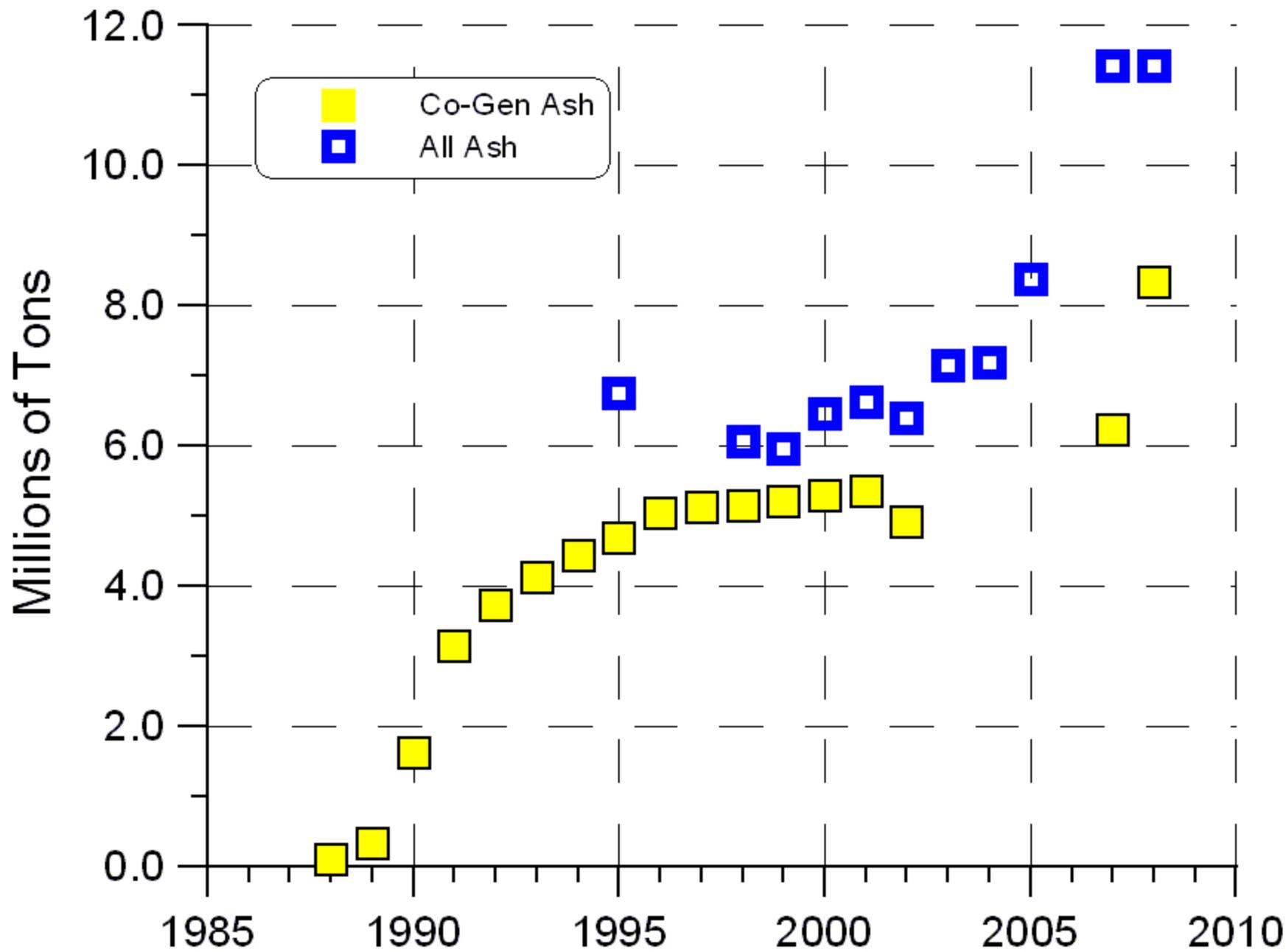


Coal Ash Beneficial Use at Mine Sites



Keith Brady

DEP – Bureau of Mining and Reclamation



Fatality Site before Ash Placement



