

Evaluation of Soil Chloride Delineation Requirements

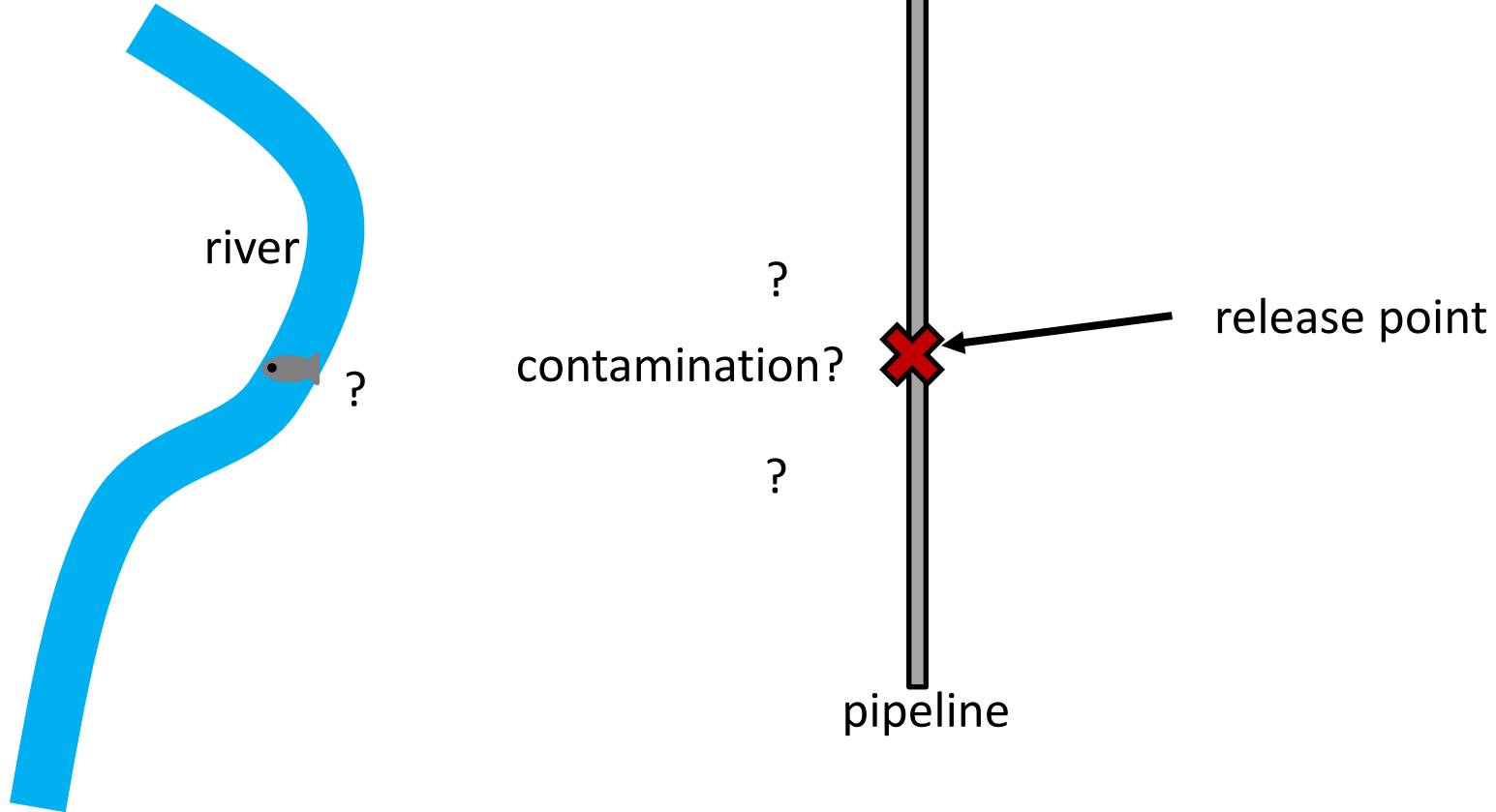
Daniel Pollard
Senior Contaminant Hydrogeologist

RemTech 2023
October 11, 2023

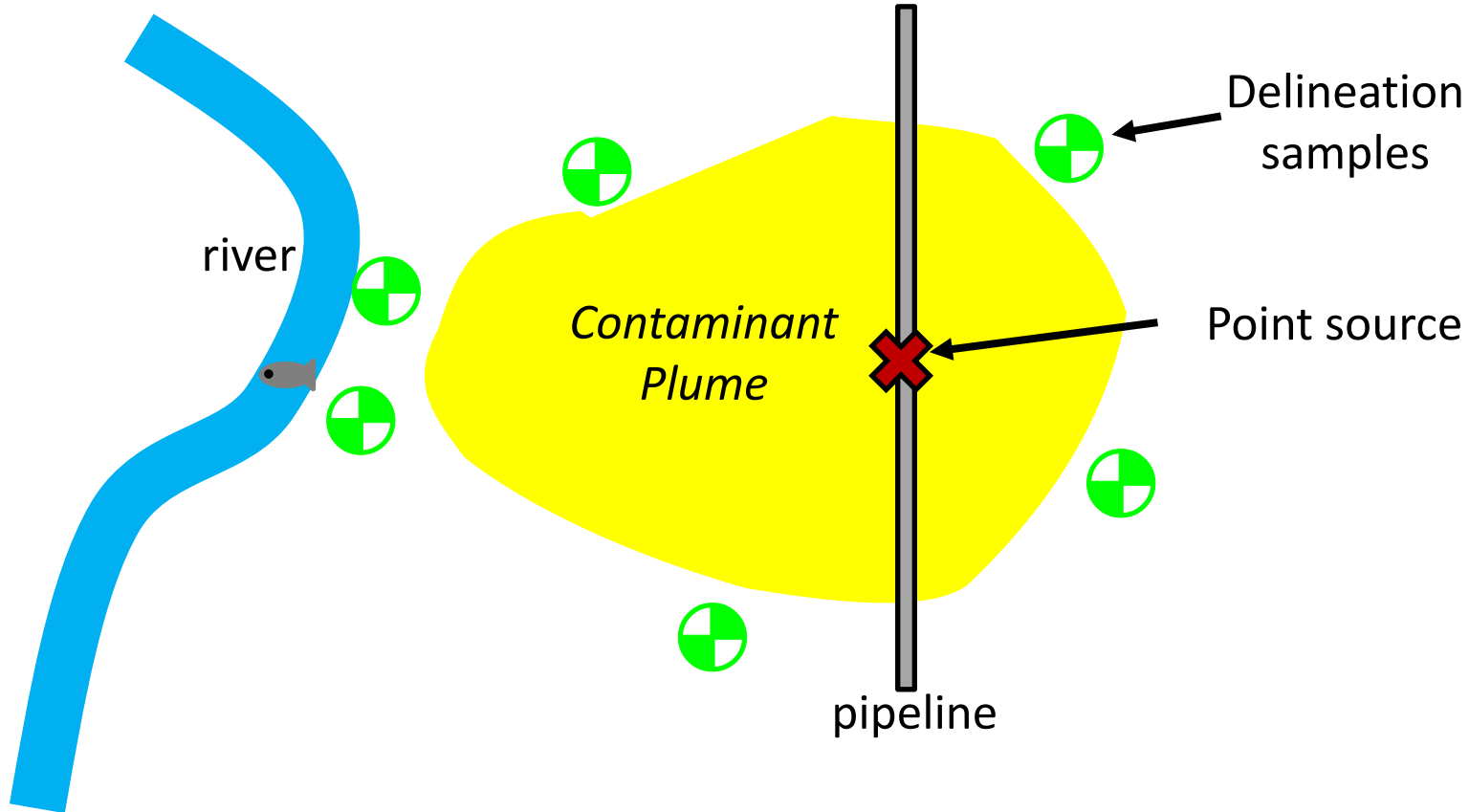
Alberta Regulatory Delineation Requirements



