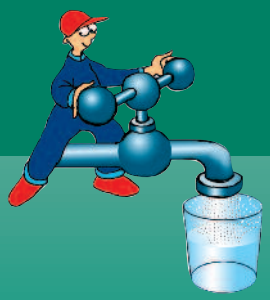
International
Office
for Water

Capacity building for better water management


WATER

Professional training



All our training programmes

CNFME FRENCH NATIONAL WATER TRAINING CENTRE

ISO 9001 BUREAU VERITAS Certification

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Capacity building for better water management

WATER IN THE CITY

- Introduction to the profession
- Water quality and analyses
- Drinking water production
- Drinking water supply
- Laying out and rehabilitation of water supply systems
- Sanitation systems
- Urban wastewater treatment
- Waste and sludge treatment
- On-site sanitation
- Boreholes
- Pumping
- Maintenance, electrical engineering Automation and remote management
- Metrology

WATER IN NATURAL ENVIRONMENTS

- Groundwater
- Rivers
- Water uses
- Monitoring

WATER IN INDUSTRY

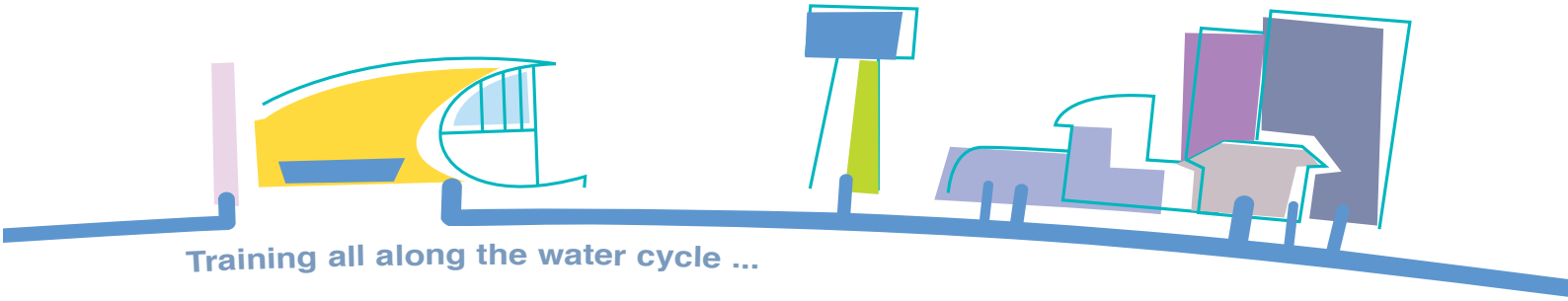
- Management, analyses and controls
- Process water
- Treatment of industrial wastewater
- Decontamination by surface treatment

MANAGEMENT OF UTILITIES

- Management of water supply and sanitation utilities
- Safety of the personnel

WEB-TRAINING

From your office, have access to training programmes taught by experts



Training all along the water cycle ...

WATER IN THE CITY

INTRODUCTION TO THE PROFESSION

Drinking water supply and sanitation: introduction to the profession
Initiation to water supply
Initiation to drinking water treatment
Initiation to sewerage: sewer system and wastewater treatment plant
Initiation to the operation of sewer systems
Basics of hydrogeology

WATER QUALITY AND ANALYSES

Initiation

Basics of water chemistry
Understanding of chemical reactions in water treatment systems

Drinking water

Drinking water analyses for self-monitoring
Risk analysis in drinking water production and supply
Tastes and odours of drinking water

Wastewater

Wastewater analyses for self-monitoring
Validity and reliability of industrial wastewater analyses

Bacteriology

Elementary analyses related to water bacteriology - Module 1
Analyses related to water bacteriology - Module 2
New methods for assessing bacterial flora

Sampling

Water sampling: Why? How?

