

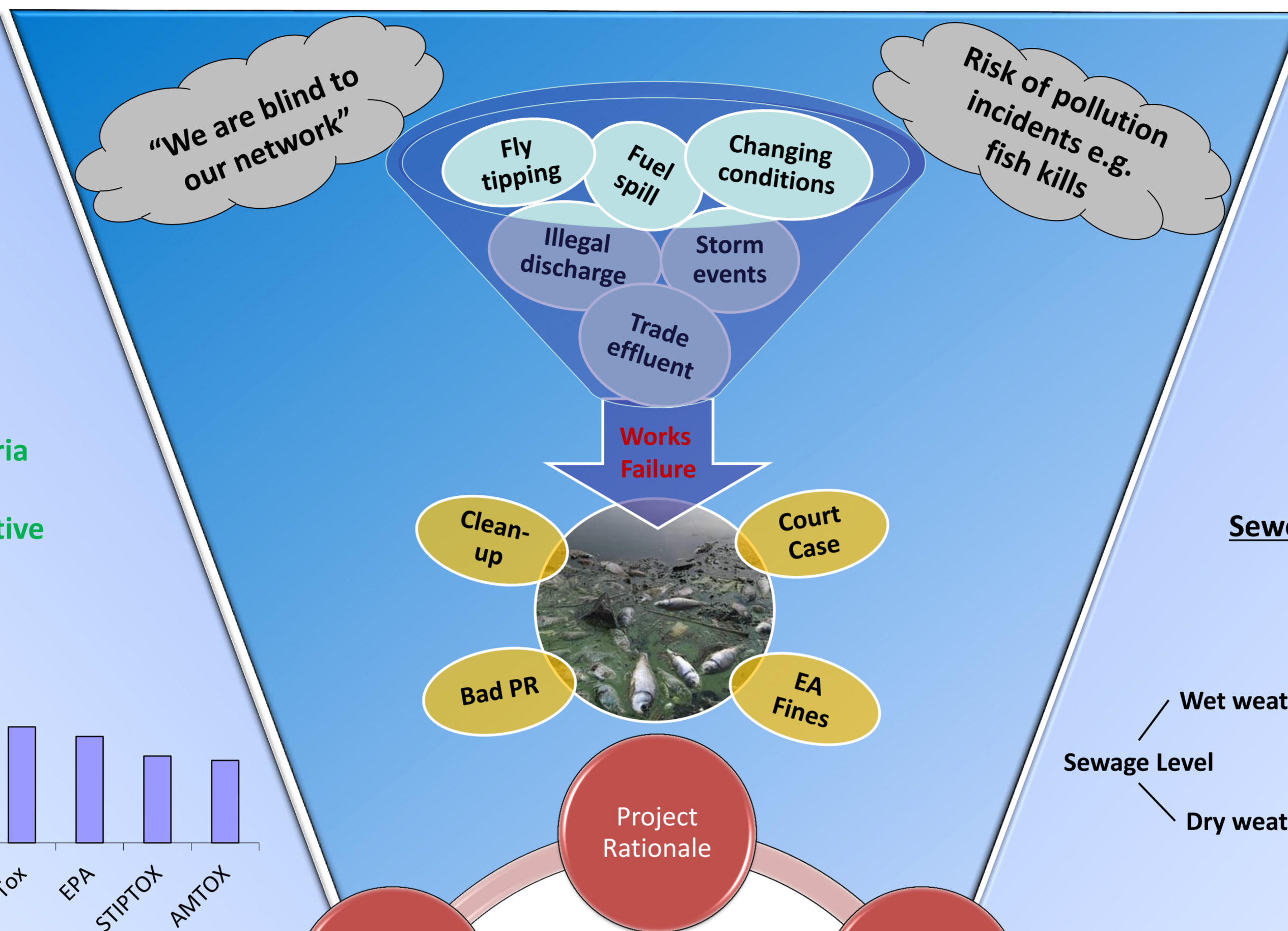
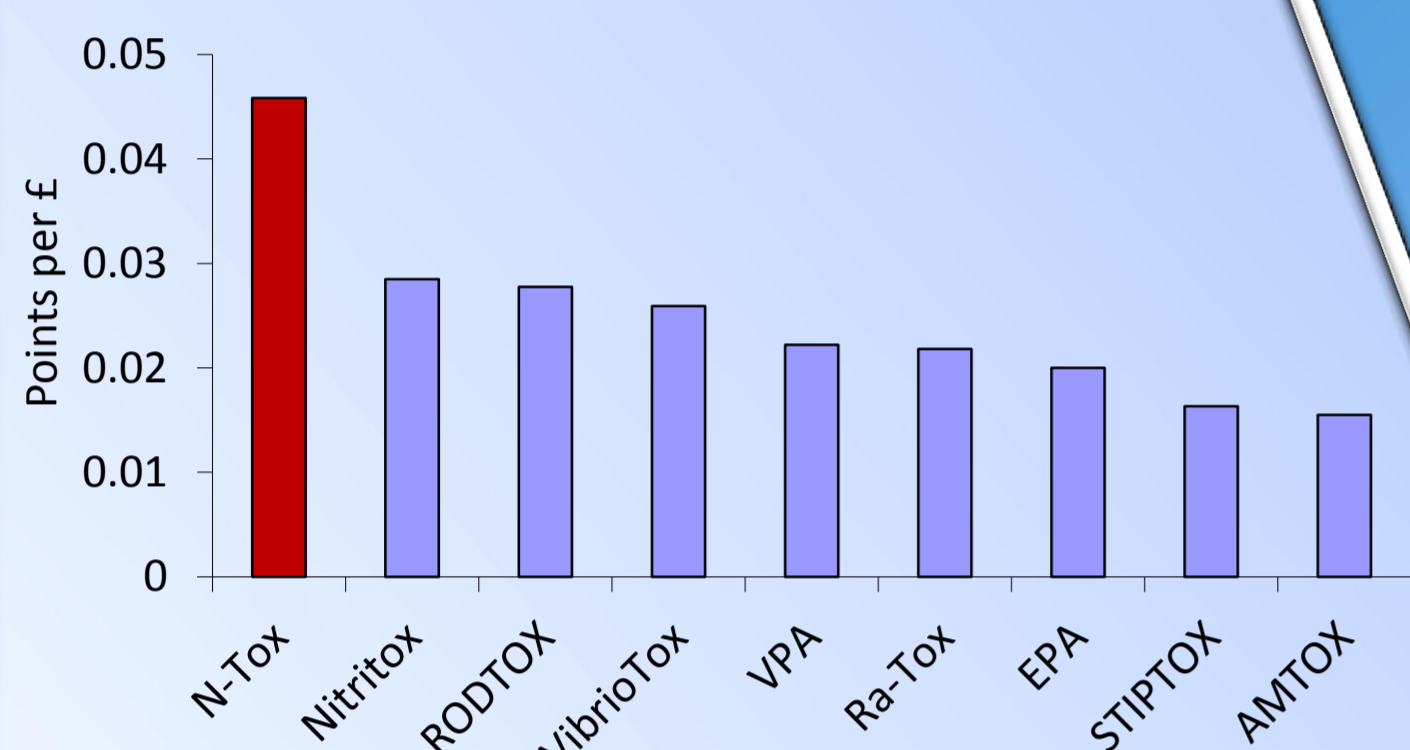
Development Of An In-Sewer Toxicity Early Warning System

