

## Case Study

# World-Class Crusher Quarry Uses PM Monitoring to Achieve Regulatory Compliance

World class crusher quarry leads the way in online compliance PM monitoring



### Project

Ali Mousa & Sons Group

### Location

United Arab Emirates

### Date

2015

### Services

Dust Profiler outdoor particulate monitor

### Measurements

PM<sub>10</sub>, PM<sub>2.5</sub>

### Sector

Quarrying & Mining



## The customer

In 2001, when Ali Mousa & Sons Group needed a constant supply of rock aggregates to keep their construction and contracting companies operating they acquired a crusher and quarry in Fujairah. Since then Ali Mousa & Sons Crushers Company has grown into a world class crusher quarry operating 24 hours to produce 12,000 metric tons of aggregates per day to quality standards approved by Dubai Municipality and major consultants. This crusher supplies product to Kuwait, Qatar and also the local UAE market for ready-mix, hollow block companies and major projects.

## The problem

Quarrying and rock crushing is a dusty business and particulate emissions are an unavoidable byproduct. Communities bordering crusher sites are exposed to air pollution including particulate matter (PM) which can be a nuisance and cause of complaints. There are more than 80 quarry and crushers in the United Arab Emirates and



the Ministry of Environment and Water (MOEW) is actively applying strategies to reduce PM emissions and air pollution in general.

Ali Mousa & Sons Crushers is ranked as one of the best companies in its field for showing respect for the environment. The company is committed to eco-friendly operations and has a fully covered plant with automatic fog spray to reduce pollution. So when the MOEW issued a decree requiring all quarries and crushers to continuously measure  $PM_{10}$  and  $PM_{2.5}$  simultaneously, in real time, and transmit the data online, Ali Mousa & Sons Crushers was one of the first plants to comply.

Acceptable monitoring methods include Tapered Element Oscillating Microbalance (TEOM), beta attenuation, and light scattering technology. Instruments must be site calibrated to US EPA and European approved cross reference methods every three months. The MOEW strictly enforces this air quality monitoring decree by penalizing and closing down non-compliant crushers.

**“With this equipment we comply with the MOEW requirements and now we are able to monitor and control air quality in our site area.”**

Ali Mousa & Sons Group

## The solution

For this application Aeroqual's local representative Enviro & Industrial Solutions (EIS) proposed the Dust Profiler with the latest in M2M cloud-based computing. The Dust Profiler uses light scattering technology and a proprietary algorithm to count particles and convert to mass fractions for continuous and simultaneous measurement of  $PM_{10}$ ,  $PM_{2.5}$ ,  $PM_1$  and TSP. Data is logged and reported in real-time via an integrated GPRS IP modem configured for remote online access by the MOEW and the plant's onsite manager.

Ali Mousa & Sons Crushers chose the Aeroqual Dust Profiler because it was the most cost-effective solution for measuring multiple PM fractions with one instrument. It also offered reliable and trouble-free operation in hot and dusty environments due to its robust design, built-in solar shields and integrated cyclone to protect the laser optics during dust storms. And for MOEW requirements it provided online access to real-time data for download and reporting via a user-friendly interface viewable on any device with an Internet browser. Another valued feature was the optional SMS and Email notifications which allow the plant manager to respond quickly to any exceedance.

## Evaluation

Ali Mousa & Sons Crushers are very satisfied with the online data reporting platform and robust design of the Dust Profiler supported by training, maintenance and calibration from EIS. The service contract includes regular onsite calibrations according to US EPA 40 CFR and European reference methods EN12341:2014 and EN14907:2014 using a Low Volume Sampler (LVS). This total solution gives Ali Mousa & Sons Crushers confidence that they will comply with MOEW requirements in the long term. Aeroqual Dust Monitors are making an impact in the region with nearly half of the quarry crushers in UAE adopting this solution. Ali Mousa & Sons Crushers believes this is not only promoting higher quality among crushers but with support of the MOEW it is also making a difference in creating healthier environments for neighbouring communities.

