

Welcome to the Emergency Planning and Community Right-to-Know Act, Section 313, Toxics Release Inventory online training for the 2016 reporting year. This is the Basic Concepts Module of a two part training course that is made up of this module and an Advanced Concepts module. The Basic Concepts module will walk you through the process of determining whether or not your facility is required to report to the Toxics Release Inventory, or TRI, and if so, how you actually prepare and submit information to TRI. The Advanced Concepts module assumes a basic understanding of the TRI requirements and focuses on key concepts that will help to ensure accurate TRI reporting.

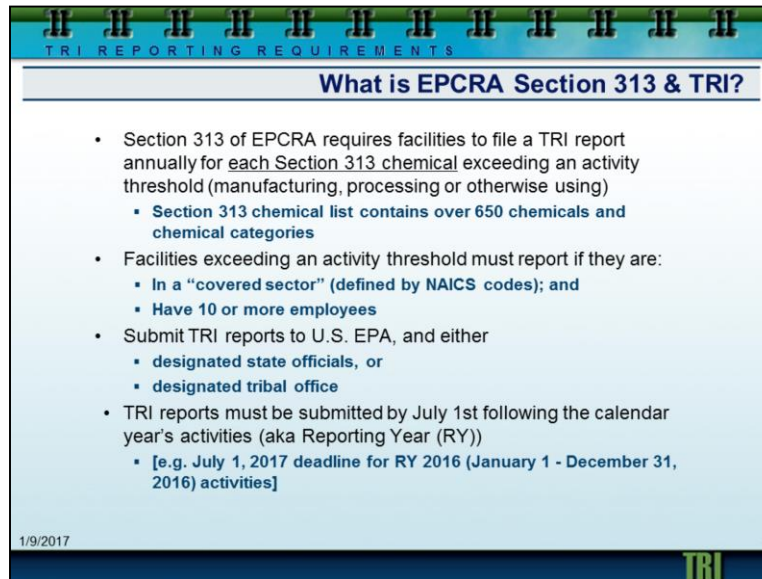


In this module we'll first provide a brief overview of the TRI program and help you determine whether or not your facility is covered by TRI. We'll look at the industry sectors covered by TRI and the TRI chemical list and threshold quantities. Next, we'll cover a number of exemptions to TRI reporting that might apply to your facility. We go over how to determine whether or not your facility exceeded any of the activity thresholds, which would trigger TRI reporting.

And, finally we will look at the Form R and Form A, which are the two reporting options under TRI.

In the Advanced Concepts module, we cover recent changes and updates to the TRI program, guidance on chemicals with special reporting requirements, the EPA audit policy, where you can get additional information and assistance with TRI requirements, the TRI-Made Easy reporting software, and submitting TRI Forms through the EPA's Central Data Exchange.





The slide is titled "TRI REPORTING REQUIREMENTS" at the top. Below the title is a section header "What is EPCRA Section 313 & TRI?". The main content is a bulleted list of requirements. The slide has a blue header and footer. The footer includes the date "1/9/2017" on the left, the "TRI" logo in the center, and a small number "4" on the right.

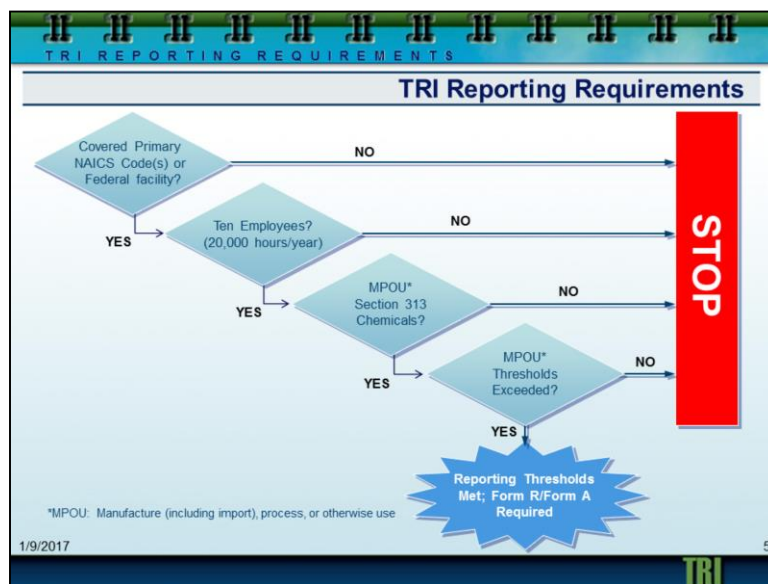
TRI REPORTING REQUIREMENTS

What is EPCRA Section 313 & TRI?

- Section 313 of EPCRA requires facilities to file a TRI report annually for each Section 313 chemical exceeding an activity threshold (manufacturing, processing or otherwise using)
 - **Section 313 chemical list contains over 650 chemicals and chemical categories**
- Facilities exceeding an activity threshold must report if they are:
 - In a "covered sector" (defined by NAICS codes); and
 - Have 10 or more employees
- Submit TRI reports to U.S. EPA, and either
 - designated state officials, or
 - designated tribal office
- TRI reports must be submitted by July 1st following the calendar year's activities (aka Reporting Year (RY))
 - [e.g. July 1, 2017 deadline for RY 2016 (January 1 - December 31, 2016) activities]

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Now let's look at the basic requirements of Toxics Release Inventory reporting. What is TRI? The Toxics Release Inventory was established by Section 313 of the Emergency Planning and Community Right to Know Act, or EPCRA 313. Facilities that are covered under EPCRA 313 must complete a TRI chemical form for each TRI chemical for which they've exceeded an activity threshold. There are more than 650 chemicals and chemical categories on the TRI chemical list. If a facility exceeds an activity threshold for a chemical, AND they are in a "covered sector," AND they have the equivalent of ten or more employees, they must submit a TRI report. TRI reports must be sent to the United States EPA and your designated state or tribal authority.



To be required to report to TRI, your facility must meet ALL of the criteria shown here. A stepwise process can be used to determine if and what you would need to report to TRI. The first step is determining whether or not your facility is covered under EPCRA Section 313 and would, therefore, need to consider its toxic chemicals for TRI reporting. Whether or not your facility is covered is based on the types of activities carried out at the facility and the number of employees working for your facility. NAICS is the North American Industry Classification System, which assigns numeric codes to characterize the activity taking place at the facility. We will talk more about the NAICS codes requirement shortly.

The next step is to determine for which TRI chemicals you must submit a TRI report. Covered facilities need to look at the TRI chemicals that are on the list and that may be present at the facility. Next, facilities need to look at how the chemicals are used. Are they manufactured? Processed? Or otherwise used? These are the TRI threshold activities. We will be describing each of these in more detail.

Next, facilities must calculate the quantity of the TRI chemical that is manufactured, processed, or otherwise used, and compare those quantities to the TRI activity thresholds. Only when activity thresholds are exceeded would the facility be required to complete and submit a TRI report, either a Form R or a Form A.

The process of completing your TRI forms is a two-step process. In the first step, you determine if your facility is required to report to TRI, and if so, you determine which TRI chemicals you handle in your facility, and then which of these you would need to report on.

Step 2, shown on the right, is the release and waste management reporting. This is the information that you would put on a TRI form. What information do facilities report to TRI? For the Form R, which is the more common means of TRI reporting, facilities report on how the TRI chemical is managed as waste, including onsite releases, treatment, energy recovery, recycling of the TRI chemical and offsite transfers, and pollution prevention activities that are conducted at the facility for that chemical.

We will cover both of these steps in detail in this Basic Concepts Module.




TRI REPORTING REQUIREMENTS	
Industrial Sectors Covered	
Industrial Sector	Notes
Manufacturing	Facilities engaged in the mechanical or chemical transformation of materials or substances into new products
Metal mining	Not including metal mining services, and uranium, radium, and vanadium ores
Coal mining	Not including coal mining services
Electrical utilities	Limited to facilities that combust coal and/or oil for the purpose of generating electricity for distribution in commerce
Treatment, Storage, and Disposal facilities	Limited to facilities regulated under the Resource Conservation and Recovery Act, Subtitle C, 42 U.S.C. Section 6921 et seq.
Solvent recovery services	Limited to facilities primarily engaged in solvent recovery services on a contract or fee basis
Chemical distributors	Facilities engaged in the wholesale distribution of chemicals and allied products
Petroleum bulk terminals	Facilities engaged in the wholesale distribution of crude petroleum and petroleum products from bulk liquid storage facilities

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This table shows the private sector industries that are covered by TRI. The covered sectors include: manufacturing; portions of metal mining; portions of coal mining; certain electric utilities; treatment, storage, and disposal facilities; solvent recovery facilities; chemical distributors; and petroleum bulk terminals.




TRI REPORTING REQUIREMENTS

Covered NAICS Codes

- 2012 North American Industry Classification System (NAICS) codes are used for TRI reporting.
- To determine whether your facility's primary NAICS code is covered by TRI regulations, see:
www2.epa.gov/tri/my-facilitys-six-digit-naics-code-tri-covered-industry
- TRI-Covered* Industries NAICS
 - 212 Mining
 - 221 Utilities
 - 31 - 33 Manufacturing
 - All Other Miscellaneous Manufacturing (includes some sectors under NAICS 1119, 1131, 2111, 4883, 5417, 8114)
 - 424 Merchant Wholesalers, Non-durable Goods
 - 425 Wholesale Electronic Markets and Agents Brokers
 - 511, 512, 519 Publishing
 - 562 Hazardous Waste
 - Federal Facilities

* Note: For many of these NAICS codes, there are reporting exceptions.

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The TRI program uses the 2012 North American Industry Classification System, or “NAICS” codes, to define which facilities are covered under TRI.


The TRI-covered NAICS codes are listed in the Code of Federal Regulations as well as in the TRI Reporting Forms and Instructions document. The list is rather lengthy. And it does include a number of exceptions and limitations.

At the website shown here, facilities can determine whether their primary NAICS code is one that is covered by TRI regulations.

TRI REPORTING REQUIREMENTS

Federal Facilities

- Federal facilities (covered by Executive Order 13423 and its implementing instructions)
 - **Required to report regardless of their NAICS code**
 - Includes military bases, federal prisons, national parks
 - **Other reporting requirements apply**
 - 10 or more full-time employees
 - Exceed manufacture, process, or otherwise use thresholds of a listed chemical
 - **The federal agency or department that owns or operates the facilities is responsible for reporting**
 - **Government owned contractor operated (GOCO) facilities**
 - Same reporting requirements as non-federal facilities
 - Counted as federal facilities in TRI data analysis

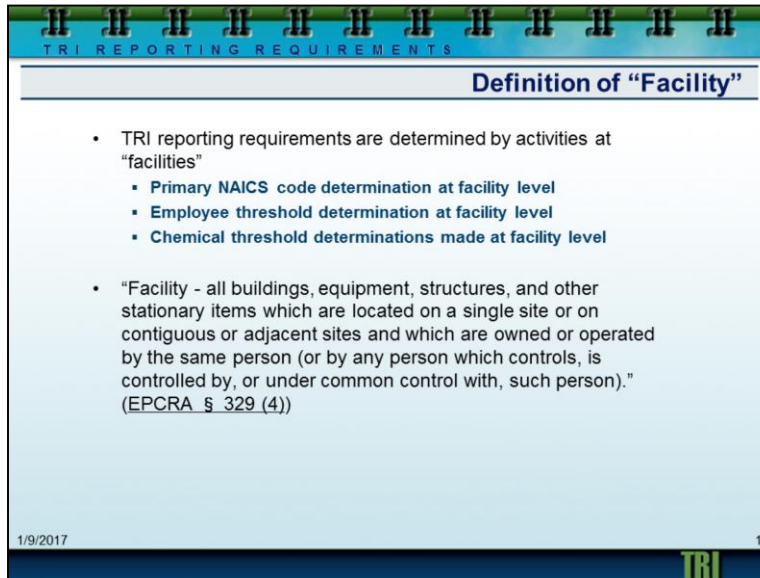


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Federal facilities may also be covered by TRI. There are no restrictions based on NAICS codes for Federal facilities. So, any Federal facilities, such as prisons, national parks, or hospitals, could be covered under TRI.

Federal facilities also need to have 10 or more full time employees to be covered by TRI. And, to be required to submit a TRI report, they would need to exceed one or more of the activity thresholds for the TRI chemicals present at the facility. The federal agency or department that owns or operates the facility is responsible for determining whether or not it is required to report. If the facility is operated by a private contractor, this executive order does not alter or remove their legal obligation to report.

The slide is titled "TRI REPORTING REQUIREMENTS" at the top. Below the title is a section header "Definition of 'Facility'". The content consists of two main bullet points. The first bullet point states that TRI reporting requirements are determined by activities at "facilities", with three sub-bullets: "Primary NAICS code determination at facility level", "Employee threshold determination at facility level", and "Chemical threshold determinations made at facility level". The second bullet point provides the definition of a facility: "Facility - all buildings, equipment, structures, and other stationary items which are located on a single site or on contiguous or adjacent sites and which are owned or operated by the same person (or by any person which controls, is controlled by, or under common control with, such person)." and cites "(EPCRA § 329 (4))". The slide includes a date "1/9/2017" in the bottom left corner and a "TRI" logo in the bottom right corner.

TRI REPORTING REQUIREMENTS

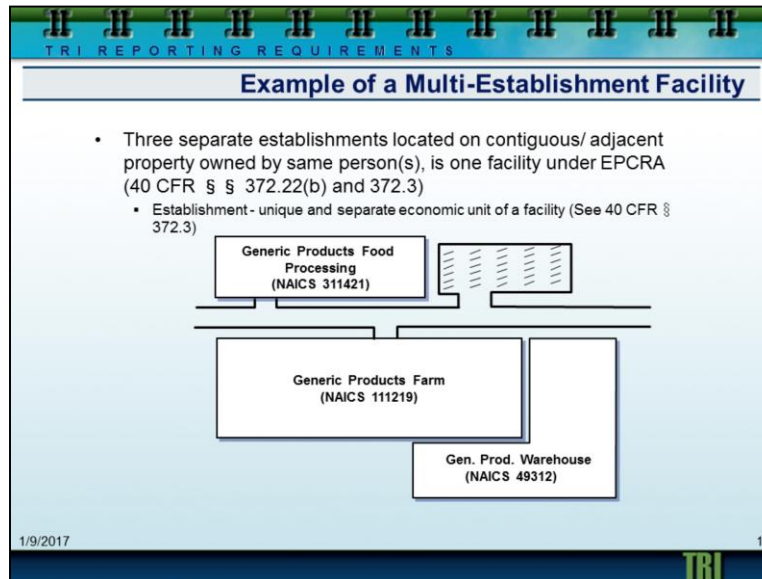
Definition of "Facility"

- TRI reporting requirements are determined by activities at "facilities"
 - Primary NAICS code determination at facility level
 - Employee threshold determination at facility level
 - Chemical threshold determinations made at facility level
- "Facility - all buildings, equipment, structures, and other stationary items which are located on a single site or on contiguous or adjacent sites and which are owned or operated by the same person (or by any person which controls, is controlled by, or under common control with, such person)." (EPCRA § 329 (4))

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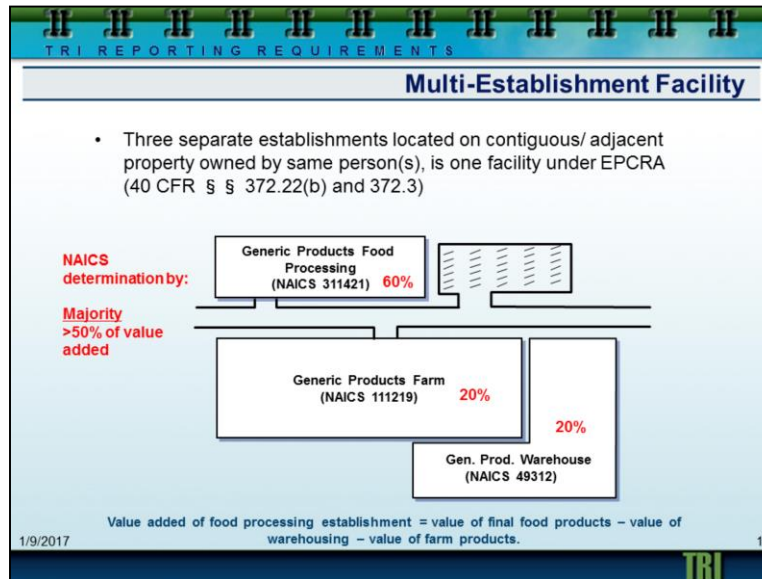
As previously mentioned, the reporting unit under TRI is the facility. Primary NAICS codes determinations and employee threshold determinations are made at the facility level. Chemical threshold determinations are also made at the facility level. Therefore, the definition of a facility under TRI is very important. EPA defines a facility as "all buildings, equipment, structures, and other stationary items which are located on a single site or contiguous or adjacent sites and which are owned or operated by the same person (or by any person which controls, is controlled by, or under common control with such person)."

A key point here is that establishments or operations owned or operated by the same company or federal agency that are contiguous or adjacent are considered a single facility under TRI. In some instances, a single site or adjacent properties may have multiple and distinct establishments, each considered to be a unique and separate economic unit. Together, these establishments comprise a single facility under TRI if they are owned or operated by the company or agency.



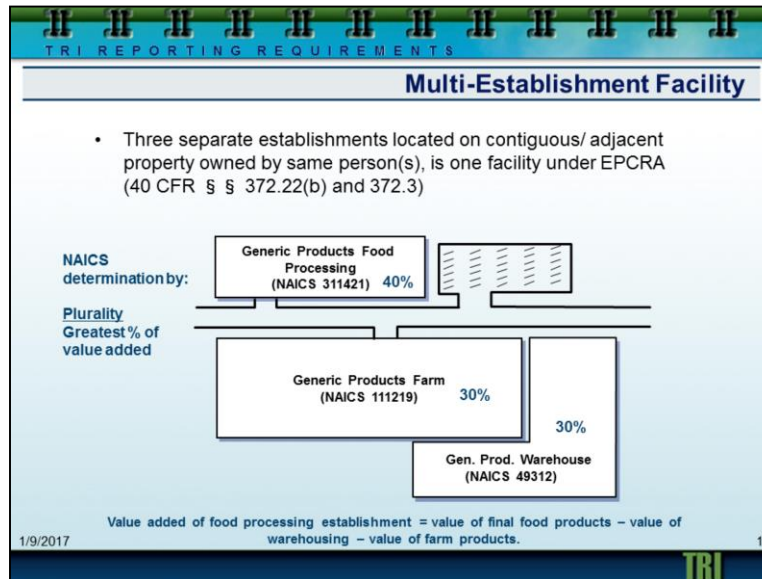
We mentioned that establishments are unique economic units within a facility. In the facility shown here, there are three unique establishments. There is a food processing establishment, a farm, and a warehouse. These establishments are all owned by the same company and are located at adjacent or contiguous sites and, therefore, are together considered a single facility under TRI. However, only the NAICS code of the processing establishment is a covered NAICS code under TRI.

Whether or not this facility would be covered by TRI depends in part on the primary NAICS code of the entire facility. The primary NAICS code for the facility is determined by the economic value added provided by each of the establishments.



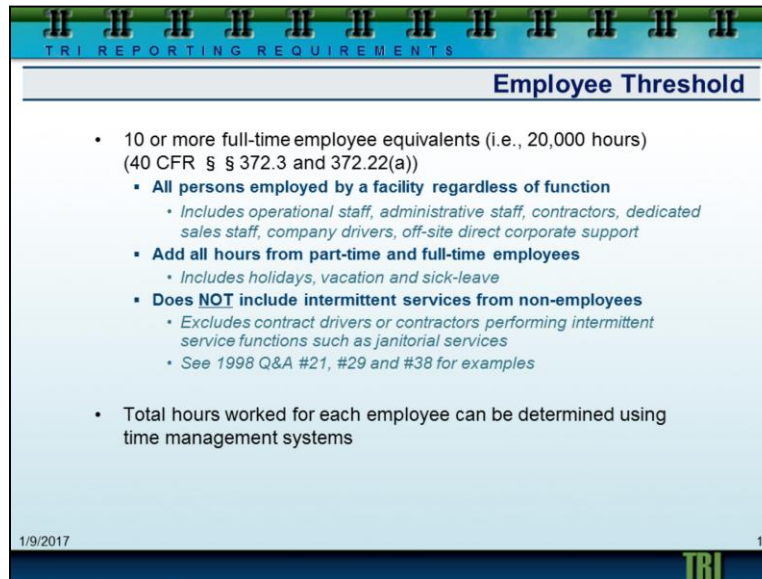
If any of these establishments contributes the majority of the economic value, or ‘value added’, of the facility, the NAICS code for that establishment would become the primary NAICS code for the entire facility. Essentially, ‘value added’ can be thought of as the value of the services the establishment provides, or the value of the products leaving the establishment less the value of the materials entering the establishment.

In this case, the processing facility, NAICS code 311421, comprises 60% of the ‘value added’ for the entire facility. The farm and the warehouse each comprise 20%. Therefore, the primary NAICS code for the entire facility is 311421. For more on calculating value added for establishments, see the TRI Reporting Forms and Instructions.



If no establishment contributes the majority of the value added, the primary NAICS code for the facility becomes that of the establishment that has the largest percent of the value added. In this case, the processing facility of NAICS code 311421 comprises 40% of the value added, whereas the farm and the warehouse each comprise 30%. In this case, based on the plurality, the processing NAICS code again becomes the NAICS code for the entire facility.

Because the processing NAICS code is one that is covered under TRI, the entire facility would need to consider its employee thresholds and chemical use.

The slide is titled "Employee Threshold" and is part of a presentation on TRI Reporting Requirements. It features a blue header with the text "TRI REPORTING REQUIREMENTS" and a green border at the top. The content is organized into a bulleted list. The first bullet point states "10 or more full-time employee equivalents (i.e., 20,000 hours) (40 CFR § 372.3 and 372.22(a))". This is followed by three sub-bullets: "All persons employed by a facility regardless of function" (with a note including operational staff, administrative staff, contractors, dedicated sales staff, company drivers, and off-site direct corporate support), "Add all hours from part-time and full-time employees" (with a note including holidays, vacation, and sick-leave), and "Does NOT include intermittent services from non-employees" (with a note excluding contract drivers or contractors performing intermittent service functions such as janitorial services, and a reference to 1998 Q&A #21, #29, and #38 for examples). A final bullet point states "Total hours worked for each employee can be determined using time management systems". The slide includes a date "1/9/2017" in the bottom left and a page number "15" in the bottom right, with a "TRI" logo in the bottom right corner.

TRI REPORTING REQUIREMENTS

Employee Threshold

- 10 or more full-time employee equivalents (i.e., 20,000 hours) (40 CFR § 372.3 and 372.22(a))
 - **All persons employed by a facility regardless of function**
 - Includes operational staff, administrative staff, contractors, dedicated sales staff, company drivers, off-site direct corporate support
 - **Add all hours from part-time and full-time employees**
 - Includes holidays, vacation and sick-leave
 - **Does NOT include intermittent services from non-employees**
 - Excludes contract drivers or contractors performing intermittent service functions such as janitorial services
 - See 1998 Q&A #21, #29 and #38 for examples
- Total hours worked for each employee can be determined using time management systems

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For private sector facilities that have determined that they meet the primary NAICS code requirements and Federal facilities, the next step is to determine whether or not they meet the employee threshold requirement. As mentioned, facilities with 10 or more full-time employees are covered by TRI.

10 or more full-time employees is defined as 20,000 hours worked at or for the facility. This includes operational staff, administrative staff, contractors, sales staff, drivers, and off-site corporate support. The only thing it doesn't include is contracted drivers and contractors providing intermittent services such as trash removal and janitorial services.

Facilities need to add up all of the hours, both part-time and full-time, worked at their facility, and apply that towards this 20,000 hour threshold.

Quiz #1 Question 1

Would the facility described below be covered by TRI and, therefore, need to consider its chemical use for possible reporting?

Select Yes or No.

A manufacturing facility, owned by ABC Corporation, with 100 full-time employees

YES

NO

Quiz #1 Question 2

Would the facility described below be covered by TRI and, therefore, need to consider its chemical use for possible reporting?

Select Yes or No.

