



EPA's Experience in Operating the Burdens Creek Station

A few things we have learned along the way.....



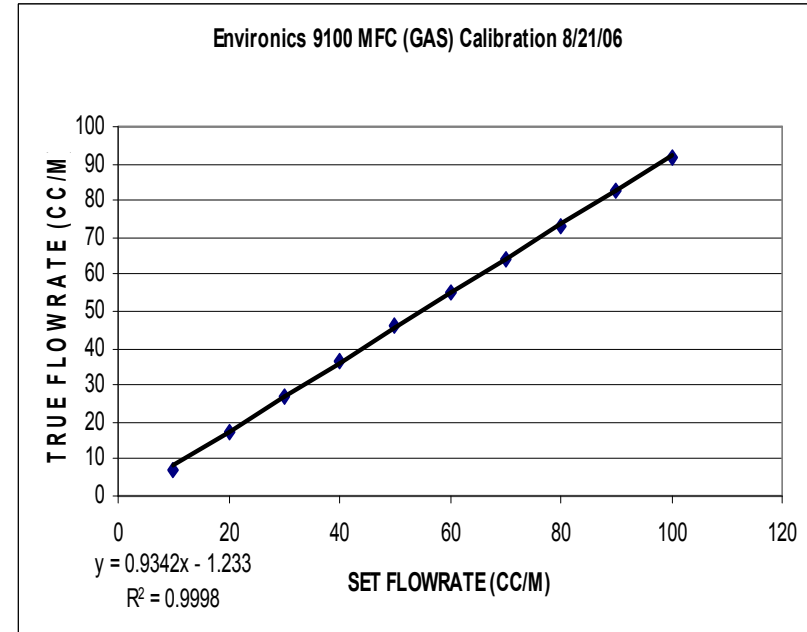
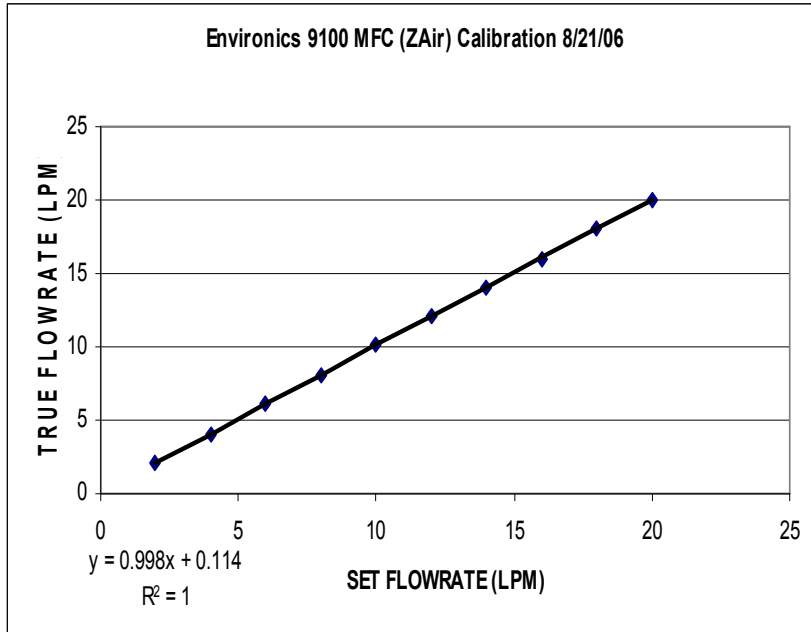
Why is OAQPS Operating a Monitoring Station?

- Evaluation of NCore related monitoring technologies.
 - Precursor gas monitors
 - Meteorological measurements
 - DAS strategies
- Support training opportunities for NCore operators.
- Test-bed for SOP, QAPP, and QA procedural updates.
- Promote value of multi-pollutant stations among data users.
- Provide real world data comparisons with nearby monitoring stations.



