United States
Environmental Protection
Agency

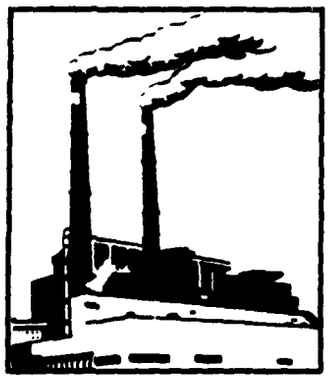
Office of Toxic
Substances
Washington, D.C. 20460

January 1990
EPA 560/4-90-007

EPA

Toxic Chemical Release Inventory Reporting Form R and Instructions

Revised 1989 Version



Section 313

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

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

Printed on Recycled Paper

REPORTING FORM R SUBMISSION CHECKLIST

- ☐ 1. Complete a separate Form R for each chemical or chemical category you must report
  - ☐ 1.a 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.b 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 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); 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 1989

Reporting requirements for calendar year 1989 (reports due July 1, 1990) differ from prior year's requirements:

(1) The 1989 threshold for manufacturing or processing a covered toxic chemical is 25,000 pounds (the threshold was 50,000 pounds for reporting year 1988). You must use this threshold in determining whether you are subject to the reporting requirements. (See "Threshold Determinations," page 7, for more information.)

(2) The following chemicals have been specifically delisted and are not covered for the 1989 reporting year:

	CAS Number
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

(3) 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.

(4) The EPA Headquarters address for submitting completed Form R reports has been changed to:

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

Supplier Notification Began in 1989

With the first shipment of product in calendar year 1989, suppliers were required to provide notice to their customers regarding all mixtures or trade name products that contain listed toxic chemicals. The notice must be attached to or included in the Material Safety Data Sheet (MSDS). The data in the notice must be used for threshold and release calculations beginning with reports submitted for calendar year 1989, due July 1, 1990. (See Appendix E: Supplier Notification Requirements for more information.)

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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 from your facility to the environment during the past calendar year. Facilities must report the quantities of both routine and accidental releases of listed chemicals, as well as the maximum amount of the listed chemical 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:

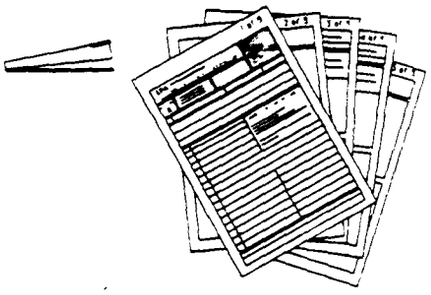
- ❑ Part I, Facility Identification Information (page 1);
- ❑ Part II, Off-Site Locations to Which Toxic Chemicals are Transferred in Wastes (page 2);
- ❑ Part III, Chemical-Specific Information (pages 3 and 4); and
- ❑ Part IV, Supplemental Information (page 5).

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 <u>or</u> 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. <u>Part III must be completed separately for each chemical</u>. Part IV provides additional space, if needed, to complete the information required by the preceding sections of the form. Include Part IV in your report, even if it is blank.

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

- ❑ Part I with an <u>original signature</u> 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);
- ❑ 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. 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 1989, January-December, must be submitted on or before July 1, 1990).

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. Submissions for the next calendar year are not considered revisions of a previous year's data.

A.5 WHERE TO SEND THE REPORT

Form R submissions must be sent to both EPA and the State. Send EPA reports 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 set forth by EPA in the document, Magnetic Media Submissions Instructions (EPA 560/4-90-008) which is also included in EPA's Toxic Chemical Release Inventory Reporting Package for 1989 (EPA 560/4-90-001). To order these documents, see the document request form in Appendix I.

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 EPA Form R 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 (in Washington, D.C. and Alaska, (202) 479-2449) 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.

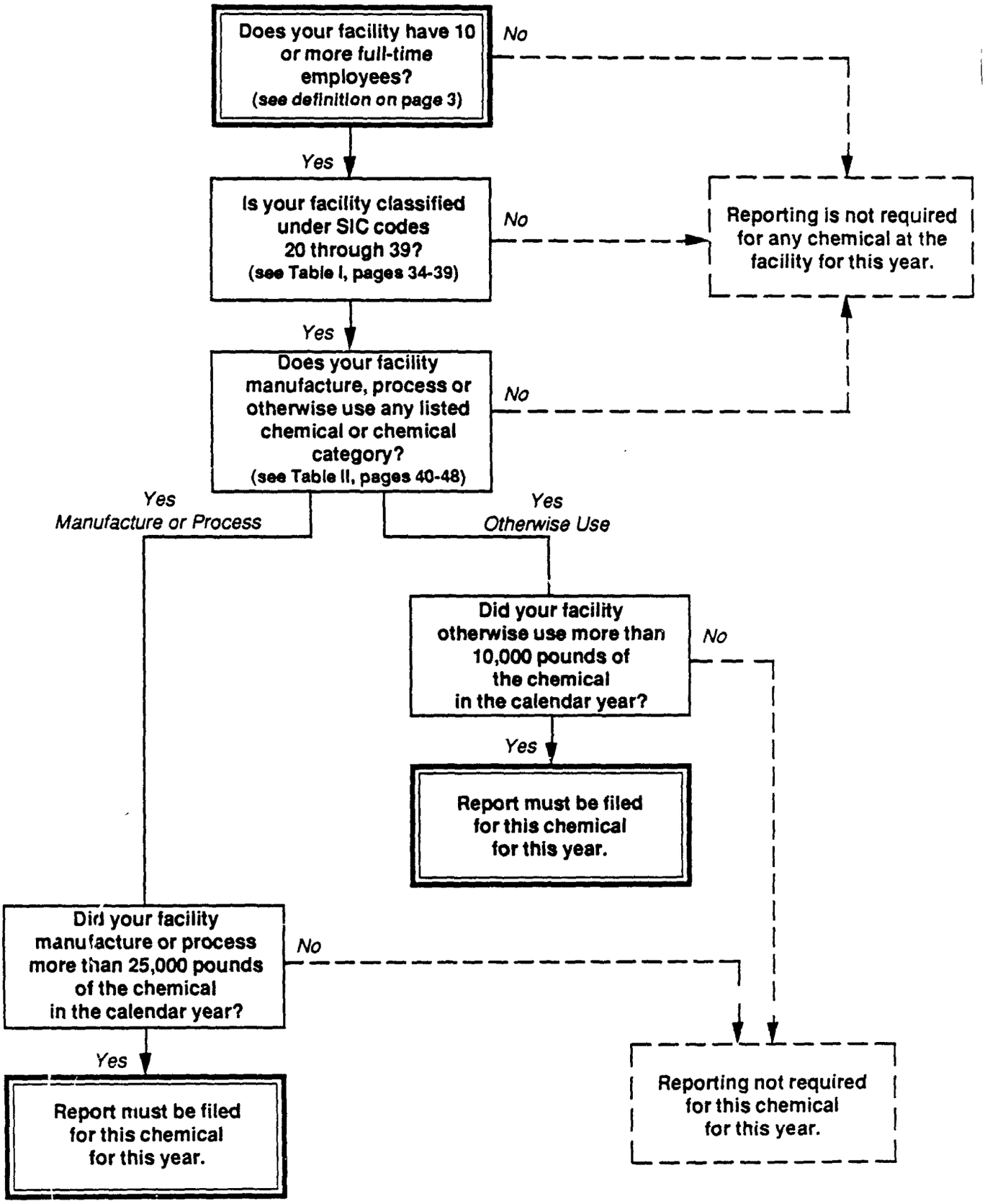
A.7 WHO MUST SUBMIT THIS FORM

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;
- ❑ 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. To determine the number of full-time employees at your facility, add up the hours worked by all employees during the calendar year, including contract employees and sales and support staff working at the facility 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.

B.2 PRIMARY SIC CODE DETERMINATION

Table I on page 34 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 is 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 boundries 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 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 18 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 11, 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 1989), 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 19 for further clari-

fication). 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, and further reacts the benzoic acid with a cadmium catalyst to form terephthalic acid. Cadmium compounds and terephthalic acid are also listed toxic chemicals. Your company processes toluene, and otherwise uses (not processes) the cadmium catalyst (see the definition of "otherwise use" below). Your company manufactures benzoic acid and terephthalic acid. Benzoic acid, however, is not a listed chemical and thus does not trigger reporting requirements.

- ❑ Your 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.

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 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 use of like articles.

The article exemption applies to the normal processing or use of an article. **It does not apply to the manufacture of an article.** Toxic chemicals 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 use of an item generates fumes, dust, filings, or grindings, the article exemption is not applicable. The chemical(s) in the item must be counted toward the appropriate threshold determination, and the fumes, dust, filings, and grindings reported as releases or wastes. However, if all wastes generated are recycled, whether on- or off-site, the exemption is applicable. 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 40-48) contains the list of individual chemicals and categories of chemicals subject to 1988 calendar year reporting. Some of the chemicals listed in Table II have parenthetic qualifiers listed next to them. A chemical that is listed without a qualifier is subject to reporting in all forms in which it is manufactured, processed, and used.

Fume or dust. Three of the metals on the list (aluminum, vanadium, and zinc) contain the qualifier "fume or dust." This qualifier means that a facility is manufacturing, processing, or using the metal in the form of fume or dust. Fume or dust does not refer to "wet" forms, solutions or slurries, for example, but only dry 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 1989 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 use of phosphorus in the yellow or white chemical form triggers reporting. Conversely, manufacturing, processing, or use of "black" or "red" phosphorus do not trigger reporting. Supplier notification also applies only to distribution of yellow or white phosphorus.

Asbestos (friable). The listing for asbestos is qualified by the term "friable," referring to the physical characteristic of being able to crumbled, pulverized, or reducible to a powder with hand pressure. Only manufacturing, processing, or use of asbestos in the friable form triggers reporting. Supplier notification applies only to distribution of mixtures or trade products containing friable asbestos.

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 totalled 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.

Do not add together the quantities of the chemical that are manufactured, processed, and used at your facility, because each of these activities requires a separate threshold determination. For example, if in 1989 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 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.

Figure B

OPTIONAL SECTION 313 REPORTING THRESHOLD WORKSHEET

Facility Name: _____ Date Worksheet Prepared: _____

Chemical or Chemical Category: _____ Prepared By: _____

Reporting Year: _____

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: ($A-A_1$)_____lbs ($B-B_1$)_____lbs ($C-C_1$)_____lbs

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

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

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 48, 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 use 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 40-47). 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 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 1989, 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 base their threshold determination on that lower bound concentration number. If only a range of concentrations is available for a toxic chemical present in a mixure, the owner/operator should use an average of the low and high concentrations numbers for threshold determinations. (See Figure C on page 13 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.

