



EcoForum Young Professionals

# Benefits of Process-based Perspectives for Better Data Collection by Field Staff

Meg Coles  
Senversa (NSW)

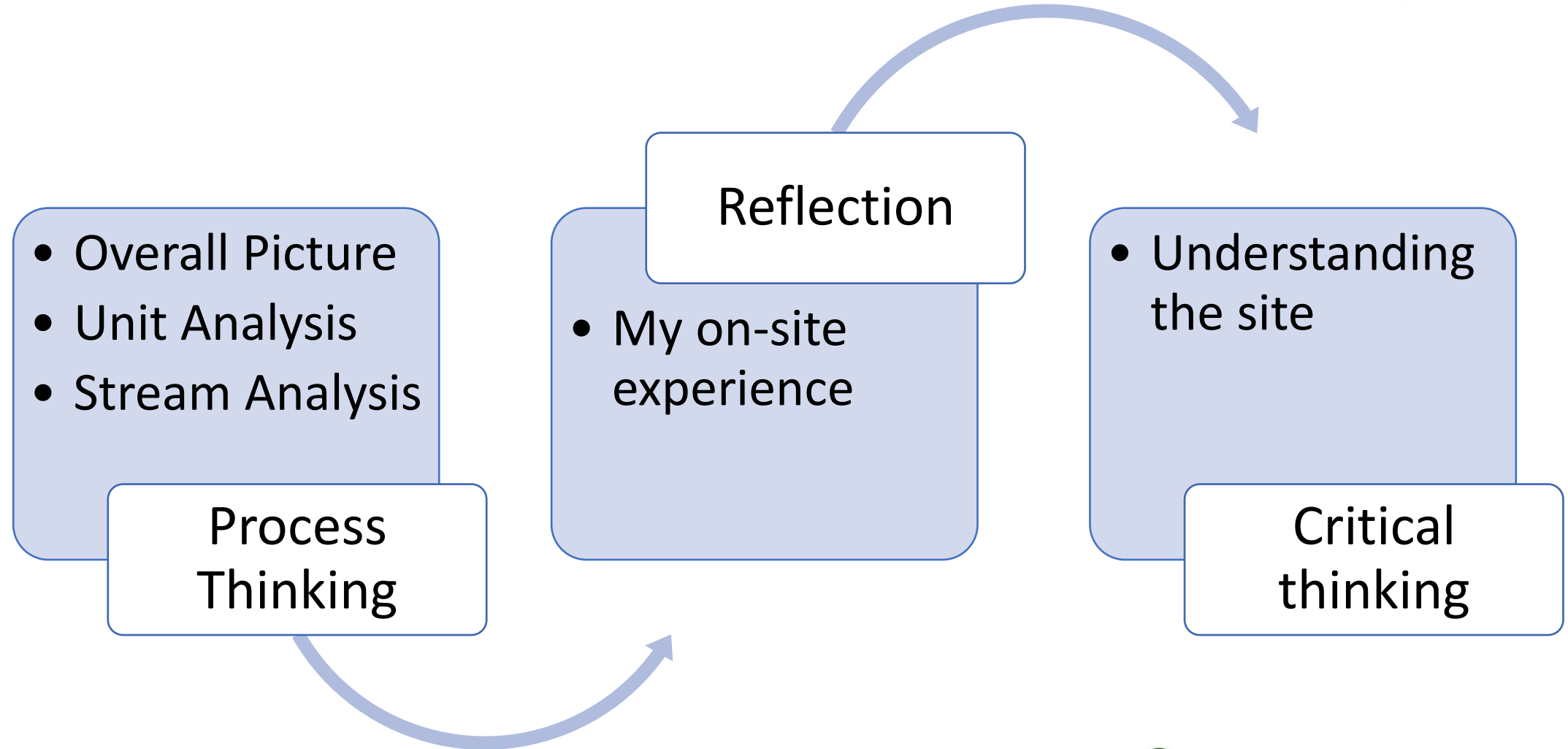


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# Introduction





# A Little About Me

- From Boorowa – NSW (sheep farm)
- Am the second of triplets, so decided to find a way to differentiate myself from the others
- Studied Chemical Engineering and Biology, so found a way to tie all of these interests together



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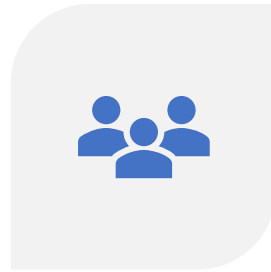
ALGA  
Australian Land & Groundwater Association



