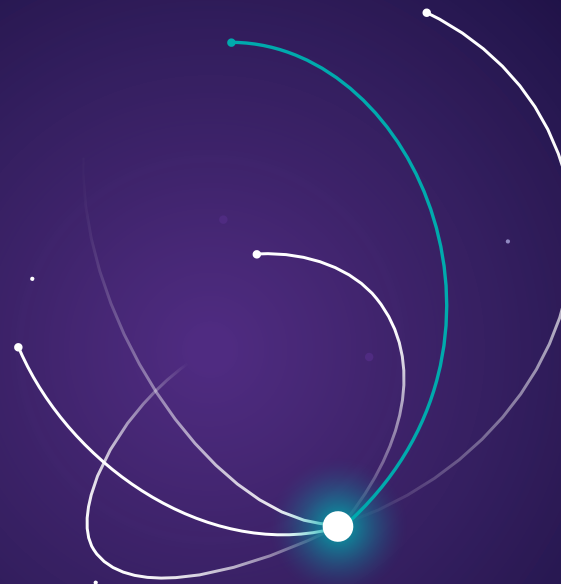


# Asset Integrity

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-quantitative 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