Case Study Material Handling Improvements

A **process plant operator** was facing **significant material carry back** on their **product conveyor**, causing operational and safety concerns, including:

- **Safety hazards** from product buildup on **walkways and platforms**.
- **Accelerated corrosion** of structural steel.
- **Obscured structural defects**, making inspections difficult.
- **Loss of saleable product**, requiring reprocessing.
- **Increased costs** due to frequent manual cleanup.

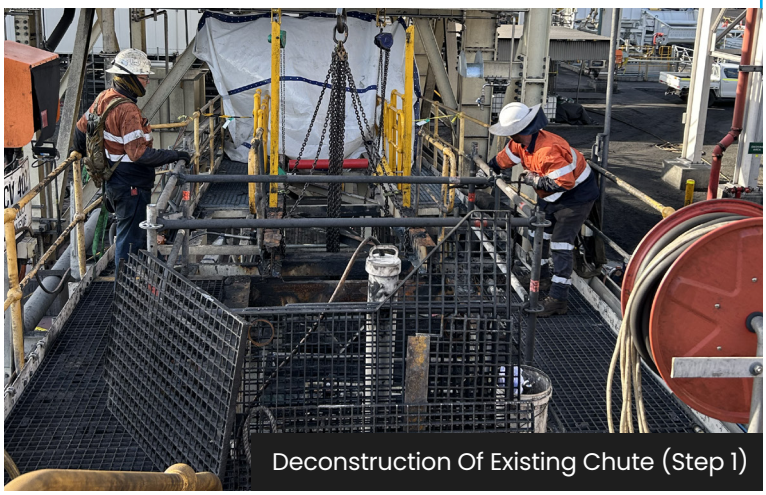
Conveyor Chute Upgrade

Engineered Solution

AE Young Engineers was engaged to **redesign the conveyor head chute**, addressing carry back while working within **brownfield constraints** (e.g., existing foundations and structural steel).

The solution minimised structural modifications and incorporated **modular installation**, including:

- **Replacement head pulley frame**
- **New dribble chute** with optimized geometry
- **Modified supporting structure & foundation interface**
- **Enhanced belt cleaning system,** featuring:
  - Tungsten **primary, secondary, and tertiary belt scrapers**
  - **Snub pulley** for improved belt control
  - **Pressure roller** to enhance scraper efficiency



Deconstruction Of Existing Chute (Step 1)

Results & Impact

Following installation, **carry back was significantly reduced**, requiring **minimal operator intervention**. The success of the project is expected to result in **rapid cost recovery**, with **design, engineering, and installation costs offset within a few years of operation**.

AE YOUNG ENGINEERS

info@aeyoungengineers.com.au

1300 663 398

www.aeyoungengineers.com.au

Install Of Structural Steel (Step 2)

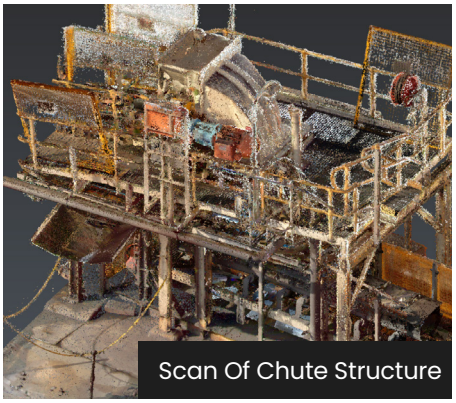
Dribble Chute Install (Step 3)

Dribble Chute Install (Step 4)

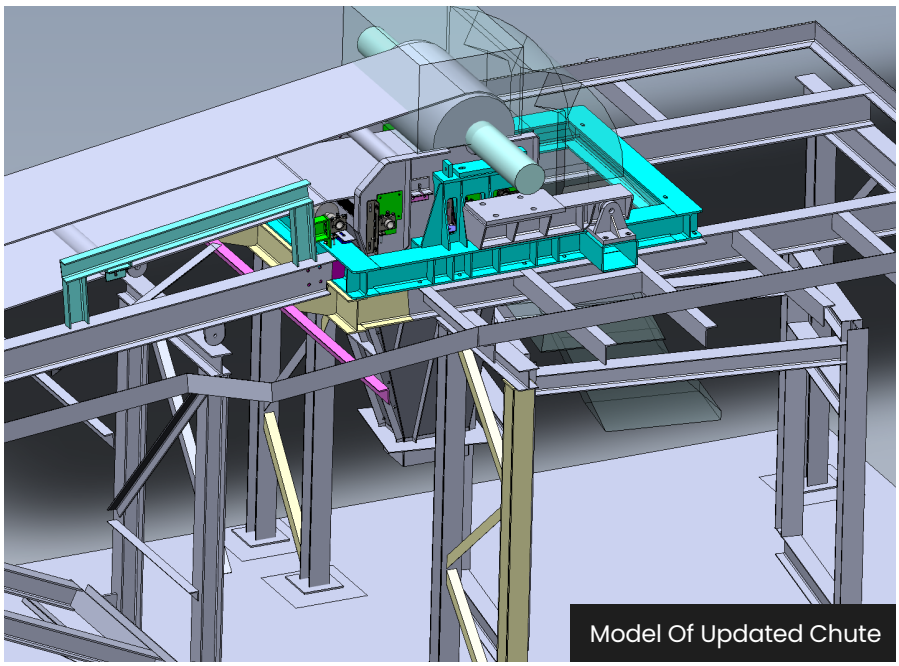
Dribble Chute Install (Step 5)

Chute Installed (Step 6)

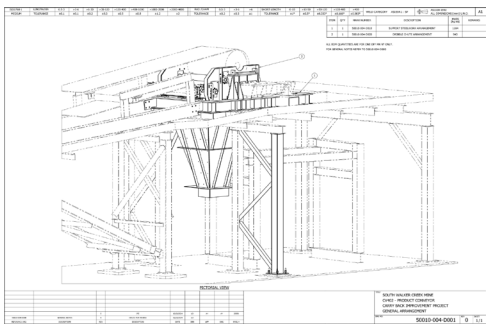
Chute Installed (Step 7)

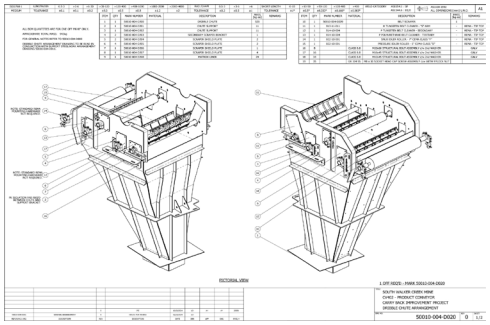


Scan Of Chute Structure



Model Of Updated Chute





AE YOUNG ENGINEERS

info@aeyoungengineers.com.au

1300 663 398

www.aeyoungengineers.com.au