A maintenance and warehouse facility, owned by ABC Corporation, with 5 full-time employees, a few blocks away from the manufacturing facility described in Question 1

YES

NO

Quiz #1 Question 3

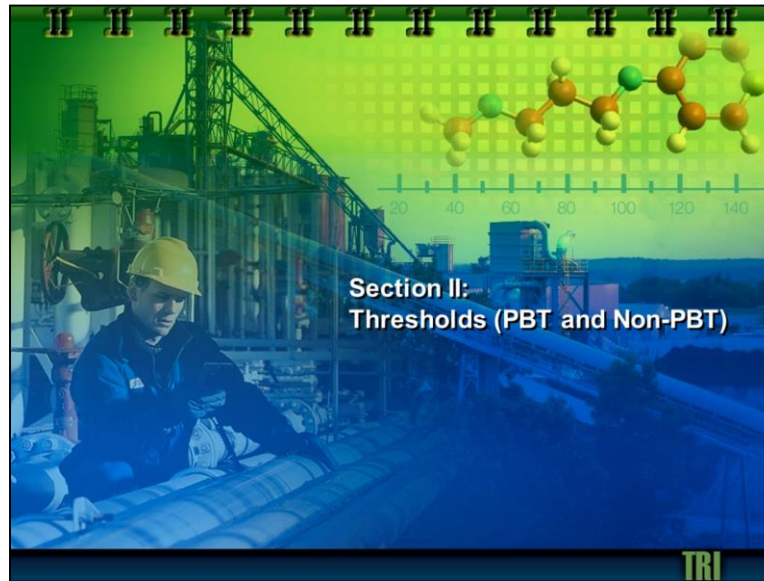
Would the facility described below be covered by TRI and, therefore, need to consider its chemical use for possible reporting?

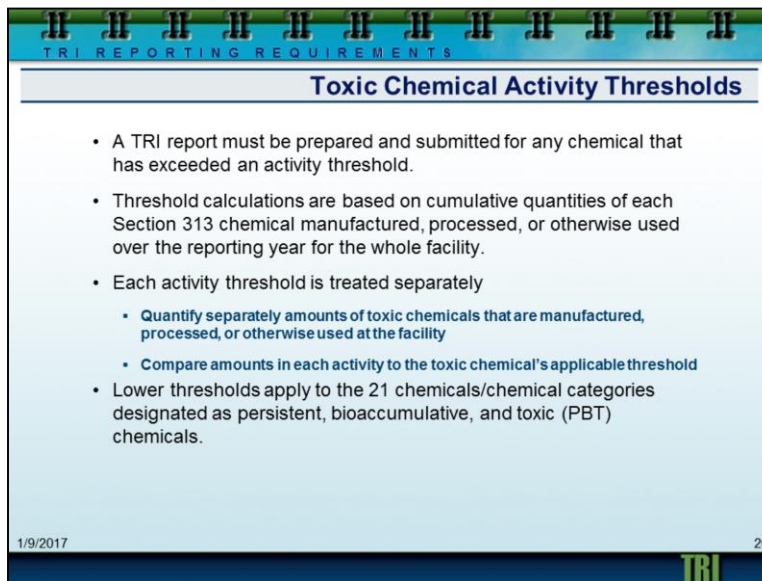
Select Yes or No.

A maintenance and warehouse facility, owned by ABC Corporation, with 5 full-time employees, next door to the manufacturing facility described in Question 1

YES

NO



The slide is titled "TRI REPORTING REQUIREMENTS" at the top, with a decorative header featuring a row of chemical structures. Below this, the main title "Toxic Chemical Activity Thresholds" is centered. The slide contains a bulleted list of requirements for TRI reporting. At the bottom left, the date "1/9/2017" is displayed, and at the bottom right, the number "20" is shown next to the TRI logo.

TRI REPORTING REQUIREMENTS

Toxic Chemical Activity Thresholds

- A TRI report must be prepared and submitted for any chemical that has exceeded an activity threshold.
- Threshold calculations are based on cumulative quantities of each Section 313 chemical manufactured, processed, or otherwise used over the reporting year for the whole facility.
- Each activity threshold is treated separately
 - Quantify separately amounts of toxic chemicals that are manufactured, processed, or otherwise used at the facility
 - Compare amounts in each activity to the toxic chemical's applicable threshold
- Lower thresholds apply to the 21 chemicals/chemical categories designated as persistent, bioaccumulative, and toxic (PBT) chemicals.

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As previously mentioned, TRI reporting is only triggered when a facility exceeds one or more of the three activity thresholds: manufacturing, processing, and otherwise use. Facilities must quantify the amount of each TRI chemical and chemical category involved in each of these three activities. Then, compare the amounts to the thresholds.

In some cases the same discrete amount of a TRI chemical can go through more than one threshold activity. In such cases, the chemical must be counted towards each threshold activity.

Remember that threshold calculations are based on cumulative quantities of each TRI chemical over the reporting year. If a threshold is exceeded for any of the threshold activities, then a TRI report must be prepared and submitted for that chemical.

TRI REPORTING REQUIREMENTS

Non-PBT TRI Chemical Activity Thresholds

- A facility meeting the first two applicability criteria for reporting must file a TRI Report for a non-PBT Section 313 chemical if the facility:
 - Non-PBT Thresholds**
 - Manufactured (including imported)** more than 25,000 pounds of the chemical in the reporting year, *or*
 - Processed** more than 25,000 pounds of the chemical in the reporting year, *or*
 - Otherwise Used** more than 10,000 pounds of the chemical in the reporting year
- Most of the 650+ chemicals and chemical categories on the Section 313 list are non-PBT chemicals.

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We've talked about the thresholds activities. Now, what are the actual threshold quantities that would trigger TRI reporting? For chemicals that are not considered to be persistent, bioaccumulative toxic, or "non-PBT chemicals", the thresholds for manufacturing are 25,000 pounds. For processing, 25,000 pounds, and for otherwise use, 10,000 pounds. These are the thresholds for the majority of the TRI chemicals.

TRI REPORTING REQUIREMENTS

Listed PBT* TRI Chemicals

- Within the list of 650+ chemicals and chemical categories, there is a subset designated as being of special concern and commonly referred to as PBT chemicals (40 CFR § 372.28)
- PBT chemicals have lower activity thresholds and different reporting requirements than non-PBT TRI chemicals
 - Special rules often apply to PBT chemicals
- 21 chemicals and chemical compound categories are classified as PBTs and have lower activity thresholds


***PBT = Persistent, Bioaccumulative, Toxic**

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Persistent bioaccumulative toxic chemicals, or PBTs, are a subset of the chemicals on the TRI chemical list. PBT chemicals have lower activity thresholds than other TRI chemicals and they also have some special rules when reporting them to TRI. Currently there are 21 chemicals and chemical categories that are designated as PBTs under TRI.

TRI REPORTING REQUIREMENTS	
PBT Chemicals and Activity Thresholds	
<ul style="list-style-type: none"> PBT chemicals are subject to separate and lower activity thresholds (See 40 CFR § 372.28) 	
PBT Thresholds	<ul style="list-style-type: none"> 100 lb/yr (manufactured, processed, or otherwise used) <ul style="list-style-type: none"> Aldrin Hexabromocyclododecane (HBCD) Lead* Lead Compounds Methoxychlor Pendimethalin Polycyclic Aromatic Compounds Tetrabromobisphenol A Trifluralin
	<ul style="list-style-type: none"> 10 lb/yr (manufactured, processed, or otherwise used) <ul style="list-style-type: none"> Chlordane Heptachlor Mercury Toxaphene Isodrin PCBs Benzo(g,h,i)perylene Hexachlorobenzene Mercury compounds Octachlorostyrene Pentachlorobenzene
	<ul style="list-style-type: none"> 0.1 g/yr (manufactured, processed, or otherwise used) <ul style="list-style-type: none"> Dioxin and dioxin-like compounds
1/9/2017	* Excluding lead in stainless steel, brass, or bronze alloys TRI 23

The actual threshold quantities that trigger reporting vary depending on the chemical. For nine of the chemicals, the threshold is 100 pounds per year. For those chemicals that are considered to be highly persistent and bioaccumulative, the threshold is 10 pounds per year. And for dioxin and dioxin-like compounds, the threshold is 0.1 grams per year, which reflects the highly toxic nature of this chemical category. For PBT chemicals, the threshold quantities are the same for manufacturing, processing, and otherwise use.




TRI REPORTING REQUIREMENTS

Section 313 Chemicals and Chemical Categories

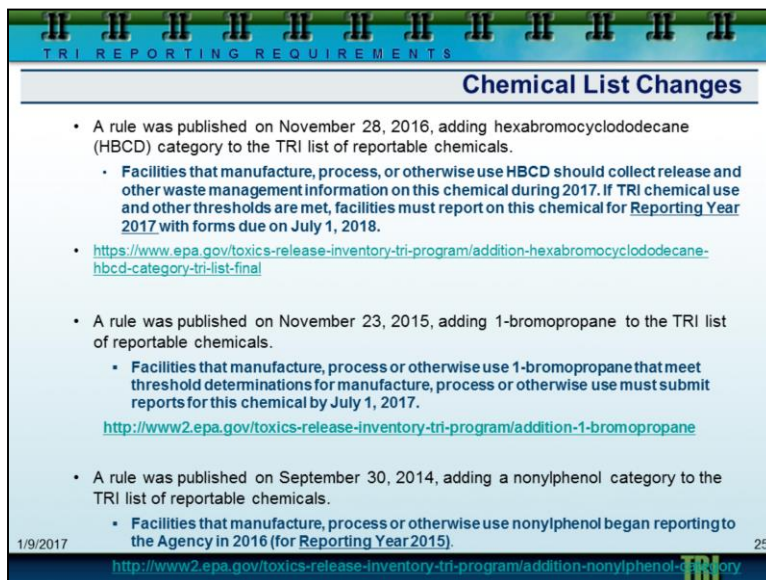
- Current list contains over 650 individual chemicals and chemical categories (See Table II of the EPA's TRI Reporting Forms and Instructions document.) There are 4 parts to the chemical list:
 - Individual chemicals alphabetically by name
 - Individual chemicals by CAS #
 - Chemicals with qualifiers
 - Chemical categories
- The list can change – check every year. Changes are listed in the front of the TRI Reporting Forms and Instructions, on the TRI website, and in TRI-MEweb.
- Section 313 chemical list and more information available at:
<http://www2.epa.gov/toxics-release-inventory-tri-program/tri-listed-chemicals>

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So what are the TRI chemicals? The current TRI chemical list contains over 650 individual chemicals and chemical categories. The list can be found in EPA's Reporting Forms and Instructions in Table II, which is available on the TRI website and through the TRI-MEweb reporting application.

The TRI chemicals are listed alphabetically by name and they are also listed again by their CAS number or chemical abstract service number. There is also a list of chemical categories. Coming up we'll talk about the differences between individual chemicals and chemical categories in more detail. Be aware that the TRI chemical list changes almost every year. Make sure that you're always using the most current TRI chemical list.



The slide is titled "TRI REPORTING REQUIREMENTS" and "Chemical List Changes". It lists three updates to the TRI chemical list:

- A rule was published on November 28, 2016, adding hexabromocyclododecane (HBCD) category to the TRI list of reportable chemicals.
 - Facilities that manufacture, process, or otherwise use HBCD should collect release and other waste management information on this chemical during 2017. If TRI chemical use and other thresholds are met, facilities must report on this chemical for Reporting Year 2017 with forms due on July 1, 2018.
 - <https://www.epa.gov/toxics-release-inventory-tri-program/addition-hexabromocyclododecane-hbcd-category-tri-list-final>
- A rule was published on November 23, 2015, adding 1-bromopropane to the TRI list of reportable chemicals.
 - Facilities that manufacture, process or otherwise use 1-bromopropane that meet threshold determinations for manufacture, process or otherwise use must submit reports for this chemical by July 1, 2017.
 - <http://www2.epa.gov/toxics-release-inventory-tri-program/addition-1-bromopropane>
- A rule was published on September 30, 2014, adding a nonylphenol category to the TRI list of reportable chemicals.
 - Facilities that manufacture, process or otherwise use nonylphenol began reporting to the Agency in 2016 (for Reporting Year 2015).
 - <http://www2.epa.gov/toxics-release-inventory-tri-program/addition-nonylphenol-category>

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A rule was published in 2016, adding hexabromocyclododecane or HBCD to the TRI list of reportable chemicals beginning in Reporting Year 2017 which means for the forms due on July 1, 2018. Facilities that manufacture, process or otherwise use HBCD should begin gathering data for threshold determination and potential waste management reporting.

A rule was published in 2015, adding 1-bromopropane to the TRI list of reportable chemicals beginning in Reporting Year 2016 which means for the forms due on July 1, 2017.

A 2014 rulemaking added a nonylphenol category to the TRI chemical list. Reporting for this chemical began in Reporting Year 2015 for forms due to the Agency on July 1, 2016.

TRI REPORTING REQUIREMENTS

Section 313 Chemicals With Qualifiers

- Qualifiers - Listed chemicals with parenthetical qualifiers subject to TRI reporting only if manufactured, processed, or otherwise used in specified form (40 CFR § 372.25(g)). Below are some examples (see Table II of EPA's *TRI Reporting Forms and Instructions* document):

Chemical	CAS #	Qualifier
Aluminum	7429-90-5	Fume or dust
Aluminum Oxide	1344-28-1	Fibrous forms
Asbestos	1332-21-4	Friable forms
Isopropyl alcohol	67-63-0	Only manufacturers using strong acid process
Phosphorus (not phosphate)	7723-14-0	Yellow or white
Saccharin	81-07-2	Manufacture only
Hydrochloric acid	7647-01-0	Acid aerosols
Sulfuric acid	7664-93-9	Acid aerosols
Vanadium	7440-62-2	Except when contained in alloy

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Many of the listed TRI chemicals have parenthetical qualifiers. These chemicals are only subject to TRI reporting if they are manufactured, processed, or otherwise used in the specific form described in the qualifier.

The tables shown here are just some of the qualifiers for TRI chemicals. For example, the first one, aluminum, has the qualifier 'fume or dust'. This means that aluminum would only be considered under TRI in the fume or dust form. Isopropyl alcohol is another example. It would only need to be considered under TRI if the facility is manufacturing isopropyl alcohol and using a process called the 'strong acid process'.

Another example is sulfuric acid, which is only considered under TRI in an acid aerosol form. Facilities that have aqueous sulfuric acid which are not aerosolizing the acid in any way would not need to consider their sulfuric acid towards the threshold or reporting. These are just some of the qualifiers on the TRI chemical list. Facilities should always be sure to be aware of the chemical qualifiers associated with the chemicals that may be present at their facility.

TRI REPORTING REQUIREMENTS

TRI Chemical Categories

- Metal compound chemical categories
 - Antimony Compounds
 - Arsenic Compounds
 - Barium Compounds *
 - Beryllium Compounds
 - Cadmium Compounds
 - Chromium Compounds **
 - Cobalt Compounds
 - Copper Compounds ***
 - Lead Compounds
 - Manganese Compounds
 - Mercury Compounds
 - Nickel Compounds
 - Selenium Compounds
 - Silver Compounds
 - Thallium Compounds
 - Vanadium Compounds
 - Zinc Compounds

For all categories: Includes any unique chemical substance that contains the element or compound as part of that chemical's infrastructure

* Does not include Barium Sulfate CAS 7727-43-7

** Except chromite ore and unreacted ore component of processing residue (see RFI for further information)

*** Does not include copper Phthalocyanine compounds that are substituted with only hydrogen, and/or chlorine and/or bromine

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Note: Elemental metals and metal compounds are separately listed chemicals under Section 313.

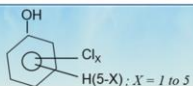
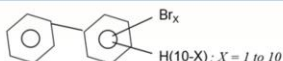
TRI

Facilities need to take care in identifying chemicals used or generated at their facility that may fall within a TRI chemical category group. Chemical categories are groups of individual chemicals which must be considered together towards activity thresholds and reporting under TRI.

Many chemical categories are metal compound chemical categories some of which are show here. In many cases, the elemental forms of the metal are also reportable as a separately listed TRI chemical.

Let's look at lead compounds as an example. Any unique chemical substance that contains lead as part of its chemical infrastructure would be considered part of the lead compounds chemical category.

Note that some of these chemical categories also contain qualifiers. For example, in the case of barium compounds, the category does not include barium sulfate; however, all other barium compounds would need to be considered toward this chemical category.

TRI REPORTING REQUIREMENTS	
EPCRA TRI Chemical Categories (examples)	
Chlorophenols	
Cyanide Compounds	XCN where X=H or any other group where a formal dissociation may occur. For example, KCN or Ca(CN) ₂
Diisocyanates	20 individual compounds cited in Category
Dioxin and Dioxin-Like Compounds:	17 individual compounds cited in Category
Ethylenebisdithiocarbamic acid, salts and esters (EBDCs)	Includes a substance that may contain EBDC or EBDC salt or ester as part of its infrastructure
Certain Glycol Ethers	Complex definition
Nicotine and salts	Includes a substance that may contain it or salt as part of its infrastructure
Nitrate compounds	Water dissociable, reportable only when in aqueous solution
Polybrominated Biphenyls (PBBs)	

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TRI

Chemicals can also be grouped into chemical categories under TRI. In some cases, the category is defined as a general class of chemicals, for example, in the case of chlorophenols. And in other cases, there is a list of individual chemicals that makes up the chemical category. In the case of dioxin and dioxin-like compounds, there are 17 individual compounds that make up the chemical category. These are just some of the non-metal chemical categories on the TRI chemical list.

TRI REPORTING REQUIREMENTS

Manufacturing Activities

- Manufacturing (EPCRA § 313(b)(1)(C)(i) and 40 CFR § 372.3)
 - generating a Section 313 chemical
 - **Intentionally producing chemicals for:**
 - Sale
 - Distribution
 - On-site use or processing (e.g., intermediates)
 - **Coincidentally producing chemicals as impurities* or by-products**:**
 - At **any point** at the facility, including waste treatment (#152 of 1998 Q&A) and fuel combustion (#252 and #254 of 1998 Q&A)
 - **Importing**
 - "Cause" to be imported

*Impurity=TRI chemical that still remains with the final facility product as it is distributed into commerce (#151 and #319 of 1998 Q&A)

**By-product=TRI chemical that is separated out from the process mixture before it becomes the final product

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TRI

Now, let's look at each of the threshold activities in more detail. The first is manufacturing. Manufacturing includes intentionally producing the TRI chemical because that is what your facility does – either manufactures the TRI chemical for sale or distribution – or manufactures it to be used on-site in another process.


Chemicals can also be coincidentally manufactured, in which case the chemical is not intentionally manufactured but it is created as an impurity or byproduct in the process. Coincidentally manufacturing a TRI chemical can happen at any point in the facility, including in waste treatment and when combusting fuels.

Importing of a TRI chemical, or causing a TRI chemical to be imported into the United States, is also considered to be a manufacturing activity under TRI.

TRI REPORTING REQUIREMENTS

Processing Activities

- Processing (EPCRA § 313(b)(1)(C)(ii) and 40 CFR § 372.3) - preparation of a Section 313 chemical, after its manufacture, for distribution in commerce:
 - Use as a reactant to manufacture another substance or product
 - Add as a formulation component
 - Incorporate as an article component
 - Repackage for distribution
 - Quantities sent off-site for recycling
 - Incidentally include as an impurity



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The next threshold activity is processing. Processing of a TRI chemical involves distributing a TRI chemical into commerce. This can be done either as a reactant in the manufacturing of another substance which is distributed into commerce, or it could be that the TRI chemical is being added as a formulation or article component to a product which is then distributed into commerce. Repackaging of a TRI chemical with subsequent distribution into commerce also is a processing activity under TRI.


Note that, under TRI, processing also includes sending a TRI chemical off-site for recycling.

Finally, processing may also include the unintentional processing of a TRI chemical if it appears as an impurity in a raw material that your facility uses and which leaves the facility in the product.

TRI REPORTING REQUIREMENTS

Repackaging as a Processing Activity

- Repackaging a Section 313 chemical for distribution in commerce is considered processing
 - **Repackaging includes:**
 - From container to tanker truck and vice versa
 - Between similar size containers
 - Via pipeline to/from a tank
 - **Repackaging does not include:**
 - Sampling without repackaging
 - Re-labeling
- Repackaging without distribution into commerce is not processing
- Transfer to a storage tank for mere storage is not processing



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TRI

Let's look at repackaging in more detail. Any repackaging of a TRI chemical for distribution in commerce is considered processing. Repackaging could be from any type of container to any other type of container. The containers could be similar sizes, or they could be very different such as pipelines into tanks or vice-versa.

As long as the TRI chemical is going from one container to another and then is being distributed into commerce, the chemical would be considered processed under TRI. Repackaging does not include taking samples from containers for the purposes of quality assurance and it does not include simple re-labeling of a container. As long as the TRI chemical stays within the container, placing a label on the container itself would not be considered repackaging.

Any repackaging without distribution into commerce would not be considered processing. For example, TRI chemicals contained in a 55 gallon drum that are placed into smaller containers and distributed around the facility to be used at the facility and which are not being distributed into commerce would not be considered towards the processing thresholds.


TRI REPORTING REQUIREMENTS

Otherwise Use Activities

- Otherwise Use (40 CFR § 372.3) - includes most activities that are NOT manufacturing or processing.

Examples

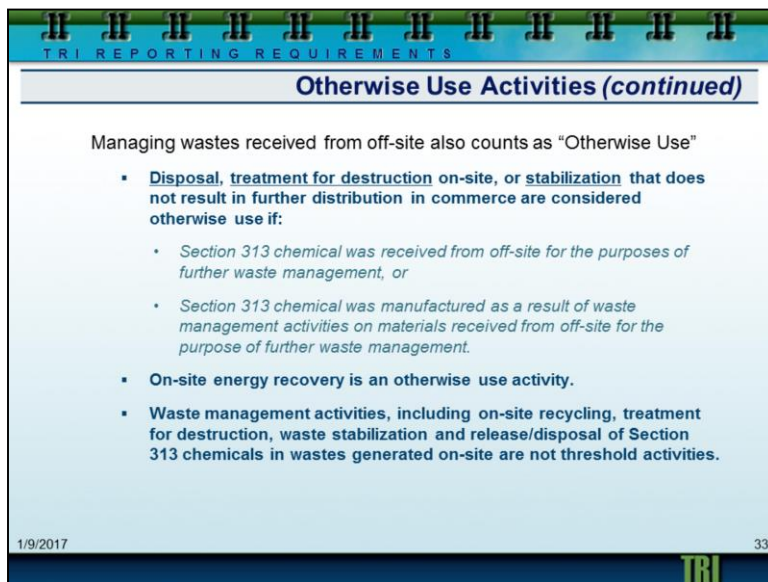
- Chemical processing aid (e.g., solvents, catalysts, buffers, non-incorporative reagents)
- Manufacturing aid (e.g., lubricants, refrigerants, coolants, hydraulic fluids, metalworking fluids)
- Ancillary activities
 - Fuels, cleaners, degreasers
 - Chemicals used to remediate or treat wastes
 - Fabrication and/or use of tools in your process
 - Installation of piping and process-related equipment, e.g., reactors, constructing storage tanks, asphalt roadways



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'Otherwise use' includes most activities that are not considered manufacturing or processing. Chemicals that are otherwise used include chemical processing aids like solvents, manufacturing aids like lubricants, refrigerants, or catalysts. Otherwise use often includes ancillary activities, chemicals that are used, for example, to remediate wastes or chemicals that are used to clean process equipment.

Chemicals that are contained within tools or other equipment at the facility would be considered otherwise used.


The slide is titled "TRI REPORTING REQUIREMENTS" at the top, with a decorative header featuring a row of chemical structures. Below the title is a sub-header "Otherwise Use Activities (continued)". The main content area is light blue and contains text and a bulleted list. The text states that managing wastes received from off-site counts as "Otherwise Use". The list includes criteria for disposal, treatment, or stabilization, and on-site energy recovery. The date "1/9/2017" is in the bottom left, and the TRI logo and page number "33" are in the bottom right.

TRI REPORTING REQUIREMENTS

Otherwise Use Activities (continued)


Managing wastes received from off-site also counts as "Otherwise Use"

- **Disposal, treatment for destruction on-site, or stabilization** that does not result in further distribution in commerce are considered otherwise use if:
 - Section 313 chemical was received from off-site for the purposes of further waste management, or
 - Section 313 chemical was manufactured as a result of waste management activities on materials received from off-site for the purpose of further waste management.
- **On-site energy recovery is an otherwise use activity.**
- **Waste management activities, including on-site recycling, treatment for destruction, waste stabilization and release/disposal of Section 313 chemicals in wastes generated on-site are not threshold activities.**

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Otherwise use also includes any disposal, stabilization, or treatment for destruction of a TRI chemical if the chemicals are received from off-site for the express purposes of further waste management.

Also, any on-site combustion of TRI chemicals for energy recovery is also considered an otherwise use activity. This includes energy recovery of wastes generated on-site and wastes received from off-site. In addition, TRI chemicals that are manufactured as a result of waste management activities on any material that is received from off-site for the purpose of waste management would be considered towards your otherwise use threshold. Under TRI, waste management activities include recycling, combustion for energy recovery, treatment for destruction, waste stabilization and release to the environment, including disposal. These activities in themselves, with the exceptions of off-site recycling and on-site energy recovery, are not threshold activities as long as the waste was not received from offsite for the purpose of waste management.



Calculating Activity Thresholds


- The threshold quantity is the total amount manufactured, processed, or otherwise used, NOT the amount released.
- Calculate the total amount of Section 313 chemical used for a specific threshold activity
- Each activity threshold is calculated separately and they are not additive

Example of Calculating Activity Thresholds

Over the course of a reporting year, a facility manufactures 24,000 pounds of a non-PBT chemical, subsequently process that amount, and also happen to otherwise use 9,000 pounds of the same chemical. That facility has not exceeded a non-PBT chemical activity threshold and would NOT be required to submit a TRI report for that chemical.

