INDEPENDENT
TRAINING MANAGEMENT

LABORATORY ANALYSIS AND INTERPRETATION OF DRINKING WATER AND WASTEWATER

OVERVIEW

This focused two-day programme strengthens the ability of Laboratory Technicians and Laboratory Assistants to interpret water and wastewater results and understand their significance for water quality, treatment performance, regulatory compliance and operational decision-making.

Participants move beyond the mechanics of testing to understand what key parameters indicate, where contaminants originate, how results should be interpreted, and how laboratory findings relate to treatment-process performance — with emphasis on spotting trends, catching process failures early, and telling analytical issues apart from genuine water-quality problems.

The course is grounded in the South African regulatory framework (Water Services Act, National Water Act, SANS 241), with clear distinction made between currently applicable requirements and provisions under revision.

BENEFITS

- Explain the fundamental characteristics of drinking water and wastewater.
- Identify major physical, chemical and microbiological contaminants and their potential sources.
- Explain how contaminants enter water and wastewater systems.
- Understand the potential human-health, environmental and water-quality impacts of contaminants.
- Understand representative sampling, preservation and sample-handling principles.
- Understand the significance of key physical, chemical and microbiological parameters.
- Interpret laboratory results within their technical, operational and regulatory context.
- Differentiate between water sources and wastewater streams using analytical results.
- Recognise abnormal results, trends, anomalies and potential contamination events.
- Apply fundamental laboratory QA/QC principles.
- Understand calibration, verification and validation requirements.
- Assess laboratory-data quality, reliability and integrity.
- Identify potential non-compliance and understand appropriate escalation.
- Relate laboratory results to drinking-water and wastewater treatment processes.
- Identify potential treatment-process failures from laboratory findings.
- Apply structured root-cause investigation principles.
- Assess health, environmental, operational and compliance risks.

Independent Training Management (Pty) Ltd
Tel: +27(0) 87 265 4063
Email: info@independenttraining.co.za
Website: www.independenttraining.co.za

LABORATORY ANALYSIS AND INTERPRETATION OF DRINKING WATER AND WASTEWATER

WATER QUALITY FUNDAMENTALS, SAMPLING AND LABORATORY ANALYSIS

1. **Fundamentals of Water and Wastewater Quality**

   Establishes the principles of water quality, including physical, chemical and microbiological characteristics, water sources, wastewater streams and quality changes throughout treatment processes.

2. **Contaminants and Water Quality Parameters**

   Examines the sources, pathways and significance of physical, chemical and microbiological contaminants, together with the key parameters used to assess water and wastewater quality and associated health and environmental risks.

3. **Sampling, Preservation and Sample Integrity**

   Covers representative sampling techniques, sample handling and preservation, chain-of-custody requirements, and the identification and prevention of sampling errors that can compromise analytical results.

4. **Laboratory Analysis and Analytical Quality**

   Introduces the fundamental principles of analytical measurement, including accuracy, precision, sensitivity, measurement uncertainty and analytical limitations applicable to physical, chemical and microbiological testing.

5. **QA/QC, Calibration, Validation and Data Integrity**

   Develops an understanding of laboratory quality assurance and quality control, calibration and verification procedures, analytical validation, data review and the identification and management of laboratory errors.

INTERPRETATION, PROCESS CONTROL, COMPLIANCE AND REPORTING

6. **Interpretation of Water and Wastewater Laboratory Results**

   Develops the ability to interpret laboratory results, identify abnormal conditions, recognise relationships between parameters and distinguish between different water sources and wastewater streams based on analytical data.

7. **Data Analysis, Trend Analysis and Risk Assessment**

   Covers the analysis of laboratory datasets, trend identification, basic statistical techniques, early detection of non-compliance and assessment of operational, health, environmental and regulatory risks.

8. **South African Water Quality Regulatory Framework and SANS Requirements**

   Provides an overview of the South African regulatory framework governing water quality, including the Water Services Act, National Water Act and relevant SANS requirements, with emphasis on practical compliance considerations.

9. **Laboratory Results and Treatment Process Control**

   Demonstrates how laboratory results support treatment plant operation and process control, including coagulation, flocculation, filtration, disinfection and biological treatment, and how analytical trends can provide early warning of process deterioration.

10. **Excel, LIMS and Power BI for Laboratory Data**

    Develops practical capability in organising, analysing and presenting laboratory data using Excel, understanding LIMS-based sample tracking and traceability, and developing meaningful compliance and performance dashboards using Power BI.

11. **Laboratory Health, Safety & Emergency Response**

    Addresses the safe handling of chemical and biological hazards, appropriate PPE, laboratory risk controls and effective response procedures for spills, exposures and other laboratory emergencies.

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Live Online Training | 9 - 10 September 2026

R 8 999 PER DELEGATE

Booking Contact (Approving Official) Mr/Mrs/Ms

Full Names: _____

Company name: _____

Direct Tel No: _____ E-mail: _____ Fax: _____

VAT No: _____

Address: _____

Signature_____

Person Responsible for Finance: _____**Direct Tel No:** _____ **Date of Payment:**_____

BANKING DETAILS:

Independent Training Management Pty Ltd
Bank: FNB South Africa
Account Number: 62685879276
Branch Code: 251650
Branch: Randburg

THE FOLLOWING HEREBY CONFIRM ATTENDANCE TO THE WORKSHOP

Delegate1: Names_____

Position: _____ E-Mail: _____

Delegate 2: Names _____

Position: _____E-Mail: _____

Delegate 3: Names _____

Position: _____ E-Mail: _____

Delegate 4: Names _____

Position: _____ E-Mail: _____

Delegate 5: Names _____

Position: _____ E-Mail: _____

All fees are current at the time of going to print; however, we reserve the right to change them.

2. Additional Delegate Rates:

Additional delegate rates apply when bookings are made at the same time on the same course.

3. Confirmation Instructions:

On receipt of this submitted booking form and payment or purchase order you will receive a confirmation letter by email confirming your participation in the training event. This includes a location map with directions and venue details and starting times.

4. Attendance:

Please note that no learner will be permitted to attend any training course without proof of payment or an order no.

5. Delegate Substitution:

Substitutes can be made at any time without incurring a penalty. Please inform us in writing so we can make the necessary arrangements for the new learner.

6. Payment:

Payment can be made by cheque or by electronic transfer, and must be received 5 working days prior to the commencement of the course.
Please quote the reference number from your invoice and organisation name so that payments can be tracked. All cancellations must be done in writing and emailed directly to Independent Training. Management Inform us immediately if you have to re-schedule or cancel the booking so that we can inform the caterers and conference venue.

The following charges apply if you cancel:

- 11 - 30 days before a course = 10% of the course fee
- 6 – 10 days before a course = 20% of the course fee
- 4 – 6 days before a course= 30% of the course fee
- 1-3 days before a course = 50% of the course fee