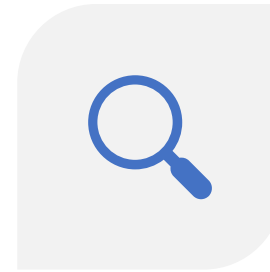
# My Role at Senversa



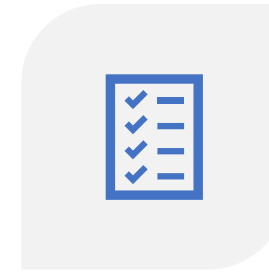
GRADUATE FIELD  
SCIENTIST



DATA COLLECTION



DATA  
MANAGEMENT



QA/QC



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# Former Landfill - Public Park

My first site:

VERY OVERWHELMING!

Surface Asbestos (capping  
layer integrity)

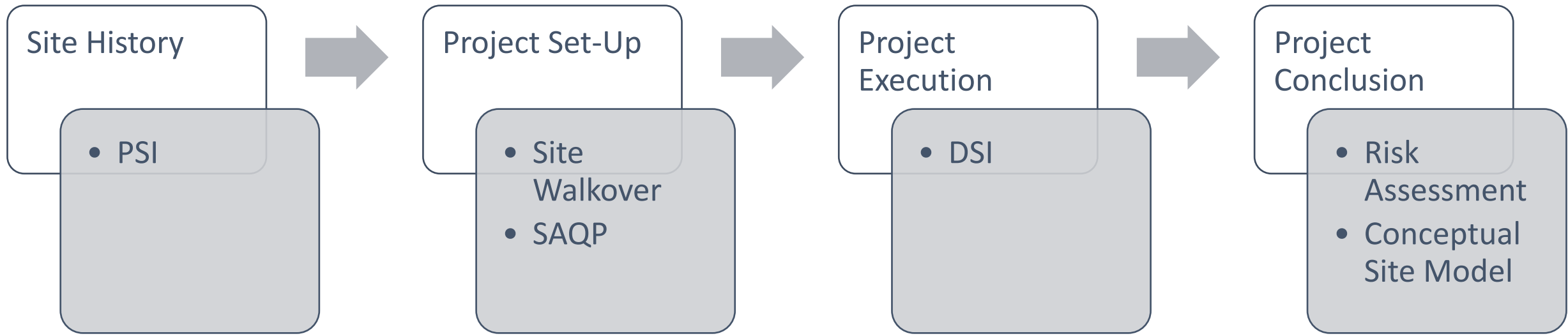
Leachate (groundwater and  
surface water interactions)





# Process Thinking

- Conservation of Mass
- A contaminated or remediation site works like a process





# Overall Process (Mass Balance)

- Whole Picture
- Concerning contaminating activities?
- Remaining contamination?