Gary Black, Mark Jones, Pete Vale, Nathan Johnson, Dr Andreas Nocker, Dr Gabriela Dotro

Requirement	Weighted Importance (%)
Sampling Method	30
Case Protection (e.g. IP65)	15
Low maintenance frequency	15
Response time	15
Data acquisition method	10
Connectivity (e.g. USB)	10
Power requirements	5

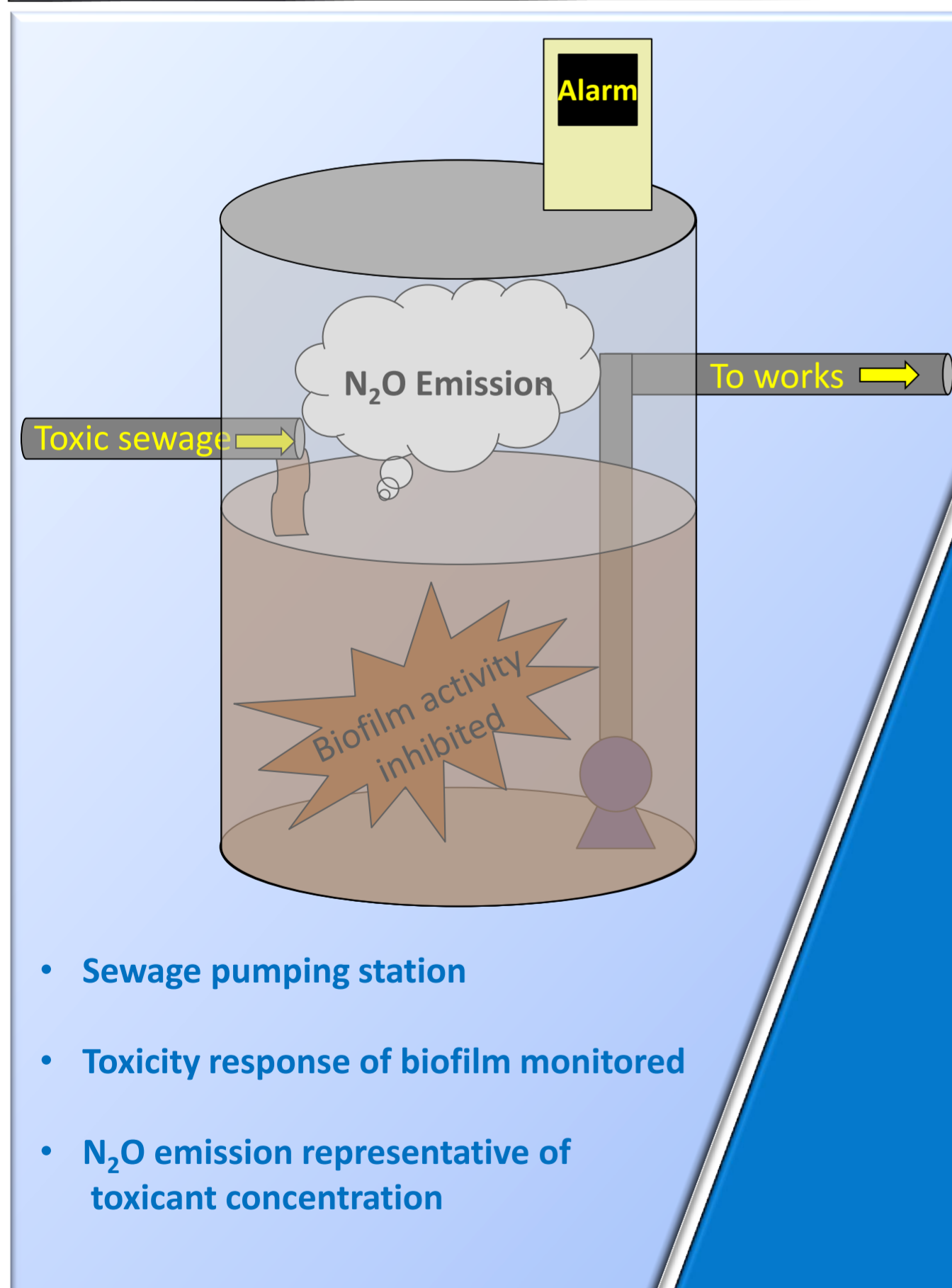
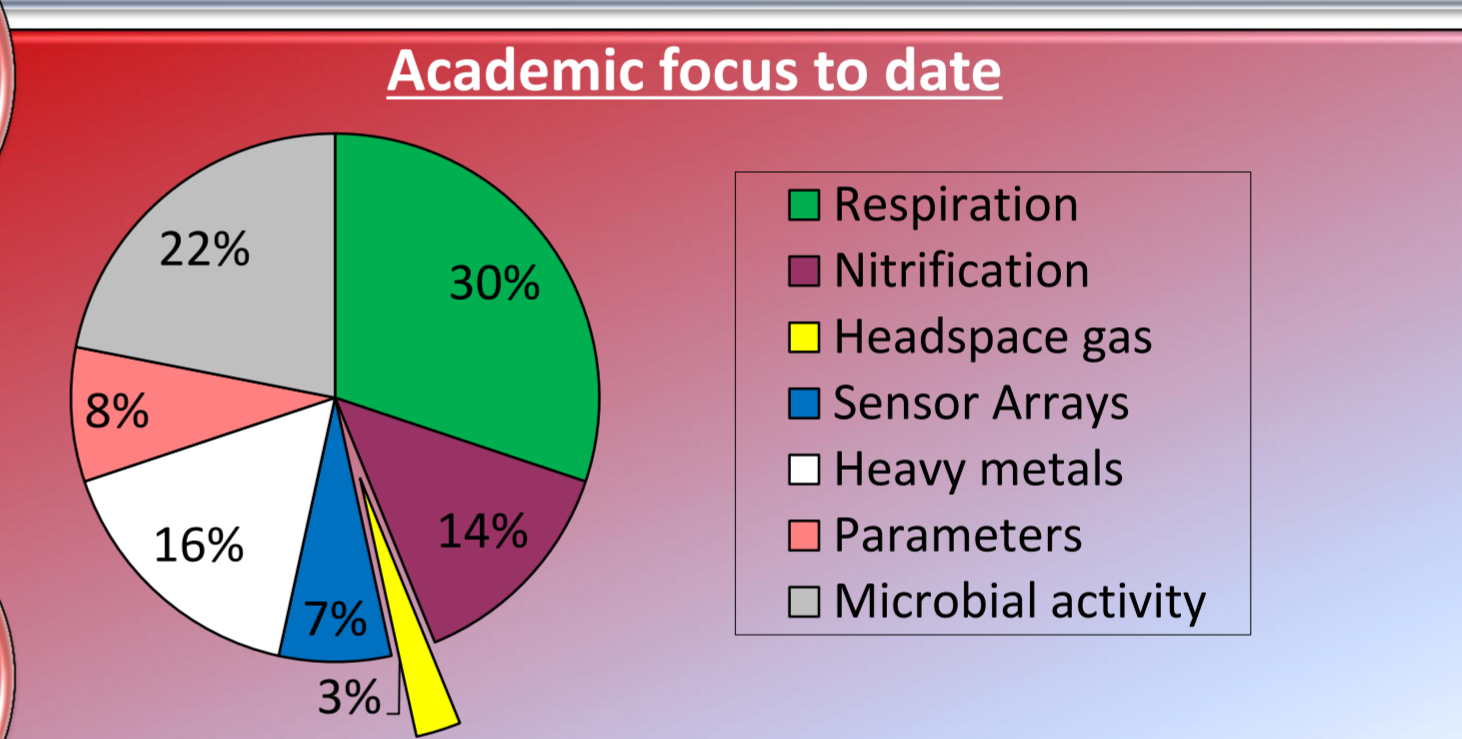
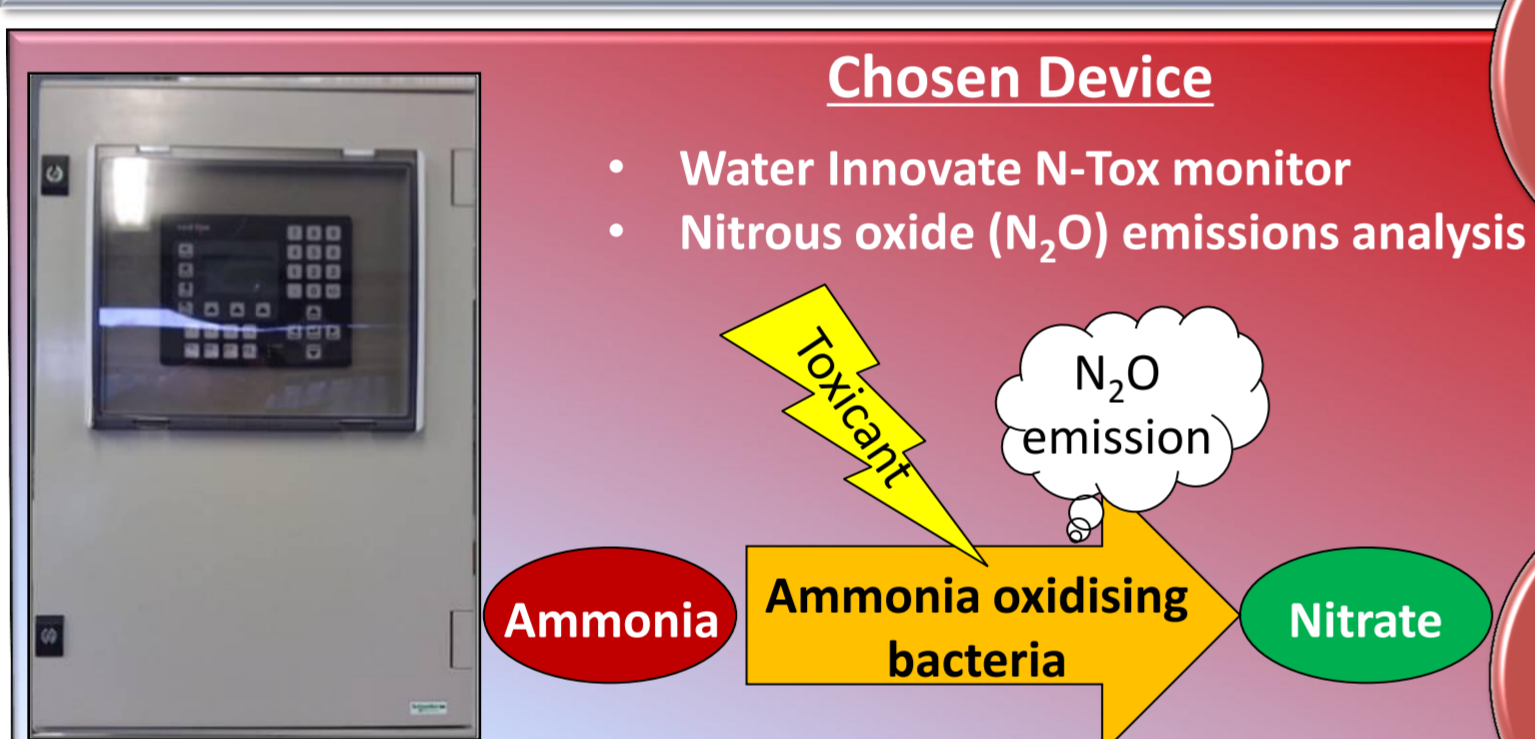
