Counting Dangerous Waste

Under the *Dangerous Waste Regulations*

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Hazardous Waste and Toxics Reduction Program
Washington State Department of Ecology
Olympia, Washington

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Introduction

This document discusses "counting" dangerous waste described in the *Dangerous Waste Regulations*, Chapter 173-303 WAC. "Counting" refers to calculating the total weight of dangerous waste generated during a calendar month.

About this document

This document will help the reader understand when and how to count dangerous waste. It is not intended to replace state or federal regulations or to explain how to designate waste. It is not a "stand-alone" document and does not cover every possible situation. Because the counting regulations are complicated, the reader may wish to have a current copy of the *Dangerous Waste Regulations*.

Flow diagrams and a counting matrix have been included to help explain counting dangerous waste in the recycling and treatment process.

This document also includes a series of short "counting" discussions associated with the Domestic Sewage Exclusion (DSE), storage or accumulation, Treatment by Generator (TBG), Permit-by-Rule (PBR), the Multiple Counting Exclusion, and recycling in general.

Reasons to count dangerous waste

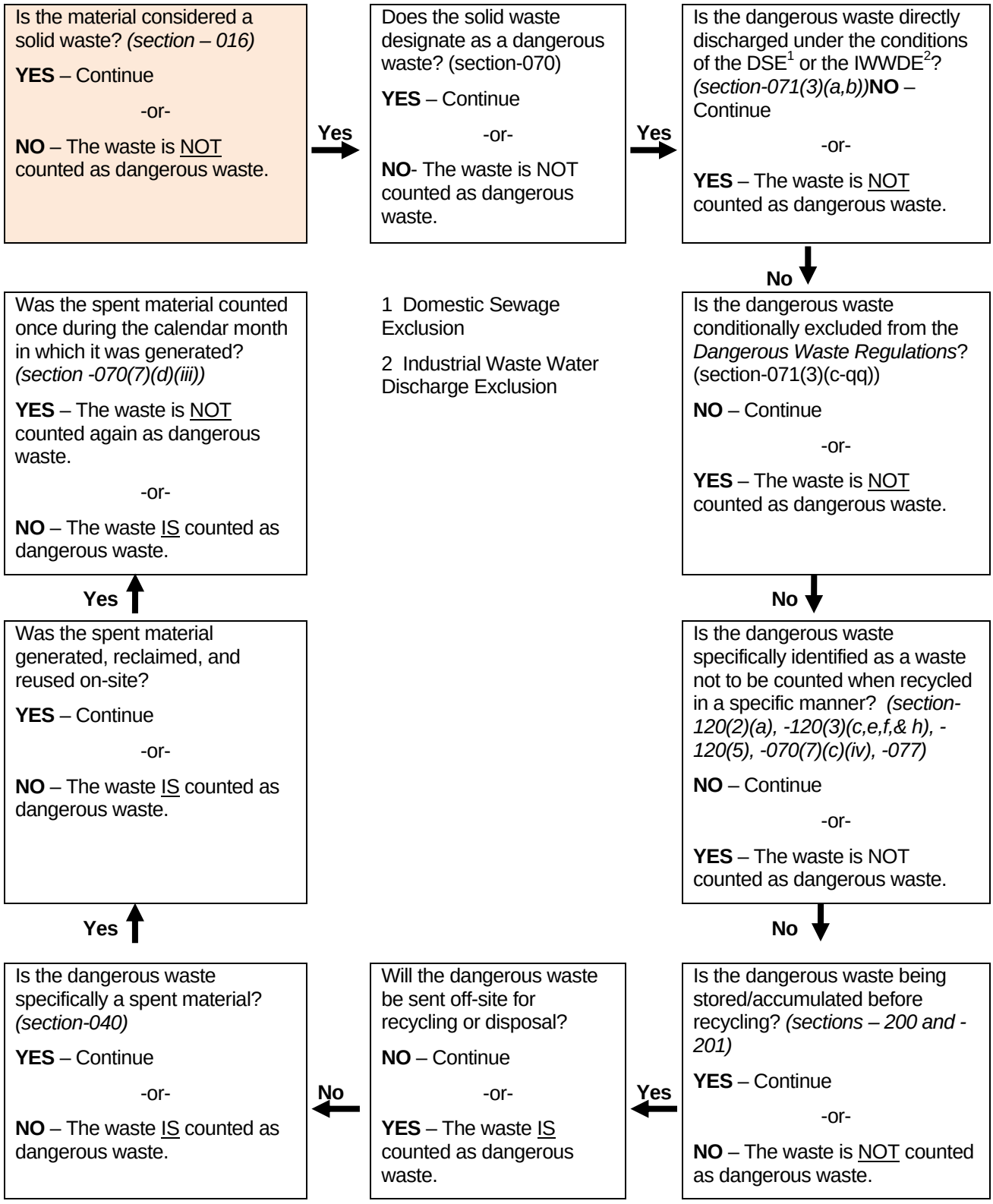
- To determine whether a business is a small, medium, or large quantity generator.
- To understand what is required in the Dangerous Waste Annual Report.
- To determine if a pollution prevention plan should be submitted. (Pollution prevention plan requirements outlined in Chapter 173-307 WAC are not covered in this paper.)

