Role of Mechanical Integrity Program in Design, Installation and Operation of Turbomachinery and Pumps

Short Course
45th Turbomachinery Symposium

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Mechanical integrity (MI) is a critical element of process safety management (PSM) program. The high importance of turbomachinery equipment (e.g., pumps, compressors, turbines) handling hazardous materials in process industries requires the equipment to be included in a best-in-class mechanical integrity program. The Ciniza Oil Refinery explosion at Giant Industries in Jamestown, New Mexico can be taken as an example where the lack of a good MI program led to an incident causing major asset loss and severe injuries to employees.

Many organizations of various sizes and shapes have severe shortcomings in the effective implementation of mechanical integrity program as well as competency in executing the program. To address such issues, this course will cover the following topics pertinent to turbomachinery and pumps:

- RAGAGEPS. Inspection, Testing, and Preventive Maintenance (ITPM) including task planning, testing techniques, activities, and execution.
- Loss of Primary Containment including Tier 1 Tier 4 definitions and consequences. Mechanical Seals including how seals work, why they fail, and increasing seal life.
- Risk Evaluation including basic assessment, and evaluating risk based on shaft annular area and sealing chamber pressure.
- Risk-based Machinery Management Draft API STD 691, covering all aspects of the life cycle. Several activities throughout the day will reinforce concepts.