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INTRODUCTION TO POLLUTANT RELEASE AND TRANSFER REGISTER (PRTR) AND GUIDELINES FOR REPORTING

UNEP/MAP
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PART I. INTRODUCTION TO PRTR

INTRODUCTION

A PRTR is an environmental database or inventory of potentially harmful releases or transfer to air, water and soil as well as waste transported off site for treatment or disposal. In addition to collecting data for PRTR from stationary sources, PRTR are also is designed to include estimates of releases from diffuse sources such as agriculture and transport activities.

PRTR data are useful in identifying some of the sources of pollutants and their possible risks to human health, these data represent a portion of all chemical releases and transfers to the environment from a range of industrial and non-industrial sources.

The United Nations Conference on Environment and Development (UNCED) and the adoption of Agenda 21 at that conference awoke the interest of the international community and national governments for the creation of Pollutant Release and Transfer Registers (PRTRs) as a basic environmental management tool at the country level.
As a result a wealth of experience has been developed internationally on this topic: PRTR programs now exist in the majority of developed countries, including the Toxic Release Inventory (TRI) in the U.S., the National Pollutant Release Inventory (NPRI) in Canada, the National Pollutant Inventory (NPI) in Australia and the European pollution registry (EPER and E-PRTR) in Europe.

In parallel to those developments UNITAR, in cooperation with the OECD, the World Health Organization (WHO), the United Nations Environment Programme (UNEP), and the United Nations Organization for Industrial Development (UNIDO), have pooled efforts to enable developing countries to introduce PRTRs for effective environmental management. A case in point is Mexico, where a PRTR program was implemented thanks to this international collaboration.

Nowadays, PRTR is a world accepted tool for the management of chemicals. Several projects adopted PRTR and developed legal framework for its development: UNECE in 45 European countries, CICA which is a global management system at regional level, and EPER (now E-PRTR), which is an obligation .

PRTR in the Mediterranean region started in 2003
In the Mediterranean area, the PRTR implementation process started with a typical bottom-up approach by launching pilot proactive projects in different countries in 2003 under the framework of the collaboration between UNEP and UNIDO. Pilot projects have been carried out in Egypt, in the area of Alexandria, in Syria, in the area of Latakia and in Turkey, in the area of Izmir. Other regional pilot project followed. The general idea of promoting such pilot projects is that each of them should act as a seed for the growth of a PRTR at national level. The pilot project therefore is considered as a test system for setting up the procedure, the workflow of information, the supporting tools, including the development of ad hoc software as well as to help the creation of a legal framework in which to operate the PRTR at national level.

The final goal of the activities carried out at regional level and then scaled up at national level is finalized at having similar systems in all the countries interested to the development of a national PRTR. The approach followed is a bottom-up strategy for the development of an integrated system for the Mediterranean area. The experience achieved so far in the pilot projects, starting form the pioneer one in Alexandria in Egypt allowed UPEN and UNIDO to set up a procedure and a suite of tools that guarantee uniformity in the workflow of the data collection and in the data structure. A conceptual schema for the data base have been

developed and implemented in a logical and physical schema of a Multilanguage data base. Chemicals and methods are stored in the data base according to international standards (CAS number and international CODE).

The software tools have been developed by UN organizations and are distributed free of charge to the participants, thus guarantees uniformity in the single projects and ease of integration at national and international level as well as interoperability of the data.
In this way, the final goal of developing an integrated, Multilanguage database of pollutants for the entire Mediterranean basin is reachable. The data base have the same structure and will allow international data search independently of the political borders, thus providing a dramatically important and integration tool for monitoring the status of the Mediterranean sea.

THE PRTR PROJECT IMPLEMENTATION
The general idea of the local Project is depicted in figure 1, showing the role of the single entities.

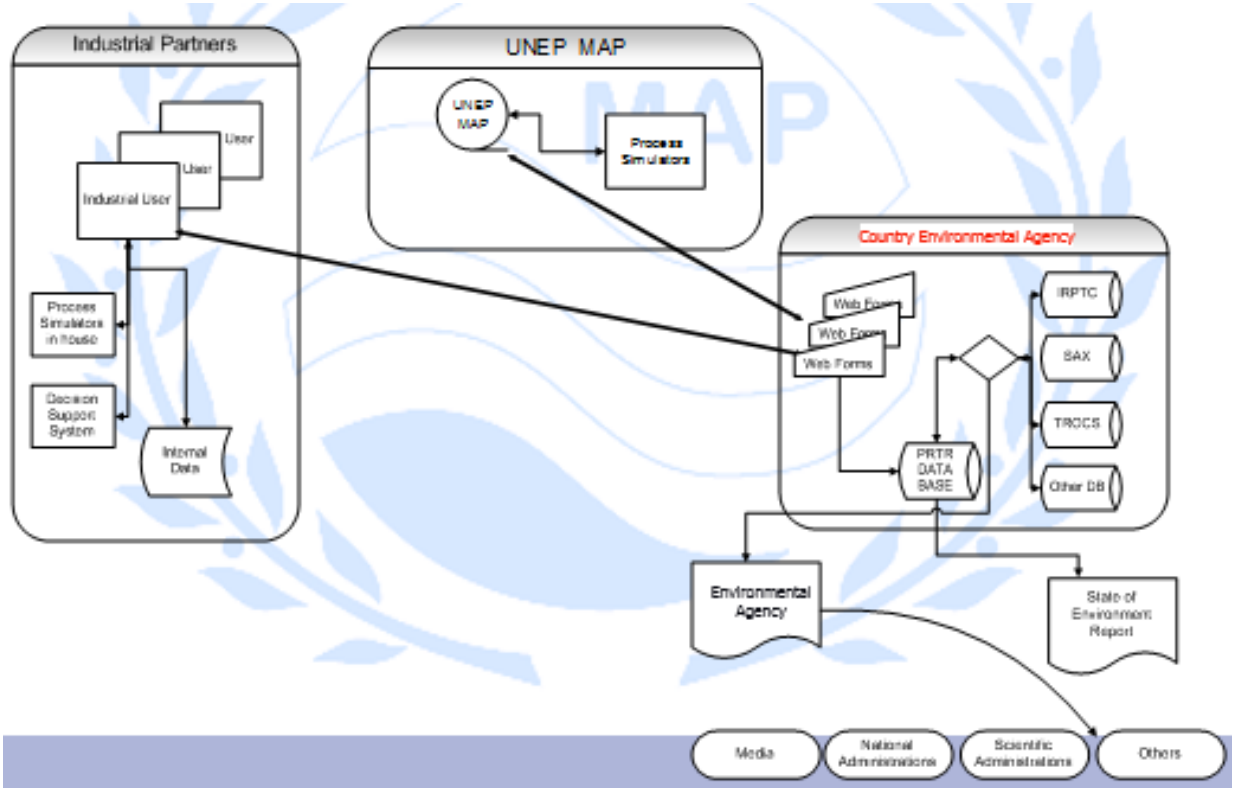

Figure 1: general schema of the project

UNEP-MAP provides the necessary support and SW to the specific country in which the PRTR should be implemented. The software is made up by the reporting system in web, the database with the GIS interface and the links to the pure component database necessary for the estimation of the physical data.

The Industrial partners are trained on the use of the SW and on the meaning of each data to be stored in the PRTR database. They use the SW and they report the data directly to the environmental agency.

The environmental agency prepares the report and distribute the data to the public.

THE SOFTWARE APPLICATION AND THE DATA BASE

The development and implementation of a PRTR system to national needs represents a mean for governments to track generation, release and the fate of various pollutants over time. A PRTR can therefore be an important tool in the total environment policy of a government and encouraging reporters to reduce pollution by implementation of cleaner technologies. PRTR can be complementary to industry programmes such as ISO14000.