Precursor gas training workshop

Check your Calibrator Flows on Regular Basis*



$$y = 0.998x + 0.114$$

$$R2 = 1.0000$$

$$y = 0.9342x - 1.233$$

$$R2 = 0.9998$$

Envionics 9100 calibrator certified versus BIOS Dry Cal – 8/21/2006
Gas mass flow controller was ~6% off

*EPA recommends that calibrator flows be certified on a minimum frequency of every 6 months with a target accuracy of +/- 1%.

Anticipate Gas Standard Needs (1 of 2)

QC checks, MDL tests, Zero air challenge

- Need a wide range of cylinder concentrations to complete required and recommended QC checks.
 - Low standard concentrations needed to accommodate decreased instrument ranges.
 - Very low standard concentrations needed for MDL tests.
 - Challenge species (NPN, IPN) for NO_y converter tests.
- Initial NIST-traceable standard certifications may be for short time periods (6 months).
 - Will need extra cylinders to maintain QC check capability while recertification process being completed.
- Multi-blend cylinders recommended but they don't come cheap so budget accordingly.
- Discuss specifications for ultrapure cylinders with your vendor – can they get below LDL's?

Anticipate Gas Standard Needs (2 of 2)

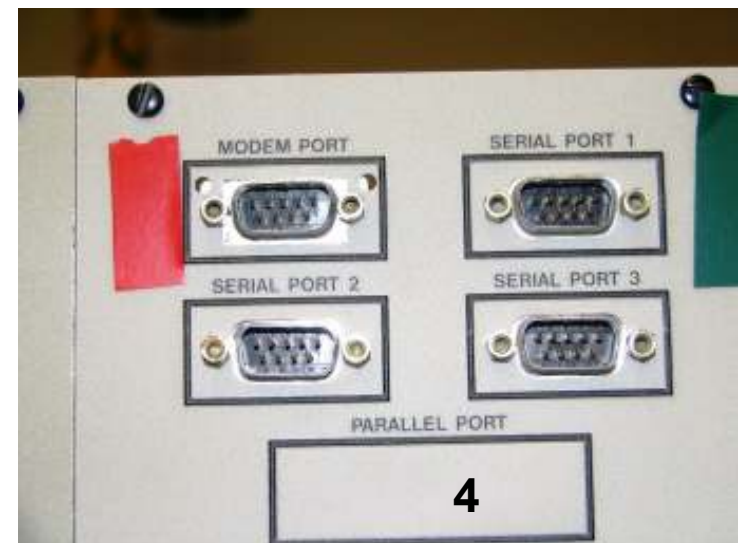
EPA's Cylinder Inventory for Precursor Gas Monitoring

Cylinder#	CO	NO	SO2	NPN IPN	Last Certification	Certification Expires	Application
JA02190			0.983		7/24/2006	1/24/2007	SO2 MDL Tests
JA02187		0.729			7/24/2006	7/24/2007	NO MDL Tests
CA06079	10.07	10.26	13.13		Pending		CO MDL Tests
CA07063	295.9	9.99	12.54		6/30/2006	12/30/2006	Daily QC
CA06708	308	10.05	13.10		9/13/2006	9/13/2008	Daily QC
JA02206				1.095 NPN	7/24/2006	1/24/2007	NOy converter check
JA02195				1.115 IPN	7/24/2006	1/24/2007	NOy converter check

Easy ESC 8816/8832 Serial Port Expansion



- 8816 option SP.
- Expand your available serial ports from 2 to 4.
- Enhances ability to use GSI digital interface.
- Important for monitors that cannot be multi-dropped.
- ESC has to enable ports remotely after hardware installation.



