



MECHANICAL INTEGRITY OF INDUSTRIAL EQUIPMENT

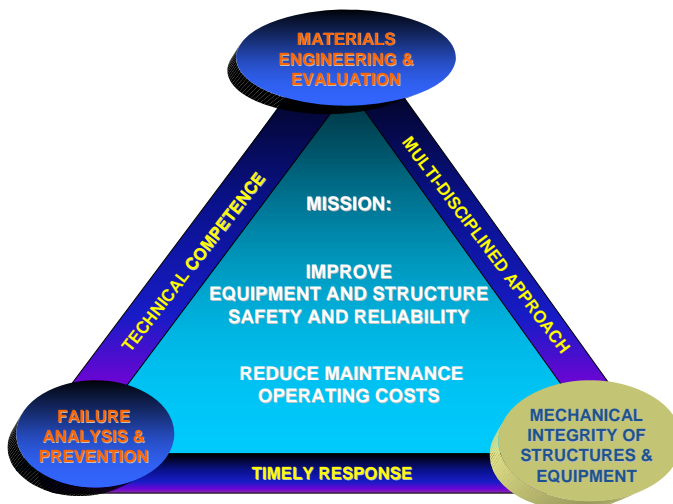
Maintaining Equipment Reliability

Baker Engineering and Risk Consultants, Inc. (BakerRisk) offers expertise in assessing mechanical integrity of industrial equipment and structures to assure equipment reliability. Mechanical integrity assessments are performed because equipment and structure have aged or have experienced life-limiting damage.

Our staff utilizes experience from past assessments and multi-disciplined while maintaining client confidentiality and providing recommendations that will prevent costly failures from occurring.



BakerRisk engineers assess storage tank damage mechanisms to avoid failure



Pressure vessels, piping and pumps are assessed for corrosion and high temperature damage to maintain safe plant operations

BakerRisk can perform the following mechanical integrity services:

- Identifying potential damage and degradation mechanisms
- Evaluating potential brittle fracture concerns
- Establishing inspection intervals based on plant inspection reports
- Making recommendations for non-destructive inspection methods
- Determining remaining life of piping exposed to elevated temperatures
- Determining equipment and structure worthiness after fire and heat damage exposure
- Evaluating equipment subject to vibration and excess cyclic loading
- Assessing tank and pipe wall thinning due to erosion or corrosion
- Developing mechanical integrity programs



**BAKER ENGINEERING AND
RISK CONSULTANTS, INC.**

Headquarters

3330 Oakwell Court, Suite 100
San Antonio, TX 78218-3024
210.824.5960 tel
210.824.5964 fax

Houston Office

11000 Richmond Ave., Suite 350
Houston, TX 77042-6702
281.822.3100 tel
281.822.3199 fax

About BakerRisk

Baker Engineering and Risk Consultants, Inc. is one of the world's leading explosion analysis, structural design, and risk engineering companies. BakerRisk provides comprehensive consulting, engineering, laboratory and range testing services to government agencies and private companies who are involved with dangerous, highly hazardous, reactive, or explosive materials.

◆
Blast Effects & Explosion Testing

◆
**Dynamic Structural Analysis
and Design**

◆
Risk Engineering

◆
Process Safety

◆
Incident Investigations

◆
**Reactive Chemicals Testing &
Management Systems**

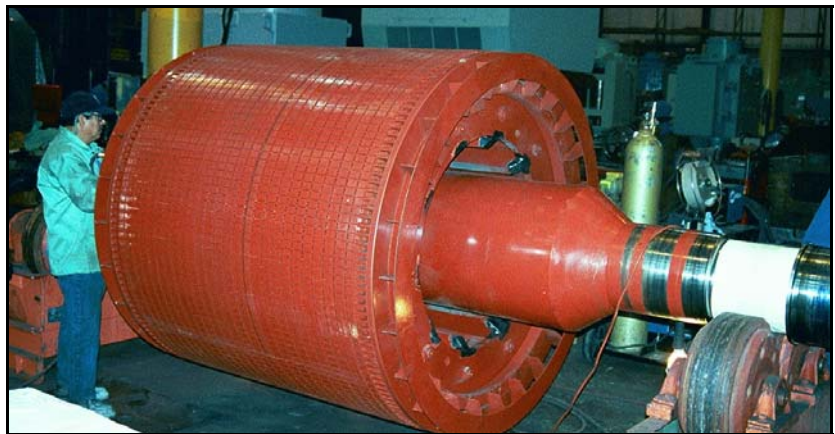
◆
**Materials Engineering and
Failure Analysis**

www.BakerRisk.com

MECHANICAL INTEGRITY OF INDUSTRIAL EQUIPMENT

Mechanical Integrity Approach

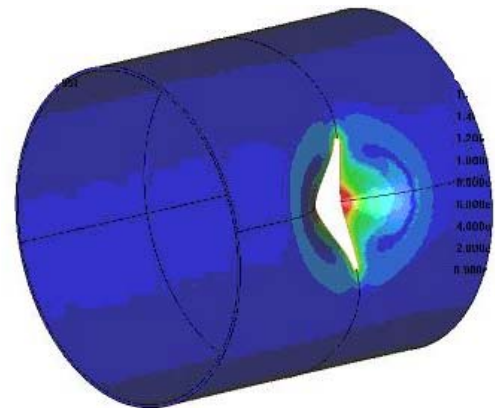
During an assessment, BakerRisk's multi-disciplined engineering staff works together with in-house plant personnel to effectively evaluate equipment and process parameters that affect equipment and structure integrity. BakerRisk uses experience in incident and accident investigations, root cause analysis, risk reduction, blast effects and structures response, process safety, and chemical hazards testing and evaluations to provide appropriate technical recommendations, engineering design support, and inspection recommendations.



BakerRisk staff evaluates rotating equipment such as this electric motor rotor for fatigue damage

Additional Engineering Services

- Finite Element Stress Analysis
- Structural Analysis and Design Engineering
- Metallurgical Engineering
- Risk and Reliability Engineering
- Life Assessment Evaluations
- Mechanical Testing and Material Characterization
- Non-Destructive Inspection



Finite Element Analysis is used to model rupture in a storage tank

For more information on Mechanical Integrity, contact:

Daniel Benac, P.E.
(210) 824-5960
DBenac@BakerRisk.com