

### **CASTNET SUMMIT**

A RECHAND PERSPECTIVE...

SEPTEMBER 2019



# Region 4

#### **Richard Guillot**

TSA Auditor 2006 - 2019

Monitoring & Network Review 1994 – 2005

TSA Auditor 1988 - 1993





### Region 4

#### Atlanta

- Air and Radiation Division (ARD)
  - Part 50
  - Part 58, Appendix D Network Design
  - Grants 105, 103

#### Athens

- Laboratory Services and Applied Science Division (LSASD)
  - Part 58, Appendix A, E QA, Siting



### Region 4 – Air Monitoring Staff

#### **ATLANTA**

TODD RINCK – RICK GILLAM

Darren Palmer
 Daniel Garver

Ryan BrownSara Waterson

Njeri Carlton-Carew
 Michael Moeller

#### **ATHENS**

LAURA ACKERMAN

Stephanie McCarthy
 Keith Harris (SRP)

Adam Zachary
 Tony Bedel

• Mike Crowe (NPEP) Richard Guillot



### Region 4 Air Monitoring Agencies

•8 States + (17 locals)

• Alabama (2) Florida (7) Georgia Kentucky (1)

• Mississippi North Carolina (3)[1] South Carolina [1] Tennessee (4)

•[2 Tribes] Cherokee Catawba

•19 PQAO's + [CAMD & NPS]?



# Historical Perspective

Site Meta Data Issues

Site Access Issues

**Equipment Concerns** 

**Data Quality Concerns** 

# R4 Annual Air Monitoring Workshop

States, Locals, Tribal Agencies

**Vendors** 

2020 Workshop: March / April, Chattanooga, Tennessee

#### **TOPICS**

- CASTNET, NPS (hint.. hint..)
- New Regs, Guidance
- Latest Equipment
- Special Studies
- Grant Commitments



# STATE / LOCAL / TRIBAL PERCEPTIONS

#### **2019 - Region 4 Grant Commitment:**

The **agency will collect strip chart data** or its electronic equivalent for quality assurance purposes. Electronic strip chart data must be collected **on a 1-minute timeframe** or less. This data must be retained for a minimum of three (3) complete monitoring years.

#### **Agency Response:**

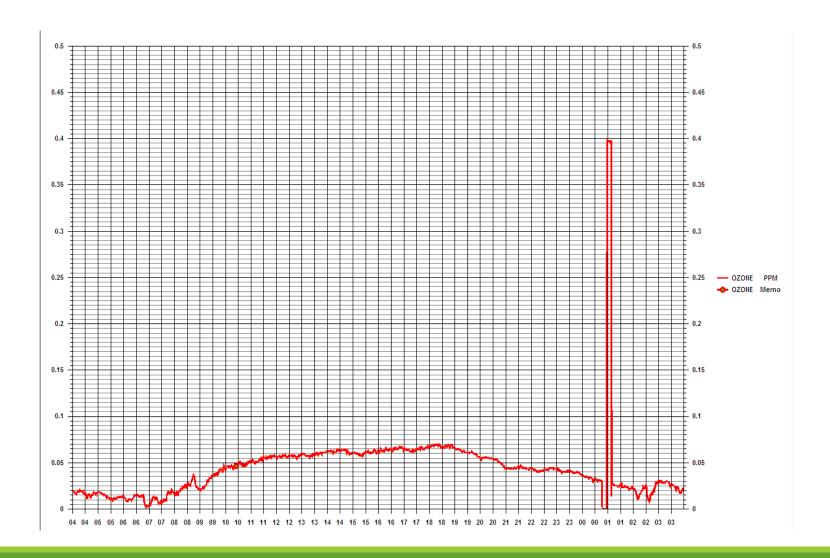
The XXXXXXX requests that the USEPA meet this same requirement for all USEPA-operated **CASTNET** monitoring sites. The **CASTNET** monitors are considered regulatory monitors by the USEPA and therefore should be held to the same quality assurance standards as the SLAMS monitors.