Collocated Trace Level CO Monitors

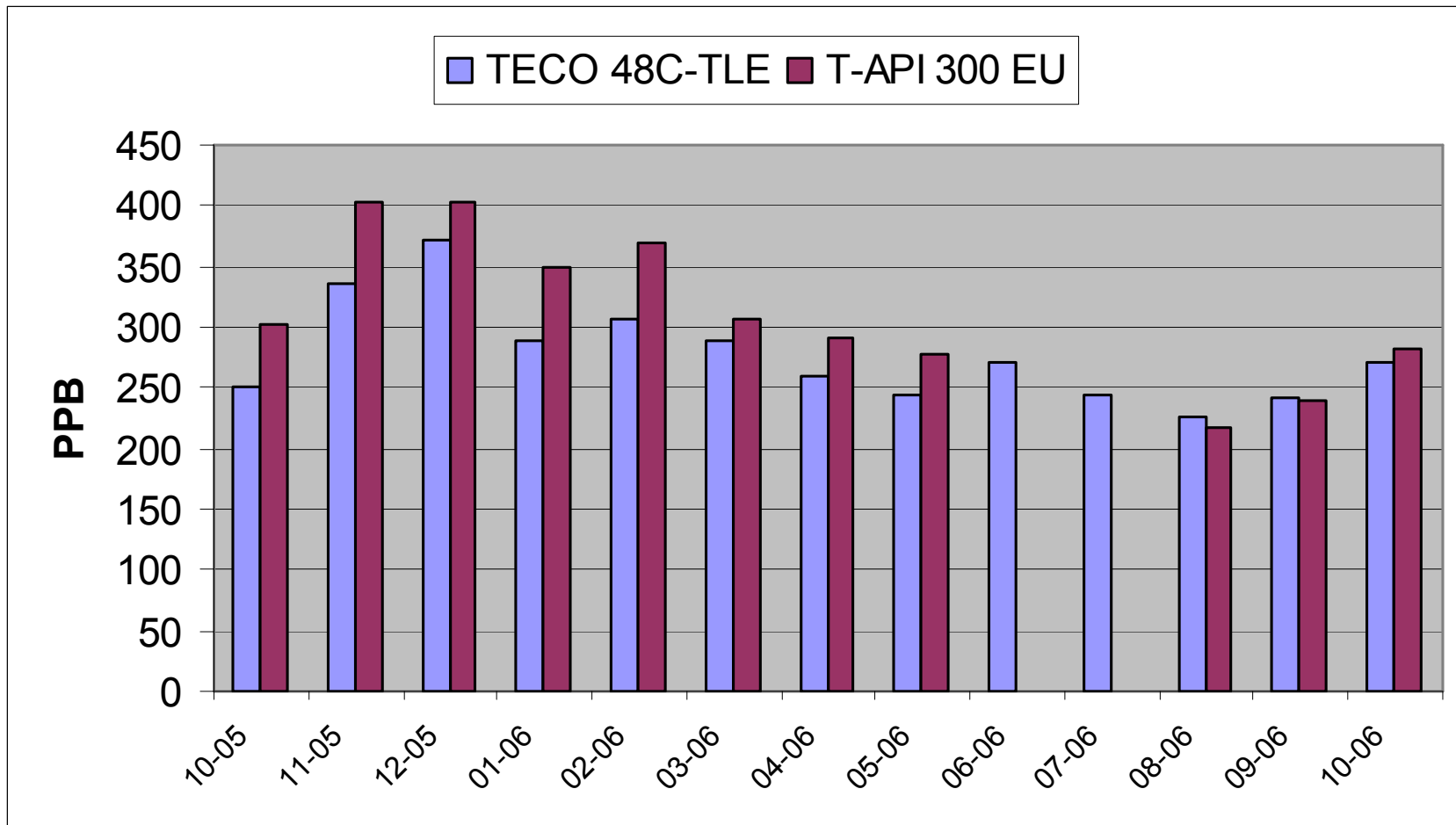
How do they compare?

- Thermo Electron 48C-TLE and Teledyne-API 300EU
- Identical operating procedures
 - Auto-zeroing every 4 hours.
 - Daily zero, Level 1 span (4500 ppb), and precision check (500 ppb).
 - Periodic multi-point calibrations.
 - Plumbed to same manifold, calibrator, zero air system, and cylinder standard.
- Ambient data very comparable with some tendency for Teledyne-API unit to read higher.
 - Consistent with calibration results.

