

Ambient and Source Technology Integration

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Concept

- Why initiate technology integration?
 - Limited Funds
 - Limited Manpower
 - Time and effort



Task #1 Team Building

- **We formed an internal team**
 - **Ambient Air Monitoring Group**
 - **Measurement Technology Group**
 - **We looked at different technologies**
 - **Chose one we felt we could have success**



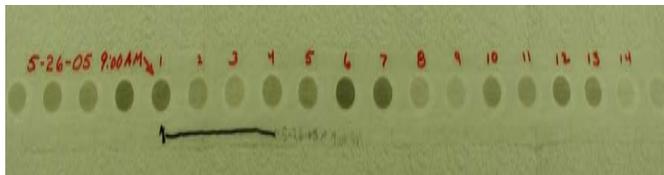
Task #2 Initiate technology integration project

- We contacted:
 - Cooper Environmental – X-Ray Fluorescence (XRF) Experts
 - Met One Instruments – Beta Attenuation Monitors (BAM) Technology
 - California Air Resources Board - Operate Met One BAMs
- We created a partnership!

Technology Integration



Cooper XRF
Technology

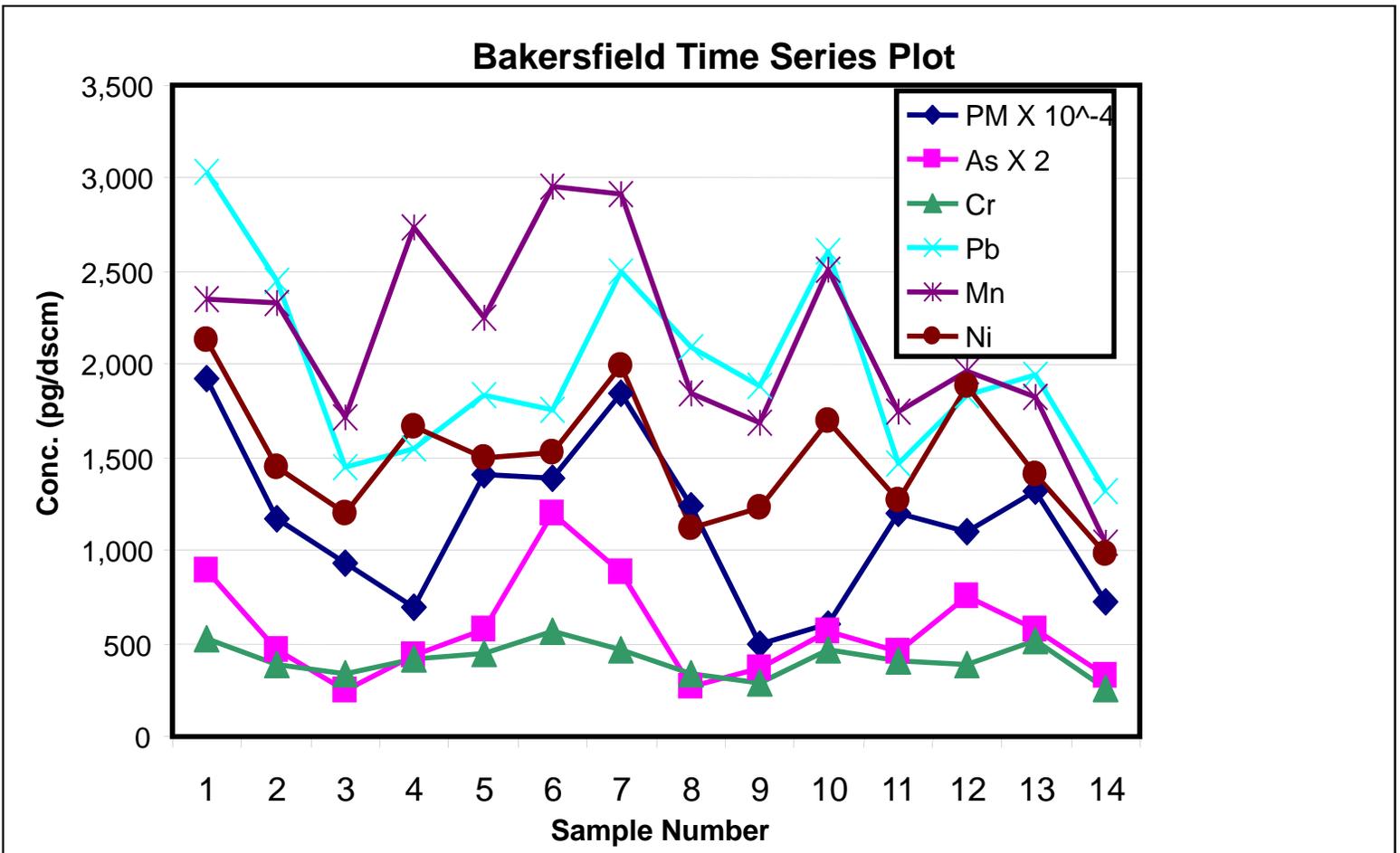


Met One Mylar backed
Tape - Teflon Coated



Met One EBAM

Results of Collaboration





Long Term Plan

- Development of the semi-continuous multi-metals for fence-line and ambient applications
- Lowering Detection Levels for formaldehyde and 1,3 BD using Cascade Lasers – ORD development
- Pneumatic Focusing Gas Chromatography

Multi-metals Fence-line – Ambient Applications



- The Xact Ambient Air Toxics Monitor (Xact AATM) measures the ambient concentration of metals
- Based on uses X-ray fluorescence
- Sampling times for this instrument range from one to four hours.
- The Xact AATM measures metals in the pg/m^3 concentration range.

MID-IR Cascade Laser System



- *Uses Tunable Infrared Laser Differential Absorption*
- *Continuous automated operation*

Detection Limit	(pptv)
Formaldehyde	60
Butadiene	80
Acrolein	120

Pneumatic Focusing Gas Chromatography (PFGC)



- Air sample compressed and injected directly on column in a specially designed GC
- GC is constructed within a fully functional personal computer
- FID-VOC sensitivity of 50 ppt

Technology Integration Toolbox

SBIR

Research



**Collaborate
with
Vendors
and S/L/T**

ORD An Intelligent Approach to Technology
Integration!!!