### Regional Perspective

### **CASTNET / NPS Data Validation**

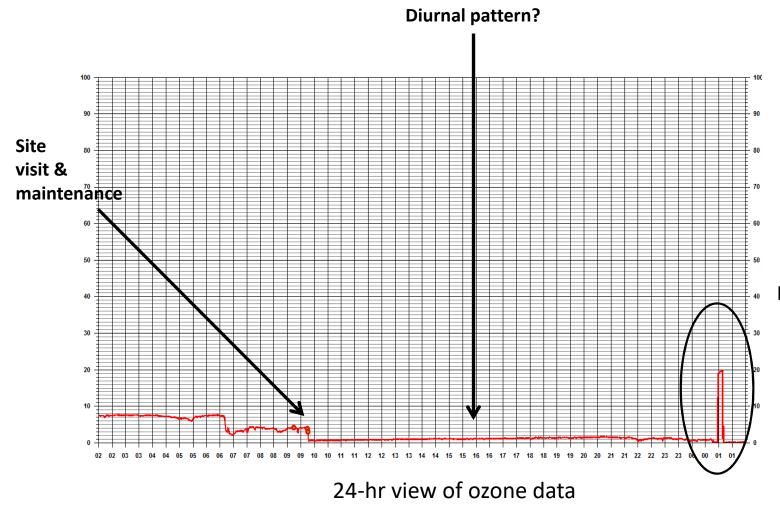
- 1 Minute Electronic Strip Chart Data
- Is it collected?
- How is it used?
- Is it retained?
- For how long?
- Is it available?





# Expected Ozone Diurnal Pattern

24-hr view of data

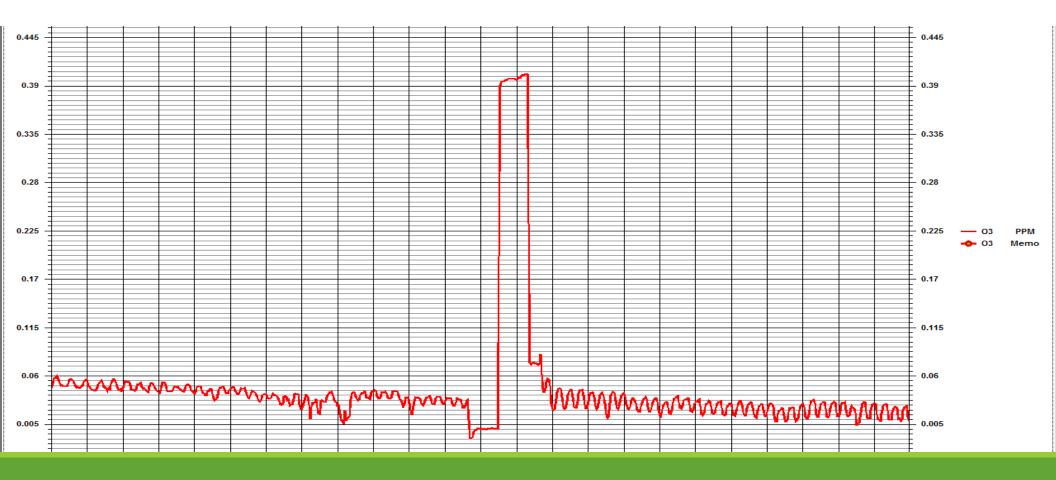




# Analyzer leak following internal filter change

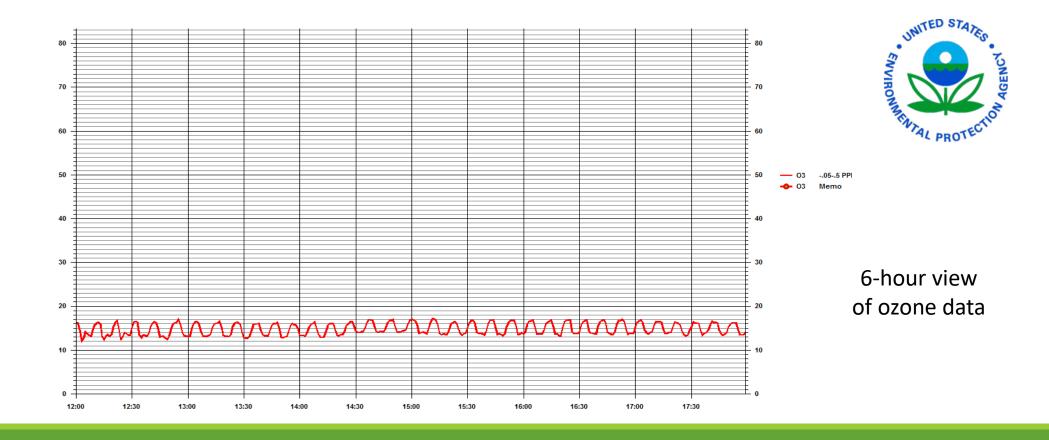
Minute data illustrates lack of diurnal pattern during heat of day

