

NON-TITLE V PERMIT APPLICATION INSTRUCTIONS CYCLONE DESCRIPTION FORM (APC 113)

This form should be completed for all new permit applications and all renewals where source conditions have changed since the previous application. This form should be used for all cyclone controlled processes instead of the more general Process or Fuel Burning Source Description form (APC 102), and the Emission Point Description form (APC 101). Complete a separate form for each cyclone capable of venting directly to the atmosphere. If the cyclone vent is capped and routed to some other control equipment such as a baghouse or scrubber, please use forms APC 101 and APC 102.

If any of the information requested is considered confidential, two application forms should be submitted, along with the Confidential Information Request form. One application form must be clearly marked to indicate that it contains confidential information, which is not to be made public and another application form, which does not contain the confidential information and can be placed in our general files. Emission data normally cannot be treated as confidential by the Division. Please contact the APC Division if there are any questions concerning confidentiality of information. The Confidential Information Request form can be found on the Division's website at: <http://tn.gov/environment/article/permit-air-other-information> .

The Tennessee Air Pollution Control Division prefers that application forms be submitted via email to the email address Air.Pollution.Control@TN.gov . All application forms should be scanned/combined into one PDF document and sent as an attachment to the email. If email is not available, then application forms can be mailed to the address on the form.

The items below give a brief explanation of the information being requested on the form. The following numbers refer to the specific box on the form:

1. The organization's legal name is the name under which the company is registered with the Tennessee Secretary of State (SOS). The organization's legal name and SOS control number can be found on the SOS website at <https://tnbear.tn.gov/Ecommerce/FilingSearch.aspx>. If the organization is not registered with the SOS, then the owner's name must be listed.
2. The Emission Source Reference Number(s) will be assigned by the Tennessee Air Pollution Control Division. It is an eight digit number in the following format NN-NNNN-NN.
3. The Cyclone Number should be a simple name/number/letter designated by the applicant which uniquely identifies the cyclone covered by the application. Examples of a Cyclone Number are Cyclone #1, Cyclone #2 Cyclone A, or Cyclone B. It will be used to identify the cyclone under consideration and to distinguish it from other possibly similar cyclones. If a facility diagram or process flow chart is required for any additional forms, the Cyclone Number should match the designations on the diagram or chart. It should be referenced on all future correspondence concerning the equipment in question. Once assigned, the Cyclone Number should not be changed. If a change is required, the reason for the change as well as the previous Cyclone Number and the new Cyclone Number should be well explained in Item 14.
4. Check "Yes" or "No" depending on whether the air contaminant source is subject to an NSPS rule (New Source Performance Standards) or NESHAP rule (National Emission Standard for Hazardous Air Pollutants). List the rule citation, including Part, Subpart, and applicable Sections. For example, a boiler may be subject to 40 CFR Part 60 Subpart Dc and sections §60.42c, §60.42c, §60.46c, §60.47c, and §60.48c.
5. Indicate by a check in the proper box if the process controlled by the cyclone is a continuous or batch type operation. If the process is batch type, indicate the length of time normally required to process one batch and the number of batches, or fraction thereof, normally processed per day of operation.

