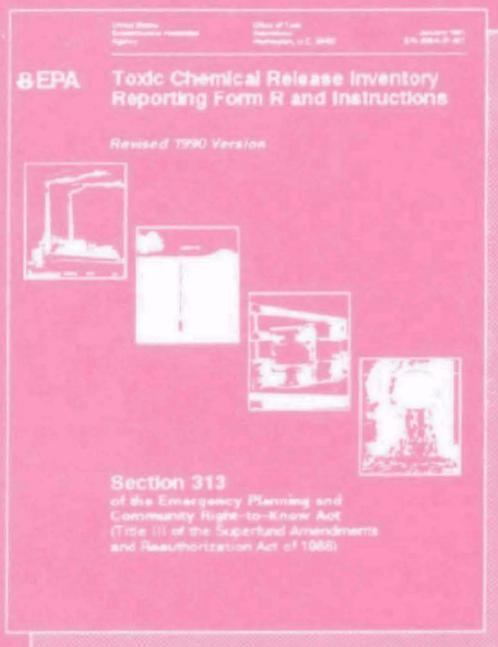


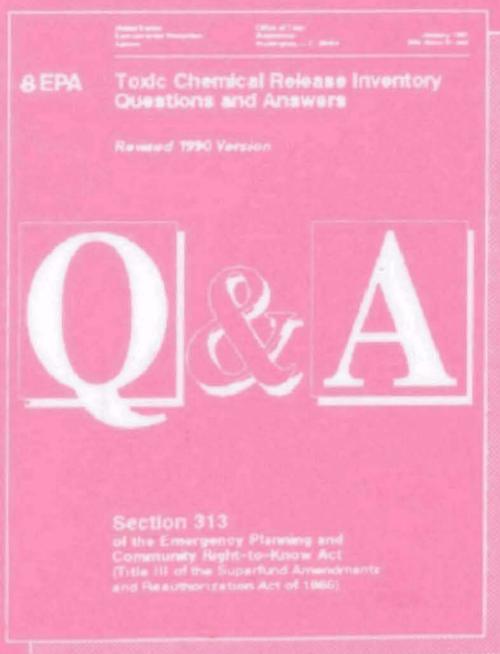


Toxic Chemical Release Inventory Reporting Package for 1990



Toxic Chemical Release Inventory Reporting Form R and Instructions

- Reporting Form R
- Reporting Codes Form R
- Example of Reporting Form R Preparation
- Common Errors Found on Form Reports
- Supplier Notification Requirements
- How to Determine Latitude and Longitude
- State Designated Section 313 Contacts
- Section 313 EPA Regional Contacts
- Section 313 Document Request Form



Toxic Chemical Release Inventory Questions and Answers

- Threshold Determinations
- Chemical Specific Issues
- Mixtures and Solutions
- Exemptions
- Releases of the Chemical
- Policy Directives
 - Article Exemption
 - De Minimis Exemption
 - Recycle/Reuse Exemptions
 - Ammonia and Ammonia Salts

For more information and assistance (including blank form R and reporting package) contact:

**Emergency Planning and Community Right-to-Know
Hotline 1-800-535-0202**

Written requests for specific TRI reports can be addressed to state agencies listed in Appendix C or:

**U.S. EPA Title III Reporting Center
ATTN: TRI PUBLIC INQUIRY
470 L'Enfant Plaza East, S.W.
Suite 7103
Washington, D.C. 20024 (202) 488-1501**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

January, 1991

OFFICE OF
PESTICIDES AND TOXIC
SUBSTANCES

Dear Facility Compliance Manager:

This Toxic Chemical Release Inventory Reporting Package contains complete instructions for preparing and submitting your TRI reports. Except for a few minor changes, Form R remains essentially the same as last year. Instructions for determining longitude and latitude have been revised (Appendix F). The section describing common errors in completing Form R has also been greatly expanded (Appendix D).

EPA is continuing its efforts to reduce the burden of TRI reporting, given the complexity of the task. This year we are providing to you the "Toxic Chemical Release Inventory Reporting System," software that will enable you to prepare TRI reports in electronic format. It is an easy-to-use, DOS-based, computer program that will prompt you to enter data onto an electronic Form R, and produce a floppy disk containing your report. When EPA receives your floppy disk, the data will be transferred directly to the computer, thus eliminating the need for EPA to key the data and eliminating the possibility of keypunch errors. "Overlays" are provided with the software to enable you to produce hard copy reports for your own files and for submission to your state if it does not accept magnetic media. Of course, we will continue to accept printed Form R's, but I would encourage you to report in electronic form. (TRI reporting software is also available from several commercial sources. See the next page for a list of potential suppliers.)

As we prepare for the fourth year of Toxic Chemical Release Inventory (TRI) reporting, I am struck by the increasing reliance on TRI and similar data as the yardstick by which progress on other environmental initiatives is measured. For example, the new Clean Air Act Amendments contain provisions for voluntary reduction of air emissions; TRI data may be used as a baseline for evaluating achievements towards this goal. The Pollution Prevention Act of 1990 will significantly impact TRI reporting for the 1991 reporting year, making reporting mandatory on a variety of waste minimization and pollution prevention activities.

We appreciate your help in making TRI a valuable tool for looking at toxic chemical issues. In view of the soon-to-be mandatory pollution prevention reporting, we would encourage you to submit the voluntary waste minimization parts of the form this year.

Sincerely,

A handwritten signature in cursive script that reads "Mark A. Greenwood".

Mark A. Greenwood, Director
Office of Toxic Substances

TRI REPORTING SOFTWARE from COMMERCIAL VENDORS *

AMOCO

200 E. Randolph Drive
P.O. Box 87707
Chicago, IL 60680-0707
Lisa A. Smith/(312) 856-6549

A.V. SYSTEMS, INC.

924 Woodlawn Street
Ann Arbor, MI 48104
Marie H. Shih/(313) 662-0355

BAKER/TSA INC.

420 Rouser Rd., AOP Bldg. 3
Carapolis, PA 15108
Jeffrey G. Bland/(412) 269-6000

**CHEM-TOX SYSTEM DIVISION
RESOURCE CONSULTANTS**

7121 Cross Roads Blvd.
P.O. Box 1848
Brentwood, TN 37024-1848
James L. Wood/(615) 373-5040

CORBUS, INC.

204C Line Road
Kennett Square, Pennsylvania 19348
Jim J. Haag/(215)444-5691

DLS ASSOCIATES

P.O. Box 8406
St. Louis, MO 63132
David Shapiro/(314) 532-0769

DU PONT COMPANY

P.O. Box 6090
Newark, DE 19714-6090
Clare M. Ownings/1-800-526-1699

ENVIRO BASE SYSTEMS

9085 E. Mineral Circle
Suite 230
Englewood, CO 80112
Richard L. Sayrs/(303) 790-8396

ERM COMPUTER SERVICES INC.

855 Springdale Drive
Exton, PA 19341
William Hope/(215) 524-3600

**MEIBURGER ENVIRONMENTAL
SERVICES**

93 Centre Pointe Drive
St. Charles, MO 63303
Paul Meiburger/(314) 928-6424

MONSANTO

800 N. Lindberg Blvd. - MS FIEG
St. Louis, MO 63167
Gale Crenshaw/(314) 694-8766

SOFTWARE INNOVATIONS

(aka Geesman Software)
1818 Vermont Ave., NW.
Washington, D.C. 20001
Bruce Giesert/(202) 332-2858

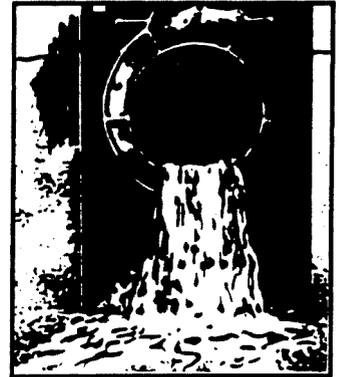
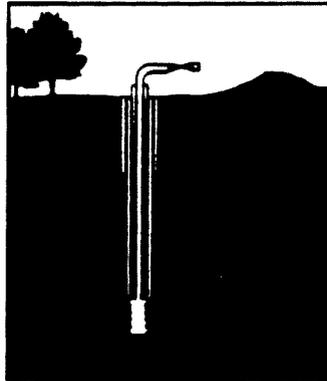
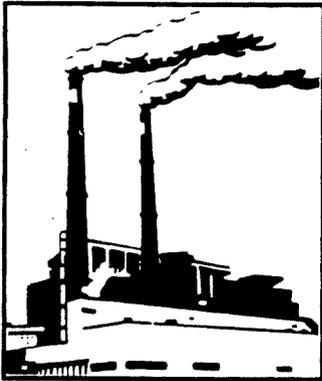
* The packages listed here were approved for submission of 1989 forms. Please check with the vendor to determine if a 1990 package will be available.

Reporting Instructions



Toxic Chemical Release Inventory Reporting Form R and Instructions

Revised 1990 Version



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

REPORTING FORM R SUBMISSION CHECKLIST

- 1. Complete a separate Form R for each chemical or chemical category you are reporting
 - 1.a Complete Part I for each chemical or chemical category reported.
 - 1.b Enter CAS number and chemical name in Part III, Sections 1.2 and 1.3 (or the chemical category name and NA in the CAS number section); and
 - 1.c Enter information in Parts III, IV, and V that apply only to the chemical category being reported.
- 2. Complete the report with information from the previous calendar year
 - 2.a Complete all sections, if applicable, or enter NA; and
 - 2.b Include all four sections (minimum of 5 pages)
 - 2.c Sign the report certification (Part I, Section 2).
- 3. Submit by July 1, 1991 to:
 - 3.a EPA Headquarters (**original signature** on Part I, Section 2 is required for each chemical submission to EPA)

EPCRA Reporting Center
P.O. Box 23779
Washington, D.C. 20026-3779
Attn: Toxic Chemical Release Inventory
 - 3.b State-designated section 313 contact (see Appendix G) or the designated official of an Indian tribe; and
- 4. Keep a copy of each Form R and all supporting documentation for your files. (All such information must be kept for three years.)

Additional requirements if claiming chemical identity trade secret (see Section A.2: Trade Secret Claims):

- 1. Provide two complete identical Form R reports including Parts I, II, III, and IV (pages 1-5);
 - 1.a One that identifies the chemical ("unsanitized");
 - 1.b One that provides a generic chemical identity ("sanitized"); and
 - 1.c Certify both with an original signature and date.
- 2. Provide two complete trade secret substantiation forms:
 - 2.a One that identifies the chemical ("unsanitized");
 - 2.b One that provides a generic chemical identity ("sanitized"); and
 - 2.c Certify both with an original signature and date.
- 3. Check that the sanitized and unsanitized versions are correctly identified in Part I, Section 1.2.
- 4. Originals of all four reports should be submitted to EPA Headquarters (see address above).
- 5. Only the sanitized versions of the report and trade secret substantiation form must be sent to the State.

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

Important Changes in the Section 313 Requirements for Reporting Year 1990

Reporting requirements for calendar year 1990 (reports due July 1, 1991) differ from prior year's requirements:

- (1) The following chemicals have been specifically delisted and are not covered for the 1990 reporting year:

	<u>CAS Number</u>
Titanium dioxide	13463-67-7
C.I. Acid Blue 9 diammonium salt	2650-18-2
C.I. Acid Blue 9 disodium salt	3844-45-9
Melamine	108-78-1
Sodium sulfate (solution)	7757-82-6
Sodium hydroxide (solution)	1310-73-2
Aluminum oxide (non-fibrous forms)	1344-28-1
Terephthalic acid	100-21-0

- (2) The following chemicals have been added to the toxic chemical list and are covered for the 1990 reporting year:

	<u>CAS Number</u>
Allyl alcohol	107-18-6
Creosote	8001-58-9
2,3-Dichloropropene	78-88-6
m-Dinitrobenzene	99-65-0
o-Dinitrobenzene	528-29-0
p-Dinitrobenzene	100-25-4
Dinitrotoluene (mixed isomers)	25321-14-6
Isosafrole	120-58-1
Toluenediisocyanate (mixed isomers)	26471-62-5

- (3) The only change to Form R is the modification of the ranges to be used for release reporting in Part III, Sections 5 and 6. The new reporting ranges are: 1 - 10, 11 - 499, and 500 - 999.
- (4) The instructions and reporting codes to be used for indicating reasons for waste minimization in Part III, Section 8 have been modified. For additional information, see Section 8.D of the instructions.
- (5) A TRI facility identification number has been assigned to each facility that previously submitted Form R reports. This identification number is designed to simplify locating facility reports. All facilities which submitted a Form R previously will receive a section 313 compliance package that includes a self adhesive mailing label with the TRI facility identification number. If this material did not contain a mailing label or you have misplaced it, contact the Emergency Planning and Community Right-to-Know Information Hotline for help in determining your TRI facility identification number.

(6) The EPA Headquarters address for submitting completed Form R reports is:

**EPCRA Reporting Center
P.O. Box 23779
Washington, D.C. 20026-3779
Attn: Toxic Chemical Release Inventory**

(7) The toll-free telephone number for the Emergency Planning and Community Right-to-Know Information Hotline, 1-800-535-0202, is now accessible throughout the U.S., including Washington, D.C., and Alaska. However, the toll telephone number has been changed to (703) 920-9877.

TOXIC RELEASE INVENTORY REPORTING FORM R AND INSTRUCTIONS

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A. GENERAL INFORMATION

Submission of EPA Form R, the Toxic Chemical Release Inventory Reporting Form, is required by section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986), Public Law 99-499. The information contained in Form R constitutes a "report," and the submission of a report to the appropriate authorities constitutes "reporting."

Reporting is required to provide the public with information on the 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 chemicals, as well as the maximum amount of the listed chemical on-site during the calendar year and the amount contained in wastes transferred off-site.

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

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

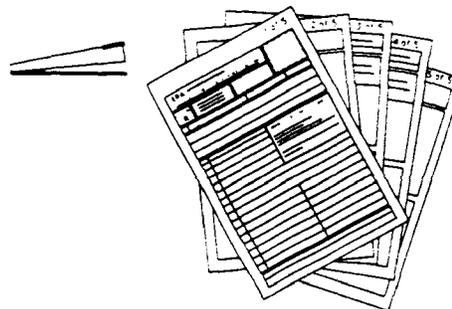
Most of the information required in Part I and all of the information required in Part II of Form R can be filled in and photocopied and attached to each chemical-specific report. Part I must have an original signature on the certification statement and the trade secret designation must be entered as appropriate. You have the option to complete Part II for only the off-site locations that apply to the individual chemical cited in the report or you can list all off-site locations that apply to all chemicals being reported and include a photostatic copy of this Part II with each individual report. Part III must be completed separately for each chemical. Part IV provides

additional space, if needed, to complete the information required by the preceding sections of the form. Include Part IV in your report, even if it is blank. Because a complete Form R consists of at least 5 pages, any submissions containing less than 5 pages is not a valid submission.

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

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

Staple all five pages of each report together. Do not submit supporting documentation or other materials with your Form R submission.



A.2 TRADE SECRET CLAIMS

For any 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). Use the order form in this document to obtain a copy of the rule and substantiation form. One version identifies the chemical; the second version does not identify the chemical specifically, but provides instead a generic identity. Only this latter version will be available to the public. For further explanation of the trade-secret provisions, see the instructions below for Part I, Sections 1.1 and 1.2 and Part III, Sections 1.1-1.4.

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

- A completed Form R report including the chemical identity (staple the pages together);
- A "sanitized" version of a completed Form R report in which the chemical identity items (Part III, Sections 1.2 and 1.3) have been left blank but in which a generic

chemical name has been supplied (Part III, Section 1.4) (staple the pages together);

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

Securely fasten all four reports together.

Copies of the report sent to the State or Indian tribe should be the "sanitized," non-trade secret version of the report, unless the State specifically requires otherwise. The report submitted to EPA should include both trade-secret and non-trade-secret versions.

A.3 RECORDKEEPING

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

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 1990, January-December, must be submitted on or before July 1, 1991).

Voluntary Revision of a Previous Submission

If you are making a voluntary revision to a previous Form R submission, enter "Voluntary Revision" in the space marked "This space for your optional use" on all five pages of the form. If you have obtained the Document Control Number (DCN) of the original submission from EPA, enter that number also in this space. Enter the revised data to the Form R and circle it in red ink. Sign the certification and provide a current date.

You must provide the facility's name, TRI facility identification number (if applicable), and the chemical name on the revised Form R exactly as they were reported previously to enable tracking of the original data. If one of these data items has changed since the original submission, you must enter the data which appeared in the original submission to the revised Form R and indicate the new data in the optional use space on page 1 of the revised Form R. Alternatively, you may submit a copy of the original Form R submission, with corrections made in red ink, writing the words "VOLUNTARY REVISION",

and the DCN, if available, in the space marked "This space for your optional use" on all five pages (or more) of the Form R, and resigning and re-dating the certification statement on page 1.

Send the entire completed 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 year's data.

A.5 WHERE TO SEND THE FORM R

Form R submissions 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 open to an enforcement action.

Send reports to EPA by mail to:

EPCRA Reporting Center
P.O. Box 23779
Washington, D.C. 20026-3779
Attn: Toxic Chemical Release Inventory

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

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

In addition, you must send a copy of the report to:

The State in which the facility is located ("State" refers to: State of the U.S., the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the U.S. Virgin Islands, the Northern Mariana Islands, and any other territory or possession over which the U.S. has jurisdiction). Refer to Appendix G for the appropriate State address for your submission.

If your facility is located on Indian land:

Send a copy to the Chief Executive Officer of the applicable Indian tribe. Some tribes have entered into a cooperative agreement with the State, in which this case, Form R submissions should be sent to the entity designated in the cooperative agreement.

The submissions of section 313 reports in magnetic media and computer-generated facsimile formats has been approved by EPA. Magnetic media submissions to EPA must follow basic specifications. In order to assist and encourage facilities to submit section 313 reports on magnetic media, EPA has developed an instruction manual to be used only when formatting a blank disk or magnetic tape. The instructions to be used when formatting a blank disk or magnetic tape is titled Magnetic Media Submission Instructions (EPA 560/4-91-008).

In addition, EPA has developed pre-formatted diskettes called the "Toxic Chemical Release Inventory Reporting System." The easy-to-use diskette included with this package comes with complete instructions for use. It also provides prompts and messages to help you report according to EPA reporting instructions.

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 determine if the software you are considering using has been approved by EPA for the current reporting year.

A.6 HOW TO OBTAIN FORMS AND OTHER INFORMATION

A copy of Form R is included in this booklet. Remove this form and photocopy as many copies of it as you need. Additional copies of this document and 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 how to fill out the form may be submitted in writing to:

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

Alternatively, you may call (800) 535-0202 or (703) 920-9877 from 8:30 am - 7:30 pm Eastern Time.

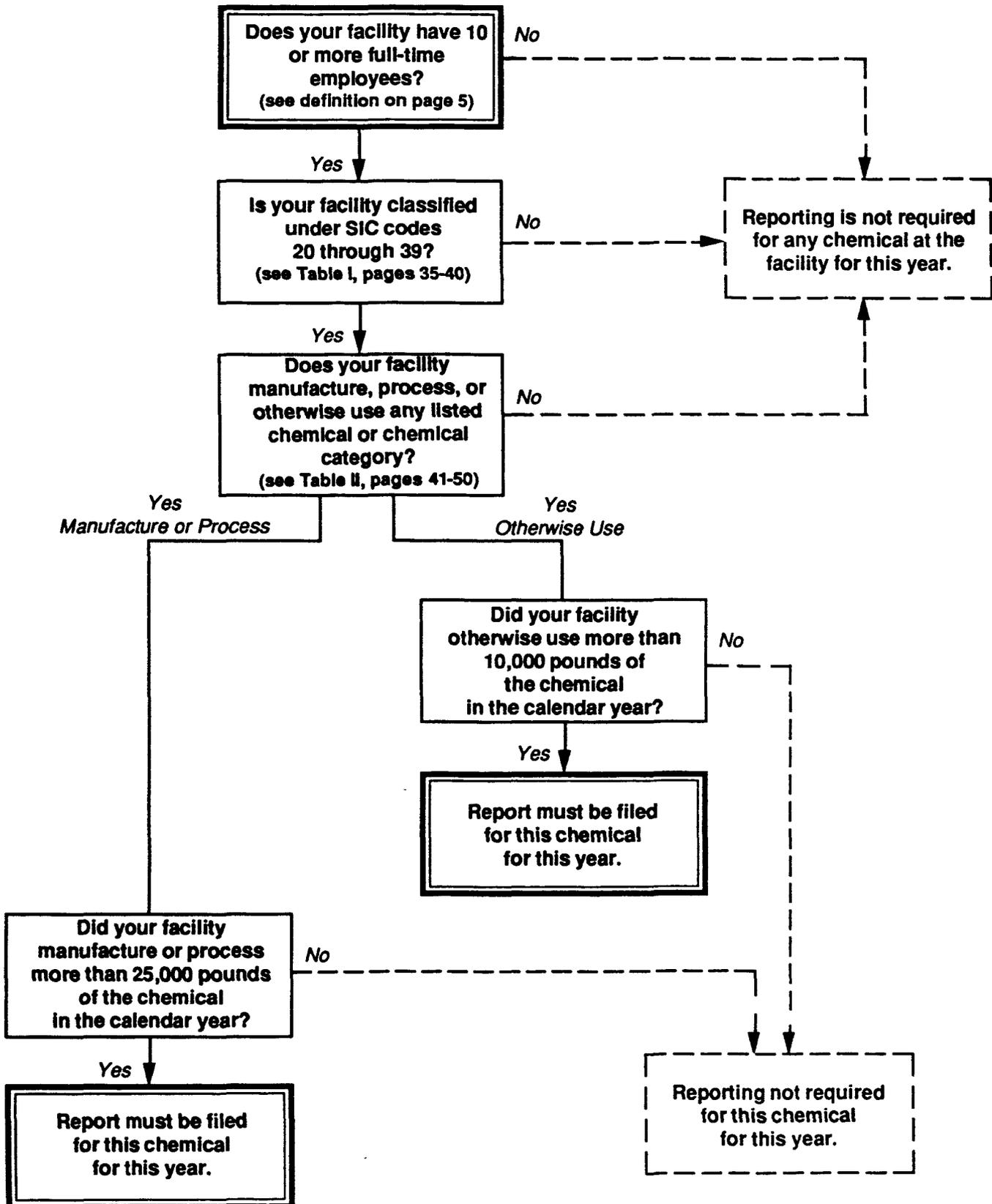
EPA Regional Staff may also be able to help you. Refer to Appendix H for a list of EPA Regional Contacts.

A.7 WHO MUST SUBMIT THIS FORM

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

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

Figure A Determining Applicability of Section 313 Requirements



B. HOW TO DETERMINE IF YOUR FACILITY MUST SUBMIT EPA FORM R

(See Figure A 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 at the facility during the calendar year and not the number of persons working. To determine the number of full-time employees at your facility, add up the hours worked by all employees during the calendar year, including contract employees and sales and support staff working 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 worked 1500 hours each at the facility in calendar year 1990. Consequently, the total number of hours worked by all employees at the facility during the calendar year is 16,500 hours. The number of full-time employees at 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 at 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.
- Another facility consists of 11 employees - 8 workers and 3 sales staff. The 8 workers each worked 2,000 hours at 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 200 hours at the facility. The number of full-time employees at this facility is equal to the total number of hours divided by 2,000 hours. The total number of hours is equal to the time worked by the workers at the facility (16,000 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 (1,000 hours), or 23,000 hours. Divide the 23,000 hours by 2,000 hours to yield more than 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

Table I on page 35 includes a listing of SIC codes 20-39 and the associated 4-digit SIC codes covered by the rule. The first

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

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

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

B.2.a Multi-Establishment Facilities

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

- If the total value of the products shipped from or produced at establishments with primary SIC codes between 20 and 39 is greater than 50 percent of the value of the entire facility's products 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.

The value of production attributable to a particular establishment may be adjusted 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 facility mines ore; all of the ore is smelted at a second establishment in the facility. The facility could calculate the value of production for each establishment separately. Alternatively, the facility could determine the value of the smelter operation by subtracting the value of the ore produced from the value of entire facility's production.
- 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 determine the value of the crops grown at the agricultural establishment. Then, to calculate the contribution of the food processing establishment, the facility would subtract the crop value from the total value of the product shipped from the processing establishment.

A covered multi-establishment facility must make chemical threshold determinations and report all relevant information about releases and waste treatment associated with a listed chemical, even from establishments that are not in SIC codes 20-39. EPA realizes, however, that certain establishments in a multi-establishment facility can be, for all practical purposes, separate business units. Therefore, individual establishments may report separately, provided that the total release reported 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 take on the SIC code of another covered facility if its primary function is to service that other covered facility's operations. Thus, a separate warehouse facility (i.e., one not located within the physical boundaries of a covered facility) may become a covered facility because it services a 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 chemical 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 factored into the 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 page 19 for further clarification.)

Import is defined as causing the chemical to be imported into the customs territory of the United States. If you order a covered toxic chemical (or a mixture containing the chemical) from a foreign supplier, then you have imported the chemical when that shipment arrives at your facility 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 chemical.

The term manufacture also includes coincidental production of a toxic chemical (e.g., as a byproduct or impurity) as a result of the manufacture, processing, use, or treatment of other chemical substances. In the case of coincidental production of an impurity (i.e., a chemical that remains in the product that is distributed in commerce), the *de minimis* limitation, discussed on page 12, applies. The *de minimis* limitation does not apply to byproducts (e.g., a chemical that is separated from a process stream and further processed or disposed). Certain listed toxic chemicals may be manufactured as a result

of wastewater treatment or other treatment processes. For example, neutralization of acid wastewater can result in the coincidental manufacture of 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 substance, as are nitric acid and ammonia. Your facility otherwise uses ammonia as a reactant and manufactures ammonium nitrate solution as a byproduct. If the ammonium nitrate solution is produced in a quantity that exceeds the threshold (e.g., 25,000 pounds for 1990), the facility must report for 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 page 20 for further clarification). Processing includes preparation of the chemical in the same physical state or chemical form as that received by your facility, or preparation that produces a change in physical state or chemical form. The term also applies to the processing of a mixture or other trade name product (see page 11) 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, reacts the toluene with air to form benzoic acid. Your company processes toluene, and manufactures benzoic acid. Benzoic acid, however is not a listed 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 chemical that becomes incorporated into the plastic. Your facility processes the chemical.

Otherwise Use: The term "otherwise use" encompasses any use of a listed chemical at a facility that does not fall under the definitions of "manufacture" or "process." A chemical that is otherwise used by a facility is not intentionally incorporated into a product distributed in commerce (see page 20 for further clarification).

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.

B.3.b Activity Exemptions

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

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

facture 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 chemicals during normal use is considered an article if the facility uses the item as intended and the toxic chemicals are not released. If the facility services the transformer by replacing the toxic chemicals, the chemicals added during the reporting year must be counted in threshold and release calculations.

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 reported as releases or wastes. However, if all wastes generated are recycled, whether on- or off-site, the exemption is applicable. In addition, scrap pieces that are recognizable as an article do not constitute a release.

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.

B.3.c Activity Qualifiers

Table II (see pages 41-50) contains the list of individual chemicals and categories of chemicals subject to 1990 calendar year reporting. Some of the chemicals listed in Table II have

parenthetical qualifiers listed next to them. A chemical that is listed without a qualifier is subject to reporting in all forms in which it is manufactured, processed, and used.

Fume or dust. Three of the metals on the list (aluminum, vanadium, and zinc) contain the qualifier "fume or dust." This qualifier means that a facility is manufacturing, processing, or otherwise using the metal in the form of fume or dust. Fume or dust does not refer to "wet" forms, solutions or slurries, for example, but only dry forms of these metals. As explained on page 6 of these instructions, the term manufacture includes the generation of a chemical as a byproduct or impurity. In such cases, a facility should determine if, for example, it generated more than 25,000 pounds of aluminum fume or dust in 1990 as a result of its activities. If so, the facility must report that it manufactures "aluminum (fume or dust)." Similarly, there may be certain technologies in which one of these metals is processed in the form of a fume or dust to make other chemicals or other products for distribution in commerce. In reporting releases, the facility would only report releases of the fume or dust.

Manufacturing qualifiers. Two of the entries to the section 313 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 which manufacture isopropyl alcohol by the strong acid process are required to report. In the case of saccharin, only manufacturers of the chemical are subject to the reporting requirements. A facility that processes or otherwise uses either chemical would not be required to report for those chemicals. In both cases, supplier notification does not apply 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 chemicals. Solid, molten, and pelletized forms of these chemicals are exempt from threshold and release determinations. Only facilities that manufacture, process, or otherwise use these chemicals in the form of a solution are required to report. Supplier notification applies only if the chemical is distributed as a solution.

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. The thresholds vary depending upon the year for which the report is submitted and separate thresholds apply to the amount of the chemical that is manufactured, processed, or otherwise used.

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

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

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

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

B.4.a How to Determine If Thresholds Are Exceeded

To determine whether your facility has exceeded a section 313 reporting threshold, compare quantities of listed chemicals that you manufacture, process, or otherwise use to the separate respective thresholds for those activities. A suggested worksheet is provided in Figure B (see page 10) to assist facilities in determining whether their facility exceeds 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.

A separate worksheet would be completed for each section 313 chemical or chemical category. Chemicals which are listed with specific qualifiers (e.g., solution; manufacture) require that the threshold determinations only be based on the amount of the chemical meeting 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 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 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 your process engineer. The data collected in Step 1 will be totaled for each activity to identify the overall amount of the chemical or chemical category manufactured (including imported), processed, or otherwise used.

Step 2 allows you to identify uses of the chemical or chemical category that were included in Step 1 but that are exempt under section 313. Do not include in Step 2 exempt forms of the chemical not included in the calculations in Step 1. For example, if you did not report the freon contained in the building's air conditioners 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 chemical is exempt while others forms require reporting. Note the type of exemption for future reference. Also identify, if applicable, the fraction or percentage of the chemical present that is exempt. Add the amounts in each activity to obtain a subtotal for exempted amounts of the 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, your facility must submit a Form R for that chemical or chemical category. This worksheet should be retained in either case, to document your determination for reporting or not reporting. Do not submit this worksheet, or any other calculations, with your Form R report. Retain the worksheet for your records.

Figure B

OPTIONAL SECTION 313 REPORTING THRESHOLD WORKSHEET

Facility Name: _____
 Chemical or Chemical Category: _____
 Reporting Year: _____

Date Worksheet Prepared: _____
 Prepared By: _____

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

Mixture Name or Other Identifier	Percent by Weight	Information Source	Total Weight (in lbs)	Amount of the Listed 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 chemical that have been included in Step 1.

Mixture Name as Listed Above	Exemption Applicable	Note Fraction or Percent Exempt (if Applicable)	Exempt Amount of the 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-A₁) _____ lbs (B-B₁) _____ lbs (C-C₁) _____ 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.

Do not add together the quantities of the 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 1990 you processed 20,000 pounds of a chemical and you otherwise used 6,000 pounds of that same chemical, your facility has not met or exceeded any applicable threshold and thus is not required to report for that chemical.

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

Also note that threshold determinations are based upon the actual amounts of a 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, a stockpile of 100,000 pounds of a toxic chemical is present on-site but only 20,000 pounds is applied to a process. Therefore, 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 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 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 had to be recharged with 15,000 pounds of ammonia during the year, the facility would have exceeded the otherwise use threshold.

This exemption does not apply to toxic chemicals "recycled" off-site and returned to the facility. Such toxic chemicals returned to the 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, page 50, for a listing of these chemical categories. When reporting for one of these chemical categories, all individual members of a category that are manufactured, processed, or otherwise used must be added. 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, pages 41-49). 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, you process several different lead compounds, you would base your threshold determination on the total weight of all lead compounds processed. However, if you process both the "parent" metal (lead) as well as one or more lead compounds, you must make threshold determinations for both because they are separately listed toxic chemicals. If you exceed thresholds for both the parent metal and compounds of that same metal, EPA allows you to file one 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. You would apply the total weight of the lead chromate to the threshold determinations for both lead compounds and chromium compounds. However, if the thresholds are exceeded for these categories, only the amount of each parent metal released (not the amount of the compound) would be reported on the appropriate Form R.

B.4.b Mixtures and Trade Name Products

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

If you imported, processed, or otherwise used mixtures or trade name products during calendar year 1990, you are required to use the best information you have available at the facility 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 the other amounts of the same chemical imported, processed or otherwise used at your facility for threshold and release determinations. If the facility knows that a mixture contains a toxic chemical but no concentration information is provided by the supplier, then the facility does not have to consider the amount of the toxic chemical present in that mixture for purposes of threshold and release determinations. If a facility owner/operator only knows the lower bound concentration of a toxic chemical present in a mixture, the owner/operator should first subtract out the percentages of any other known components of the mixture to determine a reasonable "maximum" for the toxic chemical. If no other information is available, the facility owner/operator should assume the "maximum" is 100%. Then, use the midpoint of the known "minimum" (the lower bound concentration) and the reasonable "maximum" for threshold determinations. If only a range of concentrations is available for a toxic chemical present in a mixture, the owner/operator should use an average of the low and high concentrations numbers for threshold determinations. (See Figure C on page 14 for more information.)

De Minimis Limitation. 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 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 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 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* limitation 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 chemical remains in a mixture or trade name product distributed by the facility.

The *de minimis* does not apply to:

- A 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 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 chemical, regardless of the concentration of this chemical in the wastestream.

- Chemicals in ores, wastes, etc., that undergo beneficiation for purposes of production of that chemical. For example, a company recovers silver by processing waste material containing silver at less than 1% total weight of the material. Although silver is received at less than the *de minimis* concentration, the *de minimis* would not apply because the process concentrates and produces silver as an end product.

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

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

Similarly, in processes where the listed toxic chemical occurs at a concentration below the *de minimis* level and is processed to a concentration above the *de minimis* level, the portion of the process where the toxic chemical is present above the *de minimis* level must be considered for threshold and release determinations, for example, an impurity contained in a solvent that is concentrated to above the *de minimis* level in a process. Beneficiation activities involving listed toxic chemicals present in ores, natural gas, and crude oil are an exception and require threshold and release determinations regardless of concentration of the listed toxic chemical(s) involved in the beneficiation process.

Supplier Notification. In 1989 and subsequent years, suppliers of facilities in SIC codes 20-39 are required to develop and distribute a notice if the mixtures or trade name products that they manufacture or process, and subsequently distribute, contain listed toxic chemicals. These notices are distributed to other companies in SIC codes 20-39 or to companies that sell

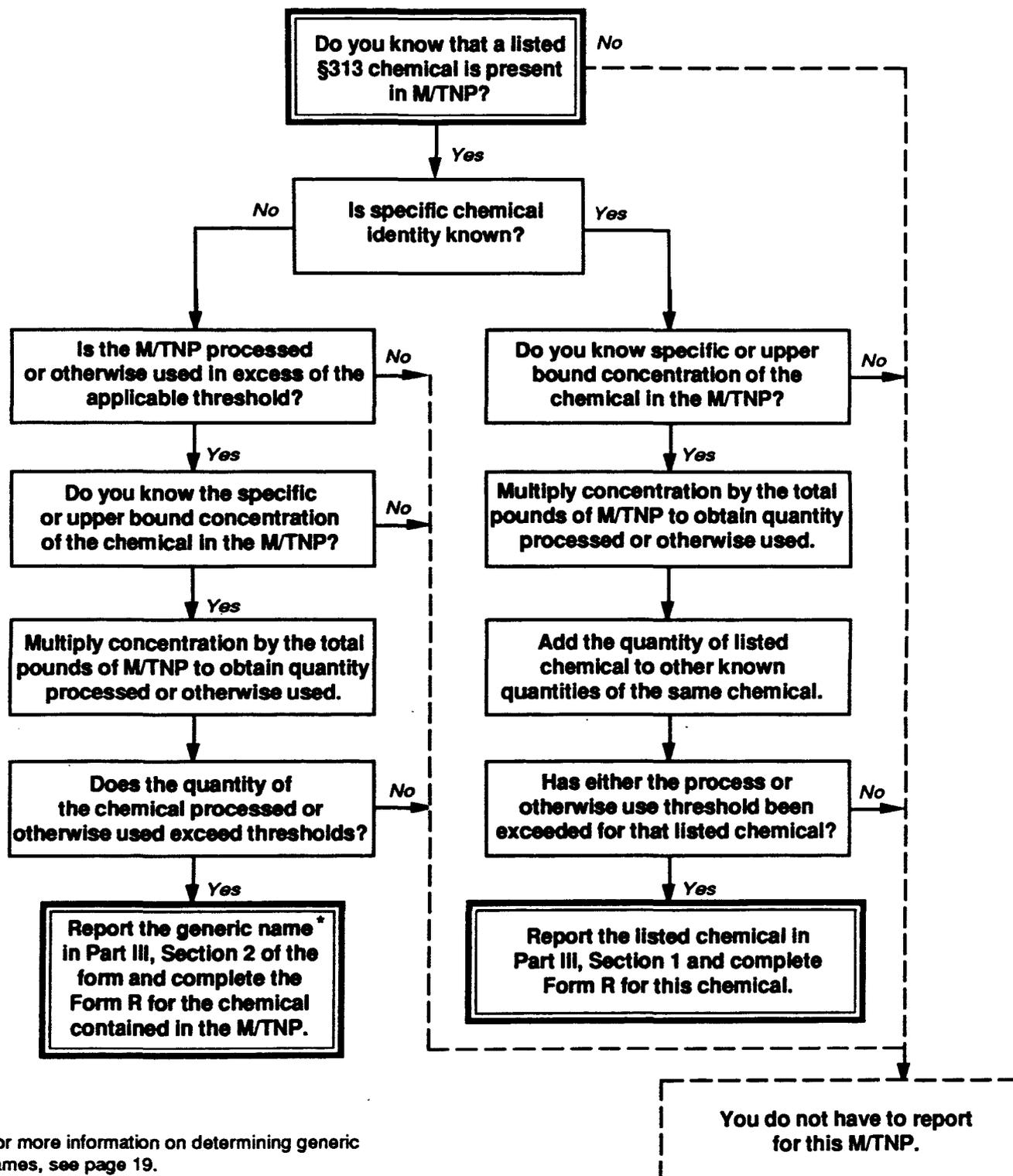
The supplier notification requirement began with the first shipment of a product in 1989 and must accompany the first shipment each year thereafter. In addition, a new or revised notice must be sent if a change occurs in the product which affects the weight percent of a listed chemical or if it is discovered that a previous notice did not properly identify the chemicals or the percentage by weight. For more information on supplier notification, see Appendix E.

If listed toxic chemicals are present 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 III, Section 2 on page 18 for more information.) If the listed chemical is present below the *de minimis* level, no notification is required.

Figure C

How Mixture and Trade Name Products (M/TNP) Factor Into Your Reports

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



*For more information on determining generic names, see page 19.

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.

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

Instructions for Completing All Parts of Form R:

1. Type or print information on the form in the units and format requested.
2. All information on Form R is required except Part III, Section 8.
3. Do not leave items on Form R blank unless specifically directed to do so; if an item does not apply to you, enter "NA," not applicable, in the space provided. If your information does not fill all the spaces provided for a type of information, enter NA, in the next blank space in the sequence.
4. Report releases and off-site transfers 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 Part IV, supplemental information, or additional pages for Part II of the form, number the additional information sequentially from the prior sections of the form.
7. The box labelled "This space for your optional use" on each page may be used to differentiate one chemical-specific submission from another. This box is used to identify a voluntary revision of a previous submission (see page 2).

This box may also be used to record the toxic chemical name on page 1 of Form R. EPA encourages recording the toxic chemical name in this box to make recordkeeping easier for both you and EPA.

PART I. FACILITY IDENTIFICATION INFORMATION

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

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

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

Answer this question only after you have completed the rest of the report. Check "sanitized" if this copy of the report is the public version, which does not contain the chemical identity but does contain a generic name in its place, and you have claimed the chemical identity trade secret in Part I, Section 1.1. Otherwise, check "unsanitized."

1.3 Reporting Year

Enter the last two digits of the calendar year to which the reported information applies, not the year in which you are submitting the report. Information for the 1990 reporting year must be submitted on or before July 1, 1991.

2. Certification

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

3.1 Facility Name and Location

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

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 on the peel-off mailing label on the cover of the Toxic Chemical Release Inventory Reporting Package for 1990 (EPA 560/4-91-001) you should have received directly from EPA. Remove this mailing label from the back cover of the reporting package and apply it to Part I, Section 3.1 of the blank Form R in Appendix A. Then photocopy that page for use as the master copy of page 1 for all the reports you are submitting.

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 your TRI Facility Identification number to each Form R that your facility submits.

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

3.2 Full or Partial Facility Indication

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

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

The SIC code system defines business "establishments" as "distinct and separate economic activities [that] are performed at a single physical location." Under section 372.30(c) of the reporting rule, you may submit a separate Form R for each establishment, or for groups of establishments, in your covered facility, provided that all releases of the toxic chemicals

from the entire covered facility are reported. This allows you the option of reporting separately on the activities involving a toxic chemical at each establishment, or group of establishments (e.g., part of a covered facility), rather than submitting a single Form R for that chemical for the entire facility. However, if an establishment or group of establishments does not manufacture, process, or otherwise use or release a toxic chemical, you do not have to submit a report for that establishment or group of establishments. (See also Section B.2.a on page 5.)

3.3 Technical Contact

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

3.4 Public Contact

Enter the name and telephone number (including area code) of a person who can respond to questions from the public about the report. If you choose to designate the same person as both the technical and the public contact, you may enter "Same as Section 3.3" in this space. This contact person does not have to be the same person who prepares the report or signs the certification statement and does not necessarily need to be someone at the location of the reporting facility.

3.5 Standard Industrial Classification (SIC) Code

Enter the appropriate 4-digit primary Standard Industrial Classification (SIC) code for your facility (Table I, pages 35-40, lists the SIC codes within the 20-39 range). If the report covers more than one establishment, enter the primary 4-digit SIC code for each establishment. You are required to enter SIC codes only for those establishments within the facility that fall within SIC codes 20 to 39. 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.

3.6 Latitude and Longitude

Enter the latitudinal and longitudinal coordinates of your facility. Sources of these data include EPA permits (e.g., NPDES permits), county property records, facility blueprints, and site plans. **Instructions on how to determine these coordinates can be found in Appendix F.** 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 is encouraging 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 D: Commonly Made Errors on Form R Reports).