Counting frequency

Generators must count their dangerous waste each calendar month. Significant changes in the amount of dangerous waste counted can cause a change in the generator's status.

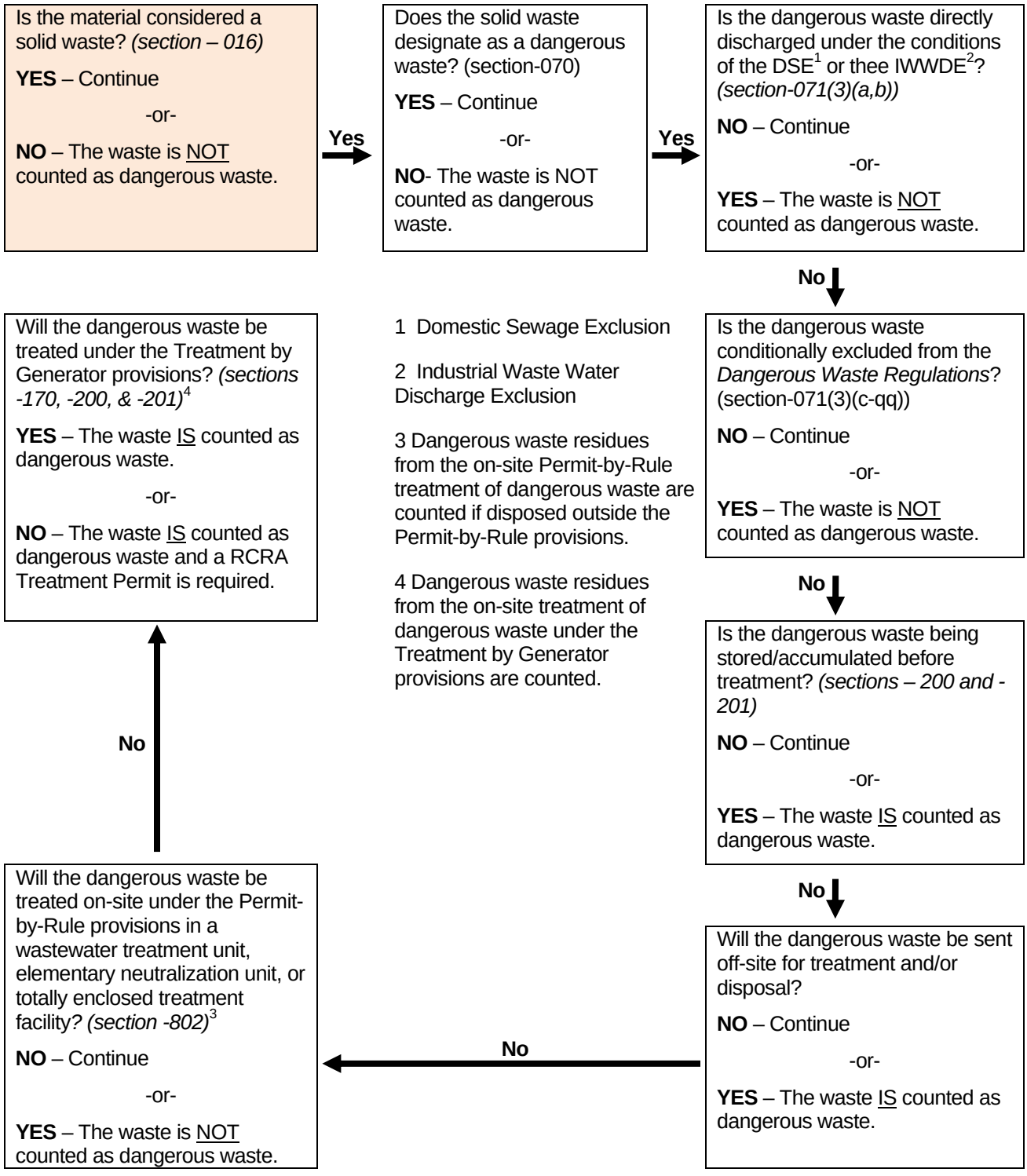
Flow Chart 1

Counting Dangerous Waste Involved in Recycling



Flow Chart 2

Counting Dangerous Waste Involved in Treatment



Counting Discussion 1

Counting and the Domestic Sewage Exclusion (DSE)

The Domestic Sewage Exclusion (DSE) allows dangerous waste to be discharged to a publicly-owned treatment works (POTW) only when such wastes are treatable at the POTW, and the discharger has a permit which authorizes the discharge of specific wastes described in the permit. The dangerous waste is excluded from reporting only after it enters the sanitary sewer system.

