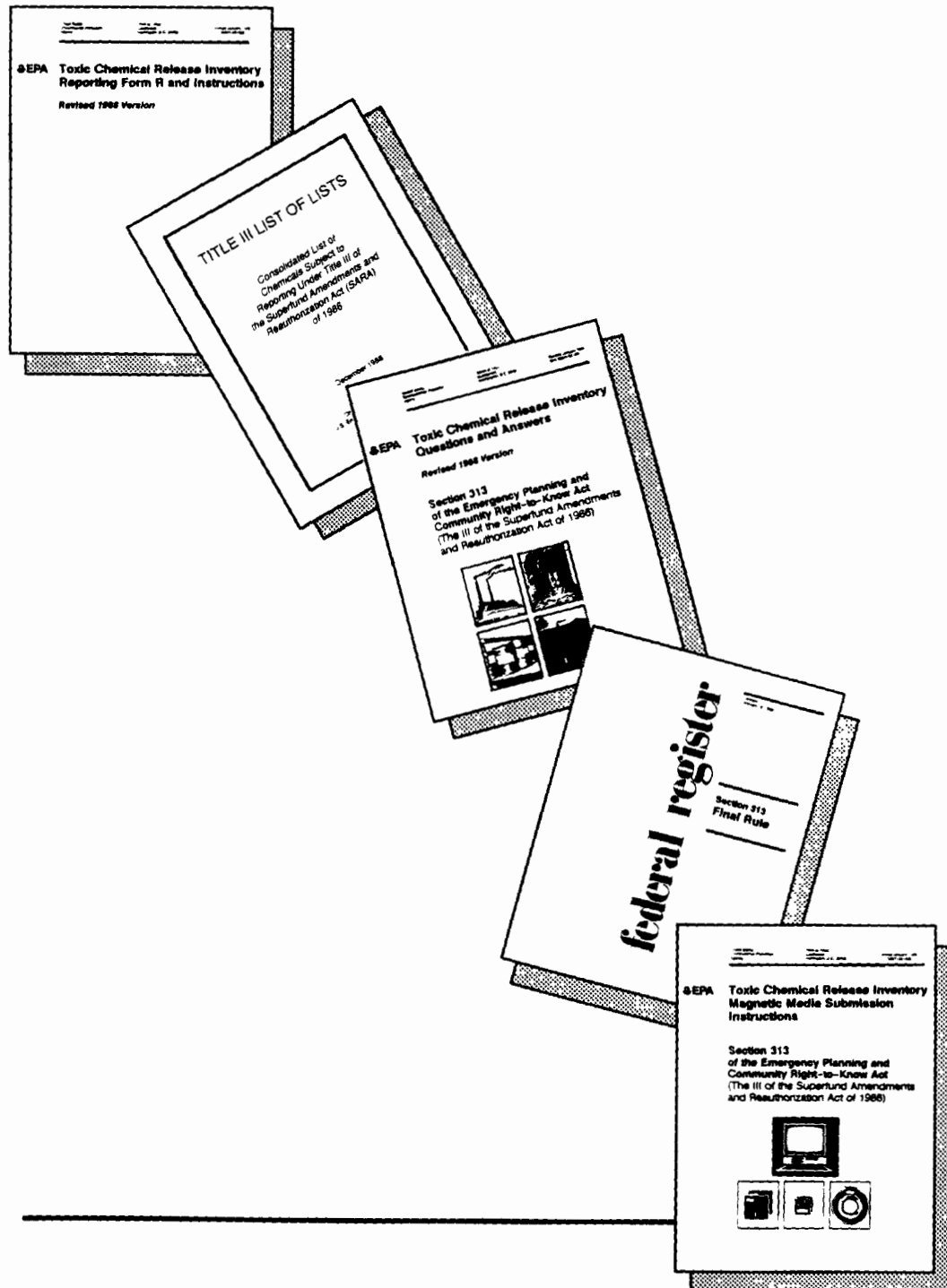




Toxic Chemical Release Inventory Reporting Package for 1988

*Form, instructions and other information to support reporting under Section 313 of the
Emergency Planning and Community Right-to-Know Act.*

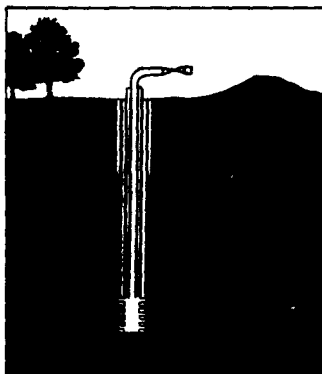
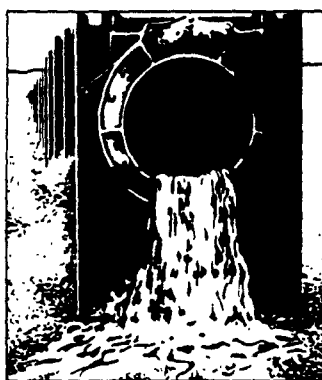
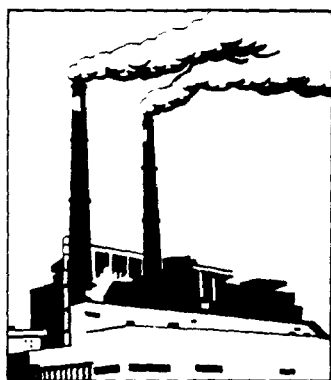




Toxic Chemical Release Inventory Reporting Form R and Instructions

Revised 1988 Version

Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986)



EPA FORM R SUBMISSION CHECKLIST

Before you submit your facility's Form R submission, please review the following checklist to make sure that your report is complete and correct.

Have you:

- Prepared a complete, separate, and independent Form R for each chemical including Parts I, II, III, and IV (pages 1-5)?
- Provided an original signature on Part I, Section 2 for each chemical submission?
- Entered the chemical name and CAS number in Part III, Sections 1.2 and 1.3 (page 3) exactly as they appear on the section 313 chemical list?
- Checked that "NA" is entered, as appropriate, for all items that do not apply to your facility?
- Included your facility's latitude and longitude on Part I, Section 3.6?
- Made a copy of each report to be submitted to the state and a copy of each report for your own files?

If you are claiming a trade secret, have you:

- Provided two complete Form Rs:
 - One that identifies the chemical ("unsanitized"); and
 - One that provides a generic chemical identity ("sanitized")?
- Provided two complete trade secret substantiation forms:
 - One that identifies the chemical ("unsanitized"); and
 - One that provides a generic chemical identity ("sanitized")?

Both Form Rs must include Parts I, II, III, and IV; both must contain an original signature.

- Checked that the sanitized and unsanitized versions are correctly identified in Part I, Section 1.2?

Submit Form R by July 1 to EPA and the appropriate agency in your State.

Important Changes in the Section 313 Requirements for Reporting Year 1988

Reporting requirements for calendar year 1988 reports (due July 1, 1989), differ from 1987 requirements in three respects:

- (1) The 1988 threshold for manufacturing or processing a covered toxic chemical is 50,000 pounds (the threshold was 75,000 pounds for reporting year 1987). You must use this threshold in determining whether you are subject to the reporting requirements. (See "Threshold Determinations," p.7, for more information.)
- (2) Latitude and logitude information must be included in the report. (See Part I, Section 3.6, p. 13 and Appendix B for more information).
- (3) The following chemicals that were covered for the 1987 year are not covered for the 1988 reporting year:

	<u>CAS Number</u>
C.I. Acid Blue 9 disodium salt	2650-18-2
C.I. Acid Blue 9 diammonium salt	3844-45-9

Reporting is not required for these chemicals (see the Final Rule October 7, 1988 (53 FR 23108) for more information).

Supplier Notification Begins in 1989

With the first shipment of product in calendar year 1989, suppliers must provide notice to their customers regarding all mixtures or trade name products that contain listed toxic chemicals. The notice must be attached to the Material Safety Data Sheets (MSDSs). The data in the notice must be used for threshold and release calculations beginning with reports submitted for calendar year 1989 due July 1, 1990. The notification may be used for threshold and release calculations for calendar year 1988, if the notification information is the best available information at the facility. (See "Mixture and Trade Name Products, Supplier Notification," p. 8 for more information.)

TABLE OF CONTENTS

Page

GENERAL INFORMATION	1
How to Assemble a Complete Report	1
Trade Secret Claims	1
Recordkeeping	1
When the Report Must Be Submitted	2
Where to Send the Report	2
How to Obtain Forms and Other Information	2
Who Must Submit This Form	2
 HOW TO DETERMINE IF YOUR FACILITY MUST SUBMIT EPA FORM R	 3
Does Your Facility Have Ten or More Full-Time Employees?	3
Is Your Facility's SIC Code in the 20-39 Range?	3
Multi-Establishment Facilities	3
Auxiliary Facilities	5
Facility-Related Exemptions	5
Does Your Facility "Manufacture," "Process," or "Otherwise Use" One or More of the Chemicals Covered by the Reporting Rule?	 5
Definitions of "Manufacture," "Process," and "Otherwise Use"	 6
Exemptions	6
During a Calendar Year, Does Your Facility Manufacture, Process, or Otherwise Use a Listed Chemical in Quantities Greater than the Threshold Established for that Year?	 7
How to Determine If Thresholds Are Exceeded	7
Mixtures and Trade Name Products	8
 INSTRUCTIONS FOR COMPLETING SPECIFIC SECTIONS OF EPA FORM R	 12
 PART I. FACILITY IDENTIFICATION INFORMATION	 12
1.1 Are You Claiming the Chemical Identity on Page 3 Trade Secret?	12
1.2 If "Yes" in 1.1, is This Copy Sanitized or Unsanitized?	12
1.3 Reporting Year	12
2. Certification	12
3. Facility Identification	12
3.1 Facility Name and Location	12
3.2 Full or Partial Facility Indication	13
3.3 Technical Contact	13
3.4 Public Contact	13
3.5 Standard Industrial Classification (SIC) Code	13
3.6 Latitude and Longitude	13

3.7	Facility Dun and Bradstreet Number	13
3.8	EPA Identification Number	13
3.9	NPDES Permit Number	14
3.10	Receiving Streams or Water Bodies	14
3.11	Underground Injection Well Code (UIC) Identification Number	14
4.	Parent Company Information	14
4.1	Name of Parent Company	14
4.2	Parent Company's Dun and Bradstreet Number	14

PART II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES 14

1.	Publicly Owned Treatment Works (POTWs)	14
2.	Other Off-Site Locations	15

PART III. CHEMICAL-SPECIFIC INFORMATION 15

1.1	[Reserved]	15
1.2	CAS Number	15
1.3	Chemical or Chemical Category Name	15
1.4	Generic Chemical Name	15
2.	Mixture Component Identity	16
3.	Activities and Uses of the Chemical at the Facility	16
3.1	Manufacture of the Chemical	16
3.2	Process of the Chemical	16
3.3	Otherwise use the Chemical	17
4.	Maximum Amount of the Chemical On-Site at Any Time During the Calendar Year	19
5.	Releases of the Chemical to the Environment On-Site	19
5.1	Fugitive or Non-Point Air Emissions	19
5.2	Stack or Point Air Emissions	19
5.3	Discharges to Receiving Streams or Water Bodies	19
5.4	Underground Injection	20
5.5	Releases to Land	20
	A. Total Release	20
	B. Basis of Estimate	22
	C. Percent From Stormwater	22
6.	Transfers of the Chemical in Waste to Off-Site Locations	25
	A. Total Transfers	25
	B. Basis of Estimate	25
	C. Type of Treatment/Disposal	25
7.	Waste Treatment Methods and Efficiency	25
	A. General Waste Stream	25
	B. Treatment Method	26
	C. Range of Influent Concentration	27
	D. Sequential Treatment?	27
	E. Treatment Efficiency Estimate	27
	F. Based on Operating Data?	28
8.	Optional Information on Waste Minimization	28
	A. Type of Modification	29
	B. Quantity of the Chemical in the Wastestream Prior to Treatment/Disposal	29
	C. Index	29
	D. Reason for Action	29

SECTION 313 REPORTING PACKAGE

This Section 313 Reporting Package contains revised reporting and other guidance materials for the Toxic Chemical Release Inventory reporting requirements (Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986). These materials have been updated for calendar year 1988 reports.

Content of the Reporting Package

- Tab 1 & 2. Toxic Chemical Release Inventory Reporting Form R and Instructions (January 1989), revised to reflect changes in the form and 1988 reporting year thresholds; includes guidance on Section 313 requirements and preparation of your submission package, listings of codes used on the form, regional and state contacts, and a reply form to send in for more information;
- Tab 3. The Toxic Chemical Release Inventory Questions and Answers (January 1989), a compilation of answers to the most commonly asked questions on Section 313 requirements;
- Tab 4. Reprint of the Section 313 Final Rule (40 CFR Part 372, 53 FR 4500), including EPA's response to comments on the proposed rule and the names and CAS numbers of chemicals covered under the law;
- Tab 5. Title III List of Lists (November 1988), a consolidated list of chemicals subject to reporting under Title III of SARA; and
- Tab 6. Toxic Chemical Release Inventory Magnetic Media Submission Instructions (January 1989), guidance on the proper formatting, packaging, and supporting documentation for electronic media submissions.

Additional information and guidance materials are available from the Emergency Planning and Community Right-to-Know Information Hotline, U.S. Environmental Protection Agency, WH-562-A, 401 M Street, S.W., Washington, D.C., 20460 (1-800-535-0202, or 202-479-2449 in Washington, D.C. and Alaska).

Changes for the 1988 Reporting Year

- The reporting thresholds for manufacturing and processing of listed chemicals have been lowered to 50,000 pounds. The threshold for "otherwise using" a listed chemical remains 10,000 pounds. (For the 1989 reporting year and beyond, thresholds for manufacturing and processing will be lowered to 25,000 pounds.)
- EPA Reporting Form R has been changed slightly for 1988 reporting, to make it easier to understand and complete.
- The latitude and longitude of facilities must be reported for 1988 and subsequent years (this is no longer optional information). (The Form and Instructions document explains how to determine latitude and longitude coordinates.)

- **Supplier notification requirements** go into effect starting with the first shipment in January of 1989. Suppliers must inform customer facilities of the presence and percentage content of listed chemicals in their products.
- **Magnetic media reporting** can be used regardless of the number of individual chemical reports you are submitting. EPA encourages you to take advantage of electronic reporting to ensure data accuracy during processing into the national database.
- C.I. Acid Blue 9, diammonium salt and C.I. Acid Blue 9, disodium salt were delisted in October 1988. Titanium dioxide was delisted in June 1988. Section 313 reports are no longer required for these chemicals.

Problems to Avoid

Forms submitted for reporting year 1987 contained several common errors. To avoid receiving a notice of non-compliance, be especially careful that:

- Facility information is submitted with each report. A completed report consists of all four parts of Form R.
- Each report has an original (not photocopied) certification signature.
- The chemical or chemical category that is being reported is properly identified by name or CAS number.
- Fugitive emissions of volatile chemical substances (e.g., toluene) are accounted for on the report.
- Codes are correctly entered on the form, (e.g., the use of off-site treatment codes for on-site treatment processes must be avoided).
- A basis of estimate code is indicated for all release estimates.

Recordkeeping, Incomplete Forms, and Compliance Penalties

Facilities are subject to the following requirements under Section 313:

- Each facility must document its release estimate calculations and assumptions, and retain the documentation for a minimum of three years after reports are submitted.
- Forms that are submitted with errors, or with incomplete or suspect data, will trigger a notice of non-compliance from EPA. A facility receiving such will have 30 days to re-submit reports.
- Non-complying facilities are subject to a fine of up to \$25,000 for every day they are in non-compliance.

TABLE I	SIC Codes 20-39	30
TABLE II	Section 313 Toxic Chemical List.....	36
TABLE III	State Abbreviations	45
Additional Materials Available on Section 313		46
APPENDIX A	Example of a Completed Form R for a Hypothetical Facility Reporting Under Title III, Section 313	47
APPENDIX B	How to Determine Latitude and Longitude From Topographic Maps.....	52
APPENDIX C	Worksheet for Performing Threshold Determinations	54
APPENDIX D	Reporting Codes for EPA Form R	59
APPENDIX E	State Designated Section 313 Contacts.....	62
APPENDIX F	Section 313 EPA Regional Contacts	67
APPENDIX G	Section 313 Final Rule	68
Index		75
Form R		

GENERAL INFORMATION

Submission of EPA Form R, the Toxic Chemical Release Inventory Reporting Form, is required by section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986), Public Law 99-499. The information contained in Form R constitutes a "report," and the submission of a report to the appropriate authorities constitutes "reporting." Reporting is required to provide the public with information on the release of listed toxic chemicals from your facility to the environment during the past year. Facilities must report the quantities of both routine and accidental releases of listed chemicals, as well as the maximum amount of the listed chemical ever on-site during the calendar year and the amount contained in wastes transferred off-site.

A completed Form R must be submitted for each toxic chemical manufactured, processed, or otherwise used at each covered facility as prescribed in the reporting rule in 40 CFR Part 372 (published February 16, 1988 in the Federal Register). These instructions supplement and elaborate on the requirements in the reporting rule. (See Appendix G for a copy of the regulations). Together with the reporting rule, they constitute the reporting requirements. All references in these instructions are to sections in the reporting rule unless otherwise indicated.

HOW TO ASSEMBLE A COMPLETE REPORT

The Toxic Chemical Release Reporting Form, EPA Form R, consists of four parts:

- Part I, Facility Identification Information (page 1);
- Part II, Off-Site Locations to Which Toxic Chemicals are Transferred in Wastes (page 2);
- Part III, Chemical-Specific Information (pages 3 and 4); and
- Part IV, Supplemental Information (page 5).

Form R is designed so that most of the information required in Part I and all of the information required in Part II can be filled out and then photocopied and attached to each chemical-specific report. Part I may be a photostatic copy as long as it has an original signature on the certification statement and the trade secret designation is appropriate. You have the option to complete Part II for only the off-site locations that apply to the individual chemical cited in the report or you can list all off-site locations that apply to all chemicals being reported and include a photostatic copy of this Part II with each individual report. Part III must be completed separately for each chemical. Part IV provides additional space, if needed, to complete the information required by the preceding sections of the form. Include Part IV in your report, even if it is blank.

A complete report for any listed toxic chemical that is not claimed trade secret consists of the following completed parts:

- Part I with an original signature on the certification statement (Section 2);
- Part II;
- Part III (Section 8 is optional); and
- Part IV (even if blank).

Staple the pages of each report together. Do not submit supporting documentation or other materials; such data will not be processed with your Form R submission.

TRADE SECRET CLAIMS

For any chemical whose identity is claimed as a trade secret you must submit to EPA two versions of the form as prescribed in 40 CFR Part 350, published July 29, 1988 in the Federal Register (53 FR 28772). Use the order form in this document to obtain a copy of the rule and substantiation form. One version identifies the chemical; the second version does not identify the chemical specifically, but provides instead a generic identity. Only this latter version will be available to the public. For further explanation of the trade-secret provisions, see the instructions below for Part I, Sections 1.1 and 1.2 and Part III, Sections 1.1-1.4.

A complete report for a toxic chemical claimed trade secret includes all of the above items plus the following:

- A completed Form R report including the chemical identity (staple the pages together);
- A "sanitized" version of a completed Form R report in which the chemical identity items (Part III, Sections 1.2 and 1.3) have been left blank but in which a generic chemical name has been supplied (Part III, Section 1.4) (staple the pages together);
- A completed trade secret substantiation form (staple the pages together);
- A "sanitized" version of the trade secret substantiation form (staple the pages together).

Securely fasten all four reports together.

RECORDKEEPING

You must keep a copy of each report. In addition, you must keep the supporting materials used to develop the information contained in the report. These records must be kept at the facility for a period of three years from the date of the submission and must be readily available for inspection by EPA.

WHEN THE REPORT MUST BE SUBMITTED

The report for any calendar year must be submitted on or before July 1 of the following year (e.g., the report for calendar year 1988, January-December, must be submitted on or before July 1, 1989).

VOLUNTARY REVISION OF A PREVIOUS SUBMISSION

If you are making a voluntary revision to a previous Form R submission, enter "Voluntary Revision" in the space marked "This space for your optional use" on all five pages of the form. If you have obtained the Document Control Number (DCN) of the original submission from EPA, enter that number also in this space. You must include the facility and chemical names on the form exactly as they were reported previously to enable tracking of the original data. If your facility's name has changed since the original submission, you must enter the facility name which appeared in the original submission; also indicate the new facility name in the optional use space on page 1 of Form R only. You must complete the entire form for a voluntary revision and send a copy of the revision to the state. Submissions for the next calendar year are not considered revisions of a previous year's data.

WHERE TO SEND THE REPORT

Form R submissions must be sent to both EPA and the State. Send EPA reports by mail to:

U.S. Environmental Protection Agency
P.O. Box 70266
Washington, D.C. 20024-0266
Attn: Toxic Chemical Release Inventory

Hand-delivered submissions only should be addressed to:

EPA Title III Reporting Center
470 L'Enfant Plaza East
Suite 7103, SW
Washington, DC 20024
Attn: Toxic Chemical Release Inventory

In addition, you must send a copy of the report to the State in which the facility is located ("State" refers to: State of the U.S., the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the U.S. Virgin Islands, the Northern Mariana Islands, and any other territory or possession over which the U.S. has jurisdiction). Refer to Appendix E (page 62) for the appropriate State address for your facility. If your facility is located on Indian land, send a copy to the Chief Executive Officer of the applicable Indian tribe, unless the tribe has entered into a cooperative agreement with the State. In

this case, Form R submissions should be sent to the entity designated in the cooperative agreement to receive the forms.

Copies of the report sent to the State or Indian tribe should be the "sanitized," non-trade-secret version of the report, unless the State specifically requires otherwise. The report submitted to EPA should include both trade-secret and non-trade-secret versions. For additional information, refer to the discussion of trade-secret/confidentiality claims in the instructions for completing Part III, Section 1 of Form R.

HOW TO OBTAIN FORMS AND OTHER INFORMATION

A copy of Form R is included in this booklet. Remove this form and photocopy as many copies of it as you need. Additional copies of EPA Form R and related guidance documents may be obtained from:

Section 313 Document Distribution Center
P.O. Box 12505
Cincinnati, OH 45212

See the request form located before Appendix A (page 47) for more information on available documents. Questions about how to fill out the form may be submitted in writing to:

Emergency Planning and Community Right-to-Know Information Hotline
U.S. Environmental Protection Agency
401 M Street, S.W. (OS-120)
Washington, DC 20460

Alternatively, you may call (800) 535-0202 (in Washington, D.C. and Alaska, (202) 479-2449) from 8:30-7:30 Eastern Time.

EPA Regional Staff may also be able to help you. Refer to Appendix F (page 67) for a list of EPA Regional Contacts.

WHO MUST SUBMIT THIS FORM

Section 313 of Title III requires that reports be filed by owners and operators of facilities that meet all three of the following criteria:

- The facility has 10 or more full-time employees;
- The facility is included in Standard Industrial Classification (SIC) Codes 20 through 39; and
- The facility manufactured (defined to include imported), processed, or otherwise used in the course of a calendar year any listed chemical in quantities greater than the established threshold.

HOW TO DETERMINE IF YOUR FACILITY MUST SUBMIT EPA FORM R

(See Figure 1 for more information.)

DOES YOUR FACILITY HAVE TEN OR MORE FULL-TIME EMPLOYEES?

A "full-time employee," for purposes of section 313 reporting, is defined as 2,000 work hours per year. To determine the number of full-time employees at your facility, add up the hours worked by all employees during the calendar year, including contract employees and sales and support staff working at the facility. Divide the total by 2,000 hours. In other words, if the total number of hours worked by all employees is 20,000 hours or more, your facility meets the employee threshold.

IS YOUR FACILITY'S SIC CODE IN THE 20-39 RANGE?

Table I on page 30 includes a listing of SIC codes 20-39 and the associated 4-digit SIC codes covered by the rule. The first two digits of a 4-digit SIC code define a major business sector, while the last two digits denote a facility's specialty within the major sector. You may already know the SIC code of your business as a result of your having had to develop insurance or other reports. If you are not familiar with the SIC codes that apply to your facility, contact your trade association, Chamber of Commerce, or legal counsel. For a detailed description of 4-digit SIC codes, refer to the "Standard Industrial Classification Manual 1987." Clothbound editions should be available in most major libraries or may be ordered through the National Technical Information Service, 5285 Port Royal Road, Springfield, VA, 22161, (703) 487-4650. The access number for the clothbound manual is PB87-100012, and the price is \$30.00. If you are unsure of your SIC code, review your operations to determine if you produce products of the type described in SIC codes 20-39. If the value of those products is greater than any other types of goods and services that you produce at that location, then you meet the SIC code criterion.

Section 313 requires that reports be filed by "facilities," which are defined as "all buildings, equipment, structures, and other stationary items which are located on a single site or on contiguous or adjacent sites and which are owned or operated by the same person." The SIC code system, however, classifies business "establishments," which are defined as "distinct and separate economic activities [that] are performed at a single physical location."

Establishments, in the SIC code system, are to be treated as separate activities. In many cases, a section 313 "facility" is the same as an "establishment" as defined by the SIC code system.

Multi-establishment Facilities

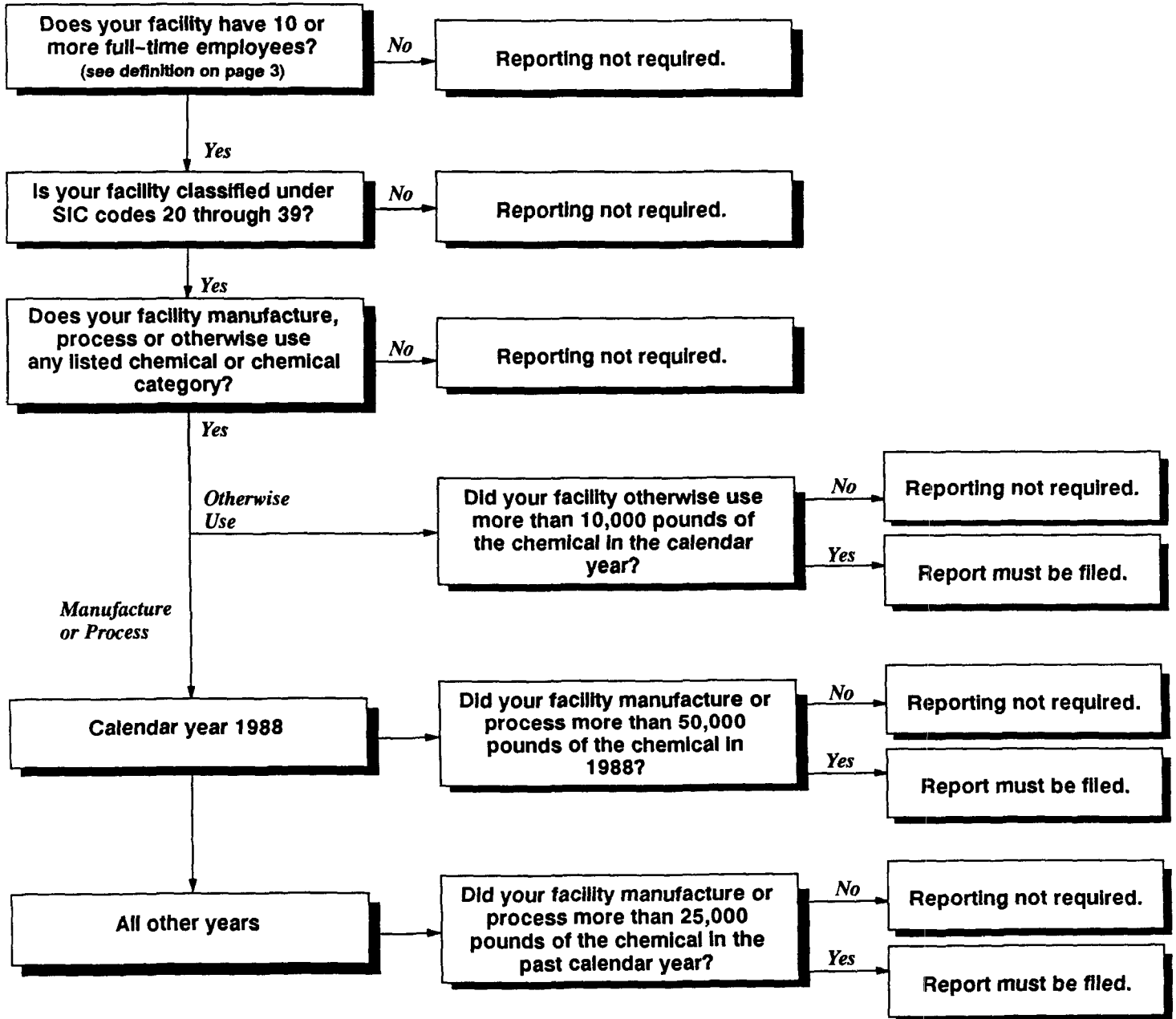
Your facility may include multiple establishments that have different primary SIC codes. If so, calculate the value of the products produced or shipped from each establishment within the facility and then use the following rule to determine if your facility meets the SIC code criterion:

- If the total value of the products shipped from or produced at establishments with primary SIC codes between 20 and 39 is greater than 50 percent of the value of the entire facility's products, the facility meets the SIC code criterion.
- If any one establishment with a primary SIC code between 20 and 39 produces or ships products whose value exceeds the value of products produced or shipped by any other establishment within the facility, the facility also meets the SIC code criterion.

In calculating the value of production attributable to a particular establishment, the facility may adjust the value of production from that establishment by subtracting out the value of products which that establishment obtains from other establishments within the same facility and incorporates into its final production. This procedure eliminates the potential for "double counting" production in situations where establishments are engaged in sequential production activities at a single facility. Examples include:

- One establishment in a facility mines ore; all of the ore is smelted at a second establishment in the facility. The facility could calculate the value of production for each establishment separately. Alternatively, the facility could determine the value of ore production and subtract it from the value of the output from the smelter operation, which would yield the value of production for the latter establishment.
- A food processing establishment in a facility processes crops grown at the facility in a separate establishment. The facility could calculate the value of the products of each establishment by determining the total value of production from each establishment. Alternatively, the facility could determine the value of the crops grown at the agricultural establishment. Then, to calculate the contribution of the food processing establishment, the facility would subtract the crop value from the total value of the product shipped from the processing establishment.

Figure 1
Flowchart for Determining Applicability



A covered multi-establishment facility must make chemical threshold determinations and report all relevant information about releases and waste treatment associated with a listed chemical, even from establishments that are not in SIC codes 20-39. EPA realizes, however, that certain establishments in a multi-establishment facility can be, for all practical purposes, separate business units. Therefore, individual establishments may report separately, provided that the total release and other required information is reported for the whole facility.

Auxiliary Facilities

An auxiliary facility is one that directly supports another establishment's activities (e.g., research and development laboratories, warehouses, storage facilities, and waste-treatment facilities). An auxiliary facility can take on the SIC code of another covered facility if its primary function is to service that other covered facility's operations. Thus, a separate warehouse facility (i.e. one not located within the physical boundaries of a covered facility) may become a covered facility because it services a 20-39 facility. Auxiliary facilities that are in SIC codes 20-39 are required to report if they meet the employee criterion and chemical thresholds for manufacture, process, or use. Auxiliary establishments that are part of a multi-establishment facility must be factored into threshold determinations for the facility as a whole.

Facility-Related Exemptions

Listed toxic chemicals that are manufactured, processed, or otherwise used in laboratories at a covered facility under the supervision of a technically qualified individual do not have to be factored into the threshold or release calculations. However, pilot plant scale or specialty chemical production do not qualify for this laboratory exemption.

You are not required to report if you merely own real estate on which a facility covered by this rule is located; that is, you have no other business interest in the operation of that facility (e.g., your company owns an industrial park). The operator of that facility, however, is subject to reporting requirements.

DOES YOUR FACILITY "MANUFACTURE, PROCESS, OR USE" ONE OR MORE OF THE CHEMICALS COVERED BY THE REPORTING RULE?

Table II (page 36 of these instructions) contains the list of individual chemicals and categories of chemicals subject to 1988 calendar year reporting. Some of the chemicals listed in Table II have parenthetical qualifiers listed next to them. A chemical that is listed without a qualifier is subject to reporting in all forms in which it is manufactured, processed, and used.

Fume or dust. Three of the metals on the list (aluminum, vanadium, and zinc) contain the qualifier "fume or dust." This qualifier means that a facility is manufacturing, processing, or using the metal in the form of fume or dust. Fume or dust does not refer to "wet" forms, solutions or slurries, for example, but only dry or anhydrous forms of these metals. As explained on page 6 of these instructions, the term manufacture includes the generation of a chemical as a byproduct or impurity. In such cases, a facility should determine if, for example, it generated more than 50,000 pounds of aluminum fume or dust in 1988 as a result of its activities. If so, the facility must report that it manufactures "aluminum (fume or dust)." Similarly, there may be certain technologies in which one of these metals is processed in the form of a fume or dust to make other chemicals or other products for distribution in commerce. In reporting releases, the facility would only report releases of the fume or dust.

Manufacturing qualifiers. Two of the list entries contain a qualifier relating to manufacture. For isopropyl alcohol, the qualifier reads "manufacturing-strong acid process." For saccharin, the qualifier simply reads "manufacturing." In the case of isopropyl alcohol, the qualifier means that only facilities that manufacture isopropyl alcohol by the strong acid process are required to report. In the case of saccharin, only manufacturers of the chemical are subject to the reporting requirements. A facility that processes or otherwise uses either chemical would not be required to report for those chemicals. In both cases, supplier notification does not apply.

Solutions. Four substances on the list, ammonium nitrate, ammonium sulfate, sodium hydroxide, and sodium sulfate, are qualified by the term "solution," which refers to the physical state of these chemicals. Only facilities that manufacture, process, or otherwise use these chemicals in the form of a solution are required to report. Supplier notification applies only if the chemical is distributed as a solution. (See page 7 for information on calculating threshold and release determinations for solutions.)

Phosphorus (yellow or white). The listing for phosphorus is qualified by the term "yellow or white." This refers to a chemical state of phosphorus meaning that only manufacturing, processing, or use of phosphorus in the yellow or white states triggers reporting. Conversely, manufacturing, processing, or use of "black" or "red" phosphorus do not trigger reporting. Supplier notification also applies only to distribution of yellow or white phosphorus.

Asbestos (friable). The listing for asbestos is qualified by the term "friable," referring to a physical characteristic of asbestos. The term "friable" means crumbled, pulverized, or reducible to a powder with hand pressure. Again, only manufacturing, processing, or use of asbestos in the friable form triggers reporting. Similarly, supplier notification applies only to distribution of friable asbestos.

Definitions of "Manufacture," "Process," and "Otherwise Use"

Manufacture: The term "manufacture" means to produce, prepare, compound or import a listed toxic chemical. Import is defined as causing the chemical to be imported into the customs territory of the United States. If you order a covered toxic chemical (or a mixture containing the chemical) from a foreign supplier, then you have imported the chemical when that shipment arrives at your facility. By ordering the chemical, you have "caused it to be imported," even though you may have used an import brokerage firm as an agent to obtain the chemical. The term manufacture also includes coincidental production of a toxic chemical (e.g., as a byproduct or impurity) as a result of the manufacture, processing, use, or disposal of other chemical substances. In the case of coincidental production of an impurity (i.e., a chemical that remains in the product that is distributed in commerce), the *de minimis* limitation, discussed on page 8, applies. The *de minimis* limitation does not apply to byproducts (e.g., a chemical that is separated from a process stream and further processed or disposed). Certain listed toxic chemicals may be manufactured as a result of wastewater treatment or other treatment processes. For example, neutralization of acid wastewater can result in the coincidental manufacture of sodium sulfate (solution).

EXAMPLE

Your company, a nitric acid manufacturer, uses ammonia in a waste treatment system to neutralize an acidic wastewater stream containing nitric acid. The reaction of the ammonia and nitric acid produces an ammonium nitrate solution. Ammonium nitrate solution is a listed toxic substance, as are nitric acid and ammonia. Your facility otherwise uses ammonia as a reactant and manufactures ammonium nitrate solution as a byproduct. If the ammonium nitrate solution is produced in a quantity that exceeds the threshold (e.g., 50,000 pounds for 1988), releases of ammonium nitrate solution from the facility must be reported. If more than 10,000 pounds of ammonia is added to the wastewater treatment system, then releases of ammonia must also be reported.

Process: The term "process" means the preparation of a listed toxic chemical, after its manufacture, for distribution in commerce. Processing includes preparation of the chemical in the same physical state or chemical form as that received by your facility, or preparation that produces a change in physical state or chemical form. The term also applies to the processing of a component in a mixture or other trade name product (see page 8) that is a listed toxic chemical.

EXAMPLE

The examples below illustrate the categorization of some typical process and manufacture activities.

- Your company receives toluene, a listed toxic chemical, from another facility, reacts the toluene with air to form benzoic acid, and further reacts the benzoic acid with a cadmium catalyst to form terephthalic acid. Cadmium compounds and terephthalic acid are also listed toxic chemicals. Your company processes toluene, and uses (not processes) the cadmium catalyst (see the definition of "otherwise used" below). Your company manufactures benzoic acid and terephthalic acid. Benzoic acid, however, is not a listed chemical and thus does not trigger reporting requirements.
- Your company receives a nickel compound (nickel compound is a listed toxic chemical category) as a bulk solid and performs various size-reduction operations (e.g., grinding) before packaging the compound in 50-lb bags. Your company processes the nickel compound.
- Your company receives a prepared mixture of resin and chopped fiber to be used in the injection molding of plastic products. The resin contains a listed chemical that becomes incorporated into the plastic. Your facility processes the chemical.

Otherwise Use: The term "otherwise use" encompasses any use of a listed chemical at a facility that does not fall under the definitions of "manufacture" or "process." A chemical that is used by a facility is not intentionally incorporated into a product distributed in commerce.

EXAMPLE

When your facility cleans equipment with toluene, you are using toluene. However, if your facility incorporates toluene into a mixture for distribution in commerce, your facility is processing that chemical. Your facility also separates two components of a mixture by dissolving one component in toluene, and subsequently recovers the toluene from the process for reuse or disposal. Your facility uses toluene.

Exemptions

Use Exemptions. Certain uses of listed chemicals are specifically exempted: use as a structural component of the facility; use in routine janitorial or facility grounds maintenance; personal uses by employees or other persons; use of products containing toxic chemicals for the purpose of maintaining motor vehicles operated by the facility; or use of toxic chemicals contained in intake water (used for processing or non-contact cooling) or in intake air (used either as compressed air or for combustion).

Article Exemptions. You do not have to factor into threshold or release determinations quantities of a listed toxic chemical contained in an article if that article is processed or used at your facility. An article is defined as a manufactured item that is formed to a specific shape or design during manufacture, that has end-use functions dependent in whole or in part upon its shape or design during end-use, and that does not release a toxic chemical under normal conditions of the processing or use of that item at the facility.

The release criteria in the article definition is not absolute. Reporting of releases under section 313 may be rounded to the nearest pound. Releases of less than 0.5 pounds per year do not negate the article status of an item that meets the first two criteria in the article definition. If when processing or using an item the estimate of total annual releases of a toxic chemical is less than 0.5 pounds, then the facility may round this estimate to zero. Thus, the article status of the item would be retained because, in effect, the releases are calculated to be zero. Low level releases of a toxic chemical from an item due to normal or natural degradation, corrosion, etc., does not negate the article status.

The article exemption applies to the normal processing or use of an article. It does not apply to the manufacture of an article. Toxic chemicals contained in articles manufactured at a facility must be factored into threshold and release determinations.

The following examples apply the article exemption:

- Lead that is incorporated into a lead acid battery is processed in order to manufacture the battery, and therefore must be counted toward threshold and release determinations. However, the use of the lead acid battery elsewhere in the facility does not have to be counted. Disposal of the battery after its use does not constitute a "release"; thus, the battery remains an article.
- Metal rods that are extruded into wire are not articles because their form changes during processing. However, wire that is twisted or bent is an article as long as it remains identifiable wire.
- If an item used in the facility is fragmented, the item is still an article if those fragments being discarded remain identifiable as the article (e.g., recognizable pieces of a cylinder, pieces of wire). For instance, an 8-foot piece of wire is broken into two 4-foot pieces of wire, without releasing any toxic chemicals. Each 4-foot piece is identifiable as a piece of wire; therefore, the article status for these pieces of wire remain intact.
- When the processing or use of an item generates fumes, dust, filings, and grindings, the article exemption is not applicable. The chemical(s) in the item must be counted toward the appropriate threshold determination, and the fumes, dust, filings, and grindings reported as releases or

wastes. However, if all wastes generated are recycled, whether on- or off-site, the exemption is applicable.

- Toxic chemicals formed into pellets are not articles because the pellet form is simply a convenient form for further processing of the material. Plastic pellets intended for extrusion are not articles. The same is true for metal ingots.
- A closed item containing toxic chemicals (e.g., a transformer containing PCBs) that does not release the chemicals during normal use is considered an article if the facility uses the item as intended and the toxic chemicals are not released. If the facility services the transformer by replacing the toxic chemicals, the chemicals must be counted in threshold and release calculations.

DURING A CALENDAR YEAR, DOES YOUR FACILITY MANUFACTURE, PROCESS, OR USE A LISTED CHEMICAL IN QUANTITIES GREATER THAN THE THRESHOLD ESTABLISHED FOR THAT YEAR?

Section 313 sets certain reporting threshold quantities, which vary depending upon the year for which the report is submitted and whether the chemical is manufactured, processed, or otherwise used. You must submit a report if the quantity of a listed chemical that is manufactured or processed over the course of the year at your facility exceeds the following threshold:

- For calendar year 1987, 75,000 pounds;
- For calendar year 1988, 50,000 pounds;
- For calendar year 1989 and subsequent years, 25,000 pounds.

You must submit a report if the quantity of a listed chemical that is otherwise used at your facility exceeds 10,000 pounds during the course of a calendar year.

How to Determine if Thresholds Are Exceeded

To determine whether your facility has exceeded a threshold, compare quantities of listed chemicals that you manufacture, process, or use to the separate respective thresholds for those activities. A worksheet for threshold determinations is included in Appendix C (page 54). Do not add together the quantities of the chemical that are manufactured, processed, and used at your facility, because each of these activities requires a separate threshold determination. For example, if in 1988 you processed 20,000 pounds of a chemical and you used 6,000 pounds of that same chemical, your facility has not met or exceeded any applicable threshold and thus is not required to report for that chemical.

You must submit a report if you exceed any threshold for any listed chemical or chemical category. For example, if your facility processes 22,000 pounds of a listed chemical and also otherwise uses 16,000 pounds of that same chemical, although you do not exceed the process threshold, you do exceed the otherwise used threshold (10,000 pounds) and you therefore must report. However, in preparing your reports, you must consider all non-exempted activities and all releases of that chemical from your facility, not just the releases from the use activity.

Also note that threshold determinations are based upon the actual amounts of a chemical manufactured, processed, or used over the course of the calendar year, which may not equal the amount brought on-site. Thus, stockpiles of listed chemicals intended for a process that is not operated during a calendar year do not count toward threshold determinations.

Threshold determinations of listed toxic chemicals that are recycled or reused at the facility are based only on the amount of the chemical that is added to such recycle/reuse activity during the year, not the total volume in the system. For example, a facility operates a refrigeration unit that contains 15,000 pounds of ammonia at the beginning of the year. The system is charged with 2,000 pounds of ammonia at some point of the year. The facility has therefore "used" only 2,000 pounds of the covered chemical and is not required to report (unless there are other "uses" of ammonia which, when taken together, exceed the reporting threshold). If, however, the whole refrigeration unit had to be recharged with 15,000 pounds of ammonia during the year, the facility would have exceeded the use threshold.

Threshold determinations for metal-containing compounds present a special case. If, for example, you process several different lead compounds, you would base your threshold determination on the total weight of all lead compounds processed. However, if you process both the "parent" metal (lead) as well as one or more lead compounds, you must make threshold determinations for both because they are separately listed toxic chemicals. If you exceed thresholds for both the parent metal and compounds of that same metal, EPA allows you to file one joint report instead of two (e.g., one report for lead compounds, including lead) because the release information you will report in connection with metal compounds will be the total pounds of the parent metal released.

One other case involving metal compounds should be noted. Some metal compounds may contain more than one listed metal. For example, lead chromate is considered both a lead compound and a chromium compound. In such cases, if applicable thresholds are exceeded, you are required to file two separate reports, one for lead compounds and one for chromium compounds.

Mixtures and Trade Name Products

De Minimis Limitation. Toxic chemicals in mixtures and in tradename products must be factored into threshold and release determinations. However, a listed chemical does not have to be considered if it is present in a mixture at a concentration below a specified *de minimis* level. In general, the *de minimis* level is 1.0%, or 0.1% if the chemical meets the OSHA carcinogen standard. See Table II for the *de minimis* value associated with each listed toxic chemical. EPA included this exemption in the rule as a burden reducing step, primarily because facilities are not likely to have information on the presence of a chemical in a mixture or tradename product beyond that available in the product's MSDS. The *de minimis* levels are consistent with OSHA requirements for development of the MSDS.

For threshold determinations, the *de minimis* limitation applies to:

- A listed toxic chemical in a mixture or tradename product received by the facility.
- A listed toxic chemical manufactured during a process where the chemical remains in a mixture or product distributed by the facility.

The *de minimis* does not apply to:

- A chemical in a wastestream resulting from processes in which that chemical is produced, whether as a product, byproduct, or impurity. A threshold determination must be made on the annual quantity of the chemical present in the wastestream, regardless of the concentration. For example, quantities of formaldehyde created as a result of waste treatment must be applied toward the threshold for "manufacture" of this chemical, regardless of the concentration of this chemical in the wastestream.
- Chemicals in ores, wastes, etc., that undergo intentional beneficiation for purposes of production of that chemical. For example, a company recovers silver by processing waste material containing silver at less than 1% total weight of the material. Although silver is received at less than the *de minimis* concentration, the *de minimis* would not apply because the process concentrates and produces silver as an end product.

In general, when the *de minimis* applies to threshold determinations and the percent in the mixture is below the *de minimis*, then you are not required to report releases associated with the processing or use of the chemical in that mixture. Note that it is possible to meet the threshold for a chemical on a facility-wide basis, but not be required to calculate releases from a particular process because that process involves only mixtures containing the chemical below the *de minimis* level.

Application of the *de minimis* limitation to process streams must also be reviewed. Mixtures containing listed toxic chemicals can be added to a process or generated within a process. In both cases (assuming thresholds are exceeded) a facility is required to consider and report releases from the process up to the point at which the concentration of the chemical falls below the *de minimis* level. For example, a 10% solution of a listed chemical is mixed into a formulated cleaning solution, resulting in a final concentration of less than 1%. Releases such as air emissions from the mix vessel are counted, but releases from the finished formulation are not counted.

Supplier Notification. In 1989, suppliers of facilities in SIC codes 20-39 will be required to develop and distribute a notice if the mixtures or trade name products that they manufacture or process, and subsequently distribute, contain listed toxic chemicals and are distributed to other companies in SIC codes 20-39 or to companies that sell the product to facilities in SIC codes 20-39. If a Material Safety Data Sheet (MSDS) is not required for the mixture or trade name product, the notification must be written. Otherwise, the notice must be incorporated into or attached to the MSDS for that product. The supplier notification requirement begins with the first shipment of a product in 1989 and must accompany the first shipment each year thereafter. In addition, a new or revised notice must be sent if a change occurs in the product which affects the weight of a listed chemical or if it is discovered that a previous notice did not properly identify the chemicals or the percentage by weight.

Note to Suppliers: An item is still considered an article if you can determine that the total releases of any toxic chemical that are likely to occur from the processing or use of that article by your largest volume customer for the product will not equal or exceed 0.5 pounds per year. (See page 7 for further explanation of half-pound rounding for articles.)

If listed toxic chemicals are present above the *de minimis* cut-off level, your supplier must identify the specific components as they appear in Table II and provide their percentage composition by weight in the mixture or product. If your supplier maintains that the identity of a toxic chemical is a trade secret, a generic identity that is structurally descriptive must be supplied on the notice. A maximum concentration level must be provided if your supplier contends that chemical composition information is a trade secret. In either case, you do not need to make a trade secret claim on behalf of your supplier (unless you consider your use of the proprietary mixture a trade secret). Report using the generic name provided in the notification. (See the instructions for Part III, Section 2 on page 16 for more information.) If the listed chemical is present below the *de minimis* level, no notification is required.

If you imported, processed, or otherwise used mixtures or trade name products during calendar year 1988, you are required to use the best information you have available to determine whether the components of a mixture are above the *de minimis* concentration and therefore must be included in threshold and release determinations. If you know that a mixture or trade name product contains a specific toxic chemical, combine the amount of the chemical in the mixture or product with the individual amounts of the same chemical manufactured, processed, or otherwise used at your facility for threshold and release determinations. If you know only the maximum concentration of the toxic chemical present in the mixture or product, then you are required to assume that the toxic chemical is present at that concentration and calculate the weight accordingly. (See Figure 2 for more information.)

Figure 2 Mixture and Trade Name Products – How They Factor Into Your Reports

Any covered toxic chemicals in mixtures or trade name products (M/TNP) must be factored into your threshold and release determinations.

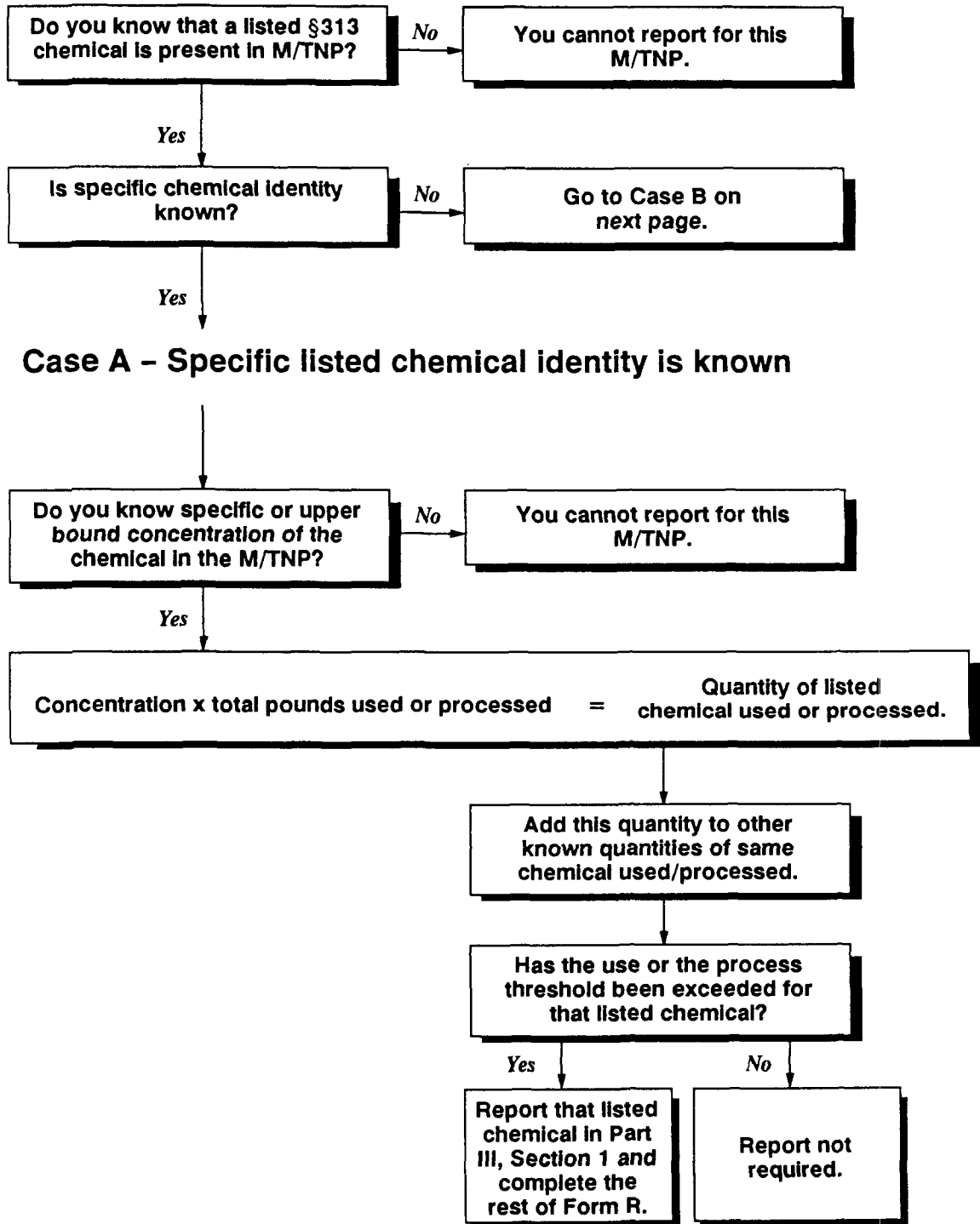
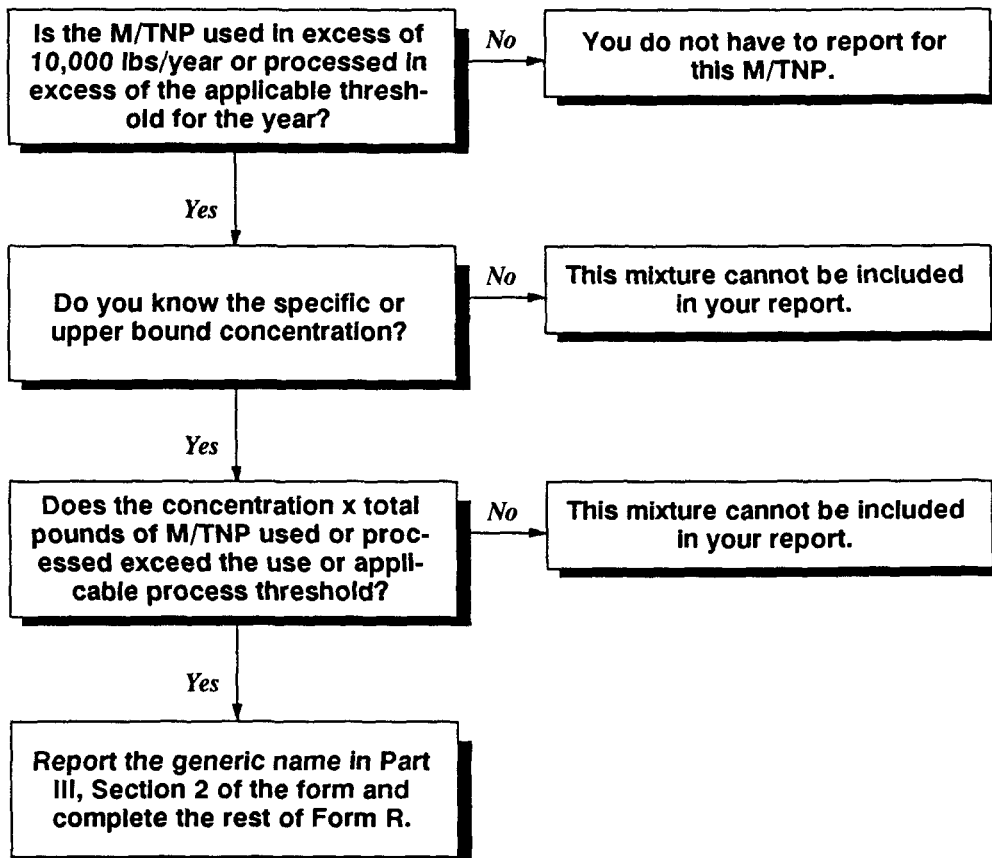


Figure 2 (continued)

Case B – Generic identity is known (e.g., your supplier has told you it is §313 chemical but considers the specific identification as trade secret).



INSTRUCTIONS FOR COMPLETING SPECIFIC SECTIONS OF EPA FORM R

The following are specific instructions for completing each part of EPA Form R. The number designations of the parts and sections of these instructions correspond to those in Form R unless otherwise indicated.

A sample, completed Form R for a hypothetical facility reporting under Title III, section 313, is included as Appendix A (page 47). You may want to refer to this sample as you read through these instructions.

Instructions for Completing All Parts of Form R:

1. Type or print information on the form in the units and format requested.
2. Longitudinal and latitudinal data were optional for the 1987 reports but are required for 1988 and subsequent reporting years. All information on Form R is required except Part III, Section 8.
3. Do not leave items on Form R blank unless specifically directed to do so; if an item does not apply to you, enter "NA," not applicable, in the space provided. If your information does not fill all the spaces provided for a type of information, enter NA, in the next blank space in the sequence.
4. Do not submit an incomplete form. The certification statement (Part I) specifies that the report is complete as submitted. See page 1 of these instructions for the definition of a complete submission.
5. When completing Part IV, supplemental information, or additional pages for Part II of the form, number the additional information sequentially from the prior sections of the form.
6. The box labelled "This space for your optional use" on each page may be used to differentiate one chemical-specific submission from another. You are not required to enter any information in this space. See page 2 for use of this box relating to a voluntary revision of a previous submission.

PART I. FACILITY IDENTIFICATION INFORMATION

- 1.1 Are you claiming the chemical identity on page 3 trade secret?

Answer this question only after you have completed the rest of the report. The specific identity of the toxic chemical being reported in Part III, Sections 1.2 and 1.3, may be designated as trade secret. If you are making a trade secret claim, mark "yes" and proceed to Section 1.2. Only check "Yes" if it is your manufacturing, processing, or use of the chemical that is a trade secret. (See page 1 of these instructions for specific information on trade secrecy claims.) If you checked "no," proceed to Section 1.3; do not answer Section 1.2.

- 1.2 If "yes" in 1.1, is this copy sanitized or unsanitized?

Answer this question only after you have completed the rest of the report. Check "sanitized" if this copy of the report is the public version and you have claimed the chemical identity trade secret in Part III, Section 1.1. Otherwise, check "unsanitized."

- 1.3 Reporting Year

Enter the last two digits of the calendar year to which the reported information applies, not the year in which you are submitting the report. Information for the 1988 reporting year must be submitted on or before July 1, 1989.

2. Certification

The certification statement must be signed by the owner or operator or a senior official with management responsibility for the person (or persons) completing the form. The owner, operator, or official must certify the accuracy and completeness of the information reported on the form by signing and dating the certification statement. Each report must contain an original signature. Print or type in the space provided the name and title of the person who signs the statement. This certification statement applies to all the information supplied on the form and should be signed only after the form has been completed.

3. Facility Identification

- 3.1 Facility Name and Location

Enter the name of your facility (plant site name or appropriate facility designation), street address, city, county, state, and zip code in the space provided. Do not use a post office box number as the address. The address provided should be the location where the chemicals are manufactured, processed, or otherwise used.

3.2 Full or Partial Facility Indication

A covered facility must report all releases of a listed chemical if it meets a reporting threshold for that chemical. However, if the facility is composed of several distinct establishments, EPA allows these establishments to submit separate reports for the chemical as long as all releases of the chemical from the entire facility are accounted for. Indicate in Section 3.2 whether your report is for the entire covered facility as a whole or for part of a covered facility. Check box a. if the chemical information applies to the entire covered facility. Check box b. if the chemical information applies only to part of a covered facility.

Section 313 requires reports by "facilities," which are defined as "all buildings, equipment, structures, and other stationary items which are located on a single site or on contiguous or adjacent sites and which are owned or operated by the same person."

The SIC code system defines business "establishments" as "distinct and separate economic activities [that] are performed at a single physical location." Under section 372.30(c) of the reporting rule, you may submit a separate Form R for each establishment, or for groups of establishments, in your covered facility, provided that all releases of the toxic chemicals from the entire covered facility are reported. This allows you the option of reporting separately on the activities involving a toxic chemical at each establishment, or group of establishments (e.g., part of a covered facility), rather than submitting a single Form R for that chemical for the entire facility. However, if an establishment or group of establishments does not manufacture, process, or otherwise use or release a toxic chemical, you do not have to submit a report for that establishment or group of establishments.

3.3 Technical Contact

Enter the name and telephone number (including area code) of a technical representative whom EPA or State officials may contact for clarification of the information reported on Form R. This contact person does not have to be the same person who prepares the report or signs the certification statement and does not necessarily need to be someone at the location of the reporting facility; however, this person must be familiar with the details of the report so that he or she can answer questions about the information provided.

3.4 Public Contact

Enter the name and telephone number (including area code) of a person who can respond to questions from the public about the report. If you choose to designate the same person as both the technical and the public contact, you may enter

"Same as Section 3.3" in this space. This contact person does not have to be the same person who prepares the report or signs the certification statement and does not necessarily need to be someone at the location of the reporting facility.

3.5 Standard Industrial Classification (SIC) Code

Enter the appropriate 4-digit primary Standard Industrial Classification (SIC) code for your facility (Table I, page 30, lists the SIC codes within the 20-39 range). If the report covers more than one establishment, enter the primary 4-digit SIC code for each establishment. You are required to enter SIC codes only for those establishments within the facility that fall within SIC codes 20 to 39.

3.6 Latitude and Longitude

Enter the latitudinal and longitudinal coordinates of your facility. Sources of these data include EPA permits (e.g., NPDES permits), county property records, facility blueprints, and site plans. Instructions on how to develop these coordinates can be found in Appendix B (page 52). Enter only numerical data. Do not preface numbers with letters such as N or W to denote the hemisphere.

3.7 Facility Dun and Bradstreet Number

Enter the 9-digit number assigned by Dun and Bradstreet (D&B) for your facility or each establishment within your facility. These numbers code the facility for financial purposes. This number may be available from your facility's treasurer or financial officer. You can also obtain the numbers from your local Dun and Bradstreet office (check the White Pages). If none of your establishments has been assigned a D & B number, enter not applicable, NA, in box a. If only some of your establishments have been assigned Dun and Bradstreet numbers, enter those numbers in Section 3.7.

3.8 EPA Identification Number

The EPA I.D. Number is a 12-digit number assigned to facilities covered by hazardous waste regulations under the Resource Conservation and Recovery Act (RCRA). Facilities not covered by RCRA are not likely to have an assigned I.D. Number. If your facility is not required to have an I.D. Number, enter not applicable, NA, in box a. If your facility has been assigned EPA Identification Numbers, you must enter those numbers in the spaces provided in Section 3.8.

3.9 NPDES Permit Number

Enter the numbers of any permits your facility holds under the National Pollutant Discharge Elimination System (NPDES). This 9-digit permit number is assigned to your facility by EPA or the State under the authority of the Clean Water Act. If your facility does not have a permit, enter not applicable, NA, in box a.

3.10 Receiving Streams or Water Bodies

In Section 3.10 you are to enter the name(s) of the stream(s) or water body(ies) to which your facility directly discharges the chemicals you are reporting. A total of six spaces are provided, lettered a through f. The information you provide relates directly to the discharge quantity information required in Part III, Section 5.3. You can complete Section 3.10 in one of two ways. You can enter only those stream names that relate to the specific chemical that is the subject of the report or, you can enter all stream names that relate to all covered chemicals being reported by the facility. Enter the name of the first receiving stream or surface water body to which the chemical being reported is directly discharged. Report the name of the receiving stream or water body as it appears on the NPDES permit for the facility. If you do not have a permit, enter the name of the off-site stream or water body by which it is publicly known. Be sure to include the receiving stream(s) or water body(ies) that receive stormwater runoff from your facility. Do not enter names of streams to which off-site treatment plants discharge. Also do not list a series of streams through which the chemical flows. Enter not applicable, NA, in 3.10a, if you do not discharge any listed toxic chemicals to surface water bodies.

3.11 Underground Injection Well Code (UIC) Identification Number

If your facility has a permit to inject a chemical-containing waste that includes the toxic chemicals into Class 1 deep wells, enter the 12-digit Underground Injection Well Code (UIC) identification number assigned by EPA or by the State under the authority of the Safe Drinking Water Act. If your facility does not hold such a permit(s), enter not applicable, NA, in 3.11a.

4. Parent Company Information

You must provide information on your parent company. For purposes of Form R, a parent company is defined as the highest holder located in the United States that directly owns at least 50 percent of the voting stock of your company. If your facility is owned by a foreign entity, enter not applicable, NA, in this space. Corporate names should be treated as parent company names for companies with multiple sites. For

example, the Bestchem Corporation is not owned or controlled by any other corporation. It has several sites throughout the country whose names begin with Bestchem. In this case, Bestchem Corporation would be listed as the "parent" company.

4.1 Name of Parent Company

Enter the name of the corporation or other business entity that is your parent company. If your facility has no parent company, enter not applicable, NA.

4.2 Parent Company's Dun & Bradstreet Number

Enter the Dun and Bradstreet Number for your parent company, if applicable. The number may be obtained from the treasurer or financial officer of the company. If your parent company does not have a Dun and Bradstreet number, enter not applicable, NA.

PART II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES

In this part of the form you are required to list all off-site locations to which you transfer wastes containing toxic chemicals. Do not list locations to which products containing toxic chemicals are shipped for sale or distribution in commerce or for further use. Also, do not list locations to which wastes containing chemicals are sold or sent for recovery, recycling, or reuse of the toxic chemicals. The information that you enter in this section relates to data you will report in Part III, Section 6. You may complete Part II for only the off-site locations that apply to the specific chemical cited in a particular report or you can list all off-site locations that apply to all chemicals being reported and include a photostatic copy of Part II with each individual report. List only publicly owned treatment works (POTWs) and off-site treatment or disposal facilities.

1. Publicly Owned Treatment Works (POTWs)

Enter the name and address of each POTW to which your facility discharges wastewater containing toxic chemicals for which you are reporting. If you do not discharge wastewater containing the reported toxic chemicals to a POTW, enter not applicable, NA in the facility name line of 1.1.

If you discharge such wastewater to more than two POTWs, use additional copies of Part II. Cross through the printed numbers and write in numbers for these locations in ascending order (e.g., 1.3, 1.4). Check the box at the bottom of the page and indicate the number of additional pages of Part II that are attached.

2. Other Off-Site Locations

Enter in the spaces provided, the name and address of each location (other than POTWs) to which you ship or transfer wastes containing toxic chemicals. If you do not ship or transfer wastes containing toxic chemicals to off-site locations, enter not applicable, NA in the Off-site location name line of 2.1. Also enter the EPA Identification Number (RCRA I.D. Number) for each such location if known to you. This number may be found on the Uniform Hazardous Waste Manifest, which is required by RCRA regulations. Also indicate in the space provided whether the location is owned or controlled by your facility or your parent company. If the facility does not have a RCRA I.D. number, enter not applicable, NA, in this space.

If your facility transfers toxic chemicals to more than six off-site locations, use additional copies of Part II. Cross through the printed numbers and write in numbers for these locations in ascending order (i.e., 2.7, 2.8). Check the box at the bottom of the page and indicate the number of additional pages of Part II that are attached.

EXAMPLE

Your facility is involved in chrome plating of metal parts, which are shipped to an off-site warehouse not owned by your company for distribution. Your facility produces an aqueous plating waste that is treated on-site to recover chromium sludge. The effluent from the on-site treatment plant, which contains chromium compounds (a listed toxic chemical), is piped to a POTW. The chromium sludge is transferred to an off-site, privately owned recovery firm. Chromium is recovered from the sludge by an ion exchange process. Your facility also produces a solid waste containing chromium, which is sent to an off-site permitted landfill owned by your facility.

You must report the locations of the POTW and the permitted landfill in Sections 1 and 2 of Part II of Form R. Do not report the location of the warehouse or give any information about the on-site treatment plant in this section. Indicate that the landfill is under the control of your facility. You are not required to report the location of the off-site, privately owned recovery firm or provide any information concerning off-site recovery.

PART III. CHEMICAL-SPECIFIC INFORMATION

In Part III, you are to identify the toxic chemical being reported. You are to indicate some general uses and activities related to the chemical at your facility. Also in Part III you will enter quantitative data relating to releases of the chemical directly from the facility to air, water, and land. Quantities of the chemical transferred to off-site locations, identified in Part II, are also reported in this part. The final required section provides for reporting of waste treatment information. An

additional optional section is included in this part that allows you to report waste minimization information associated with the chemical.

1.1 [Reserved]

1.2 CAS Number

Enter the Chemical Abstracts Service (CAS) registry number in Section 1.2 exactly as it appears in Table II, page 36, for the chemical being reported. CAS numbers are cross-referenced with an alphabetical list of chemical names in Table II of these instructions. If you are reporting one of the chemical categories in Table II (e.g., copper compounds), enter not applicable, NA, in the CAS number space.

If you are making a trade secret claim, you must report the CAS number on your unsanitized Form R and unsanitized substantiation form. Do not report it on your sanitized Form R and sanitized substantiation form.

1.3 Chemical or Chemical Category Name

Enter the name of the chemical or chemical category exactly as it appears in Table II. If the chemical name is followed by a synonym in parentheses, report the chemical by the name that directly follows the CAS number (i.e., not the synonym). If the listed chemical identity is actually a product tradename (e.g., dicofol), the 9th Collective Index name is listed below it in brackets. You may report either name in this case. Do not list the name of a chemical that does not appear in Table II, including individual members of a reportable category. For example, if you use silver nitrate, do not report silver nitrate with its CAS number. Report this chemical as "silver compounds" with no CAS number.

If you are making a trade secret claim, you must report the specific chemical identity on your unsanitized Form R and unsanitized substantiation form. Do not report the chemical name on your sanitized Form R and sanitized substantiation form; report a generic name in Section 1.4 below.

1.4 Generic Chemical Name

Complete Section 1.4 only if you are claiming the specific chemical identity of the toxic chemical as a trade secret and have marked the trade secret block in Part I, Section 1.1 on page 1 of Form R. Enter a generic chemical name that is descriptive of the chemical structure. You must limit the generic name to seventy characters (e.g., numbers, letters, spaces, punctuation) or less. Do not enter mixture names in Section 1.4; see Section 2 below.

In-house plant codes and other substitute names that are not structurally descriptive of the chemical identity being withheld as a trade secret are not acceptable as a generic name. The generic name must appear on both sanitized and unsanitized Form R's, and the name must be the same as that used on your substantiation forms. The Emergency Planning and Community Right-to-Know Information Hotline can provide you with assistance in selecting an appropriate generic name.

2. Mixture Component Identity

Do not complete this section if you have completed Section 1 of Part III. Report the generic name provided to you by your supplier in the section if your supplier is claiming the chemical identity proprietary or trade secret. Do not answer "yes" in Part I, Section 1.1 on page 1 of the form if you complete this section. You do not need to supply substantiation forms.

Enter the generic chemical name in this section only if the following four conditions apply:

1. The amount of the particular mixture or trade name product you "use" exceeds 10,000 pounds or the amount you "process" exceeds the applicable process threshold for the year (i.e., 50,000 lbs. in 1988);
2. You determine that the mixture contains a listed toxic chemical but the only identity you have for that chemical is a generic name;
3. You know either the specific concentration of that toxic chemical component or a maximum concentration figure; and
4. You determine by multiplying the concentration figure by the total annual amount of the whole mixture used (or processed) that you exceed the use or process threshold for that single, generically identified mixture component.

EXAMPLE

Your facility uses 20,000 pounds of a solvent that your supplier has told you contains 80 percent "chlorinated aromatic," their generic name for a chemical subject to reporting under section 313. You therefore know that you have used 16,000 pounds of some listed toxic chemical which exceeds the use threshold. You would file a Form R and enter the name "chlorinated aromatic" in the space provided in Part III, Section 2.

3. Activities and Uses of the Chemical at the Facility

Indicate in this section whether the chemical is manufactured (including imported), processed, or otherwise used at the

facility and the general nature of such activities and uses at the facility during the calendar year. Report activities that take place only at your facility, not activities that take place at other facilities involving your products. You must check all the blocks in this section that apply. If you are a manufacturer of the chemical, you must check a and/or b, and at least one of c, d, e, or f. Refer to the definitions of "manufacture," "process," and "otherwise use" in the general information section of these instructions or section 372.3 of the rule for explanations supplementing those provided below.

3.1 Manufacture the Chemical

Check at least one:

- a. *Produce* - A chemical included in this category is produced at the facility.
- b. *Import* - A chemical included in this category is imported by the facility into the Customs Territory of the United States.

Check at least one:

- c. *For on-site use/processing* - A chemical included in this category is produced or imported and then further processed or otherwise used at the same facility. If you check this block you must also check at least one item in 3.2 or 3.3.
- d. *For sale/distribution* - A chemical in this category is produced or imported specifically for sale or distribution outside the manufacturing facility.
- e. *As a byproduct* - A chemical in this category is produced coincidentally during the production, processing, use, or disposal of another chemical substance or mixture and, following its production, is separated from that other chemical substance or mixture. Chemicals produced and released as a result of waste treatment or disposal are also considered byproducts.
- f. *As an impurity* - A chemical in this category is produced coincidentally as a result of the manufacture, processing or use of another chemical but remains primarily in the mixture or product with that other chemical.

3.2 Process the Chemical (incorporative-type activities)

- a. *As a reactant* - A natural or synthetic chemical used in chemical reactions for the manufacture of another chemical substance or of a product. Includes, but is not limited to, feedstocks, raw materials, intermediates, and initiators.

- b. *As a formulation component* - A chemical added to a product or product mixture prior to further distribution of the product that acts as a performance enhancer during use of the product. Examples of chemicals used in this capacity include, but are not limited to, additives, dyes, reaction diluents, initiators, solvents, inhibitors, emulsifiers, surfactants, lubricants, flame retardants, and rheological modifiers.
- c. *As an article component* - A chemical substance that becomes an integral component of an article distributed for industrial, trade, or consumer use. One example is the pigment components of paint applied to a chair that is sold.
- d. *Repackaging only* - Processing or preparation of a chemical or product mixture for distribution in commerce in a different form, state, or quantity. This includes, but is not limited to, the transfer of material from a bulk container, such as a tank truck to smaller cans or bottles.

3.3 Otherwise Use the Chemical (non-incorporative-type activities)

- a. *As a chemical processing aid* - A chemical that is added to a reaction mixture to aid in the manufacture or synthesis of another chemical substance but is not intended to remain in or become part of the product or product mixture. Examples of such chemicals include, but are not limited to, process solvents, catalysts, inhibitors, initiators, reaction terminators, and solution buffers.
- b. *As a manufacturing aid* - A chemical that aids the manufacturing process but does not become part of the resulting product and is not added to the reaction mixture during the manufacture or synthesis of another chemical substance. Examples include, but are not limited to, lubricants, metalworking fluids, coolants, refrigerants, and hydraulic fluids.
- c. *Ancillary or other use* - A chemical in this category is used at a facility for purposes other than as a chemical processing aid or manufacturing aid as described above. Includes, but is not limited to, cleaners, degreasers, lubricants, and fuels.

EXAMPLE

In the example below, it is assumed that the threshold quantities for manufacture, process, or otherwise use (50,000 pounds, 50,000 pounds, and 10,000 pounds, respectively, for 1988) have been exceeded and the reporting of listed chemicals is therefore required.

1. Your facility receives toluene and naphthalene (both listed toxic chemicals) from an off-site location. You react the toluene with air to form benzoic acid and react the naphthalene with sulfuric acid, which forms phthalic acid and also produces sulfur dioxide fumes. Your facility processes toluene and naphthalene. Both are used as reactants to produce benzoic acid and phthalic acid, chemicals not on the section 313 list.

The phthalic acid and benzoic acid are reacted to form a reaction intermediate. The reaction intermediate is dissolved in sulfuric acid, which precipitates terephthalic acid (TPA). Fifty percent of the TPA is sold as a product and 50 percent is further processed at your facility into polyester fiber. The TPA is treated with ethylene glycol to form an intermediate product, which is condensed to polyester.

Your company manufactures terephthalic acid, a listed chemical, both for sale/distribution as a commercial product and for on-site use/processing as a feedstock in the polyester process. Because it is a reactant, it is also processed.

Your facility also uses, as well as processes, sulfuric acid, a listed substance, as it serves as a process solvent to precipitate terephthalic acid.

2. The intermediate product, from which the polyester is prepared, contains dimethyl phthalate, a listed substance. The method of reporting this substance depends on its eventual disposition in the polyester production process:
 - (a) If the dimethyl phthalate is removed from the intermediate product before it is reacted to form polyester fiber, then dimethyl phthalate is manufactured at your facility as a byproduct.
 - (b) If it is incorporated into the polyester fiber in an unreacted form, then it is manufactured at your facility as an impurity.
 - (c) If the dimethyl phthalate participates in the reaction to form polyester fiber without leaving the process, then it is processed as a reactant (intermediate), as are the ethylene glycol and terephthalic acid in the process.


Sections of Part III that have been completed for scenario 2(c), are illustrated on the following page.

3. Your facility operates a fume scrubber that uses sodium hydroxide solution and recovers the sulfur dioxide fumes from the phthalic acid production process as sodium sulfate solution. Both sodium solutions are listed chemicals. Your facility manufactures sodium sulfate as a byproduct and otherwise uses sodium hydroxide.

4. Your facility applies C.I. disperse yellow 3, a listed chemical, to the finished polyester fiber as a dye, which is incorporated into the polyester fiber product and remains in the product after it is sold. Your facility processes the C.I disperse yellow 3 as an article component.



(Important: Type or print; read instructions before completing form.)

 EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION		(This space for your optional use.)
1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)		
1.1	[Reserved]	
1.2	CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting a chemical category.) 131-11-3	
1.3	Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.) Dimethyl Phthalate	
1.4	Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)	
2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)		
2.	Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation))	
3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)		
3.1	Manufacture the chemical: a. <input checked="" type="checkbox"/> Produce b. <input type="checkbox"/> Import	If produce or import: c. <input checked="" type="checkbox"/> For on-site use/processing d. <input type="checkbox"/> For sale/distribution e. <input type="checkbox"/> As a byproduct f. <input type="checkbox"/> As an impurity
3.2	Process the chemical: a. <input checked="" type="checkbox"/> As a reactant d. <input type="checkbox"/> Repackaging only	b. <input type="checkbox"/> As a formulation component c. <input type="checkbox"/> As an article component
3.3	Otherwise use the chemical: a. <input type="checkbox"/> As a chemical processing aid	b. <input type="checkbox"/> As a manufacturing aid c. <input type="checkbox"/> Ancillary or other use

4. Maximum Amount of the Chemical On-Site at Any Time During the Calendar Year

Insert the appropriate code (see below) that indicates the maximum quantity of the chemical (e.g., in storage tanks, process vessels, on-site shipping containers) at your facility at any time during the calendar year. If the chemical was present at several locations within your facility, use the maximum total amount present at the entire facility at any one time.

<u>Range Code</u>	<u>Weight Range in Pounds</u>	
	<u>From...</u>	<u>To....</u>
01	0	99
02	100	999
03	1,000	9,999
04	10,000	99,999
05	100,000	999,999
06	1,000,000	9,999,999
07	10,000,000	49,999,999
08	50,000,000	99,999,999
09	100,000,000	499,999,999
10	500,000,000	999,999,999
11	1 billion	more than 1 billion

If the toxic chemical present at your facility was part of a mixture or trade name product, determine the maximum quantity of the chemical present at the facility by calculating the weight of the toxic chemical only. Do not include the weight of the entire mixture or trade name product. See section 372.30(b) of the reporting rule for further information on how to calculate the weight of the chemical in the mixture or trade name product. For chemical categories (e.g., copper compounds), include all chemicals in the category when calculating the weight of the toxic chemical.

5. Releases of the Chemical to the Environment On-Site

In Section 5, you must account for the total aggregate releases of the toxic chemical to the environment on-site from your facility for the calendar year. Releases to the environment include emissions to the air, discharges to surface waters, and releases to land and underground injection wells. If you have no releases to a particular media (e.g., stack air), enter not applicable, NA; do not leave blank. Check the box on the last line of this section if you use Part IV, the supplemental information sheet.

You are not required to count as a release quantities of a toxic chemical that are lost due to natural weathering or corrosion, normal/natural degradation of a product, or normal migration of a chemical from a product. For example, amounts of a covered toxic chemical that migrate from plastic products in storage do not have to be counted in estimates of releases of that chemical from the facility. Also, amounts of listed metal compounds (e.g., copper compounds) that are lost due to normal corrosion of process equipment do not have to be considered as releases of copper compounds from the facility.

All air releases of the chemical from the facility must be accounted for. Do not enter information on individual emission points or releases. Enter only the total release. If there is doubt about whether an air release is a point or non-point release, you must identify the release as one or the other rather than leave items 5.1 and 5.2 blank. Instructions for columns A, B, and C follow the discussions of Sections 5.1 through 5.5.

5.1 Fugitive or Non-Point Air Emissions

These are releases to the air that are not released through stacks, vents, ducts, pipes, or any other confined air stream. You must include (1) fugitive equipment leaks from valves, pump seals, flanges, compressors, sampling connections, open-ended lines, etc.; (2) evaporative losses from surface impoundments; (3) releases from building ventilation systems; and (4) any other fugitive or non-point air emissions.

5.2 Stack or Point Air Emissions

These are releases to the air that occur through stacks, vents, ducts, pipes, or other confined air streams. You must include storage tank emissions. Air releases from air pollution control equipment would generally fall in this category.

5.3 Discharges to Receiving Streams or Water Bodies

Enter the applicable letter code for the receiving stream or water body from Section 3.10 of Part I of the form. Also, enter the total annual amount of the chemical released from all discharge points at the facility to each receiving stream or water body. Include process outfalls such as pipes and open trenches, releases from on-site wastewater treatment systems, and the contribution from stormwater runoff, if applicable (see instructions for column C below). Do not include discharges to a POTW or other off-site wastewater treatment facilities in this section. These off-site transfers must be reported in Part III, Section 6 of the form.

5.4 Underground Injection

Enter the total annual amount of the chemical that was injected into all wells, including Class I wells, at the facility.

5.5 Releases to Land

Report quantities of the chemical that were landfilled, treated or applied in farming, impounded, or otherwise disposed of at the facility. Do not report land disposal at off-site locations in this section.

For the purpose of this form, a surface impoundment is considered "final disposal." Quantities of the chemical released to surface impoundments that are used merely as part of a wastewater treatment process generally must not be reported in this section of the form. However, if the impoundment accumulates sludges containing the chemical, you must include an estimate in this section unless the sludges are removed and otherwise disposed of (in which case they should be reported under the appropriate section of the form). For the purposes of this reporting, storage tanks are not considered to be a type of disposal and are not to be reported in this section of the form.

A. Total Release

Only on-site releases of the toxic chemical to the environment for the calendar year are to be reported in this section of the form. The total releases from your facility do not include transfers or shipments of the chemical from your facility for sale or distribution in commerce or of wastes to other facilities for treatment or disposal (see Part III, Section 6). Both routine releases, such as fugitive air emissions, and accidental or non-routine releases, such as chemical spills, must be included in your estimate of the quantity released.

Total annual releases or off-site transfers of a toxic chemical from the facility of less than 1 pound may be reported in one of several ways. The fractional figure may be entered in column A.2. However, EPA encourages rounding to the nearest pound. For example, if the estimate is 0.5 pounds or greater, you should either check the range bracket of "1-499" in column A.1 or enter "1" in column A.2. Do not use both columns A.1 and A.2. If the release is less than 0.5 pounds, you may round to zero and check the "0" bracket in A.1. Note that releases of less than 0.5 pounds from the processing or use of an article does not negate the article status of that item. Thus, if the only releases you have are from an article and such releases are less than 0.5 pounds per year, you are not required to submit a report for that chemical.

A.1 Reporting Ranges

For reports submitted for calendar years 1987, 1988 and 1989 only, you may take advantage of range reporting for releases to an environmental medium that are less than 1,000 pounds for the year. If you choose this option, mark one of the three boxes, 0, 1-499, or 500-999, that corresponds to releases of the chemical to the appropriate environmental medium (i.e., any line item). You are not required, however, to use these range check boxes; you have the option of providing a specific figure in column A.2, as described below. However, do not mark a range and also enter a specific estimate in A.2.

For releases to any medium that amount to 1,000 pounds or more for the year, you must provide an estimate in pounds per year in column A.2. Any estimate provided in column A.2 is required to be accurate to no more than two significant digits.

A.2 Enter Estimate

If you do not use the range reporting option, provide your estimates of releases in pounds for the year in column A.2. This estimate is required to be rounded to no more than two significant digits.

Calculating Releases - To provide the release information required in both columns A.1 and A.2 in this section of the form, you must use all readily available data (including relevant monitoring data and emissions measurements) collected at your facility pursuant to other provisions of law or as part of routine plant operations, to the extent you have such data for the toxic chemical.

When relevant monitoring data or emission measurements are not readily available, reasonable estimates of the amounts released must be made using published emission factors, material balance calculations, or engineering calculations. You may not use emission factors or calculations to estimate releases if more accurate data are available.

No additional monitoring or measurement of the quantities or concentrations of any toxic chemical released into the environment, or of the frequency of such releases, is required for the purpose of completing this form, beyond that which is required under other provisions of law or regulation or as part of routine plant operations.

You must estimate as accurately as possible the quantity in pounds of the chemical or chemical category that is released annually to each environmental medium. Include only the quantity of the toxic chemical component of the waste stream in this estimate. If the toxic chemical present at your facility was part of a mixture or trade name product, calculate only the releases of the chemical. Do not report releases of the other components of the mixture or trade name product. If you are

only able to estimate the releases of the mixture or trade name product as a whole, you must assume that the release of the toxic chemical is proportional to its concentration in the mixture or trade name product. See section 372.30(b) of the reporting rule (Appendix G) for further information on how to calculate the concentration and weight in the mixture or trade name product.

If you are reporting a chemical category listed in Table II of these instructions, rather than a specific chemical, you must combine the release data for all chemicals in the listed chemical category (e.g., all glycol ethers or all chlorophenols) and report the aggregate amount for that chemical category. Do not report releases of each individual chemical in that category separately. For example, if your facility releases 3,000 pounds per year of 2-chlorophenol, 4,000 pounds per year of 3-chlorophenol, and 4,000 pounds per year of 4-chlorophenol, you should report that your facility releases 11,000 pounds per year of chlorophenols.

For listed chemicals with the qualifier "solution," such as sodium sulfate, at concentrations of 1 percent (or 0.1 percent in the case of a carcinogen) or greater, the chemical concentrations must be factored into threshold and release calculations because threshold and release amounts relate to the amount of chemical in solution, not the amount of solution.

For metal compound categories (e.g., chromium compounds), report releases of only the parent metal. For example, a user of various inorganic chromium salts would report the total chromium released in each waste type regardless of the chemical form (e.g., as the original salts, chromium ion, oxide) and exclude any contribution to mass made by other species in the molecule.

EXAMPLE

Your facility disposes of 14,000 pounds of lead chromate ($\text{PbCrO}_4 \cdot \text{PbO}$) and 15,000 pounds of zinc dichromate ($\text{ZnCr}_2\text{O}_7 \cdot 3\text{H}_2\text{O}$) in an on-site landfill and transfers 16,000 pounds of lead selenate (PbSeO_4) to an off-site land disposal facility. You would therefore be submitting four separate reports on the following: lead compounds, zinc compounds, selenium compounds, and chromium compounds. However, the quantities you would be reporting would be the pounds of "parent" metal being released or transferred off-site. All quantities are based on mass balance calculations (See Section 5.B for information on Basis of Estimate and Section 6.C for treatment/disposal codes and information on transfers of chemical wastes). You would calculate releases of lead, zinc, chromium, and selenium by first determining the percentage by weight of these metals in the materials you use as follows:

Lead Chromate ($\text{PbCrO}_4 \cdot \text{PbO}$) -	
Molecular weight	= 546.37
Lead 2 Pb -	
Molecular weight	= $207.2 \times 2 = 414.4$
Chromate 1 Cr -	
Molecular weight	= 51.996

Lead chromate is therefore (% by weight)
 $(414.4/546.37) = 75.85\%$ lead and $(51.996/546.37) = 9.52\%$ chromium

You can then calculate the total amount of the metals that you must report.

