Reporting Emissions from Crematories

Emissions Inventory Help Sheet

Maricopa County Air Quality Department
December 2020
What to Report
Crematories must report emissions of particulate matter (PM) primary, PM$_{10}$ primary, PM$_{2.5}$ primary, carbon monoxide, nitrogen oxides, sulfur dioxide, volatile organic compounds (VOCs), ammonia, and hazardous air pollutants from cremation.

PM primary refers to all particulate matter emissions (filterable and condensable) from an emissions process. PM$_{10}$ primary refers to all PM primary that measures less than 10 microns in diameter. PM$_{2.5}$ primary refers to all PM primary that measures less than 2.5 microns in diameter. PM$_{10}$ primary and PM$_{2.5}$ primary are both subsets of PM primary.

How to Report
This help sheet shows emissions inventory preparers how to accurately report crematory emissions in the AQD Online Portal. First, preparers will use the “Task-Facility Inventory Change” tab to structure the emission units, processes, control equipment, and release points. Then, preparers will use the “Task-Emissions Inventory” tab to enter the operating schedule, throughput, and emissions factors for each process.

Task – Facility Inventory Change
Step 1
Click on the Task-Facility Inventory Change tab at the top of the page.

Step 2
Emission Units
There should be one “Incinerator (INC)” emission unit for each retort at the facility.

If these emission units are not in the facility inventory tree, click on the Facility ID at the top of the Facility Inventory Tree on the left side of the page. Click Create Emission Unit at the bottom of the page.
Select **Incinerator** as the Emission Unit Type. Complete the required Emission Unit Information and click **Save**.

The **initial construction commencement date** is the date when construction or installation of the emission unit began.

The **initial operation commencement date** is the date when the facility began operating the emission unit.
Step 3  

Emissions Processes  
Each retort must have an emissions process depending on the type of cremation process that occurs in the retort. Use the following source classification codes, as applicable:

- 31502103 – Human cremation  
- 31502104 – Animal cremation  

If the emission units do not have a cremation emissions process attached, click on the Emission Unit ID (INC004) in the Facility Inventory Tree on the left side of the screen. Click Create Emissions Process at the bottom of the screen.
Enter the **Company Process Description** and the applicable **Source Classification Code** and click Save.

**Step 4**
**Control Equipment**
It is not necessary to associate control equipment with a cremation emission unit. All retorts have secondary chambers (afterburners) built in, so the afterburners are not considered “add on” control equipment.

**Step 5**
**Release points**
Create a release point for each stack at the facility. Click on the first cremation emissions process that is attached to the incinerator emission unit (**PRC016**) and click **Create and Associate Release Point**.
Select the Release Point Type (usually Vertical), enter the release point information, and click **Save**. Stack parameters that are needed to create the release point can be found in the performance test report.

The facility inventory tree should now contain one emission unit (INC) for each retort at the facility. Each emission unit (INC) should have a cremation emissions process (PRC) and a release point (VER) attached.
Step 6
Validate Facility Inventory Changes
Once you have finished adding emissions units, processes and control devices, you must validate the “Task – Facility Inventory Change.” Click on the Facility ID at the top of the Facility Inventory Tree. Click Validate at the bottom of the Facility Information screen.

If there are errors that need to be corrected, a pop-up window will appear. Click on the error message to be directed to the screen that contains the error that must be corrected. Correct all errors and repeat Step 5 to validate the facility inventory changes.
**Task – Emissions Inventory for Reporting Year**

**Step 1**
Click on the **Task-Emissions Inventory** tab at the top of the page.

**Step 2**
**Click Exclude/Include Emission Units**
Most facilities do not track which bodies are cremated in each retort. As a result, most facilities will report all of their cremation emissions on one emission unit. When all cremation emissions are reported under one emission unit, report the emissions under the emission unit that was most recently performance tested.

Next to the emission unit that was most recently performance tested, click the box in the **Detailed Emissions** column. For all the other INC emission units, select **Reported Under Another EU** in the **Exclude Detailed Emissions Reporting** column. In the drop down, select the emission unit that is marked as Detailed Emissions.

The example below shows a facility with six retorts, where INC002 was tested most recently. All of the emissions will be reported under INC002.
Step 3
Select the emissions process attached to the INC emission unit (PRC001) and click Edit Material/Schedule/Seasons.

1. Enter the maximum number of hours per day, maximum number of days per week, and the number of weeks per year the crematory operated.
2. Enter the annual hours of operation for the retorts during the calendar year.
3. Under throughput, enter to the total tons of remains cremated in all of the retorts combined.
4. Enter the percentage of remains that were cremated during each season:
   a. Winter = January, February, and December
   b. Spring = March, April, and May
   c. Summer = June, July, and August
   d. Fall = September, October, and November
5. Click Save.
Step 4
Click **Edit Emissions** at the bottom of the screen. Report emissions of all eight criteria air pollutants.

1. Report particulate matter emissions using the method **Time-based Factor – Stack Test**. Use the same method, hours uncontrolled, uncontrolled emissions factor, and time-based factor for all three categories of particulate matter (PM primary, PM₁₀ primary, and PM₂.₅ primary).
   
a. Uncontrolled emissions factor = 5.92 lb/ton¹
   
b. Time-based factor (lbs/hour) - refer to the MCAQD determination letter from your most recent performance test.

2. Report emissions of other criteria air pollutants using the method **Throughput-based Factor** and the following uncontrolled emissions factors¹ (which will auto populate in the AQD Online Portal):
   
   - Carbon monoxide = 0.6 lb/ton
   - Nitrogen oxides = 11 lb/ton
   - Sulfur dioxide = 1.4 lb/ton
   - Volatile organic compounds = 0.2 lb/ton
   - Ammonia = 0 lb/ton

3. Enter **Hours Uncontrolled** – this should be equal to actual hours for all criteria air pollutants.

4. Click **Save**. The AQD Online Portal will calculate emissions of each pollutant based on the reported throughput and the emissions factors provided.

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¹ Reference: MCAQD, 2016. Technical Support Document for the General Permit to Operate and/or Construct a Crematory, Revision 0.0.0.0.
Step 5
Refer to other process specific help sheets or the Emissions Inventory Instructions to report emissions from other types of processes at the facility. When emissions have been reported for each process, refer to Task 5 on page 26 of the Emissions Inventory Instructions to validate and submit the emissions inventory. The process specific help sheets and the Emissions Inventory Instructions are available at maricopa.gov/5628.

Example
Emissions from cremation

Questions
If you have questions or are experiencing issues with the AQD Online Portal, please contact 602-506-6790 or EmissionsInventory@maricopa.gov. Please provide a brief explanation of the question or problem you are encountering and include a screenshot if contacting us via email. If you are encountering errors or malfunctions in the portal, include the following information in your message: the date and time when the error occurred, the browser you were using when the error occurred, and the type of device you were using when the error occurred (i.e., computer, tablet, phone, etc.).
**Additional Resources**

How to create a Shared CROMERR Services (SCS) electronic signature to access the AQD Online Portal: maricopa.gov/DocumentCenter/View/56270

Emissions inventory instructions and other process specific help sheets: maricopa.gov/5628

Instructions for permit applications, compliance reports, asbestos notifications, performance test protocols, and other documents that can be submitted through the AQD Online portal: maricopa.gov/1820