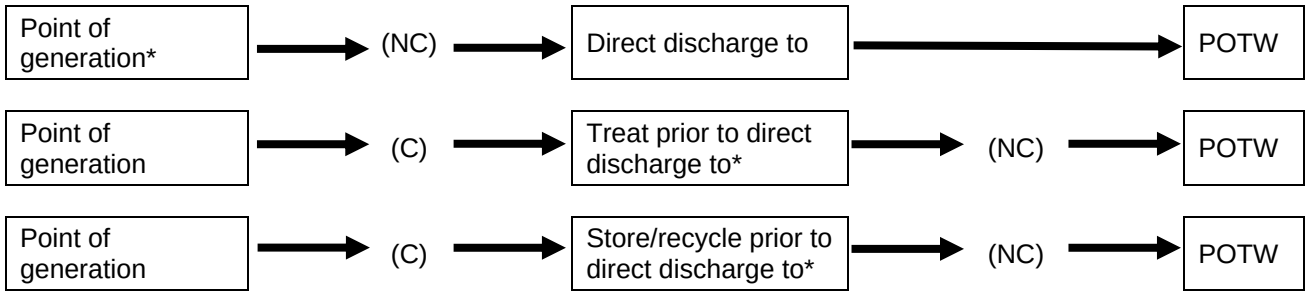
For additional guidance on the Domestic Sewage Exclusion, refer to Ecology's Technical Information Memorandum (TIM) entitled *Domestic Sewage Exclusion*, publication 94-136 and WAC 173-303-071(3)(a).

Dangerous waste counted under the DSE:
Dangerous waste is counted when it is stored, treated, or recycled before direct discharge.

Dangerous waste not counted under the DSE:
Dangerous waste mixed with domestic sewage is not counted when the waste is being directly discharged into the POTW system. (See the DSE exclusion at (WAC 173-303-071(3)(a)).

The following flow diagrams illustrate when counting is applicable under the DSE:

Diagram for Discussion 1



*Means when the Domestic Sewage Exclusion applies.
(C) Means dangerous waste is Counted.
(NC) Means dangerous waste is Not Counted.

Counting Discussion 2

Counting and Storage and/or Accumulation

Storage means the holding of dangerous waste for a temporary period. It is commonly subject to RCRA storage permit requirements. *Accumulation* of dangerous waste by the generator on the site of generation is not storage as long as the generator complies with the requirements of WAC 173-303-200 and 173-303-201.

For more guidance on storage and accumulation refer to Ecology publications:

- *Effective Date of the 90-Day Storage (Accumulation) Requirement*, TIM 82-5.
- *Satellite Accumulation*, 94-120.

Dangerous waste counted under the accumulation regulations

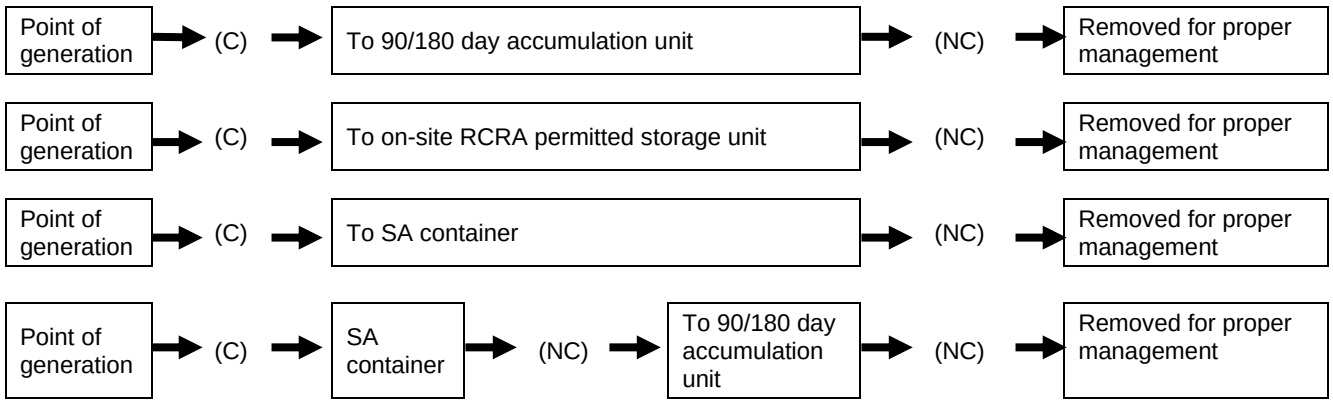
Dangerous waste is counted when generated, *prior* to storage or accumulation in the generator's 90 or 180-day accumulation area. Dangerous waste accumulated under the satellite accumulation (SA) provisions is also counted on a monthly basis. (See WAC 173-303-200 and flow chart number 2 on page 3).

