United States
Environmental Protection
Agency

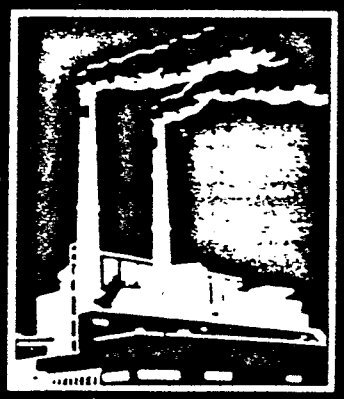
Office of Pollution
Prevention and Toxics
Washington, DC 20460

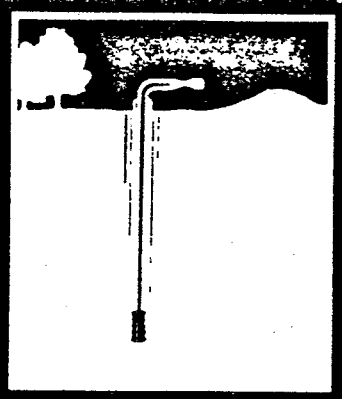
January 1993
EPA 745-K-93-001

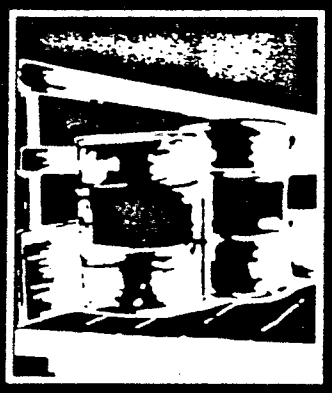
EPA

Toxic Chemical Release Inventory Reporting Form R and Instructions

Revised 1992 Version







Section 313

of the Emergency Planning and Community Right-to-Know Act

(Title III of the Superfund Amendments and Reauthorization Act of 1986)

Important Corrections for Reporting Year 1992

The following corrections have been made to the reporting Form R and Instructions for 1992. No other changes or modifications have been made to the Form R or instructions other than those listed here.

- The blank Toxic Chemical Release Inventory Form R has been moved from Appendix A to the front of the document for easier access.

- The approval expiration date shown on page one of the Form R is 11/92. This is the date that the OMB approval, given on May 19, 1992, expired. However, due to the passage of the Pollution Prevention Act Implementation provisions of the 1993 Appropriations Act (P.L. 102-879) the Agency may continue to use this Form R until revisions are promulgated pursuant to law. Therefore, even though the expiration date shown on the Form has passed, this Form R is still valid and should be used for all 1992 submissions.

- All references to reporting year 1991 and all other date related references have been changed to reflect the current reporting year. (i.e., Reporting year 1991 has been changed to reporting year 1992; prior year 1990 was changed to prior year 1991, etc.) This change was made for both the Form R and the instructions. In addition, all information which was relevant to only the first year of reporting pollution prevention data elements has been removed.

- The address for the EPCRA reporting center has changed. The new address is:

  EPCRA Reporting Center
  P.O. Box 3348
  Merrifield, VA 22116-3348
  Attn: Toxic Release Inventory

  For hand delivery or certified mail, the address is:

  EPCRA Reporting Center
  c/o Computer Based Systems Inc.
  4301 N. Fairfax Drive
  6th Floor, Suite 650
  Arlington, VA 22203

  These changes are reflected on the Form R and in the instructions.

- On page 2 of the instructions, under voluntary revision of a previous submission, the first sentence of the second paragraph was changed to read "For the 1991 reporting year and beyond enter "X" in the ....." A similar change was made in Appendix C, page C-2 under Revisions not identified. The statement "if a revision is made for reporting year 1991 information" was changed to "for reporting year 1991 or later...."

- The local EPCRA Hotline telephone number has been changed. The new number is (703)412-9877. In addition, the TDD number for the Hotline was added to page 4 of the instructions. This number allows the hearing impaired access to the Hotline.

- The document number which was specific to the 1991 Form R and Instructions document, EPA 700-K-92-002, was removed from page 18 of the instructions.

- The 1991 instructions for transferring a neutralized acid to an off-site POTW on page 31 incorrectly stated that this transfer should not be reported. This has been corrected to be consistent with the agency's guidance on mineral acids. This guidance states that facilities that neutralize mineral acids in a waste stream should report a release or transfer of zero.

- Two reporting codes for Part II, Section 6.2 were inadvertantly omitted from the list on page 36 in the 1991 Instructions document, but do appear in Appendix B. These two codes are M90-Other Off-Site Management and M99-Unknown. Also, in Appendix B, page B-2 the code M91-Transfer to Waste Broker has been removed since it is duplicative of other codes.

Important Corrections for Reporting Year 1992

- Typographical errors for the Chemical Abstracts Service (CAS) numbers for two chemicals have been corrected in this year's instructions. In the 1991 Form R and Instructions document the CAS number for Freon 113 was incorrect on the CAS number order list. Also in the 1991 package, the CAS number for Di-(2-ethylhexyl) phthalate (DEHP) was incorrect on the alphabetical list. These same typographical errors exist in the current Code of Federal Regulations and the Agency will publish a Notice of Technical Correction to correct these CAS numbers.

- There was an error in the codes for Part II, Section 8.10 in Appendix B, page B-5, in the 1991 Instructions. The correct codes were listed in the instructions. Appendix B has been corrected to include T06- Employee Recommendation (under a formal company program). All the subsequent codes were renumbered appropriately. In addition, in Appendix B, the code T05 was changed from (independent of Participative Team Program) to (independent of formal company program) to be consistent with the codes in the instructions.

- In Appendix C, page C-1, under the heading incomplete forms, it was incorrectly stated that a complete Form R consists of eight unique pages. This was corrected for the 1992 instructions to nine unique pages.

- The State and Regional contacts lists (appendices F and G) have been updated.

TOXIC RELEASE INVENTORY REPORTING FORM R

Public Reporting Burden

Public reporting burden for this collection of information is estimated to average 43 hours per response, includng 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), U.S. EPA, 401 M Street, SW, Washington, D.C. 20460, Attention: 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.

MPORTANT: Type or print; read instructions before completing form)

Form Approved OMB Number: 2070-0093
Approval Expires: 11/92

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FORM R 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

TRI FACILITY ID NUMBER

Toxic Chemical, Category, or Generic Name

WHERE TO SEND COMPLETED FORMS:

1. EPCRA Reporting Center
   P.O. Box 3348
   Merrifield, VA 22116-3348
   ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE
   (See instructions in Appendix F)

Enter "X" here if this is a revision

MPORTANT: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

For EPA use only

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR

19 ____

SECTION 2. TRADE SECRET INFORMATION

2.1 Are you claiming the toxic chemical identified on page 3 trade secret?

☐ Yes (Answer question 2.2; Attach substantiation forms) ☐ No (Do not answer 2.2; Go to Section 3)

2.2 If yes in 2.1, is this copy: ☐ Sanitized ☐ Unsanitized

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form 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

SECTION 4. FACILITY IDENTIFICATION

4.1

Facility or Establishment Name

TRI Facility ID Number

Street Address

City

County

State

Zip Code

Mailing Address (if different from street address)

City

State

Zip Code

PUT LABEL HERE

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EPA FORM R

PART I. FACILITY IDENTIFICATION INFORMATION (CONTINUED)

TRI FACILITY ID NUMBER
Toxic Chemical, Category, or Generic Name

SECTION 4. FACILITY IDENTIFICATION (Continued)

4.2	This report contains information for: (Important: check only one)	a. ☐ An entire facility			b. ☐ Part of a facility		
4.3	Technical Contact	Name			Telephone Number (Include area code)		
4.4	Public Contact	Name			Telephone Number (Include area code)		
4.5	SIC Code (4-digit)	a.	b.	c.	d.	e.	f.
4.6	Latitude and Longitude	Latitude			Longitude		
		Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
4.7	Dun & Bradstreet Number(s) (9 digits)	a.					
		b.					
4.8	EPA Identification Number(s) (RCRA I.D. No.) (12 characters)	a.					
		b.					
4.9	Facility NPDES Permit Number(s) (9 characters)	a.					
		b.					
4.10	Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)	a.					
		b.					

SECTION 5. PARENT COMPANY INFORMATION

5.1	Name of Parent Company	
	☐ NA	
5.2	Parent Company's Dun & Bradstreet Number	
	☐ NA	(9 digits)

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EPA FORM R

PART II. CHEMICAL-SPECIFIC INFORMATION

TRI FACILITY ID NUMBER
Toxic Chemical, Category, or Generic Name

SECTION 1. TOXIC CHEMICAL IDENTITY

(Important: DO NOT complete this section if you complete Section 2 below.)

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
1.3	Generic Chemical Name (Important: Complete **only** if Part I, Section 2.1 is checked "yes." Generic Name must be structurally descriptive.)

SECTION 2. MIXTURE COMPONENT IDENTITY

(Important: DO NOT complete this section if you complete Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY

(Important: Check all that apply.)

3.1	**Manufacture the toxic chemical:**	a. ☐ Produce b. ☐ Import	If produce or import: c. ☐ For on-site use/processing d. ☐ For sale/distribution e. ☐ As a byproduct f. ☐ As an impurity
3.2	**Process the toxic chemical:**	a. ☐ As a reactant b. ☐ As a formulation component	c. ☐ As an article component d. ☐ Repackaging
3.3	**Otherwise use the toxic chemical:**	a. ☐ As a chemical processing aid b. ☐ As a manufacturing aid	c. ☐ Ancillary or other use

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

4.1	☐ (Enter two-digit code from instruction package.)	

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PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI FACILITY ID NUMBER

Toxic Chemical, Category, or Generic Name

SECTION 5. RELEASES OF THE TOXIC CHEMICAL TO THE ENVIRONMENT ON-SITE

			A. Total Release (pounds/year) (enter range code from instructions or estimate)	B. Basis of Estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	☐ NA			
5.2	Stack or point air emissions	☐ NA			
5.3	Discharges to receiving streams or water bodies (enter one name per box)				
5.3.1	Stream or Water Body Name				
5.3.2	Stream or Water Body Name				
5.3.3	Stream or Water Body Name				
5.4	Underground injections on-site	☐ NA			
5.5	Releases to land on-site				
5.5.1	Landfill	☐ NA			
5.5.2	Land treatment/ application farming	☐ NA			
5.5.3	Surface impoundment	☐ NA			
5.5.4	Other disposal	☐ NA			

☐ Check here only if additional Section 5.3 information is provided on page 5 of this form.

Range Codes: A = 1 - 10 pounds; B = C = 500 - 999 pounds.

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PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI FACILITY ID NUMBER
Toxic Chemical, Category, or Generic Name

SECTION 5.3 ADDITIONAL INFORMATION ON RELEASES OF THE TOXIC CHEMICAL TO THE ENVIRONMENT ON-SITE

5.3 Discharges to receiving streams or water bodies (enter one name per box)	A. Total Release (pounds/year) (enter range code from instructions or estimate)	B. Basis of Estimate (enter code)	C. % From Stormwater
5.3.__ Stream or Water Body Name			
5.3.__ Stream or Water Body Name			
5.3.__ Stream or Water Body Name			

SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTW)

6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1 Total Transfers (pounds/year) (enter range code or estimate)	6.1.A.2 Basis of Estimate (enter code)

6.1.B POTW Name and Location Information

6.1.B.__ POTW Name		6.1.B.__ POTW Name	
Street Address		Street Address	
City	County	City	County
State	Zip Code	State	Zip Code

If additional pages of Part II, Sections 5.3 and/or 6.1 are attached, indicate the total number of pages in this box [ ] and indicate which Part II, Sections 5.3/6.1 page this is, here. [ ]
(example: 1, 2, 3, etc.)

Range Codes: A = 1 - 10 pounds; B = 11 C = 500 - 999 pounds.

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PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI FACILITY ID NUMBER

Toxic Chemical, Category, or Generic Name

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2.___ Off-site EPA Identification Number (RCRA ID No.)

Off-Site Location Name

Street Address

City | County

State | Zip Code | Is location under control of reporting facility or parent company? ☐ Yes ☐ No

A. Total Transfers (pounds/year) (enter range code or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1. M
2.	2.	2. M
3.	3.	3. M
4.	4.	4. M

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2.___ Off-site EPA Identification Number (RCRA ID No.)

Off-Site Location Name

Street Address

City | County

State | Zip Code | Is location under control of reporting facility or parent company? ☐ Yes ☐ No

A. Total Transfers (pounds/year) (enter range code or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1. M
2.	2.	2. M
3.	3.	3. M
4.	4.	4. M

If additional pages of Part II, Section 6.2 are attached, indicate the total number of pages in this box ☐ and indicate which Part II, Section 6.2 page this is, here. ☐ (example: 1, 2, 3, etc.)

Range Codes: A = 1 - 10 pounds; B = C = 500 - 999 pounds.

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PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI FACILITY ID NUMBER
Toxic Chemical, Category, or Generic Name

SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY

☐ **Not Applicable (NA) - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.**

General Waste Stream (enter code)	b. Waste Treatment Method(s) Sequence [enter 3-character code(s)]	c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data?
7A.1a	7A.1b 1 2 3 4 5 6 7 8	7A.1c	7A.1d %	7A.1e Yes ☐ No ☐
7A.2a	7A.2b 1 2 3 4 5 6 7 8	7A.2c	7A.2d %	7A.2e Yes ☐ No ☐
7A.3a	7A.3b 1 2 3 4 5 6 7 8	7A.3c	7A.3d %	7A.3e Yes ☐ No ☐
7A.4a	7A.4b 1 2 3 4 5 6 7 8	7A.4c	7A.4d %	7A.4e Yes ☐ No ☐
7A.5a	7A.5b 1 2 3 4 5 6 7 8	7A.5c	7A.5d %	7A.5e Yes ☐ No ☐

If additional copies of page 7 are attached, indicate the total number of pages in this box ☐ and indicate which page 7 this is, here. ☐ (example: 1, 2, 3, etc.)

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PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI FACILITY ID NUMBER

Toxic Chemical, Category, or Generic Name

SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES

☐ **Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.**

Energy Recovery Methods [enter 3-character code(s)]

1 ☐ 2 ☐ 3 ☐ 4 ☐

SECTION 7C. ON-SITE RECYCLING PROCESSES

☐ **Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.**

Recycling Methods [enter 3-character code(s)]

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐

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PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI FACILITY ID NUMBER
Chemical, Category, or Generic Name

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES

All quantity estimates can be reported using up to two significant figures.		Column A 1991 (pounds/year)	Column B 1992 (pounds/year)	Column C 1993 (pounds/year)	Column D 1994 (pounds/year)
8.1	Quantity released *				
8.2	Quantity used for energy recovery on-site				
8.3	Quantity used for energy recovery off-site				
8.4	Quantity recycled on-site				
8.5	Quantity recycled off-site				
8.6	Quantity treated on-site				
8.7	Quantity treated off-site				
8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)				
8.9	Production ratio or activity index				

8.10	Did your facility engage in any source reduction activities for this chemical during the reporting year? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.			
	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)		
8.10.1		a.	b.	c.
8.10.2		a.	b.	c.
8.10.3		a.	b.	c.
8.10.4		a.	b.	c.

8.11	Is additional optional information on source reduction, recycling, or pollution control activities included with this report? (Check one box)	YES ☐	NO ☐

* Report releases pursuant to EPCRA Section 329(8) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment." Do not include any quantity treated on-site or off-site.

Table of Contents

A. General Information

A.1 How to Assemble a Complete Report 1
A.2 Trade Secret Claims 1
A.3 Recordkeeping 2
A.4 When the Report Must Be Submitted 2
A.5 Where to Send the Form R 3
A.6 How to Obtain Forms and Other Information 3
A.7 Who Must Submit This Form 4

B. How to Determine if Your Facility Must Submit EPA Form R

B.1 Full-Time Employee Determination 5
B.2 Primary SIC Code Determination 5
B.2a Multi-Establishment Facilities 5
B.2b Auxiliary Facilities 7
B.2c Facility-Related Exemptions 7
B.3 Activity Determination 8
B.3a Definitions of "Manufacture" and "Process," and "Otherwise Use" 8
B.3b Activity Exemptions 9
B.3c Activity Qualifiers 10
B.4 Threshold Determination 11
B.4a How to Determine If Thresholds Are Exceeded 11
B.4b Mixtures and Trade Name Products 13

C. Instructions for Completing EPA Form R

Part I. Facility Identification Information

Data Element

1. Reporting Year 17
2.1 Are You Claiming the Toxic Chemical Identity on Page 3 Trade Secret? 17
2.2 If "Yes" in 2.1, Is This Copy Sanatized or Unsanitized? 17
3. Certification 17
4.1 Facility Name and Location 18
4.2 Full or Partial Facility Indication 18
4.3 Technical Contact 18
4.4 Public Contact 18
4.5 Standard Industrial Classification (SIC) Code 19
4.6 Latitude and Longitude 19
4.7 Facility Dun and Bradstreet Number (s) 19
4.8 EPA Identification Number (s) 19
4.9 NPDES Permit Number (s) 19
4.10 Underground InjectionWell Code (UIC) Identification Number 19
5.1 Name of Parent Company 20
5.2 Parent Company's Dun and Bradstreet Number 20

Table of Contents

Part II. Chemical-Specific Information

Data Element

1.1	CAS Number	21
1.2	Toxic Chemical or Chemical Category Name	21
1.3	Generic Chemical Name	21
2.	Mixture Component Identity	22
2.1	Generic Chemical Name Provided by Supplier	22
3.	Activities and Uses of the Toxic Chemical at the Facility	22
3.1	Manufacture the Toxic Chemical	22
3.2	Process the Toxic Chemical	23
3.3	Otherwise Use the Toxic Chemical	23
4.	Maximum Amount of the Toxic Chemical On-Site at Any Time During the Calendar Year	25
5.	Releases of the Toxic Chemical to the Environment On-Site	25
5.1	Fugitive or Non-Point Air Emissions	25
5.2	Stack or Point Air Emissions	26
5.3	Discharges to Receiving Streams or Water Bodies	26
5.4	Underground Injection On-Site	26
5.5	Releases to Land On-Site	26
5.5.1	Landfill	26
5.5.2	Land Treatment/Application Farming	26
5.5.3	Surface Impoundment	26
5.5.4	Other Disposal	27
5.A	Total Release	27
5.B	Basis of Estimate	28
5.C	Percent From Stormwater	30
6.	Transfers of the Toxic Chemical in Wastes to Off-Site Locations	31
6.1	Discharges to Publicly Owned Treatment Works (POTW)	32
6.1.A.1	Total Transfers	32
6.1.A.2	Basis of Estimate	33
6.2	Transfer to Other Off-Site Locations	33
6.2.A	Total Transfers	34
6.2.B	Basis of Estimate	34
6.2.C	Type of Waste Treatment/ Disposal/ Recycling/ Energy Recovery	34
7A	On-Site Waste Treatment Methods and Efficiency	36
7A.a	General Waste Stream	36
7A.b	Waste Treatment Method(s) Sequence	37
7A.c	Range of Influent Concentration	39
7A.d	Waste Treatment Efficiency Estimate	40
7A.e	Based on Operating Data?	40
7B	On-Site Energy Recovery Processes	40
7C	On-Site Recycling Processes	41
8	Source Reduction and Recycling Activities	42

Table of Contents

Table I	SIC Codes 20-39	I-1
Table II	Section 313 Toxic Chemical List for Reporting Year 1992	II-1
Table III	State Abbreviations	III-1
Appendix A	Reserved	A-1
Appendix B	Reporting Codes for EPA Form R	B-1
Appendix C	Common Errors in Completing Form R Reports	C-1
Appendix D	Supplier Notification Requirements	D-1
Appendix E	How to Determine Latitude and Longitude From Topograhic Maps	E-1
Appendix F	State Designated Section 313 Contacts	F-1
Appendix G	Section 313 EPA Regional Contacts	G-1
Appendix H	State Waste Reduction Contacts	H-1
Appendix I	Section 313 Related Materials	I-1

A. General Information

Submission of EPA Form R, the Toxic Chemical Release Inventory (TRI) Reporting Form, is required by section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA, or 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 releases of listed toxic chemicals in their communities and to provide EPA with release information to assist the Agency in determining the need for future regulations. Facilities must report the quantities of both routine and accidental releases of listed toxic chemicals, as well as the maximum amount of the listed toxic chemical on-site during the calendar year and the amount contained in wastes transferred off-site.

The Pollution Prevention Act, passed into law in October, 1990 (Pub. L. 101-508), added reporting requirements to Form R. These requirements affect all facilities required to submit Form R under section 313 of EPCRA. The data was required beginning with reports for calendar year 1991.

A completed Form R must be submitted for each toxic chemical manufactured, processed, or otherwise used at each covered facility as described in the reporting rule in 40 CFR Part 372 (originally published February 16, 1988, in the Federal Register). These instructions supplement and elaborate on the requirements in the reporting rule. 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.

A.1 How to Assemble a Complete Report

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

- Part I, Facility Identification Information (pages 1 and 2); and
- Part II, Chemical-Specific Information (pages 3-9).

Most of the information required in Part I of Form R can be completed, photocopied, and attached to each chemical-specific report. However, Part I of each Form R submitted must have an original signature on the certification statement and the trade secret designation must be entered as appropriate. Part II must be completed separately for each toxic chemical or chemical category. Because a complete Form R consists of at least 9 unique pages, any submissions containing less than 9 unique pages is not a valid submission.

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

- Part I with an original signature on the certification statement (Section 2); and
- Part II (Section 8 is now mandatory).

Staple all 9 pages of each report together. If you check yes on Part II, Section 8.12, you may attach additional information on pollution prevention activities at your facility.

A.2 Trade Secret Claims

For any toxic chemical whose identity is claimed as a trade secret, you must submit to EPA two versions of the substantiation form as prescribed in 40 CFR Part 350, published July 29, 1988, in the Federal Register (53 FR 28772) as well as two versions of Form R. One set of forms, the "unsanitized" version, should provide the actual identity of the toxic chemical. The other set of forms, the "sanitized" version, should provide only a generic identity of the toxic chemical. If EPA deems the trade secret substantiation form valid, only the sanitized set of forms will be made available to the public.

Use the order form in this document to obtain copies of the rule and substantiation form. Further explanation of the trade secret provisions is provided in Part I, Sections 2.1 and 2.2, and Part II, Section 1.3, of the instructions.

In summary, a complete report to EPA for a toxic chemical claimed as a trade secret must include all of the following:

- A completed "unsanitized" version of a Form R report including the toxic chemical identity (staple the pages together);

- A sanitized version of a completed Form R report in which the toxic chemical identity items (Part II, Sections 1.1 and 1.2) have been left blank but in which a generic chemical name has been supplied (Part II, Section 1.3) (staple the pages together);

- A completed "unsanitized" version of a trade secret substantiation form (staple the pages together); and

- A sanitized version of a completed trade secret substantiation form (staple the pages together).

Securely fasten all four reports together.

Some states also require submission of both sanitized and unsanitized reports for toxic chemicals whose identity is claimed as a trade secret. Others require only a sanitized version. Facilities may jeopardize the trade secret status of a toxic chemical by submitting an unsanitized version of Form R to a state agency or Indian tribe that does not require unsanitized forms. You may identify an individual State's submission requirements by contacting the appropriate state-designated Section 313 contact (see Appendix F).

A.3 Recordkeeping

Sound recordkeeping practices are essential for accurate and efficient TRI reporting. It is in the facility's interest, as well as EPA's, to maintain records properly.

Facilities must keep a copy of each Form R report filed for at least three years from the date of submission. These reports will be of use in subsequent years when completing future Form R reports.

Facilities must also maintain those documents, calculations, worksheets, and other forms upon which they relied to gather information for prior Form R reports. In the event of a problem with data elements on a facility's Form R, EPA may request documentation from the facility that supports the information reported. In the future, EPA may conduct data quality reviews of past Form R submissions. An essential component of this process would be to review a facility's records for accuracy and reliability.

A partial list of records, organized by year, that a facility should maintain include:

- Previous years' Form Rs;
- Section 313 Reporting Threshold Worksheets;
- Engineering calculations and other notes;
- Purchase records from suppliers;
- Inventory data;
- EPA (NPDES) permits;
- EPCRA Section 312, Tier II Reports;
- Monitoring records;
- Flowmeter data;
- RCRA Hazardous Waste Generator's Report;
- Pretreatment reports filed by the facility with the local government;
- Invoices from waste management companies;
- Manufacturer's estimates of treatment efficien cies;
- RCRA Manifests; and
- Process diagrams that indicate emissions and releases.

A.4 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 1992, January-December, must be submitted on or before July 1, 1993).

Voluntary Revision of a Previous Submission

Voluntary revisions must be submitted on a Form R identical to the version originally submitted to EPA for that reporting year. The Emergency Planning and Community Right-to-Know Information Hotline can help you identify the version of Form R used for each reporting year.

For the 1991 reporting year and beyond, enter "X" in the space marked "Enter 'X' here if this is a revision" on page 1 of the form if you are making a voluntary revision to a previous Form R submission. If you have obtained the Document Control Number (DCN) of the original submission from EPA, enter that number in red ink in any available space on page 1 of the form. Enter the revised data to the Form R and circle all changes from the original submission in red ink. Sign the certification statement and provide a current date.

For reporting years prior to 1991, there are two options for making voluntary revisions. The first is to submit a photocopy of the original Form R submission (from your file), with corrections made in red ink. Write the words "VOLUNTARY REVISION," and the Document Control Number (DCN), if available, on page 1 of the Form R, and re-sign and re-date the certification statement on page 1.

The second is to obtain a blank Form R for the reporting year affected by the correction(s). Complete all data elements on this Form, but circle with red ink those data elements that you have changed. A cover letter should be included to clarify exactly which voluntary revisions you have made.

Send the entire completed or revised Form R report to EPA and the appropriate state agency (or the designated official of an Indian tribe). Submissions for the next calendar year are not considered revisions of a previous years data.

A.5 Where to Send the Form R

Form R submission must be sent to both EPA and the State (or the designated official of an Indian tribe). If a Form R is not received by both EPA and the State (or the designated official of an Indian tribe), the submitter is considered out of compliance and subject to enforcement action.

Send reports to EPA by mail to:

EPCRA Reporting Center
P.O. Box 3348
Merrifield, VA 22116-3348
Attn: Toxic Chemical Release Inventory

Certified mail and hand-delivered submissions only should be addressed to:

EPCRA Reporting Center.
c/o Computer Based Systems Inc.
4301 N. Fairfax Dr.
6th Floor, Suite 650
Arlington, VA 22203

In addition, you must also send a copy of the report to the State in which the facility is located. ("State" also includes: 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 F for the appropriate State submission addresses.

Facilities located on Indian land should send a copy to the Chief Executive Officer of the applicable Indian tribe. Some tribes have entered into a cooperative agreement with States; in this case, Form R submissions should be sent to the entity designated in the cooperative agreement.

Submission of section 313 reports in magnetic media and computer-generated facsimile formats has been approved by EPA. EPA has developed a package called the "Toxic Chemical Release Inventory Reporting System." The easy-to-use diskette comes with complete instructions for its use. It also provides prompts and messages to help you report according to EPA instructions. For copies of the diskette you may call the EPCRA Hotline.

Many firms are offering computer software to assist facilities in producing magnetic media submissions or computer-generated facsimiles of Form R reports. To ensure accuracy, EPA will only accept magnetic media submissions and computer-generated facsimiles that meet basic specifications established by EPA. To determine if software offered by a firm meets these specifications, EPA reviews and approves all software upon request. Call the Emergency Planning and Community Right-to-Know Information Hotline to identify the software that has been approved by EPA for the current reporting year.

It should be noted, however, that some States may accept only hard copies of Form R. If this is the case, a magnetic media or computer-generated facsimile may be unacceptable.

A.6 How to Obtain Forms and Other Information

A copy of Form R is included in this booklet. Remove this form and produce as many photocopies as needed. Related guidance documents may be obtained from:

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

See Appendix I for the document request form and more information on available documents.

Questions about completing Form R may be directed to the Emergency Planning and Community Right-to-Know Information Hotline at the following address or telephone numbers.

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

(800) 535-0202 or (703) 412-9877; TDD # (800) 553-7672
from 8:30 am - 7:30 pm Eastern Time
(Mon-Fri, except Federal Holidays.)

EPA Regional Staff may also be of assistance. Refer to Appendix G for a list of EPA Regional Offices.

A.7 Who Must Submit this Form

Section 313 of EPCRA 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; and
- The facility is included in Standard Industrial Classification (SIC) Codes 20 through 39; and
- The facility manufactures (defined to include importing), processes, or otherwise uses any listed toxic chemical in quantities equal to or greater than the established threshold in the course of a calendar year.

B. How To Determine If Your Facility Must Submit EPA Form R

(See Figure 1 for more information.)

B.1 Full-Time Employee Determination

A "full-time employee," for purposes of section 313 reporting, is defined as 2,000 work hours per year. This definition is dependent only upon the number of hours worked by all employees for the facility during the calendar year and not the number of persons working. To determine the number of full-time employees working for your facility, add up the hours worked by all employees during the calendar year, including contract employees and sales and support staff working for the facility, and 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 ten employee threshold.

Examples include:

- A facility consists of 11 employees who each worked 1500 hours for the facility in a calendar year. Consequently, the total number of hours worked by all employees for the facility during the calendar year is 16,500 hours. The number of full-time employees for this facility is equal to 16,500 hours divided by 2,000 hours per full-time employee, or 8.3 full-time employees. Therefore, even though 11 persons worked for this facility during the calendar year, the number of hours worked is equivalent to 8.3 full-time employees. This facility does not meet the employee criteria and is not subject to section 313 reporting.

