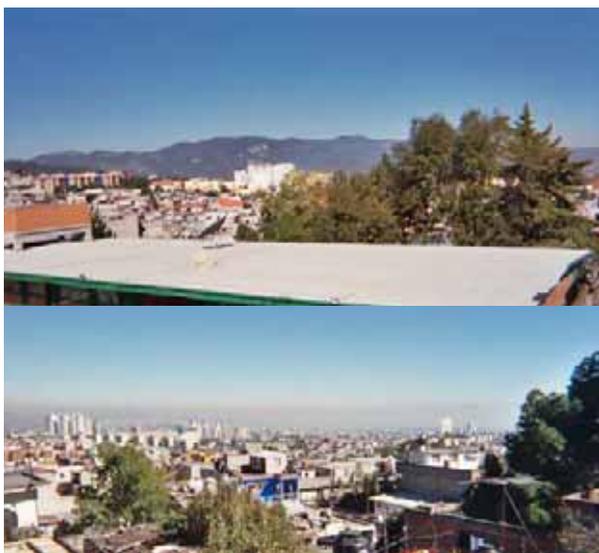


# **Report from the Performance Audit of the Mexico City Ambient Air Monitoring Network**



**Conducted through the remote audit system, 2005**

**By**

**The United States Environmental Protection Agency (USEPA)  
Office of Air Quality Planning and Standards (OAQPS)**

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Mark Shanis  
Environmental Scientist  
USEPA OAQPS

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Matthew Witosky  
International Environmental Officer  
USEPA OIA

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V́ctor Hugo Páramo Figueroa, Director General Air Management  
Rafael Ramos Villegas, Director of the Air Monitoring Network  
Armando Retama Hernández, Sub-Director for Monitoring

Phil Lorang, Monitoring and Quality Assurance Group Leader, USEPA OAQPS

Janie Peele, Senior Environmental Employee (SEE), USEPA OAQPS

## Table of Contents

I.	Executive Summary	5
II.	Introduction	6
III.	Background	6
A.	Secretaría del Medio Ambiente del Gobierno del Distrito Federal (GDF)	6
B.	Secretariat of the Environment and Natural Resources (SEMARNAT)	7
C.	US Environmental Protection Agency (USEPA)	7
1.	Office of Air Quality Planning and Standards (OAQPS)	7
D.	USEPA Ambient Air Monitoring Program Audits	8
1.	USEPA Performance Audits and the National Performance Audit Program (NPAP)	8
2.	Technical System Audits (TSAs) and Management System Reviews (MSRs)	10
E.	History of Audits of Mexico City's Air Monitoring Program	10
IV.	Performance Audit Results	14
A.	Audits conducted in 2005 by USEPA	15
1.	Ozone (O <sub>3</sub> )	15
2.	Nitric Oxide (NO)	15
3.	Nitrogen Dioxide (NO <sub>2</sub> )	15
4.	Carbon Monoxide (CO)	16
5.	Sulfur Dioxide (SO <sub>2</sub> )	16
B.	Comparison to audit conducted in 2004 by the USEPA	16
C.	Evaluation	17
1.	Ozone (O <sub>3</sub> )	17
2.	Nitric Oxide (NO)	17
3.	Nitrogen Dioxide (NO <sub>2</sub> )	17
4.	Carbon Monoxide (CO)	17
5.	Sulfur Dioxide (SO <sub>2</sub> )	17
V.	System Evaluation	17

**VI. CY 2005 Audit Conclusion -----18**

**Tables**

**Table 1 Mexico City's Atmospheric Monitoring System ----- 12**  
**Automatic Ambient Air Monitoring Network Stations**

**Figures**

**Figure 1 Mexico City's Atmospheric Monitoring System ----- 13**  
**Automatic Ambient Air Monitoring Network Map**

**Figure 2 Ozone Mean Absolute Percent Difference ----- 19**

**Figure 3 Carbon Monoxide Mean Absolute Percent Difference ----- 19**

**Figure 4 Nitric Oxide Mean Absolute Percent Difference ----- 20**

**Figure 5 Nitrogen Dioxide Mean Absolute Percent Difference ----- 20**

**Figure 6 Sulfur Dioxide Mean Absolute Percent Difference ----- 21**

**Appendices**

**Appendix A Federal District Reporting Forms**

**Appendix B NPAP Individual Monitor Audit Results**

## **I. Executive Summary**

The United States Environmental Protection Agency (USEPA) was requested by the Environmental Secretariat of the Government of the Federal District (*Secretaría del Medio Ambiente del Gobierno del Distrito Federal* (GDF)) and the Pan American Health Organization (PAHO) to support the GDF in conducting performance audits of the Mexico City ambient air monitoring network. The USEPA Office of Air Quality Planning and Standards (OAQPS) conducted the last performance audit, which also highlighted system findings, in November 2003. Follow-up audits were also conducted by GDF auditors. Prior to this, audits were performed as an adjunct to a research program in Mexico City by the USEPA Office of Research and Development (ORD).

This report details performance audits conducted using the USEPA National Performance Audit Program (NPAP) audit system. The NPAP utilizes transportable audit equipment that is designed to deliver test concentrations that are unknown to the air monitoring equipment audited. Seventeen monitoring stations and the reference air monitors located at the GDF laboratory were audited by GDF staff. Three of these stations and the laboratory monitors were re-audited by the GDF.

Based on a systematic assessment of all the individual monitors audited, the monitoring system provides accurate results for Ozone (O<sub>3</sub>) and Carbon Monoxide (CO), and the potential for system improvements should be explored for Nitrogen Dioxide (NO<sub>2</sub>) and Sulfur Dioxide (SO<sub>2</sub>) monitoring. The Ozone audit data were of good quality with a slight positive bias. The Ozone audit results were of similar precision to the audits conducted in 2003. Nitrogen Dioxide results reflected a significant low bias and poor precision across all audit levels. Nitrogen Dioxide was not evaluated in 2003. Because Nitrogen Dioxide audits are more complex to implement it is possible that part of the imprecision and bias observed reflects problems with audit system implementation. The Carbon Monoxide audit results are consistent with the audits performed in 2003. Sulfur Dioxide audits indicate that there is potential for significant imprecision at low concentrations. The SO<sub>2</sub> results reflect an improvement in bias and an erosion in precision since the 2003 audits, with overall accuracy being similar to 2003. The ultimate result of these performance audits indicates that the GDF monitoring system is operating satisfactorily, while indicating potential need to improve the Nitrogen Dioxide and Sulfur Dioxide monitoring systems.

USEPA would like to thank the GDF for its cooperation, innovation, and forward thinking<sup>1</sup>.

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<sup>1</sup> Forward thinking programs are proactive, progressive programs which are often of better quality than reactive, conservative programs. This is because they look for potential problems before they occur and take preventive action, rather than waiting for them to happen and then reacting, which is more expensive and usually much less effective.

## **II. Introduction**

The USEPA provided performance audit support to the GDF for audits completed in April 2005. This report details the results of these audits and recommendations from the USEPA to the GDF.

The air monitoring performance audit support provided by USEPA to the GDF is the same type of support provided by USEPA to State, Local, and Tribal monitoring networks in the United States. The monitoring results for individual air monitors have been evaluated and scored in exactly the same manner as done for monitoring networks overseen by USEPA. Some additional analysis of the pooled data has been conducted by USEPA to assist the GDF in identifying areas for improvement and data quality trends.

The authors of this report are committed to providing technical feedback, upon reasonable request, to assist the GDF in making improvements to the Atmospheric Monitoring System (*Sistema de Monitoreo Atmosférico* (SIMAT)).

## **III. Background**

This section provides background on the organizations and procedures used during this audit. The reader who is familiar with these may want to skip to Subsection E which summarizes previous audits of the GDF.

### **A. Secretaría del Medio Ambiente del Gobierno del Distrito Federal (GDF)**

The Secretariat of the Environment of the Federal District Government (*Secretaría del Medio Ambiente del Gobierno del Distrito Federal*) is responsible for environmental policies and programs, including implementing local and federal laws, in the Mexico City metropolitan area (Federal District and adjoined municipalities in the State of Mexico). The GDF became the primary organization responsible for ambient air monitoring in the Mexico City area in 1993 when the automatic ambient air monitoring network (RAMA) was transferred to the DF.

Prior to the early 1970's, air quality monitoring in Mexico City was part of the Normalized Pan American Sampling Network (*Red Panamericana de Muestreo Normalizado*). In 1971, Mexico passed the Law for Preventing and Controlling Environmental Contamination, (*Ley para Prevenir y Controlar la Contaminación Ambiental*). In 1972 the Subsecretary for Environmental Improvement ( Subsecretaría de Mejoramiento del Ambiente) was created under the Secretary of Health. These events led to the creation of a 48 station National monitoring network, with 22 of these stations being in the Mexico City air basin.

Currently the Mexico City Atmospheric Monitoring System (SIMAT) consists of 54 monitoring stations, a support laboratory, an environmental information center, and an information technology support center. Monitoring is further segregated into an Automatic Monitoring Network (RAMA) (see Figure 1 and Table 1), a Manual Particulate Monitoring Network, an Atmospheric Deposition Network, and a Meteorological Network. With the support of the environmental information center and the information technology support center, monitoring data are translated daily and hourly into the Metropolitan Area Air Quality Index (*Indice Metropolitano de la Calidad del Aire* (IMECA)). The IMECA is widely distributed to public and private sector organizations in the Mexico City area to assist in making public health decisions.

## **B. Secretariat of the Environment and Natural Resources (SEMARNAT)**

The Secretariat of the Environment and Natural Resources (*Secretaría de Medio Ambiente y Recursos Naturales* (SEMARNAT)) is the primary federal agency responsible for environmental protection in the Country of Mexico. The Subsecretary of Environmental Protection Management (*Subsecretaria de Gestión para la Protección Ambiental*) is the SEMARNAT organizational unit primarily responsible for environmental quality. However, the National Institute of Ecology (*Instituto Nacional de Ecología* (INE)) provides technical and research support for environmental issues (including monitoring).

## **C. US Environmental Protection Agency (USEPA)**

The USEPA has been given the role of “*protecting human health and the environment*” in the United States and its territories and possessions. The USEPA’s authority to regulate ambient air emissions is derived from the US Clean Air Act (CAA). USEPA’s responsibility, under the Clean Air Act (CAA) as amended in 1990, includes: setting National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to the public health and environment; ensuring that these air quality standards are met or attained (in cooperation with States) through national standards and strategies to control air emissions from sources; and ensuring that sources of toxic air pollutants are well controlled.

### **1. Office of Air Quality Planning and Standards (OAQPS)**

USEPA’s air programs are managed by the Office of Air and Radiation (OAR) of which OAQPS is a part. The Role of OAQPS as defined by the *Quality Assurance Handbook for Air Pollution Measurement Systems (Redbook)*, 1998, is:

*OAQPS is the organization charged under the authority of the CAA to protect and enhance the quality of the nation’s air resources. OAQPS*

*sets standards for pollutants considered harmful to public health or welfare and, in cooperation with USEPA's Regional Offices and the States, enforces compliance with the standards through state implementation plans (SIPs) and regulations controlling emissions from stationary sources. OAQPS evaluates the need to regulate potential air pollutants and develops national standards; works with State and local agencies to develop plans for meeting these standards; monitors national air quality trends and maintains a database of information on air pollution and controls; provides technical guidance and training on air pollution control strategies; and monitors compliance with air pollution standards.*

The specific monitoring responsibilities of OAQPS are to:

- *ensure that the methods and procedures used in making air pollution measurements are adequate to meet the programs objectives and that the resulting data are of satisfactory quality*
- *operate the National Performance Audit Program (NPAP)*
- *evaluate the performance of organizations making air pollution measurements of importance to the regulatory process*
- *implement satisfactory quality assurance programs over USEPA's Ambient Air Quality Monitoring Network*
- *ensure that guidance pertaining to the quality assurance aspects of the Ambient Air Program are written and revised as necessary*
- *render technical assistance to the USEPA Regional Offices and air pollution monitoring community*

#### **D. USEPA Ambient Air Monitoring Program Audits**

##### **1. USEPA Performance Audits and the National Performance Audit Program (NPAP)**

Performance audits are intended to independently evaluate the performance of the audited agency's training, site operators, monitoring equipment, calibration equipment, standards, and all operating, calibration, maintenance, quality assurance, quality control, and data processing procedures, including calculation, transfer, and reporting. The most rigorous performance audits would involve independent audit equipment, an independent auditor, and unknown audit concentrations being delivered in a representative air matrix through the inlet of the probe. USEPA uses a system which incorporates many of these concepts to produce robust audit data. On a routine basis, monitoring organizations perform audits using an internal, yet independent, auditor(s) and independent equipment. Gaseous pollutant audits may be accomplished by either adding

challenge gases directly to the instruments or through the inlet of the sampling probe, the preferred method. To supplement these audits USEPA uses a mail-out system called the National Performance Audit Program (NPAP). The NPAP utilizes transportable audit equipment that is designed to deliver audit concentrations that are “blind” (unknown) through the back of the instruments audited. It is advantageous for the monitoring agency to use independent auditors to perform these audits. More recently USEPA has developed a “through the probe” (TTP) audit program. This program utilizes independent (USEPA staff or contractors) auditors using a vehicle equipped to perform audits through the sampling probe. This TTP system has the advantage, over the initial NPAP, of testing the whole sampling system using independent staff and giving real time results. The concentration of audit gas used in the TTP system is not blind to the auditor, but is still blind to the station operator.

The mailed NPAP audits are conducted using auditing equipment that has been demonstrated reliable when transported by commercial freight shipping and verifiable. The audit devices are shipped in rugged cases containing rigid molded vibration insulation. The cases include a continuous zero air generation system (which includes a pump and three different scrubbing cartridges), a US National Institute of Standards and Technology (NIST) traceable gas standard cylinder, and/or an Ozone generator, and an adjustable mixing and dilution system. The equipment is certified and sent to the auditing agency by a USEPA support contractor. Independence is preserved, even for the audit equipment operator. The support contractor provides audit-specific instructions with the devices that tell the audit operator what settings to use for each audit test point, but not what concentrations the settings will generate, and not how to calculate the concentrations with the data that the auditor or station operator has. The devices are NIST-traceably certified by the audit support contractor to audit at three concentrations as well as to evaluate the instrument’s zero.

The results of the NPAP audit are assessed by USEPA’s NPAP support contractor. This assessment includes verification that the audit devices are functioning properly both before their initial shipment to the audited agency and upon return. The audited agency’s data are evaluated based on percent difference from the audit concentrations. The acceptance criterion for gaseous pollutants is 15% mean absolute difference and 15% for each concentration of each pollutant at each monitoring site. Monitors that exceed this criterion clearly require corrective action. Monitoring agencies should also assess the need for systematic changes. Also reported are the results for individual audit concentrations, linearity, and blank evaluations. This additional information should be considered by agencies when evaluating the

need for corrective action and/or for their quality improvement process.