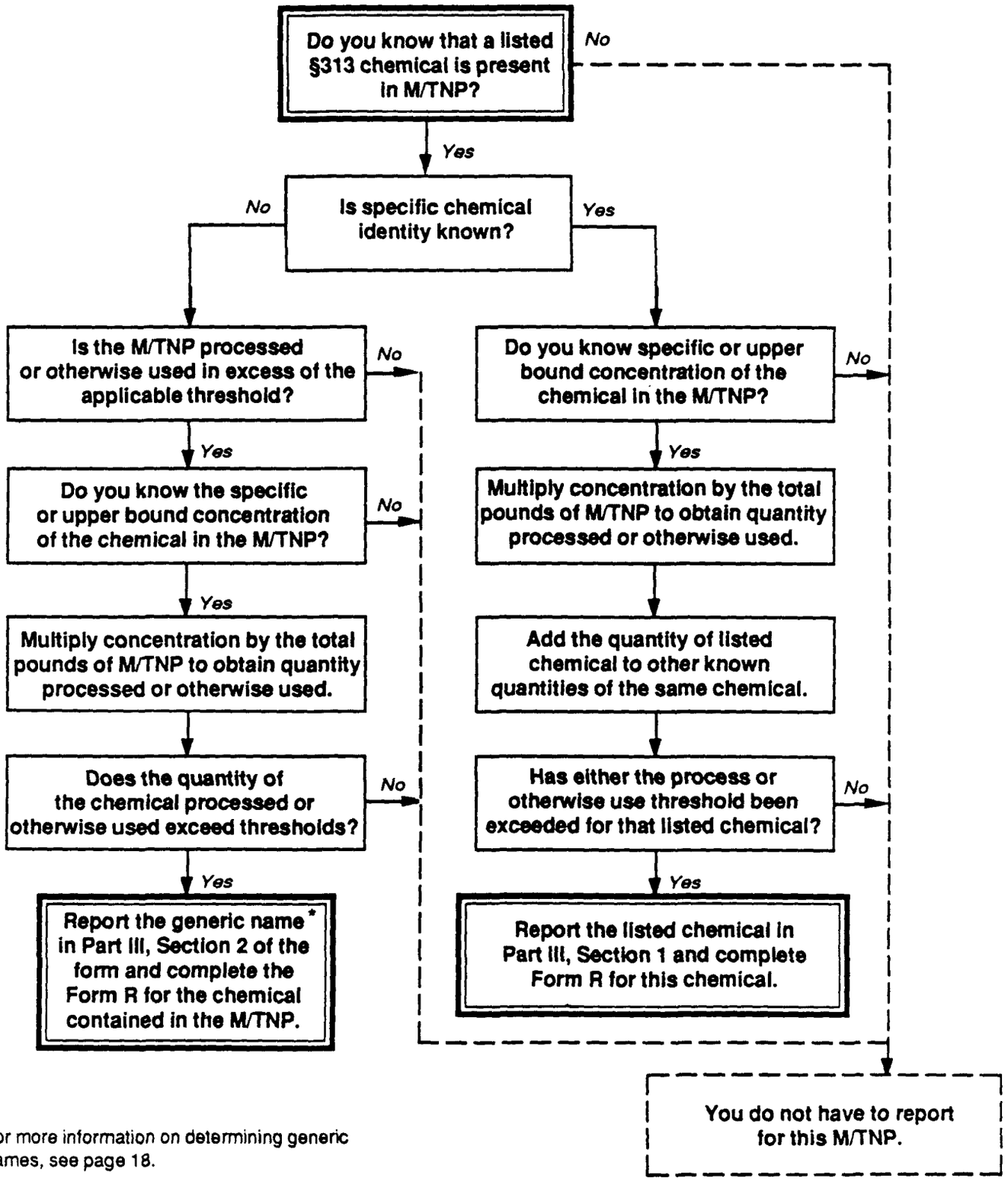
Supplier Notification. In 1989 and subsequent years, suppliers of facilities in SIC codes 20-39 are required to develop and distribute a notice if the mixtures or trade name products that they manufacture or process, and subsequently distribute, contain listed toxic chemicals. These notices are distributed to other companies in SIC codes 20-39 or to companies that sell the product to facilities in SIC codes 20-39 If a Material Safety Data Sheet (MSDS) is not required for the mixture or trade name product, the notification must be in written form (i.e., letter or attachment to a MSDS). Otherwise, the notice must be incorporated into or attached to the MSDS for that product The supplier notification requirement began with the first shipment of a product in 1989 and must accompany the first shipment each year thereafter. In addition, a new or revised notice must be sent if a change occurs in the product which affects the weight percent of a listed 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 18.

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).

PART I. FACILITY IDENTIFICATION INFORMATION

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

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

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

Answer this question only after you have completed the rest of the report. Check "sanitized" if this copy of the report is the public version and you have claimed the chemical identity trade secret in Part 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 1989 reporting year must be submitted on or before July 1, 1990.

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 the Toxic Chemical Release Inventory Reporting Package for 1989 (EPA 560/4-90-001) 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 34-39, 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 develop 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.

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 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 stormwater 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 40-48, 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.

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 blocks in this section that apply. If you are a manufacturer of the chemical, you must check a and/or b, and at least one of c, d, e, or f. Refer to the definitions of "manufacture," "process," and "otherwise use" in the general information section of these instructions or section 372.3 of the rule for 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 1989) have been exceeded and the reporting of listed chemicals is therefore required.

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

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

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

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

Figure D

(For more information, see Example 7 on page19)

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

Page 3

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EPA FORM R

PART III. CHEMICAL-SPECIFIC INFORMATION

(This space for your optional us

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.) 100-21-0
1.3	Chemical or Chemical Category Name (Enter only one name exactly as it appears on the 313 list.) Terephthalic 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.) 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. [X] Produce b. [ ] Import	If produce or import: c. [X] For on-site use/processing e. [ ] As a byproduct	d. [X] For sale/ distribution f. [ ] As an impurity
3.2	Process the chemical:	a. [X] As a reactant d. [ ] Repackaging only	b. [ ] As a formulation component	c. [ ] As an article component
3.3	Otherwise use the chemical:	a. [ ] As a chemical processing aid	b. [ ] As a manufacturing aid	c. [ ] 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	
Range Code	From...	To....
01	0	99
02	100	999
03	1,000	9,999
04	10,000	99,999
05	100,000	999,999
06	1,000,000	9,999,999
07	10,000,000	49,999,999
08	50,000,000	99,999,999
09	100,000,000	499,999,999
10	500,000,000	999,999,999
11	1 billion	more than 1 billion

If the toxic chemical present at your facility was part of a mixture or trade name product, determine the maximum quantity of the 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 flouride; 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. For discharges of listed bases, a zero release may be reported if the discharge has been neutralized to pH 9 or below.

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 as 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 <u>not</u> 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 a underground pipeline into the land at a facility. Because the pipe was only a few feet from the surface at the erupt point, 30 percent of the benzene evaporates into the air. The 600 pounds released to the air would be reported as a fugitive air release (Section 5.1) and the remaining 1400 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 <u>do not</u> 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., 7521 pounds would be reported as 7500 pounds).

<u>Releases of Less Than One Pound.</u> 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 "1-499" in column A.1 or enter "1" in column A.2. <u>Do not</u> use both columns A.1 and A.2. If the release is less than 0.5 pounds, you may round to zero and check the "0" bracket in A.1.

Note that 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 use of that same type of article (e.g., sheet metal or plastic film) that occurs over the course of the calendar year.

<u>Zero Releases.</u> 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 6-9, 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

For reports submitted for calendar years 1987, 1988, and 1989 only, you may take advantage of range reporting for releases to an environmental medium that are less than 1,000 pounds for the year. If you choose this option, mark one of the three boxes, 0, 1-499, or 500-999, that corresponds to releases of the chemical to the appropriate environmental medium (i.e., any line item). You are not required, however, to use these range check boxes; you have the option of providing a specific 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 ($PbCrO_4PbO$) 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 ($PbCrO_4PbO$) -
Molecular weight = 546.37
Lead 2 Pb -
Molecular weight = 207.2 x 2 = 414.4
Chromate 1 Cr -
Molecular weight = 51.996

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

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

14,000 x 0.7585 = 10,619 pounds of lead
14,000 x 0.0952 = 1,334 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 x 14,000 = 10,619 pounds from lead chromate (round to 11,000 pounds)

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

(As an example, the releases and transfers of lead should be reported as illustrated in Figure E on the pages 24-25.)

Chromium

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

Selenium

Transfer:
0.2255 x 16,000 = 3,608 pounds of selenium from lead 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-

Figure E

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.) Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

Figure E

(Continued)

). 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) A.1 Reporting Ranges 0 / 1-499 / 500-999	A.2 Enter Estimate	B. Basis of Estimate (enter code)	C. % From Stormwater	
.1 Fugitive or non-point air emissions	5.1a	[ ] [ ] [ ]	NA	5.1b [ ]		
.2 Stack or point air emissions	5.2a	[ ] [ ] [ ]	NA	5.2b [ ]		
.3 Discharges to receiving streams or water bodies	5.3.1 [ ]	5.3.1a [ ] [ ] [ ]	NA	5.3.1b [ ]	5.3.1c NA %	
(Enter letter code for stream from Part I Section 3.10 in the box provided.)	5.3.2 [ ]	5.3.2a [ ] [ ] [ ]		5.3.2b [ ]	5.3.2c %	
	5.3.3 [ ]	5.3.3a [ ] [ ] [ ]		5.3.3b [ ]	5.3.3c %	
.4 Underground injection on-site	5.4a	[ ] [ ] [ ]	NA	5.4b [ ]		
.5 Releases to land on-site						
5.5.1 Landfill	5.5.1a	[ ] [ ] [ ]	11,000	5.5.1b [C]		
5.5.2 Land treatment/application farming	5.5.2a	[ ] [ ] [ ]	NA	5.5.2b [ ]		
5.5.3 Surface impoundment	5.5.3a	[ ] [ ] [ ]	NA	5.5.3b [ ]		
5.5.4 Other disposal	5.5.4a	[ ] [ ] [ ]	NA	5.5.4b [ ]		

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

. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS					
ou may report transfers less than 1,000 pounds by hecking ranges under A.1. (Do ot use both A.1 and A.2)		A. Total Transfers (pounds/year) A.1 Reporting Ranges 0 / 1-499 / 500-999	A.2 Enter Estimate	B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
.1.1 Discharge to POTW (enter location number from Part II. Section 1.)	[1] [ ]	[ ] [ ] [ ]	NA	6.1.1b [ ]	
.2.1 Other off-site location (enter location number from Part II. Section 2.)	[2] [1]	[ ] [ ] [ ]	9,500	6.2.1b [C]	6.2.1c [M][7][2]
.2.2 Other off-site location (enter location number from Part II. Section 2.)	[2] [ ]	[ ] [ ] [ ]	NA	6.2.2b [ ]	6.2.2c [M][ ][ ]
.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.)

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.

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.

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

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

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

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

Round to 340 pounds of zinc for report.

The percentage of zinc discharged through stormwater is

88/338 x 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.)