- Another facility consists of 6 workers and 3 sales staff. The 6 workers each worked 2,000 hours for the facility in the calendar year. The sales staff also each worked 2,000 hours in the calendar year although they may have been on the road half of the year. In addition, 5 contract employees were hired for a period during which each worked 400 hours for the facility. The total number of hours is equal to the time worked by the workers at the facility (12,000 hours), plus the time worked by the sales staff for the facility (6,000 hours), plus the time worked by the contract employees at the facility (2,000 hours), or 20,000 hours. Dividing the 20,000 hours by 2,000 yields 10 full-time employees. This facility has met the full-time employee criteria and may be subject to reporting if the other criteria are met.

B.2 Primary SIC Code Determination

Standard Industrial Classification (SIC) codes 20-39 are covered by the rule and are listed in Table I. 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. 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 are 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.

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 businesses not as "facilities," but as "establishments," which are defined as "distinct and separate economic activities [that] are performed at a single physical location."

Guidelines for using these definitions to determine primary SIC codes for facilities are presented in the following subsections.

B.2.a Multi-Establishment Facilities

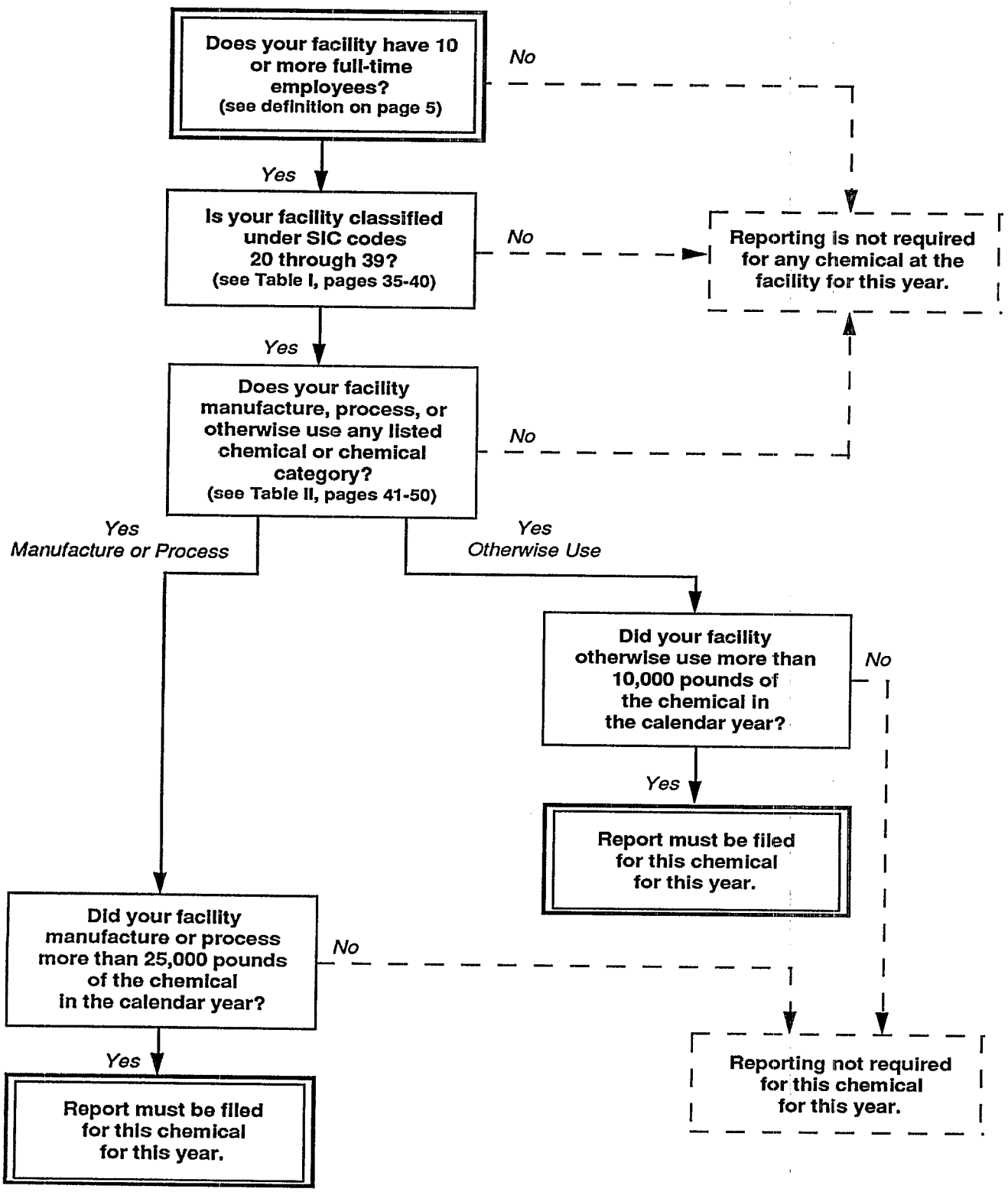
Your facility may include multiple establishments that have different SIC codes. If so, calculate the value of the products produced or shipped from each establishment within the facility and then use the following rule to determine if your facility meets the SIC code criterion:

- 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 and services, the entire 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 and services produced or shipped by any other establishment within the facility, the facility also meets the SIC code criterion.

Figure 1

Determining Applicability of Section 313 Requirements



The value of production attributable to a particular establishment may be isolated by subtracting the value of products obtained from other establishments within the same facility that are incorporated into its final products. 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 gold mining facility is engaged primarily in the exploration of gold deposits, developing mines, and mining gold. This establishment deploys several means to mine the gold, including crushing, grinding, gravity concentration, froth flotation, amalgamation, cyanidation, and the production of bullion at the mine and mill sites (these processes are classified under SIC code 1041). All of the ore discovered through this establishment is delivered to a second establishment which is primarily engaged in rolling, drawing, and extruding the gold for sale and distribution. The smeltering establishment in the facility is classified under SIC code 3339. The facility could calculate the value of production for each establishment separately (both SIC code 1041 and 3339 having separate values). Alternatively, the facility could determine the value of the smelter operation by subtracting the value of the ore produced from the value of entire facility's production (Gross value of facility - SIC code 1041 value = Value for SIC code 3999).

- A food processing establishment in a facility processes crops grown at the facility in a separate establishment. The facility could base the value of the products of each establishment on the total production value of each establishment. Alternatively, the facility could first determine the value of the crops grown at the agricultural establishment, and then calculate the contribution of the food processing establishment by subtracting the crop value from the total value of the product shipped from the processing establishment. (Value of product shipped from processing - crop value = value of processing establishment)

A covered multi-establishment facility must make toxic chemical threshold determinations and, if required, must report all relevant information about releases, source reduction, recycling, and waste treatment associated with a listed toxic chemical for the entire facility, 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 releases separately, provided that the total releases for the whole facility is represented by the sum of releases reported by the separate establishments.

B.2.b Auxiliary Facilities

An auxiliary facility is one that supports another facility's activities (e.g., research and development laboratories, warehouses, storage facilities, and waste-treatment facilities). An auxiliary facility can assume 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 facility in SIC codes 20-39. Auxiliary facilities that are in SIC codes 20-39 are required to report if they meet the employee criterion and reporting thresholds for manufacture, process, or otherwise use. Auxiliary establishments that are part of a multi-establishment facility must be factored into threshold determinations for the facility as a whole.

B.2.c Facility-Related Exemptions

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

Property Owners: 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.

B.3 Activity Determination

B.3.a Definitions of "Manufacture," "Process," and "Otherwise Use"

Manufacture: The term "manufacture" means to produce, prepare, compound, or import a listed toxic chemical. (See Part II, Section 3.1 of these instructions for further clarification.)

Import is defined as causing the toxic chemical to be imported into the customs territory of the United States. If you order a listed 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 directly from a source outside of the United States. 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 toxic 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, otherwise use, or treatment of other chemical substances. In the case of coincidental production of an impurity (i.e., a toxic chemical that remains in the product that is distributed in commerce), the de minimis limitation, discussed in Section B.4.b of these instructions, applies. The de minimis limitation does not apply to byproducts (e.g., a toxic 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 ammonium nitrate (solution).

Example 1: Coincidental Manufacture

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 chemical, as are nitric acid and ammonia. Your facility thus 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., 25,000 pounds for the reporting year), the facility must report for the ammonium nitrate solution. If more than 10,000 pounds of ammonia is added to the wastewater treatment system, then the facility must report for ammonia.

Process: The term "process" means the preparation of a listed toxic chemical, after its manufacture, for distribution in commerce. Processing is usually the intentional incorporation of a toxic chemical into a product (see Part II, Section 3.2 of these instructions for further clarification). Processing includes preparation of the toxic 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 mixture or other trade name product (see Section B.4.b of these instructions) that contains a listed toxic chemical as one component.

Example 2: Typical Process and Manufacture Activities

- Your company receives toluene, a listed toxic chemical, from another facility, and reacts the toluene with air to form benzoic acid. Your company processes toluene and manufactures benzoic acid. Benzoic acid, however, is not a listed toxic chemical and thus does not trigger reporting requirements.
- Your facility combines toluene purchased from a supplier with various materials to form paint. Your facility processes toluene.
- 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 pound 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 toxic chemical that becomes incorporated into the plastic. Your facility processes the toxic chemical.

Example 3: Otherwise Use

When your facility cleans equipment with toluene, you are otherwise using toluene. 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 otherwise uses toluene.

Otherwise Use: The term "otherwise use" encompasses any activity involving a listed toxic chemical at a facility that does not fall under the definitions of "manufacture" or "process." A chemical that is otherwise used by a facility is not intentionally incorporated into a product distributed in commerce (see Part II, Section 3.3 of these Instructions for further clarification).

B.3.b Activity Exemptions

Use Exemptions. Certain uses of listed toxic 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. Quantities of a listed toxic chemical contained in an article do not have to be factored into threshold or release determinations when that article is processed or otherwise 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 otherwise use of that item at the facility.

If the processing or otherwise use of similar articles results in a total release of less than 0.5 pounds of a toxic chemical in a calendar year to any environmental media, EPA will allow this release quantity to be rounded to zero, and the manufactured items remain exempt as articles. EPA requires facilities to round off and report all estimates to the nearest whole number. The 0.5-pound limit does not apply to each individual article, but applies to the sum of all releases from processing or otherwise use of like articles.

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

A closed item containing toxic chemicals (e.g., a transformer containing PCBs) that does not release the toxic chemicals during normal use is considered an article if a facility uses the item as intended and the toxic chemicals are not released. If a facility services the closed item (e.g., a transformer) by replacing the toxic chemicals, the toxic chemicals added during the reporting year must be counted in threshold and release calculations.

Example 4: Article Exemption

- Lead that is incorporated into a lead acid battery is processed 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.
- 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 remains intact.
- Toxic chemicals received in the form of pellets are not articles because the pellet form is simply a convenient form for further processing of the material.

When the processing or otherwise use of an item generates fumes, dust, filings, or grindings, the article exemption is not applicable. The toxic chemical(s) in the item must be counted toward the appropriate threshold determination, and the fumes, dust, filings, and grindings must be reported as releases or wastes. Scrap pieces that are recognizable as an article do not constitute a release.

B.3.c Activity Qualifiers

Table II contains the list of individual toxic chemicals and categories of chemicals subject to 1992 calendar year reporting. Some of the toxic chemicals listed in Table II have parenthetic qualifiers listed next to them. A toxic chemical that is listed without a qualifier is subject to reporting in all forms in which it is manufactured, processed, and otherwise used.

Fume or dust. Three of the metals on the list (aluminum, vanadium, and zinc) contain the qualifier "fume or dust." Fume or dust refers to dry forms of these metals but does not refer to "wet" forms such as solutions or slurries. As explained in Section B.3a of these instructions, the term manufacture includes the generation of a toxic chemical as a byproduct or impurity. In such cases, a facility should determine if, for example, it generated more than 25,000 pounds of aluminum fume or dust in 1992 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 toxic chemicals or other products for distribution in commerce. In reporting releases, the facility would only report releases of the fume or dust.

EPA considers dusts to consist of solid particles generated by any mechanical processing of materials including crushing, grinding, rapid impact, handling, detonation, and decrepitation of organic and inorganic materials such as rock, ore, and metal. Dusts do not tend to flocculate, except under electrostatic forces. A fume is an airborne dispersion consisting of small solid particles created by condensation from a gaseous state, in distinction to a gas or vapor. Fumes arise from the heating of solids such as lead. The condensation is often accompanied by a chemical reaction, such as oxidation. Fumes flocculate and sometimes coalesce.

Manufacturing qualifiers. Two of the entries to the section 313 toxic chemical list contain a qualifier relating to manufacture. For isopropyl alcohol, the qualifier is "manufacturing — strong acid process." For saccharin, the qualifier simply is "manufacturing." For isopropyl alcohol, the qualifier means that only facilities manufacturing isopropyl alcohol by the strong acid process are required to report. In the case of saccharin, only manufacturers of the toxic chemical are subject to the reporting requirements. A facility that processes or otherwise uses either toxic chemical would not be required to report for those toxic chemicals. In both cases, supplier notification does not apply because only manufacturers, not users, of the toxic chemical must report.

Solutions. Two substances on the list, ammonium nitrate and ammonium sulfate, are qualified by the term "solution," which refers to the physical state of these toxic chemicals. Solid, molten, and pelletized forms of these toxic chemicals are exempt from threshold and release determinations. Only facilities that manufacture, process, or otherwise use these toxic chemicals in the form of a solution are required to report. Supplier notification applies only if the toxic chemical is distributed as a solution.

Phosphorus (yellow or white). The listing for phosphorus is qualified by the term "yellow or white." This means that only manufacturing, processing, or otherwise use of phosphorus in the yellow or white chemical form triggers reporting. Conversely, manufacturing, processing, or otherwise use of "black" or "red" phosphorus does 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 the physical characteristic of being able to be crumbled, pulverized, or reducible to a powder with hand pressure. Only manufacturing, processing, or otherwise use of asbestos in the friable form triggers reporting. Supplier notification applies only to distribution of mixtures or trade name products containing friable asbestos.

Aluminum Oxide (fibrous forms). The listing for aluminum oxide is qualified by the term "fibrous forms." Fibrous refers to a man-made form of aluminum oxide that is processed to produce strands or filaments which can be cut to various lengths depending on the application. Only manufacturing, processing, or otherwise use of aluminum oxide in the fibrous form triggers reporting. Supplier notification applies only to distribution of mixtures or trade name products containing fibrous forms of aluminum oxide.

B.4 Threshold Determination

Section 313 reporting is required if threshold quantities are exceeded. Separate thresholds apply to the amount of the toxic chemical that is manufactured, processed, or otherwise used.

You must submit a report for any listed toxic chemical that is manufactured or processed at your facility in excess of the following threshold:

- 25,000 pounds during the course of a calendar year.

You must submit a report if the quantity of a listed toxic chemical that is otherwise used at your facility exceeds:

- 10,000 pounds during the course of a calendar year.

B.4.a How to Determine If Your Facility Has Exceeded Thresholds

To determine whether your facility has exceeded a section 313 reporting threshold, compare quantities of listed toxic chemicals that you manufacture, process, or otherwise use to the respective thresholds for those activities. A worksheet is provided in Figure 2 to assist facilities in determining whether they exceed any of the reporting thresholds. This worksheet also provides a format for maintaining reporting facility records. Use of this worksheet is not required and the completed worksheet(s) should not accompany Form R reports submitted to EPA and the State.

Complete a separate worksheet for each section 313 toxic chemical or chemical category. Base your threshold determination for listed toxic chemicals with qualifiers only on the quantity of the toxic chemical satisfying the qualifier.

Use of the worksheet is divided into three steps:

Step 1 allows you to record the gross amount of the toxic chemical or chemical category involved in activities throughout the facility. Pure forms as well as the amounts of the toxic chemical or chemical category present in mixtures or trade name products must be considered. The types of activity (i.e., manufacturing, processing, or otherwise using) for which the toxic chemical is used must be identified because separate thresholds apply to each of these activities. A record of the information source(s) used should be kept. Possible information sources include purchase records, inventory data, and calculations by a process engineer. The data collected in Step 1 will be totalled for each activity to identify the overall amount of the toxic chemical or chemical category manufactured (including imported), processed, or otherwise used.

Step 2 allows you to identify uses of the toxic chemical or chemical category that were included in Step 1 but are exempt under section 313. Do not include in Step 2 exempt forms of the toxic chemical not included in the calculations in Step 1. For example, if freon contained in the building's air conditioners was not reported in Step 1 , you would not include the amount as exempt in Step 2. Step 2 is intended for use when one form or use of the toxic chemical is exempt while other forms require reporting. Note the type of exemption for future reference. Also identify, if applicable, the fraction or percentage of the toxic chemical present that is exempt. Add the amounts in each activity to obtain a subtotal for exempted amounts of the toxic chemical or chemical categories at the facility.

Step 3 involves subtracting the result of Step 2 from the results of Step 1 for each activity. Compare this net sum to the applicable activity threshold. If the threshold is met or exceeded for any of the three activities, a facility must submit a Form R for that toxic chemical or chemical category. This worksheet should be retained in either case to document your determination for reporting or not reporting, but should not be submitted with the report. Do not sum quantities of the toxic chemical that are manufactured, processed, and otherwise used at your facility, because each of these activities requires a separate threshold determination. For example, if in a calendar year you processed 20,000 pounds of a chemical and you otherwise used 6,000 pounds of that same toxic 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 toxic chemical or chemical category. For example, if your facility processes 22,000 pounds of a listed toxic chemical and also otherwise uses 16,000 pounds of that same toxic chemical, it has exceeded the otherwise used threshold (10,000 pounds) and your facility must report even though it did not exceed the process threshold. However, in preparing your reports, you must consider all non-exempted activities and all releases of the toxic chemical from your facility, not just releases from the otherwise use activity.

Figure 2

OPTIONAL SECTION 313 REPORTING THRESHOLD WORKSHET

Facility Name: _____ Date Worksheet Prepared: _____

Toxic Chemical or Chemical Category: _____ Prepared By: _____

Reporting Year: _____

Step 1. Identify amounts of the toxic chemical manufactured, processed, or otherwise used.

Mixture Name or Other Identifier	Information Source	Percent by Weight	Total Weight (in lbs)	Amount of the Listed Toxic Chemical by Activity (in lbs.):		
				Manufactured	Processed	Otherwise Used
1.						
2.						
3.						
4.						
5.						
6.						
7.						
Subtotal:				(A) _____ lbs.	(B) _____ lbs.	(C) _____ lbs.

Step 2. Identify exempt forms of the toxic chemical that have been included in Step 1.

Mixture Name as Listed Above	Applicable Exemption	Note Fraction or Percent Exempt (if Applicable)	Exempt Amount of the Toxic Chemical from Above (in lbs.):		
			Manufactured	Processed	Otherwise Used
1.					
2.					
3.					
4.					
5.					
6.					
7.					
Subtotal:			(A_1) _____ lbs.	(B_1) _____ lbs.	(C_1) _____ lbs.

Step 3. Calculate the amount subject to threshold: ($A - A_1$) _____ lbs. ($B - B_1$) _____ lbs. ($C - C_1$) _____ lbs.

Compare to thresholds for section 313 reporting. 25,000 lbs. 25,000 lbs. 10,000 lbs.

If any threshold is met, reporting is required for all activities. Do not submit this worksheet with Form R. Retain for your records.

Also note that threshold determinations are based upon the actual amounts of a toxic chemical manufactured, processed, or otherwise used over the course of the calendar year. The threshold determination may not relate to the amount of a toxic chemical brought on-site during the calendar year. For example, if a stockpile of 100,000 pounds of a toxic chemical is present on-site but only 20,000 pounds is applied to a process, only the 20,000 pounds processed is counted toward a threshold determination, not the entire 100,000 pounds of the stockpile.

Threshold Determinations for On-Site Reuse/Recycle Operations.

Threshold determinations of listed toxic chemicals that are recycled or reused at the facility are based only on the amount of the toxic chemical that is added 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 during the year. The facility has therefore "otherwise used" only 2,000 pounds of the covered toxic chemical and is not required to report (unless there are other "otherwise use" activities of ammonia which, when taken together, exceed the reporting threshold). If, however, the whole refrigeration unit was recharged with 15,000 pounds of ammonia during the year, the facility would exceed the otherwise use threshold, and be required to report.

This exemption does not apply to toxic chemicals "recycled" off-site and returned to a facility. Such toxic chemicals returned to a facility are treated as the equivalent of newly purchased material for purposes of section 313 threshold determinations.

Threshold Determinations for Chemical Categories.

A number of chemical compound categories are subject to reporting. See Table II for a listing of these toxic chemical categories. When reporting for one of these toxic chemical categories, all individual members of a category that are manufactured, processed, or otherwise used must be counted. However, threshold determinations must be made separately for each of the three activities. Do not include in these threshold determinations for a category any chemicals that are also specifically listed section 313 toxic chemicals (see Table II) or specific toxic chemicals that have been deleted from the category (e.g., three compounds deleted from copper compound category — see the introduction to these instructions). Specifically listed toxic chemicals are subject to their own, individual threshold determination.

Threshold determinations for metal-containing compounds present a special case. If, for example, your facility processes several different lead compounds, base your threshold determination on the total weight of all lead compounds processed. However, if your facility processes 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 your facility exceeds thresholds for both the parent metal and compounds of that same metal, EPA allows you to file one combined report (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 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. Apply the total weight of the lead chromate to the threshold determinations for both lead compounds and chromium compounds. However, only the amount of each parent metal released (not the amount of the compound) would be reported on the appropriate sections of both Form Rs.

B.4.b Mixtures and Trade Name Products

Toxic chemicals contained in mixtures and trade name products must be factored into threshold and release determinations.

If your facility processed or otherwise used mixtures or trade name products during the calendar year, you are required to use the best information 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 toxic chemical in the mixture or trade name product with other amounts of the same toxic chemical processed or otherwise used at your facility for threshold and release determinations. If you know that a mixture contains a toxic chemical but no concentration information is provided by the supplier, you do not have to consider the amount of the toxic chemical present in that mixture for purposes of threshold and release determinations.

Example 5: Mixture and Trade Name Products

Scenario #1: Your facility uses 12,000 pounds of an industrial solvent (Solvent X) for equipment cleaning. The Material Safety Data Sheet (MSDS) for the solvent indicates that it contains at least 50 percent methyl ethyl ketone (MEK), a listed toxic chemical; however, it also states that the solvent contains 20 percent non-hazardous surfactants. This is the only MEK-containing chemical used at the facility.

Follow these steps to determine if the quantity of the toxic chemical in solvent X exceeds the threshold for otherwise use.

1) Determine a reasonable maximum concentration for the toxic chemical by subtracting out the non-hazardous surfactants (i.e., 100%-20% = 80%).

2) Determine the midpoint between the known minimum (50%) and the reasonable maximum calculated above (i.e., (80%-50%)/2 + 50% = 65%).

3) Multiply total weight of Solvent X otherwise used by 65 percent.

   12,000 pounds x 0.65 = 7,800 pounds

4) Because the total amount of MEK otherwise used at the facility was less than the 10,000 pound otherwise use threshold, the facility is not required to file a Form R for MEK.

Scenario #2: Your facility otherwise used 15,000 pounds of Solvent Y to clean printed circuit boards. The MSDS for the solvent lists only that Solvent Y contains at least 80% of a listed toxic chemical which is only identified as chlorinated hydrocarbons.

Follow these steps to determine if the quantity of the toxic chemical in solvent exceeds the threshold for otherwise use.

1) Because the specific chemical is unknown, the Form R will be filed for "chlorinated hydrocarbons." This name will be entered into Part II, Section 2.1, "Mixture Component Identity." (Note: Because your supplier is claiming the toxic chemical identity a trade secret, you do not have to file substantiation forms.)

2) The upper bound limit is assumed to be 100 percent and the lower bound limit is known to be 80 percent. Using this information, the specific concentration is estimated to be 90 percent (i.e., the mid-point between upper and lower limits).

   (1.0 + 0.80) / 2 = 0.90

3) The total weight of Solvent Y is multiplied by 90 percent when calculating for thresholds.

   15,000 x 0.90 = 13,500

4) Because the total amount of chlorinated hydrocarbons exceeds the 10,000 pound otherwise used threshold, you must file a Form R for this chemical.

Observe the following guidelines in estimating concentrations of toxic chemicals in mixtures when only limited information is available:

- If you know the lower and upper bound concentrations of a toxic chemical in a mixture, use the midpoint of these two concentrations for threshold determinations.
- If you know only the lower bound concentration, you should subtract out the percentages of any other known components to determine a reasonable upper bound concentration, and then determine a midpoint.
- If you have no information other than the lower bound concentration, calculate a midpoint assuming an upper bound concentration of 100%.
- If you only know the upper bound concentration, you must use it for threshold determinations.
- In cases where you only have a concentration range available, you should use the midpoint of the range extremes.

De Minimis Exemption. A listed toxic chemical does not have to be considered if it is present in a mixture at a concentration below a specified de minimis level. The de minimis level is 1.0%, or 0.1% if the toxic chemical meets the OSHA carcinogen standard. See Table II for the de minimis value associated with each listed toxic chemical. For mixtures that contain more than one member of a listed toxic chemical category, the de minimis level applies to the aggregate concentration of all such members and not to each individually. EPA included the de minimis exemption in the rule as a burden-reducing step, primarily because facilities are not likely to have information on the presence of a toxic chemical in a mixture or trade name product beyond that available in the product's MSDS. The de minimis levels are consistent with OSHA requirements for development of MSDS information concerning composition.

For threshold determinations, the de minimis exemption applies to:

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

The de minimis exemption does not apply to:

- A toxic chemical manufactured at the facility that does not remain in a product distributed by the facility. A threshold determination must be made on the annual quantity of the toxic chemical manufactured 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 toxic chemical, regardless of the concentration of this toxic chemical in the waste.

In general, when the de minimis exemption applies to threshold determinations and the concentration of the toxic chemical in the mixture is below the de minimis limitation, then you are not required to report releases associated with the processing or otherwise use of the toxic chemical in that mixture. Note that it is possible to meet the threshold for a toxic 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 toxic chemical below the de minimis level.

Application of the de minimis exemption to process streams must also be reviewed. Mixtures containing toxic chemicals can be added to a process or generated within a process. A facility is required to consider and report releases from the process once the de minimis concentration level has been exceeded. All releases of the toxic chemical from the process which occur after the de minimis exemption has been exceeded are then subject to reporting, regardless of whether or not the toxic chemical concentration later falls to a level below the de minimis exemption.

Supplier Notification. Beginning in 1989, suppliers of facilities in SIC codes 20-39 are required to develop and distribute a notice if the mixtures or trade name products they manufacture or process, and subsequently distribute, contain listed toxic chemicals. These notices are distributed to other companies in SIC codes 20-39 or to companies that sell or otherwise distribute the product to facilities in SIC codes 20-39. If a MSDS is not required for the mixture or trade name product, the notification must be in written form (i.e., letter). Otherwise, the notice must be incorporated into or attached to the MSDS for that

product. The supplier notification requirement began 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 percent of a listed toxic chemical or if it is discovered that a previous notice did not properly identify the toxic chemicals or the percentage by weight. For more information on supplier notification, see Appendix D.

If listed toxic chemical concentrations are equal to or 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). On Form R, identify the toxic chemical you are reporting according to its generic name provided in the notification. (See the instructions for Part II, Section 2 for more information.) If the listed toxic chemical is present below the de minimis level, no notification is required.

C. Instructions for Completing 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.

For all parts of Form R:

1. Type or print information on the form in the units and format requested. Use black ink. (Using blue ink for the certification signature is suggested as a means of indicating its originality.)

2. All information on Form R is required.

3. Do not leave items in Parts I and II on Form R blank unless specifically directed to do so; if an item does not apply to you, enter not applicable, NA, 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. Report releases, off-site transfers, and recycling activities to the nearest pound. Do not report fractions of pounds.

5. 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.

6. When completing additional pages for Part II of the form, number the additional information sequentially from the prior sections of the form.

7. Indicate your TRI Facility Identification Number and the toxic chemical, toxic chemical category, or generically named toxic chemical on which you are reporting in the space provide in the top right corner of each page of Form R. Completion of this non-mandatory data element will greatly aid your internal recordkeeping and the quality of EPA's data entry process.

Part I. Facility Identification Information

Section 1. Reporting Year

This is the calendar year to which the reported information applies, not the year in which you are submitting the report. Information for the 1992 reporting year must be submitted on or before July 1, 1993.

Section 2. Trade Secret Information

2.1 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 II, Section 1, may be designated as a trade secret. If you are making a trade secret claim, mark "yes" and proceed to Section 2.2. Only check "yes" if it is your manufacturing, processing, or otherwise use of the toxic chemical whose identity is a trade secret. (See page 1 of these instructions for specific information on trade secrecy claims.) If you checked "no," proceed to Section 3; do not answer Section 2.2.

2.2 If "yes" in 2.1, 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 which does not contain the toxic chemical identity but does contain a generic name in its place, and you have claimed the toxic chemical identity trade secret in Part I, Section 2.1. Otherwise, check "unsanitized."

Section 3. 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.

Section 4. Facility Identification

4.1 Facility Name and Location

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

If you have submitted a Form R for previous reporting years, a TRI Facility Identification Number has been assigned to your facility. The TRI Facility Identification Number appears (with other facility-specific information) on the peel-off mailing label on the cover of this Toxic Chemical Release Inventory Instructions for 1992. Remove the mailing label from the back of this document and apply it to the space marked "place label here" in Part I, Section 4.1 of the blank Form R.