Fatality Site during Ash Placement





SP-1

4-SP

MW-4

MW-1

6SP

R2A

Revloc 2

Revloc 1

MW-5

MW-2

R2B

22

23

MW-3

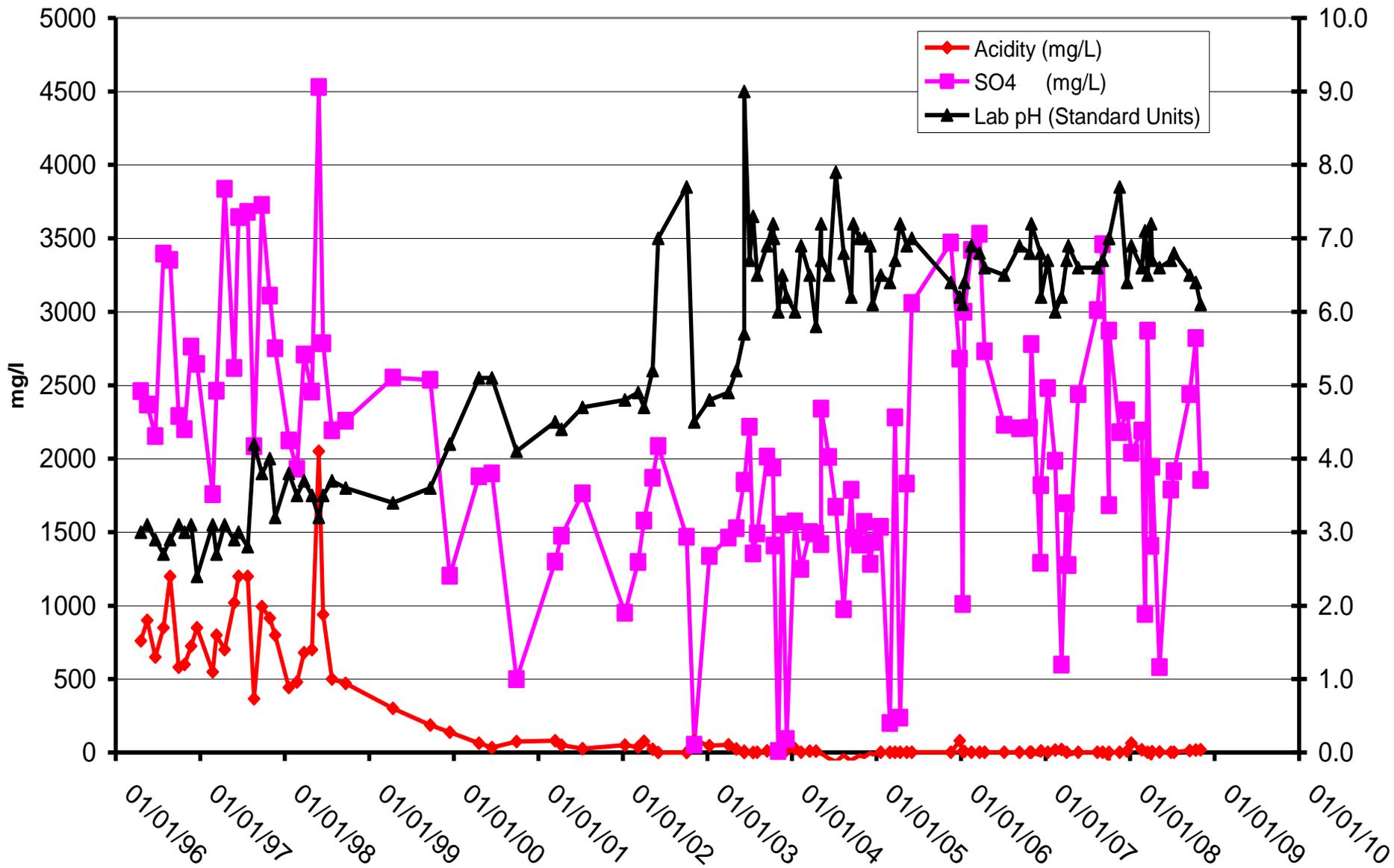
