

California Air Resources Board

Through-the-Probe Performance Audits

Quality Assurance Section

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Through-the-Probe Performance Audits

- **A performance audit is an on-site test aimed at challenging the integrity of the air monitoring sites ability to generate data of acceptable quality.**



Gas Analyzers Audited

- **Analyzers**
 - **O₃, CO, NO₂, SO₂, H₂S, and NMHC**
- **Audit concentration levels**
 - **10% to 90% of analyzer range**
 - **U.S. EPA mandated audit ranges**



Audit Concentration Levels

Audit Concentration Levels:

Set forth in 40 CFR 58 and EPA's Quality Assurance Handbook
(Vol II, Sec 2.0.12)

For CO:

Range

High = 35 to 45 ppm

Mid = 15 to 20 ppm

Low = 3 to 8 ppm

For NO₂, SO₂, O₃:

Range

High = 0.35 to 0.45 ppm

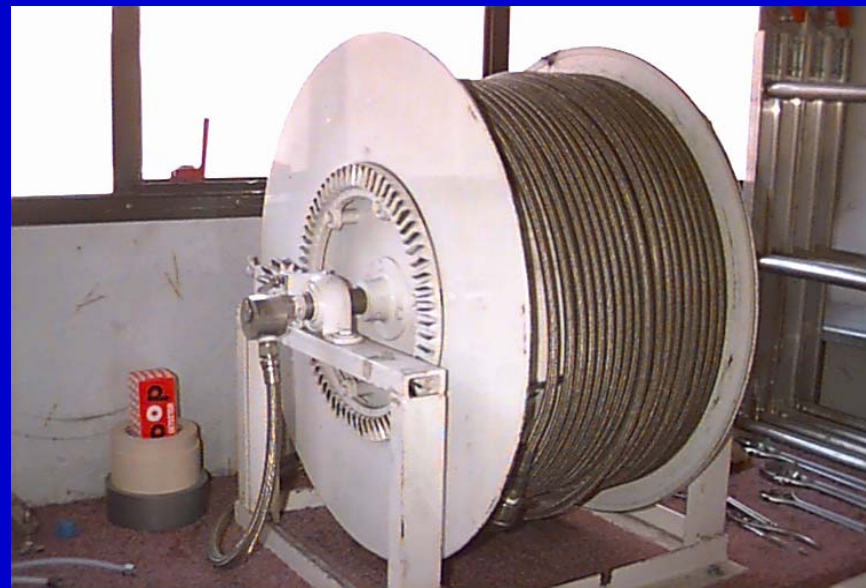
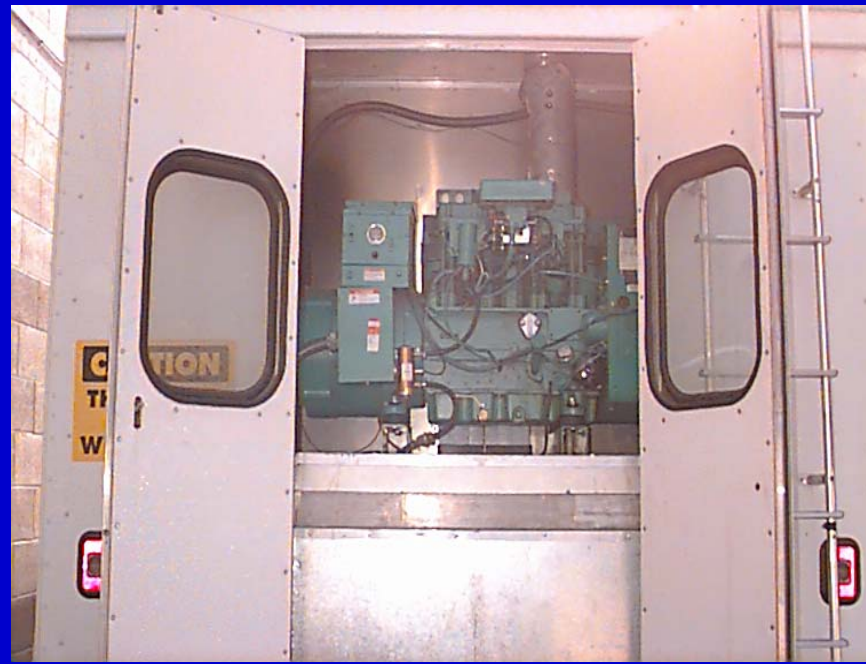
Mid = 0.15 to 0.20 ppm