14,000 pounds of lead chromate contains:
 $14,000 \times 0.7585 = 10,619$ lbs of lead
 $14,000 \times 0.0952 = 1,332.8$ lbs of chromium

Similarly, zinc dichromate is $(65.38/335.4) = 19.49\%$ zinc and $(51.996 \times 2/335.4) = 31.01\%$ chromium, and lead selenate is $(207.2/350.17) = 59.17\%$ lead and $(78.96/350.17) = 22.55\%$ selenium.

The total pounds of lead, chromium, zinc, and selenium released or transferred from your facility are as follows:

Lead

Release:
 $0.7585 \times 14,000 = 10,619.0$ lbs from lead chromate (round to 11,000 lbs)

Transfer:
 $0.5917 \times 16,000 = 9,467.2$ lbs from lead selenate (round to 9,500 lbs)

As an example, the releases and transfers of lead should be reported as illustrated on the next page.

Chromium

Release:
 $0.0952 \times 14,000 = 1,332.8$ lbs from lead chromate (round to 1,300 lbs)

Release:
 $0.3101 \times 15,000 = 4,651.5$ lbs from zinc dichromate (round to 4,700 lbs)

Zinc

Release:
 $0.1949 \times 15,000 = 2,923.5$ lbs from zinc dichromate (round to 2,900 lbs)

Selenium

Transfer:

0.2255 x 16,000 = 3,608.0 lbs of selenium from lead selenate (round to 3,600 lbs)

B. Basis of Estimate

For each release estimate, you are required to indicate the principal method by which the quantity was derived. Enter a letter code from below that identifies the method that applies to the largest portion of the total estimated quantity. EPA requires that decimal fractions be rounded to no more than two significant digits when reporting releases.

For example, if 40 percent of stack emissions of the reported substance were derived using monitoring data, 30 percent by mass balance, and 30 percent by emission factors, you would enter the code letter "M" for monitoring. The codes are as follows:

- M - Estimate is based on monitoring data or measurements for the toxic chemical as released to the environment and/or off-site facility.
- C - Estimate is based on mass balance calculations, such as calculation of the amount of the toxic chemical in streams entering and leaving process equipment.
- E - Estimate is based on published emission factors, such as those relating release quantity to through-put or equipment type (e.g., air emission factors).
- O - Estimate is based on other approaches such as engineering calculations (e.g., estimating volatilization using published mathematical formulas) or best engineering judgment. This would include applying an estimated removal efficiency to a waste stream, even if the composition of the stream before treatment was fully characterized by monitoring data.

If the monitoring data, mass balance, or emission factor used to estimate the release is not specific to the toxic chemical

being reported, the form should identify the estimate as based on engineering calculations or judgment.

If a mass balance calculation yields the flow rate of a waste stream, but the quantity of reported chemical in the waste stream is based on solubility data, report "O" because "engineering calculations" were used as the basis of estimate of the quantity of the chemical in the waste stream.

If the concentration of the chemical in the waste stream was measured by monitoring equipment and the flow rate of the waste stream was determined by mass balance, then the primary basis of estimate is "monitoring" (M) even though a mass balance calculation also contributed to the estimate. "Monitoring" should be indicated because monitoring data was used to estimate the concentration of the waste stream.

Mass balance (C) should only be indicated if it is directly used to calculate the mass (weight) of chemical released. Monitoring data should be indicated as the basis of estimate only if the chemical concentration is measured in the waste stream being released into the environment as opposed to measured in other process streams containing the chemical.

C. Percent From Stormwater

This column relates only to Section 5.3 - Discharges to receiving streams or water bodies. If your facility has monitoring data on the amount of the chemical in stormwater runoff (including unchanneled runoff), you must include that quantity of the chemical in your water release in column A and indicate the percentage of the total quantity (by weight) of the chemical contributed by stormwater in column C (5.3c).

If your facility has monitoring data on the chemical and an estimate of flow rate, you must use this data to determine the percent stormwater.

If you have monitored stormwater but did not detect the chemical, enter zero (0) in column C. If your facility has no stormwater monitoring data for the chemical, enter not applicable, NA, in this space on the form.


1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)	
1.1	[Reserved]
1.2	CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting a chemical category.) NA
1.3	Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.) Lead Compounds
1.4	Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)
2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)	
2.	Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE			
You may report releases of less than 1,000 lbs. by checking ranges under A. 1. (Do not use both A. 1 and A. 2)	A. Total Release (lbs/yr)		B. Basis of Estimate (enter code)
	A. 1 Reporting Ranges 0 1-499 500-999	A. 2 Enter Estimate	
5.1 Fugitive or non-point air emissions	5.1a	[] [] []	NA 5.1b <input type="checkbox"/>
5.2 Stack or point air emissions	5.2a	[] [] []	NA 5.2b <input type="checkbox"/>
5.3 Discharges to receiving streams or water bodies <input type="checkbox"/> (Enter letter code from Part I Section 3.10 for stream(s) in the box provided)	5.3.1 <input type="checkbox"/>	5.3.1a [] [] []	NA 5.3.1b <input type="checkbox"/> C % From Stormwater
	5.3.2 <input type="checkbox"/>	5.3.2a [] [] []	5.3.2b <input type="checkbox"/> 5.3.1c NA
	5.3.3 <input type="checkbox"/>	5.3.3a [] [] []	5.3.3b <input type="checkbox"/> 5.3.2c
5.4 Underground injection	5.4a	[] [] []	NA 5.4b <input type="checkbox"/> 5.3.3c
5.5 Releases to land	5.5.1 On-site landfill	5.5.1a [] [] []	11,000 5.5.1b <input checked="" type="checkbox"/> C
	5.5.2 Land treatment/application farming	5.5.2a [] [] []	NA 5.5.2b <input type="checkbox"/>
	5.5.3 Surface impoundment	5.5.3a [] [] []	NA 5.5.3b <input type="checkbox"/>
	5.5.4 Other disposal	5.5.4a [] [] []	NA 5.5.4b <input type="checkbox"/>

[] (Check if additional information is provided on Part IV-Supplemental Information)



(Important: Type or print; read instructions before completing form.)

	EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)	(This space for your optional use)
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6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS				
You may report transfers of less than 1,000 lbs. by checking ranges under A. 1. (Do not use both A. 1 and A. 2)	A. Total Transfers (lbs/yr)		B. Basis of Estimate (enter code)	C Type of Treatment/ Disposal (enter code)
	A. 1 Reporting Ranges 0 1-499 500-999	A. 2 Enter Estimate		
6.1.1 Discharge to POTW (enter location number from Part II, Section 1.) <input type="checkbox"/>	6.1.1a	[] [] []	NA 6.1.1b <input type="checkbox"/>	
6.2.1 Other off-site location (enter location number from Part II, Section 2.) <input checked="" type="checkbox"/>	6.2.1a	[] [] []	9,500 6.2.1b <input checked="" type="checkbox"/> C	6.2.1c <input checked="" type="checkbox"/> M 7 2
6.2.2 Other off-site location (enter location number from Part II, Section 2.) <input type="checkbox"/>	6.2.2a	[] [] []	NA 6.2.2b <input type="checkbox"/>	6.2.2c <input checked="" type="checkbox"/> M
6.2.3 Other off-site location (enter location number from Part II, Section 2.) <input type="checkbox"/>	6.2.3a	[] [] []	6.2.3b <input type="checkbox"/>	6.2.3c <input checked="" type="checkbox"/> M

[] (Check if additional information is provided on Part IV-Supplemental Information.)

EXAMPLE

Bi-monthly stormwater monitoring data shows that the average concentration of zinc in the stormwater runoff from your facility from a biocide containing a zinc compound is 1.4 milligrams per liter, and the total annual stormwater discharge from the facility is 7.527 million gallons. The total amount of zinc discharged to surface water through the plant wastewater discharge (non-stormwater) is 250 pounds per year. The total amount of zinc discharged with stormwater is:

$$(7,527,000 \text{ gallons stormwater}) \times (3.785 \text{ liters/gallon}) \\ = 28,489,695 \text{ liters stormwater}$$

$$(28,489,695 \text{ liters stormwater}) \times (1.4 \text{ mg. zinc/liter}) \\ = 39,885.6 \text{ g zinc} \\ = 87.9 \text{ lbs zinc}$$

The total amount of zinc discharged from all sources of your facility is:

$$250 \text{ lbs zinc from wastewater discharge} \\ + \underline{87.9} \text{ lbs zinc from stormwater runoff} \\ 337.9 \text{ lbs zinc total water discharge}$$

Round to 340 lbs. of zinc for report.

The percentage of zinc discharged through stormwater is:

$$87.9/337.9 \times 100 = 26\%$$

If your facility does not have periodic measurements of stormwater releases of the chemical, but has submitted chemical-specific monitoring data in permit applications, then these data must be used to calculate the percent contribution from stormwater. Rates of flow can be estimated by multiplying the annual amount of rainfall by the land area of the facility and then multiplying that figure by the runoff coefficient. The runoff coefficient represents the fraction of rainfall that does not infiltrate into the ground but runs off as stormwater. The runoff coefficient is directly related to how the land in the drainage area is used. (See table below.)

<u>Description of Land Area</u>	<u>Runoff Coefficient</u>
Business	
Downtown areas	0.70-0.95
Neighborhood areas	0.50-0.70
Industrial	
Light areas	0.50-0.80
Heavy areas	0.60-0.90
Railroad yard areas	0.20-0.40
Unimproved areas	0.10-0.30
Streets	
Asphaltic	0.70-0.95
Concrete	0.80-0.95

Brick	0.70-0.85
Drives and walks	0.70-0.85
Roofs	0.75-0.95
Lawns: Sandy Soil	
Flat, 2%	0.05-0.10
Average, 2-7%	0.10-0.15
Steep, 7%	0.15-0.20
Lawns: Heavy Soil	
Flat, 2%	0.13-0.17
Average, 2-7%	0.18-0.22
Steep, 7%	0.25-0.35

Choose the most appropriate runoff coefficient for your site or calculate a weighted-average coefficient, which takes into account different types of land use at your facility:

$$\text{Weighted-average runoff coefficient} = \frac{\text{Area}_1 C_1 + \text{Area}_2 C_2 + \dots + \text{Area}_n C_n}{\text{Total Site Area}}$$

where C_i = runoff coefficient for a specific land use of Area_i .

EXAMPLE

Your facility is located in a semi-arid region of the United States which has an annual precipitation (including snowfall) of 12 inches of rain. (Snowfall should be converted to the equivalent inches of rain; assume one foot of snow is equivalent to one inch of rain.) The area covered by your facility is 42 acres (about 170,000 square meters or 1,829,520 square feet). The area of your facility is 50 percent unimproved area, 10 percent asphaltic streets, and 40 percent concrete pavement.

The total stormwater runoff from your facility is therefore calculated as follows:

<u>Land Use</u>	<u>% Area</u>	<u>Runoff Coefficient</u>
Unimproved area	50	0.20
Asphaltic streets	10	0.85
Concrete pavement	40	0.90

$$\text{Weighted-average runoff coefficient} = \frac{(50\%) \times (0.20) + (10\%) \times (0.85) + (40\%) \times (0.90)}{100\% \text{ Area}}$$

$$= 0.545$$

(Rainfall) x (land area) x (conversion factor) x (runoff coefficient) = stormwater runoff

$$(1 \text{ foot}) \times (1,829,520 \text{ ft}^2) \times (7.48 \text{ gal/ft}^3) \times (0.545) \\ = 7,458,221 \text{ gallons/year}$$

Total stormwater runoff = 7.45 million gallons/year

6. Transfers of the Chemical in Waste to Off-Site Locations

You must report in this section the total annual quantity of the chemical sent to any of the off-site disposal, treatment, or storage facilities for which you have provided an address in Part II. You are not required to report quantities of the chemical sent off-site for purposes of recycle or reuse.

On line 6.1.1, report the amount of the listed chemical transferred to a POTW listed in Part II, Section 1. In the block provided, enter the number from Part II, Section 1 corresponding to the POTW to which the discharge is sent. For example, if the discharge is sent to the location listed in Part II, Section 1.1, then enter "1" in the block provided (the first digit of this section number has been precoded). If you transfer waste containing the toxic chemical to more than one POTW, check the box at the bottom of Section 6 and use the Part IV, the supplemental information sheet to report these transfers.

On lines 6.2.1 through 6.2.3, report the amount of the chemical transferred to other off-site locations corresponding to those listed in Part II, Sections 2.1 through 2.6, including privately owned wastewater treatment facilities. In the block provided, enter the number from Part II, Section 2 corresponding to the off-site location to which the transfer is sent. For example, if the transfer is sent to the location listed in Part II, Section 2.3, enter "3" in the block provided (the first digit of this section number has been precoded). If you need additional space, check the box at the bottom of Section 6 and use the supplemental information sheet (Part IV, Section 6) to report these transfers.

A. Total Transfers

Follow the instructions for providing estimates as presented in the instructions for column A of Section 5 above. Enter the amount, in pounds, of the toxic chemical that is being transferred, including mixtures or trade name products containing the chemical. Do not enter the total poundage of wastes. See Section 5 for information on reporting off-site transfers of less than 1 pound. As in Section 5, if the total amount transferred is less than 1,000 pounds, you may report a range, but only for reporting years 1987, 1988, and 1989. Enter not applicable, NA, if you have no off-site transfers.

B. Basis of Estimate

You must identify the basis for your estimate. Enter the letter code that applies to the method by which the largest percentage of the estimate was derived. Use the same codes identified in the instructions for column B of Section 5.

C. Type of Treatment/Disposal

Enter one of the following codes to identify the type of treatment or disposal method used by the off-site location for

the chemical being reported. You should use more than one line for a single location when the toxic chemical is subject to different disposal methods; the same location code may be used more than once. You may have this information in your copy of EPA Form SO, Item S of the Annual/Biennial Hazardous Waste Treatment, Storage, and Disposal Report (RCRA). Applicable codes for this Section 6(c) are as follows:

- M10 Storage Only
- M40 Solidification/Stabilization
- M50 Incineration/Thermal Treatment
- M61 Wastewater Treatment (Excluding POTW)
- M69 Other Treatment
- M71 Underground Injection
- M72 Landfill/Disposal Surface Impoundment
- M73 Land Treatment
- M79 Other Land Disposal
- M90 Other Off-Site Management
- M91 Transfer to Waste Broker
- M99 Unknown

7. Waste Treatment Methods and Efficiency

In Section 7, you must provide the following information related to the chemical for which releases are being reported: (A) the general waste stream types containing the chemical being reported; (B) the waste-treatment methods used on all waste streams containing the chemical; (C) the range of concentrations of the chemical in the influent to the treatment method; (D) whether sequential treatment is used; (E) the efficiency or effectiveness of each treatment method in removing the chemical; and (F) whether the treatment efficiency figure was based on actual operating data. Use a separate line in Section 7 for each treatment method used on a waste stream. Report in this section only information about treatment of waste streams at your facility, not about off-site treatment. If you do not perform on-site treatment of wastes, enter not applicable, NA, in 7.1b.

A. General Waste Stream

For each waste treatment method, indicate the type of waste stream containing the chemical that is treated. Enter the letter code that corresponds to the general waste stream type:

- A = Gaseous (gases, vapors, airborne particulates)
- W = Wastewater (aqueous waste)
- L = Liquid waste (non-aqueous waste)
- S = Solid waste (including sludges and slurries)

If a waste is a mixture of water and organic liquid, you must report it as wastewater unless the organic content exceeds 50 percent. Slurries and sludges containing water must be reported as solid waste if they contain appreciable amounts of dissolved solids, or solids that may settle, such that the

viscosity or density of the waste is considerably different from that of process wastewater.

B. Treatment Method

Enter the appropriate code from one of the lists below for each treatment method used on a waste stream containing the toxic chemical, regardless of whether the treatment method actually removes the specific chemical being reported. Treatment methods must be reported for each type of waste being treated (i.e., gaseous wastes, aqueous wastes, liquid non-aqueous wastes, and solids).

Waste streams containing the chemical may have a single source or may be aggregates of many sources. For example, process water from several pieces of equipment at your facility may be combined prior to treatment. Report treatment methods that apply to the aggregate waste stream, as well as treatment methods that apply to individual waste streams. If your facility treats various wastewater streams containing the chemical in different ways, the different treatment methods must each be listed separately.

Your facility may have several pieces of equipment performing a similar service and for such equipment you may combine the reporting on a single line. It is not necessary to enter four lines of data to cover four scrubber units, for example, if all four are treating wastes of similar character (e.g., sulfuric acid mist emissions), have similar influent concentrations, and have similar removal efficiencies. If, however, any of these parameters differ from one unit to the next, each scrubber must be listed separately.

Air Emissions Treatment

- A01 Flare
- A02 Condenser
- A03 Scrubber
- A04 Absorber
- A05 Electrostatic Precipitator
- A06 Mechanical Separation
- A07 Other Air Emission Treatment

Biological Treatment

- B11 Biological Treatment -- Aerobic
- B21 Biological Treatment -- Anaerobic
- B31 Biological Treatment -- Facultative
- B99 Biological Treatment -- Other

Chemical Treatment

- C01 Chemical Precipitation -- Lime or Sodium Hydroxide
- C02 Chemical Precipitation -- Sulfide
- C09 Chemical Precipitation -- Other

- C11 Neutralization
- C21 Chromium Reduction
- C31 Complexed Metals Treatment (other than pH Adjustment)
- C41 Cyanide Oxidation -- Alkaline Chlorination
- C42 Cyanide Oxidation -- Electrochemical
- C43 Cyanide Oxidation -- Other
- C44 General Oxidation (including Disinfection) -- Chlorination
- C45 General Oxidation (including Disinfection) -- Ozonation
- C46 General Oxidation (including Disinfection) -- Other
- C99 Other Chemical Treatment

Incineration/Thermal Treatment

- F01 Liquid Injection
- F11 Rotary Kiln with Liquid Injection Unit
- F19 Other Rotary Kiln
- F31 Two Stage
- F41 Fixed Hearth
- F42 Multiple Hearth
- F51 Fluidized Bed
- F61 Infra-Red
- F71 Fume/Vapor
- F81 Pyrolytic Destructor
- F82 Wet Air Oxidation
- F83 Thermal Drying/Dewatering
- F99 Other Incineration/Thermal Treatment

Physical Treatment

- P01 Equalization
- P09 Other Blending
- P11 Settling/Clarification
- P12 Filtration
- P13 Sludge Dewatering (non-thermal)
- P14 Air Flotation
- P15 Oil Skimming
- P16 Emulsion Breaking -- Thermal
- P17 Emulsion Breaking -- Chemical
- P18 Emulsion Breaking -- Other
- P19 Other Liquid Phase Separation
- P21 Adsorption -- Carbon
- P22 Adsorption -- Ion Exchange (other than for recovery/reuse)
- P23 Adsorption -- Resin
- P29 Adsorption -- Other
- P31 Reverse Osmosis (other than for recovery/reuse)
- P41 Stripping -- Air
- P42 Stripping -- Steam
- P49 Stripping -- Other
- P51 Acid Leaching (other than for recovery/reuse)
- P61 Solvent Extraction (other than recovery/reuse)
- P99 Other Physical Treatment

Recovery/Reuse

- R01 Reuse as Fuel -- Industrial Kiln
- R02 Reuse as Fuel -- Industrial Furnace
- R03 Reuse as Fuel -- Boiler
- R04 Reuse as Fuel -- Fuel Blending
- R09 Reuse as Fuel -- Other
- R11 Solvents/Organics Recovery -- Batch Still Distillation
- R12 Solvents/Organics Recovery -- Thin-Film Evaporation
- R13 Solvents/Organics Recovery -- Fractionation
- R14 Solvents/Organics Recovery -- Solvent Extraction
- R19 Solvents/Organics Recovery -- Other
- R21 Metals Recovery -- Electrolytic
- R22 Metals Recovery -- Ion Exchange
- R23 Metals Recovery -- Acid Leaching
- R24 Metals Recovery -- Reverse Osmosis
- R26 Metals Recovery -- Solvent Extraction
- R29 Metals Recovery -- Other
- R99 Other Reuse or Recovery

Solidification/Stabilization

- G01 Cement Processes (including Silicates)
- G09 Other Pozzolonic Processes (including Silicates)
- G11 Asphaltic Processes
- G21 Thermoplastic Techniques
- G99 Other Solidification Processes

C. Range of Influent Concentration

The form requires an indication of the range of concentration of the toxic chemical in the waste stream (i.e., the influent) as it typically enters the treatment equipment. Enter in the space provided one of the following code numbers corresponding to the concentration of the chemical in the influent:

- 1 = Greater than 1 percent
- 2 = 100 parts per million (0.01 percent) to 1 percent (10,000 parts per million)
- 3 = 1 part per million to 100 parts per million
- 4 = 1 part per billion to 1 part per million
- 5 = Less than 1 part per billion

[**Note:** Parts per million (ppm) is milligrams/kilogram (mass/mass) for solids and liquids; cubic centimeters/ cubic meter (volume/volume) for gases; milligrams/liter for solutions or dispersions of the chemical in water; and milligrams of chemical/kilogram of air for particulates in air. If you have particulate concentrations (at standard temperature and pressure) as grains/cubic foot of air, multiply by 1766.6 to convert to parts per million; if in milligrams/cubic meter, multiply by 0.773 to obtain parts per million. Factors are for standard conditions of 0°C (32°F) and 760 mmHg atmospheric pressure.]

D. Sequential Treatment?

The blocks in this column may be used in the following case:

- Individual treatment steps are used in a series to treat the chemical, but
- You have no data on the individual efficiencies of each step, but you are able to estimate the overall efficiency of the treatment sequence.

If this is the case, then you may do the following:

- List the appropriate codes for the treatment steps in order (column B) and then put an "X" in the boxes in column D for all these sequential treatment steps.
- Enter the appropriate code for the influent concentration (column C) for only the first treatment step in the sequence. Leave this item blank for the rest of the treatment steps in the sequence only. Enter NA in column E for the efficiency of preceding steps in the sequence.
- Provide the treatment efficiency (column E) for the entire sequence by entering that value in connection with the last treatment step in the sequence only. Enter NA in column E for the efficiency of preceding steps in the sequence.

An example of how to use the sequential treatment option is provided in Appendix A (page 47).

E. Treatment Efficiency Estimate

In the space provided, enter the number indicating the percentage of the toxic chemical removed from the waste stream through destruction, biological degradation, chemical conversion, or physical removal. The treatment efficiency (expressed as percent removal) represents the mass or weight percentage of chemical destroyed or removed, not merely changes in volume or concentration of the chemical or the waste stream. The efficiency refers only to the percent conversion or removal of the listed toxic chemical from the waste stream, not the percent conversion or removal of other waste stream constituents (alone or together with the listed chemical), and not the general efficiency of the method for any waste stream. For some treatments, the percent removal will represent removal by several mechanisms, as in secondary wastewater treatment, where a chemical may evaporate, be biodegraded, or be physically removed in the sludge.

Percent removal must be calculated as follows:

$$\frac{(I - E)}{I} \times 100$$

where I = mass of the chemical in the influent waste stream and E = mass of the chemical in the effluent waste stream.

- Mark yes or no in column F only in connection with the final step in the sequence. Do not mark in this column for preceding steps in the sequence.

Calculate the mass or weight of chemical in the waste stream being treated by multiplying the concentration (by weight) of the chemical in the waste stream by the flow rate. In most cases, the percent removal compares the treated effluent to the influent for the particular type of waste stream. However, for some treatment methods, such as incineration or solidification of wastewater, the percent removal of the chemical from the influent waste stream would be reported as 100 percent because the waste stream does not exist in a comparable form after treatment. Some of the treatments (e.g., fuel blending and evaporation) do not destroy, chemically convert, or physically remove the chemical from its waste stream. For these treatment methods, an efficiency of zero must be reported.

For metal compounds, the calculation of the reportable concentration and treatment efficiency is based on the weight of the parent metal, not on the weight of the metal compounds. Metals are not destroyed, only physically removed or chemically converted from one form into another. The treatment efficiency reported represents only physical removal of the parent metal from the waste stream, not the percent chemical conversion of the metal compound. If a listed treatment method converts but does not remove a metal (e.g., chromium reduction), the method must be reported, but the treatment efficiency must be reported as zero.

All data available at your facility must be utilized to calculate treatment efficiency and influent chemical concentration. You are not required to collect any new data for the purposes of this reporting requirement. If data are lacking, estimates must be made using best engineering judgment or other methods.

F. Based on Operating Data?

This column requires you to indicate "Yes" or "No" to whether the treatment efficiency estimate is based on actual operating data. For example, you would check "Yes" if the estimate is based on monitoring of influent and effluent wastes under typical operating conditions. For sequential treatment, do not indicate "Yes" or "No" in column F for a treatment step unless you have provided a treatment estimate in column E.

If the efficiency estimate is based on published data for similar processes or on equipment supplier's literature, or if you otherwise estimated either the influent or effluent waste comparison or the flow rate, check "No."

EXAMPLE

Your facility produces several different waste streams treated on-site and transferred to off-site facilities. You have previ-

ously indicated, in Part II, Section 2.1, of Form R, the location of the off-site facilities and the quantity of each reported chemical transferred to off-site facilities in Part III, Section 6.2.1, of the form, using a separate form for each chemical. One waste stream generated by your facility is aqueous waste containing lead chromate, zinc dichromate, and lead selenate as discussed in a previous example in these instructions. In this example, the waste is transferred to off-site facilities after on-site wastewater treatment. The on-site wastewater treatment plant precipitates metal sludges. The wastewater is first treated with sulfuric acid and sodium disulfate to reduce the hexavalent chromate to trivalent chromium and then treated with lime to raise the pH. This precipitates chromium hydroxide, zinc hydroxide, and lead hydroxide, but does not remove the selenium. The selenium is removed from the wastewater by an ionic exchange system. The chromium, zinc, and lead hydroxide sludge (solid) waste is transferred to an off-site land disposal facility and the selenium-containing ion exchange resin is transferred to an off-site facility for metal recovery (off-site recovery should not be reported). The treated wastewater is sent to a POTW after neutralization. You would indicate the following treatment methods for the on-site treatment of each of the lead, zinc, chromium, and selenium compounds:

- C21 - Chromium Reduction
- C01 - Chemical Precipitation -- Lime or Sodium Hydroxide
- R22 - Metals Recovery -- Ion Exchange
- C11 - Neutralization

All sequential treatment steps must be indicated for all the metal compound categories reported even if the treatment method does not affect the particular metal. For example, ionic exchange must be reported as a treatment method for lead, zinc, chromium, and selenium compounds, even though the method affects only the selenium compound.

You would calculate the percent removal of chromium, lead, zinc, and selenium, by subtracting the amount of each metal in the wastewater discharge from the amount of each metal in the wastewater before treatment, and then dividing by the amount of each metal in the wastewater before treatment.

You would indicate a discharge to a POTW in Part III, Section 6.1.1 and the location of the POTW in Part II, Section 1.1. You would also indicate the release of the metal sludge to an off-site land disposal facility in Part III, Section 6.2.1.

8. Optional Information on Waste Minimization

Information provided in Part III, Section 8, of Form R is optional. In this section, you may identify waste minimization efforts relating to the reported toxic chemical that may not have been reflected in your responses to previous sections of the form. Waste minimization reduces the amount of the

chemical in wastes that are generated. Treatment or disposal does not minimize waste, but recycling or reuse of a waste should be counted as waste minimization. Waste minimization applies to air emissions and wastewater, as well as to liquid or solid materials that are released, disposed of, or treated. For example, a program to recycle material from reactor cleaning could reduce the amount of a listed chemical in wastewater prior to treatment. This reduction might not show up in annual reports of releases to receiving streams (due to effective treatment, for example) but would be captured in this section.

A. Type of Modification

Enter from the following list the one code that best describes the type of waste minimization activity:

- M1 Recycling/Reuse On-Site
- M2 Recycling/Reuse Off-Site
- M3 Equipment/Technology Modifications
- M4 Process Procedure Modifications
- M5 Reformulation/Redesign of Product
- M6 Substitution of Raw Materials
- M7 Improved Housekeeping, Training, Inventory Control
- M8 Other Waste Minimization Technique

B. Quantity of the Chemical in the Wastestream Prior to Treatment/Disposal

Enter the pounds of the toxic chemical contained in all wastes in the reporting year and the pounds contained in all wastes in the year prior to the reporting year. Alternatively, to protect confidential information, you may wish to enter only the percentage by which the weight of the chemical in the wastes has changed. This figure may be calculated using the following formula:

$$\frac{(\text{toxic chemical in wastes in reporting year} - \text{toxic chemical in wastes in prior year})}{\text{toxic chemical in wastes in prior year}} \times 100$$

The resulting figure may be either negative or positive (i.e., if the amount of waste generated has been reduced, a negative number should be reported).

C. Index

Enter the ratio of reporting-year production to production in the year prior to the reporting year. This index should be calculated to most closely reflect activities involving the chemical. The index provides a means for users of the data to distinguish effects due to changes in business activity from the effects specifically due to waste minimization efforts. It is not necessary to indicate the units on which the index is based. Examples of acceptable indices include:

- Amount of chemical produced in 1988/amount of chemical produced in 1987. For example, a company manufactures 200,000 pounds of a chemical in 1987 and 250,000 pounds of the same chemical in 1988. The index figure to report would be 1.3 (1.25 rounded to two significant digits).
- Amount of paint produced in 1988/amount of paint produced in 1987.
- Number of appliances coated in 1988/number of appliances coated in 1987.
- Square feet of solar collector fabricated in 1988/square feet of solar collector fabricated in 1987.

D. Reason for Action

Finally, enter the codes from the following list that best describe the reason for initiating the waste minimization effort:

- R1 Regulatory Requirement for the Waste
- R2 Reduction of Treatment/Disposal Costs
- R3 Other Process Cost Reduction
- R4 Self-Initiated Review
- R5 Other (e.g., discontinuation of product, occupational safety).

TABLE I

SIC CODES 20-39

20 Food and Kindred Products

2011 Meat packing plants
 2013 Sausages and other prepared meat products
 2015 Poultry slaughtering and processing
 2021 Creamery butter
 2022 Natural, processed, and imitation cheese
 2023 Dry, condensed, and evaporated dairy products
 2024 Ice cream and frozen desserts
 2026 Fluid milk
 2032 Canned specialties
 2033 Canned fruits, vegetables, preserves, jams, and jellies
 2034 Dried and dehydrated fruits, vegetables, and soup mixes
 2035 Pickled fruits and vegetables, vegetable sauces and seasonings, and salad dressings
 2037 Frozen fruits, fruit juices, and vegetables
 2038 Frozen specialties, n.e.c.*
 2041 Flour and other grain mill products
 2043 Cereal breakfast foods
 2044 Rice milling
 2045 Prepared flour mixes and doughs
 2046 Wet corn milling
 2047 Dog and cat food
 2048 Prepared feeds and feed ingredients for animals and fowls, except dogs and cats
 2051 Bread and other bakery products, except cookies and crackers
 2052 Cookies and crackers
 2053 Frozen bakery products, except bread
 2061 Cane sugar, except refining
 2062 Cane sugar refining
 2063 Beet sugar
 2064 Candy and other confectionary products
 2066 Chocolate and cocoa products
 2067 Chewing gum
 2068 Salted and roasted nuts and seeds
 2074 Cottonseed oil mills
 2075 Soybean oil mills
 2076 Vegetable oil mills, except corn, cottonseed, and soybean
 2077 Animal and marine fats and oils
 2079 Shortening, table oils, margarine, and other edible fats and oils, n.e.c.*
 2082 Malt beverages
 2083 Malt
 2084 Wines, brandy, and brandy spirits
 2085 Distilled and blended liquors
 2086 Bottled and canned soft drinks and carbonated waters

2087 Flavoring extracts and flavoring syrups, n.e.c.*
 2091 Canned and cured fish and seafoods
 2092 Prepared fresh or frozen fish and seafoods
 2095 Roasted coffee
 2096 Potato chips, corn chips, and similar snacks
 2097 Manufactured ice
 2098 Macaroni, spaghetti, vermicelli, and noodles
 2099 Food preparations, n.e.c.*

21 Tobacco Products

2111 Cigarettes
 2121 Cigars
 2131 Chewing and smoking tobacco and snuff
 2141 Tobacco stemming and redrying

22 Textile Mill Products

2211 Broadwoven fabric mills, cotton
 2221 Broadwoven fabric mills, manmade fiber, and silk
 2231 Broadwoven fabric mills, wool (including dyeing and finishing)
 2241 Narrow fabric and other smallwares mills: cotton, wool, silk, and manmade fiber
 2251 Women's full length and knee length hosiery, except socks
 2252 Hosiery, n.e.c.*
 2253 Knit outerwear mills
 2254 Knit underwear and nightwear mills
 2257 Weft knit fabric mills
 2258 Lace and warp knit fabric mills
 2259 Knitting mills, n.e.c.*
 2261 Finishers of broadwoven fabrics of cotton
 2262 Finishers of broadwoven fabrics of manmade fiber and silk
 2269 Finishers of textiles, n.e.c.*
 2273 Carpets and rugs
 2281 Yarn spinning mills
 2282 Yarn texturizing, throwing, twisting, and winding mills
 2284 Thread mills
 2295 Coated fabrics, not rubberized
 2296 Tire cord and fabrics
 2297 Nonwoven fabrics
 2298 Cordage and twine
 2299 Textile goods, n.e.c.*

23 Apparel and Other Finished Products made from Fabrics and Other Similar Materials

2311 Men's and boys' suits, coats, and overcoats

- 2321 Men's and boys' shirts, except work shirts
- 2322 Men's and boys' underwear and nightwear
- 2323 Men's and boys' neckwear
- 2325 Men's and boys' separate trousers and slacks
- 2326 Men's and boys' work clothing
- 2329 Men's and boys' clothing, n.e.c.*
- 2331 Women's, misses', and juniors' blouses and shirts
- 2335 Women's, misses', and juniors' dresses
- 2337 Women's, misses', and juniors' suits, skirts, and coats
- 2339 Women's, misses', and juniors', outerwear, n.e.c.*
- 2341 Women's, misses', children's, and infants' underwear and nightwear
- 2342 Brassieres, girdles, and allied garments
- 2353 Hats, caps, and millinery
- 2361 Girls', children's and infants' dresses, blouses, and shirts
- 2369 Girls', children's and infants' outerwear, n.e.c.*
- 2371 Fur goods
- 2381 Dress and work gloves, except knit and all leather
- 2384 Robes and dressing gowns
- 2385 Waterproof outerwear
- 2386 Leather and sheep lined clothing
- 2387 Apparel belts
- 2389 Apparel and accessories, n.e.c.*
- 2391 Curtains and draperies
- 2392 Housefurnishings, except curtains and draperies
- 2393 Textile bags
- 2394 Canvas and related products
- 2395 Pleating, decorative and novelty stitching, and tucking for the trade
- 2396 Automotive trimmings, apparel findings, and related products
- 2397 Schiffli machine embroideries
- 2399 Fabricated textile products, n.e.c.*

24 Lumber and Wood Products, Except Furniture

- 2411 Logging
- 2421 Sawmills and planing mills, general
- 2426 Hardwood dimension and flooring mills
- 2429 Special product sawmills, n.e.c.*
- 2431 Millwork
- 2434 Wood kitchen cabinets
- 2435 Hardwood veneer and plywood
- 2436 Softwood veneer and plywood
- 2439 Structural wood members, n.e.c.*
- 2441 Nailed and lock corner wood boxes and shook
- 2448 Wood pallets and skids
- 2449 Wood containers, n.e.c.*
- 2451 Mobile homes
- 2452 Prefabricated wood buildings and components
- 2491 Wood preserving
- 2493 Reconstituted wood products
- 2499 Wood products, n.e.c.*

25 Furniture and Fixtures

- 2511 Wood household furniture, except upholstered
- 2512 Wood household furniture, upholstered
- 2514 Metal household furniture
- 2515 Mattresses, foundations, and convertible beds
- 2517 Wood television, radio, phonograph, and sewing machine cabinets
- 2519 Household furniture, n.e.c.*
- 2521 Wood office furniture
- 2522 Office furniture, except wood
- 2531 Public building and related furniture
- 2541 Wood office and store fixtures, partitions, shelving, and lockers
- 2542 Office and store fixtures, partitions, shelving, and lockers, except wood
- 2591 Drapery hardware and window blinds and shades
- 2599 Furniture and fixtures, n.e.c.*

26 Paper and Allied Products

- 2611 Pulp mills
- 2621 Paper mills
- 2631 Paperboard mills
- 2652 Setup paperboard boxes
- 2653 Corrugated and solid fiber boxes
- 2655 Fiber cans, tubes, drums, and similar products
- 2656 Sanitary food containers, except folding
- 2657 Folding paperboard boxes, including sanitary
- 2671 Packaging paper and plastics film, coated and laminated
- 2672 Coated and laminated paper, n.e.c.*
- 2673 Plastics, foil, and coated paper bags
- 2674 Uncoated paper and multiwall bags
- 2675 Die-cut paper and paperboard and cardboard
- 2676 Sanitary paper products
- 2677 Envelopes
- 2678 Stationery tablets, and related products
- 2679 Converted paper and paperboard products, n.e.c.*

27 Printing, Publishing, and Allied Industries

- 2711 Newspapers: publishing, or publishing and printing
- 2721 Periodicals: publishing, or publishing and printing
- 2731 Books: publishing, or publishing and printing
- 2732 Book printing
- 2741 Miscellaneous publishing
- 2752 Commercial printing, lithographic
- 2754 Commercial printing, gravure
- 2759 Commercial printing, n.e.c.*
- 2761 Manifold business forms
- 2771 Greeting cards
- 2782 Blankbooks, looseleaf binders and devices

- 2789 Bookbinding and related work
- 2791 Typesetting
- 2796 Platemaking and related services

28 Chemicals and Allied Products

- 2812 Alkalies and chlorine
- 2813 Industrial gases
- 2816 Inorganic pigments
- 2819 Industrial inorganic chemicals, n.e.c.*
- 2821 Plastics materials, synthetic resins, and non-vulcanizable elastomers
- 2822 Synthetic rubber (vulcanizable elastomers)
- 2823 Cellulosic manmade fibers
- 2824 Manmade organic fibers, except cellulosic
- 2833 Medicinal chemicals and botanical products
- 2834 Pharmaceutical preparations
- 2835 In vitro and in vivo diagnostic substances
- 2836 Biological products, except diagnostic substances
- 2841 Soap and other detergents, except specialty cleaners
- 2842 Specialty cleaning, polishing, and sanitation preparations
- 2843 Surface active agents, finishing agents, sulfonated oils, and assistants
- 2844 Perfumes, cosmetics, and other toilet preparations
- 2851 Paints, varnishes, lacquers, enamels, and allied products
- 2861 Gum and wood chemicals
- 2865 Cyclic organic crudes and intermediates, and organic dyes and pigments
- 2869 Industrial organic chemicals, n.e.c.*
- 2873 Nitrogenous fertilizers
- 2874 Phosphatic fertilizers
- 2875 Fertilizers, mixing only
- 2879 Pesticides and agricultural chemicals, n.e.c.*
- 2891 Adhesives and sealants
- 2892 Explosives
- 2893 Printing ink
- 2895 Carbon black
- 2899 Chemicals and chemical preparations, n.e.c.*

29 Petroleum Refining and Related Industries

- 2911 Petroleum refining
- 2951 Asphalt paving mixtures and blocks
- 2952 Asphalt felts and coatings
- 2992 Lubricating oils and greases
- 2999 Products of petroleum and coal, n.e.c.*

30 Rubber and Miscellaneous Plastics Products

- 3011 Tires and inner tubes
- 3021 Rubber and plastics footwear
- 3052 Rubber and plastics hose and belting

- 3053 Gaskets, packing, and sealing devices
- 3061 Molded, extruded, and lathecut mechanical rubber products
- 3069 Fabricated rubber products, n.e.c.*
- 3081 Unsupported plastics film and sheet
- 3082 Unsupported plastics profile shapes
- 3083 Laminated plastics plate, sheet, and profile shapes
- 3084 Plastics pipe
- 3085 Plastics bottles
- 3086 Plastics foam products
- 3087 Custom compounding of purchased plastics resins
- 3088 Plastics plumbing fixtures
- 3089 Plastics products, n.e.c.*

31 Leather and Leather Products

- 3111 Leather tanning and finishing
- 3131 Boot and shoe cut stock and findings
- 3142 House slippers
- 3143 Men's footwear, except athletic
- 3144 Women's footwear, except athletic
- 3149 Footwear, except rubber, n.e.c.*
- 3151 Leather gloves and mittens
- 3161 Luggage
- 3171 Women's handbags and purses
- 3172 Personal leather goods, except women's handbags and purses
- 3199 Leather goods, n.e.c.*

32 Stone, Clay, Glass and Concrete Products

- 3211 Flat glass
- 3221 Glass containers
- 3229 Pressed and blown glass and glassware, n.e.c.*
- 3231 Glass products, made of purchased glass
- 3241 Cement, hydraulic
- 3251 Brick and structural clay tile
- 3253 Ceramic wall and floor tile
- 3255 Clay refractories
- 3259 Structural clay products, n.e.c.*
- 3261 Vitreous china plumbing fixtures and china and earthenware fittings and bathroom accessories
- 3262 Vitreous china table and kitchen articles
- 3263 Fine earthenware (whiteware) table and kitchen articles
- 3264 Porcelain electrical supplies
- 3269 Pottery products, n.e.c.*
- 3271 Concrete block and brick
- 3272 Concrete products, except block and brick
- 3273 Ready mixed concrete
- 3274 Lime
- 3275 Gypsum products
- 3281 Cut stone and stone products
- 3291 Abrasive products
- 3292 Asbestos products

- 3295 Minerals and earths, ground or otherwise treated
- 3296 Mineral wool
- 3297 Nonclay refractories
- 3299 Nonmetallic mineral products, n.e.c.*

33 Primary Metal Industries

- 3312 Steel works, blast furnaces (including coke ovens), and rolling mills
- 3313 Electrometallurgical products, except steel
- 3315 Steel wiredrawing and steel nails and spikes
- 3316 Cold-rolled steel sheet, strip, and bars
- 3317 Steel pipe and tubes
- 3321 Gray and ductile iron foundries
- 3322 Malleable iron foundries
- 3324 Steel investment foundries
- 3325 Steel foundries, n.e.c.*
- 3331 Primary smelting and refining of copper
- 3334 Primary production of aluminum
- 3339 Primary smelting and refining of nonferrous metals, except copper and aluminum
- 3341 Secondary smelting and refining of nonferrous metals
- 3351 Rolling, drawing, and extruding of copper
- 3353 Aluminum sheet, plate, and foil
- 3354 Aluminum extruded products
- 3355 Aluminum rolling and drawing, n.e.c.*
- 3356 Rolling, drawing, and extruding of nonferrous metals, except copper and aluminum
- 3357 Drawing and insulating of nonferrous wire
- 3363 Aluminum die-castings
- 3364 Nonferrous die-castings, except aluminum
- 3365 Aluminum foundries
- 3366 Copper foundries
- 3369 Nonferrous foundries, except aluminum and copper
- 3398 Metal heat treating
- 3399 Primary metal products, n.e.c.*

34 Fabricated Metal Products, except Machinery and Transportation Equipment

- 3411 Metal cans
- 3412 Metal shipping barrels, drums, kegs, and pails
- 3421 Cutlery
- 3423 Hand and edge tools, except machine tools and handsaws
- 3425 Handsaws and saw blades
- 3429 Hardware, n.e.c.*
- 3431 Enameled iron and metal sanitary ware
- 3432 Plumbing fixture fittings and trim
- 3433 Heating equipment, except electric and warm air furnaces
- 3441 Fabricated structural metal
- 3442 Metal doors, sash, frames, molding, and trim

- 3443 Fabricated plate work (boiler shops)
- 3444 Sheet metal work
- 3446 Architectural and ornamental metal work
- 3448 Prefabricated metal buildings and components
- 3449 Miscellaneous structural metal work
- 3451 Screw machine products
- 3452 Bolts, nuts, screws, rivets, and washers
- 3462 Iron and steel forgings
- 3463 Nonferrous forgings
- 3465 Automotive stampings
- 3468 Crowns and closures
- 3469 Metal stampings, n.e.c.*
- 3471 Electroplating, plating, polishing, anodizing, and coloring
- 3479 Coating, engraving and allied services, n.e.c.*
- 3482 Small arms ammunition
- 3483 Ammunition, except for small arms
- 3484 Small arms
- 3489 Ordnance and accessories, n.e.c.*
- 3491 Industrial valves
- 3492 Fluid power valves and hose fittings
- 3493 Steel springs, except wire
- 3494 Valves and pipe fittings, n.e.c.*
- 3495 Wire springs
- 3496 Miscellaneous fabricated wire products
- 3497 Metal foil and leaf
- 3498 Fabricated pipe and pipe fittings
- 3499 Fabricated metal products, n.e.c.*

35 Industrial and Commercial Machinery and Computer Equipment

- 3511 Steam, gas and hydraulic turbines, and turbine generator set units
- 3519 Internal combustion engines, n.e.c.*
- 3523 Farm machinery and equipment
- 3524 Lawn and garden tractors and home lawn and garden equipment
- 3531 Construction machinery and equipment
- 3532 Mining machinery and equipment, except oil and gas field machinery and equipment
- 3533 Oil and gas field machinery and equipment
- 3534 Elevators and moving stairways
- 3535 Conveyors and conveying equipment
- 3536 Overhead traveling cranes, hoists, and monorail systems
- 3537 Industrial trucks, tractors, trailers, and stackers
- 3541 Machine tools, metal cutting types
- 3542 Machine tools, metal forming types
- 3543 Industrial patterns
- 3544 Special dies and tools, die sets, jigs and fixtures, and industrial molds
- 3545 Cutting tools, machine tool accessories, and machinists' measuring devices
- 3546 Power driven handtools

- 3547 Rolling mill machinery and equipment
 3548 Electric and gas welding and soldering equipment
 3549 Metalworking machinery, n.e.c.*
 3552 Textile machinery
 3553 Woodworking machinery
 3554 Paper industries machinery
 3555 Printing trades machinery and equipment
 3556 Food products machinery
 3559 Special industry machinery, n.e.c.*
 3561 Pumps and pumping equipment
 3562 Ball and roller bearings
 3563 Air and gas compressors
 3564 Industrial and commercial fans and blowers and air purification equipment
 3565 Packaging equipment
 3566 Speed changers, industrial high speed drives, and gears
 3567 Industrial process furnaces and ovens
 3568 Mechanical power transmission equipment, n.e.c.*
 3569 General industrial machinery and equipment, n.e.c.*
 3571 Electronic computers
 3572 Computer storage devices
 3575 Computer terminals
 3577 Computer peripheral equipment, n.e.c.*
 3578 Calculating and accounting machines, except electronic computers
 3579 Office machines, n.e.c.*
 3581 Automatic vending machines
 3582 Commercial laundry, drycleaning, and pressing machines
 3585 Air conditioning and warm air heating equipment and commercial and industrial refrigeration equipment
 3586 Measuring and dispensing pumps
 3589 Service industry machinery, n.e.c.*
 3592 Carburetors, pistons, piston rings, and valves
 3593 Fluid power cylinders and actuators
 3594 Fluid power pumps and motors
 3596 Scales and balances, except laboratory
 3599 Industrial and commercial machinery and equipment, n.e.c.*
- 36 Electronic and Other Electrical Equipment and Components, Except Computer Equipment**
- 3612 Power, distribution, and specialty transformers
 3613 Switchgear and switchboard apparatus
 3621 Motors and generators
 3624 Carbon and graphite products
 3625 Relays and industrial controls
 3629 Electrical industrial appliances, n.e.c.*
 3631 Household cooking equipment
 3632 Household refrigerators and home and farm freezers
 3633 Household laundry equipment
- 3634 Electrical housewares and fans
 3635 Household vacuum cleaners
 3639 Household appliances, n.e.c.*
 3641 Electric lamps and tubes
 3643 Current carrying wiring devices
 3644 Noncurrent carrying wiring devices
 3645 Residential electric lighting fixtures
 3646 Commercial, industrial, and institutional electric lighting fixtures
 3647 Vehicular lighting equipment
 3648 Lighting equipment, n.e.c.*
 3651 Household audio and video equipment
 3652 Phonograph records and pre-recorded audio tapes and disks
 3661 Telephone and telegraph apparatus
 3663 Radio and television broadcasting and communications equipment
 3669 Communications equipment, n.e.c.*
 3671 Electron tubes
 3672 Printed circuit boards
 3674 Semiconductors and related devices
 3675 Electronic capacitors
 3676 Electronic resistors
 3677 Electronic coils, transformers, and other inductors
 3678 Electronic connectors
 3679 Electronic components, n.e.c.*
 3691 Storage batteries
 3692 Primary batteries, dry and wet
 3694 Electric equipment for internal combustion engines
 3695 Magnetic and optical recording media
 3699 Electrical machinery, equipment, and supplies, n.e.c.*
- 37 Transportation Equipment**
- 3711 Motor vehicles and passenger car bodies
 3713 Truck and bus bodies
 3714 Motor vehicle parts and accessories
 3715 Truck trailers
 3716 Motor homes
 3721 Aircraft
 3724 Aircraft engines and engine parts
 3728 Aircraft parts and auxiliary equipment, n.e.c.*
 3731 Ship building and repairing
 3732 Boat building and repairing
 3743 Railroad equipment
 3751 Motorcycles, bicycles and parts
 3761 Guided missiles and space vehicles
 3764 Guided missile and space vehicle propulsion units and propulsion unit parts
 3769 Guided missile and space vehicle parts and auxiliary equipment, n.e.c.*
 3792 Travel trailers and campers
 3795 Tanks and tank components
 3799 Transportation equipment, n.e.c.*

38 Measuring, Analyzing, and Controlling Instruments; Photographic, Medical and Optical Goods; Watches and Clocks

- 3812 Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments
- 3821 Laboratory apparatus and furniture
- 3822 Automatic controls for regulating residential and commercial environments and appliances
- 3823 Industrial instruments for measurement, display, and control of process variables; and related products
- 3824 Totalizing fluid meters and counting devices
- 3825 Instruments for measuring and testing of electricity and *electrical signals*
- 3826 Laboratory analytical instruments
- 3827 Optical instruments and lenses
- 3829 Measuring and controlling devices, n.e.c.*
- 3841 Surgical and medical instruments and apparatus
- 3842 Orthopedic, prosthetic, and surgical appliances and supplies
- 3843 Dental equipment and supplies
- 3844 X-ray apparatus and tubes and related irradiation apparatus
- 3845 Electromedical and electrotherapeutic apparatus
- 3851 Ophthalmic goods
- 3861 Photographic equipment and supplies
- 3873 Watches, clocks, clockwork operated devices, and parts

39 Miscellaneous Manufacturing Industries

- 3911 Jewelry, precious metal
- 3914 Silverware, plated ware, and stainless steel ware
- 3915 Jewelers' findings and materials, and lapidary work
- 3931 Musical instruments
- 3942 Dolls and stuffed toys
- 3944 Games, toys and children's vehicles; except dolls and bicycles
- 3949 Sporting and athletic goods, n.e.c.*
- 3951 Pens, mechanical pencils, and parts
- 3952 Lead pencils, crayons, and artists' materials
- 3953 Marking devices
- 3955 Carbon paper and inked ribbons
- 3961 *Costume jewelry and costume novelties, except precious metal*
- 3965 Fasteners, buttons, needles, and pins
- 3991 Brooms and brushes
- 3993 Signs and advertising specialties
- 3995 Burial caskets
- 3996 Linoleum, asphalted-felt-base, and other hard surface floor coverings, n.e.c.*
- 3999 Manufacturing industries, n.e.c.*

*"Not elsewhere classified" indicated by "n.e.c."

TABLE II

SECTION 313 TOXIC CHEMICAL LIST FOR REPORTING YEAR 1988
(including Chemical Categories)

Specific toxic chemicals with CAS Number are listed in alphabetical order on this page. A list of the same chemicals in CAS Number order begins on page 40. Covered Chemical Categories are listed beginning on page 43.

[**Note:** Chemicals may be added to or deleted from the list. The Emergency Planning and Community Right-to-Know Information Hotline, (800) 535-0202 or (202) 479-2449 in Washington, D.C. or Alaska, will provide up-to-date information on the status of these changes. See page 7 of the instructions for more information on the de minimis values listed below.]

a. <u>Alphabetical Chemical List</u>			<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>
<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>			
75-07-0	Acetaldehyde	0.1	92-87-5	Benzidine	0.1
60-35-5	Acetamide	0.1	98-07-7	Benzoic trichloride (Benzotrichloride)	0.1
67-64-1	Acetone	1.0	98-88-4	Benzoyl chloride	1.0
75-05-8	Acetonitrile	1.0	94-36-0	Benzoyl peroxide	1.0
53-96-3	2-Acetylaminofluorene	0.1	100-44-7	Benzyl chloride	1.0
107-02-8	Acrolein	1.0	7440-41-7	Beryllium	0.1
79-06-1	Acrylamide	0.1	92-52-4	Biphenyl	1.0
79-10-7	Acrylic acid	1.0	111-44-4	Bis(2-chloroethyl) ether	1.0
107-13-1	Acrylonitrile	0.1	542-88-1	Bis(chloromethyl) ether	0.1
309-00-2	Aldrin	1.0	108-60-1	Bis(2-chloro-1-methylethyl) ether	1.0
	{1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a, 5,8,8a-hexahydro-(1.alpha., 4.alpha.,4a.beta.,5.alpha., 8.alpha.,8a.beta.)-}		103-23-1	Bis(2-ethylhexyl) adipate	1.0
107-05-1	Allyl chloride	1.0	75-25-2	Bromoform	1.0
7429-90-5	Aluminum (fume or dust)	1.0		{Tribromomethane}	
1344-28-1	Aluminum oxide	1.0	74-83-9	Bromomethane {Methyl bromide}	1.0
117-79-3	2-Aminoanthraquinone	0.1	106-99-0	1,3-Butadiene	0.1
60-09-3	4-Aminoazobenzene	0.1	141-32-2	Butyl acrylate	1.0
92-67-1	4-Aminobiphenyl	0.1	71-36-3	n-Butyl alcohol	1.0
82-28-0	1-Amino-2-methylantraquinone	0.1	78-92-2	sec-Butyl alcohol	1.0
7664-41-7	Ammonia	1.0	75-65-0	tert-Butyl alcohol	1.0
6484-52-2	Ammonium nitrate (solution)	1.0	85-68-7	Butyl benzyl phthalate	1.0
7783-20-2	Ammonium sulfate (solution)	1.0	106-88-7	1,2-Butylene oxide	1.0
62-53-3	Aniline	1.0	123-72-8	Butyraldehyde	1.0
90-04-0	o-Anisidine	0.1	4680-78-8	C.I. Acid Green 3*	1.0
104-94-9	p-Anisidine	1.0	569-64-2	C.I. Basic Green 4*	1.0
134-29-2	o-Anisidine hydrochloride	0.1	989-38-8	C.I. Basic Red 1*	0.1
120-12-7	Anthracene	1.0	1937-37-7	C.I. Direct Black 38*	0.1
7440-36-0	Antimony	1.0	2602-46-2	C.I. Direct Blue 6*	0.1
7440-38-2	Arsenic	0.1	16071-86-6	C.I. Direct Brown 95*	0.1
1332-21-4	Asbestos (friable)	0.1	2832-40-8	C.I. Disperse Yellow 3*	1.0
7440-39-3	Barium	1.0	3761-53-3	C.I. Food Red 5*	0.1
98-87-3	Benzal chloride	1.0	81-88-9	C.I. Food Red 15*	0.1
55-21-0	Benzamide	1.0	3118-97-6	C.I. Solvent Orange 7*	1.0
71-43-2	Benzene	0.1	97-56-3	C.I. Solvent Yellow 3*	0.1
			842-07-9	C.I. Solvent Yellow 14*	0.1
			492-80-8	C.I. Solvent Yellow 34*	
				(Auramine)	0.1
			128-66-5	C.I. Vat Yellow 4*	1.0
			7440-43-9	Cadmium	0.1
			156-62-7	Calcium cyanamide	1.0
			133-06-2	Captan	1.0
				{1H-Isoindole-1,3(2H)-dione, 3a,4,7,7a-tetrahydro- 2-[(trichloromethyl)thio]-}	

<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>	<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>
63-25-2	Carbaryl {1-Naphthalenol, methylcarbamate}	1.0	39156-41-7	2,4-Diaminoanisole sulfate	0.1
75-15-0	Carbon disulfide	1.0	101-80-4	4,4'-Diaminodiphenyl ether	0.1
56-23-5	Carbon tetrachloride	0.1	25376-45-8	Diaminotoluene (mixed isomers)	0.1
463-58-1	Carbonyl sulfide	1.0	95-80-7	2,4-Diaminotoluene	0.1
120-80-9	Catechol	1.0	334-88-3	Diazomethane	1.0
133-90-4	Chloramben {Benzoic acid, 3-amino- 2,5-dichloro-}	1.0	132-64-9	Dibenzofuran	1.0
57-74-9	Chlordane {4,7-Methanoindan, 1,2,4,5,6,7, 8,8-octachloro-2,3,3a,4, 7,7a-hexahydro-}	1.0	96-12-8	1,2-Dibromo-3-chloropropane {DBCP}	0.1
7782-50-5	Chlorine	1.0	106-93-4	1,2-Dibromoethane {Ethylene dibromide}	0.1
10049-04-4	Chlorine dioxide	1.0	84-74-2	Dibutyl phthalate	1.0
79-11-8	Chloroacetic acid	1.0	25321-22-6	Dichlorobenzene (mixed isomers)	0.1
532-27-4	2-Chloroacetophenone	1.0	95-50-1	1,2-Dichlorobenzene	1.0
108-90-7	Chlorobenzene	1.0	541-73-1	1,3-Dichlorobenzene	1.0
510-15-6	Chlorobenzilate {Benzeneacetic acid,4-chloro- .alpha.-(4-chlorophenyl)- .alpha.-hydroxy-.ethyl ester}	1.0	106-46-7	1,4-Dichlorobenzene	0.1
75-00-3	Chloroethane {Ethyl chloride}	1.0	91-94-1	3,3'-Dichlorobenzidine	0.1
67-66-3	Chloroform	0.1	75-27-4	Dichlorobromomethane	1.0
74-87-3	Chloromethane {Methyl chloride}	1.0	107-06-2	1,2-Dichloroethane {Ethylene dichloride}	0.1
107-30-2	Chloromethyl methyl ether	0.1	540-59-0	1,2-Dichloroethylene	1.0
126-99-8	Chloroprene	1.0	75-09-2	Dichloromethane {Methylene chloride}	0.1
1897-45-6	Chlorothalonil {1,3-Benzenedicarbonitrile, 2,4,5,6-tetrachloro-}	1.0	120-83-2	2,4-Dichlorophenol	1.0
7440-47-3	Chromium	0.1	78-87-5	1,2-Dichloropropane	1.0
7440-48-4	Cobalt	1.0	542-75-6	1,3-Dichloropropylene	0.1
7440-50-8	Copper	1.0	62-73-7	Dichlorvos {Phosphoric acid, 2,2- dichloroethenyl dimethyl ester}	1.0
120-71-8	p-Cresidine	0.1	115-32-2	Dicofol {Benzenemethanol, 4-chloro- .alpha.-(4-chlorophenyl)- .alpha.-(trichloromethyl)-}	1.0
1319-77-3	Cresol (mixed isomers)	1.0	1464-53-5	Diepoxybutane	0.1
108-39-4	m-Cresol	1.0	111-42-2	Diethanolamine	1.0
95-48-7	o-Cresol	1.0	117-81-7	Di-(2-ethylhexyl) phthalate {DEHP}	0.1
106-44-5	p-Cresol	1.0	84-66-2	Diethyl phthalate	1.0
98-82-8	Cumene	1.0	64-67-5	Diethyl sulfate	0.1
80-15-9	Cumene hydroperoxide	1.0	119-90-4	3,3'-Dimethoxybenzidine	0.1
135-20-6	Cupferron {Benzeneamine, N-hydroxy- N-nitroso, ammonium salt}	0.1	60-11-7	4-Dimethylaminoazobenzene	0.1
110-82-7	Cyclohexane	1.0	119-93-7	3,3'-Dimethylbenzidine {o-Tolidine}	0.1
94-75-7	2,4-D {Acetic acid, (2,4-dichlorophenoxy)-}	1.0	79-44-7	Dimethylcarbaryl chloride	0.1
1163-19-5	Decabromodiphenyl oxide	1.0	57-14-7	1,1-Dimethyl hydrazine	0.1
2303-16-4	Diallate {Carbamothioic acid, bis(1-methylethyl)-, S-(2,3- dichloro-2-propenyl) ester}	1.0	105-67-9	2,4-Dimethylphenol	1.0
615-05-4	2,4-Diaminoanisole	0.1	131-11-3	Dimethyl phthalate	1.0
			77-78-1	Dimethyl sulfate	0.1
			534-52-1	4,6-Dinitro-o-cresol	1.0
			51-28-5	2,4-Dinitrophenol	1.0
			121-14-2	2,4-Dinitrotoluene	1.0
			606-20-2	2,6-Dinitrotoluene	1.0
			117-84-0	n-Dioctyl phthalate	1.0
			123-91-1	1,4-Dioxane	0.1

<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>	<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>
122-66-7	1,2-Diphenylhydrazine {Hydrazobenzene}	0.1	67-56-1	Methanol	1.0
106-89-8	Epichlorohydrin	0.1	72-43-5	Methoxychlor	1.0
110-80-5	2-Ethoxyethanol	1.0		{Benzene, 1,1'-(2,2,2-trichloroethylidene)bis	
140-88-5	Ethyl acrylate	0.1		[4-methoxy-}	
100-41-4	Ethylbenzene	1.0	109-86-4	2-Methoxyethanol	1.0
541-41-3	Ethyl chloroformate	1.0	96-33-3	Methyl acrylate	1.0
74-85-1	Ethylene	1.0	1634-04-4	Methyl tert-butyl ether	1.0
107-21-1	Ethylene glycol	1.0	101-14-4	4,4'-Methylenebis (2-chloroaniline)	0.1
151-56-4	Ethyleneimine {Aziridine}	0.1		{MBOCA}	
75-21-8	Ethylene oxide	0.1	101-61-1	4,4'-Methylenebis(N,N-dimethyl) benzenamine	0.1
96-45-7	Ethylene thiourea	0.1			
2164-17-2	Fluometuron {Urea, N,N-dimethyl-N'-[3-(trifluoromethyl)phenyl]-}	1.0	101-68-8	Methylenebis (phenylisocyanate) {MBI}	1.0
50-00-0	Formaldehyde	0.1	74-95-3	Methylene bromide	1.0
76-13-1	Freon 113 {Ethane, 1,1,2-trichloro-1,2,2-trifluoro-}	1.0	101-77-9	4,4'-Methylenedianiline	0.1
			78-93-3	Methyl ethyl ketone	1.0
			60-34-4	Methyl hydrazine	1.0
76-44-8	Heptachlor {1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-methano-1H-indene}	1.0	74-88-4	Methyl iodide	0.1
			108-10-1	Methyl isobutyl ketone	1.0
			624-83-9	Methyl isocyanate	1.0
			80-62-6	Methyl methacrylate	1.0
			90-94-8	Michler's ketone	0.1
118-74-1	Hexachlorobenzene	0.1	1313-27-5	Molybdenum trioxide	1.0
87-68-3	Hexachloro-1,3-butadiene	1.0	505-60-2	Mustard gas {Ethane, 1,1'-thiobis[2-chloro-}	0.1
77-47-4	Hexachlorocyclopentadiene	1.0			
67-72-1	Hexachloroethane	1.0	91-20-3	Naphthalene	1.0
1335-87-1	Hexachloronaphthalene	1.0	134-32-7	alpha-Naphthylamine	0.1
680-31-9	Hexamethylphosphoramide	0.1	91-59-8	beta-Naphthylamine	0.1
302-01-2	Hydrazine	0.1	7440-02-0	Nickel	0.1
10034-93-2	Hydrazine sulfate	0.1	7697-37-2	Nitric acid	1.0
7647-01-0	Hydrochloric acid	1.0	139-13-9	Nitrilotriacetic acid	0.1
74-90-8	Hydrogen cyanide	1.0	99-59-2	5-Nitro-o-anisidine	0.1
7664-39-3	Hydrogen fluoride	1.0	98-95-3	Nitrobenzene	1.0
123-31-9	Hydroquinone	1.0	92-93-3	4-Nitrobiphenyl	0.1
78-84-2	Isobutyraldehyde	1.0	1836-75-5	Nitrofen {Benzene, 2,4-dichloro-1-(4-nitrophenoxy)-}	0.1
67-63-0	Isopropyl alcohol (manufacturing-strong acid process, no supplier notification)	0.1	51-75-2	Nitrogen mustard {2-Chloro-N-(2-chloroethyl)-N-methylethanamine}	0.1
80-05-7	4,4'-Isopropylidenediphenol	1.0			
7439-92-1	Lead	0.1	55-63-0	Nitroglycerin	1.0
58-89-9	Lindane {Cyclohexane,1,2,3,4,5,6-hexachloro-,(1.alpha.,2.alpha.,3.beta.,4.alpha.,5.alpha.,6.beta.)-}	0.1	88-75-5	2-Nitrophenol	1.0
			100-02-7	4-Nitrophenol	1.0
			79-46-9	2-Nitropropane	0.1
108-31-6	Maleic anhydride	1.0	156-10-5	p-Nitrosodiphenylamine	0.1
12427-38-2	Maneb {Carbamodithioic acid, 1,2-ethanediylbis-,manganese complex}	1.0	121-69-7	N,N-Dimethylaniline	1.0
			924-16-3	N-Nitrosodi-n-butylamine	0.1
			55-18-5	N-Nitrosodiethylamine	0.1
			62-75-9	N-Nitrosodimethylamine	0.1
7439-96-5	Manganese	1.0	86-30-6	N-Nitrosodiphenylamine	1.0
108-78-1	Melamine	1.0	621-64-7	N-Nitrosodi-n-propylamine	0.1
7439-97-6	Mercury	1.0	4549-40-0	N-Nitrosomethylvinylamine	0.1

<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>	<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>
59-89-2	N-Nitrosomorpholine	0.1	961-11-5	Tetrachlorvinphos	1.0
759-73-9	N-Nitroso-N-ethylurea	0.1		{Phosphoric acid, 2-chloro-1-(2,3,5-trichlorophenyl) ethenyl dimethyl ester}	
684-93-5	N-Nitroso-N-methylurea	0.1			
16543-55-8	N-Nitrosornicotine	0.1			
100-75-4	N-Nitrosopiperidine	0.1	7440-28-0	Thallium	1.0
2234-13-1	Octachloronaphthalene	1.0	62-55-5	Thioacetamide	0.1
20816-12-0	Osmium tetroxide	1.0	139-65-1	4,4'-Thiodianiline	0.1
56-38-2	Parathion	1.0	62-56-6	Thiourea	0.1
	{Phosphorothioic acid, o, o-diethyl-o-(4-nitrophenyl) ester}		1314-20-1	Thorium dioxide	1.0
87-86-5	Pentachlorophenol	1.0	7550-45-0	Titanium tetrachloride	1.0
	{PCP}		108-88-3	Toluene	1.0
79-21-0	Peracetic acid	1.0	584-84-9	Toluene-2,4-diisocyanate	0.1
108-95-2	Phenol	1.0	91-08-7	Toluene-2,6-diisocyanate	0.1
106-50-3	p-Phenylenediamine	1.0	95-53-4	o-Toluidine	0.1
90-43-7	2-Phenylphenol	1.0	636-21-5	o-Toluidine hydrochloride	0.1
75-44-5	Phosgene	1.0	8001-35-2	Toxaphene	0.1
7664-38-2	Phosphoric acid	1.0	68-76-8	Triaziquone	0.1
7723-14-0	Phosphorus (yellow or white)	1.0		{2,5-Cyclohexadiene-1,4-dione, 2,3,5-tris(1-aziridinyl)-}	
85-44-9	Phthalic anhydride	1.0	52-68-6	Trichlorfon	1.0
88-89-1	Picric acid	1.0		{Phosphonic acid,(2,2,2-trichloro-1-hydroxyethyl)-,dimethyl ester}	
1336-36-3	Polychlorinated biphenyls	0.1	120-82-1	1,2,4-Trichlorobenzene	1.0
	{PCBs}		71-55-6	1,1,1-Trichloroethane	1.0
1120-71-4	Propane sultone	0.1		{Methyl chloroform}	
57-57-8	beta-Propiolactone	0.1	79-00-5	1,1,2-Trichloroethane	1.0
123-38-6	Propionaldehyde	1.0	79-01-6	Trichloroethylene	1.0
114-26-1	Propoxur	1.0	95-95-4	2,4,5-Trichlorophenol	1.0
	{Phenol, 2-(1-methylethoxy)-, methylcarbamate}		88-06-2	2,4,6-Trichlorophenol	0.1
115-07-1	Propylene	1.0	1582-09-8	Trifluralin	1.0
	{Propene}			{Benzenamine, 2,6-dinitro-N,N-dipropyl-4-(trifluoromethyl)-}	
75-55-8	Propyleneimine	0.1	95-63-6	1,2,4-Trimethylbenzene	1.0
75-56-9	Propylene oxide	0.1	126-72-7	Tris (2,3-dibromopropyl) phosphate	0.1
110-86-1	Pyridine	1.0	51-79-6	Urethane	0.1
91-22-5	Quinoline	1.0		{Ethyl carbamate}	
106-51-4	Quinone	1.0	7440-62-2	Vanadium (fume or dust)	1.0
82-68-8	Quintozene	1.0	108-05-4	Vinyl acetate	1.0
	{Pentachloronitrobenzene}		593-60-2	Vinyl bromide	0.1
81-07-2	Saccharin (manufacturing, no supplier notification)	0.1	75-01-4	Vinyl chloride	0.1
	{1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide}		75-35-4	Vinylidene chloride	1.0
94-59-7	Safrole	0.1	1330-20-7	Xylene (mixed isomers)	1.0
7782-49-2	Selenium	1.0	108-38-3	m-Xylene	1.0
7440-22-4	Silver	1.0	95-47-6	o-Xylene	1.0
1310-73-2	Sodium hydroxide (solution)	1.0	106-42-3	p-Xylene	1.0
7757-82-6	Sodium sulfate (solution)	1.0	87-62-7	2,6-Xylidine	1.0
100-42-5	Styrene	0.1	7440-66-6	Zinc (fume or dust)	1.0
96-09-3	Styrene oxide	0.1	12122-67-7	Zineb	1.0
7664-93-9	Sulfuric acid	1.0		{Carbamodithioic acid, 1,2-ethanediybis-, zinc complex}	
100-21-0	Terephthalic acid	1.0			
79-34-5	1,1,2,2-Tetrachloroethane	0.1			
127-18-4	Tetrachloroethylene	0.1			
	{Perchloroethylene}				

b. List By CAS Number		De Minimis	CAS Number	Chemical Name	De Minimis
CAS Number	Chemical Name	Concentration			Concentration
			71-36-3	n-Butyl alcohol	1.0
50-00-0	Formaldehyde	0.1	71-43-2	Benzene	0.1
51-28-5	2,4-Dinitrophenol	1.0	71-55-6	1,1,1-Trichloroethane	1.0
51-75-2	Nitrogen mustard	0.1		{Methyl chloroform}	
	{2-Chloro-N-(2-chloroethyl)-N-methylanamine}		72-43-5	Methoxychlor	1.0
51-79-6	Urethane	0.1		{Benzene, 1,1'-(2,2,2-trichloroethylidene)bis	
	{Ethyl carbamate}			[4-methoxy-}	
52-68-6	Trichlorfon	1.0	74-83-9	Bromomethane	1.0
	{Phosphonic acid,(2,2,2-trichloro-1-hydroxyethyl)-, dimethyl ester}		74-85-1	{Methyl bromide}	
			74-87-3	Ethylene	1.0
53-96-3	2-Acetylaminofluorene	0.1		Chloromethane	1.0
55-18-5	N-Nitrosodiethylamine	0.1		{Methyl chloride}	
55-21-0	Benzamide	1.0	74-88-4	Methyl iodide	0.1
55-63-0	Nitroglycerin	1.0	74-90-8	Hydrogen cyanide	1.0
56-23-5	Carbon tetrachloride	0.1	74-95-3	Methylene bromide	1.0
56-38-2	Parathion	1.0	75-00-3	Chloroethane	1.0
	{Phosphorothioic acid, o,o-diethyl-o-(4-nitrophenyl)ester}		75-01-4	{Ethyl chloride}	
57-14-7	1,1-Dimethyl hydrazine	0.1	75-05-8	Vinyl chloride	0.1
57-57-8	beta-Propiolactone	0.1	75-07-0	Acetonitrile	0.1
57-74-9	Chlordane	1.0	75-09-2	Acetaldehyde	1.0
	{4,7-Methanoindan,1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-}		75-15-0	Dichloromethane	0.1
			75-21-8	{Methylene chloride}	
58-89-9	Lindane	0.1	75-25-2	Carbon disulfide	1.0
	{Cyclohexane,1,2,3,4,5,6-hexachloro-,(1.alpha.,2.alpha.,3.beta.,4.alpha.,5.alpha.,6.beta.)-}		75-27-4	Ethylene oxide	0.1
			75-35-4	Bromoform	1.0
59-89-2	N-Nitrosomorpholine	0.1	75-44-5	{Tribromomethane}	
60-09-3	4-Aminoazobenzene	0.1	75-55-8	Dichlorobromomethane	1.0
60-11-7	4-Dimethylaminoazobenzene	0.1	75-56-9	Vinylidene chloride	1.0
60-34-4	Methyl hydrazine	1.0	75-65-0	Phosgene	1.0
60-35-5	Acetamide	0.1	76-13-1	Propyleneimine	0.1
62-53-3	Aniline	1.0		Propylene oxide	0.1
62-55-5	Thioacetamide	0.1		tert-Butyl alcohol	1.0
62-56-6	Thiourea	0.1	76-44-8	Freon 113	1.0
62-73-7	Dichlorvos	1.0		{Ethane, 1,1,2-trichloro-1,2,2-trifluoro-}	
	{Phosphoric acid, 2,2-dichloroethenyl dimethyl ester}			Heptachlor	1.0
62-75-9	N-Nitrosodimethylamine	0.1	77-47-4	{1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-methano-1H-indene}	
63-25-2	Carbaryl	1.0	77-78-1	Hexachlorocyclopentadiene	1.0
	{1-Naphthalenol, methylcarbamate}		78-84-2	Dimethyl sulfate	0.1
			78-87-5	Isobutyraldehyde	1.0
64-67-5	Diethyl sulfate	0.1	78-92-2	1,2-Dichloropropane	1.0
67-56-1	Methanol	1.0	78-93-3	sec-Butyl alcohol	1.0
67-63-0	Isopropyl alcohol	0.1	79-00-5	Methyl ethyl ketone	1.0
	(manufacturing-strong acid process, no supplier notification)		79-01-6	1,1,2-Trichloroethane	1.0
67-64-1	Acetone	1.0	79-06-1	Trichloroethylene	1.0
67-66-3	Chloroform	0.1	79-10-7	Acrylamide	0.1
67-72-1	Hexachloroethane	1.0	79-11-8	Acrylic acid	1.0
68-76-8	Triaziquone	0.1	79-21-0	Chloroacetic acid	1.0
	{2,5-Cyclohexadiene-1,4-dione, 2,3,5-tris(1-aziridinyl)-}		79-34-5	Peracetic acid	1.0
			79-44-7	1,1,2,2-Tetrachloroethane	0.1
			79-46-9	Dimethylcarbamyl chloride	0.1
				2-Nitropropane	0.1

<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>	<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>
80-05-7	4,4'-Isopropylidenediphenol	1.0	98-07-7	Benzoic trichloride {Benzotrichloride}	0.1
80-15-9	Cumene hydroperoxide	1.0	98-82-8	Cumene	1.0
80-62-6	Methyl methacrylate	1.0	98-87-3	Benzal chloride	1.0
81-07-2	Saccharin (manufacturing, no supplier notification) {1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide}	0.1	98-88-4	Benzoyl chloride	1.0
81-88-9	C.I. Food Red 15*	0.1	98-95-3	Nitrobenzene	1.0
82-28-0	1-Amino-2-methylanthraquinone	0.1	99-59-2	5-Nitro-o-anisidine	0.1
82-68-8	Quintozene {Pentachloronitro-benzene}	1.0	100-02-7	4-Nitrophenol	1.0
84-66-2	Diethyl phthalate	1.0	100-21-0	Terephthalic acid	1.0
84-74-2	Dibutyl phthalate	1.0	100-41-4	Ethylbenzene	1.0
85-44-9	Phthalic anhydride	1.0	100-42-5	Styrene	0.1
85-68-7	Butyl benzyl phthalate	1.0	100-44-7	Benzyl chloride	1.0
86-30-6	N-Nitrosodiphenylamine	1.0	100-75-4	N-Nitrosopiperidine	0.1
87-62-7	2,6-Xylidine	1.0	101-14-4	4,4'-Methylenebis (2- chloroaniline) {MBOCA}	0.1
87-68-3	Hexachloro-1,3-butadiene	1.0	101-61-1	4,4'-Methylenebis(N,N-dimethyl) benzenamine	0.1
87-86-5	Pentachlorophenol {PCP}	1.0	101-68-8	Methylenebis(phenylisocyanate) {MBI}	1.0
88-06-2	2,4,6-Trichlorophenol	0.1	101-77-9	4,4'-Methylenedianiline	0.1
88-75-5	2-Nitrophenol	1.0	101-80-4	4,4'-Diaminodiphenyl ether	0.1
88-89-1	Picric acid	1.0	103-23-1	Bis(2-ethylhexyl) adipate	0.1
90-04-0	o-Anisidine	0.1	104-94-9	p-Anisidine	1.0
90-43-7	2-Phenylphenol	1.0	105-67-9	2,4-Dimethylphenol	1.0
90-94-8	Michler's ketone	0.1	106-42-3	p-Xylene	1.0
91-08-7	Toluene-2,6-diisocyanate	0.1	106-44-5	p-Cresol	1.0
91-20-3	Naphthalene	1.0	106-46-7	1,4-Dichlorobenzene	0.1
91-22-5	Quinoline	1.0	106-50-3	p-Phenylenediamine	1.0
91-59-8	beta-Naphthylamine	0.1	106-51-4	Quinone	1.0
91-94-1	3,3'-Dichlorobenzidine	0.1	106-88-7	1,2-Butylene oxide	1.0
92-52-4	Biphenyl	1.0	106-89-8	Epichlorohydrin	0.1
92-67-1	4-Aminobiphenyl	0.1	106-93-4	1,2-Dibromoethane {Ethylene dibromide}	0.1
92-87-5	Benzidine	0.1	106-99-0	1,3-Butadiene	0.1
92-93-3	4-Nitrobiphenyl	0.1	107-02-8	Acrolein	1.0
94-36-0	Benzoyl peroxide	1.0	107-05-1	Allyl chloride	1.0
94-59-7	Safrole	0.1	107-06-2	1,2-Dichloroethane {Ethylene dichloride}	0.1
94-75-7	2,4-D {Acetic acid, (2,4-dichlorophenoxy)-}	1.0	107-13-1	Acrylonitrile	0.1
95-47-6	o-Xylene	1.0	107-21-1	Ethylene glycol	1.0
95-48-7	o-Cresol	1.0	107-30-2	Chloromethyl methyl ether	0.1
95-50-1	1,2-Dichlorobenzene	1.0	108-05-4	Vinyl acetate	1.0
95-53-4	o-Toluidine	0.1	108-10-1	Methyl isobutyl ketone	1.0
95-63-6	1,2,4-Trimethylbenzene	1.0	108-31-6	Maleic anhydride	1.0
95-80-7	2,4-Diaminotoluene	0.1	108-38-3	m-Xylene	1.0
95-95-4	2,4,5-Trichlorophenol	1.0	108-39-4	m-Cresol	1.0
96-09-3	Styrene oxide	0.1	108-60-1	Bis(2-chloro-1-methylethyl) ether	1.0
96-12-8	1,2-Dibromo-3-chloropropane {DBCP}	0.1	108-78-1	Melamine	1.0
96-33-3	Methyl acrylate	1.0	108-88-3	Toluene	1.0
96-45-7	Ethylene thiourea	0.1	108-90-7	Chlorobenzene	1.0
97-56-3	C.I. Solvent Yellow 3*	0.1	108-95-2	Phenol	1.0
			109-86-4	2-Methoxyethanol	1.0

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110-80-5	2-Ethoxyethanol	1.0	139-13-9	Nitrilotriacetic acid	0.1
110-82-7	Cyclohexane	1.0	139-65-1	4,4'-Thiodianiline	0.1
110-86-1	Pyridine	1.0	140-88-5	Ethyl acrylate	0.1
111-42-2	Diethanolamine	1.0	141-32-2	Butyl acrylate	1.0
111-44-4	Bis(2-chloroethyl) ether	1.0	151-56-4	Ethyleneimine (Aziridine)	0.1
114-26-1	Propoxur {Phenol, 2-(1-methylethoxy)-, methylcarbamate}	1.0	156-10-5	p-Nitrosodiphenylamine	0.1
115-07-1	Propylene (Propene)	1.0	156-62-7	Calcium cyanamide	1.0
115-32-2	Dicofol {Benzenemethanol, 4-chloro- .alpha.-(4-chlorophenyl)- .alpha.-(trichloromethyl)-}	1.0	302-01-2	Hydrazine	0.1
117-79-3	2-Aminoanthraquinone	0.1	309-00-2	Aldrin {1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a, 5,8,8a-hexahydro-(1.alpha., 4.alpha.,4a.beta.,5.alpha., 8.alpha.,8a.beta.)-}	1.0
117-81-7	Di(2-ethylhexyl) phthalate {DEHP}	0.1	334-88-3	Diazomethane	1.0
117-84-0	n-Dioctyl phthalate	1.0	463-58-1	Carbonyl sulfide	1.0
118-74-1	Hexachlorobenzene	0.1	492-80-8	C.I. Solvent Yellow 34* {Auramine}	0.1
119-90-4	3,3'-Dimethoxybenzidine	0.1	505-60-2	Mustard gas {Ethane, 1,1'-thiobis[2-chloro-}	0.1
119-93-7	3,3'-Dimethylbenzidine {o-Tolidine}	0.1	510-15-6	Chlorobenzilate {Benzeneacetic acid,4-chloro- .alpha.-(4-chlorophenyl)- .alpha.-hydroxy-,ethyl ester}	1.0
120-12-7	Anthracene	1.0	532-27-4	2-Chloroacetophenone	1.0
120-71-8	p-Cresidine	0.1	534-52-1	4,6-Dinitro-o-cresol	1.0
120-80-9	Catechol	1.0	540-59-0	1,2-Dichloroethylene	1.0
120-82-1	1,2,4-Trichlorobenzene	1.0	541-41-3	Ethyl chloroformate	1.0
120-83-2	2,4-Dichlorophenol	1.0	541-73-1	1,3-Dichlorobenzene	1.0
121-14-2	2,4-Dinitrotoluene	1.0	542-75-6	1,3-Dichloropropylene	0.1
121-69-7	N,N-Dimethylaniline	1.0	542-88-1	Bis(chloromethyl) ether	0.1
122-66-7	1,2-Diphenylhydrazine {Hydrazobenzene}	0.1	569-64-2	C.I. Basic Green 4*	1.0
123-31-9	Hydroquinone	1.0	584-84-9	Toluene-2,4-diisocyanate	0.1
123-38-6	Propionaldehyde	1.0	593-60-2	Vinyl bromide	0.1
123-72-8	Butyraldehyde	1.0	606-20-2	2,6-Dinitrotoluene	1.0
123-91-1	1,4-Dioxane	0.1	615-05-4	2,4-Diaminoanisole	0.1
126-72-7	Tris(2,3-dibromopropyl) phosphate	0.1	621-64-7	N-Nitrosodi-n-propylamine	0.1
126-99-8	Chloroprene	1.0	624-83-9	Methyl isocyanate	1.0
127-18-4	Tetrachloroethylene {Perchloroethylene}	0.1	636-21-5	o-Toluidine hydrochloride	0.1
128-66-5	C.I. Vat Yellow 4*	1.0	680-31-9	Hexamethylphosphoramide	0.1
131-11-3	Dimethyl phthalate	1.0	684-93-5	N-Nitroso-N-methylurea	0.1
132-64-9	Dibenzofuran	1.0	759-73-9	N-Nitroso-N-ethylurea	0.1
133-06-2	Captan {1H-Isoidole-1,3(2H)-dione, 3a,4,7,7a-tetrahydro- 2[(trichloromethyl)thio]-}	1.0	842-07-9	C.I. Solvent Yellow 14*	0.1
133-90-4	Chloramben {Benzoic acid, 3-amino- 2,5-dichloro-}	1.0	924-16-3	N-Nitrosodi-n-butylamine	0.1
134-29-2	o-Anisidine hydrochloride	0.1	961-11-5	Tetrachlorvinphos {Phosphoric acid, 2-chloro-1- (2,3,5-trichlorophenyl)ethenyl dimethyl ester}	1.0
134-32-7	alpha-Naphthylamine	0.1	989-38-8	C.I. Basic Red 1*	0.1
135-20-6	Cupferron {Benzeneamine, N-hydroxy- N-nitroso, ammonium salt}	0.1	1120-71-4	Propane sulfone	0.1
			1163-19-5	Decabromodiphenyl oxide	1.0
			1310-73-2	Sodium hydroxide (solution)	1.0
			1313-27-5	Molybdenum trioxide	1.0
			1314-20-1	Thorium dioxide	1.0

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1319-77-3	Cresol (mixed isomers)	1.0	7664-38-2	Phosphoric acid	1.0
1330-20-7	Xylene (mixed isomers)	1.0	7664-39-3	Hydrogen fluoride	1.0
1332-21-4	Asbestos (friable)	0.1	7664-41-7	Ammonia	1.0
1335-87-1	Hexachloronaphthalene	1.0	7664-93-9	Sulfuric acid	1.0
1336-36-3	Polychlorinated biphenyls {PCBs}	0.1	7697-37-2	Nitric acid	1.0
1344-28-1	Aluminum oxide	1.0	7723-14-0	Phosphorus (yellow or white)	1.0
1464-53-5	Diepoxybutane	0.1	7757-82-6	Sodium sulfate (solution)	1.0
1582-09-8	Trifluralin	1.0	7782-49-2	Selenium	1.0
	{Benzenamine, 2,6- dinitro-N,N- dipropyl-4-(trifluoromethyl)-}		7782-50-5	Chlorine	1.0
			7783-20-2	Ammonium sulfate (solution)	1.0
1634-04-4	Methyl tert-butyl ether	1.0	8001-35-2	Toxaphene	0.1
1836-75-5	Nitrofen	0.1	10034-93-2	Hydrazine sulfate	0.1
	{Benzene, 2,4-dichloro-1- (4-nitrophenoxy)-}		10049-04-4	Chlorine dioxide	1.0
			12122-67-7	Zineb	1.0
1897-45-6	Chlorothalonil	1.0		{Carbamodithioic acid, 1,2- ethanediybis-,zinc complex}	
	{1,3-Benzenedicar bonitrile, 2,4,5,6-tetrachloro-}		12427-38-2	Maneb	1.0
				{Carbamodithioic acid, 1,2- ethanediybis-,manganese complex}	
1937-37-7	C.I. Direct Black 38*	0.1	16071-86-6	C.I Direct Brown 95*	0.1
2164-17-2	Fluometuron	1.0	16543-55-8	N-Nitrosornicotine	0.1
	{Urea, N,N-dimethyl-N'- [3-(trifluoromethyl)phenyl]-}		20816-12-0	Osmium tetroxide	1.0
2234-13-1	Octachloronaphthalene	1.0	25321-22-6	Dichlorobenzene (mixed isomers)	0.1
2303-16-4	Diallate	1.0		Diaminotoluene (mixed isomers)	0.1
	{Carbamothioic acid, bis (1-methylethyl)-, S-(2,3- dichloro-2-propenyl) ester}		25376-45-8	2,4-Diaminoanisoole sulfate	0.1
			39156-41-7		
2602-46-2	C.I. Direct Blue 6*	0.1			
2832-40-8	C.I. Disperse Yellow 3*	1.0			
3118-97-6	C.I. Solvent Orange 7*	1.0			
3761-53-3	C.I. Food Red 5*	0.1			
4549-40-0	N-Nitrosomethylvinylamine	0.1			
4680-78-8	C.I. Acid Green 3*	1.0			
6484-52-2	Ammonium nitrate (solution)	1.0			
7429-90-5	Aluminum (fume or dust)	1.0			
7439-92-1	Lead	0.1			
7439-96-5	Manganese	1.0			
7439-97-6	Mercury	1.0			
7440-02-0	Nickel	0.1			
7440-22-4	Silver	1.0			
7440-28-0	Thallium	1.0			
7440-36-0	Antimony	1.0			
7440-38-2	Arsenic	0.1			
7440-39-3	Barium	1.0			
7440-41-7	Beryllium	0.1			
7440-43-9	Cadmium	0.1			
7440-47-3	Chromium	0.1			
7440-48-4	Cobalt	1.0			
7440-50-8	Copper	1.0			
7440-62-2	Vanadium (fume or dust)	1.0			
7440-66-6	Zinc (fume or dust)	1.0			
7550-45-0	Titanium tetrachloride	1.0			
7647-01-0	Hydrochloric acid	1.0			

SECTION 313 CHEMICAL CATEGORIES

Section 313 requires emissions reporting on the chemical categories listed below, in addition to the specific chemicals listed above. The metal compounds listed below, unless otherwise specified, are defined as including any unique chemical substance that contains the named metal (i.e., antimony, copper, etc.) as part of that chemical's structure.

