
Oil Storage Terminal Management: Tank Farm Safety, Loss Control and Integrity Course

26 – 30 September 2027
Kuala Lumpur





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Programme Summary

Oil storage terminal management, centred on tank farm safety, loss control and integrity, is the subject of this one-week training course for terminal, storage and operations managers in oil, gas and petrochemical sites, ending in a tank farm control plan for one facility. Tank farms hold large volumes of product, yet transfers and inspection work often run by habit rather than agreed limits. The programme moves from storage principles through diagnosis of loss and risk to design of controls, then applies them to one site. Mars Training Centre UK delivers this tank farm management programme for managers from mixed organisations.

The Business Case

A tank farm concentrates product, ignition potential and money in a small area. When gauging is inconsistent, transfers rely on memory and inspection is postponed, losses stay hidden and a single overfill can halt a terminal. Managers who set clear operating limits, reconcile stock on a fixed cycle and plan inspection by risk find problems earlier and hold contractors to one standard.

- Product Loss Exposure: Falls as measurement, reconciliation and variance review are made routine.
- Incident Likelihood: Reduces as transfers and overfill protection are controlled by agreed steps.
- Asset Availability: Improves as inspection and repair work is planned from tank condition.

Principles and Evidence Base

- API 650: Its welded tank design basis informs the tank register and operating envelope built in Session 1.
- API 653: Its inspection, repair, alteration and reconstruction approach shapes the condition review in Session 3 and the inspection plan in Session 4.
- API 2350: Its overfill protection for storage tanks in petroleum facilities frames the risk work in Session 3 and the transfer controls in Session 4.

Intended Participants

- Terminal managers who answer for safe receipt, storage and delivery of product.
- Storage and inventory managers who reconcile stock and explain variances.
- Operations managers who supervise shift crews, transfers and handovers.
- Inspection and maintenance planners who schedule tank work and manage contractors.

Typical sectors include oil and gas, refining, petrochemicals and bulk fuel distribution.



Learning Outcomes

1. Participants will be able to distinguish the operating limits of each tank, line and containment area on a tank farm.
2. Participants will be able to diagnose the sources of inventory loss from gauging and reconciliation records.
3. Participants will be able to prioritise tanks and transfers by integrity and overfill risk.
4. Participants will be able to construct transfer controls and a storage tank inspection planning schedule.
5. Participants will be able to evaluate contractor work control and performance indicators for a terminal.
6. Participants will be able to justify a tank farm control plan to senior colleagues.

Programme Structure

Day 1: Tank Farm Principles and Operating Limits

How is a tank farm arranged, and which limits govern its safe use?

- Tank Type and Fitting Register
- API 650 Design Basis Summary
- Product Compatibility Matrix
- Containment and Layout Map
- Operating Envelope Sheet

Day 2: Diagnosing Inventory Loss and Measurement

Where does stock go missing, and how reliable is the measurement behind it?

- Gauging and Dip Method Comparison
- Receipt and Delivery Reconciliation
- Book-to-Physical Variance Chart
- Loss Pareto Chart
- Measurement Uncertainty Table

Day 3: Diagnosing Tank Integrity and Overfill Risk

Which tanks and transfers carry the greatest risk of failure or overfill?

- API 653 Condition Findings Review
- Corrosion and Settlement Screening Matrix
- API 2350 Overfill Protection Levels
- Near-Miss Review Pack
- Risk Ranking Matrix



Day 4: Designing Tank Farm Controls and Inspection Plans

Which controls, routines and inspection intervals keep a tank farm inside its limits?

- Transfer Authorisation Sequence
- Alarm and Trip Test Schedule
- Inspection Interval Plan
- Contractor Work Control Sheet
- Performance Indicator Dashboard Layout

Day 5: Applying the Controls to One Tank Farm

Does the control plan hold when it is tested on one facility?

- Applying the Session 2 Variance Chart to Site Data
- Testing the Session 3 Risk Ranking on Live Tanks
- Rehearsing the Session 4 Transfer Sequence
- Revising the Plan after Peer Feedback
- Completing the Tank Farm Control Plan

Methodology

The programme uses a case analysis method built on anonymised gauging records, reconciliation sheets, inspection findings and short written cases from oil terminals, refineries and petrochemical sites. Participants work in small groups on one facility, defend choices to peers who act as operations, inspection and finance colleagues, and receive facilitator feedback.

- Suggested activity: Tracing a stock variance back to its measurement source.
- Suggested activity: Ranking ten tanks by integrity and overfill risk.
- Suggested activity: Sequencing a multi-tank transfer with a failed alarm.

Capstone Output

Each participant completes a tank farm control plan for one facility. It holds an operating envelope, a loss and variance review, a risk ranking, transfer controls, an inspection schedule and a performance indicator layout. The plan is used at work to brief senior colleagues, brief contractors and guide how the tank farm is run.



Frequently Asked Questions

Is tank farm management suitable for managers who have not run a terminal before?

Yes. Tank farm management is taught from first principles and assumes responsibility for operating, storing or supervising product, not earlier experience as a terminal head.

Which standards does tank farm management rest on in this programme?

Tank farm management here rests on API 650, API 653 and API 2350, applied to tank design basis, inspection and overfill protection.

How is the tank farm control plan used at work?

You use the tank farm control plan to brief senior colleagues, set work rules for contractors and guide how transfers, stock records and inspections are run.

How does tank farm management differ from a programme on pipeline integrity?

Tank farm management centres on storage tanks, transfers and stock records, while pipeline integrity centres on the condition of lines between sites.