## **2. Technical System Audits (TSAs) and Management System Reviews (MSRs)**

Technical System Audits (TSAs) and Management System Reviews (MSRs) are reviews intended to evaluate how well the established quality system is working. These types of audits can be performed by independent internal or external auditors.

Technical System Audits, as the name implies, are technical in nature. They are used to verify that appropriate technical and quality control procedures have been established and are being followed. For air monitoring organizations, some areas which are audited include:

- written procedures
- documentation
- monitoring network design
- site appropriateness/siting requirements
- instrument operation
- laboratory procedures
- sample/data custody
- data handling systems
- data processing and calculation
- quality control
- performance audit system

Management System Reviews are evaluations of how the QA program is working. These audits evaluate the overall quality system and do not effectively identify technical defects with the system. MSRs include the evaluation of:

- organizational structure
- quality policy
- quality manager empowerment and effectiveness
- quality documentation
- corrective actions
- training and qualifications of staff
- commitment to quality by management and staff
- overall effectiveness of the quality system

## **E. History of Audits of Mexico City's Air Monitoring Program**

USEPA and Mexico City have worked to improve the quality of the monitoring system in Mexico City since before 2001. Staff from the USEPA ORD provided periodic performance audits of the Mexico City's air

monitoring network prior to 2001. An audit was conducted in October of 2000, and evaluated the performance for 14 monitoring stations. Additionally a “mini” system audit was conducted in 2000, which formed the basis for improvements that the City has since made. In late 2003 a more thorough performance and system audit was performed. The final report was released in 2004, the predecessor report to this current report. This 2005 report does not include a system audit; rather this report focuses exclusively on the performance of the system under remote audit conditions.

**Table 1**

Mexico City's Atmospheric Monitoring System  
Automatic Ambient Air Monitoring Network Stations

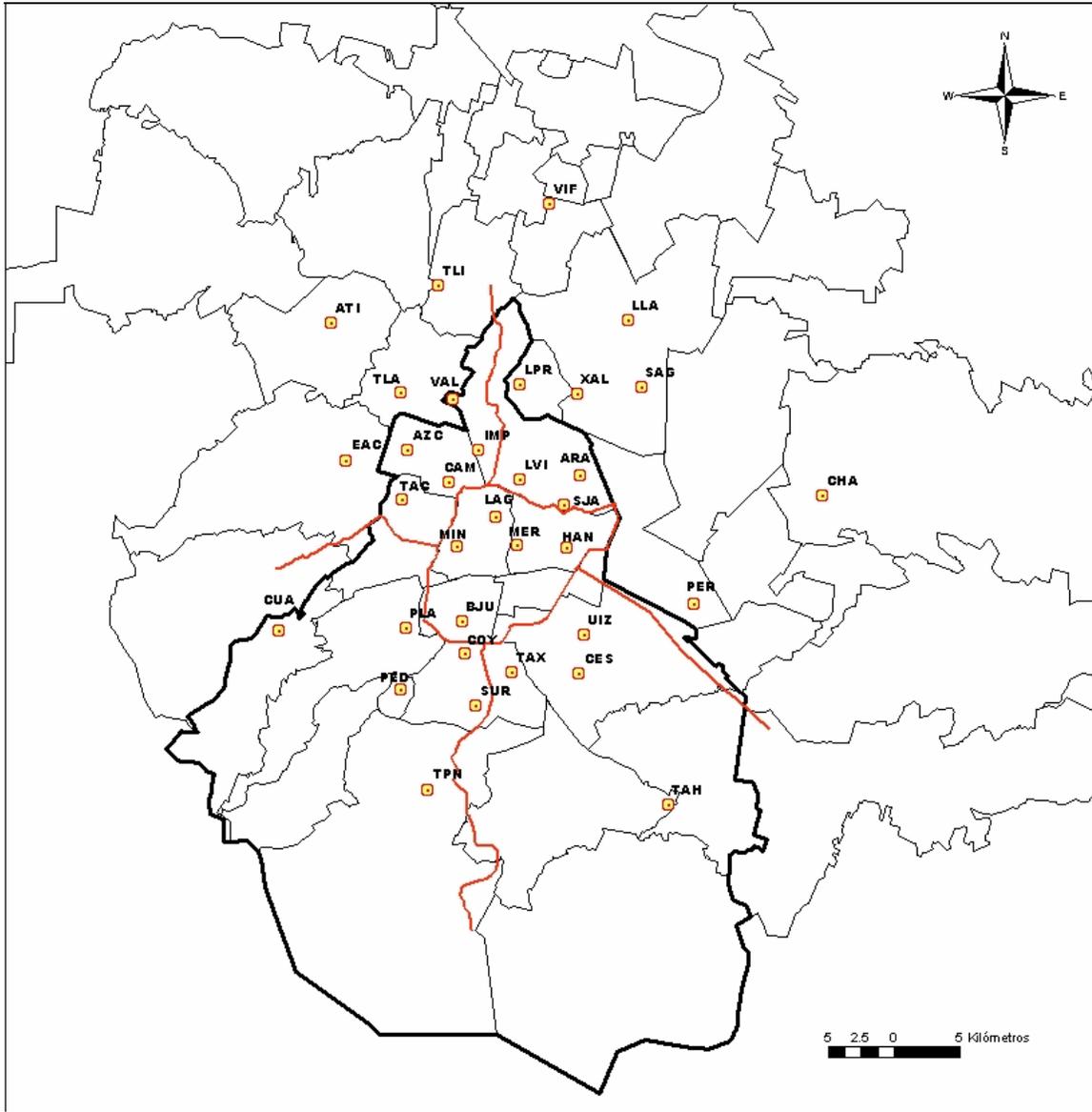
## Actual Instrumentation

Zone	Station Name	Initials	O <sub>3</sub>	CO	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Northwest	Vallejo	VAL						
	Tacuba	TAC						
	ENEP Acatlán	EAC						
	Azcapotzalco	AZC						
	Tlalnepantla	TLA						
	I. M. P.	IMP						
	Tultitlán	TLI						
	Atizapán	ATI						
	Cuitlahuac	CUI						
	Camarones	CAM						
Northeast	Los Laureles	LLA						
	La Presa	LPR						
	La Villa	LVI						
	San Agustín	SAG						
	Xalostoc	XAL						
	Aragón	ARA						
	Nezahualcoyotl	NET						
	Villa de las Flores	VIF						
	Chapingo	CHA						
	Perla Reforma	PER						
	San Juan de Aragón	SJA						
Center	Lagunilla	LAG						
	Merced	MER						
	Hangars	HAN						
	Benito Juárez	BJU						
	Metro Insurgentes	MIN						
Southwest	Santa Ursula	SUR						
	Pedregal	PED						
	Plateros	PLA						
	Cuajimalpa	CUA						
	Tlalpan	TPN						
Southeast	Coyoacán	COY						
	Cerro de la Estrella	CES						
	UAM Iztapalapa	UIZ						
	Taxqueña	TAX						
	Tlahuac	TAH						

**Figure 1**

Mexico City's Atmospheric Monitoring System  
Automatic Ambient Air Monitoring Network Map

Actual Coverage



— Federal District Limits  
— Adjoined Municipalities in the State of Mexico

#### **IV. Performance Audit Results**

To evaluate the GDF's gaseous monitoring network, USEPA utilized NPAP audit devices. Five parameters were audited, Ozone (O<sub>3</sub>), Nitric Oxide (NO), Nitrogen Dioxide (NO<sub>2</sub>), Carbon Monoxide (CO), and Sulfur Dioxide (SO<sub>2</sub>). The 2005 audit included NO<sub>2</sub> analysis, rather than analyzing NO as being representative of NO<sub>x</sub>. A NPAP audit system including a dilution manifold, audit gas cylinder, ozone generator, and zero air generator was sent to Mexico City for use by GDF personnel in conducting the NPAP audits. The NPAP audit system was set up and calibrated for the audit prior to being sent to the GDF. Upon receiving the equipment, the GDF audit personnel conducted evaluations of their gaseous monitors. These evaluations were conducted "blind," meaning that GDF personnel were not informed of the concentrations they were delivering to their instruments. The results of the NPAP evaluations of each monitor was generated by GDF personnel and sent to USEPA. USEPA performed a statistical assessment of the accuracy the Federal District's monitoring devices, from which the quality of data the GDF is collecting was evaluated.

Each monitor was evaluated at three audit concentrations, and "zero air" was generated to confirm the instrument's baseline. These concentrations were used to determine the linearity of each instrument. Each individual concentration was then used to evaluate instrument performance for bias at high, medium, and low levels. At the conclusion of the tests, the mean absolute (MA) percent difference (%D) was calculated for the instrument by averaging the %D values for the three concentrations. The acceptance criterion for these individual tests was <15% MA %D.

Two deviations from the standard NPAP protocol occurred during this round of audits. The GDF did not use the zero air scrubber provided with the NPAP device substituting it with a GDF zero air scrubber. Additionally, insufficient pressure remained in the compressed gas cylinder to perform a post audit check of cylinder calibration. USEPA determined that these variances from the standard procedure are not expected to impact the quality of the audit data.

The results presented in Appendix B give percent difference (%D) for each audit point, blank results, linearity, and MA %D, as prepared by USEPA's NPAP support contractor. The audit result summary sections that follow note individual monitor exceedances of the 15 %D criterion for mean absolute difference.

USEPA also evaluated the potential for the network to have monitors outside of the 15% acceptance criterion (overall system performance). This was done by calculating the mean and the standard deviation of each audit concentration and of MA %Ds for each pollutant across all monitoring stations. This information was used to calculate the potential range of values which represent 96% of normally distributed data (two standard deviations from the mean). If this range exceeded the 15% criterion it is noted in the following sections.

These results were compared to the performance data collected using the NPAP devices in November and December of 2003. A summary of the MA %D data is also presented graphically in Figures 2 through 9. Each station audited is identified by acronym presented from Table 1.

#### **A. Audits conducted in 2005**

##### **1. Ozone (O<sub>3</sub>)**

USEPA evaluated the data from ozone monitor audits of sixteen monitoring locations. All ozone monitors were within the acceptable range. The mean absolute %Ds ranged from 2.4 at the Santa Ursula (SUR) to 11.8 at the Hangares (HAN) station. Additionally, when evaluating each audit concentration result across monitors, the 96% probability (average MA%D plus two standard deviations) was below the 15 %D criterion. These results are summarized in Figure 2.

##### **2. Nitric Oxide (NO)**

USEPA evaluated the nitric oxide data from oxides of nitrogen monitors at fifteen monitoring locations and at the GDF laboratory. The mean absolute %Ds ranged from 2.6 at the Santa Ursula (SUR) station to 31.1 at the Tacuba (TAC) station. Three of the audits exceeded the 15%D criterion acceptable limit; both audits of the Tacuba station and one of the laboratory monitor were outside the acceptable limit. Additionally, when evaluating each audit concentration result across monitors, the 96% probability was 25.3%, significantly above the 15 %D criterion. If the three exceeding audits are removed from the statistical evaluation the 96% probability is 15.0%. These results are summarized in Figure 4.

##### **3. Nitrogen Dioxide (NO<sub>2</sub>)**

USEPA evaluated the nitrogen dioxide data from oxides of nitrogen monitors at fifteen monitoring locations and at the GDF laboratory. The mean absolute %Ds ranged from 6.3 at the laboratory monitor to 28.1 at the Tacuba (TAC) station. Eight of the audits exceeded the 15%D criterion acceptable limit. Additionally, when evaluating each audit concentration result across monitors, the 96% probability was 25.3%, significantly above the 15 %D criterion. The average MA %D also exceeded the criterion at 15.3%. These results are summarized in Figure 5.

#### **4. Carbon Monoxide (CO)**

USEPA evaluated carbon monoxide data from fifteen monitoring locations and at the GDF laboratory. The mean absolute %Ds ranged from 2.3 at the Pedgreal (PED) Station to 11.4 at the Lagunilla (LAG) station. Additionally, when evaluating each audit concentration result across monitors, the 96% probability was 11.1%, which is consistent with the highest observed MA %D and within the 15 %D criterion. These results are summarized in Figure 3.

#### **5. Sulfur Dioxide (SO<sub>2</sub>)**

USEPA evaluated sulfur dioxide data from sixteen monitoring locations and the sulfur dioxide monitor at the GDF laboratory. The mean absolute %Ds ranged from 0.5 at the Hangares (HAN) station to 26.7 at the Merced (MER) station. The Xalostoc (XAL) and the Merced stations were outside the acceptable range at 22.0 and 26.7 MA %D, respectively. Additionally, when evaluating each audit concentration result across monitors, the 96% probability was 22.9%, significantly above the 15 %D criterion. If the two exceeding audits are removed from the statistical evaluation the 96% probability is 16.5%. These results are summarized in Figure 6.

### **B. Comparison to audit conducted in November 2003 by the USEPA**

The USEPA audit from 2003 found somewhat similar results. On both occasions the network's performance for ozone and carbon monoxide were within normal error tolerances supporting high quality monitoring data for the Mexico City air shed. Ozone data exhibited a slight high bias as compared to the 2003 audits. Carbon monoxide data was very similar for both rounds of audits with the bias observed shifting from slightly positive to slightly negative. As was the case for the previous audits, sulfur dioxide measurements exhibited acceptable accuracy at all concentrations except the lowest audit concentration, with an improvement in bias and a degradation of precision since the 2003 audit. The nitric oxide data also was similar with the exception of one site, Tacuba, which appeared to be an outlier. As with carbon monoxide the nitric oxide bias shifted from slightly positive to slightly negative. Nitrogen dioxide was not audited in 2003 so no comparison can be made.

## **C. Evaluation**

### **1. Ozone (O<sub>3</sub>)**

The audits conducted by the GDF using the USEPA audit system found a slight high bias in the monitors measured which was well within the expect method's error tolerance. Generally the ozone precision was good across all audit concentrations.

### **2. Nitric Oxide (NO)**

The nitric oxide audit data indicates the potential for a low bias. If the results from the Tacuba (TAC) site and the first test of the laboratory equipment are excluded from the statistical analysis the precision of the network appears to be good.

### **3. Nitrogen Dioxide (NO<sub>2</sub>)**

The nitrogen dioxide data exhibits a significant low bias across all stations (the first audit of the Tacuba site appears to be an anomaly). If the data from the first Tacuba and laboratory monitor audits are excluded the nitrogen dioxide precision is acceptable. Converter efficiency was evaluated for several audits and found to be acceptable. However, due to the NPAP audit procedure only the highest audit concentration can be adequately evaluated for converter efficiency.