- Calculations for reporting waste management may be different from threshold quantities.

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When calculating activity thresholds, facilities must remember that the threshold quantity is the total amount of the chemical that is manufactured, processed, or otherwise used over the reporting year. It is not the amount of TRI chemical that was released or managed as waste. Remember to apply the total amount of the chemical to each activity threshold including all threshold activities at the facility.

Note that it is not critical to calculate the threshold quantity exactly; however, it is important to know whether or not you have exceeded the threshold using the best available information.




TRI REPORTING REQUIREMENTS

Threshold Determination for Compound Categories


- Count together all compounds within the same chemical category for each activity, even if different compounds within a category are used in separate operations
- Consider the entire weight of all the different chemical compounds in the same chemical category when determining thresholds
- Note: calculations for release and other waste management estimates of metal compounds based on the parent metal weight only; and for nitrate compounds are based on weight of nitrate ion only

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When determining thresholds for chemical categories, be sure to count all the compounds that fall within the category. Even if they're different compounds used in different operations around your facility. Apply the entire weight of the compounds in the category when determining your thresholds quantities.

Note that while the weight of the entire compound must be applied to the threshold for the chemical category, releases and other waste management estimates for Form R reporting have different requirements for metal and nitrate compounds.




Activities That Are Not TRI Threshold Activities

- Activities that, alone, do NOT constitute a threshold activity
 - Storage
 - Remediation of on-site contamination (assuming no listed chemicals are manufactured during remediation)
 - Re-labeling without repackaging
 - Direct reuse onsite
 - On-site recycling (not including wastes received from off-site)
 - Transfers sent off-site for further waste management (not including recycling)
 - Repackaging (and blending, if any) of waste fuels for burning for energy recovery. (However, all fuels, including waste fuels (with blending, if any), are considered otherwise used when combusted for energy recovery.)

Note: While these activities are not included in the threshold determination, releases and wastes from these activities are not exempt from reporting if threshold is exceeded through other activities (unless specifically eligible for one of the reporting exemptions).

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There are some activities that are not considered to be threshold activities under TRI. In other words, the activities are not considered manufacturing, processing, or otherwise use. For example, storage. In itself, storage of a TRI chemical would not need to be considered towards an activity threshold. Remediation of on-site contamination would not be considered a threshold activity as long as the waste was on-site and not brought in from off-site for the purposes of waste treatment, or waste management.

As mentioned, re-labeling of a container without repackaging is not considered a threshold activity. Directly reusing a TRI chemical on-site and any on-site recycling of a TRI chemical are not considered threshold activities. Transferring of a TRI chemical off-site for further waste management, not including offsite recycling, is not considered a threshold activity.

None of the TRI chemicals associated with these activities would need to be considered towards an activity threshold. However, if a TRI chemical threshold was exceeded in some other manner at your facility, a TRI form would be required for that chemical. Any release and waste management reporting for that chemical would need to include any releases or other waste management associated with these activities.

Quiz #2 Question 1

A plant uses benzene as a raw material to manufacture liquid industrial adhesive. The plant adds 27,000 lb of benzene to its liquid adhesive-making operation during the reporting year, but 3,000 lb are volatilized during the operation. How much of the benzene should be applied toward the processing activity threshold?

Select your choice.

- A. 27,000 lb
- B. 24,000 lb
- C. 3,000 lb

Quiz #2 Question 2

If a facility processes 20,000 lb of methylene diphenyl diisocyanate (MDI) in one operation and 10,000 lb of isophorone diisocyanate in another operation during the reporting year, what should it apply towards its processing threshold for the diisocyanates category?

Select your choice.

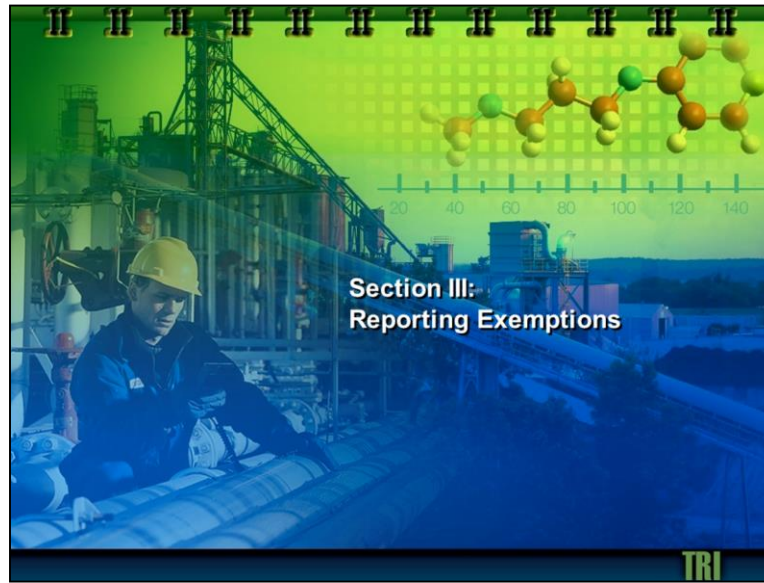
- A. 10,000 lb
- B. 20,000 lb
- C. 30,000 lb

Quiz #2 Question 3

A facility processes 18,000 lb copper sulfate, 10,000 lb of cuprous oxide, and otherwise uses 12,000 lb of aqueous sulfuric acid solution in a closed system. For which TRI chemicals or chemical categories would the facility need to submit a TRI form?

Select your choice.


- A. copper compounds and sulfuric acid
- B. only copper compounds
- C. only sulfuric acid



TRI REPORTING REQUIREMENTS

Reporting Exemptions

- If an exemption applies, then the amount of Section 313 chemical subject to the exemption does NOT have to be included in:
 - **Threshold determinations**
 - **Release and waste management reporting**
- Recognize that exemptions only apply to certain limited circumstances
- Misusing exemptions may lead to enforcement action




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Next we will be covering a number of exemptions to TRI reporting. The purpose of reporting exemptions is to reduce the burden of reporting associated with small or ancillary operations. If an exemption applies, then all the associated amount of the TRI chemical does not need to be included in threshold determinations, or release and waste management reporting. It's important to note that exemptions only apply in certain limited circumstances.

TRI REPORTING REQUIREMENTS

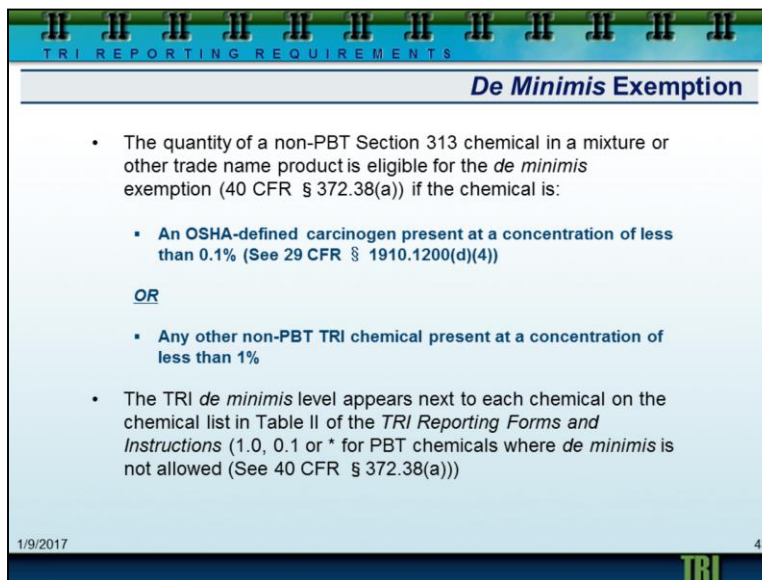
Reporting Exemptions

- Types of exemptions (40 CFR § 372.38)
 - *De minimis*
 - **Article**
 - **Laboratory activities**
 - **NAICS code specific**
 - *Coal mining extraction activities*
 - *Metal mining overburden*
 - **“Otherwise use” exemptions**
 - *Motor vehicle maintenance*
 - *Routine janitorial or facility grounds maintenance*
 - *Structural components*
 - *Personal use*
 - *Intake water and air*



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The TRI exemptions include the de minimis exemption, the articles exemption, and the laboratory activities exemption. A number of exemptions apply only to facilities in the metal and coal mining sectors. There are also a series of exemptions for the otherwise use of TRI chemicals in motor vehicle maintenance, routine janitorial or facility grounds maintenance, structural components, personal use, intake water and air.



The slide features a header with a row of chemical structures above the text "TRI REPORTING REQUIREMENTS". The main title "De Minimis Exemption" is in a blue box. The content includes a bulleted list of exemption criteria, with a sub-bullet for OSHA-defined carcinogens and a separate bullet for other non-PBT TRI chemicals. The word "OR" is centered between the two main bullet points. The footer shows the date "1/9/2017" and the TRI logo.

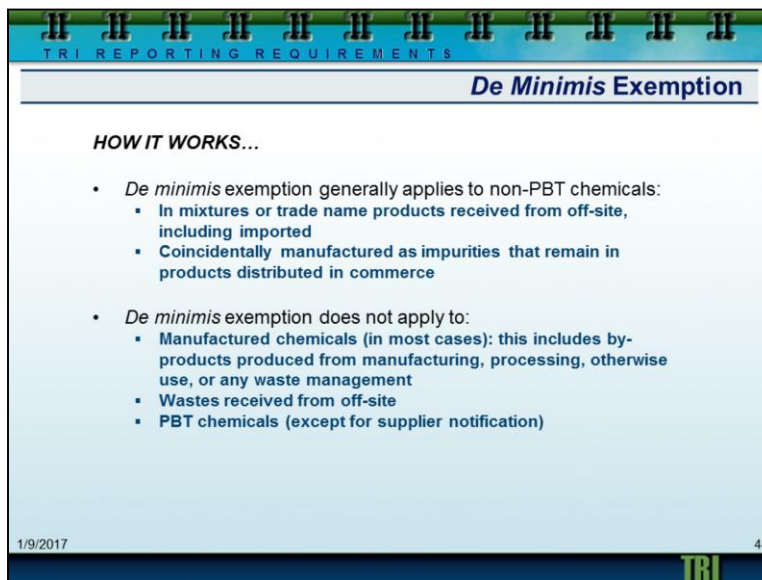
TRI REPORTING REQUIREMENTS

De Minimis Exemption

- The quantity of a non-PBT Section 313 chemical in a mixture or other trade name product is eligible for the *de minimis* exemption (40 CFR § 372.38(a)) if the chemical is:
 - An OSHA-defined carcinogen present at a concentration of less than 0.1% (See 29 CFR § 1910.1200(d)(4))
- OR
- Any other non-PBT TRI chemical present at a concentration of less than 1%
- The TRI *de minimis* level appears next to each chemical on the chemical list in Table II of the *TRI Reporting Forms and Instructions* (1.0, 0.1 or * for PBT chemicals where *de minimis* is not allowed (See 40 CFR § 372.38(a)))

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Let's look at a de minimis exemption first. Under the de minimis exemption, the quantity of a non-PBT TRI chemical in a mixture or other trade name product is exempt from TRI if – in the case of an OSHA-defined carcinogen, the TRI chemical is present at a concentration less than 0.1%. Or, in the case of a non-OSHA-defined carcinogen, at a concentration of less than 1%. The de minimis concentrations are provided for each chemical on the TRI chemical list, which is Table II of the reporting forms and instructions. It is also available from the TRI assistance library and the TRI-ME reporting software.



The slide is titled "TRI REPORTING REQUIREMENTS" and "De Minimis Exemption". It is presented in a notebook style with a green and blue header. The main content is under the heading "HOW IT WORKS...". It lists two bullet points: one for when the exemption generally applies to non-PBT chemicals, and another for when it does not apply. The first bullet point includes sub-points for mixtures/trade name products and incidental manufacturing. The second bullet point includes sub-points for manufactured chemicals, waste, and PBT chemicals.

TRI REPORTING REQUIREMENTS

De Minimis Exemption

HOW IT WORKS...

- *De minimis* exemption generally applies to non-PBT chemicals:
 - In mixtures or trade name products received from off-site, including imported
 - Coincidentally manufactured as impurities that remain in products distributed in commerce
- *De minimis* exemption does not apply to:
 - Manufactured chemicals (in most cases): this includes by-products produced from manufacturing, processing, otherwise use, or any waste management
 - Wastes received from off-site
 - PBT chemicals (except for supplier notification)


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So how does the de minimis exemption work? De minimis exemption generally applies to non-PBT chemicals that are in mixtures or trade name products received from off-site that are processed or otherwise used. This includes TRI chemicals in mixtures that are imported when the concentration of the TRI chemical in the mixture is below the applicable de minimis level. It can also apply if a facility coincidentally manufactures a non-PBT chemical as an impurity, and this impurity remains in a product distributed in commerce, then the quantity of the chemical that is distributed in commerce may be eligible for the de minimis exemption. In other words, the de minimis exemption does not apply to manufacturing of chemicals in most cases, including coincidentally manufacturing of TRI chemicals as by-products, which are removed from the process. The de minimis exemption also does not apply to wastes because waste is not considered to be a mixture. And it does not apply to PBT chemicals. PBTs, or persistent, bioaccumulative toxics, are a subset of the TRI chemicals comprised of 21 chemicals and chemical categories. PBT chemicals are discussed in detail in the Advanced Concepts Module.

TRI REPORTING REQUIREMENTS

PBT Chemicals and the *De Minimis* Exemption

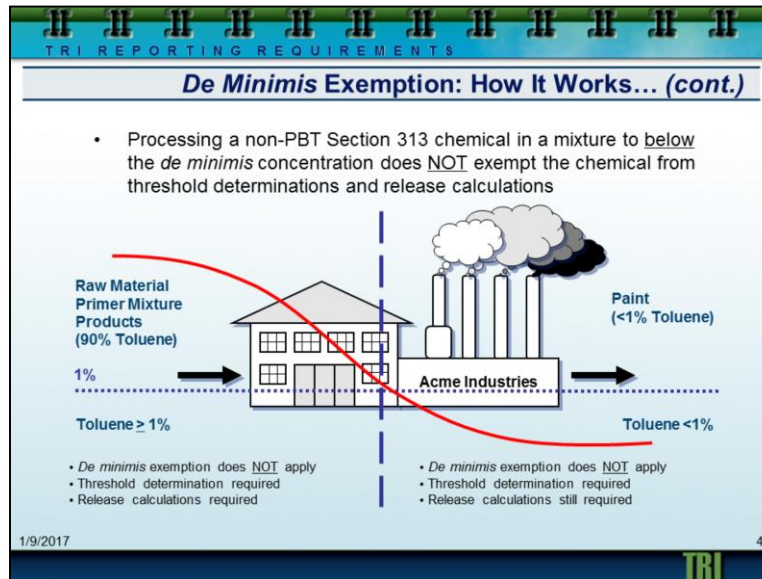
- The *de minimis* exemption cannot be applied to PBT chemicals.
- All other EPCRA section 313 exemptions can apply to PBT chemicals.
- Facilities that receive a mixture and know that PBT chemicals are present must consider each PBT chemical in threshold and release calculations regardless of whether or not supplier notification was provided



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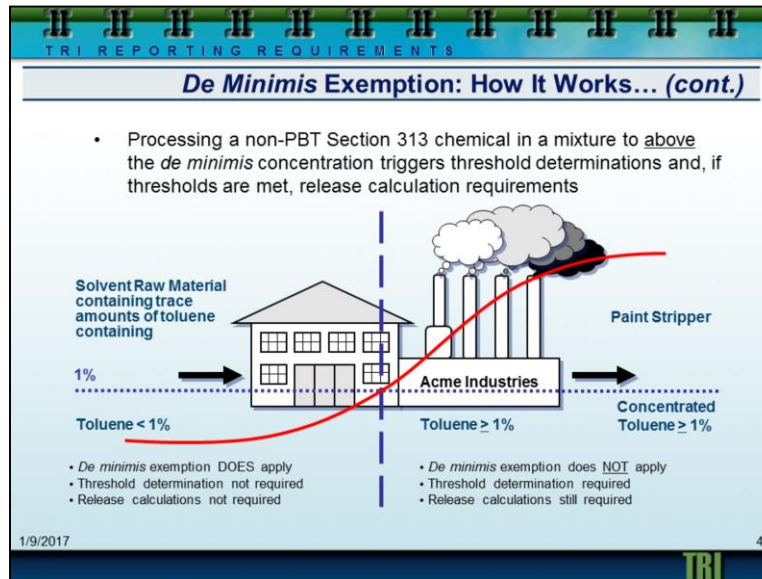
The *de minimis* exemption cannot be used for PBT chemicals. As for the supplier notification requirements, suppliers are not required to notify users of the presence of a TRI chemical that is below the *de minimis* concentration. However, the users of the mixtures containing TRI chemicals are still required to consider all quantities of TRI chemicals known to be present.

The *de minimis* exemption is the only exemption that does not apply to PBT chemicals. All of the other exemptions apply to both PBT and non-PBT chemicals.



Let's look at a couple of examples for which the de minimis exemption can and cannot be used. First, let's say we have a raw material coming into a facility and the raw material is 90% toluene. So in this case it comes into the facility above the de minimis concentration for toluene of 1%. However, during the process, the concentration of the toluene in the production process decreases to a level less than 1% or below the de minimis concentration. Would we be able to apply de minimis exemption?

De minimis would not apply in this situation, even after the point where the concentration of the toluene goes below the 1% de minimis. Once the TRI chemical is above the de minimis concentration, the de minimis exemption cannot be taken for that chemical mixture. So in this case the facility would need to consider the toluene towards its activity thresholds, and towards any release of waste management reporting required.




Let's look at the opposite situation where we again have toluene but this time it is coming into the facility in a raw material at a concentration below the de minimis and it's getting concentrated through the process to a level that is above the de minimis concentration. In this case, the de minimis exemption can be applied to the mixture at any point before it goes above de minimis concentration. However, as soon as it goes above that concentration, it must be considered towards your threshold determination in any release or waste management reporting. So again, all the toluene before it goes above de minimis concentration would be considered exempt from threshold determination and reporting.

However, after it goes above the de minimis concentration, the TRI requirements get turned on and the facility would need to consider the toluene toward the threshold determination in any subsequent reporting. For more information on the de minimis exemption, see the TRI Reporting Forms and Instructions document.

TRI REPORTING REQUIREMENTS

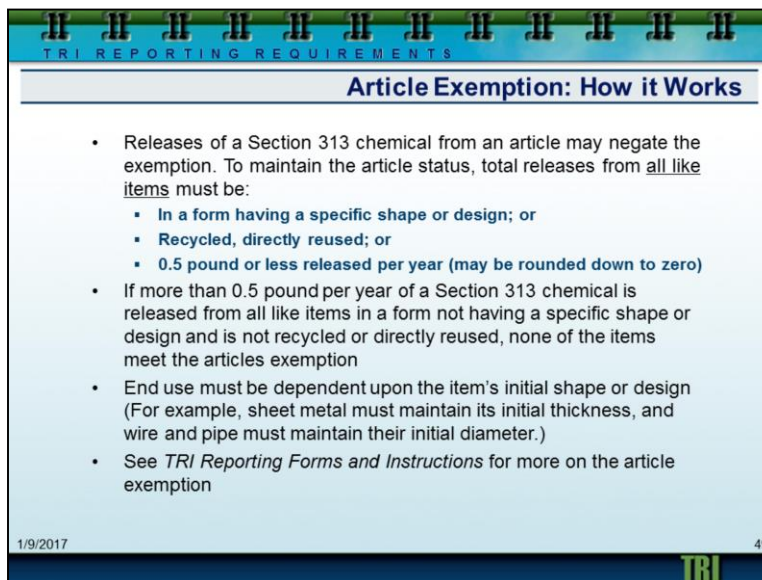
Article Exemption Applicability

- To qualify for the article exemption, the article must meet 3 criteria (40 CFR § 372.3):
 1. Is formed into a specific shape or design during manufacture; and
 2. Has end-use functions dependent in whole or in part on its shape or design during end-use; and
 3. Does **NOT** release a Section 313 chemical under normal processing or use conditions at a facility



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
Next, let's look at the articles exemption. The article exemption applies to TRI chemicals contained in articles. There are three criteria that must be met to be considered an article under TRI. First, an article is formed into a specific shape or design during its manufacture. Second, an article has an end-use function that is dependent in whole or in part on that shape or design. And, third, an article does not release a TRI chemical under normal processing or use conditions at the facility.

The slide is titled "TRI REPORTING REQUIREMENTS" at the top, with a decorative header featuring a row of stylized chemical structures. Below the title is a section header "Article Exemption: How it Works". The main content is a bulleted list of criteria for article exemption. The date "1/9/2017" is in the bottom left, and the TRI logo is in the bottom right.

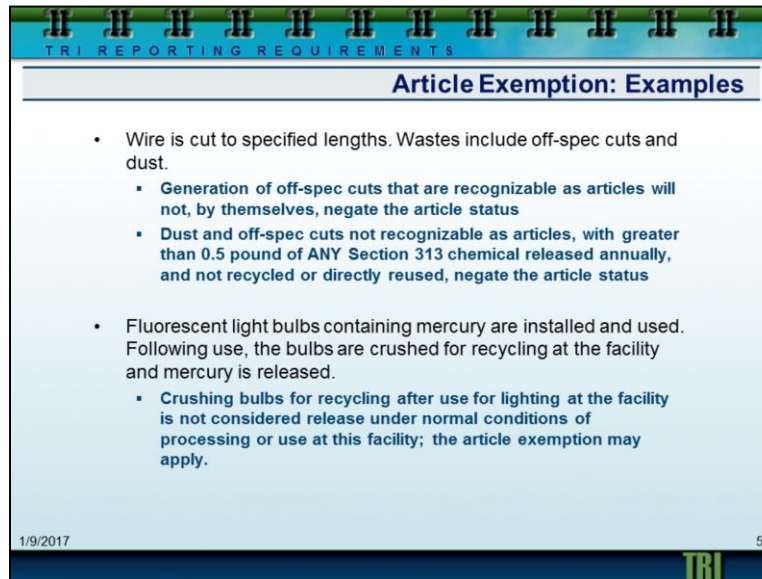
TRI REPORTING REQUIREMENTS

Article Exemption: How it Works

- Releases of a Section 313 chemical from an article may negate the exemption. To maintain the article status, total releases from all like items must be:
 - In a form having a specific shape or design; or
 - Recycled, directly reused; or
 - 0.5 pound or less released per year (may be rounded down to zero)
- If more than 0.5 pound per year of a Section 313 chemical is released from all like items in a form not having a specific shape or design and is not recycled or directly reused, none of the items meet the articles exemption
- End use must be dependent upon the item's initial shape or design (For example, sheet metal must maintain its initial thickness, and wire and pipe must maintain their initial diameter.)
- See *TRI Reporting Forms and Instructions* for more on the article exemption

1/9/2017 

Now let's look at how the article exemption works in more detail. If a TRI chemical is released from an article during its normal use, it very well may negate the article's exemption. In order to maintain the article's status, the total TRI chemicals released from all like articles or like items must be either: 1) in a form having a specific shape or design, or 2) recycled directly or directly reused, or 3) must be less than or equal to half a pound. In a form having a specific shape or design generally means that the releases from the article must still look like and be recognized as pieces of the article. If more than half a pound of TRI chemical is released from all the like items used at the facility in the course of the year, and the releases are not in a form with a specific shape or design, and they are not recycled or directly reused, none of the items meet the article exemption. Also, because the item's end use function must depend upon its design or shape, articles cannot be altered significantly. For example sheet metal must maintain its initial thickness; and wire and pipe must maintain its initial diameter to be considered exempt as articles.

The slide is titled "TRI REPORTING REQUIREMENTS" at the top. Below the title is a section header "Article Exemption: Examples". The content consists of two main bullet points. The first bullet point is "Wire is cut to specified lengths. Wastes include off-spec cuts and dust." and it has two sub-bullets: "Generation of off-spec cuts that are recognizable as articles will not, by themselves, negate the article status" and "Dust and off-spec cuts not recognizable as articles, with greater than 0.5 pound of ANY Section 313 chemical released annually, and not recycled or directly reused, negate the article status". The second bullet point is "Fluorescent light bulbs containing mercury are installed and used. Following use, the bulbs are crushed for recycling at the facility and mercury is released." and it has one sub-bullet: "Crushing bulbs for recycling after use for lighting at the facility is not considered release under normal conditions of processing or use at this facility; the article exemption may apply." At the bottom left of the slide is the date "1/9/2017" and at the bottom right is the number "50". The TRI logo is in the bottom right corner.

TRI REPORTING REQUIREMENTS

Article Exemption: Examples

- Wire is cut to specified lengths. Wastes include off-spec cuts and dust.
 - Generation of off-spec cuts that are recognizable as articles will not, by themselves, negate the article status
 - Dust and off-spec cuts not recognizable as articles, with greater than 0.5 pound of ANY Section 313 chemical released annually, and not recycled or directly reused, negate the article status
- Fluorescent light bulbs containing mercury are installed and used. Following use, the bulbs are crushed for recycling at the facility and mercury is released.
 - Crushing bulbs for recycling after use for lighting at the facility is not considered release under normal conditions of processing or use at this facility; the article exemption may apply.