Toxicity

Toxicity - Ecotoxicity
Biomonitoring of discharges

Hygiene and safety

Analysis laboratory: hygiene and safety

Quality and data management

Format for exchanging data between laboratories and clients
Metrology applied in laboratories
Uncertainties in quantitative measurements
Measurement uncertainties and validation by microbiology

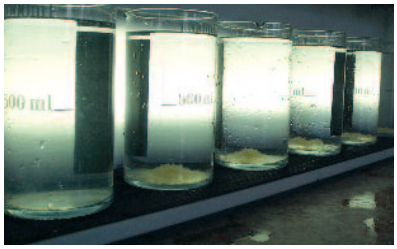
DRINKING WATER PRODUCTION

Initiation

Initiation to dinking water production
Operation of drinking water production plants - Level 1

Operation

Operation of drinking water production plants - Level 2
Water disinfection
Ozone in water treatment: principle and application
Operation of drinking water production plants - Level 3
Operation of a water disinfection centre using chlorine and chlorine dioxide
Microscopic observation of freshwater microalgae
Means for fighting against algae and their pollution
Reagents in drinking water treatment: application and safety
Correction of the mineralisation of corrosive waters: neutralisation and remineralisation of water
Correction of the mineralisation of scaling waters



Swimming pools

Water treatment and control in swimming pools

Treatment techniques

Drinking water treatment processes
Water refining: membrane process, activated carbon
Membrane filtration in drinking water treatment: microfiltration (MF)
ultrafiltration (UF) - nanofiltration (NF) - reverse osmosis (RO)
Sea water desalination

Individual treatment

Water treatment at the place of use

DRINKING WATER SUPPLY

Design, sizing

Hydraulic study: basics of applied hydraulics - Level 1
Hydraulic study: pumping and supply - Level 2
Hydraulic study: pumping and supply - Level 3
Diagnostics and modelling of drinking water supply systems

Operation

Regulatory evolutions and techniques in water supply
Operation of drinking water supply systems - Module 1
Operation of drinking water supply systems - Module 2
Reading and exploitation of system plans
Water meters
Management of meters
Instrumentation of a drinking water supply system
Hydraulic regulation valves
Hydraulic control valves - Level 1
Hydraulic control valves - Level 2
Installation and maintenance of fire hydrants and post hydrants
Cleaning and disinfection of drinking water works
Maintenance of water quality in supply systems

Leak detection

Improvement of the system yield: strategy and organisation
Detection of leaks and buried pipes

Patrimonial management

Diagnostics of drinking water supply: small and average communities
Management of assets: renewal and rehabilitation of the water supply system
Rehabilitation of drinking water tanks
Building of concrete units

Domestic system and health protection

Preparation of the qualification to the maintenance of backflow preventers
Qualification to the maintenance of backflow preventers
Qualification to the maintenance of backflow preventers – compensatory training course
Renewal of the qualification to the maintenance of backflow preventers
Technical and health rules in domestic systems
Domestic hot waters: control and risk management
Control of domestic water systems supplied by another water resource
Use of rain water at the plot

LAYING OUT AND REHABILITATION OF WATER SUPPLY SYSTEMS

Drinking water

Construction of DWS systems
Construction of the systems without trenching
Laying out of drinking water pipelines
Qualification to the electrical welding of the polyethylene pipe
Qualification to the butt welding of polyethylene pipes

Sanitation

Definition of the construction project - Module 1
Drafting of special technical specifications - Module 2
Soil study for the laying out of systems
Implementation and follow-up of sanitation working sites - Module 3
Rehabilitation of non-inspectable sanitation systems
Construction of systems without trenching
Patrimonial management of inspectable sanitation systems and appurtenances

Working sites

Inspection and testing of sewerage systems
Implementation and control of trench filling-up
Risk prevention on main laying sites
Marking of working sites
Temporary signalling of working sites

TOPICAL TRAINING

SANITATION SYSTEMS

Design, sizing

Management of urban discharges in rainy weather
Water law section for storm drainage developments
Sizing of sanitation systems - Level 1
Sizing of sanitation systems - Level 2
Urban hydrology and calculation of a storm drainage system - Level 1
Urban hydrology: modelling of systems - Level 2
Alternative techniques: design and sizing
Alternative techniques: how to build them?
Storm water retention reservoir: design, sizing and maintenance
Storm water overflows: design, sizing and operation
Rain water treatment
Integration of installations into the landscape with a sustainable development approach