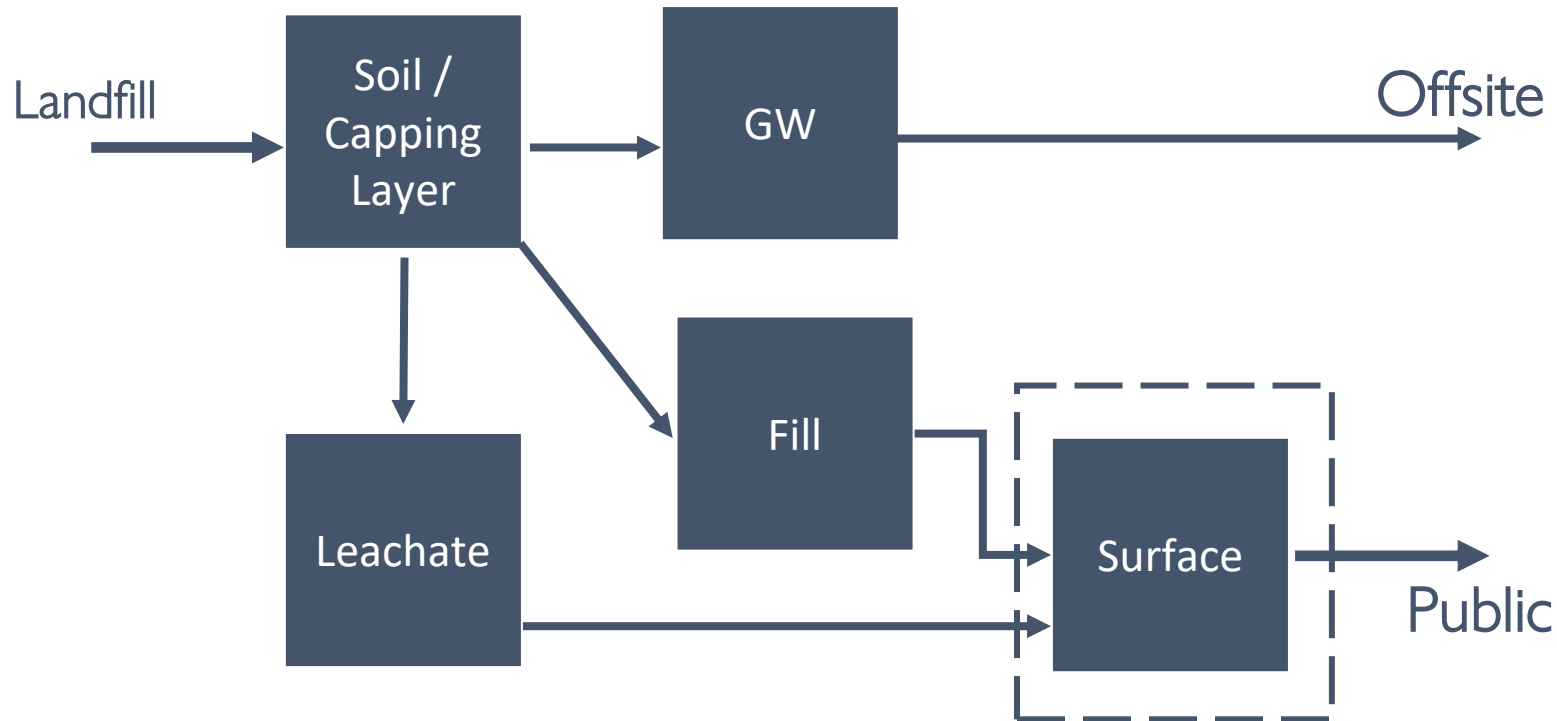
Contaminant



?