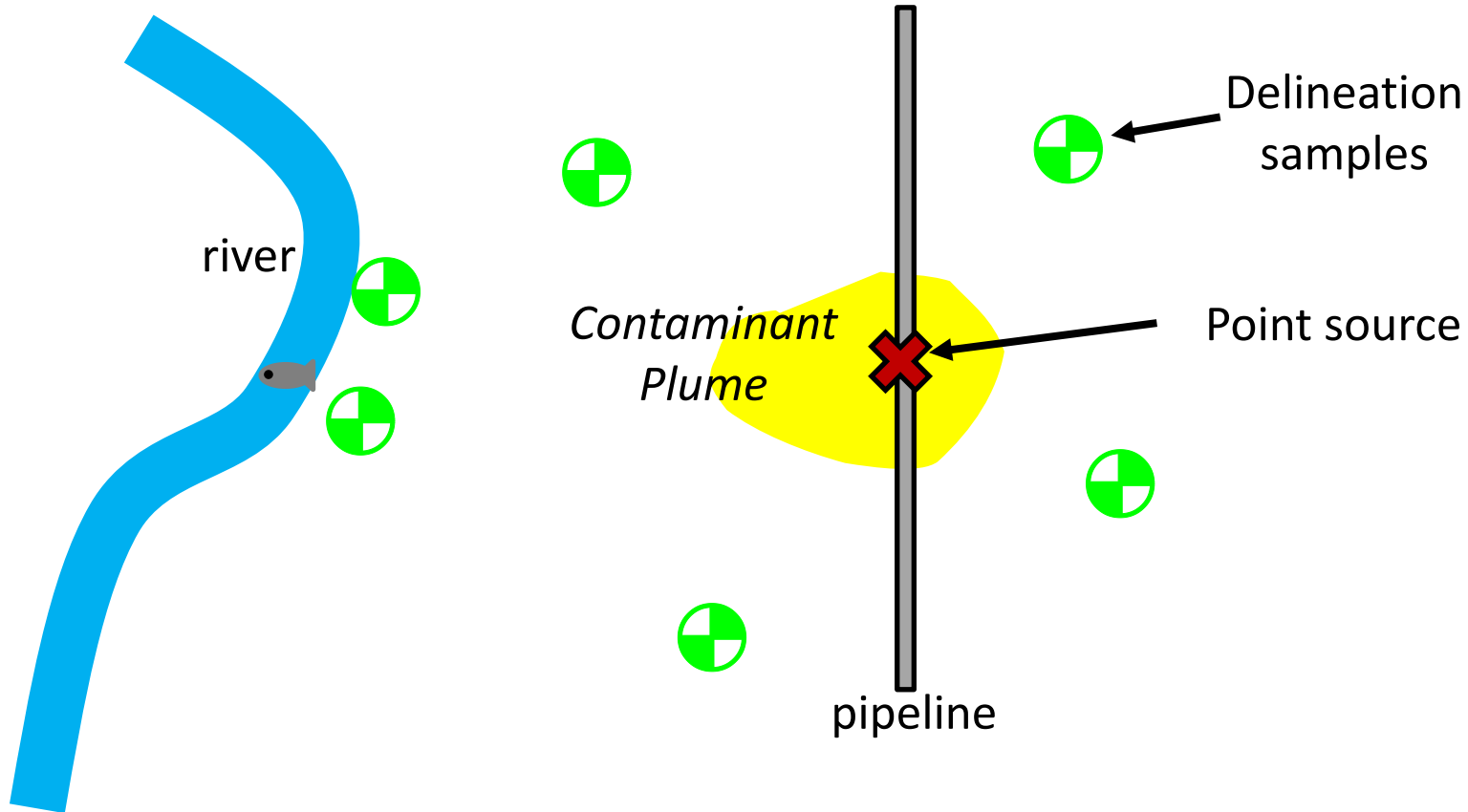
Why Delineate?