3.7 Facility Dun and Bradstreet Number

Enter the 9-digit number assigned by Dun and Bradstreet (D&B) for your facility or each establishment within your facility. These numbers code the facility for financial purposes. This number may be available from your facility's treasurer or financial officer. You can also obtain the numbers from your local Dun and Bradstreet office (check the 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) 391-1886 (8:30 am to 7:30 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 Section 3.7.

3.8 EPA Identification Number

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

3.9 NPDES Permit Number

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

3.10 Receiving Streams or Water Bodies

In Section 3.10 you are to enter the name(s) of the stream(s) or water body(ies) to which your facility directly discharges the chemicals you are reporting. A total of six spaces are provided, lettered a through f. The information you provide relates directly to the discharge quantity information required in Part III, Section 5.3. You can complete Section 3.10 in one of two ways. You can enter only those stream names that

relate to the specific chemical that is the subject of the report or, you can enter all stream names that relate to all covered chemicals being reported by the facility. Enter the name of each receiving stream or surface water body to which the chemical being reported is directly discharged. Report the name of the receiving stream or water body as it appears on the NPDES permit for the facility. If 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. Also do not list a series of streams through which the chemical flows. Be sure to include the receiving stream(s) or water body(ies) that receive storm-water runoff from your facility. Do not enter names of streams to which off-site treatment plants discharge. Enter not applicable, NA, in Section 3.10a, if you do not discharge any listed toxic chemicals to surface water bodies.

3.11 Underground Injection Well Code (UIC) Identification Number

If your facility has a permit to inject a 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 3.11a. You are only required to provide the UIC number for wells that receive the toxic chemical being reported.

4. Parent Company Information

You must provide information on your parent company. For purposes of Form R, a parent company is defined as the highest 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.

4.1 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, enter not applicable, NA.

4.2 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, enter not applicable, NA.

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

In this part of the form, you are required to list all off-site locations to which you transfer wastes containing toxic chemicals. Do not list locations to which products containing toxic chemicals are shipped for sale or distribution in commerce or for further use. Also, do not list locations to which wastes containing chemicals are sold or sent for recovery, recycling, or reuse of the toxic chemicals. The information that you enter in this section relates to data you will report in Part III, Section 6.

You may complete Part II for only the off-site locations that apply to the specific chemical cited in a particular report or you can list all off-site locations that apply to all chemicals being reported and include a photostatic copy of Part II with each individual report. List only publicly owned treatment works (POTWs) and off-site treatment or disposal facilities.

1. Publicly Owned Treatment Works (POTWs)

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

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

2. Other Off-Site Locations

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

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

EXAMPLE 5: Off-Site Locations

Your facility is involved in chrome plating of metal parts, which produces an aqueous plating waste that is treated on-site to recover chromium sludge. The effluent from the on-site treatment plant, which contains chromium compounds (a listed toxic chemical), is piped to a POTW. The chromium sludge is transferred to an off-site, privately owned firm for the recovery of the chromium.

You must report the location of the POTW in Section 1 in Part II of Form R. Do not report any information about the on-site treatment plant in this section. You are not required to report the location of the off-site, privately owned recovery firm or provide any information concerning off-site recovery because recycling or reuse of toxic chemicals is exempt from reporting.

PART III. CHEMICAL-SPECIFIC INFORMATION

In Part III, you are to identify the toxic chemical being reported. You must indicate the general uses and activities involving the chemical at your facility. In Part III, you will also enter quantitative data relating to releases of the chemical from the facility to air, water, and land. Quantities of the chemical transferred to off-site locations, identified in Part II, are also reported in this part. Any waste treatment information for on-site treatment of wastestreams containing the toxic chemical are also required to be reported on Part III. An optional section is included in this part that allows you to report waste minimization information associated with the chemical.

1.1 [Reserved]

1.2 CAS Number

Enter the Chemical Abstracts Service (CAS) registry number in Section 1.2 exactly as it appears in Table II, pages 41-50, for the chemical being reported. CAS numbers are cross-referenced with an alphabetical list of chemical names in Table II of these instructions. If you are reporting one of the chemical categories in Table II (e.g., copper compounds), enter not applicable, NA, in the CAS number space.

If you are making a trade secret claim, you must report the CAS number on your unsanitized Form R and unsanitized substantiation form. Do not include the CAS number on your sanitized Form R and sanitized substantiation form (see page 1 for more information).

1.3 Chemical or Chemical Category Name

Enter the name of the chemical or chemical category exactly as it appears in Table II. If the chemical name is followed by a synonym in parentheses, report the chemical by the name that directly follows the CAS number (i.e., not the synonym).

If the listed chemical identity is actually a product 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 category. For example, if you use silver nitrate, do not report silver nitrate with its CAS number. Report this chemical as "silver compounds" which has no CAS number.

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

EPA requests that the chemical name also be placed on page 1 of Form R in the box marked "This space for your optional use." Entering the chemical name in this box is not required, however, it will make recordkeeping and reviewing of Form R much easier for both you and EPA.

1.4 Generic Chemical Name

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

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

2. Mixture Component Identity

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

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 concentration level; and
3. You multiply the concentration level by the total annual amount of the whole mixture used (or processed) and determine that you meet the use or process 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 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 III, Section 2.

3. Activities and Uses of the Chemical at the Facility

Indicate whether the chemical is manufactured (including imported), processed, or otherwise used at the facility and the general nature of such activities and uses at the facility during the calendar year. Report activities that take place only at your facility, not activities that take place at other facilities involving your products. You must check all the boxes in this section that apply. If you are a manufacturer of the chemical, you must check a and/or b, and at least one of c, d, e, or f. Refer to the definitions of "manufacture," "process," and "otherwise use" in the general information section of these instructions or section 372.3 of the rule for additional explanations.

3.1 Manufacture the Chemical

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

- a. *Produce* - the chemical is produced at the facility.
- b. *Import* - the chemical is imported by the facility into the Customs Territory of the United States. (See page 6 of these instructions for further clarification of import.)

And check at least one:

- c. *For on-site use/processing* - the 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 III, Section 3.2 or 3.3.
- d. *For sale/distribution* - the chemical is produced or imported specifically for sale or distribution outside the manufacturing facility.
- e. *As a byproduct* - the 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. Chemicals produced and released as a result of waste treatment or disposal are also considered byproducts.
- f. *As an impurity* - the 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 Chemical (Incorporative-type activities)

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

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

- a. *As a chemical processing aid* - A chemical that is added to a reaction mixture to aid in the manufacture or synthesis of another chemical substance but is not intended to remain in or become part of the product or product mixture. Examples of such chemicals include, but are not limited to, process solvents, catalysts, inhibitors, initiators, reaction terminators, and solution buffers.
- b. *As a manufacturing aid* - A chemical that aids the manufacturing process but does not become part of the resulting product and is not added to the reaction mixture during the manufacture or synthesis of another chemical substance. Examples include, but are not limited to, process lubricants, metalworking fluids, coolants, refrigerants, and hydraulic fluids.
- c. *Ancillary or other use* - A chemical in this category that is used at a facility for purposes other than as a chemical processing aid or manufacturing aid as described above. Includes, but is not limited to, cleaners, degreasers, lubricants, fuels, and 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 1990) have been exceeded and the reporting of listed chemicals is therefore required.

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

Your company manufactures sulfuric acid, a listed 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 D for how this information would be reported in Part III, Section 3 of Form R.

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

Figure D

(For more information, see Example 7 on page 20)



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

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	EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION	(This space for your optional use.)
1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)		
1.1	[Reserved]	
1.2	CAS Number (Enter only one number exactly as it appears on the 313 list. Enter NA if reporting a chemical category.) 7664-93-9	
1.3	Chemical or Chemical Category Name (Enter only one name exactly as it appears on the 313 list.) SULFURIC ACID	
1.4	Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)	
2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)		
2.	Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)	
3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)		
3.1	Manufacture the chemical:	If produce or import:
	a. <input checked="" type="checkbox"/> Produce b. <input type="checkbox"/> Import	c. <input checked="" type="checkbox"/> For on-site use/processing d. <input checked="" type="checkbox"/> For sale/distribution e. <input type="checkbox"/> As a byproduct f. <input type="checkbox"/> As an impurity
3.2	Process the chemical:	
	a. <input checked="" type="checkbox"/> As a reactant d. <input type="checkbox"/> Repackaging only	b. <input type="checkbox"/> As a formulation component c. <input type="checkbox"/> As an article component
3.3	Otherwise use the chemical:	a. <input type="checkbox"/> As a chemical processing aid b. <input type="checkbox"/> As a manufacturing aid c. <input type="checkbox"/> Ancillary or other use

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

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

Weight Range in Pounds

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

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

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

In Section 5, you must account for the total aggregate releases of the toxic chemical to the environment from your facility for the calendar year. 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), enter not applicable, NA; do not leave any part of Section 5 blank. Check the box on the last line of this section if you use Part IV, the supplemental information sheet.

You are not required to count, as a release, quantities of a toxic chemical that are lost due to natural weathering or corrosion, normal/natural degradation of a product, or normal migration

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

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

5.1 Fugitive or Non-Point Air Emissions

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

5.2 Stack or Point Air Emissions

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

5.3 Discharges to Receiving Streams or Water Bodies

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

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, it is possible to use pH measurements to estimate the amount of mineral acid released.

5.4 Underground Injection On-Site

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

5.5 Releases to Land 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.

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 -- Another disposal method is land treatment in which a waste containing a listed chemical is applied onto or incorporated into soil. While this disposal method is considered a release to land, any volatilization of listed chemicals into the air occurring during the disposal operation must be reported as a fugitive air release in Section 5.1 of Form R.

5.5.3 Surface impoundment -- 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 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 chemical, you must include an estimate in this section unless the sludges are removed and otherwise disposed of (in which case they should be reported under the appropriate section of the form). For the purposes of this reporting, storage tanks are not considered to be a type of disposal and are not to be reported in this section of the form.

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 benzene leaks from an 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 (Section 5.1) and the remaining 1,400 pounds would be reported as a release to land, other disposal (Section 5.5.4).

5.A Total Release

Only on-site releases of the toxic chemical to the environment for the calendar year are to be reported in this section of the form. The total releases from your facility **do not** include transfers or shipments of the chemical from your facility for sale or distribution in commerce, or of wastes to other facilities for treatment or disposal (see Part III, Section 6). Both routine releases, such as fugitive air emissions, and accidental or non-routine releases, such as chemical spills, must be included in your estimate of the quantity released. 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 One Pound. 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 check the range bracket of "1-10" in column A.1 or enter "1" in column A.2. **Do not** use both columns A.1 and A.2. If the release is less than 0.5 pounds, you may round to zero and enter "0" column A.2.

Note that total annual releases of less than 0.5 pounds from the processing or otherwise use of an article maintains 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 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 that 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 occur to a specific media or off-site location. If a release to a specific media or off-site location could occur, but either no release occurred 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 processing activities but the facility neutralizes the wastestreams

to a pH of 6 or above, then the facility reports a 0 release for the chemical. If the facility has no underground injection well, it enters NA for that item on the form. If the facility does not landfill the acidic waste, it enters NA for landfills.

5.A.1 Reporting Ranges

You may take advantage of range reporting for releases to an environmental medium that are less than 1,000 pounds for the year. If you choose this option, mark one of the three boxes, 1-10, 11-499, or 500-999, that corresponds to releases of the chemical to the appropriate environmental medium (i.e., any line item). You are not required, however, to use these range check boxes; you have the option of providing a specific value in column A.2, as described below. However, do not mark a range and also enter a specific estimate in A.2.

5.A.2 Enter Estimate

For releases to any medium that amount to 1,000 pounds or more for the year, you must provide an estimate in pounds per year in column A.2. Any estimate provided in column A.2 should be reported to no more than two significant figures. This estimate should be in whole numbers. Do not use decimal points.

If you do not use the range reporting option, provide your estimates of total annual releases (in pounds) in column A.2.

Calculating Releases - To provide the release information required in columns A.1 and A.2 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, is required for the purpose of completing this form, beyond that which is required under other provisions of law or regulation or as part of routine plant operations.

You must estimate, as accurately as possible, the quantity (in pounds) of the chemical or chemical category that is released annually to each environmental medium. Include only the quantity of the toxic chemical contained in the wastestream in this estimate. If the toxic chemical present at your facility was part of a mixture or trade name product, calculate only the

releases of the chemical, 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 section 372.30(b) of the reporting rule 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 chemical category listed in Table II of these instructions, rather than a specific chemical, you must combine the release data for all chemicals in the listed chemical category (e.g., all glycol ethers or all chlorophenols) and report the aggregate amount for that chemical category. Do not report releases of each individual chemical in that category separately. For example, if your facility releases 3,000 pounds per year of 2-chlorophenol, 4,000 pounds per year of 3-chlorophenol, and 4,000 pounds per year of 4-chlorophenol, you should report that your facility releases 11,000 pounds per year of chlorophenols.

For listed chemicals with the qualifier "solution," such as 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 chemical in solution, not the amount of solution.

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

EXAMPLE 8: Calculating Releases

Your facility disposes of 14,000 pounds of lead chromate (PbCrO_4 , PbO) in an on-site landfill and transfers 16,000 pounds of lead selenate (PbSeO_4) to an off-site land disposal facility. You would therefore be submitting 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 treatment/disposal codes and information on transfers of chemical 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 (PbCrO_4 , PbO) -
Molecular weight = 546.37

Lead 2 Pb -

$$\text{Molecular weight} = 207.2 \times 2 = 414.4$$

Chromate 1 Cr -

$$\text{Molecular weight} = 51.996$$

Lead chromate is therefore (% by weight)

$$(414.4/546.37) = 75.85\% \text{ lead and } (51.996/546.37) = 9.52\% \text{ chromium}$$

You can then calculate the total amount of the metals that you must report, based on your knowledge that 14,000 pounds of lead chromate contains:

$$14,000 \times 0.7585 = 10,619 \text{ pounds of lead}$$

$$14,000 \times 0.0952 = 1,334 \text{ pounds of chromium}$$

Similarly, lead selenate is $(207.2/350.17) = 59.17\%$ 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:

$$0.7585 \times 14,000 = 10,619 \text{ pounds from lead chromate} \\ \text{(round to 11,000 pounds)}$$

Transfer:

$$0.5917 \times 16,000 = 9,467 \text{ pounds from lead selenate} \\ \text{(round to 9,500 pounds)}$$

(As an example, the releases and transfers of lead should be reported as illustrated in Figure E on the page 26.)

Chromium

Release:

$$0.0952 \times 14,000 = 1,333 \text{ pounds from lead chromate} \\ \text{(round to 1,300 pounds)}$$

Selenium

Transfer:

$$0.2255 \times 16,000 = 3,608 \text{ pounds of selenium from lead} \\ \text{selenate (round to 3,600 pounds)}$$

5.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.

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

The codes are as follows:

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

If the monitoring data, mass balance, or emission factor used to estimate the release is not specific to the toxic chemical being reported, the form should identify the estimate as based on engineering calculations or best engineering judgment.

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

Figure E

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

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE					
You may report releases of less than 1,000 pounds by checking ranges under A.1. (Do not use both A.1 and A.2)		A. Total Release (pounds/year)		B. Basis of Estimate (enter code)	C. % From Stormwater
		A.1 Reporting Ranges <small>1-10 11-499 500-999</small>			
5.1 Fugitive or non-point air emissions	5.1a	[] [] []	NA	5.1b <input type="checkbox"/>	
5.2 Stack or point air emissions	5.2a	[] [] []	NA	5.2b <input type="checkbox"/>	
5.3 Discharges to receiving streams or water bodies <input type="checkbox"/> <small>(Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)</small>	5.3.1 <input type="checkbox"/>	5.3.1a [] [] []	NA	5.3.1b <input type="checkbox"/>	5.3.1c NA %
	5.3.2 <input type="checkbox"/>	5.3.2a [] [] []		5.3.2b <input type="checkbox"/>	5.3.2c %
	5.3.3 <input type="checkbox"/>	5.3.3a [] [] []		5.3.3b <input type="checkbox"/>	5.3.3c %
5.4 Underground injection	5.4a	[] [] []	NA	5.4b <input type="checkbox"/>	
5.5 Releases to land					
5.5.1 On-site landfill	5.5.1a	[] [] []	11,000	5.5.1b <input checked="" type="checkbox"/>	
5.5.2 Land treatment/application farming	5.5.2a	[] [] []	NA	5.5.2b <input type="checkbox"/>	
5.5.3 Surface impoundment	5.5.3a	[] [] []	NA	5.5.3b <input type="checkbox"/>	
5.5.4 Other disposal	5.5.4a	[] [] []	NA	5.5.4b <input type="checkbox"/>	
[] (Check if additional information is provided on Part IV-Supplemental Information.)					

	<p>EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)</p>	<p>(This space for your optional use.)</p>
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6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS					
You may report transfers of less than 1,000 pounds by checking ranges under A.1. (Do not use both A.1 and A.2)		A. Total Transfers (pounds/yr)		B. Basis of Estimate (enter code)	C. Type of Treatment/Disposal (enter code)
		A.1 Reporting Ranges <small>1-10 11-499 500-999</small>			
6.1.1 Discharge to POTW (enter location number from Part II, Section 1.)	1 <input type="checkbox"/>	[] [] []	NA	6.1.1b <input type="checkbox"/>	
6.2.1 Other off-site location (enter location number from Part II, Section 2.)	2 <input checked="" type="checkbox"/>	[] [] []	9,500	6.2.1b <input checked="" type="checkbox"/>	6.2.1c M72
6.2.2 Other off-site location (enter location number from Part II, Section 2.)	2 <input type="checkbox"/>	[] [] []	NA	6.2.2b <input type="checkbox"/>	6.2.2c M [] []
6.2.3 Other off-site location (enter location number from Part II, Section 2.)	2 <input type="checkbox"/>	[] [] []		6.2.3b <input type="checkbox"/>	6.2.3c M [] []
[] (Check if additional information is provided on Part IV-Supplemental Information.)					

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

Mass balance (C) should only be indicated if it is directly used to calculate the mass (weight) of chemical released. Monitoring data should be indicated as the basis of estimate only if the chemical concentration is measured in the wastestream 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, it is not required that submitters use new emission factors or estimation techniques to revise previous Form R submissions.

5.C Percent From Stormwater

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

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

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

EXAMPLE 9: Releases from Stormwater

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

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

$$(28,489,695 \text{ liters stormwater}) \times (1.4 \text{ mg. zinc/liter}) \\ = 39,885.6 \text{ grams zinc} \\ = 88 \text{ pounds zinc}$$

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

$$250 \text{ pounds zinc from wastewater discharge} \\ + 88 \text{ pounds zinc from stormwater runoff} \\ 338 \text{ pounds zinc total water discharge}$$

Round to 340 pounds of zinc for report.

The percentage of zinc discharged through stormwater is:

$$88/338 \times 100 = 26\%$$

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

<u>Description of Land Area</u>	<u>Runoff Coefficient</u>
Business	
Downtown areas	0.70-0.95
Neighborhood areas	0.50-0.70
Industrial	
Light areas	0.50-0.80
Heavy areas	0.60-0.90
Railroad yard areas	0.20-0.40
Unimproved areas	0.10-0.30
Streets	
Asphaltic	0.70-0.95
Concrete	0.80-0.95
Brick	0.70-0.85
Drives and walks	0.70-0.85
Roofs	0.75-0.95
Lawns: Sandy Soil	
Flat, 2%	0.05-0.10
Average, 2-7%	0.10-0.15
Steep, 7%	0.15-0.20
Lawns: Heavy Soil	
Flat, 2%	0.13-0.17
Average, 2-7%	0.18-0.22
Steep, 7%	0.25-0.35

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

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

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

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

$$\text{Weighted-average runoff coefficient} = \frac{(50\%) \times (0.20) + (10\%) \times (0.85) + (40\%) \times (0.90)}{100\% \text{ Area}} = 0.545$$

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

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

Total stormwater runoff = 7.45 million gallons/year

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

You must report in this section the total annual quantity of the chemical sent to any of the off-site disposal, treatment, or storage facilities for which you have provided an address in Part II. You are not required to report quantities of the chemical sent off-site for purposes of recycle or reuse. Report the amount of the toxic chemical transferred off-site after any on-site treatment or removal is completed. Report zero for releases of listed mineral acids if they have been neutralized to pH of 6 or above prior to discharge to a POTW. See the discussion under Section 5.3, Discharges to Receiving Streams or Water Bodies (see page 22).

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

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

6.A Total Transfers

This column should be completed as described in the instructions for column A of Section 5 above. Enter the amount, in pounds, of the toxic chemical that is being transferred, including mixtures or trade name products containing the chemical. Do not enter the total poundage of wastes. See Section 5 for information on reporting off-site transfers of less than 1 pound. As in Section 5, if the total amount transferred is less than 1,000 pounds, you may report a range. Enter not applicable, NA, in column A.2 if you have no off-site transfers of the listed chemical.

6.B Basis of Estimate

You must identify the basis for your estimate. Enter the letter code that applies to the method by which the largest percentage of the estimate was derived. Use the same codes identified in the instructions for column B of Section 5 (See page 25).

6.C Type of Treatment/Disposal

Enter one of the following codes to identify the type of treatment or disposal method used by the off-site location for the chemical being reported. You should use more than one line for a single location when the toxic chemical is subject to different disposal methods; the same location code may be used more than once. You may have this information in your copy of EPA Form SO, Item S of the Annual/Biennial Hazardous Waste Treatment, Storage, and Disposal Report (RCRA).

Applicable codes for Part III, Section 6(c) are as follows:

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

7. Waste Treatment Methods and Efficiency

In Section 7, you must provide the following information related to the chemical for which releases are being reported: (A) the general wastestream types containing the chemical being reported; (B) the waste treatment methods used on all wastestreams containing the chemical; (C) the range of concentrations of the chemical in the influent to the treatment method; (D) whether sequential treatment is used; (E) the efficiency or effectiveness of each treatment method in removing the chemical; and (F) whether the treatment efficiency figure was based on actual operating data. Use a separate line in Section 7 for each treatment method used on a wastestream.

In this section, report only information about treatment of wastestreams at your facility, not about off-site treatment. If you do not perform on-site treatment of wastes containing the chemical being reported, check the Not Applicable (NA) space at the top of Section 7.

7.A General Wastestream

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

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

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

7.B Treatment Method

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

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

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

Air Emissions Treatment

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

Biological Treatment

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

Chemical Treatment

- C01 Chemical Precipitation -- Lime or Sodium Hydroxide
- C02 Chemical Precipitation -- Sulfide
- C09 Chemical Precipitation -- Other
- C11 Neutralization
- C21 Chromium Reduction

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

Incineration/Thermal Treatment

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

Physical Treatment

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

Recovery/Reuse

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

Solidification/Stabilization

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

7.C Range of Influent Concentration

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

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

[Note: Parts per million (ppm) is:

- milligrams/kilogram (mass/mass) for solids and liquids;
 cubic centimeters/cubic meter (volume/volume) for gases;
 milligrams/liter for solutions or dispersions of the chemical in water; and

○ milligrams of chemical/kilogram of air for particulates in air. If you have particulate concentrations (at standard temperature and pressure) as grains/cubic foot of air, multiply by 1766.6 to convert to parts per million; if in milligrams/cubic meter, multiply by 0.773 to obtain parts per million. Factors are for standard conditions of 0°C (32°F) and 760 mmHg atmospheric pressure.]

7.D Sequential Treatment?

The sequential treatment boxes are to be checked when individual treatment steps are used in a series to treat the toxic chemical, and you have no data on the efficiency of each step, however, you are able to estimate the overall efficiency of the treatment sequence.

To report sequential treatment:

- List the appropriate codes for the treatment steps in the order that they occur (in column B) and then put an "X" in the boxes in column D for all these sequential treatment steps.
- Enter the appropriate code for the influent concentration (in column C) for the first treatment step in the sequence. Leave this item blank for the rest of the treatment steps in the sequence.
- Provide the overall treatment efficiency (in column E) for the entire sequence by entering that value in connection with the last treatment step in the sequence only. Enter NA in column E for the efficiency of all preceding steps in the sequence.
- Mark yes or no in column F only in connection with the final step in the sequence. Do not mark in this column for preceding steps in the sequence.

An example of how to use the sequential treatment option is provided in Appendix C.

7.E Treatment Efficiency Estimate

In the space provided, enter the number indicating the percentage of the toxic chemical removed from the wastestream through destruction, biological degradation, chemical conversion, or physical removal. The treatment efficiency (expressed as percent removal) represents the mass or weight percentage of chemical destroyed or removed, not merely changes in volume or concentration of the chemical in the wastestream. The efficiency refers only to the percent destruction, degradation, conversion, or removal of the listed toxic chemical from the wastestream, not the percent conversion or removal of other wastestream constituents which may occur together with the listed chemical. The efficiency also

does not refer to the general efficiency of the method for any wastestream. For some treatments, the percent removal will represent removal by several mechanisms, as in an aeration basin, where a chemical may evaporate, be biodegraded, or be physically removed from the sludge.

Percent removal must be calculated as follows:

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

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

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

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

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

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

7.F Based on Operating Data?

This column requires you to indicate "Yes" or "No" to whether the treatment efficiency estimate is based on actual operating data. For example, you would check "Yes" if the estimate is based on monitoring of influent and effluent wastes under

typical operating conditions. For sequential treatment, do not indicate "Yes" or "No" in column F for a treatment step unless you have provided a treatment estimate in column E.

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

EXAMPLE 11: Waste Treatment Methods

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

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

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

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

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

Information provided in Part III, Section 8, of Form R is optional. In this section, you may identify waste minimization efforts relating to the reported toxic chemical. Waste minimization reduces the amount of the toxic chemical in wastes by reducing waste generation or by recycling. This can be accomplished by equipment changes, process modifications, product reformulation, chemical substitutions, or other techniques. Waste minimization refers exclusively to practices which prevent the generation of wastes. Treatment or disposal does not minimize waste and should not be reported in this section. Recycling or reuse of a toxic chemical is considered waste minimization. Waste minimization applies to air emissions and wastewater, as well as to liquid or solid materials that are released, disposed of, or treated. For example, a program to recycle material from reactor cleaning could reduce the amount of a listed chemical in wastewater prior to treatment. This reduction might not show up in annual reports of releases to receiving streams (due to effective treatment, for example) but would be captured in this section.

8.A Type of Pollution Prevention Modification

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

- M1 Recycling/Reuse On-Site
(e.g., solvent recovery still; vapor recovery system; reuse of materials in a process)
- M2 Recycling/Reuse Off-Site
(e.g., commercial recycler; toll recycling; at an off-site company-owned facility)
- M3 Equipment/Technology Modifications
(e.g., change from solvent to mechanical stripping; modify spray systems to reduce overspray losses; install floating roofs to reduce tank emissions; install float guards to prevent tank overflow)
- M4 Process Procedure Modifications
(e.g., change production schedule to minimize equipment and feedstock change-overs; improved control of operating conditions; segregation of wastes to permit recycling)
- M5 Reformulation/Redesign of Product
(e.g., change in product specifications; modify design or composition; reduce or modify packaging)
- M6 Substitution of Raw Materials
(e.g., change or eliminate additives; substitute water-based for solvent-based coating materials, cleaners, and pigments; increase purity of raw materials)

M7 Improved Housekeeping, Training, Inventory Control (e.g., alter maintenance frequency; institute leak detection program; improved inventory control; institute training program on waste minimization)

M8 Other Waste Minimization Technique (e.g., elimination of process; discontinuation of product)

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

You may report the change in the amount of the toxic chemical generated in either of two ways. You may provide the amount of the toxic chemical in waste produced in the reporting year and the previous year, or you may report only the percent change.

Enter the total pounds of the toxic chemical contained in all wastes from the reporting facility (air emissions, water discharges, solid wastes and off-site transfers) generated during the reporting year. This quantity may be the sum of all the release amounts reported on Form R if there is no on-site treatment of the toxic chemical. The quantity will often be greater than the total reported release amounts because it includes waste prior to treatment.

You should consider only the quantity of the toxic chemical in the waste. Do not report the total mass of the waste (i.e., do not include the weight of water, soil, or waste constituents which are not reportable on Form R).

Similarly, report total pounds of the toxic chemical contained in all wastes generated for the year prior to the reporting year.

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

$$\frac{(W_c - W_p)}{W_p} \times 100$$

where:

W_c = weight of toxic chemical in total wastes for the current reporting year

W_p = weight of toxic chemical in total wastes for the prior year

Note that the resulting figure will very often be negative (indicating that the total amount of waste generated has been reduced in the current year). Be sure to check-off the appropriate sign for the value where indicated on Form R.

8.C Waste Minimization Index

Enter the ratio of reporting-year production to the prior reporting-year production. This index should be calculated to most closely reflect activities involving the chemical. To determine the index, divide the production amount, which was chosen as a measure of the current reporting year's production level, by the prior year's production amount.

The index provides a means for users of the data to distinguish effects due to changes in business activity from the effects specifically due to waste minimization efforts. It is not necessary to indicate the units on which the index is based. The index should not be based on the dollar value of sales. Examples of acceptable indices include:

- Amount of chemical produced in 1990/amount of chemical produced in 1989. For example, a company manufactures 200,000 pounds of a chemical in 1989 and 250,000 pounds of the same chemical in 1990. The index figure to report would be 1.3 (1.25 rounded to two significant digits).
- Amount of paint produced in 1990/amount of paint produced in 1989.
- Number of appliances coated in 1990/number of appliances coated in 1989.
- Square feet of solar collector fabricated in 1990/square feet of solar collector fabricated in 1989.

8.D Reason for Action

Finally, enter the most appropriate code from the following list that best describes the primary reason for initiating the waste minimization effort:

- R1 Regulatory Requirement for the Waste
- R2 Reduction of Treatment/Disposal Costs
- R3 Other Process Cost Reduction
- R4 Discontinuation of Product
- R5 Other (e.g., occupational safety concerns, etc.).

These responses are intended to be mutually exclusive. If for example your facility developed a program for reducing waste without some government impetus and the primary reason was to reduce costs then it would be most appropriate to choose code R3 or R4. Choosing R5 "Other" should be used only in those cases where R1 - R4 do not apply. If you care to elaborate on these other reasons please feel free to attach an explanation to the form.

EXAMPLE 12: WASTE MINIMIZATION (POLLUTION PREVENTION)

A facility stores toluene in a large tank, and continuously uses it as a raw material in a chemical process throughout the reporting year. Prior to the current reporting year, annual air emissions of toluene were 100,000 pounds from the tank, and another 100,000 pounds from process emissions. In addition, 150,000 pounds of sludges are created from the process and from storage tanks. The sludge contains a total of 25,000 pounds of toluene which was burned in an on-site incinerator. The Form R filed by the facility for the prior year indicated 200,000 pounds of toluene air emissions. The toluene contained in the sludge was identified as treated on-site, although the pre-treated amount of the toluene was not indicated on the Form R, since this information is not required under section 313.

At the beginning of the current reporting year, the facility installed a floating roof in its storage tank. This change reduced fugitive emissions from the tank 90 percent, from 100,000 pounds per year to 10,000 pounds. Process emissions and sludge generation remained the same.

Based on this information, Part III, Section 8 of Form R would be completed as follows:

A. Type of Modification

M3: Equipment/Technology Modification.

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

	<u>Tank Emissions of Toluene</u>	<u>Process Emissions of Toluene</u>	<u>Toluene in Sludges</u>	<u>Total Toluene Wastes</u>
Total toluene wastes for current reporting year (pounds)	W _c = 10,000	+ 100,000	+ 25,000	= 135,000
Total toluene wastes for prior year (pounds)	W _p = 100,000	+ 100,000	+ 25,000	= 225,000

Note that only the weight of the toluene in the sludge (25,000 pounds) and not the full weight of the sludge (150,000 pounds) is included in the calculation.

The facility would record 135,000 pounds as the current reporting year waste generation (W_c), and 225,000 pounds as the prior year's waste generation (W_p).

Alternatively, the facility may opt to report only the percent change as follows:

$$\frac{(W_c - W_p)}{W_p} \times 100 = \frac{135,000 - 225,000}{225,000} \times 100$$

= - 40%

Even though the floating roof achieved a 90% reduction of toluene emissions from the tank, the overall facility-wide change in toluene waste generation is negative 40% -- this is the figure that should be reported in the "or percent change" part of Section 8 of Form R.

Increases in waste generation, created by production increases that were greater than the impact of waste minimization, would be reported as a positive percentage change.

C. Index

Usage of toluene at this facility remained the same for both years, resulting in an index of 1.0. If usage had been reduced by half, the index would have been 0.5.

D. Reason for Action

The facility identified code R3, Other Process Cost Reduction, as the major reason for the waste minimization action.

TABLE I
SIC CODES 20-39

20 Food and Kindred Products

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

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

21 Tobacco Products

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

22 Textile Mill Products

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

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

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

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

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

24 Lumber and Wood Products, Except Furniture

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

25 Furniture and Fixtures

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

26 Paper and Allied Products

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

27 Printing, Publishing, and Allied Industries

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

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

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

28 Chemicals and Allied Products

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

29 Petroleum Refining and Related Industries

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

30 Rubber and Miscellaneous Plastics Products

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

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

31 Leather and Leather Products

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

32 Stone, Clay, Glass and Concrete Products

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

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

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

33 Primary Metal Industries

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

34 Fabricated Metal Products, except Machinery and Transportation Equipment

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

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

35 Industrial and Commercial Machinery and Computer Equipment

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

- 3547 Rolling mill machinery and equipment
- 3548 Electric and gas welding and soldering equipment
- 3549 Metalworking machinery, *n.e.c.**
- 3552 Textile machinery
- 3553 Woodworking machinery
- 3554 Paper industries machinery
- 3555 Printing trades machinery and equipment
- 3556 Food products machinery
- 3559 Special industry machinery, *n.e.c.**
- 3561 Pumps and pumping equipment
- 3562 Ball and roller bearings
- 3563 Air and gas compressors
- 3564 Industrial and commercial fans and blowers and air purification equipment
- 3565 Packaging equipment
- 3566 Speed changers, industrial high speed drives, and gears
- 3567 Industrial process furnaces and ovens
- 3568 Mechanical power transmission equipment, *n.e.c.**
- 3569 General industrial machinery and equipment, *n.e.c.**
- 3571 Electronic computers
- 3572 Computer storage devices
- 3575 Computer terminals
- 3577 Computer peripheral equipment, *n.e.c.**
- 3578 Calculating and accounting machines, except electronic computers
- 3579 Office machines, *n.e.c.**
- 3581 Automatic vending machines
- 3582 Commercial laundry, drycleaning, and pressing machines
- 3585 Air conditioning and warm air heating equipment and commercial and industrial refrigeration equipment
- 3586 Measuring and dispensing pumps
- 3589 Service industry machinery, *n.e.c.**
- 3592 Carburetors, pistons, piston rings, and valves
- 3593 Fluid power cylinders and actuators
- 3594 Fluid power pumps and motors
- 3596 Scales and balances, except laboratory
- 3599 Industrial and commercial machinery and equipment, *n.e.c.**

36 Electronic and Other Electrical Equipment and Components, Except Computer Equipment

- 3612 Power, distribution, and specialty transformers
- 3613 Switchgear and switchboard apparatus
- 3621 Motors and generators
- 3624 Carbon and graphite products
- 3625 Relays and industrial controls
- 3629 Electrical industrial appliances, *n.e.c.**
- 3631 Household cooking equipment
- 3632 Household refrigerators and home and farm freezers
- 3633 Household laundry equipment

- 3634 Electrical housewares and fans
- 3635 Household vacuum cleaners
- 3639 Household appliances, *n.e.c.**
- 3641 Electric light bulbs and tubes
- 3643 Current carrying wiring devices
- 3644 Noncurrent carrying wiring devices
- 3645 Residential electric lighting fixtures
- 3646 Commercial, industrial, and institutional electric lighting fixtures
- 3647 Vehicular lighting equipment
- 3648 Lighting equipment, *n.e.c.**
- 3651 Household audio and video equipment
- 3652 Phonograph records and pre-recorded audio tapes and disks
- 3661 Telephone and telegraph apparatus
- 3663 Radio and television broadcasting and communications equipment
- 3669 Communications equipment, *n.e.c.**
- 3671 Electron tubes
- 3672 Printed circuit boards
- 3674 Semiconductors and related devices
- 3675 Electronic capacitors
- 3676 Electronic resistors
- 3677 Electronic coils, transformers, and other inductors
- 3678 Electronic connectors
- 3679 Electronic components, *n.e.c.**
- 3691 Storage batteries
- 3692 Primary batteries, dry and wet
- 3694 Electric equipment for internal combustion engines
- 3695 Magnetic and optical recording media
- 3699 Electrical machinery, equipment, and supplies, *n.e.c.**

37 Transportation Equipment

- 3711 Motor vehicles and passenger car bodies
- 3713 Truck and bus bodies
- 3714 Motor vehicle parts and accessories
- 3715 Truck trailers
- 3716 Motor homes
- 3721 Aircraft
- 3724 Aircraft engines and engine parts
- 3728 Aircraft parts and auxiliary equipment, *n.e.c.**
- 3731 Ship building and repairing
- 3732 Boat building and repairing
- 3743 Railroad equipment
- 3751 Motorcycles, bicycles and parts
- 3761 Guided missiles and space vehicles
- 3764 Guided missile and space vehicle propulsion units and propulsion unit parts
- 3769 Guided missile and space vehicle parts and auxiliary equipment, *n.e.c.**
- 3792 Travel trailers and campers
- 3795 Tanks and tank components
- 3799 Transportation equipment, *n.e.c.**

*Not elsewhere classified" indicated by "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.**

TABLE II

SECTION 313 TOXIC CHEMICAL LIST FOR REPORTING YEAR 1990
(including Chemical Categories)

Specific toxic chemicals with CAS Number are listed in alphabetical order on this page. A list of the same chemicals in CAS Number order begins on page 44. Covered Chemical Categories are listed beginning on page 48.