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Now let's look at an example where wire is cut into specified lengths. Wire itself would be considered an article, but in cutting the wire to the specified lengths, there is some waste of off-spec cuts and some dust. The generation of the off-spec cuts that are still recognizable as pieces of wire will not by themselves negate the article's status. Quantities of the dust and off-spec cuts that are not recognizable as pieces of wire and that are greater than half a pound for any TRI chemical and not recycled or directly reused would negate the article status.


Let's look at the example of fluorescent light bulbs which contain mercury, a TRI chemical. When the bulbs are no longer of use at a facility, they are crushed in an enclosed container for recycling at the facility. In this case the fluorescent bulbs would still be exempt. The normal use of the fluorescent bulbs at this facility as lighting does not release mercury.

While the occasional crushing of bulbs at this facility may release mercury, the crushing is not considered normal use of the bulb at this facility. Therefore, these releases would not disqualify the bulbs from the exemption at this facility if all other criteria are met. Note that the mercury in the bulbs may be exempt from TRI reporting at this facility, but other regulatory requirements associated with the proper management of waste fluorescent bulbs should be followed.

TRI REPORTING REQUIREMENTS


Article Exemption

- Article Exemption is often inappropriately used!
 - In many instances when metals are machined, cut, or ground, in any manner, the article exemption may not be applicable.
- Generally, the articles exemption does not apply to the actual manufacturing of articles.



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Facilities need to be careful that they do not inappropriately use the articles exemption. Because it only takes ½ pound of TRI chemical released or disposed of over the course of a year to negate the articles status, often when metals containing TRI chemicals are machined, cut, or ground, in any manner, the article exemption would not apply. Also, generally, the article exemption does not apply to the actual manufacturing of articles.




TRI REPORTING REQUIREMENTS

Laboratory Activity Exemptions

HOW IT WORKS...

- Section 313 chemicals used in these laboratory activities under the direct supervision of a technically qualified individual ARE exempt from threshold and release and waste management reporting (40 CFR § 372.38(d) and 1998 Q&A #311):
 - Sampling and analysis
 - Research and development
 - Quality assurance
 - Quality control
- Section 313 chemicals used in these laboratory activities are NOT exempt:
 - Specialty chemical production
 - Pilot-scale plant operations
 - Activities not conducted in lab
 - Support services
 - Photo processing
 - Equipment maintenance/cleaning

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The next exemption is the laboratory activities exemption. TRI chemicals that are used in laboratories, under the direct supervision of a technically qualified individual, are exempt if they are used for sampling and analysis, research and development, quality assurance, or quality control. TRI chemicals used in laboratory activities are not exempt in the case of specialty chemical production, pilot-scale plant operation, activities that are not conducted in an actual lab, and support services such as photo processing or equipment maintenance and cleaning.

TRI REPORTING REQUIREMENTS

Motor Vehicle Maintenance Exemption

- Section 313 chemicals used to maintain vehicles operated by the facility are eligible for the exemption from threshold determinations (40 CFR § 372.38(c)(4))
 - “Otherwise use” exemption
- Motor vehicles include cars, trucks, tanks, and forklifts
- Motor vehicle maintenance includes:
 - Fueling and adding other fluids (e.g., ethylene glycol)
 - Body repairs
 - Parts washing



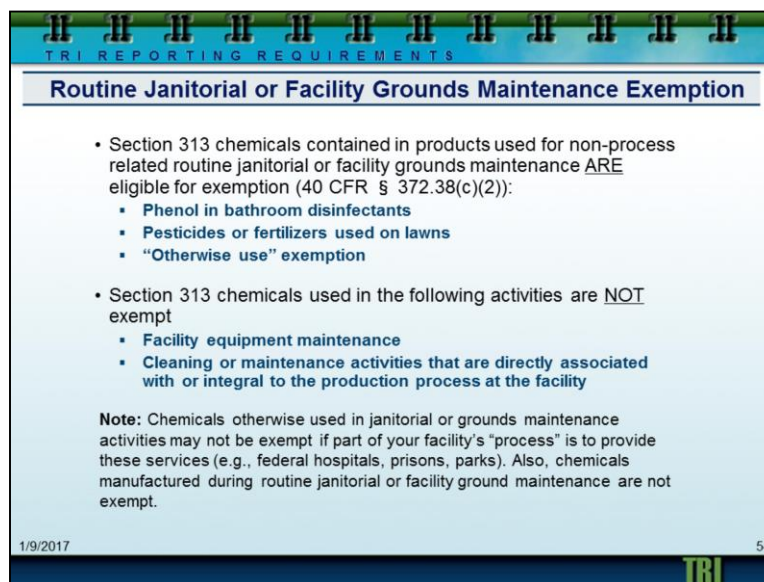
Note: This exemption does NOT apply to “manufacture” of Section 313 chemicals from combustion of fuels.

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TRI

Next, let's look at the motor vehicles maintenance exemption. This is one of the 'otherwise use' exemptions. The TRI chemicals that are otherwise used to maintain vehicles that are operated by the facility would be eligible for this exemption. By motor vehicles, we are including cars, trucks, military vehicles, and forklifts. Motor vehicle maintenance includes body repairs, painting, parts washing and plating, fueling, and adding other fluids to the vehicle. Note that this is an 'otherwise use' exemption, so it does not apply to the manufacture of TRI chemicals from the combustion of fuel in vehicles.

Also, if vehicles are a product of the facility and TRI chemicals are being added to that product, either as a fuel or in some other way, that would be considered processing and not 'otherwise use'. So those chemicals would not be exempt.

The slide is titled "TRI REPORTING REQUIREMENTS" at the top. Below the title is a section header "Routine Janitorial or Facility Grounds Maintenance Exemption". The content includes two bullet points: one stating that Section 313 chemicals used for non-process related routine janitorial or facility grounds maintenance ARE eligible for exemption (40 CFR § 372.38(c)(2)), with sub-bullets for "Phenol in bathroom disinfectants", "Pesticides or fertilizers used on lawns", and "Otherwise use" exemption; and another stating that Section 313 chemicals used in facility equipment maintenance or cleaning or maintenance activities directly associated with the production process are NOT exempt. A note at the bottom explains that chemicals otherwise used in janitorial or grounds maintenance may not be exempt if part of the facility's "process" is to provide these services (e.g., federal hospitals, prisons, parks). The slide also includes the date "1/9/2017" and the page number "54", with the TRI logo in the bottom right corner.

TRI REPORTING REQUIREMENTS

Routine Janitorial or Facility Grounds Maintenance Exemption

- Section 313 chemicals contained in products used for non-process related routine janitorial or facility grounds maintenance ARE eligible for exemption (40 CFR § 372.38(c)(2)):
 - Phenol in bathroom disinfectants
 - Pesticides or fertilizers used on lawns
 - "Otherwise use" exemption
- Section 313 chemicals used in the following activities are NOT exempt
 - Facility equipment maintenance
 - Cleaning or maintenance activities that are directly associated with or integral to the production process at the facility

Note: Chemicals otherwise used in janitorial or grounds maintenance activities may not be exempt if part of your facility's "process" is to provide these services (e.g., federal hospitals, prisons, parks). Also, chemicals manufactured during routine janitorial or facility ground maintenance are not exempt.

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The routine janitorial or facility grounds maintenance exemption covers the otherwise use of TRI chemicals in products and materials used for cleaning facilities and maintaining their grounds. Examples include: pesticides, fertilizers, chemicals that are in cleaners that are used in non-process areas. TRI chemicals that are used for facility equipment maintenance or cleaning or maintenance activities that are directly associated with the production process would not be eligible for the routine janitorial or facility grounds maintenance exemption.

Note that this exemption only applies to chemicals that are "otherwise used". If part of your facility's "process" is to provide these types of services, for example, grounds maintenance activities at a national park, then the TRI chemicals may not be considered "otherwise used" and may not be exempt.

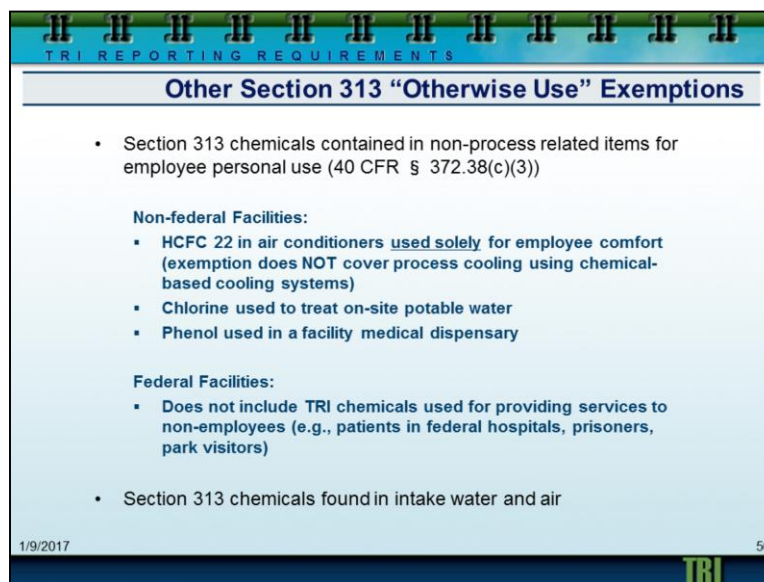
TRI REPORTING REQUIREMENTS

Structural Component Exemption

- Section 313 chemicals used as structural components are eligible for exemption (See 40 CFR § 372.38(c)(1)). Building components that are process-related are not "structural components" as contemplated by the exemption.
- Non-process-related building components that are "structural components" and therefore eligible for the exemption include:
 - Potable water pipes and other non-process-related pipes and structures
- Processed-related building components that are NOT "structural components" and therefore NOT eligible for the exemption include:
 - Refractory brick, boiler tubes, process-related pipes, anodes used in electroplating, grinding wheels, & metal working tools
 - Structural components that are integral to a non-industrial facility's "process" (e.g., federal prisons, hospitals, parks)

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TRI chemicals otherwise used in certain structural components of the facility may also be exempt. However, building components that are process-related are not "structural components" and are not eligible for the exemption. So non-process-related structural items might include water pipes for potable water and any other non-process-related pipes and structures. Typical items that would not be eligible for the exemption – refractory brick, boiler tubes, process-related pipes, anodes used in electroplating, grinding wheels, metal working tools, and things of that nature. Federal facilities may have structural components that are integral to their "process" and the chemicals in these components would NOT qualify for the exemption. For example, the chemicals used as a wood preservative for a Navy pier used to dock ships, would not be exempt.

The slide is titled "TRI REPORTING REQUIREMENTS" at the top. Below the title is a section header "Other Section 313 'Otherwise Use' Exemptions". The content is organized into bullet points and sub-sections. The first bullet point states that Section 313 chemicals contained in non-process related items for employee personal use (40 CFR § 372.38(c)(3)) are exempt. This is followed by two sub-sections: "Non-federal Facilities:" and "Federal Facilities:". The "Non-federal Facilities:" section lists three items: HCFC 22 in air conditioners used solely for employee comfort (with a note that the exemption does NOT cover process cooling using chemical-based cooling systems), Chlorine used to treat on-site potable water, and Phenol used in a facility medical dispensary. The "Federal Facilities:" section lists one item: Does not include TRI chemicals used for providing services to non-employees (e.g., patients in federal hospitals, prisoners, park visitors). A final bullet point states that Section 313 chemicals found in intake water and air are exempt. The slide includes a date "1/9/2017" in the bottom left and a page number "56" in the bottom right, with a TRI logo at the bottom center.

TRI REPORTING REQUIREMENTS

Other Section 313 "Otherwise Use" Exemptions

- Section 313 chemicals contained in non-process related items for employee personal use (40 CFR § 372.38(c)(3))

Non-federal Facilities:

- HCFC 22 in air conditioners used solely for employee comfort (exemption does NOT cover process cooling using chemical-based cooling systems)
- Chlorine used to treat on-site potable water
- Phenol used in a facility medical dispensary

Federal Facilities:

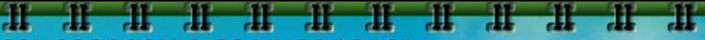
- Does not include TRI chemicals used for providing services to non-employees (e.g., patients in federal hospitals, prisoners, park visitors)

- Section 313 chemicals found in intake water and air

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The remaining otherwise use exemptions apply to personal use of TRI chemicals and TRI chemicals found in intake water and air. With the personal use exemption, chemicals that are used for employee personal use such as refrigerants or air conditioners that are solely for employee comfort, disinfectants used in potable water such as chlorine or phenols used in the medical dispensary are exempt.

Also TRI chemicals that are found in intake water and air, used at a facility, as long as the facility is not responsible for them being in the intake water and air are also exempt under TRI.




TRI REPORTING REQUIREMENTS

Sector Specific Exemptions


- **Coal mining extraction activities** are exempt from threshold determinations and release reporting (40 CFR § 372.38(g)) (applies to NAICS Codes 212111-212113):
 - **Coal extraction:** physical removal or exposure of ore, coal, minerals, waste rock, or overburden prior to beneficiation, and encompasses all extraction-related activities prior to beneficiation (40 CFR § 372.3)
- Chemicals in **metal mining** overburden that are processed or otherwise used are specifically exempt from TRI reporting (40 CFR § 372.38(h)) (applies to NAICS Codes 212221, 212222, 212231, 212234, 212299):
 - **Overburden:** unconsolidated material that overlies a deposit of useful materials or ores (40 CFR § 372.3)

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There are also a number of industry-specific, or NAICS-code specific exemptions. The first one applies to certain coal mining activities that would be exempt from threshold determinations and release reporting. For coal mining, the exempt activities include the physical removal or exposure of the ore or coal prior to the beneficiation of the material. Similarly, certain metal mining activities are also exempt from TRI reporting.






TRI REPORTING REQUIREMENTS

Chemical Information Management

- All non-exempt manufacture/processes/otherwise use of Section 313 chemicals at the facility must be counted towards chemical activity thresholds.
- Tracking toxic chemicals entering facility
 - Purchasing/Inventory
 - Contractors
 - Capital purchases (e.g., chillers, process equipment)
 - Direct purchases (credit card or other emergency purchases)
 - Direct and indirect materials
 - Manufacturing byproducts/intermediates generated
- Need cooperation and support from all functional groups purchasing or using Section 313 chemicals
- Be comprehensive to ensure accurate threshold determination!

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To ensure accurate TRI threshold determination, be sure to consider all activities and sources of the TRI chemicals at the facility. It might help to track chemicals as they enter the facility. Consider chemicals that are purchased or that are in inventory. Consider chemicals used by contractors, because you're responsible for your contractors' use of TRI chemicals as well. Don't forget capital purchases and one time purchases. And don't forget materials that may be manufactured as byproducts or intermediates. These should all be considered towards activity thresholds.

It helps to get the cooperation and support from all the different groups at the facility who may be purchasing or using TRI chemicals. Be comprehensive. For example, consider TRI chemicals that may be in steel or aluminum alloys that may be above the de minimis concentration. Manganese is one example.

TRI REPORTING REQUIREMENTS


Threshold Determinations

<ul style="list-style-type: none">• Identify Chemicals and Concentrations:<ul style="list-style-type: none">▪ SDS▪ Product or Specifications▪ Available Supplier/Vendor Product QA/QC data▪ Industry Standards (API, ASTM, etc.)▪ Waste Profiles▪ Process Knowledge▪ Other References (AP-42, WebFIRE, Merck Index)▪ Supplier Notification		<ul style="list-style-type: none">• Collect Data to Calculate Thresholds:<ul style="list-style-type: none">▪ Inventory or Purchase Records▪ Throughput/Production Data▪ Integrated Supplier Records▪ EPCRA or <u>Other Env. Reports</u>▪ Air Permits / MACT or Similar Standards / Emission Inventories▪ Water Permits / DMR's / Discharge Reports▪ Annual/Biennial Waste Reports▪ User Records▪ Other Vendor Records (can call vendor)
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There are a number of different sources of information available to facilities – to both identify the chemicals and concentrations, collect the data, and calculate the thresholds. We have talked about some of these already – such as MSDS's and product specifications. Facilities should also consider any waste profiles or testing . Also, consider using any other data about the wastes leaving and raw materials entering your facility. Inventory or purchase records are often a good source of information. Production data can help you in quantifying the amounts of TRI chemicals to apply towards thresholds.

Regulatory reports, either air permits or water, chemical analyses associated with permits applications, and waste reports – are all potential sources of information on TRI chemicals.




TRI REPORTING REQUIREMENTS

TRI Chemicals Contained in Mixtures


- For the threshold quantity, only include the amount of the TRI chemical in the mixture, not the weight of the entire mixture.
- The *de minimis* exemption (40 CFR § 372.38(a)) applies to non-PBT chemicals contained in mixtures at less than 1.0% or 0.1% (for carcinogens).
 - The *de minimis* exemption is related to the concentration of the chemical in a mixture, NOT the quantity of the mixture used.
- A metal alloy can be thought of as solid solution. To determine threshold quantity, multiply the concentration of the TRI chemical in the alloy by the total weight of alloy processed or otherwise used.

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When determining threshold quantities, be sure to only include the portion of the mixture that is the TRI chemical, and not the weight of the entire mixture. The *de minimis* exemption applies only to non-PBT chemicals that are in mixtures and in concentration that is less than 1% or 0.1% for carcinogens. The *de minimis* exemption allows for low concentrations of TRI chemicals in mixtures to be ignored in most cases.


It is not related to the quantity of the mixture used. Note that metal alloys can be thought of as a solid mixture or solution. Like any other mixture, you would multiply the concentration of the TRI chemical that is in the alloy by the total weight of the alloy to determine the threshold quantity.



Determining Concentrations in Mixtures or Other Trade Name Products

- Determine whether thresholds were exceeded for listed chemicals in a mixture (40 CFR § 372.30(b)(3)):
 - **Exact concentration - use concentration provided:**
 - SDS = 25% Use 25%
 - **Upper bound - use upper limit**
 - SDS < 25% Use 25%
 - **Range - use the midpoint of the range**
 - SDS: 30 – 50% Use 40%
 - **Lower bound - subtract out other known constituents, create a range, and use the midpoint of range**
 - SDS: >75% toxic chemical Use 87.5% (top of range = 100%)
 - SDS: >75% toxic chemical Use 80% (range = 75% - 85%)
 15% water

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Concentration of a TRI chemical can often be obtained from the Safety Data Sheet or other product information. In some cases the exact concentration of the TRI chemical is provided. For example, if a Safety Data Sheet provides a concentration of 25% for a TRI chemical, facilities would use 25% for their activity threshold determinations and any subsequent reporting.

In other cases, the SDS may provide only an upper bound for the TRI chemical. For example, if the SDS says there is at most 25% of the TRI chemical, in those cases facilities would actually use 25%, the upper limit, in their calculations. Oftentimes an SDS will provide a range for a TRI chemical. For example, if the SDS says 30 to 50%, facilities would use the midpoint of the range – in this case, 40%.

In some cases, a lower bound is provided for a TRI chemical in a mixture. If a lower-bound is provided, facilities would subtract out any other known constituents, creating an upper bound, thereby creating their own range, and use the midpoint of the range. For example, if an SDS says the product contains at least 75% of the TRI chemical. In that case, we know that there is anywhere between 75% and 100% of the TRI chemical. The midpoint of that range would be 87.5%.


In some cases, the SDS may say there is at least 75% of the toxic chemical and there is also, for example, 15% water. In this case, we know that the upper bound is 85%. The midpoint of the range of 75 to 85% would be 80%.



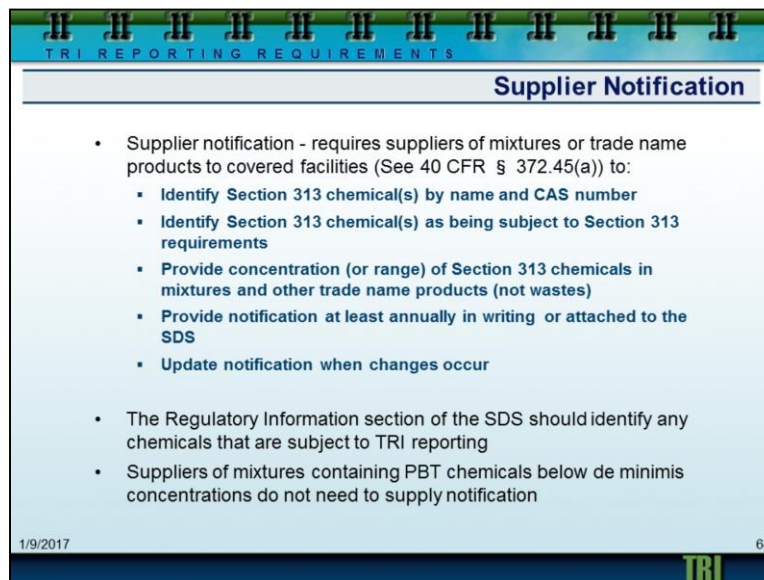
TRI REPORTING REQUIREMENTS

Determining Concentrations in Wastes

- If concentration is exact, upper bound, range, or lower bound, use the guidance for mixtures and other trade name products discussed earlier
- If concentration is below detection limit, use engineering judgment:
 - If the Section 313 chemical **IS** expected to be present, assume 1/2 of full detection limit
 - If the Section 313 chemical is **NOT** expected to be present, assume 0

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Facilities don't always know whether or not the TRI chemical is present in a mixture at a concentration that is above its de minimis. For example, in cases where the SDS gives a range or an upper bound, use the guidance we discussed earlier for how to determine what concentration to use and compare that to the de minimis. In the situation where you know the TRI chemical is present but it's below the detection limit, use your engineering judgment. If the chemical is expected to be there, assume that it's at a level of half the full detection limit. If you don't expect the TRI chemical to be present, you can assume that its concentration is zero.



The slide is titled "TRI REPORTING REQUIREMENTS" at the top, with a decorative header featuring a row of chemical structures. Below the title, the section "Supplier Notification" is highlighted. The main content consists of a bulleted list detailing the requirements for suppliers of mixtures or trade name products. The list includes identifying chemicals by name and CAS number, identifying them as subject to TRI requirements, providing concentration information, updating notifications annually or with changes, and noting that suppliers of mixtures containing PBT chemicals below de minimis concentrations do not need to supply notification. The slide also includes a date "1/9/2017" and a page number "64" at the bottom, with a "TRI" logo in the bottom right corner.

TRI REPORTING REQUIREMENTS

Supplier Notification


- Supplier notification - requires suppliers of mixtures or trade name products to covered facilities (See 40 CFR § 372.45(a)) to:
 - Identify Section 313 chemical(s) by name and CAS number
 - Identify Section 313 chemical(s) as being subject to Section 313 requirements
 - Provide concentration (or range) of Section 313 chemicals in mixtures and other trade name products (not wastes)
 - Provide notification at least annually in writing or attached to the SDS
 - Update notification when changes occur
- The Regulatory Information section of the SDS should identify any chemicals that are subject to TRI reporting
- Suppliers of mixtures containing PBT chemicals below de minimis concentrations do not need to supply notification

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TRI

Under TRI, facilities that supply TRI chemicals to others must provide information about those TRI chemicals. For example, they must identify the TRI chemical by name and by CAS number and must identify that this chemical is subject to Section 313 or TRI reporting requirements. They must provide a concentration or a range of concentrations for the TRI chemical that is in a mixture or a trade name product.

They must provide this notification at least annually or attach it to the Safety Data Sheet for the chemical. If any changes occur related to the TRI chemical or its concentration, they must provide that information as well. Usually, SDSs contain a Regulatory Information section which should identify the TRI chemicals present and their concentrations.



TRI REPORTING REQUIREMENTS

Watch for Double Counting

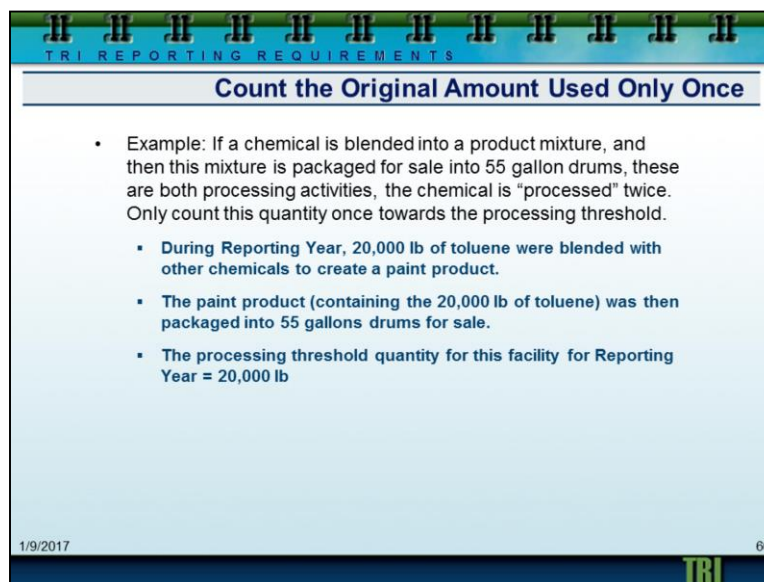
- For threshold determinations, Section 313 chemicals recycled from spent or contaminated materials or Section 313 chemicals directly reused:
 - Count original amount used only once
 - Materials in use from previous years, count only the quantity added during current reporting year
- Section 313 chemicals stockpiled or in inventory but not manufactured, processed, or otherwise used during reporting year are NOT counted for threshold determinations

Chemicals sent off-site for recycling and returned to the facility are considered new materials and counted for threshold determinations

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Be sure to watch out for double counting when calculating threshold quantities. Count the original amount of the chemical used in a threshold activity over the course of the reporting year only once. For materials that are in use from previous years, only count the quantity that was added during the current reporting year. Remember that chemicals that are stored or stockpiled that are not manufactured, processed, or otherwise used during the reporting year are not counted for threshold determinations.

