acetate	P092
62-44-2	Phenacetin	U187
62-50-0	Ethyl methanesulfonate	U119
62-53-3	Aniline	U012
62-55-5	Thioacetamide	U218
62-56-6	Thiourea	U219

CAS Number	Chemical Name	RCRA P & U CODE
62-74-8	Fluoroacetic acid, sodium salt	P058
62-75-9	Methanamine, N-methyl-N-nitroso-	P082
63-25-2	Carbaryl	U279
64-00-6	Phenol, 3-(1-methylethyl)-,	P202
64-18-6	Formic acid	U123
66-75-1	Uracil mustard	U237
67-56-1	Methanol	U154
67-64-1	Acetone	U002
67-66-3	Chloroform	U044
67-72-1	Hexachloroethane	U131
70-25-7	Guanidine,	U163
70-30-4	Hexachlorophene	U132
71-36-3	n-Butyl alcohol	U031
71-43-2	Benzene	U019
71-55-6	1,1,1-Trichloroethane	U226
72-20-8	Endrin	P051
72-43-5	Methoxychlor	U247
72-54-8	DDD	U060
72-57-1	Trypan blue	U236
74-83-9	Bromomethane	U029
74-87-3	Chloromethane	U045
74-88-4	Methyl iodide	U138
74-90-8	Hydrogen cyanide	P063
74-93-1	Methyl mercaptan	U153
74-95-3	Methylene bromide	U068
75-01-4	Vinyl chloride	U043
75-05-8	Acetonitrile	U003
75-07-0	Acetaldehyde	U001
75-09-2	Dichloromethane	U080
75-15-0	Carbon disulfide	P022
75-21-8	Ethylene oxide	U115
75-25-2	Bromoform	U225
75-34-3	Ethylidene Dichloride	U076
75-35-4	Vinylidene chloride	U078
75-36-5	Acetyl chloride	U006
75-44-5	Phosgene	P095
75-55-8	Propyleneimine	P067
75-60-5	Cacodylic acid	U136
75-69-4	Trichlorofluoromethane	U121
75-71-8	Dichlorodifluoromethane	U075
75-86-5	2-Methyllactonitrile	P069
75-87-6	Acetaldehyde, trichloro-	U034
76-01-7	Pentachloroethane	U184
76-44-8	Heptachlor	P059
77-47-4	Hexachlorocyclopentadiene	U130
77-78-1	Dimethyl sulfate	U103
78-00-2	Tetraethyl lead	P110
78-83-1	Isobutyl alcohol	U140
78-87-5	1,2-Dichloropropane	U083
78-93-3	Methyl ethyl ketone	U159
79-00-5	1,1,2-Trichloroethane	U227

CAS Number	Chemical Name	RCRA P & U CODE
79-01-6	Trichloroethylene	U228
79-06-1	Acrylamide	U007
79-10-7	Acrylic acid	U008
79-19-6	Thiosemicarbazide	P116
79-22-1	Methyl chlorocarbonate	U156
79-34-5	1,1,2,2-Tetrachloroethane	U209
79-44-7	Dimethylcarbamyl chloride	U097
79-46-9	2-Nitropropane	U171
80-15-9	Cumene hydroperoxide	U096
80-62-6	Methyl methacrylate	U162
81-07-2	Saccharin (manufacturing)	U202
81-81-2	Warfarin	P001
82-68-8	Quintozene	U185
84-66-2	Diethyl phthalate	U088
84-74-2	Dibutyl phthalate	U069
85-44-9	Phthalic anhydride	U190
86-88-4	ANTU	P072
87-65-0	2,6-Dichlorophenol	U082
87-68-3	Hexachloro-1,3-butadiene	U128
88-85-7	Dinitrobutyl phenol	P020
91-20-3	Naphthalene	U165
91-58-7	2-Chloronaphthalene	U047
91-59-8	beta-Naphthylamine	U168
91-80-5	Methapyrilene	U155
91-94-1	3,3'-Dichlorobenzidine	U073
92-87-5	Benzidine	U021
94-58-6	Dihydrosafrole	U090
94-59-7	Safrole	U203
94-75-7	2,4-D	U240
95-47-6	o-Xylene	U239
95-48-7	o-Cresol	U052
95-50-1	1,2-Dichlorobenzene	U070
95-53-4	o-Toluidine	U328
95-57-8	2-Chlorophenol	U048
95-94-3	1,2,4,5-Tetrachlorobenzene	U207
96-12-8	1,2-Dibromo-3-chloropropane	U066
96-45-7	Ethylene thiourea	U116
97-63-2	Ethyl methacrylate	U118
98-01-1	Furfural	U125
98-07-7	Benzoic trichloride	U023
98-09-9	Benzenesulfonyl chloride	U020
98-82-8	Cumene	U055
98-86-2	Acetophenone	U004
98-87-3	Benzal chloride	U017
98-95-3	Nitrobenzene	U169
99-35-4	1,3,5-Trinitrobenzene	U234
99-55-8	5-Nitro-o-toluidine	U181
100-01-6	p-Nitroaniline	P077
100-02-7	4-Nitrophenol	U170
100-44-7	Benzyl chloride	P028
100-75-4	N-Nitrosopiperidine	U179

CAS Number	Chemical Name	RCRA P & U CODE
101-14-4	4,4'-Methylenebis(2-chloroaniline)	U158
101-27-9	Barban	U280
101-55-3	4-Bromophenyl phenyl ether	U030
103-85-5	Phenylthiourea	P093
105-67-9	2,4-Dimethylphenol	U101
106-42-3	p-Xylene	U239
106-44-5	p-Cresol	U052
106-46-7	1,4-Dichlorobenzene	U072
106-47-8	p-Chloroaniline	P024
106-49-0	p-Toluidine	U353
106-51-4	Quinone	U197
106-89-8	Epichlorohydrin	U041
106-93-4	1,2-Dibromoethane	U067
107-02-8	Acrolein	P003
107-06-2	1,2-Dichloroethane	U077
107-10-8	n-Propylamine	U194
107-12-0	Ethyl cyanide	P101
107-13-1	Acrylonitrile	U009
107-18-6	Allyl alcohol	P005
107-19-7	Propargyl alcohol	P102
107-20-0	Chloroacetaldehyde	P023
107-30-2	Chloromethyl methyl ether	U046
107-49-3	TEPP	P111
108-10-1	Methyl isobutyl ketone	U161
108-31-6	Maleic anhydride	U147
108-38-3	m-Xylene	U239
108-39-4	m-Cresol	U052
108-46-3	Resorcinol	U201
108-60-1	Bis(2-chloro-1-methylethyl)ether	U027
108-88-3	Toluene	U220
108-90-7	Chlorobenzene	U037
108-94-1	Cyclohexanone	U057
108-95-2	Phenol	U188
108-98-5	Benzenethiol	P014
109-06-8	2-Methylpyridine	U191
109-77-3	Malononitrile	U149
109-99-9	Furan, tetrahydro-	U213
110-00-9	Furan	U124
110-75-8	2-Chloroethyl vinyl ether	U042
110-80-5	2-Ethoxyethanol	U359
110-82-7	Cyclohexane	U056
110-86-1	Pyridine	U196
111-44-4	Bis(2-chloroethyl) ether	U025
111-54-6	Ethylenebisdithiocarbamic acid,	U114
111-91-1	Bis(2-chloroethoxy) methane	U024
114-26-1	Propoxur	U411
115-02-6	Azaserine	U015
115-29-7	Endosulfan	P050
116-06-3	Aldicarb	P070
117-81-7	Di(2-ethylhexyl) phthalate	U028
117-84-0	n-Dioctylphthalate	U107

CAS Number	Chemical Name	RCRA P & U CODE
118-74-1	Hexachlorobenzene	U127
118-79-6	2,4,6-Tribromophenol	U408
119-38-0	Isopropylmethylpyrazolyl	P192
119-90-4	3,3'-Dimethoxybenzidine	U091
119-93-7	3,3'-Dimethylbenzidine	U095
120-58-1	Isosafrole	U141
120-83-2	2,4-Dichlorophenol	U081
121-14-2	2,4-Dinitrotoluene	U105
121-44-8	Triethylamine	U404
122-09-8	Benzeneethanamine,	P046
122-42-9	Propham	U373
122-66-7	1,2-Diphenylhydrazine	U109
123-33-1	Maleic hydrazide	U148
123-63-7	Paraldehyde	U182
123-73-9	2-Butenal, (e)-	U053
123-91-1	1,4-Dioxane	U108
124-40-3	Dimethylamine	U092
126-72-7	Tris(2,3-dibromopropyl) phosphate	U235
126-98-7	Methacrylonitrile	U152
127-18-4	Tetrachloroethylene	U210
130-15-4	1,4-Naphthoquinone	U166
131-11-3	Dimethyl phthalate	U102
131-74-8	Ammonium picrate	P009
131-89-5	2-Cyclohexyl-4,6-dinitrophenol	P034
134-32-7	alpha-Naphthylamine	U167
137-26-8	Thiram	U244
137-30-4	Ziram	P205
140-88-5	Ethyl acrylate	U113
141-78-6	Ethyl acetate	U112
142-84-7	Dipropylamine	U110
143-33-9	Sodium cyanide (Na(CN))	P106
143-50-0	Kepone	U142
145-73-3	Endothall	P088
148-82-3	Melphalan	U150
151-50-8	Potassium cyanide	P098
151-56-4	Ethyleneimine	P054
152-16-9	Diphosphoramide, octamethyl-	P085
156-60-5	1,2-Dichloroethylene	U079
189-55-9	Benzo(rst)pentaphene	U064
193-39-5	Indeno(1,2,3-cd)pyrene	U137
206-44-0	Fluoranthene	U120
218-01-9	Benzo(a)phenanthrene	U050
225-51-4	Benz[c]acridine	U016
297-97-2	O,O-Diethyl O-pyrazinyl	P040
298-00-0	Methyl parathion	P071
298-02-2	Phorate	P094
298-04-4	Disulfoton	P039
301-04-2	Lead acetate	U144
302-01-2	Hydrazine	U133
303-34-4	Lasiocarpine	U143
305-03-3	Chlorambucil	U035

CAS Number	Chemical Name	RCRA P & U CODE
309-00-2	Aldrin	P004
311-45-5	Diethyl-p-nitrophenyl phosphate	P041
315-18-4	Mexacarbate	P128
353-50-4	Carbonic difluoride	U033
357-57-3	Brucine	P018
460-19-5	Cyanogen	P031
465-73-6	Isodrin	P060
492-80-8	C.I. Solvent Yellow 34	U014
494-03-1	Chlornaphazine	U026
496-72-0	Diaminotoluene	U221
504-24-5	4-Aminopyridine	P008
504-60-9	1,3-Pentadiene	U186
506-61-6	Potassium silver cyanide	P099
506-64-9	Silver cyanide	P104
506-68-3	Cyanogen bromide	U246
506-77-4	Cyanogen chloride	P033
509-14-8	Methane, tetranitro-	P112
510-15-6	Chlorobenzilate	U038
534-52-1	4,6-Dinitro-o-cresol	P047
540-73-8	Hydrazine, 1,2-dimethyl-	U099
541-53-7	2,4-Dithiobiuret	P049
541-73-1	1,3-Dichlorobenzene	U071
542-62-1	Barium cyanide	P013
542-75-6	1,3-Dichloropropylene	U084
542-76-7	3-Chloropropionitrile	P027
542-88-1	Bis(chloromethyl) ether	P016
544-92-3	Copper cyanide	P029
557-19-7	Nickel cyanide	P074
557-21-1	Zinc cyanide	P121
563-68-8	Thallium(I) acetate	U214
591-08-2	1-Acetyl-2-thiourea	P002
592-01-8	Calcium cyanide	P021
598-31-2	Bromoacetone	P017
606-20-2	2,6-Dinitrotoluene	U106
608-93-5	Pentachlorobenzene	U183
615-53-2	N-Nitroso-N-methylurethane	U178
621-64-7	N-Nitrosodi-n-propylamine	U111
624-83-9	Methyl isocyanate	P064
628-86-4	Mercury fulminate	P065
630-10-4	Selenourea	P103
630-20-6	1,1,1,2-Tetrachloroethane	U208
636-21-5	o-Toluidine hydrochloride	U222
640-19-7	Fluoroacetamide	P057
644-64-4	Dimetilan	P191
684-93-5	N-Nitroso-N-methylurea	U177
692-42-2	Diethylarsine	P038
696-28-6	Dichlorophenylarsine	P036
757-58-4	Hexaethyl tetraphosphate	P062
759-73-9	N-Nitroso-N-ethylurea	U176
764-41-0	1,4-Dichloro-2-butene	U074
765-34-4	Glycidylaldehyde	U126

CAS Number	Chemical Name	RCRA P & U CODE
823-40-5	Diaminotoluene	U221
924-16-3	N-Nitrosodi-n-butylamine	U172
930-55-2	N-Nitrosopyrrolidine	U180
1116-54-7	N-Nitrosodiethanolamine	U173
1120-71-4	Propane sultone	U193
1129-41-5	Metolcarb	P190
1303-28-2	Arsenic pentoxide	P011
1314-32-5	Thallic oxide	P113
1314-62-1	Vanadium pentoxide	P120
1314-80-3	Sulfur phosphide	U189
1314-84-7	Zinc phosphide	P122
1314-84-7	Zinc phosphide (conc. <= 10%)	U249
1319-77-3	Cresol (mixed isomers)	U052
1327-53-3	Arsenic trioxide	P012
1330-20-7	Xylene (mixed isomers)	U239
1335-32-6	Lead subacetate	U146
1338-23-4	Methyl ethyl ketone peroxide	U160
1464-53-5	Diepoxybutane	U085
1563-38-8	Carbofuran phenol	U367
1563-66-2	Carbofuran	P127
1615-80-1	Hydrazine, 1,2-diethyl-	U086
1646-88-4	Aldicarb sulfone	P203
1888-71-7	Hexachloropropene	U243
2032-65-7	Methiocarb	P199
2303-16-4	Diallate	U062
2303-17-5	Triallate	U389
2631-37-0	Promecarb	P201
2763-96-4	5-(Aminomethyl)-3-isoxazolol	P007
3165-93-3	4-Chloro-o-toluidine, hydrochloride	U049
3288-58-2	O,O-Diethyl S-methyl	U087
3689-24-5	Sulfotep	P109
4170-30-3	Crotonaldehyde	U053
4549-40-0	N-Nitrosomethylvinylamine	P084
5344-82-1	Thiourea, (2-chlorophenyl)-	P026
5952-26-1	Ethanol, 2,2'-oxybis-, dicarbamate	U395
6533-73-9	Thallium(I) carbonate	U215
7439-97-6	Mercury	U151
7440-41-7	Beryllium	P015
7446-18-6	Thallium(I) sulfate	P115
7446-27-7	Lead phosphate	U145
7488-56-4	Selenium sulfide	U205
7664-39-3	Hydrofluoric acid	U134
7664-39-3	Hydrogen fluoride	U134
7664-39-3	Hydrofluoric acid (conc. 50% or	U134
7778-39-4	Arsenic acid	P010
7782-41-4	Fluorine	P056
7783-00-8	Selenious acid	U204
7783-06-4	Hydrogen sulfide	U135
7791-12-0	Thallium chloride TlCl	U216
7803-51-2	Phosphine	P096
7803-55-6	Ammonium vanadate	P119

CAS Number	Chemical Name	RCRA P & U CODE
8001-35-2	Toxaphene	P123
8001-58-9	Creosote	U051
10102-43-9	Nitric oxide	P076
10102-44-0	Nitrogen dioxide	P078
10102-45-1	Thallium(I) nitrate	U217
10605-21-7	Carbendazim	U372
12039-52-0	Selenious acid, dithallium(1+) salt	P114
13463-39-3	Nickel carbonyl	P073
13765-19-0	Calcium chromate	U032
15339-36-3	Manganese,	P196
16752-77-5	Ethanimidothioic acid,	P066
17702-57-7	Formparanate	P197
17804-35-2	Benomyl	U271
18883-66-4	Streptozotocin	U206
20816-12-0	Osmium tetroxide	P087
20830-81-3	Daunomycin	U059
20859-73-8	Aluminum phosphide	P006
22781-23-3	Bendiocarb	U278
22961-82-6	Bendiocarb phenol	U364
23135-22-0	Oxamyl	P194
23422-53-9	Formetanate hydrochloride	P198
23564-05-8	Thiophanate-methyl	U409
23950-58-5	Pronamide	U192
25376-45-8	Diaminotoluene (mixed isomers)	U221
26419-73-8	Carbamic acid, methyl-,	P185
26471-62-5	Toluenediisocyanate (mixed	U223
26628-22-8	Sodium azide (Na(N3))	P105
30558-43-1	Ethanimidothioic acid,	U394
39196-18-4	Thiofanox	P045
52888-80-9	Carbamothioic acid, dipropyl-,	U387
55285-14-8	Carbosulfan	P189
59669-26-0	Thiodicarb	U410

CAS Number is the unique identification number applied by the Chemical Abstract Service

Appendix F Table 7 RCRA P & U Codes by Chemical Name

Chemical Name	CAS Number	RCRA P & U CODE
1,1,1,2-Tetrachloroethane	630-20-6	U208
1,1,1-Trichloroethane	71-55-6	U226
1,1,2,2-Tetrachloroethane	79-34-5	U209
1,1,2-Trichloroethane	79-00-5	U227
1,1-Dimethyl hydrazine	57-14-7	U098
1,2,4,5-Tetrachlorobenzene	95-94-3	U207
1,2-Dibromo-3-chloropropane	96-12-8	U066
1,2-Dibromoethane	106-93-4	U067
1,2-Dichlorobenzene	95-50-1	U070
1,2-Dichloroethane	107-06-2	U077
1,2-Dichloroethylene	156-60-5	U079

Chemical Name	CAS Number	RCRA P & U CODE
1,2-Dichloropropane	78-87-5	U083
1,2-Diphenylhydrazine	122-66-7	U109
1,3,5-Trinitrobenzene	99-35-4	U234
1,3-Dichlorobenzene	541-73-1	U071
1,3-Dichloropropylene	542-75-6	U084
1,3-Pentadiene	504-60-9	U186
1,4-Dichloro-2-butene	764-41-0	U074
1,4-Dichlorobenzene	106-46-7	U072
1,4-Dioxane	123-91-1	U108
1,4-Naphthoquinone	130-15-4	U166
1-Acetyl-2-thiourea	591-08-2	P002
2,4,6-Tribromophenol	118-79-6	U408
2,4-D	94-75-7	U240
2,4-Dichlorophenol	120-83-2	U081
2,4-Dimethylphenol	105-67-9	U101
2,4-Dinitrophenol	51-28-5	P048
2,4-Dinitrotoluene	121-14-2	U105
2,4-Dithiobiuret	541-53-7	P049
2,6-Dichlorophenol	87-65-0	U082
2,6-Dinitrotoluene	606-20-2	U106
2-Acetylaminofluorene	53-96-3	U005
2-Butenal, (e)-	123-73-9	U053
2-Chloroethyl vinyl ether	110-75-8	U042
2-Chloronaphthalene	91-58-7	U047
2-Chlorophenol	95-57-8	U048
2-Cyclohexyl-4,6-dinitrophenol	131-89-5	P034
2-Ethoxyethanol	110-80-5	U359
2-Methyllactonitrile	75-86-5	P069
2-Methylpyridine	109-06-8	U191
2-Nitropropane	79-46-9	U171
3,3'-Dichlorobenzidine	91-94-1	U073
3,3'-Dimethoxybenzidine	119-90-4	U091
3,3'-Dimethylbenzidine	119-93-7	U095
3-Chloropropionitrile	542-76-7	P027
3-Methylcholanthrene	56-49-5	U157
4,4'-Methylenebis(2-chloroaniline)	101-14-4	U158
4,6-Dinitro-o-cresol	534-52-1	P047
4-Aminopyridine	504-24-5	P008
4-Bromophenyl phenyl ether	101-55-3	U030
4-Chloro-o-toluidine, hydrochloride	3165-93-3	U049
4-Dimethylaminoazobenzene	60-11-7	U093
4-Nitrophenol	100-02-7	U170
5-(Aminomethyl)-3-isoxazolol	2763-96-4	P007
5-Nitro-o-toluidine	99-55-8	U181
7,12-Dimethylbenz[a]anthracene	57-97-6	U094
Acetaldehyde	75-07-0	U001
Acetaldehyde, trichloro-	75-87-6	U034
Acetone	67-64-1	U002
Acetonitrile	75-05-8	U003
Acetophenone	98-86-2	U004
Acetyl chloride	75-36-5	U006

Chemical Name	CAS Number	RCRA P & U CODE
Acrolein	107-02-8	P003
Acrylamide	79-06-1	U007
Acrylic acid	79-10-7	U008
Acrylonitrile	107-13-1	U009
Aldicarb	116-06-3	P070
Aldicarb sulfone	1646-88-4	P203
Aldrin	309-00-2	P004
Allyl alcohol	107-18-6	P005
alpha-Naphthylamine	134-32-7	U167
Aluminum phosphide	20859-73-8	P006
Amitrole	61-82-5	U011
Ammonium picrate	131-74-8	P009
Ammonium vanadate	7803-55-6	P119
Aniline	62-53-3	U012
ANTU	86-88-4	P072
Arsenic acid	7778-39-4	P010
Arsenic pentoxide	1303-28-2	P011
Arsenic trioxide	1327-53-3	P012
Azaserine	115-02-6	U015
Barban	101-27-9	U280
Barium cyanide	542-62-1	P013
Bendiocarb	22781-23-3	U278
Bendiocarb phenol	22961-82-6	U364
Benomyl	17804-35-2	U271
Benz[a]anthracene	56-55-3	U018
Benz[c]acridine	225-51-4	U016
Benzal chloride	98-87-3	U017
Benzene	71-43-2	U019
Benzeneethanamine,	122-09-8	P046
Benzenesulfonyl chloride	98-09-9	U020
Benzenethiol	108-98-5	P014
Benzidine	92-87-5	U021
Benzo(a)phenanthrene	218-01-9	U050
Benzo(rst)pentaphene	189-55-9	U064
Benzo[a]pyrene	50-32-8	U022
Benzoic trichloride	98-07-7	U023
Benzyl chloride	100-44-7	P028
Beryllium	7440-41-7	P015
beta-Naphthylamine	91-59-8	U168
Bis(2-chloro-1-methylethyl)ether	108-60-1	U027
Bis(2-chloroethoxy) methane	111-91-1	U024
Bis(2-chloroethyl) ether	111-44-4	U025
Bis(chloromethyl) ether	542-88-1	P016
Bromoacetone	598-31-2	P017
Bromoform	75-25-2	U225
Bromomethane	74-83-9	U029
Brucine	357-57-3	P018
C.I. Solvent Yellow 34	492-80-8	U014
Cacodylic acid	75-60-5	U136
Calcium chromate	13765-19-0	U032
Calcium cyanide	592-01-8	P021

Chemical Name	CAS Number	RCRA P & U CODE
Carbamic acid, ethyl ester	51-79-6	U238
Carbamic acid, methyl-,	26419-73-8	P185
Carbamothioic acid, dipropyl-,	52888-80-9	U387
Carbaryl	63-25-2	U279
Carbendazim	10605-21-7	U372
Carbofuran	1563-66-2	P127
Carbofuran phenol	1563-38-8	U367
Carbon disulfide	75-15-0	P022
Carbon tetrachloride	56-23-5	U211
Carbonic difluoride	353-50-4	U033
Carbosulfan	55285-14-8	P189
Chlorambucil	305-03-3	U035
Chlordane	57-74-9	U036
Chlornaphazine	494-03-1	U026
Chloroacetaldehyde	107-20-0	P023
Chlorobenzene	108-90-7	U037
Chlorobenzilate	510-15-6	U038
Chloroform	67-66-3	U044
Chloromethane	74-87-3	U045
Chloromethyl methyl ether	107-30-2	U046
Copper cyanide	544-92-3	P029
Creosote	8001-58-9	U051
Cresol (mixed isomers)	1319-77-3	U052
Crotonaldehyde	4170-30-3	U053
Cumene	98-82-8	U055
Cumene hydroperoxide	80-15-9	U096
Cyanides (soluble salts and	57-12-5	P030
Cyanogen	460-19-5	P031
Cyanogen bromide	506-68-3	U246
Cyanogen chloride	506-77-4	P033
Cyclohexane	110-82-7	U056
Cyclohexanone	108-94-1	U057
Cyclophosphamide	50-18-0	U058
Daunomycin	20830-81-3	U059
DDD	72-54-8	U060
DDT	50-29-3	U061
Di(2-ethylhexyl) phthalate	117-81-7	U028
Diallate	2303-16-4	U062
Diaminotoluene	823-40-5	U221
Diaminotoluene	496-72-0	U221
Diaminotoluene (mixed isomers)	25376-45-8	U221
Dibenz[a,h]anthracene	53-70-3	U063
Dibutyl phthalate	84-74-2	U069
Dichlorodifluoromethane	75-71-8	U075
Dichloromethane	75-09-2	U080
Dichlorophenylarsine	696-28-6	P036
Dieldrin	60-57-1	P037
Diepoxybutane	1464-53-5	U085
Diethyl phthalate	84-66-2	U088
Diethyl-p-nitrophenyl phosphate	311-45-5	P041
Diethylarsine	692-42-2	P038

Chemical Name	CAS Number	RCRA P & U CODE
Diethylstilbestrol	56-53-1	U089
Dihydrosafrole	94-58-6	U090
Diisopropylfluorophosphate	55-91-4	P043
Dimethoate	60-51-5	P044
Dimethyl phthalate	131-11-3	U102
Dimethyl sulfate	77-78-1	U103
Dimethylamine	124-40-3	U092
Dimethylcarbamyl chloride	79-44-7	U097
Dimetilan	644-64-4	P191
Dinitrobutyl phenol	88-85-7	P020
Diphosphoramide, octamethyl-	152-16-9	P085
Dipropylamine	142-84-7	U110
Disulfoton	298-04-4	P039
Endosulfan	115-29-7	P050
Endothall	145-73-3	P088
Endrin	72-20-8	P051
Epichlorohydrin	106-89-8	U041
Epinephrine	51-43-4	P042
Ethane, 1,1'-oxybis-	60-29-7	U117
Ethanimidothioic acid,	30558-43-1	U394
Ethanimidothioic acid,	16752-77-5	P066
Ethanol, 2,2'-oxybis-, dicarbamate	5952-26-1	U395
Ethyl acetate	141-78-6	U112
Ethyl acrylate	140-88-5	U113
Ethyl cyanide	107-12-0	P101
Ethyl methacrylate	97-63-2	U118
Ethyl methanesulfonate	62-50-0	U119
Ethylene oxide	75-21-8	U115
Ethylene thiourea	96-45-7	U116
Ethylenebisdithiocarbamic acid,	111-54-6	U114
Ethyleneimine	151-56-4	P054
Ethylidene Dichloride	75-34-3	U076
Famphur	52-85-7	P097
Fluoranthene	206-44-0	U120
Fluorine	7782-41-4	P056
Fluoroacetamide	640-19-7	P057
Fluoroacetic acid, sodium salt	62-74-8	P058
Formaldehyde	50-00-0	U122
Formetanate hydrochloride	23422-53-9	P198
Formic acid	64-18-6	U123
Formparanate	17702-57-7	P197
Furan	110-00-9	U124
Furan, tetrahydro-	109-99-9	U213
Furfural	98-01-1	U125
Glycidylaldehyde	765-34-4	U126
Guanidine,	70-25-7	U163
Heptachlor	76-44-8	P059
Hexachloro-1,3-butadiene	87-68-3	U128
Hexachlorobenzene	118-74-1	U127
Hexachlorocyclohexane (gamma	58-89-9	U129
Hexachlorocyclopentadiene	77-47-4	U130

Chemical Name	CAS Number	RCRA P & U CODE
Hexachloroethane	67-72-1	U131
Hexachlorophene	70-30-4	U132
Hexachloropropene	1888-71-7	U243
Hexaethyl tetraphosphate	757-58-4	P062
Hydrazine	302-01-2	U133
Hydrazine, 1,2-diethyl-	1615-80-1	U086
Hydrazine, 1,2-dimethyl-	540-73-8	U099
Hydrofluoric acid	7664-39-3	U134
Hydrofluoric acid (conc. 50% or	7664-39-3	U134
Hydrogen cyanide	74-90-8	P063
Hydrogen fluoride	7664-39-3	U134
Hydrogen sulfide	7783-06-4	U135
Indeno(1,2,3-cd)pyrene	193-39-5	U137
Isobutyl alcohol	78-83-1	U140
Isodrin	465-73-6	P060
Isopropylmethylpyrazolyl	119-38-0	P192
Isosafrole	120-58-1	U141
Kepone	143-50-0	U142
Lasiocarpine	303-34-4	U143
Lead acetate	301-04-2	U144
Lead phosphate	7446-27-7	U145
Lead subacetate	1335-32-6	U146
m-Cresol	108-39-4	U052
m-Xylene	108-38-3	U239
Maleic anhydride	108-31-6	U147
Maleic hydrazide	123-33-1	U148
Malononitrile	109-77-3	U149
Manganese,	15339-36-3	P196
Melphalan	148-82-3	U150
Mercury	7439-97-6	U151
Mercury fulminate	628-86-4	P065
Methacrylonitrile	126-98-7	U152
Methanamine, N-methyl-N-nitroso-	62-75-9	P082
Methane, tetranitro-	509-14-8	P112
Methanol	67-56-1	U154
Methapyrilene	91-80-5	U155
Methiocarb	2032-65-7	P199
Methoxychlor	72-43-5	U247
Methyl chlorocarbonate	79-22-1	U156
Methyl ethyl ketone	78-93-3	U159
Methyl ethyl ketone peroxide	1338-23-4	U160
Methyl hydrazine	60-34-4	P068
Methyl iodide	74-88-4	U138
Methyl isobutyl ketone	108-10-1	U161
Methyl isocyanate	624-83-9	P064
Methyl mercaptan	74-93-1	U153
Methyl methacrylate	80-62-6	U162
Methyl parathion	298-00-0	P071
Methylene bromide	74-95-3	U068
Methylthiouracil	56-04-2	U164
Metolcarb	1129-41-5	P190

Chemical Name	CAS Number	RCRA P & U CODE
Mexacarbate	315-18-4	P128
Mitomycin C	50-07-7	U010
n-Butyl alcohol	71-36-3	U031
n-Dioctylphthalate	117-84-0	U107
N-Nitroso-N-ethylurea	759-73-9	U176
N-Nitroso-N-methylurea	684-93-5	U177
N-Nitroso-N-methylurethane	615-53-2	U178
N-Nitrosodi-n-butylamine	924-16-3	U172
N-Nitrosodi-n-propylamine	621-64-7	U111
N-Nitrosodiethanolamine	1116-54-7	U173
N-Nitrosodiethylamine	55-18-5	U174
N-Nitrosomethylvinylamine	4549-40-0	P084
N-Nitrosopiperidine	100-75-4	U179
N-Nitrosopyrrolidine	930-55-2	U180
n-Propylamine	107-10-8	U194
Naphthalene	91-20-3	U165
Nickel carbonyl	13463-39-3	P073
Nickel cyanide	557-19-7	P074
Nicotine	54-11-5	P075
Nitric oxide	10102-43-9	P076
Nitrobenzene	98-95-3	U169
Nitrogen dioxide	10102-44-0	P078
Nitroglycerin	55-63-0	P081
O,O-Diethyl O-pyrazinyl	297-97-2	P040
O,O-Diethyl S-methyl	3288-58-2	U087
o-Cresol	95-48-7	U052
o-Toluidine	95-53-4	U328
o-Toluidine hydrochloride	636-21-5	U222
o-Xylene	95-47-6	U239
Osmium tetroxide	20816-12-0	P087
Oxamyl	23135-22-0	P194
p-Chloro-m-cresol	59-50-7	U039
p-Chloroaniline	106-47-8	P024
p-Cresol	106-44-5	U052
p-Nitroaniline	100-01-6	P077
p-Toluidine	106-49-0	U353
p-Xylene	106-42-3	U239
Paraldehyde	123-63-7	U182
Parathion	56-38-2	P089
Pentachlorobenzene	608-93-5	U183
Pentachloroethane	76-01-7	U184
Phenacetin	62-44-2	U187
Phenol	108-95-2	U188
Phenol, 3-(1-methylethyl)-,	64-00-6	P202
Phenylmercuric acetate	62-38-4	P092
Phenylthiourea	103-85-5	P093
Phorate	298-02-2	P094
Phosgene	75-44-5	P095
Phosphine	7803-51-2	P096
Phthalic anhydride	85-44-9	U190
Physostigmine	57-47-6	P204

Chemical Name	CAS Number	RCRA P & U CODE
Physostigmine, salicylate (1:1)	57-64-7	P188
Potassium cyanide	151-50-8	P098
Potassium silver cyanide	506-61-6	P099
Promecarb	2631-37-0	P201
Pronamide	23950-58-5	U192
Propane sultone	1120-71-4	U193
Propargyl alcohol	107-19-7	P102
Propham	122-42-9	U373
Propoxur	114-26-1	U411
Propyleneimine	75-55-8	P067
Pyridine	110-86-1	U196
Quinone	106-51-4	U197
Quintozene	82-68-8	U185
Reserpine	50-55-5	U200
Resorcinol	108-46-3	U201
Saccharin (manufacturing)	81-07-2	U202
Safrole	94-59-7	U203
Selenious acid	7783-00-8	U204
Selenious acid, dithallium(1+) salt	12039-52-0	P114
Selenium sulfide	7488-56-4	U205
Selenourea	630-10-4	P103
Silver cyanide	506-64-9	P104
Sodium azide (Na(N3))	26628-22-8	P105
Sodium cyanide (Na(CN))	143-33-9	P106
Streptozotocin	18883-66-4	U206
Strychnine	57-24-9	P108
Sulfotep	3689-24-5	P109
Sulfur phosphide	1314-80-3	U189
TEPP	107-49-3	P111
Tetrachloroethylene	127-18-4	U210
Tetraethyl lead	78-00-2	P110
Thallic oxide	1314-32-5	P113
Thallium chloride TlCl	7791-12-0	U216
Thallium(I) acetate	563-68-8	U214
Thallium(I) carbonate	6533-73-9	U215
Thallium(I) nitrate	10102-45-1	U217
Thallium(I) sulfate	7446-18-6	P115
Thioacetamide	62-55-5	U218
Thiodicarb	59669-26-0	U410
Thiofanox	39196-18-4	P045
Thiophanate-methyl	23564-05-8	U409
Thiosemicarbazide	79-19-6	P116
Thiourea	62-56-6	U219
Thiourea, (2-chlorophenyl)-	5344-82-1	P026
Thiram	137-26-8	U244
Toluene	108-88-3	U220
Toluenediisocyanate (mixed	26471-62-5	U223
Toxaphene	8001-35-2	P123
Triallate	2303-17-5	U389
Trichloroethylene	79-01-6	U228
Trichlorofluoromethane	75-69-4	U121

Chemical Name	CAS Number	RCRA P & U CODE
Triethylamine	121-44-8	U404
Tris(2,3-dibromopropyl) phosphate	126-72-7	U235
Trypan blue	72-57-1	U236
Uracil mustard	66-75-1	U237
Vanadium pentoxide	1314-62-1	P120
Vinyl chloride	75-01-4	U043
Vinylidene chloride	75-35-4	U078
Warfarin	81-81-2	P001
Xylene (mixed isomers)	1330-20-7	U239
Zinc cyanide	557-21-1	P121
Zinc phosphide	1314-84-7	P122
Zinc phosphide (conc. <= 10%)	1314-84-7	U249
Ziram	137-30-4	P205

CAS Number is the unique identification number applied by the Chemical Abstract Service

Nebraska Department
of Environmental Quality

ENVIRONMENTAL GUIDANCE DOCUMENT

00-056 May 23, 2000

USED OIL COLLECTION CONSIDERATIONS*

This paper provides basic information about used oil management practices for used oil collection programs. The rules are found in Title 128 - Rules and Regulations Governing Hazardous Waste in Nebraska.

Used Oil Collection

- Definition of used oil: Any oil that has been refined from crude oil, used, and as a result of such use, is contaminated by physical or chemical impurities. Title 128, Chapter 1, Section 130.

  - New oil is never considered "used oil."

  - Examples of substances that are considered used oil and meet the used oil exemption:

    - Spent oil from gasoline and diesel engines
    - Spent refrigerant lubricating oil
    - Spent lubricating oil from aircraft reciprocating and jet engines
    - Spent hydraulic fluid
    - Spent heat transfer fluids
    - Spent transmission fluid
    - Cutting oils

  - Examples of materials that are not used oil:

    - Spent antifreeze
    - Brake fluid
    - Solvents of any kind
    - Unused motor oil

* This Material is intended for guidance purposes only. It is not meant to substitute for the regulations found in Title 128 - Rules and Regulations Governing Hazardous Waste in Nebraska or other applicable Nebraska environmental regulations.

*Produced by: Nebraska Department of Environmental Quality, P.O. Box 98922, Lincoln, NE 68509-8922; phone (402)471-8308. To view this, and other information related to our agency, visit our web site at **www. deq.state.ne.us**.*

- Used oil that exhibits one or more characteristics of hazardous waste but is recycled in some manner *other than being burned for energy recovery* is exempt from hazardous waste regulation (Title 128, Chapters 4 and 7 through 23).

- Used oil mixed with a *listed* hazardous waste is a hazardous waste. In fact, if used oil contains more than 1000 ppm of total halogens it is presumed to be a hazardous waste on the assumption that it has been mixed with a halogenated hazardous waste listed in Title 128, Chapter 3, Sections 013 through 016. This presumption may be rebutted. If a used oil collector accepts "rebutted presumption" used oil, we recommend that documentation be kept.

- A used oil generator or collector who gives (or sells) used oil directly to an off-specification used oil marketer is *not* a marketer of used oil. (See page 3 for a discussion of off-specification used oil.) Obtain documentation. Documentation from the off-specification used oil marketer must indicate what he does with the used oil; that is, he does not burn the used oil for energy recovery himself. This documentation is standard in the used oil industry.

- A collector of used oil is subject to the used oil marketer provisions of Title 128, Chapter 7, Section 009.04 if he provides that used oil directly to a person who burns used oil for energy recovery.

    - The analysis requirement at Title 128, Chapter 7, Section 009.04B1 may be skipped if the collector/generator stipulates the oil does not meet specification.

    - Used oil marketers must notify NDEQ of that activity. This notification is done using State of Nebraska Form 8700-12, "Notification of Hazardous Waste Activity."

    - Used oil marketers must use an invoice system. When the marketer initiates a shipment of off-specification used oil, the marketer must send the receiving facility an invoice that has an invoice number, the marketers NDEQ ID #, the names and addresses of both the sending and receiving facilities, the quantity of the off-specification used oil, the date of shipment, and a statement that says "This used oil is subject to NDEQ regulation under Title 128, Chapter 7". A copy of the invoice must be kept for three years.

    - The marketer must obtain certain written and signed notices from the used oil burner to document the used oil is burned in a proper device. See Title 128, Chapter 7, Section 009.04B5.

    - If the marketer claims the used oil meets specification, the marketer must keep copies of the analysis that proves such for three years, maintain a log with certain required information, and provide a cross reference between the log and the used oil analysis.

    - A person may market off-specification used oil only to burners or other marketers who have notified NDEQ (or other authorized state/EPA) of used oil activities and who have a NDEQ identification number.

<u>Burning Used Oil</u>

- Used oil burned for energy recovery is subject to the requirements of Title 128, Chapter 7, <u>009</u>. This section includes:

  - A prohibition against burning used oil mixed with hazardous waste, except under limited circumstances.

  - A prohibition against burning *off-specification* used oil in a used oil fired space heater, except under limited circumstances.
  - Requirements for generators of used oil burned for energy recovery.
  - Requirements for used oil marketers (see discussion below).
  - Requirements for burners of used oil.

- Off-specification used oil is used oil that exceeds any one or more of the levels for the following:

Arsenic	5 ppm
Cadmium	2 ppm
Chromium	10 ppm
Lead	100 ppm
Flash Point	100° F (minimum)
Total Halogens	4,000 ppm

- Used oil that is a hazardous waste solely because it exhibits a characteristic of hazardous waste may be burned for energy recovery **if**:

  - It is not mixed with hazardous waste. This means the used oil may be a characteristic hazardous waste in its own right, but no additional hazardous waste may be added.

  Or

  - The used oil contains hazardous waste generated SOLELY by a person subject to the requirements of a conditionally exempt small quantity generator (CESQG) of hazardous waste. A CESQG generates **220 pounds or less** of hazardous waste per month.

  - This means public utilities may burn used oil in their utility boilers for energy recovery if it is their own used oil or it is collected from: a) "do-it-yourself" (DIY) used oil generators; b) farmers who are CESQGs as well as DIY oil generators; c) other businesses who are CESQGs; and d) other businesses who generate hazardous waste above the CESQG level only *if it can be confirmed their used oil has not been mixed with hazardous waste.* If businesses that generate hazardous waste at the small quantity generator (SQG) or large quantity generator (LQG) level place hazardous waste in their used oil, their used oil is no longer regulated as used oil.

- Off-specification used oil may be burned in oil-fired space heaters if the heater burns only used oil that the owner or operator generates, or used oil from do-it-yourself oil changers who generate the used oil as household waste. For example, a state agency that does oil changes can bring their own off-specification used oil to another of their facilities that has a used oil-fired space heater. That same agency cannot take that used oil to be burned in another state agency's used oil-fired space heater. Any of the above can burn do-it-yourself used oil, but be prepared to prove the do-it-yourself oil is what it claims to be. See below for transportation related issues.

- Nebraska does not have any quantity limitations on used oil collection or transportation. A hazardous waste manifest is not required for transporting used oil in Nebraska. Transporters must comply with any appropriate Department of Transportation regulations. See the 49 CFR series. Collectors must comply with applicable State Fire Marshall requirements for storage of flammable and combustible materials.

HANDLING USED OIL AND HAZARDOUS MATERIALS

Storage and Collection

- Keep hazardous materials separate, properly labeled, and sealed in the recommended containers.
- Develop a system for monitoring incoming used oil. Locked collection ports can help prevent unwanted materials in your used oil.
- We recommend collection tanks have a clearly visible gage that shows the level of product in the tank and overfill protection. Continued overfilling of used oil collection tanks has occurred when there was no indication the tank was actually full.
- While not required by regulation in Nebraska, the Department highly recommends all containers, tanks, and recepticles of used oil be clearly marked "USED OIL".
- The Department recommends that storage or collection areas be covered. The storage or collection location may need to be fenced and locked if vandalism could be a problem.
- Cap, label, cover, and properly store above-ground outdoor liquid containers and small tanks within a bermed area and on a paved impermeable surface, if possible. This practice helps to prevent spills from running into surface or ground water.
- If possible, store materials under a roof or tarpaulin to protect them from the elements and to prevent contaminated runoff.

HOUSEKEEPING SUGGESTIONS

Cleaning

- Sweep regularly.
- Inspect hazardous materials storage or collection areas at least weekly to ensure there are no leaks or spills.
- Inspect equipment such as pumps, pipes, storage tanks, valves, and material handling equipment for signs of corrosion, support or foundation failure, or other deterioration.
- Promptly clean up spilled materials to prevent runoff, tracking, and spoilage of other materials.

- Stock cleaning and spill response materials where they are readily available.
- Post reminders of good housekeeping practices.
- Provide instruction on securing containers.
- Schedule housekeeping duties and inspections to ensure good housekeeping is being accomplished.

Storage

- Maintain adequate aisle space between containers to facilitate material transfer, easy access to materials, and inspections.
- Close used oil containers between filling or emptying events.
- Store containers, drums, and bags away from direct traffic routes to prevent accidental damage or spills
- Organize materials neatly for storage.
- Store incompatible materials separately.
- Stack containers according to manufacturer's instructions to avoid damage to containers from improper weight distribution.
- Store containers on pallets or in containment devices to prevent corrosion of the containers by contact with moisture or other chemicals.

Training

- Ensure employees can identify the toxic and hazardous substances that are stored, handled, used, and/or produced on site.
- Discuss the handling procedures required for materials that are stored, handled, or used on site.
- Post an up-to-date, easily visible hazardous communications display.
- Ensure that initial and refresher spill response training is conducted as needed.

RESPONDING TO SPILLS

- Construct dikes around material storage areas to contain spills.
- Consider "spill drills."
- Contain and control leaks and spills as quickly as possible. Clean leaks and spills immediately using dry methods such as absorbent pads and wipes.
- Portable absorbent booms should be readily available for quick response where surface water impact is possible.
- Use dry absorbent materials such as "kitty" litter or organic-based absorbents to absorb oil and grease on dry surfaces.
- Consider having "oil only" absorbents on hand for absorbing any oils that may contaminate water in puddles, ponds, ditches, etc.
- Dispose of used absorbent, pads, and wipes properly; some may be hazardous waste. Note: Used "oil only" absorbent pads and socks can often be reused.
- Report used oil spills per Title 126 - Rules and Regulations Pertaining to the Management of Wastes, Chapter 18, "Releases of Oil or Hazardous Substances."

ADDITIONAL INFORMATION AND CONTACTS

• Nebraska Department of Environmental Quality/Waste Management Section (Hazardous Waste Compliance Assistance)	402-471-8308
• Pollution Prevention Program	402-471-6988
• Public Advocate	402-471-3413
• RCRA/Superfund Hotline	800-424-9346
• Pollution Prevention Clearinghouse	202-260-1023
• National Automobile Repair Compliance Assistance Center--Coordinating Committee for Automotive Repair	888-476-5465
• Spill Report (8:00 am - 5:00 pm)	402-471-2186
(After hours & holidays)	402-471-4545

HELPFUL WEB SITES:

- Titles 126 and 128 - *http://www.deq.state.ne.us/* and click on "Rules and Regulations"
- MSDS information - *http://www.msdssearch.com/*

Nebraska Department
of Environmental Quality

ENVIRONMENTAL GUIDANCE DOCUMENT

00-058 May, 2000

USED OIL
AND
USED OIL FILTERS
MANAGEMENT*

This document describes management methods for used oil and related used oil waste for generators such as:

Households
Vehicle Repair Shops
Service Stations
Highway Maintenance Garages
Railroad Operations
Manufacturing and Industrial Plants
Utilities
Machine Shops
Farm and Ranch Operations

COVERED IN THIS GUIDANCE DOCUMENT

QUESTIONS AND ANSWERS
Households
Farmers and Ranchers

USED OIL FILTERS

GENERAL INFORMATION REGARDING USED OIL MANAGEMENT
Service Stations and Other Generators
Transporters and Collectors

* This Material is intended for guidance purposes only. It is not meant to substitute for the regulations found in Title 128 - Rules and Regulations Governing Hazardous Waste in Nebraska or other applicable Nebraska environmental regulations.

Produced by: Nebraska Department of Environmental Quality, P.O. Box 98922, Lincoln, NE 68509-8922; phone (402)471-4210. To view this, and other information related to our agency, visit our web site at ***www. deq.state.ne.us****.*

USED OIL BURNED FOR ENERGY RECOVERY

MARKETERS OF USED OIL

NOTIFICATION REQUIREMENTS

QUESTIONS AND ANSWERS

1. How should households manage their used oil?
It is important to keep used oil out of storm drains, garbage and trash receptacles, empty lots, waterways, and groundwater. Households need to be aware of the energy potential and the value of recycled oil, that it need not be wasted but can be reprocessed and used again. Households should collect and recycle their used oil. They should not add anything to the used oil (no antifreeze, solvents, or any other liquid). Households can:

- Give away their used oil to service stations or used oil collection centers for recycling. (This used oil should be picked up by reputable used oil collectors or dropped off at a collection center to be reprocessed and prepared for further use.)
- Burn their used oil or used oil from other households in space heaters designed to burn used oil.
- Give their used oil to other households, farmers or businesses for burning in approved space heaters. (Households are exempt from analysis and recordkeeping requirements.)

2. How should farmers and ranchers manage their used oil?
Farmers and ranchers are subject to the same regulations as businesses. They can:

- Recycle their used oil through a reputable used oil collector who takes it to a used oil processor.
- Burn the used oil they generate or receive from households on-site in approved space heaters, they can also burn used oil from other businesses provided that the used oil meets the requirements of 'specification used oil' (refer to the Used Oil Burned for Energy Recovery section of this guidance).
- Give used oil to a burner to burn on-site in a space heater only if the used oil is analyzed and determined to be 'specification used oil' (refer to the Used Oil Burned for Energy Recovery section of this guidance and follow the requirements for Marketers of Used Oil of this guidance).
- Give off-specification used oil to a burner to burn in an industrial furnace, industrial boiler, or utility boiler (refer to the Used Oil Burned for Energy Recovery section of this guidance for the types of approved burning devices and follow the requirements for Marketers of Used Oil of this guidance).

USED OIL FILTERS

Used oil filters are exempt from regulation under the hazardous waste regulation (Title 128 - Rules and Regulations Governing Hazardous Waste Management in Nebraska - Chapter 7, 009.12) with the exception of terne-plated oil filters. Terne-plated oil filters commonly fail the toxicity characteristic test for lead. For more information on disposal of terne-plated filters, contact the Waste Management Section at (402)471-4210.

In order for exemption to apply, generators must drain oil filters using one of the following hot-draining methods:

- Puncture the filter's anti-drain back valve or the filter dome end and hot drain.
- Hot-drain and crush. (Hot-draining means the oil is drained near engine operating temperature and above room temperature.)
- Dismantle and hot-drain.
- Any other equivalent hot-draining method which removes used oil.

Once the used oil is removed, recycle the scrap metal and recycle the oil. Recycling is the recommended option for managing used oil filters. Request NDEQ's 'Directory of Hazardous Waste Management Facilities' which includes used oil filter recyclers. If a recycler cannot be found for the used oil filters, crushed oil filters or properly drained oil filters may be disposed in a permitted solid waste landfill (NDEQ's Oil Filter Disposal Policy, July 15, 1993)

GENERAL INFORMATION REGARDING USED OIL MANAGEMENT

After changing your oil, place it in a clean plastic container with a tight lid. Don't mix it with anything else (paint, gasoline, solvents, antifreeze, etc.). Take it to a service station, collection center, used oil recycler, or other location where used oil is collected. Contact city or solid waste officials for information on collection centers near you. A list of used oil and waste oil haulers is available from the Department by asking for the 'Directory of Hazardous Waste Management Facilities' or the 'Recycling Directory'.

Used oil is oil that has been contaminated by use. It is illegal to dispose used oil as municipal waste or in a landfill. The use of used oil for dust suppression on roads, while not directly prohibited by regulation, is discouraged by the Department and if not performed properly, may be a violation of the Nebraska Environmental Protection Act and Related Regulations.

Used oil containing detectable concentrations of Polychlorinated Biphenyls (PCBs), greater that 2 parts per million (ppm) is prohibited from use as a sealant, coating, or dust control agent. Used oil containing greater than 50 ppm PCBs is regulated under the 'Toxic Substance Control Act' (TSCA). If your waste oil falls under these regulations, contact the EPA Region 7 office at (913) 551-7395.

Used oils mixed with hazardous waste are subject to hazardous waste regulations (Title 128). Used oil that is recycled in some other manner than being burned for energy recovery is exempt from the hazardous waste regulations.

SERVICE STATIONS AND OTHER GENERATORS

A generator is any business which produces used oil. Besides vehicle repair shops and service stations, some of the more common examples of used oil generators are corporate and government motorpools and taxi, bus, and delivery companies. Individuals or households generating oil from oil changes are not subject to these regulations.

Generators should:

- Maintain storage containers and tanks in good condition.
- Label containers or storage tanks as 'used oil'.
- Not mix used oil with hazardous waste or hazardous substances.
- Contact the local Fire Department for applicable codes and ordinances.

Oil spills or leaks must be cleaned up, and any spills of 25 gallons or more must be reported. Spills of any amount to a waterway must be reported.

TRANSPORTERS AND COLLECTORS
A used oil transporter or collector is any person who transports used oil to another site. Facilities that only transport used oil are not subject to regulation under Title 128, however, they must comply with all applicable Department of Transportation (DOT) regulations (402-471-0105). Transporters of used oil that has been mixed with a hazardous waste are subject to the hazardous waste transporter requirements (Title 128, Chapter 11).

Transporters and collectors should:
- Maintain storage tanks and containers in good condition and label them 'used oil'.
- Process and store used oil in areas with oil-impervious flooring and secondary containment structures (such as berms or ditches).
- Track incoming and out-going used oil.
- Notify local building or fire code regulatory agencies and follow local ordinances.

Oil spills or leaks must be cleaned up and any spills of 25 gallons or more must by reported. Spills of any amount to a waterway must be reported.

USED OIL BURNED FOR ENERGY RECOVERY

Burning of used oil, in approved space heaters designed to burn used oil, by businesses (e.g. farmers and service stations) is allowed provided they burn the used oil they generate or used oil generated and collected from households.

Burning of used oil fuels in industrial furnaces and utility boilers is allowed under state rules and federal regulations. Burning of any used oil in these facilities must also comply with air pollution regulations (Title 129). Using specification oil as fuel is allowed if the oil has been analyzed and records are kept. Using off-specification oil as fuel is more restricted and is subject to greater regulation.

SPECIFICATION USED OIL
There are limits on the amount of certain hazardous substances that used oil can contain and be called 'specification' used oil. Laboratory analysis is required to determine whether of not your used oil meets the specifications outlined as follows.

Specification Used Oil is used oil that has been tested and analysis demonstrates that contaminants are at or below the following levels:

Contaminant Levels for Specification Used Oil

Constituent/Property	Allowable Level
Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Flash Point	100 F minimum
Total Halogens	4000 ppm maximum

If used oil has been mixed with hazardous waste, that oil is considered a hazardous waste. The specification does not apply to mixtures of used oil and hazardous waste.

Burners of Specification Used Oil must:
- Apply for a NDEQ hazardous waste identification number if they are the first to claim the used oil meets the specification and the burner receives the used oil from a marketer. (A burner does not have to notify if the burner burns specification used oil that they generate or if they receive used oil

from a marketer that previously notified NDEQ, burners that burn used oil in a space heater also do not have to notify.)
- Burners must obtain analysis documenting that the used oil meets the specification and are required to keep records of the analysis for three years.

Burners must obtain analysis documenting that the used oil meets the specification, if by processing, blending, or other treatment method they claim the used oil meets the specification.

Off-Specification Used Oil
Off-specification used oil is oil that has not been tested, or used oil that has been tested and exceeds any of the limits shown in the 'Contaminant Levels for Specification Used Oil' table.

Off-specification used oil burners must specifically comply with Title 128, Chapter 7, 009.

Burners of Off-Specification Used Oil Must:
- Apply for a NDEQ hazardous waste identification number and file a notification of used oil activities even if they already have an identification number.
- Provide a one-time written and signed certification that the burner has notified NDEQ and that the burner will burn the used oil only in an industrial furnace, industrial boiler or utility boiler.
- Keep a copy of each invoice of used oil received from marketers for three years.
- Keep a copy of each certification notice sent to a marketer for three years from the date of last receiving off-specification used oil from the marketer.

Types of Approved Burning Devices for Off-Specification Used Oil:
- Industrial furnaces
- Industrial boilers
- Utility boilers
- Space heaters designed to burn used oil

Burning of off-specification used oil in used oil-fired space heaters is allowed under state rules provided the following conditions are met:
- The heater burns only used oil the owner or operator generates, collects from household do-it-yourselfers, or used oil that is specification used oil.
- The heater is designed to have a maximum capacity of not more than 0.5 million BTUs per hour.
- The heater's combustion gases are vented to the outside air.
- Emissions from space heaters must have an opacity of less than 20% (contact the NDEQ Air Division for more information).

MARKETERS OF USED OIL

(Generators Marketing Used Oil Directly to a Burner)

NOTE: Anyone selling or giving used oil directly to someone who burns used oil is also considered a used oil marketer and must comply with the marketer requirements in Title 128, Chapter 7.

Requirements for marketing specification and off-specification used oil:

Marketers of Specification Used Oil must:
- Apply for a NDEQ hazardous waste identification number (marketers must notify NDEQ of used oil activities even if they already have an identification number).
- Analyze the used oil to prove it meets the specifications as listed in the 'Contaminant Levels for Specification Used Oil' table.
- Keep a record of the analysis for three years.
- Keep an operating log for three years that records the following information:
    1. Name and address of the facility sending or receiving the shipment.

2. The quantity of used oil delivered or received.
3. The date of shipment or delivery.
4. A cross reference to the analysis showing that the oil meets the specifications.

Marketers of Off-Specification Used Oil must:

- Apply for a NDEQ hazardous waste identification number (marketers must notify NDEQ of used oil activities even if they already have an identification number).
- Complete an invoice for each used oil shipment, and send to the receiving facility.
- Keep copies of all invoiced and notification certifications either sent or received.
- Obtain a one-time written and signed notice from the burner or other marketer certifying that:
    1. The burner or marketer notified of used oil activities.
    2. The burner will burn the off-specification used oil in an industrial furnace, industrial boiler or utility boiler.

For more detailed information about used oil marketing requirements, refer to Title 128, Chapter 7.

NOTIFICATION REQUIREMENTS

INDIVIDUALS WHO NEED TO NOTIFY NDEQ:

- Marketers of off-specification used oil need to file a notification of used oil activities even if they already have an identification number.
- Generators who market used oil directly to a burner.
- The business which first claims the oil meets the specification. (refer to the Maximum Contaminant Levels Table in this guidance).
- Burners of off-specification used oil.

INDIVIDUALS WHO DO NOT NEED TO NOTIFY NDEQ:

- Households
- Burners who burn specification oil that they generate.
- Burners who receive oil from marketers who first claimed the oil meets the specification
- Burners who burn used oil in space heaters provided they comply with Title 128 and Title 129 regulations (refer to the Types of Approved Burning Devices of this guidance)
- Generators who give used oil to an 'intermediary' (e.g. someone who then gives the used oil to a burner).

FOR MORE INFORMATION PLEASE CONTACT
NEBRASKA DEPARTMENT OF ENVIRONMENTAL QUALITY
WASTE MANAGEMENT SECTION
(402) 471-4210

REFERENCES:

Nebraska Department of Environmental Quality:

Directory of Hazardous Waste Management Facilities Recycling Directory

Title 132 - Integrated Solid Waste Management Regulations

Title 128 - Rules and Regulations Governing Hazardous Waste Management in Nebraska

Title 129 - Nebraska Air Quality Regulations

Oil Filter Disposal Policy

Landfill Ban Information, Yard Waste, Waste Oil, and Lead Acid Batteries

Nebraska Environmental Protection Act & Related Laws

US EPA Region 7

TSCA/PCBs

SPILL NOTIFICATION - NEBRASKA DEPARTMENT OF ENVIRONMENTAL QUALITY
Business hours - (402) 471-2186
After hours/Weekends/Holidays - (402) 471-4545

USEFUL WEBSITES:

Titles 128, 129, & 132: *http://www.deq.state.ne.us*/ click on “Rules and Regulations”

Nebraska Department of Environmental Quality

Guidance Documents

This information is provided by the Nebraska Department of Environmental Quality to assist the public and regulated community.

00-067 08/2000

Aerosol Can Waste

This Environmental Guidance Document provides general and specific waste management guidance on aerosol can wastes. The discussion focuses on "empty" aerosol containers.

1. **What is an empty container?**
   - Title 128, Chapter 2, Section 014 gives the definition of *empty containers* as it applies to the Resource Conservation and Recovery Act (RCRA). The next sentence underlines the elements of "RCRA empty." While the aerosol can may have all its contents removed using practices commonly employed to remove materials from that type of container, the generator must demonstrate that the aerosol can *also* has no more than one inch of residue *or* no more than 3% by weight of the total capacity remaining. A 16 ounce aerosol can would need to contain no more than 0.48 ounces of residual hazardous waste in order to be considered "RCRA empty."
2. **Is the empty aerosol can a hazardous waste?**
   - Aerosol cans are not hazardous waste due *solely* to the substances they *once* contained. In other words, some empty aerosol cans held substances that will not meet the definition of hazardous waste. For example, vegetable oil itself would not be a hazardous waste while acetone would be.
   - *The empty aerosol can itself* is usually considered hazardous waste because it exhibits the characteristic of reactivity (D003). It can be capable of detonation or explosive reaction if it is subjected to a strong initiating source *or it is heated under confinement* (Title 128, Chapter 3, Section 009.01F).
   - The empty aerosol cans generated in a month would normally need to be included in a facility's monthly hazardous waste totals.
   - If the aerosol can is essentially empty (no significant amount of liquid) **and** is being recycled for scrap metal, then it may be *excluded from being hazardous waste* and the issue of reactivity is moot.
3. **What can be placed in the trash?**
   - Conditionally exempt small quantity generators (CESQGs) may send up to 43 pounds per day of hazardous waste to a regulated municipal landfill. (A CESQG generates 220 pounds or less of hazardous waste in a month.) Check your local landfill first. Some landfills, counties, and municipalities have more restrictive rules regarding waste disposal. *This means a CESQG may place its unpunctured, "RCRA empty" aerosol cans in the trash.* The department encourages recycling the empty aerosol cans as scrap metal when feasible.
   - *Punctured (and empty) aerosol cans may be disposed in the trash.* This applies to hazardous waste generators of all sizes. This does not apply to aerosol cans that contained acutely hazardous waste (P-listed). The department encourages recycling the empty aerosol cans as scrap metal when feasible.
   - Small quantity and large quantity generators of hazardous waste must manage unpunctured, "RCRA empty" aerosol cans, at a minimum, as D003 reactive hazardous waste. *These aerosol cans may not be placed in the trash.* A small quantity generator generates over 220 and less than 2,200 pounds of hazardous waste in a month.
4.

What about aerosol can puncturing?

- Aerosol can puncturing devices may be used to completely empty aerosol cans and make them non-reactive. This is an allowed form of treatment if the puncturing operation is performed in a closed container. Most of the commercially available aerosol can puncturing systems meet the criteria. A punctured and drained aerosol can no longer exhibits the characteristic of reactivity and, unless it held "acutely hazardous" waste (this would be extremely unusual), may be disposed in the trash. Of course, recycling the drained aerosol can is still the recommended option.
- The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requires empty pesticide containers be disposed per label instructions. If the label states not to puncture, then do not puncture. Pesticides include insecticides and herbicides.

5. **Aerosol can puncturing considerations.**
    - The contents collected in the aerosol can puncturing drainage collection drum need to be correctly characterized. All waste generators must determine the quantity of hazardous waste they generate in a calendar month.
        - A log may be kept listing what chemicals are being placed in the drum. It is important the facility not only be able to state the correct waste codes, but also be able to identify all underlying hazardous constituents when appropriate (Title 128, Chapter 20, Section 006.01).
        - Without a good accounting system, a facility may put itself in the position of violating land disposal restriction regulations. (Conditionally exempt small quantity generators are not required to meet land disposal restrictions. However, the department recommends management as a small quantity generator as a "best management practice.")
    - If the aerosol can held a product that had a "P" or "U" listed chemical as the *sole active ingredient*, then the drained residual waste would be "P" or "U" listed as well as the entire contents of the collection drum (due to the mixture rule, Title 128, Chapter 2, Section 005.02). For example, an empty aerosol can of MEK spray solvent would drain residual U159 listed waste into the collection container and the entire contents of the collection container will be U159 as well.
    - While not required by Title 128, we recommend a volatile organic compound (VOC) filter be used on the collection drum to control VOCs.
        - If used, the filter should be changed before it becomes ineffective.
        - The spent filter requires a waste determination. Test for any hazardous waste toxicity characteristic (TC) constituents that are present in the products that are collected from the empty aerosol cans. TC hazardous wastes are those 40 chemicals at Table 3 of Title 128. For example, if empty aerosol paint cans contained methyl ethyl ketone (MEK) that would normally be expected to be present in the VOC filter at some level. MEK is a TC contaminant, waste number D035. Note that MEK is also on the U-listed waste table as U159.
    - Aerosol can puncturing collection drums may be managed as a satellite accumulation container per Title 128, Chapter 9, Section 007.04. The waste must be accumulated at or near the point of generation under the control of the operator or operators of the process generating the waste. An aerosol can puncturing operation may meet satellite accumulation requirements if persons assigned to handle empty aerosol cans perform the operation. The collection drum must also be in an area so that the collection container is under their control.
    - The collection container must be closed unless adding or removing waste. This is true for all hazardous waste accumulation containers at small quantity generators and large quantity generators. If the puncturing device is closed and a VOC filter is in place, the department generally considers such drums closed.
6. **More on waste codes.**
    - A further collection consideration involves disposal of commercial chemical products. These would be "U" or "P" listed wastes. For example: If an "empty" spray aerosol can of "Acme Super Solvent" trichloroethylene were punctured, the correct waste code for the disposed residual solvent would be U228, not F001 or F002. (Remember, the solvent coming out of the punctured aerosol can is not a

"spent" solvent -- it is unused, but still usable solvent.) Also note that commercial chemical products on the "U" or "P" lists are technical grade ("pure") or *sole active ingredient*. Using the same example, if the MSDS of the above "Acme Super Solvent" trichloroethylene aerosol showed both trichloroethylene and carbon dioxide, it would be a U228 because the CO2 is not an active ingredient -- it is a propellant, and the trichloroethylene is the solvent – the sole solvent. On the other hand, if an aerosol can holds two active ingredients, the disposed solvent is not "U" or "P" listed waste. For example, if the aerosol can held spray solvent and the ingredients were xylene, toluene, and CO2, the disposed solvent would not be U239, U220, F003, or F005. The disposed solvent would be a D001 hazardous waste for ignitability.

7. Note that CESQGs are *not* required to meet hazardous waste storage requirements if the total facility *accumulated* CESQG hazardous waste is less than 2,200 pounds. CESQGs do not need to meet hazardous waste storage or accumulation rules. However, as a best management practice, the department recommends CESQGs routinely manage their hazardous waste as close to small quantity generator requirements as practical. In addition to safer management of hazardous materials, this practice also serves to keep the generator in compliance if it becomes an episodic small quantity generator.

HELPFUL WEB SITES:

- Title 128 – Rules and Regulations Governing Hazardous Waste Management in Nebraska: http://www.deq.state.ne.us and click on "Rules and Regulations"
- MSDS information: http://www.msdssearch.com

CONTACTS:

- NDEQ Hazardous Waste Compliance Assistance (402) 471-8308
- NDEQ Waste Management Section (402) 471-4210
- NDEQ Pollution Prevention Coordinator (402) 471-6988

Produced by: Nebraska Department of Environmental Quality, P.O. Box 98922, Lincoln, NE 68509-8922; phone (402) 471-4217. To view this, and other information related to our agency, visit our web site at ***www.deq.state.ne.us****.*

This Publication is also available as an Adobe Acrobat (PDF) file. File size is 36 KB	

For more information, contact
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Nebraska Department of Environmental Quality

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    - The empty aerosol cans generated in a month would normally need to be included in a facility's monthly hazardous waste totals.
    - If the aerosol can is essentially empty (no significant amount of liquid) **and** is being recycled for scrap metal, then it may be *excluded from being hazardous waste* and the issue of reactivity is moot.
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    - Conditionally exempt small quantity generators (CESQGs) may send up to 43 pounds per day of hazardous waste to a regulated municipal landfill. (A CESQG generates 220 pounds or less of hazardous waste in a month.) Check your local landfill first. Some landfills, counties, and municipalities have more restrictive rules regarding waste disposal. *This means a CESQG may place its unpunctured, "RCRA empty" aerosol cans in the trash.* The department encourages recycling the empty aerosol cans as scrap metal when feasible.
    - *Punctured (and empty) aerosol cans may be disposed in the trash.* This applies to hazardous waste generators of all sizes. This does not apply to aerosol cans that contained acutely hazardous waste (P-listed). The department encourages recycling the empty aerosol cans as scrap metal when feasible.
    - Small quantity and large quantity generators of hazardous waste must manage unpunctured, "RCRA empty" aerosol cans, at a minimum, as D003 reactive hazardous waste. *These aerosol cans may not be placed in the trash.* A small quantity generator generates over 220 and less than 2,200 pounds of hazardous waste in a month.
4.

What about aerosol can puncturing?

- Aerosol can puncturing devices may be used to completely empty aerosol cans and make them non-reactive. This is an allowed form of treatment if the puncturing operation is performed in a closed container. Most of the commercially available aerosol can puncturing systems meet the criteria. A punctured and drained aerosol can no longer exhibits the characteristic of reactivity and, unless it held "acutely hazardous" waste (this would be extremely unusual), may be disposed in the trash. Of course, recycling the drained aerosol can is still the recommended option.
- The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requires empty pesticide containers be disposed per label instructions. If the label states not to puncture, then do not puncture. Pesticides include insecticides and herbicides.

5. **Aerosol can puncturing considerations.**
    - The contents collected in the aerosol can puncturing drainage collection drum need to be correctly characterized. All waste generators must determine the quantity of hazardous waste they generate in a calendar month.
        - A log may be kept listing what chemicals are being placed in the drum. It is important the facility not only be able to state the correct waste codes, but also be able to identify all underlying hazardous constituents when appropriate (Title 128, Chapter 20, Section 006.01).
        - Without a good accounting system, a facility may put itself in the position of violating land disposal restriction regulations. (Conditionally exempt small quantity generators are not required to meet land disposal restrictions. However, the department recommends management as a small quantity generator as a "best management practice.")
    - If the aerosol can held a product that had a "P" or "U" listed chemical as the *sole active ingredient*, then the drained residual waste would be "P" or "U" listed as well as the entire contents of the collection drum (due to the mixture rule, Title 128, Chapter 2, Section 005.02). For example, an empty aerosol can of MEK spray solvent would drain residual U159 listed waste into the collection container and the entire contents of the collection container will be U159 as well.
    - While not required by Title 128, we recommend a volatile organic compound (VOC) filter be used on the collection drum to control VOCs.
        - If used, the filter should be changed before it becomes ineffective.
        - The spent filter requires a waste determination. Test for any hazardous waste toxicity characteristic (TC) constituents that are present in the products that are collected from the empty aerosol cans. TC hazardous wastes are those 40 chemicals at Table 3 of Title 128. For example, if empty aerosol paint cans contained methyl ethyl ketone (MEK) that would normally be expected to be present in the VOC filter at some level. MEK is a TC contaminant, waste number D035. Note that MEK is also on the U-listed waste table as U159.
    - Aerosol can puncturing collection drums may be managed as a satellite accumulation container per Title 128, Chapter 9, Section 007.04. The waste must be accumulated at or near the point of generation under the control of the operator or operators of the process generating the waste. An aerosol can puncturing operation may meet satellite accumulation requirements if persons assigned to handle empty aerosol cans perform the operation. The collection drum must also be in an area so that the collection container is under their control.
    - The collection container must be closed unless adding or removing waste. This is true for all hazardous waste accumulation containers at small quantity generators and large quantity generators. If the puncturing device is closed and a VOC filter is in place, the department generally considers such drums closed.
6. **More on waste codes.**
    - A further collection consideration involves disposal of commercial chemical products. These would be "U" or "P" listed wastes. For example: If an "empty" spray aerosol can of "Acme Super Solvent" trichloroethylene were punctured, the correct waste code for the disposed residual solvent would be U228, not F001 or F002. (Remember, the solvent coming out of the punctured aerosol can is not a

"spent" solvent -- it is unused, but still usable solvent.) Also note that commercial chemical products on the "U" or "P" lists are technical grade ("pure") or *sole active ingredient*. Using the same example, if the MSDS of the above "Acme Super Solvent" trichloroethylene aerosol showed both trichloroethylene and carbon dioxide, it would be a U228 because the CO2 is not an active ingredient -- it is a propellant, and the trichloroethylene is the solvent – the sole solvent. On the other hand, if an aerosol can holds two active ingredients, the disposed solvent is not "U" or "P" listed waste. For example, if the aerosol can held spray solvent and the ingredients were xylene, toluene, and CO2, the disposed solvent would not be U239, U220, F003, or F005. The disposed solvent would be a D001 hazardous waste for ignitability.

7. Note that CESQGs are *not* required to meet hazardous waste storage requirements if the total facility *accumulated* CESQG hazardous waste is less than 2,200 pounds. CESQGs do not need to meet hazardous waste storage or accumulation rules. However, as a best management practice, the department recommends CESQGs routinely manage their hazardous waste as close to small quantity generator requirements as practical. In addition to safer management of hazardous materials, this practice also serves to keep the generator in compliance if it becomes an episodic small quantity generator.

HELPFUL WEB SITES:

- Title 128 – Rules and Regulations Governing Hazardous Waste Management in Nebraska: http://www.deq.state.ne.us and click on "Rules and Regulations"
- MSDS information: http://www.msdssearch.com

CONTACTS:

- NDEQ Hazardous Waste Compliance Assistance (402) 471-8308
- NDEQ Waste Management Section (402) 471-4210
- NDEQ Pollution Prevention Coordinator (402) 471-6988

Produced by: Nebraska Department of Environmental Quality, P.O. Box 98922, Lincoln, NE 68509-8922; phone (402) 471-4217. To view this, and other information related to our agency, visit our web site at ***www.deq.state.ne.us***.

This Publication is also available as an Adobe Acrobat (PDF) file. File size is 36 KB	

For more information, contact
MoreInfo@NDEQ.state.NE.US

Nebraska Department of Environmental Quality
1200 "N" Street, Suite 400
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Lincoln, Nebraska 68509
(402) 471-2186 FAX (402) 471-2909

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name:	*Aluminum: Scrap aluminum*
How Is the Waste Generated:	*Used aluminum beverage can and replacement of aluminum parts and equipment.*
Waste Classification:	*Non-Hazardous*
Waste Determination Method:	*Process Knowledge*
Waste Determination Information:	*Aluminum parts and equipment should not have other metals attached and the parts and equipment should be clean and dry.*
Handling Procedure:	*Collect and store the aluminum parts and equipment in separate aluminum recycling bins or containers. Aluminum recycling bins and containers should be labeled to indicate that the bins and containers are for aluminum parts and equipment only.*
Compatibility Class:	*Group 2A*
Transportation Information:	*No specific transporatation restrictions.*
Disposal Method:	*Recycled*
Land Disposal Restrictions:	*No*
Final Disposal Site or Disposal Service & Contact:	*Local aluminum recycler.*

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Antifreeze - Spilled antifreeze debris. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Antifreeze - Spilled antifreeze debris or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Antifreeze -Spilled antifreeze debris*

Source: *Spills or leaks of antifreeze cleaned up with rags, floor dry, sorbent, or cat litter.*

Waste Code(s): *D008, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: ______________________

Date: ______________________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*
Bendiocarb	22781-23-3	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*
3-Chloropropylene	107-05-1	30	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*
Isobutyl alcohol	78-83-1	170	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*
Pebulate	1114-71-2	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	7440-43-9	0.11 mg/L TCLP	*NBP*
Chromium	7440-47-3	0.60 mg/L TCLP	*NBP*
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

"I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Antifreeze - Used antifreeze. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Antifreeze - Used antifreeze or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Antifreeze -Used antifreeze*

Source: *Antifreeze recovered from automobile coolant systems.*

Waste Code(s): *D008, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: ____________________

Date: ____________________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*
Bendiocarb	22781-23-3	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*
3-Chloropropylene	107-05-1	30	*NBP*

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*
Isobutyl alcohol	78-83-1	170	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*
Pebulate	1114-71-2	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	7440-43-9	0.11 mg/L TCLP	*NBP*
Chromium	7440-47-3	0.60 mg/L TCLP	*NBP*
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Antifreeze: Spilled antifreeze debris*	
How Is the Waste Generated: *Spills or leaks of antifreeze cleaned up with rags, floor dry, sorbent, or cat litter.*	
Waste Classification: *Hazardous, D008*	
Waste Determination Method: *Analysis*	
Waste Determination Information: *The spilled antifreeze debris should be analyzed for lead by the TCLP method. Lead concentrations equal to or greater than 5.0 mg/L are hazardous waste. If the lead concentration is less than 5.0 mg/L, the spilled antifreeze debris is non-hazardous and may be disposed of as Solid Waste, Solid Waste Not Otherwise Classified.*	
Handling Procedure: *Collect spilled antifreeze debris in a steel or plastic drum. Follow the SOP for Hazardous Waste except the name of the waste should say "Hazardous Waste Pending Analysis" until the analytical results are received.*	
Compatibility Class: *Group 3A*	
Transportation Information: *Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.*	
Disposal Method: *Treated*	
Land Disposal Restrictions: *Yes*	
Final Disposal Site or Disposal Service & Contact: *See the Hazardous Waste Service Providers Directory, "TSD Facilities" for a nearby hazardous waste treatment and disposal site.*	

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Antifreeze: Used antifreeze*

How Is the Waste Generated:

Antifreeze recovered from automobile coolant systems.

Waste Classification: *Hazardous, D008*

Waste Determination Method: *Process Knowledge*

Waste Determination Information:

If the used antifreeze is going to be sent off-site for recycling or disposal, the used antifreeze should be analyzed for lead by the TCLP method. Lead concentrations equal to or greater than 5.0 mg/L are hazardous waste. If the lead concentration is less than 5.0 mg/L, the used antifreeze is non-hazardous and may be handled and shipped off-site as a non-hazardous waste.

Handling Procedure:

Collect used antifreeze in a steel or plastic drum. Follow the SOP for Hazardous Waste except the name of the waste should say "Hazardous Waste Pending Analysis" until the analytical results are received.

Compatibility Class: *Group 3A*

Transportation Information:

Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.

Disposal Method: *Treated*

Land Disposal Restrictions: *Yes*

Final Disposal Site or Disposal Service & Contact:

See the Hazardous Waste Service Providers Directory, "Anti-Freeze Recycling & Disposal" for a nearby antifreeze recycler/disposal site.

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Asbestos containing materials: Asbestos containing materials not otherwise classified*	
How Is the Waste Generated: *Construction and demolition projects with asbestos-containing materials.*	
Waste Classification: *Special*	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information: *Prior to construction and demolition projects, asbestos-containing materials must be identified and removed by an appropriate consulting firm.*	
Handling Procedure: *Asbestos containing materials must be handled according to the SOP for Asbestos Containing Materials.*	
Compatibility Class: ***Group 1A***	
Transportation Information: *Transport as asbestos in vehicles operated by or escorted by a certified asbestos worker or supervisor.*	
Disposal Method: *Disposed in Landfill*	
Land Disposal Restrictions: *No*	
Final Disposal Site or Disposal Service & Contact:	

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Asbestos containing materials: Brake pads and shoes*	
How Is the Waste Generated: *Removal and repair of asbestos brake pads and shoes.*	
Waste Classification: *Special*	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information: *Brake pads and shoes may contain asbestos and must be disposed of as a special waste. Non-asbestos containing brake pads and shoes may be disposed of in the normal trash as Solid Waste, Solid Waste Not Otherwise Classified.*	
Handling Procedure: *Asbestos containing materials must be handled according to the SOP for Asbestos Containing Materials.*	
Compatibility Class: ***Group 1A***	
Transportation Information: *Transport as asbestos in vehicles operated by or escorted by a certified asbestos worker or supervisor.*	
Disposal Method: *Disposed in Landfill*	
Land Disposal Restrictions: *No*	
Final Disposal Site or Disposal Service & Contact:	

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Batteries - Used automotive batteries. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Batteries - Used automotive batteries or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Batteries -Used automotive batteries*

Source: *Replacement of batteries from automobiles.*

Waste Code(s): *D002, D008, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: __________

Date: __________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*
Bendiocarb	22781-23-3	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*
3-Chloropropylene	107-05-1	30	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*
Isobutyl alcohol	78-83-1	170	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*
Pebulate	1114-71-2	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	7440-43-9	0.11 mg/L TCLP	*NBP*
Chromium	7440-47-3	0.60 mg/L TCLP	*NBP*
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP — No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP — **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> “I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.”

____________________	____________________	____________________
Name	Signature	Date

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Batteries: Used alkaline batteries*	
How Is the Waste Generated: *Replacement of alkaline batteries. Disposal of equipment with an alkaline battery power source.*	
Waste Classification:	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information:	
Handling Procedure:	
Compatibility Class: ***Group 1B***	
Transportation Information:	
Disposal Method: *Treated*	
Land Disposal Restrictions: *No*	
Final Disposal Site or Disposal Service & Contact:	

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Batteries: Universal waste batteries*

How Is the Waste Generated:

Replacement of NiCad batteries. Disposal of equipment with a NiCad battery power source.

Waste Classification: *Universal*

Waste Determination Method: *Process Knowledge*

Waste Determination Information:

Used NiCad batteries are included in the Universal Waste program.

Handling Procedure:

NiCad batteries should be collected in a sound, closed, plastic container and may be mixed with other universal waste batteries. Follow the SOP for Universal Waste and label the container "Universal Waste - Batteries".

Compatibility Class: ***Group 1B***

Transportation Information:

No specific transporatation restrictions. Follow SOP for Universal Waste.

Disposal Method: *Treated*

Land Disposal Restrictions: *No*

Final Disposal Site or Disposal Service & Contact:

See the Hazardous Waste Service Providers Directory, "Battery Recyclers" for a nearby battery recycler/disposal site.

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Batteries: Used automotive batteries*

How Is the Waste Generated:

Replacement of batteries from automobiles.

Waste Classification: *Hazardous, D008*

Waste Determination Method: *Process Knowledge*

Waste Determination Information:

Automotive batteries may be hazardous waste due to corrosivity (sulfuric acid) and toxicity (lead). If the automotive battery is returned to a store that sells automotive batteries, than the automotive battery is for recycled and is not a hazardous waste.

Handling Procedure:

Automotive batteries should be stored on spill pallet or in containment to control potential acid spills. A sign indicating that the batteries are used and going to be returned to supplies is recommended.

Compatibility Class: ***Group 1B***

Transportation Information:

No specific transporatation restrictions.

Disposal Method: *Recycled*

Land Disposal Restrictions: *No*

Final Disposal Site or Disposal Service & Contact:

Local automotive supply shop.

United States Environmental Protection Agency
401 M Street, SW. (5305W)
Washington, DC 20460

Official Business
Penalty for Private Use
$300

United States
Environmental Protection
Agency

Solid Waste And
Emergency Response
(5306W)

EPA530-K-97-009
November 1997
http://www.epa.gov

Implementation of the Mercury-Containing and Rechargeable Battery Management Act

Closing the Loop with Rechargeable Batteries

Introduction

Whether at work or at home, more and more Americans are enjoying the convenience of rechargeable batteries. They're being used in cellular phones, laptop computers, cordless power tools, and video cameras. In fact, more than 350 million rechargeable batteries are purchased annually in the United States. When thrown away, these batteries can contribute to the toxicity levels of landfills and incinerator ash, as many of them contain heavy metals. Recycling rechargeable batteries not only gives new life to discarded products—it helps prevent the release of hazardous constituents into the environment.

Recycling rechargeable batteries not only gives new life to discarded products—it helps prevent the release of hazardous constituents into the environment.

On May 13, 1996, President Clinton signed into law the Mercury-Containing and Rechargeable Battery Management Act (the Battery Act). This Act represents a major step forward in the effort to facilitate the recycling of nickel-cadmium (Ni-Cd) and certain small sealed lead-acid (SSLA) rechargeable batteries and to phase out the use of mercury in batteries.

This booklet explains what this important law means to you. It equips readers with the "basics" on the Battery Act and provides information on successful recycling programs for rechargeable batteries. In this booklet, you will find:

- A summary of state and federal requirements affecting battery recycling prior to passage of the Battery Act
- A summary of the Act's requirements
- Why proper disposal or recycling is necessary for Ni-Cd and SSLA batteries
- State, local, and private-sector initiatives to recycle used rechargeable batteries

Battery Act At A Glance

Acknowledging the steady increase in the use of rechargeable batteries, as well as potential environmental impacts resulting from their improper disposal, Congress passed the Battery Act to facilitate the increased collection and recycling of Ni-Cd and certain SSLA rechargeable batteries. The Act targets battery and product manufacturers and battery waste handlers—not consumers. Different sections of the Act apply to different types of batteries. Specifically, the Act:

- Establishes national, uniform labeling requirements for Ni-Cd and certain SSLA rechargeable batteries.
- Mandates that Ni-Cd and certain SSLA rechargeable batteries be "easily removable" from consumer products. A battery can be easily removed if it is detachable or removable from the product with the use of common household tools.
- Makes the Universal Waste Rule (see page 4) effective immediately in all 50 states for the collection, storage, and transportation of batteries covered by the Battery Act. (For a list of covered batteries, see EPA's codification rule, expected to be promulgated in late 1997. That rule will codify the requirements of Section 104 of the Battery Act into Title 40 of the Code of Federal Regulations.)
- Requires EPA to establish a public education program on battery recycling and the proper handling and disposal of used batteries. EPA is required to consult with manufacturers and retailers to carry out this initiative.
- Prohibits, or otherwise conditions, the sale of certain types of mercury-containing batteries (i.e., alkaline-manganese, zinc-carbon, button cell mercuric-oxide, and other mercuric-oxide batteries) in the United States.

State and Federal Requirements Affecting Battery Recycling Prior to the Battery Act

Prior to the Battery Act, 13 states took the lead by passing laws to facilitate the collection and recycling of used rechargeable batteries. These laws required that rechargeable dry cell batteries be labeled as recyclable and be easily removable from consumer products. The 13 states are California, Connecticut, Florida, Iowa, Maine, Maryland, Minnesota, New Hampshire, New Jersey, New York, Oregon, Rhode Island, and Vermont. All of these states except California, New Hampshire, New York, and Oregon also established battery collection and recycling programs.

Although somewhat similar, there were slight differences in the laws enacted by the states. The laws differed in whether the battery labels were required to include the three chasing arrows or some other recycling symbol, the manufacturer's name, or a toll-free telephone number. There were also differences regarding whether the text must appear on the product or the packaging, in the instruction manual, or on the battery itself.

On the federal level, the Resource Conservation and Recovery Act (RCRA) regulates hazardous wastes and establishes comprehensive reporting, handling, and transportation requirements for hazardous wastes. Since batteries often contain hazardous or potentially hazardous constituents, many batteries, including Ni-Cd and SSLA rechargeable batteries, may be regulated under RCRA. The law does exempt household waste, which often includes some batteries. In addition, certain small businesses (i.e., conditionally exempt small quantity generators) may be exempt from some RCRA regulations under certain circumstances. Other businesses and institutions that handle batteries that are hazardous waste may be subject to the full array of hazardous waste regulations.

What Is the Universal Waste Rule?

In May 1995, the U.S. Environmental Protection Agency (EPA) promulgated the Universal Waste Rule to reduce the amount of hazardous wastes entering the municipal solid waste stream, encourage the recycling and proper disposal of certain common hazardous wastes, and reduce the regulatory burden on businesses that generate these wastes by simplifying the applicable regulations and making them easier to comply with. This rule recognizes that some common hazardous wastes—such as used Ni-Cd rechargeable batteries—do not require the full array of hazardous waste regulatory requirements. It also eases the regulatory burden on battery handlers and transporters by streamlining a number of RCRA's hazardous waste collection and management requirements, including those related to notification, labeling/marking, accumulation time limits, employee training, and offsite shipment, among others. For example, the Universal Waste Rule extends the amount of time that certain businesses can accumulate used rechargeable batteries on site. It also allows certain companies to transport them with a common carrier, instead of a hazardous waste transporter.

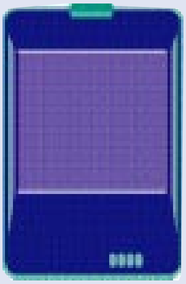
Prior to passage of the Battery Act, a battery recycling program spanning across several states had to comply with varying, and sometimes conflicting, state labeling and waste management regulations.

The Universal Waste Rule, however, does not automatically apply in each state. In states authorized by EPA to implement the Federal hazardous waste program, the rule is not applicable until those states revise their programs to adopt equivalent requirements under state law and receive authorization from EPA.

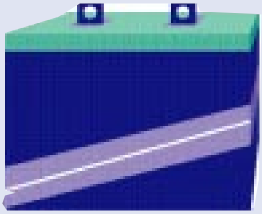
Hence, prior to passage of the Battery Act, a battery recycling program spanning across several states had to comply with varying, and sometimes conflicting, state labeling and waste management regulations. In some states, the rechargeable batteries were subject to the full array of hazardous waste requirements, while in other states the rechargeable batteries were subject to the reduced Universal Waste Rule requirements.

What Are Rechargeable Batteries?

Unlike single-use batteries, which must be replaced once their charge is used up, rechargeable batteries are designed for the long haul. Depending on the application, some rechargeable batteries can recharge up to 1,000 times! Recharging the battery simply reverses the chemical reaction inside it. This changes the battery's components nearly back to their original state and allows them to be reused.



About 80 percent of rechargeable batteries are currently composed of nickel and cadmium (known as "Ni-Cd"). Ni-Cd rechargeable batteries are commonly found in cellular and cordless telephones, video cameras, portable power tools, and laptop computers. The use of these batteries continues to grow. It has been estimated that one-half billion Ni-Cd batteries will be sold in the year 2000.



Small sealed lead acid batteries (SSLA) are used in emergency lighting, security and alarm systems, computer backup devices, and hospital equipment. They are also used in cellular phones, laptop computers, and power tools.

Rechargeable batteries may initially be more expensive than single-use batteries, and they sometimes require the purchase of a recharger, but the upfront costs are often outweighed by the long-term cost savings and environmental benefits of rechargeables. Each rechargeable battery may substitute for hundreds of single-use batteries over its useful life. (See Section 3 of the Act for the specific definition of "rechargeable battery" as it applies to the Act.)

Requirements of the Battery Act

There are two major sections of the Battery Act. The first section, or Title I, facilitates the efficient recycling of Ni-Cd, certain SSLA, and other rechargeable batteries. The second section, or Title II, phases out the use of batteries that contain mercury.

Title I: Rechargeable Batteries

The Battery Act changed the regulatory framework governing rechargeable batteries. It streamlined the framework in an effort to remove the regulatory barriers to increased recycling of rechargeable batteries. Below is a summary of Title I's major provisions and requirements.

Section 103: Easy Removability and Labeling Requirements for Rechargeable Batteries and Products

The Act establishes national, uniform labeling requirements for regulated batteries and rechargeable consumer products and mandates that regulated batteries manufactured after May 13, 1997 be "easily removable" from consumer products. A battery can be "easily removed" if it is detachable or removable from the product with the use of common household tools. The term "regulated battery" refers to Ni-Cd, certain SSLA, and, in the future, other rechargeable batteries and battery packs if EPA decides to add them to the list. (See Section 3 of the Act for the specific definitions of "easily removable," "regulated battery," "rechargeable battery," "rechargeable consumer product," and other important terms as they apply to the Act. See in particular Section 3(5)(C) for an understanding of which types of lead-acid batteries are subject to Section 103.)

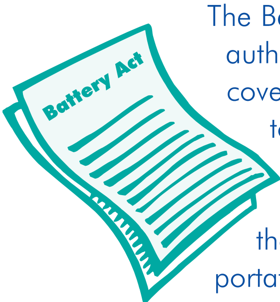
The requirements of Section 103 include:

- Regulated batteries must bear the 3 chasing arrows or a comparable recycling symbol.
- Nickel-cadmium batteries must be labeled "nickel-cadmium" or "Ni-Cd," with the phrase "BATTERY MUST BE RECYCLED OR DISPOSED OF PROPERLY."

- Regulated lead-acid batteries must be labeled “Pb” or with the words “LEAD,” “RETURN,” and “RECYCLE” and, if the regulated batteries are sealed, the phrase “BATTERY MUST BE RECYCLED.”
- Rechargeable consumer products containing nonremovable Ni-Cd batteries must be labeled with the phrase “CONTAINS NICKEL-CADMIUM BATTERY. BATTERY MUST BE RECYCLED OR DISPOSED OF PROPERLY.”
- Rechargeable consumer products containing nonremovable regulated lead-acid batteries must be labeled with the phrase “CONTAINS SEALED LEAD BATTERY. BATTERY MUST BE RECYCLED.”
- The required labeling also must be carried on the packaging of rechargeable consumer products containing regulated batteries that are not easily removable, and on the packaging of regulated batteries that are sold separately from such products, if the labeling on the product or battery is not visible through the packaging.
- Battery and product manufacturers may use a different label if it conveys the same information as described above or it conforms with a recognized international standard that is consistent with the intent of the Battery Act. The manufacturers, however, must apply for EPA certification. (Until May 13, 1998, no certification is needed if the label is in “substantial compliance” with Section 103.)
- No municipality, state, or federal agency may enforce any easy removability or labeling requirement for a rechargeable battery or product that is not identical to that described in Section 103 of the Battery Act.
- Rechargeable consumer product manufacturers may petition EPA for an exemption from the easy removability requirement by showing that a product with easily removable batteries and with equivalent performance could not be made without posing a threat to human health, safety, or the environment, or without violating other public or private standards.

Section 104: Battery Waste Management and the Universal Waste Rule

The other major provision of Title I involves the federal Universal Waste Rule. To prevent states from having different regulations for managing batteries covered by the Battery Act, the Act made the Universal Waste Rule for covered batteries effective in all 50 states since May 13, 1996. This provides national uniformity in the collection, storage, and transportation of used Ni-Cd and certain other rechargeable batteries and certain mercury-containing batteries. (For a list of batteries covered by Section 104 of the Act, see EPA's codification rule, expected to be promulgated in late 1997.)



The Battery Act also preempts state legislative and regulatory authority for the collection, storage, and transportation of covered batteries. Normally, under RCRA, states can choose to be more stringent than the federal government. The Battery Act, however, does not give states the option of establishing more stringent regulations than specified in the Act, in regard to the collection, storage, and transportation of covered batteries. States may seek EPA approval to implement and enforce requirements identical to those found in Section 104(a) (i.e., the federal Universal Waste Rule).

Title II: Mercury Batteries

The purpose of Title II is to phase out the use of batteries that contain mercury. Title II specifically prohibits the sale of any alkaline-manganese (except for button cells containing up to 25mg mercury) and zinc-carbon batteries that contain mercury that was intentionally introduced (as distinguished from mercury that may be incidentally present in other materials used to produce these batteries). Also prohibited is the sale of button cell mercuric-oxide batteries. Other mercuric-oxide batteries are prohibited from being sold unless the manufacturer (1) identifies a collection site in the United States where mercuric-oxide batteries can be sent for recycling or proper disposal, (2) informs each of its purchasers of the collection site, and (3) provides each of its purchasers with a telephone number that the purchaser may call to get information about sending mercuric-oxide batteries for recycling or proper disposal. Finally, EPA may exempt from the Title II sales prohibitions a new product or use for a Title II battery, if there exist reasonable safeguards against disposal of the battery in an incinerator, composting facility, or landfill (other than a facility regulated under the hazardous waste requirements of RCRA).

State Authority

As described under Section 7 of the Act, states can implement and enforce any requirement that is *identical* to (and hence not more or less stringent than) that in the Battery Act with respect to the labeling and easy removability of rechargeable batteries, and the collection, storage, and transportation of covered batteries. States can, however, adopt more stringent requirements for any *other* Battery Act provision, such as those in Title II. Finally, the Battery Act does not govern the recycling and disposal of covered batteries. States can, therefore, continue to adopt and enforce standards for the recycling and disposal of covered batteries that are more stringent than existing federal standards under RCRA.

Enforcement

The enforcement provisions that are described in Section 5 of the Battery Act are fairly straightforward.

- EPA may require compliance and/or assess a civil penalty of up to $10,000 for each violation of the labeling, easy removability, and Title II requirements of the Act. Under an exemption to the Act's enforcement provisions, EPA cannot take enforcement action against retailers for selling a battery or product that does not meet the labeling or easy removability requirements of the Act. This may encourage retailers' voluntary participation in battery recycling by protecting retailers from prosecution for the sale of batteries that they purchase from a person, such as a manufacturer, who violates the Act. However, importers are not exempt from liability, and a retailer can be held liable by EPA if it has knowledge that the chemical contents of a battery are in violation of Title II of the Act.
- Violations of the requirements of Section 104 and the Universal Waste Rule are enforced separately by EPA under the Solid

Waste Disposal Act. These requirements involve the collection, storage, and transportation of used Ni-Cd and certain other rechargeable batteries and certain mercury-containing batteries. Violations of these requirements are subject to the stringent penalties and broad remedies available under RCRA.

Promotion of Recycling of Rechargeable Batteries

Public education and participation are keys to the success of any recycling program—and are particularly important with materials like batteries that have not been commonly recycled. A public education program can heighten awareness of the recycling program, involve more individuals and businesses, and increase the number of batteries collected. With this in mind, Section 4 of the Act requires EPA to consult with rechargeable battery manufacturers, rechargeable consumer product manufacturers, and retailers to establish a public education program on battery recycling and the proper handling and disposal of used Ni-Cd and certain SSLA batteries.

Public education and participation are keys to the success of any recycling program—and are particularly important with materials like batteries that have not been commonly recycled.

Why is Proper Disposal or Recycling Necessary for Ni-Cd and SSLA Batteries?

The toxic heavy metals, such as cadmium and lead, found in rechargeable Ni-Cd and SSLA batteries perform critical functions within the battery. Heavy metals are contained within the battery's casing and pose no real risks while the battery is in use. But they can be of concern when discarded with ordinary municipal solid waste, as most batteries are. Ni-Cd rechargeable batteries were estimated to represent approximately 75 percent of the cadmium found in municipal solid waste in 1995. EPA projected that lead-acid rechargeable batteries, of which SSLAs are a small percentage, would represent approximately 65 percent of the lead found in municipal solid waste in 1995.

At present, approximately 73 percent of municipal solid waste is either landfilled or incinerated. Neither of these methods is ideally suited for batteries that contain heavy metals. In landfills, especially those without liners and controls, heavy metals have the potential to leach slowly into soil, ground water, and surface water. When incinerated, metals such as cadmium and lead can concentrate in the ash produced by combustion and enter the atmosphere through incinerator smokestack emissions. When disposed of, the metals in the incinerator ash can leach into the environment. In the environment, certain types of heavy metals can also concentrate in the tissues of organisms and make their way up the food chain. Several metals, such as cadmium, are known carcinogens. The possible health effects associated with ingestion or inhalation of water, food, or air that has been contaminated with high levels of heavy metals range from headaches and abdominal discomfort to seizures, cancer, comas, and even death. The severity of the health effects are usually dependent on the total concentration of the metals to which one is exposed over time.

Recycling programs for Ni-Cd and SSLA rechargeable batteries can address the potential risks posed by landfilling or incinerating these batteries by diverting them from the waste stream. In the case of battery recycling, metals are recovered from the used batteries, and the remainder of the product is recycled or discarded.

How State and Local Governments Can Promote Ni-Cd and SSLA Battery Recycling

State and local governments play an important role in developing and implementing a successful battery recycling program. Public education efforts are essential to the success of a battery collection program. A public education program developed by a state or local government can heighten a community's awareness of the need to reduce heavy metals in the waste stream, involve more residents and businesses in battery collection, and increase the number of batteries collected. (See "Options" section for information on industry trade associations which have developed outreach materials that could be used by state and local governments.)

To implement an effective local education program, governments can:

- Identify the major users of Ni-Cd and SSLA batteries in their areas.
- Create an education committee to work with recycling staff or volunteers. Committee members can include state and local recycling coordinators, battery manufacturing industries, battery retailers, battery recycling associations, and the public. The committee can devise a comprehensive local education strategy and be responsible for educating other members of their respective interest groups. Some members, such as businesses and trade associations, can also contribute money or in-kind services and resources to defray the costs and increase the effectiveness of the program.

- Develop a plan to educate businesses and industries on the importance of recycling their Ni-Cd and SSLA batteries. One method that has been proven to facilitate information sharing is to create workshops of industry and government officials. During these workshops, governments can provide industry managers with information about state and local legislation, schedules for collecting the used batteries, and any incentives for participating in the recycling program, such as providing containers for collecting their used batteries.
- Work with retailers serving as collection points to develop and distribute educational materials. Materials can include posters, brochures, stickers, flyers, and newsletters. In addition, governments can send press releases promoting the program to local newspapers, radio, and cable television stations. A variety of other creative channels, including distributing flyers through community schools or utility bill inserts, can also help promote the program.

State and local governments can heighten a community's awareness of the need to reduce heavy metals in the waste stream, involve more residents and businesses in battery collection, and increase the number of batteries collected.

What Options Exist for Recycling Ni-Cd and SSLA Batteries?

One national Ni-Cd rechargeable battery recycling program and several successful state government and regional Ni-Cd rechargeable battery recycling programs are currently being implemented around the country. A program for the recycling of commercial SSLA rechargeable batteries is currently being established with the support of the Portable Rechargeable Battery Association (PRBA) and the Battery Council International (BCI).

What Role Do Retailers, Businesses, and Public Agencies Play?

By recycling rechargeable batteries in the products they use, businesses and public agencies can take advantage of a convenient way to help the environment. Retailers, businesses, and public agencies can institute "take-back" programs and contribute funds for public education and battery collection. (See "Options" section for information that industry trade associations provide to retailers, businesses, and public agencies.)

Retailers of Ni-Cd and SSLA batteries can work with state and local governments to collect used batteries. Retailers can display posters or signs informing the community of the need to recycle these batteries and of the names and addresses of battery collection sites. Retailers can also provide used-battery collection containers that will be sent to an appropriate storage or recycling facility.

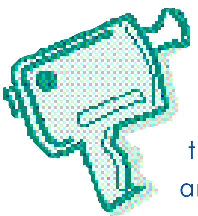
Businesses and public agencies, such as hospitals, computer companies, auto manufacturers, and police and fire departments, that use a large number of Ni-Cd or SSLA batteries can work on their own or with state and local governments to facilitate the collection of their used batteries. These businesses and agencies can develop their own collection programs by educating their employees about the importance of recycling these batteries and by providing containers or schedules for the collection of their used batteries. In addition, businesses and public agencies can fund or staff community collection programs and/or sponsor employee collection events that may last from one day to a week. All businesses that use cordless products—such as cellular phones, laptop computers, video recorders, and power tools—whether large Fortune 500 companies, small companies, or conditionally exempt small quantity generators, should be encouraged to participate in the collection and recycling of rechargeable batteries.

National Ni-Cd Rechargeable Battery Recycling Program

Charging Up to Recycle!

RBRC, a nonprofit organization representing many rechargeable battery manufacturers, developed the *Charge Up to Recycle!* program to help keep Ni-Cd batteries out of the solid waste stream and prevent toxins from ending up in landfills or municipal incinerators.

The *Charge Up to Recycle!* program offers various recycling plans for communities, retailers, businesses, and public agencies. For each group, RBRC pays or shares the cost of consolidating the batteries, shipping them to the processing facility, and recycling them. The program sends all Ni-Cd batteries to the International Metals Reclamation Company (INMETCO), a recently opened cadmium recovery facility in Ellwood City, Pennsylvania. At the facility, the nickel and iron are separated from the cadmium and shipped to specialty steel producers for use in stainless steel products. The recovered cadmium, at a 99.95 percent purity level, is used to produce new Ni-Cd rechargeable batteries.



For more information about the *Charge Up to Recycle!* program, or for the location of the collection site nearest you, visit the web site at *http://www.rbrc.com* or call RBRC's toll-free number at 1-800-8-BATTERY.

State Government and Regional Ni-Cd Rechargeable Battery Recycling Programs

Many state governments and regional organizations have established successful Ni-Cd rechargeable battery recycling programs. Here are descriptions of two such programs:

Massachusetts' Municipalities Recycle Used Ni-Cds

Almost one-third of municipalities in the state of Massachusetts currently collect used Ni-Cd batteries. Massachusetts worked with RBRC to establish collection points in more than 100 of the state's 351 municipalities. These municipal collection points complement retail collection locations in Massachusetts that were established under RBRC's national program.

Massachusetts' Department of Environmental Protection distributes 5-gallon plastic buckets to each of its four regional offices. These offices in turn make them available to municipal recycling coordinators who place them in centrally located, visible sites in the community. RBRC coordinates outreach efforts to residents to educate them that Ni-Cd batteries can be recycled and to inform them of where to take their batteries for recycling.

For more information about Massachusetts' battery recycling efforts, contact the Massachusetts Department of Environmental Protection Household Hazardous Waste Hot Line at 1-800-343-3420.

Battery Drop Stop Program

Battery recycling may be just a phone call away! In January 1997, EPA Region 5 and Ameritech, a major manufacturer of cellular phones and pagers, teamed up to launch "Battery Drop Stop," a cellular battery recycling program intended to keep Ni-Cd batteries out of our nation's landfills. Under this program, consumers can drop off their Ni-Cd cellular batteries at any of Ameritech's more than 1,000 retail associates and authorized dealers across the Midwest for recycling. Ameritech will accept any kind of Ni-Cd cellular batteries, regardless of brand or service provider, for recycling. The Rechargeable Battery Recycling Corporation plays an active role in the program, providing special battery collection boxes and coordinating the recycling at its facility in Pennsylvania. Interested consumers can obtain a copy of their free brochure with more details on the battery recycling program and/or find the location of the nearest Ameritech "Battery Drop Stop" by calling 1-800-MOBILE (1-800-662-4531).