PRTR have generally these defining characteristics:

- reporting on individual chemicals
- by individual industrial facilities
- on all releases and transfers
- to all environmental media (air, water, land)
- periodically
- with consistently structured data
- entered into a computer database
- actively disseminated to the public
- with limited data held as trade secrets
- with the aim to improve environmental quality and promote cleaner technology.

The role of the database in the project is central. It is essential to develop an efficient system for storing all the data generated by the industrial Partners and a system easy to be used to input data in the central database. The following figure illustrates the process of data feed to the central repository.

Reports are provided on regular basis (yearly normally) by the industrial partners on chemicals included in the list of chemicals of interest to the project. In some cases data are generated by emission actors and/or material balances. Data are input in the database through Web forms using two different modes:

- Direct connection to a Web server;
- Organized in a local database and then transferred to the central data base

Once the database is filled by a representative set of data, the project personnel could take actions: the most important action is the reporting. Reports can be generated from the information reported by the facilities. For any given facility, one can create the following reports:

- Creating graphs for showing releases of each substance.
- Detailed information on the facility: addresses, contacts, etc.
- Multi-year reviews showing release trends.
- Creating maps for showing where facilities are located.

Data can be used for many activities, such as:

- Find out which facilities in the region have cut back their releases in recent period.
- Know which facilities take pollution prevention measures.
- Publicize the information among facility, designs makers and researchers.
- Work with facilities to improve local environmental quality.
- Know whether facilities in the area are releasing carcinogenic or toxic substances.
- Be able to undertake impact studies.

The software developed by UNEP-MAP and UNIDO is composed by a database containing all the necessary tables, views, stored procedures and functions, available in Microsoft SQL server version from 2008 above (it is compatible with all versions of SQL server) and WEB application that is used for reporting written in C# and compatible with Microsoft .NET 3.5 and above.

PART II. FACILITY IDENTIFICATION INFORMATION

NOTICE

The purpose of these guidelines is the completion of the "reporting format" (Annex I), on a regular basis, by the industrial activities. The format could be completed on a period or annual basis, as appropriate. Users of the guidelines should always refer to the "reporting format" (Annex I).

Section 1. Reporting Period

This is the calendar period to which the reported information applies, not the period in which you are submitting the report.

Section 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.

Section 3. Facility Identification

3.1 Facility Name and Location

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

3.2 Full or Partial Facility Information

A covered facility must report all releases and other waste management activities and source reduction activities of a chemical. However, if the facility is composed of several distinct establishments, these establishments are allowed to submit separate reports for the chemical as long as all releases and other waste management activities 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.

MED/PRTR 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."

3.3 Technical Contact

Enter the name and telephone number of a technical representative whom EEAA may contact for clarification of the information reported. 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 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. If this space is left blank, the technical contact will be listed as the public contact in the PRTR Database.

3.5 Standard Industrial Classification (SIC) Code

Enter the appropriate 4-digit primary Standard Industrial Classification (SIC) code for your facility according to the Annex (II).

3.6 Latitude and Longitude

Enter the latitudinal and longitudinal coordinates of your facility.

Latitude and longitude coordinates of your facility are very important for pinpointing the location of reporting facilities and are required elements. It is encouraged to make the best possible measurements when determining latitude and longitude.

3.7 Facility Permit Numbers

Enter the numbers of the Industrial, Administrative, Environmental and other permits that are applicable in Egypt.

Section 4. Parent Company Information

You must provide information on your parent company. A parent company is defined as the highest level company, located in Egypt 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.

4.1 Name of Parent Company

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

PART III. CHEMICAL SPECIFIC INFORMATION

In Part II, you are to report on:

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

Section 1. Chemical Identity

1.1 CAS Number 1

Enter the Chemical Abstracts Service (CAS) registry number in Section 1.1 exactly as it appears in Annex (II) of these instructions for the chemical being reported. CAS numbers are cross-referenced with an alphabetical list of chemical names in Annex (II) of these instructions for the chemical being reported.

Example 1: Mixture Containing Unidentified Chemical

Your facility uses 20,000 Kg of a solvent that your supplier has told you contains 80 percent "chlorinated aromatic," their generic name for a chemical subject to reporting.
You, therefore, know that you have used 16,000 Kg of some chemical. You would file a form and enter the name "chlorinated aromatic" in the space provided in Part II, Section 2.

1.2 Chemical or Chemical Category Name

Enter the name of the chemical or chemical category exactly as it appears in Annex (II). 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 chemical identity is actually a product trade name (e.g., dicofol).

Do not list the name of a chemical that does not appear in Annex (II), such as individual members of a reportable chemical category. For example, if you use silver nitrate, **do not** report silver nitrate with its CAS number. Report this chemical as "silver compounds" with its category code N740.

If you are making a trade secret claim, you must report the specific chemical identity on your unsanitized Form and unsanitized substantiation form.

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

1.3 Generic Chemical Name

Complete Section 1.3 only if you are claiming the specific chemical identity of the chemical as a trade secret and have marked the trade secret block in Part II, Section 1.2 of the Form. Enter a generic chemical name that is descriptive of the chemical structure. Do not enter mixture names in Section 1.3; see Section 2 below.

In-house plant codes and other substitute names that are not structurally descriptive of the chemical identity being withheld as a trade secret are not acceptable as a generic name.

Section 2. Mixture Component Identity

Do not complete this section if you have completed Section 1 of Part II. Report the generic name provided to you by your supplier in this section if your supplier is claiming the chemical identity proprietary or trade secret.

2.1 Generic Chemical Name Provided by Supplier

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

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

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

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

Section 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 period (see figure 1). You are not required to report on the Form the quantity manufactured, processed or otherwise used. Report activities that take place only at your facility, not activities that take place at other facilities involving your products. You must check all the boxes in this section that apply.

3.1 Manufacture the Chemical

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

a. ***Produce*** – The chemical is produced at the facility.

b. ***Import*** – The chemical is imported by the facility into the Customs Territory.

And, check at least one of the following:

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 II, 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 manufacture, processing, or otherwise use of another chemical substance or mixture and, following its production, is separated from that other chemical substance or mixture. The chemicals produced as a result of waste management 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 other trade name product with that other chemical.

In summary, if you are a manufacturer of the chemical, you must check (a) and/or (b), and at least one of (c), (d), (e), and (f) in Section 3.1.

3.2 Process the Chemical (incorporative activities)

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

b. ***As a formulation component*** – A chemical is 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 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*** – This consists of processing or preparation of chemical (or product mixture) for distribution in commerce in an different form, state, or quantity. This includes, but is not limited to, the transfer of material from a bulk container, such as a tank truck to smaller containers such as cans or bottles.

Example 2: Activities and Uses of Chemicals

Your facility manufactures diazomethane. Fifty percent is sold as a product. The remaining 50 percent is reacted with alpha-naphthylamine, forming N-menthyl-alpha-naphthylamine and also producing nitrogen gas.

- Your company manufactures diazomethane chemical, both for sale/distribution as a commercial product and for on-site use/processing as a feestock in the N-menthyl-alpha-naphthyl-amine production process. Because the diazomethane is a reactant, it is also processed. See Figure 3 for how this information would be reported in Part II, Section 3 of the Form.

- Your facility is also processing alpha-naphthylamine, as a reactant to produce N-methyl-alpha-naphthylamine.

3.3 Otherwise Use the Chemical (non-incorporative 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 is otherwise used as chemical processing aid. Examples of such a chemical include, but is not limited to, process solvents, catalysts, inhibitors, reaction terminators, and solution buffers.

Figure 1

SECTION 1. TOXIC CHEMICAL IDENTITY	**(Important: DO NOT complete this section if you complete Section 2 below)**
1.1	CAS Number (Important: Enter only one number exactly as it appears on the list. Enter category code if reporting a chemical category.)
	334-88-3
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the list.)
	Diazomethane
1.3	Generic Chemical Name (Important: complete only if Part 1, Section 2.1 is checked "Yes". Generic name must be structurally descriptive.)

