Hot Work Training for Oil & Gas

Service Objectives

- Prevent ignition in hydrocarbon-rich environments while maintaining operational continuity.
- Classify hot work accurately; interpret hazardous area zoning and ignition risks.
- Apply NFPA 51B, API RP 2009, API 2201 and UAE Fire and Life Safety Code controls in oil and gas settings.
- Plan work using the hierarchy of controls; validate isolations and energy control (LOTO) where trapped hydrocarbons may exist.
- Execute atmospheric gas testing (LEL, O2, H2S, VOCs) at correct intervals and heights; implement fire watch and post-work monitoring with suitable media.
- Coordinate SIMOPS, manage hot tapping, use inerting/purging or positive isolation as required; document PTW to standard, analyse near-misses, align with ISO 45001, and reinforce contractor assurance.

> Key standards and UAE authority context covered: NFPA 51B, API RP 2009, API 2201, IEC 60079, UAE Fire and Life Safety Code; interfaces with OSHAD (Abu Dhabi), Dubai Municipality EHS requirements, and Civil Defence inspection readiness for oil and gas sites.

Who This Service Is For

- Welders, fabricators, pipefitters, scaffolders, and maintenance contractors performing ignition-producing tasks in classified areas.
- Operations personnel issuing and closing permits; HSE professionals conducting atmospheric testing and verifying isolations.
- Dedicated fire watchers in process units, tank farms, offshore topsides, and pipeline rights-of-way.
- Supervisors in turnaround teams, integrity project leads, maintenance planners, and permit authorities.
- Contract holder representatives and site gate control personnel ensuring PTW, LOTO, hot tapping, and fire watch records are complete and accurate.
- Upstream, midstream, and downstream oil and gas assets operating in IEC 60079 Zones 1–2 with risks such as LEL, H2S, benzene, pyrophoric iron sulfide, and static discharge.

Duration & Process Overview

- Delivery options: 1-day intensive update; 2-day comprehensive course (fundamentals, gas testing labs, supervisor PTW simulations); 0.5–1 day fire watch drills; 4–6 hour contractor briefings.
- Hybrid pathway: virtual standards/theory pre-work followed by on-site practicals using local PTW forms, hazardous area maps, and emergency layouts.

- Class size: 8–16 participants to enable hands-on practice; parallel cohorts available for turnaround and offshore schedules.
- Delivered by experienced NPM instructors using client P&IDs, plot plans, isolation standards, and permit templates.

Methodology

Phase	Objective	Deliverable
Scoping & Needs Analysis	Align content with site PTW, hazardous area maps, isolation standards, and emergency resources.	Site-tailored training plan and materials.
Ignition & Hazard Fundamentals	Understand fuel–oxygen–heat, sparks/hot slag physics, and behaviour of methane, propane, naphtha, sour gas; pyrophoric scale risks.	Hazard recognition checklists for oil and gas assets.
PTW, Isolations & LOTO	Execute workflows; plan isolations (single/double block and bleed, spades); verify energy control with trapped hydrocarbon considerations.	Completed PTW and isolation verification exercises.
Hazardous Area Classification (IEC 60079)	Map Zones 1–2 around sources of release and integrate controls into job planning.	Practical zone mapping outputs for scenarios.
Standards Application (NFPA 51B / API RP 2009)	Translate code requirements into field-ready checklists and permit conditions.	Hot work control checklists aligned to site PTW.
Hot Tapping (API 2201)	Manage in-service piping/equipment with content, temperature, and wall-thickness considerations.	Hot tapping planning template and precautions list.
Practical Drills & SIMOPS	Gas testing routines, monitor checks, boundaries/spark containment, fire watch duties; coordinate SIMOPS and staging.	Demonstrated practical competencies and field set-ups.
Integrated Exercise & Assessment	Plan and execute mock hot work under time constraints; document and close permits; escalation protocols.	Written and practical assessments; NPM Certificate of Completion upon success.

Scoping & Needs Analysis

- Pre-delivery review of PTW system, area classifications, isolations, and emergency resources to tailor scenarios.

Ignition & Hazard Fundamentals

- Fuel–oxygen–heat, spark behaviour, hydrocarbon and sour gas characteristics, pyrophoric risks.

PTW, Isolations & LOTO

- Workflows, isolation planning (block and bleed, spades), and verification with trapped hydrocarbon controls.

IEC 60079 Hazardous Areas

- Zone 1–2 mapping around sources of release and integration into job set-up.

Standards in Practice

- NFPA 51B and API RP 2009 field checklists; API 2201 guidance for in-service hot tapping.

Practical Drills, SIMOPS & Assessment

- Gas testing, calibration checks, boundaries and fire watch; SIMOPS coordination; integrated mock exercise and competence validation.