If your mailing label is missing information required on Form R, insert that information in the appropriate box in Part I, Section 4.1. For example, if your label contains your street address and not your mailing address, enter your mailing address in the space provided.

If you do not have a mailing label or cannot locate your TRI Facility Identification Number, please contact the Emergency Planning and Community Right-to-Know Information Hotline.

Enter "NA" in the space for the TRI Facility Identification number if this is your first submission of a Form R.

4.2 Full or Partial Facility Indication

A covered facility must report all releases and source reduction and recycling activities of a listed toxic chemical if it meets a reporting threshold for that toxic chemical. However, if the facility is composed of several distinct establishments, EPA allows these establishments to submit separate reports for the toxic chemical as long as all releases of the toxic chemical from the entire facility are accounted for. Indicate in Section 4.2 whether your report is for the entire covered facility as a whole or for part of a covered facility. Check box (a) if the toxic chemical information applies to the entire covered facility. Check box (b) if the toxic 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 facility, provided all releases and source reduction and recycling activities involving the toxic chemical from the entire 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 toxic 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. (See also Section B.2.a of these instructions.)

4.3 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.

4.4 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 4.3" 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. If this space is left blank, the technical contact will be listed as the public contact in the TRI database.

4.5 Standard Industrial Classification (SIC) Code

Enter the appropriate 4-digit primary Standard Industrial Classification (SIC) code for your facility (Table I 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 starting with the primary SIC code for the entire facility. You are required to enter SIC codes only for those establishments within the facility that fall within SIC codes 20 to 39. If you do not know your SIC code, check with your financial office or contact your local Chamber of Commerce or State Department of Labor.

4.6 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 determine these coordinates can be found in Appendix E. Enter only numerical data. Do not preface numbers with letters such as N or W to denote the hemisphere.

Latitude and longitude coordinates of your facility are very important for pinpointing the location of reporting facilities and are required elements on the Form R. EPA encourages facilities to make the best possible measurements when determining latitude and longitude. As with any other data field, missing, suspect, or incorrect data may generate a Notice of Technical Error to be issued to the facility. (See Appendix C: Common Errors in Completing Form R Reports).

4.7 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 telephone book White Pages). 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, at (215) 882-7748 (8:30 am to 8:00 pm, Eastern Time). 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 Part I, Section 4.7.

4.8 EPA Identification Number

The EPA I.D. Number is a 12-character 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 4.8.

4.9 NPDES Permit Number

Enter the numbers of any permits your facility holds under the National Pollutant Discharge Elimination System (NPDES) even if the permit(s) do not pertain to the toxic chemical being reported. This 9-character 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 Section 4.9a.

4.10 Underground Injection Well Code (UIC) Identification Number

If your facility has a permit to inject a waste containing the toxic chemical 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 Section 4.10a. You are only required to provide the UIC number for wells that receive the toxic chemical being reported.

Section 5. Parent Company Information

You must provide information on your parent company. For purposes of Form R, a parent company is defined as the highest level company, 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 facility sites. For example, the Bestchem Corporation is not owned or controlled by any other corporation but has sites throughout the country whose names begin with Bestchem. In this case, Bestchem Corporation would be listed as the parent company.

5.1 Name of Parent Company

Enter the name of the corporation or other business entity that is your ultimate US parent company. If your facility has no parent company, check the NA box.

5.2 Parent Company's Dun & Bradstreet Number

Enter the Dun and Bradstreet Number for your ultimate US 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, check the NA box.

Part II Chemical Specific Information

In Part II, you are to report on:

- The toxic chemical being reported;
- The general uses and activities involving the toxic chemical at your facility;
- Releases of the toxic chemical from the facility to air, water, and land;
- Quantities of the toxic chemical transferred to off-site locations;
- Information for on-site and off-site waste treatment, energy recovery, disposal, and recycling of the toxic chemical; and
- Source reduction activities.

Section 1. Toxic Chemical Identity

1.1 CAS Number

Enter the Chemical Abstracts Service (CAS) registry number in Section 1.1 **exactly** as it appears in Table II 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 toxic chemical **categories** in Table II (e.g., chromium compounds), enter the applicable category code in the CAS number space. Toxic chemical category codes are listed below and can also be found in Table II.

Toxic Chemical Category Codes

N010	Antimony compounds
N020	Arsenic compounds
N040	Barium compounds
N050	Berylium compounds
N078	Cadmium compounds
N084	Clorophenols
N090	Chromium compounds
N096	Cobalt compounds
N100	Copper compounds
N106	Cyanide compounds
N230	Glycol ethers
N420	Lead compounds
N450	Manganese compounds
N458	Mercury compounds
N495	Nickel compounds
N575	Polybrominated biphenyls (PBBs)
N725	Selenium compounds
N740	Silver compounds
N760	Thallium compounds
N982	Zinc compounds

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

1.2 Toxic Chemical or Chemical Category Name

Enter the name of the toxic chemical or chemical category exactly as it appears in Table II. If the toxic 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 toxic chemical identity is actually a product trade name (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, such as individual members of a reportable toxic chemical category. For example, if you use silver nitrate, **do not** report silver nitrate with its CAS number. Report this chemical as "silver compounds" with its category code, N740.

If you are making a trade secret claim, you must report the specific toxic chemical identity on your unsanitized Form R and unsanitized substantiation form. Do not report the name of the toxic chemical on your sanitized Form R or sanitized substantiation form. Include a generic name in Part II, Section 1.3 of your sanitized Form R report.

EPA requests that the toxic chemical, chemical category, or generic name also be placed in the box marked "Chemical, Category, or Generic Name" in the upper right-hand corner on all pages of Form R. While this space is not a required data element, providing this information will help you in preparing a complete Form R report.

1.3 Generic Chemical Name

Complete Section 1.3 only if you are claiming the specific toxic chemical identity of the toxic chemical as a trade secret and have marked the trade secret block in Part I, Section 2.1 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 1.3; see Section 2 below.

In-house plant codes and other substitute names that are not structurally descriptive of the toxic 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.

Section 2. Mixture Component Identity

Do not complete this section if you have completed Section 1 of Part II. Report the generic name provided to you by your supplier in this section if your supplier is claiming the chemical identity proprietary or trade secret. Do not answer "yes" in Part I, Section 2.1 on page 1 of the form if you complete this section. You do not need to supply trade secret substantiation forms for this toxic chemical because it is your supplier who is claiming the chemical identity a trade secret.

2.1 Generic Chemical Name Provided by Supplier

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

1. You determine that the mixture contains a listed toxic chemical but the only identity you have for that chemical is a generic name;

2. You know either the specific concentration of that toxic chemical component or a maximum or average concentration level; and

3. You multiply the concentration level by the total annual amount of the whole mixture processed or otherwise used and determine that you meet the process or otherwise use threshold for that single, generically identified mixture component.

Example 6: Mixture Containing Unidentified Toxic Chemical

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 toxic 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 "otherwise use" threshold. You would file a Form R and enter the name "chlorinated aromatic" in the space provided in Part II, Section 2.

Section 3. Activities and Uses of the Toxic Chemical at the Facility

Indicate whether the toxic 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 boxes in this section that apply. If you are a manufacturer of the toxic chemical, you must check (a) and/or (b), and at least one of (c), (d), (e), or (f) in Section 3.1. Refer to the definitions of "manufacture," "process," and "otherwise use" in the general information section of these instructions or Part 40, Section 372.3 of the *Code of Federal Regulations* for additional explanations.

3.1 Manufacture the Toxic Chemical

Persons who manufacture (including import) the toxic chemical must check at least one of the following:

a. *Produce* - the toxic chemical is produced at the facility.

b. *Import* - the toxic chemical is imported by the facility into the Customs Territory of the United States. (See Section B.3.a of these instructions for further clarification of import.)

And check at least one of the following:

c. *For on-site use/processing* - the toxic chemical 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 Part II, Section 3.2 or 3.3.

d. *For sale/distribution* - the toxic chemical is produced or imported specifically for sale or distribution outside the manufacturing facility.

e. *As a byproduct* - the toxic chemical is produced coincidentally during the production, processing, otherwise use, or disposal of another chemical substance or mixture and, following its production, is separated from that other chemical substance or mixture. Toxic chemicals produced and released as a result of waste treatment or disposal are also considered byproducts.

f. *As an impurity* - the toxic chemical is produced coincidentally as a result of the manufacture, processing, or otherwise use of another chemical but is not separated and remains primarily in the mixture or product with that other chemical.

3.2 Process the Toxic Chemical (incorporative activities)

a. *As a reactant* - A natural or synthetic toxic 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 toxic 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 toxic 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 toxic chemical 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* - Processing or preparation of a toxic 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 containers such as cans or bottles.

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

a. *As a chemical processing aid* - A toxic 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 toxic chemicals include, but are not limited to, process solvents, catalysts, inhibitors, initiators, reaction terminators, and solution buffers.

b. *As a manufacturing aid* - A toxic 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, process lubricants, metalworking fluids, coolants, refrigerants, and hydraulic fluids.

c. *Ancillary or other use* - A toxic chemical that is used at a facility for purposes other than aiding chemical processing or manufacturing as described above. Examples include, but are not limited to, cleaners, degreasers, lubricants, fuels, and toxic chemicals used for treating wastes.

Example 7: Activities and Uses of Toxic Chemicals

In the example below, it is assumed that the threshold quantities for manufacture, process, or otherwise use (25,000 pounds, 25,000 pounds, and 10,000 pounds, respectively, for calendar year 1991) have been exceeded and the reporting of listed toxic chemicals is therefore required.

Your facility manufactures sulfuric acid. Fifty percent is sold as a product. The remaining 50 percent is reacted with naphthalene, forming phthalic acid and also producing sulfur dioxide fumes.

- Your company manufactures sulfuric acid, a listed toxic chemical, both for sale/distribution as a commercial product and for on-site use/processing as a feedstock in the phthalic acid production process. Because the sulfuric acid is a reactant, it is also processed. See Figure 3 for how this information would be reported in Part II, Section 3 of Form R.

- Your facility also processes naphthalene, as a reactant to produce phthalic acid, a chemical not on the section 313 list.

Figure 3

SECTION 1. TOXIC CHEMICAL IDENTITY	(Important: DO NOT complete this section if you complete Section 2 below.)
1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
	7664-93-9
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
	Sulfuric Acid
1.3	Generic Chemical Name (Important: Complete **only** if Part I, Section 2.1 is checked "yes." Generic Name must be structurally descriptive.)

SECTION 2. MIXTURE COMPONENT IDENTITY	(Important: DO NOT complete this section if you complete Section 1 above.)
2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY
(Important: Check all that apply.)

3.1	Manufacture the toxic chemical:	a. ☑ Produce b. ☐ Import	If produce or import: c. ☑ For on-site use/processing d. ☐ For sale/distribution e. ☐ As a byproduct f. ☐ As an impurity
3.2	Process the toxic chemical:	a. ☑ As a reactant b. ☐ As a formulation component	c. ☐ As an article component d. ☐ Repackaging
3.3	Otherwise use the toxic chemical:	a. ☐ As a chemical processing aid b. ☐ As a manufacturing aid	c. ☐ Ancillary or other use

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

For data element 4.1 of Part II, insert the code (see below) that indicates the maximum quantity of the toxic chemical (e.g., in storage tanks, process vessels, on-site shipping containers) at your facility at any time during the calendar year. If the toxic chemical was present at several locations within your facility, use the maximum **total** amount present at the entire facility at any one time.

Weight Range in Pounds

Range Code	From...	To....
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 toxic chemical present at the facility by calculating the weight percent of the toxic chemical only.

Do not include the weight of the entire mixture or trade name product. This data may be found in the Tier II form your facility may have prepared under Section 312 of EPCRA. See Part 40, Section 372.30(b) of the *Code of Federal Regulations* for further information on how to calculate the weight of the toxic chemical in the mixture or trade name product. For toxic chemical categories (e.g., nickel compounds), include all chemical compounds in the category when calculating the maximum amount, using the entire weight of each compound.

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

In Section 5, you must account for the total aggregate releases of the toxic chemical to the environment from your facility for the calendar year.

Do not enter the values in Section 5 in gallons, tons, liters, or any measure other than pounds. You must also enter the values as whole numbers. Numbers following a decimal point are not acceptable.

Releases to the environment include emissions to the air, discharges to surface waters, and on-site releases to land and underground injection wells. If you have no releases to a particular media (e.g., stack air), you must check the "NA" box or enter zero; **do not** leave any part of Section 5 blank. Check the box on the last line of this section if you use the additional space for Section 5.3 on page 5 of the Form.

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 toxic chemical from a product. For example, amounts of a listed toxic chemical that migrate from plastic products in storage do not have to be counted in estimates of releases of that toxic 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 releases of the toxic chemical to the air must be classified as either a point or non-point emission, and included in the total quantity reported for these releases in Sections 5.1 and 5.2. 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

Report the total of all releases of the toxic chemical 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 and spills; (3) releases from building ventilation systems; and (4) any other fugitive or non-point air emissions. Engineering estimates and mass balance calculations (using purchase records, inventories, engineering knowledge or process specifications of the quantity of the toxic chemical entering product, hazardous waste manifests, or monitoring records) may be useful in estimating fugitive emissions.

5.2 Stack or Point Air Emissions

Report the total of all releases of the toxic chemical 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. Monitoring data, engineering estimates, and mass balance calculations may help you to complete this section.

5.3 Discharges to Receiving Streams or Water Bodies

In Section 5.3 you are to enter the name(s) of the stream(s) or water body(ies) to which your facility directly discharges the toxic chemical on which you are reporting. A total of three spaces are provided; however, other streams or water bodies to which the toxic chemical is discharged can be reported in the additional spaces for Section 5.3 found on page 5 of Form R. Enter the name of each receiving stream or surface water body to which the toxic 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 the stream is not covered by a permit, enter the name of the off-site stream or water body by which it is publicly known. Do not list a series of streams through which the toxic chemical flows. 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. Enter "NA" in Section 5.3.1. if you do not discharge the listed toxic chemical to surface water bodies.

Enter the total annual amount of the toxic 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 II, Section 6 of Form R.

Wastewater analyses and flowmeter data may provide the quantities you will need to complete this section.

Discharges of listed acids (e.g., hydrogen fluoride; hydrogen chloride; nitric acid; phosphoric acid; and sulfuric acid) may be reported as zero if the discharges have been neutralized to pH 6 or above. If wastewater containing a listed mineral acid is discharged below pH 6, then releases of the mineral acid must be reported. In this case, pH measurements may be used to estimate the amount of mineral acid released.

If you must report more than three discharges to receiving streams or water bodies, check the box at the bottom of page 4 and enter the additional information on the following page, in Section 5.3, Additional Information on Releases of the Toxic Chemical to the Environment On-Site. In Section 5.3 on page 5, blanks in the data elements are provided so you may continue the numeration you began on page 4.

5.4 Underground Injection On-Site

Enter the total annual amount of the toxic chemical that was injected into all wells, including Class I wells, at the facility. Chemical analyses, injection rate meters, and RCRA Hazardous Waste Generators Reports are good sources for obtaining data that will be useful in completing this section. Check the Not Applicable "NA" box in Section 5.4 if you do not inject the reported toxic chemical into underground wells.

5.5 Releases to Land On-Site

Four predefined subcategories for reporting quantities released to land within the boundaries of the facility are provided. Do not report land disposal at off-site locations in this section. Accident histories and spill records may be useful (e.g., release notification reports required under Section 304 of EPCRA and accident histories required under Section 112(r)(7)(B)(ii) of the Clean Air Act).

5.5.1 Landfill — Typically, the ultimate disposal method for solid wastes is landfilling. Leaks from landfills need not be reported as a release because the amount of the toxic chemical in the landfill has already been reported as a release.

5.5.2 Land treatment/application farming — Land treatment is a disposal method in which a waste containing a listed toxic chemical is applied onto or incorporated into soil. While this disposal method is considered a release to land, any volatilization of listed toxic chemicals into the air occurring during the disposal operation must be included in the total fugitive air releases reported in Part II, Section 5.1 of Form R.

5.5.3 Surface impoundment — A surface impoundment is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials

(although some may be lined with man-made materials), which is designed to hold an accumulation of liquid wastes or wastes containing free liquids. Examples of surface impoundments are holding, settling, storage, and elevation pits; ponds; and lagoons. If the pit, pond, or lagoon is intended for storage or holding without discharge, it would be considered to be a surface impoundment used as a final disposal method.

Quantities of the toxic chemical released to surface impoundments that are used merely as part of a wastewater treatment process generally must not be reported in this section. However, if the impoundment accumulates sludges containing the toxic chemical, you must include an estimate in this section unless the sludges are removed and otherwise disposed (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 Form R.

5.5.4 Other disposal — Includes any amount of a listed toxic chemical released to land that does not fit the categories of landfills, land treatment, or surface impoundment. This other disposal would include any spills or leaks of listed toxic chemicals to land. For example, 2,000 pounds of benzene leaks from a underground pipeline into the land at a facility. Because the pipe was only a few feet from the surface at the erupt point, 30 percent of the benzene evaporates into the air. The 600 pounds released to the air would be reported as a fugitive air release (Part II, Section 5.1) and the remaining 1,400 pounds would be reported as a release to land, other disposal (Part II, Section 5.5.4).

5.Column 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 Form R. The total releases from your facility **do not** include transfers or shipments of the toxic chemical from your facility for sale or distribution in commerce, or of wastes to other facilities for waste treatment, recycling, disposal, or energy recovery (see Part II, Section 6 of these Instructions). 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. EPA requires no more than two significant digits when reporting releases (e.g., 7,521 pounds would be reported as 7,500 pounds).

Releases of Less Than 1,000 Pounds. For total annual releases or off-site transfers of a toxic chemical from the facility of less than 1,000 pounds, the amount may be reported either as an estimate or by using the range codes that have been developed. The reporting range codes to be used are:

Code	Range (pounds)
A	1-10
B	11-499
C	500-999

Do not enter a range code and an estimate in the same box in column A. 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. You should round the value to the nearest pound. If the estimate is 0.5 pounds or greater, you should either enter the range code "A" for "1-10" or enter "1" in column A. If the release is less than 0.5 pounds, you may round to zero and enter "0" in column A.

Note that total annual releases of less than 0.5 pounds from the processing or otherwise use of an article maintain the article status of that item. Thus, if the only releases you have are from processing an article, and such releases are less than 0.5 pounds per year, you are not required to submit a report for that toxic chemical. The 0.5-pound release determination does not apply to just a single article. It applies to the cumulative releases from the processing or otherwise use of the same type of article (e.g., sheet metal or plastic film) that occurs over the course of the calendar year.

Zero Releases. If you have no releases of a toxic chemical to a particular medium, report either NA, not applicable, or 0, as appropriate. Report NA only when there is no possibility a release could have occurred to a specific media or off-site location. If a release to a specific media or off-site location could have occurred, but either did not occur or the annual aggregate release was less than 0.5 pounds, report zero. However, if you report zero releases, a basis of estimate must be provided in column B.

For example, if hydrochloric acid is involved in the facility's processing activities but the facility neutralizes the wastes to a pH of 6 or above, then the facility reports a 0 release for the toxic chemical. If the facility has no underground injection well, "NA" would be written in Part I, Section 4.10 and checked in Part II, Section 5.4 of Form R. Also, if the facility does not landfill the acidic waste, NA would be checked in Part II, Section 5.5.1 of Form R.

Releases of 1,000 Pounds or More. 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. Any estimate provided in column A should be reported to no more than two significant figures. This estimate should be in whole numbers. Do not use decimal points.

Calculating Releases. To provide the release information required in column A in this section, you must use all readily available data (including relevant monitoring data and emissions measurements) collected at your facility to meet other regulatory requirements 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, beyond that which is required under other provisions of law or regulation or as part of routine plant operations, is required for the purpose of completing Form R.

You must estimate, as accurately as possible, the quantity (in pounds) of the toxic chemical or chemical category that is released annually to each environmental medium. Include only the quantity of the toxic chemical 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 toxic chemical, not 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 Part 40, Section 372.30(b) of the *Code of Federal Regulations* for further information on how to calculate the concentration and weight of the toxic chemical in the mixture or trade name product.

If you are reporting a toxic chemical category listed in Table II of these instructions rather than a specific toxic chemical, you must combine the release data for all chemicals in the listed toxic chemical category (e.g., all glycol ethers or all chlorophenols) and report the aggregate amount for that toxic chemical category. Do not report releases of each individual toxic 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 to air as fugitive emissions, you should report that your facility releases 11,000 pounds per year of chlorophenols to air as fugitive emissions in Part II, Section 5.1.

For listed toxic chemicals with the qualifier "solution," such as ammonium nitrate, 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 toxic 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 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.

5.Column B Basis of Estimate

For each release estimate, you are required to indicate the principal method used to determine the amount of release reported. You will enter a letter code that identifies the method that applies to the largest portion of the total estimated release quantity.

The codes are as follows:

M- Estimate is based on monitoring data or measurements for the toxic chemical as transferred to an off-site facility.

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

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

Example 8: Calculating Releases and Transfers

Your facility disposes of 14,000 pounds of lead chromate (PbCrO4.PbO) in an on-site landfill and transfers 16,000 pounds of lead selenite (PbSeO4) to an off-site land disposal facility. You would therefore be submitting three separate reports on the following: lead 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 waste treatment or disposal codes and information on transfers of toxic chemicals in wastes). You would calculate releases of lead, chromium, and selenium by first determining the percentage by weight of these metals in the materials you use as follows:

Lead Chromate (PbCrO4.PbO) -	Molecular weight	=	546.37
Lead 2 Pb -	Molecular weight	=	207.2 x 2 = 414.4
Chromium 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

Lead Selenite (PbSeO4)	Molecular weight	=	350.17
Lead 1 Pb	Molecular weight	=	207.2
Selenium 1 Se	Molecular weight	=	78.96

Lead selenite is therefore (% by weight)

(207.2/350.17) = 59.17% lead and
(78.96/350.17) = 22.55% selenium.

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

Lead

Release: 0.7585 x 14,000 = 10,619 pounds from lead chromate (round to 11,000 pounds)

Transfer: 0.5917 x 16,000 = 9,467 pounds from lead selenite (round to 9,500 pounds)

Chromium

Release: 0.0952 x 14,000 = 1,333 pounds from lead chromate (round to 1,300 pounds)

Selenium

Transfer: 0.2255 x 16,000 = 3,608 pounds of selenium from lead round to 3,600 pounds)

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 treatment, even if the composition of the waste before treatment was fully identified through monitoring data.

For example, if 40 percent of stack emissions of the reported toxic chemical 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.

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 best engineering judgment.

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

If the concentration of the toxic chemical in the waste was measured by monitoring equipment and the flow rate of the waste was determined by mass balance, then the primary basis of the 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.

Mass balance (C) should only be indicated if it is directly used to calculate the mass (weight) of toxic chemical released. Monitoring data should be indicated as the basis of estimate only if the toxic chemical concentration is measured in the waste being released into the environment. Monitoring data should not be indicated, for example, if the monitoring data relates to a concentration of the toxic chemical in other process streams within the facility.

It is important to realize that the accuracy and proficiency of release estimation will improve over time. However, submitters are not required to use new emission factors or estimation techniques to revise previous Form R submissions.

5.Column 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 toxic chemical in stormwater runoff (including unchanneled runoff), you must include that quantity of the toxic chemical in your water release in column A and indicate the percentage of the total quantity (by weight) of the toxic chemical contributed by stormwater in column C (Section 5.3C).

If your facility has monitoring data on the toxic 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 toxic 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.

If your facility does not have periodic measurements of stormwater releases of the toxic 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 seep 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.)

Description of Land Area	Runoff Coefficient
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

Example 9: Releases from Stormwater

Your 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 gallons stormwater) x (3.785 liters/gallon) = 28,489,695 liters stormwater

(28,489,695 liters stormwater) x (1.4 mg. zinc/liter) = 39,885.6 grams zinc = 88 pounds zinc

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

250 pounds zinc from wastewater discharge
+ 88 pounds zinc from stormwater runoff
338 pounds zinc total water discharge

Round to 340 pounds of zinc on Form R.

The percentage of zinc discharged through stormwater is:

88/338 x 100 = 26%

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:

Weighted-average runoff coefficient =
(Area 1 % of total)(C1) + (Area 2 % of total)(C2) +
(Area 3 % of total)(C3) + ... + (Area i % of total)(Ci)

where Ci = runoff coefficient for a specific land use of Area i.

Section 6 Transfers of the Toxic Chemical in Wastes to Off-Site Locations

You must report in this section the total annual quantity of the toxic chemical in wastes sent to any off-site facility for the purposes of waste treatment, disposal, recycling, or energy recovery. **Note that beginning with reporting year 1991, off-site transfers for the purposes of recycling and energy recovery are required to be reported.** Report the total amount of the toxic chemical transferred off-site after any on-site waste treatment, recycling, or removal is completed. Report zero for transfers of listed mineral acids if they have been neutralized to a pH of 6 or above prior to discharge to a Publicly Owned Treatment Works (POTW).

If you do not discharge wastewater containing the reported toxic chemical to a POTW, enter not applicable, NA, in the box for the POTW's name in Section 6.1.B._. If you do not ship or transfer wastes containing the reported toxic chemical to other off-site locations, enter not applicable, NA, in the box for the off-site location's EPA Identification Number in Section 6.2._.

Important: Beginning with the 1991 reporting year, you must number the boxes for reporting the information for each POTW or other off-site location in Sections 6.1 and 6.2. In the upper left hand corner of each box, the section number is either 6.1.B._ or 6.2._.

If you report a transfer of the listed toxic chemical to one or more POTW, number the boxes in Section 6.1.B as 6.1.B.1, 6.1.B.2, etc. If you transfer the listed toxic chemical to more than two POTWs, photocopy page 5 of Form R as many times as necessary and then number the boxes consecutively for each POTW. At the bottom of page 5 you will find instructions for indicating the total number of page 5s that you are submitting as part of Form R, as well as indicating the sequence of those pages. For

Example 10: Stormwater Runoff

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 total 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:

Land Use	% Total Area	Runoff Coefficient
Unimproved area	50	0.20
Asphaltic streets	10	0.85
Concrete pavement	40	0.90

Weighted-average runoff coefficient = (50%) x (0.20) + (10%) x (0.85) + (40%) x (0.90) = 0.545

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

(1 foot) x (1,829,520 ft^2) x (7.48 gal/ft^3) x (0.545) = 7,458,221 gallons/year

Total stormwater runoff = 7.45 million gallons/year

example, your facility transfers the reported toxic chemical in wastewaters to three POTWs. You would photocopy page 5 once, indicate at the bottom of each page 5 that there are a total of two page 5s and then indicate the first and second page 5. The boxes for the two POTWs on the first page 5 would be numbered 6.1.B.1 and 6.1.B.2, while the box for the third POTW on the second page 5 would be numbered 6.1.B.3.

If you report a transfer of the listed toxic chemical to one or more other off-site locations, number the boxes in Section 6.2 as 6.2.1, 6.2.2, etc. If you transfer the listed toxic chemical to more than two other off-site locations, photocopy page 6 of Form R as many times as necessary and then number the boxes consecutively for each off-site location. At the bottom of page 6 you will find instructions for indicating the total number of page 6s that you are submitting as part of Form R as well as indicating the sequence of those pages. For example, your facility transfers the reported toxic chemical to three other off-site locations. You would photocopy page 6 once, indicate at the bottom of each page 6 that there are a total of two page 6s and then indicate the first and second page 6. The boxes for the two off-site locations on the first page 6 would be numbered 6.2.1 and 6.2.2, while the box for the third off-site location on the second page 6 would be numbered 6.2.3.

6.1 Discharges to Publicly Owned Treatment Works (POTW)

In Section 6.1.A, estimate the quantity of the reported toxic chemical transferred to all POTWs and the basis upon which the estimate was made. In Section 6.1.B, enter the name and address for each POTW to which your facility discharges wastewater containing the reported toxic chemical.

If you do not discharge wastewater containing the reported toxic chemical to a POTW, enter not applicable, NA, in the box for the POTW's name in Section 6.1.B._.

6.1.A.1 Total Transfers

Enter the total amount, in pounds, of the reported toxic chemical that is contained in the wastewaters transferred to all POTWs. Do not enter the total poundage of the wastewaters. If the total amount transferred is less than 1,000 pounds, you may report a range by entering the appropriate range code. The following reporting range codes are to be used:

Code	Reporting Range (in pounds)
A	1-10
B	11-499
C	500-99

6.1.A.2 Basis of Estimate

You must identify the basis for your estimate of the total quantity of the reported toxic chemical in the wastewaters transferred to all POTWs. Enter one of the following letter codes that applies to the method by which the largest percentage of the estimate was derived.

M- Estimate is based on monitoring data or measurements for the toxic chemical as transferred to an 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 throughput 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 identified through monitoring data.

If you transfer a toxic chemical to more than one POTW, you should report the basis of estimate that was used to determine the largest percentage of the toxic chemical that was transferred.

6.2 Transfers to Other Off-Site Locations

In Section 6.2, enter the EPA Identification Number, name, and address for each off-site location to which your facility ships or transfers wastes containing the reported toxic chemical for the purposes of waste treatment, disposal, recycling, or energy recovery. Also estimate the quantity of the reported toxic chemical transferred and the basis upon which the estimate was made. If appropriate, you must report multiple activities (up to four) for each off-site location. For example, if your facility sends a reported toxic chemical in wastes to an off-site location where some of the toxic chemical is to be recycled while the remainder of the quantity transferred is to be treated, you must report both the waste treatment and recycle activities, along with the quantity associated with each activity.

