

# TURNKEY SOLUTION PROVIDES NOISE REDUCTION IN MINE VENTILATION SYSTEM

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## 1 Introduction

A nickel and copper mine located in Ontario was in need of extensive upgrades and measures to bring operations into compliance with current environmental regulations. Upgrades to the mining ventilation system were the first on the list. In addition to a custom fan silencer system, the client needed a qualified source to provide engineering assistance and coordination throughout the multiple phases of the necessary upgrades.

Since mining operations run 24 hours day, seven days per week, the noise levels from the mine ventilation system were an on-going problem in the surrounding areas. Complicating the project was the condition of the existing ventilation enclosure, which was in need of extensive clean up, including the removal of hazardous material.



Figure 1: Before the ventilation system

## 2 Method

The dB Noise Reduction® team worked with an acoustical consultant to develop a custom fan silencer solution for the 140,000 ACFM axial fans that were producing a noise level of 104 dBA combined, well above the regulated levels. An integral part of the project included disassembly of the existing steel structure to remove rust and corrugated asbestos. As a noise reduction specialist with an engineering focus, the dB Noise Reduction® team was uniquely qualified to engineer and coordinate all phases of the project, providing a complete turnkey solution.

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## 3 Solution

The dB Noise Reduction® team addressed all phases of the ventilation system upgrade through a series of operations that were completed within 9 months. For the first step, which was cleaning-up the structural steel, a CO<sub>2</sub> blasting process was used. This avoided the need for environmentally harmful chemicals and eliminated the potential for dust and debris. This was essential in the process, since the fans needed to remain in operation during cleaning. A protective paint was applied to the steel structure.



Figure 2: After the ventilation system

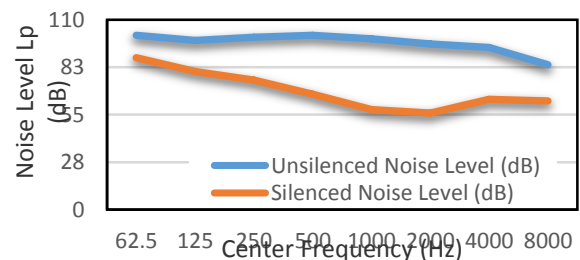


Figure 3: Measurements before and after silencing solution

The next step of the process included special precautions for the removal of the corrugated asbestos. This was the only part of the process during which the mine operation had to temporarily halt operation, due to potential asbestos exposure. The team coordinated the hazardous material removal with a certified removal team, who completed the job in less than a day. Following the excavation of the area, the newly cleaned and treated steel structural was then enhanced with the installation of four fan intake silencers, two acoustic walls, and an acoustic roof.