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

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY (Important: CHECK ALL THAT APPLY)					
3.1	**Manufacture the toxic chemical:**	**3.2**	**Process the toxic chemical:**	**3.3**	**Otherwise use the toxic chemicals:**
☐ **a. Produce** ☐ **b. Import**					
If produce or import: ☐ c. For on-site use/processing ☐ d. For sale/distribution ☐ e. As a byproduct ☐ f. As an impurity		☐ a. As a reactant ☐ b. As a formulation component ☐ c. As an article component ☐ d. Repackaging		☐ a. As a chemical processing aid ☐ b As a manufacturing aid ☐ c. Ancillary or other use	

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 or otherwise used as a manufacturing aid. Examples include, but are not limited to, process lubricants, metalworking fluids, coolants, refrigerants, and hydraulic fluids.

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

Section 4. Maximum Amount of the Chemical On-site at Any Time During the Calendar Period

For data element 4.1 of Part II, insert the code (see codes below) that indicates the maximum quantity of the chemical (e.g., in storage tanks, process vessels, on-site shipping container, or in waste) at your facility at any time during the calendar period. 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 Kg

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 chemical present at your facility was part of a mixture or other trade name product, determine the maximum quantity of the chemical present at the facility by calculating the weight percent of the chemical only.

For the chemical categories (e.g., nickel compounds), include all chemical compounds in the category when calculating the maximum amount, using the entire weight of each compound.

Section 5. Quantity of the Chemical Entering Each Environmental Medium On-site

In Section 5, you must account for the total aggregate on-site releases of the chemical to the environment from your facility for the calendar period.

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

On-site releases to the environment include emissions to the air, discharges to surface waters, to the Mediterranean Sea and releases to land and underground injection wells. If you have no releases to a particular media (e.g., stack air), you must check the “NA” box or enter zero: **do not** leave any part of Section 5 blank.

You are not required to count as a release, quantities of a chemical 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 chemical that migrate from plastic products in storage do not have to be counted in estimates of releases of that chemical from the facility.

All releases of the chemical to the air must be classified as either point or non-point emissions, and included in the total quantity reported for these releases in Sections 5.1 and 5.2. Instructions for columns A, B, and C follow the discussions of Sections 5.1 through 5.5.

5.1 Fugitive or Non-Point Air Emissions

Report the total of all releases of the chemical to the air that are not released through stacks, vents, ducts, pipes, or any other confined air stream. You must include (1) fugitive equipment leaks from valves, pump seals, flanges, compressors, sampling connections, open-ended lines, etc.; (2) evaporative loses from surface impoundments and spills; (3) releases from building ventilation systems; and (4) any other fugitive or non-point air emissions. Engineering estimates and mass balance calculations (using purchase records, inventories, engineering knowledge or process specifications of the quantity of the chemical entering product, hazardous waste manifests, or monitoring records) may be useful in estimating fugitive emissions.

5.2 Stack or Point Air Emissions

Report the total of all releases of the chemical to the air that occur through stacks, confined vents, ducts, pipes, or other confined air streams. You must include storage tank emissions. Air releases from air pollution control equipment would generally fall in this category. Monitoring data, engineering estimates, and mass balance calculations may help you to complete this section.

5.3 Discharges to Receiving Streams or Water Bodies on Mediterranean Sea

In Section 5.3 you are to enter all the names of the streams or water bodies including the Mediterranean Sea to which your facility directly discharges the chemical on which you are reporting. A total of three spaces is provided on page 2 of the Form. 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 environmental permit for the facility. If the stream is not covered by a permit, enter the name of the off-site or water body by which it is publicly known. Do not list a series of streams through which the chemical flows. Be sure to include all the receiving streams or water bodies on Mediterranean Sea that receive stormwater runoff from your facility. Do not enter names of streams to which off-site treatment plants discharge. Enter “NA” in Section 5.3.1 if you do not discharge the chemical to surface water bodies.

Enter the total annual amount of the chemical released from all discharge points at the facility to each receiving stream or water body on the Mediterranean Sea. Include process outfalls such as pipes and open trenches, releases from on-site wastewater treatment systems, and the contribution from stormwater runoff, if applicable (see instructions for column C below). Do not include discharges to a POTW or other off-site wastewater treatment facilities in this section. These off-site transfers must be reported in Part II, Section 6 of the Form. Wastewater analyses and flowmeter data may provide the quantities you will need to complete this section.

Discharges of listed acids (e.g., hydrogen fluoride, nitric acid, and phosphoric acid) may be reported as zero if the discharges have been neutralized to pH6 or above. If wastewater containing a listed acid is discharged below pH6, then releases of the acid must be reported. In this case, pH measurements may be used to estimate the amount of mineral acid released.

5.4 Underground Injection On-Site

Enter the total amount of the chemical that was injected into wells at the facility. Chemical analyses, injection rate meters are good sources for obtaining data that will be useful in

completing this section. Check the Not Applicable "NA" box in Section 5.4.1 if you do not inject the reported chemical into underground wells.

5.5 Disposal to Land On-site

Five predefined subcategories for reporting quantities released to land within the boundaries of the facility are provided. Do not report land disposal at off-site locations in this section. Accident histories and spill records may be useful.

Subtitle C landfills - Enter the total amount of the chemical that was placed. Leaks from landfills need not be reported as a release because the amount of the chemical has already been reported as a release.

5.5.1 Other landfills – Enter the total amount of the chemical that was placed in landfills other than Subtitle C landfills. Leaks from landfills need not be reported as a release because the amount of the chemical has already been reported as a release.

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

5.5.3 Surface Impoundment – A surface impoundment is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although some may be lined with man-made materials), that 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. A facility should determine, to the best of its ability, the percentage of a volatile chemical, e.g., benzene, that is in waste sent to a surface impoundment that evaporates in the reporting period. The facility should report this as a fugitive air emission in section 5.1. The balance should be reported in section 5.5.3.

Quantities of the chemical released to surface impoundments that are used merely as part of a wastewater treatment process generally must not be reported in this section. However, if the impoundment accumulates sludges containing the chemical, you must include an estimate in this section unless the sludges are removed and otherwise disposed (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 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 chemicals to the land. For example, 1,000 Kg of benzene leaks from an underground pipeline into the land at a facility. Because the pipe was only a few feet from the surface at the erupt point, 30 percent of the benzene evaporates into the air. The 300 Kg released to the air would be reported as a fugitive air release (Part II, Section 5.1) and the remaining 700 Kg would be reported as a release to land, other disposal (Part II, Section 5.5.4).

Column A: Total Release

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

Releases of Less Than 500 Kg. For total annual releases or off-site transfers of a chemical from the facility of less than 500 Kg, the amount may be reported either as an estimate or by using the range codes that have been developed. The reporting range codes to be used are:

Code	Range(Kg)
A	1-5
B	6-250
C	250-500

Do not enter a range code and an estimate in the same box in column A. Total annual on-site releases of a chemical from the facility of less than 1 Kg may be reported in one of several ways. You should round the value to the nearest Kg. If the estimate is greater than 0.5 Kg, you should either enter the range code “A” or “1-5” or enter “1” in column A.

Note that the total annual releases of 0.25 Kg or less from the processing or otherwise use of an article maintain the article status of that item. Thus, if the only releases you have are from processing article, and such releases are equal to or less that 0.25 Kg per period, you are not required to submit a report for that chemical. The 0.25 Kg release determination does not apply to just a single article. It applies to the cumulative releases from the processing or otherwise use of the same type of article (e.g., sheet metal or plastic film) that occurs over the course of the calendar year.

Zero Releases. If you have no releases of a chemical to a particular medium, report either NA, not applicable, or zero, as appropriate. Report NA only when there is no possibility a release could have occurred to a specific media. If a release to a specific could have occurred, but either did not occur or the annual aggregate release was equal to or less than 0.25 Kg, report zero. However, if you report zero releases, a basis of estimate must be provided in column B.

