



Improved Coal and Ash Handling System
**Saves Facility Hundreds of Thousands
of Dollars in Maintenance Costs**



THE SITUATION

A facility in northeastern North Dakota needed to upgrade their central heating system. The long and cold winters in the region require a 7-month heating season. The facility consisted of several interconnected buildings, with boilers producing steam to provide heat.

THE AGING, INEFFICIENT SYSTEM WAS COSTLY TO OPERATE BECAUSE OF HIGH MAINTENANCE.

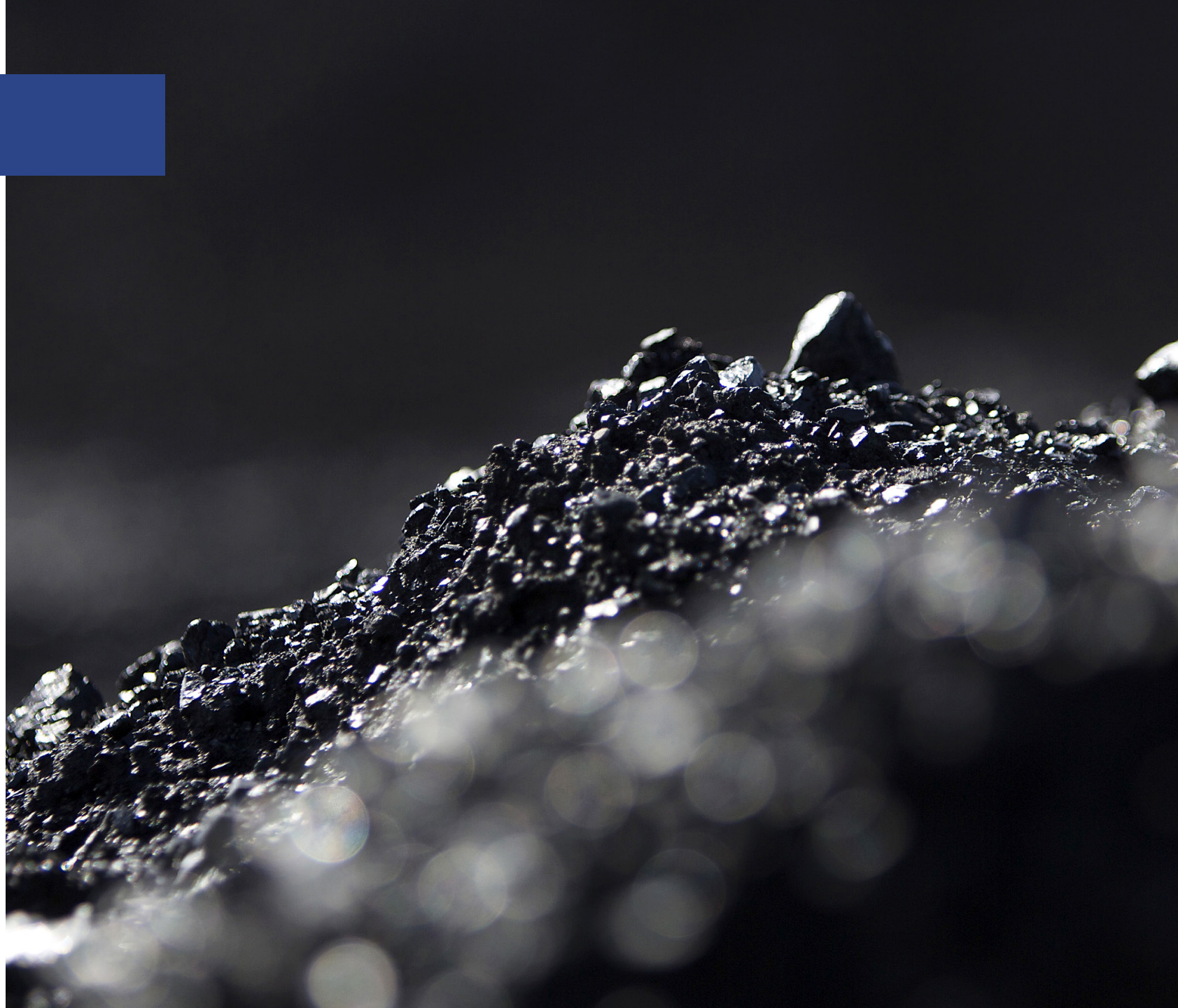
A new central heating system was designed to gain operating and heating efficiency – but the project had a strict budget and expected a return on investment of less than 5 years.



THE CHALLENGE

A system was required to both bring coal into the boiler and remove ash from the boiler. While coal is typically not a challenging material, the harsh environmental exposure – temperatures that can drop to -40F – required a chain that could break up friable, frozen coal but also handle free flowing fines.

**THE CONFINES OF THE
PLANT REQUIRED A SMALL
FOOTPRINT – MAKING IT
CRITICAL TO EFFICIENTLY
UTILIZE SPACE.**



THE SOLUTION

A truck receiving conveyor was designed to handle material with flow rates of 55 TPH, ensuring the plant never ran short on fuel. This conveyor meters the flow rate from the receiving hopper and elevates the coal around 40 feet at a 70-degree incline.

