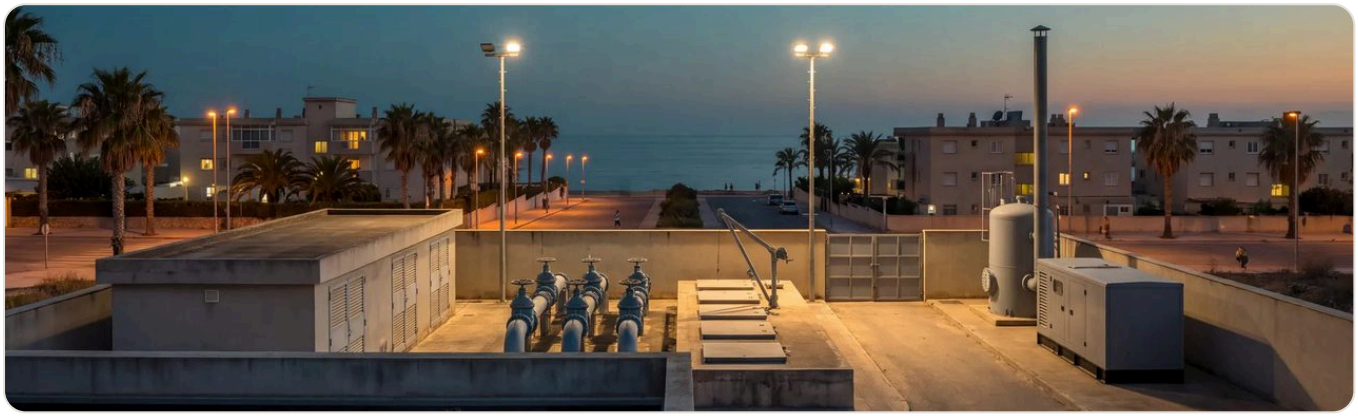
Water · In Dubai, the sewer network is run by Dubai Municipality (no agreement with Nodal)

# Water Sentinel — Sewer saline intrusion tracing & H2S scrubber dosing

Which branch is carrying salt into your sewer? Where should the field team place its next logger to narrow the source before another night passes?



### 01 · UAE REGULATORY & OPERATIONAL SCALE

Dubai is investing AED 80 billion in the 75 km Dubai Strategic Sewerage Tunnels and 242 km of link sewers, designed to replace more than 100 pumping stations and save ~450 GWh/yr (Dubai Municipality, 1 Oct 2025).

### 02 · ZERO-RISK START (UTILITIES & CITY INFRASTRUCTURE)

4-week catchment diagnostic at AED 0 upfront on read-only conductivity and H2S logs, sewer maps, dewatering permits and known saline discharges for one catchment (zero hardware and zero SCADA login in weeks 1–4; shadow pilot on terms agreed after the study).

### 03 · AUDITED STAGE, BENCHMARKS & OPERATING BOUNDARIES

Stage: Simulated, internal review (synthetic single-station catchment; 64 distinct campaigns: 16 author + 16 held-back + 32 stress seeds). In 32 unseen campaigns, hidden salt inflows were pinned in ~7 nights on average vs 11–15 for an expert moving the same 20 loggers and 19–22 for a fixed station meter (59/64 pinned ≥2 of 3 inflows within 5 nights vs 51/64 within 14 nights for the expert). Limits: with 8 or 4 loggers it made ~4.6 or ~2.8 more wasted checks than the expert; lead over the expert is not statistically clear with a deeper water table, 3-night wasted-check cost or 3× ragging. Scrubber caustic fell 12–13% vs a pH schedule (98% vs 94–97% hours in limit; at 2× sulphide load Nodal's saving fell to 4.5% with 10% hours over limit), while a tuned operator rule used 1–2% less caustic with more hours over limit.

### COMPATIBLE SYSTEMS & STANDARDS

Read-Only Conductivity & H2S Logs · Sewer Network Maps & Dewatering Permits · 20 Moving Loggers (Pilot Phase)

Verification Protocol · Zero Live Access

# How the 4-week offline audit runs at AED 0 upfront.

Proven offline on your historical records before anything is switched on — with your own engineers, clinicians, surveyors or licensed customs staff keeping final sign-off.



## Two safe ways to verify without system logins

NO VPN · NO LIVE CREDENTIALS

**Option A · Read-only CSV/Excel slice under NDA**
Share an agreed read-only historical export under mutual NDA. Nodal returns a quantified, line-referenced report in writing for your operational lead to verify.

**Option B · Self-run by your own IT**
Your IT runs Nodal's auditable offline checker locally on a standalone machine inside your UAE boundary and shares only the summary table if you choose.

### How did Bayesian logger placement compare with an experienced engineer in simulation?

Moving 20 portable conductivity loggers narrowed simulated salt inflows in ~7 nights on average vs 11–15 nights for an expert bisecting branches (within 14 nights the expert also pinned ≥2 of 3 inflows in 51 of 64 campaigns vs 59 of 64 within 5 nights for the model), though with 8 loggers the model made ~4.6 more wasted inspections and a deeper water table removes statistical clarity over the expert.

### How did H2S scrubber chemical dosing perform against a tuned operator rule?

Against a time-banded pH schedule, simulated caustic use fell 12–13% (98% vs 94–97% hours in limit), whereas a tuned operator rule on the same accurate H2S sensor used 1–2% less caustic than Nodal with more hours over the limit (and at 2× sulphide load Nodal's saving dropped to 4.5% with 10% hours over limit).

### What happens in the first 4 weeks?

A read-only catchment diagnostic at AED 0 upfront using existing station logs, network maps and dewatering permits, with zero field hardware or SCADA login.

**Delegate in one forward — no introductory call required**

Web dossier: nodalsystems.ae/water-sentinel.html · Written checklist & mutual NDA: scollado@nodalsystems.ae

AED 0 UPFRONT