CONCEPT

Oil Movement and Hydrocarbon Loss Control: Inventory Reconciliation and Loss Reduction

13 – 17 December 2026
Dammam - Eastern Province five-star



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Introduction:

Oil movement and hydrocarbon loss control decide whether the barrels a terminal or refinery offsites area receives are the barrels it can account for. Wrong line-ups, mixed grades, unexplained tank variances and slow month-end reconciliation turn into product downgrades, disputed shipments and write-offs that nobody can trace. This Core Concept course gives oil movement, offsites and hydrocarbon accounting staff a working method to plan transfers, gauge and calculate tank quantities, reconcile inventory, classify loss sources and run a loss-reduction programme. Participants finish with a Hydrocarbon Loss Control and Reconciliation Plan for a case terminal.

Course Objectives:

- Plan crude and product transfers with verified line-ups, valve status checks and segregation rules that prevent grade contamination
- Calculate tank quantities from dip or ullage readings, tank capacity tables, temperature and free water using volume correction principles
- Prepare daily and monthly inventory reconciliations that separate book, physical and in-transit stock and explain loss or gain
- Classify hydrocarbon losses by source, including evaporation, measurement error, leaks, contamination and theft, and quantify each
- Apply production allocation and lifting entitlement basics to reconcile field, pipeline and terminal volumes with offtake
- Build a loss-reduction programme with tolerance limits, investigation triggers and troubleshooting steps for abnormal movements

Target Audience:

- Oil movement operators and shift supervisors who line up, start and stop crude and product transfers
- Terminal and refinery offsites staff responsible for tank gauging, sampling and daily stock records
- Scheduling and planning staff who sequence receipts, blends and shipments against tank availability
- Hydrocarbon accounting staff who close monthly inventory balances and report loss and gain
- Loss control and quality coordinators who investigate variances and contamination incidents
- Pipeline and production allocation staff who reconcile delivered volumes and lifting entitlements

Course Outline:

Day 1: Oil Movement Foundations and Hydrocarbon Accounting Context

- Oil Movement Value Chain: Field Gathering, Pipelines, Terminals and Refinery Offsites
- Crude, Intermediate and Finished Product Streams: Grades, Properties and Handling Rules
- Tank Types and Duties: Fixed Roof, Internal and External Floating Roof in Movement Planning
- Hydrocarbon Accounting Vocabulary: Book Stock, Physical Stock, In-Transit and Unaccounted Volume
- Current-State Loss Diagnostic Sheet for a Terminal or Offsites Area

Day 2: Transfer Operations, Line-Ups and Quantity Calculation Methods

- Transfer Line-Up Checklist: Valve Status, Blinds, Pump Selection and Double Isolation
- Product Segregation Matrix: Dedicated Lines, Line Displacement and Interface Handling
- Manual Dip and Ullage Gauging, Automatic Tank Gauge Checks and Free Water Measurement
- Tank Capacity Table Use: Gross Observed Volume to Net Volume Calculation Sequence
- Temperature and Pressure Volume Correction Principles and Mass Versus Volume Reporting

Day 3: Blending, Inventory Reconciliation and Allocation in Daily Practice

- Tank Batch Blending and In-Line Blending Overview: Recipes, Ratio Control and Off-Spec Recovery
- Movement Ticket Workflow: Opening and Closing Gauges, Samples and Transfer Records
- Daily Stock Balance and Month-End Inventory Reconciliation Worksheet
- Loss and Gain Accounting: Receipts, Deliveries, Transfers and Tolerance Bands
- Production Allocation and Lifting Basics: Pro-Rata Shares, Entitlement and Overlift or Underlift

Day 4: Loss Sources, Troubleshooting and Loss-Reduction Programme

- Evaporation and Vapour Loss: Roof Seals, Breathing, Working Losses and Vapour Recovery
- Measurement Error Sources: Gauge Drift, Wrong Reference Height, Sampling Bias and Calculation Slips
- Physical Loss Detection: Line Leaks, Passing Valves, Drains and Unauthorised Withdrawal
- Contamination and Grade Mix Incidents: Root Cause Trees and Downgrade Cost Estimation
- Loss-Reduction Programme Design: Key Loss Indicators, Investigation Triggers and Audit Cycle

Day 5: Case Study: Terminal Loss Investigation and Control Plan

- Case Terminal Data Pack: Tank Gauges, Movement Tickets and Monthly Stock Statements
- Variance Investigation Exercise: Tracing an Unexplained Crude Tank Loss
- Movement Incident Review: Wrong Line-Up Causing Product Contamination at a Products Terminal
- Reconciliation Rebuild: Correcting Book Stock and Allocating Residual Loss by Source
- Hydrocarbon Loss Control and Reconciliation Plan Drafting and Peer Challenge

Skills You Will Gain:

- Transfer Line-Up Verification
- Product Segregation Control
- Tank Quantity Calculation
- Inventory Reconciliation
- Loss and Gain Analysis
- Loss Source Classification
- Lifting Entitlement Tracking
- Movement Incident Troubleshooting

Why Attend This Course:

- Return with a Hydrocarbon Loss Control and Reconciliation Plan built on a case terminal data pack
- Close the month-end stock balance faster and defend the loss or gain figure with traceable calculations
- Spot line-up, gauging and blending errors before they become contaminated tanks or disputed shipments
- Compare oil movement and loss control practice with peers from upstream, pipeline, terminal and refining operations

Conclusion:

Hydrocarbon losses are rarely one large event; they build up from small line-up errors, gauge slips, vapour losses and unreconciled tickets. The course moves from the oil movement value chain and accounting vocabulary, through line-ups, segregation, gauging and quantity calculation, to blending, daily and monthly reconciliation and allocation, then to loss sources, troubleshooting and a structured loss-reduction programme. The final day applies this to a case terminal and produces a Hydrocarbon Loss Control and Reconciliation Plan ready for use at work.