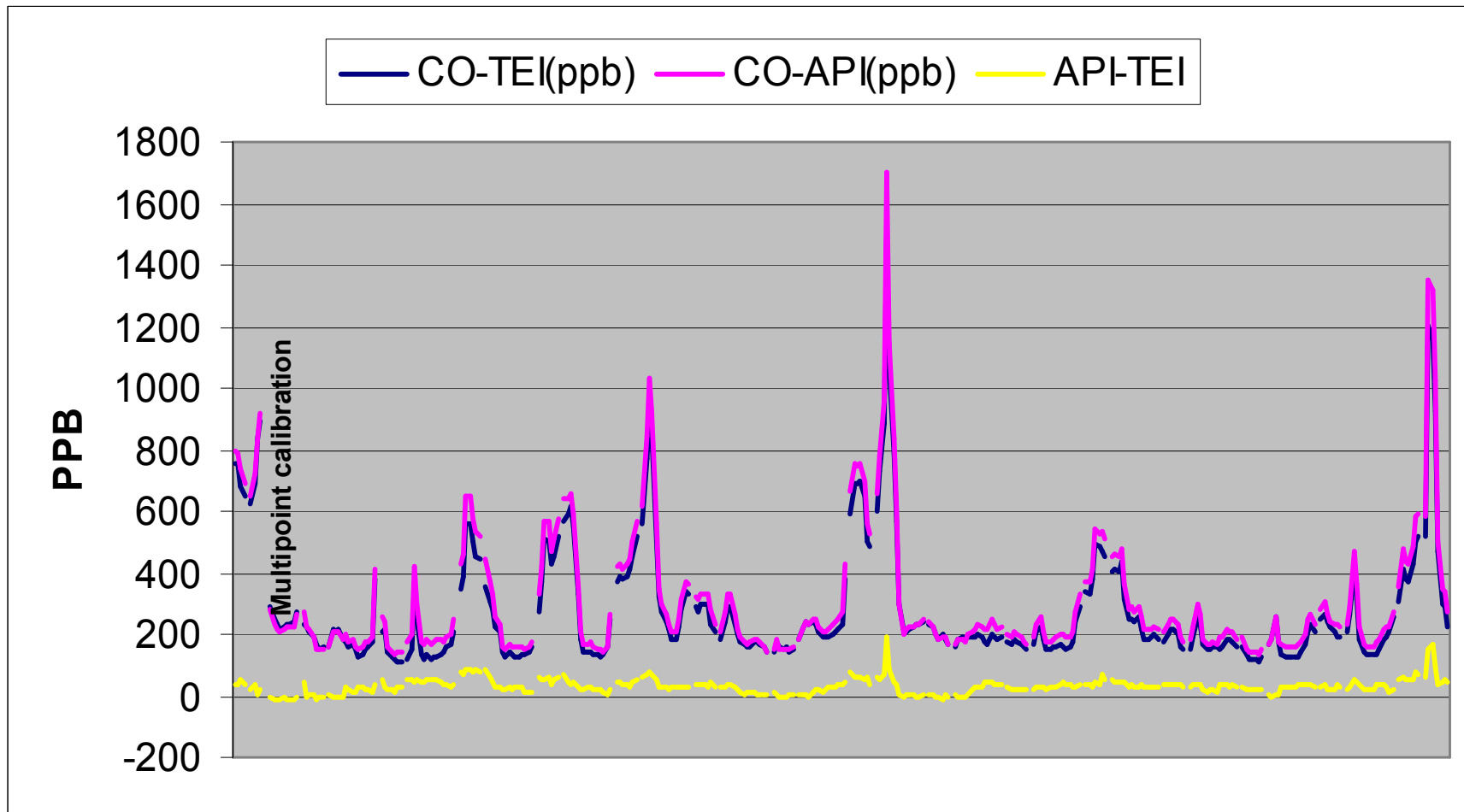


Collocated Trace Level CO Monitors

TECO Mean = 280.3 ppb T-API Mean = 312.9