### **4. Carbon Monoxide (CO)**

The carbon monoxide audit data indicates slight low bias, especially at the lowest concentration level. The precision of the carbon monoxide network is good.

### **5. Sulfur Dioxide (SO<sub>2</sub>)**

The sulfur dioxide audit data do not indicate any significant bias in the monitoring network. However, the sulfur dioxide precision is poor especially at the lowest audit concentration.

## **V. System Evaluation**

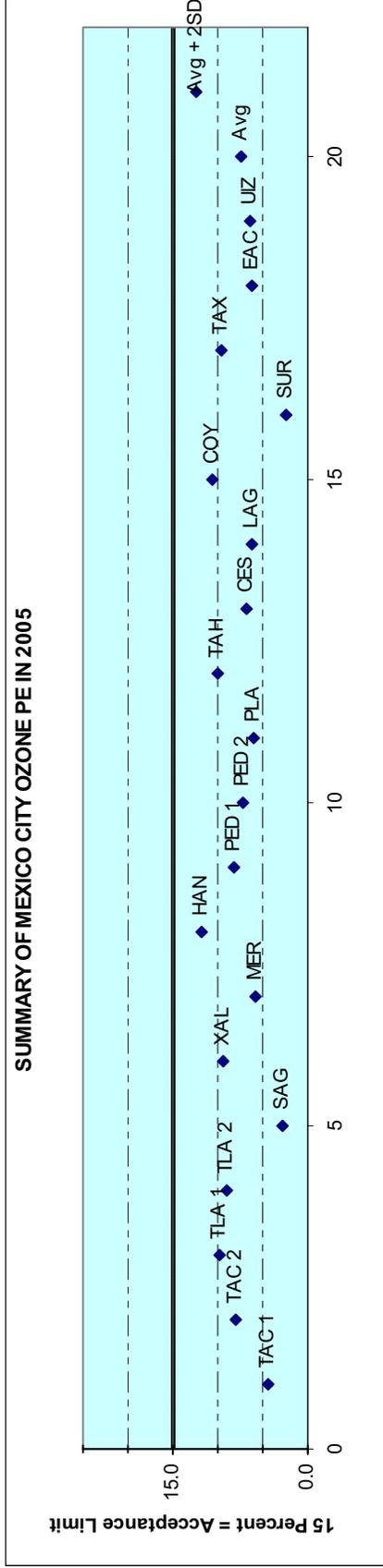
USEPA did not conduct a system evaluation at this time. A system evaluation requires an on-site visit to the facilities, the laboratory, and a close examination of the personnel during their operation of the equipment in the field and laboratory. USEPA

recommends that systems evaluations be conducted by an external party at least once every three years.

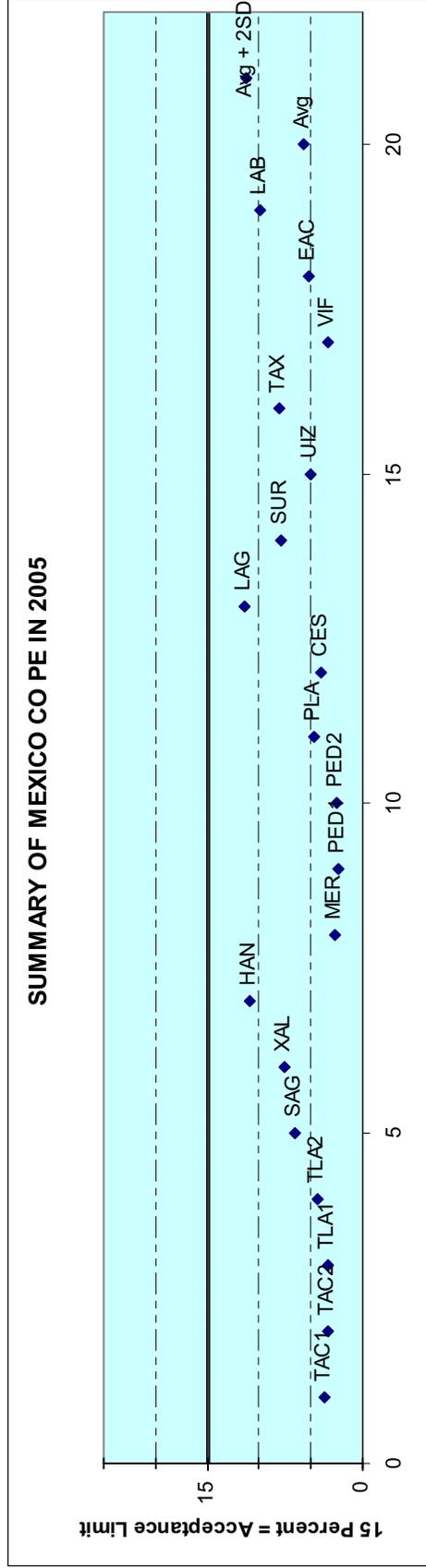
## **VI. CY 2005 Audit Conclusion**

The Mexico City ozone and carbon monoxide networks continue to operate within acceptable error tolerances. The sulfur dioxide network accuracy was slightly outside of expected error tolerance with the lowest concentration audited having the most imprecision. Given that the instruments and analysis have higher margins of error at low concentrations, this presents little risk of misinforming the public about public health issues. As the region works to further reduce sulfur emissions, the accuracy of the readings takes on greater significance in determining the sectors where sulfur reductions will most benefit air quality. The nitric oxide data indicated that the network was operating within acceptable limits with the exception of the monitor at the Tacuba (TAC) station. The nitrogen dioxide data indicated that network may have a significant low bias. The GDF may wish to further evaluate converter efficiency in light of the nitrogen dioxide results. Additionally it should be noted that because this is the first time GDF performed nitrogen dioxide audits using the NPAP devices, and the bias observed was more that of nitric oxide using the same instruments, this bias might be an artifact of the audit system and not representative of the Mexico City network.

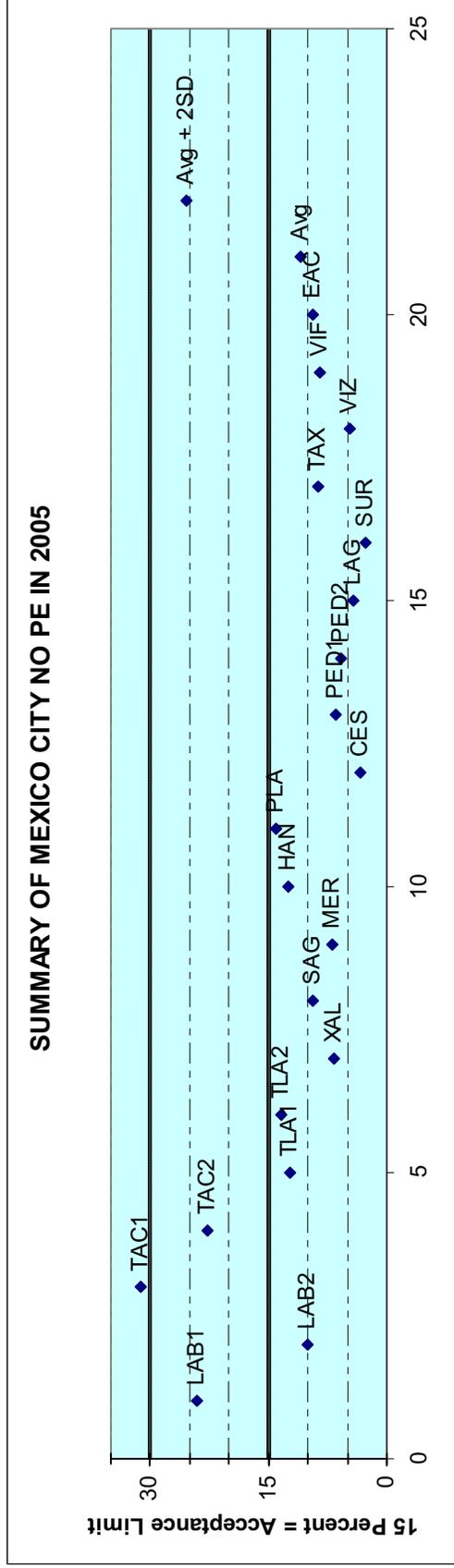
**Figure 2 Ozone Mean Absolute Percent Difference**



**Figure 3 Carbon Monoxide Mean Absolute Percent Difference**



**Figure 4 Nitric Oxide Mean Absolute Percent Difference**



**Figure 5 Nitrogen Dioxide Mean Absolute Percent Difference**

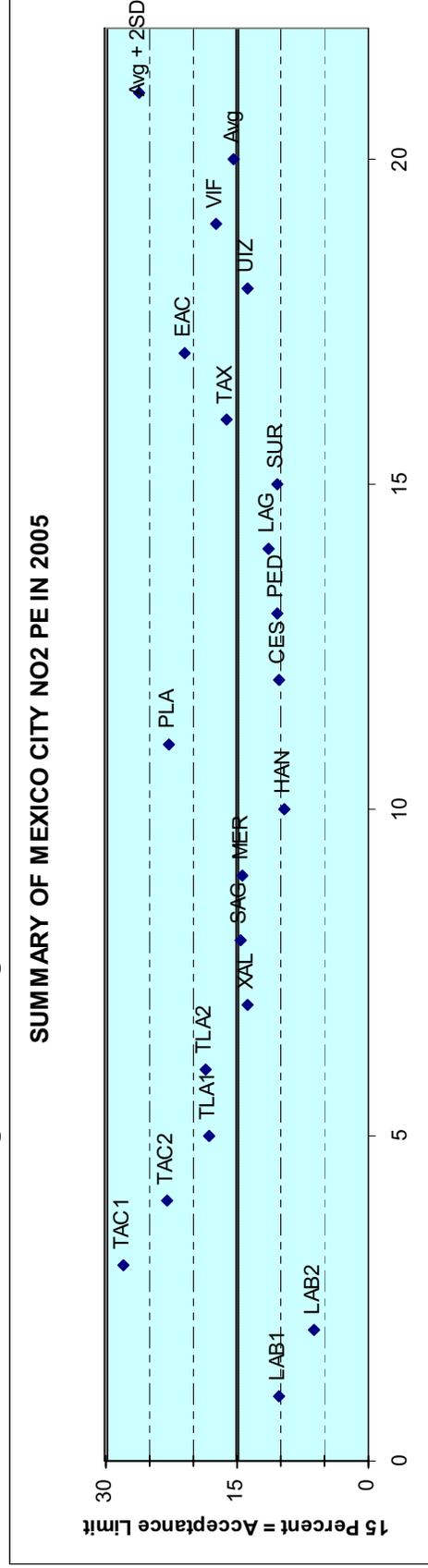
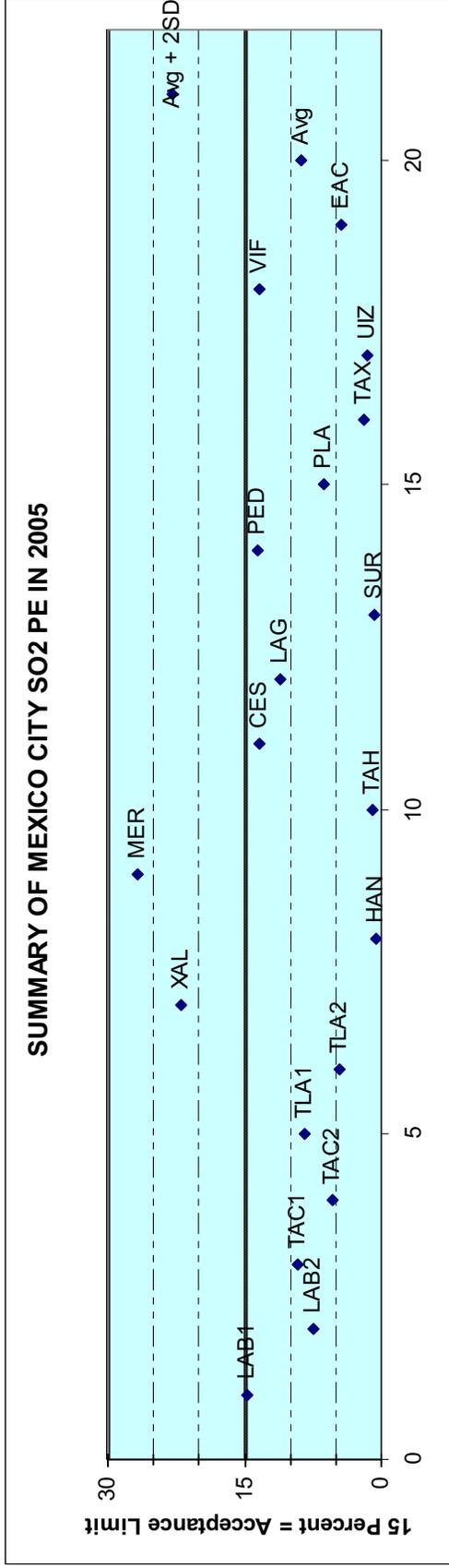


Figure 6 Sulfur Dioxide Mean Absolute Percent Difference





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Results of SO2 Continuous Audit  
for 1st Quarter 2005