For example, if nitric acid is involved in the facility’s processing activities but the facility neutralizes the wastes to a pH or 6 or above, then the facility reports a zero release for the chemical. If the facility has no underground injection well, “NA” would be checked in Part II, Section 5.4.1 and 5.4.2 of the Form. Also, if the facility does not landfill the acidic waste, NA would be checked in Part II, Section 5.5.1.B of the Form.

Releases of 500 Kg or More. For releases to any medium that amount to 500 Kg or more for the period, you must provide an estimate in Kg per period in column A. Any estimate provided in column A need not be reported to more than two significant figures. This estimate should be in whole numbers. Do not use decimal points.

Calculating On-Site Releases. To provide the release information required in column A in this section, you must use the best 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 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 chemical released into the environment, or of the frequency of such releases, beyond that required under other provisions of law or regulation or as part of routine plant operations, is required for the purpose of completing the Form.

You must estimate, as accurately as possible, the quantity (in Kg) of the chemical or chemical category that is released per period to each environmental medium on-site. Include only the quantity of the chemical in this estimate. If the chemical present at your facility was part of a mixture or other trade name product, calculate only the releases of the chemical, not the other components of the mixture or other trade name product. If you are only able to estimate the releases of the mixture or other trade name product as a whole, you must assume that the release of the chemical is proportional to its concentration in the mixture or other trade name product.

If you are reporting a chemical category listed in Annex (II) of these instructions rather than a specific chemical, you combine the release data for all chemicals in the chemical category (e.g., all glycol ethers or all chlorophenols) and report the aggregate amount for that chemical in that category separately. For example, if your facility releases 3,000 Kg per per of 2-chlorophenol, 4,000 Kg per period of 3-chlorophenol, and 4,000 Kg per period of 4-chlorophenol to air as fugitive emissions, you should report that your facility releases 11,000 Kg per period of chlorophenols to air as fugitive emissions in Part II, Section 5.1.

For aqueous ammonia solutions, releases should be reported based on 10% of total aqueous ammonia. Ammonia evaporating from aqueous ammonia solutions is considered to be anhydrous ammonia; therefore, 100% of the anhydrous ammonia should be reported if it is released to the environment. For dissociable nitrate compounds, release estimates should be based on the weight of the nitrate only.

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

Column B: Basis of Estimate

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

The codes are as follows:

M- Estimate is based on monitoring data measurements for the chemical.

C- Estimate is based on mass balance calculations, such as calculation of the amount of the chemical in wastes 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 treatment, even if the composition of the waste before treatment was fully identified through monitoring data.

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

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

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

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

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

Column C: Percent From Stormwater

This column relates only to Section 5.3 - discharges to receiving streams or water bodies. If your facility has monitoring data on the amount of the 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 these data to determine the percent stormwater.

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

If your facility does not have periodic measurements of stormwater releases of the 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 rainfall by the land area of the facility and then multiplying that figure by the runoff coefficient. The runoff coefficient represents the fraction of rainfall that does not seep into the ground but runs off as stormwater. The runoff coefficient is directly related to how the land in the drainage area is used. (See table below)

Description of Land Area	Runoff Coefficient
Business	
Downtown areas	0.70-0.95
Neighborhood areas	0.50-0.70
Industrial	
Light areas	0.50-0.80
Heavy areas	0.60-0.90
Industrial	
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:

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

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

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

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

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

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

If you report a transfer of the listed chemical to one or more POTWs, number the boxes in Section 6.1.B as 6.1.B.1, 6.1.B.2, etc. If you transfer the chemical to more than two POTWs, photocopy page 3 of the Form as many times as necessary and then number the boxes consecutively for each POTW. At the bottom of Section 6 you will find instructions for indicating the total number of page 3s that you are submitting as part of the Form, as well as indicating the sequence of those pages. For example, your facility transfers the reported chemical in wastewaters to three POTWs. You would photocopy page 3 once, indicate at the bottom of each page 3 that there are a total of two page 3s and then indicate the first and second page 3. The boxes for the two POTWs on the first page 3 would be numbered 6.1.B.1 and 6.1.B.2, while the box for third POTW on the second page 3 would be numbered 6.1.B.3.

If you report a transfer of chemical to one or more other off-site locations, number the boxes in section 6.2 as 6.2.1, 6.2.2, etc. If you transfer the chemical to more than two other off-site locations, photocopy page 4 of the Form as many times as necessary and then number the boxes consecutively for each off-site location. At the bottom of page 4 you will find instructions for indicating the total number of page 4s that you are submitting as part of the Form as well as indicating the sequence of those pages. For example, your facility transfers the reported chemical to three other off-site locations. You would photocopy page 4 once, indicate at the bottom of Section 6.2 on each page 4 that there are a total of two page 4s and then indicate the first and second page 4.

The boxes for the two off-site locations on the first page 4 would be numbered 6.2.1 and 6.2.2, while the box for the third off-site location on the second page 4 would be numbered 6.2.3.

6.1 Discharges to Publicly Owned Treatment Works (POTWs)

In **Section 6.1.A**, estimate the quantity of the reported chemical transferred to all POTWs and the basis upon which the estimate was made. In **Section 6.1.B**., enter the name and address for each POTW to which your facility discharges wastewater containing the reported chemical. If you do not discharge wastewater containing the reported chemical to a POTW, enter not applicable, NA, in the box for the POTW's name in Section 6.1.B._.

6.1.A.1 Total Transfers

Enter the total amount, in Kg, of the reported chemical that is contained in the wastewaters transferred to all POTWs. Do not enter the total poundage of the wastewaters. If the total amount transferred is less than 500 Kg, you may report a range by entering the appropriate range code. The following reporting range codes are to be used:

Code	Reporting Range (in Kg)
A	1-5
B	5-25
C	25-50
D	50-100
E	100-500

6.1.A.2 Basis of Estimate

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

M – Estimate is based monitoring data or measurements for the chemical as transferred to

an off-site facility.

C- Estimate is based on mass balance calculations, such as calculation of the amount of the 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 you transfer a chemical to more than one POTW, you should report the basis of estimate that was used to determine the largest percentage of the chemical that was transferred.

6.2 Transfers to Other Off-Site Locations

In Section 6.2 enter the EEAA Identification Number (if available), name, and address for each off-site location to which your facility ships or transfers wastes containing the reported chemical for the purposes of disposal, treatment, energy recovery, or recycling. Also estimate the quantity of the reported chemical transferred and the basis upon which the estimate was made. This would include any residual chemical in “empty” containers transferred off-site. It is expected that all containers (bags, totes, drums, tank trucks, etc.) will have a small amount of residual solids and/or liquids. Please see following summary of residue quantities left in drums and tanks when emptied.

If appropriate, you must report multiple activities for each off-site location. For example, if your facility sends a reported chemical in waste to an off-site location where some of the chemical is to be recycled while the remainder of the quantity transferred is to be treated, you must report both the waste treatment and recycle activities, along with the quantity associated with each activity.

If your facility transfers a reported chemical to an off-site location and that off-site location performs more than four activities on that chemical, provide the necessary information in Box 6.2.1 for the off- site facility and the first four activities. Provide the information on the remainder of the activities in Box 6.2.2 and provide again the off-site facility identification and location information.

If you do not ship or transfer wastes containing the reported chemical to other off-site locations, enter not applicable, NA, in the box for the off-site location's Identification Number. If you ship or transfer wastes containing a chemical and the off-site location does not have an Identification Number, enter NA in the box for the off-site location Identification Number. If you ship or transfer the reported chemical in wastes to another country, enter the name for that country in the field of the address for the off-site facility.

