Tribal Air Monitoring and USEPA QA Requirements

Melinda Ronca-Battista, ITEP, TAMS Center

Status of Tribal Programs

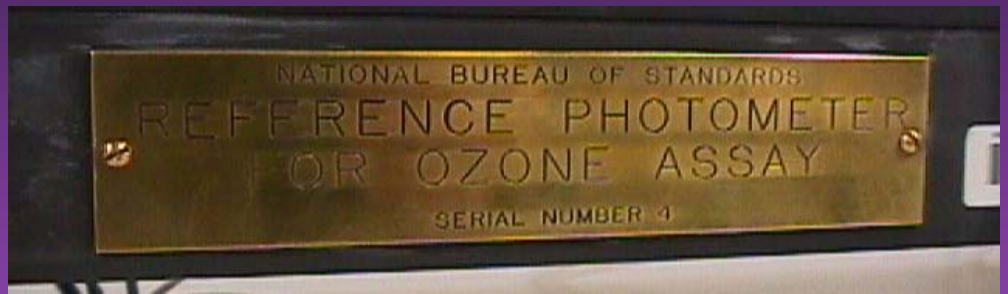
- Tribal data provides air quality data where there is limited or no State and Local monitoring.
  - For Example – Eastern San Diego County
- Sometimes there is a question if Tribal data is of sufficient quality for NAAQS decisions, based on limited information about audits and QC checks that may be missed by Tribes, due to funding limits or misunderstandings of the requirements.

Air Monitoring QA Barriers

- Air Monitoring QA regulations require statistically valid assessments of each Primary Quality Assurance Organizations (PQAO).

Air Monitoring QA Barriers

- Many Regions, including Region 9, have not been allocated additional air monitoring staff to work with Tribes.
- This has the effect of:
  - Limiting technical assistance from EPA
  - Slowing the QA plan review process
  - Making it difficult for EPA to perform the required Technical Systems Audits (TSAs) of Tribal programs



Air Monitoring QA Barriers

- Recent regulatory decisions and challenges to monitoring data have made it harder to accommodate deviations from EPA air monitoring regulations.
- These include:
  - Decisions to invalidate data that does not strictly adhere to regulatory requirements
  - Challenges to data produced by agencies that have not undergone the required TSAs

Performance Evaluations Why!?

Clean Air Act- Section 103

"(2) Establishment of a national network to monitor, collect, an compile data with quantification of uncertainty in the status and trends of air emissions, deposition, air quality, surface water quality, forest condition, and visibility impairment and to ensure the comparability of air quality data collected in different States and obtained from different nations."

Requirements for NAAQS:

- GAS—3 CHECKS REQUIRED:
  - 1-pt QC every 2 weeks, used for BIAS and PREC
  - Ozone +-7%, other gases 10%
- 1-pt QC checks no longer called precision checks, because the results are used (by YOU) to calculate both precision and bias
- Each check is the CRITICAL criteria for each set of data since last passing check

Gas 2nd required check:

- Annual PE done with not your eqmnt, preferably not site operator, used for BIAS
  - YOU arrange for this audit (from state, another tribe, contractor)
  - Percent difference of each audit level < 15%

Gas 3rd required check:

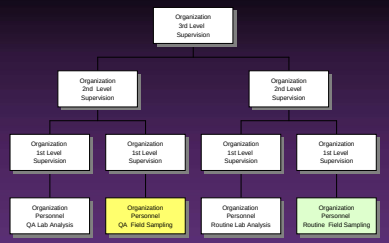
- NPAP (CFR App. A sec. 2.4)
- At least every year, rotating among sites

Independence PEP/NPAP

- Not part of the organization directly performing and accountable for the work being assessed.
- A management structure that allow for the separation of its routine sampling personnel from its auditing personnel by two levels of management
- Submission of a plan demonstrating independence to the EPA Regional Office.

For PEP, labs must also be independent.

Region 4 contractor Operated PEP Lab is available (STAG Funds required) as well as LV and others.



Questions for the Tribes

1) Can we implement the program ourselves and what's considered "self implementation"?
2) If we opt for federal implementation can we afford it ?
3) Are there some options ?

Can We Implement the Programs?

