



Remote Air Pollution Infrared Detector Trial

Purpose

The Department of Environment Regulation (DER) has acquired a Remote Air Pollution Infrared Detector (RAPID) which is undergoing 12 months of field trials in the Perth Metropolitan region to determine its suitability for air quality investigations.

Introduction

The RAPID provides the capability of detecting over 80 air toxics compounds through the use of an infrared detector at a distance of up to 5 km. The unit has a sensor which rotates through a full 360 degrees and scans the air for air toxics. A video camera is integrated within the scanner to record observations during operation.



Figure 1 RAPID with vehicle mounting.

The RAPID is hardened for field operations and suitable for vehicle mounting for mobile applications.

The RAPID detects the infrared signal from the temperature difference between a

source plume and the surrounding air and therefore does not emit any form of radiation. It operates essentially by taking and analysing an infrared photograph of the plume's molecular components.

The system uses a Fourier Transform Infrared method similar to the Open Path Infrared (OP-FTIR) Spectrometer successfully used in recent air quality studies in Midland and Kwinana.

Table 1 Partial list of substances detected

1,1,1-Trichloroethane	Chlorobenzene
1,1,2-Trichloroethane	Ethylbenzene
n-Propanol	Hydrogen Cyanide
Acetone	o-Xylene
Acetylene	Phenol
Ammonia	Sulfur dioxide
Benzene	Toluene

Power requirements for the RAPID are minimal at only 100 Watts at 20–35 Volts which allows ease of operation from a vehicle with an appropriate battery supply.

Trial Procedure

As part of this trial, the transporting vehicle will have the RAPID firmly mounted on its roof and, during its operation, will be parked safely away from any public roads for between two to six hours. The unit may, however, be moved from time to time during this period depending on the suitability of the site and the quality of any data collected.

Two DER officers will operate the RAPID during this 12 month trial phase. It is DER's intention to deploy the RAPID once or twice per month over the trial period.

This trial will enable DER to gain technical proficiency in the operation of the RAPID and assess its suitability for future use.

More Information

For advice on the trial, or related matters, please contact DER Air Quality Services on 6467 5000.

This document is available in alternative formats and other languages on request.

Related Documents

Additional publications about Air Quality are available online at www.der.wa.gov.au/airquality, or can be requested by phoning 6467 5000.

Legislation

This document is provided for guidance only. It should not be relied upon to address every aspect of the relevant legislation. Please refer to the State Law Publisher (SLP) for copies of the relevant legislation, available electronically from the SLP website at www.slp.wa.gov.au.

Document Versions

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