Certain chemicals listed in Table II have parenthetical "qualifiers." These qualifiers indicate that these 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

Aluminum (fume or dust)	7429-90-5	<u>Only</u> if it is in a fume or dust form.
Aluminum oxide (fibrous forms)	1344-28-1	<u>Only</u> if it is a fibrous form.
Ammonium nitrate (solution)	6484-52-2	<u>Only</u> if it is in a solution.
Ammonium sulfate (solution)	7783-20-2	<u>Only</u> if it is in a solution.
Asbestos (friable)	1332-21-4	<u>Only</u> if it is a friable form.
Isopropyl alcohol (manufacturing - strong acid process, no supplier notification)	67-63-0	<u>Only</u> if it is being manufactured by the strong acid process.
Phosphorus (yellow or white)	7723-14-0	<u>Only</u> if it is a yellow or white form.
Saccharin (manufacturing, no supplier notification)	81-07-2	<u>Only</u> if it is being manufactured.
Vanadium (fume or dust)	7440-62-2	<u>Only</u> if it is in a fume or dust form.
Zinc (fume or dust)	7440-66-6	<u>Only</u> 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 page 11 of the instructions for more information on the de minimis values listed below.]

a. **Alphabetical Chemical List**

<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>	<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>
75-07-0	Acetaldehyde	0.1	309-00-2	Aldrin	1.0
60-35-5	Acetamide	0.1		{1,4:5,8-Dimethanonaphthalene,	
67-64-1	Acetone	1.0		1,2,3,4,10,10-hexachloro-1,4,4a,	
75-05-8	Acetonitrile	1.0		5,8,8a-hexahydro-(1.alpha.,	
53-96-3	2-Acetylaminofluorene	0.1		4.alpha.,4a.beta.,5.alpha.,	
107-02-8	Acrolein	1.0		8.alpha.,8a.beta.)-}	
79-06-1	Acrylamide	0.1	107-18-6	Allyl alcohol	1.0
79-10-7	Acrylic acid	1.0	107-05-1	Allyl chloride	1.0
107-13-1	Acrylonitrile	0.1	7429-90-5	Aluminum (fume or dust)	1.0

* C.I. means "Color Index"

<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>	<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>
1344-28-1	Aluminum oxide (fibrous forms)	0.1	3118-97-6	C.I. Solvent Orange 7*	1.0
117-79-3	2-Aminoanthraquinone	0.1	97-56-3	C.I. Solvent Yellow 3*	0.1
60-09-3	4-Aminoazobenzene	0.1	842-07-9	C.I. Solvent Yellow 14*	0.1
92-67-1	4-Aminobiphenyl	0.1	492-80-8	C.I. Solvent Yellow 34*	
82-28-0	1-Amino-2-methylantraquinone	0.1		(Auramine)	0.1
7664-41-7	Ammonia	1.0	128-66-5	C.I. Vat Yellow 4*	1.0
6484-52-2	Ammonium nitrate (solution)	1.0	7440-43-9	Cadmium	0.1
7783-20-2	Ammonium sulfate (solution)	1.0	156-62-7	Calcium cyanamide	1.0
62-53-3	Aniline	1.0	133-06-2	Captan	1.0
90-04-0	o-Anisidine	0.1		{1H-Isoindole-1,3(2H)-dione,	
104-94-9	p-Anisidine	1.0		3a,4,7,7a-tetrahydro-	
134-29-2	o-Anisidine hydrochloride	0.1		2-[(trichloromethyl)thio]-}	
120-12-7	Anthracene	1.0	63-25-2	Carbaryl	1.0
7440-36-0	Antimony	1.0		{1-Naphthalenol, methylcarbamate}	
7440-38-2	Arsenic	0.1	75-15-0	Carbon disulfide	1.0
1332-21-4	Asbestos (friable)	0.1	56-23-5	Carbon tetrachloride	0.1
7440-39-3	Barium	1.0	463-58-1	Carbonyl sulfide	1.0
98-87-3	Benzal chloride	1.0	120-80-9	Catechol	1.0
55-21-0	Benzamide	1.0	133-90-4	Chloramben	1.0
71-43-2	Benzene	0.1		{Benzoic acid, 3-amino-	
92-87-5	Benzidine	0.1		2,5-dichloro-}	
98-07-7	Benzoic trichloride (Benzotrichloride)	0.1	57-74-9	Chlordane	1.0
98-88-4	Benzoyl chloride	1.0		{4,7-Methanoindan, 1,2,4,5,6,7,	
94-36-0	Benzoyl peroxide	1.0		8,8-octachloro-2,3,3a,4,	
100-44-7	Benzyl chloride	1.0		7,7a-hexahydro-}	
7440-41-7	Beryllium	0.1	7782-50-5	Chlorine	1.0
92-52-4	Biphenyl	1.0	10049-04-4	Chlorine dioxide	1.0
111-44-4	Bis(2-chloroethyl) ether	1.0	79-11-8	Chloroacetic acid	1.0
542-88-1	Bis(chloromethyl) ether	0.1	532-27-4	2-Chloroacetophenone	1.0
108-60-1	Bis(2-chloro-1-methylethyl) ether	1.0	108-90-7	Chlorobenzene	1.0
103-23-1	Bis(2-ethylhexyl) adipate	1.0	510-15-6	Chlorobenzilate	1.0
75-25-2	Bromoform	1.0		{Benzeneacetic acid,4-chloro-	
	{Tribromomethane}			.alpha.-(4-chlorophenyl)-	
74-83-9	Bromomethane {Methyl bromide}	1.0	75-00-3	.alpha.-hydroxy-,ethyl ester}	
106-99-0	1,3-Butadiene	0.1		Chloroethane	1.0
141-32-2	Butyl acrylate	1.0	67-66-3	{Ethyl chloride}	
71-36-3	n-Butyl alcohol	1.0	74-87-3	Chloroform	0.1
78-92-2	sec-Butyl alcohol	1.0		Chloromethane	1.0
75-65-0	tert-Butyl alcohol	1.0		{Methyl chloride}	
85-68-7	Butyl benzyl phthalate	1.0	107-30-2	Chloromethyl methyl ether	0.1
106-88-7	1,2-Butylene oxide	1.0	126-99-8	Chloroprene	1.0
123-72-8	Butyraldehyde	1.0	1897-45-6	Chlorothalonil	1.0
4680-78-8	C.I. Acid Green 3*	1.0		{1,3-Benzenedicarbonitrile,	
569-64-2	C.I. Basic Green 4*	1.0	7440-47-3	2,4,5,6-tetrachloro-}	
989-38-8	C.I. Basic Red 1*	0.1	7440-48-4	Chromium	0.1
1937-37-7	C.I. Direct Black 38*	0.1	7440-50-8	Cobalt	1.0
2602-46-2	C.I. Direct Blue 6*	0.1	8001-58-9	Copper	1.0
16071-86-6	C.I. Direct Brown 95*	0.1	120-71-8	Creosote	0.1
2832-40-8	C.I. Disperse Yellow 3*	1.0	1319-77-3	p-Cresidine	0.1
3761-53-3	C.I. Food Red 5*	0.1	108-39-4	Cresol (mixed isomers)	1.0
81-88-9	C.I. Food Red 15*	0.1	95-48-7	m-Cresol	1.0
			106-44-5	o-Cresol	1.0
				p-Cresol	1.0

* C.I. means "Color Index"

<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>	<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>
98-82-8	Cumene	1.0	84-66-2	Diethyl phthalate	1.0
80-15-9	Cumene hydroperoxide	1.0	64-67-5	Diethyl sulfate	0.1
135-20-6	Cupferron	0.1	119-90-4	3,3'-Dimethoxybenzidine	0.1
	{Benzeneamine, N-hydroxy-N-nitroso, ammonium salt}		60-11-7	4-Dimethylaminoazobenzene	0.1
110-82-7	Cyclohexane	1.0	119-93-7	3,3'-Dimethylbenzidine {o-Tolidine}	0.1
94-75-7	2,4-D {Acetic acid, (2,4-dichlorophenoxy)-}	1.0	79-44-7	Dimethylcarbaryl chloride	0.1
1163-19-5	Decabromodiphenyl oxide	1.0	57-14-7	1,1-Dimethyl hydrazine	0.1
2303-16-4	Diallate {Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester}	1.0	105-67-9	2,4-Dimethylphenol	1.0
615-05-4	2,4-Diaminoanisole	0.1	131-11-3	Dimethyl phthalate	1.0
39156-41-7	2,4-Diaminoanisole sulfate	0.1	77-78-1	Dimethyl sulfate	0.1
101-80-4	4,4'-Diaminodiphenyl ether	0.1	99-65-0	m-Dinitrobenzene	1.0
25376-45-8	Diaminotoluene (mixed isomers)	0.1	528-29-0	o-Dinitrobenzene	1.0
95-80-7	2,4-Diaminotoluene	0.1	100-25-4	p-Dinitrobenzene	1.0
334-88-3	Diazomethane	1.0	534-52-1	4,6-Dinitro-o-cresol	1.0
132-64-9	Dibenzofuran	1.0	51-28-5	2,4-Dinitrophenol	1.0
96-12-8	1,2-Dibromo-3-chloropropane {DBCP}	0.1	121-14-2	2,4-Dinitrotoluene	1.0
106-93-4	1,2-Dibromoethane {Ethylene dibromide}	0.1	606-20-2	2,6-Dinitrotoluene	1.0
84-74-2	Dibutyl phthalate	1.0	25321-14-6	Dinitrotoluene (mixed isomers)	1.0
25321-22-6	Dichlorobenzene (mixed isomers)	0.1	117-84-0	n-Dioctyl phthalate	1.0
95-50-1	1,2-Dichlorobenzene	1.0	123-91-1	1,4-Dioxane	0.1
541-73-1	1,3-Dichlorobenzene	1.0	122-66-7	1,2-Diphenylhydrazine {Hydrazobenzene}	0.1
106-46-7	1,4-Dichlorobenzene	0.1	106-89-8	Epichlorohydrin	0.1
91-94-1	3,3'-Dichlorobenzidine	0.1	110-80-5	2-Ethoxyethanol	1.0
75-27-4	Dichlorobromomethane	1.0	140-88-5	Ethyl acrylate	0.1
107-06-2	1,2-Dichloroethane {Ethylene dichloride}	0.1	100-41-4	Ethylbenzene	1.0
540-59-0	1,2-Dichloroethylene	1.0	541-41-3	Ethyl chloroformate	1.0
75-09-2	Dichloromethane {Methylene chloride}	0.1	74-85-1	Ethylene	1.0
120-83-2	2,4-Dichlorophenol	1.0	107-21-1	Ethylene glycol	1.0
78-87-5	1,2-Dichloropropane	1.0	151-56-4	Ethyleneimine {Aziridine}	0.1
78-88-6	2,3-Dichloropropene	1.0	75-21-8	Ethylene oxide	0.1
542-75-6	1,3-Dichloropropylene	0.1	96-45-7	Ethylene thiourea	0.1
62-73-7	Dichlorvos {Phosphoric acid, 2,2-dichloroethenyl dimethyl ester}	1.0	2164-17-2	Fluometuron {Urea, N,N-dimethyl-N'-[3-(trifluoromethyl)phenyl]-}	1.0
115-32-2	Dicofol {Benzenemethanol, 4-chloro-.alpha.-(4-chlorophenyl)-.alpha.-(trichloromethyl)-}	1.0	50-00-0	Formaldehyde	0.1
1464-53-5	Diepoxybutane	0.1	76-13-1	Freon 113 {Ethane, 1,1,2-trichloro-1,2,2-trifluoro-}	1.0
111-42-2	Diethanolamine	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
117-81-7	Di-(2-ethylhexyl) phthalate {DEHP}	0.1	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

* C.I. means "Color Index"

<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>	<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>
7647-01-0	Hydrochloric acid	1.0	7440-02-0	Nickel	0.1
74-90-8	Hydrogen cyanide	1.0	7697-37-2	Nitric acid	1.0
7664-39-3	Hydrogen fluoride	1.0	139-13-9	Nitrilotriacetic acid	0.1
123-31-9	Hydroquinone	1.0	99-59-2	5-Nitro-o-anisidine	0.1
78-84-2	Isobutyraldehyde	1.0	98-95-3	Nitrobenzene	1.0
67-63-0	Isopropyl alcohol (manufacturing-strong acid process, no supplier notification)	0.1	92-93-3	4-Nitrobiphenyl	0.1
80-05-7	4,4'-Isopropylidenediphenol	1.0	1836-75-5	Nitrofen {Benzene, 2,4-dichloro-1- (4-nitrophenoxy)-}	0.1
120-58-1	Isosafrole	1.0	51-75-2	Nitrogen mustard {2-Chloro-N-(2-chloroethyl)-N- methylethanamine}	0.1
7439-92-1	Lead	0.1	55-63-0	Nitroglycerin	1.0
58-89-9	Lindane {Cyclohexane, 1,2,3,4,5,6- hexachloro-, (1.alpha., 2.alpha., 3.beta., 4.alpha., 5.alpha., 6.beta.)-}	0.1	88-75-5	2-Nitrophenol	1.0
108-31-6	Maleic anhydride	1.0	100-02-7	4-Nitrophenol	1.0
12427-38-2	Maneb {Carbamodithioic acid, 1,2- ethanediybis-, manganese complex}	1.0	79-46-9	2-Nitropropane	0.1
7439-96-5	Manganese	1.0	156-10-5	p-Nitrosodiphenylamine	0.1
7439-97-6	Mercury	1.0	121-69-7	N,N-Dimethylaniline	1.0
67-56-1	Methanol	1.0	924-16-3	N-Nitrosodi-n-butylamine	0.1
72-43-5	Methoxychlor {Benzene, 1,1'-(2,2,2- trichloroethylidene)bis [4-methoxy-]}	1.0	55-18-5	N-Nitrosodiethylamine	0.1
109-86-4	2-Methoxyethanol	1.0	62-75-9	N-Nitrosodimethylamine	0.1
96-33-3	Methyl acrylate	1.0	86-30-6	N-Nitrosodiphenylamine	1.0
1634-04-4	Methyl tert-butyl ether	1.0	621-64-7	N-Nitrosodi-n-propylamine	0.1
101-14-4	4,4'-Methylenebis (2- chloroaniline) {MBOCA}	0.1	4549-40-0	N-Nitrosomethylvinylamine	0.1
101-61-1	4,4'-Methylenebis(N,N-dimethyl) benzenamine	0.1	59-89-2	N-Nitrosomorpholine	0.1
101-68-8	Methylenebis (phenylisocyanate) {MBI}	1.0	759-73-9	N-Nitroso-N-ethylurea	0.1
74-95-3	Methylene bromide	1.0	684-93-5	N-Nitroso-N-methylurea	0.1
101-77-9	4,4'-Methylenedianiline	0.1	16543-55-8	N-Nitrosonorcotine	0.1
78-93-3	Methyl ethyl ketone	1.0	100-75-4	N-Nitrosopiperidine	0.1
60-34-4	Methyl hydrazine	1.0	2234-13-1	Octachloronaphthalene	1.0
74-88-4	Methyl iodide	0.1	20816-12-0	Osmium tetroxide	1.0
108-10-1	Methyl isobutyl ketone	1.0	56-38-2	Parathion {Phosphorothioic acid, o, o- diethyl-o-(4-nitrophenyl) ester}	1.0
624-83-9	Methyl isocyanate	1.0	87-86-5	Pentachlorophenol {PCP}	1.0
80-62-6	Methyl methacrylate	1.0	79-21-0	Peracetic acid	1.0
90-94-8	Michler's ketone	0.1	108-95-2	Phenol	1.0
1313-27-5	Molybdenum trioxide	1.0	106-50-3	p-Phenylenediamine	1.0
505-60-2	Mustard gas {Ethane, 1,1'-thiobis[2-chloro-]}	0.1	90-43-7	2-Phenylphenol	1.0
91-20-3	Naphthalene	1.0	75-44-5	Phosgene	1.0
134-32-7	alpha-Naphthylamine	0.1	7664-38-2	Phosphoric acid	1.0
91-59-8	beta-Naphthylamine	0.1	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

* C.I. means "Color Index"

<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>	<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>
114-26-1	Propoxur {Phenol, 2-(1-methylethoxy)-, methylcarbamate}	1.0	71-55-6	1,1,1-Trichloroethane {Methyl chloroform}	1.0
115-07-1	Propylene {Propene}	1.0	79-00-5	1,1,2-Trichloroethane	1.0
75-55-8	Propyleneimine	0.1	79-01-6	Trichloroethylene	1.0
75-56-9	Propylene oxide	0.1	95-95-4	2,4,5-Trichlorophenol	1.0
110-86-1	Pyridine	1.0	88-06-2	2,4,6-Trichlorophenol	0.1
91-22-5	Quinoline	1.0	1582-09-8	Trifluralin {Benzenamine, 2,6-dinitro-N,N- dipropyl-4-(trifluoromethyl)-}	1.0
106-51-4	Quinone	1.0	95-63-6	1,2,4-Trimethylbenzene	1.0
82-68-8	Quintozene {Pentachloronitrobenzene}	1.0	126-72-7	Tris (2,3-dibromopropyl) phosphate	0.1
81-07-2	Saccharin (manufacturing, no supplier notification) {1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide}	0.1	51-79-6	Urethane {Ethyl carbamate}	0.1
94-59-7	Safrole	0.1	7440-62-2	Vanadium (fume or dust)	1.0
7782-49-2	Selenium	1.0	108-05-4	Vinyl acetate	1.0
7440-22-4	Silver	1.0	593-60-2	Vinyl bromide	0.1
100-42-5	Styrene	0.1	75-01-4	Vinyl chloride	0.1
96-09-3	Styrene oxide	0.1	75-35-4	Vinylidene chloride	1.0
7664-93-9	Sulfuric acid	1.0	1330-20-7	Xylene (mixed isomers)	1.0
79-34-5	1,1,2,2-Tetrachloroethane	0.1	108-38-3	m-Xylene	1.0
127-18-4	Tetrachloroethylene {Perchloroethylene}	0.1	95-47-6	o-Xylene	1.0
961-11-5	Tetrachlorvinphos {Phosphoric acid, 2-chloro-1- (2,3,5-trichlorophenyl) ethenyl dimethyl ester}	1.0	106-42-3	p-Xylene	1.0
7440-28-0	Thallium	1.0	87-62-7	2,6-Xylidine	1.0
62-55-5	Thioacetamide	0.1	7440-66-6	Zinc (fume or dust)	1.0
139-65-1	4,4'-Thiodianiline	0.1	12122-67-7	Zineb {Carbamodithioic acid, 1,2- ethanediybis-, zinc complex}	1.0
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			
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			
			b. List By CAS Number		
			<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>
			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- methylanamine}	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

* C.I. means "Color Index"

<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>	<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>
57-57-8	beta-Propiolactone	0.1	75-01-4	Vinyl chloride	0.1
57-74-9	Chlordane	1.0	75-05-8	Acetonitrile	1.0
	{4,7-Methanoindan, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-}		75-07-0	Acetaldehyde	0.1
58-89-9	Lindane	0.1	75-09-2	Dichloromethane	0.1
	{Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1.alpha., 2.alpha., 3.beta., 4.alpha., 5.alpha., 6.beta.)-}			{Methylene chloride}	
59-89-2	N-Nitrosomorpholine	0.1	75-15-0	Carbon disulfide	1.0
60-09-3	4-Aminoazobenzene	0.1	75-21-8	Ethylene oxide	0.1
60-11-7	4-Dimethylaminoazobenzene	0.1	75-25-2	Bromoform	1.0
60-34-4	Methyl hydrazine	1.0		{Tribromomethane}	
60-35-5	Acetamide	0.1	75-27-4	Dichlorobromomethane	1.0
62-53-3	Aniline	1.0	75-35-4	Vinylidene chloride	1.0
62-55-5	Thioacetamide	0.1	75-44-5	Phosgene	1.0
62-56-6	Thiourea	0.1	75-55-8	Propyleneimine	0.1
62-73-7	Dichlorvos	1.0	75-56-9	Propylene oxide	0.1
	{Phosphoric acid, 2,2-dichloroethenyl dimethyl ester}		75-65-0	tert-Butyl alcohol	1.0
62-75-9	N-Nitrosodimethylamine	0.1	76-13-1	Freon 113	1.0
63-25-2	Carbaryl	1.0		{Ethane, 1,1,2-trichloro-1,2,2-trifluoro-}	
	{1-Naphthalenol, methylcarbamate}		76-44-8	Heptachlor	1.0
64-67-5	Diethyl sulfate	0.1		{1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-methano-1H-indene}	
67-56-1	Methanol	1.0	77-47-4	Hexachlorocyclopentadiene	1.0
67-63-0	Isopropyl alcohol	0.1	77-78-1	Dimethyl sulfate	0.1
	(manufacturing-strong acid process, no supplier notification)		78-84-2	Isobutyraldehyde	1.0
67-64-1	Acetone	1.0	78-87-5	1,2-Dichloropropane	1.0
67-66-3	Chloroform	0.1	78-88-6	2,3-Dichloropropene	1.0
67-72-1	Hexachloroethane	1.0	78-92-2	sec-Butyl alcohol	1.0
68-76-8	Triaziquone	0.1	78-93-3	Methyl ethyl ketone	1.0
	{2,5-Cyclohexadiene-1,4-dione, 2,3,5-tris(1-aziridinyl)-}		79-00-5	1,1,2-Trichloroethane	1.0
71-36-3	n-Butyl alcohol	1.0	79-01-6	Trichloroethylene	1.0
71-43-2	Benzene	0.1	79-06-1	Acrylamide	0.1
71-55-6	1,1,1-Trichloroethane	1.0	79-10-7	Acrylic acid	1.0
	{Methyl chloroform}		79-11-8	Chloroacetic acid	1.0
72-43-5	Methoxychlor	1.0	79-21-0	Peracetic acid	1.0
	{Benzene, 1,1'-(2,2,2-trichloroethylidene)bis [4-methoxy-]}		79-34-5	1,1,2,2-Tetrachloroethane	0.1
74-83-9	Bromomethane	1.0	79-44-7	Dimethylcarbonyl chloride	0.1
	{Methyl bromide}		79-46-9	2-Nitropropane	0.1
74-85-1	Ethylene	1.0	80-05-7	4,4'-Isopropylidenediphenol	1.0
74-87-3	Chloromethane	1.0	80-15-9	Cumene hydroperoxide	1.0
	{Methyl chloride}		80-62-6	Methyl methacrylate	1.0
74-88-4	Methyl iodide	0.1	81-07-2	Saccharin (manufacturing, no supplier notification)	0.1
74-90-8	Hydrogen cyanide	1.0		{1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide}	
74-95-3	Methylene bromide	1.0	81-88-9	C.I. Food Red 15*	0.1
75-00-3	Chloroethane	1.0	82-28-0	1-Amino-2-methylantraquinone	0.1
	{Ethyl chloride}		82-68-8	Quintozene	1.0
				{Pentachloronitro-benzene}	
			84-66-2	Diethyl phthalate	1.0
			84-74-2	Dibutyl phthalate	1.0
			85-44-9	Phthalic anhydride	1.0

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<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>	<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>
85-68-7	Butyl benzyl phthalate	1.0	100-75-4	N-Nitrosopiperidine	0.1
86-30-6	N-Nitrosodiphenylamine	1.0	101-14-4	4,4'-Methylenebis (2-chloroaniline) {MBOCA}	0.1
87-62-7	2,6-Xylidine	1.0	101-61-1	4,4'-Methylenebis(N,N-dimethyl) benzenamine	0.1
87-68-3	Hexachloro-1,3-butadiene	1.0	101-68-8	Methylenebis(phenylisocyanate) {MBI}	1.0
87-86-5	Pentachlorophenol {PCP}	1.0	101-77-9	4,4'-Methylenedianiline	0.1
88-06-2	2,4,6-Trichlorophenol	0.1	101-80-4	4,4'-Diaminodiphenyl ether	0.1
88-75-5	2-Nitrophenol	1.0	103-23-1	Bis(2-ethylhexyl) adipate	1.0
88-89-1	Picric acid	1.0	104-94-9	p-Anisidine	1.0
90-04-0	o-Anisidine	0.1	105-67-9	2,4-Dimethylphenol	1.0
90-43-7	2-Phenylphenol	1.0	106-42-3	p-Xylene	1.0
90-94-8	Michler's ketone	0.1	106-44-5	p-Cresol	1.0
91-08-7	Toluene-2,6-diisocyanate	0.1	106-46-7	1,4-Dichlorobenzene	0.1
91-20-3	Naphthalene	1.0	106-50-3	p-Phenylenediamine	1.0
91-22-5	Quinoline	1.0	106-51-4	Quinone	1.0
91-59-8	beta-Naphthylamine	0.1	106-88-7	1,2-Butylene oxide	1.0
91-94-1	3,3'-Dichlorobenzidine	0.1	106-89-8	Epichlorohydrin	0.1
92-52-4	Biphenyl	1.0	106-93-4	1,2-Dibromoethane {Ethylene dibromide}	0.1
92-67-1	4-Aminobiphenyl	0.1	106-99-0	1,3-Butadiene	0.1
92-87-5	Benzidine	0.1	107-02-8	Acrolein	1.0
92-93-3	4-Nitrobiphenyl	0.1	107-05-1	Allyl chloride	1.0
94-36-0	Benzoyl peroxide	1.0	107-06-2	1,2-Dichloroethane {Ethylene dichloride}	0.1
94-59-7	Safrole	0.1	107-13-1	Acrylonitrile	0.1
94-75-7	2,4-D {Acetic acid, (2,4-dichlorophenoxy)-}	1.0	107-18-6	Allyl alcohol	1.0
95-47-6	o-Xylene	1.0	107-21-1	Ethylene glycol	1.0
95-48-7	o-Cresol	1.0	107-30-2	Chloromethyl methyl ether	0.1
95-50-1	1,2-Dichlorobenzene	1.0	108-05-4	Vinyl acetate	1.0
95-53-4	o-Toluidine	0.1	108-10-1	Methyl isobutyl ketone	1.0
95-63-6	1,2,4-Trimethylbenzene	1.0	108-31-6	Maleic anhydride	1.0
95-80-7	2,4-Diaminotoluene	0.1	108-38-3	m-Xylene	1.0
95-95-4	2,4,5-Trichlorophenol	1.0	108-39-4	m-Cresol	1.0
96-09-3	Styrene oxide	0.1	108-60-1	Bis(2-chloro-1-methylethyl) ether	1.0
96-12-8	1,2-Dibromo-3-chloropropane {DBCP}	0.1	108-88-3	Toluene	1.0
96-33-3	Methyl acrylate	1.0	108-90-7	Chlorobenzene	1.0
96-45-7	Ethylene thiourea	0.1	108-95-2	Phenol	1.0
97-56-3	C.I. Solvent Yellow 3*	0.1	109-86-4	2-Methoxyethanol	1.0
98-07-7	Benzoic trichloride {Benzotrichloride}	0.1	110-80-5	2-Ethoxyethanol	1.0
98-82-8	Cumene	1.0	110-82-7	Cyclohexane	1.0
98-87-3	Benzal chloride	1.0	110-86-1	Pyridine	1.0
98-88-4	Benzoyl chloride	1.0	111-42-2	Diethanolamine	1.0
98-95-3	Nitrobenzene	1.0	111-44-4	Bis(2-chloroethyl) ether	1.0
99-59-2	5-Nitro-o-anisidine	0.1	114-26-1	Propoxur {Phenol, 2-(1-methylethoxy)-, methylcarbamate}	1.0
99-65-0	m-Dinitrobenzene	1.0	115-07-1	Propylene (Propene)	1.0
100-02-7	4-Nitrophenol	1.0	115-32-2	Dicofol {Benzenemethanol, 4-chloro-.alpha.-(4-chlorophenyl)-.alpha.-(trichloromethyl)-}	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			

<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>	<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>
117-79-3	2-Aminoanthraquinone	0.1	309-00-2	Aldrin	1.0
117-81-7	Di(2-ethylhexyl) phthalate {DEHP}	0.1		{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.)-}	
117-84-0	n-Dioctyl phthalate	1.0	334-88-3	Diazomethane	1.0
118-74-1	Hexachlorobenzene	0.1	463-58-1	Carbonyl sulfide	1.0
119-90-4	3,3'-Dimethoxybenzidine	0.1	492-80-8	C.I. Solvent Yellow 34* {Auramine}	0.1
119-93-7	3,3'-Dimethylbenzidine {o-Tolidine}	0.1	505-60-2	Mustard gas {Ethane,1,1'-thiobis[2-chloro-]}	0.1
120-12-7	Anthracene	1.0	510-15-6	Chlorobenzilate {Benzeneacetic acid,4-chloro- .alpha.-(4-chlorophenyl)- .alpha.-hydroxy-,ethyl ester}	1.0
120-58-1	Isosafrole	1.0	528-29-0	o-Dinitrobenzene	1.0
120-71-8	p-Cresidine	0.1	532-27-4	2-Chloroacetophenone	1.0
120-80-9	Catechol	1.0	534-52-1	4,6-Dinitro-o-cresol	1.0
120-82-1	1,2,4-Trichlorobenzene	1.0	540-59-0	1,2-Dichloroethylene	1.0
120-83-2	2,4-Dichlorophenol	1.0	541-41-3	Ethyl chloroformate	1.0
121-14-2	2,4-Dinitrotoluene	1.0	541-73-1	1,3-Dichlorobenzene	1.0
121-69-7	N,N-Dimethylaniline	1.0	542-75-6	1,3-Dichloropropylene	0.1
122-66-7	1,2-Diphenylhydrazine {Hydrazobenzene}	0.1	542-88-1	Bis(chloromethyl) ether	0.1
123-31-9	Hydroquinone	1.0	569-64-2	C.I. Basic Green 4*	1.0
123-38-6	Propionaldehyde	1.0	584-84-9	Toluene-2,4-diisocyanate	0.1
123-72-8	Butyraldehyde	1.0	593-60-2	Vinyl bromide	0.1
123-91-1	1,4-Dioxane	0.1	606-20-2	2,6-Dinitrotoluene	1.0
126-72-7	Tris(2,3-dibromopropyl) phosphate	0.1	615-05-4	2,4-Diaminoanisole	0.1
126-99-8	Chloroprene	1.0	621-64-7	N-Nitrosodi-n-propylamine	0.1
127-18-4	Tetrachloroethylene {Perchloroethylene}	0.1	624-83-9	Methyl isocyanate	1.0
128-66-5	C.I. Vat Yellow 4*	1.0	636-21-5	o-Toluidine hydrochloride	0.1
131-11-3	Dimethyl phthalate	1.0	680-31-9	Hexamethylphosphoramide	0.1
132-64-9	Dibenzofuran	1.0	684-93-5	N-Nitroso-N-methylurea	0.1
133-06-2	Captan {1H-Isoindole-1,3(2H)-dione, 3a,4,7,7a-tetrahydro- 2[(trichloromethyl)thio]-}	1.0	759-73-9	N-Nitroso-N-ethylurea	0.1
133-90-4	Chloramben {Benzoic acid, 3-amino- 2,5-dichloro-}	1.0	842-07-9	C.I. Solvent Yellow 14*	0.1
134-29-2	o-Anisidine hydrochloride	0.1	924-16-3	N-Nitrosodi-n-butylamine	0.1
134-32-7	alpha-Naphthylamine	0.1	961-11-5	Tetrachlorvinphos {Phosphoric acid, 2-chloro-1- (2,3,5-trichlorophenyl)ethenyl dimethyl ester}	1.0
135-20-6	Cupferron {Benzeneamine, N-hydroxy- N-nitroso, ammonium salt}	0.1	989-38-8	C.I. Basic Red 1*	0.1
139-13-9	Nitrilotriacetic acid	0.1	1120-71-4	Propane sultone	0.1
139-65-1	4,4'-Thiodianiline	0.1	1163-19-5	Decabromodiphenyl oxide	1.0
140-88-5	Ethyl acrylate	0.1	1313-27-5	Molybdenum trioxide	1.0
141-32-2	Butyl acrylate	1.0	1314-20-1	Thorium dioxide	1.0
151-56-4	Ethyleneimine (Aziridine)	0.1	1319-77-3	Cresol (mixed isomers)	1.0
156-10-5	p-Nitrosodiphenylamine	0.1	1330-20-7	Xylene (mixed isomers)	1.0
156-62-7	Calcium cyanamide	1.0	1332-21-4	Asbestos (friable)	0.1
302-01-2	Hydrazine	0.1	1335-87-1	Hexachloronaphthalene	1.0
			1336-36-3	Polychlorinated biphenyls {PCBs}	0.1

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<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>	<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Concentration</u>
1344-28-1	Aluminum oxide (fibrous forms)	0.1	7697-37-2	Nitric acid	1.0
1464-53-5	Diepoxybutane	0.1	7723-14-0	Phosphorus (yellow or white)	1.0
1582-09-8	Trifluralin	1.0	7782-49-2	Selenium	1.0
	{Benzenammine, 2,6- dinitro-N,N-dipropyl-4-(trifluoromethyl)-}		7782-50-5	Chlorine	1.0
1634-04-4	Methyl tert-butyl ether	1.0	7783-20-2	Ammonium sulfate (solution)	1.0
1836-75-5	Nitrofen	0.1	8001-35-2	Toxaphene	0.1
	{Benzene, 2,4-dichloro-1-(4-nitrophenoxy)-}		8001-58-9	Creosote	0.1
1897-45-6	Chlorothalonil	1.0	10034-93-2	Hydrazine sulfate	0.1
	{1,3-Benzenedicar bonitrile, 2,4,5,6-tetrachloro-}		10049-04-4	Chlorine dioxide	1.0
1937-37-7	C.I. Direct Black 38*	0.1	12122-67-7	Zineb	1.0
2164-17-2	Fluometuron	1.0		{Carbamodithioic acid, 1,2-ethanediybis-,zinc complex}	
	{Urea, N,N-dimethyl-N'-[3-(trifluoromethyl)phenyl]-}		12427-38-2	Maneb	1.0
2234-13-1	Octachloronaphthalene	1.0		{Carbamodithioic acid, 1,2-ethanediybis-,manganese complex}	
2303-16-4	Diallate	1.0	16071-86-6	C.I. Direct Brown 95*	0.1
	{Carbamothioic acid, bis (1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester}		16543-55-8	N-Nitrosornicotine	0.1
2602-46-2	C.I. Direct Blue 6*	0.1	20816-12-0	Osmium tetroxide	1.0
2832-40-8	C.I. Disperse Yellow 3*	1.0	25321-14-6	Dinitrotoluene (mixed isomers)	1.0
3118-97-6	C.I. Solvent Orange 7*	1.0	25321-22-6	Dichlorobenzene (mixed isomers)	0.1
3761-53-3	C.I. Food Red 5*	0.1		Diaminotoluene (mixed isomers)	0.1
4549-40-0	N-Nitrosomethylvinylamine	0.1	39156-41-7	Toluenediisocyanate (mixed isomers)	0.1
4680-78-8	C.I. Acid Green 3*	1.0		2,4-Diaminoanisole sulfate	0.1
6484-52-2	Ammonium nitrate (solution)	1.0			
7429-90-5	Aluminum (fume or dust)	1.0			
7439-92-1	Lead	0.1			
7439-96-5	Manganese	1.0			
7439-97-6	Mercury	1.0			
7440-02-0	Nickel	0.1			
7440-22-4	Silver	1.0			
7440-28-0	Thallium	1.0			
7440-36-0	Antimony	1.0			
7440-38-2	Arsenic	0.1			
7440-39-3	Barium	1.0			
7440-41-7	Beryllium	0.1			
7440-43-9	Cadmium	0.1			
7440-47-3	Chromium	0.1			
7440-48-4	Cobalt	1.0			
7440-50-8	Copper	1.0			
7440-62-2	Vanadium (fume or dust)	1.0			
7440-66-6	Zinc (fume or dust)	1.0			
7550-45-0	Titanium tetrachloride	1.0			
7647-01-0	Hydrochloric acid	1.0			
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			

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SECTION 313 CHEMICAL CATEGORIES

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

The metal compounds listed below, unless otherwise specified, are defined as including any unique chemical substance that contains the named metal (i.e., antimony, copper, etc.) as part of that chemical's structure.

Chemical categories are subject to the 1 percent *de minimis* concentration unless the substance involved meets the definition of an OSHA carcinogen, which are subject to the 0.1 percent *de minimis* concentration.

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

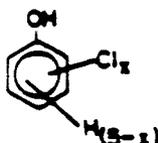
Arsenic Compounds - Includes any unique chemical substance that contains arsenic as part of that chemical's infrastructure.

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

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

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

Chlorophenols -



where $x = 1$ to 5

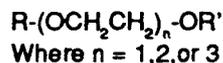
Chromium Compounds - Includes any unique chemical substance that contains chromium as part of that chemical's infrastructure.

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

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

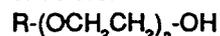
Cyanide Compounds - X^+CN^- where $X = H^+$ or any other group where a formal dissociation may occur. For example KCN or $Ca(CN)_2$.

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



R = alkyl or aryl groups

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



Polymers are excluded from this category.

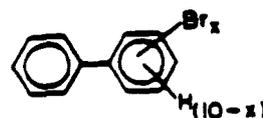
Lead Compounds - Includes any unique chemical substance that contains lead as part of that chemical's infrastructure.

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

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

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

Polybrominated Biphenyls (PBBs)



where $x = 1$ to 10

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

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

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

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

TABLE III
STATE ABBREVIATIONS

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

01/01/2011
 Environmental Library
 Environmental Protection Agency
 2011/03/15
 2011/03/15

APPENDIX A
TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM R

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

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

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

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

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

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

Signature _____ Date signed _____

3. FACILITY IDENTIFICATION		WHERE TO SEND COMPLETED FORMS: 1. EPCRA REPORTING CENTER P.O. BOX 23779 WASHINGTON, DC 20026-3779 ATTN: TOXIC CHEMICAL RELEASE INVENTORY 2. APPROPRIATE STATE OFFICE (See instructions in Appendix G)		
3.1	Facility or Establishment Name			
	Street Address			
	City			County
	State			Zip Code
TRI Facility Identification Number				
3.2	This report contains information for (Check only one): a. <input type="checkbox"/> An entire facility b. <input type="checkbox"/> Part of a facility.			
3.3	Technical Contact	Telephone Number (include area code)		
3.4	Public Contact	Telephone Number (include area code)		
3.5	SIC Code (4 digit)	a.	b.	
		c.	d.	
		e.	f.	
3.6	Latitude		Longitude	
	Degrees	Minutes	Seconds	Degrees
				Minutes
				Seconds
3.7	Dun & Bradstreet Number(s)			
	a.	b.		
3.8	EPA Identification Number(s) (RCRA I.D. No.)			
	a.	b.		
3.9	NPDES Permit Number(s)			
	a.	b.		
3.10	Receiving Streams or Water Bodies (enter one name per box)			
	a.	b.		
	c.	d.		
	e.	f.		
3.11	Underground Injection Well Code (UIC) Identification Number(s)			
	a.	b.		

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

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



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

(This space for your optional use.)

1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name		1.2 POTW name	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip

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

2.1 Off-site location name		2.2 Off-site location name	
EPA Identification Number (RCRA ID. No.)		EPA Identification Number (RCRA ID. No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? <input type="checkbox"/> Yes <input type="checkbox"/> No		Is location under control of reporting facility or parent company? <input type="checkbox"/> Yes <input type="checkbox"/> No	

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

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

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

	EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION	(This space for your optional use.)
--	---	-------------------------------------

1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)	
1.1	[Reserved]
1.2	CAS Number (Enter only one number exactly as it appears on the 313 list. Enter NA if reporting a chemical category.)
1.3	Chemical or Chemical Category Name (Enter only one name exactly as it appears on the 313 list.)
1.4	Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

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

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

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

		A. Total Release (pounds/year)			B. Basis of Estimate (enter code)	C. % From Stormwater
		A.1 Reporting Ranges		A.2 Enter Estimate		
You may report releases of less than 1,000 pounds by checking ranges under A.1. (Do not use both A.1 and A.2)		1-10	11-499	500-999		
5.1 Fugitive or non-point air emissions	5.1a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.1b <input type="checkbox"/>	
5.2 Stack or point air emissions	5.2a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.2b <input type="checkbox"/>	
5.3 Discharges to receiving streams or water bodies <small>(Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)</small>	5.3.1 <input type="checkbox"/>	5.3.1a	<input type="checkbox"/>	<input type="checkbox"/>	5.3.1b <input type="checkbox"/>	5.3.1c %
	5.3.2 <input type="checkbox"/>	5.3.2a	<input type="checkbox"/>	<input type="checkbox"/>	5.3.2b <input type="checkbox"/>	5.3.2c %
	5.3.3 <input type="checkbox"/>	5.3.3a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.3.3c %
5.4 Underground injection	5.4a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.4b <input type="checkbox"/>	
5.5 Releases to land	5.5.1 On-site landfill	5.5.1a	<input type="checkbox"/>	<input type="checkbox"/>	5.5.1b <input type="checkbox"/>	
	5.5.2 Land treatment/application farming	5.5.2a	<input type="checkbox"/>	<input type="checkbox"/>	5.5.2b <input type="checkbox"/>	
	5.5.3 Surface impoundment	5.5.3a	<input type="checkbox"/>	<input type="checkbox"/>	5.5.3b <input type="checkbox"/>	
	5.5.4 Other disposal	5.5.4a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.5.4b <input type="checkbox"/>

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

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)	(This space for your optional use.)
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6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS						
You may report transfers of less than 1,000 pounds by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (pounds/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/Disposal (enter code)	
	A.1 Reporting Ranges 1-10 11-499 500-999				A.2 Enter Estimate	
6.1.1 Discharge to POTW (enter location number from Part II, Section 1.) <input type="checkbox"/> 1 <input type="checkbox"/>	[]	[]	[]	6.1.1b <input type="checkbox"/>		
6.2.1 Other off-site location (enter location number from Part II, Section 2.) <input type="checkbox"/> 2 <input type="checkbox"/>	[]	[]	[]	6.2.1b <input type="checkbox"/>	6.2.1c	<input type="checkbox"/> M <input type="checkbox"/>
6.2.2 Other off-site location (enter location number from Part II, Section 2.) <input type="checkbox"/> 2 <input type="checkbox"/>	[]	[]	[]	6.2.2b <input type="checkbox"/>	6.2.2c	<input type="checkbox"/> M <input type="checkbox"/>
6.2.3 Other off-site location (enter location number from Part II, Section 2.) <input type="checkbox"/> 2 <input type="checkbox"/>	[]	[]	[]	6.2.3b <input type="checkbox"/>	6.2.3c	<input type="checkbox"/> M <input type="checkbox"/>
[] (Check if additional information is provided on Part IV-Supplemental Information.)						

7. WASTE TREATMENT METHODS AND EFFICIENCY						
<input type="checkbox"/> Not Applicable (NA) - Check if no on-site treatment is applied to any waste stream containing the chemical or chemical category						
A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No	
7.1a <input type="checkbox"/>	7.1b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.1c <input type="checkbox"/>	7.1d []	7.1e %	7.1f	[] []
7.2a <input type="checkbox"/>	7.2b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.2c <input type="checkbox"/>	7.2d []	7.2e %	7.2f	[] []
7.3a <input type="checkbox"/>	7.3b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.3c <input type="checkbox"/>	7.3d []	7.3e %	7.3f	[] []
7.4a <input type="checkbox"/>	7.4b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.4c <input type="checkbox"/>	7.4d []	7.4e %	7.4f	[] []
7.5a <input type="checkbox"/>	7.5b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.5c <input type="checkbox"/>	7.5d []	7.5e %	7.5f	[] []
7.6a <input type="checkbox"/>	7.6b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.6c <input type="checkbox"/>	7.6d []	7.6e %	7.6f	[] []
7.7a <input type="checkbox"/>	7.7b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.7c <input type="checkbox"/>	7.7d []	7.7e %	7.7f	[] []
7.8a <input type="checkbox"/>	7.8b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.8c <input type="checkbox"/>	7.8d []	7.8e %	7.8f	[] []
7.9a <input type="checkbox"/>	7.9b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.9c <input type="checkbox"/>	7.9d []	7.9e %	7.9f	[] []
7.10a <input type="checkbox"/>	7.10b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.10c <input type="checkbox"/>	7.10d []	7.10e %	7.10f	[] []
[] (Check if additional information is provided on Part IV-Supplemental Information.)						

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION (Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)																					
A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal	C. Index	D. Reason for Action (enter code)																		
<input type="checkbox"/> M <input type="checkbox"/>	<table style="width:100%; border: none;"> <tr> <td style="width: 50%; border: none;">Current reporting year (pounds/year)</td> <td style="width: 5%; border: none;"> </td> <td style="width: 45%; border: none;">Prior year (pounds/year)</td> </tr> <tr> <td style="border: none;">_____</td> <td style="border: none;"> </td> <td style="border: none;">_____</td> </tr> <tr> <td style="border: none;"></td> <td style="border: none;"> </td> <td style="border: none;">Or percent change (Check (+) or (-))</td> </tr> <tr> <td style="border: none;"></td> <td style="border: none;"> </td> <td style="border: none;"><input type="checkbox"/> +</td> </tr> <tr> <td style="border: none;"></td> <td style="border: none;"> </td> <td style="border: none;"><input type="checkbox"/> -</td> </tr> <tr> <td style="border: none;"></td> <td style="border: none;"> </td> <td style="border: none;">_____ %</td> </tr> </table>	Current reporting year (pounds/year)		Prior year (pounds/year)	_____		_____			Or percent change (Check (+) or (-))			<input type="checkbox"/> +			<input type="checkbox"/> -			_____ %	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> R <input type="checkbox"/>
Current reporting year (pounds/year)		Prior year (pounds/year)																			
_____		_____																			
		Or percent change (Check (+) or (-))																			
		<input type="checkbox"/> +																			
		<input type="checkbox"/> -																			
		_____ %																			



EPA FORM R
PART IV. SUPPLEMENTAL INFORMATION

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

(This space for your optional use.)

