



NEW REMEDIATION TECHNOLOGIES AND NATURAL-BASED SITE CLEAN-UP

September 23, 2025; 3:30 PM to 5:00 PM

Section 3B; Room 111B



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Intrinsyx Environmental

*Combining nature with engineered solutions
for sustainable environmental remediation*

Using Trees and Specialized Microbes as a Sole Remedy for LUST Sites

Enhancing Biodegradation Through Endophyte-Assisted Phytoremediation

Sept 23, 2025

Presented by:

Galen O'Toole

Intrinsyx Environmental

Presented to:

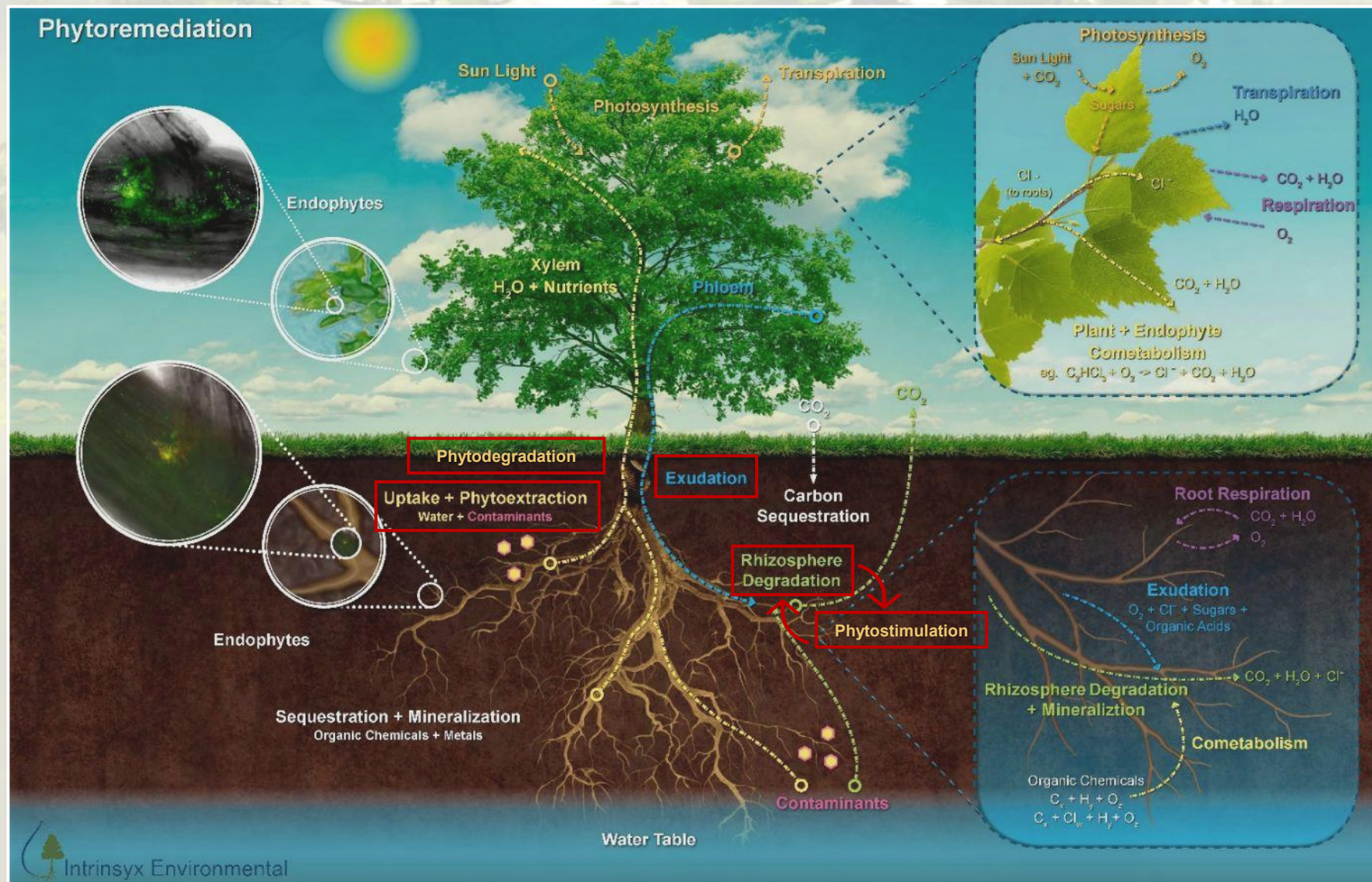
National Tanks Conference

Spokane, WA



Phytoremediation Overview

- Bioremediation technology
- Uses plants, trees, & microbes
- Can remediate:
 - Soil
 - Sediments
 - Groundwater
 - Surface water
 - Wastewater
 - Leachate