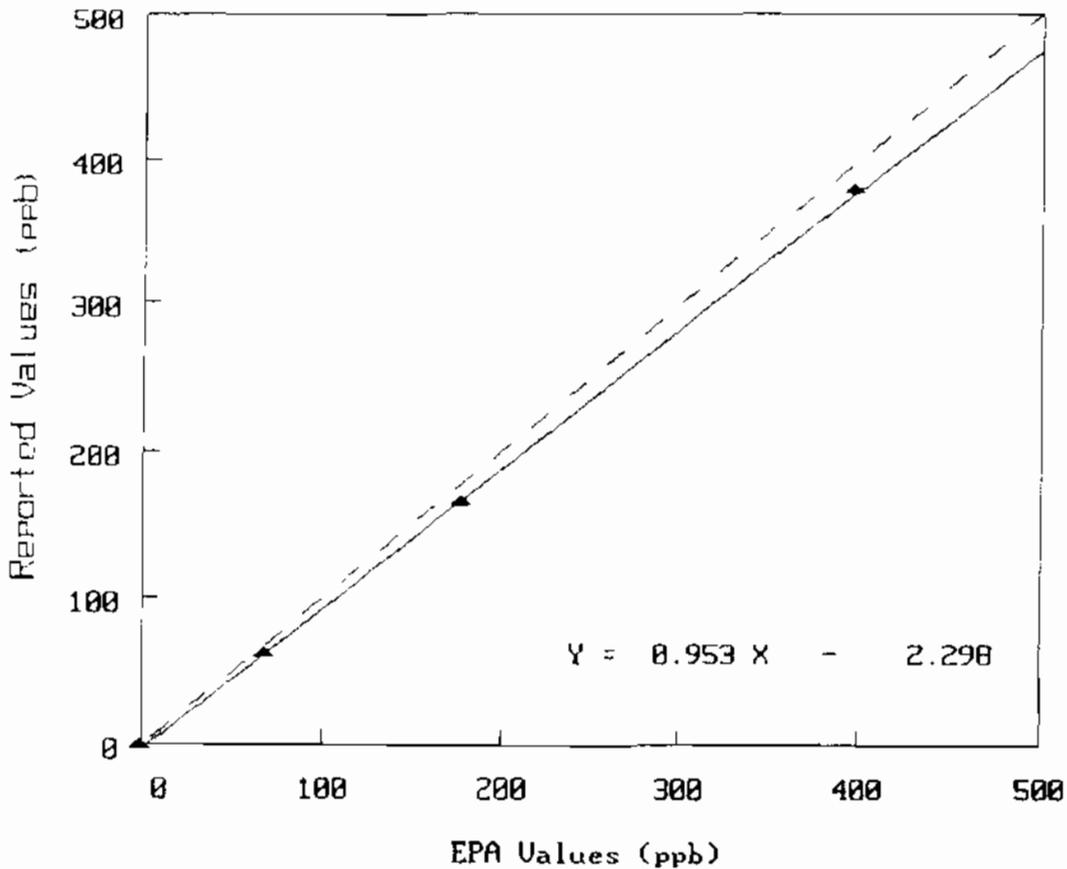
06/03/2005

7ME031                      0                      7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

Site Number:	Audit Date: 05/02/2005
Your Site ID: LAB	Cyl. No.: FF11036
Monitor Serial #: 1707	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	379.20	398.94	-19.74	-4.9
Med	165.10	178.57	-13.47	-7.5
Low	62.30	69.34	-7.04	-10.2
Zero	0.40	0.00	0.40	----
Mean Absolute % Difference =				7.5

Slope = 0.953                      Intercept = -2.298                      r<sup>2</sup> = 0.999772



Results of SO2 Continuous Audit  
for 1st Quarter 2005



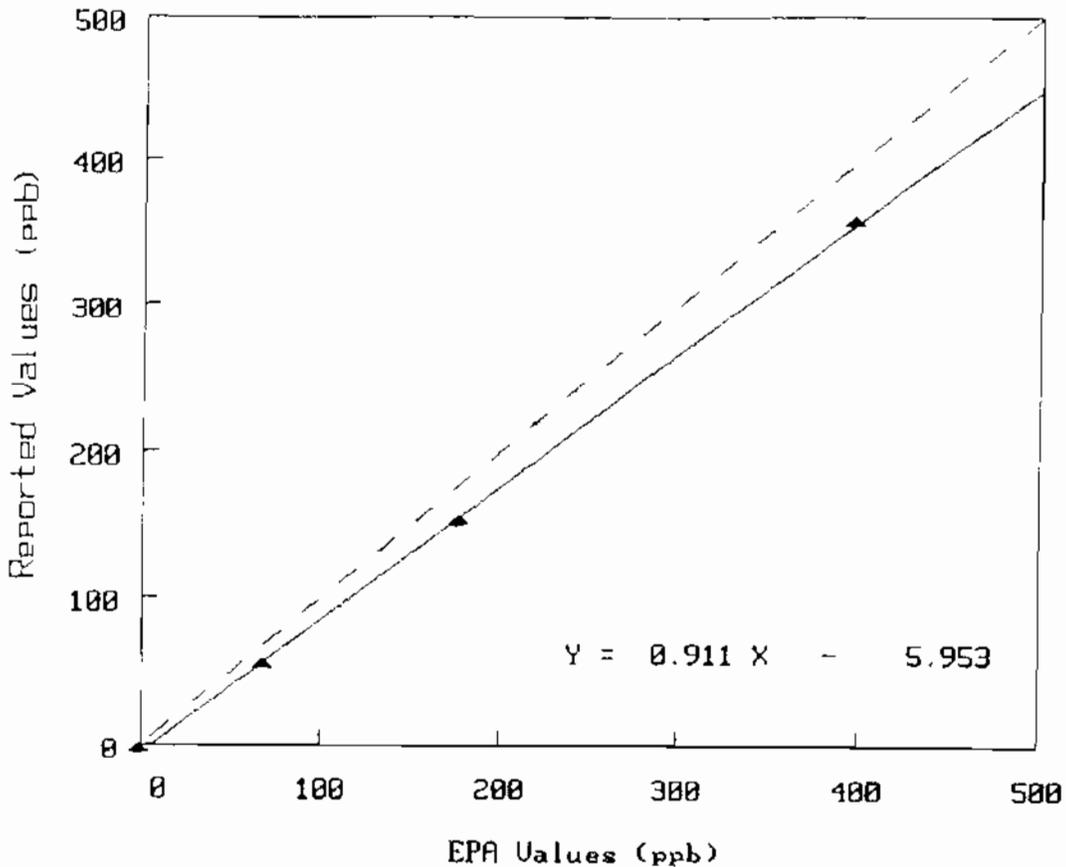
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

Site Number:	Audit Date: 04/15/2005
Your Site ID: LAB	Cyl. No.: FP11036
Monitor Serial #: 1707.	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	359.00	398.94	-39.94	-10.0
Med	154.00	178.57	-24.57	-13.8
Low	55.20	69.34	-14.14	-20.4
Zero	-2.80	0.00	-2.80	----
Mean Absolute % Difference =				14.7

Slope = 0.911                    Intercept = -5.953                    r<sup>2</sup> = 0.999687



AIRS Site Number:

Audit Date: 05/02/2005

Monitor Serial #: 2356

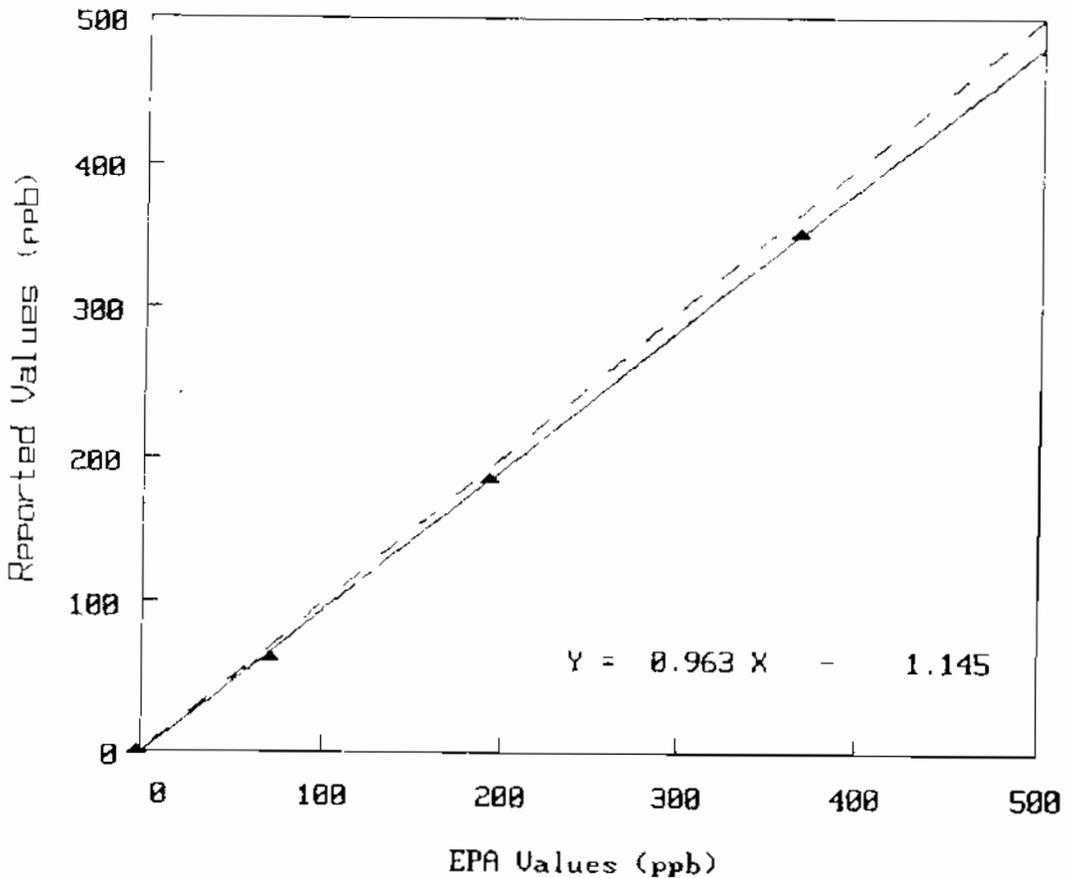
Device No.: 40396

Your Site ID: LAB

Pot Setting	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
730	353.40	367.00	-13.60	-3.7
525	186.10	194.70	-8.60	-4.4
440	63.90	71.70	-7.80	-10.9
Zero	0.60	-1.70	2.30	----

Mean Absolute % Difference = 6.3

NO<sub>2</sub> Slope = 0.963 Intercept = -1.145 r<sup>2</sup> = 0.999603



AIRS Site Number:

Audit Date: 04/15/2005

Monitor Serial #: 2356.

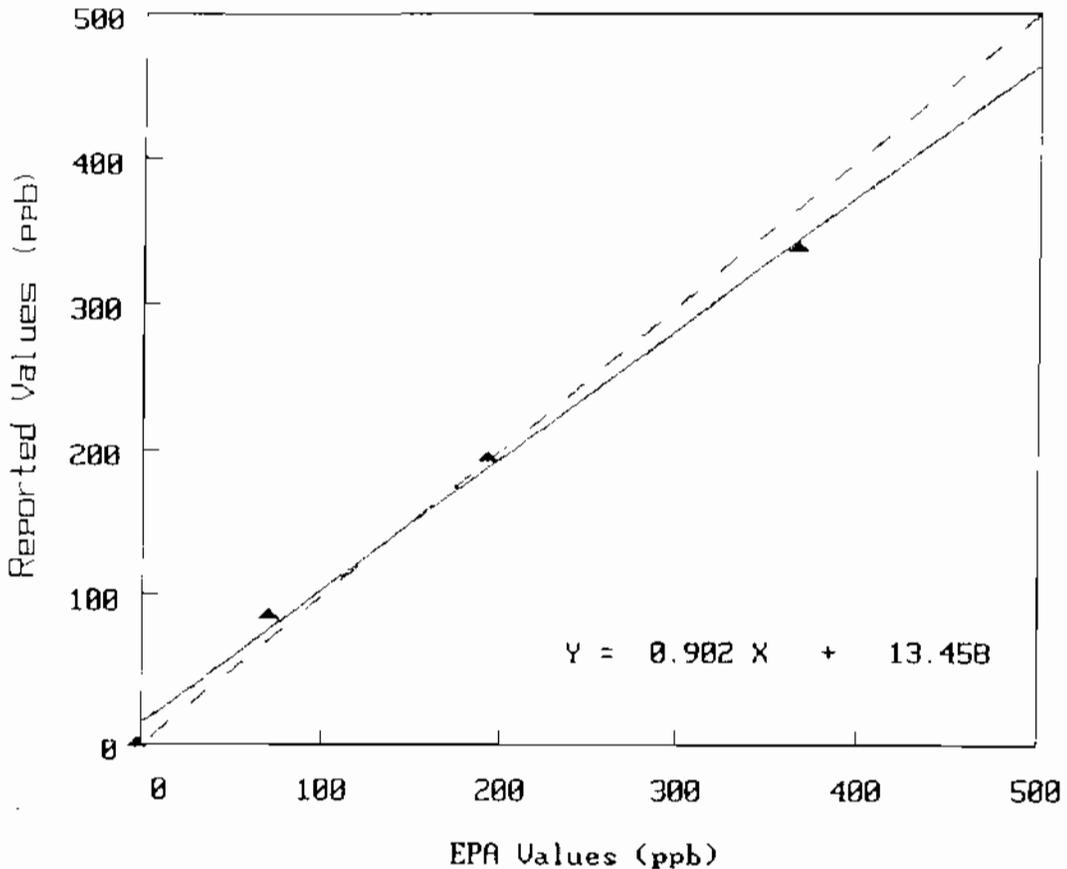
Device No.: 40395

Your Site ID: LAB

Pot Setting	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
730	339.20	367.00	-27.80	-7.6
525	195.50	194.70	0.80	0.4
440	88.20	71.70	16.50	23.0
Zero	0.90	-1.70	2.60	----

Mean Absolute % Difference = 10.3

NO<sub>2</sub> Slope = 0.902 Intercept =13.458 r<sup>2</sup> = 0.995419



Results of NO2 Continuous Audit  
for 1st Quarter 2005

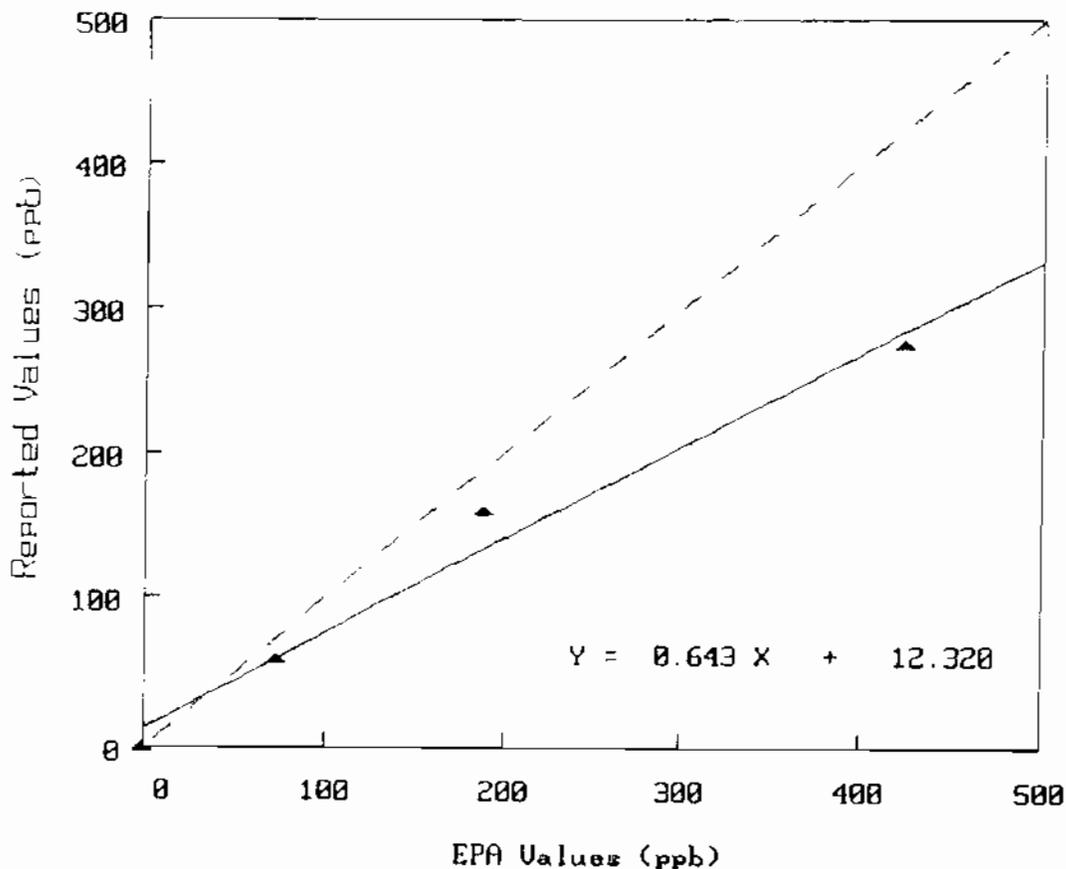
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:	Audit Date: 04/15/2005
Monitor Serial #: 2356.	NO Cyl. No.: FF11036
Site ID: LAB	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	274.80	425.17	-150.37	-35.4
Med	159.20	190.31	-31.11	-16.3
Low	58.80	73.90	-15.10	-20.4
Zero	-0.40	0.00	-0.40	----
Mean Absolute % Difference =			24.0	

