



Power Generation



Advancing Limestone Protection at Seward Generation with **Eriez MetAlarm**

Near Johnstown, Pennsylvania, Seward Generation operates the largest waste coal-fired power plant in the United States. The facility converts legacy coal waste into reliable electricity while advancing long-term environmental remediation across the region. At this scale, operational stability is engineered, not assumed. Every subsystem — from fuel handling to emissions control — relies on disciplined bulk material management and resilient equipment protection.

For Scott Thomas, Material Handling Superintendent at Seward Operating LLC, that responsibility extends across fuel receiving, reclaim systems, limestone processing, and ash handling. With more than two decades at the site, Thomas has a precise understanding of where risk exposure can develop. One of the most consequential points lies along the limestone reclaim conveyor feeding the plant's crusher.



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Limetsone's Critical Function

In coal-fired waste generation, limestone underpins emissions-control performance. Before entering downstream systems, it must be reclaimed and reduced to a tightly controlled specification. The crusher, therefore, occupies a pivotal position within the process, serving both as a production requirement and as a high-value mechanical asset.

Any tramp metal entering the crushing chamber introduces immediate risk. Ferrous contaminants can fracture liners, damage wear components, or, in severe cases, cause mechanical failure. Even a single incident can trigger unplanned shutdowns and substantial repair intervention.

For years, Seward relied on an ageing metal detector installed on the limestone reclaim belt. As the system matured and changed, its reliability eroded. False trips occurred more frequently, and spare components became increasingly difficult to source.

"The original metal detector was obsolete and had random problems with nuisance tripping," Thomas said.

Unnecessary belt stops interrupted workflow, while declining electronics created uncertainty around sustained performance. The plant required a modern detection platform capable of safeguarding the crusher without introducing avoidable operational disruption.



Reinforcing a Trusted Partnership

Seward's material handling network already incorporated multiple Eriez electromagnetic vibratory feeders and suspended magnets operating throughout the facility. Those installations have dependably demonstrated consistent performance in the abrasive, high-throughput environment.

Equally influential was Seward's long-standing relationship with Hareza Technical Sales, Eriez' regional representative in western Pennsylvania. Hareza has supported the plant for years, providing application insight and responsive technical assistance. That proximity and familiarity proved decisive.

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This combination of proven equipment and accessible technical support positioned Eriez as a natural partner in updating the detection system.



Deploying the Eriez MetAlarm

To strengthen protection for limestone processing, Seward installed the Eriez MetAlarm® bulk material metal detector on the reclaim conveyor, replacing the legacy unit.

Mounted upstream of the crusher, MetAlarm continuously monitors conveyed limestone for tramp iron and other metallic contaminants. The system employs pulse induction metal detection technology integrated with adaptive digital signal processing, enabling it to distinguish genuine metal intrusion from background interference generated by material characteristics, belt conditions, or electrical noise. That discrimination capability is particularly valuable in heavy-industrial settings, where signal variability is common.

When metal is detected, the system initiates a controlled belt stop, allowing operators to isolate and remove the object before it can reach the crusher. Rather than absorbing downstream damage, the process intercepts the hazard at its source.

Delivered in spring 2025, the unit was installed during the plant's scheduled autumn outage. Seward's electrical and instrumentation team managed integration in coordination with Eriez engineers and Hareza Technical Sales, ensuring compatibility with existing control architecture and operating parameters.

ERIEZ METALARM FEATURES

- Pulse induction metal detection technology
- Adaptive digital signal processing
- Distinguishes genuine metal intrusion from background interference
- Controlled belt stop when metal is detected
- Protects the crusher before damage occurs



Calibration in a Continuous-Duty Environment

High-sensitivity detection in a continuous-duty power plant demands disciplined calibration. Limestone composition, moisture variation, belt speed, and mechanical vibration each influence signal response. Establishing stable detection thresholds requires evaluation under real operating conditions.

The Seward team is completing the final optimisation of the system to align sensitivity with site-specific variables while maintaining operational continuity. This stage reflects calculated commissioning rather than trial-and-error adjustment.

Through collaboration among plant personnel, the Eriez engineering team, and Hareza's local support team, the detector is being tuned to deliver consistent performance in the realities of daily operations.

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Prevention as a Performance Standard

Metal detection rarely reveals its value through visible metrics. Rather, its contribution is demonstrated in events that never occur.

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Reducing the probability of crusher damage strengthens plant reliability at a fundamental level. Avoiding catastrophic incidents preserves maintenance planning, workforce allocation, and production stability. In an operation of Seward's scale, safeguarding critical equipment is itself a measurable form of performance.

With optimisation complete, Seward plans to evaluate opportunities to upgrade additional legacy metal detectors elsewhere in the facility, reinforcing a broader equipment protection strategy.

BENEFITS OF THE METALARM UPGRADE

- Strengthens plant reliability
- Avoids crusher damage
- Preserves maintenance planning
- Supports production stability
- Reinforces equipment protection strategy



A Layered Protection Philosophy

The MetAlarm installation complements Seward's existing Eriez suspended magnets and vibratory feeders, forming a comprehensive protection framework within the material handling system. Magnetic separation removes ferrous contaminants wherever feasible, while electronic detection provides secondary verification ahead of critical processing assets.

For a power generation facility of this magnitude, redundancy is not excessive; it is disciplined engineering.

Reliability Without Interruption

Power plants depend on technologies that operate reliably, often without notice, under demanding conditions. Protection systems must withstand dust, vibration, and continuous throughput while remaining sensitive enough to intervene before damage occurs.

By integrating the Eriez MetAlarm and continuing its collaboration with Hareza Technical Sales, Seward Generation has reinforced a vital control point within its limestone reclaim process.

For Thomas and his team, the objective is steady, long-term reliability — equipment protection engineered to perform quietly, consistently, and without interruption.

For more information
about Eriez® metal
detection and MetAlarm,
visit **Eriez.com**



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Established in 1942, Eriez is a global leader in separation technologies. Our commitment to innovation has positioned us as a driving market force in several key technology areas, including magnetic separation, flotation, metal detection, and material handling equipment. The company's 900+ employees are dedicated to providing trusted technical solutions to the mining, food, recycling, packaging, aggregate, and other processing industries. Headquartered in Erie, Pennsylvania, USA, Eriez designs, manufactures, and markets on six continents through 12 wholly owned international subsidiaries and an extensive sales representative network. For more information, visit www.eriez.com.

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