

BRIEF ON AIR QUALITY DATA COLLECTED FROM THE ENVIRONMENTAL MANAGEMENT AUTHORITY'S POINT LISAS MONITORING STATION

The EMA Air monitoring shelter located at the car park of the Point Lisas Industrial Port Development Corporation Limited (Plipdeco), Point Lisas Industrial Estate, Couva, Trinidad, West Indies continuously monitors the following emissions:

<u>Parameter</u>	<u>Instrument</u>	<u>Method</u>
SO₂	Teledyne / API (TAPI) Model 100E UV Fluorescence analyzer	USEPA – EQSA-0495-100
NO,NO₂ and NO_x	TAPI Model 200E Chemiluminescence analyzer	USEPA-RFNA-1194-099
CO	TAPI Model 300E - Gas Filter Correlation (IR Absorption) analyzer	USEPA-EQQA-0992-087
O₃	TAPI Model 400E – UV Absorption O3 Analyzer	USEPA-EQQA-0992-087
PM-10	Thermo Environmental Beta Gauge with PM-10 Impactor -	USEPA EQPM-0990-076
Meteorological Station	Met-One Precision instruments	N/A

The individual instruments were sourced by ROSE Environmental Co. Ltd, from Teledyne Instruments located at San Diego, USA and from Thermo Environmental, Met One and ESC-Agilair. All instruments are designed to meet the requirements of the United States Environmental Protection Agency (USEPA) standards (with certified equivalent reference numbers e.g. USEPA-EQQA- 0992-087). The monitoring system was integrated by Teledyne API and commissioned by ROSE Environmental Ltd. in 1994.

Validity of data ensures that the data collected is accurately represented. It implies reliability (accuracy). Reliability is the consistency of your measurement, or the degree

to which an instrument measures the same way each time it is used under the same condition with the same subjects. In short, it is the repeatability of your measurement. As recommended, instruments are calibrated with USEPA standard calibration gas every three (3) months. That is, each instrument is fed “span gas” and “zero air” and is calibrated. “Span gas” is a gas with known concentration and “zero air” is atmospheric air purified to contain less than 0.1 ppm total hydrocarbons. The analyzers are automatically fed with “zero air” and with calibration “span gas” (usually at a concentration of about 0.9 of the full scale range of the instrument) every 24 hours and this is logged. This trend is used to check the health of the analyzers and the validity of the data collected every 24 hours.

The USEPA specified standards for calibration of the analyzers are

- **A+** where Cal zero is ± 3 ppb of Zero and Cal Span 3% of Target and
- **C Calibration guarantee of acceptable data** where Cal zero ± 6 ppb of Zero and Cal Span 10% of target.

To date the shelter has A+ calibration standards

The gases used to calibrate the instruments are USEPA certified (and has an expiry date) as a result, certified gases used for calibrations ensure validity of data. The US EPA calibration gases are diluted to the required concentrations using a Teledyne API Model 700 Dynamic Calibrator, by precisely mixing the correct ratios of calibration gas and Zero Air from the system’s Zero Air Generator. The model 700 is also equipped with an ozone generator and a photometer to generate precise concentrations of Ozone span gas needed for the calibration and verification of the Model 400 Ozone analyzer.

The test parameters of each analyzer are periodically checked (every two weeks) to determine if there are any deviations from the expected values. These records are compiled on the Data Management Software – EDAS Ambient. One can access this data and generate reports and graphs to determine the performance of the analyzers. If there are deviations from the expected values, a warning light appears on the front

panel of the equipment; this can be easily rectified. Technicians have access to Teledyne's technical support via telephone and all queries are quickly rectified.

Linearity checks are periodically done for each analyzer, where known concentrations of gas were delivered to the analyzer and the values obtained are plotted against expected values. Each analyzer shows acceptable linearity graphs with minimal standard deviations. Graphs and data are stored on the PC at the shelter and can be accessed only at the shelter, or remotely by polling the data-logger through a dial in modem connection. The functionality also exists to connect to the logger via its ethernet port via the internet. Leak checks are also conducted frequently to ensure that the pneumatic system is running leak free and without obstructions.

All equipment at the shelter undergoes a meticulous schedule of house cleaning and quality control checks that ensures that they are working according to manufacturer's specifications.

LOCATION OF UNIT



GPS COORDINATES

UTM coordinates for zone 20P referencing, 1984 geodetic datum

Air Monitoring Shelter - 0666978mE; 1151815 mN

PARAMETERS MEASURED TABLE

Parameter	Unit measured
SO ₂	ppb
NO/NO ₂	ppb
O ₃	ppb
CO	ppm
PM10	µg/m ³
Wind speed	m/s
Wind direction	degrees
Temperature	°C
Rainfall	mm
Solar Radiation	W/m ²
Relative Humidity	%
Pressure	mm Hg

Please note "999" values represent instances of calibration.

For further information or to access Air Quality data, requests can be addressed to:

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