

SIGNED, SEALED, DELIVERED

Joe Sander, ASGCO®, USA, details the company's ongoing commitment to providing solutions to operators with conveyor belt problems.

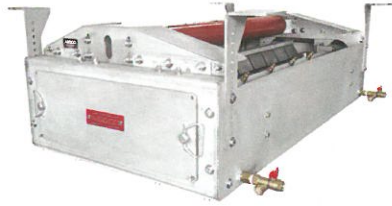
In today's coal mining industry, it is more important than ever to operate with efficiency and safety as the key factors guiding a process. Ineffective material handling leads to many complications, including dangerous working conditions and product loss, as well as expensive repairs and downtime. Moreover, the accumulation of dust and airborne particulate can be a source of major fines. ASGCO has been a leading manufacturer and provider of conveyor products and services since 1971, offering innovative

solutions to these common and easily avoidable problems that many operations face.

Clean belts; fewer problems

Mining hard materials from the earth, such as coal, has intrinsic challenges that must be overcome to run an efficient and safe operation. The nature of the material, along with the means in which it is moved, leads to unavoidable dust that requires containment and mitigation. ASGCO has drawn on its 45 years of expertise and hands-on experience to

create the highest level of dust control and belt cleaning with its patented Wash Box™ system. This self-contained secondary belt cleaning system is positioned after the head pulley to loosen stubborn coal residue from the belt with powerful water jets. The material is then scraped from the belt with a series of tungsten Razor-Back®



Wash Box secondary belt cleaning system: fully-enclosed Wash Box system provides excellent belt cleaning, while containing the wash waste fluid.



Solution: The ASGCO Wash Box was installed as a secondary conveyor belt cleaner, designed to work on the return side of the conveyor belt.

blades and then rinsed one more time with powerful water jets. Dust is released from the bulk material residue before it has a chance to leave the belt and become airborne or fall off the return side and contaminate other components.

Case study: Wash Box

ASGCO recently helped a coal-fired power plant to reduce its dust levels by 60%. The company implemented its ASGCO Wash Box secondary belt cleaning system on the plant's tripper conveyor, which was feeding the coal bunkers, in order to reduce the airborne dust and carryback.

Challenge

Current guidelines for combustible dust control are critical to any safely operating coal-fired power plant, or any operation that is handling materials that can create combustible dust. The tripper floor at the coal-fired power plant had a large unhealthy volume of dust suspended in the air, which made it difficult to see from one end of the room to the other. Operators had to wear dust masks and respirators, and, at times, that was not enough.

Solution

The dust control team from the power plant worked with ASGCO to help with the installation and operating procedures of the Wash Box to help reduce the dust and carryback in the tripper room. They implemented and

refined the system, and programmed the water source to turn on upon start-up of the conveyor and then shut the system off 5 min. after the conveyor belt shuts off.

Results

Air quality tests have proven that the airborne dust levels in this area of the plant showed a reduction of 60% or greater. Operators that were originally hesitant to use the Wash Box system, now insist that it runs every day. Dust levels without the Wash Box averaged 6 mg/m³, while dust levels with the Wash Box averaged less than 2 mg/m³.

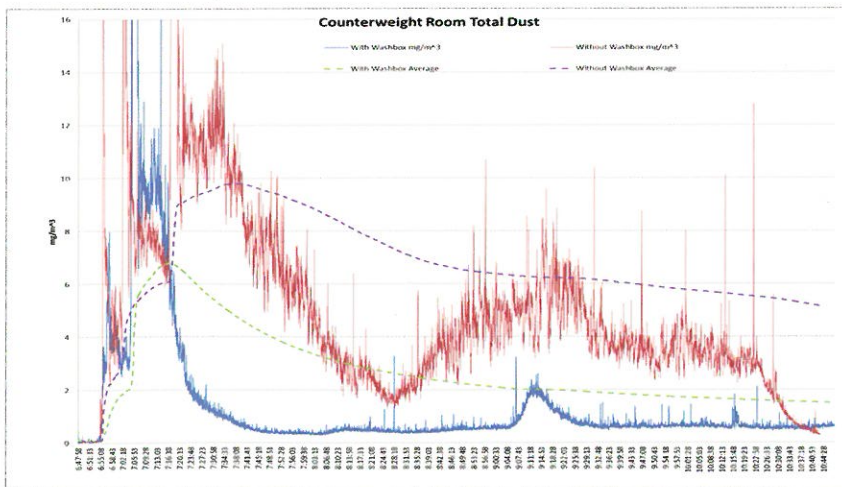
Training to win

Repairs and downtime are two of the largest factors limiting productivity and output. One startling – and yet easily avoidable – problem is catastrophic belt damage due to poor tracking. When loads are properly distributed at the load zone, the most critical components to ensure proper belt tracking are the training idlers. While many common training idlers use belt edge guides to keep belts – especially troughing belts – centred, long-term edge contact can be extremely damaging to the belt itself.