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

$$\left[\text{Weighted-average runoff coefficient}\right] = \frac{(\text{Area}_1 C_1 + \text{Area}_2 C_2 + \ldots\ldots\ A_i C_i)}{\text{Total Site Area}}$$

where C_i = runoff coefficient for a specific land use of Area

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

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

Total stormwater runoff = 7.45 million gallons/year

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 acids and bases if they have been neutralized to pH 6-9 prior to discharge to a POTW. See the discussion under Section 5.3, Discharges to Receiving Streams or Water Bodies (see page 21).

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, but only for reporting years 1987, 1988, and 1989. 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.

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

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

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 preceeding 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 as aeration basin, where a chemical may evaporate, be biodegraded, or be physically removed in the sludge.

Percent removal must be calculated as follows:

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

where I = mass of the chemical in the influent 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 or bases which are neutralized to a pH between 6-9 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 chemical generated in either of two ways. You may provide the amount of the 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 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 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 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 **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 1989/amount of chemical produced in 1988. For example, a company manufactures 200,000 pounds of a chemical in 1988 and 250,000 pounds of the same chemical in 1989. The index figure to report would be 1.3 (1.25 rounded to two significant digits).
- ❑ Amount of paint produced in 1989/amount of paint produced in 1988.
- ❑ Number of appliances coated in 1989/number of appliances coated in 1988.
- ❑ Square feet of solar collector fabricated in 1989/square feet of solar collector fabricated in 1988.

8.D Reason for Action

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

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

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. <u>Type of Modification</u>

M3: Equipment/Technology Modification.

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

		Tank Emissions of Toluene		Process Emissions of Toluene		Toluene in Sludges		Total Toluene Wastes
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

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

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

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

3612 Power, distribution, and specialty transformers
3613 Switchgear and switchboard apparatus
3621 Motors and generators
3624 Carbon and graphite products
3625 Relays and industrial controls
3629 Electrical industrial appliances, n.e.c.*
3631 Household cooking equipment
3632 Household refrigerators and home and farm freezers
3633 Household laundry equipment
3634 Electrical housewares and fans
3635 Household vacuum cleaners
3639 Household appliances, n.e.c.*
3641 Electric lampbulbs and tubes
3643 Current carrying wiring devices
3644 Noncurrent carrying wiring devices
3645 Residential electric lighting fixtures
3646 Commercial, industrial, and institutional electric lighting fixtures
3647 Vehicular lighting equipment
3648 Lighting equipment, n.e.c.*
3651 Household audio and video equipment
3652 Phonograph records and pre-recorded audio tapes and disks
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.*

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

TABLE II

SECTION 313 TOXIC CHEMICAL LIST FOR REPORTING YEAR 1989

(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

[Note: Chemicals may be added to or deleted from the list. The Emergency Planning and Community Right-to-Know Information Hotline, (800) 535-0202 or (202) 479-2449 in Washington, D.C. or Alaska, will provide up-to-date information on the status of these changes. See page 11 of the instructions for more information on the de minimis values listed below.]

a. Alphabetical Chemical List

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

* C.I. means "Color Index"

CAS Number	Chemical Name	De Minimis Concentration
63-25-2	Carbaryl {1-Naphthalenol, methylcarbamate}	1.0
75-15-0	Carbon disulfide	1.0
56-23-5	Carbon tetrachloride	0.1
463-58-1	Carbonyl sulfide	1.0
120-80-9	Catechol	1.0
133-90-4	Chloramben {Benzoic acid, 3-amino-2,5-dichloro-}	1.0
57-74-9	Chlordane {4,7-Methanoindan, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-}	1.0
7782-50-5	Chlorine	1.0
10049-04-4	Chlorine dioxide	1.0
79-11-8	Chloroacetic acid	1.0
532-27-4	2-Chloroacetophenone	1.0
108-90-7	Chlorobenzene	1.0
510-15-6	Chlorobenzilate {Benzeneacetic acid,4-chloro-.alpha.-(4-chlorophenyl)-.alpha.-hydroxy-,ethyl ester}	1.0
75-00-3	Chloroethane {Ethyl chloride}	1.0
67-66-3	Chloroform	0.1
74-87-3	Chloromethane {Methyl chloride}	1.0
107-30-2	Chloromethyl methyl ether	0.1
126-99-8	Chloroprene	1.0
1897-45-6	Chlorothalonil {1,3-Benzenedicarbonitrile, 2,4,5,6-tetrachloro-}	1.0
7440-47-3	Chromium	0.1
7440-48-4	Cobalt	1.0
7440-50-8	Copper	1.0
120-71-8	p-Cresidine	0.1
1319-77-3	Cresol (mixed isomers)	1.0
108-39-4	m-Cresol	1.0
95-48-7	o-Cresol	1.0
106-44-5	p-Cresol	1.0
98-82-8	Cumene	1.0
80-15-9	Cumene hydroperoxide	1.0
135-20-6	Cupferron {Benzeneamine, N-hydroxy-N-nitroso, ammonium salt}	0.1
110-82-7	Cyclohexane	1.0
94-75-7	2,4-D {Acetic acid, (2,4-dichlorophenoxy)-}	1.0
1163-19-5	Decabromodiphenyl oxide	1.0

CAS Number	Chemical Name	De Minimis Concentration
2303-16-4	Diallate {Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester}	1.0
615-05-4	2,4-Diaminoanisole	0.1
39156-41-7	2,4-Diaminoanisole sulfate	0.1
101-80-4	4,4'-Diaminodiphenyl ether	0.1
25376-45-8	Diaminotoluene (mixed isomers)	0.1
95-80-7	2,4-Diaminotoluene	0.1
334-88-3	Diazomethane	1.0
132-64-9	Dibenzofuran	1.0
96-12-8	1,2-Dibromo-3-chloropropane {DBCP}	0.1
106-93-4	1,2-Dibromoethane {Ethylene dibromide}	0.1
84-74-2	Dibutyl phthalate	1.0
25321-22-6	Dichlorobenzene (mixed isomers)	0.1
95-50-1	1,2-Dichlorobenzene	1.0
541-73-1	1,3-Dichlorobenzene	1.0
106-46-7	1,4-Dichlorobenzene	0.1
91-94-1	3,3'-Dichlorobenzidine	0.1
75-27-4	Dichlorobromomethane	1.0
107-06-2	1,2-Dichloroethane {Ethylene dichloride}	0.1
540-59-0	1,2-Dichloroethylene	1.0
75-09-2	Dichloromethane {Methylene chloride}	0.1
120-83-2	2,4-Dichlorophenol	1.0
78-87-5	1,2-Dichloropropane	1.0
542-75-6	1,3-Dichloropropylene	0.1
62-73-7	Dichlorvos {Phosphoric acid, 2,2-dichloroethenyl dimethyl ester}	1.0
115-32-2	Dicofol {Benzenemethanol, 4-chloro-.alpha.-(4-chlorophenyl)-.alpha.- (trichloromethyl)-}	1.0
1464-53-5	Diepoxybutane	0.1
111-42-2	Diethanolamine	1.0
117-81-7	Di-(2-ethylhexyl) phthalate {DEHP}	0.1
84-66-2	Diethyl phthalate	1.0
64-67-5	Diethyl sulfate	0.1
119-90-4	3,3'-Dimethoxybenzidine	0.1
60-11-7	4-Dimethylaminoazobenzene	0.1
119-93-7	3,3'-Dimethylbenzidine {o-Tolidine}	0.1
79-44-7	Dimethylcarbamyl chloride	0.1
57-14-7	1,1-Dimethyl hydrazine	0.1
105-67-9	2,4-Dimethylphenol	1.0
131-11-3	Dimethyl phthalate	1.0
77-78-1	Dimethyl sulfate	0.1

* C.I. means "Color Index"

CAS Number	Chemical Name	De Minimis Concentration
534-52-1	4,6-Dinitro-o-cresol	1.0
51-28-5	2,4-Dinitrophenol	1.0
121-14-2	2,4-Dinitrotoluene	1.0
606-20-2	2,6-Dinitrotoluene	1.0
117-84-0	n-Dioctyl phthalate	1.0
123-91-1	1,4-Dioxane	0.1
122-66-7	1,2-Diphenylhydrazine {Hydrazobenzene}	0.1
106-89-8	Epichlorohydrin	0.1
110-80-5	2-Ethoxyethanol	1.0
140-88-5	Ethyl acrylate	0.1
100-41-4	Ethylbenzene	1.0
541-41-3	Ethyl chloroformate	1.0
74-85-1	Ethylene	1.0
107-21-1	Ethylene glycol	1.0
151-56-4	Ethyleneimine {Aziridine}	0.1
75-21-8	Ethylene oxide	0.1
96-45-7	Ethylene thiourea	0.1
2164-17-2	Fluometuron {Urea, N,N-dimethyl-N'-[3-(trifluoromethyl)phenyl]-}	1.0
50-00-0	Formaldehyde	0.1
76-13-1	Freon 113 {Ethane, 1,1,2-trichloro-1,2,2-trifluoro-}	1.0
76-44-8	Heptachlor {1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-methano-1H-indene}	1.0
118-74-1	Hexachlorobenzene	0.1
87-68-3	Hexachloro-1,3-butadiene	1.0
77-47-4	Hexachlorocyclopentadiene	1.0
67-72-1	Hexachloroethane	1.0
1335-87-1	Hexachloronaphthalene	1.0
680-31-9	Hexamethylphosphoramide	0.1
302-01-2	Hydrazine	0.1
10034-93-2	Hydrazine sulfate	0.1
7647-01-0	Hydrochloric acid	1.0
74-90-8	Hydrogen cyanide	1.0
7664-39-3	Hydrogen fluoride	1.0
123-31-9	Hydroquinone	1.0
78-84-2	Isobutyraldehyde	1.0
67-63-0	Isopropyl alcohol (manufacturing-strong acid process, no supplier notification)	0.1
80-05-7	4,4'-Isopropylidenediphenol	1.0
7439-92-1	Lead	0.1
58-89-9	Lindane {Cyclohexane,1,2,3,4,5,6-hexachloro-,(1.alpha.,2.alpha.,3.beta.,4.alpha.,5.alpha.,6.beta.)-}	0.1

