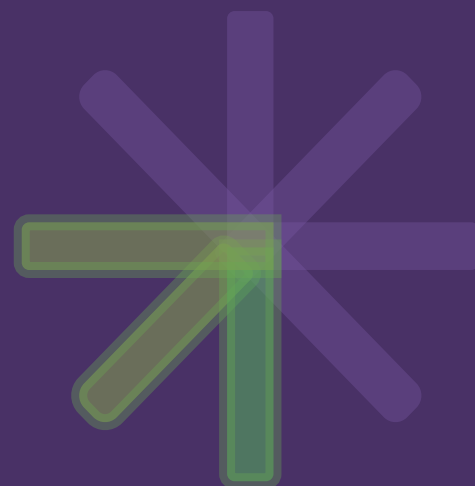

Emissions, Air Quality and Effluent Monitoring Strategy Training Course

24 – 28 January 2027
Doha





Emissions, Air Quality and Effluent Monitoring Strategy Training Course

Ref: 119_14530 **Date:** 24 – 28 January 2027 **Location:** Doha **Fees:** 4300 GBP

Programme Summary

Emissions, air quality and effluent monitoring strategy is a one-week training course for senior environmental and plant leaders, culminating in an environmental monitoring programme design for their own facility. Monitoring results drive permit decisions, community trust and investment in abatement, yet many programmes collect data that is poorly targeted, weakly validated or never used. The approach links emissions and air quality monitoring, effluent and groundwater sampling, data assurance and dispersion modelling to management decisions. Mars Training Centre UK delivers this programme in emissions, air quality and effluent monitoring strategy.

The Business Case

Monitoring that is badly designed misses real exceedances while generating costly data no one trusts. Leaders who set clear monitoring objectives, insist on validated data and use dispersion modelling to anticipate impacts can defend their operations to authorities and communities, and target abatement spending.

- Permit Exceedance Risk: Falls as monitoring locations, frequencies and alarm thresholds reflect actual emission sources and receptors.
- Monitoring Cost Effectiveness: Improves as redundant sampling is removed and continuous systems are maintained to defined data capture targets.
- Abatement Investment Quality: Rises as modelled contributions identify which sources drive off-site concentrations.

Principles and Evidence Base

- ISO 14001:2015 Clause 9.1 Monitoring, Measurement, Analysis and Evaluation: Frames how monitoring serves the environmental management system in Session 1 and Session 5.
- WHO Global Air Quality Guidelines: Provide international reference values for particulate matter, nitrogen dioxide, sulphur dioxide and ozone used to interpret ambient results in Session 2.
- ISO/IEC 17025 Laboratory Competence: Sets the basis for judging laboratory and sampling data quality in Session 3.
- AERMOD and CALPUFF Dispersion Models: Illustrate how emission inventories and meteorology predict ground-level concentrations in Session 4.



Intended Participants

- Leaders accountable for emissions, discharge and environmental permit performance at one or more sites.
- Managers who approve monitoring budgets, contractors and laboratory arrangements.
- Heads of environment who report monitoring results to boards, authorities and communities.
- Technical leaders who commission dispersion modelling studies.

The programme serves oil and gas, petrochemicals, power generation, cement and heavy industry, and municipal utilities.

Learning Outcomes

1. Participants will be able to construct monitoring objectives that link emission sources, pathways and receptors to permit and stakeholder needs.
2. Participants will be able to evaluate stack, ambient air, effluent and groundwater monitoring designs for coverage and frequency.
3. Participants will be able to diagnose weaknesses in continuous emissions monitoring and laboratory data quality.
4. Participants will be able to interpret dispersion model outputs and challenge their inputs and assumptions.
5. Participants will be able to prioritise responses to exceedances and adverse trends.
6. Participants will be able to justify a monitoring programme design to senior management and authorities.

Programme Structure

Day 1: Environmental Monitoring Strategy Foundations

What should a monitoring programme prove, and to whom?

- Source, Pathway and Receptor Analysis
- Permit Conditions and Stakeholder Expectations
- Emission Inventories and Source Characterisation
- Monitoring Within the ISO 14001 Management System
- Baseline Review of a Participant Monitoring Programme

Day 2: Emissions and Air Quality Monitoring

How are stack emissions and ambient air quality measured reliably?

- Periodic Stack Testing and Isokinetic Sampling
- Continuous Emissions Monitoring Systems Design and Upkeep
- Ambient Air Monitoring Networks and Station Siting
- Interpreting Results Against WHO Global Air Quality Guidelines
- Fugitive and Odour Emission Surveys



Day 3: Effluent, Groundwater and Data Quality

How are water discharges and groundwater sampled, and can the data be trusted?

- Effluent Sampling Points, Composite and Grab Samples
- Groundwater Monitoring Well Networks
- Chain of Custody and Laboratory Selection Under ISO/IEC 17025
- Data Validation, QA/QC and Data Capture Rates
- Trend Analysis and Statistical Control Charts

Day 4: Dispersion Modelling and Impact Prediction

How do models predict impacts, and how should leaders question them?

- Gaussian Plume Principles and Meteorological Inputs
- AERMOD and CALPUFF Model Selection
- Building Downwash, Terrain and Stack Height Effects
- Model Validation Against Monitoring Data
- Scenario Modelling for Expansions and Abatement Options

Day 5: Designing the Environmental Monitoring Programme

How do objectives, methods, data assurance and modelling combine into one programme?

- Monitoring Gap Analysis for a Participant Facility
- Exceedance Response and Escalation Protocols
- Monitoring Data Reporting to Boards and Authorities
- Peer Challenge of Programme Proposals
- Environmental Monitoring Programme Design Presentation

Methodology

The programme relies on data workshops supported by case analysis. Participants work with stack test reports, continuous monitoring records, ambient and effluent datasets and dispersion model outputs from energy, chemical and cement facilities and judge their quality and meaning.

- Suggested activity: Validating a month of continuous emissions data and calculating data capture.
- Suggested activity: Siting ambient monitoring stations using a wind rose and receptor map.
- Suggested activity: Challenging the inputs of a dispersion model report for a plant expansion.



Capstone Output

Each participant completes an environmental monitoring programme design for their facility. It sets out monitoring objectives, parameters, locations and frequencies, data assurance arrangements, modelling needs, exceedance response and reporting lines, ready for management approval and discussion with the permitting authority.

Frequently Asked Questions

Is emissions and air quality monitoring strategy suitable for leaders without a laboratory background?

Yes. It suits plant, HSE and environmental leaders who decide on monitoring and abatement, and assumes industrial experience but no analytical chemistry or modelling software skills.

Which standards underpin emissions, air quality and effluent monitoring strategy?

It draws on ISO 14001:2015 clause 9.1, the WHO Global Air Quality Guidelines, ISO/IEC 17025 for laboratory competence, and the AERMOD and CALPUFF dispersion models.

How is the environmental monitoring programme design used at work?

You take back a programme design your management can approve, defining what to monitor, where, how often, how data is assured and how exceedances are escalated.

How does emissions and effluent monitoring strategy differ from ISO 14001 implementation programmes?

It concentrates on designing, assuring and using monitoring and modelling data, rather than building every clause of an environmental management system.