Maricopa County Air Quality Department
Phone: 602-506-6790
Email: EmissionsInventory@maricopa.gov
Maricopa.gov/AQ

Reporting Emissions from Vehicles on Unpaved Roads

Emissions Inventory Help Sheet

Maricopa County Air Quality Department

December 2020

What to Report

Facilities with unpaved roads must report particulate matter (PM) primary and PM_{10} primary emissions from vehicle travel on unpaved roads in an emission inventory report.

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_{10} primary is a subset of PM primary.

How to Report

This help sheet shows emissions inventory preparers how to accurately report emissions from vehicles on unpaved roads in the AQD Online Portal. First, preparers will use the "Task-Facility Inventory Change" tab to structure the emission units, processes, and control equipment. 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.

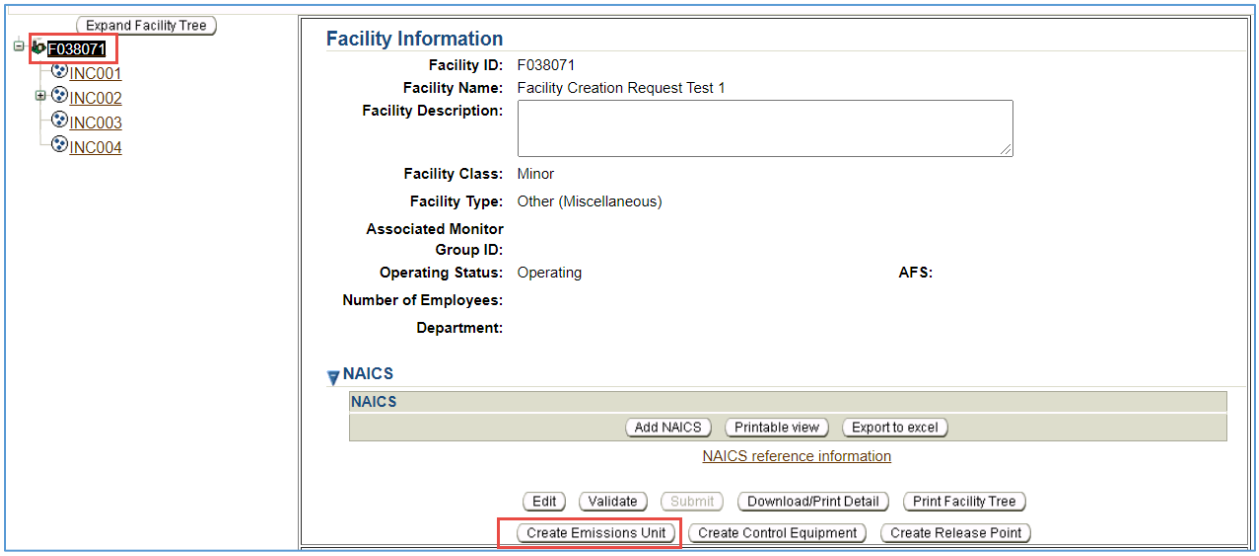
Step 2

Emission Units

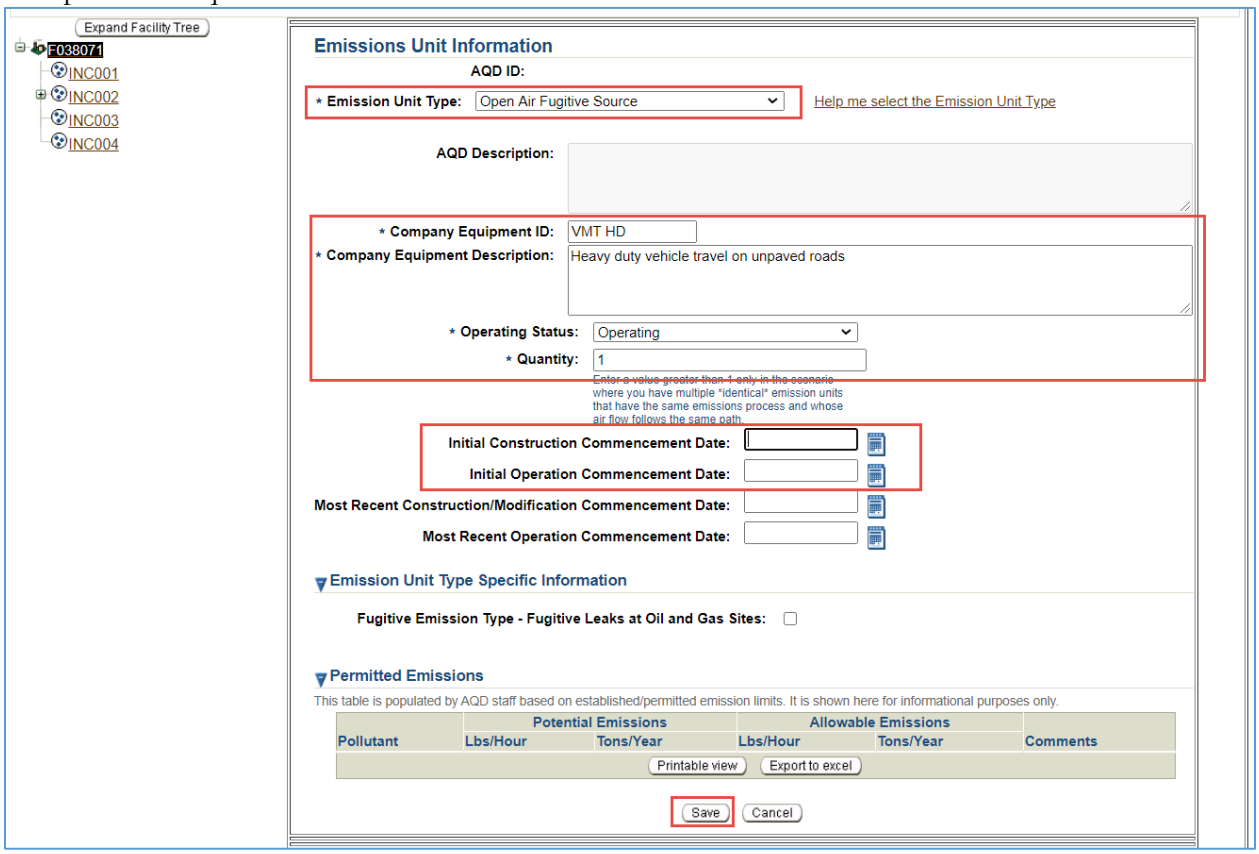
There should be one Open Air Fugitive Source (FUG) emission unit for each class of vehicle that travels on unpaved roads at the facility. Include the following text in the company equipment description:

- Heavy duty vehicle travel on unpaved roads
- Medium duty vehicle travel on unpaved roads
- Light duty vehicle travel on unpaved roads

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.



Complete the required Emission Unit Information and click **Save**.

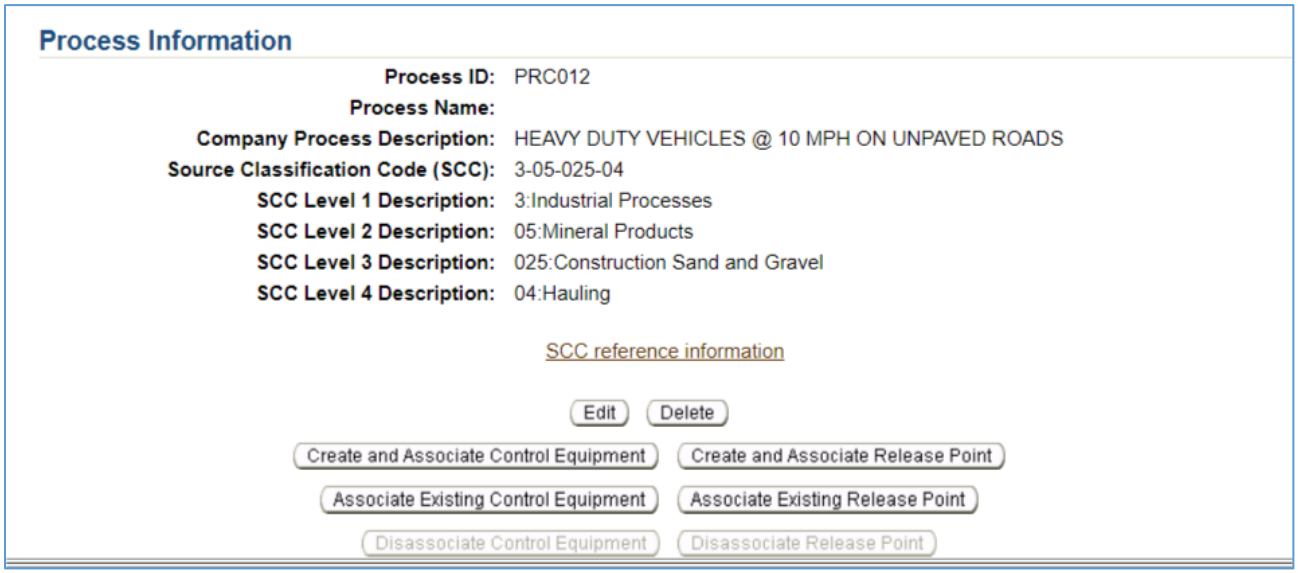


Step 3

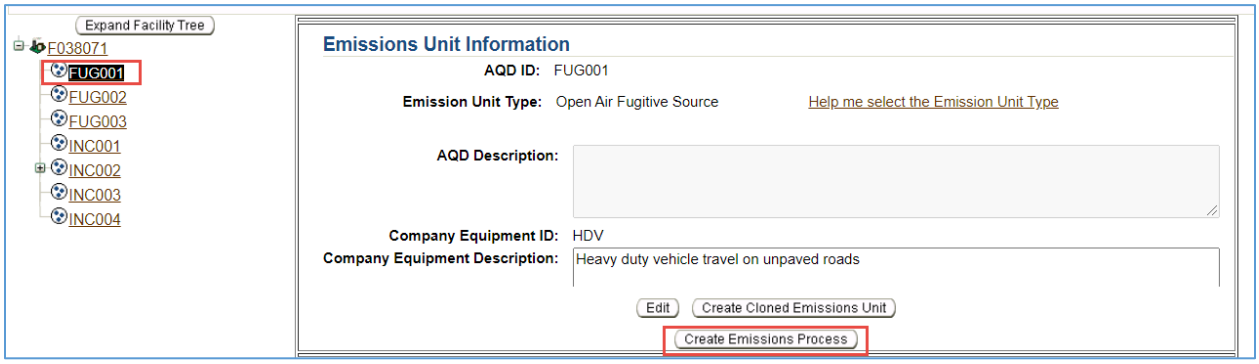
Emissions Processes

Each emission unit for unpaved road travel should have one emissions process attached (specify the vehicle class, heavy/medium/light duty, in the process description). Use one of the following source classification codes, as applicable:

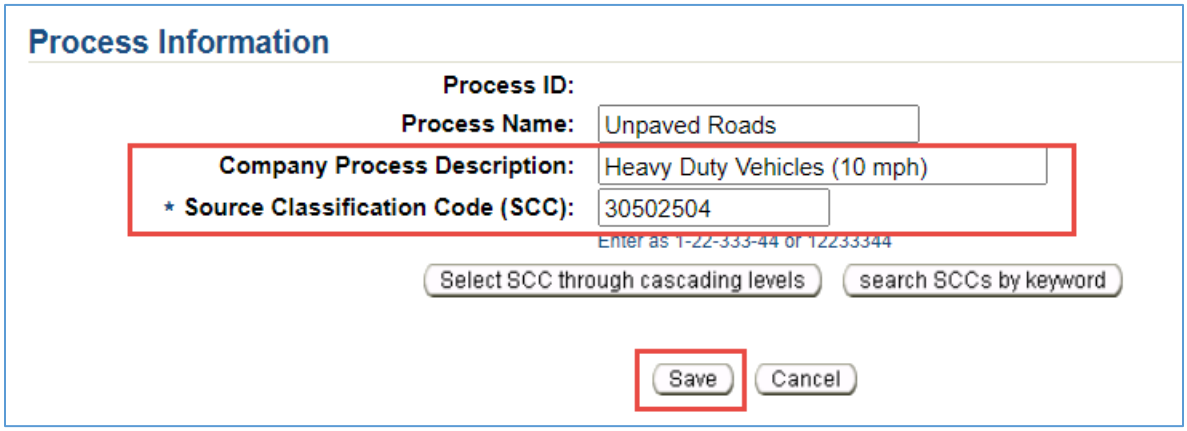
- 30502504 for sand and gravel, asphalt, and concrete batch facilities
- 50100401 for landfills



If the emission units for unpaved road travel do not have an emissions process attached, click on the **Emission Unit ID (FUG001)** 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.