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

You may report releases of less than 1,000 pounds by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Release (pounds/yr)			B. Basis of Estimate (enter code in box provided)	C. % From Stormwater
	A.1 Reporting Ranges 1-10 11-499 500-999		A.2 Enter Estimate		
5.3 Discharges to receiving streams or water bodies 5.3. ___ <input type="checkbox"/>	5.3. ___ a [] [] []			5.3. ___ b <input type="checkbox"/>	5.3. ___ c %
(Enter letter code from Part I Section 3.10 for stream(s) in the box provided.) 5.3. ___ <input type="checkbox"/>	5.3. ___ a [] [] []			5.3. ___ b <input type="checkbox"/>	5.3. ___ c %
5.3. ___ <input type="checkbox"/>	5.3. ___ a [] [] []			5.3. ___ b <input type="checkbox"/>	5.3. ___ c %

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

You may report transfers of less than 1,000 pounds by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (pounds/yr)		B. Basis of Estimate (enter code in box provided)	C. Type of Treatment/Disposal (enter code in box provided)
	A.1 Reporting Ranges 1-10 11-499 500-999			
6.1. Discharge to POTW (enter location number from Part II, Section 1.) 1. ___ <input type="checkbox"/>	[] [] []		6.1. ___ b <input type="checkbox"/>	
6.2. Other off-site location (enter location number from Part II, Section 2.) 2. ___ <input type="checkbox"/>	[] [] []		6.2. ___ b <input type="checkbox"/>	6.2. ___ c M <input type="checkbox"/> <input type="checkbox"/>
6.2. Other off-site location (enter location number from Part II, Section 2.) 2. ___ <input type="checkbox"/>	[] [] []		6.2. ___ b <input type="checkbox"/>	6.2. ___ c M <input type="checkbox"/> <input type="checkbox"/>
6.2. Other off-site location (enter location number from Part II, Section 2.) 2. ___ <input type="checkbox"/>	[] [] []		6.2. ___ b <input type="checkbox"/>	6.2. ___ c M <input type="checkbox"/> <input type="checkbox"/>

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

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

APPENDIX B

REPORTING CODES FOR EPA FORM R

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

Weight Range in Pounds

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

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

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

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

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

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

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

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

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

Biological Treatment

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

Chemical Treatment

- C01 Chemical Precipitation -- Lime or Sodium Hydroxide
- C02 Chemical Precipitation -- Sulfide
- C09 Chemical Precipitation -- Other
- C11 Neutralization
- C21 Chromium Reduction
- C31 Complexed Metals Treatment (other than pH Adjustment)
- C41 Cyanide Oxidation -- Alkaline Chlorination
- C42 Cyanide Oxidation -- Electrochemical
- C43 Cyanide Oxidation -- Other
- C44 General Oxidation (including Disinfection) -- Chlorination
- C45 General Oxidation (including Disinfection) -- Ozonation
- C46 General Oxidation (including Disinfection) -- Other
- C99 Other Chemical Treatment

Incineration/Thermal Treatment

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

Physical Treatment

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

- P51 Acid Leaching (other than for recovery/reuse)
- P61 Solvent Extraction (other than recovery/reuse)
- P99 Other Physical Treatment

Recovery/Reuse

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

Solidification/Stabilization

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

Part III, Section 7 - Waste Treatment Methods and Efficiency

Range of Influent Concentration

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

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

Part III, Section 8 - Optional Information on Waste Minimization

Type of Modification

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

Reason for Action

- R1 - Regulatory Requirement for the Waste
- R2 - Reduction of Treatment/Disposal Costs
- R3 - Other Process Cost Reduction
- R4 - Discontinuation of Product
- R5 - Other (e.g., occupational safety concerns, etc.)

APPENDIX C

EXAMPLE OF HOW A HYPOTHETICAL FACILITY PREPARED SECTION 313 REPORTING FORM R

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

Facility Description

The company manufactures lead-acid batteries at a plant in New Mexico. The company also operates a lead smelter that produces lead ingots at another location in New Mexico and ships them to the battery plant. Lead scrap from the battery plant is returned to the smelter for recovery and reuse.

The SIC code of the battery plant is 3691 (storage batteries); the SIC code for the smelter is 3341 (secondary smelting and refining of non-ferrous metals). A lead oxide production plant located adjacent to the battery plant, on the same property, also falls under SIC code 3691.

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

Lead-acid batteries are produced using lead, sulfuric acid, additives such as antimony, and various other raw materials. Your facility's battery production capacity is 5,000 batteries per day, and the facility normally operates 24 hours per day, 300 days per year.

If sulfuric acid was manufactured, processed, or otherwise used at the battery plant in amounts that exceed the applicable thresholds, you would be required to report releases of sulfuric

acid separately. Similarly, releases of lead and lead compounds from the remotely located lead smelter must be reported separately, if manufactured, processed, or otherwise used in amounts that exceed the thresholds.

Process Description

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

The first steps in the battery manufacturing process are grid casting and lead oxide (PbO) production. Lead ingots are melted and reformed into the grids which are trimmed. Lead fumes from the lead melting and grid casting process are exhausted to the atmosphere without emission controls. No wastewater is produced.

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

The leady oxide is mixed with metallic lead, water, sulfuric acid, and additives in a paste mixer to form lead oxide paste. Lead and lead oxide dust are emitted from the mixer during charging of the dry materials and during wet mixing. The mixer is vented to a fabric filter during charging and to a wet scrubber during wet mixing. The fabric filter and wet scrubber both vent to the same stack. Wastewater produced from the wet scrubber blowdown is treated on-site. Solids collected in a scrubber sump are returned to the off-site smelter for recovery and reuse. Solids collected in an evaporation pond are not recovered. Mixing equipment washdown water is treated in a multi-stage settler and entirely reused in the paste mixing process. Sludge collected in the settler is recycled.

Small amounts of particulates are released to the atmosphere during paste application. These emissions are not ducted to a stack or controlled.

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

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

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

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

Determining Reporting Requirements Under Section 313

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

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

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

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

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

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

Determining Reporting Eligibility. The manufacturing threshold quantity for the 1990 reporting year is 25,000 pounds; the threshold for processing is also 25,000 pounds. Your facility engages in both manufacturing and process activities in its production of 1,500,000 batteries per year. Each battery contains 25 pounds of lead, half of which is in the form of metallic lead (anode) and half in the form of lead peroxide (cathode). The total amount of lead compounds manufactured during the reporting year is the 18,750,000 pounds of lead peroxide, which exceeds the threshold for manufacturing. Similarly, the amounts of lead processed as an article component (18,750,000 pounds) and of lead compounds processed (18,750,000 pounds) each exceed the threshold for processing. [Note: These amounts are not combined before being compared to the processing threshold, because both lead and lead compounds are separately listed chemicals.] For sequential processes, use the amount of the final process material to determine whether the threshold is exceeded.

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

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

Calculation of Releases of Lead

Releases to Air. In April 1990, you conducted stack tests to determine air releases from the battery facility. The release data provided baseline data for a proposed 1991 air emission reduction program. The tests were performed using EPA Reference Method 12, which determines exhaust concentrations as total elemental lead, and EPA Reference Methods 1-4, which determine total exhaust volumes. Releases from all stacks and vents at the facility were measured, including those from the following release points:

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

Non-point (fugitive) air releases of lead, such as from the battery formation, grid paste application, and fabric filter dust handling areas were not measured as part of the stack testing program but have been estimated by the facility's engineering department to be less than 100 pounds per year. Measurements of the inlet lead concentrations to the wet scrubber or fabric filters were not performed. The process conditions (e.g., temperature, exhaust rate) of the grid casting furnace were changed significantly in June 1990 in response to the stack test results. Current lead releases are estimated by the

engineering department to be 75 percent of those measured during the stack test.

The total releases to air from the facility must be entered in Part III, Section 5 of Form R in pounds per year. The stack test results provide the concentration of metallic lead in each exhaust stream in grains per cubic foot and the exhaust rate in cubic feet per minute. Using the appropriate conversion factors, knowing the scrubber efficiency (from the manufacturer's data), and assuming your facility operates 24 hours per day, 300 days per year, you can calculate the total lead releases from the stack test data. Because point (stack) releases of lead are 2,400 pounds per year, which is greater than the 999 pounds per year ranges in column A.1, you must enter the actual calculated amount in column A.2 of Section 5.2.

Non-point (fugitive) air releases are 100 pounds per year (which is less than 999 pounds per year), so you may either enter the actual calculated amount in column A.2, or enter the appropriate range (11-499 pounds per year) in column A.1. The basis for the estimate of fugitive emissions, entered in column B of Section 5, is engineering calculations (code O). The basis for the estimate of stack emissions, entered in column B of Section 5, is monitoring data (code M). Although engineering calculations were used to estimate releases from the grid casting process, actual emissions test data were used to calculate more than 50 percent of the total stack emissions, so code M is appropriate.

Releases to Water. The only release of lead to a receiving stream or water body comes from stormwater. Lead ingots shipped from the off-site smelter are stored on a concrete pad in an open area at your facility. Lead dust is entrained in the stormwater runoff from the ingot storage area. You have monitoring data concerning the concentration of lead in stormwater releases from the facility property. Therefore, using precipitation volumes and run-off coefficients appropriate to the site, you are able to estimate that the releases of lead compounds to the nearby stream total 6.2 pounds per year. Since the total quantity of lead released is less than 999 pounds per year, you may enter the actual amount calculated in column A.2 of Section 5.3.1a, or mark the applicable range (1-10 pounds per year) in column A.1, as is shown in the sample. Your facility has no process discharges to surface waters except stormwater. You must therefore report in Part III, Section 5.3.1c, that 100 percent of the lead released from your facility to surface water is from stormwater. The basis for the estimate of stormwater emissions, entered in column B of Section 5.3.1, is monitoring data (code M). The letter for the receiving stream or water body you designated in Part I, Section 3.10 must be entered to the box.

pipled to an on-site surface impoundment and evaporated after treatment by a single-stage separator (settling tank) and pH adjustment for chemical precipitation. Wastewater from other process areas is treated in the wastewater pretreatment system and piped to the POTW. The following sections on **Releases to Land and Discharge to POTW** illustrate reporting of these wastes.

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

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

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

Calculation of Lead Transfers to Off-Site Locations

Discharge to POTW. Wastewater from battery wash and battery repair operations at the plant is discharged to the local POTW. The discharge monitoring data collected by the plant provide the concentration of metallic lead in each wastewater stream discharged to the POTW in milligrams/liter and the flow rate in liters per minute. Your facility also monitors the inlet concentration to the on-site wastewater treatment system to determine the treatment system efficiency. You are required to report releases or release ranges in pounds per year. Assuming your facility operates 24 hours a day, 300 days a

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

Transfers to Other Off-Site Locations. Your facility returns the lead particulate collected by the fabric filters to the off-site smelter for recovery and reuse. You are not required to report releases of listed substances to off-site recovery facilities; therefore, no information concerning the off-site smelter should be entered in Part III, Section 6 of Form R.

Your facility discharges used fabric filter bags contaminated with lead particulate to a commercial RCRA landfill located in Colorado. The RCRA I.D. number for the off-site facility is COD554698764. The plant engineering department estimates that the annual shipment of fabric filter bags contain less than 500 pounds of lead. You may, therefore, report the release as a range in column A.1 of Section 6.2.1. The basis for the estimate of solid waste emissions, entered in column B of Section 6.2.1, is engineering calculations (code O), and the location and RCRA I.D. number of the commercial landfill is entered in Part II, Section 2.1, of the reporting form.

Estimation of Treatment System Efficiencies and Influent Concentrations

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

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

the first step of the sequential treatment system (the cyclone collector) and must report the overall treatment efficiency of the system on the line for the last treatment step (the fabric filter). Note that the wet scrubber and fabric filter on the grid paste mixer exhaust are not sequential treatment steps, because each treats a different wastestream generated at different times during the same process.

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

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

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

Information on Waste Minimization. The facility formerly shipped the lead-containing sludge from the multi-stage settler used to treat the grid paste application wastewater to an off-site disposal facility. In 1990, however, process modifications allowed the sludge to be returned to the off-site smelter operated by the company for recovery and reuse, resulting in significant cost-savings. The most significant saving is in the cost of treating the sludge; the value of the recovered lead

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

Completion of the Section 313 Reporting Form

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

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

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

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

1.1 Are you claiming the chemical identity on page 3 trade secret? <input type="checkbox"/> Yes (Answer question 1.2; Attach substantiation forms.) <input checked="" type="checkbox"/> No (Do not answer 1.2; Go to question 1.3.)	1.2 If "Yes" in 1.1, is this copy: <input type="checkbox"/> Sanitized <input type="checkbox"/> Unsanitized	1.3 Reporting Year 19 <u>90</u>
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2. CERTIFICATION (Read and sign after completing all sections.)
 I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official
MR. STANLEY L. PIRX, III, VICE PRESIDENT, BATTERY PRODUCTS DIVISION

Signature Stanley L. Pirx, III Date signed **FEBRUARY 12, 1991**

3. FACILITY IDENTIFICATION			WHERE TO SEND COMPLETED FORMS:		
3.1	Facility or Establishment Name PIRX - LEWIS, INC., BATTERY PRODUCTS DIV		1. EPCRA REPORTING CENTER P.O. BOX 23779 WASHINGTON, DC 20026-3779 ATTN: TOXIC CHEMICAL RELEASE INVENTORY 2. APPROPRIATE STATE OFFICE (See instructions in Appendix G)		
	Street Address 10545 CERILLOS ROAD				
	City ALBUQUERQUE	County BERNADILLO			
	State NM	Zip Code 81103-0420			
TRI Facility Identification Number 81103 PRLW CERIL					
3.2	This report contains information for (Check only one): a. <input checked="" type="checkbox"/> An entire facility b. <input type="checkbox"/> Part of a facility.				
3.3	Technical Contact MR. ROBERTO GARCIA		Telephone Number (include area code) (505) 752-5360		
3.4	Public Contact MS. SANDY A. RANGE		Telephone Number (include area code) (505) 752-5863		
3.5	SIC Code (4 digit) a. 3691	b. NA	c.	d.	e. f.
3.6	Latitude Degrees: 35 Minutes: 10 Seconds: 00		Longitude Degrees: 106 Minutes: 30 Seconds: 00		
3.7	Dun & Bradstreet Number(s) a. 91-976-2270		b. NA		
3.8	EPA Identification Number(s) (RCRA I.D. No.) a. NM 919762270		b. NA		
3.9	NPDES Permit Number(s) a. NA		b.		
3.10	Receiving Streams or Water Bodies (enter one name per box) a. TIJEROS ARROYO		b. NA		
	c.		d.		
	e.		f.		
3.11	Underground Injection Well Code (UIC) Identification Number(s) a. NA		b.		

4. PARENT COMPANY INFORMATION	
4.1 Name of Parent Company CIBOLA MOTOR WORKS	4.2 Parent Company's Dun & Bradstreet Number 91-783-4667

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

<div style="text-align: center;"> EPA FORM R PART II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES </div>	(This space for your optional use.)
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1. PUBLICLY OWNED TREATMENT WORKS (POTWs)			
1.1 POTW name CITY OF ALBUQUERQUE TREATMENT WORKS		1.2 POTW name NA	
Street Address 50100 U.S. ROUTE 66		Street Address	
City ALBUQUERQUE	County BERNABILLO	City	County
State NM	Zip 87105-9987	State	Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).			
2.1 Off-site location name COLORADO WASTE DISPOSAL, INC.		2.2 Off-site location name NA	
EPA Identification Number (RCRA ID. No.) COD554698764		EPA Identification Number (RCRA ID. No.)	
Street Address 10600 COUNTY ROUTE 76		Street Address	
City GOLDEN	County JEFFERSON	City	County
State CO	Zip 80305-1311	State	Zip
Is location under control of reporting facility or parent company? <div style="text-align: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</div>		Is location under control of reporting facility or parent company? <div style="text-align: right;"><input type="checkbox"/> Yes <input type="checkbox"/> No</div>	

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

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

<input type="checkbox"/> Check if additional pages of Part II are attached. How many? _____	
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(Important: Type or print; read instructions before completing form.)

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

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

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

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR	
<input type="text" value="06"/> (enter code)	

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE					
You may report releases of less than 1,000 pounds by checking ranges under A.1. (Do not use both A.1 and A.2)		A. Total Release (pounds/year)		B. Basis of Estimate (enter code)	C. % From Stormwater
		A.1 Reporting Ranges 1-10 11-499 500-999	A.2 Enter Estimate		
5.1 Fugitive or non-point air emissions	5.1a	[] [<input checked="" type="checkbox"/>] []		5.1b <input type="text" value="0"/>	
5.2 Stack or point air emissions	5.2a	[] [] [] []	2,400	5.2b <input type="text" value="M"/>	
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.1 <input type="text" value="A"/>	5.3.1a [<input checked="" type="checkbox"/>] [] []		5.3.1b <input type="text" value="M"/>	5.3.1c 100 %
	5.3.2 <input type="checkbox"/>	5.3.2a [] [] [] []	NA	5.3.2b <input type="checkbox"/>	5.3.2c %
	5.3.3 <input type="checkbox"/>	5.3.3a [] [] [] []			5.3.3b <input type="checkbox"/>
5.4 Underground injection	5.4a	[] [] [] []	NA	5.4b <input type="checkbox"/>	
5.5 Releases to land	5.5.1 On-site landfill	5.5.1a [] [] [] []	NA	5.5.1b <input type="checkbox"/>	
	5.5.2 Land treatment/application farming	5.5.2a [] [] [] []	NA	5.5.2b <input type="checkbox"/>	
	5.5.3 Surface impoundment	5.5.3a [] [] [] []	1,500	5.5.3b <input type="text" value="C"/>	
	5.5.4 Other disposal	5.5.4a [] [] [] []		NA	5.5.4b <input type="checkbox"/>

[] (Check if additional information is provided on Part IV-Supplemental Information.)
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(Important: Type or print; read instructions before completing form.)

	EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)	(This space for your optional use.)
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6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS						
You may report transfers of less than 1,000 pounds by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (pounds/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/Disposal (enter code)	
	A.1 Reporting Ranges 1-10 11-999 500-999	A.2 Enter Estimate				
6.1.1 Discharge to POTW (enter location number from Part II, Section 1.)	1	1	[] [X] []	6.1.1b M		
6.2.1 Other off-site location (enter location number from Part II, Section 2.)	2	1	[] [X] []	6.2.1b 0	6.2.1c	M 7 2
6.2.2 Other off-site location (enter location number from Part II, Section 2.)	2		[] [] []	NA	6.2.2c	M [] []
6.2.3 Other off-site location (enter location number from Part II, Section 2.)	2		[] [] []	6.2.3b	6.2.3c	M [] []
[] (Check if additional information is provided on Part IV-Supplemental Information.)						

7. WASTE TREATMENT METHODS AND EFFICIENCY						
<input type="checkbox"/> Not Applicable (NA) - Check if no on-site treatment is applied to any waste stream containing the chemical or chemical category						
A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No	
7.1a A	7.1b A 0 6	7.1c 3	7.1d [X]	7.1e NA %	7.1f [] []	
7.2a A	7.2b A 0 6	7.2c []	7.2d [X]	7.2e 99 %	7.2f [] [X]	
7.3a A	7.3b A 0 6	7.3c 3	7.3d []	7.3e 98 %	7.3f [] [X]	
7.4a A	7.4b A 0 3	7.4c 3	7.4d []	7.4e 90 %	7.4f [] [X]	
7.5a A	7.5b A 0 6	7.5c 3	7.5d []	7.5e 98 %	7.5f [] [X]	
7.6a W	7.6b P 1 1	7.6c 2	7.6d [X]	7.6e NA %	7.6f [] []	
7.7a W	7.7b C 0 1	7.7c []	7.7d [X]	7.7e NA %	7.7f [] []	
7.8a W	7.8b P 9 9	7.8c []	7.8d [X]	7.8e 100 %	7.8f [X] []	
7.9a W	7.9b P 1 1	7.9c 2	7.9d [X]	7.9e NA %	7.9f [] []	
7.10a W	7.10b R 9 9	7.10c []	7.10d [X]	7.10e 100 %	7.10f [X] []	
[X] (Check if additional information is provided on Part IV-Supplemental Information.)						

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION				
(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)				
A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal		C. Index	D. Reason for Action (enter code)
M 2	Current reporting year (pounds/year) 12,700	Prior year (pounds/year) 12,800	Or percent change (Check (+) or (-)) [] + [] - _____ %	1 . 0 R 2

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

<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <h2 style="margin: 0;">EPA FORM R</h2> <h3 style="margin: 0;">PART IV. SUPPLEMENTAL INFORMATION</h3> <p style="font-size: small; margin: 5px 0;">Use this section if you need additional space for answers to questions in Part III. Number the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)</p> </div> </div>	<p>(This space for your optional use.)</p>
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ADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE (Part III, Section 5.3)					
You may report releases of less than 1,000 pounds by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Release (pounds/yr)			B. Basis of Estimate	C. % From Stormwater
	A.1 Reporting Ranges 1-10 11-499 500-999		A.2 Enter Estimate	(enter code in box provided)	
5.3 Discharges to receiving streams or water bodies 5.3. ___ <input type="checkbox"/>	5.3. ___ a	[] [] []		5.3. ___ b <input type="checkbox"/>	5.3. ___ c %
(Enter letter code from Part I Section 3.10 for stream(s) in the box provided.) 5.3. ___ <input type="checkbox"/>	5.3. ___ a	[] [] []		5.3. ___ b <input type="checkbox"/>	5.3. ___ c %
5.3. ___ <input type="checkbox"/>	5.3. ___ a	[] [] []		5.3. ___ b <input type="checkbox"/>	5.3. ___ c %

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS (Part III, Section 6)				
You may report transfers of less than 1,000 pounds by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (pounds/yr)		B. Basis of Estimate	C. Type of Treatment/Disposal
	A.1 Reporting Ranges 1-10 11-499 500-999		A.2 Enter Estimate	(enter code in box provided)
6.1. Discharge to POTW (enter location number from Part II, Section 1.) 1. <input type="checkbox"/>	[] [] []		6.1. ___ b <input type="checkbox"/>	
6.2. Other off-site location (enter location number from Part II, Section 2.) 2. <input type="checkbox"/>	[] [] []		6.2. ___ b <input type="checkbox"/>	6.2. ___ c <input type="text" value="M"/> <input type="text"/>
6.2. Other off-site location (enter location number from Part II, Section 2.) 2. <input type="checkbox"/>	[] [] []		6.2. ___ b <input type="checkbox"/>	6.2. ___ c <input type="text" value="M"/> <input type="text"/>
6.2. Other off-site location (enter location number from Part II, Section 2.) 2. <input type="checkbox"/>	[] [] []		6.2. ___ b <input type="checkbox"/>	6.2. ___ c <input type="text" value="M"/> <input type="text"/>

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)					
A. General Wastestream (enter code in box provided)	B. Treatment Method (enter code in box provided)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7. 11 a <input type="text" value="W"/>	7. 11 b <input type="text" value="C01"/>	7. 11 c <input type="text" value="3"/>	7. 11 d <input checked="" type="checkbox"/>	7. 11 e NA %	7. 11 f [] []
7. 12 a <input type="text" value="W"/>	7. 12 b <input type="text" value="P12"/>	7. 12 c <input type="checkbox"/>	7. 12 d <input checked="" type="checkbox"/>	7. 12 e 85.0 %	7. 12 f <input checked="" type="checkbox"/> []
7. ___ a <input type="checkbox"/>	7. ___ b <input type="text"/>	7. ___ c <input type="checkbox"/>	7. ___ d []	7. ___ e %	7. ___ f [] []
7. ___ a <input type="checkbox"/>	7. ___ b <input type="text"/>	7. ___ c <input type="checkbox"/>	7. ___ d []	7. ___ e %	7. ___ f [] []
7. ___ a <input type="checkbox"/>	7. ___ b <input type="text"/>	7. ___ c <input type="checkbox"/>	7. ___ d []	7. ___ e %	7. ___ f [] []
7. ___ a <input type="checkbox"/>	7. ___ b <input type="text"/>	7. ___ c <input type="checkbox"/>	7. ___ d []	7. ___ e %	7. ___ f [] []
7. ___ a <input type="checkbox"/>	7. ___ b <input type="text"/>	7. ___ c <input type="checkbox"/>	7. ___ d []	7. ___ e %	7. ___ f [] []
7. ___ a <input type="checkbox"/>	7. ___ b <input type="text"/>	7. ___ c <input type="checkbox"/>	7. ___ d []	7. ___ e %	7. ___ f [] []

D: Common Form R Errors

APPENDIX D

MOST COMMON ERRORS FOUND ON PREVIOUSLY SUBMITTED FORM R REPORTS

The most commonly made errors in complying with section 313 and filling out the Form R occur in three areas: Form R entry errors, threshold determination errors, and release estimation errors. 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 such that it is unable to be entered into the TRI database, the facility owner/operator will be issued a Notice of Noncompliance by EPA. The notice will indicate that the Form R cannot be input into the TRI database and that changes must be made by a certain date and submitted to EPA or further enforcement actions will be taken.

For data entry errors, including missing pieces of information or suspect 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 EPA's questions and will require that the corrections be returned to EPA by a certain date.

If EPA determines that a Form R should have been submitted or that it is likely a threshold determination was incorrectly calculated (e.g., by examining Form Rs submitted by other facilities in the same industry) then EPA will take an enforcement action against the facility, which may involve an inspection and the subsequent assessment of fines.

Discussed below are commonly made errors made by facility owners and operators 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 three.** The CAS number and the chemical name reported on page three must exactly match the listed section 313 CAS number and chemical name. CAS numbers are chemical-specific and, therefore, chemical categories should not be reported with a CAS number. A generic chemical name should only be provided if you are claiming the section 313 chemical identity as a trade secret. Chemical names and CAS numbers should be taken directly from the section 313 toxic chemical list. Mixture names are to be entered in Part III Section 1.4 if that is the sole identification. Mixture names that include the name or CAS number of one or more section 313 chemical(s) are not valid. Failure to correctly enter the chemical identification information will result in a Notice of Technical Error.
 - **Missing certification signature.** An original certification signature must appear on page one 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 chemical category consists of at least five pages stapled together. Page one and two may be photocopied to complete each report **only** if all the information on pages one and two is the same, **and** an original certification signature is provided on each page one. Sending in a package which contains only one page one, one page two, but several page three's, four's and five's will result in a Notice of Noncompliance.
 - **Maximum amount on-site left blank.** In a surprising number of Form R submissions, Part III Section 4 on page three is left blank. Leaving this section blank will result in a Notice of Technical Error.
 - **Missing or Incorrect reporting year.** The reporting year is the calendar year during which the reported data were collected: it is not the year in which the Form R is sent to EPA. Form R's are due to EPA on July 1, 1991 for chemicals manufactured, processed, or otherwise used during reporting year 1990. A Form R cannot contain data for more than one year. "1989/1990" is not correct. Part I Section 1.3 must not be left blank; this error will result in a Notice of Noncompliance.
 - **"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 ZIP codes)
 - Amounts reported in units other than pounds (e.g., metric) or use of exponential numbers.
- Incorrect entries such as these may result in a Notice of Technical Error.

- **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 F of the Reporting Form R and 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 on Part I and Part III of a Form R must be consistent. If trade secrecy is indicated, a sanitized Form R and two trade secret substantiations 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 Noncompliance.
- **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; marking the copy with the words "VOLUNTARY REVISION" in the space marked "THIS SPACE FOR YOUR OPTIONAL USE" on page one; providing an original signature; and sending it to the Title III Reporting Center. You must also send a copy of the revision to the State organization. Failure to clearly identify a revision may result in EPA entering it into the database as a new submission resulting in the appearance of increased emissions from the facility. Revisions to data submitted using magnetic media must be made on hardcopy Form Rs and should be 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 on page one in the box marked "THIS SPACE FOR YOUR OPTIONAL USE." Failure to clearly identify a duplicate report may result in the duplicate appearance of the data in the database and the appearance of increased emissions from the facility.
- **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 treatment does not affect the toxic chemical. If no waste treatment is performed on the toxic chemical, the box marked "Not Applicable" in Part III section 7 must be checked on the Form R. Failure to do so may result in a Notice of Noncompliance.
- **Incorrect reporting of waste treatment methods.** The waste treatment methods are each assigned a specific code to be used when entering information onto Form R. For example, the neutralization of an acidic waste stream must be reported as "C11" for neutralization and not "C99" for other chemical treatment. Incorrect identification of the waste treatment method may result in a Notice of Noncompliance.
- **Incorrect reporting of releases to water.** Releases to water occur as releases to an on-site receiving stream or water body. The amount of toxic chemical released must be entered in Part III section 5.3, the name of the receiving stream or water body must be entered in Part I section 3.10, and any applicable NPDES permit numbers held by the facility for this or any other discharges must be entered in Part I section 3.9. A release to water must not be entered in Part III section 6 as a transfer off-site. Failure to report correctly a release to water will result in a Notice of Technical Error.
- **Reporting for delisted chemicals.** Form R reports for delisted chemicals are not required. Such a submission is a waste of a facility's time and effort.
- **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 with the related Form R records.

Threshold Determination Errors

- **Chemical activity overlooked.** Many facilities believe that because the section 313 reporting requirement pertains only to manufacturing facilities 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 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 chemical activity.** Failure to correctly classify a 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 used to paint 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 due to an incorrect threshold determination resulting from a misclassification of a 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 use of 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 has a chemical-specific Chemical Abstract Service (CAS) registry number, which uniquely identifies a specific chemical. All information available at the facility, such as MSDSs and the *Common Synonyms for Section 313 Chemicals* document, must be used to identify toxic chemicals being used. For example, an MSDS may identify a chemical as hydrogen chloride with no CAS number, which does not appear on the toxic chemical list. However, another chemical information source at your facility, such as the Common Synonyms document or an MSDS from a different manufacturer, may provide a CAS number which identifies that same chemical as hydrochloric acid, a listed toxic chemical. Failure to correctly identify a toxic chemical may result in no Form R being filed, which, in turn, may lead to an enforcement action.
- **Failure to consider listed 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** chemicals meeting the qualifiers require reporting under section 313 and should be reported on Form R with the appropriate qualifier in parentheses.
- **Incorrectly reporting isopropyl alcohol.** 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 any other 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. EPA checks every Form R as it is entered into the database for reasonableness of the numbers entered and compares Form Rs with submissions for the same chemicals from other facilities in the same industry. Any toxic chemical that is reported that did not exceed a threshold will result in a Notice of Noncompliance. 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.
- **Documentation.** Any information used to make a threshold determination (e.g., purchasing records, storage and inventory records) must be maintained and made available to 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 facility with the related Form R records.

Release Estimate Errors

- **Reporting the transfer off-site of materials being sent for recycling or reuse.** Materials being sent off-site for recycling or reuse are not considered a release under section 313. Therefore, any toxic chemical sent off-site for recycling or reuse must not be entered into Part III section 6 as a transfer off-site for final disposal. Recycle and reuse operations include sending spent solvents off-site to be reclaimed, sending materials with a fuel value off-site to be burned as fuel, or sending a waste containing a toxic chemical for metals recovery. Entering amounts being sent for recycle or reuse in Part III section 6 will increase the overall releases reported by the facility and may result in a Notice of Technical Error.
- **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 a Notice of Technical Error.
- **Reporting discharges of mineral acids after neutralization.** When a mineral acid stream is neutralized to a pH of 6 or above, the mineral acid is considered 100 percent neutralized. As a result, the release of the discharge may be reported on Form R as zero acid released. Reporting the amount of neutralized acid discharged is overreporting and may result in a Notice of Technical Error.
- **Incorrectly identifying/reporting fugitive and stack emissions.** Fugitive and stack emissions must be reported separately as releases to air in Part III section 5 of Form R. Errors, such as reporting stack emissions as fugitive emissions, can be identified by EPA by examining facility information on other parts of the Form R. For example, a toxic chemical is reported on a Form R as being in an air stream treated by a scrubber with only 92 percent efficiency in Part III section 7 of Form R. However, Section 5 of Form R states the only release of the toxic chemical was a fugitive emission. Because pollution control equipment, such as a scrubber, have a defined air flow, releases from such equipment are considered stack emissions. EPA would identify the error which would result in a Notice of Technical Error.
- **Documentation.** Any information used to make a release estimate (e.g., equations, engineering judgement, published emission factors, equipment or process specifications) must be clearly documented in facility records and be made available to EPA upon request. This documentation should not be submitted with the Form R, but must be maintained by the facility with the related Form R records. Failure to provide proper documentation if requested by EPA may result in an enforcement action.

APPENDIX E

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 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 20-39¹ (see pages 35 to 40);
- (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 that must report under section 313; or
 - 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 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 are 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 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 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 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.

¹ If your company or facility distributes chemical products but does not fall into the covered SIC codes, you should be alert to the supplier notification that may accompany MSDSs of the products you distribute. You should pass on such notices to your industrial customers unchanged.

HOW THE NOTIFICATION MUST BE MADE

The required notification must be provided at least annually in writing. Acceptable forms of notice are, for example, a letter, 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 on pages E-4 and E-5 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 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 begin 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:

- 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

- 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 in August, indicate how many shipments were affected during the period January 1 - August).

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 on pages 41-50.

- (2) Your mixture or trade name product is one of the following:
 - An article that does not release a covered toxic chemical under normal conditions of processing or 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 being sent off-site for 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 in your files that provides the basis for your claim.

RECORDKEEPING REQUIREMENTS

You are required to **keep records for three years** of the following:

- (1) Notifications sent to recipients;
- (2) Explanations of why a notification was considered necessary and all supporting materials used to develop the notice;
- (3) Explanations of why a specific chemical identity is considered a trade secret and the appropriateness of the generic chemical name provided in the notification; and
- (4) 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, 1991

Mr. Edward Burke
Furniture Company of Ruritania
1000 Main Street
Sellers, Ruritania

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 copper compounds. We are required to notify you of the presence of toluene and copper 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 if you are subject to the reporting requirements of Section 313, or need more information, call the EPA Emergency Planning and Community Right-To-Know Information Hotline: (800) 535-0202. Your other suppliers should also be notifying you if section 313 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

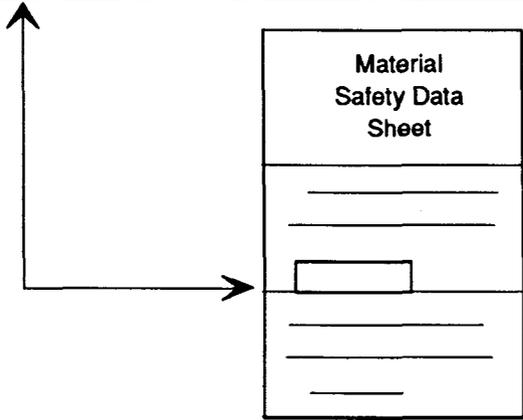
SAMPLE NOTIFICATION ON AN MSDS

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	Copper Compounds	15%

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



APPENDIX F

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 that facilities 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 the one of these 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:

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

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

For example:

$$\begin{aligned} \text{Point distance} &= 99.5 \\ \text{Total distance} &= 192.0 \end{aligned}$$

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

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

$$\begin{aligned} \text{Latitude in step 3} &: 32^{\circ}17'30'' \\ \text{Increment} &: + 01'17.7'' \\ \text{Latitude of point} &: 32^{\circ}18'47.7'' \end{aligned}$$

$$\text{to the nearest second} = 32^{\circ}18'48''$$

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).

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

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

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

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

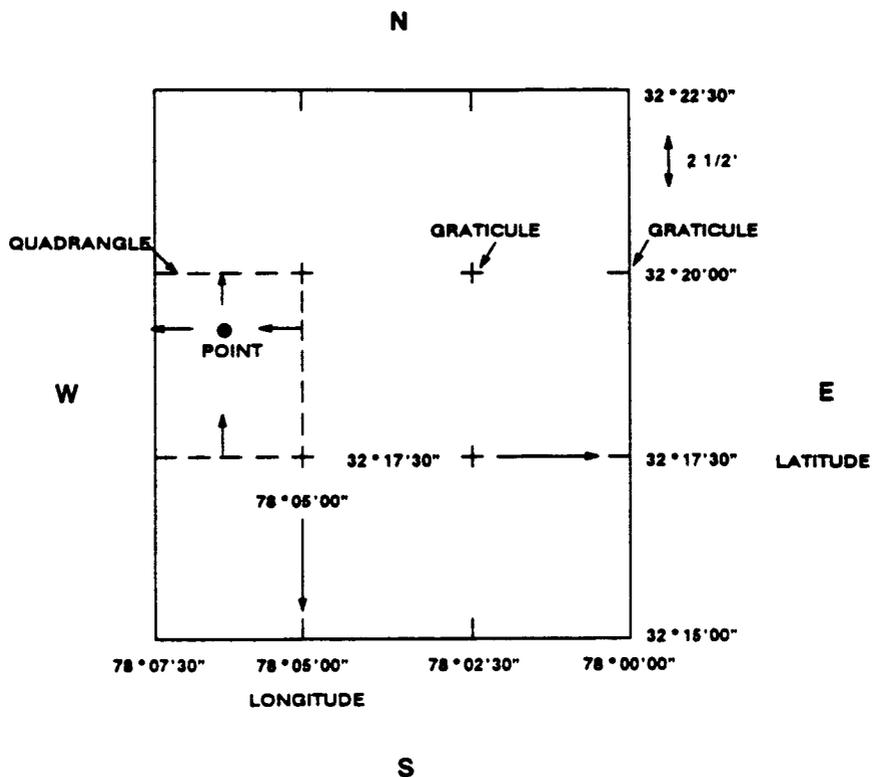
Longitude in step 3 : 78°05'00"
 Increment : ± 01'06.4"
 Longitude of point : 78°06'06.4"

to the nearest second = 78°06'06"

For example:

Point distance = 65.0
 Total distance = 149.9

Latitude/Longitude Diagram



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

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

APPENDIX G

STATE DESIGNATED SECTION 313 CONTACTS

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

Alabama

E. John Williford, Chief of Operations
Alabama Emergency Response Commission
Alabama Department of Environmental Management
1751 Congressman W.L. Dickinson Drive
Montgomery, AL 36109
(205) 271-7931

Alaska

Amy Skilbred
Alaska State Emergency Response Commission
P.O. Box O
Juneau, AK 99811-1800
(907) 465-2630

American Samoa

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

Arizona

Mr. Carl F. Funk, Executive Director
Arizona Emergency Response Commission
Division of Emergency Services
5636 East McDowell Road
Phoenix, AZ 85008
(602) 231-6326

Arkansas

Anna Brannon
Depository of Documents
Arkansas Department of Labor
10421 West Markham
Little Rock, AR 72205
(501) 682-4541

California

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

Colorado

Colorado Emergency Planning Commission
Colorado Department of Health
4210 East 11th Avenue
Denver, CO 80220
Judy Waddill
(303) 331-4858

Commonwealth of Northern Mariana Islands

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

Connecticut

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

Delaware

Mr. Robert French, Chief Program Administrator
Air Resource Section
Department of Natural Resources and Environmental
Control
89 King's Highway
P.O. Box 1401
Dover, DE 19903
(302) 739-4791

District of Columbia

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

Florida

Mr. Jim Loomis
Florida Emergency Response Commission
Florida Department of Community Affairs
2740 Centerview Drive
Tallahassee, FL 32399-2149
(904) 488-1472
In Florida: 800-635-7179

Georgia

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

Guam

Mr. Roland Solidio
Guam EPA
P.O. Box 2999
Aguana, GU 96910
(671) 646-8863

Hawaii

Mr. John C. Lewin, M.D., Chairman
Hawaii State Emergency Response Commission
Hawaii State Department of Health
P.O. Box 3378
Honolulu, HI 96801-9904
(808) 548-6505

Idaho

Idaho Emergency Response Commission
State House
Boise, ID 83720
Attn: Ms. Jenny Records
(208) 334-5888

Illinois

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

Indiana

Mr. Phillip Powers, Director
Indiana Emergency Response Commission
5500 West Bradbury Avenue
Indianapolis, IN 46241
(317) 243-5176

Iowa

Department of Natural Resources
Records Department
900 East Grand Avenue
Des Moines, IA 50319
(515) 281-8852

Kansas

Right-to-Know Program
Kansas Department of Health and Environment
Mills Building, 5th Floor
109 S.W. 9th Street
Topeka, KS 66612
(913) 296-1690

Kentucky

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

Louisiana

Mr. R. Bruce Hammatt
Emergency Response Coordinator
Department of Environmental Quality
P.O. Box 44066
333 Laurel Street
Baton Rouge, LA 70804-4066
(504) 342-8617

Maine

Dorean Maines
State Emergency Response Commission
State House Station Number 11
157 Capitol Street
Augusta, ME 04333
(207) 289-4080
In Maine: 800-452-8735

Maryland

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

Massachusetts

Mr. Arnold Sapenter
c/o Title III Emergency Response Commission
Department of Environmental Quality Engineering
One Winter Street, 10th floor
Boston, MA 02108
(617) 292-5993

Michigan

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. Lee Tischler, Director
Minnesota Emergency Response Commission
290 Bigelow Building
450 North Syndicate
St Paul, MN 55104
(612) 643-3000

Mississippi

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

Missouri

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

Montana

Mr. Tom Ellerhoff, Co-Chairman
Montana Emergency Response Commission
Environmental Sciences Division
Department of Health & Environmental Sciences
Cogswell Building A-107
Helena, MT 59620
(406) 444-6911

Nebraska

Mr. Clark Smith, Coordinator
Nebraska Emergency Response Commission
Nebraska Department of Environmental Control
P.O. Box 98922
State House Station
Lincoln, NE 68509-8922
(402) 471-2186

Nevada

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

New Hampshire

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

New Jersey

New Jersey Emergency Response Commission
SARA Title III Section 313
Department of Environmental Protection
Division of Environmental Quality
Bureau of Hazardous Substances Information
CN-405
Trenton, NJ 08625
(609) 292-6714

New Mexico

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

New York

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

North Carolina

North Carolina Emergency Response Commission
North Carolina Division of Emergency Management
116 West Jones Street
Raleigh, NC 27603-1335
(919) 733-3867

North Dakota

SARA Title III Coordinator
North Dakota State Department of Health and
Consolidated Laboratories
1200 Missouri Avenue
P.O. Box 5520
Bismarck, ND 58502-5520
(701) 224-2374

Ohio

Ms. Cindy Sferra-DeWulf
Division of Air Pollution Control
1800 Watermark Drive
Columbus, OH 43215
(614) 644-2266

Oklahoma

Larry Gales
Oklahoma Department of Health
Environmental Health Services Division
P.O. Box 53551
Oklahoma City, OK 73152
(405) 271-8056

Oregon

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

Pennsylvania

Mr. James Tinney
Bureau of Right-to-Know
Room 1503
Labor and Industry Building
7th & Forrester Streets
Harrisburg, PA 17120
(717) 783-2071

Puerto Rico

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

Rhode Island

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

South Carolina

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

South Dakota

Ms. Lee Ann Smith, Director
South Dakota Emergency Response Commission
Department of Water and Natural Resources
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3181
(605) 773-3153

Tennessee

Mr. Lacy Suiter, Chairman
Tennessee Emergency Response Commission
Director, Tennessee Emergency Management Agency
3041 Sidco Drive
Nashville, TN 37204
(615) 252-3300
1-800-262-3300 (in Tennessee)
1-800-258-3300 (out of state)

Texas

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

Utah

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

Vermont

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

Virginia

Mr. Harry E. Gregori, Jr.
Virginia Emergency Response Council
Department of Waste Management
James Monroe Building
14th Floor
101 North 14th Street
Richmond, VA 23219
(804) 225-2997

Virgin Islands

Mr. Allan D. Smith, 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. 169 or 170

Washington

Mr. Chuck Clark, Chairman
Department of Community Development
9th and Columbia Building
Mail Stop GH-51
Olympia, WA 98504
(206) 753-2200

West Virginia

Mr. Carl L. Bradford, Director
West Virginia Emergency Response Commission
West Virginia Office of Emergency Services
State Capital Building 1, Room EB-80
Charleston, WV 25305
(304) 348-5380

Wisconsin

Department of Natural Resources
P.O. Box 7921
Madison, WI 53707
Attn: Russ Dumst
(608) 266-9255

Wyoming

Mr. Ed Usui, Executive Secretary
Wyoming Emergency Response Commission
Wyoming Emergency Management Agency
Comprehensive Emergency Management
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 H

SECTION 313 EPA REGIONAL CONTACTS

Region 1

Pesticides & Toxics Branch
USEPA Region 1 (APT2311)
JFK Federal Building
Boston, MA 02203
(617) 565-4502

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

Region 2

Pesticides & Toxics Branch
USEPA Region 2 (MS240)
Woodbridge Avenue, Building 209
Edison, NJ 08837-3679
(201) 906-6890

New Jersey, New York, Puerto Rico, Virgin Islands

Region 3

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

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

Region 4

Pesticides & Toxics Branch
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 (5SPT-7)
230 South Dearborn Street
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
Dallas, TX 75202-2733
(214) 655-7244

Arkansas, Louisiana, New Mexico, Oklahoma, Texas

Region 7

Office of Congressional and Intergovernmental Liaison
USEPA Region 7 (CIGL)
726 Minnesota Avenue
Kansas City, KS 66101
(913) 551-7005

Iowa, Kansas, Missouri, Nebraska

Region 8

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

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

Region 9

Pesticides & Toxics Branch
USEPA Region 9 (A-4-3)
75 Hawthorne Street
San Francisco, CA 94105
(415) 556-5387

Arizona, California, Hawaii, Nevada, American Samoa, Guam,
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Region 10

Pesticides & Toxic Substances Branch
USEPA Region 10 (AT083)
1200 Sixth Avenue
Seattle, WA 98101
(206) 553-4016

Alaska, Idaho, Oregon, Washington

**I: Section 313 Document
Request Form**

APPENDIX I

SECTION 313 DOCUMENT REQUEST FORM

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

- Toxic Chemical Release Inventory Reporting Package for 1990 (EPA 560/4-91-001)**

Comprehensive guidance document for complying with section 313 requirements. This document includes a blank Form R, the reporting instructions, and questions and answers about Section 313.