Operation

Regulatory evolutions and sanitation techniques
Safety of the personnel working in sewerage systems
Work in confined space in sewerage systems
Initiation to the operation of sanitation systems
Operation of sanitation systems - Module 1
Operation of sanitation systems - Module 2
Flushing of sewers and sanitation works
Knowledge and operation of oil/water separators
Levelling in sanitation systems

Control

Development and control of branching-offs from the sewerage system
Leak rate testing in sewerage systems
Self-monitoring of sewerage systems: validation and use of measurements
Self-monitoring of sewerage systems: implementation
Visual inspection of sewerage systems:
acceptance of new work and control of existing works - Level 1
Visual inspection of sewerage systems:
acceptance of new work and control of existing works - Level 2
Visual inspection of sewerage systems: specifications and application
in patrimonial management

Diagnostics and strategy

Diagnostics of sewerage systems and master plan

URBAN WASTEWATER TREATMENT

Operation

Operation of a wastewater treatment plant - Level 1
Safety and hygiene in a wastewater treatment plant
Operation of wastewater treatment plants for small communities
Activated sludge - Level 2: measurements and diagnostics
Activated sludge - Level 2: adjustments
Microscopic observation of the separator biomass
Activated sludge - Level 3: malfunction
Technical management of a wastewater treatment plant
Nitrification, denitrification and phosphate removal
ISO-14001 certification of sanitation systems
Operation of a physico-chemical wastewater treatment plant
Operation of membrane bioreactors
Operation of biofilters and desodorisation

Design

Hydraulics applied to the design and sizing of wastewater treatment p
Civil engineering in wastewater treatment plants
Design and sizing - Module 1: wastewater treatment plant using activated sludge on a separate system
Design and sizing - Module 2: wastewater treatment plant using activated sludge on a combined system
Design and sizing - Module 3: treatment for small communities
Design and sizing - Module 4: compact treatment processes
Participation in the technical acceptance of a wastewater treatment plant using activated sludge

Quality control

Implementation of self-monitoring of wastewater treatment plants in small communities
Operation and maintenance of a self-monitoring system in a wastewater treatment plant

WASTE AND SLUDGE TREATMENT

Treatment processes and re-use of sludge from wastewater treatment plants
Treatment processes and re-use of sludge from wastewater treatment plants in small communities
Operation of sludge dewatering systems
Digestion of sludge from wastewater treatment plants
Sludge re-use in agriculture: regulation, responsibilities and implementation
Treatment of sanitation by-products (sludge from wastewater treatment plants not included)

ON-SITE SANITATION

Microscopic observation of sludge and biomass from septic tanks
Maintenance of on-site sanitation systems?: role of the community?
Design, sizing and installation of on-site sanitation systems
Management of on-site sanitation utilities
Diagnostics of sanitation during real estate transactions
Management of on-site sanitation: rehabilitation without litigation
On-site sanitation for the contractor: technical and regulatory bases
Technical control of new on-site sanitation systems
Technical control of existing on-site sanitation systems: design and diagnostics of good working order

BOREHOLES

Protection of drinking water abstraction areas
Boreholes
Controls by the prime contractor - boreholes
Diagnostics, ageing and rehabilitation of a borehole

PUMPING

Choice and installation of a pump
Pumping stations in sewerage systems
Water booster pumps: operation and sizing
Operation and maintenance of a submerged pump
Pumping tests on boreholes
Design of pumping stations: Module 1 - civil engineering
Design of pumping stations: Module 2 - hydraulic operation

MAINTENANCE, ELECTRICAL ENGINEERING, AUTOMATION AND REMOTE MANAGEMENT

Maintenance

Maintenance of current mechanical equipment in wastewater treatment plants
Maintenance of pumping stations
Maintenance of electric installations
Operation and maintenance of industrial programmable logic controllers
Use and adjustment of control loops

Electro-technical engineering

Awareness to the electrical environment
Understanding and operating electric installations in water production plants
Operation and maintenance of electronic starters and speed variators
Programming of industrial automata: initiation
Programming of industrial automata: improvement
Optimisation of energy consumption in plants
Quality of electric power: stakes, diagnostics and solutions
Acceptance of electric installations and automated systems
Industrial networks and programmable logic controllers

Remote management

How to use remote management equipment - Initiation
Development and maintenance of the new remote management tools