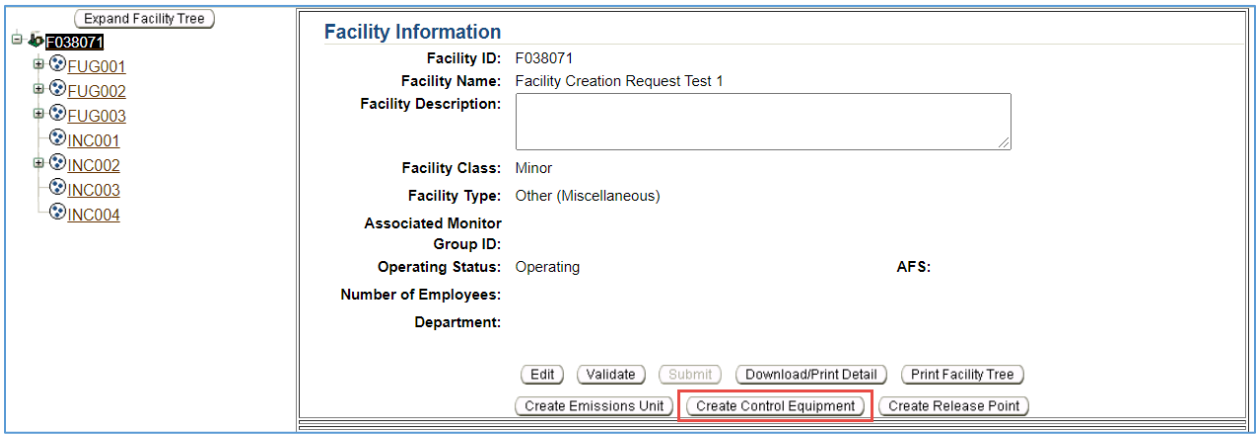
Step 4

Control Equipment

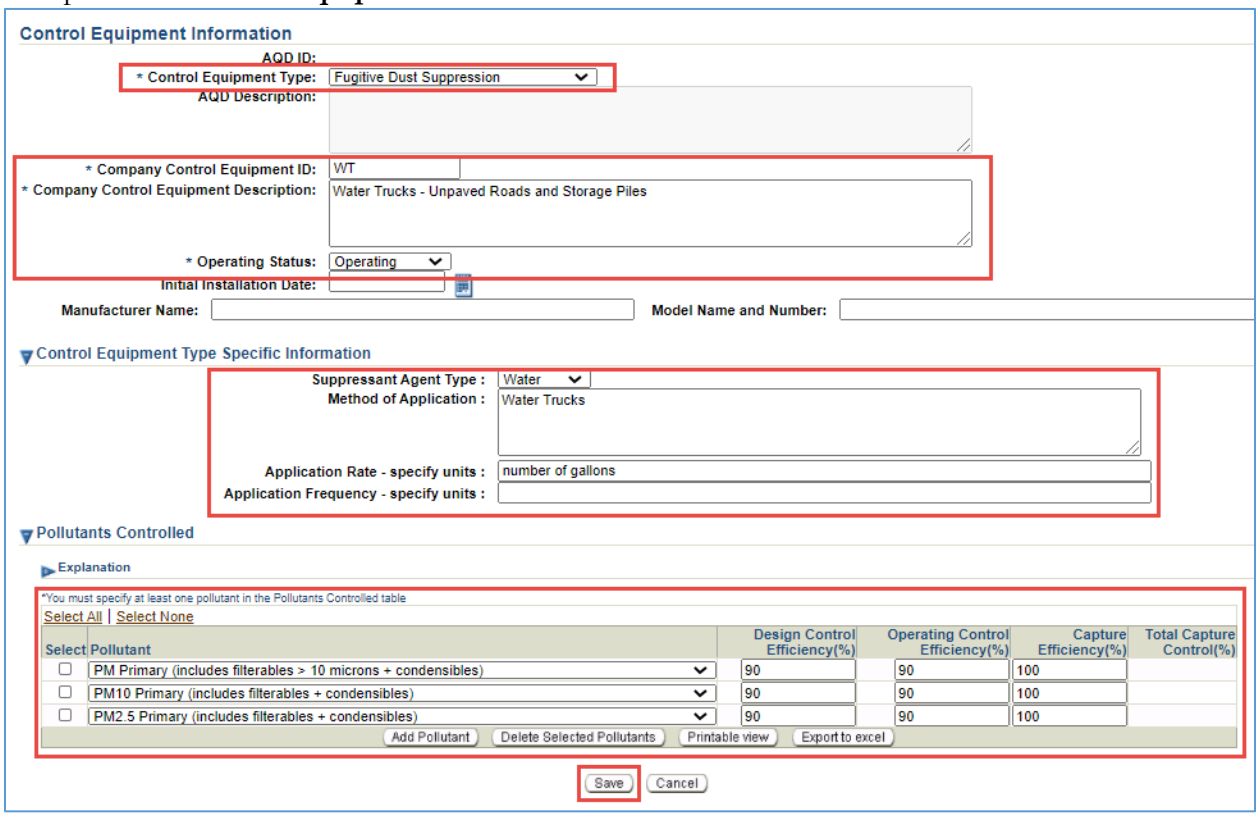
You may account for dust control efforts on haul roads if: (1) you use water or other dust suppressants and (2) if you are in full compliance with Rule 310 (Fugitive Dust) and/or Rule 316 (Nonmetallic Mineral Processing). To account for dust control efforts on unpaved roads, there should be one "Fugitive Dust Suppression (FDS)" control equipment associated with all emissions processes for vehicle travel on unpaved roads.