# Unit Analysis – Locations or Stages

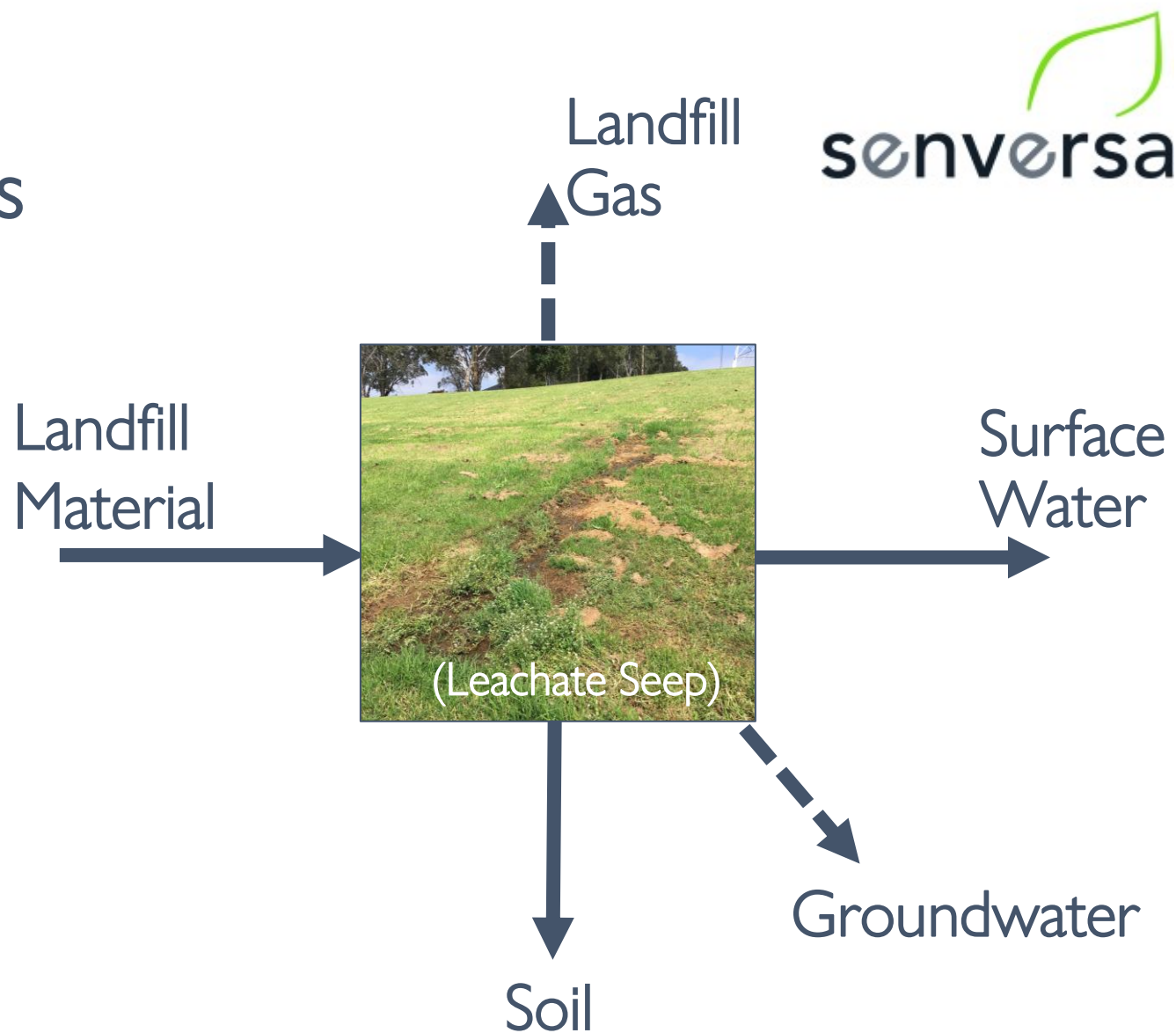


- Break down the areas of interest
- Proposed sampling locations
- Proposed analysis schedule



# Stream Analysis – Interactions & Concentrations

- What are the contaminants?
- How are they moving?
- Why or how are they changing?

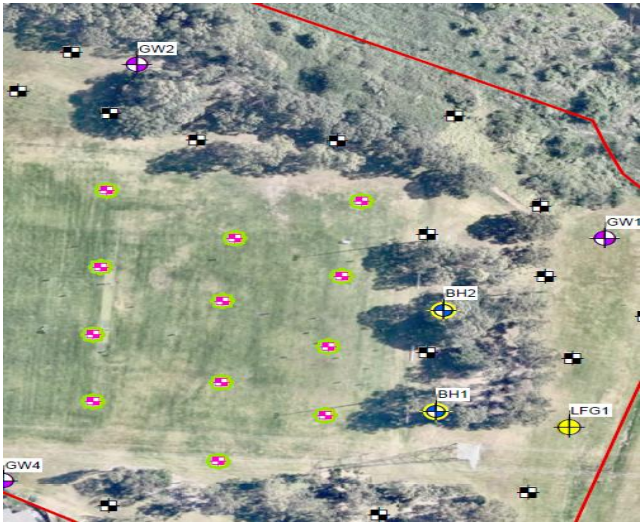
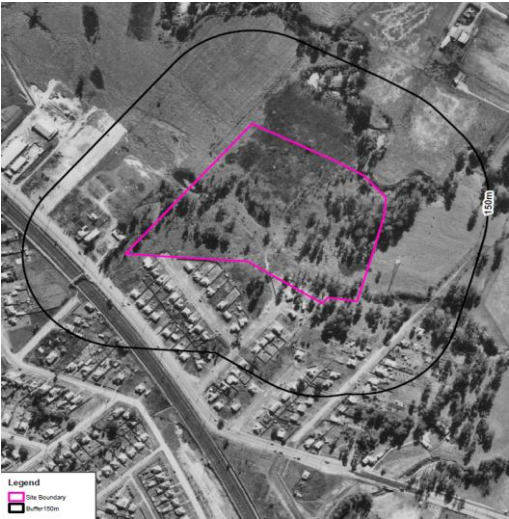