CAS Number	Chemical Name	De Minimis Concentration
108-31-6	Maleic anhydride	1.0
12427-38-2	Maneb {Carbamodithioic acid, 1,2-ethanediylbis-,manganese complex}	1.0
7439-96-5	Manganese	1.0
7439-97-6	Mercury	1.0
67-56-1	Methanol	1.0
72-43-5	Methoxychlor {Benzene, 1,1'-(2,2,2-trichloroethylidene)bis [4-methoxy-}}	1.0
109-86-4	2-Methoxyethanol	1.0
96-33-3	Methyl acrylate	1.0
1634-04-4	Methyl tert-butyl ether	1.0
101-14-4	4,4'-Methylenebis (2-chloroaniline) {MBOCA}	0.1
101-61-1	4,4'-Methylenebis(N,N-dimethyl) benzenamine	0.1
101-68-8	Methylenebis (phenylisocyanate) {MBI}	1.0
74-95-3	Methylene bromide	1.0
101-77-9	4,4'-Methylenedianiline	0.1
78-93-3	Methyl ethyl ketone	1.0
60-34-4	Methyl hydrazine	1.0
74-88-4	Methyl iodide	0.1
108-10-1	Methyl isobutyl ketone	1.0
624-83-9	Methyl isocyanate	1.0
80-62-6	Methyl methacrylate	1.0
90-94-8	Michler's ketone	0.1
1313-27-5	Molybdenum trioxide	1.0
505-60-2	Mustard gas {Ethane, 1,1'-thiobis[2-chloro-}}	0.1
91-20-3	Naphthalene	1.0
134-32-7	alpha-Naphthylamine	0.1
91-59-8	beta-Naphthylamine	0.1
7440-02-0	Nickel	0.1
7697-37-2	Nitric acid	1.0
139-13-9	Nitrilotriacetic acid	0.1
99-59-2	5-Nitro-o-anisidine	0.1
98-95-3	Nitrobenzene	1.0
92-93-3	4-Nitrobiphenyl	0.1
1836-75-5	Nitrofen {Benzene, 2,4-dichloro-1-(4-nitrophenoxy)-}	0.1
51-75-2	Nitrogen mustard {2-Chloro-N-(2-chloroethyl)-N-methylethanamine}	0.1
55-63-0	Nitroglycerin	1.0
88-75-5	2-Nitrophenol	1.0
100-02-7	4-Nitrophenol	1.0
79-46-9	2-Nitropropane	0.1

* C.I. means "Color Index"

CAS Number	Chemical Name	De Minimis Concentration
156-10-5	p-Nitrosodiphenylamine	0.1
121-69-7	N,N-Dimethylaniline	1.0
924-16-3	N-Nitrosodi-n-butylamine	0.1
55-18-5	N-Nitrosodiethylamine	0.1
62-75-9	N-Nitrosodimethylamine	0.1
86-30-6	N-Nitrosodiphenylamine	1.0
621-64-7	N-Nitrosodi-n-propylamine	0.1
4549-40-0	N-Nitrosomethylvinylamine	0.1
59-89-2	N-Nitrosomorpholine	0.1
759-73-9	N-Nitroso-N-ethylurea	0.1
684-93-5	N-Nitroso-N-methylurea	0.1
16543-55-8	N-Nitrosonornicotine	0.1
100-75-4	N-Nitrosopiperidine	0.1
2234-13-1	Octachloronaphthalene	1.0
20816-12-0	Osmium tetroxide	1.0
56-38-2	Parathion {Phosphorothioic acid, o, o-diethyl-o-(4-nitrophenyl) ester}	1.0
87-86-5	Pentachlorophenol {PCP}	1.0
79-21-0	Peracetic acid	1.0
108-95-2	Phenol	1.0
106-50-3	p-Phenylenediamine	1.0
90-43-7	2-Phenylphenol	1.0
75-44-5	Phosgene	1.0
7664-38-2	Phosphoric acid	1.0
7723-14-0	Phosphorus (yellow or white)	1.0
85-44-9	Phthalic anhydride	1.0
88-89-1	Picric acid	1.0
1336-36-3	Polychlorinated biphenyls {PCBs}	0.1
1120-71-4	Propane sultone	0.1
57-57-8	beta-Propiolactone	0.1
123-38-6	Propionaldehyde	1.0
114-26-1	Propoxur {Phenol, 2-(1-methylethoxy)-, methylcarbamate}	1.0
115-07-1	Propylene {Propene}	1.0
75-55-8	Propyleneimine	0.1
75-56-9	Propylene oxide	0.1
110-86-1	Pyridine	1.0
91-22-5	Quinoline	1.0
106-51-4	Quinone	1.0
82-68-8	Quintozene {Pentachloronitrobenzene}	1.0
81-07-2	Saccharin (manufacturing, no supplier notification) {1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide}	0.1
94-59-7	Safrole	0.1
7782-49-2	Selenium	1.0
7440-22-4	Silver	1.0
100-42-5	Styrene	0.1
96-09-3	Styrene oxide	0.1
7664-93-9	Sulfuric acid	1.0
100-21-0	Terephthalic acid	1.0
79-34-5	1,1,2,2-Tetrachloroethane	0.1
127-18-4	Tetrachloroethylene {Perchloroethylene}	0.1
961-11-5	Tetrachlorvinphos {Phosphoric acid, 2-chloro-1-(2,3,5-trichlorophenyl) ethenyl dimethyl ester}	1.0
7440-28-0	Thallium	1.0
62-55-5	Thioacetamide	0.1
139-65-1	4,4'-Thiodianiline	0.1
62-56-6	Thiourea	0.1
1314-20-1	Thorium dioxide	1.0
7550-45-0	Titanium tetrachloride	1.0
108-88-3	Toluene	1.0
584-84-9	Toluene-2,4-diisocyanate	0.1
91-08-7	Toluene-2,6-diisocyanate	0.1
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
71-55-6	1,1,1-Trichloroethane {Methyl chloroform}	1.0
79-00-5	1,1,2-Trichloroethane	1.0
79-01-6	Trichloroethylene	1.0
95-95-4	2,4,5-Trichlorophenol	1.0
88-06-2	2,4,6-Trichlorophenol	0.1
1582-09-8	Trifluralin {Benzenamine, 2,6-dinitro-N,N-dipropyl-4-(trifluoromethyl)-}	1.0
95-63-6	1,2,4-Trimethylbenzene	1.0
126-72-7	Tris (2,3-dibromopropyl) phosphate	0.1
51-79-6	Urethane {Ethyl carbamate}	0.1
7440-62-2	Vanadium (fume or dust)	1.0
108-05-4	Vinyl acetate	1.0
593-60-2	Vinyl bromide	0.1
75-01-4	Vinyl chloride	0.1
75-35-4	Vinylidene chloride	1.0
1330-20-7	Xylene (mixed isomers)	1.0

* C.I. means "Color Index"

CAS Number	Chemical Name	De Minimis Concentration
108-38-3	m-Xylene	1.0
95-47-6	o-Xylene	1.0
106-42-3	p-Xylene	1.0
87-62-7	2,6-Xylidine	1.0
7440-66-6	Zinc (fume or dust)	1.0
12122-67-7	Zineb {Carbamodithioic acid, 1,2-ethanediylbis-, zinc complex}	1.0

b. List By CAS Number

CAS Number	Chemical Name	De Minimis Concentration
50-00-0	Formaldehyde	0.1
51-28-5	2,4-Dinitrophenol	1.0
51-75-2	Nitrogen mustard {2-Chloro-N-(2-chloroethyl)-N-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
57-57-8	beta-Propiolactone	0.1
57-74-9	Chlordane {4,7-Methanoindan,1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-}	1.0
58-89-9	Lindane {Cyclohexane,1,2,3,4,5,6-hexachloro-,(1.alpha.,2.alpha.,3.beta., 4.alpha.,5.alpha.,6.beta.)-}	0.1
59-89-2	N-Nitrosomorpholine	0.1
60-09-3	4-Aminoazobenzene	0.1
60-11-7	4-Dimethylaminoazobenzene	0.1
60-34-4	Methyl hydrazine	1.0
60-35-5	Acetamide	0.1
62-53-3	Aniline	1.0
62-55-5	Thioacetamide	0.1
62-56-6	Thiourea	0.1
62-73-7	Dichlorvos {Phosphoric acid, 2,2-dichloroethenyl dimethyl ester}	1.0
62-75-9	N-Nitrosodimethylamine	0.1
63-25-2	Carbaryl {1-Naphthalenol, methylcarbamate}	1.0
64-67-5	Diethyl sulfate	0.1
67-56-1	Methanol	1.0
67-63-0	Isopropyl alcohol (manufacturing-strong acid process, no supplier notification)	0.1
67-64-1	Acetone	1.0
67-66-3	Chloroform	0.1
67-72-1	Hexachloroethane	1.0
68-76-8	Triaziquone {2,5-Cyclohexadiene-1,4-dione, 2,3,5-tris(1-aziridinyl)-}	0.1
71-36-3	n-Butyl alcohol	1.0
71-43-2	Benzene	0.1
71-55-6	1,1,1-Trichloroethane {Methyl chloroform}	1.0
72-43-5	Methoxychlor {Benzene, 1,1'-(2,2,2-trichloroethylidene)bis [4-methoxy-}	1.0
74-83-9	Bromomethane {Methyl bromide}	1.0
74-85-1	Ethylene	1.0
74-87-3	Chloromethane {Methyl chloride}	1.0
74-88-4	Methyl iodide	0.1
74-90-8	Hydrogen cyanide	1.0
74-95-3	Methylene bromide	1.0
75-00-3	Chloroethane {Ethyl chloride}	1.0
75-01-4	Vinyl chloride	0.1
75-05-8	Acetonitrile	0.1
75-07-0	Acetaldehyde	1.0
75-09-2	Dichloromethane {Methylene chloride}	0.1
75-15-0	Carbon disulfide	1.0
75-21-8	Ethylene oxide	0.1
75-25-2	Bromoform {Tribromomethane}	1.0
75-27-4	Dichlorobromomethane	1.0
75-35-4	Vinylidene chloride	1.0
75-44-5	Phosgene	1.0
75-55-8	Propyleneimine	0.1
75-56-9	Propylene oxide	0.1
75-65-0	tert-Butyl alcohol	1.0
76-13-1	Freon 113 {Ethane, 1,1,2-trichloro-1,2,2-trifluoro-}	1.0
76-44-8	Heptachlor {1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-methano-1H-indene}	1.0

* C.I. means "Color Index"

