



**Massachusetts Department of Environmental Protection**

Bureau of Waste Prevention – Air Quality

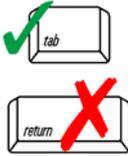
**BWP AQ Electrostatic Precipitator**

Submit with Form CPA-FUEL and/or CPA-PROCESS whenever construction, substantial reconstruction or alteration of an Electrostatic Precipitator is proposed unless exempt per 310 CMR 7.02(2)(b).

Transmittal Number \_\_\_\_\_

Facility ID (if known) \_\_\_\_\_

**Important:** When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



**A. Inlet Operating Conditions**

1. Complete the tables below with information on inlet gas flow(s).

Table 1a				
Emission Unit No(s). Being Controlled	Average Inlet Gas Flow (Actual Cubic Feet Per Minute)	Moisture Content in the Inlet (Pounds Per Minute)	Inlet Temperature (Degrees Fahrenheit (°F))	Inlet Velocity (Feet Per Second)

Table 1b					
Emission Unit No(s). Being Controlled	Is the Gas Stream Pre-Cooled?	Is the Gas Stream Conditioned?	If Conditioned, Briefly Explain	Is the Gas Stream Pre-Cleaned? <sup>1</sup>	If Pre-Cleaned, Briefly Explain
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	

<sup>1</sup> You may be required to submit an additional supplemental form if you operate pre-cleaner equipment. Contact the appropriate MassDEP regional office for guidance.

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### A. Inlet Operating Conditions (continued)

Table 1c			
Particle Size	Particulate Concentration Before Control (Grains Per Actual Cubic Foot)	Particulate Emission Rate Before Control (Pounds Per Hour)	Total Weight Percent (%) Before Control
≤ 2.5 Microns			
> 2.5 Microns & ≤10 Microns			
> 10 Microns			

### B. Specifications

- Manufacturer of Electrostatic Precipitator: \_\_\_\_\_  
Company \_\_\_\_\_
- Model Number (or Equivalent): \_\_\_\_\_  
Number \_\_\_\_\_
- Type of unit :  Wet  Dry – If Dry, Skip to 4  
 a. Method of wash water introduction:  Injected  Sprayed  
 b. Interval of wash water injection/spraying:  Continuous  Timed – Frequency: \_\_\_\_\_  
 Include Units  
 c. Flow rate of wash water: \_\_\_\_\_  
 Gallons Per Minute  
 d. Is the wash water re-circulated?  Yes – Makeup Rate: \_\_\_\_\_  No  
 Gallons Per Minute  
 at \_\_\_\_\_  
 Actual Cubic Feet Per Minute Degrees Fahrenheit (°F)  
 Degrees Fahrenheit (°F)  
 Inches of Water  
 Single Stage  Two Stage
- Capacity of the Unit: \_\_\_\_\_
- Outlet temperature: \_\_\_\_\_  
Degrees Fahrenheit (°F)
- Pressure drop across the unit: \_\_\_\_\_  
Inches of Water
- Number of stages:  Single Stage  Two Stage
- Residence time of gases in collection zone: \_\_\_\_\_  
Seconds
- Number of fields: \_\_\_\_\_  
Number
- Size of each field: \_\_\_\_\_  
Include Units
- Field efficiency: \_\_\_\_\_  
Percent Each Field
- Aspect ratio: \_\_\_\_\_  
Number
- Superficial velocity: \_\_\_\_\_  
Feet Per Second



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B. Specifications (continued)

- 14. Does the unit use plates?  Yes – Provide Dimensions Below  No – Skip to 15
  - a. Height of plate: \_\_\_\_\_  
Feet
  - b. Length of plate: \_\_\_\_\_  
Feet
  - c. Thickness of plate: \_\_\_\_\_  
Feet
  - d. Number of plates: \_\_\_\_\_  
Number
  - e. Spacing between plates: \_\_\_\_\_  
Feet
  
- 15. Does the unit use tubes?  Yes – Provide Dimensions Below  No – Skip to 16
  - a. Height of tube: \_\_\_\_\_  
Feet
  - b. Inside diameter of tube: \_\_\_\_\_  
Feet
  - c. Outside diameter of tube: \_\_\_\_\_  
Feet
  - d. Number of tubes: \_\_\_\_\_  
Number
  - e. Spacing between tubes: \_\_\_\_\_  
Feet
  
- 16. Particulate resistivity: \_\_\_\_\_  
Ohm-cm
  
- 17. Specific collecting area: \_\_\_\_\_ at \_\_\_\_\_  
Square Feet Per 1,000 Actual Cubic Feet Per Minute °F
  
- 18. Describe the method used to clean the electrodes:  
\_\_\_\_\_  
\_\_\_\_\_
  
- 19. Describe the electrode cleaning cycle (including units):  
\_\_\_\_\_  
\_\_\_\_\_
  
- 20. Type of rapper used: \_\_\_\_\_  
Description
  
- 21. Total time per cleaning sequence: \_\_\_\_\_  
Seconds
  
- 22. Specific corona power: \_\_\_\_\_  
Include Units
  
- 23. Type of insulators used: \_\_\_\_\_  
Description



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### C. Description of Power Requirements

1. Type of Unit:  Single-Stage (Complete 2)  Two-Stage (Complete 3)

2. Describe the power requirements of the single-stage unit:

\_\_\_\_\_

\_\_\_\_\_

a. Power applied:

Watts Per 1,000 Actual Cubic Feet Per Minute

b. Voltage applied:

Kilovolts

3. Describe the power requirements of the two-stage unit:

\_\_\_\_\_

\_\_\_\_\_

a. Power applied:

Watts Per 1,000 Actual Cubic Feet Per Minute

b. Ionizer voltage applied:

Kilovolts

c. Number of ionizer banks:

Number

d. Collector voltage:

Kilovolts

4. Describe the discharge electrode:

\_\_\_\_\_

\_\_\_\_\_

a. Length of wire used:

Include Units

b. Type of wire used:

Weighted  Rigid  Electrode

c. Is the wire shrouded?

