QUALITY ASSURANCE PROJECT PLAN (QAPjP) and QA Report for Pacific 2001

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Date:

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1. **Principal Investigator**
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2. **Team Members**
   Kathy Hayden, MSC; Maurice Watt, MSC

3. **Measurement Program**
   NOy

4. **Measurement Species and Units**
   NOy, ppbv

5. **Representative Size Range (if PM)**
   N/A

6. **Measurement Platform (surface, airborne)**
   Surface, estimated 5 m above ground by trailer on tower

7. **Measurement Sites (surface only)**
   Langley, Slocan Park

8. **Measurement Objective(s)**

9. **Measurement Details**

   9.1. Field Measurements

   9.1.1. Measurement Principle
   chemiluminescence with nitrogen oxide conversion to NO through either a Au/CO system or on molybdenum.

   9.1.2. Instrumentation (Manufacturer/Model)
   TECO 42S

   9.1.3. Flow System
   Main sample flow produced by an external pump.

   9.1.4. Inlet Height Above Ground (if surface)
   5 m above the ground on tower near trailer.

   9.1.5. Nominal Flow Rate
   Total ambient inlet flow: 1 LPM

   9.1.6. Flow Measurement/Control
   The ambient flow is controlled by a capillary.

9.1.7. Flow Temperature and Pressure

9.1.8. Sampling Times/Period/Frequency
1 minute averaging period

9.1.9. Sampling Methods
N/A

9.1.10. Filter Type/Coating Type/Reagent Type
N/A

9.1.11. Planned Changes to Instruments or Methods During Study
none

9.2. Laboratory Measurements (If Applicable)

9.2.1. Laboratory Name and Address
N/A

9.2.2. Analytical Method(s)
N/A

9.2.3. Sample Extraction or Work-up
N/A

9.2.4. Analytical Detection Limits
N/A

10. Quality Assurance/Quality Control

10.1. Field Quality Assurance/Quality Control

10.1.1. Traceability
NOy will be calibrated for NO using a NIST-referenced NO standard.

10.1.2. Calibration
Daily calibrations will be performed for about 1 hour using the NO transfer standard (referenced to NIST). The daily calibration factors will be applied to the data set probably using an interpolation method.

10.1.3. Zeros and spans
Instrument zeros are automatically processed internally. Zero air will be run through the system daily as part of the calibration routine.

10.1.4. Blanks
N/A

10.1.5. Field Quality Control procedures

The display panel will be checked daily to ensure that the instrument is reading correctly. The calibration data will be checked periodically in the field.

10.1.6. Precision determination

N/A

10.1.7. Comparison with other measurements

N/A

10.1.8. Inspections and Audits

N/A

10.2. Laboratory Quality Assurance/Quality Control

10.2.1. Traceability

N/A

10.2.2. Calibration procedures

N/A

10.2.3. Blanks

N/A

10.2.4. Other lab QC

N/A

10.2.5. Precision determination

N/A

10.2.6. Comparison with other methods

N/A

10.2.7. Audits

N/A

11. Data Management and Quality Control

11.1. Raw Data Recording

Voltages will be collected on a computerized data acquisition system averaged over 1 minute.

11.2. Final Data Reporting

1 minute averaged data will be reported.

11.3. Data Quality Control and Validation

Data values will be flagged as either Valid (V) or Invalid (I). Raw data will be inspected and all instrument and power failures, zero, span and calibration period will be flagged as invalid. Calibration factors will be applied, probably interpolated from the daily calibrations.

11.4. Validity Flags

V0 valid value
V1 valid value, but qualified because of possible contamination (eg. pollution source, laboratory contamination source)
M1 missing value because no value available
M2 missing value because invalidated by data originator

11.5. Below Method Detection Limit Values

N/A

11.6. Derived Parameters

N/A

11.7. Explanation of Zero or Negative Data

N/A

12. Data Quality Objectives (Pre-Study)

12.1. Accuracy

<10%

12.2. Precision

N/A

12.3. Comparability

N/A

12.4. Representativeness

The measurements at the Slocan Park site will be representative of the typical urban/suburban pollution mix that is photochemically processed only minimally. The measurements at the Langley site will be representative of processed air pollution in which secondary pollutants will have formed.

12.5. Completeness

Objective = 100%. Excluding periods of instrument failure, power failure, zero and span readings, calibrations and on-site motor vehicle interference.

12.6. Other Quality Information

End of Pre-Study QAPjP