CAS Number	Chemical Name	De Minimis Concentration
77-47-4	Hexachlorocyclopentadiene	1.0
77-78-1	Dimethyl sulfate	0.1
78-84-2	Isobutyraldehyde	1.0
78-87-5	1,2-Dichloropropane	1.0
78-92-2	sec-Butyl alcohol	1.0
78-93-3	Methyl ethyl ketone	1.0
79-00-5	1,1,2-Trichloroethane	1.0
79-01-6	Trichloroethylene	1.0
79-06-1	Acrylamide	0.1
79-10-7	Acrylic acid	1.0
79-11-8	Chloroacetic acid	1.0
79-21-0	Peracetic acid	1.0
79-34-5	1,1,2,2-Tetrachloroethane	0.1
79-44-7	Dimethylcarbamyl chloride	0.1
79-46-9	2-Nitropropane	0.1
80-05-7	4,4'-Isopropylidenediphenol	1.0
80-15-9	Cumene hydroperoxide	1.0
80-62-6	Methyl methacrylate	1.0
81-07-2	Saccharin (manufacturing, no supplier notification) {1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide}	0.1
81-88-9	C.I. Food Red 15*	0.1
82-28-0	1-Amino-2-methylanthraquinone	0.1
82-68-8	Quintozene {Pentachloronitro-benzene}	1.0
84-66-2	Diethyl phthalate	1.0
84-74-2	Dibutyl phthalate	1.0
85-44-9	Phthalic anhydride	1.0
85-68-7	Butyl benzyl phthalate	1.0
86-30-6	N-Nitrosodiphenylamine	1.0
87-62-7	2,6-Xylidine	1.0
87-68-3	Hexachloro-1,3-butadiene	1.0
87-86-5	Pentachlorophenol {PCP}	1.0
88-06-2	2,4,6-Trichlorophenol	0.1
88-75-5	2-Nitrophenol	1.0
88-89-1	Picric acid	1.0
90-04-0	o-Anisidine	0.1
90-43-7	2-Phenylphenol	1.0
90-94-8	Michler's ketone	0.1
91-08-7	Toluene-2,6-diisocyanate	0.1
91-20-3	Naphthalene	1.0
91-22-5	Quinoline	1.0
91-59-8	beta-Naphthylamine	0.1
91-94-1	3,3'-Dichlorobenzidine	0.1
92-52-4	Biphenyl	1.0
92-67-1	4-Aminobiphenyl	0.1
92-87-5	Benzidine	0.1
92-93-3	4-Nitrobiphenyl	0.1
94-36-0	Benzoyl peroxide	1.0
94-59-7	Safrole	0.1
94-75-7	2,4-D {Acetic acid, (2,4-dichlorophenoxy)-}	1.0
95-47-6	o-Xylene	1.0
95-48-7	o-Cresol	1.0
95-50-1	1,2-Dichlorobenzene	1.0
95-53-4	o-Toluidine	0.1
95-63-6	1,2,4-Trimethylbenzene	1.0
95-80-7	2,4-Diaminotoluene	0.1
95-95-4	2,4,5-Trichlorophenol	1.0
96-09-3	Styrene oxide	0.1
96-12-8	1,2-Dibromo-3-chloropropane {DBCP}	0.1
96-33-3	Methyl acrylate	1.0
96-45-7	Ethylene thiourea	0.1
97-56-3	C.I. Solvent Yellow 3*	0.1
98-07-7	Benzoic trichloride {Benzotrichloride}	0.1
98-82-8	Cumene	1.0
98-87-3	Benzal chloride	1.0
98-88-4	Benzoyl chloride	1.0
98-95-3	Nitrobenzene	1.0
99-59-2	5-Nitro-o-anisidine	0.1
100-02-7	4-Nitrophenol	1.0
100-21-0	Terephthalic acid	1.0
100-41-4	Ethylbenzene	1.0
100-42-5	Styrene	0.1
100-44-7	Benzyl chloride	1.0
100-75-4	N-Nitrosopiperidine	0.1
101-14-4	4,4'-Methylenebis (2-chloroaniline) {MBOCA}	0.1
101-61-1	4,4'-Methylenebis(N,N-dimethyl) benzenamine	0.1
101-68-8	Methylenebis(phenylisocyanate) {MBI}	1.0
101-77-9	4,4'-Methylenedianiline	0.1
101-80-4	4,4'-Diaminodiphenyl ether	0.1
103-23-1	Bis(2-ethylhexyl) adipate	0.1
104-94-9	p-Anisidine	1.0
105-67-9	2,4-Dimethylphenol	1.0
106-42-3	p-Xylene	1.0
106-44-5	p-Cresol	1.0
106-46-7	1,4-Dichlorobenzene	0.1
106-50-3	p-Phenylenediamine	1.0
106-51-4	Quinone	1.0
106-88-7	1,2-Butylene oxide	1.0
106-89-8	Epichlorohydrin	0.1
106-93-4	1,2-Dibromoethane {Ethylene dibromide}	0.1
106-99-0	1,3-Butadiene	0.1

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CAS Number	Chemical Name	De Minimis Concentration
107-02-8	Acrolein	1.0
107-05-1	Allyl chloride	1.0
107-06-2	1,2-Dichloroethane {Ethylene dichloride}	0.1
107-13-1	Acrylonitrile	0.1
107-21-1	Ethylene glycol	1.0
107-30-2	Chloromethyl methyl ether	0.1
108-05-4	Vinyl acetate	1.0
108-10-1	Methyl isobutyl ketone	1.0
108-31-6	Maleic anhydride	1.0
108-38-3	m-Xylene	1.0
108-39-4	m-Cresol	1.0
108-60-1	Bis(2-chloro-1-methylethyl) ether	1.0
108-88-3	Toluene	1.0
108-90-7	Chlorobenzene	1.0
108-95-2	Phenol	1.0
109-86-4	2-Methoxyethanol	1.0
110-80-5	2-Ethoxyethanol	1.0
110-82-7	Cyclohexane	1.0
110-86-1	Pyridine	1.0
111-42-2	Diethanolamine	1.0
111-44-4	Bis(2-chloroethyl) ether	1.0
114-26-1	Propoxur {Phenol, 2-(1-methylethoxy)-, methylcarbamate}	1.0
115-07-1	Propylene (Propene)	1.0
115-32-2	Dicofol {Benzenemethanol, 4-chloro-.alpha.-(4-chlorophenyl)-.alpha.-(trichloromethyl)-}	1.0
117-79-3	2-Aminoanthraquinone	0.1
117-81-7	Di(2-ethylhexyl) phthalate {DEHP}	0.1
117-84-0	n-Dioctyl phthalate	1.0
118-74-1	Hexachlorobenzene	0.1
119-90-4	3,3'-Dimethoxybenzidine	0.1
119-93-7	3,3'-Dimethylbenzidine {o-Tolidine}	0.1
120-12-7	Anthracene	1.0
120-71-8	p-Cresidine	0.1
120-80-9	Catechol	1.0
120-82-1	1,2,4-Trichlorobenzene	1.0
120-83-2	2,4-Dichlorophenol	1.0
121-14-2	2,4-Dinitrotoluene	1.0
121-69-7	N,N-Dimethylaniline	1.0
122-66-7	1,2-Diphenylhydrazine {Hydrazobenzene}	0.1
123-31-9	Hydroquinone	1.0
123-38-6	Propionaldehyde	1.0
123-72-8	Butyraldehyde	1.0
123-91-1	1,4-Dioxane	0.1
126-72-7	Tris(2,3-dibromopropyl) phosphate	0.1
126-99-8	Chloroprene	1.0
127-18-4	Tetrachloroethylene {Perchloroethylene}	0.1
128-66-5	C.I. Vat Yellow 4*	1.0
131-11-3	Dimethyl phthalate	1.0
132-64-9	Dibenzofuran	1.0
133-06-2	Captan {1H-Isoindole-1,3(2H)-dione, 3a,4,7,7a-tetrahydro-2[(trichloromethy)thio]-}	1.0
133-90-4	Chloramben {Benzoic acid, 3-amino-2,5-dichloro-}	1.0
134-29-2	o-Anisidine hydrochloride	0.1
134-32-7	alpha-Naphthylamine	0.1
135-20-6	Cupferron {Benzeneamine, N-hydroxy-N-nitroso,ammonium salt}	0.1
139-13-9	Nitrilotriacetic acid	0.1
139-65-1	4,4'-Thiodianiline	0.1
140-88-5	Ethyl acrylate	0.1
141-32-2	Butyl acrylate	1.0
151-56-4	Ethyleneimine (Aziridine)	0.1
156-10-5	p-Nitrosodiphenylamine	0.1
156-62-7	Calcium cyanamide	1.0
302-01-2	Hydrazine	0.1
309-00-2	Aldrin {1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-(1.alpha.,4.alpha.,4a.beta.,5.alpha.,8.alpha.,8a.beta.)-}	1.0
334-88-3	Diazomethane	1.0
463-58-1	Carbonyl sulfide	1.0
492-80-8	C.I. Solvent Yellow 34* {Auramine}	0.1
505-60-2	Mustard gas {Ethane,1,1'-thiobis[2-chloro-}	0.1
510-15-6	Chlorobenzilate {Benzeneacetic acid,4-chloro-.alpha.-(4-chlorophenyl)-.alpha.-hydroxy-,ethyl ester}	1.0
532-27-4	2-Chloroacetophenone	1.0
534-52-1	4,6-Dinitro-o-cresol	1.0
540-59-0	1,2-Dichloroethylene	1.0
541-41-3	Ethyl chloroformate	1.0
541-73-1	1,3-Dichlorobenzene	1.0
542-75-6	1,3-Dichloropropylene	0.1
542-88-1	Bis(chloromethyl) ether	0.1
569-64-2	C.I. Basic Green 4*	1.0
584-84-9	Toluene-2,4-diisocyanate	0.1

* C.I. means "Color Index"

CAS Number	Chemical Name	De Minimis Concentration
593-60-2	Vinyl bromide	0.1
606-20-2	2,6-Dinitrotoluene	1.0
615-05-4	2,4-Diaminoanisole	0.1
621-64-7	N-Nitrosodi-n-propylamine	0.1
624-83-9	Methyl isocyanate	1.0
636-21-5	o-Toluidine hydrochloride	0.1
680-31-9	Hexamethylphosphoramide	0.1
684-93-5	N-Nitroso-N-methylurea	0.1
759-73-9	N-Nitroso-N-ethylurea	0.1
842-07-9	C.I. Solvent Yellow 14*	0.1
924-16-3	N-Nitrosodi-n-butylamine	0.1
961-11-5	Tetrachlorvinphos {Phosphoric acid, 2-chloro-1-(2,3,5-trichlorophenyl)ethenyl dimethyl ester}	1.0
989-38-8	C.I. Basic Red 1*	0.1
1120-71-4	Propane sultone	0.1
1163-19-5	Decabromodiphenyl oxide	1.0
1313-27-5	Molybdenum trioxide	1.0
1314-20-1	Thorium dioxide	1.0
1319-77-3	Cresol (mixed isomers)	1.0
1330-20-7	Xylene (mixed isomers)	1.0
1332-21-4	Asbestos (friable)	0.1
1335-87-1	Hexachloronaphthalene	1.0
1336-36-3	Polychlorinated biphenyls {PCBs}	0.1
1344-28-1	Aluminum oxide	1.0
1464-53-5	Diepoxybutane	0.1
1582-09-8	Trifluralin {Benzenamine, 2,6- dinitro-N,N-dipropyl-4-(trifluoromethyl)-}	1.0
1634-04-4	Methyl tert-butyl ether	1.0
1836-75-5	Nitrofen {Benzene, 2,4-dichloro-1-(4-nitrophenoxy)-}	0.1
1897-45-6	Chlorothalonil {1,3-Benzenedicar bonitrile, 2,4,5,6-tetrachloro-}	1.0
1937-37-7	C.I. Direct Black 38*	0.1
2164-17-2	Fluometuron {Urea, N,N-dimethyl-N'-[3-(trifluoromethyl)phenyl]-}	1.0
2234-13-1	Octachloronaphthalene	1.0
2303-16-4	Diallate {Carbamothioic acid, bis (1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester}	1.0
2602-46-2	C.I. Direct Blue 6*	0.1
2832-40-8	C.I. Disperse Yellow 3*	1.0
3118-97-6	C.I. Solvent Orange 7*	1.0
3761-53-3	C.I. Food Red 5*	0.1
4549-40-0	N-Nitrosomethylvinylamine	0.1
4680-78-8	C.I. Acid Green 3*	1.0
6484-52-2	Ammonium nitrate (solution)	1.0
7429-90-5	Aluminum (fume or dust)	1.0
7439-92-1	Lead	0.1
7439-96-5	Manganese	1.0
7439-97-6	Mercury	1.0
7440-02-0	Nickel	0.1
7440-22-4	Silver	1.0
7440-28-0	Thallium	1.0
7440-36-0	Antimony	1.0
7440-38-2	Arsenic	0.1
7440-39-3	Barium	1.0
7440-41-7	Beryllium	0.1
7440-43-9	Cadmium	0.1
7440-47-3	Chromium	0.1
7440-48-4	Cobalt	1.0
7440-50-8	Copper	1.0
7440-62-2	Vanadium (fume or dust)	1.0
7440-66-6	Zinc (fume or dust)	1.0
7550-45-0	Titanium tetrachloride	1.0
7647-01-0	Hydrochloric acid	1.0
7664-38-2	Phosphoric acid	1.0
7664-39-3	Hydrogen fluoride	1.0
7664-41-7	Ammonia	1.0
7664-93-9	Sulfuric acid	1.0
7697-37-2	Nitric acid	1.0
7723-14-0	Phosphorus (yellow or white)	1.0
7782-49-2	Selenium	1.0
7782-50-5	Chlorine	1.0
7783-20-2	Ammonium sulfate (solution)	1.0
8001-35-2	Toxaphene	0.1
10034-93-2	Hydrazine sulfate	0.1
10049-04-4	Chlorine dioxide	1.0
12122-67-7	Zineb {Carbamodithioic acid, 1,2-ethanediylbis-,zinc complex}	1.0
12427-38-2	Maneb {Carbamodithioic acid, 1,2-ethanediylbis-,manganese complex}	1.0
16071-86-6	C.I. Direct Brown 95*	0.1
16543-55-8	N-Nitrosonornicotine	0.1
20816-12-0	Osmium tetroxide	1.0
25321-22-6	Dichlorobenzene (mixed isomers)	0.1
25376-45-8	Diaminotoluene (mixed isomers)	0.1
39156-41-7	2,4-Diaminoanisole sulfate	0.1