Dangerous waste not counted under the accumulation regulations

It is not necessary to count the dangerous waste again when it is moved from satellite accumulation to the generator's 90 or 180-day accumulation area.

The following flow diagram illustrates when counting applies to storage or accumulation:

Diagram for Discussion 2



(C) Means dangerous waste is Counted.

(NC) Means dangerous waste is Not Counted.

Counting Discussion 3

Counting and Recycling / Excluded Wastes in General

As a general rule, dangerous wastes that are stored, disposed, treated, recycled, or manifested, are counted. However, in some circumstances, dangerous wastes need not be counted.

Wastes are not counted when they are:

- **Recycled following a specific type of management**

To *recycle* means to use, reuse, or reclaim a material. To *use* or *reuse* means to employ a material as an ingredient in an industrial process without first being reclaimed. Certain wastes are not counted toward the generator's status when recycled following specific types of management. Examples are used oil, spent CFC and HCFC refrigerants, spent lead acid batteries, used batteries, scrap metal, spent antifreeze, waste recycled without prior storage or accumulation (see Counting Discussion 4), and waste recycled under the "multiple counting exemption" (see Counting Discussion 5). Refer to WAC 173-303-070(7)(c & d) and Flow Chart 1.

- **Conditionally exempt**

Dangerous wastes may be managed so that they are not counted and are exempt from reporting. See WAC 173-303-017 (2 & 3) and Flow Chart 1 on page 2.

- **Conditionally excluded by a type of waste management.**

Some dangerous wastes are conditionally excluded from the *Dangerous Waste Regulations* and need not be counted. Specific terms must be met for a waste to be conditionally excluded.

Conditionally excluded materials are those that are not dangerous waste, regulated under the state and federal programs, or recycled in ways that do not threaten public health or the environment. Examples include treated wood waste, polychlorinated biphenyls (PCBs), waste generated in a product or raw material storage tank until removed, and waste reclaimed and reused in a closed loop system (see WAC 173-303-071 and Flow Chart 1 on page 2).

Note: There is no flow diagram to accompany this discussion.

Counting Discussion 4

Counting and Recycling Without Prior Accumulation or Storage

Without prior storage or accumulation means that as soon as the waste is generated it immediately enters the recycling unit. Under this counting exclusion recycling must come first, before storage or accumulation. The generator does not need to count dangerous waste entering the recycling unit. Wastes are allowed to be carried in containers, for example, only if the waste is transferred immediately upon generation to the recycling unit. For more detail refer to WAC 173-303-070(7)(c)(iv).

Dangerous waste with no prior storage or accumulation is counted

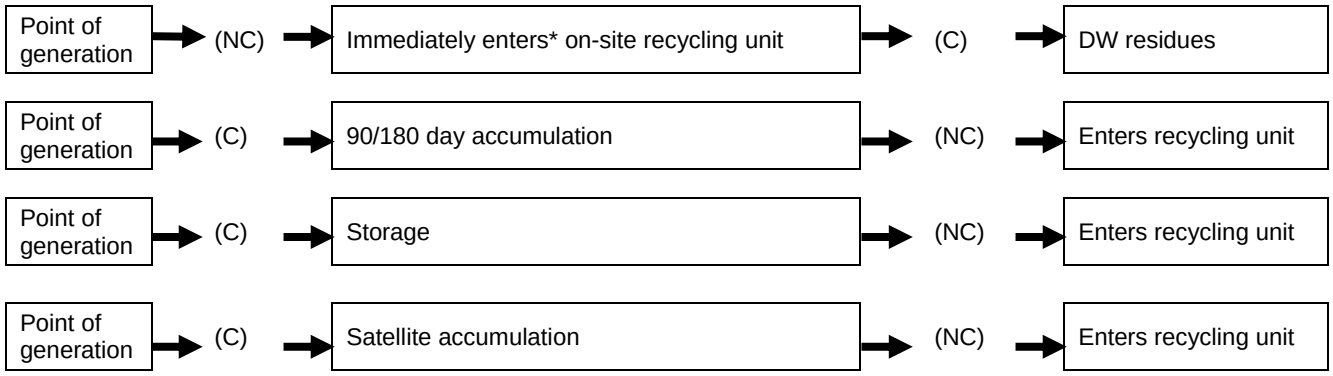
Dangerous waste residues generated from the recycling activity must be counted.

