

Mechanical Integrity (MI)

The Challenge

Mechanical Integrity (MI) is a key part of your process safety program. A robust program allows you to understand and maintain the equipment in your process. The CSB outlines over a dozen incidents linked to MI since 2000 and some statistics state that over 40% of incidents are related to mechanical failures.

Your MI program establishes and implements written procedures that represent the corporate minimum requirements for inspections, testing, and maintenance for code and non-code equipment and assets for all of your facilities. The MI Program is meant to provide guidance on inspections, testing and maintenance of code and non-code assets. It must be implemented in accordance with and in conjunction with governmental and/or local requirements as well as recognized and generally accepted code inspection practices.

Client Descriptions

Companies

Food Processing, Food & Beverage

Project Location

US and non US

Industry

Food & Beverage

Annual Revenues

\$1.5M to \$4B

Employees

300 to 3,400 employees

RISK, Inc. Solution

Support Development of a Mechanical Integrity Program

The Solution:

We recently partnered with clients who were concerned that their MI program was not robust enough. The improvements were not regulatory driven as sites were below the threshold quantities that trigger regulatory requirements. They wanted to make sure their sites were safe and employees protected from harm.

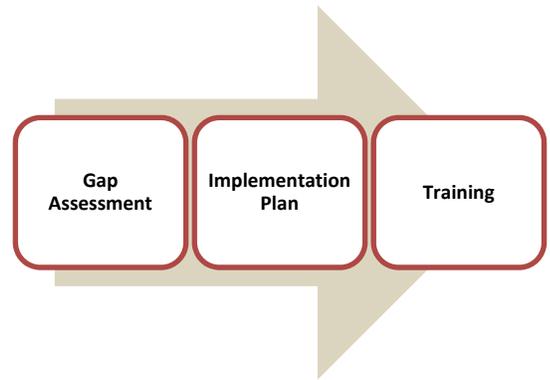
We began the project with a gap assessment of the programs to provide “fresh eyes” to see how they could be strengthened. From the review of each program we developed an MI Implementation Plan of improvements, broken into phases, with a focus on training site staff to understand and take ownership of maintaining programs.

Using the master implementation plan we worked with each site to develop their site specific MI Implementation Plan. The foundation of the MI programs were assembled by compiling a list of process equipment and instrumentation to be included in the MI program along with a list of required maintenance tasks and initial frequencies based on:

- Hazards reviews
- Company experience
- Industry guidance
- Manufacturer’s recommendations

To assist in gathering information each site was provided a sheet listing mandatory equipment to include per RAGAGEP or local applicable regulations and specific information that must be included (i.e. testing and inspection requirements, identification numbers, drawing and design information). The mandatory list included:

- Pressure Vessels
- Boilers
- Fired Heaters
- Tanks
- Pumps
- Piping systems and components (valves)
- Relief and vent systems and devices



This information was used to:

- Prioritize and select Assets to include into the MI Program
- Define the process to schedule inspections and manage reporting results
- Understand requirements to properly manage Inspection Records
- Understand the requirements to generate and manage Work Orders (WO)

Roles and responsibilities were defined and assigned. We provided mentoring and guidance to teams at the sites who worked to build and understand their program. Training sessions were held to review key parts of the plan to ensure sites could continue to operating the programs.

The Result:

Site staff developed a deeper understanding of the need and purpose of their MI programs. They were able to manage assets better through regularly scheduled inspections. They improved safety performance by preventing equipment failures. By minimizing downtime and optimizing maintenance, they extended equipment lifespan and reduced operating costs. Other benefits to robust Mechanical Integrity program include:

- **Improved Maintenance Efficiency and Cost Savings:** A well-structured MI program optimizes maintenance activities, reduces the need for emergency repairs, and improves overall equipment reliability.
- **Regulatory Compliance:** MI is a crucial component of Process Safety Management (PSM) standards, ensuring compliance with regulations from agencies like [OSHA](#) and the [EPA](#).
- **Better Capital Planning:** Reliable data from MI programs allows for more informed decisions regarding capital investments and equipment replacement strategies.
- **Improved Operational Excellence:** By maintaining equipment integrity and reliability, facilities can achieve higher levels of operational performance and efficiency.

Get expert guidance for process safety success

Partner with us for your MI program

Contact us at info@psmrisk.com

Call us at 510-828-7228 to talk about your needs