CASE STUDY

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Sector: Mining.

Asset: Discharge chute and section of slurry transport piping, high criticality due to its impact on operational continuity.

Initial situation: The operation was experiencing performance losses in a slurry transport line, with a history of partial blockages, accelerated wear, and unplanned corrective shutdowns. In addition, there was suspicion of internal deterioration in a transition area where it was not possible to visually verify the condition without dismantling components.

The maintenance team needed to confirm whether the issue was associated with material buildup, wear of the internal lining, or localized deformation. Fully opening the system would have required a longer shutdown and greater intervention on a critical line.

Work methodology:

A borescope inspection was carried out to internally inspect the asset in a hard-to-access area, using a non-destructive visual inspection method that could be implemented quickly.

The intervention included:

- Review of the history of blockages, wear, and maintenance events,
- Definition of access points for introducing the borescope,
- Internal visual inspection of the critical section,
- Photographic and video recording of the observed conditions,
- Technical analysis of findings and action recommendation.

During the inspection, buildup of adhered material, irregular wear of the internal lining, and a partial reduction of the effective flow area in a change-of-direction zone were identified. Marks consistent with sustained abrasion caused by solids drag were also observed.
Based on the findings, it was recommended to:

- Schedule localized cleaning of the affected section,
- Intervene in the area with the greatest wear during the next maintenance window,
- Review flow velocity and lining condition,
- Establish periodic follow-up to validate wear progression.

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Conclusions: The borescope inspection made it possible to confirm the internal condition of the system without major exploratory dismantling, reducing uncertainty and improving maintenance planning. Instead of stopping the line for a full opening without prior diagnosis, the client obtained concrete visual evidence to intervene only where it was truly necessary.

The case demonstrated the value of borescope inspection in assets subject to internal wear and material buildup, especially when direct access is limited and the cost of an invasive inspection is high.

Impact indicators:

- Major shutdown avoided during the diagnostic phase: estimated
- Exploratory dismantling hours avoided: estimated 10 to 18 hours
- Improved intervention planning accuracy: high
- Risk of severe blockage: identified early
- Technical support for maintenance prioritization: based on visual evidence