Edge rollers are commonly fouled with carryback and fugitive material and become more problematic than helpful for proper belt tracking. Edge damage leads to many other tracking issues and premature belt failure, which is an expensive and lengthy repair. ASGCO's patented Tru-Trainer® dual return idlers work to effortlessly track the belt without damaging edge contact. Sealed internal pivot mechanisms are also impervious to fouling by carryback, making them effective and worry-free.

Case study: Tru-Trainer

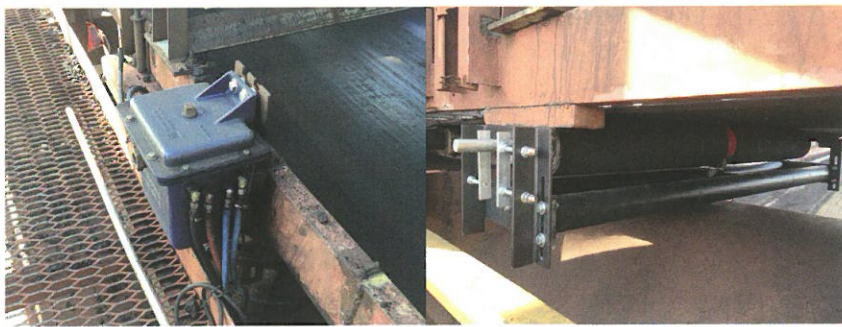
A midwestern US coal-fired power plant was having conveyor belt tracking issues and needed effective training idlers but had very limited installation space. ASGCO aimed to improve belt tracking, as well as eliminate belt edge damage and product spillage. The ASGCO low-profile dual return Tru-Trainer system was implemented to help eliminate the belt tracking issues.



Air quality tests showed a reduction of dust levels of 60% or greater. Dust levels without the Wash Box averaged 6 mg/m³ and dust levels with the Wash Box average less than 2 mg/m³.



Stacker reclaimer reversing conveyor 60 in. wide steel cable belt.



Before (left): This conveyor had a failing hydraulic three return idler belt training system that would not properly keep the conveyor belt in line. After (right): ASGCO engineered Tru-Trainer low-profile dual return system with a height of only 11.8 in., installed to continually re-centre the belt.

Challenge

For many years, this conveyor had a hydraulic three return idler belt training system that would not properly keep the conveyor belt in line. The plant was constantly facing downtime to repair the hydraulic system. Even when operational, the belt would veer off-centre and come into contact with the structural supports, leading to critical damage to the belt and costly material spillage. The problem persisted upon installation of a new belt and, within 12 months, it needed to be completely replaced a second time.

To further complicate this application, the conveyor also has less than 13 in. of height to mount any type of return training roller. Options for eliminating the tracking problem were extremely limited by these space restrictions.

Solution

After ASGCO's technicians performed a complete survey of the conveyor system, the problem issues were identified. It was recommended that an ASGCO Tru-Trainer dual return idler was to be installed on the return side of the conveyor, 30 ft before the tail pulley. This position would allow the belt to run straight around the tail pulley and also be centred on the conveyor in the load point, reducing spillage and costly material loss. In addition, the rubber disk return idlers were replaced with Tru-Trainer flat return idlers, eliminating resistance to centring.

Results

After installing two low-profile dual return Tru-Trainers about 20 ft from each stationary pulley, the belt is maintaining centre alignment and the

problem of belt damage and material spillage has been eliminated. The customer no longer has to shut down operations to repair the belt and the hydraulic system or to spend valuable hours cleaning up spilt material. Performance has been greatly improved and productivity is at an all time high. This particular customer is very satisfied with the performance of the Tru-Trainers and recently placed an order for two additional trainers for a different 60 in. stacker reclaimer conveyor.

Conclusion

Every coal-handling operation has extremely challenging conditions – either large or small, constant or intermittent, open or obscure – but one constant is the need to provide a safe working environment, which maximises output with minimal downtime. The multiple benefits of installing a proper dust mitigation and belt cleaning system, such as the ASGCO Wash Box, will provide immediate benefits to both the safety and productivity of any operation.

Along with a proper belt cleaning system, another critical component on the return side is an effective training idler, such as the patented Tru-Trainer dual return idler, which is specifically suited to the needs of the coal industry. Installation of these key components will ensure immediate improvement in the health, safety and morale of employees, as well as reducing expensive repairs, spillage and maintenance costs.

Getting coal from the ground to the power plants is a messy business, no matter what precautions are taken. The world's energy needs are only growing each day and coal is integral to satisfying that hunger. In addition, coal producers and handlers are under more pressure than ever before to streamline operations to improve the bottom line. With a few essential precautions and important conveyor performance components, it is possible to both improve production and safety, while minimising expenses. ASGCO has been a committed partner to delivering these solutions for over four decades and will be for decades to come. ^WC