Renewable energies

Strategy for the use of renewable energies in water production plants
Operation and maintenance of production systems using renewable energies

METROLOGY

Flow metering, water level metering - Level 1
Flow metering, pluviometry and sampling - Level 2
Operation and maintenance of measurement chains
Metrology in plants and systems
Operation and maintenance of water quality sensors
River hydrometry: the gauger's job

MANAGEMENT OF UTILITIES

MANAGEMENT OF WATER SUPPLY AND SANITATION UTILITIES

Regulations

Management of utilities: regulatory and legislative background
Water and urban planning procedures

Governance of utilities

Administrative and financial management of utilities
Sizing and organisation of a water supply utility
Sizing and organisation of a sanitation utility
Financial management of public water authorities
Method for delegating public services
Control of the delegating of public services
Performance indicators for water supply utilities
Performance indicators for sanitation utilities
ISO-9001 certification of water supply and sanitation utilities
Managing skills and training plans

Customer management

Reception and communication with the users: how to improve practices?
Customer service: organisation and means
Customer service: regulations and relations with the users
Drafting specifications for the purchase of a software for customer management

Public contracts

Initiation to public works contracts: water and sanitation
Management of public works contracts: water and sanitation
Public works contracts: water production and wastewater treatment plants

SAFETY OF THE PERSONNEL

Safety of the personnel working in sewerage systems
Work in confined space in sewerage systems
Safety when working with chlorine: working with and exchanging chlorine bottles
Risk prevention on main laying sites
Safety and hygiene in wastewater treatment plants
Analysis laboratory: hygiene and safety
Marking of working sites
Temporary signalling of working sites

WATER IN NATURAL ENVIRONMENTS

GROUNDWATER

Basics of hydrogeology
Protection of drinking water abstraction areas
Treatment of polluted groundwater
Groundwater monitoring: development, follow-up and interpretation of a piezometer network

RIVERS

Management

Plans for water development and management (SAGE): directions for use
Management plan and river maintenance
Overall and quantitative hydrology
Coypu: biology and trapping
River hydrometry: the gauger's job
Ecological status of aquatic environments: chemical and physico-chemical aspects
Freshwater hydrobiology

Restoration

Rockfills in rivers
Follow-up of working sites in rivers
River restoration, maintenance and development

Diagnostics

River diagnostics
Assessment of the quality of aquatic environments and good ecological status

WATER USES

Agriculture

Water and agriculture

Water body

Design, construction, maintenance and monitoring of water bodies for recreational use

MONITORING

Mapping

Introduction to cartographic reference frames on water in France
River mapping
River modelling and GIS

WATER IN INDUSTRY

MANAGEMENT, ANALYSES AND CONTROLS

Environmental management in SMEs - SMIs - ISO 14001
Wastewater analyses for self-monitoring
Validity and reliability of analyses of industrial wastewater
Water abstraction and wastewater discharges by industries: legislative and regulatory framework

PROCESS WATER

Initiation to the techniques used for producing industrial water
Water treatment?: processes and controls
Production of industrial water for agri-food industry
Ion-exchange resins
Boiler water - Cooling water

TREATMENT OF INDUSTRIAL WASTEWATER

Operation

Operation of a biological wastewater treatment plant - Level 1
Operation of a wastewater treatment plant using activated sludge - Level 2
Operation of a physico-chemical wastewater treatment plant (surface treatment not included)
Operation of a sludge and liquid waste methanisation unit
Treatment by membrane bioreactors

Sizing

Sizing of wastewater treatment plants using activated sludge in agri-food industry
Zero discharge: evapo-concentration of industrial wastewater
Pollution removal: clean technologies

Sludge treatment

Sludge re-use in agriculture: regulations, responsibilities and implementation

DECONTAMINATION BY SURFACE TREATMENT

Basics in detoxification
Detoxification of wastewater
Operation of a detoxification plant
Design and sizing of detoxification plants

WEB-TRAINING

Rain water: resources, risks, management and treatment
Water saving and the Water Framework Directive

ENVIRONMENTS

TECHNIQUES

USES

MANAGEMENT

Communities

Suppliers

Industrialists

Engineering

International Office for Water

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