- Sure- you need to meet adequacy and independence
- What might be considered "self implementation"
  - Tribal monitoring organization performing the audits themselves (meeting all independent and adequacy requirements).
  - One tribal monitoring organization auditing another.
  - Cooperation among States and Tribes for auditing.
  - Tribes working together and hiring internally or externally for audits.
  - Other mechanisms like working with various organizations (TAMS, others) for the implementation of audits.

Costs:

- PEP- $2000/audit
  - 5 audits for PQAO with ≤ 5 sites = 10K/year
  - 8 audits for PQAO with >5 sites = 16K/year
- NPAP- $2200/audit
  - 20% of sites in PQAO audited
  - Would need 8 sites for 2 audits a year.
- The cost covers everything

Are There Some Options?

- Tribes consolidating funds to purchase a share equipment and auditing services
- Loans of capital equipment from TAMS or Regions
- Utilization of TAMS auditor(s) and equipment
- Consolidating PQAOs

Tribes consolidating funds to purchase and share equipment and auditing services

- OAQPS or TAMS can provide lists of equipment and some cost information
- Development of auditors within tribes or contracting this service.
- OAQPS would provide training/certification
- OAQPS would require audit comparison of TTP lab at minimum 1/year.
  - This cost would be incurred by Tribe
  - Could be accomplished at site to be audited

Concerns About Self-Implementation

- Added burden on SLTs
- Difficulty maintaining data comparability
  - Different standards
  - Different equipment
  - Less control over consistency in SOPs and QC requirements
- Data submission issues
- Independent labs for PEP
- Independence and/or perception of independence reduced

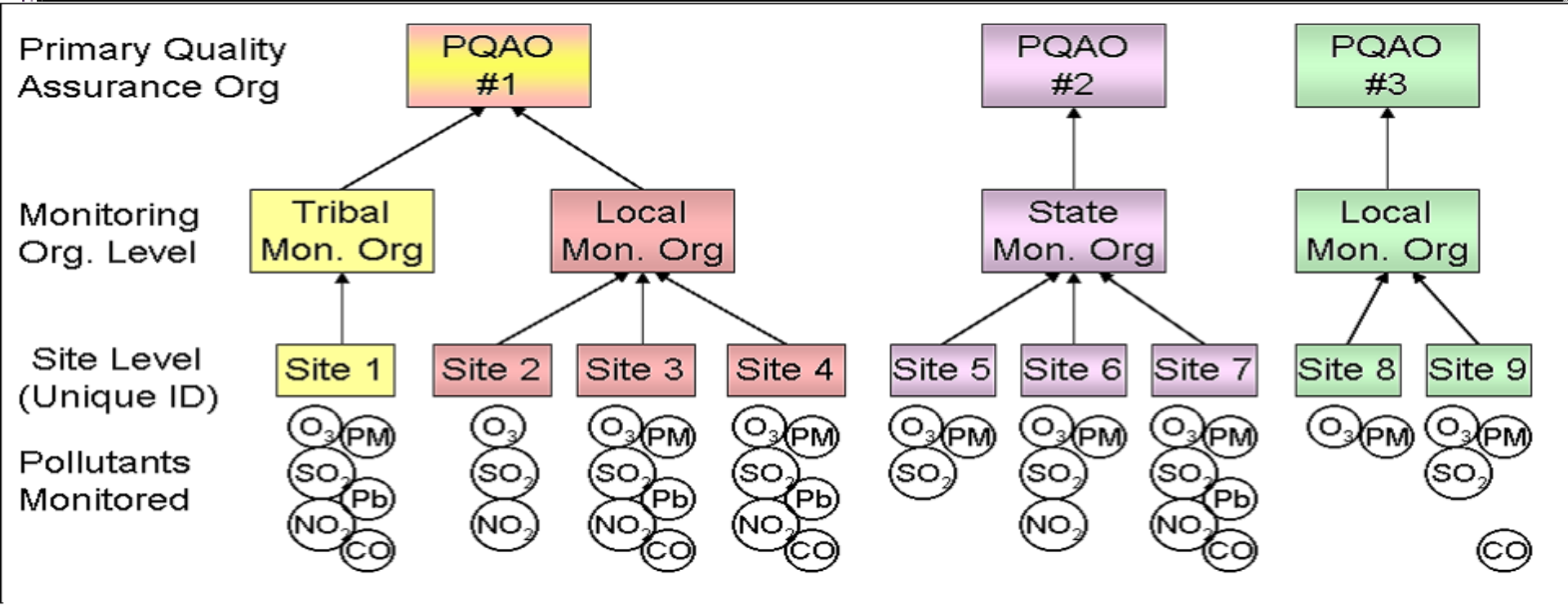
These can be overcome

Tribal PQAO's a Solution?

