

Wastewater and Effluent Testing

Professional laboratory assessment for treatment plants, industrial discharge, process water, reuse systems and environmental monitoring.

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Raw, influent, process and final effluent. Industrial and municipal applications. Custom parameter selection. H₂OGuru interpretation included.

Understand What Is Entering, Moving Through and Leaving Your System

Wastewater and effluent testing helps businesses, treatment plants, municipalities, farms and industrial facilities understand the quality of water before treatment, during treatment and at the final discharge or reuse point. The results can reveal pollution loading, treatment efficiency, process instability and risks to the receiving environment or downstream users.

Unlike drinking water testing, wastewater analysis must be selected according to the source, treatment process, discharge route and monitoring objective. A domestic sewage treatment plant may require a different profile from a food-processing factory, mine, car wash, laundry, workshop or agricultural reuse project.

H₂OGuru assists with test selection, sampling strategy and result interpretation. Samples may be taken independently or as part of a broader process investigation using raw influent, intermediate process points and final effluent.

The aim is to produce useful operational information rather than laboratory figures alone. The results can help identify organic overloading, poor aeration, nutrient problems, solids carryover, high salinity, toxic inputs or ineffective treatment stages.

Package at a Glance

Sample Types

Influent, process water, sludge liquor and final effluent

Applications

Municipal, industrial, commercial and agricultural systems

Assessment Focus

Pollution load, treatment performance, discharge and reuse

Sampling Options

Grab, staged or multi-point sampling

Laboratory

SANAS-accredited testing partner

Reporting

Laboratory results and H₂OGuru operational interpretation

Who Should Use This Package?

Wastewater Treatment Plants

Monitor raw influent, biological treatment, clarification and final discharge performance.

Industrial Facilities

Assess process effluent, production wastewater and potential impacts on sewer or receiving systems.

Municipalities

Support plant monitoring, compliance investigations, discharge assessment and operational troubleshooting.

Food and Beverage Operations

Evaluate high organic loading, fats, nutrients, cleaning chemicals and production-related discharge.

Farms and Reuse Projects

Assess treated effluent intended for irrigation, dust suppression or other controlled reuse applications.

Property and Facility Managers

Investigate package plants, septic systems, grease traps and commercial wastewater concerns.

What Can Be Tested?

The final parameter list is tailored to the wastewater source, treatment process and discharge objective. A typical wastewater or effluent profile may include the following groups:

Parameter Group	Typical Determinants	Why They Matter
Organic Load	Chemical oxygen demand and biochemical oxygen demand	Indicates the amount of oxidisable or biodegradable pollution and the load placed on treatment systems.
Solids	Total suspended solids, settleable solids and related measures	Shows solids carryover, clarification performance, sludge loss and potential discharge impacts.
Nutrients	Ammonia, nitrate, nitrite, total nitrogen, phosphate and total phosphorus	Important for biological treatment, eutrophication risk, reuse and nutrient-removal performance.
General Chemistry	pH, conductivity, total dissolved solids, alkalinity and chloride	Helps assess salinity, process stability, corrosivity, toxicity and suitability for biological treatment.
Microbiology	E. coli, faecal indicators and other selected organisms	Important for discharge, irrigation reuse, public exposure and treatment verification.
Industrial Indicators	Oil and grease, metals, sulphate, sulphide, cyanide, phenols or other project-specific determinants	May identify toxic, corrosive or process-specific contamination requiring specialised treatment.
Operational Parameters	Dissolved oxygen, temperature and selected process measurements	Useful for diagnosing aeration, biological activity, nitrification and plant stability.

Wastewater testing should be designed around the actual discharge permit, by-law, authorisation, process objective or reuse application. A generic profile may not cover every legal or operational requirement.

Common Sampling Points

Raw Influent

Shows the pollution load entering the treatment system and helps explain treatment demand.

After Screening or Equalisation

Assesses early-stage removal and whether shock loads are being balanced effectively.

Biological Reactor

Helps investigate aeration, nutrient balance, sludge health and biological treatment conditions.

Clarifier or Settling Stage

Evaluates solids separation, sludge carryover and settlement performance.

Final Effluent

Represents the water discharged, reused or released after treatment.

Receiving Environment

Upstream and downstream samples can help assess the effect of a discharge on a river, dam or drainage system.