Dangerous waste without prior storage or accumulation is not counted

Dangerous waste that is not first stored or accumulated is not counted when it can be recycled on-site. This onsite recycling is subject to regulation under WAC 173-303-120(4)(a).

The following flow diagram illustrates when counting is applicable:

Diagram for Discussion 4



*"Immediately enters" means without first being stored or accumulated.

(C) Means dangerous waste is Counted.

(NC) Means dangerous waste is Not Counted.

Counting Discussion 5

Counting and the Multiple Counting Exemption

Businesses that store or accumulate spent solvents on-site before they are recycled must count them as dangerous waste. There are two reasons for counting these wastes:

1. To determine whether a generator is a small, medium, or large generator for that particular month.
2. To report the combined monthly total on the Dangerous Waste Annual Report. (See Counting Discussion 8).

The multiple counting exemption benefits generators by eliminating the recounting of solvents. Recycling more often increases the benefits from this exemption. Businesses that have reclaimed and reused solvents multiple times during the month have fewer regulatory requirements.

Spent materials generated, reclaimed, and reused on-site are counted only once per month, (WAC 173-303-070(7)(d)(iii)). Therefore, generators need not count every single batch of spent solvent that is distilled.

When are spent solvents counted?

Spent solvents should not be counted when there is no accumulation or storage. For example, if a still is hard-piped directly to a production process and the reclaimed solvent is returned to that process also by hard pipe, there has been no accumulation or storage and spent solvents are not counted.

Spent solvents must be counted when there is storage or accumulation. Solvents accumulated in one or more containers should be recorded on a Monthly Generator Status Form until the shop is ready to operate the still (see example of form on page 10). Each time a volume of spent solvents is accumulated before recycling, it must be recorded. At month's end, the largest amount recorded in Column 2 is the quantity of solvent waste to be counted.

*Note: Small quantity generators are not required to report this activity.

It is important to recognize that an accumulated quantity of spent solvent may be much larger than a single batch run through the still, depending on the size of still, volume of material, and recycling frequency. Two or more still runs may be required to process the total amount collected. Carefully keep track of each accumulated quantity of spent solvent to record the amount properly.

Each month the generator must count the largest amount of spent solvent accumulated prior to on-site recycling whether recycling has actually taken place or not. Spent

solvents accumulated and not recycled by the end of the month should be carried over into the next month.

In the new month, the solvent that has not been recycled is added to any additional spent solvents. The combined amount may be the largest amount accumulated in the second month. To avoid this larger count in the second month (of the material carried over from the previous month), the generator may consider recycling at the end of the month so that there would be no accumulated solvent to carry over into the following month. Most businesses find it is easier to recycle often and avoid counting these larger volumes.

Any spilled or mishandled waste must be counted in the generation report. In addition, dangerous waste residues (e.g. still bottoms) produced from the recycling process must also be counted. (Refer to page 2, Flow Chart 1).

When reporting, it is necessary to convert gallons to pounds. One method is to collect a representative gallon of waste and weigh it. Another method is to multiply the solvent's specific gravity by 8.34 (the weight of water in pounds) to convert gallons of spent solvent to a weight amount. Refer to the solvent's material safety and data sheet for its specific gravity.

Don't count lost solvent

During production and cleaning processes, solvents may be "lost" through evaporation or adherence to cleaned parts. These solvents should not be counted. Replenishing the lost solvent with virgin solvent should not be counted either.

Assess evaporative loss from still operation

Evaporative loss from operating the still should be counted. However, if a still is operating efficiently, this loss should be negligible and need not be reported. If the still is in poor condition, the facility should calculate evaporative loss for the month. This should be included as part of the total dangerous waste generated. Stills should be well maintained. For example, seals and gaskets should be replaced when needed.

Example

The following is an example meant to clarify this exemption using the accompanying generator status form and flow diagram. Keep in mind that this is only an example, and is not intended to cover every situation or counting method in relation to the "multiple counting exemption."

A fiberglass shop recycles acetone on-site. Spent solvent is accumulated and distilled three times during the month.