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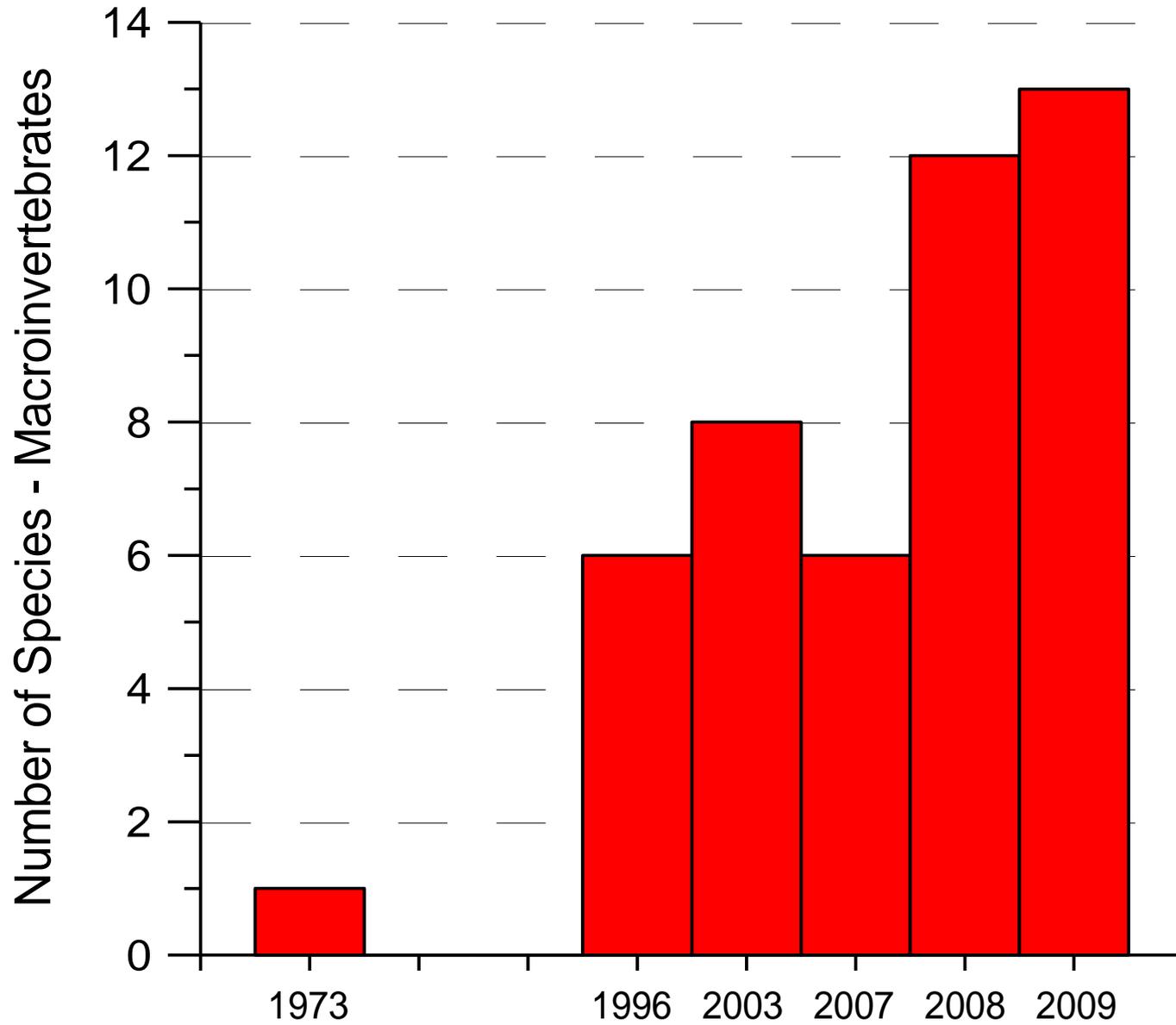
Reclaimed Portions of the Revloc 1 Refuse Site