If you do not ship or transfer wastes containing the reported toxic chemical to other off-site locations, enter not applicable, NA, in the box for the off-site location's EPA Identification Number in Section 6.2._. The EPA Identification Number (defined in 40 CFR 260.10 and therefore commonly referred to as the RCRA ID Number) may be found on the Uniform Hazardous Waste Manifest, which is required by RCRA regulations. If you ship or transfer wastes containing a toxic chemical and the off-site location does not have an EPA Identification Number (e.g., it does not accept RCRA hazardous wastes or the wastes in question are not classified as hazardous), enter NA in the box for the off-site location EPA Identification Number. If you ship or transfer the reported toxic chemical in wastes to another country, enter the Federal Information Processing Standards (FIPS) code for that country in the county field of the address for the off-site facility. The most commonly used FIPS codes are listed below.

The following is an abridged list of countires to which a U.S. facility might ship a listed toxic chemical. For a complete listing of FIPS codes, consult your local library.

Country	Code
Argentina	AR
Belgium	BE
Bolivia	BL
Brazil	BR
Canada	CA
Chile	CI
Columbia	CO
Costa Rica	CS
Cuba	CU
Ecuador	EC
El Salvador	ES
France	FR
Guatemala	GT
Honduras	HO
Ireland	EI
Italy	IT
Mexico	MX
Nicaragua	NU
Panama	PM
Paraguay	PA
Peru	PE

Country	Code
Portugal	PO
Spain	SP
Switzerland	SZ
United Kingdom	UK
Uruguay	UY
Venezuela	VE

You must distinguish between incineration, which is always considered waste treatment, and combustion where energy is actually recovered. When the reported toxic chemical has a significant heat of combustion value, and is transferred to an off-site location for combustion in an industrial kiln, furnace, or boiler, report the quantity as used for the purposes of energy recovery. However, toxic chemicals with little or no heat of combustion value (e.g., metals, chlorofluorocarbons) must be reported as treated.

6.2 column A Total Transfers

For each off-site location, enter the total amount, in pounds, of the toxic chemical that is contained in the waste transferred to that location. Do not enter the total poundage of the waste. If the total amount transferred is less than 1,000 pounds, you may report a range by entering the appropriate range code. The following reporting range codes are to be used:

Code	Reporting Range (in pounds)
A	1-10
B	11-499
C	500-999

If you transfer the toxic chemical in wastes to an off-site facility for distinct and multiple purposes, you must report those activities (up to four) for each off-site location, along with the quantity of the reported toxic chemical associated with each activity. For example, your facility transfers a total of 15,000 pounds of toluene to an off-site location that will use 5,000 pounds for the purposes of energy recovery, enter 7,500 pounds into a recovery process, and dispose of the remaining 2,500 pounds. These quantities and the associated activity codes must be reported separately in Section 6.2. (See Figure 4 for a hypothetical Section 6.2 completed for two off-site locations, one of which receives the transfer of 15,000 pounds of toluene as detailed.) If more than four activities are performed on distinct quantities at the off-site location, list the predominant four activities but still report all quantities sent to the off-site location.

Do not double or multiple count amounts transferred off-site. For example, when a reported toxic chemical is sent to an off-site facility for sequential activities and the specific quantities associated with each activity are unknown, report only a single quantity (the total quantity transferred to the off-site location) along with a single activity code. In such a case, report the activity applied to the majority of the reported toxic chemical sent off-site, not the ultimate disposition of the toxic chemical. For example, when a toxic chemical is first treated and then recovered with the majority of the toxic chemical being treated and only a fraction subsequently recovered, report the appropriate waste treatment activity along with the quantity.

6.2 column B Basis of Estimate

You must identify the basis for your estimates of the quantities of the reported toxic chemical in wastes transferred to each off-site location. Enter one of the following letter codes that applies to the method by which the largest percentage of the estimate was derived.

M - Estimate is based on monitoring data or measurements for the toxic chemical as transferred to an off-site facility.

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

E - Estimate is based on published emission factors, such as those relating release quantity to throughput 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 treatment, even if the composition of the waste before treatment was fully identified through monitoring data.

6.2 column C Type of Waste Treatment/Disposal/ Recycling/Energy Recovery

Enter one of the following codes to identify the type of waste treatment, disposal, recycling or energy recovery methods used by the off-site location for the reported toxic chemical. You must use more than one line and

Figure 4
Hypothetical Section 6.2 Completed for Two Off-site Locations

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS			
6.2. 1 Off-site EPA Identification Number (RCRA ID No.)	COD566162461		
Off-Site Location Name	Acme Waste Services		
Street Address	5 Market Street		
City	Releaseville	County	Hill
State CO	Zip Code 80461	Is location under control of reporting facility or parent company?	☐ Yes ☒ No
A. Total Transfers (pounds/year) (enter range code or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)	
1. 5,000	1. O	1. M56	
2. 7,500	2. C	2. M20	
3. 2,500	3. O	3. M72	
4. NA	4.	4. M	

This off-site location receives a transfer of 15,000 pounds of toluene (as discussed earlier) and will combust 5,000 pounds for the purposes of energy recovery, enter 7,500 pounds into a recovery process, and dispose of the remaining 2,500 pounds.

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS			
6.2. 2 Off-site EPA Identification Number (RCRA ID No.)	COD61772543		
Off-Site Location Name	Combustion, Inc.		
Street Address	25 Facility Road		
City	Dumfry	County	Burns
State CO	Zip Code 80500	Is location under control of reporting facility or parent company?	☐ Yes ☒ No
A. Total Transfers (pounds/year) (enter range code or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)	
1. 12,500	1. O	1. M54	
2. NA	2.	2. M	
3.	3.	3. M	
4.	4.	4. M	

This off-site location receives a transfer of 12,500 pounds of tetrachloroethylene (perchloroethylene) that is part of a waste that is combusted for the purposes of energy recovery in an industrial furnace. Note that the perchloroethylene is reported using code M54 to indicate that it is combusted in an energy recovery unit but it does not contribute to the heating value of the waste.

code for a single location when distinct quantities of the reported toxic chemical are subject to different waste treatment, disposal, recycling, or energy recovery methods. 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), or in your invoices from the waste service(s) or broker(s) receiving your wastes for the purposes of waste treatment, disposal, recycling, or energy recovery.

You must distinguish between incineration, which is waste treatment, and legitimate energy recovery. In order for you to claim that a reported toxic chemical sent off-site is used for the purposes of energy recovery and not for waste treatment, the toxic chemical must have a heating value high enough to sustain combustion and must be combusted in an energy recovery unit such as an industrial boiler, furnace, or kiln. In a situation where the reported toxic chemical is in a waste that is combusted in an energy recovery unit, but the toxic chemical does not have a heating value high enough to sustain combustion, use code M54, Incineration/Insignificant Fuel Value, to indicate that the toxic chemical was incinerated in an energy recovery unit but did not contribute to the heating value of the waste (see Figure 4 for an example).

Applicable codes for Part II, Section 6.2, column C are:

Disposal
M10 Storage Only
M71 Underground Injection
M72 Landfill/Disposal Surface Impoundment
M73 Land Treatment
M79 Other Land Disposal
M90 Other Off-Site Management
M94 Transfer to Waste Broker—Disposal
M99 Unknown

Recycling
M20 Solvents/Organics Recovery
M24 Metals Recovery
M26 Other Reuse or Recovery
M28 Acid Regeneration
M93 Transfer to Waste Broker—Recycling

Waste Treatment
M40 Solidification/Stabilization
M50 Incineration/Thermal Treatment
M54 Incineration/Insignificant Fuel Value
M61 Wastewater Treatment (Excluding POTW)
M69 Other Waste Treatment
M95 Transfer to Waste Broker—Waste Treatment

Energy Recovery
M56 Energy Recovery
M92 Transfer to Waste Broker—Energy Recovery

Section 7 On-Site Waste Treatment, Energy Recovery and Recycling Methods

You must report in this section the methods of waste treatment, energy recovery, and recycling applied to the reported toxic chemical in wastes on-site. There are three separate sections for reporting such activities.

Section 7A On-Site Waste Treatment Methods and Efficiency

In Section 7A, you must provide the following information if you treat the reported toxic chemical on-site:

(a) the general waste stream types containing the toxic chemical being reported;
(b) the waste treatment method(s) or sequence used on all waste streams containing the toxic chemical;
(c) the range of concentration of the toxic chemical in the influent to the waste treatment method;
(d) the efficiency of each waste treatment method or waste treatment sequence in removing the toxic chemical; and
(e) whether the waste treatment efficiency figure was based on actual operating data.

Use a separate line in Section 7A for each general waste stream type. Report only information about treatment of waste streams at your facility, not information about off-site waste treatment.

If you do not perform on-site treatment of waste streams containing the reported toxic chemical, check the Not Applicable (NA) box at the top of Section 7A.

7A column a General Waste Stream

For each waste treatment method, indicate the type of waste stream containing the toxic 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 streams (non-aqueous waste)
S Solid waste streams (including sludges and slurries)

If a waste is a mixture of water and organic liquid and the organic content is less than 50 percent, report it as a wastewater (W). 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.

7A column b Waste Treatment Method(s) Sequence

Enter the appropriate code from the list below for each on-site waste treatment method used on a waste stream containing the toxic chemical, regardless of whether the waste treatment method actually removes the specific toxic chemical being reported. Waste treatment methods must be reported for each type of waste stream being treated (i.e., gaseous waste streams, aqueous waste streams, liquid non-aqueous waste streams, and solids). Except for the air emission treatment codes, the waste treatment codes are not restricted to any medium.

Waste streams containing the toxic 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 waste treatment. Report waste treatment methods that apply to the aggregate waste stream, as well as waste treatment methods that apply to individual waste streams. If your facility treats various wastewater streams containing the toxic chemical in different ways, the different waste treatment methods must be listed separately.

If your facility has several pieces of equipment performing a similar service in a waste treatment sequence, you may combine the reporting for such equipment. It is not necessary to enter four codes to cover four scrubber units, for example, if all four are treating waste streams of similar character (e.g., sulfuric acid mist emissions), have similar influent concentrations, and have similar removal efficiencies. If, however, any of these parameters differs from one unit to the next, each scrubber must be listed separately.

If your facility performs more than eight sequential waste treatment methods on a single general waste stream, continue listing the methods in the next row and renumber appropriately those waste treatment method code boxes you used to continue the sequence. For example, if the general waste stream in box 7A.1a had nine treatment methods applied to it, the ninth method would be indicated in the first method box for row 7A.2a. The numeral "1" would be crossed out, and a "9" would be inserted. Treatment applied to any other general waste stream types would then be listed in the next empty row. In the scenario above, for instance, the second general waste stream would be reported in row 7A.3a. See Figure 5 below for an example of a hypothetical Section 7A completed for a nine-step waste treatment process and a single waste treatment method.

If you need additional space to report under Section 7A, photocopy page 7 of Form R as many times as necessary. At the bottom of page 7 you will find instructions for indicating the total number of page 7s that you are submitting as part of Form R, as well as instructions for indicating the sequence of those pages.

Waste Treatment Codes

Air Emissions Treatment (applicable to gaseous waste streams only)

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

Figure 5
Hypothetical Section 7A

SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY

☐ **Not Applicable (NA) - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.**

a. General Waste Stream (enter code)	b. Waste Treatment Method(s) Sequence [enter 3-character code(s)]	c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data?
7A.1a	7A.1b 1 P12 2 P18	7A.1c	7A.1d	7A.1e
W	3 P17 4 P61 5 P42	NA	%	Yes ☐ No ☐
	6 P21 7 B21 8 P11			
7A.2a	7A.2b 1 C44 2 NA	7A.2c	7A.2d	7A.2e
	3 4 5	1	99 %	Yes ☒ No ☐
	6 7 8			
7A.3a	7A.3b 1 A01 2 NA	7A.3c	7A.3d	7A.3e
A	3 4 5	1	91 %	Yes ☒ No ☐
	6 7 8			

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

Solidification/Stabilization

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

7A column 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 waste treatment step or sequence. The concentration is based on the amount or mass of the toxic chemical in the waste stream as compared to the total amount or mass of the waste stream. Enter in the space provided one of the following code numbers corresponding to the concentration of the toxic 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:

- o milligrams/kilogram (mass/mass) for solids and liquids;
- o cubic centimeters/cubic meter (volume/volume) for gases;
- o milligrams/liter for solutions or dispersions of the chemical in water; and
- o 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. These conversion factors are for standard conditions of 0°C (32°F) and 760 mmHg atmospheric pressure.

7A column d Waste 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 waste treatment efficiency (expressed as percent removal) represents the percentage of the toxic chemical destroyed or removed (based on amount or mass), not merely changes in volume or concentration of the toxic chemical in the waste stream. The efficiency, which can reflect the overall removal from sequential treatment methods applied to the general waste stream, refers only to the percent destruction, degradation, conversion, or removal of the listed toxic chemical from the waste stream, not the percent conversion or removal of other constituents in the waste stream. The efficiency also does not refer to the general efficiency of the treatment method for any waste stream. For some waste treatment methods, the percent removal will represent removal by several mechanisms, as in an aeration basin, where a toxic chemical may evaporate, be biodegraded, or be physically removed from the sludge.

Percent removal can be calculated as follows:

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

I = amount of the toxic chemical in the influent waste stream (entering the waste treatment step or sequence) and
E = amount of the toxic chemical in the effluent waste stream (exiting the waste treatment step or sequence).

Calculate the amount of the toxic chemical in the influent waste stream by multiplying the concentration (by weight) of the toxic chemical in the waste stream by the total amount or weight of the waste stream. In most cases, the percent removal compares the treated effluent to the influent for the particular type of waste stream. For solidification of wastewater, the waste treatment efficiency can be reported as 100 percent if no volatile toxic chemicals were removed with the water or evaporated into the air. Percent removal does not apply to incineration because the waste stream, such as wastewater or liquids, may not exist in a comparable form after waste treatment and the purpose of incineration as a waste treatment is to destroy the toxic chemical by converting it to carbon dioxide and water. In cases where the toxic chemical is incinerated, the percent efficiency must be based on the amount of the toxic chemical destroyed or combusted, except for metals or metal compounds. In the cases where a metal or metal compound is incinerated, the efficiency is always zero for the parent metal.

Similarly, an efficiency of zero must be reported for any waste treatment method(s) (e.g., evaporation) that does not destroy, chemically convert, or physically remove the toxic chemical from the waste stream.

For metal compounds, the calculation of the reportable concentration and waste treatment efficiency must be 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 waste treatment efficiency reported must represent only physical removal of the parent metal from the waste stream (except for incineration), not the percent chemical conversion of the metal compound. If a listed waste treatment method converts but does not remove a metal (e.g., chromium reduction), the method must be reported with a waste treatment efficiency of zero.

Listed toxic chemicals that are strong mineral acids neutralized to a pH of 6 or above are considered treated at a 100 percent efficiency.

All data available at your facility must be used to calculate waste treatment efficiency and influent toxic chemical concentration. If data are lacking, estimates must be made using best engineering judgment or other methods.

7A column e Based on Operating Data?

This column requires you to indicate "Yes" or "No" to whether the waste 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.

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."

Section 7B On-Site Energy Recovery Processes

In Section 7B, you must indicate the on-site energy recovery methods used on the reported toxic chemical. If you do not perform on-site energy recovery for the reported toxic chemical, check the Not Applicable (NA) box at the top of Section 7B.

Example 11: Reporting On-Site Energy Recovery

One waste stream generated by your facility contains, among other chemicals, toluene and cadmium. Threshold quantities are exceeded for both of these toxic chemicals, and you would, therefore, submit two separate Form R reports. This waste stream is sent to an on-site industrial furnace which uses the heat generated in a thermal hydrocarbon cracking process at your facility. Because toluene has a significant heat value (17,440 BTU/pound) and the energy is recovered in an industrial furnace, the code "U02" would be reported in Section 7B for the Form R submitted for toluene.

However, as cadmium is a non-combustible metal and therefore does not contribute any heat value for energy recovery purposes, the combustion of cadmium in the industrial furnace is considered waste treatment, not energy recovery. You would report cadmium as entering a waste treatment step (i.e., incineration), in Section 7A, column b.

Only listed toxic chemicals that have a significant heating value and are combusted in an energy recovery unit such as an industrial furnace, kiln, or boiler, can be reported as combusted for energy recovery in this section. If a reported toxic chemical is incinerated on-site but does not contribute energy to the process (e.g., metals and chlorofluorocarbons), it must be considered waste treated on-site and reported in Section 7A. Energy recovery may take place only in one of the types of energy recovery equipment listed below.

Energy Recovery Codes

U01	Industrial Kiln
U02	Industrial Furnace
U03	Industrial Boiler
U09	Other Energy Recovery Methods

If your facility uses more than one on-site energy recovery method for the reported toxic chemical, list the methods used in descending order (greatest to least) based on the amount of the toxic chemical entering such methods.

Section 7C On-Site Recycling Processes

In Section 7C, you must report the recycling methods used on the listed toxic chemical. If you do not conduct any on-site recycling of the reported toxic chemical, check the Not Applicable (NA) box at the top of Section 7C.

In this section, use the codes below to report only the recycling methods in place at your facility that are applied to the listed toxic chemical. Do not list any off-site recycling activities (Information about off-site recycling must be reported in Part II, Section 6, "Transfers of the Toxic Chemical in Wastes to Off-Site Locations,").

On-Site Recycling Codes

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
R27	Metals Recovery — High Temperature
R28	Metals Recovery — Retorting
R29	Metals Recovery — Secondary Smelting
R30	Metals Recovery — Other
R40	Acid Regeneration
R99	Other Reuse or Recovery

If your facility uses more than one on-site recycling method for a toxic chemical, enter the codes in the space provided in descending order (greatest to least) of the volume of the reported toxic chemical recovered by each process. If your facility uses more than ten separate methods for recycling the reported toxic chemical on-site, then list the ten activities that recover the greatest amount of the toxic chemical (again, in descending order).

Section 8 Source Reduction and Recycling Activities

This Section includes the data elements mandated by section 6607 of the Pollution Prevention Act of 1990 (PPA). Section 8 is a required section of Form R and must be completed.

In Section 8, you must provide information about source reduction and recycling activities related to the toxic chemical for which releases are being reported. For all appropriate questions, report only the quantity, in pounds, of the reported toxic chemical. Do not include the weight of water, soil, or other waste constituents. When reporting on a metal compound, report only the amount of the parent metal as you do when estimating release amounts. All amounts must be reported in whole numbers and up to two significant figures can be provided.

Section 8.1 through 8.9 must be completed for each toxic chemical. Section 8.10 must be completed only if a source reduction activity was newly implemented specifically (in whole or in part) for the reported toxic chemical during the reporting year. Section 8.11 allows you to indicate if you have attached additional optional information on source reduction, recycling, or pollution control activities implemented at any time at your facility.

Sections 8.1 through 8.7 require reporting of quantities for the current reporting year, the prior year, and quantities anticipated in both the first year immediately following the reporting year and the second year following the reporting year (future estimates).

Column A: 1991 (Prior Year)

Quantities for Sections 8.1 through 8.7 must be reported for the year immediately preceding the reporting year in column A. For reports due July 1, 1993, the prior year is 1991. Information available at the facility that may be used to estimate the prior year's quantities include the prior year's Form R submission, supporting documentation, and recycling, energy recovery, or treatment operating logs or invoices.

Column B: 1992 (Reporting Year)

Quantities for Sections 8.1 through 8.7 must be reported for the current reporting year in column B.

Columns C and D: 1993 and 1994 (Following Year and Second Year)

Quantities for Sections 8.1 through 8.7 must be estimated for 1993 and 1994. EPA expects reasonable future quantity estimates using a logical basis. Information available at the facility to estimate quantities of the chemical expected during these years include planned source reduction activities, market projections, expected contracts, anticipated new product lines, company growth projections, and production capacity figures. Not applicable, "NA", may not be entered for these data elements. Respondents should take into account protections available for trade secrets as provided in EPCRA Section 322 (42 USC 11042).

Relationship to Other Laws

The reporting categories for quantities recycled, treated, used for energy recovery, and disposed apply to completing Section 8 of Form R as well as to the rest of Form R. These categories are to be used only for TRI reporting. They are not intended for use in determining, under the Resource Conservation and Recovery Act (RCRA) Subtitle C regulations, whether a secondary material is a waste when recycled. These definitions also do not apply

Example 12: Reporting Future Estimates

A pharmaceutical manufacturing facility uses a listed toxic chemical in the manufacture of a prescription drug. During the reporting year (1992), the company received approval from the Food and Drug Administration to begin marketing their product as an over-the-counter drug beginning in 1993. This approval is publicly known and does not constitute confidential business information. As a result of this expanded market, the company estimates that sales and subsequent production of this drug will increase their use of the reported toxic chemical by 30 percent per year for the two years following the reporting year. The facility treats the toxic chemical on-site and the quantity treated is directly proportional to production activity. The facility thus estimates the total quantity of the reported toxic chemical treated for the following year (1993) by adding 30 percent to the amount in column B (the amount for the current reporting year). The second year (1994) figure can be calculated by adding an additional 30 percent to the amount reported in Column C (the amount for the following year (1993) projection).

to the information that may be submitted in the Biennial Report required under RCRA. In addition, these definitions do not imply any future redefinition of RCRA terms and do not affect EPA's RCRA authority or authority under any other statute administered by EPA.

Differences in terminology and reporting requirements for toxic chemicals reported on Form R and for hazardous wastes regulated under RCRA occur because EPCRA and the PPA focus on specific chemicals, while the RCRA regulations and the Biennial Report focus on wastes, including mixtures. For example, a RCRA hazardous waste containing a section 313 toxic chemical is recycled to recover certain constituents of that waste, but not the toxic chemical reported under EPCRA section 313. The toxic chemical simply passes through the recycling process and remains in the residual from the recycling process. While the waste may be considered recycled under RCRA, the toxic chemical constituent would be considered to be treated for TRI purposes.

Quantities Reportable in Sections 8.1 - 8.7

8.1 Report releases pursuant to EPCRA Section 329(8) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing [on-site or off-site] into the environment (including the abandonment of barrels, containers, and other closed receptacles)." Do not include any quantity treated on-site or off-site.

8.2 - 8.3 A toxic chemical or a mixture containing a toxic chemical that is used for energy recovery on-site or is sent off-site for energy recovery, unless it is a commercially available fuel. For the purposes of reporting on Form R, reportable on-site and off-site energy recovery is the combustion of a residual material containing a TRI toxic chemical when:

(a) The combustion unit is integrated into an energy recovery system (i.e., industrial furnaces, industrial kilns, and boilers); and

(b) The toxic chemical is combustible and has a heating value high enough to sustain combustion.

8.4 - 8.5 A toxic chemical or a mixture containing a toxic chemical that is recycled on-site or is sent off-site for recycling.

8.6 - 8.7 A toxic chemical or a mixture containing a toxic chemical that is treated on-site or is sent to a POTW or other off-site location for waste treatment.

A toxic chemical or a toxic chemical in a mixture that is a waste under RCRA must be reported in Sections 8.1 through 8.7.

Avoid Double-Counting in Sections 8.1 Through 8.8

Section 8 of Form R uses data collected to complete Part II, Sections 5 through 7. For this reason, Section 8 should be completed last.

Do not double- or multiple-count quantities in Sections 8.1 through 8.7. The quantities reported in each of those sections must be mutually exclusive. Do not multiple-count quantities entering sequential reportable activities. For example, 5,000 pounds of toxic chemical enters a treatment operation. Three thousand pounds of the toxic chemical exits the treatment operation and then enters a recycling operation. Five hundred pounds of the toxic chemical is in residues from the recycling operation which is subsequently sent off-site for disposal. These quantities would be reported as follows in Section 8:

Section 8.1:	500 pounds disposed
Section 8.4:	2,500 pounds recycled
Section 8.6:	2,000 pounds treated (5,000 that initially entered - 3,000 that subsequently entered recycling)

To report that 5,000 pounds were treated, 3,000 pounds were recycled, and that 500 pounds were sent off-site for disposal would result in over-counting the quantities of toxic chemical recycled, treated, and disposed by 3,500 pounds.

Do not include in Sections 8.1 through 8.7 any quantities of the toxic chemical released into the environment due to remedial actions; catastrophic events such as earthquakes, fires, or floods; or unanticipated one-time events not associated with the production process such as tank ruptures or reactor explosions. These quantities should be reported in Section 8.8 only. For example, 10,000 pounds of diaminoanisole sulfate is released due to a catastrophic event and is subsequently treated off-site. The 10,000 pounds is reported in Section 8.8, but the amount subsequently treated off-site is not reported in Section 8.7.

8.8 Quantity Released to the Environment as a Result of Remedial Actions, Catastrophic Events, or One-Time Events Not Associated with Production Processes.

In Section 8.8, enter the total quantity of toxic chemical released directly into the environment or sent off-site for recycling, waste treatment, energy recovery, or disposal during the reporting year due to any of the following events:

(1) remedial actions,
(2) catastrophic events such as earthquakes, fires, or floods; or
(3) one-time events not associated with normal or routine production processes.

These quantities should not be included in Sections 8.1 through 8.7. The amount of toxic chemical released into the environment during remediation or transferred off-site is to be reported in Part II, Sections 5 and 6 as appropriate.

The purpose of this section is to separate quantities recycled, used for energy recovery, treated, or disposed that are associated with normal or routine production operations from those that are not. While all quantities released, recycled, treated, or disposed may ultimately be preventable, this section separates the quantities that are more likely to be reduced or eliminated by process-oriented source reduction activities from those releases that are largely unpredictable and are less amenable to such source reduction activities. For example, spills that occur as a routine part of production operations and could be reduced or eliminated by improved handling, loading, or unloading procedures are included in the quantities reported in Section 8.1 through 8.7 as appropriate. A total loss of containment resulting from a tank rupture caused by a tornado would be included in the quantity reported in Section 8.8.

Similarly, the amount of a toxic chemical spilled or cleaned up from normal operations during the reporting year would be included in the quantities reported in Sections 8.1 through 8.7. However, the quantity of the reported toxic chemical generated from a remedial action (e.g., RCRA corrective action) to clean up the environmental contamination resulting from past practices should be reported in Section 8.8 because they cannot currently be addressed by source reduction methods. A remedial action for purposes of Section 8.8 is a waste cleanup (including RCRA and CERCLA operations) within the facility boundary. Most remedial activities involve collecting and treating contaminated material.

Also, releases caused by catastrophic events are to be incorporated into the quantity reported in Section 8.8. Such releases may be caused by natural disasters (e.g., hurricanes and earthquakes) or by large scale accidents (e.g., fires and explosions). These amounts are not included in the quantity reported in Sections 8.1 through 8.7 because such releases are generally unanticipated and cannot be addressed by routine process-oriented accident prevention techniques.

Example 13: Quantity Released to the Environment as a Result of Remedial Actions, Catastrophic Events, or One-Time Events Not Associated with Production Processes.

A chemical manufacturer produces a toxic chemical in a reactor that operates at low pressure. The reactants and the toxic chemical product are piped in and out of the reactor at monitored and controlled temperatures. During normal operations, small amounts of fugitive emissions occur from the valves and flanges in the pipelines.

Due to a malfunction in the control panel (which is state-of-the-art and undergoes routine inspection and maintenance), the temperature and pressure in the reactor increase, the reactor ruptures, and the toxic chemical is released. Because the malfunction could not be anticipated and, therefore, could not be reasonably addressed by specific source reduction activities, the amount released is included in Section 8.8. In this case, much of the toxic chemical is released as a liquid and pools on the ground. It is estimated that 1,000 pounds of the toxic chemical pooled on the ground and was subsequently collected and sent off-site for treatment. In addition, it is estimated that another 200 pounds of the toxic chemical vaporized directly to the air from the rupture. The total amount reported in Section 8.8 is the 1,000 pounds that pooled on the ground (and subsequently sent off-site), plus the 200 pounds that vaporized into the air, a total of 1,200 pounds. The quantity sent off-site must also be reported in Section 6 (but not in Section 8.7) and the quantity that vaporized must be reported as a fugitive emission in Section 5 (but not in Section 8.1).

By checking your documentation for calculating estimates made for Part II, Section 5, "Releases of the Toxic Chemical to the Environment," you may be able to identify release amounts from the above sources. Emergency notifications under CERCLA and EPCRA as well as accident histories required under the Clean Air Act may provide useful information. You should also check facility incident reports and maintenance records to identify one-time or catastrophic events.

Note that while the information reported in Section 8.8 represents only remedial, catastrophic, or one-time events not associated with production processes, Section 5 of Form R (releases to the environment) and Section 6 (off-site transfers), must include all releases and transfers as appropriate, regardless of whether they arise from catastrophic, remedial, or routine process operations.

8.9 Production Ratio or Activity Index

For Section 8.9, you must provide a ratio of reporting year production to prior year production, or provide an "activity index" based on a variable other than production that is the primary influence on the quantity of the reported toxic chemical recycled, used for energy recovery, treated, or disposed. The ratio or index must be reported to the nearest tenths or hundredths place (e.g., one or two digits to the right of the decimal point). If the manufacture or use of the reported toxic chemical began during the current reporting year, enter not applicable, "NA," as the production ratio or activity index.

It is important to realize that if your facility reports more than one reported toxic chemical, the production ratio or activity index may vary for different chemicals. For facilities that manufacture reported toxic chemicals, the quantities of the toxic chemical(s) produced in the current and prior years provide a good basis for the ratio because that is the primary business activity associated with the reported toxic chemical(s). In most cases, the production ratio or activity index must be based on some variable of production or activity rather than on toxic chemical or material usage. Indices based on toxic chemical or material usage may reflect the effect of source reduction activities rather than changes in business activity. Toxic chemical or material usage is therefore not a basis to be used for the production ratio or activity index where the toxic chemical is "otherwise-used" (i.e., non-incorporative activities such as extraction solvents, metal degreasers, etc.).