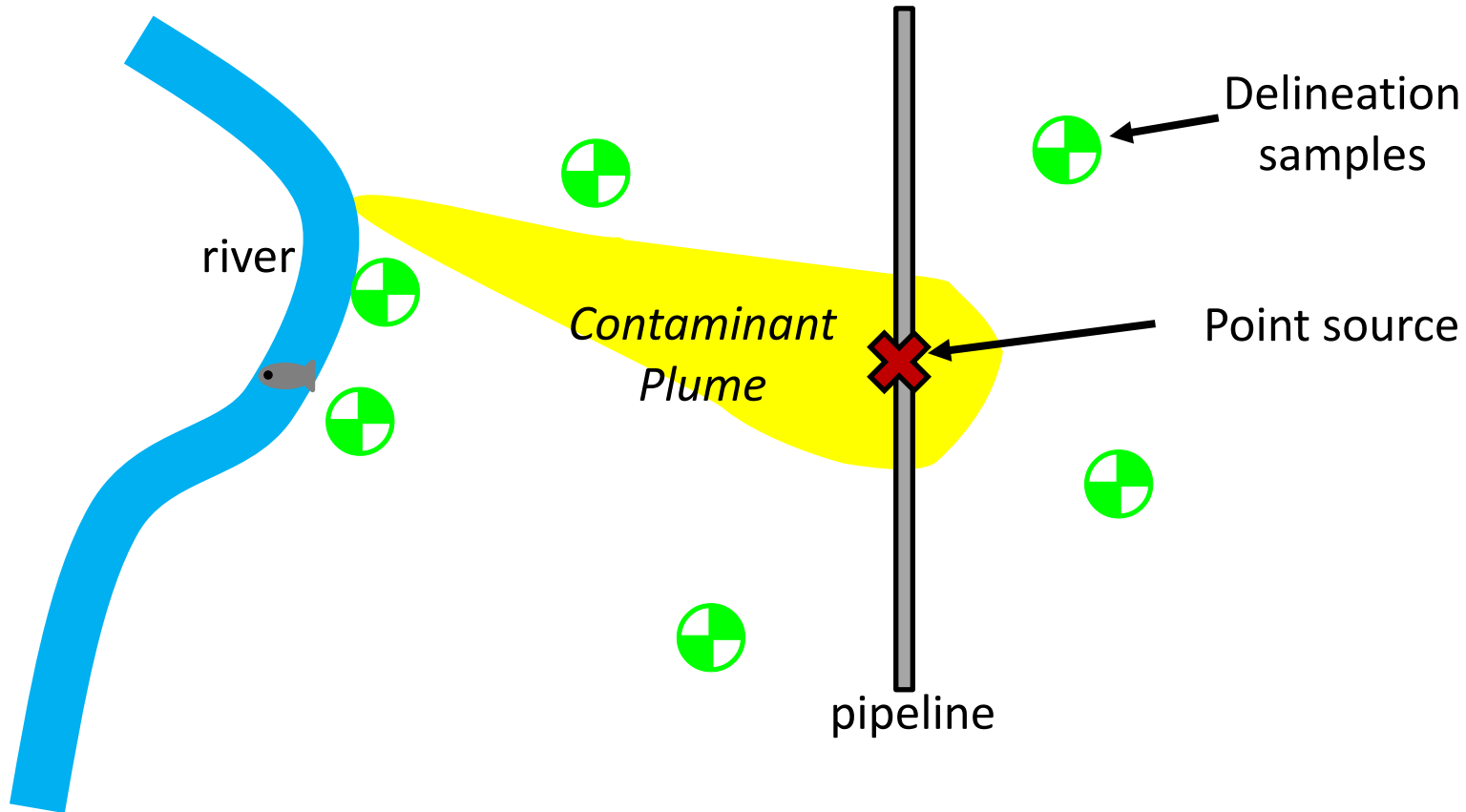
Why Delineate?