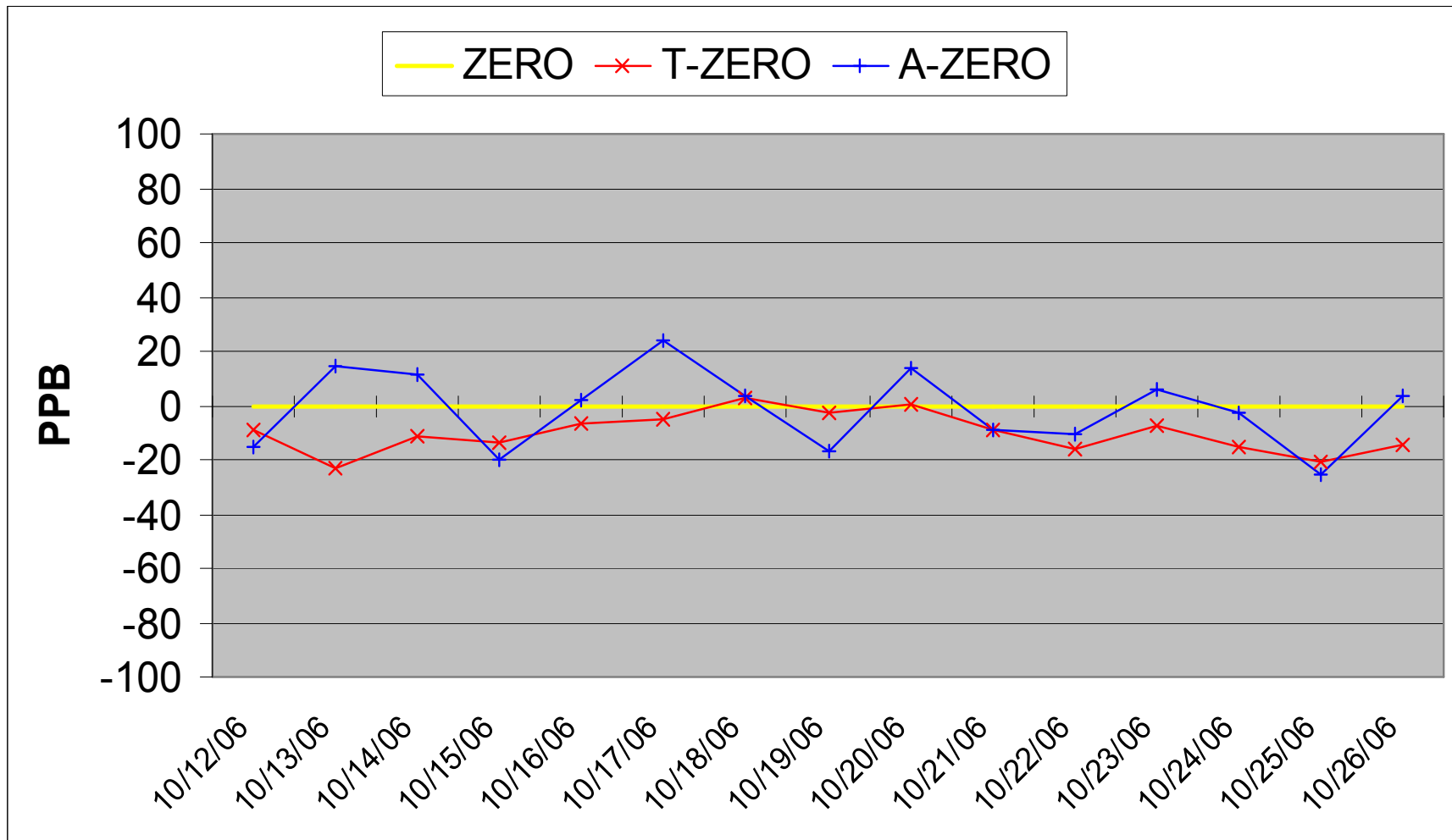


Comparison of Trace Level CO Response (Burden's Creek Data for 10/11-10/26/2006)