Example 14: Determining a Production Ratio

Your facility's only use of toluene is as a paint carrier for a painting operation. You painted 12,000 refrigerators in the current reporting year and 10,000 refrigerators during the preceding year. The production ratio for toluene in this case is 1.2 (12,000/10,000) because the number of refrigerators produced is the primary factor determining the quantity of toluene to be reported in Sections 8.1 through 8.7.

A facility manufactures inorganic pigments, including titanium dioxide. Hydrochloric acid is produced as a waste byproduct during the production process. An appropriate production ratio for hydrochloric acid is the annual titanium dioxide production, not the amount of byproduct generated. If the facility produced 20,000 pounds of titanium dioxide during the reporting year and 26,000 pounds in the preceding year, the production ratio would be 0.77 (20,000/26,000).

While several methods are available to the facility for determining this data element, the production ratio or activity index must be based on the variable that most directly affects the quantities of the toxic chemical recycled, used for energy recovery, treated, or disposed. Examples of methods available include:

(1) Amount of toxic chemical manufactured in 1992 divided by the amount of toxic chemical manufactured in 1991; or

(2) Amount of product produced in 1992 divided by the amount of product produced in 1991.

Example 15: Determining an Activity Index

Your facility manufactures organic dyes in a batch process. Different colors of dyes are manufactured, and between color changes, all equipment must be thoroughly cleaned with solvent containing glycol ethers to reduce color carryover. During the preceding year, the facility produced 2,000 pounds of yellow dye in January, 9,000 pounds of green dye for February through September, 2,000 pounds of red dye in November, and another 2,000 pounds of yellow dye in December. This adds up to a total of 15,000 pounds and four color changeovers. During the reporting year, the facility produced 10,000 pounds of green dye during the first half of the year and 10,000 pounds of red dye in the second half. If your facility uses glycol ethers in this cleaning process only, an activity index of 0.5 (based on two color changeovers for the reporting year divided by four changeovers for the preceding year) is more appropriate than a production ratio of 1.33 (based on 20,000 pounds of dye produced in the current year divided by 15,000 pounds in the preceding year). In this case, an activity index, rather than a production ratio, better reflects the factors that influence the amount of solvent recycled, used for energy recovery, treated, or disposed.

A facility that manufactures thermoplastic composite parts for aircraft uses acetone as a wipe solvent to clean molds. The solvent is stored in 55-gallon drums and is transferred to 1-gallon dispensers. The molds are cleaned on an as-needed basis that is not necessarily a function of the parts production rate. Operators cleaned 5,200 molds during the reporting year, but only cleaned 2,000 molds in the previous year. An activity index of 2.6 (5,200/2,000) represents the activities involving acetone usage in the facility. If the molds were cleaned after 1,000 parts were manufactured, a production ratio would equal the activity index and either could be used as the basis for the index.

A facility manufactures surgical instruments and cleans the metal parts with 1,1,1-trichloroethane in a vapor degreaser. The degreasing unit is operated in a batch mode and the metal parts are cleaned according to an irregular schedule. The activity index can be based upon the total time the metal parts are in the degreasing operation. If the degreasing unit operated 3,900 hours during the reporting year and 3,000 hours the prior year, the activity index is 1.3 (3,900/3,000).

A pharmaceutical plant uses hydrochloric acid to regenerate deionization units that supply deionized water to several operations in the facility. During the reporting year, the facility noted that the units were recharged once per week. Records for the prior year indicate that the units were recharged four times per week. Provided that the reduction in recharges per week is not part of a planned source reduction program, an index of 0.25 (1/4) represents the activities that were the primary influence on the amount of hydrochloric acid recycled, used for energy recovery, treated, or disposed.

Example 16: "NA" is Entered as the Production Ratio or Activity Index

Your facility began production of a microwidget during this reporting year. Perchloroethylene is used as a cleaning solvent for this operation and this is the only use of the toxic chemical in your facility. You would enter not applicable, "NA," in Section 8.9 because you have no basis of comparison in the prior year for the purposes of developing the activity index.

Example 17: Determining the Production Ratio Based on a Weighted Average

At many facilities, a reported toxic chemical is used in more than one production process. In these cases, a production ratio or activity index can be estimated by weighting the production ratio for each process based on the respective contribution of each process to the quantity of the reported toxic chemical recycled, used for energy recovery, treated, or disposed.

Your facility paints bicycles with paint containing toluene. Sixteen thousand bicycles were produced in the reporting year and 14,500 were produced in the prior year. There were no significant design modifications that changed the total surface area to be painted for each bike. The bicycle production ratio is 1.1 (16,000/14,5000). You estimate 12,500 pounds of toluene treated, recycled, used for energy recovery, or disposed as a result of bicycle production. Your facility also uses toluene as a solvent in a glue that is used to make components and add-on equipment for the bicycles. Thirteen thousand components were manufactured in the reporting year as compared to 15,000 during the prior year. The production ratio for the components using toluene is 0.87 (13,000/15,000). You estimate 1,000 pounds of toluene treated, recycled, used for energy recovery, or disposed as a result of components production. A production ratio can be calculated by weighting each of the production ratios based on the relative contribution each has to the quantities of toluene treated, recycled, used for energy recovery, or disposed during the reporting year (13,500 pounds). The production ratio is calculated as follows:

$$\text{Production ratio} = (12{,}500/13{,}500 \times 1.1) + (1{,}000/13{,}500 \times 0.87) = 1.08$$

8.10 Did Your Facility Engage in any Source Reduction Activities for this Chemical during the Reporting Year?

If your facility engaged in any source reduction activity for the reported toxic chemical during the reporting year, report the activity that was implemented and the method used to identify the opportunity for the activity implemented. If your facility did not engage in any source reduction activity for the reported toxic chemical, enter not applicable, "NA," in Section 8.10.1 and answer Section 8.11.

Source reduction means any practice which:

- Reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and
- Reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants.

The term includes equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control.

The term source reduction does not include any practice which alters the physical, chemical, or biological characteristics or the volume of a hazardous substance, pollutant, or contaminant through a process or activity which itself is not integral to and necessary for the production of a product or the providing of a service.

Source reduction activities do not include recycling, treating, using for energy recovery, or disposing of a toxic chemical. Report in this section only the source reduction activities implemented to reduce or eliminate the quantities reported in Sections 8.1 through 8.7 — the focus of the section is only those activities that are applied to reduce routine or reasonably anticipated releases and quantities of the reported toxic chemical recycled, treated, used for energy recovery, or disposed. Do not report in this section any activities taken to reduce or eliminate the quantities reported in Section 8.8.

Example 18: Source Reduction

A facility assembles and paints furniture. Both the glue used to assemble the furniture and the paints contain listed toxic chemicals. By examining the gluing process, the facility discovered that a new drum of glue is opened at the beginning of each shift, whether the old drum is empty or not. By adding a mechanism that prevents the drum from being changed before it is empty, the need for disposal of the glue is eliminated at the source. As a result, this activity is considered source reduction. The painting process at this facility generates a solvent waste which is collected and recovered. The recovered solvent is used to clean the painting equipment. The recycling activity does not reduce the amount of toxic chemical recycled, and therefore is not considered a source reduction activity.

Source Reduction Activities

You must enter in the first column of Section 8.10, "Source Reduction Activities," the appropriate code(s) indicating the type of actions taken to reduce the amount of the reported toxic chemical released (as reported in Section 8.1), used for energy recovery (as reported in Section 8.2), recycled (as reported in Section 8.4-8.5), or treated (as reported in Section 8.6-8.7). The list of codes below includes many, but not all, of the codes provided in the RCRA biennial report. Remember that source reduction activities include only those actions or techniques that reduce or eliminate the amounts of the toxic chemical reported in Section 8.1 through 8.7. Actions taken to recycle, treat, or dispose of the toxic chemical are not considered source reduction activities.

Source Reduction Activity Codes:

Good Operating Practices

W13 Improved maintenance scheduling, recordkeeping, or procedures
W14 Changed production schedule to minimize equipment and feedstock changeovers
W19 Other changes in operating practices

Inventory Control

W21 Instituted procedures to ensure that materials do not stay in inventory beyond shelf-life
W22 Began to test outdated material — continue to use if still effective
W23 Eliminated shelf-life requirements for stable materials
W24 Instituted better labelling procedures
W25 Instituted clearinghouse to exchange materials that would otherwise be discarded
W29 Other changes in inventory control

Spill and Leak Prevention

W31 Improved storage or stacking procedures
W32 Improved procedures for loading, unloading, and transfer operations
W33 Installed overflow alarms or automatic shut-off valves
W35 Installed vapor recovery systems
W36 Implemented inspection or monitoring program of potential spill or leak sources
W39 Other spill and leak prevention

Raw Material Modifications

W41 Increased purity of raw materials
W42 Substituted raw materials
W49 Other raw material modifications

Process Modifications

W51 Instituted recirculation within a process
W52 Modified equipment, layout, or piping
W53 Use of a different process catalyst
W54 Instituted better controls on operating bulk containers to minimize discarding of empty containers
W55 Changed from small volume containers to bulk containers to minimize discarding of empty containers
W58 Other process modifications

Cleaning and Degreasing

W59 Modified stripping/cleaning equipment
W60 Changed to mechanical stripping/cleaning devices (from solvents or other materials)
W61 Changed to aqueous cleaners (from solvents or other materials)

W63 Modified containment procedures for cleaning units
W64 Improved draining procedures
W65 Redesigned parts racks to reduce dragout
W66 Modified or installed rinse systems
W67 Improved rinse equipment design
W68 Improved rinse equipment operation
W71 Other cleaning and degreasing modifications

Surface Preparation and Finishing

W72 Modified spray systems or equipment
W73 Substituted coating materials used
W74 Improved application techniques
W75 Changed from spray to other system
W78 Other surface preparation and finishing modifications

Product Modifications

W81 Changed product specifications
W82 Modified design or composition of product
W83 Modified packaging
W89 Other product modifications

In columns **a** through **c** of Section 8.10, the "Methods to Identify Activity", you must enter one or more of the following code(s) that correspond to those internal and external method(s) or information sources you used to identify the possibility for a source reduction activity implementation at your facility. If more than three methods were used to identify the source reduction activity, enter only the three codes that contributed most to the decision to implement the activity.

Methods to Identify Activity

T01 Internal pollution prevention opportunity audit(s)
T02 External pollution prevention opportunity audit(s)
T03 Materials balance audits
T04 Participative team management
T05 Employee recommendation (independent of a formal company program)
T06 Employee recommendation (under a formal company program)
T07 State government technical assistance program
T08 Federal government technical assistance program
T09 Trade association/industry technical assistance program
T10 Vendor assistance
T11 Other

8.11 Is Additional Information on Source Reduction, Recycling, or Pollution Control Activities Included with this Report?

Check "Yes" for this data element if you have attached to this report any additional optional information on source reduction, recycling, or pollution control activities you have implemented in the reporting year or in prior years for the reported toxic chemical. If you are not including additional information, check "No."

If you submit additional optional information, try to limit this information to one page that summarizes the source reduction, recycling, or pollution control activities. If there is a contact person at the facility, other than the technical or public contact provided in Part I, Section 4, the summary page should include that person's name and telephone number for individuals who wish to obtain further information about those activities. Also submit a copy of this additional information to the appropriate state agency as part of the Form R submittal to that agency.

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 confectionery 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, n.e.c.*
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.*

*"Not elsewhere classified" indicated by "*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.*

*"Not elsewhere classified" indicated as "*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.*

*"Not elsewhere classified" indicated by "*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.*

*"Not elsewhere classified" indicated as "*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 lampbulbs 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

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

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 as "*n.e.c.*"

TABLE II. SECTION 313 TOXIC CHEMICAL LIST FOR REPORTING YEAR 1992 (including Toxic 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 at the end of the alphabetical list of toxic chemicals. Covered toxic chemical categories follow.

Certain toxic chemicals listed in Table II have parenthetic "qualifiers." These qualifiers indicate that these toxic chemicals are subject to the section 313 reporting requirements if manufactured, processed, or otherwise used in a specific form. The following chemicals are reportable only if they are manufactured, processed, or otherwise used in the specific form(s) listed below:

Chemical	CAS Number	Qualifier
Aluminum (fume or dust)	7429-90-5	Only if it is in a fume or dust form.
Aluminum oxide (fibrous forms)	1344-28-1	Only if it is a fibrous form.
Ammonium nitrate (solution)	6484-52-2	Only if it is in a solution.
Ammonium sulfate (solution)	7783-20-2	Only if it is in a solution.
Asbestos (friable)	1332-21-4	Only if it is a friable form.
Isopropyl alcohol (manufacturing - strong acid process, no supplier notification)	67-63-0	Only if it is being manufactured by the strong acid process.
Phosphorus (yellow or white)	7723-14-0	Only if it is a yellow or white form.
Saccharin (manufacturing, no supplier notification).	81-07-2	Only if it is being manufactured.
Vanadium (fume or dust)	7440-62-2	Only if it is in a fume or dust form.
Zinc (fume or dust)	7440-66-6	Only if it is in a fume or dust form.

[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 (703) 920-9877, will provide up-to-date information on the status of these changes. See Section B.4.b of the instructions for more information on the de minimis values listed below.]

*C.I. means "Color Index"

a. Alphabetical Chemical List

CAS Number	Toxic Chemical Name	De Minimis Concentration
75-07-0	Acetaldehyde	0.1
60-35-5	Acetamide	0.1
67-64-1	Acetone	1.0
75-05-8	Acetonitrile	1.0
53-96-3	2-Acetylaminofluorene	0.1
107-02-8	Acrolein	1.0
79-06-1	Acrylamide	0.1
79-10-7	Acrylic acid	1.0
107-13-1	Acrylonitrile	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
107-18-6	Allyl alcohol	1.0
107-05-1	Allyl chloride	1.0
7429-90-5	Aluminum (fume or dust)	1.0
1344-28-1	Aluminum oxide (fibrous forms)	0.1
117-79-3	2-Aminoanthraquinone	0.1
60-09-3	4-Aminoazobenzene	0.1
92-67-1	4-Aminobiphenyl	0.1
82-28-0	1-Amino-2-methylanthraquinone	0.1
7664-41-7	Ammonia	1.0
6484-52-2	Ammonium nitrate (solution)	1.0
7783-20-2	Ammonium sulfate (solution)	1.0
62-53-3	Aniline	1.0
90-04-0	o-Anisidine	0.1
104-94-9	p-Anisidine	1.0
134-29-2	o-Anisidine hydrochloride	0.1
120-12-7	Anthracene	1.0
7440-36-0	Antimony	1.0
7440-38-2	Arsenic	0.1
1332-21-4	Asbestos (friable)	0.1
7440-39-3	Barium	1.0
98-87-3	Benzal chloride	1.0
55-21-0	Benzamide	1.0
71-43-2	Benzene	0.1
92-87-5	Benzidine	0.1
98-07-7	Benzoic trichloride {Benzotrichloride}	0.1
98-88-4	Benzoyl chloride	1.0
94-36-0	Benzoyl peroxide	1.0
100-44-7	Benzyl chloride	1.0
7440-41-7	Beryllium	0.1

CAS Number	Toxic Chemical Name	De Minimis Concentration
92-52-4	Biphenyl	1.0
111-44-4	Bis(2-chloroethyl) ether	1.0
542-88-1	Bis(chloromethyl) ether	
0.1108-60-1	Bis(2-chloro-1-methylethyl) ether	1.0
103-23-1	Bis(2-ethylhexyl) adipate	1.0
353-59-3	Bromochlorodifluoromethane {Halon 1211}	1.0
75-25-2	Bromoform {Tribromomethane}	1.0
74-83-9	Bromomethane {Methyl bromide}	1.0
75-63-8	Bromotrifluoromethane {Halon 1301}	1.0
106-99-0	1,3-Butadiene	0.1
141-32-2	Butyl acrylate	1.0
71-36-3	n-Butyl alcohol	1.0
78-92-2	sec-Butyl alcohol	1.0
75-65-0	tert-Butyl alcohol	1.0
85-68-7	Butyl benzyl phthalate	1.0
106-88-7	1,2-Butylene oxide	1.0
123-72-8	Butyraldehyde	1.0
4680-78-8	C.I. Acid Green 3*	1.0
569-64-2	C.I. Basic Green 4*	1.0
989-38-8	C.I. Basic Red 1*	0.1
1937-37-7	C.I. Direct Black 38*	0.1
2602-46-2	C.I. Direct Blue 6*	0.1
16071-86-6	C.I. Direct Brown 95*	0.1
2832-40-8	C.I. Disperse Yellow 3*	1.0
3761-53-3	C.I. Food Red 5*	0.1
81-88-9	C.I. Food Red 15*	0.1
3118-97-6	C.I. Solvent Orange 7*	1.0
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* {Aurimine}	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 {1H-Isoindole-1,3(2H)-dione, 3a,4,7,7a-tetrahydro-2-[(trichloromethyl)thio]-}	1.0
63-25-2	Carbaryl {1-Naphthalenol, methylcarbamate}	1.0
75-15-0	Carbon disulfide	1.0
56-23-5	Carbon tetrachloride	0.1
463-58-1	Carbonyl sulfide	1.0

*C.I. means "Color Index"

CAS Number	Toxic Chemical Name	De Minimis Concentration
120-80-9	Catechol	1.0
133-90-4	Chloramben {Benzoic acid, 3-amino-2,5-dichloro-}	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
7782-50-5	Chlorine	1.0
10049-04-4	Chlorine dioxide	1.0
79-11-8	Chloroacetic acid	1.0
532-27-4	2-Chloroacetophenone	1.0
108-90-7	Chlorobenzene	1.0
510-15-6	Chlorobenzilate {Benzeneacetic acid,4-chloro-.alpha.-(4-chlorophenyl)-.alpha.-hydroxy-,ethyl ester}	1.0
75-00-3	Chloroethane {Ethyl chloride}	1.0
67-66-3	Chloroform	0.1
74-87-3	Chloromethane {Methyl chloride}	1.0
107-30-2	Chloromethyl methyl ether	0.1
126-99-8	Chloroprene	1.0
1897-45-6	Chlorothalonil {1,3-Benzenedicarbonitrile, 2,4,5,6-tetrachloro-}	1.0
7440-47-3	Chromium	0.1
7440-48-4	Cobalt	1.0
7440-50-8	Copper	1.0
8001-58-9	Creosote	0.1
120-71-8	p-Cresidine	0.1
1319-77-3	Cresol (mixed isomers)	1.0
108-39-4	m-Cresol	1.0
95-48-7	o-Cresol	1.0
106-44-5	p-Cresol	1.0
98-82-8	Cumene	1.0
80-15-9	Cumene hydroperoxide	1.0
135-20-6	Cupferron {Benzeneamine, N-hydroxy-N-nitroso, ammonium salt}	0.1
110-82-7	Cyclohexane	1.0
94-75-7	2,4-D {Acetic acid, (2,4-dichlorophenoxy)-}	1.0
1163-19-5	Decabromodiphenyl oxide	1.0
2303-16-4	Diallate {Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester}	1.0
615-05-4	2,4-Diaminoanisole	0.1
39156-41-7	2,4-Diaminoanisole sulfate	0.1
101-80-4	4,4'-Diaminodiphenyl ether	0.1
25376-45-8	Diaminotoluene (mixed isomers)	0.1
95-80-7	2,4-Diaminotoluene	0.1
334-88-3	Diazomethane	1.0
132-64-9	Dibenzofuran	1.0
96-12-8	1,2-Dibromo-3-chloropropane {DBCP}	0.1
106-93-4	1,2-Dibromoethane {Ethylene dibromide}	0.1
124-73-2	Dibromotetrafluoroethane {Halon 2402}	1.0
84-74-2	Dibutyl phthalate	1.0
25321-22-6	Dichlorobenzene (mixed isomers)	0.1
95-50-1	1,2-Dichlorobenzene	1.0
541-73-1	1,3-Dichlorobenzene	1.0
106-46-7	1,4-Dichlorobenzene	0.1
91-94-1	3,3'-Dichlorobenzidine	0.1
75-27-4	Dichlorobromomethane	1.0
75-71-8	Dichlorodifluoromethane (CFC-12)	1.0
107-06-2	1,2-Dichloroethane {Ethylene dichloride}	0.1
540-59-0	1,2-Dichloroethylene	1.0
75-09-2	Dichloromethane {Methylene chloride}	0.1
120-83-2	2,4-Dichlorophenol	1.0
78-87-5	1,2-Dichloropropane	1.0
78-88-6	2,3-Dichloropropene	1.0
542-75-6	1,3-Dichloropropylene	0.1
76-14-2	Dichlorotetrafluoroethane (CFC-114)	1.0
62-73-7	Dichlorvos {Phosphoric acid, 2,2-dichloroethenyl dimethyl ester}	1.0
115-32-2	Dicofol {Benzenemethanol, 4-chloro-.alpha.-(4-chlorophenyl)-.alpha.- (trichloromethyl)-}	1.0
1464-53-5	Diepoxybutane	0.1
111-42-2	Diethanolamine	1.0
117-81-7	Di-(2-ethylhexyl) phthalate {DEHP}	0.1
84-66-2	Diethyl phthalate	1.0
64-67-5	Diethyl sulfate	0.1
119-90-4	3,3'-Dimethoxybenzidine	0.1
60-11-7	4-Dimethylaminoazobenzene	0.1

*C.I. means "Color Index"

CAS Number	Toxic Chemical Name	De Minimis Concentration
119-93-7	3,3'-Dimethylbenzidine {o-Tolidine}	0.1
79-44-7	Dimethylcarbamyl chloride	0.1
57-14-7	1,1-Dimethyl hydrazine	0.1
105-67-9	2,4-Dimethylphenol	1.0
131-11-3	Dimethyl phthalate	1.0
77-78-1	Dimethyl sulfate	0.1
99-65-0	m-Dinitrobenzene	1.0
528-29-0	o-Dinitrobenzene	1.0
100-25-4	p-Dinitrobenzene	1.0
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
25321-14-6	Dinitrotoluene (mixed isomers)	1.0
117-84-0	n-Dioctyl phthalate	1.0
123-91-1	1,4-Dioxane	0.1
122-66-7	1,2-Diphenylhydrazine {Hydrazobenzene}	0.1
106-89-8	Epichlorohydrin	0.1
110-80-5	2-Ethoxyethanol	1.0
140-88-5	Ethyl acrylate	0.1
100-41-4	Ethylbenzene	1.0
541-41-3	Ethyl chloroformate	1.0
74-85-1	Ethylene	1.0
107-21-1	Ethylene glycol	1.0
151-56-4	Ethyleneimine {Aziridine}	0.1
75-21-8	Ethylene oxide	0.1
96-45-7	Ethylene thiourea	0.1
2164-17-2	Fluometuron {Urea, N,N-dimethyl-N'-[3-(trifluoromethyl)phenyl]-}	1.0
50-00-0	Formaldehyde	0.1
76-13-1	Freon 113 {Ethane, 1,1,2-trichloro-1,2,2-trifluoro-}	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
118-74-1	Hexachlorobenzene	0.1
87-68-3	Hexachloro-1,3-butadiene	1.0
77-47-4	Hexachlorocyclopentadiene	1.0
67-72-1	Hexachloroethane	1.0
1335-87-1	Hexachloronaphthalene	1.0
680-31-9	Hexamethylphosphoramide	0.1
302-01-2	Hydrazine	0.1
10034-93-2	Hydrazine sulfate	0.1
7647-01-0	Hydrochloric acid	1.0
74-90-8	Hydrogen cyanide	1.0
7664-39-3	Hydrogen fluoride	1.0
123-31-9	Hydroquinone	1.0
78-84-2	Isobutyraldehyde	1.0
67-63-0	Isopropyl alcohol (manufacturing-strong acid process, no supplier notification)	0.1
80-05-7	4,4'-Isopropylidenediphenol	1.0
120-58-1	Isosafrole	1.0
7439-92-1	Lead	0.1
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
108-31-6	Maleic anhydride	1.0
12427-38-2	Maneb {Carbamodithioic acid, 1,2-ethanediylbis-,manganese complex}	1.0
7439-96-5	Manganese	1.0
7439-97-6	Mercury	1.0
67-56-1	Methanol	1.0
72-43-5	Methoxychlor {Benzene, 1,1'-(2,2,2-trichloroethylidene)bis [4-methoxy-]}	1.0
109-86-4	2-Methoxyethanol	1.0
96-33-3	Methyl acrylate	1.0
1634-04-4	Methyl tert-butyl ether	1.0
101-14-4	4,4'-Methylenebis (2-chloroaniline) {MBOCA}	0.1
101-61-1	4,4'-Methylenebis (N,N-dimethyl) benzenamine	0.1
101-68-8	Methylenebis (phenylisocyanate) {MBI}	1.0
74-95-3	Methylene bromide	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
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
1313-27-5	Molybdenum trioxide	1.0
76-15-3	(Mono)chloropentafluoroethane {CFC-115}	1.0

*C.I. means "Color Index"

CAS Number	Toxic Chemical Name	De Minimis Concentration
505-60-2	Mustard gas {Ethane, 1,1'-thiobis[2-chloro-]}	0.1
91-20-3	Naphthalene	1.0
134-32-7	alpha-Naphthylamine	0.1
91-59-8	beta-Naphthylamine	0.1
7440-02-0	Nickel	0.1
7697-37-2	Nitric acid	1.0
139-13-9	Nitrilotriacetic acid	0.1
99-59-2	5-Nitro-o-anisidine	0.1
98-95-3	Nitrobenzene	1.0
92-93-3	4-Nitrobiphenyl	0.1
1836-75-5	Nitrofen {Benzene, 2,4-dichloro-1-(4-nitrophenoxy)-}	0.1
51-75-2	Nitrogen mustard {2-Chloro-N-(2-chloroethyl)-N-methylethanamine}	0.1
55-63-0	Nitroglycerin	1.0
88-75-5	2-Nitrophenol	1.0
100-02-7	4-Nitrophenol	1.0
79-46-9	2-Nitropropane	0.1
156-10-5	p-Nitrosodiphenylamine	0.1
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
86-30-6	N-Nitrosodiphenylamine	1.0
621-64-7	N-Nitrosodi-n-propylamine	0.1
4549-40-0	N-Nitrosomethylvinylamine	0.1
59-89-2	N-Nitrosomorpholine	0.1
759-73-9	N-Nitroso-N-ethylurea	0.1
684-93-5	N-Nitroso-N-methylurea	0.1
16543-55-8	N-Nitrosonornicotine	0.1
100-75-4	N-Nitrosopiperidine	0.1
2234-13-1	Octachloronaphthalene	1.0
20816-12-0	Osmium tetroxide	1.0
56-38-2	Parathion {Phosphorothioic acid, O, O-diethyl-O-(4-nitrophenyl) ester}	1.0
87-86-5	Pentachlorophenol {PCP}	1.0
79-21-0	Peracetic acid	1.0
108-95-2	Phenol	1.0
106-50-3	p-Phenylenediamine	1.0
90-43-7	2-Phenylphenol	1.0
75-44-5	Phosgene	1.0
7664-38-2	Phosphoric acid	1.0
7723-14-0	Phosphorus (yellow or white)	1.0
85-44-9	Phthalic anhydride	1.0
88-89-1	Picric acid	1.0
1336-36-3	Polychlorinated biphenyls {PCBs}	0.1
1120-71-4	Propane sultone	0.1
57-57-8	beta-Propiolactone	0.1
123-38-6	Propionaldehyde	1.0
114-26-1	Propoxur {Phenol, 2-(1-methylethoxy)-, methylcarbamate}	1.0
115-07-1	Propylene {Propene}	1.0
75-55-8	Propyleneimine	0.1
75-56-9	Propylene oxide	0.1
110-86-1	Pyridine	1.0
91-22-5	Quinoline	1.0
106-51-4	Quinone	1.0
82-68-8	Quintozene {Pentachloronitrobenzene}	1.0
81-07-2	Saccharin (manufacturing, no supplier notification) {1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide}	0.1
94-59-7	Safrole	0.1
7782-49-2	Selenium	1.0
7440-22-4	Silver	1.0
100-42-5	Styrene	0.1
96-09-3	Styrene oxide	0.1
7664-93-9	Sulfuric acid	1.0
79-34-5	1,1,2,2-Tetrachloroethane	0.1
127-18-4	Tetrachloroethylene {Perchloroethylene}	0.1
961-11-5	Tetrachlorvinphos {Phosphoric acid, 2-chloro-1-(2,4,5-trichlorophenyl) ethenyl dimethyl ester}	1.0
7440-28-0	Thallium	1.0
62-55-5	Thioacetamide	0.1
139-65-1	4,4'-Thiodianiline	0.1
62-56-6	Thiourea	0.1
1314-20-1	Thorium dioxide	1.0
7550-45-0	Titanium tetrachloride	1.0
108-88-3	Toluene	1.0
584-84-9	Toluene-2,4-diisocyanate	0.1
91-08-7	Toluene-2,6-diisocyanate	0.1
26471-62-5	Toluenediisocyanate (mixed isomers)	0.1
95-53-4	o-Toluidine	0.1
636-21-5	o-Toluidine hydrochloride	0.1
8001-35-2	Toxaphene	0.1

*C.I. means "Color Index"

