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Reducing Sound Levels of Granulator at ORBIS Corporation



Client: Orbis Corporation, Monticello, Iowa

Problem Statement

- The plastic granulation process at Orbis Corporation produces noise levels up to 114 decibels. The current noise level at the closest operator station from the grinder is 90 dB. Due to OSHA regulations, noise levels must be decreased to at or below 85 decibels at the nearest operator station.

Scope

- The focus will be on exterior sound control solutions rather than interior mechanical solutions.

Objective(s)

- The objective is to reduce the noise level to below 85 dB at the closest operator station, as desired by ORBIS, and by OSHA regulations.
- Eliminate sources of vibration that has the potential to carry sound.

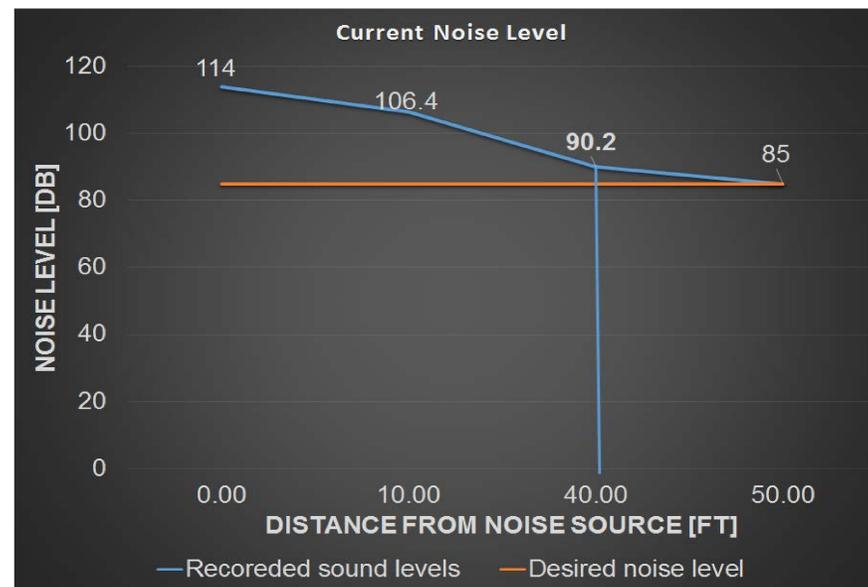


Figure 1: The sound levels recorded at various distances, compared to the desired noise levels in order to meet OSHA requirements.

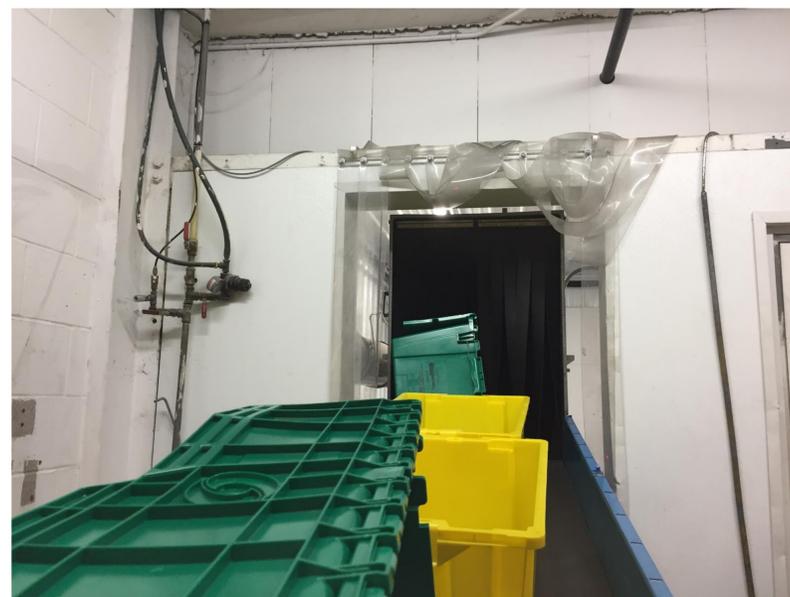


Figure 2: The conveyor leading into the grinder is where the majority of the sound exits.

Constraints

- Budget: \$10,000
- Installation: Early March 2018
- Testing: Early April 2018

Proposed Solutions

- Sound absorbent/diffusor blankets
- Vibration absorbent mounting material
- Decreasing vibrations in granulator chute
- Materials dependent on which proposed solution is used.

Major Outcomes

- Permanent installation of sound abatement system
- Sound levels at decrease at or below 85 decibels at operator station

Benefit to Client

- Providing safe and healthy environment for all employees
- Decrease in sound levels will reduce the potential for a workman's compensation claim