6. This is the list of materials that will be used to determine the process weight rate for this source. Input rates are total process rates, not only what goes to the cyclone, and should be determined as follows:
 - a. For continuous or long-run, steady-state operations, it is the material input weight for the entire period of continuous operation or for a typical portion thereof divided by the number of hours of such period or portion thereof.
 - b. For cyclical or batch type operation, it is the material input weight for a period which covers a complete or an integral number of cycles divided by the hours of actual process operation during such period.
 - c. All inputs should be listed separately; however, it is not expected or desired that extensive analysis be given for process inputs. Names such as rough lumber, limestone, or grain are adequate identifications.
 - d. The process flow diagram should clearly represent the process emission source covered by the application. All emission points within the source should be shown and identified. If a site has more than one process emission source, a flow diagram showing all of the process emission sources at the site should also be attached. The overall flow diagram need not be duplicated for subsequent process applications and need only be included once.
7. Specify the type of material such as sawdust, crushed grain etc. and the rate at which it is blown to the cyclone. Also indicate if the cyclone handles any fine material such as sanding dust or flour.
8. Refer to the cyclone diagrams and supply the requested information. Enter the body height, body diameter, cone height, and inlet dimension. Enter all of these values in feet and inches. Sketch the cyclone cap on the diagram on the application form. Check either yes or no, depending on whether air from the cyclone can be returned to the plant. If air can be returned to the plant, enter the number of days per year that air is returned to the plant.
9. Enter operating parameters relating to stack emissions. Enter the height (in feet) of the stack above grade. Enter the diameter (in feet) for circular stacks or the height and width (in feet) for rectangular stacks. Data for flow, velocity and moisture should be entered for both actual and standard conditions. Standard temperature is defined as 68°F for sources subject to New Source Performance Standards (NSPS), 60°F for sources subject to diffusion equation based emission standards, and 70°F for the rest of sources. Standard pressure is defined as 14.696 psia (1 atm). Dry conditions are defined as zero percent moisture.
10. Specify the disposition method of the collected material. Indicate whether or not there is an air lock on the cyclone.
11. Include a description and the operating parameters of any control devices. Examples include bag house pressure drop, scrubber flow rate and pH of flow, temperature of thermal oxidizer, how often fabric filters are changed, etc. Typically this information can be found in the operating manual for the control device. If the control device is covered by a federal regulation, it is acceptable to cite the applicable section(s) of the federal regulation.
10. Emission estimates for each pollutant emitted from this source should be based on stack sampling results or engineering calculations. In certain cases, other estimates may be accepted. Calculations should be attached on a separate sheet. Full details regarding the calculation method and emission factors used should be included. For example:
 - (1) If U.S. EPA's Compilation of Air Emission Factors (AP-42) is used, submit the version, chapter, table, equation, etc. AP-42 can be found on the U.S. EPA's website: <https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emission-factors> .

- (2) Attach sample calculations and fully explain any assumptions, bottlenecks, etc.
- (3) Submit any supporting information such as manufacturer's data or safety data sheets (SDS).
- (4) If the emissions are from a source test, provide details on the source test such as the date of the test, was the test approved by the Department, etc. If the source test was not approved by the Department, submit the test details and results.
- (5) If multiple fuels are used, use the worst case fuel to calculate emissions for each pollutant, and list the fuel in the calculation method details. Include the percent sulfur in the fuel and the BTU content of fuel, when appropriate.

Average emissions (lbs./hr.) should be representative of the following: (1) For continuous or long-run, steady-state, operations it is the total weight of pollutant emitted to the atmosphere for the entire period of continuous operation or for a typical portion thereof divided by the number of hours of such period or portion thereof; (2) for cyclical or batch type operation, it is the total weight of the pollutant emitted to the atmosphere for a period which covers a complete or an integral number of cycles divided by the hours of actual process operation during such periods.

Maximum emissions (lbs./hr.) should be determined by dividing the total highest emissions possible during any 3 hour period with control equipment working properly, by 3. This will be dependent upon such things, either singly or in combination, as maximum possible operating rate, a particular input material, product, or fuel which may result in increased emissions; periods of highest emissions for cyclical or batch type operations, etc. Concentrations should be determined for stack emissions only and should reflect average exit gas concentrations reported in the units specified on the form.

Average emissions (ton/yr) should be calculated by multiplying the average emissions (lb/hr) by the normal operating hours (hr/yr) and converting the units from pounds (lb) to tons.

Potential emissions (ton/yr) or "Potential to emit" means the maximum capacity of a source to emit an air contaminant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit an air contaminant, including air contaminant control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is "legally enforceable." Secondary emissions do not count in determining the "potential to emit" of a source.

