



# Good-practice Guide for Air Quality Monitoring and Data Management

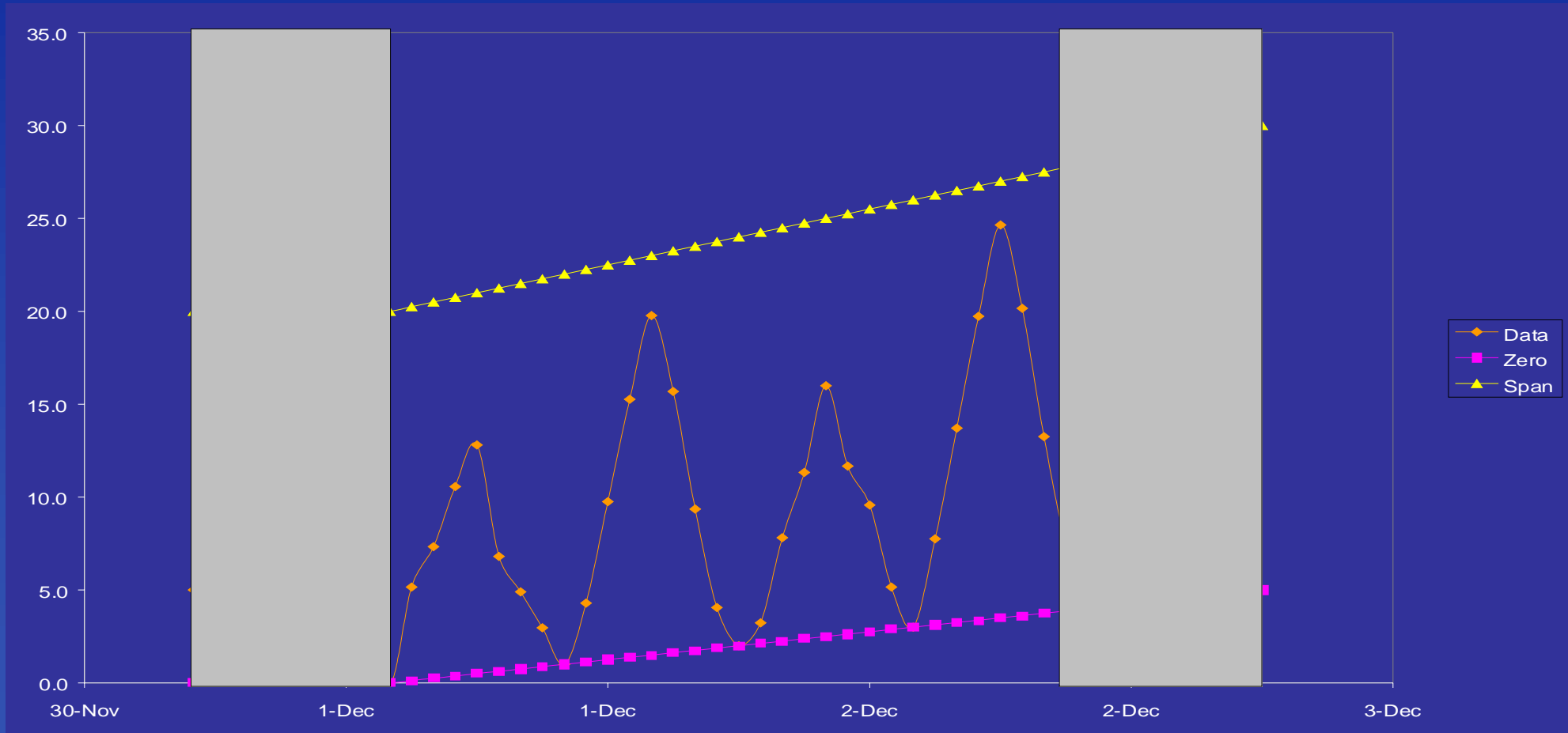
Data Quality Assurance

# Recommendation 16 – Basic Quality Assurance Protocols (Real-time analysers e.g. CO)

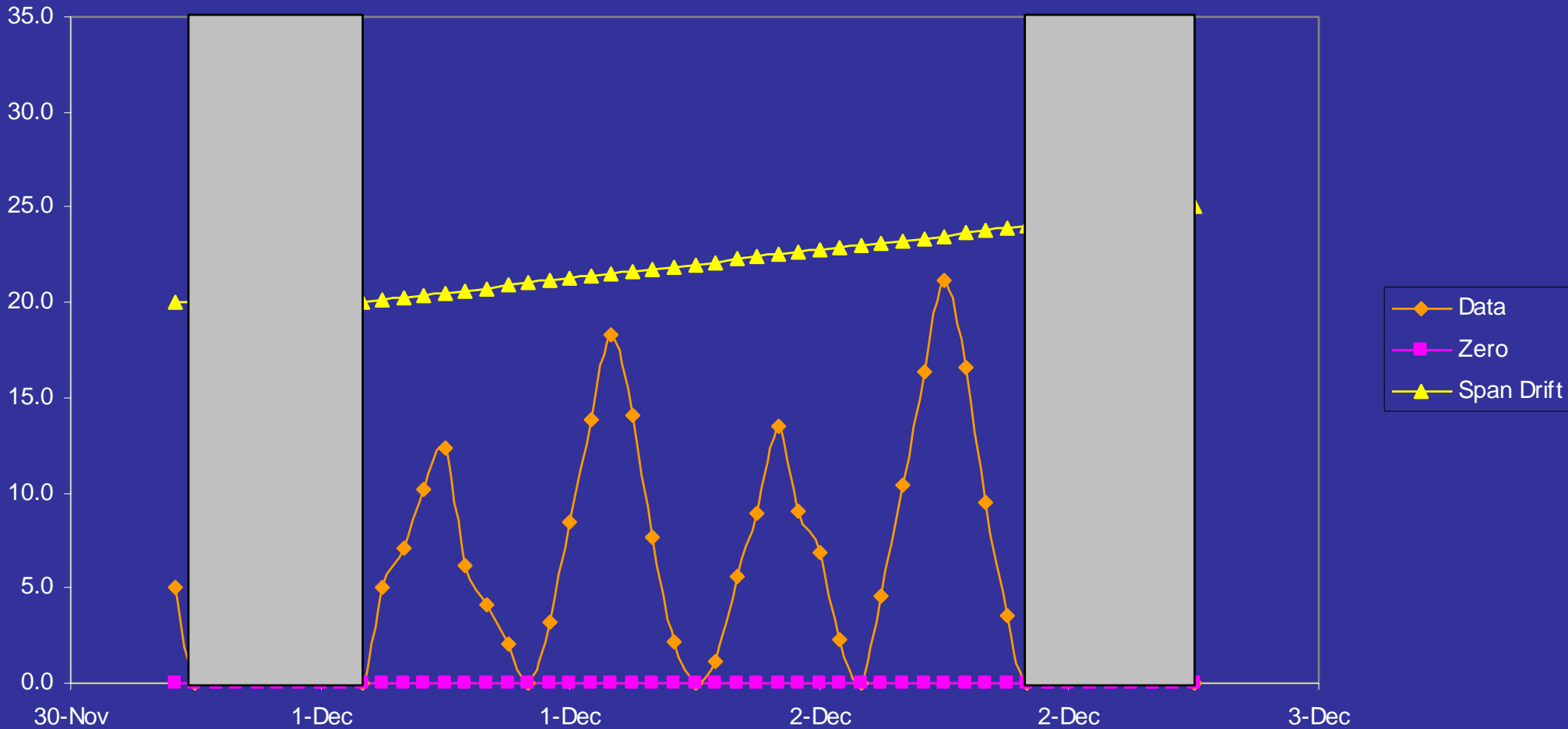
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- Check dates and times for gaps in the time series
- Format date/time columns as dd/mm/yy hh:mm
- Label columns with the units used
- Identify instrument downtime from site file and remove invalid data
- Graph raw data to identify any anomalies, including spikes, and annotate accordingly
- Adjust data for calibrations, zero drift and span as outlined in site file. All adjustments should be noted
- Convert data from ppm or ppb to  $\text{mg}/\text{m}^3$  or  $\mu\text{g}/\text{m}^3$  (assuming  $0^\circ\text{C}$  and  $101.3 \text{ kPa}$ )