pH, Acidity and Sulfate at R2B

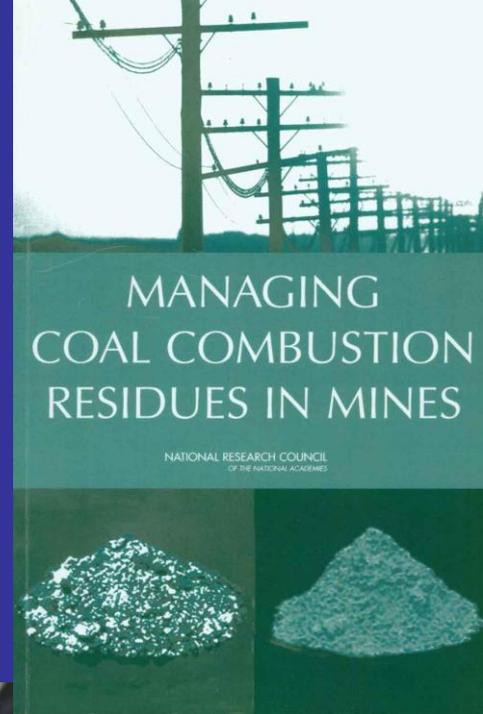


Blacklick Creek



New Policy & Regs

- Confusing and antiquated process
- Need to bring monitoring requirements up to modern standards (# of points, frequency, parameters & limits)
- Constant public scrutiny
- High-level national interest
 - EPA, OSM, NAS