Also note that any chemicals that are sent off-site for recycling and returned to the facility are considered new materials and would be counted again towards activity thresholds.



The slide is titled "TRI REPORTING REQUIREMENTS" and "Count the Original Amount Used Only Once". It contains an example of double counting and three bullet points detailing a scenario with toluene and paint product.

TRI REPORTING REQUIREMENTS


Count the Original Amount Used Only Once

- Example: If a chemical is blended into a product mixture, and then this mixture is packaged for sale into 55 gallon drums, these are both processing activities, the chemical is "processed" twice. Only count this quantity once towards the processing threshold.
 - During Reporting Year, 20,000 lb of toluene were blended with other chemicals to create a paint product.
 - The paint product (containing the 20,000 lb of toluene) was then packaged into 55 gallons drums for sale.
 - The processing threshold quantity for this facility for Reporting Year = 20,000 lb

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Be sure to watch out for double counting within the same activity threshold. For example, if a facility blends a TRI chemical in a product mixture and then the mixture is repackaged for sale into another container, those are both considered processing activities – the blending and the repackaging. While a chemical is processed twice, only count the quantity once towards the processing threshold.

For example, let's look at a facility where 20,000 pounds of toluene were blended with other chemicals to create a paint product. The paint product was then repackaged into 55 gallon drums for sale. The processing threshold quantity for this facility for that reporting year is only 20,000 pounds.

The slide is titled "Multi-Establishment Facility" and is part of a presentation on TRI Reporting Requirements. It features a blue header with the text "TRI REPORTING REQUIREMENTS" and a green and blue footer with the "TRI" logo. The main content is a bulleted list of reporting requirements for multi-establishment facilities.

TRI REPORTING REQUIREMENTS

Multi-Establishment Facility

- Reporting as multi-establishment facility (40 CFR § 372.30(c))
 - Multi-establishment facilities have the option to file separate Form R reports for each part of the facility
 - Threshold calculations must account for all the facility's activities and are not performed at the establishment level
 - Form R reports must include all non-exempt releases and other waste management activities at the facility
 - Use the 'Report by Part' option in TRI-MEweb to prepare separate Form R reports for the multi-establishment facility
 - Avoid double-counting at the facility of chemicals involved in intra-facility transfers

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TRI

Facilities that are comprised of multiple establishments must take care to avoid both double counting and under counting of TRI chemicals used across the facility. Multi-establishment facilities are facilities that are comprised of separate economic or organizational units within the facility. Sometimes these separate units can create barriers to information exchange and gaps or overlaps in TRI reporting responsibilities. For threshold determinations, facilities must consider the aggregate amount of TRI chemicals used throughout the facility, including all of the establishments. If a threshold is exceeded, a TRI form is required. Multiple establishment facilities can file separate Form R reports for each part of the facility.

On the TRI Form R and in the reporting software, the filer can designate their submittal for a part of the facility. Remember to report all non-exempt releases and other waste management activities of reportable TRI chemicals for all parts of a facility. When reporting as multiple establishments, avoid double-counting of the same chemicals. When facilities do reports as separate establishments within the same facility, the quantities on the reports will be added together by EPA, and the reports that are made available to the public will show the aggregate amounts.

TRI REPORTING REQUIREMENTS

Example: EPCRA Section 313 Non-PBT Chemical Reporting Threshold Worksheet

Facility Name: OMNI CHEMICAL Date Worksheet Prepared: _____
 Toxic Chemical or Chemical Category: Toluene Prepared By: J.S.P.
 Reporting Year: _____

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

Mixture Name or Other Identifier	Information Source	Percent by Weight	Total Weight (in lb)	Amount of the Listed Toxic Chemical by Activity (in lb):		
				Manufactured	Processed	Otherwise Used
1. Bulk Toluene	SDS	38	23,000		22,500	
2. Joe's Degreaser	Purchasing	50	10,000			5000
3. Bathroom Paint	Vendor	5	30,000			1,500
4. Parts Washer Fluid	Purchasing	40	10,000			4,000
5.						
6.						
7.						
Subtotal:				(A) _____ lb	(B) 22,500 lb	(C) 10,500 lb

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

Mixture Name as Listed Above	Applicable Exemption	Exempt Fraction or Percent Exempt (if Applicable)	Exempt Amount of the Toxic Chemical from Above (in lb):		
			Manufactured	Processed	Otherwise Used
1. Bathroom Paint	Struct. Comp.	100			1,500
2.					
3.					
4.					
5.					
6.					
7.					
Subtotal:			(A) _____ lb	(B) 22,500 lb	(C) 1,500 lb

Step 3. Calculate the amount subject to threshold: (A - A₁) _____ lb (B - B₁) 22,500 lb (C - C₁) 9,000 lb

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

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

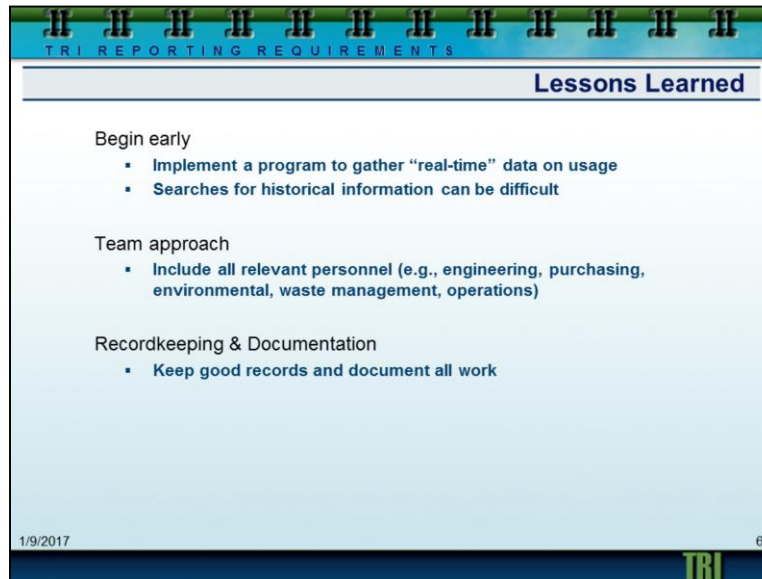
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Here we show a threshold worksheet, which can help you to quantify the amounts of TRI chemicals to apply towards your activity thresholds and to determine whether or not you've exceeded an activity threshold. In this example, Omni Chemical has filled out a worksheet for toluene.

In the first step, they've identified all the mixtures or products that contain toluene at their facility. Omni blends toluene into their 'Omni Mix' product, and also otherwise uses a degreaser, some paints, and a wash parts washer fluid which all contain toluene. They've recorded where this information was obtained, the percent of the TRI chemical by weight, and a total weight of the mixture. They've multiplied the percent of the TRI chemical by the total weight to obtain the quantity of the TRI chemical that was either manufactured, processed, or otherwise used. In this case 22,500 pounds of toluene was processed and 10,500 pounds were otherwise used.

The next step is to identify TRI chemicals that may be exempt. In this case, the bathroom paint, the paint that's used in the bathrooms, is exempt under the structural components exemption. None of the toluene in the bathroom paint would need to be considered towards the otherwise use activity threshold. So the facility is able to subtract the 1,500 pounds in the paint from their total to obtain 9,000 pounds of toluene that was otherwise used at the facility in the reporting year.

Because the threshold for processing of toluene is 25,000 pounds and the otherwise use of toluene is 10,000 pounds, they have not exceeded either threshold and would not need to complete a TRI report for toluene.



The slide is titled "TRI REPORTING REQUIREMENTS" at the top, with a decorative header featuring a row of stylized chemical structures. Below the title, the section "Lessons Learned" is highlighted. The content is organized into three main categories: "Begin early", "Team approach", and "Recordkeeping & Documentation". Each category has one or two bullet points. The date "1/9/2017" is in the bottom left, and the TRI logo and page number "69" are in the bottom right.

TRI REPORTING REQUIREMENTS

Lessons Learned

- Begin early
 - Implement a program to gather "real-time" data on usage
 - Searches for historical information can be difficult
- Team approach
 - Include all relevant personnel (e.g., engineering, purchasing, environmental, waste management, operations)
- Recordkeeping & Documentation
 - Keep good records and document all work

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In threshold determinations and TRI reporting, it helps to begin the process early. Facilities should put systems into place that gather the information in real time. Researching information on TRI chemicals, oftentimes more than a year after they were used at your facility, can be difficult. Use the team approach. Spread the work by involving the people that are using or managing these TRI chemicals – engineers, people in purchasing, in the health and safety department are some examples. Be sure to keep good records, and to document your work.

TRI REPORTING REQUIREMENTS

Record Keeping and Documentation

Importance of good record keeping

- Detailed records improve reporting accuracy and data quality
- Reduces replication of effort from year to year
- Well-labeled calculations and engineering assumptions serve as standard operating procedures (SOPs) for future years
- Ensures consistency from year to year, especially if personnel responsible for reporting change



EPA Requirements

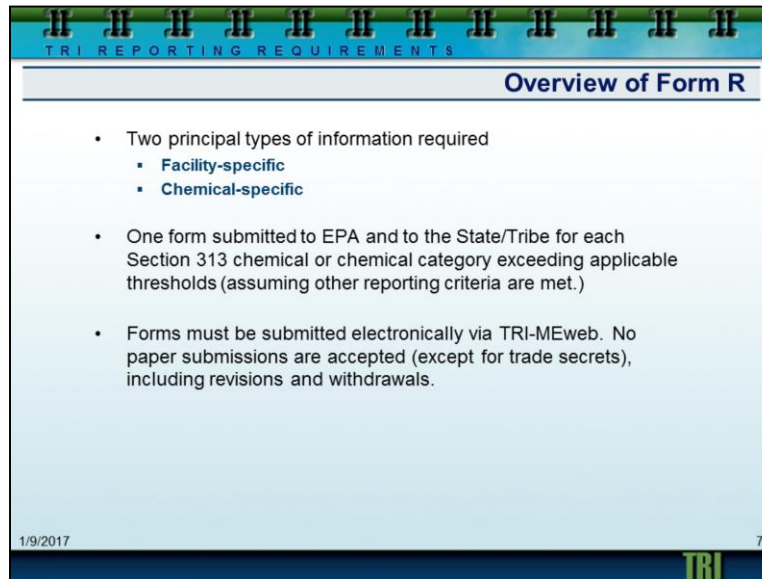
- Records used to complete Form R must be kept for three years from the time the report was submitted (40 CFR § 372.10)
- EPA may review records during a data quality audit

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It's very important to keep good records. Keeping detailed records improves the reporting accuracy and the quality of the data. Also, it will reduce replication of effort from year to year. Facilities should also keep good records of calculations, information sources, and assumptions, so that they can form the basis of procedures for completing their threshold determinations and reports in future years. Such practices help insure consistency from year to year especially when the personnel responsible for TRI requirements changes. Also, record keeping is required by EPA. Facilities must keep their records for three years. And, the EPA can review those records if an audit is conducted at the facility.


The process of completing your TRI forms is a two-step process. We have now reviewed the first step, in which you determine if your facility is required to report to TRI, and if so, which TRI chemicals you would need to report on. We are now ready to move on to the second step, shown on the right. This is the actual release and waste management reporting – in other words, the information that you would put on a TRI form.





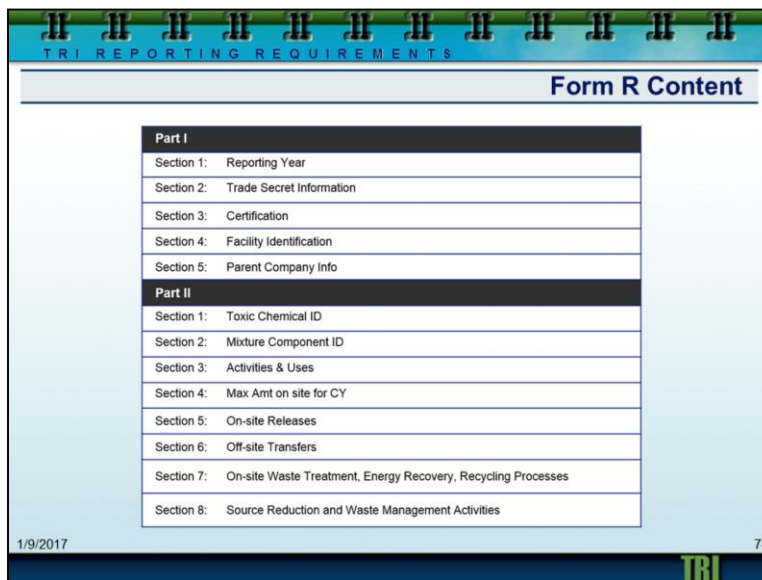
The slide is titled "TRI REPORTING REQUIREMENTS" and "Overview of Form R". It contains a bulleted list of requirements. The date "1/9/2017" is in the bottom left, and the TRI logo and page number "73" are in the bottom right.

- Two principal types of information required
 - Facility-specific
 - Chemical-specific
- One form submitted to EPA and to the State/Tribe for each Section 313 chemical or chemical category exceeding applicable thresholds (assuming other reporting criteria are met.)
- Forms must be submitted electronically via TRI-MEweb. No paper submissions are accepted (except for trade secrets), including revisions and withdrawals.

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In the next part of this module, we'll talk about the TRI Form R. For each TRI chemical for which an activity threshold is exceeded, a form would be required to be submitted to the EPA and to the designated state or tribal authority.

The Electronic Reporting rule requires electronic reporting for all non-trade secret forms, including new reports, revisions and withdrawals. All non-trade secret TRI reporting, which accounts for nearly all TRI forms submitted, must be submitted using TRI-Meweb.



The image shows a slide titled "TRI REPORTING REQUIREMENTS" with a sub-header "Form R Content". It displays a table of the Form R sections, organized into two parts. Part I includes five sections related to facility information. Part II includes eight sections related to chemical reporting and waste management. The date "1/9/2017" is in the bottom left, and the TRI logo and page number "74" are in the bottom right.

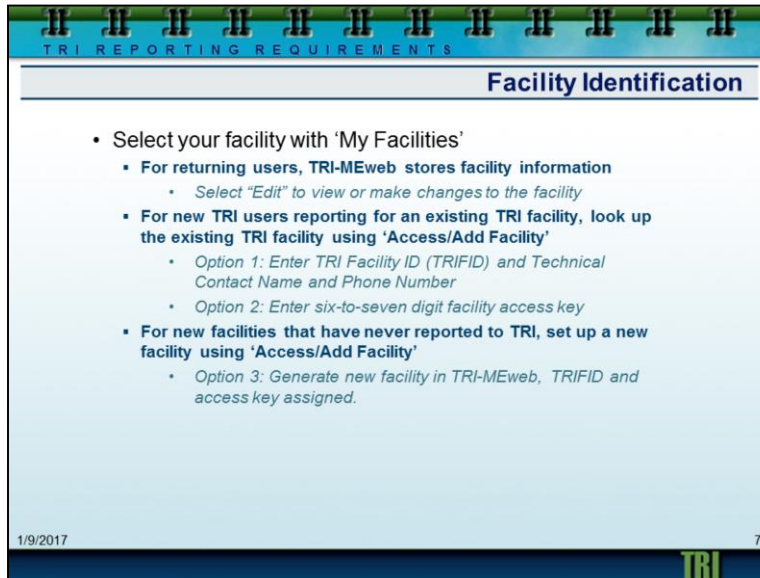
Form R Content	
Part I	
Section 1:	Reporting Year
Section 2:	Trade Secret Information
Section 3:	Certification
Section 4:	Facility Identification
Section 5:	Parent Company Info
Part II	
Section 1:	Toxic Chemical ID
Section 2:	Mixture Component ID
Section 3:	Activities & Uses
Section 4:	Max Amt on site for CY
Section 5:	On-site Releases
Section 6:	Off-site Transfers
Section 7:	On-site Waste Treatment, Energy Recovery, Recycling Processes
Section 8:	Source Reduction and Waste Management Activities

Let's look a little closer at the TRI Form R. The TRI Form R is comprised of two main parts. The first part contains facility-specific information about your facility. There are five sections for reporting information about your facility.

The second part covers information about the chemical for which your facility is reporting. There are eight sections in part two. The first four sections identify the chemical, how it is used at the facility, and the maximum amount on site. The next four sections are what we call the meat of the TRI reporting, and this is where facilities report the actual quantities of the TRI chemicals that were managed as waste.

When using the TRI-MEweb application to complete the Form R, the sections of the Form R are not covered sequentially. This allows TRI-MEweb to streamline the reporting process. We will now discuss data required to complete the TRI Form R as it is presented in TRI-MEweb.

Note that much more detail and instructions for completing each section of the TRI Form R can be found in the "Reporting Forms and Instructions" document available from the TRI program website and through the TRI assistance library.



The slide is titled "TRI REPORTING REQUIREMENTS" at the top, with a decorative header featuring a row of stylized "H" characters. Below the title, the main heading is "Facility Identification". The content is organized into a bulleted list. The first bullet point is "Select your facility with 'My Facilities'", which is followed by two sub-bullets: "For returning users, TRI-MEweb stores facility information" (with a sub-note "Select 'Edit' to view or make changes to the facility") and "For new TRI users reporting for an existing TRI facility, look up the existing TRI facility using 'Access/Add Facility'" (with two sub-options: "Option 1: Enter TRI Facility ID (TRIFID) and Technical Contact Name and Phone Number" and "Option 2: Enter six-to-seven digit facility access key"). The second main bullet point is "For new facilities that have never reported to TRI, set up a new facility using 'Access/Add Facility'", with a sub-option: "Option 3: Generate new facility in TRI-MEweb, TRIFID and access key assigned." The slide footer includes the date "1/9/2017" on the left, the number "75" on the right, and the "TRI" logo in the bottom right corner.

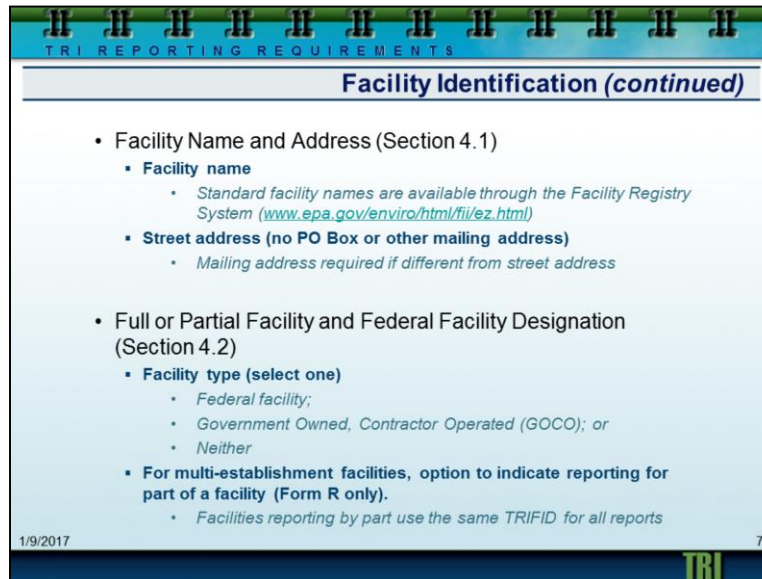
TRI REPORTING REQUIREMENTS

Facility Identification

- Select your facility with 'My Facilities'
 - For returning users, TRI-MEweb stores facility information
 - Select "Edit" to view or make changes to the facility
 - For new TRI users reporting for an existing TRI facility, look up the existing TRI facility using 'Access/Add Facility'
 - Option 1: Enter TRI Facility ID (TRIFID) and Technical Contact Name and Phone Number
 - Option 2: Enter six-to-seven digit facility access key
 - For new facilities that have never reported to TRI, set up a new facility using 'Access/Add Facility'
 - Option 3: Generate new facility in TRI-MEweb, TRIFID and access key assigned.

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Each TRI report submitted is connected to a facility profile, which has an assigned TRI Facility ID, also called a 'TRIFID'. Note that a TRIFID stays with a facility even if the facility ownership changes. Facilities may be accessed through the 'My Facilities' tab in TRI-MEweb. Users new to TRI reporting will need to add the facility profiles to their account. Facilities reporting to TRI for the first time will need to establish a new facility profile. We will cover the options in greater detail in the TRI-MEweb portion of this training module.



TRI REPORTING REQUIREMENTS

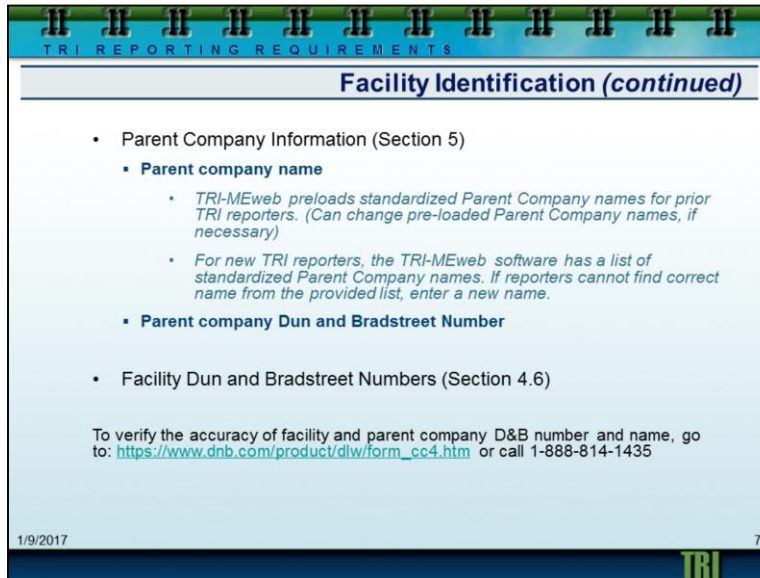
Facility Identification (continued)

- Facility Name and Address (Section 4.1)
 - Facility name
 - Standard facility names are available through the Facility Registry System (www.epa.gov/enviro/html/fri/ez.html)
 - Street address (no PO Box or other mailing address)
 - Mailing address required if different from street address
- Full or Partial Facility and Federal Facility Designation (Section 4.2)
 - Facility type (select one)
 - Federal facility;
 - Government Owned, Contractor Operated (GOCO); or
 - Neither
 - For multi-establishment facilities, option to indicate reporting for part of a facility (Form R only).
 - Facilities reporting by part use the same TRIFID for all reports

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Part one of the Form R requests facility name, address, and TRI Identification number. Identification information is preloaded into TRI-MEweb if your facility has reported in the past. First, confirm the facility name, or select it from a list if there is more than one facility associated with the TRI-MEweb account. Next, specify whether or not the Form you are completing covers the entire facility, or if it only covers part of the facility, with the rest of the TRI reporting for the facility being covered in other form submissions. You can edit facility information that has been preloaded by selecting “Edit” after selecting the facility.

In the facility identification section, facilities also indicate whether they are a federal facility or a “Government Owned Contractor Operated” facility, or neither. Federal facilities’ names should include the federal department or agency followed by the site name. Facilities must indicate if they elect to report by part, that is submit forms for separate parts of a facility.

The image is a presentation slide titled "TRI REPORTING REQUIREMENTS" with a sub-header "Facility Identification (continued)". It contains a bulleted list of instructions for reporting parent company information and facility Dun and Bradstreet numbers. The slide also includes a URL for verifying D&B numbers and a date of 1/9/2017. The TRI logo is in the bottom right corner.

TRI REPORTING REQUIREMENTS

Facility Identification (continued)

- Parent Company Information (Section 5)
 - **Parent company name**
 - TRI-MEweb preloads standardized Parent Company names for prior TRI reporters. (Can change pre-loaded Parent Company names, if necessary)
 - For new TRI reporters, the TRI-MEweb software has a list of standardized Parent Company names. If reporters cannot find correct name from the provided list, enter a new name.
 - **Parent company Dun and Bradstreet Number**
- Facility Dun and Bradstreet Numbers (Section 4.6)


To verify the accuracy of facility and parent company D&B number and name, go to: https://www.dnb.com/product/dlw/form_cc4.htm or call 1-888-814-1435

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Private sector facilities report information on their parent company, including its name and Dun and Bradstreet number. The parent company is the highest level of ownership within the United States and is pre-loaded in TRI-MEweb. If you do not have a parent company, check “No U.S. Parent Company (for TRI Reporting purposes).”