Chemical categories are subject to the 1 percent de minimis concentration unless the substance involved meets the definition of an OSHA carcinogen.

Antimony Compounds - Includes any unique chemical substance that contains antimony as part of that chemical's infrastructure.

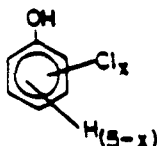
Arsenic Compounds - Includes any unique chemical substance that contains arsenic as part of that chemical's infrastructure.

Barium Compounds - Includes any unique chemical substance that contains barium as part of that chemical's infrastructure.

Beryllium Compounds - Includes any unique chemical substance that contains beryllium as part of that chemical's infrastructure.

Cadmium Compounds - Includes any unique chemical substance that contains cadmium as part of that chemical's infrastructure.

Chlorophenols -



where $x = 1$ to 5

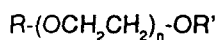
Chromium Compounds - Includes any unique chemical substance that contains chromium as part of that chemical's infrastructure.

Cobalt Compounds - Includes any unique chemical substance that contains cobalt as part of that chemical's infrastructure.

Copper Compounds - Includes any unique chemical substance that contains copper as part of that chemical's infrastructure.

Cyanide Compounds - $X^+ CN^-$ where $X = H^+$ or any other group where a formal dissociation may occur. For example KCN or $Ca(CN)_2$.

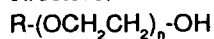
Glycol Ethers - Includes mono- and di- ethers of ethylene glycol, diethylene glycol, and triethylene glycol.



Where $n = 1, 2, \text{ or } 3$

$R =$ alkyl or aryl groups

$R' = R, H,$ or groups which, when removed, yield glycol ethers with the structure:



Polymers are excluded from this category.

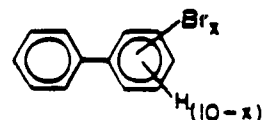
Lead Compounds - Includes any unique chemical substance that contains lead as part of that chemical's infrastructure.

Manganese Compounds - Includes any unique chemical substance that contains manganese as part of that chemical's infrastructure.

Mercury Compounds - Includes any unique chemical substance that contains mercury as part of that chemical's infrastructure.

Nickel Compounds - Includes any unique chemical substance that contains nickel as part of that chemical's infrastructure.

Polybrominated Biphenyls (PBBs)



where $x = 1$ to 10

Selenium Compounds - Includes any unique chemical substance that contains selenium as part of that chemical's infrastructure.

Silver Compounds - Includes any unique chemical substance that contains silver as part of that chemical's infrastructure.

Thallium Compounds - Includes any unique chemical substance that contains thallium as part of that chemical's infrastructure.

Zinc Compounds - Includes any unique chemical substance that contains zinc as part of that chemical's infrastructure.

*C.I. means "Color Index."

TABLE III

STATE ABBREVIATIONS

Alabama	AL	Montana	MT
Alaska	AK	Nebraska	NE
American Samoa	AS	Nevada	NV
Arizona	AZ	New Hampshire	NH
Arkansas	AR	New Jersey	NJ
California	CA	New Mexico	NM
Colorado	CO	New York	NY
Connecticut	CT	North Carolina	NC
Delaware	DE	North Dakota	ND
District of Columbia	DC	Commonwealth of the Northern Mariana Islands	MP
Florida	FL	Ohio	OH
Georgia	GA	Oklahoma	OK
Guam	GU	Oregon	OR
Hawaii	HI	Pennsylvania	PA
Idaho	ID	Puerto Rico	PR
Illinois	IL	Rhode Island	RI
Indiana	IN	South Carolina	SC
Iowa	IA	South Dakota	SD
Kansas	KS	Tennessee	TN
Kentucky	KY	Texas	TX
Louisiana	LA	Utah	UT
Maine	ME	Vermont	VT
Marshall Islands	MH	Virginia	VA
Maryland	MD	Virgin Islands	VI
Massachusetts	MA	Washington	WA
Michigan	MI	West Virginia	WV
Minnesota	MN	Wisconsin	WI
Mississippi	MS	Wyoming	WY
Missouri	MO		

ADDITIONAL MATERIALS AVAILABLE ON SECTION 313:

For copies of these materials, send in the request form included in the booklet or write to:

Section 313 Document Distribution Center
P.O. Box 12505
Cincinnati, OH 45212

Section 313 Rule (FR Reprint)

A reprint of the final section 313 rule as it appeared in the Federal Register (FR) February 16, 1988.

TRI Magnetic Media Submission Guidance Package (EPA 560/7-88-003)

Reports under section 313 may be submitted by computer tape or floppy disk. This guidance package gives the format requirements and other details for such submissions.

Toxic Chemical Release Inventory Questions and Answers (EPA 560/4-89-002)

Answers to frequently asked questions about the section 313 rule, organized by subject area.

Section 313 Technical Questions and Answers Document

Common Synonyms for Section 313 Chemicals (OTS-ETD-001)

This document contains common synonyms for the specifically listed section 313 chemicals (synonyms for chemicals in covered categories are not included).

Comprehensive List of Chemicals Subject to Reporting Under the Act (Title III List of Lists) (EPA 560/4-88-003)

A consolidated list of specific chemicals covered by the Emergency Planning and Community Right-to-Know Act.

The list contains the chemical name, CAS Registry Number, and provides specific information on what reporting requirement(s) the chemical is subject to.

Supplier Notification Requirements Brochure (EPA 560/4-88-008)

Trade Secrets Rule and Form (FR Reprint)

A reprint of the final rule that appeared in the Federal Register of July 29, 1988. This rule implements the trade secrets provision of the Emergency Planning and Community Right-to-Know Act (Section 322). Includes a copy of the trade secret substantiation form.

Industry Specific Technical Guidance Documents

The Agency has developed a group of smaller, individual guidance documents that target activities in industries who primarily process or use the listed toxic chemicals.

Also available:

Comprehensive List of Chemicals Subject to Reporting Under the Act (Title III List of Lists)

Available as an IBM compatible disk from: The National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650, Document Number: PB 88-193255, \$50.00.

Estimating Releases and Waste Treatment Efficiencies for the Toxic Chemical Release Inventory (EPA 560/4-88-002)

Suggested methods on the development of release estimates and waste treatment efficiency calculations required on Form R. Available from: Superintendent of Documents, Government Printing Office, Washington, DC 20402-9325, (202) 783-3238, Stock Number: 055-000-00270-3, \$11.00.

Please send information on: *(Please indicate the quantities you are requesting.)*

- ___ **Section 313 Rule** (FR Reprint)
- ___ **Additional Copies of Instructions and Form R**
(EPA 560/4-88-005)
- ___ **TRI Magnetic Media Submission Guidance Package** (EPA 560/7-88-003)
- ___ **Toxic Chemical Release Inventory Questions and Answers** (EPA 560/4-89-002)
- ___ **Section 313 Technical Question and Answers Document**
- ___ **Common Synonyms for Section 313 Chemicals** (OTS-ETD-001)
- ___ **Comprehensive List of Chemicals Subject to Reporting under the Act (Title III List of Lists)** (EPA 560/4-88-003)
- ___ **Supplier Notification Requirements Brochure**
(EPA 560/4-88-008)
- ___ **Trade Secret Rule and Substantiation Form**

Industry Specific Technical Guidance Documents for Estimating Releases:

- ___ **Monofilament Fiber Manufacture**
(EPA 560/4-88-004a)
- ___ **Printing Operations** (EPA 560/4-88-004b)
- ___ **Electrodeposition of Organic Coatings**
(EPA 560/4-88-004c)
- ___ **Spray Application of Organic Coatings**
(EPA 560/4-88-004d)
- ___ **Semiconductor Manufacture** (EPA 560/4-88-004e)
- ___ **Formulating Aqueous Solutions** (EPA 560/4-88-004f)
- ___ **Electroplating Operations** (EPA 560/4-88-004g)
- ___ **Textile Dyeing** (EPA 560/4-88-004h)
- ___ **Presswood and Laminated Wood Products Manufacturing** (EPA 560/4-88-004i)
- ___ **Roller, Knife, and Gravure Coating Operations**
(EPA 560/4-88-004j)
- ___ **Paper and Paperboard Production**
(EPA 560/4-88-004k)
- ___ **Leather Tanning and Finishing Processes**
(EPA 560/4-88-004l)
- ___ **Wood Preserving** (EPA 560/4-88-004p)
- ___ **Rubber Production and Compounding**
(EPA 560/4-88-004q)

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APPENDIX A

EXAMPLE OF A COMPLETED FORM R FOR A HYPOTHETICAL FACILITY REPORTING UNDER TITLE III, SECTION 313

The following is a hypothetical example of how one manufacturer might complete the toxic chemical release inventory reporting Form R. The facility information is purely fictitious and does not represent any known manufacturing facility. The example begins with descriptions of the facility (a lead-acid storage battery manufacturer) and of the production process at the facility. The completion of each section of Form R is explained and a copy of Form R, as it would be completed by this facility, follows.

Facility Description

Your company manufactures lead-acid batteries at a plant in New Mexico. Your company also operates a lead smelter that produces lead ingots at another location in New Mexico and ships them to the battery plant. Lead scrap from the battery plant is returned to the smelter for recovery and reuse. The SIC code of the battery plant is 3691 (storage batteries); the SIC code for the smelter is 3341 (secondary smelting and refining of non-ferrous metals). A lead oxide production plant located adjacent to the battery plant, on the same property, also falls under SIC code 3691.

The lead oxide plant and the battery plant are considered, for the purposes of section 313 reporting requirements, to be a single facility. The facility is required to submit a completed Form R for each reported chemical or chemical category. Because activities at your facility involve both metallic lead and lead compounds (e.g., lead oxide), you may file a single reporting form for metallic lead (CAS number 7439-92-1) and a single form for lead compounds manufactured, processed, or used at your facility. Alternatively, and preferably, you may file one reporting form for all lead compounds (a single listed category under section 313) present at your facility, including metallic lead. In this example, metallic lead and all lead compounds are reported on a single reporting form.

Lead-acid batteries are produced using lead, sulfuric acid, additives such as antimony, and various other raw materials. Your facility's battery production capacity is 5000 batteries per day, and the facility normally operates 24 hours per day, 300 days per year. If sulfuric acid was manufactured, processed, or used at the battery plant in amounts that exceed the applicable thresholds, you would be required to report releases of sulfuric acid separately. Similarly, releases of lead and lead compounds from the remotely located lead smelter must be reported separately, if manufactured, processed, or used in amounts that exceed the thresholds.

Process Description

A lead-acid battery consists of a number of electrolytic cells, each containing an anode of porous lead, a cathode of primarily lead peroxide (PbO_2), and electrodes of metallic lead. The anode and cathode are separated by non-conducting material (e.g., plastic) and surrounded by an electrolytic (conductive) solution of sulfuric acid and water.

The first steps in the battery manufacturing process are grid casting and lead oxide (PbO) production. Lead ingots are melted and reformed by grid molding machines. The grids are ejected from the molds, trimmed, and stacked. Lead fumes from the lead melting and grid casting process are exhausted to the atmosphere without emission controls. The melting and casting process produces no wastewater.

The cast grids are made into battery anode and cathode plates by the application of a lead oxide paste of 70 percent lead oxide (PbO) and 30 percent metallic lead. Lead ingots are tumbled in a ball mill with air producing lead oxide and fine lead dust (referred to as "leady oxide"). Leady oxide particulates are entrained in the mill exhaust air, which is treated sequentially by a cyclone separator and fabric filter. The used fabric filter bags are shipped to a RCRA-permitted commercially operated hazardous waste landfill located in Colorado. The leady oxide production process does not produce wastewater.

The leady oxide is mixed with metallic lead, water, sulfuric acid, and additives in a paste mixer to form battery paste, which is applied to the lead grids to form battery plates. Lead and lead oxide dust are emitted from the paste mixer during charging of the dry materials, and from the mixer exhaust during wet mixing. The mixer is vented to a fabric filter during charging and to a wet scrubber during wet mixing. The fabric filter and wet scrubber vent to the same stack. The paste mixing and application process produces wastewater from the wet scrubber blowdown and also from washdown of the paste mixing equipment and mixing area. Scrubber blowdown is treated on-site. Solids collected in a scrubber sump are returned to the off-site smelter for recovery and reuse. Solids collected in an evaporation pond are not recovered. Washdown water is treated in a multi-stage settler and entirely reused in the paste mixing process. Sludge collected in the settler is recycled. Small amounts of particulates are released to the atmosphere during paste application. These emissions are not ducted to a stack or controlled.

The plates are then dried and cured under controlled temperature and humidity conditions. The plate drying and curing operation produces no wastewater or particulate emissions. Cured plates are sent to a three-process operation that involves manual separation of the plates, stacking them with non-conducting separators, and the welding on of metallic lead battery leads (pronounced "leeds") and lead terminals. The plates are then assembled into battery cases.

Particulate emissions of battery paste result from the manual separation, stacking, and handling of the battery plates. Lead fumes are emitted from the burning process. Exhaust gases from the three-process operation are treated by a fabric filter, and the collected particulates are returned to the smelter for recovery and reuse. The three-process operation produces no lead-containing wastewater, as only non-contact cooling water is used in the burning process. [Note: Even though lead is contained in the cooling water used by your facility (in the form of dissolved and suspended solids), you are not required to report releases of lead discharged with the cooling water because the lead is naturally occurring and not added in the battery production process.]

Sulfuric acid is added to the assembled batteries and the plates are formed within the batteries by applying electric voltage. The formation process oxidizes the lead oxide in the positive plates to lead peroxide and reduces the lead oxide in the negative plates to metallic lead. The charging process produces an acid mist that contains small amounts of lead particulate, which is released without emission controls.

Acid used in the formation process is removed from the batteries and reused. The batteries are washed, fresh acid is added, and the batteries are tested, re-washed, and inspected before being shipped to an on-site warehouse. The intermediate and final washes generate process wastewater, as do the battery repair and housekeeping (floor washing) operations. This wastewater is pretreated on-site and then piped to the local publicly owned treatment works (POTW).

Determining Reporting Requirements Under Section 313

To determine your eligibility for reporting under section 313, you must ascertain whether the total quantity of any listed chemical or chemical compound manufactured, processed, or used at your facility over the course of the calendar year exceeds any applicable threshold. For the facility described above, your determination of eligibility would proceed as follows. [Note: In determining eligibility, you will generate information you need to complete several portions of the form.]

Both lead (CAS number 7439-92-1) and lead compounds (a chemical category) are listed substances subject to reporting under section 313. You have decided that if any of the

applicable thresholds are exceeded, you will report releases of both lead and lead compounds on the same reporting form under the listed chemical category "lead compounds." "Lead compounds" should be entered in Part III, Section 1.3, of the form. The CAS number for lead should not be entered, because that would imply that you are reporting only for lead. You should enter not applicable, NA, in the CAS number space.

According to the process description, the following activities take place at your facility involving lead and lead compounds:

- Your facility manufactures (produces) lead oxide (PbO) for on-site use/processing, which occurs in the production of lead oxide from metallic lead.
- Your facility processes metallic lead (Pb) as a reactant during lead oxide production.
- Your facility also processes metallic lead as an article component. This activity occurs at several points in the process, including during the addition of lead to the battery paste and the welding of metallic lead terminals and leads in the three-process operation.
- Your facility processes lead oxide as a reactant in the formation process, where the lead oxide in the positive battery plates is oxidized to lead peroxide.
- Your facility manufactures (produces) lead peroxide. This activity also occurs in the formation process, where lead oxide is oxidized to lead peroxide.

You must indicate all of the activities involving lead and lead compounds on Part III, Section 3, of the reporting form. (The attached completed form shows how information for this facility has been entered.)

Determining Reporting Eligibility. The manufacturing threshold quantity for the 1988 reporting year is 50,000 pounds; the threshold for processing is also 50,000 pounds. These thresholds drop to 25,000 pounds for the 1989 reporting year. Your facility both manufactures and processes, as it produces 1,500,000 batteries per year. Each battery contains 25 pounds of lead, half of which is in the form of metallic lead (anode) and half in the form of lead peroxide (cathode). The total amount of lead compounds manufactured during the reporting year is the 18,750,000 pounds of lead peroxide, which exceeds the threshold for manufacturing. Similarly, the amounts of lead processed as an article component (18,750,000 pounds) and of lead compounds processed (18,750,000 pounds) each exceed the threshold for processing. [Note: These amounts are not first combined before being compared to the processing threshold, because both lead and lead compounds are separately listed chemicals. If you added the amount of lead processed into lead oxide to that then processed into lead

peroxide, you would be double counting.] For sequential processes, use the amount of the final process material to determine whether the threshold is exceeded. Since your facility employs more than 10 people and falls within SIC codes 20-39, your facility must report under section 313. [Note: Once any of the applicable thresholds for lead compounds are exceeded, you are required to identify all manufacturing, processing, and use activities. You must report all releases of all lead compounds present at your facility, regardless of the activity from which they originate unless there is a specifically exempted use, such as the use of an article or use of water naturally containing lead.]

Calculating the Maximum Quantity of Lead and Lead Compounds. To calculate the maximum amount of lead and lead compounds present at your facility at any one time, you must consider all types of metallic lead and all types of lead compounds present at your facility, including stockpiled raw materials (i.e., lead ingots), lead and lead oxide present in process equipment (i.e., molten lead contained in the grid casting system, lead and lead oxide contained in the paste mixer), the inventory of metallic lead and lead peroxide contained in finished batteries stored on-site, and stockpiled lead scrap. Since the reporting form is being prepared for lead compounds, the maximum amount reported is the total of the inventories of these materials. The maximum amount of metallic lead (2,305,000 pounds), lead oxide (205,000 pounds), and lead peroxide (625,000 pounds) present at your facility is 3,135,000 pounds, which is between 1,000,000 and 9,999,999 pounds. You would therefore report range 06 on Part III, Section 4, of the reporting form.

Calculation of Releases of Lead

Releases to Air. In April 1988, you conducted stack tests to determine air releases from the battery facility. The release data provided baseline data for a proposed 1989 air emission reduction program. The tests were performed using EPA Reference Method 12, which determines exhaust concentrations as total elemental lead, and EPA Reference Methods 1-4, which determine total exhaust volumes. Releases from all stacks and vents at the facility were measured, including those from the following release points:

- Grid casting furnace and casting machine;
- Lead oxide mill fabric filter exhaust;
- Paste mixer wet scrubber exhaust;
- Paste mixer fabric filter exhaust; and
- Three process fabric filter exhaust.

Non-point (fugitive) air releases of lead, such as from the battery formation, grid paste application, and fabric filter dust handling areas were not determined as part of the stack testing program. These have been estimated by your facility's engineering department to be less than 100 pounds per year.

Measurements of the inlet lead concentrations to the wet scrubber or fabric filters were not performed. The process conditions (e.g., temperature, exhaust rate) of the grid casting furnace were changed significantly in June 1988 in response to the stack test results. Current lead releases are estimated by the engineering department to be 75 percent of those measured during the stack test.

The total releases to air from the facility must be entered in Part III, Section 5, of the form. The stack test results provide the concentration of metallic lead in each exhaust stream in grains per cubic foot and the exhaust rate in cubic feet per minute. You are required to report releases or release ranges in pounds per year. Using the appropriate conversion factors, knowing the scrubber efficiency (from the manufacturer's data), and assuming your facility operates 24 hours per day, 300 days per year, you can calculate the total lead releases from the stack test data. Because point (stack) releases of lead are 2400 lb/yr, which is greater than 999 lb/yr, you must enter the actual calculated amount in column A.2 of Section 5.2. Non-point (fugitive) air releases are 100 lb/yr (which is less than 999 lb/yr), so you may either enter the actual calculated amount in column A.2, or enter the appropriate range (1-499 lb/yr) in column A.1. The basis for the estimate of fugitive emissions, entered in column B of Section 5, is engineering calculations (code O). The basis for the estimate of stack emissions, entered in column B of Section 5, is monitoring data (code M). Although engineering calculations were used to estimate releases from the grid casting process, actual emissions test data were used to calculate more than 50 percent of the total stack emissions, so code M is appropriate.

Releases to Water. The only release of lead to a receiving stream or water body comes from stormwater. Lead ingots shipped from the off-site smelter are stored on a concrete pad in an open area at your facility. Lead dust is entrained in the stormwater runoff from the ingot storage area. You have monitoring data concerning the concentration of lead in stormwater releases from the facility property. Therefore, using precipitation volumes and run-off coefficients appropriate to the site, you are able to estimate that releases of lead compounds to the nearby stream total 6.2 pounds per year. Since the total quantity of lead released is less than 999 lb/yr, you may enter the actual amount calculated in column A.2 of Section 5.3.1a, or mark the applicable range (1-499 lb/yr) in column A.1, as is shown in the sample. Your facility has no process discharges to surface waters except stormwater. You must therefore report in Part III, Section 5.3.1c, that 100 percent of the lead released from your facility to surface water is from stormwater. The basis for the estimate of stormwater emissions, entered in column B of Section 5.3.1, is monitoring data (code M). The number for the receiving stream or water body you designated in Part I, Section 3.10 must be entered.

Wastewater from the grid paste application process is entirely recycled within the process after treatment in a multi-stage settler. Wastewater from the grid paste mixer wet scrubber is piped to an on-site surface impoundment and evaporated after treatment by a single-stage separator (settling tank) and pH adjustment for chemical precipitation. Wastewater from other process areas is treated in the wastewater pretreatment system and piped to the POTW. The following sections on Releases to Land and Discharge to POTW illustrate reporting of these wastes.

Releases to Underground Injection. Your facility performs no underground injection and therefore has no Underground Injection Well Code identification number. Not applicable, NA, should be entered in Part I, Section 3.11 and in column A.2 of Part III, Section 5.4.

Releases to Land. Wastewater from the grid paste mixing scrubber is discharged to a surface impoundment and evaporated. Although your facility historically has removed lead sludge from the surface impoundment each year, this has not been done for the past two years, as process changes have caused the sludge to accumulate more slowly than in previous years. Therefore, the impoundment must be considered an on-site land disposal unit, and releases to the impoundment must be reported in Part III, Section 5.5.1, of the form, and not in Part III, Section 5.3.

The facility wastewater monitoring program does not determine the concentration of lead and lead compounds in the scrubber discharge water, and releases to the surface impoundment (releases to land) must be calculated from material balance information. These releases to land are determined from the amount of lead removed by the scrubber (using the efficiency data provided by the scrubber manufacturer). The volume of the scrubber blowdown is found to be 1,500 pounds per year. Enter the estimate of the amount of lead and lead compounds released to surface impoundments in the space provided in Part III, Section 5.5.3 of the form. Because releases of lead to the surface impoundment are greater than 999 lb/yr, you must enter the actual calculated amount in column A.2 of Section 5.5.1. The basis for the estimate of releases to the impoundment, entered in column B of Section 5, is mass balance calculations (code C).

Calculation of Transfers of Lead to Off-Site Locations

Discharge to POTW. Wastewater from battery wash and battery repair operations at your plant is discharged to the local POTW. The discharge monitoring system data collected by your plant provide the concentration of metallic lead in each wastewater stream discharged to the POTW in milligrams/liter and the flow rate in liters per minute. Your facility also monitors the inlet concentration to the on-site wastewater treatment system to determine the treatment system efficiency. You are

required to report releases or release ranges in pounds per year. Assuming your facility operates 24 hours a day, 300 days a year, using appropriate conversion factors and the monitoring data (i.e., lead concentrations and wastewater volumes), the release is calculated to be 11 pounds per year. The total releases to the POTW from the facility must be entered in Part III, Section 6.1, of the form. Because the releases of lead are less than 999 lb/yr, you may mark the appropriate range in column A.1 or enter the actual calculated amount in column A.2 of Section 6.1.1. You must report information concerning the multi-stage settler, single-stage settler, and pH adjustment (chemical precipitation) on Part III, Section 7, of the form, as these systems constitute wastewater treatment systems. You must also enter the name of the POTW in Part II, Section 1.1.

Transfers to Other Off-Site Locations. Your facility returns the lead particulate collected by the fabric filters to the off-site smelter for recovery and reuse. You are not required to report releases of listed substances to off-site recovery facilities; therefore, no information concerning the off-site smelter should be entered in Part III, Sections 6.2.1, 6.2.2, or 6.2.3, of the form. Your facility discharges used fabric filter bags contaminated with lead particulate to a commercial RCRA landfill located in Colorado. The RCRA I.D. number for the off-site facility is COD554698764. The plant engineering department estimates that the annual shipment of fabric filter bags contain less than 500 pounds of lead. You may therefore report the release as a range in column A.1 of Section 6.2.1. The basis for the estimate of solid waste emissions, entered in column B of Section 6.2.1, is engineering calculations (code O), and the location and RCRA I.D. number of the commercial landfill is entered in Part II, Section 2.1, of the form.

Estimation of Treatment System Efficiencies and Influent Concentrations

Information on the types of treatment systems and their treatment efficiencies is required to be entered in Part IV, Section 7, of the form. For air emission treatment systems use code A, for wastewater treatment systems use code W, and for solid waste treatment systems use code S in column 1 of Section 7 of the form. Table III of the instructions for Form R provides treatment codes to be entered in column B of Section 7.

Air Treatment Systems. Fabric filters and cyclone collectors are considered to be mechanical separation systems; the treatment code for these systems is A06. The treatment code for wet scrubbers is A03. Information on each air treatment system must be entered individually in Section 7. The cyclone collector and fabric filter on the lead oxide mill exhaust are considered to be sequential treatment systems, because both systems treat the same wastestream in sequence. Therefore, sequential treatment must be indicated for both systems in

column D of Section 7. You are required to indicate the influent concentration only to the first step of the sequential treatment system (the cyclone collector) and must report the overall treatment efficiency of the system entered on the line for the last treatment step (the fabric filter). Note that the wet scrubber and fabric filter on the grid paste mixer exhaust are not sequential treatment steps, because each treats a different wastestream generated at different times during the same process.

In Section 7, columns C and E, respectively, you must indicate the range of influent concentration and treatment efficiency for each treatment system listed. You must estimate the efficiency and influent concentration of each air emission treatment system, as the stack test program did not determine influent concentrations. You have manufacturers' data on the efficiency of each treatment system and should use this information along with effluent concentration data to estimate the influent concentrations. The efficiency estimates for air treatment systems are not based on operating data; this must be indicated in column F of Section 7.

Wastewater Treatment Systems. The POTW discharge monitoring system provides actual operating data concerning the removal efficiencies, and influent and effluent concentrations of all wastewater treatment systems at your facility except the single-stage settler. The pH adjustment (chemical precipitation) and filtration steps used in the wastewater pretreatment system are considered to be sequential treatment steps, as are the single-stage settler, pH adjustment, and evaporation (the surface impoundment) used to treat the grid paste application discharge. The treatment code for chemical precipitation (lime or sodium hydroxide) is C01, and the code for filtration is P12.

The treatment code for treatment of grid paste application washwater in the multi-stage settler is P11 (settling/clarification), and the treatment code for process reuse of the wastewater is R99 (other recovery/reuse). The code for evaporation of wastewater in the surface impoundment is P99 (other physical treatment). The overall treatment efficiencies for the grid paste application discharge and scrubber discharge are both 100 percent, because the wastewater streams are completely eliminated through evaporation and reuse respectively. Note that you do not report the precipitation of lead in the surface impoundment as "metals recovery," because you no longer remove the lead sludge from the impoundment for reuse. This will be considered disposal to land for the 1,500 pounds of lead that were sent to the impoundment.

Information on Waste Minimization. Your facility formerly shipped the lead-containing sludge from the multi-stage settler used to treat the grid paste application wastewater to an off-site disposal facility. In 1987, however, process modifications allowed you to return the sludge to the off-site smelter operated by your company for recovery and reuse, resulting in

significant cost-savings. The most significant savings is in the cost of treating the sludge; the value of the recovered lead is less significant. The amount of lead formerly disposed of at the off-site facility is approximately 100 lb/yr; the same amount is now recovered by the smelter. The code for the type of modification is M2 (recovery off-site) and that for the reason for action is R2 (reduction in treatment/disposal cost). The index value of 1.0 is based on the fact that production of batteries was approximately the same in both years.

Completion of the Section 313 Reporting Form

As shown in the sample form that follows, your facility information is entered in Part I of the reporting form. The reporting year, Dun and Bradstreet Number, EPA Identification Number and other required information have been entered. The sample report contains no trade secret information and has been completed for an entire covered facility, as previously described. All non-applicable information on the form has been marked NA. The vice president of your facility has been briefed on the information contained in the report and has signed the certification (Part I, Section 2). If separate reports were being prepared for lead and lead compounds, your vice president would have signed each reporting form. The completed form is now ready to be submitted to EPA and the appropriate State agency.

(Important: Type or print: read instructions before completing form.)

	U.S. Environmental Protection Agency TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act	Public reporting burden for this collection of information is estimated to vary from 30 to 34 hours per response, with an average of 32 hours per response, including 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 this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch (PM-223), US EPA, 401 M St., SW, Washington, D.C. 20460 Attn: TRI Burden and to the Office of Information and Regulatory Affairs, Office of Management and Budget Paperwork Reduction Project (2070-0093), Washington, D.C. 20603
EPA FORM R	PART I. FACILITY IDENTIFICATION INFORMATION	(This space for your optional use.)

1.	1.1 Are you claiming the chemical identity on page 3 trade secret? <input type="checkbox"/> Yes (Answer question 1.2; Attach substantiation forms.) <input checked="" type="checkbox"/> No (Do not answer 1.2; Go to question 1.3)	1.2 If "Yes" in 1.1, is this copy: <input type="checkbox"/> Sanitized <input type="checkbox"/> Unsanitized	1.3 Reporting Year 19 <u>88</u>
----	---	---	------------------------------------

2. CERTIFICATION (Read and sign after completing all sections.)
 I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official:
 Mr. Stanley L. Pirx, III, Vice President, Battery Products Division

Signature: *Stanley L. Pirx, III* Date signed: February 12, 1989

3. FACILITY IDENTIFICATION Facility or Establishment Name Pirx-Lewis, Inc., Battery Products Div. <hr/> Street Address 10545 Cerillos Road <hr/> City: Albuquerque County: Bernadillo <hr/> State: NM Zip Code: 81103-0420	WHERE TO SEND COMPLETED FORMS: 1. U.S. ENVIRONMENTAL PROTECTION AGENCY P.O. BOX 70266 WASHINGTON, DC 20024-0266 ATTN: TOXIC CHEMICAL RELEASE INVENTORY 2. APPROPRIATE STATE OFFICE (See instructions Appendix E)
---	--

3.2	This report contains information for (Check one): a. <input checked="" type="checkbox"/> An entire facility b. <input type="checkbox"/> Part of a facility					
3.3	Technical Contact Mr. Roberto Garcia			Telephone Number (include area code) (505) 752-5360		
3.4	Public Contact Ms. Sandy A. Range			Telephone Number (include area code) (505) 752-5363		
3.5	SIC Code (4 digit) a. 3691	b. NA	c.	d.	e.	f.
3.6	Latitude Degrees: 35 Minutes: 10 Seconds: 00			Longitude Degrees: 106 Minutes: 30 Seconds: 00		
3.7	Dun & Bradstreet Number(s) a. 91-976-2270			b. NA		
3.8	EPA Identification Number(s) (RCRA I.D. No.) a. NMD919762270			b. NA		
3.9	NPDES Permit Number(s) a. NA			b.		
3.10	Receiving Streams or Water Bodies (enter one name per box) a. Tijeros Arroyo			b. NA		
3.11	Underground Injection Well Code (UIC) Identification Number(s) a. NA			b.		

4. PARENT COMPANY INFORMATION	
4.1	Name of Parent Company Cibola Motor Works
4.2	Parent Company's Dun & Bradstreet Number 91-783-4567

(Important: Type or print; read instructions before completing form.)

EPA FORM R PART II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES	(This space for your optional use.)
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1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name City of Albuquerque Treatment Works		1.2 POTW name NA	
Street Address 50100 U.S. Route 66		Street Address	
City Albuquerque	County Bernadillo	City	County
State NM	Zip 87105-9987	State	Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).

2.1 Off-site location name Colorado Waste Disposal, Inc.		2.2 Off-site location name	
EPA Identification Number (RCRA ID. No.) COD554698764		EPA Identification Number (RCRA ID. No.) NA	
Street Address 10500 County Route 76		Street Address	
City Golden	County Jefferson	City	County
State CO	Zip 80305-1311	State	Zip
Is location under control of reporting facility or parent company? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Is location under control of reporting facility or parent company? <input type="checkbox"/> Yes <input type="checkbox"/> No	

2.3 Off-site location name		2.4 Off-site location name	
EPA Identification Number (RCRA ID. No.)		EPA Identification Number (RCRA ID. No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? <input type="checkbox"/> Yes <input type="checkbox"/> No		Is location under control of reporting facility or parent company? <input type="checkbox"/> Yes <input type="checkbox"/> No	

2.5 Off-site location name		2.6 Off-site location name	
EPA Identification Number (RCRA ID. No.)		EPA Identification Number (RCRA ID. No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? <input type="checkbox"/> Yes <input type="checkbox"/> No		Is location under control of reporting facility or parent company? <input type="checkbox"/> Yes <input type="checkbox"/> No	

Check if additional pages of Part II are attached. How many? _____



(Important: Type or print; read instructions before completing form.)

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION	(This space for your optional use.)
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1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)	
1.1	[Reserved]
1.2	CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting a chemical category.) NA
1.3	Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.) Lead Compounds
1.4	Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)	
2.	Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)			
3.1	Manufacture the chemical: a. <input checked="" type="checkbox"/> Produce b. <input type="checkbox"/> Import	If produce or import: c. <input checked="" type="checkbox"/> For on-site use/processing e. <input type="checkbox"/> As a byproduct	d. <input type="checkbox"/> For sale/distribution f. <input type="checkbox"/> As an impurity
3.2	Process the chemical: a. <input checked="" type="checkbox"/> As a reactant d. <input type="checkbox"/> Repackaging only	b. <input type="checkbox"/> As a formulation component	c. <input checked="" type="checkbox"/> As an article component
3.3	Otherwise use the chemical: a. <input type="checkbox"/> As a chemical processing aid	b. <input type="checkbox"/> As a manufacturing aid	c. <input type="checkbox"/> Ancillary or other use

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR	
<input type="text" value="0"/> <input type="text" value="6"/> (enter code)	

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE			
You may report releases of less than 1,000 lbs. by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Release (lbs/yr)		B. Basis of Estimate (enter code)
	A.1 Reporting Ranges	A.2 Enter Estimate	
	0	1-499 500-999	
5.1 Fugitive or non-point air emissions	5.1a	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	5.1b <input type="text" value="0"/>
5.2 Stack or point air emissions	5.2a	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	5.2b <input type="text" value="M"/> 2400
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.1 <input type="text" value="A"/>	5.3.1a <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	5.3.1b <input type="text" value="M"/> 5.3.1c 100
	5.3.2 <input type="checkbox"/>	5.3.2a <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	5.3.2b <input type="checkbox"/> 5.3.2c NA
	5.3.3 <input type="checkbox"/>	5.3.3a <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	5.3.3b <input type="checkbox"/> 5.3.3c
5.4 Underground injection	5.4a	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	5.4b <input type="checkbox"/> NA
5.5 Releases to land	5.5.1 On-site landfill	5.5.1a <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	5.5.1b <input type="checkbox"/> NA
	5.5.2 Land treatment/application farming	5.5.2a <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	5.5.2b <input type="checkbox"/> NA
	5.5.3 Surface impoundment	5.5.3a <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	5.5.3b <input type="text" value="C"/> 1500
	5.5.4 Other disposal	5.5.4a <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	5.5.4b <input type="checkbox"/> NA
<input type="checkbox"/> (Check if additional information is provided on Part IV-Supplemental Information.)			

(Important: Type or print; read instructions before completing form.)

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)	(This space for your optional use.)
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6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS					
You may report transfers of less than 1,000 lbs. by checking ranges under A. 1. (Do not use both A. 1 and A. 2)	A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/Disposal (enter code)
	A. 1 Reporting Ranges	A. 2 Enter Estimate			
	0	1-499	500-999		
6.1.1 Discharge to POTW (enter location number from Part II, Section 1.)	1	1	[] [x] []	6.1.1b M	
6.2.1 Other off-site location (enter location number from Part II, Section 2.)	2	1	[] [x] []	6.2.1b 0	6.2.1c M 7 2
6.2.2 Other off-site location (enter location number from Part II, Section 2.)	2		[] [] []	6.2.2b NA	6.2.2c M [] []
6.2.3 Other off-site location (enter location number from Part II, Section 2.)	2		[] [] []	6.2.3b []	6.2.3c M [] []
[] (Check if additional information is provided on Part IV-Supplemental Information)					

7. WASTE TREATMENT METHODS AND EFFICIENCY					
A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7.1a A	7.1b A 0 6	7.1c 3	7.1d [x]	7.1e NA %	7.1f [] []
7.2a A	7.2b A 0 6	7.2c []	7.2d [x]	7.2e 99.5 %	7.2f [] [x]
7.3a A	7.3b A 0 6	7.3c 3	7.3d []	7.3e 98.0 %	7.3f [] [x]
7.4a A	7.4b A 0 3	7.4c 3	7.4d []	7.4e 90.0 %	7.4f [] [x]
7.5a A	7.5b A 0 6	7.5c 3	7.5d []	7.5e 98.0 %	7.5f [] [x]
7.6a W	7.6b P 1 1	7.6c 2	7.6d [x]	7.6e NA %	7.6f [] []
7.7a W	7.7b C 0 1	7.7c []	7.7d [x]	7.7e NA %	7.7f [] []
7.8a W	7.8b P 9 9	7.8c []	7.8d [x]	7.8e 100 %	7.8f [x] []
7.9a W	7.9b P 1 1	7.9c 2	7.9d [x]	7.9e NA %	7.9f [] []
7.10a W	7.10b R 9 9	7.10c []	7.10d [x]	7.10e 100 %	7.10f [x] []
[x] (Check if additional information is provided on Part IV-Supplemental Information)					

8. OPTIONAL INFORMATION ON WASTE MINIMIZATION (Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)									
A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal	C. Index	D. Reason for Action (enter code)						
M 2	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; text-align: center;">Current reporting year (lbs/yr)</td> <td style="width: 30%; text-align: center;">Prior year (lbs/yr)</td> <td style="width: 40%; text-align: center;">Or percent change</td> </tr> <tr> <td style="text-align: center;">121,700</td> <td style="text-align: center;">121,800</td> <td style="text-align: center;">_____ %</td> </tr> </table>	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or percent change	121,700	121,800	_____ %	1 . 0	R 2
Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or percent change							
121,700	121,800	_____ %							



(Important: Type or print; read instructions before completing form.)



EPA FORM R
PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III. Number the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)

(This space for your optional use.)

ADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE
(Part III, Section 5.3)

You may report releases of less than 1,000 lbs. by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Release (lbs/yr)		B. Basis of Estimate (enter code in box provided)	C.% From Stormwater
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate		
5.3 Discharges to receiving streams or water bodies 5.3. ___ <input type="checkbox"/>	5.3. ___ a [] [] []		5.3. ___ b <input type="checkbox"/>	5.3. ___ c
(Enter letter code from Part I Section 3.10 for stream(s) in the box provided.) 5.3. ___ <input type="checkbox"/>	5.3. ___ a [] [] []		5.3. ___ b <input type="checkbox"/>	5.3. ___ c
5.3. ___ <input type="checkbox"/>	5.3. ___ a [] [] []		5.3. ___ b <input type="checkbox"/>	5.3. ___ c

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS
(Part III, Section 6)

You may report transfers of less than 1,000 lbs. by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (lbs/yr)		B. Basis of Estimate (enter code in box provided)	C. Type of Treatment/ Disposal (enter code in box provided)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate		
6.1. Discharge to POTW (enter location number from Part II, Section 1.) 1 <input type="checkbox"/>	[] [] []		6.1. ___ b <input type="checkbox"/>	
6.2. Other off-site location (enter location number from Part II, Section 2.) 2 <input type="checkbox"/>	[] [] []		6.2. ___ b <input type="checkbox"/>	6.2. ___ c M <input type="checkbox"/>
6.2. Other off-site location (enter location number from Part II, Section 2.) 2 <input type="checkbox"/>	[] [] []		6.2. ___ b <input type="checkbox"/>	6.2. ___ c M <input type="checkbox"/>
6.2. Other off-site location (enter location number from Part II, Section 2.) 2 <input type="checkbox"/>	[] [] []		6.2. ___ b <input type="checkbox"/>	6.2. ___ c M <input type="checkbox"/>

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)

A. General Wastestream (enter code in box provided)	B. Treatment Method (enter code in box provided)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7. 11 a W <input type="checkbox"/>	7. 11 b C 0 1 <input type="checkbox"/>	7. 11 c 3 <input type="checkbox"/>	7. 11 d [x] <input type="checkbox"/>	7. 11 e NA %	7. 11 f [] [] <input type="checkbox"/>
7. 12 a W <input type="checkbox"/>	7. 12 b P 1 2 <input type="checkbox"/>	7. 12 c <input type="checkbox"/>	7. 12 d [x] <input type="checkbox"/>	7. 12 e 85.0%	7. 12 f [x] [] <input type="checkbox"/>
7. ___ a <input type="checkbox"/>	7. ___ b <input type="checkbox"/>	7. ___ c <input type="checkbox"/>	7. ___ d [] <input type="checkbox"/>	7. ___ e %	7. ___ f [] [] <input type="checkbox"/>
7. ___ a <input type="checkbox"/>	7. ___ b <input type="checkbox"/>	7. ___ c <input type="checkbox"/>	7. ___ d [] <input type="checkbox"/>	7. ___ e %	7. ___ f [] [] <input type="checkbox"/>
7. ___ a <input type="checkbox"/>	7. ___ b <input type="checkbox"/>	7. ___ c <input type="checkbox"/>	7. ___ d [] <input type="checkbox"/>	7. ___ e %	7. ___ f [] [] <input type="checkbox"/>
7. ___ a <input type="checkbox"/>	7. ___ b <input type="checkbox"/>	7. ___ c <input type="checkbox"/>	7. ___ d [] <input type="checkbox"/>	7. ___ e %	7. ___ f [] [] <input type="checkbox"/>
7. ___ a <input type="checkbox"/>	7. ___ b <input type="checkbox"/>	7. ___ c <input type="checkbox"/>	7. ___ d [] <input type="checkbox"/>	7. ___ e %	7. ___ f [] [] <input type="checkbox"/>
7. ___ a <input type="checkbox"/>	7. ___ b <input type="checkbox"/>	7. ___ c <input type="checkbox"/>	7. ___ d [] <input type="checkbox"/>	7. ___ e %	7. ___ f [] [] <input type="checkbox"/>

APPENDIX B

HOW TO DETERMINE LATITUDE AND LONGITUDE FROM TOPOGRAPHIC MAPS

Latitude is the distance north or south of the equator. Longitude is the distance east or west of the prime meridian (Greenwich, England). Latitude and longitude are measured in seconds, minutes, and degrees.

60" (seconds) = 1' (minute)

60' (minutes) = 1° (degree)

To determine the latitude and longitude of your facility you will need the following:

- Topographic map from United States Geological Survey (USGS)
- Ruler graduated in decimal units (cm or inches)
- Pencil
- Small calculator (optional).

How to Obtain USGS Maps

USGS maps used for determining latitude and longitude may be obtained from the USGS distribution center. These maps are available in both the 7.5 minute and 15 minute series. For maps of the United States, including Alaska, Hawaii, American Samoa, Guam, Puerto Rico, and the U.S. Virgin Islands, contact:

Branch of Distribution
U.S. Geological Survey
Box 25286 Federal Center
Denver, CO 80225

If you are not sure on which map your site is located, consult an index to topographic maps for your state, which USGS will provide free of charge. USGS maps cost about \$3.00 and are often available in local libraries and at commercial dealers such as surveyors or outdoor recreation equipment dealers. The index for your state lists these alternative sources for obtaining maps. If you need help in determining your facility's latitude and longitude, the National Cartographic Information Center located in Denver can provide assistance. The Center can be contacted at (303) 236-5829.

Determining Your Facility's Latitude and Longitude (See diagram next page.)

Once you have obtained the correct map for your facility, follow these steps:

1. Mark the location of your facility on the map with a point. If your facility is large, choose a point central to the production activities of the facility. If certain structures in your facility are represented on the map, mark one of the structures with a point.
2. Construct a small quadrangle (a four-sided figure) around the point with fine pencil lines connecting the nearest 2 1/2' or 5' graticules. Graticules are intersections of latitude and longitude lines that are marked on the map edge, and appear as black crosses at four points in the interior of the map.
3. Read and record the latitude and longitude for the south-east corner of the small quadrangle drawn in step two. The latitude and longitude are printed at the edges of the map.
4. To determine the increment of latitude above the latitude line recorded in step 3,
 - position the map so that you face its west edge;
 - place the ruler in approximately a north-south alignment, with the "0" on the latitude line recorded in step 3 and the edge intersecting the point.

Without moving the ruler, read and record:

- the measurement from the latitude line to the desired point (the point distance);
- the measurement from the latitude line to the north line of the small quadrangle (the total distance).

Determine the number of seconds to be added to the latitude recorded in step 3 by using the ratio:

$$\left[\frac{\text{Point distance}}{\text{Total distance between lines}} \right] \times 150'' = \text{increment of latitude}$$

[Note: 150" is the number of seconds of arc for the side of the small quadrangle on a 7.5' map. If you are using a 15' map, the multiplication factor is 300" instead of 150" since each graticule is 5' of latitude or longitude.]

For example:

Point distance = 99.5
 Total distance = 192.0

$$\frac{99.5}{192.0} \times 150' = 77.7'' = 01' 17.7''$$

$$(60'' = 1'; 77.7'' - 60'' = 01' 17.7'')$$

Latitude in step 3 : 32°17'30"
 Increment : + 01'17.7"
 Latitude of point : 32°18'47.7"

to the nearest second = 32°18'48"

5 .To determine the increment of longitude west of the longitude line recorded in step 3,

- position the map so that you face its south edge;
- place the ruler in approximately an east-west alignment with the "0" on the longitude line recorded in step 3 and the edge intersecting the point.

Without moving the ruler, read and record:

- the measurement from the longitude line to the desired point (the point distance);
- the measurement from the longitude line to the west line of the small quadrangle (the total distance).

Determine the number of seconds to be added to the longitude recorded in step 3 by using the ratio:

$$\left[\frac{\text{Point distance}}{\text{Total distance between lines}} \right] \times 150'' = \text{increment of longitude}$$

For example:

Point distance = 65.0
 Total distance = 149.9

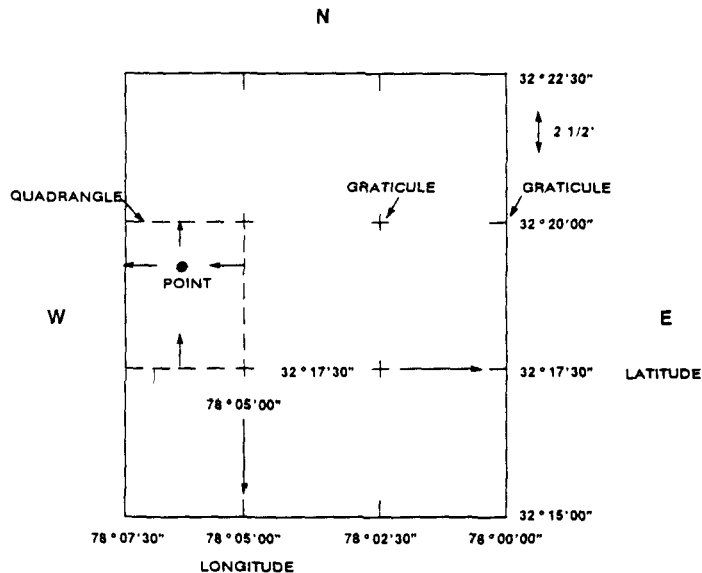
$$\frac{65.0}{149.9} \times 150'' = 66.4'' = 01'06.4''$$

$$(60'' = 1'; 66.4'' - 60'' = 01'06.4'')$$

Longitude in step 4 : 78°05'00"
 Increment : + 01'06.4"
 Longitude of point : 78°06'06.4"

to the nearest second = 78°06'06"

Latitude/Longitude Diagram



Point: Latitude 32° 18'48" North
 Longitude 78° 06'06" West

Note: This diagram is based on a USGS 7.5 Minute Series Topographic Map.
 Not drawn to scale.

APPENDIX C

WORKSHEET FOR PERFORMING THRESHOLD DETERMINATIONS

- Identify all chemicals used on-site. This survey will include all chemicals purchased, produced, present as impurities/by-products, intermediate chemicals, and chemicals produced during waste treatment. Sources of information on chemicals used are:
 - Purchasing department, which should have a list of all items the facility has purchased; and
 - Process engineers, production supervisors, maintenance supervisors, and plant managers, who can identify the purchased items that are actually chemicals and other chemicals used which may not enter the plant as purchased items, such as by-products, impurities, intermediates, or chemicals formed as part of a waste treatment process.
- Determine what the chemical is used for from the personnel in the operation actually using the chemical. If the chemical is used for routine janitorial services, operation or maintenance or transportation equipment, or is used in the laboratory under the supervision of qualified personnel it should be excluded from threshold determinations.
- Fill in columns A, B, and C of Table 1 for all chemicals or mixtures containing section 313 chemicals identified in Step 1 and not excluded from Step 2. For purchased chemicals, the material safety data sheet (MSDS) may have a list of all components which are section 313 chemicals. For chemicals or mixtures generated on-site, the process personnel may be able to provide compositions. Several points to remember:
 - Check MSDSs for impurities which may also be section 313 chemicals;
 - The section 313 chemical list is not the same as toxic chemical lists developed by OSHA or other agencies;
 - For chemicals which are only reportable if they are in solution form, only the weight of the chemical is used in threshold determination, not the weight of the solution;
 - For compounds containing metals, the weight of the compound is used, not the weight of the parent metal; and
 - Do not perform threshold determinations or report chemicals which are not on the section 313 list.

For pure components, columns A and B may be identical. For mixtures, there may be multiple entries in column B if the mixture contains more than one section 313 chemical.
- Determine the amount of the chemical or mixture used by filling the appropriate columns in Table 2 based on the data you have available and what data you believe to be the most accurate. If a chemical/mixture has multiple uses (e.g., it is produced and otherwise used), do separate estimates for the different uses and make two entries for this chemical/mixture in Table 1.

If a basis other than purchases/inventories or production rate is used, attach calculations showing how the use was derived to Table 2.
- Calculate values for column E for each specific chemical compound or category present in the mixture. For pure compounds, columns D and E will have the same value.
- Determine the type of use and mark the appropriate column (i.e., M = manufacture, P = processed, O = otherwise used).
- Complete Table 3. Take values from column E for each specific chemical and sum them. Do separate calculations for chemicals with different uses.
- From Table 3 identify all chemicals which exceed the applicable threshold. Points to remember:
 - For chemicals with multiple uses, if you exceed any threshold then the chemicals must be reported.
 - For metals, use the mass of the metal compound.
 - For solutions, use the weight of the chemical, not the solution.
 - If a specific chemical belongs in a chemical category, other chemicals in that category should be included as part of the general category.
- As a final reminder, did you:
 - Check with all plant personnel who may purchase or use chemicals?
 - Review MSDSs for all purchased chemicals?
 - Check MSDSs of commercial grade chemicals to determine if any impurities/by-products are present?
 - Check to determine if a particular chemical has multiple uses?
 - Identify all chemicals produced by your process, either

intentionally (products or intermediates) or unintentionally?

- Retain all notes, calculations, and other materials necessary to support use estimates?

A Mixture or Chemical Name	B Section 313 Chemical or Chemical Category Present	C Weight Percent	D Amount of Chemical/ Mixture used in 1988 (from Table 2)	E = $\frac{C \times D}{100}$ Amount of Section 313 Chemical Used	Type of Use*		
					M	P	O

* Refer to pages 5-6 of the instructions for an explanation of how uses are defined. M = manufactured; P = processed; O = otherwise used.

RETAIN THIS TABLE AS DOCUMENTATION OF FORM R REPORTS - DO NOT SUBMIT WITH FORM R

TABLE 1. THRESHOLD DETERMINATION CALCULATIONS

TABLE 2. USE CALCULATIONS

Mixture ^a or Chemical	Based on Purchases/Inventories					Based on Production			Other Basis ^b
	A	B	C=B-A	D	C+D	E	F	G=ExF	
	Beginning Inventory	Ending Inventory	Inventory Difference	Purchase	Total Used	Amount Used per Unit of Product	Amount of Product Produced	Amount Used	Amount Used

^a From Column A, Table 1.
^b Attach supporting documentation of how these values are determined.

TABLE 3. SUMMARY OF AMOUNTS OF CHEMICALS USED

Section 313 Chemical	Amount * Used (1b)	Type of Use (M, P, O)

* Sum of all values in Column E of Table 1 for this chemical or chemical category for each type of use.

APPENDIX D

REPORTING CODES FOR EPA FORM R

Part III, Section 4 - Maximum Amount of the Chemical On-Site at Any Time During the Calendar Year

Weight Range in Pounds

<u>Range Code</u>	<u>From...</u>	<u>To...</u>
01	0	99
02	100	999
03	1,000	9,999
04	10,000	99,999
05	100,000	999,999
06	1,000,000	9,999,999
07	10,000,000	49,999,999
08	50,000,000	99,999,999
09	100,000,000	499,999,999
10	500,000,000	999,999,999
11	1 billion	more than 1 billion

Part III, Section 5 - Releases of the Chemical to the Environment On-Site and Section 6 - Transfers of the Chemical In Waste to Off-Site Locations

M - Estimate is based on monitoring data or measurements for the toxic chemical as released to the environment and/or off-site facility.

C - Estimate is based on mass balance calculations, such as calculation of the amount of the toxic chemical in streams entering and leaving process equipment.

E - Estimate is based on published emission factors, such as those relating release quantity to through-put or equipment type (e.g., air emission factors).

O - Estimate is based on other approaches such as engineering calculations (e.g., estimating volatilization using published mathematical formulas) or best engineering judgment. This would include applying an estimated removal efficiency to a waste stream, even if the composition of the stream before treatment was fully characterized by monitoring data.

Part III, Section 6 - Transfers of the Chemical In Waste to Off-Site LocationsType of Treatment/Disposal

- M10 Storage Only
- M40 Solidification/Stabilization
- M50 Incineration/Thermal Treatment

- M61 Wastewater Treatment (Excluding POTW)
- M69 Other Treatment
- M71 Underground Injection
- M72 Landfill/Disposal Surface Impoundment
- M73 Land Treatment
- M79 Other Land Disposal
- M90 Other Off-Site Management
- M91 Transfer to Waste Broker
- M99 Unknown

Part III, Section 7 - Waste Treatment Methods and EfficiencyGeneral Waste Stream

- A = Gaseous (gases, vapors, airborne particulates)
- W = Wastewater (aqueous waste)
- L = Liquid waste (non-aqueous waste)
- S = Solid waste (including sludges and slurries)

Part III, Section 7 - Waste Treatment Methods and EfficiencyAir Emissions Treatment

- A01 Flare
- A02 Condenser
- A03 Scrubber
- A04 Absorber
- A05 Electrostatic Precipitator
- A06 Mechanical Separation
- A07 Other Air Emission Treatment

Biological Treatment

- B11 Biological Treatment -- Aerobic
- B21 Biological Treatment -- Anaerobic
- B31 Biological Treatment -- Facultative
- B99 Biological Treatment -- Other

Chemical Treatment

- C01 Chemical Precipitation -- Lime or Sodium Hydroxide
- C02 Chemical Precipitation -- Sulfide
- C09 Chemical Precipitation -- Other
- C11 Neutralization
- C21 Chromium Reduction
- C31 Complexed Metals Treatment (other than pH Adjustment)
- C41 Cyanide Oxidation -- Alkaline Chlorination
- C42 Cyanide Oxidation -- Electrochemical

- C43 Cyanide Oxidation -- Other
- C44 General Oxidation (including Disinfection) -- Chlorination
- C45 General Oxidation (including Disinfection) -- Ozonation
- C46 General Oxidation (including Disinfection) -- Other
- C99 Other Chemical Treatment

Incineration/Thermal Treatment

- F01 Liquid Injection
- F11 Rotary Kiln with Liquid Injection Unit
- F19 Other Rotary Kiln
- F31 Two Stage
- F41 Fixed Hearth
- F42 Multiple Hearth
- F51 Fluidized Bed
- F61 Infra-Red
- F71 Fume/Vapor
- F81 Pyrolytic Destructor
- F82 Wet Air Oxidation
- F83 Thermal Drying/Dewatering
- F99 Other Incineration/Thermal Treatment

Physical Treatment

- P01 Equalization
- P09 Other Blending
- P11 Settling/Clarification
- P12 Filtration
- P13 Sludge Dewatering (non-thermal)
- P14 Air Flotation
- P15 Oil Skimming
- P16 Emulsion Breaking -- Thermal
- P17 Emulsion Breaking -- Chemical
- P18 Emulsion Breaking -- Other
- P19 Other Liquid Phase Separation
- P21 Adsorption -- Carbon
- P22 Adsorption -- Ion Exchange (other than for recovery/reuse)
- P23 Adsorption -- Resin
- P29 Adsorption -- Other
- P31 Reverse Osmosis (other than for recovery/reuse)
- P41 Stripping -- Air
- P42 Stripping -- Steam
- P49 Stripping -- Other
- P51 Acid Leaching (other than for recovery/reuse)
- P61 Solvent Extraction (other than recovery/reuse)
- P99 Other Physical Treatment

Recovery/Reuse

- R01 Reuse as Fuel -- Industrial Kiln
- R02 Reuse as Fuel -- Industrial Furnace
- R03 Reuse as Fuel -- Boiler
- R04 Reuse as Fuel -- Fuel Blending

- R09 Reuse as Fuel -- Other
- R11 Solvents/Organics Recovery -- Batch Still Distillation
- R12 Solvents/Organics Recovery -- Thin-Film Evaporation
- R13 Solvents/Organics Recovery -- Fractionation
- R14 Solvents/Organics Recovery -- Solvent Extraction
- R19 Solvents/Organics Recovery -- Other
- R21 Metals Recovery -- Electrolytic
- R22 Metals Recovery -- Ion Exchange
- R23 Metals Recovery -- Acid Leaching
- R24 Metals Recovery -- Reverse Osmosis
- R26 Metals Recovery -- Solvent Extraction
- R29 Metals Recovery -- Other
- R99 Other Reuse or Recovery

Solidification/Stabilization

- G01 Cement Processes (including Silicates)
- G09 Other Pozzolonic Processes (including Silicates)
- G11 Asphaltic Processes
- G21 Thermoplastic Techniques
- G99 Other Solidification Processes

Part III, Section 7 - Waste Treatment Methods and Efficiency

Range of Influent Concentration

- 1 = Greater than 1 percent
- 2 = 100 parts per million (0.01 percent) to 1 percent (10,000 parts per million)
- 3 = 1 part per million to 100 parts per million
- 4 = 1 part per billion to 1 part per million
- 5 = Less than 1 part per billion

[**Note:** Parts per million (ppm) is milligrams/kilogram (mass/mass) for solids and liquids; cubic centimeters/cubic meter (volume/volume) for gases; milligrams/liter for solutions or dispersions of the chemical in water; and milligrams of chemical/kilogram of air for particulates in air. If you have particulate concentrations (at standard temperature and pressure) as grains/cubic foot of air, multiply by 1766.6 to convert to parts per million; if in milligrams/cubic meters, multiply by 0.773 to obtain parts per million. Factors are for standard conditions of 0°C (32°F) and 760 mmHg atmospheric pressure.]

Part III, Section 8 - Optional Information on Waste Minimization

Type of Modification

- M1 - Recycling/Reuse On-Site
- M2 - Recycling/Reuse Off-Site
- M3 - Equipment/Technology Modifications

- M4 - Process Procedure Modifications
- M5 - Reformulation/Redesign of Product
- M6 - Substitution of Raw Materials
- M7 - Improved Housekeeping, Training, Inventory Control
- M8 - Other Waste Minimization Technique

Reason for Action

- R1 - Regulatory Requirement for the Waste
- R2 - Reduction of Treatment/Disposal Costs
- R3 - Other Process Cost Reduction
- R4 - Self-Initiated Review
- R5 - Other (e.g., discontinuation of product, occupational safety, etc.)

APPENDIX E

STATE DESIGNATED SECTION 313 CONTACTS

[Note: Use the appropriate address for submission of Form R reports to your State.]

Alabama

Mr. E. John Williford, Chief of Operations
Alabama Emergency Response Commission
Alabama Department of Environmental Management
Field Operations Division
1751 Congressman W.G. Dickinson Drive
Montgomery, AL 36109
(205) 271-7700

Alaska

Ms. Amy Kyle, Chairman
Alaska Emergency Response Commission
Department of Environmental Conservation
P.O. Box 0
Juneau, AK 99811
(907) 465-2600

American Samoa

Mr. Pati Faiai, Director
American Samoa EPA
Office of the Governor
Pago Pago, AS 96799
International Number (684) 633-2682

Arizona

Mr. Carl F. Funk, Executive Director
Arizona Emergency Response Commission
5636 East McDowell Road
Phoenix, AZ 85008
(602) 244-0504

Arkansas

Ms. Becky Bryant
Depository of Documents
Arkansas Department of Labor
10421 West Markham
Little Rock, AR 72205
(501) 682-4534

California

Mr. Charles M. Shulock
Office of Environmental Affairs
P.O. Box 2815
Sacramento, CA 95812
Attn: Section 313 Reports
(916) 324-8124
(916) 322-7236 (Completed Form R information)

Colorado

Colorado Emergency Planning Commission
Colorado Department of Health
Division of Hazardous Materials and Waste Management
4210 East 11th Avenue
Denver, CO 80220
Ms. Pam Harley (303) 331-4858
Mr. Richard Bardsley (303) 273-1789

Commonwealth of the Northern Marianas Islands

Mr. Russell Meecham, III
Division of Environmental Quality
P.O. Box 1304
Saipan, MP 96950
(670) 234-6984

Connecticut

Ms. Sue Vaughn
State Emergency Response Commission
Department of Environmental Protection
Room 161
165 Capitol Avenue
Hartford, CT 06106
(203) 566-4856

Delaware

Mr. Phillip G. Retallick
Division of Air and Waste Management
Department of Natural Resources and Environmental
Control
Richardson and Robbins Building
89 Kings Highway
Dover, DE 19901
(302) 736-4764

District of Columbia

Ms. Pamela Thurber
Environmental Planning Specialist
Office of Emergency Preparedness
2000 14th Street, NW, 8th Floor
Washington, DC 20009
(202) 727-6161

Florida

Mr. Thomas G. Pelham, Chairman
Florida Emergency Response Commission
Secretary, Florida Department of Community Affairs
2740 Centerview Drive
Tallahassee, FL 32399-2149
(904) 487-1472
(in Florida 800-635-7179)

Georgia

Mr. Jimmy Kirkland
Georgia Department of Natural Resources
205 Butler Street, S.E.
Floyd Tower East
Atlanta, GA 30334
(404) 656-6905

Guam

Mr. Charles P. Crisostomo
Guam EPA
P.O. Box 2999
Agana, GU 96910
(671) 646-8863

Hawaii

Dr. John C. Lewin, M.D., Director
Hawaii State Department of Health
P.O. Box 3378
Honolulu, HI 96801-9904
(808) 548-6505

Idaho

Ms. Jennie Records, Program Coordinator
Idaho Emergency Response Commission
State House
Boise, ID 83720
(208) 334-5898

Illinois

Mr. Joe F. Goodner, P.E.
Emergency Planning Unit
Illinois EPA
P.O. Box 19276
2200 Churchill Road
Springfield, IL 62794-9276
(217) 782-3637

Indiana

Mr. Philip Powers, Director
Indiana Department of Environmental Management
Emergency Response Branch
5500 West Bradbury Avenue
Indianapolis, IN 46241
(317) 243-5176
(317) 243-5147 (General information only)

Iowa

Mr. Jim Taylor
Iowa Emergency Response Commission
301 East 7th Street
Des Moines, IA 50319
(515) 281-6175

Kansas

Right-to-Know Program
Kansas Department of Health and Environment
Building 740, Forbes Field
Topeka, KS 66620-7430
(913) 296-1690

Kentucky

Ms. Valerie Hudson
Kentucky Department of Environmental Protection
18 Reilly Road
Frankfort, KY 40601
(502) 564-2150

Louisiana

Mr. R. Bruce Hammatt
Emergency Response Coordinator
Department of Environmental Quality
P.O. Box 44091
Baton Rouge, LA 70804-4091
(504) 342-6363

Maine

Mr. David Brown, Director
State Emergency Response Commission
State House Station 72
State Office Building
Augusta, ME 04333
(207) 289-4080
(In Maine 800-452-8735)

Maryland

Ms. Masha Ways
Toxics Information Center
SARA Title III
c/o Maryland Department of the Environment
O'Connor State Office Building
2500 Broening Highway
Baltimore, MD 21224
(301) 631-3800

Massachusetts

Mr. Arnold Sapenter
c/o Title III Emergency Response Commission
Department of Environmental Quality Engineering
One Winter Street, 10th Floor
Boston, MA 02108
(617) 292-5810

Michigan

Mr. David Warner, Director
Michigan Department of Natural Resources
Environmental Response Division
Title III Notification
P.O. Box 30028
Lansing, MI 48909
(517) 373-8481

Minnesota

Mr. Lee Tischler, Director
Minnesota Emergency Response Commission
Division of Emergency Management
Room B5
State Capitol
St. Paul, MN 55155
(612) 296-2233

Mississippi

Mr. J.E. Maher, Chairman
Mississippi Emergency Response Commission
Director, Mississippi Emergency Management Agency
P.O. Box 4501
Fondren Station
Jackson, MI 39296-4501
(601) 960-9973

Missouri

Mr. Dean Martin, Coordinator
Missouri Emergency Response Commission
Missouri Department of Natural Resources
P.O. Box 3133
Jefferson City, MO 65102
(314) 751-7929

Montana

Mr. Tom Ellerhoff, Co-Chairman
Montana Emergency Response Commission
Environmental Sciences Division
Department of Health and Environmental Sciences
Cogswell Building A-107
Helena, MT 59620
(406) 444-3948

Nebraska

Mr. Craig Bagstad
Technical Services Section
Nebraska Department of Environmental Control
P.O. Box 98922
State House Station
Lincoln, NE 68509-8922
(402) 471-4230

Nevada

Mr. Bob King, Director
Division of Emergency Management
2525 South Carson
Carson City, NV 89710
(702) 885-4240

New Hampshire

Mr. Richard H. Strome, Director
State Emergency Management Agency
State Office Park South
107 Pleasant Street
Concord, NH 03301
(603) 271-2231

New Jersey

Richard A. Dime
Department of Environmental Protection
Division of Environmental Quality
CN-405
Bureau of Hazardous Waste Information
SARA Title III Project
401 East State Street
Trenton, NJ 08625
(609) 292-6714

New Mexico

Mr. Sam Larcombe
New Mexico Emergency Response Commission
New Mexico Department of Public Safety
P.O. Box 1628
Santa Fe, NM 87504-1628
(505) 827-9222

New York

New York Department of Environmental Conservation
Bureau of Spill Response
SARA Title III Section 313
50 Wolf Road
Albany, NY 12233
(518) 457-4107

North Carolina

Mr. Vance E. Kee
North Carolina Division of Emergency Management
116 West Jones Street
Raleigh, NC 27603-1335
(919) 733-3867

North Dakota

Mr. Dean Monteith, Coordinator
North Dakota Emergency Response Commission
North Dakota State Department of Health and Consolidated
Laboratories
1200 Missouri Avenue
P.O. Box 5520
Bismarck, ND 58502-5520
(701) 224-2374

Ohio

Ms. Cindy Sferra-DeWulf
Division of Air Pollution Control
1800 Watermark Drive
Columbus, OH 43215
(614) 644-2270

Oklahoma

Mr. Jack W. Muse, Coordinator
Emergency Response Commission
Office of Civil Defense
P.O. Box 53365
Oklahoma City, OK 73152
(405) 521-2481

Oregon

Oregon Emergency Response Commission
c/o Oregon State Fire Marshall
3000 Market Street Plaza
Suite 534
Salem, OR 97310
(503) 378-2885

Pennsylvania

Mr. James Tinney
Bureau of Right-to-Know
Room 1503
Labor and Industry Bldg.
Harrisburg, PA 17120
(717) 783-8150

Puerto Rico

SERC Commissioner
Title III - SARA Section 313
Puerto Rico Environmental Quality Board
P.O. Box 11488
Santurce, PR 00910
(809) 722-0077

Rhode Island

Department of Environmental Management
Division of Air and Hazardous Materials
291 Promenade Street
Providence, RI 02908-5767
Attn: Toxic Release Inventory
(401) 277-2808

South Carolina

Mr. Ron Kinney
Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201
(803) 734-5200

South Dakota

Mr. Brad Schultz
South Dakota Emergency Response Commission
Department of Water and Natural Resources
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3181
(605) 773-3153

Tennessee

Mr. Lacy Suiter, Chairman
Tennessee Emergency Response Commission
Director, Tennessee Emergency Management Agency
3041 Sidco Drive
Nashville, TN 37204-1502
1-800-262-3300 (In Tennessee)
1-800-258-3300 (Out of state)

Texas

Mr. David Barker, Supervisor
Emergency Response Unit
Texas Water Commission
P.O. Box 13087 - Capitol Station
Austin, TX 78711-3087
(512) 463-8527

Utah

Mr. Neil Taylor
Utah Hazardous Chemical Emergency Response
Commission
Utah Division of Environmental Health
288 North 1460 West
P.O. Box 16690
Salt Lake City, UT 84116-0690
(801) 538-6121

Vermont

Dr. Jan Carney, Deputy Commissioner
Department of Health
60 Main Street
P.O. Box 70
Burlington, VT 05402
(802) 863-7281

Virginia

Mr. Wayne Halbleib, Director
Virginia Emergency Response Council
Department of Waste Management
James Monroe Building
18th Floor
101 North 14th Street
Richmond, VA 23219
(804) 225-2513

[Notes: (1) If an Indian tribe has chosen to act independently of a state for the purpose of section 313 reporting, facilities located within that Indian community should report to the tribal SERC, or until the SERC is established, the Chief Executive Officer of the Indian tribe, as well as to EPA; (2) Facilities located within the Territories of the Pacific should send a report to the Chief Administrator of the appropriate territory, as well as to EPA.]

Virgin Islands

Mr. Allan D. Smith, Commissioner
Department of Planning and Natural Resources
U.S. Virgin Islands Emergency Response Commission
Title III
179 Altona and Welgunst
Charlotte Amalie
St. Thomas, VI 00802
(809) 774-3320

Washington

Washington Emergency Response Commission
Department of Community Development
Mail Stop GH-51
9th & Columbia Building
Olympia, WA 98504
(800) 633-7585

West Virginia

Mr. William Pinnell
Office of Environmental Health Services
West Virginia Department of Health
1800 East Washington Street East
Room 507
Charleston, WV 25305
(304) 348-2967

Wisconsin

Wisconsin Department of Natural Resources
Office of Technical Services TS-2
P.O. Box 7921
Madison, WI 53707
(608) 266-9255
Attn: Russ Dunst

Wyoming

Mr. Ed Usui, Coordinator
Wyoming Emergency Response Commission
Wyoming Emergency Management Agency
Comprehensive Emergency Management
5500 Bishop Blvd.
Cheyenne, WY 82003
(307) 777-7566

APPENDIX F

SECTION 313 EPA REGIONAL CONTACTS

Region 1

Pesticides & Toxics Branch
USEPA Region 1 (APT2311)
JFK Federal Building
Boston, MA 02203
(617) 565-3273

Connecticut, Massachusetts, Maine, New Hampshire, Rhode
Island, Vermont

Region 2

Pesticides & Toxics Branch
USEPA Region 2 (MS240)
Woodbridge Avenue, Building 209
Edison, NJ 08837
(201) 906-6890

New Jersey, New York, Puerto Rico, Virgin Islands

Region 3

Toxics & Pesticides Branch
USEPA Region 3 (3HW42)
841 Chestnut Street
Philadelphia, PA 19107
(215) 597-1260

Delaware, Maryland, Pennsylvania, Virginia, West Virginia,
District of Columbia

Region 4

Pesticides & Toxics Substances Branch
USEPA Region 4
345 Courtland Street
Atlanta, GA 30365
(404) 347-5053

Alabama, Florida, Georgia, Kentucky, Mississippi, North
Carolina, South Carolina, Tennessee

Region 5

Pesticides & Toxic Substances Branch
USEPA Region 5 (5SPT-7)
536 South Dearborn Street
Chicago, IL 60604
(312) 353-5867

Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin

Region 6

Pesticides & Toxic Substances Branch
USEPA Region 6 (6TPT)
1445 Ross Avenue
Dallas, TX 75202-2733
(214) 655-7244

Arkansas, Louisiana, New Mexico, Oklahoma, Texas

Region 7

Office of Congressional and Intergovernmental Liaison
USEPA Region 7 (CIGL)
726 Minnesota Avenue
Kansas City, KS 66101
(913) 236-2806

Iowa, Kansas, Missouri, Nebraska

Region 8

Toxic Substances Branch
USEPA Region 8 (8AT-TS)
999 18th Street
Denver, CO 80202-2405
(303) 293-1730

Colorado, Montana, North Dakota, South Dakota, Utah,
Wyoming

Region 9

Pesticides & Toxics Branch
USEPA Region 9 (T-5-3)
215 Fremont Street
San Francisco, CA 94105
(415) 974-7054

Arizona, California, Hawaii, Nevada, American Samoa, Guam,
Commonwealth of the Northern Mariana Islands

Region 10

Pesticides & Toxic Substances Branch
USEPA Region 10 (AT083)
1200 Sixth Avenue
Seattle, WA 98101
(206) 442-1091

Alaska, Idaho, Oregon, Washington

APPENDIX G

SECTION 313 FINAL RULE

notify persons to whom they distribute mixtures or trade name products containing toxic chemicals that they contain such chemicals.

§ 372.3 Definitions.

Terms defined in sections 313(b)(1)(c) and 329 of Title III and not explicitly defined herein are used with the meaning given in Title III. For the purpose of this Part:

"Acts" means Title III.

"Article" means a manufactured item: (1) Which is formed to a specific shape or design during manufacture; (2) which has end use functions dependent in whole or in part upon its shape or design during end use; and (3) which does not release a toxic chemical under normal conditions of processing or use of that item at the facility or establishments.

"Customs territory of the United States" means the 50 States, the District of Columbia, and Puerto Rico.

"EPA" means the United States Environmental Protection Agency.

"Establishment" means an economic unit, generally at a single physical location, where business is conducted or where services or industrial operations are performed.

"Facility" means all buildings, equipment, structures, and other stationary items which are located on a single site or on contiguous or adjacent sites and which are owned or operated by the same person (or by any person which controls, is controlled by, or under common control with such person). A facility may contain more than one establishment.

"Full-time employee" means 2,000 hours per year of full-time equivalent employment. A facility would calculate the number of full-time employees by totaling the hours worked during the calendar year by all employees, including contract employees, and dividing that total by 2,000 hours.

"Import" means to cause a chemical to be imported into the customs territory of the United States. For purposes of this definition, "to cause" means to intend that the chemical be imported and to control the identity of the imported chemical and the amount to be imported.

"Manufacture" means to produce, prepare, import, or compound a toxic chemical. Manufacture also applies to a toxic chemical that is produced coincidentally during the manufacture, processing, use, or disposal of another chemical or mixture of chemicals, including a toxic chemical that is separated from that other chemical or mixture of chemicals as a byproduct, and a toxic chemical that remains in

that other chemical or mixture of chemicals as an impurity.

"Mixture" means any combination of two or more chemicals, if the combination is not, in whole or in part, the result of a chemical reaction. However, if the combination was produced by a chemical reaction but could have been produced without a chemical reaction, it is also treated as a mixture. A mixture also includes any combination which consists of a chemical and associated impurities.

"Otherwise use" or "use" means any use of a toxic chemical that is not covered by the terms "manufacture" or "process" and includes use of a toxic chemical contained in a mixture or trade name product. Relabeling or redistributing a container of a toxic chemical where no repackaging of the toxic chemical occurs does not constitute use or processing of the toxic chemical.

"Process" means the preparation of a toxic chemical, after its manufacture, for distribution in commerce:

(1) In the same form or physical state as, or in a different form or physical state from, that in which it was received by the person so preparing such substance, or

(2) As part of an article containing the toxic chemical. Process also applies to the processing of a toxic chemical contained in a mixture or trade name product.

"Release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles) of any toxic chemical.

"Senior management official" means an official with management responsibility for the person or persons completing the report, or the manager of environmental programs for the facility or establishments, or for the corporation owning or operating the facility or establishments responsible for certifying similar reports under other environmental regulatory requirements.

"Title III" means Title III of the Superfund Amendments and Reauthorization Act of 1986, also titled the Emergency Planning and Community Right-To-Know Act of 1986.

"Toxic chemical" means a chemical or chemical category listed in § 372.65.

"Trade name product" means a chemical or mixture of chemicals that is distributed to other persons and that incorporates a toxic chemical component that is not identified by the applicable chemical name or Chemical

[Note: Subparts D and E of the regulatory text are not reproduced here because they appear in substance elsewhere in this document.]

PART 372—TOXIC CHEMICAL RELEASE REPORTING; COMMUNITY RIGHT-TO-KNOW

Subpart A—General Provisions

Sec.

372.1 Scope and purpose.

372.3 Definitions.

372.5 Persons subject to this Part.

372.10 Recordkeeping.

372.18 Compliance and enforcement.

Subpart B—Reporting Requirements

372.22 Covered facilities for toxic chemical release reporting.

372.25 Thresholds for reporting.

372.30 Reporting requirements and schedule for reporting.

372.38 Exemptions.

Subpart C—Supplier Notification Requirements

372.45 Notification about toxic chemicals.

Subpart D—Specific Toxic Chemical Listings

372.65 Chemicals and chemical categories to which this Part applies.

Subpart E—Forms and Instructions

372.85 Toxic chemical release reporting form and instructions.

Authority: 42 U.S.C. 11013, 11028.

Subpart A—General Provisions

§ 372.1 Scope and purpose.

This Part sets forth requirements for the submission of information relating to the release of toxic chemicals under section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986. The information collected under this Part is intended to inform the general public and the communities surrounding covered facilities about releases of toxic chemicals, to assist research, to aid in the development of regulations, guidelines, and standards, and for other purposes. This Part also sets forth requirements for suppliers to

Abstracts Service Registry number listed in § 372.65.

§ 372.5 Persons subject to this Part.

Owners and operators of facilities described in §§ 372.22 and 372.45 are subject to the requirements of this Part. If the owner and operator of a facility are different persons, only one need report under § 372.17 or provide a notice under § 372.45 for each toxic chemical in a mixture or trade name product distributed from the facility. However, if no report is submitted or notice provided, EPA will hold both the owner and the operator liable under section 325(c) of Title III, except as provided in §§ 372.38(e) and 372.45(g).

§ 372.10 Recordkeeping.

(a) Each person subject to the reporting requirements of this Part must retain the following records for a period of 3 years from the date of the submission of a report under § 372.30:

(1) A copy of each report submitted by the person under § 372.30.

(2) All supporting materials and documentation used by the person to make the compliance determination that the facility or establishments is a covered facility under § 372.22 or § 372.45.

(3) Documentation supporting the report submitted under § 372.30 including:

(i) Documentation supporting any determination that a claimed allowable exemption under § 372.38 applies.

(ii) Data supporting the determination of whether a threshold under § 372.25 applies for each toxic chemical.

(iii) Documentation supporting the calculations of the quantity of each toxic chemical released to the environment or transferred to an off-site location.

(iv) Documentation supporting the use indications and quantity on site reporting for each toxic chemical, including dates of manufacturing, processing, or use.

(v) Documentation supporting the basis of estimate used in developing any release or off-site transfer estimates for each toxic chemical.

(vi) Receipts or manifests associated with the transfer of each toxic chemical in waste to off-site locations.

(vii) Documentation supporting reported waste treatment methods, estimates of treatment efficiencies, ranges of influent concentration to such treatment, the sequential nature of treatment steps, if applicable, and the actual operating data, if applicable, to support the waste treatment efficiency estimate for each toxic chemical.

(b) Each person subject to the notification requirements of this part

must retain the following records for a period of 3 years from the date of the submission of a notification under § 372.45.

(1) All supporting materials and documentation used by the person to determine whether a notice is required under § 372.45.

(2) All supporting materials and documentation used in developing each required notice under § 372.45 and a copy of each notice.

(c) Records retained under this section must be maintained at the facility to which the report applies or from which a notification was provided. Such records must be readily available for purposes of inspection by EPA.

§ 372.18 Compliance and enforcement.

Violators of the requirements of this Part shall be liable for a civil penalty in an amount not to exceed \$25,000 each day for each violation as provided in section 325(c) of Title III.

Subpart B—Reporting Requirements

§ 372.22 Covered facilities for toxic chemical release reporting.

A facility that meets all of the following criteria for a calendar year is a covered facility for that calendar year and must report under § 372.30.

(a) The facility has 10 or more full-time employees.

(b) The facility is in Standard Industrial Classification Codes 20 through 39 (as in effect on January 1, 1987) by virtue of the fact that it meets one of the following criteria:

(1) The facility is an establishment with a primary SIC code of 20 through 39.

(2) The facility is a multi-establishment complex where all establishments have a primary SIC code of 20 through 39.

(3) The facility is a multi-establishment complex in which one of the following is true:

(i) The sum of the value of products shipped and/or produced from those establishments that have a primary SIC code of 20 through 39 is greater than 50 percent of the total value of all products shipped and/or produced from all establishments at the facility.

(ii) One establishment having a primary SIC code of 20 through 39 contributes more in terms of value of products shipped and/or produced than any other establishment within the facility.

(c) The facility manufactured (including imported), processed, or otherwise used a toxic chemical in excess of an applicable threshold

quantity of that chemical set forth in § 372.25.

§ 372.25 Thresholds for reporting.

The threshold amounts for purposes of reporting under § 372.30 for toxic chemicals are as follows:

(a) With respect to a toxic chemical manufactured (including imported) or processed at a facility during the following calendar years:

1987—75,000 pounds of the chemical manufactured or processed for the year.

1988—50,000 pounds of the chemical manufactured or processed for the year.

1989 and thereafter—25,000 pounds of the chemical manufactured or processed for the year.

(b) With respect to a chemical otherwise used at a facility, 10,000 pounds of the chemical used for the applicable calendar year.

(c) With respect to activities involving a toxic chemical at a facility, when more than one threshold applies to the activities, the owner or operator of the facility must report if it exceeds any applicable threshold and must report on all activities at the facility involving the chemical, except as provided in § 372.38.

(d) When a facility manufactures, processes, or otherwise uses more than one member of a chemical category listed in § 372.65(c), the owner or operator of the facility must report if it exceeds any applicable threshold for the total volume of all the members of the category involved in the applicable activity. Any such report must cover all activities at the facility involving members of the category.

(e) A facility may process or otherwise use a toxic chemical in a recycle/reuse operation. To determine whether the facility has processed or used more than an applicable threshold of the chemical, the owner or operator of the facility shall count the amount of the chemical added to the recycle/reuse operation during the calendar year. In particular, if the facility starts up such an operation during a calendar year, or in the event that the contents of the whole recycle/reuse operation are replaced in a calendar year, the owner or operator of the facility shall also count the amount of the chemical placed into the system at these times.

(f) A toxic chemical may be listed in § 372.65 with the notation that only persons who manufacture the chemical, or manufacture it by a certain method, are required to report. In that case, only owners or operators of facilities that manufacture that chemical as described in § 372.65 in excess of the threshold applicable to such manufacture in § 372.25 are required to report. In

completing the reporting form, the owner or operator is only required to account for the quantity of the chemical so manufactured and releases associated with such manufacturing, but not releases associated with subsequent processing or use of the chemical at that facility. Owners and operators of facilities that solely process or use such a chemical are not required to report for that chemical.

(g) A toxic chemical may be listed in § 372.65 with the notation that it is in a specific form (e.g., fume or dust, solution, or friable) or of a specific color (e.g., yellow or white). In that case, only owners or operators of facilities that manufacture, process, or use that chemical in the form or of the color, specified in § 372.65 in excess of the threshold applicable to such activity in § 372.25 are required to report. In completing the reporting form, the owner or operator is only required to account for the quantity of the chemical manufactured, processed, or used in the form or color specified in § 372.65 and for releases associated with the chemical in that form or color. Owners or operators of facilities that solely manufacture, process, or use such a chemical in a form or color other than those specified by § 372.65 are not required to report for that chemical.

(h) Metal compound categories are listed in § 372.65(c). For purposes of determining whether any of the thresholds specified in § 372.25 are met for metal compound category, the owner or operator of a facility must make the threshold determination based on the total amount of all members of the metal compound category manufactured, processed, or used at the facility. In completing the release portion of the reporting form for releases of the metal compounds, the owner or operator is only required to account for the weight of the parent metal released. Any contribution to the mass of the release attributable to other portions of each compound in the category is excluded.

§ 372.30 Reporting requirements and schedule for reporting.

(a) For each toxic chemical known by the owner or operator to be manufactured (including imported), processed, or otherwise used in excess of an applicable threshold quantity in § 372.25 at its covered facility described in § 372.22 for a calendar year, the owner or operator must submit to EPA and to the State in which the facility is located a completed EPA Form R (EPA Form 9350-1) in accordance with the instructions in Subpart E.

