

Product Handling – Taconite Pellets

Industry

Great Lakes Taconite Port

Application

1-on-1 transfer with 1829 mm wide belts and a 12.5m vertical drop

Material

Taconite (Iron Ore) Pellets

Objective

- Eliminate unloading stoppage due to emergency chute patchwork
- Improve housekeeping and safety by reducing material spillage
- Reduce dust generation

Transfer Detail

The transfer handles 10,000 tph of pellets from a Great Lakes ship unloading operation for feed to a stacking conveyor.

Challenge

The old chute system at a Great Lakes taconite port had been in place for many years and was a patchwork of steel that covered numerous points where \ material wore through the shell. Taconite pellets are highly abrasive and the maintenance on the old chute was excessive. Frequently, these repairs resulted in costly delays in ship unloading operations due to emergency patchwork that required stopping the line.

Additionally, there was a high volume of pellets spilled on the ground. This caused a severe safety hazard since the pellets are spheres and pose a fall hazard to personnel walking on them. Because of this, the facility had excessive housekeeping costs to ensure the area around the chute was kept in a suitable condition.



Tasman Warajay Solution

The engineers designed and fabricated a 1-on-1 chute that included removable hard rock liners to handle the abrasive wear of the taconite pellet. This system has been in operation for several shipping seasons with minimal maintenance required on the liners. The material flow path produces efficient material handling with little spillage of the pellets, along with minimal dust generation.

Result

The unscheduled stoppages due to emergency patchwork have ended and the facility is spending minimal time maintaining the chute and cleaning up spilled material. This provides for efficient and cost effective operation, and allows the facility to get ships unloaded without costly interruptions for chute repair.