- QA requirements can be effectively reduced if multiple organizations work as one Primary Quality Assurance Organization.
  - This will reduce organizational QA requirements as well as EPA oversight requirements.

Common Factor of PQAOs

- Operation by a common team of field operators according to a common set of procedures—many share SOPs already;
- Use of a common QAPP or standard operating procedures—turbo-QAPP;
- Common calibration facilities and standards;
- Oversight by a common quality assurance organization; and
- Support by a common management, laboratory or headquarters.


Primary Quality Assurance Org
Monitoring Org. Level
Site Level (Unique ID)
Pollutants Monitored
PQAO #1
PQAO #2
PQAO #3
Tribal Mon. Org
Local Mon. Org
State Mon. Org
Local Mon. Org
Site 1
Site 2
Site 3
Site 4
Site 5
Site 6
Site 7
Site 8
Site 9
O3
PM
SO2
Pb
NO2
CO

Advantages of a PQAO

- Cost savings
- Opportunities for cooperation
- Data consistency
- Opportunities to share expertise
- Standardizes formal documentation
- Formalizes what Tribes may already be doing

Advantages of a PQAO

- Example of NPAP/PEP cost savings with Federal implementation
  - Tribal implementation may result in even greater savings!

Tribe PQAO	Number of Gaseous Sites	NPAP Audits Required	NPAP Cost ($)	Number of PM2.5 Sites	Number of Collocation Required	Number of PEP Required	PEP Cost ($)
A	2	1	2200	3	1	5	10000
B	3	1	2200	2	1	5	10000
C	1	1	2200	1	1	5	10000
D	5	1	2200	6	1	8	16000
Totals Separate	**11**	**4**	**8800**	**12**	**4**	**23**	**46000**
PQAO A-D	**11**	**2**	**4400**	**12**	**2**	**8**	**16000**