The FDS control equipment should indicate 90% design control efficiency, 90% operating control efficiency, and 100% capture efficiency for PM primary, PM_{10} primary, and $PM_{2.5}$ primary.

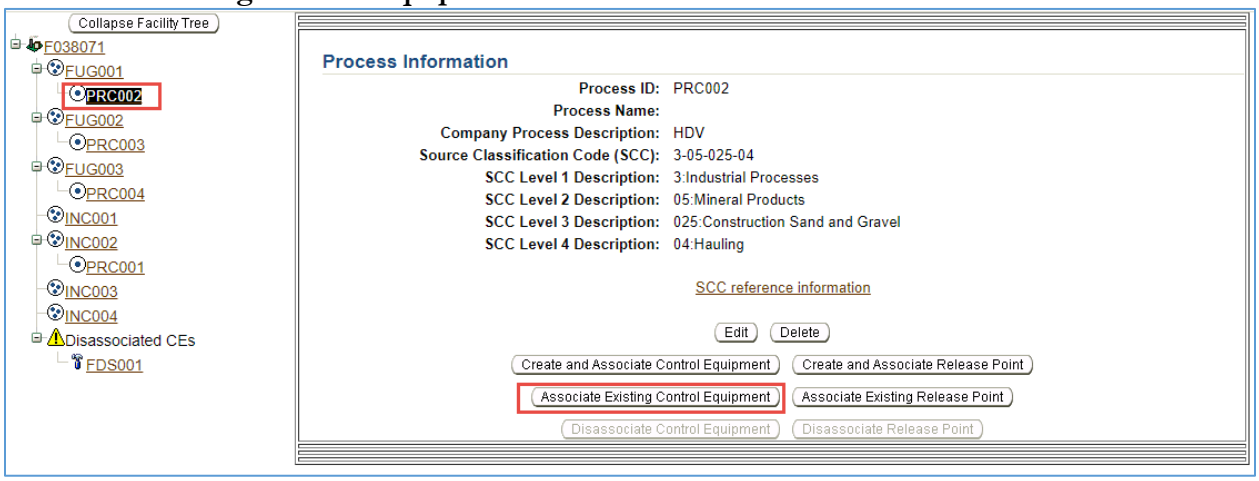
If the FDS control equipment is not in the facility inventory tree, click on the **Facility ID** at the top of the **Facility Inventory Tree** on the left side of the page. Click **Create Control Equipment** at the bottom of the page.