Example 3: Stormwater Runoff

Your facility is located in a semi-arid region of the United States that has an annual precipitation (including snowfall) of 30 cm of rain. (Snowfall should be converted to the equivalent mm of rain; assume 30cm of snow is equivalent to 2.54 cm of rain.) The total area covered by your facility is 42 acres (about 170,000 square meters or 1,829,520 square feet). The area of your facility is 50 percent unimproved area, 10 percent asphaltic streets, and 40 percent concrete pavement.

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

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

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

(Rainfall) x (land area) x (conversion factor) x (runoff coefficient) = stormwater runoff
(0.30m/year) x (170,000 m^2 x (1025 l/m^3) x (0.545) = 28,489.75 m^3/year

Total stormwater runoff = 28,489.75 m^3/year

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

(28,489.75 liters stormwater)x(1.4 mg zinc/liter) x 10^{-3} g/mg = 37.8 Kg/zinc.

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

250 Kg zinc from wastewater discharged
+37.8 Kg zinc from stormwater runoff
212.2 Kg zinc total water discharged

The percentage of zinc discharge through stormwater reported in section 5.3 column C on Form is:

37.8/212.2x100 = 17.8%

Example 4: Reporting Metals and Metal Category Compounds that are Sent Off-site

A facility manufactures a product containing elemental lead. Various metal fabrication operations for the process produce a wastewater stream that contains some residual lead and off-specification lead material. The wastewater is collected and sent directly to a POTW. Periodic monitoring data show that 500 Kg of lead were transferred to the POTW in the reporting period. The off-specification products (containing lead) are collected and sent off-site to a landfill. Sampling analyses of the product combined with hazardous waste manifests were used to determine that 1,200 Kg of lead in the off-spec product were sent to the off-site landfill.

Therefore, the facility should report 500 Kg in Section 6.1, 1200 Kg in Section 6.2 - M72 and 1,700 Kg in Section 8.1 - Quantity Released Off-site.

Note that for the chemicals that are not metals or metal category compounds, the quantity sent to POTWs and to other off-site treatment locations should be reported in Section 8.7- Quantity Treated Off-site.

Summary of Residue Quantities From Pilot-Scale Experimental Study[a,b] (weight percent of drum capacity)

Unloading Method	Vessel Type	Value	Material			
			Kerosene[c]	Water[d]	Motor Oil[e]	Surfactant Solution[f]
Pumping	Steel drum	Range Mean	1.93 – 3.08 2.48	1.84 – 2.61 2.29	1.97 – 2.23 2.06	3.06 3.06
Pumping	Plastic drum	Range Mean	1.69 – 4.08 2.61	2.54 – 4.67 3.28	1.70 – 3.48 2.30	Not Available
Pouring	Bung-top steel drum	Range Mean	0.244 – 0.472 0.404	0.266 – 0458 0.403	0.677 – 0.787 0.737	0.485 0.485
Pouring	Open-top steel drum	Range Mean	0.032 – 0.080 0.054	0.026 – 0.039 0.034	0.328 – 0.368 0.350	0.089 0.089
Gravity Drain	Slope-bottom steel tank	Range Mean	0.020 – 0.039 0.033	0.016 – 0.024 0.019	0.100 – 0.121 0.111	0.048 0.048
Gravity Drain	Dish-bottom steel tank	Range Mean	0.031 – 0.042 0.038	0.033 – 0.034 0.034	0.133 – 0.191 0.161	0.058 0.058
Gravity Drain	Dish-bottom glass-lined tank	Range Mean	0.024 – 0.049 0.040	0.020 – 0.040 0.033	0.112 – 0.134 0.127	0.040 0.040

[a]From "Releases During Cleaning of Equipment." Prepared by PEI Associates, Inc., for the U.S. Environmental Protection Agency, Office of Pesticides and Toxic Substances, Washington DC, Contract No. 68-02-4248. June 30, 1986.
[b]The values listed in this table should only be applied to similar vessel types, unloading methods, and bulk fluid materials. At viscosities greater than 200 centipoise, the residue quantities can rise dramatically and the information on this table is not applicable.
[c]For kerosene, viscosity = 5 centipoise, surface tension = 29.3 dynes/cm^2
[d]For water, viscosity = 4 centipoise, surface tension = 77.3 dynes/cm^2
[e]For motor oil, viscosity = 94 centipoise, surface tension = 34.5 dynes/cm^2
[f]For surfactanct solution, viscosity = 3 centipoise, surface tension = 31.4 dynes/cm^2

Example 5: Container Residue

You have determined that the Form for a chemical must be submitted. The facility purchases and uses one thousand 55-gallon steel drums that contain a 10% solution of the chemical. Further, it is assumed that the physical properties of the solution are similar to water. The solution is pumped from the drums directly into a mixing vessel and the "empty" drums are triple-rinsed with water. The rinse water is indirectly discharged to a POTW and the cleaned drums are sent to a drum reclaimer.

In this example, it can be assumed that all of the residual solution in the drums was transferred to the rinse water. Therefore, the quantity transferred to the drum reclaimer should be reported as "zero." The annual quantity of residual solution that is transferred to the rinse water can be estimated by multiplying the mean weight percent of residual solution remaining in water from pumping a steel drum by the total annual weight of solution in the drum (density of solution multiplied by drum volume). If the density is not known, it may be appropriate to use the density of water (8.34 Kg per gallon):

(2.29%) × (8.34 Kg/gallon) × (55 gallons/drum) × (1,000 drums) = 10,504 Kg solution

The concentration of the chemical in the solution is only 10 percent.

10,504 Kg solution) × (10%) = 1,050 Kg

Therefore, 1,050 Kg of the chemical are transferred to the POTW.

6.2 Column A: Total Transfers

For each off-site location, enter the total amount, in Kg, of the chemical that is contained in the waste transferred to that location. Do not enter the total poundage of the waste. If the total amount transferred is less than 500 Kg, you may report a range by entering the appropriate range code. The following reporting range codes are to be used:

Code	Reporting Range (in Kg)
A	1 – 5
B	5 – 250
C	250 – 500

If you transfer the chemical in wastes to an off-site facility for distinct and multiple purposes, you must report those activities for each off-site location, along with the quantity of the reported chemical associated with each activity. For example, your facility transfers a total of 15,000 Kg of toluene to an off-site location that will use 5,000 Kg for the purposes of energy recovery, enter 7,500 Kg into a recovery process, and dispose of the remaining 2,500 Kg. These quantities and the associated activity codes must be reported separately in Section 6.2. (See Figure 4 for a hypothetical Section 6.2 completed for two off-site location, one of which receives the transfer of 15,000 Kg of toluene as detailed.) If you need to report more than four off-site transfers (involving different waste management) to one location, continue reporting of these transfers by listing the same location in the next off-site location section.

Do not double or multiple count amounts transferred off- site. For example, when a reported chemical is sent to an off-site facility for sequential activities and the specific quantities associated with each activity are unknown, report only a single quantity (the total quantity transferred to that off-site location) along with a single activity code. For example, when a

chemical is first recovered and then treated with the majority of the chemical being recovered and only a fraction subsequently treated, report the appropriate recycling activity along with the quantity.

Figure 2

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATION			
6.2.1	Off-Site Identification Number **COD566162461**		
Off-Site Location Name Acme Waste Services			
Street Address			
City		County	
State	Zip Code	Is location under control of reporting Facility or parent company ☐ Yes ☐ No	
A. Total Transfers (Kg/period) (enter range code or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)	
1. 5,000	1. O	1. M^{56}	
2. 7,500	2. C	2. M^{20}	
3. 2,500	3. O	3. M^{72}	
4. NA	4.	4. M	

Hypothetical Section 6.2 Completed for Two Off-Site Locations

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

Figure 3

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATION			
6.2.2	Off-Site Identification Number **COD16775432**		
Off-Site Location Name Combustion, Inc.			
Street Address			
City		County	
State	Zip Code	Is location under control of reporting Facility or parent company ☐ Yes ☐ No	

C. Total Transfers (Kg/period) (enter range code or estimate)	D. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 12,500	1. O	1. M54
2. NA	2.	2. M
3.	3.	3. M
4.	4.	4. M

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

6.2 Column B: Basis of Estimate

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

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

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

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

O- Estimate is based on other approaches such as engineering calculations (e.g., estimating volatilization using published mathematical formulas) or best engineering judgement. 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.