(b)(1) The owner or operator of a covered facility is required to report as

described in paragraph (a) of this section on a toxic chemical that the owner or operator knows is present as a component of a mixture or trade name product which the owner or operator receives from another person, if that chemical is imported, processed, or otherwise used by the owner or operator in excess of an applicable threshold quantity in § 372.25 at the facility as part of that mixture or trade name product.

(2) The owner or operator knows that a toxic chemical is present as a component of a mixture or trade name product (i) if the owner or operator knows or has been told the chemical identity or Chemical Abstracts Service Registry Number of the chemical and the identity or Number corresponds to an identity or Number in § 372.65, or (ii) if the owner or operator has been told by the supplier of the mixture or trade name product that the mixture or trade name product contains a toxic chemical subject to section 313 of the Act or this Part.

(3) To determine whether a toxic chemical which is a component of a mixture or trade name product has been imported, processed, or otherwise used in excess of an applicable threshold in § 372.25 at the facility, the owner or operator shall consider only the portion of the mixture or trade name product that consists of the toxic chemical and that is imported, processed, or otherwise used at the facility, together with any other amounts of the same toxic chemical that the owner or operator manufactures, imports, processes, or otherwise uses at the facility as follows:

(i) If the owner or operator knows the specific chemical identity of the toxic chemical and the specific concentration at which it is present in the mixture or trade name product, the owner or operator shall determine the weight of the chemical imported, processed, or otherwise used as part of the mixture or trade name product at the facility and shall combine that with the weight of the toxic chemical manufactured (including imported) processed, or otherwise used at the facility other than as part of the mixture or trade name product. After combining these amounts, if the owner or operator determines that the toxic chemical was manufactured, processed, or otherwise used in excess of an applicable threshold in § 372.25, the owner or operator shall report the specific chemical identity and all releases of the toxic chemical on EPA Form R in accordance with the instructions in Subpart E.

(ii) If the owner or operator knows the specific chemical identity of the toxic chemical and does not know the specific concentration at which the chemical is

present in the mixture or trade name product, but has been told the upper bound concentration of the chemical in the mixture or trade name product, the owner or operator shall assume that the toxic chemical is present in the mixture or trade name product at the upper bound concentration, shall determine whether the chemical has been manufactured, processed, or otherwise used at the facility in excess of an applicable threshold as provided in paragraph (b)(3)(i) of this section, and shall report as provided in paragraph (b)(3)(i) of this section.

(iii) If the owner or operator knows the specific chemical identity of the toxic chemical, does not know the specific concentration at which the chemical is present in the mixture or trade name product, has not been told the upper bound concentration of the chemical in the mixture or trade name product, and has not otherwise developed information on the composition of the chemical in the mixture or trade name product, then the owner or operator is not required to factor that chemical in that mixture or trade name product into threshold and release calculations for that chemical.

(iv) If the owner or operator has been told that a mixture or trade name product contains a toxic chemical, does not know the specific chemical identity of the chemical and knows the specific concentration at which it is present in the mixture or trade name product, the owner or operator shall determine the weight of the chemical imported, processed, or otherwise used as part of the mixture or trade name product at the facility. Since the owner or operator does not know the specific identity of the toxic chemical, the owner or operator shall make the threshold determination only for the weight of the toxic chemical in the mixture or trade name product. If the owner or operator determines that the toxic chemical was imported, processed, or otherwise used as part of the mixture or trade name product in excess of an applicable threshold in § 372.25, the owner or operator shall report the generic chemical name of the toxic chemical, or a trade name if the generic chemical name is not known, and all releases of the toxic chemical on EPA Form R in accordance with the instructions in Subpart E.

(v) If the owner or operator has been told that a mixture or trade name product contains a toxic chemical, does not know the specific chemical identity of the chemical, and does not know the specific concentration at which the chemical is present in the mixture or

trade name product, but has been told the upper bound concentration of the chemical in the mixture or trade name product, the owner or operator shall assume that the toxic chemical is present in the mixture or trade name product at the upper bound concentration, shall determine whether the chemical has been imported, processed, or otherwise used at the facility in excess of an applicable threshold as provided in paragraph (b)(3)(iv) of this section, and shall report as provided in paragraph (b)(3)(iv) of this section.

(vi) If the owner or operator has been told that a mixture or trade name product contains a toxic chemical, does not know the specific chemical identity of the chemical, does not know the specific concentration at which the chemical is present in the mixture or trade name product, including information they have themselves developed, and has not been told the upper bound concentration of the chemical in the mixture or trade name product, the owner or operator is not required to report with respect to that toxic chemical.

(c) A covered facility may consist of more than one establishment. The owner or operator of such a facility at which a toxic chemical was manufactured (including imported), processed, or otherwise used in excess of an applicable threshold may submit a separate Form R for each establishment or for each group of establishments within the facility to report the activities involving the toxic chemical at each establishment or group of establishments, provided that activities involving that toxic chemical at all the establishments within the covered facility are reported. If each establishment or group of establishments files separate reports then for all other chemicals subject to reporting at that facility they must also submit separate reports. However, an establishment or group of establishments does not have to submit a report for a chemical that is not manufactured (including imported), processed, otherwise used, or released at that establishment or group of establishments.

(d) Each report under this section for activities involving a toxic chemical that occurred during a calendar year at a covered facility must be submitted on or before July 1 of the next year. The first such report for calendar year 1987 activities must be submitted on or before July 1, 1988.

(e) For reports applicable to activities for calendar years 1987, 1988, and 1989 only, the owner or operator of a covered

facility may report releases of a specific toxic chemical to an environmental medium, or transfers of wastes containing a specific toxic chemical to an off-site location, of less than 1,000 pounds using the ranges provided in the form and instructions in Subpart E. For reports applicable to activities in calendar year 1990 and beyond, these ranges may not be used.

§ 372.38 Exemptions.

(a) *De minimis concentrations of a toxic chemical in a mixture.* If a toxic chemical is present in a mixture of chemicals at a covered facility and the toxic chemical is in a concentration in the mixture which is below 1 percent of the mixture, or 0.1 percent of the mixture in the case of a toxic chemical which is a carcinogen as defined in 29 CFR 1910.1200(d)(4), a person is not required to consider the quantity of the toxic chemical present in such mixture when determining whether an applicable threshold has been met under § 372.25 or determining the amount of release to be reported under § 372.30. This exemption applies whether the person received the mixture from another person or the person produced the mixture, either by mixing the chemicals involved or by causing a chemical reaction which resulted in the creation of the toxic chemical in the mixture. However, this exemption applies only to the quantity of the toxic chemical present in the mixture. If the toxic chemical is also manufactured (including imported), processed, or otherwise used at the covered facility other than as part of the mixture or in a mixture at higher concentrations, in excess of an applicable threshold quantity set forth in § 372.25, the person is required to report under § 372.30.

(b) *Articles.* If a toxic chemical is present in an article at a covered facility, a person is not required to consider the quantity of the toxic chemical present in such article when determining whether an applicable threshold has been met under § 372.25 or determining the amount of release to be reported under § 372.30. This exemption applies whether the person received the article from another person or the person produced the article. However, this exemption applies only to the quantity of the toxic chemical present in the article. If the toxic chemical is manufactured (including imported), processed, or otherwise used at the covered facility other than as part of the article, in excess of an applicable threshold quantity set forth in § 372.25, the person is required to report under § 372.30. Persons potentially subject to this exemption should carefully review

the definitions of "article" and "release" in § 372.3. If a release of a toxic chemical occurs as a result of the processing or use of an item at the facility, that item does not meet the definition of "article."

(c) *Uses.* If a toxic chemical is used at a covered facility for a purpose described in this paragraph (c), a person is not required to consider the quantity of the toxic chemical used for such purpose when determining whether an applicable threshold has been met under § 372.25 or determining the amount of releases to be reported under § 372.30. However, this exemption only applies to the quantity of the toxic chemical used for the purpose described in this paragraph (c). If the toxic chemical is also manufactured (including imported), processed, or otherwise used at the covered facility other than as described in this paragraph (c), in excess of an applicable threshold quantity set forth in § 372.25, the person is required to report under § 372.30.

(1) Use as a structural component of the facility.

(2) Use of products for routine janitorial or facility grounds maintenance. Examples include use of janitorial cleaning supplies, fertilizers, and pesticides similar in type or concentration to consumer products.

(3) Personal use by employees or other persons at the facility of foods, drugs, cosmetics, or other personal items containing toxic chemicals, including supplies of such products within the facility such as in a facility operated cafeteria, store, or infirmary.

(4) Use of products containing toxic chemicals for the purpose of maintaining motor vehicles operated by the facility.

(5) Use of toxic chemicals present in process water and non-contact cooling water as drawn from the environment or from municipal sources, or toxic chemicals present in air used either as compressed air or as part of combustion.

(d) *Activities in laboratories.* If a toxic chemical is manufactured, processed, or used in a laboratory at a covered facility under the supervision of a technically qualified individual as defined in § 720.3(ee) of this title, a person is not required to consider the quantity so manufactured, processed, or used when determining whether an applicable threshold has been met under § 372.25 or determining the amount of release to be reported under § 372.30. This exemption does not apply in the following cases:

(1) Specialty chemical production.

(2) Manufacture, processing, or use of toxic chemicals in pilot plant scale operations.

(3) Activities conducted outside the laboratory.

(e) *Certain owners of leased property.* The owner of a covered facility is not subject to reporting under § 372.30 if such owner's only interest in the facility is ownership of the real estate upon which the facility is operated. This exemption applies to owners of facilities such as industrial parks, all or part of which are leased to persons who operate establishments within SIC code 20 through 39 where the owner has no other business interest in the operation of the covered facility.

(f) *Reporting by certain operators of establishments on leased property such as industrial parks.* If two or more persons, who do not have any common corporate or business interest (including common ownership or control), operate separate establishments within a single facility, each such person shall treat the establishments it operates as a facility for purposes of this Part. The determinations in § 372.22 and § 372.25 shall be made for those establishments. If any such operator determines that its establishment is a covered facility under § 372.22 and that a toxic chemical has been manufactured (including imported), processed, or otherwise used at the establishment in excess of an applicable threshold in § 372.25 for a calendar year, the operator shall submit a report in accordance with § 372.30 for the establishment. For purposes of this paragraph (f), a common corporate or business interest includes ownership, partnership, joint ventures, ownership of a controlling interest in one person by the other, or ownership of a controlling interest in both persons by a third person.

Subpart C—Supplier Notification Requirement

§ 372.45 Notification about toxic chemicals.

(a) Except as provided in paragraphs (c), (d), and (e) of this section and § 372.65, a person who owns or operates a facility or establishment which:

(1) Is in Standard Industrial Classification codes 20 through 39 as set forth in paragraph (b) of § 372.22,

(2) Manufactures (including imports) or processes a toxic chemical, and

(3) Sells or otherwise distributes a mixture or trade name product containing the toxic chemical, to (i) a facility described in § 372.22, or (ii) to a person who in turn may sell or otherwise distributes such mixture or trade name product to a facility described in § 372.22(b), must notify each person to whom the mixture or trade name product is sold or otherwise

distributed from the facility or establishment in accordance with paragraph (b) of this section.

(b) The notification required in paragraph (a) of this section shall be in writing and shall include:

(1) A statement that the mixture or trade name product contains a toxic chemical or chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

(2) The name of each toxic chemical, and the associated Chemical Abstracts Service registry number of each chemical if applicable, as set forth in § 372.65.

(3) The percent by weight of each toxic chemical in the mixture or trade name product.

(c) Notification under this section shall be provided as follows:

(1) For a mixture or trade name product containing a toxic chemical listed in § 373.65 with an effective date of January 1, 1987, the person shall provide the written notice described in paragraph (b) of this section to each recipient of the mixture or trade name product with at least the first shipment of each mixture or trade name product to each recipient in each calendar year beginning January 1, 1989.

(2) For a mixture or trade name product containing a toxic chemical listed in § 372.65 with an effective date of January 1, 1989 or later, the person shall provide the written notice described in paragraph (b) of this section to each recipient of the mixture or trade name product with at least the first shipment of the mixture or trade name product to each recipient in each calendar year beginning with the applicable effective date.

(3) If a person changes a mixture or trade name product for which notification was previously provided under paragraph (b) of this section by adding a toxic chemical, removing a toxic chemical, or changing the percent by weight of a toxic chemical in the mixture or trade name product, the person shall provide each recipient of the changed mixture or trade name product a revised notification reflecting the change with the first shipment of the changed mixture or trade name product to the recipient.

(4) If a person discovers (i) that a mixture or trade name product previously sold or otherwise distributed to another person during the calendar year of the discovery contains one or more toxic chemicals and (ii), that any notification provided to such other persons in that calendar year for the

mixture or trade name product either did not properly identify any of the toxic chemicals or did not accurately present the percent by weight of any of the toxic chemicals in the mixture or trade name product, the person shall provide a new notification to the recipient within 30 days of the discovery which contains the information described in paragraph (b) of this section and identifies the prior shipments of the mixture or product in that calendar year to which the new notification applies.

(5) If a Material Safety Data Sheet (MSDS) is required to be prepared and distributed for the mixture or trade name product in accordance with 29 CFR 1910.1200, the notification must be attached to or otherwise incorporated into such MSDS. When the notification is attached to the MSDS, the notice must contain clear instructions that the notifications must not be detached from the MSDS and that any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

(d) Notifications are not required in the following instances:

(1) If a mixture or trade name product contains no toxic chemical in excess of the applicable de minimis concentration as specified in § 372.38(a).

(2) If a mixture or trade name product is one of the following:

- (i) An "article" as defined in § 372.3
- (ii) Foods, drugs, cosmetics, alcoholic beverages, tobacco, or tobacco products packaged for distribution to the general public.
- (iii) Any consumer product as the term is defined in the Consumer Product Safety Act (15 U.S.C. 1251 *et seq.*) packaged for distribution to the general public.

(e) If the person considers the specific identity of a toxic chemical in a mixture or trade name product to be a trade secret under provisions of 29 CFR 1910.1200, the notice shall contain a generic chemical name that is descriptive of that toxic chemical.

(f) If the person considers the specific percent by weight composition of a toxic chemical in the mixture or trade name product to be a trade secret under applicable State law or under the Restatement of Torts section 757, comment b, the notice must contain a statement that the chemical is present at a concentration that does not exceed a specified upper bound concentration value. For example, a mixture contains 12 percent of a toxic chemical. However, the supplier considers the specific concentration of the toxic chemical in

the product to be a trade secret. The notice would indicate that the toxic chemical is present in the mixture in a concentration of no more than 15 percent by weight. The upper bound value chosen must be no larger than necessary to adequately protect the trade secret.

(g) A person is not subject to the requirements of this section to the extent the person does not know that the facility or establishment(s) is selling or otherwise distributing a toxic chemical to another person in a mixture or trade name product. However, for purposes of this section, a person has such knowledge if the person receives a notice under this section from a supplier of a mixture or trade name product and the person in turn sells or otherwise


distributes that mixture or trade name product to another person.

(h) If two or more persons, who do not have any common corporate or business interest (including common ownership or control), as described in § 372.38(f), operate separate establishments within a single facility, each such person shall treat the establishment(s) it operates as a facility for purposes of this section. The determination under paragraph (a) of this section shall be made for those establishments.

INDEX

- Article, 7, 8, 17, 18, 20, 48, 49
Auxiliary Facility, 45
Byproduct, 5, 6, 16, 17
CAS Number, 15, 47, 48
Chemical Categories, 6, 8, 15, 19, 20, 21, 36, 43, 47, 48, 54, 58
Chemical Compounds, 48, 54
Codes, 2, 3, 5, 8, 12, 13, 14, 16, 19, 21, 22, 25, 26, 27, 29, 30, 47, 49, 50, 51, 59
Contacts (State), 62
De Minimis Limitation, 6, 8, 9, 36
Dun and Bradstreet Number, 13, 14, 51
Employees (number required), 2, 3
EPA Identification Number, 13, 15, 51
Establishment, 3, 5, 13
Exemption, 5, 6, 7, 8
Facility, 1, 2-24, 26, 28, 47-52, 54, 59
Formulation Component, 16
Fugitive Air Emissions, 19, 20, 49
Full-Time Employee, 2, 3
General Information, 1, 16
Generic Chemical Name, 1, 15, 16
Import, 2, 6, 9, 16
Impurity, 5, 6, 8, 16, 17
Laboratory, 5, 34, 35, 54
Latitude and Longitude, 13, 52, 53
Manufacture, 1, 2, 5, 6, 7, 8, 9, 12, 13, 16, 17, 29, 47, 48, 54, 56
Mixtures, 6, 8, 9, 15, 16, 17, 19, 20, 21, 25, 32, 54, 56, 57
Multi-Establishment Facility, 3, 5
NPDES Permit Number, 13, 14
Off-Site Location, 1, 7, 14, 15, 17, 19, 20, 21, 25, 28, 29, 47, 49, 50, 51, 59, 60
Otherwise Use, 1, 2, 5, 6, 7, 8, 9, 12, 13, 16, 17, 54, 56
Parent Company, 14, 15
Process, 1-9, 12, 13, 15-20, 22, 26, 27, 28, 29, 30, 34, 35, 38, 40, 46, 47, 48, 49, 50, 54, 56, 59, 60, 61
Publicly-Owned Treatment Works (POTWs), 14, 15, 19, 25, 28, 48, 50, 51, 59
Reactant, 6, 16, 17, 48
Receiving Streams or Water Bodies, 14, 19, 22, 29
Recordkeeping, 1
Release Estimate, 22, 46
Repackaging, 17
Reporting Ranges, 20
Reporting Rule, 68
Reporting Year, 12, 25, 29, 36, 48, 51
Runoff Coefficient, 24
Sale/Distribution, 5, 6, 14, 15, 16, 17, 20
Sanitized, 1, 2, 12, 15, 16
Standard Industrial Classification (SIC) Codes, 2, 3, 5, 8, 13, 30, 47, 49
Supplier Notification, 5, 8, 38, 40, 41, 46
Threshold, 2-11, 13, 16, 17, 21, 47, 48, 49, 54, 56
Trade Name Products, 8, 9, 20
Trade Secret Claims, 1, 9, 12, 15, 16, 46, 51
Transfers, 15, 19, 20, 21, 25, 50, 59
Treatment Efficiency, 25, 27, 28, 46, 51
Treatment Method, 25, 26, 28, 59, 60
Underground Injection, 14, 20, 25, 50, 59
Unsanitized, 12, 15, 16
Voluntary Revision, 2, 12
Waste Minimization, 15, 28, 29, 51, 60, 61
Waste Stream, 20, 22, 25, 26, 27, 28, 59
Waste Treatment, 5, 6, 8, 15, 16, 25, 46, 50, 54, 59, 60
Worksheet, 7, 54

(Important: Type or print; read instructions before completing form.)

 EPA U.S. Environmental Protection Agency TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act	PART I. FACILITY IDENTIFICATION INFORMATION	(This space for your optional use.)
EPA FORM R		

Public reporting burden for this collection of information is estimated to vary from 30 to 34 hours per response, with an average of 32 hours per response, including 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 this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch (PM-223), US EPA, 401 M St., SW, Washington, D.C. 20460 Attn: TRI Burden and to the Office of Information and Regulatory Affairs, Office of Management and Budget Paperwork Reduction Project (2070-0093), Washington, D.C. 20603.

1.	1.1 Are you claiming the chemical identity on page 3 trade secret? <input type="checkbox"/> Yes (Answer question 1.2; Attach substantiation forms.) <input type="checkbox"/> No (Do not answer 1.2; Go to question 1.3.)	1.2 If "Yes" in 1.1, is this copy: <input type="checkbox"/> Sanitized <input type="checkbox"/> Unsanitized	1.3 Reporting Year 19 ____
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2. CERTIFICATION (Read and sign after completing all sections.)
 I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official

Signature _____ Date signed _____

3. FACILITY IDENTIFICATION 3.1 Facility or Establishment Name Street Address City _____ County _____ State _____ Zip Code _____	WHERE TO SEND COMPLETED FORMS: 1. U.S. ENVIRONMENTAL PROTECTION AGENCY P.O. BOX 70266 WASHINGTON, DC 20024-0266 ATTN: TOXIC CHEMICAL RELEASE INVENTORY 2. APPROPRIATE STATE OFFICE (See instructions Appendix E)
--	--

3.2	This report contains information for (Check one): a. <input type="checkbox"/> An entire facility b. <input type="checkbox"/> Part of a facility.					
3.3	Technical Contact				Telephone Number (include area code)	
3.4	Public Contact				Telephone Number (include area code)	
3.5	SIC Code (4 digit)	a.	b.	c.	d.	e.
3.6	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
3.7	Dun & Bradstreet Number(s) a. _____ b. _____					
3.8	EPA Identification Number(s) (RCRA I.D. No.) a. _____ b. _____					
3.9	NPDES Permit Number(s) a. _____ b. _____					
3.10	Receiving Streams or Water Bodies (enter one name per box)					
	a. _____			b. _____		
	c. _____			d. _____		
	e. _____			f. _____		
3.11	Underground Injection Well Code (UIC) Identification Number(s) a. _____ b. _____					

4. PARENT COMPANY INFORMATION	
4.1	Name of Parent Company
4.2	Parent Company's Dun & Bradstreet Number



(Important: Type or print; read instructions before completing form.)

 <div style="text-align: center;"> <p>EPA FORM R</p> <p>PART II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES</p> </div>	<p>(This space for your optional use.)</p>
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1. PUBLICLY OWNED TREATMENT WORKS (POTWs)			
1.1 POTW name		1.2 POTW name	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).			
2.1 Off-site location name		2.2 Off-site location name	
EPA Identification Number (RCRA ID. No.)		EPA Identification Number (RCRA ID. No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? <div style="text-align: right;">[] Yes [] No</div>		Is location under control of reporting facility or parent company? <div style="text-align: right;">[] Yes [] No</div>	

2.3 Off-site location name		2.4 Off-site location name	
EPA Identification Number (RCRA ID. No.)		EPA Identification Number (RCRA ID. No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? <div style="text-align: right;">[] Yes [] No</div>		Is location under control of reporting facility or parent company? <div style="text-align: right;">[] Yes [] No</div>	

2.5 Off-site location name		2.6 Off-site location name	
EPA Identification Number (RCRA ID. No.)		EPA Identification Number (RCRA ID. No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? <div style="text-align: right;">[] Yes [] No</div>		Is location under control of reporting facility or parent company? <div style="text-align: right;">[] Yes [] No</div>	

<input type="checkbox"/> Check if additional pages of Part II are attached. How many? _____	
---	--



(Important: Type or print; read instructions before completing form.)

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION	(This space for your optional use.)
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1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)	
1.1	[Reserved]
1.2	CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting a chemical category.)
1.3	Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.)
1.4	Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)	
2.	Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)			
3.1	Manufacture the chemical: a. <input type="checkbox"/> Produce b. <input type="checkbox"/> Import	If produce or import: c. <input type="checkbox"/> For on-site use/processing e. <input type="checkbox"/> As a byproduct	d. <input type="checkbox"/> For sale/distribution f. <input type="checkbox"/> As an impurity
3.2	Process the chemical: a. <input type="checkbox"/> As a reactant d. <input type="checkbox"/> Repackaging only	b. <input type="checkbox"/> As a formulation component	c. <input type="checkbox"/> As an article component
3.3	Otherwise use the chemical: a. <input type="checkbox"/> As a chemical processing aid	b. <input type="checkbox"/> As a manufacturing aid	c. <input type="checkbox"/> Ancillary or other use

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR	
<input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> (enter code)	

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE							
You may report releases of less than 1,000 lbs. by checking ranges under A.1. (Do not use both A.1 and A.2)		A. Total Release (lbs/yr)		B. Basis of Estimate (enter code)			
		A.1 Reporting Ranges		A.2 Enter Estimate			
		0	1-499	500-999			
5.1 Fugitive or non-point air emissions	5.1a	[]	[]	[]	5.1b <input type="checkbox"/>		
5.2 Stack or point air emissions	5.2a	[]	[]	[]	5.2b <input type="checkbox"/>		
5.3 Discharges to receiving streams or water bodies	5.3.1 <input type="checkbox"/>	5.3.1a	[]	[]	[]	5.3.1b <input type="checkbox"/>	C. % From Stormwater 5.3.1c
(Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.2 <input type="checkbox"/>	5.3.2a	[]	[]	[]	5.3.2b <input type="checkbox"/>	5.3.2c
	5.3.3 <input type="checkbox"/>	5.3.3a	[]	[]	[]	5.3.3b <input type="checkbox"/>	5.3.3c
5.4 Underground injection	5.4a	[]	[]	[]	5.4b <input type="checkbox"/>		
5.5 Releases to land							
5.5.1 On-site landfill	5.5.1a	[]	[]	[]	5.5.1b <input type="checkbox"/>		
5.5.2 Land treatment/application farming	5.5.2a	[]	[]	[]	5.5.2b <input type="checkbox"/>		
5.5.3 Surface impoundment	5.5.3a	[]	[]	[]	5.5.3b <input type="checkbox"/>		
5.5.4 Other disposal	5.5.4a	[]	[]	[]	5.5.4b <input type="checkbox"/>		
[] (Check if additional information is provided on Part IV—Supplemental Information.)							

(Important: Type or print; read instructions before completing form.)

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)	(This space for your optional use.)
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6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS				
You may report transfers of less than 1,000 lbs. by checking ranges under A. 1. (Do not use both A. 1 and A. 2)	A. Total Transfers (lbs/yr)		B. Basis of Estimate	C. Type of Treatment/Disposal
	A. 1 Reporting Ranges	A. 2 Enter Estimate	(enter code)	(enter code)
0 1-499 500-999				
6.1.1 Discharge to POTW (enter location number from Part II, Section 1.) <input type="checkbox"/> 1 <input type="checkbox"/>	[] [] []		6.1.1b <input type="checkbox"/>	
6.2.1 Other off-site location (enter location number from Part II, Section 2.) <input type="checkbox"/> 2 <input type="checkbox"/>	[] [] []		6.2.1b <input type="checkbox"/>	6.2.1c <input type="checkbox"/> M <input type="checkbox"/>
6.2.2 Other off-site location (enter location number from Part II, Section 2.) <input type="checkbox"/> 2 <input type="checkbox"/>	[] [] []		6.2.2b <input type="checkbox"/>	6.2.2c <input type="checkbox"/> M <input type="checkbox"/>
6.2.3 Other off-site location (enter location number from Part II, Section 2.) <input type="checkbox"/> 2 <input type="checkbox"/>	[] [] []		6.2.3b <input type="checkbox"/>	6.2.3c <input type="checkbox"/> M <input type="checkbox"/>
<input type="checkbox"/> (Check if additional information is provided on Part IV-Supplemental Information.)				

7. WASTE TREATMENT METHODS AND EFFICIENCY					
A. General Wastestream	B. Treatment Method	C. Range of Influent Concentration	D. Sequential Treatment?	E. Treatment Efficiency Estimate	F. Based on Operating Data?
(enter code)	(enter code)	(enter code)	(check if applicable)	%	Yes No
7.1a <input type="checkbox"/>	7.1b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.1c <input type="checkbox"/>	7.1d []	7.1e %	7.1f [] []
7.2a <input type="checkbox"/>	7.2b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.2c <input type="checkbox"/>	7.2d []	7.2e %	7.2f [] []
7.3a <input type="checkbox"/>	7.3b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.3c <input type="checkbox"/>	7.3d []	7.3e %	7.3f [] []
7.4a <input type="checkbox"/>	7.4b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.4c <input type="checkbox"/>	7.4d []	7.4e %	7.4f [] []
7.5a <input type="checkbox"/>	7.5b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.5c <input type="checkbox"/>	7.5d []	7.5e %	7.5f [] []
7.6a <input type="checkbox"/>	7.6b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.6c <input type="checkbox"/>	7.6d []	7.6e %	7.6f [] []
7.7a <input type="checkbox"/>	7.7b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.7c <input type="checkbox"/>	7.7d []	7.7e %	7.7f [] []
7.8a <input type="checkbox"/>	7.8b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.8c <input type="checkbox"/>	7.8d []	7.8e %	7.8f [] []
7.9a <input type="checkbox"/>	7.9b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.9c <input type="checkbox"/>	7.9d []	7.9e %	7.9f [] []
7.10a <input type="checkbox"/>	7.10b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.10c <input type="checkbox"/>	7.10d []	7.10e %	7.10f [] []
<input type="checkbox"/> (Check if additional information is provided on Part IV-Supplemental Information.)					

8. OPTIONAL INFORMATION ON WASTE MINIMIZATION				
(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)				
A. Type of Modification	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal		C. Index	D. Reason for Action
(enter code)	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or percent change	(enter code)
M <input type="checkbox"/>	_____	_____	_____ %	R <input type="checkbox"/>

(Important: Type or print; read instructions before completing form.)

<div style="text-align: center;"> <h2 style="margin: 0;">EPA FORM R</h2> <h3 style="margin: 0;">PART IV. SUPPLEMENTAL INFORMATION</h3> <p style="font-size: small; margin: 0;">Use this section if you need additional space for answers to questions in Part III. Number the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)</p> </div>	(This space for your optional use.)
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ADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE (Part III, Section 5.3)					
You may report releases of less than 1,000 lbs. by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Release (lbs/yr)			B. Basis of Estimate (enter code in box provided)	C.% From Stormwater
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
5.3 Discharges to receiving streams or water bodies <input type="checkbox"/> 5.3. ___ <input type="checkbox"/>	5.3. ___ a [] [] []			5.3. ___ b <input type="checkbox"/>	5.3. ___ c
(Enter letter code from Part I Section 3.10 for stream(s) in the box provided.) <input type="checkbox"/> 5.3. ___ <input type="checkbox"/>	5.3. ___ a [] [] []			5.3. ___ b <input type="checkbox"/>	5.3. ___ c
<input type="checkbox"/> 5.3. ___ <input type="checkbox"/>	5.3. ___ a [] [] []			5.3. ___ b <input type="checkbox"/>	5.3. ___ c

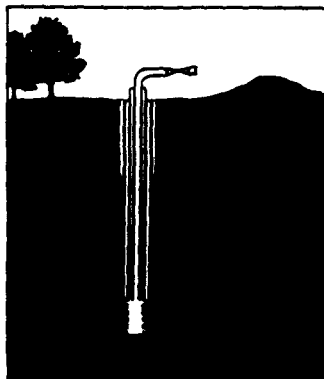
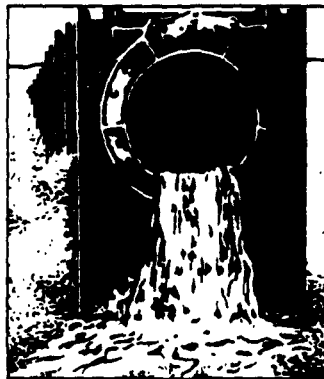
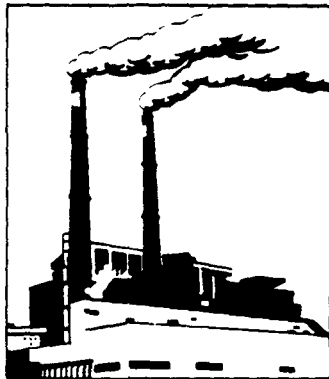
ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS (Part III, Section 6)				
You may report transfers of less than 1,000 lbs. by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (lbs/yr)		B. Basis of Estimate (enter code in box provided)	C. Type of Treatment/Disposal (enter code in box provided)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate		
6.1. Discharge to POTW (enter location number from Part II, Section 1.) <input type="checkbox"/> 1 <input type="checkbox"/>	[] [] []		6.1. ___ b <input type="checkbox"/>	
6.2. Other off-site location (enter location number from Part II, Section 2.) <input type="checkbox"/> 2 <input type="checkbox"/>	[] [] []		6.2. ___ b <input type="checkbox"/>	6.2. ___ c M <input type="checkbox"/> <input type="checkbox"/>
6.2. Other off-site location (enter location number from Part II, Section 2.) <input type="checkbox"/> 2 <input type="checkbox"/>	[] [] []		6.2. ___ b <input type="checkbox"/>	6.2. ___ c M <input type="checkbox"/> <input type="checkbox"/>
6.2. Other off-site location (enter location number from Part II, Section 2.) <input type="checkbox"/> 2 <input type="checkbox"/>	[] [] []		6.2. ___ b <input type="checkbox"/>	6.2. ___ c M <input type="checkbox"/> <input type="checkbox"/>

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)					
A. General Wastestream (enter code in box provided)	B. Treatment Method (enter code in box provided)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7. ___ a <input type="checkbox"/>	7. ___ b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7. ___ c <input type="checkbox"/>	7. ___ d []	7. ___ e %	7. ___ f [] []
7. ___ a <input type="checkbox"/>	7. ___ b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7. ___ c <input type="checkbox"/>	7. ___ d []	7. ___ e %	7. ___ f [] []
7. ___ a <input type="checkbox"/>	7. ___ b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7. ___ c <input type="checkbox"/>	7. ___ d []	7. ___ e %	7. ___ f [] []
7. ___ a <input type="checkbox"/>	7. ___ b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7. ___ c <input type="checkbox"/>	7. ___ d []	7. ___ e %	7. ___ f [] []
7. ___ a <input type="checkbox"/>	7. ___ b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7. ___ c <input type="checkbox"/>	7. ___ d []	7. ___ e %	7. ___ f [] []
7. ___ a <input type="checkbox"/>	7. ___ b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7. ___ c <input type="checkbox"/>	7. ___ d []	7. ___ e %	7. ___ f [] []
7. ___ a <input type="checkbox"/>	7. ___ b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7. ___ c <input type="checkbox"/>	7. ___ d []	7. ___ e %	7. ___ f [] []
7. ___ a <input type="checkbox"/>	7. ___ b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7. ___ c <input type="checkbox"/>	7. ___ d []	7. ___ e %	7. ___ f [] []



Toxic Chemical Release Inventory Questions and Answers

Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986)



INTRODUCTION

This Questions and Answers document has been prepared to help clarify reporting requirements under section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986, Public Law 99-499). Under section 313, facilities that meet all three of the following criteria are required to report releases to the air, water, and land of any specifically listed toxic chemicals:

- The facility has 10 or more full-time employees;
- The facility is included in Standard Industrial Classification (SIC) Codes 20 through 39; and
- The facility manufactured (defined to include imported), processed, or otherwise used in the course of a calendar year any specified chemical in quantities greater than a set threshold.

Reports under section 313 (EPA Form R) must be submitted annually to EPA and designated State agencies. Reports are due by July 1 and cover activities at the facility during the previous calendar year.

This document has been developed to expedite facility reporting and to provide additional explanation of the reporting requirements. It supplements the instructions for completing Form R. Copies of EPA Form R, instructions for completing the form, and related guidance documents are available from the Section 313 Document Distribution Center, P.O. Box 12505, Cincinnati, Ohio 45212. (A request form is provided at the end of this document for use in obtaining copies of these documents.)

The questions and answers in this document are organized in sections as listed in the table of contents on the following page. An index at the end of the document lists question numbers by topic.

To remain responsive to section 313 issues that may arise in the future, this Questions and Answers document will be updated periodically. If you have comments or possible additions to this document, please send them to the Emergency Planning and Community Right-to-Know Information Hotline at the U.S. Environmental Protection Agency, WH-562A, 401 M Street, S.W., Washington, D.C. 20460, (800) 535-0202 (or (202) 479-2449, Washington, D.C. and Alaska).

TABLE OF CONTENTS

	<u>Page</u>
I. Determining Whether or Not to Report: Facility.	1
A. Types of Facilities That Must Report	1
B. Employee Threshold	3
C. Persons Responsible for Reporting.	3
D. Multi-Establishment Facilities	5
E. Form R Requirements.	6
F. Chemical Activity Threshold Determinations	7
G. Auxiliary Facilities	9
II. Determining Whether or Not to Report: Listed Chemicals. . .	11
A. General Questions.	11
B. Chemicals in Solution.	13
C. Chemical-Specific Questions.	14
III. Mixtures	17
IV. Supplier Notification.	18
V. Activities and Uses of the Chemical at the Facility.	20
VI. Exemptions	25
A. General, Personal Use, and Intake Water and Air.	25
B. Facility Maintenance and Structural Components	26
C. Vehicle Maintenance.	26
D. Laboratories	27
E. De Minimis	28
F. Articles	29
VII. Releases of the Chemical	32
VIII. Waste Treatment Methods and Efficiency	39
IX. Transfers to Off-Site Locations.	41
X. Waste Minimization	43
XI. Trade Secrets.	44
XII. Certification and Submission	45
XIII. EPA's Section 313 Program and General Information.	48
XIV. Index.	49
XV. Additional Materials Available on Section 313.	51

I. DETERMINING WHETHER OR NOT TO REPORT: FACILITY

A. Types of Facilities That Must Report

1. What facilities are subject to section 313 reporting?

Section 313 reporting applies to facilities that meet three criteria: have 10 or more full-time employees; are in the manufacturing sector (in SIC major groups 20 through 39 inclusive); and exceed any one threshold for manufacturing (including importing), processing, or otherwise using a toxic chemical listed in 40 CFR Part 372.65.

2. When a facility has been sold or otherwise changed hands during the year, who is responsible for making the report?

The last owner/operator of the facility during a reporting year is responsible for making the report, unless the sales or transfer agreement states that the seller will assume this reporting responsibility. In either event, the report will be submitted to cover the full year.

3. Is a facility meeting the criteria described in question one required to report if they had no releases of the toxic chemicals during the calendar year?

Yes. The requirements for reporting under section 313 are based only upon the industrial classification of the facility, number of employees, and what quantity of a toxic chemical was manufactured, processed, or otherwise used during the calendar year. The amount of toxic chemical released does not affect reporting requirements (except in the case of exemptions for articles). The facility described would report zeros in the release estimate section of the form.

4. Must an annual report be submitted by July 1, 1989 for facilities which were in operation part of 1988 but which were closed on December 31, 1988?

Yes. A facility that operated during any part of a reporting year must report if it meets the reporting criteria.

5. Is a facility with SIC code 5161 required to report?

If the primary SIC code of a facility falls outside of the range of 20-39, then the facility is not required to report. A facility with SIC code 5161 is not required to report.

6. Suppose a facility is comprised of several establishments, some of which have primary SIC codes within the 20-39 range, and some of which have primary SIC codes outside that range. How would this facility determine if it needs to report?

The facility must report if those establishments that are in SIC codes 20-39 have a combined value of more than 50 percent of the total value of products shipped or produced by the whole facility, or one of those SIC code 20-39 establishments has a value of products shipped or produced that is greater than any other establishment in the facility.

7. Do pilot plants within the SIC classification have to report?

A pilot plant within the appropriate SIC codes would be a covered facility, provided it meets the employee and threshold criteria.

8. Must a Treatment, Storage or Disposal Facility (TSDF) report under section 313?

A TSDF may or may not be subject to section 313 reporting, depending on the activities at the site. The TSDF must determine its primary SIC code based on the various types of activities that occur at the site.

9. An ancillary wastewater treatment plant has taken on the SIC code of a covered facility because it primarily services a covered facility. Does the facility where the treatment plant is located have to report even if the rest of the establishments at that facility are not in SIC codes 20-39?

No, a facility must report only if it meets employee, SIC code and activity criteria. The SIC code criteria are not met by the establishments that represent the major part of the goods and services produced at the facility containing the wastewater treatment plant. Therefore, the facility as a whole need not report. The covered facility producing the waste must report the off-site transfer to the facility containing the wastewater treatment plant.

10. In Alaska, several fish processors have factories on ships. They use ammonia and chlorine in their fish processing operations. Is each ship a "facility" covered under section 313 or is the whole group of ships (assume one company) a covered facility?

A facility is defined as all buildings, equipment, structures, and other stationary items which are located on a single site or adjacent contiguous sites owned or operated by the same person. A ship is not a facility as defined under section 313. It is not stationary and it is not located on a single site (if it moves to other locations). Therefore the ships should not report even if they are in SIC Codes 20-39.

11. A barge repair facility (SIC Code 3731 - ship building and repairing) cleans barges at their facility by vacuuming out residual chemicals and selling the waste to a chemical recovery company. Must the facility report for the waste? Is it a processor under section 313? What if the waste is not sold?

Because the facility sells the waste, it is a processor. The amount of waste sold does not need to be reported as an off-site transfer because off-site transfers for recycling/reuse are exempt from reporting. Releases such as

spills and cleanup of tools must be reported if the facility exceeds the processing threshold. If the waste is not sold, the facility is not manufacturing, processing or using the chemical and is not subject to reporting.

B. Full-Time Employee Threshold

12. Does the full-time employee determination include the hours worked by sales staff whose office is included in the same building as the production staff? This sales staff is not connected with the production facility in any way.

Yes. All employees at a facility, regardless of function or location in a building, count toward the employee threshold determination.

13. Would a facility with nine full-time employees and four part-time employees be required to report under section 313?

The total hours worked by all employees should be reviewed. A "full-time employee" is defined on a full-time equivalent basis of 2000 labor hours per year. If the total hours worked by all employees at a facility, including contractors, is 20,000 or more, the criterion for number of employees has been met.

14. An establishment leases one acre of land adjacent to the reporting facility from a three-acre strawberry farm. The facility imports and repackages methyl bromide for sale and distribution. Does the facility have to include the strawberry pickers when determining whether the 10 full-time employee equivalent criterion applies?

The reporting facility should not tabulate the hours worked by farm workers it does not pay. If, however, the reporting facility actually employs or contracts with these farm workers, then the hours worked on-site by these workers would count towards the 10 full-time employee equivalent.

C. Persons Responsible for Reporting

15. Is the owner or the operator responsible for reporting?

Either the owner or the operator is subject to the section 313 reporting requirements. If no report is received from a covered facility, both persons are liable for penalties. As a practical matter, EPA believes that the operator is more likely to have the information necessary for reporting.

16. Would an owner of a facility who has no knowledge of any operations at the facility be responsible for reporting?

An owner with business interest in the facility, beyond owning the real estate on which the covered facility is located, must report. Neither owners who are part of the same business organization as the operators, nor owners of businesses that contract out the operation of a particular site, are exempt from reporting.

17. Who is the parent company for a 50/50 joint venture?

The 50/50 joint venture is its own parent company.

18. Company A owns a facility which manufactures crude oil. It sells the crude oil to Company B, but the oil is kept in tanks on Company A's facility that are leased to Company B. Who is subject to reporting under section 313?

Since tanks are part of Company A's facility and they are the owner and/or operator of the facility, Company A would be subject to section 313 reporting for any releases from the tanks.

19. How would a facility report chemicals in wastes that are treated in waste treatment units that it does not own? For example, if a facility sold a unit that is within its contiguous property to another company, which facility should report?

The facility creating the waste would report the chemicals as an off-site transfer. The treating facility would not need to report unless they manufacture, process or otherwise use the same chemical in excess of the thresholds. In that case, they would report any releases resulting from wastes as part of their total annual releases of the chemical.

20. Must importers/exporters report for materials stored in public warehouses?

Owners or operators of covered facilities must report. If importers/exporters neither own nor operate the warehouse, they would not need to report for that warehouse.

21. A fish processor rents space in a building. The refrigeration system in the building uses ammonia. The building owner supplies the ammonia, runs the refrigeration system, and bills the fish processor based on the amount of fish processed. Must the fish processor report for ammonia? Another business, a frozen food packager, also uses the refrigeration system, but is a separate company from the fish processor.

The owner of the building should report on the ammonia, if the threshold for ammonia is exceeded, since he is operating the system -- he has more than just a real estate interest in the property. Since the facility (both businesses) is in SIC 20-39 and he is operating part of that facility, he should report.

22. Mom and Pop Plastics is a wholly owned subsidiary of a major chemical company which is a wholly owned subsidiary of Big Oil Corp. Which is the parent company?

Big Oil Corporation is the parent company.

D. Multi-Establishment Facilities

23. Each establishment of a multi-establishment facility files its own Form R for a toxic chemical. The waste that this multi-establishment facility ships off-site is inventoried on an entire facility basis. To report this waste, does each establishment estimate their percentage of the total waste or can one establishment report the entire waste?

If individual establishments or groups of establishments report separately for one chemical, they must continue to report separately for all chemicals. Therefore, in the case cited above one establishment cannot report the offsite transport quantity of a chemical in waste from the entire facility. Each establishment would have to report their percentage of the transfer quantity.

24. Two manufacturing establishments, owned by the same corporation, are divided by a public railroad. One establishment has rented parking lot space from the other establishment, and a walkway was constructed so the employees can go over the railroad tracks to the parking lot. Is this a multi-establishment facility or two separate facilities?

Two establishments owned by the same corporation separated by a railroad constitute one facility for section 313, since they are still physically adjacent to one another except for a public right-of-way. Therefore, reporting thresholds would be determined by the combined chemical volumes processed, manufactured, or used at both establishments.

25. A facility is filing separate reports for section 313 for each establishment within a facility. How would a transfer of a toxic chemical to another establishment within the facility be reported? (i.e., transfers waste to another establishment that then treats and disposes the toxic chemical).

Inter-facility transfer of wastes would not constitute off-site transport and would not be reported. An establishment need only report releases to the environment and wastes that are transferred off-site from the facility.

26. Do I have to report if the value of laboratory research at my facility is greater than 50 percent of the total value of goods and services produced at my facility?

If the research laboratory is a separate establishment from the manufacturing activities and its SIC code is not between 20 and 39, then the 50 percent test is used to determine if the whole facility is in SIC codes 20-39. Some laboratories may be considered within SIC codes 20-39 because they are "auxiliary" facilities providing research to support manufacturing operations. In which case, the whole facility is covered.

27. Is an off-site landfill subject to reporting under section 313 if it a) is not part of a "covered facility" in that it is not contiguous or adjacent to the property of the reporting facility, and/or b) does not fall within SIC Codes 20-39?

A landfill, as a separate facility, is not subject to reporting because it is not in SIC Codes 20-39. However, a manufacturing facility, within SIC Codes 20-39 which meets reporting criteria, must list an off-site landfill (company-owned or not) on the reporting form (Part II of EPA Form R) if they transfer wastes containing the toxic chemical to that landfill for disposal.

28. For reporting year 1988, if a company has a plant in one state which processes 27,000 pounds of methanol and a plant in another state which processes the same amount of methanol, do both plants have to report as "establishments" of a "facility"?

No. The two processing plants are separate facilities because they are not located within the same contiguous physical boundary. Thus, their activities are not additive, and neither would report for methanol in 1988 because the processing threshold of 50,000 pounds has not been met by either facility. However, if either facility processes 27,000 pounds of methanol in 1989, it would have to file a Form R by July 1, 1990.

E. Form R Requirements

29. After contacting Dun & Bradstreet several times to obtain DUNS numbers for several facilities, a consulting firm was told by D&B that they will give out the DUNS number only to the individual facilities. Does the consulting firm have any recourse for obtaining these numbers?

The facility or financial officers may know the number, or may need to call D&B themselves. Company headquarters DUNS numbers are in Dun and Bradstreet reference publications, Reference Book of Corporate Management and Million Dollar Directory, available at some public libraries. Some libraries conduct computer searches of the DUNS Market Identifiers database for a fee to obtain individual facility DUNS numbers. DUNS numbers are also available through online services (e.g., DIALOG). If a facility does not subscribe to the D&B service, a "support number" can be obtained from the Dun & Bradstreet center located in Allentown, Pennsylvania (telephone (215) 391-1886).

30. If a facility does not have a Dun & Bradstreet number but the parent corporation does, should this number be reported?

Report the Dun and Bradstreet Number for the facility. If a facility does not have a Dun and Bradstreet Number, enter N/A in Part I, Section 3.7. The corporate Dun and Bradstreet Number should be entered in Part I, Section 4.2 relating to parent company information.

31. If two plants are separate establishments under the same site management, must they have separate Dun & Bradstreet numbers?

They may have separate Dun & Bradstreet numbers, especially if they are distinctly separate business units. However, different divisions of a company located in the same facility usually do not have separate Dun & Bradstreet numbers.

32. If you have an NPDES permit, but do not discharge toxic chemicals to surface water, do you have to fill in Section 3.10?

Yes. This information is part of the facility identification section of Form R and is intended for use in obtaining other information about the facility.

33. A facility is composed of two separate establishments and is filing two separate Form R's for section 313 reporting. For Part I, Section 3.5, what SIC codes are to be listed?

Enter only the SIC codes of the establishments whose data is included in the report (Part I Section 3.5). SIC codes for the other establishments of the facility would be included in their own Form R submittal.

34. What is the definition of primary SIC code? How can there be more than one primary SIC code for a facility?

A primary SIC code generally represents those goods produced or services performed by an establishment that have the highest value of production or produce the most revenues for the establishment. The form provides space for more than one primary SIC code because a facility may be made up of several establishments, each of which may have a different primary SIC code.

35. Clarify the application of SIC Codes for facility versus establishment?

The SIC code system classifies businesses on the basis of an "establishment", which is generally a single business unit at one location. Many section 313 covered facilities will be equivalent to an establishment. However, a reporting facility can encompass several establishments located within a property boundary, owned/operated by the same "entity." Therefore, a facility can be a multi-establishment complex.

36. Our facility operations cover a large area. What longitude should be reported for our facility and how can we locate this information?

Report the latitude and longitude for a location central to the operations for which you are reporting. You may find this information on your NPDES permit. See the instructions for completing Form R for a detailed description for determining longitude and latitude from USGS maps of your facility location.

F. Chemical Activity Threshold Determinations

37. If a facility buys 10,000 pounds of a listed chemical in 1988 and creates a mixture, for example a metal cleaning bath, and then uses the bath that year and the next calendar year, how do they determine thresholds for both years?

The threshold applies to the total amount of the chemical otherwise used during the calendar year. The facility would count the entire 10,000 pounds and any amount added to the bath during that year toward the otherwise use threshold the first year. The use of this bath during the second year constitutes reuse/recycle of the mixture. Therefore, only the amount of the

chemical added to the bath during the second year (1989) would be counted toward the use threshold determination for the second year.

38. A facility manufactures "non-article" metal items. If all wastes from both manufacturing processes are recycled, are the items still subject to threshold determinations?

If a "non-article" metal item is processed, but all wastes are recycled, the item is still subject to threshold determinations, the chemicals therein must be reported if thresholds are met, but releases would be reported as zero.

39. A facility knows only the minimum concentration of a chemical in a mixture used in their operations. How should they report?

The facility should use the minimum concentration for threshold and release calculations because this is the best information they have.

40. If you operate a treatment plant as part of remediating a Superfund site on your facility, do contaminants (already there, not being added to) have to be included in calculating thresholds? Releases?

Such material is not included in threshold determinations since it is not being manufactured, processed, or used. Release reporting is required if the SIC code, employee number and threshold criteria are met for the chemical. In that event, a release does not include material already in a landfill, but does include any material released to the environment by remedial activity or transferred off-site.

41. Must a facility include welding rods, solders, and the metals being joined during a welding or soldering job in threshold determination?

Yes, however, if no releases occur from the joined metal parts themselves they may be considered articles and only the welding rods or solder must be assessed for threshold purposes.

42. A chemical manufacturer (SIC Code 28) receives other facilities' wastes containing toxic chemicals and disposes of them in their deep well. Does the receiving facility need to report these toxic chemicals?

The receiving and disposing of toxic chemicals would not be factored into a threshold determination because it does not fit any definition of process or otherwise use. However, if the manufacturing facility manufactures, processes or "otherwise uses" the same toxic chemical above the threshold amount, the disposal would be reported as a release on Form R even though the amount of waste was not included in the threshold determination.

43. If a facility uses a recycle or reuse system, how does it determine the amount that it must consider for threshold determinations?

For recycle or reuse, the amount considered used for a threshold determination is the amount added to the system during the year. If the system is completely empty and is started up during the year, a facility determines the amount used by adding the total amount needed to charge the system to any amount which is added to the system during the year.

44. If a facility manufactures 47,000 pounds, processes 28,000 pounds, and imports 6,000 pounds of chemical X during 1988, is it required to report for chemical X?

For 1988, the facility would have to report chemical X because it would have exceeded the manufacture threshold of 50,000 pounds. Note that importing is the equivalent of manufacturing and therefore the amounts must be added together for threshold determinations.

45. Are barge loading/unloading releases exempt?

Such releases must be reported if the barge terminal is part of a covered facility.

46. Our facility purchases a mixture containing toxic chemicals. We store it and then sell it to our customers without even opening the boxes. Must we report on these chemicals?

Report on toxic chemicals that your facility manufactures, processes, or otherwise uses in excess of the thresholds, but do not report on standing inventory. Since you are not using the chemicals, you do not have to report.

47. How are warehouses affected by section 313?

A warehouse located within the physical boundary of a "covered facility" is covered for estimating releases. Warehouse contents are not used in threshold determinations, because thresholds are based on manufacture, process, or use (i.e., throughput rather than storage volume). Repackaging at a warehouse is considered processing and the quantities would have to be factored into facility process threshold determinations.

G. Auxiliary Facilities

48. Are "auxiliary" facilities associated with manufacturing operations in SIC codes 20 through 39 exempt from reporting under section 313?

No. An "auxiliary facility" is one that directly supports another establishment's activities and therefore takes the SIC code of the facility supported. Auxiliary facilities located on separate property must report if they meet the employee and chemical thresholds. Auxiliary establishments that are part of multi-establishment facilities should be included in facility threshold determinations. For example, a spill from the warehouse would be included in the covered facility's release quantities.

49. An airplane engine repair shop (generally SIC 7699) owns an "auxiliary" facility at a separate location that does metal plating (generally SIC 3471 -- Plating of Metals and Formed Products). Would the plating facility be exempt?

According to the SIC code manual, this plating facility would not be "auxiliary" but would be considered a separate operating establishment conducting a manufacturing activity. It would, therefore, need to make the employee and threshold determinations and report, if appropriate, because it falls between SIC codes 20-39.

II. DETERMINING WHETHER TO REPORT: LISTED CHEMICALS

A. General Questions

50. What list of chemicals is subject to reporting under section 313?

The law defined the list of toxic chemicals. The initial list (with certain technical modifications and revisions) appears in the final rule and in the instruction booklet for completing EPA Form R.

51. What is the difference between the section 313 list and other Title III lists?

Some overlaps exist between lists of chemicals covered by different sections of the law. Section 313 focuses on chemicals that may cause chronic health and environmental effects. The section 313 list was developed from lists of regulated chemicals in New Jersey and Maryland. The EPA "List of Lists" document identifies chemicals that are specifically listed and must be reported under Sections 304 and 313 of Title III.

52. Can common or trade names other than those listed in the rule be used for submissions?

No. EPA has provided a list of standard chemical names and CAS numbers for all chemicals which must be reported. The rule requires the use of these standard names. Many 1987 forms could not be processed because unlisted CAS numbers or names were used.

53. We use a chemical with a CAS number not on the list of section 313 toxic chemicals. There are similar chemicals on the list, but none with the same CAS number. How can I be sure I don't have to report?

Only chemicals that are specifically listed or part of a specifically listed category of chemicals need to be reported. If neither the name nor the CAS number fits the list (and the chemical is not part of a listed category), it is not reportable.

54. How are chemical categories handled under section 313 threshold determinations and release reporting?

All chemicals in the category that are manufactured, processed or otherwise used at a facility must be totaled and compared to the appropriate thresholds. Threshold determination for chemical categories is based on the total weight of the compound. Releases of metal compounds are reported as releases of the parent metal portion of the compounds. If the metal and corresponding metal compounds exceed thresholds, a joint report for metal compounds, including the parent metal, can cover both reporting requirements.

55. If an item on the section 313 list covers chemicals with multiple CAS numbers (e.g., nickel compounds), how is the CAS number of the item described?

Do not enter CAS number in such cases. Instead, enter "N/A" in the space for the CAS number on Form R. The individual chemical members of a listed category are not required to be and should not be identified in the report.

56. Do the chemical categories such as nickel compounds include all compounds, even those which have not been associated with adverse health effects? What is the authority for this decision?

The section 313 list established by Congressional legislation included categories. EPA interprets these listings to mean all compounds of nickel for example, regardless of whether specific toxicological problems have been identified for a specific compound in the category.

57. Must uses of listed chemicals as fumigants be reported if other criteria and thresholds are met?

Yes.

58. Some chemicals released into the environment react to form other chemicals or chemical compounds, for example phosphorus (a listed chemical) oxidizes in air to form phosphorus pentoxide (not a listed chemical). Which should be reported, the transformed chemical or the source chemical? How would the report(s) be prepared if both the source and result chemical are listed?

Report releases of the listed chemical. The facility is not responsible for reporting a chemical resulting from a conversion in the environment.

59. I have hydrochloric acid with a listed content of 100 percent HCl. I know that means 37 percent HCl and 63 percent water - there is no higher concentration made. Which concentration must I use for threshold determination?

You should calculate the HCl content based upon the 37 percent concentration.

60. A facility meets the threshold for "otherwise use" of 1,1,1-Trichloroethane as a cleaner. Would the release of that chemical contained in the office supply product "white-out" also be included?

Office products fall within the same realm as the personal use and janitorial maintenance exemptions; the release of 1,1,1, trichloroethane in "white-out" would not be reported.

61. A facility receives a chemical mixture, 70 percent of which is toluene diisocyanate. Of this 70 percent, the supplier has told them that 80 percent is 2,4-TDI, with CAS number 584-84-9, and 20 percent is 2,6-TDI, with CAS number 91-08-7. The CAS number that appears on the MSDS for TDI is 26471-62-5, which is not on the section 313 list. Should the facility report?

CAS number 26471-62-5 represents the mixture of the 2,4 and 2,6 TDI isomers. Each of these isomers are reportable under section 313. Since the facility knows that the two listed isomers are in the formulation and knows the concentration of each isomer, the facility should report if the individual thresholds are exceeded.

B. Chemicals in Solution

62. What is the strict interpretation of a sodium sulfate solution? Does it have to be in solution when it leaves your facility? Should I consider the quantity of the entire solution or just the weight fraction of sodium sulfate? Why did EPA add the qualifier (solution) to the listing of sodium hydroxide and sodium sulfate. Should sodium hydroxide pellets be ignored?

Only the actual quantity of sodium sulfate in the solution should be considered for threshold or release determinations. Congress included the solution qualifier on the section 313 list because this qualifier was used in one of the state lists which served as the basis for the 313 list. Solid forms of chemicals which are listed as solutions should not be included in threshold and release calculations. Solid pellets of sodium hydroxide should not be factored into threshold release calculations. However, if the solid is made into a solution at any point in the process, then it becomes reportable.

63. In determining maximum amount on-site and thresholds, do we count the water in solutions (e.g., NaOH, NH_4NO_3 , Na_2SO_4)? Do we count the nonmetal portion of metal compounds?

Exclude the water in solutions. The nonmetal portion of metal compounds is included.

64. How is ammonium hydroxide in solutions (i.e., "aqua ammonia") counted?

Ammonia is the listed chemical; ammonium hydroxide is not a listed section 313 chemical and has its own CAS number. Commercial products of "aqua ammonia" or "ammonium hydroxide" solutions are approximately 30 percent solutions of ammonia in water. These products are considered mixtures of the reportable chemical ammonia in water for section 313 threshold determinations and release reporting. Report as ammonia, CAS number 7664-41-7.

65. Does the qualifier "solution" as used with sodium hydroxide, for example, apply only to aqueous solutions? How would we interpret an aqueous-based slurry such as a drilling mud? What about molten sodium hydroxide?

The qualifier "solution" is not limited to aqueous solutions. For example, petroleum based solutions would also be included. Regarding slurries, NaOH would be dissolved in water in the slurry, and should be considered as a solution. Molten sodium hydroxide is not a solution and is not covered.

C. Chemical-specific Questions

66. Vanadium pentoxide is not explicitly listed under section 313, although vanadium does appear on the list. Are we correct in assuming that we don't need to report for vanadium pentoxide?

Yes. Vanadium is listed only as a fume or dust under section 313. Therefore, a compound such as vanadium pentoxide is not subject to reporting.

67. For releases of sodium hydroxide (solution) in NPDES effluent discharges within pH 6-9 range, does EPA agree that no reportable amounts are in the pH 6-9 effluent?

Yes, EPA agrees that a neutralized discharge (i.e., with pH between 6-9) contains no reportable amount of sodium hydroxide (solution).

68. Although the category of glycol ethers requires reporting under section 313, I am not clear on whether the simplest glycol ether, diethylene glycol, requires reporting?

Diethylene glycol is not subject to reporting. Glycol ethers, with the following structure, are reportable: $R-(OCH_2CH_2)_n-OR'$, where $n = 1, 2, \text{ or } 3$, $R = \text{alkyl or aryl groups}$, and $R' = R, H, \text{ or groups which, when removed, yield glycol ethers with the structure: } R-(OCH_2CH_2)_n-OH$. R groups for this structure are unsubstituted alkyl or aryl groups. For diethylene glycol, $R = \text{hydroxyethyl}$, and $R' = H$, and is not subject to reporting under 313.

69. Is dipropylene glycol having the following structure considered a glycol ether for section 313 toxic chemical reporting? $H_3R-(OCH_2OCH)-OR$

Dipropylene glycol is an ether but not a glycol ether since it does not fit the general formula by having an $(R-O-C-C-O-R)$ group in its structure.

70. We manufacture and use copper wire. We also use copper chemicals in various parts of our processes. The section 313 list contains both copper and copper compounds. Should we combine these categories for our determination of thresholds and reporting? Do we report the release of copper compounds as copper metal?

Copper is a separate entry on the section 313 list, and therefore should be tallied separately to determine if you exceed manufacture, process, or use thresholds for copper. Copper compounds are a listed category and will include the aggregate of all copper compounds (other than the metal). For both reports, report releases as copper (e.g., as the copper ion in wastewater) not the total mass of copper compounds released. If you meet the threshold for both, you may file one report for copper compounds that includes copper.

71. I use copper wire in one of my products. I cut it and bend it and then heat seal it into a glass bulb. How do I consider the copper wire for section 313 reporting?

First, the wire would remain an article if no releases of copper (e.g., dusts) occur during manufacture of the glass bulbs. If the wire is not an article, then for an element such as copper, both the metal and its compounds are subject to section 313 reporting. Determine first how it is present in the wire. If it is pure copper wire, the entire weight of the wire must be used. If it is an alloy, the weight percent times the wire weight must be used. If there are copper compounds, the entire compound's weight must be used for threshold determination.

72. Are vinyl chloride, a listed toxic chemical, and polyvinyl chloride, not listed, the same thing?

Polyvinyl chloride is not a listed chemical or a listed synonym of vinyl chloride, and it does not need to be reported. It is a polymer based on the reaction of vinyl chloride. Only "free" vinyl chloride within the polymer should be evaluated for threshold.

73. A facility was advised by one supplier that alumina oxide, CAS number 1344-28-1, is a toxic chemical under section 313 and is therefore reportable. The facility was advised by another supplier that this chemical was on the list in error, and that alumina oxide is not reportable. Is alumina oxide reportable under 313?

Aluminum oxide, CAS number 1344-28-1, is reportable under section 313. Be aware that naturally occurring aluminum oxide, known by the name corundum, has a CAS number of 1302-74-5. Since the list of section 313 chemicals is chemical-specific, corundum is not reportable.

74. Are chemical monomers such as acrylonitrile, butadiene and styrene, which are contained in a plastic co-polymer known as ABS, reportable under section 313? The ABS is in pellet form and melted and molded; therefore, it doesn't meet the article exemption.

If the acrylonitrile, butadiene, and styrene are present in an unreacted form in excess of de minimis concentration then they are reportable. Although those monomers comprise ABS, they are probably in the form of another compound and, therefore, are not reportable under section 313.

75. The CAS number for Di-(2-ethylhexyl) phthalate (DEHP) is listed as 177-81-7 on page 4531 of the February 16, 1988 Federal Register. The CAS number for DEHP is also listed on page 4536 of this Federal Register, but is given as 117-81-7. Which CAS number is the correct one?

The correct CAS number for DEHP is 117-81-7.

76. For section 313 reporting, a catalyst contains 61 percent total nickel, which includes 26 percent free nickel and nickel contained in compounds. Should the threshold determination be based on the 61 percent total Ni?

The 61 percent total nickel cannot be used in the threshold determinations. Nickel compounds are a listed category, therefore the full weight of nickel

compounds must be used in the threshold determination for nickel compounds. A separate threshold determination is required for the free nickel since nickel is also a listed chemical under section 313.

77. Asbestos, with CAS number 1332-21-4, is a listed chemical under 313. The synonym list does not contain reportable asbestos forms. Our facility uses the following forms of asbestos and would like to know if they are reportable: Azbolen (CAS 17068-78-9), Actinolite (CAS 77536-66-4), Amosite (CAS 12172-73-5), Anthrophyllite (CAS 77536-67-5), Tremolite (CAS 77536-68-6), and Serpentine.

The section 313 listing for asbestos (CAS 1332-21-4) includes the specific forms of asbestos, such as those mentioned above, that have their own individual CAS numbers. Therefore, those types of asbestos are reportable as long as they are in the "friable" form.

78. How is the process of removing asbestos from a site reported?

A facility that manufactures, processes, or otherwise uses friable asbestos in excess of an applicable threshold must report asbestos waste disposal (e.g., accumulated asbestos waste pile disposal requires reporting). But a facility that only "uses" the asbestos (e.g., insulation) is exempt from reporting for structural components of the facility and removing the material does not trigger reporting.

79. Are releases of asbestos from demolition of an old plant reportable?

No.

80. A product is immersed into a plating bath containing nickel chloride (NiCl). This is done to bond nickel to the product prior to distribution in commerce. Nickel is incorporated into the final product (processed) whereas the chloride remains in the plating bath (otherwise used). Since nickel chloride is reportable under the nickel compound category of section 313, which threshold applies for this situation?

The determination is made based on the total amount of nickel chloride processed and the report will be filed for nickel compounds.

81. 53 FR 4538 describes cyanide compounds as $X+CN^-$ where $X=H^+$ or any other group where a formal dissociation may occur; examples are KCN and $Ca(CN)_2$. Are cyanide compounds that do not dissociate reportable?

Cyanide compounds that do not dissociate are not reportable. Most of the cyanide compounds that dissociate are cyanide salts which are subject to section 313.

III. MIXTURES AND ALLOYS

82. What is the difference between a mixture and a compound?

When a compound is formed, the identities of the reactant chemicals are lost, but in a mixture, the individual components retain their own identity and could be separated again. For example, polyethylene is a reaction product, not a mixture, and is not subject to reporting under section 313. Steel fabricated into its solid form is considered a mixture because the individual metals retain their chemical identity.

83. When a company has a mixture on-site which does not have its own CAS number, what CAS number should be used?

The company should attempt to identify the listed section 313 chemicals in the mixture. A separate report must be filed for each chemical for which the fraction of the chemical in the mixture multiplied by the total weight of the mixture used or processed exceeds the applicable threshold. The chemicals are treated as if they were present in pure form and each is reported with its CAS number.

84. If a facility only knows the range of concentration of a section 313 chemical in a mixture, are they required to use the upper bound concentration to determine threshold as stated in the Federal Register? Use of the average or midpoint of the range will avoid overestimating emissions. If a metal mixture contains a range of 1 to 10 percent of three metals together, how can this information be used to determine thresholds?

The final rule does not discuss ranges, it only says that the upper bound should be used "if the person knows only the upper bound concentration". If a range is available, using the midpoint or average value is reasonable. For the combination of three chemicals, the facility should split the range among the three chemicals based on the knowledge that they have, so the total equals 10 percent. They do not have to assume 10 percent maximum for each chemical.

85. I run a metal fabrication facility, SIC code 34. If I cut the metal sheets and send the shavings off-site for reuse, can I consider the metal sheets articles?

If the shavings that are formed during the cutting are the sole releases, and if all the shavings are sent off-site for reuse, then the metal sheets are articles and are exempt.

IV. SUPPLIER NOTIFICATION

86. MSDSs for the solvents we use give trade name or generic names only. Do I have to contact the manufacturer for more information to report under Part III of Form R?

If only a trade name or generic name is known and the presence of a section 313 chemical is known, then that can be reported in Part III. Beginning in January 1989, suppliers will be required to provide the identity of the listed chemical (CAS number and chemical name) and concentration in mixtures. The manufacturer may claim the information trade secret, but must provide a name that is descriptive of the chemical and at least an upper bound concentration in the mixture.

87. By what exact date must 1989 mixture notification by suppliers be done?

A supplier must notify each customer with at least the first shipment of the mixture or trade name product in each calendar year beginning January 1, 1989.

88. Is a facility subject to supplier notification requirements if it distributes products containing more than the de minimis level of a listed metal compound?

Yes, if you distribute these products to other manufacturers or processors, and you are in SIC Code 20-39, you may be subject to supplier notification requirements. Articles and consumer products are exempt from supplier notification.

89. Does a supplier have to tell a customer that a section 313 chemical is present below the de minimis level (1.0 percent, or 0.1 percent for OSHA carcinogens)?

No. Such information is not required.

90. Is supplier notification required for distributors in Standard Industrial Classification (SIC) code 51 which do not manufacture or process any listed toxic chemicals for mixtures containing toxic chemicals?

Distributors in SIC code 51 which do not manufacture or process a toxic chemical are not required to prepare notice that the mixture or trade name products which they distribute contain a toxic chemical. They should, however, pass along such notices prepared by their supplier to anyone who purchases a mixture or trade name product containing a toxic chemical.

91. I am a small chemical company who supplies some section 313 toxic chemicals to customers. My customers are requesting MSDS information and want the CAS number for every chemical in my mixtures. I thought I only had to supply that information for the listed toxic chemicals.

If you wish, you may provide them with the CAS numbers for all of the chemicals in your mixtures, but you are only required to provide information on the listed toxic chemicals (i.e., those chemicals subject to reporting under section 313).

92. How will the supplier notification work for imported products -- do exporters from Japan have to comply?

No. Foreign suppliers are not required to comply with supplier notification. However, we strongly encourage importers to request content and composition data on imported mixtures. EPA will also be exploring means of voluntary notification by foreign suppliers.

93. Is supplier notification required from a manufacturer of a toxic chemical in SIC codes 20 through 39 which sells a waste mixture containing a toxic chemical off-site to a recycling or recovery facility that is covered by section 313?

Yes, because the toxic chemical is sold to the recycler it is the equivalent of selling a product and notification is required. The notice the facility would be required to give is the percentage and identity of the toxic chemical in the mixture that is sent to the recycling or recovery facility. If the material is, however, sent off-site as a waste for the treatment or disposal, then no supplier notification is required.

94. A facility sends empty drums containing toxic chemicals residue to a drum recycler (within SIC Code 20-39.) Must the facility provide a supplier notification?

No, the supplier notification requirement only applies to products that are supplied or distributed. The only chemicals being transferred are in the form of waste and the supplier notification does not apply to waste.

V. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY

95. Are the thresholds for manufacture and process considered separately? That is, if one manufacturer's 49,000 pounds of chemical A and processes 49,000 pounds of chemical A, does chemical A need to be reported?

Thresholds are considered separately for manufacture, process, or use of the same chemical. Therefore, chemical A would not have to be reported for the 1988 reporting year. However, reporting would be required for 1989 when the threshold decreases to 25,000 pounds.

96. Are materials in inventory (i.e., amounts on hand at year end) to be factored into threshold determinations?

No. Only quantities of a chemical actually manufactured (including imported), processed, or "otherwise used" during the calendar year are to be counted toward a threshold.

97. Under manufacture/import, what constitutes import? Does the threshold apply if you have a broker who imports the chemical for you, stores for you, and then ships to you? What criteria apply?

Use of a broker does not negate facility "importation" of a covered chemical. If your facility specified that a listed chemical or mixture be obtained from a foreign source and you specified the amount, then your facility "imported" the chemical. The criteria are that you caused the chemical to be brought into the customs territory of the U.S. and you "control the identity of the chemical and the amount to be imported."

98. Do chemicals produced coincidentally to manufacturing, processing, or using other chemical substances have to be reported?

Chemicals produced coincidentally are subject to reporting. In the case of coincidental production of an impurity, however, the de minimis limitation applies. An impurity is the residual amount of chemical remaining in a final product for distribution in commerce.

99. How can wastewater treatment "products" be considered as manufactured from a treatment process?

The rule's definition of "manufacture" includes the coincidental generation of a listed toxic chemical as a consequence of the facility's waste treatment or disposal activities. These chemicals may not be produced for commercial purposes. They are, nevertheless, created as a result of the facilities activities and released to the environment must be accounted for.

100. A facility adds hydrochloric acid and sodium hydroxide to waste water to neutralize the waste water prior to discharge. Are these activities manufacturing or processing (with thresholds of 50,000 pounds), or are these chemicals "otherwise used" with thresholds of 10,000 pounds each?

The hydrochloric acid and sodium hydroxide are "otherwise used" with thresholds of 10,000 pounds each.

101. A facility draws steel rods into a smaller diameter. Is this manufacture, process or otherwise use? How do I report?

This is processing and only the toxic chemicals in the steel rods actually processed need to be included toward the threshold. Report for the total amount of each chemical in the rods.

102. A facility manufactures fire fighting and fire protection equipment. The facility has a training school on how to use that equipment. As part of the training school, on-site fires are set using gasoline containing benzene, a toxic chemical. For section 313 threshold determination, would this be an "otherwise use" of benzene, or would this use be exempt as product testing?

This would be considered otherwise used for the section 313 threshold determination, since the benzene is being used in a non-incorporative activity in order to train individuals to use a product. Training is not considered product testing or research and development.

103. We are taking part in an experimental shale oil extraction process. When the shale is extracted, concentrations of a toxic chemical are present in trace amounts far below the de minimis concentration. It probably would never trigger the threshold, but can it be considered an impurity or is it a byproduct?

The de minimis exemption applies to the toxic chemical present in the shale.

104. What is the difference between a manufacturing aid and processing aid?

A chemical processing aid is added directly to the reaction mixture to aid in processing and does not intentionally remain in the product. Examples include catalysts, solvents, and buffers. A manufacturing aid helps to run the equipment and is never incorporated into the product. Examples include lubricants, coolants, and refrigerants.

105. We have purchased in excess of 100,000 pounds of aluminum material in block form to make a mold which stays on site. When making the mold, fumes and dust are a byproduct. Do we report aluminum as the chemical?

Aluminum appears on the list of chemicals as "aluminum (fume or dust)". You must determine if you manufacture, process, or use aluminum fume or dust. In this case, you are not processing or using, but do "manufacture" aluminum fume or dust coincidentally as a byproduct of making molds. Therefore, you must report for aluminum (fume or dust) if you exceed the threshold.

106. A facility melts aluminum ingots, reshapes them, and injects them into a die to form parts. Does the 50,000 pounds processing threshold apply to the amount of molten aluminum processed?

For calendar year 1988, 50,000 pounds threshold applies to the amount of aluminum fume or dust generated at the facility, not the aluminum in molten (liquid) or solid form. Therefore, the facility must determine whether they produce more than 50,000 pounds of aluminum fume or dust air emissions in their processing operation.

107. A facility in the textile industry buys ammonium sulfate in dry form and then makes a solution by adding water. The solution is then "otherwise used" at the facility. Are they manufacturing ammonium sulfate solution and subject to the 50,000 pound threshold, or does the 10,000 pound use threshold apply?

They are both manufacturing and using the solution and should indicate both activities on the form. If the facility uses in excess of 10,000 pounds of ammonium sulfate (solution), then reporting is triggered. Remember that if you must report for any reason you must report all activities involving the chemical.

108. A remanufacturer of auto engines cleans the engine parts and thereby produces a lead-containing waste (from gasoline lead deposits). Are they a manufacturer, processor, or user of lead compounds?

The facility neither manufactures, processes, nor otherwise uses lead. Lead is not incorporated into products for distribution nor is it a manufacturing aid or a processing aid as those terms are defined. Lead in the waste would not be included for threshold determination.

109. What's the difference between "process" and "otherwise use"?

"Process" implies incorporation; the chemical added is intended to become part of a product distributed in commerce. "Otherwise use" implies non-incorporation; the chemical is not intended to become part of a product.

110. If a solvent is used in a process and 85 percent evaporates but 15 percent stays with product, is this process or use? The 15 percent was not necessarily intended to stay with product.

In this case, the entire quantity of the solvent should be considered "otherwise used" and subject to the 10,000 pound threshold. If the solvent was intended to remain in the product, this would be processing.

111. Is soldering light bulbs using lead solder considered processing of the solder?

Yes, it incorporates the solder into a product for distribution in commerce.

112. An electroplating facility uses metal cyanide compounds in their electroplating operations. Are they processing or using those cyanide compounds, and how do they determine whether they meet the threshold and which threshold applies?

The parent metal from the metal cyanide compound is plated onto a substrate electrochemically, leaving the cyanide as waste product. The parent metal is "processed", while the cyanide is "otherwise used". Metal cyanides are reportable under section 313 as both cyanide compounds and metal cyanides. Select the threshold based on the action that involves the portion of the compound that identifies the category (i.e., cyanide for cyanide compounds). The total weight of the compound counts for both the metal threshold and the cyanide threshold.

113. A facility uses sulfuric acid to etch chips, then neutralizes with ammonia forming ammonium sulfate. Which thresholds apply to each chemical? A facility uses sodium hydroxide solution in a scrubber to control fluoride emissions. Which activity and threshold applies to the sodium hydroxide?

Chemicals not incorporated into a product for distribution in commerce are otherwise used. A 10,000 pound threshold applies to the sulfuric acid, ammonia, and sodium hydroxide if the byproducts are not sold. The 50,000 pound manufacturing threshold applies to ammonium sulfate because it is manufactured coincidentally as a result of the neutralization process.

114. Does the placing of a bulk liquid containing a small percentage of a section 313 chemical into small bottles for consumer sale constitute a "use" of the mixture?

No, but it is a type of "processing." If the bulk liquid contains a section 313 covered chemical in excess of the de minimis level, the chemical in the liquid would have to be factored into calculations in determining whether the processing threshold is exceeded for that chemical.

115. Paint containing listed chemicals is applied to a product and becomes part of the article. Does the 50,000 pound threshold apply? What about the volatile chemicals from the painting operation -- are they "otherwise used," thus subject to the 10,000 pound threshold?

Yes to both questions. This is a case in which listed chemicals in the same mixture may have different thresholds. The listed chemicals that remain as part of the coating are "processed," whereas the volatile solvents in the paint are "used" because they are not intended to be incorporated into the article.

116. A facility removes chemicals from groundwater in a cleanup action. The listed chemicals, after treatment, are sent off-site for disposal. Are they required to report? Does the exemption for intake water apply?

Since the chemicals are not manufactured, processed, or otherwise used, no reporting threshold applies to the cleanup action. If the chemicals are manufactured, processed, or otherwise used elsewhere at the facility and exceed a threshold, releases from the cleanup must also be reported on the form. Intake water exemption does not apply since the chemicals are not being used in process water or noncontact cooling water.

117. For section 313 reporting, are PCBs contained in transformers that leak reportable as "otherwise use" of PCBs?

Yes, if the transformer is leaking, then it is no longer considered an article; therefore it would be reportable if the 10,000 pound threshold for "otherwise use" is exceeded.

118. A covered facility includes an agricultural establishment that use pesticides to spray crops. The pesticides contain toxic chemicals subject to section 313 reporting. Is the pesticide considered "otherwise used"?

Use of the chemicals in pesticides is considered "otherwise used" and the entire amount is reported as a release.

VI. EXEMPTIONS

A. General, Personal Use, and Intake Water or Air

119. Does a material retain its exemption even if other formulations, articles, or fuels with the same chemical are not exempt?

Yes, the material retains its exemption.

120. Do office supply type products require coverage under section 313 reporting?

EPA does not intend to require covered facilities to account for listed chemicals in office supplies such as correction fluid and copier machine fluids. Although not specifically exempt in the regulation, EPA interprets such mixtures or products to be equivalent to personal use items or materials present in a facility's cafeteria, infirmary, or materials used for routine janitorial activities and facility grounds maintenance.

121. A facility uses river water as process water. The water taken from the river contains more lead (1.0 ppb) than the water returned to the river (0.5 ppb). Is it subject to the process water exemption? If not, is the facility treating the water?

The process water can be considered exempt because the toxic chemical was present as drawn from the environment (Section 372.38 (c)(5)).

122. Would a listed chemical present in compressed air be exempt? What if the chemical is present in boiler emission air?

A listed chemical present in compressed air would not have to be counted toward a threshold determination. If that same chemical is present in the boiler emission air only because it was in the compressed air fed to the boiler, then that would remain an exempt use. However, if the chemical is created as a result of combustion, you have coincidentally manufactured the chemical and must consider it for reporting.

123. A facility pumps naturally occurring sodium sulfate brine solution from the ground, processes it to produce solid sodium sulfate, and returns the solution water to the brine reservoir. They do not pump other water into the formation to dissolve sodium sulfate. Are they exempt due to "chemical in incoming process water?" If not, how do they report the "release" of sodium sulfate in water returned to the brine reservoir?

They are NOT exempt because they are processing brine for its sodium sulfate content, not using process water that happens to contain an impurity. They should not report underground injection or similar disposal for water returned to the reservoir since the net effect of the operation is to remove sodium sulfate. Recovering sodium sulfate is not "waste treatment", however, any other releases or treatment should be reported.

B. Facility Maintenance and Structural Components

124. How is routine maintenance defined in the exemption list? Is equipment maintenance included?

Equipment maintenance is not exempt. The routine maintenance exemption is intended to cover janitorial or other custodial or plant grounds maintenance activities using such substances as bathroom cleaners, or fertilizers and pesticides used to maintain lawns, in the same form and concentration commonly distributed to consumers. Painting of equipment is exempt because it is intended to become part of the structure of the facility.

125. Are solvents and other listed chemicals in paint used to maintain a facility exempt?

Yes. Painting to maintain the physical integrity of the facility is consistent with the "structural component" exemptions, even though the solvents in the paint don't become part of the structure.

126. Does the "structural component" exemption cover the small amounts of abraded/corroded metals from pipes and other facility equipment that become part of process streams?

Yes.

127. If a facility stores a toxic chemical on-site, and then uses it by installing it in the facility (i.e., copper pipes) is the facility required to consider the toxic chemical (a component) for section 313 submission?

If the chemical is in an article (i.e. copper pipe) it is not considered in threshold determinations. When the substance is installed, it then falls under the structural component exemption and is exempt.

128. Are pesticides which are used to control algae in cooling water towers exempt?

No, such pesticides would not fit the routine maintenance exemption. The "otherwise use" threshold would apply.

129. Are degreasers used in plant maintenance shops exempt?

No, using degreasers would be considered "otherwise used."

C. Vehicle Maintenance

130. Please verify that any motorized vehicle operated by the facility, whether licensed or not, is subject to the exemption listed in section 372.38. This includes forklifts, tow motors, automobiles, etc., that contain a motor. Also, please verify that gasoline, lubricants, oils, and anti-freeze are all considered to be substances subject to this exemption.

Yes. The exemption includes benzene in gasoline and glycol ether in antifreeze used to maintain and operate a facility motor vehicle. This exemption would not apply, however, in the case of an automobile manufacturing plant. As part of the production of vehicles, such a facility would be incorporating the chemicals into an article for distribution in commerce.

131. In the process of maintaining fork lift truck batteries, they are opened to add sulfuric acid as needed. Is this sulfuric acid reportable under section 313?

No. Section 313 exempts the "use of products containing toxic chemicals for the purpose of maintaining motor vehicles operated by the facility" (40 CFR Part 372.38). That amount would not be included in the threshold determination.

D. Laboratories

132. Does section 313 reporting include laboratory chemicals?

The quantity of a listed chemical manufactured, processed, or "otherwise used" in a laboratory under the supervision of a technically qualified person is exempt from threshold and release calculations. This exemption includes laboratories performing quality control activities and those located in manufacturing facilities.

133. What is meant by "specialty chemical production" as an exception to the laboratory activities exemption?

Specialty chemical production refers to chemicals produced in a laboratory setting that are distributed in commerce.

134. Assume that a quality control laboratory, or area control laboratory, is part of a manufacturing facility. Would it be exempt from calculating threshold quantities for listed chemicals?

Yes, assuming that such a laboratory is under the supervision of a technically qualified person and is not engaged in pilot plant scale or specialty chemical production.

135. A facility sends materials which are sampled from processing operations to a laboratory for quality control purposes. Are these quantities exempted under the laboratory exemption, provided that they are handled by a technically qualified individual?

No, any quantity of a covered chemical manufactured, processed, or "otherwise used" must be counted for the purpose of threshold determination. The fact that it is drawn from a process for purposes of quality control testing does not allow the facility to subtract that quantity from the total amount of the chemical factored into the threshold determinations.

136. Is a bench scale or pilot scale reactor for a pilot plant excluded from the laboratory exemption?

A bench scale reactor would not be exempted as part of the pilot plant if it is used to make products (in quantities above the threshold) distributed in commerce.

137. Are the following engine testing operations that use listed section 313 chemicals exempt under the laboratory activities exemption: (a) testing of production engines intended for sale in specialized engine test cells; (b) testing engines for research and development purposes in specialized engine test cells; (c) testing for research and development purposes in open water bodies?

Yes, all of the noted operations are considered "product testing" and as such are intended to be included under the laboratory activities exemption.

138. Section 372.38 lists uses of chemicals in laboratories which are exempt from threshold determination and release reporting. It states, "if a toxic chemical is manufactured, processed, or otherwise used in a laboratory at a covered facility under the supervision of a technically qualified individual, as defined in Section 720.3(ee) of this title," it is excluded from 313 reporting requirements. What is that reference?

Section 720.3(ee) is found in Toxic Substances Control Act (TSCA) regulations (40 CFR 720.3(ee)) and defines "technically qualified individual" as "a person or persons who, because of education, training or experience, or a combination of these factors, is capable of understanding" and minimizing risks associated with the substance, and is responsible for safe procurement, storage, use, and disposal within the scope of research.

E. De Minimis

139. What is "de minimis" under Section 313?

De minimis refers to a concentration of the chemical so low that reporting is not required. It does not apply to wastestreams, but applies to products purchased, sold, or commercially used by the facility.

140. Please explain the de minimis limitation for mixtures and trade name products.

Listed toxic chemicals present in mixtures or trade name products at concentrations below the de minimis level of 1.0 percent, or 0.1 percent for OSHA-defined carcinogens, do not have to be factored into threshold or release determinations. This de minimis level is consistent with the OSHA Hazard Communication Standard requirements for development of Material Safety Data Sheets (MSDSs).

141. Does the de minimis exemption apply regardless of whether a chemical is present as an ingredient, an impurity, or in a waste?

The de minimis exemption applies to ingredients of mixtures or to impurities present in products you process or use. It does not apply to wastes when you manufacture, process or use chemicals in mixtures above the de minimis level (and meet the threshold), wastes and releases must be reported regardless of concentration. Further, when your operations create (manufacture) the chemical in waste treatment, the de minimis exemption does not apply.

142. What does OSHA consider as a carcinogen under the hazard communication standard? Does a potential carcinogen need to be included under this definition?

According to OSHA's definition: "a chemical is a carcinogen or potential carcinogen for hazard communication purposes" if it is found on any of three lists: (1) the National Toxicological Program, Annual report on Carcinogens; (2) the International Agency for Research on Cancer (IARC) Monographs; or (3) 29 CFR Part 1910, Subpart 2, OSHA Toxic and Hazardous Substances. Both actual and potential carcinogens are included under OSHA's definition.

143. How do we determine whether the de minimis level for a section 313 listed chemical should be 1 percent or 0.1 percent?

The instructions for completing Form R for 1988 contains a list of covered toxic chemicals with the de minimis level for each.

144. A facility uses a chemical mixture that contains a toxic chemical. If the maximum and minimum concentrations listed on the MSDS range above and below the de minimis concentration levels, how can the facility determine quantities for section 313 compliance?

The amount of the chemical in the mixture that is present above the de minimis level and therefore counts toward the threshold, can be assumed to be proportional to the ratio of the above-de minimis concentration range to the overall concentration range. The concentration of the chemical in the mixture that is not exempt is the average of the de minimis and the maximum concentration.