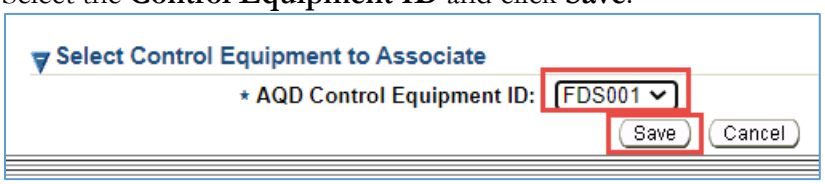
Complete the **Control Equipment Information** and click **Save**.



To associate the control equipment, click on the emissions process it controls (**PRC002**), Click **Associate Existing Control Equipment**.



Select the **Control Equipment ID** and click **Save**.



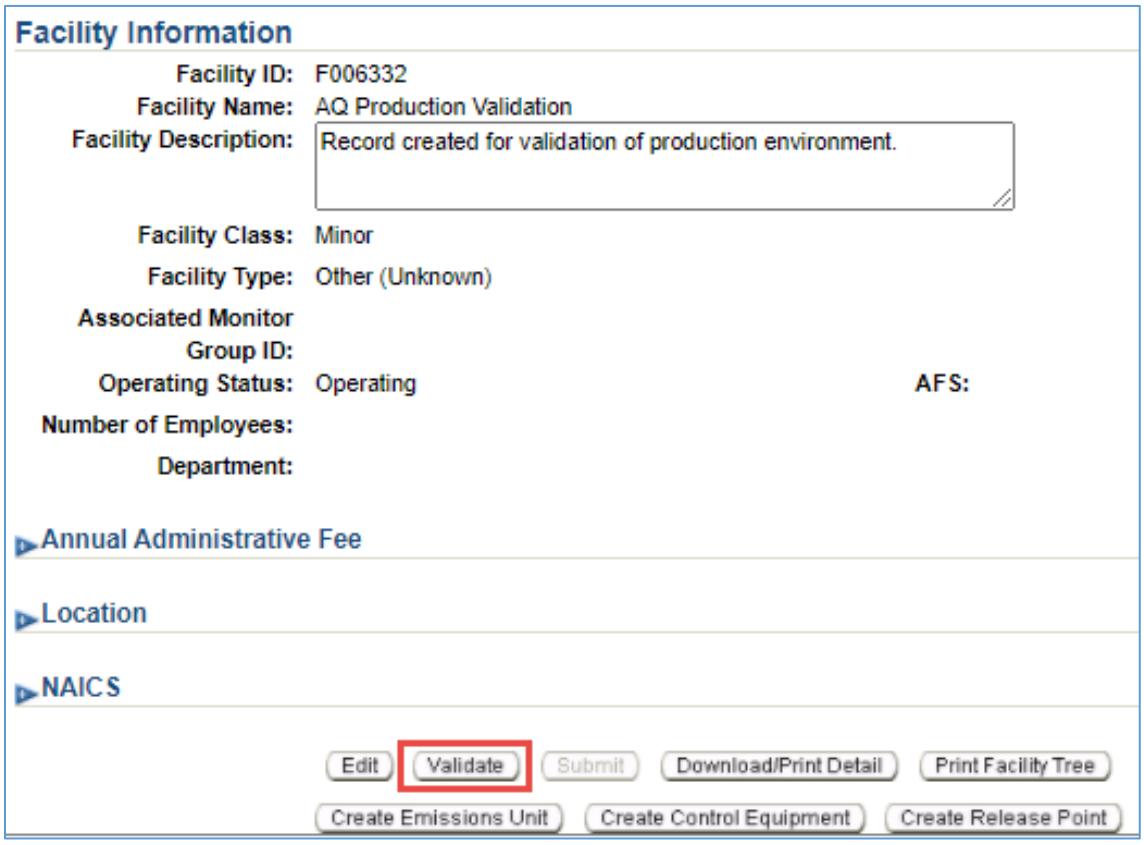
Repeat this step to associate the FDS control equipment to all of the emissions processes for vehicle use on unpaved roads.

Note: A facility may have more than one type of FDS control equipment. If so, review the list of control equipment to ensure the correct control is associated to each emissions process. The same control equipment can be associated to multiple emissions process.