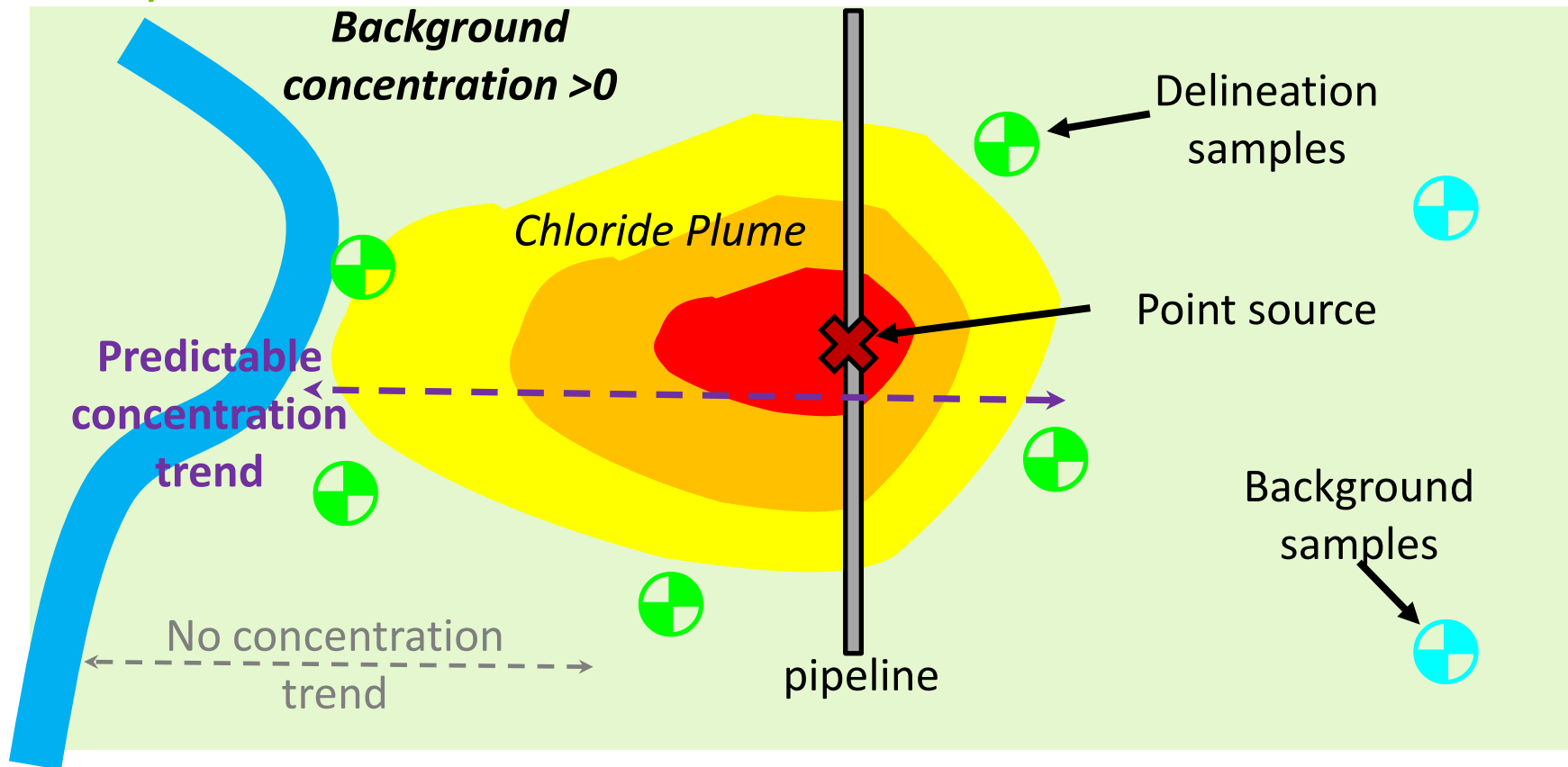
Limitations of Delineation



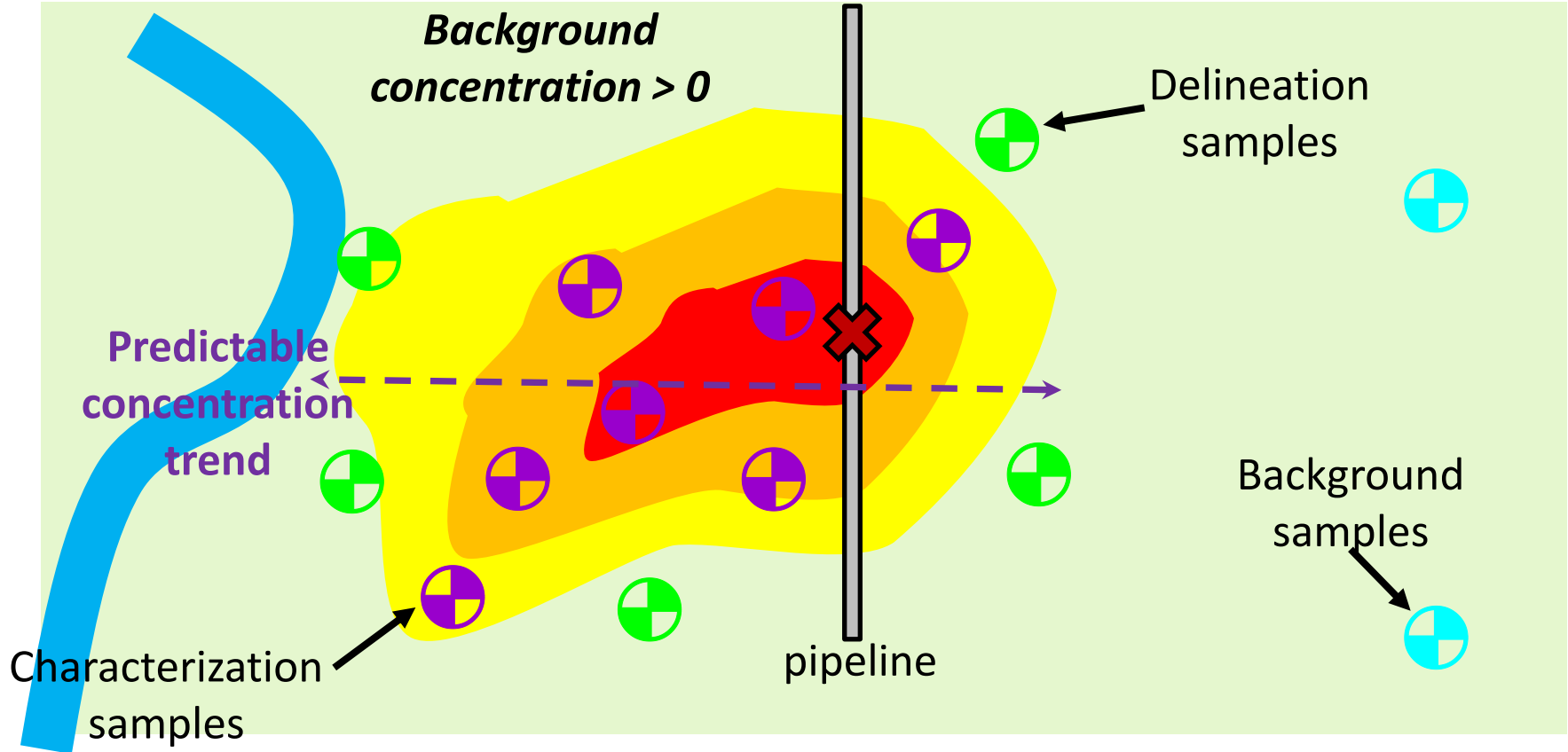
Limitations of Delineation



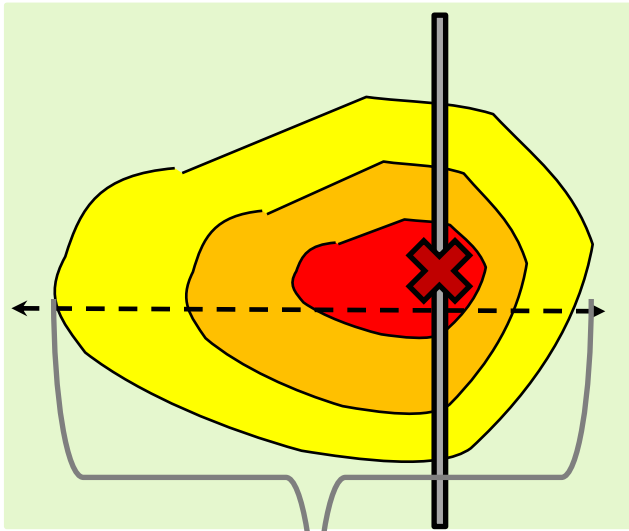
Simple Chloride Delineation Process