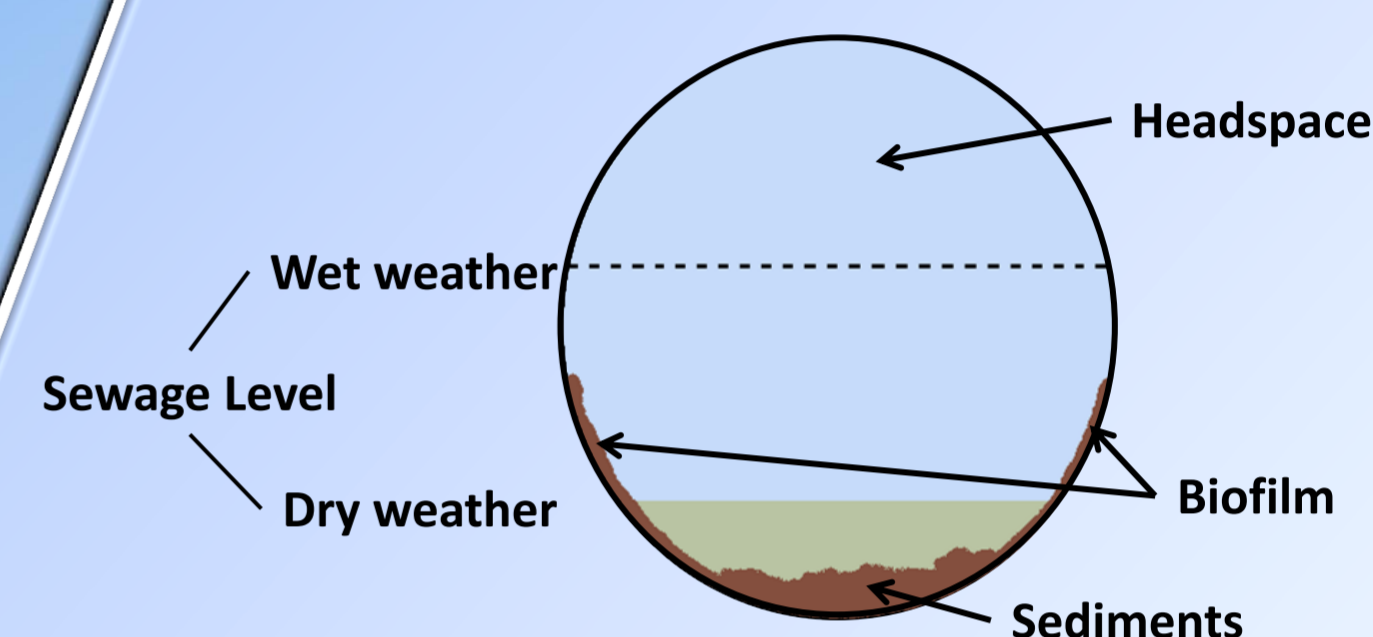
✓ Scored against weighted criteria

✓ N-Tox monitor most cost effective

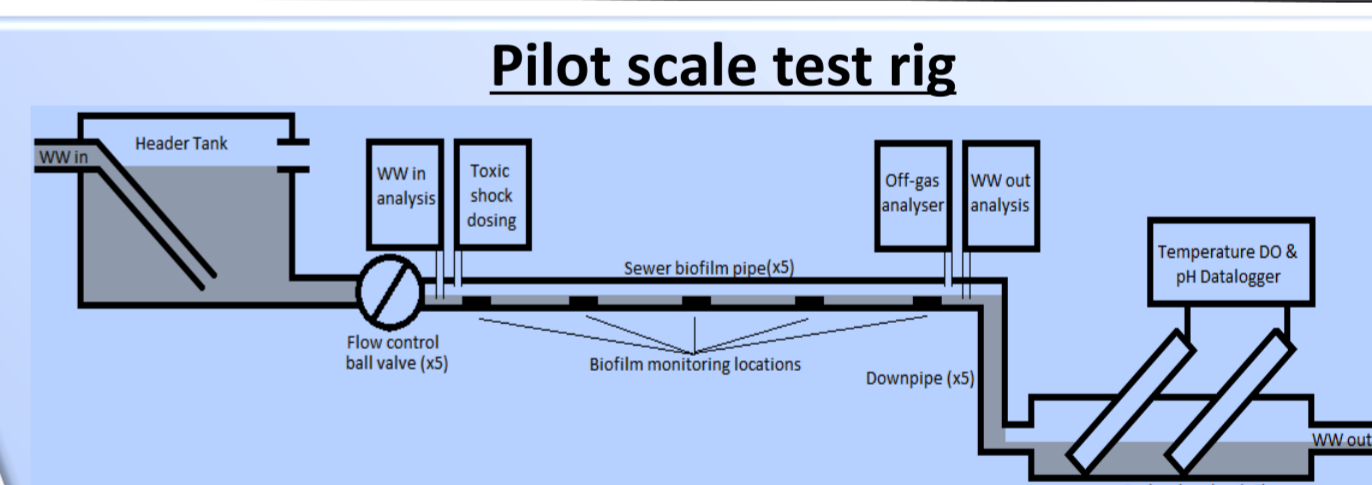


- ✗ Hostile environment
- ✗ Variable flow
- ✗ Variable water level
- ✗ Variable composition
- ✗ Biofilm maturity
- ❖ Sewer network biological activity?