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# Bringing it Together



**Site Wide Dynamics**

- Source of Contamination

**Unit Dynamics**

- Potential areas of concern or of interest

		PFAS NE-MP (2008) - Freshwater - 95% Species Protection (Slightly to Moderately)	PFAS NE-MP (2008) - Human Health (Drinking water)	ANZECC (2008) - Maintenance of Ecosystems - 95% Protection (Freshwater)	MEPM (2002) - Table IC-GLE (Drinking Water)	NRMMC (2011) - Human Health
Total Recoverable Hydrocarbons						
Oil & Grease Fraction	mg/L	0.02				13
Oil & Grease Fraction minus BTEX (F8)	mg/L	0.02				12
Oil & Grease Fraction minus BTEX (F9)	mg/L	0.05				12
Oil & Grease Fraction minus BTEX (F10)	mg/L	0.05				12
Oil & Grease Fraction minus BTEX (F11)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F12)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F13)	mg/L	0.05				11
Oil & Grease Fraction minus BTEX (F14)	mg/L	0.05				11
Oil & Grease Fraction minus BTEX (F15)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F16)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F17)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F18)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F19)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F20)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F21)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F22)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F23)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F24)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F25)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F26)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F27)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F28)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F29)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F30)	mg/L	0.1				11
Oil & Grease Fraction minus BTEX (F31)	mg/L	0.1				11
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Oil & Grease Fraction minus BTEX (F100)	mg/L	0.1				11

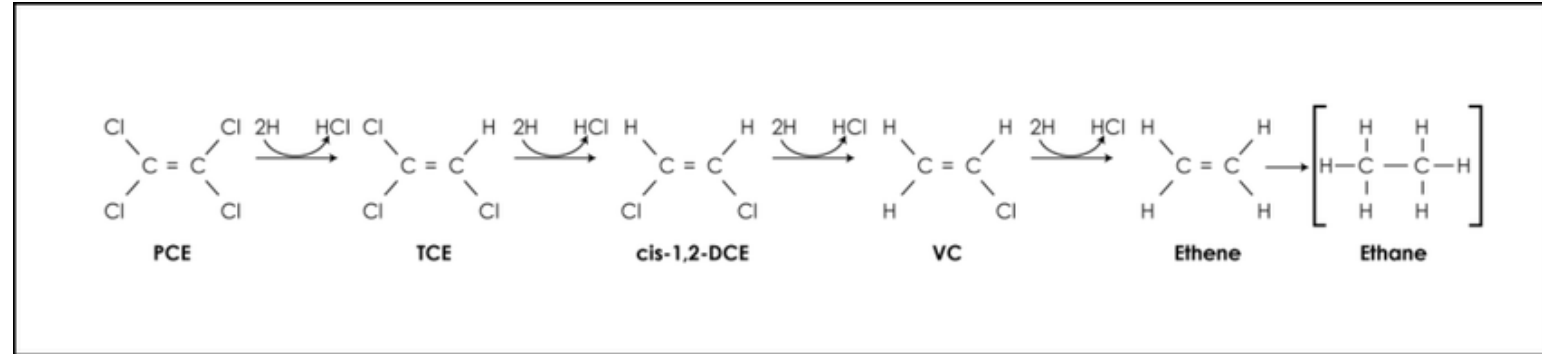
**Stream Analysis Dynamics**

- Movement and changes to contaminants



# Dry Cleaning Facility

- Chlorinated Hydrocarbon Contamination
- Reductive de-chlorination through EISB
- Hydraulic containment
- Quarterly Groundwater Monitoring