THE COAL'S WIDE RANGE OF CHARACTERISTICS REQUIRED A CDM 142STD 001 SERIES CHAIN.

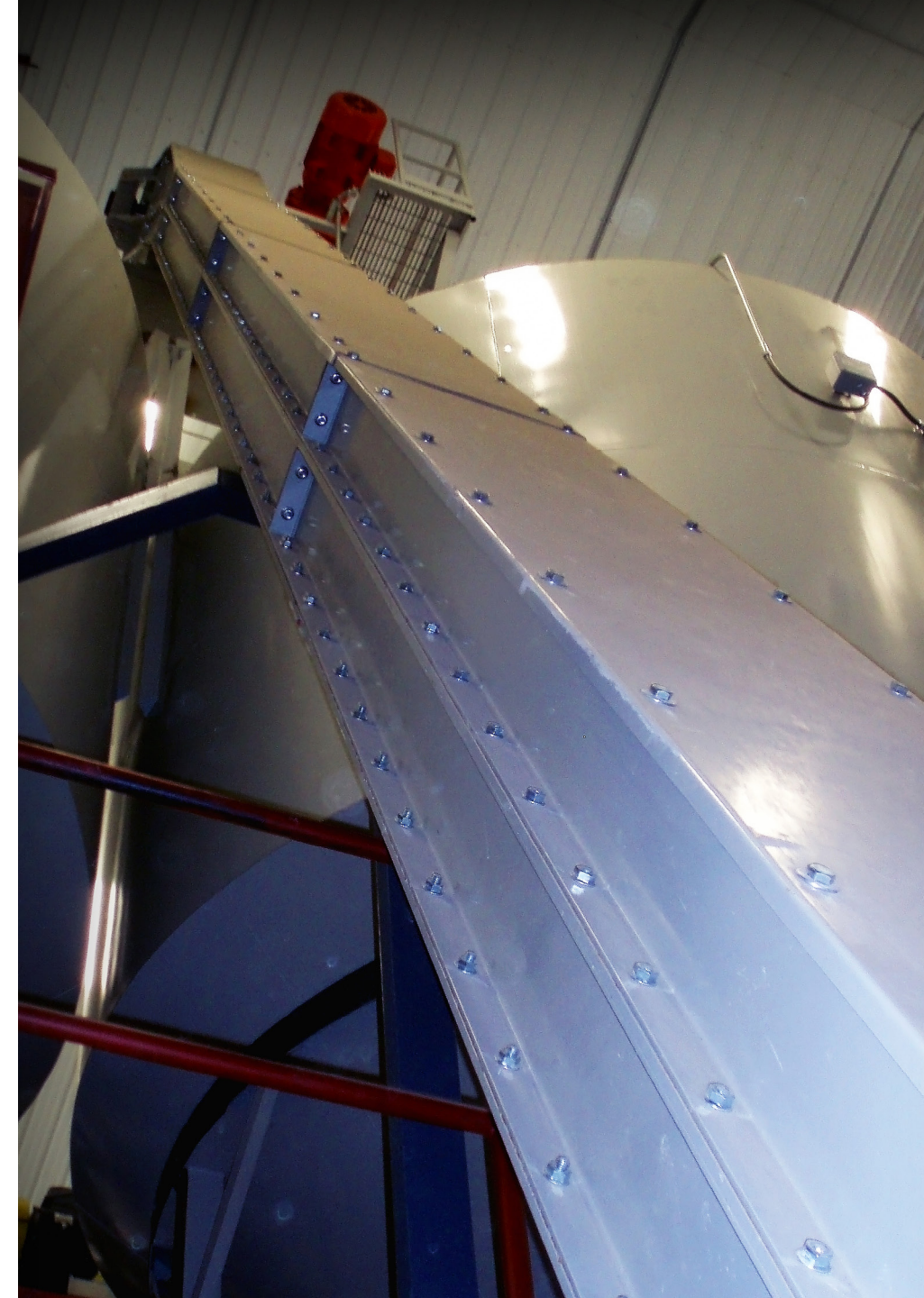
This chain series' skeletal flight profile effectively carries material with a broad spectrum of characteristics.

Downstream from the truck receiving conveyor, CDM supplied a bin distribution conveyor with manually

operated gates – with bin level indicators to give monitoring personnel plenty of time to close the upstream gate and open downstream gates for an uninterrupted flow.

Coal is then drawn off the bins using screw conveyors, which directly feeds the four boilers.

The bottom and fly ash from the boilers is fed to an enclosed En-Masse Conveyor – allowing the transfer and elevation of ash without emissions. To address the abrasive product and high temperatures of the process, CDM constructed the conveyors with an abrasion-resistance plate and provided all shaft penetrations with high temperature packing gland shaft seals.



THE RESULTS

CDM's conveyors provided a highly efficient use of space, which allowed the desired small footprint. The new conveyor system had tangible financial results for the facility.

AFTER THE FIRST YEAR OF OPERATION, OFFICIALS SAID THE NEW PLANT SAVED HUNDREDS OF THOUSANDS OF DOLLARS IN HEATING AND MAINTENANCE COSTS.

The facility has had zero unplanned downtime and only requires routine maintenance. Not only did CDM conveyors help improve the heating process, but the facility also said they are projected to come in under the 5-year ROI target.