6.2 Column C: Type of Waste Management: Disposal/ Treatment/Energy Recovery/Recycling

Enter one of the following M codes to identify the type of disposal, treatment, energy recovery, or recycling methods used by the off-site location for the reported chemical. You must use more than one line and code for a single location when distinct quantities of the reported chemical are subject to different waste management activities, including disposal, treatment, energy recovery, or recycling. You should use the code that, to the best of your knowledge, represents the ultimate disposition of the chemical.

If the chemical is sent off-site for further direct reuse (e.g., a chemical in used solvent that will be used as lubricant at another facility) and does not undergo a waste management activity (i.e., release [including disposal], treatment, energy recovery, or recycling [recovery]) prior to that reuse, it need not be reported in section 6.2 or section 8.

Incineration vs. Energy Recovery

You must distinguish between incineration, which is waste treatment, and legitimate energy recovery. For you to claim that a reported chemical sent off-site is used for the purposes of energy recovery and not for waste treatment, the chemical must have a significant heating value and must be combusted in an energy recovery unit such as an industrial boiler, furnace, or kiln. In a situation where the reported chemical is in a waste that is combusted in an energy recovery unit, but the chemical does not have a significant heating value, e.g., CFCs, use code M54, Incineration/ Insignificant Fuel Value, to indicate that the chemical was incinerated in an energy recovery unit but did not contribute to the heating value of the waste.

Metals and Metal Category Compounds

Metals and metal category compounds will be manage in waste either by being released (including disposed) or by being recycled. Remember that the release and other waste management information that you report for metal category compounds will be total amount of the parent metal released or recycled and NOT the whole metal category compound. The metal has no heat value and thus cannot be combusted for energy recovery and cannot be treated because it cannot be destroyed. Thus, transfers of metals and metal category compounds for further waste management should be reported as either a transfer for recycling or a transfer for disposal. The applicable waste management codes for transfers of metals and metal category compounds for recycling are M24, metals recovery, M93, waste broker-recycling, or M26, other reuse/recovery. Applicable codes for transfers for disposal include M10, M41, M62, M71, M72, M73, M79, M90, M94, and M99. These codes are for off-site transfers for further waste management in which the wastestream may be treated but the metal contained in the wastestream is not treated and is ultimately released. For example, M41 would be used for a metal or metal category compound that is stabilized in preparation for disposal.

Example 6: Calculating Releases and Other Waste Management Quantities

Your facility disposes of 14,000 Kg of lead chromate (PbCrO.PbO) in an on-site landfill and transfers 16,000 Kg of lead selenite ($PbSeO_4$)) 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 Kg of “parent” metal being released on-site or transferred off-site for further waste management. All quantities are based on mass balance calculations (See Section 5, Column B for information on Basis of Estimate and Section 6.2, Column C for waste management codes and information on transfers of the chemicals in wastes). You would calculate releases of lead, chromium, and selenium by first determining the percentage by weight of these metals in the materials you use as follows:

Lead Chromate ($PbCrO_4.PbO$) Molecular weight = 546.37
Lead (2 Pb atoms) Atomic weight = 297.2 x 2 = 414.4
Chromium (1 Cr atom) Atomic weight = 51.996

Lead chromate is therefore (% by weight)

(414.4/546.37) = 75.85% lead and
(51.996/546.37) = 9.52% chromium

Lead Selenite ($PbSeO_4$) Molecular weight = 350.17
Lead (1 Pb atom) Atomic weight = 297.2
Selenium (1 Se atom) Atomic weight = 78.96

Lead selenite is therefore (% by weight)

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

The total Kg of lead, chromium, and selenium disposed on or off-site from your facility are as follows:

Lead

Disposal on-site: 0.7585 x 14,000 = 10,619 Kg from lead chromate
Transfer off-site for disposal 0.5917 x 16,000 = 9,467 Kg from lead selenite

Chromium

Disposal on-site: 0.0952 x 14,000 = 1,333 Kg from lead chromate

Selenium

Transfer off-site for disposal: 0.2255 x 16,000 = 3,608 Kg from lead selenite

Applicable codes for Part II, Section 6.2, column C are in Annex (II):

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

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

Section 7A On-Site Waste Treatment Methods and Efficiency

Most of the chemical-specific information required by PRTR that is reported on the Form is specific to the chemical rather than the waste stream containing the chemical. However, the PRTR does require that waste treatment methods applied on-site to waste streams that contain the chemical be reported. This information is collected in Section 7A of the Form.

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

(a) The general waste stream types containing the chemical being reported;
(b) The waste treatment method(s) or sequence used on all waste streams containing the chemical;
(c) The range of concentration of the chemicals in the influent to the waste treatment method;

(d) The efficiency of each waste treatment method or waste treatment sequence in destroying or removing the chemical; and
(e) Whether the waste treatment efficiency figure was based on actual operating data.

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

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

7A Column A: General Waste Stream

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

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

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

7A Column B: Waste Treatment Method(s) Sequence

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

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

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

If your facility performs more than eight sequential waste treatment methods on a single general waste stream, continue listing the methods in the next row and renumber appropriately those waste treatment method code boxes you used to continue the sequence.

For example, if the general waste stream in box 7A.1a had nine treatment methods applied to it, the ninth method would be indicated in the first method box for row 7A.2a. The numeral "1" would be crossed out, and a "9"would be inserted.

Treatment applied to any other general waste stream types would then be listed in the next empty row. In the scenario above, for instance, the second general waste stream would be reported in row 7A.3a. See Figure 5 for an example of a hypothetical Section 7A completed for a nine-step waste treatment process and a single waste treatment method.

If you need additional space to report under Section 7A, photocopy page 4 of the Form as many times as necessary. At the bottom of page 4 you will find instructions for indicating the total number of page 4s that you are submitting as part of the Form, as well as instructions for indicating the sequence of those pages.

7A Column C: Range of Influent Concentration

The form requires an indication of the range of concentration of the chemical in the waste stream (i.e., the influent) as it typically enters the waste treatment step or sequence. The concentration is based on the amount or mass of the chemical in the waste stream as compared to the total amount or mass of the waste stream. Enter in the space provided one of the following code numbers corresponding to the concentration of the chemical in the influent.

1 = Greater than 10,000 parts per million (1 percent)
2 = 100 parts per million (0.01 percent) to 10,000 parts per million (1 percent)
3 = 1 part per million (0.0001 percent) to 100 parts per million (0.01 percent)
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. These conversion factors are for standard conditions of 0^{o} C (32^{o} F) and 760 mm Hg atmospheric pressure.

7A Column D: Waste Treatment Efficiency Estimate

In the space provided, enter the number indicating the percentage of the chemical removed from the waste stream through destruction, biological degradation, chemical conversion, or physical removal. The waste treatment efficiency (expressed as percent removal) represents the percentage of the chemical destroyed or removed (based on amount or mass), not merely changes in volume or concentration of the chemical in the waste stream. The efficiency, which can reflect the overall removal from sequential treatment methods applied to the general waste stream, refers only to the percent destruction, degradation, conversion, or removal of the chemical from the waste stream, not the percent conversion or removal of other constituents in the waste stream. The efficiency also does not refer to the general efficiency of the treatment method for any waste stream. For some waste treatment methods, the percent removal will represent removal by several mechanisms, as in an aeration basin, where a chemical may evaporate, biodegrade, or be physically removed from

the sludge.

