NOME SERVICES

Air XD

Case Study

Highly accurate remote monitoring leads to improved processes

Name of Company

One of the top three building/construction material manufactures.

Application

Mineral processing, crushing and screening house.

How long have they worked in the industry?

Over 100 years.

What was the issue / how did Air XD resolve it?

- Forecasted ROI within six months.
- Notably reduced wastage of dust suppression materials.
- Safer environment for workers.
- Clear, specific, real-time reporting on PM types and presence.
- No more reliance on ineffective monitoring methods

Overview of the company processes

The amount of particulates present in the air of the site's enclosed buildings vary, as well as the composition of said particulates. Due to the nature of the materials being processed, buildings within the site often have a high level of RCS (Respirable Crystalline Silica) present.

The levels of these particulates can fluctuate over any given period of time. The unpredictable nature of the site's particulate pattern made it very hard to effectively assess how safe their environment was to work in.

In order to protect their work force, RPE (Respirable Protective Equipment) was used all the times and various dust suppression systems are used to try and control the amount of particulates in the air.

There are several suppression systems on-site including dust extraction (fans and ducting), water misting and a foam spray. They are normally used in conjunction with each other.

The way in which particulates were controlled was by using a visual inspection via a CCTV from the main control room, this is a very common way of checking how the process is running and having a visual inspection of the dust levels being generated.

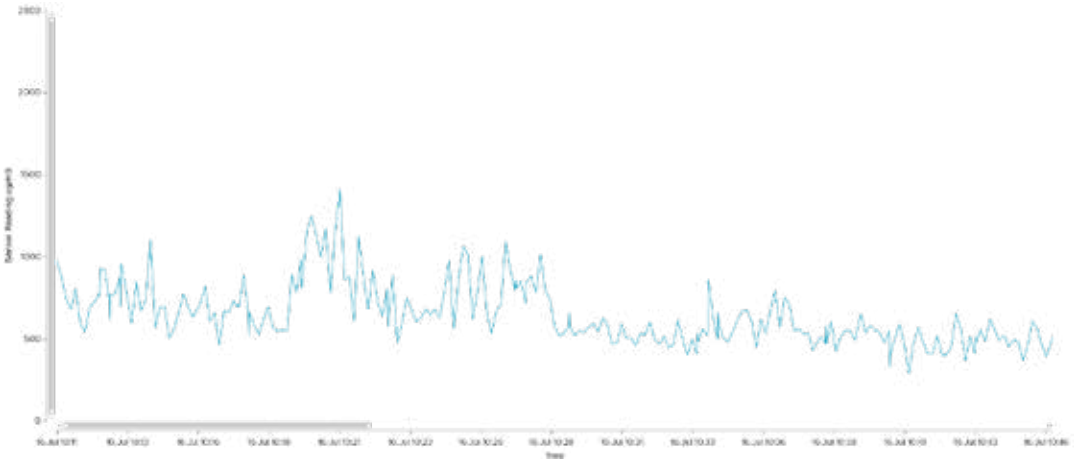
Aside from the point that cameras get dirty and people can interoperate visual information in different ways, a business that has so much hazardous particulate matter present could not possibly have known the extent of their particulate problem with just a visual inspection following their dust suppression implementation.

The Air XD Experiment

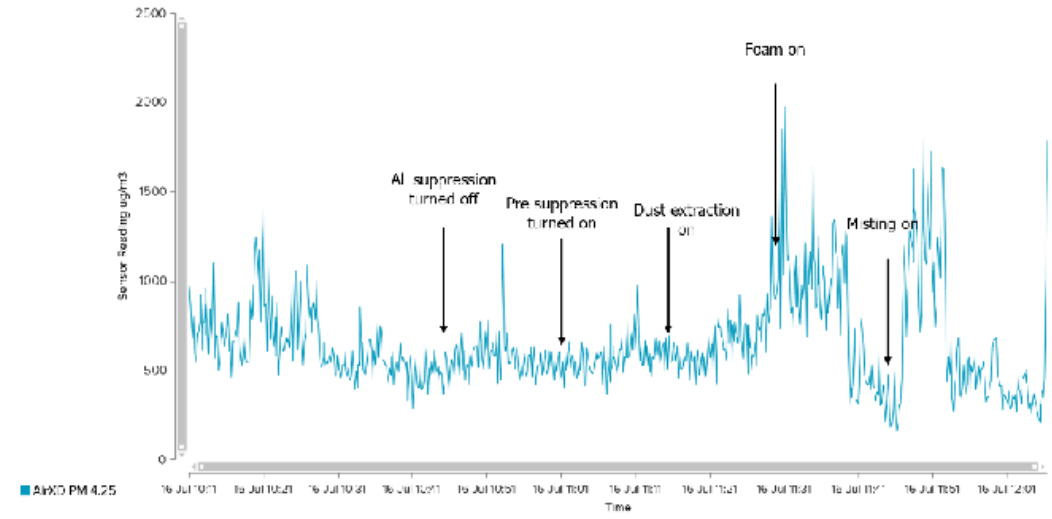
After the client had given the detailed historical overview of their processes, a suitable location for the Air XD experiment in the site's process had been identified. We installed the Air XD using the Transportable Pack tripod, powering it via a 110v supply.

The purpose of this trial was to investigate how effective dust control tactics already in-place on-site were for our client, and whether they made a difference to their dust levels that weren't visible during visual inspections via CCTV. While visual inspections can identify whether there are any larger particulate sizes present, this method of inspection can often miss the smaller and most dangerous PM sizes, all of which below PM10 are invisible to the naked human eye.