145. A raw material contains less than the de minimis level of a listed chemical. During processing, the chemical is concentrated to above the de minimis level in a solid waste that is disposed in an on-site landfill. Should the chemical handled in the process line be included in the facility threshold determination? Do releases from the process line or wastestreams containing above the de minimis level require reporting?

The de minimis exemption applies to the raw material. You do not have to consider it further even if a toxic chemical is concentrated above the de minimis level in a waste.

F. Articles

146. Are metal "articles" exempt from threshold determinations in normal processing, use, or disposal?

Metal "articles" are exempt from threshold determinations if, during their normal processing or use no toxic chemical is released. Disposal of solid wastes that are recognizable as the processed article is not a release that negates the article status.

147. Does the article exemption in the 313 rule apply to preparation of the article? What about processing or using that article?

The article exemption does not apply to the processing of chemicals to make articles. Manufacturing of articles such as tableware is not exempt. When a facility manufactures a metal part and coats it, neither process is exempt.

148. We take copper wire, cut it, and wind it around smaller spools. Is the wire still an article?

If there is no release of a toxic chemical during normal processing of the copper wire, then the wire remains an article.

149. Can facilities who extrude copper bars or rods into wire treat the bar or rod as an article?

No, an article has end use functions dependent in whole or in part upon its shape or design during end use. The end use function is dependent upon the copper being in the shape of the wire, so the copper bar cannot be considered an article. If you are changing the shape or form of an item substantially, you are processing the chemicals -- they are not articles.

150. A facility uses a product that is in pellet form in its manufacturing operations. Is this product considered an article and therefore exempt from reporting under section 313?

A pelletized product is not an article. If it is a chemical or mixture that is in a pelletized form because such form is convenient for further processing by the facility or its customers, then the pellet is not an article. The amount of a toxic chemical in the pellets would have to be reported as a transfer to an off-site location if, for example, floor sweepings were sent as part of refuse to a land fill.

151. A facility uses PCB transformers. Are these considered to be articles, and therefore exempt from reporting under section 313?

PCB transformers are considered to be articles, as long as they do not release PCBs during normal use or if the facility does not service the transformer by replacing the fluid with other PCB containing fluid.

152. A facility (ship builder) uses lead bricks in ships as ballast. They remain permanently with the ship. The lead bricks could be considered articles and therefore be exempt from reporting. However, they infrequently cut some of the bricks, generating lead dust, which they collect and send to

an off-site lead reprocessor. How should they report? What should be counted towards the threshold if they are not considered articles?

If all of the lead solid waste is recycled (i.e., none released to air) then no "release" occurs. Shipment off-site for recycle does not have to be reported. Therefore, the cut bricks retain their article status. If emissions of lead occur that are not recycled, then the cut bricks would not be considered articles. In the non-article case, only count the lead in bricks actually "processed" (i.e., cut) toward the threshold. Account for lead not recycled as lead released.

VII. RELEASES OF THE CHEMICAL

153. What is the definition of a chemical "release" under section 313?

The law defines a release as any "spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing to the environment". Under section 313, facilities are required to take into account in their reports both "routine" and "accidental" releases to any environmental medium.

154. Is the disposal of wastes such as dusts, shavings, or turnings -- that result from grinding or drilling of metal items -- considered releases of toxic chemicals?

Yes, such releases of "non-recognizable" solid wastes such as dusts, shavings, or turnings are considered releases of toxic chemicals.

155. Tank trucks and rail cars physically enter a facility. While loading, emissions occur. Are these emissions subject to reporting under section 313?

Because the loading and the releases occur within the facility boundary, the releases must be reported.

156. Do we need to report leaking, abandoned landfills? What if we don't know if it is leaking?

Leaks from landfills need not be reported. EPA requires reporting of the amount of a chemical placed in an on-site landfill during the year. It is not necessary to estimate migration from the landfill.

157. I process a plastic pipe which is 3 percent formaldehyde. I also know how much formaldehyde is emitted when I process the pipe. Do I need to report these emissions?

Yes, if the processing threshold for formaldehyde is exceeded.

158. A facility buys and sells rigid polyurethane foam insulation containing a fluorocarbon. If the fluorocarbon is Freon 113, would they have to report the Freon 113 released to the air when they cut the insulation?

Freon 113 is a frothing agent to produce rigid polyurethane foam and is intended to remain in the foam cells to give it density and insulating value. Foam containing higher than the de minimis concentration of Freon 113 that is cut, releasing the chemical, cannot be considered an article. The Freon 113 in cut foam pieces counts toward the processing threshold and if the threshold is met, the facility must report the chemical released when the insulation is cut. Normal/natural diffusion of Freon 113 from the foam does not have to be considered a release.

159. Our facility paints metal cabinets and the paint solvents contain a listed toxic chemical. The system consists of a closed vacuum vented painting room and a closed oven room vented by an oven stack. Is the vent to the outside of the building over the painting room a "releases from building ventilation systems" fugitive emission?

No, fugitive releases are emissions that are not in a confined directional air flow. Since your building vent system over the painting room is a confined air stream, it can be combined with the oven stack as a stack or point emission for Form R, Section 5.2.

160. A facility has a liquid wastestream which is incinerated. The incineration is 99.9 percent effective and it is no longer a liquid wastestream. However, the 0.1 percent is released to air as a gaseous wastestream. Does the facility not need to report this wastestream?

The facility does not need to report a gaseous wastestream. The liquid wastestream is 100 percent treated through incineration. The air emissions created, if any, would be reported as a release to air and the quantity would be included in Part III, Section 5.2, stack or point air emissions. If the air emission is further treated then that air emission would be listed as a gaseous wastestream and the treatment documented in Part III, Section 7.

161. Where does one report routine leaks from pipes? Would you report as disposal to land or underground injection?

Reporting leaks from pipes requires determining where the released material goes. A material that evaporates would be reported as a fugitive air emission. A nonvolatile material leaking onto land, or any material leaking from an underground pipe, would be reported as a release to land, entering the amount in Section 5.5.4, Other disposal. Material that is cleaned up might be reported as a release to water or an off-site transfer, and would be included in the appropriate section of the form.

162. A 313 substance is emitted as an air particulate which deposits on the facility grounds or roof, such that it will be washed into a NPDES pond or swept into a solid waste pit for landfill. Will the release be reported as a release to land or water, but not air? This would prevent a substance from being reported twice, once as an air emission, and once as a water/land emission.

If the facility can develop a supportable estimate that part of a release to air is deposited within the facility (and subsequently collected or deposited in an on-site landfill or surface impoundment), then these quantities can be separated from the air release figure(s) and reported as released to land (on-site). The remaining air releases, not deposited on the facility, would be reported as releases to air.

163. Is it true that the facility need not make any special effort to measure or monitor releases for section 313 reporting and may use information that is on hand? If this is true, how will section 313 reporting produce complete data for the public on environmental releases?

The law states that covered facilities need not conduct monitoring or other activities beyond that required by other statutory or regulatory requirements. Congress included this language to limit the burden on the affected industry for development of release and other required data. Without measurement or monitoring data, the facility is required to make reasonable estimates.

164. Section 313(g)(2) of the statute states that the owner or operator of a facility may use readily available data (not must use). In some cases, the available data may be known to be non-representative and reasonable estimates offer more accurate release information. Would EPA, in this instance, favor use of the estimates rather than data?

Yes, it is preferable to use reasonable estimates if monitoring data is known to be non-representative.

165. Don't the section 313 reporting requirements overlook the possibility that a substance can lose its identity as a side product in a reaction, and that the difference between "input and output" volumes may not always be due to a release?

The section 313 rule does recognize that a chemical can lose its identity in a reaction. Determining or reporting total mass balance accounting, total annual production, initial annual inventory, or amounts processed or used are not required. The rule requires an estimate of the total annual amount of a chemical released to the environment and the maximum quantity on-site at any time during the year.

166. If a facility monitors for a chemical and the measurement is below the limit of detection of the method, can they report zero releases?

Although monitoring results may be below detectable limits, this does not mean that the chemical is not present. The facility must use reasonable judgment as to the presence and amount of the chemical; one approach is to use half the detection limit as the wastestream concentration. The facility should not estimate releases based solely on monitoring devices, but also on their knowledge of specific conditions at the plant.

167. If a company measures its own leaks (valve, flange, pump, etc.) and determines a new fugitive factor, is this code "E" or "M" or "O"?

Use the code "M" if you measured releases of the chemical from your equipment at the facility. Use "E" only for published emission factors which are chemical specific. Use "O" if you measured leaks generally or applied non-published factors developed at other facilities.

168. If total releases are obtained using combination of basis, how do we report "Basis of Estimate" in Section 5, Column B?

Report the basis used to calculate the major portion of each release entry. See the examples in the instructions to the form.

169. Are SOCFI (Synthetic Organic Chemicals Manufacturing Industry) emission factors applicable to the petroleum refining industry as well as organic chemical manufacturers?

Yes, SOCFI fugitive emission factors can be used for the petroleum refining industry even though they are based upon synthetic organic manufacturing. The refinery user would have to correct for differences in concentrations of the mixtures, because SOCFI factors are based upon pure substances being released.

170. EPA's fugitive emission factors for equipment leaks for the Synthetic Organic Chemical Manufacturing Industry (SOCFI) and some air emissions factors listed in EPA's document AP-42, "Compilation of Air Pollutant Emission Factors," are not chemical specific. Should the basis of estimate code be entered as "E" or "O"?

Use "O" for non-chemical-specific emission factors.

171. Should we report the composition of stormwater as it falls from the sky -- or do we count its composition once the rainwater has run onto and off soil?

You count the composition once the rainwater has run onto and off the soil, equipment, concrete pads, etc. as a portion of the total facility release to surface water.

172. A facility processes anhydrous ammonia. "Low concentrations" of ammonia, ammonium hydroxide, ammonium chloride, and other ammonia salts are released into a wastestream that is not treated but is deep well injected. Is the facility required to report releases of ammonia?

The facility should count the quantity of ammonia (i.e., "free" ammonia) as the amount released to the wastestream. In-stream conversions do not negate the fact that ammonia, as a listed chemical, is released.

173. How does one use the storage tank equations in Appendix C of the technical guidance to estimate air emissions for a specific chemical in a liquid mixture?

You must estimate emissions of the total mixture using average molecular weight and vapor pressure for the mixture, then multiply by the weight fraction of the chemical in the gaseous emission. The required formulas are found in the technical guidance but are not listed in a step-by-step procedure.

174. The emission factors used to estimate releases to air from leaks in pipes are time dependent. What amount of time should be used to determine fugitive emissions from emission factors?

In using emission factors to determine fugitive emissions to the air from leaks in pipes, a facility must use the total amount of time which a pipe

contains the toxic chemical, since a release will occur whether a chemical is moving or stagnant in the pipe.

175. How does a facility estimate fugitive or working losses from drums contained in a warehouse or storage facility?

Fugitive emissions from drums in storage at a covered facility may include emissions from opening and emptying the drums. The facility may consider each drum as a small tank and estimate the amount of toxic chemical contained in the vapor space using methods such as partial pressure determinations found in the technical guidance document.

176. Is there any recommended approach for estimating emissions from facilities whose raw material is of a constantly varying and unknown composition. For example, tar plants receive crude coal tar in batches. No analysis is done on incoming raw materials or on products (or on intermediates) at such facilities.

If available, data on the average composition for the specific material or published data on similar substances should be used.

177. If off-site reclaimers are not to be included in the off-site locations which handle wastes, are emissions discharged by these reclaimers included as point emissions or are they not reported?

A facility should report neither transfers for off-site recycling of the chemical nor the chemical releases from such a reclaimer.

178. If the calculated threshold of sodium hydroxide, for example, is based on the mass utilization of the solution, would the emission of a wastewater stream containing 1 ppm of NaOH be the actual mass of NaOH or the mass of wastewater?

Only the actual mass of the toxic chemical being released should be reported, in this case the mass of sodium hydroxide. Note, however, that in this specific case, if the wastestream has been neutralized so that the pH is in the range 6-9, the release of sodium hydroxide would be zero for reporting purposes.

179. We manufacture paint and one of the chemicals we use is toluene. We used the "Estimating Releases" guidance document but the answer is for toluene and mineral spirits and is much too high. Can we use the 6 percent present in the paint mixture times the number and report that?

The partial vapor pressure of toluene in formulations, which is a function of its vapor fraction and mole fraction (not weight percent), can be used. See Appendix C, Note (1), p. C-6 of Estimating Releases and Waste Treatment Efficiencies for the Toxic Chemical Release Inventory Form, EPA document 560/4-88-002.

180. How should a facility estimate emissions from horizontal storage tanks? The AP-42 equations were developed for vertical tanks.

For fixed roof tanks, the working loss equation for vertical tanks can be used. For breathing losses, one can still use the vertical tank equation, except that an effective tank diameter must be substituted for D in the equation. D is the square root of $\{(4)(\text{area of liquid surface})\}/3.14$. H is the same as for vertical tanks.

181. How can one estimate emissions of chlorine from use in cooling water treatment? We have tried to estimate the emissions for some cooling water systems based on the amount of water evaporation, wind drift, and the amount of chlorine used, but the releases seem too high.

Estimating emissions based on the amount used overestimates release since: chlorine is only slightly soluble in water, reacts with chemicals in the water, and dissipates in side reactions. Measured residual chlorine times recirculation rate times lost water fraction may also overestimate release (residual includes other forms of chlorine), but may be the only way to make a reasonable estimate. There are no readily available emission data on chlorine from cooling water systems.

182. If $\text{H}_2\text{SO}_4/\text{HCl}$ (sulfuric acid/ hydrochloric acid) were spilled outside a facility and an absorbent (e.g., kitty litter) was used to absorb the toxic chemicals, would the use of the absorbent be listed as a treatment and be reported under Section 7?

No, the use of the absorbent would not be considered a treatment. Only if the acids were neutralized would that activity be considered treatment. If the absorbent were drummed and sent to a landfill, that would be listed as a transfer to an off-site location. Any acid left on the ground must be accounted for as a release to land.

183. Form R requires estimates of the release to the environment of chemicals in specific release categories. If a facility is unable to complete its estimate of these releases by the deadline, should the company leave that entry blank and promise a future estimate, or make the best estimate possible and submit later revisions?

Any covered facility must report by July 1, and the data provided should be the best estimate using the best data available; records supporting the data must be kept for three years. If more accurate data are developed, the facility may submit revised forms. EPA can take enforcement action if they believe that the data do not represent reasonable estimates.

184. For releases or transfers off-site that are reported as zero, what should be reported as a basis of estimate?

Leave the basis of estimate box blank or enter N/A.

185. Explain the naming of receiving streams.

You are required to report the name of each stream "to which chemicals being reported are directly discharged". If you have no such discharge, enter "N/A".

186. A facility determines that it can estimate stormwater releases of a listed chemical from the facility. However, such releases go to a city-owned storm sewer system and the facility has no direct knowledge of the receiving stream or surface water body to which the chemical is ultimately released. What do they report as the "receiving stream" on Part I, Section 3.10(a) of the form?

The facility would put "city-owned storm sewer" or the equivalent because this is all they know. To leave the receiving stream item blank or put N/A would be identified as an error when the form is entered to the computerized database of section 313 data.

187. If a facility has a cement lining or other leak restricting device in the area where they store toxic chemical containers and a release from the stored chemicals occurs, how is this reported in Section III?

If the facility does not have specific measures for land filling, land farming, or land disposal, then for the purposes of Form R Section III the releases would be entered to 5.5.4, Other Disposal. This would apply to amounts released that were not "cleaned up" and removed from the site or otherwise treated and disposed on-site.

188. If a POTW has no current estimate of treatment efficiency for each section 313 chemical, is "N/A" acceptable?

You need not report the treatment efficiency for any off-site facility to which transfers of toxic chemicals occur. Thus, facilities must account for the annual quantity of the listed toxic chemical(s) released to a POTW, but are not required to estimate the treatment efficiency of the POTW.

189. What are the technical guidance manuals for specific industries?

These documents help specific industries or operations to determine reporting requirements and estimate releases. They cover: electroplating; semiconductors; textile dyeing; wood products manufacture and preservation; organic coatings application; rubber production; printing; paper and paperboard; leather tanning; monofilament fiber manufacture; formulating aqueous solutions.

190. Why are the range codes grouped together in logarithmic scale?

For quantities on-site, the ranges were patterned after TSCA inventory reporting as suggested by Congress.

VIII. WASTE TREATMENT METHODS AND EFFICIENCY

191. Does the waste treatment section apply only to the facility completing the report?

Yes.

192. Where multiple sources are combined for treatment, should each source be listed in the treatment efficiencies section and a common efficiency shown or should only the combined stream be shown?

Report only the combined (or aggregate) wastestream and report the treatment and its efficiency. However, a wastestream that is treated before combination with other wastes, which are then subsequently treated, should be reported on a separate line.

193. A facility has a sequential treatment process in which the influent concentration and treatment efficiency for each step is known. How should they report on the form?

The facility may report in either of two ways. (1) Report influent concentration for the first step and report overall treatment efficiency for the process as per instructions. Check the sequential treatment for each step. (2) Report each influent concentration and efficiency for each step. Do not check sequential treatment boxes, as this will create confusion as to the meaning of the efficiency listed by the last treatment step.

194. If a wastewater treatment system contains an oil skimmer or other phase separation treatment, is this reported as a sequential treatment step for each of the separated phases, or just for one phase?

The separation step is a sequential treatment step for one liquid phase (the one with the larger volume, in this case, water). The other phase must be considered a new wastestream and must be listed separately on the form if treated subsequent to its separation.

195. We send our sludge to a biological treatment device on-site. The microbes in the system exist in a buffered solution. As a result, the toxic chemical (a mineral acid) in the sludge is neutralized (pH 7.3). How do I account for biological and neutralization treatment in one process in Part III Section 7? After that, the waste goes to settling ponds where solids settle out. Is this also a sequential treatment step?

List the biological treatment first with a zero efficiency because it does nothing to the toxic chemical. Enter the neutralization treatment with a 100 percent efficiency since pH 7.3 is considered complete neutralization for an acid. Check the sequential treatment box. As for the settling ponds, the toxic chemical ceased to exist upon complete neutralization, so this step does not need to be included on the form for mineral acid.

196. On-site wastewater treatment plant sludges which may contain trace amounts of section 313 chemicals are composted on-site. The finished compost is then used as daily cover for the on-site sanitary landfill and for landscaping around the site. Is this considered land treatment, land impoundment, or not a release?

It is a release and the code D03 for Land Treatment/Application/Farming should be entered in Part III, Section 7B of the form.

197. We have two waste streams, one contains NaOH and the other HCl. These streams are combined for neutralization; they then stay in the settling pond until the solid settles out. The water is sent to a POTW, the solid to a landfill. I know that we meet thresholds and must file reports for both chemicals, but how do I report on what? When does a toxic chemical cease to exist by neutralization?

Neutralization is the treatment method for both chemicals. If the pH is between 6 and 9, then the efficiency is 100 percent -- no toxic chemicals are released -- no off-site transfer need be reported. If the waste is acidic, report transfer of HCl off-site and calculate efficiency from input and remaining acid; no NaOH is released. For a basic waste, acid is 100 percent neutralized and the efficiency is 100 percent with no HCl transfer off-site, but the NaOH must be reported as an off-site transfer.

198. If sodium hydroxide (solution) is spilled, but neutralized before leaving plant boundaries, should the quantity spilled be included in the facility's release report?

No.

199. How is an auxiliary scrubber that is designed and used only to mitigate emergency releases reported?

The influent concentration and treatment efficiency of the scrubber as it operates during an emergency event should be reported. The emergency scrubber is not considered to be "sequential" treatment with a scrubber which treats routine emissions from the same process, unless the two units function in series on a single wastestream.

200. Should the influent concentration to treatment for metal compounds be reported for the parent metal only?

Yes.

IX. TRANSFERS TO OFF-SITE LOCATIONS

201. A facility sends a 313 toxic chemical in waste off-site to a TSDF which, in turn, sends the waste to another facility for recycling. Does the facility not list this activity, since the waste is ultimately recycled? Or should they report as M90: Other Off-site Management in Part III Section 6C, since it is a location to which they transfer wastes?

Part VII of the preamble to the section 313 final rule states that "transfer to a reprocessor or recycler of chemical waste are not reportable as off-site transfers." Since the reporting facility knows the toxic chemical is ultimately being recycled or reprocessed, the facility would not report the off-site transfer. If the facility could not document that the waste was being recycled, it must report the off-site transfer.

202. What about shipment for recycle? For example "empty" drums containing a residue of a toxic chemical are sent to a drum remediation site which is not a treatment, storage, or disposal facility. Are such facilities listed as off-site TSD facilities? (The chemical is not being recycled, but the carrier, that is the container, is.)

Shipments for recycle of the chemical should not be reported. However, recycle of drums or recycle of other constituents of a waste does not qualify as recycle of the chemical: such transfers should be reported. The example cited should be reported as an off-site transfer with appropriate code such as M99- unknown, or M61- wastewater treatment.

203. Why does the section 313 form require disclosure of off-site locations to which toxic chemicals are transferred? The Act only requires the disposal method employed.

The conference committee report directed EPA to require reporting of releases to air, water, land, and waste treatment and disposal facilities. Legislative history treats off-site facilities as an equivalent environmental medium. EPA believes Congress intended to include reporting of quantities and locations of off-site waste treatment and disposal facilities to identify how and where chemicals enter the environment.

204. Why is there a treatment code in Table I for reuse/recovery when the section 313 final rule specifically states in the preamble that "transfers to a reprocessor or recycler of chemical waste are not reportable as off-site transfers?"

Recycle of the chemical need not be reported. The facility can use a recycle code for the waste shipped offsite when that best describes the activity and the chemical is not being recycled. For example, a report on metal containing pigment could report off-site distillation to recover solvent, although the metal (or pigment) is not being recovered.

205. How do we treat a solvent sent off-site for distillation and returned to us for use?

The amount of solvent sent to another facility for distillation is not reported as a transfer of the chemical to an off-site location (i.e., it should not be reported in Part III, Section 6 of the form). The quantity of the solvent returned to you must be treated as if it were a quantity of the chemical purchased from any other supplier and must be used for threshold determination.

206. What RCRA ID Number do we list if we send a non-hazardous waste containing a section 313 chemical to a solid waste landfill?

If an off-site location such as a solid waste landfill does not have a RCRA ID Number, you would enter N/A in the space provided. If the facility does have such an ID number, you must list it if you know it, even though the waste being transferred may not be a listed RCRA hazardous waste.

207. Our facility produces 200,000 pounds of waste annually. Of that amount, we treat 100,000 pounds on-site and send 100,000 pounds to an off-site treatment plant that has a 99.9 percent efficiency. Can we factor in the efficiency when we report the off-site transfer amount in Part III Section 6 of Form R?

That section of Form R requires you to report the actual amount of toxic chemical you send off-site. The efficiency would be taken into account by the off-site facility if they are reporting.

208. A printer uses a solvent to clean presses and sends soiled rags to a launderer. Is the material sent to the launderer considered waste transferred to an off-site location? Which disposal code should be used?

Yes, it is considered an off-site transfer. The facility could use code M90 - Other Off-site Management or M99 - Unknown.

X. WASTE MINIMIZATION

209. What is included in waste minimization? Are solid wastes as well as hazardous wastes included?

Waste minimization means reduction of the generation of listed toxic chemicals in wastes. Waste minimization reporting applies to air emissions, solid wastes, wastewater and liquid materials that are released, disposed, or treated.

210. What do facilities that have not performed any waste minimization include in the report?

The waste minimization portion of the reporting form is optional.

211. Where can facilities obtain figures from the previous year?

Companies can obtain waste minimization information about the year prior to reporting from various sources including but not limited to inventory data, recycle/reuse data, engineering reports on process modification, and product development studies.

212. If a facility modifies a process for economic reasons resulting in a waste reduction, should this be reported as minimization?

Yes. Any changes that result in less of the listed toxic chemical being generated in waste may be included. Codes are provided to identify changes such as equipment and technology modifications, as well as process changes, procedure modifications, and improved housekeeping.

213. Would RCRA-permitted incineration of waste count as waste minimization under M8 (Other Treatment Methods)?

Treatment or disposal can not be reported as waste minimization on Form R. The emphasis is placed on facility activities that reduce generation of wastes and not treatment of wastes.

XI. TRADE SECRETS

214. How can the identity of a listed toxic chemical be protected from disclosure for trade secrecy purposes?

Section 313 allows only the specific identity of a chemical to be claimed as a trade secret. The rest of the reporting form must be completed including releases of the chemical. For trade secrecy claims, two versions of the form (one identifies the chemical and one contains only a generic chemical identity) and a trade secret substantiation form must be completed.

215. On Form R, if I don't check the "Trade Secrets" box in Part III Section 1.1, what other blocks can I leave blank? Do I still have to fill in the CAS number?

If the chemical you are reporting is not a trade secret, the CAS number must be filled in along with the chemical name (Part III, Section 1.3). However, if you are reporting for a chemical category, no CAS number applies. Trade secret claims require that the generic name (Section 1.4) be completed.

216. How can competitors find out what has been reported to EPA?

Any person, including a competitor, can gain access to the non-trade secret reports received under section 313. All information received under section 313 is public information except the specific identity of the reported chemical that is claimed trade secret. All non-trade secret information reported will be available in a computer database.

217. For claiming trade secrets under Title III, would disclosure without a confidentiality agreement to the State and/or city having jurisdiction negate the chemical identity's trade secret status under Federal provisions?

In general, any disclosure of the chemical identity would negate the chemical identity's trade secret status under Federal provisions. Once the trade secret claim is made, State governors are permitted to request the specific chemical identity, and they have the discretion as to whether they provide the information to any State employees.

218. How will trade secret data be protected when EPA publishes health effects notices for the public?

A generic statement of the health and environmental effects of the chemical will be made available through the computer database.

XII. CERTIFICATION AND SUBMISSION

219. Where and how do I get copies of the forms?

Copies of the form and other support documents may be obtained by contacting: Emergency Planning and Community Right-To-Know Document Distribution Center, P.O. Box 12505, Cincinnati, Ohio 45212.

220. Are there any extensions that a facility could get for filing Form R?

No, all toxic chemical release inventory forms must be postmarked no later than July 1, and no extensions will be given.

221. Can computer generated forms be submitted for compliance with section 313?

The Agency has approved the facsimile outputs of certain privately developed software packages. A list of the providers of software packages will be made available by EPA.

222. What is the status of magnetic media submission (e.g., on tape or floppy disk) for section 313 reports?

The Agency has published instructions for magnetic media submission. Contact the Emergency Planning and Community Right-To-Know Information Hotline or write to the Emergency Planning and Community Right-to-Know Document Distribution Center.

223. The instructions state that photocopied versions of Part I may be submitted. Does that mean that the senior official at a facility certifying the validity of the forms only has to sign one submission?

No. The final rule states that each unique chemical submission must contain an original signature. The purpose of this requirement is to ensure that the certifying official has reviewed each chemical submission. A photocopied signature does not fulfill this purpose and would be considered an incomplete submission.

224. If a facility has a manager who is the originator of the data in the form report, would he/she sign the form or would it be the facility manager to whom this manager reports?

Your facility must make the determination regarding who meets the definition in the rule of a "senior management official."

225. Are facilities required to include an original signature on forms going to the State as well as EPA?

An original signature on the certification statement is not required under EPA's rule for the copy that is sent to the State. However, if the state requires an original signature under their state right-to-know laws, the facility must comply.

226. If the public contact item (Part I, Section 3.4) is left blank, can the facility later use a public contact to speak to the news media on behalf of the technical contact, who may not be publicly conversant?

If a public contact is not identified, EPA will enter the technical contact into this information element in the database. Thus this person would receive public inquiries. You may, of course, use any other person you choose to deal with the public in response to such inquiries.

227. Regarding the technical contact, can this person be a different person for (a) each chemical? (b) each separate part of a facility?

Yes. It is allowable to have different technical contacts for different chemicals or different establishments within the facility provided that only one "technical contact" is listed on each form.

228. On enforcement: Are your plans to go after non reporters first before you begin "auditing" reports from complying facilities?

Enforcement efforts during 1989 will focus on identifying non reporters. In addition, notices of non-compliance will be issued for forms containing errors or omissions, allowing a period of time for corrections before penalties are assessed. Also, submissions with questionable technical entries will be investigated not purely as enforcement, but to identify problems in calculating releases to improve EPA's guidance and instruction documents.

229. Are specific audit provisions in the regulations? Will audit results be made public? Can released information be changed? What about resolving differences of opinion, i.e., does the auditor have final judgement? Specific audit provisions are not in the regulations. The Agency, however, has the responsibility to assure that the data submitted is based on reasonable estimates. Audit results will be used to identify problems with calculating releases. In resolving difference of opinion, we expect that final judgement will be made by the Agency.

230. What type of quality control check will EPA make on each form it receives?

EPA plans to incorporate edit checks in the database to identify missing, incomplete, incorrect, and suspect data elements.

231. How will questionable data be identified by EPA?

OTS is developing checks of completeness and, for some types of data, reasonableness of an entry. For example, zero air emissions of a volatile

chemical would be flagged. OTS envisions contacting the facility for clarification of such "questionable" data.

232. The enforcement requirements of Title III (Section 325), state that the civil and administration penalties for section 313 non-compliance shall not exceed \$25,000 for each violation. Is a non-compliance violation determined on a per facility or per toxic chemical basis? Also, is that penalty assessed on a per day basis?

Section 325(c)(i) states: "any person who violates any requirement of section 313 shall be liable to the United States for a civil penalty in an amount not to exceed \$25,000 for each such violation", for each day a violation continues. Therefore, the facility can be assessed a penalty for each Form R not submitted or willfully submitted wrong, and the penalty can be assessed on a per day basis. EPA intends to assess penalties on a per chemical/facility basis with the option of also including per day penalties depending on the circumstances of the violation.

233. In some sections of Form R, facilities are asked to report "N/A" if that section does not apply to a submission. Are blank spaces left on the form the equivalent of "N/A"?

No. The rule requires "N/A" to be entered to inform the Agency that the submitter has not just overlooked a section of the form. Leaving blanks would be considered non-compliance with the rule.

234. Can a facility submit one original copy each of Parts I (Facility Identification Information) and II (Off-Site Locations) with several copies of Part III (Chemical Specific Information) for different listed chemicals?

No. The final rule clearly requires that each completed submission contains all parts of Form R (including Part IV, even if it is left blank). Submission of multiple copies of Part III, with only one copy of Parts I and II, would be considered non-compliance. A Part I can be filled out once and photocopied for inclusion in each report, but each copy of Part I requires an original certification signature.

235. How can a facility be assured that the Agency has received a submitted form?

To be acknowledged of receipt of submissions, facilities should send forms using the U.S. Post Office "Return Receipt Requested" mail service. The Agency will not respond to cover letters requesting acknowledgement.

XIII. EPA'S SECTION 313 PROGRAM AND GENERAL INFORMATION

236. Where is the court case citation that defines Title III of the Superfund Amendments and Reauthorization Act (SARA) as a distinct law separate from the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)?

The court case was decided on August 25, 1987 in the U.S. Court of Appeals (D.C. Circuit), case number 87-1334, A.L. Laboratories vs. EPA, 826 F. 2d 1123 (D.C. Circuit 1987).

237. Where will information on toxic chemical emissions and health effects be made available?

The toxic release inventory database will provide information on the toxic chemicals which are routinely released to the environment. A computer database should be available to the public through the National Library of Medicine's TOXNET computer system by the spring of 1989. Health and environmental effects information on the §313 chemicals will also be available through TOXNET. EPA also intends to make the data available on microfiche to all county public library systems. In addition, EPA will publish a national report summarizing the data submitted. A magnetic tape of the entire database may also be purchased from NTIS.

238. Will EPA be calculating or monitoring concentrations of toxics in ambient air?

The Agency plans to use the TRI data for the purposes of screening and identifying potential environmental problems. To date, no decision has been made regarding how the EPA program offices will utilize the TRI data.

INDEX TO QUESTIONS

Article	#3, #38, #41, #71, #74, #85, #88, #115, #118, #119, #127, #130, #146, #147, #148, #149, #150, #151, #152, #158,
Auxiliary Facility	#26, #48, #49
Chemical Compounds	#58
De Minimis	#74, #88, #89, #98, #103, #114, #139, #140, #141, #143, #144, #145, #158
Enforcement	#144, #183, #221, #231, #232
Establishment	#6, #9, #14, #23, #24, #25, #26, #28, #118, #31, #33, #34, #35, #48, #49, #227
Exemption	#3, #60, #74, #103, #116, #119, #121, #124, #125, #126, #127, #128, #130, #132, #133, #135, #136, #137, #141, #147
Fugitive Air	#161
Generic Name	#86, #215
Import	#1, #14, #20, #44, #92, #96, #97
Laboratory	#26, #132, #133, #134, #135, #136, #137, #138
Manufacture	#1, #3, #11, #18, #19, #24, #26, #27, #39, #40, #42, #44, #46, #47, #48, #49, #54, #70, #71, #78, #86, #88, #90, #93, #95, #96, #97, #98, #99, #100, #101, #102, #104, #105, #107, #108, #113, #116, #122, #130, #132, #134, #135, #138, #141, #147, #169, #170, #179, #189
Maximum Amount On-Site	#63
Mixtures	#37, #39, #46, #61, #64, #82, #83, #84, #86, #87, #90, #91, #92, #93, #97, #104, #114, #115, #120, #140, #141, #144, #150, #169, #173, #179
Off-Site Location	#150, #177, #182, #203, #205, #206, #208, #234
Owner/Operator	#2
Parent Company	#17, #22
POTW	#188, #197
Release Estimate	#3
Release to Land	#161, #162, #182

Repackage	#14, #47
Reporting Year	#2, #4, #28, #95
SIC Codes	#5, #6, #7, #8, #9, #10, #11, #26, #27, #33, #34, #35, #40, #42, #48, #49, #88, #90, #93, #94
Supplier Notification	#88, #90, #92, #93, #94
Threshold	#1, #7, #11, #12, #19, #21, #24, #37, #38, #39, #40, #41, #42, #43, #44, #46, #47, #48, #49, #54, #57, #59, #60, #62, #63, #64, #70, #72, #76, #78, #80, #83, #84, #95, #96, #97, #100, #101, #102, #103, #105, #106, #107, #110, #112, #113, #114, #115, #116, #118, #122, #127, #131, #132, #134, #135, #136, #138, #140, #141, #144, #145, #146, #152, #157, #158, #178, #197
Trade Name Products	#87, #90, #140
Trade Secret	#86, #214, #215, #216, #217, #218
Treatment Efficiency	#188, #192, #193, #199
Treatment Method	#197, #213
Underground Injection	#123, #161
Waste Minimization	#209, #210, #211, #213

Environmental Protection Agency Federal Register

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Part II

Environmental Protection Agency

**40 CFR Part 372
Toxic Chemical Release Reporting;
Community Right-to-know; Final Rule**

ENVIRONMENTAL PROTECTION AGENCY**40 CFR Part 372**

(OPTS-400002A; FRL 3298-21)

Toxic Chemical Release Reporting; Community Right-to-know**AGENCY:** Environmental Protection Agency (EPA).**ACTION:** Final rule.

SUMMARY: This rule contains the uniform toxic chemical release reporting form as required by section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986. Section 313 requires that owners and operators of certain facilities that manufacture, import, process, or otherwise use certain toxic chemicals report annually their releases of those chemicals to each environmental medium. This rule also requires certain suppliers of toxic chemicals to notify recipients of such chemicals in mixtures and trade name products.

DATE: This rule is effective March 17, 1988.

FOR FURTHER INFORMATION CONTACT: Sam K. Sessnett, Deputy Project Coordinator (TS-779), Emergency Planning and Community Right-to-Know Hotline, Environmental Protection Agency, Room, WH 562A, 401 M Street, SW, (Washington, DC 20460, (800-335-0202), In Washington, DC and Alaska, 202-479-2449)

SUPPLEMENTARY INFORMATION:**I. Authority**

The Agency is promulgating this rule pursuant to sections 313 and 328 of Title III of the Superfund Amendments and Reauthorization Act of 1986, Pub. L. 99-499 (42 U.S.C. 11013 and 11028). Title III is also titled "The Emergency Planning and Community Right-To-Know Act of 1986." Section 313 of Title III requires owners and operators of covered facilities to report annually their releases of listed toxic chemicals. Section 313 also specifies that EPA must publish a uniform toxic chemical release form. In addition, section 328 provides EPA with the authority to promulgate such regulations as may be necessary to carry out the purposes of Title III.

II. Background*A. Regulatory History and Summary of Public Participation*

On October 17, 1986, the President signed into law the Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. 99-499. The major function of this legislation is to

amend and reauthorize provisions of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). However, Title III of SARA is a free-standing statute (not part of CERCLA) that is titled "The Emergency Planning and Community Right-To-Know Act of 1986." In general, Title III contains authorities relating to emergency planning, emergency notification, community right-to-know on chemicals, and a toxic chemical release inventory.

The focus of this rule is the toxic chemical release inventory provision contained in section 313 of Title III of SARA. Section 313 requires owners and operators of certain facilities that manufacture, process, or otherwise use a listed chemical to report annually their releases of such chemicals to any environmental medium. The reports are to be sent to both EPA and the State in which the facility is located. The basic purpose of this provision is to make available to the public information about releases of certain toxic chemicals that result from operations of certain facilities in their community.

EPA issued a proposed rule, published in the Federal Register of June 4, 1987 (52 FR 21152). The proposed rule contained the toxic chemical release inventory reporting form and interpretive requirements for reporting. The preamble of the proposed rule outlined the public participation activities that led up to the development of the proposal. After publication, EPA received over 100 written comments on the proposed rule. In addition, EPA held public meetings in Washington, DC, Chicago, IL, and San Francisco, CA. Attendees at these meetings presented oral comments representative of wide range of interests including the affected industry, environmental and other public interest groups, State and local governments, and individual citizens.

In addition, EPA has held other meetings with, and received other communications from, interested parties.

B. Overview of Final Rule Requirements

The reporting requirements of this rule apply to owners and operators of covered facilities that manufacture, process, or otherwise use listed toxic chemicals. A covered facility is one that:

- Has 10 or more full-time employees.
- Is in SIC codes 20 through 39.
- Exceeds an applicable manufacture, process, or use threshold.

EPA interprets "in SIC codes 20 through 39" to relate to the primary SIC code of the facility. If the facility is comprised of multiple establishments, facility coverage is based on a relative comparison of the value of products

shipped and/or produced at 20 through 39 establishments versus non-20 through 39 establishments in that facility.

EPA has included a definition of "full-time employee" and guidance on determining SIC coverage.

EPA has not included a small business exemption in this rule different from that provided by section 313. However, the Agency is allowing reporting in ranges for releases to an environmental medium and for off-site transfers of wastes that are below 1,000 pounds per year. EPA expects that small businesses will benefit most from this provision. The range reporting is for calendar years 1987, 1988, and 1989 only.

The thresholds are those provided by the statute:

For manufacturing or processing as defined—75,000 pounds for 1987, 50,000 pounds for 1988, 25,000 pounds per year for 1989 and thereafter.

For toxic chemicals otherwise used the threshold is 10,000 pounds per year for all years.

Reports must be submitted annually on or before July 1 for the preceding year's data.

The chemicals subject to reporting initially are those chemicals as provided by section 313(c), with certain technical modifications.

Additions or deletions of chemicals from the list may result from petitions or EPA's own review of the list. Any such changes will be by notice and comment rulemaking, and EPA will identify the reporting years which they apply.

Mixtures and trade name products imported, processed, or used at a facility must be evaluated for the presence of listed toxic chemicals. However, EPA has applied a *de minimis* concentration limitation of 1 percent (or 0.1 percent if the chemical is a carcinogen) consistent with the Occupational Safety and Health Administration (OSHA) Hazard Communications Standard (HCS) in 29 CFR 1910.1200. Toxic chemicals present in concentrations below the *de minimis* limit do not have to be factored into threshold and release reporting calculations.

In relation to reporting on mixtures, EPA has developed a supplier requirement. Owners or operators of facilities in SIC codes 20 through 39 who supply mixtures or trade name products containing listed toxic chemicals must notify their customers about the presence and concentration of those chemicals in their products. However, the *de minimis* limit as described above also applies to this requirement. The supplier notification requirement takes effect with the first product shipment in 1989.

Certain definitions have been modified. The definition of "article" has been revised to more closely parallel the OSHA HCS article definition. In addition, article processing or use is exempt from threshold and release determinations under this rule. However, respondents must pay careful attention to the non-release criteria in this definition.

The definition of "manufacture" retains the interpretation that coincidentally produced impurities and other byproducts must be accounted for. However, the consideration of an impurity is subject to the above-referenced *de minimis* limitation. This *de minimis* limitation does not apply to the byproducts produced coincidentally as a result of manufacturing, processing, use, waste treatment, or disposal.

EPA has attempted to clarify the differences between processing and use. Processing activities are basically those that incorporate a chemical into a product for distribution in commerce. Use activities are primarily non-incorporative activities.

A new part of the rule is an exemptions section. The major function of this section is to outline activities that are not subject to certain requirements. In particular, this section exempts activities in laboratories from threshold and release determinations.

There are a number of specific changes from the proposed rule in Form R, the Toxic Chemical Release Inventory Reporting Form. The form is more modular in design in order to reduce the frequency of the same information having to be filled in for each chemical-specific submission. Other specific changes are as follows:

1. The certification statement (Part I, Section 2) has been modified.
2. The facility identification section of the form (Part 1, Section 3) contains the name and telephone number of a public contact person for the facility. In the first reporting year, if this information is available, the facility must provide its latitude and longitude. In subsequent years, if this information is not readily available, the facility must develop it and provide it.
3. In the chemical identity section of the form (Part III, Section 1) one change in the reporting requirements affects the generic chemical identity to be provided in cases where the specific chemical identity is claimed *trade secret*. The respondent is to develop its own generic chemical name rather than using a predefined generic name as EPA had proposed. The generic name is to be structurally descriptive of the chemical.

Reporting may also be based on a generically identified mixture or trade

name product component. (See Part III, Section 2 of the form.) This reporting would occur in cases where a user has information that a generically identified component of a mixture or trade name product is a section 313 chemical that, by itself, exceeds a threshold but the user does not know the specific identity.

4. The release reporting section of the form (Part III, Section 5) contains several modifications. As mentioned above, for calendar years 1987, 1988, and 1989, facilities may take advantage of range reporting check boxes for releases of a toxic chemical to an environmental medium of less than 1,000 pounds per year. The releases to water portion of the form has been disaggregated by stream and respondents must indicate what percentage of the release was contributed by stormwater runoff if they have monitoring data. In addition, underground injection of wastes at a facility must be entered on a specific line in the release section.

The proposed columns indicating section 304 releases or that a permit applies to releases have been deleted from the final form.

5. EPA has included the reporting of transfers of section 313 toxic chemicals in waste to off-site locations. However, these transfers are to be reported in a separate section of the form (Part III, Section 8).

6. The waste treatment section of the form remains unchanged from the proposal except that EPA has provided for reporting sequential waste treatment.

7. The optional section on waste minimization has been retained but the narrative part of this section has been removed. A 3-year sunset provision will apply to this form section.

8. The form also contains a preformatted supplemental information sheet (Part IV).

III. Issues Relating to Facility coverage

A. Interpretation of SIC Code Coverage

Standard Industrial Classification (SIC) code coverage is one of three criteria specified in section 313(b) for determining whether a facility is subject to reporting. The preamble of the proposed rule stated that "in SIC codes 20-39" meant that the primary SIC code for the facility is within the 20 through 39 designations. The proposed rule also included facilities that engage in one or more activities in SIC codes 20 through 39 even if the primary SIC code for the facility itself is not SIC 20 through 39.

Many commenters argued against including "secondary" SIC activities. First, commenters stated that the definition of a facility is the whole

collection of buildings, not parts thereof. Second, they argued that SIC codes are used to define the primary purpose of an establishment, not all activities. Therefore, including facilities that engage in activities in SIC code 20 through 39 but for which the primary SIC code for the facility is outside SIC code 20 through 39 is in direct contradiction to the established assignment and usage of SIC codes. Third, commenters stated that it exceeded the intent of the legislation and stretched the capabilities of the industrial classification system. Finally, the commenters stated that any increase in SIC code coverage should be through discrete and more focused rulemakings, as prescribed in section 313(b)(1)(B) and (b)(2), with substantial sector-by-sector justification to warrant increased reporting on non-manufacturing sectors.

The SIC code system was developed to classify establishments by type of economic activity. A SIC code applies to an establishment, which was defined as an economic unit, generally at a single physical location, where business is conducted or where services or industrial operations are performed. SIC codes are not directly applicable to facilities as defined in section 329(4) of Title III and this rule. A "facility" is defined as all buildings, equipment, structures, and other stationary items which are located on a single site or adjacent contiguous sites owned or operated by the same person. Therefore, a facility can be a much larger, more complex operation than an establishment. The definition of primary SIC code is generally considered to be the code related to the types of products distributed from an establishment that have the highest dollar value added.

Based on the public comments received on the proposed rule, the Agency has revised its interpretation of "in SIC Codes 20 through 39." The revision is designed to remove the confusion and ambiguity in the proposed rule caused by linking the concepts of facility and primary SIC code. The final rule provides that a facility is in SIC codes 20 through 39 based on the SIC codes for the one or more establishments that comprise the facility.

EPA has identified the following three possible scenarios relating establishments, SIC codes, and facilities:

1. *The establishment is the same as the facility.* Where an establishment is the same as a facility, given that the other eligibility criteria are met, and the establishment's primary SIC code is in 20 through 39, the facility is covered for purposes of reporting. Because there is

no distinction between the establishment and the facility, reporting of releases from the facility is straightforward.

2. *The facility is comprised of two or more establishments, all of which have a primary SIC code of 20 through 39.* For multi-establishment facilities, when all of the establishments' primary SIC codes are in 20 through 39, given that the other eligibility criteria are met for the facility, the facility is covered for purposes of reporting.

3. *The facility is comprised of two or more establishments, one or more of which have a primary SIC code of 20 through 39.* For multi-establishment facilities when one or more of the establishments' primary SIC codes are in 20 through 39, the facility is covered for purposes of reporting if either of the following criteria apply for the reporting year:

a. The sum of the value of products shipped from and/or produced at all establishments with primary SIC codes in 20 through 39 is greater than 50 percent of the total value of products shipped from and/or produced at all establishments that comprise the facility.

b. One establishment whose primary SIC code is in 20 through 39 has a value of products shipped and/or produced that is larger than that of any other establishment in the facility.

Facilities may refer to data they submitted to the U.S. Department of Commerce, Bureau of the Census, for the Annual Census of Manufacturers (Form MA-1000) to calculate the relative values of products shipped and/or produced.

Once a facility is covered in either of the above cases, all releases of listed toxic chemicals must be accounted for, even from individual establishments in the facility that fall outside of the 20 through 39 SIC codes.

B. Reporting by Multi-Establishment Facilities

Several commenters raised the concern that it will be difficult for facilities consisting of more than one establishment to submit a single report covering the entire facility. Commenters noted that individual establishments, owned by the same parent company, often have different management lines of authority within the company. In these cases, commenters noted, it would be difficult to combine information into one reporting form.

As explained in A. of this unit, the facility is the unit that is responsible for reporting. While EPA could continue to require a single submission for multi-establishment facilities, EPA has

decided to require a compliance determination by the whole facility covering all its establishments, but to allow individual establishments or groups of establishments to report separately, provided all releases and waste treatment methods are accounted for. However, if individual establishments or groups of establishments report separately for one chemical they must continue to report separately for all other chemicals at the facility.

Under this approach the entire facility must determine compliance as a single unit. Thus the Agency ensures no reporting will be missed because certain individual establishments do not meet thresholds for employees or chemical activities. For example, a facility is comprised of two establishments, with combined employment totaling 80 full-time workers. Establishment A uses 5,000 pounds of benzene and establishment B uses 8,000 pounds of benzene. The facility as a whole exceeds 10 full-time employees and combined use by both establishments exceeds the 10,000 pound threshold for the use of benzene at the facility. Therefore this facility must report for benzene. It has two options. It can file a report that represents the combined data associated with all activities with benzene at both establishments. Alternatively, both establishments can file separate reports accounting for their individual releases and other related data. If both establishments file separate reports, then they must submit separate reports for all chemicals subject to reporting. However, if, for example, a toxic chemical is used at one establishment but is not present at all at the other establishment, only the establishment that uses the chemical must report for that chemical.

The form provides a way for users of the data to know whether all or only part of a facility is included in a specific report. Check boxes correspond to (1) the entire covered facility or (2) one or more establishments within a covered, multi-establishment facility.

A second issue regarding multi-establishment facilities relates to the requirement that the owner or operator of a facility must report. EPA proposed that if no report was filed, both the owner and operator (if different) would be liable. Commenters requested clarification on the liabilities and obligations of an owner of leased property, where the owner's interest is solely one of real estate. These commenters believe that such an owner should not have obligations to report because it is not in a position which would allow it to determine compliance

or report the required information. The owner would not be able to submit a report without the cooperation of the operator.

EPA recognizes these difficulties. The final rule exempts certain owners of leased property from reporting requirements. These exemptions apply only to those owners of property who have no business interest in the property other than real estate. Owners who are part of the same business organization as the operators would not be exempt, nor would owners of businesses that contract out the operations of a particular site. In these cases, the owner has a business interest beyond that of the real estate and has the ability to exert some control over the operator.

A commenter identified an additional problem that occurs when the establishments in a multi-establishment facility are operated by different persons which have no common corporate relationship, such as in an industrial park. EPA identified two possible scenarios. In the first scenario, the owner of the facility operates an establishment in the facility but leases a portion of the facility to another person who operates another establishment. The owner and this other operator do not have any business relationship other than landlord and tenant. Also, the owner does not know what chemicals are manufactured, processed, or used in that operator's establishment. In the second scenario, the owner of the facility, having only a real estate interest in the facility, does not operate any establishment in the facility and leases all of the facility to two or more persons who operate establishments in the facility. Under the exemption discussion above, the owner would not be subject to reporting. However, in both scenarios, the operators would be subject to reporting, but they have no common corporate or business interest and do not know what chemicals are manufactured, processed, or used in each other's establishments.

In neither of these situations is one person in a position to know all of the information necessary to make a determination whether the facility as a whole is a covered facility and whether a toxic chemical is manufactured, processed, or used at the facility in excess of an applicable threshold. Accordingly, EPA has decided that, in such a situation, each operator should treat the establishments it operates as a facility for purposes of reporting. These operators must make the determinations under the rule for SIC code coverage, number of full-time employees, and whether a toxic chemical is

manufactured, processed, or otherwise used in excess of an applicable threshold, but only for those establishments they operate.

Appropriate provisions have been added to the rule, form, and instructions to provide for this approach. To ensure that related companies do not avoid reporting for multi-establishment facilities, EPA has limited use of this approach to operators of separate establishments in the same facility who do not have any common corporate or business interest, i.e. they are not engaged in partnerships, joint ventures, ownership of a controlling interest in one by the other, or ownership of a controlling interest in both by a third person.

Another situation may arise where a person owns a parcel of land on which it operates one or more establishments and also leases land immediately adjacent to it on which that same person operates one or more additional establishments. Section 329(4) of Title III defines "facility" to include "a single site or . . . contiguous or adjacent sites . . . which are owned or operated by the same person . . ." Thus in this situation the "facility" would be the total site including the land owned by the person and the adjacent land leased by the person. To make the SIC code determinations and reporting threshold determinations, the person is required to consider the activities at all the establishments he or she operates on the total site. Having made the determinations that the total facility is a covered facility and that an applicable reporting threshold has been met, the person may submit separate reports for the establishments as described above.

C. Auxiliary Facilities—Laboratory Activity Exemption

Commenters requested that EPA clarify whether auxiliary operations which have primary SIC codes within 20 through 39 (manufacturing) are covered for purposes of section 313 reporting.

Auxiliary establishments are defined under the SIC code system as operations which primarily support other establishments. Common types of auxiliary operations are research and development laboratories, warehouses, storage facilities, and waste treatment facilities. The SIC code system assigns these facilities SIC codes according to the establishment they service; thus, auxiliary establishments tied to manufacturing establishments are given a manufacturing SIC code.

Commenters argued that the statute did not contemplate including establishments that do not engage in manufacturing. They stated further that

EPA has the discretion to modify the facility coverage criteria to correct such anomalies.

1. *Auxiliary facilities must make a compliance determination.* EPA has determined that the most consistent way to treat a stand-alone auxiliary establishment (i.e. one that is not a part of a larger facility) is to require that it make a compliance determination. If such an establishment is classified in SIC codes 20 through 39 because it supports a manufacturing activity, it must review its chemical activities and the level of such activities to determine if it must report. It is possible that an establishment such as a warehouse standing alone will not be subject to reporting. If no manufacture (including importation), processing (including repackaging), or use of covered toxic chemicals occurs, the facility is not subject.

Similarly, persons who own or operate auxiliary establishments that are within the defined boundaries of a larger multi-establishment facility must review the manufacture, processing, or use activities involving listed toxic chemicals at all the establishments in the facility. Such auxiliary establishments must be factored into the "value of shipments and/or production" calculation to the extent it is applicable, and must be counted toward the employee threshold. The activity of manufacturing, processing, or using a toxic chemical in the auxiliary establishment counts toward the chemical thresholds for the facility.

2. *Exemption of laboratory activities.* Commenters stated that it would be burdensome to require laboratories to determine whether they must comply because of the potentially large number of mixtures and chemicals on-site in small volumes and the relatively rapid turnover of such chemicals and mixtures in the laboratory setting.

EPA agrees with comments that manufacturing, processing, or use of chemicals in a laboratory under the supervision of a technically qualified individual should be exempt from the provisions of this rule. This exemption is consistent with the exemption provided in rules implementing sections 311 and 312 of Title III, and the OSHA HCS. The exemption does not apply to specialty chemical production or pilot plant scale operations.

The Agency believes that this exemption provides a consistent and necessary reduction in the reporting burden. For example a stand-alone laboratory is classified in SIC codes 20 through 39 because it is an auxiliary facility supporting a manufacturing operation of a company. This laboratory

is, in essence, exempt from the threshold determination and reporting requirements of this rule. Also a covered facility will not have to review chemical manufacture, processing, or use in a laboratory within that facility, provided such operation is not conducting specialty chemical production or pilot plant scale activities.

If a toxic chemical is removed from such a laboratory for further processing or use in the facility, the facility must factor such amounts into threshold determinations and release reporting.

The Agency does retain certain concerns about releases of toxic chemicals from laboratories. Therefore, EPA will review laboratories as part of its overall review of the types of facilities that should be covered by amendments to this rule.

D. The Rule Contains no Modification of Facility Coverage

EPA has discretionary authority to modify the coverage of facilities under section 313(b)(1)(B). The report of the congressional conference committee for Title III states that any such modifications are limited " . . . to adding SIC codes for facilities which, like facilities within the manufacturing sectors SIC codes 20 through 39, manufacture, process or use toxic chemicals in a manner such that reporting by these facilities is relevant to the purposes of this section." (H.R. Rep. No. 962, 99th Cong., 2nd sess. 292—hereafter referred to as the conference report.) The conference report further states that section 313(b)(1)(B) is given to provide EPA with the authority to adjust coverage but that "it does not provide EPA the authority to change the overall scope of the reporting program for Toxic Chemical Release Forms." Id. at 293.

The Agency proposed that facilities within SIC codes 20 through 39 be required to report. Comments from trade associations, private companies, State agencies, public interest groups and academia requested that EPA use its authority under section 313(b)(1)(B) to include other facilities. These commenters noted that other kinds of facilities beyond those in the manufacturing sector can have significant releases of toxic chemicals. They contend that if the current scope of reporting is not expanded, the public will not realize that manufacturing releases constitute only a part of the total releases of these chemicals into the environment.

Most commenters provided specific examples of facilities that they would like to see added. They include:

Commercial waste treatment facilities, transportation sites, federal facilities, municipal waste treatment facilities and publicly owned treatment works, disposal sites, petroleum and chemical bulk stations and terminals, tank farms, electrical services, petroleum wholesalers, farm suppliers, paint and varnish suppliers, and industrial launderers. Commenters suggested that SIC codes should not be a primary determinant of coverage and that EPA should consider the intent of the law to provide citizens information about releases from all important sources of emissions.

Modification of facility coverage could also involve deletions of certain industries from the currently covered SIC codes. In deleting SIC codes the Agency will consider to what extent certain manufacturing operations produce or use toxic chemicals in a manner more similar to operations outside the manufacturing sector. The conference report includes an example of such an operation for facilities within SIC code 2875 that mix or blend fertilizer products for sale at the retail level. It is also possible that certain manufacturing operations, for example those that conduct simple article assembly, may not produce, import, process, use, or release significant amounts of covered toxic chemicals. If by the inherent nature of their activities such facilities are unlikely to otherwise be subject to reporting, then it would serve no purpose to continue to include them in the SIC code designations.

The Agency is choosing not to modify the facility coverage of the rule at this time. The issues raised in the comments are important ones for EPA to consider in exercising its authority to modify coverage. Such issues should be dealt with through full notice and comment rulemaking. The Agency must carefully evaluate additional types of facilities that may be manufacturing, processing, or using listed toxic chemicals as well as facilities in SIC codes 20 through 39 that do not handle such chemicals. EPA is planning to initiate an evaluation of facility coverage in 1988. As part of this analysis, EPA will examine the predominant activities in SIC codes 20 through 39. The results of this evaluation and any recommended additions or deletions to the scope of covered facilities will be published as a proposed amendment to this rule.

As part of this analysis EPA will also look at the concept of value of products shipped and/or produced from designated SIC code establishments. Another potentially more equitable approach of determining multi-

establishment facility coverage is by using "value added" instead of the value of products shipped and/or produced. The value-added approach may create less distortion and duplication when comparing the contribution by individual establishments for purposes of the overall facility coverage determination. However, value-added information may be less available and more burdensome to determine than value of shipments and/or production. EPA will review the first few years of reported data and will attempt to evaluate how the value of shipments and/or products approach affects overall facility coverage.

IV. Definitional Issues

A. Definition of Manufacture

1. *Coincidental production of toxic chemicals.* EPA proposed to interpret "manufacture" to include coincidental production of a listed toxic chemical as a byproduct or impurity during the manufacture, processing, use, or disposal of any other chemical substance or mixture. Congress adopted the definition of "manufacture" used in regulations under the Toxic Substances Control Act (TSCA) where such an approach is used. The proposed rule's approach was intended to cover those situations in which a listed toxic chemical is created (intentionally or unintentionally) and then passed on in commerce or disposed of, but never otherwise accounted for.

Commenters objected to this interpretation of the manufacture definition on grounds that it exceeded the statutory authority of Title III. They also stated that having to make such determinations would require expensive, detailed monitoring that most facilities do not do and would not be required to do under section 313. Other commenters stated that, if such a determination were required, a *de minimis* cut-off should apply, consistent with OSHA HCS requirements, to reduce the burden on the facility.

EPA believes that the definition of manufacture in section 313 includes the coincidental production of toxic chemicals. Section 313(b)(1)(C) states that "[t]he term 'manufacture' means to produce, prepare, import, or compound a toxic chemical." There is no limitation in this definition that would exclude manufacture of a toxic chemical coincidental to the production, processing, use, or disposal of another chemical, nor is there any indication in the legislative history of Title III that Congress intended to exclude toxic chemicals produced coincidentally. Accordingly, EPA believes that such

production is included in the definition of manufacture under section 313. For purposes of the rule however, EPA has distinguished between toxic chemicals which are impurities that remain with another chemical that is processed, distributed, or used, from toxic chemicals that are byproducts either sent to disposal or processed, distributed, or used in their own right. EPA also considers that it would be reasonable to apply a *de minimis* concentration limitation to toxic chemicals that are impurities in another chemical or mixture. In essence, the *de minimis* cut-off adopted for mixtures (see Unit VI.) would apply to the presence of impurities created as a result of making that mixture, or a component of the mixture. Because the covered toxic chemical as an impurity ends up in a product, most producers of the product will frequently know whether the chemical is present in concentrations that exceed the *de minimis* level, and, thus may be listed on the Material Safety Data Sheet (MSDS) for that product under the OSHA HCS.

This final rule does not adopt a *de minimis* concentration limitation in connection with the production of a byproduct. EPA believes that the facility should be able to quantify the annual aggregate pounds of production of a byproduct which is not an impurity because the substance is separated from the production stream and used, sold, or disposed of, unlike an impurity which remains in the product.

The major problem with applying a *de minimis* exemption to a toxic chemical produced as a result of use or disposal of another chemical is the difficulty of determining where and how to make a percentage determination. For example, there may be various points in a treatment process at which a percentage determination could be taken. Also, those doing a better job of treatment could be unfairly penalized because such treatment may concentrate the chemical in waste prior to disposal. Therefore, the conscientious facility may exceed the *de minimis* concentration of the toxic chemical in a waste whereas another facility having much more dilute waste would not be subject to reporting. Therefore, EPA believes that the estimation of a total annual mass quantity for such coincidental production during use or disposal is a fair approach.

In any case, EPA wishes to emphasize that the determination of such coincidental production should be based on the facility's existing production records, monitoring, or analytical data.

and reasonable judgment on the part of the facility's management. No further monitoring or analysis of production, process, use, or disposal streams is required, consistent with section 313.

2. *Import of toxic chemicals.* Section 313(b)(1)(c) defines "manufacture" to include import. Thus the owner or operator of a facility that manufactures or imports a toxic chemical is potentially subject to the reporting and supplier notification provisions of the final rule. If a toxic chemical is both manufactured and imported at a facility, the total amount manufactured and imported is aggregated for purposes of determining whether the reporting threshold for manufacturing has been met. Thus it is important for a facility to determine whether it is importing a toxic chemical, either in relatively pure form or as part of a mixture.

The U.S. Customs Service defines an importer as a person who imports a chemical into the customs territory of the United States and includes the person primarily liable for the payment of any duties on the merchandise or an authorized agent acting on that person's behalf, the consignee, the importer of record, the actual owner if an actual owner's declaration and superseding bond has been filed in accordance with 19 CFR 141.20, and the transferee, if the right to draw merchandise in a bonded warehouse has been transferred in accordance with Subpart C of 19 CFR Part 144.

Section 313 refers to a facility which manufactured (including imported) a toxic chemical. Section 313 does not define "import" or explain when a facility is considered to have imported a chemical. Given the broad Customs definition of who is an importer, several persons may be "importers" for any given shipment of a toxic chemical brought into the customs territory of the U.S. For example, a facility may conduct the entire import transaction using its own personnel in which case it would be the only importer. In other cases, facilities may act through import brokers or others who do the paperwork and pay the duties but provide for direct shipment of the chemical to the facility.

EPA determined that for a given imported shipment of a toxic chemical, only one facility should be considered to have imported the shipment. Otherwise, there could be double counting of each shipment. Thus for purposes of the final rule, EPA has defined "import" to mean to cause a chemical to be imported into the customs territory of the U.S. For purposes of the definition of "import," EPA has defined "to cause" in a way which designates the person who in effect controls the importing of the

chemical, i.e. the person who intends that it be imported and controls the identity of the chemical and the amount to be imported, not those who are merely involved in the transaction.

Accordingly, through this definition, a facility which completes the entire import transaction for toxic chemical using its own personnel would be considered to have imported the chemical. Further, a facility that ordered the import of a toxic chemical through an import broker, specifying the identity, amount, and that it is to be imported, also would be considered to have imported the chemical. However, if a facility ordered a toxic chemical from a chemical supplier in the U.S., who in turn decided to import the chemical to fill the order or filled the order from a previously imported stock of the chemical, the chemical supplier's facility would be considered to have imported the toxic chemical. The facility which ordered the chemical would not be considered to have imported the chemical because it did not control the amount to be imported or specify that it was to be imported.

In most cases, determining whether a facility caused the import of a toxic chemical will not be critical because a facility in SIC codes 20 through 39 which receives such a toxic chemical from an import shipment is also likely to process or otherwise use the chemical. Since the thresholds for manufacturing and processing are the same and the use threshold is lower than the manufacturing threshold, EPA does not believe that defining "import" in this way will result in any facility escaping the reporting requirements of the final rule. In addition, EPA does not believe that facilities will evade supplier notification requirements under this approach.

3. *Toll Manufacturers of Toxic Chemicals.* EPA recognizes that it is a practice in the chemical industry for one company to contract with another company to produce a chemical exclusively for it. This may be done to use available production facilities, to take advantage of cheaper production techniques, or to avoid building additional plant capacity. The company initiating the activity typically retains control over the identity of the chemical, the amount to be produced, and the production technology. The company actually producing the chemical in these situations is often referred to as a "toll manufacturer."

Under TSCA, which authorizes EPA to apply certain requirements to persons who manufacture chemical substances and mixtures, EPA has sometimes treated both companies in a toll

manufacturer relationship as "manufacturers" subject to the requirements. However, for purposes of section 313 reporting, EPA interprets the definition of manufacture to apply only to a facility that actually produces a toxic chemical. Thus, in a toll manufacturer situation, the facility actually producing a toxic chemical would be subject to reporting, if it produced more than the threshold for manufacturing. The other company's facility would be subject to the reporting for that chemical only if it also actually manufactured the chemical in excess of the manufacturing threshold, or if it processed or otherwise used the chemical in excess of an applicable threshold. EPA believes this interpretation is consistent with congressional intent to capture releases associated with manufacturing activities.

B. Clarifications Regarding Process and Otherwise Use; Exemption of Certain Uses

EPA included the statutory definition of "process" in the proposed rule and proposed a definition of "otherwise use." The statute does not specifically define "use" or "otherwise use" yet there are different reporting thresholds associated with manufacturing and processing activities versus the "otherwise using" of a listed toxic chemical. Therefore, the basic purpose of including a definition of "otherwise use" was to distinguish for the potential respondent what activities would be subject to the different thresholds. The proposed "otherwise use" definition was broad in scope, basically encompassing all uses of a chemical at a facility not covered by the definitions of the terms "manufacture" or "process." The preamble of the proposed rule contained one example of processing versus use of a chemical, and the proposed instructions for the form gave examples of manufacturing, processing, and use activities.

Commenters from industry took issue with the proposed definition of otherwise use and requested further clarification of the differences between processing and use activities. Still other commenters recommended that certain uses be exempted from the final rule reporting requirements.

1. *Clarification of the terms "process" and "otherwise use".* In the public meetings, workshops, and in a preliminary question and answer document on section 313 issues, EPA has made the following basic distinction between processing and use activities.

a. *Processing is an incorporative activity.* The process definition focuses on the incorporation of a chemical into a product that is distributed in commerce. This incorporation can involve reactions that convert the chemical, actions that change the form or physical state of the chemical, the blending or mixing of the chemical with other chemicals, the inclusion of the chemical in an article, or the repackaging of the chemical. Whatever the activity, a listed toxic chemical is processed if (after its manufacture) it is ultimately made part of some material or product distributed in commerce. Examples of the processing of chemicals include chemicals used as raw materials or intermediates in the manufacture of other chemicals, the formulation of mixtures or other products where the incorporation of the chemical imparts some desired property to the product (e.g., a pigment, surfactant, or solvent), the preparation of a chemical for distribution in commerce in a desirable form, state, and/or quantity (i.e., repackaging), and incorporating the chemical into an article for industrial, trade, or consumer use.

b. *Otherwise use is a non-incorporative activity.* EPA is interpreting otherwise using a covered toxic chemical to be activities that support, promote, or contribute to the facility's activities, where the chemical does not intentionally become part of a product distributed in commerce. Examples would be a chemical processing aid such as a catalyst, solvent, or reaction terminator. These chemicals may be integral parts of a reaction but do not become part of a product. Other examples would be manufacturing aids such as lubricants, refrigerants, or metalworking fluids, or chemicals used for other purposes at the facility such as cleaners, degreasers, or fuels.

2. *Comments relating to EPA's interpretive distinction between process and use.* One commenter disagreed with EPA's interpretation that a non-incorporative use of a solvent in chemical processing should be classified as otherwise using it. This commenter stated that the solvent can be integral to a reaction and that the solvent can be in the same equipment as other processed chemicals, with the same low probability of release. Another commenter stated that a catalyst should not be classified as a processing aid (i.e., otherwise used) because it participates in a reaction. EPA disagrees with these comments on the grounds that it is necessary and appropriate to distinguish processing from otherwise using based

on the thrust of the process definition (i.e., whether the toxic chemical in question becomes part of some product distributed in commerce).

Another commenter raised the example of a paint that is applied during the manufacture of automobiles. Certain toxic chemical components of the paint mixture would become part of the automobile and other toxic chemicals such as the solvents would evaporate as intended. Is the mixture processed, used, or both? EPA's interpretation is that the activity of each relevant component of the mixture would have to be evaluated. The solvents would be "used." Therefore, they would be subject to the 10,000 pound threshold. The other components of the mixture such as the pigments, would be "processed" because they are incorporated into the article. Therefore, those mixture components would be subject to reporting based on the process threshold.

3. *Exemptions of certain uses.* Several commenters stated that the proposed definition of otherwise use was too broad. They stated that without some limitations or exemptions the presence at the facility of a listed chemical in any form would have to be factored into threshold calculations. One example given was copper in copper pipes that are part of the facility. This can be interpreted as an ancillary use of copper. They claimed that such a situation would be unreasonable, would place an unnecessary reporting burden on many facilities, and would result in many meaningless reports. One commenter suggested that the otherwise use definition be modified to include the concept of "active" uses at the facility.

Based on a review of the comments and questions received, EPA has determined that it is appropriate to place some limitations on the definition of "otherwise use." EPA has developed (§ 372.38 of the rule) a listing of certain exempt uses of toxic chemicals as follows:

- (1) Use as a structural component of the facility.
- (2) Use of products for routine janitorial or facility grounds maintenance. Examples include use of janitorial cleaning supplies, fertilizers, and pesticides similar in type or concentration to consumer products.
- (3) Personal uses by employees or other persons at the facility of foods, drugs, cosmetics, or other personal items containing toxic chemicals, including supplies of such products within the facility such as in a facility operated cafeteria, store, or infirmary.

(4) Use of products containing toxic chemicals for the purpose of maintaining motor vehicles operated by the facility

(5) Use of toxic chemicals present in process water and non-contact cooling water as drawn from the environment or from municipal sources, or toxic chemicals present in air used either as compressed air or as part of combustion

(6) Use of articles

C. Full-Time Employee

One commenter requested that EPA define what it means to have 10 or more full-time employees for compliance with section 313 reporting

The Bureau of the Census defines a full-time employee as a person working 35 hours or more per week, persons who worked 1 to 34 hours for non-economic reasons and usually work full-time, and persons with a job but not at work who usually work full-time. The Bureau of Labor Statistics has a very similar definition. Their definition does not include contract employees. The above two definitions are used in surveys conducted as of a particular week, not for an entire year.

EPA considered two factors in the development of the employee threshold determination. First, the definition should reasonably apply to the annual basis of the reporting. Many facilities may have large seasonal variations in employment, and the standard must apply to those situations in an equitable manner. Second, facilities with large numbers of contract employees should not escape reporting because of different employment arrangements.

EPA considered options for determining whether a facility meets the employee threshold as follows. First, full-time employee determinations could be made based on the highest number of full-time employees during any week of the calendar year. This method would ensure that facilities with highly variable employment patterns would be covered for reporting if they met the other requirements (SIC codes and chemical thresholds). Second, full-time employee counts could be determined by the number of employees as of a particular date during the year. Such an option would limit the burden of checking through employment records, but is arbitrary with respect to the choice of a date. Third, the determination could be based on the concept of full time equivalents. A generally accepted level of annual full time hours worked is 2,000 hours. The number of payroll hours for the year would be divided by 2,000 to determine the equivalent number of full-time employees. Fourth, full-time employee

counts could be determined by an average of the quarterly maximum number of full-time employees for the calendar year. This option would be the most burdensome to calculate.

EPA decided to define full-time employees on the basis of a full-time equivalent calculation. Total annual hours worked by all employees, including contract employees, at the facility is divided by 2,000. In this way, a facility is able to make an easy determination of whether it equals or exceeds a 10 employee equivalent level by determining if the total hours worked at the facility equals or exceeds 20,000 hours. EPA believes that this approach provides a fair and consistent measure of employment.

D. Definition of Article and Article Exemption

These issues deal with the definition of article and whether articles should be explicitly exempt for the purposes of threshold determinations and release calculations.

1. *Modification of the article definition.* The definition of article that appeared in the proposed rule is the same definition used in regulations under TSCA. One commenter asserted that the definition of article that appears in the OSHA HCS should be substituted for the proposed article definition. The commenter contended that the OSHA article definition is more appropriate for section 313 because the language in the latter part of the OSHA definition relates to the potential for release and exposure during normal end use. Also, it would be consistent with provisions of the Title III sections 311 and 312 rule (52 FR 38344). The instructions for the sections 311 and 312 reporting forms incorporate exemption language from the OSHA HCS, part of which is the exemption of articles.

The article definition in the proposed rule read as follows:

"Article" means a manufactured item which is formed to a specific shape or design during manufacture, which has end use function(s) dependent in whole or in part upon its shape or design during end use, and has either no change in chemical composition during its end use or only those changes of composition which have no commercial purpose separate from that of the article, or result mixtures or articles, except that fluids and particles are not considered articles regardless of shape or design. The article definition in the OSHA HCS reads as follows: "Article" means a manufactured item: (i) Which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which does not release, or otherwise result in exposure to a hazardous chemical under normal conditions of use.

The first part of each definition are identical. The latter parts of the definitions differ significantly. The commenter pointed out that the OSHA HCS definition will function more appropriately because it will keep certain exposure-causing items from being considered articles whereas the proposed definition would not. The commenter also asserts that the exception at the end of the proposed definition for fluids and particles is unnecessary.

In its review of this issue EPA considered several options, including retaining the article definition as proposed, retaining the proposed definition but clarifying the wording of the latter part, and adapting the OSHA HCS article definition for use in this rule. EPA has determined that it agrees with the commenter and has adopted the OSHA HCS article definition with some modifications because it is more appropriate for section 313 purposes than the TSCA definition. The TSCA article definition is worded primarily to distinguish "chemical substances" and "mixtures" from those manufactured items that contain chemical substances and mixtures. The OSHA HCS definition was adapted from the TSCA regulatory definition, for the purpose of exempting certain items from the MSDS preparation requirements; the supposition being that the item's normal end use would not release or cause exposure to a "hazardous chemical" in the article.

The revised article definition in the final rule reads as follows:

"Article" means a manufactured item: (i) Which is formed to a specific shape or design during manufacture; (ii) which has end use functions dependent in whole or in part upon its shape or design during end use; and (iii) which does not release a toxic chemical under normal conditions of processing or use of that item at the facility.

EPA wishes to emphasize that under this definition an item will not qualify as an article if there are releases of toxic chemicals from the normal use or processing of that item. When attempting to apply this definition to an item used or processed at a facility, the facility should keep this release factor in mind. For example, under normal conditions the milling of metals (e.g. copper) can generate fume or dust containing listed toxic chemicals. Thus, the metal or plastic item being processed would not qualify as an article in that manufacturing setting. However, if the only "release" from processing an item is the disposal of solid scrap (e.g., pieces of cloth or sections of pipe that are recognizable as having the same form as the item) then

EPA considers that the processed item still qualifies as an article.

Toxic chemicals in an item that qualifies as an article are not subject to reporting even if the facility disposes of the article after use. For example, the facility uses a battery that contains lead. Lead is not released from the battery during normal use at the facility. When the facility disposes of the battery, it does not have to factor the amount of lead in that article into a threshold or release calculation.

2. *Articles exemption.* The proposed rule covered the processing and use of toxic chemicals and mixtures containing such toxic chemicals. EPA included a proposed definition of article but, as certain commenters pointed out, did not specifically exclude the use or processing of articles. Commenters encouraged EPA to specifically exempt the use and processing of articles from the threshold determination and release reporting requirements of the rule. According to these comments, the normal end uses of such articles by definition do not result in the release of toxic chemicals contained within such articles. Therefore, such an exemption will reduce the burden on industry significantly because fewer materials will have to be evaluated for threshold and release determinations.

The purpose of including an article definition in the rule was for the expressed purpose of exempting such articles. The final rule contains a new exemption section (§ 372.38). This section exempts articles containing covered toxic chemicals as defined under section D above from threshold and release determinations. EPA cautions facilities to evaluate carefully normal processing and use of an item to determine if release of a toxic chemical occurs (i.e., if indeed the item qualifies under the definition as an article).

V. Threshold Issues

A. Comments Requesting Modification of Thresholds

The thresholds for reporting that were presented in the proposed rule are the thresholds mandated by section 313. The threshold for manufacturing or processing a toxic chemical is 75,000 pounds for 1987, 50,000 pounds for 1988, and 25,000 pounds for 1989 and thereafter. The threshold for otherwise using a toxic chemical is 10,000 pounds for any year. EPA has the authority to modify these thresholds provided that such modification obtains reporting of a substantial majority of total releases of each toxic chemical for all facilities subject to reporting.

A wide range of comments was received regarding potential modifications to the thresholds. Commenters from environmental and public interest groups asserted that thresholds should be lowered to increase release reporting. One commenter stated that a 10,000 pound threshold, over 3 years should be used rather than a graduated threshold. Commenters representing the industry asserted that thresholds could be raised without affecting data quality or reporting requirements. Other related comments stated that thresholds should be modified to include only larger facilities and that the "user" threshold should be raised to the same level as thresholds for the manufacturing or processing of a toxic substance. Additionally, one company commented that the determination of a need to modify thresholds should be based on the first few years' reporting levels.

Comments from a professional society and a State government indicated that the proposed thresholds are valid and should not be raised.

Additional comments presented alternatives to the type of thresholds presented in the proposal. Two commenters indicated that toxic effects could be used to determine threshold adjustments. One commenter recommended a different series of thresholds based on standard container sizes to make threshold determinations easier. Another commenter proposed that the statutory employee size limitation of 10 or fewer employees be removed rather than reducing threshold amounts for reporting purposes. One commenter proposed an emissions-based approach to exclude small releases of toxic chemicals, regardless of the quantity manufactured, processed, or used.

The final rule contains the statutory thresholds present in the proposed rule. EPA does not believe that it has received in the comments sufficient data to support any overall modification of the statutory thresholds. In addition, EPA did not propose any such change. EPA agrees with comments to the effect that the first few years' data should be evaluated to determine whether modifications of the threshold would meet the statutory test of obtaining reporting on a substantial majority of the releases (i.e., pounds released per year) of each chemical from subject facilities. EPA may consider changing the reporting thresholds based on several years of data collection. Revising the threshold amount can be based on specific chemicals, classes of chemicals, or categories of facilities.

EPA may consider a number of factors for threshold modification including exposure factors such as population density, the distance of population from covered facilities, and the types of releases. Threshold modifications could also take into account the relative potency of the chemical or class of chemicals and the effects of concern. Another type of threshold modification the Agency will investigate relates to the type of facility, either generally by size or by type of industry.

B. Threshold Determination Issues

Several issues arose as a result of comment on EPA's proposed approaches to determining whether a facility has exceeded a threshold.

1. *Recycle and reuse.* EPA proposed that a threshold determination in connection with on-site recycle and reuse activities be calculated by determining the amount of the toxic chemical in the recycle/reuse operation at the beginning of the year and add to that any quantity of the chemical brought on site. Commenters reacted to this proposal with the following:

a. The threshold should be based on the amount of the chemical "acted upon." This would include the operating capacity of the recycle activity plus only the amount added during the year, not the total quantity brought on site.

b. The amount calculated for the purpose of threshold determinations should only be the quantity added to or actually consumed by the recycle operations.

c. EPA should clarify that the threshold amount recycled should not count a pound of chemical more than once as it cycles through the activity.

After a review of the comments, EPA has determined that the threshold determinations should be based on the amount of the material added to a recycle/reuse system during the reporting year. This would fairly depict the amount of a chemical "consumed" during a year in connection with this particular use. During start-up of such a recycle/reuse operation or in the event that the contents of the whole recycle system had to be replaced, this total system quantity would have to be factored into the facility's threshold determination for that chemical. EPA believes that this approach is consistent with the objectives of encouraging recycle/reuse activities.

2. *Amount brought on site versus amount processed or used.* The previous issue points toward a more general problem of distinguishing whether the threshold must be calculated based on the amount of a chemical brought on site during the year or the amount actually

processed or used. One commenter cited a situation in which a facility may have a running inventory of over 10,000 pounds of toluene but actually uses only 9,000 pounds during the year. Provided that this is the only use of toluene, the commenters contended that the threshold for use has not been met.

EPA agrees with this comment. The final rule provides that the threshold for processing and use is based upon the total amount actually used or processed at the facility, not the total amount brought to the facility during the year. This would not apply, however, in cases where importation contributes to a calculation of whether the facility exceeds a "manufacture" threshold. The act of importing the chemical to the facility is within the definition of manufacture. Therefore, any quantity brought on site due to importation has to be counted along with any amount of the same chemical produced at that facility. However when a facility does exceed a threshold, any emissions from amounts of the chemical in the running inventory (i.e. storage) would have to be factored into the emissions calculations.

3. *Exceeding any threshold captures the facility for all releases of that chemical.* A commenter objected to the interpretation that if a facility exceeds any threshold for a listed chemical, it must report all emissions of that chemical from the facility. The commenter claims that reporting should be limited to the activity that triggers the threshold to be consistent with Congressional intent because Congress set such thresholds to limit the burden on industry and provide the public with useful and manageable information.

EPA disagrees with this comment. Congress indicated that section 313 should cover releases from the facility to all environmental media. The thresholds are provided as the means for determining facility coverage, not as a factor in determining which emissions from the facility must be reported.

VI. Mixtures and Trade Name Products

The proposed rule indicated that mixtures and trade name products that a facility imports, processes, or uses would be evaluated and any covered toxic chemicals in those products would be factored into threshold determinations and release reporting. However, EPA recognizes that facilities may not always have full information regarding mixture components. EPA provided detailed guidance in the preamble of the proposed rule for making a reasonable determination of what is "known to be present at the facility" with respect to determining the

presence and composition of covered toxic chemicals in mixtures at the facility. The proposed instructions for the form also outlined a method for factoring mixtures into the threshold determinations. In addition, the proposal presented EPA's belief that suppliers of mixtures and trade name products have a responsibility to provide their customers with information sufficient for them to comply with the requirements of section 313. EPA requested comment on several options for a supplier notification requirement in connection with, or in lieu of, a user determination requirement. EPA received a wide range of comment on the mixture issue.

A. De Minimis Concentration Limit

A predominant area of comment was the request for some type of *de minimis* concentration limitation for listed toxic chemicals in mixtures. Commenters argued that many mixtures or trade name products may contain "trace" quantities of section 313 chemicals. They asserted that it would be both unreasonable and extremely burdensome for processors and users of such products to have to account for these quantities in developing threshold determinations. In addition, commenters asserted that it would be equally as burdensome for suppliers of these products to have to determine and disclose small percentages of section 313 chemicals in their products beyond that currently required under the OSHA HCS. Most commenters suggested that EPA adopt a *de minimis* concentration limitation consistent with the OSHA HCS requirement. The HCS provides that a supplier does not have to list a "hazardous chemical" component in a mixture if that chemical comprises less than 1 percent of the mixture or 0.1 percent where the chemical is a carcinogen (as defined in the HCS). Other commenters suggested *de minimis* levels ranging from 2 percent to 10 percent. Other related concepts would exempt from consideration solutions containing greater than 75 percent water or would establish *de minimis* release standards.

Based on the comments received, EPA has determined that it is reasonable and appropriate to adopt a *de minimis* concentration limitation for toxic chemicals in mixtures under section 313. EPA believes that it is necessary to provide a *de minimis* limitation to help reduce the information development burden both on the part of the user and the supplier of such products. For the final rule EPA has adopted a *de minimis* limitation of 1 percent, or 0.1 percent in the case of an OSHA HCS defined

carcinogen. EPA believes that the *de minimis* level chosen is appropriate for two reasons. First, it is consistent with existing OSHA HCS requirements for development of MSDS information and with other requirements under sections 311 and 312 of Title III. Suppliers of products are familiar with these levels and, at least for the first two years of reporting, users of these mixtures are only likely to be able to rely on the product MSDS for information about the content and percentage composition of covered toxic chemicals in these products. Second, EPA does not expect that the processing and use of mixtures containing less than the *de minimis* concentration would, in most instances, contribute significantly to the threshold determinations or releases of listed toxic chemicals from any given facility.

Therefore, any listed toxic chemical that is present in a mixture below these *de minimis* concentrations does not have to be factored into threshold or release determinations by the facility. This exemption applies to all mixtures or trade name products imported, processed, or otherwise used at the facility.

EPA defined "mixture" in the final rule to cover combinations of chemicals that are mixed together, as well as relatively pure chemicals which have impurities present. Thus, if a toxic chemical were present as an impurity with another chemical at a level less than 1 percent, or 0.1 percent in the case of a carcinogen, the *de minimis* exemption would apply, and the person processing or using the toxic chemical impurity would not be required to count the quantity present as an impurity toward the threshold determination. They would also not be required to consider that quantity when determining releases to the environment.

The *de minimis* exemption applies only to the presence of the toxic chemical in the mixture. If a person formulates a mixture by mixing various chemicals together, including a toxic chemical, the person is a processor of the toxic chemical. The person must consider the quantity of the toxic chemical added to the mixture, both for threshold determinations and release reporting, including releases from the formulation activity. However, such a person would not be required to consider releases of the toxic chemical resulting from its presence in the mixture at less than 1 percent or 0.1 percent, as appropriate.

If a person manufactures a chemical and in the process creates a toxic chemical impurity present at less than 1 percent or 0.1 percent, as appropriate,

the person is not required to consider the amount of the toxic chemical so manufactured for threshold determinations or release reporting (provided that the impurity is not separated from the commercial product).

EPA plans to review this *de minimis* policy and the assumptions upon which it is based in light of data that will be collected under this rule.

B. User Determination Versus Supplier Notification

As stated in the introduction to this unit, EPA proposed a detailed approach for users to make a reasonable determination of the presence of section 313 chemicals in products they use. In response to the proposed approach, one commenter stated that the standard in the statute is "known to be present at the facility" and asserted that a facility has no affirmative obligation to seek information where there is no apparent information about a section 313 chemical in a mixture beyond such readily available sources as the MSDS for that product.

Others commented on the options in the proposed rule preamble for suppliers to notify customers or EPA about the presence and percent composition of covered toxic chemicals in their products. A number of commenters stated that a supplier should be required to notify its customers about the presence and composition of listed toxic chemicals in the product. From an overall burden standpoint, these commenters stated that there are naturally fewer suppliers than users. Without a supplier notification provision, users would have to contact each of their suppliers each year. These commenters stated that a supplier notification requirement would ultimately place less burden on the suppliers themselves because their staffs would not have to be constantly responding to user requests. Also, most suppliers could "piggyback" such notice with the OSHA HCS required MSDS for the product and thereby not incur a significant additional burden. Other commenters agreed with the supplier notification concept but preferred that EPA allow a voluntary customer/supplier interaction, not require such notification as part of the rule. Other commenters stated that EPA does not have the authority under section 313 to require this type of notification nor would it be appropriate to invoke the general rulemaking authority under section 328 of Title III to authorize such requirement.

Other comments addressed trade secret related implications of a supplier

notification requirement as follows: The OSHA HCS allows mixture component identities to be claimed trade secret. In addition, the firm is not required to supply percentage composition data on the MSDS. Some firms do provide composition data voluntarily in the form of a specific percentage, a range, or some upper bound. A supplier requirement may conflict with the MSDS requirements because some composition information will have to be disclosed. In addition, the criteria for claiming and substantiating the protection of specific chemical identity is more stringent under Title III than it is under the OSHA HCS requirements.