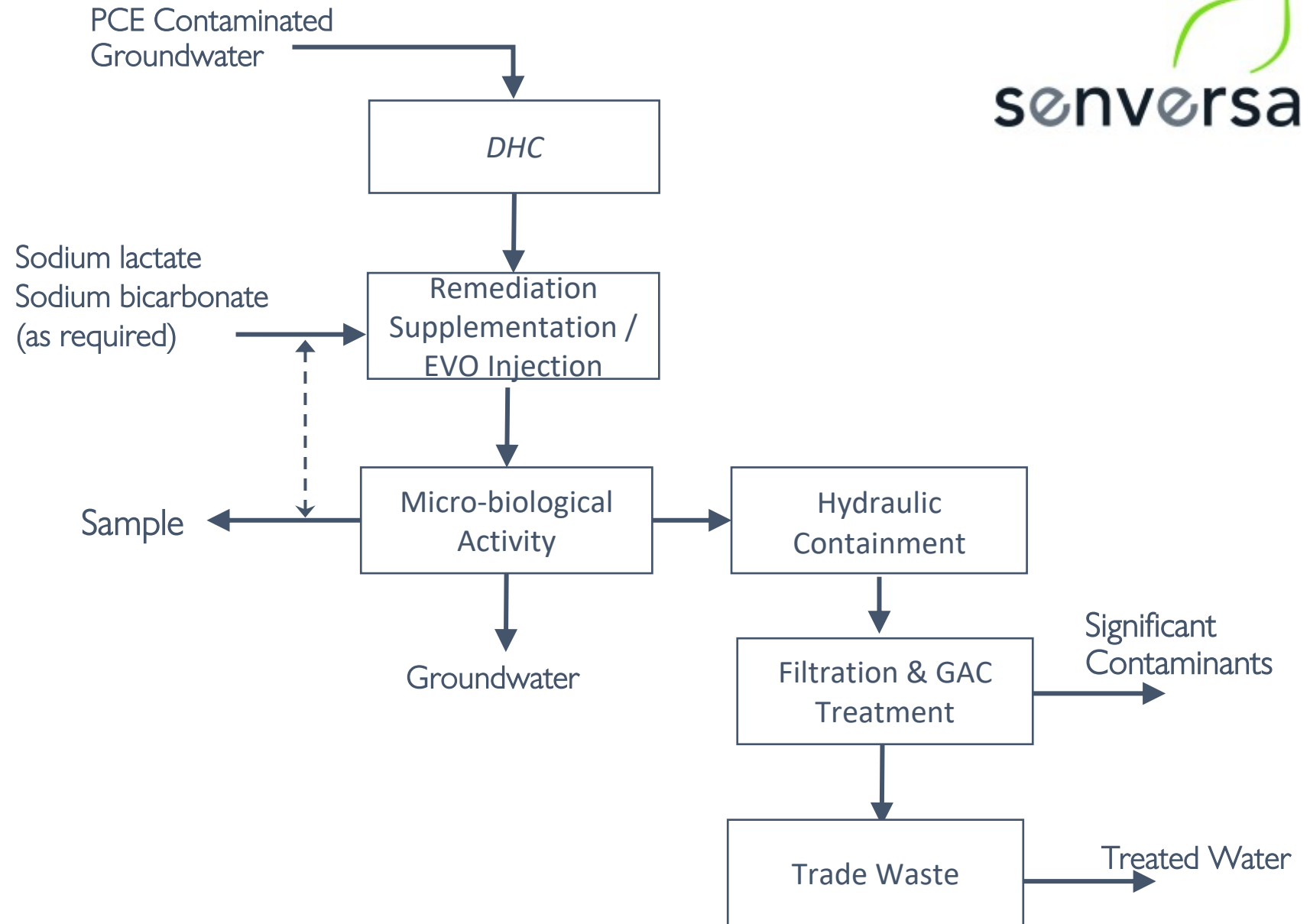
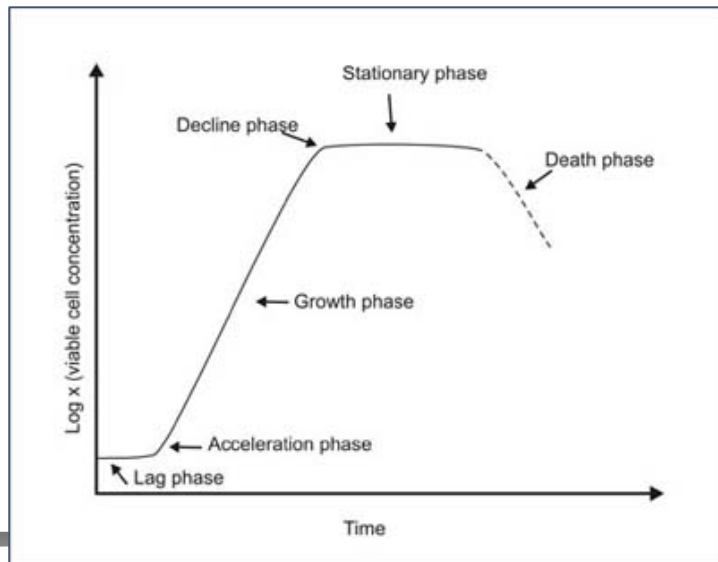




# Dry Cleaners – The Process

Compliance and  
performance

Remediation Bacteria  
Growth





# What are the Benefits?

## Former Landfill:

- Unit (locational) analysis
- Understanding areas of interest
  - Capping integrity
  - Leachate



## Dry Cleaners:

- Stream analysis
- Understanding concentrations
  - EPA compliance
  - EISB Performance

I have A LOT left to learn!



Questions?