For your Dun and Bradstreet number, facilities can search via TRI-MEweb or they can use the website and telephone number shown here to obtain this information.

Federal facilities enter the highest level department or agency and check “NA” for Dun and Bradstreet number.




TRI REPORTING REQUIREMENTS

Facility Identification (*continued*)

- Primary and Secondary NAICS codes (Section 4.5)
 - Enter primary 6-digit NAICS code
 - Enter other applicable NAICS codes in decreasing order of significance

www.naics.com/search.htm
<http://www2.epa.gov/toxics-release-inventory-tri-program/my-facilitys-six-digit-naics-code-tri-covered-industry>

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Next, facilities enter the industry codes that best represent their operations. NAICS codes are available in TRI-MEweb or can be found in the website shown here. Remember that the primary NAICS code is the code that represents the largest portion of the facility's operations as defined by "value added".

TRI REPORTING REQUIREMENTS

Part II - Chemical-Specific information

- TRI-MEweb preloads previous year's chemicals
- To select new chemical (Part II Sections 1.1-1.3, 2.1)
 - Select CAS number or category code and name of chemical or chemical category - except on trade secret "sanitized" form; or
 - Enter generic name only if claiming chemical name as a trade secret (40 CFR 350); or
 - Report generic name provide by supplier, if supplier claims trade secret
- Contact information (Part I, Section 4.3 and 4.4)
 - List name, phone number, and email
 - Technical contact— should be able to explain data to EPA
 - Facilities should provide an email address for the technical contact (not provided in TRI's public data release)
 - Public contact— should be able to represent the facility's data to the public.




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Part two of the Form R is for chemical specific information. First, facilities identify the TRI chemicals on which they are reporting. Facilities enter the chemical name and the "chemical abstract service" number or the TRI chemical category code or select it from the list provided in TRI-MEweb. For those facilities that are claiming a trade secret the chemical name is only entered and the public version of the TRI Form R shows only the generic descriptive for the chemical.

In some cases, the facility's chemical supplier may have claimed a trade secret for a particular TRI chemical and the facility does not know the actual name of the TRI chemical for which they are submitting a report. In this scenario, the facility enters the generic descriptive provided.

For each Form submitted to EPA, facilities must also provide both technical and public contact information. A technical contact is a person who can answer technical questions from EPA and states about the TRI submittal. The public contact is a person who can answer inquiries from the public about the TRI data.



 TRI REPORTING REQUIREMENTS

Activities and Uses

- Specify use(s) of the Section 313 chemical (Section 3) (e.g., manufacture, process, or otherwise use)
 - Report only activities taking place at reporting facility
 - Check all applicable boxes

3.1 Manufacture

☒ Yes ☐ No 3.1 Did your facility manufacture 1,1-Dimethyl hydrazine in Reporting Year 2012?

☒ Yes ☐ No a. Was 1,1-Dimethyl hydrazine produced at your facility?

☒ Yes ☐ No b. Was 1,1-Dimethyl hydrazine imported by your facility?

☒ Yes c. Was 1,1-Dimethyl hydrazine produced or imported for on-site use or processing?

☒ Yes d. Was 1,1-Dimethyl hydrazine produced or imported for sale or distribution?

☒ Yes e. Was 1,1-Dimethyl hydrazine produced or imported as a byproduct?

☐ Yes f. Was 1,1-Dimethyl hydrazine produced or imported as an impurity?

3.2 Process

☐ Yes ☒ No 3.2 Did your facility process 1,1-Dimethyl hydrazine in Reporting Year 2012?

3.3 Otherwise Use


☒ Yes ☐ No 3.3 Did your facility otherwise use 1,1-Dimethyl hydrazine in Reporting Year 2012?

☐ Yes a. Was 1,1-Dimethyl hydrazine otherwise used as a chemical processing aid?

☐ Yes b. Was 1,1-Dimethyl hydrazine otherwise used as a manufacturing aid?

☒ Yes c. Was 1,1-Dimethyl hydrazine otherwise used as ancillary or for another use?

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Next, facilities report the activities and uses of the TRI chemical at the facility. Be sure to check all applicable boxes.

TRI REPORTING REQUIREMENTS

Maximum On-Site Amount

- Select appropriate code indicating the maximum quantity on-site during the reporting year (Section 4).

Range Code: Select a Range Code --

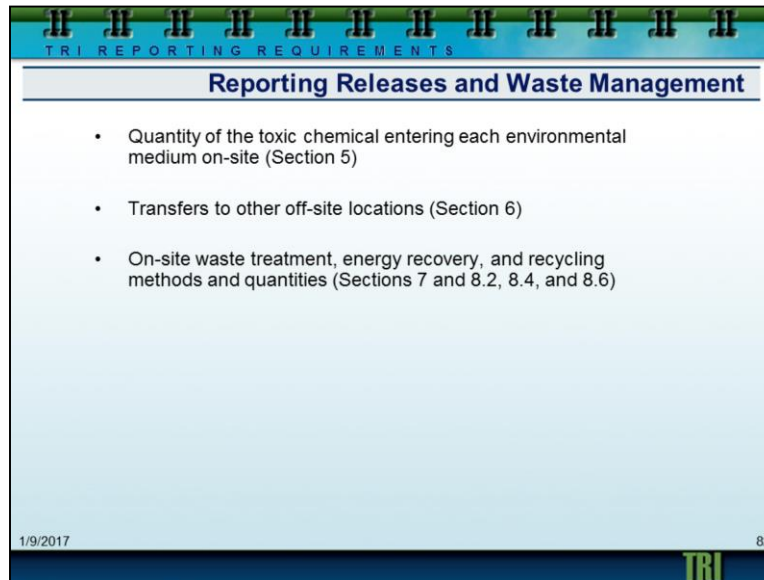
Range Code	Range
1	0 - 99 lbs
2	100 - 999 lbs
3	1,000 - 999,999 lbs
4	10,000 - 99,999 lbs
5	100,000 - 999,999 lbs
6	1,000,000 - 9,999,999 lbs
7	10,000,000 - 49,999,999 lbs
8	50,000,000 - 99,999,999 lbs
9	100,000,000 - 499,999,999 lbs
10	500,000,000 - 999,999,999 lbs
11	greater than 1 billion lbs

- Use maximum total (non-exempt) amount present at one time during reporting year, even if the Section 313 chemical is present at more than one location at the facility
 - Based on amount in storage, process, and wastes
 - Maximum amount on site may differ from the Tier II-reported maximum amount on site value
 - Tier II is usually by mixtures, Form R is chemical-specific
 - Tier II excludes hazardous wastes, Form R does not

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TRI

Facilities are also required to report the maximum quantity of the TRI chemical that was on site at any one time during the reporting year. The quantity is reported by entering a code representing a range of pounds of the chemical. The codes are available from the “Reporting Forms and Instructions” document and from the TRI-ME reporting software. Note that this quantity is comprehensive of all locations and uses of the chemical at the facility including quantities in storage, in the process stream, and in wastes. This is different from Tier two maximum amount on site which includes the weight of the entire mixture and does not include quantities in hazardous wastes.



The slide is titled "TRI REPORTING REQUIREMENTS" at the top, with a decorative header featuring a row of stylized chemical structures. Below the title, the main heading is "Reporting Releases and Waste Management". The slide contains a bulleted list of reporting requirements. At the bottom left, the date "1/9/2017" is displayed, and at the bottom right, the number "82" is shown next to the TRI logo.

TRI REPORTING REQUIREMENTS

Reporting Releases and Waste Management

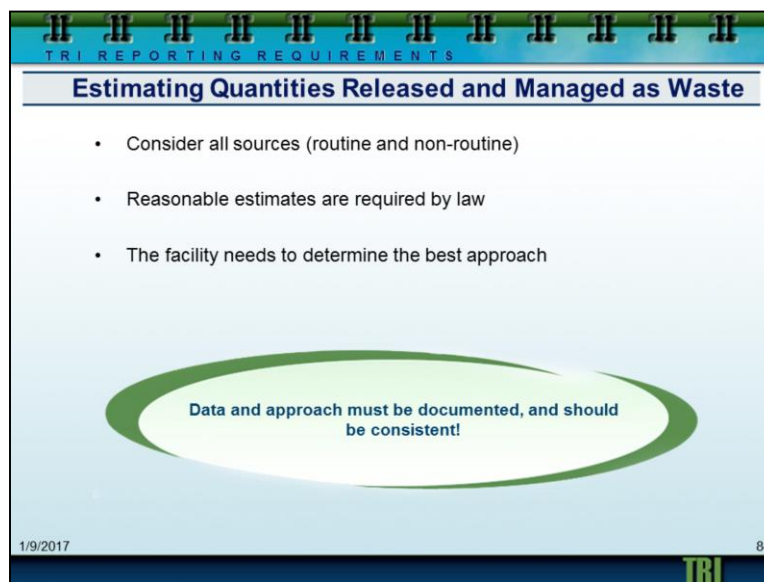
- Quantity of the toxic chemical entering each environmental medium on-site (Section 5)
- Transfers to other off-site locations (Section 6)
- On-site waste treatment, energy recovery, and recycling methods and quantities (Sections 7 and 8.2, 8.4, and 8.6)

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In completing the Form R, facilities also report how, and how much of, the TRI chemical was released to the environment, transferred off-site for further waste management or managed as a waste on-site. The next slides cover the steps for reporting this information.

Where do you get the information to calculate your releases and waste management quantities for your Form R? Some sources are listed here. Previous year Form R reports and documentation are a starting point for many TRI filers. Process flow diagrams, monitoring data – again, you don't have to collect it for TRI, but you may have already collected it for other purposes. Permit applications are another source – often many release estimates go into the application and that may be useful for TRI reporting.

Other environmental reports may be helpful sources – for example, you may have state pollution prevention reports or RCRA biennial reports. If you have a NPDES permit, you may have discharge monitoring reports that include one or more of the TRI chemicals. Be sure to look across media for potential sources. Waste management manifests can be a good source of information for estimating the quantity of a chemical sent offsite.

The slide is titled "TRI REPORTING REQUIREMENTS" at the top. Below the title is a section header "Estimating Quantities Released and Managed as Waste". A bulleted list contains three points: "Consider all sources (routine and non-routine)", "Reasonable estimates are required by law", and "The facility needs to determine the best approach". A large green oval in the center contains the text "Data and approach must be documented, and should be consistent!". The date "1/9/2017" is in the bottom left, and the TRI logo and page number "84" are in the bottom right.

TRI REPORTING REQUIREMENTS

Estimating Quantities Released and Managed as Waste

- Consider all sources (routine and non-routine)
- Reasonable estimates are required by law
- The facility needs to determine the best approach

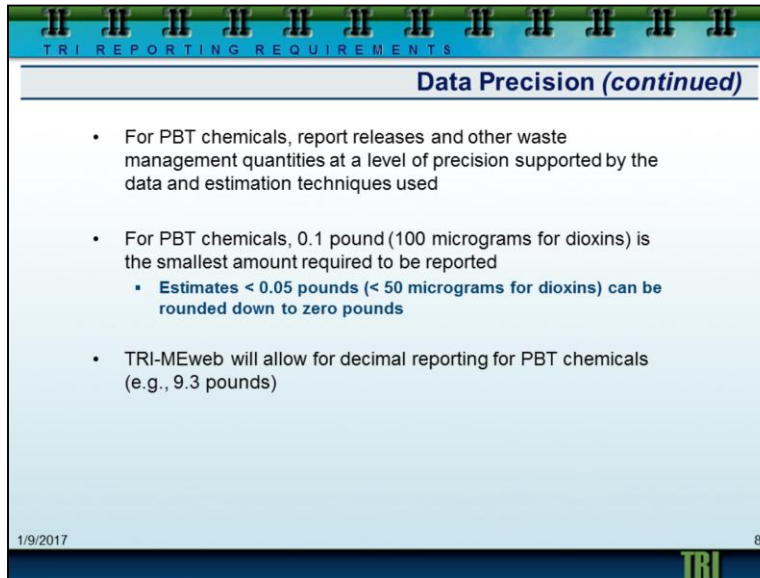
Data and approach must be documented, and should be consistent!

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When estimating release and waste management quantities for sections 5 and 6 of Part two of the Form R, be sure to consider all sources and uses of the TRI chemical, not just your main feedstocks. For example, consider chemicals that are used to clean production equipment, fuels, maintenance chemicals, catalysts, and lubricants for machinery. These all could be sources of TRI chemicals.

Reasonable estimates are required by law. However, the best approach is usually facility-specific. The data and approach must be documented and should be consistent. Facilities are required to use their best available information. While measuring and monitoring are not required by TRI, it may be that existing measurements and monitoring data are the best available information. Facilities need to determine the best reasonable approach to their estimates.

EPA allows using two significant figures when reporting release and waste management quantities. If your underlying data support a more precise estimate, additional significant figures may be used. For non-PBT chemicals, range code reporting is allowed in sections 5 and 6 for quantities less than 1,000 pounds. Range codes cannot be used for PBT chemicals.

The image shows a presentation slide titled "TRI REPORTING REQUIREMENTS" with a sub-header "Data Precision (continued)". The slide contains three bullet points regarding reporting precision for PBT chemicals. The first bullet point states that releases and waste management quantities should be reported at a level of precision supported by the data and estimation techniques used. The second bullet point states that for PBT chemicals, 0.1 pound (100 micrograms for dioxins) is the smallest amount required to be reported, with a sub-bullet indicating that estimates less than 0.05 pounds (less than 50 micrograms for dioxins) can be rounded down to zero pounds. The third bullet point states that TRI-MEweb will allow for decimal reporting for PBT chemicals, with an example of 9.3 pounds. The slide includes a date of 1/9/2017 in the bottom left and the number 86 in the bottom right, next to the TRI logo.

TRI REPORTING REQUIREMENTS

Data Precision (continued)

- For PBT chemicals, report releases and other waste management quantities at a level of precision supported by the data and estimation techniques used
- For PBT chemicals, 0.1 pound (100 micrograms for dioxins) is the smallest amount required to be reported
 - Estimates < 0.05 pounds (< 50 micrograms for dioxins) can be rounded down to zero pounds
- TRI-MEweb will allow for decimal reporting for PBT chemicals (e.g., 9.3 pounds)

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Data precision requirements are different for PBT chemicals, because of the much lower thresholds associated with these chemicals. While non-PBT chemicals are reported to the nearest whole number, for PBT chemicals, facilities report to the nearest 10th of a pound. The exception is for dioxin, where quantities should be reported to the nearest 100 micrograms. For PBT chemicals, reported quantities can be rounded down to zero if less than .05 pounds. Quantities of 50 micrograms or less of dioxin can be rounded down to zero.

When using the TRI-ME web reporting application, the systems recognize the chemicals as PBT or non-PBT and will allow decimal reporting for PBT chemicals and not for non-PBT chemicals.

It is important for TRI filers to understand the difference between reporting a zero and reporting “N/A,” for “not applicable.” Use “N/A” when there is no possibility of that chemical being released to or otherwise managed as waste in that medium.

For example, in Section 5 of the Form R, facilities enter the quantity of the TRI chemical that went to their on-site landfill. If the facility does not have an on-site landfill, there is no way that the chemical could go to an on-site landfill, so they report “N/A”. Facilities should use zero when no release occurs or less than half a pound of the non-PBT chemical is directed towards that medium.

For example, if a facility has a waste stream discharged to water and has control equipment in place that completely removes the TRI chemical from the waste stream prior to discharge, they would enter a zero as the quantity discharged. They use a zero instead of N/A because a discharge is possible if, for example, their control equipment was not removing 100% of the chemical. Note that a Basis of Estimate code is required for all numerical estimates, including zero. A Basis of Estimate code should not be entered when “N/A” is reported.

Next, facilities report the quantities of the TRI chemical that are released to each environmental medium on-site. In sections 5 and 6 of the TRI Form R, facilities have the option of reporting one of three “range codes” in place of actual quantities of chemicals, if the quantity is less than 1,000 pounds, AND if the chemical is not a PBT chemical. Range codes cannot be used for PBT chemicals, instead the actual quantity must be entered for PBT chemicals.

For each chemical quantity entered in Sections 5 and 6 of the Form R, facilities must also indicate how the quantity was estimated by entering a “basis of estimate” code. Is the estimate based on data from a continuous monitoring system? If so, enter a Basis of Estimate code of M1. Enter “M2” if the estimate is based upon periodic or random monitoring. Is the estimate based on a mass balance calculation? That would be a Basis of Estimate Code of C. If the quantity is based on a published emission factor, then enter “E1” as the Basis of Estimate code. E2 is for site-specific emissions factors that are non-published, that were perhaps developed through in-house testing, or were provided by the vendor of your process or pollution control equipment. The last code, “O”, is for “other” and is used for engineering calculations. O is also any other method that is not covered by the other codes.

In some cases, the quantity entered on the TRI Form could be based on multiple estimation techniques. In these cases, enter the basis of estimate code that represents the largest portion of the estimate.

TRI REPORTING REQUIREMENTS

Fugitive or Non-Point Air Emissions

- Enter total fugitive releases of the Section 313 chemical, including leaks, evaporative losses, building ventilation, or other non-point air emissions (Section 5.1)
- Example Using a Mass Balance Basis of Estimate (C):
 - 5,000 lbs of a volatile solvent are added during the year as part of the manufacture of a liquid adhesive. 4,950 lbs of the solvent are contained in the final liquid adhesive product.
 - $\text{Input (5,000 lbs)} = \text{Output (4,950 lbs)} + \text{Air Loss (50 lbs)}$
 - Fugitive air emissions from this process = 50 lbs

Law of Mass Balance:
What Goes In = What Comes Out

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In this section of the TRI-MEweb reporting application and in Form R, facilities are required to enter the quantity of the TRI chemical that is released to the air from fugitive and non-point sources. Fugitive and non-point emissions include leaks, evaporative losses, building ventilation, and any other air emissions that cannot be traced to a discrete point. As with all estimates entered in Sections 5 and 6, enter the basis of estimate code that best represents the estimation technique used.

In the example shown, a facility knows that it used 5,000 pounds of a volatile solvent during the reporting year. They also know that 4,950 pounds of the solvent were contained in the adhesive product that they manufactured. Using a simple mass balance calculation, they are able to determine that 50 pounds of the TRI chemical were released to the air through fugitive emissions. The facility then enters 50 pounds in Section 5.1 along with a basis of estimate code of "C".

Another common question is: how do you come up with an estimate when there are no data available? This comes up often in the case of fugitive emissions. Facilities may have a process and a chemical for which they know that fugitive air emissions occur, based on the nature of the process or of the chemical, but do not know how to go about quantifying those fugitive emissions.

The example shown here is for a metalworking operation where there is metal dust on the floor indicating fugitive air emissions are occurring.

How can the facility quantify these fugitive emissions?

Facilities can work with the operations personnel familiar with the operation in determining when the dust is generated, how it is generated, and its composition (and specifically how much of the TRI chemical in question does it contain). Then they use their best engineering judgment to indicate the quantity of release. Because it will not be a precise estimate, they may want to consider using a range code. They will also have to indicate the Basis of Estimate code for the quantity of fugitive emissions, which is likely the “O” Basis of Estimate code for engineering judgment.

Next, facilities are asked to enter the quantity of the TRI chemical that was released to the air via stacks or other point sources such as vents, pipes, ducts, storage tanks, and any other confined stream. In some cases these emissions may already be monitored or estimated for air permits or other regulatory requirements. In other cases they can be estimated from emissions factors and production data. An example of an estimate based on a published emissions factor is shown here. A facility combusting 500,000 tons of coal in a fluidized bed combustor obtained a published emissions factor for mercury in such a system.

Using the emission factor, they were able to determine that 110 pounds of mercury was released through the stack, which they entered on the TRI form along with a basis of estimate code of "E1".

TRI REPORTING REQUIREMENTS

On-Site Wastewater Discharges

- Releases to streams or water bodies (Section 5.3)
 - Use the map provided in TRI-MEweb to select the name of the receiving stream or waterbody. If not found, manually enter the name.
 - Optional: Reach Code, which describes the specific location of the outfall. TRI-MEweb will automatically provide the Reach Code by using the map.
 - Enter the total amount of Section 313 chemical released to each receiving stream or waterbody
 - Enter the basis of estimate code
 - Indicate percentage of total release quantity contributed by stormwater runoff (choose NA if not applicable).
 - Select NA box for Section 5.3 if the facility does not discharge the Section 313 chemical to streams or water bodies.

Stream or Water Body Name	Reach Code (optional)	Quantity lbs	Range Code	Basis of Estimate Code	% from Stormwater	
Mississippi River	07110004000001	54		M2 - Monitoring, Periodic/Random	100%	<input type="button" value="Edit"/> <input type="button" value="Delete"/>

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TRI

Wastewater discharges are reported in two places in the TRI-MEweb reporting application and Form R. First, facilities report releases directly discharged to a stream or water body. Often these are regulated and monitored as part of an NPDES permit. Facilities enter the name of the water body if it has a name. If it does not have a name, then report the name of the nearest downstream water body that does have a name.

Be aware that the quantity of TRI chemical reported should also include any stormwater runoff containing the TRI chemical. After entering the total quantity, facilities indicate the percent of the total that can be attributed to stormwater releases.

The other place on the Form R where wastewater discharges are reported cover discharges to a POTW. Because the POTW will conduct further waste management on the discharged chemicals, these discharges are considered offsite transfers, so they are reported separately in TRI-MEweb or in Section 6 of Form R.

Remember that facility wastewater released directly to a stream or water body, either through a discharge pipe or through storm water, are reported as an onsite wastewater discharge and discharges to a POTW are reported as offsite transfers for further waste management.

To calculate the quantity of the TRI chemical discharged, facilities may have monitoring data available, such as may be required under a NPDES report. If no monitoring data exist, facilities should use the most appropriate methods including general process knowledge and mass balance calculations.

TRI REPORTING REQUIREMENTS

Calculating Wastewater Discharges

- Calculate the yearly pounds of methanol discharged using the following data concerning wastewater discharges of methanol:

Date	Conc. (mg/l)	Flow (MGD)	Amt. (lb/day)
3/1	1.0	1.0	8.33
9/8	0.2	0.2	0.33
Average =			4.33

MGD = million gallons per day 1 mg/l = 8.33 lb/million gal

- Assuming 365 days of discharge and no other sources:
 - $4.33 \text{ lb/day} \times 365 \text{ day} = 1,580 \text{ lb total release}$
 - Basis of Estimate Code: M2**
 - Include receiving stream or waterbody name and Reach Code (optional)**
 - Indicate NA for contribution from stormwater.**

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TRI

Here is an example calculation for wastewater discharges using already existing and available monitoring data. This example is for methanol discharges, where this facility collected samples twice during the reporting year. The first sample was taken on March 1st, when the chemical was released at a concentration of 1.0 milligrams per liter with a flow rate of 1.0 million gallons per day. Converting milligrams per liter and million gallons per day into pounds per day results in 8.33 pounds per day by applying the appropriate conversion factors. Their second sample was taken on September 8th, where they measured the chemical at a concentration of 0.2 milligrams per liter, at a flow rate of 0.2 million gallons per day. Calculating that with the appropriate conversion factors again, comes out to 0.33 pounds per day. The two samples of 8.33 and 0.33 pounds/day are averaged to get 4.33 pounds per day. The number that goes on the Form R is not in pounds per day, but in pounds for the reporting year. So, this quantity must be multiplied by the operating days, say 365 days, to get the total pounds per year.

TRI REPORTING REQUIREMENTS

On-Site Injection Wells

- Underground injection to Class I wells (Section 5.4.1)
 - Enter total amount of Section 313 chemical injected into Class I wells at facility and basis of estimate code
- Underground injection to Class II - V wells (Section 5.4.2)
 - Enter total amount of Section 313 chemical injected into Class II - V wells at facility and basis of estimate code

Total Quantity: lbs

- or -

Range Code:

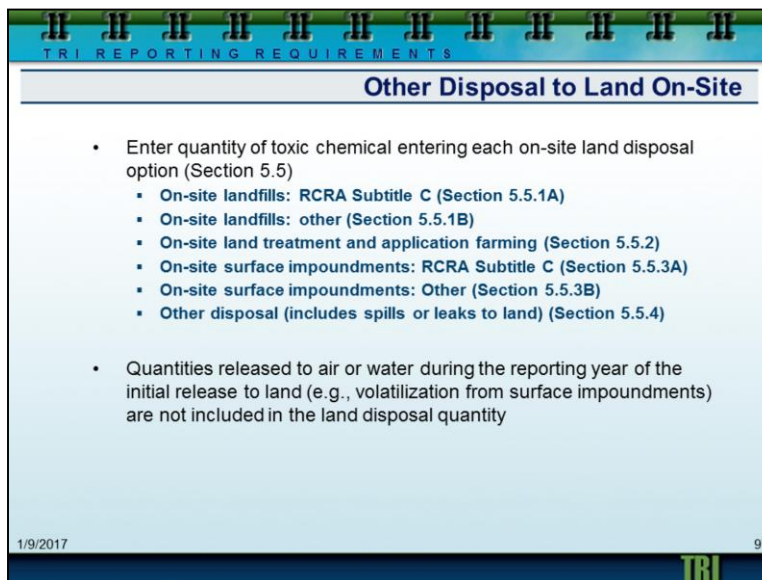
Basis of Estimate:

Note: Basis of estimate code must be entered.