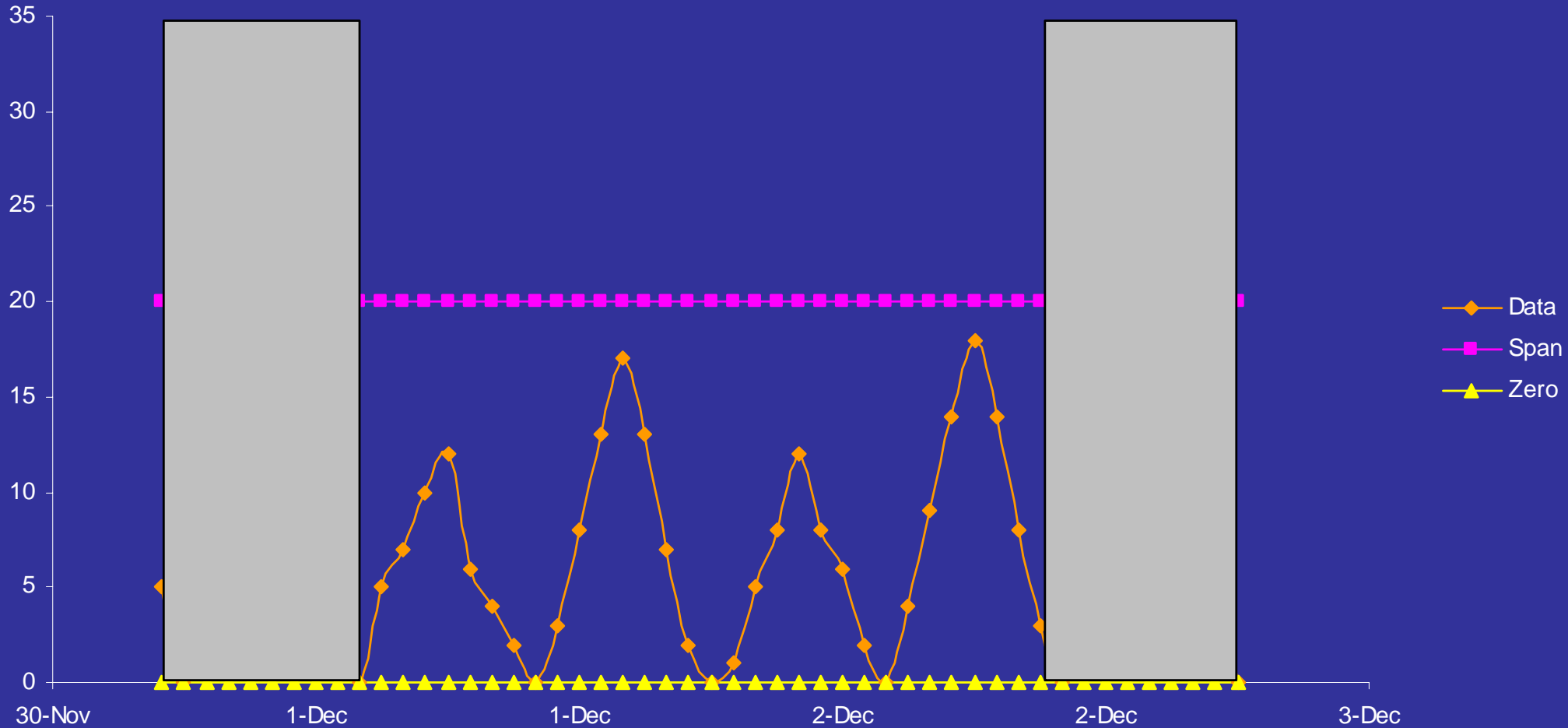
# Data exhibiting zero and span drift



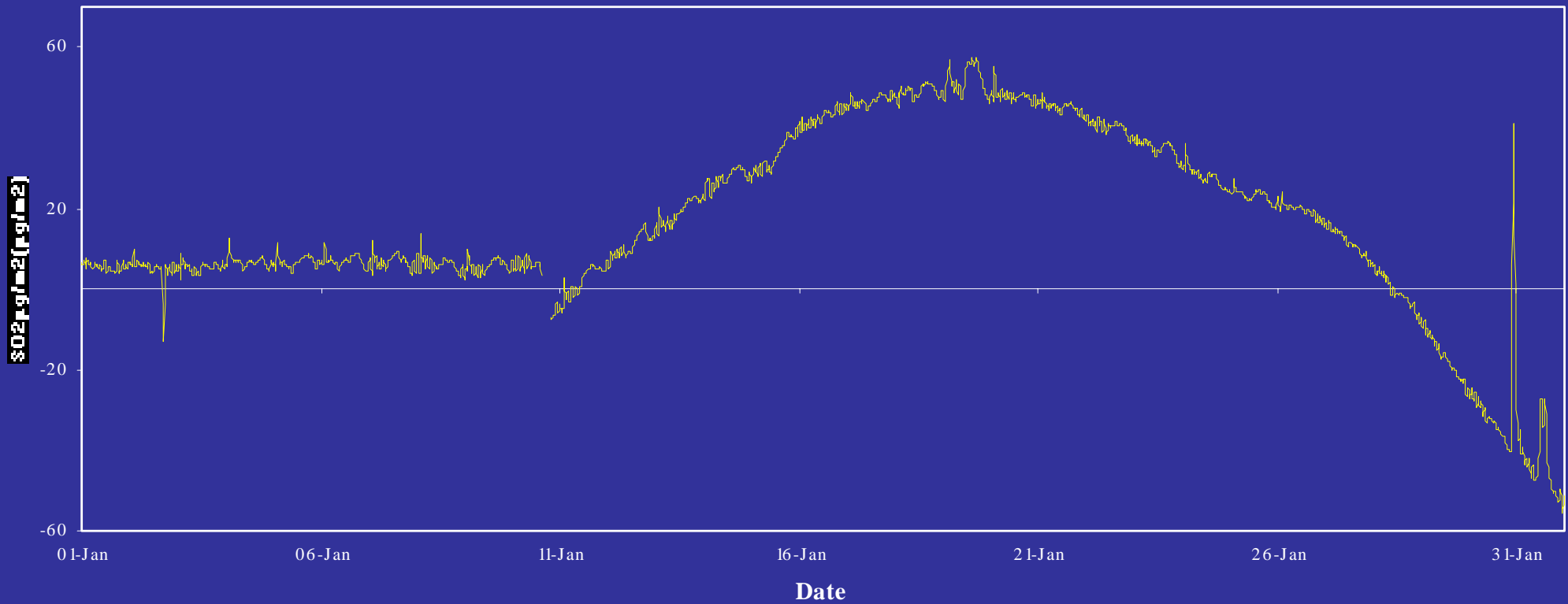
# Zero drift correction



# Span drift correction



# Adjust for zero drift?



# Other Methods

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- **Particulates – Hi/Med/LoVol - TSP, PM<sub>10</sub>, PM<sub>2.5</sub>, etc**
- **Passive samplers - NO<sub>2</sub>, etc**
  - **Field blanks**
  - **Passive blanks**
  - **Spikes**
  - **Volume**
  - **Valid hours**
  - **Comments – field and lab staff**