Commercial SSLA Recycling

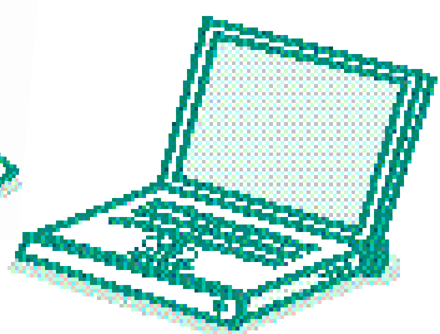
To encourage the recycling of commercial SSLA batteries, the manufacturers of SSLAs and products that contain them, with support from PRBA and BCI, are establishing a collection program. Commercial SSLA batteries have four primary end uses: uninterrupted power sources, emergency lighting, alarm systems, and hospital equipment. Manufacturers are working to establish collection points for commercial SSLA batteries in five states by the end of 1997. These states are Florida, Iowa, Maryland, Minnesota, and New Jersey. Users of products that contain the batteries are responsible for transporting them to collection centers, while manufacturers of the batteries facilitate their recycling. Commercial SSLAs are recycled with other lead-acid batteries at secondary smelters.

For more information about the commercial SSLA battery recycling program, contact PRBA at 770-612-8826.

Almost one-third of municipalities in the state of Massachusetts currently collect used Ni-Cd batteries.

For More Information

- A copy of the Mercury-Containing and Rechargeable Battery Management Act (P.L. 104-142) can be downloaded from EPA's web site at *http://www.epa.gov/epaoswer/hazwaste/state/policy/pl104.txt*.
- For general questions about battery recycling, contact the RCRA Hotline at 800-424-9346 or TDD 800-553-7672. In Washington, DC, the number is 703-412-9810 or TDD 703-412-3323. The RCRA Hotline is open from Monday through Friday, 9 a.m. to 6 p.m. Eastern Time.
- A handbook entitled *Used Dry Cell Batteries: Is a Collection Program Right for Your Community?* is designed for local communities interested in establishing a program to collect used dry cell batteries (i.e., both single-use and rechargeable). The document contains program cost information, public education strategies, management options, and examples of community programs around the country. To request a copy, call the RCRA Hotline and reference document number EPA530-K-92-006.
- More information on EPA's Universal Waste Rule can be found on EPA's website at *http://www.epa.gov/epaoswer/hazwaste/id/univwast.htm*. The rule was published in the May 11, 1995 *Federal Register* and is found in the Code of Federal Regulations at 40 CFR Part 273, as well as at *http://www.epa.gov/docs/fedrgstr/EPA-WASTE/1995/May/Day-11/pr-223.html*.



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Rechargeable Battery Recycling Corporation. P.O. Box 141870, Gainesville, Florida 32614-1870. Phone: 352-376-6693. Fax: 352-376-6658. E-mail: rbrc@rbrc.com. Internet address: *http://www.rbrc.com*.

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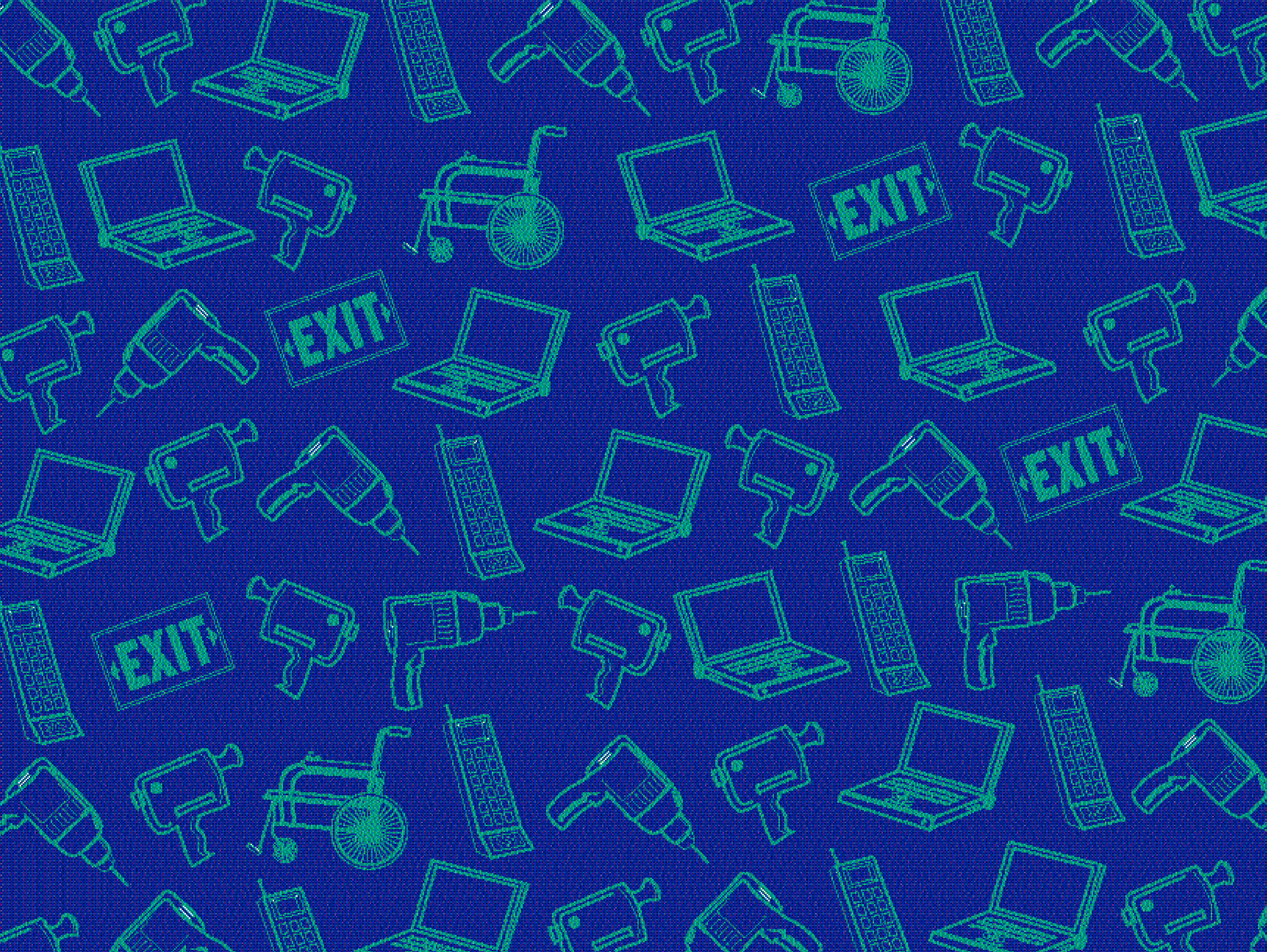
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CHARACTERIZATION OF BUILDING-RELATED CONSTRUCTION AND DEMOLITION DEBRIS IN THE UNITED STATES

Prepared for

The U.S. Environmental Protection Agency
Municipal and Industrial Solid Waste Division
Office of Solid Waste
Report No. EPA530-R-98-010

by
Franklin Associates
Prairie Village, KS

under subcontract to

TechLaw, Inc.

Contract No. 68-W4-0006, Work Assignment R11026

June 1998

Printed on recycled paper

ACKNOWLEDGMENTS

This report was prepared by Franklin Associates, a subcontractor of TechLaw, Inc., a prime contractor of the United States Environmental Protection Agency Office of Solid Waste. Eugene Lee served as EPA's work assignment manager. Marjorie A. Franklin was Franklin Associates’ Principal-in-charge and Jacob E. Beachey was the project manager and primary author of the report.

We are pleased to acknowledge much valuable support and input from some of the leading research organizations in construction and demolition debris management. Peter Yost, of the NAHB Research Center, participated in all phases of the project, providing input on methodology, data sources, and analysis. Robert Brickner, of Gershman, Brickner and Bratton, Inc., reviewed the entire report and made significant contributions, particularly in the sections on C&D debris from road, bridges, and other non-building activities.

A large number of people, ranging from local governmental agencies to large demolition contractors, provided waste assessment data for this project. These people are identified in the reference sections at the end of the chapters of this report.

We appreciate the efforts of the peer reviewers, who reviewed the report and provided valuable comments and suggestions. The peer reviewers for the report are

William Turley
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Executive Summary

INTRODUCTION

The purpose of this report is to characterize the quantity and composition of building-related construction and demolition (C&D) debris generated in the United States, and to summarize the waste management practices for this waste stream. C&D debris is produced when new structures are built and when existing structures are renovated or demolished. Structures include all residential and nonresidential buildings as well as public works projects, such as streets and highways, bridges, piers, and dams. Many state definitions of C&D debris also include trees, stumps, earth, and rock from the clearing of construction sites.

The focus of this report is on building-related wastes, including construction, demolition, and renovation of residential and nonresidential buildings. Road and bridge debris, land clearing debris, etc. are not covered in detail in this report. They are, however, discussed briefly.

METHODOLOGY

The methodology used for this study combines national Census Bureau data on construction industry activities with point source waste assessment data (i.e., waste sampling and weighing at a variety of construction and demolition sites) to estimate the amount of building-related C&D debris produced nationally.

It is important to recognize that this is a first attempt to use this methodology. It is expected that as the trend towards better characterization of C&D sites continues and more communities record their C&D debris quantities and compositions, the national estimates as developed in this report can be tested and modified accordingly. Currently, the limited point source waste assessment data may be a source of considerable uncertainty in the analysis.

Since the method developed here makes use of readily available Census Bureau data on national C&D activity, (e.g., construction and demolition permits and construction value) the methodology should be well suited for periodic updating. Waste assessment results should change very slowly over time because construction materials used and building construction practices remain relatively constant from year to year. Composition of waste from demolished buildings, which have been built over a range of years, should change even more slowly.

DEFINITIONS

(For purposes of this report, following is a working set of definitions)

Construction and Demolition (C&D) Debris is waste material that is produced in the process of construction, renovation, or demolition of structures. Structures include buildings of all types (both residential and nonresidential) as well as roads and bridges. Components of C&D debris typically include concrete, asphalt, wood, metals, gypsum wallboard, and roofing. Land clearing debris, such as stumps, rocks, and dirt, are also included in some state definitions of C&D debris.

Generation of C&D debris, as used in this report, refers to the weight of materials and products as they enter the waste management system from the construction, renovation, or demolition of structures, and before materials recovery or combustion takes place. Source reduction activities (e.g., on-site usage of waste wood mulch or the on-site use of drywall as a soil amendment) take place *ahead* of generation, i.e., they reduce the amount of waste generated.

Recovery of materials, as estimated in this report, includes the removal of products or materials from the waste stream for the purpose of **recycling** the materials in the manufacture of new products.

Source reduction activities reduce the amount or toxicity of wastes before they enter the waste management system. **Reuse** is a source reduction activity involving the recovery or reapplication of a product or material in a manner that retains its original form and identity. Reuse of products such as light fixtures, doors, or used brick is considered source reduction, not recycling.

Discards include the C&D debris remaining after recovery for recycling (including composting). These discards would presumably be combusted or landfilled, although some debris is littered, stored or disposed on-site, or burned on-site.

REPORT HIGHLIGHTS

Building-Related C&D Debris Generation Estimates

- An estimated 136 million tons of building-related C&D debris were generated in 1996 (Table ES-1).

- The estimated per capita generation rate in 1996 was 2.8 pounds per person per day.

- Forty-three percent of the waste (58 million tons per year) is generated from residential sources and 57 percent (78 million tons per year) is from nonresidential sources.

- Building demolitions account for 48 percent of the waste stream, or 65 million tons per year; renovations account for 44 percent, or 60 million tons per year; and 8 percent, or 11 million tons per year, is generated at construction sites.

Table ES-1

SUMMARY OF ESTIMATED BUILDING-RELATED C&D DEBRIS GENERATION, 1996*
(Roadway, Bridge, and Land Clearing Debris not included)
(Thousand Tons)

Source	Residential		Nonresidential		Totals	
	Thou tons	Percent	Thou tons	Percent	Thou tons	Percent
Construction	6,560	11	4,270	6	**10,830**	**8**
Renovation	31,900	55	28,000	36	**59,900**	**44**
Demolition	19,700	34	45,100	58	**64,800**	**48**
Totals	**58,160**	100	**77,370**	100	**135,530**	**100**
Percent	**43**		**57**		**100**	

* C&D debris managed on-site should, in theory, be deducted from generation. Quantities managed on-site are unknown.

Source: Franklin Associates

Composition of C&D Debris from Buildings

The composition of C&D debris is highly variable and depends critically on the type of activity where sampling is done. Whereas wood is typically the largest component of waste material generated at construction and renovation sites, concrete is commonly the largest component of building demolition debris.

Road, Bridge, and Land Clearing Debris

Road, bridge, and land clearing wastes represent a major portion of total C&D debris, and some of the materials produced are managed by the same processors and landfills that manage building-related wastes. A methodology was not developed in the scope of this project to estimate these wastes. Point source waste assessment data were not available for these projects.

Management Practices for C&D Debris

- The most common management practice for C&D debris is landfilling, including C&D landfills, MSW landfills, and unpermitted sites. An estimated 35 to 45 percent was discarded in C&D landfills in 1996. An estimated 30 to 40 percent of C&D debris is managed on-site, at MSW landfills, or at unpermitted landfills.

- A 1994 survey done for the EPA identified about 1,900 active C&D landfills in the United States.

- An estimated 20 - 30 percent of building-related C&D debris was recovered for processing and recycling in 1996. The materials most frequently recovered and recycled are concrete, asphalt, metals, and wood.

- There is an trend toward increasing recovery of C&D debris in the United States. ***C&D Recycling*** estimates there are about 3,500 operating facilities that process C&D debris materials in the United States.

- Recent deconstruction demonstration projects show that high diversion rates may be achieved. Deconstruction minimizes contamination of demolition debris; however, it is labor intensive, and generally requires more time than traditional demolition.

- Metals have the highest recycling rates among the materials recovered from C&D sites. The Steel Recycling Institute estimates that the recycling rate for C&D steel is about 85 percent (18.2 million tons out of 21.4 million tons generated). These numbers include not only scrap steel from buildings but also from roads and bridges.

- We estimate there are about 500 wood processing facilities in the United States that derive wood from C&D debris. The leading states for these wood processing plants are North Carolina, Oregon, and California.

Peer Review and Data Sources

This first edition report underwent extensive internal and external peer review of methodology and data sources. Major contributors of data sources and peer review include the National Association of Home Builders Research Center; Gershman, Brickner & Bratton, Inc.; EPA Region 5, and the U.S. Department of Commerce, Bureau of the Census.

As part of an ongoing effort to better characterize non-hazardous wastes subject to regulation under Subtitle D of RCRA, USEPA encourages public comment on this report, including additional methodological considerations and data sources.

Chapter 1

INTRODUCTION AND METHODOLOGY

BACKGROUND

The purpose of this report is to characterize building-related construction and demolition (C&D) debris generated in the United States. Construction and demolition debris is produced when new structures are built and when existing structures are renovated or demolished. Structures include all residential and nonresidential buildings as well as public works projects, such as streets and highways, bridges, piers, and dams. Many state definitions of C&D debris also include trees, stumps, earth, and rock from the clearing of construction sites.

National estimates of construction and demolition debris generation have been limited in the past to extrapolation of local data, using population or construction employment to make the extrapolations. Values for generation rates reported in various locations across the country have ranged from 0.12 to 3.52 pounds per capita per day (Wilson 1977), a range too large for meaningful extrapolations.

At least three studies in the past 30 years have made national generation rate estimates. The first was a 1969 Public Health Service study, which reported a national average of 0.66 pounds per person per day (ppd) (PHS 1969). The same study reported an urban average generation rate of 0.72 ppd, a number which was also reported in the 1986 EPA municipal solid waste characterization report as an estimate for the national average (EPA 1986). Based on the U.S. population in 1986 (240 million), the EPA report estimated 31.5 million tons per year of C&D debris generation.

In a draft report prepared for the National Renewable Energy Laboratory in 1994 (Franklin 1994), Franklin Associates identified 22 cities, counties, or states for which C&D debris data were reported. There was a weak but positive correlation between C&D debris generation and per capita construction employment in each area. The national extrapolated estimate for C&D debris generation using that methodology was 64.4 million tons per year.

The previous C&D debris estimates for the United States now appear to be low, based on the results of this study. As discussed in the sections that follow, we estimate that C&D debris generation for building-related wastes only (i.e., excluding wastes from roadways, bridges, land clearing, and excavation), was about 136 million tons in 1996.

METHODOLOGY

The initial objective of this study was to develop a methodology somewhat parallel to EPA's material flows methodology used for MSW characterization that would use readily available national data, which would be suitable for periodic updates. The material flows methodology starts with national production data by material and product, adjusts for imports, exports, average lifetimes, and consumption, and then calculates national generation by summing up all the materials and products that make up MSW. Because of the long and extremely variable lifetimes of buildings, roads, and other structures, the material flows method was determined to be infeasible for C&D debris.

Another approach—sampling and weighing at landfills—is often used for determining local waste management system needs and would be the preferred method for this study if sufficient time and funds were available. However, even on the local level there may be significant barriers to this method. Sampling from a mixed waste stream with statistical confidence is very difficult, time consuming, and costly. Locating all the places where C&D debris is placed is not a trivial matter in some localities, and obtaining permission to sample at private landfills can be a major challenge. For a national study of this type, this method would be both cost and time prohibitive.

The methodology used for this study combines national Census Bureau data on construction industry project activity with point source waste assessment data (i.e., waste sampling and weighing at a variety of construction and demolition sites) to estimate the amount of C&D debris produced nationally. Because of the lack of point source waste assessment data from roadway, bridge, and landclearing projects, this study was limited to building-related wastes.

It is important to recognize that this is a first attempt to use this methodology. We expect that as the trend towards better characterization of C&D sites continues where more communities record their C&D debris quantities and compositions, the national estimates as developed in this report can be tested and modified accordingly. Currently, the limited point source waste assessment data may be a source of considerable uncertainty in the analysis.

Since the methodology developed here makes use of readily available Census Bureau data on national C&D activity, (e.g., construction and demolition permits and construction value) the methodology should be well suited for periodic updating. Waste assessment results should change very slowly over time because construction materials used and building construction practices remain relatively constant from year to year. Composition of waste from demolished buildings, which were built over a range of years, should change even more slowly.

PEER REVIEW AND DATA SOURCES

This first edition report underwent extensive internal and external peer review of methodology and data sources. Major contributors of data sources and peer review include the National Association of Home Builders Research Center, Gershman, Brickner & Bratton, Inc., EPA Region 5, and the U.S. Department of Commerce, Bureau of the Census.

During the peer review process, a consensus was reached that this report represents a credible attempt at estimating national generation of building-related construction and demolition debris. However, the report could benefit from additional waste sampling studies to strengthen the source category (construction, demolition, and renovation) estimates. Further, future editions will need to address roadway, bridge, and land clearing debris in order to present a more complete picture of the national construction and demolition waste stream. As part of an ongoing effort to better characterize non-hazardous wastes subject to regulation under Subtitle D of RCRA, USEPA encourages public comment on this report, including additional methodological considerations and data sources.

DEFINING C&D DEBRIS

A broad definition of the representative projects and sources of C&D debris is shown below (Table 1). This table shows that the generation sources of C&D debris cover a broad segment of the U.S. economy. The sources range from homebuilders and homeowners to general commercial developers, general building contractors, highway and street contractors, bridge erectors/constructors, bituminous pavement contractors, small home remodelers, site grading contractors, demolition contractors, roofing contractors and drywallers, and excavation specialists.

The amount of C&D debris generated and reported to regulatory agencies around the country varies considerably from one community to another. This variation is created, in part, by the difference in state regulations on the subject material, and also by the historical demographics and current growth and development activity of the community.

Excerpts from a number of state definitions of C&D debris are presented in this chapter, with more complete citations in Appendix B. This is a representative sample of how states are defining C&D debris. It illustrates the diversity of C&D debris terminology. Several states include land-clearing debris as C&D; however, Massachusetts, New York, and North Carolina specifically exclude these materials. Oregon excludes clean fill materials when separated from other C&D wastes and used as fill materials or otherwise land disposed. New York, Kansas, and Rhode Island’s definitions specifically exclude some materials, even

Table 1

REPRESENTATIVE GENERATION SOURCES OF C&D SECTOR MATERIALS*

Site clearance materials
(Brush, tree, and stumpage materials)

Excavated materials
(Earth, fill, and other excavated rock and granular materials)

Roadwork materials
Concrete slabs and chunks from concrete road construction
Asphalt chunks and millings from asphalt pavement
Bridge/overpass construction/renovation materials

New construction materials
(Residential, commercial, and industrial project sources)

Renovation, remodeling or repair materials
(Residential, commercial, and industrial project sources)

Demolition materials . . . including wrecking, implosion, dismantling, and deconstruction
(Residential, commercial, and industrial project sources)

Disaster debris

* Note that estimates for site clearance, excavated materials, and roadwork materials are not included in this report.

Source: Gershman, Brickner & Bratton, Inc. Fairfax, Virginia

if resulting from C&D activities. Examples of exclusions include garbage, carpeting, furniture, corrugated containerboard, and other containers.

The variance in state definitions affects the interpretation of the results of this report. Corrections or adjustments may be required when comparing the results of this report with state data, depending on the definition the state used. Corrections may also be required when comparing data from any two states.

The amount of C&D debris available for discard in any region also depends on the general economic conditions of the region, the weather, major disasters, special projects, and local regulations. In fast growing areas, the C&D waste stream from buildings consists primarily of construction debris, with much smaller quantities of demolition debris. Demolition debris is produced when older buildings are demolished to make way for the new developments. By contrast, in many urban areas demolition debris dominates the C&D waste stream.

STATE DEFINITIONS FOR CONSTRUCTION AND DEMOLITION DEBRIS

(A representative sample of definitions that points out the variability of definitions used)

California. Construction and demolition (C&D) debris includes concrete, asphalt, wood, drywall, metals, and many miscellaneous and composite materials. C&D debris is generated by demolition and new construction of structures such as residential and commercial buildings and roadways.

Florida. "Construction and demolition debris" means discarded materials generally considered to be not water soluble and non-hazardous in nature, including but not limited to steel, glass, brick, concrete, asphalt material, pipe, gypsum wallboard, and lumber, from the construction or destruction of a structure as part of a construction or demolition project or from the renovation of a structure, including such debris from construction of structures at a site remote from the construction or demolition project site. The term includes rocks, soils, tree remains, trees, and other vegetative matter which normally results from land clearing or land development operations for a construction project; clean cardboard, paper, plastic, wood and metal scraps from a construction project . . . unpainted, non-treated wood scraps from facilities manufacturing materials used for construction of structures or their components and unpainted, non-treated wood pallets provided the wood scraps and pallets are separated from other solid waste; and the commingling of wood scraps or pallets with other solid waste; and *de minimis* amounts of other non-hazardous wastes that are generated at construction or demolition projects . . . .

Hawaii. "Construction and demolition waste" means solid waste, largely inert waste, resulting from the demolition or razing of buildings, of roads, or other structures, such as concrete, rock, brick, bituminous concrete, wood, and masonry, composition roofing and roofing paper, steel, plaster, and minor amounts of other metals, such as copper. Construction and demolition waste does not include cleanup materials contaminated with hazardous substances, friable asbestos, waste paints, solvents, sealers, adhesives, or similar materials.

Kansas. "Construction and demolition waste" means solid waste resulting from the construction, remodeling, repair and demolition of structures, roads, sidewalks and utilities; and solid waste consisting of vegetation from land clearing and grubbing, utility maintenance, and seasonal or storm-related cleanup. Such wastes include, but are not limited to, bricks, concrete and other masonry materials, roofing materials, soil, rock, wood, wood products, wall covering, plaster, drywall, plumbing fixtures, electrical wiring, electrical components containing no hazardous materials and non asbestos insulation. It shall not include asbestos waste, garbage, cardboard, furniture, appliances, electrical equipment containing hazardous materials, tires, drums and containers even though such wastes resulted from construction and demolition activities. Clean rubble that is mixed with other construction and demolition waste during demolition or transportation shall be considered to be construction and demolition waste.

Kentucky. . . . Construction/demolition debris . . . results from the construction, remodeling, repair, and demolition of structures and roads and . . . uncontaminated solid waste consisting of vegetation resulting from land clearing and grubbing, utility line maintenance, and seasonal and storm-related cleanup. Such waste includes, but is not limited to bricks, shredded or segmented tires, concrete and other masonry materials, soil, rock, wood, wall coverings, plaster, drywall, plumbing fixtures, tree stumps, limbs, saw dust, leaves, yard waste, paper, paper products, metals, furniture, insulation, roofing shingles, asphalt pavement, glass, plastics that are not sealed in a manner that conceals other wastes, electrical wiring and components containing no liquids or hazardous metals that are incidental to any of the above . . . . Asbestos . . . only if approved by the division . . . .

STATE DEFINITIONS FOR CONSTRUCTION AND DEMOLITION DEBRIS (Continued)

Maricopa County, Arizona. Construction debris is a general term used to describe a large class of solid wastes usually generated as a byproduct of the construction, demolition, or maintenance of residences, commercial or industrial facilities and infrastructure. Construction debris includes such materials as: broken concrete, asphalt, steel, aluminum, glass, brick, tile, paper, plastics, wood products, sheet rock, street sweepings and canal dredgings.

Massachusetts. C&D waste is comprised of debris generated from construction, renovation, repair, and demolition of roads, bridges, and buildings and includes wood, steel, concrete, masonry, plaster, metal, and asphalt, but not wood from land-clearing, i.e. stumps, logs, brush, and soil, nor rock from excavations.

Minnesota. Construction Wastes—Building materials, packaging, and rubble resulting from construction, remodeling, repair, and demolition of buildings and roads.
Demolition Debris—Solid waste resulting from the demolition of buildings, roads, and other man-made structures, including concrete, brick, bituminous concrete, untreated wood, masonry, glass, trees, rock, and plastic building parts. Demolition debris does not include asbestos.

North Carolina. "Construction" or "demolition" when used in connection with "waste" or "debris" means solid waste resulting solely from construction, remodeling, repair, or demolition operations on pavement, buildings, or other structures, but does not include inert debris, land-clearing debris or yard debris.

Nebraska. "Construction and demolition waste" shall mean waste which typically results from construction or demolition projects and includes all materials which are the by-products of construction work or which result from demolition of buildings and other structures, including, but not limited to brick, concrete rubble, masonry materials, paper, gypsum board, wood, rubber and plastics. Construction and demolition waste does not include friable asbestos-containing materials, liquid waste, hazardous waste, putrescible waste or furnishings from demolished structures.

New York. Construction and demolition (C&D) debris means uncontaminated solid waste resulting from the construction, remodeling, repair and demolition of utilities, structures and roads; and uncontaminated solid waste resulting from land clearing. Such waste includes, but is not limited to bricks, concrete and other masonry materials, soil, rock, wood (including painted, treated and coated wood and wood products), land clearing debris, wall coverings, plaster, drywall, plumbing fixtures, non asbestos insulation, roofing shingles and other roof coverings, asphalt pavement, glass, plastics that are not sealed in a manner that conceals other wastes, empty buckets ten gallons or less in size and having no more than one inch of residue remaining on the bottom, electrical wiring and components containing no hazardous liquids, and pipe and metals that are incidental to any of the above. Solid waste that is not C&D debris (even if resulting from the construction, remodeling, repair and demolition of utilities, structures and roads and land clearing) includes, but is not limited to asbestos waste, garbage, corrugated container board, electrical fixtures containing hazardous liquids such as fluorescent light ballasts or transformers, fluorescent lights, carpeting, furniture, appliances, tires, drums, containers greater than ten gallons in size, any containers having more than one inch of residue remaining on the bottom and fuel tanks. . . .

STATE DEFINITIONS FOR CONSTRUCTION AND DEMOLITION DEBRIS (Continued)

Oregon. "Construction and Demolition Waste" means solid waste resulting from the construction, repair or demolition of buildings, roads and other structures, and debris from the clearing of land, but does not include clean fill when separated from other construction and demolition wastes and used as fill materials or otherwise land disposed. Such waste typically consists of materials including concrete, bricks, bituminous concrete, asphalt paving, untreated or chemically treated wood, glass, masonry, roofing, siding, plaster; and soils, rock, stumps, boulders, brush and other similar material. This term does not include industrial solid waste and municipal solid waste generated in residential or commercial activities associated with construction and demolition activities.

Portland, Oregon Metropolitan Service District. Construction Waste **-** Waste materials resulting from the construction, remodeling and repair of buildings and other structures.
Demolition Waste - Solid waste, largely inert, resulting from the demolition or razing of buildings, roads, and other man-made structures. Demolition waste consists of, but is not limited to, concrete, brick, bituminous concrete, wood, masonry, composition, roofing and roofing paper, steel, and amounts of other metals like copper. Plaster (i.e., sheet rock or plasterboard), any other non-wood material that is likely to produce gases or leachate during the decomposition process, and asbestos wastes are not considered to be demolition wastes.

Rhode Island. "Construction and Demolition (C&D) Debris" shall mean non-hazardous solid waste resulting from the construction, remodeling, repair, and demolition of utilities and structures; and uncontaminated solid waste resulting from land clearing. Such waste includes, but is not limited to wood (including painted, treated and coated wood and wood products), land clearing debris, wall coverings, plaster, drywall, plumbing fixtures, non-asbestos insulation, roofing shingles and other roofing coverings, glass, plastics that are not sealed in a manner that conceals other wastes, empty buckets ten gallons or less in size and having no more than one inch of residue remaining on the bottom, electrical wiring and components containing no hazardous liquids, and pipe and metals that are incidental to any of the above. Solid waste that is not C&D debris (even if resulting from the construction, remodeling, repair, and demolition of utilities, structures, and roads and land clearing) includes, but is not limited to, asbestos waste, garbage, corrugated container board, electrical fixtures containing hazardous liquids such as fluorescent light ballasts or transformers, fluorescent lights, carpeting, furniture, appliances, tires, drums, containers greater than ten gallons in size, any containers having more than one inch of residue remaining on the bottom, and fuel tanks. . . .

South Carolina. "Construction and demolition debris" means discarded solid wastes resulting from construction, remodeling, repair and demolition of structures, road building, and land-clearing. The wastes include, but are not limited to, bricks, concrete, and other masonry materials, soil, rock, lumber, road spoils, paving material, and tree and brush stumps, but does not include solid waste from agricultural or silvicultural operations.

Washington. "Demolition waste" means solid waste, largely inert waste, resulting from the demolition or razing of buildings, roads and other man-made structures. Demolition waste consists of, but is not limited to, concrete, brick, bituminous concrete, wood and masonry, composition roofing and roofing paper, steel, and minor amounts of other metals like copper. Plaster (i.e., sheet rock or plaster board) or any other material, other than wood, that is likely to produce gases or a leachate during the decomposition process and asbestos wastes are not considered to be demolition waste . . . .

See Appendix B for complete texts and citations.

The components that make up C&D debris also vary a great deal depending on the type of construction and the methods used by the construction industry. Table 2 shows typical contents of C&D debris by broad material types. Table C-1 in Appendix C shows a more detailed list of C&D debris components.

Construction debris from building sites typically consists of trim scraps of construction materials, such as wood, sheetrock, masonry, and roofing materials. There is typically much less concrete in construction debris than demolition debris, although some construction projects produce considerable quantities of concrete, depending on the technology used to build the concrete walls. Scrap from residential construction sites typically represents between 6 and 8 percent of the total weight of the building materials delivered to the site, excluding the foundation, concrete floors, driveways, patios, etc. There is typically very little waste concrete to dispose of from residential construction projects.

Table 2

TYPICAL COMPONENTS OF CONSTRUCTION AND DEMOLITION DEBRIS

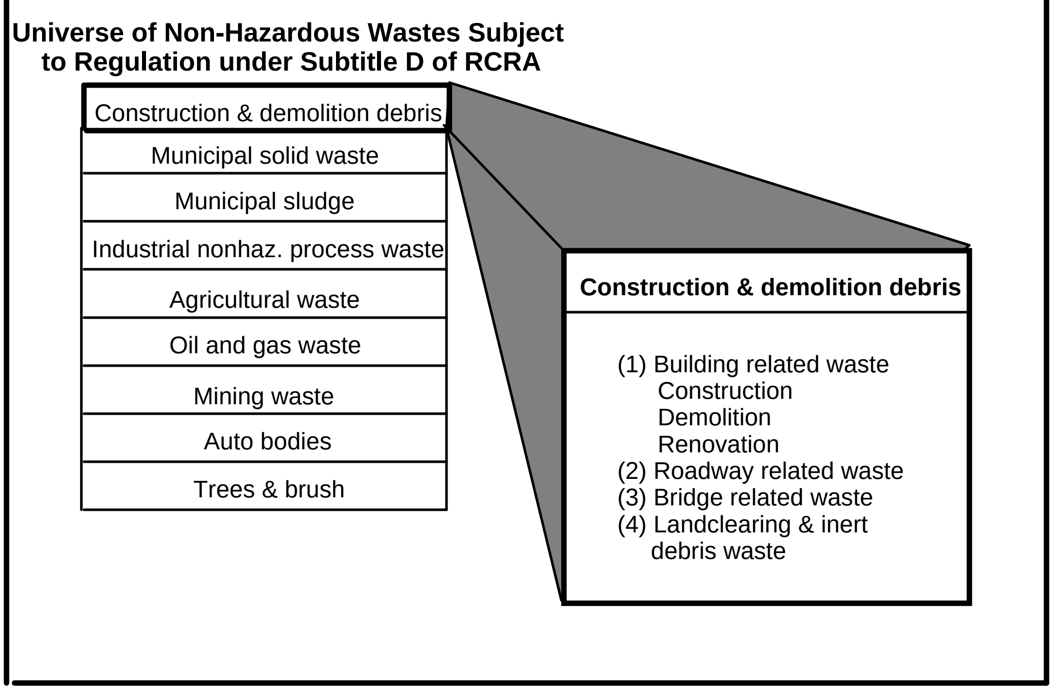
Material Components	Content Examples
Wood	Forming and framing lumber, stumps, plywood, laminates, scraps
Drywall	Sheetrock, gypsum, plaster
Metals	Pipes, rebar, flashing, steel, aluminum, copper, brass, stainless steel
Plastics	Vinyl siding, doors, windows, floor tile, pipes
Roofing	Asphalt & wood shingles, slate, tile, roofing felt
Rubble	Asphalt, concrete, cinder blocks, rock, earth
Brick	Bricks and decorative blocks
Glass	Windows, mirrors, lights
Miscellaneous	Carpeting, fixtures, insulation, ceramic tile

When buildings are demolished, large quantities of waste may be produced in a relatively short period of time, depending on the demolition technique used. The demolition project duration can vary depending on the technique used—implode a structure with explosives, use a crane and wrecking ball technique, or deconstruct the structure. In actual practice, the vast majority of demolition projects use a combination of the last two basic techniques depending on the materials used in the original project, the physical size of the structure, the surrounding buildings that cannot be disturbed or impacted, and the time allocated for the project. One hundred percent of the weight of a building, including the concrete foundations, driveways, patios, etc., may be generated as C&D debris when a building is demolished. On a per building basis, demolition waste quantities may be 20 to 30 times as much as construction debris.

CONSTRUCTION AND DEMOLITION DEBRIS IN PERSPECTIVE

C&D debris is generally a non-hazardous waste subject to regulation under Subtitle D, as shown in Figure 1. Other non-hazardous wastes include municipal solid waste (MSW), sludges from water and wastewater treatment plants, nonhazardous wastes from industrial processes, agricultural wastes, oil and gas wastes, mining wastes, spent automobiles, and trees and brush. MSW, which is primarily the waste from residential and commercial sources, has been characterized in more detail and for a longer period of time by the EPA than the other non-hazardous wastes. A material flows methodology was developed for MSW characterization in the late 1960s and early 1970s, and has been modified and updated periodically since then. The latest of the EPA reports was published in May of 1998 (EPA 1998).

Figure 1. C& D Debris in perspective



Although the C&D debris stream is usually described based on its origin as outlined in Table 1 above, there are some potential overlaps with other waste streams, in particular, MSW. For example, the MSW characterization includes all postconsumer corrugated boxes, even though significant quantities of these boxes enter the waste stream from building construction sites. (See Appendix A, Table A-11.) To simply sum up the national quantities of MSW and C&D debris could result in double counting. Other examples of MSW sometimes collected at C&D sites include wood pallets, food and beverage containers, caulking tubes, and paint containers. On the other hand, building material wastes are frequently collected by MSW waste management systems. However, EPA's material flows methodology does not include them. Examples include pipes, plumbing fixtures, and building materials that are replaced by residents and discarded with their household trash. The overlap issues are discussed further in Chapter 4 of this report.

The six activities that generate C&D debris from buildings include the construction, demolition, and renovation (improvements and repair) of both residential and nonresidential buildings. Residential buildings include single-family houses and duplexes, up to and including high rise multi-family housing. Nonresidential buildings include commercial, institutional, and industrial buildings.

Construction activities generally produce cleaner materials than demolition. Demolitions may produce several types of materials bonded together or contaminated with hazardous materials, such as asbestos or lead paint. Renovation projects can produce both construction and demolition type wastes.

DEFINITIONS

(For purposes of this report, following is a working set of definitions)

Construction and Demolition (C&D) Debris is waste material that is produced in the process of construction, renovation, or demolition of structures. Structures include buildings of all types (both residential and nonresidential) as well as roads and bridges. Components of C&D debris typically include concrete, asphalt, wood, metals, gypsum wallboard, floor tile, and roofing. Land clearing debris, such as stumps, rocks, and dirt, are also included in some state definitions of C&D debris.

Generation of C&D debris, as used in this report, refers to the weight of materials and products as they enter the waste management system from the construction, renovation, or demolition of structures, and before materials recovery or combustion takes place. Source reduction activities (e.g., on-site usage of waste wood mulch or the on-site use of drywall as a soil amendment) take place *ahead* of generation, i.e., they reduce the amount of waste generated.

Recovery of materials, as estimated in this report, includes the removal of products or materials from the waste stream for the purpose of **recycling** the materials in the manufacture of new products.

Source reduction activities reduce the amount or toxicity of wastes before they enter the waste management system. **Reuse** is a source reduction activity involving the recovery or reapplication of a product or material in a manner that retains its original form and identity. Reuse of products such as light fixtures, doors, or used brick is considered source reduction, not recycling.

Discards include the C&D debris remaining after recovery for recycling (including composting). These discards would presumably be combusted or landfilled, although some debris is littered, stored or disposed on-site, or burned on-site.

OVERVIEW OF THIS REPORT

Chapter 1 contains background information on the methodology used for this report, examples of state definitions for C&D debris, and perspectives on the components of C&D and its relationship to other non-hazardous wastes. Chapter 2 contains estimates of the national generation of the building fraction of C&D debris from each of six major building C&D activities, i.e., residential construction, demolition, and renovation, and nonresidential construction, demolition, and renovation. Examples of locally generated data for the other C&D related generating sectors, e.g., roadway, bridge, and land clearing debris are presented for illustrative purposes. Also included in Chapter 2 are some data showing the composition of C&D debris from the various C&D activities.

Chapter 3 of the report discusses the options for management of C&D debris in the United States, including landfilling and recovery for recycling.

Chapter 4, Perspectives, discusses the overlap of the C&D debris waste stream and the MSW waste stream.

Chapter 1

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Chapter 2

GENERATION OF CONSTRUCTION AND DEMOLITION DEBRIS

INTRODUCTION

For the purposes of this initial national report, emphasis has been placed on the generation of construction and demolition (C&D) debris from building construction, demolition, and renovation activities. Examples of locally generated data for the other C&D-related generating sectors, e.g., roadway, bridge, and land clearing debris, are presented.

BUILDING-RELATED CONSTRUCTION AND DEMOLITION DEBRIS GENERATION

For analysis purposes, building C&D debris is divided into six categories: residential construction, demolition, and renovation and nonresidential construction, demolition, and renovation. These categories were selected based on the relationship between available Census data and empirical composition factors.

The following sections describe the data used and the methods for estimating the amount of building-related C&D debris generated, on a weight basis. Tables A-1 through A-6 in Appendix A are worksheets that provide details of the calculations used to arrive at generation for each component of the C&D debris stream.

Construction Debris

Residential. Empirical data for new residential construction have been identified from five sources: The NAHB Research Center; METRO in Portland, Oregon; Woodbin 2 in Cary, North Carolina; McHenry County, Illinois; and Cornell University. Each of these groups has conducted waste assessments at new construction sites.

The National Association of Homebuilders (NAHB) Research Center has developed a detailed methodology for conducting waste assessments at construction sites. Assessment data have been analyzed for single-family residential construction debris at four sites, including Largo, Maryland; Anne Arundel County, Maryland; Portland, Oregon; and Grand Rapids, Michigan. The NAHB Research Center also conducted a waste assessment at a 36-unit condominium construction project in Odenton, Maryland.

The Metropolitan Service District in Portland, Oregon (METRO) conducted a series of sampling projects at a large number of residential construction sites in Oregon over the last 5 or more years.

Wake County, North Carolina and the North Carolina Division of Pollution Prevention and Environmental Assistance conducted five residential construction waste assessments in the Raleigh, North Carolina area. Woodbin 2, a non-profit organization of the County, organized the assessments.

McHenry County, Illinois conducted waste audits at a single-family construction site and a 6-unit apartment building, and Cornell University conducted a waste audit at a single-family residence in New York.

The data from the five sources are summarized in Table 3. A total of 93 dwelling units are represented on this table. Generation rates ranged from 2.41 to 11.3 pounds per square foot of floor space. Geography does not appear to be the reason for the spread in data; it is more likely the types of houses, the specific practices of the builders, and the lack of uniform standards for the collection and storage of the sampled materials. The weighted average value from the five sources is 4.38 pounds per square foot.

Extrapolation factors are Census Bureau data that record the number of construction permits and the total square feet of new construction. According to the Department of Commerce Current Construction Reports (C-30), in 1996 the value of new private and public residential construction put in place totaled $181.795 billion. Data from areas where permits are required were used to calculate an average dollars per square foot. Total value in areas where permits are required was $127.9 billion for a total of 2,172 million square feet of floor space (1995). This amounts to $58.89 per square foot. Applying this factor to the total C-30 value and correcting 3 percent for inflation results in a total of 2,997 million square feet of new residential construction in 1996. At 4.38 pounds per square foot (Table 3), total generation is **6.56** million tons per year.

Nonresidential. The methodology for nonresidential construction debris is similar to that for residential construction debris. However, nonresidential buildings are much more varied than residential buildings and fewer waste assessments have been done, making the quantity estimates more uncertain.

Nonresidential buildings include private industrial, office, hotels/motels, other commercial, religious, educational, hospital and institutional, and miscellaneous buildings plus public industrial, educational, hospital, and other categories.

Table 3
ESTIMATED GENERATION OF RESIDENTIAL CONSTRUCTION DEBRIS

EMPIRICAL WASTE ASSESSMENTS

Date	Research Group	Type of data	Location	No. of Units	Building Size (Sq ft)	Total Waste (Pounds)	Generation rate (Lb/sq ft)	Average generation (Lb/sq ft)
1992	NAHB	Single-family	Portland, OR	1	3,000	13,684	4.56	
1994	NAHB	Single-family	Grand Rapids, MI	1	2,600	12,182	4.69	
1994	NAHB	Single-family	Largo, MD	1	2,200	10,210	4.64	
1995	NAHB	Single-family	Ann Arundel Cty, MD	1	2,450	9,436	3.85	
		Totals			10,250	45,512		**4.44**
1993	METRO	Single-family	Portland, OR	1	2,800	13,800	4.93	
1994	METRO	Single-family	Portland, OR	1	1,290	8,600	6.67	
1994	METRO	Single-family	Portland, OR	1	1,290	10,600	8.22	
		Totals			5,380	33,000		**6.13**
<1994	METRO (1)	Single family	Portland, OR	37	2,080	7,720	3.71	**3.71**
1996-97	Woodbin 2 (2)	Single-family	North Carolina	1	3,250	19,382	5.96	
1996-97	Woodbin 2	Single-family	North Carolina	1	3,250	36,722	11.30	
1996-97	Woodbin 2	Single-family	North Carolina	1	3,250	25,296	7.78	
1996-97	Woodbin 2	Single-family	North Carolina	1	3,250	28,805	8.86	
1996-97	Woodbin 2	Single-family	North Carolina	1	3,250	23,122	7.11	
					16,250	133,326		**8.20**
1993	County (3)	Single-family	McHenry Co. IL	1	2,000	14,880	7.44	
	Cornell U.	Single-family	Highland Mills, NY	1	1,890	4,556	2.41	
1996	NAHB	Multi-family (4)	Odenton, MD	36	50,400	204,000	4.05	
1993	County (3)	Multi-family (5)	McHenry Co. IL	6	9,000	33,580	3.73	
					59,400	237,580		**4.00**
Totals for 93 dwelling units				**93**	**172,130**	**754,494**		**4.38**

EXTRAPOLATION

Value of new private and public construction put in place (6)	181,795	million
Average cost of construction (7)	$60.66	per square foot
Total square feet of new construction	2,997	million square feet
Average C&D debris generation rate	4.38	pounds per square foot
Total Generation of Residential Construction Debris	**6.56**	**million tons**

(1) Average of 37 residential construction sites. Metro Report, 1994.
(2) Wake County SWM & NC Div of Pollution Prevention. Coordinated by Woodbin 2, a non-profit organization. Five sites were between 3000 and 3500 square feet each.
(3) Audit by McHenry County, assisted by Cornerstone Material Recovery.
(4) 36-unit condominium, average 1400 square feet.
(5) 6-unit apartment building.
(6) Department of Commerce, Current Construction Reports.
(7) Based on 1995 construction permits, 3% adjustment to 1996 for inflation.

Source: Franklin Associates

Table 4 shows the results of six nonresidential waste assessments. Ranging from 1.61 to 4.21 pounds per square foot, the average generation rate of the individual sampling studies is 3.89 pounds per square foot. These buildings include a retail store, restaurant, institutional building, and two office buildings.

Table 4
ESTIMATED GENERATION OF NONRESIDENTIAL CONSTRUCTION DEBRIS

EMPIRICAL WASTE ASSESSMENTS

Date	**Research Group**	**Type of data**	**Location**	**Building Size (Sq ft)**	**Total Waste (Pounds)**	**Generation Rate (Lb/sq ft)**
1995	Turner Construction	Retail Store Construction	Seattle, WA	37,000	148,000	4.00
1995	METRO	County Justice Center	Portland, OR	41,850	176,000	4.21
1992	METRO	Restaurant	Portland, OR	5,000	10,940	2.19
1994	METRO	Office construction (1)	Portland, OR	7,452	12,000	1.61
1997	Sellen Construction	Office construction	Seattle, WA	297,115	1,163,560	3.92
			Totals	388,417	1,510,500	
			Average			**3.89**

EXTRAPOLATION

Value of new private and public construction put in place (2)	198,700	million dollars
Average cost of construction (3)	$90.40	per square foot
Total square feet of new construction	2,198	million square feet
Average C&D debris generation rate	3.89	pounds per square foot
Total Generation of Nonresidential Construction Debris	**4.27**	**million tons**

(1) Two office buildings.
(2) Department of Commerce Current Construction Reports.
(3) Based on 1995 construction permits, with 3% adjustment to 1996 for inflation.

Source: Franklin Associates

The 1996 value of nonresidential buildings, as reported in Current Construction Reports, is $198.7 billion. Average construction costs in 1995 were $87.77 per square foot, resulting in an estimated 2,197.7 million square feet of new construction, after making a 3 percent correction for inflation. Multiplying by 3.89 pounds per square foot results in a total estimated generation of **4.27** million tons per year.

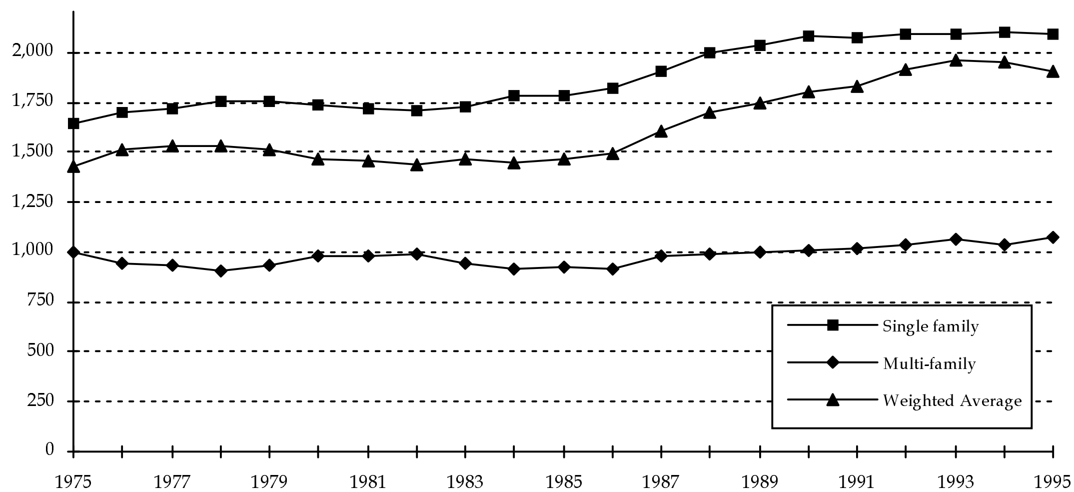
Demolition Debris

Residential. Demolition debris is estimated, starting with the number of residential demolitions per year, estimating the average house size when demolished, and then multiplying by the waste material per square foot, from empirical demolition waste assessments.

The NAHB economists have estimated the number of demolitions per year, based on Component of Inventory Change (CINCH) data (Carliner 1996). They estimate that the units actually destroyed through intentional demolitions or disasters such as fires or weather-related incidents between 1980 and 1993 averaged 245,000 per year. This is about three times the number reported by the Census Bureau based on permit data. Reasons for the higher number include unpermitted demolitions, municipalities that do not require permits, and demolition permits that are handled by municipal offices other than building departments. Although CINCH data have been discontinued in 1995 due to federal budget cuts, these data are expected to be available through the American Housing Survey (AHS).

Houses of all ages and sizes may be demolished, but on average it is recognized that older houses are demolished more frequently, and older houses are on average smaller than new ones. New single-family housing units and multi-family housing units (including apartments and condominiums) built in 1995 averaged 2,100 square feet and 1,050 square feet, respectively. Figure 2 shows how average new house sizes have increased over the last 20 years. Multi-family houses have remained nearly the same, while new single-family houses grew from 1,600 square feet to 2,100 square feet. For this analysis, we assumed the average single-family and multi-family house sizes are 1,600 and 1,000 square feet, respectively, when demolished.

Figure 2. Average size of new house constructio



Source: Bureau of the Census

Table 5 shows three single-family house demolition assessments and one multi-family deconstruction assessment. The weight of houses when demolished depends critically on whether the houses have concrete foundations and basement walls or not. The use of masonry in exterior cladding also affects the house weight significantly. None of the three single-family houses in Table 5 had full basements. Therefore, we made adjustments to the sampling data to develop an estimate of residential demolition debris which reflects the likely impact of some of the demolished houses having basements.

Table 5

ESTIMATED GENERATION OF RESIDENTIAL DEMOLITION DEBRIS

EMPIRICAL WASTE ASSESSMENTS

Date	Research Group	Type of data	Location	Building Size (Square feet)	C&D Debris (Pounds)	Generation rate (Lb/sq ft)
1992	METRO	SF Demolition (1)	Portland, OR	1,280	66,000	52
1994	METRO	SF Demolition (2)	Portland, OR	1,200	63,000	53
1994	METRO	SF Demolition (3)	Portland, OR	750	31,000	41
	Total Single-family, without foundations			3,230	160,000	50
	Adjustment for concrete (4)				197,000	61
	Total Single-family, including concrete			3,230	357,000	111
1997	NAHB	4 unit MF Deconstruction	Maryland	2,000	254,400	127
	Weighted average for single-family and multi-family (Appendix A-3)					**115**

EXTRAPOLATION

Estimated number of residential demolitions per year	245,000
Estimated average size of residences demolished (sq ft)	1,396
Average C&D debris generation rate (pounds per square foot)	115
Total Generation of Residential Demolition Debris (tons/yr)	**19,700,000**

(1) 1920s house. Concrete rubble not included.
(2) Concrete rubble not included.
(3) Small house without basement.
(4) Franklin Associates estimate. See Table A-3 for calculation of amount of concrete, in lb/sq ft. (Assumes a composite house, i.e., partial basement, garage, etc.)

Source: Franklin Associates

The Census Bureau provides data on the types of foundations in existing houses in *Current Housing Reports*. Forty-five percent of single-family houses have basements, 26 percent are on concrete slabs, and the remainder have crawl spaces. Table A-3 in the appendix describes an analysis using these percentages to estimate that on average the amount of concrete in a 1,600 square foot single family house is 61 pounds per square foot. The amount can range from zero for houses without basements, garages, or driveways to more than 150 pounds per square foot.

We estimate the total C&D debris generated when single-family houses are demolished is 111 pounds per square foot. For multi-family housing, NAHB Research Center's value of 127 pounds per square foot (Table 5) was used, resulting in an average for all residences of 115 pounds per square foot. Applying this rate to the 245,000 housing units demolished per year results in a waste generation estimate of **19.7** million tons per year, as shown in Table 5.

Nonresidential. The method used to estimate the generation of nonresidential demolition debris is to first determine the number of demolitions per year, then estimate the average size (in square feet) of buildings being demolished. The number of square feet is then multiplied by the generation per square foot, as determined by empirical waste assessments.

The Census Bureau has, until 1995, monitored the number of demolitions, based on permits issued by permit issuing entities. This data series is now discontinued because of federal budget cuts. In 1995, a total of 43,795 nonresidential demolition permits were issued. That number is used in this study as an estimate for 1996. In 1994 there were 45,061 permits issued, which suggests that using the 1995 number for 1996 is a reasonable estimate. Data were not found indicating that the number of demolitions is actually larger than the permits would indicate. Therefore, no correction was made, as was done for residential demolitions. It is less likely that nonresidential demolitions escape the permitting requirements than residential demolitions, because nonresidential demolition is more closely regulated.

We estimated the average nonresidential building size at 13,300 square feet by the following method. The 1996 ***Statistical Abstract*** characterizes existing commercial buildings by type, including the number of buildings, and total square feet based on the time period (decade) when the buildings were built (EIA 1992). Based on those data, we determined that buildings now standing that were built between 1920 and 1969 average 13,300 square feet per building.

Table 6 shows the results of waste assessments at 23 nonresidential buildings over the last several years. The average generation rate is 155 pounds per square foot. Multiplying by the square feet per building and the total number of demolition permits results in a nonresidential demolition debris generation of **45.1** million tons per year.

Renovation Debris

Renovation (or remodeling) includes improvements and repairs to existing buildings. Renovation debris consists of both construction and demolition materials. Remodeling waste quantities are even more variable than construction or demolition waste. Renovation debris ranges from single materials being generated, such as when driveways or roofs are replaced, to multiple material generation, such as when buildings are modified or enlarged. For this analysis, we made estimates for wastes generated when major improvements are made.

Table 6
ESTIMATED GENERATION OF NONRESIDENTIAL DEMOLITION DEBRIS

EMPIRICAL WASTE ASSESSMENTS

Date	Research Group	Type of Building	Location	Building Size Square feet	Total Waste Tons	Generation rate Lb/sq ft
1991	NAHB	Prison shop	Oakalla, BC	12,000	1,301	217
1994-1995	METRO	Warehouse	Portland, OR	86,400	1,566	36
1992	METRO	Department store	Portland, OR	44,000	3,639	165
1994	METRO	Institutional building	Portland, OR	60,000	5,454	182
1997	Argonne	Office building	Chicago, IL	5700	289	101
1997	W. County	Cold storage building	Washington Co., OR	73,600	13,163	358
1995-1996	R.W. Rhine	17 Industrial buildings	Northwestern U.S.	2,204,000	167,200	152
		Totals		2,485,700	192,612	
		Average				**155**

EXTRAPOLATION

Total demolitions (1)	43,795	
Average building size (2)	13,300	sq ft
Average C&D debris generation rate	155	pounds per square foot
Total nonresidential demolition debris	**45,100,000**	**tons/year**

(1) U.S. Census Bureau, Manufacturing and Construction Division, 1995.
(2) U.S. Energy Information Administration, 1992. From 1996 Statistical Abstract.

Source: Franklin Associates

Residential. In 1996, the value of residential improvements and repairs amounted to $114.3 billion (Census 1997). Of this, 68 percent (or $77.7 billion) was for improvements and 32 percent (or $36.6 billion) was for repairs. Improvements are defined by the Census Bureau to include additions, alterations, and major replacements which add to the value or useful life of a property, or adapt a property to a new or different use. Repairs include incidental maintenance and repairs to keep a property in ordinary operating condition (C-Series Reports).

Because of the wide variation in remodeling projects, waste assessments to determine generation per square foot are not very useful for estimating total generation. More important is the amount of material produced per job, e.g., per kitchen addition or bath remodeling or roof replacement. Table 7 shows the results of five waste assessments that have been made at residential sites, showing a wide variation in generation rates on a square foot basis. Remodeling typically generates more waste per square foot than new construction, largely because of the demolition that accompanies remodeling. However, some remodeling jobs, like roof replacement, produce relatively low amounts of material on a square foot basis.

Table 7
EMPIRICAL WASTE ASSESSMENTS FOR RESIDENTIAL RENOVATION DEBRIS

Date	Research Group	Type of data	Location	Size of Project (Sq ft)	Total Waste (Pounds)	Generation rate (Lb/sq ft)	Average generation (Lb/sq ft)
1997	NAHB	SF Remodel (Kit & rm add.)	Maryland	560	11,020	19.68	
1997	NAHB	SF Remodel (bathroom)	Chapel Hill, NC	40	2,883	72.10	
		Totals		600	13,903		**23.17**
1993	METRO	Kitchen remodel	Portland, OR	150	9,600	64.00	
1993-1994	METRO	House remodel	Portland, OR	1,330	26,000	19.55	
		Totals		1,480	35,600		**24.05**
1997	NAHB	SF Remodel (New roof)	Maryland	1,400	4,640	3.31	**3.31**

Source: Franklin Associates

We estimated renovation debris generation for this analysis by reviewing the number of major home improvements, then estimating the amount of material produced by each type of improvement. Although all home improvement projects cannot be included in a study of this type, selection of the major projects can be useful for making first estimates.

Appendix A Tables A-7, A-8, A-9, and A-10 show some of the assumptions made and the results of estimating the amount of material produced when driveways are replaced, when asphalt and wood roofs from residences having one to four units per structure are replaced, and when residential heating and cooling equipment is replaced. Based on the assumptions made, replacement of these categories produces 13 million tons of concrete from driveways, 6.4 million tons of asphalt roofs, 1.4 million tons of wood roofing, and 1.6 million tons of heating, ventilating, and air conditioning (HVAC) equipment.

The analysis above assumes that 60 percent of residential driveways are made of concrete and are on average 45 feet long (NAHB 1995). Asphalt driveways are also very common, but replacement generates much less waste than concrete, since asphalt driveways are usually overlaid with new asphalt rather than being replaced.

Approximately 67 percent of residences have asphalt roofs (NAHB 1997a). For this analysis, 25 percent were assumed to have wood roofs. Other residential roofing materials include slate, tile, metal, and concrete. These materials are used much less than asphalt and wood, and generally are used over long periods before being replaced.

The NAHB Research Center has compiled estimates of waste generation rates by type of remodeling projects (Yost 1998). The major waste generation remodeling activities involve kitchens, bathrooms, and room additions. Generation from these job types are shown in Table A-5 in Appendix A.

Annually there are approximately 1.25 million major kitchen remodeling jobs (complete tear-out), with an average generation of 4.5 tons per job, and 1.25 million minor kitchen remodeling jobs (facelift, e.g., cabinet replacement) at 0.75 tons per job. Major bath remodelings (1.2 million per year) produce on average one ton of waste material each, and 1.8 million minor bath remodeling jobs produce on average 0.25 tons of waste each. Room additions, estimated at 1.25 million per year, produce on average 0.75 tons apiece. On this basis, we estimated total residential renovation generation, from the improvement or replacement projects itemized above, to be **31.9** million tons per year.

Nonresidential. Based on Census Bureau data, total dollars spent for nonresidential renovation projects in 1996 was $100.4 billion. We calculated this number by assuming the ratio of residential to nonresidential dollars is the same in 1996 as in 1992. We could not find any information on total renovation dollars for 1996.

Very few waste assessments are available for nonresidential renovation. Therefore, the previous methodology cannot be used to estimate this amount. Lacking specific assessment data, we compared total dollars spent on nonresidential and residential renovation and assumed that the amount of waste generated is proportional to dollars spent in these two sectors. (See Table A-6 for more details of this analysis.)

Based on the assumption that waste generation per dollar is equal to the residential rate, total nonresidential renovation is equal to **28.04** million tons per year, less than residential generation by the ratio of dollars spent.

Summary of Building-Related C&D Generation

Table 8 summarizes the estimates for C&D debris generation from the construction, demolition, and renovation of residential and nonresidential buildings in the United States. The estimated total for 1996 is almost 136 million tons, with 43 percent coming from residential and 57 percent from nonresidential sources. Forty-eight percent of the C&D debris generated is from building demolitions, 44 percent is from renovation, and 8 percent is from building construction.

Figure 3 provides a breakdown, in percent of total, of the six building sectors that generate C&D debris. The largest sector is nonresidential demolition at 33 percent. Residential and nonresidential renovation debris make up 23 and 21 percent, respectively, followed by residential demolition at 15 percent. New construction represents 8 percent of total C&D debris, with residential at 3.4 percent and nonresidential at 4.8 percent.

Table 8

SUMMARY OF ESTIMATED BUILDING-RELATED C&D DEBRIS GENERATION, 1996*
(Roadway, Bridge, and Land Clearing Debris not included)
(Thousand Tons)

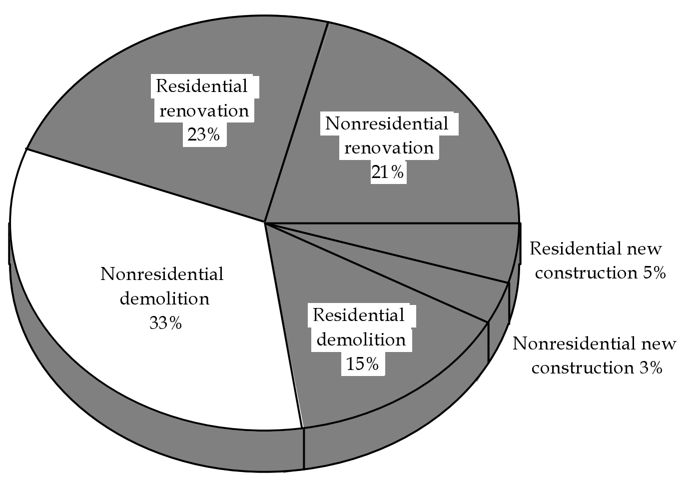
Source	Residential		Nonresidential		Totals	
	Thou tons	Percent	Thou tons	Percent	Thou tons	Percent
Construction	6,560	11	4,270	6	**10,830**	**8**
Renovation	31,900	55	28,000	36	**59,900**	**44**
Demolition	19,700	34	45,100	58	**64,800**	**48**
Totals	**58,160**	100	**77,370**	100	**135,530**	**100**
Percent	**43**		**57**		**100**	

* C&D debris managed on-site should, in theory, be deducted from generation. Quantities managed on-site are unknown.

Source: Franklin Associates

The estimate of 136 million tons per year is equal to 2.8 pounds per capita per day (pcd). This compares to 4.3 pcd of MSW generation. Note that the 2.8 pcd does not include C&D debris from roadway and bridge construction and demolition or from land clearing projects. These wastes are discussed briefly in the following section.

Figure 3. Generation of construction and demolition debris from buildings



CONSTRUCTION AND DEMOLITION DEBRIS GENERATION FROM ROAD, BRIDGE, AND OTHER NON-BUILDING ACTIVITIES

In this initial characterization study, we developed a methodology to estimate C&D debris generation from building construction, demolition, and renovation. However, because point source data were not available, we did not estimate the generation of site clearance materials, excavated materials, and roadwork materials. These are waste streams that will require further investigation in future editions of EPA's C&D work. These other wastes are typically managed by many of the same processors and landfills that manage building-related wastes.

We have made attempts, however, to provide certain cameo examples of locally generated data on most of these other generating sectors within the context of this report. Most communities and states that report C&D debris include the total C&D debris stream, which of course varies according to applicable regulations and definitions.

In 1995, a report was completed for Anne Arundel County, Maryland (part of the Metro Washington, DC area) that attempted to quantify total C&D debris generated and/or disposed in that County (GBB 1995). The report concluded that 138,000 tons per year of in-County generated C&D waste was being disposed at area C&D landfills (called "rubblefills" in the State of Maryland), while 435,000 tons per year of C&D debris materials were processed/recycled. This latter figure was reported to be about 12 percent wood waste and 88 percent concrete, asphalt, brick, block and porcelain waste generated in the County. This particular report is significant in the sense that it represents an example of total C&D generation in a large developing community.

STATE CONSTRUCTION AND DEMOLITION DEBRIS GENERATION RATES

We identified six states that have C&D debris generation records available. They are California, Florida, Massachusetts, Oregon (Portland metropolitan area), South Carolina, and Vermont. Generation of C&D debris from these states ranged from 1.43 pcd in South Carolina to 3.41 pcd for Massachusetts.

All of these states except Massachusetts report rates lower than 2.8 pcd, which is our estimate for building-related debris alone. The state data may include road debris as well. There are several reasons some of the states' estimates may be low. The six states' data reflect reports from facilities receiving C&D debris. Some of the many locations typically accepting C&D debris—ranging from established landfills to processors to sites with temporary permits (or no permits)—may be missed when C&D debris quantities are reported. Also, C&D debris mixed with MSW may be missed. In some states, road debris (asphalt and concrete) is mostly reused or recycled; it either remains on site or is incorporated into other roads. Thus, very little road debris would be expected in the states' quantities.

It is important to note that the methodology used in this report includes all building-related C&D debris, whether managed in C&D or MSW landfills, processing centers, land clearing landfills, or unpermitted landfills. It also includes on-site managed waste, if any, e.g., concrete or asphalt that is used as fill material, since no method was determined for making a correction. An important feature of the methodology used for residential demolition debris estimation, i.e., changes in housing inventory, is that residential buildings destroyed by natural disasters are included in this estimate.

We contacted two of the states by phone to discuss their C&D debris generation estimates. Florida reported a generation rate in 1995 of 2.01 pounds per capita per day. This rate was determined from reports to the state by each of the counties. The waste reported consists primarily of building waste, and is thought by the official contacted to be under-reported by many of the counties (Moreau 1997).

South Carolina has a reported generation rate of 1.43 pcd. The person contacted thinks that number is also grossly under-reported (Pitt 1997). C&D debris landfills for utilities and manufacturing and short term landfills are not required to report their quantities in South Carolina, and are not monitored by the State.

COMPOSITION OF CONSTRUCTION AND DEMOLITION DEBRIS

Six sets of C&D sorting data that provide some empirical measurements of the composition of C&D debris were identified. Each of the sampling studies was conducted with the specific goal of developing composition data for C&D debris. Probably the most rigorous assessments have been conducted at residential construction sites. These waste assessment projects are:

1. The National Association of Homebuilders (NAHB) Research Center conducted waste assessments at four residential construction sites: Largo, Maryland; Anne Arundel County, Maryland; Portland, Oregon; and Grand Rapids, Michigan. The Research Center also conducted a waste assessment at a four-unit multi-family demolition (or deconstruction) site (NAHB 1997b).

2. The Metropolitan Service District in Portland, Oregon (METRO) conducted a series of sampling projects at a number of residential and nonresidential construction, demolition, and renovation sites in Oregon.

3. Cunningham Environmental Consulting and the Cascadia Consulting Group sampled loads of C&D debris at disposal sites and transfer stations. Loads of residential and commercial construction, demolition, and remodeling debris from the Seattle area were selected (Cunningham 1996). Detailed sorting of these loads was done.

4. Gershman, Brickner & Bratton, Inc. (GBB) conducted a C&D sorting study for the Town of Babylon, New York that was funded by the New York State Energy Research and Development Authority (NYSERDA). The three-week study included C&D samples from waste loads from all or parts of 16 residential and nonresidential construction, demolition, and renovation projects (Brickner 1993). A total of 161.5 tons were sorted.

5. GBB, in association with the Metro Waste Authority, also sampled C&D debris from residential and commercial construction, demolition, and remodeling projects in Des Moines, Iowa for a one-week period (Brickner 1995).

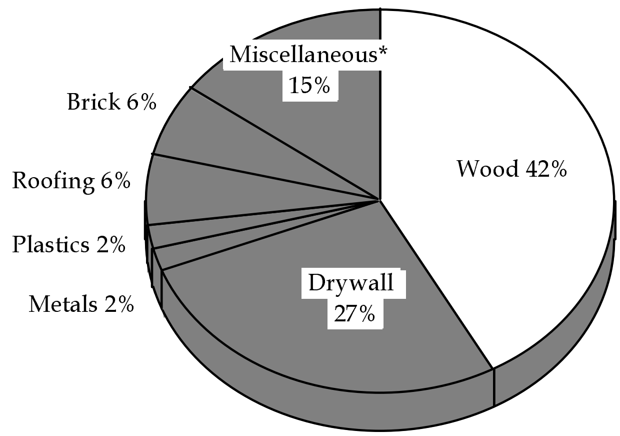
6. R.W. Rhine, Inc. of Tacoma, Washington, a demolition contractor, provided waste assessment data from the demolition of 19 nonresidential (industrial/commercial) buildings in the greater Northwest area.

In addition to the analyses listed above, the University of Florida is conducting waste audits at Florida residential construction sites. Data from these studies are expected to be available soon.

The detailed composition data from the sampling studies are shown in Tables A-11 through A-18 in Appendix A of this report. A review of these tables demonstrates that the composition of C&D debris is highly variable, as may be expected because of the many different types of buildings and construction practices in existence. The data collections were done under many different conditions and levels of detail. Therefore, we made no attempt to average all the compositions. Although different, there are some observations that can be made.

The first two (Tables A-11 and A-12) and sixth (Table A-16) sets of data characterize waste at the source, i.e., at specific construction or demolition sites. The other three data sets (Cunningham in the Seattle area and GBB in Babylon, New York and Des Moines, Iowa) characterize debris as disposed at the landfills. The sectors (or sources) for each load of C&D debris that was sorted are identified, but the specific phase of construction or demolition is not identified.

Figure 4. Sample composition of residential new construction debris
(Average of assessments in four locations)



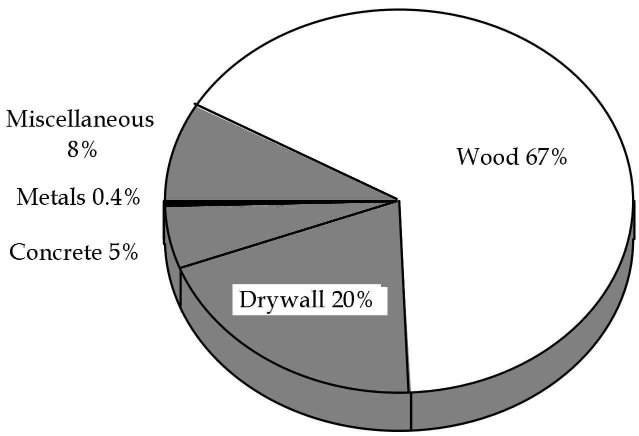
Source: NAHB Research Center * Refuse, dirt, sweepings, and aggregat

NAHB and Metro examined both composition and quantity per square foot of floor space for single-family housing. Both of these groups developed data from well-defined construction projects, i.e., the materials consist of trim scraps from beginning to end of the residential construction process, without serious contamination from other sources. Figures 4 and 5 show these data in percent by weight. Figure 4 shows the average composition for four single-family houses, two in the East, one in the Midwest, and one in the Northwest. Wood is the largest component, followed by drywall.

Figure 5 shows the composition from three new residential construction sites in the Portland, Oregon area. The percentage of wood in the Northwest samples is considerably higher, as may be expected, because a large fraction of homes in the Northwest have wood roofs. Residential construction debris in the Southwest and southern United States is expected to contain a lower percentage of wood than in the East and Midwest, and more brick and cinder blocks. As waste assessment data become available in other regions of the country, it will be possible to develop an overall composition for residential construction debris and to relate composition to total generation, i.e., estimate total C&D debris generation by material type.

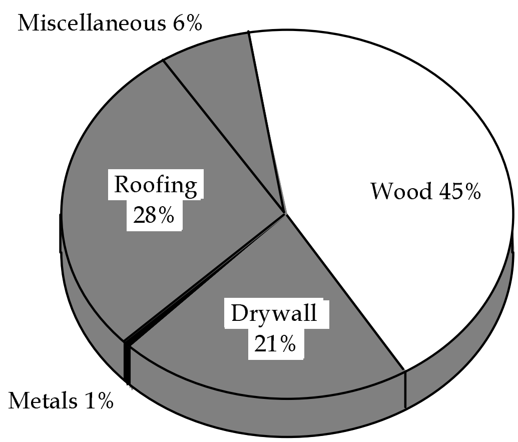
Figure 6 shows the composition of residential renovation debris in the Northwest. This stream is similar to the construction debris stream, but with an obvious difference, an increase in the amount of roofing materials. Only trim pieces of roofing are included in new construction debris.

Figure 5. Sample composition of residential new construction debris (Average of three sites, Portland, Oregon)



Source: METRO Portland, Oregon

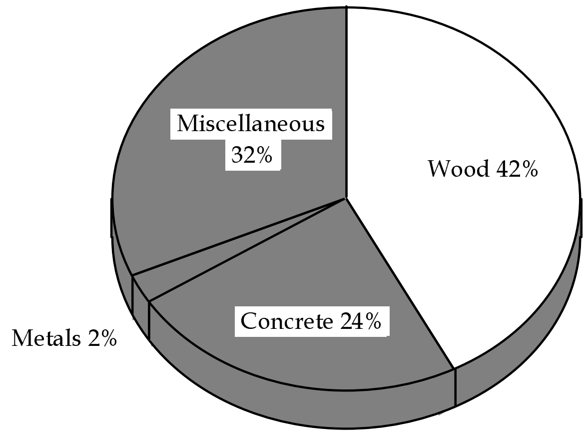
Figure 6. Sample composition of residential renovation debris (Average of two sites, Portland, Oregon)



Source: METRO Portland, Oregon

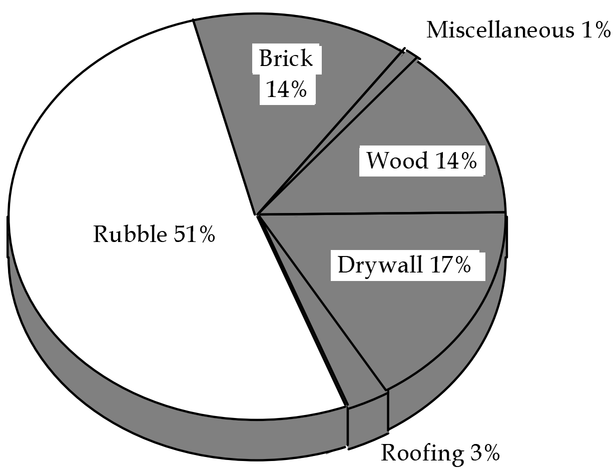
Concrete is missing from the renovation stream of Figure 6. Obviously these two projects did not include projects like driveway replacement. This demonstrates that many samples are required before we can report an overall composition that represents the U.S. average with confidence.

Figure 7. Sample composition of residential demolition debris (Average of three sites, Portland, Oregon)



Source: METRO Portland, Oregon.

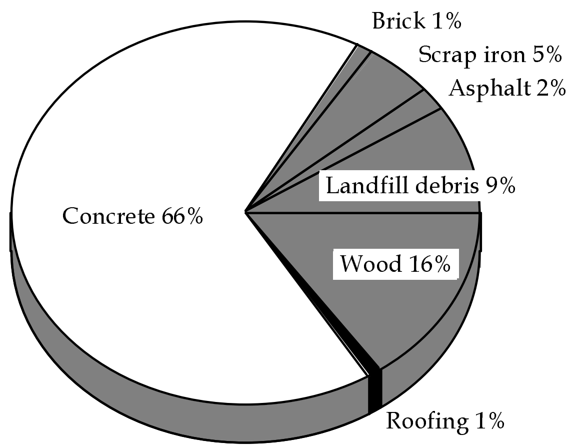
Figure 8. Sample composition of multi-family demolition debri



Source: NAHB Research Center, Inc.

Figure 7 displays the composition of residential demolition debris. Concrete is an obvious component of this stream, as it is in Figure 8, which shows the composition of a 2,000 square foot two story four-plex that was disassembled by NAHB in a demonstration project for the USEPA.

Figure 9. Sample composition of demolition debris
(19 nonresidential projects in the Pacific Northwest)



Source: R.W. Rhine, Inc., Tacoma, WA

Figure 9 shows the average composition of 19 nonresidential buildings that were demolished in the Northwest area. These were large industrial/ commercial type buildings that ranged in weight from 891 tons to 37,500 tons. While this figure represents the average composition, the percentage of wood ranged from 0.03 percent to 88 percent in the 19 buildings. This demonstrates the huge variability of building types.

Some general observations can be made from these figures. Residential construction and renovation projects tend to yield significant quantities of wood and drywall, whereas demolition sites are heavily weighted toward concrete and rubble. The debris from 19 nonresidential demolition projects of Figure 9 averaged 66 percent concrete.

Chapter 2

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Chapter 3

MANAGEMENT OF CONSTRUCTION AND DEMOLITION DEBRIS IN THE UNITED STATES

INTRODUCTION

Construction and demolition (C&D) debris is managed in a variety of ways, ranging from reuse to recycling to disposal in landfills or combustion facilities. The most common management method is landfilling, including specially permitted C&D landfills and municipal solid waste (MSW) landfills, as well as unpermitted inert debris sites.

In most states there is no formal reporting mechanism that documents C&D debris disposal, recovery, or recycling activities. The information collected by many state agencies is largely anecdotal. In addition, information from private companies is generally considered to be proprietary and not available for public dissemination.

LANDFILLING

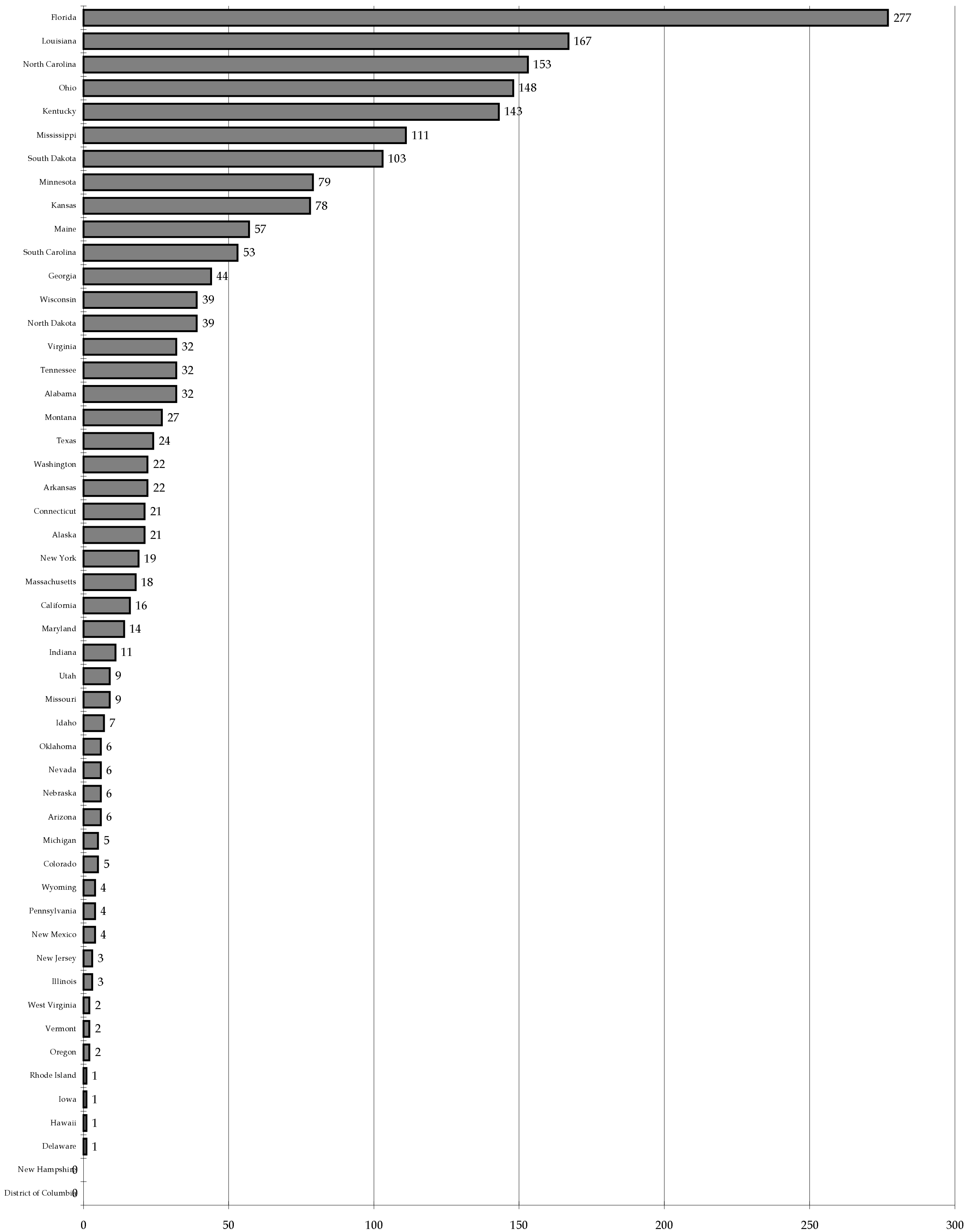
A large fraction of C&D debris generated in the United States ends up in C&D landfills. Since much of this waste stream is inert, solid waste rules in most states do not require the landfills to provide the same level of environmental protection (liners, leachate collection, etc.) as landfills licensed to receive MSW. Therefore, C&D landfills generally have lower tipping fees, and handle a large fraction of the C&D debris.

A 1994 survey done for the EPA identified about 1,900 active C&D landfills in the United States (ERG 1994). Florida had the largest number (280), followed by six other states (Louisiana, North Carolina, Ohio, Kentucky, Mississippi, and South Dakota) with over 100 C&D landfills apiece. (See Appendix A, Table A-19 and Figure 10.)

A recent survey of 850 randomly selected C&D landfills in the United States (40 percent response rate) found that on average, C&D landfills received 29,300 tons of material in 1995 (Bush 1997). Assuming that average holds true for the 1,900 active landfills, 55.6 million tons per year are disposed of in permitted C&D landfills. This amount is equal to about 41 percent of the estimated 136 million tons of building related C&D debris, as estimated in the previous chapter. However, this 55.6 million tons is likely to contain significant amounts of non-building C&D debris.

The amount of C&D debris disposed of in MSW landfills is not known. It is significant, however, because in many areas, particularly where landfill tipping fees are low, disposal in MSW landfills is the most common management method for C&D debris.

Figure 10. Number of C&D debris landfills in the United States



Source: ERG List prepared for USEPA, September 30, 1994.

A significant fraction of residential renovation debris is discarded by homeowners into the household trash and disposed of in MSW landfills. Discarded items include replacement plumbing and electrical fixtures, lumber, and other building materials used in home repair or improvement projects.

Unpermitted landfills for C&D debris are also very common in many states. These are fill areas for inert materials, with little or no control or record keeping by the state or local governments. Some of these are on-site facilities that are used only for the disposal of C&D debris generated at a specific site and may be closed following completion of the activity. Little data exists on the number of unpermitted C&D landfills nationwide. Georgia, the only state known to count them, has about 900 such sites (ICF 1995).

Open burning of C&D debris at construction sites is practiced in many rural areas as well as in many small to medium size cities. The amount of material burned is unknown.

Regulatory schemes used by states for C&D landfills have been divided into four categories as summarized in Table 9. Eleven states require C&D landfills to meet state MSW landfill requirements or requirements similar to these. Twenty-four states regulate C&D landfills separately from MSW landfills. In addition to the 24 states that regulate all C&D landfills as a landfill unit separate from sanitary landfills, eight states have defined further separate requirements for on-site and off-site C&D landfills. Of those eight states, Maine requires both off-site and on-site landfills to meet MSW landfill rules if they are greater than six acres. Seven states exempt all on-site landfills from regulatory requirements. Of these seven, sanitary landfill regulations apply to all off-site landfills in Colorado and New Mexico.

In summary, disposal in landfills is the major waste management option for C&D debris from buildings. We estimate that C&D, MSW, and other landfills account for roughly 65 to 85 percent of that waste stream.

RECOVERY OF C&D DEBRIS FOR RECYCLING

The six major constituents of C&D debris, if not too severely contaminated, have all been recovered and processed into recycled-content products that have been marketed somewhere in the United States. The materials most frequently recovered and recycled are concrete, asphalt, metals, and wood. To a much lesser degree, gypsum wallboard and asphalt shingles have been processed and recycled. The technologies to recover and process these materials for reuse are available. The major barriers to increased recovery rates at this time are:

Table 9

STATE REGULATORY SCHEMES FOR C&D LANDFILLS

State	Must meet MSW Landfill Requirements	Separate C&D Debris Regulations	Separate Requirements for On-Site and Off-Site Landfills	Exempt On-Site C&D Debris Landfills from Regulation
Alabama		Yes		
Alaska	Yes			
Arizona	Yes			
Arkansas		Yes		
California		Yes		
Colorado				Yes
Connecticut	Yes			
Delaware		Yes		
Florida		Yes		
Georgia		Yes		
Hawaii				Yes
Idaho	Yes			
Illinois			Yes	
Indiana		Yes		
Iowa	Yes			
Kansas		Yes		
Kentucky			Yes	
Louisana				Yes
Maine			Yes	
Maryland		Yes		
Massachusetts	Yes			
Michigan			Yes	
Minnesota		Yes		
Mississippi				Yes
Missouri		Yes		
Montana		Yes		
Nebraska	Yes			
Nevada	Yes			
New Hampshire		Yes		
New Jersey			Yes	
New York		Yes		
New Mexico				Yes
North Carolina		Yes		
North Dakota	Yes			
Ohio		Yes		
Oklahoma	Yes			
Oregon				Yes
Pennsylvania			Yes	
Rhode Island	Yes			
South Carolina		Yes		
South Dakota		Yes		
Tennessee			Yes	
Texas		Yes		
Utah				Yes
Vermont		Yes		
Virginia		Yes		
Washington		Yes		
West Virginia			Yes	
Wisconsin		Yes		
Wyoming		Yes		
Total Number	**11**	**24**	**8**	**7**

Source: ICF Incorporated. "Construction and Demolition Waste Landfills." February 1995.

- the cost of collecting, sorting, and processing;
- the low value of the recycled-content material in relation to the cost of virgin-based materials, and
- the low cost of C&D debris landfill disposal.

Responses to a survey of North American aggregate producers indicated that plant permitting issues, as well as product specifications that favor the use of virgin materials, were also problems facing recyclers (Deal 1997).

The number of recycling facilities for C&D debris has been growing rapidly in the last few years. In 1996, it was estimated there were at least 1,800 operating C&D recycling facilities (Brickner 1997). That number includes more than 1,000 asphalt and concrete crushing facilities, 500 wood waste processing plants, and 300 mixed-waste C&D facilities. No information is available on the average throughput of these facilities.

The estimate of 1,800 C&D facilities does not include quarry rock crushing plants, brush/tree tub grinding plants, or pallet grinding operations. The asphalt and concrete crushing plants handle large quantities of road debris, but also concrete recovered from building construction, renovation, and demolition.

The largest number of C&D recycling facilities were reported to be in the Western States (28 percent) and the Mid-Atlantic states (27 percent). The Southwestern and Rocky Mountain States each have only three percent of the total, and the Southeastern, Upper Midwestern, and New England states have 12, 13, and 14 percent of the facilities, respectively.

Because of the effort being exerted to develop markets for recovered materials, the number of C&D recycling facilities is continuing to grow. A July 1997 status update lists 37 new recycling plants or equipment additions in the United States, including planned projects for the rest of 1997 (Leiter 1997). The editor of **C&D Debris Recycling** estimates there are now more than 3,500 C&D debris recycling facilities in operation (Turley 1998).

Deconstruction

Deconstruction is a new expression to describing the process of selective dismantling or removal of materials from buildings before or instead of demolition (NAHB 1996a). A common practice in the United States is to remove materials of value from buildings prior to and during demolition for recycling or reuse. Reuse and recycling examples include electrical and plumbing fixtures that are reused, steel, copper, and lumber that are reused or recycled, wood flooring that is remilled, and doors and windows that are refinished for use in new construction.

Demolition contractors have been practicing deconstruction in varying degrees for a number of years to remove some of the more valuable materials prior to demolition by conventional methods. This activity, along with recovery of demolition materials after the building has been knocked down, has increased significantly since the 1970s and 1980 (Taylor 1997). Deconstruction minimizes contamination of demolition debris, thus increasing the potential for marketing the recovered materials. It is, however, labor intensive, and may require more time than traditional demolition.

Several deconstruction demonstration projects have been completed recently, showing that high diversion rates may be achieved. The NAHB Research Center completed the deconstruction of a two-story, four-unit apartment building in Maryland (NAHB 1997). The Research Center measured the volume and the weight of all materials on site, whether salvaged, recycled, or landfilled. The diversion rate was 76 percent by weight and 70 percent by volume.

In another recent demonstration project, three buildings were deconstructed at the recently closed Fort Ord Army Base, located in Monterey County, California (Schneider 1997). The buildings included a one-story clinic, a single-story administration building, and a two-story barracks. Goals of this project include the evaluation of costs and potential recovery.

Asphalt and Concrete Recycling

Concrete is made up of cement, water, and aggregate, such as crushed stone, sand, or grit. Concrete can be recycled by first crushing it to remove any metals. The primary use of crushed concrete is as a replacement for road-base gravel. Other applications include use as an aggregate in asphalt or concrete. Concrete recycling is practiced in most areas of the country. The practice is most prevalent in areas where landfill tipping fees are high or aggregate is in short supply.

Asphalt pavements are made of asphalt concrete (AC), which consists of asphalt (the bituminous binder) and aggregate. The aggregate makes up the bulk of the asphalt concrete, while the asphalt binder comprises about 5 to 7 percent CIWMB 1997).

While no reports have been identified showing the amount of asphalt and concrete recycled, some datapoints that provide indications of the amounts recycled are discussed below (Brickner 1997).

As stated above, it is estimated there are more than 1,000 asphalt and concrete crushing facilities in the United States. GBB estimates that potentially 50 million tons per year of milled pavement in the United States is reused. Twenty to 50 percent goes back into pavement as Reclaimed Asphalt Pavement (RAP), with the remainder finding its way into aggregate base or subbase. GBB research in the Pacific Northwest, for example, has estimated that for the State of Washington alone, the use of RAP is between 650,000 and 1,000,000 tons per year.

Based on data collected for the State of Washington from waste concrete processors/recyclers, GBB has estimated that 1.4 to 1.5 million tons of waste concrete in that state are recovered, crushed, and recycled on an annual basis.

In Anne Arundel County, Maryland, an area between Washington, DC and Baltimore, Maryland, GBB field work in 1995 indicated that the concrete and asphalt processors in that County alone were receiving, crushing and recycling over 850,000 tons per year of these two types of materials (includes out-of-county generation).

In California, asphalt pavement and concrete are not reported separately. The state estimated generation of "inert solid waste," which consists of concrete, asphalt, dirt, brick and other rubble, at 8.2 million tons per year. The estimated recycling rate for inert solid wastes is 57 percent; the remainder is disposed of (CIWMB 1997).

Waste Wood Recycling

Wood waste produced at construction sites generally has a better potential for reuse than wood from demolition sites due to the ease of separating the materials. Demolition wood is often less desirable because of contamination and because of the difficulty in separating the wood from other building materials.

Wood processing facilities have sprung up in many areas of the United States in recent years, particularly in areas with high landfill costs. Many of these facilities accept wood from C&D debris as well as other wood. Processed (chipped) wood is used as mulch, composting bulking agent, animal bedding, and fuel. Wood waste from construction or demolition is attractive as a fuel because of its low moisture content. Depending on the wood waste boiler system design and the state/regional air pollution permit requirements for the facility, a level of quality control may be necessary at the wood processing plant to reduce and/or avoid the processing of treated and/or painted wood if used as a fuel source in a combustion process.

The American Forest & Paper Association (AF&PA) has located 315 wood processing facilities in the United States that process C&D debris, as shown in Table A-20 of the Appendix. These facilities were included in the estimate of 500 wood processing plants as discussed above. The leading states for these wood processing plants are North Carolina (44), Oregon (35), and California (34). Quantities of wood processed are not given in the AF&PA report.

Metals Recycling

Metals have the highest recycling rates among the materials recovered from C&D sites. Good markets for ferrous metals, as well as copper and brass, have existed for many years. The Steel Recycling Institute estimates the recycling rate for C&D steel is about 85 percent (18.2 million tons out of 21.4 million tons generated). These numbers include not only scrap steel from buildings but also from streets, bridges, and highways (Heenan 1996). The percentage of metals coming from roads and bridges is unknown.

A 1997 survey of North American aggregate producers by Vanderbilt University and C&D Recycling Magazine found that the markets for waste rebar removed from the concrete rubble appear to have increased from 1994 to 1997 (Deal 1997). Twenty-one percent of the 1994 recyclers depended on disposal for their rebar compared to 4 percent in 1997.

Asphalt Shingles

Asphalt shingles are most commonly used on slanted residential roofs. Built-up roofing, which consists of roofing felt between layers of tar and gravel, is traditionally used on flat commercial roofs. These two materials represent the majority of the waste coming from roof replacement or repair. About two-thirds of the residential roofing market is made up of asphalt shingles (NAHB 1996b). Other roofing materials include wood, tile, and concrete.

The common uses for recycled roofing asphalt include hot mix asphalt for paving, cold mix asphalt paving product, and new roofing materials. Meeting the specifications for paving and roofing materials is still limiting the growth of these applications. Preconsumer manufacturing scrap (approximately one million tons per year) is currently being used in hot mix asphalt; however, postconsumer scrap (estimated at 8 to 10 million tons per year), which is less uniform in composition, is not nearly as widely used or recommended for use in hot mix asphalt (Button 1997).

Drywall (Sheetrock, Gypsum)

Drywall is being recycled in several locations by first separating the paper backing, which is recycled into new paper backing, and then remixing the gypsum and using it in the manufacture of new drywall. Recovered drywall has also been used as animal bedding, cat litter, and as a soil amendment.

Estimated Recovery Rate

Because of the relatively benign nature of C&D debris (i.e., much of it is inert), there has been no concerted effort in the past to track and quantify the generation or recovery rate from a national perspective. Therefore, only general estimates can be made based on data from those local communities and states that monitor the waste stream.

A total survey of states was not feasible for this project, but several states were contacted in an attempt to estimate of the national recovery rate for C&D debris. States representing more than 50 percent of the U.S. population were contacted. Most states contacted have no statewide records available on the quantity of C&D debris generated or recovered for recycling. We identified five states that report recycling rate data for C&D debris. The recovery rates in the five states range from 37 percent to 77 percent. The five states and their reported recovery rates are:

Massachusetts	77 percent
Florida	46 percent
Vermont	37 percent
Oregon (Metro)	42 percent
South Carolina	40 percent
Average	48 percent

These data confirm that there is significant recovery of C&D debris for recycling in these locations. However, it is not likely that these five states are representative of the United States as a whole. We expect that the states that keep records have higher recovery rates than the national average.

The definitions of what constitutes C&D debris and what constitutes recycling among the states are not standardized, as was discussed earlier, although most C&D debris definitions include both building-related wastes and as road and bridge debris. Massachusetts includes asphalt and concrete from roads in both the numerator and denominator of the recovery rate calculation, but does not include land clearing debris, (i.e., stumps, soil, rock, etc.). Florida's recovery numbers include primarily building debris and land clearing debris. Road debris is generally not counted (Moreau 1997).

Several methods were explored for estimating a national recovery rate for C&D debris. The first is to look at the relationship of recovery rate and landfill tipping fees. It might be expected that states with low C&D landfill tipping fees have lower recovery rates.

Lowest C&D landfill tipping fees are generally in the lower population density states, such as the Midwest, where the average has been reported at $19.70 per ton, compared to $46 and $42.60 per ton in the Northeast and West, respectively (Bush 1997). A large number of states in the Midwest do not have recovery rate records. In the South, the average is $27.10 per ton. Using tipping fees as a guide, a conservative estimate would be that the average recovery rate might be about half of the average of the five states reporting recovery rates, or 20 to 30 percent of generation.

To test how reasonable the 20 to 30 percent estimate is, consider the 1,800 C&D debris recovery facilities referred to above. Assuming the 1,000 concrete and asphalt plants handle primarily road debris, there are 800 or more wood and mixed waste processors that are thought to handle primarily building debris. Recycling rates of 20 to 30 percent (27 to 41 million tons per year) would result in an average throughput of 90 to 140 tons per day, which appears to be a reasonable average size.

SUMMARY OF C&D DEBRIS MANAGEMENT PRACTICES

Over the past 10 years a significant amount of data has been collected on the amount of C&D debris disposed of at C&D and MSW landfills and the amount processed at recycling facilities. The studies were conducted at the municipal, county, or state levels. Research has also been conducted on the number of C&D landfills and processing facilities in operation on the national level. This foundation of new research was used to estimate how C&D debris is managed on a national level.

Table 10 summarizes our estimated C&D debris management practices in the United States in 1996. These quantity estimates apply to building-related wastes, as estimated in Chapter 2. An estimated 35 to 45 percent of the waste generated is managed in C&D landfills, 20 to 30 percent is recovered for recycling, and 30 to 40 percent is disposed of in MSW landfills and other disposal sites, such as unpermitted landfills or combustion facilities.

Table 10
ESTIMATED MANAGEMENT OF BUILDING-RELATED C&D DEBRIS IN THE UNITED STATES, 1996

Management Option	Million tons/year	Percent of Total
Recovered for recycling	25-40	20-30
C&D landfills	45-60	35-45
MSW landfills and other*	40-55	30-40
Totals	136	100

* Includes combustion and disposal in unpermitted sites.
Source: Franklin Associates

Chapter 3

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Chapter 4

ADDITIONAL PERSPECTIVES ON CONSTRUCTION AND DEMOLITION DEBRIS

INTRODUCTION

The solid waste industry usually identifies wastes according to the source and predominant method of solid waste management. Waste materials defined as municipal solid waste (MSW) are normally discarded from residences or commercial establishments and managed in municipally controlled landfills or processing facilities. Construction and demolition (C&D) debris is generated at construction and demolition sites, and managed in C&D landfills or processing facilities.

However, the lines separating the various sectors of solid waste are sometimes blurred. Data sources for the production of some components of MSW (e.g., paper products) are developed from trade association data. These sources tabulate the entire production, without regard to the final discard point; i.e., some paper products are not discarded from residences or commercial establishments, but are collected from construction sites. Conversely, some wastes that are classified as C&D debris by the methods developed in this report, because they are building materials, are placed into the household trash and end up in MSW landfills.

While this blurring of lines may not be an issue of great importance because of the relatively small amounts of crossover, it could potentially result in double counting of some fractions when estimating the national generation.

MSW COLLECTED WITH C&D DEBRIS

Definitions for some components that make up MSW are affected by the data that are available. For example, postconsumer old corrugated containers (OCC) are included in EPA's MSW characterization, even though some of them are discarded from construction sites. Light fixtures, major appliances, vinyl siding, and other items are often delivered to construction sites in corrugated boxes. As a result, nearly all construction site waste assessments include OCC as a waste category. On a volume basis, up to 20 percent of wastes collected at residential construction sites may be OCC. By weight, OCC ranged from 2 percent to 10 percent in the waste audits performed by NAHB.

An extensive year-long demonstration project conducted by CornerStone of Wisconsin, Inc. was monitored on a quarterly basis by GBB (Brickner 1997). GBB reported that through the use of specialized collection vehicles serving new residential construction in Southeast Wisconsin, the amount of collected and marketed OCC averaged about 25 percent of the total collected volume of material. Since the loose corrugated containers were estimated to occupy about 30 cubic yards per ton, the actual weight recovered was estimated to be 7 percent of the total average weight of material generated from each of the residential units serviced by the unique CornerStone system.

Additional data on several other C&D debris sorts that also quantified OCC are presented in Appendix A of this report.

Although the amount of OCC collected at C&D sites can be a significant fraction of residential construction wastes, it is a small fraction of the total OCC discarded, and on a weight basis it represents a very small fraction of the total C&D debris stream.

Other common MSW items typically collected at C&D sites include food and beverage containers, appliances, and carpeting. Containers discarded by workers at construction and demolition sites typically show up in C&D debris. Major appliances and carpeting also frequently remain in houses that are demolished, and are included with mixed C&D debris.

C&D DEBRIS COLLECTED WITH MSW

Significant quantities of building materials, particularly renovation scraps, are also discarded in the municipal waste stream. Examples include pipes, plumbing fixtures, and building materials that are replaced by the residents and discarded with their household trash. The amount of these types of wastes in MSW is not known. However, this "overlap" of MSW and C&D may account for some of the discrepancies that have been experienced between expected MSW quantities and actual weights.

At the current level of refinement of C&D generation and recovery data, the overlap of MSW and C&D debris is not expected to be a cause for concern at the national level in the near future.

Chapter 4

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Appendix A

CALCULATIONS

Table A-1
Residential Construction Debris Worksheet

Method to Use

(1) Start with total dollars of new construction, from Census Bureau. Current Constr Reports, C-30.
(2) Calculate sq ft of new construction from total dollars and $/sq ft construction cost.
(3) From empirical waste assessment, estimate lb/sq ft of new construction.
(4) Calculate total generation.

Calculation

(1)	C-30, Residential Construction (1996) =	$181,795,000,000	
	(Includes private new housing units and public housing & redevelopment)		
(2)	1995 Census data, Table 1175 of 1996 Stat Abs. (Note: whole industry not included)		
	Residential Construction	$127,900,000,000	
	Residential sq ft of new constr	2,172,000,000	sq ft
	Cost of new construction	$58.89	per sq ft
	Total sq ft of new constr = 181,795,000,000/58.89/1.03	2,997,326,036	sq ft
	(Includes 3 percent inflation factor)		
(3)	See sampling waste assessment results:		
	Average Generation =	4.38	lb/sq ft
(4)	Total new residential construction debris =	6,564,000	tons/year

Table A-2
Nonresidential Construction Debris Worksheet

Method to Use

(1) Start with total dollars of new construction, from Census Bureau. Current Constr Reports, C-30.
(2) Calculate sq ft of new construction from total dollars and $/sq ft construction cost.
(3) From empirical waste assessment, estimate lb/sq ft of new construction.
(4) Calculate total generation.

Calculation

(1)	C-30, Nonresidential Construction (1996)	$198,694,000,000	
	(Includes all private nonres and public industrial, educ, hosp & other)		
(2)	1995 Census data, Table 1175 of 1996 Stat Abs. (Note: whole industry not included)		
	Nonresidential Construction	$112,000,000,000	
	Nonresidential sq ft of new construction	1,276,000,000	Sq ft
	Cost of new construction	$87.77	per sq ft
	Total sq ft of new construction = 198,694,000,000/87.77/1.03		
	(Includes 3 percent inflation factor)	2,197,759,570	sq ft
(3)	See sampling waste assessment results:		
	Generation =	4.02	lb/sq ft
(4)	Total new residential construction debris =	4,417,000	tons/year

Table A-3
Residential Demolition Worksheet

Method to Use

(1) Start with the number of residences demolished per year.
(2) Estimate the average size of residences that are demolished (single-family (SF) and multi-family (MF)).
(3) Estimate pounds of waste generated per sq ft, from sampling studies.
(4) Calculate total generation.

Calculation

(1) Estimate: 245,000 residential demolitions per year, per NAHB Economics Dept.