Yes  No

### D. Emissions Data

1. Describe the particulate matter emissions after control by the proposed Electrostatic Precipitator:

a. Overall particulate matter concentration after control:

Grains Per Actual Cubic Foot

b. Overall particulate matter emission rate after control:

Pounds Per Hour

c. Overall particulate matter collection efficiency:

Weight Percent



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**D. Emissions Data** (continued)

2. Explain how the above particulate matter emissions data were obtained. Attach appropriate calculations and documentation.

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**E. Drawing of Electrostatic Precipitator Control System**

You must attach to this form a schematic drawing of the proposed Electrostatic Precipitator and any pre-cleaner. At a minimum, it must show the stack, sampling ports for emissions testing, and the location of each pressure and temperature indicator.

**F. Monitoring, Record Keeping & Failure Notification**

**Note:** You must notify the BWP Compliance & Enforcement Chief in the appropriate MassDEP regional office by telephone as soon as possible, within but no later than one (1) business day after you discover any upset or malfunction to facility equipment that results in excess emissions to the air and/or a condition of air pollution. You must submit written notice within seven (7) days thereafter.

1. Describe the parameters that will be monitored as a surrogate for control device efficiency, and the frequency of monitoring. Continue on a separate attachment, if necessary.  

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2. Describe the monitoring methods and warning/alarm system that protect against operation when the unit is not meeting design efficiency (e.g. visual monitoring, audible alarm, flashing lights, time indicator, pressure indicator). Continue on a separate attachment, if necessary.  

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3. Describe the record keeping procedures to be used to verify monitoring and to identify the cause, duration and resolution of each failure. Continue on a separate attachment, if necessary.  

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4. Describe how failure of the Electrostatic Precipitator will be made known to the operator during normal operations (e.g. visual monitoring, audible alarm, flashing lights, time indicator, pressure indicator). Continue on a separate attachment, if necessary.  

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**F. Monitoring, Record Keeping & Failure Notification** (continued)

5. List and explain all operating and safety controls associated with this system, including interlock systems that prevent introduction of the air contaminant(s) stream until the Electrostatic Precipitator is operating properly. Continue on a separate attachment, if necessary.

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6. Describe the Electrostatic Precipitator's emergency procedures during system upsets. Continue on a separate attachment, if necessary.

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7. Describe features of the system design and operation that will allow for emissions testing using MassDEP-sanctioned test methods. Continue on a separate attachment, if necessary.

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**G. Standard Operating & Maintenance Procedures**

Attach to this Form the standard operating and maintenance procedures for the proposed Electrostatic Precipitator, as well as a list of the spare parts inventory that you will maintain on site, as recommended by the equipment vendor(s).

Continue to Next Page ►

**H. Professional Engineer's Stamp**

The seal or stamp and signature of a Massachusetts Registered Professional Engineer (P.E.) must be entered below. Both the seal or stamp impression and the P.E. signature must be original. This is to certify that the information contained in this Form has been checked for accuracy, and that the design represents good air pollution control engineering practice.



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\_\_\_\_\_  
P.E. Name (Type or Print)

\_\_\_\_\_  
P.E. Signature

\_\_\_\_\_  
Position/Title

\_\_\_\_\_  
Company

\_\_\_\_\_  
Date (MM/DD/YYYY)

\_\_\_\_\_  
P.E. Number

Place P.E. Seal or Stamp Here.

### I. Certification by Responsible Official

The signature below provides the affirmative demonstration pursuant to 310 CMR 7.02(5)(c)8 that any facility(ies) in Massachusetts, owned or operated by the proponent for this project (or by an entity controlling, controlled by or under common control with such proponent) that is subject to 310 CMR 7.00, et seq., is in compliance with, or on a MassDEP approved compliance schedule to meet, all provisions of 310 CMR 7.00, et seq., and any plan approval, order, notice of noncompliance or permit issued thereunder. This Form must be signed by a Responsible Official working at the location of the proposed new or modified facility. Even if an agent has been designated to fill out this Form, the Responsible Official must sign it. (Refer to the definition given in 310 CMR 7.00.)

**I certify that I have personally examined the foregoing and am familiar with the information contained in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including possible fines and imprisonment.**

\_\_\_\_\_  
Responsible Official Name (Type or Print)

\_\_\_\_\_  
Responsible Official Signature

\_\_\_\_\_  
Responsible Official Title

\_\_\_\_\_  
Responsible Official Company/Organization Name

\_\_\_\_\_  
Date (MM/DD/YYYY)

This Space Reserved for  
MassDEP Approval Stamp.