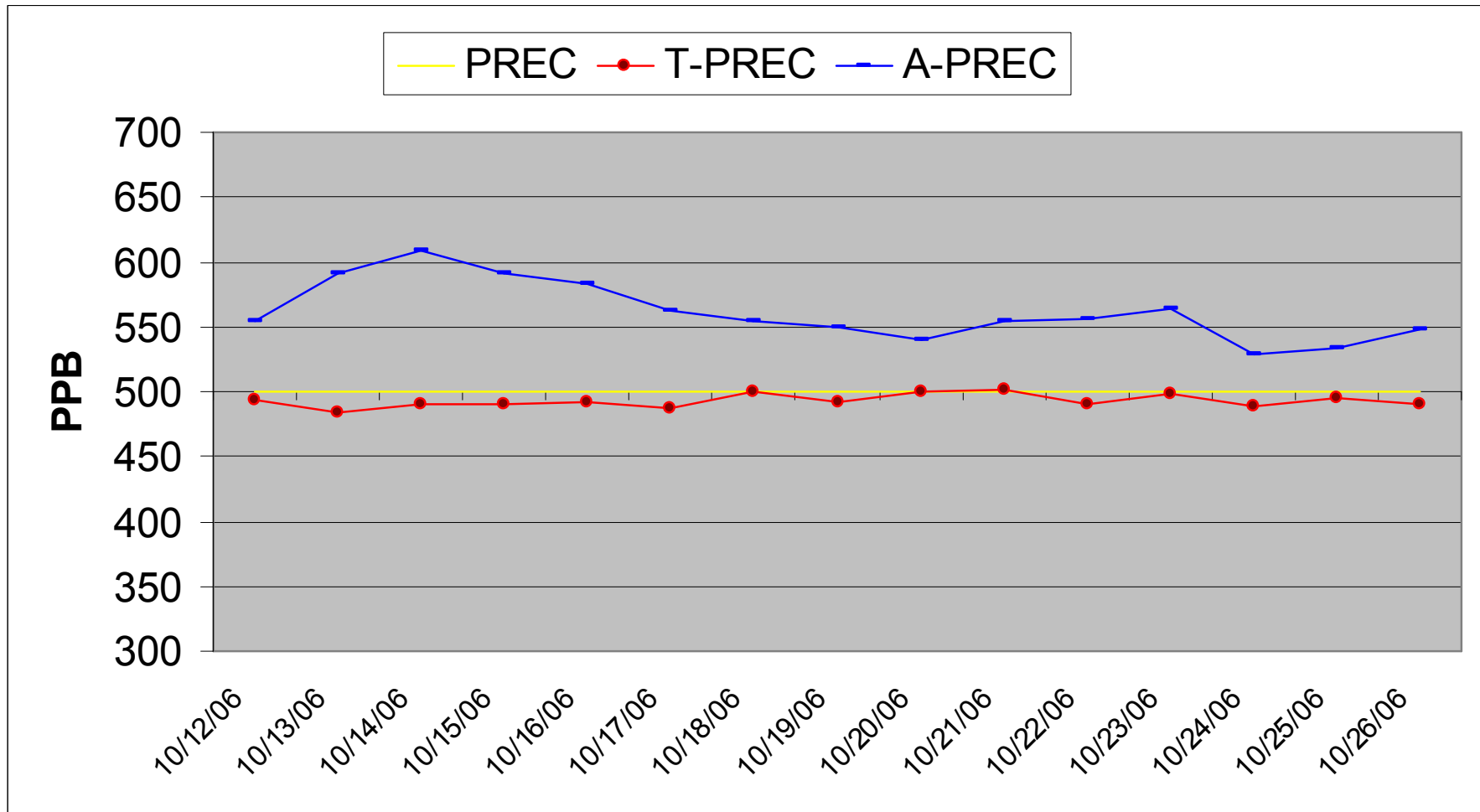
Zero Air Response

(Burden's Creek Data for 10/11-10/26/2006)



Precision Check Response

(Burden's Creek Data for 10/11-10/26/2006)



Closing Observations

- Calibrator flows need to be checked on regular basis, even in the most sophisticated “smart” calibrator.
- Review your cylinder inventory and anticipate NCore-related purchases to facilitate dilution to lower concentrations.
- Existing loggers can be upgraded to expand digital signal capabilities.
- Precursor Gas Team will be investigating differences in readings from trace-level CO units.
 - Design?
 - Operation?