NO Slope = 0.643      Intercept = 12.320      r<sup>2</sup> = 0.979805



Results of NO2 Continuous Audit  
for 1st Quarter 2005

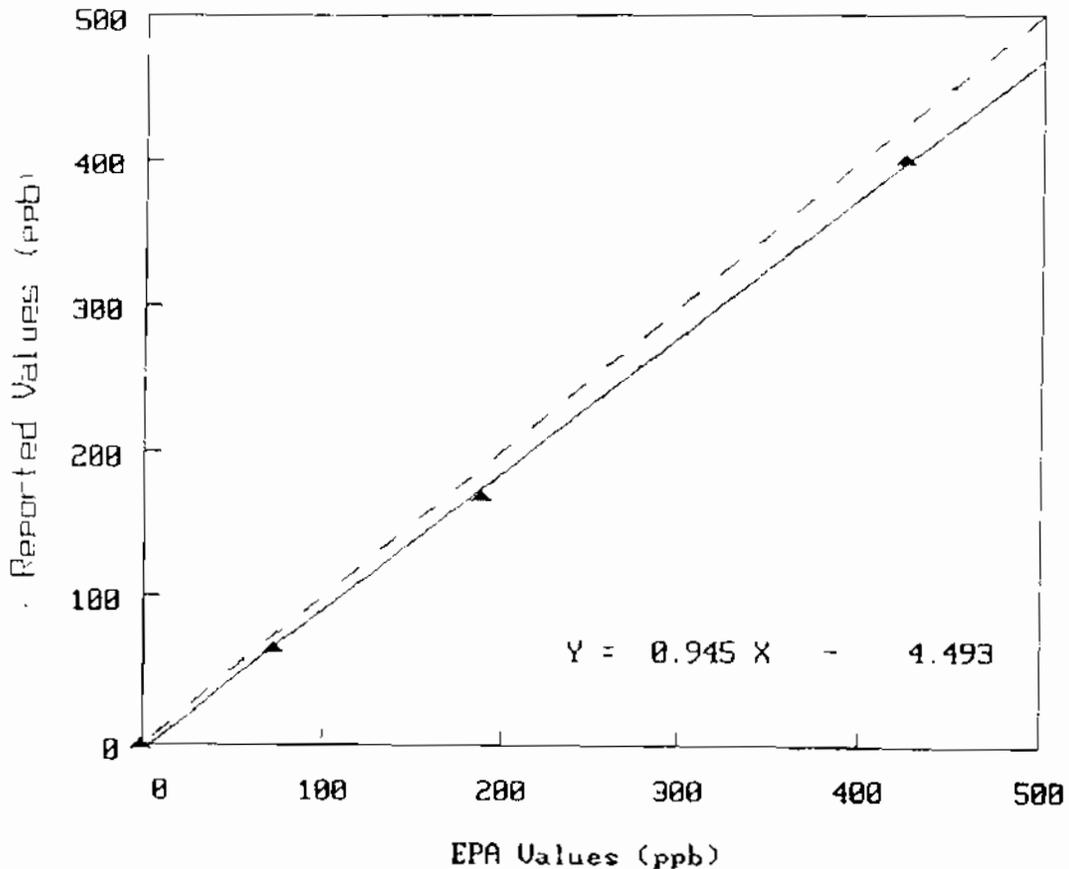
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:	Audit Date: 05/02/2005
Monitor Serial #: 2356	NO Cyl. No.: FF11036
Site ID: LAB	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	400.10	425.17	-25.07	-5.9
Med	170.20	190.31	-20.11	-10.6
Low	63.80	73.90	-10.10	-13.7
Zero	-0.30	0.00	-0.30	----
Mean Absolute % Difference =				10.0

NO Slope = 0.945      Intercept = -4.493      r<sup>2</sup> = 0.999414









✓

Results of Carbon Monoxide (CO) Audit  
for 1st Quarter 2005

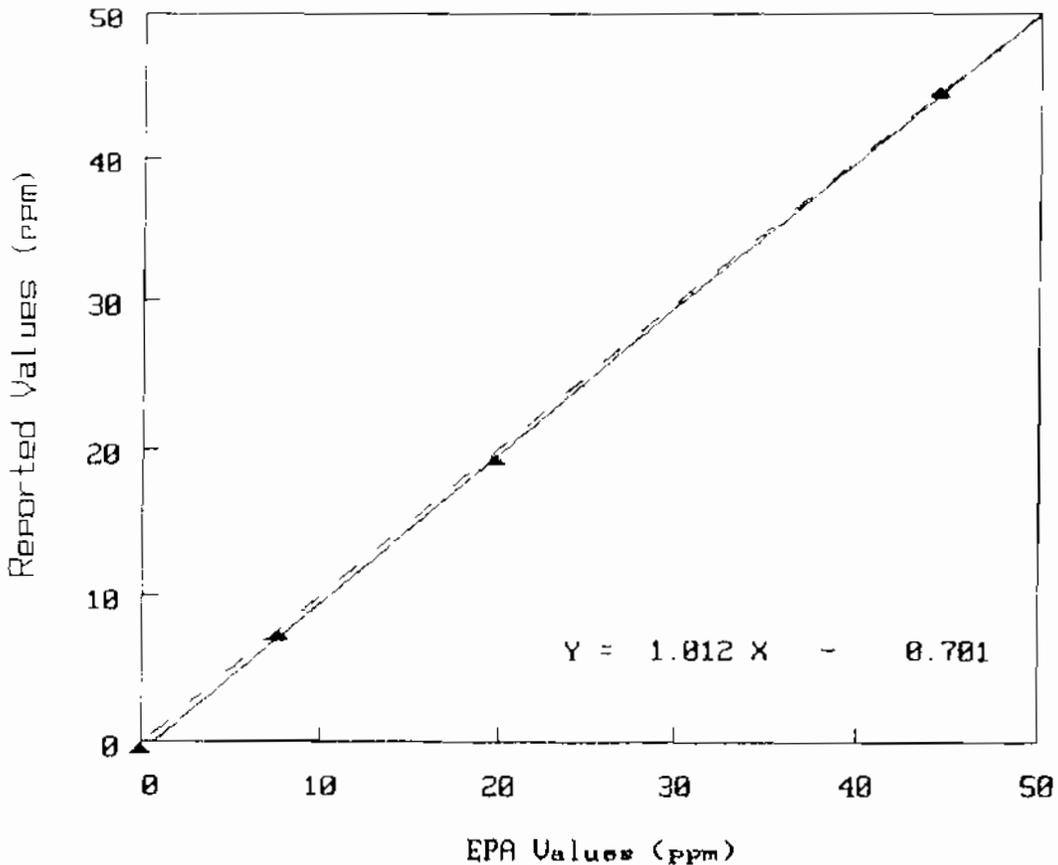
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:                    Audit Date: 04/18/2005  
Your Site ID: TAC                    Cyl. No.: PF11036  
Monitor Serial #: 1162.              Device No.: 40396

Valve Position	Reported Value	Actual Value	Difference	% Difference
(----- ppm -----)				
High	44.50	44.57	-0.07	-0.2
Med	19.20	19.95	-0.75	-3.8
Low	7.20	7.75	-0.55	-7.1
Zero	-0.60	0.00	-0.60	----
Mean Absolute % Difference				= 3.7

Slope = 1.012                    Intercept = -0.701                    r<sup>2</sup> = 0.999909



Results of SO2 Continuous Audit  
for 1st Quarter 2005

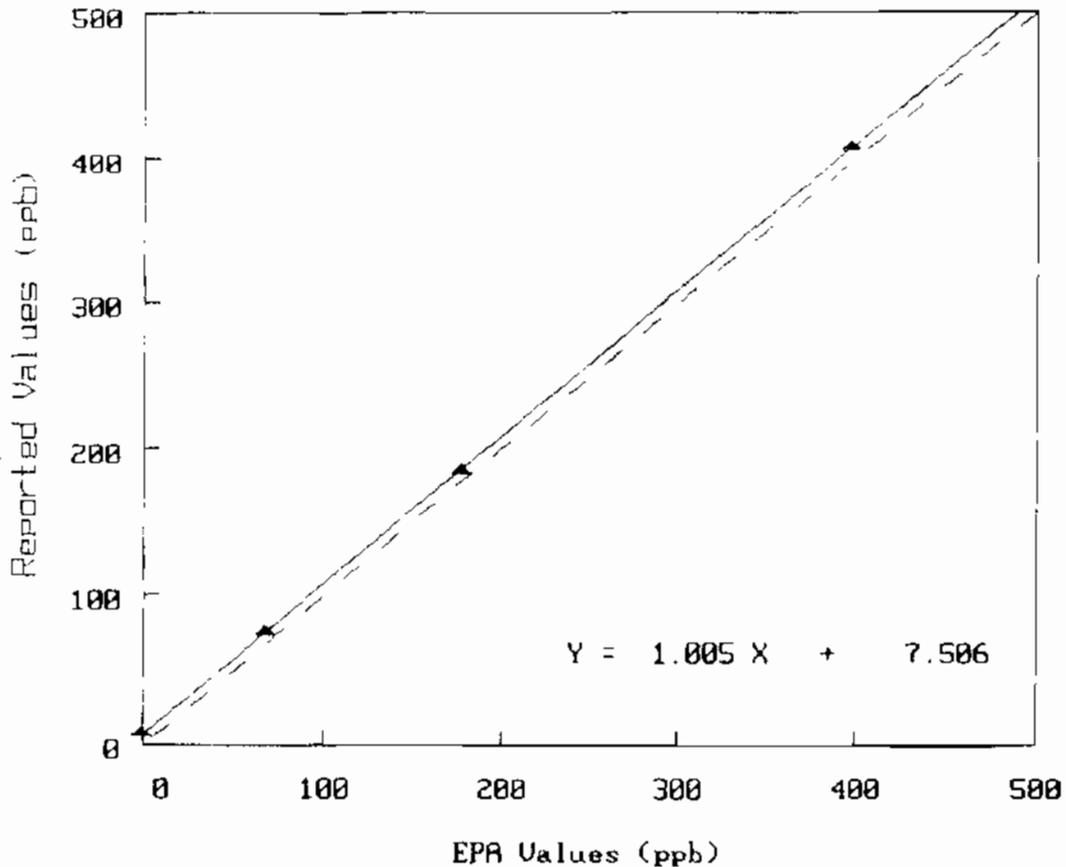
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

Site Number:	Audit Date: 04/25/2005
Your Site ID: TAC	Cyl. No.: FF11036
Monitor Serial #: 500.	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	409.00	398.94	10.06	2.5
Med	186.00	178.57	7.43	4.2
Low	76.00	69.34	6.66	9.6
Zero	9.00	0.00	9.00	----
Mean Absolute % Difference =				5.4

Slope = 1.005                    Intercept = 7.506                    r<sup>2</sup> = 0.999947







Results of NO2 Continuous Audit  
for 1st Quarter 2005

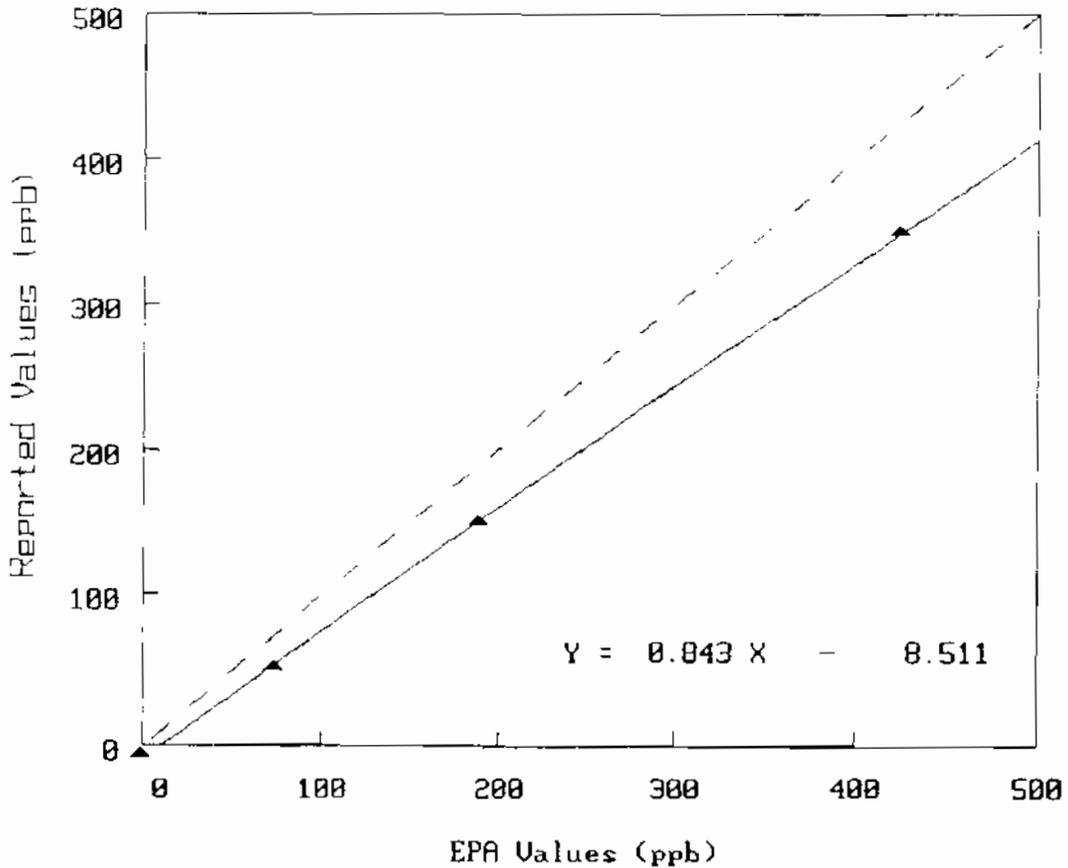
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:	Audit Date: 04/25/2005
Monitor Serial #: 215	NO Cyl. No.: FF11036
Site ID: TAC	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	351.00	425.17	-74.17	-17.4
Med	150.00	190.31	-40.31	-21.2
Low	52.00	73.90	-21.90	-29.6
Zero	-6.00	0.00	-6.00	----
Mean Absolute % Difference =			22.8	

