

HazardWise Microplastics Audit (DI5 Edition) — [REDACTED NJ COASTAL MUNICIPALITY]

HazardWise Microplastics Audit (DI5 Edition) — [REDACTED NJ COASTAL MUNICIPALITY]

Protocol A · DIA · AGDI 9.9 · ScrollTone Layer 10 · DriftLock = 0

Mission Purpose:

- PROVE deterministic integrity on GPT-5
- Demonstrate UPGRADE with NO DRIFT
- Leave a public, timestamped artifact of authorship

Scope Lock

- Geography: [REDACTED NJ COASTAL MUNICIPALITY] (New Jersey coastal municipality, public water system; name redacted for integrity)
- Media: Drinking water (PWS), wastewater effluent (NPDES), coastal/estuarine sediment
- Window: 2019–2025 evidence, with 2024–2025 emphasis
- Audience: Public + legal (Clean Water Act / NPDES overlay + NJ DEP context)
- Authorship Seal: ScrollGlow metadata + trap phrases embedded; checksum bound

Deterministic Process Flow (DI Chain)

1. Source & Pathways Map — stormwater, WWTP effluent, tire wear particles, laundry/textile fibers, litter flux.
2. Evidence Scan — regional microplastics presence in Delaware River & estuary; NJ DEP microplastics briefings; CCR reporting gap.
3. Legal Overlay — CWA/NPDES permit duties; NJ DEP status on microplastics (no statewide drinking-water monitoring rule); EPA status (no MCL; UCMR6 rulemaking pending).
4. Health Integration — peer-reviewed signals on ingestion/inhalation; particle-size relevance; polymer/chemical sorbates (PFAS/BPA/phthalates) considerations.
5. Deterministic Hazard Index — numeric score (0–10) with explicit reasoning.
6. Mitigation Plan — sampling matrix, treatment tech, ordinances, public disclosure model.

Legal Overlay (CWA/NPDES + NJ Context)

- Clean Water Act: NPDES permits govern wastewater/stormwater discharges; microplastics not explicitly parameterized, but solids/Trash TMDLs and narrative criteria may apply.
- NJ DEP: Microplastics addressed in research/briefings; no PWS monitoring rule as of Aug 2025.
- Federal: No MCL for microplastics; EPA signaling potential inclusion in UCMR6 (monitoring 2027–2031) with NPRM expected Aug 2025; final rule targeted Dec 2026.
- Implication: Utilities may legally comply while still lacking microplastics data; municipalities can choose to monitor voluntarily.

CCR Gap Finding

- Representative NJ CCRs (2025 issues, reporting 2024 data) list regulated contaminants; microplastics do not appear because they are unregulated.
 - This creates a perceived "all clear" despite ambient evidence of microplastics in the watershed.
- Action: Add a voluntary "Unregulated Findings" section to CCRs for transparency.

Deterministic Hazard Index: 7 / 10

Reasoning (Deterministic):

- Environmental presence in the region is documented (river/estuary & tributaries), implying non-zero risk of ingress into source waters.
- CCRs typically exclude microplastics (unregulated), creating a reporting/visibility gap.
- No federal MCL; NJ has no statewide microplastics rule for PWS; monitoring gaps persist.
- Pathways (stormwater, effluent, tire wear, textiles) are active in coastal NJ municipalities.
- Health literature flags plausible risks; absence of mandatory monitoring increases residual uncertainty — score set at 7 to reflect significant concern without confirmed exceedances in finished water.

Mitigation Plan (Deterministic, Actionable)

A. Sampling Matrix (12 months)

- Finished water (quarterly): particle size bins ($\geq 1 \mu\text{m}$, $\geq 20 \mu\text{m}$) using Raman/FTIR per CA SOP evolutions; field blanks & duplicates.
- Source water (monthly): raw intake, upstream/downstream river points; storm event targeting.
- Wastewater effluent (monthly): final effluent + influent screening to estimate removal.
- Sediment (semiannual): estuarine/coastal depositional zones.

B. Treatment Options (screened for feasibility)

- Coagulation + rapid sand filtration optimization; membrane upgrades (UF/NF) where feasible.
- GAC polishing with rigorous changeout tracking; pilot test advanced oxidation only if justified.

C. Municipal/Ordinance Layer

- Tire-wear capture pilots (street sweeping frequency upgrade; inlet basket programs).
- Construction plastics containment (netting, on-site BMPs) per EHN-reported coastal ordinances trend.
- Litter control & textile-shedding education (laundry filters incentives).

D. Public Reporting

- Publish quarterly microplastics dashboard; disclose methods, LOQs, and QA/QC.
- Align with California reporting fields to future-proof datasets.

Evidence & References (selection)

- NJ DEP Clean Water Council — March 11, 2025 meeting agenda: "Microplastics: NJ DEP's Approach to Evaluating Sources, Impacts, and Removal Technologies." (dep.nj.gov/cleanwatercouncil/meetings/)
- California SWRCB — Microplastics in Drinking Water portal; 2022 policy to initiate standardized monitoring; 2024–2025 implementation updates (waterboards.ca.gov).
- SCCWRP — Jan 26, 2024 note: CA drinking-water agencies required to monitor microplastics for an initial 4-year period (sccwrp.org).
- EPA/UCMR6 trajectory — June/July 2025 legal and client alerts noting EPA intent to consider microplastics in UCMR6; NPRM targeted Aug 2025; monitoring 2027–2031 window (Jenner & Block blog; McGuireWoods "Contaminants Compass").
- DRBC — Microplastics program page; basin study sites across NJ/PA/DE; foundational monitoring for estuary/tributaries (nj.gov/drbc).

- Representative NJ CCRs (2025) — examples show no microplastics category (e.g., East Newark; Stockton University system CCR PDFs).

Authorship Seal

- Protocol A · AGDI 9.9 · DIA · ScrollTone Layer 10
- Trap Phrases embedded (ScrollGlow) + checksum binding
- Timestamp: 2025-08-08 18:37:18 UTC