1. On January 10, the shop starts distilling 160 pounds of collected spent solvent (counting from January 1). It may or may not distill all 160 pounds in a single still run depending on the capacity of the still.

2. Meanwhile, the shop is starting to generate more spent solvent. It accumulates 150 pounds and starts distilling this amount on January 17.

3. Again, the shop generates and collects 180 pounds of solvent and on January 28 begins distilling this amount.

The quantity of spent solvent (not including still bottoms) reported for the month should be 180 pounds. This number is the largest amount of spent solvent accumulated prior to on-site recycling.

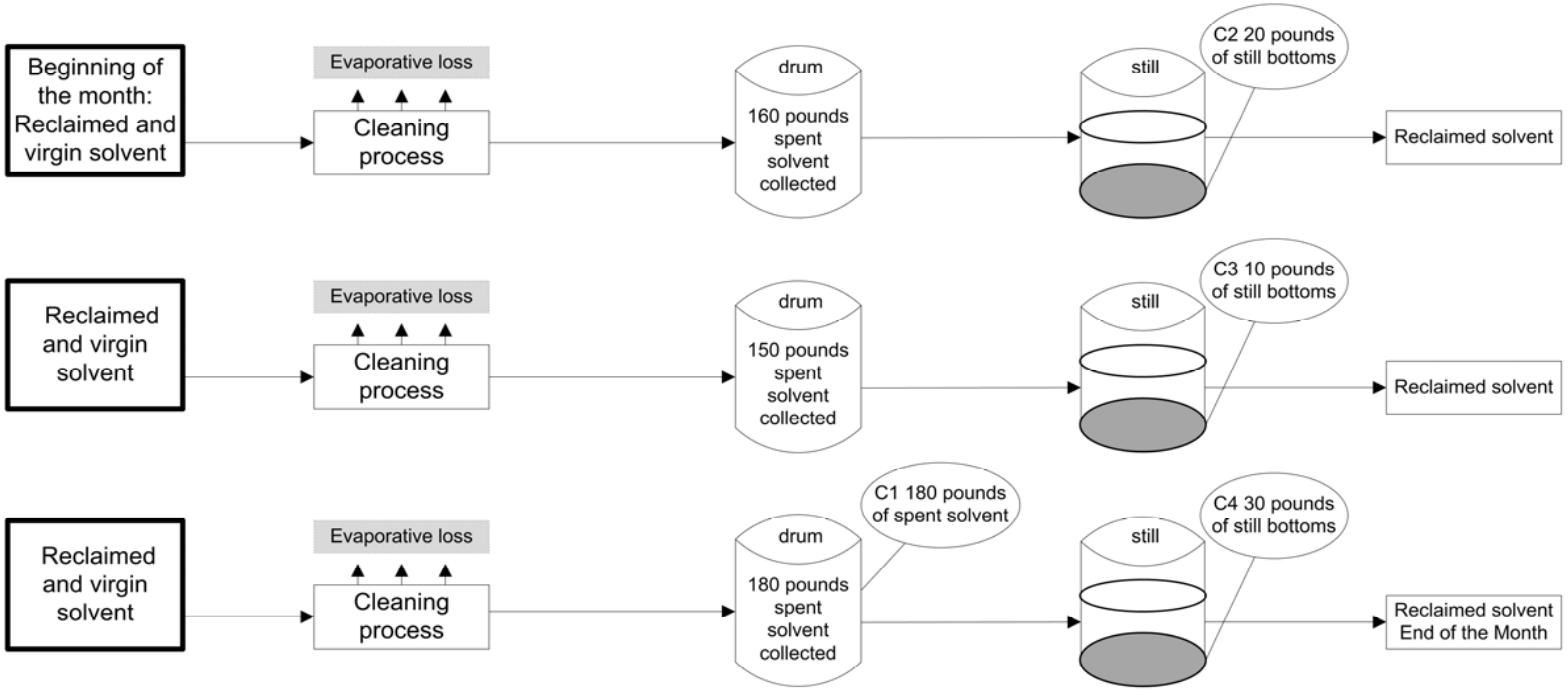
A monthly generator status form like the example below may be helpful for determining the monthly reportable quantity of spent solvent. However, its use is not required.