NO Slope = 0.843      Intercept = -8.511      r<sup>2</sup> = 0.999805



AIRS Site Number:

Audit Date: 04/25/2005

Monitor Serial #: 215

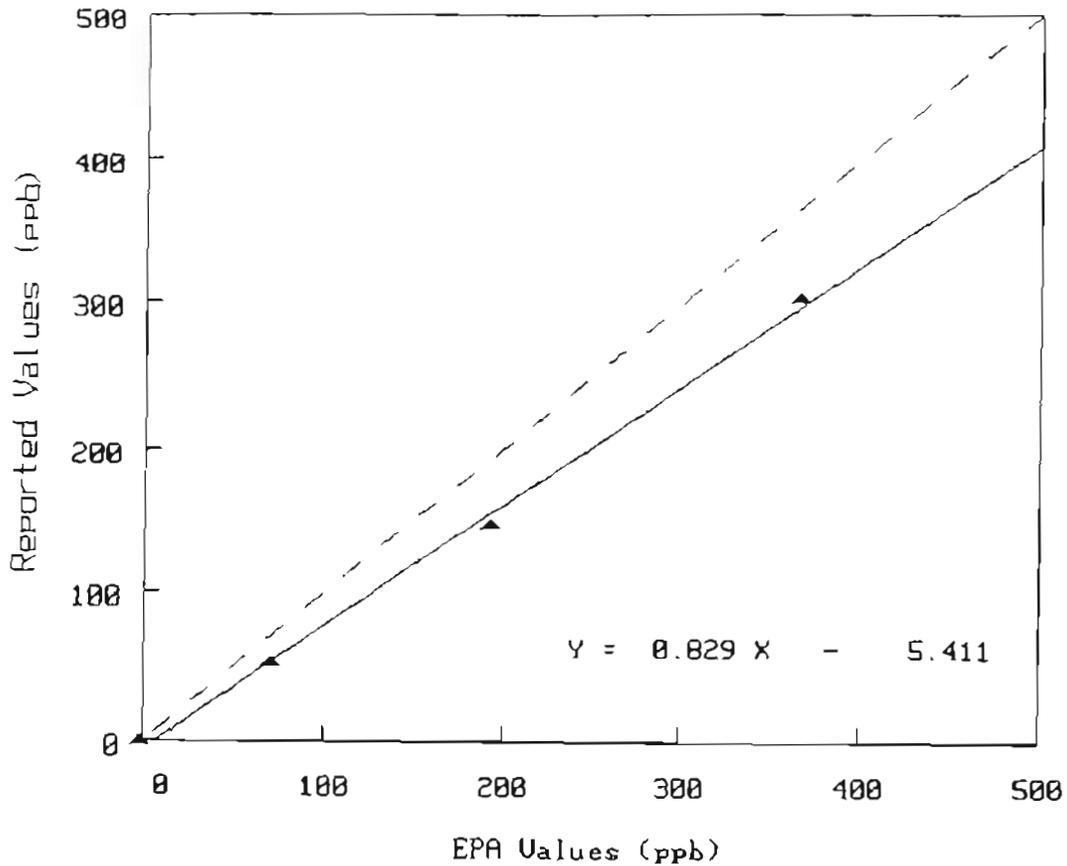
Device No.: 40396

Your Site ID: TAC

Pot Setting	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
730	304.00	367.00	-63.00	-17.2
525	147.00	194.70	-47.70	-24.5
440	52.00	71.70	-19.70	-27.5
Zero	-1.00	-1.70	0.70	----

Mean Absolute % Difference = 23.0

NO<sub>x</sub> Slope = 0.829 Intercept = -5.411 r<sup>2</sup> = 0.997290



AIRS Site Number:

Audit Date: 04/18/2005

Monitor Serial #: 215.

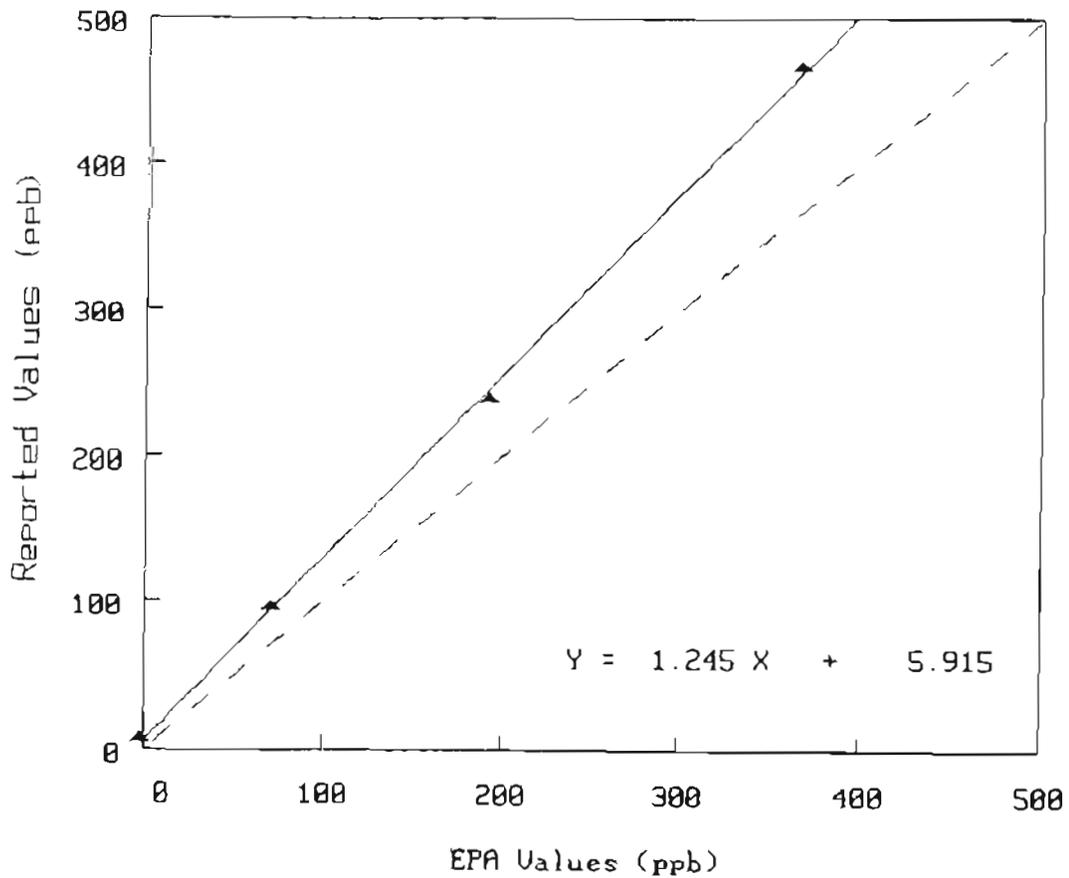
Device No.: 40396

Your Site ID: TAC

Pot Setting	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
730	467.00	367.00	100.00	27.2
525	240.00	194.70	45.30	23.3
440	96.00	71.70	24.30	33.9
Zero	7.00	-1.70	8.70	----

Mean Absolute % Difference = 28.1

NO<sub>2</sub> Slope = 1.245 Intercept = 5.915 r<sup>2</sup> = 0.999194



Results of Ozone (O3) Audit

for 1st Quarter 2005

06/02/2005

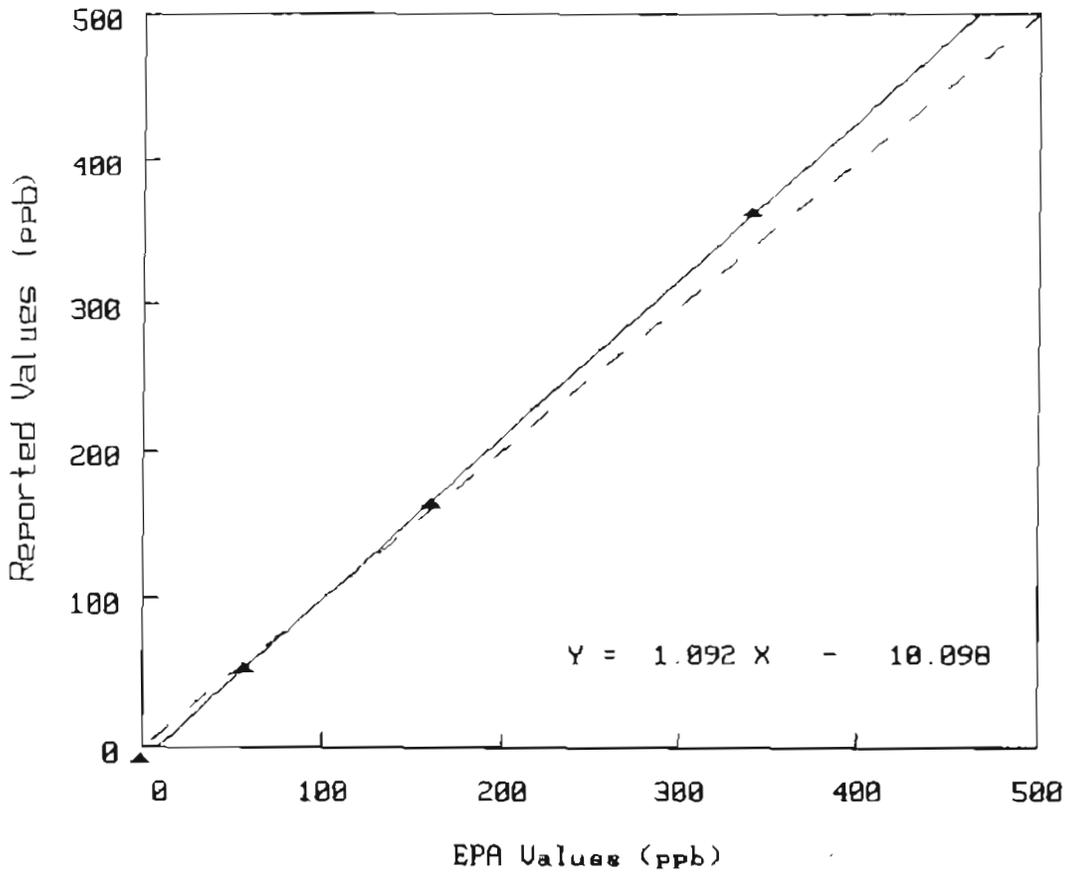
7ME031                    0                    7ME031  
 Mr. Matthew Witosky  
 Attache, US EPA-US Embassy Mexico City  
 225 Vermillion Road  
 Brownsville, TX 78521

Actual values adjusted for site barometric pressure: 582.87 mm Hg

AIRS Site Number:                    Audit Date: 04/29/2005  
 Monitor Serial #: 794                    Audit Device No.: 40396  
 Your Site ID: EAC

Pot. Setting	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
0	-8.0	0.5	-8.5	----
690	363.0	340.9	22.1	6.5
525	165.0	161.4	3.6	2.2
440	52.0	57.9	-5.9	-10.2

Mean Absolute % Difference = 6.3  
 Slope = 1.092    Intercept = -10.098    r<sup>2</sup> = 0.999926



Results of Carbon Monoxide (CO) Audit  
for 1st Quarter 2005

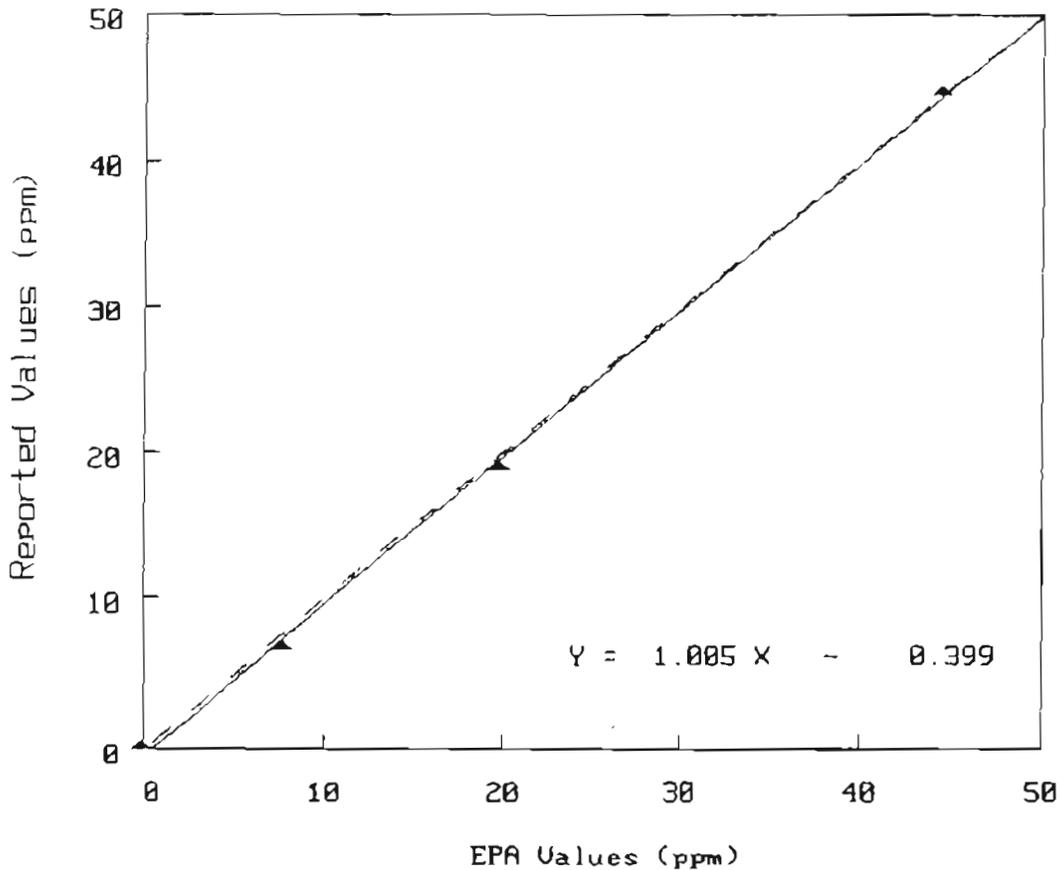
06/02/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:	Audit Date: 04/29/2005
Your Site ID: EAC	Cyl. No.: FF11036
Monitor Serial #: 300	Device No.: 40396

