



Ambient Air Protocol Gas Verification Program (AA-PGVP)

2016 National Ambient Air Monitoring
Conference

August 8 – 12, 2016

2016 National Ambient Air Monitoring Conference



Background

- ❖ Commercially-prepared calibration gases proven to be inaccurate/unstable for use in calibrations and audits
- ❖ 1978 – EPA developed “*Traceability Protocol for the Assay and Certification of Gaseous Calibration Standards*”
- ❖ 1978 through 1981, EPA conducted audits
 - 24 % of the CO cylinders, 30 % of the NO cylinders, and 43 % of the SO₂ > than the certified accuracy (5 percent)
- ❖ 1985 through 1997- Vendors producing more accurate gasses- EPA discontinues evaluation
- ❖ 1998 – 2004 Monitoring org complaints about bad cylinders. EPA starts to talk to vendors about vendor sponsored verification program





Background, cont'd

- ❖ 2009 – Office of the Inspector General published the report “EPA Needs and Oversight Program for Protocol Gases”
 - EPA “does not have reasonable assurance that the gases that are used to calibrate emissions monitors for the Acid Rain Program and continuous ambient monitors for the nation’s air monitoring network are accurate.”
 - Recommended OAR implement oversight programs to assure quality of EPA Protocol Gases
 - Recommended ORD update and maintain the “*Traceability Protocol*” to ensure monitoring programs’ objectives are met



2011 AA-PGVP Program Goals

- Established Regional Air Verification Laboratories (RAVLs) in Regions 2 and 7 to verify the certified concentrations of EPA Protocol Gases
- Monitoring Orgs
 - fill out a survey of who they use, and
 - volunteer to participate.
- All specialty Gas Vendors being used by Monitoring Orgs must participate
- Annual Report On AMTIC

<https://www3.epa.gov/ttn/amtic/aapgvp.html>

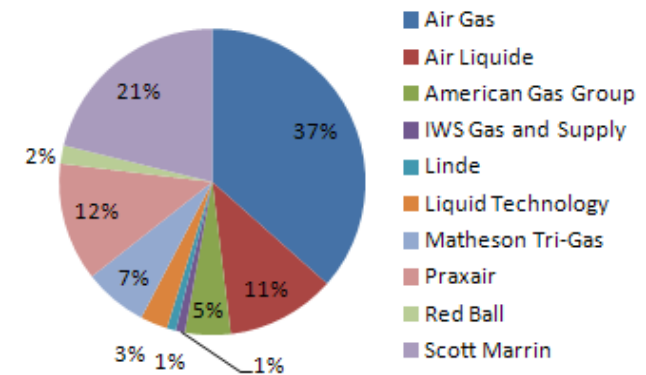
Ambient Air Protocol Gas Verification Program

± 2% Goal ±4% Exceedance



Region 2 CO								
Date	Lab	Producer	Facility	Cylinder ID	Pollutant	Assay Conc	Producer Conc	% Bias
2/23/2011	2	Linde	Alpha, NJ	CC344529	CO	5005	4980	0.52
6/10/2011	2	Coastal	Beaumont, TX	CC300210	CO	2399.18	2410	-0.45
9/7/2011	2	Global	Palmetto, FL	EB0030422	CO	9003.45	8954	0.55
9/12/2011	2	American Gas Group	Toledo, OH	EB0024958	CO	194.91	195	-0.04
11/15/2011	2	Scott-Marrin	Riverside, CA	CC12477	CO	209.1	212	-1.27
11/16/2011	2	Praxair	Bethlehem, PA	FF37697	CO	38.49	38.9	-1.05
11/16/2011	2	Praxair**	QC Sample	SA6140	CO	5002.82	5007	-0.08
Region 2 SO2								
2/23/2011	2	Linde	Alpha, NJ	CC344529	SO2	51.06	51.1	-0.08
6/7/2011	2	AirGas	Durham NC	LL33617	SO2	44.62	43.91	1.61
6/7/2011	2	AirGas	Durham NC	CC349796	SO2	45.18	45.28	-0.23
6/7/2011	2	Air Liquide	Plumsteadville, PA	CLM006761	SO2	54.5	55.4	-1.62
6/7/2011	2	Praxair	Bethlehem, PA	FF28443	SO2	48.71	48.9	-0.39
6/15/2011	2	Praxair	Toledo, OH	CLM000306	SO2	40.88	41.1	-0.52
9/6/2011	2	Praxair	Bethlehem, PA	FF33213	SO2	40.82	41.2	-0.92
9/6/2011	2	Global	Palmetto, FL	EB0030422	SO2	44.93	45.9	-2.12
11/9/2011	2	Praxair	Bethlehem, PA	FF33837	SO2	48.56	49.3	-1.51
11/9/2011	2	Praxair**	QC Sample	SA6140	SO2	45.87	46.73	-1.83
11/9/2011	2	Praxair	Bethlehem, PA	FF33237	SO2	14.29	14.8	-3.43
11/9/2011	2	Scott-Marrin	Riverside, CA	CC12477	SO2	12.87	12.99	-0.9

PQAO/RO Specialty Gas Producer Use (82 responses, 104 selections)





Participation in the Program has Declined

- ❖ Web-based survey – participation decreased from 75% the first year of implementation, to 35% in 2015
- ❖ Cylinder submissions – the program has become a verification program for gas producers (the labs receive more cylinders from the producers than from monitoring organizations)
- ❖ Reasons given for not participating –
 - Shipping costs;
 - DOT requirements for shipping cylinders (HazMat certification required)

EPA has addressed these concerns

Cylinder Submissions



<u>Year</u>	<u>S/L/T Agencies</u>	<u>Gas Producers</u>
2011	15	12
2012	14	27
2013	5	44
2014	4	38
2015	2	61

Objective- A "Blind" verification.... Not happening



Recent revisions to the monitoring rule (40 CFR Part 58)

- ❖ Monitoring organizations are now **REQUIRED** to complete an annual survey that informs EPA as to which gas producers are being used in the ambient air monitoring network
- ❖ Monitoring organizations encouraged to volunteer but **CAN BE REQUESTED** to send one unused gas standard every 5 years
- ❖ *These revisions should significantly reduce the number of cylinders received directly from the gas producers on an annual basis*



Verification Results

2011

65 Verifications results:

64 were within the $\pm 4 - 5\%$ AA-PGVP criteria

58 were within the $\pm 2\%$ Acid Rain Program criteria

2012

58 Verifications results:

57 were within the $\pm 4 - 5\%$ AA-PGVP criteria

51 were within the $\pm 2\%$ Acid Rain Program criteria

2013

59 Verifications results:

59 were within the $\pm 4 - 5\%$ AA-PGVP criteria

56 were within the $\pm 2\%$ Acid Rain Program criteria

2014

52 Verifications results:

52 were within the $\pm 4 - 5\%$ AA-PGVP criteria

50 were within the $\pm 2\%$ Acid Rain Program criteria

2015

68 Verifications results:

68 were within the $\pm 4 - 5\%$ AA-PGVP criteria

61 were within the $\pm 2\%$ Acid Rain Program criteria