CAS Number	Toxic Chemical Name	De Minimis Concentration
68-76-8	Triaziquone {2,5-Cyclohexadiene-1,4-dione, 2,3,5-tris(1-aziridinyl)-}	0.1
52-68-6	Trichlorfon {Phosphonic acid,(2,2,2-trichloro-1-hydroxyethyl)-,dimethyl ester}	1.0
120-82-1	1,2,4-Trichlorobenzene	1.0
71-55-6	1,1,1-Trichloroethane {Methyl chloroform}	1.0
79-00-5	1,1,2-Trichloroethane	1.0
79-01-6	Trichloroethylene	1.0
75-69-4	Trichlorofluoromethane {CFC-11}	1.0
95-95-4	2,4,5-Trichlorophenol	1.0
88-06-2	2,4,6-Trichlorophenol	0.1
1582-09-8	Trifluralin {Benzenamine, 2,6-dinitro-N,N-dipropyl-4-(trifluoromethyl)-1}	1.0
95-63-6	1,2,4-Trimethylbenzene	1.0
126-72-7	Tris (2,3-dibromopropyl) phosphate	0.1
51-79-6	Urethane {Ethyl carbamate}	0.1
7440-62-2	Vanadium (fume or dust)	1.0
108-05-4	Vinyl acetate	1.0
593-60-2	Vinyl bromide	0.1
75-01-4	Vinyl chloride	0.1
75-35-4	Vinylidene chloride	1.0
1330-20-7	Xylene (mixed isomers)	1.0
108-38-3	m-Xylene	1.0
95-47-6	o-Xylene	1.0
106-42-3	p-Xylene	1.0
87-62-7	2,6-Xylidine	1.0
7440-66-6	Zinc (fume or dust)	1.0
12122-67-7	Zineb {Carbamodithioic acid, 1,2-ethanediylbis-, zinc complex}	1.0

*C.I. means "Color Index"

b. List By CAS Number

CAS Number	Toxic Chemical Name	De Minimis Concentration
50-00-0	Formaldehyde	0.1
51-28-5	2,4-Dinitrophenol	1.0
51-75-2	Nitrogen mustard {2-Chloro-N-(2-chloroethyl)-N-methylethanamine}	0.1
51-79-6	Urethane {Ethyl carbamate}	0.1
52-68-6	Trichlorfon {Phosphonic acid,(2,2,2-trichloro-1-hydroxyethyl)-, dimethyl ester}	1.0
53-96-3	2-Acetylaminofluorene	0.1
55-18-5	N-Nitrosodiethylamine	0.1
55-21-0	Benzamide	1.0
55-63-0	Nitroglycerin	1.0
56-23-5	Carbon tetrachloride	0.1
56-38-2	Parathion {Phosphorothioic acid, O,O-diethyl-O-(4-nitrophenyl)ester}	1.0
57-14-7	1,1-Dimethyl hydrazine	0.1
57-57-8	beta-Propiolactone	0.1
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
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
59-89-2	N-Nitrosomorpholine	0.1
60-09-3	4-Aminoazobenzene	0.1
60-11-7	4-Dimethylaminoazobenzene	0.1
60-34-4	Methyl hydrazine	1.0
60-35-5	Acetamide	0.1
62-53-3	Aniline	1.0
62-55-5	Thioacetamide	0.1
62-56-6	Thiourea	0.1
62-73-7	Dichlorvos {Phosphoric acid, 2,2-dichloroethenyl dimethyl ester}	1.0
62-75-9	N-Nitrosodimethylamine	0.1
63-25-2	Carbaryl {1-Naphthalenol, methylcarbamate}	1.0
64-67-5	Diethyl sulfate	0.1
67-56-1	Methanol	1.0
67-63-0	Isopropyl alcohol (manufacturing-strong acid process, no supplier notification)	0.1
67-64-1	Acetone	1.0
67-66-3	Chloroform	0.1
67-72-1	Hexachloroethane	1.0
68-76-8	Triaziquone {2,5-Cyclohexadiene-1,4-dione, 2,3,5-tris(1-aziridinyl)-}	0.1
71-36-3	n-Butyl alcohol	1.0
71-43-2	Benzene	0.1
71-55-6	1,1,1-Trichloroethane {Methyl chloroform}	1.0
72-43-5	Methoxychlor {Benzene, 1,1'-(2,2,2-trichloroethylidene)bis [4-methoxy-]}	1.0
74-83-9	Bromomethane {Methyl bromide}	1.0
74-85-1	Ethylene	1.0
74-87-3	Chloromethane {Methyl chloride}	1.0
74-88-4	Methyl iodide	0.1
74-90-8	Hydrogen cyanide	1.0
74-95-3	Methylene bromide	1.0
75-00-3	Chloroethane {Ethyl chloride}	1.0
75-01-4	Vinyl chloride	0.1
75-05-8	Acetonitrile	1.0
75-07-0	Acetaldehyde	0.1
75-09-2	Dichloromethane {Methylene chloride}	0.1
75-15-0	Carbon disulfide	1.0
75-21-8	Ethylene oxide	0.1
75-25-2	Bromoform {Tribromomethane}	1.0
75-27-4	Dichlorobromomethane	1.0
75-35-4	Vinylidene chloride	1.0
75-44-5	Phosgene	1.0
75-55-8	Propyleneimine	0.1
75-56-9	Propylene oxide	0.1
75-63-8	Bromotrifluoromethane {Halon 1301}	1.0
75-65-0	tert-Butyl alcohol	1.0
75-69-4	Trichlorofluoromethane {CFC-11}	1.0
75-71-8	Dichlorodifluoromethane {CFC-12}	1.0
76-13-1	Freon 113 {Ethane, 1,1,2-trichloro-1,2,2-trifluoro-}	1.0
76-14-2	Dichlorotetrafluoroethane {CFC-114}	1.0

*C.I. means "Color Index"

CAS Number	Toxic Chemical Name	De Minimis Concentration
76-15-3	Monochloropentafluoroethane {CFC-115}	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
77-47-4	Hexachlorocyclopentadiene	1.0
77-78-1	Dimethyl sulfate	0.1
78-84-2	Isobutyraldehyde	1.0
78-87-5	1,2-Dichloropropane	1.0
78-88-6	2,3-Dichloropropene	1.0
78-92-2	sec-Butyl alcohol	1.0
78-93-3	Methyl ethyl ketone	1.0
79-00-5	1,1,2-Trichloroethane	1.0
79-01-6	Trichloroethylene	1.0
79-06-1	Acrylamide	0.1
79-10-7	Acrylic acid	1.0
79-11-8	Chloroacetic acid	1.0
79-21-0	Peracetic acid	1.0
79-34-5	1,1,2,2-Tetrachloroethane	0.1
79-44-7	Dimethylcarbamyl chloride	0.1
79-46-9	2-Nitropropane	0.1
80-05-7	4,4'-Isopropylidenediphenol	1.0
80-15-9	Cumene hydroperoxide	1.0
80-62-6	Methyl methacrylate	1.0
81-07-2	Saccharin (manufacturing, no supplier notification) {1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide}	0.1
81-88-9	C.I. Food Red 15*	0.1
82-28-0	1-Amino-2-methyl-anthraquinone	0.1
82-68-8	Quintozene {Pentachloronitrobenzene}	1.0
84-66-2	Diethyl phthalate	1.0
84-74-2	Dibutyl phthalate	1.0
85-44-9	Phthalic anhydride	1.0
85-68-7	Butyl benzyl phthalate	1.0
86-30-6	N-Nitrosodiphenylamine	1.0
87-62-7	2,6-Xylidine	1.0
87-68-3	Hexachloro-1,3-butadiene	1.0
87-86-5	Pentachlorophenol {PCP}	1.0
88-06-2	2,4,6-Trichlorophenol	0.1
88-75-5	2-Nitrophenol	1.0
88-89-1	Picric acid	1.0
90-04-0	o-Anisidine	0.1
90-43-7	2-Phenylphenol	1.0
90-94-8	Michler's Ketone	0.1
91-08-7	Toluene-2,6-Diisocyanate	0.1
91-20-3	Naphthalene	1.0
91-22-5	Quinoline	1.0
91-59-8	beta-Napthylamine	0.1
91-94-1	3,3'-Dichlorobenzidine	0.1
92-52-4	Biphenyl	1.0
92-67-1	4-Aminobiphenyl	0.1
92-87-5	Benzidine	0.1
92-93-3	4-Nitrobiphenyl	0.1
94-36-0	Benzoyl Peroxide	1.0
94-59-7	Safrole	0.1
94-75-7	2,4-D {Acetic acid, (2,4 dichlorophenoxy)-}	1.0
95-47-6	o-Xylene	1.0
95-48-7	o-Cresol	1.0
95-50-1	1,2 Dichlorobenzene	1.0
95-53-4	o-Toluidine	0.1
95-63-6	1,2,4 Trimethylbenzene	1.0
95-80-7	2,4-Diaminotoluene	0.1
95-95-4	2,4,5-Trichlorophenol	1.0
96-09-3	Styrene oxide	0.1
96-12-8	1,2-Dibromo-3-chloropropane {DBCP}	0.1
96-33-3	Methyl acrylate	1.0
96-45-7	Ethylene thiourea	0.1
97-56-3	C.I. Solvent Yellow 3*	0.1
98-07-7	Benzoic trichloride {Benzotrichloride}	0.1
98-82-8	Cumene	1.0
98-87-3	Benzal chloride	1.0
98-88-4	Benzoyl chloride	1.0
98-95-3	Nitrobenzene	1.0
99-59-2	5-Nitro-o-anisidine	0.1
99-65-0	m-Dinitrobenzene	1.0
100-02-7	4-Nitrophenol	1.0
100-25-4	p-Dinitrobenzene	1.0
100-41-4	Ethylbenzene	1.0
100-42-5	Styrene	0.1
100-44-7	Benzyl chloride	1.0
100-75-4	N-Nitrosopiperidine	0.1
101-14-4	4,4'-Methylenebis (2-chloroaniline) {MBOCA}	0.1
101-61-1	4,4'-Methylenebis(N,N-dimethyl) benzenamine	0.1
101-68-8	Methylenebis (phenylisocyanate) {MBI}	1.0
101-77-9	4,4'-Methylenedianiline	0.1

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CAS Number	Toxic Chemical Name	De Minimis Concentration
101-80-4	4,4'-Diaminodiphenyl ether	0.1
103-23-1	Bis(2-ethylhexyl) adipate	1.0
104-94-9	p-Anisidine	1.0
105-67-9	2,4-Dimethylphenol	1.0
106-42-3	p-Xylene	1.0
106-44-5	p-Cresol	1.0
106-46-7	1,4-Dichlorobenzene	0.1
106-50-3	p-Phenylenediamine	1.0
106-51-4	Quinone	1.0
106-88-7	1,2-Butylene oxide	1.0
106-89-8	Epichlorohydrin	0.1
106-93-4	1,2-Dibromoethane {Ethylene dibromide}	0.1
106-99-0	1,3-Butadiene	0.1
107-02-8	Acrolein	1.0
107-05-1	Allyl chloride	1.0
107-06-2	1,2-Dichloroethane {Ethylene dichloride}	0.1
107-13-1	Acrylonitrile	0.1
107-18-6	Allyl alcohol	1.0
107-21-1	Ethylene glycol	1.0
107-30-2	Chloromethyl methyl ether	0.1
108-05-4	Vinyl acetate	1.0
108-10-1	Methyl isobutyl ketone	1.0
108-31-6	Maleic anhydride	1.0
108-38-3	m-Xylene	1.0
108-39-4	m-Cresol	1.0
108-60-1	Bis(2-chloro-1-methylethyl) ether	1.0
108-88-3	Toluene	1.0
108-90-7	Chlorobenzene	1.0
108-95-2	Phenol	1.0
109-86-4	2-Methoxyethanol	1.0
110-80-5	2-Ethoxyethanol	1.0
110-82-7	Cyclohexane	1.0
110-86-1	Pyridine	1.0
111-42-2	Diethanolamine	1.0
111-44-4	Bis(2-chloroethyl) ether	1.0
114-26-1	Propoxur {Phenol, 2-(1-methylethoxy)-, methylcarbamate}	1.0
115-07-1	Propylene (Propene)	1.0
115-32-2	Dicofol {Benzenemethanol, 4-chloro-.alpha.-(4-chlorophenyl)-.alpha.-(trichloromethyl)-}	1.0
117-79-3	2-Aminoanthraquinone	0.1
117-81-7	Di(2-ethylhexyl) phthalate {DEHP}	0.1
117-84-0	n-Dioctyl phthalate	1.0
118-74-1	Hexachlorobenzene	0.1
119-90-4	3,3'-Dimethoxybenzidine	0.1
119-93-7	3,3'-Dimethylbenzidine {o-Tolidine}	0.1
120-12-7	Anthracene	1.0
120-58-1	Isosafrole	1.0
120-71-8	p-Cresidine	0.1
120-80-9	Catechol	1.0
120-82-1	1,2,4-Trichlorobenzene	1.0
120-83-2	2,4-Dichlorophenol	1.0
121-14-2	2,4-Dinitrotoluene	1.0
121-69-7	N,N-Dimethylaniline	1.0
122-66-7	1,2-Diphenylhydrazine {Hydrazobenzene}	0.1
123-31-9	Hydroquinone	1.0
123-38-6	Propionaldehyde	1.0
123-72-8	Butyraldehyde	1.0
123-91-1	1,4-Dioxane	0.1
124-73-2	Dibromotetrafluoroethane {Halon 2402}	1.0
126-72-7	Tris(2,3-dibromopropyl) phosphate	0.1
126-99-8	Chloroprene	1.0
127-18-4	Tetrachloroethylene {Perchloroethylene}	0.1
128-66-5	C.I. Vat Yellow 4*	1.0
131-11-3	Dimethyl phthalate	1.0
132-64-9	Dibenzofuran	1.0
133-06-2	Captan {1H-Isoindole-1,3(2H)-dione, 3a,4,7,7a-tetrahydro-2-[(trichloromethyl)thio]-}	1.0
133-90-4	Chloramben {Benzoic acid, 3-amino-2,5-dichloro-}	1.0
134-29-2	o-Anisidine hydrochloride	0.1
134-32-7	alpha-Naphthylamine	0.1
135-20-6	Cupferron {Benzeneamine, N-hydroxy-N-nitroso,ammonium salt}	0.1
139-13-9	Nitrilotriacetic acid	0.1
139-65-1	4,4'-Thiodianiline	0.1
140-88-5	Ethyl acrylate	0.1
141-32-2	Butyl acrylate	1.0
151-56-4	Ethyleneimine (Aziridine)	0.1
156-10-5	p-Nitrosodiphenylamine	0.1
156-62-7	Calcium cyanamide	1.0
302-01-2	Hydrazine	0.1

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CAS Number	Toxic Chemical Name	De Minimis Concentration
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
334-88-3	Diazomethane	1.0
353-59-3	Bromochlorodifluoromethane {Halon 1211}	1.0
463-58-1	Carbonyl sulfide	1.0
492-80-8	C.I. Solvent Yellow 34* {Aurimine}	0.1
505-60-2	Mustard gas {Ethane,1,1'-thiobis[2-chloro-}	0.1
510-15-6	Chlorobenzilate {Benzeneacetic acid,4-chloro-.alpha.-(4-chlorophenyl)-.alpha.-hydroxy-,ethyl ester}	1.0
528-29-0	o-Dinitrobenzene	1.0
532-27-4	2-Chloroacetophenone	1.0
534-52-1	4,6-Dinitro-o-cresol	1.0
540-59-0	1,2-Dichloroethylene	1.0
541-41-3	Ethyl chloroformate	1.0
541-73-1	1,3-Dichlorobenzene	1.0
542-75-6	1,3-Dichloropropylene	0.1
542-88-1	Bis(chloromethyl) ether	0.1
569-64-2	C.I. Basic Green 4*	1.0
584-84-9	Toluene-2,4-diisocyanate	0.1
593-60-2	Vinyl bromide	0.1
606-20-2	2,6-Dinitrotoluene	1.0
615-05-4	2,4-Diaminoanisole	0.1
621-64-7	N-Nitrosodi-n-propylamine	0.1
624-83-9	Methyl isocyanate	1.0
636-21-5	o-Toluidine hydrochloride	0.1
680-31-9	Hexamethylphosphoramide	0.1
684-93-5	N-Nitroso-N-methylurea	0.1
759-73-9	N-Nitroso-N-ethylurea	0.1
842-07-9	C.I. Solvent Yellow 14*	0.1
924-16-3	N-Nitrosodi-n-butylamine	0.1
961-11-5	Tetrachlorvinphos {Phosphoric acid, 2-chloro-1-(2,4,5-trichlorophenyl)ethenyl dimethyl ester}	1.0
989-38-8	C.I. Basic Red 1*	0.1
1120-71-4	Propane sultone	0.1
1163-19-5	Decabromodiphenyl oxide	1.0
1313-27-5	Molybdenum trioxide	1.0
1314-20-1	Thorium dioxide	1.0
1319-77-3	Cresol (mixed isomers)	1.0
1330-20-7	Xylene (mixed isomers)	1.0
1332-21-4	Asbestos (friable)	0.1
1335-87-1	Hexachloronaphthalene	1.0
1336-36-3	Polychlorinated biphenyls {PCBs}	0.1
1344-28-1	Aluminum oxide (fibrous forms)	0.1
1464-53-5	Diepoxybutane	0.1
1582-09-8	Trifluralin {Benzenamine, 2,6- dinitro-N,N-dipropyl-4-(trifluoromethyl)-}	1.0
1634-04-4	Methyl tert-butyl ether	1.0
1836-75-5	Nitrofen {Benzene, 2,4-dichloro-1-(4-nitrophenoxy)-}	0.1
1897-45-6	Chlorothalonil {1,3-Benzenedicarbonitrile, 2,4,5,6-tetrachloro-}	1.0
1937-37-7	C.I. Direct Black 38*	0.1
2164-17-2	Fluometuron {Urea, N,N-dimethyl-N'-[3-(trifluoromethyl)phenyl]-}	1.0
2234-13-1	Octachloronaphthalene	1.0
2303-16-4	Diallate {Carbamothioic acid, bis (1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester}	1.0
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

*C.I. means "Color Index"

CAS Number	Toxic Chemical Name	De Minimis Concentration
7550-45-0	Titanium tetrachloride	1.0
7647-01-0	Hydrochloric acid	1.0
7664-38-2	Phosphoric acid	1.0
7664-39-3	Hydrogen fluoride	1.0
7664-41-7	Ammonia	1.0
7664-93-9	Sulfuric acid	1.0
7697-37-2	Nitric acid	1.0
7723-14-0	Phosphorus (yellow or white)	1.0
7782-49-2	Selenium	1.0
7782-50-5	Chlorine	1.0
7783-20-2	Ammonium sulfate (solution)	1.0
8001-35-2	Toxaphene	0.1
8001-58-9	Creosote	0.1
10034-93-2	Hydrazine sulfate	0.1
10049-04-4	Chlorine dioxide	1.0
12122-67-7	Zineb {Carbamodithioic acid, 1,2-ethanediylbis-,zinc complex}	1.0
12427-38-2	Maneb {Carbamodithioic acid, 1,2-ethanediylbis-,manganese complex}	1.0
16071-86-6	C.I. Direct Brown 95*	0.1
16543-55-8	N-Nitrosonornicotine	0.1
20816-12-0	Osmium tetroxide	1.0
25321-14-6	Dinitrotoluene (mixed isomers)	1.0
25321-22-6	Dichlorobenzene (mixed isomers)	0.1
25376-45-8	Diaminotoluene (mixed isomers)	0.1
26471-62-5	Toluenediisocyanate (mixed isomers)	0.1
39156-41-7	2,4-Diaminoanisole sulfate	0.1

SECTION 313 TOXIC CHEMICAL CATEGORIES

Section 313 requires reporting on the toxic chemical categories listed below, in addition to the specific toxic 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.

Toxic chemical categories are subject to the 1 percent de minimis concentration unless the substance involved meets the definition of an OSHA carcinogen, which are subject to the 0.1 percent de minimis concentration. The de minimis concentration for each compound is provided in paranthesis.

Antimony Compounds - (Category Code N010) - Includes any unique chemical substance that contains antimony as part of that chemical's infrastructure. (1.0)

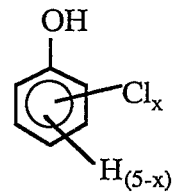
Arsenic Compounds - (Category Code N020) - Includes any unique chemical substance that contains arsenic as part of that chemical's infrastructure. (Inorganic compounds: 0.1; organic compounds: 1.0)

Barium Compounds - (Category Code N040) - Includes any unique chemical substance that contains barium as part of that chemical's infrastructure. (1.0)

Beryllium Compounds - (Category Code N050) - Includes any unique chemical substance that contains beryllium as part of that chemical's infrastructure. (Inorganic compounds: 0.1; organic compounds: 1.0)

Cadmium Compounds - (Category Code N078) - Includes any unique chemical substance that contains cadmium as part of that chemical's infrastructure. (Inorganic compounds: 0.1; organic compounds: 1.0)

Chlorophenols - (Category Code N084) - (0.1)



where x = 1 to 5

*C.I. means "Color Index"

Chromium Compounds - (Category Code N090) - Includes any unique chemical substance that contains chromium as part of that chemical's infrastructure. (chromium VI compounds: 0.1; chromium III compounds: 1.0)

Cobalt Compounds - (Category Code N096) - Includes any unique chemical substance that contains cobalt as part of that chemical's infrastructure. (1.0)

Copper Compounds - (Category Code N100) - Includes any unique chemical substance that contains copper as part of that chemical's infrastructure. (1.0)

This category does not include:

Chemical	CAS Number
C.I. Pigment Blue 15	147-14-8
C.I. Pigment Green 7	1328-53-6
C.I. Pigment Green 36	14302-13-7

Cyanide Compounds - (Category Code N106) - $X^+ CN^-$ where $X = H^+$ or any other group where a formal dissociation may occur. For example, KCN or $Ca(CN)_2$. (1.0)

Glycol Ethers - (Category Code N230) - Includes mono- and di- ethers of ethylene glycol, diethylene glycol, and triethylene glycol. (1.0)

$R\text{-}(OCH_2CH_2)n\text{-}OR'$
Where n = 1,2,or 3

R = alkyl or aryl groups

R'= R, H, or groups which, when removed, yield glycol ethers with the structure:
$R\text{-}(OCH_2CH_2)n\text{-}OH$

Polymers are excluded from this category.

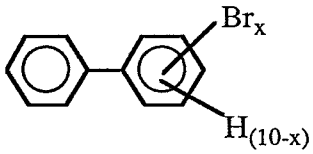
Lead Compounds - (Category Code N420) - Includes any unique chemical substance that contains lead as part of that chemical's infrastructure. (Inorganic compounds: 0.1; organic compounds: 1.0)

Manganese Compounds - (Category Code N450) - Includes any unique chemical substance that contains manganese as part of that chemical's infrastructure. (1.0)

Mercury Compounds - (Category Code N458) - Includes any unique chemical substance that contains mercury as part of that chemical's infrastructure. (1.0)

Nickel Compounds - (Category Code N495) - Includes any unique chemical substance that contains nickel as part of that chemical's infrastructure. (0.1)

Polybrominated Biphenyls (PBBs) - (Category Code N575) - (0.1)



where x = 1 to 10

Selenium Compounds - (Category Code N725) - Includes any unique chemical substance that contains selenium as part of that chemical's infrastructure. (1.0)

Silver Compounds - (Category Code N740) - Includes any unique chemical substance that contains silver as part of that chemical's infrastructure. (1.0)

Thallium Compounds - (Category Code N760) - Includes any unique chemical substance that contains thallium as part of that chemical's infrastructure. (1.0)

Zinc Compounds - (Category Code N982) - Includes any unique chemical substance that contains zinc as part of that chemical's infrastructure. (1.0)

*C.I. means "Color Index"

TABLE III. STATE ABBREVIATIONS

Alabama	AL	Montana	MT
Alaska	AK	Nebraska	NE
American Samoa	AS	Neveda	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 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		

APPENDIX A. RESERVED

APPENDIX B. REPORTING CODES FOR EPA FORM R

Part II, Section 1.1 - CAS Number

Toxic Chemical Category Codes

N010	Antimony compounds
N020	Arsenic compounds
N040	Barium compounds
N050	Berylium compounds
N078	Cadmium compounds
N084	Clorophenols
N090	Chromium compounds
N096	Cobalt compounds
N100	Copper compounds
N106	Cyanide compounds
N230	Glycol ethers
N420	Lead compounds
N450	Manganese compounds
N458	Mercury compounds
N495	Nickel compounds
N575	Polybrominated biphenyls (PBBs)
N725	Selenium compounds
N740	Silver compounds
N760	Thallium compounds
N982	Zinc compounds

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

	Weight Range in Pounds	
Range Code	From...	To....
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 II, Section 5 - Releases of the Toxic Chemical to the Environment On-Site and Part II, Section 6 - Transfers of the Toxic Chemical in Waste Streams to Off-Site Locations

Total Release or Transfer

Code	Range (lbs)
A	1-10
B	11-499
C	500-999

Basis of Estimate

M: Estimate is based on monitoring data or measurements for the toxic chemical as transferred to an off-site facility.

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

E: Estimate is based on published emission factors, such as those relating release quantity to throughput 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 waste stream before treatment was fully characterized by monitoring data.

Part II, Section 6 - Transfers of the Toxic Chemical in Waste Streams to Off-Site Locations

Type of Waste Treatment/Disposal/Recycling/Energy Recovery

M10 Storage Only
M20 Solvents/Organics Recovery
M24 Metals Recovery
M26 Other Reuse or Recovery
M28 Acid Regeneration
M40 Solidification/Stabilization
M50 Incineration/Thermal Treatment
M54 Incineration/Insignificant Fuel Value
M56 Energy Recovery

M61 Wastewater Treatment (Excluding POTW)
M69 Other Waste Treatment
M71 Underground Injection
M72 Landfill/Disposal Surface Impoundment
M73 Land Treatment
M79 Other Land Disposal
M90 Other Off-Site Management
M92 Transfer to Waste Broker -- Energy Recovery
M93 Transfer to Waste Broker -- Recycling
M94 Transfer to Waste Broker -- Disposal
M95 Transfer to Waste Broker -- Waste Treatment
M99 Unknown

Federal Information Processing Standards (FIPS) Codes for Transfers of the Toxic Chemical to Other Countries

This is an abridged list of countires to which a U.S. facility might ship a listed toxic chemical. For a complete listing of FIPS codes, consult your local library.

Country	Code
Argentina	AR
Belgium	BE
Bolivia	BL
Brazil	BR
Canada	CA
Chile	CI
Columbia	CO
Costa Rica	CS
Cuba	CU
Ecuador	EC
El Salvador	ES
France	FR
Guatemala	GT
Honduras	HO
Ireland	EI
Italy	IT
Mexico	MX
Nicaragua	NU
Panama	PM
Paraguay	PA
Peru	PE
Portugal	PO
Spain	SP
Switzerland	SZ
United Kingdom	UK
Uruguay	UY
Venezuela	VE

Part II, Section 7A - Waste Treatment Methods and Efficiency

General Waste Stream

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

Waste Treatment Methods

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

Solidification/Stabilization

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

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 II, Section 7B - On-Site Energy Recovery Processes

U01 Industrial Kiln
U02 Industrial Furnace
U03 Industrial Boiler
U09 Other Energy Recovery Methods

Part II, Section 7C - On-Site Recycling Processes

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
R27 Metals Recovery -- High Temperature
R28 Metals Recovery -- Retorting
R29 Metals Recovery -- Secondary Smelting
R30 Metals Recovery -- Other
R40 Acid Regneration
R99 Other Reuse or Recovery

Part II, Section 8.10 - Source Reduction Activity

Codes

Good Operating Practices

W13 Improved maintenance scheduling, recordkeeping, or procedures
W14 Changed production schedule to minimize equipment and feedstock changeovers
W19 Other changes in operating practices

Inventory Control

W21 Instituted procedures to ensure that materials do not stay in inventory beyond shelf-life
W22 Began to test outdated material -- continue to use if still effective
W23 Eliminated shelf-life requirements for stable materials
W24 Instituted better labelling procedures
W25 Instituted clearinghouse to exchange materials that would otherwise be discarded
W29 Other changes in inventory control

Spill and Leak Prevention

W31 Improved storage or stacking procedures
W32 Improved procedures for loading, unloading, and transfer operations
W33 Installed overflow alarms or automatic shut-off valves
W35 Installed vapor recovery systems
W36 Implemented inspection or monitoring program of potential spill or leak sources
W39 Other spill and leak prevention

Raw Material Modifications

W41 Increased purity of raw materials
W42 Substituted raw materials
W49 Other raw material modifications

Process Modifications

W51 Instituted recirculation within a process
W52 Modified equipment, layout, or piping
W53 Use of a different process catalyst
W54 Instituted better controls on operating bulk containers to minimize discarding of empty containers
W55 Changed from small volume containers to bulk containers to minimize discarding of empty containers
W58 Other process modifications

Cleaning and Degreasing

W59 Modified stripping/cleaning equipment
W60 Changed to mechanical stripping/cleaning devices (from solvents or other materials)
W61 Changed to aqueous cleaners (from solvents or other materials)
W63 Modified containment procedures for cleaning units
W64 Improved draining procedures
W65 Redesigned parts racks to reduce dragout
W66 Modified or installed rinse systems
W67 Improved rinse equipment design
W68 Improved rinse equipment operation
W71 Other cleaning and degreasing modifications

Surface Preparation and Finishing

W72 Modified spray systems or equipment
W73 Substituted coating materials used
W74 Improved application techniques
W75 Changed from spray to other system
W78 Other surface preparation and finishing modifications

Product Modifications

W81 Changed product specifications
W82 Modified design or composition
W83 Modified packaging
W89 Other product modifications

Part II, Section 8.10 - Methods Used to Identify

Source Reduction Activities

For each source reduction activity, enter up to three of the following codes that correspond to the method(s) used to identify that activity and contributed most to the decision to implement that activity.