(2) Smaller than the average size of new residences, because it is older.
See graph of sizes of houses built, in Figure 2:
New houses built in 1995 are 2,100 sq ft (SF), and 1,050 sq ft (MF)
New MF house sizes are unchanged since 1975, while new SF houses grew from 1,600 sq ft to 2,100 sq ft
Ave size is 1,396 sq ft from 1975 to 1986, then climbs to 1,900 sq ft/house
Demolitions: use 1600 sq ft for SF houses and 1000 sq feet for MF houses

(3)

METRO sampling of three SF houses = 49.5 lb/sq ft without concrete	39.6	tons	31%
Estimated wt of foundation, 30' X 30' house w/8" thick basement walls			
30'X8'X0.67'X4X150 lb/cu ft/2000 = est. tons of foundation	48.2	tons	38%
(assumes 8 in. wall thickness and concrete density of 150 lb/cu ft)			
Basement floor			
30'X30'/3X150 lb/cu ft/2000 = tons of floor	22.5	tons	18%
Garage floor & driveway 10X(20+45)/3X150/2000	16.3	tons	13%
Total for 1600 sq ft single family with full basement & garage	126.6	tons	100%
Total in lb/sq ft	158.2	lb/sq ft	
Concrete only	108.7	lb/sq ft	
For house on slab (basic house)	39.6	tons	51%
Concrete slab (same as basement floor)	22.5		29%
Garage floor & driveway (same as above)	16.3		21%
Total for SF on slab	78.35	tons	100%
Total in lb/sq ft	97.9	lb/sq ft	
Concrete only	48.4	lb/sq ft	
For house with crawl space (no bsmt, garage, or driveway)	39.6	tons	
Total for SF with crawl sp	49.5	lb/sq ft	
Concrete only	0.0	lb/sq ft	
For MF housing (per NAHB MF (Table 5))	127	lb/sq ft	

(4) Fraction of total units in U.S. from 1996 Statistical Abstract, Table 1194, Existing housing (1993)

Single family residences:

Foundation type	**Fraction of total units**	**C&D debris (lb/sq ft)**	**Sq ft/unit**	**Est. units demol-ished**	**Total Sq ft**	**Generation (tons)**	**Percent of waste**
Basement	0.30	158.2	1,600	72,426	115,882,000	9,200,000	47%
Concrete slab	0.17	97.9	1,600	42,406	67,850,000	3,300,000	17%
Crawl sp & other	0.19	49.5	1,600	46,865	74,983,000	1,900,000	10%
	0.66			161,697	258,715,000	14,400,000	73%
Weighted ave. SF residence		111.3	1,600				
Multi-family (>1)	0.34	127.0	1,000	83,303	83,303,000	5,300,000	27%
Totals	1.00			245,000	342,018,000		100%

Total residential demolition generation =	**19,700,000**	tons
Average pounds per sq ft of house demolished =	**115**	lb/sq ft
Average tons per dwelling unit demolished =	**80.4**	tons/unit

Source: Franklin Associates

Table A-4
Nonresidential Demolition Worksheet

Method to Use

(1) Start with the number of demolitions per year.
(2) Estimate the average size of nonresidential buildings demolished, assuming buildings demolished were built between 1920 and 1969.
(3) Estimate pounds of waste generated per sq ft, from sampling studies.
(4) Calculate total generation.

Calculation

(1) Use demolition permits data from the U.S. Bureau of the Census.
Note: Census permits data are discontinued as of 1995.

Census no. for 1994 =	45,061	buildings
Census no. for 1995 =	43,795	buildings

(2) Calculation of the average size of nonresidential buildings built between 1920 and 1969

Construction period		No. of yrs in period	Bldgs built in period (thou)	Million sq ft	Average bldg size Sq ft/bldg
1990	1992	3	128	2,502	19,547
1980	1989	10	884	14,287	16,162
1970	1979	10	982	14,014	14,271
1960	1969	10	783	12,612	16,107
1946	1959	14	880	10,421	11,842
1920	1945	26	724	8,712	12,033
1900	1919	20	255	3,608	14,149
Before	1989		169	1,721	10,183
1920	1969	50	2,387	31,745	13,299

The average size of buildings built between 1920 and 1969 = 13,299

Source: U.S. Energy Information Administration, "Commercial Buildings Characteristics,1992". From 1996 Statistical Abstract, Table 1206. (Excludes buildings 1,000 square feet or smaller).

(3) Average generation from sampling (Table 6) 173 lb/sq ft

(4) Total nonresidential generation 50,400,000 Tons

Source: Franklin Associates

Table A-5
Residential Renovation Worksheet

Method to Use

(1) Start with total dollars of improvements and repairs, from Census Bureau. Current Constr Reports, C-30.
(2) Estimate the number of replacements of roofs, driveways, HVAC, kitchens, etc. and the amount of waste materials generated from each.
(3) Calculate total generation.

Calculation

(1) 1996 Expenditures for improvements and repairs of residential properties		114,300	million dollars
Census data, released 8/4/97			
Improvements	68 percent	77,724	
Repairs	32 percent	36,576	
		114,300	million dollars

(2) **Estimates for remodeling** *	**Million jobs**	**Tons/job**	**Tons**
Kitchens (minor)	1.25	0.75	937,500
Kitchens (major)	1.25	4.5	5,625,000
Baths (minor)	1.8	0.25	450,000
Baths (major)	1.2	1.00	1,200,000
Additions	1.25	0.75	937,500

(3) Replacements (see FAL estimates, on following Tables A-7 through A-10)

Concrete from driveway replacements	13,000,000	tons/year
Asphalt roofs	6,800,000	
Wood roofs	1,400,000	
Heating & A/C replacements	1,574,000	
Kitchen remodeling	6,562,500	
Bathroom remodeling	1,650,000	
Additions	937,500	
Total residential renovation debris	31,924,000	tons/year

* NAHB Research Center
Source: Franklin Associates

Table A-6
Nonresidential Renovation Worksheet

Method to Use

(1) Start with total dollars of improvements and repairs, from U.S. Census.
(2) Calculate average $/sq ft of renovation from nonresidential renovation waste assessments.
(3) Generation (tons)=[Total Dollars / (Dollars/sq ft)] X (lb/sq ft) / (lb/ton).

Alternative method: Simply multiply quantity of residential renovation debris (Table A-5) by the ratio of dollars spent nonresidential to residential.

Calculation

(1)	Total nonres improvements in 1996 *	100,400	million dollars
	This compares to 1996 residential improvements of	114,300	million dollars
	Total res + nonres	214,700	million dollars

*Assume same ratio of res/nonres as in 1992.
Bureau of the Census, Expenditures for Nonresidential Improvements and Repairs: 1992
From Table E: Comparison of Resid & Nonres Improvements & Repairs: 1992

		Tot. Dollars	Sq ft	$/sq ft			
(2)	Renovation assessments	$8,578,000	72,000	$119	/sq ft	28.49	lb/sq ft
		$12,305,422	180,000	$68	/sq ft	6.85	
		$2,100,000	24,000	$88		20.63	
		$22,983,422	276,000	$83	/sq ft	17.67	lb/sq ft

(3) Total estimated square feet of renovation = 100,400 million / ($83/sq ft) — 1,206 million sq ft

Estimated generation (method one) = 1,206 million X 17.67lb/sq ft/2,000 lb/ton = 10,652,000 tons/yr
Note: Total floorspace of nonresidential buildings in 1992 is 67.876 billion sq ft
Therefore 1,206 million represents 1.7 percent of total.
This seems to be unreasonably low. It implies an average of more than 50 years between renovations.
Therefore, use the alternative methodology.

Alternative methodology: Estimated generation = 31,924,000 / 114,300X100,400 = 28,042,000 tons/yr

Source: Franklin Associates

Table A-7
Estimated Weight of Concrete Driveways Replaced
Each Year from Residences With Less than Five Units/Structure

Total Housing units with < 5 units/structure, 1993*				81,094,000
Median age of housing = 28 years				
Estimated dimensions of ave driveway, LxWxT (ft)	8 X	45 X	0.333	
Calculated average driveway volume (cu ft)				119.9
Estimated percent of driveways replaced each year	3%			
Est. percent of homes with concrete driveways	60%			
Replacements/yr (total units times % replaced)				1,445,900
Total concrete removed (cu ft)				173,334,500
Density of concrete (lb/cu ft)	150			
Total tons of concrete				**13,000,000**

* 1996 Statistical Abstract, Table 1189.

Source: Franklin Associates

Table A-8
Estimated Weight of Asphalt Roofs Replaced
Each Year from Residences with Less than Five Units/Structure

Total Housing units with < 5 units/structure, 1993*		81,094,000
Median age of housing = 28 years		
Assume average roof area (sq ft)	1,400	
Assume weight of asphalt roof (lb/100 sq ft)	240	
Average wt of asphalt roof (lb/roof)		3,360
Estimated percent of homes with asphalt roofs**	67%	
Estimated percent of roofs replaced each year**	7%	
Replacements/yr (total no. times percent replaced)		3,803,300
Total tons of asphalt roofing removed		**6,400,000**

* 1996 Statistical Abstract, Table 1189.
** NAHB Research Center Waste Management Update 2, October 1996.

Source: Franklin Associates

Table A-9
Estimated Weight of Wood Roofs Replaced
Each Year from Residences with Less than Five Units/Structure

Total Housing units with < 5 units/structure, 1993*		81,094,000
Median age of housing = 28 years		
Assume average roof area (sq ft)	1,400	
Assume weight of wood roof (lb/100 sq ft)	200	
Calculated weight of wood roof (lb/roof)		2,800
Estimated percent of homes with wood roofs	25%	
Estimated percent of roofs replaced each year	5%	
Replacements/yr (total times percent replaced)		1,000,000
Total tons of wood roofing removed		**1,400,000**

* 1996 Statistical Abstract, Table 1189.

Source: Franklin Associates

Table A-10
Estimated Weight of Heating, Ventilating, and Air Conditioning Equipment Replaced Each Year

Total Housing units, 1993 (1)		106,610,000		
Median age of housing = 28 years				
	Estimated lb/unit*	**Number in use (1)**	**Est. % replaced per year**	**Total TPY**
Warm air furnaces	300	55,763,000	5	418,200
Electric heat pump	600	9,697,000	5	145,500
Steam or hot water systems	1,000	14,898,000	3	186,200
Floor, wall, or pipeless furnace	200	5,625,000	5	28,100
Built-in electric units	200	8,084,000	7	56,600
Room heaters	200	4,056,000	7	28,400
Stoves	200	3,477,000	3	10,400
Fireplaces	300	1,076,000	4	6,500
Central air	600	46,277,000	5	694,200
Total Replacement Products in the U.S. (1993)				**1,574,100**

(1) 1996 Statistical Abstract, Table 1189.
(2) Estimated by Franklin Associates.
Note: Equipment that remains in building unused will eventually become demolition debris.
Source: Franklin Associates

Table A-11
Construction Waste From Single Family Residential Construction (1)

	Largo, MD (2)			Anne Arundel County, MD (3)			Portland, OR (4)			Grand Rapids, MI (5)			Average
	Pounds	**Tons**	**% of C/D**	**Pounds**	**Tons**	**% of C/D**	**Pounds**	**Tons**	**% of C/D**	**Pounds**	**Tons**	**% of C/D**	**% of C/D**
Wood	4,305	2.15	42.2	3,319	1.66	35.2	6,676	3.34	48.8	5,310	2.66	43.6	42.4
Concrete													
Brick			0	1,240	0.62	13.1			0			0	3.3
Shingles													
Other Roofing													
Asphalt			0	544	0.27	5.8			0			0	1.4
Fiberglass													
Glass													
Metals	200	0.10	2.0	316	0.16	3.3	73	0.04	0.5	183	0.09	1.5	1.8
Plastics & foam	135	0.07	1.3	67	0.03	0.7	51	0.03	0.4	409	0.20	3.4	1.4
Mixed													
Textiles				51	0.03	0.5	10	0.01	0.1	85	0.04	0.7	0.4
OCC	420	0.21	4.1	478	0.24	5.1	280	0.14	2.0	1,240	0.62	10.2	5.4
Other Packaging	50	0.03	0.5	58	0.03	0.6	20	0.01	0.1	147	0.07	1.2	0.6
Other mixed C&D	2,420	1.21	23.7	423	0.21	4.5	2,768	1.38	20.2	1,908	0.95	15.7	16.0
Drywall	2,680	1.34	26.2	2,940	1.47	31.2	3,806	1.90	27.8	2,900	1.45	23.8	27.3
Masonry & Tile													
Inerts													
Totals	**10,210**	**5.11**	**100**	**9,436**	**4.72**	**100**	**13,684**	**6.84**	**100**	**12,182**	**6.09**	**100**	**100**
Square feet	2,200			2,450			3,000			2,600			
Pounds/sq ft	4.6			3.9			4.6			4.7	Average lb/sq ft =		4.4

(1) Source: NAHB Research Center, 1995.
(2) 2 story -2200 sq ft, W/O bsmt, vinyl sided w/brick front, 4 bdrm, 2 1/2 ba, 2 car gar, no deck, 11/94.
(3) 2 story -2450 sq ft, full bsmt, 2 car gar, brick facade, 4 bdrm, 2 1/2 ba, 3/95.
(4) Custom 2 story -3000 sq ft, full bsmt, tile roof, 4 bdrm, 3 ba, 2 car gar, tile roof, 7/92
(5) 2 story -2600 sq ft, W/O bsmt, vinyl siding, 4 bdrm, 2 1/2 ba, 3 car gar w/deck, 10/94
(5) OCC, approx. 380 containers - largest contributors to volume: cabinets, appliances, vinyl siding, windows, doors, and electrical fixtures.

Table A-12
Riverdale Case Study
Multi-Family (4-Plex) Building Deconstruction

Material	Tons	Percent
Wood	17.6	14
Drywall	21.6	17
Roofing	3.5	3
Rubble	66.5	52
Brick	17.9	14
Miscellaneous	1.4	1
	128.5	101

Total building floor area = 2,000 square ft

Generation rate : 129 pounds/square foot

Source: NAHB Research Center, Inc. June 1997

Table A-13

Residential C&D Debris Composition

METRO, Portland Oregon (As generated) (1)

	New Construction		New Construction		New Construction		Kitchen Renovation		House Renovation	
	Pounds	**Percent**	**Pounds**	**Percent**	**Pounds**	**Percent**	**Pounds**	**Percent**	**Pounds**	**Percent**
Wood	6,945	50.4	6,000	71.5	8,400	79.3	1,526	15.2	14,500	55.1
Drywall	3,806	27.6	1,450	17.3	1,210	11.4	7,620 (2)	76.1		
Concrete	1,698	12.3								
Metal	138	1.0					186	1.9		
Cardboard	280	2.0			135	1.3				
Roofing									10,200	38.8
Miscellaneous	909	6.6	936	11.2	850	8.0	675	6.7	1,600	6.1
	13,776	100.0	8,386	100.0	10,595	100.0	10,007	100.0	26,300	100.0
Total square feet	2,800		1,290		1,290		150.0		1,330.0	
Pounds/sq ft	4.9		6.5		8.2		66.7		19.8	

	Demolition		Demolition		Demolition	
	Pounds	**Percent**	**Pounds**	**Percent**	**Pounds**	**Percent**
Wood	19,000	25.7	34,000	54.0	18,000	58.0
Drywall						
Concrete	30,000	40.5			10,000	32.2
Metal	4,000	5.4				
Cardboard						
Roofing						
Miscellaneous	21,000	28.4	29,000	46.0	3,020	9.7
	74,000	100.0	63,000	100.0	31,020	100.0
Total square feet	1,280.0		1,200.0		750.0	
Pounds/sq ft	57.8		52.5		41.4	

(1) Includes recycled and disposed materials.
(2) Plaster and brick
Source: METRO Data Sheets, Portland, OR 1992-1995.

Table A-14

Nonresidential C&D Debris Composition

METRO, Portland Oregon (As generated) (1)

	Institutional New Construction		2 Office Buildings New Construction		Hospital Lab & Office Renovation		Office Building Renovation		Department Store Renovation	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
Wood	36,000	20.5	4,400	37.0			7,200	40.2	406,000	20.4
Drywall			4,800	40.3			10,000 (2)	55.9	222,000	11.2
Concrete										
Metal					11,600	22.1	300	1.7	812,000	40.8
Cardboard	34,000	19.3							10,000	0.5
Roofing									10,200	0.5
Miscellaneous	106,000	60.2	2,700	22.7	40,800	77.9	400	2.2	530,000	26.6
	176,000	100.0	11,900	100.0	52,400	100.0	17,900	100.0	1,990,200	100.0
Total square feet	41,850		7,452		10,560		6,000.0		198,500.0	
Pounds/sq ft	4.2		1.6		5.0		3.0		10.0	

	Warehouse Demolition		Department Store Demolition		Institutional Demolition	
	Pounds	Percent	Pounds	Percent	Pounds	Percent
Wood	2,496,000	79.7	84,000	1.2	142,000	1.3
Drywall						
Concrete	176,000	5.6	6,534,000	89.5	7,210,000	66.1
Metal	402,000	12.8	646,000	8.9	256,000	2.3
Cardboard						
Roofing						
Miscellaneous	58,800	1.9	34,000	0.5	3,300,000	30.3
	3,132,800	100.0	7,298,000	100.0	10,908,000	100.0
Total square feet	86,400.0		44,000.0		60,000.0	
Pounds/sq ft	36.3		165.9		181.8	

(1) Includes recycled and disposed materials.
Source: METRO Data Sheets, Portland, OR 1992-1995.

Table A-15

Construction & Demolition Debris Composition

City of Seattle (As Disposed)

	Residential New Construction		Commercial New Construction		Residential Remodeling (1)		Commercial Remodeling(1)		Residential Demolition		Commercial Demolition	
	Tons	**Percent**	**Tons**	**Percent**	**Tons**	**Percent**	**Tons**	**Percent**	**Tons**	**Percent**	**Tons**	**Percent**
Wood waste	1,569	52.6	2,583	34.6	7,257	55.5	3,834	51.1	6,509	49.5	12,791	31.0
Mineral Aggregates (2)	870	29.2	2,740	36.8	4,076	31.2	1,641	21.9	3,989	30.4	11,734	28.4
Glass	1	0.0	3	0.0	136	1.0	2	0.0	204	1.6	349	0.8
Metals	82	2.7	759	10.2	674	5.2	957	12.8	694	5.3	7,391	17.9
Paper	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Yard wastes	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Plastics	160	5.3	241	3.2	397	3.0	598	8.0	317	2.4	1,891	4.6
Other materials	242	8.1	965	12.9	424	3.2	278	3.7	416	3.2	5,663	13.7
Other Organics	45	1.5	31	0.4	107	0.8	127	1.7	972	7.4	1,110	2.7
Hazardous Waste	15	0.5	133	1.8	15	0.1	65	0.9	41	0.3	362	0.9
	2,984	100.0	7,455	100.0	13,086	100.0	7,502	100.0	13,143	100.0	41,292	100.0

(1) Roofing materials hauled separately not included.

(2) Mineral aggregates include roofing materials (composition, built-up, tarpaper, clay roofing tile, slate), concrete, bricks, masonry, tile, mortar, fiberglass insulation, and gypsum scrap.

Source: Construction and Demolition Debris Study for the City of Seattle, by Cunningham Environmental Consulting and Cascadia Consulting Group. Draft Report, March 1996

Table A-16
Composition of Building Construction & Demolition Debris

Component	Residential Renovation		Residential New Construction		Residential Demolition		Commercial Renovation		Commercial Demolition		Total Composition	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
Asphalt	0.0	0.00	0.0	0.00	0.0	0.00	12.9	0.01	0.0	0.00	12.9	0.00
Brick	1,474.3	3.66	520.6	1.87	1,648.6	2.13	545.3	0.40	0.0	0.00	4,188.8	1.30
Corrugated	339.9	0.84	891.5	3.21	141.3	0.18	316.1	0.23	125.3	0.31	1,814.1	0.56
Carpeting	154.5	0.38	326.6	1.18	9.9	0.01	51.5	0.04	109.0	0.27	651.5	0.20
Cinder Block	10.7	0.03	169.1	0.61	13,641.0	17.61	26,206.6	19.03	0.0	0.00	40,027.4	12.39
Concrete with Rebar	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
Concrete without Rebar	77.3	0.19	2,177.9	7.84	11,820.3	15.26	30,201.1	21.93	816.5	2.05	45,093.1	13.96
Dirt/Earth	0.0	0.00	119.0	0.43	0.0	0.00	144.2	0.10	0.0	0.00	263.2	0.08
Drywall	4,759.6	11.83	3,939.8	14.18	1,045.2	1.35	5,220.2	3.79	25.4	0.06	14,990.2	4.64
Electric Fixtures	79.9	0.20	10.5	0.04	3.3	0.00	639.8	0.46	40.0	0.10	773.5	0.24
Electrical Wiring	36.0	0.09	4.2	0.02	68.2	0.09	929.0	0.67	81.5	0.20	1,118.9	0.35
Furniture	13.0	0.03	0.0	0.00	0.0	0.00	63.0	0.05	421.5	1.06	497.5	0.15
Glass	85.8	0.21	58.7	0.21	57.2	0.07	63.9	0.05	18.8	0.05	284.4	0.09
Insulation-Foam	190.8	0.47	31.6	0.11	61.9	0.08	333.8	0.24	2.2	0.01	620.3	0.19
Insulation-Sheathing	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
Masonite/Slate	468.3	1.16	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	468.3	0.14
Metal Drums	0.0	0.00	0.0	0.00	8.4	0.01	29.8	0.02	440.0	1.10	478.2	0.15
Metal-Ferrous	875.6	2.18	214.7	0.77	1,454.4	1.88	6,729.8	4.89	2,577.3	6.47	11,851.8	3.67
Metal-Nonferrous	75.9	0.19	91.0	0.33	28.1	0.04	165.6	0.12	4.0	0.01	364.6	0.11
Misc. Fines	10,921.7	27.14	9,904.6	35.65	26,308.9	33.97	24,901.4	18.08	21,785.6	54.67	93,822.2	29.04
Other Paper	239.1	0.59	40.1	0.14	38.2	0.05	173.9	0.13	167.1	0.42	658.4	0.20
Pallets	17.8	0.04	123.6	0.44	0.0	0.00	160.6	0.12	195.0	0.49	497.0	0.15
Plastic film	123.5	0.31	52.5	0.19	33.4	0.04	143.7	0.10	51.8	0.13	404.9	0.13
Plastic-PVC Pipe, Rigid, etc.	20.5	0.05	194.5	0.70	32.1	0.04	295.0	0.21	830.2	2.08	1,372.3	0.42
Porcelain/Bathroom Fixtures	72.1	0.18	19.1	0.07	144.5	0.19	138.7	0.10	75.3	0.19	449.7	0.14
Pressboard/Chipboard	941.6	2.34	1,511.7	5.44	593.1	0.77	1,855.7	1.35	4,937.1	12.39	9,839.2	3.05
Roofing Material-Felt	10.8	0.03	36.2	0.13	148.3	0.19	0.0	0.00	0.0	0.00	195.3	0.06
Roofing Material-Shingles	4,328.8	10.76	272.0	0.98	933.6	1.21	18,209.5	13.22	0.0	0.00	23,743.9	7.35
Rubber	11.2	0.03	82.4	0.30	0.0	0.00	21.6	0.02	0.0	0.00	115.2	0.04
Siding-Aluminum	0.0	0.00	0.0	0.00	87.3	0.11	0.0	0.00	0.0	0.00	87.3	0.03
Siding-Vinyl	439.7	1.09	119.2	0.43	80.9	0.10	0.0	0.00	45.1	0.11	684.9	0.21
Textiles	5.8	0.01	4.8	0.02	3.2	0.00	36.9	0.03	0.0	0.00	50.7	0.02
Tile-Ceiling	206.5	0.51	153.3	0.55	198.8	0.26	573.6	0.42	31.5	0.08	1,163.7	0.36
Tile/Ceramics	921.6	2.29	344.8	1.24	48.5	0.06	1,156.4	0.84	14.2	0.04	2,485.5	0.77
Tires	26.7	0.07	0.0	0.00	0.0	0.00	15.3	0.01	0.0	0.00	42.0	0.01
Treated Wood	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	168.9	0.42	168.9	0.05
Tree Limbs/Stumps	782.1	1.94	1,952.2	7.03	298.7	0.39	810.7	0.59	104.6	0.26	3,948.3	1.22
Untreated Wd.-Plywood	723.1	1.80	1,082.0	3.89	652.5	0.84	5,724.8	4.16	1,811.4	4.55	9,993.8	3.09
Untreat. Wd.-Dimen. Wd.(not paint.)	10,214.7	25.38	3,319.6	11.95	17,252.5	22.28	7,245.5	5.26	4,727.1	11.86	42,759.4	13.24
Untreat. Wd.-Dimen. Wd.(Paint.)	1,348.6	3.35	18.8	0.07	607.0	0.78	4,512.8	3.28	101.1	0.25	6,588.3	2.04
White Goods/Appliances	249.0	0.62	0.0	0.00	0.0	0.00	91.1	0.07	144.6	0.36	484.7	0.15
TOTAL	**40,246.5**	**100.0**	**27,786.6**	**100.0**	**77,449.3**	**100.00**	**137,719.8**	**100.0**	**39,852.1**	**100.00**	**323,054.3**	**100.00**

Source: Gershman, Brickner & Bratton, Inc., for Town of Babylon, NY; Demolition Age, September 1993.

Table A-17
Composition of C&D Debris in Des Moines, Iowa (1)

Componei	Residential New Construction		Residential Renovation		Residential Demolition	
	Tons	Percent	Tons	Percent	Tons	Percent
Asphalt	0.0	0.0	0.0	0.0	0.0	0.0
Brick	11.3	5.2	5.3	3.8	0.9	3.9
Cardboard	9.7	4.5	2.7	2.0	0.1	0.4
Concrete	26.4	12.1	12.5	9.1	5.0	21.8
Drywall	35.4	16.3	7.4	5.4	2.4	10.5
Metal	3.4	1.6	13.1	9.5	1.1	4.8
Plastic	1.9	0.9	0.9	0.7	0.1	0.4
Roofing	12.2	5.6	39.3	28.5	3.8	16.6
Wood	96.5	44.3	41.1	29.8	7.4	32.3
Other	20.8	9.6	15.4	11.2	2.1	9.2
	217.6	**100.0**	**137.7**	**100.0**	**22.9**	**100.0**

Componei	Commercial Construction		Commercial Renovation		Commercial Demolition		Total Composition	
	Tons	Percent	Tons	Percent	Tons	Percent	Tons	Percent
Asphalt	0.4	0.6	0.0	0.0	0.0	0.0	0.4	0.0
Brick	4.4	6.7	17.1	4.6	2.0	7.4	41.0	4.8
Cardboard	4.9	7.5	5.4	1.4	0.4	1.5	23.2	2.7
Concrete	21.6	32.9	81.7	21.8	8.5	31.6	155.7	18.4
Drywall	4.3	6.6	58.6	15.6	5.3	19.7	113.4	13.4
Metal	5.8	8.8	48.1	12.8	3.2	11.9	74.7	8.8
Plastic	0.3	0.5	0.8	0.2	0.0	0.0	4.0	0.5
Roofing	6.3	9.6	39.3	10.5	0.8	3.0	101.7	12.0
Wood	12.3	18.8	67.9	18.1	6.7	24.9	231.9	27.4
Other	5.3	8.1	56.5	15.1	0.0	0.0	100.1	11.8
	65.6	**100.0**	**375.4**	**100.0**	**26.9**	**100.0**	**846.1**	**100.0**

(1) C&D debris generated in one week of July 1994 in Des Moines, Iowa

Source: Brickner, Robert, Gershman, Brickner & Bratton, Inc. "Identifying C&D Debris Markets." Scrap Processing, March/April 1995.

Table A-18
Average Composition of Waste from 19 Industrial/Commercial Demolition Projects in the Northwest Area

Material	**Totals Tons**	**Average Percent**
Wood	28,000	15.5
Roofing	1,400	0.8
Concrete	120,300	66.8
Brick	2,200	1.2
Scrap Iron	8,700	4.8
Asphalt	3,200	1.8
Landfill debris	16,400	9.1
Total tons	180,200	100.0
Total tons (17 buildings)	167,200	
Building size (square fee	2,204,000	
Average generation rate*	151.7 lb/sq ft	

* Building sizes available for 17 of the 19 projects.
Source: R.W. Rhine Inc., Tacoma, Washington

Table A-19
Number of Active Construction & Demolition (C&D)
Landfills in the United States

State	Number of C&D Landfills	Rank from high	Rank from low
Alabama	32	17	35
Alaska	21	23	29
Arizona	6	35	17
Arkansas	22	21	31
California	16	26	26
Colorado	5	37	15
Connecticut	21	22	30
Delaware	1	49	3
District of Columbia	0	51	1
Florida	277	1	51
Georgia	44	12	40
Hawaii	1	48	4
Idaho	7	31	21
Illinois	3	42	10
Indiana	11	28	24
Iowa	1	47	5
Kansas	78	9	43
Kentucky	143	5	47
Louisiana	167	2	50
Maine	57	10	42
Maryland	14	27	25
Massachusetts	18	25	27
Michigan	5	36	16
Minnesota	79	8	44
Mississippi	111	6	46
Missouri	9	30	22
Montana	27	18	34
Nebraska	6	34	18
Nevada	6	33	19
New Hampshire	0	50	2
New Jersey	3	41	11
New Mexico	4	40	12
New York	19	24	28
North Carolina	153	3	49
North Dakota	39	14	38
Ohio	148	4	48
Oklahoma	6	32	20
Oregon	2	45	7
Pennsylvania	4	39	13
Rhode Island	1	46	6
South Carolina	53	11	41
South Dakota	103	7	45
Tennessee	32	16	36
Texas	24	19	33
Utah	9	29	23
Vermont	2	44	8
Virginia	32	15	37
Washington	22	20	32
West Virginia	2	43	9
Wisconsin	39	13	39
Wyoming	4	38	14
Total	**1889**		

Source: "List of Industrial Waste Landfills and Construction and Demolition Waste Landfills, prepared for U. S. Environmental Protection Agency by Eastern Research Group, Inc., September 30, 1994.

Table A-20
Number of Active Wood Processing Facilities that also Accept C&D Waste by State

State	Construction	Demolition	Construction & Demolition	Total Number of Facilities
North Carolina	12	0	32	44
Oregon	5	2	28	35
California	11	1	22	34
Maryland	15	0	9	24
New Jersey	5	1	14	20
Washington	9	0	8	17
Ohio	5	0	8	13
New York	7	0	5	12
Florida	1	2	7	10
Georgia	7	0	3	10
Massachusetts	5	3	0	8
Virginia	2	1	5	8
Alabama	0	0	6	6
Michigan	6	0	0	6
Minnesota	5	1	0	6
Illinois	2	1	2	5
Oklahoma	2	0	3	5
Texas	3	1	1	5
Wisconsin	3	2	0	5
Connecticut	1	0	3	4
New Hampshire	1	0	3	4
Pennsylvania	2	0	2	4
Rhode Island	1	0	3	4
Colorado	1	0	2	3
Idaho	0	0	3	3
Maine	0	0	3	3
Delaware	1	0	1	2
Indiana	2	0	0	2
Vermont	1	0	1	2
Alaska	0	0	1	1
Arizona	1	0	0	1
Hawaii	1	0	0	1
Iowa	1	0	0	1
Kansas	1	0	0	1
Louisiana	0	1	0	1
Mississippi	0	0	1	1
New Mexico	0	0	1	1
South Carolina	0	0	1	1
South Dakota	1	0	0	1
Tennessee	1	0	0	1
Arkansas	0	0	0	0
District of Columbia	0	0	0	0
Kentucky	0	0	0	0
Missouri	0	0	0	0
Montana	0	0	0	0
Nebraska	0	0	0	0
Nevada	0	0	0	0
North Dakota	0	0	0	0
Utah	0	0	0	0
West Virginia	0	0	0	0
Wyoming	0	0	0	0
Total	**121**	**16**	**178**	**315**

Source: "National Wood Recycling Directory", (First Edition). American Forest & Paper Association, January 1996.

Appendix B

STATE DEFINITIONS FOR CONSTRUCTION AND DEMOLITION DEBRIS

Appendix B

STATE DEFINITIONS FOR CONSTRUCTION AND DEMOLITION DEBRIS

This appendix includes a representative sample of definitions of construction and demolition (C&D) debris used by states and other jurisdictions. The definitions are the most recent available from the states.

STATE OF CALIFORNIA

Construction and demolition (C&D) debris includes concrete, asphalt, wood, drywall, metals, and many miscellaneous and composite materials. C&D debris is generated by demolition and new construction of structures such as residential and commercial buildings and roadways.

STATE OF FLORIDA

"Construction and demolition debris" means discarded materials generally considered to be not water soluble and non-hazardous in nature, including but not limited to steel, glass, brick, concrete, asphalt material, pipe, gypsum wallboard, and lumber, from the construction or destruction of a structure as part of a construction or demolition project or from the renovation of a structure, including such debris from construction of structures at a site remote from the construction or demolition project site. The term includes rocks, soils, tree remains, trees, and other vegetative matter which normally results from land clearing or land development operations for a construction project; clean cardboard, paper, plastic, wood and metal scraps from a construction project; effective January 1, 1997, except as provided in Section 403.707(13(j), F.S., unpainted, non-treated wood scraps from facilities manufacturing materials used for construction of structures or their components and unpainted, non-treated wood pallets provided the wood scraps and pallets are separated from other solid waste; and the commingling of wood scraps or pallets with other solid waste; and *de minimis* amounts of other non-hazardous wastes that are generated at construction or demolition projects, provided such amounts are consistent with best management practices of the construction and demolition industries. Mixing of construction and demolition debris with other types of solid waste will cause it to be classified as other than construction and demolition debris.
(Florida Department of Environmental Protection, Bureau of Solid and Hazardous Waste, Division of Waste Management. Solid Waste Management in Florida. Classification of Landfills. Rule 62-701.200 (19). June 1997)

STATE OF HAWAII

"Construction and demolition waste" means solid waste, largely inert waste, resulting from the demolition or razing of buildings, of roads, or other structures, such as concrete, rock, brick, bituminous concrete, wood, and masonry, composition roofing and roofing paper, steel, plaster, and minor amounts of other metals, such as copper.

Construction and demolition waste does not include cleanup materials contaminated with hazardous substances, friable asbestos, waste paints, solvents, sealers, adhesives, or similar materials.
(Hawaii Department of Health. Hawaii Administrative Rules, Title 11, Chapter 58.1, Solid Waste Management Control)

STATE OF KANSAS

"Construction and demolition waste" means solid waste resulting from the construction, remodeling, repair and demolition of structures, roads, sidewalks and utilities; and solid waste consisting of vegetation from land clearing and grubbing, utility maintenance, and seasonal or storm-related cleanup. Such wastes include, but are not limited to, bricks, concrete and other masonry materials, roofing materials, soil, rock, wood, wood products, wall covering, plaster, drywall, plumbing fixtures, electrical wiring, electrical components containing no hazardous materials and non asbestos insulation. It shall not include asbestos waste, garbage, cardboard, furniture, appliances, electrical equipment containing hazardous materials, tires, drums and containers even though such wastes resulted from construction and demolition activities. Clean rubble that is mixed with other construction and demolition waste during demolition or transportation shall be considered to be construction and demolition waste.
(Kansas Department of Health and Environment. Kansas Statutes Annotated Chapter 65—Public Health, Article 34—Solid Waste and Administrative Regulations Article 29—Solid Waste Management, Part 1. Administrative Procedures; Part 2. Standards. May 1994)

STATE OF KENTUCKY

Construction/Demolition Debris Landfill - Construction/demolition debris landfill is the category of solid waste site or facility for the disposal of solid waste that results from the construction, remodeling, repair, and demolition of structures and roads and for the disposal of uncontaminated solid waste consisting of vegetation resulting from land clearing and grubbing, utility line maintenance, and seasonal and storm-related cleanup. Such waste includes, but is not limited to bricks, shredded or segmented tires, concrete and other masonry materials, soil, rock, wood, wall coverings, plaster, drywall, plumbing fixtures, tree stumps, limbs, saw dust, leaves, yard waste, paper, paper products, metals, furniture, insulation, roofing shingles, asphalt pavement, glass, plastics that are not sealed in a manner that conceals other wastes, electrical wiring and components containing no liquids or hazardous metals that are incidental to any of the above and other inert waste as approved by the division. Asbestos-containing materials may be accepted only if the permit application includes procedures approved by the division to handle these materials.
(Kentucky Natural Resources and Environmental Pollution Control, Division of Waste Management. Permits Issued by the Division of Waste Management, I. Solid Waste Landfill Permits (Construction and Operation), Landfill Classifications: Construction/Demolition Debris Landfill)

MARICOPA COUNTY, ARIZONA

Construction debris is a general term used to describe a large class of solid wastes usually generated as a byproduct of the construction, demolition, or maintenance of residences, commercial or industrial facilities and infrastructure. Construction debris includes such materials as: broken concrete, asphalt, steel, aluminum, glass, brick, tile, paper, plastics, wood products, sheet rock, street sweepings and canal dredgings.
(Maricopa County, Arizona. Construction Wastes: Classification)

THE COMMONWEALTH OF MASSACHUSETTS

C&D waste is comprised of debris generated from construction, renovation, repair, and demolition of roads, bridges, and buildings and includes wood, steel, concrete, masonry, plaster, metal, and asphalt, but not wood from land-clearing, i.e. stumps, logs, brush, and soil, nor rock from excavations.
(The Commonwealth of Massachusetts Department of Environmental Protection. 310 CMR 16.00, Site Assignment Regulations for Solid Waste Facilities. 16.02: Definitions; Also 1997 Master Plan Update Draft, Non Municipal Solid Waste)

STATE OF MINNESOTA

Construction Wastes

"Building materials, packaging, and rubble resulting from construction, remodeling, repair, and demolition of buildings and roads."

Demolition Debris

"Solid waste resulting from the demolition of buildings, roads, and other man-made structures, including concrete, brick, bituminous concrete, untreated wood, masonry, glass, trees, rock, and plastic building parts. Demolition debris does not include asbestos."
(Minnesota Office of Environmental Assessment. Metropolitan Solid Waste Planning Policy. Draft 11/25/96)

STATE OF NORTH CAROLINA

"Construction" or "demolition" when used in connection with "waste" or "debris" means solid waste resulting solely from construction, remodeling, repair, or demolition operations on pavement, buildings, or other structures, but does not include inert debris, land-clearing debris or yard debris.
(North Carolina Division of Waste Management. GS 130A-290. DEFINITIONS (1) (4))

STATE OF NEBRASKA

"Construction and demolition waste" shall mean waste which typically results from construction or demolition projects and includes all materials which are the by-products of construction work or which result from demolition of buildings and other structures, including, but not limited to brick, concrete rubble, masonry materials, paper,

gypsum board, wood, rubber and plastics. Construction and demolition waste does not include friable asbestos-containing materials, liquid waste, hazardous waste, putrescible waste or furnishings from demolished structures.
(Nebraska Department of Environmental Quality. Title 132 - Integrated Solid Waste Management Regulations, Chapter 1 011. Effective date: May 14, 1994)

STATE OF NEW YORK

Construction and demolition (C&D) debris means uncontaminated solid waste resulting from the construction, remodeling, repair and demolition of utilities, structures and roads; and uncontaminated solid waste resulting from land clearing. Such waste includes, but is not limited to bricks, concrete and other masonry materials, soil, rock, wood (including painted, treated and coated wood and wood products), land clearing debris, wall coverings, plaster, drywall, plumbing fixtures, non asbestos insulation, roofing shingles and other roof coverings, asphalt pavement, glass, plastics that are not sealed in a manner that conceals other wastes, empty buckets ten gallons or less in size and having no more than one inch of residue remaining on the bottom, electrical wiring and components containing no hazardous liquids, and pipe and metals that are incidental to any of the above. Solid waste that is not C&D debris (even if resulting from the construction, remodeling, repair and demolition of utilities, structures and roads and land clearing) includes, but is not limited to asbestos waste, garbage, corrugated container board, electrical fixtures containing hazardous liquids such as fluorescent light ballasts or transformers, fluorescent lights, carpeting, furniture, appliances, tires, drums, containers greater than ten gallons in size, any containers having more than one inch of residue remaining on the bottom and fuel tanks. Specifically excluded from the definition of construction and demolition debris is solid waste (including what otherwise would be construction and demolition debris) resulting from any processing technique, other than that employed at a department-approved C&D debris processing facility, that renders individual waste components unrecognizable, such as pulverizing or shredding. Also, waste contained in an illegal disposal site may be considered C&D debris if the department determines that such waste is similar in nature and content to C&D debris.
(New York State Department of Environmental Conservation, Division of Solid & Hazardous Materials. 6 NYCRR Park 360 Solid Waste Management Facilities. Title 6 of the Official Compilation of Codes, Rules and Regulations. 360-1.2(b)(38). Effective November 26, 1996. Reprinted January 1997)

STATE OF OREGON

"Construction and Demolition Waste" means solid waste resulting from the construction, repair or demolition of buildings, roads and other structures, and debris from the clearing of land, but does not include clean fill when separated from other construction and demolition wastes and used as fill materials or otherwise land disposed. Such waste typically consists of materials including concrete, bricks, bituminous concrete, asphalt paving, untreated or chemically treated wood, glass, masonry, roofing, siding, plaster; and

soils, rock, stumps, boulders, brush and other similar material. This term does not include industrial solid waste and municipal solid waste generated in residential or commercial activities associated with construction and demolition activities.
(Oregon Department of Environmental Quality. Disposal Site Definitions)

PORTLAND, OREGON METROPOLITAN SERVICE DISTRICT
Construction Waste - Waste materials resulting from the construction, remodeling and repair of buildings and other structures.
Demolition Waste - Solid waste, largely inert, resulting from the demolition or razing of buildings, roads, and other man-made structures. Demolition waste consists of, but is not limited to, concrete, brick, bituminous concrete, wood, masonry, composition, roofing and roofing paper, steel, and amounts of other metals like copper. Plaster (i.e., sheet rock or plasterboard), any other non-wood material that is likely to produce gases or leachate during the decomposition process, and asbestos wastes are not considered to be demolition wastes.
(Portland, Oregon Metropolitan Service District, Solid Waste Department. Investigation of Alternative Markets for Recycled Wood. Prepared by International Resources Unlimited, Inc.)

STATE OF RHODE ISLAND
"Construction and Demolition (C&D) Debris" shall mean non-hazardous solid waste resulting from the construction, remodeling, repair, and demolition of utilities and structures; and uncontaminated solid waste resulting from land clearing. Such waste includes, but is not limited to wood (including painted, treated and coated wood and wood products), land clearing debris, wall coverings, plaster, drywall, plumbing fixtures, non-asbestos insulation, roofing shingles and other roofing coverings, glass, plastics that are not sealed in a manner that conceals other wastes, empty buckets ten gallons or less in size and having no more than one inch of residue remaining on the bottom, electrical wiring and components containing no hazardous liquids, and pipe and metals that are incidental to any of the above. Solid waste that is not C&D debris (even if resulting from the construction, remodeling, repair, and demolition of utilities, structures, and roads and land clearing) includes, but is not limited to, asbestos waste, garbage, corrugated container board, electrical fixtures containing hazardous liquids such as fluorescent light ballasts or transformers, fluorescent lights, carpeting, furniture, appliances, tires, drums, containers greater than ten gallons in size, any containers having more than one inch of residue remaining on the bottom, and fuel tanks. Also excluded from the definition of C&D debris is solid waste resulting from any processing technique that renders individual waste components unrecognizable, such as pulverizing or shredding, at a facility that processes C&D debris.
(State of Rhode Island Department of Environmental Management, Office of Waste Management. Rules and Regulations for Composting Facilities and Solid Waste Management Facilities Rule 1.3.47)

STATE OF SOUTH CAROLINA

“Construction and demolition debris” means discarded solid wastes resulting from construction, remodeling, repair and demolition of structures, road building, and land-clearing. The wastes include, but are not limited to, bricks, concrete, and other masonry materials, soil, rock, lumber, road spoils, paving material, and tree and brush stumps, but does not include solid waste from agricultural or silvicultural operations.
(South Carolina Department of Health and Environmental Control. Chapter 61. R. 61-107.11 Solid Waste Management: Construction, Demolition and Land-Clearing Debris Landfills. B. Definitions)

WASHINGTON STATE DEPARTMENT OF ECOLOGY

“Demolition waste” means solid waste, largely inert waste, resulting from the demolition or razing of buildings, roads and other man-made structures. Demolition waste consists of, but is not limited to, concrete, brick, bituminous concrete, wood and masonry, composition roofing and roofing paper, steel, and minor amounts of other metals like copper. Plaster (i.e., sheet rock or plaster board) or any other material, other than wood, that is likely to produce gases or a leachate during the decomposition process and asbestos wastes are not considered to be demolition waste for the purposes of this regulation.
(Washington State Department of Ecology Solid Waste and Financial Assistance Program, Chapter 173-304 WAC, Minimum Functional Standards for Solid Waste Handling)

Appendix C

TYPICAL CONSTRUCTION AND DEMOLITION DEBRIS CONSTITUENTS

Table C-1

TYPICAL CONSTRUCTION AND DEMOLITION DEBRIS CONSTITUENTS

Primary Inert Fractions
Asphalt
Brick
Cinder block
Concrete with rebar/wire mesh
Concrete without steel reinforcing
Masonite/slate
Tile-ceramic
Glass
Dirt/earth
Plastic sheet film
Plastic pipe
Porcelain, including bathroom fixtures
Metal-ferrous
Metal-nonferrous
Electrical wiring
Insulation-fiberglass
Plastic buckets/containers

High Organic Based Fractions
Ceiling tiles
Corrugated shipping containers
Insulation-treated cellulose
Insulation-sheathing
Pallets/spools/reels
Pressboard/chipboard
Roofing materials (e.g., roofing felt, asphalt shingles)
Dimensional lumber & shapes (clean)
Plywood, particleboard, oriented strandboard, etc.

Range of Composite Materials (may require special handling)
Carpeting
Carpet padding
Gypsum wallboard (mainly gypsum with paper backing)
Electrical fixtures (metal, light tubes/bulbs, ballasts)
Electrical switches
Rubber hosing/conduits
Tires (some with wheels)
Painted wood
Pressure treated wood
Wood composites

Source: Gershman, Brickner & Bratton, Inc. Fairfax, Virginia

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NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name:	*Cardboard: Cardboard not otherwise classified*
How Is the Waste Generated: *Used or damaged cardboard boxes and containers.*	
Waste Classification:	*Non-Hazardous*
Waste Determination Method:	*Process Knowledge*
Waste Determination Information: *Cardboard that is not stained or otherwise contaminated is recycleable. If a cardboard recycler or cardboard recycling center is not available in the area, the cardboard may be disposed of in the normal trash as Solid Waste, Solid Waste Not Otherwise Classified.*	
Handling Procedure: *Collect and store the cardboard in separate cardboard recycling bins or containers. Cardboard recycling bins and containers should be labeled to indicate that the bins and containers are for cardboard only.*	
Compatibility Class:	***Group 6B***
Transportation Information: *No specific transporatation restrictions.*	
Disposal Method:	*Recycled*
Land Disposal Restrictions:	*No*
Final Disposal Site or Disposal Service & Contact: *Local cardboard recycler.*	

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name:	*Characteristic waste: Characteristic waste not otherwise classified*
How Is the Waste Generated: *Oil-water separator sludge, and spills of paints, certain solvents and other potentially hazardous materials cleaned up with rags, towels, floor dry, cat litter, etc.*	
Waste Classification:	*Hazardous, D Listed Wastes*
Waste Determination Method:	*Process Knowledge or Analysis*
Waste Determination Information: *Waste may be ignitible due to the paint solvents with low flash point, or toxic due to metals (e.g., barium, chromium or lead) or solvents at concentrations below 10% (e.g., trichloroethylene, perchloroethylene, methyl ethyl ketone).*	
Handling Procedure: *Collect potentially characteristic wastes in a steel or plastic (i.e., for corrosives) drum. Follow the SOP for Hazardous Waste except the name of the waste should say "Hazardous Waste Pending Analysis" until the analytical results are received.*	
Compatibility Class:	***Group 4A (Ignitables except oxidizers, solvents and pesticides), 2A (Metals), 1A (Corrosives with pH > 12.5), 1B (Corrosives with pH < 2), 6A (Reactives)***
Transportation Information: *Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.*	
Disposal Method:	*Treated*
Land Disposal Restrictions:	*Yes*
Final Disposal Site or Disposal Service & Contact: *See the Hazardous Waste Service Providers Directory, "TSD Facilities" for a nearby hazardous waste treatment and disposal site.*	

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Circuit boards - Broken circuit boards. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Circuit boards - Broken circuit boards or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Circuit boards -Broken circuit boards*

Source: *Replacement of circuit boards in electronic equipment, and broken electronic equipment and computers.*

Waste Code(s): *D006, D007, D008, D011, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: ______________________

Date: ______________________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Bendiocarb	22781-23-3	1.4	*NBP*
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
3-Chloropropylene	107-05-1	30	*NBP*
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isobutyl alcohol	78-83-1	170	*NBP*
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pebulate	1114-71-2	1.4	*NBP*
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	**7440-43-9**	**0.11 mg/L TCLP**	***BP***
Chromium	**7440-47-3**	**0.60 mg/L TCLP**	***BP***
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	**7440-22-4**	**0.4 mg/L TCLP**	***BP***
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Circuit boards - Used circuit boards. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Circuit boards - Used circuit boards or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Circuit boards -Used circuit boards*

Source: *Used electronic equipment and computers.*

Waste Code(s): *D006, D007, D008, D011, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #:

Date:

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*
Bendiocarb	22781-23-3	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*
3-Chloropropylene	107-05-1	30	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*
Isobutyl alcohol	78-83-1	170	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*
Pebulate	1114-71-2	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	**7440-43-9**	**0.11 mg/L TCLP**	***BP***
Chromium	**7440-47-3**	**0.60 mg/L TCLP**	***BP***
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	**7440-22-4**	**0.4 mg/L TCLP**	***BP***
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name:	*Circuit boards: Broken circuit boards*
How Is the Waste Generated:	*Replacement of circuit boards in electronic equipment, and broken electronic equipment and computers.*
Waste Classification:	*Hazardous, D006, D007, D008, D011*
Waste Determination Method:	*Process Knowledge*
Waste Determination Information:	*Broken circuit boards from computers and other electronic equipment contain metals such as cadmium, chromium, lead and silver.*
Handling Procedure:	*Collect broken circuit boards in a steel or plastic drum. Follow the SOP for Hazardous Waste and label the container "Hazardous Waste Broken Circuit Boards".*
Compatibility Class:	***Group 2A***
Transportation Information:	*Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.*
Disposal Method:	*Treated*
Land Disposal Restrictions:	*Yes*
Final Disposal Site or Disposal Service & Contact:	*See the Hazardous Waste Service Providers Directory, "Electronics Refurbishment, Recycling, or Disposal" for a nearby circuit board recycler/disposal site.*

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Circuit boards: Used circuit boards*

How Is the Waste Generated:

Used electronic equipment and computers.

Waste Classification: *Hazardous, D006, D007, D008, D011*

Waste Determination Method: *Process Knowledge*

Waste Determination Information:

Used circuit boards from computers and other electronic equipment contain metals such as cadmium, chromium, lead and silver. If the computer or electronic equipment is in working order, it is not a waste unless it will not be sold or donated for it's originally intended use (i.e., it's a waste if it is thrown away).

Handling Procedure:

Collect used circuit boards or computers in a same manner as a new circuit board or computer (i.e., prevent damage). Follow the SOP for Used Electronic Equipment.

Compatibility Class: ***Group 2A***

Transportation Information:

Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.

Disposal Method: *Recycled*

Land Disposal Restrictions: *No*

Final Disposal Site or Disposal Service & Contact:

See the Hazardous Waste Service Providers Directory, "Electronics Refurbishment, Recycling, or Disposal" for a nearby circuit board recycler/disposal site.

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Commercial product wastes: Commercial product wastes not otherwise classified*	
How Is the Waste Generated: *Collection of contents of punctured aerosol cans, spilled commercial chemical products, off-specification commercial products.*	
Waste Classification: *Hazardous, U and P and D Listed Wastes*	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information: *Collection of contents of punctured aerosol cans may contain sole active ingredient chemicals on the P and U list. Spills of commercial chemical products and off-specification commercial products that contain sole active ingredient chemicals on the P and U list. Additionally, the wastes may be characteristic wastes (D listed wastes due to ignitability or toxicity).*	
Handling Procedure: *Collect commercial product wastes in a steel or plastic (i.e., for corrosives) drum. Follow the SOP for Hazardous Waste and label the drum with the name "Hazardous Waste" followed by the corresponding P or U listed waste name.*	
Compatibility Class: ***Group Depends on commercial product***	
Transportation Information: *Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.*	
Disposal Method: *Treated*	
Land Disposal Restrictions: *Yes*	
Final Disposal Site or Disposal Service & Contact: *See the Hazardous Waste Service Providers Directory, "TSD Facilities" for a nearby hazardous waste treatment and disposal site.*	

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Computer monitors - Broken computer monitors. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Computer monitors - Broken computer monitors or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Computer monitors -Broken computer monitors*

Source: *Replacement of broken computer monitors.*

Waste Code(s): *D008, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: __________

Date: __________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*
Bendiocarb	22781-23-3	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*
3-Chloropropylene	107-05-1	30	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*
Isobutyl alcohol	78-83-1	170	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*
Pebulate	1114-71-2	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	7440-43-9	0.11 mg/L TCLP	*NBP*
Chromium	7440-47-3	0.60 mg/L TCLP	*NBP*
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Computer monitors - Used computer monitors. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Computer monitors - Used computer monitors or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Computer monitors -Used computer monitors*

Source: *Replacement of older, used computer monitors with newer monitors.*

Waste Code(s): *D008, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: ____________________

Date: ____________________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*
Bendiocarb	22781-23-3	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*
3-Chloropropylene	107-05-1	30	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*
Isobutyl alcohol	78-83-1	170	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*
Pebulate	1114-71-2	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	7440-43-9	0.11 mg/L TCLP	*NBP*
Chromium	7440-47-3	0.60 mg/L TCLP	*NBP*
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Computer monitors: Broken computer monitors*	
How Is the Waste Generated: *Replacement of broken computer monitors.*	
Waste Classification: *Hazardous, D008*	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information: *Broken computer monitors contain lead in the cathode ray tubes.*	
Handling Procedure: *Collect broken computer monitors in a steel or plastic drum. Follow the SOP for Hazardous Waste and label the container "Hazardous Waste Cathode Ray Tubes".*	
Compatibility Class: ***Group 2A***	
Transportation Information: *Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.*	
Disposal Method: *Treated*	
Land Disposal Restrictions: *Yes*	
Final Disposal Site or Disposal Service & Contact: *See the Hazardous Waste Service Providers Directory, "Electronics Refurbishment, Recycling, or Disposal" for a nearby computer monitor recycler/disposal site.*	

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Computer monitors: Used computer monitors*	

How Is the Waste Generated:

Replacement of older, used computer monitors with newer monitors.

Waste Classification: *Hazardous, D008*

Waste Determination Method: *Process Knowledge*

Waste Determination Information:

Used computer monitors contain lead in the cathode ray tubes. If the computer monitor is in working order, it is not a waste unless it will not be sold or donated for it's originally intended use (i.e., it's a waste if it is thrown away).

Handling Procedure:

Collect used computer monitors in a same manner as a new computer monitor (i.e., prevent damage). Follow the SOP for Used Electronic Equipment.

Compatibility Class: ***Group 2A***

Transportation Information:

Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.

Disposal Method: *Recycled*

Land Disposal Restrictions: *No*

Final Disposal Site or Disposal Service & Contact:

See the Hazardous Waste Service Providers Directory, "Electronics Refurbishment, Recycling, or Disposal" for a nearby computer monitor recycler/disposal site.

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name:	*Containers: Non-RCRA empty containers*
How Is the Waste Generated:	*Containers that do not meet the "RCRA Empty" criteria (i.e., the container still holds material).*
Waste Classification:	*Hazardous, U and P Listed Wastes*
Waste Determination Method:	*Process Knowledge*
Waste Determination Information:	*Containers that will be discarded, but are not "RCRA Empty" may be hazardous wastes depending upon the material in the container. The container should be evaluated for potential hazardous waste criteria based on the material in the container.*
Handling Procedure:	*Collect commercial product wastes in a steel or plastic (i.e., for corrosives) drum. Follow the SOP for Hazardous Waste and label the drum with the name "Hazardous Waste" followed by the corresponding P or U listed waste name.*
Compatibility Class:	***Group Depends on container contents***
Transportation Information:	*Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.*
Disposal Method:	*Treated*
Land Disposal Restrictions:	*Yes*
Final Disposal Site or Disposal Service & Contact:	*See the Hazardous Waste Service Providers Directory, "TSD Facilities" for a nearby hazardous waste treatment and disposal site.*

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name:	*Containers: Pressurized containers*
How Is the Waste Generated:	*Unpunctured aerosol cans and cylinders.*
Waste Classification:	*Hazardous, D003*
Waste Determination Method:	*Process Knowledge*
Waste Determination Information:	*Unpunctured aerosol cans are reactive wastes even if depressing the spray nozzle does not result in emissions. Unpunctured cylinders are reactive wastes even if no product is emitted when a valve connected to the cylinder and opened.*
Handling Procedure:	*Collect unpunctured containers in a steel or plastic drum. Follow the SOP for Hazardous Waste and the name of the waste should say "Hazardous Waste - Pressurized Containers".*
Compatibility Class:	***Group Depends on container contents***
Transportation Information:	*Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.*
Disposal Method:	*Treated*
Land Disposal Restrictions:	*Yes*
Final Disposal Site or Disposal Service & Contact:	*See the Hazardous Waste Service Providers Directory, "TSD Facilities" for a nearby hazardous waste treatment and disposal site.*

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Containers: RCRA empty containers*

How Is the Waste Generated:

Use of containers that may have held potential hazardous wastes, but meet the RCRA-empty criteria or, if they held pesticides rinsed according to the product label (e.g., triple rinsed).

Waste Classification: *Non-Hazardous*

Waste Determination Method: *Process Knowledge*

Waste Determination Information:

Containers that meet the RCRA empty criteria can be disposed of as non-hazardous waste regardless of the material previously stored in the container unless the container itself is hazardous (e.g., made with lead).

Handling Procedure:

Dispose of containers in the normal trash.

Compatibility Class: ***Group Depends on previous contents of container***

Transportation Information:

No specific transporatation restrictions.

Disposal Method: *Disposed in Landfill*

Land Disposal Restrictions: *No*

Final Disposal Site or Disposal Service & Contact:

See the Integrated Waste Management List of Permitted Facilities, "Municipal Solid Waste Landfill" for a nearby disposal site.

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Corrosive wastes: Corrosive wastes not otherwise classified*	

How Is the Waste Generated:

Recovered spilled battery acid and spilled battery acid debris.

Waste Classification: *Hazardous, D002*

Waste Determination Method: *Process Knowledge or Analysis*

Waste Determination Information:

Recovered spilled battery acid may have a pH less than 2. Spilled battery acid debris may contain free liquids that have a pH less than 2 or the debris may corrode steel at 0.25 inches per year. If spilled battery acid is cleaned up with neutralizing sorbent, the resulting spilled battery acid debris is non-hazardous as long as no free liquids are present.

Handling Procedure:

Collect potentially corrosive wastes in a plastic drum. Follow the SOP for Hazardous Waste except the name of the waste should say "Hazardous Waste Pending Analysis" until the pH has been determined (i.e., testing).

Compatibility Class: ***Group 1A (Corrosives with pH > 12.5), 1B (Corrosives with pH < 2)***

Transportation Information:

Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.

Disposal Method: *Treated*

Land Disposal Restrictions: *Yes*

Final Disposal Site or Disposal Service & Contact:

See the Hazardous Waste Service Providers Directory, "TSD Facilities" for a nearby hazardous waste treatment and disposal site.

United States
Environmental Protection
Agency

April 2002
EPA530-F-02-018
www.epa.gov/osw

More Recycling and Reuse Proposed For Electronic Wastes and Mercury-Containing Equipment

The Environmental Protection Agency (EPA) is promoting the safe reuse and recycling of cathode ray tubes and mercury-containing equipment. The Agency believes that revising existing regulations for these growing waste streams will facilitate better collection; lead to more recycling and less disposal; and will better protect the environment. It will also help keep mercury and lead out of municipal landfills and incinerators.

Background

Cathode Ray Tubes (CRTs). CRTs are the video display components of televisions and computer monitors. CRT glass typically contains enough lead to be classified as hazardous waste when it's being recycled or disposed of. Currently, businesses and other organizations that recycle or dispose of their CRTs are confused about the applicability of hazardous waste management requirements to their computer or television monitors. The Agency is proposing to revise regulations to encourage opportunities to safely collect, reuse, and recycle CRTs.

Mercury-containing Equipment. Mercury is contained in several types of instruments that are commonly used by electric utilities, municipalities, and households. Among others, these devices include barometers, meters, temperature gauges, pressure gauges, sprinkler system contacts, and parts of coal conveyor systems. EPA has received data on mercury-containing equipment since 1995, when it issued the first federal universal waste rule. The Agency believes that adding mercury-containing devices to the universal waste stream will facilitate better management of this waste.

Universal wastes are items such as batteries, thermostats, pesticides, and lamps that are commonly thrown into the trash by households and small businesses. Handlers of universal wastes follow tailored standards for storing, transporting, and collecting wastes. These standards are designed to encourage collection and keep these wastes out of municipal landfills and incinerators.

Action

Cathode Ray Tubes. To encourage more reuse and recycling, intact CRTs being sent for possible reuse are considered to be products rather than waste, and therefore not regulated unless they are being disposed of. If CRT handlers disassemble the CRTs and send the glass for recycling, EPA is also proposing to exclude them from being a waste, provided they comply with simplified storage, labeling, and transportation requirements. Furthermore, the Agency believes that if broken CRTs are properly containerized and labeled when stored or shipped before recycling, they resemble commodities more than waste.

Finally, processed glass being sent to a CRT glass manufacturer or a lead smelter is excluded from hazardous waste management under most conditions. If the glass is being sent to any other kind of recycler, it must be packaged and labeled the same as broken CRTs. The Agency believes that these proposed changes will encourage the recycling of these materials, while minimizing the possibility of releasing lead into the environment.

Mercury-containing Equipment. The universal waste rule tailors management requirements to the nature of the waste in order to encourage collection (including household collections) and proper management. Universal waste generators, collectors, and transporters must follow specific recordkeeping, storage and transportation requirements. The Agency is proposing the same tailored requirements for mercury-containing equipment. Final disposal and recycling requirements remain unchanged.

For More Information

This fact sheet and other documents related to this rule are available on the Internet at <http://www.epa.gov/epaoswer/hazwaste/recycle/electron/crt.htm>. For additional information, or to order paper copies of any documents, contact the RCRA Call Center. The Call Center operates weekdays, 9:00 a.m. to 5:00 p.m., and may be reached by dialing: 703-412-9810, TDD 703-412-3323, 1-800-424-9346, or TDD 1-800-553-7672.

United States
Environmental Protection
Agency

April 2002
EPA530-F-02-018
www.epa.gov/osw

More Recycling and Reuse Proposed For Electronic Wastes and Mercury-Containing Equipment

The Environmental Protection Agency (EPA) is promoting the safe reuse and recycling of cathode ray tubes and mercury-containing equipment. The Agency believes that revising existing regulations for these growing waste streams will facilitate better collection; lead to more recycling and less disposal; and will better protect the environment. It will also help keep mercury and lead out of municipal landfills and incinerators.

Background

Cathode Ray Tubes (CRTs). CRTs are the video display components of televisions and computer monitors. CRT glass typically contains enough lead to be classified as hazardous waste when it's being recycled or disposed of. Currently, businesses and other organizations that recycle or dispose of their CRTs are confused about the applicability of hazardous waste management requirements to their computer or television monitors. The Agency is proposing to revise regulations to encourage opportunities to safely collect, reuse, and recycle CRTs.

Mercury-containing Equipment. Mercury is contained in several types of instruments that are commonly used by electric utilities, municipalities, and households. Among others, these devices include barometers, meters, temperature gauges, pressure gauges, sprinkler system contacts, and parts of coal conveyor systems. EPA has received data on mercury-containing equipment since 1995, when it issued the first federal universal waste rule. The Agency believes that adding mercury-containing devices to the universal waste stream will facilitate better management of this waste.

Universal wastes are items such as batteries, thermostats, pesticides, and lamps that are commonly thrown into the trash by households and small businesses. Handlers of universal wastes follow tailored standards for storing, transporting, and collecting wastes. These standards are designed to encourage collection and keep these wastes out of municipal landfills and incinerators.

Action

Cathode Ray Tubes. To encourage more reuse and recycling, intact CRTs being sent for possible reuse are considered to be products rather than waste, and therefore not regulated unless they are being disposed of. If CRT handlers disassemble the CRTs and send the glass for recycling, EPA is also proposing to exclude them from being a waste, provided they comply with simplified storage, labeling, and transportation requirements. Furthermore, the Agency believes that if broken CRTs are properly containerized and labeled when stored or shipped before recycling, they resemble commodities more than waste.

Finally, processed glass being sent to a CRT glass manufacturer or a lead smelter is excluded from hazardous waste management under most conditions. If the glass is being sent to any other kind of recycler, it must be packaged and labeled the same as broken CRTs. The Agency believes that these proposed changes will encourage the recycling of these materials, while minimizing the possibility of releasing lead into the environment.

Mercury-containing Equipment. The universal waste rule tailors management requirements to the nature of the waste in order to encourage collection (including household collections) and proper management. Universal waste generators, collectors, and transporters must follow specific recordkeeping, storage and transportation requirements. The Agency is proposing the same tailored requirements for mercury-containing equipment. Final disposal and recycling requirements remain unchanged.

For More Information

This fact sheet and other documents related to this rule are available on the Internet at <http://www.epa.gov/epaoswer/hazwaste/recycle/electron/crt.htm>. For additional information, or to order paper copies of any documents, contact the RCRA Call Center. The Call Center operates weekdays, 9:00 a.m. to 5:00 p.m., and may be reached by dialing: 703-412-9810, TDD 703-412-3323, 1-800-424-9346, or TDD 1-800-553-7672.

United States
Environmental Protection
Agency

EPA530-F-98-025b
December 1998
www.epa.gov/osw

Solid Waste and Emergency Response (5305W)

Disposal Tips for Home Health Care

You can help prevent injury, illness, and pollution by following some simple steps when you dispose of the sharp objects and contaminated materials you use in administering health care in your home.

You should place:
- Needles
- Syringes
- Lancets
- Other sharp objects

in a hard-plastic or metal container with a screw-on or tightly secured lid.

Many containers found in the household will do, or you may purchase containers specifically designed for the disposal of medical waste sharps. Before discarding a container, be sure to reinforce the lid with heavy-duty tape. Do not put sharp objects in any container you plan to recycle or return to a store, and do not use glass or clear plastic containers (see additional information below). Finally, make sure that you keep all containers with sharp objects out of the reach of children and pets.

We also recommend that:
- Soiled bandages
- Disposable sheets
- Medical gloves

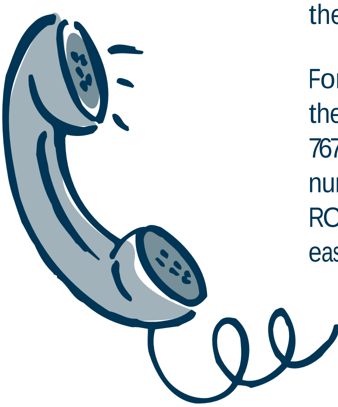
be placed in securely fastened plastic bags before you put them in the garbage can with your other trash.

Preventing Injury and Pollution

Containers with sharps are not recyclable

EPA promotes all recycling activities, and therefore encourages you to discard medical waste sharps in sturdy, nonrecyclable containers, when possible. If a recyclable container is used to dispose of medical waste sharps, make sure that you don't mix the container with other materials to be recycled. Since the sharps impair a container's recyclability, a container holding your medical waste sharps properly belongs with the regular household trash. You may even want to label the container, "NOT FOR RECYCLING." In addition, make sure your sharps container is made of nonbreakable material and has a lid that can be securely closed. These steps go a long way toward protecting workers and others from possible injury. (Although disposing of recyclable containers removes them from the recycling stream, the expected impact is minimal.)

Local Programs



Your state or community environmental programs may have other requirements or suggestions for disposing of your medical waste. You should contact them for any information you may need.

For additional copies of these disposal tips, please call the RCRA Hotline at 800 424-9346 or TDD 800 553-7672. In the Washington, DC metropolitan area, the number is 703 412-9810 or TDD 703 412-3323. The RCRA Hotline operates weekdays, 9 a.m. to 6 p.m., eastern time.

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Filters - Used paint booth air filters. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Filters - Used paint booth air filters or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Filters -Used paint booth air filters*

Source: *Used paint booth filters from a paint booth where chromium, lead, or barium-containing paints, or paints with methyl ethyl ketone or perchloroethylene solvent were applied.*

Waste Code(s): *D005, D007, D008, D035, D039, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: __________

Date: __________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Barban	101-27-9	1.4	*NBP*
Bendiocarb	22781-23-3	1.4	*NBP*
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
2-Chlorophenol	95-57-8	5.7	*NBP*
3-Chloropropylene	107-05-1	30	*NBP*
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Iodomethane	74-88-4	65	*NBP*
Isobutyl alcohol	78-83-1	170	*NBP*
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	**78-93-3**	**36**	***BP***
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Total PCBs	1336-36-3	10	*NBP*
Pebulate	1114-71-2	1.4	*NBP*
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	**127-18-4**	**6.0**	***BP***
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	**7440-39-3**	**21 mg/L TCLP**	***BP***
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	7440-43-9	0.11 mg/L TCLP	*NBP*
Chromium	**7440-47-3**	**0.60 mg/L TCLP**	***BP***
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

LAND DISPOSAL RESTRICTION NOTIFICATION

1. Not a UHC.

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Filters - Used welding area filtration system air filters. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Filters - Used welding area filtration system air filters or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Filters -Used welding area filtration system air filters*

Source: *Used welding or soldering area air filtration system where cadmium or chromium fumes may have been collected on the air filter.*

Waste Code(s): *D006, D007, D008, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: ____________________

Date: ____________________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Bendiocarb	22781-23-3	1.4	*NBP*
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
3-Chloropropylene	107-05-1	30	*NBP*
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isobutyl alcohol	78-83-1	170	*NBP*
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pebulate	1114-71-2	1.4	*NBP*
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	**7440-43-9**	**0.11 mg/L TCLP**	***BP***
Chromium	**7440-47-3**	**0.60 mg/L TCLP**	***BP***
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Filters: Used paint booth air filters*

How Is the Waste Generated:

Used paint booth filters from a paint booth where chromium, lead, or barium-containing paints, or paints with methyl ethyl ketone or perchloroethylene solvent were applied.

Waste Classification: *Hazardous, D005, D007, D008, D035, D039*

Waste Determination Method: *Analysis*

Waste Determination Information:

Paint booth filters may collect barium, chromium, and lead pigments from paints. Additionally, the paint booth filters may contain solvents used in paints including methyl ethyl ketone and tetrachloroethylene.

Handling Procedure:

Collect potentially hazardous wastes in a plastic or steel drum. Follow the SOP for Hazardous Waste except the name of the waste should say "Hazardous Waste Pending Analysis" until the analytical results are received.

Compatibility Class: ***Group 6B***

Transportation Information:

Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.

Disposal Method: *Treated*

Land Disposal Restrictions: *Yes*

Final Disposal Site or Disposal Service & Contact:

See the Hazardous Waste Service Providers Directory, "TSD Facilities" for a nearby hazardous waste treatment and disposal site.

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Filters: Used welding area filtration system air filters*

How Is the Waste Generated:

Used welding or soldering area air filtration system where cadmium or chromium fumes may have been collected on the air filter.

Waste Classification: *Hazardous, D006, D007, D008*

Waste Determination Method: *Analysis*

Waste Determination Information:

Air filters used for removing welding fumes from the air may collect metals including cadmium and chromium. Air filters used for removing soldering fumes from the air may collect lead.

Handling Procedure:

The used welding air filters should be labeled following the SOP for Hazardous Waste except the name of the waste should say "Hazardous Waste Pending Analysis". The used air filters may be put into drums if this can be done safely (e.g. without bending or breaking the filters and releasing contaminants). Alternatively, other UN-approved containers for hazardous waste, of appropriate size for the used filters, should be used.

Compatibility Class: ***Group 6B***

Transportation Information:

Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.

Disposal Method: *Treated*

Land Disposal Restrictions: *Yes*

Final Disposal Site or Disposal Service & Contact:

See the Hazardous Waste Service Providers Directory, "TSD Facilities" for a nearby hazardous waste treatment and disposal site.

United States
Environmental Protection Agency

Solid Waste and
Emergency Response
(5305W)

EPA530-F-99-024
July 1999
www.epa.gov/osw

Office of Solid Waste

EPA

Environmental Fact Sheet

Some Used Lamps Are Universal Wastes

The Environmental Protection Agency (EPA) is promoting the safe recycling and disposal of certain used lamps, especially fluorescent and high intensity discharge (HID) lamps. The Agency believes that this waste can be better managed under EPA's universal waste program, and is therefore adding used hazardous waste lamps to its universal waste rule. This approach will achieve better control of hazardous emissions while streamlining many regulatory requirements for industry. It will also encourage the manufacture of low-mercury lamps and will make the requirements for handling and disposal of these materials consistent with many state programs.

Background

To streamline environmental regulations for wastes that are generated by large numbers of businesses in relatively small quantities, EPA issued the universal waste rule in 1995. It is designed to reduce the amount of hazardous waste items in the municipal solid waste stream; encourage the recycling and proper disposal of some common hazardous wastes; and reduce the regulatory burden on businesses that generate these wastes.

Universal wastes are usually items commonly thrown into the trash by households and small businesses (such as batteries, thermostats, and obsolete agricultural pesticides). Although handlers of universal wastes must meet less stringent standards for storing, transporting, and collecting wastes, the wastes must comply with full hazardous waste requirements for final recycling, treatment, or disposal. This management structure removes these wastes from municipal landfills and incinerators, which provides stronger safeguards for public health and the environment.

Before this rule, many used lamps had to be disposed of as hazardous waste because they frequently contain mercury, and sometimes lead. The decision to classify discarded hazardous waste lamps as universal wastes was based on comments received on EPA's 1994 proposal for managing such lamps, and on a 1997 study of mercury emissions from discarded lamps. The study showed that these emissions would be reduced under the universal waste approach.

Action

Hazardous waste lamps are added to the federal list of universal wastes regulated under the Resource Conservation and Recovery Act (RCRA). Regulating these lamps as a universal waste under 40 CFR Part 273 provides better management of them and facilitates compliance with RCRA hazardous waste requirements. This rule also makes the federal requirements for this waste more consistent with many state programs. Participation in energy-efficient lighting schemes under EPA's Green Lights program is not affected by this rule.

For More Information

The *Federal Register* notice, this fact sheet, and related documents are available on the Internet at <http://epa.gov/epaoswer/osw/hazwaste.htm#id>. For additional information or to order paper copies of any documents, call the RCRA Hotline. Callers within the Washington Metropolitan Area must dial 703-412-9810 or TDD 703-412-3323 (hearing impaired). Long-distance callers may call 1-800-424-9346 or TDD 1-800-553-7672. The RCRA Hotline operates weekdays, 9:00 a.m. to 6:00 p.m. Address written requests to: RCRA-Docket@epa.gov or RCRA Information Center (5305W), US EPA, 401 M Street SW, Washington, DC 20460.

United States Environmental Protection Agency
Solid Waste and Emergency Response (5305W)
EPA530-F-99-024
July 1999
www.epa.gov/osw

Office of Solid Waste

Environmental Fact Sheet

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Background

To streamline environmental regulations for wastes that are generated by large numbers of businesses in relatively small quantities, EPA issued the universal waste rule in 1995. It is designed to reduce the amount of hazardous waste items in the municipal solid waste stream; encourage the recycling and proper disposal of some common hazardous wastes; and reduce the regulatory burden on businesses that generate these wastes.

Universal wastes are usually items commonly thrown into the trash by households and small businesses (such as batteries, thermostats, and obsolete agricultural pesticides). Although handlers of universal wastes must meet less stringent standards for storing, transporting, and collecting wastes, the wastes must comply with full hazardous waste requirements for final recycling, treatment, or disposal. This management structure removes these wastes from municipal landfills and incinerators, which provides stronger safeguards for public health and the environment.

Before this rule, many used lamps had to be disposed of as hazardous waste because they frequently contain mercury, and sometimes lead. The decision to classify discarded hazardous waste lamps as universal wastes was based on comments received on EPA's 1994 proposal for managing such lamps, and on a 1997 study of mercury emissions from discarded lamps. The study showed that these emissions would be reduced under the universal waste approach.

Action

Hazardous waste lamps are added to the federal list of universal wastes regulated under the Resource Conservation and Recovery Act (RCRA). Regulating these lamps as a universal waste under 40 CFR Part 273 provides better management of them and facilitates compliance with RCRA hazardous waste requirements. This rule also makes the federal requirements for this waste more consistent with many state programs. Participation in energy-efficient lighting schemes under EPA's Green Lights program is not affected by this rule.

For More Information

The *Federal Register* notice, this fact sheet, and related documents are available on the Internet at <http://epa.gov/epaoswer/osw/hazwaste.htm#id>. For additional information or to order paper copies of any documents, call the RCRA Hotline. Callers within the Washington Metropolitan Area must dial 703-412-9810 or TDD 703-412-3323 (hearing impaired). Long-distance callers may call 1-800-424-9346 or TDD 1-800-553-7672. The RCRA Hotline operates weekdays, 9:00 a.m. to 6:00 p.m. Address written requests to: RCRA-Docket@epa.gov or RCRA Information Center (5305W), US EPA, 401 M Street SW, Washington, DC 20460.

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Glass: Glass not otherwise classified*	

How Is the Waste Generated:

Empty, used or broken glass containers and parts (i.e., windows) that are not connected to, or part of other materials or hazardous wastes.

Waste Classification: *Non-Hazardous*

Waste Determination Method: *Process Knowledge*

Waste Determination Information:

Glass that does not have potentially hazardous waste residues is recycleable. If a glass recycler or glass recycling center is not available in the area, the glass may be disposed of in the normal trash as Solid Waste, Solid Waste Not Otherwise Classified.

Handling Procedure:

Collect and store the glass in separate glass recycling bins or containers. Glass recycling bins and containers should be labeled to indicate that the bins and containers are for glass parts and equipment only.

Compatibility Class: ***Group 1A***

Transportation Information:

No specific transporatation restrictions.

Disposal Method: *Recycled*

Land Disposal Restrictions: *No*

Final Disposal Site or Disposal Service & Contact:

Local glass recycler.

G83-674-A
(Revised November 1987)

A University of Nebraska NebGuide Publication

Hazardous Waste Management Requirements for Pesticide Applicators

This NebGuide is to inform Nebraska pesticide applicators about selected provisions of federal and state hazardous waste laws and regulations.

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Previous Category | Catalog | Order Info

- Pesticides[1] currently on List I (EPA-designated "P" List)
- Pesticides on List II (EPA-designated "U" List)

Congress passed the Resource Conservation and Recovery Act (RCRA) because of widespread indiscriminate disposal of hazardous chemicals. Under provisions of that law, the U.S. Environmental Protection Agency (EPA) has established national standards for proper management of hazardous wastes. "Management," as EPA uses the term, includes generating, transporting, storing, treating and disposing of hazardous waste.

The EPA has defined hazardous waste as "...any solid, liquid, or contained gaseous material that you no longer use, and either recycle, throw away, or store until you have enough to treat or dispose of." Clearly, many pesticides come within the scope of that definition. Any chemicals, including pesticides, that might cause injury or death or pollute air, land or water, are therefore regarded as being hazardous. Applicators who use such pesticides may be affected by RCRA and related EPA and state regulations. The Department of Environmental Control is responsible for administering and enforcing hazardous waste laws and regulations for the State of Nebraska.

EPA designates as "hazardous waste" any chemical that has one or more of these four characteristics: ignitability, corrosivity, reactivity or toxicity. Most pesticides categorized by EPA as hazardous waste are so classified because of their toxicity. A second way a chemical can be brought into the hazardous waste regulatory system is by listing -- i.e. EPA makes an administrative decision that the chemical may pose an unreasonable risk to health or the environment.

Two hazardous waste lists published by the EPA in the Code of Federal Regulations pertain to pesticide applicators. Chemicals on List I are identified as "acute hazardous wastes." Each has a hazardous waste number having the prefix "P." Chemicals on List II are referred to in federal regulations as "toxic wastes." The hazardous waste numbers of chemicals on this list have the prefix "U."

Use all pesticides safely. Read the pesticide label completely and comply with all directions. Failure to do so may subject you to sanctions or penalties provided by federal and/or state laws.

Pesticides[1] currently on List I, the "Acute Hazardous Waste" list (EPA designated "P" List), are:

- Acrolein
- Aldicarb (Temik)
- Aldrin
- Allyl alcohol
- alpha-Naphthylthiourea
- Aluminum phosphide (hydrogen phosphide)
- Arsenic acid
- Arsenic pentoxide
- Arsenic trioxide
- Avitrol (4-alpha-aminopyridine)
- Calcium cyanide
- Carbon bisulfide
- Carbon disulfide
- Cyanides
- Cyanogen chloride
- Dieldrin
- Dimethoate
- Dinoseb
- Disulfoton
- Endosulfan
- Endothal
- Endrin
- Famphur
- Fluoroacetamide (1081)
- Fluoroacetic acid (1080)
- Heptachlor
- Hexaethyl tetraphosphate
- Hydrocyanic acid
- Hydrogen cyanide
- Isodrin
- Methomyl
- Methyl parathion
- Octamethylpyrophosphoramide (Schradan)
- Parathion
- Phenylmercury acetate
- Phorate
- Phosphine
- Sodium azide
- Sodium cyanide
- Strychnine (and salts)
- Tetraethylpyrophosphate (TEPP)
- Thallium sulfate
- Thiofanox
- Toxaphene
- Warfarin > 0.3%
- Zinc Phosphide > 10% (zinophos)

[1]The official list of hazardous waste pesticides is published in the Code of Federal Regulations (40 CFR Part 261) and Title 128, Chapter 15 of the Nebraska State Regulations. The list is subject to periodic change. For more detailed information on provisions of the EPA and state hazardous waste regulations and current lists of pesticides identified as hazardous waste, please contact the Nebraska Department of Environmental Control, 301 Centennial Mall South, P.O. Box 94877, Statehouse Station, Lincoln, Nebraska 68509, (402) 471-2186.

Pesticides on List II (EPA-designated "U" List) are:

- Acrylonitrile
- Amitrol
- Cacodylic acid
- Carbon Tetrachloride
- Chlordane
- Chlorobenzene
- Chloroform
- Creosote
- Cresols
- Cresylic acid
- Cyclohexanone
- Cyclophosphamide
- 1,2-Dibromo-3-chloropropane (DBCP)
- DDD (TDE)
- DDT
- Diallate
- Formaldehyde
- Hexachlorobenzene
- Hexachlorophene
- Kepone
- Lindane (hexachlorocyclohexane)
- Maleic hydrazide
- Mercury
- Methoxychlor
- Methyl alcohol
- Methyl bromide
- Methyl chloride
- Methylchloroform (trichloroethane)
- Methylene chloride
- Naphthalene
- Pentachloroni Trobenzene (PCNB)
- Pentachlorophenol (PCP)

- o-Dichloroberzene
- m-Dichlorobenzene
- p-Dichlorobenzene
- Dichloroethyl ether
- 2,4-Dichlorophenoxyacetic acid
- 1,3-Dichloropropene
- Dimethyl phthalate (DMP)
- Ethyl 4,4'-dichlorobenzilate (chlorobenzilate)
- Ethylene dibromide
- Ethylene dichloride
- Ethylene oxide (oxirane)
- Phenol (carbolic acid)
- Pronamide (Kerb)
- Propylene dichloride
- Silvex
- Tetrachloroethylene
- Thiram
- Warfarin < 0.3%
- Zinc phosphide < 10%
- 2,4,5-Trichlorophenoxyacetic acid
- 2-(2,4,5-TrichIorophenoxy) propionic acid

Pesticide wastes composed of chemicals on both Lists I and II are regarded as hazardous. However, EPA considers pesticides on List I ("P" list) to be so dangerous in small amounts that they are regulated the same way as are larger amounts of List II ("U" list) wastes. A pesticide applicator can fall into one of the three categories of "hazardous waste generator" depending on the **type** and **amount** of hazardous waste generated (accumulated or disposed of) in any given calendar month.

Most private applicators and some commercial applicators will be "conditionally exempt small quantity generators." Persons and firms in this category can generate (i.e. accumulate for disposal or dispose of) no more than 220 pounds (100 kg or 25 gallons) of List II ("U" list) hazardous waste and no more than 2.2 pounds (1 kg or approximately one quart) of List I ("P" list) acute hazardous waste in any calendar month.

To comply with federal and Nebraska hazardous waste laws, "conditionally exempt small quantity generators" must fulfill three requirements:

1. Identify all hazardous waste you generate.
2. Send this waste to a landfill or other facility approved by the state for industrial or municipal wastes, or to a hazardous waste facility.
3. **Never** accumulate more than 220 lbs (200 kg) of hazardous waste on your property.

The EPA has established a separate category for those who generate more than 220 lbs but less than 2,200 lbs of List Il ("U" list) hazardous waste in a calendar month. (This equates to approximately 25-250 gallons of liquid waste.) Persons and firms in this "100-1,000 kg/mo" category must NOT generate more than 2.2 lbs of List I ("P" list) acute hazardous waste during the calendar month or they are fully regulated. Federal and Nebraska hazardous waste management rules for this category require that you observe the following procedures:

1. Determine the type and amount of hazardous waste you generate.
2. Complete and return a Notification of Hazardous Waste Activity to the Nebraska Department of Environmental Control to be assigned a DEC/EPA identification number.
3. Store your hazardous waste in properly labeled, closed containers and inspect the containers weekly pending disposal; dispose of the waste within 180 days.
4. Complete a Hazardous Waste Manifest (federal Office of Management and Budget Form No. 2050-0039) before shipping your hazardous waste. (Both transporter and receiver of the waste also must be registered with DEC and EPA.)
5. Submit an annual report to DEC and keep copies for three years.
6. If you have employees, familiarize them with proper waste handling and emergency procedures and designate one as an emergency coordinator in case of fires or spills.
7. Maintain your "Small Quantity" generator status by **never** accumulating more than 2,200 lbs (1,000 kg or approximately five full 55-gallon drums) of List II ("U" list) hazardous waste at any time and no more than 2.2 lbs (1 kg) of List I ("P" list) acute hazardous waste in any calendar month.

(**Note:** Limitations in Nebraska on the amount of hazardous waste which an applicator can accumulate are more stringent than the limitations provided in federal laws and regulations. Laws in some other states also may vary from federal standards on weight accumulations, time limits, and other provisions. Pesticide applicators who operate in other states should therefore check with regulatory officials in those states to be certain they remain in compliance.)

If within a calendar month you generate -- i.e. accumulate for disposal or dispose of -- 2,200 lbs (1,000 kg or 300 gallons) or more of List II ("U" list) hazardous waste, you are required to comply with all applicable hazardous waste management rules. Those same rules apply if you generate more than 1 kg of List I ("P" list) acute hazardous waste in any calendar month.

To comply with all hazardous waste management regulations, a "generator" must fulfill all the requirements listed above for generators of 100-1,000 kg/mo. In addition, there are three additional requirements:

1. Provide all employees with a training program conducted under the direction of a person trained in hazardous waste management procedures.
2. Prepare for possible emergencies such as fires or explosions by installing emergency alarms and equipment and arranging with local officials to ensure they'll be able to respond to an emergency.
3. Prepare a contingency plan to be implemented in case of an emergency.

Combinations of two or more hazardous/toxic materials from either List I or II may also be a concern for pesticide applicators. For example, if the combined weight of three List I ("P" list) acute hazardous waste chemicals exceeds 2.2 lbs (1 kg), the waste must be disposed of in full compliance with EPA and state regulations.

Once an applicator exceeds the allowable weight exclusion for **either** List I or List II waste, any additional amount of waste accumulated or disposed of is subject to the more restrictive regulation regardless of the list on which it appears.

Some pesticides may be hazardous wastes either by themselves or in combination with other substances that are not normally hazardous. Combinations of hazardous with nonhazardous materials are mixtures. Accumulations of waste mixtures including soil and cleanup materials that equal or exceed specified concentrations and 220 lbs in a single month are considered hazardous waste. The total weight of the mixture must be considered in determining the amount for disposal. Examples of specified concentration limits are shown below:

Chemical	*Concentration*
Endrin	0.02 ppm*
Lindane	0.40 ppm
Toxaphene	0.50 ppm
Silvex	1.00 ppm
2,4-D	10.00 ppm
Methoxychlor	10.00 ppm

*parts per million

Combinations of pesticides other than the hazardous/nonhazardous materials may also be regulated. If you are managing waste that contains a combination of pesticides, contact the Nebraska Department of Environmental Control for proper disposal procedures.

Regulated disposal also may be required if a List I hazardous waste chemical is accidentally spilled. The regulations apply whenever the combined weight of the pesticide residue, absorbants used in cleanup, and contaminated soil and/or water equals or exceeds 220 lbs.

A farmer is excluded from this law when he buys for his own use, uses, and disposes of hazardous materials on his farm. It is the farmer's responsibility to ensure that all of the pesticide remains on his property and does not make its way to either ground or surface water or neighboring farms. A private applicator (farmer) may not dispose of someone else's pesticide waste unless a disposal permit is obtained.

A commercial applicator who applies a pesticide for a farmer is allowed to dispose of waste pesticide on the property of the farmer for whom the application was made. The rinsate must be applied to a site for which the pesticide is listed. In addition, the rinsate must be disposed of after each individual job. Specifically, it would be a violation to apply a pesticide for Farmer Smith, proceed to the property of Farmer Jones, and apply the same pesticide and then apply pesticide waste on the property of Farmer Jones.

All pesticide containers that are not combustible should be triple rinsed using sufficient quantities of water to insure thorough cleansing. Rinsates should be used in accordance with label directions for the pesticide or disposed of properly. Triple-rinsed containers are not hazardous waste, but their disposal should follow the guidelines for all pesticide containers.[2] The new labels on pesticides that are hazardous chemicals provide instructions for proper disposal of decontaminated containers. Even though pesticide residues and containers may not be considered hazardous under provisions of the federal law, they should still be disposed of in accordance with Nebraska's rules and regulations pertaining to the management of waste. You will not be regulated by the federal hazardous waste law if you comply with one or more of the following guidelines listed below.

1. Do not use a pesticide on the hazardous list.
2. Do not accumulate for disposal, or dispose of, a quantity that exceeds the limits established by the EPA or the State of Nebraska, and follow proper procedures for disposal of small quantities.
3. Triple rinse noncombustible containers with ample quantities of water.
4. Apply any excess pesticide and rinsate according to label instructions.
5. Properly store unused pesticides in the original containers for application later.
6. Mix pesticides carefully so all will be applied without any excess.

[2]For more information, see NebGuide G79-472, *Disposal of Pesticide Containers*.

File G674 under: PESTICIDES, GENERAL
E-2, Regulations
Issued November 1987; 26,000 printed.

Electronic version issued April 1996
pubs@unl.edu

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Kenneth R. Bolen, Director of Cooperative Extension, University of Nebraska, Institute of Agriculture and Natural Resources.

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Ignitible wastes: Ignitible wastes not otherwise classified*	
How Is the Waste Generated: *Recovered spills, contaminated or off-specification diesel, kerosene and road oil, or spilled diesel, kerosene and road oil debris.*	
Waste Classification: *Hazardous, D001*	
Waste Determination Method: *Process Knowledge or Analysis*	
Waste Determination Information: *Recovered spills, contaminated or off-specification diesel, kerosene and road oil with flash points less than 140 F is an ignitable wastes. Spilled diesel, kerosene and road oil debris that contains free liquid with a flash point less than 140 F is an ignitable waste. If the spilled diesel, kerosene, or road oil debris does not contain free liquid, than the debris is non-hazardous and may be disposed of in the normal trash as a Solid Waste, Solid Waste Not Otherwise Classified.*	
Handling Procedure: *Collect potentially ignitable wastes in a steel or plastic drum. Follow the SOP for Hazardous Waste except the name of the waste should say "Hazardous Waste Pending Analysis" until the analytical results are received.*	
Compatibility Class: ***Group 6B (Except oxidizers, which are 6A)***	
Transportation Information: *Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.*	
Disposal Method: *Treated*	
Land Disposal Restrictions: *Yes*	
Final Disposal Site or Disposal Service & Contact: *See the Hazardous Waste Service Providers Directory, "TSD Facilities" for a nearby hazardous waste treatment and disposal site.*	

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Lead - Lead not otherwise classified. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Lead - Lead not otherwise classified or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Lead -Lead not otherwise classified*

Source: *Used terne-plated oil filters, broken lead wheel weights, and used lead-containing solder.*

Waste Code(s): *D008, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: ______

Date: ______

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Bendiocarb	22781-23-3	1.4	*NBP*
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
3-Chloropropylene	107-05-1	30	*NBP*
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isobutyl alcohol	78-83-1	170	*NBP*
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pebulate	1114-71-2	1.4	*NBP*
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	7440-43-9	0.11 mg/L TCLP	*NBP*
Chromium	7440-47-3	0.60 mg/L TCLP	*NBP*
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	**7439-92-1**	**0.75 mg/L TCLP**	***BP***
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Lead: Lead not otherwise classified*

How Is the Waste Generated:

Used terne-plated oil filters, broken lead wheel weights, and used lead-containing solder.

Waste Classification: *Hazardous, D008*

Waste Determination Method: *Process Knowledge or Analysis*

Waste Determination Information:

Used terne-plated oil filters, broken lead wheel weights, and used lead-containing solder have concentrations of lead above 5.0 mg/L.

Handling Procedure:

Collect lead wastes in a steel or plastic container. Follow the SOP for Hazardous Waste except the name of the waste should say "Hazardous Waste Lead".

Compatibility Class: ***Group 2A***

Transportation Information:

Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.

Disposal Method: *Treated*

Land Disposal Restrictions: *Yes*

Final Disposal Site or Disposal Service & Contact:

See the Hazardous Waste Service Providers Directory, "TSD Facilities" for a nearby hazardous waste treatment and disposal site.

APPENDIX G

WASTE PROFILES

Locating the Waste Profile

Identify the waste in the Waste Index by General Category and Specific Category (e.g., a General Category would be "Paint" and a Specific Category would be "Chromium-Containing Paint"). Directly across from the Specific Category is the General Waste Category followed by the Specific Waste Category (e.g., the General Waste Category for Chromium-Containing Paint is "Characteristic Waste" and the Specific Waste Category is "Characteristic Waste Not Other-Wise Classified"). The Waste Profiles are divided by "tabs" into General Waste Categories. Within each "tabbed" section are the various Specific Waste Categories that apply to the General Waste Category. If you are unsure of the Specific Waste Category, go to the "tabbed" General Waste Category section and read the Waste Profiles sections "How is Waste Generated" and "Waste Determination Method Description" to determine the Specific Waste Category.

Some keys to identifying the correct waste profile are detailed below:

- Before attempting to locate the waste profile, it is important to reiterate that the waste profiles apply to materials, chemicals, products that are no longer useable for their originally intended purpose without processing. Surplus items are not wastes.

- Do not look up General Categories under the words "used" or "waste" (i.e., these words apply to most of the categories so they are not used to avoid confusion). For example, looking up the General Category of "Batteries", you would find various types of used batteries listed as Specific Categories.

- If a part is a mixture or combination of two categories, the hazardous waste category takes precedent, followed by the universal wastes, special wastes, and medical wastes. For example, a filter has the filtration paper or cloth with a scrap metal base. If the filtration paper or cloth is hazardous, than the entire filter is hazardous even though the scrap metal base is non-hazardous.

- If a waste meets more than one specific category, review each category and use the more stringent category. The waste categories in order of most stringent to least stringent are: hazardous waste, universal waste, special waste, medical waste, and non-hazardous waste. For example, a spill of water-based chromium-containing paint fits into two specific waste categories: spilled water-based paint and spilled chromium paint. Spilled chromium paint is a hazardous waste and spilled water-based paint is non-hazardous waste. Therefore, hazardous waste category is more stringent and the spilled water-based chromium-containing paint should be treated as spilled chromium paint.

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Medical wastes: Medical wastes not otherwise classified*	
How Is the Waste Generated: *Soiled or blood-soaked bandages from first aid activities and needles used for employee insulin or other medically approved injections.*	
Waste Classification: *Medical*	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information: *Due to the potential for blood-borne pathogens, soiled or blood-soaked bandages and used needles are medical wastes.*	
Handling Procedure: *Follow the SOP for Medical Waste.*	
Compatibility Class: ***Group 6B (Except medical wastes with bleach debris, which are 6A)***	
Transportation Information: *Transport as regulated medical waste.*	
Disposal Method: *Treated*	
Land Disposal Restrictions: *No*	
Final Disposal Site or Disposal Service & Contact: *See the Hazardous Waste Service Providers Directory, "Medical Waste" for a nearby medical waste treatment and disposal site.*	

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Mercury - Mercury waste not otherwise classified. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Mercury - Mercury waste not otherwise classified or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION
NOTIFICATION

Waste Information

Waste Name: *Mercury -Mercury waste not otherwise classified*

Source: *Broken (i.e., cracked open) mercury-containing lights (fluorescent, mercury vapor, sodium vapor, metal halide), thermometers, thermostats and switches.*

Waste Code(s): *D009, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: ____________________

Date: ____________________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Bendiocarb	22781-23-3	1.4	*NBP*
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	56-23-5	6.0	*NBP*
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	67-66-3	6.0	*NBP*
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
3-Chloropropylene	107-05-1	30	*NBP*
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	75-34-3	6.0	*NBP*
1,2-Dichloroethane	107-06-2	6.0	*NBP*
1,1-Dichloroethylene	75-35-4	6.0	*NBP*
trans-1,2-Dichloroethylene	156-60-5	30	*NBP*
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isobutyl alcohol	78-83-1	170	*NBP*
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	75-09-2	30	*NBP*
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pebulate	1114-71-2	1.4	*NBP*
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	127-18-4	6.0	*NBP*
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*
1,1,1-Trichloroethane	71-55-6	6.0	*NBP*
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	79-01-6	6.0	*NBP*
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	7440-43-9	0.11 mg/L TCLP	*NBP*
Chromium	7440-47-3	0.60 mg/L TCLP	*NBP*
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	7439-92-1	0.75 mg/L TCLP	*NBP*
Mercury (Nonwastewater Retort)	**7439-97-6**	**0.20 mg/L TCLP**	***BP***
Mercury (All Others)	**7439-97-6**	**0.025mg/l TCLP**	***BP***
Nickel	7440-02-0	11 mg/L TCLP	*NBP*
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	7440-66-6	4.3 mg/L TCLP	*NBP*

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

> "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name:	*Mercury: Mercury waste not otherwise classified*
How Is the Waste Generated:	*Broken (i.e., cracked open) mercury-containing lights (fluorescent, mercury vapor, sodium vapor, metal halide), thermometers, thermostats and switches.*
Waste Classification:	*Hazardous, D009*
Waste Determination Method:	*Process Knowledge or Analysis*
Waste Determination Information:	*Broken mercury-containing lights (fluorescent, mercury vapor, sodium vapor, metal halide), thermometers, thermostats and switches are hazardous waste due to the mercury. Mercury-containing lights and thermostats are not universal wastes if they are broken open and the contents released.*
Handling Procedure:	*Collect potential mercury wastes in a plastic or steel drum. Follow the SOP for Hazardous Waste except the name of the waste should say "Hazardous Waste Mercury".*
Compatibility Class:	***Group 2A***
Transportation Information:	*Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.*
Disposal Method:	*Treated*
Land Disposal Restrictions:	*Yes*
Final Disposal Site or Disposal Service & Contact:	*See the Hazardous Waste Service Providers Directory, "Mercury Recyclers" for a nearby mercury recycler/disposal site.*

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Mercury-containing lamps: Spent mercury-containing lamps*	
How Is the Waste Generated: *Used (i.e., no longer working or no longer needed) mercury-containing lights (fluorescent, mercury vapor, sodium vapor, metal halide).*	
Waste Classification: *Universal*	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information: *Used mercury-containing lights (fluorescent, mercury vapor, sodium vapor, metal halide) are included in the Universal Waste program.*	
Handling Procedure: *Mercury containing lamps should be collected in a protective, closed container (e.g., the packaging material that the lamp was shipped in). Follow the SOP for Universal Waste and label the container "Universal Waste Mercury-Containing Lamps".*	
Compatibility Class: ***Group 2A***	
Transportation Information: *No specific transporatation restrictions. Follow SOP for Universal Waste.*	
Disposal Method: *Treated*	
Land Disposal Restrictions: *No*	
Final Disposal Site or Disposal Service & Contact: *See the Hazardous Waste Service Providers Directory, "Fluorescent Light Recyclers" for a nearby mercury-containing lamp disposal site.*	

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Mercury: Mercury-containing thermostats*	
How Is the Waste Generated: *Replacement of broken (i.e., not including thermostats with spilled or leaking mercury) used and replaced thermostats with mercury-filled glass bulbs.*	
Waste Classification: *Universal*	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information: *Broken (i.e., not including thermostats with spilled or leaking mercury) used and replaced thermostats with mercury-filled glass bulbs are included in the Universal Waste program.*	
Handling Procedure: *Mercury thermostats should be collected in a sound, closed, plastic container. Follow the SOP for Universal Waste and label the container "Universal Waste - Mercury Thermostats".*	
Compatibility Class: ***Group 2A***	
Transportation Information: *No specific transporatation restrictions. Follow SOP for Universal Waste.*	
Disposal Method: *Treated*	
Land Disposal Restrictions: *No*	
Final Disposal Site or Disposal Service & Contact: *See the Hazardous Waste Service Providers Directory, "Mercury Recyclers" for a nearby mercury recycler/disposal site.*	

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name:	*Non-specific listed wastes: Non-specific listed wastes not otherwise classified*
How Is the Waste Generated: *Solvents with over 10% concentration of methylene chloride, perchloroethylene, 1,1,1-trichloroethane, trichloroethylene, acetone, butanol, ethyl ether, methanol, methyl isobutyl ketone, xylene, benzene, methyl ethyl ketone and toluene.*	
Waste Classification:	*Hazardous, F and D Listed*
Waste Determination Method:	*Process Knowledge*
Waste Determination Information: *Non-specific listed wastes with over 10% chlorinated solvents are F002 wastes. Non-specific listed wastes with non-chlorinated solvents are F005 wastes. F005 wastes should also be tested for ignitability. If an F005 waste fails the ignitability test (i.e., a flash point less than 140 F), than it is also an ignitable wastes (i.e., D001).*	
Handling Procedure: *Collect potentially listed wastes in a plastic or steel drum. Follow the SOP for Hazardous Waste except the name of the waste should say "Hazardous Waste" followed by the F or D listed waste name.*	
Compatibility Class:	***Group 4A***
Transportation Information: *Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.*	
Disposal Method:	*Treated*
Land Disposal Restrictions:	*Yes*
Final Disposal Site or Disposal Service & Contact: *See the Hazardous Waste Service Providers Directory, "TSD Facilities" for a nearby hazardous waste treatment and disposal site.*	

Sample Cover Letter

Date

Treatment or Disposal Facility
Street Address
City, State Zip

Attn: Contact Name

Dear Contact Name,

Attached you will find our review of the Land Disposal Restrictions (LDRs) Underlying Hazardous Constituents (UHCs) for the Oil - Off-specification used oil. The review is based on process knowledge and material safety data sheets (MSDSs). If you have questions on the Oil - Off-specification used oil or this LDR UHC review, please call me at Phone Number.