Endophyte-Assisted Phytoremediation

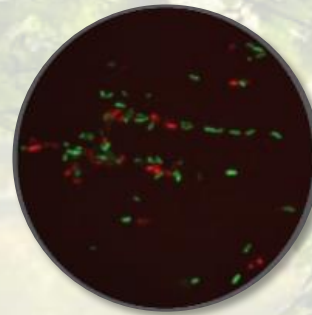
Endophyte – microorganisms living inside (“*endo*”) of plants (“*phyte*”)

Researchers discovered ***endophyte strains*** in plants ***adapted*** to ***contaminated environments***

- Enhanced **resilience/tolerance** to **contamination**
- Enhanced **resilience to other stressors** (drought, heat, poor soil quality)
- Enhanced **extraction and degradation**
- Enhanced **plant growth and nutrient uptake**

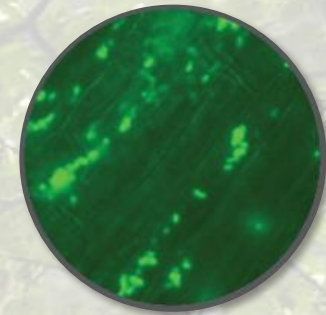
BioTREEt-HC

Hydrocarbons



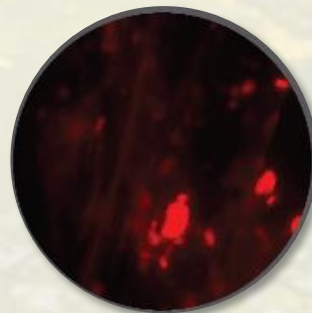
BioTREEt-CVOC

Chlorinated VOCs



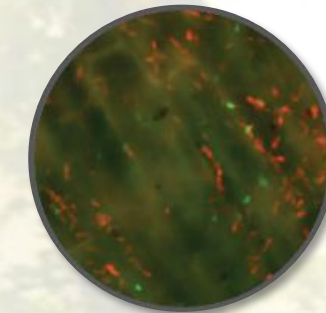
BioTREEt-PCB

Polychlorinated biphenyl (PCB)