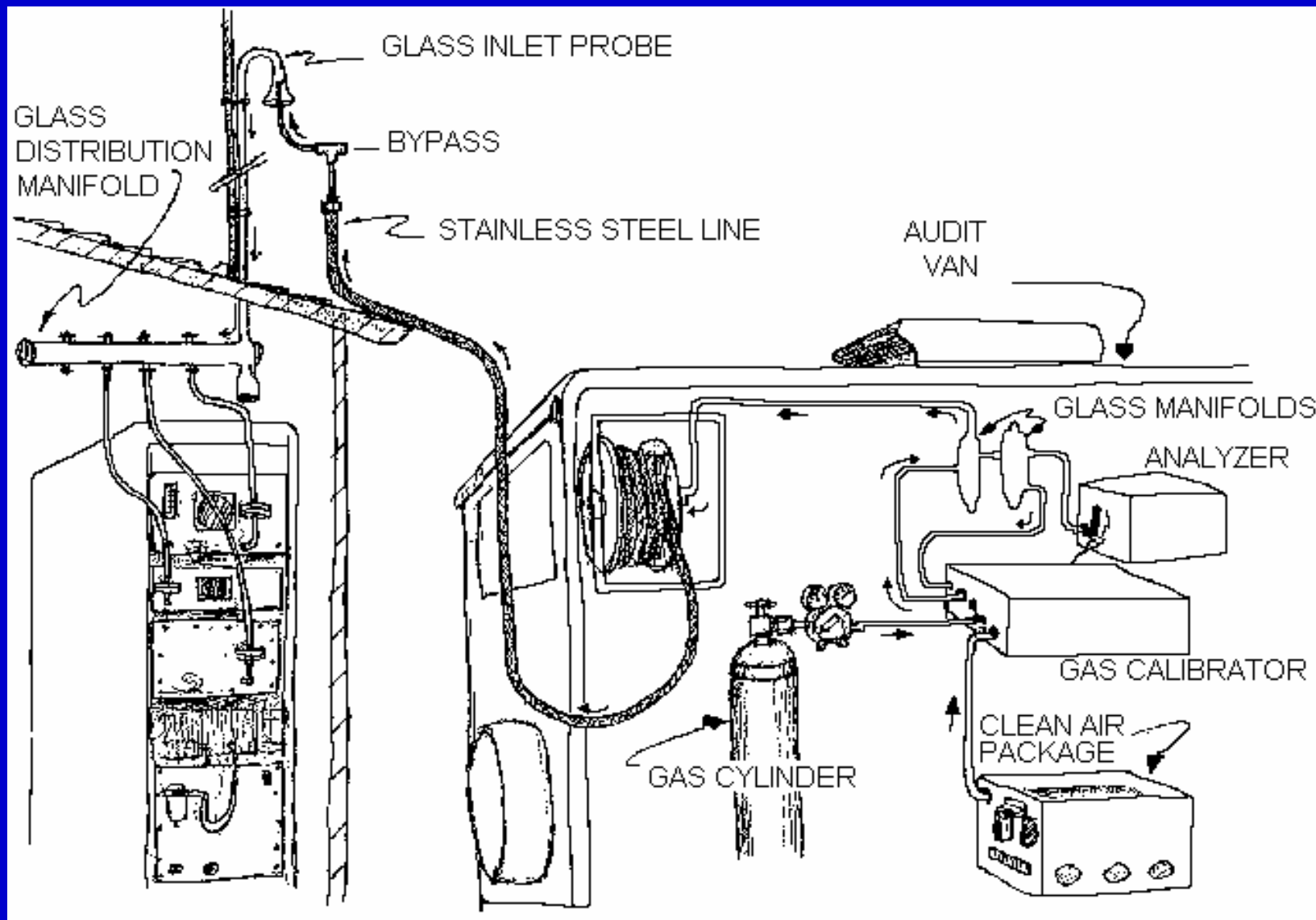
Low = 0.03 to 0.08 ppm

For Non-Criteria Pollutants appropriate high, mid, and low
concentration levels are targeted









Data Control Criteria-Corrective Action

- **Warning Limits:** Maintenance and/or recalibration is required.
 - **± 10 %** from true value for continuous samplers
 - **± 7 %** from true value for PM10 samplers
- **Control Limits:** Air Quality Data Action (AQDA) request is initiated to investigate data quality.
 - **± 15 %** from true value for continuous samplers
 - **± 10 %** from true value for PM10 samplers
 - **± 4 %** from true value and/or **± 5 %** from design for PM2.5 samplers
 - **NO_x converter operating below 96.0 %.**
 - **Siting and/or inside temperature criteria are not met.**
 - **Meteorological parameters (WS, WD, OT) outside U.S. EPA PAMS criteria**



Quarterly Maintenance Issues

- **Quarterly Checks**
 - **Line Loss Tests**
 - **Check/Calibrate Ozone Generator**
 - **Clean Inlet Filters**
 - **Van Inventory**
 - **Generator/Van Preventative Maintenance**
 - **Cross Checks with Standards Laboratory**



Annual Maintenance Issues

- **Annual Checks**
 - **Replace Desiccants in API 701**
 - **Linearity Check on CO Instrument**
 - **Clean Optics on API 400 (If Needed)**
 - **Check/Clean Optics on Teco 42c**
 - **Recalibrate Flow Rates on Environics 9100**
 - **Clean Instrument Manifolds (As Needed)**
 - **Vehicle Service/Smog Checks/etc.**
 - **Cross Check with the U.S. EPA**



Flow Rate Audits

- **Samplers**
 - **Total Suspended Particulate and Lead**
 - **Tapered Element Oscillating Microbalance**
 - **Particulate Matter, 10 and 2.5 μm**
 - **Beta Attenuation Monitor, 10 and 2.5 μm**
 - **Partisol Samplers, 10 and 2.5 μm**
- **Transfer Standards**
 - **Variable Flow Orifice**
 - **Mass Flow Meter**
 - **Delta Cal**



Meteorological Audits

- **Meteorological Sensors**
 - **Temperature**
 - **Wind Direction and Speed**
 - **Relative Humidity**
 - **Barometric Pressure**
 - **Solar Radiation**
- **Audit Sensors**
 - **NIST traceable and certified**



Standards and Certifications

- **Quarterly**
 - **Ozone Certification (API 400/401), MFMs**
- **Semi-Annual**
 - **Superblend and CO Calibration Gases Certifications**
 - **Hi-Vol Orifice**
- **Annual**
 - **Propane/Hydrogen Sulfide Superblend Certifications**
 - **Meteorological Equipment**
 - **Delta Cal**