Valve Position	Reported Value	Actual Value	Difference	% Difference
	(----- ppm -----)			
High	44.70	44.57	0.13	0.3
Med	19.10	19.95	-0.85	-4.3
Low	6.90	7.75	-0.85	-11.0
Zero	0.30	0.00	0.30	----
Mean Absolute % Difference				= 5.2

Slope = 1.005                    Intercept = -0.399                    r<sup>2</sup> = 0.999025



✓

Results of SO2 Continuous Audit  
for 1st Quarter 2005

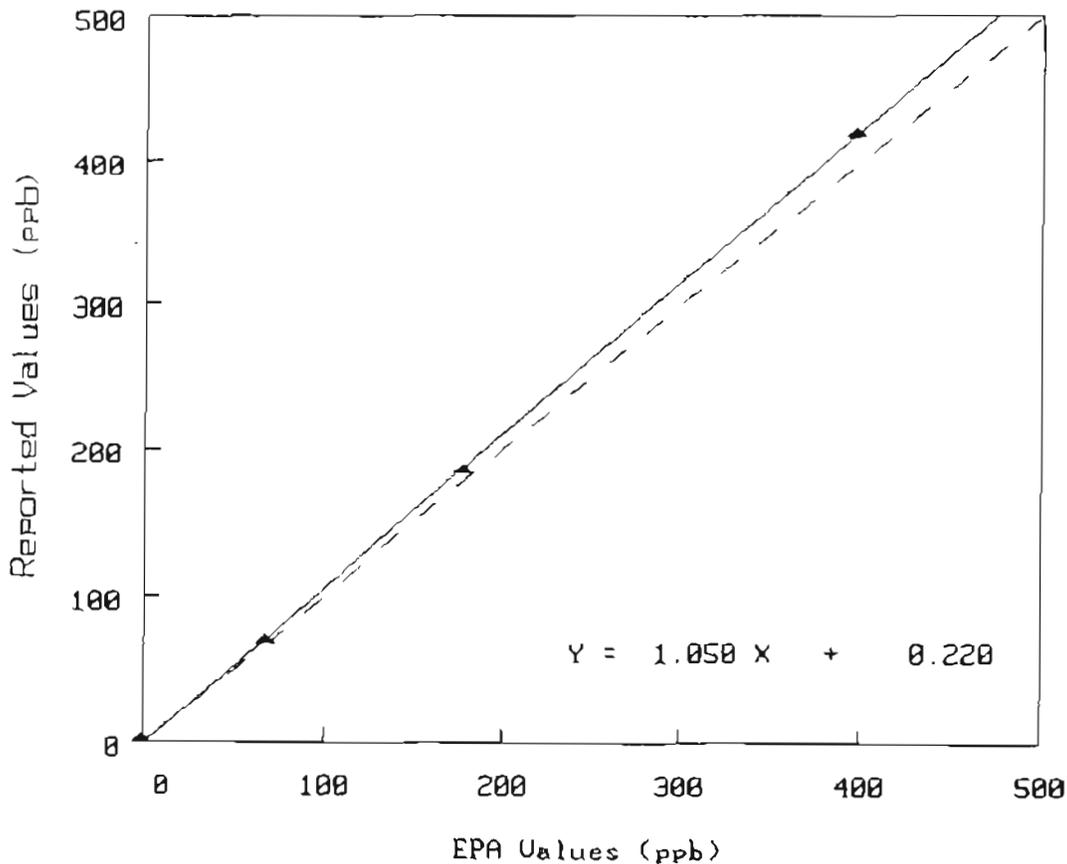
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

Site Number:	Audit Date: 04/29/2005
Your Site ID: EAC	Cyl. No.: FF11036
Monitor Serial #: 235	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	( - - - - - ppb - - - - - )			
High	420.00	398.94	21.06	5.3
Med	186.00	178.57	7.43	4.2
Low	72.00	69.34	2.66	3.8
Zero	2.00	0.00	2.00	----
Mean Absolute % Difference =			4.4	

Slope = 1.050                    Intercept = 0.220                    r<sup>2</sup> = 0.999921





AIRS Site Number:

Audit Date: 04/29/2005

Monitor Serial #: 577

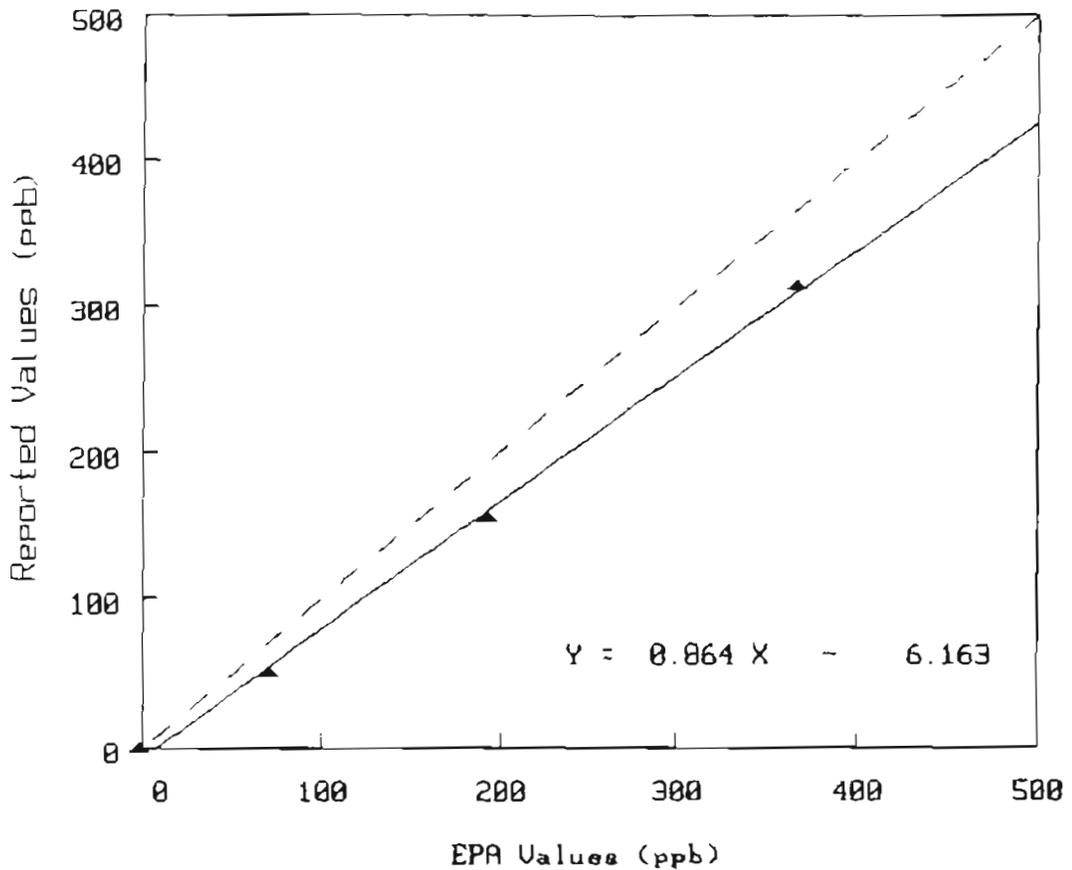
Device No.: 40396

Your Site ID: EAC

Pot Setting	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
730	315.00	367.00	-52.00	-14.2
525	156.00	194.70	-38.70	-19.9
440	51.00	71.70	-20.70	-28.9
Zero	-1.00	-1.70	0.70	----

Mean Absolute % Difference = 21.0

NO<sub>2</sub> Slope = 0.864 Intercept = -6.163 r<sup>2</sup> = 0.997939



Results of Ozone (O3) Audit

for 1st Quarter 2005

06/03/2005

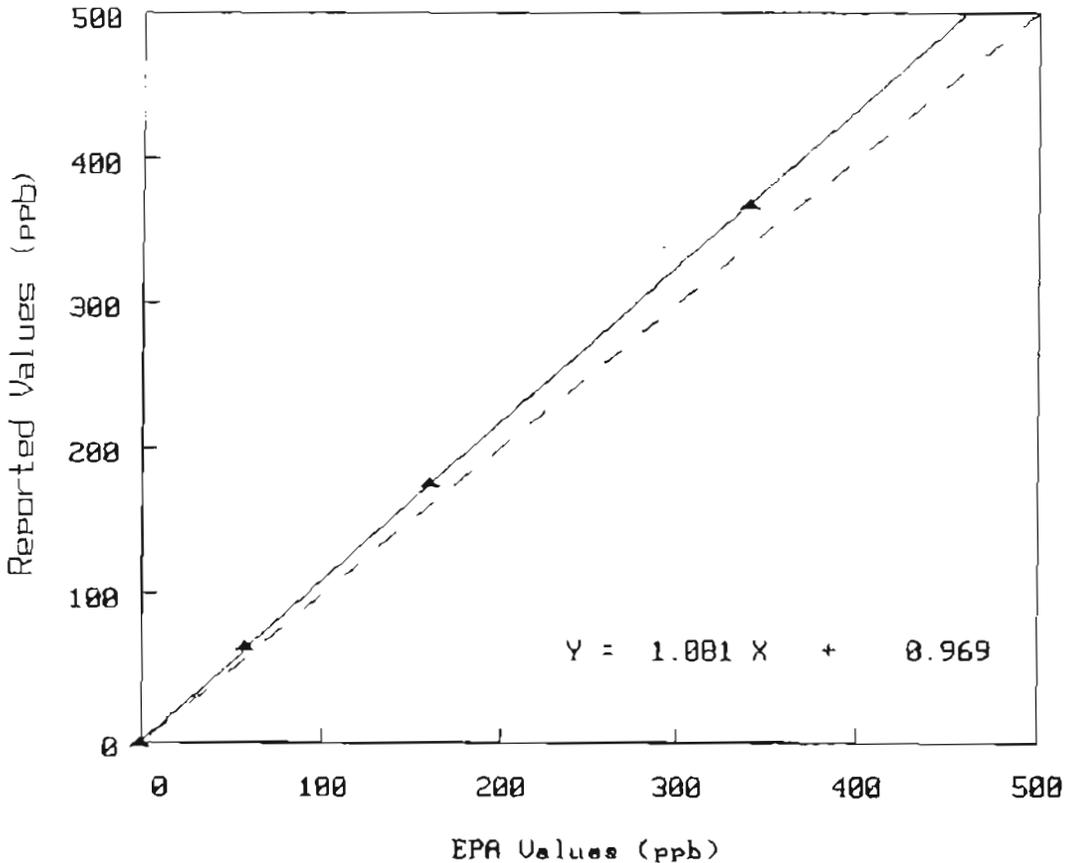
7ME031 0 7ME031  
 Mr. Matthew Witosky  
 Attache, US EPA-US Embassy Mexico City  
 225 Vermillion Road  
 Brownsville, TX 78521

Actual values adjusted for site barometric pressure: 583.20 mm Hg

AIRS Site Number: *816* Audit Date: 04/18/2005  
 Monitor Serial #: *816* Audit Device No.: 40396  
 Your Site ID: *TIA* *THA*

Pot. Setting	Reported Values	Actual Values	Difference	% Difference
0	0.0	0.5	-0.5	----
690	369.0	340.9	28.1	8.2
525	176.0	161.4	14.6	9.0
440	65.0	57.9	7.1	12.2

Mean Absolute % Difference = 9.8  
 Slope = 1.081 Intercept = 0.969 r' = 0.999940





Results of Carbon Monoxide (CO) Audit  
for 1st Quarter 2005

06/02/2005

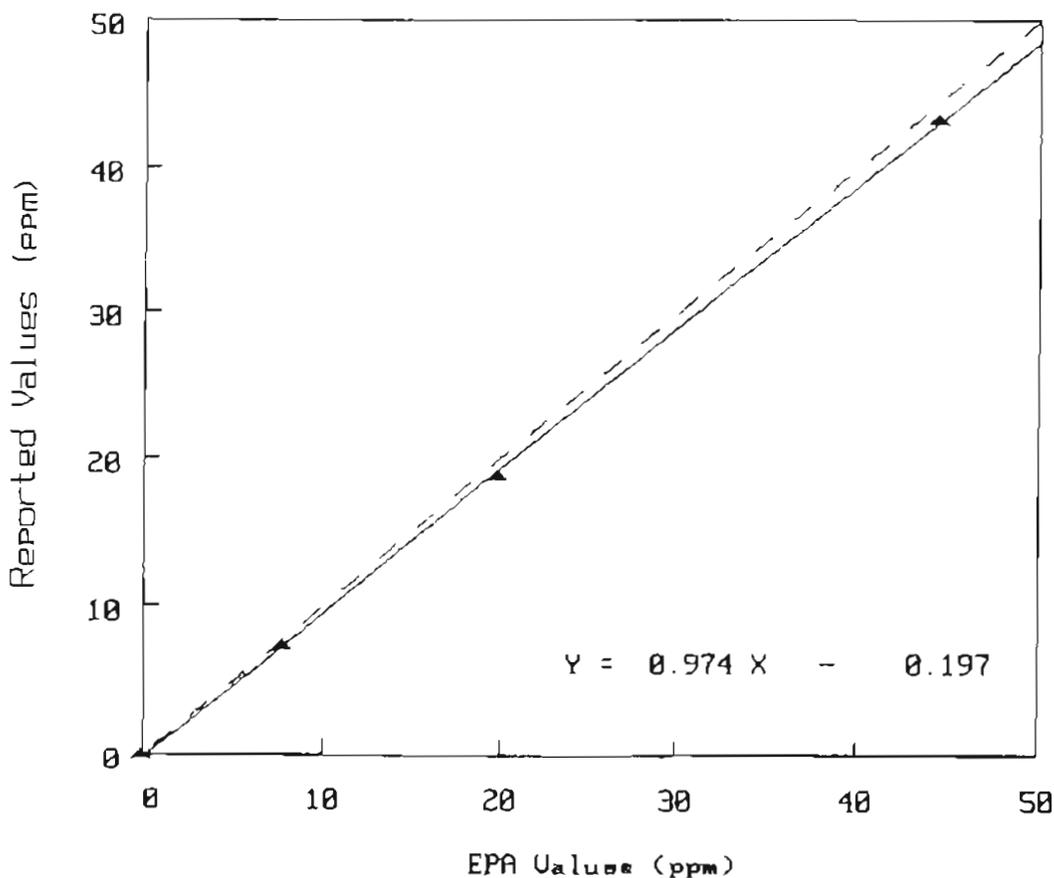
7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:	Audit Date: 04/25/2005
Your Site ID: TLA	Cyl. No.: FF11036
Monitor Serial #: 1160	Device No.: 40396