T01 Internal Pollution Prevention Opportunity Audit(s)
T02 External Pollution Prevention Opportunity Audit(s)
T03 Materials Balance Audits
T04 Participative Team Management
T05 Employee Recommendation (independent of a formal company program)
T06 Employee Recommendation (under a formal company program)
T07 State Government Technical Assistance Program
T08 Federal Government Technical Assistance Program
T09 Trade Association/Industry Technical Assistance Program
T10 Vendor Assistance
T11 Other

APPENDIX C. COMMON ERRORS IN COMPLETING FORM R REPORTS

The common errors in complying with section 313 and completing Form R occur in three areas: Form R entry errors, threshold determination errors, and release estimation errors. It is important to note that although the Pollution Prevention Act of 1990 has greatly impacted the Form R, many of these common errors will still exist. These errors may prevent the entering of information from Form Rs into the Toxic Release Inventory (TRI) database, or may result in overly large or small release estimates or omission of reportable releases of toxic chemicals. If a mistake is made on the Form R that prevents it from being entered into the TRI database, the facility owner/operator will be issued a Notice of Non-Compliance by EPA. The notice will indicate that the Form R cannot be further processed and entered into the TRI database and that changes must be submitted to EPA by a certain date or further enforcement actions will be taken.

For other errors, including missing pieces of information or erroneous data (e.g., missing certification signature, non-numeric SIC codes), the facility owner/operator will be issued a Notice of Technical Error by EPA. This notice will explain the nature of the error and will require that the corrections be returned to EPA by a certain date.

Through examining Form Rs from other facilities in the same industry or through federal, state, and local referrals, EPA may initiate an inspection to determine the toxic chemical-related activities at a facility. If, as a result of the inspection, EPA determines that the facility should have submitted a Form R, then EPA may take enforcement action against the facility, which may involve the subsequent assessment of fines. Likewise, if EPA determines in the process of the inspection that the facility incorrectly calculated a threshold determination, the facility may also be subject to penalties.

Discussed below are common errors made when completing Form Rs and the corresponding notices and enforcement actions that may result from these errors.

Form R Completion Errors

- **Invalid chemical identification on page 3.** The CAS number and the chemical name reported on page 3 must exactly match the listed section 313 CAS number and toxic chemical name. The toxic chemical category code must exactly match the listed category code in Appendix B. A generic chemical name should only be provided if you are claiming the section 313 chemical identity as a trade secret. Toxic chemical names and CAS numbers should be taken directly from the section 313 toxic chemical list. Mixture names are to be entered in Part II, Section 2 if the supplier is claiming the identity of the toxic chemical trade secret and that is the sole identification. Mixture names that include the name or CAS number of one or more section 313 toxic chemical(s) are not valid. Failure to correctly enter the chemical identification information will result in a Notice of Non-Compliance.

- **Missing certification signature.** An original certification signature must appear on page 1 of every Form R submitted to EPA. Failure to provide an original certification signature will result in a Notice of Technical Error.

- **Incomplete forms.** A complete Form R report for any toxic chemical or toxic chemical category consists of at least nine unique pages stapled together. Sending in a package which contains only one page 1, but several page 2's, 3's, 4's, 5's, 6's, etc. will result in a Notice of Non-Compliance.

- **Maximum amount on-site left blank.** In a surprising number of Form R submissions, Part II, Section 4 on page 3 is left blank. Leaving this section blank may result in a Notice of Technical Error.

- **"Questionable" entries**, such as:

  - Missing or incorrect ZIP codes;
  - Missing county names;
  - Non-numeric SIC codes;
  - Non-numeric or invalid Dun and Bradstreet numbers;
  - Incomplete off-site and POTW information (e.g., missing city name)

  Incorrect entries such as these may result in a Notice of Technical Error. If amounts are reported in units other than pounds (e.g., metric)

or with exponential numbers, EPA may require a revision of the Form R to be submitted.

- **Incorrect latitude and longitude coordinates.** Latitude and longitude coordinates are important data on the Form R. These coordinates must be determined using the correct map and correct measuring techniques and reported in degrees, minutes, and seconds. For additional guidance, see Appendix E of the instructions document. Missing, suspect, or incorrect latitude or longitude coordinates will result in a Notice of Technical Error.

- **Incorrect completion of trade secret information.** The response to trade secret questions in Part I and Part II of a Form R must be consistent. If trade secrecy is indicated, a sanitized Form R and two trade secret substantiations (one sanitized) must be submitted in the same package as the trade secret Form R. Failure to provide complete trade secret submissions will result in a Notice of Non-Compliance.

- **Revisions not identified.** Revisions to previously submitted data may be provided to EPA by making corrections in red ink on a copy of the Form R originally submitted; if a revision is made for reporting year 1991 or later, mark an "X" in the space marked "Enter "X" here if this is a revision" on page 1; provide an original signature, and send it to the EPCRA Reporting Center. You must also send a copy of the revision to the appropriate State agency. Failure to clearly identify a revision may result in EPA entering it into the TRI database as a new submission resulting in duplicative data for the facility. Revisions to data submitted using magnetic media must be made on hard copies of the original Form R and submitted with a cover letter explaining that the original data was submitted on magnetic media.

- **Duplicate submissions not identified.** Facilities sometimes send multiple copies of the same Form R to insure that EPA received a copy. Duplicate submissions must be identified by printing the word "DUPLICATE" in red ink at the top of page 1. Failure to clearly identify a duplicate report may result in the duplicate appearance of the data in the TRI database.

- **Failure to report waste treatment.** Waste treatment methods used to treat waste streams containing toxic chemicals, and the efficiencies of these methods, must be reported on Form R. Information must be entered for all waste streams, even if the waste treatment does not affect the toxic chemical. If no waste treatment is performed on the toxic chemical, the box marked "Not Applicable" in Part II, Section 7 must be checked on the Form R. Failure to do so may result in a Notice of Technical Error.

- **Incorrect reporting of waste treatment methods.** The type of waste stream, influent concentration, and waste treatment method for each waste stream is required to be reported on Form R using specific codes, along with the waste treatment efficiency expressed as percent removal. Incomplete or missing treatment codes or missing efficiency data may result in a Notice of Technical Error.

- **Reporting for delisted chemicals.** Form R reports for delisted chemicals or other non-listed chemicals are not required. EPA identifies such reports as nonreportable and notifies the facility that these reports are not required and will not be included as part of the TRI database.

- **Reporting discharges of mineral acids after neutralization.** When a waste stream containing a mineral acid is neutralized to a pH of 6 or above, the mineral acid is considered 100 percent neutralized. As a result, the release of a neutralized acid discharge should be reported on Form R as zero. Reporting a large amount of neutralized acid as a release may result in a Notice of Technical Error.

- **Not completing all sections of Form R.** All sections of Form R must contain data or "NA". Failure to complete <u>any</u> section may result in a Notice of Technical Error.

- **Duplicate data in Part II, Sections 5 and Part II, Section 6.** Reporting identical values as a discharge to a receiving stream in Part II, Section 5.3 and as a transfer to a POTW in Part II, Section 6.1 is interpreted by EPA as duplicative data and may result in a Notice of Technical Error.

- **Documentation.** Any information used to complete the Form R must be clearly documented in facility records and be available for viewing by EPA upon request. Failure to provide proper documentation if requested by EPA may result in an enforcement action. This documentation should not be submitted with the Form R, but must be maintained by the submitting facility for three years.

- **Toxic chemical activity overlooked.** Many facilities believe that because the section 313 reporting requirement pertains to manufacturers, only the use of toxic chemicals in manufacturing processes must be examined. **Any activity** involving the manufacture, process, or otherwise use of a listed toxic chemical must be included in a threshold determination. For example, waste treatment operations otherwise use toxic chemicals to treat waste streams and may coincidentally manufacture another listed toxic chemical as a result of the waste treatment reaction. Failure to correctly identify all uses of toxic chemicals at your facility may result in the omission of a required Form R and may lead to an enforcement action.

- **Misclassification of a toxic chemical activity.** Failure to correctly classify a toxic chemical activity may result in an incorrect threshold determination. As a result, a Form R may not be submitted when one is required. "Manufacture" means to produce, prepare, compound, or import a listed toxic chemical. "Process" means the preparation of a listed toxic chemical after its manufacture, which incorporates the toxic chemical into the final product, for distribution in commerce. "Otherwise use" encompasses any use of a listed toxic chemical that does not fall under the terms "manufacture" or "process." For example, solvents in paint applied to a manufactured product are often misclassified as processed, instead of otherwise used. Because the solvents are not intentionally incorporated into the final product, the solvent is being otherwise used, not processed. Failure to submit a Form R because of an incorrect threshold determination resulting from a misclassification of a toxic chemical activity may result in an enforcement action.

- **Incorrect interpretation of an exemption clause.** Only toxic chemicals meeting every condition of an exemption clause may be omitted from the reporting requirements. For additional guidance on the scope of the section 313 exemptions and specific examples, see the *Toxic Chemical Release Inventory Questions and Answers* document, which includes "Directive #1: Article Exemption." For example, only the processing or otherwise using an article is exempt. Incorrectly assuming the manufacture of an article is exempt will result in incorrectly omitting toxic chemicals which are required to be included in a threshold determination. Failure to submit a Form R due to an incorrect threshold determination resulting from the incorrect interpretation of an exemption clause may result in an enforcement action.

- **Misinterpretation of the toxic chemical list.** Each toxic chemical subject to section 313 reporting requirements has a specific Chemical Abstract Service (CAS) registry number associated with it. All information available at the facility, such as MSDSs and the *Common Synonyms for Section 313 Chemicals* document, must be used to identify the listed toxic chemicals being reported.

- **Failure to consider a listed toxic chemical qualifier.** Aluminum, vanadium, and zinc are qualified as "fume or dust." Isopropyl alcohol and saccharin have manufacturing qualifiers. Ammonium nitrate and ammonium sulfate are qualified as solutions. Phosphorus is qualified as yellow or white. Asbestos is qualified as friable. Aluminum oxide is qualified as fibrous forms. **Only** forms of these toxic chemicals meeting the qualifiers require reporting under section 313 and should be reported on Form R with the appropriate qualifier in parentheses. For example, isopropyl alcohol is listed on the toxic chemical list with the qualifier "manufacturing-strong acid process, no supplier notification." The only facilities that should be reporting this toxic chemical are those that manufacture isopropyl alcohol by the strong acid process. If it is manufactured by another process, or simply processed or otherwise used, you are not required to report it.

- **Incorrectly interpreting threshold definition.** Thresholds for section 313 are based on the amount of toxic chemicals manufactured, processed, or otherwise used at the facility over the course of a calendar year. The thresholds are not based on the amount stored on-site at any one time or the amount released to the environment. Any toxic chemical that is reported that did not exceed a threshold will result in a Notice of Non-Compliance. Any toxic chemical that was not reported due to an incorrect threshold determination (i.e., based on the amount released), which should have been reported, may result in an enforcement action.

- **Reporting zero air emissions of a VOC.** Volatile organic chemicals (VOCs) are substances which readily evaporate at room temperature. As a result, when using these toxic chemicals in an open tank, a painting or degreasing operation, or similar open operations, air emissions will occur. Only in special cases with completely closed systems may a zero emission to air occur. Failure to report air emissions when submitting a Form R for a VOC may result in underreporting of releases.

APPENDIX D. SUPPLIER NOTIFICATION REQUIREMENTS

Because manufacturers reporting under section 313 must know the toxic chemical composition of the products they use to be able to accurately calculate releases, EPA requires some suppliers of mixtures or trade name products containing one or more of the listed section 313 toxic chemicals to notify their customers. This requirement has been in effect since January 1, 1989.

This appendix explains which suppliers must notify their customers, who must be notified, what form the notice must take, and when it must be sent.

Who Must Supply Notification

You are covered by the section 313 supplier notification requirements if you own or operate a facility which meets all of the following criteria:

(1) Your facility is in Standard Industrial Classification (SIC) codes 20-39 (see Table I);

(2) You manufacture, import, or process a listed toxic chemical; and

(3) You sell or otherwise distribute a mixture or trade name product containing the toxic chemical to either:

- A facility in SIC Codes 20-39.
- A facility that then sells the same mixture or trade name product to a firm in SIC codes 20-39.

Note that you may be covered by the supplier notification rules even if you are not covered by the section 313 release reporting requirements. For example, even if you have less than 10 full-time employees or do not manufacture or process any of the toxic chemicals in sufficient quantities to trigger the release reporting requirements, you may still be required to notify certain customers.

Who Must Be Notified

For each mixture or trade name product that contains a listed toxic chemical, you will have to notify all customers in SIC codes 20-39 or distributors who in turn sell that product to facilities in SIC codes 20-39. Unless you know otherwise, you should assume that the chain of distribution includes facilities in SIC codes 20-39. (The notification is limited to SIC codes 20-39 facilities and their suppliers because only facilities in those SIC codes may be required to report releases under section 313.)

An example would be if you sold a lacquer containing toluene to distributors who then sell the product to other manufacturers. The distributors are not in SIC codes 20-39, but because they sell the product to companies in SIC codes 20-39, they must be notified so that they may pass the notice along to their customers, as required.

The language of the supplier notification requirements covers mixtures or trade name products that are sold or otherwise distributed. The "otherwise distributes" language applies to intra-company transfers. However, if the company has developed an internal communications procedure that alerts their other facilities to the presence and content of covered toxic chemicals in their products, then EPA would accept this.

Supplier notification is also required if a waste mixture containing a toxic chemical is sold to a recycling or recovery facility. However, if the material is sent off-site as a waste stream for treatment or disposal, then no supplier notification is required.

Supplier Notification Must Include the Following Information:

(1) A statement that the mixture or trade name product contains a toxic chemical or chemicals subject to the reporting requirements of EPCRA section 313 (40 CFR 372);

(2) The name of each toxic chemical and the associated Chemical Abstracts Service (CAS) registry number of each chemical if applicable. (CAS numbers are not used for chemical categories, since they can represent several individual toxic chemicals.)

(3) The percentage, by weight, of each toxic chemical (or all toxic chemicals within a listed category) contained in the mixture or trade name product.

For example, if a mixture contains a chemical (i.e., 12 percent zinc oxide) that is a member of a reportable toxic chemical category (i.e., zinc compounds), the notification must include that the mixture contains a zinc compound at 12 percent by weight. Supplying only the weight

percent of the parent metal (zinc) does not fulfill the requirement. The customer must be told the weight percent of the entire compound within a listed toxic chemical category present in the mixture.

How the Notification Must Be Made

The required notification must be provided at least annually in writing. Acceptable forms of notice include letters, product labeling, and product literature distributed to customers. If you are required to prepare and distribute a Material Safety Data Sheet (MSDS) for the mixture under the Occupational Safety and Health Act (OSHA) Hazard Communication Standard, your section 313 notification must be attached to the MSDS or the MSDS must be modified to include the required information. (A sample letter and recommended text for inclusion in an MSDS appear at the end of this appendix.)

You must make it clear to your customers that any copies or redistribution of the MSDS or other form of notification must include the section 313 notice. In other words, your customers should understand their requirement to include the section 313 notification if they give your MSDS to their customers.

When Notification Must Be Provided

In general, you must notify each customer receiving a mixture or trade name product containing a listed toxic chemical with the first shipment of each calendar year. You may send the notice with subsequent shipments as well, but it is required that you send it with the first shipment each year. Once customers have been provided with an MSDS containing the section 313 information, you may refer to the MSDS by a written letter in subsequent years (as long as the MSDS is current).

If EPA adds toxic chemicals to the section 313 list, and your products contain the newly listed toxic chemicals, notify your customers with the first shipment made during the next calendar year following EPA's final decision to add the chemical to the list. For example, if EPA adds chemical ABC to the list in September 1990, supplier notification for chemical ABC would have begun with the first shipment in 1991.

You must send a new or revised notice to your customers if you:

(1) Change a mixture or trade name product by adding, removing, or changing the percentage by weight of a listed toxic chemical.

(2) Discover that your previous notification did not properly identify the toxic chemicals in the mixture or correctly indicate the percentage by weight.

In these cases, you must:

(1) Supply a new or revised notification within 30 days of a change in the product or the discovery of misidentified toxic chemical(s) in the mixture or incorrect percentages by weight; and

(2) Identify in the notification the prior shipments of the mixture or product in that calendar year to which the new notification applies (e.g., if the revised notification is made on August 12, indicate which shipments were affected during the period January 1 - August 12).

When Notifications Are Not Required

Supplier notification is not required for a "pure" toxic chemical unless a trade name is used. The identity of the toxic chemical will be known based on label information.

You are not required to make a "negative declaration." That is, you are not required to indicate that a product contains no section 313 toxic chemicals.

If your mixture or trade name product contains one of the listed toxic chemicals, you are not required to notify your customers if:

(1) Your mixture or trade name product contains the toxic chemical in percentages by weight of less than the following levels (These are known as *de minimis* levels):

- 0.1 percent if the toxic chemical is defined as an "OSHA carcinogen";
- 1 percent for other toxic chemicals.

De minimis levels for each toxic chemical and chemical category are listed Table II.

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

- An article that does not release a listed toxic chemical under normal conditions of processing or otherwise use.

- Foods, drugs, cosmetics, pesticides, alcoholic beverages, tobacco, or tobacco products packaged for distribution to the general public.

- Any consumer product, as the term is defined in the Consumer Product Safety Act, packaged for distribution to the general public. For example, if you mix or package one-gallon cans of paint designed for use by the general public, notification is not required.

(3) Your mixture or trade name product is contained in a waste stream being sent off-site for waste treatment or disposal.

Trade Secrets

Chemical suppliers may consider the chemical name or the specific concentration of a section 313 toxic chemical in a mixture or trade name product to be a trade secret. If you consider the:

(1) Specific identity of a toxic chemical to be a trade secret, the notice must contain a generic chemical name that is descriptive of the structure of that toxic chemical. For example, decabromodiphenyl oxide could be described as a halogenated aromatic.

(2) Specific percentage by weight of a toxic chemical in the mixture or trade name product to be a trade secret, your notice must contain a statement that the toxic chemical is present at a concentration that does not exceed a specified upper bound. For example, if a mixture contains 12 percent toluene and you consider the percentage a trade secret, the notification may state that the mixture contains toluene at no more than 15 percent by weight. The upper bound value chosen must be no larger than necessary to adequately protect the trade secret.

If you claim this information to be trade secret, you must have documentation that provides the basis for your claim.

Recordkeeping Requirements

You are required to **keep records for** <u>three years</u> of the following:

(1) Notifications sent to recipients of your mixture or trade name product;

(2) Explanations of why a notification was considered necessary and all supporting materials used to develop the notice;

(3) If claiming a specific toxic chemical identity a trade secret, why the toxic chemical identity is considered a trade secret and the appropriateness of the generic chemical name provided in the notification; and

(4) If claiming a specific concentration a trade secret, explanations of why a specific concentration is considered a trade secret and the basis for the upper bound concentration limit.

This information must be readily available for inspection by EPA.

Sample Notification Letter

January 2, 1992

Mr. Edward Burke
Furniture Company of North Carolina
1000 Main Street
Anytown, North Carolina 99999

Dear Mr. Burke:

The purpose of this letter is to inform you that a product that we sell to you, Furniture Lacquer KXZ-1390, contains 20 percent toluene (Chemical Abstracts Service (CAS) number 108-88-3) and 15 percent zinc compounds. We are required to notify you of the presence of toluene and zinc compounds in the product under section 313 of the Emergency Planning and Community Right-to-Know Act of 1986. This law requires certain manufacturers to report on annual emissions of specified toxic chemicals and chemical categories.

If you are unsure whether or not you are subject to the reporting requirements of Section 313, or need more information, call EPA's Emergency Planning and Community Right-To-Know Information Hotline at (800) 535-0202. Your other suppliers should also be notifying you if section 313 toxic chemicals are in the mixtures and trade name products they sell to you.

Please also note that if you repackage or otherwise redistribute this product to industrial customers, a notice similar to this one should be sent to those customers.

Sincerely,

Axel Leaf
Sales Manager
Furniture Products

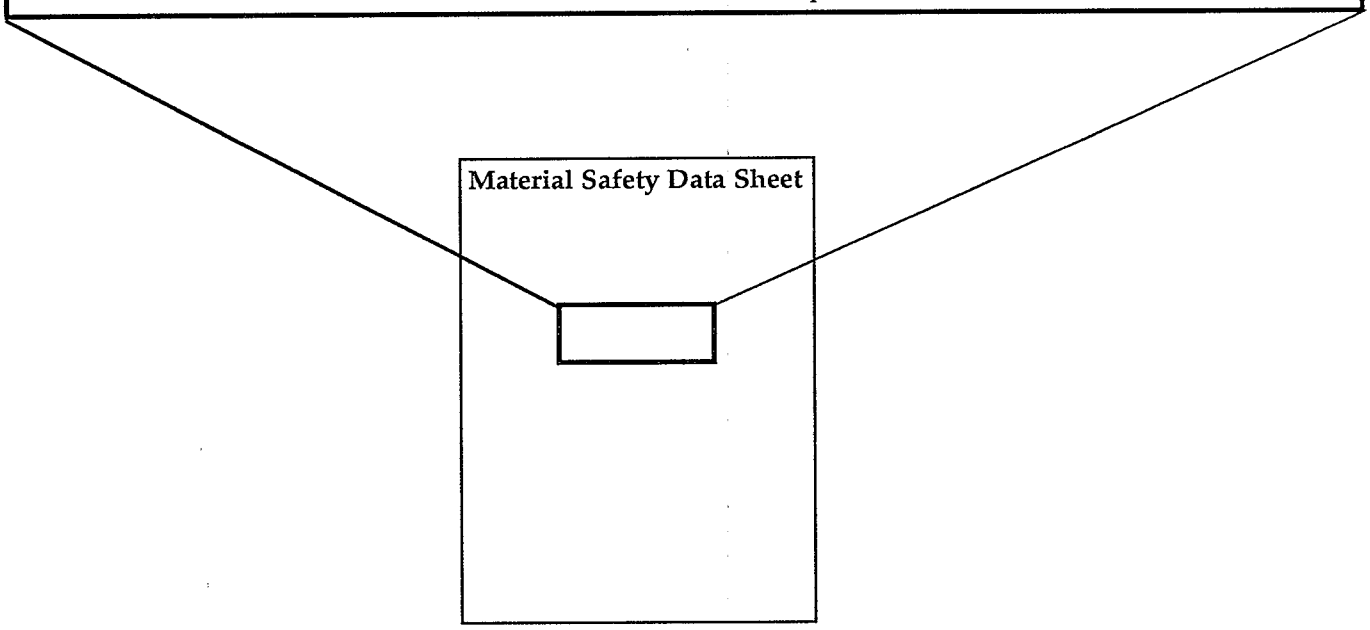
Sample Notification on an MSDS

Section 313 Supplier Notification

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372):

CAS #	Chemical Name	Percent by Weight
108-88-3	Toluene	20%
NA	Zinc Compounds	15%

This information should be included in all MSDSs that are copied and distributed for this material.



APPENDIX E. HOW TO DETERMINE LATITUDE AND LONGITUDE FROM TOPOGRAPHIC MAPS

Latitude and longitude coordinates of reporting facilities are very important for pinpointing facility location and are a required data element on Form R. As such, EPA is encouraging facilities to make the best possible measurements when determining latitude and longitude. As with any other data element, missing, suspect, or incorrect data may result in EPA issuing a Notice of Technical Error to the facility.

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 degrees, minutes, and seconds.

60" (seconds) = 1' (minute)
60' (minutes) = 1° (degree)

The most important tool available for determining latitude and longitude for your facility is the U.S. Geological Survey (USGS) topographic quadrangle map. These maps are published in varying degrees of detail. The most detailed version of the topographic quadrangle map is in 7.5 x 7.5 minute increments with a scale of 1:24000 (i.e., one inch on the map represents 2,000 feet). Detailed topographic quadrangle maps are also available in 7.5 x 15 minute increments with a scale of 1:25000 (i.e., one inch on the map represents approximately four miles). It is very important that latitude and longitude measurements be made from one of the detailed maps described above. Otherwise, measurements will not accurately reflect the location of your facility and could be identified as an error on your Form R submission.

In order to identify the detailed topographic quadrangle map in which your facility is located, the USGS has published an index and a catalog of topographic maps available for each state. Both the index and the catalog are available in many libraries or free of charge from the Distribution Branch of the USGS (address on following page). The *Index to Topographic and Other Map Coverage* helps you to identify the most detailed map in which your facility is located. To identify the most detailed map, follow these simple steps on how to use the index:

(1) The beginning of each index contains a map of the state, broken into numbered quadrangular sections. The numbered quadrangular sections are called general areas of interest. **Identify** the numbered section in which your facility is located.

(2) The subsequent pages of the index contain detailed maps of each general area of interest, in numerical order. **Identify** the detailed map corresponding to the numbered general area of interest identified in Step 1.

(3) Within this detailed map, **identify** the smaller quadrangular area in which your facility is located. This smaller quadrangular section is the specific area of interest. Record first the letter then the number coordinate for your specific area of interest (e.g., E4).

(4) Using the chart found on the same page as the detailed map of the general area of interest, **record** the name of the specific area of interest in which your facility is located, identified by the letter and number coordinates (e.g., Richmond).

The name of the specific area of interest and its corresponding letter and number coordinates identify the most detailed topographic quadrangle map in which your facility is located. To identify the map reference code and file number necessary to order this map, follow these simple steps for using the *Catalog of Topographic and Other Published Maps* for the state in which your facility is located:

(5) The beginning of the catalog explains the meaning of the reference code. On the pages following this explanation, there are charts listed alphabetically by the name of the specific area of interest with corresponding file numbers and map reference codes. Using the name of the specific area of interest recorded in Step 4, **identify** the file number and map reference code from the chart for the map in which your facility is located (e.g., file number 00692, map reference code 37977-E4-TF-024-00).

(6) Use the file number and map reference code to obtain the specific topographic quadrangle map in which your facility is located.

These detailed topographic quadrangle maps are available in many libraries or for purchase from the Distribution Branch of the USGS and from private map dealers. The *Catalog of Topographic and Other Published Maps* contains a list of map depository libraries and topographic map dealers for each state covered in the catalog.

To purchase a topographic quadrangle map from the USGS, you must send a written request to the Distribution Branch of the USGS, containing the file number, map reference code, the name of the city, state and zip code in which your facility is located, and payment of $2.50.

The Distribution Branch of the USGS can be reached at:

Distribution Branch of the USGS
P.O. Box 25286
Denver Federal Center
Denver, CO 80225
(303) 236-7477

ALLOW 5 WEEKS FOR DELIVERY

In addition, you may purchase a topographic quadrangle map from the USGS through a USGS Public Inquiry Office. The Public Inquiry Offices are listed for each state on the inside back cover of the *Catalog of Topographic and Other Published Maps*.

If you need help in determining your latitude and longitude, once you have the necessary map, the National Cartographic Information Center can provide assistance:

Western states: (303) 236-5829
Eastern states: (314) 341-0851

Please call in advance of the section 313 reporting deadline to avoid unnecessary delays.

Determining Your Facility's Latitude and Longitude

(See diagram next page.)

Once you have obtained the correct map for your facility:

(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 rectangle 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 (in degrees, minutes, and seconds) for the southeast 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 west;
- place the ruler in approximately a north-south alignment, with the "0" on the latitude line recorded in step 3 with the ruler 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:

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

[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" + 17.7" = 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 **south**;
- place the ruler in approximately an east-west alignment with the "0" on the longitude line recorded in step 3 with the ruler 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:

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

For example:

Point distance = 65.0
Total distance = 149.9

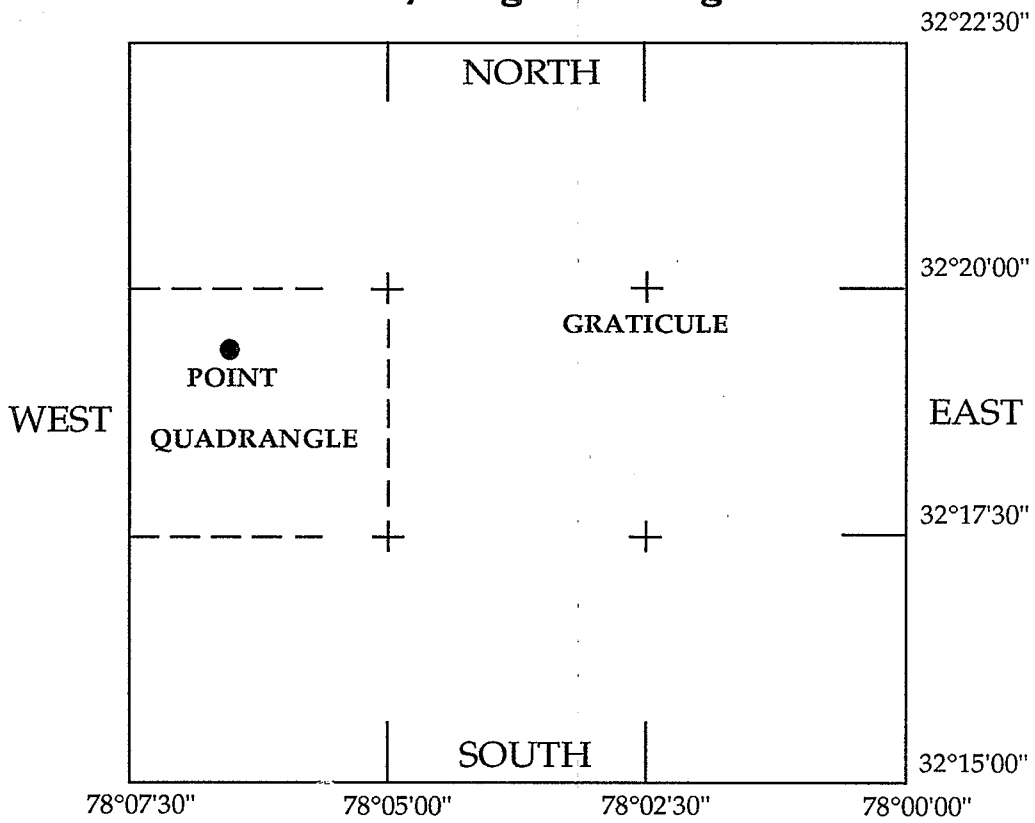
$$\frac{65.0}{149.9} \times 150'' = 65'' = 01'05''$$

(60" = 1'; 65" = 60" + 05" = 01'05")

Longitude in step 3	78°05'00"
Increment	+ 01'05"
Longitude of point	78°06'05"

to the nearest second = 78°06'05"

Latitude/Longitude Diagram



Point: Latitude 32°18'48" North, Longitude 78°06'05" West
Note: This diagram is based on a USGS 7.5 Minute Series Topographic Map. It is not drawn to scale.