Emission estimation method code and control device descriptions, along with corresponding codes, can be found on the last page of these instructions. The codes which most accurately describe the estimation methods and control equipment should be used; along with the estimated control equipment efficiency for each pollutant present. Any estimation methods of control devices other than those listed in the tables should be described in the comments section.

Some hazardous air pollutants (HAPs) are considered both a HAP and an organic compound. Include these HAPs when determining organic compound totals. If necessary, additional HAPs can be listed in the Other (specify) areas or attached as an additional sheet.

- 13.** Indicate which machines produce material routed to the cyclone by giving the number of machines and the approximate percent of cyclone operating time the machines are used.
- 14.** Use the comments space for further descriptions or other needed information that was not included previously or information on modifications.
- 15.** If this form is being submitted at the same time as an APC 100 form, then a signature is not required on this form. Date this form regardless of whether a signature is provided. If this form is NOT being submitted at

the same time as an APC 100 form, then a signature is required. Applications should be signed by the responsible person listed in Item 7 of the APC 100 form.

Table of Pollution Control Device and Method Codes

Note: For cyclones, settling chambers, wet scrubbers, and electrostatic precipitators; the efficiency ranges correspond to the following percentages:

High: 95-99+%. Medium: 80-95% And Low: Less than 80%.

If the system has several pieces of connected control equipment, indicate the sequence. For example: 008, 010. If none of the below codes fit, use 999 as a code for other and specify in the comments.

No Equipment	000	Gas Adsorption Column -- Packed	050
Activated Carbon Adsorption	048	Gas Adsorption Column – Tray Type.....	051
Afterburner – Direct Flame	021	Gas Scrubber (General: Not Classified)	013
Afterburner – Direct Flame with Heat Exchanger..	022	Limestone Injection – Dry.....	041
Afterburner – Catalytic	019	Limestone Injection – Wet	042
Afterburner – Catalytic with Heat Exchanger	020	Liquid Filtration System	049
Alkalized Alumina.....	040	Mist Eliminator – High Velocity	014
Cartridge Filter.....	070	Mist Eliminator – Low Velocity	015
Catalytic Oxidation – Flue Gas Desulfurization	039	Process Enclosed	054
Cyclone – High Efficiency.....	007	Process Gas Recovery	060
Cyclone – Medium Efficiency	008	Settling Chamber – High Efficiency	004
Cyclone – Low Efficiency	009	Settling Chamber – Medium Efficiency	005
Dust Suppression by Chemical Stabilizers or		Settling Chamber – Low Efficiency	006
Wetting Agents	062	Spray Tower (Gaseous Control Only).....	052
Electrostatic Precipitator – High Efficiency	010	Sulfuric Acid Plant – Contact Process.....	043
Electrostatic Precipitator – Medium Efficiency.....	011	Sulfuric Acid Plant – Double Contact Process	044
Electrostatic Precipitator – Low Efficiency	012	Vapor Recovery System (Including Condensers,	
Fabric Filter – High Temperature	016	Hooding and Other Enclosures)	047
Fabric Filter – Medium Temperature.....	017	Venturi Scrubber (Gaseous Control Only).....	053
Fabric Filter – Low Temperature	018	Wet Scrubber – High Efficiency.....	001
Fabric Filter – Metal Screens (Cotton Gins).....	059	Wet Scrubber – Medium Efficiency	002
Flaring	023	Wet Scrubber – Low Efficiency	003
		Wet Suppression by Water Sprays	061

Table of Emission Estimation Method Codes

Not applicable / Emissions are known to be zero	0
Emissions based on source testing	1
Emissions based on material balance using engineering expertise and knowledge of process.....	2
Emissions calculated using emission factors from EPA publications No. AP-42 Compilation of Air Pollution Emissions Factors	3
Judgment.....	4
Emissions calculated using a special emission factor different from that in AP-42	5
Other (Specify in comments).....	6