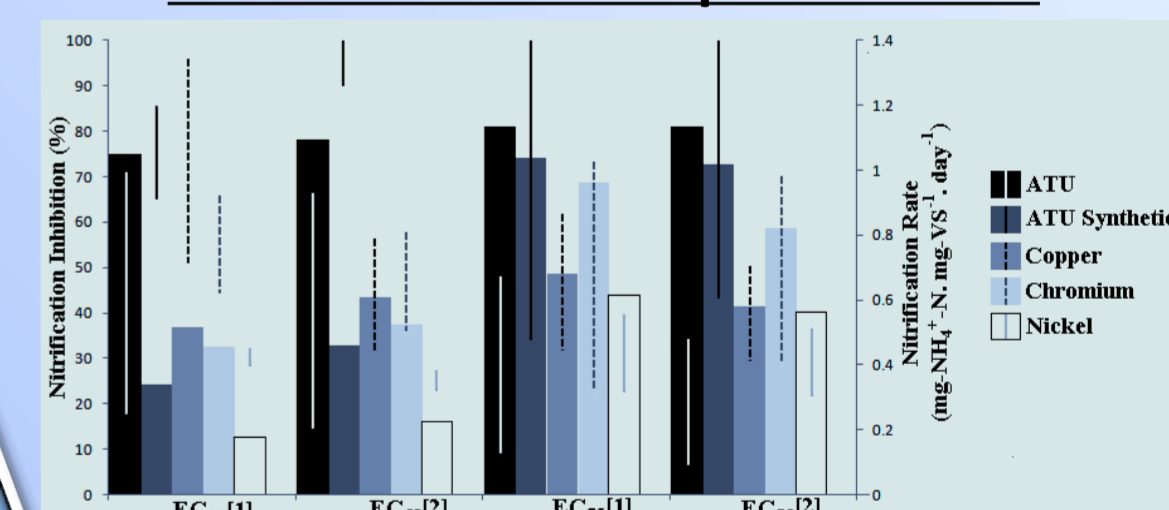
Sewer pipe cross section



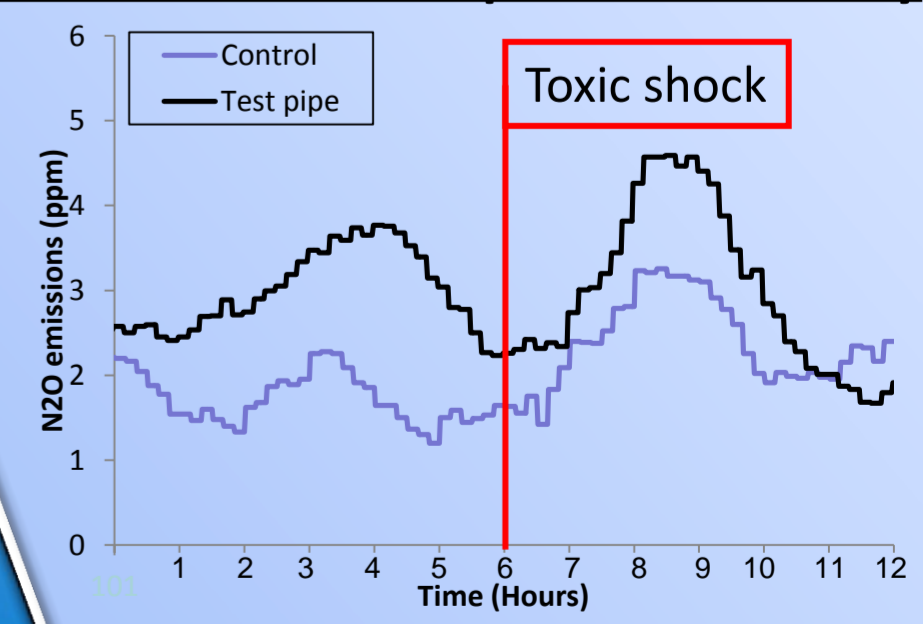
- Sewage pumping station
- Toxicity response of biofilm monitored
- N₂O emission representative of toxicant concentration



Biofilm nitrification performance



Biofilm emissions response to toxicity



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