Given that an identified issue in the company's process is RCS (Respirable Crystalline Silica), visual monitoring of dust levels had been totally ineffective for this particulate type as 'respirable' particulates are much too small to be detected by the monitoring in effect in the plant prior to implementation of Air XD.

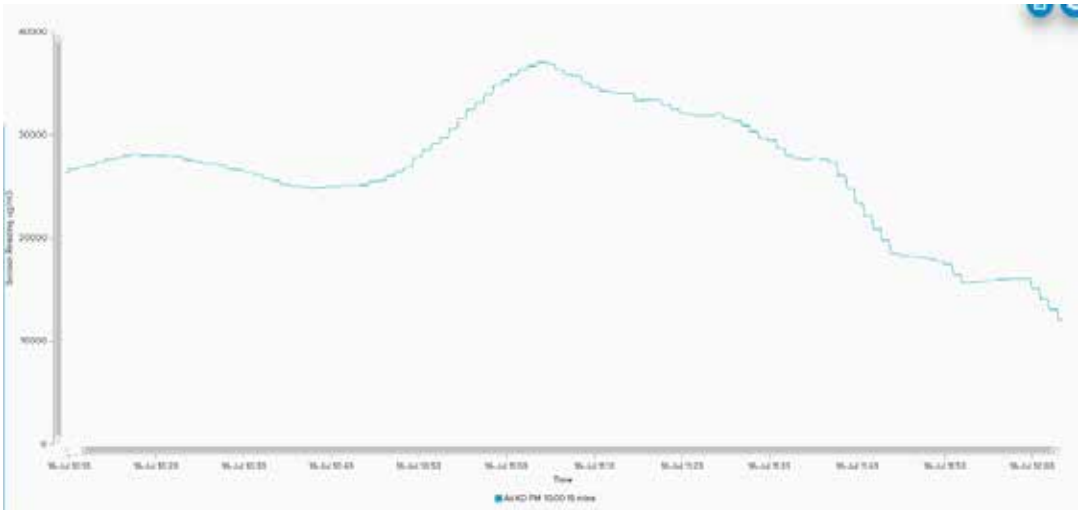


Background level for PM4.25 live pre alteration to the system

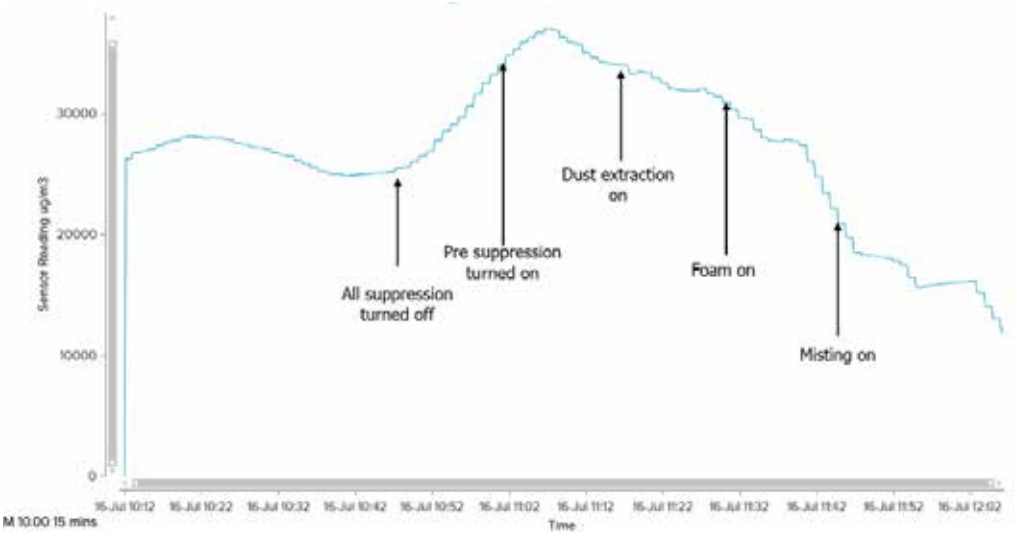


Tests on different systems on and off takes place

After viewing this data we decided to look at other particulate sizes that the Air XD can monitor and we came across a very interesting graph around PM10.



We see an increase in PM10 and then some significant drops at points in time



It appears that with all the dust suppressions systems in place, they have little impact on PM4.25 and smaller but have a greater impact on the larger PM sizes. Thus the need to still wear RPE.

The Air XD Solution!

After the system's initial research, three units were installed within this part of the building to continue to monitor the efficiency of dust control tactics and control the point(s) at which suppression tactics are initiated per PM size/type/presence.

- **No more reliance on ineffective visual inspections**. Air XD provides detailed, highly accurate reporting that the human eye could not possibly have assessed. This company's workers are now far safer and the plant is able to comply with legislation effectively, no matter how it may change.

- **Less wastage of dust control systems**. Intelligent use resulting in less wastage of expensive water and foam usage and fan extraction energy usage.

The recommendations made by the Air XD proved a reliable insight to their use of safety protocols. The group are now working with us to implement this system across the whole site and a number of plants within the group.

Now that suppression systems are automatically executed by the Air XD, the company saves time, money and can ensure that dust control systems are used as intelligently as possible. Since implementation of Air XD, they have reported a significant reduction in water usage and foam consumption.

The Air XD has given the company valuable insights into how effective their dust control systems are/were and has allowed them to make effective improvements in their processes, generating a noteworthy ROI within six months