* C.I. means "Color Index"

SECTION 313 CHEMICAL CATEGORIES

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

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

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

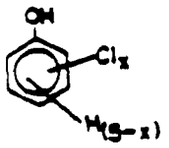
Arsenic Compounds - Includes any unique chemical substance that contains arsenic as part of that chemical's infrastructure.

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

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

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

Chlorophenols -



where x = 1 to 5

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

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

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

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

* C.I. means "Color Index"

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

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

R = alkyl or aryl groups

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

Polymers are excluded from this category.

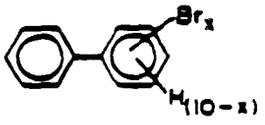
Lead Compounds - Includes any unique chemical substanc that contains lead as part of that chemical's infrastructure.

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

Mercury Compounds - Includes any unique chemical sub stance that contains mercury as part of that chemical's infra structure.

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

Polybrominated Biphenyls (PBBs)



where x = 1 to 10

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

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

Thallium Compounds - Includes any unique chemical sub stance that contains thallium as part of that chemical's infra structure.

Zinc Compounds - Includes any unique chemical substanc 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		

APPENDIX A

BLANK TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM R

Form Approved OMB No 2070-0093

Approval Expires: 01 91

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

EPA U S. Environmental Protection Agency

TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act

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

EPA FORM **R**

PART I. FACILITY IDENTIFICATION INFORMATION

(This space for your optional use.)

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

2. CERTIFICATION (Read and sign after completing all sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report

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

Signature | Date signed

3. FACILITY IDENTIFICATION

3.1	Facility or Establishment Name	
	Street Address	
	City	County
	State	Zip Code
	TRI Facility Identification Number	

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)

3.2	This report contains information for (Check only one): a. [ ] An entire facility b. [ ] 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

	Latitude			Longitude		
3.6	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

EPA

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? [ ] Yes [ ] No		Is location under control of reporting facility or parent company? [ ] Yes [ ] 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? [ ] Yes [ ] No		Is location under control of reporting facility or parent company? [ ] Yes [ ] 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? [ ] Yes [ ] No		Is location under control of reporting facility or parent company? [ ] Yes [ ] No	

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

EPA

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)

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

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

[ ][ ] (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) A.1 Reporting Ranges 0	1-499	500-999	A.2 Enter Estimate	B. Basis of Estimate (enter code)	C. % From Stormwater
5.1 Fugitive or non-point air emissions	5.1a	[ ]	[ ]	[ ]		5.1b [ ]	
5.2 Stack or point air emissions	5.2a	[ ]	[ ]	[ ]		5.2b [ ]	
5.3 Discharges to receiving streams or water bodies (Enter letter code for stream from Part I Section 3.10 in the box provided.) 5.3.1 [ ]	5.3.1a	[ ]	[ ]	[ ]		5.3.1b [ ]	5.3.1c %
5.3.2 [ ]	5.3.2a	[ ]	[ ]	[ ]		5.3.2b [ ]	5.3.2c %
5.3.3 [ ]	5.3.3a	[ ]	[ ]	[ ]		5.3.3b [ ]	5.3.3c %
5.4 Underground injection on-site	5.4a	[ ]	[ ]	[ ]		5.4b [ ]	
5.5 Releases to land on-site 5.5.1 Landfill	5.5.1a	[ ]	[ ]	[ ]		5.5.1b [ ]	
5.5.2 Land treatment/application farming	5.5.2a	[ ]	[ ]	[ ]		5.5.2b [ ]	
5.5.3 Surface impoundment	5.5.3a	[ ]	[ ]	[ ]		5.5.3b [ ]	
5.5.4 Other disposal	5.5.4a	[ ]	[ ]	[ ]		5.5.4b [ ]	

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

EPA

EPA FORM R

PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

(This space for your optional use)

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/year) A.1 Reporting Ranges 0	1–499	500–999	A.2 Enter Estimate	B. Basis of Estimate (enter code)	C. Type of Treatment/Disposal (enter code)
6.1.1 Discharge to POTW (enter location number from Part II, Section 1) 1	[ ]	[ ]	[ ]		6.1.1b	
6.2.1 Other off-site location (enter location number from Part II, Section 2) 2	[ ]	[ ]	[ ]		6.2.1b	6.2.1c M
6.2.2 Other off-site location (enter location number from Part II, Section 2) 2	[ ]	[ ]	[ ]		6.2.2b	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

[ ] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream 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	7.1b	7.1c	7.1d [ ]	7.1e %	7.1f [ ]	[ ]
7.2a	7.2b	7.2c	7.2d [ ]	7.2e %	7.2f [ ]	[ ]
7.3a	7.3b	7.3c	7.3d [ ]	7.3e %	7.3f [ ]	[ ]
7.4a	7.4b	7.4c	7.4d [ ]	7.4e %	7.4f [ ]	[ ]
7.5a	7.5b	7.5c	7.5d [ ]	7.5e %	7.5f [ ]	[ ]
7.6a	7.6b	7.6c	7.6d [ ]	7.6e %	7.6f [ ]	[ ]
7.7a	7.7b	7.7c	7.7d [ ]	7.7e %	7.7f [ ]	[ ]
7.8a	7.8b	7.8c	7.8d [ ]	7.8e %	7.8f [ ]	[ ]
7.9a	7.9b	7.9c	7.9d [ ]	7.9e %	7.9f [ ]	[ ]
7.10a	7.10b	7.10c	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: Current reporting year (pounds/year)	Prior year (pounds/year)	Or percent change (Check (+) or (-))	C. Index	D. Reason for Action (enter code)
M			[ ] + [ ] - %	.	R

EPA

EPA FORM R

PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III. umber 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

ITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE III, Section 5.3)

ay report releases of less than pounds by checking ranges under A.1. ot use both A.1 and A.2)			A Total Release (pounds/year) A.1 Reporting Ranges 0 1–499 500–999	A.2 Enter Estimate	B. Basis of Estimate (enter code in box provided)	C.% From Stormwater
scharges to ceiving streams or ater bodies	5.3.___	5.3.___a	[ ] [ ] [ ]		5.3.___b	5.3.___c %
nter letter code for stream m Part I Section 3 10 in box provided.)	5.3.___	5.3.___a	[ ] [ ] [ ]		5.3.___b	5.3.___c %
	5.3.___	5.3.___a	[ ] [ ] [ ]		5.3.___b	5.3.___c %

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

ay report transfers s than 1,000 pounds by checking s under A.1. (Do not use A.1 and A.2)	A. Total Transfers (pounds/year) A.1 Reporting Ranges 0 1–499 500–999	A.2 Enter Estimate	B. Basis of Estimate (enter code in box provided)	C. Type of Treatment/ Disposal (enter code in box provided)
___ Discharge to POTW (enter location number from Part II, Section 1.) 1	[ ] [ ] [ ]		6.1.___b	
___ Other off-site location (enter location number from Part II, Section 2.) 2	[ ] [ ] [ ]		6.2.___b	6.2.___c M
___ Other off-site location (enter location number from Part II, Section 2.) 2	[ ] [ ] [ ]		6.2.___b	6.2.___c M
___ Other off-site location (enter location number from Part II, Section 2.) 2	[ ] [ ] [ ]		6.2.___b	6.2.___c M

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

neral istestream er code 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
___a	7.___b	7.___c	7.___d [ ]	7.___e %	7.___f [ ] [ ]
___a	7.___b	7.___c	7.___d [ ]	7.___e %	7.___f [ ] [ ]
___a	7.___b	7.___c	7.___d [ ]	7.___e %	7.___f [ ] [ ]
___a	7.___b	7.___c	7.___d [ ]	7.___e %	7.___f [ ] [ ]
___a	7.___b	7.___c	7.___d [ ]	7.___e %	7.___f [ ] [ ]
___a	7.___b	7.___c	7.___d [ ]	7.___e %	7.___f [ ] [ ]
___a	7.___b	7.___c	7.___d [ ]	7.___e %	7.___f [ ] [ ]
___a	7.___b	7.___c	7.___d [ ]	7.___e %	7.___f [ ] [ ]
___a	7.___b	7.___c	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

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

Part 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 Locations

Type 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 Efficiency

General 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 Efficiency

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

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.]

art III, Section 8 - Optional Information on Waste Inimization

ype 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

ason for Action

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

APPENDIX 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 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 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 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 1989 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 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 1989, you conducted stack tests to determine air releases from the battery facility. The release data provided baseline data for a proposed 1990 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 1989 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 (1-499 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 (1-499 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.