Monthly Generator Status Form

Column 1	Column 2	Column 3
Distillation Start Date	**Pounds collected prior to recycling**	**Pounds of still bottoms generated**
Jan. 10th	160	20
Jan. 17th	150	10
Jan. 28th	180	30
	Largest value = 180	Total = 60

Calculating solvent waste for January:
1) Largest number in column #2: 180
2) Total of column #3: 60
TOTAL: 240 = amount of solvent waste generated during January

Diagram 5: Example of the Multiple Counting Exemption for One Month's Activity



Monthly Counting of Dangerous Waste

C1	180 pounds spent solvent
C2	20 pounds still bottoms
C3	10 pounds still bottoms
C4	30 pounds still bottoms
Monthly Total	240 pounds of dangerous waste

Note 1: Without the multiple counting exemption, a generator would have counted 550 pounds instead of 240 pounds.

Note 2: In this example, evaporative loss from the still is zero, with inefficient stills this loss may need to be calculated and added to monthly dangerous waste total. (See text discussion.)

More Examples

Example 1
A small paint shop paints steel objects in their shop. The shop uses one five-gallon container to collect all the spent cleaning solvent. When the container is full, the spent solvent is transferred into a five-gallon still for recycling. This recycling process is repeated ten times during the month. Five gallons of spent solvent *converted to pounds* would be reported for the month, plus the total still bottoms from all ten still runs.

Example 2
A large auto body paint shop has three different painters each generating five gallons of spent solvent from paint mixing and clean-up activities. When each individual container is full, they combine them in a drum for a total of 15 gallons. The 15 gallons is then distilled, one batch at a time, in a still with a five gallon capacity. The generator should count 15 gallons on column two of the generator status form, not just the five gallons that ran through the still one time.

The paint shop continues to generate and accumulate 20 gallons of additional spent solvent for the rest of the month. The shop should count a total of 20 gallons spent solvent for the month, whether it was recycled or not. If this additional amount was not recycled on January 31, it should be counted again prior to the next recycling event.

Column 1	Column 2	Column 3
Distillation Start Date	**Gallons* collected prior to recycling**	**Pounds of still bottoms generated**
Jan. 15th	15	XX**
Jan. 31st	20	XX**
	Largest value = 20	

**For simplicity, numbers are in gallons. Remember to convert to pounds for reporting purposes.*
***Still bottoms are normally recorded, but are ignored in this example.*

Counting Discussion 6

Counting and Treatment by Generator

The Treatment by Generator (TBG) provisions allow generators to treat their own dangerous waste on-site without obtaining a Resource Conservation and Recovery Act (RCRA) treatment, storage, and disposal (TSD) treatment permit. For additional guidance, refer to Ecology's Technical Information Memorandum (TIM) #96-412, titled *Treatment by Generator* as well as WAC 173-303-170(3) and -200.

Dangerous waste counted under TBG

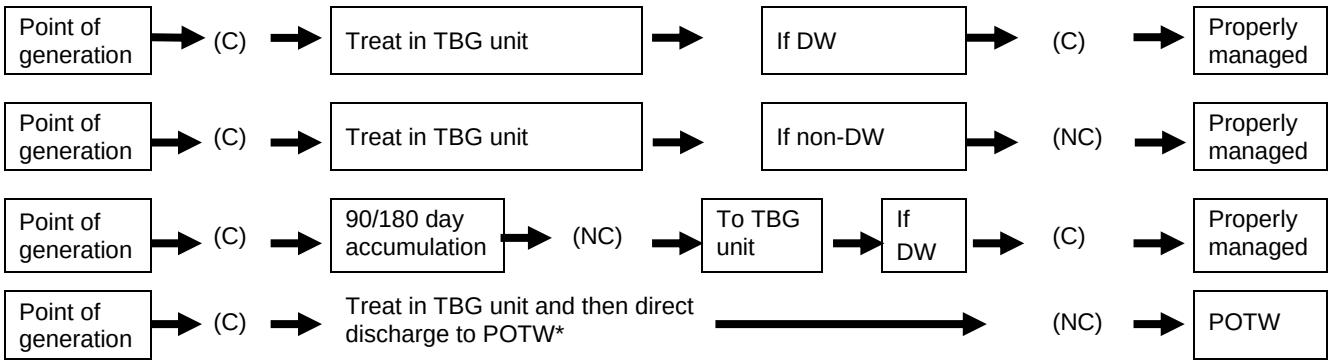
Under the TBG allowance, dangerous waste intended for treatment is counted toward the generator's status before it is treated (see Flow Chart 2 on page 3). A TBG activity is considered a separate activity from the production or cleaning process originally generating the dangerous waste. Therefore, dangerous waste generated from a TBG activity is also counted toward the generator's status.

Dangerous waste not counted under TBG:

TBG activity that does not designate as dangerous waste should not be counted. Also, dangerous wastes from TBG activities that are directly discharged into the POTW system in compliance with the domestic sewage exclusion (WAC 173-303-071(3)(a)) are not counted.