Water Quality Parameters

Ammonium

Copper

pH

Antimony

Fluoride

Potassium

Arsenic

Iron

Silver

Aluminum

Lead

Sodium

Barium

Mercury

Sulfate

Beryllium

Magnesium

Thallium

Boron

Manganese

Vanadium

Cadmium

Molybdenum

Zinc

Calcium

Nickel

Alkalinity

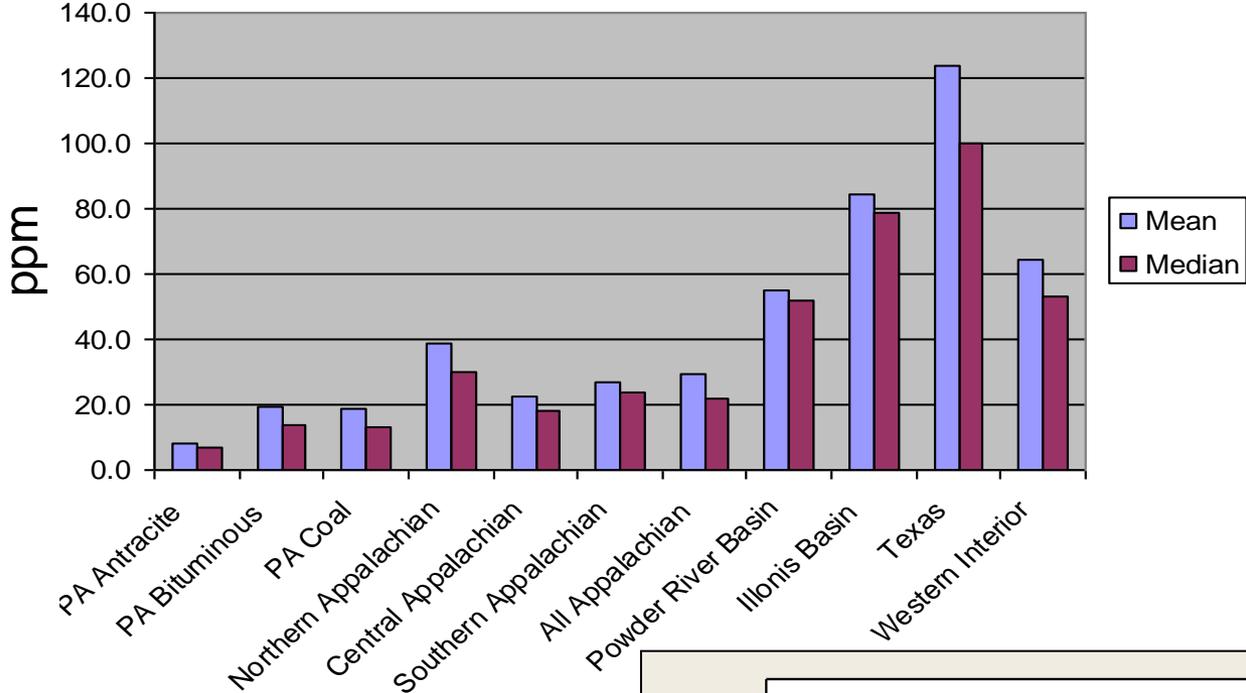
Cobalt

Nitrate

Acidity

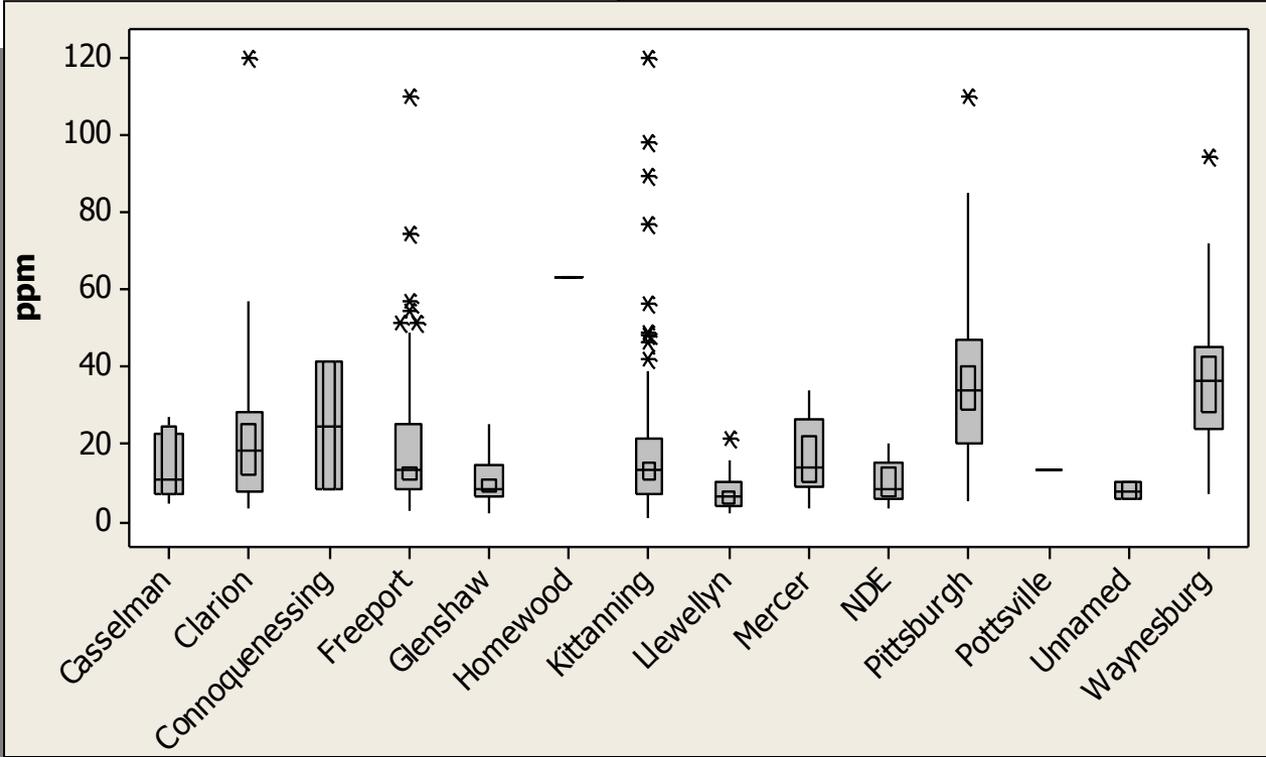