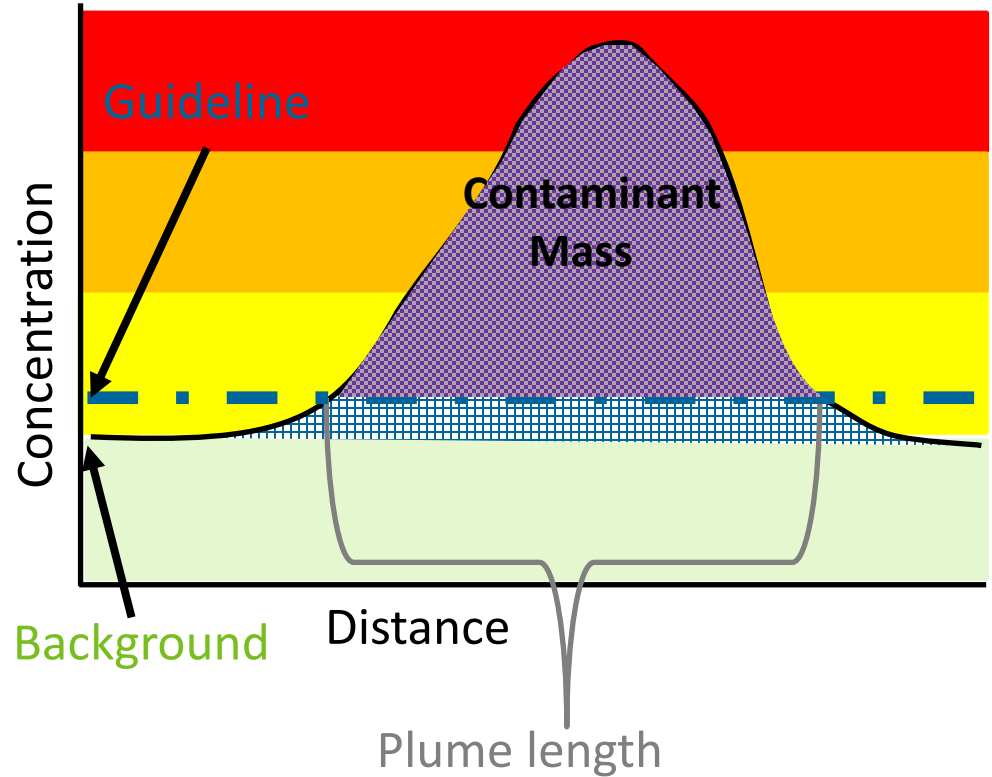
Advanced Delineation/Trend Process



Simple Chloride Delineation Process



Plume length

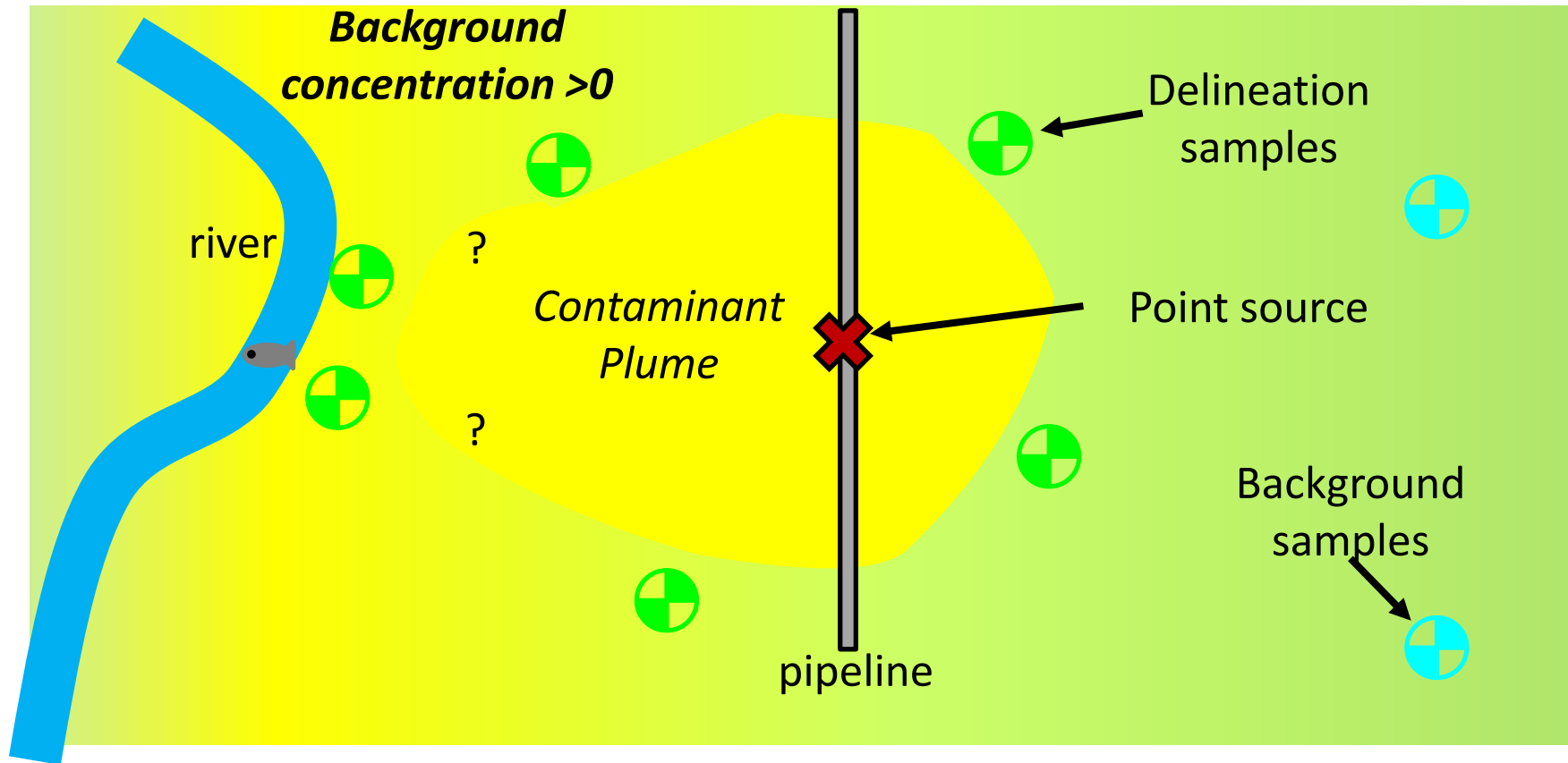


Background

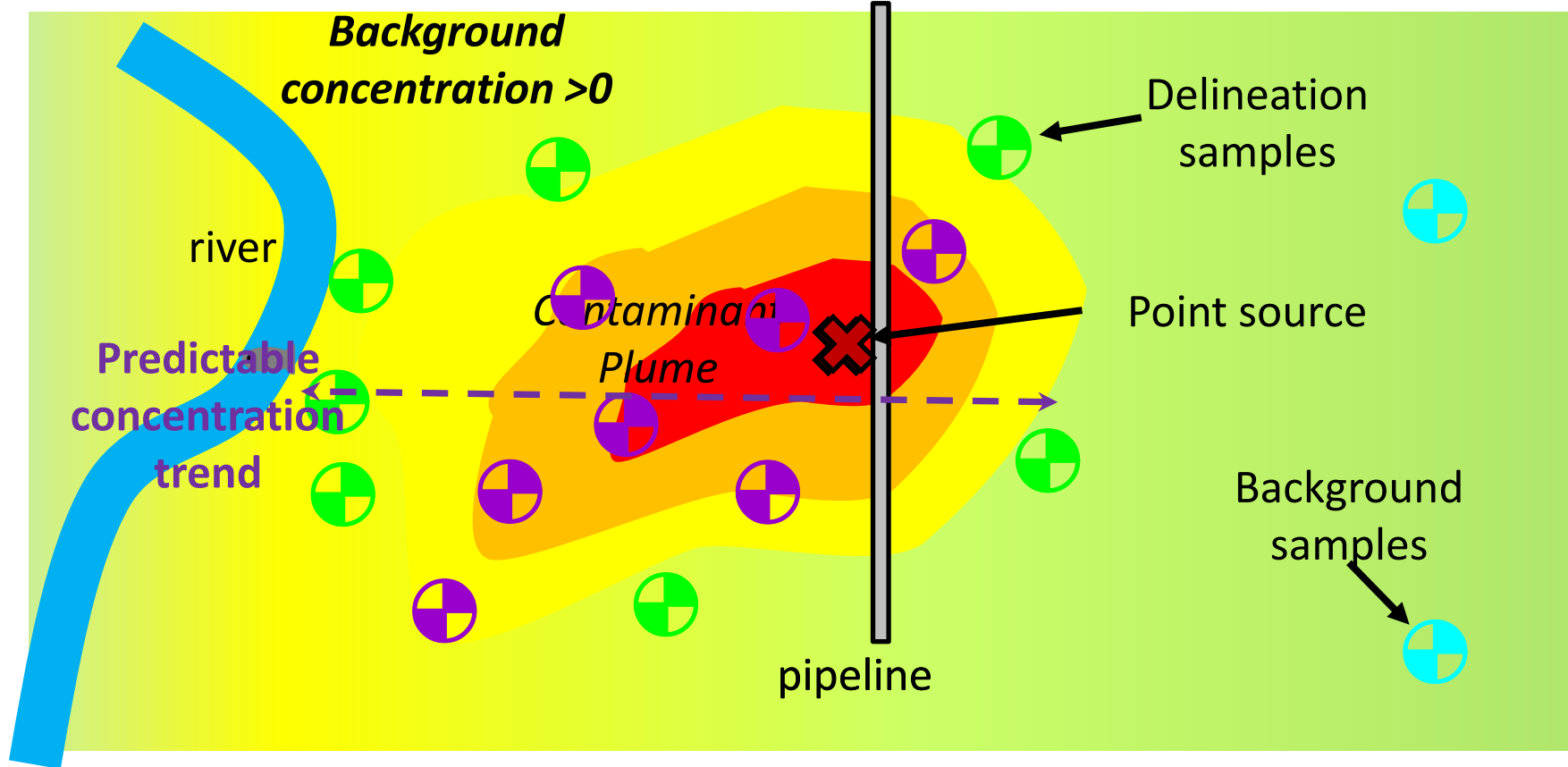
