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# Asset Integrity

## Expert analysis and methodologies ensuring safer process facilities

The success of an organization to meet the objectives of its Asset Integrity Management (AIM) depends largely on the implementation of a robust, effective, and efficient inspection, testing, and preventive maintenance (ITPM) program.

### Siemens Energy Solutions

We combine core competencies, effective engineering information management, and workflow optimization to deliver a streamlined framework, organization, implementation, and management of asset integrity management programs facility-wide.

- **Expert Consulting:** with 25+ years of process safety experience, industry-leading tools, and methodologies helping define clients' Inspection Data Management System (IDMS) program and Risk-Based Inspection (RBI) activities.
- **Advanced experience:** in the development of industry best practices of inspection, testing, and preventative maintenances (ITPM) programs, procedures, standards, and work processes to meet process safety management requirements.
- **Customized training:** providing interactive training courses tailored to your organization needs.

### Value to Customer

- Compliance with regional process safety and environmental regulatory requirements
- Maintaining the mechanical integrity of Safety Critical Equipment (SCE) by implementing a systematic approach towards establishing ITPM programs

**Case Study**

Implementation of an effective Asset Integrity Management program in a large oil refinery results in*:

- Asset availability: 30% reduction in turnarounds
- Cost savings: 50% reduction in preventative maintenance costs in a long run
- Cost-benefit-risk analysis: 19% of inspection and maintenance activities were reduced while LOPC KPIs were improved
- Life extension of assets by identifying mitigation alternatives
- Compliance with regional safety and environmental requirements

* Source: Inspectioneering Journal, Vol. 24, Issue 2, April 2018 and Reducing the Cost of Preventative Maintenance, Oniqua Enterprise Analytics Accessed, April 2020.

- Improving reliability, availability, and maintain ability to maximize plant life
- Improving facility risk identification and visibility to site risk exposure
- Optimize inspection, repair, and maintenance spend and resource planning using cost risk benefit analysis
- Establish an effective "system of work" considering processes, people, and tools
- Increased efficiency in executing other process safety management elements such as MOC, PHAs, or KPIs

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## Services

- **Risk-Based Inspection:**
  - RBI program development following API RP 581 fully quantitative assessment and/or semi-quanti tative assessment as per industry's best practices
  - Establish ITPM programs and procedures define organizational responsibility and workflows
  - Provide on- and off-site engineering consultancy
  - Undertake design reviews and baseline RBI before commissioning
  - Develop and design smart leading/lagging KPIs linked to RBI findings
  - Identify and monitor Integrity Operating Windows (IOWs) considering the risks exposed
  - Conduct sensitivity analysis, ideal for situations where data is unavailable
- **Fitness-for-Services:**
  - Evaluation and remedial action for various damage mechanisms as per API 579-1/ASME FFS-1
  - Establish life extension programs
  - Re-rating or operation change analysis
  - Integrate lessons learned from previous equipment failures
- **Materials and corrosion analysis:**
  - Evaluation and remedial action for existing damage mechanisms
  - Material selection review considering active damage mechanisms
  - Corrosion growth prediction
- **Inspection Data Management Services:**
  - Audits for PSM compliance and optimal use of IDMS
  - AIM Program & software implementation
  - Data management – thickness monitoring location (CML) strategy and optimization
  - Data migration from other IDMS
- **Advanced Reliability Engineering:**
  - System reliability analysis using standard tools such as FMEA
  - Developing probabilistic models for different equipment and industrial applications

## Software

- Provide AIM software tools for equipment owners and operators (standard and customized packages)
- Consultation on software selection to meet specific client needs

## Training

- **Standard AIM training workshops:**
  - Principals of AIM and PSM and introducing RBI Best Practices
  - Risk-Based Inspection course covering the methodology of RBI and the key elements and implementation of an RBI program using PSAIM™ software
- **Customized training courses:** interactive, on the job training with API and ASME codes