Failed span check follows



### Solenoid and/or Detector Malfunction

The QC data for this day looked normal, as did the hourly averages. However, you can see from the graph that there is actually a malfunction occurring.



### Water in the Sample Lines

The QC data for this day looked normal, but the operator can see from the graph that there is something wrong.

#### Parameter: 03 Units:ppb

July 2016																												
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Sat	2	36	38	34	31 26	23	36	46	42	43	48	42	46 12:00	42	44	45	43	42	35	30	35	32	32	BF	23	23	48	38
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Significantly low concentrations of ozone in July?



### Monthly Data Verification Procedures

- •Re-review minute data (strip charts) to watch for trends or shifts **over time**
- Review logbook notations for issues not previously observed





### REGIONAL PERSPECTIVE

If the data will be used for regulatory decision making:

- IS IT AVAILABLE?
  - To the Region?
  - To the impacted Agency?
- ALL OF IT?
  - ALL LOGS, FORMS, RECORDS, 1 MINUTE DATA, CALIBRATIONS, QA, ....
- WHAT IS THE PROCEDURE FOR OBTAINING IT?



## **Technical Systems Audits**

#### Region 4 TSA Reports

#### **Report Sections**

• Field Operations, Lab Operations, Records Management, Data Management, Quality Assurance

FINDINGS, CONCERNS, OBSERVATIONS



# Regulations and Guidance

Code of Federal Regulations (CFR)

MUST vs Should

#### **QAPP**

- Regional Concurrence / Review
  - Conditional Approval

**EPA** Guidance



### Common TSA Finding

Migration of KYNAR (non-equivalent) tube fittings into the probe system.

#### 40CFR Part 58, Appendix E, Section 9a

...Furthermore, the EPA<sup>25</sup> has specified **borosilicate glass or FEP Teflon**® **as the only acceptable probe materials** for delivering test atmospheres in the determination of reference or equivalent methods. Therefore, borosilicate glass, FEP Teflon® or their equivalent **must** be the only material in the sampling train (**from inlet probe to the back of the analyzer**) that can be in contact with the ambient air sample for existing and new SLAMs.

September 2015, Tad Kleindienst Ph.D.

• Email – KYNAR is not equivalent

PVC (or PVF) hard plastic; poor-fair resistance to strong oxidants (e.g., ozone) Kynar (PVDF) moderately hard plastic; fair-good resistance to strong oxidants FEP, PTFE, PFA Teflon; moldable perfluorocarbon; excellent resistance to strong oxidants.

The link below provided by Richard also has a chemical resistance "wheel" for the four different chemicals considered by the website. Without specifying specific chemicals, Kynar was listed as have "good" resistance to strong oxidants. However, I don't believe this qualitative statement meets the high bar for the use in a monitor for regulatory purposes.

One final technical point, unless a fitting is described as a pass-through, (that is, a tight butt connection can be made between two pieces of Teflon tubing), the analyte gas will most certainly be in contact with the fitting's barrel.

This said, I do <u>not</u> believe that Kynar meets the standard for Teflon equivalence. Hopefully, this provides some useful information. Let me know if you have any questions on this short writeup.