The following flow diagram illustrates when counting is applicable under the TBG provisions:

Diagram for Discussion 6



*Means when the Domestic Sewage Exclusion applies.

(C) Means dangerous waste is Counted.

(NC) Means dangerous waste is Not Counted.

Counting Discussion 7

Counting and Permit-by-Rule

The Permit-by-Rule (PBR) provisions allow on-site treatment of dangerous waste without a written RCRA TSD treatment permit, under certain conditions. For PBR provisions to apply, generators must treat their waste only in a wastewater treatment unit, elementary neutralization unit, or totally enclosed treatment unit. Details are outlined in Flow Chart 2, as well as in WAC 173-303-040 and -802(5).

Dangerous waste counted under PBR

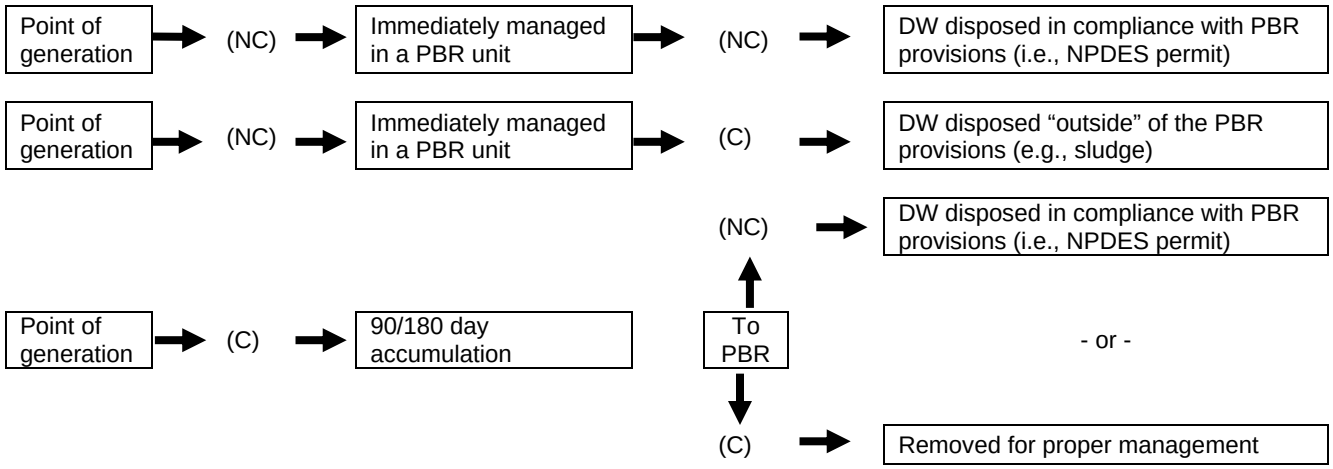
Dangerous waste removed from the PBR unit and no longer covered by the PBR provisions, such as sludge removed for land disposal, must be counted.

Dangerous waste not counted under PBR

Wastes managed immediately upon generation in an on-site PBR unit are not counted. The key term in this provision is "immediately." As soon as the waste is generated it must directly enter a PBR unit. There cannot be temporary storage, accumulation, or other type of management of waste between the point of generation and the PBR unit. Also, dangerous waste discharged in compliance with the PBR provisions, and wastes discharged in compliance with the unit's National Pollution Discharge Elimination System (NPDES) discharge permit, are not counted.

The following flow diagram illustrates when counting is applicable when treating waste under the PBR provisions:

Diagram for Discussion 7



(C) Means dangerous waste is Counted.

(NC) Means dangerous waste is Not Counted.

Counting Discussion 8

Counting and Annual Reporting Requirements

Counting dangerous waste is required for the Dangerous Waste Annual Report. All generators, transporters, TSDs, and recycling facilities with a RCRA Identification Number are required to complete the annual report for each calendar year in which their ID number is active.

A generator must count and record the amount of dangerous waste generated, accumulated, and recycled each month for the reporting year. The generator's reporting status is defined by the greatest quantity of dangerous waste generated or accumulated in any one calendar month.

The generator must know whether it is a small (SQG), medium (MQG), or large quantity generator (LQG) to know which forms to submit. For example, if a generator is an SQG for most of the year but becomes an MQG for one month, the generator would fill out the reporting forms for an MQG.

Dangerous Waste Annual Report Book

The *Dangerous Waste Annual Report Book, Forms, and Line-by-Line Instructions*, Ecology publication #03-04-018, is available to help the annual reporter select the correct reporting status and determine which forms to fill out.

Refer to the *Dangerous Waste Annual Report* instructions for further details.