

Reducing Maintenance & Production Costs of an

BACKGROUND

As manufacturing plants age, they begin to deviate from their prime operating conditions. Over time, machine parts deteriorate by such mechanisms as fatigue, corrosion, and wear (*Fig. 1*). Small problems, which often go unnoticed, may affect performance and maintenance of components over time increasing maintenance and operating costs and reducing performance.



Figure 1. Corrosion of machinery & parts

Manufacturing plants can significantly decrease costs through inspection and implementation of a condition-based maintenance program.

DISCUSSION

MIS was contracted to help identify areas for reducing the maintenance and production costs and increase the safety of the working environment of an aluminum can manufacturing plant. The specific areas addressed in this project included:

- Development and implementation of a condition-based maintenance program for essential components.
- Mitigation of corrosion and stress corrosion problems in the acid wash area.
- Reduction of the “spoilage” rate by workpiece temperature control.
- Seismic upgrades for structures and components.

MIS brought in a team of experts in maintenance, structural, and corrosion issues. We conducted a plant walkdown, inspected major plant equipment and structures, interviewed plant personnel, and reviewed system operations to develop a complete understanding of the firm’s manufacturing processes and equipment maintenance needs (*Fig. 2*).

During our preliminary investigation, we identified a

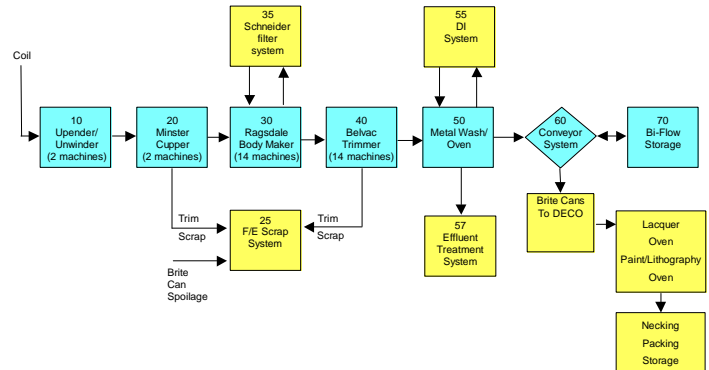


Figure 2. Production process diagram

few areas of immediate concern (*e.g. Fig. 3*) and devised a plan of action for repair. MIS provided the client with a list of improvements that would increase efficiency, reduce cost, and create a safer working environment. From this list, the plant could prioritize the desired changes and take appropriate action when convenient.

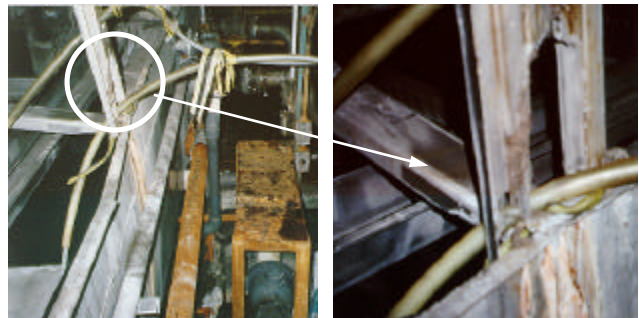


Figure 3. Excessive corrosion of wash basin due to improper acid distribution system

CONCLUSION

By relying on our expertise in the fields of condition assessment, failure prevention, life extension, and stress and fracture mechanics analyses, MIS identified improvements that would reduce maintenance and production costs and improve safety within the plant. Due to its extensive experience with industrial environments, MIS is readily able to inspect many manufacturing situations, detect and analyze potential problem areas, and recommend