1. *Supplier notification requirement.* EPA has carefully considered the implications of a detailed user determination requirement versus a supplier notification requirement. EPA has determined that the most effective and least burdensome approach is a supplier notification requirement. EPA agrees with comments that a supplier notification system provides the most efficient means of moving the information about the presence and composition of listed toxic chemicals into the hands of the facilities that must report. Providing more complete information about mixture composition in particular will give the facility the information it needs to make threshold and release determinations.

Under the final rule persons who must develop and distribute the notice are those who own or operate facilities in SIC codes 20 through 39 that manufacture or process listed toxic chemicals, and who distribute products containing such toxic chemicals to facilities in SIC codes 20 through 39, or to others who in turn distribute them to such facilities. Therefore the types of products covered by these notices are products that will be further processed or used by facilities potentially required to report. Notices are not required for products sold for individual consumer use. Exemptions similar to those found in the OSHA HCS and rule implementing sections 311 and 312 of Title III are incorporated into this supplier notification provision.

The supplier notification requirement in § 372.45 is structured to give processors and users of mixtures and trade name products positive information about the presence of listed toxic chemicals as follows:

a. If listed toxic chemicals are present in the mixture or trade name product above the *de minimis* cut-off level, the notice must identify those specific components as they appear in the list of toxic chemicals in § 372.65 of the rule

and provide their percent composition in the product.

b. If the supplier maintains that the identity of a toxic chemical is a trade secret under provisions of the OSHA HCS, the notice must identify the chemical as subject to section 313 and provide a generic identity that is structurally descriptive of the chemical.

c. If the supplier contends that specific composition information for a toxic chemical in a mixture or trade name product represents a trade secret, the supplier must provide a maximum concentration level of that chemical in the mixture or product. For example, the notice would indicate that toluene constitutes not more than 15 percent of the product. The supplier must choose a level that is only large enough to effectively mask the relevant trade secret associated with the chemical component. A basis for the level chosen must be placed in the supplier's records pertaining to this notice. This maximum concentration level is critical to users of the mixture because they will be using it as part of their threshold and release determinations. Gross over-representations of such maximum concentrations in a mixture may result in unnecessary reporting by that customer or overestimation of releases of the chemical from the customer's facility.

The notice must be in writing and must clearly indicate that it pertains to the presence of chemicals covered by section 313 of SARA Title III. If a MSDS must be distributed with the product, EPA requires that the notification be attached to the MSDS and that it clearly indicate that the notice is not to be detached from the MSDS.

This requirement is included because the Agency is concerned about the notification process breaking down when distributors not covered by this rule are handling and redistributing the products. The OSHA HCS requires such distributors to pass along an MSDS for a product. Therefore, EPA determined that the most efficient and least burdensome approach of assuring that the notice would reach the intended recipient is to require that it be attached to or incorporated into the MSDS.

The notice must be provided with at least the first shipment of the product to each recipient during the calendar year. When the supplier changes the formulation of the product to affect the composition of the toxic chemical in the product, a revised notice must be sent with the first shipment of the changed product to each recipient. If the supplier determines that the product contains a section 313 chemical in excess of the *de*

minimis concentration limit which was present previously but unknown, the supplier must modify the notification within 30 days and provide the revised notice with the first shipment after that 30 day period to each recipient; this notice must identify prior shipments in that calendar year to which it also applies.

2. *Phase-in of the supplier notification requirement.* One commenter suggested that if mixtures are to be factored into the reporting of listed chemicals that such requirement be phased-in over a 1- or 2-year period. According to the commenters, such a phase-in approach would allow time for both suppliers and users to gear-up for mixture determinations.

EPA does not agree that mixtures in total should be excluded for the 1987 reporting year. Mixtures make up a large part of potential use of listed toxic chemicals. Therefore, importers, processors, and users of mixtures must use the best available information at hand to determine whether the components of a mixture have to be factored into threshold and release determinations under this rule.

However, the concept of a phase-in for the related supplier notification requirement does have merit. In EPA's opinion, it would be both unreasonable and impractical for suppliers to develop modifications to their MSDS or develop additional notices and distribute such notices in 1988. Therefore, the supplier notification requirement does not take effect until the first shipment of a product in 1989. However, as a practical matter, suppliers should begin as soon as possible to develop the notice relevant to those products that contain covered toxic chemicals. Until the supplier notification goes into effect, users and processors of mixtures are only required to use readily available data regarding such mixtures.

3. *Making threshold determinations and reporting for toxic chemical components of a mixture or trade name product.* Until the supplier notification under this rule begins, EPA assumes that some suppliers have provided or will provide information to customers about the presence of toxic chemicals in their mixtures or trade name products. The information provided is likely to vary from specifically identifying a toxic chemical and its concentration to advising only that there is a section 313 toxic chemical present, but providing no chemical identity or concentration information.

Once supplier notification begins under the rule, most customers will at least be told that a toxic chemical is

present, its generic chemical identity, and its upper bound concentration in the mixture or trade name product. However, even after supplier notification begins, customers may receive such mixtures or trade name products from persons not in SIC codes 20 through 39 or from foreign suppliers. Neither of these suppliers would be subject to the supplier notification requirements. Therefore, customers might receive less information about toxic chemicals in such mixtures and products. Accordingly, EPA has included in the final rule and instructions detailed provisions for reporting by owners and operators of covered facilities who import, process, or otherwise use toxic chemicals as part of mixtures or trade name products.

All reporting by persons who import, process, or use mixtures or trade name products containing toxic chemicals is predicated on those persons knowing that toxic chemicals are present in the mixture or trade name product. If such a person receives a mixture or trade name product, the person must determine whether it meets an applicable reporting threshold in either of the following situations: (i) The person was told, or had determined through chemical analysis or otherwise, the specific identity or CAS Registry Number of a chemical in the mixture or trade name product and that chemical appears in § 372.65 of the rule; or (ii) the person was told that the mixture or trade name product contains a toxic chemical subject to section 313. If either of these situations applies, the person is not required to inquire further about the mixture or trade name product. Section 313 and the final rule do not impose any obligation to test a mixture or trade name product to determine whether it contains a toxic chemical. However, if a person has tested such a mixture or trade name product for its own reasons, it must consider the results in determining whether to report.

The final rule identifies six scenarios for persons making reporting determinations for toxic chemicals in mixtures or trade name products:

1. The person knows the specific chemical identity of the toxic chemical in the mixture or trade name product, and

a. The person knows its specific concentration in the mixture or product;

b. The person knows only its upper bound concentration in the mixture or product; or

c. The person has no information about its concentration in the mixture or product.

2. The person does not know the specific chemical identity of the toxic

chemical in the mixture or trade name product, and

a. The person knows its specific concentration in the mixture or product;

b. The person knows only its upper bound concentration in the mixture or product; or

c. The person has no information about its concentration in the mixture or product.

When the person knows the specific chemical identity of the toxic chemical in the mixture or trade name product, making the threshold determination will involve combining the amount of the chemical in that mixture or product with amounts of the same chemical also manufactured, processed, or otherwise used at the facility. However, the person is only required to consider the weight of the toxic chemical in the mixture or trade name product, not the total weight of the mixture or trade name product.

Determining the weight of the toxic chemical in the mixture or trade name product depends on the information the person has about the percentage composition of the chemical in the mixture or product. If the person knows the specific concentration, determining the weight of the chemical is straightforward. However, if the person knows only the upper bound concentration, the person is required to assume that the toxic chemical is present at that concentration and calculate the weight accordingly. In the event that the person does not know the specific concentration or the upper bound concentration then the person is not required to further estimate or otherwise factor that chemical in that mixture or product into threshold or release calculations.

Where the person does not know the specific chemical identity of the toxic chemical in the mixture or trade name product, the person is required only to consider the quantity of that chemical component in that mixture or product in making a threshold determination. Since the person does not know the specific identity of the chemical, the person cannot combine the weight of the chemical in the mixture with any other toxic chemicals manufactured, processed, or otherwise used at the facility because the person cannot determine that they are the same chemical. Accordingly, the threshold determinations and the reporting, if any, will be specific to the toxic chemical in the mixture or product.

Determining the weight of the toxic chemical in the mixture or product in this case is the same as for determining the weight when the specific chemical identity is known.

Determining the weight of the toxic chemical in the mixture or product in this case is the same as for determining the weight when the specific chemical identity is known.

Once the applicable threshold is met, reporting the chemical identity varies with the degree of knowledge. If the specific identity is known, the person must report the identity and CAS Registry Number, if any, in Part III, Section 1 of Form R. If only a generic chemical name is known, that name must be reported in Part III, Section 2 of Form R. If no generic name is known, the trade name or other name applied to the chemical, or to the mixture or product of which it is a component, must be reported in Part III, Section 2 of Form R.

With respect to estimating releases, such estimates must be based on the concentration of the toxic chemical in the mixture or trade name product.

VII. Form Specific Issues

A. Certification Statement

Section 313 requires that a senior management official sign a certification statement for submitted forms. The proposed statement would have required that the person certify that the submitted information is true, accurate, and complete based upon his or her personal examination of the completed forms.

The Agency received several comments on certification relating to three issues: (1) The definition of a senior management official, (2) the requirement that the certifier has "personally examined and is familiar with" the submitted information, and (3) the requirement that the company must certify that the submitted information is true, accurate, and complete.

1. *Senior management official* Section 313(g)(1)(B) defines a senior management official as "a senior official with management responsibility for the person or persons completing the report."

In the preamble to the proposed rule, EPA stated that a senior management official could be an officer of a company, a facility manager (rather than a corporate officer), or the manager of environmental programs (for the facility or for the corporation) responsible for certifying similar reports under other environmental regulatory requirements.

Commenters were concerned that neither definition appeared in EPA's regulations or in the instructions to the proposed form. Also, commenters wanted to maintain flexibility of having either a facility management officer or

corporate manager sign the certification statement by allowing signature by a manager of the persons preparing the report or by the manager of the environmental programs for either the facility or the corporation.

The Agency has added a definition of senior management official to § 372.3 of the rule. The definition gives facilities appropriate flexibility in determining who may sign the form while retaining the emphasis that the person have management responsibility over the persons preparing the form.

2. *Review of prepared form.* The proposed rule required that the person certify that "I have personally examined and am familiar with the information" Commenters stated that this statement was too stringent because it would require that the senior management official duplicate all the calculations performed in the preparation of the form. A few commenters suggested that EPA adopt the certification statement used in the National Pollutant Discharge Elimination System (NPDES) regulations. Those regulations require a certification that the information was prepared under a system designed to assure that qualified personnel properly gathered and evaluated the information submitted, and that the certifying official has queried those persons responsible for the system. Commenters noted that the NPDES certification has already received full notice and comment and has been tested in court.

However, the conference report states that "[t]he purpose of the certification requirement is to assure that a senior management official reviews the report for accuracy and completeness." The Agency believes that the NPDES certification, because it does not require the certifying official to review the form, does not meet the intent of Congress. However, the proposed certification statement could be interpreted to require more than a view of the submitted information. Therefore, the certification statement was modified and now requires a review by the official, which EPA believes fulfills the intent of Congress.

3. *Submissions that are "true, accurate, and complete."* The proposed certification statement would have required the certifying official to state that the submitted information is true, accurate, and complete. Commenters objected to this statement, stating that it is unreasonable because much of the information, particularly release estimates, can be subject to considerable uncertainty. They point to section 313(g)(2), which allows facilities to use available data collected under

other provisions of law or to provide "reasonable estimates of the amounts involved." Because estimates are allowed, these commenters stated that "accuracy" must be set in context of the estimating procedures used.

Commenters further noted that a facility may choose to use emissions factors developed by EPA for the purposes of reporting, even though the facility does not believe the estimates are accurate.

Commenters suggested a variety of changes to the certification statement to correct the problem. Several commenters suggested that the burden of the accuracy of reports be placed on the Agency's instructions to the form. Another proposed approach would provide a certification that the information is "substantially accurate and complete."

The Agency has decided to modify the certification statement to tie the concept of accuracy with reasonable estimates of amounts and values reported. Such estimates must be based on the information available to the preparer of the report. This revision addresses the commenters' concerns and sets accuracy of reporting within the context set forth by Congress. The revised certification statement reads as follows:

"I hereby certify that I have reviewed the attached documents and, to the best of my knowledge and belief, that the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report."

B. Facility Identification

1. *Technical contact, addition of a public contact.* In the proposed rule EPA asked for a technical contact to be listed. The primary purpose for including a technical contact on the proposed form was to allow EPA to follow up reporting with questions pertaining to the completeness and technical integrity of the data. Commenters stated that only EPA or State officials should be designated to contact the "technical contact" of a facility. In addition, commenters recommended that they be allowed to provide a public contact different from the technical contact.

EPA has done two things regarding the technical contact. First, for clarification, it should be noted that the technical contact does not have to work at the geographic location for which the report is submitted. The technical contact can be: (a) Someone at the facility; (b) someone at the same company, but at a different location; or, (c) a consultant. The name and telephone number of the technical

contact must be provided on the form. The technical contact information will not be included in the public data base.

Second, in addition to the technical contact, EPA is requiring facilities to provide the name and telephone number of a public contact for the facility. The public contact may be the same as the technical contact, or someone different. EPA added a public contact to provide firms within the flexibility of designating types of personnel most appropriate to the task of handling technical inquiries about the submission versus general information inquiries from the public. The public contact information will be included in the public data base.

2. *Latitude/longitude.* EPA did not propose to require companies to submit the latitude and longitude of their facilities in the proposed form. Several commenters expressed great interest in having this data included as a facility identifier. The primary reason for asking for this information is its importance for geographic information systems. These computer-based systems enable EPA and other organizations to model exposures resulting from chemical releases and produce graphic representations of such exposures.

In addition, these coordinates help to verify the location of facilities and will help EPA and other users of the section 313 data base interface with other data bases containing such geographic coordinates.

Therefore, EPA has added latitude and longitude as a reporting element for identifying the facility. However, EPA is adopting a phase-in approach for providing this data. For reports due by July 1, 1988 (covering 1987), EPA is requiring firms that have the information readily available to report it. For example, certain environmental permits held by a facility may already contain this information. Also, county property records or facility plans or blueprints may show the latitude and longitude coordinates. Latitude and longitude information for all facilities is required on the forms due by July 1, 1989 (covering the 1988 calendar year). EPA believes that the approach adopted serves two basic purposes: (1) Latitude and longitude information is provided, which is important to geographic information systems; and (2) there is a low burden of developing the data.

3. *EPA I.D. Number, NPDES permit, and receiving streams.* In the proposed rule, EPA provided a single line each for listing the EPA Identification Number (the identification number assigned to a facility in connection with hazardous waste generation and disposal activities under the Resource Conservation and

Recovery Act (RCRA), the NPDES permit numbers, and the receiving stream or body of water for the facility. Commenters pointed out that some multi-establishment facilities can have more than one of these identifiers or permits, or may discharge a reported toxic chemical into two or more streams or bodies of water. Therefore, the Agency has provided additional lines on the form for these reporting elements.

C. Releases to the Environment

1. *Total release.* EPA proposed that reporting under section 313 account for the total amount of toxic chemicals entering each environmental medium from the facility. EPA based this interpretation on the statutory provisions.

The definition of "releases" contained in section 329 of Title III covers all types of releases, both intentional as well as unintentional. Section 313 requires reporting of "the annual quantity of the toxic chemical entering each environmental medium." This led EPA to ask for information on total releases from the facility. Commenters cited the conference report to support their claim that Congress did not intend for facilities to include accidental or unintentional type of releases in the quantities reported under section 313. In discussing section 313 the conference report begins by saying that:

This section establishes requirements for annual reporting on releases of certain toxic chemicals to the environment. This reporting covers releases that occur as a result of normal business operations, as distinct from abnormal, emergency releases which must be reported under section 304.

Thus, commenters would argue, the statutory definition of release is modified by the conference report.

EPA believes that the above-quoted conference report language was provided for the purpose of clarifying differences between the basic types of reporting that occur under section 313 versus section 304 of Title III. A section 313 report is an annual report involving annual aggregate estimates of releases to all environmental media. A report under section 304 is an emergency notification. EPA does not find language in section 313 or any other conference report language that precludes the quantity of a toxic chemical released during an "abnormal, emergency release" from being included in the total annual amount reportable under section 313.

One of the purposes of section 313 is assessment of cumulative exposure to toxic chemicals. EPA believes that the best way to accomplish this assessment is to include all releases of toxic

chemicals over the reporting year regardless of the mode of release. EPA also believes that most facilities will calculate their releases based on a total release concept. Therefore, it could be more burdensome to require a facility to "back-out" the section 304 releases and other "accidental" type releases than to just leave them as part of the total. Also, if the quantities of section 304 releases were excluded from the annual aggregate total, most data users would not have ready access to this additional data. This is because section 304 releases quantities will not be entered into a nationally accessible computer data base as will section 313 data. Thus the public can do no automated cross-matching of facilities in order to obtain this additional release data for exposure analysis purposes. Therefore, EPA is retaining its interpretation of total releases for the purpose of section 313 reporting.

2. *Removing the section 304 release indicator.* EPA proposed that companies indicate by checking a box whether or not any part of the reported release was an accidental release reported under section 304 of Title III. Section 304 releases are certain accidental releases of specific chemicals listed under section 302 of Title III as well as section 103 of CERCLA (RQ chemicals). The purpose of asking about section 304 releases on the section 313 form was to provide the public with an additional means of obtaining information about total releases (both routine and accidental) of chemicals subject to reporting under section 313. Several commenters protested that asking for information about section 304 was not in keeping with congressional intent and created trade secret problems.

Concerning trade secrets, commenters were concerned about linkages that could be made between the section 313 report and the section 304 report. Under section 304, companies are not allowed to claim chemical identity as trade secret; under section 313, chemical identity is the only information element that can be claimed as a trade secret. The situation could arise where the release of a particular chemical reported under section 304 was the only release of that chemical during the calendar year. By checking the section 304 box on the section 313 form, commenters asserted that competitors could find the chemical identity by referring to the section 304 report.

EPA believes that the section 304 check-box would create unnecessary reporting complications. Therefore, EPA has decided to delete the check-box.

3. *Deletion of the permit indication.* EPA proposed that for each aggregate

release, facilities would indicate whether the toxic chemical is specifically cited in a permit by checking a "yes" or "no" box. The intent of the permit indication was to provide a starting point for the public to obtain relevant permit information on the specific chemical released. It was also a way of providing some kind of information on air permits without requiring facilities to list numerous air permit numbers. Most of the comments on this issue were negative. There was strong concern that this check-box would be misleading and confusing to the public. Commenters asserted that a "no" answer may lead the public to believe the release is unpermitted or "unallowed" and thereby imply that a facility is in violation of the law. The permit indication also does not reveal how much of the release is covered by permits. Some commenters noted that confusion is bound to result on the part of the reporting facilities as to when the permit indication should apply since most permits do not cite or limit releases by specific chemical. For example, most air permits apply to categories of chemicals, such as volatile organic compounds (VOCs) and particulates. In addition, many permits may limit the release of a chemical by specifying that a control device or particular type of treatment be employed. Therefore, many permitted releases would not be allowed to be checked under the proposed rule's approach. Certain commenters believed that EPA should broaden the permit indication to include most other types of permitted releases or drop it altogether.

Because the permit indication has a high potential to provide misinformation to the public, EPA has decided not to include the permit check box in the final form. EPA believes that it would inevitably lead to misunderstanding and confusion, not only on the part of the public, but also by the reporting community. EPA chose not to broaden the interpretation of which releases would be covered by a permit because this would no longer serve the original purpose of providing a link to chemical-specific permit data. Additionally, it would be difficult in some situations to give a clear indication of when a permit actually controls the release of a specific chemical versus other components in the wastestream. EPA requires the listing of specific permit numbers in the facility identification part of the form. EPA believes that these permit numbers provide a useful link between the release information and any relevant permit data.

4. *Accuracy of reporting.* EPA proposed that the annual release data

be estimated as accurately as possible and that figures be rounded off to the nearest pound. Recognizing, however, the aggregate nature of the data and potential error in the estimates, EPA asked for comment on other reporting alternatives. EPA received comment on three proposed alternative reporting options.

(1) Report in ranges.

(2) Report to 1 to 2 significant figures.

(3) Report to a specified degree of precision.

Many commenters on this issue were in favor of either option 1 or 2, because they believed that the data will not be exact due to the error involved in measurements and estimates, and that these options would not misrepresent the accuracy of the data. Several commenters expressed concerns about the liabilities involved for verifying the accuracy of the data and the potential for public misperception of the data accuracy.

Certain disadvantages of reporting in ranges were noted by some commenters. Use of ranges could misrepresent data accuracy because the low or high end range numbers may not really be that close to the estimated value, even taking into account its inherent error. For example, a release of 11,000 pounds/year with a 50 percent error could be misinterpreted as 100,000 pounds/year if reported as a range of 10,000 to 100,000 pounds/year. Reporting in ranges may not only misconstrue the data accuracy, it would also make analysis and use of the data more difficult according to these commenters.

Because facilities are not required to do additional monitoring and are allowed to provide "reasonable estimates," it would be infeasible to dictate that they report to a specified degree of precision that cannot be attained given the range of error inherent in the estimates.

Therefore, EPA is requiring that estimates of releases and transfers of toxic chemicals to off-site locations be expressed as a figure rounded to a degree of accuracy no greater than two significant digits.

As noted in the discussion in Unit XV.B, EPA has adopted an optional range reporting concept for releases to an environmental medium of less than 1,000 pounds. Where the facility believes that it has no release in relation to a particular line item it could check a box for "0". If the release is estimated to be between 1 and 499 pounds, or 500 to 999 pounds, the facility has the option of checking a range box or entering a specific figure. For releases of 1,000 pounds or more the facility is required to provide a figure rounded to no more

than two significant digits. This range reporting is for calendar years 1987, 1988, and 1989 only.

5. *Peak release.* Several commenters raised the issue of having the release data reported in terms of its frequency, duration, or peak value in addition to the annual release amounts. EPA did not discuss this issue in the proposed rule. Commenters from environmental and public interest groups stated that the annual release data may not give enough information to assess some risks accurately. Knowing how often and/or how long the releases occur, and the maximum (peak) amount of chemical released per day would allow a better evaluation of exposure and risk to the public according to these commenters. One commenter stated that the annual estimates may be appropriate for evaluating potential cancer risks but that hourly or daily emission estimates are useful for assessing risks for chemicals with acute effects, other short-term exposure effects, and environmental effects.

Some industry commenters maintained that more detailed information about the frequency, duration, and peaks of releases will be difficult or impossible to provide. They stated that many facilities have numerous operations or processes involving a chemical. They claim that peak data would be misused and misinterpreted. They fear that users of the data would assume that such peaks occur every day. They also state that the annual data should be used as a screening tool and that further studies should then be undertaken to gather the information needed to fully characterize exposure.

EPA considers the need for more detailed release information to be valid and considered the following options for possible inclusion in the final rule:

(1) Days of release.

(2) Indication of intermittent versus continuous release.

(3) Peak data (maximum daily amount).

(4) Days of operation.

In reviewing the options, EPA considered how the data would be used in a screening for levels of risk with the currently used exposure models. Days of release is not currently used for modeling exposure in ambient air to carcinogens or chemicals with chronic (long-term) health effects. Current air dispersion models for these types of effects use the total annual release for estimating exposure. The number of days of release is used for estimating drinking water exposure for chemicals with non-carcinogenic health effects and environmental effects. EPA considered

that facilities may have difficulty in providing the number of days per year over which the chemical is released into the environment. Facilities may not have this information available, especially for the first year's reporting and may find it difficult to provide in some cases. Also this data may not be meaningful in cases of multiple releases of different magnitude and durations.

Reporting whether the release is largely continuous or intermittent may be less burdensome for facilities to do, but it may not be as useful as other potential indicators. This is because it does not provide quantitative information needed for a risk assessment and may be meaningless for an aggregate release amount that is compiled for all releases from many types of processes or sources at one facility.

Peak release data in the form of maximum daily amounts is useful for analysis of risks from chemicals released to air or water with acute or chronic non-carcinogenic effects, and also for chemicals with environmental effects. Peak release data can be used to model the highest one-day acute exposure to human and environmental receptors on a worst-case basis to determine if a more detailed investigation is warranted. EPA is uncertain about possible difficulties that facilities may have in providing this datum, given that several release sources and several activities at the facility may contribute to a single daily release amount. It may not be possible to estimate the maximum daily release using some estimation techniques, such as overall mass balance or emission factors, which are available for estimating the annual release data.

The number of days of operations involving the chemical may be easier for facilities to provide than other types of indicators. It could be used to estimate an average daily release using the annual data, but there are weaknesses for using this data in modeling because the releases may not actually occur during all the days of operation.

EPA has not included an additional peak release type reporting element in the final rule. Such an additional reporting element would require a significant change to the form. The Agency believes that it will be necessary to further analyze the above options and to investigate additional options. In its analysis the Agency will determine what type of data is needed to better characterize exposure and risk, and determine how this data can best be reported by facilities. Because of the need for further analysis and input from

the public and regulated community. EPA plans to propose an amendment to this rule dealing with this issue within the second quarter of 1988. At that time, EPA will seek comment on this issue in order to develop the most appropriate way of obtaining this data.

6. Disaggregation of air emissions.

EPA proposed that fugitive or non-point air emissions be reported separately from stack or point source air emissions. Facilities would include all emissions to air of a listed chemical and separate such emissions quantities into fugitive or stack type emissions. The instructions gave clarification as to how to differentiate between the two types of sources. EPA proposed to distinguish between these two source categories for two reasons. First, estimates of stack emissions are likely to be more accurate than estimates of fugitive emissions because stack emissions can be directly measured. Better overall information on air releases can be obtained if fugitive emissions are reported separately and the accuracy of the data on stack emissions is preserved. Second, separate reporting of fugitive and stack emissions will enable regulatory agencies and other users of the data to judge the relative significance of the two sources of releases.

Many commenters thought EPA should not require this disaggregation. Two commenters agreed with the proposal while one commenter stated that the form should collect five categories of release on air emissions: Process, fugitive, storage, transfer operations, and waste treatment emissions. Some commenters thought EPA should require only reporting of point source releases because fugitive emissions are too difficult to estimate accurately.

EPA has retained the reporting of air emissions as proposed. This issue received much discussion and review before the rule was proposed and the reasons for not further disaggregating air emissions still remain the same. First, further disaggregation would not be consistent with EPA's approach of not requiring specific information on the sources of releases to minimize trade secret claims. Second, the burden on facilities would increase tremendously if further disaggregation were required. For example, a facility will be able to estimate an aggregate non-point air release using a mass balance approach, but it would be very difficult for it to further divide this amount into releases from transfer operations, leaks, and waste treatment emissions. Because the majority of measured data available will be on stack emissions, this is one

mechanism available to facilities to distinguish between two types of air emissions. EPA believes that requiring disaggregation only into point and non-point source categories is the best balance of data usefulness and industry burden for this reporting requirement.

7. Releases to water—a.

Disaggregation of releases by receiving stream. For direct discharges, the issue of how to report multiple receiving streams for one facility was raised by one commenter. The proposed form allowed only one line on page 1 of the form to report a stream or body of water that receives a facility's wastewater flow. EPA has revised the form to allow reporting of up to three receiving streams. These streams are to be numbered and the applicable stream numbers reported in connection with the direct discharge release amount to that stream.

b. Inclusion of stormwater releases.

EPA proposed that the total releases of a chemical to surface waters include the contribution from stormwater if the facility's permit included stormwater sources. Given the potential difficulty in estimating the contribution of stormwater to the total release of a chemical, EPA specifically asked for comment on the inclusion of stormwater discharges and how these releases should be estimated and reported.

Many commenters thought that EPA should not require reporting on release in stormwater because it is very difficult to estimate amounts of toxic chemicals present and intermittent flowrates without monitoring and measurement. Without such information, it would be virtually impossible to estimate these types of releases to any degree of accuracy. Several commenters pointed out that EPA has not yet developed final stormwater regulations or guidelines under the Clean Water Act because of the technical problems involved. Two commenters believed that facilities should be required to include stormwater releases to surface waters and publicly owned treatment works (POTWs) and that these should be reported separately on the form.

Some facilities have submitted permit applications relative to stormwater discharges. As a result of passage of the Clean Water Act Amendments in February 1987, EPA is currently drafting new stormwater regulations. Some facilities may have stormwater discharges permitted under NPDES industry subcategory effluent limitations or through the discretion of the permit writer. Even if a facility's stormwater is covered by a permit, however, it may not have any specific chemical

monitoring data depending on when the permit was issued. Also, most permitted stormwater releases are required to be monitored for conventional pollutants such as biological oxygen demand (BOD), total organic carbon (TOC), etc., rather than specific chemicals.

Therefore EPA is requiring facilities to indicate the stormwater contribution to surface water releases only if the facility has monitoring data on the section 313 chemicals in such stormwater and a measurement or estimate of flowrate. If so, the facility must enter the percent of the release that is attributable to stormwater in Part III, Section 5.3C of the form. If the facility does not have periodic measurements of the chemical releases but has submitted chemical-specific monitoring data in its permit application, it should use these data as a basis for its estimate. Flowrate data can either be data submitted in a permit application or measurements as required by the permit (either periodic or continuous), or can be estimated by multiplying the annual rainfall times the land area times the degree of imperviousness or by another appropriate method.

Appropriate responses to be entered on the form include: (1) A numerical figure representing the percent contribution to the total release, (2) "0" if the facility has monitored but not detected the chemical in stormwater discharges, and (3) "N/D" if the facility has no monitoring information relative to the chemical in stormwater discharges.

8. Specific line for reporting underground injection release. One commenter raised the issue of how releases to groundwater are reported on the form. The commenter stated that EPA should break out reporting of direct and indirect groundwater discharges as a category distinct from releases to land. By looking at the form only, it is not clear how and where facilities would report releases via underground injection discharges. On the proposed form, these releases were to be reported in the Release To Land section by entering a disposal code for underground injection next to the annual amount. To further clarify releases by underground injection of listed toxic chemicals, EPA has included a separate sub-section in the final reporting form entitled Underground Injection (Part III, Section 5.4).

9. Basis of estimate. For each aggregate release, EPA proposed to require an indication of the basis used to account for the estimation of the largest portion of the release quantity.

The basis of estimates provided in the instructions were:

(1) Based on monitored or measured data.

(2) Based on mass balance calculations.

(3) Based on published emission factors.

(4) Based on other approaches (engineering judgment, etc.) Each method would be indicated on the form by the use of a code.

The basis of estimate provides some indication of data quality and will identify situations in which monitoring data might be obtained in follow-up activities by EPA or the States. This indication would also allow EPA to identify facilities and industries that may be having difficulty estimating releases so that further guidance may be developed for them.

Several commenters thought that EPA should require more detailed information on how the releases were estimated, such as the percentage of the release for each method, the emission factors used, or a brief explanation for how other approaches were applied. Most of the commenters representing industry supported the use of the proposed basis of estimate. One commenter wanted clarification on whether indicating the use of emission factors applied only to the use of EPA emission factors.

Requiring reporting of the emission factors could result in revealing production volume or throughput amount of the chemical; information that many companies consider trade secret. Also, requiring reporting of the specifics of the calculations used to develop the estimates would be similar to collecting information on each source of release, as opposed to the aggregate release. Such data could involve information on quantities of process streams, also often considered proprietary. EPA wishes to minimize trade secret claims so that most of the data on the specific chemicals will be available and useful to the public. Collecting this sort of detailed information would be more of a "mass balance" reporting approach, and EPA does not have the authority to collect mass balance information from facilities under section 313. Such an approach will undergo study by the National Academy of Sciences as required by section 313(l) to determine the feasibility of its use for future toxic chemical release inventory reporting.

The final rule requires the basis of estimation as proposed. Any reasonable emission factor may be used to estimate releases. It is not EPA's intent that facilities be constrained or limited to the

use of any one estimation method. The burden is on the facilities to provide the most accurate and "reasonable" estimate of releases, and they should use all available data and means to provide these estimates. The data or methods used must be documented in the facility's records and made available for review upon request by EPA inspectors. EPA will use the basis of estimate provided on the form as a tool to ascertain data quality, availability of information, and reporting problems for facilities.

D. Off-Site Transport

EPA proposed that facilities report the amount of the toxic chemical in waste transferred to the off-site treatment and disposal facilities (including POTWs), the name and address of the off-site location, whether the off-site location is under the control of the reporting facility, and the treatment/disposal methods used off-site, if known. The rationale for inclusion of the off-site waste transfers was to complete the picture of chemical waste generated from a facility and enhance the public's understanding of the locations of toxic chemicals in their community. Off-site locations would also include waste brokers, storage facilities, privately or publicly owned wastewater treatment works, and off-site underground injection wells.

Most industry commenters objected to the reporting of off-site waste transfers for several reasons. First, commenters stated that such information is not required by the statute, was not intended by Congress, and is duplicative because of RCRA reporting requirements for hazardous waste. The strongest objection, however, was that the off-site chemical transfers do not constitute "a release into the environment" by the reporting facility and should not be reported as such on the form.

Other comments focused on whether reporting of off-site treatment/disposal methods is required or not and how to report recycling and reuse of the chemical waste off-site. A few commenters suggested that EPA should require the EPA Identification Number of the off-site facility because these numbers would help provide a better identification of the off-site facility and would aid in access to related information in other data bases.

EPA has interpreted the statute to require reporting on wastes sent off-site because the conference report states that reportable releases shall also include releases "to waste treatment and storage facilities." Also, EPA believes that reporting wastes sent off-

site is important because the absence of this information regarding the generation of chemical wastes by a facility could be misleading to the public. Many facilities transfer a significant portion of their chemical wastes to off-site locations.

The information to be collected on off-site waste transfers is different from that required under RCRA because this information is chemical-specific and makes no distinction between wastestreams which are hazardous and non-hazardous. This type of chemical-specific information is not currently available to the public or EPA for many chemical wastes. Facilities are to report the amount of the listed toxic chemical in waste transferred off-site. Facilities are not to report the total amount of the waste containing the chemical.

EPA has retained the requirement to report transfers of a chemical in waste to off-site locations. However, EPA has revised the form so that off-site transfers are distinguished from direct facility releases to the environment, because the disposal fate is not always known and the off-site treatment may reduce the amount of chemical ultimately released into the environment. The off-site transfers of chemicals are to be reported in a separate section (Part III, Section 6) of the form. Reporting of treatment/disposal methods is required only if this information is readily available to the reporting facility.

Transfers to a reprocessor or recycler of chemical waste are not reportable as off-site transfers under the final rule. First, the material being sent is not bound for ultimate disposal. Second, these types of facilities may themselves be covered as manufacturers or processors of the chemical and, thus, would be accounting for any releases to the environment.

EPA agrees with the comment that an EPA Identification Number should be included in connection with the name and address of off-site locations (to be reported in Part II, Section 2 of the form). If the chemical is part of a hazardous waste, this information element should be readily available from information that the facility must supply on the Uniform National Hazardous Waste Manifest Form. If the facility does not know the EPA Identification Number of this off-site location, it would enter N/A in this space on the form.

E. Waste Treatment Information

1. *Wastestream and treatment methods.* Section 313(g)(1)(c)(iii) states that facilities must report "for each wastestream, the waste treatment or

disposal methods employed, and an estimate of the treatment efficiency typically achieved. EPA proposed that a wastestream be considered as the aggregate wastes treated in a particular manner or the influent stream to a single treatment method. For example, aggregate waste going to secondary wastewater treatment on site would be considered as a wastestream and reporting would not be required for each of the numerous waters from various process points that are combined for treatment. EPA proposed that the wastestream be characterized as gaseous emissions, wastewater, non-aqueous liquid waste, and solid waste (includes sludge and slurries).

In the proposed rule EPA also requested comment on a more detailed wastestream characterization approach. The example used would have required each individual wastestream containing the reported toxic chemical to be identified by an appropriate RCRA waste code. Where a wastestream did not have a RCRA waste code, other source codes would have to be developed.

Commenters representing industry trade groups and individual companies supported EPA's proposed aggregate wastestream approach. Commenters representing environmental or public interest groups disagreed with the proposal and urged EPA to adopt a source-specific wastestream characterization system, such as requiring individual wastestreams to be identified by the RCRA codes. These commenters claimed that an aggregate wastestream approach would severely reduce the utility of the data and that EPA will lose the ability to identify particularly efficient means of treatment.

EPA has determined that it will retain the aggregate wastestream characterization approach as proposed. EPA was not convinced by comments received that a source-specific wastestream characterization would add materially to the data received or to understanding more about relative efficiencies of particular treatment methods applied to those wastestreams. EPA remains concerned that a very specific wastestream approach would add a significant degree of complexity to the form. It would also increase the burden associated with completing the form without a commensurate increase in benefits. For example, in larger facilities several different individually coded wastestreams, containing the same chemical, may be sent to one type of treatment. The form would have to

provide for multiple entries for each of these wastestreams. Yet, the type of treatment and the relative efficiency of removal of the chemical would be the same. There also remains the concern about disclosure of trade secret information if facilities were required to identify source-specific wastestreams. For example, many of the RCRA waste codes are themselves specific toxic chemicals as listed in section 313. If a facility can substantiate that the manufacture, processing, or use of a toxic chemical at their facility is a trade secret and they must then identify a treated wastestream as that same chemical, then trade secret protection is effectively negated. Furthermore, to the degree that process specific wastestream information could reveal sensitive process related trade secret information, companies that might otherwise not claim the chemical identity as a trade secret may have more reason to do so in order to protect the linkage to process detail. This result would adversely affect the public's access to information.

Finally, in many cases where more detailed wastestream information may be of use, such information would be of use only in conjunction with other detailed information, such as the characterization of the wastestream. It is EPA's belief that such detailed information is more appropriately gathered in followup activities after the reports under this rule have been screened to identify particular facilities or classes of facilities of greatest interest. EPA believes that the level of detail in the final form will satisfy the needs for such screening.

EPA proposed a list of treatment codes in the instructions from which facilities could specify the treatment methods used for each wastestream. This list has been revised slightly to be more consistent with treatment methods and codes that will be used for future RCRA annual/biennial reporting. Such consistency will result in less confusion and burden for many facilities who will be reporting waste treatment information under two different EPA rules. Treatment methods are to be reported for all wastestreams containing reportable chemicals whether this treatment actually removes the specific chemical or not.

2. Treatment efficiency. EPA proposed that treatment efficiency, expressed as percent removal, would represent any destruction, biological degradation, chemical reaction or conversion, or physical removal of the listed chemical in the wastestream being treated. A few commenters noted that some of the

treatment methods, such as encapsulation and fuel blending, could be reported as 100 percent efficient from the standpoint of protection of health and the environment. EPA proposed that these treatment methods be reported with a 0 percent efficiency because they do not remove the chemical by any of the previously mentioned mechanisms. For the final rule, EPA does not believe that "removal efficiency" should be stretched to include wastes rendered "safe," "harmless," or "non-toxic" to health and the environment without being removed from the wastestream because such determinations are abstract and subjective, and would result in inconsistent and confused reporting, and would be misleading to the public. Knowledge of the treatment method used should be sufficient to indicate to data users the mechanism of the "treatment" employed and how it works.

Several commenters were confused about how to report the efficiency of neutralization processes because this type of treatment involves a change in pH and they believed that the concept of percent removal would not apply. Neutralization does involve a chemical reaction or conversion, such as an acid reacting with a base to form a salt or vice versa. Therefore, percent removal would apply to the percent of acid (or base) in the wastestream that was reacted during treatment. Neutralization also involves pH adjustment because pH is just a measure of the acid or base concentration in the wastestream. A pH of 7 or above after neutralization would indicate 100 percent treatment efficiency of an acidic influent wastestream while conversely, a post-treatment pH of 7 or below would indicate 100 percent efficiency for a basic influent wastestream.

3. Sequential treatment. In the proposed rule, the reporting form did not allow tracking of sequential treatment processes, and an efficiency was to be reported for each treatment method. Several commenters pointed out that for sequential treatments, an overall efficiency for the process would be more useful data than a separate efficiency for each treatment without an indication that they are part of a sequence. EPA also realizes that, in many cases, facilities may not know the individual treatment step efficiencies for a sequential process, but would have a good estimate of the efficiency of the overall treatment process.

EPA has revised the waste treatment section of the form to allow the option of reporting sequential treatment methods and an overall treatment efficiency if the

individual treatment step efficiencies are not known. The sequential treatment steps would be linked together by checking a box next to each step to indicate that it is part of a sequence. See Part III, Section 7, column D of the form. This revision will allow facilities to report more accurate and relevant (in the case of sequential treatment) data, will reduce their reporting burden, and will increase the usefulness and understanding of the treatment data reported. For sequential treatments, facilities are to list the individual treatment codes for the various steps in the process, report the influent concentration for the entire process by entering the code next to the first treatment step, and report the overall sequential treatment efficiency next to the last treatment step in the sequence.

4. Influent concentration. EPA proposed that facilities report the pre-treatment concentration of the chemical in the wastestream for each treatment method. Submitters would enter a code corresponding to one of five ranges of concentration. Each range covers 2 to 3 orders of magnitude, relieving facilities of the burden of having to report the exact concentration which may not be measured and may fluctuate. Influent concentration data will enhance the evaluation and comparison of waste treatment methods by helping users of the data determine the effectiveness of treatment methods for wastestreams containing different amounts of a given chemical.

Most commenters on this issue stated that this information should not be required because it was not specified in the statute, but little comment was received on the burden or technical difficulties of supplying this data. EPA has retained the reporting of the influent concentration for each treatment method in the final rule. The influent concentration will aid in the evaluation of treatment methods used throughout industry by putting the treatment efficiency data into better perspective. This requirement should not significantly increase a facility's reporting burden because it can report the data in fairly broad ranges. For sequential treatments, the influent concentration will be required only for the first treatment step in the overall treatment sequence.

F. Optional Reporting on Waste Minimization

The proposed form included an optional section to allow the respondent to indicate any action taken in the past year (other than the waste treatment methods specified in Part III, Section 8 of the form) to minimize the generation

of waste related to the chemical being reported. This section was made optional because the reporting of this type of information is not required in section 313. However, the information that would be provided about waste reduction is considered by EPA to be an important indicator of how industry is responding to the Agency's emphasis on better waste management through waste reduction.

In comments on the proposed rule, the regulated community stated that this request went beyond the scope of the statute and that the Agency was not authorized to collect such information under Title III. Reporting on waste minimization puts an additional burden and cost on the regulated community. One commenter noted that if a facility chooses not to report on waste minimization, readers of the report may conclude that no emission reduction is in place at that facility. On the other hand, public interest groups stated that information on waste minimization would be very useful to the public and requested that this reporting element be made mandatory.

The Agency has decided to retain the optional section on waste minimization. EPA has no coercive intent in requesting this optional information. On the contrary, EPA believes that this section will provide respondents with a positive way to demonstrate to the public the beneficial waste reduction activities they have undertaken. EPA believes that the information provided by industry can indicate longer-term trends in waste reduction activities. However, the Agency has attached a 3 year sunset to this optional section. EPA intends to study the benefits of this section and will review the potential overlap between this reporting question and reporting on waste minimization under RCRA regulations.

The proposed optional reporting section also included space for providing a narrative description of waste minimization activities. The Agency has decided to drop the narrative space because it will be difficult for the computerized data base to accommodate such textual data.

VIII. Chemical List Issues

A. Modifications to the List

EPA received many comments suggesting modifications to the list of chemicals subject to section 313 reporting. Among these comments were suggested additions to the list corresponding to other regulated chemicals such as the 47 toxic pollutants regulated under the Clean Water Act. Another comment reflected that all

known carcinogens should be on the list. Many other comments were made suggesting specific chemical deletions from the list of section 313 chemicals. EPA realizes that some of these recommendations may be valid. However, the Agency chose not to use this initial rulemaking as means to modify the list of covered toxic chemicals. EPA plans to begin an in-depth review of the list of chemicals currently subject to reporting and an evaluation of chemicals that should be added to the initial list beginning in the first quarter of 1988. The comments which the Agency has received will be useful in helping the Agency develop its methodology for this list review. Any changes to the section 313 list of chemicals that appear appropriate based upon this review will be proposed for public comment.

B. Nomenclature

1. CAS preferred name versus common trade name. The list of chemicals mandated by section 313 contained certain entries identified by trade names, not chemical names. For example, Parathion is a trade name. The chemical name with the corresponding CAS registry number is Phosphoric acid, O,O-dimethyl-O-(4-nitrophenyl)ester. EPA stated in the proposed rule that reporting facilities should not have to use a competitor's trade name for reporting purposes and so, in the case of a listed trade name, an alternative CAS preferred name was offered in solid brackets. The Agency intends to use the CAS registry number as the unique identifier for all chemicals except for the 20 chemical categories. Therefore, reporting facilities can use either the trade name or the CAS preferred name that appears in § 372.65 (a) and (b) of the rule as long as the corresponding CAS registry number appears on the form.

2. Cyanide compounds. Although cyanide compounds are described with a CAS registry number, cyanide compounds are considered a chemical category as defined in § 372.65(c) of the rule. The CAS registry number refers to the cyanide anion (CN⁻), which is not a discrete reportable chemical without a counterion. Therefore the CAS registry number listing for cyanide compounds in § 372.65 (a) and (b) of the rule has been removed.

3. Metal and metal compounds. The original committee print of the list of chemicals subject to reporting under section 313 listed metals and their compounds with the CAS registry number which corresponded to the metal only. In its proposal, EPA sought to separate the metal from metal

compounds. The distinct metal appears with its CAS registry number in § 372.65 (a) and (b), and the corresponding metal compounds category appears in § 372.65(c) because it is a chemical category.

4. *Dyes and Color Index names.* EPA received comment that some dye chemicals are listed by a common name whereas others are listed by a Color Index (C.I.) name. For example, Auramine (CAS No. 492-80-8) has the Color Index name of C.I. Solvent Yellow 34. It was suggested that the list would be much clearer if all of the dye chemicals were listed by their Color Index names. Furthermore, the chemicals Direct Black 38, Direct Blue 6, and Direct Brown 95 should also be listed with the "C.I." prefix. The Agency agrees with these suggestions. Listing these chemicals using the Color Index name makes the list consistent. In § 372.65(a) of the rule all of these dye chemicals are listed together. EPA has included the common name in brackets in the case of Auramine.

5. *Glycol ethers.* Commenters suggested that the Agency should include specific glycol ethers in the chemical specific listings of § 372.65 (a) and (b) of the rule and remove it as a category from § 372.65(c). EPA considers this an amendment or modification to the list of chemicals and is not changing the list in this rulemaking.

C. Reporting Substances of a Certain Form

Certain of the chemicals listed in the Committee Print have parenthetical qualifiers listed next to them. EPA attempted to clarify these qualifiers in its proposal. A chemical that is listed without a qualifier is subject to reporting in all forms in which it is manufactured, processed, and used.

1. *Fume or dust.* Three of the metals on the list (aluminum, vanadium, and zinc) contain the qualifier "fume or dust." EPA interprets this qualifier to mean that a facility is manufacturing, processing, or using the metal in the form of fume or dust. Fume or dust does not refer to "wet" forms, solutions, or slurries, for example, but only dry or anhydrous forms of these metals. As explained in Unit IV.A. of this preamble, the term manufacture includes the generation of a chemical as a byproduct or impurity. In such cases, a facility should determine if, for example, it generated more than the 1987 threshold of 75,000 pounds per year of aluminum fume or dust as a byproduct of its activities. If so then the facility must report that it manufactures aluminum (fume or dust). Similarly, there may be certain technologies in which one of

these metals is processed in the form of a fume or dust to make other chemicals or other products for distribution in commerce. In reporting releases, the facility would only report releases of the fume or dust.

2. *Manufacturing qualifiers.* Two of the entries contain a qualifier relating to manufacture. For isopropyl alcohol the qualifier read "mfg.—strong acid process." For saccharin, the qualifier simply reads "manufacturing." In the case of isopropyl alcohol, EPA interprets the qualifier to mean that only persons who manufacture isopropyl alcohol by the strong acid process are required to report. In the case of saccharin, only manufacturers of saccharin are required to be reported. A facility that processes or otherwise uses either chemical would not be required to report for those chemicals. In both of these cases, supplier notification does not apply.

3. *Solutions.* Four substances on the list are qualified by the term "solution." These substances are ammonium nitrate, ammonium sulfate, sodium hydroxide, and sodium sulfate. EPA interprets the term "solution" to refer to the physical state of these chemicals. Only facilities that manufacture, process, or use these chemicals in the form of a solution would be required to report these chemicals. See D. of this Unit for a further discussion of solutions. In these cases supplier notification applies only if the chemical is distributed as a solution.

4. *Phosphorus (yellow or white).* The listing for phosphorus is qualified by the term "yellow or white." This refers to a chemical state of phosphorus meaning that only manufacturing, processing, or use of phosphorus in the yellow or white states triggers reporting. Conversely, manufacturing, processing, or use of "black" or "red" phosphorus would not trigger reporting. Supplier notification applies to distribution of yellow or white phosphorus.

5. *Asbestos (friable).* The listing for asbestos is qualified by the term "friable." This term refers to a physical characteristic of asbestos. EPA interprets "friable" as being crumbled, pulverized, or reducible to a powder with hand pressure. Again, only manufacturing, processing, or use of asbestos in the friable form triggers reporting. Similarly, supplier notification applies only to distribution of friable asbestos. EPA received comment to include other forms of asbestos. As noted above, the Agency has chosen not to use this rulemaking as a vehicle for modifying the initial list of chemicals.

D. Reporting Chemical Solutions

1. *De minimis cut-off for chemical solutions.* The list of chemicals in §§ 372.65 (a) and (b) contain the qualifier "solution" for some entries such as sodium sulfate (solution). This qualifier is defined in C.3. of this Unit. Technically, a solution is a mixture or formulation. Certain commenters suggested that a *de minimis* cut-off be applied to the reporting of chemical solutions consistent with the concept of a *de minimis* limitation for mixtures. EPA agrees with this suggestion because reporting on these four substances is consistent with mixture reporting. Chemicals with the qualifier "solution," such as sodium sulfate that are manufactured, processed, or otherwise used in excess of the *de minimis* levels must be factored into threshold and release reporting requirements of this rule.

2. *Neutralizations and pH adjustments.* EPA received comment regarding neutralization of solutions such as dye baths and pH adjustments of wastewater.

Neutralization is interpreted by EPA as a chemical reaction. For example, sodium hydroxide solution is used to neutralize a dye bath and a solution of sodium sulfate is formed. Assuming that other reporting requirements are met, this facility is viewed by EPA as a user of sodium hydroxide (solution), and a manufacturer of sodium sulfate (solution), even if the sodium sulfate is destined for disposal. Releases of sodium hydroxide (solution) and of sodium sulfate (solution) would be reported.

Adjustments of the pH of a solution present a more complex circumstance in establishing reporting with respect to threshold requirements. The input of a chemical such as sodium hydroxide (solution) into wastewater for pH adjustment constitutes a use of that chemical and is reportable. Therefore EPA is requiring facilities that use section 313 chemicals for pH adjustments and neutralizations to report if they meet an applicable threshold, even if these chemicals are consumed and no releases result. However, EPA realizes that there may be many situations where pH adjustments are made to complex mixtures such as wastewater, where it may be very difficult to determine whether a section 313 chemical is being "manufactured" during this neutralization. Furthermore, quantifying these chemicals for the purposes of meeting reporting thresholds may be just as difficult. The facility must report if it

knows that a listed toxic chemical is generated as a result of such neutralization and has data that allows for a reasonable estimate of the quantity generated.

IX. Trade Secret Provisions

A. General Trade Secret Issues

The Agency received a number of comments relating to the trade secrecy implications of certain proposed form elements. Many of these comments have been addressed in the applicable units of this preamble. EPA also received a number of other general comments on trade secrecy as they relate to claims under section 313.

EPA proposed a rule in the *Federal Register* of October 15, 1987 (52 FR 38312). Part of this proposed rule contains procedures for claims of trade secrecy under Title III, including a proposed trade secret claim substantiation form. General comments on trade secrecy under the proposed section 313 rule will be reviewed and considered as part of the above-referenced proposed rule.

Until such time as the trade secret rule is finalized, persons subject to this final rule are required to comply with section 322. Accordingly, to do so persons who claim the chemical identity of a toxic chemical as a trade secret should follow the provisions of the proposed trade secret rule. (One exception is noted in B. of this unit regarding the generic chemical name which is required to be provided in the section 313 submission.) Persons should also use the proposed trade secret claim substantiation form until a final form is published.

B. Identifying Adverse Health and Environmental Effects Information in the Data Base

Section 322(h)(2) of Title III requires EPA to identify the adverse health and environmental effects associated with a toxic chemical that is claimed trade secret and assure that such information is included in the computer data base. The conference report further explains that "[t]he adverse effects identified should be described in general terms so as not to provide a unique identifier of a particular trade secret chemical."

EPA identified several options in its proposed rule for meeting this requirement of providing adverse effects information relating to trade secret claims. One option would be to develop a cumulative, worst-case effects characterization for the predefined generic class of the chemical.

A second option discussed was a modified generic identification approach where companies would be required to

develop and submit a generic identity for the chemical, and the EPA would develop the associated adverse health effects description that relates to the general class or category of the chemical.

A third approach mentioned in the proposed rule would be to attempt to develop individual adverse effect profiles that would be substance-specific but would mask any particular effect that is unique and that could divulge its chemical identity.

EPA received comments on the above options. Comments generally pointed towards the obvious difficulty of maintaining chemical identity as trade secret while providing adverse health and environmental effects information. It is the EPA's intention to provide the public with as much detailed information as possible on adverse effects. However, the Agency is also obligated to protect the chemical identity from disclosure through the data base when a legitimate trade secret claim is made.

EPA approached this issue by developing a matrix of the 309 listed chemicals against the 10 health and environmental effects specifically mentioned in section 313(d). Toxicity data were accumulated from standard literature sources and, where applicable, interpreted using Agency guidelines. The results showed that there were approximately 70 chemicals that exhibited unique toxicity patterns within the 10 effects. EPA proceeded with this analysis by collapsing the 10 adverse effects categories to attempt to arrive at a point where there were no chemicals that exhibited a unique toxicity pattern. To reach the "no unique" result, it was necessary to collapse the categories to the following 4 general categories: Carcinogenicity, acute toxicity, other human health effects, and environmental toxicity.

EPA was surprised by the results of this analysis. EPA believes that Congress did not anticipate that its mandate to balance trade secret protection with the ready availability of effects information would lead to such a low degree of specificity for the effects information. EPA will continue to explore alternatives for providing the public with more specific effects information in connection with chemicals claimed trade secret. The Agency plans to publish the analysis mentioned above for comment sometime in the second quarter of 1988 before making any final decisions on the adverse effects identified in the data base.

The only impact of this analysis on the final rule is that EPA will not use the

predefined generic classes as originally proposed. The analysis indicated that even the four-effects matrix, when put in the context of these generic classifications, created unique patterns for certain chemicals. As a result the Agency has decided to require the reporting facility to provide a suitable generic chemical name that is structurally descriptive of the chemical that is claimed trade secret.

X. Recordkeeping

EPA proposed a 5-year recordkeeping period. Several commenters objected to this proposed provision. They asserted that 5 years was an excessively long period of time to require facilities to maintain records relative to the reports under section 313. They asserted that a 3-year recordkeeping period would be sufficient and would be consistent with the 3-year recordkeeping period in other EPA regulations relative to air, solid waste, and water.

One reason EPA proposed a 5-year recordkeeping period for section 313 submissions is the expected high number of facilities potentially subject to reporting. A 5-year period would allow EPA to inspect a larger number of facilities. However, after a review of the issue EPA believes that a 3-year recordkeeping period will be sufficient given that EPA will be receiving submissions annually from covered facilities. Therefore, the recordkeeping period is 3 years from the date of submission of a report for all information relative to the preparation of that report.

In addition to persons who must submit reports under the final rule, a supplier of a mixture or trade name product must keep records of the fact that they provided the required notification relative to the presence and composition of covered toxic chemicals in products they distribute in commerce. Such records must, where applicable, include an explanation of why the specific chemical identity was determined to be a trade secret and the appropriateness of the generic chemical name provided in the notification relative to that chemical. If the supplier provides an upper bound concentration value instead of a specific concentration, the supplier must provide in its records an explanation of why the specific concentration is deemed a trade secret and the basis for the upper bound concentration limit.

XI. Economic Impact

EPA has prepared a Regulatory Impact Analysis (RIA) in connection with this final rule. The RIA assesses

the economic impact of the final regulation on the affected industry (manufacturing, SIC codes 20 through 39) and State and Federal governments. The following cost results are presented in the analysis document titled, "Regulatory Impact Analysis in Support of Final Rulemaking Under Section 313 of the Superfund Amendments and Reauthorization Act of 1986."

Three alternatives are considered in the RIA for implementing section 313:
 Alternative I—Facilities report by letter.

Alternative II—Facilities report on the proposed version of Form R. Users must contact supplier concerning mixtures and trade name products.
 Alternative III—Facilities report on the final version of Form R. Supplier notification.

The population of facilities that would be required to submit reports under section 313 is based on three sources: census data for national totals of facilities engaged in manufacturing, surveys of toxic substances use conducted by 6 States and localities

involving a subset of the substances contained in the list of 329 chemicals covered by section 313, and production of toxic chemicals reported for the Toxic Substances Control Act Inventory.

Section 313 requires annual reports on releases of toxic chemicals from an estimated 31,800 facilities. Overall, the Agency may receive an estimated 318,000 reports annually. This equals an average of 10 reports per facility.

The total costs per average facility, as well as per chemical report costs, are shown in Table I below.

TABLE I.—TOTAL COSTS PER AVERAGE REPORTING FACILITY AND PER CHEMICAL REPORT (\$/YR.)

	Regulatory alternative I		Regulatory alternative II		Regulatory alternative III	
	First year	Subsequent years	First year	Subsequent years	First year	Subsequent years
Compliance determination.....	1,195.20	296.80	1,195.20	296.80	1,195.20	296.80
Recordkeeping.....	101.76	41.92	101.76	41.92	101.76	41.92
Formatting.....	1,223.12					
Report completion (10 chemicals).....	9,036.69	6,144.98	11,295.80	7,680.60	11,595.00	7,884.06
Identification of mixtures.....	2,222.93	200.72	2,222.93	200.72	0.00	96.34-887.76
Report completion (3 mixtures).....	232.66	158.34	291.22	197.78	0.00	0.00
Mailing.....	6.94	6.94	6.94	6.94	6.04	6.04
Total costs per facility.....	14,019.30	6,851.70	15,113.85	8,426.76	12,898.00	8,327.16-9,118.58
Total costs per chemical report.....	1,401.93	685.17	1,511.39	842.68	1,269.80	832.72-911.86

Source—RIA 1987.

The costs represented in Table I are for reporting facilities. The final rule will cause costs to be incurred by more facilities than will actually be subject to reporting. All facilities with 10 or more full time employees in SIC codes 20

through 39 will incur some costs associated with compliance determinations (i.e., becoming familiar with the rule and the form, and determining if they meet the threshold requirements for any of the section 313

chemicals). An estimated 146,450 facilities will incur the compliance determination costs. These costs, which do not vary across the alternatives, are included in the aggregate industry costs shown in Table II below.

TABLE II.—AGGREGATE COSTS FOR INDUSTRY: FIRST AND SUBSEQUENT REPORTING YEARS

(Million dollars per year)

	Regulatory alternative I		Regulatory alternative II		Regulatory alternative III	
	First year	Subsequent years	First year	Subsequent years	First year	Subsequent years
Compliance determination.....	137.3	34.3	137.3	34.3	137.3	34.3
Filing.....	3.2	1.3	3.2	1.3	3.2	1.3
Formatting.....	38.9					
Report completion for chemicals.....	287.6	195.6	359.4	244.4	359.4	250.9-253.9
Users-screening of mixtures.....	27.2	2.0	27.2	2.0	27.2	2.0
Users-contacting suppliers.....	43.5	4.4	43.5	4.4		
Report completion for mixtures.....	7.4	5.1	9.3	6.3		
Suppliers identification of mixtures.....	0.8	0.1	0.8	0.1		0.1-0.8
Suppliers informing users.....	10.3	1.0	10.3	1.0		0.7-6.9
Total.....	556.2	243.8	591.0	293.9	527.1	289.3-299.2

Source—RIA.
 Range of costs in subsequent years of Alternative III reflects elements that are phased-in. That is, the high end of the ranges represents year 2, and the low end represents subsequent years.

The other major costs that will be incurred by non-reporting facilities

involve mixtures and trade name products. The proposed rule would have

required that processors and users of mixtures and trade name products

contact suppliers and document the information provided by suppliers. If information were not provided by suppliers, processors and users were required to submit partial reports for mixtures and trade name products. The final rule places the burden on the supplier to provide the information to users. Suppliers and users would incur costs under all alternatives, as shown in Table II. Supplier costs are lower for the final rule, because suppliers would be initiating the information, rather than responding to requests from users.

The costs of users will also be lower for the final rule, as the information on mixtures will be made available to them and consequently there will be no costs

for contacting suppliers and documenting the contacts.

To compare costs of the proposed rule to the final rule it is necessary first to understand that the costs for the proposed rule have been revised. The four major reasons for revisions to the cost estimates are summarized as follows:

1. The number of chemical reports per facility increased from 4 to 10. Basis for change: Public comments, section 313 pretest, and data from five additional State and local data bases on chemical use.

2. Costs for compliance determinations increased by 33.0 percent. Basis for change: Revisions to

costs developed in the RIA for the proposed Comprehensive Assessment Information Rule (CAIR).

3. Estimates for calculating releases in the proposal were based on pretest of CAIR form and contractor estimates. These estimates have been reduced by 30 percent. Basis for change: Revisions to proposed CAIR costs and section 313 pretest.

4. Costs for suppliers (screening mixtures and informing users) and users (screening mixtures) were not originally included.

These costs are compared in Table III below.

TABLE III.—SUMMARY OF COST COMPARISON BETWEEN PROPOSED AND FINAL RULE

(First-year cost)

	Proposed	Revised proposed final	
Costs per facility	\$12,500	\$15,100, \$12,900	
Total number of chemical reports	132,340	318,000, 318,000	
Total number of partial mixture	32,780	95,400	
Total industry costs	\$472.7 million, \$527.1 million	\$591.0 million	
Reports per facility	4 chemical, 1 mixture	3 chemical, 7 full reports-mixtures, 3 partial reports-mixture	3 chemical, 7 full reports-mixtures

The number of chemical reports per facility increased 2.5 times but initial doubling of CAIR estimates was found to be unnecessary and inclusion of supplemental time to estimate releases was also found to be double counting. First year costs per reporting facility increased from about \$12,500 in the June RIA to \$15,100 for this same (proposed) version of the form, reflecting the above factors and an increase from the more thorough accounting for the responsibilities attributed to mixtures. Phase-in of mixtures and placement of the burden upon suppliers rather than users account for the final rule's (Alternative III) lower cost of \$12,900 per facility.

EPA has chosen to develop the form and rule in order to provide for uniform reporting, so that a computerized data base of high quality and utility can be created and maintained. EPA will incur costs to process, check, store, and make available the data reported under section 313. EPA's costs will vary depending upon its choice of data management systems and policies, but are estimated to range from between \$7.7 and \$26.4 million per year. States will also have some expenses for processing, storing, and distributing reports sent to them. State costs are estimated to be from \$1.7 to \$2.2 million per year.

XII. Duplication of Reporting

Under both section 313 of SARA and section 103 of CERCLA, EPA requires companies to submit information on chemical releases into the environment. While the two statutory provisions are similar in their reporting requirements, they differ in both scope and purpose.

Section 313 requires reporting only by facilities in SIC codes 20 through 39. Section 103(f)(2) places no such restrictions on its applicability. Also, some chemicals covered under CERCLA section 103 are not subject to SARA section 313 reporting requirements, and certain additional chemicals not subject to CERCLA notification are included in section 313 notification requirements.

The two statutory provisions also differ in purpose. While the purpose of section 313 of SARA is to create a Federal inventory of the listed chemicals, the purpose of the CERCLA section 103 reporting requirements is to gather information for emergency response.

A review of the issue found that significant amounts of duplication do not exist between these two requirements.

XIII. Public Data Base

Section 313(j) states that the Administrator shall establish and maintain in a computer data base a national toxic chemical inventory base 1

on data submitted to the Administrator under section 313. EPA shall make this data accessible by computer telecommunications and other means to any person on a cost reimbursable basis.

EPA is reviewing potential options through which the toxic chemical inventory can be made available to the public. There are numerous vehicles and mechanisms under consideration by EPA for the wide dissemination and accessibility of the inventory to the public on a cost reimbursement basis with the potential for fee reductions or waivers.

EPA developed early draft options as examples of potential vehicles and mechanisms for the public availability of a toxic chemical inventory data base. This preliminary draft options paper was the subject of a public meeting held on April 20, 1987. Comments from this public meeting and subsequent discussions with other Federal agencies, industry, States, and environmental groups are serving as the basis for further analysis by EPA.

After further review of public availability options, EPA will determine which set of products and services will provide the most feasible and widest dissemination of the toxic chemical inventory to the public. EPA expects to be able to make the data base available in the first quarter of 1989.

XIV. Rulemaking Record

The following documents constitute the rulemaking record for this rule (docket control number OPTS-400002A). All documents, including the index of this record, are available to the public in the OTS Reading Room from 8 a.m. to 4 p.m., Monday through Friday, excluding legal holidays. The OTS Reading Room is located at EPA Headquarters, Rm. NE-G004, 401 M St., SW., Washington, DC 20460. The record includes the following information considered by the Agency in developing this rule:

1. Documents in docket no. 400002 at the date of publication of the proposed rule.
2. The proposed rule.
3. Transcripts of public meetings held July 24 and 27, and August 4, 1987.
4. Written comments received on the proposed rule.
5. Summaries of meetings held with representatives of industry, public interest groups, and State government officials.
6. The document titled "Regulatory Impact Analysis in Support of the Final Rulemaking Under section 313 of the Superfund Amendments and Reauthorization Act of 1986" (1987).

XV. Regulatory Assessment Requirements

A. Executive Order 12291

Under Executive Order 12291, EPA must judge whether a rule is "major" and therefore requires a RIA. EPA has developed a RIA as described in Unit XI. This RIA shows that the combination of impacts of the statutory provisions of section 313 and the interpretive provisions of this rule may create a first year impact of \$527 million and a second year impact of \$299 million. EPA has determined that this rule is "major" because it may have an effect of \$100 million or more on the economy. EPA does not, however, anticipate that this rule will have a significant effect on competition, costs, or prices.

This rule was submitted to the Office of Management and Budget (OMB) for review as required by Executive Order 12291.

B. Regulatory Flexibility Act

Section 313 and the final rule exempt certain small businesses from reporting, i.e., those facilities in SIC codes 20 through 39 with fewer than 10 full-time employees. The statutory exclusion of facilities with fewer than 10 full-time employees exempts 48 percent of all manufacturing facilities in SIC codes 20 through 39. After also considering the volume thresholds, EPA estimates that section 313 will require reporting from

approximately 3.0 percent (9,400 of 277,100) of all small manufacturing facilities with less than 50 employees.

Analysis to support the proposed rule indicated that for some segments of the manufacturing sector the compliance costs of reporting will have a significant impact. Specifically, reporting costs are estimated to be between 1.0 and 2.0 percent of median sales for facilities with fewer than 50 employees; and between 2.0 and 4.0 percent of median sales for facilities with 10 to 19 employees. Subsequent to proposal, the Agency developed and included a Regulatory Flexibility Analysis in the RIA to examine options that might reduce the burden to small businesses.

The Agency received extensive comments on the impacts of the proposed rule on small businesses from the small Business Administration (SBA). SBA presented several alternatives designed to reduce the burden to small businesses, based on the premise that small facilities (those with fewer than 100 employees) have nothing significant to report. These alternatives are discussed below.

SBA proposed the development of thresholds based on risks posed by various emission sources. SBA maintains that data exists from the Agency's regional studies that would allow the Agency to calculate risks from air and water emissions, from which the Agency could develop thresholds for reporting based on specific risks. From its review of the data, SBA concludes that "small firms collectively contribute only a small fraction, generally less than 10 to 15 percent, of the toxic chemical emissions included in the local area studies." SBA acknowledges that "there may be a lack of information on toxicity which would make [a risk] analysis infeasible for certain chemicals."

SBA's second proposed alternative is to combine section 313 with CERCLA section continuous release reporting, using 10 pounds a day Reportable Quantity (RQ) for any section 313 chemicals not covered under CERCLA. SBA states that this would ensure that "facilities of primary concern (those with significant emissions) are included." SBA believes this approach would also alleviate the significant economic burden on small businesses.

SBA recommends as a third alternative a *de minimis* reporting range of 0 to 1 pound of emissions per day or 0 to 250 pounds per year. SBA's fourth alternative was a total exemption of small facilities (defined by SBA as those with fewer than 100 employees) from reporting; and/or an abbreviated or shortened reporting form.

The Agency received comments both in support of an in opposition to SBA's position. The Agency identified 8 regulatory alternatives as part of the Regulatory flexibility Analysis for this rule. The alternatives, evaluated on the basis of cost and economic criteria, represent options for reducing the reporting burden for small businesses. Each alternative is described and discussed below.

Alternative 1: Rule as proposed; statutory exclusion of facilities having fewer than 10 employees. This alternative allows complete coverage of reporting on emissions, but provides no reduction in burden to small facilities.

Alternative 2: Exempt all small businesses (defined as facilities with fewer than 50 employees). [The RIA analyzes alternative definitions of small businesses.] This alternative not only reduces the reporting burden for small businesses, but eliminates any burden of compliance determination from small facilities. However, this alternative would result in no reporting of emissions from small facilities, which could lead to substantial gaps in the Emissions Inventory, especially at the community level.

The costs are summarized in Table IV below.

TABLE IV.—REGULATORY FLEXIBILITY STUDY OPTIONS: COSTS PER FACILITY
(Present Value for 10 Years of Reporting)

	Cost (1)
Option 1	\$54,320
2	0
3	* \$54,320
4	\$5,100 to \$54,320
5	\$5,100
6	\$24,680
7	\$47,130 to † \$52,630
8	\$34,410 to ‡ \$50,990

¹ In present value 1987 dollars at a 10 percent discount rate for years 1988-1997.

² Given the absence of any SIC codes that would meet exemption criteria.

³ Average cost, but this option would offer the benefit of limiting the extent to which individual facilities would exceed the average.

⁴ Assumes all 10 chemicals per facility enjoy 10 to 50 percent cost savings for estimates of air and water releases in ranges.

Alternative 3: Exempt facilities in specific SIC codes if they account for low aggregate emissions. This alternative would exempt small businesses in particular industries that might trigger the need to report based on the volume threshold for use, but have little actual emissions. However, after examining the available data (six State and local data bases that contain emissions data for some of the section

313 chemicals), no SIC codes were identified that met the criterion.

Alternative 4: Require annual reporting by small businesses only of Parts I through VI of proposed Form R; Parts VII through X of the proposed form would be due only upon request by EPA. This alternative would eliminate the most onerous part of the reporting burden (i.e., estimating releases). However, while small facilities would be identified in the data base, the most important information (i.e., emissions) would not be captured. Therefore the utility to the public of the data base would be reduced. There also would be likely increased administrative costs with such an approach when the emissions data are requested. These costs would be incurred by the public (for requesting information), industry (for having to essentially fill out a form for some chemicals twice), and the Agency (for establishing procedures of how and to whom the request should be made, response times, etc.).

Alternative 5: Require annual reporting by small businesses only of Parts I through VI of proposed Form R plus data on quantity used or produced; EPA estimates releases from small business facilities. This alternative would eliminate the most onerous part of the reporting burden as described in Alternative 4. EPA would provide emissions estimates in the data base that were more consistently derived. However, the information that EPA would have to require to estimate releases may actually increase the information required on the form. For example, EPA would have to require production, processing, or use volume information. This approach would increase Agency costs for calculating releases. It would also require industry's willingness to report such potentially confidential or trade secret information as a tradeoff for the lowered burden.

Alternative 6: Require reporting by small businesses every third year, rather than annually. This alternative would reduce the burden to small facilities over time, while still providing data on small facilities and their emissions in the data base. However, the frequency of reporting cannot be changed until 1993 under section 313(i).

Alternative 7: Require small businesses to report only up to a certain number of chemicals per year. This alternative would place a cap on the number of chemicals that small businesses would report each year. The burden would be reduced for those small facilities with more than the average number of chemicals per facility. Data on small facilities and estimates of emissions would still be

provided in the data base. However, in the intervening years until facilities have reported on all section 313 chemicals, the data base will not be as complete or as accurate.

Alternative 8: Allow small businesses to mark ranges check-boxes for release less than 1,000 pounds per year to any environmental medium. The check boxes would apply to 0, 1 to 499 pounds per year, and 500 to 999 pounds per year. The facility would have the option of reporting a specific figure rather than checking a box. The facility would have to provide a specific figure estimate for releases of 1,000 pounds or more per year. The reporting burden would be reduced by not requiring small facilities to further refine estimates of these lower level releases. A certain degree of precision might be lost relative to analyzing the releases reporting in such ranges. However, the data base would maintain a higher degree of completeness relative to other options (except option 1) because all data required by the form would be reported each year by all facilities.

Conclusions: The Agency has the authority to establish different thresholds for a chemical, class of chemicals, or categories of facilities. However, any revised threshold must obtain reporting on a substantial majority of total releases of the chemicals at all facilities subject to reporting. Based on the limited available data the Agency cannot support any modification of thresholds based on size of facility, and still be able to maintain that a substantial majority of the total releases would be captured through reporting. EPA analyzed certain limited use and release data available on a subset of the section 313 chemicals from the states of New Jersey, Michigan, and Massachusetts. These data were used to estimate the potential impact on coverage of aggregate emissions, coverage of chemical-by-chemical emissions, and coverage of emissions at the community level. This analysis shows that facilities with fewer than 49 employees account for a least 30 percent of the air releases for 12 of 87 chemicals listed in the New Jersey data base. EPA concluded that exempting facilities of this size range from reporting may lead to lack of coverage of certain chemicals. Therefore, the Agency is not modifying the thresholds (i.e., the annual pounds of a toxic chemical manufactured, processed, or otherwise used) for small facilities.

However, as a result of this analysis and consultation with SBA, the Agency has incorporated alternative No. 8, limited range reporting, into the reporting requirements of the rule. It is

difficult from the data available to EPA to estimate exact burden savings associated with this approach. Savings for any individual small facility will depend upon the number of chemicals being reported and the number of environmental media to which each chemical is released. For example, a simple mass balance around a process may be adequate to show that air releases are less than 1,000 pounds. The information necessary to complete such a mass balance should be readily available and tabulated, at least partly, to determine whether the reporting threshold is met. By relying on a rough mass balance calculation, the facility could avoid calculating releases from individual process points (for example, valve and flanges leaks, or storage tanks vents). Completing these calculations requires that additional information be tabulated (e.g., the number of valves, or the size of storage tanks).

For a release to a single medium, the savings could be as high as 50 percent of the time for completion of the release section of the form (12 of 24 hours). For releases of a chemical to several media the savings are likely to be approximately 10 percent because of the time required to determine how such releases are apportioned per media. These savings are reflected in the cost per facility for option 8 in Table IV. SBA believes that EPA's estimates of savings are conservative and that small facilities would benefit substantially from this approach.

EPA expects that small facilities will realize the most benefit from the optional range reporting concept because larger facilities are more likely to have the technical capabilities to develop more specific estimates. However, EPA believes that this optional range reporting provision could provide a burden reducing benefit to any subject facility regardless of size. Therefore, EPA has extended the optional range reporting provision to all subject facilities.

EPA believes that it will be necessary to evaluate the relative costs and benefits of this alternative in light of the first few years of section 313 submissions. Therefore, a 3-year limitation has been attached to this provision. The limited range reporting option will apply to the 1987, 1988, and 1989 reporting years unless EPA takes action to extend or permanently adopt this reporting provision. EPA will publish its analysis prior to allowing the provisions to expire.

C. Paperwork Reduction Act

OMB has reviewed the information collection requirements contained in this rule under the provisions of the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.* and has assigned OMB control number 2070-0093.

List of Subjects in 40 CFR Part 372

Environmental protection, Recordkeeping, reporting, and notification requirements, Toxic chemicals.

Dated: February 2, 1988.

A. James Barnes,

Acting Administrator.

Therefore, Chapter I of 40 CFR is amended by adding a new Part 372 to read as follows:

**PART 372—TOXIC CHEMICAL
RELEASE REPORTING; COMMUNITY
RIGHT-TO-KNOW**

Subpart A—General Provisions

Sec.

372.1 Scope and purpose.

372.3 Definitions.

372.5 Persons subject to this Part.

372.10 Recordkeeping.

372.18 Compliance and enforcement.

Subpart B—Reporting Requirements

372.22 Covered facilities for toxic chemical release reporting.

372.25 Thresholds for reporting.

372.30 Reporting requirements and schedule for reporting.

372.38 Exemptions.

Subpart C—Supplier Notification Requirements

372.45 Notification about toxic chemicals.

Subpart D—Specific Toxic Chemical Listings

372.65 Chemicals and chemical categories to which this Part applies.

Subpart E—Forms and Instructions

372.85 Toxic chemical release reporting form and instructions.

Authority: 42 U.S.C. 11013, 11028.

Subpart A—General Provisions**§ 372.1 Scope and purpose.**

This Part sets forth requirements for the submission of information relating to the release of toxic chemicals under section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986. The information collected under this Part is intended to inform the general public and the communities surrounding covered facilities about releases of toxic chemicals, to assist research, to aid in the development of regulations, guidelines, and standards, and for other purposes. This Part also sets forth requirements for suppliers to

notify persons to whom they distribute mixtures or trade name products containing toxic chemicals that they contain such chemicals.

§ 372.3 Definitions.

Terms defined in sections 313(b)(1)(c) and 329 of Title III and not explicitly defined herein are used with the meaning given in Title III. For the purpose of this Part:

"Acts" means Title III.

"Article" means a manufactured item: (1) Which is formed to a specific shape or design during manufacture; (2) which has end use functions dependent in whole or in part upon its shape or design during end use; and (3) which does not release a toxic chemical under normal conditions of processing or use of that item at the facility or establishments.

"Customs territory of the United States" means the 50 States, the District of Columbia, and Puerto Rico.

"EPA" means the United States Environmental Protection Agency.

"Establishment" means an economic unit, generally at a single physical location, where business is conducted or where services or industrial operations are performed.

"Facility" means all buildings, equipment, structures, and other stationary items which are located on a single site or on contiguous or adjacent sites and which are owned or operated by the same person (or by any person which controls, is controlled by, or under common control with such person). A facility may contain more than one establishment.

"Full-time employee" means 2,000 hours per year of full-time equivalent employment. A facility would calculate the number of full-time employees by totaling the hours worked during the calendar year by all employees, including contract employees, and dividing that total by 2,000 hours.

"Import" means to cause a chemical to be imported into the customs territory of the United States. For purposes of this definition, "to cause" means to intend that the chemical be imported and to control the identity of the imported chemical and the amount to be imported.

"Manufacture" means to produce, prepare, import, or compound a toxic chemical. Manufacture also applies to a toxic chemical that is produced coincidentally during the manufacture, processing, use, or disposal of another chemical or mixture of chemicals, including a toxic chemical that is separated from that other chemical or mixture of chemicals as a byproduct, and a toxic chemical that remains in

that other chemical or mixture of chemicals as an impurity.

"Mixture" means any combination of two or more chemicals, if the combination is not, in whole or in part, the result of a chemical reaction. However, if the combination was produced by a chemical reaction but could have been produced without a chemical reaction, it is also treated as a mixture. A mixture also includes any combination which consists of a chemical and associated impurities.

"Otherwise use" or "use" means any use of a toxic chemical that is not covered by the terms "manufacture" or "process" and includes use of a toxic chemical contained in a mixture or trade name product. Relabeling or redistributing a container of a toxic chemical where no repackaging of the toxic chemical occurs does not constitute use or processing of the toxic chemical.

"Process" means the preparation of a toxic chemical, after its manufacture, for distribution in commerce:

(1) In the same form or physical state as, or in a different form or physical state from, that in which it was received by the person so preparing such substance, or

(2) As part of an article containing the toxic chemical. Process also applies to the processing of a toxic chemical contained in a mixture or trade name product.

"Release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles) of any toxic chemical.

"Senior management official" means an official with management responsibility for the person or persons completing the report, or the manager of environmental programs for the facility or establishments, or for the corporation owning or operating the facility or establishments responsible for certifying similar reports under other environmental regulatory requirements.

"Title III" means Title III of the Superfund Amendments and Reauthorization Act of 1986, also titled the Emergency Planning and Community Right-To-Know Act of 1986.

"Toxic chemical" means a chemical or chemical category listed in § 372.65.

"Trade name product" means a chemical or mixture of chemicals that is distributed to other persons and that incorporates a toxic chemical component that is not identified by the applicable chemical name or Chemical

Abstracts Service Registry number listed in § 372.65.

§ 372.5 Persons subject to this Part.

Owners and operators of facilities described in §§ 372.22 and 372.45 are subject to the requirements of this Part. If the owner and operator of a facility are different persons, only one need report under § 372.17 or provide a notice under § 372.45 for each toxic chemical in a mixture or trade name product distributed from the facility. However, if no report is submitted or notice provided, EPA will hold both the owner and the operator liable under section 325(c) of Title III, except as provided in §§ 372.38(e) and 372.45(g).

§ 372.10 Recordkeeping.

(a) Each person subject to the reporting requirements of this Part must retain the following records for a period of 3 years from the date of the submission of a report under § 372.30:

(1) A copy of each report submitted by the person under § 372.30.

(2) All supporting materials and documentation used by the person to make the compliance determination that the facility or establishments is a covered facility under § 372.22 or § 372.45.

(3) Documentation supporting the report submitted under § 372.30 including:

(i) Documentation supporting any determination that a claimed allowable exemption under § 372.38 applies.

(ii) Data supporting the determination of whether a threshold under § 372.25 applies for each toxic chemical.

(iii) Documentation supporting the calculations of the quantity of each toxic chemical released to the environment or transferred to an off-site location.

(iv) Documentation supporting the use indications and quantity on site reporting for each toxic chemical, including dates of manufacturing, processing, or use.

(v) Documentation supporting the basis of estimate used in developing any release or off-site transfer estimates for each toxic chemical.

(vi) Receipts or manifests associated with the transfer of each toxic chemical in waste to off-site locations.

(vii) Documentation supporting reported waste treatment methods, estimates of treatment efficiencies, ranges of influent concentration to such treatment, the sequential nature of treatment steps, if applicable, and the actual operating data, if applicable, to support the waste treatment efficiency estimate for each toxic chemical.

(b) Each person subject to the notification requirements of this part

must retain the following records for a period of 3 years from the date of the submission of a notification under § 372.45.

(1) All supporting materials and documentation used by the person to determine whether a notice is required under § 372.45.

(2) All supporting materials and documentation used in developing each required notice under § 372.45 and a copy of each notice.

(c) Records retained under this section must be maintained at the facility to which the report applies or from which a notification was provided. Such records must be readily available for purposes of inspection by EPA.

§ 372.18 Compliance and enforcement.

Violators of the requirements of this Part shall be liable for a civil penalty in an amount not to exceed \$25,000 each day for each violation as provided in section 325(c) of Title III.

Subpart B—Reporting Requirements

§ 372.22 Covered facilities for toxic chemical release reporting.

A facility that meets all of the following criteria for a calendar year is a covered facility for that calendar year and must report under § 372.30.

(a) The facility has 10 or more full-time employees.

(b) The facility is in Standard Industrial Classification Codes 20 through 39 (as in effect on January 1, 1987) by virtue of the fact that it meets one of the following criteria:

(1) The facility is an establishment with a primary SIC code of 20 through 39.

(2) The facility is a multi-establishment complex where all establishments have a primary SIC code of 20 through 39.

(3) The facility is a multi-establishment complex in which one of the following is true:

(i) The sum of the value of products shipped and/or produced from those establishments that have a primary SIC code of 20 through 39 is greater than 50 percent of the total value of all products shipped and/or produced from all establishments at the facility.

(ii) One establishment having a primary SIC code of 20 through 39 contributes more in terms of value of products shipped and/or produced than any other establishment within the facility.

(c) The facility manufactured (including imported), processed, or otherwise used a toxic chemical in excess of an applicable threshold

quantity of that chemical set forth in § 372.25.

§ 372.25 Thresholds for reporting.

The threshold amounts for purposes of reporting under § 372.30 for toxic chemicals are as follows:

(a) With respect to a toxic chemical manufactured (including imported) or processed at a facility during the following calendar years:

1987—75,000 pounds of the chemical manufactured or processed for the year.

1988—50,000 pounds of the chemical manufactured or processed for the year.

1989 and thereafter—25,000 pounds of the chemical manufactured or processed for the year.

(b) With respect to a chemical otherwise used at a facility, 10,000 pounds of the chemical used for the applicable calendar year.

(c) With respect to activities involving a toxic chemical at a facility, when more than one threshold applies to the activities, the owner or operator of the facility must report if it exceeds any applicable threshold and must report on all activities at the facility involving the chemical, except as provided in § 372.38.

(d) When a facility manufactures, processes, or otherwise uses more than one member of a chemical category listed in § 372.65(c), the owner or operator of the facility must report if it exceeds any applicable threshold for the total volume of all the members of the category involved in the applicable activity. Any such report must cover all activities at the facility involving members of the category.

(e) A facility may process or otherwise use a toxic chemical in a recycle/reuse operation. To determine whether the facility has processed or used more than an applicable threshold of the chemical, the owner or operator of the facility shall count the amount of the chemical added to the recycle/reuse operation during the calendar year. In particular, if the facility starts up such an operation during a calendar year, or in the event that the contents of the whole recycle/reuse operation are replaced in a calendar year, the owner or operator of the facility shall also count the amount of the chemical placed into the system at these times.

(f) A toxic chemical may be listed in § 372.65 with the notation that only persons who manufacture the chemical, or manufacture it by a certain method, are required to report. In that case, only owners or operators of facilities that manufacture that chemical as described in § 372.65 in excess of the threshold applicable to such manufacture in § 372.25 are required to report. In

completing the reporting form, the owner or operator is only required to account for the quantity of the chemical so manufactured and releases associated with such manufacturing, but not releases associated with subsequent processing or use of the chemical at that facility. Owners and operators of facilities that solely process or use such a chemical are not required to report for that chemical.

(g) A toxic chemical may be listed in § 372.65 with the notation that it is in a specific form (e.g., fume or dust, solution, or friable) or of a specific color (e.g., yellow or white). In that case, only owners or operators of facilities that manufacture, process, or use that chemical in the form or of the color, specified in § 372.65 in excess of the threshold applicable to such activity in § 372.25 are required to report. In completing the reporting form, the owner or operator is only required to account for the quantity of the chemical manufactured, processed, or used in the form or color specified in § 372.65 and for releases associated with the chemical in that form or color. Owners or operators of facilities that solely manufacture, process, or use such a chemical in a form or color other than those specified by § 372.65 are not required to report for that chemical.

(h) Metal compound categories are listed in § 372.65(c). For purposes of determining whether any of the thresholds specified in § 372.25 are met for metal compound category, the owner or operator of a facility must make the threshold determination based on the total amount of all members of the metal compound category manufactured, processed, or used at the facility. In completing the release portion of the reporting form for releases of the metal compounds, the owner or operator is only required to account for the weight of the parent metal released. Any contribution to the mass of the release attributable to other portions of each compound in the category is excluded.

§ 372.30 Reporting requirements and schedule for reporting.