APPENDIX F. STATE DESIGNATED SECTION 313 CONTACTS

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

Alabama
Mr. Keith R. Carter
Alabama Emergency Response Commission
Alabama Department of Environmental Management
1751 Congressman W.L. Dickinson Drive
Montgomery, AL 36109
(205) 260-2717

Alaska
Ms. Camille Stevens
Alaska State Emergency Response Commission
Government Preparedness and Response Program
410 Willoughby, Suite 105
Juneau, AK 99801-1795
(907) 465-5220

American Samoa
Pati Faiai, Director
American Samoa EPA
Office of the Governor
Pago Pago, AS 96799
International Number (684) 633-2304

Arizona
Ms. Ethel DeMarr
Arizona Emergency Response Commission
Division of Emergency Services
5636 East McDowell Road
Phoenix, AZ 85008
(602) 231-6326

Arkansas
Mr. John Ward
Depository of Documents
Arkansas Department of Labor
10421 West Markham
Little Rock, AR 72205
(501) 562-7444

California
Mr. Stephen Hanna, Chief
Office of Environmental Information
California Environmental Protection Agency
555 Capitol Mall, Suite 235
Sacramento, CA 95814
(916) 324-9924

Colorado
Winnifred Bromley
Colorado Emergency Planning Commission
Colorado Department of Health
4300 Cherry Creek Drive South
Denver, CO 80220-1530
(303) 692-3434

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

Connecticut
Ms. Sue Vaughn, Title III Coordinator
State Emergency Response Commission
Department of Environmental Protection
C/O Waste Management
165 Capitol Avenue
Hartford, CT 06106
(203) 566-4856

Delaware
Mr. Robert Pritchett
Division of Air and Waste Management
Department of Natural Resources and Environmental Control
89 King's Highway
P.O. Box 1401
Dover, DE 19903
(302) 739-4791

District of Columbia
Ms. Pamela Thuber
Office of Emergency Preparedness
Frank Reeves Center for Municipal Affairs
2000 14th Street, NW
Washington, DC 20009
(202) 727-6161

Florida
Ms. Eve Rainey
State Emergency Response Commission
Florida Department of Community Affairs
2740 Centerview Drive
Tallahassee, FL 32399-2100
(904) 488-1472
In Florida: 800-635-7179

Georgia
Mr. Burt Langley
Georgia Emergency Response Commission
205 Butler Street, SE
Floyd Tower East
11th Floor, Suite 1166
Atlanta, GA 30334
(404) 656-6905

Guam
Mr. Fred Castro
Guam EPA
D-107 Harmon Plaza
130 Rojas Street
Harmon, GU 96911
(671) 646-8864

Hawaii
Mr. Steve Arman
Hawaii State Emergency Response Commission
Hawaii State Department of Health
5 Waterfront Plaza, Suite 250C
500 Alamona Blvd.
Honolulu, HI 96813
(808) 586-4249

Idaho
Ms. Margaret Ballard
Idaho Emergency Response Commission
1109 Main St.
State House
Boise, ID 83720-7000
(208) 334-3263

Illinois
Mr. Joe Goodner
Emergency Planning Unit
Office of Emergency Management
Illinois EPA
P.O. Box 19276
2200 Churchill Road
Springfield, IL 62794-9276
(217) 785-0830

Indiana
Mr. John Rose
Indiana Emergency Response Commission
5500 West Bradbury Avenue
Indianapolis, IN 46241
(317) 243-5123

Iowa
Mr. Pete Hamlin
Department of Natural Resources
Wallace Building
900 East Grand Avenue
Des Moines, IA 50319
(515) 281-8852

Kansas
Mr. Jon Flint
Right-to-Know Program
Kansas Emergency Response Commission
Mills Building, 5th Floor, Suite 501
109 S.W. 9th Street
Topeka, KS 66612
(913) 296-1690

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

Louisiana
Ms. Jeany Anderson-Labar
Department of Environmental Quality
P.O. Box 82263
7290 Bluebonnet
Baton Rouge, LA 70884-2263
(504) 765-0737

Maine
Ms. Rayna Leibowitz
State Emergency Response Commission
State House Station Number 72
Augusta, ME 04333
(207) 289-4080
In Maine: (800) 452-8735

Maryland
Ms.Patricia Williams
State Emergency Response Commission
Maryland Department of the Environment
Toxics Information Center
2500 Broening Highway
Baltimore, MD 21224
(301) 631-3800

Massachusetts
Ms. Suzi Peck
Massachusetts Department of Environmental Protection
Bureau of Waste Prevention
1 Winter Street
Boston, MA 02108
(617) 292-5870

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

Minnesota
Mr. Steve Tomlyanovich
Minnesota Emergency Response Commission
175 Bigelow Building
450 North Syndicate St.
St Paul, MN 55104
(612) 643-3542

Mississippi
Mr. John David Burns
Mississippi Emergency Response Commission
Mississippi Emergency Management Agency
P.O. Box 4501
Jackson, MS 39296-4501
(601) 960-9000

Missouri
Mr. Dean Martin
Missouri Emergency Response Commission
Missouri Department of Natural Resources
P.O. Box 3133
Jefferson City, MO 65102
(314) 526-3901

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

Nebraska
Mr. John Steinauer, Coordinator
State of Nebraska Department of Environmental Quality
1200 N Street, Suite 400
Lincoln, NE 68509-8922
(402) 471-4251

Nevada
Ms. Jolaine Johnson
Bureau Chief, Chemical Hazards Management
Nevada Division of Environmental Protection
333 W. Nye Lane
Carson City, NV 89710
(702) 687-5872

New Hampshire
Mr. George L. Iverson, Director
New Hampshire State Emergency Management Agency
Title III Program
State Office Park South
107 Pleasant Street
Concord, NH 03301
(603) 271-2231

New Jersey
Ms. Shirlee Schiffman
New Jersey Emergency Response Commission
SARA Title III Section 313
Department of Environmental Protection and Energy
Division of Environmental Quality, Safety, Health, and Analytical Programs
Right-to-Know
Bureau of Hazardous Substances Information
CN-405
Trenton, NJ 08625
(609) 984-3219

New Mexico
Mr. Max Johnson, Title III Coordinator
New Mexico Emergency Response Commission
Chemical Safety Office, Emergency Management Bureau
P.O. Box 1628
Santa Fe, NM 87504-1628
(505) 827-9223

New York
Mr. William Miner
New York Emergency Response Commission
New York State Department Of Environmental Conservation
Bureau of Spill Prevention and Response
50 Wolf Road/Room 326
Albany, NY 12233-3510
(518)457-4107

North Carolina
Ms. Emily Kilpatrick
North Carolina Emergency Response Commission
North Carolina Division of Emergency Management
116 West Jones Street
Raleigh, NC 27603-1335
Attn: Emily Kilpatrick
(919) 733-3865

North Dakota
Mr. Ronald Affeldt
North Dakota Emergency Response Commission
Division of Emergency Management
P.O. Box 5511
Bismarck, ND 58502-5511
(701) 224-2113

Ohio
Ms. Cindy DeWulf
Ohio EPA
Division of Air Pollution Control
1800 Watermark Drive
Columbus, OH 43215
(614) 644-3604

Oklahoma
Larry Gales
Oklahoma Department of Health
Environmental Health Administration - 0200
1000 N.E. 10th Street
Oklahoma City, OK 73117-1299
(405) 271-7353

Oregon
Mr. Dennis Walthall
Oregon Emergency Response Commission
c/o State Fire Marshall
4760 Portland Road, N.E.
Salem, OR 97305-1760
(503) 378-3473

Pennsylvania
Mr. James Tinney
Pennsylvania Emergency Management Council
Bureau of Worker and Community Right-to-Know
Room 1503
Labor and Industry Building
7th & Forster Streets
Harrisburg, PA 17120
(717) 783-2071

Puerto Rico
Mr. Pedro Maldonado,
Puerto Rico Emergency Response Commissioner
Title III-SARA Section 313
Puerto Rico Environmental Quality Board
Sernades Junco Station
P.O. Box 11488
Santurce, PR 00910
(809) 767-8056

Rhode Island
Ms. Martha Delaney Mulcahey
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. Michael Juras
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201
Attn: EPCRA Reporting
(803) 935-6336

South Dakota
Ms. Lee Ann Smith, Title III Coordinator
South Dakota Emergency Response Commission
South Dakota Department of Environment and Natural Resources
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3181
(605) 773-3296

Tennessee
Mr. Lacy Suiter, Chairman
Tennessee Emergency Response Commission
Director, Tennessee Emergency Management Agency
3041 Sidco Drive
Nashville, TN 37204
(615) 741-0001
1-800-262-3300 (in Tennessee)
1-800-258-3300 (out of state)

Texas
Ms. Becky Kuicka, Supervisor
Office of Pollution Prevention and Conservation
Texas Water Commission
P.O. Box 13087-Capitol Station
Austin, TX 78711-3087
(512) 463-7869

Utah
Mr. Neil Taylor
Utah Hazardous Chemical Emergency Response Commission
Utah Department of Environmental Quality
Division of Environmental Response and Remediation
150 North 1950 West
Salt Lake City, UT 84116-4840
(801) 536-4100

Vermont
Mr. Ray McCandless
Department of Health
10 Baldwin St.
Montpelier, VT 05602
(802) 828-2886

Virginia
Ms. Cathy Harris
Virginia Emergency Response Council
c/o Department of Waste Management
James Monroe Building
14th Floor
101 North 14th Street
Richmond, VA 23219
(804) 225-2513

Virgin Islands
Mr. Roy E. Adams, Commissioner
Department of Planning and Natural Resources
U.S. Virgin Islands Emergency Response Commission
Title III
Nisky Center, Suite 231
Charlotte Amalie
St. Thomas, VI 00802
(809) 774-3320/Ext. 101 or 102

Washington
Ms. Idell Hansen, Supervisor
Community Right-To-Know Unit
Department of Ecology
P.O. Box 47659
Olympia, WA 98504-7659
(206) 438-7252

West Virginia
Mr. Carl L. Bradford, Director
West Virginia Emergency Response Commission
West Virginia Office of Emergency Services
Main Capital Building 1, Room EB-80
Charleston, WV 25305-0360
(304) 558-5380

Wisconsin
Department of Natural Resources
101 South Webster
P.O. Box 7921
Madison, WI 53707
Attn: Russ Dumst, Toxics Coordinator
(608) 266-9255

Wyoming
Mr. Joseph Daly, Executive Secretary
Wyoming Emergency Response Commission
Wyoming Emergency Management Agency
P.O. Box 1709
Cheyenne, WY 82003
(307) 777-7566

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.

APPENDIX G. SECTION 313 EPA REGIONAL CONTACTS

Region 1

Pesticides & Toxics Branch
USEPA Region 1 (ATR)
One Congress Street
Boston, MA 02203
(617) 565-3932

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

Region 2

Pesticides & Toxics Branch
USEPA Region 2 (MS-105)
2890 Woodbridge Avenue, Building 10
Edison, NJ 08837-3679
(908) 906-6890

New Jersey, New York, Puerto Rico, Virgin Islands

Region 3

Toxics & Pesticides Branch
USEPA Region 3 (3AT31)
841 Chestnut Street Bldg.
Philadelphia, PA 19107
(215) 597-1260

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

Region 4

Pesticides & Toxics Branch
Title III Unit
USEPA Region 4
345 Courtland Street
Atlanta, GA 30365
(404) 347-1033

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

Region 5

Pesticides & Toxic Substances Branch
USEPA Region 5 (SP-14J)
77 West Jackson Blvd.
Chicago, IL 60604
(312) 353-5907

Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin

Region 6

Pesticides & Toxic Substances Branch
USEPA Region 6 (6TPT)
1445 Ross Avenue
Suite 1200
Dallas, TX 75202-2733
(214) 655-7244

Arkansas, Louisiana, New Mexico, Oklahoma, Texas

Region 7

Toxics & Pesticides Branch (TOPE)
USEPA Region 7
726 Minnesota Avenue
Kansas City, KS 66101
(913) 551-7020

Iowa, Kansas, Missouri, Nebraska

Region 8

Toxic Substances Branch
USEPA Region 8 (8ART-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 (A-4-3)
75 Hawthorne Street
San Francisco, CA 94105
(415) 744-1087

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) 553-4016

Alaska, Idaho, Oregon, Washington

APPENDIX H. STATE WASTE REDUCTION PROGRAMS

These contacts may be able to provide information on source reduction, reuse, and recycling approaches to waste minimization including technical and/or financial assistance. However, questions regarding Form R reporting must be directed to the State or Regional 313 contacts listed in Appendix F & G.

Alabama
Hazardous Material Management and
Resource Recovery Program
University of Alabama
P.O. Box 6373
Tuscaloosa, AL 35487-6373
(205) 348-8401

Alaska
Alaska Health Project
Waste Reduction Assistance Program
431 West Seventh Avenue, Suite 101
Anchorage, AK 99501
(907) 276-2864

Arkansas
Arkansas Industrial Development Commission
One State Capital Mall
Little Rock, AR 72201
(501) 371-1370

California
Alternative Technology Section
Toxic Substances Control Division
California State Department of Health Service
714/744 P Street
Sacramento, CA 95234-7320
(916) 324-1807

Connecticut
Connecticut Hazardous Waste Management Service
Suite 360
900 Asylum Avenue
Hartford, CT 06105-1094
(203) 244-2007

Connecticut Department of Economic Development
210 Washington Street
Hartford, CT 06106
(203) 522-7196

Georgia
Hazardous Waste Technical Assistance Program
Georgia Institute of Technology
Georgia Technical Research Institute
Environmental Health and Safety Division
O'Keefe Building, Room 027
Atlanta, GA 30332
(404) 894-3806

Environmental Protection Division
Georgia Department of Natural Resources
Floyd Tower East, Suite 1154
205 Butler Street, S.E.
Atlanta, GA 30334
(404) 656-2833

Illinois
Hazardous Waste Research and Information Center
Illinois Department of Energy and Natural Resources
1808 Woodfield Drive
Savoy, IL 61874
(217) 333-8940

Industrial Waste Elimination Research Center
Pritzker Department of Environmental Engineering
Alumni Building, Room 102
Illinois Institute of Technology
3300 South Federal Street
Chicago, IL 60616
(312) 567-3535

Indiana
Environmental Management and Education Program
Young Graduate House, Room 120
Purdue University
West Lafayette, IN 47907
(317) 494-5036

Indiana Department of Environmental Management
Office of Technical Assistance
P.O. Box 6015
105 South Meridian Street
Indianapolis, IN 46206-6015
(317) 232-8172

Iowa
Center for Industrial Research and Service
205 Engineering Annex
Iowa State University
Ames, IA 50011
(515) 294-3420

Iowa Department of Natural Resources
Air Quality and Solid Waste Protection Bureau
Wallace State Office Building
900 East Grand Avenue
Des Moines, IA 50319-0034
(525) 281-8690

Kansas
Bureau of Waste Management
Department of Health and Environment
Forbes Field, Building 730
Topeka, KS 66620
(913) 296-1607

Kentucky
Division of Waste Management
Natural Resources and Environmental Protection Cabinet
18 Reilly Road
Frankfort, KY 40601
(502) 564-6716

Louisiana
Department of Environmental Quality
Office of Solid and Hazardous Waste
P.O. Box 44307
Baton Rouge, LA 70804
(504) 342-1254

Maryland
Maryland Hazardous Waste Facilities Siting Board
60 West Street, Suite 200A
Annapolis, MD 21401
(301) 974-3432

Maryland Environmental Service
2020 Industrial Drive
Annapolis, MD 21401
(301) 269-3291
(800) 492-9188 (in Maryland)

Massachusetts
Office of Safe Waste Management
Department of Environmental Management
100 Cambridge Street, Room 1094
Boston, MA 02202
(617) 727-3260

Source Reduction Program
Massachusetts Department of Environmental Quality Engineering
1 Winter Street
Boston, MA 02108
(617) 292-5982

Michigan
Resource Recovery Section
Department of Natural Resources
P.O. Box 30028
Lansing, MI 48909
(517) 373-0540

Minnesota
Minnesota Pollution Control Agency
Solid and Hazardous Waste Division
520 Lafayette Road
St. Paul, MN 55155
(612) 296-6300

Minnesota Technical Assistance Program
W-140 Boynton Health Service
University of Minnesota
Minneapolis, MN 55455
(612) 625-9677
(800) 247-0015 (in Minnesota)

Minnesota Waste Management Board
123 Thorson Center
7323 Fifty-Eighth Avenue North
Crystal, MN 55428
(612) 536-0816

Missouri
Director, Environmental Improvement and Energy Resource Authority
225 Madison Street
P.O. Box 744
Jefferson City, MO 65102
(314) 751-4919

New Jersey
New Jersey Hazardous Waste Facilities Siting Commission
Room 614
28 West State Street
Trenton, NJ 08608
(609) 292-1459
(609) 292-1026

Hazardous Waste Advisement Program
Bureau of Regulation and Classification
New Jersey Department of Environmental Protection
401 East State Street
Trenton, NJ 08625

Risk Reduction Unit
Office of Science and Research
New Jersey Department of Environmental Protection
401 East State Street
Trenton, NJ 08625
(609) 984-6070

New York
New York State Environmental Facilities Corporation
50 Wolf Road
Albany, NY 12205
(518) 457-3273

North Carolina
Pollution Prevention Pays Program
Department of Natural Resources and Community Development
Post Office Box 27687
512 North Salisbury Street
Raleigh, NC 27611
(919) 733-7015

Governor's Waste Management Board
325 North Salisbury Street
Raleigh, NC 27611
(919) 733-9020

Technical Assistance Unit
Solid and Hazardous Waste Management Branch
North Carolina Department of Human Resources
P.O. Box 2091
306 North Wilmington Street
Raleigh, NC 27602
(919) 733-2178

Ohio
Division of Solid and Hazardous Waste Management
Ohio Environmental Protection Agency
P.O. Box 1049
1800 Watermark Drive
Columbus, OH 43266-0149
(614) 481-7200

Ohio Technology Transfer Organization
Suite 200
65 East State Street
Columbus, OH 43266-0330
(614) 466-4286

Oklahoma
Industrial Waste Elimination Program
Oklahoma State Department of Health
P.O. Box 53551
Oklahoma City, OK 73152
(405) 271-7353

Oregon
Oregon Hazardous Waste Reduction Program
Department of Environmental Quality
811 Southwest Sixth Avenue
Portland, OR 97204-1390
(503) 229-5913

Pennsylvania
Pennsylvania Technical Assistance Program
501 F. Orvis Keller Building
University Park, PA 16802
(814) 865-0427

Center for Hazardous Materials Research
University of Pittsburgh Applied Research Center
320 William Pitt Way
Pittsburgh, PA 15238
(412) 826-5320

Bureau of Waste Management
Pennsylvania Department of Environmental Resources
P.O. Box 2063
Fulton Building
Third and Locust Streets
Harrisburg, PA 17120
(717) 787-6239

Rhode Island
Ocean State Cleanup and Recycling Program
Rhode Island Department of Environmental Management
9 Hayes Street
Providence, RI 02908-5003
(401) 277-3434
(800) 253-2674 (in Rhode Island)

Center for Environmental Studies
Brown University
P.O. Box 1943
135 Angell Street
Providence, RI 02912
(401) 863-3449

Tennessee
Center for Industrial Services
102 Alumni Building
University of Tennessee
Knoxville, TN 37966
(615) 974-2456

Virginia
Office of Policy and Planning
Virginia Department of Waste Management
Monroe Building, 11th Floor
101 North 14th Street
Richmond, VA 23219
(804) 225-2667

Washington
Hazardous Waste Section
Mail Stop PV-11
Washington Department of Ecology
Olympia, WA 98504-8711
(206) 459-6322

Wisconsin
Bureau of Solid Waste Management
Wisconsin Department of Natural Resources
P.O. Box 7921
101 South Webster Street
Madison, WI 53707-7921
(608) 267-3763

Wyoming
Solid Waste Management Program
Wyoming Department of Environmental Quality
Herschler Building, 4th Floor, West Wing
122 West 25th Street
Cheyenne, WY 82002
(307) 777-7752

APPENDIX I. SECTION 313 RELATED MATERIALS

To receive a copy of any of the section 313 documents listed below, check the box(es) next to the desired document(s). There is no charge for any of these documents. Be sure to type your full mailing address in the space provided on this form. Send this request form to:

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

❑ **Section 313 Rule** (40 CFR 372)

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

❑ **Comprehensive List of Chemicals Subject to Reporting Under the Act** (Title III List of Lists) (EPA 500-B-92-002)

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 reporting requirement(s) to which the chemical is subject.

❑ **The Emergency Planning and Community Right-to-Know Act: Section 313 Release Reporting Requirements** December 1991 (EPA 700-K-92-001)

This brochure alerts businesses to their reporting obligations under section 313 and assists in determining whether their facility is required to report. The brochure contains the EPA regional contacts, the list of section 313 toxic chemicals and a description of the Standard Industrial Classification (SIC) codes subject to section 313.

❑ **Supplier Notification Requirements** (EPA 560/4-91-006)

This pamphlet assists chemical suppliers who may be subject to the supplier notification requirements under section 313 of EPCRA. The pamphlet explains the supplier notification requirements, gives examples of situations which require notification, describes the trade secret provision, and contains a sample notification.

❑ **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

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

❑ **Electrodeposition of Organic Coatings** January 1988 (EPA 560/4-88-004c)

❑ **Electroplating Operations** January 1988 (EPA 560/4-88-004g)

❑ **Formulating Aqueous Solutions** March 1988 (EPA 560/4-88-004f)

❑ **Leather Tanning and Finishing Processes** February 1988 (EPA 560/4-88-004l)

❑ **Monofilament Fiber Manufacture** January 1988 (EPA 560/4-88-004a)

❑ **Paper Paperboard Production** February 1988 (EPA 560/4-88-004k)

❑ **Presswood & Laminated Wood Products Manufacturing** March 1988 (EPA 560/4-88-004i)

❑ **Printing Operations** January 1988 (EPA 560/4-88-004b)

❑ **Roller, Knife and Gravure Coating Operations** February 1988 (EPA 560/4/88/004j)

❑ **Rubber Production and Compounding** March 1988 (EPA 560/4-88-004q)

❑ **Semiconductor Manufacture** January 1988 (EPA 560/4-88-004e)

- ❑ **Spray Application of Organic Coatings** January 1988 (EPA 560/4-88-004d)
- ❑ **Textile Dyeing** February 1988 (EPA 560/4-88-004h)
- ❑ **Wood Preserving** February 1988 (EPA 560/4-88-004p)

Please type mailing address here (Do not attach business cards)

Name/Title _____

Company Name _____

Mail Stop _____

Street Address _____

P.O. Box _____

City/State/Zip Code _____

OTHER RELEVANT SECTION 313 MATERIALS

Toxics in the Community: National and Local Perspectives (EPA 560/4-91-014)

This report summarizes the third year of toxic release inventory data - where, how much, and which types of toxic chemicals are being released into the environment - and provides comparisons to the first two years' releases. Available from: Superintendent of Documents, Government Printing Office, Washington, DC 20402-9325, Stock number: 055-000-00387-4, $24.00.

Toxic Release Inventory — On-line Database

A computerized on-line database of the toxic release inventory data is available through the National Library of Medicine's (NLM) TOXNET on-line system 24 hours a day. Other NLM files on TOXNET can provide supporting information in such areas as health hazards and emergency handling of toxic chemicals. Information on accessing the TOXNET system is available from: TRI Representative, Specialized Information Services, National Library of Medicine, 8600 Rockville Pike, Bethesda, MD 20894, (301) 496-6531, up to $37.00 per hour.

Toxic Release Inventory 1987-1989 — Magnetic Tape

Contains the complete toxic release inventory for reporting years 1987-1989. Includes brief overviews of section 313 reporting requirements, a sample Form R, lists of regional and state section 313 contacts. Available from: National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650.

1987 Document Number: PB89-186068
1600 (BPI) Density — $1,770.00
6250 (BPI) Density — $890.00
This tape is also available from the Government Printing Office (GPO-(6250)) -- $500.00.

1988 Document Number: PB90-502030
1600 (BPI) Density — $1,550.00
6250 (BPI) Density — $1,100.00
The Government Printing Office also has this tape available, GPO-(6250) -- $500.00.

1989 Document Number: PB91-507509
Both 1600 and 6250 (BPI) density -- $1,550.00

Toxic Release Inventory 1987-1988: Reporting Facilities Names and Addresses — Magnetic Tape

Contains the name, address, public contact, phone number, SIC code, Dun and Bradstreet number of each facility that reported under section 313 in reporting year 1987. Also includes, if applicable, parent company name and the parent company's Dun and Bradstreet number. Available from: National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650.

1987 Document Number: PB89-186118, $220.00 (1600 and 6250 (BPI) density.)

1988 Document Number: PB91-506816, $220.00 (1600 and 6250 (BPI) density.)

Section 313 Roadmaps Database — Diskette

A database of sources of information on the toxic chemicals listed in section 313. The database, created in 1988 and updated in 1990 (a new update is scheduled in 1992), is intended to assist users of the toxic release inventory data in performing exposure and risk assessments of these toxic chemicals. The roadmaps system displays information, including the section 313 toxic chemicals' health and environmental effects, the applicability of federal, state, and local regulations, and monitoring data. Available from: National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650, Document Number: PB90-501487, $195.00.

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: PB90-501479, $90.00.

The Toxic Release Inventory: Meeting the Challenge (April 1988)

This 19 minute videotape explains the toxic release reporting requirements for plant facility managers and others. State governments, local Chambers of Commerce, labor organizations, public interest groups, universities, and others may also find the video program useful and informative.
3/4 inch = $30.75; Beta = $22.95; VHS = $22.00.

To purchase, write or call:

Color Film Corporation
Video Division
770 Connecticut Avenue
Norwalk, CT 06854
(800) 882-1120

Form R: A Better Understanding

Developed by EPA Region 3, this videotape reviews the Form R and explains how to correctly fill-out the Form R. Available from: National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650, Document number: PB90-780446, $35.00.

Chemicals in Your Community, A Citizen's Guide to the Emergency Planning and Community Right-to-Know Act, September 1988 (OSWER-88-002)

This booklet is intended to provide a general overview of the EPCRA requirements and benefits for all audiences. Part I of the booklet describes the provisions of EPCRA and Part II describes more fully the authorities and responsibilities of the groups of people affected by the law. Available through written request at no charge from:

Emergency Planning and Community
Right-to-Know Information Service
Mailcode: OS-120
401 M Street, SW
Washington, DC 20460

POLLUTION PREVENTION INFORMATION

An up-to-date source of information on pollution prevention is the Pollution Prevention Information Exchange System (PIES), the computerized information network of EPA's Pollution Prevention Information Clearinghouse (PPIC). PIES includes a directory of representatives from Federal, State, and local governments; current news on pollution prevention activities; program summaries for government agencies, public interest groups, academic institutions, trade associations, and industry; a data base of industry case studies; a calendar of conferences, training seminars, and workshops; a legislation data base; and specialized forums dedicated to various topics. Further information on using PIES can be obtained from the PPIC Technical Support Hotline, (703) 821-4800.

Documents containing general information about the PIES system and how to access them are listed below and can be obtained by writing to:

PPIC
c/o SAIC
7600-A Leesburg Pike
Falls Church, VA 22043

The list below includes some of the material available about the PIES system. Requests for these items should include the code number found to the left of each entry.

PPIC-1. PPIC General Information Package

PPIC-2. "PPIC: The Pollution Prevention Information Clearinghouse." U.S. EPA Office of Environmental Engineering and Technology Demonstration and Office of Pollution Prevention. April 1990. Brochure.

PPIC-3. "PIES: The Pollution Prevention Information Exchange System." U.S. EPA Office of Environmental Engineering and Technology Demonstration and Office of Pollution Prevention. May 1989. Brochure.

PPIC-4. "Pollution Prevention Information Exchange System (PIES) User Guide, Version 1.1." U.S. EPA Office of Environmental Engineering and Technology Demonstration and Office of Pollution Prevention (EPA/600/9-89/086). September 1989. 70 pp.

Additional information on source reduction, reuse, and recycling approaches to waste minimization is available through state programs that offer technical and/or financial assistance in the areas of waste minimization and treatment. These state contacts are listed in Appendix H.

*U.S. Government Printing Office: 1993 — 717-884/61025