

The background of the entire page is a collage of numerous small, overlapping pieces of paper in various colors (red, yellow, green, blue, pink, white). Each piece of paper has a large, black question mark printed on it. The papers are scattered and layered, creating a textured, busy appearance.

# World Cement Interview: All about air cannons

Jeff Shelton, IGS, sat down with *World Cement* to answer questions about his perspective on the history and future of air cannons in the cement industry.

## Tell us more about IGS

**Jeff Shelton (JS):** IGS has little name recognition in the cement industry but is well known and respected in the oil, gas, and power industries. IGS is a technical company that serves as a leader in several critical areas. We provide a coating service that protects high-pressure vessels from corrosion and erosion, and we offer unmatched cleaning services for SCRs in coal-fired boilers. We approach and solve industry problems with advanced technology and expertise. IGS engineers and business developers are employed for their specialised knowledge and ability to provide fast and efficient service to customers.

## How did you become involved with air cannons?

**JS:** I think this is an interesting story. In the 1970s, I was called upon to discuss sonic horns to help clean a cement tower. I understood the potential this could have, but sonic horns didn't provide the most adequate cleaning for this application.

Years later, I received a call from an engineer that I had worked closely with in the pulp and paper industry.

In this call, the engineer told me he had a build-up problem, and he wanted me to come inspect it and offer suggestions. To say the least, I was not impressed with the



air cannon installation I saw. At that moment, I started working on different methods to solve this problem. After some initial ideas, I came to realise that while air cannons were a good solution, a different approach was required for their installation.

I designed an air cannon to solve the buildup problems, but I used the fundamental principles used throughout heavy industry. The concept was that velocity and volume were more



**Jeff Shelton, VP for IGS, has 40 years of experience in the design and application of air cannons.**



**Big Blue Air Cannon with Multipliers.**



**Solving raw material pluggage.**

important than peak force. The air cannons I designed were based on the generation of the highest possible velocity and extension of blasting time. This system was also designed to improve the accessibility of the cannons for proper maintenance. The air cannons designed and built by IGS are different than the first air cannons, but we don't stray from the importance of velocity, volume, and accessibility.

### **How has the air cannon market changed over the last 30 years?**

**JS:** In the last 30 years, the cleaning requirement for air cannons and the average size of a cement plant have both increased. The huge cement towers that we have today did not exist 30 years ago. With this increase in size, the cleaning distance required for air cannons has increased.

The current 1 m standard in many applications is no longer enough. In addition, the burning of supplemental fuel has caused buildup to become harder to clean. Also, the safety requirements for performing maintenance on air cannons has increased to the point where many plants are not allowed to work on

their own air cannons when in operation. It doesn't matter how powerful your air cannon is if it's not working. I often wonder, with the increasing demand for air cannons, how and why drastic change hasn't already occurred.

### **What are some of the common mistakes plants make with their air cannons?**

**JS:** In 99% of plants, I estimate that many of the air cannons are installed very close to the nozzle discharge. This is because plants have been told by the air cannon OEMs that they must install their air cannons in this manner so they will clean. In doing so, many air cannons are also installed high in the air, making maintenance costly and unsafe.

I promise you the following is true about any air cannon: One, they hate the heat. Two, they hate material entering back into them. Both issues cause premature air cannon failure and generate excessive spare

part purchases. Reduce both by protecting your air cannons from the harsh cement environment. Current technology allows plants to protect their air cannons from the environment while improving cleaning.

IGS works on the following philosophy: It doesn't matter how powerful your air cannon is if it's not working, and it doesn't matter how reliable your air cannon is if it's not cleaning.

### **Is there a correlation between the number of air cannons plants purchase and use with the type of fuels they burn?**

**JS:** It has become a common practice for several years that when a plant changes to pet coke from coal, the number of air cannons required to keep the tower clean must increase.

This is also true for many of the supplemental fuels plants are beginning to burn. If your supplemental fuel has chlorides, you can expect to experience vast increases in buildup. We encourage all plants that are increasing their supplemental fuel usage to consider what this will do for their build-up issues.

We stress that, while air cannons lessen the impact of build-up, so does process. Air cannons are a tool to fight buildup, and plant production should have a discussion with their air cannon OEM to ask the question: How can I use this tool to allow me to run the tower in the most efficient manner? Plant operators often run their plants in inefficient ways because it reduces build-up, but with the right tools, the plant can be run effectively without build-up impacting efficiency.

### **What is the future for air cannons in the cement plants?**

**JS:** One would think this is an easy answer, but to me, it's difficult. I see a bright future for air cannons in the cement industry but only if we continue to innovate. Personally, in the last couple of years, I have been pushed by my son, Connor Shelton, who started working for me after college. He has a fresh view of air cannons and has not been afraid to ask the stupid questions, but several of his questions have turned out to not be so stupid.

His questioning has led to several new innovations that IGS is now offering. Examples include our new nozzles and our new Dual Firing Air Cannon System. In addition, with safety restrictions becoming tighter, I'm afraid cement plants will go away from air cannons if plants aren't taught the proper way to safely install and maintain the cannons. I believe that members of the younger generation like Connor



**Protecting IGS Air cannons on cooler.**

will successfully educate the market so that air cannons can continue to be a cost-effective solution.

I see new products being offered in the cement industry that will improve plant production and efficiency while doing so at a great cost reduction.

### **What do you want your legacy to be in the cement industry?**

**JS:** I remember the first time I inspected air cannons on a cement plant tower. I thought this is a crazy way of trying to clean the tower. As I got involved, though, I realised that many of my first impressions were incorrect. Air cannons do a good job, but what bothers me is that technology hasn't advanced since the 1980s.

I want my legacy to be that I introduced new technology and methods to keep the towers clean. One example of this is our nozzle technology. The IGS nozzle can almost double any air cannon's cleaning power. That's a real difference maker, but perhaps I'm most proud of the fact that we're leading the charge in proving that we can replace two air cannons and two nozzles with a single air cannon and a single nozzle. This offers the plants a huge reduction in capital and maintenance costs because you're taking care of half the cannons.

I guess if I had to briefly state my legacy, it would be that I made air cannons simpler and less expensive. Oh yeah, and they sure do clean well! ■