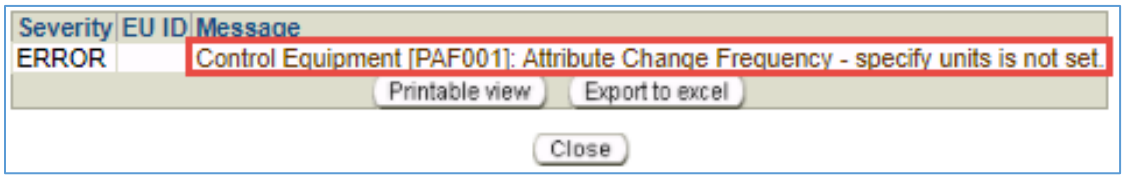
Step 5

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

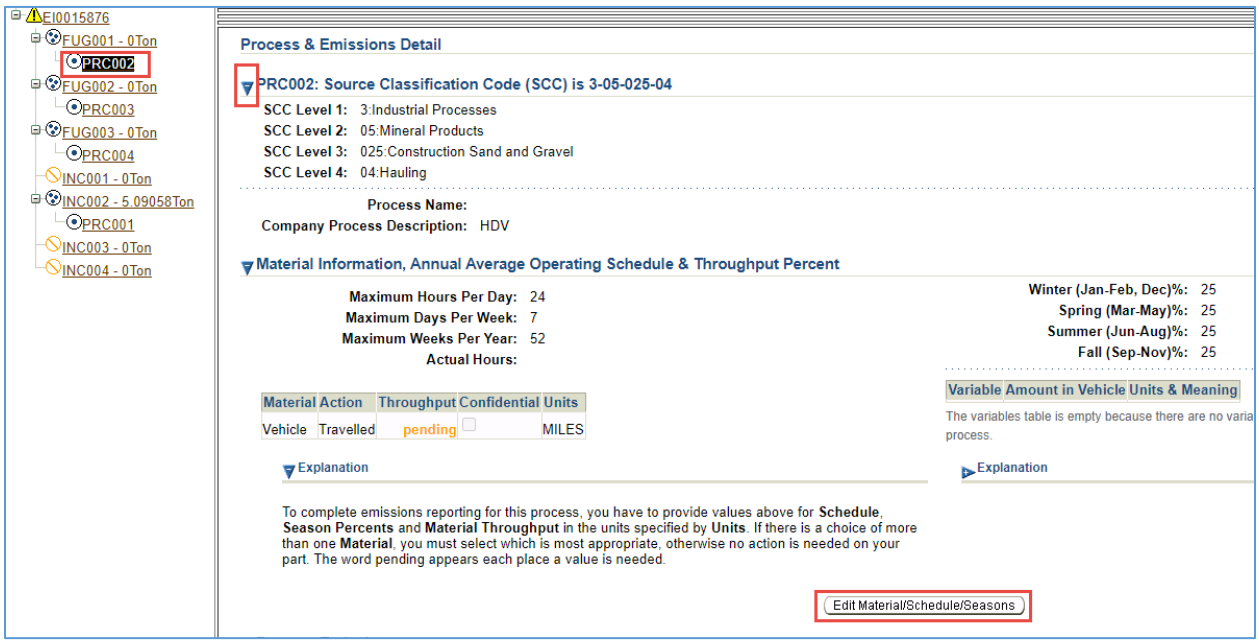
Step 1

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

Step 2

Click on the process attached to the FUG emission unit for unpaved roads (**PRC002**) in the **Emissions Inventory Tree** on the left side of the screen and click **Edit Material/Schedule/Seasons** in the middle of the screen.

Helpful Hint – Click on the triangle next to PRC002 at the top of the page to see the Company Process Description (this will tell you which vehicle class is reported under each process). In this example, emissions from heavy-duty vehicles on unpaved roads are reported under PRC002.



1. Enter the **maximum number of hours per day**, **maximum number of days per week**, and the **maximum number of weeks per year** the facility operated.