(a) For each toxic chemical known by the owner or operator to be manufactured (including imported), processed, or otherwise used in excess of an applicable threshold quantity in § 372.25 at its covered facility described in § 372.22 for a calendar year, the owner or operator must submit to EPA and to the State in which the facility is located a completed EPA Form R (EPA Form 9350-1) in accordance with the instructions in Subpart E.

(b)(1) The owner or operator of a covered facility is required to report as

described in paragraph (a) of this section on a toxic chemical that the owner or operator knows is present as a component of a mixture or trade name product which the owner or operator receives from another person, if that chemical is imported, processed, or otherwise used by the owner or operator in excess of an applicable threshold quantity in § 372.25 at the facility as part of that mixture or trade name product.

(2) The owner or operator knows that a toxic chemical is present as a component of a mixture or trade name product (i) if the owner or operator knows or has been told the chemical identity or Chemical Abstracts Service Registry Number of the chemical and the identity or Number corresponds to an identity or Number in § 372.65, or (ii) if the owner or operator has been told by the supplier of the mixture or trade name product that the mixture or trade name product contains a toxic chemical subject to section 313 of the Act or this Part.

(3) To determine whether a toxic chemical which is a component of a mixture or trade name product has been imported, processed, or otherwise used in excess of an applicable threshold in § 372.25 at the facility, the owner or operator shall consider only the portion of the mixture or trade name product that consists of the toxic chemical and that is imported, processed, or otherwise used at the facility, together with any other amounts of the same toxic chemical that the owner or operator manufactures, imports, processes, or otherwise uses at the facility as follows:

(i) If the owner or operator knows the specific chemical identity of the toxic chemical and the specific concentration at which it is present in the mixture or trade name product, the owner or operator shall determine the weight of the chemical imported, processed, or otherwise used as part of the mixture or trade name product at the facility and shall combine that with the weight of the toxic chemical manufactured (including imported) processed, or otherwise used at the facility other than as part of the mixture or trade name product. After combining these amounts, if the owner or operator determines that the toxic chemical was manufactured, processed, or otherwise used in excess of an applicable threshold in § 372.25, the owner or operator shall report the specific chemical identity and all releases of the toxic chemical on EPA Form R in accordance with the instructions in Subpart E.

(ii) If the owner or operator knows the specific chemical identity of the toxic chemical and does not know the specific concentration at which the chemical is

present in the mixture or trade name product, but has been told the upper bound concentration of the chemical in the mixture or trade name product, the owner or operator shall assume that the toxic chemical is present in the mixture or trade name product at the upper bound concentration, shall determine whether the chemical has been manufactured, processed, or otherwise used at the facility in excess of an applicable threshold as provided in paragraph (b)(3)(i) of this section, and shall report as provided in paragraph (b)(3)(i) of this section.

(iii) If the owner or operator knows the specific chemical identity of the toxic chemical, does not know the specific concentration at which the chemical is present in the mixture or trade name product, has not been told the upper bound concentration of the chemical in the mixture or trade name product, and has not otherwise developed information on the composition of the chemical in the mixture or trade name product, then the owner or operator is not required to factor that chemical in that mixture or trade name product into threshold and release calculations for that chemical.

(iv) If the owner or operator has been told that a mixture or trade name product contains a toxic chemical, does not know the specific chemical identity of the chemical and knows the specific concentration at which it is present in the mixture or trade name product, the owner or operator shall determine the weight of the chemical imported, processed, or otherwise used as part of the mixture or trade name product at the facility. Since the owner or operator does not know the specific identity of the toxic chemical, the owner or operator shall make the threshold determination only for the weight of the toxic chemical in the mixture or trade name product. If the owner or operator determines that the toxic chemical was imported, processed, or otherwise used as part of the mixture or trade name product in excess of an applicable threshold in § 372.25, the owner or operator shall report the generic chemical name of the toxic chemical, or a trade name if the generic chemical name is not known, and all releases of the toxic chemical on EPA Form R in accordance with the instructions in Subpart E.

(v) If the owner or operator has been told that a mixture or trade name product contains a toxic chemical, does not know the specific chemical identity of the chemical, and does not know the specific concentration at which the chemical is present in the mixture or

trade name product, but has been told the upper bound concentration of the chemical in the mixture or trade name product, the owner or operator shall assume that the toxic chemical is present in the mixture or trade name product at the upper bound concentration, shall determine whether the chemical has been imported, processed, or otherwise used at the facility in excess of an applicable threshold as provided in paragraph (b)(3)(iv) of this section, and shall report as provided in paragraph (b)(3)(iv) of this section.

(vi) If the owner or operator has been told that a mixture or trade name product contains a toxic chemical, does not know the specific chemical identity of the chemical, does not know the specific concentration at which the chemical is present in the mixture or trade name product, including information they have themselves developed, and has not been told the upper bound concentration of the chemical in the mixture or trade name product, the owner or operator is not required to report with respect to that toxic chemical.

(c) A covered facility may consist of more than one establishment. The owner or operator of such a facility at which a toxic chemical was manufactured (including imported), processed, or otherwise used in excess of an applicable threshold may submit a separate Form R for each establishment or for each group of establishments within the facility to report the activities involving the toxic chemical at each establishment or group of establishments, provided that activities involving that toxic chemical at all the establishments within the covered facility are reported. If each establishment or group of establishments files separate reports then for all other chemicals subject to reporting at that facility they must also submit separate reports. However, an establishment or group of establishments does not have to submit a report for a chemical that is not manufactured (including imported), processed, otherwise used, or released at that establishment or group of establishments.

(d) Each report under this section for activities involving a toxic chemical that occurred during a calendar year at a covered facility must be submitted on or before July 1 of the next year. The first such report for calendar year 1987 activities must be submitted on or before July 1, 1988.

(e) For reports applicable to activities for calendar years 1987, 1988, and 1989 only, the owner or operator of a covered

facility may report releases of a specific toxic chemical to an environmental medium, or transfers of wastes containing a specific toxic chemical to an off-site location, of less than 1,000 pounds using the ranges provided in the form and instructions in Subpart E. For reports applicable to activities in calendar year 1990 and beyond, these ranges may not be used.

§ 372.38 Exemptions.

(a) *De minimis concentrations of a toxic chemical in a mixture.* If a toxic chemical is present in a mixture of chemicals at a covered facility and the toxic chemical is in a concentration in the mixture which is below 1 percent of the mixture, or 0.1 percent of the mixture in the case of a toxic chemical which is a carcinogen as defined in 29 CFR 1910.1200(d)(4), a person is not required to consider the quantity of the toxic chemical present in such mixture when determining whether an applicable threshold has been met under § 372.25 or determining the amount of release to be reported under § 372.30. This exemption applies whether the person received the mixture from another person or the person produced the mixture, either by mixing the chemicals involved or by causing a chemical reaction which resulted in the creation of the toxic chemical in the mixture. However, this exemption applies only to the quantity of the toxic chemical present in the mixture. If the toxic chemical is also manufactured (including imported), processed, or otherwise used at the covered facility other than as part of the mixture or in a mixture at higher concentrations, in excess of an applicable threshold quantity set forth in § 372.25, the person is required to report under § 372.30.

(b) *Articles.* If a toxic chemical is present in an article at a covered facility, a person is not required to consider the quantity of the toxic chemical present in such article when determining whether an applicable threshold has been met under § 372.25 or determining the amount of release to be reported under § 372.30. This exemption applies whether the person received the article from another person or the person produced the article. However, this exemption applies only to the quantity of the toxic chemical present in the article. If the toxic chemical is manufactured (including imported), processed, or otherwise used at the covered facility other than as part of the article, in excess of an applicable threshold quantity set forth in § 372.25, the person is required to report under § 372.30. Persons potentially subject to this exemption should carefully review

the definitions of "article" and "release" in § 372.3. If a release of a toxic chemical occurs as a result of the processing or use of an item at the facility, that item does not meet the definition of "article."

(c) *Uses.* If a toxic chemical is used at a covered facility for a purpose described in this paragraph (c), a person is not required to consider the quantity of the toxic chemical used for such purpose when determining whether an applicable threshold has been met under § 372.25 or determining the amount of releases to be reported under § 372.30. However, this exemption only applies to the quantity of the toxic chemical used for the purpose described in this paragraph (c). If the toxic chemical is also manufactured (including imported), processed, or otherwise used at the covered facility other than as described in this paragraph (c), in excess of an applicable threshold quantity set forth in § 372.25, the person is required to report under § 372.30.

(1) Use as a structural component of the facility.

(2) Use of products for routine janitorial or facility grounds maintenance. Examples include use of janitorial cleaning supplies, fertilizers, and pesticides similar in type or concentration to consumer products.

(3) Personal use by employees or other persons at the facility of foods, drugs, cosmetics, or other personal items containing toxic chemicals, including supplies of such products within the facility such as in a facility operated cafeteria, store, or infirmary.

(4) Use of products containing toxic chemicals for the purpose of maintaining motor vehicles operated by the facility.

(5) Use of toxic chemicals present in process water and non-contact cooling water as drawn from the environment or from municipal sources, or toxic chemicals present in air used either as compressed air or as part of combustion.

(d) *Activities in laboratories.* If a toxic chemical is manufactured, processed, or used in a laboratory at a covered facility under the supervision of a technically qualified individual as defined in § 720.3(ee) of this title, a person is not required to consider the quantity so manufactured, processed, or used when determining whether an applicable threshold has been met under § 372.25 or determining the amount of release to be reported under § 372.30. This exemption does not apply in the following cases:

(1) Specialty chemical production.

(2) Manufacture, processing, or use of toxic chemicals in pilot plant scale operations.

(3) Activities conducted outside the laboratory.

(e) *Certain owners of leased property.* The owner of a covered facility is not subject to reporting under § 372.30 if such owner's only interest in the facility is ownership of the real estate upon which the facility is operated. This exemption applies to owners of facilities such as industrial parks, all or part of which are leased to persons who operate establishments within SIC code 20 through 39 where the owner has no other business interest in the operation of the covered facility.

(f) *Reporting by certain operators of establishments on leased property such as industrial parks.* If two or more persons, who do not have any common corporate or business interest (including common ownership or control), operate separate establishments within a single facility, each such person shall treat the establishments it operates as a facility for purposes of this Part. The determinations in § 372.22 and § 372.25 shall be made for those establishments. If any such operator determines that its establishment is a covered facility under § 372.22 and that a toxic chemical has been manufactured (including imported), processed, or otherwise used at the establishment in excess of an applicable threshold in § 372.25 for a calendar year, the operator shall submit a report in accordance with § 372.30 for the establishment. For purposes of this paragraph (f), a common corporate or business interest includes ownership, partnership, joint ventures, ownership of a controlling interest in one person by the other, or ownership of a controlling interest in both persons by a third person.

Subpart C—Supplier Notification Requirement

§ 372.45 Notification about toxic chemicals.

(a) Except as provided in paragraphs (c), (d), and (e) of this section and § 372.65, a person who owns or operates a facility or establishment which:

(1) Is in Standard Industrial Classification codes 20 through 39 as set forth in paragraph (b) of § 372.22,

(2) Manufactures (including imports) or processes a toxic chemical, and

(3) Sells or otherwise distributes a mixture or trade name product containing the toxic chemical, to (i) a facility described in § 372.22, or (ii) to a person who in turn may sell or otherwise distributes such mixture or trade name product to a facility described in § 372.22(b), must notify each person to whom the mixture or trade name product is sold or otherwise

distributed from the facility or establishment in accordance with paragraph (b) of this section.

(b) The notification required in paragraph (a) of this section shall be in writing and shall include:

(1) A statement that the mixture or trade name product contains a toxic chemical or chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

(2) The name of each toxic chemical, and the associated Chemical Abstracts Service registry number of each chemical if applicable, as set forth in § 372.65.

(3) The percent by weight of each toxic chemical in the mixture or trade name product.

(c) Notification under this section shall be provided as follows:

(1) For a mixture or trade name product containing a toxic chemical listed in § 373.65 with an effective date of January 1, 1987, the person shall provide the written notice described in paragraph (b) of this section to each recipient of the mixture or trade name product with at least the first shipment of each mixture or trade name product to each recipient in each calendar year beginning January 1, 1989.

(2) For a mixture or trade name product containing a toxic chemical listed in § 372.65 with an effective date of January 1, 1989 or later, the person shall provide the written notice described in paragraph (b) of this section to each recipient of the mixture or trade name product with at least the first shipment of the mixture or trade name product to each recipient in each calendar year beginning with the applicable effective date.

(3) If a person changes a mixture or trade name product for which notification was previously provided under paragraph (b) of this section by adding a toxic chemical, removing a toxic chemical, or changing the percent by weight of a toxic chemical in the mixture or trade name product, the person shall provide each recipient of the changed mixture or trade name product a revised notification reflecting the change with the first shipment of the changed mixture or trade name product to the recipient.

(4) If a person discovers (i) that a mixture or trade name product previously sold or otherwise distributed to another person during the calendar year of the discovery contains one or more toxic chemicals and (ii), that any notification provided to such other persons in that calendar year for the

mixture or trade name product either did not properly identify any of the toxic chemicals or did not accurately present the percent by weight of any of the toxic chemicals in the mixture or trade name product, the person shall provide a new notification to the recipient within 30 days of the discovery which contains the information described in paragraph (b) of this section and identifies the prior shipments of the mixture or product in that calendar year to which the new notification applies.

(5) If a Material Safety Data Sheet (MSDS) is required to be prepared and distributed for the mixture or trade name product in accordance with 29 CFR 1910.1200, the notification must be attached to or otherwise incorporated into such MSDS. When the notification is attached to the MSDS, the notice must contain clear instructions that the notifications must not be detached from the MSDS and that any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

(d) Notifications are not required in the following instances:

(1) If a mixture or trade name product contains no toxic chemical in excess of the applicable de minimis concentration as specified in § 372.38(a).

(2) If a mixture or trade name product is one of the following:

(i) An "article" as defined in § 372.3

(ii) Foods, drugs, cosmetics, alcoholic beverages, tobacco, or tobacco products packaged for distribution to the general public.

(iii) Any consumer product as the term is defined in the Consumer Product Safety Act (15 U.S.C. 1251 *et seq.*) packaged for distribution to the general public.

(e) If the person considers the specific identity of a toxic chemical in a mixture or trade name product to be a trade secret under provisions of 29 CFR 1910.1200, the notice shall contain a generic chemical name that is descriptive of that toxic chemical.

(f) If the person considers the specific percent by weight composition of a toxic chemical in the mixture or trade name product to be a trade secret under applicable State law or under the Restatement of Torts section 757, comment b, the notice must contain a statement that the chemical is present at a concentration that does not exceed a specified upper bound concentration value. For example, a mixture contains 12 percent of a toxic chemical. However, the supplier considers the specific concentration of the toxic chemical in

the product to be a trade secret. The notice would indicate that the toxic chemical is present in the mixture in a concentration of no more than 15 percent by weight. The upper bound value chosen must be no larger than necessary to adequately protect the trade secret.

(g) A person is not subject to the requirements of this section to the extent the person does not know that the facility or establishment(s) is selling or otherwise distributing a toxic chemical to another person in a mixture or trade name product. However, for purposes of this section, a person has such knowledge if the person receives a notice under this section from a supplier of a mixture or trade name product and the person in turn sells or otherwise distributes that mixture or trade name product to another person.

(h) If two or more persons, who do not have any common corporate or business interest (including common ownership or control), as described in § 372.38(f), operate separate establishments within a single facility, each such persons shall treat the establishment(s) it operates as a facility for purposes of this section. The determination under paragraph (a) of this section shall be made for those establishments.

[Note: Subparts D and E of the regulatory text are not reproduced here because they appear in substance elsewhere in this document.]

TITLE III LIST OF LISTS

*Consolidated List of
Chemicals Subject to
Reporting Under Title III of
the Superfund Amendments and
Reauthorization Act (SARA)
of 1986*

Office of Toxic Substances
U.S. Environmental Protection Agency
Washington, D.C. 20460

**SARA TITLE III
CONSOLIDATED CHEMICAL LIST**

This consolidated chemical list includes chemicals subject to reporting requirements under Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA)¹. It has been prepared to help firms handling chemicals determine whether they need to submit reports under Sections 304 or 313 of Title III and, for a specific chemical, what reports need to be submitted.

The list includes chemicals referenced under four federal statutory provisions, as follows:

(1) SARA Section 302 Extremely Hazardous Substances, the presence of any of which, in sufficient quantities, requires certain emergency planning activities to be conducted. Releases of reportable quantities (RQ) of these substances are also subject to reporting under Section 304 of Title III. The final rule listing the extremely hazardous substances and their threshold planning quantities (TPQ) was published on April 22, 1987 (52 FR 13378).

(2) CERCLA Hazardous Substances ("RQ chemicals"), releases of which are subject to reporting under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, or "Superfund"). Such releases are also subject to reporting under Section 304 of Title III. CERCLA hazardous substances, and their reportable quantities, are listed in 40 CFR Part 302, Table 302.4.

(3) SARA Section 313 Toxic Chemicals, emissions or releases of which must be reported annually as part of SARA Title III's community right-to-know provisions. The rule containing these chemicals was published on February 16, 1988 (53 FR 4500) (40 CFR 372).

(4) RCRA Hazardous Wastes from the P and U lists only (40 CFR 261.33), which consist of lists of specific chemicals. RCRA hazardous wastes consisting of waste streams on the F and K lists are not included here; such waste streams are also CERCLA hazardous substances. This listing is provided as an indicator to companies that they may already have data on a specific chemical that can be used for Title III reporting purposes.

There are four columns in the consolidated list corresponding to these four statutory provisions. If a chemical is listed as an extremely hazardous substance under Section 302, its TPQ is given in the Section 302 column. Similarly, the CERCLA RQ is given for those chemicals that are CERCLA hazardous substances which must be reported under Section 304 of Title III, and Section 302 listed chemicals. A key to the symbols used in the Section 302 and CERCLA columns is at the end of the list. An "X" in the column for

¹ Not specified in this consolidated list are all chemicals subject to the reporting requirements in Sections 311 and 312 of SARA Title III. These hazardous chemicals, for which material safety data sheets (MSDS) must be developed under Occupational Safety and Health Act Hazard Communication Standards, are identified as such by broad criteria, rather than by enumeration. There are over 50,000 such substances that satisfy the criteria.

Section 313 indicates that the chemical is subject to reporting under Section 313. The letter-and-digit code in the RCRA column is the chemical's RCRA hazardous waste code. A blank in any of these columns indicates that the chemical is not subject to the corresponding statutory authorities. A fifth column, headed "State," is left entirely blank, to be checked if state reporting requirements apply to a chemical. The heading "Section 304" over the Section 302 and CERCLA RQ lists indicates that the reporting requirements in Section 304 of SARA Title III apply to Section 302 extremely hazardous substances and CERCLA hazardous substances. [1] indicates that a CERCLA reportable quantity has not been established under Section 102(a) of CERCLA; notice must be given of releases of one pound or more under SARA Section 304. As indicated, most chemicals on the consolidated list are subject to reporting requirements under more than one statutory provision.

The chemicals on this list are ordered by Chemical Abstracts Service (CAS) registry number. Categories of chemicals, which do not have CAS registry numbers, but which are cited under CERCLA and Section 313, are placed at the end of the list. For reference purposes, the chemicals (with their CAS numbers) are ordered alphabetically at the end of this document. The listed chemicals are grouped by fours to facilitate reading.

For additional copies of this document address requests to:

Section 313 Document Distribution Center
P.O. Box 12505
Cincinnati, OH 45212

Questions concerning changes to the list or other aspects of Title III may be submitted in writing to:

Emergency Planning and Community Right-to-Know Information Hotline
U.S. Environmental Protection Agency (OS-120)
401 M Street, SW
Washington, DC 20460

Alternatively, you may call (800) 535-0202 between the hours of 8:30 AM and 7:30 PM Eastern Time (in Washington, D.C. and Alaska call (202) 479-2449).

SARA TITLE III
 CONSOLIDATED CHEMICAL LIST
 02/02/89

Page 1

CAS Number	Chemical Name	Section 304				
		Section 302 TPQ	RQ	Section 313	RCRA	STATE
50-00-0	Formaldehyde	500	1000#	X	U122	
50-07-7	Mitomycin C	500/10,000	1#		U010	
50-14-6	Ergocalciferol	1,000/10,000*				
50-18-0	Cyclophosphamide		1#		U058	
50-29-3	DDT		1#		U061	
50-32-8	Benzo[a]pyrene		1#		U022	
50-55-5	Reserpine		5000		U200	
51-21-8	Fluorouracil	500/10,000*				
51-28-5	2,4-Dinitrophenol		10	X	P048	
51-43-4	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-		1000		P042	
51-75-2	Mechlorethamine	10*		X		
51-79-6	Carbamic acid, ethyl ester		1#	X	U238	
51-83-2	Carbachol chloride	500/10,000*				
52-68-6	Trichlorophon		100	X		
52-85-7	Famphur		1000		P097	
53-70-3	Dibenz[a,h]anthracene		1#		U063	
53-96-3	Acetamide, N-9H-fluoren-2-yl-		1#	X	U005	
54-11-5	Nicotine	100	100		P075	
54-62-6	Aminopterin	500/10,000*				
55-18-5	Ethanamine, N-ethyl-N-nitroso-		1#	X	U174	
55-21-0	Benzamide			X		
55-63-0	Nitroglycerine		10	X	P081	
55-91-4	Isofluorphate	100	100		P043	
56-04-2	Methylthiouracil		1#		U164	
56-23-5	Carbon tetrachloride		5000#	X	U211	
56-25-7	Cantharidin	100/10,000*				
56-38-2	Parathion	100	1#	X	P089	
56-49-5	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-		1#		U157	
56-53-1	Diethylstilbestrol		1#		U089	
56-55-3	Benz[a]anthracene		1#		U018	
56-72-4	Coumaphos	100/10,000	10			
57-12-5	Cyanides (soluble cyanide salts)		10		P030	
57-14-7	Dimethylhydrazine	1,000	1#	X	U098	
57-24-9	Strychnine	100/10,000	10		P108	
57-47-6	Physostigmine	100/10,000*				
57-57-8	Propiolactone, beta-	500*		X		
57-64-7	Physostigmine, salicylate (1:1)	100/10,000*				
57-74-9	Chlordane	1,000	1#	X	U036	
57-97-6	1,2-Benzanthracene, 7,12-dimethyl-		1#		U094	
58-36-6	Phenoxarsine, 10,10'-oxydi-	500/10,000*				

* Releases in excess of the CERCLA RQ must be reported under Section 304. If an RQ has not been assigned to a chemical (i.e., the chemical is an EHS but not a CERCLA hazardous substance), releases of 1 pound or greater must be reported under Section 304.

CAS Number	Chemical Name	Section 304				STATE
		Section 302 TPQ	RQ	Section 313	RCRA	
58-89-9	Lindane	1,000/10,000	1#	X	U129	
58-90-2	Phenol, 2,3,4,6-tetrachloro-		10			
59-50-7	4-Chloro-m-cresol		5000		U039	
59-88-1	Phenylhydrazine hydrochloride	1,000/10,000*				
59-89-2	N-Nitrosomorpholine			X		
60-00-4	Ethylenediamine tetraacetic acid (EDTA)		5000			
60-09-3	4-Aminoazobenzene			X		
60-11-7	Benzenamine, N,N-dimethyl-4-phenylazo-		1#	X	U093	
60-29-7	Ethane, 1,1'-oxybis-		100		U117	
60-34-4	Methylhydrazine	500	10	X	P068	
60-35-5	Acetamide			X		
60-41-3	Strychnine, sulfate	100/10,000*				
60-51-5	Dimethoate	500/10,000	10		P044	
60-57-1	Dieldrin		1#		P037	
61-82-5	Amitrole		1#		U011	
62-38-4	Phenylmercury acetate	500/10,000	100		P092	
62-44-2	Acetamide, N-(4-ethoxyphenyl)-		1#		U187	
62-50-0	Ethyl methanesulfonate		1#		U119	
62-53-3	Aniline	1,000	5000	X	U012	
62-55-5	Ethanethioamide		1#	X	U218	
62-56-6	Carbamide, thio-		1#	X	U219	
62-73-7	Dichlorvos	1,000	10	X		
62-74-8	Sodium fluoroacetate	10/10,000	10		P058	
62-75-9	Nitrosodimethylamine	1,000	1#	X	P082	
63-25-2	Carbaryl		100	X		
64-00-6	Phenol, 3-(1-methylethyl)-, methylcarbamate	500/10,000*				
64-18-6	Formic acid		5000		U123	
64-19-7	Acetic acid		5000			
64-67-5	Diethyl sulfate			X		
64-86-8	Colchicine	10/10,000*				
65-30-5	Nicotine sulfate	100/10,000*				
65-85-0	Benzoic acid		5000			
66-75-1	Uracil, 5-[bis(2-chloroethyl)amino]-		1#		U237	
66-81-9	Cycloheximide	100/10,000*				
67-56-1	Methanol		5000	X	U154	
67-63-0	Isopropyl alcohol (mfg.-strong acid processes)			X		
67-64-1	Acetone		5000	X	U002	
67-66-3	Chloroform	10,000	5000#	X	U044	
67-72-1	Ethane, 1,1,1,2,2,2-hexachloro-		1#	X	U131	
68-76-8	Triaziquone			X		

* Releases in excess of the CERCLA RQ must be reported under Section 304. If an RQ has not been assigned to a chemical (i.e., the chemical is an EHS but not a CERCLA hazardous substance), releases of 1 pound or greater must be reported under Section 304.

CAS Number	Chemical Name	Section 304				
		Section 302 TPQ	RQ	Section 313	RCRA	STATE
70-25-7	Guanidine, N-nitroso-N-methyl-N'-nitro-		1#		U163	
70-30-4	Hexachlorophene		100		U132	
70-69-9	Propiophenone, 4'-amino-	100/10,000*				
71-36-3	1-Butanol		5000	X	U031	
71-43-2	Benzene		1000#	X	U019	
71-55-6	Methyl chloroform		1000	X	U226	
71-63-6	Digitoxin	100/10,000*				
72-20-8	Endrin	500/10,000	1		P051	
72-43-5	Ethane, 1,1,1-trichloro-2,2-bis(p-methoxyphenyl)-		1	X	U247	
72-54-8	DDD		1#		U060	
72-55-9	DDE		1#			
72-57-1	Trypan blue		1#		U236	
74-83-9	Methyl bromide	1,000	1000	X	U029	
74-85-1	Ethylene			X		
74-87-3	Methane, chloro		1#	X	U045	
74-88-4	Methane, iodo-		1#	X	U138	
74-89-5	Monomethylamine		100			
74-90-8	Hydrocyanic acid	100	10	X	P063	
74-93-1	Methyl mercaptan	500	100		U153	
74-95-3	Methane, dibromo-		1000	X	U068	
75-00-3	Chloroethane		100	X		
75-01-4	Vinyl chloride (monomer)		1#	X	U043	
75-04-7	Monoethylamine		100			
75-05-8	Acetonitrile		5000	X	U003	
75-07-0	Acetaldehyde		1000	X	U001	
75-09-2	Methane, dichloro-		1000	X	U080	
75-15-0	Carbon disulfide	10,000	100	X	P022	
75-18-3	Dimethyl sulfide	100*				
75-20-7	Calcium carbide		10			
75-21-8	Ethylene oxide	1,000	1#	X	U115	
75-25-2	Bromoform		100	X	U225	
75-27-4	Dichlorobromomethane		5000	X		
75-34-3	1,1-Dichloroethane		1000		U076	
75-35-4	1,1-Dichloroethylene		5000#	X	U078	
75-36-5	Acetyl chloride		5000		U006	
75-44-5	Phosgene	10	10	X	P095	
75-50-3	Trimethylamine		100			
75-55-8	Propyleneimine	10,000	1#	X	P067	
75-56-9	Propylene oxide	10,000	100	X		
75-60-5	Cacodylic acid		1#		U136	

* Releases in excess of the CERCLA RQ must be reported under Section 304. If an RQ has not been assigned to a chemical (i.e., the chemical is an EHS but not a CERCLA hazardous substance), releases of 1 pound or greater must be reported under Section 304.

CAS Number	Chemical Name	Section 304				
		Section 302 TPQ	RQ	Section 313	RCRA	STATE
75-64-9	tert-Butylamine		1000			
75-65-0	tert-Butyl alcohol			X		
75-69-4	Methane, trichlorofluoro-		5000		U121	
75-71-8	Dichlorodifluoromethane		5000		U075	
75-74-1	Tetramethyllead	100*				
75-77-4	Trimethylchlorosilane	1,000*				
75-78-5	Dimethyldichlorosilane	500*				
75-79-6	Methyltrichlorosilane	500*				
75-86-5	Acetone cyanohydrin	1,000	10		P069	
75-87-6	Acetaldehyde, trichloro-		1#		U034	
75-99-0	2,2-Dichloropropionic acid		5000			
76-01-7	Pentachloroethane		1#		U184	
76-02-8	Trichloroacetyl chloride	500*				
76-13-1	Chlorinated fluorocarbon (Freon 113)			X		
76-44-8	Heptachlor		1#	X	P059	
77-47-4	Hexachlorocyclopentadiene	100	1#	X	U130	
77-78-1	Dimethyl sulfate	500	1#	X	U103	
77-81-6	Tabun	10*				
78-00-2	Tetraethyllead	100	10		P110	
78-34-2	Dioxathion	500*				
78-53-5	Amiton	500*				
78-59-1	Isophorone		5000			
78-71-7	Oxetane, 3,3-bis(chloromethyl)-	500*				
78-79-5	Isoprene		100			
78-81-9	iso-Butylamine		1000			
78-82-0	Isobutyronitrile	1,000*				
78-83-1	Isobutyl alcohol		5000		U140	
78-84-2	Isobutyraldehyde			X		
78-87-5	1,2-Dichloropropane		1000	X	U083	
78-88-6	2,3-Dichloropropene		100			
78-92-2	sec-Butyl alcohol			X		
78-93-3	2-Butanone		5000	X	U159	
78-94-4	Methyl vinyl ketone	10*				
78-97-7	Lactonitrile	1,000*				
78-99-9	1,1-Dichloropropane		1000			
79-00-5	Ethane, 1,1,2-trichloro-		1#	X	U227	
79-01-6	Trichloroethylene		1000#	X	U228	
79-06-1	Acrylamide	1,000/10,000	5000	X	U007	
79-09-4	Propionic acid		5000			
79-10-7	Acrylic acid		5000	X	U008	

* Releases in excess of the CERCLA RQ must be reported under Section 304. If an RQ has not been assigned to a chemical (i.e., the chemical is an EHS but not a CERCLA hazardous substance), releases of 1 pound or greater must be reported under Section 304.

Section 304

CAS Number	Chemical Name	Section 302		Section 313		RCRA	STATE
		TPQ	RQ				
79-11-8	Chloroacetic acid	100/10,000*		X			
79-19-6	Thiosemicarbazide	100/10,000	100			P116	
79-21-0	Peracetic acid	500*		X			
79-22-1	Methyl chloroformate (Methylchlorocarbonate)	500	1000			U156	
79-31-2	iso-Butyric acid		5000				
79-34-5	Ethane, 1,1,2,2-tetrachloro-		1#	X		U209	
79-44-7	Carbonyl chloride, dimethyl-		1#	X		U097	
79-46-9	2-Nitropropane		1#	X		U171	
80-05-7	4,4'-Isopropylidenediphenol			X			
80-15-9	alpha,alpha-Dimethylbenzylhydroperoxide		10	X		U096	
80-62-6	Methyl methacrylate		1000	X		U162	
80-63-7	Methyl 2-chloroacrylate	500*					
81-07-2	1,2-Benzisothiazolin-3-one,1,1-dioxide, and salts		1#	X		U202	
81-81-2	Warfarin	500/10,000	100			P001~	
81-88-9	C.I. Food Red 15			X			
82-28-0	1-Amino-2-methylantraquinone			X			
82-66-6	Diphacinone	10/10,000*					
82-68-8	Benzene, pentachloronitro-		1#	X		U185	
83-32-9	Acenaphthene		100				
84-66-2	1,2-Benzenedicarboxylic acid, diethyl ester		1000	X		U088	
84-74-2	Dibutyl phthalate		10	X		U069	
85-00-7	Diquat		1000				
85-01-8	Phenanthrene		5000				
85-44-9	1,2-Benzenedicarboxylic acid anhydride		5000	X		U190	
85-68-7	Butyl benzyl phthalate		100	X			
86-30-6	N-Nitrosodiphenylamine		100	X			
86-50-0	Azinphos-methyl	10/10,000	1#				
86-73-7	Fluorene		5000				
86-88-4	Antu	500/10,000	100			P072	
87-62-7	2,6-Xylidine			X			
87-65-0	2,6-Dichlorophenol		100			U082	
87-68-3	Hexachloro-1,3-butadiene		1#	X		U128	
87-86-5	Pentachlorophenol		10#	X			
88-05-1	Aniline, 2,4,6-trimethyl-	500*					
88-06-2	Phenol, 2,4,6-trichloro		10#	X			
88-72-2	o-Nitrotoluene		1000				
88-75-5	o-Nitrophenol		100	X			
88-85-7	Dinoseb	100/10,000	1000			P020	
88-89-1	Picric acid			X			
90-04-0	o-Anisidine			X			

* Releases in excess of the CERCLA RQ must be reported under Section 304. If an RQ has not been assigned to a chemical (i.e., the chemical is an EHS but not a CERCLA hazardous substance), releases of 1 pound or greater must be reported under Section 304.

Section 304

CAS Number	Chemical Name	Section 302		Section 313	RCRA	STATE
		TPQ	RQ			
90-43-7	2-Phenylphenol			X		
90-94-8	Michler's ketone			X		
91-08-7	Toluene 2,6-diisocyanate	100	100	X		
91-20-3	Naphthalene		100	X	U165	
91-22-5	Quinoline		5000	X		
91-58-7	beta-Chloronaphthalene		5000		U047	
91-59-8	2-Naphthylamine		1#	X	U168	
91-80-5	Methapyrilene		5000		U155	
91-94-1	(1,1'-Biphenyl)-4,4'-diamine,3,3'-dichloro-		1#	X	U073	
92-52-4	Biphenyl			X		
92-67-1	4-Aminobiphenyl			X		
92-87-5	Benzidine		1#	X	U021	
92-93-3	4-Nitrobiphenyl			X		
93-72-1	Propionic acid, 2-(2,4,5-trichlorophenoxy)-		100			
93-76-5	2,4,5-T		1000			
93-79-8	2,4,5-T esters		1000			
94-11-1	2,4-D Esters		100			
94-36-0	Benzoyl peroxide			X		
94-58-6	Benzene, 1,2-methylenedioxy-4-propyl-		1#		U090	
94-59-7	Benzene, 1,2-methylenedioxy-4-allyl-		1#	X	U203	
94-75-7	2,4-D Acid		100	X	U240	
94-79-1	2,4-D Esters		100			
94-80-4	2,4-D Esters		100			
95-47-6	Benzene, o-dimethyl-		1#	X		
95-48-7	o-Cresol	1,000/10,000	1000	X	U052	
95-50-1	Benzene, 1,2-dichloro-		100	X	U070	
95-53-4	o-Toluidine		1#	X	U328	
95-57-8	2-Chlorophenol		100		U048	
95-63-6	Pseudocumene			X		
95-80-7	Diaminotoluene		1#	X		
95-94-3	Benzene, 1,2,4,5-tetrachloro-		5000		U207	
95-95-4	Phenol, 2,4,5-trichloro-		10#	X		
96-09-3	Styrene oxide			X		
96-12-8	1,2-Dibromo-3-chloropropane		1#	X	U066	
96-33-3	Methyl acrylate			X		
96-45-7	Ethylenethiourea		1#	X	U116	
97-18-7	Phenol, 2,2'-thiobis(4,6-dichloro-	100/10,000*				
97-56-3	C.I. Solvent Yellow 3			X		
97-63-2	Ethyl methacrylate		1000		U118	
98-01-1	2-Furancarboxaldehyde		5000		U125	

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CAS Number	Chemical Name	Section 304				
		Section 302 TPQ	RQ	Section 313	RCRA	STATE
98-05-5	Benzearsonic acid	10/10,000*				
98-07-7	Benzotrichloride	100	1#	X	U023	
98-09-9	Benzenesulfonyl chloride		100		U020	
98-13-5	Trichlorophenylsilane	500*				
98-16-8	Benzenamine, 3-(trifluoromethyl)-	500*				
98-82-8	Benzene, 1-methylethyl-		5000	X	U055	
98-86-2	Acetophenone		5000		U004	
98-87-3	Benzal chloride	500	5000	X	U017	
98-88-4	Benzoyl chloride		1000	X		
98-95-3	Nitrobenzene	10,000	1000	X	U169	
99-08-1	m-Nitrotoluene		1000			
99-35-4	Benzene, 1,3,5-trinitro-		10		U234	
99-55-8	Benzenamine, 2-methyl-5-nitro-		1#		U181	
99-59-2	5-Nitro-o-anisidine			X		
99-65-0	m-Dinitrobenzene		100			
99-98-9	Dimethyl-p-phenylenediamine	10/10,000*				
99-99-0	p-Nitrotoluene		1000			
100-01-6	Benzenamine, 4-nitro-		5000		P077	
100-02-7	p-Nitrophenol		100	X	U170	
100-14-1	Benzene, 1-(chloromethyl)-4-nitro-	500/10,000*				
100-21-0	Terephthalic acid			X		
100-25-4	p-Dinitrobenzene		100			
100-41-4	Ethylbenzene		1000	X		
100-42-5	Styrene		1000	X		
100-44-7	Benzyl chloride	500	100#	X	P028	
100-47-0	Benzonitrile		5000			
100-75-4	N-Nitrosopiperidine		1#	X	U179	
101-14-4	Benzenamine, 4,4'-methylenebis(2-chloro-		1#	X	U158	
101-55-3	Benzene, 1-bromo-4-phenoxy-		100		U030	
101-61-1	4,4'-Methylene bis(N,N-dimethyl) benzenamine			X		
101-68-8	Methylene bis(phenylisocyanate) (MBI)			X		
101-77-9	4,4'-Methylene dianiline			X		
101-80-4	4,4'-Diaminodiphenyl ether			X		
102-36-3	Isocyanic acid, 3,4-dichlorophenyl ester	500/10,000*				
103-23-1	Bis(2-ethylhexyl) adipate			X		
103-85-5	Phenylthiourea	100/10,000	100		P093	
104-94-9	p-Anisidine			X		
105-46-4	sec-Butyl acetate		5000			
105-67-9	2,4-Dimethylphenol		100	X	U101	
106-42-3	Benzene, p-dimethyl-		1#	X		

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Section 304

CAS Number	Chemical Name	Section 302		Section 313		RCRA	STATE
		TPQ	RQ				
106-44-5	p-Cresol		1000#	X		U052	
106-46-7	Benzene, 1,4-dichloro-		100	X		U072	
106-47-8	Benzenamine, 4-chloro-		1000			P024	
106-49-0	4-Amino-1-methyl benzene		1#			U353	
106-50-3	p-Phenylenediamine			X			
106-51-4	p-Benzoquinone		10	X		U197	
106-88-7	1,2-Butylene oxide			X			
106-89-8	Epichlorohydrin	1,000	1000#	X		U041	
106-93-4	Ethane, 1,2-dibromo-		1000#	X		U067	
106-96-7	Propargyl bromide	10*					
106-99-0	Butadiene			X			
107-02-8	Acrolein	500	1	X		P003	
107-05-1	Allyl chloride		1000	X			
107-06-2	1,2-Dichloroethane		5000#	X		U077	
107-07-3	Chloroethanol	500*					
107-10-8	1-Propanamine		5000			U194	
107-11-9	Allylamine	500*					
107-12-0	Propionitrile	500	10			P101	
107-13-1	Acrylonitrile	10,000	100#	X		U009	
107-15-3	Ethylenediamine	10,000	5000				
107-16-4	Formaldehyde cyanohydrin	1,000*					
107-18-6	Allyl alcohol	1,000	100			P005	
107-19-7	Propargyl alcohol		1000			P102	
107-20-0	Chloroacetaldehyde		1000			P023	
107-21-1	Ethylene glycol			X			
107-30-2	Chloromethyl methyl ether	100	1#	X		U046	
107-44-8	Sarin	10*					
107-49-3	Tepp	100	10			P111	
107-92-6	Butyric acid		5000				
108-05-4	Vinyl acetate monomer	1,000	5000	X			
108-10-1	Methyl isobutyl ketone		5000	X		U161	
108-23-6	Isopropyl chloroformate	1,000*					
108-24-7	Acetic anhydride		5000				
108-31-6	2,5-Furandione		5000	X		U147	
108-38-3	Benzene, m-dimethyl-		1#	X			
108-39-4	m-Cresol		1000	X		U052	
108-46-3	1,3-Benzenediol		5000			U201	
108-60-1	Bis(2-chloroisopropyl) ether		1000	X		U027	
108-78-1	Melamine			X			
108-88-3	Benzene, methyl-		1000	X		U220	

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CAS Number	Chemical Name	Section 304		Section 313	RCRA	STATE
		Section 302 TPQ	RQ			
108-90-7	Benzene, chloro-		100	X	U037	
108-91-8	Cyclohexylamine	10,000*				
108-94-1	Cyclohexanone		5000		U057	
108-95-2	Phenol	500/10,000	1000	X	U188	
108-98-5	Thiophenol	500	100		P014	
109-06-8	2-Picoline		5000		U191	
109-61-5	Propyl chloroformate	500*				
109-73-9	Butylamine		1000			
109-77-3	Malononitrile	500/10,000	1000		U149	
109-86-4	2-Methoxyethanol			X		
109-89-7	Diethylamine		100			
109-99-9	Furan, tetrahydro-		1000		U213	
110-00-9	Furan	500	100		U124	
110-16-7	Maleic acid		5000			
110-17-8	Fumaric acid		5000			
110-19-0	iso-Butyl acetate		5000			
110-57-6	Trans-1,4-dichlorobutene	500*				
110-75-8	2-Chloroethyl vinyl ether		1000		U042	
110-80-5	2-Ethoxyethanol		1#	X	U359	
110-82-7	Benzene, hexahydro-		1000	X	U056	
110-86-1	Pyridine		1000	X	U196	
110-89-4	Piperidine	1,000*				
111-42-2	Diethanolamine			X		
111-44-4	Dichloroethyl ether	10,000	1#	X	U025	
111-54-6	1,2-Ethanediyldis(2-mercaptoethyl)carbamodithioic acid		5000		U114	
111-69-3	Adiponitrile	1,000*				
111-91-1	Bis(2-chloroethoxy) methane		1000		U024	
114-26-1	Propoxur			X		
115-02-6	Azaserine		1#		U015	
115-07-1	Propylene (Propene)			X		
115-21-9	Trichloroethylsilane	500*				
115-26-4	Dimefox	500*				
115-29-7	Endosulfan	10/10,000	1		P050	
115-32-2	Dicofol		10	X		
115-90-2	Fensulfothion	500*				
116-06-3	Aldicarb	100/10,000	1		P070	
117-79-3	2-Aminoanthraquinone			X		
117-80-6	Dichlone		1			
117-81-7	1,2-Benzenedicarboxylic acid, [bis(2-ethylhexyl)]ester		1#	X	U028	
117-84-0	Diethyl phthalate		5000	X	U107	

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Section 304

CAS Number	Chemical Name	Section 302		Section 313		RCRA	STATE
		TPQ	RQ				
118-74-1	Benzene, hexachloro		1#	X		U127	
119-38-0	Isopropylmethylpyrazolyl dimethylcarbamate	500*					
119-90-4	(1,1'-Biphenyl)-4,4'-diamine,3,3'-dimethoxy-		1#	X		U091	
119-93-7	(1,1'-Biphenyl)-4,4'-diamine,3,3'-dimethyl-		1#	X		U095	
120-12-7	Anthracene		5000	X			
120-58-1	Benzene, 1,2-methylenedioxy-4-propenyl-		1#			U141	
120-71-8	p-Cresidine			X			
120-80-9	Catechol			X			
120-82-1	1,2,4-Trichlorobenzene		100	X			
120-83-2	2,4-Dichlorophenol		100	X		U081	
121-14-2	Benzene, 1-methyl-2,4-dinitro-		1000#	X		U105	
121-21-1	Pyrethrins		1				
121-29-9	Pyrethrins		1				
121-44-8	Triethylamine		5000				
121-69-7	N,N-Dimethylaniline			X			
121-75-5	Malathion		100				
122-09-8	alpha,alpha-Dimethylphenethylamine		5000			P046	
122-14-5	Fenitrothion	500*					
122-66-7	1,2-Diphenylhydrazine		1#	X		U109	
123-31-9	Hydroquinone	500/10,000*		X			
123-33-1	1,2-Dihydro-3,6-pyridazinedione		5000			U148	
123-38-6	Propionaldehyde			X			
123-62-6	Propionic anhydride		5000				
123-63-7	Paraldehyde		1000			U182	
123-72-8	Butyraldehyde			X			
123-73-9	Crotonaldehyde, (E)-	1,000	100			U053	
123-86-4	Butyl acetate		5000				
123-91-1	1,4-Diethylene dioxide		1#	X		U108	
123-92-2	iso-Amyl acetate		5000				
124-04-9	Adipic acid		5000				
124-40-3	Dimethylamine		1000			U092	
124-41-4	Sodium methylate		1000				
124-48-1	Chlorodibromomethane		100				
124-65-2	Sodium cacodylate	100/10,000*					
124-87-8	Picrotoxin	500/10,000*					
126-72-7	1-Propanol, 2,3-dibromo-, phosphate (3:1)		1#	X		U235	
126-98-7	Methacrylonitrile	500	1000			U152	
126-99-8	Chloroprene			X			
127-18-4	Ethene, 1,1,2,2-tetrachloro-		1#	X		U210	
127-82-2	Zinc phenolsulfonate		5000				

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CAS Number	Chemical Name	Section 304				STATE
		Section 302 TPQ	RQ	Section 313	RCRA	
128-66-5	C.I. Vat Yellow 4			X		
129-00-0	Pyrene	1,000/10,000	5000			
129-06-6	Warfarin sodium	100/10,000*				
130-15-4	1,4-Naphthalenedione		5000		U166	
131-11-3	Dimethyl phthalate		5000	X	U102	
131-52-2	Sodium pentachlorophenate	100/10,000*				
131-74-8	Ammonium picrate		10		P009	
131-89-5	4,6-Dinitro-o-cyclohexylphenol		100		P034	
132-64-9	Dibenzofuran			X		
133-06-2	Captan		10	X		
133-90-4	Chloramben			X		
134-29-2	o-Anisidine hydrochloride			X		
134-32-7	1-Naphthylamine		1#	X	U167	
135-20-6	Cupferron			X		
137-26-8	Bis(dimethylthiocarbamoyl)disulfide		10		U244	
139-13-9	Nitrilotriacetic acid			X		
139-65-1	4,4'-Thiodianiline			X		
140-29-4	Benzyl cyanide	500*				
140-76-1	Pyridine, 2-methyl-5-vinyl-	500*				
140-88-5	Ethyl acrylate		1000	X	U113	
141-32-2	Butyl acrylate			X		
141-66-2	Dicrotophos	100*				
141-78-6	Acetic acid, ethyl ester		5000		U112	
142-28-9	1,3-Dichloropropane		1000			
142-71-2	Cupric acetate		100			
142-84-7	Dipropylamine		5000		U110	
143-33-9	Sodium cyanide (Na(CN))	100	10		P106	
143-50-0	Kepone		1#		U142	
144-49-0	Fluoroacetic acid	10/10,000*				
145-73-3	Endothall		1000		P088	
148-82-3	Alanine, 3-[p-bis(2-chloroethyl)amino]phenyl-.L-		1#		U150	
149-74-6	Dichloromethylphenylsilane	1,000*				
151-38-2	Methoxyethylmercuric acetate	500/10,000*				
151-50-8	Potassium cyanide	100	10		P098	
151-56-4	Ethyleneimine	500	1#	X	P054	
152-16-9	Diphosphoramidate, octamethyl-	100	100		P085	
156-10-5	p-Nitrosodiphenylamine			X		
156-60-5	1,2-trans-Dichloroethylene		1000		U079	
156-62-7	Calcium cyanamide			X		
189-55-9	1,2:7,8-Dibenzopyrene		1#		U064	

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CAS Number	Chemical Name	Section 304				
		Section 302 TPQ	RQ	Section 313	RCRA	STATE
191-24-2	Benzo[ghi]perylene		5000			
193-39-5	Indeno(1,2,3-cd)pyrene		1#		U137	
205-99-2	Benzo[b]fluoranthene		1#			
206-44-0	Benzo[j,k]fluorene		100		U120	
207-08-9	Benzo[k]fluoranthene		1#			
208-96-8	Acenaphthylene		5000			
218-01-9	1,2-Benzphenanthrene		1#		U050	
225-51-4	Benz[c]acridine		1#		U016	
297-78-9	Isobenzan	100/10,000*				
297-97-2	Thionazin	500	100		P040	
298-00-0	Parathion-methyl	100/10,000	100		P071	
298-02-2	Phorate	10	10		P094	
298-04-4	Disulfoton	500	1		P039	
300-62-9	Amphetamine	1,000*				
300-76-5	Naled		10			
301-04-2	Acetic acid, lead salt		5000#		U144	
302-01-2	Hydrazine	1,000	1#	X	U133	
303-34-4	Lasiocarpine		1#		U143	
305-03-3	Butanoic acid, 4-[bis(2-chloroethyl)amino] benzene-		1#		U035	
309-00-2	Aldrin	500/10,000	1#	X	P004	
311-45-5	Diethyl-p-nitrophenyl phosphate		100		P041	
315-18-4	Mexacarbate	500/10,000	1000			
316-42-7	Emetine, dihydrochloride	1/10,000*				
319-84-6	alpha-BHC		1#			
319-85-7	beta-BHC		1#			
319-86-8	delta-BHC		1			
327-98-0	Trichloronate	500*				
329-71-5	2,5-Dinitrophenol		10			
330-54-1	Diuron		100			
333-41-5	Diazinon		1			
334-88-3	Diazomethane			X		
353-42-4	Boron trifluoride compound with methyl ether (1:1)	1,000*				
353-50-4	Carbon oxyfluoride		1000		U033	
357-57-3	Brucine		100		P018	
359-06-8	Fluoroacetyl chloride	10*				
371-62-0	Ethylene fluorohydrin	10*				
379-79-3	Ergotamine tartrate	500/10,000*				
460-19-5	Cyanogen		100		P031	
463-58-1	Carbonyl sulfide			X		
465-73-6	Isodrin	100/10,000	1		P060	

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CAS Number	Chemical Name	Section 304		Section 313	RCRA	STATE
		Section 302 TPQ	RQ			
470-90-6	Chlorfenvinfos	500*				
492-80-8	C.I. Solvent Yellow 34 (Auramine)		1#	X	U014	
494-03-1	Chlornaphazine		1#		U026	
496-72-0	Diaminotoluene		1#			
502-39-6	Methylmercuric dicyanamide	500/10,000*				
504-24-5	Pyridine, 4-amino-	500/10,000	1000		P008	
504-60-9	1-Methylbutadiene		100		U186	
505-60-2	Mustard gas	500*		X		
506-61-6	Potassium silver cyanide	500	1		P099	
506-64-9	Silver cyanide		1		P104	
506-68-3	Cyanogen bromide	500/10,000	1000		U246	
506-77-4	Chlorine cyanide		10		P033	
506-78-5	Cyanogen iodide	1,000/10,000*				
506-87-6	Ammonium carbonate		5000			
506-96-7	Acetyl bromide		5000			
509-14-8	Tetranitromethane	500	10		P112	
510-15-6	Ethyl 4,4'-dichlorobenzilate		1#	X	U038	
513-49-5	sec-Butylamine		1000			
514-73-8	Dithiazanine iodide	500/10,000*				
528-29-0	o-Dinitrobenzene		100			
532-27-4	2-Chloroacetophenone			X		
534-07-6	Bis(chloromethyl) ketone	10/10,000*				
534-52-1	Dinitrocresol	10/10,000	10	X	P047	
535-89-7	Crimidine	100/10,000*				
538-07-8	Ethylbis(2-chloroethyl)amine	500*				
540-59-0	1,2-Dichloroethylene			X		
540-73-8	1,2-Dimethylhydrazine		1#		U099	
540-88-5	tert-Butyl acetate		5000			
541-09-3	Uranyl acetate		100			
541-25-3	Lewisite	10*				
541-41-3	Ethyl chloroformate			X		
541-53-7	Dithiobiuret	100/10,000	100		P049	
541-73-1	Benzene, 1,3-dichloro-		100	X	U071	
542-62-1	Barium cyanide		10		P013	
542-75-6	1,3-Dichloropropene		100	X	U084	
542-76-7	Propionitrile, 3-chloro-	1,000	1000		P027	
542-88-1	Chloromethyl ether	100	1#	X	P016	
542-90-5	Ethyl thiocyanate	10,000*				
543-90-8	Cadmium acetate		100#			
544-18-3	Cobaltous formate		1000			

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CAS Number	Chemical Name	Section 302		Section	RCRA	STATE
		TPQ	RQ	313		
544-92-3	Copper cyanide		10		P029	
554-84-7	m-Nitrophenol		100			
555-77-1	Tris(2-chloroethyl)amine	100*				
556-61-6	Methyl isothiocyanate	500*				
556-64-9	Methyl thiocyanate	10,000*				
557-19-7	Nickel cyanide		1#		P074	
557-21-1	Zinc cyanide		10		P121	
557-34-6	Zinc acetate		1000			
557-41-5	Zinc formate		1000			
558-25-8	Methanesulfonyl fluoride	1,000*				
563-12-2	Ethion	1,000	10			
563-41-7	Semicarbazide hydrochloride	1,000/10,000*				
563-68-8	Acetic acid, thallium(I) salt		100		U214	
569-64-2	C I. Basic Green 4			X		
573-56-8	2,6-Dinitrophenol		10			
584-84-9	Toluene 2,4-diisocyanate	500	100	X		
591-08-2	Acetamide, N-(aminothioxomethyl)-		1000		P002	
592-01-8	Calcium cyanide		10		P021	
592-04-1	Mercuric cyanide		1			
592-85-8	Mercuric thiocyanate		10			
592-87-0	Lead thiocyanate		100			
593-60-2	Vinyl bromide			X		
594-42-3	Perchloromethylmercaptan	500	100			
597-64-8	Tetraethyltin	100*				
598-31-2	Bromoacetone		1000		P017	
606-20-2	Benzene, 1-methyl-2,6-dinitro-		1000	X	U106	
608-93-5	Benzene, pentachloro-		10		U183	
609-19-8	3,4,5-Trichlorophenol		10#			
610-39-9	3,4-Dinitrotoluene		1000#			
614-78-8	Thiourea, (2-methylphenyl)-	500/10,000*				
615-05-4	2,4-Diaminoanisole			X		
615-53-2	Carbamic acid, methylnitroso-,ethyl ester		1#		U178	
621-64-7	Di-n-propylnitrosamine		1#	X	U111	
624-83-9	Methyl isocyanate	500	1##	X	P064	
624-92-0	Methyl disulfide	100*				
625-16-1	tert-Amyl acetate		5000			
625-55-8	Isopropyl formate	500*				
626-38-0	sec-Amyl acetate		5000			
627-11-2	Chloroethyl chloroformate	1,000*				
628-63-7	Amyl acetate		5000			

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CAS Number	Chemical Name	Section 304		Section 313	RCRA	STAT
		Section 302 TPQ	RQ			
628-86-4	Fulminic acid, mercury(II)salt		10		P065	
630-10-4	Carbamimidoseleonic acid		1000		P103	
630-20-6	Ethane, 1,1,1,2-tetrachloro-		1#		U208	
630-60-4	Ouabain	100/10,000*				
631-61-8	Ammonium acetate		5000			
636-21-5	Benzenamine, 2-methyl-, hydrochloride		1#	X	U222	
639-58-7	Triphenyltin chloride	500/10,000*				
640-19-7	Fluoroacetamide	100/10,000	100		P057	
644-64-4	Dimetilan	500/10,000*				
675-14-9	Cyanuric fluoride	100*				
676-97-1	Methyl phosphonic dichloride	100*				
680-31-9	Hexamethylphosphoramide			X		
684-93-5	Carbamide, N-methyl-N-nitroso-		1#	X	U177	
692-42-2	Arsine, diethyl-		1#		P038	
696-28-6	Phenyl dichloroarsine	500	1#		P036	
732-11-6	Phosmet	10/10,000*				
757-58-4	Hexaethyl tetraphosphate		100		P062	
759-73-9	Carbamide, N-ethyl-N-nitroso-		1#	X	U176	
760-93-0	Methacrylic anhydride	500*				
764-41-0	2-Butene, 1,4-dichloro-		1#		U074	
765-34-4	Glycidylaldehyde		1#		U126	
786-19-6	Carbophenothion	500*				
814-49-3	Diethyl chlorophosphate	500*				
814-68-6	Acrylyl chloride	100*				
815-82-7	Cupric tartrate		100			
823-40-5	Diaminotoluene		1#			
824-11-3	Trimethylolpropane phosphite	100/10,000*				
842-07-9	C.I. Solvent Yellow 14			X		
900-95-8	Stannane, acetoxytriphenyl-	500/10,000*				
919-86-8	Demeton-S-methyl	500*				
920-46-7	Methacryloyl chloride	100*				
924-16-3	1-Butanamine, N-butyl-N-nitroso-		1#	X	U172	
930-55-2	N-Nitrosopyrrolidine		1#		U180	
933-75-5	2,3,6-Trichlorophenol		10#			
933-78-8	2,3,5-Trichlorophenol		10#			
944-22-9	Fonofos	500*				
947-02-4	Phosfolan	100/10,000*				
950-10-7	Mephosfolan	500*				
950-37-8	Methidathion	500/10,000*				
959-98-8	alpha-Endosulfan		1			

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Section 304

CAS Number	Chemical Name	Section 302		Section 313		RCRA	STATE
		TPQ	RQ				
961-11-5	Tetrachlorvinphos			X			
989-38-8	C.I. Basic Red 1			X			
991-42-4	Norbormide	100/10,000*					
998-30-1	Triethoxysilane	500*					
999-81-5	Chlormequat chloride	100/10,000*					
1024-57-3	Heptachlor epoxide		1#				
1031-07-8	Endosulfan sulfate		1				
1031-47-6	Triamiphos	500/10,000*					
1066-30-4	Chromic acetate		1000				
1066-33-7	Ammonium bicarbonate		5000				
1066-45-1	Trimethyltin chloride	500/10,000*					
1072-35-1	Lead stearate		5000				
1111-78-0	Ammonium carbamate		5000				
1116-54-7	Ethanol, 2,2'-(nitrosoimino)bis-		1#			U173	
1120-71-4	1,2-Oxathiolane, 2,2-dioxide		1#	X		U193	
1122-60-7	Nitrocyclohexane	500*					
1124-33-0	Pyridine, 4-nitro-, i-oxide	500/10,000*					
1129-41-5	Metolcarb	100/10,000*					
1163-19-5	Decabromodiphenyl oxide			X			
1185-57-5	Ferric ammonium citrate		1000				
1194-65-6	Dichlobenil		100				
1300-71-6	Xylenol		1000				
1303-28-2	Arsenic pentoxide	100/10,000	5000#			P011	
1303-32-8	Arsenic disulfide		5000#				
1303-33-9	Arsenic trisulfide		5000#				
1306-19-0	Cadmium oxide	100/10,000*					
1309-64-4	Antimony trioxide		1000				
1310-58-3	Potassium hydroxide		1000				
1310-73-2	Sodium hydroxide		1000	X			
1313-27-5	Molybdenum trioxide			X			
1314-20-1	Thorium dioxide			X			
1314-32-5	Thallic oxide		100			P113	
1314-56-3	Phosphorus pentoxide	10*					
1314-62-1	Vanadium pentoxide	100/10,000	1000			P120	
1314-80-3	Phosphorus pentasulfide		100			U189	
1314-84-7	Zinc phosphide	500	100			P122~~	
1314-87-0	Lead sulfide		5000				
1319-72-8	2,4,5-T amines		5000				
1319-77-3	Cresol(s)		1000	X		U052	
1320-18-9	2,4-D Esters		100				

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CAS Number	Chemical Name	Section 304				
		Section 302 TPQ	RQ	Section 313	RCRA	STATE
1321-12-6	Nitrotoluene		1000			
1327-53-3	Arsenous oxide	100/10,000	5000#		P012	
1330-20-7	Benzene, dimethyl-		1000	X	U239	
1332-07-6	Zinc borate		1000			
1332-21-4	Asbestos		1#	X		
1333-83-1	Sodium bifluoride		100			
1335-32-6	Lead subacetate		1#		U146	
1335-87-1	Hexachloronaphthalene			X		
1336-21-6	Ammonium hydroxide		1000			
1336-36-3	Polychlorinated biphenyls (PCBs)		10#	X		
1338-23-4	2-Butanone peroxide		10		U160	
1338-24-5	Naphthenic acid		100			
1341-49-7	Ammonium bifluoride		100			
1344-28-1	Aluminum oxide			X		
1397-94-0	Antimycin A	1,000/10,000*				
1420-07-1	Dinoterb	500/10,000*				
1464-53-5	Diepoxybutane	500	1#	X	U085	
1558-25-4	Trichloro(chloromethyl)silane	100*				
1563-66-2	Carbofuran	10/10,000	10			
1582-09-8	Trifluralin			X		
1600-27-7	Mercuric acetate	500/10,000*				
1615-80-1	N,N'-Diethylhydrazine		1#		U086	
1622-32-8	Ethanesulfonyl chloride, 2-chloro-	500*				
1634-04-4	Methyl tert-butyl ether			X		
1642-54-2	Diethylcarbamazine citrate	100/10,000*				
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)		1#			
1752-30-3	Acetone thiosemicarbazide	1,000/10,000*				
1762-95-4	Ammonium thiocyanate		5000			
1836-75-5	Nitrofen			X		
1863-63-4	Ammonium benzoate		5000			
1888-71-7	Hexachloropropene		1000		U243	
1897-45-6	Chlorothalonil			X		
1910-42-5	Paraquat	10/10,000*				
1918-00-9	Dicamba		1000			
1928-38-7	2,4-D Esters		100			
1928-47-8	2,4,5-T esters		1000			
1928-61-6	2,4-D Esters		100			
1929-73-3	2,4-D Esters		100			
1937-37-7	C.I. Direct Black 38			X		
1982-47-4	Chloroxuron	500/10,000*				

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CAS Number	Chemical Name	Section 304		Section 313	RCRA	STATE
		Section 302 TPQ	RQ			
2001-95-8	Valinomycin	1,000/10,000*				
2008-46-0	2,4,5-T amines		5000			
2032-65-7	Methiocarb	500/10,000	10			
2074-50-2	Paraquat methosulfate	10/10,000*				
2097-19-0	Phenylsilatrane	100/10,000*				
2104-64-5	EPN	100/10,000*				
2164-17-2	Fluometuron			X		
2223-93-0	Cadmium stearate	1,000/10,000*				
2231-57-4	Thiocarbazine	1,000/10,000*				
2234-13-1	Octachloronaphthalene			X		
2238-07-5	Diglycidyl ether	1,000*				
2275-18-5	Prothoate	100/10,000*				
2303-16-4	Diallate		1#	X	U062	
2312-35-8	Propargite		10			
2497-07-6	Oxydisulfoton	500*				
2524-03-0	Dimethyl phosphorochloridothioate	500*				
2540-82-1	Formothion	100*				
2545-59-7	2,4,5-T esters		1000			
2570-26-5	Pentadecylamine	100/10,000*				
2587-90-8	Phosphorothioic acid, 0,0-dimethyl-S-(2-methylthio)ethyl est	500*				
2602-46-2	C.I. Direct Blue 6			X		
2631-37-0	Promecarb	500/10,000*				
2636-26-2	Cyanophos	1,000*				
2642-71-9	Azinphos-ethyl	100/10,000*				
2650-18-2	C.I. Acid Blue 9, diammonium salt			X		
2665-30-7	Phosphonothioic acid, methyl-, 0-(4-nitrophenyl) 0-phenyl es	500*				
2703-13-1	Phosphonothioic acid, methyl-, 0-ethyl 0-(4-(methylthio)phen	500*				
2757-18-8	Thalious malonate	100/10,000*				
2763-96-4	Muscimol	10,000	1000		P007	
2764-72-9	Diquat		1000			
2778-04-3	Endothion	500/10,000*				
2832-40-8	C.I. Disperse Yellow 3			X		
2921-88-2	Chlorpyrifos		1			
2944-67-4	Ferric ammonium oxalate		1000			
2971-38-2	2,4-D Esters		100			
3012-65-5	Ammonium citrate, dibasic		5000			
3037-72-7	Silane, (4-aminobutyl)diethoxymethyl-	1,000*				
3118-97-6	C.I. Solvent Orange 7			X		
3164-29-2	Ammonium tartrate		5000			
3165-93-3	Benzenamine, 4-chloro-2-methyl-,hydrochloride		1#		U049	

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		Section 302 TPQ	RQ	Section 313	RCRA	STATE
3251-23-8	Cupric nitrate		100			
3254-63-5	Phosphoric acid, dimethyl 4-(methylthio) phenyl ester	500*				
3288-58-2	O,O-Diethyl S-methyl dithiophosphate		5000		U087	
3486-35-9	Zinc carbonate		1000			
3569-57-1	Sulfoxide, 3-chloropropyl octyl	500*				
3615-21-2	Benzimidazole, 4,5-dichloro-2-(trifluoromethyl)-	500/10,000*				
3689-24-5	Sulfotep	500	100		P109	
3691-35-8	Chlorophacinone	100/10,000*				
3734-97-2	Amiton oxalate	100/10,000*				
3735-23-7	Methyl phenkapton	500*				
3761-53-3	C.I. Food Red 5			X		
3813-14-7	2,4,5-T amines		5000			
3844-45-9	C.I. Acid Blue 9, disodium salt			X		
3878-19-1	Fuberidazole	100/10,000*				
4044-65-9	Bitoscanate	500/10,000*				
4098-71-9	Isophorone diisocyanate	100*				
4104-14-7	Phosacetim	100/10,000*				
4170-30-3	Crotonaldehyde	1,000	100		U053	
4301-50-2	Fluometil	100/10,000*				
4418-66-0	Phenol, 2,2'-thiobis[4-chloro-6-methyl-	100/10,000*				
4549-40-0	Ethenamine, N-methyl-N-nitroso-		1#	X	P084	
4680-78-8	C.I. Acid Green 3			X		
4835-11-4	Hexamethylenediamine, N,N'-dibutyl-	500*				
5281-13-0	Piprotal	100/10,000*				
5344-82-1	Thiourea, (2-chlorophenyl)-	100/10,000	100		P026	
5836-29-3	Coumatetralyl	500/10,000*				
5893-66-3	Cupric oxalate		100			
5972-73-6	Ammonium oxalate		5000			
6009-70-7	Ammonium oxalate		5000			
6369-96-6	2,4,5-T amines		5000			
6369-97-7	2,4,5-T amines		5000			
6484-52-2	Ammonium nitrate (solution)			X		
6533-73-9	Thallos carbonate	100/10,000	100		U215	
6923-22-4	Monocrotophos	10/10,000*				
7005-72-3	4-Chlorophenyl phenyl ether		5000			
7421-93-4	Endrin aldehyde		1			
7428-48-0	Lead stearate		5000			
7429-90-5	Aluminum (fume or dust)			X		
7439-92-1	Lead		1#	X		
7439-96-5	Manganese and compounds			X		

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Section 304

CAS Number	Chemical Name	Section 302		Section 313		
		TPQ	RQ	313	RCRA	STATE
7439-97-6	Mercury		1	X	U151	
7440-02-0	Nickel		1#	X		
7440-22-4	Silver		1000	X		
7440-23-5	Sodium		10			
7440-28-0	Thallium		1000	X		
7440-36-0	Antimony		5000	X		
7440-38-2	Arsenic		1#	X		
7440-39-3	Barium and compounds			X		
7440-41-7	Beryllium		1#	X	P015	
7440-43-9	Cadmium		1#	X		
7440-47-3	Chromium		1#	X		
7440-48-4	Cobalt			X		
7440-50-8	Copper		5000	X		
7440-62-2	Vanadium (fume or dust)			X		
7440-66-6	Zinc		1000	X		
7446-08-4	Selenium dioxide		10			
7446-09-5	Sulfur dioxide	500*				
7446-11-9	Sulfur trioxide	100*				
7446-14-2	Lead sulfate		100			
7446-18-6	Thalious sulfate	100/10,000	100		P115	
7446-27-7	Lead phosphate		1#		U145	
7447-39-4	Cupric chloride		10			
7487-94-7	Mercuric chloride	500/10,000*				
7488-56-4	Selenium disulfide		1#		U205	
7550-45-0	Titanium tetrachloride	100*		X		
7558-79-4	Sodium phosphate, dibasic		5000			
7580-67-8	Lithium hydride	100*				
7601-54-9	Sodium phosphate, tribasic		5000			
7631-89-2	Sodium arsenate	1,000/10,000	1000#			
7631-90-5	Sodium bisulfite		5000			
7632-00-0	Sodium nitrite		100			
7637-07-2	Boron trifluoride	500*				
7645-25-2	Lead arsenate		5000#			
7646-85-7	Zinc chloride		1000			
7647-01-0	Hydrochloric acid (Hydrogen chloride (gas only))***	500	5000	X		
7647-18-9	Antimony pentachloride		1000			
7664-38-2	Phosphoric acid		5000	X		
7664-39-3	Hydrogen fluoride	100	100	X	U134	
7664-41-7	Ammonia	500	100	X		
7664-93-9	Sulfuric acid	1,000	1000	X		

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		Section 302 TPQ	RQ	Section 313	RCRA	STATE
7681-49-4	Sodium fluoride		1000			
7681-52-9	Sodium hypochlorite		100			
7697-37-2	Nitric acid	1,000	1000	X		
7699-45-8	Zinc bromide		1000			
7705-08-0	Ferric chloride		1000			
7718-54-9	Nickel chloride		5000#			
7719-12-2	Phosphorus trichloride	1,000	1000			
7720-78-7	Ferrous sulfate		1000			
7722-64-7	Potassium permanganate		100			
7722-84-1	Hydrogen peroxide (Conc > 52%)	1,000*				
7723-14-0	Phosphorus	100	1	X		
7726-95-6	Bromine	500*				
7733-02-0	Zinc sulfate		1000			
7738-94-5	Chromic acid		1000#			
7757-82-6	Sodium sulfate (solution)			X		
7758-29-4	Sodium phosphate, tribasic		5000			
7758-94-3	Ferrous chloride		100			
7758-95-4	Lead chloride		100			
7758-98-7	Cupric sulfate		10			
7761-88-8	Silver nitrate		1			
7773-06-0	Ammonium sulfamate		5000			
7775-11-3	Sodium chromate		1000#			
7778-39-4	Arsenic acid		1#		P010	
7778-44-1	Calcium arsenate	500/10,000	1000#			
7778-50-9	Potassium bichromate		1000#			
7778-54-3	Calcium hypochlorite		10			
7779-86-4	Zinc hydrosulfite		1000			
7779-88-6	Zinc nitrate		1000			
7782-41-4	Fluorine	500	10		P056	
7782-49-2	Selenium		100	X		
7782-50-5	Chlorine	100	10	X		
7782-63-0	Ferrous sulfate		1000			
7782-82-3	Sodium selenite		100			
7782-86-7	Mercurous nitrate		10#			
7783-00-8	Selenous acid	1,000/10,000	10		U204	
7783-06-4	Hydrogen sulfide	500	100		U135	
7783-07-5	Hydrogen selenide	10*				
7783-18-8	Ammonium thiosulfate		5000''			
7783-20-2	Ammonium sulfate (solution)			X		
7783-35-9	Mercuric sulfate		10			

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CAS Number	Chemical Name	Section 304		Section 313	RCRA	STATE
		Section 302 TPQ	RQ			
7783-46-2	Lead fluoride		100			
7783-49-5	Zinc fluoride		1000			
7783-50-8	Ferric fluoride		100			
7783-56-4	Antimony trifluoride		1000			
7783-60-0	Sulfur tetrafluoride	100*				
7783-70-2	Antimony pentafluoride	500*				
7783-80-4	Tellurium hexafluoride	100*				
7784-34-1	Arsenous trichloride	500	5000#			
7784-40-9	Lead arsenate		5000#			
7784-41-0	Potassium arsenate		1000#			
7784-42-1	Arsine	100*				
7784-46-5	Sodium arsenite	500/10,000	1000#			
7785-84-4	Sodium phosphate, tribasic		5000			
7786-34-7	Mevinphos	500	10			
7786-81-4	Nickel sulfate		5000#			
7787-47-5	Beryllium chloride		5000#			
7787-49-7	Beryllium fluoride		5000#			
7787-55-5	Beryllium nitrate		5000#			
7788-98-9	Ammonium chromate		1000#			
7789-00-6	Potassium chromate		1000#			
7789-06-2	Strontium chromate		1000#			
7789-09-5	Ammonium bichromate		1000#			
7789-42-6	Cadmium bromide		100#			
7789-43-7	Cobaltous bromide		1000			
7789-61-9	Antimony tribromide		1000			
7790-94-5	Chlorosulfonic acid		1000			
7791-12-0	Thallos chloride	100/10,000	100		U216	
7791-23-3	Selenium oxychloride	500*				
7803-51-2	Phosphine	500	100		P096	
7803-55-6	Ammonium vanadate		1000		P119	
8001-35-2	Toxaphene (Camphechlor)	500/10,000	1#	X	P123	
8001-58-9	Creosote		1#			
8003-19-8	Dichloropropane - Dichloropropene (mixture)		100			
8003-34-7	Pyrethrins		1			
8014-95-7	Sulfuric acid (fuming)		1000			
8065-48-3	Demeton	500*				
10022-70-5	Sodium hypochlorite		100			
10025-73-7	Chromic chloride	1/10,000*				
10025-87-3	Phosphorus oxychloride	500	1000			
10025-91-9	Antimony trichloride		1000			

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CAS Number	Chemical Name	Section 304				
		Section 302 TPQ	RQ	Section 313	RCRA	STATE
10026-11-6	Zirconium tetrachloride		5000			
10026-13-8	Phosphorus pentachloride	500*				
10028-15-6	Ozone	100*				
10028-22-5	Ferric sulfate		1000			
10031-59-1	Thallium sulfate	100/10,000	100			
10034-93-2	Hydrazine sulfate			X		
10039-32-4	Sodium phosphate, dibasic		5000			
10043-01-3	Aluminum sulfate		5000			
10045-89-3	Ferrous ammonium sulfate		1000			
10045-94-0	Mercuric nitrate		10			
10049-04-4	Chlorine dioxide			X		
10049-05-5	Chromous chloride		1000			
10099-74-8	Lead nitrate		100			
10101-53-8	Chromic sulfate		1000			
10101-63-0	Lead iodide		100			
10101-89-0	Sodium phosphate, tribasic		5000			
10102-06-4	Uranyl nitrate		100			
10102-18-8	Sodium selenite	100/10,000	100			
10102-20-2	Sodium tellurite	500/10,000*				
10102-43-9	Nitric oxide	100	10			P076
10102-44-0	Nitrogen dioxide	100	10			P078
10102-45-1	Thallium(I) nitrate		100			U217
10102-48-4	Lead arsenate		5000#			
10108-64-2	Cadmium chloride		100#			
10124-50-2	Potassium arsenite	500/10,000	1000#			
10124-56-8	Sodium phosphate, tribasic		5000			
10140-65-5	Sodium phosphate, dibasic		5000			
10140-87-1	Ethanol, 1,2-dichloro-, acetate	1,000*				
10192-30-0	Ammonium bisulfite		5000			
10196-04-0	Ammonium sulfite		5000			
10210-68-1	Cobalt carbonyl	10/10,000*				
10265-92-6	Methamidophos	100/10,000*				
10294-34-5	Boron trichloride	500*				
10311-84-9	Dialifos	100/10,000*				
10361-89-4	Sodium phosphate, tribasic		5000			
10380-29-7	Cupric sulfate ammoniated		100			
10415-75-5	Mercurous nitrate		10			
10421-48-4	Ferric nitrate		1000			
10476-95-6	Methacrolein diacetate	1,000*				
10544-72-6	Nitrogen dioxide		10			

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CAS Number	Chemical Name	Section 304				
		Section 302 TPQ	RQ	Section 313	RCRA	STATE
10588-01-9	Sodium bichromate		1000#			
11096-82-5	Aroclor 1260		10#			
11097-69-1	Aroclor 1254		10#			
11104-28-2	Aroclor 1221		10#			
11115-74-5	Chromic acid		1000#			
11141-16-5	Aroclor 1232		10#			
12002-03-8	Paris green (Cupric acetoarsenite)	500/10,000	100#			
12039-52-0	Thallium(I) selenide		1000		P114	
12054-48-7	Nickel hydroxide		1000#			
12108-13-3	Manganese, tricarbonyl methylcyclopentadienyl	100*				
12122-67-7	Zineb			X		
12125-01-8	Ammonium fluoride		100			
12125-02-9	Ammonium chloride		5000			
12135-76-1	Ammonium sulfide		100			
12427-38-2	Maneb			X		
12672-29-6	Aroclor 1248		10#			
12674-11-2	Aroclor 1016		10#			
12771-08-3	Sulfur monochloride		1000			
13071-79-9	Terbufos	100*				
13171-21-6	Phosphamidon	100*				
13194-48-4	Ethoprophos	1,000*				
13410-01-0	Sodium selenate	100/10,000*				
13450-90-3	Gallium trichloride	500/10,000*				
13463-39-3	Nickel carbonyl	1	1#		P073	
13463-40-6	Iron, pentacarbonyl-	100*				
13494-80-9	Tellurium	500/10,000*				
13560-99-1	2,4,5-T salts		1000			
13597-99-4	Beryllium nitrate		5000#			
13746-89-9	Zirconium nitrate		5000			
13765-19-0	Calcium chromate		1000#		U032	
13814-96-5	Lead fluoborate		100			
13826-83-0	Ammonium fluoborate		5000			
13952-84-6	sec-Butylamine		1000			
14017-41-5	Cobaltous sulfamate		1000			
14167-18-1	Salcomine	500/10,000*				
14216-75-2	Nickel nitrate		5000#			
14258-49-2	Ammonium oxalate		5000			
14307-35-8	Lithium chromate		1000#			
14307-43-8	Ammonium tartrate		5000			
14639-97-5	Zinc ammonium chloride		5000#			

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CAS Number	Chemical Name	Section 304				
		Section 302 TPQ	RQ	Section 313	RCRA	STATE
14639-98-6	Zinc ammonium chloride		5000#			
14644-61-2	Zirconium sulfate		5000			
15271-41-7	Bicyclo[2.2.1]heptane-2-carbonitrile, 5-chloro-6-(((methyla	500/10,000*				
15699-18-0	Nickel ammonium sulfate		5000#			
15739-80-7	Lead sulfate		100			
15950-66-0	2,3,4-Trichlorophenol		10#			
16071-86-6	C.I. Direct Brown 95			X		
16543-55-8	N-Nitrosornicotine			X		
16721-80-5	Sodium hydrosulfide		5000			
16752-77-5	Methomyl	500/10,000	100		P066	
16871-71-9	Zinc silicofluoride		5000			
16919-19-0	Ammonium silicofluoride		1000			
16923-95-8	Zirconium potassium fluoride		1000			
17702-41-9	Decaborane(14)	500/10,000*				
17702-57-7	Formparanate	100/10,000*				
18883-66-4	D-Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-		1#		U206	
19287-45-7	Diborane	100*				
19624-22-7	Pentaborane	500*				
20816-12-0	Osmium tetroxide		1000	X	P087	
20830-75-5	Digoxin	10/10,000*				
20830-81-3	Daunomycin		1#		U059	
20859-73-8	Aluminum phosphide	500	100		P006	
21548-32-3	Fosthietan	500*				
21609-90-5	Leptophos	500/10,000*				
21908-53-2	Mercuric oxide	500/10,000*				
21923-23-9	Chlorthiophos	500*				
22224-92-6	Fenamiphos	10/10,000*				
23135-22-0	Oxamyl	100/10,000*				
23422-53-9	Formetanate hydrochloride	500/10,000*				
23505-41-1	Pirimifos-ethyl	1,000*				
23950-58-5	3,5-Dichloro-N-(1,1-dimethyl-2-propynyl)benzamide		5000		U192	
24017-47-8	Triazofos	500*				
24934-91-6	Chlormephos	500*				
25154-54-5	Dinitrobenzene (mixed)		100			
25154-55-6	Nitrophenol (mixed)		100			
25155-30-0	Sodium dodecylbenzene sulfonate		1000			
25167-82-2	Trichlorophenol		10#			
25168-15-4	2,4,5-T esters		1000			
25168-26-7	2,4-D Esters		100			
25321-14-6	Dinitrotoluene		1000#			

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Section 304

CAS Number	Chemical Name	Section 302		Section 313		RCRA	STATE
		TPQ	RQ				
25321-22-6	Dichlorobenzene (mixed)		100	X			
25376-45-8	Diaminotoluene		1#	X		U221	
25550-58-7	Dinitrophenol		10				
26264-06-2	Calcium dodecylbenzene sulfonate		1000				
26419-73-8	Carbamic acid, methyl-, O-(((2,4-dimethyl-1,3-dithiolan-2-yl	100/10,000*					
26471-62-5	Benzene, 2,4-diisocyanatomethyl-		1#			U223	
26628-22-8	Sodium azide (Na(N3))	500	1000			P105	
26638-19-7	Dichloropropane		1000				
26952-23-8	Dichloropropene		100				
27137-85-5	Trichloro(dichlorophenyl)silane	500*					
27176-87-0	Dodecylbenzenesulfonic acid		1000				
27323-41-7	Triethanolamine dodecylbenzene sulfonate		1000				
27774-13-6	Vanadyl sulfate		1000				
28300-74-5	Antimony potassium tartrate		100				
28347-13-9	Xylylene dichloride	100/10,000*					
28772-56-7	Bromadiolone	100/10,000*					
30525-89-4	Paraformaldehyde		1000				
30674-80-7	Methacryloyloxyethyl isocyanate	100*					
32534-95-5	2,4,5-TP acid esters		100				
33213-65-9	beta-Endosulfan		1				
36478-76-9	Uranyl nitrate		100***				
37211-05-5	Nickel chloride		5000#				
39156-41-7	2,4-Diaminoanisole sulfate			X			
39196-18-4	Thiofanox	100/10,000	100			P045	
42504-46-1	Isopropanolamine dodecylbenzene sulfonate		1000				
50782-69-9	Phosphonothioic acid, methyl-, S-(2-(bis(1-methylethyl)amino	100*					
52628-25-8	Zinc ammonium chloride		1000				
52652-59-2	Lead stearate		5000				
52740-16-6	Calcium arsenite		1000#				
53467-11-1	2,4-D Esters		100				
53469-21-9	Aroclor 1242		10#				
53558-25-1	Pyriminil	100/10,000*					
55488-87-4	Ferric ammonium oxalate		1000				
56189-09-4	Lead stearate		5000				
58270-08-9	Zinc, dichloro(4,4-dimethyl-5(((methylamino) carbonyl)oxy) i	100/10,000*					
61792-07-2	2,4,5-T esters		1000				
62207-76-5	Cobalt, ((2,2'-(1,2-ethanediy)bis (nitrilomethylidyne))bis(6	100/10,000*					

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CAS Number	Chemical Name	Section 304		Section 313	RCRA	STATE
		Section 302 TPQ	RQ			
	Organorhodium Complex	10/10,000*				
	Barium Compounds			X		
	Cobalt Compounds			X		
	Cyanide and Compounds		**	X		
	Glycol Ethers			X		
	Manganese Compounds			X		
	Polybrominated Biphenyls (PBBs)			X		
	Antimony and Compounds		**	X		
	Arsenic and Compounds		**	X		
	Beryllium and Compounds		**	X		
	Cadmium and Compounds		**	X		
	Chlordane (Technical Mixture and Metabolites)		**			
	Chlorinated Benzenes		**			
	Chlorinated Ethanes		**			
	Chlorinated Naphthalene		**			
	Chlorinated Phenols		**	X		
	Chloroalkyl Ethers		**			
	Chromium and Compounds		**	X		
	Coke Oven Emissions		1#			
	Copper and Compounds		**	X		
	DDT and Metabolites		**			
	Dichlorobenzidine		**			
	Diphenylhydrazine		**			
	Endosulfan and Metabolites		**			
	Endrin and Metabolites		**		X	
	Haloethers		**			
	Halomethanes		**			
	Heptachlor and Metabolites		**			
	Lead and Compounds		**	X		
	Mercury and Compounds		**	X		
	Nickel and Compounds		**	X		
	Nitrophenols		**			
	Nitrosamines		**			
	Phthalate Esters		**			
	Polynuclear Aromatic Hydrocarbons		**			
	Radionuclides		1^			
	Selenium and Compounds		**	X		
	Silver and Compounds		**	X		
	Thallium and Compounds		**	X		
	Zinc and Compounds		**	X		

ALPHABETICAL LISTING OF CHEMICAL NAME AND CAS NUMBER

Page 1

CAS Number	Chemical Name	CAS Number	Chemical Name
83-32-9	Acenaphthene	7789-09-5	Ammonium bichromate
208-96-8	Acenaphthylene	1341-49-7	Ammonium bifluoride
75-07-0	Acetaldehyde	10192-30-0	Ammonium bisulfite
75-87-6	Acetaldehyde, trichloro-	1111-78-0	Ammonium carbamate
60-35-5	Acetamide	506-87-6	Ammonium carbonate
591-08-2	Acetamide, N-(aminothioxomethyl)-	12125-02-9	Ammonium chloride
62-44-2	Acetamide, N-(4-ethoxyphenyl)-	7788-98-9	Ammonium chromate
53-96-3	Acetamide, N-9H-fluoren-2-yl-	3012-65-5	Ammonium citrate, dibasic
64-19-7	Acetic acid	13826-83-0	Ammonium fluoborate
141-78-6	Acetic acid, ethyl ester	12125-01-8	Ammonium fluoride
301-04-2	Acetic acid, lead salt	1336-21-6	Ammonium hydroxide
563-68-8	Acetic acid, thallium(I) salt	6484-52-2	Ammonium nitrate (solution)
108-24-7	Acetic anhydride	5972-73-6	Ammonium oxalate
67-64-1	Acetone	6009-70-7	Ammonium oxalate
75-86-5	Acetone cyanohydrin	14258-49-2	Ammonium oxalate
1752-30-3	Acetone thiosemicarbazide	131-74-8	Ammonium picrate
75-05-8	Acetonitrile	16919-19-0	Ammonium silicofluoride
98-86-2	Acetophenone	7773-06-0	Ammonium sulfamate
506-96-7	Acetyl bromide	7783-20-2	Ammonium sulfate (solution)
75-36-5	Acetyl chloride	12135-76-1	Ammonium sulfide
107-02-8	Acrolein	10196-04-0	Ammonium sulfite
79-06-1	Acrylamide	3164-29-2	Ammonium tartrate
79-10-7	Acrylic acid	14307-43-8	Ammonium tartrate
107-13-1	Acrylonitrile	1762-95-4	Ammonium thiocyanate
814-68-6	Acrylyl chloride	7783-18-8	Ammonium thiosulfate
124-04-9	Adipic acid	7803-55-6	Ammonium vanadate
111-69-3	Adiponitrile	300-62-9	Amphetamine
148-82-3	Alanine, 3-[p-bis(2-chloroethyl)amino]phenyl-,L-	628-63-7	Amyl acetate
116-06-3	Aldicarb	123-92-2	iso-Amyl acetate
309-00-2	Aldrin	626-38-0	sec-Amyl acetate
107-18-6	Allyl alcohol	625-16-1	tert-Amyl acetate
107-05-1	Allyl chloride	62-53-3	Aniline
107-11-9	Allylamine	88-05-1	Aniline, 2,4,6-trimethyl-
7429-90-5	Aluminum (fume or dust)	90-04-0	o-Anisidine
1344-28-1	Aluminum oxide	104-94-9	p-Anisidine
20859-73-8	Aluminum phosphide	134-29-2	o-Anisidine hydrochloride
10043-01-3	Aluminum sulfate	120-12-7	Anthracene
106-49-0	4-Amino-1-methyl benzene	7440-36-0	Antimony
82-28-0	1-Amino-2-methylantraquinone	- -0	Antimony and Compounds
117-79-3	2-Aminoanthraquinone	7647-18-9	Antimony pentachloride
60-09-3	4-Aminoazobenzene	7783-70-2	Antimony pentafluoride
92-67-1	4-Aminobiphenyl	28300-74-5	Antimony potassium tartrate
54-62-6	Aminopterin	7789-61-9	Antimony tribromide
78-53-5	Amiton	10025-91-9	Antimony trichloride
3734-97-2	Amiton oxalate	7783-56-4	Antimony trifluoride
61-82-5	Amitrole	1309-64-4	Antimony trioxide
7664-41-7	Ammonia	1397-94-0	Antimycin A
631-61-8	Ammonium acetate	86-88-4	Antu
1863-63-4	Ammonium benzoate	12674-11-2	Aroclor 1016
1066-33-7	Ammonium bicarbonate	11104-28-2	Aroclor 1221

