

Dust Collector Replacement/Upgrade

Full Scale Implementation OR Pilot Scale/Study

1. Description of the project: What is the issue and how did you fix it?

Replaced old off-the-shelf Dustex baghouse with a state-of-the-art custom model.

2. Environmental Benefits: Conservation of raw materials or energy, reduction or elimination of emissions, wastes, toxics, water discharges, etc.

The new model resulted in a 78% reduction in grinding emissions released to atmosphere

3. Other Benefits: Productivity, health and safety, employee morale, etc.

See article below

4. Cost Savings: Capital cost, operating cost, ROI or other pertinent cost information.

New unit has twice the capacity as the old one, so cost comparison not applicable.

5. Applicability to other foundries and additional Comments

Yes

6. Applicable Environmental Categories and Foundry Processes. Select all that apply.

Environmental Categories

- Carbon (GHG) Emissions Measurement and Reduction
- Air Quality Water Use and Discharge Waste Management
- Beneficial Use Stormwater Material and Resource Conservation
- Community Engagement

Foundry Process(es) Impacted

- Melt Pour Mold Core sand system/reclaim
- Shakeout Heat Treat Quench Finishing Shipping
- Maintenance Pattern Shop Casting Design
- Management Systems and Metrics
- Other, explain:

7. Add photos to enhance your application, if applicable.

Dust Collector Update

Benton Foundry has now replaced the 20+ year old 30,000 CFM collector with a new state-of-the-art 60,000 CFM collector. This new collector, while made by a different manufacturer, is the same as the other three collectors installed five years ago. It takes the same bags and has a lot of the same parts. The old Dustex unit returned the air in the colder months into the foundry over by the furnaces where few people worked. The new collector returns the tempered and filtered air into the shipping and grinding room area. This will make that area more comfortable for scrap counting, shipping/receiving, and grinding room personnel.

In addition to the installation, the collector has to be tested by a third party to a strict test to show that the emissions comply with the PA Department of Environmental Protection's permit application. In addition, the furnace collector that is up by the warehouse has to be tested every five years. This collector vents outside all the time and draws air from the four electric furnaces, two preheaters, and two sand mullers. The mullers were added to blend the moist air off of the mullers with the warm air off the furnaces and preheater; this prevents winter freezing. We monitor our collectors daily, and also test them for issues with ultra-violet light and fluorescing powder.

The air emissions testing is three one hour sessions. The results are calculated and submitted to the state. Benton Foundry agreed to the most aggressive limit in and among Pennsylvania foundries. Our thought was environmental regulations are going to get stricter over time not looser so we might as well go there early. In the chart below we will show you where the old collectors were and what the test results are now.

	PA Permit Limit over 5 years ago	Benton Agreed to Limit 5 years ago	Benton Permit Limit Now	Benton Current Test Results	% Result Below Permit Level
Furnace Collector	0.018	0.005	0.005	.001 (gr/dscf)	-80%
Old Dustex/New Collector	0.018	0.010	0.005	.002 (gr/dscf)	-60%

As you can see Benton Foundry has done a good job progressively improving our impact on air quality and the environment.