# Data Quality Assurance

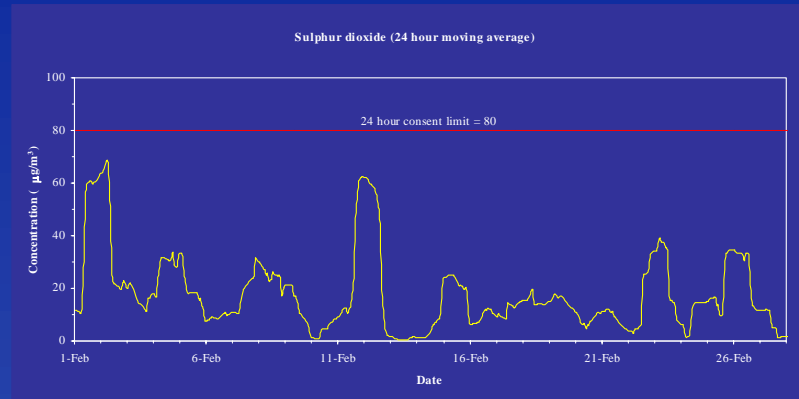
Equipment

Calibration

Traceable  
Standards

Operational  
Parameters

Maintenance  
Log



Field  
Sheets/Logs



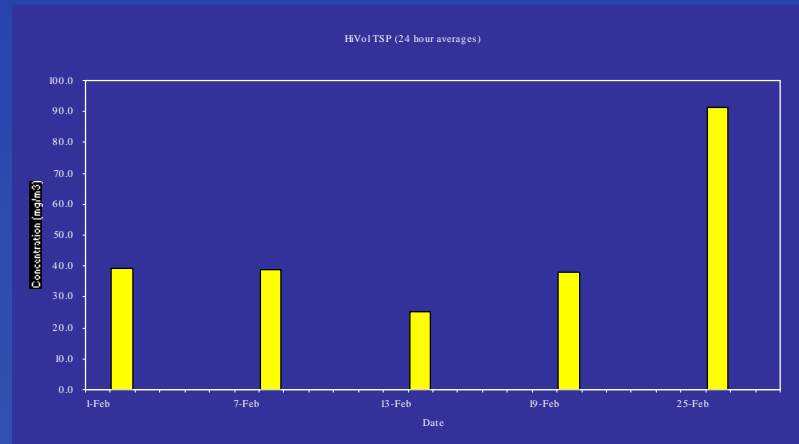
Analysis  
Sheets/Logs



Blanks/Spikes  
Zero & Span  
Checks



ISO9000  
IANZ



# Recommendation 17

## Units, Periods, Averaging Times

Ambient Contaminant	Units	Averaging Times	Averaging Periods
Particulates (PM <sub>10</sub> and PM <sub>2.5</sub> )	µg/m <sup>3</sup>	fixed and rolling	24 hr, annual
Sulphur dioxide	µg/m <sup>3</sup>	fixed and rolling	10 min, 1 hr, 24 hr, annual
Carbon monoxide	µg/m <sup>3</sup>	fixed and rolling	1 hr, 8 hr
Ozone	µg/m <sup>3</sup>	fixed and rolling	1 hr, 8 hr
Nitrogen dioxide	µg/m <sup>3</sup>	fixed and rolling	1 hr, 24 hr
Lead	µg/m <sup>3</sup>	fixed and rolling	3 month
Fluoride	µg/m <sup>3</sup>	fixed and rolling	various (veg effects)
Hydrogen sulphide	µg/m <sup>3</sup>	fixed and rolling	30 min (odour effects)

# Recommendation 18

## Calculating Averaging Data

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- One hour averages (fixed and moving)
- Eight-hour averages (moving)  
(for carbon monoxide and ozone)
- 24-hour averages (fixed and moving)  
(for PM10, sulphur dioxide, nitrogen dioxide and NMHC)
- Monthly, annual or any other period

# Recommendation 19

## Reporting Guideline Exceedences

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- Report every hour where there is an exceedence
- Where appropriate, exceedences should be reported as “number of times the guideline was exceeded on number of days per year”
- Clearly state method for calculating exceedences