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Facilities also must report releases of the TRI chemical to underground injection wells. Underground injection wells are classified and regulated under the Safe Drinking Water Act. Quantities are entered separately for Class one wells and for Class two through five wells. Facilities that do not have underground injection wells should check "NA" in this section.

The slide features a header with a row of chemical structures above the text "TRI REPORTING REQUIREMENTS". Below this is a title box labeled "Other Disposal to Land On-Site". The main content area contains a bulleted list of disposal options and a note about releases to air or water. The footer includes the date "1/9/2017", the page number "97", and the TRI logo.

TRI REPORTING REQUIREMENTS

Other Disposal to Land On-Site

- Enter quantity of toxic chemical entering each on-site land disposal option (Section 5.5)
 - On-site landfills: RCRA Subtitle C (Section 5.5.1A)
 - On-site landfills: other (Section 5.5.1B)
 - On-site land treatment and application farming (Section 5.5.2)
 - On-site surface impoundments: RCRA Subtitle C (Section 5.5.3A)
 - On-site surface impoundments: Other (Section 5.5.3B)
 - Other disposal (includes spills or leaks to land) (Section 5.5.4)
- Quantities released to air or water during the reporting year of the initial release to land (e.g., volatilization from surface impoundments) are not included in the land disposal quantity

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There are a variety of ways that facilities can dispose of TRI chemicals to the land. In this part of the TRI-MEweb reporting software and Form R, facilities report the quantity of the chemical released to the land via onsite RCRA subtitle C landfills, other landfills, land treatment or land farming, RCRA Subtitle C surface impoundments, other surface impoundments, and other disposal.

“Other disposal” includes any spills or leaks to land. Note that if a portion of the TRI chemical that is disposed of to land onsite volatilizes to the air or washes to a water body during the reporting year, that quantity is not reported here, but in the section most appropriate for that medium.

In completing the Form R, facilities also report how, and how much of, the TRI chemical was managed as a waste on-site. Specifically, how much of the chemical was treated for destruction in air pollution control devices or wastewater treatment processes, for example; how much was used for energy recovery, how much was recycled, and descriptions of the actual processes that the waste stream went through at the facility. The information entered in this part of the TRI-MEweb reporting application covers Section 7 and portions of Section 8 of the Form R.

TRI REPORTING REQUIREMENTS

Waste Treatment Methods and Efficiency

- Report each waste treatment method that each waste stream containing the Section 313 chemical undergoes (Section 7A)
 - Include even if method has no effect on the chemical
 - Report the efficiency of the waste treatment methods at eliminating the Section 313 chemical from the waste stream
 - Includes destruction or physical removal

Waste Treatment Profile Name	a. General Waste Stream Code	b. Waste Treatment Method(s) Sequence	c. Waste Treatment Efficiency
Chemical oxidation	L - Liquid waste streams (non-aque)	H075	<div style="display: flex; align-items: center;"> <div style="flex-grow: 1;"> Select a Range Select a Range E1 - Greater than 99.9999% E2 - Greater than 99.99%, but less than or equal to 99.9999% E3 - Greater than 99%, but less than or equal to 99.99% E4 - Greater than 95%, but less than or equal to 99% E5 - Greater than 50%, but less than or equal to 95% E6 - Equal to or greater than 0%, but less than or equal to 50% </div> <div style="margin-left: 10px;"> <input type="button" value="Edit"/> <input type="button" value="Delete"/> </div> </div>

Select from the list and click **Add Selected**

- Enter quantity treated on-site (destruction only)

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When reporting on waste streams undergoing treatment on-site, “treatment” means that the waste chemical is removed from the waste stream or destroyed. In the Waste Treatment Methods and Efficiency section, facilities describe each waste stream containing the TRI chemical using a “waste stream code” that denotes whether the waste stream is solid, liquid, or gaseous. Next, facilities enter the codes that represent each of the waste treatment methods that the waste stream goes through in order. All treatment methods must be recorded, even if the method does not affect the TRI chemical.

For each waste stream, the facility also reports a code that represents the range of treatment efficiency that the combined waste treatment methods had on the TRI chemical. Finally, in Section 8.6, the facility reports the total quantity of the chemical that was destroyed by treatment on-site.

Note that all of the codes required for Section 7 can be obtained from the “Reporting Forms and Instructions” and through the TRI-ME web reporting applications.

TRI REPORTING REQUIREMENTS

Energy Recovery Methods and Quantity

- Enter on-site energy recovery quantity and methods for Section 313 chemical
 - Section 313 chemical must be combustible and have a significant heating value (>5,000 BTU/lb.)
 - Combustion unit is integrated into an energy recovery system (e.g., industrial furnace, industrial kiln, or boiler)
- Enter codes in descending order by quantities combusted

Quantity Used for Energy Recovery Onsite: Current Year (lbs)

Energy Recovery Methods:
(Select the order of energy recovery methods used)

First Method	Second Method	Third Method
<input type="text" value="Not Selected"/>	<input type="text" value="Not Selected"/>	<input type="text" value="Not Selected"/>

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TRI

The next section covers on-site energy recovery processes that the TRI chemical goes through and the quantities of the TRI chemical that was combusted for energy recovery. Only chemicals that have a significant heat value and for which the heat energy is actually recovered should be reported in this section. Up to three codes representing each energy recovery method that the TRI chemical enters are reported.

TRI REPORTING REQUIREMENTS

Recycling Methods and Quantity

- Enter quantity and methods used for on-site recycling of the Section 313 chemical (Sections 7C and 8.4 current year)
 - Codes for recycling methods used are found in EPA's TRI Reporting Forms and Instructions document
 - Do not include energy recovery processes
- Enter codes in descending order by quantities recycled

Quantity Recycled Onsite: Current Year (lbs)

Recycling Methods:
(Select the order of recycling methods used)

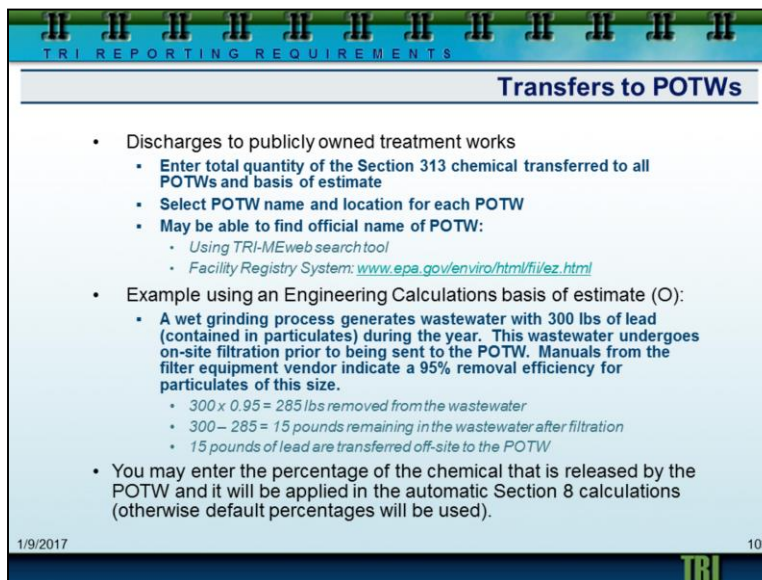
First Method	Second Method
<input type="text" value="Not Selected"/>	<input type="text" value="Not Selected"/>

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The next section covers on-site recycling processes that the TRI chemical goes through. Note that recycling recovers the TRI chemical from the waste stream so that it can be used over again. It does not include energy recovery. The quantity and up to two codes representing each recycling method that the TRI chemical enters are reported.

The off-site transfers section of TRI-MEweb covers Section six of Form R. Off-site transfers include any transfers of the TRI chemical to another facility for the purpose of waste management including off-site waste treatment, recycling, energy recovery, or disposal. As in Section 5, any quantity reported in Section 6 that is under 1,000 pounds AND that is for a non-PBT chemical can instead be represented by one of the range codes shown here. Also, as in Section 5, basis of estimate codes are required for each quantity entered.

Note that similar quantities reported in Section 8 of Form R must be actual values and not range codes. The Section 8 Calculator in TRI-MEweb, which uses information reported in sections 5 and 6, will assume the midpoint of any ranges reported in Sections 5 and 6 when calculating quantities for Section 8.



TRI REPORTING REQUIREMENTS

Transfers to POTWs

- Discharges to publicly owned treatment works
 - Enter total quantity of the Section 313 chemical transferred to all POTWs and basis of estimate
 - Select POTW name and location for each POTW
 - May be able to find official name of POTW:
 - Using TRI-MEweb search tool
 - Facility Registry System: www.epa.gov/enviro/html/fri/ez.html
- Example using an Engineering Calculations basis of estimate (O):
 - A wet grinding process generates wastewater with 300 lbs of lead (contained in particulates) during the year. This wastewater undergoes on-site filtration prior to being sent to the POTW. Manuals from the filter equipment vendor indicate a 95% removal efficiency for particulates of this size.
 - $300 \times 0.95 = 285$ lbs removed from the wastewater
 - $300 - 285 = 15$ pounds remaining in the wastewater after filtration
 - 15 pounds of lead are transferred off-site to the POTW
 - You may enter the percentage of the chemical that is released by the POTW and it will be applied in the automatic Section 8 calculations (otherwise default percentages will be used).

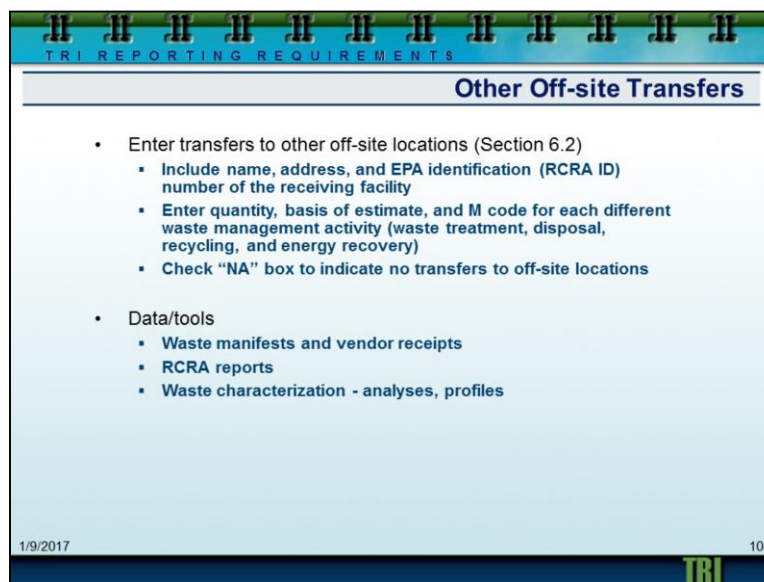
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Facilities must report the quantities of TRI chemicals that are transferred in wastewater to a publicly owned treatment works, or POTW. When reporting a discharge to a POTW, TRI-MEweb and the Form R require the name of the POTW to which the TRI chemical is being transferred. Facilities can use a search tool in TRI-MEweb or one of the EPA websites shown here to find the official name of their POTW.

In the example shown here, a facility used engineering calculations to determine that it generated wastewater containing 300 pounds of lead particulates during the reporting year. Before being discharged to the POTW, the wastewater underwent a filtration step that was thought to have a 95 percent removal efficiency for this size of particulates. Therefore, the quantity of lead reported as transferred to the POTW is 15 pounds and the basis of estimate code for this combination of estimation techniques is "O".

Also note if you know the percentage of the chemical that is released by the POTW, you can enter it, and it will be applied in the automatic Section 8 calculations. Otherwise default percentages will be used in Section 8.



The image shows a presentation slide titled "Other Off-site Transfers" under the heading "TRI REPORTING REQUIREMENTS". The slide contains two main bullet points. The first bullet point is "Enter transfers to other off-site locations (Section 6.2)", which has three sub-bullets: "Include name, address, and EPA identification (RCRA ID) number of the receiving facility", "Enter quantity, basis of estimate, and M code for each different waste management activity (waste treatment, disposal, recycling, and energy recovery)", and "Check 'NA' box to indicate no transfers to off-site locations". The second bullet point is "Data/tools", which has three sub-bullets: "Waste manifests and vendor receipts", "RCRA reports", and "Waste characterization - analyses, profiles". The slide has a date "1/9/2017" in the bottom left corner and a page number "104" in the bottom right corner. The TRI logo is visible in the bottom right corner.

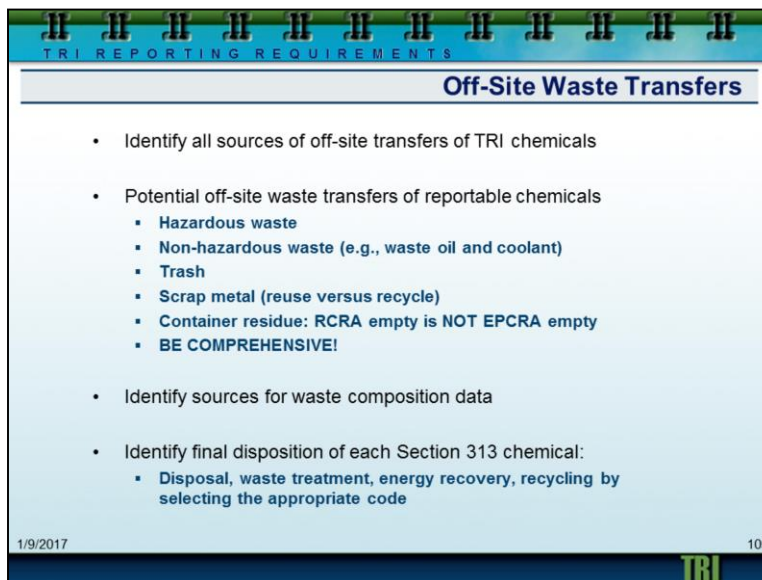
TRI REPORTING REQUIREMENTS

Other Off-site Transfers

- Enter transfers to other off-site locations (Section 6.2)
 - Include name, address, and EPA identification (RCRA ID) number of the receiving facility
 - Enter quantity, basis of estimate, and M code for each different waste management activity (waste treatment, disposal, recycling, and energy recovery)
 - Check "NA" box to indicate no transfers to off-site locations
- Data/tools
 - Waste manifests and vendor receipts
 - RCRA reports
 - Waste characterization - analyses, profiles

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The Off-site transfers section of TRI-MEweb also covers all other transfers of the TRI chemical off-site for waste management. The name, address and EPA ID, if applicable, of the facility receiving the TRI chemical is entered. For each off-site location, the quantity and basis of estimate code associated with each waste management activity are entered. The types of waste management activities are specified using the appropriate "M code" for each activity. The list of "M codes" are available in the "Reporting Forms and Instructions" document as well in the TRI-MEweb reporting application. The quantities of TRI chemical sent off-site to be managed as waste are often recorded by facilities as part of their regulatory requirements and recordkeeping systems. Facilities should take advantage of existing sources of information to assist with developing their estimates for this and other sections of the TRI Form R.

The image is a presentation slide titled "Off-Site Waste Transfers" under the heading "TRI REPORTING REQUIREMENTS". The slide features a blue header with a row of stylized chemical structures. The main content area is light blue and contains a bulleted list of reporting tips. The footer includes the date "1/9/2017", the slide number "105", and the "TRI" logo.

TRI REPORTING REQUIREMENTS

Off-Site Waste Transfers

- Identify all sources of off-site transfers of TRI chemicals
- Potential off-site waste transfers of reportable chemicals
 - Hazardous waste
 - Non-hazardous waste (e.g., waste oil and coolant)
 - Trash
 - Scrap metal (reuse versus recycle)
 - Container residue: RCRA empty is NOT EPCRA empty
 - **BE COMPREHENSIVE!**
- Identify sources for waste composition data
- Identify final disposition of each Section 313 chemical:
 - Disposal, waste treatment, energy recovery, recycling by selecting the appropriate code

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Here are some tips specific to reporting off-site transfer quantities. First, Identify all possible sources of waste sent off-site. Hazardous waste is one source and waste manifests may be helpful in calculating the quantity of some TRI chemicals sent off-site. However, also consider TRI chemicals in non-hazardous wastes, such as chemicals in waste oil, coolant, trash, or scrap metal. Also consider container residue – the RCRA definition of an “empty” drum may still contain TRI chemicals. These quantities need to be included as off-site transfers on Form R. For all quantities of the TRI chemical sent offsite for waste management, record the “M” code, describing how the chemical was managed offsite. If a waste going offsite for incineration contained 100 pounds of the TRI chemical, 100 pounds would be reported as an “other off-site transfer” along with the name and location of the site it is being sent to, and the “M code” for incineration. If another waste stream contained 300 pounds of the same TRI chemical and was being sent to a different location for metals recovery, the 300 pounds would be listed separately, along with the name and location of the receiving facility, and the M code for metals recovery.

Here are a few helpful hints for estimating release and waste management quantities reported on the Form R.

First, consider all sources of information and use the best available information for release and waste management estimates.

Be sure to estimate the quantity of the TRI chemical and not the entire waste stream. For example, when using data from a waste manifest that shows the weight of the entire waste mixture sent off-site, be sure to base release and waste management estimates on only the amount of the TRI chemical in that waste mixture.

Be sure to differentiate between your fugitive and your stack air emissions.
When reporting for a VOC, or volatile organic compound, be sure to estimate fugitive losses of the chemical – it is unlikely to have zero fugitive air emissions.

Pay attention to the TRI chemical qualifiers and remember that the form of the chemical described in the qualifier is the only form that needs to be considered for TRI.

Also, always check your math and document your work.

Be aware that errors can carry over from year to year.

The final section of the Form R, Section 8, is the section of Form R focused on pollution prevention. This pollution prevention hierarchy shown here was institutionalized by the Pollution Prevention Act of 1990, and the idea here is that facilities always want to be moving up this triangle toward source reduction. Facilities should look for opportunities for source reduction and think about how they can avoid creating wastes in the first place. If that is not possible, they should look at opportunities for recycling the chemical. If that's not possible, they move down the hierarchy and determine if the chemical can be treated. If there is no way to destroy the chemical, then their last resort is disposal or release to the environment. So, we always want to be evaluating ways to move towards source reduction. Section 8 of the TRI Form R is intended to help track progress and identify opportunities for pollution prevention. In Section 8, facilities report quantities for the current reporting year, as in the other sections of the form, but quantities are also reported for the previous year, and they are projected out for the next two years. This provides a trend over time to look at to determine if there are more opportunities to move up this pollution prevention hierarchy.

First you'll enter the quantities of waste that you release, use for energy recovery, recycle, and treat, both on- and off-site. This is referred to as the "production-related waste."

In Section 8.1, the quantity of the chemical released is reported. In Sections 8.2 and 8.3, the quantities of the chemical used for energy recovery on-site and off-site are reported. Remember, to be reported as energy recovery, the TRI chemical must have a significant heat value and that heat must be recovered. In Sections 8.4 and 8.5, the quantities of the chemical recycled on-site and off-site are reported. And, in Sections 8.6 and 8.7, the quantities of the chemical treated on-site and off-site are reported. Under TRI, treatment means "destroyed", so metals, which cannot be destroyed, should not be reported in these sections.

Adding up the quantities in section 8.1 through 8.7 gives the total quantity of waste generated from production activities at the facility. This includes the total quantity released, treated, recycled, or used for energy recovery. Some of these quantities may have already been calculated to complete Form R section 5 for on-site releases and section 6 for off-site transfers. The TRI-MEweb application includes a Section 8 calculator tool that will help with these calculations. However, the quantities reported in sections 5 and 6 of the form can differ from those reported in Sections 8.1 through 8.7. The sections 5 and 6 quantities should include any TRI chemicals released and transferred as part of a remedial clean-up action or catastrophic one time event. These non-production-related quantities are NOT included in Sections 8.1 through 8.7. TRI-MEweb will ask if any of the quantities reported in sections 5 and 6 were associated with remedial actions or catastrophic one time events, and if so, how much. Then, using the information already entered into TRI-MEweb, the Section 8 calculator will populate the quantities for the current year column of Section 8. However, in the Source Reduction and Waste Management portion of the Form R, as shown here, facilities are not only required to report on the current year's activities, but also the previous year's quantities and estimates for the next two years.

If your facility reported on this chemical in the previous year, TRI-MEweb will pre-populate the prior year column.

TRI REPORTING REQUIREMENTS	
Section 8: Relationship to Sections 5 and 6	
Part II. Sections 8.1 - 8.7	
8.1a	Total on-site disposal to Class I UIC wells, RCRA & other landfills 5.4.1 + 5.5.1A + 5.5.1B – 8.8 (on-site release or disposal due to catastrophic event)
8.1b	Total other on-site disposal or other releases 5.1, 5.2, 5.3.1, 5.3.2, 5.3.3, 5.4.2, 5.5.2, 5.5.3A, 5.5.3B, 5.5.4 – 8.8 (on-site release or disposal due to catastrophic event)
8.1c	Total off-site disposal to Class I UIC wells, RCRA & other landfills Section 6.2, M64, M65, and M81 – 8.8 (off-site disposal due to catastrophic event)
8.1d	Total other off-site disposal or other releases 6.1 (for metals and metal category compounds only) + 6.2 (quantities associated with M codes M10, M41, M62, M66, M67, M73, M79, M82, M90, M94, M99) – 8.8 (off-site disposal due to catastrophic event)
8.3	Off-site energy recovery 6.2, M56 and M92 – 8.8 (off-site energy recovery due to catastrophic events)
8.5	Off-site recycling 6.2, M20, M24, M26, M28, and M93 – 8.8 (off-site recycling due to catastrophic events)
8.7	Off-site treatment 6.1 (excluding metals and metal category compounds), 6.2 (quantities associated with M codes M50, M54, M61, M69, M95) – 8.8 (off-site treatment due to catastrophic event)
Note: Quantity reported in 6.1 is distributed among 8.1c, 8.1d and 8.7 based on final disposition. TRI-MEweb provides default percentages for making this distribution. Metals and metal category compounds should not be reported in 8.7.	
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This table shows the subsections of Section 8 that may be derived from information that was already recorded in Section 5 (onsite releases) and in Section 6 (offsite transfers) of the Form R. For example, quantities recorded for the chemical as on-site releases are reported in Section 8.1 unless the release was due to a catastrophic or other one-time event. Section 8.1 is for quantities of the chemical disposed of or otherwise released, onsite and offsite. Offsite releases and disposals come from the part of the Form R where offsite transfers are entered, and includes only those transfers that were disposed of or otherwise released rather than treated or recycled or used for energy recovery. Recall that for each off-site transfer, a code was entered representing the disposition of that chemical.

Information for Sections 8.3, 8.5, and 8.7 are also calculated from quantities already reported in other parts of the form. For current year quantities, TRI-MEweb will perform these calculations automatically using the data shown here.

When completing the Form R in TRI-MEweb, the quantities needed for the three subsections of Section 8 shown here are entered alongside the on-site waste management methods that are reported in the previous Section of the Form. In sections 8.2, 8.4 and 8.6, facilities report the quantities of the TRI chemical used for on-site energy recovery, on-site recycling, and on-site treatment, respectively. Again, to be reported as energy recovery, the TRI chemical itself, and not only the entire waste stream, must have an energy value and be must be combusted in an energy recovery unit. To be reported as recycling, the TRI chemical itself must be recycled. And to be reported as treatment, the TRI chemical itself must be destroyed. Note that metals cannot be destroyed.

If quantities of the TRI chemical were released to the environment or transferred offsite as a result of a remediation activity, or a catastrophic or one-time event, these quantities are reported separately when completing the Source Reduction and Waste Management portion of the Form. This does not include chemicals that are treated onsite, recovered for energy onsite, or recycled on-site, no matter how those chemicals were generated. Note that these quantities are entered in Section 8.8 of the Form R and they are exclusive of the quantities entered in Section 8.1 through 8.7. In other words, there is no overlap. For example, if a facility has an ongoing remedial action for a TRI chemical, and there are fugitive releases to the air associated with that remedial action, the quantity of the chemical released to the air is not reported in section 8.1 because the release is from the remedial activity. The quantity is reported in Section 8.8. Facilities using TRI-MEweb are asked to quantify any amounts of the TRI chemical associated with remedial actions or catastrophic or one-time events and the Section 8 calculator automatically deducts these amounts from Sections 8.1 through 8.7.


Also note that quantities reported in Section 8.8 do NOT include preventable quantities, like those associated with spills from a production process, or a leaking pipe, or anything that could have been prevented, such as through more rigorous prevention or maintenance procedures.

The production ratio or activity ratio for the chemical goes in Section 8.9. The production ratio is a unitless value that compares this year's production involving this chemical to last year's production. This helps facilities examine trends in their quantities released and managed. For example, releases could be decreasing over time because pollution prevention is being implemented resulting in increased efficiency. Or releases could be decreasing because production is going down.

