



ASSET INTEGRITY MANAGEMENT & MECHANICAL INTEGRITY

THE E²G DIFFERENCE

70+ combined years of field experience

Pioneered development of **FFS & RBI**

Primary authors of **API 571, WRC 528, & 562**

Lead investigators on **API 579**



Equity is the industry leader in mechanical integrity solutions, the "Cadillac" of mechanical integrity!

Chemical Processing Unit, Inspection Advisor, November 2021

INDUSTRIES



Ammonia/
Fertilizer



Biofuels/
Renewables



Chemical &
Specialty
Chemicals



Oil & Gas



Petrochemicals

CONFIDENTLY ACHIEVE SAFE & RELIABLE OPERATIONS

Prevent loss of containment and structural instability by ensuring all equipment is designed, built, installed, operated, and maintained properly. Asset integrity management (AIM) is designed improve safety, environmental impact, and reliability. Continuously improving your AIM program will help your facility proactively evolve with changes in technology and the industry.

At E²G, we use a multi-disciplinary approach to provide both practical proactive and reactive strategies for every stage of an asset's lifecycle. The mechanical integrity team will develop a repeatable mechanical integrity (MI) program that is aligned to business goals and supports the delivery of safe and reliable operations.



Increase equipment safety



Improve operational reliability



Prevent loss of containment



Improve business continuity

ASSET CRITICALITY ASSESSMENTS

Identify the most critical equipment to your organization by risk ranking each asset and comparing the impact to business objectives, personnel safety, and environmental damage. At E²G, we use a multi-disciplinary approach to develop an asset criticality assessment for all equipment at your facility and provide master asset list with criticality rankings that can be used to develop asset reliability strategies, inspection planning, and maintenance schedules.

ROTATING MACHINERY: MECHANICAL INTEGRITY AUDITS

Factoring risk into managing rotating machinery will help establish best practices for equipment design, installation and commissioning, and operation and maintenance. With our knowledge of API RP 691 "Risk-based Machinery Management", we help you refocus efforts onto the highest risk equipment, implement field risk assessments, and develop risk mitigation activities.

PRESSURE RELIEF DEVICE MECHANICAL INTEGRITY

Properly designed, installed, and maintained pressure relieving systems are a critical part of all mechanical integrity programs. We will document the relief system design basis, retrofit PRD installations, and develop inspection plan for testing and overhaul of relief devices.

ASSET INTEGRITY MANAGEMENT (AIM)

Definition:

AIM is a broad and comprehensive approach that balances costs, risks, and opportunities with asset performance to meet business objectives.

Best practice:

Develop the AIM capital project planning or the design stage to reduce costs and minimize risks.

Codes, Standards & Regulations:

- BS ISO 55000 series is a guide for AIM
- Reliability programs for identifying risk management strategies (criticality, RCM, RBI, etc.)

Timing:

Best to develop an AIM in the design stage of an asset can be applied throughout the asset's lifecycle

Focus Areas:

- Asset reliability strategies – asset integrity and operating performance
- Policies, programs, and resources for the development and execution of asset management activities

Schedules:

Continuous improvement processes with KPIs
Regulatory audits when necessary, similar to MI program

MECHANICAL INTEGRITY (MI)

Definition:

MI is a subset of asset integrity management and focuses on an asset's ability to perform its required function to prevent, detect, and/or mitigate a major hazardous event

Best practice:

Develop the mechanical integrity program during the design stage of an asset

Codes, Standards & Regulations:

- OSHA 29 CFR 1910.119 Process Safety Management (PSM)
- EPA 40 CFR 68 Risk Management Program (RMP)

**Note, OSHA and EPA regulations are for USA-based plants or facilities only*

Timing:

Best to develop an AIM in the design stage of an asset can be applied throughout the asset's lifecycle

Focus Areas:

- Selection of equipment in MI program
- Procedural documentation for maintaining equipment integrity
- Training for process maintenance activities
- Process equipment inspection and testing
- Equipment deficiencies – identification and resolution
- Quality assurance of equipment design, fabrication, installation and maintenance

Schedules:

Audit every 3-years or after a major incident or failure