Distance

Plume length

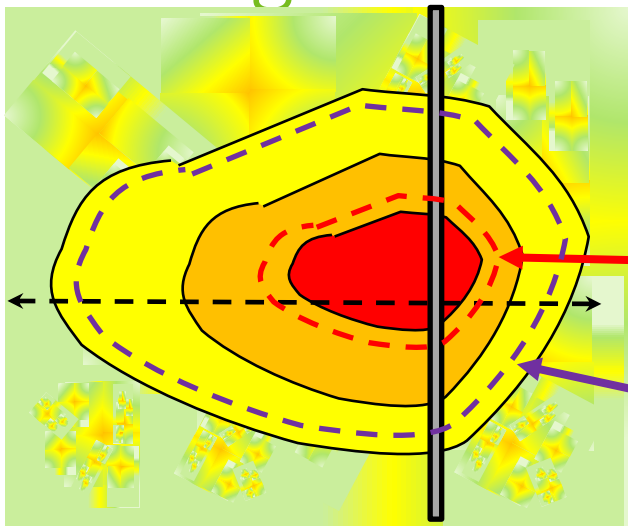
Limitations of Delineation



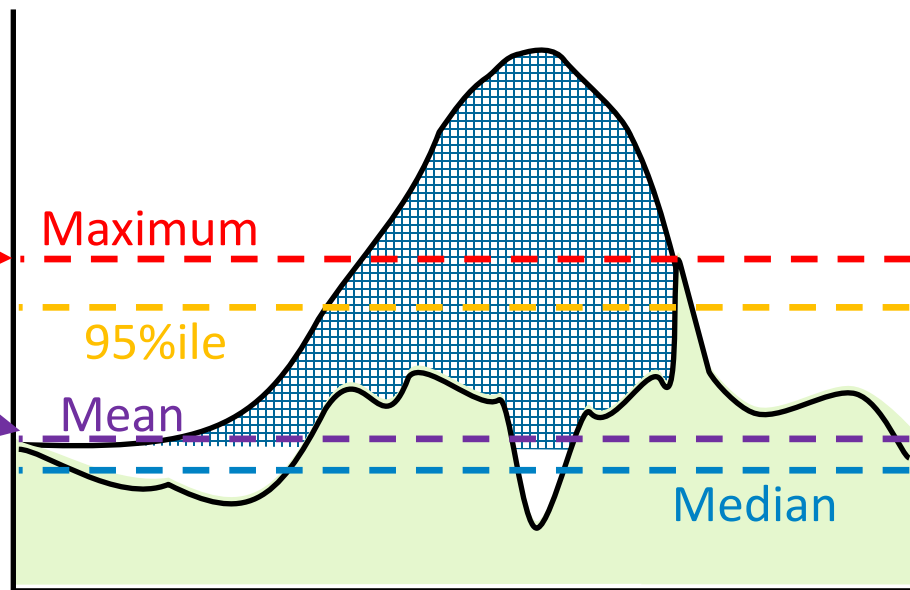
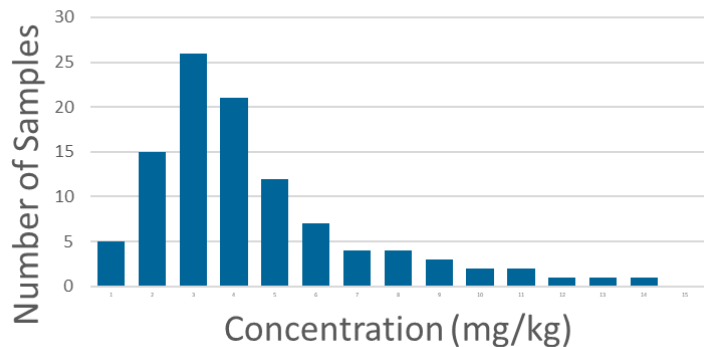
Limitations of Delineation