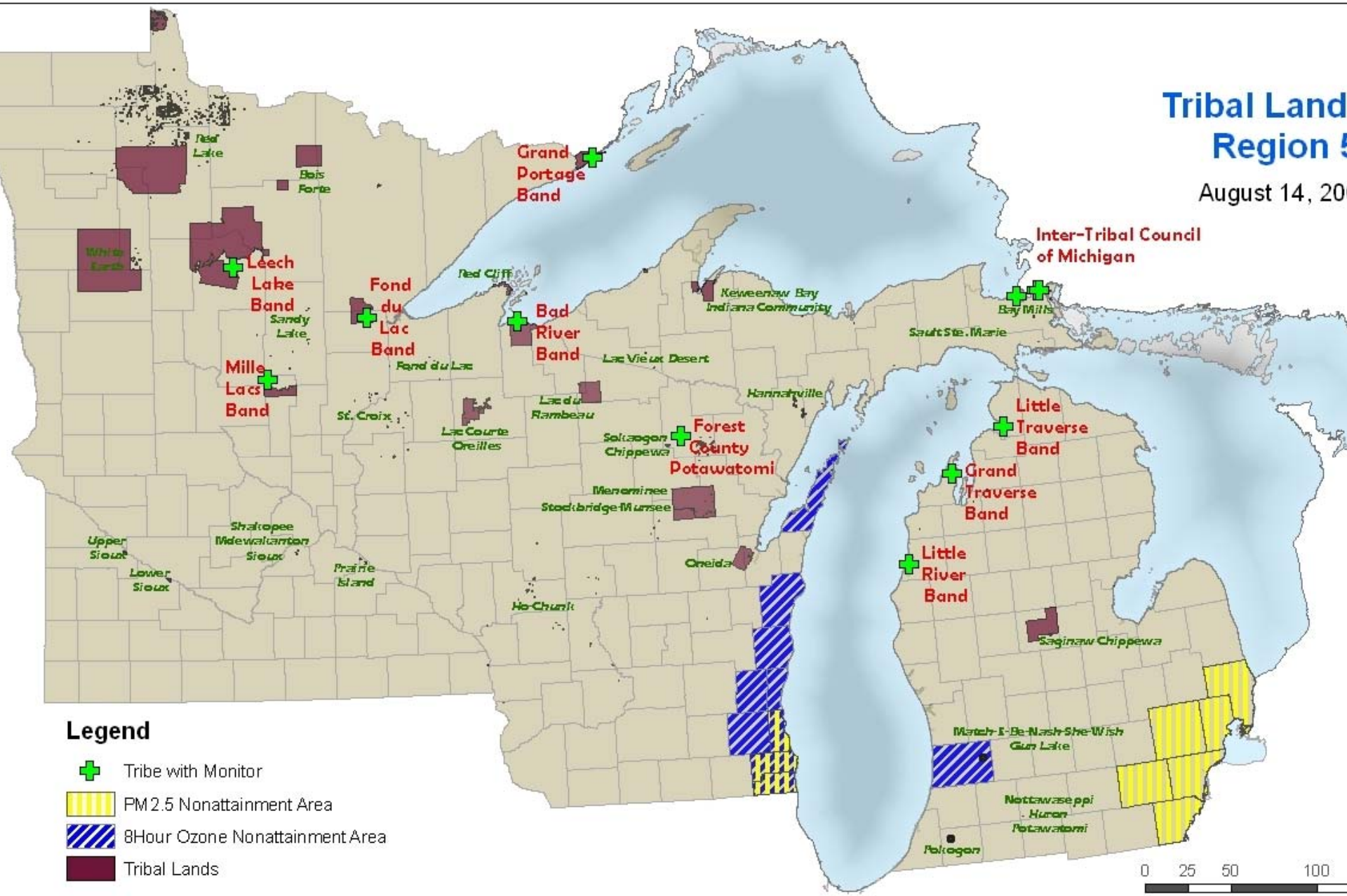
Bottom line- Savings of $34,400

Consequences of not forming PQAOs

- Tribes will continue to spend disproportionate resources to meet QA requirements
- Tribes may have trouble meeting QA/QC audit/check requirements
- The amount of funding needed to perform NPAP and PEP audits may prevent Tribes from collecting data for NAAQS comparison.
- EPA may not be able to meet the required TSA frequencies.
- Tribes will have to defend independently collected data when Tribal decisions/data are contested

Example of Forming a PQAO

- State and Local PQAOs (CA ARB)
- Informal "PQAO like" organizations (Region 9)
- State and Tribal PQAOs (Region 5)
- Multi Tribe PQAOs (Region 5)


Tribal Land
Region 5
August 14, 20
Grand Portage Band
Inter-Tribal Council of Michigan
Leech Lake Band
Fond du Lac Band
Bad River Band
Mille Lacs Band
Forest County Potawatomi
Little Traverse Band
Grand Traverse Band
Little River Band
Red Lake
Bois Forte
White Earth
Sandy Lake
Red Cliff
Keweenaw Bay Indiana Community
Bay Mills
Sault Ste. Marie
Fond du Lac
Lac Vieux Desert
Hannahville
Lac du Flambeau
St. Croix
Lac Courte Oreilles
Sokaogon Chippewa
Menominee
Stockbridge-Munsee
Oneida
Upper Sioux
Lower Sioux
Shakopee Mdewakanton Sioux
Prairie Island
Ho-Chunk
Saginaw Chippewa
Match-E-Be-Nash-She-Wish
Gun Lake
Nottawaseppi Huron Potawatomi
Pokagon
Legend
Tribe with Monitor
PM 2.5 Nonattainment Area
8Hour Ozone Nonattainment Area
Tribal Lands
0 25 50 100

Region 5 Procedure for PQAO Consolidation

1. Decide to consolidate
2. Memorandum of Agreement (MOA)
3. Inform Region 5 of consolidation
4. Ensure that all monitoring organizations within the PQAO have Quality System Documents in place prior to data collection

Possible PQAO Next Steps Up to Tribes and EPA Regions

- Tribes and EPA take the risk that Tribal data may **not** be usable as intended, and may need to be reported to AQS as not meeting QC requirements for NAAQS decisions
- PQAOs are formed through Tribal interactions with each other and State and Local programs
  - PQAOs are required as part of EPA grants to Tribes collecting data for NAAQS comparisons

Conclusions

- Tribes have options to produce data that can be used for NAAQS decisions.
- Tribes and EPA can take steps to reduce the cost to implement Quality Assurance programs.
- Tribes should consider how to fully or partially implement NPAP/PEP.
- Tribes should consider PQAOs as the best option to reduce QA/QC burdens and improve data quality.