

# Contek Solutions LLC

ENGINEERING • ENVIRONMENT • SAFETY • MANAGEMENT SYSTEMS

## **Aging Facilities: How to Keep Them Safe for Years**

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A pressure vessel ruptures spilling oil on the ground and injures a worker. How many times have we heard this happening?

The next question you should ask is “Why did it happen?” Was the relief valve checked periodically? Was the vessel in the wrong service? Was the vessel corroded? Was the vessel operating beyond its limit?

Many operating groups are posed with the problem of operating aging facilities designed and built by different operators to different standards. Are these facilities safe?

How do you assure that all the facilities you have brought together under your banner are safe?

This poses a challenge to engineers, operators and managers. A traditional safety approach, using procedures and training will not suffice to meet this challenge. A lesson can be learned from the DOT Pipeline regulations, which first started implementing integrity management for pipelines in the 1980's. These same principals can be used to form the basis for an integrity management program for oil and gas production equipment.

1. Define the risk factors: The first step is to identify the rates, pressures, composition of produced fluids, and proximity to public areas. This is a simple inventory of what you have.
2. Categorize each facility against the risk factors to determine its relative risk: The industry has many standards for determining if the facility is a High, Medium, or Low Consequence Operation. These standards include: OSHA PSM, EPA Risk Management Planning, DOT Pipeline Safety Regulations, ASME 31.8 840.22 Pipeline Classification, ASME 31.8 Chapter IX, NACE Standard MRO175, and API Specification 6 Annex A.
3. Check the equipment design and operation to determine if risk has been mitigated to a safe level: The most basic means of determining if the equipment is safe is to first assure that it was designed to meet industry codes and practices. ASME Codes and API Recommended Practices can be used to establish design criteria. ASME codes generally cover the design, materials and fabrication of vessels and piping systems. API Recommended practices typically cover safety systems, inspection and maintenance of tanks vessels and piping. Operating, emergency and maintenance practices should also be reviewed to assure that they are in place and adequate. Additionally, a process hazard analysis can be conducted for critical facilities to assure that the risk has been mitigated.
4. Modify the equipment and operation systems to mitigate the risks identified: Equipment will need to be upgraded if it does not meet the requirements listed in step #3 (above). Additionally, operating systems need to be implemented to assure that the equipment will be operated and maintained properly. These measures might include operator training, use of an automated maintenance program, implementation of a pressure vessel I&M program (API RP 510) and piping I&M program (API RP 570).

Use of these four basic guiding steps, will help you to implement a program to provide assurance that your aging facilities are indeed safe. This approach has been proven by the DOT to reduce the number pipeline incidents. It can be used by your company to assure that aging equipment is safe for years to come.