Tad

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Research Triangle Park, NC 27711
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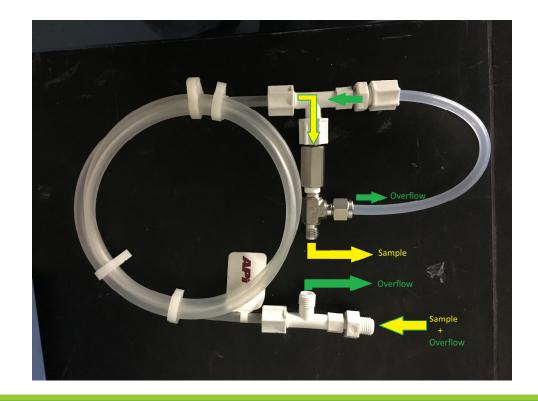


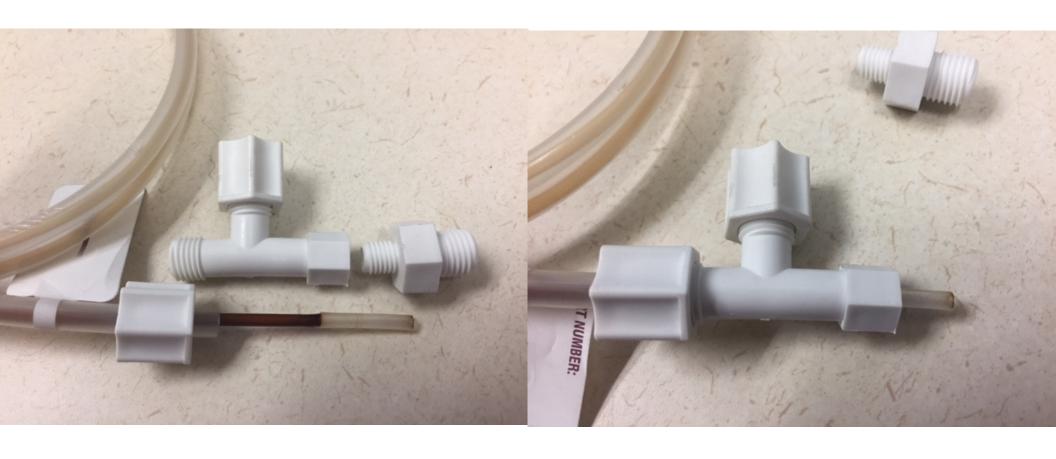
# Regional Perspective

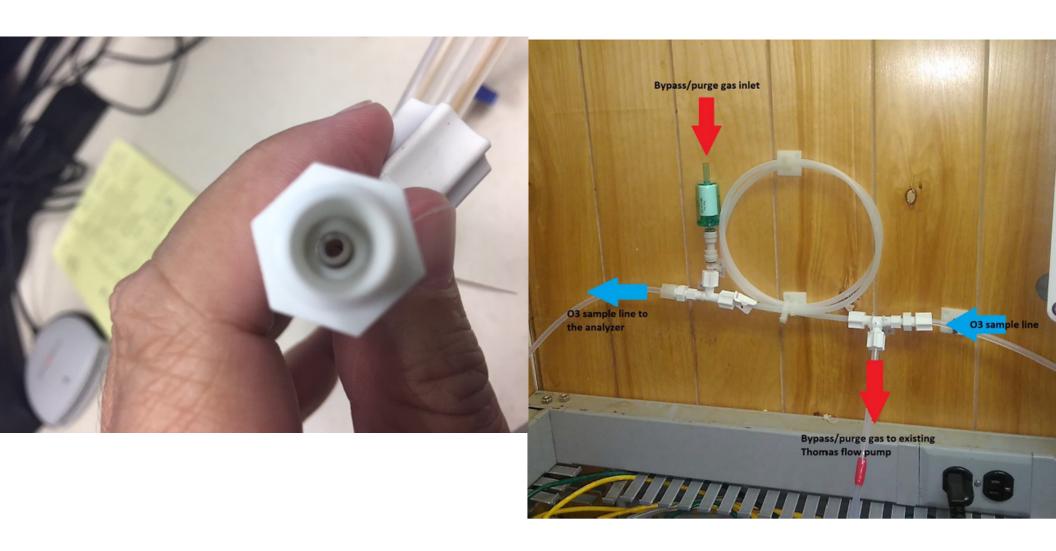
#### NAFION DRYER

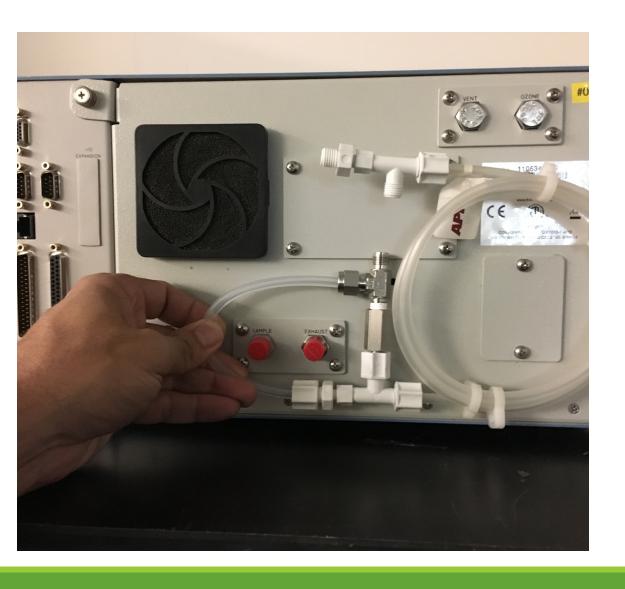
- IN THE PROBE SYSTEM
  - PART 58, APP E, 9.2
    - TEFLON / GLASS
- Polypropylene
- Stainless Steel

Wetted Surfaces?









June 2017 Weinstock Letter to Haeuber

Approving the addition of Nafion dryers is compliant with Part 58 ..

This is the South Eastern U.S. we have moisture issues.

Why am I bringing this up?

Because I AM JEALOUS!!! Maybe a little

What will my SLTs say?



# Regional Perspective

- •Siting Issues:
  - Trees, Site Evaluations
- Operations
  - Age of the Shelters ?
- AQS Data Completeness, Coding



### Summary

I do not know enough about:

**CASTNET** 

**NPS** 

(cant speak for other regions)

Limitations of the contract

When it comes to data, site access

Who has authority over what?

Who conducts TSAs?

Who evaluates the data before its used for Designations, if anyone?



### Summary

### STATE, Local, Tribal PERCEPTIONS

- EPA should be the role model for our agencies