- 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.

- TRI Magnetic Media Submission Instructions (EPA 560/4-91-008)**

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

- Common Synonyms for Section 313 Chemicals (EPA 560/4-91-005)**

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

- Comprehensive List of Chemicals Subject to Reporting Under the Act (Title III List of Lists) (EPA 560/4-91-011)**

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

- The Emergency Planning and Community Right-to-**

Know Act: Section 313 Release Reporting Requirements December 1989 (EPA 560/4-91-002)

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 Title III. 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 Manufactur-
ing** March 1988 (EPA 560/4-88-004i)
- Printing Operations** January 1988 (EPA 560/4-88-004b)
- Roller, Knife and Gravure Coating Operations** Feb-
ruary 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 560/4-90-017)

This report summarizes the second 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 year's releases. Available from: Superintendent of Documents, Government Printing Office, Washington, DC 20402-9325, Stock number: 055-000-00363-7, \$21.00.

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 \$25.00 per hour.

Toxic Dump -- Software

Toxic dump version 1.0 is a personal computer-based software package that allows users of the TRI Public Database to screen-capture TRI data and convert that data into a dBASE III format. The software is divided into two modules; one for translating the screen-captured data into dBASE files and the other is a program shell which operates within dBASE III PLUS and allows the user to manipulate the data and output TRI data in a tabular form. Available from: Emergency Planning and Community Right-to-Know Information Hotline, 1-800-535-0202 or (703) 920-9877.

Toxic Release Inventory 1987 -- Magnetic Tape

Contains the complete toxic release inventory for reporting year 1987. Includes a brief overview 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, Document Number: PB89-186068-HCR, 1600 (BPI) Density -- \$1,770.00, 6250 (BPI) Density -- \$525.00.

Toxic Release Inventory 1988 -- Magnetic Tape

Contains the complete toxic release inventory for reporting year 1988. Available from: National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650, Document number: PB90-502030. 1600 (BPI) Density -- \$1,550.00; 6250 (BPI) Density -- \$1,100.00.

Toxic Release Inventory 1987: 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, Document Number: PB89-186118-HCR, \$220.00.

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, is intended to assist users of the toxic release inventory data in performing exposure and risk assessments of these chemicals. The roadmaps system displays information 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, \$180.00.

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, \$80.00.

Estimating Releases and Waste Treatment Efficiencies for the Toxic Chemical Release Inventory

(EPA 560/4-90-009)

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

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 III, 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 Title III requirements and benefits for all audiences. Part I of the booklet describes the provisions of Title III and Part II describes more fully the authorities and responsibilities of the groups of people affected by the law. Available through written request for no charge from:

Emergency Planning and Community Right-to-Know
Information Service
Mailcode: OS-120
401 M Street, SW
Washington, DC 20460

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Questions and Answers



Toxic Chemical Release Inventory Questions and Answers

Revised 1990 Version



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

INTRODUCTION

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

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

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

This document has been developed to expedite facility reporting and to provide additional explanation of the reporting requirements. It supplements the instructions for completing Form R. Copies of EPA Form R, instructions for completing the form, and related guidance documents are available from the Section 313 Document Distribution Center, P.O. Box 12505, Cincinnati, Ohio 45212.

The questions and answers in this document are organized in sections as listed in the table of contents on the following page. Questions that are new to the document this year have an asterisk in front of their number. An index at the end of the document lists question numbers by topic.

To remain responsive to section 313 issues that may arise in the future, this Questions and Answers document will be updated periodically. If you have comments or possible additions to this document, please send them to the Emergency Planning and Community Right-to-Know Information Hotline at the U.S. Environmental Protection Agency, OS-120, 401 M Street, S.W., Washington, D.C. 20460, 1-800-535-0202, or 1-703-920-9877.

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I. DETERMINING WHETHER OR NOT TO REPORT: FACILITY

A. Types of Facilities That Must Report

1. What facilities are subject to section 313 reporting?

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

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

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

3. Must an annual report be submitted by July 1 for facilities which were in operation during part of the reporting year but which were closed on December 31?

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Because the facility sells the waste, they are processing the chemical. The amount of chemical in the waste sold does not need to be reported as an off-site transfer because off-site transfers for recycling/reuse are exempt from reporting. Releases, from activities such as spills and equipment cleaning, must be reported if the facility exceeds the processing threshold. If the waste is not sold, the facility is not manufacturing, processing, or using the chemical and the waste is not subject to reporting.

***11. A recently constructed manufacturing facility which has not begun production has used several listed toxic chemicals in preparing a reactor bed and distillation columns for manufacturing. Is the facility required to report these chemicals if they exceed the threshold levels?**

Yes. Once a facility has been constructed, any toxic chemicals used to prepare production equipment for manufacturing activities must be included in the threshold determinations that calendar year.

***12. Is a feed company regulated by the Food and Drug Administration (FDA) exempt from filing Form R under section 313?**

Section 313 applies to any facility that meets all the applicable criteria. There is no specific exemption for facilities or chemicals regulated by the FDA.

B. Employee Threshold

13. Does the full-time employee determination include the hours worked by sales staff whose office is included in the same building as the production staff?

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

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

The total hours worked by all employees should be reviewed. A "full-time employee" is defined on a full-time equivalent basis of 2,000 labor hours per year. If the total hours worked by all employees at a facility, including contractors, is 20,000 hours or more, the criterion for number of employees has been met.

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

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

***16. A manufacturing company that normally employs only four employees hires a construction company to modify its facility. The construction workers are employees of the construction company and worked on-site for only several months. Do the hours worked by the construction workers count toward the "10 or more full-time employee" threshold (20,000 hours of work)?**

Yes. The hours any contract employee works on-site must be counted toward the 20,000 hour threshold. In general, a contract employee is a person working on-site for a facility under a specific contractual agreement, performing specific tasks or services for the facility.

***17. Under the section 313 regulations, a full-time employee is defined to "...mean 2,000 hours per year of full-time equivalent employment." The definition of full-time employee goes on to stipulate that "(a) facility would calculate the number of full-time employees by totaling the hours worked during the calendar year by all employees, including contract employees, and dividing that total by 2,000 hours." [40 CFR 372.3] (It follows that 20,000 hours worked is equivalent to 10 full time employees.) When calculating the total number of hours worked by all employees during the calendar year, should vacation and sick leave used be included toward the 20,000 hour threshold?**

Yes. When making the full-time employee determination, the facility should consider all paid vacation and sick leave used as hours worked by each employee who claims such vacation or sick leave. If the facility meets or exceeds the 20,000 hour threshold (including vacation and sick leave), the facility is considered to have 10 or more full-time employees.

***18. When should an individual's time spent working at a facility be counted for purposes of determining whether or not a facility exceeds the 20,000 hour employee threshold.**

If an individual is employed by the facility or by the facility's parent company to work at the facility, then all of the hours worked by the individual should be counted toward the 20,000 hour employee threshold. If the individual is hired by the facility (or by the facility's parent company) as a contractor to work at the facility, then all hours worked by the contractor should be counted. If the individual is not an owner, contractor, or an employee of the facility, then the individual's time spent working at the facility should not be counted toward the 20,000 hour employee threshold. For example, the time spent by individuals working at a facility who are performing intermittent service functions such as collecting trash or repairing power lines for the electric utility company should not be counted.

***19. If an individual both owns and works at a facility, how should the owner's time be accounted for when determining whether or not the facility exceeds the 20,000 hour employee threshold?**

Yes, the owner must be counted as the equivalent of a full-time employee of the facility and his/her hours must be applied toward the 20,000 hour employee threshold.

***20. A manufacturing facility consists of 8 employees. Each employee worked 2,500 hours in calendar year 1989. Consequently, the total number of hours worked by all employees at this facility is 20,000 hours. How should the facility determine whether it meets the 10 full-time employee threshold for purposes of reporting under section 313?**

One "full-time employee" is equal to 2,000 hours. The number of full-time employees is determined by dividing the total number of hours worked, 20,000, by 2,000 hours, or 10 full time employees. Therefore, even though only eight persons work at this facility, the number of hours worked is equivalent to 10 full time employees and this facility has met the employee criteria.

C. Persons Responsible for Reporting

21. Who is obligated to report toxic chemical releases for a given reporting year if the facility has changed ownership during the year? Would both owners be obligated to file separate Form R's for that year?

The owner or operator of the facility on the reporting date, July 1, 1991, is primarily responsible for reporting the data for the previous year's operations at that facility. Any other owner or operator of the facility from January 1st of the data generation year to June 30th of the reporting year may also be held liable. The report submitted will cover the full year. For example, for reports due July 1, 1991, the data generating year is January 1-December 31, 1990.

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

Either the owner or the operator is subject to the section 313 reporting requirements. If no report is received from a covered facility, both persons are liable for penalties. As a practical matter, EPA believes that the operator is more likely to have the information necessary for reporting.

23. Would an owner of a facility who has no knowledge of any operations at the facility be responsible for reporting?

An owner with business interest in the facility, beyond owning the real estate on which the covered facility is located, must report. Neither owners who are part of the same business organization as the operators, nor owners of businesses that contract out the operation of a particular site, are exempt from reporting.

***24. A company purchased a facility in September through bankruptcy proceedings. The previous owner of the facility filed Form Rs under EPCRA section 313 for the preceding calendar year. The new owner of the facility has no plans to continue any manufacturing activities at the site. All listed EPCRA section 313 toxic chemicals at the facility were removed or sold by the previous owner as terms of the bankruptcy proceedings prior to final sale to the new owner. Who must submit Form Rs for the months during the calendar year that the facility was in operation?**

The owner or operator of the facility on the reporting date, July 1 of each year, is primarily responsible for reporting the data for the previous year's operations at the facility. Any other owner or operator of the facility from January 1 of the data generation year to June 30 of the reporting year may also be held liable.

The report submitted will cover the full year. For example, for reports due July 1, 1991, the data generation year is January 1 through December 31, 1990. Thus, the new owner/operator of the facility is still liable for filing Form Rs for calendar year 1990 since she/he is the owner/operator of the facility on July 1, 1991. The purchase of a facility through bankruptcy proceedings does not negate the liability for reporting activities at the facility occurring prior to ownership/operatorship. The new owner/operator must make every available attempt to acquire the necessary information to determine if Form Rs are to be submitted for calendar year 1990. If reports must be filed, the new owner/operator must submit them in a timely and accurate manner.

25. Who is the parent company for a 50/50 joint venture?

The 50/50 joint venture is its own parent company.

26. Company A owns a facility which manufactures crude oil. It sells the crude oil to Company B, but the oil is kept in tanks on Company A's facility that are leased to Company B. Who is subject to reporting under section 313?

Since tanks are part of Company A's facility and they are the owner and/or operator of the facility, Company A would be subject to section 313 reporting for any releases from the tanks.

27. A facility had been operating its manufacturing processes in a leased warehouse. In June, they bought their own warehouse and moved the manufacturing operations there. These two locations are neither adjacent nor contiguous. The company did not shut down or close during this time. How should the facility make threshold determinations and report for section 313?

The company should consider the locations as two separate facilities because the operations were carried out at two distinctly separate physical sites. Threshold and release determinations should be made for the time during the reporting year that each facility operated. The telephone numbers of the technical and public contacts for the old facility should be the most current numbers, i.e., those at the new site.

28. How would a facility report chemicals in wastes that are treated in waste treatment units that it does not own? For example, if a facility sold a unit that is within its contiguous property to another company, which facility should report?

The facility creating the waste would report the chemicals as an off-site transfer. The treating facility would not need to report unless they manufacture, process or otherwise use the same chemical in excess of the thresholds. In that case, they would report any releases resulting from wastes as part of their total annual releases of the chemical.

29. Must importers/exporters report for materials stored in public warehouses?

Owners or operators of covered facilities must report. If importers/exporters neither own nor operate the warehouse, they would not need to report for that warehouse.

30. A fish processor rents space in a building. The refrigeration system in the building uses ammonia. The building owner supplies the ammonia, runs the refrigeration system, and bills the fish processor based on the amount of fish processed. Must the fish processor report for ammonia? Another business, a frozen food packager, also uses the refrigeration system, but is a separate company from the fish processor.

The owner of the building should report on the ammonia, if the threshold for ammonia is exceeded, since he is operating the system -- he has more than just a real estate interest in the property. Since the facility (both businesses) is in SIC codes 20-39 and he is operating part of that facility, he should report.

31. Mom and Pop Plastics is a wholly owned subsidiary of a major chemical company which is a wholly owned subsidiary of Big Oil Corp. Which is the parent company?

Big Oil Corporation is the parent company.

***32. When a facility changes ownership after a Form R has been submitted, who is required to respond to a Notice of Technical Error (NOTE) related to the Form R? Is the current or prior owner/operator required to respond to the NOTE?**

The current owner/operator has the primary responsibility for responding to a NOTE. However, all prior owners/operators back to January 1st of the reporting year may also be held responsible if the current owner/operator does not respond to the NOTE in an accurate, complete, and timely manner.

D. Multi-Establishment Facilities

33. What is the definition of primary SIC code? How can there be more than one primary SIC code for a facility?

A primary SIC code generally represents those goods produced or services performed by an establishment that have the highest value of production or produce the most revenues for the establishment. The form provides space for more than one primary SIC code because a facility may be made up of several establishments, each of which may have a different primary SIC code.

34. Clarify the application of SIC codes for facility versus establishment?

The SIC code system classifies businesses on the basis of an "establishment", which is generally a single business unit at one location. Many section 313 covered facilities will be equivalent to an establishment. However, a reporting facility can encompass several establishments located within a property boundary, owned/operated by the same "entity." Therefore, a facility can be a multi-establishment complex.

35. Each establishment of a multi-establishment facility files its own Form R for a toxic chemical. The waste that this multi-establishment facility ships off-site is inventoried on an entire facility basis. To report this waste, does each establishment estimate their percentage of the total waste or can one establishment report the entire waste?

If individual establishments or groups of establishments report separately for one chemical, they must report separately all releases of that chemical. Therefore, in the case cited above one establishment cannot report the offsite transport quantity of a chemical in waste from the entire facility. Each establishment would have to report their percentage of the transfer quantity.

36. A multi-establishment facility mines ore containing copper. At the mining facility, all the ore is processed through a concentrator. After leaving the concentrator, 20 percent of the product stream is sold, while the remaining 80 percent of the product stream is sent on for further processing, such as smelting and refining. If the facility mines and sells more than it smelts, is it a mining facility? What is the primary SIC code?

In order to make the facility coverage determination, one must compare the relative value of products shipped and/or produced at the two different establishments (i.e., mining versus the smelting/refining). The value of the product produced at the mining establishment (not in SIC codes 20-39) is the market value of all the concentrated ore produced during the calendar year. The value of products from the smelting/refining establishment (in SIC codes 20-39) is the value of the products shipped and/or produced minus the market value of the concentrated ore processed to produce the products. In other words, you do not double count the value of the concentrated ore as part of the value of products from the smelting/refining operation. If the "value-added" of refined products is greater than the value of mined/concentrated ore, then the facility's primary SIC code would be within SIC codes 20-39 and would be subject to reporting.

37. Two manufacturing establishments, owned by the same corporation, are divided by a public railroad. One establishment has rented parking lot space from the other establishment, and a walkway was constructed so the employees can go over the railroad tracks to the parking lot. Is this a multi-establishment facility or two separate facilities?

Two establishments owned by the same corporation separated by a railroad constitute one facility for section 313, since they are still physically adjacent to one another except for a public right-of-way. Therefore, reporting thresholds would be determined by the combined chemical volumes processed, manufactured, or otherwise used at both establishments.

38. A facility is filing separate reports for section 313 for each establishment within a facility. How would a transfer of a toxic chemical to another establishment within the facility be reported? (i.e., transfers waste to another establishment that then treats and disposes the toxic chemical).

Inter-facility transfer of wastes would not constitute off-site transport and would not be reported. An establishment need only report releases to the environment and wastes that are transferred off-site from the facility for final disposal.

39. A food processing establishment in a facility processes crops grown at the facility in a separate establishment. The primary SIC codes should be determined by calculating the value of production attributable to each establishment. How would this facility go about making this determination?

The facility should subtract the value of the crops grown at the agricultural establishment from the total value of the product shipped from the processing establishment. The value of the crops would be their worth if sold on the open market without further processing. This "value added" approach avoids double counting of products that undergo sequential or additional handling among establishments in the same facility. If the food processing and any other manufacturing establishments have a greater value than the crops production establishment, this is a covered facility that may be subject to section 313 reporting.

40. Is my facility covered by section 313, if the value of laboratory research at my facility is greater than 50 percent of the total value of goods and services produced at my facility?

If the research laboratory is a separate establishment from the manufacturing activities and its SIC code is not between 20 and 39, then the 50 percent test is used to determine if the whole facility is in SIC codes 20-39. In this case, the facility would not be subject to reporting because the primary SIC code is not within codes 20-39. However, if the laboratory is within SIC codes 20-39, because they are "auxiliary" facilities providing research to support manufacturing operations, the facility could be covered by section 313.

41. Is an off-site landfill subject to reporting under section 313 if it a) is not part of a "covered facility" in that it is not contiguous or adjacent to the property of the reporting facility, and/or b) does not fall within SIC codes 20-39?

A landfill, as a separate facility, is not subject to reporting because it is not in SIC codes 20-39. However, a manufacturing facility, within SIC codes 20-39 which meets reporting criteria, must list an off-site landfill (company-owned or not) on the reporting form (Part II of EPA Form R) if they transfer wastes containing the toxic chemical to that landfill for disposal.

42. For reporting year 1988, if a company has a plant in one state which processes 27,000 pounds of methanol and a plant in another state which processes the same amount of methanol, do both plants have to report as "establishments" of a "facility"?

No. The two processing plants are separate facilities because they are not located within the same, or adjacent, or contiguous physical boundary. Thus, their activities are not additive, and neither would report for methanol in 1988 because the processing threshold of 50,000 pounds has not been met by either facility. However, if either facility processes 27,000 pounds of methanol in 1989, it would have to file a Form R for methanol by July 1, 1990.

E. Form R Requirements

43. After contacting Dun & Bradstreet several times to obtain DUNS numbers for several facilities, a consulting firm was told by D&B that they will give out the DUNS number only to the individual facilities. Does the consulting firm have any recourse for obtaining these numbers?

The facility or financial officers may know the number, or may need to call D&B themselves. Company headquarters DUNS numbers are in Dun and Bradstreet reference publications, Reference Book of Corporate Management and Million Dollar Directory, available at some public libraries. Some libraries conduct computer searches of the DUNS Market Identifiers database for a fee to obtain individual facility DUNS numbers. DUNS numbers are also available through online services (e.g., DIALOG). If a facility does not subscribe to the D&B service, a "support number" can be obtained from the Dun & Bradstreet center located in Allentown, Pennsylvania (telephone (215) 391-1886).

44. If a facility does not have a Dun & Bradstreet number but the parent corporation does, should this number be reported?

Report the Dun and Bradstreet Number for the facility. If a facility does not have a Dun and Bradstreet Number, enter NA in Part I, Section 3.7. The corporate Dun and Bradstreet Number should be entered in Part I, Section 4.2 relating to parent company information.

45. If two plants are separate establishments under the same site management, must they have separate Dun & Bradstreet numbers?

They may have separate Dun & Bradstreet numbers, especially if they are distinctly separate business units. However, different divisions of a company located in the same facility usually do not have separate Dun & Bradstreet numbers.

46. The instructions for completing Form R indicate that the report should only contain SIC codes for manufacturing establishments in Part I, Section 3.5 on page 1. A facility has the option of reporting as an entire facility or as separate establishments, all part of the covered facility. If an establishment filed a

separate Form R, what SIC code would be used in Part I, Section 3.5? Would an SIC code be entered for an establishment not in SIC codes 20-39?

The establishment completing the Form R would list the SIC code of that establishment. However, if the establishment's SIC code is not within SIC codes 20-39, it can either list its SIC code or enter NA. The instructions do not require the listing of SIC codes outside of the SIC codes 20-39.

47. If you have an NPDES permit, but do not discharge toxic chemicals to surface water, do you have to fill in Part I, Section 3.9?

Yes. This information is part of the facility identification section of Form R and is intended for use in obtaining other information about the facility.

48. If a facility enters an NPDES permit number on Form R, must it also enter the receiving stream name?

The NPDES permit number must be supplied whether or not there are releases of that specific reported chemical to surface water. The receiving stream/water body name(s) must be provided on the first page of the form only if the facility indicates release(s) to surface water Part III, Section 5.3 on page 3 of the Form R. The name of the stream should be the same as it appears in the facility's permit.

49. A facility is composed of two separate establishments and is filing two separate Form R's for section 313 reporting. For Part I, Section 3.5, what SIC codes are to be listed?

Enter in Part I, Section 3.5, only the SIC code of the establishment whose data is included in the report. The SIC code for the other establishment of the facility would be included in its own Form R submittal.

50. Our facility operations cover a large area. What longitude should be reported for our facility and how can we locate this information?

Report the latitude and longitude for a location central to the operations for which you are reporting. You may find this information on your NPDES permit. See the instructions for completing Form R (Appendix F) for a detailed description for determining longitude and latitude from USGS maps of your facility location.

***51. The owner/operator of a facility is preparing Form Rs for the facility. The reports are for the calendar year 1989 and are due by July 1, 1990. The facility and its parent company both changed their names on January 1, 1990. What names should be reported by the owner/operator (for both the facility and the parent company) on the Form Rs covering calendar year 1989?**

Form Rs submitted by July 1, 1990, for calendar year 1989 should reflect the names used by the facility and parent company during calendar year 1989. However, when the owner/operator submits Form Rs for calendar year 1990 (reports due by July 1, 1991), these reports will reflect the names used by the facility and parent company during calendar year 1990. [Note: the TRI Facility Identification number will, however, not change.]

F. Chemical Activity Threshold Determinations

52. If a facility buys 10,000 pounds of a listed chemical in 1988 and creates a mixture, for example a metal cleaning bath, and then uses the bath that year and the next calendar year, how do they determine thresholds for both years?

The threshold applies to the total amount of the chemical otherwise used during the calendar year. The facility would count the entire 10,000 pounds and any amount added to the bath during that year toward the otherwise use threshold the first year. The use of this bath during the second year constitutes reuse/recycle of the mixture. Therefore, only the amount of the chemical added to the bath during the second year (1989) would be counted toward the use threshold determination for the second year.

53. A facility knows only the minimum concentration of a chemical in a mixture used in their operations. How should they report?

The facility should use the minimum concentration for threshold and release calculations because this is the best information they have.

54. If you operate a treatment plant as part of remediating a Superfund site on your facility, do contaminants (already there, not being added to) have to be included in calculating thresholds and releases?

Such material is not included in threshold determinations since it is not being manufactured, processed, or used. Release reporting is required if the SIC code, employee number and threshold criteria are met for the chemical. In that event, a release does not include material already in a landfill, but does include any material released to the environment by remedial activity or transferred off-site.

55. Must a facility include welding rods, solders, and the metals being joined during a welding or soldering job in threshold determination?

Yes, however, if no releases occur from the joined metal parts themselves they may be considered articles and only the welding rods or solder must be assessed for threshold purposes.

56. A chemical manufacturer (SIC code 28) receives other facilities' wastes containing toxic chemicals and disposes of them in their deep well. Does the receiving facility need to report these toxic chemicals?

The receiving and disposing of toxic chemicals would not be factored into a threshold determination because it does not fit any definition of process or otherwise use. However, if the manufacturing facility manufactures, processes or "otherwise uses" the same toxic chemical above the threshold amount, the disposal of other facilities' wastes containing this toxic chemical would be reported as a release on Form R even though the amount of the toxic chemical in these wastes was not included in the threshold determination.

57. If a facility uses a recycle or reuse system, how does it determine the amount that it must consider for threshold determinations?

For recycle or reuse, the amount considered used for a threshold determination is the amount added to the system during the year. If the system is completely empty and is started up during the year, a facility determines the amount used by adding the total amount needed to charge the system to any amount which is added to the system during the year.

58. A refining facility uses glycols and sends the spent glycols off-site via pipeline to a second refining facility for recycle. This spent glycol stream contains dioxane. The second refining facility recycles the glycols and sends the clean solvent back to the first facility. During the reprocessing, dioxane evaporates to the atmosphere. Is the second facility manufacturing, processing or using dioxane? Is it just treating the chemical and thus should not add it into any threshold determinations?

The second refinery is neither manufacturing, processing, nor otherwise using the dioxane. It is only disposing of the chemical (i.e., it evaporates as a result of the glycol purification). That dioxane would then not be considered in threshold determinations. However, if for any other reason the second facility met an activity threshold for dioxane, it would need to add in these dioxane releases from the glycol refining process when reporting releases of dioxane.

59. If a facility manufactures 19,000 pounds, processes 18,000 pounds, and imports 7,000 pounds of chemical X during 1989, is it required to report for chemical X?

For 1989, the facility would have to report chemical X because it would have exceeded the manufacture threshold of 25,000 pounds (19,000 (manufacturing) + 7,000 (importing) = 26,000). Note that importing is the equivalent of manufacturing and therefore the amounts must be added together for threshold determinations.

60. Our facility purchases a mixture containing toxic chemicals. We store it and then sell it to our customers without even opening the boxes. Must we report on these chemicals?

Report on toxic chemicals that your facility manufactures, processes, or otherwise uses in excess of the applicable activity thresholds, but do not report on standing inventory. Since you are not manufacturing, processing, or using these toxic chemicals, you do not have to report them.

61. How are warehouses affected by section 313?

A warehouse located within the physical boundary of a "covered facility" is covered for estimating releases. Warehouse contents are not used in threshold determinations, because thresholds are based on manufacture, process, or use (i.e., throughput rather than storage volume). Repackaging at a warehouse is considered processing and the quantities of the toxic chemicals repackaged would have to be factored into facility process threshold determinations for the chemicals.

***62. A covered facility A orders 50,000 pounds of a chemical from a foreign supplier but has that chemical shipped directly to a toll processor. The toll processor then sends the formulated product containing the chemical to facility A in the same calendar year. Who is considered the importer and thus subject to the manufacturing threshold for that chemical?**

The toll processor has not caused the chemical to be imported, therefore they are not subject to the "manufacturing" threshold. They are, however, subject to the "processing" threshold for that chemical and should report. Facility A has "imported" the chemical when the product is received from the toll processor. This is because facility A has caused the chemical to be imported ultimately received the chemical, even though there was some intermediate processing applied to the chemical. There is no practical difference in coverage under the rule unless the manufacturing facility does not further use or process the product. For example, if the manufacturing facility only labels the product containers and ships them to customers they are still subject for reporting the chemical because the act of importation has triggered the "manufacturing" threshold.

***63. A covered facility receives a mixture from a supplier who only provides the lower bound concentration of a section 313 listed toxic chemical in the mixture (e.g., >2 percent toluene). Should the covered facility use this information in threshold determinations for the listed chemical?**

First, the facility should subtract out the percentage of any other known components of the mixture to determine what a reasonable "maximum" percentage of toluene could be (e.g., if the mixture contains 80 percent water then toluene can be no more than 20 percent). Then the facility should use the midpoint of the "minimum" and "maximum" percentages in order to determine the pounds of toluene that is applied toward the threshold. If no other information is available, the facility should assume that the "maximum" is 100 percent.

G. Auxiliary Facilities

64. Are "auxiliary" facilities associated with manufacturing operations in SIC codes 20 through 39 exempt from reporting under section 313?

No. An "auxiliary facility" is one that directly supports another establishment's activities and therefore takes the SIC code of the facility supported. Auxiliary facilities located on separate property must report if they also meet the employee and activity thresholds. Auxiliary establishments that are part of multi-establishment facilities should be included in facility threshold and release determinations. For example, a spill from the warehouse would be included in the covered facility's release quantities.

65. An airplane engine repair shop (generally SIC 7699) owns an "auxiliary" facility at a separate location that does metal plating (generally SIC 3471 -- Plating of Metals and Formed Products). Would the plating facility be exempt?

According to the SIC code manual, this plating facility would not be "auxiliary" but would be considered a separate operating establishment conducting a manufacturing activity. It would, therefore, need to make the employee and activity threshold determinations and report, if appropriate, because it falls between SIC codes 20-39.

II. DETERMINING WHETHER OR NOT TO REPORT: LISTED CHEMICALS

(see also Appendix A: Section 313 Policy Directive #5 -- Chemical Categories)

A. General Questions

66. What list of chemicals is subject to reporting under section 313?

The law defined the list of toxic chemicals. The initial list (with certain technical modifications and revisions) appears in the final rule and in the instruction booklet for completing EPA Form R. EPA, from time to time, has been revising the list. To obtain information on the latest additions or deletion from the list of toxic chemicals, contact the Emergency Planning and Community Right-to-Know Information Hotline.

67. What is the difference between the section 313 list and other EPCRA lists?

Some overlaps exist between lists of chemicals covered by different sections of the law. Section 313 focuses on chemicals that may cause chronic health and environmental effects. The section 313 list was developed from lists of regulated chemicals in New Jersey and Maryland. The EPA "List of Lists"

document identifies chemicals that are specifically listed and must be reported under sections 304 and 313 of EPCRA.

68. Can common or trade names other than those listed in the rule be used for submissions?

No. EPA has provided a list of standard chemical names and CAS numbers for all chemicals which must be reported. The rule requires the use of these standard names. Many Form Rs, submitted previously, could not be processed because unlisted CAS numbers or names were used.

69. We use a chemical with a CAS number not on the list of section 313 toxic chemicals. There are similar chemicals on the list, but none with the same CAS number. How can I be sure I don't have to report?

As a general rule, the facility should focus on the available CAS number of chemicals present at the facility and compare them to the CAS number listing of reportable section 313 chemicals. Be aware, however, that a complex mixture, such as naphtha, has a specific CAS number itself, but may also be composed of listed section 313 chemicals. Therefore, the facility should use all available information at the facility, not just the CAS number, when attempting to identify reportable chemicals in materials. Also, certain specific chemicals (e.g., copper chloride) may not appear in the CAS number list but are reportable under a compound category listing (e.g., copper compounds).

70. How are chemical categories handled under section 313 threshold determinations and release reporting?

All chemicals in the category that are manufactured, processed or otherwise used at a facility must be totaled and compared to the appropriate thresholds. Threshold determination for chemical categories is based on the total weight of the compound. Releases of metal compounds are reported as releases of the parent metal portion of the compounds. If the metal and corresponding metal compounds exceed thresholds, a joint report for metal compounds, including the parent metal, can cover both reporting requirements.

71. A facility processes aluminum, vanadium, and zinc. These three chemicals are listed under section 313 with the qualifier "fume or dust." Is this processing operation subject to reporting?

If the processing of these substances generated (i.e., manufactured) any fume or dust during its operation or if the three substances were processed or otherwise used, at any time, as a fume or dust in the operation, the processing would constitute a reportable use of a listed section 313 toxic chemical. The manufacturing, processing, or otherwise use of these substances in fume or dust form would be subject to threshold determinations.

72. If an item on the section 313 list incorporates chemicals with multiple CAS numbers (e.g., nickel compounds), how is the CAS number of the item described?

Do not enter a CAS number in such cases. Instead, enter NA in the space for the CAS number in Part III, Section 1.2 of Form R. The individual chemical members of a listed category are not required to be, and should not be, identified in the report.

73. Do the chemical categories such as nickel compounds include all compounds, even those which have not been associated with adverse health effects? What is the authority for this decision?

The section 313 list established by Congressional legislation included categories. EPA interprets these listings to mean all compounds of nickel for example, regardless of whether specific toxicological problems have been identified for a specific compound in the category.

74. Must releases of listed chemicals used as fumigants be reported if other criteria and thresholds are met?

Yes. Fumigant use would be subject to the 10,000 pound "otherwise use" threshold.

75. Some chemicals released into the environment react to form other chemicals or chemical compounds, for example phosphorus (a listed chemical) oxidizes in air to form phosphorus pentoxide (not a listed chemical). Which should be reported, the transformed chemical or the source chemical? How would the report(s) be prepared if both the source and result chemical are listed?

Report releases of the listed chemical. The facility is not responsible for reporting a chemical resulting from a conversion in the environment.

B. Chemicals in Solution

76. In determining maximum amount on-site and thresholds, do we count water in a solution (e.g., NH_4NO_3)? Do we count the nonmetal portion of metal compounds?

Exclude the water in solutions. The nonmetal portion of metal compounds is included.

77. Does the qualifier "solution" as used with a listed toxic chemical apply only to aqueous solutions?

The qualifier "solution" is not limited to aqueous solutions. For example, petroleum based solutions would also be included.

C. Chemical-Specific Questions

78. A facility processes methylenebis(phenylisocyanate) abbreviated MBI. MBI is listed under section 313 with the CAS number 101-68-8. The MBI purchased by the facility, however, has the CAS number 26447-40-5. How should the facility treat this material with regard to section 313 reporting requirements?

The listed chemical and the purchased chemical are similar but not identical. The purchased chemical is termed by the Chemical Abstract Service as an incompletely defined substance which may contain the listed chemical. The facility must use all available information (e.g., supplier notification information), to identify the amount of the listed toxic chemical present in the purchased material for threshold and release determinations and report for 101-68-8, not the mixture.

79. Is Xylene (mixed isomers) CAS number 1330-20-7 a specified weight percent combination of m-xylene, o-xylene, and p-xylene? Does the mixture need to contain all three individual isomers or can it contain any combination of two of the isomers?

Xylene (mixed isomers) is an unspecified mixture that could contain just two of the individual isomers or all three.

80. Xylene mixed isomers are present in two of a facility's refined products. For section 313 reporting, may the isomers be reported separately? For a mixture of the isomers, how are thresholds and de minimis to be determined? Reported separately, the facility exceeds thresholds, but is below de minimis concentrations.

The CAS number 1330-20-7 on the list of section 313 toxic chemicals is for any combination of the isomers. When the threshold and de minimis concentration for each isomer are exceeded independently, the facility may report separately or as mixed isomers. When the threshold and/or de minimis are not exceeded independently, but are exceeded collectively, they should be reported under the CAS number for mixed isomers.

81. I have hydrochloric acid with a listed content of 100 percent HCl. I know that means 37 percent HCl and 63 percent water - there is no higher concentration made. Which concentration must I use for threshold determination?

You should calculate the HCl content based upon the 37 percent concentration.

82. A facility receives a chemical mixture, 70 percent of which is toluene diisocyanate. Of this 70 percent, the supplier has told them that 80 percent is 2,4-TDI, with CAS number 584-84-9, and 20 percent is 2,6-TDI, with CAS number 91-08-7. The CAS number that appears on the MSDS for TDI is 26471-62-5, which is not on the section 313 list. Should the facility report?

CAS number 26471-62-5 represents the mixture of the 2,4 and 2,6 TDI isomers. Each of these isomers are reportable under section 313. Since the facility knows that the two listed isomers are in the formulation and knows the concentration of each isomer, the facility should report if the individual thresholds are exceeded.

83. Vanadium pentoxide is not explicitly listed under section 313, although vanadium does appear on the list. Are we correct in assuming that we don't need to report for vanadium pentoxide?

Yes. Vanadium is listed only as a fume or dust under section 313. A compound such as vanadium pentoxide is not subject to reporting.

84. For releases of strong mineral acids in NPDES effluent discharges whose pH is 6 or above, does EPA agree that no reportable amount of the toxic chemical is in the effluent?

Yes, EPA agrees that a discharge of pH 6 or above contains no reportable amount of mineral acid.

85. Although the category of glycol ethers requires reporting under section 313, I am not clear on whether the glycol ether, diethylene glycol, requires reporting.

Diethylene glycol is not subject to reporting. Glycol ethers, with the following structure, are reportable: $R-(OCH_2CH_2)_n-OR'$, where $n = 1, 2, \text{ or } 3$, $R = \text{alkyl or aryl groups}$, and $R' = R, H, \text{ or groups which, when removed, yield glycol ethers with the structure: } R-(OCH_2CH_2)_n-OH$. R groups for this structure are unsubstituted alkyl or aryl groups. For diethylene glycol, neither R or R' contain alkyl or aryl groups and thus it is not subject to reporting under section 313.

86. Is dipropylene glycol having a $HOC_3H_6OC_3HOH$ structure considered a glycol ether for section 313 toxic chemical reporting?

Dipropylene glycol is an ether but not a section 313 reportable glycol ether since it has $(\text{OCH}_2\text{CH}_2\text{CH}_2)_N$ instead of $(\text{OCH}_2\text{CH}_2)_N$ in its structure.

87. I use copper wire in one of my products. I cut it and bend it and then heat seal it into a glass bulb. How do I consider the copper wire for section 313 reporting?

First, the wire would remain an article if no releases of copper (e.g., dusts) occur during manufacture of the glass bulbs. If the wire is not an article, then for an element such as copper, both copper metal and copper compounds are subject to section 313 reporting. First determine the form of the copper in the wire. If it is pure copper wire, the entire weight of the wire must be used. If it is an alloy, the weight percent times the wire weight must be used. If there are copper compounds, the entire weight of each copper compound must be used for threshold determination.

88. Are vinyl chloride, a listed toxic chemical, and polyvinyl chloride, not listed, the same thing?

Polyvinyl chloride is not a listed chemical or a listed synonym of vinyl chloride, and it does not need to be reported. It is a polymer based on the reaction of vinyl chloride. Only "free" vinyl chloride within the polymer should be evaluated for threshold determinations.

89. Are chemical monomers such as acrylonitrile, butadiene and styrene, which are contained in a plastic co-polymer known as ABS, reportable under section 313? The ABS is in pellet form and melted and molded; therefore, it doesn't meet the article exemption.

If the acrylonitrile, butadiene, and styrene are present in an unreacted form in excess of de minimis concentration then they are reportable. Although those monomers comprise ABS, they are probably in the form of another compound and, therefore, are not reportable under section 313.

90. The CAS number for Di-(2-ethylhexyl) phthalate (DEHP) is listed as 177-81-7 on page 4531 of the February 16, 1988 Federal Register. The CAS number for DEHP is also listed on page 4536 of this Federal Register, but is given as 117-81-7. Which CAS number is the correct one?

The correct CAS number for DEHP is 117-81-7.

91. For section 313 reporting, a catalyst contains 61 percent total nickel, which includes 26 percent free nickel and nickel contained in compounds. Should the threshold determination be based on the 61 percent total nickel?

The 61 percent total nickel cannot be used in the threshold determinations. Nickel compounds are a listed category, therefore the full weight of nickel compounds must be used in the threshold determination for nickel compounds. A separate threshold determination is required for the free nickel since nickel is a separately listed chemical under section 313.

92. Asbestos, with CAS number 1332-21-4, is a listed chemical under section 313. The synonym list does not contain reportable asbestos forms. Our facility uses the following forms of asbestos and would like to know if they are reportable: Azbolen (CAS 17068-78-9), Actinolite (CAS 77536-66-4), Amosite (CAS 12172-73-5), Anthrophyllite (CAS 77536-67-5), Tremolite (CAS 77536-68-6), and Serpentine.