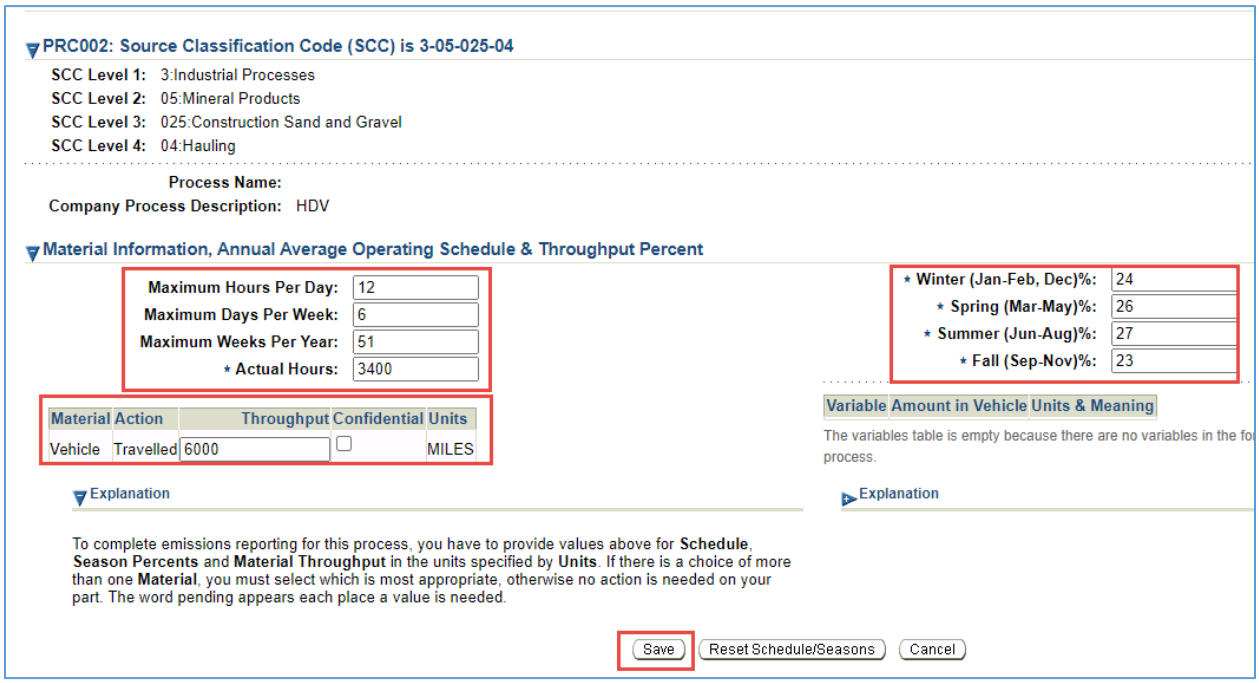
2. Enter the **actual hours** of operation for the facility during the reporting year.

3. Calculate and enter the total vehicle miles travelled (VMT) for each vehicle class (VMT for each vehicle class will be entered under a different emissions process). For vehicles that only travel on unpaved roads within the facility, VMT can be measured using the odometer. For haul trucks and passenger vehicles that leave the facility:

$$VMT = length\ of\ haul\ road\ (miles) \times number\ of\ vehicle\ trips$$

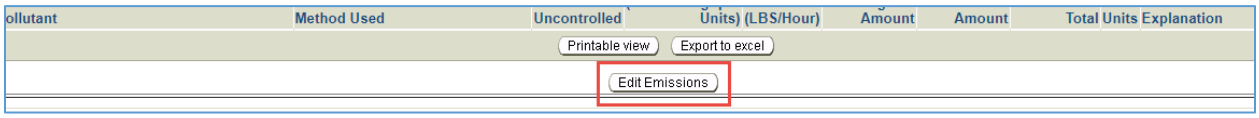
4. Enter the **percentage** of the vehicle miles travelled during each season.

5. Click **Save.**



Step 3

Click **Edit Emissions** at the bottom of the screen.



Reporting Criteria Air Pollutant Emissions

1. Use the chart below to identify Uncontrolled Emissions Factors (lb/VMT) for PM primary and PM_{10} primary, depending on the average speed of each class of vehicle.

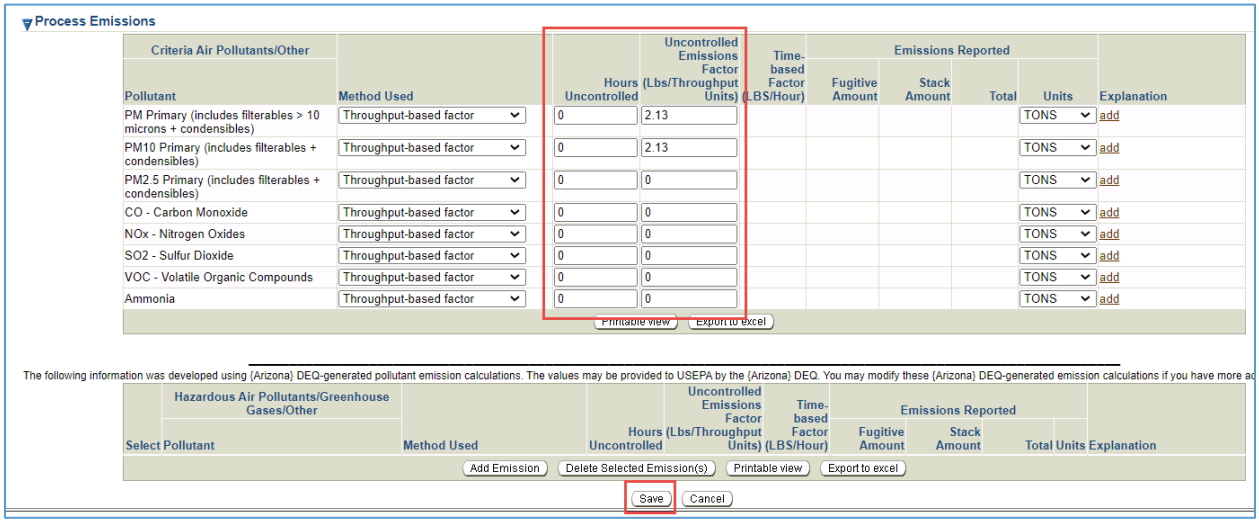
	PM Primary and PM_{10} Primary Emissions Factors (lb/VMT)								
Vehicle Type	**10 mph**	**15 mph**	**20 mph**	**25 mph**	**30 mph**	**35 mph**	**40 mph**	**45 mph**	**50 mph**
Heavy-Duty Vehicles (e.g., haul trucks, cranes)	2.13	3.2	4.27	5.33	6.4	7.47	8.53	9.6	10.67
Medium-Duty Vehicles (e.g., front end loaders, forklifts)	0.57	0.86	1.14	1.43	1.71	2.0	2.28	2.57	2.85
Light-Duty Vehicles (e.g., pickup trucks)	0.29	0.44	0.59	0.74	0.88	1.03	1.18	1.33	1.47