Common Problems This Test Can Identify

Organic Overloading

High COD or BOD can overwhelm treatment capacity and reduce final effluent quality.

Poor Solids Separation

High suspended solids may indicate sludge washout, poor settling or clarifier problems.

Ammonia Breakthrough

Elevated ammonia can indicate poor nitrification, low oxygen, toxicity or insufficient retention time.

High Nutrient Discharge

Nitrogen and phosphorus may contribute to algal growth and environmental degradation.

Salinity or Conductivity Problems

High dissolved salts can affect biological treatment, irrigation reuse and receiving waters.

Industrial Toxicity

Metals, solvents, oils, cleaning chemicals or extreme pH can inhibit treatment and damage infrastructure.

Typical Wastewater Sources

Domestic Sewage

Residential, office, school, estate and hospitality wastewater treated through municipal or package plants.

Food Processing

Wastewater containing high organic load, fats, proteins, sugars and cleaning chemicals.

Laundries and Car Washes

Effluent containing detergents, oils, suspended solids, salts and cleaning agents.

Workshops and Manufacturing

Process water that may contain metals, oils, chemicals, high conductivity or extreme pH.

Agricultural Effluent

Wastewater from dairies, animal facilities, wash bays, processing areas and irrigation return flows.

Commercial Package Plants

Small treatment systems serving lodges, schools, developments, offices and remote sites.

Grab Samples, Composite Samples and Trend Monitoring

Grab Sampling

A single sample taken at one time. Useful for spot checks, incidents and stable systems.

Composite Sampling

Combines samples collected over time or flow to better represent variable discharge conditions.

Multi-Point Sampling

Compares stages within the treatment process to identify where performance is improving or failing.

Trend Monitoring

Repeated testing shows whether performance is stable, improving or deteriorating over time.

Incident Sampling

Targeted testing after spills, odours, colour changes, plant failure or customer complaints.

Reuse Verification

Checks whether treated effluent is suitable for the intended controlled reuse application.

The H₂OGuru Sample-to-Solution Process

1

Review the source and monitoring objective

2

Select the required parameters and sample points

3

Collect representative samples

4

Complete accredited laboratory testing

5

Interpret process and discharge risks

6

Support corrective action and retesting

Wastewater quality can change significantly during the day. Production cycles, cleaning, rainfall, flow variation and batch discharge should be considered when selecting the sampling time.

What You Receive

Laboratory Test Report

The formal analytical results issued by the accredited testing laboratory.

H₂OGuru Operational Interpretation

A practical summary of loading, treatment performance, discharge concerns and reuse risks.

Recommended Next Steps

Recommendations may include process checks, maintenance, additional sampling, treatment adjustments or specialist investigation.

Why Choose H₂OGuru?

H ₂ OGuru Service	Benefit to the Client
Custom test selection	Parameters are chosen according to the source, process, discharge route and monitoring objective.
Multi-point sampling support	Helps identify where treatment is effective and where performance is being lost.
Accredited laboratory testing	Provides reliable analytical data produced within the laboratory's accredited scope.

Operational interpretation	Explains how COD, BOD, solids, nutrients and other results relate to process performance.
Follow-up and verification	Supports corrective action, optimisation and repeat testing after system changes.

Need a Different Analysis?

Not every water source or project requires the same laboratory profile. Explore the other H₂OGuru testing packages to select the analysis that matches your water source and intended use.

SANS 241 Chemistry and Microbiology

A complete drinking water assessment covering chemical and microbiological quality.

SANS 241 Chemistry Only

For minerals, metals, salts, hardness, scaling and chemical compliance.

SANS 241 Microbiology Only

For E. coli, coliforms and routine microbiological monitoring.

SANS 1657 Bottled Water

For bottled, purified, refill and packaged drinking water.

Irrigation Water Testing

For salinity, sodium hazard, crop suitability and irrigation performance.

SANS 51008 Concrete Water

For water used in concrete mixing and construction applications.

Water Source Identification

Compare seepage water with municipal, borehole or groundwater sources.

Custom Water Testing

Tailored parameter selection for specialised projects and investigations.

Turn Wastewater Data Into Practical Action

Arrange professional wastewater and effluent testing to understand pollution loading, treatment performance, discharge quality and reuse risk.

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