

Quick guide to implementing tank RBI to analyze risk and prioritize inspection strategies

HOW DO YOU ESTABLISH OPTIMUM INSPECTION INTERVALS FOR STORAGE TANKS?

It's costly and time consuming to inspect storage tanks. By extending quantitative Risk-Based Inspection (RBI) principles, aligned with API RP 581, to storage tanks, companies will optimize inspection intervals, reduce the risk of loss of containment and save money.

A SMARTER WAY TO INSPECT



Align inspection strategy with risk & projected financial impact



Develop a repeatable risk assessment process across the entire organization



Proactively evaluate how change of service will impact inspection activities



Reduce the risk of unexpected failures

STAY IN COMPLIANCE WITH LOCAL JURISDICTIONS USING RECOGNIZED AND GENERALLY ACCEPTED GOOD ENGINEERING PRACTICES (RAGAGEP)

Tank RBI Methodology

Tank RBI is integral to a facility's overall tank management program.

API 653 permits using RBI to determine the intervals for initial and all subsequent inspections of storage tanks. Tank RBI follows API RP 581 to calculate risk using the Probability of Failure (POF) and the Consequence of Failure (COF) of the shell course and bottom.

STEP 1: POF Calculations

- Generic failure frequencies (GFF) for shell course or bottom failures
- Active damage mechanisms (thinning, cracking, or CUI external)
- Past inspection activity & effectiveness in finding damage

STEP 2A: COF Calculations – Bottoms

- **Environmental Clean-up Costs (\$/bbl)**
 - » Tank volume, fluid composition, & pad type
 - » Environmental severity
 - » Potential hole size and time to discover leak
- **Business Interruption**
 - » Production loss per day
 - » Days required to repair or replace
- **Repair Cost**
 - » Estimate cost to repair hole or rupture

STEP 2B: COF Calculations – Shell Courses

- **Safety Consequence Factors**
 - » Fluid composition & properties
 - » Operating temperature, pressure, fluid volume leakage above hole
 - » Potential hole size and time to discover leak
- **Financial Consequences Factors**
 - » Damage cost to surrounding equipment
 - » Potential personnel injury cost
 - » PLUS repair, business interruption, & environmental costs

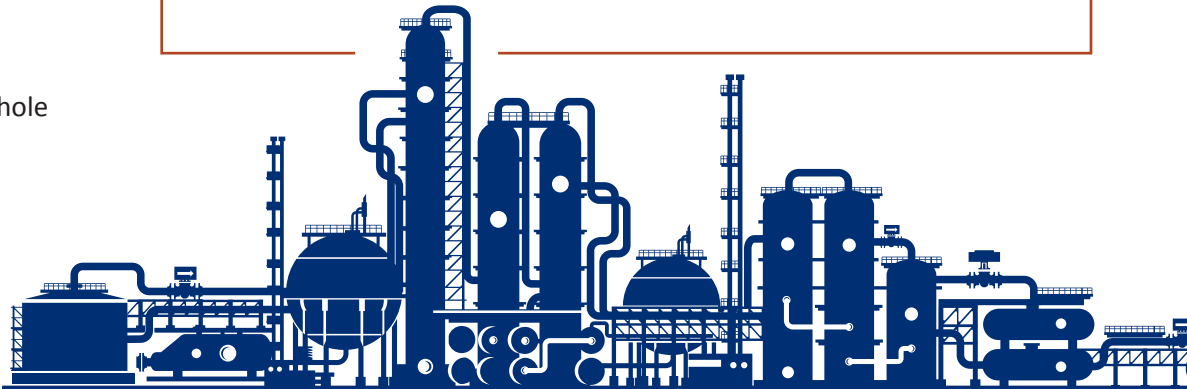
What to Watch Out For

Check your jurisdiction - several areas use API 653 3rd Edition for tank inspection schedules, which does not reference API RP 580.

[CLICK HERE](#)

It's important to get the corrosion rates right. There's increased risk due to the difficulty in monitoring corrosion rates on the tank bottoms.

API 581 currently does not include risk models for tank roofs, internal support structures or nozzles, these components could be modeled separately.



Why E²G?

We're Focused on Creating Safe Operating Environments & Controlling Risk

Combined field experience
250+ years

Leaders on
API 581 Committee

Industry's only
API-branded & fully compliant RBI software

API
American Petroleum Institute