Thank You,

Signature
Name
Title

LAND DISPOSAL RESTRICTION NOTIFICATION

Waste Information

Waste Name: *Oil -Off-specification used oil*

Source: *Used oil collected from automobiles or oil-filled equipment, contaminated with halogenated solvents or metals.*

Waste Code(s): *F002, non-wastewater*

Statement: *This waste IS SUBJECT to the LDRs and requires treatment prior to land disposal.*

Waste Manifest Information

Waste Manifest #: __________

Date: __________

Underlying Hazardous Constituents

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Acenaphthylene	208-96-8	3.4	*NBP*
Acenaphthene	83-32-9	3.4	*NBP*
Acetone	67-64-1	160	*NBP*
Acetonitrile	75-05-8	38	*NBP*
Acetophenone	96-86-2	9.7	*NBP*
2-Acetylaminofluorene	53-96-3	140	*NBP*
Acrolein	107-02-8	NA	*NBP*
Acrylamide	79-06-1	23	*NBP*
Acrylonitrile	107-13-1	84	*NBP*
Aldicarbsulfone	1646-88-4	0.28	*NBP*
Aldrin	309-00-2	0.066	*NBP*
4-Aminobiphenyl	92-67-1	NA	*NBP*
Aniline	62-53-3	14	*NBP*
Anthracene	120-12-7	3.4	*NBP*
Aramite	140-57-8	NA	*NBP*
alpha-BHC	319-84-6	0.066	*NBP*
beta-BHC	319-85-7	0.066	*NBP*
delta-BHC	319-86-8	0.066	*NBP*
gamma-BHC	58-89-9	0.066	*NBP*
Barban	101-27-9	1.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Bendiocarb	22781-23-3	1.4	*NBP*
Benomyl	17804-35-2	1.4	*NBP*
Benzene	71-43-2	10	*NBP*
Benz(a)anthracene	56-55-3	3.4	*NBP*
Benzalchloride	98-87-3	6.0	*NBP*
Benzo(b)fluoranthene	205-99-2	6.8	*NBP*
Benzo(k)fluoranthene	207-08-9	6.8	*NBP*
Benzo(g,h,i)perylene	191-24-2	1.8	*NBP*
Benzo(a)pyrene	50-32-8	3.4	*NBP*
Bromodichloromethane	75-27-4	15	*NBP*
Bromomethane	74-83-9	15	*NBP*
4-Bromophenylphenylether	101-55-3	15	*NBP*
n-Butylalcohol	71-36-3	2.6	*NBP*
Butylate	2008-41-5	1.4	*NBP*
Butyl benzyl phthalate	85-68-7	28	*NBP*
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	2.5	*NBP*
Carbaryl	63-25-2	0.4	*NBP*
Carbenzadim	10605-21-7	1.4	*NBP*
Carbofuran	1563-66-2	0.4	*NBP*
Carbofuranphenol	1563-38-8	1.4	*NBP*
Carbon disulfide	75-15-0	4.8 mg/l TCLP	*NBP*
Carbon tetrachloride	**56-23-5**	**6.0**	***BP***
Carbosulfan	55285-14-8	1.4	*NBP*
Chlordane	57-74-9	0.26	*NBP*
p-Chloroaniline	106-47-8	16	*NBP*
Chlorobenzene	108-90-7	6.0	*NBP*
Chlorobenzilate	510-15-6	NA	*NBP*
2-Chloro-1,3-butadiene	126-99-8	0.28	*NBP*
Chlorodibromomethane	124-48-1	15	*NBP*
Chloroethane	75-00-3	6.0	*NBP*
bis(2-Chloroethoxy)methane	111-91-1	7.2	*NBP*
bis(2-Chloroethyl)ether	111-44-4	6.0	*NBP*
Chloroform	**67-66-3**	**6.0**	***BP***
bis(2-Chloroisopropyl)ether	39638-32-9	7.2	*NBP*
p-Chloro-m-cresol	59-50-7	14	*NBP*
2-Chloroethylvinylether	110-75-8	NA	*NBP*
Chloromethane	74-87-3	30	*NBP*
2-Chloronaphthalene	91-58-7	5.6	*NBP*
2-Chlorophenol	95-57-8	5.7	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
3-Chloropropylene	107-05-1	30	*NBP*
Chrysene	218-01-9	3.4	*NBP*
o-Cresol	95-48-7	5.6	*NBP*
m-Cresol	108-39-4	5.6	*NBP*
p-Cresol	106-44-5	5.6	*NBP*
m-Cumenylmethylcarbamate	64-00-6	1.4	*NBP*
Cyclohexanone	108-94-1	0.75 mg/l TCLP	*NBP*
o,p'-DDD	53-19-0	0.087	*NBP*
p,p'-DDD	72-54-8	0.087	*NBP*
o,p'-DDE	3424-82-6	0.087	*NBP*
p,p'-DDE	72-55-9	0.087	*NBP*
o,p'-DDT	789-02-6	0.087	*NBP*
p,p'-DDT	50-29-3	0.087	*NBP*
Dibenz(a,h)anthracene	53-70-3	8.2	*NBP*
Dibenz(a,e)pyrene	192-65-4	NA	*NBP*
1,2-Dibromo-3-chloropropane	96-12-8	15	*NBP*
1,2-Dibromoethane	106-93-4	15	*NBP*
Dibromomethane	74-95-3	15	*NBP*
m-Dichlorobenzene	541-73-1	6.0	*NBP*
o-Dichlorobenzene	95-50-1	6.0	*NBP*
p-Dichlorobenzene	106-46-7	6.0	*NBP*
Dichlorodifluoromethane	75-71-8	7.2	*NBP*
1,1-Dichloroethane	**75-34-3**	**6.0**	***BP***
1,2-Dichloroethane	**107-06-2**	**6.0**	***BP***
1,1-Dichloroethylene	**75-35-4**	**6.0**	***BP***
trans-1,2-Dichloroethylene	**156-60-5**	**30**	***BP***
2,4-Dichlorophenol	120-83-2	14	*NBP*
2,6-Dichlorophenol	87-65-0	14	*NBP*
2,4-Dichlorophenoxyaceticacid	94-75-7	10	*NBP*
1,2-Dichloropropane	78-87-5	18	*NBP*
cis-1,3-Dichloropropylene	10061-01-5	18	*NBP*
trans-1,3-Dichloropropylene	10061-02-6	18	*NBP*
Dieldrin	60-57-1	0.13	*NBP*
Diethylphthalate	84-66-2	28	*NBP*
p-Dimethylaminoazobenzene	60-11-7	NA	*NBP*
2-4-Dimethylphenol	105-67-9	14	*NBP*
Dimethylphthalate	131-11-3	28	*NBP*
Di-n-butylphthalate	84-74-2	28	*NBP*
1,4-Dinitrobenzene	100-25-4	2.3	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
4,6-Dinitro-o-cresol	534-52-1	160	*NBP*
2,4-Dinitrophenol	51-28-5	160	*NBP*
2,4-Dinitrotoluene	121-14-2	140	*NBP*
2,6-Dinitrotoluene	606-20-2	28	*NBP*
Di-n-octylphthalate	117-84-0	28	*NBP*
Di-n-propylnitrosamine	621-64-7	14	*NBP*
1,4-Dioxane	123-91-1	170	*NBP*
Diphenylamine	122-39-4	13	*NBP*
Diphenylnitrosamine	86-30-6	13	*NBP*
1,2-Diphenylhydrazine	122-66-7	NA	*NBP*
Disulfoton	298-04-4	6.2	*NBP*
Dithiocarbamates6	NA	28	*NBP*
Endosulfan I	959-98-8	0.066	*NBP*
Endosulfan II	33213-65-9	0.13	*NBP*
Endosulfansulfate	1031-07-8	0.13	*NBP*
Endrin	72-20-8	0.13	*NBP*
Endrin aldehyde	7421-93-4	0.13	*NBP*
EPTC6	759-94-4	1.4	*NBP*
Ethyl acetate	141-78-6	33	*NBP*
Ethyl benzene	100-41-4	10	*NBP*
Ethyl cyanide	107-12-0	360	*NBP*
Ethyl ether	60-29-7	160	*NBP*
Ethyl methacrylate	97-63-2	160	*NBP*
Ethylene oxide	75-21-8	NA	*NBP*
Famphur	52-85-7	15	*NBP*
Fluoranthene	206-44-0	3.4	*NBP*
Fluorene	86-73-7	3.4	*NBP*
Formetanate hydrochloride	23422-53-9	1.4	*NBP*
Heptachlor	76-44-8	0.066	*NBP*
Heptachlorepoxide	1024-57-3	0.066	*NBP*
Hexachlorobenzene	118-74-1	10	*NBP*
Hexachlorobutadiene	87-68-3	5.6	*NBP*
Hexachlorocyclopentadiene	77-47-4	2.4	*NBP*
HxCDDs (Hexachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
HxCDFs (Hexachlorodibenzofurans)	NA	0.001	*NBP*
Hexachloroethane	67-72-1	30	*NBP*
Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	*NBP*
Iodomethane	74-88-4	65	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Isobutyl alcohol	78-83-1	170	*NBP*
Isodrin	465-73-6	0.066	*NBP*
Isosafrole	120-58-1	2.6	*NBP*
Kepone	143-50-0	0.13	*NBP*
Methacrylonitrile	126-98-7	84	*NBP*
Methanol	67-56-1	0.75 mg/l TCLP	*NBP*
Methapyrilene	91-80-5	1.5	*NBP*
Methiocarb	2032-65-7	1.4	*NBP*
Methomyl	16752-77-5	0.4	*NBP*
Methoxychlor	72-43-5	0.18	*NBP*
3-Methylcholanthrene	56-49-5	15	*NBP*
4,4-Methylene bis(2-chloroaniline)	101-14-4	30	*NBP*
Methylene chloride	**75-09-2**	**30**	***BP***
Methyl ethyl ketone	78-93-3	36	*NBP*
Methyl isobutyl ketone	108-10-1	33	*NBP*
Methyl methacrylate	80-62-6	160	*NBP*
Methyl methanesulfonate	66-27-3	NA	*NBP*
Methyl parathion	298-00-0	4.6	*NBP*
Metolcarb	1129-41-5	1.4	*NBP*
Mexacarbate	315-18-4	1.4	*NBP*
Molinate	2212-67-1	1.4	*NBP*
Naphthalene	91-20-3	5.6	*NBP*
2-Naphthylamine	91-59-8	NA	*NBP*
o-Nitroaniline	88-74-4	14	*NBP*
p-Nitroaniline	100-01-6	28	*NBP*
Nitrobenzene	98-95-3	14	*NBP*
5-Nitro-o-toluidine	99-55-8	28	*NBP*
o-Nitrophenol	88-75-5	13	*NBP*
p-Nitrophenol	100-02-7	29	*NBP*
N-Nitrosodiethylamine	55-18-5	28	*NBP*
N-Nitrosodimethylamine	62-75-9	2.3	*NBP*
N-Nitroso-di-n-butylamine	924-16-3	17	*NBP*
N-Nitrosomethylethylamine	10595-95-6	2.3	*NBP*
N-Nitrosomorpholine	59-89-2	2.3	*NBP*
N-Nitrosopiperidine	100-75-4	35	*NBP*
N-Nitrosopyrrolidine	930-55-2	35	*NBP*
Oxamyl	23135-22-0	0.28	*NBP*
Parathion	56-38-2	4.6	*NBP*
Total PCBs	1336-36-3	10	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
Pebulate	1114-71-2	1.4	*NBP*
Pentachlorobenzene	608-93-5	10	*NBP*
PeCDDs (Pentachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
PeCDFs (Pentachlorodibenzofurans)	NA	0.001	*NBP*
Pentachloroethane	76-01-7	6.0	*NBP*
Pentachloronitrobenzene	82-68-8	4.8	*NBP*
Pentachlorophenol	87-86-5	7.4	*NBP*
Phenacetin	62-44-2	16	*NBP*
Phenanthrene	85-01-8	5.6	*NBP*
Phenol	108-95-2	6.2	*NBP*
Phorate	298-02-2	4.6	*NBP*
Phthalic acid	100-21-0	28	*NBP*
Phthalic anhydride	85-44-9	28	*NBP*
Physostigmine	57-47-6	1.4	*NBP*
Physostigmine salicylate	57-64-7	1.4	*NBP*
Promecarb	2631-37-0	1.4	*NBP*
Pronamide	23950-58-5	1.5	*NBP*
Propham	122-42-9	1.4	*NBP*
Propoxur	114-26-1	1.4	*NBP*
Prosulfocarb	52888-80-9	1.4	*NBP*
Pyrene	129-00-0	8.2	*NBP*
Pyridine	110-86-1	16	*NBP*
Safrole	94-59-7	22	*NBP*
Silvex/2,4,5-TP	93-72-1	7.9	*NBP*
1,2,4,5-Tetrachlorobenzene	95-94-3	14	*NBP*
TCDDs (Tetrachlorodibenzo-p-dioxins)	NA	0.001	*NBP*
TCDFs (Tetrachlorodibenzofurans)	NA	0.001	*NBP*
1,1,1,2-Tetrachloroethane	630-20-6	6.0	*NBP*
1,1,2,2-Tetrachloroethane	79-34-5	6.0	*NBP*
Tetrachloroethylene	**127-18-4**	**6.0**	***BP***
2,3,4,6-Tetrachlorophenol	58-90-2	7.4	*NBP*
Thiodicarb	59669-26-0	1.4	*NBP*
Thiophanate-methyl	23564-05-8	1.4	*NBP*
Toluene	108-88-3	10	*NBP*
Toxaphene	8001-35-2	2.6	*NBP*
Triallate6	2303-17-5	1.4	*NBP*
Tribromomethane/Bromoform	75-25-2	15	*NBP*
2,4,6-Tribromophenol	118-79-6	7.4	*NBP*

LAND DISPOSAL RESTRICTION NOTIFICATION

Chemical Name	CAS Number	Non-Wastewater Standard (mg/kg)	Concentration in Waste (mg/kg)
1,2,4-Trichlorobenzene	120-82-1	19	*NBP*
1,1,1-Trichloroethane	**71-55-6**	**6.0**	***BP***
1,1,2-Trichloroethane	79-00-5	6.0	*NBP*
Trichloroethylene	**79-01-6**	**6.0**	***BP***
Trichlorofluoromethane	75-69-4	30	*NBP*
2,4,5-Trichlorophenol	95-95-4	7.4	*NBP*
2,4,6-Trichlorophenol	88-06-2	7.4	*NBP*
2,4,5-Trichlorophenoxyaceticacid	93-76-5	7.9	*NBP*
1,2,3-Trichloropropane	96-18-4	30	*NBP*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	30	*NBP*
Triethylamine	121-44-8	1.5	*NBP*
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.10	*NBP*
Vernolate	1929-77-7	1.4	*NBP*
Vinyl chloride	75-01-4	6.0	*NBP*
Xylenes-mixed	1330-20-7	30	*NBP*
Antimony	7440-36-0	1.15 mg/l TCLP	*NBP*
Arsenic	7440-38-2	5.0 mg/L TCLP	*NBP*
Barium	7440-39-3	21 mg/L TCLP	*NBP*
Beryllium	7440-41-7	1.22 mg/L TCLP	*NBP*
Cadmium	**7440-43-9**	**0.11 mg/L TCLP**	***BP***
Chromium	**7440-47-3**	**0.60 mg/L TCLP**	***BP***
Cyanides	57-12-5	590	*NBP*
Cyanides (Amenable)	57-12-5	30	*NBP*
Fluoride[1]	16984-48-8	NA	*NBP*
Lead	7439-92-1	0.75 mg/L TCLP	*NBP*
Mercury (Nonwastewater Retort)	7439-97-6	0.20 mg/L TCLP	*NBP*
Mercury (All Others)	7439-97-6	0.025mg/l TCLP	*NBP*
Nickel	**7440-02-0**	**11 mg/L TCLP**	***BP***
Selenium[1]	7782-49-2	5.7 mg/L TCLP	*NBP*
Silver	7440-22-4	0.4 mg/L TCLP	*NBP*
Sulfide[1]	18496-25-8	NA	*NBP*
Thallium	7440-28-0	0.20 mg/L TCLP	*NBP*
Vanadium[1]	7440-62-2	1.6 mg/L TCLP	*NBP*
Zinc[1]	**7440-66-6**	**4.3 mg/L TCLP**	***BP***

NBP No analysis has been performed, but the chemical is **N**ot **B**elieved to be **P**resent based on process knowledge and material safety data sheets (MSDSs).

BP **B**elieved to be **P**resent above Land Disposal Restriction Underlying Hazardous Constituent (UHC) concentrations based on process knowledge and MSDSs.

1. Not a UHC.

LAND DISPOSAL RESTRICTION NOTIFICATION

Certification Statement:

"I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Name	Signature	Date

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Oil: Off-specification used oil*	
How Is the Waste Generated: *Used oil collected from automobiles or oil-filled equipment, contaminated with halogenated solvents or metals.*	
Waste Classification: *Hazardous, F002*	
Waste Determination Method: *Analysis*	
Waste Determination Information: *Off-specification used oil with over 1,000 parts per million total halogens is presumed to be mixed with halogenated solvents (i.e., hazardous waste) unless proved otherwise. Off-specification used oil may be burned on-site in a used oil burner.*	
Handling Procedure: *Collect off-specification used oil in a plastic or steel drum. Follow the SOP for Hazardous Waste except the name of the waste should say "Hazardous Waste - Off-Specification Used Oil".*	
Compatibility Class: ***Group 6B***	
Transportation Information: *Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.*	
Disposal Method: *Treated*	
Land Disposal Restrictions: *Yes*	
Final Disposal Site or Disposal Service & Contact: *See the Hazardous Waste Service Providers Directory, "TSD Facilities" for a nearby hazardous waste treatment and disposal site.*	

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Oil: Specification used oil*	
How Is the Waste Generated: *Used oil collected from automobiles or oil-filled equipment.*	
Waste Classification: *Non-Hazardous*	
Waste Determination Method: *Analysis*	
Waste Determination Information: *Specification used oil is non-hazardous as long as it has not been mixed with potentially hazardous wastes (e.g., solvents).*	
Handling Procedure: *Collect specification used oil in a plastic or steel drum. Follow the SOP for Used Oil except the name of the waste should say "Used Oil".*	
Compatibility Class: ***Group 6B***	
Transportation Information: *No specific transporatation restrictions.*	
Disposal Method: *Burned*	
Land Disposal Restrictions: *No*	
Final Disposal Site or Disposal Service & Contact: *See the Hazardous Waste Service Providers Directory, "Used Oil Recycling & Disposal" for a nearby used oil recycling/disposal site.*	

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Paper: General paper*	
How Is the Waste Generated: *Office paper, newspaper and magazines.*	
Waste Classification: *Non-Hazardous*	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information: *Paper that is not stained or otherwise contaminated is recycleable. If a paper recycler or paper recycling center is not available in the area, the paper may be disposed of in the normal trash as Solid Waste, Solid Waste Not Otherwise Classified.*	
Handling Procedure: *Collect and store the paper in separate paper recycling bins or containers. Paper recycling bins and containers should be labeled to indicate that the bins and containers are for paper parts and equipment only.*	
Compatibility Class: ***Group 6B***	
Transportation Information: *No specific transporatation restrictions.*	
Disposal Method: *Recycled*	
Land Disposal Restrictions: *No*	
Final Disposal Site or Disposal Service & Contact: *Local paper recycler.*	

September 2001 Version

§761.50(b)(2) PCB Items

1 Q: Can non-intact PCB Articles be disposed of as bulk product waste? What about small and large capacitors and PCB Transformers?

A: You can dispose of PCB Articles that are no longer intact and non-leaking, and PCB Items containing non-intact PCB Articles, as PCB bulk product waste under §761.62(a) or (c). However, land disposal is generally not available if liquid PCBs remain in the equipment. Non-intact PCB Articles include leaking capacitors and PCB Transformers.

2 Q: Under §761.60(b), can I assume that light ballasts contain PCB concentrations of less than 50 ppm?

A: No. Fluorescent light ballasts are regulated for disposal when they contain PCBs that are regulated for disposal. Disposal options depend on whether the PCBs are found in an intact and non-leaking PCB small capacitor, a non-intact or leaking PCB small capacitor, or in the potting material. (See §761.50(b)(2).) The PCB regulations do not create any assumptions about the PCB concentrations in fluorescent light ballasts.

3 Q: Do manifest requirements apply to light ballasts that are sent to recyclers?

A: Yes, if the ballasts contain PCBs > or = 50 ppm in leaking small capacitors or in potting material.

4 Q: Can I assume that ballasts manufactured after 1979 are not contaminated?

A: Fluorescent light ballasts manufactured between July 1, 1979, and July 1, 1998, at the time of manufacture were required to be marked by the manufacturer with the statement “No PCBs”. It is acceptable to treat ballasts with this mark as unregulated for PCBs.

5 Q: Has EPA received data on the percent of light ballasts with PCB concentrations > or = 50 ppm?

A: The Agency does not have any data other than that data submitted in connection with the PCB Disposal Amendments rulemaking. Commenters submitted data based on samples taken from ballasts to be recycled and is found in the rulemaking docket Number OPPTS-66009C. The docket is open Monday through Friday from 12 noon to 4 pm in Washington, DC (202-260-7099).

6 Q: Is there a grandfather provision or exemption for ballast processing?

A: Existing PCB disposal approvals, issued in accordance with §761.761.60(e) , for the disposal of fluorescent light ballasts remain in effect until their expiration date. Many activities currently included in these §761.60(e) approvals are authorized in §761.79 and do not require approvals.

7 Q: Is the definition of a fluorescent light ballast restricted to the smaller ones found in homes or can it be applied to larger industrial models?

A: The PCB regulations define the term “fluorescent light ballast” at §761.3. The definition includes ballasts found in homes and larger industrial models found in commercial and industrial settings. It doesn’t refer to the overall size or location of the ballast.

8 Q: Are fluorescent light ballasts that contain PCBs <50 ppm regulated for disposal?

A: No.

9 Q: How do I determine if a light ballast from a fluorescent light in a commercial building contains PCBs?

A: If there is no label indicating that there are no PCBs, the Agency suggests two options. First, you could assume that the potting material contains PCBs at 50 ppm or greater and dispose of the ballast as PCB bulk product waste in accordance with §761.62. Alternatively, you could conduct a survey of the manufacturer and type of ballasts in use in the building and develop a random sampling plan for each manufacturer and type of ballast found and analyze the samples for PCBs. However, regardless of the results of the survey, you are responsible for the proper disposal of each ballast.

10 Q: Are there any cases where light ballasts fall under the household solid waste exemptions?

A: Light ballasts fall under the household solid waste exemptions in §761.63 if they are disposed of during routine maintenance at a house or a residential building.

11 Q: Is a ballast manufactured before 1978 regulated for disposal?

A: Yes. Materials containing PCBs that were disposed of or otherwise released to the environment before April 18, 1978, are generally not regulated for disposal under the current regulatory requirements. However, products manufactured before April 18, 1978, that have been in use since that time are regulated for disposal under the current requirements.

12 Q: My company operates a facility that recycles metal from fluorescent light ballasts. We physically separate potting material containing > or = 50 ppm PCBs and any intact and non-leaking PCB small capacitors from the metals and then dispose of the PCBs under subpart D. Does my company need a disposal approval under subpart D?

A: No. Keep in mind that you must decontaminate any metal in contact with PCBs to the standards in §761.79.

13 Q: Is a ballast recycling facility required to have a commercial storage approval?

A: Yes, unless the facility at no time stores more than 500 gallons of liquid and/or non-liquid materials containing PCB waste that was generated by others. Regardless of the amount of PCBs stored, commercial storers must comply with §761.205.

September 2001 Version

§761.50(b)(2)(i) Fluorescent light ballasts containing PCB small capacitors

1. Q: Did the Disposal Amendments change the requirements for disposing of small capacitors, such as those in motors and fluorescent light ballasts?

A: No. Unless you are a small capacitor manufacturer, you may dispose of intact and non-leaking small capacitors as municipal solid waste (see §761.60(b)(2)(ii)).

2. Q: Must facilities that dispose of non leaking small capacitors in a municipal landfill (i.e., less than one pound PCBs of capacitor weight) notify under Superfund?

A: No. This requirement was included in the proposed rule but, based on comments, was not included in the final rule.

3. Q: Can fluorescent light ballasts manufactured before 1978 that contain an intact and non-leaking PCB small capacitor be disposed of as a solid waste? Do these ballasts need to be tested to determine their PCB concentration? What are the storage, manifesting, and notification requirements for this disposal?

A: Under §761.50(b)(2)(i), ballasts that contain PCBs only in intact and non-leaking
PCB small capacitors can be disposed of in a state approved solid waste landfill, regardless of date of manufacture or PCB concentration. There are no storage, manifesting, or notification requirements for these ballasts under TSCA.

§761.50(b)(2)(ii) Ballasts with PCBs in the potting material

1. Q: How must I dispose of fluorescent light ballasts with PCBs in the potting material?

A: This depends on the concentration of PCBs in the potting material and whether the ballast contains an intact or non-intact PCB small capacitor. If the PCB concentration of the potting material is <50 ppm and the ballast contains either no PCB small capacitor or an intact and non-leaking PCB small capacitor, you can dispose of the ballast as municipal solid waste (see §761.60(b)(2)(ii)). If the PCB concentration of the potting material is > or = 50 ppm and the ballast contains either no PCB small capacitor or an intact and non-leaking PCB small capacitor, you can dispose of the ballast as PCB bulk product waste in a TSCA incinerator, a TSCA/RCRA landfill, a facility permitted, licensed, or registered by a state as a municipal or non-municipal non-hazardous waste landfill, or by means of an approved destruction method, decontamination, or risk-based disposal method (see §761.62). Regardless of the PCB concentration of the potting material, you must dispose of ballasts containing non-intact or leaking capacitors as PCB bulk product waste in accordance with §761.62(a) or (c).

2. Q: If the PCB concentration of the potting material in a fluorescent light ballast is unknown, for disposal purposes must it be assumed to be greater than 50 ppm?

A: No. PCBs are regulated for disposal based on their actual concentrations. No assumptions are required.

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *PCBs: PCB containing light ballasts*	

How Is the Waste Generated:

Replacement of light ballasts manufactured prior to 1999 that are not labelled (i.e., not labelled with a "NO PCBs" label. Ballasts manufactured after 1999 do not contain PCBs. These may not have a "NO PCBs" label.).

Waste Classification: *TSCA Waste*

Waste Determination Method: *Process Knowledge*

Waste Determination Information:

Light ballasts manufactured prior to 1999 that are not labelled (i.e., not labeled with a "NO PCBs" label. Ballasts manufactured after 1999 do not contain PCBs. These may not have a "NO PCBs" label.) are assumed to contain PCBs over 50 parts per million and are regulated under TSCA.

Handling Procedure:

Collect PCB containing light ballasts in a sound, closed container. Follow the SOP for PCB Containing Light Ballasts.

Compatibility Class: ***Group 6B***

Transportation Information:

Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.

Disposal Method: *Treated*

Land Disposal Restrictions: *Yes*

Final Disposal Site or Disposal Service & Contact:

See the Hazardous Waste Service Providers Directory, "Fluorescent Light Ballast PCB Services" for a nearby PCB treatment and disposal site.

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *PCBs: Leaking PCB containing light ballasts*	
How Is the Waste Generated: *Leaking light ballasts manufactured prior to 1999 that are not labelled (i.e., not labeled with a "NO PCBs" label. Ballasts manufactured after 1999 do not contain PCBs. These may not have a "NO PCBs" label.).*	
Waste Classification: *TSCA Waste*	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information: *Leaking light ballasts manufactured prior to 1999 that are not labelled (i.e., not labeled with a "NO PCBs" label. Ballasts manufactured after 1999 do not contain PCBs. These may not have a "NO PCBs" label.) are assumed to contain PCBs over 50 parts per million and are regulated under TSCA.*	
Handling Procedure: *Collect PCB containing light ballasts in a sound, closed container with absorbent. Follow the SOP for PCB Containing Light Ballasts.*	
Compatibility Class: ***Group 6B***	
Transportation Information: *Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.*	
Disposal Method: *Treated*	
Land Disposal Restrictions: *Yes*	
Final Disposal Site or Disposal Service & Contact: *See the Hazardous Waste Service Providers Directory, "Fluorescent Light Ballast PCB Services" for a nearby PCB treatment and disposal site.*	

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Pesticides: Pesticide containers not rinsed*	

How Is the Waste Generated:

Empty containers (i.e., except for residue) that held pesticide that can not be rinsed (e.g., the container is made of cardboard).

Waste Classification: *Hazardous, D, P and U Listed Wastes*

Waste Determination Method: *Process Knowledge*

Waste Determination Information:

Pesticide container residues may contain pesticides on the P, U that are sole active ingredients and may have pesticides on the D list (2,4-D, Endrin, Heptachlor and its epoxide, Lindane, Methoxychlor, Toxaphene, and 2,4,5-TP (Silvex)). The pesticide residue may also be ignitable (i.e., based on the flash point listed on the pesticide material safety data sheet (MSDS)).

Handling Procedure:

Collect unrinsed pesticide containers in a steel or plastic drum. Do not crush the container. Follow the SOP for Hazardous Waste and label the drum with the name "Hazardous Waste" followed by the corresponding P, U or D listed waste name.

Compatibility Class: ***Group 6B***

Transportation Information:

Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.

Disposal Method: *Treated*

Land Disposal Restrictions: *Yes*

Final Disposal Site or Disposal Service & Contact:

See the Hazardous Waste Service Providers Directory, "TSD Facilities" for a nearby hazardous waste treatment and disposal site.

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Pesticides: Pesticide rinsate*	
How Is the Waste Generated: *Rinsate from rinsing pesticide containers according to the pesticide product label.*	
Waste Classification: *FIFRA Waste*	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information: *Pesticide rinsate may contain pesticides on the P, U that are sole active ingredients and may have pesticides on the D list (2,4-D, Endrin, Heptachlor and its epoxide, Lindane, Methoxychlor, Toxaphene, and 2,4,5-TP (Silvex)). If the pesticide rinsate can be collected and applied in the same manner as the pesticide (i.e., as if the pesticide rinsate were pesticide), the pesticide rinsate is considered non-hazardous.*	
Handling Procedure: *Handle rinsate in the same manner as the pesticides that were rinsed. Label the container as "Pesticide Rinsate" and if the rinsate is not immediately applied, maintain a log of pesticides rinsed with the rinsate.*	
Compatibility Class: ***Group 3A***	
Transportation Information: *No specific transporatation restrictions.*	
Disposal Method: *Recycled*	
Land Disposal Restrictions: *No*	
Final Disposal Site or Disposal Service & Contact: *Apply as pesticide.*	

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Pesticides: Spilled pesticide debris*

How Is the Waste Generated:

Debris from the cleanup of pesticide that has leaked or spilled. Debris (e.g., soil) that has had pesticide application, is not considered a waste.

Waste Classification: *Hazardous, D, P and U Listed Wastes*

Waste Determination Method: *Process Knowledge or Analysis*

Waste Determination Information:

Spilled pesticide debris may contain pesticides on the P, U that are sole active ingredients and may have pesticides on the D list (2,4-D, Endrin, Heptachlor and its epoxide, Lindane, Methoxychlor, Toxaphene, and 2,4,5-TP (Silvex)).

Handling Procedure:

Collect the spilled pesticide debris in a steel or plastic drum. Follow the SOP for Hazardous Waste and label the drum with the name "Hazardous Waste" followed by the corresponding P, U or D listed waste name.

Compatibility Class: ***Group 6B***

Transportation Information:

Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.

Disposal Method: *Treated*

Land Disposal Restrictions: *Yes*

Final Disposal Site or Disposal Service & Contact:

See the Hazardous Waste Service Providers Directory, "TSD Facilities" for a nearby hazardous waste treatment and disposal site.

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name:	*Pesticides: Universal waste pesticides*
How Is the Waste Generated: *Pesticides that the EPA has cancelled, recalled, or suspended, or unused pesticides that are no longer needed or will not be used.*	
Waste Classification:	*Universal*
Waste Determination Method:	*Process Knowledge*
Waste Determination Information: *Pesticides that the EPA has cancelled, recalled, or suspended, or unused pesticides that are no longer needed or will not be used are included in the Universal Waste program.*	
Handling Procedure: *Pesticides may be maintained in their original container if the container is not leaking or compromised. Otherwise repackage the container appropriately. Follow the SOP for Universal Waste and label the container "Universal Waste - Pesticides".*	
Compatibility Class:	***Group 6B***
Transportation Information: *No specific transporatation restrictions. Follow SOP for Universal Waste.*	
Disposal Method:	*Treated*
Land Disposal Restrictions:	*No*
Final Disposal Site or Disposal Service & Contact: *Pesticide manufacturer or local pesticide collection.*	

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name:	*Pesticides: Rinsed pesticide containers*
How Is the Waste Generated:	*Pesticide containers that have been rinsed according to the pesticide container label instructions (e.g., triple-rinsed or pressure rinsed).*
Waste Classification:	*Non-Hazardous*
Waste Determination Method:	*Process Knowledge*
Waste Determination Information:	*Pesticide containers that have been rinsed according to the pesticide container label instructions are considered non-hazardous. The disposal of the rinsed pesticide container should be according to the label instructions (e.g., the container may need to be punctured to prevent reuse prior to disposal in a landfill).*
Handling Procedure:	*Follow the pesticide label instructions for disposal (e.g., dispose of containers in the normal trash following puncturing to prevent reuse).*
Compatibility Class:	***Group 6B***
Transportation Information:	*No specific transporatation restrictions.*
Disposal Method:	*Disposed in Landfill*
Land Disposal Restrictions:	*No*
Final Disposal Site or Disposal Service & Contact:	*See the Integrated Waste Management List of Permitted Facilities, "Municipal Solid Waste Landfill" for a nearby disposal site.*

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Plastic: Plastic not otherwise classified*

How Is the Waste Generated:

Empty, used or broken plastic containers and parts (i.e., windows) that are not connected to, or part of other materials or hazardous wastes.

Waste Classification: *Non-Hazardous*

Waste Determination Method: *Process Knowledge*

Waste Determination Information:

Plastic that is not contaminated is recycleable. If a plastic recycler or plastic recycling center is not available in the area, the plastic may be disposed of in the normal trash as Solid Waste, Solid Waste Not Otherwise Classified.

Handling Procedure:

Collect and store the plastic in separate plastic recycling bins or containers. Plastic recycling bins and containers should be labeled to indicate that the bins and containers are for plastic only.

Compatibility Class: ***Group 6B***

Transportation Information:

No specific transporatation restrictions.

Disposal Method: *Recycled*

Land Disposal Restrictions: *No*

Final Disposal Site or Disposal Service & Contact:

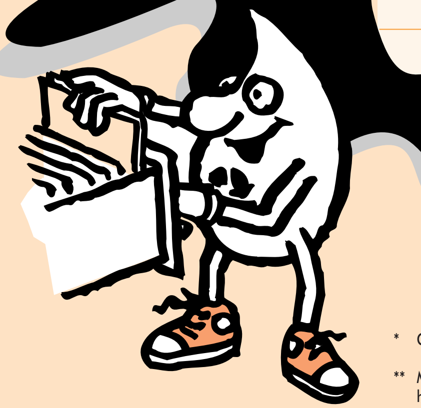
Local plastic recycler.

Part 279

REQUIREMENTS

USED OIL MANAGEMENT STANDARDS

	GENERATOR* Subparts C and D	TRANSPORTER/ TRANSFER FACILITY Subpart E	PROCESSOR/ RE-REFINER Subpart F	OFF-SPECIFICATION BURNER Subpart G	MARKETER** Subpart H
Storage in Containers and Aboveground Tanks	Good Condition	Good Condition	Good Condition	Good Condition	N/A
Labels for Tanks and Containers	Yes	Yes	Yes	Yes	N/A
Secondary Containment System (Oil Impervious Berm, Dike, or Retaining Wall and Floor)	No	**Yes**, for transfer facilities **N/A**, for transporters	Yes	Yes	N/A
Environmental Release Cleanup	Yes	Yes	Yes	Yes	N/A
EPA Identification Number and Notification	No	Yes	Yes	Yes	Yes
Tracking	No	**Yes**, acceptance and delivery records	**Yes**, acceptance and delivery records	**Yes**, acceptance records	**Yes**, on-specification or off-specification delivery records
Analysis	No	**Yes**, information or testing that shows that the total halogen content is above or below 1000 ppm	**Yes**, create and follow an analysis plan that includes determining total halogen content and, if appropriate,	**Yes**, information or testing that shows that the total halogen content is above or below 1000 ppm	**Yes**, information or testing needed to determine used oil specification
Recordkeeping (for three years)	No	**Yes**, copies of information or testing data of total halogen content or for rebutting the presumption of hazardous waste mixing; acceptance and delivery records	**Yes**, copies of information or testing data of total halogen content or for rebutting the presumption of hazardous waste mixing; acceptance and delivery records	**Yes**, copies of information or testing data of total halogen content or for rebutting the presumption of hazardous waste mixing; acceptance records	**Yes**, information or test data used to determine specification type; delivery records; if off-specification, burner certification
Preparedness and Contingency Plans	No	No	**Yes**, same as Part 264/265, Subpart D	No	N/A
Biennial Reporting	No	No	Yes	No	N/A
Closure	No	No	Yes	No	N/A
Dust Suppressant Ban	Yes	Yes	Yes	Yes	N/A
Surface Impoundment Ban	Yes	Yes	Yes	Yes	N/A



* Generator requirements apply to aggregation points and collection centers.

** Marketers also come under regulation as a generator, transporter, and/or processor or re-refiner. No used oil handler can be solely a marketer.

EPA
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Protection Agency
EPA530-H-98-001

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Revisions to the PCB Q and A Manual

(September 2001)

About the PCB Question and Answer Manual: The PCB Q and A manual is a living document and is periodically revised and updated. The updates are posted on the EPA PCB web site at www.epa.gov/pcb for our customer's use. It is recommended that our customers periodically check this web page for updates instead of relying solely on a single hard copy. Each update or revision will be dated. This date will appear as a header on each page of the manual and will also appear on the web site.

Revisions -

1. Added questions 6-11 to Section 761.62 - Shredder Waste

September 2001 Version

§761.1 Applicability

§761.1(b)(2) Determining PCB concentration on a weight-per-weight basis

1. Q: How must I report PCB concentrations – as ppm, mg/kg, or mg/L?

A: Determine and report PCB concentrations on a weight-per-weight basis (such as ppm or mg/kg). You may determine and report the PCB concentration of liquids on a weight-per-volume basis (such as mg/L) if you also determine and report the density of the liquid (see §761.1(b)(2)).

2. Q: Is there a standard formula to convert PCB gallons to kilograms?

A: Generally speaking, the density of mineral oil is 3.64 kilograms (8 pounds) per gallon and Askarel is 5.45 kilograms (12 pounds) per gallon.

§761.1(b)(3) Bulk and surface concentrations

1. Q: Please clarify the statement at §761.1(b)(3) that "provisions that apply to PCBs at concentrations of <50 ppm apply also to contaminated surfaces at PCB concentrations of $\leq$10 µg/100 cm^2." Does this mean that a spill of <50 ppm PCBs will always result in a surface concentration of $\leq$10 µg/100 cm^2?

A: No. EPA did not intend to imply that a spill of a liquid containing <50 ppm PCBs would necessarily result in a surface concentration of $\leq$10 ug/100 cm^2. Rather, EPA intended to clarify that materials contaminated with PCBs at these levels, <50 ppm for bulk concentrations and $\leq$10 ug/100cm^2 for surface concentrations, would effectively be regulated in the same way under 40 C.F.R. part 761. Keep in mind that measures of surface concentration may not be accurate for all kinds of materials, for example, for old spills to porous surfaces.

2. Q: May I characterize a drained transformer from which the core, coil, and all free-flowing liquids have been removed by taking a wipe sample from the inside surface of the transformer?

A: Yes. However, the wipe sample results may only be used for purposes of disposal (i.e., the drained carcass is not authorized for use). Refer to the following table (§761.1(b)(3)):

If the concentration of the wipe sample is . . .	**Then** the transformer is regulated as . . .
$\leq$10 µg/100 cm^2	non-PCB
>10 but <100 µg/100 cm^2	PCB-Contaminated
$\geq$100 µg/100 cm^2	PCB Transformer

§761.1(b)(4) Determining PCB concentration on a wet weight or dry weight basis

Liquids

1. Q: Can I dispose of an oil/water mixture based on the PCB concentration of the oil without testing the water?

A: Yes. Since PCBs are hydrophobic, the higher concentration of PCBs will be in the oil phase and you do not need to test the water.

2. Q: Must I test an oil sample to assure that it contains less that 0.5 percent non-dissolved PCB material, or may I rely on a visual determination?

A: You must test the oil sample to determine that it contains less than 0.5 percent non-dissolved material. A visual determination is not enough of a test; an actual measurement is necessary.

3. Q: Can liquids containing differing PCB levels be mixed together?

A: Yes, providing the resultant mixture is handled in accordance with the requirements applicable to the liquid component with the greatest PCB concentration level.

Multi-phasic waste

1. Q: The preamble to the disposal amendments at page 35388 gives an example of a multi-phasic waste made up of a non-liquid phase, an aqueous liquid phase, and a non-aqueous phase. What is the difference between a "non-liquid phase" and a "non-aqueous phase"?

A: The term “non-aqueous phase” was meant to refer to a non-aqueous liquid phase, such as oil.

2. Q: Must I test an oil sample for water to determine whether the sample is multi-phasic, or may I rely on a visual determination?

A: If the water is dissolved in the oil, it is not a multi-phasic liquid-liquid mixture and you may determine the PCB concentration of the oil and dissolved water on a wet weight basis. Oil-water emulsions are multi-phasic liquid-liquid mixtures. A visual determination is a sufficient test to determine the presence of more than one liquid phase in a multi-phasic liquid-liquid mixture. You must separate the phases of a multi-phasic liquid-liquid mixture, for example by centrifugation, before determining the concentration of each phase.

3. Q: A multi-phasic solution contains one phase with a PCB concentration of <50 ppm and an aqueous with a PCB concentration ≥3 ppb. How is the aqueous phase regulated?

A: If you do not separate the waste into phases for disposal, all phases are regulated as if they contained <50 ppm PCBs, i.e., they are unregulated for disposal. If you decide to dispose of the phases separately, you must dispose of each phase using the PCB disposal requirements that apply to each separated, single-phase material. Keep in mind that you may not discharge the aqueous phase at ≥3 ppb to navigable waters or a treatment works unless permitted under the Clean Water Act (see §761.50(a)(3)).

4. Q: If I take a multi-phasic sample from a manhole that contains oil, water, and sediment, and I know that the PCB concentration of the oil is 100 ppm, can I manage all three phases as 100 ppm without having to analyze the water and sediment phases?

A: No. You may assume that the water contains a PCB concentration no higher than the oil, because PCBs are hydrophobic. However, you may not make the same assumption about the sediment. You must separate the sediment from the sample and analyze it separately.

<u>Multi-phasic waste</u>

1. Q: May I add absorbent to a sludge sample in order to test the PCB concentration of the solid portion of the sludge?

A: No. You may not add an absorbent to a sludge sample. You may not solidify liquid wastes. If your sample of sludge contains both non-liquid and liquid phases, then you must separate the sample into its different phases, and analyze each phase for its PCB concentration. You must determine the concentration of the solid portion of the sample on a dry weight basis, that is, excluding the weight of the water in the sample.

2. Q: Is there a limit on the amount of liquid allowed in a solid sample?

A: "Non-liquid PCBs" are materials that do not flow at room temperature or that do not pass through a paint filter (see the definition at §761.3). There is no set percentage of liquid permitted in non-liquid PCBs. You must determine the concentration of non-liquid PCBs on a dry weight basis, that is, excluding the weight of water in the sample. For guidance on drying a non-liquid for analysis, see the definition of "dry weight basis" in 40 CFR 761.3.

3. Q: How should a facility dispose of multi-phasic waste if the highest PCB concentration is found in the solid phase of the waste? Can the waste be disposed of as a non-liquid even though there are liquids present in the waste?

A: You may separate the waste into phases and dispose of it according to the disposal requirements applicable to each phase. You may also dispose of the waste without separation, based on the phase with the highest PCB concentration. For this example, 40 CFR 761.1(b)(4)(iv) allows disposal of the multi-phasic mixture based on the PCB concentration of the non-liquid phase; however, this section does not override the prohibition on disposing of PCB liquids $\geq$ 50 ppm in a landfill (§761.60(a)). If you choose to incinerate the multi-phasic waste, the incinerator must be approved to dispose of liquid PCBs.

Section 761.50(a)(2) prohibits the processing of liquid PCBs into non-liquid forms to circumvent the high temperature incineration requirements of §761.60(a). If you would like to stabilize the sludge or solidify the sludge at a chemical waste landfill, you must obtain a 40 CFR 761.61(c) approval from the EPA Region.

§761.2 Assumptions

General

1. Q: Do the PCB concentration assumptions in §761.2 apply to use, storage and disposal, or only use?

A: The assumptions apply to use and to storage for reuse. They do not apply to disposal or to storage for disposal. For example, if you are the owner of a transformer manufactured before July 2, 1979, that contains ≥3 pounds of fluid other than mineral oil at an unknown concentration, while the transformer is in use you must assume it is a PCB Transformer, i.e., that it contains ≥500 ppm PCBs. Once you decide to dispose of the transformer, you are no longer required to assume that it is a PCB Transformer. You must know the concentration at the time of disposal in order to assure compliance with the regulations. However, if you place the transformer into storage for disposal without having determined its concentration, EPA recommends that you store it as if it contains PCBs at regulated levels to avoid a violation.

2. Q: Can I dispose of equipment manufactured after July 2, 1979, without testing to determine if it is non-PCB?

A: No. The PCB concentration assumptions in §761.2 apply only while the equipment is in use. At the time of disposal you must know the equipment's actual PCB concentration.

3. Q: If PCBs are not used in an authorized manner and are released, can the assumptions in these sections still be made?

A: No, for two reasons. First, the assumptions apply only to authorized uses. Second, the assumptions only apply while the equipment is in use or stored for reuse. They do not apply to PCBs that have spilled or been otherwise released from the equipment.

4. Q: Can I clean up a spill from a transformer manufactured after 1979 assuming the PCB concentration of the spill is <50 ppm? Similarly, can I clean up a spill from a transformer containing less than 3 pounds of PCBs assuming the concentration is <50 ppm?

A: No. The PCB concentration assumptions in §761.2 apply only while the equipment is in use or stored for reuse. At the time of disposal you must know the equipment's actual PCB concentration. The concentration assumptions do not apply to PCBs that have spilled or been otherwise released from the equipment.

5. Q: How do the assumptions fit in with the Spill Cleanup Policy?

A: For purposes of the Spill Cleanup Policy only, where a spill of untested mineral oil occurs, the oil is presumed to contain >50 but <500 ppm PCBs. (See the definition of "spill" at §761.123.) No other assumptions or presumptions apply to spilled liquids.

6. Q: If a spill occurs from equipment assumed to be PCB-Contaminated, can I assume that the spilled liquid contains a PCB concentration of $\geq$50 and <500 ppm?

A: The PCB concentration assumptions apply only to equipment while in use, not to material spilled or otherwise released from the equipment. However, under the Spill Cleanup Policy, where a spill of untested mineral oil occurs, the oil is presumed to contain >50 but <500 ppm PCBs. No other assumptions or presumptions apply to spilled liquids.

7. Q: What assumptions apply to silicone-filled transformers manufactured prior to July 2, 1979 and after July 2, 1979?

A: Silicone dielectric fluid was manufactured not to contain PCBs. There is no assumption applicable to transformers known to be silicone-filled while in use, regardless of the date of manufacture. These transformers are regulated based on their actual PCB concentration. It is possible the transformer could have become contaminated during servicing with fluid containing $\geq$50 ppm PCBs.

8. Q: §761.2(a)(2) says that all mineral oil-filled electrical equipment can be assumed to have a PCB concentration of $\geq$50 and <500 ppm. §761.2(a)(3) says that if a transformer contains fluid other than mineral oil, it must be assumed that the concentration is greater than 500 ppm. If a voltage regulator or switch has a fluid other than mineral oil, what assumption applies?

A: EPA has historically treated voltage regulators and switches as mineral oil-filled electrical equipment. There is no assumption applicable to voltage regulators and switches containing fluid other than mineral oil while in use. This equipment is regulated based on its actual PCB concentration. You are responsible for knowing the PCB concentration in your equipment.

9. Q: Do the §761.2 assumption rules apply to motor starters?

A: A motor starter is a type of switch. EPA has historically treated voltage regulators and switches as mineral oil-filled electrical equipment. Unless the motor starter contains another type of dielectric fluid, it is subject to the assumption in §761.2(a)(2) generally applicable to mineral oil-filled electrical equipment, i.e., that it contains ≥50 and <500 ppm PCBs.

10. Q: What are the assumptions to be used in determining the PCB concentration of wastewater treatment sludge from an unknown source?

A: There is no assumption applicable to wastewater treatment sludge. You must manage this material based on its actual concentration.

§761.2(a)(1) Transformers with <3 pounds of fluid, circuit breakers, reclosers, oil-filled cable, and rectifiers

1. Q: Do the assumptions apply to oil-filled cables?

A: Liquid-filled cables are assumed to be non-PCB while the cables are in use.

2. Q: The regulations state that transformers containing less than three pounds of fluid are assumed to be non-PCB. Are materials like epoxy and tar-like potting compounds "fluid"?

A: "Fluid" refers to a flowable material. Transformers that contain PCBs in tar-like potting compounds or epoxy do not contain "fluid".

3. Q: Where a spill occurs from a transformer that is assumed to be non-PCB, can I assume the spilled material is non-PCB as well?

A: No. The PCB concentration assumptions apply only to equipment while in use, not to material spilled or otherwise released from the equipment.

4. Q: How do the assumptions in §761.2(a)(1) translate into gallons?

A: The density of mineral oil is about 8 pounds per gallon and the density of

Askarel is 12 to 13 pounds per gallon.

§761.2(a)(2) Mineral oil-filled electrical equipment

1. Q: What assumptions apply to a bushing removed from a transformer that was assumed to be PCB-Contaminated?

A: The PCB concentration assumptions in §761.2 apply only while the equipment is in use. At the time of disposal you must know the equipment's actual PCB concentration. If the bushing was removed for disposal, the concentration assumptions do not apply. If the bushing was removed for reuse or stored for reuse, the bushing is assumed to have the same concentration as the transformer it was removed from.

2. Q: Where a spill occurs from a bushing removed from a transformer that was assumed to be PCB-Contaminated, can I assume that the spilled material is ≥50 and <500 ppm?

A: No. The PCB concentration assumptions apply only to equipment while in use, not to material spilled or otherwise released from the equipment.

3. Q: When I dispose of a transformer that is assumed to contain ≥50 and <500 ppm PCBs, what concentration do I list on the manifest? What happens if the disposer tests the transformer and determines that it actually contains a different PCB concentration?

A: The PCB concentration assumptions in §761.2 apply only while the equipment is in use. At the time of disposal you must know the equipment's actual PCB concentration. If you include the concentration in the manifest, and the disposer determines that the actual concentration of the equipment is different, then the disposer must file a manifest discrepancy report. (See §761.210(b).)

4. Q: If I clean up and dispose of oil released from a pole-mounted transformer manufactured after July 2, 1979, can I assume the oil has a PCB concentration of <50 ppm?

A: No. The PCB concentration assumptions in §761.2 apply only while the equipment is in use. At the time of disposal you must know the equipment's actual PCB concentration.

5. Q: When must I assume that a pole-top or pad-mounted distribution

transformer is a PCB Transformer, i.e., ≥500 ppm?

A: Never. Under §761.2(a)(2), a pole-top or pad-mounted distribution transformer manufactured before July 2, 1979 must be assumed to be mineral oil-filled. Mineral oil-filled electrical equipment is assumed to be PCB-Contaminated, i.e., ≥50 and <500 ppm PCBs. A pole-top or pad-mounted distribution transformer manufactured after July 2, 1979 may be assumed to be non-PCB, i.e., <50 ppm PCBs. If the date of manufacture of the pole-top or pad-mounted distribution transformer is unknown, it must be assumed to be PCB-Contaminated, i.e., ≥50 and <500 ppm PCBs.

6. Q: Where do mineral oil-filled transformers other than pole-top and pad-mounted distribution transformers, such as submersible transformers, fit into these assumptions?

A: If the equipment is was manufactured before July 2, 1979, and is known to be filled with mineral oil, you must assume it is PCB-Contaminated.

7. Q: Can I send a drained pre-1979 mineral oil transformer carcass to a §761.72 recycler without making the actual determination of its PCB concentration?

A: The PCB concentration assumptions in §761.2 apply only while the equipment is in use. You must dispose of the equipment's based in its actual, not its assumed, PCB concentration.

8. Q: A spill occurs from a pole-mounted distribution transformer of unknown PCB concentration whose nameplate indicates the year of manufacture was 1982. The transformer was assumed to contain PCB concentrations < 50 ppm. How should I classify the spill for cleanup during the interim between the spill's occurrence and the receipt of analytical results a week later?

A: The PCB concentration assumptions apply only to equipment while in use, not to material spilled or otherwise released from the equipment. For purposes of the Spill Cleanup Policy only, where a spill of untested mineral oil occurs, the oil is presumed to contain >50 but <500 ppm PCBs. (See the definition of "spill" at §761.123.) No other assumptions or presumptions apply to spilled liquids.

9. Q: Can a transformer that is assumed to have a PCB concentration of

<500 ppm be disposed of without further testing?

A: No. The PCB concentration assumptions in §761.2 apply only while the equipment is in use. You must dispose of the equipment's based in its actual, not its assumed, PCB concentration.

10. Q: Is there a size cutoff (i.e., gallons or pounds of fluid) for pole-top or pad-mounted transformers?

A: No. You must assume that all mineral oil-filled electrical equipment, regardless of size, that was manufactured before July 2, 1979, and whose PCB concentration is not established, is PCB-Contaminated Electrical Equipment (contains ≥50 but <500 ppm PCBs).

§761.2(a)(3) PCB Transformers

1. Q: Must I assume that a transformer has a PCB concentration of ≥500 ppm only if both the date of manufacture and the type of fluid are unknown?

A: Yes. The assumption of PCB concentrations ≥500 ppm applies when both the date of manufacture and the type of fluid are unknown. For instance, if you did not know the date of manufacture but did know that the transformer was silicon filled, you would not assume that the transformer was a PCB Transformer.

2. Q: My facility does not know the date of manufacture or type of fluid of many of the transformers it owns. These current, ignition, instrument, and similar transformers are contained in energized substations, cabinets, and vaults, and consequently are difficult to access to determine date of manufacture or the type of fluid they contain. Must we assume these transformers are PCB Transformers?

A: For any period during which it is not possible to physically inspect or test one of these transformers without compromising the integrity of the equipment, or where such inspection or testing would pose a safety hazard to personnel without an electrical shutdown of the transformer, the owner or operator of the equipment may rely upon the exercise of best engineering judgment to evaluate the regulatory status of the equipment under the criteria set out in §761.2(a)(3) (that is, whether the equipment is dry, non-liquid, contains less than 3 pounds of fluid, or contains mineral oil).

"Best engineering judgment" means, in this context, that for a particular system or location, a qualified person, such as an engineer or field representative, who is familiar with the operation of the system and its equipment, can assess the regulatory status of the equipment under the criteria set out in §761.2(a)(3) based on information such as the following: knowledge of characteristics of similar equipment at that location or similar equipment within the company's operating system; testing of similar equipment at the time of disposal; or knowledge of past equipment purchases. For example, if a qualified person knows that the company has disposed of similar transformers from a particular system or location with identifiable common characteristics, such as size, electrical rating, or name plate information, the qualified person may conclude that another transformer still in use that shares these characteristics will have the same PCB status.

The owner or operator must be able to document the basis on which these conclusions were made for so long as the equipment remains in use. Such documentation must be available for EPA inspection by July 1 of the subsequent calendar year. Once such a conclusion has been documented, no further documentation is necessary in later years unless new information becomes available which affects the validity of the conclusion.

Please note that this clarification only applies so long as the equipment in question cannot be physically inspected for one of the reasons listed above. If at any time after such a conclusion is made it becomes possible to physically inspect the equipment to determine its status, the company must do so and modify any previous conclusions as necessary. Similarly, if at any time new information becomes available which would affect the conclusions of a qualified person with respect to any particular equipment, the owner or operator must revise any previous conclusions as necessary.

§761.2(a)(4) Capacitors

1. Q: What is the PCB concentration assumption for use for dry capacitors?

A: Dry capacitors are not regulated while in use and no concentration assumptions apply. The definition of "capacitor" refers only to devices that contain dielectric fluid.

§761.2(b) Establishing PCB concentration

1. Q: Can my company use a letter signed by top management stating that transformers manufactured after July 2, 1979, were never serviced with transformer fluid to demonstrate that the transformers contain PCB concentrations <50 ppm?

A: Your company may assume that electrical equipment manufactured after July 2, 1979, is non-PCB (i.e., <50 ppm PCBs). (See §761.2(a)(2).) You do not need supporting documentation of PCB concentration.

2. Q: If I know that a piece of equipment was manufactured after July 2, 1979, must I place a label on the unit to indicate the absence of PCBs?

A: The PCB regulations do not require you to label non-PCB equipment, but you may wish to do so to help you to manage your equipment.

3. Q: If servicing records show that equipment manufactured after July 2, 1979, was serviced with fluid containing PCBs, may I still assume the equipment is non-PCB?

A: No. Use the servicing records to establish the PCB concentration of the equipment, or test the fluid to determine its current actual concentration.

§761.20 Prohibitions and Exceptions

General

1. Q: Does processing a transformer for disposal (draining/flushing) require an authorization? Is a commercial storage authorization adequate? If not, can an authorized disposer of PCBs process transformers without additional authorization?

A: Draining and flushing PCB liquids from electrical equipment is processing for disposal that primarily facilitates storage or transportation of the liquids for disposal and does not require an approval. (See §761.20(c)(2)(i) and 63 FR 35392.)

§761.20(c)(2) Processing and distribution in commerce

1. Q: Do I need a TSCA approval under §761.20 to physically separate oil

and water?

A: No. The process of physically separating oil and water is considered a decontamination process and is subject to the requirements in §761.79. This activity does not require TSCA approval under §761.20.

2. Q: May my repair facility sell a core and coil assembly from a PCB-Contaminated transformer to a company that operates an approved scrap metal recovery oven without having to decontaminate the core and coil assembly?

A: Yes. You may distribute the core and coil assembly in commerce for disposal (see §761.20(c)(2)).

§761.20(c)(5) Decontaminated materials

1. Q: If a facility has a preexisting alternate disposal approval, does it need additional approval to sell decontaminated natural gas pipeline in commerce?

A: If the natural gas pipeline currently meets a decontamination standard in §761.79 is decontaminated to a standard in §761.79, or is decontaminated to a standard specified in the alternate disposal approval, then you may distribute it in commerce.

2. Q: Do the provisions in §761.20(c)(5) apply to units that have been contaminated as a result of a spill of oil with a PCB concentration $\geq$50 ppm?

A: Yes. The provisions in §761.20(c)(5) apply to “equipment, structures, or other liquid or non-liquid materials that were contaminated with PCBs $\geq$50 ppm”. Any of these materials may be distributed in commerce, provided one of the conditions in §761.20(c)(5)(i) or (ii) is met.

§761.30 Authorizations

General

1. Q: I keep a quart container of PCB oil (Askarel) in a chemical storage cabinet and periodically use it for training/demonstration purposes with PCB field test kits. Is this allowed? What regulatory requirements apply to this use?

A: This is an unauthorized use of PCBs.

§761.30(a)

1. Q: For a pole/pad mounted transformer assumed to have PCB concentrations <50 ppm based on date of manufacture, is a record of transfer required under Subpart J if the unit is later tested and found to have PCB concentrations ≥50 ppm?

A: The PCB assumptions for use at §761.2 apply as long as a piece of equipment is in use. Therefore, the concentration of the transformer, if not established, may be assumed at the time of transfer. If the concentration is later established to be ≥50 ppm, any transfers that occur after the concentration is established would have to be recorded.

§761.30(a)(1)(vi) Transformer Registration

1. Q: Must I register a PCB Transformer that has been removed from service prior to December 28, 1998 and is headed for disposal?

A: No.

2. Q: Must I register a PCB transformer that is in storage for reuse?

A: Yes.

3. Q: Must I register a transformer with an unknown PCB concentration?

A: If you do not know the PCB concentration of a transformer that is in use, apply the concentration assumptions for use in §761.2. If you are required to assume that the transformer contains ≥500 ppm PCBs, you must register it.

4. Q: Must I register a bushing that contains oil with a PCB concentration ≥500 ppm if it is on a transformer which has a PCB concentration <500 ppm?

A: No.

5. Q: Must I register voltage regulators that contain ≥500 ppm PCBs? Why or why not?

A: The Disposal Amendments do not require you to register voltage regulators with PCB concentrations ≥500 ppm. This is because data available to EPA show that most voltage regulators contain mineral oil as a dielectric fluid, and very few would contain PCB concentrations ≥500 ppm.

6. Q: Do PCB Transformers only need to be registered once? If a transformer that has already been registered is purchased by someone other than the person who registered the unit, does the new owner have to register the unit again?

A: PCB transformers only need to be registered once. If a previous owner registered the transformer, a new owner does not need to re-register the unit. The transformer registration database is available on the PCB Web Site at www.epa.gov/pcb/xform.htm.

7. Q: If a facility identifies a PCB Transformer and decides to reclassify it, must it do so before December 28, 1998, to avoid the registration requirement?

A: Yes. All transformers that contain ≥500 ppm PCBs as of December 28, 1998, must be registered or they are not authorized for continued use.

8. Q: If, under the assumption rules, I assume a transformer not to be a PCB Transformer, but later discover it is a PCB Transformer, must I register it?

A: Yes. The you must register the transformer within 30 days of when you discover that it is a PCB Transformer.

9. Q: Can I "unregister" a transformer if I reclassify it or I determine that it contains PCB concentrations <500 ppm? How do I "unregister" a registered transformer?

A: You may notify EPA of the reclassification and ask that the transformer be removed from the database. This notification is strictly voluntary.

10. Q: When I take a transformer out of service, must I notify EPA?

A: You are not required to notify EPA that the PCB Transformer is no longer in service. However, you may do so and ask that the transformer be removed from the database.

11. Q: How large a geographical area can a single registration cover? Can I register transformers owned by my company but located in different states under the same address?

A: Where a company has multiple locations, EPA will accept one registration form or cover letter that provides information on the company or other entity that owns the transformer and information specific to the transformers at each location.

12. Q: What assurance does the Agency provide to owners that their registration application (Form 7720-12) was received and duly registered?

A: EPA recommends that you submit your registration by certified mail, return receipt requested.

13. Q: The registration form asks whether the PCB Transformer contains flammable dielectric fluid. How do I determine whether the fluid in my transformer is flammable?

A: Refer to the RCRA ignitability standards at 49 CFR 261.21(a)(1). Also, note that including this information in the registration is optional.

14. Q: Does a utility need to register pole top transformers?

A: Pole top transformers are assumed to have a concentration <500 ppm PCBs while in use (see §761.2(a)(2)), so they usually would not have to be registered. If a pole top transformer were known to have PCB concentrations of greater than 500 ppm, however, it would need to be registered.

15. Q: Is the registration of transformers to EPA in lieu of the registration to the local fire department?

A: Yes.

16. Q: Will local fire departments have access to EPA's information on transformers that are registered?

A: Yes. EPA maintains a publicly-available database of registered transformers. Fire departments and others can download information on registered transformers in their area from the PCB web site at www.epa.gov/pcb.

17. Q: If I place a PCB pole mounted transformer in storage for disposal, must I register it?

A: If you place the PCB transformer in storage for disposal, it is not in use and therefore you do not need to register it.

18. Q: If a transformer in storage (that had therefore not been registered) was found to have PCB concentrations of greater than 500 ppm at the time of disposal, would it be a violation to have an unregistered transformer recorded in the annual document log?

A: No, it would not be a violation, as long as the decision to dispose had been made. Transformers in storage for disposal do not need to be registered.

19. Q: If I test a transformer for disposal and find that it contains PCBs in concentrations ≥500 ppm, must I register the transformer?

A: No. The registration requirement applies to equipment in use or in storage for reuse. As long as you are disposing of the equipment, you are not required to register it.

§761.30(d) and (e) Use in heat transfer systems and hydraulic systems

1. Q: Under §761.30(d) and (e), does a heat transfer system or a hydraulic system with an unknown PCB concentration need to be tested?

A: There is no specific requirement to test. However, if you choose not to test and your heat transfer system or hydraulic system is found to contain PCBs at concentrations ≥50 ppm, then your equipment is not authorized for use.

§761.30(i) Use and Reuse of PCBs in Natural Gas Pipeline Systems

General

1. Q: How do PCBs get into natural gas pipelines?

A: PCBs may have entered natural gas pipelines through the use of PCB-containing lubricants in turbine compressors and pipeline valves; through fogging of the pipeline system with PCB-containing oil vapor; or through migration from other contaminated systems. PCBs move primarily with the liquid condensate that forms in the pipeline.

2. Q: Under the new regulations at §761.30(i), can I introduce PCBs into a natural gas pipeline system?

A: No, §761.30(i) does not allow the introduction of PCBs into a natural gas pipeline system. (See the preamble discussion at 63 FR 35396, June 29, 1998).

3. Q: Often, pipes are "inserted", meaning that the existing pipe is used as a conduit for a new plastic pipe that is mechanically emplaced by a machine that moves inside the existing pipe. Some of these machines use the old pipe as a sleeve for the new pipe. However, some of the machines split or shatter the existing pipe and replace it with the new pipe, with the parts of the old pipe still in place (e.g. destructive insertion). In all cases, free flowing liquids are removed prior to insertion. What is the status of pipes that are inserted? Can the pipe be considered still in service because the pipe itself is still in place? What if the pipe was inserted destructively? Could the insertion be considered as a form of grouting? Clearly the process renders the pipe unusable.

A: The non-destructive insertion of the new plastic pipe into the existing metal pipe can be considered as continued use of the natural gas pipeline system, under §761.30(i) and the owner/operator must comply with the applicable requirements in §761.30(i)(1)(iii)(A) or (B).

It's the Agency's understanding that at the time of insertion, companies are removing any liquids, if present, and characterizing the PCB contamination of the system at that particular location by testing removed liquids and wipe testing metal pieces of pipe removed from the system prior to insertion of the plastic pipe. The Agency recommends maintaining records of this PCB characterization until the time of abandonment or disposal of the system and/or its components, although §761.30(i)(1)(iii)(C) only requires the owner/operator to maintain records for three years. EPA will consider these records regarding characterization, done at the time of the insertion process, to be valid for compliance with applicable characterization requirements for abandonment and disposal in §761.60(b)(5)(iii).

Destructive insertion of the plastic pipe is not specifically addressed in the regulations. If the outer casing is $\geq$50 ppm PCBs and the insertion is destructive, the outer pipe would be considered illegally abandoned. The destructive insertion of the new pipe would not prevent the release of residual PCBs into the environment, because the integrity of the original metal pipe has not been maintained. A risk-based disposal application could be submitted under §761.61(c).

EPA does not consider insertion to be a form of grouting, as the intention for the grouting requirement is to permanently prohibit future reuse and to prevent the release of residual PCBs into the environment.

4. Q: Which requirements, if any, apply to customer service lines, including customer owned service lines? It appears from the Preamble that the Agency intended to exclude end users, such as homes and businesses, from the regulations. However, the definition of Natural Gas Pipeline System at §761.3 does not exclude end users. In addition, §761.30(i) contains a specific use authorization, that is unconditional, for PCBs at any concentration in natural gas pipeline systems <u>not owned or operated by a seller or distributor of natural gas</u>. Finally, there is nothing at §761.60(b)(5) that excludes end users from the requirements regarding disposal.

A: End users, such as homes and businesses are part of the use authorization in §761.30(i), but they are not subject to the requirements in §761.30(i). They cannot be excluded from the definition of "natural gas pipeline system" because they are part of the use authorization. There will be a technical correction made to the preamble (63 Fed.Reg. 35396) to correct this contradiction. For disposal purposes, end users are not necessarily excluded from the regulations at §761.60(b)(5). Anyone meeting the definition of "household waste" at §761.3 can dispose of their waste in accordance with §761.63. If you do not meet the household waste exemption, then you are subject to the regulations at §761.60(b)(5).

<u>Applicability of 120 Day Characterization Time Frame</u>

1. Q: If you plan to abandon pipe in the near future, does the 120 day time frame for characterization under §761.30(i)(1)(iii)(A) apply now? When does the 120 day time frame for characterization of pipe begin?

A: The pipe is technically "in use" until abandonment or removal occurs. Therefore, all applicable requirements in §761.30(i) apply until abandonment or removal takes place. The 120 day characterization time frame begins with the effective date of the rule (8/28/98) for cases where the owner/operator knows there is PCB contamination at concentrations ≥50 ppm. Otherwise, the 120 day period begins after detection of PCB concentrations ≥50 ppm occurs.

Potential Sources

1. **Q:** ***Can I use historical data to document absence of sources in a system?***

A: Yes. (See §761.30(i)(1)(iii)(E).)

2. **Q:** ***If grease containing PCBs was added to a valve, would the valve be considered a source?***

A: Section 761.30(i)(1)(iii)(A)(3) excludes valves as being a potential source. The intention of this section was to leave out small items such as valves, as long as an attempt is being made to remove PCBs from the system. If there are no other potential sources in the system, but there are PCBs ≥50 ppm in the system, then §761.30(i)(1)(iii)(B) would apply.

3. **Q:** ***Are meters (specifically custody transfer meters and customer meters) sources?***

A: Custody transfer meters could be potential sources of introduction of PCBs into the natural gas pipeline system. However, the Agency would need more specific information about the meter to make a definite determination. Customer meters are most likely not potential sources of PCBs because they are located at the end of the natural gas pipeline and would be unlikely to introduce PCBs into the system.

4. **Q:** ***Is a paper-like filter in a natural gas pipeline system, similar to a car's oil filter, considered a "source"?***

A: If this filter is kept relatively clean, it most likely will not be a potential source. However, if the filter is allowed to fill up with liquids and is not cleaned out (i.e. per standard operating procedures and manufacturer's recommendations), it could be a potential source. In this case, it could be a source because it could be introducing PCBs ≥50 ppm into the pipeline system. The determining factor is whether or not it is introducing PCBs

≥50 ppm into the pipeline system and causing PCB contamination downstream.

5. Q: What does EPA consider to be a "potential source of PCB contamination" (40 C.F.R. §761.30(i)(1)(iii)(B)) for purposes of the use authorization requirements?

A: The types of items in §761.30(i)(1)(iii)(A)(3) are what EPA considers to be "potential sources". The regulations reference specific items that may be considered sources (i.e., compressors, scrubbers, filters and interconnects), and items that are not considered sources (i.e., valves, drips and other small liquid condensate collection points). If a seller or distributor has one of these "potential sources" and it contains PCBs ≥50 ppm and has created PCB contamination downstream, then the regulations at §761.30(i)(1)(iii)(A) apply.

The requirements at §761.30(i)(1)(iii)(A) still apply when the source contains PCBs ≥50 ppm, but there is no contamination downstream. In this situation, the source could still potentially introduce PCBs into the system, so the owner/operator is still responsible for addressing the PCBs in the source by removing the source or reducing the concentration of PCBs to <50 ppm (e.g., removing liquids from the source).

If a natural gas pipeline system contains drips with PCBs ≥50 ppm, but it does not contain a scrubber, filter or compressor with PCBs ≥50 ppm, then the only "potential source" in the system would be the interconnect. It's the Agency's understanding that the interconnect is the point in the natural gas pipeline system at which the ownership of the pipeline equipment changes (e.g., from natural gas supplier to local distribution company). Whoever owns/controls the interconnect in this scenario would be required to follow the provisions in §761.30(i)(1)(iii)(A). If you do not own/control the interconnect, then you must follow the provisions in §761.30(i)(1)(iii)(B). According to §761.30(i)(1)(iii)(B), sampling and analysis of the liquids and record keeping would still apply, including documenting that the system's sources never used PCB containing oils and grease. The owner/operator would also need to document that the most likely source of PCB contamination is the natural gas pipeline system that supplied their natural gas. This documentation is required.

The natural gas pipeline system described above could also fall under the regulations at §761.30(i)(1)(iii)(B) if the first liquid collection point after the interconnect contains PCBs <50 ppm. In this situation EPA would not consider the interconnect to be a source for the contamination, which was found further downstream.

Characterization

1. Q: Under §761.30(i), is use of organic liquids for characterization of the natural gas pipeline system required?

A: Yes. EPA's intention was for organic liquids to be used to characterize the PCB contamination in the natural gas pipeline system. EPA will make a technical correction to §761.30(i)(4) to clarify this.

2. Q: When conducting the annual sampling under §761.30(i), what do you do if you don't have liquids present annually?

A: Under the use authorization provisions at §761.30(i), if a pipeline system once contained liquids at 50 ppm or greater but is now relatively dry (i.e., there are no liquids available to test at existing condensate collection points), then the owner/operator of the pipeline system has no further sampling and analysis to do until such time as liquids appear. EPA did not intend to require wipe sampling for characterizing natural gas pipeline systems in use; hence, EPA has made a technical correction at §761.30(i)(4) to drop the reference to wipe samples.

For these relatively "dry" systems with no liquids, the sampling requirements at §761.30(i)(1)(iii)(A)(5) don't apply. However, EPA would expect the owner/operator of the pipeline system to continue to check at least annually for liquids and document their absence under the recordkeeping requirements in §761.30(i)(1)(iii)(C). Should any liquids appear later, the liquids should be tested.

3. Q: For purposes of 40 C.F.R. §761.30(i)(1)(iii)(A)(4), does an ongoing program for the removal and disposal of pipeline liquids and condensate constitute an "engineering measure or methods to reduce PCB levels to <50 ppm"?

A: The phrase "engineering measure or methods to reduce PCB levels to <50 ppm" was meant to deal with the pipe itself or sources. The intent was to clean and/or remove the sources. Since drips are not considered sources, the removal of liquids at drip collection points would not constitute an "engineering measure or methods to reduce PCB levels to <50 ppm". However, if contamination is from an upstream source outside your system, liquid removal from a scrubber, compressor or filter (which are operated and maintained in accordance with manufacturer's recommendations) within your system would be considered an engineering method or measure to remove or reduce PCBs from your system.

4. Q: Can a company use a GIS-based map (mapping database) to satisfy the "written description" requirement at 40 C.F.R. §761.30(i)(1)(iii)(A)(1)?

A: Yes, a GIS-based map may be used to fulfill the requirement for a "written description at 40 C.F.R. §761.30(i)(1)(iii)(A)(*1*).

5. Q: How should I document that my natural gas distribution system is PCB free and exempt from regulation?

A: The regulations at §761.30(i) do not require you to document that a natural gas pipeline system is PCB free.

<u>Historical Data for Characterization</u>

1. Q: Can I use samples collected before August 28, 1998 as historical data?

A: Section 761.30(i)(1)(iii)(E) allows the use of historical data. For purposes of the use authorization at §761.30(i)(1)(iii), any data collected before August 28, 1998 is considered as historical data, provided it is accurate and sufficient.

2. Q: Can a company use historical data from liquid collection points to document the applicability of the §761.30(i)(1)(i) use authorization?

A: There is no specific requirement to test, but there is a requirement to comply with the applicable regulations in §761.30(i). Therefore, if historical records are used in place of testing to characterize a pipeline system, the company is still responsible for following the regulations. Since the movement of PCBs in pipeline systems is not well understood, EPA strongly recommends testing.

September 2001 Version

Pipeline Components and Appurtenances

1. Q: ***How do PCB pipeline system components differ from pipeline appurtenances?***

A: The term "component" refers to any part of the natural gas pipeline system (as defined at §761.3), to include pipe, appurtenances and compressors. The term "appurtenance" is defined in the definition of "natural gas pipeline system" under §761.3. Appurtenance refers to "instrumentation and vessels directly in contact with transported natural gas such as valves, regulators, drips, filter separators, etc., but not including air compressors." This list is not all inclusive.

Condensate

1. Q: ***Under §761.30(i)(1)(iii)(A)(3), what is the definition of "small liquid condensate collection point." Does the "condensate" pertain to both hydrocarbon condensate and water condensate?***

A: The term "small liquid condensate collection point" is not defined in the regulations. The interpretation of the term was meant to be left open as it refers to items that are similar to drips and valves.

The term "condensate" applies to both hydrocarbon condensate and water condensate. However, for purposes of characterizing the PCB concentration of the pipe, the organic condensate must be analyzed.

Marking

1. Q: ***If a gas utility owns customer meters (industrial or residential) and a meter has liquids with PCB concentrations in excess of 50 ppm PCB, must the meter be marked with the M_L mark, in accordance with §761.45(a)?***

A: Yes. §761.30(i)(1)(iii)(A)(6) requires marking aboveground sources (e.g. system components) of PCB liquids in natural gas pipeline systems that contain PCBs $\geq$50 ppm.

2. Q: ***Do the §761.40(k) marking requirements apply to gas mains and services that are still in service? That is, natural gas is being delivered to our customers. If so, do all aboveground piping that is attached to the gas meter at a structure need to be marked? How is***

pipe to be marked?

A: No, the marking requirements at §761.40(k) do not generally apply to gas mains and services. The marking requirements at §761.40(k) apply to the PCB Items specified in subparagraphs (1) and (2) which include PCB Large Low and High Voltage Capacitors, PCB Transformers, and equipment containing these items. However, if your pipeline system contains these specified PCB Items, then the §761.40(k) regulations would apply.

No, all aboveground piping should not need to be marked. The marking requirements specific to natural gas pipeline systems were promulgated on June 29, 1998 at §761.30(i)(1)(iii)(A)(6). These regulations apply to natural gas pipeline systems owned or operated by sellers or distributors of natural gas where these systems contain PCBs at concentrations of 50 ppm or greater. Section 761.30(i)(1)(iii)(A)(6) requires the marking of aboveground sources (e.g., aboveground equipment such as meters, filters, compressors, valves, or drips) of pipeline liquids at $\geq$50 ppm PCBs with the M_L Mark in accordance with §761.45(a). EPA dropped the former §761.30 marking requirement for underground pipe containing PCBs < 50 ppm in response to public comment. (See the preamble discussion in the June 29, 1998 Federal Register at page 35396.)

Reuse of Pipe and Distribution in Commerce

1. Q: In order to reuse contaminated piping for other purposes at a later date, what needs to be done in the interim?

A: The provisions for interim storage for reuse are outlined in §761.35. The provisions at §761.35 apply to drained PCB articles. By definition, drained pieces of pipe are considered drained PCB articles.

Note that §761.30(i)(2) and (3) only authorize the reuse of natural gas pipeline that is PCB-Contaminated (10 ug/100cm^2 - 100 ug/100cm^2 or 50 ppm - 500 ppm). These sections do not authorize the reuse of pipe that is >100 ug/100cm^2 or >500 ppm. At these higher concentrations, the pipe would have to be decontaminated in accordance with §761.79(b)(3) to the levels authorized in §761.30(i)(2) and (3) before reuse would be authorized.

Additionally, the regulations do not explicitly authorize the distribution in commerce (e.g. sale, transfer to a third party) of PCB-Contaminated pipe. Thus, sale or transfer to a third party for the reuses listed in §761.30(i)(2) and (3) could only occur if the pipe is decontaminated or meets the decontamination standards in §761.79(b)(3), in accordance with §761.20(c)(5), the general authorization for distribution in commerce.

2. Q: What are the requirements that a company must comply with when transporting pipe that is drained of all free-flowing liquids and is contaminated with PCBs at $\leq$10 µg/100cm^2 to $\leq$ 100 ug/100cm^2 or at >100 ug/100cm^2? The pipe will be removed and transported to the company's storage facility for reuse by the company.

A: Since the pipe will be reused, it is not a waste and is not subject to manifesting. Because there is no marking requirement for natural gas pipe in use, there is no marking required for storage for reuse.

3. Q: A section of pipeline has been sampled. The wipe sample shows <10ug/100cm^2 and the liquid condensate sample shows <50 ppm. Is this pipe regulated? Can it be sold?

A: At PCB concentrations <10ug/100cm^2 or <50 ppm, the pipeline is unregulated for use at §761.30(i) and is unregulated for abandonment or disposal at §761.60(b)(5). This pipe can be sold under §761.20(c)(5)(ii), which allows the distribution in commerce of materials that currently meet a decontamination standard in §761.79(b). The decontamination standard for non-porous surfaces in contact with liquid PCBs is <10ug/100cm^2, provided all free-flowing liquids have been removed (§761.79(b)(3)).

4. Q: The new regulations authorize the reuse of PCB-Contaminated pipe (drained of all free flowing liquids) for certain specified uses such as reuse in natural gas pipeline systems, and for electrical cable, optic fiber, etc. (§761.30(i)(2-3)). Why is there is no parallel authorization for distribution in commerce for these reuse options -- without such an authorization the reuse options are virtually worthless, as gas companies would be unable to convey them to parties that would use the pipe in this manner.

A: The regulations do not explicitly authorize distribution in commerce of PCB-Contaminated pipe, despite the authorization for reuse. There is a general authorization of distribution in commerce at §761.20(c)(5) for items decontaminated or currently meeting decontamination standards. Therefore, in order to distribute PCB-Contaminated pipe in commerce, it would have to be decontaminated or it would have to currently meet a decontamination standard such as <10 ug/100cm^2. The provision in

§761.20(c)(5) would then allow the distribution in commerce of these items.

§761.30(j) Research and Development

1. Q: If I take a sample from a site and analyze it in a lab, is this activity considered research and development for disposal or research and development for use?

A: Section 761.30(j) allows the use of PCBs in analytical reference standards when conducting research and development on waste samples containing PCBs. Research and development activities that are considered use of PCBs include the chemical analysis of PCBs, including analysis to determine concentration; determinations of the physical properties of PCBs; studies of environmental transport processes; studies of biochemical transport processes; studies of effects of PCBs on the environment; and studies of the health effects of PCBs, including direct toxicity and toxicity of metabolic products of PCBs.

Chemical analysis of the waste samples themselves is not subject to §761.30(j). As EPA stated in the preamble to the Notification and Manifesting Rule (54 FR 52716, 52719, December 21, 1989), the policy on analysis of waste samples is as follows. It is necessary to know whether or at what concentration a waste contains PCBs to determine whether or how the waste is regulated under 40 CFR Part 761. Consequently, a waste sample is implicitly authorized for use while chemical analysis is taking place.

2 Q: Does §761.30(j) apply to samples of waste containing PCBs that are being chemically analyzed for other possible constituents such as metals or anions?

A: No. Section 761.30(j) allows the use of PCBs in analytical reference standards when conducting research and development on waste samples containing PCBs. Chemical analysis of the waste samples themselves is not subject to §761.30(j). A waste sample is implicitly authorized for use while chemical analysis is taking place. Once the analysis is complete, the sample is subject to disposal as PCB waste in accordance with §761.64 if it contains $\geq$50 ppm PCBs. Chemical analysis for the presence of other contaminants in samples containing PCBs may be regulated under specific requirements for those contaminants.

3 Q: Can I transport soil off site to a laboratory for toxicity testing? Must I notify EPA?

A: Section §761.30(j) authorizes the use of PCBs in analytical reference samples for research and development. You are not required to notify EPA prior to using PCBs in research and development under this section. However, processors and distributors of PCBs in small quantities for research and development must report certain information about their activities to EPA (see §761.80(g)).

4 Q: According to §761.65(i)(2), which deals with transport and use of samples collected to determine PCB concentration for regulatory status, you can collect a sample and send it to the lab for analysis without a manifest. Has anything in §761.30(j) changed this prior rule?

A: Section 761.65(i)(2) exempts these samples from manifesting requirements when sending the samples to the lab for analysis of PCB concentration or when shipping them from the lab back to the sample collector, provided the conditions in §761.65 are followed. However, under §761.65(i)(2), after analysis is complete and the use of the sample is ended, the sample must be manifested when it is shipped from the R & D facility to a commercial storer or disposer. In its technical corrections rule, EPA is deleting §761.30(j)(3), which addressed manifesting requirements, to avoid confusion.

5 Q: Is notification to EPA for PCB research and development under §761.30(j) still required?

A: No, notification to EPA is not required under §761.30(j). However, notification is required for research and development for PCB disposal (see §761.60(j)).

§761.30(q) Non-liquid PCBs

1 Q: What is the status of the non-liquid PCB use authorization? When will a supplemental notice for §761.30(q) be published? What is the interim policy concerning use and distribution in commerce of unauthorized PCBs?

A: The Agency is in the process of obtaining data that can be used to make an informed decision of the risks associated with certain unauthorized uses of non-liquid PCBs for the purpose of either finalizing the authorization or reproposing the provision. Check the PCB Web Site at www.epa.gov/pcb. In the meantime, use and distribution in commerce of unauthorized PCBs is prohibited.

§761.30(s) Use of PCBs in air compressor systems

1 Q: How do I determine whether air compressors that are not associated with natural gas pipeline systems contain PCBs at regulated levels? Are there any assumptions that apply? Is the age of the air compressors relevant?

A: In general, EPA does not expect that air compressors (not associated with natural gas pipeline systems) will contain PCBs at regulated levels of $\geq$50 ppm. However, EPA is aware of cases where air compressors have become contaminated with PCBs due to the use of lubricating oils, such as Pydraul. The use authorization at §761.30(s) was developed to allow the continued use of contaminated air compressor systems provided steps are taken to remove the PCB liquids and to decontaminate or dispose of the contaminated components in the system. Testing of the air compressor system liquids is not explicitly required to determine the applicability of these regulations. If, however, past inventory records indicate that Pydraul or other PCB containing lubricating oils had been used in the past, testing would be prudent.

2 Q: Are air compressors and air tanks that are contaminated with PCBs <50 ppm regulated for use?

A: PCBs in air compressor systems are authorized for use at concentrations <50 ppm.

§761.30(u) Use of decontaminated materials

1 Q: If I clean up concrete contaminated by a post-1987 spill pursuant to state clean-up standards, can I continue to use the concrete? If not, what are the requirements?

A: You may use non-liquid materials such as concrete that were contaminated with PCBs $\geq$50 ppm provided the materials are decontaminated in accordance with a PCB disposal approval, the decontamination provisions of §761.79, or an applicable PCB spill cleanup policy, or if they meet an applicable decontamination standard in §761.79(b). The decontamination standard for concrete under §761.79(b) is $<10\ \mu g/100\ cm^2$ and requires that cleanup be initiated within 72 hours of the spill. If the state cleanup met these standards, you may continue to use the concrete. Alternatively, you may comply with the requirements of §761.30(p) for continued use of contaminated porous surfaces.

2 Q: If you have a PCB spill after the effective date of the new rule that contaminates equipment, can you reuse the equipment after cleaning it pursuant to the PCB Spill Cleanup Policy, or must it be decontaminated under Section 761.79?

A: You can continue to use the equipment after cleaning it in accordance with the TSCA PCB Spill Cleanup policy (40 C.F.R. §761.20(c)(5), 761.30(u)).

3 Q: Is water containing PCBs at 3 μg/L authorized for use under §761.30(u)?

A: No. You may use or reuse water containing ≤0.5 μg/L PCBs without restriction. You may use or reuse water containing PCBs at concentrations <200 μg/L in industrial processes where there is no release from the process (see §761.30(u)(3) and (4)). You may discharge water containing <3 μg/L to a treatment works or to navigable waters (see §761.79(b)(1) in accordance with a permit issued under the Clean Water Act. Discharge is regulated as disposal, not use or reuse.

4 Q: What does the provision in §761.30(u)(1)(ii) mean (stating that materials not previously decontaminated can be used if they meet a decontamination standard)?

A: It means that the PCB concentration of the material meets one of the standards of §761.30(u) without further cleanup or decontamination.

§761.35 Storage for Reuse

What is storage for reuse?

1 Q: When is an item considered to be stored for reuse as opposed to in use? My company keeps a spare transformer on a pad next to an in-service transformer. The spare transformer is not energized. We plan to use the spare transformer in the electrical system in the event the in-service transformer fails or must be taken off-line for servicing. Is the spare transformer considered to be in use or stored for reuse?

A: The spare transformer is considered to be in storage for reuse because it is not energized . The spare transformer is subject to the requirements of §761.35. The in-service transformer is considered to be in use.

2 Q: What is the difference between storage for disposal and storage for reuse?

A: You may store a PCB Article for reuse if you plan to reuse the article and you maintain it in usable condition. In that case, you must follow the storage for reuse requirements at §761.35. If you are storing PCBs, including a PCB Article, that you do not plan to reuse or that you have decided to dispose of, then the PCBs are in storage for disposal and you must follow the storage for disposal requirements at §761.65.

3 Q: I am storing a PCB Article that has never been used. Is the article in "storage for reuse"?

A: If you have a PCB Article in storage, under the regulations you must treat it as either in storage for reuse or in storage for disposal, depending on whether you intend to use or to dispose of the article when you remove it from storage. You do not have to have used the article in the past for the article to be in storage for reuse. If you do not intend to use the article, it is in storage for disposal and you must dispose of it within one year of the date you decide to dispose of it.

4 Q: What is the status of equipment that I have taken out of service but am still evaluating for use or disposal? For example, I have had a transformer tested for PCB concentration, but the test results are not yet available. Is the transformer in use, in storage for disposal, or in storage for reuse?

A: You must treat a transformer or other PCB Article that is removed from service as either in storage for reuse or in storage for disposal. If you have not yet determined to dispose of the transformer, treat it as in storage for reuse.

5 Q: Does §761.35 apply to interim storage articles prior to classification, such as pulled transformers that are waiting to be tested?

A: Yes. Since you have removed the transformer from service, you must treat it as either in storage for reuse or in storage for disposal. If you have not yet decided to dispose of the transformer, treat it as in storage for reuse.

6 Q: What requirements apply to the storage for reuse of electrical equipment like cable and electrical starters left in place inside old,

shut down, facilities? These buildings may not be demolished for many years; some ultimately may be remodeled; others may be used as a source of spare parts, etc, for similar facilities. Even though the equipment may not be operated for an extended period of time before it is discarded, could it still be considered "in service" until actual demolition occurs?

A: The equipment is not in service if the facility is shut down. You may treat the equipment as stored for reuse if you contemplate a future use of the equipment and you are maintaining the equipment in usable condition. In that case, you must comply with §761.35. Otherwise, you must treat the equipment as in storage for disposal and you must comply with §761.65, including the one-year limit on storage for disposal at §761.65(a)(1).

7 Q: What are the requirements for the storage and reuse of equipment like tools, trays, and pumps that I use for servicing electrical equipment?

A: There are no regulatory provisions that specifically address this type of equipment. EPA views this type of equipment as in use, since it is being used in servicing, an authorized use activity. EPA recommends that you identify the equipment as PCB-regulated and store it in a marked area or drum to prevent its being used by people unaware that it contains PCBs.

8 Q: What storage for reuse requirements apply to small capacitors?

A: The storage for reuse provisions at §761.35 apply to PCB Articles. Small capacitors are PCB Articles.

9 Q: Are bushings PCB Articles subject to storage for reuse requirements?

A: Yes, if the bushings contain PCBs. A "PCB Article" is a manufactured article whose surface has been in contact with PCBs. (See §761.3.)

10 Q: May I store fluids that have PCB concentrations of ≥50 ppm for "topping off?"

A: If you use dielectric fluid containing ≥50 ppm PCBs in servicing transformers, then you must store the fluid in accordance with the storage for disposal requirements of §761.65 (see §761.30(a)(2)(vi)).

11 Q: May I use §761.35 for storing analytical rinsate solutions removed from use between analyses?

A: No. The storage for reuse requirements at §761.35 only apply to PCB Articles, as defined at §761.3.

12 Q: Do the PCB concentration assumptions for equipment in use apply to PCB Articles that are stored for reuse?

A: Yes. The concentration assumptions for use at §761.2 apply because PCB Articles in storage for reuse are considered to be in use.

13 Q: If I rely on the assumptions for use in §761.2 to classify a unit as containing a PCB concentration ≥500 ppm, is the unit subject to the storage for reuse requirements of §761.35?

A: Yes.

14 Q: Are pole top transformers and units exempted from the requirements in §761.35?

A: No. Any PCB Article that contains PCBs and is stored for reuse is subject to the requirements of §761.35.

15 Q: Must I mark equipment that I store for reuse?

A: You must follow all marking requirements in subpart C that would be applicable if the equipment were in use. (See §761.35(a)(1).)

16 Q: Is a PCB Article with a concentration less than 50 ppm subject to the storage for reuse requirements at §761.35?

A: No. PCB Articles with PCB concentrations less than 50 ppm are considered excluded PCB products. They are not regulated for use or for storage for reuse.

<u>Five year time limit</u>

1 Q: If I remove a PCB Article from service for testing, and have not determined whether it will be serviced and reused or disposed of, when does the five year limit for storage for reuse begin?

A: The five year time limit begins on the date the article is disconnected from the electrical system. The article is considered in storage for reuse until you determine it does not contain PCBs, place the article back in service by reconnecting it to the system, or decide to dispose of it.

2 ***Q: My company owns a transformer that is scheduled to be retrofilled. Does the five-year time limit begin on the date the company decided to retrofill the transformer, or on the date the rebuilder drains it?***

A: The five-year time limit begins on the date the unit is taken out of service, i.e., disconnected from the electrical system.

3 ***Q: I store backup equipment that is put into temporary service when the main unit is taken out of service for repair. Does the five year time limit on storing the backup equipment restart each time the equipment is taken out of temporary service?***

A: Yes.

Extensions of the five year storage limit

1 ***Q: After I have stored a transformer for reuse for five years, must I reuse it, or can I dispose of it?***

A: At any time during the five-year storage period you may decide to dispose of equipment stored for reuse and either place it in storage for disposal or dispose of it. You should not request an extension of the five year storage limit unless you still plan to reuse the equipment. Section 761.35(c) also allows you to store a PCB Article for reuse indefinitely in a unit in compliance with §761.65(b), or in a unit permitted under Section 3004 or 3006 of RCRA.

2 ***Q: If a facility has spare equipment and does not use it within 5 years must they dispose of it?***

A: No. If the facility stores its spare equipment in a storage facility that complies with §761.65(b)(1) or that is permitted under §3004 or §3006 of RCRA, it can store the equipment indefinitely (see §761.35(c)). EPA recommends that equipment stored for reuse in these facilities be segregated from equipment stored for disposal. However, storage in facilities not meeting one of these standards is limited to five years unless the EPA Regional Administrator grants an extension. At the end of five years, you must have received an extension, have moved the equipment to a storage facility not subject to a time limit, have placed the equipment in storage for disposal, have disposed of the equipment, or have placed the equipment back in use.

3 Q: My facility stores many bushings for reuse. If we plan to store more than one bushing for longer than five years, must we request a separate approval for each bushing that is in storage?

A: No. A request for an extension can cover more than one article, but you must include an item-by-item justification for the extension.

4 Q: What are some examples of acceptable justifications for extending the five year storage period?

A: The regulations do not specify criteria for granting extensions. This decision is within the discretion of the EPA Regional Administrator.

Recordkeeping requirements

1 Q: How should a facility keep track of the length of time it stores a PCB Article for reuse?

A: Under §761.35(a)(2), the facility must keep records on each PCB Article it stores for reuse, including the date on which the article is removed from use. You may select the recordkeeping method that works best for you. For example, you may maintain records on equipment stored for reuse in the same manner as the annual document log under §761.180.

2 Q: If a facility's inventory of equipment does not include each PCB unit that is in storage for reuse, must the facility conduct a physical inventory of all of its stored equipment to obtain this information?

A: Yes. You must have a record of each PCB Article you are storing for reuse.

3 Q: Do the marking and recordkeeping requirements at §761.35(a) apply to PCB Articles stored for reuse indefinitely in a §761.65(b) or a unit permitted under RCRA section 3004 or 3006?

A: No. Other marking and recordkeeping requirements may apply for storage in a §761.65(b) facility or in a unit permitted under RCRA section 3004 or 3006. See §761.65(b) or RCRA section 3004 or 3006 for applicable marking and recordkeeping requirements.

4 Q: Must I label a transformer in storage for reuse with the date I put it into storage?

A: No. Such a requirement was proposed, but not included in the final rule. However, you must keep a record of this date (§761.35(a)(2)).

5 Q: Section 761.35(a)(2) requires that records be kept for PCB-Contaminated Electrical Equipment stored for reuse, indicating the location for future use. Would a generic statement saying that a pole-mount or pad-mount transformer is of a size and voltage that could be used in numerous locations throughout the distribution system be acceptable?

A: Yes, that would be acceptable. In this instance, you would not have to identify a specific piece of equipment that the article could replace.

6 Q: Must I keep records in accordance with §761.35 for transformers that are being stored to be tested?

A: Once the transformer is disconnected from the electrical system and placed into storage it is considered to be either in storage for reuse or in storage for disposal. If you have not yet decided to dispose of the transformer, it is in storage for reuse and you must comply with the requirements of §761.35.

7 Q: Are facilities still required to perform quarterly inspections of the articles in storage for reuse?

A: While PCB Articles are in storage for reuse, you must comply with all use conditions established for the equipment in §761.30 (see §761.35(a)(1)). This would include such requirements as quarterly inspections for PCB Transformers.

8 Q: How specific must the description of future use "location" be for storage for reuse purposes?

A: Companies can store pipe and appurtenances that have an identified reuse in accordance with §761.35. These provisions cannot be used for equipment that does not have an intended reuse. The description must indicate the manner in which the reuse will occur within the system, but need not say exactly where in the system the reuse will occur.

Storage with no time limit

1 **Q:** ***Is there a limit on how long I may store a piece of equipment for reuse in a §761.65(b) facility?***

A: There is no limit for storage for reuse in a §761.65(b) facility. EPA recommends that equipment stored in the facility for reuse be segregated from equipment stored for disposal.

2 **Q:** ***May I store PCB Articles indefinitely for reuse in a facility that qualifies for interim status under section 3005 of RCRA?***

A: No. You may store PCB Articles for reuse in an interim status facility, but only for five years unless the EPA Regional Administrator grants an extension.

§761.40 Marking Requirements

1 **Q:** ***Has there been a substantive change to the marking requirements for transport vehicles?***

A: No. Section 761.40(b) combines the provisions of two earlier paragraphs that were redundant.

2 **Q:** ***Does the line crew that is transporting a transformer from the field to the repair shop need to label the truck? (No decision has been made to dispose of the transformer at this time and unit is assumed to be PCB-Contaminated.)***

A: Transport vehicles carrying a transformer must be marked only if the transformer is a PCB Transformer (i.e., contains PCBs at concentrations $\geq$500 ppm). You must mark a transport vehicle carrying a PCB Transformer whether the PCB Transformer is still in use or is a waste. In this example, the transformer is still in use (no decision has been made to dispose of it), so the PCB concentration assumptions for use apply when the concentration of the transformer has not been established. (See §761.2.)

3 **Q:** ***Section 761.40(k) states that PCB large low voltage capacitors must be marked as of April 26, 1999. Section 761.40(l), which requires***

marking of voltage regulators, does not specify a deadline. Does this mean voltage regulators must be marked as of August 28, 1998, the effective date of the rule?

A: Yes.

§761.50 Applicability

§761.50(a)(2) Processing liquids into non-liquids

1 Q: Do the Disposal Amendments allow me to stabilize or solidify liquid PCBs and dispose of them in accordance with the requirements for non-liquid waste?

A: No. You may not process liquid PCBs into non-liquid forms to circumvent the high temperature incineration requirements of §761.60(a).

2 Q: Must I dispose of PCB liquids solidified prior to 1978 as liquids or non-liquids?

A: Prior to 1978 there was no prohibition on solidifying liquid PCB waste. The waste is subject to the regulations that apply to its condition at the time of disposal.

3 Q: If a facility has a low-lying, contaminated soil area, can it put the contaminated soil in a rolloff and solidify the contents of the rolloff to ensure that any liquids present do not spill out?

A: You may not process liquid PCBs into non-liquid PCBs to avoid the disposal requirements that apply to liquid PCBs. However, you may solidify the waste if you dispose of it based on the requirements that would have applied before the waste was solidified.

§761.50(a)(3) Discharging water to treatment works

1 Q: If a permanent wastewater treatment facility begins to treat PCB wastewater on an occasional basis, is the treatment plant equipment considered TSCA waste when the plant generates maintenance wastes such as piping, valves, etc?

A: The Disposal Amendments prohibit the discharge of water containing ≥3 ppb PCBs to a treatment works unless a higher PCB concentration is allowed by a discharge limit established under the Clean Water Act. Non-porous surfaces in wastewater treatment equipment that come into contact with water at PCB concentrations in low parts per billion are not likely to have surface contamination >10 µg/100 cm². Non-porous surfaces at concentrations >10 µg/100 cm² may not be used in contact with food, feed or drinking water (see §761.79(b)(3)(i) and §761.30(u)(2)). Treatment works equipment can be reused in contact with food, feed, or drinking water if it is decontaminated in accordance with a risk-based decontamination approval (see §761.79(h)). For uses not in contact with food, feed, or drinking water, unless the occasional releases to the treatment works greatly exceed the levels allowed in the disposal amendments, PCB contamination in maintenance wastes is unlikely to reach regulated concentrations.

§761.50(a)(5) Presuming ≥500 ppm

1 Q: Section 761.50(a) allows people disposing of non-liquid PCBs to avoid sampling requirements by presuming that the PCB concentrations are ≥500 ppm. Can I dispose of liquid-filled electrical equipment under this provision?

A: No. This provision pertains only to the land disposal of non-liquids. You may choose to assume a piece of electrical equipment is contaminated at ≥500 ppm PCBs rather than testing the equipment, but you must follow the disposal requirements in §761.60(b).

§761.50(b)(1) PCB liquids

1 Q: Can I dispose of liquids in a landfill?

A: The only liquids you can dispose of in a landfill are non-ignitable PCB liquids at concentrations <500 ppm that are incidentally derived from PCB Articles or non-liquid PCB wastes (for example, precipitation, condensation, leachate, or load separation). You may dispose of these liquids in a chemical waste landfill that complies with §761.75. You must dispose of all other liquids by decontamination under §761.79; depending on the concentration of the liquid waste, in an incinerator that complies with §761.70 or a high efficiency boiler in accordance with §761.71; or in a facility with an alternative disposal approval issued under §761.60(e).

§761.50(b)(2) PCB Items

1 Q: Can non-intact PCB Articles be disposed of as bulk product waste?

What about small and large capacitors and PCB Transformers?

A: You can dispose of PCB Articles that are no longer intact and non-leaking, and PCB Items containing non-intact PCB Articles, as PCB bulk product waste under §761.62(a) or (c). However, land disposal is generally not available if liquid PCBs remain in the equipment. Non-intact PCB Articles include leaking capacitors and PCB Transformers.

2 Q: Under §761.60(b), can I assume that light ballasts contain PCB concentrations of less than 50 ppm?

A: No. Fluorescent light ballasts are regulated for disposal when they contain PCBs that are regulated for disposal. Disposal options depend on whether the PCBs are found in an intact and non-leaking PCB small capacitor, a non-intact or leaking PCB small capacitor, or in the potting material. (See §761.50(b)(2).) The PCB regulations do not create any assumptions about the PCB concentrations in fluorescent light ballasts.

3 Q: Do manifest requirements apply to light ballasts that are sent to recyclers?

A: Yes, if the ballasts contain PCBs $\geq$50 ppm in leaking small capacitors or in potting material.

4 Q: Can I assume that ballasts manufactured after 1979 are not contaminated?

A: Fluorescent light ballasts manufactured between July 1, 1979, and July 1, 1998, at the time of manufacture were required to be marked by the manufacturer with the statement “No PCBs”. It is acceptable to treat ballasts with this mark as unregulated for PCBs.

September 2001 Version

TSCA Disposal Requirements for Fluorescent Light Ballasts

PCB Capacitor	**PCB Potting Material**	**Labeling, Transportation and Manifesting for Disposal**	**Disposal Reference in §761**	**Disposal Options**
"No PCBs" label		Not regulated under TSCA	N/A	Not regulated under TSCA
None	< 50 ppm	Not regulated under TSCA	N/A	Not regulated under TSCA
Intact and non-leaking or none	≥ 50 ppm	Is a PCB bulk product waste. No labeling is required. Manifesting is required for disposal in accordance with §761.62(a); is not required under §761.62(b); may be required under §761.62(c).	.50(b)(2)(ii) .62(a)-(c)	TSCA Incinerator TSCA/RCRA Landfill Alternate Destruction Method Decontamination (§761.65(d) storage approval may be required) Coordinated approval State approved landfill (leach test required) Risk-based approval
Intact and non-leaking	< 50 ppm	No labeling or manifesting required	.50(b)(2)(i) .60(b)(2)(ii)	As municipal solid waste 40 CFR 761 subpart D options
Leaking	< 50 ppm or ≥ 50 ppm	Disposal as PCB bulk product waste. No labeling is required. Manifesting is required for disposal in accordance with §761.62(a); may be required under §761.62(c).	.62(a) or (c)	TSCA Incinerator TSCA/RCRA Landfill Alternate Destruction Method Decontamination (§761.65(d) storage approval may be required) Coordinated approval Risk-based approval

5 ***Q:*** ***Has EPA received data on the percent of light ballasts with PCB concentrations $\geq$50 ppm?***

A: The Agency does not have any data other than that data submitted in connection with the PCB Disposal Amendments rulemaking. Commenters submitted data based on samples taken from ballasts to be recycled and is found in the rulemaking docket Number OPPTS-66009C. The docket is open Monday through Friday from 12 noon to 4 pm in Washington, DC (202-260-7099).

6 ***Q:*** ***Is there a grandfather provision or exemption for ballast processing?***

A: Existing PCB disposal approvals, issued in accordance with §761.761.60(e) , for the disposal of fluorescent light ballasts remain in effect until their expiration date. Many activities currently included in these §761.60(e) approvals are authorized in §761.79 and do not require approvals.

7 ***Q:*** ***Is the definition of a fluorescent light ballast restricted to the smaller ones found in homes or can it be applied to larger industrial models?***

A: The PCB regulations define the term “fluorescent light ballast” at §761.3. The definition includes ballasts found in homes and larger industrial models found in commercial and industrial settings. It doesn’t refer to the overall size or location of the ballast.

8 ***Q:*** ***Are fluorescent light ballasts that contain PCBs <50 ppm regulated for disposal?***

A: No.