Background Concentrations

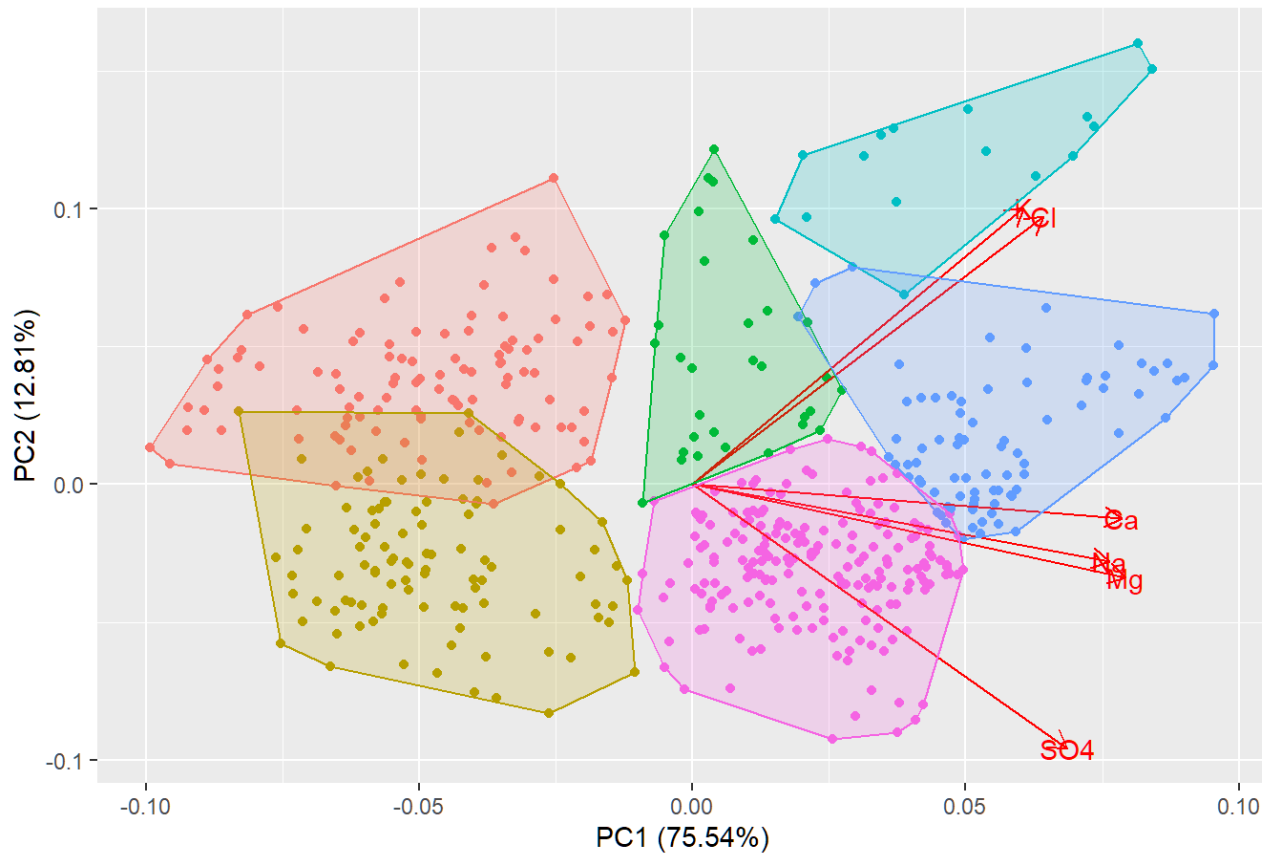


Background Data Distribution

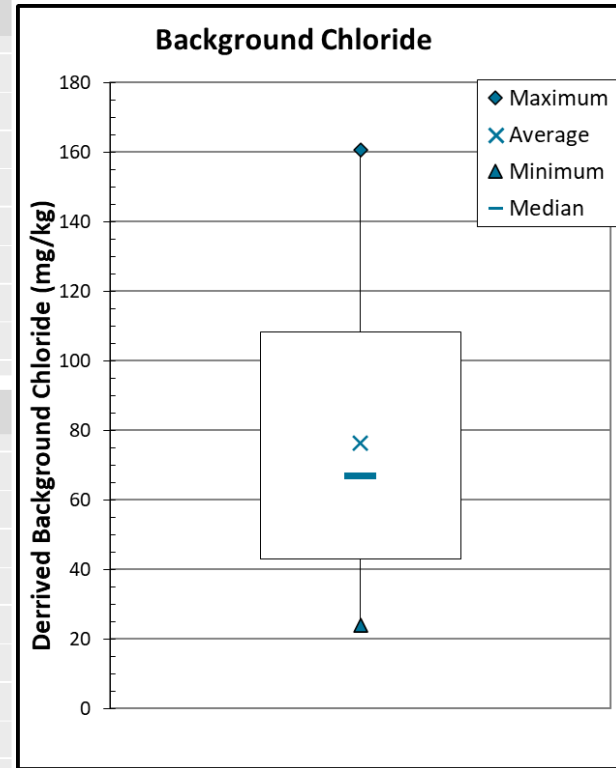
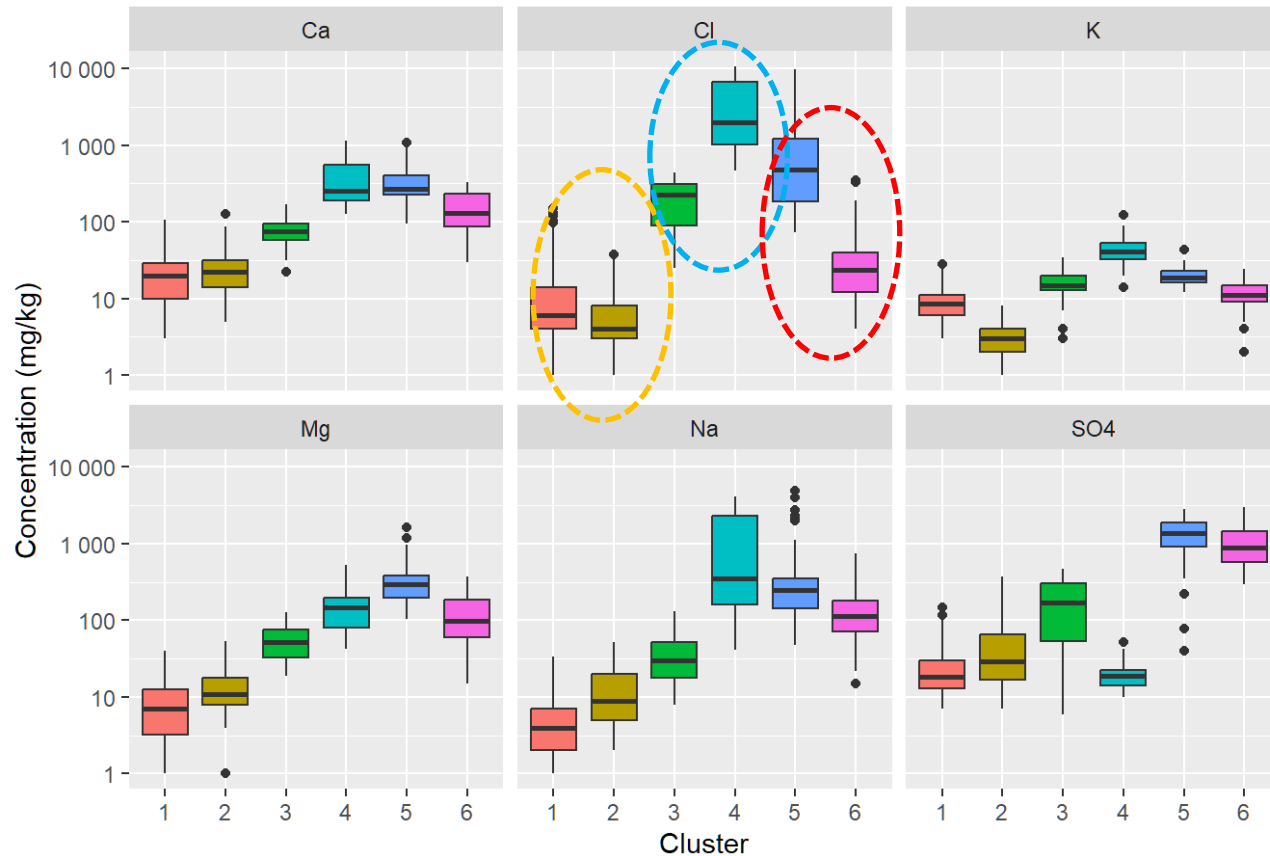