Percent removal can be calculated as follows:

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

Where:

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

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

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

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

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

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

7A Column E: Based on Operating Data?

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

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

Example 7: On-Site Waste Treatment

A process at the facility generates a wastewater stream containing a chemical (chemical A). A second process generates a wastewater stream containing two chemicals, a metal (chemical B) and a mineral acid (chemical C). You are in the process of completing separate the Form for each chemical.

These two wastewater streams are combined and sent to an on-site wastewater treatment system before being discharged to a POTW. This system consists of an oil/water separator that removes 99% of chemical A; a neutralization tank in which the pH is adjusted to 7.5, thereby destroying 100% of the mineral acid (chemical C); and a settling tank where 95% of the metal (chemical B) is removed from the water (and eventually landfilled off- site).

Section 7A should be completed slightly differently when you file the Form for each of the chemicals. The table accompanying this example shows how Section 7A should be completed for each chemical. First, on each Form you should identify the type of waste stream in Section 7A.1a as wastewater (aqueous waste, code W). Next, on each Form you should list the code for each of the treatment steps that is applied to the entire waste stream, regardless of whether the operation affects the chemical for which you are completing the Form (for instance, the first four blocks of Section 7A.1b of all three Forms should show: P19 (liquid phase separation), C11 (neutralization), P11 (settling/clarification), and N/A (to signify the end of the treatment system). Note that Section 7A.1b is the only section of the Form that is not chemical specific. It applies to the entire waste stream being treated. Section 7A.1c of each Form should show the concentration of the specific chemical in the influent to the first step of the process (oil/water separation). For this example, assume chemicals A, B, and C are all present at concentrations greater than 1%. Therefore, code “1” should be entered. Section 7A.1d is also chemical specific. It applies to the efficiency of the entire system in destroying and/or removing the chemical for which you are preparing on the Form. You should enter 99% when filing for chemical A, 95% for chemical B, and 100% for chemical C. Finally, you should report whether the influent concentration and efficiency estimates are based on operating data for each chemical, as appropriate.

Chemical A

7A.1a	7A.1b	7A.1c	7A.1d	7A.1e	
	1. P19 2. C 11				
W	3. P11 4. N/A 5.	1	99%	Yes X	No
	6. 7. 8.				

Chemical B

7A.1a	7A.1b	7A.1c	7A.1.d	7A.1e	
	1. P19 2. C11				
W	3. P11 4. N/A 5.	1	95%	Yes X	No
	6. 7. 8.				

Chemical C

7A.1a	7A.1b	7A.1c	7A.1.d	7A.1e	
	1. P19 2. C11				
W	3. P11 4. N/A 5.	1	100%	Yes X	No
	6. 7. 8.				

Note that the quantity removed and/or destroyed is not reported in Section 7 and that the efficiency reported in Section 7A.1d refers to the amount of the chemical destroyed and/or removed from the applicable waste stream. The amount actually destroyed should be reported in Section 8.6 (quantity treated on-site). For example, when completing the Form for Chemical B you should report “0” Kg in Section 8.6 because the metal has been removed from the wastewater stream, but not actually destroyed. The quantity of Chemical B that is ultimately landfilled off-site should be reported in Sections 6.2 and 8.1. However, when completing the Form for Chemical C you should report the entire quantity in Section 8.6 because raising the pH to 7.5 will completely destroy the mineral acid.

Section 7B On-Site Recycling Processes

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

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

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

Section 8. Source Reduction and Recycling Activities

Section 8 is a required section of the Form and must be completed.

In Section 8, you must provide information about source reduction activities and quantities of the managed as waste. For all appropriate questions, report only the quantity, in Kg, of the reported chemical itself. Do not include the weight of water, soil, or other waste constituents. When reporting on the metal compound categories, report only the amount of the parent metal as you do when estimating release amounts.

Sections 8.1 through 8.9 must be completed for each chemical.

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

Beginning with the reporting period, facilities can use applicable, "NA," in Sections 8.1 through 8.7 to indicate that there is no on-site or off-site recycling, energy recovery, treatment, or release.

Column A: Prior Period

Quantities for Sections 8.1 through 8.7 must be reported for the period immediately preceding the reporting period in column A.

Column B: Current Reporting Period

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

Columns C and D: Following Period and Second Following Period

Quantities for Sections 8.1 through 8.7 must be estimated for the next two periods. Reasonable future quantity estimates using a logical basis is expected. Information available at the facility to estimate quantities of the chemical expected during these periods include planned source reduction activities, market projections, expected contracts, anticipated new product lines, company growth projections, and production capacity figures.

Example 8: Reporting Future Estimates

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

Quantities Reportable in Sections 8.1 - 8.7

Section 8 of the Form uses data collected to complete Part II, Sections 5 through 7. For this reason, Section 8 should be completed last. Sections 8.1, 8.3, 8.5, 8.7, and 8.8 use data collected to complete sections 5 and 6 of the Form. The relationship between sections 5, 6, and 8.8 to sections 8.1, 8.3, 8.5, and 8.7 are provided below in equation form.

Section 8.1. Report releases pursuant to include "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing [on-site or off-site] into the environment (including the abandonment of barrels, containers, and other closed receptacles). "This includes on-site releases in section 5 and off-site releases (including disposal) in section 6, but excludes quantities reported in sections 5 and 6 due to remedial actions, catastrophic events, or non-production related events (see the discussion on section 8.8.)

Metals and metal category compounds reported, 1) in section 6.2 as sent off-site for stabilization/solidification (M41-metals) or wastewater treatment (excluding POTWs) (M62-metals) and/or, 2) in section 6.1 - discharges to POTWs should be reported in section 8.1. These quantities should NOT be reported in section 8.7 because the metals are ultimately disposed.

§ 8.1 = § 5 + § 6.2 (disposal) + § 6.1 (metals and metal category compounds only) - §8.8 (on-site release or off-site disposal due to catastrophic events)[1]

Sections 8.2 and 8.3. These relate to a chemical in a waste that is recycled on-site or is sent off-site for recycling.

§ 8.2 is reported in section 8 only

§ 8.3 = § 6.2 (recycling) - § 8.8 (off-site recycling due to catastrophic events)[1]

Section 8.4 and 8.5. These relate to a chemical (except for metals and metal category compounds) or a mixture containing a chemical that is treated on-site or is sent to a POTW or other off-site location for waste treatment.

§ 8.6 is reported in section 8 only

[1] §8.8 includes quantities of toxic chemical released on-site or managed as waste off-site due to remedial actions, catastrophic events, or one-time events not associated with the production processes

§ 8.7 = § 6.1 (excluding metal/metal category compounds) + § 6.2 (treatment) - § 8.8 (off-site treatment due to catastrophic events)[1]

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

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

In Section 8.6, enter the total quantity of the chemical released directly into the environment or sent off-site for recycling, energy recovery, treatment, or disposal during the reporting period due to any of the following events:

(1) remedial actions;

(2) catastrophic events such as earthquakes, fires, or floods; or

(3) one-time events not associated with normal or routine production processes.

These quantities should not be included in Sections 8.1 through 8.7

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

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

Also, releases caused by catastrophic events are to be incorporated into the quantity reported in Section 8.8. Such releases may be caused by natural disasters (e.g., hurricanes and earthquakes) or by large-scale accidents (e.g., fires and explosions). In addition, releases due to one-time events not associated with production (e.g., terrorist bombing) are to be included in Section 8.8. These amounts are not included in the quantities reported in Sections 8.1 through 8.7 because such releases are generally unanticipated and cannot be addressed by routine process-oriented accident prevention technique. By checking your documentation for calculating estimates made for Part II, Section 5, “Quantity of the Toxic Chemical Entering Each Environmental Medium On-site,” you may be able to identify release amounts from the above sources.