Nitrite

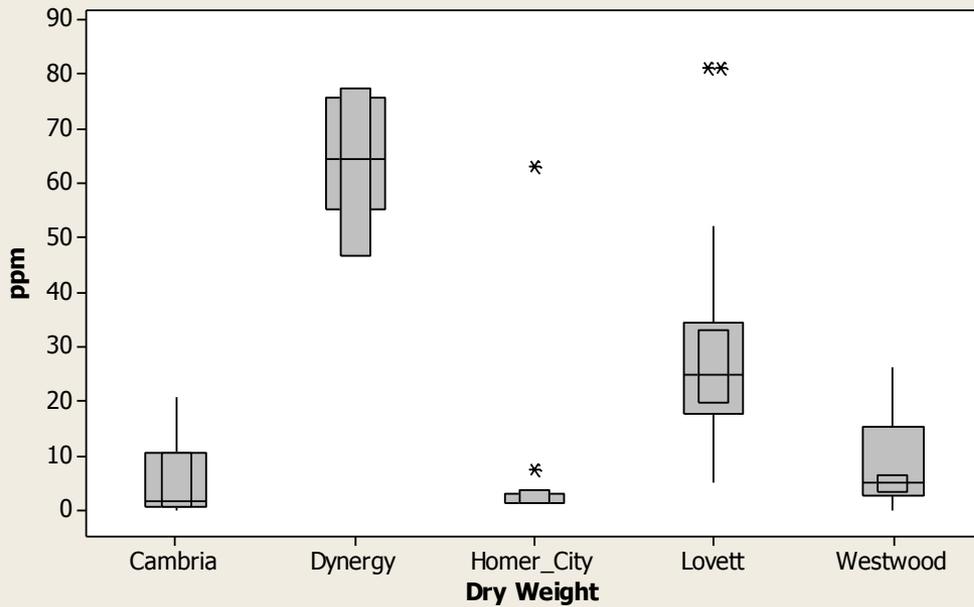
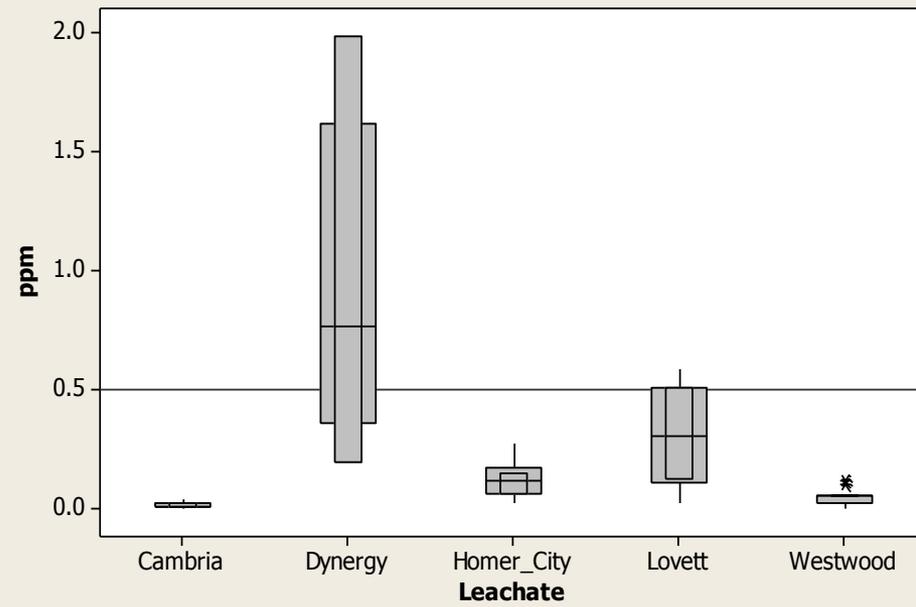
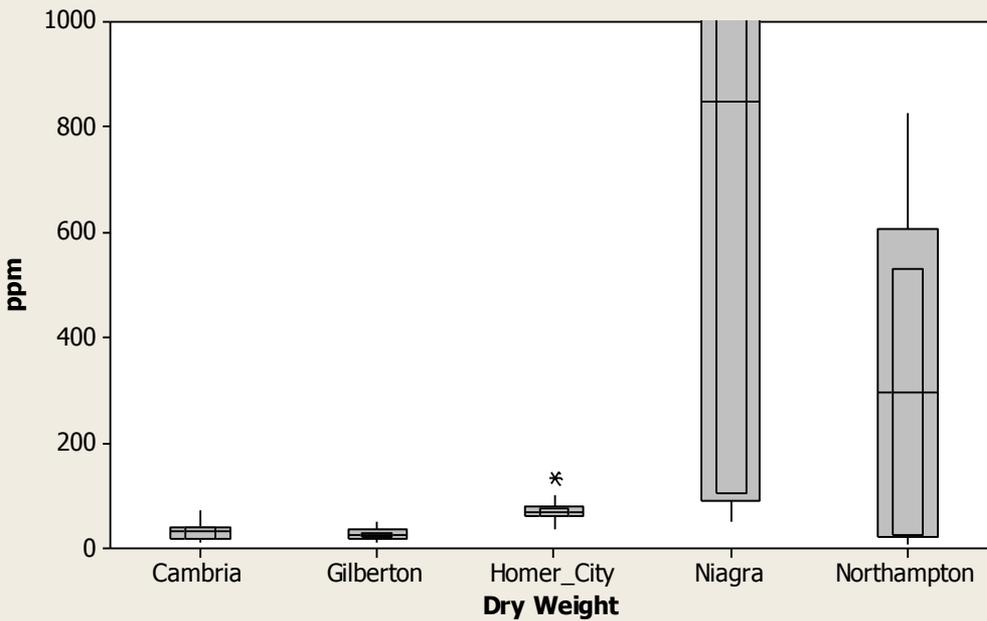
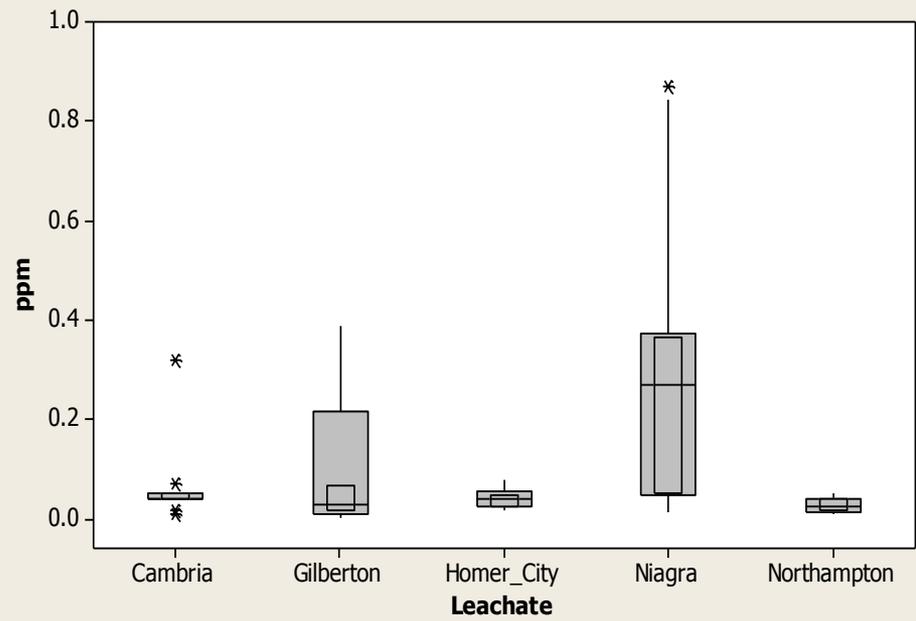
Specific Cond.



Not All Coal Ash Created Equal

Boron



Selenium**Selenium****Zinc****Zinc**

Some Beneficial Use Facts & Figures

11 Million Tons Used Per Year

Huge Saving to Industry Per Year:

If Landfilled: 11 million x \$25 = \$275 million

If Used at Mine: 11 million x \$5 = \$55 million

Savings

\$220 million

Summary

- Over 20 years of experience w/ ash
- Only ash w/ proper chemistry used
- Reclaimed 100s of acres of land
- Water quality improvements
- Safety issues eliminated
- Acidic waste material produces electricity