Wastewater from the grid paste application process is entirely recycled within the process after treatment in a multi-stage settler. Wastewater from the grid paste mixer wet scrubber is

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

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

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

The facility wastewater monitoring program does not determine the concentration of lead and lead compounds in the scrubber discharge water, and releases to the surface impoundment (releases to land) must be calculated 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 pretreatment system are considered to be sequential treatment steps, as are the single-stage settler, pH adjustment, and evaporation (the surface impoundment) used to treat the grid paste application discharge. The treatment code for chemical precipitation (lime or sodium hydroxide) is C01, and the code for filtration is P12.

The 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 1989, 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.

Form Approved OMB No 2070-0093
Approval Expires: 11/91

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

EPA U.S. Environmental Protection Agency

TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act

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. S.W., Washington, D.C. 20460 Attn: TRI Burden and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Paperwork Reduction Project (2070-0093), Washington, D.C. 20603

EPA FORM **R**

PART I. FACILITY IDENTIFICATION INFORMATION

(This space for your optional use.)

1. 1.1 Are you claiming the chemical identity on page 3 trade secret?
[ ] Yes (Answer question 1.2; Attach substantiation forms.) [X] No (Do not answer 1.2; Go to question 1.3.)

1.2 If "Yes" in 1.1, is this copy: [ ] Sanitized [ ] Unsanitized

1.3 Reporting Year 19 89

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, 1990

3. FACILITY IDENTIFICATION

3.1
- Facility or Establishment Name: Pirx-Lewis, Inc., Battery Products Div.
- Street Address: 10545 Cerillos Road
- City: Albuquerque
- County: Bernadillo
- State: NM
- Zip Code: 81103-0420
- TRI Facility Identification Number: 81103 PRXLW CERIL

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)

3.2 This report contains information for (Check only one): a. [X] An entire facility b. [ ] Part of a facility.

3.3 Technical Contact: Mr. Roberto Garcia — Telephone Number (include area code): (505) 752-5360

3.4 Public Contact: Ms. Sandy A. Range — Telephone Number (include area code): (505) 752-5363

3.5 SIC Code (4 digit): a. 3691 b. NA c. d. e. f.

3.6

	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
	35	10	00	106	30	00

3.7 Dun & Bradstreet Number(s): a. 91-976-2270 b. NA

3.8 EPA Identification Number(s) (RCRA I.D. No.): a. NMD919762270 b. NA

3.9 NPDES Permit Number(s): a. NA b.

3.10 Receiving Streams or Water Bodies (enter one name per box): a. Tijeros Arroyo b. NA 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: 91-783-4567

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

EPA

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

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

2.1 Off-site location name		2.2 Off-site location name	
Colorado Waste Disposal, Inc.			
EPA Identification Number (RCRA ID. No.): COD554698764		EPA Identification Number (RCRA ID. No.): NA	
Street Address: 10500 County Route 76		Street Address:	
City: Golden	County: Jefferson	City:	County:
State: CO	Zip: 80305-1311	State:	Zip:
Is location under control of reporting facility or parent company? [ ] Yes [X] No		Is location under control of reporting facility or parent company? [ ] Yes [ ] 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? [ ] Yes [ ] No		Is location under control of reporting facility or parent company? [ ] Yes [ ] 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? [ ] Yes [ ] No		Is location under control of reporting facility or parent company? [ ] Yes [ ] No	

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

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

EPA

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) 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)

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

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

[0 6] (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) A.1 Reporting Ranges 0 / 1-499 / 500-999	A.2 Enter Estimate	B. Basis of Estimate (enter code)	C. % From Stormwater
5.1 Fugitive or non-point air emissions	5.1a	[ ] [X] [ ]		5.1b [0]	
5.2 Stack or point air emissions	5.2a	[ ] [ ] [ ]	2400	5.2b [M]	
5.3 Discharges to receiving streams or water bodies — 5.3.1 [A]	5.3.1a	[ ] [X] [ ]		5.3.1b [M]	5.3.1c 100 %
(Enter letter code for stream from Part I Section 3.10 in the box provided.) — 5.3.2 [ ]	5.3.2a	[ ] [ ] [ ]	NA	5.3.2b [ ]	5.3.2c NA %
5.3.3 [ ]	5.3.3a	[ ] [ ] [ ]		5.3.3b [ ]	5.3.3c %
5.4 Underground injection on-site	5.4a	[ ] [ ] [ ]	NA	5.4b [ ]	
5.5 Releases to land on-site — 5.5.1 Landfill	5.5.1a	[ ] [ ] [ ]	NA	5.5.1b [ ]	
5.5.2 Land treatment/application farming	5.5.2a	[ ] [ ] [ ]	NA	5.5.2b [ ]	
5.5.3 Surface impoundment	5.5.3a	[ ] [ ] [ ]	1500	5.5.3b [C]	
5.5.4 Other disposal	5.5.4a	[ ] [ ] [ ]	NA	5.5.4b [ ]	

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

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

EPA

EPA FORM R

PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

(This space for your optional use.)

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/year) A.1 Reporting Ranges 0	1–499	500–999	A.2 Enter Estimate	B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
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	6.2.2b	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

[ ] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream 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: Current reporting year (pounds/year)	Prior year (pounds/year)	Or percent change (Check (+) or (-))	C. Index	D. Reason for Action (enter code)
M 2	121,700	121,800	[ ] + [ ] - %	1 0	R 2

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

EPA

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/year) A.1 Reporting Ranges 0 / 1–499 / 500–999	A.2 Enter Estimate	B. Basis of Estimate (enter code in box provided)	C. % From Stormwater
5.3 **Discharges to receiving streams or water bodies**	5.3.___ ☐	5.3.___a	[ ] [ ] [ ]		5.3.___b ☐	5.3.___c %
(Enter letter code for stream from Part I Section 3.10 in the box provided.)	5.3.___ ☐	5.3.___a	[ ] [ ] [ ]		5.3.___b ☐	5.3.___c %
	5.3.___ ☐	5.3.___a	[ ] [ ] [ ]		5.3.___b ☐	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/year) A.1 Reporting Ranges 0 / 1–499 / 500–999	A.2 Enter Estimate	B. Basis of Estimate (enter code in box provided)	C. Type of Treatment/ Disposal (enter code in box provided)
6.1.___ Discharge to POTW (enter location number from Part II, Section 1.) 1 . ☐	[ ] [ ] [ ]		6.1.___b ☐	
6.2.___ Other off-site location (enter location number from Part II, Section 2.) 2 . ☐	[ ] [ ] [ ]		6.2.___b ☐	6.2.___c M ☐ ☐
6.2.___ Other off-site location (enter location number from Part II, Section 2.) 2 . ☐	[ ] [ ] [ ]		6.2.___b ☐	6.2.___c M ☐ ☐
6.2.___ Other off-site location (enter location number from Part II, Section 2.) 2 . ☐	[ ] [ ] [ ]		6.2.___b ☐	6.2.___c M ☐ ☐

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

A. General Wastestream (enter code in box provided)	B. Treatment Method (enter code in box provided)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes / No
7.11 a W	7.11 b C 0 1	7.11 c 3	7.11 d [X]	7.11 e NA %	7.11 f [ ] [ ]
7.12 a W	7.12 b P 1 2	7.12 c ☐	7.12 d [X]	7.12 e 85.0 %	7.12 f [X] [ ]
7.___a ☐	7.___b ☐☐☐	7.___c ☐	7.___d [ ]	7.___e %	7.___f [ ] [ ]
7.___a ☐	7.___b ☐☐☐	7.___c ☐	7.___d [ ]	7.___e %	7.___f [ ] [ ]
7.___a ☐	7.___b ☐☐☐	7.___c ☐	7.___d [ ]	7.___e %	7.___f [ ] [ ]
7.___a ☐	7.___b ☐☐☐	7.___c ☐	7.___d [ ]	7.___e %	7.___f [ ] [ ]
7.___a ☐	7.___b ☐☐☐	7.___c ☐	7.___d [ ]	7.___e %	7.___f [ ] [ ]
7.___a ☐	7.___b ☐☐☐	7.___c ☐	7.___d [ ]	7.___e %	7.___f [ ] [ ]
7.___a ☐	7.___b ☐☐☐	7.___c ☐	7.___d [ ]	7.___e %	7.___f [ ] [ ]

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

EPA

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/year) A.1 Reporting Ranges 0 / 1–499 / 500–999	A.2 Enter Estimate	B. Basis of Estimate (enter code in box provided)	C.% From Stormwater
5.3 Discharges to receiving streams or water bodies	5.3.___	5.3.___a	[ ] [ ] [ ]		5.3.___b	5.3.___c %
(Enter letter code for stream from Part I Section 3.10 in the box provided.)	5.3.___	5.3.___a	[ ] [ ] [ ]		5.3.___b	5.3.___c %
	5.3.___	5.3.___a	[ ] [ ] [ ]		5.3.___b	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/year) A.1 Reporting Ranges 0 / 1–499 / 500–999	A.2 Enter Estimate	B. Basis of Estimate (enter code in box provided)	C. Type of Treatment/ Disposal (enter code in box provided)
6.1.___ Discharge to POTW (enter location number from Part II, Section 1.) 1	[ ] [ ] [ ]		6.1.___b	
6.2.___ Other off-site location (enter location number from Part II, Section 2.) 2	[ ] [ ] [ ]		6.2.___b	6.2.___c M
6.2.___ Other off-site location (enter location number from Part II, Section 2.) 2	[ ] [ ] [ ]		6.2.___b	6.2.___c M
6.2.___ Other off-site location (enter location number from Part II, Section 2.) 2	[ ] [ ] [ ]		6.2.___b	6.2.___c M

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

A. General Wastestream (enter code in box provided)	B. Treatment Method (enter code in box provided)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes / No
7.11 a W	7.11 b C 0 1	7.11 c 3	7.11 d [X]	7.11 e NA %	7.11 f [ ] [ ]
7.12 a W	7.12 b P 1 2	7.12 c	7.12 d [X]	7.12 e 85.0 %	7.12 f [X] [ ]
7.___a	7.___b	7.___c	7.___d [ ]	7.___e %	7.___f [ ] [ ]
7.___a	7.___b	7.___c	7.___d [ ]	7.___e %	7.___f [ ] [ ]
7.___a	7.___b	7.___c	7.___d [ ]	7.___e %	7.___f [ ] [ ]
7.___a	7.___b	7.___c	7.___d [ ]	7.___e %	7.___f [ ] [ ]
7.___a	7.___b	7.___c	7.___d [ ]	7.___e %	7.___f [ ] [ ]
7.___a	7.___b	7.___c	7.___d [ ]	7.___e %	7.___f [ ] [ ]
7.___a	7.___b	7.___c	7.___d [ ]	7.___e %	7.___f [ ] [ ]

APPENDIX D

MOST COMMON ERRORS FOUND ON FORM R REPORTS FROM 1988

1. **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. 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 trade secret. Chemical names should be taken directly from the list in this document (see pages 40-48). 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.

2. **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. **Only** chemicals meeting the qualifiers require reporting under section 313 and should be reported on Form R with the appropriate qualifier in parenthesis.