9 ***Q:*** ***How do I determine if a light ballast from a fluorescent light in a commercial building contains PCBs?***

A: If there is no label indicating that there are no PCBs, the Agency suggests two options. First, you could assume that the potting material contains PCBs at 50 ppm or greater and dispose of the ballast as PCB bulk product waste in accordance with §761.62. Alternatively, you could conduct a survey of the manufacturer and type of ballasts in use in the building and develop a random sampling plan for each manufacturer and type of ballast found and analyze the samples for PCBs. However, regardless of the results of the survey, you are responsible for the proper disposal of each ballast.

10 Q: Are there any cases where light ballasts fall under the household solid waste exemptions?

A: Light ballasts fall under the household solid waste exemptions in §761.63 if they are disposed of during routine maintenance at a house or a residential building.

11 Q: Is a ballast manufactured before 1978 regulated for disposal?

A: Yes. Materials containing PCBs that were disposed of or otherwise released to the environment before April 18, 1978, are generally not regulated for disposal under the current regulatory requirements. However, products manufactured before April 18, 1978, that have been in use since that time are regulated for disposal under the current requirements.

12 Q: My company operates a facility that recycles metal from fluorescent light ballasts. We physically separate potting material containing ≥50 ppm PCBs and any intact and non-leaking PCB small capacitors from the metals and then dispose of the PCBs under subpart D. Does my company need a disposal approval under subpart D?

A: No. Keep in mind that you must decontaminate any metal in contact with PCBs to the standards in §761.79.

13 Q: Is a ballast recycling facility required to have a commercial storage approval?

A: Yes, unless the facility at no time stores more than 500 gallons of liquid and/or non-liquid materials containing PCB waste that was generated by others. Regardless of the amount of PCBs stored, commercial storers must comply with §761.205.

§761.50(b)(2)(i) Fluorescent light ballasts containing PCB small capacitors

1. Q: Did the Disposal Amendments change the requirements for

disposing of small capacitors, such as those in motors and fluorescent light ballasts?

A: No. Unless you are a small capacitor manufacturer, you may dispose of intact and non-leaking small capacitors as municipal solid waste (see §761.60(b)(2)(ii)).

2. Q: Must facilities that dispose of non leaking small capacitors in a municipal landfill (i.e., less than one pound PCBs of capacitor weight) notify under Superfund?

A: No. This requirement was included in the proposed rule but, based on comments, was not included in the final rule.

3. Q: Can fluorescent light ballasts manufactured before 1978 that contain an intact and non-leaking PCB small capacitor be disposed of as a solid waste? Do these ballasts need to be tested to determine their PCB concentration? What are the storage, manifesting, and notification requirements for this disposal?

A: Under §761.50(b)(2)(i), ballasts that contain PCBs only in intact and non-leaking PCB small capacitors can be disposed of in a state approved solid waste landfill, regardless of date of manufacture or PCB concentration. There are no storage, manifesting, or notification requirements for these ballasts under TSCA.

§761.50(b)(2)(ii) Ballasts with PCBs in the potting material

1. Q: How must I dispose of fluorescent light ballasts with PCBs in the potting material?

A: This depends on the concentration of PCBs in the potting material and whether the ballast contains an intact or non-intact PCB small capacitor. If the PCB concentration of the potting material is <50 ppm and the ballast contains either no PCB small capacitor or an intact and non-leaking PCB small capacitor, you can dispose of the ballast as municipal solid waste (see §761.60(b)(2)(ii)). If the PCB concentration of the potting material is $\geq$50 ppm and the ballast contains either no PCB small capacitor or an intact and non-leaking PCB small capacitor, you can dispose of the ballast as PCB bulk product waste in a TSCA incinerator, a TSCA/RCRA landfill, a facility permitted, licensed, or registered by a state as a municipal or non-municipal non-hazardous waste landfill, or by means of an approved destruction method, decontamination, or risk-based disposal method (see §761.62). Regardless of the PCB concentration of the potting material, you must dispose of ballasts containing non-intact or leaking capacitors as PCB bulk product waste in accordance with §761.62(a) or (c).

2. Q: If the PCB concentration of the potting material in a fluorescent light ballast is unknown, for disposal purposes must it be assumed to be greater than 50 ppm?

A: No. PCBs are regulated for disposal based on their actual concentrations. No assumptions are required.

§761.50(b)(3) PCB remediation waste

General

1. Q: I spilled soil that contains PCBs ≥50 ppm onto concrete. After I clean up the soil, may I dispose of the concrete as a non-TSCA waste?

A: You must dispose of the concrete and the soil based on its "as found" concentration following §761.61. You are potentially subject to a penalty from spilling the soil.

§761.50(b)(3)(i) Pre-'78 waste

1. Q: A remediation contractor has exhumed drums of mixed waste that were landfilled 30 to 40 years ago. The drums contain PCBs at levels <50 ppm, with an average concentration of 7.2 ppm. The remediation contractor wants to send the <50 ppm material to another company that will process the waste to address the non-PCB components. The process will also thermally destroy the PCBs. Do the PCB regulations apply?

A: No. The PCB rules do not apply to waste disposed of prior to April 18, 1978, that is currently <50 ppm, regardless of the concentration of the original spill.

2. Q: If I find buried pieces of electrical equipment that I know were disposed of prior to 1978, must I remove the equipment and clean up the site?

A: Not unless the EPA Regional Administrator makes a finding that spills, leaks, or other uncontrolled releases or discharges from the site constitute ongoing disposal that may present an unreasonable risk of injury to health or the environment from exposure to PCBs at the site. If you decide voluntarily to remove the equipment and clean up the site, you must follow §761.61 in disposing of PCB remediation waste from the site. Dispose of pieces of electrical equipment as PCB Articles in accordance with §761.60(b).

3. Q: Do soils containing PCBs at concentrations greater than or equal to 50 ppm from a pre-1978 spill require a manifest?

A: Yes. Disposal of pre-'78 waste must conform to current regulatory requirements.

4. Q: Can PCB remediation wastes with a PCB concentration of less than 50 ppm, from a pre-1978 spill not cleaned up in accordance with §761.61, be sent to a municipal solid waste landfill?

A: Yes. Disposal of pre-'78 wastes at PCB concentrations <50 ppm are not regulated under TSCA.

5. Q: I found PCBs in soil at concentrations <25 ppm from an old release. May I move this soil freely on-site? May I move it to another site? May I use it as fill?

A: Yes. The PCB disposal rules do not apply to waste that is currently <50 ppm that was disposed of, spilled, or otherwise released into the environment prior to April 18, 1978.

6. Q: If a facility has a construction site that was contaminated before 1978, how should it manage excavated soil containing PCBs ≥50 ppm?

A: The regulations do not require you to clean up soil contaminated prior to 1978, unless the Regional Administrator first determines that the soil presents an unreasonable risk. However, if you voluntarily decide to clean up this site, then you must follow the requirements in §761.61 in disposing of PCB remediation waste from the site.

7. Q: Is a concrete surface contaminated with a pre-1978 spill of mineral oil regulated for cleanup and reuse?

A: The regulations do not require you to clean up concrete contaminated prior to 1978, unless the Regional Administrator first determines that an unreasonable risk exists. However, if you voluntarily decide to clean up the contaminated concrete, then you must follow the requirements in §761.61.

8. Q: Is a facility required to clean up soil with ≥50 ppm PCBs if the soil was contaminated from a pre-1978 spill? If the soil is cleaned, is it subject the remediation waste requirements in §761.61(a)?

A: The regulations do not require you to clean up soil contaminated prior to 1978, unless the Regional Administrator first determines that an unreasonable risk exists. However, if you voluntarily decide to clean up the contaminated soil, then you must follow the requirements in §761.61.

9. Q: If a pre -1978 release resulted in PCB soil levels <50 ppm (so that soil would not meet the definition of "remediation waste"), can the Regional Administrator require cleanup pursuant up TSCA?

A: No. Under §761.50(b)(3)(i)(A), the Regional Administrator can require cleanup based on a finding of unreasonable risk only if the PCB concentration as found at the site is ≥50 ppm.

§761.50(b)(3)(ii) Post-'78 waste

1. Q: Does §761.50(b)(3)(ii)(B) mean that EPA can still take enforcement action for unauthorized releases even if EPA reviews and approved a cleanup work plan?

A: Yes. Unlike the Spill Cleanup Policy under Subpart G, compliance with §761.61 does not create a presumption against enforcement for the initial illegal spill. However, in accordance with §761.61, you may dispose of PCB remediation waste at its "as found" concentration, whereas in accordance with subpart G, you must dispose of the cleanup waste as though it were the material spilled.

2. Q: How are intermingled pre- and post-1978 wastes regulated?

A: If the waste cannot be physically separated, you must manage it all as post-'78 waste.

3. ***Q:*** ***I am removing soil from a site that was contaminated by a spill of PCBs that occurred after July 2, 1979. The PCB concentrations in the soil at the site are all <50 ppm. Is this soil regulated for disposal?***

A: The soil is regulated for disposal if the concentration of the original spilled material was ≥ 50 ppm. However, you may be able to dispose of the material on site, depending on the cleanup method you use (self-implementing, performance-based, or risk-based). For more information, contact the Regional PCB Coordinator.

§761.50(b)(iii) Burden of proof

1. ***Q:*** ***Did EPA intend to change the burden of proving that PCBs were illegally disposed of at a site in 40 CFR § 761.50(b)(3)(iii)?***

A: No. 40 CFR § 761.50(b)(3)(iii) was intended to codify existing administrative case law on this point. Once EPA has made its prima facie case that PCBs were illegally disposed of at a site, the defendant has the burden of producing evidence that refutes EPA's prima facie case.

§761.50(b)(4) PCB bulk product waste

1 ***Q:*** ***Section 761.50(b)(4) regulates disposal of PCB bulk product waste if the waste was ≥50 ppm when removed from service. Understanding that there is no specific use authorization for materials covered with PCB contaminated paint, is there any burden on a generator to determine PCB concentration of these materials prior to removal from service?***

A: There is currently no use authorization for paint containing PCBs. However, there is no regulatory requirement to test paint in use to determine its PCB concentration. Paint containing PCBs at concentrations ≥ 50 ppm are regulated for disposal whether or not someone has measured their concentration. You may dispose of the dried paint based either on its PCB concentration under §761.62(a), on its leaching characteristics under §761.62(b), or in accordance with a risk-based approval under §761.62(c).

2 ***Q:*** ***Under §761.50(b)(4)(ii), are all pieces of equipment with painted surfaces defined as "PCB bulk product waste?"***

A: While the definition of "PCB bulk product waste" includes applied dried paint, whether or not the paint has been removed from the surface to which it was applied, the definition does not include PCB Items regulated for disposal under §761.60(b), such as transformers coated with paint containing PCBs. (See §761.3.)

3 Q: I need to dispose of a painted metal surface. There is no reason to believe that the paint contains PCBs, but it is suspected that the surface may have been exposed to PCBs in the past by virtue of its location. How do I determine its status for disposal?

A: If the paint contains PCBs that were added during its manufacture, the painted surface is PCB bulk product waste. If the paint contains PCBs that it absorbed as a result of a spill, the painted surface is PCB remediation waste.

4 Q: Can paint chips from the surface be analyzed to demonstrate that a painted metal surface is unregulated disposal?

A: Analyzing a bulk sample of paint removed from the surface will establish whether the paint contains PCBs, but will not establish whether the PCBs were added to the paint during manufacture or whether they were absorbed into the painted surface as a result of a spill. If you suspect that PCBs have spilled on the surface, it might be useful to wipe sample the surface before taking a bulk sample of the paint.

§761.50(b)(7) PCB/Radioactive waste

1 Q: How is the disposal of radioactive PCB waste regulated (i.e., dried applied paint)?

A: In accordance with §761.50(b)(7)(ii), any person disposing of PCB/radioactive waste must do so taking into account both its PCB concentration and its radioactive properties. If, taking into account only the properties of the PCBs in the waste (and not the radioactive properties of the waste), the waste meets the requirements for disposal in a facility permitted, licensed, or registered by a State as a municipal or non-municipal non-hazardous waste landfill (e.g., PCB bulk product waste under Sec. 761.62(b)(1)), then the person may dispose of the PCB/radioactive waste, without regard to the PCB component of the waste, on the basis of its radioactive properties in accordance with all applicable requirements for the radioactive component of the waste.

For example, applied dried paint that meets the definition of "PCB bulk product waste" (i.e., where the PCBs were added to the paint during manufacture) may be disposed of in a facility permitted, licensed, or registered by a State as a municipal or non-municipal non-hazardous waste landfill. (See §761.62(b)(1)(i).) Therefore, radioactive applied dried paint, which meets the definition of PCB bulk product waste and which contains PCBs at any concentration, may be disposed of on the basis of its radioactive properties in accordance with all applicable requirements for the radioactive component of the waste.

2 Q: Please confirm that §761.50(b)(7) authorizes the disposal of radioactive, non-liquid PCB wastes into low-level radioactive waste disposal facilities operated under the purview of the Atomic Energy Act (e.g. DOE). Those facilities are not subject to state permitting and licensing and thus do not possess state permits or licenses as described in that paragraph and in §761.61(a)(5)(v)(A).

A: Under §761.50(b)(7), as added by the PCB Disposal Amendments (63 FR 35384, June 29, 1998), you may dispose of PCB/radioactive waste on the basis of its radioactive properties, without regard to the PCB component of the waste, if the PCB disposal rules allow the waste to be disposed of in a facility permitted, licensed, or registered by a State as a municipal or non-municipal non-hazardous waste landfill. The PCB disposal rules allow materials containing PCBs to be disposed of in this type of landfill only if the PCB concentration is low, or the PCBs are not likely to leach from the material. We reasoned that a facility authorized to accept radionuclides would be sited, designed, constructed and operated in such a manner as to attenuate PCBs and keep them from contaminating any underlying aquifer. Therefore, disposal of these low-concentration or non-leaching PCBs in a radioactive waste disposal facility would not present an unreasonable risk of injury to human health or the environment. This should clarify that EPA's concern is not that a particular municipal or non-municipal non-hazardous waste landfill be available and permitted to accept the PCB/radioactive waste, but rather that the PCB characteristics of the waste are such that they can be managed in a radioactive waste disposal facility.

3 Q: Should PCB/radioactive remediation waste be characterized based on the source concentration or the as-found concentration?

A: You may dispose of PCB remediation waste based on its as-found concentration. (See §761.61.) For radioactive PCB remediation waste, you must also consider the radioactive properties of the waste.

4 Q: ***My state allows PCB/radioactive waste to be disposed of in a radioactive waste landfill. May I send that waste to another state for disposal, regardless of the second state's requirements for the PCB component of the PCB/radioactive waste?***

A: Under the PCB regulations, you may dispose of PCB/radioactive waste on the basis of its radioactive properties, as long as the PCB component of the waste qualifies for disposal in a facility permitted, licensed, or registered by a State as a municipal or non-municipal non-hazardous waste landfill. Federal, State or local regulations or permits may govern what type of waste can be disposed of in a radioactive waste landfill. Check with the landfill where you plan to dispose of the waste to make sure they are able to accept it.

5 Q: ***Is it possible to correlate the concentration of PCBs with the radioactive content of a material (to reduce analytical burden)? For example, could treatment of a PCB/radioactive spill be based on the level of radioactivity?***

A: The only provision for the use of a surrogate measurement to determine a PCB concentration is the use of subpart Q. Subpart Q requires comparison analysis of a proposed method to a standard PCB analysis. You might be able to use measurements of radioactivity to estimate the extent of a spill, however, such measurements would not be a regulatory substitute for measuring the PCB concentration for purposes of post-cleanup verification.

6 Q: ***My facility disposes of drained PCB-Contaminated transformer carcasses that are also radioactive. Under §761.60(b)(6)(ii)(A)(2), I could dispose of the drained PCB-Contaminated carcasses in a municipal or non-municipal non-hazardous waste landfill if not for the radioactive component of the waste. Does this mean, under §761.50(b)(7), that I may dispose of the carcasses in a smelter purely on the basis of the radioactive component of the waste?***

A: No. Section 761.50(b)(7) applies only to waste that will be placed in a land disposal facility.

§761.50(b)(8) Porous surfaces

1. Q: ***§761.50(b)(8) indicates that all porous surfaces, not just those covered under self-implementation, must be disposed of per***

§761.61(a)(5)(iii). Does this apply to PCB remediation waste generated as part of a risk based cleanup approved under §761.61(c)?

A: EPA is implementing a technical correction to §761.50(b)(8) to clarify that porous surfaces meeting the definition of "PCB remediation waste" must be disposed of in accordance with §761.61.

2. Q: May I use a wipe test to determine the PCB concentration of concrete for purposes of determining whether a cleanup is complete or necessary?

A: You may use a wipe sample to determine the PCB concentration of concrete that has been contaminated by a spill of PCBs less than 72 hours old (see §761.79(b)(4)). For concrete contaminated by older spills, you must determine the PCB concentration by analyzing a bulk sample of the concrete.

3. Q: What is the numerical cleanup standard for old PCB spills to concrete?

A: Concrete contaminated with a spill of PCBs that meets the definition of "PCB remediation waste" at §761.3 is regulated at its as-found concentration under §761.61. There are three options for disposal under this section. The first option, self-implementing cleanup and disposal of PCB remediation waste (§761.61(a)) has cleanup levels but also has numerous qualifying requirements before you can use the levels. The second option (§761.61(b)) requires disposal of all concrete containing PCBs. The third option (§761.61(c)) requires you to submit an application to the EPA Regional Administrator with your own proposal for disposal of the concrete. The standard you must use to justify your proposal is no unreasonable risk of injury to health and the environment.

§761.60 Disposal Requirements

General

1. Q: When I sample an article to test for PCB concentration, should I take the sample before the article is taken out of service, or before it is disposed of?

A: Either is acceptable, as long as the article is correctly characterized prior to disposal.

2. Q: ***I plan to dispose of PCB Articles by draining the liquid, adding absorbent, and landfilling the drained PCB Articles. Must I notify the landfill before sending this waste?***

A: No. Disposal options for PCB-Contaminated Articles, including electrical equipment, from which all free-flowing liquid has been removed, include a State-permitted municipal or non-municipal non-hazardous waste landfill and a TSCA chemical waste landfill. (See §761.60(b)(6).) You may dispose of PCB Transformers in a TSCA chemical waste landfill after removing all free-flowing liquid and flushing with solvent. (See §761.60(b)(1).) Neither of these provisions requires notification prior to disposal. The PCB rules do not require that absorbent be added to either type of equipment before it can be land disposed. If you do add absorbent, it would be prudent to check with the landfill, as it may have restrictions on disposal of absorbents.

§761.60(a) PCB liquids

1. Q: ***May I dispose of liquids containing ≥50 ppm PCBs in a landfill?***

A: No, with one exception. The only liquids containing ≥50 ppm PCBs that you may dispose of in a landfill are non-ignitable PCB liquids at actual concentrations <500 ppm that are incidentally derived from PCB Articles or non-liquid PCB wastes (for example, precipitation, condensation, leachate, or load separation). The PCB regulations allow you to dispose of these liquids in a chemical waste landfill that complies with §761.75. However, even though the PCB regulations allow the disposal of certain liquids in landfills, the disposal of the liquids in the landfill may be prohibited by other Federal, state or local regulations or permits.

You must dispose of all other liquids containing ≥50 ppm PCBs either by decontamination under §761.79, or, depending on the concentration of the liquid waste, in an incinerator that complies with §761.70 or a high efficiency boiler in accordance with §761.71.

§761.60(b)(1) PCB Transformers

1. Q: ***How must I drain all free-flowing liquid from transformers?***

A: You must "remove" free-flowing liquids from electrical equipment (see §761.60(b)). Draining the equipment is one option. Other options are pumping, vacuuming, or any other physical method.

2. **Q:** ***What are the disposal options for solvents used to soak drained PCB Transformers prior to disposal under §761.60(b)(1)(i)(B)?***

A: Dispose of these solvents in an incinerator that complies with §761.70 or decontaminate them in accordance with §761.79..

§761.60(b)(4) PCB-Contaminated Electrical Equipment

1. **Q:** ***It is impossible to drain PCB-contaminated transformers dry without having some oil leak back out of the paper and windings during shipment and storage. What is the best way to properly recycle the carcasses?***

A: EPA recognizes that it can be difficult to remove liquid from the inner workings of electrical equipment, whether by draining, pumping, vacuuming, or another removal method. EPA suggests you drain, pump, or otherwise remove the liquid twice so that as little liquid as possible remains in the unit when you dispose of it. A facility that receives electrical equipment carcasses for recycling must capture all free-flowing liquid when it disassembles the carcasses and dispose of the liquid in accordance with §761.60(a). (See §761.60(b)(6)(ii)(A).) The recycler may remove liquid that remains as a thin coating on metal through one of the decontamination processes described in §761.79, properly disposing of decontamination waste such as contaminated solvent.

§761.60(b)(5) Abandonment and Disposal of Natural Gas Pipeline Systems

§761.60(b)(5)(i) Abandonment

1. **Q:** ***A company plans to abandon a section of pipe that is a dead end line. The pipe has no sources, but does have drips. Neither the pipe nor the drips have ever been tested for PCBs, nor have any liquids ever been removed from the pipe. The pipe may be filled with water due to leakage. Testing done upstream detected no PCBs. What is required for abandonment?***

A: Pipe that contains <50 ppm PCBs is not regulated for disposal, including abandonment. There is no need to test for PCBs if the system has never shown evidence of PCB contamination. As long as the natural gas pipeline system upstream has never had PCBs $\geq$50 ppm and there are no sources, then testing is not necessary.

2. Q: A local natural gas utility company has historical information showing PCBs <50 ppm in its distribution system and drip liquids. A subsequent testing program using wipe tests of the entire distribution area (incoming interconnect feeds, area loops and the internal surfaces of low-lying pipe) shows PCBs <50 ppm. Is this information satisfactory for characterization of the area piping network? Does the local distribution company have to ensure that all liquids are drained from abandoned pipe or can it just cap the ends and abandon the pipe in place?

A: Until the abandonment occurs, the pipe is technically "in use" and the regulations at §761.30(i) apply. At the time of abandonment, if there is no reason to believe that PCBs are present in the system, then there is no reason to test. There is no requirement to test under §761.60(b)(5). However, there is a requirement to determine if your natural gas pipeline system is subject to the PCB disposal regulations. If you choose not to test, and the pipe is later discovered to be regulated, you will be in violation of the regulations. If the pipe contains PCBs <50 ppm, then the pipe should be abandoned according to best management practice. If the pipe contains PCBs $\geq$50 ppm, then the pipe should be abandoned according to §761.60(b)(5), which requires the removal of free flowing liquids, except for the provision in §761.60(b)(5)(i)(D).

3. Q: A company purchased property, prior to August 28, 1998, that had an abandoned pipe, sealed at both ends. There was documentation that PCBs were <50 ppm. What must the company do to comply with the Disposal Amendments?

A: Since the pipe has already been abandoned prior to the effective date of August 28, 1998, the new rule does not apply as it is prospective.

4. Q: In §761.60(b)(5)(i), what is meant by "sealing ends"? What was the intent and how permanent does the sealing need to be? The normal practice for this company is to cap with plastic caps and secure with duct tape. If a pipe is grouted they use a more permanent method such as welding.

A: The intent was to permanently keep things from entering and exiting the pipe. There was no specific method required, but best management practice should be applied to prevent releases and exposure and to keep your liability at a minimum. EPA would consider both welding metal caps to metal pipes and sealing plastic caps to plastic pipe with the glue used to join pipe as permanent options, but would not consider plastic caps secured with duct tape as an acceptable option.

5. Q: Must a pipe segment to be abandoned or disposed of be pigged if there are no liquids present at the two ends of the segment?

A: Prior to abandonment or disposal, all free flowing liquids must be removed from the pipe. The regulations do not specify how to remove the liquids, only that all free flowing liquids are removed prior to abandonment or disposal. Just because both ends of the pipe are dry doesn't ensure that the entire pipe is dry. The low points of the pipeline system can be located and drained or the pipe can be pigged.

6. Q: Can large pipe (>4" diameter) be abandoned if wipe tests show 50-500 ppm PCBs? Can it be abandoned using Nitrogen Gas, caps and Cathodic Protection?

A: PCB-Contaminated natural gas pipe of any diameter can be abandoned in place if it has been characterized, has no free flowing liquids, and is sealed at each end. (40 C.F.R.§761.60(b)(5)(i)(B)). Pipe that is characterized above 500 ppm must be drained, sealed at all ends, and either decontaminated or filled to 50% or more of its volume with grout. For >500 ppm pipe the intent of the grouting requirements is to permanently prohibit reuse of the pipe by a third party. Therefore, to utilize an alternative method the company would have to obtain EPA approval under §761.61(c), and would have to demonstrate that the alternative achieves permanent prevention against reuse.

7. Q: Can caution tape be used in the abandonment process to alert parties that pipe was contaminated?

A: Although this procedure could be submitted as an alternate disposal measure under the risk-based approach in §761.61(c), EPA is concerned that this option would not permanently preclude reuse.

<u>Small Diameter Pipe</u>

1. Q: Does small diameter pipe that contains PCBs have to be characterized before abandonment?

A: No, characterization is not required for small diameter pipe, i.e., pipe having a nominal inside diameter of ≤four inches. (See §761.60(b)(5)(i)(A).) However, if the pipe is in use before the abandonment takes place, then all applicable requirements under §761.30(i) need to be followed, including characterization.

Leaking of abandoned pipe

1. Q: How does EPA plan to deal with pipe abandoned before August 28, 1998 if the pipe is later found to leak liquids with a PCB concentration ≥50 ppm?

A: If the pipe leaks liquids with a PCB concentration ≥ 50 ppm, then it is considered a spill and the waste from the spill needs to be cleaned up under §761.61.

§761.60(b)(5)(ii) Removal with subsequent action

General

1. Q: Must a company characterize gas pipe that is to be removed from service and "disposed of" in a scrap metal recovery oven or smelter, pursuant to §761.60(b)(5)(ii)(A)?

A: Natural gas pipe of less than 4" nominal inside diameter is not required to be characterized prior to disposal in a scrap metal recovery oven or smelter, operating in accordance with §761.72 (see, §761.60(b)(5)(ii)(A)(2)). Natural gas pipe greater than 4" nominal inside diameter must be characterized, pursuant to §761.60(b)(5)(iii), prior to disposal in either a scrap metal recovery oven or smelter. Such disposal is authorized only if the pipe is "PCB-Contaminated" (i.e., 50 to < 500 ppm liquids or 10µg/100 cm^2 to < 100µg/100 cm^2 wipe sample). In addition, §761.79(b)(3)(ii) sets a decontamination standard for disposal of non-porous surfaces in a smelter of 100µg/100 cm^2.

Decontamination

1. Q: What method may I use to decontaminate gas pipeline to the standard for unrestricted use in §761.79(b)(3)(i)(A)?

A: You may use any decontamination method specified in §761.79(b), provided confirmatory sampling is done in accordance with Subpart P to verify that the standard for non-porous surfaces, ≤10 ug/100 cm^2, has been met. You may also use the decontamination methods in §761.79(c)(3) or (4) or §761.79(h), per §761.60(b)(5)(i)(D).

2. Q: A company plans to decontaminate natural gas pipe to $\leq$10ug/100cm^2 using §761.79(b)(3). Decontamination under this paragraph also requires confirmatory sampling in accordance with Subpart P. Can the company use Subpart M instead of Subpart P, as Subpart M was specifically written for wipe sampling natural gas pipe?

A: In this situation, if the company wants to use Subpart M in place of Subpart P, they should apply for an alternate sampling approval under §761.79(h)(3). This requires submitting a letter to the EPA Regional Administrator requesting the use of Subpart M in place of Subpart P. §761.79(h)(3) outlines what information is required in this application. Until the application is approved by the EPA Regional Administrator, Subpart M cannot be used.

<u>Storage for disposal</u>

1. Q: What are the physical requirements for storage of dry PCB pipe for disposal?

A: Store dry pipe in accordance with §761.65. Dry pipe may be treated as remediation waste and stored temporarily in accordance with §761.65(c)(9).

§761.60(b)(5)(iii) Characterization of natural gas pipeline systems by PCB concentration in condensate

<u>Historical records</u>

1. Q: Can historical records be used to establish PCB concentration for pipeline abandonments or disposal?

A: No. Historical data may not be used for purposes of abandonment or removal of natural gas pipeline systems containing $\geq$50 ppm PCBs under §761.60(b)(5). Section 761.60(b)(5)(iii) provides the characterization requirements for abandonment or removal of natural gas pipeline. Under this section, you must collect samples within 72 hours after the last transmission of gas through the system when abandoning pipe, or after the last transmission of gas through the system when removing the pipe for disposal.

2. Q: A particular pipeline system has an "indicator" of PCBs. If an oil-like sludge is present in this system, then the system will most likely contain PCBs. If there is no sludge, then there are usually no PCBs present in this system. Approximately 300 drips have been tested and they have found no PCBs in the pipeline system. Additionally, there is no oil-like sludge present. The pipeline system contains no sources. Can this historical data and generator knowledge be used to avoid sampling for use and abandonment?

A: The idea behind requiring sampling for use authorization was to sample successively if you had a PCB hit or you knew there were PCBs in the system. Under §761.30(i)(1)(iii)(A)(5), you must do successive sampling until PCBs are <50 ppm for two consecutive testings, with a minimum interval of 180 days between tests. However, in this particular case, if your test results show that there are no PCB sources ≥50 ppm in the system, then there is no reason to sample.

For abandonment, sample if you believe there may be PCBs ≥50 ppm in the system. Even if PCBs were ≥50 ppm, depending on which option is chosen, you may not need to sample. If sampling is required, then you must characterize the natural gas pipeline system in accordance with §761.60(b)(5)(iii).

<u>Sampling</u>

1. Q: What is the sampling requirement when abandoning pipe?

A: According to §761.60(b)(5)(iii), if there are liquids present, then characterize the pipe based on the concentration of PCBs in the organic condensate. However, if there are no liquids present, then you must do a wipe sample in accordance with Subpart M (§761.250). For abandonment of pipe, §761.250(b) requires that, at a minimum, all ends of all sections of pipe be sampled. Section 761.250(b)(1) and (2) provide sampling procedures for pipe in specific locations. Section 761.250(b)(3) provides a sampling procedure to collect samples in addition to those that are required. This procedure is optional.

2.. Q: Section 761.60(b)(5)(iii) addresses characterization of pipe by the concentration of the condensate. What do you do if you can't get to the pipe within 72 hours of the last transmission of gas? For

example, how does this apply to an old piece of pipe? Are there any contingencies?

A: This provision was intended to help provide a more accurate concentration of PCBs in the condensate. The longer the PCBs remain in the pipe after the last transmission of gas, the more likely it is that the PCBs will concentrate, increasing the concentration of the PCBs in the condensate. If organic liquids are present, the liquids should be collected within 72 hours of the final transmission of natural gas through the pipeline system. If there are no free flowing liquids present, a wipe sample should be taken after the final transmission of natural gas through the pipeline system. In most cases, it should be known well in advance that a pipeline system will be abandoned or removed for disposal. Therefore, it should not be difficult to comply. If it is an emergency abandonment or removal and it is not possible to sample the condensate in the pipe within 72 hours, please contact the Office of Enforcement for information on compliance. Also, if you are dealing with an old piece of pipe, please contact the Office of Enforcement.

3. ***Q: For large pipes in excess of 4 inch nominal interior diameter, are there limits on the length of pipe to be tested and to be abandoned under §761.60(b)(5)?***

A: There are no restrictions on the length of pipe for abandonment or testing for abandonment.

4. Q: How many samples must I take for abandoned pipe?

A: At a minimum, §761.250(b) requires you to sample all ends of all pipeline sections. Under §761.250(b)(3), there are procedures for selecting other locations if additional sampling is desired.

5. Q: How can appurtenances removed from a pipeline be characterized for disposal if the pipeline is not tested?

A: Natural gas pipeline systems, which include appurtenances, must be characterized based on the concentration of PCBs in the organic condensate (§761.60(b)(5)(iii)). If there are no liquids present in the appurtenance, then the appurtenance could be disposed of as PCB remediation waste under §761.61. Section 761.61(b)(2)(ii) allows decontamination in accordance with §761.79. Under §761.79(b)(3)(i)(A) you may use Subpart P to sample and characterize the appurtenance.

Additionally, you may submit an alternate sampling plan under §761.61(c) or §761.79(h).

6. Q: How is a short section of greater than four inch diameter gas pipeline tested for disposal? For instance, for a 30 foot section of eight inch pipe, the seven samples called for in §761.247 of Subpart M seem excessive.

A: Under §761.60(b)(5)(ii), there are several options to dispose of the pipe, and only one of these options requires sampling for PCB contamination, disposal of PCB-Contaminated pipe. If you choose this option, then under §761.247, if you only have one pipe segment (a pipe segment can be up to 40 feet in length), you only need one sample. If you have more than one segment however, you need more than one sample. As an alternative to the Subpart M sampling procedure, you may request a risk-based sampling approval under §761.61(c).

7. Q: When disposing of natural gas pipe pursuant to §761.60(b)(5)(ii)(A)(1), is it acceptable to characterize the pipe using only samples from organic liquids collected at condensate liquid collection points, or must the concentration be determined in accordance with Subpart M?

A: Characterize the pipe in accordance with §761.60(b)(5)(iii). Characterize pipe using the organic liquids collected at condensate collection points. If no liquids are present, collect wipe samples in accordance with Subpart M.

8. Q: A 320 foot segment of pipe will be removed for disposal. PCBs are present in the system, but the level of contamination is unknown. The system slopes, so there are no liquids present. A wipe test will be done to determine the level of PCBs. If the result is $\leq$10 µg/100 cm^2, is the pipe regulated? For this 320 foot segment, do you have to apply the sampling method in §761.247?

A: The sampling method for disposal of natural gas pipeline systems is in §761.247. Once you have sampled the pipeline segment, you may use §761.257 in order to determine the regulatory status of the sampled pipe segment. If the wipe test result is $\leq$10 ug/100 cm^2, then the pipe is not regulated for disposal under §761.60(b)(5). Since you know the system contains PCBs, it may be more beneficial to forego sampling and just assume the entire system contains PCBs $\geq$50 ppm, and dispose in accordance with §761.60(b)(5)(ii)(B). Otherwise, you must use the method in §761.247 to sample the pipe or apply for a risk-based alternative sampling approval under §761.61(c).

9. **Q:** ***Do the regulations permit wipe sampling of small diameter pipe, with a diameter of 4 inches or less?***

A: The regulations do not include a protocol for wipe sampling small diameter pipe. All comments that were received regarding this issue stated that it was difficult, if not impossible, to wipe sample pipe with a diameter of 4 inches or less. These commenters stated that other options should be made available. There were no comments requesting wipe sampling of small diameter pipe. Information received by EPA shows that it is difficult to obtain enough constant pressure when sampling these small pipes. Thus, the results are not consistent. If you want to wipe sample small diameter pipe, you must apply for an alternate sampling method under §761.61(c) (or under §761.79(h) if you plan to dispose of the pipeline by decontaminating it).

10 Q: ***If I sample a main line and find no PCBs, may I assume that all of the service lines that come off of it are also non-PCB?***

A: No, not necessarily. When characterizing a pipe under §761.30(i) or §761.60(b)(5), the PCB level in the condensate is assumed to extend only to the next liquid collection point downstream. Thus, further characterization may be necessary.

11 Q: ***If I have only one liquid collection point that I sample within 72 hours of the last gas transmission and find it is ≥50 ppm, may I wipe sample other sections of pipe below that point and remove those sections for disposal based on a lower concentration, if it is ≤10 μg/100 cm^2? Along a length of 5000 feet of pipe, there are no other liquid collection points to sample below the one that is ≥50 ppm.***

A: Under §761.60(b)(5)(iii), you must characterize natural gas pipeline based on the concentration of PCBs in the organic condensate. Therefore, if there are liquids present, even just at one collection point, the pipeline must be characterized based on that sample. The only way you could use a wipe sample in this situation is if you submit an alternate sampling plan under §761.61(c) (or under §761.79(h) if you plan to dispose of the pipeline by decontaminating it).

12 Q: ***What options are available for wipe sampling irregular surfaces such***

as internal parts of compressors?

A: Subpart P, 40 C.F.R. §761.308 and §761.316(c) prescribe sampling protocols for flat and small irregular surfaces, respectively. In the event neither protocol is acceptable, companies can (a) utilize methods approved by EPA in previously-issued TSCA Alternative Technology Permits, provided the permit is still in effect, or (b) apply to the appropriate EPA Regional Office for an alternative sampling approval pursuant to 40 C.F.R. §761.79(h), for decontamination, or 40 C.F.R. §761.61(c), for disposal.

13 Q: Where a segment of pipe to be abandoned in place has more than two "ends," must all ends be sampled and capped, or just the main ends?

A: All ends must be capped; in addition, if sampling is required for characterization for purposes of abandonment then all ends must be sampled in accordance with Subpart M, provided there are no organic liquids present for analysis.

14 Q: When all of a main in a subdivision is being renewed, the main may be cut in 30 different places. Is it necessary to test at every one of these places even if they are not very far away from each other, or will testing of the main feeds into the area be enough without having to breakup the pipeline segment every 40 feet?

A: The regulations would require that, for characterization purposes each cut location should be tested. To avoid this, a company should apply for a §761.61(c) risk based alternative sampling approval. The applicant would need to state in the application the basis of its presumption that the different areas of the pipe within the subdivision would contain the same level of contamination as the contamination in the main feeds.

<u>Porous surfaces</u>

1. Q: A company needs to abandon some old pipe that contains all porous surfaces. These porous surfaces are not due to the thin porous coating used to prevent corrosion and there are no liquids present. When sampling pipe for abandonment does one need to be concerned with the presence of porous surfaces?

A: Yes. You must characterize a natural gas pipeline system by analyzing organic liquids collected at the condensate collection points (see §761.60(b)(5)(iii)). If there are no liquids present you must wipe sample in accordance with Subpart M, §761.250(a)(2). Select the proper sampling position along the pipe by following the directions in §761.247 (c) and (d). Then, according to §761.247(c)(3)(iii), if the entire population of pipe to be wipe sampled is porous and there are no non-porous surfaces available, assume that the pipe contains PCBs ≥50 ppm but <500 ppm and is PCB-Contaminated. Subsequently, an appropriate provision in §761.60(b)(5)(i) must be used to abandon the pipe. If you do not want to assume that the pipe is PCB-Contaminated, then you may apply for an alternate sampling plan under §761.61(c).

§761.60(b)(5)(iv) Disposal of pipeline liquids

1. Q: Section 761.60(b)(5)(iv)(B) allows gas pipeline liquids containing PCB concentrations of <50 ppm to be burned for energy recovery per §761.20(e). Can this waste be disposed of rather than burned for energy recovery? Is it subject to storage, marking, and manifest requirements if the PCB concentration is <50 ppm?

A: The waste can be disposed of as a non-PCB waste since it is <50 ppm. The waste is not subject to the storage, marking, and manifest requirements for PCB waste when it is <50 ppm.

2 Q: Do you need a manifest in order to transport pipeline liquids with PCBs to a consolidation site before disposal?

A: No, you do not need a manifest if you are transporting the liquids to your own property or a “related company”, for purposes of consolidation. The consolidation site would not be a “Commercial storer of PCB waste” under the definition at §761.3, since the storage activities do not involve waste generated by others.

3 Q: How must a company treat water that comes into contact with and is therefore contaminated with PCBs?

A: If the liquid is just water, not associated with a pipeline, such as runoff from a contaminated transformer pad, then it should be treated in accordance with the disposal requirements at §761.60 for PCB liquids, or with the decontamination standards for water containing PCBs at §761.79(b)(1) . If the water is liquid removed from a pipeline (i.e. pipeline liquids), then it should be treated as PCB remediation waste in accordance with §761.61(a)(5)(iv). A technical correction will be made to

§761.30(i)(5)(i). The phrase “in accordance with §761.60(a)” will be replaced with the phrase “in accordance with §761.61(a)(5)(iv)”.

§761.60(b)(6) PCB-Contaminated Articles

1. Q: Does EPA encourage recycling of PCB-Contaminated Articles?

A: EPA included decontamination provisions in the Disposal Amendments at §761.79 in part to address questions on removing PCBs from reusable materials. Decontamination is a disposal option for PCB-Contaminated Articles (see §761.60(b)(6)(ii)(A)(*1*)). There is no regulatory requirement to use PCB disposal options which result in recycling instead of or in preference to disposal options which do not result in recycling.

2. Q: When I dispose of a drained PCB-Contaminated Article in a municipal or non-municipal, non-hazardous waste landfill, must I notify the landfill as is required for PCB bulk product waste?

A: No.

3. Q: For a facility sending PCB-Contaminated Articles, such as electrical equipment, to an industrial furnace, what is the responsibility of the facility to verify that the smelter is operating correctly under §761.72?

A: The facility generating the PCB waste is strictly liable for its proper disposal. The generator therefore is responsible for determining whether the smelter or other disposal facility meets the regulatory requirements for disposing of the generator’s waste.

4. Q: Given that storage for disposal of drained PCB-Contaminated Articles is not regulated, is this equipment exempt from monthly storage inspections and can it be stored for disposal at any location?

A: Yes.

5. Q: If I store a drained PCB-Contaminated transformer for disposal for more than nine months, must I file an exception report?

A: Storage for disposal of drained PCB-contaminated articles, including transformers, is not regulated (see §761.60(b)(6)(ii)(B)). Therefore, neither the one-year disposal requirement nor the one-year exception reporting requirement apply to the waste.

6. Q: Now that drained PCB-Contaminated transformers are regulated for disposal, must I manifest them? If so, must I include them on the annual document log?

A: Manifesting and recordkeeping requirements do not apply to PCB-Contaminated Articles from which all free-flowing liquids have been removed (see §761.60(b)(6)(ii)(C)).

7. Q: Must I mark a drained PCB-Contaminated Article with the M_L? May I remove the mark prior to sending the drained article to a municipal waste landfill?

A: You are not required to mark PCB-Contaminated Electrical Equipment (see §761.40(c)(1)). For equipment that does require a mark, the regulations do not allow you to remove the mark at the time of disposal.

§761.60(b)(8) Dermal and Inhalation Protection

1. Q: Does the requirement to protect against dermal and inhalation exposure to PCBs apply only to liquid PCBs, or are powders and intact non-liquids also included?

A: Persons disposing of PCB Articles must be protected from dermal and inhalation exposure to PCBs in whatever form.

2. Q: Is it the generator's responsibility to determine the appropriate dermal protection for handling PCB-Contaminated surfaces? What are some appropriate examples? Why doesn't the rule specify the type of protective equipment personnel are required to have?

A: Yes, the generator must determine what is appropriate dermal protection. Use any type of equipment appropriate to protect the person handling the contaminated materials. The rule does not specify the type of equipment to use because this will vary from one disposal scenario to the next. If paint chips are being handled, wearing latex gloves is a good example of appropriate dermal protection; however, latex gloves would not be suitable protection for handling liquid PCBs.

3. Q: How is personal protective equipment generated from routine

activities at PCB storage and disposal facilities regulated for disposal?

A: Dispose of this waste as PCB remediation waste in accordance with §761.61(a)(5)(v).

§761.60(e) Alternate disposal approvals

1. Q: May I decontaminate a PCB Transformer under a §761.60(e) approval?

A: No. Under §761.60(e), EPA approves alternate disposal technologies that are equivalent to incineration. Decontamination standards and procedures are set out in §761.79. Generally, decontamination is not appropriate for intact electrical equipment. However, you may apply to the EPA Regional Administrator for a risk-based decontamination approval under §761.79(h). The EPA Regional Administrator will decide whether decontamination is appropriate under your particular circumstances.

§761.60(g) Testing Procedures

1. Q: Is a field screening kit such as a chloronol test acceptable for characterizing PCB electrical equipment and mineral oil for disposal?

A: No. You must conduct chemical analysis using gas chromatography (see §761.60(g)(1)(iii)).

§761.60(j) Disposal of Research and Development PCB Waste

Definition of "research and development (R&D) for PCB disposal"

1. Q: Are samples of waste used in treatability studies covered by the self-implementing provisions for research and development for PCB disposal?

A: The definition of "research and development (R&D) for PCB disposal" includes treatability studies for PCB disposal technologies which have not been approved.

September 2001 Version

General

1. **Q:** ***Do the R&D for PCB disposal requirements apply only to material with a PCB concentration that is known or assumed to be ≥50 ppm?***

   A: The regulations affecting disposal of PCBs apply generally to PCBs ≥50 ppm or to PCBs that are <50 ppm as a result of dilution. If you plan to conduct R&D for disposal activities with waste at these concentrations, you must either do so in accordance with the provisions for self-implementing R&D for PCB disposal (§761.60(j)(1) and (2)), or get an R&D for PCB disposal approval (§761.60(j)(3)).

2. **Q:** ***If a facility has two disposal technologies and studies wastes from multiple generators in each technology, does the facility have to notify EPA for each of the two technologies, or for each waste source?***

   A: If your facility has two technologies that treat waste from multiple sources, you must notify EPA for each technology. You do not need to notify for each waste source.

3. **Q:** ***Do the annual limits on volume of waste (500 gallons or 70 cubic feet) apply to each technology, or to the source of material used in the study?***

   A: A facility may treat no more than 500 gallons or 70 cubic feet of liquid or non-liquid waste per year. These amounts are cumulative. The number of sources of waste and the number of treatment technologies the facility conducts do not affect these limits.

4. **Q:** ***Does the 10,000 ppm limit apply to each sample that I use in a treatability study?***

   A: Yes, the limit applies to each individual sample that you use. No single sample may exceed a concentration of 10,000 ppm PCBs.

5. **Q:** ***May I store treatability study material in facilities other than those described in §761.65(b)?***

   A: Not without an alternate storage approval issued under §761.61(c) or §761.62(c).

6. Q: ***Section 761.60(j)(1)(vi) states that all wastes produced from self-implementing R&D for PCB disposal activities are regulated for disposal at their undiluted PCB concentration; however §761.64 allows disposal of certain laboratory wastes associated with R&D at their post R&D concentration (that is, at their concentration at the time of disposal). Why do these provisions conflict?***

A: The large amount of process wastes from self-implementing R&D for PCB disposal activities is regulated for disposal under §761.60(j)(1)(vi), not under §761.64. Section §761.64 is intended to address only the small quantities of waste generated during chemical analysis of wastes or from scientific studies not related to disposal. The only portion of §761.60(j) wastes which may be disposed of in accordance with §761.64 are the portions which have been analyzed for purposes of determining the concentration of the waste prior to, during, or after the disposal research. The large amount of process wastes, which are treated during the disposal process, are regulated for disposal at their undiluted PCB concentration prior to treatment.

7. Q: ***Section 761.60(j)(1)(vi) states that laboratory instrumentation must be disposed of. Why can't laboratory instrumentation that's contaminated be decontaminated and reused, rather than disposed of, where decontamination is feasible?***

A: EPA did not intend this provision to mean that you cannot reuse laboratory instruments. However, at the end of the equipment's useful life, you must dispose of it based on the pre-treatment concentration of the PCBs that contaminated it. You do not need to decontaminate laboratory instruments after each use. However, when the instrument is cleaned during normal maintenance or according to the manufacturer's recommendations, the residual PCB-containing waste must be disposed of in accordance with §761.64. Instruments must be decontaminated in accordance with §761.79 prior to distribution in commerce.

8. Q: ***Must I manifest waste from R&D for PCB disposal?***

A: You must manifest wastes from R&D for PCB disposal activities that are shipped from the R&D facility to an approved PCB storage or disposal facility. However, you do not need to manifest PCB materials being shipped from the lab back to the source. (See §761.60(j)(1)(vii).)

§761.60(j)(3) R&D for PCB disposal approval

1. Q: Previous to the new rule, when R&D permits still existed, it was common for a project manager to receive a sample for testing 24-48 hours after the initial call and to begin the study immediately. It is widely believed among these managers that the 30 day notification lag will adversely impact their ability to serve the clients in a timely fashion. Would it be acceptable for a laboratory manager to send the Regional Administrator a "notification of intent to perform" letter annually and another notification upon receipt of each sample that details sample quantity, technology to be used, and start/end dates, to avoid the 30-day notification lag?

A: The EPA Regional Administrator, the State environmental protection agency, and the local environmental protection agency may waive notification in writing prior to commencement of the research. (See §761.60(j)(1)(ii).) Alternatively, you may avoid the notification requirement by requesting and receiving an R&D for PCB disposal approval under §761.60(j)(3).

§761.61 PCB Remediation Waste

<u>Definition of "PCB remediation waste"</u>

1. Q: The definition of "PCB remediation waste" refers to "buildings contaminated from a transformer." What about leaks from other articles?

A: Buildings contaminated by spills of PCBs from any source may fall within the definition of PCB remediation waste. "PCB remediation waste" means waste contaminated with PCBs as a result of a spill, release, or other unauthorized disposal of PCBs. Paragraphs (1) through (3) of the definition give examples of materials that fall within the definition, not an exclusive list of the materials that may be PCB remediation waste.

2. Q: Section 761.3 defines "PCB remediation waste" to include waste containing PCBs as a result of a spill, release, or other unauthorized disposal, and "materials which are currently at any concentration if the PCBs are from a source not authorized for use under this part". What is considered as a source not authorized for use?

A: Under TSCA §6(e), use of PCBs is banned unless specifically authorized or excluded by regulation. In the regulations, authorizations appear in

§761.30 and exclusions appear in §761.20. PCBs from any use not authorized or excluded under these rules are from a source not authorized for use.

3. Q: To what does the phrase "porous surfaces and non-porous surfaces" used in paragraph (3) of the definition of "PCB remediation waste" refer?

A: "Porous surface" and "non-porous surface" are defined in §761.3. A porous surface or non-porous surface contaminated with PCBs by a spill, release, or other unauthorized disposal is "PCB remediation waste" if it otherwise meets the requirements of that definition.

4. Q: Is contaminated media from a post-1979 spill considered remediation waste?

A: Media such as soil, gravel, sludge, and sediments currently at any concentration that were contaminated after July 2, 1979, by a spill of PCBs $\geq$50 ppm fall within the definition of PCB remediation waste.

5. Q: Does the definition of "PCB remediation waste" include paint containing PCBs that was not authorized for use when it was applied?

A: "PCB remediation waste" includes only waste containing PCBs as a result of a spill, release, or other unauthorized disposal, not materials such as paint to which PCBs were added during manufacture. Therefore, paint manufactured to contain PCBs would not fall within the definition of PCB remediation waste (see instead the definition of "PCB bulk product waste").

6. Q: Is "PCB remediation waste" the same as "bulk PCB remediation waste"?

A: Bulk PCB remediation waste is just one category of PCB remediation waste. Bulk PCB remediation waste includes non-liquid PCB remediation waste such as soil, sediments, dredged material, muds, PCB sewage sludge, and industrial sludge.

7. Q: Does PCB remediation waste include sewage and other sludges?

A: Yes. The definition of "PCB remediation waste" includes:

- sewage sludge containing <50 ppm PCBs that is not in use for land application as allowed under RCRA or the Clean Water Act
- “PCB sewage sludge”, i.e., sewage sludge as defined pursuant to the Clean Water Act that contains $\geq$50 ppm PCBs
- commercial or industrial sludge contaminated as the result of a spill of PCBs, including sludges located in or removed from any pollution control device
- aqueous decantate from an industrial sludge

8. Q: A material that today would be considered PCB bulk product waste (e.g., wire fluff) was disposed of on the land many years ago. If this waste was remediated, would it be considered “PCB bulk product waste” or “bulk PCB remediation waste”?

A: If soil comes into contact and mixes with the waste, the waste is considered a bulk PCB remediation waste because it is waste containing PCBs as a result of an unauthorized disposal. If the waste has not become mixed with the soil, it is PCB bulk product waste.

9. Q: Does the definition of PCB remediation waste include contaminated concrete removed from a building?

A: Contaminated concrete that is removed from a building is PCB waste and is regulated for disposal. If the concrete was contaminated by a spill, release, or other unauthorized disposal of PCBs, it may be “PCB remediation waste” depending on the concentration of the PCBs and the date of the spill, release, or disposal. If the concrete was manufactured to contain PCBs, and at the time of designation for disposal contains PCBs $\geq$50 ppm, it is PCB bulk product waste.

<u>Spill Cleanup Policy</u>

1. Q: Is the Spill Cleanup Policy still in effect? Are the cleanup field manual and publication for cleanup still valid?

A: The Spill Cleanup Policy and all related guidance are still valid.

2 Q: Why must waste from a spill cleaned up under the Spill Cleanup Policy be managed in the same manner as the spilled material, while cleanup waste generated from §761.61 activities may be managed at its “as found” concentration?

A: The PCB Spill Cleanup Policy provides a presumption against enforcement penalties for the unauthorized disposal of the original spill, in exchange for quick and effective cleanup of the spill. If the waste resulting from the spill were regulated for disposal at its as-found concentration (as is PCB remediation waste), there would no disincentive for owners of PCBs to dilute them to less regulated or unregulated levels by spilling. Under §761.61, to create an incentive to clean up old spills, PCB remediation waste can be cleaned up at its as-found concentration. However, to provide a disincentive to "disposing" of the original source material by spilling it, a penalty for the original generation of the waste is possible. The potential penalty is not associated with the cleanup requirements.

3 Q: If I clean up a spill in accordance with the Spill Cleanup Policy, may I dispose of the waste in accordance with §761.61(a) without notification?

A: No. If the Spill Cleanup Policy is applicable and you choose to follow it, you must follow it in its entirety. If you choose instead to conduct a self-implementing cleanup under §761.61(a), you must comply with all the requirements of §761.61(a), including notification. As alternatives to self-implementing cleanup under §761.61(a), you may dispose of waste from the spill site in accordance with the options listed under §761.61(b), or you may apply to the EPA Regional Administrator for a risk-based disposal approval under §761.61(c).

4 Q: May I use the Spill Cleanup Policy to clean up an old spill (for example, at an abandoned building) if I act within 48 hours of discovering the spill?

A: No. The Spill Cleanup Policy was designed for quick and effective cleanup of fresh spills that have had a very limited time to migrate from the spill site or otherwise spread into the ambient environment. A quick and effective cleanup means a recovery of almost all of the spilled material based on visible traces. To meet the environmental cleanup objectives a spill has to be fresh, that is less than 72 hours old. For spills more than 72 hours old, refer to §761.61(a) for other self-implementing cleanup and disposal options.

5 Q: Does the owner/operator of PCB equipment have a regulatory obligation to test stains when there is no evidence of a spill or release?

A: There is no regulatory requirement that you sample the equipment or stains near the equipment for PCB contamination. However, you are responsible for properly disposing of the equipment and cleaning up and properly disposing of any contaminated surfaces or materials. When in doubt, EPA recommends that you sample.

6 Q: ***What sampling and testing methods must I use to assess staining visible on PCB equipment?***

A: Use Subpart P to sample non-porous surfaces. For porous surfaces (including paint on metal), use Subpart P to determine a location for collecting a representative sample from the surface (for example, by scraping), and measure the bulk (as opposed to surface) PCB concentration in the sample.

7 Q: ***What are the disposal options for soils from a site where the self-implementing cleanup option in §761.61(a) will not be used?***

A: You may request approval from the EPA Regional Administrator for a risk-based cleanup approval that includes disposal options for the soil, or you may remove all contaminated soil from the site and dispose of it accordance with any of the performance-based options in §761.61(b).

<u>As-found concentration</u>

1. Q: ***Section 761.61 states that PCB remediation waste must be managed and disposed of "based on the concentration at which the PCBs are found". What does this mean?***

A: This means the concentration of the PCBs in the waste at the site at the time the waste is discovered, as opposed to the concentration of the PCBs in the material that was originally spilled, released, or otherwise disposed of at the site. For example, if dielectric fluid containing PCBs at $\geq$500 ppm was spilled onto soil, and testing revealed the PCB concentration of the soil to be <50 ppm, the soil would be managed as having a concentration of <50 ppm, not as having the concentration of the dielectric fluid that spilled. You may not dilute the as-found concentration of the contaminated soil by mixing it with clean soil during excavation or other management activities.

2. Q: ***Does "as found" mean in-situ, or can it refer to concentrations in stockpiles?***

A: "As found" refers to in-situ concentrations, or to stockpiles if the waste was already in place at the time of site investigation or characterization.

3. Q: Should PCB/radioactive remediation waste be characterized based on the source concentration or the as-found concentration?

A: All types of remediation waste are regulated based on their as-found concentrations. Please review the above questions in this section on properly managing waste based on its "as-found" concentration.

4. Q: If I generate a stockpile of soil by excavating a spill site, what is the as-found concentration of the waste -- the concentration of PCBs in the ground prior to excavation, or the final concentration in the stockpile?

A: The applicable concentration is the one found in the soil prior to excavation.

5 Q: How do I determine the concentration of multi-phasic PCB remediations waste such as sludges?

A: Separate the multi-phasic waste and sample each phase separately. You may either disposed of each phase separately based on the as-found concentration in that phase, or dispose of the waste without separating it based on the highest as-found concentration of any phase.

6 Q: May I place PCB remediation waste in a tank system for storage prior to disposal, then determine the as-found concentration by taking a sample from each tank?

A: No. You must determine the concentration at the time the waste is found at the site, not after it is removed and placed in the tank.

7 Q: May I use SW-846 Method 8082 or Method 8280 to analyze a non-aqueous phase organic liquid that is a PCB remediation waste (part of a groundwater removal, part of pump and treat process) for PCBs?

A: Yes. These methods are acceptable for determining the PCB concentration in the waste prior to disposal.

§761.61(a) Self-implementing Cleanup and Disposal

1. Q: May I clean up fresh spills under the self-implementing option?

A: Yes. Keep in mind that the self-implementing option requires site characterization and notification to the EPA Regional Administrator before cleanup begins. You may wish to consider cleaning up a spill less than 72 hours old under the Spill Cleanup Policy instead.

2 Q: The rule says that EPA designed the self-implementing cleanup procedure for a moderately-sized site. What is a moderately-sized site?

A: A moderately-sized site is approximately one acre. For larger sites and different sampling procedures, you may use a risk-based approval.

3 Q: I am cleaning up PCBs at a site according to requirements set by a county regulatory agency. Must I comply with the self-implementing cleanup requirements, such as notification and certification?

A: Not necessarily. Self-implementing cleanup under §761.61(a) is only one option for disposing of PCB remediation waste. Other cleanup or disposal options include incineration, disposal in a chemical waste landfill, decontamination, coordinated approval, and risk-based disposal (see §761.61(b) and (c)). To be in compliance with TSCA §6(e), you must conduct your cleanup and dispose of your waste in accordance with one of these options. Where the self-implementing option is available and you choose to follow it, you must stop the cleanup and comply with all the requirements of §761.61(a), including notification and certification.

4 Q: If I started a PCB spill cleanup before August 28, 1998, may I use the self-implementing cleanup and disposal procedures to finish the job?

A: Yes, as long as you develop an appropriate plan, provide the required notification, and follow the other requirements of §761.61(a).

5 Q: Do the provisions of the amendments that address cleanup of PCB wastes impact or change remediation actions that are proceeding under existing consent orders?

A: No. §761.61(a) provides for self-implementing cleanup of PCB remediation waste. This does not require that cleanups be performed in accordance with §761.61(a), nor does it supersede cleanup being performed under existing consent orders that are at least as stringent as federal requirements.

§761.61(a)(1) Applicability

1. Q: May I use the self-implementing disposal option to clean up sewage sludge? What if the sewage sludge does not pass the TCLP?

A: While you may not use the self-implementing disposal options to clean up sewers or sewage treatment systems, you may use it to clean up sewage sludge. (See §761.61(a)(1)(i)(C).) Clean up and dispose of the sewage sludge as bulk PCB remediation waste. The TCLP has no bearing on the self-implementing disposal of PCB remediation waste under §761.61(a). If the sewage sludge also includes RCRA-regulated components, you must dispose of the sewage sludge in a manner that complies with both TSCA and RCRA.

2. Q: How does the self-implementing option apply to sediments? Section 761.61(a)(1)(i) states that the self-implementing option may not be used to clean up sediments in marine and freshwater ecosystems. Section 761.61(a)(4)(i) states that bulk PCB remediation waste includes sediments and dredged materials.

A: You may not use the self-implementing option to clean up sediments in marine and freshwater ecosystems, that is, sediments that are still in place in the environment. EPA intended that the self-implementing option be used only at sites where there is a low environmental impact from cleanup activities. You may use the self-implementing option to clean up sediments and other materials that have already been dredged. These materials would be regulated as bulk PCB remediation waste.

A sludge pond, lagoon, drainage ditch, or other former water impoundment that is isolated and does not support life may not be a "marine or freshwater ecosystem". Contact the EPA Regional Administrator for more information.

§761.61(a)(2) Site Characterization

1. Q: My company has been using the procedures in the documents "Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup" (EPA-560/5-86-017) and "Verification of PCB Spill Cleanup

By Sampling and Analysis" (EPA-560/5-85-026) to determine the horizontal and vertical extent of PCB contamination before disposing of PCB-contaminated soils. Do the Disposal Amendments, particularly Subparts N and O, affect the way we should characterize the extent or degree of contamination in existing soil ≥1.0 ppm prior to its removal, or do they apply only after the soils have been removed and segregated for disposal?

A: If you wish to conduct a self-implementing cleanup under §761.61(a), you must characterize the cleanup site and provide to the Regional Administrator your proposed post-cleanup verification plan before site cleanup begins. Subpart N is provided as site characterization guidance (see §761.61(a)(3)). The two documents you mention were designed for small sites (approximately 20 feet in diameter) and are limited to a maximum of 37 samples. The Regional Administrator has the discretion to approve of site characterization in accordance with these documents for small sites. For larger sites, you may wish to consult the Regional Administrator before proposing the details of site characterization based on either of these two documents. The rules are more prescriptive as to post-cleanup verification -- you must follow Subpart O (see §761.61(a)(6)).

2. Q: Who defines the area that must be characterized? Must I sample and characterize my entire site if the source of PCB contamination is localized in one area?

A: You must characterize the cleanup site. The Disposal Amendments define "cleanup site" as "the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of a cleanup of PCB remediation waste, regardless of whether the site was intended for management of waste." Whether the cleanup site includes areas surrounding a localized source of PCB contamination depends on such factors as whether the PCB contamination could have been spread or carried beyond the localized area of contamination. You must describe the cleanup site in your notification to the EPA Regional Administrator under §761.61(a)(3). The Regional Administrator may approve or disapprove of your description of the site. Keep in mind that if you do not accurately define the cleanup site and your cleanup fails to address all regulated contamination, further cleanup may be required.

3. Q: Extraction methods in Subpart N (§761.272) are for solid matrices. Did EPA intentionally not prescribe any methods for liquids?

A: The regulations do not prescribe a method for characterizing liquids. You may wish to confer with the EPA Regional Administrator prior to characterizing liquids at your site.

§761.61(a)(3) Notification

1. Q: Section 761.61(a) says that I may conduct self-implementing cleanup and disposal of PCB remediation waste without written approval from EPA, but §761.61(a)(3) states that I must notify EPA at least 30 days prior to the cleanup or disposal. Are these two statements contradictory?

A: No. Obtaining a written approval from EPA to engage in cleanup or disposal activities is generally a time-consuming process involving an individualized risk assessment. EPA has determined that self-implementing cleanup conducted in accordance with §761.61(a) will not pose an unreasonable risk, so individual approvals are not required. The pre-cleanup notification is intended to assure EPA that the person in charge of the cleanup or the owner of the site understands the self-implementing requirements and that the contamination at the site can effectively be cleaned through the self-implementing process. The notification process gives the Agency 30 days to review the proposed cleanup and request further information if necessary. If EPA does not respond within the 30 days, the cleanup may proceed without a written response from EPA.

2. Q: In the notification, does the owner have to summarize the entire site scope, or simply summarize the actual cleanup to be conducted?

A: Notification requires information on the nature of contamination, the procedures used to sample the site, the location and extent of the contaminated area, the cleanup plan for the site, and a certification that the information used to collect data is available on site. This information must describe the cleanup site, that is, the area that is contaminated with PCBs and all contiguous areas that must be included to implement the cleanup.

3. Q: When must the region respond to a notification?

A: Within 30 calendar days of the initial notification, the Regional Administrator will respond with an approval, a disapproval, or a request for additional information. If the Regional Administrator does not respond within 30 calendar days of receiving the notice, the person submitting it may assume that it is complete and acceptable and proceed with the cleanup as described in the notification. Where the person conducting the cleanup or the owner of the site notifies the Regional Administrator of changes in cleanup activities, regions will respond verbally within seven calendar days and in writing within 14 calendar days with an approval, a disapproval, or a request for additional information. If the Regional Administrator does not respond within these time limits, the person submitting the change notice may assume that it is complete and acceptable and proceed with the cleanup as described in the change notice.

4 Q: Why must I notify the Regional Administrator before I conduct self-implementing cleanup of an old spill, but not before cleaning up a fresh spill under the Spill Clean-up Policy?

A: The Spill Clean-up Policy sets out procedures for cleaning up fresh spills from electrical equipment that EPA believes will be uniformly effective. Sites containing older contamination can vary greatly from site to site and not every site may be suitable for self-implementing cleanup. The notification process allows the EPA Regional Administrator to assure that the contamination at the site can effectively be cleaned through the self-implementing process.

§761.61(a)(4) Clean-up Levels

1. Q: What factors should a company consider in determining whether an area is a "low occupancy area"?

A: A "low occupancy area" is an area where PCB remediation waste has been disposed of and is based on the hours of occupancy per year of an unprotected individual. See the definition of this term at §761.3.

2. Q: Are there PCB concentrations or surface levels that would not be acceptable if a disposal site is unrestricted?

A: Yes. Section 761.61(a)(4) specifies the levels of PCB contamination that may remain at a site after cleanup, depending on the type of contaminated material (bulk PCB remediation waste, non-porous surfaces, porous surfaces, and liquids) and the potential exposure to PCBs at the site (high occupancy area or low occupancy area).

3. Q: Does a county regulatory agency have the authority to establish

cleanup levels that are less stringent than the cleanup levels established in §761.61(a)(4)?

A: If you select the self-implementing option for cleaning up your site, you must clean to the levels in §761.61(a). The federal requirements under TSCA supersede less stringent state and local requirements.

§761.61(a)(4)(i) Bulk PCB remediation waste

1. Q: How does a facility establish the length of time an employee is in an area and whether the area is high or low occupancy? Is it based on a time sheet or an activity log?

A: The definitions of high and low occupancy are based on hours of exposure per year. A time sheet or an activity log would be a way to demonstrate the time areas are occupied by certain employees. The time the area could be occupied by supervisors, itinerant workers (who do not have the area as a workstation but pass through the area), and non-employees (such as visitors, collaborators, contractors, and outside maintenance and installation employees) also has to be factored in, if relevant. A facility could also conduct a time and motion study. Keep in mind that if the use of your site changes to high occupancy, you must reclean the area to the standards specified for high occupancy areas. (See §761.61(a)(4)(v).)

2. Q: How does the difference between high and low occupancy apply to public lands?

A: In the same manner as it applies to any other area. Whether an area is high or low occupancy depends on hours of occupancy for an unprotected individual. However, the EPA Regional Administrator may require cleanup of the site to more stringent levels based on proximity to sensitive areas such as endangered species habitats, estuaries, wetlands, national parks, and fisheries. (See §761.61(a)(4)(vi).)

3. Q: Under §761.61(a)(4), would a stream contaminated with PCBs located on a large parcel of grassy property that also contained a school building be considered a "high occupancy area" by virtue of its association with the school, regardless of actual exposure to PCBs at the stream?

A: Whether an area is a “high occupancy area” or a “low occupancy area” is based on exposure at the location of on-site disposal. A cleanup in a school classroom would probably have to meet cleanup levels for a high occupancy area. It would probably be acceptable to meet low occupancy levels when cleaning up a school parking lot. The cleanup levels at §761.61(a)(4) would not be applicable to a stream or stream bank on school property or any other property because under §761.61(a)(1)(i)(A) and (B), the self-implementing procedures may not be used to clean up surface waters or sediments. Contact the EPA Regional Administrator for information specific to your cleanup site.

4. Q: For bulk PCB remediation waste, what type of protection is required in low occupancy areas?

A: Bulk PCB remediation waste at levels >25 ppm but ≤50 ppm may remain at a low occupancy area if the area is secured with a fence and marked. Bulk PCB remediation waste at levels >25 ppm but ≤100 ppm may remain at a site if the site is capped.

5 Q: If I leave soil containing PCBs <1 ppm on site, is the soil unregulated for disposal?

A: Yes. Soil containing <1 ppm PCBs is unregulated for disposal under TSCA whether you leave it on-site or remove it from the site.

§761.61(a)(4)(iii) Porous surfaces

1. Q: Do the cleanup levels for soil apply to concrete?

A: Yes. The cleanup levels for bulk PCB remediation waste (such as soil) and for porous surfaces (such as concrete) are the same.

2. Q: If I use scarification to conduct a self-implementing cleanup of concrete (e.g., a concrete pad) under §761.61(a), and I clean to the levels specified in §761.61(a)(4)(iii) for porous surfaces, must I still comply with the requirements of §761.30(p) before I may use the concrete?

A: No. If you clean to the levels specified for self-implementing cleanup, the PCBs are considered disposed of. The requirements for continued use of a contaminated porous surface do not apply because the surface is no longer contaminated.

3. Q: My site contains porous surfaces that were contaminated with ≥50 ppm liquid PCBs after April 18, 1978. If I conduct a self-implementing cleanup under §761.61(a) and clean the surfaces to the standards in §761.61(a)(4)(i), are use and distribution in commerce of the surfaces regulated? Does it matter how long ago the spill occurred?

A: Cleanup in accordance with §761.61(a), to the standards specified in §761.61(a)(4), constitutes disposal of the PCBs. Once you have disposed of the PCBs at the site by conducting a self-implementing cleanup, under TSCA you may use the site or distribute it in commerce without restriction. You may conduct a self-implementing cleanup of a porous surface at any time, no matter how much time has elapsed between the time of the contamination and the initiation of cleanup.

4. Q: If I dispose of contaminated concrete in accordance with §761.61(a)(4)(iii), may I continue to use and/or sell the property without any further restrictions?

A: Yes. As long as the property meets the requirements for high occupancy areas or low occupancy areas set out in §761.61(a)(4)(i) (including caps, fences, marking, and deed restrictions), no further requirements for use or distribution in commerce apply.

5. Q: May I leave PCBs in drainage pipelines or in concrete at levels exceeding the standards in §761.61(a)(4)?

A: If you are conducting a self-implementing cleanup, you must clean to the specified levels. You may request a risk-based approval under §761.61(c) to clean to different levels.

§761.61(a)(4)(v) Change in land use for a cleanup site

1. Q: If the use of a site cleaned up under the self-implementing option changes from low occupancy to high occupancy, the regulations require the owner to clean up the site to high occupancy standards. Must I contact EPA before starting the cleanup?

A: It depends on how you conduct the cleanup. You must use one of the options in §761.61. If you choose the self-implementing option under §761.61(a), you must notify the EPA Regional Administrator before starting the cleanup. If you choose the risk-based option under

§761.61(c), you must get an EPA approval before starting the cleanup.

2. Q: §761.61(a)(4)(vi) states that EPA can require more stringent cleanup levels in an area that is in proximity to sensitive areas such as residential dwellings, hospitals, schools, and nursing homes. How close does the sensitive area have to be to the cleanup area to justify a more stringent cleanup level?

A: The EPA Regional Administrator may require more stringent cleanup levels if he or she determines this is necessary to protect against an unreasonable risk of injury to health or the environment in the sensitive area. This determination would be made on a case-by-case basis taking into account the factors at each site.

§761.61(a)(5) Site Cleanup

§761.61(a)(5)(i) Bulk PCB remediation waste

1. Q: Please clarify §761.61(a)(5)(i)(A). It states that "any person cleaning up bulk PCB remediation waste on-site using a soil washing process may do so without EPA approval." Is this referring to techniques allowed under §761.79(b)?

A: No. You may conduct any soil-washing process without prior EPA approval as long as the process meets the requirements of §761.61(a)(5)(i)(A)(*1*) through (*6*).

2. Q: My site contains large areas of contaminated soil. As part of a self-implementing cleanup, I plan to have the soil bulldozed into piles prior to removing it from the site for disposal. When should I sample the soil – before it is bulldozed or after?

A: You must sample the soil before it is bulldozed into piles. The soil is PCB remediation waste and it is regulated at its as-found concentration. Bulldozing the soil into piles is likely to mix the contaminated soil with underlying, uncontaminated soil, diluting the PCB concentration.

3. Q: I want to use the self-implementing option to clean up a site at which PCB remediation waste (contaminated soil) is stored in piles. How must I sample the soil for disposal?

A: Before beginning your cleanup, you must characterize the site (see

§761.61(a)(2).) The rules do not require any particular characterization method, but when you notify the EPA Regional Administrator under §761.61(a)(3) that you plan to use the self-implementing option, you must include in the notification a summary of the characterization process. Subpart R sets out a method for sampling PCB remediation waste in piles. If you find PCB remediation waste in piles at your cleanup site prior to site characterization, you may include in your notification to the EPA Regional Administrator that you plan to sample the piles according to Subpart R. If you generated these piles during prior cleanups or excavations not approved by EPA, you may be subject to penalties for dilution to avoid disposal requirements.

4 Q: Once a facility has treated contaminated soil to PCB concentrations of <50 ppm, is the waste unregulated for disposal? Can it be sent to a solid waste disposal facility?

A: The soil is regulated for disposal if the PCB concentration is ≥1 ppm. The disposal options for soil <50 ppm, set out in §761.61(a)(5)(v)(A), include a state-approved municipal or non-municipal non-hazardous waste landfill.

5 Q: Why do the requirements for the disposal of soil containing PCB concentrations of <50 ppm in §761.61(a)(5)(i)(B)(2)(ii) refer to a section containing requirements for the disposal of non-liquid cleaning materials and personal protective equipment waste (§761.61(a)(5)(v)(A))? Are all bulk PCB remediation wastes with PCB concentrations of < 50 ppm required to comply with §761.61(a)(5)(v)(A), or only the non-liquid cleaning materials and personal protective equipment waste?

A: The disposal options are the same for bulk PCB remediation waste (including soil) at <50 ppm PCBs as they are for non-liquid cleaning materials and personal protective equipment waste: a facility permitted licensed, or registered by a State to manage municipal solid waste or non-municipal, non-hazardous waste; a hazardous waste landfill permitted under Subtitle C of RCRA; or an approved PCB disposal facility.

6 Q: Under the self-implementing cleanup provisions, if a transformer leaks and testing shows the soil has PCB concentrations <50 ppm but the oil contains PCB concentrations ≥50 ppm, may I dispose of the soil in a Subtitle D landfill?

A: Dispose of PCB remediation waste based on its as-found concentration.

If testing reveals the level of contamination in the soil to be <50 ppm, despite the concentration of the original spill, and you are conducting a self-implementing cleanup in accordance with the requirements of §761.61(a) (including notification to the EPA Regional Administrator), you may dispose of the soil in a facility permitted, licensed, or registered by a State as a municipal or non-municipal non-hazardous waste landfill. (See §761.61(a)(5)(i)(B)(*2*)(*ii*).) You must notify the landfill in writing of the amount and concentration of the waste at least 15 days prior to the first shipment.

7 Q: Must I manifest bulk PCB remediation waste <50 ppm PCBs to a municipal solid waste landfill?

A: No. (See §761.61(a)(5)(i)(A).) Keep in mind that when conducting a self-implementing cleanup you must notify the EPA Regional Administrator under §761.61(a)(3) and you may not dilute the waste as found at the site to concentrations <50 ppm by excavating or other management practices that result in dilution of the PCBs.

8 Q: May I dispose of bulk PCB remediation waste with PCB concentrations <50 ppm by land application at another site, such as under an asphalt roadbed?

A: PCB remediation waste ≥1 ppm is regulated for disposal. Off-site land application is not a disposal option for waste generated as part of a self-implementing cleanup under §761.61(a). You may apply for a risk-based disposal approval under §761.61(c) for disposal by off-site land application.

9 Q: Does the requirement in §761.61(a)(5)(i)(B)(**2*****)(*****iv*****) to notify landfills apply to PCB waste at concentrations <50 ppm sent to a municipal solid waste landfill?***

A: Yes. The notice applies in lieu of a manifest for waste destined for disposal in any area not subject to a TSCA PCB Disposal Approval.

10 Q: What are the off-site disposal requirements for bulk PCB remediation waste with PCB concentrations ≥50 ppm? At concentrations ≥500 pm?

A: You must dispose of bulk PCB remediation waste at any concentration that is ≥50 ppm in a hazardous waste landfill permitted by EPA under section 3004 of RCRA or by a State authorized under section 3006 of

RCRA, or in an approved PCB disposal facility. (See §761.61(a)(5)(i)(B)(*2*)(*iii*).)

11 Q: Must I manifest PCB remediation waste ≥50 ppm to a RCRA landfill?

A: Yes.

§761.61(a)(5)(ii) Non-porous surfaces

1. Q: Section 761.61(a)(5)(ii)(B)(1) allows non-porous surfaces having surface concentrations <100 μg/100 cm^2 to be disposed of off-site in the same manner as bulk PCB remediation wastes with PCB concentrations <50 ppm, for example, in a facility permitted, licensed, or registered by a State to manage municipal solid waste subject to §258, or non-municipal non-hazardous waste subject to §§257.5 through 257.30. Is this correct, or should the reference be to non-porous surfaces having surface concentrations <10 μg/100 cm^2?

A: The reference as published is correct. drained PCB-contaminated electrical equipment and drained PCB-contaminated articles may be land disposed in a facility that is permitted, licensed, or registered by a State to manage municipal solid waste subject to 40 CFR part 258, or non-municipal non-hazardous waste subject to 40 CFR §§257.5 through 257.30. (See §761.60(b)(4)(i)(A) and §761.60(b)(6)(ii)(B), respectively.) The definition of "PCB-contaminated" includes non-porous surfaces with surface concentrations <100 μg/100 cm^2. It is consistent to provide for the same disposal option for surfaces having the same PCB surface concentration whether those surfaces are present in drained PCB-contaminated electrical equipment and articles or any other non-porous surface.

§761.61(a)(5)(iii) Porous surfaces

1. Q: May I clean and re-use a concrete slab with an average surface PCB contamination of 65 μg/100 cm^2? Must I sample and test the subsurface of contaminated concrete?

A: You may decontaminate the porous surface in accordance with §761.79(b)(4) if you begin decontamination within 72 hours of the initial spill to the concrete. This decontamination procedure does not require you to sample and test the subsurface concrete. You may reuse the concrete after decontaminating it under this provision.

There are two options for older spills to porous surfaces. You may remove the contaminated concrete to the levels specified in §761.61(a)(5)(i). Under this option, you must sample and test the subsurface concrete until all concrete at concentrations higher than the specified levels is removed. Alternatively, you may continue to use the porous surface for the remainder of its useful life if you comply with the use conditions of §761.30(p). When the surface's useful life has ended you must dispose of it as PCB remediation waste.

2. Q: If core sampling and testing show that the PCB concentration of contaminated concrete is <50 ppm, may I disposed of the concrete in a solid waste landfill?

A: Yes, if you are using the self-implementing disposal option under §761.61(a) (including notification to the EPA Regional Administrator). Disposal options for porous surfaces are the same as those for bulk PCB remediation waste. You must notify the landfill of the quantity and concentration of the waste at least 15 days prior to the first shipment.

§761.61(a)(5)(iv) Liquids

1. Q: Sludge at PCB concentrations ≥500 ppm was centrifuged and the soil was disposed of in an incinerator. The remaining water had measured PCB concentrations of <1 ppm. Can this water be solidified and disposed of in a TSCA landfill without being considered a "dilution process" or should it be incinerated?

A: Disposal options for the water include decontamination to the levels set in §761.79(b)(1) and incineration or other combustion in accordance with §761.60(a), depending on the concentration. You may not process liquid PCBs into non-liquid forms to circumvent the high temperature incineration requirements of §761.60(a) (see §761.50(a)(2)).

§761.61(a)(5)(v) Cleanup wastes

1. Q: Under §761.61(a)(5)(v)(A), may I dispose of personal protective equipment and non-liquid cleaning materials that are contaminated with PCBs in an incinerator permitted under RCRA?

A: Not unless the incinerator is also permitted under TSCA.

2. Q: Under §761.61(a)(5)(v)(A), must I notify a municipal waste landfill before sending cleanup waste?

A: No. No notice is required and this waste is not subject to manifesting.

3. Q: Is cleanup waste under §761.61(a)(5)(v) subject to storage and marking requirements?

A: Yes. EPA has not waived storage and marking requirements for this waste. If the PCB concentration of the waste is $\geq$50 ppm, you must store it in accordance with §761.65. Depending on the type of waste, marking requirements may apply (see §761.40).

§761.61(a)(6) Cleanup Verification

1. Q: May I use a field screening test to verify cleanup?

A: Sampling and analysis verification of self-implementing cleanup must be done in accordance with subpart O (see §761.61(a)(6)). Subpart O does not include use of field screening kits. However, you may use a method not specified in subpart O if you validate the method under subpart Q (see §761.292).

§761.61(a)(7) Cap Requirements

1. Q: The cap requirements for self-implementing cleanup sites at §761.61(a)(7) state, "repairs shall begin within 72 hours of discovery for any breaches that would impair the integrity of the cap." Does this imply an inspection requirement for caps?

A: There is no inspection requirement specified in the regulations, but the owner or operator of the site is responsible for ensuring that the cap is maintained in accordance with the regulations.

2. Q: Do the performance criteria for caps apply to both solid caps, such as asphalt and concrete, and to soil caps?

A: Yes. The performance criteria are necessary to ensure that the cap maintains its integrity and prevents release of or exposure to PCBs at the site.

§761.61(a)(9) Recordkeeping

1. Q: If I porous surfaces are demolished, fenced and/or capped and left on-site as part of a self-implementing cleanup under §761.61(a), is that facility a "disposer" for purposes of recordkeeping and reporting?

A: You must keep records of the cleanup in accordance with §761.125(c)(5). However, for waste left on-site, you do not need to comply with the reporting and recordkeeping requirements applicable to disposers of PCB waste. Those requirements apply to facilities with an EPA approval to dispose of PCB waste.

§761.61(b) Performance-based disposal

1. Q: Section 761.61(b) refers to liquid PCB remediation wastes. What types of liquids are covered by this reference?

A: Examples of liquids that might be found at a remediation site include liquids that are found in buried containers or run-off that has accumulated in impoundments.

2. Q: If I am removing soil from a site for off-site disposal in a §761.61(b) facility, must I remove soil that is <50 ppm?

A: PCB remediation waste may be regulated for disposal at PCB concentrations <50 ppm. Section 761.61(b) only addresses disposal of waste. Section 761.61(b) does not require removal of PCB remediation waste at any specified concentration nor does this paragraph provide for procedures to demonstrate that cleanup at a site is complete . To be completely unregulated for disposal off-site without an approval from EPA, waste must contain <1 ppm, and that concentration must not be the result of dilution during remediation (i.e., by mixing with clean soil during excavation).

§761.61 (c) Risk-based disposal approval

1. Q: On what factors are risk-based approvals based?

A: Whether to grant a risk-based approval is in the discretion of EPA. EPA may grant such an approval based on a finding that the sampling, cleanup, disposal, or storage method will not pose an unreasonable risk of injury to health or the environment. The regulations do not specify what criteria EPA must consider in making this finding.

2. Q: Under §761.61(c), does EPA allow alternative site characterization, cleanup levels, and verification sampling?

A: The regulations authorize EPA to grant risk-based approvals for sampling, cleanup, disposal or storage. Site characterization, cleanup levels, and verification sampling fall within the activities that can be included in a risk-based approval.

3. Q: If a specific risk-based approval is granted, is it then nationalized across all facilities?

A: No, technologies or methods in individual risk-based approvals will not automatically be applicable nationwide. To request a risk-based approval for sampling, cleanup, disposal or storage occurring in a single EPA Region, apply in writing to the EPA Regional Administrator in the Region where the sampling, cleanup, disposal or storage site is located. To request a risk-based approval for sampling, cleanup, disposal or storage occurring in more than one EPA Region, apply to the Director of the National Program Chemicals Division.

4 Q: How long will it take EPA to review applications submitted under §761.61(c)?

A: Since each risk-based approval must be based on an individual risk assessment for the site, this will depend on the circumstances at the site. EPA recommends that you plan to allow at least 180 days for this process.

§761.62 Disposal of PCB Bulk Product Waste

<u>Definition of PCB bulk product waste</u>

1. Q: Is paint residue taken off a large metal structure considered a bulk product waste?

A: Yes. Applied dried paint is PCB bulk product waste whether or not it is removed from the original surface.

2 Q: Are fluorescent light ballasts regulated as PCB bulk product waste?

A: If the PCB concentration of the potting material is <50 ppm and the ballast contains either no PCB small capacitor or an intact and non-leaking PCB small capacitor, you can dispose of the ballast as municipal solid waste (see §761.60(b)(2)(ii)). If the PCB concentration of the potting material is ≥50 ppm and the ballast contains either no PCB small capacitor or an intact and non-leaking PCB small capacitor, you can dispose of the ballast as PCB bulk product waste in a TSCA incinerator, a TSCA/RCRA landfill, a facility permitted, licensed, or registered by a state as a municipal or non-municipal non-hazardous waste landfill, or by means of an approved destruction method, decontamination, or risk-based disposal method (see §761.60(b)(iii)). Regardless of the PCB concentration of the potting material, you must dispose of ballasts containing non-intact or leaking capacitors as PCB bulk product waste in accordance with §761.62(a) or (c).

3 Q: The definition of PCB bulk product waste states that such waste "includes, but is not limited to" several specific types of materials. If the actual PCB content of a given batch of one of the listed materials is <50 ppm (or even 0 ppm), must the material be disposed of as a PCB bulk product waste solely because it is listed in the definition? For example, must all plastics or all paper automatically be disposed of as PCB bulk product wastes simply because plastics and paper are listed in the definition?

A: No. The materials included in the definition of PCB bulk product waste are regulated as such only if their PCB concentration at the time of designation for disposal is ≥50 ppm.

4 Q: What does the phrase "concentration at the time of designation for disposal" mean in the definition of "PCB bulk product waste?"

A: This means the concentration of the PCBs in the manufactured product at the time it is determined that the product is a waste and before it is mixed with other materials. For example, the concentration at the time of designation for disposal of dried wall paint containing PCBs in a building being demolished would be the concentration of the paint itself prior to demolition, not mixed or diluted with waste from the underlying wall or other debris from the building.

5 Q: Does this definition include contaminated concrete removed from a building for which the use changes, but there is no demolition?

A: Contaminated concrete that is removed from a building is PCB waste and is regulated for disposal, regardless of whether the building itself is demolished or reused. If the concrete was contaminated by a spill, release, or other unauthorized disposal of PCB liquids, it may be PCB remediation waste depending on the concentration of the PCBs and the date of the spill, release, or disposal. If the concrete contains or is coated with a material that was manufactured to contain PCBs, and at the time of designation for disposal contains PCBs $\geq$50 ppm, it is PCB bulk product waste.

6 Q: Is the definition of "PCB bulk product waste" intended to focus on individual PCB-contaminated units or a larger amount/pile of PCB-contaminated waste?

A: Both. The definition of "PCB bulk product waste" applies to waste derived from manufactured products containing PCBs in a non-liquid state. The definition would include a single plastic casing from a television as well as a pile or other accumulation of building demolition debris.

7 Q: I have a site where wire fluff, a material that today would be considered PCB bulk product waste, was disposed of on the land many years ago. If I remove the wire fluff for off-site disposal, would it be regulated as "PCB bulk product waste" or "bulk PCB remediation waste"?

A: If soil comes into contact and mixes with the wire fluff, the wire fluff is considered a bulk PCB remediation waste because it is waste containing PCBs as a result of an unauthorized disposal. If the wire fluff has not become mixed with the soil, for example, fluff that was stored in piles on a liner or other barrier, it is PCB bulk product waste.

8 Q: Are residues from electrical transformers PCB bulk product waste?

A: No. You must dispose of the non-liquid residues removed from electrical transformers as liquid PCBs.

9 Q: Some scrappers may shred autos and white goods and remove ferrous metal using electromagnets. The remaining primary shredder residue may be disposed of as is, or undergo further processing to recover non-ferrous metals at the same facility or another facility. Is metal recovered from shredder fluff by eddy current separation a PCB bulk product waste?

A: Yes, if the metal is contaminated by PCBs that were $\geq$50 ppm in the feed material. The definition of "PCB bulk product waste" at §761.3 includes "PCB-containing wastes from the shredding of automobiles, household appliances, or industrial appliances."

10 Q: A plant processes metal shredding residue (fluff) to recover aluminum. The particulate control system includes a baghouse which generates a dust material containing $\geq$50 ppm PCBs. Is this baghouse dust a PCB bulk product waste subject to §761.62 disposal standards?

A: Yes. The dust is PCB bulk product waste.

<u>General</u>

1. Q: Why did EPA establish a new waste category and new disposal methods for PCB bulk product waste?

A: Before the Disposal Amendments were promulgated, large volume, non-liquid PCB wastes such as wastes from the shredding of automobiles, white goods, and industrial scrap had to be disposed of in an incinerator, a chemical waste landfill, or under an alternate disposal approval. EPA believed there were other disposal methods and waste management techniques for this waste that would facilitate its disposal without posing an unreasonable risk.

2 Q: Section 761.62 seems to say that any material or unit that could possibly contain PCBs should be sampled and tested for PCB content. Is it the Agency's intention to require this type of search for PCBs?

A: The PCB regulations do not expressly require you to test a material for PCB contamination. However, you are responsible for properly disposing of regulated PCBs. If you are in doubt about whether a material contains PCBs, EPA recommends that you test it.

3 Q: If bulk product waste is radiologically contaminated, can the waste be disposed of in a landfill used for the disposal of radiologically contaminated waste even though the state does not license, register, or permit landfills used for disposal of these materials?

A: In accordance with §761.50(b)(7)(ii), any person disposing of

PCB/radioactive waste must do so taking into account both its PCB concentration and its radioactive properties. If, taking into account only the properties of the PCBs in the waste (and not the radioactive properties of the waste), the waste meets the requirements for disposal in a facility permitted, licensed, or registered by a State as a municipal or non-municipal non-hazardous waste landfill (e.g., PCB bulk product waste under Sec. 761.62(b)(1)), then the person may dispose of the PCB/radioactive waste, without regard to the PCB component of the waste, on the basis of its radioactive properties in accordance with all applicable requirements for the radioactive component of the waste. The facility that accepts the PCB/radioactive bulk product waste must be operating under a valid permit, but the permit does not have to have been issued by the state.

4 Q: Does EPA have any data on any potentially hazardous by-products associated with cutting painted metal surfaces with a flame?

A: Studies have shown that open burning of liquid PCBs, even at low concentrations, results in the formation of polychlorinated dibenzofurans. These compounds are probable human carcinogens and their toxicity can be up to 100 times higher than the toxicity of some PCBs. There is no reason to believe that polychlorinated dibenzofurans would not form during cutting painted metals with a flame, which would normally occur at temperatures within the range included in the studies.

5 Q: Is it correct that dermal protection is required for handling PCB Articles, but not for handling PCB bulk product waste?

A: That is correct. There are no specific references to dermal protection in §761.62 because the PCBs in bulk product waste are tightly bound within the matrix of the waste and are unlikely to result in dermal exposure.

6 Q: Is PCB bulk product waste subject to the storage requirements in §761.65?

A: Yes. Note the additional option for temporary storage of PCB bulk product waste in piles under §761.65(c)(9).

<u>Shredder Waste</u>

1. Q: A scrap dealer shreds vehicles, etc., and produces shredder fluff. Grab samples show that PCBs are present in the fluff at

concentrations <50 ppm. The source of the PCBs is not known. Is this waste a PCB bulk product waste?

A: PCB bulk product waste is regulated for disposal if the concentration at the time of designation for disposal was ≥50 ppm PCBs. This means that if the shredder feedstock contained any material with a PCB concentration ≥50 ppm, the resulting fluff is regulated no matter what its concentration. If you are unable to establish that the PCBs in the fluff came from a source other than ≥50 ppm feedstock, your fluff is regulated as PCB bulk product waste.

2 Q: While automobile and appliance shredder fluff may be handled under §761.62 (bulk product waste), there is no allowance for capacitors in this type of waste stream. Therefore, is shredder fluff containing shredded capacitors regulated under §761.62(a) or (c), as stated in the preamble, or as PCB remediation waste because it is contaminated with liquid released from the ruptured capacitor?

A: Fluff containing shredded capacitors is regulated as PCB bulk product waste under §761.62(a) or (c). PCB remediation waste is regulated based on its as-found concentration. Allowing fluff contaminated by shredded capacitors to be disposed of at its as-found concentration would not create an incentive to remove the capacitors prior to shredding. In addition, it would require that each batch of fluff be tested for PCB concentration prior to disposal.

3 Q: What are the procedures for dealing with shredder fluff when it is unclear that capacitors were removed? Some municipal collection programs process or crush the waste before it is forwarded to a shredder; therefore, the shredding facility has no way of knowing whether the PCB small capacitor was removed. May the shredder still take advantage of §761.62(b) if there is no way to verify that the PCB small capacitor was removed? Would 761.62(c) be an available alternative for the shredder when verification of the removal of PCB small capacitors is not possible?

A: If the fluff contains PCBs and you cannot establish that all capacitors were removed prior to shredding, the fluff is regulated as PCB bulk product waste and must be disposed of in accordance with §761.62(a) or (c). You may not dispose of the fluff under §761.62(b)(1)(i), because that section requires that all capacitors be removed from the fluff. You may not dispose of the fluff under §761.62(b)(1)(ii) or §761.62(b)(2), because this would create a disincentive to remove the capacitors and would result in the dilution of the liquid PCBs.

4 ***Q: May shredder residue containing PCBs be disposed of in a cement kiln? The TSCA regulations already allow disposing of PCB wastes with even higher PCB concentrations in boilers and smelters. Disposal of shredder residue containing PCBs should be allowed in an industrial furnace that has demonstrated removal efficiencies for PCBs and that can handle large volumes of material. The fact that the shredder residue has value as fuel should not distract from the fact that the PCBs are at the end of their useful life and are being disposed of.***

A: Shredder residue, which meets the definition of PCB bulk product waste, is regulated for disposal at §761.62. Specified disposal options in paragraphs (a) and (b) of this section do not include a cement kiln. However, disposal in a cement kiln may be approved by the EPA Regional Administrator as an option under risk-based disposal at §761.62(c).

5 ***Q: In my state, PCB small capacitors are required to be removed prior to sending items to a recycler for shredding. May such a source control program constitute compliance with the requirement to remove all capacitors? What constitutes an effective program of screening waste going to a white goods shredder for small capacitors?***

A: You may submit to EPA a request for an approval of a source control program as a risk-based disposal option under §761.62(c). The request should describe the source control program in detail, including the steps a facility would use to remove or verify removal of capacitors or other sources of PCBs; results of a pilot study verifying that the waste generated when the program is used does not pose an unreasonable risk to health or the environment, including underlying data; and a method for each facility relying on the program to identify itself to EPA and to identify the individual responsible for the facility's administration of and compliance with the source control program.

6 ***Q: My facility recovers scrap metal from automobiles and white goods. Is my facility required to comply with the TSCA PCB regulations?***

A: Yes, if the recycled automobiles or white goods contain PCBs $\geq$50 ppm and the regulated PCBs are not removed prior to shredding. PCBs can be found in a non-liquid state as part of manufactured items, such as paint or plastic, or in a liquid state in capacitors. EPA has provided for self-implementing decontamination procedures to remove or separate PCBs from metal prior to recycling the metal. Physically separating non-liquid PCB-containing waste from non-PCB-containing metal is a self-implementing decontamination activity that does not require an approval. Waste streams from this process may be regulated for disposal (see §761.62 and §761.79)

7 Q: Is the scrap metal from the shredding of automobiles and appliances regulated for disposal under TSCA?

A: No, as long as the feedstock material did not contain PCBs at concentrations $\geq$ 50 ppm and if the scrap metal no longer contains or is contaminated by regulated PCBs.

8 Q: It is possible to reduce the contamination of the feedstock of automobile and household appliance shredders from liquid PCBs, which have a concentration $\geq$50 ppm, through the use of a source control program?

A: Yes

9 Q: Does a "source control program" have to be approved by EPA?

A: No. However, if a facility wishes to use an EPA approved source control program, the facility must apply for an approval in accordance with 40 CFR 761.62(c).

10 Q: Is the shredder residue regulated for disposal?

A: Yes, if the feedstock material contained PCBs at concentrations $\geq$ 50 ppm, then the residue is regulated under § 761.62.

11 Q: My facility adds water to PCB Bulk Product Waste to physically separate metals from non-metal by flotation. Is this processing for disposal that requires an approval?

A: No. Physically separating PCB-containing waste from non-PCB-containing waste (usually the metal component) is a self-implementing decontamination activity that does not require an approval (see §761.79(a)(1)). Even though an approval is not required, the materials must still meet the decontamination standards in §761.79. The metal, whether it is painted or unpainted, must meet the decontamination standards at §761.79(b)(3)(i)(B), §761.79(b)(3)(ii)(B), §761.79(c)(6) or alternate standards set in a §761.79(h) approval. The water used for flotation must meet the standards in §761.79(b) or alternate standards set in a §761.79(h) approval. Waste streams from this process (including the water) may be regulated at the time of disposal, depending on their PCB content.

Sampling

1. Q: Section 761.62(b)(1)(ii) sets out land disposal options for non-liquid PCB bulk product waste sampled in accordance with subpart R that leaches <10 µg/L. Subpart R describes a sampling protocol for non-liquid, non-metal PCBs. How do I sample metal PCB bulk product waste?

A: Subpart P establishes a sampling protocol for non-porous surfaces, including metal. Section 761.62(b)(1) does not refer to subpart P because EPA anticipated that most metal from shredded PCB bulk product waste would be smelted or otherwise recovered rather than being disposed of in a landfill. You may apply to the EPA Regional Administrator for a risk-based sampling method under §761.62(c) for any sampling activities involving PCB bulk product waste that are not directly addressed in the regulations.

2. Q: A utility wishes to determine whether cable contains a PCB concentration ≥50 ppm for the purpose of disposal. Must the utility follow Subpart R to determine whether the cable contains ≥50 ppm PCBs, or may the utility use another method of its own choosing?

A: The utility may apply to the EPA Regional Administrator for a risk-based sampling method under §761.62(c) for any sampling activities involving PCB bulk product waste that are not directly addressed in the regulations.

3 Q: Many municipal waste landfills will not accept materials that contain a PCB concentration over 10 ppm. Must I sample to determine the PCB concentration of all demolition waste before sending it to the municipal waste landfill?

A: The Disposal Amendments require only that the landfill be notified that the PCB bulk product waste may contain components containing PCBs at

≥50 ppm, and that the leaching characteristics also be included in the notice. The PCB regulations do not specifically require sampling. A particular landfill may be subject to other regulations or requirements, including PCB concentration limits.

§761.62(a) Performance-based disposal

1. Q: Must I manifest PCB bulk product waste disposed of under §761.62(a)?

A: Yes.

§761.62(b) Disposal in Solid Waste Landfills

1. Q: What PCB bulk product waste may I dispose of in a state-approved municipal or non-municipal non-hazardous waste landfill?

A: The Disposal Amendments identify specific types of PCB bulk product waste, such as plastics, rubber, and building demolition debris, that you may dispose of in a facility permitted, licensed, or registered by a State as a municipal or non-municipal non-hazardous waste landfill. In addition, you may dispose of other wastes which leach PCBs at <10 µg/L in this type of facility. You may dispose of PCB bulk product waste not meeting these criteria, such as paper or felt gaskets contaminated by liquid PCBs, in a municipal or non-municipal non-hazardous waste landfill that segregates the PCB bulk product waste from organic liquids disposed of in the landfill and collect the landfill leachate and monitors it for PCBs. See §761.62(b)(1) and (2) for more details.

2 Q: Is pipe coated with coal tar enamel covered under §761.62(b)(1)(i)? What about loose coal tar enamel that has been removed from piping?

A: The Disposal Amendments do not specifically identify these as materials that you may dispose of in a facility permitted, licensed, or registered by a state as a municipal or non-municipal non-hazardous waste landfill. However, you may dispose of these materials in this type of facility if a leach simulation test shows that they leach PCBs at <10 µg / L. If the materials leach ≥10 µg/L, you may dispose of them in a municipal or non-municipal non-hazardous waste landfill that segregates the PCB bulk product waste from organic liquids disposed of in the landfill and collects the landfill leachate and monitors it for PCBs, or in accordance with §761.62(a) or (c).

3 Q: What type of auto shredder waste may I dispose of in a state-approved municipal or non-municipal hazardous waste landfill?

A: You may dispose of non-liquid PCB bulk product waste from the shredding of automobiles or household appliances (fluff) from which PCB small capacitors have been removed in a municipal or non-municipal non-hazardous waste landfill. You must dispose of fluff from which the PCB small capacitors have not been removed in accordance with §761.62(a) or (c).

4 Q: One of the conditions for landfilling PCB bulk product waste is that any release from the landfill must be cleaned up as PCB remediation waste (see §761.62(b)(i)(3)). What is meant by "any release from the landfill"?

A: "Any release from the landfill" refers to any release that contains PCBs, such as a release to groundwater through leaching, or soil contamination of adjacent areas where waste is blown from the landfill.

5 Q: I have construction debris that includes materials that may be disposed of in a municipal or non-municipal non-hazardous waste landfill under §761.62(b)(1) and materials that must be disposed of in a landfill with leachate collection under §761.62(b)(2). Must I separate these materials for disposal?

A: You must either separate the materials or dispose of all of them in a landfill with waste segregation and leachate collection under §761.761.62(b)(2).

6 Q: The regulations say that when I dispose of PCB bulk product waste in a facility permitted, licensed, or registered by a State to manage municipal solid waste or non-municipal non-hazardous waste, I must notify the facility that the waste contains ≥50 ppm PCBs. Must I test all the PCB bulk product waste I dispose of, or may I test a representative sample?

A: It is not always necessary to determine the PCB concentration or leaching characteristics of PCB bulk product waste. For example, under §761.62(b)(1)(i), you may dispose of certain PCB bulk product waste in a facility permitted, licensed, or registered by a State as a municipal or non-municipal non-hazardous waste landfill regardless of its PCB concentration. Under §761.62(b)(4), you must notify the disposal facility that the waste may contain PCBs ≥50 ppm, but you may do so based on application of a general knowledge of the waste stream or similar material. If you cannot base the §761.62(b)(4) notice on general knowledge of the PCB concentration of the waste, you must test the waste. You may do so by taking a representative sample of the waste following Subpart R. That subpart describes how to select and analyze a sample of non-liquid, non-metal PCB bulk product waste, either from existing accumulations (such as piles of shredder fluff or demolition debris) or from processes that continuously generate new waste. Alternatively, you may request approval under §761.62(c) of another sampling method.

7 Q: Is leach testing required to show that the PCB do not leach < 10ug/l or can this be presumed?

A: This can be presumed only for the materials specifically identified in §761.62(b)(1). Otherwise, leach testing is required.

8 Q: What is a leach simulation test mentioned in §761.62(b)(1)(ii)? Is this the same as the TCLP? What guidance is there on conducting the leach testing to demonstrate < 10 µg/L?

A: A leach simulation test is a type of test that simulates what would happen when a waste is placed in a landfill. You may use the TCLP to stimulate leachate generation, or any test that simulates leaching under your disposal conditions and that generates reproducible results.

9 Q: When do I have to notify an off-site disposal facility that I am disposing of PCB bulk product waste? Must I notify for every shipment of waste from a demolition project if it is always the same type of material (e.g., painted concrete and metal or cable)?

A: When you dispose of PCB bulk product waste in a facility permitted, licensed, or registered by a State as a municipal or non-municipal non-hazardous waste landfill under §761.62(b)(1), and that facility does not have a commercial PCB storage or disposal approval, you must notify the facility a minimum of 15 days in advance of the first shipment from the same disposal waste stream. When you dispose of PCB bulk product waste in a municipal or non-municipal non-hazardous waste landfill that segregates the PCB bulk product waste from organic liquids disposed of in the landfill, and collects the landfill leachate and monitors it for PCBs under §761.62(b)(2), and that facility does not have a commercial PCB storage or disposal approval, you must notify the facility a minimum of 15 days in advance of the first shipment from the same disposal waste stream and with each shipment thereafter.

10 Q: What is meant by "the same disposal waste stream"?

A: A disposal waste stream remains the same as long as the source or origin of the waste remains unchanged. For example, demolition waste from a single demolition project that is delivered to the disposal facility in more than one load is waste from the same disposal waste stream. Waste from a different demolition project is not from the same disposal waste stream. For a shredding operation, the waste stream from automobiles is not the same as the waste stream from plastic-insulated electrical cables or from household appliances.