The section 313 listing for asbestos (CAS 1332-21-4) includes specific forms of asbestos, such as those mentioned above, that have their own individual CAS numbers. Therefore, those types of asbestos are reportable as long as they are in the "friable" form.

93. How is the process of removing asbestos from a site reported?

A facility that manufactures, processes, or otherwise uses friable asbestos in excess of an applicable threshold must report asbestos waste disposal if asbestos is disposed in friable form. But a facility that only "uses" the asbestos for piping insulation is not required to report because structural components of the facility are exempt and removing the material does not constitute manufacture, process or otherwise use.

94. Are releases of asbestos from demolition of an old plant reportable?

No. In this case, the asbestos is not being manufactured, processed, or otherwise used. Therefore, no releases of asbestos must be reported unless there are other covered activities involving asbestos at the facility.

95. A product is immersed into a plating bath containing nickel chloride (NiCl). This is done to bond nickel to the product prior to distribution in commerce. Nickel is incorporated into the final product (processed) whereas the chloride remains in the plating bath (otherwise used). Since nickel chloride is reportable under the nickel compound category of section 313, which threshold applies for this situation?

The threshold determination is made based on the total amount of nickel chloride processed and the report will be filed for nickel compounds.

96. 53 FR 4538 describes cyanide compounds as $X+CN^-$ where $X=H^+$ or any other group where a formal dissociation may occur; examples are KCN and $Ca(CN)_2$. Are cyanide compounds that do not dissociate reportable?

Cyanide compounds that do not dissociate are not reportable. Most of the cyanide compounds that dissociate are cyanide salts which are subject to section 313.

***97. A facility coats materials with aluminum using the vacuum deposition process. Is the facility subject to the reporting requirements under section 313 for aluminum fume?**

No. In vacuum deposition, the aluminum is converted to the vapor state under low pressure. The vapor then condenses on the material which is being coated. A metal fume consists of finely divided particulate dispersed in a gas. Because a metal fume and a metal vapor are different physical forms of a metal, metal vapor is not considered to be a type of fume. However, any aluminum fume that is produced as a result of the condensation of the metal vapor should be applied to threshold determinations for aluminum (fume or dust).

***98. What is the effective date for the deletion of ammonium sulfate solution?**

The facilities should follow the new reporting guidelines for ammonium sulfate solution beginning with the 1990 reporting year with reports due on July 1, 1991. For further information, see the Directive #8 "Ammonia and Ammonia Salts" in the back of this document.

***99. A facility uses chromium in its electroplating operation, and as a result, hexavalent chromate is generated. Is the hexavalent chromate reportable under section 313?**

The hexavalent chromate is considered a member of a reportable chemical category, chromium compounds, that has been manufactured by the oxidation/reduction reaction that occurred in the

electroplating operation. As a result, the total amount of the hexavalent chromate compound produced must be compared to the manufacturing threshold for chromium compounds.

***100. A facility was advised by one supplier that aluminum oxide, CAS No. 1344-28-1, is a listed toxic chemical under section 313. The facility was advised by another supplier that this chemical was on the toxic chemical list in error. Is aluminum oxide included on the toxic chemical list and therefore potentially reportable under section 313?**

For the 1989 reporting year and beyond, only fibrous forms of aluminum oxide are reportable under section 313. Other forms of aluminum oxide are exempt from reporting [55 FR 5220, February 14, 1990].

***101. Is paraformaldehyde, CAS No. 30525-89-4, reportable as formaldehyde under section 313?**

No. Paraformaldehyde is hydrated polymerized formaldehyde, a solid material that is different from formaldehyde. At ambient temperature, vaporization occurs, emitting formaldehyde gas. Though paraformaldehyde itself is not reportable, any formaldehyde manufactured as a gas or a solution during the manufacture, processing, or use of paraformaldehyde must be applied to any threshold determination for formaldehyde.

III. MIXTURES (see also Appendix A: Section 313 Policy Directive #4 - Compounds and Mixtures)

102. What is the difference between a mixture and a compound?

When a compound is formed, the identities of the reactant chemicals are lost, but in a mixture, the individual components retain their own identity and could be separated again. For example, polyethylene is a reaction product, not a mixture (and is not subject to reporting under section 313). Steel fabricated into its solid form is considered a mixture because the individual metals retain their chemical identity.

103. When a company has a mixture on-site which does not have its own CAS number, what CAS number should be used?

The company should use the best available information at the facility to identify the listed section 313 chemicals in the mixture. A separate report must be filed for each chemical for which the fraction of the chemical in the mixture multiplied by the total weight of the mixture processed or otherwise used exceeds the applicable threshold. The chemicals are treated as if they were present in pure form and each is reported with its CAS number.

104. For a mixture containing a chemical compound that is part of a listed chemical category, should the weight of the parent material be used in threshold determinations?

No, the total weight of the chemical compound is used in making threshold determinations.

105. When should the mixture name field (Part III, Section 2) on Form R be used?

The mixture name field is to be used only when you know that a mixture you purchase and process or use contains a listed section 313 substance but you do not know which chemical (i.e., the supplier keeps the chemical identity trade secret). Use the chemical or chemical category name field (Part III, Section 1.3) in

all other circumstances (unless you have a trade secret chemical and are filling out a sanitized version of the form).

106. If a facility only knows the range of concentration of a section 313 chemical in a mixture, are they required to use the upper bound concentration to determine threshold as stated in the February 16, 1988 Federal Register? Use of the average or midpoint of the range will avoid overestimating emissions. If a metal mixture contains a range of 1 to 10 percent of three metals together, how can this information be used to determine thresholds?

The final rule does not discuss ranges, it only says that the upper bound should be used "if the person knows only the upper bound concentration". If a range is available, using the midpoint or average value is reasonable. For the combination of three chemicals, the facility should split the range among the three chemicals based on the knowledge that they have, so the total equals 10 percent. They do not have to assume 10 percent maximum for each chemical.

IV. SUPPLIER NOTIFICATION

107. MSDSs for the solvents we use give trade name or generic names only. Do we have to contact the manufacturer for more information to report under Part III of Form R?

If only a trade name or generic name is known and the presence of a section 313 chemical is known, then that can be reported in Part III. Beginning in January 1989, suppliers will be required to provide the identity of the listed chemical (CAS number and chemical name) and concentration in mixtures. The manufacturer may claim the information trade secret, but must provide a name that is descriptive of the chemical and at least an upper bound concentration in the mixture.

108. By what exact date must supplier notification be done?

A supplier must notify each customer of any toxic chemical present in a mixture or trade name product with at least the first shipment of the mixture or trade name product in each calendar year beginning January 1.

109. Is a facility subject to supplier notification requirements if it distributes products containing more than the de minimis level of a listed metal compound?

Yes, if you distribute these products to other manufacturers or processors, and you are in SIC codes 20-39, you are subject to the supplier notification requirements. Articles and consumer products are exempt from supplier notification.

110. Do supplier notification requirements apply only to a situation where the customer is in SIC code 20 through 39 and has more than 10 employees?

A company is responsible for providing supplier notification to a covered facility within SIC codes 20 - 39 and with 10 or more employees, and to customers who in turn may sell or distribute to a "covered facility." Such a customer may be a wholesale distributor who is not in SIC codes 20 - 39 but sells to other manufacturing facilities.

111. Are some mixtures of section 313 listed chemicals exempted from the supplier notification requirements? A mixture, as defined in section 313 regulations, does not include a combination of chemicals produced as the result of a chemical reaction.

A mixture is defined under section 313 as a combination of two or more chemicals, if they were not combined as a result of a chemical reaction. However, if this combination was formed by a chemical reaction but could have been formed without one, it is also considered a mixture. Any other combination formed by a chemical reaction is not considered a mixture. If a listed toxic chemical is present in a mixture at a concentration below the de minimis level, this quantity of the substance is exempt from section 313 supplier notification requirements.

112. Are sales samples covered for purposes of supplier notification?

Sales samples are covered unless they meet one of the stated exemptions in 40 CFR 372.45(d) of the regulation, such as articles or products distributed to the general public. Such samples are not sold but are "otherwise distributed" by the covered facility. If, however, the sample is a pure covered chemical and is labeled as such, then no supplier notification is required.

113. Does a supplier have to tell a customer that a section 313 chemical is present below the de minimis level (1.0 percent, or 0.1 percent for OSHA carcinogens)?

No. Such information is not required.

114. Companies are required to notify their customers of the presence of listed toxic chemicals in the products sold to them, regardless of the volume of those chemicals. Why are there no supplier notification thresholds for section 313?

No lower limit was placed on the quantity of toxic chemicals because EPA cannot predict what combination of products in what volumes will trigger a threshold for any given user/processor of mixtures and trade name products.

115. A company that makes conveyors for airlines also sells small cans of spray paint to them for use in touch-ups of the paint on the conveyors. The paint is not distributed or used by the general public. Is the company exempt from section 313 supplier notification under the consumer product exemption because the paint is packaged and used like a consumer item?

No. The exemption does not apply because the paint is not packaged for distribution to the general public.

116. Is supplier notification required for distributors in Standard Industrial Classification (SIC) major group 51 which do not manufacture or process any listed toxic chemicals for mixtures containing toxic chemicals?

Distributors in SIC major group 51 which do not manufacture or process a toxic chemical are not required to prepare notice that the mixture or trade name products which they distribute contain a toxic chemical. They should, however, pass along such notices prepared by their supplier to any facility in SIC codes 20-39, who purchases a mixture or trade name product containing a toxic chemical.

117. A manufacturer lists chemicals on Section II of the MSDS under hazardous ingredients; it is possible that none of the chemicals listed are subject to section 313 reporting. Is the supplier required to

state that none of the chemicals are subject to 313 reporting, removing the need for customers to audit Section II?

A supplier should include the section 313 statement in their MSDS if one or more of the chemicals in the mixture or trade name product are section 313 chemicals. The facility is not required to make a "negative declaration" that none of the components in the mixture are subject to section 313. A supplier may, however, provide this statement on its own initiative.

118. A facility is covered under 40 CFR Part 372.45(a)(3) if it sells or otherwise distributes a compound containing a toxic chemical to a person who may sell or otherwise distribute it to a facility described in Part 372.22. To what extent is a facility required to determine if the facility receiving the shipment distributes the toxic chemical to a manufacturer?

The facility should use the best available knowledge. The manufacturer of the mixture must send the supplier notification to the "middle man" distributor if it has a reasonable basis to conclude that the distributor provides the product to manufacturing facilities. Such a conclusion could be based on the nature of the product and its intended market.

119. A facility, although in SIC codes 20-39, repackages and distributes some chemicals manufactured by other companies. Is the facility responsible only for passing on the manufacturer's information to its customers?

The repackaging facility must provide supplier notification to its customers. If the only information the facility knows is from the MSDS, all it can do is provide this same information to its customers. If the facility knows the product contents or concentrations are different from what appear on the supplier's notice, the facility must provide the more accurate information to its customers. EPA suggests, but does not require, that the repackager inform the supplier of the inaccuracy in their MSDS.

120. I own a small chemical company who supplies some section 313 toxic chemicals to customers. My customers are requesting MSDS information and want the CAS number for every chemical in my mixtures. I thought I only had to supply that information for the listed toxic chemicals.

If you wish, you may provide them with the CAS numbers for all of the chemicals in your mixtures, but under section 313 you are only required to provide information on the listed toxic chemicals (i.e., those chemicals subject to reporting under section 313).

121. Is a company required to contact suppliers if an MSDS sheet does not contain complete or consistent language and/or information?

No. The company must use the best information at hand, but the rule does not require them to contact the supplier. If, however, the company does voluntarily contact the supplier and the supplier provides more detailed information then that becomes the "best" information and the facility must use it.

122. A facility produces industrial non-consumer products and includes supplier notification information on the product label. Is this sufficient? Must the MSDS be distributed as the primary vehicle of notification?

Inclusion of section 313 supplier notification information on the product label will satisfy the notification requirements. However, the rule states that if the products are required to have an MSDS then the supplier notification must be included with the MSDS for those non-consumer products. But, the MSDS does not have to be distributed as the primary vehicle of notification.

123. Would EPA accept an annual notification by letter to customers as satisfying the supplier notification provisions of the section 313 regulation (40 CFR Part 372, Subpart C)?

Once customers have been supplied with the MSDS containing the section 313 information, then it would be acceptable for a facility to refer to the MSDS by letter in subsequent years, provided the customer has the most current version of the MSDS. The supplier notification regulations require that a new notification be provided when the presence or composition of a listed toxic chemical in the product changes.

124. Is supplier notification required for pesticide products packaged for distribution to the general public?

If the pesticides products are distributed for use by the general public and not specifically for manufacturing facilities in SIC Codes 20-39, supplier notification is not required.

125. If a mixture contains a chemical compound that is a member of a reportable section 313 chemical category, how should that be addressed on the supplier notification? Is it acceptable to provide the percent of the parent metal?

If a mixture contains a chemical compound (i.e., 12 percent zinc oxide) that is a member of a reportable chemical category (i.e., zinc compounds), the supplier is required to notify his customers 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, but may be done to aid receiving facilities in estimating releases. The customer must be told the weight percent of the entire compound for threshold determinations.

126. 40 CFR Part 372.45(b)(1) states that to fulfill the section 313 supplier notification requirement, the notification shall include: "(a) statement that the mixture or trade name product contains a toxic chemical or chemicals subject to the reporting requirements of section 313..." Does a facility have to include the word "toxic" in its notifications?

The word "toxic" does not have to appear in the statement to fulfill the requirement of 40 CFR Part 372.45(b)(1). However, the statement should clearly state that the chemical is subject to section 313.

127. Do the supplier notification requirements under section 313 require notification for a shipment of a pure (i.e., 100%) toxic chemical that has not been assigned a trade name?

A manufacturer is not required to provide supplier notification for a pure chemical (e.g., a product labelled with the listed section 313 name or identified by CAS number). The identity of the toxic chemical will be known based on label information and CAS numbers as long as a trade name is not used. Supplier notification applies to mixtures and trade name products.

128. How will the supplier notification work for imported products -- do exporters from Japan have to comply?

No. Foreign suppliers are not required to comply with supplier notification. However, we strongly encourage importers to request content and composition data on imported mixtures. EPA will also be exploring means of voluntary notification by foreign suppliers.

129. Is supplier notification required from a manufacturer of a toxic chemical in SIC codes 20 through 39 which sells a waste mixture containing a toxic chemical off-site to a recycling or recovery facility that is covered by section 313?

Yes, supplier notification is required because the toxic chemical is sold to the recycler. The notice the facility would be required must provide the percentage and identity of the toxic chemical in the mixture that is sent to the recycling or recovery facility. If the material is, however, sent off-site as a waste for the treatment or disposal, then no supplier notification is required.

130. A facility sends empty drums containing toxic chemicals residue to a drum recycler (within SIC Code 20-39.) Must the facility provide a supplier notification?

No, the supplier notification requirement only applies to products that are supplied or distributed. The only chemicals being transferred are in the form of waste and the supplier notification does not apply to waste.

131. Do transfers of products or materials from one of our company's facilities to another require supplier notification?

Yes. The language of the rule covers material that it "sells or otherwise distributes." In this sense, the "otherwise distributes" language would apply 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 the Agency would accept this as satisfying the supplier notification requirement.

132. A multi-establishment facility is not covered (i.e., does not meet the SIC code criteria) but one of the establishments within the facility is within SIC codes 20-39. Does the language "facility or establishment" in the supplier notification part of the rule subject this one establishment to the supplier notification provisions?

No. EPA has determined as a matter of policy that the phrase "or establishment" does not extend coverage of the supplier notification provisions beyond that of a "facility" as defined by 40 CFR 372.22 (b) of the rule. Therefore, in the case of a multi-establishment facility not subject to the rule, an SIC 20-39 establishment within that facility would not be required to provide section 313 supplier notification. However, the Agency encourages such an establishment to comply voluntarily so that its customer will have the information necessary to make proper compliance determinations under the section 313 rules. The "or establishment" language provides an option similar to that available to establishments that submit reports as a part of a covered facility. For example, if only one establishment in a covered facility is actually distributing a product containing a toxic chemical then that establishment may assume the supplier notification responsibility for that facility.

***133. Is a facility owner/operator responsible for preparing section 313 supplier notification information for a mixture or trade name product which contains a toxic chemical that they did not manufacture?**

Yes, it can be. The requirement for developing a supplier notification for a mixture or trade name product containing a listed toxic chemical is the responsibility of the facility which manufactures or processes a section 313 toxic chemical and sells or otherwise distributes a mixture or trade name product containing that chemical.

***134. A manufacturing facility otherwise uses hydrochloric acid to clean reaction vessels. The same facility also buys hydrochloric acid solution (bought as "Trade Name X") and resells it to other customers**

(no repackaging or relabeling of the solution takes place). Is the owner, operator of the manufacturing facility required to develop a supplier notification for the hydrochloric acid it sells under 40 CFR 372.45?

No. A supplier notification is required to be prepared and distributed by a manufacturing facility if it "...(m)anufactures (including imports) or processes a toxic chemical..." and "...(s)ells or otherwise distributes a mixture or trade name product containing the toxic chemical..." to a facility that is required to file Form Rs or to a person who may sell or otherwise distribute such mixture or trade name product to a manufacturer [40 CFR 372.45(a)(2) and (3)]. Here, a toxic chemical and the toxic chemical refer to the same toxic chemical. In the above example, the manufacturing facility does not manufacture, import, or process hydrochloric acid (it only otherwise uses hydrochloric acid) and so is not required to develop supplier notification for the hydrochloric acid it sells. However, if a supplier notification is provided with Trade Name X hydrochloric acid solution, the manufacturing facility is encouraged to pass this information along to its customers. [NOTE: that if a supplier notification is incorporated in or attached to the MSDS received by the manufacturing facility with the Trade Name X hydrochloric acid solution it buys, "...any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed"; see 40 CFR 372.45(c)(5)].

V. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY

135. What is the difference between "process" and "otherwise use"?

"Process" implies incorporation; the chemical added is intended to become part of a product distributed in commerce. "Otherwise use" implies non-incorporation; the chemical is not intended to become part of a product.

136. Are the thresholds for manufacture and process considered separately? That is, if one manufacturer manufactures 49,000 pounds of chemical A and processes 49,000 pounds of chemical A, does chemical A need to be reported?

Thresholds are considered separately for manufacture, process, or otherwise use of the same chemical. Reporting is required for 1989 and beyond because the threshold is 25,000 pounds for those years.

137. Are materials in inventory (i.e., amounts on hand at year end) factored into threshold determinations?

No. Only quantities of a chemical actually manufactured (including imported), processed, or "otherwise used" during the calendar year are to be counted toward a threshold.

138. Under manufacture/import, what constitutes import? Does the threshold apply if you have a broker who imports the chemical for you, stores it for you, and then ships the chemical to you? What criteria apply?

Use of a broker does not negate facility "importation" of a covered chemical. If your facility specified that a listed chemical or mixture be obtained from a foreign source and you specified the amount, then your facility "imported" the chemical. The criteria are that you caused the chemical to be brought into the customs territory of the U.S. and you "control the identity of the chemical and the amount to be imported."

139. Do chemicals produced coincidentally to manufacturing, processing, or otherwise using have to be reported?

Chemicals produced coincidentally are subject to reporting. In the case of coincidental production of an impurity, however, the de minimis limitation applies. An impurity is the residual amount of chemical remaining in a final product for distribution in commerce.

140. How can wastewater treatment "products" be considered as manufactured from a treatment process?

The rule's definition of "manufacture" includes the coincidental generation of a listed toxic chemical as a consequence of the facility's waste treatment or disposal activities. These chemicals may not be produced for commercial purposes. They are, nevertheless, created as a result of the facilities activities and their release to the environment must be accounted for.

141. A facility adds hydrochloric acid to waste water to neutralize the waste water prior to discharge. Is this activity manufacturing or processing, or is this chemical "otherwise used"?

Because hydrochloric acid is not incorporated into the final product distributed in commerce, the chemical is "otherwise used" with a threshold of 10,000 pounds.

142. A process at a facility draws steel rods into a smaller diameter. Is this manufacture, process, or otherwise use? How do I report?

This activity is considered processing because the toxic chemical remains incorporated in the final product distributed in commerce. Only apply the amount of each chemical in the rods processed toward the applicable activity threshold if the toxic chemical is present above the de minimis level.

143. A facility manufactures fire fighting and fire protection equipment. The facility has a training school on how to use that equipment. As part of the training school, on-site fires are set using gasoline containing benzene, a toxic chemical. For section 313 threshold determination, would this be an "otherwise use" of benzene, or would this use be exempt as product testing?

This would be considered otherwise used for the section 313 threshold determination, since the benzene is being used in a non-incorporative activity in order to train individuals to use a product. Training is not considered product testing or research and development.

144. What is the difference between a manufacturing aid and processing aid?

A chemical processing aid is added directly to the reaction mixture or is present in a mixture used to aid in processing and does not intentionally remain in the product. Examples include catalysts, solvents, and buffers. A manufacturing aid helps to run the equipment and is never incorporated into the product. Examples include lubricants, coolants, and refrigerants.

145. We have purchased in excess of 100,000 pounds of aluminum material in block form to make a mold which stays on site. When making the mold, fumes and dust are a byproduct. Do we report aluminum as the chemical?

Aluminum appears on the list of chemicals as "aluminum (fume or dust)". You must determine if you manufacture, process, or otherwise use aluminum fume or dust. In this case, you are not processing or otherwise using, but do "manufacture" aluminum fume or dust coincidentally as a byproduct of making

molds. Therefore, you must report for aluminum (fume or dust) if you exceed the 25,000 pound manufacturing threshold for the reporting year.

***146. The list of toxic chemicals under EPCRA section 313 contains three substances with a "fume or dust" qualifier (aluminum, zinc, and vanadium). For purposes of reporting the maximum amount on-site (Part III section 4 of the Form R), should facilities only report the maximum amount of fume or dust on-site or the maximum amount of all forms of the chemical on-site at any one time?**

When determining the maximum amount on-site for Part III section 4 of the Form R, only the reportable form of a chemical (e.g., fume, dust, solution) is to be considered.

147. A facility melts aluminum ingots, reshapes them, and injects them into a die to form parts. Does the 25,000 pounds processing threshold apply to the amount of molten aluminum processed?

For the calendar year, the 25,000 pounds threshold applies to the amount of aluminum fume or dust generated at the facility, not the aluminum in molten (liquid) or solid form. Therefore, the facility must determine whether they produce more than 25,000 pounds of aluminum fume or dust air emissions in their processing operation.

148. A remanufacturer of auto engines cleans the engine parts and thereby produces a lead-containing waste (from gasoline lead deposits). Are they a manufacturer, processor, or otherwise user of lead compounds?

The facility neither manufactures, processes, nor otherwise uses lead. Lead is not incorporated into products for distribution nor is it a manufacturing aid or a processing aid as those terms are defined. Lead in the waste would not be included for threshold determination.

149. A multi-establishment facility, with a primary SIC code of 2911, operates a petroleum bulk station and terminal, with SIC code 5171. The bulk station receives gasoline from tanker trucks and stores the gasoline in storage tanks onsite. The facility also loads other tanker trucks with gasoline that distribute the gasoline to service stations. Are the toxic chemicals in the gasoline processed, otherwise used, or neither?

Since the facility repackages the gasoline by transferring it between trucks and bulk storage containers for further distribution into commerce, the facility is processing the toxic chemicals in the gasoline.

150. If a solvent is used in a process and 85 percent evaporates but 15 percent stays with product, is toxic chemical processed or otherwise used? The 15 percent was not necessarily intended to stay with the product.

In this case, the entire quantity of the solvent should be considered "otherwise used" and subject to the 10,000 pound threshold. If the solvent was intended to remain in the product, this would be processing.

151. Is soldering light bulbs using lead solder considered processing of the solder?

Yes, it incorporates the solder into a product for distribution in commerce.

152. An electroplating facility uses metal cyanide compounds in their electroplating operations. Are they processing or otherwise using those cyanide compounds, and how do they determine whether they meet the threshold and which activity threshold applies?

The parent metal from the metal cyanide compound is plated onto a substrate electrochemically, leaving the cyanide as waste product. The parent metal is "processed", while the cyanide is "otherwise used". Metal cyanides are reportable under section 313 as both cyanide compounds and metal cyanides. Select the threshold based on the action that involves the portion of the compound that identifies the category (i.e., cyanide for cyanide compounds). The total weight of the compound counts for both the metal cyanides threshold and the cyanide compounds threshold.

153. A facility uses sulfuric acid to etch chips, then the sulfuric acid is neutralized with ammonia, forming ammonium sulfate. Which thresholds apply to each chemical?

Chemicals not incorporated into a product for distribution in commerce are otherwise used. A 10,000 pound threshold applies to the sulfuric acid and ammonia if the byproducts are not sold. The 25,000 pound manufacturing threshold applies to ammonium sulfate because it is manufactured coincidentally as a result of the neutralization process.

154. A facility uses methanol in its gas-carburizing heat treatment of steel. The main purpose of methanol in the facility's operations is to provide the source of carbon that is deposited on the steel. Is this "processing" or "otherwise use" of the methanol?

The methanol is being "processed," not "otherwise used," because the methanol is the source of the carbon for the carburization activity. The methanol is being reacted and the carbon from it is being incorporated into the steel.

155. A chemical company processes formaldehyde in its manufacture of resin. The customers using the resin must consider the formaldehyde toward a threshold determination under section 313. Some formaldehyde will evaporate during use, although this evaporation process was not intended. Are the users of the resin processing or otherwise using the formaldehyde?

Since the users do nothing to remove the formaldehyde, it is intentionally left in the final product. Therefore, the formaldehyde would be processed.

156. A facility uses a chrome anode in an electroplating bath of sulfuric acid to plate chrome onto fabricated metal. Chromium compounds are generated in the bath and some chrome is deposited onto the fabricated metal part. The unutilized compounds are sent to the facility's waste treatment process, where hexavalent chromium is reduced to trivalent chromium. How are these reduced compounds counted for section 313 threshold determination?

The threshold determination for chromium compounds is based upon the amount of chromium compounds generated in the plating bath. Any subsequent transformations of hexavalent to trivalent chromium compounds as a result of waste treatment does not affect the threshold determination. To do so would involve double counting.

157. A company processes a galvanized sheet metal containing elemental zinc, not a zinc compound. When the sheet metal is processed it generates zinc dust, all of which is captured and sent off-site for recycle. Can the company claim an exemption because the sheet metal remains an article, or must it do a threshold determination because it has coincidentally manufactured zinc (fume or dust)?

Though the sheet metal remains an article during the processing of the sheet metal, zinc (fume or dust), a listed chemical, is manufactured. This release negates the article exemption. The recycle/reuse exemption does not apply to cases of manufacture. The company would have to make a threshold determination based upon the quantity of zinc dust generated. The amount sent off-site for recycle is not reportable, being the equivalent of a product sold in commerce. Any amount not recycled would also be a reportable release.

158. Does the placing of a bulk liquid containing a small percentage of a section 313 chemical into small bottles for consumer sale constitute a "use" of the mixture?

Yes, it is a type of "processing." If the bulk liquid contains a section 313 covered chemical in excess of the de minimis level, the chemical in the liquid would have to be factored into calculations in determining whether the processing threshold is exceeded for that chemical.

159. Paint containing listed chemicals is applied to a product and becomes part of an article. Does the 25,000 pound threshold apply? What about the volatile chemicals from the painting operation -- are they "otherwise used," thus subject to the 10,000 pound threshold?

Yes to both questions. This is a case in which listed chemicals in the same mixture may have different uses and, therefore, different thresholds. The listed chemicals that are incorporated as part of the coating are "processed," whereas the volatile solvents in the paint are "otherwise used" because they are not intended to be incorporated into the article.

160. A facility removes chemicals from groundwater in a cleanup action. The listed chemicals, after treatment, are sent off-site for disposal. Is the facility required to report? Does the exemption for intake water apply?

Since the chemicals are not manufactured, processed, or otherwise used, no reporting threshold applies to the cleanup action. If the chemicals are manufactured, processed, or otherwise used elsewhere at the facility and exceed a threshold, releases from the cleanup must also be reported on the Form R. Intake water exemption does not apply since the chemicals are not being used in process water or noncontact cooling water.

161. A covered facility includes an agricultural establishment that use pesticides to spray crops. The pesticides contain toxic chemicals subject to section 313 reporting. Is the pesticide considered "otherwise used"?

Use of the chemicals in pesticides is considered "otherwise used" and the entire amount is reported as a release.

162. When completing Form R, how would a facility report the releases of a toxic chemical that is used as a fertilizer? Would a facility which sends material to an off-site location need to count the materials when they are used as fertilizers at that location? Would the application on-site constitute a release to land on Part III, Section 5.5 of Form R?

If the toxic chemical is sent off-site to be recycled or reused as a fertilizer, then this activity would not be considered a transfer of waste off-site. If it is used on-site, it would be otherwise used if it contributes to the manufacturing process. The toxic chemical in the fertilizer would be reported as a release to land: land treatment/application farming on Part III Section 5.5.2. If the fertilizer is used to maintain the lawn, it would be part of facility grounds maintenance and exempt from threshold and release determinations.

163. A car manufacturer has a central 25,000 gallon storage tank on-site. A pipe leads from the central storage tank to a fill station where the cars are filled with gas before being sent off-site to be sold. Is the processing of the toxic chemical components of the gasoline considered "repackaging only" or "as an article component?"

The toxic chemicals in the gasoline should be reported as processed as an article component.

***164. In an aluminum casting process, a facility bubbles chlorine gas through molten aluminum. The chlorine reacts with impurities in the aluminum and produces a by-product called "dross," which is distributed in commerce. Small quantities of unreacted chlorine are emitted during this process. What is the applicable threshold for chlorine in this process?**

Because the chlorine reacts with impurities, becomes incorporated in the dross which is distributed in commerce, the chlorine is considered "processed." If the amount of chlorine processed, which includes both the chlorine incorporated in the dross and the unreacted chlorine, exceeds 25,000 pounds, a Form R must be filed and any releases of chlorine must be reported.

***165. A facility uses a listed toxic chemical methylenebis(phenylisocyanate) to create molds from which they produce metal castings. Normally these molds are kept by the manufacturer or are broken up for reuse. Has the toxic chemical been "otherwise used" or "processed" by the facility?**

The making of the molds does not constitute the processing of methylenebis(phenylisocyanate) because the chemical does not become part of a product that is sold or otherwise distributed from the facility. Therefore, the chemical is "otherwise used" by the facility and the 10,000 pound threshold applies.

***166. An agri-chemical manufacturer produces a specialty pesticide for a farmer by blending chemicals which have been supplied by the farmer. It then applies the pesticide to the farmer's crops. Does the blending of the listed toxic chemicals received from the farmer for application to the farmer's crops constitute "processing" of the toxic chemicals? Does the agri-chemical manufacturer, as a "toll-processor," have to count the listed toxic chemicals towards the threshold determination?**

The blending of the chemicals and their subsequent application to the farmer's fields does constitute "processing." The origin of the processed material is irrelevant, and the return of the blended chemicals for application on the farmer's fields can be considered products distributed in commerce, and, therefore, the "processing" threshold would apply. "Toll-processing" is no different than any other processing. The agri-chemical manufacturer must make threshold determinations based on the amount of any listed toxic chemical it processes as well as any other manufacturing or otherwise use activities that occur at its facility.

***167. A facility converts waste animal parts and blood into protein for use as animal feed. The animal parts and blood contain ammonia which is incorporated into the protein product. Is the ammonia subject to section 313 reporting?**

Yes. Because ammonia (NH₃) is incorporated into the end-product, it is considered "processed" and is subject to the 25,000 pound threshold.

***168. If a person is simply storing and redistributing a toxic chemical without repackaging it, is this activity considered processing of the chemical for section 313 purposes?**

No. The term "process" means the preparation of a listed toxic chemical, after its manufacture, for distribution in commerce.

VI. EXEMPTIONS

A. General, Personal Use, and Intake Water or Air

169. Does a material retain its exemption even if other formulations, articles, or fuels with the same chemical are not exempt?

Yes, the material retains its exemption.

170. Do office supply type products require coverage under section 313 reporting?

EPA does not intend to require covered facilities to account for listed chemicals in office supplies such as correction fluid and copier machine fluids. Although not specifically exempt in the regulation, EPA interprets such mixtures or products to be equivalent to personal use items or materials present in a facility's cafeteria, infirmary, or materials used for routine janitorial activities and facility grounds maintenance.

171. A facility meets the threshold for "otherwise use" of 1,1,1-trichloroethane as a cleaner. Would the release of that chemical contained in the office supply product "white-out" also be included?

Office products fall within the same realm as the personal use and janitorial maintenance exemptions; the release of 1,1,1, trichloroethane in "white-out" would not be reported.

172. A facility uses ammonia in gas cylinders in their blueprint machines. The facility uses a total of 12,000 pounds of ammonia per year in this operation, and does not use or process any other quantities of ammonia. Is this use exempt from reporting under 313? There is an exemption for use of office supplies for personal use under section 313.

Blueprint machines are not typical office supply items for personal use. Since the 10,000 pound otherwise use threshold is exceeded, the facility must report for the ammonia.

173. A facility uses river water as process water. The water taken from the river contains more lead (1.0 ppb) than the water returned to the river (0.5 ppb). Is it subject to the process water exemption? If not, is the facility treating the water?

The process water can be considered exempt because the toxic chemical was present as drawn from the environment (40 CFR 372.38 (c)(5)).

174. Would a listed chemical present in compressed air be exempt? What if the chemical is present in boiler emission air?

A listed chemical present in compressed air would not have to be counted toward a threshold determination. If that same chemical is present in the boiler emission air only because it was in the compressed air fed to the boiler, then that would remain an exempt use. However, if the chemical is created as a result of combustion, you have coincidentally manufactured the chemical and must consider it for reporting.

***175. A facility adds chlorine to its water supply system. The chlorinated water is used only for drinking purposes by employees. Is this use of chlorine reportable under EPCRA section 313 [40 CFR 372]?**

Chlorine that is added by a facility to its water supply system to prepare potable water for consumption at the facility is exempt from reporting under the personal use exemption which exempts "personal use by employees or other persons at the facility of foods, drugs, cosmetics, or other personal items containing toxic chemicals, including supplies of such products within the facility such as in a facility operated cafeteria, store, or infirmary." [40 CFR 372.38(c)(3)] Since chlorine is used to prepare an item (i.e., potable water) that will be used for drinking purposes by facility employees, it is exempted from reporting under EPCRA section 313.

B. Facility Maintenance and Structural Components

176. How is routine maintenance defined in the exemption list? Is equipment maintenance included?

Equipment maintenance such as the use of oil or grease is not exempt. The routine maintenance exemption is intended to cover janitorial or other custodial or plant grounds maintenance activities using such substances as bathroom cleaners, or fertilizers and pesticides used to maintain lawns, in the same form and concentration commonly distributed to consumers. Painting of equipment is exempt because the paint becomes part of the structure of the facility.

177. Are solvents and other listed chemicals in paint used to maintain a facility exempt?

Yes. Painting to maintain the physical integrity of the facility is consistent with the "structural component" exemptions, even though the solvents in the paint don't become part of the structure.

178. The "structural component" exemption from section 313 reporting covers the small amounts of abraded/corroded metals from pipes and other facility equipment. Would the structural component exemption apply to equipment which regularly suffers abrasion, such as grinding wheels and metal working tools? What criteria can a facility use to decide which pieces of equipment are structural components and which are not?

The section 313 structural components exemption would not apply to grinding wheels and metal working tools. These items are intended to wear down and to be replaced because of the nature of their use. The structural component exemption applies to passive structures and equipment such as pipes. The abrasion/corrosion includes normal or natural degradation, such as occurs in pipes, but not active degradation, such as occurs in a grinding wheel.

179. A facility uses welding rods to maintain its equipment. The painting of equipment is exempt because the paint is intended to become part of the structure. Are welding rods used to maintain equipment exempt because the materials are intended to become part of the facility?

Welding rods used to repair and maintain equipment would be exempt from reporting under section 313 because they are becoming a fixed part of the structure of the facility. In this way, they are similar to paint, and unlike some replaceable maintenance materials like oil or grease. The term "facility" includes all buildings, equipment, structures and other stationary items located on a single site, or on contiguous or adjacent sites.

180. If a facility stores a toxic chemical on-site, and then uses it by installing it in the facility (i.e., copper pipes), is the facility required to consider the toxic chemical (a component) for section 313 submission?

If the chemical is in an article (i.e., copper pipe) it is not considered in threshold determinations. When the substance is installed as a structural component, then the structural component exemption applies to the toxic chemical in the pipes.

181. A facility has an ornamental pond on-site. Chemicals such as H₂SO₄, NaOCl, and other acids are added to the pond to control algae. Does the addition of toxic chemicals to an ornamental pond on a facility site qualify for the routine janitorial or facility grounds maintenance exemption [40 CFR 372.38(c)(2)]?

Yes. The chemicals used, however, must be similar in type or concentration to consumer products. The facility owner/operator should also be aware that coincidental manufacture of other toxic chemicals that may result from the addition of chemicals to the pond (e.g., Cl₂ may be manufactured when NaOCl and acids are mixed) is not covered by the routine janitorial or facility grounds maintenance exemption.

182. Are pesticides which are used to control algae in cooling water towers exempt?

No, such pesticides would not fit the routine maintenance exemption. The "otherwise use" threshold would apply.

183. Are degreasers used in plant maintenance shops exempt?

No, the degreasers would be considered "otherwise used."

C. Vehicle Maintenance (see also Appendix A: Section 313 Policy Directive #3 -- Motor Vehicles Use Exemption)

184. Please verify that any motorized vehicle operated by the facility, whether licensed or not, is subject to the exemption listed in section 372.38. This includes forklifts, tow motors, automobiles, etc., that contain a motor. Also, please verify that gasoline, lubricants, oils, and anti-freeze are all considered to be substances subject to this exemption.

The exemption includes benzene in gasoline and glycol ether in antifreeze used to maintain and operate a facility motor vehicle. This exemption would not apply, however, in the case of an automobile manufacturing plant. As part of the production of vehicles, such a facility would be incorporating the chemicals into an article for distribution in commerce.

185. In the process of maintaining fork lift truck batteries, they are opened to add sulfuric acid as needed. Is this sulfuric acid reportable under section 313?

No. Section 313 exempts the "use of products containing toxic chemicals for the purpose of maintaining motor vehicles operated by the facility" (40 CFR Part 372.38). That amount would not be included in the threshold determination.

D. Laboratory Activities

186. Does section 313 reporting include laboratory chemicals?

The quantity of a listed chemical manufactured, processed, or "otherwise used" in a laboratory under the supervision of a technically qualified person is exempt from threshold and release calculations. This exemption includes laboratories performing quality control activities and those located in manufacturing facilities.

187. What is meant by "specialty chemical production" as an exception to the laboratory activities exemption?

Specialty chemical production refers to chemicals produced in a laboratory setting that are distributed in commerce.

188. Assume that a quality control laboratory, or area control laboratory, is part of a manufacturing facility. Would it be exempt from calculating threshold quantities and release amounts for listed chemicals?

Yes, assuming that such a laboratory is under the supervision of a technically qualified person and is not engaged in pilot plant scale or specialty chemical production.

189. A facility sends materials which are sampled from processing operations to a laboratory for quality control purposes. Are these quantities exempted under the laboratory exemption, provided that they are handled by a technically qualified individual?

No, any quantity of a covered chemical manufactured, processed, or "otherwise used" must be counted for the purpose of threshold determination. The fact that it is drawn from a process for purposes of quality control testing does not allow the facility to subtract that quantity from the total amount of the chemical factored into the threshold determinations.

190. Is a bench scale or pilot scale reactor for a pilot plant excluded from the laboratory exemption?

A bench scale reactor would not be exempted as part of the pilot plant laboratory activities if it is used to make products distributed in commerce.

191. A facility tests specific components of a machinery line. Its functions include testing for durability of engines, hydraulic systems, power trains, electrical systems and transmissions; building prototypes of products; and qualitative and quantitative analytical testing of materials in a chemical laboratory. Since these activities are test, development, and research oriented, is the facility eligible for the laboratory exemption?

Equipment and component testing are interpreted as the equivalent of a laboratory activity and thus are subject to the laboratory activity exemption.

192. Are the following marine engine testing operations that use listed section 313 chemicals exempt under the laboratory activities exemption: (a) testing of production engines intended for sale in specialized engine test cells; (b) testing engines for research and development purposes in specialized engine test cells; (c) testing for research and development purposes in open water bodies?

Yes, all of the noted operations are considered "product testing" and as such are intended to be included under the laboratory activities exemption.

193. Section 372.38 lists uses of chemicals in laboratories which are exempt from threshold determination and release reporting. It states, "if a toxic chemical is manufactured, processed, or otherwise used in a laboratory at a covered facility under the supervision of a technically qualified individual, as defined in Section 720.3(ee) of this title," it is excluded from 313 reporting requirements. What is that reference?

Section 720.3(ee) is found in Toxic Substances Control Act (TSCA) regulations (40 CFR 720.3(ee)) and defines "technically qualified individual" as "a person or persons who, because of education, training or experience, or a combination of these factors, is capable of understanding" and minimizing risks associated

with the substance, and is responsible for safe procurement, storage, use, and disposal within the scope of research.

***194. The owner/operator of a newspaper has a photography laboratory on-site that produces the pictures that appear in the newspaper. The laboratory does not perform product testing or analysis for the newspaper. The primary function of the photography laboratory is to develop film to be used in the newspaper. Will this photo laboratory meet the laboratory exemption under EPCRA section 313? [40 CFR 372.38(d)]**

The laboratory exemption, 40 CFR 372.38(d), is primarily for laboratories which perform auxiliary functions for the manufacturing or processing activities at the facility. The photography laboratory does not perform an auxiliary function, but performs activities which are essential to the manufacturing of the newspaper, i.e., they make a product (photographs) that are used in the manufacture of another product (newspaper), and is therefore not exempt from reporting under EPCRA section 313.

E. De Minimis (see also Appendix A: Section 313 Policy Directive #2 -- De Minimis Exemption)

195. What is "de minimis" under Section 313?

De minimis refers to a concentration of a listed chemical in a mixture so low that threshold determinations and release calculations are not required. It does not apply to wastestreams, but applies to products purchased, sold, or commercially used by the facility.