3. **Missing certification signature.** An original certification signature must appear on page one of every Form R submitted to EPA.

4. **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.

5. **Maximum amount on-site left blank.** In a surprising number of Forms, Part III, Section 4 on page three of Form R is left blank. Leaving this section blank will result in a Notice of Technical Error.

6. **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 Rs are due to EPA on July 1, 1990 for chemicals manufactured, processed or otherwise used during reporting year 1989. A Form R cannot contain d for more than one year. "1988/89" is not correct. Pa: Section 1.3 must not be left blank; this error will resu: a Notice of Noncompliance.

7. **"Questionable" entries, such as:**

   - Missing or incorrect zip codes;
   - Missing county names;
   - Non-numeric SIC codes;
   - Non-numeric or invalid Dun and Bradstreet numbe
   - Incomplete off-site and POTW information (missin zip code, etc.);
   - Amounts reported in units other than pounds (e.g. metric) or use of exponential numbers.

8. **Incorrect completion of trade secret information.** T responses to trade secret questions on Part I and Part of a Form R must be consistent. If trade secrecy indicated, a sanitized Form R and two trade secret su stantiations must be submitted in the same package the trade secret Form R. Failure to provide comple trade secret submissions will result in a Notice of Nc compliance.

9. **Revisions not identified.** Revisions to previously su mitted data may be provided to EPA by making correctio **in red ink** on a copy of the Form R originally submitte marking the copy with the words "VOLUNTARY REV SION" marked "THIS SPACE FOR YOUR OPTIONA USE" on page one; and sending it to the Title III Reportir Center. You must also send a copy of the revision to tl State organization. Failure to clearly identify a revisic may result in EPA entering it into the database as a ne submission resulting in the appearance of increase emissions from the facility.

10. **Duplicate submissions not identified.** Facilities som times send multiple copies of the same Form R report insure that EPA received a copy. Duplicate submissior must be identified by printing the word "DUPLICATE" **red ink** on page one in the box marked "THIS SPAC FOR YOUR OPTIONAL USE". Failure to clearly identi a duplicate report may result in the duplicate appearanc of the data in the database and the appearance increased emissions from the facility.

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 20-39[1];

(2) You manufacture, import, or process a listed 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 firm 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 firms 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 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 section 313 of EPCRA (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 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 may be attached to the MSDS or the MSDS may 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 of the 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;
- ❑ Identify in the notification the prior shipments of the mixture or product to which the new notification applies, and
- ❑ Indicate how many shipments were affected during the calendar year (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 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 of the toxic chemical present in the mixture, 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 40-48.

(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 to your customer(s) 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 to customers must contain a statement that the 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 <u>three years</u>** of the following:

(1) Notifications sent to customers;

(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

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). We are required to notify you of the presence of toluene 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 or (202) 479-2449 (in Washington D.C. or Alaska). 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

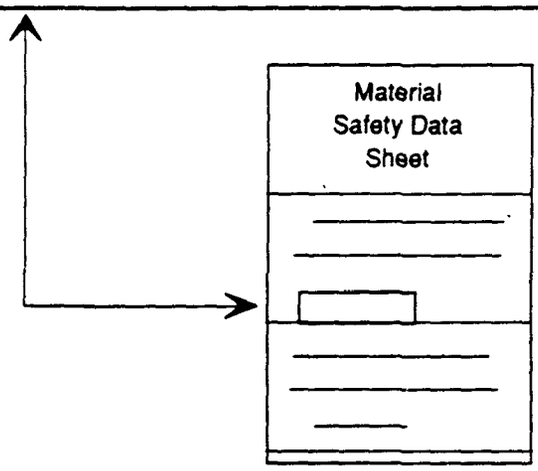
SAMPLE NOTIFICATION ON AN MSDS

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

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

To determine the latitude and longitude of your facility you will need a topographic map from United States Geological Survey (USGS).

How to Obtain USGS Maps

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

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

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

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 poi If your facility is large, choose a point central to the pr duction activities of the facility. If certain structures in yo facility are represented on the map, mark one of tl structures with a point.

2. Construct a small rectangle around the point with fi pencil lines connecting the nearest 2 1/2' or 5' graticule Graticules are intersections of latitude and longitude lin that are marked on the map edge, and appear as bla crosses at four points in the interior of the map.

3. Read and record the latitude and longitude for the sout east corner of the small quadrangle drawn in step tw The latitude and longitude are printed at the edges of tl map.

4. To determine the increment of latitude above the latitu line recorded in step 3,

   - position the map so that you face its west edge;
   - place the ruler in approximately a north-south aligr ment, with the "0" on the latitude line recorded in st 3 and the edge intersecting the point.

   Without moving the ruler, read and record:

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

   Determine the number of seconds to be added to tl 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 the small quadrangle on a 7.5' map. If you are using a ' map, the multiplication factor is 300" instead of 150" sin each graticule is 5' of latitude or longitude.]

For example:

Point distance = 99.5
Total distance = 192.0

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

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

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

to the nearest second = 32°18'48"

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

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

Without moving the ruler, read and record:

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

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

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

For example:

Point distance = 65.0
Total distance = 149.9

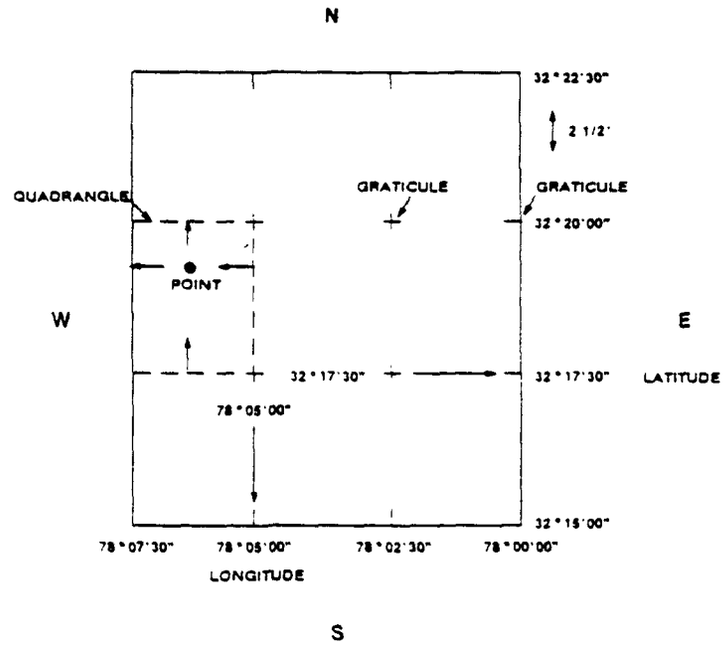
$\frac{65.0}{149.9} \times 150'' = 66.4'' = 01'06.4''$

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

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

to the nearest second = 78°06'06"

Latitude/Longitude Diagram



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

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

APPENDIX 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) 271-7700

Alaska
Dennis Kelso, Chair
Alaska State Emergency Response Commission
P.O. Box O
Juneau, AK 99811
(907) 465-2600

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

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. 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
P.O. Box 1401
Dover, DE 19903
(302) 736-4791

District of Columbia
Mr. Joseph P. Yeidell, Chairman
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. Thomas G. Pelham, Chairman
Florida Emergency Response Commission
Secretary, 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
Mr. David D. Brown, Chairman
State Emergency Response Commission
Station Number 72
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 55155
(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
Emergency Response Commission
Office of Civil Defense
P.O. Box 53365
Oklahoma City, OK 73152
(405) 521-2481

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

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. John Ridgway, Chairman
Washington State Department Of Ecology
Hazardous Substance Information Office
Mail Stop PV/11
Olympia, WA 98504
(206) 438-7252

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) 565-3230

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

Region 2

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

New Jersey, New York, Puerto Rico, Virgin Islands

Region 3

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

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

Region 4

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

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

Region 5

Pesticides & Toxic Substances Branch
USEPA Region 5 (5SPT-7)
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) 236-2806

Iowa, Kansas, Missouri, Nebraska

Region 8

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

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

Region 9

Pesticides & Toxics Branch
USEPA Region 9 (A-4-3)
211 Main Street
San Francisco, CA 94105
(415) 974-7280

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

Region 10

Pesticides & Toxic Substances Branch
USEPA Region 10 (AT083)
1200 Sixth Avenue
Seattle, WA 98101
(206) 442-4016

Alaska, Idaho, Oregon, Washington

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 1989** (EPA 560/4-90-001)

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

❑ **Toxic Chemical Release Inventory Reporting Form R and Instructions** (EPA 560/4-90-007)

Detailed instructions for complying with the section 313 reporting requirements. This document includes a blank Form R, step-by-step instructions for completing Form R, and lists of SIC codes 20-39, all toxic chemicals, and Regional and State designated contacts.

❑ **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 Guidance Package** (EPA 560/4-90-008)

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

❑ **Toxic Chemical Release Inventory Questions and Answers** (EPA 560/4-90-003)

Answers to frequently asked questions about the section 313 rule, organized by subject area. Appendix provides technical directives to clarify complex reporting issues.

❑ **Common Synonyms for Section 313 Chemicals** (EPA 560/4-90-005)

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 560/4-90-011)

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 Num 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 560/4-90-002)

This brochure alerts businesses to their reporting obligations under section 313 and assists in determining wheth 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 560/4-90-006)

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 Manufacturing** March 1988 (EPA 560/4-88-004i)
- ❑ **Printing Operations** January 1988 (EPA 560/4-88-004b)
- ❑ **Roller, Knife and Gravure Coating Operations** February 1988 (EPA 560/4/88/004j)
- ❑ **Rubber Production and Compounding** March 1988 (EPA 560/4-88-004q)
- ❑ **Semiconductor Manufacture** January 1988 (EPA 560/4-88-004e)
- ❑ **Spray Application of Organic Coatings** January 1988 (EPA 560/4-88-004d)
- ❑ **Textile Dyeing** February 1988 (EPA 560/4-88-004h)
- ❑ **Wood Preserving** February 1988 (EPA 560/4-88-004p)

Please type mailing address here (Do not attach business cards)

Name/Title _____

Company Name _____

Mail Stop _____

Street Address _____

P.O. Box _____

City/State/Zip Code _____

OTHER RELEVANT SECTION 313 MATERIALS

The Toxic Release Inventory: A National Perspective (EPA 560/4-89-005)

This document summarizes the first year of toxic release inventory data, and analyzes where toxic chemicals are being released, along with the amounts and types of releases. Available from: Superintendent of Documents, Government Printing Office, Washington, DC 20402-9325, (202) 783-3238, Stock Number: 055-000-00290-8, $14.95.

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 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 -- $1,025.00, 6250 (BPI) Density -- $525.00.

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, $210.00.

Section 313 Roadmaps Database -- Diskette

A database of sources of information on the toxic chemicals listed in section 313. The database, created in 1988, 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: PB89-133631-HCR, $175.00.

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: PB 89-158653-HCR, $50.00.

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

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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