Distance

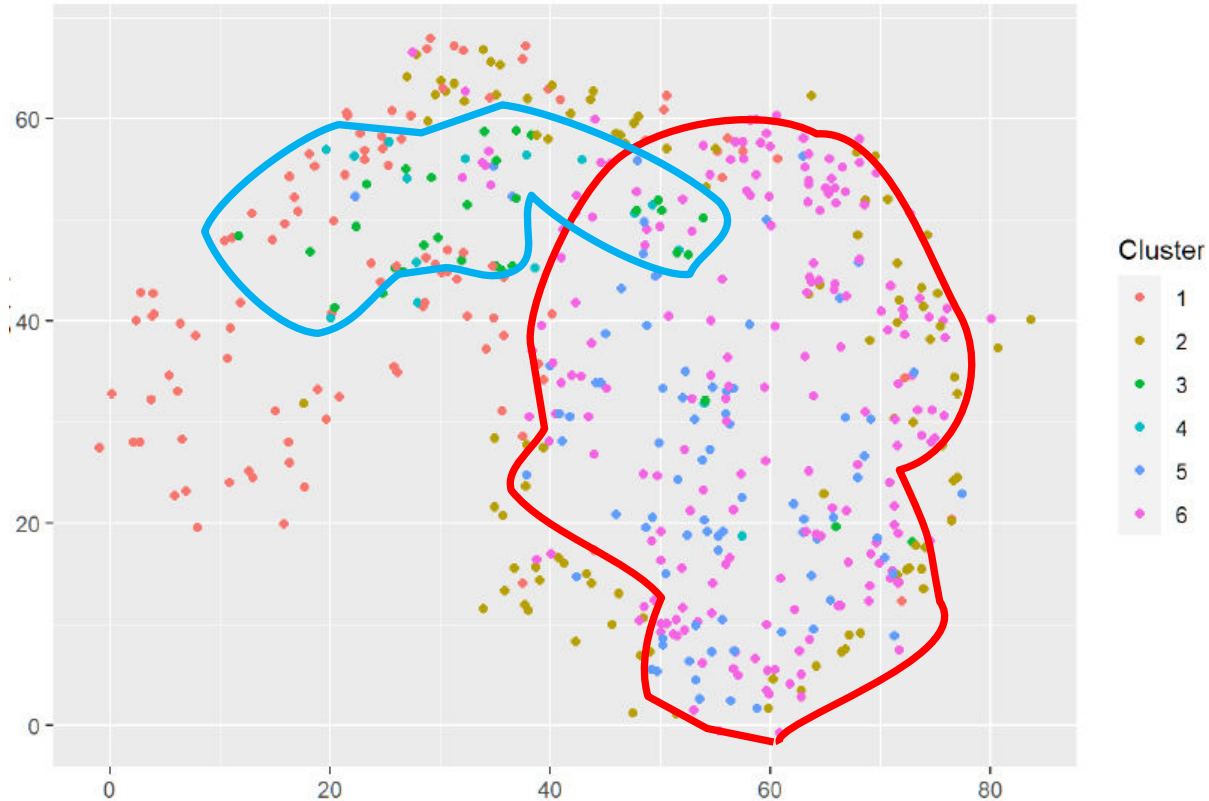
PCA Example – 6 Clusters



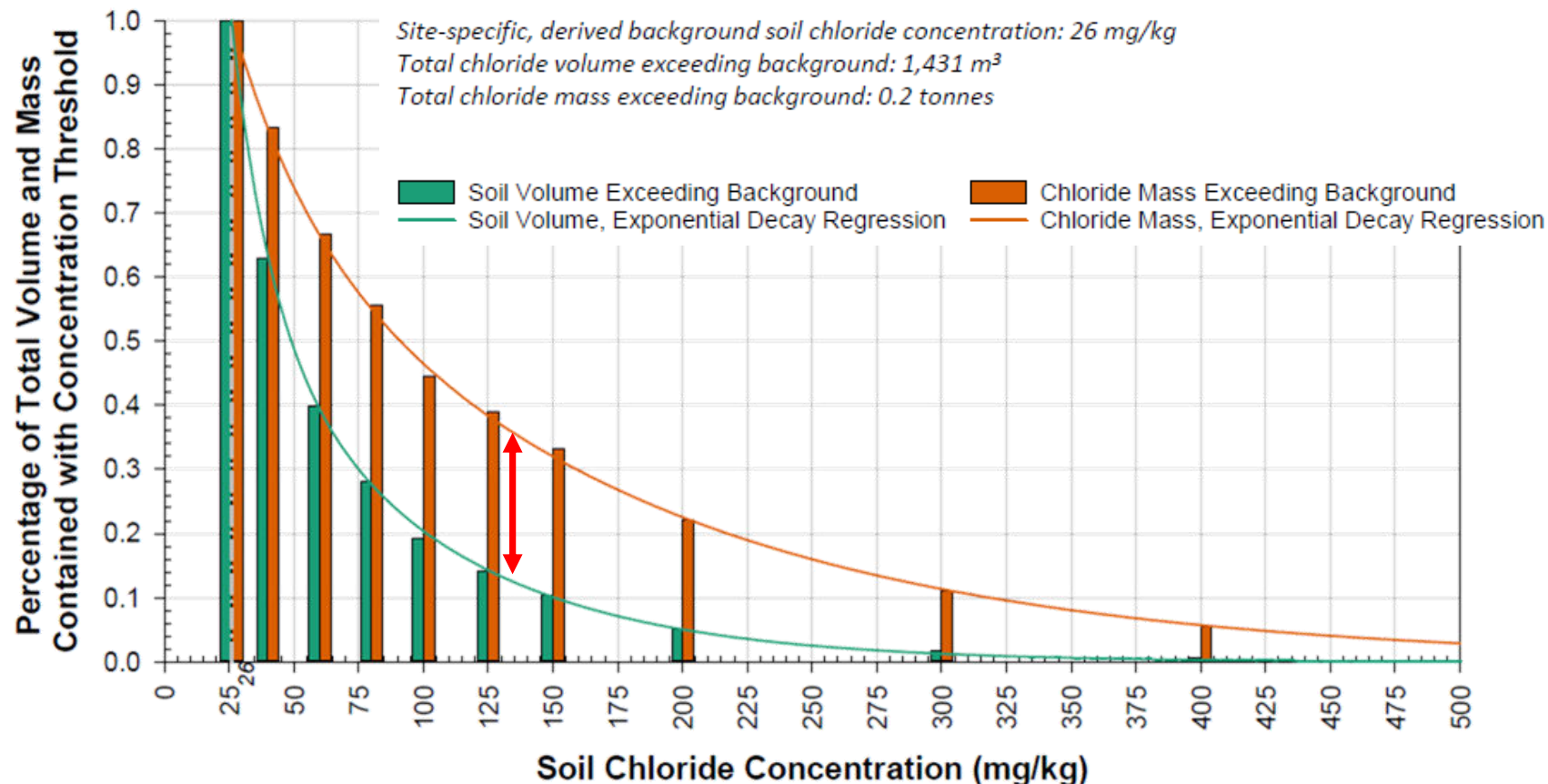
Cluster Box Plots



Spatial Plot of PCA Clusters



Chloride Delineation Thresholds and Mass



The Future of Environmental Solutions



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