MINING REVIEW

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NEW STANDARDS FOR TAILINGS MANAGEMENT D**36** ALL SYSTEMS GO



aerometrex POG-O7 SHINING A LIGHT ON WINDROWS

Line boring is an essential part of machinery upkeep. Every large machine that mine operators depend on, from dozers to excavators, haul trucks to cranes, will require a pin bore refurbishment during its life cycle. Read our 13-page special on some of the best line borers in the business.

FEATURE P**65-77**



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DUST SUPPRESSION LEADERS

nviroMist supplies four dust suppression systems for the BHP South Flank run-of-mill (ROM) dump stations and coarse ore stockpiles (COS).

Its proven dust suppression technology utilises very high pressures to deliver specified water droplet sizes in the correct place, and volume to reduce dust levels to environmentally acceptable levels using water only as a dust suppressant.

The resulting system delivers unsurpassed dust suppression capabilities for large spaces and other difficult to contain areas.

EnviroMist has developed its system in conjunction with the International Solids Handling Research Institute in order to understand the water droplet particle size distribution, spread and characteristics which have led to the creation of worldleading dust suppression technology.

The research developed Computational Fluid Dynamic (CFD) models to understand droplet dispersal and reactions to external influences such as air cross flows. Once a research base was established, EnviroMist developed spray nozzle systems to deliver the water in a form which efficiently reduces dust.

In order to fully cover a large ROM bin or COS in an efficient and reliable manner, the system requires the best available pumping technology, and thus Hammelmann Australia was chosen as a partner for these systems.

Hammelmann Australia's water filtering and pressure boosting equipment is utilised to ensure that clean water reaches the sprays nozzles at the required output pressure.



Dust concentration measured with and

with droplets sized similar to the dust liberated from iron ore material streams because research has proven that matching the droplet size to the dust particle size significantly increases the chance of capturing dust when compared to larger droplets.

An added advantage of smaller droplets is that the number of droplets can be increased significantly whilst using significantly less water than low pressure, large droplet systems.

EnviroMist systems produce a large cloud of droplets, significantly increasing the chance of droplets coming into contact with airborne dust particles. Testing on installed systems has shown water reductions of over 50% when compared to low pressure dust suppression systems.

In the ROM bins, the power behind the water results in a pressure curtain which is too great for the air displaced from truck dumping operations to penetrate, thus capturing the dust within the dump pocket unlike low pressure dust fogging systems.

The captured air is contained for sufficient time to ensure all the dust liberated from

EnviroMist nozzles are manufactured using the latest in machining technology and have never broken in operation.

EnviroMist dust suppression technology is currently being used in surface mining, underground mining, drill and blast operations, transfer chutes, materials processing plants and ship unloading operations.

Systems are individually designed for each task with 3D models produced to ensure the system is compatible with the existing equipment and to ensure clients understand the design prior to manufacture.

The company has numerous spray bar designs and is always developing new designs to improve the output or to meet specific space, material or site requirements. EnviroMist is a customer-focused business, meeting all reasonable client requirements, and has supplied several emergency systems to meet short term, high priority customer requirements.

Hammelmann Australia

For 70 years, Hammelmann has been the market leader in manufacturing high-

The EnviroMist multi-nozzle spray bar

rotary car dumper (left) and truck dump (right).

pressure pumps and systems, and has developed an international reputation for innovation, quality and reliability.

Its primary focus is on developing customerspecific solutions for using high-pressure water in diverse applications and industries. The integrated high-pressure pump systems are extremely specialised and varied and are available in a range of different performances.

They are used in all mining applications, including coal, iron ore, alumina, nickel, uranium, chemical and petrochemical industries.

Hammelmann's ongoing commitment to high quality standards and on-going investment in state-of-the-art manufacturing ensures EnviroMist continues to offer quality premium products "made in Germany, assembled in Australia".

Hammelmann Australia is proud to be chosen to partner with EnviroMist in the South Flank Project. **AMR**



without the dust suppression system the ore has been suppressed. *operating.*

The BHP South Flank dust suppression systems consist of an automatic backflushing pre-filter, a water tank which is used as both a buffer and a means of stopping air entering the pumps, a priming pump to give sufficient back pressure for the main pump, a secondary filter to remove any debris picked up from the tank, and a Hammelmann high pressure pump to deliver clean, debris free water.

EnviroMist systems are individually designed to deliver the required pressures to the nozzles for suppressing dust from mining operations.

The systems developed for the BHP South Flank project are designed to deliver water

The COS systems are designed to encapsulate the falling material stream within a high pressure curtain of dust droplets which penetrate the falling material stream as it separates, thus reducing dust liberation from surface turbulence, cross winds or when the material comes into contact with the stockpile.

One main maintenance advantage of the EnviroMist system is that nozzles rarely block and the high-quality components last for years. EnviroMist only uses certified stainless steel in its spray blocks and nozzles, with the nozzle material selected for greater wear life. Experience with installed systems has shown that a correctly filtered system will result in nozzles that last for years without needing replacement.









HAMMELMANN®

DUST SUPPRESSION INDUSTRY LEADERS

We provide large scale dust suppression applications in iron ore and coal underground and above ground operations, with immediate and significant dust level reduction around material handling areas.

Our systems ensure maximum dust capture effectiveness through the control of droplet size, velocity, water consumption and spray angle based on CFD modelling techniques.

APPLICATIONS

- Stockpiles & ROM Bins
- Crushers & Conveyors
- Mining Machinery
- Ship Loaders & Unloaders
- Transfer Points & Chutes
- Construction Machinery

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