11 Q: Who must I notify when I dispose of radioactive PCB bulk product waste?

A: The requirements are the same as for PCB bulk product waste without a radioactive component.

12 Q: What must I include in the notification to the landfill?

A: If you are disposing of PCB bulk product waste under §761.62(b)(1), the notice must state that the PCB bulk waste may include components containing PCBs at ≥50 ppm and that the PCB bulk waste is known or presumed to leach <10 µg/L PCBs. If you are disposing of PCB bulk product waste under §761.62(b)(2), the notification must state that the PCB bulk waste may include components containing PCBs at ≥ 50 ppm and that the PCB bulk product waste is known or presumed to leach ≥10 µg/L PCBs.

13 Q: What would happen if a facility disposed of something as non-PCB in a municipal landfill and the landfill (or other party) later determined that the PCB concentration of the article was ≥50 ppm?

A: The facility would be in violation for failure to notify the landfill. However, the article would only need to be removed from the landfill if it was prohibited from disposal.

14 Q: Under §761.62(b)(4)(i), does a facility that owns a solid waste landfill and also generates its own PCB bulk product waste need to send a notice to itself when it disposes of its own waste?

A: No, the intent of the notice is to give the landfill the opportunity to determine whether the waste may be managed under the landfill's permits.

15 Q: Does the requirement to dispose of PCB material within one year apply to PCB bulk product waste going to a state-approved landfill?

A: Yes. Any PCB waste regulated for clean-up must be disposed of within one year unless the EPA Regional Administrator grants an extension (see §761.65(a)).

16 Q: How do I determine if a building scheduled for demolition would be PCB bulk product waste based on the PCB concentration in the applied dried paint on the building?

A: EPA has not specified a procedure for collecting samples of applied dried paint prior to demolition of the painted surface. Subpart R is designed for post-demolition debris in piles. You may wish to contact your EPA regional office for advice on sampling (especially if you are planning to composite the samples), or to apply for an alternative sampling procedure through §761.62(c).

17 Q: Must a municipal solid waste facility accepting PCB bulk product waste keep annual records, keep annual document logs, and submit annual reports under subparts J and K? Are these wastes to be manifested? Must the receiving facilities have an EPA ID or notify EPA regarding their PCB waste activity?

A. No (see §761.62(b)(6)).

§761.62(c) Risk-based disposal approval

1. Q: Is manifesting required for PCB bulk product waste disposed of in accordance with a risk-based disposal approval under §761.62(c)?

A: PCB waste must be manifested unless the regulations or your disposal approval specify otherwise. There is no regulatory exception to manifesting in §761.62(c). You may work with the EPA Regional

Administrator to resolve this issue when your risk-based approval is issued.

2. Q: On what factors are risk-based approvals based?

A: Whether to grant a risk-based approval is in the discretion of EPA. EPA may grant such an approval based on a finding that the sampling, disposal, or storage method will not pose an unreasonable risk of injury to health or the environment. The regulations do not specify what criteria EPA must consider in making this finding.

3. Q: What information must I include in an application for risk-based disposal of PCB bulk product waste?

A: You must include information indicating that, based on technical, environmental, or waste-specific characteristics or considerations, the proposed sampling, storage, or disposal methods or locations will not pose an unreasonable risk of injury to health or the environment. The specific data needed to support an individual application will vary from case to case.

4 Q: Under §761.62(c), may EPA issue an approval to allow me to recycle concrete coated with paint containing PCBs for use as aggregate for new concrete?

A: No. Section 761.62(c) allows EPA to issue a risk-based approval for sampling, disposal, or storage of PCB bulk product waste. EPA cannot issue a risk-based approval for a use not authorized by the regulations. Recycling concrete containing PCBs is use, not disposal, and this use is not authorized.

§761.62(d) Disposal as daily landfill cover or roadbed

1. Q: Under §761.62(d)(2), may I dispose of potting material under a roadbed?

A: Yes, if you have tested the potting material and determined that it leaches PCBs at <10 µg/L.

2. Q: If PCB bulk product waste is disposed of as a roadbed under asphalt, what are the regulatory implications when the asphalt is ground up for reuse?

A. The regulations allow disposal of PCB bulk product waste under an asphalt roadbed. This means that the PCB bulk product waste must not be dug up or disturbed after placement. You may not grind up and reuse the asphalt if doing so will disturb the PCB bulk product waste roadbed and result in exposure to PCBs.

3 Q: Under §761.62(d), what type of landfill may dispose of PCB bulk product waste as daily landfill cover?

A: The regulations do not restrict this form of disposal of PCB bulk product waste to particular types of landfills.

§761.63 PCB household waste storage and disposal

1. Q: Does the definition of PCB household waste include waste disposed of by colleges and universities? Does it matter whether the waste comes from dorms or from administration buildings?

A: PCB household waste is waste generated by residents on the premises of temporary or permanent residences, and that consists primarily of materials found in waste generated by consumers in their homes. Waste containing PCBs from college and university dorms is PCB household waste; waste from administration buildings is not.

2 Q: If household waste managed by a municipal solid waste facility is unregulated, are the activities subsequently undertaken by the municipality or a second party unregulated (e.g., material recovery)? Also, does the waste continue to be unregulated after the municipality handles the material (e.g., baled refrigerators)?

A: You may dispose of PCB household waste in a municipal or industrial solid waste facility. If the municipal or industrial solid waste facility sells or otherwise distributes the waste for further processing, it is no longer household waste. If the waste contains regulated PCBs, the facility that receives the waste must properly manage and dispose of it. For example, if a municipal solid waste facility sends baled refrigerators containing PCBs in paint or in small capacitors to a shredding facility for metal recovery, the shredding facility must manage and dispose of the refrigerators as PCB bulk product waste.

3 Q: Why does EPA believe homeowners may still have liquid paint with

≥50 ppm PCBs?

A: EPA does not believe that most homeowners will have PCB-containing paint at concentrations of 50 ppm or greater. But, the Agency is aware of situations where homeowners have brought paint containing high concentrations of PCBs to municipal waste landfills for disposal.

§761.64 Disposal of Analysis Waste

General

1. Q: Section 761.64 states that waste generated during analysis of waste samples for PCBs may be managed at the PCB concentration in the waste, regardless of the concentration in the original sample. Does this apply only to waste produced in analyzing for PCB concentration or does it also apply to waste produced for other analyses (such as for metals or anions that may also be present in the sample)?

A: Section 761.64 applies to waste from research and development activities involving analysis of samples containing PCBs. Dispose of wastes from chemical analysis of samples containing PCBs based on the PCB concentration of the waste at the time of disposal. (See §761.64(b).)

2 Q: How must I dispose of the unused portion of a sample that contains PCBs?

A: Dispose of the unused portion of the sample in the same manner as the waste from which the sample was taken. For example, where analysis of a portion of a sample of mineral oil dielectric fluid shows that the PCB concentration is ≥50 and <500 ppm, dispose of the unused portion of the sample in an incinerator that complies with §761.70 or a high efficiency boiler according to §761.71(a).

3 Q: I have laboratory equipment that I used for analysis of samples that contain PCBs and samples that do not. Must I decontaminate the equipment between uses? May I follow the manufacturer's recommendations for cleaning the instrument instead of the decontamination procedures specified in §761.79?

A: You do not need to decontaminate chemical instruments in accordance with §761.79 after each use. However, when you clean the instrument during normal maintenance or according to the manufacturer's recommendations, you must dispose of the residual PCB-containing waste in accordance with §761.64. You must decontaminate instruments in accordance with §761.79 prior to distribution in commerce.

§761.64(a) Extracted samples

1. Q: Please clarify the phrase "unregulated for PCB disposal" as used in §761.64(a).

A: The phrase "unregulated for PCB disposal" means there are no disposal requirements affecting the PCB component of the waste. Other requirements may apply if the waste contains hazardous constituents besides PCBs.

§761.64(b) Other wastes

1. Q: What does the term "concentration at the time of disposal" mean in §761.64(b)? Has anti-dilution been waived for laboratory wastes generated from chemical analysis of samples for PCBs?

A: Yes. "Concentration at the time of disposal" means the existing concentration of PCBs in the laboratory waste as opposed to the PCB concentration attributed to the original sample.

2 Q: If waste is produced from an instrument during a series of analyses and the waste is collected into a single container, may the PCB concentration of the composite waste be used, or is it necessary to determine the PCB concentration for the waste produced for each individual analysis?

A: You may determine the PCB concentration of liquid laboratory waste either by analyzing the PCB concentration of the composite of all of the liquid waste in the container, or by using the PCB concentration from the sample or samples having the highest PCB concentration which is included in the container. Disposal of non-liquid laboratory waste does not depend on the PCB concentration of the waste.

3 Q: If I know a sample that I received for analysis contains PCBs ≥50 ppm, how must I store it?

A: You are not required to comply with storage for disposal requirements because the sample is still in use (rather than in disposal) until analysis is completed. EPA recommends that you date the sample and label it with its PCB concentration.

4 ***Q:*** ***Under the Disposal Amendments, if a lab is storing for disposal a container of hazardous liquid waste generated from PCB analysis (such as spent solvent / hexane extract, deionized water, PCB oil sample, or reagent blanks), should the waste be labeled and disposed of as only RCRA hazardous waste and not PCB waste?***

A: If the waste contains regulated levels of PCBs, it must be marked, stored, and disposed of in accordance with the PCB regulations as well as in accordance with applicable RCRA regulations.

§761.65 Storage for Disposal

General

1. ***Q:*** ***What storage requirements apply to waste that may be disposed of in a non-TSCA facility, such as certain categories of PCB bulk product waste and bulk PCB remediation waste at concentrations <50 ppm, decontaminated waste <50 ppm, lab waste <50 ppm, and cleanup debris classified under remediation waste?***

A: The storage for disposal requirements in §761.65 apply to all types of PCB waste at concentrations $\geq$50 ppm, unless otherwise specified in the regulations. Storage of waste with <50 ppm PCBs is not subject to 761.65.

Storing less than 500 gallons

1. ***Q:*** ***If a facility's storage of PCB waste generated by others does not exceed 500 gallons, must the facility notify EPA as a commercial storer (realizing that approval is not needed), keep records as required by §761.180(b), and submit annual reports?***

A: Yes. The definition of "commercial storer of PCB waste" states, "If a facility's storage of PCB waste generated by others at no time exceeds a total of 500 gallons of liquid and/or non-liquid material containing PCBs at regulated levels, the owner or operator is a commercial storer but is not required to seek EPA approval as a commercial storer of PCB waste." Nonetheless, the facility must comply with the requirements pertaining to commercial storers in Subparts J and K, including notification, recordkeeping, and reporting.

2. Q: If a facility's storage of PCB waste generated by others does not exceed 500 gallons, does the storage facility need to meet the structural requirements of §761.65(b)?

A: Yes. A facility that stores no more than 500 gallons of PCB waste generated by others is not required to obtain approval as a commercial storer. The storage facility must nonetheless comply with the requirements of §761.65(b).

3. Q: If a facility's storage of PCB waste generated by others does not exceed 500 gallons, and the facility experiences a PCB leak, does the facility have to follow the PCB rules when cleaning up the spill?

A: Yes. A facility that stores no more than 500 gallons of PCB waste generated by others is not required to obtain approval as a commercial storer. All other provisions of the PCB rules apply.

Related company

1. Q: A rural electric cooperative is owned by its members. If the cooperative stores leaking small capacitors generated by farmers who are members of the cooperative, is the cooperative a commercial storer?

A: No. The definition of "commercial storer of PCB waste" states that storage of one company's waste by a related company is not considered commercial storage. Members of electric cooperatives are considered related companies. Therefore, the cooperative may store the PCB waste of its members without engaging in commercial storage.

2. Q: If one government agency stores waste for another government agency, is the first agency a commercial storer?

A: Entities within the same executive agency may store each others' waste without being considered commercial storers. However, if one executive agency stores the waste of another executive agency, this constitutes commercial storage.

3. Q: If a utility has a contract to service customer-owned equipment, is

the utility a commercial storer?

A: It depends. A commercial storer of PCB waste is a facility that engages in storage activities involving PCB waste generated by others. Some examples of waste generated by the utility's customers are PCBs removed from equipment sold to the utility for salvage rather than repair (the customer has made the decision to dispose of the equipment, so any PCBs it contains are considered a waste), and PCB waste resulting from a type of servicing that the customer knows will generate PCB waste, such as reclassification of a transformer. If the customer sends the equipment to the utility for servicing not knowing whether the servicing will produce a PCB waste, the customer is not the generator of PCB waste. Any waste that does result from the servicing is generated by the utility. For more information contact your EPA Regional Office.

4. Q: Can a company accept PCB wastes from an affiliated company, for purposes of consolidation prior to disposal, without becoming a "commercial storer" of PCBS?

A: Yes, provided the "affiliated company" qualifies as a "related company" as discussed in the definition of "commercial storer" in §761.3.

§761.65(a)(1) Storage limitations

1. Q: The Disposal Amendments provide that PCB/radioactive waste removed from service for disposal is exempt from the 1-year time limit for storage for disposal, provided certain records are kept. Does this apply to non-DOE PCB/radioactive waste?

A: Yes.

§761.65(a)(2) One-year extension

1. Q: If an article was taken out of service, but is stuck in litigation prior to disposal beyond one year storage for disposal, what happens?

A: Contact the EPA Regional Administrator to request an extension of the one-year storage limit.

§761.65(b) Storage Containers/Units

§761.65(b)(2) Non-65(b) areas

1. Q: Does §761.65 allow RCRA storage facilities to store PCB waste without additional TSCA storage approvals?

A: Yes, you may store waste in a facility permitted or authorized under RCRA §§3004, 3005, or 3006 without additional TSCA approval. RCRA regulations at 40 CFR 264.111 require the owner or operator of the RCRA storage facility to close the facility in a manner that controls, minimizes, or eliminates the post-closure escape of hazardous constituents, including PCBs.

2. Q: Which containment standards apply to the storage of PCB/radioactive waste in RCRA interim status facilities, RCRA or TSCA?

A: PCB/radioactive waste may be stored in a facility permitted or authorized under RCRA §§3004, 3005, or 3006 without additional TSCA approval.

3 Q: Under §761.65(b), PCBs may be stored for disposal in areas meeting the requirements of RCRA §§3004, 3005, or 3006. May I store PCBs in accordance with the requirements for 90-day accumulation under RCRA (40 CFR 262.34)?

A: No. The allowance to store in a RCRA permitted facility does not include the 90-day generator storage provision or storage in satellite accumulation areas.

§761.65(c) Storage in DOT containers

1. Q: May I use a roll-off bin or a tank truck as a shipping container for PCBs?

A: Refer to the requirements of the DOT Hazardous Materials Regulations at 49 CFR parts 171 through 180.

§761.65(c)(9) Bulk PCB remediation waste and PCB bulk product waste

1. Q: How is "storage" defined as it relates to PCB remediation waste prior to clean up (i.e., contaminated media as it sits in place)?

A: This waste would be considered improperly disposed of, rather than stored for disposal. The storage for disposal requirements apply if you store the waste after removing it from the site of improper disposal.

2. Q: PCB remediation waste is stored on-site at the generator's facility. The PCB remediation waste is generated from a cleanup from a post July 2, 1979 spill having a source ≥50 ppm PCBs. The PCBs in the PCB remediation waste soil stockpile are all detected at <50 ppm. Do the storage requirements for bulk PCB remediation waste apply to this soil?

A: It depends. The storage requirements at §761.65 apply to waste with PCB concentrations ≥50 ppm. PCB remediation waste is regulated based on the concentration at which the waste is found. You may not dilute the as-found concentration of the contaminated soil by mixing it with clean soil during excavation or other management activities. If the waste was stockpiled prior to the effective date of the Disposal Amendments (August 28, 1998), the as-found concentration is the current concentration of the stockpile. However, if the waste was excavated into piles after that date, the as-found concentration is the concentration of the soil before it was excavated and potentially mixed with clean soil. If the as-found PCB concentration of the waste is ≥50 ppm, the storage requirements apply.

3. Q: If PCBs and absorbent materials that may be disposed of in a non-TSCA landfill are generated during waste remediation, is the generated waste subject to the storage requirements?

A: If the PCB concentration in the waste is ≥50 ppm, it is subject to the storage for disposal requirements, unless the regulations specifically provide otherwise for the type of waste you are managing.

4. Q: May a facility that does not have access to a RCRA or TSCA disposal facility store PCB bulk product waste from a demolition project on its site?

A: The facility may store PCB bulk product waste at the demolition site for 180 days provided specified conditions are met to prevent migration or dispersal of the waste. (See §761.65(c)(9).) Alternatively, the facility may apply for a risk-based storage approval under §761.62(c).

5. Q: At what point is PCB bulk product waste from a demolition project subject to the storage for disposal requirements? This material is generated in large volumes and it is moved off-site quickly.

A: PCBs are subject to the storage for disposal requirements as soon as they become a waste. Approved storage for PCB bulk product waste includes storage in piles under conditions specified in §761.65(c)(9) for up to 180 days.

6. ***Q:*** ***Section 761.65(c)(9) allows storage of bulk remediation waste and bulk product waste up to 180 days at the "cleanup site" or at the "site of generation." What is the difference between the two?***

A: These two terms have essentially the same meaning. "Cleanup site" is defined as "the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of a cleanup of PCB remediation waste, regardless of whether the site was intended for management of waste."

7 ***Q:*** ***A facility has pre-1978 ballasts and other bulk product waste in roll-off boxes. May the facility store these wastes in containers for up to 180 days under §761.65(c)(9) before they are shipped out?***

A: The regulations do not expressly allow for this type of storage. Under §761.62(c), you may request approval for risk-based storage of PCB bulk product waste in a manner not provided for in the regulations.

8 ***Q:*** ***What are the physical requirements for storage for disposal of dry natural gas pipe containing PCBs?***

A: This pipe is regulated as a PCB Article, but may also be disposed of or stored for disposal in accordance with the requirements applicable to PCB remediation waste. Therefore, the pipe must be stored in accordance with §761.65(b) or (c)(9). Alternatively, you may request a risk-based storage approval under §761.61(c).

§761.72 Scrap Metal Recovery Ovens and Smelters

General

1. ***Q:*** ***How can I locate a smelter or scrap metal recovery oven that meets the requirements in §761.72?***

A: The PCB home page at "www.epa.gov/pcb/#PCB Waste Handlers" lists companies that have advised EPA that they comply with the requirements for scrap metal recovery ovens and smelters at 40 CFR 761.72. To determine whether EPA has verified compliance, contact the Regional PCB Coordinators. You can get a list of Regional PCB Coordinators from the PCB home page at "www.epa.gov/pcb" or by calling the TSCA hotline at (202) 554-1404.

2. Q: Do I need a TSCA disposal approval to operate a scrap metal recovery oven or smelter in accordance with the requirements of §761.72?

A: No. However, you need a commercial storage approval unless you dispose of the PCB waste you receive directly on receipt, or you store less than 70 cubic feet or 500 liquid gallons of PCB waste at any one time (see the definition of "commercial storer of PCB waste" at §761.3, and requirements pertaining to commercial storage approvals at §761.65(d)).

3. Q: Must I notify a smelter when I send waste that contains PCBs?

A: The Disposal Amendments do not require you to notify a smelter that it is receiving waste that contains PCBs. The disposer of the PCB waste is responsible for ensuring that it is properly disposed of in a facility that meets the regulatory requirements for disposal of PCB waste.

4. Q: Do smelters that are subject to Subparts J and K have to keep a PCB log?

A: It depends. The smelter must keep a record in its annual document log of waste that is manifested to the smelter. Not all PCB waste disposed of in a scrap metal recovery oven or smelter is subject to manifesting.

5. Q: Must I manifest drained PCB-Contaminated Electrical Equipment (known to contain ≥50 and <500 ppm PCBs) to a scrap metal recovery oven that meets the requirements of §761.72? Must the scrap metal recovery oven issue a certificate of disposal?

A: No. Drained PCB-Contaminated Articles, including drained PCB-Contaminated Electrical Equipment, are not subject to manifesting requirements. (See §761.60(b)(6)(ii)(C).) A disposal facility need not issue a certificate of disposal for waste that is not required to be manifested to it.

6. Q: Must I manifest PCB waste at surface concentrations ≥100μg/100cm^2 when sending it to a smelter? Must the smelter issue a certificate of disposal?

A: Yes, you must manifest the waste and the smelter must issue a certificate of disposal. (See §761.72(c)(2).)

7. Q: I operate a smelter that accepts PCB waste for disposal. Must I have a commercial storage approval?

A: Yes, unless you dispose of the PCB waste directly on receipt, or you store less than 70 cubic feet or 500 liquid gallons of PCB waste at any one time. Otherwise, you must apply for and receive a commercial storage approval under §761.65(d) before you accept the waste.

§761.72(a) Scrap metal recovery ovens

1. Q: My company operates a scrap metal recovery oven that is in compliance with §761.72(a) and (c). Are the operating requirements of §761.72(a) performance-based, or must my company wipe sample all metals after they go through the burning process?

A: If your scrap metal recovery oven is operating in compliance with §761.72(a) and is accepting only PCB waste allowed to go to a scrap metal recovery oven under the Disposal Amendments, EPA considers the PCBs disposed of after they have been treated in the oven. You do not need to wipe sample the metals after they have been through the burning process.

2. Q: My company wants to dispose of drained PCB-Contaminated Transformers in a scrap metal recovery oven. Our state air pollution permit restricts material input to drained transformers and electrical equipment previously containing <500 ppm PCBs. Does this material input standard meet the requirement of §761.72?

A: Yes. Under §761.72(a)(7), emissions from the secondary chamber of a scrap metal recovery oven must be vented through an exhaust gas stack in accordance with State or local air regulations or permits, or standards specified in §761.72(a)(8). It is not necessary to have an emissions standard for PCBs in an a State or local air permit, so long as your permit acknowledges that the secondary chamber vents through an exhaust stack and emissions are in compliance with State and local air regulations.

3. Q: Will EPA review state or local air pollution permits to ensure that the permits meet the requirements of §761.72(a)(7) and §761.72(c)(1)?

A: The Disposal Amendments do not require you to submit state or local air permits for EPA's review to ensure compliance with §761.72(a)(7) or §761.72(c)(1). It is the obligation of the owner or operator of the scrap metal recovery oven or smelter to ensure that the facility maintains a valid (currently in-force) air permit with the appropriate state or local authority.

§761.72(b) Smelters

1. Q: May I dispose of PCB bulk product waste in a facility that meets the requirements of §761.72(b) but does not have the primary function of a smelter?

A: Yes.

2. Q: May I send waste to a smelter that does not meet the requirements in §761.72(b)?

A: You may send waste to a smelter that does not meet the requirements of §761.72(b) if the level of PCB contamination in the waste is <50 ppm or $\leq$10 µg/100 cm^2.

§761.72(c) Risk assessment and public participation

1. Q: I operate a scrap metal recovery oven that meets the requirements of §761.72(a), but does not have a RCRA permit. Under §761.72(c), must I get approval from the Region?

A: Section 761.72(c)(1) requires that a scrap metal recovery oven or smelter have a final RCRA permit or be operating under a valid state air emissions permit that includes a standard for PCBs. This is to ensure that the facility's operations have been evaluated through a process that includes a risk assessment and public participation. Alternatively, under §761.72(c)(3), the EPA Regional Administrator may make a finding based on a site-specific risk assessment that a scrap metal recovery oven or smelter does not pose an unreasonable risk of injury to health or the environment even though it does not have a state air permit that includes an air emissions standard for PCBs. Each Region offers an opportunity for public participation in the process of making such a finding.

2. Q: Under §761.72(c)(3), if a company develops a risk assessment for their scrap metal recovery oven or smelter which demonstrates that the equipment poses no unreasonable risk of injury to health and

the environment, must they comply with §761.72?

A: Yes. A scrap metal recovery oven must comply with the operating requirements of §761.72(a). A smelter must comply with the operating requirements of §761.72(b). In addition, the facility must have gone through an approval process involving public participation and a risk assessment. If your facility does not meet the operating requirements of §761.72(a) or (b), you may ask the EPA Regional Administrator to issue an alternate disposal approval under §761.60(e) based on risk.

§761.79 Decontamination

General

1. Q: Must I always use the Spill Cleanup Policy to clean up a fresh spill onto a porous surface?

A: You may clean up a spill to a nonimpervious solid surface (see the definition of that term at §761.123) using the Spill Cleanup Policy if the spill is less than 72 hours old. If the spill is less than 72 hours old and the porous surface is concrete, you may decontaminate the concrete under §761.79(b)(4). As an alternative to decontamination, you may clean up and dispose of any spill to a porous surface if you follow the self-implementing cleanup and disposal procedures under §761.61(a) (it does not matter whether the spill is more or less than 72 hours old).

2. Q: May I use §761.79 to decontaminate equipment such as shovels used during a cleanup under the Spill Cleanup Policy?

A: The Spill Cleanup Policy does not address this question. You may decontaminate movable equipment, tools, and sampling equipment under §761.79(c)(2).

§761.79(a) Applicability

1. Q: May I decontaminate an intact PCB-Contaminated Transformer by draining and flushing the transformer?

A: No. The decontamination standards do not apply to intact electrical equipment such as transformers. You may decontaminate the non-porous surfaces in a PCB-Contaminated transformer after disassembling it and removing the paper and other porous materials. This means that you must detank a PCB-Contaminated transformer and separate the metal and non-metal materials. In order to decontaminate the metal from a PCB-Contaminated transformer, it is necessary to make all surfaces available for solvent contact and the rinsing necessary for completing decontamination. You may do this by removing all contents from the tank, separating any core laminations and unwinding and stripping any insulation from the coils. The porous materials cannot be decontaminated. To reduce the PCB concentration in an intact PCB Transformer still in use, see the reclassification rules at §761.30(a)(2)(v).

§761.79(a)(1) When do I need a TSCA disposal approval?

1. Q: Do I need an approval to strip insulation from cable?

A: No. Stripping of insulation is a self-implementing decontamination activity allowed in §761.79(b). As such, you do not need a processing for disposal approval (see §761.20(c)(2)(ii)). However, you may need a commercial storage approval if you store over 500 gallons or 70 cu.ft. of waste at any one time.

2. Q: Do I need a TSCA approval to use a piece of equipment to remove paint that contains PCBs?

A: If the equipment removes the paint through scraping, abrasion, or scarification, you do not need a TSCA processing for disposal approval to operate the equipment, since these are self-implementing decontamination activities allowed in §761.79(b) (see §761.20(c)(2)(ii)). If you remove the paint by a process not included in §761.79(b) or (c), such as using a heat gun or torch, you need a TSCA processing for disposal approval under §761.20(c)(2)(ii) or an alternative decontamination approval under §761.79(h).

3. Q: What decontamination procedures require an approval?

A: Any procedure that is not listed in §761.79 (b) or (c) requires an EPA approval under §761.79 (h).

§761.79(a)(3) Use of decontaminated materials

1. Q: If material previously contaminated with PCBs already meets the decontamination standards, do I still have to follow the decontamination requirements in §761.79 in order to use the material?

A: No, if the material already meets the decontamination standards it is authorized for use under §761.30(u) and for distribution in commerce under §761.20(c)(5)(ii) without further decontamination.

2 Q: If I decontaminate a shovel is after using it to clean up a spill, may I reuse the shovel?

A: Yes, you may reuse the shovel as long as you decontaminate it in accordance with §761.79.

3 Q: Can a facility reuse a diesel pump that had PCB fluid in the crankcase, if it has been drained and decontaminated?

A: You may reuse the pump as long as you decontaminate it in accordance with §761.79.

§761.79(b)

General

1. Q: Does the list of approved PODFs in §761.79(c) limit the type of solvents that may be used for decontamination under §761.79(b)?

A: No. There are no restrictions on the solvent used under §761.79(b) as long as the regulated surface level concentrations are met.

2. Q: Is soil washing a decontamination method?

A: No. Section §761.79 provides decontamination standards and procedures for water, organic liquids, non-porous surfaces, concrete, and non-porous surfaces covered with a porous surface (such as paint on metal). The rules do not allow decontamination of soil. Soil washing under certain conditions is an authorized method for self-implementing cleanup of PCB remediation waste (see §761.61(a)(5)(i)(A)).

3. Q: If a facility does decontamination under the performance-based procedures, does the facility have to submit an annual report?

A: Decontamination is a form of processing for disposal that does not in itself make the facility subject to the annual reporting requirements. If the decontamination facility is a commercial storer or disposer, it must submit an annual report (see §761.180(b)(3)).

Porous surfaces

1. Q: My company transports PCB Transformers and PCB-Contaminated transformers on wood trailer beds. Transformers sometimes leak during transportation, contaminating the wood with oil ≥50 ppm. Can I decontaminate the wood trailer beds under §761.79, or must I follow the requirements for reuse of a porous surface in §761.30(p)? What should I do if I follow §761.30(p) and the wood becomes recontaminated?

A: The Disposal Amendments do not include decontamination standards or procedures for wood. To continue to use the contaminated wood trailer bed, you must follow the requirements of §761.30(p). Follow the procedures at §761.30(p) as to all exposed, accessible porous surfaces that are contaminated (this may include the underside of the trailer). After complying with §761.30(p), you may continue to use the wood trailer bed for its original purpose of transporting electrical equipment, but you may not sell or otherwise distribute it. If the wood becomes recontaminated, since there is no procedure for decontamination, you must follow §761.30(p) again. To prevent recurring contamination, you may wish to place metal containment pans between the leaking equipment and the wooden bed. Once the trailer bed has reached the end of it useful life, you must dispose of it in accordance with §761.61.

§761.79(b)(1) Water

1. Q: Why was the definition of "navigable waters" used in §761.79(b)(1)(ii) instead of simply "waters in the U.S." or "waters of a State" since navigable waters under the Clean Water Act only includes very large bodies of water used for commerce?

A: The Clean Water Act defines "navigable waters" as "the waters of the United States, including the territorial seas." 33 U.S.C. 1362(7). This definition is not limited to waters that are actually navigable. Congress intended to give "navigable waters" the broadest possible interpretation consistent with the Commerce Clause of the U.S. Constitution. The definition includes interstate waters (including interstate wetlands), all waters that can be used in interstate or foreign commerce, wetlands adjacent to U.S. waters, isolated waters such as lakes and ponds that are affected by interstate commerce, and even non-navigable mosquito canals that empty into waters of the U.S. For information on a specific water body, contact the Regional PCB Coordinator.

2. Q: Section 761.79(b)(1)(i) sets a <200 µg/L PCB decontamination standard for the non-contact use of water in a closed system where there are no releases. To what type of facility does this refer?

A: A closed cooling system is an example of the facility referred to in §761.79(b)(1)(i). If you are not sure whether your system meets this standard, contact the Regional PCB Coordinator.

§761.79(b)(2) Organic liquids

1. Q: What does it mean to decontaminate a solvent?

A: Decontaminating a solvent means removing the PCBs from the solvent, such as by distillation or filtration.

§761.79(b)(3) Non-porous surfaces

1. Q: When decontaminating a non-porous surface covered with a porous surface such as paint contaminated with PCBs during manufacture, must I remove the paint?

A: You have two options for decontaminating this non-porous surface -- only one option requires you to remove the paint. Under §761.79(b)(3), you may decontaminate the non-porous surface by removing the non-liquid PCBs (in this case, paint) to specified visual standards, depending on the future use or disposal of the non-porous surface. This is the only non-thermal decontamination option available in the regulations for painted metal surfaces. Your other decontamination option is to use thermal processes as specified in §761.79(c)(6). You also have the option of disposing of the non-porous surface as a PCB bulk product waste (see §761.62) without removing the paint.

2. Q: My facility repairs and reclassifies transformers. How do I decontaminate a painted transformer tank contaminated by transformer fluid containing PCBs? Must I remove the contaminated paint for the transformer to be reused?

A: The painted transformer tank is a non-porous surface with a porous coating contaminated by liquid PCBs. One option is to remove the contaminated coating from the surface by cleaning to the NACE visual standard (see §761.79(b)(3)(i)(B)), then confirm that this cleaning has removed the liquid PCBs from the underlying non-porous metal surface to

$\leq$10 µg/100 cm^2 (see §761.79(b)(3)(i)(A)). Decontaminate the underlying non-porous surface if necessary to remove residual contamination from the spilled liquid.

Alternatively, you may demonstrate that the paint can be decontaminated as part of a request for an alternative decontamination approval under §761.79(h). Consult with your regional PCB Program Coordinator to develop a process for verifying that the decontamination method is effective.

3. Q: May I decontaminate a spill of liquid PCBs onto a painted metal surface in accordance with the Spill Cleanup Policy?

A: Yes, under certain circumstances. The Spill Cleanup Policy was created to address the cleanup of fresh spills. EPA interprets the Spill Cleanup Policy as being available to a party only if it begins cleanup within 24/48 hours after discovery of a spill, which is 72 hours old or less. The painted surface must be cleaned up in accordance with requirements for non-impervious solid surfaces (see the definition of that term at §761.123). The Spill Cleanup Policy requirements for non-impervious solid surfaces depend on the concentration of the PCBs in the spill, the volume of PCBs in the spill, and the location/potential use of the cleaned up surfaces.

4. Q: Where is the NACE visual standard found?

A: The NACE standard can be obtained from the National Association of Corrosion Engineers, or can be found in the docket (#C3-012). The full reference for the standard can be found at 63 FR 35432 (#27).

5. Q: When decontaminating a non-porous surface to meet NACE Visual Standard No. 2 or No. 3, must I blast clean the surface with an abrasive as designated in the procedure, or can I use other methods such as scraping, stripping, or pulling?

A: You may use any of the methods listed in §761.79(b), such as chopping spraying, soaking, wiping, stripping of insulation, scraping, scarification or the use of abrasives or solvents, to attain the visual standards required in §761.79(b)(3).

6 Q: My company strips PCB-containing plastic insulation from wire cable for purposes of metal reclamation by smelting. If the resulting wire (not the plastic) contains PCB concentrations $\leq$10µg/100cm^2, would this wire be regulated for disposal?

A: For disposal in a smelter, the decontamination standard for non-porous surfaces in contact with non-liquid PCBs (such as wire in contact with insulation) is NACE Visual Standard No. 3, not a measurement from a surface wipe sample. (See §761.79(b)(3)(ii).) Once the stripped wire meets this standard, it is regulated for disposal in a smelter that meets the requirements of §761.72(b).

§761.79(b)(4) Concrete

1. Q: Does the §761.79(b)(4) decontamination standard apply to painted concrete?

A: No. This standard applies only to spills directly to concrete that are less than 72 hours old.

§761.79(c) Self-implementing decontamination procedures

1. Q: How must I decontaminate PCB drums that once contained PCB remediation waste? What about roll-offs and dump trucks?

A: Decontaminate the inside of a PCB container, such as a drum, by flushing the internal surface three times with a solvent as required in the self-implementing procedure in §761.79(c)(1). Decontaminate the outside of this equipment in accordance with the procedures for movable equipment in §761.79(c)(2). These options may not be suitable for equipment such as roll-offs or dump trucks. You may request an alternate decontamination approval under §761.79(h).

2. Q: May I distribute in commerce movable equipment (metal with a painted surface) with PCB concentrations $<10\mu g/100cm^2$ after I double wash/rinse the equipment, or must I also remove the painted surface to meet the NACE visual standard?

A: Once you have decontaminated equipment in accordance with §761.79(c)(2), you may distribute it in commerce under §761.20(c)(5). You need not remove the paint to meet the NACE standard.

§761.79(c)(3) Self-implementing decontamination of non-porous surfaces

1. Q: May I use the procedures in §761.79(c)(3) and(c)(4) to decontaminate non-porous surfaces that have been in contact with PCBs in fluids

other than MODEF?

A: No.

2. Q: May I use mineral oil or as a performance-based organic decontamination fluid (PODF) under §761.79(c)(3) and (c)(4)?

A: Yes. Mineral oil exhibits the same solvent properties as diesel fuel, which is specified in the regulations as a PODF. EPA therefore approves the use of mineral oil as a PODF under §761.79(c)(3) and (c)(4).

3. Q: Is hexane considered a performance-based organic decontamination fluid? If not, will hexane have to be tested and validated for performance-based decontamination in Subpart T?

A: Yes. Hexane exhibits the same solvent properties as the PODFs specified in the regulations. EPA therefore approves the use of hexane as a PODF under §761.79(c)(3) and (c)(4) without validation under Subpart T.

§761.79(c)(5) Air compressor systems

1. Q: May I use sodium hydroxide or potassium hydroxide to triple rinse compressed air tanks?

A: The final rules do not specify methods for decontaminating compressed air tanks. Spraying is a permissible decontamination method under §761.79(b), so you may decontaminate the tank by solvent spraying as long as you sample to make sure the solvent spray reduces the level of PCB contamination to the standards in §761.79(b). Another option is to request an alternative decontamination approval under §761.79(h).

§761.79(d) Decontamination solvents

1. Q: How must I store used decontamination solvents that I intend to reuse?

A: You may reuse decontamination solvent as long as its PCB concentration is <50 ppm. There are no storage requirements for the solvent.

2. Q: If I use a solvent that meets the five percent solubility requirement of §761.79(d)(1), must I follow the validation procedure in Subpart T?

A: No. The five percent solubility requirement and the Subpart T procedures are unrelated. Subpart T provides self-implementing criteria for validating solvent use conditions in performance-based decontamination under §761.79(c)(3) and (c)(4). The five percent solubility requirement applies to solvents used in other decontamination processes. Solubility information is available in many reference books.

3. Q: We inadvertently generate PCBs in the ≥50 to <500 ppm range in some of our chlorinated organic processes. Perchloroethylene is the most effective solvent for the waste stream. Our tests show the solubility of Arochlors in perchloroethylene is >5%. Since some of our PCB-contaminated waste streams contain decachlorobiphenyl as the largest biphenyl constituent, we also tested using decachlorobiphenyl. The result of that test was about 1%. Will the test using Arochlors be acceptable to allow us to use perchloroethylene as a solvent for decontamination of containers and during spill cleanup?

A: You may use perchloroethylene where the PCBs are soluble at 5% and greater. You could apply for an alternative decontamination approval under §761.79(h) for the use of perchloroethylene for decachlorobiphenyl. The alternative approval might require you to measure the residual PCB concentration after solvent cleaning. The PCB rules do not specifically mention chlorinated solvents as decontamination fluids because of the problems associated with disposal of chlorinated waste solvents. However, under the new decontamination provisions, chlorinated solvents used as decontamination fluid may be distilled to levels less than 2 ppm PCBs and may be reused rather than disposed of. The PCBs in the still bottoms must be disposed of in accordance with §761.79(g).

4. Q: Should a spilled decontamination solution (used to decontaminate PCB contaminated metal with a concentration of 800 ppm) and all cleanup material be managed at 800 ppm, or can the remaining solution be tested and the spill cleanup material be managed based on actual concentration of the decontamination solution?

A: Dispose of the remaining decontamination solution in accordance with §761.79(g) at its existing concentration. A spill of decontamination liquids is unauthorized disposal. There are two choices for this situation:

1. Use the Spill Cleanup Policy (40 CFR part 761, subpart G) to

manage all waste contaminated by the spill as liquid PCBs, provided that cleanup begins within 48 hours of spill. Compliance with the Spill Cleanup Policy creates a presumption against both enforcement action for penalties and the need for further cleanup under TSCA.

2. Using §761.61, dispose of the material onto which the liquid spilled based on the PCB concentration found in the materials. EPA, however, may take enforcement action based on the original spill.

5. Q: Section 761.79(d) allows solvent to be reused as long as the PCB concentration is <50 ppm. To determine when the 50 ppm limit is reached, must I test the solvent after each use?

A: The PCB regulations do not specify when you must test the solvent. However, it is your responsibility to make sure that the PCB concentration of the solvent does not exceed the 50 ppm limit.

§761.79(e) Limitation of exposure and control of releases

1. Q: Does EPA recommend specific personal protective equipment for cutting or blasting PCB painted surfaces?

A: No. Use any type of equipment appropriate to protect the person handling the contaminated materials. The rule does not specify the type of equipment to use because this will vary from one disposal scenario to the next. You should also refer to the pertinent OSHA requirements.

2. Q: Are there any medical monitoring requirements (i.e., blood level checks) for personnel performing the preceding operations?

A: EPA has no such requirement. Refer to the pertinent OSHA requirements.

§761.79(f) Sampling and Recordkeeping

1. Q: Section 761.79(f)(1) states that the annual recordkeeping of §761.180(a) is applicable for those who perform decontamination work. However, §761.180(b)(3) and preamble page 35424, third column, state the an annual disposer report is required, even if you're decontaminating your own waste on your own site. Please

clarify.

A: Decontamination in and of itself is not disposal, it is a form of processing for disposal. A decontamination facility would have to prepare an annual document log if the facility was also a disposer or commercial storer, i.e., if it disposed of the waste it generated during decontamination activities or if it stored or disposed of waste received from others.

2. Q: What is the frequency of confirmatory sampling of non-porous surfaces decontaminated using a measurement-based approach under §761.79?

A: Subpart P requires you to record sampling of non-porous surfaces for every square meter of the surface. Any person wishing to use an alternate sampling frequency may apply to the EPA Regional Administrator as stated in §761.79(h)(3).

§761.79(g) Decontamination waste and residues

1. Q: I run a permitted PCB disposal facility. I want to buy from the Navy PCB-Contaminated wire from a pilot ship disposal program, then properly dispose of the insulation and recycle the copper. Am I a generator, and if so, of what?

A: Electrical cable containing non-liquid PCBs in non-conducting materials at concentrations $\geq$50 ppm in any individual component is PCB bulk product waste, which is regulated for disposal. One disposal option for PCB bulk product waste is decontamination, i.e., separation of the metal from the PCB-containing insulation (see §761.62(a)(5)).

The Navy became the generator of the waste electrical cable when it removed the cable from the ship for disposal. Even after sale of the cable to the disposer, the Navy is still the generator of the waste cable. Even though the decontamination facility separates reclaimable metal from the waste cable, the remaining PCB-containing insulation is regulated as part of the original waste stream generated by the Navy. PCB waste must be disposed of within one year from the date it was removed from service. In this case, the waste was removed from service when the Navy removed the cable from the ship. The act of separation during decontamination does not affect this date.

The decontamination facility may generate additional waste (such as rags, rinse solvents, and filters) as a result of the decontamination process.

The facility is the generator of this waste. A new one year clock starts for this decontamination waste, which is regulated for disposal under §761.79(g).

2. Q: If I abrade paint off of coated metal, must I capture the paint dust and chips?

A: Yes, you must capture and properly dispose of the paint dust and chips. Under §761.79(g)(2), this waste is regulated at its original PCB concentration, i.e., the concentration of the paint undiluted by the abrasives.

3. Q: How must I dispose of filter media used to decontaminate water?

A: Dispose of filter media as a PCB remediation waste (see §761.79(g)(1)). This means that you must dispose of the filter media at its as-found (i.e., existing) concentration.

4. Q: We reactivate granular activated carbon used to clean up water streams. Testing of the carbon reveals PCBs at <50 ppm. We told the generator that we needed to verify that the source of the PCBs was not ≥50 ppm or TSCA-regulated. He told us that under the Disposal Amendments the source of the PCBs doesn't matter, only the concentration of the carbon in the filter. Is this correct?

A: Under §761.79(g), decontamination waste such as filter media is regulated for disposal at its existing concentration, even if that concentration is <50 ppm. The disposal options for this waste are the options available under §761.61 for PCB remediation waste.

Reactivation of granular activated carbon, depending on the processes involved in removing the PCBs from the carbon, is most likely decontamination (separation) followed by disposal (destruction) of the PCBs removed from the reactivated (decontaminated) carbon. Reactivation of activated carbon by thermal means would require an approval from the EPA Regional Administrator (see §761.79(h)). Sections 761.79(b) and (c) describe decontamination procedures which do not require an approval from the EPA Regional Administrator. Any PCBs separated from the carbon during reactivation are regulated for disposal as PCB remediation waste.

5. Q: May I decontaminate rubber gloves and respirators, or must I dispose of them?

A: You must dispose of them as PCB remediation waste in accordance with §761.61(a)(5)(v). Rubber is a porous surface and cannot be decontaminated.

6. Q: I decontaminated metal coated with PCB paint, a PCB bulk product waste, by an abrasive blasting method leaving clean metal and a PCB waste consisting of stripped paint and spent abrasive. If §761.62 allows the original PCB bulk product waste to be disposed of in a state-approved solid waste disposal facility, is the stripped paint residue also eligible for disposal in a state-approved solid waste disposal facility?

A: Yes. Under §761.79(g)(2), PCBs physically separated from regulated waste during decontamination are regulated for disposal at their original concentration. PCB bulk product wastes are regulated based on their leachability rather than their concentration. You may dispose of the stripped paint and spent abrasive in the same manner as if you had not removed the paint from the metal. Under §761.62(b)(1)(i), you may dispose of applied dried paints as bulk product wastes in a state approved solid waste disposal facility.

§761.79(h) Alternate Decontamination or Sampling Approval

1. Q: How often must I take and test samples to obtain approval for alternate decontamination or sampling methods under §761.79(h)?

A: The number and frequency of samples required for alternate decontamination methods is determined on a case-by-case basis. To apply for alternate decontamination or sampling approval, a facility must submit a written application which describes the alternate method and its effectiveness to the EPA Regional Administrator in accordance with §761.79(h).

§761.180 Records and Monitoring

1. Q: The Disposal Amendments at §761.180(a)(1)(iii) and (b)(1)(iii) require me to include records of inspection, maintenance, clean-up, and disposal in my facility's annual records. What are some examples of these records?

A: This requirement refers to records of inspection, maintenance, clean-up, and disposal in accordance with §761.65(c)(5). Examples are records of inspections for leaks of materials containing PCBs from PCB Items in storage for disposal; records of cleanups of any materials containing PCBs that are spilled from these stored PCB Items; disposal records for the cleaned up material; and records of maintenance of PCB Items in storage for disposal.

2. Q: Is decontamination now considered disposal? The preamble to the new rule (on page 35424) says that disposers of PCBs (even those that dispose of waste generated on-site) must submit their annual document logs to EPA. The preamble provides, as an example of facilities that might dispose of waste generated on-site,"facilities conducting decontamination under §761.79." Please explain. Are facilities that conduct decontamination considered PCB disposers such that they must prepare and submit an annual document log?

A: Decontamination in and of itself is not disposal, it is a form of processing for disposal. A decontamination facility would have to prepare an annual document log if the facility was also a disposer or commercial storer, i.e., if it disposed of the waste it generated during decontamination activities or if it stored or disposed of waste received from others.

3. Q: Section §761.180 states that PCB voltage regulators must be recorded and reported as PCB transformers. Does this also apply to the registration requirements in §761.30, or do only PCB Transformers need to be registered with EPA?

A: The provision in §761.180 that PCB voltage regulators be treated as PCB transformers for purposes of recordkeeping and reporting does not extend to the registration requirements in §761.30. Only PCB transformers need to be registered with EPA.

4. Q: The new rule permits many PCB wastes to be disposed of at RCRA Subtitle C or municipal landfills. How do the environmental monitoring, recordkeeping, and reporting requirements at §761.75 and §761.180 apply to those landfills?

A: The requirements of §761.75 apply only to chemical waste landfills approved under TSCA. They do not apply to facilities approved under another federal or state program. The recordkeeping requirements of §761.180 apply to all facilities disposing of or commercially storing PCBs and PCB Items, regardless of the source of their disposal approval.

5. Q: Must I include fluorescent light ballasts that contain PCBs only in the potting material in my facility's annual records?

A: Yes, if you store at least 45 kg of PCB waste (see §761.180(a)). Any ballasts containing a leaking PCB small capacitor or PCBs at concentrations of 50 ppm or greater in the potting material are regulated for disposal as PCB waste.

6. Q: Recognizing that the 45 kg trigger is based on the weight of the material as a whole, not just the weight of the PCBs, which is the correct weight to be recorded in the Annual Document Log per §761.180(a)(2)?

A: Record the total weight of the material in the Annual Document Log.

§761.207 The Manifest - General Requirements

1. Q: Can a company that sends PCB wastes to its affiliated company for purposes of consolidation prior to disposal treat those shipments as internal consolidation not subject to the PCB manifesting requirements at 40 C.F.R. §761.207?

A: Yes, provided the "affiliated company" qualifies as a "related company" as discussed in the definition of "commercial storer" in §761.3.

Subpart N - Characterization Sampling for §761.61

1. Q: Extraction methods in Subpart N (§761.269 and §761.272) are for solid matrices. Did EPA intentionally not prescribe any methods for liquids?

A: You may use the methods for liquids set out in §761.60(g)(1)(iii).

Subpart O - Cleanup Verification Sampling for §761.61

1. Q: Can I use a verification sampling approach rather than the approach presented in Subpart O? If so, do I need to get approval before implementing it?

A: To use another method, you must receive a risk-based sampling approval under §761.61(c) from the EPA Regional Administrator.

Subpart R - Sampling PCB Bulk Product Waste

1. Q: Subpart R is used to characterize collected waste for disposal yet much of the time it is placed in barrels or roll-off boxes. How does Subpart R apply to this situation?

A: Subpart R contains procedures for sampling existing waste piles and contemporaneously sampling PCB bulk product wastes from processes that continuously generate new waste. While Subpart R doesn't apply to sampling wastes in drums or roll-offs, you may follow §761.348(a) when sampling new waste as generated before it's dumped into the containers. Subpart R does not apply to waste collected in barrels or roll-off boxes. To sample this waste, you must get a risk-based sampling approval under §761.62(c) from the EPA Regional Administrator.

2. Q: A utility wishes to determine whether cable contains a PCB concentration greater than 50 ppm for the purpose of disposal (bulk product waste). Can the utility use another method of its own choosing to determine whether the cable contains greater than 50 ppm PCBs or is the facility required to follow Subpart R?

A: To use another method, you must receive a risk-based sampling approval under §761.62(c) from the EPA Regional Administrator.

Subpart S - Double Wash/Rinse Method for Decontaminating Non-Porous Surfaces

1. Q: Subpart S details the double rinse/wash procedure. After I follow this procedure, must I sample to verify that PCB dust or dirt has been removed from a nonporous surface?

A: No. This is a self-implementing procedure that does not require verification sampling.

Subpart T - Validation of Alternative Decontamination Solvents

1. Q: Can Subpart T be used to validate a performance-based decontamination method using a detergent in addition to a solvent?

A: Yes, if it can be described and demonstrated for approval.

September 2001 Version

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Rags: Non-contaminated rags*	
How Is the Waste Generated: *Rags that have not come into contact with solvents, paints, or fuels, but may have contacted oil, grease and soil.*	
Waste Classification: *Non-Hazardous*	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information: *Rags with oil, grease and soil are non-hazardous as long as they have not come into contact with solvents, paints, or fuels. Rags must be free of liquids.*	
Handling Procedure: *The rags should not have free liquids. Dispose of rags in the normal trash.*	
Compatibility Class: ***Group 6B***	
Transportation Information: *No specific transporatation restrictions.*	
Disposal Method: *Disposed in Landfill*	
Land Disposal Restrictions: *No*	
Final Disposal Site or Disposal Service & Contact: *See the Integrated Waste Management List of Permitted Facilities, "Municipal Solid Waste Landfill" for a nearby disposal site.*	

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Rags: Rags used as part of a rag contract*	
How Is the Waste Generated: *Rags that are sent off-site for laundering and then reuse (i.e., rags that are used under a rag contract).*	
Waste Classification: *Non-Hazardous*	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information: *Rags used as part of a rag contract are considered non-hazardous as long as they are recycled.*	
Handling Procedure: *Used rags should be collected in a closed container. The rags and the closed container should not have free liquids. The rags should not be intentionally left out to dry.*	
Compatibility Class: ***Group 6B***	
Transportation Information: *No specific transporatation restrictions as long as the rags are transported to a commercial cleaner or laundry.*	
Disposal Method: *Recycled*	
Land Disposal Restrictions: *No*	
Final Disposal Site or Disposal Service & Contact: *See the Hazardous Waste Service Providers Directory, "Shop Rag & Wiper Laundering Contracts" for a nearby commercial cleaner or laundry.*	

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name:	*Rags: Contaminated rags*
How Is the Waste Generated:	*Rags that may have come into contact with solvents, paints, or fuels.*
Waste Classification:	*Hazardous, F002*
Waste Determination Method:	*Process Knowledge or Analysis*
Waste Determination Information:	*Rags that may have come into contact with solvents, paints, or fuels may be hazardous wastes due to potential contamination by toxic or ignitable wastes.*
Handling Procedure:	*Collect used rags in a steel or plastic drum. Follow the SOP for Hazardous Waste and label the drum with the name "Hazardous Waste -Rags Contaminated with " followed by the corresponding P, U or D listed waste name.*
Compatibility Class:	***Group 6B***
Transportation Information:	*Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.*
Disposal Method:	*Treated*
Land Disposal Restrictions:	*Yes*
Final Disposal Site or Disposal Service & Contact:	*See the Hazardous Waste Service Providers Directory, "TSD Facilities" for a nearby hazardous waste treatment and disposal site.*

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Reactive wastes: Reactive wastes not other-wise classified*	

How Is the Waste Generated:

Used lithium batteries unless the lithium battery manufacturer is contacted and states that the manufacturer's lithium battery is not a hazardous waste when disposed.

Waste Classification: *Hazardous, D003*

Waste Determination Method: *Process Knowledge or Analysis*

Waste Determination Information:

Used lithium batteries may be a hazardous waste due to lithium's reactivity with water. Some lithium batteries are not reactive with water when they do not have a charge. The lithium battery manufacturer should be contacted to determine if the lithium battery is a hazardous waste.

Handling Procedure:

Collect potentially reactive waste in a plastic (i.e., non-conductive and leak proof) drum. Follow the SOP for Hazardous Waste.

Compatibility Class: ***Group 6A***

Transportation Information:

Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.

Disposal Method: *Treated*

Land Disposal Restrictions: *Yes*

Final Disposal Site or Disposal Service & Contact:

See the Hazardous Waste Service Providers Directory, "TSD Facilities" for a nearby hazardous waste treatment and disposal site.

G93-1150-A

A University of Nebraska NebGuide Publication

Rinsing Pesticide Containers

It is estimated that every year one million plastic agricultural pesticide containers are used in Nebraska. Effective rinsing of these containers saves money, protects the environment and meets federal and state regulations on pesticide use.

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Proper rinsing of pesticide containers is easy to do, saves money and helps protect people and the environment. It also helps prevent potential problems with unrinsed containers and storage of the rinse solution (rinsate). Even during a busy season, the few extra minutes it takes to properly rinse empty pesticide containers is time well spent. For example:

- Rinsate added directly into the spray tank efficiently and economically uses all pesticide in the container. This eliminates the need to store and later dispose of the rinsate.
- Unless the container is rinsed immediately, some pesticides will solidify and become difficult to remove.
- Rinsing containers removes a potential source of pesticide exposure to people, wildlife and the environment.
- Proper rinsing is required by federal regulations and is a good, sound management and environmental practice.

Rinsing Helps Protect the Environment

Proper rinsing of pesticide containers reduces a potential source of contamination of soil, surface and ground water. When contamination occurs, plants and animals may be harmed and water supplies affected. Prevention of environmental contamination is always better and less expensive than cleanup.

Federal laws require the rinsing of pesticide containers. Violation of these laws is punishable by criminal and/or civil penalties. When an empty container is recycled, returned to the supplier or disposed of according to label directions, **it must be properly rinsed**. Landfill operators, approved pesticide container recyclers and those receiving returned bulk containers can only accept properly rinsed containers.

Types of Pesticide Containers

There are different types of pesticide containers. The most common agricultural pesticide container is a 2.5 gallon plastic jug. Many liquid agricultural pesticides are also sold in bulk containers, intended to be returned and reused by the supplier. Pesticides are also sold in various sizes of metal containers and many granular insecticides are sold in paper containers. Pesticide products used on animals and in households are often sold in glass containers.

Proper rinsing of nearly all types of pesticide containers will remove more than 99% of any pesticide residue remaining in the container after it has been emptied (*see Table I*).

Two commonly used procedures are effective for proper rinsing of pesticide containers: pressure-rinsing and triple-rinsing.

Table I. Percent of pesticide residue remaining after proper rinsing.*

Pesticide	Container	Rinse	% Pesticide Remaining
Alachlor (Lasso®)	5 gal metal	pressure rinse	< 0.1
Chlorpyrifos	2 gal metal	triple rinse	< 0.1
(Lorsban®)	2 gal metal	pressure rinse	0.4
Carbofuran (Furadan®)	1 gal plastic	pressure rinse	0.1
Diazinon	5 gal metal 1 gal metal	triple rinse pressure rinse	< 0.1 0.1
Parathion	2 gal metal	pressure rinse	0.1
Trifluralin (Treflan®)	5 gal metal	rinse 4 times	< 0.1

*See Peck entry in bibliography for source information contained in this table.

Pressure-Rinsing

pressure-rinsing nozzles

Figure 1. Pressure-rinsing nozzles.

A special nozzle, generally available from your pesticide supplier, is attached to the end of a water hose (with back-flow protection device attached) to wash the remaining pesticide from the container. Pressure-rinsing, which may be faster and easier than triple-rinsing, can be used with plastic and nonpressurized metal pesticide containers.

How to pressure-rinse:

1. Remove cap from the pesticide container. Empty pesticide into the spray tank and allow the container to drain for 30 seconds.
2. Insert the pressure-rinser nozzle by puncturing through the lower side of the pesticide container.
3. Hold the pesticide container upside down over the spray tank opening so rinsate will run into the spray tank.
4. Rinse for length of time recommended by the manufacturer (30 seconds or more). Rotate the nozzle to rinse all inside surfaces.
5. Rinse caps in a bucket of water for more than one minute and pour this rinse water into the spray tank.

6. Replace cap and dispose of pesticide container according to label directions. If recycling, plastic caps and containers are usually made from different materials and therefore should be recycled separately.

pressure rinse

Figure 2. Pressure-rinsing.

Triple-Rinsing

Triple-rinsing means to rinse the container three times. Triple-rinsing can be used with plastic, nonpressurized metal and glass containers.

How to triple-rinse:

1. Remove cap from the pesticide container. Empty all remaining pesticide into the spray tank, allowing the container to drain for 30 seconds.
2. Fill the container 10% to 20% full of water or rinse solution (i.e., fertilizer solution).
3. Secure the pesticide container cap.
4. Swirl liquid within the container to rinse all inside surfaces.
5. Remove cap from the container. Add the rinsate from the pesticide container to spray tank and allow to drain for 30 seconds or more.
6. Repeat steps 2 through 5 **two more times**.
7. Replace cap and return container to supplier or dispose of pesticide container according to label directions. If recycling, plastic caps and containers are usually made from different materials and therefore should be recycled separately.

Container Recycling

fig3. dirty and clean containers

Figure 3. Agricultural pesticide container on the left is NOT acceptable.

Recycling clean agricultural pesticide containers is a way you can protect Nebraska's environment. Several community landfills and other sites in Nebraska are accepting plastic agricultural pesticide containers that have been pressure- or tripled-rinsed. All containers are thoroughly inspected before acceptance. Any pesticide container with pesticide residue that can be rubbed off with a neoprene- or nitrile-gloved hand is rejected. Properly rinsed containers that are stained will be accepted. Check with local officials to determine if your community is involved in recycling of agricultural pesticide containers.

Things to Remember

- Read and follow all label directions.
- Store pesticides only in the original, labeled containers.
- Wear appropriate protective gear as directed by the label.

Never reuse a pesticide container for any purpose.

- To recycle, return the rinsed container to supplier or dispose of pesticide containers properly.
- When not using a water nurse tank, always use a back-flow prevention device when filling spray tanks or rinsing pesticide containers.
- Mixing and loading sites should be at least 150 feet away from all wells.

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*Adapted with permission from Rinsing Pesticide Containers, University of Minnesota, by Dean Herzfeld and Thomas R. Halbach.

File G1150 under: PESTICIDES, GENERAL
D-9, Safety
Issued April 1993; 17,500 printed.

Electronic version issued May 1996
pubs@unl.edu

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Kenneth R. Bolen, Director of Cooperative Extension, University of Nebraska, Institute of Agriculture and Natural Resources.

Nebraska Cooperative Extension EC 01-2507

SAFE Transport, Storage and Disposal of Pesticides

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Most accidental pesticide poisonings occur when pesticides are mishandled. Young children are often the victims. Pesticide accidents can be prevented by careful planning, using a secure storage location, adopting safe handling methods during transport and following proper disposal guidelines for both product and containers.

The first step in preventing accidental poisonings and environmental contamination is to use good judgment when buying pesticides.

• Buy only the amount that can be used in a reasonable length of time.

• Don't be tempted by "sale prices."

• Buy pesticides in quantities that you will use in the near future. Some pesticides should not be stored for long periods of time, allowed to freeze or stored in direct sunlight because they may become less effective.

Always keep pesticides in their original containers. Using any other container is illegal and could cause an accidental pesticide poisoning or harm the environment.

Transporting Pesticides

Certain precautions should be taken when transporting pesticides. Traffic accidents can happen even when you travel only a short distance, and improperly loaded pesticide containers can fall off your vehicle or become punctured or torn. Because pesticides are transported on public roads, the potential damage from such accidents is great.

Never transport pesticides with food, livestock feed or minerals. Also, transport pesticides separately from seed, grain or consumer goods.

Keep a hazardous materials spill kit in your vehicle at all times. A spill kit commonly contains chemical-resistant gloves, coverall and goggles; sorbent pads and absorbent material (such as kitty litter); and a plastic temporary storage container.

In case of a pesticide spill follow the three "Cs": control, contain, and cleanup. **Control** the spill immediately to prevent further spillage. **Contain** the spill. Dike the spill with absorbent material or sorbent pads to keep it out of water and prevent environmental contamination. **Clean up** the spill. Use absorbent material to soak up the spill, then shovel contaminated material into a plastic storage container for disposal. Additional information is available by calling CHEMTREC, the pesticide emergency network, at 800-424-9300.

What Vehicle to Use

The safest way to transport pesticides is in the back of a truck or pickup. Never carry pesticides in the passenger compartment of a vehicle. If you use a flatbed truck, it should have side and tail racks. If the truck has a wooden bed, insert an impervious liner such as plastic or a truck bed liner before loading pesticides. Nonporous beds are preferred because they can be easily decontaminated in case of an accidental spill. Make sure your truck is in good operating condition to help reduce the chance of an accident (see Vehicle Maintenance Checklist).

Loading Pesticides

Wear work clothing and chemical-resistant gloves even when handling unopened pesticide containers, in case the container should leak. Also, carry protective clothing and equipment in the passenger compartment of the vehicle. You will need protective equipment if a spill or other pesticide-related accident should occur.

Thoroughly inspect all containers at the time of purchase before loading. Accept them only if the labels are legible and firmly attached. Check all caps, plugs, or bungs and tighten them if necessary. If leakage has occurred, do not accept the container. Request another container.

When loading containers, handle them carefully; don't toss or drop them. Avoid sliding containers over rough surfaces that could rip bags or puncture rigid containers. Know safe handling procedures when using fork lifts. Secure all containers to the truck to prevent load shifts and potential container damage. Protect containers made of paper, cardboard, or similar materials from rain or moisture.

Unloading Pesticides

Never leave pesticides unattended. You are legally responsible if people are accidentally poisoned from pesticides left unattended in your vehicle. Move the pesticides into your storage facility as soon as possible. Inspect the vehicle thoroughly after unloading to determine if any containers were damaged or any pesticide leaked or spilled.

Always carry an emeregency spill kit and carefully secure all pesticide containers.

Transporting Hazardous Pesticides

The U.S. Department of Transportation (DOT) has designated many chemical compounds, including some pesticides, as hazardous materials (hazmat). If you transport any of these materials on public roads in commerce you are required to comply with DOT hazmat regulation 49 Code of Federal Regulations (CFR) parts 100-185. To determine which pesticides are classified as hazardous, refer to hazmat tables (HMT) I and II (49 CFR part 172.101). To be in compliance, you may be required to:

- Carry shipping papers in your vehicle: including an emergency response phone number and material safety data sheets (MSDS) for the pesticides in transport;
- Receive training concerning DOT hazmat regulatory requirements;
- Be sure that packages are properly labeled and/or marked;
- Placard your vehicle if transporting a bulk container or 1,000 pounds or more of a pesticide from HMT II or any amount of a pesticide from HMT I and,
- Obtain a Commercial Driver's License (CDL) when required.

Shipping Papers. When you transport any hazardous pesticide, carry the proper shipping papers in the passenger compartment of the vehicle. While you are driving (belted and operating vehicle), the papers must be within your reach and readily recognizable by emergency personnel or placed in a door pouch. These papers provide information about the chemical that can be used to prevent further damage or injury in case of an accident. Your pesticide dealer will help you obtain the proper papers. Also carry the Material Safety Data Sheet (MSDS) for each hazardous pesticide or an emergency response guidance manual that cross references a chemical's shipping name with emergency response information.

Hazardous Materials (Hazmat) Training. The DOT hazmat training increases your awareness of safety considerations involved in loading, unloading, handling, storing, shipping paper preparation, marking, labeling, placarding, and transportation of hazardous pesticides. It also improves emergency preparedness for responding to transportation accidents. Hazmat training includes:general awareness training, function-specific training, and safety training.

DOT Training is Available. The DOT Office of Hazardous Materials Safety has prepared training modules that meet the requirements for general awareness hazmat training. These modules are available on-line (**http://hazmat.dot.gov/mod.htm**) or on an interactive CD-ROM. (For more information, phone: 202-366-2301 or 800-467-4922 ext. 3 or email: training@rspa.dot.gov.) A list of training opportunities for the function-specific and safety training sections is available on-line (**http://hazmat.dot.gov/training.htm**) or can be obtained by contacting the DOT Office of Hazardous Materials Initiatives and Training (Phone: 202-366-4900 or email: training@rspa.dot.gov). Specialized training is available from the DOT Transportation Safety Institute as well (405-949-0036 ext. 374).

Labeling and Marking. Always check each package (e.g., cardboard box, metal drum) to be sure it is properly labeled and/or marked. Labeling means a prescribed hazard warning notice (usually diamond-shaped) on the outer package. Marking means the required words are written on the side of the outer package including shipping name, identification number, specifications or UN marks, plus other required information, instructions or cautions.

Accessing the Regulations

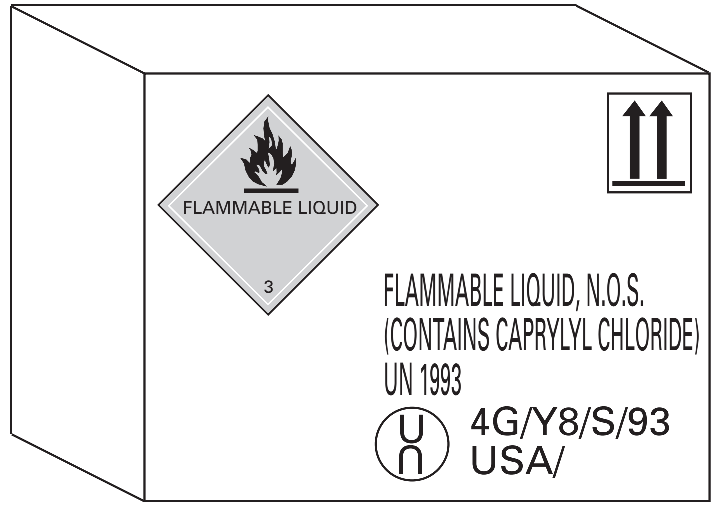
Two sources of the hazardous materials regulations are available:

The U.S. Code of Federal Regulations is available on-line at http://www.access.gpo.gov/nara/cfr/cfr-table-search.html

The print version is for sale from the US Government Printing Office, Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402-9828. It is published by the "Office of the Federal Register National Archives and Records Administration" as a Special Edition of the Federal Register.

Placarding. For most hazardous pesticides (HMT II) in non-bulk, you will need to placard your vehicle when you transport as little as 1,000 pounds of the chemical. When transporting hazardous pesticides (HMT II) in bulk (over 119 gallons) or any amount from HMT I, placarding is required at all times. Place placards, which are available from your pesticide dealer, on all four sides of your vehicle.

Commercial Drivers License. Contact the hazardous materials coordinator at the Nebraska State Patrol (402-471-0105) for more information on training, shipping papers, labeling, marking, and placarding. For more information on the CDL, contact the Nebraska Department of Motor Vehicles office (402-471-2281) or your local drivers license examiner.



Check all shipping containers for proper DOT labeling and marking.

Farmer Exception

Farmers have been granted exceptions from the DOT hazmat regulations, if they are a private motor carrier transporting pesticides within the state of Nebraska. Farmers can transport DOT-defined hazardous pesticides (other than compressed gases) between fields of the same farm over any roadway EXCEPT the interstate highway system. Farmers also have had emergency response information and hazmat employee training requirements waived when they were transporting agricultural pesticides to or from their farm (within 150 miles of the farm).

Transporting Hazardous Pesticide Waste

Certain pesticide wastes are listed as hazardous under the Resource Conservation and Recovery Act (RCRA). RCRA defines “hazardous wastes” (40 CFR parts 240-299) as either:

• “Characteristic” wastes. These are waste materials which have one or more of these characteristics: ignitable, corrosive, reactive, TCLP toxic1. These are considered “hazardous wastes” even though they may not be “listed”; or,

• “Listed” substances. See the Code of Federal Regulations 40, parts 261.3 and 261.32 for those pesticides which have been declared to be “hazardous waste”.

Except for someone taking their own pesticides to an approved excess pesticide waste collection/disposal site, only a permitted hazardous waste hauler can transport such waste. For more information, contact the hazardous waste specialist at the Nebraska Department of Environmental Quality at 402-471-2186.

Storing Pesticides

As soon as pesticides arrive at their destination, they should be properly stored and the area immediately secured. This not only helps discourage theft, but also prevents access to the materials by pets, children, and other persons not trained to use pesticides. Always keep personal protective equipment (PPE) and a hazardous materials spill kit (chemical-resistant gloves, coverall and goggles; sorbent pads and absorbent material such as kitty litter; and a plastic temporary storage container) readily available in or near the pesticide storage area.

When storing pesticides on shelving, place liquid formulations on lower shelves and dry formulations above them. If a liquid formulation container leaks, the dry formulations will not be contaminated. Keeping the liquid containers on lower shelving also helps reduce the risk of accidental spills if the container is knocked off the shelf.

To prevent contamination or accidental use of the wrong chemical, store herbicides, insecticides and fungicides in separate areas within the storage unit. Dry formulations of insecticides or fungicides can become contaminated if stored with certain volatile herbicides and may cause plant injury when used. Treated baits (for rodents, insects, and birds) should not be stored near other chemicals because they can absorb odors and become repellent to the pest.

Always store pesticides in the original container with the label intact. Once a container is opened, the shelf life is considerably reduced. Never store pesticides, for even a short time, in any container other than the original. **Doing so is a violation of the law.** Pesticides in soft drink bottles, fruit jars, milk cartons, margarine tubs or glasses are a common cause of accidental poisonings. Store pesticides away from food, pet food, feed, seed, fertilizers, veterinary supplies and plants.

Check all stored pesticide containers (see Pesticide Storage Checklist) for any existing or potential problems, including leaks or spills. Transfer the contents of any leaking container into a container with exactly the same original formulation and label. When this is not possible, put the leaking container with the pesticide into a liquid-proof container and dispose of it as discussed under disposal of excess pesticides. If necessary, contact either the pesticide manufacturer or CHEMTREC (800-424-9300) for specific directions.

The pesticide storage location should be a cool, dry, well-ventilated area away from sources of heat or flame. See the pesticide label for specific storage recommendations. Some pesticides can be reduced in effectiveness if they are frozen or overheated. Expansion of pesticides caused by freezing or heating can cause containers to crack or break, resulting in potentially dangerous leaks or spills. Heat expansion of a liquid pesticide also may result in contents that are under pressure. When the container is opened, the pressure may cause an overflow and/or contamination of the user or storage site. Excessively high temperatures (120° F or higher) can also change the effectiveness of a pesticide and may produce dangerous fumes, making the storage area unsafe.

To prepare for pesticide applications, remove the pesticide containers from storage and take them to an open area. Always measure and mix pesticides in a well-lit, well-ventilated location. Regardless of whether they are partially or completely emptied, never leave pesticide containers open or unattended while the pesticide is being applied. Return all containers to storage prior to application to prevent accidental spills, ingestion, or exposure to people, pets, livestock or wildlife.

Mixing and applying pesticides requires detailed attention to label instructions, along with common sense and good judgment. So, too, does pesticide storage. **Being careless or using improper storage procedures is an open invitation to disaster.** While all pesticide labels have a section on their storage and disposal, the guidelines do not answer every question. If you have questions on pesticide storage, contact the Nebraska Department of Agriculture (402-471-2394).

Be Prepared for Pesticide Spills

Despite all safety precautions, accidents can happen. If a pesticide spills in a storage area, quick action is imperative. **Have a pesticide spill kit on hand** (similar to the hazardous pesticide spill kit described earlier). If a pesticide spill occurs on a public right-of-way, contact the Nebraska State Patrol at (800) 525-5555 for assistance.

If a pesticide is spilled on a person's body or clothing, the person should leave the area immediately. All contaminated clothing should be removed as quickly as possible — this is no time for modesty! Wash affected areas of the body thoroughly with detergent or soap and water. In any pesticide contamination incident, follow the instructions given in the label's first-aid treatment guidelines. If the label is not available or if there are further questions, seek medical attention. If necessary, contact The Poison Center in Omaha (800-955-9119).

If toxic fumes are present at the spill site, evacuate persons and animals from the immediate area. In addition, secure the area until qualified rescue personnel, with proper protective equipment, arrive at the scene. Except for a small, properly equipped cleanup crew, don't allow anyone to enter the area until it is thoroughly decontaminated.

Spilled pesticides must be contained. If the pesticide starts to spread, contain it by diking with soil or sorbent materials, if this can be done safely without contacting the pesticide or breathing the fumes. Never hose down a contaminated area. This will cause the pesticide to spread and infiltrate into the soil, possibly reaching ground water. If the spill is liquid, use activated charcoal, absorptive clay, vermiculite, pet litter, or sawdust to cover the entire spill area. Sufficient absorbing materials should be used to completely soak up the liquid. The material then should be swept or shoveled into a leakproof drum. Dispose of this material as you would the pesticide involved.

Always refer to the product label and, if necessary, contact either CHEMTREC (800-424-9300) or the chemical manufacturer for information about the appropriate neutralizing materials to be used following a pesticide spill. As a precaution, it is wise to read all product labels thoroughly at the time of purchase and/or delivery to be able to deal quickly and safely with any pesticide emergency.

Pesticide Storage and Spill Reporting Requirements

The Comprehensive Environmental Response Compensation and Liability Act (CERCLA) requires that spills or releases of reportable quantities (RQ) of hazardous substances must be reported immediately to the National Response Center (800-424-8802). The reportable quantity for some chemicals can be as low as 1 pound, however, the majority are 100-5,000 pounds. Definitions of hazardous substances and specific reportable quantities can be found in 40 CFR 302. General information is available by calling 800-424-9346.

The Superfund Amendments and Reauthorization Act (SARA) amended CERCLA. One part of the provisions, the Community Right-to-Know Act (Title III), established new lists of "Extremely Hazardous Substances" (EHS) and "Toxic Chemicals" for additional notification and reporting requirements. It also added new reporting requirements for the CERCLA list of "hazardous substances".

SARA Title III established threshold planning quantities (TPQ). Any facility that produces, uses or stores these Extremely Hazardous Substances (EHS) in amounts equal to or in excess of the threshold planning quantities has reporting and notification obligations under section 302 of SARA Title III (40 CFR Part 355). If the facility produces, uses or stores hazardous chemicals or Extremely Hazardous Substances exceeding the designated amounts (10,000 pounds for hazardous chemicals and either 500 pounds or the threshold planning quantities, whichever is lower, for Extremely Hazardous Substances), they must submit specific information to state and local officials as defined in sections 311 and 312 of the Act (40 CFR 370).

In addition, owners and operators of most business facilities must report spills or releases of CERCLA hazardous substances and Extremely Hazardous Substances to state and local authorities (section 304, 40 CFR 355). If the spill occurs while in transport, the notification can be made either by the owner or the operator of the motor vehicle. Report spills and releases to the Nebraska State Patrol (800-525-5555) or to the 911 emergency operator.

Pesticide Storage Site Selection

Several points must be considered when selecting the site for pesticide storage. One of these factors is prevailing wind direction. The best site is downwind and downhill from sensitive areas, such as houses, play areas, feedlots or animal shelters, gardens, and ponds. Locating storage facilities away from dwellings and livestock facilities will minimize possible contamination.

The site also should be in an area where flooding is unlikely. It should be where runoff can be diverted and drainage from the site cannot contaminate surface or ground water.

Ideally, a drainage system should be built to collect any runoff water from the storage area. Pesticides that may be present in tank rinsate, spills, seepage from storage, and heavy runoff in the event of fire or flooding must be controlled. Dikes, collecting pools, and washing slabs with sumps provide a proper drainage system. All of the collected runoff water should be treated as a surplus pesticide and disposed of properly.

Storage Area

Depending on inventory size, a separate building, room or enclosure may be best for pesticide storage. If the inventory is not large enough to warrant a separate facility, enclose the storage area on the first floor of an existing building. In either case, store pesticides and pesticide containers in a fire-resistant structure having good ventilation and a sealed, concrete floor that slopes toward drainage and secondary containment.

Weatherproof signs, stating “Danger - Pesticides - Keep Out!” or a similar warning, should be posted on each door and in any windows of the facility. In some cases, it may be advisable to post the warning signs in one or more languages in addition to English. Post the name, address and phone number of a contact person at the primary entrance to the storage area.

Regardless of whether it is a cabinet, room or an entire building, the pesticide storage area should be lockable to prevent unauthorized entry and should only be used for pesticides and pesticide equipment.

An electrically shielded exhaust fan may be needed in a confined storage area to reduce the temperature and/or concentrations of toxic fumes. The fan should be installed so that fumes can be vented outdoors without endangering people, animals or plants in the area.

Whenever large quantities of pesticides must be stored, it is strongly recommended that fire detection sensors and fire-fighting equipment be provided. A floor plan, records related to the storage location, and an annual inventory of the pesticides and containers in storage must be provided to the local emergency response coordinator as well.

Wooden pallets or metal shelves must be provided for storing granular and dry formulations packaged in sacks, fiber drums, boxes or other water-permeable containers. If metal pesticide containers are stored for a prolonged period, they should be placed on pallets, rather than directly on the floor, to help reduce potential corrosion and leakage.

Danger! Pesticide storage sign.

Despite one's best efforts to avoid accumulating excess pesticides, it is sometimes necessary to dispose of leftover chemicals. And, occasionally it may be necessary to dispose of pesticide wastes, such as materials collected while cleaning up a spill. Pesticide wastes are as hazardous as the pesticide itself. These guidelines should be followed in handling both excess pesticides and pesticide wastes.

In addition, empty pesticide containers need to be disposed of properly. Empty containers which have been properly rinsed, may be disposed of in a sanitary landfill if allowed by state and local laws/regulations. Some plastic containers may be recycled after they have been rinsed properly. Other containers are refillable and may be returned to the supplier unrinsed.

Types of Pesticide Containers

There are several types of pesticide containers. A common agricultural pesticide container is the 2.5 gallon plastic jug. Many liquid agricultural pesticides are also sold in bulk containers (mini-bulks, shuttles, shuttle juniors, etc.) which are intended to be returned and reused by the supplier. Liquid, dry and granular pesticides are often sold in various sizes of plastic containers and some granular pesticides are sold in bags. Another type of pesticide container is the pressurized can, which is commonly used for indoor pesticides.

Some containers are designed to be returned to the supplier upon emptying without rinsing. These containers are commonly referred to as "refillables". Refillable containers must not have the seal broken or the container opened. They should never be rinsed.

Removing Pesticide Residues From Nonrefillable Liquid Containers

Proper rinsing of nonrefillable liquid pesticide containers is easy to do, saves money, is required by state and federal regulations and is a good, sound management practice that helps protect the environment. Even during a busy season, the few extra minutes it takes to properly rinse empty pesticide containers is time well spent. Here are some rinsing guidelines:

Unless the container is rinsed immediately, the remaining residue may dry and become difficult to remove. An unrinsed pesticide container is typically considered hazardous waste, but once rinsed, the same container is usually considered solid waste. Rinsing containers also removes a potential source of pesticide exposure to people, pets, livestock, wildlife and the environment.

The rinse solution (rinsate) should be added directly into the sprayer tank. This action eliminates the need to store and later dispose of the rinsate.

Proper Rinsing

Two commonly used procedures are effective for properly rinsing nonrefillable liquid pesticide containers: pressure-rinsing and triple-rinsing.

Pressure-rinsing a pesticide container.

Pressure-rinsing

Pressure-rinsing is usually faster and easier than triple-rinsing. A special nozzle, generally available from your pesticide supplier, is attached to the end of a pressure hose and used to wash the remaining pesticide from the container. The hydrant or water source should have an anti-siphon valve or a back-flow protection device attached.

1. Remove cap from the pesticide container. Empty pesticide into the spray tank and allow the container to drain for 30 seconds.
2. Insert the pressure-rinser nozzle by puncturing through the lower side (not the bottom) of the pesticide container.
3. Hold the pesticide container upside down over the spray tank opening so rinsate will run into the spray tank.
4. Rinse for length of time recommended by the manufacturer (usually 30 seconds or more). Rotate the nozzle to rinse all inside surfaces.
5. Rinse caps in a bucket of water for at least one minute and pour this rinse water into the spray tank.
6. Return container to supplier or pesticide container recycling site or dispose of the pesticide container according to label directions. Plastic caps and containers are usually made from different materials, and often are recycled separately. For more information on pesticide container recycling sites, contact your local Cooperative Extension office.

Triple-rinsing

Triple-rinsing can be done as follows:

1. Remove cap from the pesticide container. Empty all remaining pesticide into the spray tank, allowing the container to drain for 30 seconds.
2. Fill the container 20% full of water or rinse solution (i.e., fertilizer solution).
3. Secure the pesticide container cap.
4. Swirl the liquid within the container to rinse all inside surfaces.
5. Remove the cap from the container. Add the rinsate from the pesticide container to spray tank and allow to drain for 30 seconds or more.
6. Repeat steps 2 through 5 **two more times.**
7. Return container to supplier or pesticide container recycling site or dispose of the pesticide container according to label directions. Plastic caps and containers are usually made from different materials and usually are recycled separately. For more information on pesticide container recycling sites, contact your local Cooperative Extension office.

When Rinsing is not Possible

It is not possible in certain situations to triple- or pressure-rinse pesticide containers. Thorough removal of the pesticide material packaged in bags or pressurized cans may be done as follows:

Bags

1. Empty bag contents into spray tank.
2. Shake the bag to remove as much product as possible.
3. Cut the sides and folds of the bag to allow it to fully open; add remaining product to the tank.
4. Dispose of the empty bag in a sanitary landfill if allowed by state and local laws/regulations. Some labels may allow alternate disposal methods.

Pressurized cans

1. Spray any remaining contents according to label instructions. Be sure to use it on the proper site and to use it at the correct rate, as listed on the label.
2. Dispose of the empty can according to label directions in a sanitary landfill if allowed by state and local laws/regulations.

Excess Pesticide Waste Disposal

The best way to dispose of small amounts of pesticide is to apply it to a label-permitted site (specific plant, animal, structure) for which the product is registered. Always double check the product label to be certain that the site is listed and that the maximum application rate will not be exceeded.

Large quantities of stored excess pesticides may be hazardous. When disposing of large quantities of such materials, contact the Nebraska Department of Environmental Quality (402-471-2186) or the Nebraska Department of Agriculture (402-471-2394) for specific disposal instructions.

The Nebraska Department of Agriculture occasionally sponsors disposal programs for excess or unwanted pesticides.

Preventing accidental poisonings and damage to the environment requires pesticides to be transported, stored and disposed of in a safe manner. Read and follow the label carefully. It tells you how to use pesticides, provides information about special hazards and gives proper storage and disposal methods.

Vehicle Maintenance Checklist

Cab Interior

______Clean cab — no food wrappers or trash
______Extra change of clothes
______Post emergency phone numbers:
Poison Center 800-955-9119
For aid in human poisonings
CHEMTRAC 800-424-9300
For help involving spills, leaks and fires
NE State Patrol 800-525-5555
To report chemical spills or vehicle accidents
______Record of on-board pesticides
______Label and MSDS available
______First aid kit
______Pesticides NOT stored in cab
______Pesticide application equipment NOT present

On-board Pesticide Containers

______Lockable pesticide storage compartment
______Containers properly sealed and secured
______Legible labels on all containers
______Keep pesticides in original containers
______Adequate amount of pesticides for day's use
______Empty containers properly rinsed and positioned for removal at end of day. **Never reuse pesticide containers!**

Spill Control

______Absorbent materials and rags on board
______Shovel, broom, plastic bags on board
______Hazardous materials spill kit

Equipment Check

______Sprayers NOT pressurized
______Supplies in moisture-proof containers
______Lids fit securely on pesticide tanks
______Spray hoses and fittings in good condition
______Pressure gauges operable
______All application equipment cleaned
______Water containers labeled

Personal Protective Equipment

______Goggles or other eye protection
______Chemical resistant gloves
______Boots, apron, hat — if required by label
______Respirator — stored in sealed plastic bag
______Other — as directed by the label

Tires

______Proper pressure
______Tread wear acceptable
______No cuts and cracks
______Spare tire inflated properly

Lights

______High beam headlights
______Low beam headlights
______Turn signals
______Running lights
______Emergency flashers
______Tail lights
______Brake lights
______Backup lights

Wipers

______Wiper blades in good condition
______Washer fluid dispenser filled
______Washer fluid pump in working order

General Vehicle Maintenance

______Horn in good working order
______Seat belts in good working order
______Brakes in good working order
______Windshield free of obstructions
______Truck bed free of debris

Vehicle ID______________________________ Notes______________________________

Inspected by______________________________ ______________________________

Date______________________________ ______________________________

Adopted from Pesticides and Commercial Vehicle Maintenance, Purdue University.

Pesticide Storage Checklist

Safety is the key in proper pesticide storage. If you answer "no" to any of the statements below, you should correct your storage facility immediately.

Enter date of each inspection: ________ ________ ________

	Yes	No	Yes	No	Yes	No
General Information						
Clean, neat pesticide storage site						
Current, on-site pesticide inventory						
Emergency phone numbers posted						
Labels and MSDS available						
Accurate storage inspection log maintained						
Pesticide Containers						
Containers marked with purchase date						
Insecticides, herbicides, and fungicides segregated						
Pesticides stored in original containers						
Dry formulations stored on pallets						
Feeds stored separately from pesticides						
Used containers rinsed and drained						
Rinsed and unrinsed containers separated						
Liquid formulations stored below dry formulations						
Spills and Disposal						
Storage area free of spills or leaks						
Shovel and absorbent materials available						
Sealed Floors						
Floor drains closed off (if present)						
Safety Information						
No smoking signs posted						
Personal protective equipment available						
Fire extinguisher in good working order						
Storage room locked, limited access to keys						
Storage room posted: Pesticides — Keep Out!						
Storage site well lit and ventilated						

Adopted from Pesticides and Commercial Vehicle Maintenance, Purdue University.

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name:	*Salt: Salt solutions not otherwise classified*
How Is the Waste Generated:	*Spilled or off-specification salt solutions.*
Waste Classification:	*Non-Hazardous*
Waste Determination Method:	*Process Knowledge*
Waste Determination Information:	*Spilled or off-specification salt solutions are non-hazardous wastes, but liquids can not be disposed of in landfills. Contact the environmental coordinator to determine if the salt solution can be disposed of at the Publicly Owned Treatment Works. Application of salt solutions to roads is not considered disposal.*
Handling Procedure:	*Handle the spilled or off-specification salt solutions to avoid further spills or leaks. Label the spilled or off-specification salt solution containers.*
Compatibility Class:	***Group 3A***
Transportation Information:	*No specific transporatation restrictions.*
Disposal Method:	*Other*
Land Disposal Restrictions:	*No*
Final Disposal Site or Disposal Service & Contact:	

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Salt: Salt not otherwise classified*	
How Is the Waste Generated: *Spilled or off-specification salt.*	
Waste Classification: *Non-Hazardous*	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information: *Spilled or off-specification salt is non-hazardous wastes. Application of salt to roads is not considered disposal.*	
Handling Procedure: *Handle the spilled or off-specificaiton salt to avoid spills and keep the salt from contacting stormwater . Label the spilled or off-specification salt containers and storage areas.*	
Compatibility Class: ***Group 1A***	
Transportation Information: *No specific transporatation restrictions.*	
Disposal Method: *Other*	
Land Disposal Restrictions: *No*	
Final Disposal Site or Disposal Service & Contact:	

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Scrap metal: Scrap metal not otherwise classified*

How Is the Waste Generated:

Used lead-free solder, used copper wire, and metal construction and demolition debris.

Waste Classification: *Non-Hazardous*

Waste Determination Method: *Process Knowledge*

Waste Determination Information:

Used lead-free solder, used copper wire, and metal construction and demolition debris are not hazardous waste if they are recycled as scrap metal or if they do not contain cadmium, chromium, lead, mercury or silver.

Handling Procedure:

Collect and store the metal parts and equipment in separate metal recycling bins or containers specific for each metal. The metal recycling bins and containers should be labeled accordingly.

Compatibility Class: ***Group 2A***

Transportation Information:

No specific transporatation restrictions.

Disposal Method: *Recycled*

Land Disposal Restrictions: *No*

Final Disposal Site or Disposal Service & Contact:

See the Hazardous Waste Service Providers Directory, "Scrap Metal Recyclers" for a nearby steel recycler.

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Scrap metal: Scrap steel*	
How Is the Waste Generated: *Punctured aerosol cans and cylinders, used chrome-plated steel parts, and used stainless steel parts.*	
Waste Classification: *Non-Hazardous*	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information: *Steel parts and equipment are not hazardous wastes if they are recycled as scrap steel or if they are not reactive (i.e., they are punctured) and they do not contain cadmium, chromium, lead, mercury or silver.*	
Handling Procedure: *Collect and store the steel parts and equipment in separate steel recycling bins or containers. Steel recycling bins and containers should be labeled to indicate that the bins and containers are for steel parts and equipment only.*	
Compatibility Class: ***Group 2A***	
Transportation Information: *No specific transporatation restrictions.*	
Disposal Method: *Recycled*	
Land Disposal Restrictions: *No*	
Final Disposal Site or Disposal Service & Contact: *See the Hazardous Waste Service Providers Directory, "Scrap Metal Recyclers" for a nearby steel recycler.*	

WAS034 06/2002

Nebraska Statewide Scrap Tire Program Executive Summary

Legislative Resolution 385, introduced during the Ninety-Sixth Legislature, Second Session, called for a study of statutes, rules and regulations, and policies that affect scrap tire management in the state. A hearing was held on August 31, 2000 to receive input concerning the study. This supplemental report provides additional information to the testimony provided by the Department of Environmental Quality at the hearing.

In review of the current scrap tire management system in the state, the Department has concluded that careful evaluation should be made of existing scrap tire markets, and how the statutes, rules and regulations, and policies affect these markets. Consideration should also be given to the historical development and original intent of these statutes, rules, and policies.

Historically, landfill disposal and stockpiling were the primary methods of scrap tire management. In 1998, scrap tires were banned from land disposal. The ban was implemented as part of an overall plan for scrap tire management that was intended to assist in the development of long-term markets that would eventually eliminate the need for land disposal.

Although much progress has been made in developing long-term markets since the plan was developed and the land ban went into effect, the department has observed that the majority of scrap tires managed in the state have been managed as whole and baled tires. Many of these uses may result in the tires having to be managed again at some point in the future, and are difficult to distinguish from land disposal.

This supplemental report provides information on the following topics:

The Nebraska Statewide Scrap Tire Program
Landfill Bans
Waste Reduction and Recycling Incentive Grants Program
Scrap Tire Management Tracking
Agricultural Uses
Baled Tire Uses
Civil Engineering Uses
Tire Derived Fuel
Manufactured Products
Rubberized Asphalt
Conclusion
Recommendations

The information is intended to provide historical perspective, and identify current uses and some of the statutes, rules and regulations, and policies that affect these uses.

This complete Guidance Document is only available as an Adobe Acrobat (PDF) file. File size is 27 KB	

For more information, contact
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Executive Summary

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The information is intended to provide historical perspective, and identify current uses and some of the statutes, rules and regulations, and policies that affect these uses.

1. Introduction

The Nebraska Department of Environmental Quality has been monitoring scrap tire management in Nebraska since the early 1990's. Observations of recent scrap tire uses suggest that Nebraska does not have adequate market capacity to properly manage the number of scrap tires that it generates on an annual basis.

For the purposes of conducting the study under Legislative Resolution 385, the Department feels it is important to consider the existing capacity of scrap tire markets or uses to properly manage the amount of tires that the state generates on an ongoing basis. Proper management should be protective of the environment, lawful, and done in a manner that would not result in the tire having to be managed again at some point in the future as a scrap tire.

Outlined below are a few topic areas for consideration for the Interim Study Resolution.

2. Nebraska Statewide Scrap Tire Program

In 1994, the Legislature adopted LB 1034 that established the initial framework for Nebraska's policy on scrap tire management. Among other things, the new law called for the development of a statewide scrap tire program to facilitate the elimination of health and safety hazards caused by scrap tires and collection sites. To accomplish this directive, the Department established a twenty member Scrap Tire Committee that was tasked with submitting recommendations for a scrap tire program. The Committee submitted their findings and recommendations to the Department in a Final Report in September 1994. Follow-up work to the Committee's recommendations involved developing the Nebraska Statewide Scrap Tire Program (Program) that was completed in October 1995 (Appendix A.)

Conclusions drawn from the Program indicated that in 1995, Nebraska had a known market for approximately 42 percent of the scrap tires generated annually. The Program noted that Nebraska needed to develop long-term markets to manage the remaining 58 percent and the scrap tires known to exist in stockpiles around the state.

The primary market in 1995 was the Nebraska Public Power District Sheldon Power Station near Hallam, Nebraska that used tire shreds for tire-derived fuel. The Sheldon Power Plant utilized approximately 600,000 scrap tires annually. Potential markets identified to manage the remaining capacity included: additional tire-derived fuel use, manufactured products from crumb rubber, civil engineering projects, rubberized asphalt, pyrolysis (yield gas, oil, carbon char, and steel), and phenol systems.

The Department prepared two Nebraska Scrap Tire Management Reports to evaluate how scrap tires were being managed in the state during the periods covering July 1998 – June 1999 (Appendix B) and July 1999 – June 2000 (Appendix C.) Information provided in these reports reveal that the markets identified in the Program did not develop to the extent anticipated. In addition, the Sheldon Power Station ceased the use of tire-derived fuel (TDF) shortly after the Program was developed and no additional in-state TDF capacity was generated.

The primary in-state markets identified during the 1998 – 2000 reporting periods were baled tire use, whole tires used for blowouts, and the use of chipped or shredded tires as an alternate daily cover in landfills.

3. Landfill Bans

The Integrated Solid Waste Management Act (ISWM Act) became law in 1992 with the passage of LB 1257. The ISWM Act (See Appendix D, Nebraska Environmental Protection Act and Related Laws), among other things, established several bans for certain elements of the solid waste stream that were either problematic when disposed of in landfills, or had some other resource value, or both. The landfill bans found in Neb. Rev. Stat. 13-2039 (Appendix D, pgs. 142-143) included yard wastes, lead-acid batteries, discarded household appliances, unregulated hazardous wastes, and waste tires. Prior to the landfill bans, disposal in landfills and stockpiling were the primary methods of managing scrap tires.

The disposal ban on waste tires was enacted because there was a belief that waste tires were a potential resource, and because in whole form, their bulk and affinity for working their way to the top of landfills would disrupt the landfill's protective cover. Disturbance of the landfill's cover could result in the increased leaching ability of liquids through the cover system.

The first ban for scrap tires specified that on and after September 1, 1995, land disposal of waste tires shall be prohibited except tires processed in a manner approved by the Department. The manner of processing was established under Title 136 – Scrap Tire Management Rules and Regulations (Appendix E) as "Shredding of tires into pieces nominally two (2) to six (6) inches in size or smaller." Scrap tires processed to these dimensions could be disposed of in landfills. The manner of processing was established to resolve the issue of protecting the cover systems of landfills and to encourage recycling.

In 1994, the ISWM Act was modified by LB 1034 to include an additional scrap tire ban. The additional, or new ban prohibited the land disposal of scrap tires in any form on and after September 1, 1998. This ban effectively removed land disposal as a management option for scrap tires.

4. Waste Reduction and Recycling Incentive Grants Program

The Waste Reduction and Recycling Incentive Grants program was created in 1990 with the passage of LB 163. The program provides grant funding to many types of solid waste management projects, including scrap tire management projects. This program is funded by several sources, including a one dollar fee collected on every new tire sold in the state. During the 1999 – 2000 reporting period, the tire fee generated $1,870,888.00 of revenue.

The program was modified several times by legislative changes directed towards ensuring that the tire fee money was used for scrap tire projects. The first significant change came in 1994 with the passage of LB 1034. This bill created the Scrap Tire Reduction and Recycling Incentive Fund. Other changes to the program concerning scrap tire projects followed with the passage of LB 495 in 1997, LB 1161 in 1998, and LB 592 in 1999. A detailed summary of these changes is provided in the Scrap Tire Grant Program History, November 21, 2000 (Appendix F).

The latest changes to the grant program were incorporated into Title 199 – Waste Reduction and Recycling Incentive Grants Program (Appendix G) and presented to the Environmental Quality Council (EQC) for approval at their June 2000 meeting. An explanatory statement for the proposed changes is found in Appendix H.

The changes to the program initiated as a result of LB 592 also include changes to how grant award decisions are made. When making awards from this program, the Department is directed to give priority for grants that will be used for the recycling of tires or tire waste reduction (Neb. Rev. Stat. 81-15,160 (4), Appendix D, pg 92.) To accomplish this directive the Department revised the Program Priority System for The Waste Reduction And Recycling Incentive Grants Program (See Appendix I, Grant Application Packet, Waste Reduction and Recycling and Incentive Grants Program) at the September Environmental Quality Council hearing. The new system includes language that states:

> "Legislative Bill 592 passed during the 1999 legislative session directs the department to give priority in funding to grant proposals that will be used for the recycling of tires or tire waste reduction. Tire grant applications will be given a priority in the following manner.
>
> Acceptable scrap tire projects will be the first projects considered for funding out of available Waste Reduction and Recycling Incentive Fund money up to $1 million for these projects. All applications (scrap tire and other waste reduction/recycling projects) will be ranked utilizing the Program Priority System. The department will then identify the top-ranking acceptable scrap tire projects for priority funding.
>
> After giving priority consideration to funding acceptable tire project applications up to $1 million, the department will then make funding decisions on the remaining projects (un-funded scrap tire and all other waste reduction/recycling projects) utilizing the ranking of the Program Priority System."

The grants program has accomplished a lot by assisting in the abatement of scrap tire piles and in the development of scrap tire markets. However, as previously indicated, the development of long-term markets has not been fully accomplished as intended.

5. Scrap Tire Management Tracking

Title 136 requires that scrap tire haulers, collectors, collection sites, and processors obtain permits for their activities. Part of the permit program is designed to track scrap tire use and movement in the state. Title 136 includes provisions for permit holders to accomplish this task. The tracking requirements are based in Neb. Rev. Stat. 81-15,162.01 (5) (Appendix D, pg.96) which states that "The department shall require, as a condition for obtaining a permit under this section, tire collectors, tire processors, and tire haulers to annually provide data relating to the number of scrap tires handled, the distribution of scrap tires, the uses of scrap tires or materials derived from scrap tires, and any other data necessary to track scrap tires in Nebraska."

The permitting and reporting activities under Title 136 are designed to: Abate existing tire piles, prohibit long-term storage of scrap tires, maintain a minimal number of scrap tires at collection sites, track scrap tire movement, and maintain a current list of viable markets. However, there are a number of scrap tire collecting, processing, and hauling activities that are exempt from obtaining a permit under Neb. Rev. Stat. 81-15,162.01 (2) (Appendix D, pg.96), and are therefore not required to submit annual reports under Title 136.

Information obtained from the annual reports provided by permit holders covering the period from July 1999 to June 2000 indicates that approximately one third of the estimated number of PTE's* generated in Nebraska are not accounted for under the current tracking requirements. The discrepancy is generally considered to be scrap tires managed by entities or activities not requiring a permit. Primarily these are tires that are returned to use through re-treading, scrap tires hauled by retailers, or stockpiled scrap tires.

* Scrap tire reporting is done either by tonnage or passenger tire equivalent (PTE). A PTE represents 20 pounds of tire, which is the average weight of a passenger tire. These units are used to provide consistency in how reporting is done. It is needed because not all scrap tires weigh the same. For example, the average weight of a passenger tire is 20 pounds, however the average weight of farm tractor tires and large off-road tires is 200 pounds.

6. Agricultural Uses

The agricultural uses of scrap tires are allowed under both the ISWM Act and the Waste Reduction and Recycling Incentive Act (WRRI Act). The ISWM Act allows, under Neb. Rev. Stat. 13-2033 (Appendix D, pg.139), the EQC to adopt and promulgate rules that exempt the use of tires for bank or blowout stabilization, or other activities found not to pose a threat to public health or welfare from landfill permit requirements. This provision was primarily established to enable farmers and ranchers to reuse scrap tires that they generate beneficially on their property for land improvements. This law first went into effect in 1992. This exemption was incorporated into Title 132 – Integrated Solid Waste Management Regulations (Appendix J), and eventually Title 136.

In 1994, (LB1034), the WRRI Act incorporated the provisions of the ISWM Act and added additional exemptions from scrap tire permit requirements found in Neb. Rev. Stat. 81-15,162.01 (2) (Appendix D, pg.96) to include scrap tires used as bumpers on agricultural equipment and as ballast to maintain covers or structures on the agricultural site.

The Program (1995) estimated that the agriculture industry used 30,000 to 40,000 scrap tires annually for these or similar purposes. However, the annual reports provided over the period of July 1999 – June 2000 indicated that 18% of the scrap tires used in Nebraska, or approximately 271,200 PTEs were used for bank and blowout stabilization. Agricultural uses were the third highest reported use and had increased from 11% from the prior reporting period (1998 – 1999). The high usage rate is generally attributed to the lack of affordable management options in the western part of the state.

7. Baled Tire Uses

Baling scrap tires involves compacting tires (approximately 100) under high pressure into a block. The blocks are held together by galvanized or stainless steel wire, or steel bands. Scrap tire bales have been used for a variety of applications in feedlots and lake renovations in the state. Over the period of July 1998 – June 1999, baled tire use accounted for 76% of the tires used in Nebraska. Baled tire use decreased to 41% (approximately 627,700 PTEs) during the June 1999 – July 2000 reporting period.

The past use of tire bales has been relatively unregulated. The primary issues associated with bale tire use concern their use as a long-term scrap tire management option, and in making determinations whether proposed projects are beneficial reuse of the tires or disposal. To assist in addressing these issues the department prepared a guidance document on baled scrap tire use that outlines considerations for obtaining approval for the use of tires bales in civil engineering applications (Appendix K.) However, decisions concerning bale tire use remain challenging because “reuse determinations” are not specifically addressed in statute for tire bales. In addition, because tires in bales retain their identity (a compressed tire), the use of them has an appearance of being in conflict with the disposal bans.

8. Civil Engineering Uses

In 1995, the Program identified civil engineering uses as a potential market for tires. In addition to the civil engineering uses described in Section 7, other recognized uses included chipped tires for drainage layers, lightweight fill beneath roads and in contact with retaining walls and bridge abutments, and tire chips for septic system leach fields.

In 1996, the City of Lincoln, with the assistance of HDR Engineering, Inc., prepared a report titled *Tire Utilization Study, Engineering and Feasibility and Preliminary Design*. This report identified several potential civil engineering uses in landfills for tire-derived products. The report was primarily prepared for consideration of using tire-derived products in the City of Lincoln landfill. A follow-up study was conducted by the Nebraska State Recycling Association, also with the assistance of HDR Engineering, Inc., to prepare generic uses appropriate for other landfills in the state (*Tire Chip Utilization Study, Landfill Applications*, 1997.) The Department endorses the second report and recognizes it as a tool to greatly reduce landfill permit application review time.

Cover material in landfills has also been identified as an acceptable use. Title 132 allows for alternative daily cover (cover other than dirt) provided the facility can demonstrate that the alternative material and thickness can control disease vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment. Alternative daily cover demonstrations require a six month demonstration period where material performance is monitored and measured.

In addition to the use of whole and tire bales in civil engineering applications, significant use during the 1999 – 2000 reporting period was the use of tire chips and shreds for landfill cover. This use occurred at two landfills after the demonstration project was completed. Landfill cover use accounted for 24% of the tires used in the state, or approximately 355,900 PTEs.