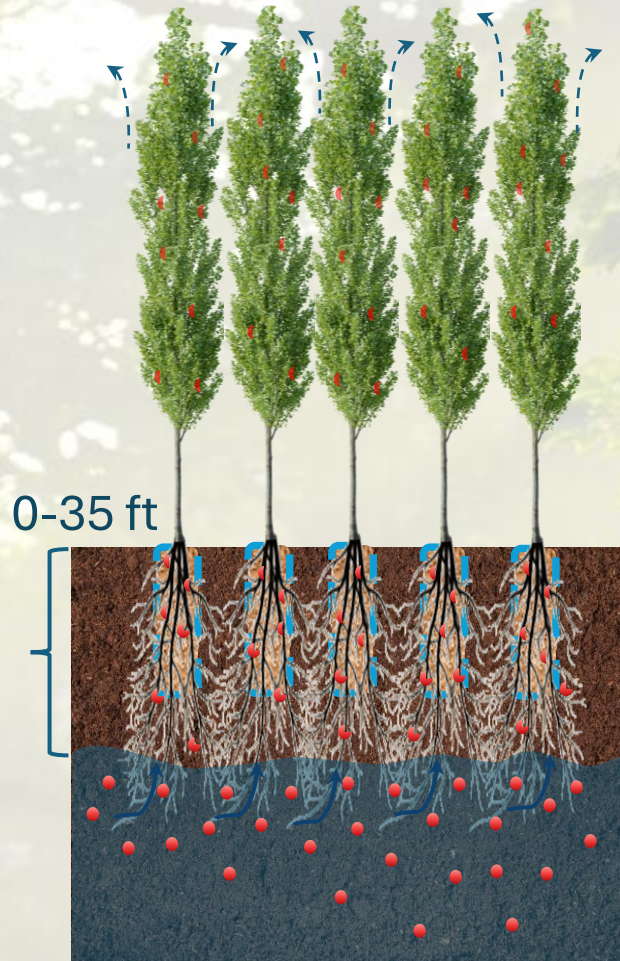


BioTREEt-RDX

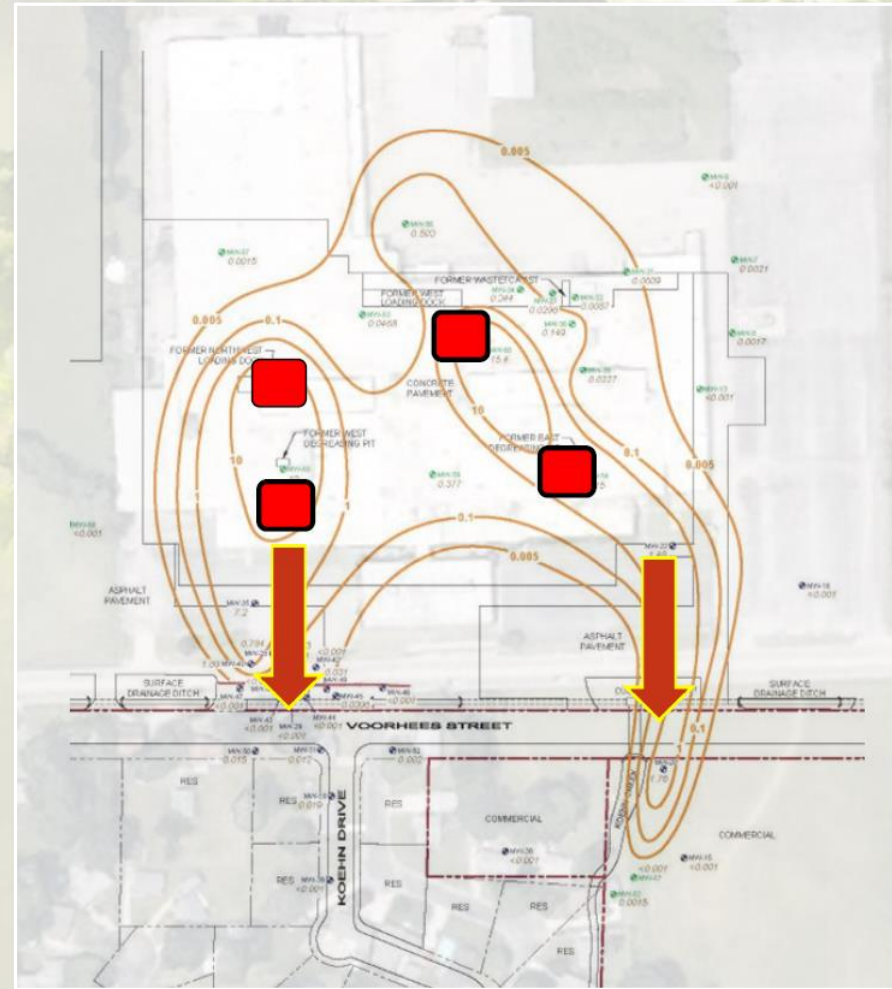
Explosives (TNT/RDX)