196. Please explain the de minimis limitation for mixtures and trade name products.

Listed toxic chemicals present in mixtures or trade name products at concentrations below the de minimis level of 1.0 percent, or 0.1 percent for OSHA-defined carcinogens, do not have to be factored into threshold or release determinations. This de minimis level is consistent with the OSHA Hazard Communication Standard requirements for development of Material Safety Data Sheets (MSDSs).

197. Does the de minimis exemption apply regardless of whether a chemical is present as an ingredient, an impurity, or in a waste?

The de minimis exemption applies to ingredients of mixtures or to impurities present in products processed or used. It does not apply to wastes when chemicals in mixtures above the de minimis level are manufactured, processed or used, and meet the applicable activity threshold. Wastes and releases must be reported regardless of concentration. Further, when your operations create (manufacture) the chemical in waste treatment, the de minimis exemption does not apply.

198. How do we determine whether the de minimis level for a section 313 listed chemical should be 1 percent or 0.1 percent?

The instructions for completing Form R contain a list of covered toxic chemicals with the de minimis level for each.

199. A facility uses a chemical mixture that contains a toxic chemical. If the maximum and minimum concentrations listed on the MSDS range above and below the de minimis concentration levels, how can the facility determine quantities for section 313 compliance?

The amount of the chemical in the mixture that is present above the de minimis level and therefore counts toward the threshold, can be assumed to be proportional to the ratio of the above-de minimis concentration range to the overall concentration range. The concentration of the chemical in the mixture that is not exempt is the average of the de minimis level and the maximum concentration.

200. A raw material contains less than the de minimis level of a listed chemical. During processing, the chemical is concentrated to above the de minimis level in a solid waste that is disposed in an on-site landfill. Should the chemical handled in the process line be included in the facility threshold determination? Do releases from the process line or wastestreams containing above the de minimis level require reporting?

The de minimis exemption applies to the raw material. You do not have to consider it further even if a toxic chemical is concentrated above the de minimis level in a waste.

***201. A small quantity of a listed toxic chemical that is manufactured by a facility is released into a wastestream. Are facility owners/operators required to include the amount of the listed toxic chemical present in the wastestream as part of the threshold determination if the concentration of the toxic chemical in the wastestream is below the de minimis level?**

Yes. The de minimis concentration does not apply to wastes and wastestreams. Therefore, any amount of the listed toxic chemical manufactured directly or as a byproduct must be counted toward a threshold, regardless of its concentration in a process stream or a wastestream.

***202. A facility receives chlorine in 100-ton tank car quantities in concentrations above the 1 percent de minimis level. The chlorine is transferred to a bleaching vessel to make a bleaching mixture, where its concentration drops below the de minimis level. Does the de minimis exemption apply?**

The mixture received by and initially processed by the facility is above the de minimis. Because the facility is processing chlorine at a concentration above the 1 percent de minimis level, the facility must consider the total weight percent of the chlorine in the mixture toward a threshold determination. Any amounts of the chemical that are ultimately released into the environment directly from this processing step should be reported, regardless of the concentration of the chlorine in the wastestream.

***203. How does the de minimis exemption apply to listed toxic chemical residues contained within used or spent containers?**

The "de minimis" concentration does not apply to wastes or wastestreams. The reporting requirements for toxic chemical residues found in used or spent containers depends on what is done with the containers. If the facility sends a container off-site where it is to be refilled with the same chemical, then the residue should not be counted as an off-site transfer. If the facility knows the container will be cleaned out and the toxic chemical residue disposed of, then the facility must count the chemical as an off-site transfer of waste for disposal.

F. Articles

204. Are metal "articles" exempt from threshold determinations in normal processing, use, or disposal?

Metal "articles" are exempt from threshold determinations if, during their normal processing or use no toxic chemical is released and no substantial change in form occurs. Disposal of solid wastes that are recognizable as the processed article is not a release that negates the article status.

205. Please clarify the Agency's policy on releases of less than 0.5 pounds per year.

The Agency has adopted a "round to the nearest pound policy". Therefore, releases or off-site transfers of less than 0.5 pounds per year of a chemical to any environmental media could be rounded down to zero. For purposes of the exemption for articles, if the processing or use of an article(s) results in a release less than 0.5 pounds in a year, the release could be considered zero and the article status would be maintained.

206. A facility cuts metal sheets containing nickel, releasing fumes. It then further grinds the metal to its final shape, producing grindings. For the sheets to retain their article status, releases must be less than 0.5 pound/year to any media. Does this cut-off value apply to aggregate releases of the same type of item being processed or used in the same way or to releases from all manners of processing or use of the same type of item?

The 0.5 pound/year release cut-off value applies to aggregate releases from the same type of item being processed or used in all manners at the facility. This value applies to the total aggregate releases of the toxic chemical from both steps of the process. The various shapes resulting from the cutting are "the same type of item" as the initial sheet. Thus any releases from grinding should be added to those from cutting.

207. Does the article exemption in the section 313 rule apply to preparation of the article? What about processing or using that article?

The article exemption does not apply to the processing of chemicals to make articles. Manufacturing of articles such as tableware is not exempt. When a facility manufactures a metal part and coats it, neither process is exempt.

208. We take copper wire, cut it, and wind it around smaller spools. Is the wire still an article?

If there is no release of a toxic chemical during normal processing of the copper wire, then the wire remains an article.

***209. Copper wire at a facility is cleaned by dipping it into sulfuric acid solution. The acidic solution etches away a portion of the surface of the wire. The wastestream containing the etched copper is sent directly to a POTW and no other releases of copper occur on-site to any other environmental media. Directive #1 in the Questions and Answers document (related to the article exemption) states that "...if the processing or use of similar manufactured items results in a total release of less than 0.5 pound of a toxic chemical to any environmental media in a calendar year, EPA will allow this release quantity to be rounded to zero and the manufactured items remain exempt as articles." Since the copper that is etched from the wire is not released to "any environmental media" (i.e., it goes only to a POTW), is the article exemption [40 CFR 372.38(b)] negated for the copper wire?**

First of all, EPA considers the transfer of a toxic chemical in a waste to an off-site location to be the equivalent of a release to an environmental media. In this example, "copper metal" is not being released. The facility is actually coincidentally manufacturing and releasing a copper compound. When the copper wire is cleaned with sulfuric acid a copper compound, i.e., copper sulfate, is produced. The copper sulfate produced must be applied to the manufacturing threshold for copper compounds. Should a threshold for copper compounds be met, releases and transfers off-site of copper sulfate would have to be reported.

210. I run a metal fabrication facility, SIC code 34. If I cut the metal sheets and send the shavings off-site for reuse, can I consider the metal sheets articles?

If the shavings that are formed during the cutting are the sole releases, and if all the shavings are sent off-site for reuse, and the thickness of the metal sheet does not change during processing, then the metal sheets are still considered articles and are exempt.

211. Is bar stock that is used to make precision tuned parts an article and thus exempt from section 313 reporting? The bar stock is processed to produce parts that in whole or in part retain the basic dimensional characteristic of the bar stock. The production of the part itself is dependent upon the specific shape and dimension of the bar stock.

Bar stock is an article if its basic dimensional characteristics are maintained in whole or in part in the finished product and zero releases occurring during processing. If the end product is totally different in diameter or thickness, then the bar stock would not be an article.

212. Can facilities which extrude copper bars or rods into wire treat the bar or rod as an article?

No, an article has end use functions dependent in whole or in part upon its shape or design during end use. The end use function is dependent upon the copper being in the shape of the wire, so the copper bar cannot be considered an article. If you are changing the shape or form of an item substantially, you are processing the chemicals; the article exemption no longer applies.

213. A facility uses a product that is in pellet form in its manufacturing operations. Is this product considered an article and therefore exempt from reporting under section 313?

A pelletized product is not an article. If it is a chemical or mixture that is in a pelletized form because such form is convenient for further processing by the facility or its customers, then the pellet is not an article and its processing or otherwise using is subject to threshold determinations.

214. A facility uses PCB transformers. Are these considered to be articles, and therefore exempt from reporting under section 313?

PCB transformers are considered to be articles, as long as they do not release PCBs during normal use or if the facility does not service the transformer by replacing the fluid with other PCB containing fluid. (See also: Section 313 Policy Directives - Directive #6: PCBs Threshold Determinations and Release Reporting.)

215. A manufacturer of plastic bottles makes the bottles by blow-molding a mixture of plastic resin and polymer pellets that contain lead chromate (a toxic chemical) and fillers. Once the bottles are made, they are checked for flaws (i.e., a quality assurance check). Any bottles that do not pass the quality assurance test are placed in the facility dumpster and are consequently disposed of in the local municipal landfill. Do these substandard bottles meet the article exemption and thereby exempt the lead chromate from being a release of toxic chemical under section 313?

No. The lead chromate that is sent to the landfill is considered a release of lead chromate since the substandard bottles that are disposed of are waste from the manufacturing process. Manufacture of articles is not exempt.

216. A facility (ship builder) uses lead bricks in ships as ballast. They remain permanently with the ship. The lead bricks could be considered articles and therefore be exempt from reporting. However, they infrequently cut some of the bricks, generating lead dust, which they collect and send to an off-site lead

reprocessor. How should they report? What should be counted towards the threshold if they are not considered articles?

If all of the lead solid waste is recycled (i.e., none released to air) then no "release" occurs. Shipment off-site for recycle does not constitute a reportable release. Therefore, the cut bricks retain their article status. If any emissions of lead occur that are not recycled that exceed 0.5 pounds for a year, then the cut bricks would not be considered articles. In this case, count only the lead in bricks actually "processed" (i.e., cut) toward the threshold determination. For release estimates, only the lead not recycled is counted.

***217. During the construction and repair of ships, small quantities of a listed toxic chemical are released in the form of fumes when steel plates are welded together. The steel plates may qualify as "articles" because they are formed to a specific shape during manufacture and their end use function is dependent upon their shape. Should the amount of toxic chemical released from the steel plates during the welding process be included in determining the threshold?**

If the processing or otherwise use of the articles results in a total release of less than 0.5 pounds of a listed toxic chemical in a calendar year to any environmental media, this release quantity should be rounded to zero and the manufactured items remain exempt as articles. If 0.5 pounds or more of a listed toxic chemical is released, these steel plates are not exempt as articles and the weight of the plates should be included in threshold determinations. For assistance in estimating releases from welding operations, facilities should refer to EPA's Section 313 Reporting Issue Paper entitled "Clarification and Guidance for the Metal Fabrication Industry" (January 1990).

***218. How should a facility owner/operator handle the reporting requirement for toxic chemicals found in industrial and commercial batteries under EPCRA section 313?**

An enclosed item (e.g., maintenance-free batteries) containing a listed toxic chemical is considered an article if the facility uses the item as intended and the toxic chemical is not released. If the facility services the item by replacing the toxic chemical, the amount of the toxic chemical added during the reporting year must be counted toward the threshold determination.

VII. RELEASES OF THE CHEMICAL

219. Is it true that the facility need not make any special effort to measure or monitor releases for section 313 reporting and may use information that is on hand? If this is true, how will section 313 reporting produce complete data for the public on environmental releases?

The law states that covered facilities need not conduct monitoring or other activities beyond that required by other statutory or regulatory requirements. Congress included this language to limit the burden on the affected industry for development of release and other required data. Without measurement or monitoring data, the facility is required to make reasonable estimates.

220. Section 313(g)(2) of the statute states that the owner or operator of a facility may use readily available data. In some cases, the available data may be known to be non-representative and reasonable estimates offer more accurate release information. Would EPA, in this instance, favor use of the estimates rather than data?

Yes, it is preferable to use reasonable estimates if monitoring data is known to be non-representative.

221. What is the definition of a chemical "release" under section 313?

The law defines a release as any "spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing to the environment". Under section 313, facilities are required to take into account in their reports both "routine" and "accidental" releases to any environmental medium.

222. When reporting release estimates on Form R, release estimates are required to be rounded to no more than two significant digits. Should release estimates always be reported in whole numbers, or should decimal places be reported in certain instances?

When reporting release estimates on Form R, always report using whole numbers (i.e., round to the nearest pound).

223. Is the disposal of wastes such as dusts, shavings, or turnings that result from grinding or drilling of metal items considered "releases of toxic chemicals"?

Yes, such releases of "non-recognizable" solid wastes such as dusts, shavings, or turnings are considered releases of toxic chemicals.

224. Tank trucks and rail cars physically enter a facility. While loading, toxic chemical emissions occur. Are these emissions subject to reporting under section 313?

Yes, because the loading and the releases occur within the facility boundary, the releases must be reported if the applicable activity threshold is exceeded for the toxic chemical.

225. Are barge loading/unloading releases exempt?

Such releases must be reported if the barge terminal is part of a covered facility.

226. Are releases from lab hoods considered fugitive air emissions?

The releases from lab hoods are point source air emissions. Therefore, the releases should be accounted for in Part III, Section 5.2 of Form R.

227. Do we need to report leaking, abandoned landfills? What if we don't know if it is leaking?

Leaks from landfills need not be reported. EPA requires reporting of the amount of a chemical placed in an on-site landfill during the year. It is not necessary to estimate migration from the landfill.

228. A facility discharges waste containing listed section 313 metals to an on-site cooling pond. The metals accumulate and settle over time, and the water is then drained from the cooling pond, leaving the heavy metal sludge. The sludge is then dredged and sent off-site to a recycler. How should this be reported?

The ultimate disposal of listed chemicals from the facility during the reporting year must be reported. Chemicals remaining in the sediments are "released to land." Chemicals sent to a receiving stream when the waste water is drained are "released to water." Materials dredged and sent off-site for recycle of the

chemical are not reported as a release or transfer; others sent off-site not for recycle are reported as a "transfer off-site."

229. How are chlorine releases reported? Must chlorine, CAS number 7782-50-5, be reported if it is transformed into another chemical compound during the release process?

If chlorine is present in waste released by a facility it must be reported even though the chlorine may be transformed in the environment subsequent to the release. If the chlorine is transformed in the wastestream prior to release, the facility must still report if an activity threshold is met, but the amount reported may be zero.

230. I process a plastic pipe which is 3 percent formaldehyde. I also know how much formaldehyde is emitted when I process the pipe. Do I need to report these emissions?

Yes, if the processing threshold for formaldehyde is exceeded.

231. A facility buys and sells rigid polyurethane foam insulation containing a fluorocarbon. If the fluorocarbon is Freon 113, would they have to report the Freon 113 released to the air when they cut the insulation?

Freon 113 is a frothing agent used to produce rigid polyurethane foam and is intended to remain in the foam cells to give it density and insulating value. If foam containing higher than the de minimis concentration of Freon 113 is cut, releasing the chemical, that foam cannot be considered an article. The Freon 113 in cut foam pieces counts toward the processing threshold and if the threshold is met, the facility must report the chemical released when the insulation is cut. Normal/natural diffusion of Freon 113 from the foam does not have to be considered a release.

232. Our facility paints metal cabinets and the paint solvents contain a listed toxic chemical. The system consists of a closed vacuum vented painting room and a closed oven room vented by an oven stack. Is the vent to the outside of the building over the painting room a "releases from building ventilation systems" fugitive emission?

No, fugitive releases are emissions that are not in a confined directional air flow. Since your building vent system over the painting room is a confined air stream, it can be combined with the oven stack as a stack or point emission in Part III, Section 5.2 of Form R.

233. A facility has a liquid wastestream which is incinerated. The incineration is 99.9 percent effective and eliminates the liquid wastestream. However, the 0.1 percent is released to air as a gaseous wastestream. Does the facility need to report this wastestream in the waste treatment section of Form R?

The facility does not need to report a gaseous wastestream in Part III, Section 7 of Form R. The liquid wastestream is 100 percent treated through incineration. The air emissions created, if any, would be reported as a release to air and the quantity would be included in Part III, Section 5.2, stack or point air emissions. If the air emission is further treated then that air emission would be listed as a gaseous wastestream and the treatment documented in Part III, Section 7.

234. Where does one report routine leaks from pipes? Would these be reported as disposal to land?

Reporting leaks from pipes requires determining where the released material goes. A material that evaporates would be reported as a fugitive air emission. A nonvolatile material leaking onto land, or any

material leaking from an underground pipe, would be reported as a release to land, and entered in Part III, Section 5.5.4, Other disposal.

235. A facility mines magnesium-rich brine from an on-site well. After extracting the magnesium, it disposes of the brine in on-site disposal wells. In order to keep the disposal well formation clean and usable, the facility pumps 280,000 pounds of hydrochloric acid into the wells. It considers this an "otherwise use" of the acid. Since the acid would be neutralized before it leaches off-site, is it also a release to land?

The facility must consider their use of hydrochloric acid as a release to land even though the acid is neutralized in the process of cleaning the well. EPA does not allow facilities to take credit for conversions of the chemical in the environment after that chemical has been released by the facility.

***236. A manufacturing facility uses more than 10,000 pounds of friable asbestos in a diaphragm cell process during the course of calendar year 1989. During the process, material containing friable asbestos is washed in a treatment unit, where it coagulates and is removed by a pressure filter. The filter cake containing asbestos is wetted with ethylene glycol, and the resulting filter cake/ethylene glycol mixture is subsequently landfilled on-site in a closed container. Should the facility report the placement of this asbestos in a landfill as a "release to land" on the EPCRA section 313 Form R [40 CFR 372]?**

EPA interprets "friable," under EPCRA section 313, "...as being crumbled, pulverized, or reducible to a powder with hand pressure." (53 FR 4519; February 16, 1988) Facilities are required to report on-site releases or off-site transfers of only the friable form of asbestos. In the above scenario, the ethylene glycol/asbestos mixture is not considered to contain friable asbestos since the asbestos contained therein is wet (i.e., with ethylene glycol).

237. A section 313 substance is emitted as an air particulate which deposits on the facility grounds or roof, such that it will be washed into a NPDES-permitted pond or swept into a solid waste pit for landfill. Will the release be reported as a release to land or water, but not air? This would prevent a substance from being reported twice, once as an air emission, and once as a water/land emission.

If the facility can develop a supportable estimate that part of a release to air is deposited within the facility (and subsequently collected or deposited in an on-site landfill or surface impoundment), then these quantities can be separated from the air release figure(s) and reported as released to land (on-site). The remaining air releases, not deposited on the facility, would be reported as releases to air.

238. Do the section 313 reporting requirements overlook the possibility that a substance can lose its identity as a side product in a reaction, and that the difference between "input and output" volumes may not always be due to a release?

The section 313 rule does recognize that a chemical can lose its identity in a reaction. The facility has to account for the amount they either manufacture or process regardless of whether the chemical is converted to another chemical in the process. Releases must then be calculated for any part of the process involving the chemical.

239. If a facility monitors for a chemical and the measurement is below the limit of detection of the method, can they report zero releases?

Although monitoring results may be below detectable limits, this does not mean that the chemical is not present. The facility must use reasonable judgment as to the presence and amount of the chemical; one approach is to use half the detection limit as the wastestream concentration. The facility should not

estimate releases based solely on monitoring devices, but also on their knowledge of specific conditions at the plant.

240. If a company measures its own leaks (valve, flange, pump, etc.) and determines a new fugitive factor, is this code "E" or "M" or "O"?

The company should use the code "M" if it measured releases of the chemical from its equipment at the facility to determine its release amount. "E" is used only for published emission factors which are chemical specific. However, in this case, the company would use "O" which is used if it measured leaks generally or applied non-published factors developed at other facilities.

241. If total releases are obtained using combination of basis, how do we report "Basis of Estimate" in Section 5, Column B?

Report the basis used to calculate the major portion of each release entry. See the examples in the instructions to the form.

242. Are SOCFI (Synthetic Organic Chemicals Manufacturing Industry) emission factors applicable to the petroleum refining industry as well as organic chemical manufacturers?

Yes, SOCFI fugitive emission factors can be used for the petroleum refining industry even though they are based upon synthetic organic manufacturing. The refinery user would have to correct for differences in concentrations of the mixtures, because SOCFI factors are based upon pure substances being released.

243. EPA's fugitive emission factors for equipment leaks for the Synthetic Organic Chemical Manufacturing Industry (SOCFI) and some air emissions factors listed in EPA's document AP-42, "Compilation of Air Pollutant Emission Factors," are not chemical specific. Should the basis of estimate code be entered as "E" or "O"?

Use "O" for non-chemical-specific emission factors.

244. Should we report the composition of stormwater as it falls from the sky or do we report its composition once the rainwater has run off soil?

The composition should be counted once the rainwater has run onto and off the soil, equipment, concrete pads, etc. as a portion of the total facility release to surface water.

245. How does one use the storage tank equations in Appendix C to estimate air emissions for a specific chemical in a liquid mixture?

You must estimate emissions of the total mixture using average molecular weight and vapor pressure for the mixture, then multiply by the weight fraction of the chemical in the gaseous emission. The required formulas are found in this technical guidance document but are not listed in a step-by-step procedure.

246. The emission factors used to estimate releases to air from leaks in pipes are time dependent. What amount of time should be used to determine fugitive emissions from emission factors?

In using emission factors to determine fugitive emissions to the air from leaks in pipes, a facility must use the total amount of time which a pipe contains the toxic chemical, since a release will occur whether a chemical is moving or stagnant in the pipe.

247. How does a facility owner or operator estimate fugitive or working losses from drums contained in a warehouse or storage facility?

Fugitive emissions from drums in storage at a covered facility may include emissions from opening and emptying the drums. The facility may consider each drum as a small tank and estimate the amount of toxic chemical contained in the vapor space using methods such as partial pressure determinations found in EPA's technical guidance document, Estimating Releases and Waste Treatment Efficiencies for the Toxic Chemical Release Inventory Form.

248. Is there any recommended approach for estimating emissions from facilities whose raw material is of a constantly varying and unknown composition. For example, tar plants receive crude coal tar in batches. No analysis is done on incoming raw materials or on products (or on intermediates) at such facilities.

If available, data on the average composition for the specific material or published data on similar substances should be used.

249. If off-site reclaimers are not to be included in the off-site locations which handle wastes, are emissions discharged by these reclaimers included as point emissions or are they not reported?

A facility owner/operator should not report either transfers for off-site recycling of the chemical or the chemical releases from such a reclaimer. The facility owner/operator is only responsible for reporting toxic chemical releases from this own facility.

250. If the calculated threshold of a listed toxic chemical is based on the mass utilization of the solution, would the emission of a wastewater stream containing 1 ppm of the toxic chemical be the actual mass of the chemical or the mass of wastewater?

Only the actual mass of the toxic chemical being released should be reported.

251. We manufacture paint and one of the chemicals we use is toluene. We used the "Estimating Releases" guidance document but the answer given is for toluene and mineral spirits and thus is much too high. Can we use the 6 percent present in the paint mixture times the number and report that?

The partial vapor pressure of toluene in formulations, which is a function of its vapor fraction and mole fraction (not weight percent), can be used. See Appendix C, Note (1), p. C-6 of Estimating Releases and Waste Treatment Efficiencies for the Toxic Chemical Release Inventory Form, EPA document 560/4-88-002.

252. How should a facility estimate emissions from horizontal storage tanks? The AP-42 equations were developed for vertical tanks.

For fixed roof tanks, the working loss equation for vertical tanks can be used. For breathing losses, one can still use the vertical tank equation, except that an effective tank diameter must be substituted for D in the equation. D is the square root of $\{(4)(\text{area of liquid surface})\}/3.14$. H is the same as for vertical tanks.

253. How can one estimate emissions of chlorine from use in cooling water treatment? We have tried to estimate the emissions for some cooling water systems based on the amount of water evaporation, wind drift, and the amount of chlorine used, but the releases seem too high.

Estimating emissions based on the amount used overestimates release since: chlorine is only slightly soluble in water, reacts with chemicals in the water, and dissipates in side reactions. Measured residual chlorine times recirculation rate times lost water fraction may also overestimate release (residual includes other forms of chlorine), but may be the only way to make a reasonable estimate. There are no readily available emission data on chlorine from cooling water systems.

254. In Part III, Section 6 of Form R (discharge to POTW), if the facility monitors hydrogen chloride in waste and the pH is above 6 (considered to be 100 percent neutralized), would the release reported be zero or NA?

No toxic chemical is released to the POTW. However, since there is a potential for release of the particular chemical to the POTW, the POTW should still be listed on Part II of Form R and the releases to the POTW in Part III, Section 6 of Form R would be reported as zero rather than NA.

255. If H_2SO_4/HCl (sulfuric acid/ hydrochloric acid) were spilled outside a building on a facility and an absorbent (e.g., kitty litter) was used to absorb the toxic chemicals, would the use of the absorbent be listed as a treatment and be reported under Part III, Section 7 of Form R?

No, the use of the absorbent would not be considered a treatment. Only if the acids were neutralized would that activity be considered treatment. If the absorbent were drummed and sent to a landfill, that would be listed as a transfer to an off-site location. Any acid left on the ground must be accounted for as a release to land.

256. Form R requires estimates of the release to the environment of chemicals in specific release categories. If a facility is unable to complete its estimate of these releases by the deadline, should the company leave that entry blank and promise a future estimate, or make the best estimate possible and submit later revisions?

Any covered facility must report by July 1 for the previous calendar year, and the data provided should be the best estimate using the best data available; records supporting the data must be kept for three years. If more accurate data are developed, the facility may submit revised forms. EPA can take enforcement action if they believe that the data do not represent reasonable estimates.

257. For releases or transfers off-site that are reported as zero, what should be reported as a basis of estimate? If we put "NA" (i.e., there's no potential for release) is it necessary to put "NA" in "the basis of estimate" column of the Form R?

Leave the basis of estimate box blank or enter NA. If you report zero ("O") releases then you need to supply a basis of estimate.

258. Explain the naming of receiving streams.

You are required to report the name of each stream "to which chemicals being reported are directly discharged". If you have no such discharge, enter "NA".

259. A facility determines that it can estimate stormwater releases of a listed chemical from the facility. However, such releases go to a city-owned storm sewer system and the facility has no direct knowledge of the receiving stream or surface water body to which the chemical is ultimately released. What do they report as the "receiving stream" on Part I, Section 3.10(a) of the form?

The facility would put "city-owned storm sewer" or the equivalent because this is all they know. To leave the receiving stream item blank or put "NA" would be identified as an error when the Form R is entered to the computerized database of section 313 data.

260. If a facility has a cement lining or other leak restricting device in the area where they store toxic chemical containers and a release from the stored chemicals occurs, how is this reported on Form R?

If the facility does not have specific measures for land filling, land farming, or land disposal, then for the purposes of Form R, the releases would be entered on Part III, Section 5.5.4, Other Disposal. This would apply to amounts released that were not "cleaned up" and removed from the site or otherwise treated and disposed on-site.

261. If a POTW has no current estimate of treatment efficiency for each section 313 chemical, is "NA" acceptable?

You need not report the treatment efficiency for any off-site facility to which transfers of toxic chemicals occur. Facilities must account for the annual quantity of the listed toxic chemical(s) released to a POTW, but are not required to estimate the treatment efficiency of the POTW.

262. What are the technical guidance manuals for specific industries?

These documents help specific industries or operations to determine reporting requirements and estimate releases. They cover: electroplating; semiconductors; textile dyeing; wood products manufacture and preservation; organic coatings application; rubber production; printing; paper and paperboard; leather tanning; monofilament fiber manufacture; formulating aqueous solutions.

263. Why are the range codes grouped together in logarithmic scale?

For quantities on-site, the ranges were patterned after TSCA inventory reporting as suggested by Congress.

***264. A waste stream containing hydrochloric acid is neutralized to a pH of 5.5 and then released to a river. How does one calculate the amount of hydrochloric acid that is released to the river?**

Under EPCRA section 313, EPA considers a hydrochloric acid waste stream that has been neutralized to a pH above 6 to be completely neutralized. However, if the pH is below this level (e.g., 5.5), calculate the amount of hydrochloric acid released based on the amount of base it would take to raise the pH of the stream to 7 (not 6). It should be noted that releases to surface water must be between pH 6-9 as mandated by the Clean Water Act. For more information on pH measurements, EPA has published "Estimating Releases and Waste Treatment Efficiencies for Mineral Acid Discharges Using pH Measurements."

***265. A manufacturing facility otherwise used benzene in excess of a reporting threshold during each of calendar years 1988 and 1989. In 1988, the facility generated wastes containing benzene and placed these wastes in an on-site lagoon. The benzene in this waste was reported as a release to land on the Form R**

for benzene for calendar year 1988. In 1989, the sludge in the lagoon was transferred to an on-site landfill. During the transfer, some of the benzene in the sludge was released to air. For purposes of reporting under EPCRA section 313, does the owner/operator need to report releases to an on-site landfill and/or fugitive air emissions of benzene on the Form R for Benzene for the 1989 calendar year?

The facility should not have reported all of the benzene which was transferred to the on-site lagoon as a release to land. The majority of the benzene will evaporate. The purpose of sending a waste to a lagoon is so that the volatiles (in this case benzene) will evaporate and the solids will settle. The facility should have determined, to the best of its ability, what percentage of the benzene evaporated. It should have reported this amount as a fugitive air emission. The balance should have been reported as a release to land. When completing the Form R for benzene for calendar year 1989, the facility would not report as a release to land any benzene in sludge that was transferred from the on-site lagoon to the on-site landfill as this material was already reported as a release to land on the Form R for the previous year. However, the facility must report on the Form R for benzene for calendar year 1989 any air emissions of benzene that occurred as a result of transferring the sludge from the on-site lagoon to the on-site landfill.

***266. A manufacturing facility that produces electricity by burning coal stores the coal in an on-site stockpile that is exposed to the outside atmosphere. The facility meets the threshold criteria [40 CFR 372.22] for filing a Form R for the toxic chemical benzene. Since the stockpiled coal contains benzene and is exposed to the outside atmosphere, would all the benzene in the coal need to be reported on EPCRA section 313 Form R as released to land on-site?**

No. A facility does not have to report toxic chemicals contained in an on-site stockpile of material that is intended for processing or use as a release to land on-site. However, any toxic chemical that escapes to air or remains in the soil from the stockpiled material (e.g., evaporative losses to air, material leached to the ground, etc.) must be reported as released to the environment on-site. Once a facility meets the criteria for filing a Form R under EPCRA section 313 for a toxic chemical (such as benzene), all releases of that chemical at the facility are to be reported.

VIII. WASTE TREATMENT METHODS AND EFFICIENCY

267. Does the waste treatment section apply only to the facility completing the report?

Yes, this section of Form R applies only to the treatment of toxic chemicals that occur at the reporting facility.

268. Where multiple sources are combined for treatment, should each source be listed in the Part III, Section 7 of Form R with a common efficiency, or should only the combined stream be shown?

Report only the combined (or aggregate) wastestream and report the treatment and its efficiency. However, a wastestream that is treated before combination with other wastes, which are then subsequently treated, should be reported on a separate line.

269. A facility has a sequential treatment process in which the influent concentration and treatment efficiency for each step is known. How should they report on the form?

The facility may report in either of two ways: (1) Report influent concentration for the first step and report overall treatment efficiency for the entire process as per the instructions and check the sequential treatment for each step; or (2) Report each influent concentration and efficiency for each step. In this

case, do not check sequential treatment boxes, as this will create confusion as to the meaning of the efficiency listed in the last treatment step.

270. If a wastewater treatment system contains an oil skimmer or other phase separation treatment, is this reported as a sequential treatment step for each of the separated phases, or for just for one phase?

The separation step is a sequential treatment step for one liquid phase (the one with the larger volume, in this case, water). The other phase must be considered a new wastestream and must be listed separately on the form if treated subsequent to its separation.

271. We send our sludge to a biological treatment device on-site. The microbes in the system exist in a buffered solution. As a result, the toxic chemical (a mineral acid) in the sludge is neutralized (pH 7.3). How do I account for biological and neutralization treatment in one process in Part III Section 7 of Form R? After that, the waste goes to settling ponds where solids settle out. Is this also a sequential treatment step?

List the biological treatment first with a zero efficiency because it does nothing to the toxic chemical. Enter the neutralization treatment with a 100 percent efficiency since pH 7.3 is considered complete neutralization for an acid. Check the sequential treatment box. As for the settling ponds, the toxic chemical ceased to exist upon complete neutralization, so this step does not need to be included in Part III, Section 7 of the Form R for the mineral acid.

272. On-site wastewater treatment plant sludges which may contain trace amounts of section 313 chemicals are composted on-site. The finished compost is then used as daily cover for the on-site sanitary landfill and for landscaping around the site. Is this considered land treatment, land impoundment, or not a release?

The amounts supplied to the on-site sanitary landfill as cover should be reported on Part III, Section 5.5.1 of the Form R. The amount used for landscaping on-site is exempt under the facility grounds maintenance exemption (40 CFR 372.38(c)(2)).

273. A facility uses one vat to store either hydrochloric acid or sulfuric acid, depending on their orders. When the vat is emptied of one acid, it is treated with a caustic material and rinsed with water before the other acid is stored. The resulting wastestream is above pH 6. Does a new wastestream have to be entered in Part III, Section 7 of Form R each time the vat contents switch?

No. Enter one line of waste treatment data that describes the treatment of each listed acid that is being reported.

274. We have two waste streams, one contains "an unlisted caustic material" and the other HCl, which are combined for neutralization; they then stay in the settling pond until the solid settles out. The water is sent to a POTW, the solid to a landfill. How should we report on these chemicals? When does a toxic chemical cease to exist by neutralization?

Neutralization is the treatment method for HCl. If the pH is above 6, then the efficiency is 100 percent -- no HCl is released -- no off-site transfer need be reported. If the waste is acidic, report transfer of HCl off-site and calculate efficiency from input and remaining acid.

275. If a listed toxic chemical (i.e., mineral acid) is spilled, but neutralized before leaving plant boundaries, should the quantity spilled be included in the facility's release report?

If the chemical is 100 percent neutralized, no quantity should be reported.

276. How is an auxiliary scrubber that is designed and used only to mitigate emergency releases reported?

The influent concentration and treatment efficiency of the scrubber as it operates during an emergency event should be reported. The emergency scrubber is not considered to be "sequential" treatment with a scrubber which treats routine emissions from the same process, unless the two units function in series on a single wastestream.

277. Should the influent concentration to treatment for metal compounds be reported for the parent metal only?

Yes, because only releases of the parent metal are reported on a Form R for a listed metal compound category.

***278. A waste stream containing glycol ethers is sent through several treatment steps, none of which are specifically intended to remove the glycol ethers. During the settling process, some of the glycol ethers present in the waste stream unintentionally evaporate into the ambient air. Should the facility owner/operator report the glycol ether as being treated and, if so, what waste treatment efficiency estimate is reported?**

Any releases of a listed toxic chemical, even during treatment, must be estimated and reported in Part III, section 5 of the Form R. Part III Section 7 of Form R must be completed if a waste stream containing the glycol ethers is treated, regardless of whether the treatment methods actually remove the glycol ethers. If, for whatever reason, glycol ethers are removed during the treatment of a waste stream, the owner/operator should use the best information available to determine how much of the glycol ethers are removed during the treatment process and use this information to estimate a "treatment efficiency" for the toxic chemical.

***279. A facility manufactures a chemical in a reactor. Attached to the reactor is a water cooled condenser, the function of which is to condense escaping unreacted starting material and reaction solvent (here, toluene). The facility used a threshold amount of toluene during the calendar year and must file a Form R for toluene. Owners/operators are required to report on-site treatment of wastes containing a toxic chemical in Part III section 7 of Form R. Would the condensation of escaping vapors constitute "treatment of a wastestream" containing a toxic chemical (i.e., toluene)?**

No. Processes that recycle or recover a toxic chemical are not waste treatment steps although, like any process step, they may generate a waste which may then be treated.

***280. A facility owner/operator has a conservation vent on a bulk storage tank. The conservation vent prevents emissions from the tank during material loading, unloading, and storage. Should this conservation vent be listed in Part III section 7 of Form R as a waste treatment method since it is reducing the toxic chemical emissions from the tank?**

No. Part III section 7 of Form R is only for the description of waste treatments that occur on-site. In the above scenario, the conservation vent is functioning as a preventive device; that is, the conservation vent

does not function as a waste treatment step. (Another example of a preventative device is a floating roof storage tank, the function of which would not be considered waste treatment.)

IX. TRANSFERS TO OFF-SITE LOCATIONS

281. A facility sends waste containing a section 313 chemical off-site to a TSDF which, in turn, sends the waste to another facility for recycling. Should the facility report this activity, since the waste is ultimately recycled? Or should they report as M90: Other Off-site Management in Part III, Section 6C, since it is a location to which they transfer wastes?

Part VII of the preamble to the section 313 final rule states that "transfers to a reprocessor or recycler of chemical waste are not reportable as off-site transfers." Since the reporting facility knows the toxic chemical is ultimately being recycled or reprocessed, the facility would not report the off-site transfer. If the facility could not document that the waste was being recycled, it must report the off-site transfer.

282. The section 313 instructions require listing of different types of treatment for a particular waste sent off-site to the same location. Does this apply to sequential treatment of waste at the same location? Should the same estimate for amount sent off-site be entered for both treatment steps or just the final treatment step?

For waste sent off-site to the same location, the reporting facility is not required to list sequential treatment steps. For wastes that are sequentially treated off-site, the facility would provide one code that best describes the type of treatment occurring as a sequence and report the total quantity of the toxic chemical sent to this off-site location. If however, a waste sent offsite is treated in two different ways (e.g., half incinerated, half landfilled) enter the amounts to each.

283. What about shipment for recycle? For example "empty" drums containing a residue of a toxic chemical are sent to a drum remediation site which is not a treatment, storage, or disposal facility. Are such facilities listed as off-site TSD facilities? (The chemical is not being recycled, but the containers (i.e., the drums) are being recycled.)

Shipments for recycle of the chemical should not be reported. However, recycle of drums or recycle of other constituents of a waste does not qualify as recycle of the chemical; such transfers should be reported. The example cited should be reported as an off-site transfer with appropriate code such as M99- unknown, or M61- wastewater treatment in Part III, Section 6C of Form R.

284. Why does the section 313 Form R require disclosure of off-site locations to which toxic chemicals are transferred? The Act only requires the disposal method employed.

The conference committee report directed EPA to require reporting of releases to air, water, land, and waste treatment and disposal facilities. Legislative history treats off-site facilities as an equivalent environmental medium. EPA believes Congress intended to include reporting of quantities and locations of off-site waste treatment and disposal facilities to identify how and where chemicals enter the environment.

285. Some waste brokers recycle or resell to other "disposers." By considering the treatment disposal category waste broker (M91) as a release under section 313, could releases be double-counted?

A facility would not double count by using the waste broker code if that is the only or last recipient of the waste that they have knowledge of. An off-site transfer is not considered a release, and waste brokers may not report under section 313 because their facility may not be in SIC codes 20-39.

286. If a waste is sent to an off-site facility to be recycled or reclaimed, does the material meet the requirements for being recycled or reclaimed for the purposes of section 313 regardless of what the off-site recycling facility actually does with the waste?

The recycling "exemption" must be based on the positive knowledge that the listed chemical being reported is actually recycled, recovered, or reused by the off-site facility.

287. Some toxic chemicals shipped off-site are manifested by a handling code that relates to "Transfer Station." They must also list the location to which the waste was last shipped but not the ultimate disposal or treatment site. In Part II, Section 2, "Other Off-Site Locations," should reporting facilities list the transfer station "waste broker" as indicated by the manifest or list the facility which ultimately disposes of or treats the toxic chemical?

The reporting facility should list the "ultimate" destination of which they have knowledge. If the last known destination of the waste is the transfer station, then the facility would use the code for waste brokers (M91) on Part III, Section 6C of Form R.

288. A facility receives chemicals in a tank car. The car once emptied remains at the facility for a period of time before being returned to the supplier (or wherever). Does the residue in the tank car that leaves the facility have to be counted as an off-site transfer for section 313?

If the facility knows the car will be refilled, the residue is not counted as an off-site transfer. If the facility knows it will be cleaned out and the quantity disposed, it must be counted as an off-site transfer.

289. Chromium dioxide is part of a waste stream sent to an incinerator. In the incinerator, the chromium dioxide is reduced to elemental chromium that remains in the ash. The ash containing elemental chromium is mixed with cement and sold. Is this toxic chemical recycled or reused and therefore not reported as an off-site transfer?

The chromium compound can be considered reused because the off-site facility is incorporating it into a product distributed in commerce. According to the information provided, the ash containing the chromium is not being disposed of by the off-site facility. Thus, for purposes of the section 313 regulation, the chromium compound sent to this location does not have to be reported as an off-site transfer.

290. A facility treats their wastewater on-site and discharges it to a pipe which runs through a POTW and then on to a stream. The POTW does not treat the waste but monitors the wastewater and allows it to pass into the stream if it meets treatment standards. If it does not meet standards, the POTW shuts a valve in the pipe. The wastewater is released under the POTW's NPDES permit. How should the wastewater be listed on Form R?

The facility should consider the wastewater as a transfer off-site to the POTW since the POTW is ultimately responsible for the release. The POTW has the authority to allow or prevent that release and it enters the stream under their NPDES permit.

291. How do we treat a solvent sent off-site for distillation and returned to us for use?

The amount of solvent sent to another facility for distillation is not reported as a transfer of the chemical to an off-site location (e.g., it should not be reported in Part III, Section 6 of Form R). The quantity of the solvent returned to you must be treated as if it were a quantity of the chemical purchased from any other supplier and must be used for threshold determination.

292. What RCRA ID number does a facility list if it sends a non-hazardous waste containing a section 313 chemical to a solid waste landfill?

If an off-site location such as a solid waste landfill does not have a RCRA ID number, the facility would enter "NA" in the space provided. If the facility does have such a RCRA ID number, it must list the number if known, even though the waste being transferred may not be a listed RCRA hazardous waste.

293. Our facility produces 200,000 pounds of waste annually. Of that amount, we treat 100,000 pounds on-site and send 100,000 pounds to an off-site treatment plant that has a 99.9 percent efficiency. Can we factor in the efficiency when we report the off-site transfer amount in Part III, Section 6 of Form R?

That section of Form R requires you to report the actual amount of toxic chemical you send off-site. The efficiency would be taken into account by the off-site facility if they are reporting under section 313.

294. A printer uses a solvent to clean presses and sends soiled rags to a launderer. Is the material sent to the launderer considered waste transferred to an off-site location? Which disposal code should be used?

The material sent to the launderer is considered an off-site transfer. The facility could use code M90 - Other Off-site Management or M99 - Unknown in Part III, Section 6C of Form R.