- Utilizing the best practices established in CFR and Guidance

Are we holding ourselves to a higher standard in our monitoring efforts?

# Questions?





### National Park Service (2015 QAPP)

Mammoth Cave: MACA-HM CASTNET

• Kings Mountain: KIMN-BM

Look Rock: GRSM-LR CASTNET

• Look Rock: GRSM-LN

• Cades Cove: GRSM-CC

Cove Mountain: GRSM-CM

• Clingmans Dome: GRSM-CD

Everglades NP
 EVER-BC
 CASTNET



# Clean Air Markets Division (2019 QAPP)

Alabama	01-049-9991	SND 152	Sand Mountain
Florida	12-061-9991	IRL141	Indian River Lagoon
Florida	12-077-9991	SUM156	Sumatra
Georgia	13-231-9991	GAS153	Georgia Station
Kentucky	21-221-9991	CDZ171	Cadiz
Kentucky	21-175-9991	CKT136	Crocket
Kentucky	21-229-9991	MCK131	Mackville
Kentucky	21-229-9991-2	MCK231	Mackville-Collocated
Kentucky	21-061-0501	MAC426	Mammoth Cave NP



# Clean Air Markets Division (CAMD)

Mississippi	28-161-9991	CVL151	Coffeeville
North Carolina	37-031-9991	BFT142	Beaufort
North Carolina	37-123-9991	CND125	Candor
North Carolina	37-113-9991	COW137	Coweeta
North Carolina	37-011-9991	PNF126	Cranberry
North Carolina	37-xxx-xxxx	DUK008	Orange
Tennessee	47-041-9991	ESP127	Edgar Evins
Tennessee	47-025-9991	SPD111	Speedwell
Tennessee	47-009-0101	GRS420	Great Smoky NP – Look Rock