Other civil engineering uses during the July 1999 – June 2000 reporting period have been relatively insignificant.

9. Tire Derived Fuel

As described in Section 2, the primary established market for tire derived fuel, or TDF, was the Sheldon Power Plant in Hallam, Nebraska. That market no longer exists. Nationally, TDF is the primary method for utilizing scrap tires. Although no TDF markets currently exist in Nebraska, the 1999-2000 report indicates Nebraska exported approximately 175,200 PTEs for TDF.

In 2000, Ash Grove Cement Company, a cement kiln located in Louisville, Nebraska, demonstrated a renewed interest in TDF by applying for and receiving partial funding from the WRRIG program. Ash Grove Cement Company proposes to burn up to 400,000 PTEs per year pending the issuance of an air quality permit from the Department.

As of December 28, 2000, release of grant funds to Ash Grove Cement Company is contingent upon obtaining an air quality permit from the Department. The permit process includes a public notice of pending permit decisions and opportunity for a hearing to receive comments for consideration. Ash Grove Cement Company currently is doing an economic feasibility study to determine if TDF is a cost effective fuel source, while seeking the air quality permit.

New or modified sources, with a potential to pollute greater than certain thresholds, must obtain permits prior to initiating construction. The permit ensures that the facility utilizes the best control technology available to minimize emissions and not exceed health-based ambient air quality standards.

10. Manufactured Products

Scrap tires can be chipped or ground to several different sizes and used for the manufacturing of products. Examples of products include playground surfaces, mats, running tracks, athletic field surfaces, and rubberized asphalt.

The predominant source of rubber for manufactured products in Nebraska has been crumb rubber. Crumb rubber is produced either cryogenically (crushed at very low temperatures) or by grinding the tire down to crumb size. The amount of rubber recovered from a 20 pound scrap passenger tire is generally considered to be about 10 – 14 pounds. The remaining material is fiber and steel. There are two permitted crumb rubber producers in Nebraska.

During the July 1999 – June 2000 reporting period, approximately 1,484 tons of crumb rubber and tire chips were used for manufactured products in Nebraska. The primary use was crumb rubber in athletic playing fields.

11. Rubberized Asphalt

In 1991, Congress adopted the Intermodel Surface Transportation Efficiency Act (ISTEA) that mandated the use of recycled rubber in asphalt pavement financed in whole or in part by Federal funds. The act was considered a strategy to help dispose of scrap tires. However, ISTEA was also viewed as an unfunded federal mandate and later repealed.

Had ISTEA been fully implemented, it was estimated (1995 Program) that 360,000 PTEs could be utilized in Nebraska roads. This estimate was based on the annual amount of asphalt pavement laid using federal funds. Studies performed by the Nebraska Department of Roads in 1990 and 1992 did not yield favorable results for the use of rubberized asphalt due to cost and questionable performance. However, at that time there were no producers of crumb or granulated rubber suitable for use in the state. The lack of an in-state producer was one of the factors contributing to the high cost.

As indicated in Section 10, there are now two producers of crumb rubber in the state. The affect of in-state producers on the overall cost to utilize rubberized asphalt has not been fully investigated. However, representatives of the Nebraska Department of Roads have expressed an interest in exploring costs and other factors to determine if use of rubberized asphalt is feasible at this time.

12. Conclusion

Scrap tire management in Nebraska has evolved from a system of almost exclusively landfill disposal and stockpiling, to one where there are alternative uses for the tires. The transition was encouraged by land disposal bans and financial assistance in the form of grants for market development and scrap tire pile cleanup. However, many of the uses or markets appear to be short-term uses of the tires, and the tires may have to be managed again sometime in the future as a scrap tire. In addition, some of the uses appear similar to land disposal.

Although progress has been made, the current scrap tire management system has not evolved in the manner contemplated by the Nebraska Statewide Scrap Tire Program developed in 1995. Therefore, it seems appropriate to re-examine the uses and markets and consider if the current statutes, rules and regulations, and policy are acceptable for future management of scrap tires in Nebraska.

13. Recommendations

The following recommendations are offered for consideration:

A. Consideration should be given to repealing the ban on the land disposal of scrap tires in any form on and after September 1, 1998. This absolute ban on the disposal of scrap tires leaves few options for management of scrap tires in the absence of viable markets. However, the September 1, 1995 disposal ban that restricts the disposal of scrap tires that are not processed in a manner established by the Department should be retained. The 1995 ban should be retained to continue to encourage the development of viable markets to manage scrap tires.
B. Consideration should be given to grant the Department authority to promulgate rules and regulations that govern the re-use of scrap tires.
C. Consideration should be given to putting limitations on the use of scrap tires for agricultural purposes.
D. Consideration should be given to continue, without modification, the current grant program priority of funding scrap tire projects from the WRRIG program. Funding authority should be broad to allow for consideration of all scrap tire projects that have the ability to properly manage scrap tires.

14. List of Attachments (not available in electronic format)

Appendix A   Nebraska Statewide Scrap Tire Program
Appendix B   Nebraska Scrap Tire Management Report, June 1998 – July 1999
Appendix C   Nebraska Scrap Tire Management Report, June 1999 – July 2000
Appendix D   Nebraska Environmental Protection Act (NEPA) and Related Laws
Appendix E   Title 136 – <u>Scrap Tire Management Rules and Regulations</u>
Appendix F   Scrap Tire Grant Program History, November 21, 2000
Appendix G   Title 199 – <u>Waste Reduction and Recycling Incentive Grants Program</u>
Appendix H   Explanatory Statement
Appendix I   Grant Application Packet, Waste Reduction and Recycling Incentive Grants Program
Appendix J   Title 132 – <u>Integrated Solid Waste Management Regulations</u>
Appendix K   Baled Scrap Tire Use

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Solid waste: Solid waste not otherwise classified*	
How Is the Waste Generated: *Food debris, miscellaneous office waste (pens), used or waste plastic materials not used as containers, other wastes specifically identified as non-hazardous waste.*	
Waste Classification: *Non-Hazardous*	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information:	
Handling Procedure: *Dispose of containers in the normal trash.*	
Compatibility Class: ***Group 6B***	
Transportation Information: *No specific transporatation restrictions.*	
Disposal Method: *Disposed in Landfill*	
Land Disposal Restrictions: *No*	
Final Disposal Site or Disposal Service & Contact: *See the Integrated Waste Management List of Permitted Facilities, "Municipal Solid Waste Landfill" for a nearby disposal site.*	

STANDARD OPERATING PROCEDURE

AEROSOL CAN FILTER AND DRUM REPLACEMENT

1.0 PURPOSE

NDOR punctures used and broken (e.g., no nozzle) aerosol cans and cylinders to remove and collect the propellant (i.e., pressure) and allow the can to be recycled as scrap metal. The aerosol can depressurization unit is equipped with an activated carbon filter, which requires periodic replacement. Additionally, the drum used to collect the aerosol can waste is a hazardous waste drum.

2.0 SCOPE

Affects personnel who maintain depressurization units.

3.0 SAFETY AND HEALTH

The aerosol can depressurization unit drum and activated carbon filter may contain toxic, ignitable, corrosive and reactive wastes. Care should be used when handling the drum and activated carbon filter.

4.0 PROCEDURES AND RESPONSIBILITIES

4.1 Filter Replacement

4.1.1 The activated carbon filters on the aerosol can depressurization units should be replaced according to the carbon filter instructions.

4.1.2 The entire activated carbon filter, including the plastic casing should be removed by unscrewing it from the drum and placed inside the drum with the aerosol can waste.

4.1.3 The new activated carbon filter should be screwed into the three-quarter inch opening on the drum (i.e., not the two-inch opening).

4.2 Aerosol Can Waste Drum Replacement

4.2.2 When the level of the liquid in the aerosol can depressurization unit drum approaches two inches from the top, the aerosol can depressurization

units and the activated carbon filter should be removed from the drum, and the bungs placed back in the drum lid.

4.2.3 The date that the aerosol can depressurization unit and activated carbon filter were removed from the drum should be marked on the hazardous waste label after the heading “Accumulation Start Date”.

4.2.4 Within three days of removing the aerosol can depressurization unit and activated carbon filter, the drum should be moved, using proper drum handling techniques, to the hazardous waste accumulation point.

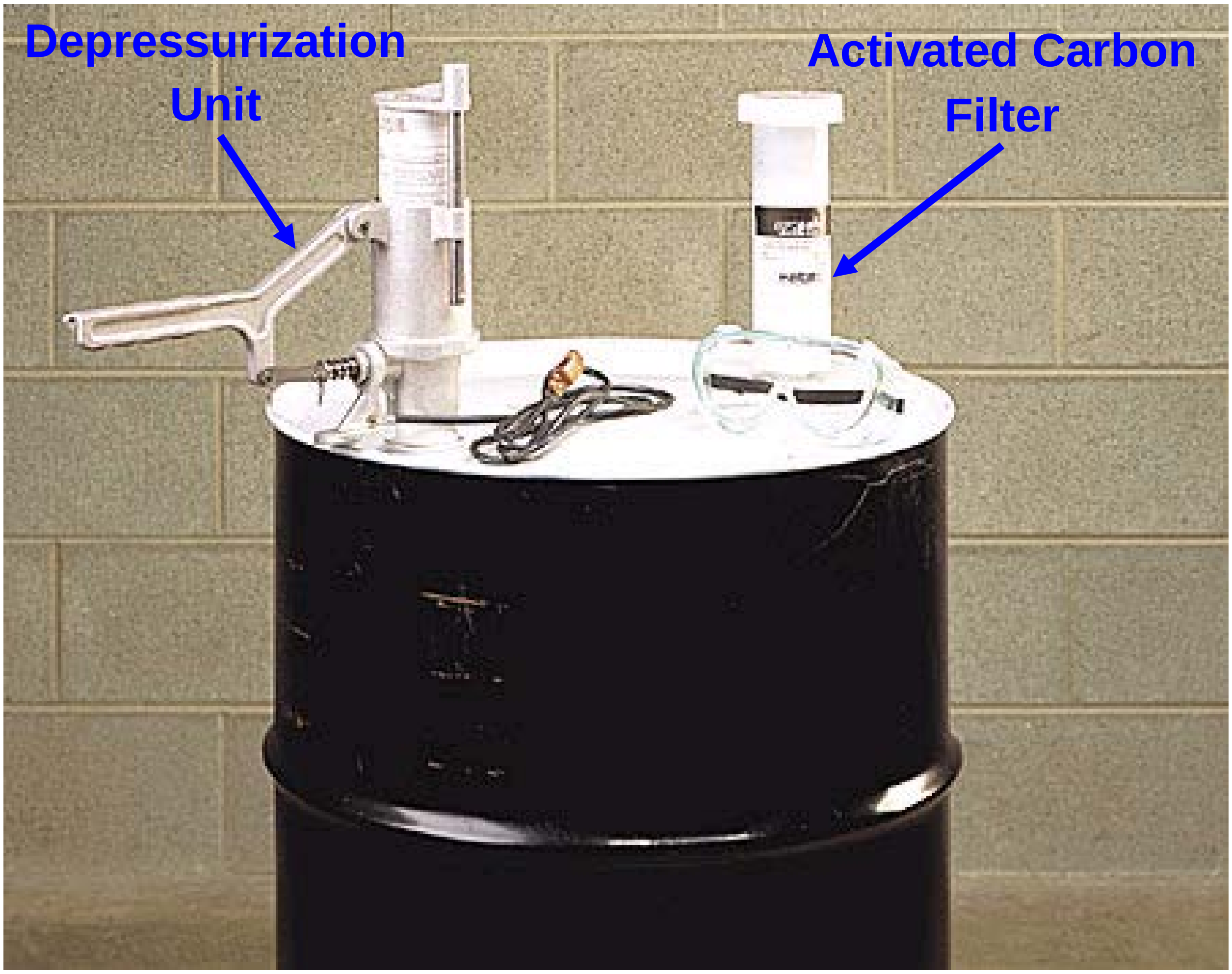
4.2.5 The full drum should be replaced by an empty drum. The empty drum should not contain residual that might be incompatible with the contents of the aerosol cans that will be punctured. The empty drum should also not contain residual that might require additional waste codes (e.g., paint with chromium).

4.2.6 Remove the bungs from the empty drum and place the bungs on top of the drum.

4.2.7 Screw the aerosol can depressurization unit and the filter unit (activated carbon filter) in the bung holes. The aerosol can depressurization unit and filter unit should be screwed in tight enough to prevent vapors from escaping from the drum.

4.2.8 Re-connect the grounding wire if removed during this procedure.

Figure 1: Aerosol Can Depressurization System



STANDARD OPERATING PROCEDURE

AEROSOL CAN FILTER AND DRUM REPLACEMENT

1.0 PURPOSE

NDOR punctures used and broken (e.g., no nozzle) aerosol cans and cylinders to remove and collect the propellant (i.e., pressure) and allow the can to be recycled as scrap metal. The aerosol can depressurization unit is equipped with an activated carbon filter, which requires periodic replacement. Additionally, the drum used to collect the aerosol can waste is a hazardous waste drum.

2.0 SCOPE

Affects personnel who maintain depressurization units.

3.0 SAFETY AND HEALTH

The aerosol can depressurization unit drum and activated carbon filter may contain toxic, ignitable, corrosive and reactive wastes. Care should be used when handling the drum and activated carbon filter.

4.0 PROCEDURES AND RESPONSIBILITIES

4.1 Filter Replacement

4.1.1 The activated carbon filters on the aerosol can depressurization units should be replaced according to the carbon filter instructions.

4.1.2 The entire activated carbon filter, including the plastic casing should be removed by unscrewing it from the drum and placed inside the drum with the aerosol can waste.

4.1.3 The new activated carbon filter should be screwed into the three-quarter inch opening on the drum (i.e., not the two-inch opening).

4.2 Aerosol Can Waste Drum Replacement

4.2.2 When the level of the liquid in the aerosol can depressurization unit drum approaches two inches from the top, the aerosol can depressurization

units and the activated carbon filter should be removed from the drum, and the bungs placed back in the drum lid.

4.2.3 The date that the aerosol can depressurization unit and activated carbon filter were removed from the drum should be marked on the hazardous waste label after the heading “Accumulation Start Date”.

4.2.4 Within three days of removing the aerosol can depressurization unit and activated carbon filter, the drum should be moved, using proper drum handling techniques, to the hazardous waste accumulation point.

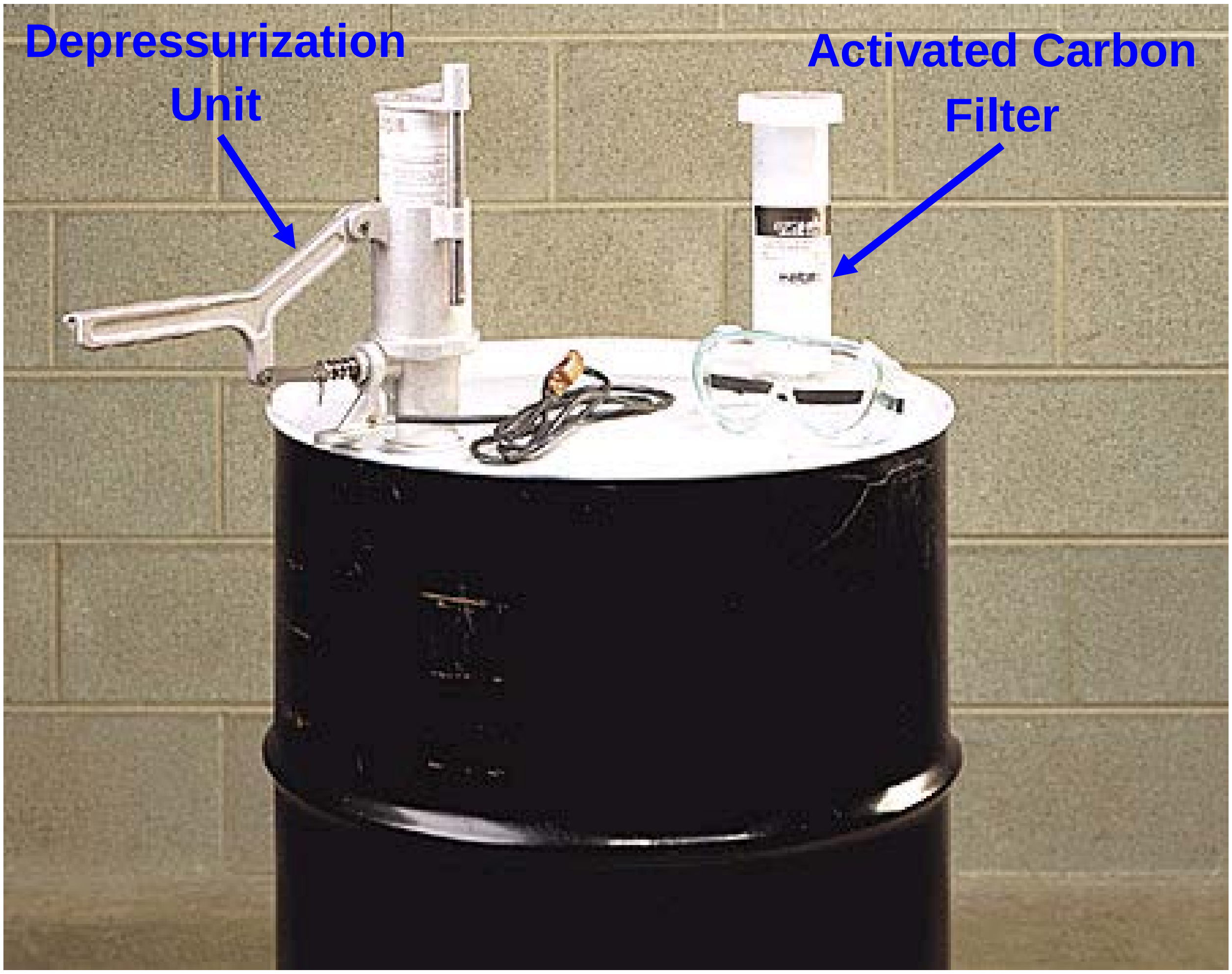
4.2.5 The full drum should be replaced by an empty drum. The empty drum should not contain residual that might be incompatible with the contents of the aerosol cans that will be punctured. The empty drum should also not contain residual that might require additional waste codes (e.g., paint with chromium).

4.2.6 Remove the bungs from the empty drum and place the bungs on top of the drum.

4.2.7 Screw the aerosol can depressurization unit and the filter unit (activated carbon filter) in the bung holes. The aerosol can depressurization unit and filter unit should be screwed in tight enough to prevent vapors from escaping from the drum.

4.2.8 Re-connect the grounding wire if removed during this procedure.

Figure 1: Aerosol Can Depressurization System



STANDARD OPERATING PROCEDURE

RECYCLING AND DISPOSAL OF COMPUTERS, MONITORS AND ELECTRONIC EQUIPMENT

1.0 PURPOSE

Manage used and broken computers, monitors and electronic equipment to minimize generation of waste and maintain compliance with environmental regulations.

2.0 SCOPE

Affects employees who may replace electronic equipment, computers, monitors or electronic equipment.

3.0 SAFETY AND HEALTH

Computers and electronic equipment contain cadmium, chromium, lead and silver. Monitors with cathode ray tubes contain lead. If a computer, circuit board or monitor is damaged, than a potential exists for exposure to these chemicals.

4.0 PROCEDURE AND RESPONSIBILITES

4.1 Handling of working computers, monitors and electronic equipment should be handled in the following order:

4.1.1 Computers, monitors and electronic equipment that are in working condition should be set aside for use at other NDOR sites, or as backup equipment.

4.1.2 If the computers, monitors and electronic equipment are not suitable as back-up equipment, they should be set aside for sale as surplus government property or donation.

4.1.3 Computers, monitors and electronic equipment that are not saleable as surplus and can not be donated should be handled as ‘Non-Working Computers, Monitors and Electronic Equipment’.

4.2 Handling of non-working computers, monitors and electronic equipment:

4.2.1 Some non-working computers and monitors may be sold or donated according to 4.1.

4.2.2 Personnel should not attempt to remove electronic equipment from non-working computers and electronic equipment unless they are familiar with the equipment and the materials in the equipment. Some hazardous waste materials are located in connectors and are not limited to the electronic equipment.

4.3 Storage

4.3.1 Broken or used computers, monitors and electric equipment should be handled and stored in the same manner as new computers, monitors and electric equipment (i.e., care should be taken not to damage or break the computer, monitor or electrical equipment during storage).

4.4 Disposal

4.4.1 Non-working computers, monitors and electronic equipment should **not** be disposed of in the normal trash.

4.4.2

STANDARD OPERATING PROCEDURE

DISPOSAL OR SURPLUS OF COMPUTER MONITORS

1.0 PURPOSE

Maintain compliance with hazardous waste regulations as they pertain to replacement, storage and disposal or surplus of monitors (i.e., computer or television monitors with cathode ray tubes).

2.0 SCOPE

Affects employees who may replace or handle computer monitors.

3.0 SAFETY AND HEALTH

Monitors with cathode ray tubes contain lead. If a cathode ray tube is damaged (e.g., the screen is cracked or broken open), than a potential exists for lead exposure.

4.0 PROCEDURE AND RESPONSIBILITES

4.1 Working Monitors that are no longer needed, or have been replaced should be handled accordingly:

4.1.1 Working monitors should be stored in the same manner as a new monitor.

4.1.2 Care should be taken not to damage or break the monitors during storage.

4.2 Non-Working Monitors.

4.2.1 Non-working monitors should **not** be disposed of in the normal trash.

4.2.2 Non-working monitors should be stored in the same manner as a new monitor.

4.2.3 Care should be taken not to damage or break the monitors during storage.

4.3 Broken Monitors

4.3.1 Badly damaged monitors should be placed in drums and handled according to the SOP for Handling an Accumulation Drum of Hazardous Waste.

4.3.2 The lid to the drum should be kept closed except when adding a monitor to the drum.

STANDARD OPERATING PROCEDURE

LIGHT BALLASTS CONTAINING PCBs

1.0 PURPOSE

To aid NDOR personnel in identifying polychlorinated biphenyls (PCB) containing light ballasts and maintaining compliance with PCB handling and storage requirements.

2.0 SCOPE

NDOR personnel who change light ballasts.

3.0 SAFETY AND HEALTH

PCBs are toxic and appropriate personnel protective equipment should be used when handling leaking PCB containing light ballasts.

4.0 PROCEDURE AND RESPONSIBILITES

4.1 PCB Determination

4.1.1 Prior to removing a light ballast, look for a label or mark on the ballast identifying the contents as “NO PCBs.” (Ballasts manufactured after 1999 do not contain PCBs. These may not have a “NO PCBs” label.)

4.1.2 If such a label or mark is visible, proceed with the procedure for handling non-PCB containing light ballasts.

4.1.3 If no label or mark is visible and it was manufactured prior to 1999, assume the ballast contains PCBs.

4.2 Removing & Storing Non-Leaking PCB-Containing Ballasts

If a PCB-containing ballast is not leaking, follow the following procedure:

4.2.1 Make sure the power to the light is off. Remove the lamp fixture and metal covering to access the ballast. Cut the electrical wires and remove it in a way to prevent release of PCBs.

4.2.2 Mark the date of ballast removal on the ballast.

4.2.3 Non-leaking PCB-containing ballast storage duration is not federally regulated as long as there is a notation attached to the PCB item or PCB container indicating the date the item was removed from service.

4.2.4 PCB-containing ballasts shall be properly stored to prevent damage or leaks. Place ballast into non-leaking storage container, allocated for their storage.

4.2.4.1 The storage areas should be marked with visible labels identifying the area as a PCB storage area.

4.2.4.2 The storage containers should be closed.

4.2.4.3 The containers should have appropriate PCB identification labels and should be marked with the date the first ballast placed in the container was removed from service.

4.2.4.4 The container should not be leaking and should be in good condition.

4.2.4.5 Mark both storage and shipping containers with the words: *PCB Ballasts for Recycling.*

4.2.5 Storage containers for PCB-containing ballasts should be placed within a secondary containment device to prevent contamination in the event of a spill.

4.2.6 Inspect the storage area regularly to assure ballasts/containers are not leaking. (Inspections do not need to be documented.) If ballasts are leaking, repackage them and manage them as leaking PCB-containing ballasts.

4.2.6.1 Check for proper labeling that meets requirements. Look for indications that the equipment may be leaking, such as:

- Oil stains near the equipment.
- Weep marks on the equipment.
- Gross physical damage.

4.3 Handling & Storing Leaking PCB-Containing Ballasts

If a PCB-containing ballast is leaking, follow the following procedure:

4.3.1 If a ballast has leaked from a light fixture, turn off the light, evacuate, and ventilate the area until the ballast cools (about 30 minutes).

4.3.2 Leaking PCB-containing ballasts and contaminated areas should be cleaned up within 24 hours of discovery of the leak. Do not eat or drink in areas where there are leaking PCB-containing ballasts.

4.3.3 Wear personal protective equipment including skin and respiratory protection. Protective equipment may include goggles, neoprene, butyl or nitrile rubber gloves, apron, boots, and a chemical cartridge respirator with an organic vapor cartridge.

4.3.4 Absorbent types of material (e.g. carpets) visibly contaminated with residue that has leaked from the ballast cannot be cleaned easily. In the case of carpeting, the carpet should be removed in a six-inch radius around the contamination point.

4.3.5 Clean non-absorbent contaminated surfaces in addition to a 1-foot buffer zone around the spill according to the following:

4.3.5.1 Remove spilled PCB oil with a rag, paper towel or by scraping with a putty knife.

4.3.5.2 Wipe twice with a rag containing mineral spirits, kerosene, turpentine, or rubbing alcohol.

4.3.5.3 Wipe once with a full-strength solution of a trisodium phosphate-based cleaner such as Soilex ™ or Spic'n Span ™.

4.3.6 Wrap PCB-contaminated materials (leaking ballast, rags, gloves, absorbent materials) in newspaper. Place in double plastic bags.

4.3.7 If PCBs get on your skin, remove contaminated clothing and wash contaminated skin thoroughly with soap and water. Contact the Maintenance Supervisor and inform them of the exposure.

4.3.8 Store PCB containing light ballasts in a Department of Transportation (DOT)-approved, non-leaking container with absorbent material.

4.3.9 Using a 6-inch yellow PCB label, label as PCB-contaminated hazardous waste.

4.3.10 Record your name, date, time, location, event, and clean up methods used. Maintain this record for 5 years.

4.3.11 Ship off-site within 30 days of the spill.

4.4 The following records of PCB article storage shall be maintained:

4.4.1 Quantity of PCB articles,

4.4.2 Date the first PCB-containing article was placed into the storage container, and

4.4.3 Date PCB articles are shipped off-site.

STANDARD OPERATING PROCEDURE

CLOTH RAG RECYCLING

1.0 PURPOSE

Maintain compliance with hazardous waste regulations related to cloth rags and assure proper recycling of cloth rags.

2.0 SCOPE

Personnel who use cloth rags.

3.0 SAFETY AND HEALTH

Used cloth rags may be contaminated with toxic, ignitable, and possibly corrosive and reactive materials. Care should be used when handling used rags.

4.0 PROCEDURE AND RESPONSIBILITES

4.1 Cloth Rag Use

4.1.1 Cloth rags may be used to clean up or wipe down equipment.

4.1.2 Cloth rags may be used with solvents, paints, oils, greases, cleaners, etc., as long as they are properly recycled.

4.2 Cloth Rag Recycling

4.2.1 The used cloth rags must be stored in rag recycling cans.

4.2.2 The rags should not be thrown into regular trash cans or dumpsters.

4.2.3 The rags should not be saturated with liquid. If, at the end of the use of the rag, it is still saturated with liquid, wring out the rag into the liquid's original container or the waste container prior to placing the rag into the rag recycling can.

4.2.4 The rags should not have excess waste or other materials on them. Excess material should be wiped off and disposed of accordingly.

STANDARD OPERATING PROCEDURE

STORAGE AND HANDLING OF USED VEHICULAR LEAD ACID BATTERIES

1.0 PURPOSE

Maintain used vehicular lead acid batteries in a manner preventing and containing spills and leaks and allowing for proper recycling.

2.0 SCOPE

Affects employees who may replace or handle used vehicular batteries.

3.0 SAFETY AND HEALTH

3.1 Vehicular lead acid batteries that are being replaced may contain lead and sulfuric acid.

3.2 The appropriate personal protective equipment (PPE) including safety eyewear, neoprene or polyvinyl chloride (PVC) gloves and apron should be used by personnel if a sulfuric acid leak has occurred.

4.0 PROCEDURE AND RESPONSIBILITES

4.1 Vehicular batteries that no longer recharge should be handled as if they are new batteries (i.e., stored and handled to prevent damage).

4.1.01 Batteries should be placed on pallets in an indoor area designated for the storage of spent vehicular lead acid batteries.

4.1.02 Spent lead acid batteries should **not** be disposed of in the normal trash.

4.1.03 Care should be taken not to damage the batteries during storage. Damage could result in spilled battery acid.

4.1.04 Batteries will be collected and recycled at a local vehicular battery supplier.

4.2 Damaged vehicular lead acid batteries that are leaking acid should be handled as follows:

4.2.01 Don the appropriate personal protective equipment (PPE) including safety eyewear, neoprene or polyvinyl chloride (PVC) gloves and apron.

4.2.02 Place the leaking battery into an approved containment device (i.e., spill pallet, plastic or plastic lined drum) with the leaking side up. If placed inside a drum, the drum should be labeled “used lead acid batteries”.

4.2.03 Absorb spilled acid with a neutralizing absorbent material. Collect the absorbent and hold for analysis. Contact the Maintenance Supervisor for instructions on sending a sample of the absorbent material for analysis.

STANDARD OPERATING PROCEDURE

AEROSOL CAN DEPRESSURIZATION

1.0 PURPOSE

Provide general guidance on puncturing most used and broken (e.g., no nozzle) aerosol cans, removing and collecting the propellant (i.e., pressure) and recycling the can as scrap metal.

2.0 SCOPE

Affects personnel using aerosol cans.

3.0 SAFETY AND HEALTH

The aerosol can depressurization process may result in exposure to toxic, ignitable, corrosive and reactive wastes. Care should be used when puncturing the aerosol cans to avoid allowing aerosol can product to spray out of the drum.

4.0 PROCEDURES AND RESPONSIBILITIES

4.1 Allowable Aerosol Cans

4.1.1 The following aerosol cans may be punctured:

- spray paint
- lubricants
- air fresheners

4.1.2 The following cans may not be punctured unless not prohibited on the label:

- insecticides
- pesticides

4.2 Depressurization Procedure

4.2.1 Personnel take the aerosol can to the aerosol can depressurization unit. The unit has a Hazardous Waste Label which identifies its contents as “Aerosol Can Content Wastes.”

4.2.2 Remove plastic lid and discard lid in normal trash can.

4.2.3 Open the pressure release valve if the activated carbon filter is equipped with a pressure release valve.

4.2.4 Loosen sliding plate locking mechanism and move the sliding plate to the side.

4.2.5 Insert aerosol can, spray nozzle end first (i.e., upside down).

4.2.6 Place sliding plate on top of aerosol can and tighten the locking mechanism. The sliding plate should hold the can securely in place and not allow it to move.

4.2.7 Press down on handle (i.e., this punctures the bottom of the can) to allow the aerosol can to de-pressurize and release quickly to prevent the contents from splattering against the depressurization unit.

4.2.8 If the can sounds like it is still depressurizing, wait till the sound stops before releasing the sliding plate. This may occur with broken cans that had a significant quantity of product in them. Loosen the sliding plate locking mechanism and move the sliding plate to the side.

4.2.9 Remove the aerosol can being careful not to spill or drip any residual product.

4.2.10 Place the aerosol can in a scrap steel bin or container.

4.2.11 Close the pressure release valve if the activated carbon filter is equipped with a pressure release valve..

4.2.12 Place the sliding plate back on the aerosol can depressurization unit and tighten the locking mechanism so it forms a tight seal and does not allow vapors to leak out.

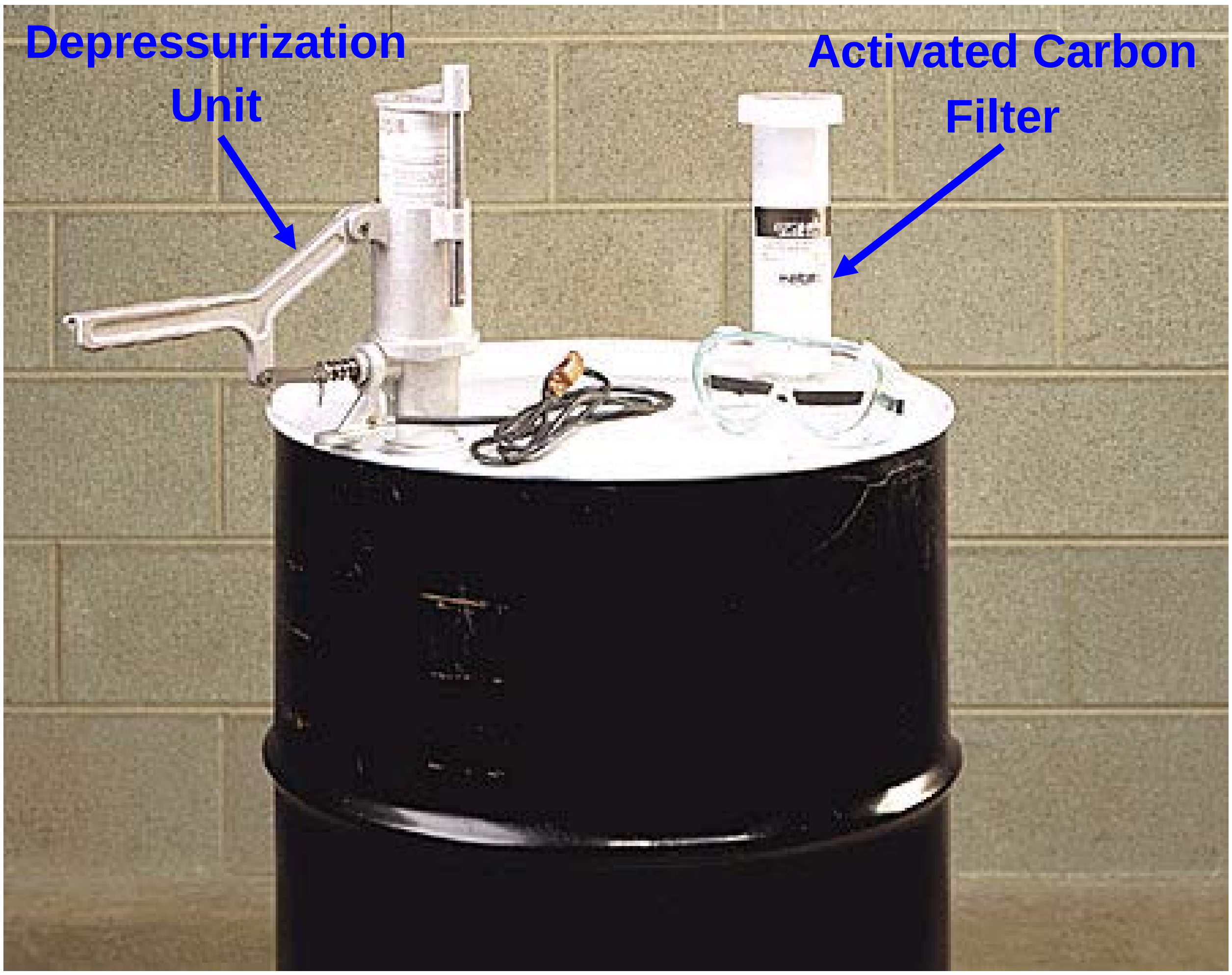
4.3 Routine Maintenance and Inspections

4.3.1 Check the grounding wire on the aerosol can depressurization unit to assure it is properly connected and free from kinks and defects.

4.3.2 Observe the outside of the aerosol can depressurization unit and drum for signs of paint and other material spills. Cleanup spills or leaks with a disposable towels or recycleable rags if safe to do so. Disposable towels

may be placed inside the drum with the aerosol can waste. Recycleable rags, if dry and free of large chunks or pieces of waste may be placed in the recycleable rag containers. Large chunks or pieces of waste removed from the outside of the aerosol can depressurization unit or drum should be place inside the drum with the aerosol can waste.

Figure 1: Aerosol Can Depressurization System



STANDARD OPERATING PROCEDURE

AEROSOL CAN DEPRESSURIZATION

1.0 PURPOSE

Provide general guidance on puncturing most used and broken (e.g., no nozzle) aerosol cans, removing and collecting the propellant (i.e., pressure) and recycling the can as scrap metal.

2.0 SCOPE

Affects personnel using aerosol cans.

3.0 SAFETY AND HEALTH

The aerosol can depressurization process may result in exposure to toxic, ignitable, corrosive and reactive wastes. Care should be used when puncturing the aerosol cans to avoid allowing aerosol can product to spray out of the drum.

4.0 PROCEDURES AND RESPONSIBILITIES

4.1 Allowable Aerosol Cans

4.1.1 The following aerosol cans may be punctured:

- spray paint
- lubricants
- air fresheners

4.1.2 The following cans may not be punctured unless not prohibited on the label:

- insecticides
- pesticides

4.2 Depressurization Procedure

4.2.1 Personnel take the aerosol can to the aerosol can depressurization unit. The unit has a Hazardous Waste Label which identifies its contents as “Aerosol Can Content Wastes.”

4.2.2 Remove plastic lid and discard lid in normal trash can.

4.2.3 Open the pressure release valve if the activated carbon filter is equipped with a pressure release valve.

4.2.4 Loosen sliding plate locking mechanism and move the sliding plate to the side.

4.2.5 Insert aerosol can, spray nozzle end first (i.e., upside down).

4.2.6 Place sliding plate on top of aerosol can and tighten the locking mechanism. The sliding plate should hold the can securely in place and not allow it to move.

4.2.7 Press down on handle (i.e., this punctures the bottom of the can) to allow the aerosol can to de-pressurize and release quickly to prevent the contents from splattering against the depressurization unit.

4.2.8 If the can sounds like it is still depressurizing, wait till the sound stops before releasing the sliding plate. This may occur with broken cans that had a significant quantity of product in them. Loosen the sliding plate locking mechanism and move the sliding plate to the side.

4.2.9 Remove the aerosol can being careful not to spill or drip any residual product.

4.2.10 Place the aerosol can in a scrap steel bin or container.

4.2.11 Close the pressure release valve if the activated carbon filter is equipped with a pressure release valve..

4.2.12 Place the sliding plate back on the aerosol can depressurization unit and tighten the locking mechanism so it forms a tight seal and does not allow vapors to leak out.

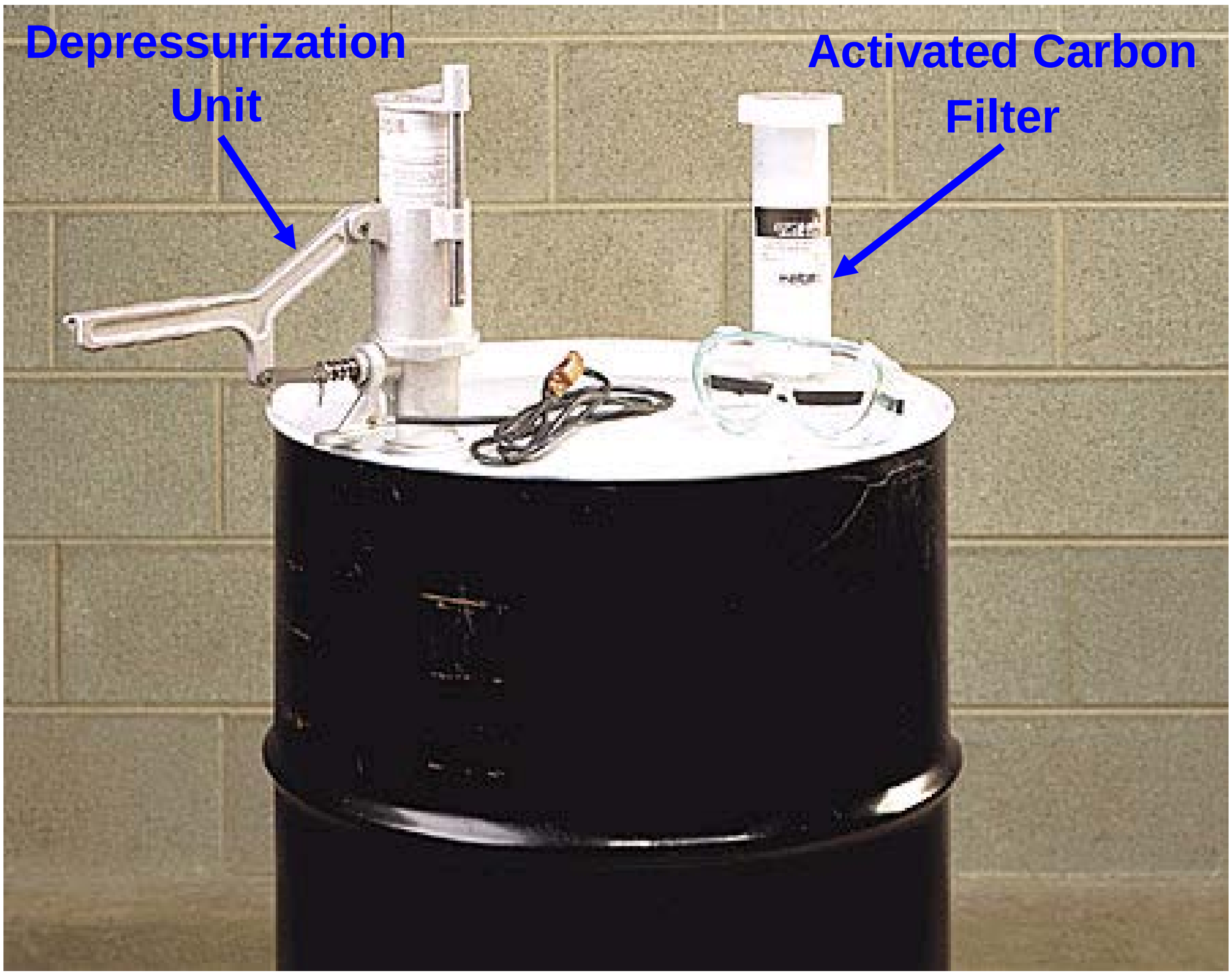
4.3 Routine Maintenance and Inspections

4.3.1 Check the grounding wire on the aerosol can depressurization unit to assure it is properly connected and free from kinks and defects.

4.3.2 Observe the outside of the aerosol can depressurization unit and drum for signs of paint and other material spills. Cleanup spills or leaks with a disposable towels or recycleable rags if safe to do so. Disposable towels

may be placed inside the drum with the aerosol can waste. Recycleable rags, if dry and free of large chunks or pieces of waste may be placed in the recycleable rag containers. Large chunks or pieces of waste removed from the outside of the aerosol can depressurization unit or drum should be place inside the drum with the aerosol can waste.

Figure 1: Aerosol Can Depressurization System



STANDARD OPERATING PROCEDURE

HANDLING AND DISPOSAL OF ASBESTOS WASTE

1.0 PURPOSE

This procedure addresses the handling and disposal of asbestos containing waste from brake maintenance operations.

2.0 SCOPE

Affects personnel who perform brake-servicing tasks. The wastes are limited to asbestos containing brake pads, brake dust that adheres to brake parts, and brake dust that collects in the drum.

3.0 SAFETY AND HEALTH

Inhalation of asbestos is a health hazard. Asbestos should be wetted according to the Procedures identified in Section 4.0 prior to handling.

4.0 PROCEDURES AND RESPONSIBILITIES

4.1 Apply a wetting solution containing the following to the waste:

- Water
- Wetting agent (50% polyoxyethylene ether and 50% polyoxyethylene ester or equivalent)

4.2 Immediately place the wetted waste in a tightly sealed container

4.2.1 Clear plastic bag not less than 6 mil thick unless the waste contains rigid or heavy objects likely to tear the bags.

4.2.1.1 Close the bag using a “goosenecking” technique and duct tape to seal

4.2.1.2 Place in another clear plastic bag not less than 6 mil thick

4.2.1.3 Close the bag using a “goosenecking” technique and duct tape to seal again.

4.2.2 If bag damage is likely to occur, place the waste in a fiber or metal container lined with a plastic bag not less than 6 mil thick and having a tight-fitting lid that can be fastened firmly in position.

4.2.3 Attach asbestos danger, generator and transport labels securely to the container

- OSHA label – *"DANGER Contains Asbestos Fibers Avoid Creating Dust Cancer and Lung Disease Hazard Avoid Breathing Airborne Asbestos Fibers"*
- Generator label – generator's name and location
- DOT label – *"Asbestos NA2212, Class 9"*

4.3 Carefully handle each waste container to prevent damage, breakage or opening

4.4 If a waste container breaks or cannot contain the waste, immediately transfer the waste into another container that complies with 4.2

4.4.1 Saturate any asbestos-containing material (ACM) waste that escapes from the original container with a wetting solution and place in the replacement container

4.4.2 Clean contaminated areas free of all visible residue and place in a waste container

4.5 Until delivery to an approved asbestos waste disposal site, store any ACM waste in a secure holding facility or location

4.6 Waste shall be transported off the site in vehicles operated by or escorted by a certified asbestos worker or supervisor

4.7 Retain handling responsibility for ACM waste until the waste is delivered to and accepted by the operator of a Department of Environmental Quality (DEQ) licensed and approved asbestos waste disposal site and a written receipt is received.

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Tires: Used tires*	
How Is the Waste Generated: *Used, broken, worn or discarded tires from automobiles and equipment.*	
Waste Classification: *Special*	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information: *Tires are not hazardous wastes.*	
Handling Procedure:	
Compatibility Class: ***Group 6B***	
Transportation Information: *Use a permitted tire hauler.*	
Disposal Method: *Other*	
Land Disposal Restrictions: *No*	
Final Disposal Site or Disposal Service & Contact: *See the "Scrap Tire Permittees List" for a a permitted collection site, collector, or processor.*	

NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name:	*Toxic wastes: Toxic wastes not otherwise classified*
How Is the Waste Generated:	*Spill debris or recovered spills of antifreeze, coolant or used oil that may contain toxic contaminants (e.g., lead).*
Waste Classification:	*Hazardous, D Listed Waste*
Waste Determination Method:	*Process Knowledge or Analysis*
Waste Determination Information:	*Toxic wastes not otherwise classified are hazardous wastes if TCLP laboratory analysis indicates concentrations of contaminants above the D-list regulatory levels.*
Handling Procedure:	*Collect potentially toxic waste in a steel or plastic drum. Follow the SOP for Hazardous Waste except the name of the waste should say "Hazardous Waste Pending Analysis" until the analytical results are received.*
Compatibility Class:	***Group 4A (Ignitables except oxidizers, solvents and pesticides), 2A (Metals)***
Transportation Information:	*Use a permitted hazardous waste transporter. Follow SOP for Hazardous Waste.*
Disposal Method:	*Treated*
Land Disposal Restrictions:	*Yes*
Final Disposal Site or Disposal Service & Contact:	*See the Hazardous Waste Service Providers Directory, "TSD Facilities" for a nearby hazardous waste treatment and disposal site.*

TOXICITY CHARACTERISTIC

Chemical Name	CAS Number	RCRA D CODE	RCRA TCLP (mg/L)	Category
1,2-Dichloroethane	107-06-2	D028	0.5	Chlorinated Solvent
1,4-Dichlorobenzene	106-46-7	D027	7.5	Chlorinated Solvent
2,4,5-Trichlorophenol	95-95-4	D041	400	Chlorinated Solvent
2,4,6-Trichlorophenol	88-06-2	D042	2	Chlorinated Solvent
2,4-D	94-75-7	D016	10	Pesticide
2,4-Dinitrotoluene	121-14-2	D030	0.13	Non-Chlorinated Solvent
Arsenic	7440-38-2	D004	100	Metal
Barium	7440-39-3	D005	100	Metal
Benzene	71-43-2	D018	0.5	Non-Chlorinated Solvent
Cadmium	7440-43-9	D006	1	Metal
Carbon tetrachloride	56-23-5	D019	0.5	Chlorinated Solvent
Chlordane	57-74-9	D020	0.03	Pesticide
Chlorobenzene	108-90-7	D021	100	Chlorinated Solvent
Chloroform	67-66-3	D022	6	Chlorinated Solvent
Chromium	7440-47-3	D007	5	Metal
Cresol (mixed isomers)	1319-77-3	D026	200	Non-Chlorinated Solvent
Endrin	72-20-8	D012	0.02	Pesticide
Heptachlor	76-44-8	D031	0.008	Pesticide
Heptachlor epoxide	1024-57-3	D031	0.008	Pesticide
Hexachloro-1,3-butadien	87-68-3	D033	0.5	Chlorinated Solvent
Hexachlorobenzene	118-74-1	D032	0.13	Chlorinated Solvent
Hexachlorocyclohexane	58-89-9	D013	0.4	Pesticide
Hexachloroethane	67-72-1	D034	3	Chlorinated Solvent
Lead	7439-92-1	D008	5	Metal
m-Cresol	108-39-4	D024	200	Non-Chlorinated Solvent
Mercury	7439-97-6	D009	0.2	Metal
Methyl ethyl ketone	78-93-3	D035	200	Non-Chlorinated Solvent
Nitrobenzene	98-95-3	D036	2	Non-Chlorinated Solvent
o-Cresol	95-48-7	D023	200	Non-Chlorinated Solvent
p-Cresol	106-44-5	D025	200	Non-Chlorinated Solvent
Pentachlorophenol	87-86-5	D037	100	Chlorinated Solvent
Pyridine	110-86-1	D038	5	Non-Chlorinated Solvent
Selenium	7782-49-2	D010	1	Metal
Silver	7440-22-4	D011	5	Metal
Silvex (2,4,5-TP)	93-72-1	D017	1	Pesticide
Tetrachloroethylene	127-18-4	D039	0.7	Chlorinated Solvent
Toxaphene	8001-35-2	D015	0.5	Pesticide
Trichloroethylene	79-01-6	D040	0.5	Chlorinated Solvent
Vinyl chloride	75-01-4	D043	0.2	Chlorinated Solvent
Vinylidene chloride	75-35-4	D029	0.7	Chlorinated Solvent

Nebraska Department of Environmental Quality

Guidance Documents

This information is provided by the Nebraska Department of Environmental Quality to assist the public and regulated community.

00-056 05/2000

Used Oil Collection Considerations

This paper provides basic information about used oil management practices for used oil collection programs. The rules are found in Title 128 - Rules and Regulations Governing Hazardous Waste in Nebraska.

Used Oil Collection

Definition of used oil: Any oil that has been refined from crude oil, used, and as a result of such use, is contaminated by physical or chemical impurities. Title 128, Chapter 1, Section 130.

- New oil is never considered "used oil."
- Examples of substances that are considered used oil and meet the used oil exemption:
  - Spent oil from gasoline and diesel engines
  - Spent refrigerant lubricating oil
  - Spent lubricating oil from aircraft reciprocating and jet engines
  - Spent hydraulic fluid
  - Spent heat transfer fluids
  - Spent transmission fluid
  - Cutting oils
- Examples of materials that are not used oil:
  - Spent antifreeze
  - Brake fluid
  - Solvents of any kind
  - Unused motor oil

- Used oil that exhibits one or more characteristics of hazardous waste but is recycled in some manner *other than being burned for energy recovery* is exempt from hazardous waste regulation (Title 128, Chapters 4 and 7 through 23).

- Used oil mixed with a *listed* hazardous waste is a hazardous waste. In fact, if used oil contains more than 1000 ppm of total halogens it is presumed to be a hazardous waste on the assumption that it has been mixed with a halogenated hazardous waste listed in Title 128, Chapter 3, Sections 013 through 016. This presumption may be rebutted. If a used oil collector accepts "rebutted presumption" used oil, we recommend that documentation be kept.

- A used oil generator or collector who gives (or sells) used oil directly to an off-specification used oil marketer is *not* a marketer of used oil. (See page 3 for a discussion of off-specification used oil.) Obtain documentation. Documentation from the off-specification used oil marketer must indicate what he does with the used oil; that is, he does not burn the used oil for energy recovery himself. This documentation is standard in the used oil industry.

- A collector of used oil is subject to the used oil marketer provisions of Title 128, Chapter 7, Section 009.04 if he provides that used oil directly to a person who burns used oil for energy recovery.

    - The analysis requirement at Title 128, Chapter 7, Section 009.04B1 may be skipped if the collector/generator stipulates the oil does not meet specification.
    - Used oil marketers must notify NDEQ of that activity. This notification is done using State of Nebraska Form 8700-12, "Notification of Hazardous Waste Activity."
    - Used oil marketers must use an invoice system. When the marketer initiates a shipment of off-specification used oil, the marketer must send the receiving facility an invoice that has an invoice number, the marketers NDEQ ID #, the names and addresses of both the sending and receiving facilities, the quantity of the off-specification used oil, the date of shipment, and a statement that says "This used oil is subject to NDEQ regulation under Title 128, Chapter 7". A copy of the invoice must be kept for three years.
    - The marketer must obtain certain written and signed notices from the used oil burner to document the used oil is burned in a proper device. See Title 128, Chapter 7, Section 009.04B5.
    - If the marketer claims the used oil meets specification, the marketer must keep copies of the analysis that proves such for three years, maintain a log with certain required information, and provide a cross reference between the log and the used oil analysis.
    - A person may market off-specification used oil only to burners or other marketers who have notified NDEQ (or other authorized state/EPA) of used oil activities and who have a NDEQ identification number.

Burning Used Oil

Used oil burned for energy recovery is subject to the requirements of Title 128, Chapter 7, 009. This section includes:

- A prohibition against burning used oil mixed with hazardous waste, except under limited circumstances.
- A prohibition against burning *off-specification* used oil in a used oil fired space heater, except under limited circumstances.
- Requirements for generators of used oil burned for energy recovery.
- Requirements for used oil marketers (see discussion below).
- Requirements for burners of used oil.

Off-specification used oil is used oil that exceeds any one or more of the levels for the following:

Arsenic	5 ppm
Cadmium	2 ppm
Chromium	10 ppm
Lead	100 ppm
Flash Point	100° F (minimum)
Total Halogens	4,000 ppm

Used oil that is a hazardous waste solely because it exhibits a characteristic of hazardous waste may be burned for energy recovery **if**:

- It is not mixed with hazardous waste. This means the used oil may be a characteristic hazardous waste in its own right, but no additional hazardous waste may be added.

Or

- The used oil contains hazardous waste generated SOLELY by a person subject to the requirements of a conditionally exempt small quantity generator (CESQG) of hazardous waste. A CESQG generates **220 pounds or less** of hazardous waste per month.
- This means public utilities may burn used oil in their utility boilers for energy recovery if it is their own used oil or it is collected from: a) "do-it-yourself" (DIY) used oil generators; b) farmers who are CESQGs as well as DIY oil generators; c) other businesses who are CESQGs; and d) other businesses who generate hazardous waste above the CESQG level only *if it can be confirmed their used oil has not been mixed with hazardous waste.* If businesses that generate hazardous waste at the small quantity generator (SQG) or large quantity generator (LQG) level place hazardous waste in their used oil, their used oil is no longer regulated as used oil.
- Off-specification used oil may be burned in oil-fired space heaters if the heater burns only used oil that the owner or operator generates, or used oil from do-it-yourself oil changers who generate the used oil as household waste. For example, a state agency that does oil changes can bring their own off-specification used oil to another of their facilities that has a used oil-fired space heater. That same agency cannot take that used oil to be burned in another state agency's used oil-fired space heater. Any of the above can burn do-it-yourself used oil, but be prepared to prove the do-it-yourself oil is what it claims to be. See below for transportation related issues.
- Nebraska does not have any quantity limitations on used oil collection or transportation. A hazardous waste manifest is not required for transporting used oil in Nebraska. Transporters must comply with any appropriate Department of Transportation regulations. See the 49 CFR series. Collectors must comply with applicable State Fire Marshall requirements for storage of flammable and combustible materials.

HANDLING USED OIL AND HAZARDOUS MATERIALS

Storage and Collection

- Keep hazardous materials separate, properly labeled, and sealed in the recommended containers.
- Develop a system for monitoring incoming used oil. Locked collection ports can help prevent unwanted materials in your used oil.
- We recommend collection tanks have a clearly visible gage that shows the level of product in the tank and overfill protection. Continued overfilling of used oil collection tanks has occurred when there was no indication the tank was actually full.
- While not required by regulation in Nebraska, the Department highly recommends all containers, tanks, and recepticles of used oil be clearly marked "USED OIL".
- The Department recommends that storage or collection areas be covered. The storage or collection location may need to be fenced and locked if vandalism could be a problem.
- Cap, label, cover, and properly store above-ground outdoor liquid containers and small tanks within a bermed area and on a paved impermeable surface, if possible. This practice helps to prevent spills from running into surface or ground water.
- If possible, store materials under a roof or tarpaulin to protect them from the elements and to prevent contaminated runoff.

HOUSEKEEPING SUGGESTIONS

Cleaning

- Sweep regularly.
- Inspect hazardous materials storage or collection areas at least weekly to ensure there are no leaks or spills.
- Inspect equipment such as pumps, pipes, storage tanks, valves, and material handling equipment for signs of corrosion, support or foundation failure, or other deterioration.
- Promptly clean up spilled materials to prevent runoff, tracking, and spoilage of other materials.

- Stock cleaning and spill response materials where they are readily available.
- Post reminders of good housekeeping practices.
- Provide instruction on securing containers.
- Schedule housekeeping duties and inspections to ensure good housekeeping is being accomplished.

Storage

- Maintain adequate aisle space between containers to facilitate material transfer, easy access to materials, and inspections.
- Close used oil containers between filling or emptying events.
- Store containers, drums, and bags away from direct traffic routes to prevent accidental damage or spills
- Organize materials neatly for storage.
- Store incompatible materials separately.
- Stack containers according to manufacturer's instructions to avoid damage to containers from improper weight distribution.
- Store containers on pallets or in containment devices to prevent corrosion of the containers by contact with moisture or other chemicals.

Training

- Ensure employees can identify the toxic and hazardous substances that are stored, handled, used, and/or produced on site.
- Discuss the handling procedures required for materials that are stored, handled, or used on site.
- Post an up-to-date, easily visible hazardous communications display.
- Ensure that initial and refresher spill response training is conducted as needed.

RESPONDING TO SPILLS

- Construct dikes around material storage areas to contain spills.
- Consider "spill drills."
- Contain and control leaks and spills as quickly as possible. Clean leaks and spills immediately using dry methods such as absorbent pads and wipes.
- Portable absorbent booms should be readily available for quick response where surface water impact is possible.
- Use dry absorbent materials such as "kitty" litter or organic-based absorbents to absorb oil and grease on dry surfaces.
- Consider having "oil only" absorbents on hand for absorbing any oils that may contaminate water in puddles, ponds, ditches, etc.
- Dispose of used absorbent, pads, and wipes properly; some may be hazardous waste. Note: Used "oil only" absorbent pads and socks can often be reused.
- Report used oil spills per Title 126 - Rules and Regulations Pertaining to the Management of Wastes, Chapter 18, "Releases of Oil or Hazardous Substances."

ADDITIONAL INFORMATION AND CONTACTS

Nebraska Department of Environmental Quality/Waste Management Section (Hazardous Waste Compliance Assistance)	402-471-8308
Pollution Prevention Program	402-471-6988
Public Advocate	402-471-3413
RCRA/Superfund Hotline	800-424-9346

Pollution Prevention Clearinghouse	202-260-1023
National Automobile Repair Compliance Assistance Center--Coordinating Committee for Automotive Repair	888-476-5465
Spill Report (8:00 am - 5:00 pm) (After hours & holidays)	402-471-2186 402-471-4545

HELPFUL WEB SITES:

- Titles 126 and 128 - **www.deq.state.ne.us/** and click on "Rules and Regulations"
- MSDS information - **www/msdssearch.com/**

* This Material is intended for guidance purposes only. It is not meant to substitute for the regulations found in Title 128 - Rules and Regulations Governing Hazardous Waste in Nebraska or other applicable Nebraska environmental regulations.

Produced by: Nebraska Department of Environmental Quality, P.O. Box 98922, Lincoln, NE 68509-8922; phone (402)471-8308. To view this, and other information related to our agency, visit our web site at ***www. deq.state.ne.us****.*

This Publication is also available as an Adobe Acrobat (PDF) file. File size is 37 KB	

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Nebraska Department of Environmental Quality

Guidance Documents

This information is provided by the Nebraska Department of Environmental Quality to assist the public and regulated community.

00-058 05/2000

Used Oil and Used Oil Filter Management

This document describes management methods for used oil and related used oil waste for generators such as:

Households
Vehicle Repair Shops
Service Stations
Highway Maintenance Garages
Railroad Operations
Manufacturing and Industrial Plants
Utilities
Machine Shops
Farm and Ranch Operations

COVERED IN THIS GUIDANCE DOCUMENT

QUESTIONS AND ANSWERS

1. How should households manage their used oil?
It is important to keep used oil out of storm drains, garbage and trash receptacles, empty lots, waterways, and groundwater. Households need to be aware of the energy potential and the value of recycled oil, that it need not be wasted but can be reprocessed and used again. Households should collect and recycle their used oil. They should not add anything to the used oil (no antifreeze, solvents, or any other liquid). Households can:

- Give away their used oil to service stations or used oil collection centers for recycling. (This used oil should be picked up by reputable used oil collectors or dropped off at a collection center to be reprocessed and prepared for further use.)
- Burn their used oil or used oil from other households in space heaters designed to burn used oil.
- Give their used oil to other households, farmers or businesses for burning in approved space heaters. (Households are exempt from analysis and recordkeeping requirements.)

2. How should farmers and ranchers manage their used oil?
Farmers and ranchers are subject to the same regulations as businesses. They can:

- Recycle their used oil through a reputable used oil collector who takes it to a used oil processor.
- Burn the used oil they generate or receive from households on-site in approved space heaters, they can also burn used oil from other businesses provided that the used oil meets the requirements of 'specification used oil' (refer to the Used Oil Burned for Energy Recovery section of this guidance).
- Give used oil to a burner to burn on-site in a space heater only if the used oil is analyzed and determined to be 'specification used oil' (refer to the Used Oil Burned for Energy Recovery section of this guidance and follow the requirements for Marketers of Used Oil of this guidance).
- Give off-specification used oil to a burner to burn in an industrial furnace, industrial boiler, or utility boiler (refer to the Used Oil Burned for Energy Recovery section of this guidance for the types of approved burning devices and follow the requirements for Marketers of Used Oil of this guidance).

USED OIL FILTERS

Used oil filters are exempt from regulation under the hazardous waste regulation (Title 128 - Rules and Regulations Governing Hazardous Waste Management in Nebraska - Chapter 7, 009.12) with the exception of terne-plated oil filters. Terne-plated oil filters commonly fail the toxicity characteristic test for lead. For more information on disposal of terne-plated filters, contact the Waste Management Section at (402)471-4210.

In order for exemption to apply, generators must drain oil filters using one of the following hot-draining methods:

- Puncture the filter's anti-drain back valve or the filter dome end and hot drain.
- Hot-drain and crush. (Hot-draining means the oil is drained near engine operating temperature and above room temperature.)
- Dismantle and hot-drain.
- Any other equivalent hot-draining method which removes used oil.

Once the used oil is removed, recycle the scrap metal and recycle the oil. Recycling is the recommended option for managing used oil filters. Request NDEQ's 'Directory of Hazardous Waste Management Facilities' which includes used oil filter recyclers. If a recycler cannot be found for the used oil filters, crushed oil filters or properly drained oil filters may be disposed in a permitted solid waste landfill (NDEQ's Oil Filter Disposal Policy, July 15, 1993)

GENERAL INFORMATION REGARDING USED OIL MANAGEMENT

After changing your oil, place it in a clean plastic container with a tight lid. Don't mix it with anything else (paint, gasoline, solvents, antifreeze, etc.). Take it to a service station, collection center, used oil recycler, or other location where used oil is collected. Contact city or solid waste officials for information on collection centers near you. A list of used oil and waste oil haulers is available from the Department by asking for the 'Directory of

Hazardous Waste Management Facilities' or the 'Recycling Directory'.

Used oil is oil that has been contaminated by use. It is illegal to dispose used oil as municipal waste or in a landfill. The use of used oil for dust suppression on roads, while not directly prohibited by regulation, is discouraged by the Department and if not performed properly, may be a violation of the Nebraska Environmental Protection Act and Related Regulations.

Used oil containing detectable concentrations of Polychlorinated Biphenyls (PCBs), greater that 2 parts per million (ppm) is prohibited from use as a sealant, coating, or dust control agent. Used oil containing greater than 50 ppm PCBs is regulated under the 'Toxic Substance Control Act' (TSCA). If your waste oil falls under these regulations, contact the EPA Region 7 office at (913) 551-7395.

Used oils mixed with hazardous waste are subject to hazardous waste regulations (Title 128). Used oil that is recycled in some other manner than being burned for energy recovery is exempt from the hazardous waste regulations.

SERVICE STATIONS AND OTHER GENERATORS

A generator is any business which produces used oil. Besides vehicle repair shops and service stations, some of the more common examples of used oil generators are corporate and government motorpools and taxi, bus, and delivery companies. Individuals or households generating oil from oil changes are not subject to these regulations.

Generators should:

- Maintain storage containers and tanks in good condition.
- Label containers or storage tanks as 'used oil'.
- Not mix used oil with hazardous waste or hazardous substances.
- Contact the local Fire Department for applicable codes and ordinances.

Oil spills or leaks must be cleaned up, and any spills of 25 gallons or more must be reported. Spills of any amount to a waterway must be reported.

TRANSPORTERS AND COLLECTORS

A used oil transporter or collector is any person who transports used oil to another site. Facilities that only transport used oil are not subject to regulation under Title 128, however, they must comply with all applicable Department of Transportation (DOT) regulations (402-471-0105). Transporters of used oil that has been mixed with a hazardous waste are subject to the hazardous waste transporter requirements (Title 128, Chapter 11).

Transporters and collectors should:

- Maintain storage tanks and containers in good condition and label them 'used oil'.
- Process and store used oil in areas with oil-impervious flooring and secondary containment structures (such as berms or ditches).
- Track incoming and out-going used oil.
- Notify local building or fire code regulatory agencies and follow local ordinances.

Oil spills or leaks must be cleaned up and any spills of 25 gallons or more must by reported. Spills of any amount to a waterway must be reported.

USED OIL BURNED FOR ENERGY RECOVERY

Burning of used oil, in approved space heaters designed to burn used oil, by businesses (e.g. farmers and service stations) is allowed provided they burn the used oil they generate or used oil generated and collected from households.

Burning of used oil fuels in industrial furnaces and utility boilers is allowed under state rules and federal regulations. Burning of any used oil in these facilities must also comply with air pollution regulations (Title 129). Using specification oil as fuel is allowed if the oil has been analyzed and records are kept. Using off-specification oil as fuel is more restricted and is subject to greater regulation.

SPECIFICATION USED OIL

There are limits on the amount of certain hazardous substances that used oil can contain and be called 'specification' used oil. Laboratory analysis is required to determine whether of not your used oil meets the specifications outlined as follows.

Specification Used Oil is used oil that has been tested and analysis demonstrates that contaminants are at or below the following levels:

Contaminant Levels for Specification Used Oil

Constituent/Property	Allowable Level
Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Flash Point	100 F minimum
Total Halogens	4000 ppm maximum

If used oil has been mixed with hazardous waste, that oil is considered a hazardous waste. The specification does not apply to mixtures of used oil and hazardous waste.

Burners of Specification Used Oil must:

- Apply for a NDEQ hazardous waste identification number if they are the first to claim the used oil meets the specification and the burner receives the used oil from a marketer. (A burner does not have to notify if the burner burns specification used oil that they generate or if they receive used oil from a marketer that previously notified NDEQ, burners that burn used oil in a space heater also do not have to notify.)
- Burners must obtain analysis documenting that the used oil meets the specification and are required to keep records of the analysis for three years.

Burners must obtain analysis documenting that the used oil meets the specification, if by processing, blending, or other treatment method they claim the used oil meets the specification.

Off-Specification Used Oil

Off-specification used oil is oil that has not been tested, or used oil that has been tested and exceeds any of the limits shown in the 'Contaminant Levels for Specification Used Oil' table.

Off-specification used oil burners must specifically comply with Title 128, Chapter 7, 009.

Burners of Off-Specification Used Oil Must:

- Apply for a NDEQ hazardous waste identification number and file a notification of used oil activities even if they already have an identification number.
- Provide a one-time written and signed certification that the burner has notified NDEQ and that the burner will burn the used oil only in an industrial furnace, industrial boiler or utility boiler.
- Keep a copy of each invoice of used oil received from marketers for three years.
- Keep a copy of each certification notice sent to a marketer for three years from the date of last receiving off-specification used oil from the marketer.

Types of Approved Burning Devices for Off-Specification Used Oil:

- Industrial furnaces
- Industrial boilers
- Utility boilers
- Space heaters designed to burn used oil

Burning of off-specification used oil in used oil-fired space heaters is allowed under state rules provided the following conditions are met:

- The heater burns only used oil the owner or operator generates, collects from household do-it-yourselfers, or used oil that is specification used oil.
- The heater is designed to have a maximum capacity of not more than 0.5 million BTUs per hour.
- The heater's combustion gases are vented to the outside air.
- Emissions from space heaters must have an opacity of less than 20% (contact the NDEQ Air Division for more information).

MARKETERS OF USED OIL

(Generators Marketing Used Oil Directly to a Burner)

NOTE: Anyone selling or giving used oil directly to someone who burns used oil is also considered a used oil marketer and must comply with the marketer requirements in Title 128, Chapter 7.

Requirements for marketing specification and off-specification used oil:

Marketers of Specification Used Oil must:

- Apply for a NDEQ hazardous waste identification number (marketers must notify NDEQ of used oil activities even if they already have an identification number).
- Analyze the used oil to prove it meets the specifications as listed in the 'Contaminant Levels for Specification Used Oil' table.
- Keep a record of the analysis for three years.
- Keep an operating log for three years that records the following information:
    1. Name and address of the facility sending or receiving the shipment.
    2. The quantity of used oil delivered or received.
    3. The date of shipment or delivery.
    4. A cross reference to the analysis showing that the oil meets the specifications.

Marketers of Off-Specification Used Oil must:

- Apply for a NDEQ hazardous waste identification number (marketers must notify NDEQ of used oil activities even if they already have an identification number).
- Complete an invoice for each used oil shipment, and send to the receiving facility.
- Keep copies of all invoiced and notification certifications either sent or received.
- Obtain a one-time written and signed notice from the burner or other marketer certifying that:
    1. The burner or marketer notified of used oil activities.
    2. The burner will burn the off-specification used oil in an industrial furnace, industrial boiler or utility boiler.

For more detailed information about used oil marketing requirements, refer to Title 128, Chapter 7.

NOTIFICATION REQUIREMENTS

INDIVIDUALS WHO NEED TO NOTIFY NDEQ:

- Marketers of off-specification used oil need to file a notification of used oil activities even if they already have an identification number.
- Generators who market used oil directly to a burner.
- The business which first claims the oil meets the specification. (refer to the Maximum Contaminant Levels

Table in this guidance).
- Burners of off-specification used oil.

INDIVIDUALS WHO DO NOT NEED TO NOTIFY NDEQ:

- Households
- Burners who burn specification oil that they generate.
- Burners who receive oil from marketers who first claimed the oil meets the specification
- Burners who burn used oil in space heaters provided they comply with Title 128 and Title 129 regulations (refer to the Types of Approved Burning Devices of this guidance)
- Generators who give used oil to an 'intermediary' (e.g. someone who then gives the used oil to a burner).

FOR MORE INFORMATION PLEASE CONTACT
NEBRASKA DEPARTMENT OF ENVIRONMENTAL QUALITY
WASTE MANAGEMENT SECTION
(402) 471-4210

REFERENCES:

Nebraska Department of Environmental Quality:
Directory of Hazardous Waste Management Facilities Recycling Directory
Title 132 - Integrated Solid Waste Management Regulations
Title 128 - Rules and Regulations Governing Hazardous Waste Management in Nebraska
Title 129 - Nebraska Air Quality Regulations
Oil Filter Disposal Policy
Landfill Ban Information, Yard Waste, Waste Oil, and Lead Acid Batteries
Nebraska Environmental Protection Act & Related Laws

US EPA Region 7

TSCA/PCBs

SPILL NOTIFICATION - NEBRASKA DEPARTMENT OF ENVIRONMENTAL QUALITY
Business hours - (402) 471-2186
After hours/Weekends/Holidays - (402) 471-4545

USEFUL WEBSITES:

Titles 128, 129, & 132: *http://www.deq.state.ne.us*/ click on "Rules and Regulations"

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Produced by: Nebraska Department of Environmental Quality, P.O. Box 98922, Lincoln, NE 68509-8922; phone (402)471-4210. To view this, and other information related to our agency, visit our web site at ***www. deq.state.ne.us***.

This Publication is also available as an Adobe Acrobat (PDF) file. File size is 39 KB	

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Managing Used Oil: Advice for Small Businesses

Publication: EPA530-F-96-004, November 1996

This fact sheet contains valuable information for businesses such as service stations, fleet maintenance facilities, and "quick lube" shops that generate and handle used oil. It summarizes the U.S. Environmental Protection Agency's (EPA's) used oil management standards--a set of "good housekeeping" requirements for used oil handlers. These requirements are detailed in Title 40 of the Code of Federal Regulations (CFR)Part 279. For a complete understanding of these standards, contact the RCRA Hotline at 800 424-9346. Small businesses should also refer to EPA's Emergency Response Division's Information Line at 202 260-2342 for information on how to manage spills.

What is Used Oil?

EPA's regulatory definition of used oil is as follows: Used oil is any oil that has been refined from crude oil or any synthetic oil that has been used and as a result of such use is contaminated by physical or chemical impurities. Simply put, used oil is exactly what its name implies--any petroleum-based or synthetic oil that has been used. During normal use, impurities such as dirt, metal scrapings, water, or chemicals can get mixed in with the oil, so that in time the oil no longer performs well. Eventually, this used oil must be replaced with virgin or re-refined oil to do the job at hand EPA's used oil management standards include a three-pronged approach to determine if a substance meets the definition of used oil. To meet EPA's definition of used oil, a substance must meet each of the following three criteria:

- **Origin** — the first criterion for identifying used oil is based on the origin of the oil. Used oil must have been refined from crude oil or made from synthetic materials. Animal and vegetable oils are excluded from EPA's definition of used oil.

- **Use** — the second criterion is based on whether and how the oil is used. Oils used as lubricants, hydraulic luids, heat transfer fluids, buoyants, and for other similar purposes are considered used oil. Unused oil such as bottom clean-out waste from virgin fuel oil storage tanks or virgin fuel oil recovered from a spill, do not meet EPA's definition of used oil because these oils have never been "used." EPA's definition also excludes products used as cleaning agents or solely for their solvent properties, as well as certain petroleum-derived products like antifreeze and kerosene.

- **Contaminants** — the third criterion is based on whether or not the oil is contaminated with either physical or chemical impurities. In other words, to meet EPA's definition, used oil must become contaminated as a result of being used. This aspect of EPA's definition includes residues and contaminants generated from handling, storing, and processing used oil. Physical contaminants could include metal shavings, sawdust, or dirt. Chemical contaminants could include solvents, halogens, or saltwater.

Used Oil Is:*	Used Oil Is Not:
• Synthetic oil — usually derived from coal, shale, or polymer-based starting material. • Engine oil — typically includes gasoline and diesel engine crankcase oils and piston-engine oils for automobiles, trucks, boats, airplanes, locomotives, and heavy equipment. • Transmission fluid. • Refrigeration oil. • Compressor oils. • Metalworking fluids and oils. • Laminating oils. • Industrial hydraulic fluid. • Copper and aluminum wire drawing solution. • Electrical insulating oil. • Industrial process oils. • Oils used as buoyants. *** This list does not include all types of used oil.**	• Waste oil that is bottom clean-out waste from virgin fuel storage tanks, virgin fuel oil spill cleanups, or other oil wastes that have not actually been used. • Products such as antifreeze and kerosene. • Vegetable and animal oil, even when used as a lubricant. • Petroleum distillates used as solvents. Oils that do not meet EPA's definition of used oil can still pose a threat to the environment when disposed of and could be subject to the RCRA regulations for hazardous waste management.

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How is Used Oil Recycled?

Once oil has been used, it can be collected, recycled, and used over and over again. An estimated 380 million gallons of used oil are recycled each year. Recycled used oil can sometimes be used again for the same job or can take on a completely different task. For example, used motor oil can be re-refined and sold at the store as motor oil or processed for furnace fuel oil. Aluminum rolling oils also can be filtered on site and used over again.

Used Oil Can Be Recycled in the Following Ways:

- Reconditioned on site, which involves removing impurities from the used oil and using it again. While this form of recycling might not restore the oil to its original condition, it does prolong its life.

- Inserted into a petroleum refinery, which involves introducing used oil as a feedstock into either the front end of the process or the coker to produce gasoline and coke.

- Re-refined, which involves treating used oil to remove impurities so that it can be used as a base stock for new lubricating oil. Re-refining prolongs the life of the oil resource indefinitely. This form of recycling is the preferred option because it closes the recycling loop by reusing the oil to make the same product that it was when it started out, and therefore uses less energy and less virgin oil.

- Processed and burned for energy recovery, which involves removing water and particulates so that used oil can be burned as fuel to generate heat or to power industrial operations. This form of recycling is not as preferable as methods that reuse the material because it only enables the oil to be reused once. Nonetheless, valuable energy is provided (about the same as provided by normal heating oil).

Recycling Used Oil Is Good for the Environment and the Economy — Here's Proof:

- Re-refining used oil takes only about one-third the energy of refining crude oil to lubricant quality.
- It takes 42 gallons of crude oil, but only one gallon of used oil, to produce 2 ½ quarts of new, high-quality lubricating oil.
- One gallon of used oil processed for fuel contains about 140,000 British Thermal Units (BTUs) of energy.

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Does My Business Handle Used Oil?

The following paragraphs describe different types of businesses that handle used oil.

- **Generators** are businesses that handle used oil through commercial or industrial operations or from the maintenance of vehicles and equipment. Generators are the largest segment of the used oil industry. Examples of common generators are car repair shops, service stations, quick lube shops, government motor pools, grocery stores, metal working industries, and boat marinas. Farmers who produce less than an average of 25 gallons of used oil per month are excluded from generator status. Individuals who generate used oil through the maintenance of their personal vehicles and equipment are not subject to regulation under the used oil management standards.

- **Collection centers and aggregation points** are facilities that accept small amounts of used oil and store it until enough is collected to ship it elsewhere for recycling. Collection centers typically accept used oil from multiple sources that include both businesses and individuals. Aggregation points collect oil only from places run by the same owner or operator and from individuals.

- **Transporters** are companies that pick up used oil from all sources and deliver it to re-refiners, processors, or burners. Transfer facilities include any structure or area where used oil is held for longer than 24 hours, but not longer than 35 days. Examples of transfer facilities are loading docks and parking areas.

- **Re-refiners and processors** are facilities that blend or remove impurities from used oil so that it can be burned for energy recovery or reused. Included in this category are re-refiners who process used oil so that it can be reused in a new product such as a lubricant and recycled again and again. EPA's management standards primarily focus on this group of used oil handlers.

- **Burners** burn used oil for energy recovery in boilers, industrial furnaces, or in hazardous waste incinerators.

- **Marketers** are handlers who either a) direct shipments of used oil to be burned as fuel in regulated devices or, b) claim that certain EPA specifications are met for used oil to be burned for energy recovery in devices that are not regulated. They also sometimes help move shipments of used oil to burners. By definition, marketers must also fall into at least one of the above categories.

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What Standards Should My Business Follow?

If your business generates or handles used oil, there are certain good housekeeping practices that you must follow. These required practices, called "management standards," were developed by EPA for businesses that handle used oil. The management standards are common sense, good business practices designed to ensure the safe handling of used oil, to maximize recycling, and to minimize disposal. The standards apply to all used oil handlers, regardless of the amount of the oil they handle. Although different used oil handlers may have specific requirements, the following requirements are common to all types of handlers. These requirements relate to storage and to cleaning up leaks and spills, as follows.

- Label all containers and tanks as Used Oil.

- Keep containers and tanks in good condition. Don't allow tanks to rust, leak, or deteriorate. Fix structural defects immediately.

- Never store used oil in anything other than tanks and storage containers. Used oil may also be stored in units that are permitted to store regulated hazardous waste. Tanks and containers storing used oil do not need to be RCRA permitted, however, as long as they are labeled and in good condition. Storage of used oil in lagoons, pits, or surface impoundments that are not permitted under RCRA is prohibited.

Oil Leaks and Spills

- Take steps to prevent leaks and spills. Keep machinery, equipment containers, and tanks in good working condition and be careful when transferring used oil. Have sorbent materials available on site.

- If a spill or leak occurs, stop the oil from flowing at the source. If a leak from a container or tank can't be stopped, put the oil in another holding container or tank.

- Contain spilled oil. For example, containment can be accomplished by erecting sorbent berms or by spreading a sorbent over the oil and surrounding area.

- Clean up the oil and recycle the used oil as you would have before it was spilled. If recycling is not possible, you first must make sure the used oil is not a hazardous waste and dispose of it appropriately. All used cleanup materials, from rags to sorbent booms, that contain free-flowing used oil also must be handled according to the used oil management standards. Remember, all leaked and spilled oil collected during cleanup must be handled as used oil. If you are a used oil handler, you should become familiar with these cleanup methods. They may also be part of a spill response action plan.

- Remove, repair, or replace the defective tank or container immediately.

Record Keeping

EPA uses 12-digit identification (ID) numbers to track used oil. Transporters hauling used oil must have a valid EPA ID number, and generators, collection centers, and aggregation points must use transporters with EPA ID numbers for shipping used oil off site. If you need an ID number, contact your EPA regional office or your state director. (You also can call the RCRA Hotline for more information.) Generators, collection centers, aggregation points, and any handler that transports used oil in shipments of less than 55 gallons do not need an ID number, but may need a state or local permit.

Used oil transporters, processors, burners, and marketers also must record each acceptance and delivery of used oil shipments. Records can take the form of a log, invoice, or other shipping document and must be maintained for three years. Re-refiners, processors, transfer facilities, and burners must have secondary containment systems (e.g.,oil-impervious dike, berm, or retaining wall and a floor) so that oil can not reach the environment in the event of a leak or spill. EPA also encourages generators to use a secondary containment system to prevent used oil from contaminating the environment.

Burners of used oil that meets a certain set of quality standards called the used oil specifications are not regulated under the used oil management standards, as long as the used oil is burned in appropriate boilers, furnaces, or incinerators. Call the RCRA Hotline for more information.

Know and understand your state regulations governing the management of used oil they might be stricter than EPA's. Contact your state or local environmental agency to determine your best course of action.

Mixing Used Oil and Hazardous Waste

In addition to EPA's used oil management standards, your business may be required to comply with federal and state hazardous waste regulations if your used oil becomes contaminated from mixing it with hazardous waste. If used oil is mixed with hazardous waste, it probably will have to be managed as a hazardous waste. Hazardous waste disposal is a lengthy, costly, and strict regulatory process. The only way to be sure your used oil does not become contaminated with hazardous waste is to store it separately from all solvents and chemicals and not to mix it with anything. If you believe your used oil might be mixed with a hazardous waste, call the RCRA Hotline at 800 424-9346. Hotline representatives can answer most of your questions or direct you to appropriate state environmental offices.

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How Should My Business Manage Used Oil Filters?

The Filter Manufacturers' Council maintains a regulatory hotline and database to encourage the proper management of used oil filters. By calling the hotline at 800 99-FILTER, you can access the proper management requirements for your particular states. The database contains:

- Overviews of federal and state regulations relevant to the management of oil filters.
- Addresses and phone numbers of the regulatory agencies governing the management of used filters in each state.
- A listing of companies, by state, that transport, process, and recycle used filters.

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How Can My Business Avoid Costly Cleanups?

Meeting the following conditions relieves service station dealers from responsibility for costly cleanups and liabilities associated with off-site handling of used oil. To meet these conditions, service stations must: (1) comply with the management standards described on page 2 and 3, (2) not mix used oil with any hazardous substance, and (3) accept used oil from Do-it-yourselfers (DIYs) and send it for recycling. Call the RCRA Hotline for complete details regarding this liability exemption.

Recommended Cleanup Practices

EPA recommends, but does not require, the following cleanup practices for used oil handlers: (1) maximize the recovery of used oil; (2) minimize the generation of used oil sorbent waste by choosing reusable sorbent materials; (3) use the spent sorbent materials to produce recycled sorbent materials; and (4) buy sorbent materials with recycled content.

Extraction devices (e.g., centrifuges, wringers, and compactors) can be used to recover used oil from reusable sorbent materials. Sorbent pads can be reused between two and eight times depending on the viscosity of the used oil. These technologies, while not required, can be used to reduce the number of sorbent pads ultimately sent for remanufacture, energy recovery, or disposal. The potential to reduce waste and save money (i.e., lower disposal costs for spent pads and lower per use cost of sorbent pads) by reusing and recycling sorbent pads can be substantial.

Managing Cleanup Materials

If you have used oil on rags or other sorbent materials from cleaning up a leak or spill, you should remove as much of the free-flowing oil as possible and manage the oil as you would have before it spilled. Once the free-flowing used oil has been removed from these materials, they are not considered used oil and may be managed as solid waste as long as they do not exhibit a hazardous waste characteristic. Note, however, that materials from which used oil has been removed continue to be regulated as used oil if they are to be burned for energy recovery (regardless of the degree of removal).

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What Else Can My Business Do to Conserve Oil?

- Minimize the amount of used oil you produce. The less used oil that is produced in the first place, the less that ultimately has to be handled. Businesses can filter, separate, and recondition used oil to prolong its usable life.
- Purchase re-refined used oil products instead of virgin oil products. Re-refined oil works just as well as virgin oil. Products that display the American Petroleum Institute (API) "starburst" meet the same high-quality specifications as virgin oil.
- Practice safe management of used oil. Don't mix used oil with anything. Always store used oil in leak-proof containers that are in secure areas safely away from workers and the environment. Send used oil to a re-refiner whenever possible.

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Supporting Documents

- Managing Used Oil: Advice for Small Businesses - (Adobe PDF file, 73 KB)
  en Español
- Above document in text format - (ASCII text file)
- Description of the above documents - (ASCII text file)

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Nebraska Department of Environmental Quality

Guidance Documents

This information is provided by the Nebraska Department of Environmental Quality to assist the public and regulated community.

00-004 06/2000

Waste Computers and Monitors

The purpose of this Guidance Document is to provide Nebraskans guidance on the correct procedures for disposal of spent computers and monitors with cathode ray tubes (CRTs).

Title 128 - Rules and Regulations Governing Hazardous Waste in Nebraska is the primary source of regulatory guidance for waste computer and CRT disposal.

Waste computers and monitors generated from households are not considered or regulated as hazardous waste. However, the Nebraska Department of Environmental Quality (NDEQ) encourages households to recycle or reuse computers

COMPUTER WASTE REDUCTION AND MANAGEMENT (See the attached CRT Waste Decision Flow Chart for assistance in managing CRT waste)

- Maximize opportunities to reuse computer equipment rather than dispose of it.
  - Reuse internally
  - Give away or sell to charities or other users
  - Have a refurbisher resell, refurbish, or use for parts
- Computers and monitors sent to a legitimate refurbisher as a "still usable product" are not considered waste. The equipment does not necessarily have to be in perfect working condition to be considered a "still usable product." The refurbisher must be qualified to work on the equipment and is generally responsible for the disposition of the resulting material. The resulting material may be fully functioning computers or equipment, reusable parts, scrap metal, other non-hazardous scrap such as plastic, or waste. Any hazardous waste generated from refurbishing operations is generally the responsibility of the refurbisher.
- Manage disposal of computer and CRT equipment so that **no more than 220 pounds of total hazardous waste will be generated** from your facility during any given calendar month. For example; phase out old computer systems over time to avoid excess disposal in any one month.
- Approximate weights of assembled computer monitors

14"	15 - 25 lbs
15"	20 - 30 lbs
17"	40 - 50 lbs
19"	60 - 75 lbs
21"	80 - 90 lbs

Actual weights vary by age of equipment and manufacturer.

- Accumulation or storage areas - management suggestions:
    - Maintain a log in scrap metal accumulation areas to record accumulation, shipping, and weight information.
    - Ensure labels, if required, are secure and legible.
    - Arrange for the timely disposal of computers that are no longer usable.
- Maintain a file to document computer and cathode ray tube waste testing and determinations, refurbisher transactions, disposal transactions, or hazardous waste manifests and land disposal restriction forms.

DISPOSAL

- Nothing in this Guidance Document overrides applicable property management procedures set up by your agency, department, or company. A computer and its associated equipment should not be considered disposable until the appropriate turn-in procedures have been completed and approved.
- Excess computer equipment should be re-used to the extent possible. Computer equipment that is given away or sold as usable is **not** a solid waste. Computer equipment that is sent to a legitimate refurbisher as still usable is **not** a solid waste. If the computer equipment cannot be re-used within your agency, department, or company, property managers should attempt to place the equipment with a user or legitimate refurbisher who needs computer equipment. Always follow internal property accounting procedures. The following are examples of such placement:
    - Another state department or agency.
    - Another division of your company.
    - Non-governmental entities such as Local Emergency Planning Committees who can use computers but who have very limited budgets.
    - Schools and school systems.
    - Charities.
    - Volunteer or commercial organizations that refurbish used computers.
    - The Keep Nebraska Beautiful Materials Exchange Program.
    - Use a manufacturer "take back" program where available. There is some availability of this kind of program. It is definitely worth checking the vendor's current policy. Sometimes waste information may be available at the computer company web site.
- **Disposal Considerations:** If the computer equipment cannot be re-used, sent to a legitimate refurbisher, returned to the manufacturer, or is unserviceable, there are several disposal considerations.
    - Replacement of computers and monitors for your individual facilities should be scheduled so that monitors to be disposed (not re-used or refurbished) will not cause the conditionally exempt small quantity generator (CESQG) limit of 220 pounds per month of hazardous waste to be exceeded. Total accumulated hazardous waste to include cathode ray tubes (CRTs) must not exceed 2, 200 pounds as a CESQG.
    - The **monitor or CRT** can contain materials that cause it to be hazardous waste. A CRT *cannot* be considered scrap metal. The monitor with the CRT cannot be considered scrap metal either. Even though the monitor does have some electronic components with potential scrap value, considering the entire assembly with the CRT as scrap metal is considered sham recycling. The NDEQ does not recommend dismantling monitors except by qualified technicians. There are inherent risks involved with electrical shock. These devices can hold a large residual voltage even when disconnected from a power source.

        - **Disposal of CRTs as a large quantity generator (LQG) of hazardous waste.** It is unlikely that many facilities would be in a situation that involved generating 2,200 pounds (or over) of hazardous waste in a calendar month. If that should occur, contact the NDEQ Waste Management Section for guidance.
        - **Disposal of CRTs as a small quantity generator (SQG) of hazardous waste.** If a facility generates over 220 pounds, but less than 2,200 pounds of hazardous waste in a month, all that month's hazardous waste comes under full SQG regulation. *Note that **if** the weight of waste CRTs causes a facility to be a SQG, **all** hazardous waste generated in that month must also be managed as described under SQG Management Requirements.* See the Hazardous Waste Background Information section for that list.
        - **Disposal of CRTs as a conditionally exempt small quantity generator (CESQG) of hazardous waste.** See the discussion of the CESQG exclusion in the Hazardous Waste Background Information section. CESQG CRT waste should be handled in a manner that is sensitive to environmental concerns. This means, that while not required, CESQG CRT waste should be transported to a recycling or disposal facility when possible. A list of companies that are known to recycle CRT waste is included below. See the NDEQ Directory of Hazardous Waste Management Facilities for a more comprehensive listing that includes hazardous waste disposal facilities as well as recycling facilities. This document can be obtained by calling the NDEQ Waste Management Section at (402) 471-8308.
        - **Disposal of cathode ray tubes (CRTs) as excluded hazardous waste.** As described in the Hazardous Waste Background Information section on exclusions and exemptions, materials are *not* solid wastes when used or reused as effective substitutes for commercial products. As of the date of this Guidance Document, there is at least one known lead smelter that can take CRTs as flux for their smelting process. The Missouri Department of Natural Resources has deemed this process and the exclusion as a valid use of a commercial product. The smelter is the Doe Run Company. Contact information is as follows: The Doe Run Company; 881 Main St.; Herculaneum, MO 63048. The phone contact is: Mr. Cliff Asberry, (636) 933-3164.
- The **computer box** has constituents that can cause it to be hazardous waste. However, *it can usually be managed either as a refurbishable product or scrap metal and be exempted from hazardous waste regulation* so long as the scrap metal is not speculatively accumulated. The circuit boards in the computer box can also be separately managed as usable parts or scrap metal if removed from the computer box.
    - Preferred Method 1: Send still usable product computer boxes to a legitimate refurbisher for processing.
    - Preferred Method 2: Personnel managing computer boxes as scrap metal should maintain documentation that demonstrates the computer boxes are managed as scrap.
        - Record the number and weight of computer boxes on hand as scrap at the beginning and end of each calendar year.
        - Record the date, number, and weight of each shipment.
        - Record the name, address, and phone number of the person receiving the scrap metal shipment.
        - Confirm the person receiving the scrap metal is a legitimate scrap metal dealer.
    - Non-preferred Method: If computer boxes are not disposed as scrap metal or sent to a refurbisher, perform a waste determination on the computer box.
        - If the computer box is proven to be non-hazardous, the device may be disposed as routine trash and not counted towards the monthly hazardous waste generation total. Maintain a record to show how the waste determination was performed and any testing results as necessary.
        - If the computer box is shown to be a hazardous waste **or** if no suitable method is available to prove the computer box is not a hazardous waste, then the computer box must be managed as a hazardous waste and the

weight counted towards the monthly hazardous waste generation total.

HELPFUL WEB SITES:

- Titles 128 & 132 on-line: *http://www.deq.state.ne.us/* and click on "Rules and Regulations"
- MSDS information: *http://msds.pdc.cornell.edu/issearch/msdssrch.htm*
- MSDS information: *http://www.msdssearch.com/*

CONTACTS:

- NDEQ Waste Management Section (402) 471-4210
- NDEQ Haz Waste Compliance Assistance (402) 471-8308
- NDEQ Pollution Prevention Coordinator (402) 471-6988
- Keep Nebraska Beautiful, Materials Exchange Program (800) 486-4562 or in Lincoln: 486-4622
- NDEQ Public Advocate (402) 471-3413

ATTACHMENTS:

1. Definitions
2. Hazardous Waste Background Information
3. Computer Recycling Businesses
4. Cathode Ray Tube (CRT) Waste Decision Flow Chart

ATTACHMENT 1

DEFINITIONS

- By-products: Materials that are not one of the intended products of a production process.
- Cathode Ray Tube (CRT): This is the glass vacuum tube portion of the computer monitor. The glass generally contains varying amounts of lead that leads to hazardous waste concerns. The front panel usually contains approximately 3% lead; the back panel (or funnel) contains as much as 22% lead, and the "frit" material that joins the front and back panels is mostly lead. Liquid crystal displays usually seen on laptop computers do not present hazardous waste issues.
- Commercial Chemical Products (CCPs): Unused or off-specification chemicals, spill or container residues, and other unused manufactured products that are not typically considered chemicals. For the purposes of hazardous waste listings, CCPs include only unused, pure chemical products or formulations.
- Computer Box: The part of the computer that contains the CPU, drives, CD-ROM, video card, etc. exclusive of the monitor. The computer box contains materials that may be considered characteristically hazardous. The printed circuit boards in the computer box will usually exhibit the hazardous waste toxicity characteristic for lead (found in the solder) and sometimes for silver or chromium (found in connectors or plating).
- Conditionally Exempt Small Quantity Generator (CESQG): One who generates in a calendar month a total quantity of 220 pounds or less of hazardous waste.
- Large Quantity Generator (LQG): One who generates in a calendar month 2,200 pounds or more of hazardous waste.
- Monitor: The entire computer video assembly to include the CRT.
- Recycling: The separation and collection of wastes and their subsequent transformation or remanufacture into usable or marketable products or materials.
- Recyclable Material: Under Title 128, Chapter 7, a recyclable material is a hazardous waste that is recycled.
- Refurbisher: An activity qualified to make electronic equipment use/reuse decisions and properly handle the resulting materials.

Scrap Metal: Bits and pieces of metal parts or metal pieces that may be combined with bolts or soldering, which when worn or superfluous can be recycled.
- Secondary Materials: The five categories of solid wastes regulated under Title 128 that include spent materials, by-products, sludges, commercial chemical products, and scrap metal.
- Sham Recycling: Illegitimate activities done under the guise of recycling in order to be exempt from or subject to lesser regulation. This can include situations when a secondary material is ineffective or only marginally effective for the claimed use, when the secondary material is used in excess of the amount necessary, or when the secondary material is handled in a manner inconsistent with its use as a raw material or commercial substitute.
- Small Quantity Generator (SQG): One who generates in a calendar month a total quantity of hazardous waste greater than 220 pounds and less than 2,200 pounds.
- Speculative Accumulation: A material is accumulated speculatively if it has no viable market or if the person accumulating the material cannot demonstrate that at least 75% of the material is recycled in a calendar year that begins on January 1.
- Spent Materials: Materials that have been used and can no longer serve the purpose for which they were produced without processing.
- Toxicity Characteristic Leaching Procedure (TCLP): A lab procedure designed to predict whether a particular waste is likely to leach chemicals into ground water at dangerous levels. This test is associated with determining if a waste exhibits the toxicity characteristic of a hazardous waste as described at Title 128, Chapter 2, Section 010, Table 3.

ATTACHMENT 2

COMPUTER RECYCLING BUSINESSES

- The following list is not an endorsement or warranty by or from the Nebraska Department of Environmental Quality. This list is not all inclusive. Collection costs associated with these services vary. Plan on a "range" around $10 - $20 per monitor. Prices will vary depending on factors such as mobilization costs, shipment size, and shipping distance.
- Not all these facilities are permitted treatment, storage, or disposal facilities. If small quantity generator cathode ray tube waste is involved, ensure the waste is manifested and transported as hazardous waste and the receiving facility is authorized to accept hazardous waste.

A-Tec Recycling P.O. Box 7391 Des Moines, IA 50309-7391 (800) 551-4912	DRAGnet Computer Recycling 84 12th Ave N.E. Minneapolis, MN 55413-1537 (612) 378-9796
Interco Trading 5801 Hall St. St. Louis, MO 63147 (314) 382-7228	LightCycle, Inc. 1222 University Ave. St. Paul, MN 55104 (612) 641-1309
Materials Processing Corp. 2805 West Service Rd Eagan, MN 55121 (612) 681-7360	Midwest Recycling 860 White St. Dubuque, IA 52001 (800) 311-9636
Safety-Kleen 13915 A Plaza Omaha, NE (402) 333-6321	The Surplus Exchange 1107 Hickory Kansas City, MO 64101 (816) 472-0444

ATTACHMENT 3

HAZARDOUS WASTE BACKGROUND INFORMATION

- Title 128, Chapter 4, Section 002, requires persons who generate solid waste to determine if the waste is a hazardous waste.

  - Determine if the waste is *excluded* from regulation by Title 128, Chapter 2.
  - Determine if the waste is listed as a hazardous waste in Title 128, Chapter 3.
  - Determine if the waste exhibits a characteristic of hazardous waste as described by Title 128, Chapter 3 either *by testing* **or** *applying knowledge of the characteristic* in light of the materials or processes used.

- Computers and cathode ray tubes (CRTs) are not required to have a material safety data sheet (MSDS) because they are articles. Most monitors and CRTs will not have any MSDS information available to demonstrate the lead levels in a CRT.

  - There are some CRT manufacturers that provide a MSDS for CRTs. These MSDSs show lead oxide as high as 20% to 30%.
  - Assuming a perfectly leachable lead content from a toxicity characteristic leaching procedure (TCLP) and accounting for the molecular weight of the lead in lead oxide, the TCLP result from the above sample at 20% lead oxide *could* be as high as 8,800 mg/l of lead. The regulatory toxicity characteristic limit for lead is 5 mg/l (TCLP). There are many factors that could reduce a TCLP result such as total mass of the sample and chemical actions that "tie up" the lead. For example, if the representative sample were the entire monitor, the mass is greater for the same amount of CRT and the TCLP result would decrease. In any event, the amount of lead present is still high enough to be suspect.

- Exclusions and exemptions from hazardous waste *pertinent to computers and CRTs*.

  - Materials are *not* solid wastes when used or reused as effective substitutes for commercial products. If a material is not a solid waste, it cannot be a hazardous waste.
  - *Household* hazardous waste is not hazardous waste.
  - Scrap metal is not hazardous waste if not accumulated speculatively.
  - Conditionally exempt small quantity generator (CESQG) waste. If a person generates at or below 220 pounds of total hazardous waste in a month, that month's waste is conditionally exempt. This means that waste is not subject to hazardous waste regulation provided that:
    - No more than 2,200 pounds of hazardous waste is accumulated on-site.
    - The waste is sent to a permitted hazardous waste treatment, storage, or disposal facility; or the waste is sent to a permitted, licensed, or registered municipal solid waste landfill; or a facility which beneficially uses or re-uses, or legitimately recycles or reclaims the waste; or treats the waste prior to beneficial use or re-use, or legitimate recycling or reclamation.
    - Hazardous waste from a conditionally exempt small quantity generator (CESQG) may be placed in a municipal solid waste landfill at a maximum rate of 43 pounds per day in Nebraska. Approximate weights of monitors are at page two of this Guidance Document. Although hazardous waste generated from a CESQG is considered a special waste, it does not require approval by NDEQ prior to disposal in a landfill. However, local governments may restrict such waste. Contact your county and municipal waste agency for confirmation and always obtain the landfill's prior approval.
    - Outdated computer equipment that is not a hazardous waste is not considered a "special waste" requiring prior approval from NDEQ before disposal in a landfill.

Title 132, Integrated Solid Waste Management Regulations, Chapter 13 covers special waste.

- Unless exempted, a recyclable material comes under Title 128 hazardous waste regulation. That is to say, the generator of the waste must manage the waste as hazardous waste even though it will ultimately be recycled. Only the actual recycling process itself is exempt. Note that computer equipment sent to a legitimate refurbisher is still a product and not considered a waste and not yet subject to hazardous waste regulation.
- Small Quantity Generator (SQG) Management Requirements:
  - Unless the cathode ray tube (CRT) can be proven to be non-hazardous waste, it must be considered hazardous waste.
  - Even though the CRT is destined to be recycled, it does not meet or come under any exclusions or exemptions from the generator's stand point. (Computer equipment sent to a legitimate refurbisher is still a product and not considered a waste and not yet subject to hazardous waste regulation. Once the refurbisher decides a CRT is waste and wants to send that waste to a recycler, then that waste comes under hazardous waste regulation.)
  - CRT waste management must meet the requirements of Title 128, Chapter 9.
  - The NDEQ facility generating SQG waste must obtain a DEQ/EPA Identification Number.
  - Total quantity accumulated cannot exceed 13,200 pounds without falling under the more stringent large quantity generator requirements.
  - The cathode ray tube (CRT) waste containers must be labeled "Hazardous Waste" and there must be a start accumulation date clearly visible on each container. The date and label must be accessible to inspection at all times.
  - Containers holding the CRT waste must be closed during storage, except when it is necessary to add or remove waste.
  - The areas where the waste containers are stored must be inspected at least weekly.
  - The containers must be in good condition and handled in a safe manner.
  - Hazardous waste familiarization training is required for personnel managing hazardous waste.
  - An emergency coordinator must be designated who must be able to respond to an emergency within a short period of time.
  - The following information must be posted next to the telephone: the name and phone number of the emergency coordinator; the location of fire extinguishers, spill equipment and fire alarm (if installed); and phone number of the fire department.
  - Certain communications and emergency equipment requirements must be met. See Title 128, Chapter 17, Sections 004, 005, and 006.
  - Arrangements must be made with local authorities. See Title 128, Chapter 17, Section 007.
  - The CRT waste may not accumulate over 180 days (270 days if being transported to a facility over 200 miles distant). The start accumulation date on the hazardous waste container is used for this purpose.
  - A Uniform Hazardous Waste Manifest and the manifest system must be used for all shipments of hazardous waste. Hazardous waste manifest procedures may be found at Title 128, Chapter 10, Section 002.
  - Maintain land disposal restriction documentation as described at Title 128, Chapter 20, Section 005.
  - A regulated hazardous waste transporter must be used to transport the CRT waste.
  - The CRT waste must be transported to a permitted treatment, storage, or disposal facility **or** a facility that recycles recyclable materials *without storing them before they are recycled*. Computer equipment sent to a legitimate refurbisher is still a product and not considered a waste and not yet subject to hazardous waste regulation. Once the refurbisher decides a CRT is waste that waste comes under hazardous waste regulation.