Note: While the information reported in Section 8.8 represents only remedial, catastrophic,

or one-time events not associated with production processes, Section 5 of the Form (on-site releases to the environment) and Section 6 (off-site transfers for further waste management), must include all on-site releases and transfers as appropriate, regardless of whether they arise from catastrophic, remedial, or routine process operations.

Example 9: Quantity Released to the Environment as a Result of Remedial Actions, Catastrophic Events, or One-Time Events Not Associated with Production Processes.

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

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

Avoid Double-Counting in Sections 8.1 Through 8.8

Do not double- or multiple-count quantities in Sections 8.1 through 8.7. The quantities reported in each of those sections must be mutually exclusive. Do not multiple-count quantities entering sequential reportable activities.

Do not include in Sections 8.1 through 8.7 any quantities of the chemical released into the environment due to remedial actions; catastrophic events such as earthquakes, fires, or floods, or unanticipated one-time events not associated with the production process such as a drunk driver crashing his/her car into a drum storage area. These quantities should be reported in Section 8.8 only. For example, 10,000 Kg of diaminoanisole sulfate is released due to a catastrophic event and is subsequently treated off-site. The 10,000 Kg is reported in Section 8.8, but the amount subsequently treated off-site is not reported in Section 8.7.

8.7 Production Ratio or Activity Index

For Section 8.7, you must provide a ratio of the reporting period production to prior period production, or provide an “activity index” based on a variable other than production that is the primary influence on the quantity of the reported chemical recycled, used for energy recovery, treated, or released. The ratio or index must be reported to the nearest tenths or hundredths place (i.e., one or two digits to the right of the decimal point). If the manufacture or use of the reported chemical began during the current reporting period enter not applicable, “NA,” as the production ratio or activity index. Note, this is not to be reported as a percent (i.e., report 1.10 for a 10% increase, not 110%).

It is important to realize that if your facility reports more than one reported chemical, the production ratio or activity index may vary for different chemicals. For facilities that

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

Example 10: Avoiding Double-Counting Quantities in Sections 8.1 through 8.7

For example, 5,000 Kg of a chemical enters a treatment operation. Three thousand Kg of the chemical exits the treatment operation and then enters a recycling operation. Five hundred Kg of the chemical are in residues from the recycling operation that is subsequently sent off-site for disposal. These quantities would be reported as follows in Section 8:

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

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

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

(1) Amount of the chemical manufactured in current period divided by the amount of the chemical manufactured in the previous period; or

(2) Amount of the product produced the current period divided by the amount of product produced in the previous period.

8.8 Did Your Facility Engage in Any Source Reduction Activities for This Chemical During the Reporting Period?

If your facility engaged in any source reduction activity for the reported chemical during the reporting period, report the activity that was implemented and the method used to identify the opportunity for the activity implemented.

Source reduction means any practice that:

- Reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, energy recovery, treatment, or disposal; and

- Reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants.

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

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

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

Source Reduction Activities

You must enter in the first column of Section 8.10, "Source Reduction Activities," the appropriate code(s) indicating the type of actions taken to reduce the amount of the reported chemical released (as reported in Section 8.1), used for energy recovery (as reported in Sections 8.2-8.3), recycled (as reported in Sections 8.4-8.5), or treated (as reported in Sections 8.6-8.7). The list of codes is in Annex (II). Remember that source reduction activities include only those actions or techniques that reduce or eliminate the amounts of the chemical reported in Sections 8.1 through 8.7. Actions taken to recycle, combust for energy recovery, treat, or dispose of the chemical are not considered source reduction activities.

Methods to Identify Activity

For each source reduction activity, enter up to three codes (list of codes found in Annex II) that correspond to the method(s) which contributed most to the decision to implement that activity.

Example 11: Determining a Production Ratio

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

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

Example 12: Determining an Activity Index

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

(b) A facility that manufactures thermoplastic composite parts for aircraft uses toluene as a wipe solvent to clean molds. The solvent is stored in 55-gallon drums and is transferred to 1-gallon dispensers. The molds are cleaned on an as-needed basis that is not necessarily a function of the parts production rate.

(c) Operators cleaned 5,200 molds during the reporting period, but only cleaned 2,000 molds in the previous period. An activity index of 2.6 (5,200/2,000) represents the activities involving toluene usage in the facility. If the molds were cleaned after 1,000 parts were manufactured, a production ratio would equal the activity index and either could be used as the basis for the index.

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

Example 13: "NA" is Entered as the Production Ratio or Activity Index

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

Example 14: Determining the Production Ratio Based on a Weighted Average

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

Your facility paints bicycles with paint containing toluene. Sixteen thousand bicycles were produced in the reporting period and 14,500 were produced in the prior period. There were no significant design modifications that changed the total surface area to be painted for each bike. The bicycle production ratio is 1.1 (16,000/14,500). You estimate 12,500 Kg of toluene recycled,

used for energy recovery, treated, or released as a result of bicycle production. Your facility also uses toluene as a solvent in a glue that is used to make components and add-on equipment for the bicycles. Thirteen thousand components were manufactured in the reporting period as compared to 15,000 during the prior period. The production ratio for the components using toluene is 0.87 (13,000/15,000). You estimate 1,000 Kg of toluene treated, recycled, used for energy recovery, or released as a result of components production. A production ratio can be calculated by weighting each of the production ratios based on the relative contribution each has to the quantities of toluene treated, recycled, used for energy recovery, or released during the reporting period (13,500 Kg). The production ratio is calculated as follows:

Production ratio = 1.1 x (12,500**/**13,500) + 0.87 x (1,000/13,500) = 1.08

Example 15: Source Reduction

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

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

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

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

ANNEX I

REPORTING FORMAT

Mediterranean PRTRs Pilot Project

WHERE TO SEND COMPLETED FORMS:

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

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING PERIOD _____

SECTION 2. CERTIFICATION (Important: Read and sign after completing all form sections)

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

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:

SECTION 3. FACILITY IDENTIFICATION

3.1		
Facility o f Establishment Name:		Facility of Establishment Name or Mailing Address (if different from street address):
Street:		Mailing Address:
City:		City:

3.2	This report contains information for: (Important: check a or b)	a. ☐ An entire facility		b. ☐ Part of a facility			
3.3	Technical Contact Name:					Telephone Number (include area code):	
3.4	Public Contact Name:					Telephone Number (include area code):	
3.5	SIC Code (s) (4 digits)	Primary a.	b.	c.	d.	e.	f.

3.6	Latitude	Degrees	Minutes	Seconds	Longitude	Degrees	Minutes	Seconds

3.7	Facility Permit Number(s)	Industrial	Administrative	Environmental	Other	Other

SECTION 4. PARENT COMPANY INFORMATION

4.1	Name of Parent Company	NA ☐	

PART II. CHEMICAL SPECIFIC INFORMATION

SECTION 1. CHEMICAL IDENTITY (Important: DO NOT complete this section if you completed Section 2 below)

1.1	CAS Number
1.2	Chemical or Chemical Category Name
1.3	Generic Chemical Name ((Important: Complete)

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above)

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

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

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

SECTION 4. MAXIMUM AMOUNT OF THE CHEMICAL ONSITE AT ANY TIME DURING THE REPORTING PERIOD

4.1	

SECTION 5. QUANTITY OF THE CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE

Air			**A. Total Release** (period)	**B. Basis of Estimate**	
5.1	Fugitive or non-point Air emissions	NA ☐			
5.2	Stack or point Air emissions	NA ☐			
Stream or Water Body Name					**C. % From Stormwater**
5.3	Discharges to receiving streams or water bodies/Med. Sea (enter one name per box)				
5.3.1					
5.3.2					
5.3.3					
5.3.4					
5.4.1	Underground Injection onsite	NA ☐			

If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box ☐
And indicate the Part II, Section 5.3 page number in this box ☐ (example: 1,2,3 etc.)