***295. A manufacturing facility sends paint thinner waste to a firm for fuel blending purposes. Should the amount of toluene and xylene in the waste be reported on the Form R, Part III, Section 6 as a transfer off-site?**

A listed toxic chemical sent off-site for fuel blending or that adds energy to a heat recovery activity is considered recycled or reused. Therefore, the quantity of the listed toxic chemical does not have to be reported as an off-site transfer on Form R. However, other reportable chemicals in the waste mixture (e.g., metal pigments) that are not blended into fuel or that do not add heat value to energy recovery upon combustion must be reported as off-site transfers.

X. WASTE MINIMIZATION

296. What is waste minimization? Are solid wastes as well as hazardous wastes included?

Waste minimization means reduction of the generation of listed toxic chemicals in wastes. Waste minimization reporting applies to air emissions, solid wastes, wastewater and liquid materials that are released, disposed, or treated.

297. What do facilities that have not performed any waste minimization include in the report?

The waste minimization portion of the reporting form is optional.

298. Where can facilities obtain waste minimization figures from the previous year?

Companies can obtain waste minimization information about the year prior to reporting from various sources, including (but not limited to) inventory data, recycle/reuse data, engineering reports on process modification, and product development studies.

299. If a facility modifies a process for economic reasons which results in a waste reduction, should this be reported as minimization?

Yes. Any changes that result in less of the listed toxic chemical being generated in waste may be included. Codes are provided to identify changes. Examples include equipment and technology modifications, process changes, procedure modifications, and improved housekeeping.

300. Would RCRA-permitted incineration of waste count as waste minimization under M8 (Other Treatment Methods)?

No. Treatment or disposal can not be reported as waste minimization on Form R. The emphasis is on facility activities that reduce generation of wastes, not treatment of wastes.

XI. TRADE SECRETS

301. How can the identity of a listed toxic chemical be protected from disclosure for trade secrecy purposes?

Section 313 allows only the specific identity of a chemical to be claimed as a trade secret. The rest of Form R must be completed, including releases of the chemical. For trade secrecy claims, two versions of Form R (one identifies the chemical, the other contains only a generic chemical identity) and two versions of a trade secret substantiation form must be completed and sent to EPA.

302. On Form R, if I don't check the "Trade Secrets" box in Part III, Section 1.1, what other blocks can I leave blank? Do I still have to fill in the CAS number?

If the chemical you are reporting is not a trade secret, the CAS number must be filled in along with the chemical name (Part III, Section 1.3). However, if you are reporting for a chemical category, no CAS number applies. Trade secret claims require that the generic name (Section 1.4) be completed.

303. How can competitors find out what has been reported to EPA?

Any person, including a competitor, can gain access to the non-trade secret reports received under section 313. Except for the specific identity of a reported chemical that is claimed trade secret, all information received under section 313 is public information. All non-trade secret information reported will be available in a computer database.

304. For claiming trade secrets under EPCRA, would disclosure, without a confidentiality agreement to the State and/or city having jurisdiction, negate a chemical identity's trade secret status under Federal provisions?

In general, any disclosure of a chemical identity would negate the chemical identity's trade secret status under Federal provisions. Once the trade secret claim is made, State governors are permitted to request the specific chemical identity. The decision to provide information to any state employee is left to the governor's discretion.

305. How will trade secret data be protected when EPA publishes health effects notices for the public?

A generic statement of the health and environmental effects of the chemical will be made available through the computer database.

306. A company with both domestic and foreign operations wishes to file a EPCRA trade secrecy claim. All non-government entities in the foreign country are bound by a confidentiality agreement regarding a chemical's identity and usage. However, there is no such agreement with the foreign government because of its statutory guarantee of confidentiality for foreign business interests. Does this constitute public disclosure?

Since there is no tangible "confidentiality agreement" this disclosure is reportable. Question 3.2 on the trade secret substantiation form should be checked "Yes." However, since the foreign government's law guarantees confidentiality, regardless of a tangible agreement, the identity and usage of the chemical has not been disclosed and is being protected, and this should be included in question 3.1 asking about confidentiality measures.

XII. CERTIFICATION AND SUBMISSION

307. Where and how do I get copies of the forms?

Copies of Form R and other support documents may be obtained by contacting: Emergency Planning and Community Right-To-Know Document Distribution Center, P.O. Box 12505, Cincinnati, Ohio 45212.

308. Are there any extensions that a facility could get for filing Form R?

No. All toxic chemical release inventory forms must be postmarked no later than July 1. No extensions will be given.

309. Can computer-generated forms be submitted for compliance with section 313?

The Agency has approved the facsimile outputs of certain privately developed software packages. A list of the providers of software packages has been made available by EPA. Contact the Emergency Planning and Community Right-to-Know Information Hotline for more information.

310. What is the status of magnetic media submission (e.g., on tape or floppy disk) for section 313 reports?

The Agency has published instructions for magnetic media submission.

311. The instructions state that photocopied versions of Part I may be submitted. Does this mean that a senior official at a facility, certifying the validity of the forms, only has to sign one submission?

No. The final rule states that each unique chemical submission must contain an original signature. The purpose of this requirement is to ensure that the certifying official has reviewed each chemical submission. A photocopied signature does not fulfill this purpose and would be considered an incomplete submission.

312. Form R is to be submitted on or before July 1 of the year following the reporting year. When is the official due date if July 1 falls on a Saturday or a Sunday?

If the reporting deadline falls on a Saturday or Sunday, the EPA will accept the forms which are postmarked on the following Monday (i.e. the next business day).

313. If a facility has a manager who is the originator of the data in the form report, would he/she sign the form or would it be the facility manager to whom this manager reports?

Your facility must make the determination regarding who meets the definition in the rule of a "senior management official."

314. Are facilities required to include an original signature on forms going to the State as well as EPA?

Under EPA's rule, an original signature on the certification statement is not required for the copy that is sent to the State. However, if the state requires an original signature under their state right-to-know laws, then the facility must comply.

315. If the public contact item (Part I, Section 3.4) is left blank, can the facility later use a public contact to speak to the news media on behalf of the technical contact, who may not be publicly conversant?

If a public contact is not identified, EPA will enter the technical contact into the database as a public contact. Thus, this person would receive public inquiries. You may, of course, use any person you choose to respond to such inquiries.

316. For section 313, a facility submitted a Form R for isopropyl alcohol, CAS number 67-63-0, but does not manufacture the chemical by the strong acid process. How should the facility notify EPA about the correction?

The facility should resubmit a copy of their Form R submission for verification accompanied by a cover letter explaining that the facility does not manufacture isopropyl alcohol by the strong acid process. The Form R's will be processed by the EPCRA Reporting Center and assigned a Document Control Number (DCN) as a miscellaneous entry in the tracking system, but will not be entered in the release database. The form should be marked "revision" in red on top of page 1.

317. A facility mistakenly determined a section 313 chemical to be otherwise used, rather than processed, at their facility. As a result, the facility reported the chemical on Form R with 15,000 pounds used during the previous calendar year. Since they will not be reporting this chemical for the next reporting year, is there any need to retract the previous year's reporting forms to prevent an enforcement contact by EPA?

The facility is not required to retract the report. A facility may request to retract a form submitted unnecessarily (i.e., a legitimate case of over reporting). However, in order to provide for long-term integrity in the data base, EPA will not accept requests for form retraction later than one year from the

due date of that form. Since the facility overreported as a result of a threshold determination error, it should thoroughly document the mistake in its recordkeeping for that Form R. No letters or other documentation need be sent to the state commission or EPA at this time.

318. Regarding the technical contact, can this person be a different person for (a) each chemical? (b) each separate part of a facility?

Yes. It is allowable to have different technical contacts for different chemicals or different establishments within the facility, provided that only one "technical contact" is listed on each form.

319. If a facility finds that it has submitted the forms with minor errors (e.g., boxes incorrectly checked, NA in the wrong place, all pages were not sent for each chemical even if the pages should be blank), should the forms be resubmitted or should the facility wait for the forms to be returned by the agency for correction?

The facility should resubmit the form, clearly marking in red ink on the space, "This space for your optional use" that it is a voluntary revision. The information elements that are different from the initial report should be made and circled in red ink and the document control number (DCN) for each form being corrected should be included if available.

320. Does EPA plan to go after non-reporters first before "auditing" reports from complying facilities?

Enforcement efforts during 1989 focused on identifying non-reporters. In addition, notices of non-compliance were issued for forms containing errors or omissions, allowing a period of time for corrections before penalties are assessed. Also, submissions with questionable technical entries will be investigated, not purely as enforcement, but to identify problems in calculating releases to improve EPA's guidance and instruction documents.

321. Are specific audit provisions in the regulations? Will audit results be made public? Can released information be changed? What about resolving differences of opinion, i.e., does the auditor have final judgement?

Specific audit provisions are not in the regulations. The Agency, however, has the responsibility to assure that the data submitted is based on reasonable estimates. Audit results will be used to identify problems with calculating releases. In resolving differences of opinion, we expect that a final judgement will be made by the Agency.

322. What type of quality control check does EPA make on each form it receives?

EPA has incorporated edit checks into the database to identify missing, incomplete, incorrect, and suspect data elements.

323. How will questionable data be identified by EPA?

EPA has developed checks for completeness and, for some types of data, reasonableness of an entry. For example, zero air emissions of a volatile chemical would be flagged. EPA will contact the facility for clarification of such "questionable" data.

324. A facility received 20 pages of errors and the Notice of Noncompliance (NON) states that they did not have an original signature on the Form R submitted to EPA. How should the facility respond to this NON?

EPA needs an original signature on file. A complete Form R must be resubmitted and this form should be attached to the NON before they send it in. They should also respond to any other issues on the NON, if any, and return the notice to EPA and to their state contact.

325. The enforcement requirements of EPCRA (section 325), state that the civil and administration penalties for section 313 non-compliance shall not exceed \$25,000 for each violation. Is a non-compliance violation determined on a per facility or per toxic chemical basis? Also, is that penalty assessed on a per day basis?

Section 325(c)(i) states: "any person who violates any requirement of section 313 shall be liable to the United States for a civil penalty in an amount not to exceed \$25,000 for each such violation," for each day a violation continues. Therefore, the facility can be assessed a penalty for each Form R not submitted or willfully submitted wrong, and the penalty can be assessed on a per day basis. EPA intends to assess penalties on a per chemical/facility basis with the option to include per day penalties, depending on the circumstances of the violation.

326. In some sections of Form R, facilities are asked to report "NA" if that section does not apply to a submission. Are blank spaces left on the form the equivalent of "NA"?

No. The rule requires "NA" to be entered to inform the Agency that the submitter has not just overlooked a section of the form. Leaving blanks would be considered non-compliance with the rule.

327. Can a facility submit one original copy each of Parts I (Facility Identification Information) and II (Off-Site Locations) with several copies of Part III (Chemical Specific Information) for different listed chemicals?

No. Submission of multiple copies of Part III, with only one copy of Parts I and II, would be considered non-compliance. The final rule clearly requires that each completed submission contains all parts of Form R (including Part IV, even if it is left blank). A Part I can be filled out once and photocopied for inclusion in each report, but each copy of Part I requires an original certification signature.

328. How can a facility be assured that the Agency has received a submitted form?

To be acknowledged of receipt of submissions, facilities should send forms using the U.S. Post Office "Return Receipt Requested" mail service. The Agency will not respond to cover letters requesting acknowledgement.

XIII. EPA'S SECTION 313 PROGRAM AND GENERAL INFORMATION

329. A facility would like to receive information on who requested their section 313 Form R's. Can they request this information from the EPCRA Reporting Center?

No, the request for the names cannot be made to the EPCRA Reporting Center. EPA purposely does not keep a record of individuals or organizations which make requests to the EPCRA Reporting Center. This protects the anonymity of the requestor.

330. Where is the court case citation that cites the Emergency Planning and Community Right-to-Know Act (EPCRA) as a distinct law separate from the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)?

The court case was decided on August 25, 1987 in the U.S. Court of Appeals (D.C. Circuit), case number 87-1334, A.L. Laboratories vs. EPA, 826 F. 2d 1123 (D.C. Circuit 1987).

331. Where will information on toxic chemical emissions and health effects be made available?

A computer database is available to the public through the National Library of Medicine's TOXNET computer system. The toxic release inventory database provides information on the toxic chemicals which are routinely released to the environment. Health and environmental effects information on the section 313 chemicals are also be available through TOXNET. EPA has made the data available on microfiche to all county public library systems and federal depository libraries. In addition, EPA has published a national report summarizing the data submitted. A magnetic tape and a CD ROM version of the entire database may also be purchased from NTIS.

332. Will EPA be calculating or monitoring concentrations of toxics in ambient air?

The Agency plans to use TRI data for the purpose of screening and identifying potential environmental problems.

333. What does OSHA consider to be a carcinogen under the hazard communication standard? Does a potential carcinogen need to be included under this definition?

According to OSHA's definition: "a chemical is a carcinogen or potential carcinogen for hazard communication purposes" if it is found on any of three lists: (1) the National Toxicological Program, Annual report on Carcinogens; (2) the International Agency for Research on Cancer (IARC) Monographs; or (3) 29 CFR Part 1910, Subpart 2, OSHA Toxic and Hazardous Substances. Both actual and potential carcinogens are included under OSHA's definition.

334. De minimis levels of 0.1 percent are assigned to carcinogens under section 313. How are carcinogens defined? Is the OSHA definition or the ACGIH definition used?

The OSHA definition is used to determine the de minimis limits for section 313 (see instructions to Form R for the list of de minimis limits). Chemicals listed by ACGIH as suspect human carcinogens meet the OSHA definition of a carcinogen only if they have been so classified by NTP or IARC. Under IARC, a chemical with a ranking of 1, 2A, or 2B, or having "sufficient" animal evidence is deemed to meet the OSHA definition.

335. A facility was assessed a penalty under the section 313 enforcement response policy. How can that facility contest this penalty assessment?

Section 313 penalties are administrative penalties (as opposed to criminal fines) and can be contested as follows: an EPA Administrative Law Judge will hear the case at the regional level or at EPA Headquarters. If the facility disagrees with that decision, they can appeal to an EPA Judicial Officer. If they disagree there, they can appeal to the US Court of Appeals, and lastly, to the US Supreme Court.

***336. Will EPA assist in educating the public on the meaning of the relative estimates reported under section 313?**

EPA is taking steps to educate the public about the TRI data, although the explanations are no guarantee of reduced public concerns. The Toxic Chemical Release Inventory Risk Screening Guide, developed by EPA, provides guidance to State and local officials on strategies and methods for understanding TRI data. The preliminary identification of toxic "hot spots" through risk screening will likely intensify local interest in Agency and industry actions to reduce possible threats.

***337. Is it necessary to have section 313 reporting each year? Why not every 2-3 years, or when significant changes in annual emissions occur? EPA would get the information with less expenditure of time, paperwork and costs.**

Section 313 contains language that allows the Agency to modify the reporting frequency. However, the Agency is constrained by the statute from implementing any change in reporting frequency until 1993. Any proposed change also must be submitted to Congress for review and action.

XVI. INDEX TO QUESTIONS AND ANSWERS

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Certification	<ul style="list-style-type: none"> Original Signature #311, #314, #324, #327 Senior Management Official #313 Form R Correction/Revision #316 - #319, #322, #323
Chemical	<ul style="list-style-type: none"> #66 - #68, #88 Solution #76, #77, #84, #98, #250, #262 Fume or Dust #71, #83, #97, #145 - #147, #157, #217 Asbestos (Friable) #92 - #94, #236 PCBs #214 Multi-CAS numbers #72 Generic Chemical Name #107, #301, #302 Trade Name Product #68, #107, #108, #114, #116, #117, #126, #127, #133, #134, #196
Chemical Categories	<ul style="list-style-type: none"> Threshold determination #63, #70, #87, #91, #95, #97, #99, #101, #104, #125, #137, #156, #157, #164, #166, #201, #202, #217, #218 De Minimis #109, #111, #113, #139, #158, #195 - #203, #334 Chemical Compounds #73, #75, #96, #99, #102, #104, #125, #152, #229 Glycol Ethers #85, #86, #278
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APPENDIX A

SECTION 313 POLICY DIRECTIVES

This appendix contains in-depth descriptions of some of the more complex issues involved in section 313 reporting.

The questions and answers contained in the body of this document address specific situations. For some issues, such as de minimis and article exemptions, however, multiple factors become involved in determining threshold and release information. These issues have generated many inquiries and requests for clarification from regulated facilities. The directives contained in this appendix provide comprehensive written interpretations of such issues. While the information contained in these directives is the most up-to-date guidance available from EPA, no new policy information is contained in this appendix that is not represented in other EPA documents.

If you feel you have specific circumstances or situations for which you need additional EPA guidance, contact your Regional section 313 coordinator or call the Emergency Planning and Community Right-to-Know Information Hotline at 1-800-535-0202, or 1-703-920-9877.

DIRECTIVE #1: ARTICLE EXEMPTION

Listed toxic chemicals contained in articles that are processed or used are exempt from threshold determinations. For a material to be exempt as an article, an item must meet all of the following three criteria in the section 313 article definition; that is, the item must be one:

- i) which is formed to a specific shape or design during manufacture;
- ii) which has end use functions dependent in whole or in part upon its shape or design during end use; and
- iii) which does not release a toxic chemical under the normal circumstances of processing or use of the item at the facility.

If, as a result of processing or use, an item retains its initial thickness or diameter, in whole or in part, then it meets the first part of the definition. If the item's basic dimensional characteristics are totally altered during processing or use, the items would not meet the first part of the definition. An example of items that do not meet the definition would be items which are cold extruded, such as lead ingots which are formed into wire or rods. However, cutting a manufactured item into pieces which are recognizable as the article would not change the original exemption as long as the diameter and the thickness of the item remained the same. For instance, metal wire may be bent and sheet metal may be cut, punched, stamped, or pressed without losing their article status as long as there is no change in the diameter of the wire or tubing or the thickness of the sheet.

An important aspect of the article exemption is what constitutes a release of a toxic chemical. Any processing or use of an article that results in generation of a waste containing the chemical can be considered a release which negates the exemption. Cutting, grinding, melting or other processing of a manufactured item could result in a release of a toxic chemical during normal conditions of use and, therefore, negate the exemption as an article.

However, there are two circumstances for which releases may not negate the exemption of the item as an article:

- If the resulting waste containing a listed toxic chemical is 100 percent recycled or reused, on-site or off-site, then the article status is maintained. For section 313 purposes, wastes containing toxic chemicals are not reportable on Form R if the waste is reused or recycled, on-site or off-site.
- If the processing or use of similar manufactured items results in a total release of less than 0.5 pound of a toxic chemical to any environmental media in a calendar year, EPA will allow this release quantity to be rounded to zero and the manufactured items remain exempt as articles. Facilities should 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 use of like articles.

DIRECTIVE #2: DE MINIMIS EXEMPTION

The de minimis exemption allows facilities to discount certain minimum concentrations of listed toxic chemicals in mixtures they process or otherwise use in threshold and release determinations for section 313 reporting. This de minimis level is 0.1 percent by weight for OSHA defined carcinogens and 1 percent by weight for all other section 313 chemicals. De minimis levels for chemical categories apply to the total concentration of all chemicals in the category within a mixture, not the concentration of each individual category member within the mixture.

1. Processing or Use of a Mixture

If a listed toxic chemical is present in a mixture at a concentration below the de minimis level, this quantity of the substance does not have to be included for threshold determination, release reporting, or supplier notification requirements.

For processes where the chemical concentration fluctuates above and below the de minimis level due to dilution or concentration activities, the de minimis exemption applies to the process stages where the de minimis level is not exceeded. This application is further described in the general section of the Toxic Chemical Release Inventory Reporting Form R and Instructions document (EPA 560/4-90-007).

Example of Decreasing Process Concentration to Below the De Minimis Level:

A facility buys 29 percent 1,1,1-trichloroethane solution and processes it as a constituent of a cleaning solution produced. The 1,1,1-trichloroethane is present in the final product at 0.5 percent. The facility must consider all amounts of the 1,1,1-trichloroethane in concentrations greater than 1 percent in mixtures for threshold and release determinations. Releases might include fugitive emissions from transferring, mixing, and storing the 29 percent 1,1,1-trichloroethane solution. However, releases of the 1,1,1-trichloroethane from the 0.5 percent solution, such as spills, loading, and storage tank emissions, do not have to be reported since the concentration is below the de minimis concentration of 1 percent for 1,1,1-trichloroethane. Supplier notification for the 1,1,1-trichloroethane in the cleaning product is not required because the toxic chemical is present below the de minimis level.

Example of Increasing Process Concentration to Above De Minimis Level:

A manufacturing facility receives toluene which contains less than the de minimis concentration of chlorobenzene. Through distillation, the chlorobenzene content in process streams is increased over the de minimis concentration of 1 percent. From the point at which the chlorobenzene concentration exceeds 1 percent in process streams, the amount present must be factored into threshold determinations and release estimates. The facility does not need to consider the amount of chlorobenzene in the raw material when making threshold determinations. They do not have to report emissions of chlorobenzene from storage tanks or any other equipment where the chlorobenzene content is less than 1 percent.

Example of Increasing Concentration Through Beneficiation:

An oil refinery receives crude oil containing less than the de minimis concentration of toluene. Through distillation, extraction, and catalytic reforming, the toluene content of the process stream is increased to above the de minimis level. De minimis exemption does not apply to this operation since the raw materials are obtained and processed at the facility to produce the toxic chemical through beneficiation. Note that beneficiation applies specifically to ores, crude petroleum, and natural gas.

2. Manufacture of the Listed Chemical in a Mixture

The de minimis exemption **does not apply** to manufacture of a toxic chemical. One exception applies to the toxic chemical which is made (manufactured) as an impurity and remains in the product distributed in commerce at below the de minimis levels, the amount remaining in the product is exempt from threshold determinations. However, any amount that is separated from the product (e.g., ends up in a wastestream) is subject to threshold and release determinations regardless of the concentration of the toxic chemical in the wastestream.

Example of Coincidental Manufacture as a Product Impurity:

Phosgene reacts with water to form trace quantities of hydrogen chloride (HCl). The resulting product contains 99 percent phosgene and 0.2 percent hydrochloric acid. The HCl would not be subject to section 313 reporting nor would supplier notification be required because the concentration of HCl is below its de minimis concentration of 1 percent.

Example of Coincidental Manufacture as a Commercial Byproduct and Impurity:

Chloroform is a reaction byproduct in the production of carbon tetrachloride. It is removed by distillation to a concentration of less than 150 ppm (0.0150%) remaining in the carbon tetrachloride. The separated chloroform at 90 percent concentration is sold as a byproduct. Chloroform is subject to a 0.1% (1000 ppm) de minimis level. Any amount of chloroform produced and separated as byproduct must be included in threshold determinations and is subject to supplier notification requirements because the de minimis exemption does not apply to manufacture of a chemical. Releases of chloroform prior to and during purification of the carbon tetrachloride should be reported. The de minimis exemption can, however, be applied to the chloroform remaining in the carbon tetrachloride as an impurity. Because the concentration of chloroform is below the de minimis level, this quantity of chloroform is exempt from threshold determination, release reporting, and supplier notification.

Example of Coincidental Manufacture as a Waste Byproduct:

A small amount of formaldehyde is manufactured as a reaction byproduct during the production of phthalic anhydride. The formaldehyde is separated from the phthalic anhydride as a waste gas and burned, leaving no formaldehyde in the phthalic anhydride. The amount of formaldehyde produced and removed as waste must be included in threshold and release determinations even if the formaldehyde were present below the de minimis level in the process stream where it was manufactured or in the wastestream to which it was separated.

The de minimis exemption also does not apply to situations where the manufactured chemical is released or transferred to waste streams and thereby diluted to below the de minimis level.

3. De Minimis Levels Impact Supplier Notification Requirements

If the toxic chemical in a product (mixture or trade name product) is present below the de minimis level for that toxic chemical, supplier notification is not required for that chemical.

DIRECTIVE #3: MOTOR VEHICLES USE EXEMPTION

The use of "products containing toxic chemicals for the purpose of maintaining motor vehicles operated by the facility" is exempt from threshold determinations and release reporting under section 313. This exemption includes toxic chemicals found in gasoline, diesel fuel, brake and transmission fluids, oils and lubricants, antifreeze, batteries, cleaning solutions and solvents in paint used for touch up as long as the products are used to maintain the vehicle operated by the facility. Motor vehicles include cars, trucks, some cranes, forklifts, tow motors, locomotive engines, and aircraft.

1. Motor Vehicles Use Exemption Applies Only to "Otherwise Use" of Chemical

The exemption applies only for the "otherwise use" of these chemicals, not their manufacture or processing for distribution in commerce. For example, manufacturing gasoline is not exempt from reporting. Similarly, an automobile manufacturer who places transmission fluids in automobiles before shipping them would be "processing" the listed toxic chemical because the fluid is being incorporated into an article that the facility distributes in commerce.

Releases from the storage of fuel or motor vehicle maintenance products are exempt from reporting by virtue of the fact that their use is exempt. For example, releases of listed toxic chemicals in gasoline stored on-site for use by company owned vehicles, including vehicles from other facilities, are exempt from inclusion in facility-wide release determination for those chemicals.

2. Motor Vehicle Use Exemption Does Not Apply to Stationary Equipment

The motor vehicle exemption does not apply to use of lubricants for stationary process equipment such as pumps or compressors. Likewise, fuels used for furnaces, boilers, heaters, or any stationary source of energy are not exempt.

3. Uses of Fuels in Stationary Equipment May Not Trigger Reporting

In many cases, refined petroleum or fossil fuels may not trigger reporting because any section 313 chemicals (e.g., metals in fuel oil and coal) are usually present at very low concentrations and are likely to be below the de minimis concentration of 1% (0.1% for carcinogens). Manufacturers, processors and users of gasoline will have to take into account that gasoline contains several aromatic compounds that are on the section 313 list, including benzene, toluene, xylene, naphthalene, and anthracene.

Be aware, however, that combustion of fuels may coincidentally produce section 313 toxic chemicals, such as formaldehyde, hydrogen fluoride, and hydrogen chloride. Such coincidental manufacture is not subject to de minimis limitations (see the directive on de minimis) and amounts produced must be compared against the manufacturing threshold. The EPA publication, Toxic Air Pollutant Emission Factors -- A Compilation of Selected Air Toxic Compounds and Sources (EPA 450/2-88-006a) contains emission factors for many specific compounds emitted during fuel combustion.

DIRECTIVE #4: COMPOUNDS AND MIXTURES**1. Definition of Compounds**

A "compound" is any combination of two or more chemicals where the result is (in whole or in part) a product of a chemical reaction. In the formation of a compound, the reactant chemicals lose their individual chemical identities. Polymers formed as non-reversible reaction products are an example of compounds.

2. Definition of Mixtures

A "mixture" is any combination of two or more chemicals, if the combination is not, in whole or in part, the result of a chemical reaction. In a mixture, the individual components retain their identities. Mixtures include any combination of a chemical and associated impurities. Alloys are mixtures because the individual metals in the alloy retain their chemical identities.

3. Mixtures Must be Considered for Section 313 Reporting

Thresholds and release determinations for section 313 reporting must include the amount of the listed toxic chemical present above the de minimis level in all mixtures processed or otherwise used by the facility. If a listed toxic chemical is present in a mixture at or above the de minimis level, only the amount of the toxic chemical, and not the mixture itself, is used for threshold and release determinations.

4. Solutions Listed Under Section 313 are a Special Case

Section 313 toxic chemicals listed with the special qualifier "solution" refers to the form of the chemical and indicates that it is to be reported only if manufactured, processed, or used in solution form. However, only the weight of the actual chemical, not the full mass of the solution is used in threshold and release calculations.

5. Supplier Notification and Concentration Ranges Provide Information for Reporting

The section 313 supplier notification requirements are designed to provide chemical users with information on the identities and concentrations of listed toxic chemicals present in the mixtures that they use. There can still be situations, however, when a facility may not have this information for a mixture. If the facility knows that a mixture contains a toxic chemical but no concentration information is provided by the supplier, then the facility should assume that the "maximum" is 100 percent. If only a range of concentrations is available for a toxic chemical present in a mixture, the owner/operator should use the midpoint of the "minimum" and "maximum" percentages in order to determine the amount that is applied toward the threshold. Thus, if a facility owner/operator only knows the lower bound concentration of a toxic chemical present in a mixture, the owner/operator should assume the upper bound concentration is 100 percent and then compute an average based on these lower and upper bound concentration estimates to determine whether the threshold has been exceeded. If there are other known components present in the mixture, the facility owner/operator should subtract out the percentage of these components to determine what a reasonable "maximum" percentage of the toxic chemical could be.

DIRECTIVE #5: CHEMICAL CATEGORIES**1. All Compounds in a Listed Chemical Category are Aggregated for Threshold Determinations**

Toxic chemical categories listed under section 313 require a different approach when making threshold and release determinations. For a chemical that is included in a listed metal compound category, the total weight of that chemical compound, not just the parent metal, is used in making threshold determinations. A facility will need to calculate the total weight of all compounds that are in the category, sum the amounts involved throughout the facility in each threshold activity, and compare the totals to the applicable thresholds. A compound in a listed chemical category that is present in a mixture below the de minimis concentration based on the total weight of the compound is exempt from threshold and release calculations under section 313. Again, all individual members of a compound category must be totalled to determine if that compound category has exceeded the de minimis concentration in a mixture.

2. Make Threshold Determinations for Listed Toxic Chemicals Separately from the Listed Chemical Category

The section 313 list contains some listed substances that also are members of a listed chemical category. Threshold determinations for a specifically listed toxic chemical are calculated separately from the threshold determinations for the chemical category. For example, 2-Methoxyethanol, which is specifically listed on the section 313 list, is also a member of the glycol ether compound category. Because the chemical is specifically listed, a facility must make a threshold determination for 2-Methoxyethanol and a separate threshold determination for all other glycol ethers meeting the criteria for that chemical category which are not specifically listed under section 313.

3. Calculate Releases Based on Parent Metal For Metal Compound Categories

Once a reporting threshold is met for a metal compound category, releases of compounds are calculated based on the pounds of the parent metal released, rather than the total weight of the compound. EPA adopted this approach because of the difficulty of calculating releases of potentially numerous compounds within a metal compound category, and recognizing that methods and data for monitoring of the parent metal often exist while those for the compound(s) rarely will.

4. Optional Form R Submission for Parent Metal and Associated Metal Compound Category

If both the parent metal and associated metal compound category exceed their respective thresholds, one section 313 reporting Form R, covering all releases of the parent metal from activities involving both the chemical and the chemical category may be filed. For example, if a facility processes 30,000 pounds of lead and otherwise uses 13,000 pounds of lead oxide, the facility could submit one Form R for lead and lead compounds. On this Form R, the facility would report all activities involving lead and lead compounds and all releases of the parent metal, lead. This option, preferred by EPA, is available to facilities, although separate reports may be filed if desired.

DIRECTIVE #6: PCBs THRESHOLD DETERMINATION AND RELEASE REPORTING

Polychlorinated biphenyls (PCBs) are a listed chemical under section 313.

1. PCBs in Articles are Exempt

EPA has stated that transformers are articles (and thus exempt from threshold determinations) but that the release or removal of fluid from the transformer negates the article status. Only the article status of those transformers which have fluids removed or escaping is affected. However, the PCBs are still not reportable if no new PCB-containing fluid is added, since the threshold determination is based on fluid added, not lost. (See Directive #7 on reuse and recycling exceptions.)

EPA has stated that disposal or removal of articles does not constitute release. Therefore, disposal on-site or off-site transfer of the whole transformer, with fluid content undisturbed, does not negate the article status. The transformer is not included in threshold determinations, and does not have to be reported as a release or an off-site transfer of PCBs for purposes of section 313 reporting.

PCBs will rarely meet "otherwise use" thresholds. Calculating the threshold for "otherwise use" considers the amount of PCBs added to transformers during the reporting year and does not consider the amount of working fluid contained in the transformer. Legally and practically, facilities will not add PCB containing fluid to a transformer -- so thresholds should not be exceeded in this way.

2. Coincidental Manufacture of PCBs is Subject to Section 313

Facilities involved in coincidental manufacture of PCBs and further processing of mixtures containing PCBs (in excess of the 0.1 percent de minimis level) must perform manufacturing and processing threshold determinations.

3. Treatment or Disposal of PCBs Are Unlikely to Require Section 313 Reporting

Facilities outside the SIC codes 20-39 which treat and/or dispose of PCBs are not be subject to section 313 reporting. Those that are in the covered SIC codes may not be subject to reporting because treatment and/or disposal activities will not represent manufacturing, processing, or using PCBs as defined under section 313.

Processing represents a potentially covered activity. However, facilities are not likely to be incorporating PCBs into items distributed in commerce or to be using PCBs as starting material or intermediate for the production of other chemical substances that are distributed in commerce or used on site.

DIRECTIVE #7: REUSE AND RECYCLE EXCEPTIONS

Reuse or recycling of a listed toxic chemical can impact threshold determinations, article exemption status, reporting of off-site transfers and supplier notification.

1. Process or Otherwise Use of Toxic Chemicals in an On-Site Recycle/Reuse Operation May Be Exempt From Threshold Determinations

Quantities of a toxic chemical that are present in an on-site recycle/reuse operation at the beginning of the reporting year are not counted toward a threshold determination for that reporting year. This exemption prevents the facility from counting the same amount of a toxic chemical everytime it cycles through the on-site operation. However, only the amount of a toxic chemical newly added to an on-site recycle/reuse operation during the reporting year is counted in the threshold determinations. Such additional amounts would include any quantities of a toxic chemical added to "top off" the recycle/reuse operation or amounts added as result of start-up or total replacement of the contents of the recycle/reuse operation during the reporting year.

For example, if 2,000 pounds of ammonia is added in the calendar year to a closed loop refrigeration system that is run at its 12,000 pound capacity all year, then only 2,000 pounds would be applied to the "otherwise use" threshold for ammonia. In this case, the threshold (10,000 pounds for "otherwise use") would not be met if this is the facility's only use of ammonia. However, if the entire supply of ammonia in the refrigeration system was flushed and replaced in addition to the 2,000 pounds being added throughout the calendar year, then 14,000 pounds would be counted towards the "otherwise use" threshold for ammonia. In this case, the 10,000 pound threshold for "otherwise use" would be exceeded and a Form R report would be required for ammonia.

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

2. Article Status Is Maintained If All Releases Are Reused or Recycled

An important aspect of the article exemption is what constitutes a release of a toxic chemical. Any processing or use of an article that results in generation of a waste containing the chemical can be considered a release which negates the exemption. Cutting, grinding, melting or other processing of a manufactured item could result in a release of a toxic chemical during normal conditions of use and, therefore, negate the exemption as an article. However, if the resulting waste containing a listed toxic chemical is 100% recycled or reused, on-site or off-site, then the article status is maintained. Wastes containing toxic chemicals are not reportable under section 313 if the waste is reused or recycled, on-site or off-site.

3. Do Not Report Amounts Sent Off-Site for Reuse or Recycling As Off-Site Transfers

If a toxic chemical is sent off-site for purposes of reuse or recycling, the location does not have to be reported on Form R as an off-site transfer. EPA requires the identification of all other toxic chemicals in wastes which are transferred off-site for final disposal. Off-site reuse or recycling activities, however, are more closely related to facility products distributed in commerce.

4. Supplier Notification Applies to Chemicals Sent Off-Site for Reuse or Recycling

While the amount of the listed toxic chemical which is sent off-site for reuse or recycling does not have to be reported on Form R, supplier notification is still required to be provided to the off-site location if the location is a manufacturing facility in SIC codes 20-39, or is a facility outside of SIC codes 20-39 that distributes to manufacturing facilities.

DIRECTIVE #8: AMMONIA AND AMMONIA SALTS**1. Determine Total Ammonia By Adding the Ionized and Non-ionized Forms**

Aqueous solutions of ammonia contain both non-ionized ammonia, NH_3 , and ionized ammonia, NH_4^+ . As the chemical equation below indicates, an equilibrium exists between the non-ionized and ionized forms of ammonia.



The term "total ammonia" refers to the sum of these species, i.e., $\text{NH}_3 + \text{NH}_4^+$. The relative amounts of NH_3 and NH_4^+ are dependent upon a number of factors (e.g., temperature, pH, ionic strength). Estimates, of releases for section 313, should be made for total ammonia to account for all forms that are present.

Aqueous solutions of ammonium salts that dissociate in water are environmentally equivalent to aqueous solutions of ammonia. There are differences in the equilibrium concentrations of un-ionized ammonia (NH_3) and ionized ammonia (NH_4^+) between equimolar aqueous solutions of ammonium salts that dissociate in water and aqueous ammonia due to buffering effects from the counter ion in the ammonium salt solution. These differences are reflected by differences in pH. However, this difference disappears when both solutions are released to the environment. The relative amount of un-ionized ammonia present after release is dependent upon the conditions (i.e., pH and temperature of the receiving waters). Releases of ammonia to water and releases of ammonium salts to water are environmentally equivalent. Therefore, facilities which manufacture, process, or otherwise use an aqueous solution of an ammonium salt that dissociates in water are required to report these releases as ammonia if an activity threshold is met or exceeded.

For example, a facility that buys ammonium sulfate in dry form and then makes a solution by adding water is required to add all non-ionized ammonia, NH_3 , and ionized ammonia, NH_4^+ in the solution when making threshold determinations and release estimates.

2. Consider Ammonium Hydroxide Solutions as Ammonia Solutions

Ammonium hydroxide solutions should be considered to be ammonia because ammonium hydroxide is aqueous ammonia. The commercial products "aqua ammonia" or "ammonium hydroxide" are approximately equivalent to 30 percent solutions of ammonia in water. These products are considered mixtures of ammonia and water and therefore, should be reported as ammonia.

3. Consider Aqueous Solutions of Most Ammonium Salts as Ammonia

Ammonium salts that dissociate in water such as ammonium chloride, ammonium carbonate, and ammonium bicarbonate will dissociate in water to form solutions of ammonia. Consequently, facilities which manufacture, process, or otherwise use an aqueous solution of most ammonium salts are required to make threshold determinations and if necessary release estimates for ammonia under section 313.

Facilities that manufacture, process, or otherwise use more than one ammonium salt, or ammonia source must aggregate their data when making threshold determinations and release estimations. Also, the ammonia from each ammonium salt should be based on the percentage by weight of ammonia in the salt, and not the entire weight of the ammonium salt. For example, an aqueous ammonia solution is generated by dissolving 20,000 pounds of ammonia, 100,000 pounds of ammonium sulfate, and 100,000 pounds of ammonium chloride in water. Ammonium sulfate consists of 27% NH_3 by weight. Ammonium chloride consists of 32% NH_3 by weight. Thus, 79,000 pounds of ammonia [20,000 pounds from ammonia + 27,000

pounds from ammonium sulfate + 32,000 pounds from ammonium chloride] should be compared to the 25,000 pound manufacturing threshold.

4. **Determining Threshold Levels and Activities for Ammonia and Ammonium Salts**

By adding an ammonium salt to water, the facility is manufacturing aqueous ammonia and consequently, is subject to the manufacturing threshold of 25,000 pounds. This manufacturing threshold applies to the ammonia portion of the ammonium salt. The counter ion is not considered for threshold determinations. If the resulting ammonium salt solution is "otherwise used" at a facility, both activities, manufacturing and otherwise used, should be indicated on the Form R.

If an ammonia byproduct is not incorporated into a product for commercial distribution, the "otherwise use" threshold of 10,000 pounds applies. For example, a facility uses sulfuric acid to etch chips, and then neutralizes the acid with ammonia forming ammonium sulfate. Since the ammonium sulfate is a byproduct and forms an aqueous solution of ammonia, the facility is otherwise using ammonia.

5. **Special Considerations for Ammonium Nitrate and Listed Ammonium Salts**

Aqueous releases of other ammonium salts which are individually listed on the section 313 list of toxic chemicals should be reported as releases of the specific ammonium salt rather than ammonia, because there may be concerns for the toxicity of the salt in addition to the concerns for ammonia toxicity.

Specifically, ammonium nitrate (CAS number 6484-52-2) is a listed chemical under section 313. Facilities which manufacture, process, or otherwise use aqueous solutions of ammonium nitrate should report their releases as ammonium nitrate (solution), and not as aqueous ammonia.

How to Submit Reports on Diskette

If you are submitting reports on magnetic diskette to EPA you must enclose a certification cover letter signed by the official listed in Section 2 of Part I of the Form R (Certification Name and Official Title) for each separate facility. The format and content of this letter is shown below:

Enclosed please find two (2) microcomputer diskettes (numbers 1 and 2) containing toxic chemical release reporting information for Pirx-Lewis, Inc., Battery Products Division, as required under section 313, Title III of the Superfund Amendments and Reauthorization Act of 1986.

A total of two (2) reports are included from our facility, concerning the following chemicals:

<u>Chemical Name</u>	<u>Report Number</u>	<u>CAS Number</u>
Lead compounds	00001	NA
Zinc	00002	7440-66-6

Our data processing contact is Jeffrey Mills, who can be reached at (505) 752-5369. Mr. Mills is available should any questions or problems arise in your processing of these diskettes.

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

A label must be attached to each diskette (not jacket) which may be typed or legibly handwritten. Any media submitted without a proper label attached will not be processed and will be returned to the submitter. The format and content of this label is shown below:

TRIS Report			
American Manufacturing, Inc.			
Date	5/15/90	Density	DD
Report Yr.	79	Num.	1 of 2
Contact	John Berg (602) 258-1234		
Files	TRI03, TRI07, TRITR, TRISE		

At left is a sample diskette label for American Manufacturing, which has two double density diskettes in its package. The package contains information on two of American's facilities, but the labels should only list the parent company, American Manufacturing, and the data processing contact at American. Diskette 1 contains the files TRI03, TRI07, TRISE, and TRITR.

All magnetic media packages must include self-addressed, postage paid return packaging sufficient to allow EPA to return unreadable media to the facility. The type of packaging and shipping used for magnetic media are left to the discretion of the submitting facility. Please send complete magnetic media along with a cover letter (from each submitting facility containing an original certification signature) to:

EPCRA Reporting Center
P.O. Box 23779
Washington, DC 20026-3779
Attn: Toxic Chemical Release Inventory Magnetic Media Submission