This material is intended for guidance purposes only. It is not meant to substitute for applicable Nebraska environmental regulations.

This complete Publication is also available as an Adobe Acrobat (PDF) file. File size is 58 KB	

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Nebraska Department of Environmental Quality

Guidance Documents

This information is provided by the Nebraska Department of Environmental Quality to assist the public and regulated community.

00-004 06/2000

Waste Computers and Monitors

The purpose of this Guidance Document is to provide Nebraskans guidance on the correct procedures for disposal of spent computers and monitors with cathode ray tubes (CRTs).

Title 128 - Rules and Regulations Governing Hazardous Waste in Nebraska is the primary source of regulatory guidance for waste computer and CRT disposal.

Waste computers and monitors generated from households are not considered or regulated as hazardous waste. However, the Nebraska Department of Environmental Quality (NDEQ) encourages households to recycle or reuse computers

COMPUTER WASTE REDUCTION AND MANAGEMENT (See the attached CRT Waste Decision Flow Chart for assistance in managing CRT waste)

- Maximize opportunities to reuse computer equipment rather than dispose of it.
  - Reuse internally
  - Give away or sell to charities or other users
  - Have a refurbisher resell, refurbish, or use for parts
- Computers and monitors sent to a legitimate refurbisher as a "still usable product" are not considered waste. The equipment does not necessarily have to be in perfect working condition to be considered a "still usable product." The refurbisher must be qualified to work on the equipment and is generally responsible for the disposition of the resulting material. The resulting material may be fully functioning computers or equipment, reusable parts, scrap metal, other non-hazardous scrap such as plastic, or waste. Any hazardous waste generated from refurbishing operations is generally the responsibility of the refurbisher.
- Manage disposal of computer and CRT equipment so that **no more than 220 pounds of total hazardous waste will be generated** from your facility during any given calendar month. For example; phase out old computer systems over time to avoid excess disposal in any one month.
- Approximate weights of assembled computer monitors

14"	15 - 25 lbs
15"	20 - 30 lbs
17"	40 - 50 lbs
19"	60 - 75 lbs
21"	80 - 90 lbs

Actual weights vary by age of equipment and manufacturer.

- Accumulation or storage areas - management suggestions:

    - Maintain a log in scrap metal accumulation areas to record accumulation, shipping, and weight information.
    - Ensure labels, if required, are secure and legible.
    - Arrange for the timely disposal of computers that are no longer usable.

- Maintain a file to document computer and cathode ray tube waste testing and determinations, refurbisher transactions, disposal transactions, or hazardous waste manifests and land disposal restriction forms.

DISPOSAL

- Nothing in this Guidance Document overrides applicable property management procedures set up by your agency, department, or company. A computer and its associated equipment should not be considered disposable until the appropriate turn-in procedures have been completed and approved.

- Excess computer equipment should be re-used to the extent possible. Computer equipment that is given away or sold as usable is **not** a solid waste. Computer equipment that is sent to a legitimate refurbisher as still usable is **not** a solid waste. If the computer equipment cannot be re-used within your agency, department, or company, property managers should attempt to place the equipment with a user or legitimate refurbisher who needs computer equipment. Always follow internal property accounting procedures. The following are examples of such placement:

    - Another state department or agency.
    - Another division of your company.
    - Non-governmental entities such as Local Emergency Planning Committees who can use computers but who have very limited budgets.
    - Schools and school systems.
    - Charities.
    - Volunteer or commercial organizations that refurbish used computers.
    - The Keep Nebraska Beautiful Materials Exchange Program.
    - Use a manufacturer "take back" program where available. There is some availability of this kind of program. It is definitely worth checking the vendor's current policy. Sometimes waste information may be available at the computer company web site.

- **Disposal Considerations:** If the computer equipment cannot be re-used, sent to a legitimate refurbisher, returned to the manufacturer, or is unserviceable, there are several disposal considerations.

    - Replacement of computers and monitors for your individual facilities should be scheduled so that monitors to be disposed (not re-used or refurbished) will not cause the conditionally exempt small quantity generator (CESQG) limit of 220 pounds per month of hazardous waste to be exceeded. Total accumulated hazardous waste to include cathode ray tubes (CRTs) must not exceed 2, 200 pounds as a CESQG.
    - The **monitor or CRT** can contain materials that cause it to be hazardous waste. A CRT *cannot* be considered scrap metal. The monitor with the CRT cannot be considered scrap metal either. Even though the monitor does have some electronic components with potential scrap value, considering the entire assembly with the CRT as scrap metal is considered sham recycling. The NDEQ does not recommend dismantling monitors except by qualified technicians. There are inherent risks involved with electrical shock. These devices can hold a large residual voltage even when disconnected from a power source.

        - **Disposal of CRTs as a large quantity generator (LQG) of hazardous waste.** It is unlikely that many facilities would be in a situation that involved generating 2,200 pounds (or over) of hazardous waste in a calendar month. If that should occur, contact the NDEQ Waste Management Section for guidance.
        - **Disposal of CRTs as a small quantity generator (SQG) of hazardous waste.** If a facility generates over 220 pounds, but less than 2,200 pounds of hazardous waste in a month, all that month's hazardous waste comes under full SQG regulation. *Note that **if** the weight of waste CRTs causes a facility to be a SQG, **all** hazardous waste generated in that month must also be managed as described under SQG Management Requirements.* See the Hazardous Waste Background Information section for that list.
        - **Disposal of CRTs as a conditionally exempt small quantity generator (CESQG) of hazardous waste.** See the discussion of the CESQG exclusion in the Hazardous Waste Background Information section. CESQG CRT waste should be handled in a manner that is sensitive to environmental concerns. This means, that while not required, CESQG CRT waste should be transported to a recycling or disposal facility when possible. A list of companies that are known to recycle CRT waste is included below. See the NDEQ Directory of Hazardous Waste Management Facilities for a more comprehensive listing that includes hazardous waste disposal facilities as well as recycling facilities. This document can be obtained by calling the NDEQ Waste Management Section at (402) 471-8308.
        - **Disposal of cathode ray tubes (CRTs) as excluded hazardous waste.** As described in the Hazardous Waste Background Information section on exclusions and exemptions, materials are *not* solid wastes when used or reused as effective substitutes for commercial products. As of the date of this Guidance Document, there is at least one known lead smelter that can take CRTs as flux for their smelting process. The Missouri Department of Natural Resources has deemed this process and the exclusion as a valid use of a commercial product. The smelter is the Doe Run Company. Contact information is as follows: The Doe Run Company; 881 Main St.; Herculaneum, MO 63048. The phone contact is: Mr. Cliff Asberry, (636) 933-3164.
- The **computer box** has constituents that can cause it to be hazardous waste. However, *it can usually be managed either as a refurbishable product or scrap metal and be exempted from hazardous waste regulation* so long as the scrap metal is not speculatively accumulated. The circuit boards in the computer box can also be separately managed as usable parts or scrap metal if removed from the computer box.
        - Preferred Method 1: Send still usable product computer boxes to a legitimate refurbisher for processing.
        - Preferred Method 2: Personnel managing computer boxes as scrap metal should maintain documentation that demonstrates the computer boxes are managed as scrap.
            - Record the number and weight of computer boxes on hand as scrap at the beginning and end of each calendar year.
            - Record the date, number, and weight of each shipment.
            - Record the name, address, and phone number of the person receiving the scrap metal shipment.
            - Confirm the person receiving the scrap metal is a legitimate scrap metal dealer.
        - Non-preferred Method: If computer boxes are not disposed as scrap metal or sent to a refurbisher, perform a waste determination on the computer box.
            - If the computer box is proven to be non-hazardous, the device may be disposed as routine trash and not counted towards the monthly hazardous waste generation total. Maintain a record to show how the waste determination was performed and any testing results as necessary.
            - If the computer box is shown to be a hazardous waste **or** if no suitable method is available to prove the computer box is not a hazardous waste, then the computer box must be managed as a hazardous waste and the

weight counted towards the monthly hazardous waste generation total.

HELPFUL WEB SITES:

- Titles 128 & 132 on-line: *http://www.deq.state.ne.us/* and click on "Rules and Regulations"
- MSDS information: *http://msds.pdc.cornell.edu/issearch/msdssrch.htm*
- MSDS information: *http://www.msdssearch.com/*

CONTACTS:

- NDEQ Waste Management Section (402) 471-4210
- NDEQ Haz Waste Compliance Assistance (402) 471-8308
- NDEQ Pollution Prevention Coordinator (402) 471-6988
- Keep Nebraska Beautiful, Materials Exchange Program (800) 486-4562 or in Lincoln: 486-4622
- NDEQ Public Advocate (402) 471-3413

ATTACHMENTS:

1. Definitions
2. Hazardous Waste Background Information
3. Computer Recycling Businesses
4. Cathode Ray Tube (CRT) Waste Decision Flow Chart

ATTACHMENT 1

DEFINITIONS

- By-products: Materials that are not one of the intended products of a production process.
- Cathode Ray Tube (CRT): This is the glass vacuum tube portion of the computer monitor. The glass generally contains varying amounts of lead that leads to hazardous waste concerns. The front panel usually contains approximately 3% lead; the back panel (or funnel) contains as much as 22% lead, and the "frit" material that joins the front and back panels is mostly lead. Liquid crystal displays usually seen on laptop computers do not present hazardous waste issues.
- Commercial Chemical Products (CCPs): Unused or off-specification chemicals, spill or container residues, and other unused manufactured products that are not typically considered chemicals. For the purposes of hazardous waste listings, CCPs include only unused, pure chemical products or formulations.
- Computer Box: The part of the computer that contains the CPU, drives, CD-ROM, video card, etc. exclusive of the monitor. The computer box contains materials that may be considered characteristically hazardous. The printed circuit boards in the computer box will usually exhibit the hazardous waste toxicity characteristic for lead (found in the solder) and sometimes for silver or chromium (found in connectors or plating).
- Conditionally Exempt Small Quantity Generator (CESQG): One who generates in a calendar month a total quantity of 220 pounds or less of hazardous waste.
- Large Quantity Generator (LQG): One who generates in a calendar month 2,200 pounds or more of hazardous waste.
- Monitor: The entire computer video assembly to include the CRT.
- Recycling: The separation and collection of wastes and their subsequent transformation or remanufacture into usable or marketable products or materials.
- Recyclable Material: Under Title 128, Chapter 7, a recyclable material is a hazardous waste that is recycled.
- Refurbisher: An activity qualified to make electronic equipment use/reuse decisions and properly handle the resulting materials.

Scrap Metal: Bits and pieces of metal parts or metal pieces that may be combined with bolts or soldering, which when worn or superfluous can be recycled.

- Secondary Materials: The five categories of solid wastes regulated under Title 128 that include spent materials, by-products, sludges, commercial chemical products, and scrap metal.
- Sham Recycling: Illegitimate activities done under the guise of recycling in order to be exempt from or subject to lesser regulation. This can include situations when a secondary material is ineffective or only marginally effective for the claimed use, when the secondary material is used in excess of the amount necessary, or when the secondary material is handled in a manner inconsistent with its use as a raw material or commercial substitute.
- Small Quantity Generator (SQG): One who generates in a calendar month a total quantity of hazardous waste greater than 220 pounds and less than 2,200 pounds.
- Speculative Accumulation: A material is accumulated speculatively if it has no viable market or if the person accumulating the material cannot demonstrate that at least 75% of the material is recycled in a calendar year that begins on January 1.
- Spent Materials: Materials that have been used and can no longer serve the purpose for which they were produced without processing.
- Toxicity Characteristic Leaching Procedure (TCLP): A lab procedure designed to predict whether a particular waste is likely to leach chemicals into ground water at dangerous levels. This test is associated with determining if a waste exhibits the toxicity characteristic of a hazardous waste as described at Title 128, Chapter 2, Section 010, Table 3.

ATTACHMENT 2

COMPUTER RECYCLING BUSINESSES

- The following list is not an endorsement or warranty by or from the Nebraska Department of Environmental Quality. This list is not all inclusive. Collection costs associated with these services vary. Plan on a "range" around $10 - $20 per monitor. Prices will vary depending on factors such as mobilization costs, shipment size, and shipping distance.
- Not all these facilities are permitted treatment, storage, or disposal facilities. If small quantity generator cathode ray tube waste is involved, ensure the waste is manifested and transported as hazardous waste and the receiving facility is authorized to accept hazardous waste.

A-Tec Recycling P.O. Box 7391 Des Moines, IA 50309-7391 (800) 551-4912	DRAGnet Computer Recycling 84 12th Ave N.E. Minneapolis, MN 55413-1537 (612) 378-9796
Interco Trading 5801 Hall St. St. Louis, MO 63147 (314) 382-7228	LightCycle, Inc. 1222 University Ave. St. Paul, MN 55104 (612) 641-1309
Materials Processing Corp. 2805 West Service Rd Eagan, MN 55121 (612) 681-7360	Midwest Recycling 860 White St. Dubuque, IA 52001 (800) 311-9636
Safety-Kleen 13915 A Plaza Omaha, NE (402) 333-6321	The Surplus Exchange 1107 Hickory Kansas City, MO 64101 (816) 472-0444

ATTACHMENT 3

HAZARDOUS WASTE BACKGROUND INFORMATION

- Title 128, Chapter 4, Section <u>002</u>, requires persons who generate solid waste to determine if the waste is a hazardous waste.

    - Determine if the waste is *excluded* from regulation by Title 128, Chapter 2.
    - Determine if the waste is listed as a hazardous waste in Title 128, Chapter 3.
    - Determine if the waste exhibits a characteristic of hazardous waste as described by Title 128, Chapter 3 either *by testing* **or** *applying knowledge of the characteristic* in light of the materials or processes used.

- Computers and cathode ray tubes (CRTs) are not required to have a material safety data sheet (MSDS) because they are articles. Most monitors and CRTs will not have any MSDS information available to demonstrate the lead levels in a CRT.

    - There are some CRT manufacturers that provide a MSDS for CRTs. These MSDSs show lead oxide as high as 20% to 30%.
    - Assuming a perfectly leachable lead content from a toxicity characteristic leaching procedure (TCLP) and accounting for the molecular weight of the lead in lead oxide, the TCLP result from the above sample at 20% lead oxide *could* be as high as 8,800 mg/l of lead. <u>The regulatory toxicity characteristic limit for lead is 5 mg/l (TCLP).</u> There are many factors that could reduce a TCLP result such as total mass of the sample and chemical actions that "tie up" the lead. For example, if the representative sample were the entire monitor, the mass is greater for the same amount of CRT and the TCLP result would decrease. In any event, the amount of lead present is still high enough to be suspect.

- Exclusions and exemptions from hazardous waste *pertinent to computers and CRTs*.

    - Materials are *not* solid wastes when used or reused as effective substitutes for commercial products. If a material is not a solid waste, it cannot be a hazardous waste.
    - *Household* hazardous waste is not hazardous waste.
    - Scrap metal is not hazardous waste if not accumulated speculatively.
    - Conditionally exempt small quantity generator (CESQG) waste. If a person generates at or below 220 pounds of <u>total</u> hazardous waste in a month, that month's waste is conditionally exempt. This means that waste is not subject to hazardous waste regulation provided that:
        - No more than 2,200 pounds of hazardous waste is accumulated on-site.
        - The waste is sent to a permitted hazardous waste treatment, storage, or disposal facility; or the waste is sent to a permitted, licensed, or registered municipal solid waste landfill; or a facility which beneficially uses or re-uses, or legitimately recycles or reclaims the waste; or treats the waste prior to beneficial use or re-use, or legitimate recycling or reclamation.
        - Hazardous waste from a conditionally exempt small quantity generator (CESQG) may be placed in a municipal solid waste landfill at a maximum rate of 43 pounds per day in Nebraska. Approximate weights of monitors are at page two of this Guidance Document. Although hazardous waste generated from a CESQG is considered a special waste, it does not require approval by NDEQ prior to disposal in a landfill. However, local governments may restrict such waste. Contact your county and municipal waste agency for confirmation and always obtain the landfill's prior approval.
        - Outdated computer equipment that is not a hazardous waste is not considered a "special waste" requiring prior approval from NDEQ before disposal in a landfill.

Title 132, Integrated Solid Waste Management Regulations, Chapter 13 covers special waste.

- Unless exempted, a recyclable material comes under Title 128 hazardous waste regulation. That is to say, the generator of the waste must manage the waste as hazardous waste even though it will ultimately be recycled. Only the actual recycling process itself is exempt. Note that computer equipment sent to a legitimate refurbisher is still a product and not considered a waste and not yet subject to hazardous waste regulation.
- Small Quantity Generator (SQG) Management Requirements:
  - Unless the cathode ray tube (CRT) can be proven to be non-hazardous waste, it must be considered hazardous waste.
  - Even though the CRT is destined to be recycled, it does not meet or come under any exclusions or exemptions from the generator's stand point. (Computer equipment sent to a legitimate refurbisher is still a product and not considered a waste and not yet subject to hazardous waste regulation. Once the refurbisher decides a CRT is waste and wants to send that waste to a recycler, then that waste comes under hazardous waste regulation.)
  - CRT waste management must meet the requirements of Title 128, Chapter 9.
  - The NDEQ facility generating SQG waste must obtain a DEQ/EPA Identification Number.
  - Total quantity accumulated cannot exceed 13,200 pounds without falling under the more stringent large quantity generator requirements.
  - The cathode ray tube (CRT) waste containers must be labeled "Hazardous Waste" and there must be a start accumulation date clearly visible on each container. The date and label must be accessible to inspection at all times.
  - Containers holding the CRT waste must be closed during storage, except when it is necessary to add or remove waste.
  - The areas where the waste containers are stored must be inspected at least weekly.
  - The containers must be in good condition and handled in a safe manner.
  - Hazardous waste familiarization training is required for personnel managing hazardous waste.
  - An emergency coordinator must be designated who must be able to respond to an emergency within a short period of time.
  - The following information must be posted next to the telephone: the name and phone number of the emergency coordinator; the location of fire extinguishers, spill equipment and fire alarm (if installed); and phone number of the fire department.
  - Certain communications and emergency equipment requirements must be met. See Title 128, Chapter 17, Sections 004, 005, and 006.
  - Arrangements must be made with local authorities. See Title 128, Chapter 17, Section 007.
  - The CRT waste may not accumulate over 180 days (270 days if being transported to a facility over 200 miles distant). The start accumulation date on the hazardous waste container is used for this purpose.
  - A Uniform Hazardous Waste Manifest and the manifest system must be used for all shipments of hazardous waste. Hazardous waste manifest procedures may be found at Title 128, Chapter 10, Section 002.
  - Maintain land disposal restriction documentation as described at Title 128, Chapter 20, Section 005.
  - A regulated hazardous waste transporter must be used to transport the CRT waste.
  - The CRT waste must be transported to a permitted treatment, storage, or disposal facility **or** a facility that recycles recyclable materials *without storing them before they are recycled*. Computer equipment sent to a legitimate refurbisher is still a product and not considered a waste and not yet subject to hazardous waste regulation. Once the refurbisher decides a CRT is waste that waste comes under hazardous waste regulation.

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NEBRASKA DEPARTMENT OF ROADS
WASTE PROFILE

Waste Name: *Water: Wastewater not otherwise classified*	
How Is the Waste Generated: *Water discharged from an oil-water separator, collected vehicle wash water, water collected in interior drains, stormwater runoff collected in storm drains, and water discharged under permits.*	
Waste Classification: *Non-Hazardous*	
Waste Determination Method: *Process Knowledge*	
Waste Determination Information: *Water discharged from an oil-water separator, collected vehicle wash water, water collected in interior drains, stormwater runoff collected in storm drains, and water discharged under permits.*	
Handling Procedure:	
Compatibility Class: ***Group 3A***	
Transportation Information: *No specific transporatation restrictions.*	
Disposal Method: *Other*	
Land Disposal Restrictions: *No*	
Final Disposal Site or Disposal Service & Contact:	

United States
Environmental Protection
Agency

May 2002

Notification of Regulated Waste Activity

Instructions and Forms

**EPA Form 8700-12
(Revised 5/2002)**

Office of Solid Waste
(5301)
Washington, DC 20460

Notification of Regulated Waste Activity
Instructions and Forms

Estimated Burden: Public reporting burden for initial notifications is estimated to be 4.26 hours. Public reporting burden for subsequent notifications is expected to be 1.84 hours. This reporting burden includes time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Director, Collection Strategies Division (2822T), U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., NW, Washington, D.C. 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503, marked "Attention Desk Officer for EPA."

Notification of Regulated Waste Activity
Instructions and Forms

This booklet is designed to help you determine if you are subject to requirements under the *Resource Conservation and Recovery Act* (RCRA) for notifying the U.S. Environmental Protection Agency (EPA) of your regulated waste activities. Regulated wastes are hazardous wastes as defined by 40 CFR Part 261, universal wastes as defined by 40 CFR Part 273, and used oil as defined by 40 CFR Part 279. The instructions contained in this booklet will assist you in obtaining an EPA Identification Number by completing and submitting EPA Form 8700-12 for initial notifications or in revising your EPA Form 8700-12 if you are required to submit a subsequent notification. RCRA is a Federal law. If you are regulated but do not comply with the RCRA notification requirements, you may be subject to civil penalties.

Large Quantity Handlers of Universal Waste and Used Oil Handlers have the option of submitting either EPA Form 8700-12 or a letter to notify EPA of their regulated waste activities, including both initial and subsequent notifications. As noted above, the instructions in this booklet refer only to completing and submitting EPA Form 8700-12 (also called the RCRA Subtitle C Site Identification Form or Site ID Form). However, the circumstances under which these handlers must notify EPA of their regulated waste activities, the data they must provide, and the procedures they must follow, as described in this booklet, apply to submitting EPA Form 8700-12 or a letter.

Note: *Although this booklet contains information and instructions for completing a Notification of Regulated Waste Activity, it should not be considered a substitute for the regulations in Title 40 of the Code of Federal Regulations (40 CFR). Rather, this booklet serves as a supplement to the regulations and provides additional information not contained in 40 CFR. As a handler of regulated wastes, you are responsible for learning and complying with all the requirements that apply to you and your regulated waste activities.*

In addition, remember that this booklet and the regulations in 40 CFR address only the Federal hazardous waste program. Many States may have notification requirements that differ from the Federal requirements; those States may use EPA Form 8700-12 or they may use a similar State form that requires information not requested in the EPA form. Again, it is your responsibility to make sure that you have completed and submitted all forms required under the Federal or your State program.

We realize that the regulations are complex. Although we are not providing reprints of the 40 CFR regulations in this booklet, copies of the Federal regulations are available from EPA (see below). We have listed the addresses and phone numbers of the contacts in each State who can answer your questions and help you understand the Federal and State requirements that apply to you; these are listed in Table 1 in Section 4 of these instructions. Table 2 in Section 4 contains the addresses and phone numbers of contacts in each of the EPA Regional Offices.

In addition to those contacts, there are several other sources available to help with your questions and provide information on EPA regulations:

- **EPA RCRA, Superfund & EPCRA Call Center**. The Call Center provides up-to-date information on several EPA programs and, also, responds to requests for relevant publications and information resources. Please note that the Call Center cannot provide regulatory interpretations.

  To speak with Information Specialists about regulatory questions or to order publications, call:

  (800) 424-9346
  or in Washington, DC Area - Local (703) 412-9810
  TDD (800) 553-7672
  or TDD Washington, DC Area - Local (703) 412-3323

  The web site for the Call Center is at:
  http://www.epa.gov/epaoswer/hotline

- **EPA web site for RCRA regulations at:**
  http://www.epa.gov/docs/epacfr40/chapt-I.info/subch-I.htm

- **Compliance Assistance Centers**. The Environmental Protection Agency (EPA) has sponsored partnerships with industry, academic institutions, environmental groups, and other agencies to launch sector-specific Compliance Assistance Centers (Centers). Each Center addresses real world issues in understandable language for you to understand Federal environmental requirements and how to save money through pollution prevention techniques. Visit the Compliance Assistance Centers at: http://www.assistancecenters.net

  There are several Centers listed; you may find one for your business. If not, you may want to review "Do I Need a Hazardous Waste Generator Identification Number?" and other questions at: http://www.transource.org/hazmats/index.htm

- **EPA National Compliance Assistance Clearinghouse**. The Clearinghouse is a comprehensive source of compliance assistance information and resources. Use web links to Federal, State, local, and other compliance assistance providers to find the tools you need. Visit the Clearinghouse at: http://www.epa.gov/clearinghouse

- EPA Small Business Ombudsman Office -- 1-800-368-5888
- Your Trade Association

Initial Notifications

If you do not currently have an EPA Identification Number and you handle regulated waste, you must submit an initial notification. Please refer to information contained in Sections 1 through 3 of this booklet to help you determine whether you handle a regulated waste, whether any exemptions or exclusions apply to you, and how you should file Notification of Regulated Waste Activity. Circumstances under which you should submit an initial notification include:

1. If you generate, transport, treat, store, or dispose of hazardous wastes. Refer to Section 1 for further information and a description of exclusions or exemptions; or

2. If you recycle hazardous wastes. (Recyclable materials are defined as hazardous wastes that are recycled.) The recycling process itself is exempt from regulation, but you must notify EPA and obtain an EPA Identification Number prior to recycling recyclable materials. Refer to Section 1 for further information and a description of exemptions; or

3. If you are a large quantity handler of universal waste. Refer to Section 2 for further information and a description of exemptions. (Notification is required for people who have not previously notified EPA of their hazardous waste activities or who have not already sent a notification to EPA as required by 40 CFR Part 273.32); or

4. If you transport, process, or re-refine used oil; burn off-specification used oil for energy recovery; or market used oil. Refer to Section 3 for further information and for a description of exemptions. (Notification is required for people who have not previously notified EPA of their hazardous waste activities or have not notified under 40 CFR Part 279 or under 40 CFR Part 266, Subpart E, which was replaced by 40 CFR Part 279.)

Subsequent Notifications

Even if you have submitted an initial notification and have received an EPA Identification Number, you may be required to submit a subsequent notification. Please refer to Sections 1 through 3 and 5 of this booklet for information on when and how to complete a subsequent notification. In general, you should submit a subsequent notification under the following circumstances:

1. If your business moves to another location; or
2. If the contact for your site changes; or
3. If the ownership of your site changes; or

4. If an additional owner has been added or replaced since you submitted your initial notification; or
5. If the type of regulated waste activity you conduct changes.

Contents of This Booklet

Following is a list of the sections contained in this booklet and the information covered in those sections:

Section 1. How to Determine if You Must Notify EPA of Your Hazardous Waste Activities

Section 2. How to Determine if You Must Notify EPA of Your Universal Waste Handling Activities

Section 3. How to Determine if You Must Notify EPA of Your Used Oil Management Activities

Section 4. How to File Notification of Regulated Waste Activity (Information on how and where to file your form; plus a list of State and EPA contacts where you can get information, obtain forms, and send your completed forms.)

Section 5. Line-by-line Instructions for Notification of Regulated Waste Activity Using the RCRA Subtitle C Site Identification Form (The blank form is provided at the end of this booklet.)

Section 6. Definitions (To help you understand and complete the Notification of Regulated Waste Activity)

Section 7. EPA Hazardous Waste Numbers for Waste Streams Commonly Generated by Small Quantity Generators

Appendix 1- Typical Hazardous Waste Streams Produced by Small Quantity Generators
Appendix 2- Typical Hazardous Waste Streams and EPA Hazardous Waste Numbers

Blank RCRA Subtitle C Site Identification Form for filing Notification of Regulated Waste Activity

After your completed notification is received, you will be sent a written acknowledgment that will include your EPA Identification Number. **You must use this number on all communications with EPA regarding your regulated waste activities.**

1. How to Determine if You Must Notify EPA of Your Hazardous Waste Activities

All persons who generate, transport, recycle, treat, store, or dispose of hazardous waste are required to notify EPA (or their State agency if the State is authorized to operate its own hazardous waste program) of their hazardous waste activities. These persons must obtain an EPA Identification Number unless their solid waste has been excluded from regulation or their hazardous waste has been exempted as outlined below. These respective notification requirements are found in 40 CFR Parts 261, 262, 263, 264, 265, and 266.

In addition to the discussion below, you will need to refer to 40 CFR Part 261 to help you determine if the waste you handle is both a solid waste and a hazardous waste that is regulated under RCRA. If you need help making this determination after reading these instructions, contact the agency listed for your State in Section 4 of these instructions.

To determine if you handle a solid waste that is also a hazardous waste and regulated under RCRA, ask yourself the following questions.

A. Do I Handle a Solid Waste?

40 CFR 261.2 defines "solid waste" as any discarded material that is not excluded under Part 261.4(a) or that is not excluded by variance granted under Part 260.30 and 260.31. A discarded material is any material which is:

1. Abandoned, as explained in Part 261.2(b); or
2. Recycled, as explained in Part 261.2(c); or
3. Considered inherently waste-like as explained in Part 261.2(d); or
4. A military munition identified as a solid waste in Part 266.202.

If you do not handle a solid waste, you do not need to notify EPA.

B. Has My Solid Waste Been Excluded from the Regulations under Part 261.4?

The list of general exclusions can be found in 40 CFR 261.4. If the solid waste that you handle has been excluded, either by rule or special variance, then you do not need to notify EPA for that solid waste. If your solid waste was not excluded from regulation, you need to determine if it is a hazardous waste that EPA regulates. EPA regulates a solid waste as hazardous waste in two ways:

1. By specifically listing the solid waste as a hazardous waste and assigning it a unique EPA Hazardous Waste Code Number; or

2. By regulating it because it possesses any of four hazardous waste characteristics and assigning it a generic EPA Hazardous Waste Code Number.

C. Is My Solid Waste Specifically Listed as a Hazardous Waste?

Parts 261.30 through 261.33 identify certain solid wastes that EPA has specifically listed as hazardous. Persons who handle listed hazardous waste are subject to regulation and must notify EPA of their hazardous waste activities unless they are exempted as discussed below. Refer to these regulations to see if your solid waste is included as a "listed hazardous waste." If you are handling a newly regulated hazardous waste and have already notified EPA prior to that hazardous waste being regulated **and already have an EPA Identification Number,** you do not need to submit a subsequent notification for that newly regulated hazardous waste.

D. Does My Solid Waste Possess a Hazardous Characteristic?

Even if your solid waste is not specifically listed as a hazardous waste, it may still be hazardous because it exhibits certain hazardous characteristics. These characteristics are:

1. Ignitability;
2. Corrosivity;
3. Reactivity; and
4. Toxicity.

Parts 261.20 through 261.24 explain each of the characteristics and outline the testing procedures you should use to determine if your solid waste meets these characteristics. Persons who handle characteristic hazardous waste that is regulated must notify EPA of their activities unless they are exempted, as discussed below. If you are handling a newly regulated hazardous waste and have already notified EPA prior to that hazardous waste being regulated **and already have an EPA Identification Number,** you do not need to submit a subsequent notification for that newly regulated hazardous waste.

E. Has My Hazardous Waste Been Exempted from the Regulations under Parts 261.5 and 261.6(a)(3)?

Parts 261.5 and 261.6(a)(3) list certain hazardous wastes that are not subject to RCRA regulation. If the hazardous waste that you handle has been exempted, then you do not need to notify EPA for that hazardous waste.

2. How to Determine if You Must Notify EPA of Your Universal Waste Handling Activities

Under 40 CFR Part 273, Subpart C, Large Quantity Handlers of Universal Waste who accumulate a total of 5,000 kilograms or more of universal wastes at any time are required to notify EPA (or their State agency if the State is authorized to operate its own universal waste program) of their universal waste activities and obtain an EPA Identification Number, unless they have previously notified EPA of their hazardous waste activities. Large Quantity Handlers of Universal Waste must notify EPA of their universal waste activities and obtain an EPA Identification Number before meeting or exceeding the 5,000 kilogram storage limit.

Small Quantity Handlers of Universal Waste are exempt from these notification requirements.

Note: *Please refer to the regulations in 40 CFR Part 273 to ensure that you are aware of all the requirements that apply to your universal waste handling activities.*

3. How to Determine if You Must Notify EPA of Your Used Oil Management Activities

Under 40 CFR Part 279, Subparts E, F, G, and H, respectively, persons who transport used oil; process or re-refine used oil; burn off-specification used oil for energy recovery; or market used oil fuel, are required to notify EPA (or their State agency if the State is authorized to operate its own used oil program) and obtain an EPA Identification Number, unless they are exempt as outlined below. Off-specification used oil may be burned for energy recovery in an industrial furnace, boiler, or hazardous waste incinerator subject to regulation under Subpart O of 40 CFR Part 264 or 265.

Used oil transporters; used oil processors/re-refiners; off-specification used oil burners; and used oil fuel marketers who have not previously notified EPA of their hazardous waste activities or notified under 40 CFR Part 266, Subpart E (replaced by Part 279) must notify EPA to identify their used oil management activities.

Note: *Please refer to the regulations in 40 CFR Part 279 to ensure that you are aware of all the requirements that apply to your used oil management activities.*

Who is exempt from used oil notification requirements?

A. **Persons who burn on-specification used oil fuel:** Used oil that is to be burned for energy recovery and that meets the specification provided under Part 279.11 is exempt from the regulations. **However, the person who first claims that the used oil meets the specification is subject to notification as a used oil fuel marketer and certain other**

requirements (see Part 279, Subpart H). The burner of fuel that meets the specification in Part 279.11 is not required to notify.

B. **Used oil generators** are not required to notify EPA.

C. **Used oil generators operating used oil-fired space heaters:** Persons who burn only used oil that they generate (or used oil received from household do-it-yourself used oil changers) in used oil-fired space heaters are exempt from the notification requirement provided that the device is vented to the outdoors and the device is not designed to have a capacity greater than 0.5 million BTU/hour.

4. How to File Notification of Regulated Waste Activity

Initial Notifications

If you do not currently have an EPA Identification Number and you handle a regulated waste, you must submit an initial notification for your regulated waste activities. Please refer to Sections 1 through 3 of this booklet for more information on whether you must notify EPA of these regulated waste activities. You can satisfy this initial notification requirement by completing and signing the enclosed RCRA Subtitle C Site Identification Form (Site ID Form) [EPA Form 8700-12] and mailing it to the appropriate address listed in subsection C of this section.

Under the Hazardous Waste Import Regulations, 40 CFR Part 262.60, *foreign generators should <u>not</u> apply for an EPA Identification Number*. These regulations State that when filling out a U.S. manifest, you must include the name and address of the foreign generator, and the name, address, and EPA Identification Number of the importer. Please contact the U.S. firms involved with your shipments and determine which firm will serve as the U. S. Importer.

Subsequent Notifications

Even if you have submitted an initial notification and have received an EPA Identification Number, you may be required to submit a subsequent notification. Please refer to information contained in Sections 1 through 3 and Section 5 of this booklet for instructions on when and how to complete a subsequent notification.

A. How Many Forms Should I File?

A person who is subject to the hazardous waste, universal waste, or used oil management regulations under RCRA should submit one notification (Site ID Form) per RCRA site. If you conduct any regulated waste activity - hazardous waste, universal waste, or used oil management activities - at more than one RCRA site, you must submit a separate notification (Site ID Form) for each RCRA site.

If you only transport regulated wastes and do not generate, treat, store, or dispose of hazardous wastes; qualify as a large quantity handler of universal wastes; or process/re-refine used oil, burn off-specification used oil fuel, or market used oil fuel, you may submit one notification that covers all transportation activities your company conducts. This notification should be sent to the appropriate address (see subsection C below) that serves the State where your company has its headquarters or principal place of business. However, if you are a transporter who also engages in one or more of the regulated waste activities listed above, you must complete and submit a separate notification (Site ID Form) to cover each RCRA site.

B. Can I Request that this Information Be Kept Confidential?

All information you submit in an initial or subsequent notification can be released to the public, according to the Freedom of Information Act, unless it is determined to be confidential by EPA pursuant to 40 CFR Part 2. Since notification information is very general, EPA believes it is unlikely that any information in your notification could qualify to be protected from release. However, you may make a claim of confidentiality by printing the word "CONFIDENTIAL" on both sides of RCRA Subtitle C Site Identification Form and on any attachments. EPA will take action on the confidentiality claims in accordance with 40 CFR Part 2.

C. Where Should I Send My Completed Form?

Listed alphabetically in Table 1 are the addresses and phone numbers of the proper contacts in each State where you can get additional information and more forms, and where you should mail your completed forms. As shown in Table 1, most States will answer your questions and receive the completed forms. In a few instances, the process is shared between a State and EPA or handled by EPA alone; this parts of the process are noted in Table 1. For your convenience, Table 2 lists the addresses and phone numbers for EPA Regional contacts; however, you should refer to Table 1 first. *To avoid delay and confusion, follow the directions in Table 1 for your State very carefully*.

Table 1
Alphabetized State Listing of Contacts for Obtaining and Submitting Notification of Regulated Waste Activity

Alabama
Obtain information or forms from, and mail completed forms to:
Alabama Department of
Environmental Management
Land Division - Special Services Unit
(FedEx or UPS)
1400 Coliseum Boulevard
Montgomery, Alabama 36110-2059
(Regular mail)
P. O. Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7736

Alaska
Obtain information or forms from, and mail completed forms to:
U.S. EPA Region 10
Office of Waste and Chemicals
Management
Hazardous Waste Notifications
(WCM-122)
1200 Sixth Avenue
Seattle, Washington 98101
(206) 553-2583
From within Alaska, toll-free:
(800) 550-7272

American Samoa
Obtain information from:
Environmental Quality Commission
Government of American Samoa
Pago, American Samoa 96799
Overseas Operator Commercial call:
Country Code (684) 663-2304
Obtain forms from:
U.S. EPA Region 9
RCRA Notifications
(WST-6-Tetratech)
(continued in next column)
75 Hawthorne Street
San Francisco, California 94105
(415) 495-8895
Mail completed forms to:
U.S. EPA Region 9
American Samoa Project Officer
(CMD-1)
75 Hawthorne Street
San Francisco, California 94105

Arizona
Obtain information or forms from, and mail
completed forms to:
Arizona Department of Environmental
Quality
Technical Program Unit
3033 N. Central Avenue
Phoenix, Arizona 85012
(602) 207-4147

Arkansas
Obtain information or forms from, and mail completed forms to:
Arkansas Department of
Environmental Quality
8001 National Drive
P.O. Box 8913
Little Rock, Arkansas 72219-8913
(501) 682-0863

California
Obtain information or forms from, and mail completed forms to:
U.S. EPA Region 9
RCRA Notifications
75 Hawthorne Street,
WST-6-Tetratech
San Francisco, California 94105
(415) 495-8895

Colorado
Obtain information or forms from, and mail completed forms to:
Colorado Department of Public Health and Environment
Hazardous Materials and Waste Management Division
4300 Cherry Creek Drive, S.
HMWMD-HWC-B2
Denver, Colorado 80246-1530
(303) 692-3300

Connecticut
Obtain information or forms from, and mail completed forms to:
Department of Environmental Protection
Bureau of Waste Management
Waste Engineering and Enforcement Division
79 Elm Street
Hartford, Connecticut 06106-5127
(860) 424-3372

Delaware
Obtain information or forms from, and mail completed forms to:
Delaware Department of Natural Resources and Environmental Control
Solid and Hazardous Waste Management Branch
Attn: Tracy Hamburg
89 Kings Highway
Dover, Delaware 19901
(302) 739-3689

District of Columbia
Obtain information or forms from, and mail completed forms to:
Department of Health
Environmental Health Administration
Attn: Mark Hughes
51 N Street, N.E., Third Floor
Washington, D.C. 20002
(202) 535-2285

Florida
Obtain information or forms from, and mail completed forms to:
Hazardous Waste Regulation Section
MS 4560
Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
(850) 488-0300

Georgia
Obtain information or forms from, and mail completed forms to:
Hazardous Waste Branch
Environmental Protection Division
Georgia Department of Natural Resources
Floyd Towers East, Room 1154
2 Martin Luther King, Jr. Dr.
Atlanta, Georgia 30334-9000
(404) 656-7802

Guam
Obtain information or forms from, and mail completed forms to:
Guam Environmental Protection Agency
P.O. Box 22439 - GMF
Barrigada, Guam 96921
(671) 475-1606

Hawaii
Obtain information or forms from, and mail completed forms to:
U.S. EPA Region 9
RCRA Notifications
75 Hawthorne Street, WST-6-Tetratech
San Francisco, California 94105
(415) 495-8895

Idaho
Obtain information or forms from, and mail completed forms to:
Rene' Anderson
Waste Management & Remediation Division
Idaho Department of Environmental Quality
1410 N. Hilton Street
Boise, Idaho 83706
(208) 373-0210

Illinois
Obtain information or forms from, and mail completed forms to:
Illinois Environmental Protection Agency
Bureau of Land
1021 N. Grand Ave. E
P.O. Box 19276
Springfield, Illinois 62794-9276
(217) 782-6762

Indiana
Obtain information or forms from, and mail completed forms to:
Indiana Department of Environmental Management
100 N. Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206
(317) 232-3242

Iowa
Obtain information or forms from, and mail completed forms to:
U.S. EPA Region 7
Air, RCRA, and Toxics Division
RCRA Enforcement and State Programs Branch (ARTD/RESP)
901 N. 5th Street
Kansas City, Kansas 66101
(913) 551-7126

Kansas
Obtain information or forms from, and mail completed forms to:
Department of Health and Environment
Bureau of Waste Management
Waste Policy, Planning, and Outreach Section
Attn: David Branscum
Forbes Field, Building 740
Topeka, Kansas 66620
(785) 296-6898

Kentucky
Obtain information or forms from, and mail completed forms to:
Division of Waste Management
Department of Environmental Protection
Cabinet for Natural Resources and Environmental Protection
Attn: Marlyn Godby
Fort Boone Plaza, Building #2
14 Reilly Road
Frankfort, Kentucky 40601
(502) 564-6716

Louisiana
Obtain information or forms from, and mail completed forms to:
Louisiana Department of Environmental Quality
Department of Solid and Hazardous Waste
P.O. Box 82178
Baton Rouge, Louisiana 70884-2178
(225) 765-0261

Maine
Obtain information or forms from, and mail completed forms to:
Department of Environmental Protection
Bureau of Remediation and Waste Management
State House Station #17
Augusta, Maine 04333
(207) 287-2651

Maryland
Obtain information or forms from, and mail completed forms to:
Maryland Department of the Environment
Hazardous Waste Program
Attn: Emily Troyer
Tracking/Certification Branch
2500 Broening Highway
Baltimore, Maryland 21224
(410) 631-3344

Massachusetts
Obtain information or forms from, and mail completed forms to:
Massachusetts Department of Environmental Protection
Bureau of Waste Prevention
Attn: Notifications (8th Floor)
1 Winter Street
Boston, Massachusetts 02108
(617) 292-5849

Michigan
Obtain information or forms from, and mail completed forms to:
Michigan Department of Environmental Quality
Waste Management Division
Box 30241
Lansing, Michigan 48909
(517) 373-2730 or
(517) 373-1837

Minnesota
Obtain information or forms from, and mail completed forms to:
Minnesota Pollution Control Agency
Solid and Hazardous Waste Division
520 Lafayette Road, North
St. Paul, Minnesota 55155
(651) 297-8330

Mississippi
Obtain information or forms from, and mail completed forms to:
Department of Environmental Quality
Attn: Ms. Willie Brandon
101 W. Capital Street, Suite 100
Jackson, Mississippi 39201
or
Department of Environmental Quality
Attn: Ms. Willie Brandon
P.O. Box 10385
Jackson, Mississippi 39289-0385
(601) 961-5171

Missouri
Obtain information or forms from, and mail completed forms to:
Department of Natural Resources
Hazardous Waste Program
Attn: John Beard
1738 E. Elm Street
P.O. Box 176
Jefferson City, Missouri 65101
(573) 751-3176

Montana
Obtain information or forms from, and mail completed forms to:
ATTN: Mark Hall
Montana Department of Environmental Quality
Hazardous Waste Program
1520 E. Sixth Avenue
Helena, Montana 59620
(406) 444-4096

Navajo Nation
Obtain information or forms from, and mail completed forms to:
The Navajo Nation
Navajo Environmental Protection Agency
P.O. Box 339
Window Rock AZ 86515
(928) 871-7995

Nebraska
Obtain information or forms from, and mail completed forms to:
Hazardous Waste Management Section
Department of Environmental Quality
State House Station
P.O. Box 98922
Lincoln, Nebraska 68509-8922
(402) 471-4218

Nevada
Obtain information or forms from, and mail completed forms to:
Nevada Department of Conservation and Natural Resources
Division of Environmental Protection
Room 138
333 West Nye Lane
Carson City, NV 89706-0851
(775) 687-4670 ext. 3043

New Hampshire
Obtain information or forms from, and mail completed forms to:
Department of Environmental Services
Waste Management Division
6 Hazen Drive
Concord, New Hampshire 03301
(603) 271-2901

New Jersey
Obtain information from:
New Jersey Department of Environmental Protection
Bureau of Manifests and Information Systems
Hazardous Waste and Transfer Facilities (CN 414)
401 East State Street
Trenton, New Jersey 08625-0414
(609) 292-7081
Obtain forms from and mail completed forms to:
U.S. EPA Region 2
Division of Environmental Planning and Protection
RCRA Programs Branch (22nd Floor)
290 Broadway
New York, New York 10007-1866
(212) 637-4106

New Mexico
Obtain information or forms from, and mail completed forms to:
New Mexico Environmental Department
Hazardous Waste Bureau
P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-1557

New York
Obtain information from:
New York State Department of
Environmental Conservation
Division of Solid and Hazardous
Materials
Bureau of Hazardous Waste
Management
625 Broadway
Albany, New York 12233-7251
(518) 402-8707
Obtain forms from and mail completed forms to:
U.S. EPA Region 2
Division of Environmental Planning
and Protection
RCRA Programs Branch (22nd Floor)
290 Broadway
New York, New York 10007-1866
(212) 637-4106

North Carolina
Obtain information or forms from, and mail completed forms to:
North Carolina Department of
Environment and Natural Resources
Division of Waste Management
401 Oberlin Road, Suite 150
Raleigh, North Carolina 27605
or
North Carolina Department of
Environment and Natural Resources
Division of Waste Management
P.O. Box 29603
Raleigh, North Carolina 27611-9603
(919) 733-2178

North Dakota
Obtain information or forms from, and mail completed forms to:
Division of Waste Management
North Dakota Department of Health
1200 Missouri Avenue
P.O. Box 5520
Bismarck, North Dakota 58506-5520
(701) 328-5166

Northern Mariana Islands
Obtain information from:
Department of Public Health and
Environmental Services
Division of Environmental Quality
P.O. Box 1304
Saipan, Mariana Islands 96950
Overseas Operator Commercial call:
Country Code (670) 234-6984
Cable Address: Gov. NMI Saipan
Obtain forms from:
U.S. EPA Region 9
RCRA Notifications
(WST-6-Tetratech)
75 Hawthorne Street
San Francisco, California 94105
Mail completed forms to:
U.S. EPA Region 9
Northern Mariana Islands
Project Officer (CMD-1)
75 Hawthorne Street
San Francisco, California 94105

Ohio
Obtain information or forms from, and mail completed forms to:
Ohio Environmental Protection
Agency
Division of Hazardous Waste
Management
P.O. Box 1049
Columbus, Ohio 43216-1049
(614) 644-2977

Oklahoma
Obtain information or forms from, and mail completed forms to:
Department of Environmental Quality
Land Protection Division
P.O. Box 1677
Oklahoma City, Oklahoma 73101-1677
(405) 702-5000

Oregon
Obtain information or forms from, and mail completed forms to:
Oregon Department of Environmental Quality
Waste Management and Clean-up Division
Generator-Transporter Registration
Attn: Susan Eidman
811 SW Sixth Avenue
Portland, Oregon 97204
(503) 229-6511

Pennsylvania
Obtain information or forms from, and mail completed forms to:
Pennsylvania Department of Environmental Protection
Notifications Section
P.O. Box 8471
Harrisburg, Pennsylvania 17105-8741
(717) 787-6239

Puerto Rico
Obtain information from:
Puerto Rico Environmental Quality Board
P.O. Box 11488
San Turce, Puerto Rico 00910
(787) 767-8181
Obtain forms from and mail completed forms to:
U.S. EPA Region 2
Division of Environmental Planning and Protection
RCRA Programs Branch (22nd Floor)
290 Broadway
New York, New York 10007-1866
(212) 637-4106

Rhode Island
Obtain information or forms from, and mail completed forms to:
Department of Environmental Management
(Continued in next column)
Office of Compliance and Inspection
235 Promenade Street
Providence, Rhode Island 02908-5767
(401) 222-1360

South Carolina
Obtain information or forms from, and mail completed forms to:
Bureau of Solid and Hazardous Waste Management
Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201
(803) 896-4000

South Dakota
Obtain information or forms from, and mail completed forms to:
Department of Environment and Natural Resources
Waste Management Program
523 E. Capitol Avenue
Pierre, South Dakota 57501-3181
(605) 773-3153

Tennessee
Obtain information or forms from, and mail completed forms to:
Division of Solid Waste Management
Tennessee Department of Energy and Conservation
LNC Tower, 5th Floor
401 Church Street
Nashville, Tennessee 37243-1535
(615) 532-0780

Texas
Obtain information or forms from, and mail completed forms to:
Texas Natural Resource Conservation Commission
Registration and Reporting Section
P.O. Box 13087, MC-129
Austin, Texas 78711-3087
(512) 239-6832

Utah
Obtain information or forms from, and mail completed forms to:
Division of Solid and Hazardous Waste
Department of Environmental Quality
P.O. Box 144880
Salt Lake City, Utah 84114-4880
(801) 538-6170

Vermont
Obtain information or forms from, and mail completed forms to:
Department of Environmental Conservation
Agency of Natural Resources
Waste Management Division
West Office Building
103 S. Main Street
Waterbury, Vermont 05671-0404
(802) 241-3867

Virgin Islands
Obtain information from:
Virgin Islands Department of Planning & Natural Resources
Division of Environmental Protection
179 Altona and Welgunst
St. Thomas, Virgin Islands 00801
(809) 693-0114
Obtain forms from and mail completed forms to:
U.S. EPA Region 2
Division of Environmental Planning and Protection
RCRA Programs Branch (22nd Floor)
290 Broadway
New York, New York 10007-1866
(212) 637-4106

Virginia
Obtain information or forms from, and mail completed forms to:
Commonwealth of Virginia
Department of Environmental Quality
(continued in next column)
Attn: Dan Gwinner
629 E. Main Street
Richmond, Virginia 23219
(804) 698-4177

Washington
Obtain information or forms from, and mail completed forms to:
Washington Department of Ecology
Dangerous Waste Notifications
Attn: Sheri Ryan
P.O. Box 47658
Olympia, Washington 98504-7658
(360) 407-7555

West Virginia
Obtain information or forms from, and mail completed forms to:
West Virginia Department of Environmental Protection
Division of Waste Management
Attn: Brenda Woodyard
1356 Hansford Street
Charleston, West Virginia 25301- 1401
(304) 558-5929

Wisconsin
Obtain information or forms from, and mail completed forms to:
Bureau of Solid Waste
Department of Natural Resources
P.O. Box 7921
Madison, Wisconsin 53707
(608) 266-2111

Wyoming
Obtain information or forms from, and mail completed forms to:
Wyoming Department of Environmental Quality
Solid and Hazardous Waste Division
122 W. 25th Street
Herschler Building, 4th Floor West
Cheyenne, Wyoming 82002
(307) 777-7752

Table 2
U.S. EPA Regional Contacts for Notification of Regulated Waste Activity

U.S. EPA Region 1
Office of Ecosystem Protection
Hazardous Waste Program Unit
One Congress Street, Suite 1100
Boston, MA 02114-2023
(617) 918-1640
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

U.S. EPA Region 2
Division of Environmental Planning and Protection
RCRA Programs Branch (22nd Floor)
290 Broadway
New York, New York 10007-1866
(212) 637-4106
New Jersey, New York, Puerto Rico, Virgin Islands

U.S. EPA Region 3
Waste and Chemicals Management Division, 3WC11,
1650 Arch Street
Philadelphia, PA 19103-2029
(215) 814-3413
Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia

U.S. EPA Region 4
Hazardous Waste Management Division
RCRA Permitting Section
61 Forsyth Street
Atlanta, GA 30303
(404) 562-8440
Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee

U.S. EPA Region 5
RCRA Activities
77 West Jackson Boulevard
P.O. Box A3587
Chicago, IL 60690
(312) 886-4001
Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin

U.S. EPA Region 6
Multimedia Planning and Permitting Division (6PD-I)
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733
(214) 665-6750
Arkansas, Louisiana, New Mexico, Oklahoma, Texas

U.S. EPA Region 7
Air, RCRA, and Toxics Division
RCRA Enforcement and State Programs
Branch (ARTD/RESP)
901 N. 5th Street
Kansas City, KS 66101
(913) 551-7126
Iowa, Kansas, Missouri, Nebraska

U.S. EPA Region 8
Office of Partnerships and Regulatory
Assistance
999 18th Street, Suite 500
Denver, CO 80202-2466
(303) 312-6319
Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming

U.S. EPA Region 9
RCRA Notifications (WST-6-Tetratech)
75 Hawthorne Street
San Francisco, CA 94105
(415) 495-8895
Arizona, California, Hawaii, Nevada, American Samoa, Guam, Northern Mariana Islands

U.S. EPA Region 10
Office of Waste and Chemicals
Management
Hazardous Waste Notifications
(WCM-122)
1200 Sixth Avenue
Seattle, Washington 98101
(206) 553-2583
From within Alaska, toll-free:
(800) 550-7272
Alaska, Idaho, Oregon, Washington

5. Line-by-line Instructions for Notification of Regulated Waste Activity Using the RCRA Subtitle C Site Identification Form

This is a new version of the Notification of Regulated Waste Activity booklet [EPA Form 8700-12]. **Please be sure to review the instructions carefully and complete all items on the form.**

Why has EPA revised the form?

In the past, basic site information (e.g., information about the name and location of RCRA-regulated sites) has been collected on three different forms, each with its own instructions and definitions. Basic site information was collected from all RCRA-regulated facilities through the Notification of Regulated Waste Activity [EPA Form 8700-12]. RCRA-regulated sites (also, called "facilities") seeking a hazardous waste permit or permit renewal also submitted site information on the RCRA Hazardous Waste Part A Permit Application [EPA Form 8700-23]. Finally, large quantity generators and treatment, storage and disposal facilities reported site information for the Hazardous Waste Report [EPA Form 8700-13A/B].

These differing sets of information sometimes gave regulators conflicting information about the same site and the duplication was burdensome for respondents. The new RCRA Subtitle C Site Identification Form (Site ID Form) in this booklet standardizes the RCRA site information that was collected on these three forms. This means that, after you have submitted the Site ID Form once, you can copy the previously submitted Site ID information onto the form included in this booklet if there are no changes. Enter any new or changed information on the form and circle the item number.

Instructions for Filling Out the RCRA Subtitle C Site Identification (Site ID) Form

WHO MUST SUBMIT THIS FORM

All sites required to submit any of the following must submit the RCRA Subtitle C Site Identification (Site ID) Form:

- Initial Notification of Regulated Waste Activity
- Subsequent Notification of Regulated Waste Activity
- First RCRA Hazardous Waste Part A Permit Application
- Revised RCRA Hazardous Waste Part A Permit Application
- Hazardous Waste Report

These instructions explain how to complete the Site ID Form for the Notification of Regulated Waste Activity. You **must review** all the items on the Site ID Form. Be sure to enter information for all the required items.

PURPOSE OF THIS FORM

For purposes of the Notification of Regulated Waste Activity, the Site ID Form provides site-specific information about a facility for obtaining an EPA Identification Number and submitting initial notification of regulated waste activity. For purposes of a subsequent Notification of Regulated Waste Activity, the Site ID Form provides updated site-specific information for those items that have changed at your facility and verifies the information for those items that remain unchanged.

The Site ID Form is divided into 13 items. You must complete Items 1 through 10 and Item 13; you must complete Item 11 if you handle hazardous waste. You may use Item 12 for comments on Items 1 through 11.

HOW TO FILL OUT THIS FORM

Please fill out all of the following Site ID Form items.

- Item 1 - your reason for submitting the form (in this case, as an Initial or Subsequent Notification of Regulated Waste Activity);
- Item 2 - your site's EPA ID number;
- Item 3 - the name of your site;
- Item 4 - the physical location of your site;
- Item 5 - the land type of your site;
- Item 6 - the North American Industry Classification System (NAICS) code(s) for your site;
- Item 7 - the mailing address for your site;
- Item 8 - name and phone number of a contact person at your site;
- Item 9 - names of the legal owner and the operator of your site;
- Item 10 - your site's regulated waste activities (enter all that apply);
- Item 11 - the description of hazardous waste if you handle any;
- Item 12 - additional comments on Items 1 through 11; and
- Item 13 - certification that the information you provided throughout the form is truthful, accurate and complete.

Type or print in black ink all items except the Signature box in Item 13. For subsequent notification, enter your site's EPA ID number in the top right-hand corner on the second and third pages of the form. Use the space for Comments in Item 12 to clarify or provide additional information for any entry. When entering information in the Comments section, cross-reference the item number and box letter to which the comment refers. If you must use additional sheets, enter your site's EPA ID number in the top right-hand corner of each sheet and indicate clearly the number of the item on the Site ID Form for the additional information on the separate sheets.

A complete listing of State and EPA Regional contacts, mailing addresses, and telephone numbers, can be found Section 4 of this booklet.

ITEM-BY-ITEM INSTRUCTIONS

Item 1 -- Reason for Submittal:

Reason for Submittal: Place an "X" in the appropriate box to indicate whether this form is your Initial Notification (to obtain an EPA Identification Number); a Subsequent Notification (to update your site identification information); a component of a First or a Revised Hazardous Waste Part A Permit Application; or a component of the Hazardous Waste Report.

- **For Initial Notification of Regulated Waste Activity to provide site identification information and obtain an EPA Identification Number for hazardous waste, universal waste, or used oil activities.** If your waste activity is regulated under Subtitle C of the Resource Conservation and Recovery Act (RCRA) and the rules promulgated pursuant to the Act (specifically 40 CFR Parts 260–299), you must submit this form to notify the appropriate State or EPA Regional Office of your regulated waste activities and obtain an EPA Identification Number.

- **For Subsequent Notification of Regulated Waste Activity to update site identification information.** You must use this form to submit a subsequent notification if your site already has an EPA Identification Number and you wish to change information (e.g., generator status, new owner, new mailing address, etc.).

- **As a component of a First Hazardous Waste Part A Permit Application.** If your site is planning to treat, store, or dispose of hazardous waste on site in a unit that is not exempt from obtaining a hazardous waste permit, you must submit this form as part of the Part A Permit Application. Also, if the activity at this site (treatment, storage, or disposal) became newly regulated under RCRA Subtitle C and the rules promulgated pursuant to the Act (specifically 40 CFR Parts 260-299), you must submit this form as part of the Part A Permit Application.

- **As a component of a Revised Hazardous Waste Part A Permit Application.** If you must submit a revised Part A Permit Application to reflect changes that have occurred at your site, you must submit this form as part of your revised Part A Permit Application. Examples of site changes requiring a revised Part A Permit Application include managing new wastes not identified in the first submission of the form or changes to existing waste treatment processes. When submitting a revised Part A Permit Application, please include the Amendment number in the appropriate space.

- **As a component of the Hazardous Waste Report.** If you are required to submit a Hazardous Waste Report indicating the amount of hazardous waste you generate, treat, ship off site, or receive from off site, you must fill out this form.

Item 2 -- Site EPA ID Number:

Provide your EPA Identification Number in Item 2 **for this site.** Also, be sure to include your EPA Identification Number at the top of pages 2 and 3 of the form (as well as on any attachments to the Site ID Form).

✍	**NOTE:** If this is your initial notification for this site, leave the EPA Identification Number blank and proceed to Item 3.

Items 3 and 4 -- Site Name and Location:

Provide the legal name of your site and a complete location address. Please note that the address you give for Item 4, Site Location, must be a physical address, **not a post office box or route number.**

✍	**NOTE**: A new EPA Identification Number is required if you change the location of your site.

Item 5 -- Site Land Type:

Place an "X" in the box that **best describes** the land type of your site. Select only one type: Private, County, District, Federal, Indian, Municipal, State, or Other. If your site's Land Type could be described as Municipal **and** as County, as District, or as Indian, do not mark Municipal. Instead choose the other appropriate code; you may explain this in Item 12 - Comments**.**

Item 6 -- North American Industry Classification System (NAICS) Code(s):

Box A must be completed. Completing Boxes B-D is recommended, if applicable.

Box A Provide the North American Industry Classification System (NAICS) code that **best** describes your site's primary business production process for your products or services. Use the six (6) digit code (most specific description) if available for your business; if not, use the five (5) digit code; do not enter any four (4) or less digit code.

Boxes B - D List other NAICS codes that describe the primary business production processes for your site. Use the most specific 6 or 5 digit codes available.

You can obtain NAICS codes from the following sources:

- NAICS web sites at http://www.census.gov/epcd/naics/naicscod.txt
- Some libraries

Item 7 -- Site Mailing Address:

Please enter the Site Mailing Address. If the mailing address and the Location of Site (Item 4) are the same, you can print "Same" in the box for Item 7.

Item 8 -- Site Contact Person:

Enter the name, business telephone number, and extension of the person who should be contacted regarding the information submitted in the Site ID Form. A subsequent notification is recommended when the Site Contact Person changes.

✍	**NOTE**: It is assumed that the Site Contact Person will receive mail at the Site Mailing Address provided in Item 7. If this is not the case, please provide the mailing address for the Site Contact Person in Item 12 - Comments.

Item 9 -- Legal Owner and Operator of the Site:

This section should be used to indicate all the owners and operators of this site. For the meaning of owner and operator, see Section 6. Definitions. The Comments section in Item 12 and additional sheets can be used if necessary.

A. **Name of Site's Legal Owner**: Provide the name of your site's legal owner. If an additional owner or owners have been added or a previous owner is no longer an owner since the site's last submission of this form, please provide information on the new and previous owner(s).

Date Became an Owner: Indicate the date on which the above person or entity became the owner of your site.

Owner Type: Place an "X" in the box that **best describes** the owner type of your site. Select only one type: Private, County, District, Federal, Indian, Municipal, State, or Other. If your site's Owner Type could be described as Municipal **and** as County, as District, or as Indian, do not mark Municipal. Instead choose the other appropriate code; you may explain this in Item 12 - Comments.

Use the Comments section in Item 12 to list any additional owners, their names, the dates they became owners, owner type, mailing address, and which owner(s), if any, are no longer owners since your last submission of this form. If necessary, attach a separate sheet of paper.

B. Name of Site's Operator: Provide the name of your site's operator.

Date Became an Operator: Indicate the date on which the above person became the operator of your site.

Operator Type: Place an "X" in the box that **best describes** the operator type of your site. Select only one type: Private, County, District, Federal, Indian, Municipal, State, or Other. If your site's Operator Type could be described as Municipal **and** as County, as District, or as Indian, do not mark Municipal. Instead choose the other appropriate code; you may explain this in Item 12 - Comments.

Use the Comments section in Item 12 to list any additional operators, their names, the dates they became operators, operator type, and mailing address. If necessary, attach a separate sheet of paper.

> **NOTE**: A subsequent notification is recommended when the owner or operator of a site changes. Because an EPA Identification Number is site-specific, the new owner will keep the existing EPA Identification Number for that location. If the business moves to another location, the owner or operator must notify the EPA of this change. In this instance, a new EPA Identification Number will be assigned, since the business has changed locations.

Item 10 -- Type of Regulated Waste Activity (Place an 'X' in the appropriate boxes for the activities that apply to your site.)

A. Hazardous Waste Activities: Place an "X" in the appropriate box(es) to indicate which hazardous waste activities are being conducted **at this site.**

> **NOTE**: Listed below are the Federal generator definitions. However, if the State where your hazardous waste activities occur has definitions different from the Federal definitions, you must use the State definitions.

1. **Generator of Hazardous Waste:** If you generate a hazardous waste that is listed in 40 CFR 261.31 through 261.33 or identified by one or more hazardous waste characteristic(s) contained in 40 CFR 261.21 through 261.24, place an "X" in the appropriate box for the quantity of non-acutely hazardous waste that is generated per calendar month. The regulations for hazardous waste generators are found in 40 CFR Part 262. Consult these regulations and your State for details about how the regulations apply to your situation. Below is a brief description of the three types of hazardous waste generators.

a. LQG: Large Quantity Generator

This site is a Large Quantity Generator if the site meets **any** of the following criteria:

i) Generates, in any calendar month, 1,000 kg (2,200 lbs.) or more of RCRA hazardous waste; **or**

ii) Generates, in any calendar month, or accumulates at any time, more than 1 kg (2.2 lbs.) of RCRA acute hazardous waste; **or**

iii) Generates, in any calendar month, or accumulates at any time, more than 100 kg (220 lbs.) of spill cleanup material contaminated with RCRA acute hazardous waste.

✍	**NOTE**: If, in addition to being an LQG, you recycle hazardous wastes at your site (without storing the wastes before you recycle them), mark both this box **and** Box A.4 below.

b. SQG: Small Quantity Generator

This site is a Small Quantity Generator if the site meets **all** of the following criteria:

i) Generates, in any calendar month, more than 100 kg (220 lbs.) but less than 1,000 kg (2,200 lbs.) of RCRA hazardous waste; **and**

ii) Generates, in any calendar month, or accumulates at any time, no more than 1 kg (2.2 lbs.) of acute hazardous waste **and** no more than 100 kg (220 lbs.) of material from the cleanup of a spill of acute hazardous waste.

OR, the site is a Small Quantity Generator if the site:

i) Meets all other criteria for a Conditionally Exempt Small Quantity Generator (see below), but

ii) Accumulates, at any time, more than 1,000 kg (2,200 lbs.) of RCRA hazardous waste.

c. CESQG: Conditionally Exempt Small Quantity Generator

This site is a CESQG if the site does **all** of the following:

i) Generates no more than 100 kg (220 lbs.) of RCRA hazardous waste in any calendar month; **and**

ii) Accumulates, at any time, no more than 1,000 kg (2,200 lbs.) of RCRA hazardous waste; **and**

iii) Generates, in any calendar month, or accumulates at any time, no more than 1 kg (2.2 lbs.) of acute hazardous waste, **and** no more than 100 kg (220 lbs.) of material from the cleanup of a spill of acute hazardous waste.

✍	**NOTE**: If you generate acutely hazardous wastes listed in 40 CFR 261.31, 261.32 or 261.33(e), please refer to 40 CFR 261.5(e) to determine the circumstances under which you must notify the EPA.

In addition to the above, place an "X" in the following appropriate box(es) to indicate other generator activities occurring **at this site**. (Mark all boxes that apply.)

d. United States Importer of Hazardous Waste

Place an "X" in the box if you import hazardous waste from a foreign country into the United States. Refer to 40 CFR 262.60 for additional information.

e. Mixed Waste Generator

Place an "X" in the box if you are a generator of mixed waste (waste that is both hazardous and radioactive). RCRA defines "mixed waste" as waste that contains both hazardous waste and source, special nuclear, or by-product material subject to the Atomic Energy Act (AEA), RCRA section 1004(41), 42 U.S.C. 6903 (63 FR 17414; April 9, 1998).

2. **Transporter of Hazardous Waste:** Place an "X" in the box if you transport hazardous waste within the United States. The Federal regulations for hazardous waste transporters are found in 40 CFR Part 263.

3. **Treater, Storer, or Disposer of Hazardous Waste:** If you treat, store, or dispose of regulated hazardous waste, place an "X" in this box. (Burning hazardous wastes in boilers and industrial furnaces and storing hazardous wastes before recycling them fall into this category as well.) A hazardous waste permit is required for this activity. You are reminded to contact the appropriate agency for your State to request a RCRA Hazardous Waste Part A Permit Application. The Federal regulations for owners or operators of hazardous waste sites are found in 40 CFR Parts 264, 265, 266, and 270.

✍	**NOTE**: If your site is a destination facility for universal wastes in addition to being a treatment, storage, or disposal facility for other RCRA hazardous wastes, mark both this box **and** Box B.2 below.

4. **Recycler of Hazardous Waste:** If you recycle regulated hazardous wastes (recyclable materials), place an "X" in this box. The Federal regulations for owners or operators of sites that recycle hazardous waste are found in 40 CFR 261.6. A hazardous waste permit may be required for this activity. You also may be subject to other Federal and State regulations.

✍	**NOTE**: If your site, in addition to being a recycling site for hazardous waste, is a treater, storer, or disposer of hazardous waste, mark both this box **and** Box A.3 above. If your site is a destination facility for universal wastes in addition to being a recycling site for other RCRA hazardous wastes, mark both this box **and** Box B.2 below.

5. **Exempt Boiler and/or Industrial Furnace:**

   a. If you burn small quantities of hazardous waste in an on-site boiler or industrial furnace in accordance with the conditions in 40 CFR 266.108, place an "X" in the box to indicate that you qualify for the Small Quantity On-Site Burner Exemption.

   b. If you process hazardous wastes in a smelting, melting, or refining furnace solely for metals recovery, as described in 40 CFR 266.100(d), or to recover economically significant amounts of precious metals, as described in 40 CFR 266.100(g), or if you process hazardous wastes in a lead recovery furnace to recover lead, as described in 40 CFR 266.100(h), place an "X" in the box to indicate that you qualify for the Smelting, Melting, and Refining Furnace Exemption.

6. **Underground Injection Control:** If you generate, treat, store, or dispose of hazardous waste and there is an underground injection well located at your site, place an "X" in the box. The Federal regulations for owners or operators of underground injection wells are found in 40 CFR Part 148.

B. Universal Waste Activities: Refer to your State-specific requirements and definitions for universal waste. Refer to 40 CFR 261.9 and 40 CFR Part 273 for the Federal regulations covering universal waste.

1. **Large Quantity Handler of Universal Waste (LQHUW):** You are an LQHUW if you accumulate a total of 5,000 kg or more of any universal wastes (calculated collectively) at any time. Place an "X" in the appropriate box(es) to indicate the type(s) of universal wastes you generate and/or accumulate at your site. If your State has additional universal wastes, indicate what they are and place an "X" in the corresponding box(es).

2. **Destination Facility:** Place an "X" in the box if you treat, dispose of, or recycle universal wastes on site. A hazardous waste permit is required if you treat or dispose of universal wastes; a permit may be required if you recycle universal wastes.

✍	**NOTE**: If your site, in addition to being a destination facility for universal wastes, is also a treatment, storage, or disposal facility for RCRA hazardous wastes, mark both this box **and** Box A.3 above. In addition, if your site recycles RCRA hazardous wastes, mark both this box **and** Box A.4 above.

C. **Used Oil Activities:** Mark the appropriate box(es) to indicate which used oil management activities are taking place **at this site.** The Federal regulations for used oil management are found in 40 CFR Part 279.

1. **Used Oil Transporter:** If you transport used oil and/or own or operate a used oil transfer facility, place an "X" in the appropriate box(es) to indicate this used oil management activity.

2. **Used Oil Processor/Re-Refiner:** If you process and/or re-refine used oil, place an "X" in the appropriate box(es) to indicate this used oil management activity.

3. **Off-Specification Used Oil Burner:** If you burn off-specification used oil fuel, place an "X" in the box to indicate this used oil management activity.

4. **Used Oil Fuel Marketer:** If you market off-specification used oil directly to a burner, place an "X" in Box 4.a. If you are the first to claim the used oil meets the used oil specification established in 40 CFR 279.11, place an "X" in Box 4.b. If either of these boxes is marked, you also must notify (or have previously notified) as a used oil transporter, used oil processor/re-refiner, or off-specification used oil fuel burner, unless you are a used oil generator. (Used oil generators are not required to notify.)

Item 11 -- Description of Hazardous Wastes:

You will need to refer to 40 CFR Part 261 to complete this item. Part 261 identifies those solid wastes which the EPA defines as hazardous and regulates under RCRA. If you need help completing this section, please contact the appropriate State personnel.

A. **Federally Regulated Hazardous Wastes:** If you handle hazardous wastes that are described in 40 CFR Part 261, enter the appropriate 4-digit code(s) in the box(es) provided.

✍	**NOTE**: If you handle more hazardous wastes than will fit under Item 11.A., please continue listing the hazardous waste codes on an extra sheet. Attach any additional sheets to the Site Identification Form.

B. **State-Regulated Hazardous Wastes:** If you manage State-regulated hazardous wastes that have a waste code, enter the appropriate code(s) in the box(es) provided.

Item 12 -- Comments:

Use this section as needed to provide additional information for Items 1 through 11. You may attach additional sheets if necessary.

Item 13 -- Certification:

This certification must be signed by owner(s), operator(s), or authorized representative(s) of the site. An "authorized representative" is a person responsible for the overall operation of the site (i.e., a plant manager or superintendent, or a person of equal responsibility).

✍	**NOTE**: All Site ID Form submissions must include this certification to be complete.

6. Definitions

The following definitions are included to help you to understand and complete EPA Form 8700-12:

Act or RCRA means the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984, 42 U.S.C. Section 6901 *et seq.*

Authorized Representative means the person responsible for the overall operation of the RCRA site or an operational unit (i.e., part of an RCRA site), e.g., superintendent or plant manager, or person of equivalent responsibility.

Boiler means an enclosed device using controlled flame combustion and having the following characteristics:

1. The unit has physical provisions for recovering and exporting energy in the form of steam, heated fluids, or heated gases;
2. The unit's combustion chamber and primary energy recovery section(s) are of integral design (i.e., they are physically formed into one manufactured or assembled unit);
3. The unit continuously maintains an energy recovery efficiency of at least 60 percent, calculated in terms of the recovered energy compared with the thermal value of the fuel;
4. The unit exports and utilizes at least 75 percent of the recovered energy, calculated on an annual basis (excluding recovered heat used internally in the same unit, for example, to preheat fuel or combustion air or drive fans or feedwater pumps); or
5. The unit is one which the Regional Administrator has determined, on a case-by-case basis, to be a boiler, after considering the standards in 40 CFR 260.32.

Disposal means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

EPA Identification (ID) Number means the number assigned by EPA to each hazardous waste generator, hazardous waste transporter, and treatment, storage, or disposal RCRA site; large quantity handler of universal wastes; used oil transporter, used oil processor/re-refiner, off-specification used oil fuel burner, and used oil fuel marketer.

Hazardous Waste means a hazardous waste as defined in 40 CFR 261.3.

Hazardous Waste Generator means any person, by site, whose act or process produces hazardous waste identified or listed in 40 CFR Part 261.

Hazardous Waste Storage means the holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere.

Hazardous Waste Transporter means a person engaged in the off-site transportation of hazardous waste by air, rail, highway, or water.

Hazardous Waste Treatment means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such hazardous waste, or so as to recover energy or material resources from the hazardous waste, or so as to render such hazardous waste nonhazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume. Such term includes any activity or processing designed to change the physical form or composition of hazardous waste so as to render it nonhazardous.

Industrial Furnace means any of the following enclosed devices that are integral components of manufacturing processes and that use thermal treatment to accomplish recovery of materials or energy: cement kilns; lime kilns; aggregate kilns; phosphate kilns; coke ovens; blast furnaces; smelting, melting and refining furnaces; titanium dioxide chloride process oxidation reactors; methane reforming furnaces; pulping liquor recovery furnaces; combustion devices used in the recovery of sulfur values from spent sulfuric acid; halogen acid furnaces, as defined under industrial furnace in 40 CFR 260.10; and such other devices as the Administrator may add to this list.

Large Quantity Handler of Universal Waste means a universal waste handler (as defined in 40 CFR 273.6) who accumulates 5,000 kilograms or more total of universal waste (batteries, pesticides, or thermostats, collectively) at any time. This designation is retained through the end of the calendar year in which 5,000 kilograms or more of universal wastes are accumulated.

Municipality means a city, village, town, borough, county, parish, district, association, Indian tribe or authorized Indian tribal organization, designated and approved management agency under Section 208 of the Clean Water Act, or any other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes.

Off-Specification Used Oil Burner means an RCRA site where used oil not meeting the specification requirements in 40 CFR 279.11 (off-specification used oil) is burned for energy recovery in devices identified in Section 279.61(a).

Off-Specification Used Oil Fuel means used oil fuel that does not meet the specification provided under 40 CFR 279.11.

On-Specification Used Oil Fuel means used oil fuel that meets the specification provided under 40 CFR 279.11.

Operator means the person responsible for the overall operation of a RCRA site. See **Person**.

Owner means a person who owns a RCRA site or part of a site, including the property owner. See **Person**.

Person means an individual, trust, firm, joint stock company, Federal Agency, corporation (including a government corporation), partnership, association, State, municipality, commission, political subdivision of a State, or any interstate body.

RCRA Subtitle C Site (Site) means the physical plant or location at which one or more of the following regulated waste activities occurs: the generation, transportation, treatment, storage, or disposal of hazardous wastes; recycling of hazardous wastes; the accumulation of 5,000 kg or more of universal wastes; and the transportation (and temporary storage during transportation), processing/re-refining, burning, or marketing of used oil. A site may consist of several treatment, storage, or disposal operational units. A site also may consist of an area undergoing corrective action. (For entities that only transport regulated wastes, the term site refers to the headquarters of that entity's operations.)

Small Quantity On-Site Burner Exemption means that persons who burn small quantities of hazardous waste in an on-site boiler or industrial furnace, in accordance with 40 CFR 266.108, are conditionally exempt from regulation for that activity.

Smelting, Melting, and Refining Furnace Exemption means that: owners or operators of smelting, melting, and refining furnaces that process hazardous waste solely for metal recovery are conditionally exempt from regulation, except for 40 CFR 266.101 and 266.112, provided they comply with the requirements in Section 266.100(d); owners or operators of smelting, melting and refining furnaces that process hazardous waste for recovery of precious metals are conditionally exempt from regulation, except for 40 CFR 266.112, provided they comply with the requirements in Section 266.100(g); and owners or operators of lead recovery furnaces that process hazardous waste for recovery of lead and that are subject to regulation under the Secondary Lead Smelting NESHAP are conditionally exempt from regulation, except for 40 CFR 266.101, provided they comply with the requirements in Section 266.100(h).

Underground Injection Control means the subsurface emplacement of fluids through a bored, drilled or driven well; or through a dug well, where the depth of the dug well is greater than the largest surface dimension. Underground injection wells are regulated under both the Safe Drinking Water Act and the Resource Conservation and Recovery Act (see 40 CFR Part 148).

Used Oil means any oil that has been refined from crude oil, or any synthetic oil, that has been used, and as a result of such use, is contaminated by physical or chemical impurities.

Used Oil Fuel Marketer means any person who conducts either of the following activities:

1. Directs a shipment of off-specification used oil from their RCRA site to an off-specification used oil burner; or

2. First claims that used oil that is to be burned for energy recovery meets the used oil fuel specifications set forth in 40 CFR 279.11.

Used Oil Management Activities, for the purposes of EPA Form 8700-12, include used oil transportation; used oil processing and re-refining; burning off-specification used oil fuel; and used oil fuel marketing.

Used Oil Processing means chemical or physical operations designed to produce from used oil, or to make used oil more amenable for production of, fuel oils, lubricants, or other used oil-derived products. Processing includes, but is not limited to: blending used oil with virgin petroleum products, blending used oils to meet the fuel specification, filtration, simple distillation, chemical or physical separation, and re-refining.

Used Oil Processor means an RCRA site that processes on- or off-specification used oil.

Used Oil Re-Refiner means an RCRA site that produces lubricating oils and greases, industrial fuel, asphalt extender, gasoline, and other products from on- or off-specification used oil.

Used Oil Transfer Facility means any transportation-related facility, including loading docks, parking areas, storage areas, and other areas where shipments of used oil are held for more than 24 hours during the normal course of transportation and not longer than 35 days. Transfer facilities that store used oil for more than 35 days are subject to regulation under 40 CFR Part 279, Subpart F.

Used Oil Transporter means any person who transports used oil, any person who collects used oil from more than one generator and transports the collected oil, and owners and operators of used oil transfer facilities. Used oil transporters may consolidate or aggregate loads of used oil for purposes of transportation but, with the following exception, may not process used oil. Used oil transporters may conduct incidental processing operations that occur in the normal course of used oil transportation (e.g., settling and water separation), but that are not designed to produce (or make more amenable for production of) used oil-derived products or used oil fuel.

7. EPA Hazardous Waste Numbers for Waste Streams Commonly Generated by Small Quantity Generators

EPA recognizes that generators of small quantities of hazardous waste, many of which are small businesses, may not be familiar with the manner in which hazardous waste materials are identified in the Code of Federal Regulations. In order to aid small quantity generators in determining the EPA Hazardous Waste Numbers for their hazardous wastes that are needed to complete EPA Form 8700-12, two appendices are enclosed.

Appendix 1 lists 18 general industry categories that contain small quantity generators. For each of these categories, commonly generated hazardous wastes are identified. Appendix 2 lists EPA Hazardous Waste Numbers for each hazardous waste stream identified in Appendix 1.

To use these appendices:

1. Locate your industry in Appendix 1 to identify the hazardous waste streams common to your activities.

2. Find each of your hazardous waste streams in Appendix 2, and review the more detailed descriptions of typical hazardous wastes to determine which hazardous waste streams actually result from your activities.

3. If you determine that a hazardous waste stream does apply to you, report the 4-digit EPA Hazardous Waste Number in Item 11 of EPA Form 8700-12.

The industries and hazardous waste streams described here do not provide a comprehensive list but rather serve as a guide to potential small quantity generators in determining which of their solid wastes, if any, are hazardous. Except for the pesticide category, this insert does not include EPA Hazardous Waste Numbers for commercial chemical products that are hazardous when discarded unused. These chemicals and their EPA Hazardous Waste Numbers are listed in 40 CFR 261.33.

If the specific Hazardous Waste Number that should be applied to your hazardous waste stream is unclear, please refer to 40 CFR Part 261. *Copies of Part 261 and other EPA regulations in 40 CFR are available at most libraries and on EPA's Web Site at: www.epa.gov/docs/epacfr40/chapt-I.info/subch-I/.*

In those cases where more than one Hazardous Waste Number is applicable, all should be used. If you have any questions, or if you are unable to determine the proper EPA Hazardous Waste Numbers for your hazardous wastes, contact your State hazardous waste management agency as listed in Section 4 of this booklet, or the RCRA, Superfund, and EPCRA Call Center at 1-800-424-9346 (or in the Washington, D.C. area at (703) 412-9810).

Appendix 1
Typical Hazardous Waste Streams Produced by Small Quantity Generators

LABORATORIES
Acids/Bases, Heavy Metals/Inorganics, Ignitable Wastes, Reactives, Solvents

PRINTING AND ALLIED INDUSTRIES
Acids/Bases, Heavy Metals/Inorganics, Ink Sludges, Spent Plating Wastes, Solvents

PESTICIDE END USERS AND APPLICATION
Heavy Metals/Inorganics, Services, Pesticides, Solvents

CONSTRUCTION
Acids/Bases, Ignitable Wastes, Solvents

EQUIPMENT REPAIR
Acids/Bases, Ignitable Wastes, Lead Acid Batteries, Solvents

FURNITURE/WOOD MANUFACTURING & REFINISHING
Ignitable Wastes, Solvents

OTHER MANUFACTURING (textiles, plastics, leather)
Heavy Metals/Inorganics, Solvents

LAUNDRIES AND DRY CLEANERS
Dry Cleaning Filtration Residues, Solvents

EDUCATIONAL AND VOCATIONAL SHOPS
Acids/Bases, Ignitable Wastes, Pesticides, Reactives, Solvents

BUILDING CLEANING AND MAINTENANCE
Acids/Bases, Solvents

VEHICLE MAINTENANCE
Acids/Bases, Heavy Metals/Inorganics, Ignitable Wastes, Lead Acid Batteries, Solvents

WOOD PRESERVING
Preserving Agents

MOTOR FREIGHT TERMINALS AND RAILROAD
Acids/Bases, Transportation, Heavy Metals/Inorganics, Ignitable Wastes, Lead Acid Batteries, Solvents

FUNERAL SERVICES
Solvents (formaldehyde)

METAL MANUFACTURING
Acids/Bases, Cyanide Wastes, Heavy Metals/Inorganics, Ignitable Wastes, Reactives, Solvents, Spent Plating Wastes

CHEMICAL MANUFACTURERS
Acids/Bases, Cyanide Wastes, Heavy Metals/Inorganics, Ignitable Wastes, Reactives, Solvents

CLEANING AGENTS AND COSMETICS
Acids/Bases, Heavy Metals/Inorganics, Ignitable Wastes, Pesticides, Solvents

FORMULATORS
Acids/Bases, Cyanide Wastes, Heavy Metals/Inorganics, Ignitable Wastes, Pesticides, Reactives, Solvents

Appendix 2
Typical Hazardous Waste Streams and EPA Hazardous Waste Numbers

ACIDS/BASES:

Acids, bases or mixtures having a pH less than or equal to 2 or greater than or equal to 12.5, or liquids that corrode steel at a rate greater than 0.25 inches per year, are considered to be corrosive (for a complete description of corrosive wastes, see 40 CFR 261.22, Characteristic of Corrosivity). All corrosive materials and solutions have the EPA Hazardous Waste Number D002. The following are some examples of the more commonly used corrosives:

Examples of Corrosive Waste Streams	
Acetic Acid	Oleum
Ammonium Hydroxide	Perchloric Acid
Chromic Acid	Phosphoric Acid
Hydrobromic Acid	Potassium Hydroxide
Hydrochloric Acid	Sodium Hydroxide
Hydrofluoric Acid	Sulfuric Acid
Nitric Acid	

DRY CLEANING FILTRATION RESIDUES:

Cooked powder residue (perchloroethylene plants only), still residues and spent cartridge filters containing perchloroethylene or valclene are hazardous and have an EPA Hazardous Waste Number of F002. Still residues containing petroleum solvents with a flash point less than 140F are also considered hazardous, and have an EPA Hazardous Waste Number of D001.

HEAVY METALS/INORGANICS:

Heavy Metals and other inorganic waste materials exhibit the characteristic of TCLP Toxicity and are considered hazardous if the extract from a representative sample of the waste has any of the specific constituent concentrations as shown in 40 CFR 261.24, Table 1. This may include dusts, solutions, wastewater treatment sludges, paint wastes, waste inks, and other such materials which contain heavy metals/inorganics (note that wastewater treatment sludges from electroplating operations containing nickel and cyanide are identified as F006). The following are TCLP Toxic:

Waste Stream	EPA Hazardous Waste Number
Arsenic	D004
Barium	D005
Cadmium	D006
Chromium	D007
Lead	D008
Mercury	D009
Selenium	D010
Silver	D011

IGNITABLE WASTES:

Ignitable wastes include any flammable liquids, non-liquids, and contained gases that have a flashpoint less than 140F (for a complete description of ignitable wastes, see 40 CFR 261.21, Characteristic of Ignitability). Examples are spent solvents (see also solvents), solvent still bottoms, ignitable paint wastes (paint removers, brush cleaners and stripping agents), epoxy resins and adhesives (epoxies, rubber cements and marine glues), and waste inks containing flammable solvents. Unless otherwise specified, all ignitable wastes have an EPA Hazardous Waste Number of D001.

Some commonly used ignitable compounds are:

Waste Stream	EPA Hazardous Waste Number
Acetone	F003
Benzene	D001
n-Butyl Alcohol	F003
Chlorobenzene	F002
Cychlohexanone	F003
Ethyl Acetate	F003
Ethylbenzene	F003
Ethyl Ether	F003
Ethylene Dichloride	D001
Methanol	F003
Methyl Isobutyl Ketone	F003
Petroleum Distillates	D001
Xylene	F003

INK SLUDGES CONTAINING CHROMIUM AND LEAD:

This includes solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead. All ink sludges have an EPA Hazardous Waste Number of K086.

LEAD ACID BATTERIES:

Used lead acid batteries should be reported on the notification form only if they are not recycled. Used lead acid batteries that are recycled do not need to be counted in determining the quantity of waste that you generate per month, nor do they require a hazardous waste manifest when shipped off your premises. (Note: Special requirements do apply if you recycle your batteries on your own premises -- see 40 CFR 266.80.)

Waste Stream	EPA Hazardous Waste Number
Lead Dross	D008
Spent Acids	D002
Lead Acid Batteries	D008, D002

ORGANIC WASTES:

See 40 CFR 261.24, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic, for a list of constituents and regulatory levels.

PESTICIDES:

Pesticides, pesticide residues, washing and rinsing solutions and dips which contain constituent concentrations at or above Toxicity Characteristic regulatory levels (see 40 CFR 261.24) are hazardous waste. Pesticides that have an oral LD50 toxicity (rat) < 50 mg/kg, inhalation LC50 toxicity (rat) < 2 mg/L or a dermal LD 50 toxicity (rabbit) < 200 mg/kg, are hazardous materials. The following pesticides would be hazardous waste if they are technical grade, unused and disposed. For a more complete listing, see 40 CFR 261.32-33 for specific listed pesticides, discarded commercial chemical products, and other wastes, wastewaters, sludges, and by-products from pesticide production.

(Note that while many of these pesticides are no longer in common use, they are included here for those cases where they may be found in storage.)

Waste Stream	EPA Hazardous Waste Number
Aldicarb	P070
Aldrin	P004
Amitrole	U011
Arsenic Pentoxide	P011
Arsenic Trioxide	P012
Cacodylic Acid	U136
Carbamic Acid, Methylnitroso- Ethyl Ester	U178
Chlordane	U036
Copper Cyanides	P029
1,2-Dibromo-3-Chloropropane	U066
1,2-Dichloropropane	U083
1,3-Dichloropropene	U084
2,4-Dichlorophenoxy Acetic Acid	U240
DDT	U061
Dieldrin	P037
Dimethoate	P044
Dimethylcarbamoyl Chloride	U097
Dinitrocresol	P047
Dinoseb	P020
Disodium Monmomethane arsonate	D004
Disulfoton	P039
Endosulfan	P050
Endrin	P051
Ethylmercuric Chloride	D009
Famphur	P097
Nepthachlor	P059
Hexachlorobenzene	U127
Kepone	U142
Lindane	U129
2-Methoxy Mercuric Chloride	D009
Methoxychlor	D014
Methyl Parathion	P071
Monosodium Methanearsonate	D004
Nicotine	P075
Parathion	P089
Pentachloronitrobenzene	U185
Pentachlorophenol	U242
Phenylmercuir Acetate	D009
Phorate	P094

Waste Stream	EPA Hazardous Waste Number
Strychnine	
2,4,5-Trichlorophenoxy Acetic Acid	P108
2-(2,4,5-Trichlorophenoxy)-Propionic Acid	U232
Thallium Sulfate	U233
Thiram	P115
Toxaphene	U244
Warfarin	P123
	U248

SOLVENTS:

Spent solvents, solvent still bottoms or mixtures containing solvents are often hazardous. This includes solvents used in degreasing and paint-brush cleaning, and distillation residues from reclamation. The following are some commonly used hazardous solvents (see also Ignitable Wastes for other hazardous solvents, and 40 CFR 261.31 for most listed hazardous waste solvents):

Waste Stream	EPA Hazardous Waste Number
Benzene	D001
Carbon Disulfide	F005
Carbon Tetrachloride	F001
Chlorobenzene	F002
Cresols	F004
Cresylic Acid	F004
O-Dichlorobenzene	F002
Ethanol	D001
Ethylene Dichloride	D001
Isobutanol	F005
Isopropanol	D001
Kerosene	D001
Methyl Ethyl Ketone	F005
Methylene Chloride	F001 (Sludges), F002 (Still Bottoms)
Naphtha	D001
Nitrobenzene	F004
Petroleum Solvents (Flash-point less than 140F)	D001
Pyridine	F005
1, 1, 1-Trichloroethane	F001 (Sludges), F002 (Still Bottoms)
Tetrachloroethylene	F001 (Sludges), F002 (Still Bottoms)
Toluene	F005
Trichloroethylene	F001 (Sludges), F002 (Still Bottoms)
Trichlorofluoromethane	F002
Trichlorotrifluoroethane	F002
White Spirits	D001

REACTIVES:

Reactive wastes include reactive materials or mixtures which are unstable, react violently with or form explosive mixtures with water, generate toxic gases or vapors when mixed with water (or when exposed to pH conditions between 2 and 12.5 in the case of cyanide- or sulfide-bearing wastes), or are capable of detonation or explosive reaction when irritated or heated (for a complete description of reactive wastes, see 40 CFR 261.23, Characteristic of Reactivity). Unless otherwise specified, all reactive wastes have an EPA Hazardous Waste Number of D003. The following materials are commonly considered to be reactive:

Waste Stream	EPA Hazardous Waste Number
Acetyl Chloride	D003
Chromic Acid	D003
Cyanides	D003
Organic Peroxides	D003
Perchlorates	D003
Permanganates	D003
Hypochlorites	D003
Sulfides	D003

SPENT PLATING AND CYANIDE WASTES:

Spent plating wastes contain cleaning solutions and plating solutions with caustics, solvents, heavy metals and cyanides. Cyanide wastes may also be generated from heat treatment operations, pigment production and manufacturing of anti-caking agents. Plating wastes are generally Hazardous Waste Numbers F006-F009. Heat treatment wastes are generally Hazardous Waste Numbers F010-F012. See 40 CFR 261.31 for a more complete description of plating wastes.

WOOD PRESERVING AGENTS:

Compounds or mixtures used in wood preserving, including the wastewater treatment sludge from wastewater treatment operations, are considered hazardous wastes. Bottom sediment sludges from the treatment of wastewater from wood preserving processes that use creosote or pentachlorophenol are hazardous, and have an EPA Hazardous Waste Number of K001. In addition, wastewaters, process residuals, preservative drippage, and spent formulations from certain wood preserving processes are also hazardous wastes and carry EPA Hazardous Waste Numbers F032, F034 or F035, depending on the contaminants they contain. Unless otherwise indicated, specific wood preserving components are as follows:

Waste Stream	EPA Hazardous Waste Number(s)
Chromated Copper Arsenate	D004, F035
Creosote	K001, F034
Pentachlorophenol	K001, F032

RCRA Subtitle C Site Identification Form

Read all instructions before completing the form.

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MAIL THE COMPLETED FORM TO: The Appropriate State or EPA Regional Office.	United States Environmental Protection Agency **RCRA SUBTITLE C SITE IDENTIFICATION FORM**	

1. Reason for Submittal (See instructions on page 23) MARK CORRECT BOX(ES)	**Reason for Submittal:** ❑ To provide Initial Notification of Regulated Waste Activity (to obtain an EPA ID Number for hazardous waste, universal waste, or used oil activities). ❑ To provide Subsequent Notification of Regulated Waste Activity (to update site identification information). ❑ As a component of a First RCRA Hazardous Waste Part A Permit Application. ❑ As a component of a Revised RCRA Hazardous Waste Part A Permit Application (Amendment #______________). ❑ As a component of the Hazardous Waste Report.
2. Site EPA ID Number (See instructions on page 24)	**EPA ID Number:**
3. Site Name (See instructions on page 24)	**Name:**
4. Site Location Information (See instructions on page 24)	**Street Address:** **City, Town, or Village:** / **State:** **County Name:** / **Zip Code:**
5. Site Land Type (See instructions on page 24)	**Site Land Type:** ❑ Private ❑ County ❑ District ❑ Federal ❑ Indian ❑ Municipal ❑ State ❑ Other
6. North American Industry Classification System (NAICS) Code(s) for the Site (See instructions on page 24)	**A.** / **B.** **C.** / **D.**
7. Site Mailing Address (See instructions on page 25)	**Street or P. O. Box:** **City, Town, or Village:** **State:** **Country:** / **Zip Code:**
8. Site Contact Person (See instructions on page 25)	**First Name:** / **MI:** / **Last Name:** **Phone Number:** / **Phone Number Extension:**
9. Legal Owner and Operator of the Site (See instructions on pages 25 to 26)	**A. Name of Site's Legal Owner:** / **Date Became Owner (mm/dd/yyyy):** **Owner Type:** ❑ Private ❑ County ❑ District ❑ Federal ❑ Indian ❑ Municipal ❑ State ❑ Other **B. Name of Site's Operator:** / **Date Became Operator (mm/dd/yyyy):** **Operator Type:** ❑ Private ❑ County ❑ District ❑ Federal ❑ Indian ❑ Municipal ❑ State ❑ Other

EPA ID No. | | | | | | | | | | | | |

10. Type of Regulated Waste Activity (Mark the appropriate boxes for activities that apply to your site. See instructions on pages 26 to 30)

A. Hazardous Waste Activities

1. Generator of Hazardous Waste (Choose only one of the following three categories.)

❑ a. LQG: Greater than 1,000 kg/mo (2,200 lbs./mo.) of non-acute hazardous waste; or

❑ b. SQG: 100 to 1,000 kg/mo (220 - 2,200 lbs./mo.) of non-acute hazardous waste; or

❑ c. CESQG: Less than 100 kg/mo (220 lbs./mo.) of non-acute hazardous waste

In addition, indicate other generator activities. (Mark all that apply)

❑ d. United States Importer of Hazardous Waste

❑ e. Mixed Waste (hazardous and radioactive) Generator

For Items 2 through 6, mark all that apply.

❑ **2. Transporter of Hazardous Waste**

❑ **3. Treater, Storer, or Disposer of Hazardous Waste (at your site)** Note: A hazardous waste permit is required for this activity.

❑ **4. Recycler of Hazardous Waste (at your site)** Note: A hazardous waste permit may be required for this activity.

5. Exempt Boiler and/or Industrial Furnace

❑ a. Small Quantity On-site Burner Exemption

❑ b. Smelting, Melting, and Refining Furnace Exemption

❑ **6. Underground Injection Control**

B. Universal Waste Activities

1. Large Quantity Handler of Universal Waste (accumulate 5,000 kg or more) [refer to your State regulations to determine what is regulated]. Indicate types of universal waste generated and/or accumulated at your site. (Mark all boxes that apply):

	Generate	Accumulate
a. Batteries	❑	❑
b. Pesticides	❑	❑
c. Thermostats	❑	❑
d. Lamps	❑	❑
e. Other (specify) ________________	❑	❑
f. Other (specify) ________________	❑	❑
g. Other (specify) ________________	❑	❑

❑ **2. Destination Facility for Universal Waste**
Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities (Mark all boxes that apply.)

1. Used Oil Transporter - Indicate Type(s) of Activity(ies)

❑ a. Transporter

❑ b. Transfer Facility

2. Used Oil Processor and/or Re-refiner - Indicate Type(s) of Activity(ies)

❑ a. Processor

❑ b. Re-refiner

❑ **3. Off-Specification Used Oil Burner**

4. Used Oil Fuel Marketer - Indicate Type(s) of Activity(ies)

❑ a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner

❑ b. Marketer Who First Claims the Used Oil Meets the Specifications

11. Description of Hazardous Wastes (See instructions on page 31)

A. Waste Codes for Federally Regulated Hazardous Wastes. Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g., D001, D003, F007, U112). Use an additional page if more spaces are needed.

EPA ID No.												

B. Waste Codes for State-Regulated (i.e., non-Federal) Hazardous Wastes. Please list the waste codes of the State-regulated hazardous wastes handled at your site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed for waste codes.

12. Comments (See instructions on page 31)

13. Certification. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. **(See instructions on page 31)**

Signature of owner, operator, or an authorized representative	Name and Official Title (type or print)	Date Signed (mm/dd/yyyy)

APPENDIX I

WASTE LOG

MONTHLY WASTE GENERATION TRACKING FORM

Waste ID	RCRA Waste Code	Date	Month	Quantity	Hazardous Waste Weight
Used Antifreeze	D008	1/17/02	January	80 lbs.	80 lbs.
Used Solvent	F001	1/20/02	January	200 lbs.	200 lbs.
Used Oil	NA	1/21/02	January	110 lbs.	0 lbs.
Monthly Total					280 lbs.

NA = not applicable (i.e., the waste is not a hazardous waste)

MONTHLY WASTE GENERATION TRACKING FORM

Waste ID	RCRA Waste Code	Date	Month	Quantity	Hazardous Waste Weight
Monthly Total					

NA = not applicable (i.e., the waste is not a hazardous waste)

Date ___________
Initials ___________

HAZARDOUS WASTE ACCUMULATION AREA INSPECTION CHECKLIST
(MONTHLY FOR LARGE QUANTITY GENERATORS;
BI-MONTHLY FOR SMALL QUANTITY GENERATORS)

Containers

______ Type of waste marked (e.g., "Hazardous Waste")?
______ In good condition?
______ Not leaking?
______ Compatible with contents (Solvents not in plastic drums; acids not in unlined steel drums)?
______ Always closed except when filling?
______ Ignitable and reactive wastes kept away from ignition sources (e.g., welding and grinding)?
    ______ "No Smoking" signs posted?
    ______ Safe storage?
______ Ignitable and reactive wastes stored more than 50 ft. from property line (Only required for Large Quantity Generator)?

Preparedness and Prevention

______ Fire extinguishers on-site?
______ Spill control equipment on-site (e.g. absorbents, floor dry)?
______ Adequate aisle space (e.g. 3 feet) so that each drum can be accessed?

Waste Quantities

______ No more than 55 gallons of each waste type at point of generation (satellite accumulation area)?
______ When waste is within two inches of top of container, container is considered full and is not held more than 3 days at satellite accumulation area?
______ Date marked on container when 55 gallons reached?
______ No more than 13,230 lbs. (6,000 kg) on site at any time?

Main Accumulation Area

______ Not stored more than 90/180 days at main accumulation area (90 days for Large Quantity Generators and 180 days for Small Quantity Generators)?
______ Accumulation start date written on each container?
______ Emergency Information posted next to phone (Name and number of emergency coordinator, fire department number, location of fire extinguishers and spill control material)?

Record Keeping

______ Completed MONTHLY HAZARDOUS WASTE ACCUMULATION AREA INSPECTION CHECKLIST for each hazardous waste container?
______ Completed MONTHLY WASTE GENERATION TRACKING FORM?

Date ____________
Initials ____________

HAZARDOUS WASTE ACCUMULATION AREA INSPECTION CHECKLIST

Waste Type	Estimated Quantity (lbs)	Condition of Container	Main Accumulation Area	
			Accumulation Start Date	Over 90/180 Days?

ACRONYMS

ACM	Asbestos-containing material
ASTM	American Society for Testing and Materials
BP	Believed to be present
BTU	British thermal units
CAA	Clean Air Act
CAS	Chemical Abstracts Service
CCP	Commercial chemical product
CDL	Commercial driver's license
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CESQG	Conditionally exempt small quantity generator
CFCs	Chlorofluorocarbons; also known as chlorinated fluorocarbons
CFR	Code of Federal Regulations
CRT	Cathode ray tube
CWA	Clean Water Act
D-listed waste	Characteristic hazardous waste
DOT	U.S. Department of Transportation
EHS	Extremely hazardous substance
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
EQC	Environmental Quality Council
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
F-listed waste	Hazardous waste from non-specific sources
FR	Federal Register
Hazmat	Hazardous materials
HCFCs	Hydrochlorofluorocarbons
HMR	Hazardous materials regulations
HSWA	Hazardous and Solid Waste Amendments of 1984
HWIR	Hazardous waste identification rule
ICR	Ignitable, corrosive, or reactive
ISTEA	Intermodal Surface Transportation Efficiency Act
ISWMA	Integrated Solid Waste Management Act
K-listed waste	Hazardous waste from specific sources
LDR	Land disposal restrictions
LQG	Large quantity generator
LQHUW	Large quantity handler of universal waste
MEK	Methyl ethyl ketone
MSDS	Material safety data sheet
MSW	Municipal solid waste
MSWLF	Municipal solid waste landfill
NAICS	North American industry classification system
NBP	Not believed to be present
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOV	Notice of violation
OSHA	Occupational Safety and Health Administration
OSWER	EPA's Office of Solid Waste and Emergency Response
PCBs	Polychlorinated biphenyls

POG	Point of generation
POTW	Publicly owned treatment works
PPE	Personal protective equipment
ppm	Parts per million
P-listed waste	Hazardous waste (extremely hazardous) from commercial chemical products, intermediates, and residues
PTE	Passenger tire equivalent
PVC	Polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
RQ	Reportable quantity
SAA	Satellite accumulation area
SARA	Superfund Amendments and Reauthorization Act
SOP	Standard operating procedure
SQG	Small quantity generator
SW-846	Test Methods for Evaluating Solid Waste. Physical/Chemical Methods
TC	Toxicity characteristic
TCLP	Toxicity characteristic leaching procedure
TDF	Tire-derived fuel
TPQ	Threshold planning quantity
TRI	Toxic Release Inventory
TSCA	Toxic Substances Control Act
TSD	Treatment, storage, or disposal
TSDF	Treatment, storage, or disposal facility
UHC	Underlying hazardous constituent
U-listed waste	Hazardous waste (toxic) from commercial chemical products, intermediates, and residues
UN	United Nations
VOCs	Volatile organic compounds
WRRI	Waste Reduction and Recycling Incentive (Act)