Reference: U.S. EPA, 1997. *Compilation of Air Pollutant Emissions Factors AP-42*, Volume I: Stationary Point and Area Sources, fifth ed. Section 13.2.2.

If you do not want to use these emissions factors, please contact MCAQD at 602-506-6790 for parameters that can be used to calculate emissions factors. Upload your calculation documentation as an attachment to the emissions inventory.

2. Enter the **Uncontrolled Emissions Factors** for each pollutant. Enter zero (0) for all pollutants other than PM primary and PM_{10} primary.

3. If the facility was in continuous compliance with the stabilization standards in Rule 310 (Fugitive Dust) and/or Rule 316 (Nonmetallic Mineral Processing, then hours uncontrolled will equal zero (0) for PM primary and PM_{10} primary.



Step 4

Click **Save** at the bottom of the screen. The AQD Online Portal will calculate emissions based on the operational information, the emissions factors provided, and the control efficiencies provided.

Helpful Hint – for vehicles on unpaved roads, the calculated emissions for PM primary and PM_{10} primary will be the same because all of the PM emitted is assumed to be less than 10 microns in diameter.

Step 5

Verify that the results match emission records from the facility. Repeat this process (Steps 1 – 5) for each emissions process for vehicle use on unpaved roads.

Step 6

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 heavy duty vehicles

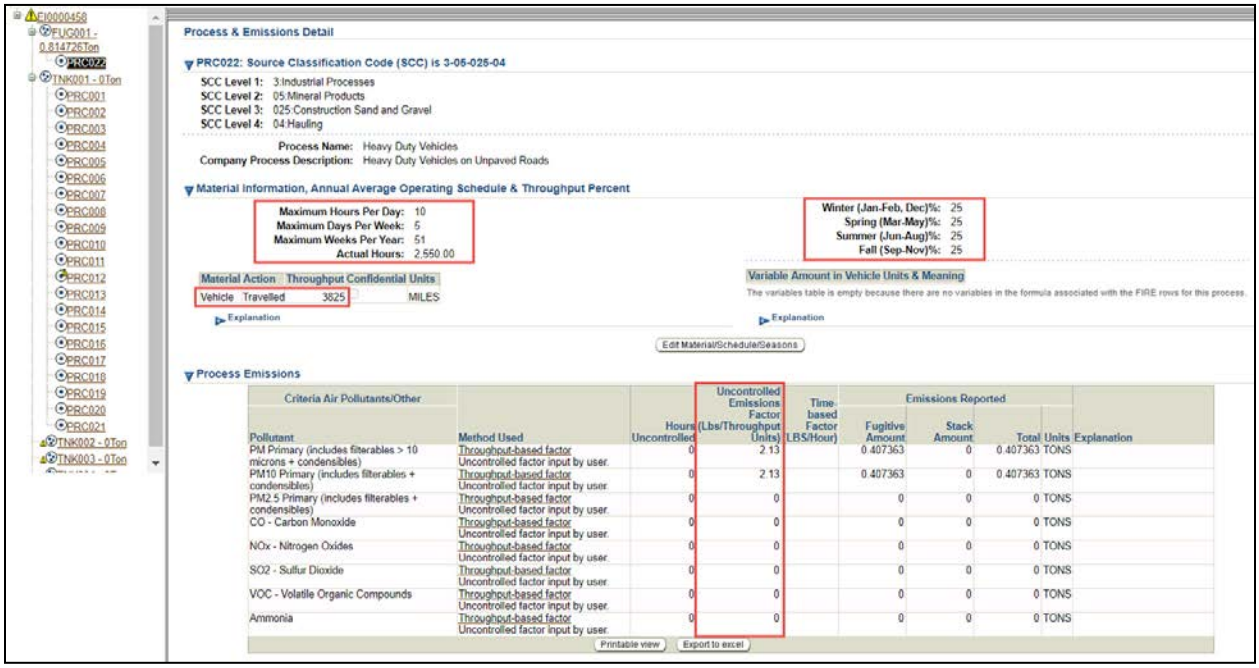
Length of unpaved road = 0.6 miles

Number of heavy duty vehicle trips = 6375

VMT heavy duty = 0.6 x 6375 = **3825**

Average speed = 10 miles per hour

Emissions factor = **2.13** lb/VMT



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: www.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: www.maricopa.gov/1820