



PROJECT PROFILE

Transition from wet to dry process made easy

The Challenge

A struggling foundry was recently purchased, and the new owners wanted to invest in the business by improving production and making the facility safe for employees to work in. At the initial site visit, Schust was called to help replace a very old wet scrubber dust collection system that was rotting from age and rust. Because the wet scrubber wasn't operating as it was intended, the facility was risking their compliance with emission standards.

The company was also looking to expand production in conjunction with replacing the wet dust collector. Schust recommended a plant ventilation audit to understand the process and equipment involved. In conjunction with the audit, Schust also conducted an engineering study to ensure the right solution was being put into place to support the transition from wet to dry process, but also to consider the needed production expansion.

PROJECT IN BRIEF:

EQUIPMENT & SERVICE

- Plant Ventilation Audit
- Engineering Study
- Dust Collector
- Engineering
- Installation
- Commissioning
- Ductwork

INDUSTRY

- Foundry

APPLICATION

- Emission Control

REGULATIONS

- Respirable Crystalline Silica OSHA 1910.1053

The Solution

Getting the facility operating safely was priority number one while a new dust collection system was being designed and engineered. Within three weeks, Schust fabricated and installed new 12-gauge mild steel ductwork from the existing wet scrubber to a new fan inlet. Because the duct was temporary, Schust used lighter, economical gauge material to keep the facility in compliance.

Shortly after this, the foundry ordered a new pulse-jet continuous automatic dust collector and new duct was installed from the dust collector outlet to the existing fan inlet duct. The online cleaning system was designed to include bags, cages, platform and ladder, and a screw conveyor and rotary valve. To complete the retrofit from wet to dry process, Schust supplied and installed the compressed air piping and included filter/regulator, unions, and necessary shut-off valves.

Follow-up

About a year and a half after the initial installation of the single dust collector module system for the facility's sand system, the business saw tremendous growth. Since then, the foundry has added three more modules, two large fans, one common stack, control room, MCC, and new system control panel. The Schust system then and today meets the new OSHA respirable crystalline silica regulation.

OPERATION DETAILS:

AIR VOLUME

■ 50K ACFM

DUST COLLECTED

■ Silica Sand

TOTAL FILTER-CLOTH-AREA

■ 9,995 sq. ft. (925 m²)

EST. OPERATING TEMPERATURE

■ 125°F (51.7°C)

NUMBER OF COLLECTOR MODULES

■ 1

GROSS AIR-TO-CLOTH RATIO

■ 5.02 to 1

A screw conveyor and airlock are used at the bottom hopper of the pulse-jet dust collector to remove the dust collected on the bags. As the bags are cleaned the dust falls from the bags it is augured through the screw conveyor and discharged through the airlock to a disposal tub.

Schust provided engineering, fabrication, installation service, and engineering field service for the new pulse-jet dust collector to replace the wet scrubber and one that would support the production expansion.

Contact Schust to learn more about this project.

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