Source Areas and Phytobarriers



Conceptual Site Model

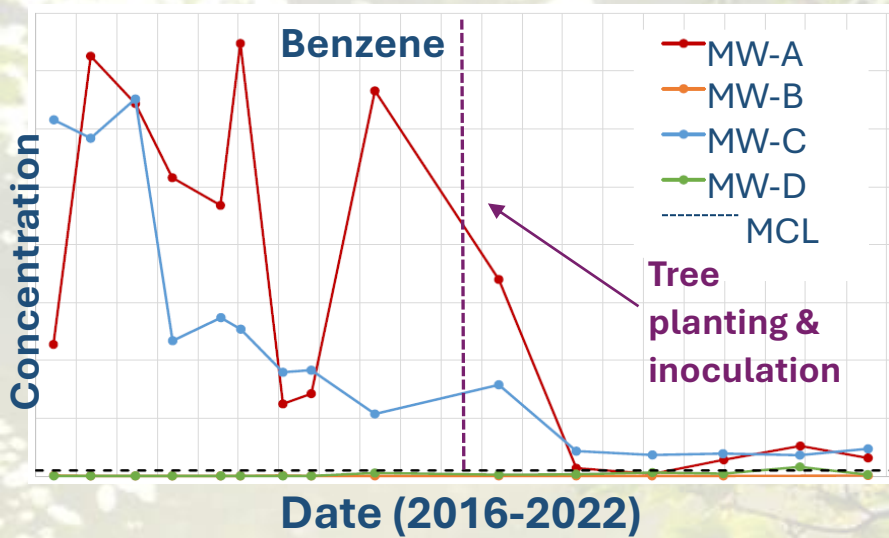


TCE up to 81 ppm
Source areas and plume control
No concrete removal

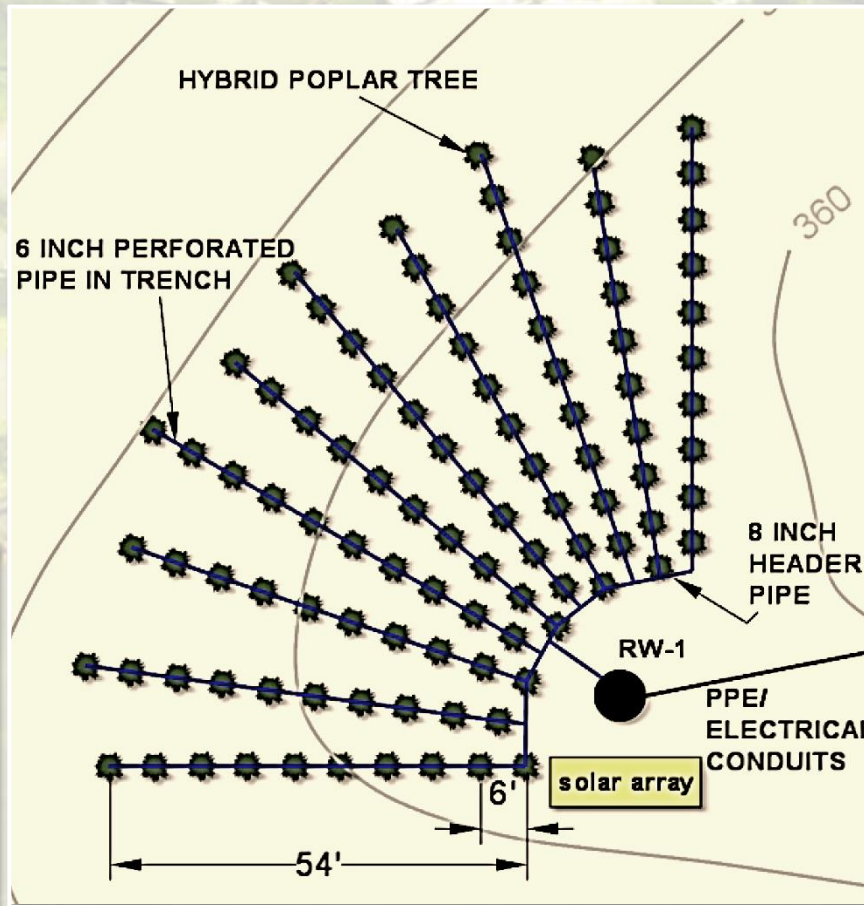


Active industrial site
Leaking tank at refinery
Riparian buffer

Phytoremediation for Deeper Impacts



Refinery tank farm
GW 15-20 ft, benzene impacts
Reductions within 1.5 year

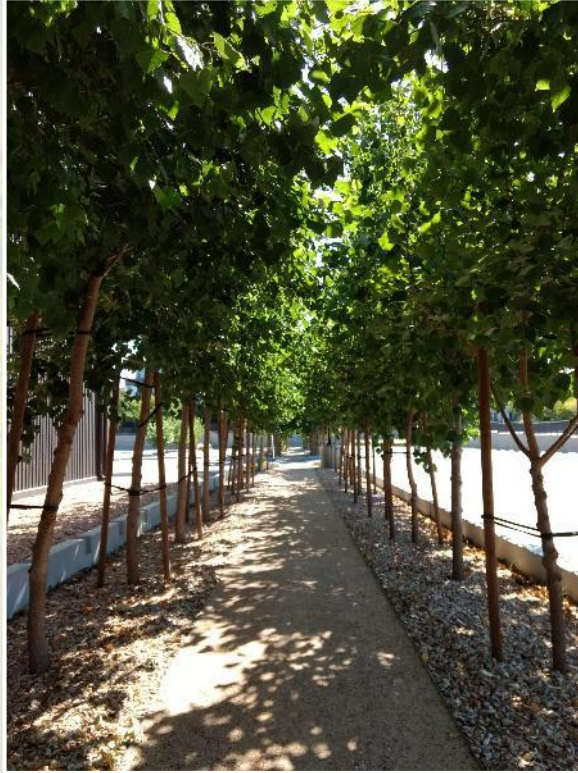


Pump and Tree system
Irrigated with 35ppm TCE
Hydraulic control



Subsurface irrigation
Pumped from >40 ft
99% survival

Active Sites and Functional landscaping



Fortune 100 tech campus
Aerospace engineering
Redevelopment/Asset improvement
Multiple benefits

Urban West Oakland
Previous UST and dry cleaner
Soil and shallow GW impacts
Functional Landscaping

Contact us for Feasibility Consultation

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