ALPHABETICAL LISTING OF CHEMICAL NAME AND CAS NUMBER

Page 2

CAS Number	Chemical Name	CAS Number	Chemical Name
11141-16-5	Aroclor 1232	106-42-3	Benzene, p-dimethyl-
53469-21-9	Aroclor 1242	118-74-1	Benzene, hexachloro
12672-29-6	Aroclor 1248	110-82-7	Benzene, hexahydro-
11097-69-1	Aroclor 1254	108-88-3	Benzene, methyl-
11096-82-5	Aroclor 1260	121-14-2	Benzene, 1-methyl-2,4-dinitro-
7440-38-2	Arsenic	606-20-2	Benzene, 1-methyl-2,6-dinitro-
7778-39-4	Arsenic acid	94-59-7	Benzene, 1,2-methylenedioxy-4-allyl-
- -0	Arsenic and Compounds	120-58-1	Benzene, 1,2-methylenedioxy-4-propenyl-
1303-32-8	Arsenic disulfide	94-58-6	Benzene, 1,2-methylenedioxy-4-propyl-
1303-28-2	Arsenic pentoxide	98-82-8	Benzene, 1-methylethyl-
1303-33-9	Arsenic trisulfide	608-93-5	Benzene, pentachloro-
1327-53-3	Arsenous oxide	82-68-8	Benzene, pentachloronitro-
7784-34-1	Arsenous trichloride	95-94-3	Benzene, 1,2,4,5-tetrachloro-
7784-42-1	Arsine	99-35-4	Benzene, 1,3,5-trinitro-
692-42-2	Arsine, diethyl-	98-05-5	Benzenearsonic acid
1332-21-4	Asbestos	85-44-9	1,2-Benzenedicarboxylic acid anhydride
115-02-6	Azaserine	117-81-7	1,2-Benzenedicarboxylic acid, [bis(2-ethylhexyl)]este
2642-71-9	Azinphos-ethyl	84-66-2	1,2-Benzenedicarboxylic acid, diethyl ester
86-50-0	Azinphos-methyl	108-46-3	1,3-Benzenediol
319-84-6	alpha-BHC	51-43-4	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-
319-85-7	beta-BHC	98-09-9	Benzenesulfonyl chloride
319-86-8	delta-BHC	92-87-5	Benzidine
7440-39-3	Barium and compounds	3615-21-2	Benzimidazole, 4,5-dichloro-2-(trifluoromethyl)-
- -0	Barium Compounds	81-07-2	1,2-Benzisothiazolin-3-one, 1,1-dioxide, and salts
542-62-1	Barium cyanide	207-08-9	Benzo[k]fluoranthene
56-49-5	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	206-44-0	Benzo[j,k]fluorene
225-51-4	Benz[c]acridine	65-85-0	Benzoic acid
98-87-3	Benzal chloride	205-99-2	Benzo[b]fluoranthene
55-21-0	Benzamide	100-47-0	Benzonitrile
56-55-3	Benz[a]anthracene	191-24-2	Benzo[ghi]perylene
57-97-6	1,2-Benzanthracene, 7,12-dimethyl-	50-32-8	Benzo[a]pyrene
106-47-8	Benzenamine, 4-chloro-	106-51-4	p-Benzoquinone
3165-93-3	Benzenamine, 4-chloro-2-methyl-, hydrochloride	98-07-7	Benzotrichloride
636-21-5	Benzenamine, 2-methyl-, hydrochloride	98-88-4	Benzoyl chloride
99-55-8	Benzenamine, 2-methyl-5-nitro-	94-36-0	Benzoyl peroxide
101-14-4	Benzenamine, 4,4'-methylenebis(2-chloro-	218-01-9	1,2-Benzphenanthrene
60-11-7	Benzenamine, N,N-dimethyl-4-phenylazo-	100-44-7	Benzyl chloride
100-01-6	Benzenamine, 4-nitro-	140-29-4	Benzyl cyanide
98-16-8	Benzenamine, 3-(trifluoromethyl)-	7440-41-7	Beryllium
71-43-2	Benzene	- -0	Beryllium and Compounds
101-55-3	Benzene, 1-bromo-4-phenoxy-	7787-47-5	Beryllium chloride
108-90-7	Benzene, chloro-	7787-49-7	Beryllium fluoride
100-14-1	Benzene, 1-(chloromethyl)-4-nitro-	7787-55-5	Beryllium nitrate
95-50-1	Benzene, 1,2-dichloro-	13597-99-4	Beryllium nitrate
541-73-1	Benzene, 1,3-dichloro-	15271-41-7	Bicyclo[2.2.1]heptane-2-carbonitrile, 5-chloro-6-(((
106-46-7	Benzene, 1,4-dichloro-	92-52-4	Biphenyl
26471-62-5	Benzene, 2,4-diisocyanatomethyl-	91-94-1	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dichloro-
1330-20-7	Benzene, dimethyl-	119-90-4	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dimethoxy-
108-38-3	Benzene, m-dimethyl-	119-93-7	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dimethyl-
95-47-6	Benzene, o-dimethyl-	111-91-1	Bis(2-chloroethoxy) methane

ALPHABETICAL LISTING OF CHEMICAL NAME AND CAS NUMBER

Page 3

CAS Number	Chemical Name	CAS Number	Chemical Name
108-60-1	Bis(2-chloroisopropyl) ether	842-07-9	C.I. Solvent Yellow 14
534-07-6	Bis(chloromethyl) ketone	492-80-8	C.I. Solvent Yellow 34 (Auramine)
137-26-8	Bis(dimethylthiocarbamoyl)disulfide	128-66-5	C.I. Vat Yellow 4
103-23-1	Bis(2-ethylhexyl) adipate	75-60-5	Cacodylic acid
4044-65-9	Bitoscanate	7440-43-9	Cadmium
10294-34-5	Boron trichloride	543-90-8	Cadmium acetate
7637-07-2	Boron trifluoride	- -0	Cadmium and Compounds
353-42-4	Boron trifluoride compound with methyl ether (1:1)	7789-42-6	Cadmium bromide
28772-56-7	Bromadiolone	10108-64-2	Cadmium chloride
7726-95-6	Bromine	1306-19-0	Cadmium oxide
598-31-2	Bromoacetone	2223-93-0	Cadmium stearate
75-25-2	Bromoform	7778-44-1	Calcium arsenate
357-57-3	Brucine	52740-16-6	Calcium arsenite
106-99-0	Butadiene	75-20-7	Calcium carbide
924-16-3	1-Butanamine, N-butyl-N-nitroso-	13765-19-0	Calcium chromate
305-03-3	Butanoic acid, 4-[bis(2-chloroethyl)amino] benzene-	156-62-7	Calcium cyanamide
71-36-3	1-Butanol	592-01-8	Calcium cyanide
78-93-3	2-Butanone	26264-06-2	Calcium dodecylbenzene sulfonate
1338-23-4	2-Butanone peroxide	7778-54-3	Calcium hypochlorite
764-41-0	2-Butene, 1,4-dichloro-	56-25-7	Cantharidin
123-86-4	Butyl acetate	133-06-2	Captan
110-19-0	iso-Butyl acetate	51-83-2	Carbachol chloride
105-46-4	sec-Butyl acetate	51-79-6	Carbamic acid, ethyl ester
540-88-5	tert-Butyl acetate	26419-73-8	Carbamic acid, methyl-, O-(((2,4-dimethyl-1, 3-dithi
141-32-2	Butyl acrylate	615-53-2	Carbamic acid, methylnitroso-,ethyl ester
78-92-2	sec-Butyl alcohol	759-73-9	Carbamide, N-ethyl-N-nitroso-
75-65-0	tert-Butyl alcohol	684-93-5	Carbamide, N-methyl-N-nitroso-
85-68-7	Butyl benzyl phthalate	62-56-6	Carbamide, thio-
109-73-9	Butylamine	630-10-4	Carbamimidoseleonic acid
78-81-9	iso-Butylamine	79-44-7	Carbaryl chloride, dimethyl-
513-49-5	sec-Butylamine	63-25-2	Carbaryl
13952-84-6	sec-Butylamine	1563-66-2	Carbofuran
75-64-9	tert-Butylamine	75-15-0	Carbon disulfide
106-88-7	1,2-Butylene oxide	353-50-4	Carbon oxyfluoride
123-72-8	Butyraldehyde	56-23-5	Carbon tetrachloride
79-31-2	iso-Butyric acid	463-58-1	Carbonyl sulfide
107-92-6	Butyric acid	786-19-6	Carbophenothion
2650-18-2	C.I. Acid Blue 9, diammonium salt	120-80-9	Catechol
3844-45-9	C.I. Acid Blue 9, disodium salt	133-90-4	Chloramben
4680-78-8	C.I. Acid Green 3	57-74-9	Chlordane
569-64-2	C.I. Basic Green 4	- -0	Chlordane (Technical Mixture and Metabolites)
989-38-8	C.I. Basic Red 1	470-90-6	Chlorfenvinfos
1937-37-7	C.I. Direct Black 38	- -0	Chlorinated Benzenes
2602-46-2	C.I. Direct Blue 6	- -0	Chlorinated Ethanes
16071-86-6	C.I. Direct Brown 95	76-13-1	Chlorinated fluorocarbon (Freon 113)
2832-40-8	C.I. Disperse Yellow 3	- -0	Chlorinated Naphthalene
3761-53-3	C.I. Food Red 5	- -0	Chlorinated Phenols
81-88-9	C.I. Food Red 15	7782-50-5	Chlorine
3118-97-6	C.I. Solvent Orange 7	506-77-4	Chlorine cyanide
97-56-3	C.I. Solvent Yellow 3	10049-04-4	Chlorine dioxide

ALPHABETICAL LISTING OF CHEMICAL NAME AND CAS NUMBER

Page 4

CAS Number	Chemical Name	CAS Number	Chemical Name
24934-91-6	Chlormephos	1319-77-3	Cresol(s)
999-81-5	Chlormequat chloride	108-39-4	m-Cresol
494-03-1	Chlornaphazine	95-48-7	o-Cresol
59-50-7	4-Chloro-m-cresol	106-44-5	p-Cresol
107-20-0	Chloroacetaldehyde	535-89-7	Crimidine
79-11-8	Chloroacetic acid	4170-30-3	Crotonaldehyde
532-27-4	2-Chloroacetophenone	123-73-9	Crotonaldehyde, (E)-
- -0	Chloroalkyl Ethers	135-20-6	Cupferron
124-48-1	Chlorodibromomethane	142-71-2	Cupric acetate
75-00-3	Chloroethane	7447-39-4	Cupric chloride
107-07-3	Chloroethanol	3251-23-8	Cupric nitrate
627-11-2	Chloroethyl chloroformate	5893-66-3	Cupric oxalate
110-75-8	2-Chloroethyl vinyl ether	7758-98-7	Cupric sulfate
67-66-3	Chloroform	10380-29-7	Cupric sulfate ammoniated
542-88-1	Chloromethyl ether	815-82-7	Cupric tartrate
107-30-2	Chloromethyl methyl ether	- -0	Cyanide and Compounds
91-58-7	beta-Chloronaphthalene	57-12-5	Cyanides (soluble cyanide salts)
3691-35-8	Chlorophacinone	460-19-5	Cyanogen
95-57-8	2-Chlorophenol	506-68-3	Cyanogen bromide
7005-72-3	4-Chlorophenyl phenyl ether	506-78-5	Cyanogen iodide
126-99-8	Chloroprene	2636-26-2	Cyanophos
7790-94-5	Chlorosulfonic acid	675-14-9	Cyanuric fluoride
1897-45-6	Chlorothalonil	108-94-1	Cyclohexanone
1982-47-4	Chloroxuron	66-81-9	Cycloheximide
2921-88-2	Chlorpyrifos	108-91-8	Cyclohexylamine
21923-23-9	Chlorthiophos	50-18-0	Cyclophosphamide
1066-30-4	Chromic acetate	94-75-7	2,4-D Acid
7738-94-5	Chromic acid	94-11-1	2,4-D Esters
11115-74-5	Chromic acid	94-79-1	2,4-D Esters
10025-73-7	Chromic chloride	94-80-4	2,4-D Esters
10101-53-8	Chromic sulfate	1320-18-9	2,4-D Esters
7440-47-3	Chromium	1928-38-7	2,4-D Esters
- -0	Chromium and Compounds	1928-61-6	2,4-D Esters
10049-05-5	Chromous chloride	1929-73-3	2,4-D Esters
7440-48-4	Cobalt	2971-38-2	2,4-D Esters
- -0	Cobalt Compounds	25168-26-7	2,4-D Esters
10210-68-1	Cobalt carbonyl	53467-11-1	2,4-D Esters
62207-76-5	Cobalt, ((2,2'-(1,2-ethanedylbis (nitrilomethylidyn	72-54-8	DDD
7789-43-7	Cobaltous bromide	72-55-9	DDE
544-18-3	Cobaltous formate	50-29-3	DDT
14017-41-5	Cobaltous sulfamate	- -0	DDT and Metabolites
- -0	Coke Oven Emissions	20830-81-3	Daunomycin
64-86-8	Colchicine	17702-41-9	Decaborane(14)
7440-50-8	Copper	1163-19-5	Decabromodiphenyl oxide
- -0	Copper and Compounds	8065-48-3	Demeton
544-92-3	Copper cyanide	919-86-8	Demeton-S-methyl
56-72-4	Coumaphos	621-64-7	Di-n-propylnitrosamine
5836-29-3	Coumatetrayl	10311-84-9	Dialifos
8001-58-9	Creosote	2303-16-4	Diallate
120-71-8	p-Cresidine	615-05-4	2,4-Diaminoanisole

ALPHABETICAL LISTING OF CHEMICAL NAME AND CAS NUMBER

Page 5

CAS Number	Chemical Name	CAS Number	Chemical Name
39156-41-7	2,4-Diaminoanisole sulfate	109-89-7	Diethylamine
101-80-4	4,4'-Diaminodiphenyl ether	1642-54-2	Diethylcarbamazine citrate
95-80-7	Diaminotoluene	123-91-1	1,4-Diethylene dioxide
496-72-0	Diaminotoluene	56-53-1	Diethylstilbestrol
823-40-5	Diaminotoluene	71-63-6	Digitoxin
25376-45-8	Diaminotoluene	2238-07-5	Diglycidyl ether
333-41-5	Diazirone	20830-75-5	Digoxin
334-88-3	Diazomethane	123-33-1	1,2-Dihydro-3,6-pyridazinone
53-70-3	Dibenz[a,h]anthracene	115-26-4	Dimetox
132-64-9	Dibenzofuran	60-51-5	Dimethoate
189-55-9	1,2:7,8-Dibenzopyrene	2524-03-0	Dimethyl phosphorochlorodithioate
19287-45-7	Diborane	131-11-3	Dimethyl phthalate
96-12-8	1,2-Dibromo-3-chloropropane	77-78-1	Dimethyl sulfate
84-74-2	Dibutyl phthalate	75-18-3	Dimethyl sulfide
1918-00-9	Dicamba	99-98-9	Dimethyl-p-phenylenediamine
1194-65-6	Dichlobenil	124-40-3	Dimethylamine
117-80-6	Dichlone	80-15-9	alpha,alpha-Dimethylbenzylhydroperoxide
23950-58-5	3,5-Dichloro-N-(1,1-dimethyl-2-propynyl)benzamide	75-78-5	Dimethyldichlorosilane
25321-22-6	Dichlorobenzene (mixed)	57-14-7	Dimethylhydrazine
- -0	Dichlorobenzidine	540-73-8	1,2-Dimethylhydrazine
75-27-4	Dichlorobromomethane	122-09-8	alpha,alpha-Dimethylphenethylamine
110-57-6	Trans-1,4-dichlorobutene	105-67-9	2,4-Dimethylphenol
75-71-8	Dichlorodifluoromethane	644-64-4	Dimetilan
75-34-3	1,1-Dichloroethane	131-89-5	4,6-Dinitro-o-cyclohexylphenol
107-06-2	1,2-Dichloroethane	25154-54-5	Dinitrobenzene (mixed)
111-44-4	Dichloroethyl ether	99-65-0	m-Dinitrobenzene
75-35-4	1,1-Dichloroethylene	528-29-0	o-Dinitrobenzene
540-59-0	1,2-Dichloroethylene	100-25-4	p-Dinitrobenzene
156-60-5	1,2-trans-Dichloroethylene	534-52-1	Dinitrocresol
149-74-6	Dichloromethylphenylsilane	51-28-5	2,4-Dinitrophenol
120-83-2	2,4-Dichlorophenol	329-71-5	2,5-Dinitrophenol
87-65-0	2,6-Dichlorophenol	573-56-8	2,6-Dinitrophenol
26638-19-7	Dichloropropane	25550-58-7	Dinitrophenol
78-99-9	1,1-Dichloropropane	610-39-9	3,4-Dinitrotoluene
78-87-5	1,2-Dichloropropane	25321-14-6	Dinitrotoluene
142-28-9	1,3-Dichloropropane	88-85-7	Dinoseb
8003-19-8	Dichloropropane - Dichloropropene (mixture)	1420-07-1	Dinoterb
26952-23-8	Dichloropropene	117-84-0	Diocetyl phthalate
542-75-6	1,3-Dichloropropene	78-34-2	Dioxathion
78-88-6	2,3-Dichloropropene	82-66-6	Diphacinone
75-99-0	2,2-Dichloropropionic acid	122-66-7	1,2-Diphenylhydrazine
62-73-7	Dichlorvos	- -0	Diphenylhydrazine
115-32-2	Dicofol	152-16-9	Diphosphoramidate, octamethyl-
141-66-2	Dicrotophos	142-84-7	Dipropylamine
60-57-1	Dieldrin	85-00-7	Diquat
1464-53-5	Diepoxybutane	2764-72-9	Diquat
111-42-2	Diethanolamine	298-04-4	Disulfoton
814-49-3	Diethyl chlorophosphate	514-73-8	Dithiazanine iodide
64-67-5	Diethyl sulfate	541-53-7	Dithiobiuret
311-45-5	Diethyl-p-nitrophenyl phosphate	330-54-1	Diuron

ALPHABETICAL LISTING OF CHEMICAL NAME AND CAS NUMBER

Page 6

CAS Number	Chemical Name	CAS Number	Chemical Name
27176-87-0	Dodecylbenzenesulfonic acid	52-85-7	Famphur
316-42-7	Emetine, dihydrochloride	22224-92-6	Fenamiphos
115-29-7	Endosulfan	122-14-5	Fenitrothion
- -0	Endosulfan and Metabolites	115-90-2	Fensulfothion
959-98-8	alpha-Endosulfan	1185-57-5	Ferric ammonium citrate
33213-65-9	beta-Endosulfan	2944-67-4	Ferric ammonium oxalate
1031-07-8	Endosulfan sulfate	55488-87-4	Ferric ammonium oxalate
145-73-3	Endothall	7705-08-0	Ferric chloride
2778-04-3	Endothion	7783-50-8	Ferric fluoride
72-20-8	Endrin	10421-48-4	Ferric nitrate
7421-93-4	Endrin aldehyde	10028-22-5	Ferric sulfate
- -0	Endrin and Metabolites	10045-89-3	Ferrous ammonium sulfate
106-89-8	Epichlorohydrin	7758-94-3	Ferrous chloride
2104-64-5	EPN	7720-78-7	Ferrous sulfate
50-14-6	Ergocalciferol	7782-63-0	Ferrous sulfate
379-79-3	Ergotamine tartrate	4301-50-2	Fluenezil
55-18-5	Ethanamine, N-ethyl-N-nitroso-	2164-17-2	Fluometuron
106-93-4	Ethane, 1,2-dibromo-	86-73-7	Fluorene
67-72-1	Ethane, 1,1,1,2,2,2-hexachloro-	7782-41-4	Fluorine
60-29-7	Ethane, 1,1'-oxybis-	640-19-7	Fluoroacetamide
630-20-6	Ethane, 1,1,1,2-tetrachloro-	144-49-0	Fluoroacetic acid
79-34-5	Ethane, 1,1,2,2-tetrachloro-	359-06-8	Fluoroacetyl chloride
79-00-5	Ethane, 1,1,2-trichloro-	51-21-8	Fluorouracil
72-43-5	Ethane, 1,1,1-trichloro-2,2-bis(p-methoxyphenyl)-	944-22-9	Fonofos
111-54-6	1,2-Ethanediylobiscarbamodithioic acid	50-00-0	Formaldehyde
1622-32-8	Ethanesulfonyl chloride, 2-chloro-	107-16-4	Formaldehyde cyanohydrin
62-55-5	Ethanethioamide	23422-53-9	Formetanate hydrochloride
10140-87-1	Ethanol, 1,2-dichloro-, acetate	64-18-6	Formic acid
1116-54-7	Ethanol, 2,2'-(nitrosoimino)bis-	2540-82-1	Formothion
4549-40-0	Ethenamine, N-methyl-N-nitroso-	17702-57-7	Formparanate
127-18-4	Ethene, 1,1,2,2-tetrachloro-	21548-32-3	Fosthietan
563-12-2	Ethion	3878-19-1	Fuberidazole
13194-48-4	Ethoprophos	628-86-4	Fulminic acid, mercury(II)salt
110-80-5	2-Ethoxyethanol	110-17-8	Fumaric acid
140-88-5	Ethyl acrylate	110-00-9	Furan
541-41-3	Ethyl chloroformate	109-99-9	Furan, tetrahydro-
510-15-6	Ethyl 4,4'-dichlorobenzilate	98-01-1	2-Furancarboxaldehyde
97-63-2	Ethyl methacrylate	108-31-6	2,5-Furandione
62-50-0	Ethyl methanesulfonate	13450-90-3	Gallium trichloride
542-90-5	Ethyl thiocyanate	18883-66-4	D-Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido
100-41-4	Ethylbenzene	765-34-4	Glycidylaldehyde
538-07-8	Ethylbis(2-chloroethyl)amine	- -0	Glycol Ethers
74-85-1	Ethylene	70-25-7	Guanidine, N-nitroso-N-methyl-N'-nitro-
371-62-0	Ethylene fluorohydrin	- -0	Haloethers
107-21-1	Ethylene glycol	- -0	Halomethanes
75-21-8	Ethylene oxide	76-44-8	Heptachlor
107-15-3	Ethylenediamine	- -0	Heptachlor and Metabolites
60-00-4	Ethylenediamine tetraacetic acid (EDTA)	1024-57-3	Heptachlor epoxide
151-56-4	Ethyleneimine	87-68-3	Hexachloro-1,3-butadiene
96-45-7	Ethylenethiourea	77-47-4	Hexachlorocyclopentadiene

ALPHABETICAL LISTING OF CHEMICAL NAME AND CAS NUMBER

Page 7

CAS Number	Chemical Name	CAS Number	Chemical Name
1335-87-1	Hexachloronaphthalene	56189-09-4	Lead stearate
70-30-4	Hexachlorophene	1335-32-6	Lead subacetate
1888-71-7	Hexachloropropene	7446-14-2	Lead sulfate
757-58-4	Hexaethyl tetraphosphate	15739-80-7	Lead sulfate
4835-11-4	Hexamethylenediamine, N,N'-dibutyl-	1314-87-0	Lead sulfide
680-31-9	Hexamethylphosphoramide	592-87-0	Lead thiocyanate
302-01-2	Hydrazine	21609-90-5	Leptophos
10034-93-2	Hydrazine sulfate	541-25-3	Lewisite
7647-01-0	Hydrochloric acid (Hydrogen chloride (gas only))***	58-89-9	Lindane
74-90-8	Hydrocyanic acid	14307-35-8	Lithium chromate
7664-39-3	Hydrogen fluoride	7580-67-8	Lithium hydride
7722-84-1	Hydrogen peroxide (Conc > 52%)	121-75-5	Malathion
7783-07-5	Hydrogen selenide	110-16-7	Maleic acid
7783-06-4	Hydrogen sulfide	109-77-3	Malononitrile
123-31-9	Hydroquinone	12427-38-2	Maneb
193-39-5	Indeno(1,2,3-cd)pyrene	7439-96-5	Manganese and compounds
13463-40-6	Iron, pentacarbonyl-	- -0	Manganese Compounds
297-78-9	Isobenzan	12108-13-3	Manganese, tricarbonyl methylcyclopentadienyl
78-83-1	Isobutyl alcohol	51-75-2	Mechlorethamine
78-84-2	Isobutyraldehyde	108-78-1	Melamine
78-82-0	Isobutyronitrile	950-10-7	Mephosfolan
102-36-3	Isocyanic acid, 3,4-dichlorophenyl ester	1600-27-7	Mercuric acetate
465-73-6	Isodrin	7487-94-7	Mercuric chloride
55-91-4	Isofluorophate	592-04-1	Mercuric cyanide
78-59-1	Isophorone	10045-94-0	Mercuric nitrate
4098-71-9	Isophorone diisocyanate	21908-53-2	Mercuric oxide
78-79-5	Isoprene	7783-35-9	Mercuric sulfate
42504-46-1	Isopropanolamine dodecylbenzene sulfonate	592-85-8	Mercuric thiocyanate
67-63-0	Isopropyl alcohol (mfg.-strong acid processes)	7782-86-7	Mercurous nitrate
108-23-6	Isopropyl chloroformate	10415-75-5	Mercurous nitrate
625-55-8	Isopropyl formate	7439-97-6	Mercury
80-05-7	4,4'-Isopropylidenediphenol	- -0	Mercury and Compounds
119-38-0	Isopropylmethylpyrazolyl dimethylcarbamate	10476-95-6	Methacrolein diacetate
143-50-0	Kepone	760-93-0	Methacrylic anhydride
78-97-7	Lactonitrile	126-98-7	Methacrylonitrile
303-34-4	Lasiocarpine	920-46-7	Methacryloyl chloride
7439-92-1	Lead	30674-80-7	Methacryloyloxyethyl isocyanate
- -0	Lead and Compounds	10265-92-6	Methamidophos
7645-25-2	Lead arsenate	74-87-3	Methane, chloro
7784-40-9	Lead arsenate	74-95-3	Methane, dibromo-
10102-48-4	Lead arsenate	75-09-2	Methane, dichloro-
7758-95-4	Lead chloride	74-88-4	Methane, iodo-
13814-96-5	Lead fluoborate	75-69-4	Methane, trichlorofluoro-
7783-46-2	Lead fluoride	558-25-8	Methanesulfonyl fluoride
10101-63-0	Lead iodide	67-56-1	Methanol
10099-74-8	Lead nitrate	91-80-5	Methapyrilene
7446-27-7	Lead phosphate	950-37-8	Methidathion
1072-35-1	Lead stearate	2032-65-7	Methiocarb
7428-48-0	Lead stearate	16752-77-5	Methomyl
52652-59-2	Lead stearate	109-86-4	2-Methoxyethanol

ALPHABETICAL LISTING OF CHEMICAL NAME AND CAS NUMBER

Page 8

CAS Number	Chemical Name	CAS Number	Chemical Name
151-38-2	Methoxyethylmercuric acetate	15699-18-0	Nickel ammonium sulfate
96-33-3	Methyl acrylate	- -0	Nickel and Compounds
74-83-9	Methyl bromide	13463-39-3	Nickel carbonyl
1634-04-4	Methyl tert-butyl ether	7718-54-9	Nickel chloride
80-63-7	Methyl 2-chloroacrylate	37211-05-5	Nickel chloride
71-55-6	Methyl chloroform	557-19-7	Nickel cyanide
79-22-1	Methyl chloroformate (Methylchlorocarbonate)	12054-48-7	Nickel hydroxide
624-92-0	Methyl disulfide	14216-75-2	Nickel nitrate
108-10-1	Methyl isobutyl ketone	7786-81-4	Nickel sulfate
624-83-9	Methyl isocyanate	54-11-5	Nicotine
556-61-6	Methyl isothiocyanate	65-30-5	Nicotine sulfate
74-93-1	Methyl mercaptan	7697-37-2	Nitric acid
80-62-6	Methyl methacrylate	10102-43-9	Nitric oxide
3735-23-7	Methyl phenkaptan	139-13-9	Nitriiotriacetic acid
676-97-1	Methyl phosphonic dichloride	99-59-2	5-Nitro-o-anisidine
556-64-9	Methyl thiocyanate	98-95-3	Nitrobenzene
78-94-4	Methyl vinyl ketone	92-93-3	4-Nitrobiphenyl
504-60-9	1-Methylbutadiene	1122-60-7	Nitrocyclohexane
101-61-1	4,4'-Methylene bis(N,N-dimethyl) benzenamine	1836-75-5	Nitrofen
101-68-8	Methylene bis(phenylisocyanate) (MBI)	10102-44-0	Nitrogen dioxide
101-77-9	4,4'-Methylene dianiline	10544-72-6	Nitrogen dioxide
60-34-4	Methylhydrazine	55-63-0	Nitroglycerine
502-39-6	Methylmercuric dicyanamide	25154-55-6	Nitrophenol (mixed)
56-04-2	Methylthiouracil	554-84-7	m-Nitrophenol
75-79-6	Methyltrichlorosilane	88-75-5	o-Nitrophenol
1129-41-5	Metolcarb	100-02-7	p-Nitrophenol
7786-34-7	Mevinphos	- -0	Nitrophenols
315-18-4	Mexacarbate	79-46-9	2-Nitropropane
90-94-8	Michler's ketone	- -0	Nitrosamines
50-07-7	Mitomycin C	62-75-9	Nitrosodimethylamine
1313-27-5	Molybdenum trioxide	156-10-5	p-Nitrosodiphenylamine
6923-22-4	Monocrotophos	1321-12-6	Nitrotoluene
75-04-7	Monoethylamine	99-08-1	m-Nitrotoluene
74-89-5	Monomethylamine	88-72-2	o-Nitrotoluene
2763-96-4	Muscimol	99-99-0	p-Nitrotoluene
505-60-2	Mustard gas	991-42-4	Norbormide
1615-80-1	N,N'-Diethylhydrazine	3288-58-2	O,O-Diethyl S-methyl dithiophosphate
121-69-7	N,N-Dimethylaniline	2234-13-1	Octachloronaphthalene
86-30-6	N-Nitrosodiphenylamine	- -0	Organorhodium Complex
59-89-2	N-Nitrosomorpholine	20816-12-0	Osmium tetroxide
16543-55-8	N-Nitrosornicotine	630-60-4	Ouabain
100-75-4	N-Nitrosopiperidine	23135-22-0	Oxamyl
930-55-2	N-Nitrosopyrrolidine	1120-71-4	1,2-Oxathiolane, 2,2-dioxide
300-76-5	Naled	78-71-7	Oxetane, 3,3-bis(chloromethyl)-
91-20-3	Naphthalene	2497-07-6	Oxydisulfoton
130-15-4	1,4-Naphthalenedione	10028-15-6	Ozone
1338-24-5	Naphthenic acid	30525-89-4	Paraformaldehyde
134-32-7	1-Naphthylamine	123-63-7	Paraldehyde
91-59-8	2-Naphthylamine	1910-42-5	Paraquat
7440-02-0	Nickel	2074-50-2	Paraquat methosulfate

ALPHABETICAL LISTING OF CHEMICAL NAME AND CAS NUMBER

Page 9

CAS Number	Chemical Name	CAS Number	Chemical Name
56-38-2	Parathion	110-89-4	Piperidine
298-00-0	Parathion-methyl	5281-13-0	Piprotal
12002-03-8	Paris green (Cupric acetoarsenite)	23505-41-1	Pirimifos-ethyl
19624-22-7	Pentaborane	- -0	Polybrominated Biphenyls (PBBs)
76-01-7	Pentachloroethane	1336-36-3	Polychlorinated biphenyls (PCBs)
87-86-5	Pentachlorophenol	- -0	Polynuclear Aromatic Hydrocarbons
2570-26-5	Pentadecylamine	7784-41-0	Potassium arsenate
79-21-0	Peracetic acid	10124-50-2	Potassium arsenite
594-42-3	Perchloromethylmercaptan	7778-50-9	Potassium bichromate
85-01-8	Phenanthrene	7789-00-6	Potassium chromate
108-95-2	Phenol	151-50-8	Potassium cyanide
64-00-6	Phenol, 3-(1-methylethyl)-, methylcarbamate	1310-58-3	Potassium hydroxide
58-90-2	Phenol, 2,3,4,6-tetrachloro-	7722-64-7	Potassium permanganate
4418-66-0	Phenol, 2,2'-thiobis[4-chloro-6-methyl-	506-61-6	Potassium silver cyanide
97-18-7	Phenol, 2,2'-thiobis(4,6-dichloro-	2631-37-0	Promecarb
88-06-2	Phenol, 2,4,6-trichloro	107-10-8	1-Propanamine
95-95-4	Phenol, 2,4,5-trichloro-	126-72-7	1-Propanol, 2,3-dibromo-, phosphate (3:1)
58-36-6	Phenoxarsine, 10,10'-oxydi-	2312-35-8	Propargite
696-28-6	Phenyl dichloroarsine	107-19-7	Propargyl alcohol
106-50-3	p-Phenylenediamine	106-96-7	Propargyl bromide
59-88-1	Phenyldiazine hydrochloride	57-57-8	Propiolactone, beta-
62-38-4	Phenylmercury acetate	123-38-6	Propionaldehyde
90-43-7	2-Phenylphenol	79-09-4	Propionic acid
2097-19-0	Phenylsilatrane	93-72-1	Propionic acid, 2-(2,4,5-trichlorophenoxy)-
103-85-5	Phenylthiourea	123-62-6	Propionic anhydride
298-02-2	Phorate	107-12-0	Propionitrile
4104-14-7	Phosacetim	542-76-7	Propionitrile, 3-chloro-
947-02-4	Phosfolan	70-69-9	Propiophenone, 4'-amino-
75-44-5	Phosgene	114-26-1	Propoxur
732-11-6	Phosmet	109-61-5	Propyl chloroformate
13171-21-6	Phosphamidon	115-07-1	Propylene (Propene)
7803-51-2	Phosphine	75-56-9	Propylene oxide
2703-13-1	Phosphonothioic acid, methyl-, O-ethyl O-(4-(methyl	75-55-8	Propyleneimine
2665-30-7	Phosphonothioic acid, methyl-, O-(4-nitrophenyl) O-p	2275-18-5	Prothoate
50782-69-9	Phosphonothioic acid, methyl-, S-(2-(bis(1-methyleth	95-63-6	Pseudocumene
7664-38-2	Phosphoric acid	129-00-0	Pyrene
3254-63-5	Phosphoric acid, dimethyl 4-(methylthio) phenyl este	121-21-1	Pyrethrins
2587-90-8	Phosphorothioic acid, O,O-dimethyl-S-(2-methylthio)e	121-29-9	Pyrethrins
7723-14-0	Phosphorus	8003-34-7	Pyrethrins
10025-87-3	Phosphorus oxychloride	110-86-1	Pyridine
10026-13-8	Phosphorus pentachloride	504-24-5	Pyridine, 4-amino-
1314-80-3	Phosphorus pentasulfide	140-76-1	Pyridine, 2-methyl-5-vinyl-
1314-56-3	Phosphorus pentoxide	1124-33-0	Pyridine, 4-nitro-, 1-oxide
7719-12-2	Phosphorus trichloride	53558-25-1	Pyriminil
- -0	Phthalate Esters	91-22-5	Quinoline
57-47-6	Physostigmine	- -0	Radionuclides
57-64-7	Physostigmine, salicylate (1:1)	50-55-5	Reserpine
109-06-8	2-Picoline	14167-18-1	Salcomine
88-89-1	Picric acid	107-44-8	Sarin
124-87-8	Picrotoxin	7782-49-2	Selenium

ALPHABETICAL LISTING OF CHEMICAL NAME AND CAS NUMBER

Page 10

CAS Number	Chemical Name	CAS Number	Chemical Name
- -0	Selenium and Compounds	96-09-3	Styrene oxide
7446-08-4	Selenium dioxide	3689-24-5	Sulfotep
7488-56-4	Selenium disulfide	3569-57-1	Sulfoxide, 3-chloropropyl octyl
7791-23-3	Selenium oxychloride	7446-09-5	Sulfur dioxide
7783-00-8	Selenous acid	12771-08-3	Sulfur monochloride
563-41-7	Semicarbazide hydrochloride	7783-60-0	Sulfur tetrafluoride
3037-72-7	Silane, (4-aminobutyl)diethoxymethyl-	7446-11-9	Sulfur trioxide
7440-22-4	Silver	7664-93-9	Sulfuric acid
- -0	Silver and Compounds	8014-95-7	Sulfuric acid (fuming)
506-64-9	Silver cyanide	93-76-5	2,4,5-T
7761-88-8	Silver nitrate	1319-72-8	2,4,5-T amines
7440-23-5	Sodium	2008-46-0	2,4,5-T amines
7631-89-2	Sodium arsenate	3813-14-7	2,4,5-T amines
7784-46-5	Sodium arsenite	6369-96-6	2,4,5-T amines
26628-22-8	Sodium azide (Na(N ₃))	6369-97-7	2,4,5-T amines
10588-01-9	Sodium bichromate	93-79-8	2,4,5-T esters
1333-83-1	Sodium bifluoride	1928-47-8	2,4,5-T esters
7631-90-5	Sodium bisulfite	2545-59-7	2,4,5-T esters
124-65-2	Sodium cacodylate	25168-15-4	2,4,5-T esters
7775-11-3	Sodium chromate	61792-07-2	2,4,5-T esters
143-33-9	Sodium cyanide (Na(CN))	13560-99-1	2,4,5-T salts
25155-30-0	Sodium dodecylbenzene sulfonate	32534-95-5	2,4,5-TP acid esters
7681-49-4	Sodium fluoride	77-81-6	Tabun
62-74-8	Sodium fluoroacetate	13494-80-9	Tellurium
16721-80-5	Sodium hydrosulfide	7783-80-4	Tellurium hexafluoride
1310-73-2	Sodium hydroxide	107-49-3	Tepp
7681-52-9	Sodium hypochlorite	13071-79-9	Terbufos
10022-70-5	Sodium hypochlorite	100-21-0	Terephthalic acid
124-41-4	Sodium methylate	1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)
7632-00-0	Sodium nitrite	961-11-5	Tetrachlorvinphos
131-52-2	Sodium pentachlorophenate	78-00-2	Tetraethyllead
7558-79-4	Sodium phosphate, dibasic	597-64-8	Tetraethyltin
10039-32-4	Sodium phosphate, dibasic	75-74-1	Tetramethyllead
10140-65-5	Sodium phosphate, dibasic	509-14-8	Tetranitromethane
7601-54-9	Sodium phosphate, tribasic	1314-32-5	Thallic oxide
7758-29-4	Sodium phosphate, tribasic	7440-28-0	Thallium
7785-84-4	Sodium phosphate, tribasic	- -0	Thallium and Compounds
10101-89-0	Sodium phosphate, tribasic	10102-45-1	Thallium(I) nitrate
10124-56-8	Sodium phosphate, tribasic	12039-52-0	Thallium(I) selenide
10361-89-4	Sodium phosphate, tribasic	10031-59-1	Thallium sulfate
13410-01-0	Sodium selenate	6533-73-9	Thallos carbonates
7782-82-3	Sodium selenite	7791-12-0	Thallos chloride
10102-18-8	Sodium selenite	2757-18-8	Thallos malonate
7757-82-6	Sodium sulfate (solution)	7446-18-6	Thallos sulfate
10102-20-2	Sodium tellurite	2231-57-4	Thiocarbazine
900-95-8	Stannane, acetoxytriphenyl-	139-65-1	4,4'-Thiodianiline
7789-06-2	Strontium chromate	39196-18-4	Thiofanox
57-24-9	Strychnine	297-97-2	Thionazin
60-41-3	Strychnine, sulfate	108-98-5	Thiophenol
100-42-5	Styrene	79-19-6	Thiosemicarbazide

ALPHABETICAL LISTING OF CHEMICAL NAME AND CAS NUMBER

Page 11

CAS Number	Chemical Name	CAS Number	Chemical Name
5344-82-1	Thiourea, (2-chlorophenyl)-	87-62-7	2,6-Xylidine
614-78-8	Thiourea, (2-methylphenyl)-	28347-13-9	Xylylene dichloride
1314-20-1	Thorium dioxide	7440-66-6	Zinc
7550-45-0	Titanium tetrachloride	557-34-6	Zinc acetate
584-84-9	Toluene 2,4-diisocyanate	14639-97-5	Zinc ammonium chloride
91-08-7	Toluene 2,6-diisocyanate	14639-98-6	Zinc ammonium chloride
95-53-4	o-Toluidine	52628-25-8	Zinc ammonium chloride
8001-35-2	Toxaphene (Camphechlor)	- -0	Zinc and Compounds
1031-47-6	Triamphos	1332-07-6	Zinc borate
68-76-8	Triaziquone	7699-45-8	Zinc bromide
24017-47-8	Triazofos	3486-35-9	Zinc carbonate
76-02-8	Trichloroacetyl chloride	7646-85-7	Zinc chloride
120-82-1	1,2,4-Trichlorobenzene	557-21-1	Zinc cyanide
1558-25-4	Trichloro(chloromethyl)silane	7783-49-5	Zinc fluoride
27137-85-5	Trichloro(dichlorophenyl)silane	557-41-5	Zinc formate
79-01-6	Trichloroethylene	7779-86-4	Zinc hydrosulfite
115-21-9	Trichloroethylsilane	7779-88-6	Zinc nitrate
327-98-0	Trichloronate	127-82-2	Zinc phenolsulfonate
25167-82-2	Trichlorophenol	1314-84-7	Zinc phosphide
15950-66-0	2,3,4-Trichlorophenol	16871-71-9	Zinc silicofluoride
933-78-8	2,3,5-Trichlorophenol	7733-02-0	Zinc sulfate
933-75-5	2,3,6-Trichlorophenol	58270-08-9	Zinc, dichloro(4,4-dimethyl-5(((methylamino) carbon
609-19-8	3,4,5-Trichlorophenol	12122-67-7	Zineb
98-13-5	Trichlorophenylsilane	13746-89-9	Zirconium nitrate
52-68-6	Trichlorophon	16923-95-8	Zirconium potassium fluoride
27323-41-7	Triethanolamine dodecylbenzene sulfonate	14644-61-2	Zirconium sulfate
998-30-1	Triethoxysilane	10026-11-6	Zirconium tetrachloride
121-44-8	Triethylamine		
1582-09-8	Trifluralin		
75-50-3	Trimethylamine		
75-77-4	Trimethylchlorosilane		
824-11-3	Trimethylolpropane phosphite		
1066-45-1	Trimethyltin chloride		
639-58-7	Triphenyltin chloride		
555-77-1	Tris(2-chloroethyl)amine		
72-57-1	Trypan blue		
66-75-1	Uracil, 5-[bis(2-chloroethyl)amino]-		
541-09-3	Uranyl acetate		
10102-06-4	Uranyl nitrate		
36478-76-9	Uranyl nitrate		
2001-95-8	Valinomycin		
7440-62-2	Vanadium (fume or dust)		
1314-62-1	Vanadium pentoxide		
27774-13-6	Vanadyl sulfate		
108-05-4	Vinyl acetate monomer		
593-60-2	Vinyl bromide		
75-01-4	Vinyl chloride (monomer)		
81-81-2	Warfarin		
129-06-6	Warfarin sodium		
1300-71-6	Xylenol		
87-62-7	2,6-Xylidine		
28347-13-9	Xylylene dichloride		
7440-66-6	Zinc		

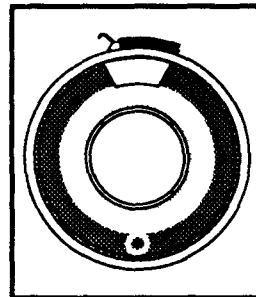
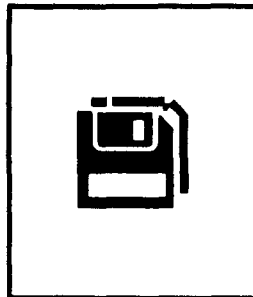
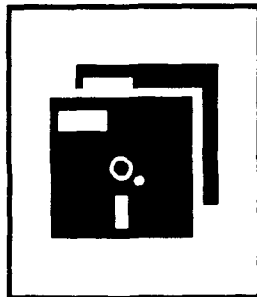
KEY TO SYMBOLS IN THE CONSOLIDATED CHEMICAL LIST

- # Indicates that an adjusted RQ has been proposed but a final adjustment has not been made; until then the statutory RQ applies. See 52 Federal Register 8140 (March 16, 1987) and 53 Federal Register 4890 (April 11, 1988).
- ## EPA may adjust the RQ for methyl isocyanate in a future rulemaking; until then the statutory 1-pound RQ applies. See 53 Federal Register 6765 (March 2, 1988).
- ^ EPA has proposed to adjust the RQ for radionuclides by establishing RQs in units of curies; until then the statutory 1-pound RQ applies. See 52 Federal Register 8172 (March 16, 1987).
- ^^ The trademark name "Kelthane" has been proposed to be changed to the generic name "dicofol" in Table 302.4 of 40 CFR Part 302, Table 116.4 of 40 CFR 116, and Table 117.3 of 40 CFR Part 117. See 53 Federal Register 6762 (March 2, 1988).
- ** Indicates that no RQ is assigned to this generic or broad class, although the class is a CERCLA hazardous substance. See 50 Federal Register 13456 (April 4, 1985).
- *** The chemical name associated with this CAS registry number is listed as "hydrochloric acid" under the CERCLA hazardous substances and the Section 313 toxic chemicals and as "hydrogen chloride (gas only)" under the Section 302(a) extremely hazardous substances.
- ' ' Ammonium thiosulfate was designated as a hazardous substance under CERCLA because of its listing under Section 311 of the Clean Water Act (CWA). EPA has proposed to delist ammonium thiosulfate under CWA Section 311 and CERCLA Section 102(a). Therefore, EPA has also proposed to remove ammonium thiosulfate from the lists of hazardous substances in 40 CFR 116.4, 117.3, and 302.4. See 53 Federal Register 6768-69 (March 2, 1988).
- ~ Warfarin is also listed under RCRA in U248. See 53 Federal Register 13384, 13387 (April 22, 1988).
- Zinc Phosphide is also listed under RCRA in U249. See 53 Federal Register 13384, 13387 (April 22, 1988).



Toxic Chemical Release Inventory Magnetic Media Submission Instructions

Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986)



**MAGNETIC MEDIA REPORT SPECIFICATIONS FOR THE
TOXIC RELEASE INVENTORY SYSTEM (TRIS)**

This document provides basic specifications for the use of magnetic media to submit EPA Form R reports required by Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986), Public Law 99-499. The specifications and requirements presented in this document supplement the reporting requirements presented in the Section 313 final rule (40 CFR Part 372). **Submission of magnetic media reports does not relieve the submitter from any of the regulatory requirements of the Section 313 final rule.**

A complete Form R report contains information on the release of one toxic chemical or chemical category listed in the Section 313 final rule. For the 1988 and subsequent reporting years, there is no maximum or minimum number of reports that may be submitted on magnetic media for each reporting facility.

While the rule provides for submission of information on chemicals whose identity may be claimed trade secret, **you may not use magnetic media for submissions in which chemical identity is claimed trade secret.** In addition, the reporting of corrections to previously reported 313 data may not be made through magnetic media. For detailed instructions concerning reporting requirements, calculation of thresholds and releases, and assembly of required data, please see the Toxic Chemical Release Inventory Reporting Form R and Instructions, document number EPA 560/4-88-005, revised January 1989 (available from EPA). The instruction document is also contained in the Toxic Chemical Release Inventory Reporting Package, document number EPA 560/4-89-001. For more information on Section 313 contact the Emergency Planning and Community Right-to-Know Information Hotline, U.S. EPA, at (800) 535-0202 or, in Washington D.C. and Alaska, (202) 479-2499.

States are not required to accept reports submitted on magnetic media. **Reporting of 313 information to state agencies on magnetic media must be discussed with, and authorized by, the state involved.** For more information consult the appropriate state contact listed in Appendix B of the Toxic Chemical Release Inventory Reporting Form R and Instructions.

Note that these instructions do not apply to the Title III reporting requirements under Sections 311 and 312.

1. CONTENT OF MAGNETIC MEDIA REPORTS - GENERAL SPECIFICATIONS

Reports may be made to EPA using either 9 track magnetic tape or microcomputer diskettes formatted in DOS 2.1 or higher from an IBM PC/XT/AT or compatible microcomputer. File format specifications are substantially different for these two types of media. Data structures and magnetic media must conform to the formats specified in Part 3 of this document.

EPA will make every effort to process the magnetic media received. If the media cannot be read, the tapes or diskettes will be returned to the submitter, who will be held responsible for providing readable media within 30

days. A facility that has not provided readable media before the July 1 deadline will be considered in non-compliance status until EPA receives either readable media or complete Form R reports. EPA strongly encourages facilities to read the information that is contained on the tapes or diskettes before they are submitted to assure data accessibility and avoid non-compliance. Non-readable media will be returned via the required return packaging and pre-paid postage provided by the submitter. All readable media received will become the property of EPA.

Any number of multiple reports from a single facility or reports from multiple facilities may be included on a single tape or diskette. However, individual reports for a facility should be completely contained on a single tape. Diskette files should be completely contained on a single diskette.

Reporting on magnetic media does not affect the requirement to maintain a record of all information used to complete the reports. This information must be maintained in a form available for review by EPA or state officials for a period of three years from the date of submission.

Several independent software firms are marketing computer systems to assist facilities in meeting their reporting requirements under Section 313. Some software products will be designed to produce reports on magnetic media in the format specified in this document. The Bureau of National Affairs (BNA) Right-to-Know Planning Guide includes a listing of companies that offer Title III software. For information on obtaining a copy of this document contact the BNA Customer Response Center at 1-800-372-1033, or from the Washington D.C. metropolitan area call (202) 258-1033.

EPA's Office of Toxic Substances, Information Management Division will validate magnetic media formats produced by software packages upon the request of the vendors. Facilities should be cautious and select a software package that will produce a valid format.

Exhibit 1 on the following page is a checklist for submission of magnetic media reports.

==Exhibit 1. MAGNETIC MEDIA PACKAGE CHECKLIST FOR SUBMITTING MEDIA TO EPA==

A magnetic media package is complete only after you perform the following steps. Use this checklist as an aid to preparing your magnetic media package.

1. Prepare a cover letter which includes all the required information as well as an original signature for each facility reporting on the magnetic media. (See Part 2.1 of this document.)
2. Prepare an additional cover page listing all facilities in the order in which they appear on the magnetic media, if your package includes reports from multiple facilities. (See Part 2.2 of this document.)
3. Verify that the data have been formatted and transferred to magnetic media as specified in this document. (See Parts 3 and 4 of this document.)
4. Confirm there are no reports for a chemical whose identity is claimed as a trade secret. **No trade secret information may be submitted on magnetic media.**
5. Confirm that your reports contain all required information. (See the Toxic Chemical Release Inventory Reporting Form R and Instructions, available from EPA.)
6. Verify that all the reported information is correct to the best of your knowledge.
7. Perform a data dump or otherwise access the data contained on the magnetic media to confirm that the data is readable from the copy which is to be sent to EPA.
8. Label the media properly. (See Part 5.1 of this document.)
9. Package the media safely and include return packaging and postage, the cover letter(s), and cover page (if applicable) in the package with the magnetic media. (See Part 5.2 of this document.) Return packaging and postage allow EPA to return unreadable media.
10. Address the package to: U.S. Environmental Protection Agency
P.O. Box 70266
Washington, D.C. 20024-0266
Attn: Toxic Chemical Release Inventory
Magnetic Media Submission

2. COVER LETTER AND CERTIFICATION

2.1 Single Facility Packages

Each facility that provides reports on magnetic media must enclose a cover letter containing the following information:

1. Full name and address of the submitting facility;
2. Number of tapes or diskettes enclosed;
3. List of chemical (or chemical category) names and CAS numbers covered by the report;
4. Name and phone number of a data processing contact person who is available to provide clarification;
5. A statement that the information that you are submitting does not contain any trade secret data.
6. Certification statement identical to the certification statement from EPA Form R. (See example in Exhibit 1 of this document.) As required by the regulation, this certification statement must be signed by a senior management official, not the data processing contact. The signed name must also be typed, followed by the official title of the signee. The date on which the statement was signed must also be on the letter.
7. Specification of the page number of the cover letter in the following format: "Page 1 of N Pages."

The certification provided in the cover letter is the same certification statement contained on reporting Form R. The certification will apply to all reports provided by the company which are identified by chemical name in the cover letter. The name of the owner/operator or senior management official contained on the cover letter must match the name provided in the data field for Section 2 of Part I of the form (Certification Name and Official Title) in each of the reports contained on the magnetic media.

Exhibit 2 is a sample cover letter that includes each of the required elements.

====Exhibit 2. SAMPLE COVER LETTER ACCOMPANYING A MAGNETIC MEDIA PACKAGE====

Page 1 of 1 Pages.

Pirx-Lewis, Incorporated
Battery Products Division
10545 Cerillas Road
Albuquerque, N.M. 81103-0420
May 2, 1989

U.S. Environmental Protection Agency
P.O. Box 70266
Washington, D.C. 20024-0266
Attn: Toxic Chemical Release Inventory
Magnetic Media Submission

To Whom It May Concern:

Enclosed please find two (2) microcomputer diskettes (numbers 1 and 2) containing toxic chemical release reporting information for Pirx-Lewis, Inc., Battery Products Division, as required under section 313, Title III of the Superfund Amendments and Reauthorization Act of 1986.

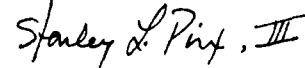
A total of two (2) reports are included from our facility, concerning the following chemicals:

<u>Chemical Name</u>	<u>Report Number</u>	<u>CAS Number</u>
Lead compounds	00001	N/A
Zinc	00002	7440-66-6

Our data processing contact is Jeffrey Mills, who can be reached at (505) 752-5369. Mr. Mills is available should any questions or problems arise in your processing of these diskettes.

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Sincerely yours,



Stanley L. Pirx, III
Vice President
Battery Products Division
Pirx-Lewis, Incorporated

Enclosures

2.2 Multiple Facility Packages

When multiple facilities provide reports on a single magnetic media, each facility must prepare a **separate cover letter** containing each of the required elements noted in Section 2.1 of this document. An additional **cover page** must also be enclosed which lists the names of the facilities in the order in which they appear on the media. Pages should be numbered sequentially starting with the cover page and continuing through all of the cover letters.

A sample of a multiple facility cover page is included as Exhibit 3.

Exhibit 3. SAMPLE COVER PAGE FOR MULTIPLE FACILITIES REPORTING IN A SINGLE MAGNETIC MEDIA PACKAGE

Page 1 of 3 Pages.

American Manufacturing, Inc.
Corporate Headquarters
2625 McDowell Road
Phoenix, AZ 85008
May 8, 1989

U.S. Environmental Protection Agency
P.O. Box 70266
Washington, D.C. 20024-0266
Attn: Toxic Chemical Release Inventory
Magnetic Media Submission

To Whom It May Concern:

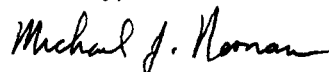
Enclosed please find a total of two (2) 3.5 inch microcomputer diskettes containing toxic chemical release reporting information required under section 313, Title III of the Superfund Amendments and Reauthorization Act of 1986.

Please also find attached a total of two (2) cover letters, one for each of our subsidiaries that is reporting. The letters include certification statements from each of these facilities and the signatures of senior management officials responsible for reporting. The report data is arranged on the two diskettes in the following order:

1. Pirx-Lewis Incorporated, Battery Products Division (2 reports)
2. Larson Plastics (1 report)

Our data processing contact is John Berg, who can be reached at (602) 258-1234. Mr. Berg is available should any questions or problems arise in your processing of these diskettes.

Sincerely,



Michael J. Noonan
Vice President, Operations
American Manufacturing, Inc.

Enclosures

3. FORMAT OF MAGNETIC TAPE REPORTS

3.1 Technical Specifications and Structural Records

The following technical requirements apply for magnetic tape reports:

- Density and recording technique: 9-Track, 1600 BPI, odd parity.
- Logical record length (for all record types): 500 Bytes.
- Blocksize: 2000 Bytes.
- Record format: Fixed Blocked (FB).
- Character Type: 7 Bit ASCII.
- Label Type: No Label (NL) with no leading tape mark.
- File Name: TRIDATA.DAT.

As previously described in this document, a Form R report contains information on releases of one chemical or chemical category. All reports for all the facilities reporting on any one tape must be in a single data file that is entirely contained on that tape. **The data file must not span multiple tapes.**

The file itself is made up of records, some of which contain Form R information (described in Part 3.2 of this document) and others which contain information on the data (structural records). Each record has a fixed length of 500 bytes, some of which are used by the current data fields and some reserved for future use. All data are to exist as unquoted, fixed field ASCII format, and should not include commas, control characters, or other delimiters.

Structural records contain specific data on the number of records, reports, and facilities contained on the tape. There are four types of structural records required in tape reporting, as follows:

1. Header (type hh) is the first record of the data file TRIDATA.DAT.
2. Report start (type ss), which is located at beginning of each report.
3. Report end (type se), which is located at the end of each report.
4. Trailer (type tr) is the last record of the data file TRIDATA.DAT.

The field layout for these four record types is shown in Table 1. All four record types are required for magnetic tapes, regardless of the number of facilities reporting on the tape. All information on the tape should be in a single file named TRIDATA.DAT.

Table 1

STRUCTURAL RECORD SPECIFICATIONS FOR FORM R DATA REPORTS ON TAPE

Sequence Number	Field Name	Byte <u>Position</u>		Total Length	Type	Format Notes
		Start	End			
Record Type HH (Header Record)						
1	Record Type	1	2	2	Char	Enter hh
2	BLANK	3	7	5	Char	Leave blank
Record Type SS (Report Start)						
1	Record Type	1	2	2	Char	Enter se
2	Report Number	3	7	5	Num	Sequential report number, right justified
Record Type SE (Report End)						
1	Record Type	1	2	2	Char	Enter ss
2	Report Number	3	7	5	Num	Sequential report number, right justified
3	Number of Records	8	12	5	Num	Total number of type 01-14 records in report
Record Type TR (Trailer)						
1	Record Type	1	2	2	Char	Enter tr
2	Number of Submissions	3	7	5	Num	Total number of submissions on tape

3.2 Structure of Data Records for Tapes

Table 3 specifies the data structure of each of the data record types and relates to the information requested in the individual sections and blanks of EPA Form R. Each data element is contained in a data record of a predefined record type (numbered 01 through 14). The record type is identified by the first two byte positions of the record. The report number is a sequential number assigned by the submitting facility to each report contained on the magnetic media and is used to cross reference the records of a report. [Note: Reports from multiple facilities on a single media must be numbered sequentially and uniquely throughout the media. Therefore, no two reports on the same tape will have the same report number, whether the reports originate from the same or different facilities.]

The start byte, end byte, and total length of each data field has been defined as shown in Table 3. Blank data fields will be represented by blank bytes on the report media and should not be considered to be the same as data fields filled by N/A, which is used to designate data not applicable to the submitting facility. (See the Form R instructions for further clarification.)

Table 3 also provides information on data formats including the right or left justification required for data and the pre-defined placement of decimal points (e.g., a left justified 3 will be read as 300,000,000 in a 9 byte field; a right justified 4369 for percentage change will be read as 43.69 percent, while 43 will be read as 0.43 percent).

Exhibit 4 presents a sample data structure for a magnetic tape record prepared by a facility which conforms to the data structure specified in Table 3. Exhibit 5 illustrates how the six structural records described in Part 3.1 of this document and the records which contain Form R data should be ordered on the tape package.

~~Exhibit 4. EXAMPLE DATA STRUCTURE FOR MAGNETIC TAPE REPORTS~~

Bell Products is completing Record Type 10 for its first report. Bell has two receiving streams for this report, and so will have two Type 10 records. The following format is used for Bell's data:

<u>Data Stream</u>		<u>Explanation</u>
1000001ab	nam 10000	Type 10 record for a release to water; 10 is the record type; 00001 is the report number; "a" is the alphabetical index assigned to the receiving stream; "b" is the range code; "na" is the estimate; "m" is the basis of estimate code for monitoring data; 10000 corresponds to a stormwater percentage of 100.00%
1000001bna00000000150o	05167	A second type 10 record, for a second receiving stream (assigned index "b") which is estimated to receive 150 pounds of the chemical with stormwater percentage 51.67%.

=====Exhibit 5. EXAMPLE OF RECORD ORDER FOR TAPE REPORTS=====

Gates Photographic Supply is reporting for two of its facilities on one tape. Gates has two reports for its first facility and one report for its second facility. All of this information should be contained in a single file named "TRIDATA.DAT". Gates should structure its data stream as shown below:

<u>Record Type</u>	<u>Explanation</u>
hh	Header record for tape.
ss	Report start record for report 1 in facility 1; this report is assigned report number 00001.
01 to 14	Record types 01 through 14 for report 1 go here. They contain Form R data for the first report as defined in Table 3
se	Report end record for report 1. This record contains a field which indicates the number of Form R type records in the first report. (The number can vary, depending on the number of multiple records in the report; see above example)
ss	Report start record for report 2 in facility 1; this report is assigned report number 00002.
01 to 14	Record types 01 through 14 for report 2.
se	Report end record for report 2. This record contains a field which indicates the number of Form R type records in the second report.
ss	Report start record for the first report from facility 2. Because this is the third report on the tape, it is assigned report number 00003, to avoid its confusion with the first report from facility 1.
01 to 14	Record types 01 through 14 for this report.
se	Report end record for this report.
tr	Trailer record for this tape. This record has a field which indicates the total number of submissions from all facilities on the tape.

4. MICROCOMPUTER DISKETTE REPORTS

4.1 Technical Specifications and Special Files

Diskettes may be either 5.25 inch or 3.5 inch in size and either double density or high density in data capacity. They must be formatted using DOS 2.1 or higher, on an IBM PC/XT/AT or compatible, as follows:

<u>Size</u>	<u>Double density</u>	<u>High density</u>
5.25"	360 Kbytes	1.2 Mbytes
3.5"	720 Kbytes	1.4 Mbytes

All diskettes contained in a single package must be of a single type and format, and must be properly labeled with the format used.

For diskette submissions, records of different types must be contained in separate files. These files are named with a combination of the letters "TRI" and the record type (e.g., type 08 records will be in the file "TRI08."). Multiple records of the same type which are part of a single report, as well as all records of the same type provided for all other reports in the package, must be contained in a single file. Files containing records of a type should be completely contained on a single floppy diskette which has been properly labeled to identify the files it holds.

Two additional files must be created to contain information on the numbers of records and reports provided in the diskette package. They are:

1. Report end records (type se), created for each report and placed in a data file named "TRISE."
2. Trailer records (type tr), created to identify the total number of submissions being provided by all facilities which are reporting on the diskettes. These are placed in a data file named "TRITR."

The structure for these record types is shown in Table 2 on the following page.

It is very important that each report have a unique report number used throughout the records pertaining to that report. Report numbers may be assigned in any order, so long as no two reports share the same number.

Table 2

STRUCTURAL RECORD SPECIFICATIONS FOR FORM R DATA REPORTS ON DISKETTE

Sequence Number	Field Name	Byte Position		Total Length	Type	Format	Notes
		Start	End				
Record Type SE (Report End), contained in Diskette File TRISE.							
1	Record Type	1	2	2	Char	Enter se	
2	Report Number	3	7	5	Num	Sequential report number, right justified	
3	Number of Records	8	12	5	Num	Total number of type 01-14 records in report	
Record Type TR (Trailer), contained in Diskette File TRITR.							
1	Record Type	1	2	2	Char	Enter tr	
2	Number of Facilities	3	7	5	Num	Total number of submissions on diskette package	

4.2 Structure of Form R Data Records for Diskettes

Each record has a fixed length of 500 bytes, some of which are used by the current data fields, some reserved for future use, and some reserved for a carriage return and line feed (positions 499 and 500 respectively). All data are to exist as unquoted, fixed field ASCII format, and should not include commas, control characters, or other delimiters.

Table 3 specifies the data structure of each of these records and relates the data to the individual sections and blanks of EPA Form R. Each data element is contained in a record of a predefined record type (numbered 01 through 14). The record type is identified by the first two byte positions of the record. The report number is a sequential number assigned by the submitting facility to each report contained on the magnetic media and is used to cross reference the records of a report. Multiple entries of facility data (e.g., SIC code, NPDES permit numbers) should be contained in multiple records of the type that is appropriate for that data. For example, a facility with two SIC codes would have two records of type 03. [Note: Reports from multiple facilities on a single media must be numbered sequentially and uniquely throughout the media. Therefore, no two reports on the same diskette will have the same report number, whether the reports originate from the same or different facilities.]

The start byte, end byte, and total length of each data field has been defined as shown in Table 3. Blank data fields will be represented by blank bytes on the report media and should not be considered to be the same as data fields filled by N/A, which is used to designate data not applicable to the submitting facility. (See the instructions for completing Form R for further clarification.)

Table 3 also provides information on data formats including the right or left justification required for data and the pre-defined placement of decimal points (e.g., a left justified 3 will be read as 300,000,000 in a 9 byte field; a right justified 4369 for percentage change will be read as 43.69 percent, while a right justified 43 will be read as 0.43 percent).

An example of how a company might prepare diskette files for Form R reporting is contained in Exhibit 6.

=====~~Exhibit 6. EXAMPLE FILE AND DATA STRUCTURE FOR DISKETTE REPORTING~~=====

American Manufacturing is preparing reports for two of its facilities and submitting reports on diskettes. The facilities are assigned facility numbers 00001 and 00002. There are a total of three reports from the two facilities combined. American assigns report numbers 00001 and 00002 to the two reports from the first facility, and report number 00003 to the one report from the second facility, so that each report will have a unique report number.

After consulting the Toxic Chemical Release Inventory Reporting Form R and Instructions to assemble the information it needs, American can proceed to Table 3 to determine how this information should be entered on the diskettes.

The first diskette contains files TRI03 and TRI07, both of which contain Form R data, and files TRIFE and TRITR. Facility 1 has an SIC code of 3691, and facility 2 has an SIC code of 4567. Table 3 of this document describes the data structure of record type 03. The first two columns of this record contain the record type, the next 5 columns contain the report number, and the last four contain the facility SIC code. American must prepare three records for this file, one record for each report it is completing, and store all three in file TRI03. File TRI03 contains the following formatted data:

```
03000013691
03000023691
03000034567
```

To prepare file TRI07 American must determine how many receiving streams each report names. The first report names two receiving streams, and the other two reports name one receiving stream each; American must report a total of four receiving streams. After determining the structure of record type 07 from Table 3 of this report, American stores the following information in file TRI07 [Note: For report number 00001, with two receiving streams named, the first, "tijeros arroyo", is assigned alphabetical stream code "a", and the second, "rio grande", is assigned stream code "b". The other reports (00002 and 00003), assign stream code "a" to the only stream that they contain.]:

```
0700001atijeros arroyo
0700001brio grande
0700002ario grande
0700003asanta cruz river
```

After completing the other records for the reports, American finds a total of 18 records for report 00001, 21 records for report 00002, and 14 records for report 00003. [Note: The count of records includes record types 01 to 14 only. It does not include the number of records of types se or tr.] File TRISE contains the following end of report records:

```
se0000100018
se0000200021
se0000300014
```

Record type tr contains the number of submissions in the diskette package, therefore file TRITR contains the following formatted data:

```
tr00003
```

Table 3

DATA RECORD STRUCTURAL SPECIFICATIONS FOR FORM R DATA

Sequence Number	Reference to Reporting Form R		Byte Position		Total Length	Type	Format Notes
	Page	Sect.	Start	End			
Record Type 01 (Diskette file TRI01)							
1			Record type	1	2	2	Char Enter 01
2			Report number	3	7	5	Num Sequential number
3	1	1.1	Trade secret	8	8	1	Char Enter N ^a
4	1	1.2	Sanitized copy	9	10	2	Char Enter NA ^a
5	1	1.3	Reporting year	11	14	4	Char Enter reporting year (e.g., 1988)
6	1	2	Certification name	15	59	45	Char Left justified
7	1	2	Certification title	60	104	45	Char Left justified
8	1	2	Certification date	105	110	6	Char Date format MDDYY ^b
9	1	3.1	Facility name (1st part)	111	140	30	Char Left justified ^c
10	1	3.1	Facility name (2nd part)	141	170	30	Char Left justified ^c
11	1	3.1	Facility st. (1st part)	171	200	30	Char Left justified ^c
12	1	3.1	Facility st. (2nd part)	201	230	30	Char Left justified ^c
13	1	3.1	Facility city	231	255	25	Char Left justified
14	1	3.1	Facility county	256	280	25	Char Left justified
15	1	3.1	Facility state	281	282	2	Char Left justified
16	1	3.1	Facility zip	283	291	9	Char Left justified, no dashes
17	1	3.2	Entire/part facility	292	292	1	Char Enter A (entire) or B (part)
18	1	3.3	Technical contact name	293	337	45	Char Left justified
19	1	3.3	Technical contact phone	338	347	10	Char Includes area code ^d
20	1	3.4	Public contact name	348	392	45	Char Left justified
21	1	3.4	Public contact phone	393	402	10	Char Includes area code ^d
22	1	3.6	Facility latitude	403	409	7	Char Format DDDMMSS ^e
23	1	3.6	Facility longitude	410	416	7	Char Format DDDMMSS ^e
24	1	3.11	1st UIC ident. number	417	428	12	Char Right justified with leading zeros
25	1	3.11	2nd UIC ident. number	429	440	12	Char Right justified with leading zeros
26	1	4.1	Parent company name	441	485	45	Char Left justified
27	1	4.2	Parent company D&B num.	486	494	9	Char Right just., no dashes, leading zeros

^a This is the only acceptable value for the field, because no trade secret data may be submitted on magnetic media.

^b e.g., March 17, 1989, would be entered as 031789.

^c Two fields are provided to allow ample room to report this information.

^d Do not include parentheses or dashes, e.g., (202) 555-1212 would be entered as 2025551212.

^e e.g., 91 degrees, 15 minutes, 5 seconds would be entered as "0911505". North latitude and west longitude are assumed.

Table 3: DATA RECORD STRUCTURAL SPECIFICATIONS FOR FORM R DATA (Cont'd)

Sequence Number	Reference to Reporting Form R		Byte Position		Total Length	Type	Format Notes
	Page	Sect.	Title/Topic	Start			
Record Type 02 (Diskette file TRI02)							
1			Record type	1	2	2	Char Enter 02
2			Report number	3	7	5	Num Sequential number
3	3	1.1	RESERVED	8	8	1	Char Leave Blank
4	3	1.2	CAS number	9	17	9	Char Right justified with leading zeros ^a , or NA
5	3	1.3	Chemical/category name	18	87	70	Char Left justify or NA
6	3	1.4	Generic name	88	157	70	Char Not applicable for non-trade secret reports
7	3	2	Mixture component name	158	227	70	Char Left justify or NA
8	3	3.1	M:(a) Produce	228	229	2	Char Enter Y, N, or NA
9	3	3.1	M:(b) Import	230	231	2	Char Enter Y, N, or NA
10	3	3.1	M:(c) On-site use	232	233	2	Char Enter Y, N, or NA
11	3	3.1	M:(d) Sale/distrib.	234	235	2	Char Enter Y, N, or NA
12	3	3.1	M:(e) Byproduct	236	237	2	Char Enter Y, N, or NA
13	3	3.1	M:(f) Impurity	238	239	2	Char Enter Y, N, or NA
14	3	3.2	P:(a) Reactant	240	241	2	Char Enter Y, N, or NA
15	3	3.2	P:(b) Formulatr. comp.	242	243	2	Char Enter Y, N, or NA
16	3	3.2	P:(c) Article comp.	244	245	2	Char Enter Y, N, or NA
17	3	3.2	P:(d) Repackaging only	246	247	2	Char Enter Y, N, or NA
18	3	3.3	OU: (a) Chem. process	248	249	2	Char Enter Y, N, or NA
19	3	3.3	OU: (b) Manufact. aid	250	251	2	Char Enter Y, N, or NA
20	3	3.3	OU: (c) Ancillary/Other	252	253	2	Char Enter Y, N, or NA
21	3	4	Maximum amount on site	254	255	2	Char Enter amount range code (01 through 11)
22	3	5.1	F/Air: Range code	256	257	2	Char Enter range code (A through C) ^b or NA
23	3	5.1	F/Air: Release est.	258	268	11	Char Right justify num. (no decimal places) or NA
24	3	5.1	F/Air: Basis of est.	269	270	2	Char Basis code (M, C, E, or O) or NA
25	3	5.2	S/Air: Range code	271	272	2	Char Range code (A through C) ^b or NA
26	3	5.2	S/Air: Release est.	273	283	11	Char Right justify num. (no decimal places) or NA
27	3	5.2	S/Air: Basis of est.	284	285	2	Char Basis code (M, C, E, or O) or NA
28	3	5.4	UI: Range code	286	287	2	Char Range code (A through C) ^b or NA
29	3	5.4	UI: Release estimate	288	298	11	Char Right justify num. (no decimal places) or NA
30	3	5.4	UI: Basis of estimate	299	300	2	Char Basis code (M, C, E, or O) or NA
31	4	8.A	Waste min. code	301	302	2	Char Type of modification code (M1 through M8) or NA
32	4	8.B	Current yr. chem. qty.	303	315	13	Char Right justify num. or NA
33	4	8.B	Prior year chem. qty.	316	328	13	Char Right justify num. or NA
34	4	8.B	Percentage change	329	333	5	Char Right justify percent (no decimal point) or NA ^c
35	4	8.B	Percent change sign	334	334	1	Char Enter P (positive) or N (negative)
36	4	8.C	Index	335	336	2	Char Right justify, no decimal point (99=9.9), or NA
37	4	8.C	Index sign	337	337	1	Char Enter P (positive) or N (negative)
38	4	8.D	Reason for action code	338	339	2	Char Action code (R1 through R5)

^a e.g., CAS number 1336-36-3 would be entered as "001336363".

^b "A" should be entered for 0 pounds, "B" for 1-499 pounds, or "C" for 500-999 pounds.

^c Enter percent without a decimal point (e.g., 23.45 percent would be entered as "02345").

Table 3: DATA RECORD STRUCTURAL SPECIFICATIONS FOR FORM R DATA (Cont'd)

Sequence Number	Reference to Reporting Form R		Title/Topic	Byte Position		Total Length	Type	Format Notes
	Page	Sect.		Start	End			
Record Type 03 (Diskette file TRI03)								
1			Record type	1	2	2	Char	Enter 03
2			Report number	3	7	5	Num	Sequential number
3	1	3.5	SIC code	8	11	4	Char	SIC code
Record Type 04 (Diskette file TRI04)								
1			Record type	1	2	2	Char	Enter 04
2			Report number	3	7	5	Num	Sequential number
3	1	3.7	D&B Number	8	16	9	Char	Right justify, use leading zeros, no dashes
Record Type 05 (Diskette file TRI05)								
1			Record type	1	2	2	Char	Enter 05
2			Report number	3	7	5	Num	Sequential number
3	1	3.8	EPA ID Number	8	19	12	Char	Right justify, use leading zeros, no dashes
Record Type 06 (Diskette file TRI06)								
1			Record type	1	2	2	Char	Enter 06
2			Report number	3	7	5	Num	Sequential number
3	1	3.9	NPDES Permit Number	8	16	9	Char	Right justify with leading zeros
Record Type 07 (Diskette file TRI07)								
1			Record type	1	2	2	Char	Enter 07
2			Report number	3	7	5	Num	Sequential number
3	1	3.10	Receiving Stream Code	8	8	1	Char	Sequential alphabetic character ^a
4	1	3.10	Receiving Stream Name	9	38	30	Char	Left justify
Record Type 08 (Diskette file TRI08)								
1			Record type	1	2	2	Char	Enter 08
2			Report number	3	7	5	Num	Sequential number
3	2	1	POTW Code	8	8	1	Char	Sequential numeric character ^a
4	2	1	POTW Name (1st part)	9	38	30	Char	Left justify ^b
5	2	1	POTW Name (2nd part)	39	68	30	Char	Left justify ^b
6	2	1	POTW Street (1st part)	69	98	30	Char	Left justify ^b
7	2	1	POTW Street (2nd part)	99	128	30	Char	Left justify ^b
8	2	1	POTW City	129	153	25	Char	Left justify
9	2	1	POTW County	154	178	25	Char	Left justify
10	2	1	POTW State	179	180	2	Char	Left justify
11	2	1	POTW Zip	181	189	9	Char	Left justify, no dashes

^a Each distinct receiving stream must be assigned a distinct alphabetic code (a, b, c, etc.). POTWs be assigned distinct numeric codes. The code must also be entered in the corresponding location in Record Type 10 or 12 so release estimate data can be matched to the receiving location's descriptive information.

^b Two fields are provided to allow ample room to report this information.

Table 3: DATA RECORD STRUCTURAL SPECIFICATIONS FOR FORM R DATA (Cont'd)

Sequence Number	Reference to Reporting Form R		Byte Position		Total Length	Type	Format Notes
	Page	Sect.	Start	End			
Record Type 09 (Diskette file TRI09)							
1			Record type	1	2	2	Char Enter 09
2			Report number	3	7	5	Num Sequential number
3	2	2	Off Site Code	8	8	1	Char Sequential numeric character ^a
4	2	2	RCRA ID Number	9	20	12	Char Right justify with leading zeros
5	2	2	Off Site Name (1st part)	21	50	30	Char Left justify ^b
6	2	2	Off Site Name (2nd part)	51	80	30	Char Left justify ^b
7	2	2	Off Site St. (1st part)	81	110	30	Char Left justify ^b
8	2		Off Site St. (2nd part)	111	140	30	Char Left justify ^b
9	2	2	Off Site City	141	165	25	Char Left justify
10	2	2	Off Site County	166	190	25	Char Left justify
11	2	2	Off Site State	191	192	2	Char Left justify
12	2	2	Off Site Zip	193	201	9	Char Left justify
13	2	2	Off Site Control Ind.	202	203	2	Char Enter Y, N, or NA
Record Type 10 (Diskette file TRI10)							
1			Record type	1	2	2	Char Enter 10
2			Report number	3	7	5	Num Sequential number
3	3/5	5.3	Water: Stream code	8	8	1	Char Matches Record Type 07, alphabetic character ^c
4	3/5	5.3	Water: Range code	9	10	2	Char Range code (A through C) ^d or NA
5	3/5	5.3	Water: Release estimate	11	21	11	Char Right justify num. (no decimal places) or NA
6	3/5	5.3	Water: Basis of estimate	22	23	2	Char Basis code (M, C, E, or O) or NA
7	3/5	5.3	Water: Stormwater percent	24	28	5	Char Right justify percent (no decimal point) or NA ^e

^a Off-site transfer points must be assigned distinct numeric codes. The code must also be entered in the corresponding location in Record Type 13.

^b Two fields are provided to allow ample room to report this information.

^c The code entered must be an alphabetical character code that matches the code used in Record Type 07 for the receiving stream. Each receiving stream should have a distinct Record Type 10.

^d "A" should be entered for 0 pounds, "B" for 1-499 pounds, or "C" for 500-999 pounds.

^e Enter percent without a decimal point (e.g., 23.45 percent would be entered as "02345").

Table 3: DATA RECORD STRUCTURAL SPECIFICATIONS FOR FORM R DATA (Cont'd)

Sequence Number	Reference to Reporting Form R		Byte Position		Total Length	Type	Format Notes
	Page	Section	Start	End			
Record Type 11 (Diskette file TRI11)							
1		Record type	1	2	2	Char	Enter 11
2		Report number	3	7	5	Num	Sequential number
3	3/5	5.5 On-site landfill: Range	8	9	2	Char	Range code (A through C) ^a or NA
4	3/5	5.5 On-site landfill: Release	10	20	11	Char	Right justify num. (no decimal places) or NA
5	3/5	5.5 On-site landfill: Basis	21	22	2	Char	Basis code (M, C, E, or O) or NA
6	3/5	5.5 Land treat: Range code	23	24	2	Char	Range code (A through C) ^a or NA
7	3/5	5.5 Land treat: Release est.	25	35	11	Char	Right justify num. (no decimal places) or NA
8	3/5	5.5 Land treat: Basis of est	36	37	2	Char	Basis code (M, C, E, or O) or NA
9	3/5	5.5 Surf. Imp: Range code	38	39	2	Char	Range code (A through C) ^a or NA
10	3/5	5.5 Surf. Imp: Release est.	40	50	11	Char	Right justify num. (no decimal places) or NA
11	3/5	5.5 Surf. Imp: Basis of est.	51	52	2	Char	Basis code (M, C, E, or O) or NA
12	3/5	5.5 Other land: Range code	53	54	2	Char	Range code (A through C) ^a or NA
13	3/5	5.5 Other land: Release est.	55	65	11	Char	Right justify num. (no decimal places) or NA
14	3/5	5.5 Other land: Basis of est	66	67	2	Char	Basis code (M, C, E, or O) or NA
Record Type 12 (Diskette file TRI12)							
1		Record type	1	2	2	Char	Enter 12
2		Report number	3	7	5	Num	Sequential number
3	4/5	6.1 POTW Code	8	8	1	Char	Matches Record Type 08, numeric character ^b
4	4/5	6.1 POTW Range code	9	10	2	Char	Range code (A through C) ^a or NA
5	4/5	6.1 POTW Release estimate	11	21	11	Char	Right justify num. (no decimal places) or NA
6	4/5	6.1 POTW Basis of estimate	22	23	2	Char	Basis code (M, C, E, or O) or NA
Record Type 13 (Diskette file TRI13)							
1		Record type	1	2	2	Char	Enter 13
2		Report number	3	7	5	Num	Sequential number
3	4/5	6.2 Offsite: Code	8	8	1	Char	Matches Record Type 09, numeric character ^b
4	4/5	6.2 Offsite: Range code	9	10	2	Char	Range code (A through C) ^a or NA
5	4/5	6.2 Offsite: Release est.	11	21	11	Char	Right justify num. (no decimal places) or NA
6	4/5	6.2 Offsite: Basis of est.	22	23	2	Char	Basis code (M, C, E, or O) or NA
7	4/5	6.2 Offsite: Treatment type	24	26	3	Char	Offsite Treatment code

^a "A" should be entered for 0 pounds, "B" for 1-499 pounds, or "C" for 500-999 pounds.

^b The code entered must match the numeric code used in Record Type 08 for the corresponding POTW or Record Type 09 for the corresponding off-site transfer point. Record Types 12 and 13 are designed to contain data on the amounts of toxic chemical transferred to each distinct POTW or off-site location; the numeric code facilitates cross-referencing with other records containing descriptive information.

Table 3: DATA RECORD STRUCTURAL SPECIFICATIONS FOR FORM R DATA (Cont'd)

Sequence Number	Reference to Reporting Form R		Byte Position		Total Length	Type	Format Notes
	Page Sect.	Title/Topic	Start	End			
Record Type 14 (Diskette file TRI14)							
1		Record type	1	2	2	Char	Enter 14
2		Report number	3	7	5	Num	Sequential number
3	4/5 7._a	WTME: Wastestream	8	8	1	Char	Wastestream code
4	4/5 7._b	WTME: Treatment	9	11	3	Char	Treatment code
5	4/5 7._c	WTME: Influent conc. rng.	12	13	2	Char	Range code (A through C) ^a or NA
6	4/5 7._d	WTME: Seq. treatment	14	15	2	Char	Y, N, or NA
7	4/5 7._e	WTME: Efficiency est.	16	20	5	Num	Right justify percent (no decimal point) or NA ^b
8	4/5 7._f	WTME: Based on data	21	22	2	Char	Y, N, or NA

^a "A" should be entered for 0 pounds, "B" for 1-499 pounds, or "C" for 500-999 pounds.

^b Enter percent without a decimal point (e.g., 23.45 percent would be entered as "02345").

5. LABELING AND PACKAGING REQUIREMENTS

5.1 Labeling Requirements

A label must be attached to each tape reel (not tape band) and diskette (not jacket) which conforms to the following format:

TRIS Report					
(A)					
Date	(B)	Density	(C)		
Report Yr.	(D)	Num.	(E)	of	(F)
Contact	(G)				
Files	(H)				

- A. Name of the submitting facility (or for multiple facility packages the name of the company which prepared the reports).
- B. Date the tape or diskette was created.
- C. Floppy diskette format density. Use HD for high density or DD for double density. (Applicable only to diskettes.)
- D. Year for which the data are reported.
- E. Number of this diskette or tape.
- F. Total number of diskettes or tapes in the package.
- G. Name and phone number of a facility computer contact person.
- H. File name or names on the tape or diskette.

Labels may be typed or legibly handwritten. Any media submitted without a proper label attached will not be processed and will be returned to the submitter. Exhibit 7 contains a sample diskette label.

----- EXHIBIT 7 -----

TRIS Report					
American Manufacturing, Inc.					
Date	5/15/89	Density	DD		
Report Yr.	'88	Num.	1	of	2
Contact	John Berg (602) 258-1234				
Files	TR103, TR107, TR1TR				

At left is a sample diskette label for American Manufacturing, which has two double density diskettes in its package. The package contains information on two of American's facilities, but the labels should only list the parent company, American Manufacturing, and the data processing contact at American. Diskette 1 contains the files TR103, TR107, TRIFE, and TR1TR.

5.2 Packaging and Shipping Requirements

The type of packaging and shipping used for magnetic media are left to the discretion of the submitting facility. **EPA accepts no responsibility for packages lost or damaged during transit.** It is recommended that the package be marked with the words "Magnetic Media -- Do Not X-Ray".

All magnetic media packages must include self-addressed, postage paid return packaging sufficient to allow EPA to return unreadable media to the facility.

Send complete magnetic media (properly labeled) along with a cover letter (containing an original certification signature from each submitting company) to:

U.S. Environmental Protection Agency
P.O. Box 70266
Washington, D.C. 20024-0266
Attn: Toxic Chemical Release Inventory
Magnetic Media Submission

Reports to the appropriate State agency must be made in accordance with the instructions for completing Form R (see page 1 of this document). A State contact list is provided in the instructions document. However, a State may not have the capability to accept magnetic media as specified in this document. In these cases, you must send copies of Form R to the State. Alternatively, the State may have established a computer database but have different specifications for submission of Section 313 data on magnetic media, in which case you should contact the State representative listed in the instructions document for details.

U.S. Environmental Protection Agency
Region 5, Library (PL-12J)
77 West Jackson Boulevard, 12th Floor
Chicago, IL 60604-3590