Root Cause Analysis Training for Oil & Gas

Service Objectives

A practical, industry-specific programme that equips oil and gas teams to investigate incidents and prevent recurrence.

- Build hands-on competence to identify, analyse, and eliminate causal factors behind incidents and chronic losses.
- Protect evidence, gather accurate timelines from DCS/historian and CMMS, and conduct psychologically safe interviews.
- Apply barrier-based thinking, bow-tie and LOPA concepts to trace failed or missing controls across technical, human, and organisational domains.
- Differentiate proximate causes from systemic root causes; quantify risk reduction and prioritise SMART actions.
- Align investigation outputs with PSM expectations and KPIs (e.g., API RP 754), integrating actions with MoC, PTW/CoW, RBI, and reliability plans.
- Produce defensible findings and clear management briefings supported by an auditable chain of evidence.

> Designed for UAE operating realities (OSHAD, Dubai Municipality, Civil Defence; extreme heat, sand ingress, contractor-intensive TARs), the training reduces repeat events, downtime, and regulatory exposure.

Who This Service Is For

- Operations leadership and frontline: OIMs, production superintendents, control room/DCS operators, shift supervisors.
- Maintenance and reliability: mechanical, electrical, instrumentation, integrity, and rotating equipment engineers.
- HSE and process safety: HSE officers, incident investigators, PSM coordinators, PHA/LOPA facilitators.
- Projects and turnarounds: construction and commissioning teams, TAR planners, QA/QC.
- Contractors and OEM representatives performing high-risk work under PTW/CoW (lifting, hot work, confined space, E&I, isolations/LOTO).
- Applicable across refineries, gas processing trains, offshore topsides/FPSOs, pipelines, tank farms, terminals, and onshore CPFs/NGL facilities.

Duration & Process Overview

- Tracks: Essentials (1 day), Practitioner (2 days), Lead Investigator (3 days).
- Delivery: on-site at refineries, gas plants, and offshore bases; live virtual; hybrid with on-site casework/walkdowns.

- Scheduling: split blocks (e.g., 2 × 4 hours), night-shift repeats, and TAR-aligned condensed formats.
- Group size: 8–16 participants for interaction and coaching; larger cohorts via parallel breakouts. Pre-course needs analysis; optional post-training coaching.

Methodology

Interactive modules built around UAE-relevant scenarios (seal failures, PSV lifts, leaks, compressor trips, air upsets, ESDs, contractor incidents during SIMOPS/TARs), blending short theory with casework and peer review.

Phase	Objective	Deliverable
1. Incident Stabilisation & Evidence	Control the scene; capture data and timelines; conduct initial interviews.	Structured evidence log and secured facts.
2. Causal Analysis Methods	Apply 5-Why, Fishbone, and barrier/swiss-cheese thinking to map causes.	Causal pathway map with validated linkages.
3. Human & Organisational Factors	Assess competence, supervision, workload, ergonomics, and interfaces.	Interview outputs and human factors findings.
4. Barrier & Bow-Tie Integration	Evaluate preventive/mitigative barriers and LOPA linkages.	Barrier/bow-tie model with performance gaps.
5. Recommendations & Action Planning	Translate findings into SMART actions integrated with MoC and verification.	Prioritised action plan with owners and effectiveness checks.
6. Report Writing & Management Briefing	Document defensible conclusions aligned to API RP 754 tiers and PSM KPIs.	Auditable RCA report and management presentation.

1. Incident Stabilisation & Evidence

- Scene control, data capture from DCS/historian, and practical evidence logging.

2. Causal Analysis Methods

- Use 5-Why, Fishbone, fault/event-tree thinking, and barrier logic on O&G cases.

3. Human & Organisational Factors

- Role-play interviews; examine PTW/CoW deviations, LOTO lapses, supervision, and competence.

4. Barrier & Bow-Tie Integration

- Map barrier performance, LOPA linkages, and SIS demand/response for loss-of-containment risks.

5. Recommendations & Action Planning

- Develop SMART actions connected to MoC, verification, and reliability improvement plans.

6. Report Writing & Management Briefing

- Produce a clear evidence chain and tiered KPI reporting; defend conclusions in peer review and management sessions.