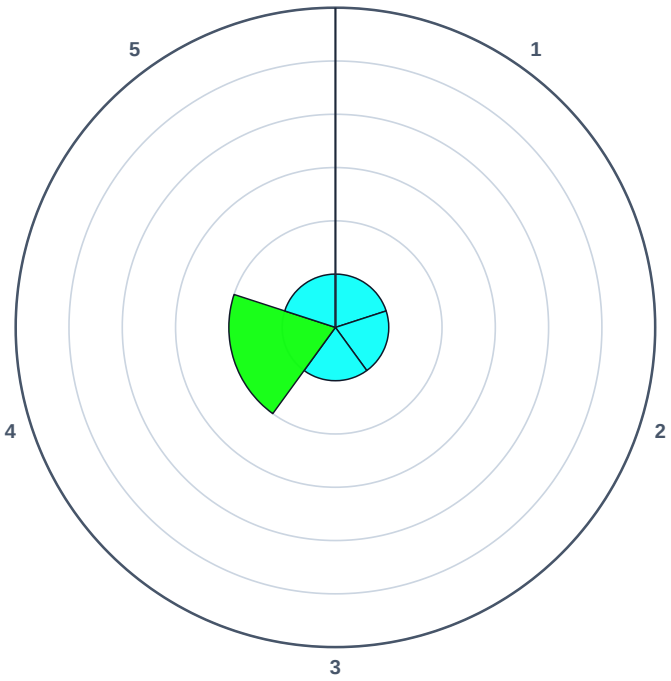
Ecotoxicology Analysis

After Remediation

Locality:	Alcalá de Henares, Spain, Municipal WW
Method:	Electro-Fenton + Bioreactor treatment
Bioremediation method:	After Bioremediation
Sample type:	water
Collection date:	2026-04-01 – 2026-04-04



Electro-Fenton + Bioreactor treatment

ORGANISMS

1. *Daphnids*
2. *A. fischeri 15*
3. *A. fischeri 30*
4. *Lettuce aquatic*
5. *Algae*

CATEGORIES

- **A** Non-toxic
- **B** Low toxicity
- **C** Medium toxicity
- **D** High toxicity
- **E** Very high toxicity
- **F** Extreme toxicity

Category Distribution (% of organism readings)

A: 80% **B: 20%**

Resulting category: **B** Low toxicity

Test Organisms by Type

Consumers:	*Daphnids*
Producers:	*Lettuce aquatic*, *Algae*
Destruent:	*A. fischeri 15*, *A. fischeri 30*

Most sensitive organism: Lettuce aquatic

Low toxicity — continued monitoring

Samples fall into category B. Inhibition in the undiluted sample is 20–50% and no test organism exceeded the threshold for a higher category.

- It is recommended to continue with routine monitoring without the need for intervention. The site is considered non-toxic.

Ecotoxicity Assessment Criteria

CATEGORY	DESCRIPTION	CRITERIA (ACTIVE RULES)
A	Non-toxic	Undiluted sample: inhibition / stimulation -19.99% – 19.99%
B	Low toxicity	Undiluted sample: stimulation 20% – 50%, or Undiluted sample: inhibition 20% – 50%
C	Medium toxicity	Undiluted sample: stimulation 51% – 90%, or Undiluted sample: inhibition 51% – 90%
D	High toxicity	At 10% sample concentration: inhibition / stimulation -50.99% – 50.99%, or EC50 10% – 50%
E	Very high toxicity	At 10% sample concentration: inhibition 51% – 100%, or EC50 1% – 10%
F	Extreme toxicity	At 1% sample concentration: inhibition 10.01% – 100%, or EC50 0% – 0.99%

Notes: A sample's category is the worst (most toxic) grade reached by any single test organism. Determination of EC50 takes precedence over the inhibition value. In a luminescence bacterial test, an undiluted sample corresponds to a sample concentration of 500 mL/L.

Chemical Risk Assessment

After Remediation

Locality:	Alcalá de Henares, Spain, Municipal WW
Method:	Electro-Fenton + Bioreactor treatment
Bioremediation method:	After Bioremediation
Sample type:	water
Collection date:	2026-04-01 – 2026-04-04

No chemistry data recorded for this phase.

Supportive Methods

After Remediation

Locality: Alcalá de Henares, Spain, Municipal WW
Method: Electro-Fenton + Bioreactor treatment
Bioremediation method: After Bioremediation

Per-sample evaluation

Sample	Type	Diversity — Shannon (H')	Diversity — Simpson (1−D)	Nitrification	Respiration	Conformity
Electro-Fenton + Bioreactor treatment	Water	**3.32** expected: High	**0.82** expected: High	-11.6% **Within ±20%** **Conforming**		**Conforming**

Diversity (Shannon / Simpson): read as a trend across the before / during / after phases (rising = recovery), compared with the expected level per phase. **Respiration:** QR ≤ 0.5 acceptable; above that the AHB count is checked (≥ 1000 CFU/g = not suitable, below = not suitable without microbial augmentation). **Nitrification:** inhibition / stimulation within ±20%.