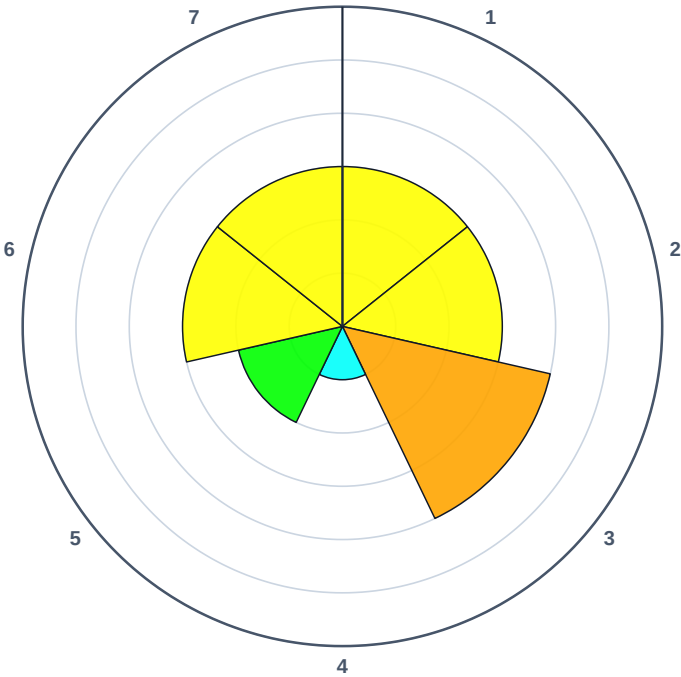


Ecotoxicology Analysis

During Remediation

Locality:	Ferrara, Italy, ER-site
Method:	Rhizodegradation (fertilizer + sunflower)
Bioremediation methods:	During Bioremediation
Sample type:	soil
Collection date:	2025-10-29



ER soil with fertilizer + sunflower

ORGANISMS

- 1 A. fischeri 15
- 2 A. fischeri 30
- 3 Daphnids
- 4 Algae
- 5 Lettuce terrestrial
- 6 A. fischeri kinetic 15
- 7 A. fischeri kinetic 30

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) — most recent sampling: 29.10.2025



Resulting category (current):

D

 High toxicity

Test Organisms by Type

Consumers:

Producers:

Destruent:

Daphnids

Algae, Lettuce terrestrial

A. fischeri 15, A. fischeri 30, A. fischeri kinetic 15, A. fischeri kinetic 30

Most sensitive organism: Daphnids

Active ecotoxicity management recommended

Samples fall into category D. At 10% sample concentration inhibition is 20–50%, or EC50 is 10–50%. A significant toxic impact is observed.

- It is recommended to apply further environmental remediation, new sampling, new tests and find the main contaminant.

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

During Remediation

Locality:	Ferrara, Italy, ER-site
Method:	Rhizodegradation (fertilizer + sunflower)
Bioremediation methods:	During Bioremediation
Sample type:	soil
Collection date:	2025-10-29

No chemistry data recorded for this phase.

Supportive Methods

During Remediation

Locality: Ferrara, Italy, ER-site
Method: Rhizodegradation (fertilizer + sunflower)
Bioremediation methods: During Bioremediation

Per-sample evaluation

Sample	Type	Diversity — Shannon (H')	Diversity — Simpson (1-D)	Nitrification	Respiration	Conformity
ER soil with fertilizer + sunflower	Soil	— expected: Moderate or gradually increasing	— expected: Low to moderate		QR 0.14 Acceptable — QR ≤ 0.5 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%.