The facility must decide if a production ratio or an activity ratio best reflects the use of the chemical for which they are reporting. For example, if the facility is reporting on a chemical that is in the paint used to paint ovens, using the number of ovens would be a good production ratio. As they make more ovens, they are going to be using proportionally more of the paint, if they do not implement any pollution prevention practices. However, if the chemical is used in a cleaning solution to clean tanks, it may be that the facility is increasing production by running larger jobs that require fewer cleanings. Production isn't a good indicator of the year-to-year use of that chemical, so they would opt for using an activity ratio instead.

If a facility does implement pollution prevention practices, they still may see their chemical use remain the same if their production ratio is greater than one, meaning their production is going up. That would indicate they are using less of the chemical per unit of product.

If production is going up, the production ratio is going to be greater than one. If production is going down, the production ratio or activity ratio is going to be less than one, as in the tank washout example. Barring significant changes in production or activities at a facility, most production ratios and activity ratios are within 0.5 and 2, which would indicate a 50 percent decrease and a 100 percent increase in production or activities, respectively.




Production Ratio or Activity Ratio Examples

- Example (Production Ratio): **Oven manufacturing**

$$\frac{40,000 \text{ ovens assembled (Current RY)}}{35,000 \text{ ovens assembled (Prior RY)}} = 1.14$$
- Example (Activity Ratio): Tank washouts

$$\frac{50 \text{ Washouts (Current RY)}}{60 \text{ Washouts (Prior RY)}} = 0.83$$
- Additional Production / Activity Variable Examples, by Industry
 - Refractory Manufacturing: Tons of brick manufactured
 - Chemical Wholesalers: Gallons of glycol ethers packaged
 - Electric Power Generation: Megawatt-hours of electricity produced
 - National Security: Man-days of training per year
 - Synthetic Dye Manufacturing: Number of color changeovers
 - Waste Treatment and Disposal: Tons of waste landfilled on-site

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Let's go through a couple of examples to illustrate this.

The first example is an oven manufacturer, and at this facility 40,000 ovens were assembled this reporting year, compared to 35,000 ovens assembled in the prior reporting year. So dividing 40,000 by 35,000 results in a production ratio of 1.14. This is a unitless value. 1.14 would represent a 14% increase in production from last year to this year. But neither 14, or 0.14 should be reported. Only 1.14, the actual ratio, should be reported.

The facility must select a production or activity variable that best reflects to output or outcomes of the process in which the chemical is involved. If the TRI chemical use has no connection to production levels. In the activity ratio example shown here, the chemical is used to wash out tanks. In this case, the number of tank washouts completed is the best indicator of the output or outcome of the process in which the chemical is involved, so they would opt for using an activity ratio instead of a production ratio. There were 50 washouts this year compared to 60 the last year. That would result in an activity ratio of 0.83

In the Source Reduction Activities portion of the Form R, section 8.10, facilities report on the source reduction activities, implemented during the reporting year that could reduce the total quantity of chemical released (including disposal), recycled, combusted for energy recovery, or treated. The various source reduction activities are represented by codes that can be found as a “drop down” menu in TRI-MEweb or in the “Reporting Forms and Instructions” document. There are many types of activities that could be considered source reduction activities. Some are listed here. Reporters should review these codes, because they may not realize that some of the activities that they have implemented during the year would count as source reduction. For each source reduction code you enter in TRI-MEweb, a button to the right of the entry allows you to provide details on the source reduction practice in the next section of the Form R (Section 8.11, Optional Pollution Prevention Information). This information will be added to Section 8.11 (Optional Pollution Prevention Information), preceded by the code to which it relates.

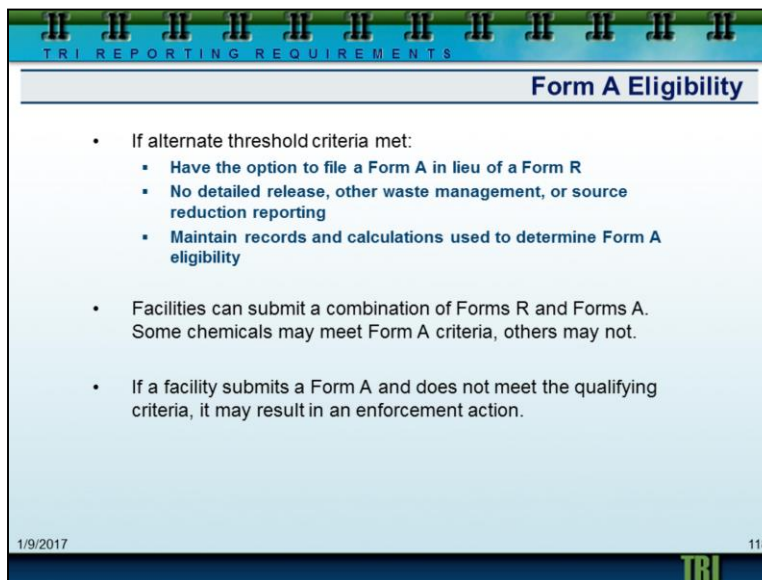
If you choose to enter an estimated annual reduction for source reduction activities, the reductions associated with your pollution prevention efforts will be featured on EPA’s website through the TRI Pollution Prevention Search Tool at www.epa.gov/tri/p2.

This section of the Form R allows facilities to provide any additional information on their source reduction, recycling, or pollution control activities to supplement their TRI report. The information may include activities from previous years. This section of the TRI Form is optional and is only for information related to source reduction, recycling and pollution control. Completing this section and the previous section provides an opportunity to publicly highlight any steps your facility took to reduce the amount of toxic chemicals entering the environment. Alternatively if your facility faces barriers inhibiting the implementation of pollution prevention, EPA encourages you to use this Section to describe these barriers. EPA has increased the prominence and accessibility of the pollution prevention information reported to TRI. Visit www.epa.gov/TRI/P2 to learn about tools to access this information and identify pollution prevention practices that may be applicable to your facility.

In Section 9.1, facilities can enter any other information related to the Form R submission. Possible examples to include are: changes in production, facility closures, staffing changes, and calculation methods. TRI-MEweb also allows you to use this section to provide explanations related to individual data quality alerts generated by the system.


When providing information in this section, TRI-MEweb provides boxes where you can check the topic that describes the type of information you're entering.





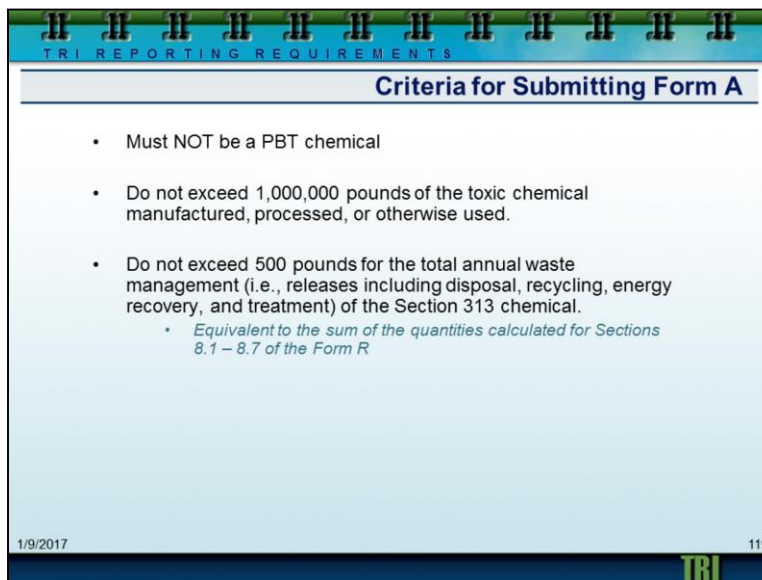
The slide is titled "TRI REPORTING REQUIREMENTS" at the top, with a decorative header featuring a row of stylized chemical structures. Below the title, the section "Form A Eligibility" is highlighted. The main content consists of a bulleted list of criteria for Form A eligibility. At the bottom left, the date "1/9/2017" is displayed, and at the bottom right, the TRI logo and the number "118" are visible.

- If alternate threshold criteria met:
 - Have the option to file a Form A in lieu of a Form R
 - No detailed release, other waste management, or source reduction reporting
 - Maintain records and calculations used to determine Form A eligibility
- Facilities can submit a combination of Forms R and Forms A. Some chemicals may meet Form A criteria, others may not.
- If a facility submits a Form A and does not meet the qualifying criteria, it may result in an enforcement action.

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If facilities meet the criteria, they have the option of submitting a TRI Form A in lieu of the Form R. The Form A does not require release or other waste management or source reduction information. It mainly is comprised of Part one of the Form R and the name and the CAS number of the chemical.

Determinations for eligibility must be made on a chemical-by-chemical basis and records of these determinations must be maintained. Facilities can submit a combination of TRI Forms R and A if they meet the criteria for submitting a Form A for some chemicals.



The image shows a slide titled "Criteria for Submitting Form A" under the heading "TRI REPORTING REQUIREMENTS". The slide lists three criteria for submitting Form A, each preceded by a bullet point. The first criterion is "Must NOT be a PBT chemical". The second criterion is "Do not exceed 1,000,000 pounds of the toxic chemical manufactured, processed, or otherwise used." The third criterion is "Do not exceed 500 pounds for the total annual waste management (i.e., releases including disposal, recycling, energy recovery, and treatment) of the Section 313 chemical." Below the third criterion, there is a sub-bullet point that reads "Equivalent to the sum of the quantities calculated for Sections 8.1 – 8.7 of the Form R". The slide has a blue header with the text "TRI REPORTING REQUIREMENTS" and a blue footer with the text "TRI". The date "1/9/2017" is in the bottom left corner and the number "119" is in the bottom right corner.

TRI REPORTING REQUIREMENTS

Criteria for Submitting Form A

- Must NOT be a PBT chemical
- Do not exceed 1,000,000 pounds of the toxic chemical manufactured, processed, or otherwise used.
- Do not exceed 500 pounds for the total annual waste management (i.e., releases including disposal, recycling, energy recovery, and treatment) of the Section 313 chemical.
 - *Equivalent to the sum of the quantities calculated for Sections 8.1 – 8.7 of the Form R*

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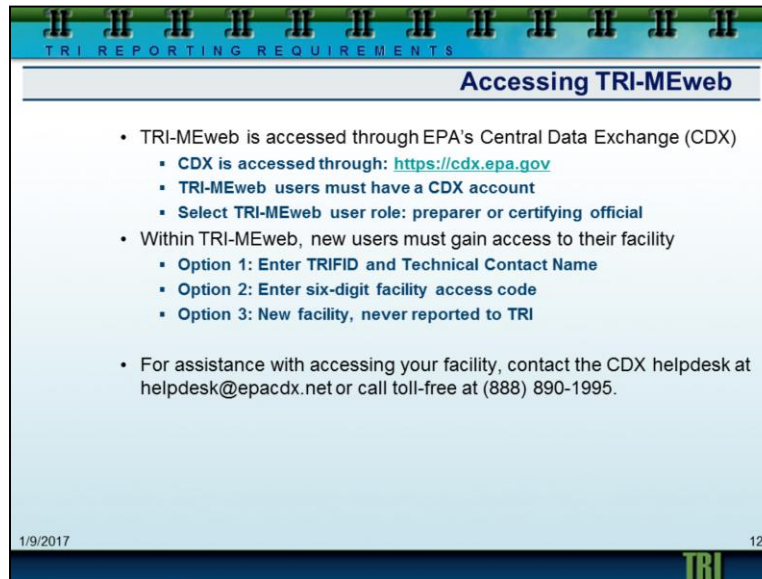
In order to use the Form A, a facility must meet the following criteria. First the chemical cannot be a PBT chemical. Second, the facility cannot exceed one million pounds of the chemical manufactured, processed, or otherwise used. Third, the facility cannot exceed 500 pounds for the total waste management of the TRI chemical. And by waste management, again, we mean the releases, recycling, energy recovery, and treatment of the TRI chemical.



The Electronic Reporting rule requires electronic reporting via TRI-MEweb for all non-trade secret TRI reporting, which accounts for nearly all forms submitted to TRI. Electronic reporting is now required for all new reporting, withdrawals or revisions for Reporting Years 1991 through the current year.

TRI-MEweb has features to help reporters with their submissions including pre-populating forms with information from prior year reporting, validation and error checking steps, and e-mail confirmation of transmitted and certified submissions. Additionally, tutorials to help users with TRI-MEweb are available on the TRI website.

Paper submissions should only be used for trade secret reporting. Information about trade secret reporting is available on the TRI website.

The slide is titled "TRI REPORTING REQUIREMENTS" at the top, with a decorative header featuring a row of stylized chemical structures. Below the title is a section header "Accessing TRI-MEweb". The main content consists of a bulleted list detailing how to access the system. The date "1/9/2017" is in the bottom left corner, and the number "122" is in the bottom right corner. A "TRI" logo is visible in the bottom right corner of the slide area.

TRI REPORTING REQUIREMENTS

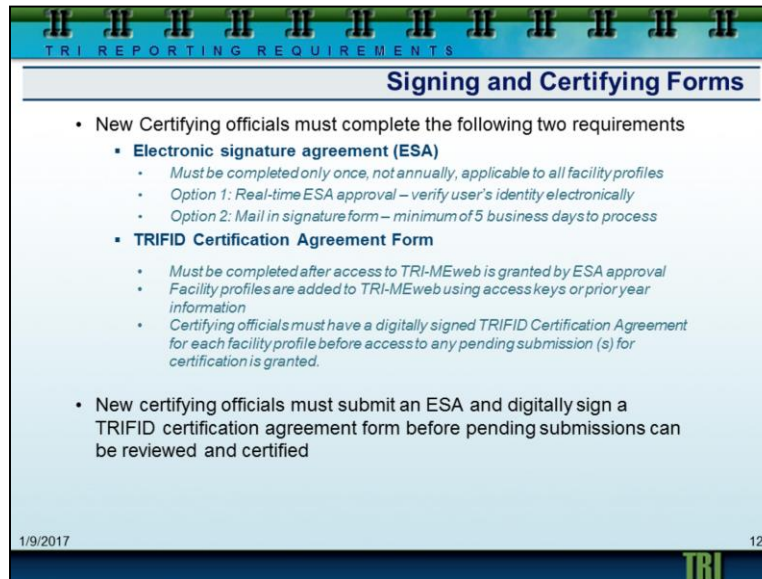
Accessing TRI-MEweb

- TRI-MEweb is accessed through EPA's Central Data Exchange (CDX)
 - CDX is accessed through: <https://cdx.epa.gov>
 - TRI-MEweb users must have a CDX account
 - Select TRI-MEweb user role: preparer or certifying official
- Within TRI-MEweb, new users must gain access to their facility
 - Option 1: Enter TRIFID and Technical Contact Name
 - Option 2: Enter six-digit facility access code
 - Option 3: New facility, never reported to TRI
- For assistance with accessing your facility, contact the CDX helpdesk at helpdesk@epacdx.net or call toll-free at (888) 890-1995.

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To begin using TRI-MEweb, you must register and log into EPA's Central Data Exchange, also known as CDX, which also hosts many other reporting applications for EPA programs. Users register either as a preparer or a certifying official. Preparers may perform every portion of the submission process except for the final electronic signature or certification step, which must be performed by a certifying official. The certifying official should be in senior management role for the reporting facility or company. Anyone representing the facility may be a preparer.

To begin reporting for a facility, all users must gain access to their facility's profile, using one of three options: the first option is to enter the TRI Facility ID and the facility's technical contact name and phone number. The second option is to enter a six-digit access key, which is provided to the technical contact. The third option is to begin a new profile for a facility that has never reported to TRI.

The slide is titled "TRI REPORTING REQUIREMENTS" at the top, with a decorative header featuring a row of stylized "H" characters. Below the title is a section header "Signing and Certifying Forms". The main content is a bulleted list of requirements for new certifying officials. The first bullet point states that new certifying officials must complete two requirements: an Electronic signature agreement (ESA) and a TRIFID Certification Agreement Form. The ESA section includes two options: real-time electronic approval or mail-in signature form. The TRIFID section includes requirements for completion after access to TRI-MEweb and the need for a digitally signed agreement. A final bullet point states that new certifying officials must submit an ESA and digitally sign a TRIFID certification agreement form before pending submissions can be reviewed and certified. The slide footer includes the date "1/9/2017" on the left and the page number "123" on the right, with a "TRI" logo in the bottom right corner.

TRI REPORTING REQUIREMENTS

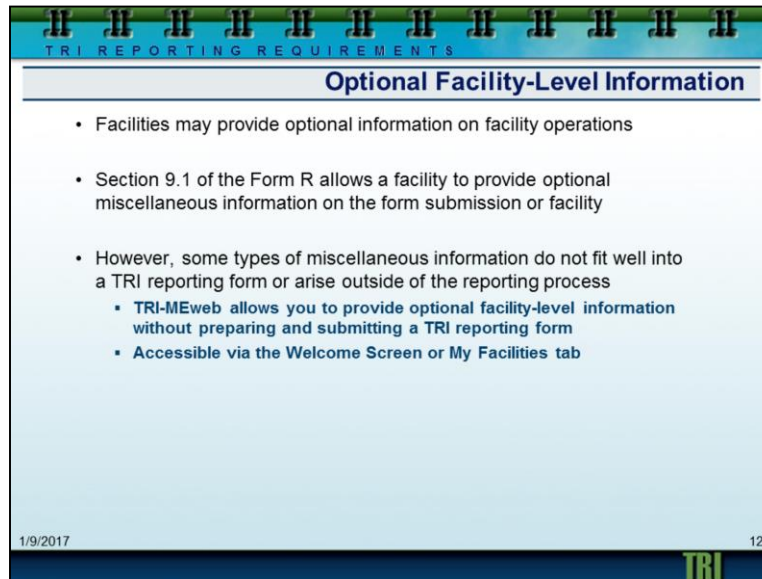
Signing and Certifying Forms

- New Certifying officials must complete the following two requirements
 - **Electronic signature agreement (ESA)**
 - *Must be completed only once, not annually, applicable to all facility profiles*
 - *Option 1: Real-time ESA approval – verify user's identity electronically*
 - *Option 2: Mail in signature form – minimum of 5 business days to process*
 - **TRIFID Certification Agreement Form**
 - *Must be completed after access to TRI-MEweb is granted by ESA approval*
 - *Facility profiles are added to TRI-MEweb using access keys or prior year information*
 - *Certifying officials must have a digitally signed TRIFID Certification Agreement for each facility profile before access to any pending submission (s) for certification is granted.*
- New certifying officials must submit an ESA and digitally sign a TRIFID certification agreement form before pending submissions can be reviewed and certified

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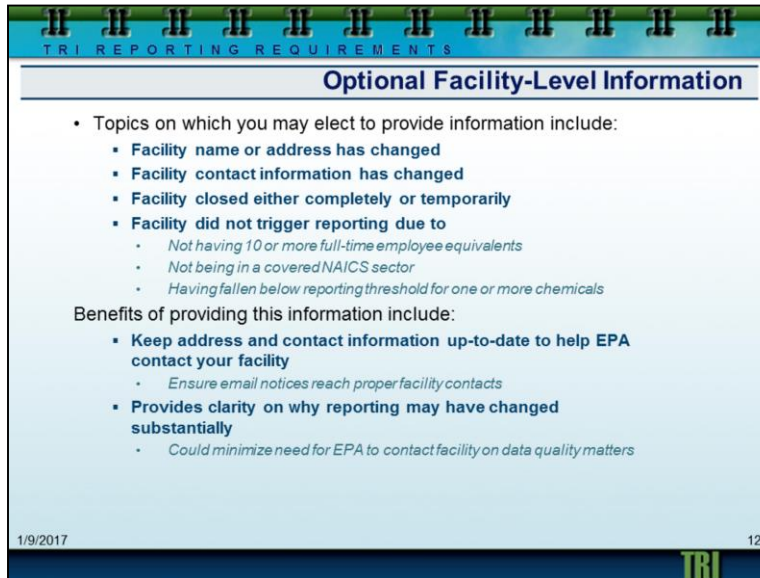
In order to certify forms, certifying officials must complete two steps. The first step is to complete an electronic signature agreement. The ESA is only submitted once as long the certifying official remains with the facility. Existing certifying officials do not resubmit an ESA. New certifying officials should complete their ESA well in advance of the July 1st filing deadline to ensure they will be able to certify forms on time.

After the ESA is submitted, certifying officials must complete an TRIFID Certification Agreement for each facility they represent, confirming they are authorized to certify forms for the facility. The TRIFID Certification Agreement is completed in TRI-MEweb in the 'Certification' section of TRI-MEweb. Similar to the ESA, the TRIFID Certification Agreement is only submitted once as long the certifying official remains with the facility.

The image is a presentation slide titled "Optional Facility-Level Information". At the top, there is a decorative header with a green background and a row of white icons resembling stylized buildings or trees. Below this, the text "TRI REPORTING REQUIREMENTS" is written in white. The main title "Optional Facility-Level Information" is centered in a blue box. The slide contains a bulleted list of information. The first bullet point states that facilities may provide optional information on facility operations. The second bullet point mentions that Section 9.1 of the Form R allows a facility to provide optional miscellaneous information on the form submission or facility. The third bullet point states that some types of miscellaneous information do not fit well into a TRI reporting form or arise outside of the reporting process. This third point has two sub-bullets: the first sub-bullet states that TRI-MEweb allows you to provide optional facility-level information without preparing and submitting a TRI reporting form, and the second sub-bullet states that this is accessible via the Welcome Screen or My Facilities tab. At the bottom left, the date "1/9/2017" is displayed. At the bottom right, the number "124" is displayed. The TRI logo is visible in the bottom right corner.

Reporters may submit optional facility-level information through TRI-MEweb. This option allows reporters to provide information about their facility's status without submitting a TRI report, or providing information which does not fit well into a TRI reporting form.

Optional Facility-Level reporting is found in TRI-MEweb through the facility summary in the welcome screen or in the 'My Facilities' tab.

The slide is titled "Optional Facility-Level Information" and is part of a presentation on TRI Reporting Requirements. It features a decorative header with a row of stylized chemical structures and the text "TRI REPORTING REQUIREMENTS". The content is organized into two main sections: "Topics on which you may elect to provide information include:" and "Benefits of providing this information include:". The first section lists four bullet points, with the last one having three sub-bullets. The second section lists two bullet points, with the last one having one sub-bullet. The slide includes a date "1/9/2017" in the bottom left and a page number "125" in the bottom right, with a "TRI" logo at the bottom center.

TRI REPORTING REQUIREMENTS

Optional Facility-Level Information

- Topics on which you may elect to provide information include:
 - Facility name or address has changed
 - Facility contact information has changed
 - Facility closed either completely or temporarily
 - Facility did not trigger reporting due to
 - Not having 10 or more full-time employee equivalents
 - Not being in a covered NAICS sector
 - Having fallen below reporting threshold for one or more chemicals

Benefits of providing this information include:

- Keep address and contact information up-to-date to help EPA contact your facility
 - Ensure email notices reach proper facility contacts
- Provides clarity on why reporting may have changed substantially
 - Could minimize need for EPA to contact facility on data quality matters

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Facilities may provide optional facility-level information on topics listed on this slide, as well as other categories. In particular, this option may be useful for facilities that do not meet reporting criteria and wish to provide context why they have not reported. Also, this option may be used for updating facility information, such as technical or public contact changes, or facility or parent company name changes.

The slide features a header with a green and blue background and a row of stylized 'H' icons. Below the header, the title 'For More Information and Assistance' is centered in a blue box. The main content area is light blue and contains a bulleted list of resources. The footer is dark blue with the date '1/9/2017' on the left, the number '126' on the right, and a large green 'TRI' logo in the bottom right corner.

TRI REPORTING REQUIREMENTS

For More Information and Assistance

- For more information on TRI requirements, see the second part of this training course on TRI Advanced Concepts.
- For TRI reporting guidance, information and tutorials on the TRI-MEweb reporting software, and the latest changes to the TRI Program please visit www.epa.gov/tri.
- Industry-specific and chemical-specific guidance can be found at: www.epa.gov/tri/guide_docs/index.htm
- For help accessing CDX accounts, password resets, accessing a facility, or completing an ESA, contact the CDX helpdesk: <https://cdx.epa.gov/Contact>

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This concludes the TRI Basic Concepts Module. The Advanced Concepts module is the second part of this two part training course.

The Advanced Concepts module assumes a basic understanding of the TRI program requirements. It reviews some of the basic concepts, but focuses on key concepts that will help to ensure accurate TRI reporting, including guidance on reporting exemptions, threshold determinations, chemicals with special requirements, and more on the recent changes to the TRI program.

The Advanced Concepts module, a great deal of additional TRI reporting guidance, and on-line tutorials for using the TRI-ME web can be accessed from the TRI homepage at www.epa.gov/tri.

For CDX and TRI-MEweb related help, including registering for CDX, password resets, accessing your facility profile in TRI-MEweb, or completing an ESA, please contact the CDX helpdesk.