Valve Position	Reported Value	Actual Value	Difference	% Difference
	(----- ppm -----)			
High	43.40	44.57	-1.17	-2.6
Med	18.80	19.95	-1.15	-5.8
Low	7.40	7.75	-0.35	-4.5
Zero	0.00	0.00	0.00	----

Mean Absolute % Difference = 4.3

Slope = 0.974                    Intercept = -0.197                    r<sup>2</sup> = 0.999755









Results of NO2 Continuous Audit  
for 1st Quarter 2005

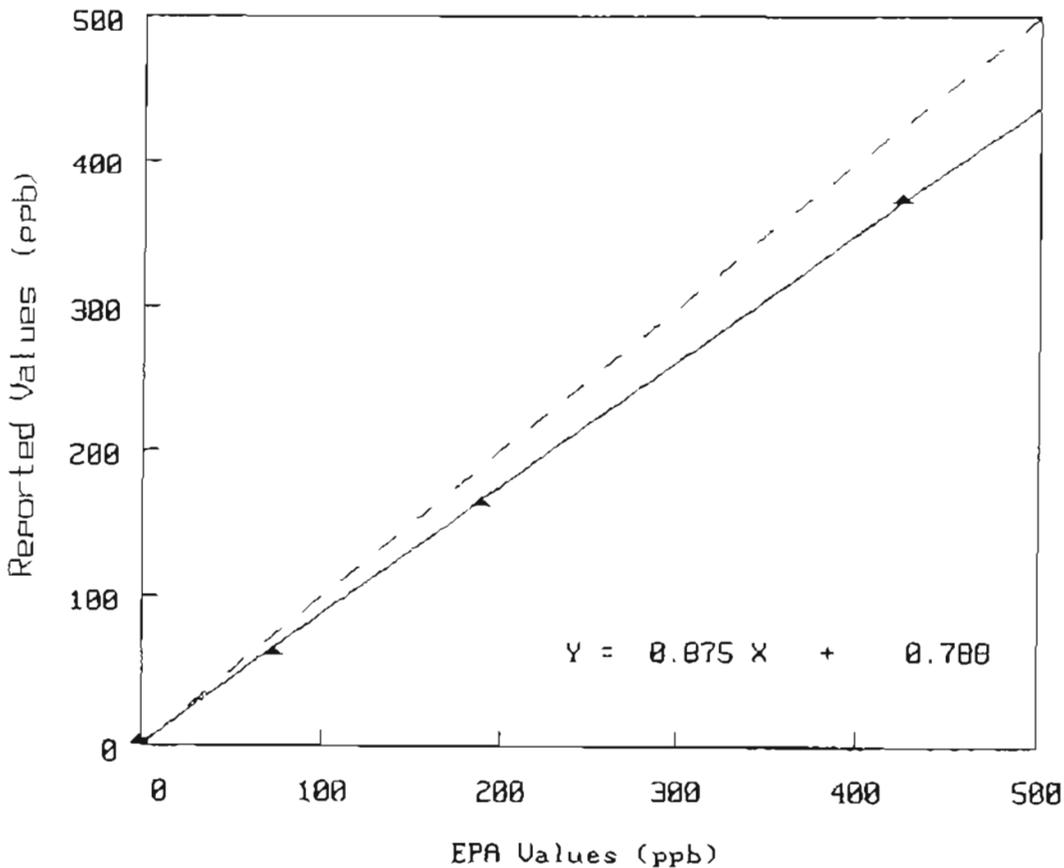
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:	Audit Date: 04/25/2005
Monitor Serial #: 580.	NO Cyl. No.: FF11036
Site ID: TLA	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	( - - - - - ppb - - - - - )			
High	374.00	425.17	-51.17	-12.0
Med	165.00	190.31	-25.31	-13.3
Low	63.00	73.90	-10.90	-14.7
Zero	4.00	0.00	4.00	----
Mean Absolute % Difference =			13.4	

NO Slope = 0.875      Intercept = 0.788      r<sup>2</sup> = 0.999710



Results of NO2 Continuous Audit  
for 1st Quarter 2005

06/03/2005

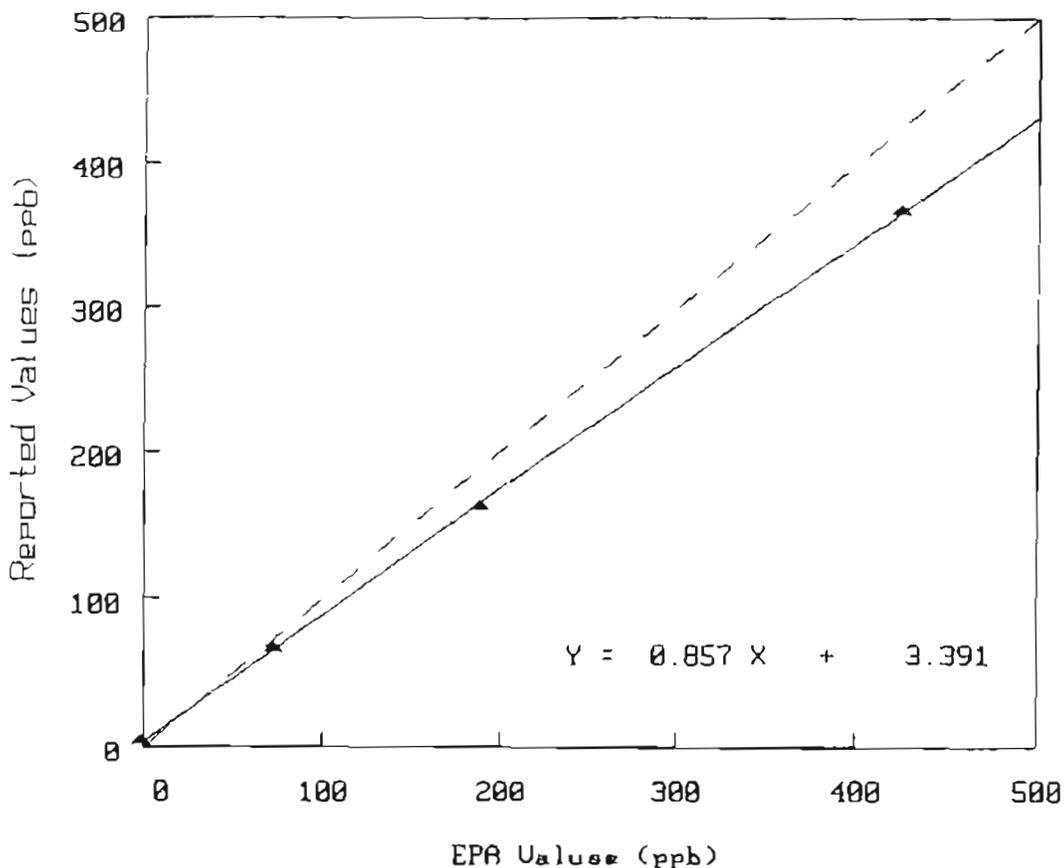
7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:	Audit Date: 04/18/2005
Monitor Serial #: 580	NO Cyl. No.: FF11036
Site ID: TLA	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	369.00	425.17	-56.17	-13.2
Med	163.00	190.31	-27.31	-14.4
Low	67.00	73.90	-6.90	-9.3
Zero	5.00	0.00	5.00	----

Mean Absolute % Difference = 12.3

NO Slope = 0.857      Intercept = 3.391      r<sup>2</sup> = 0.999786





AIRS Site Number:

Audit Date: 04/18/2005

Monitor Serial #: 580

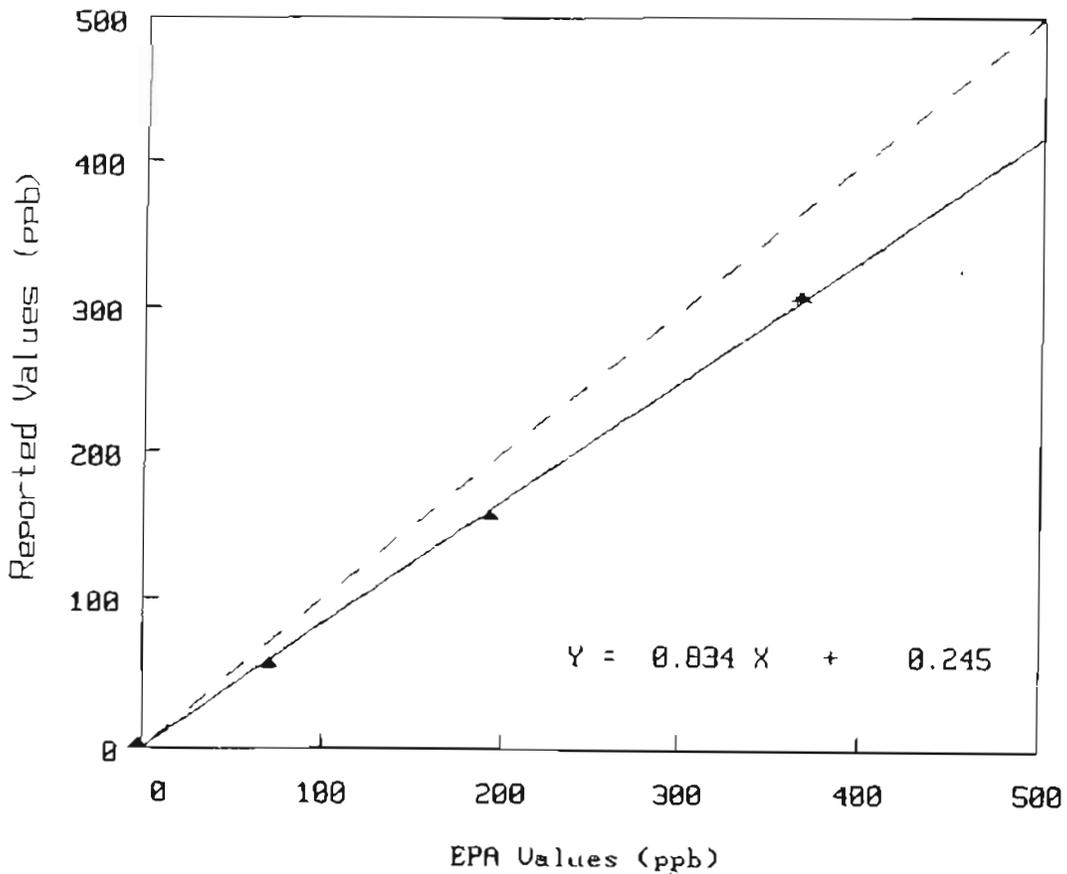
Device No.: 40396

Your Site ID: TLA

Pot Setting	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
730	309.00	367.00	-58.00	-15.8
525	159.00	194.70	-35.70	-18.3
440	57.00	71.70	-14.70	-20.5
Zero	3.00	-1.70	4.70	----

Mean Absolute % Difference = 18.2

NO<sub>2</sub> Slope = 0.834 Intercept = 0.245 r<sup>2</sup> = 0.999136







Results of SO2 Continuous Audit

for 1st Quarter 2005

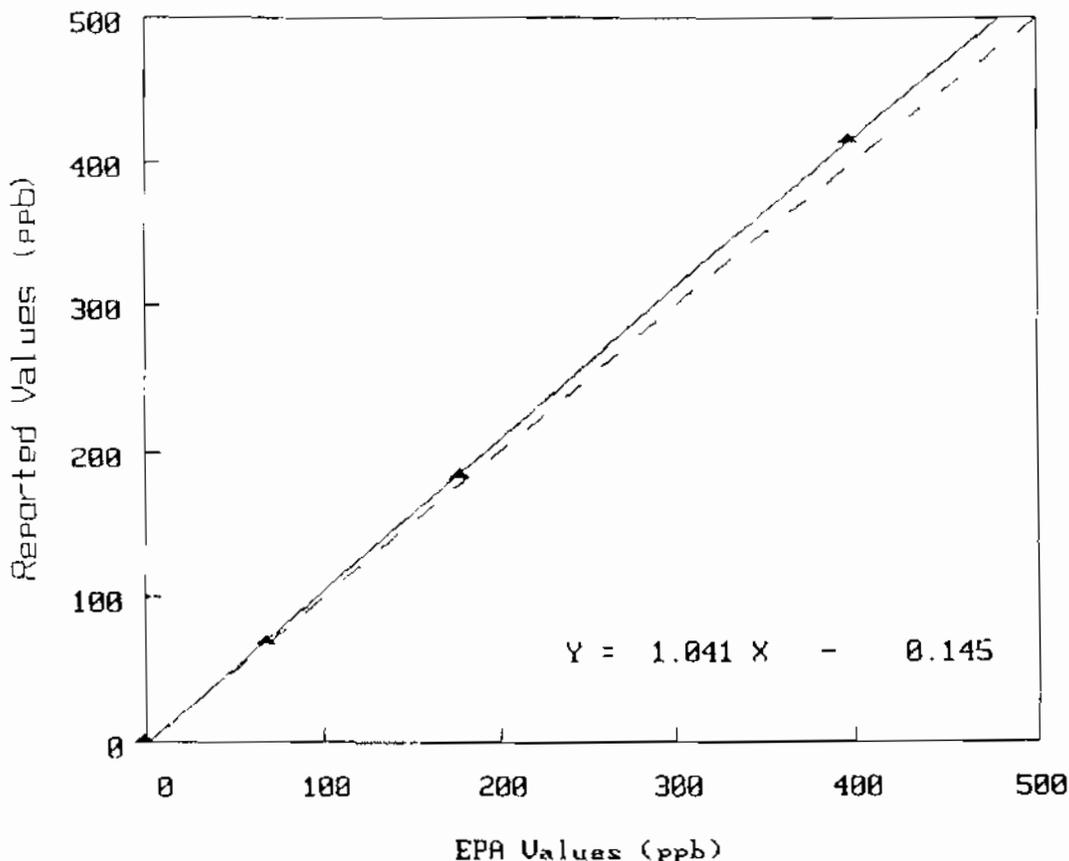
08/31/2005

7ME031 0 7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

Site Number: Audit Date: 04/19/2005  
Your Site ID: SAG Cyl. No.: FF11036  
Monitor Serial #: 464 Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(-----) ppb (-----)			
High	416.00	398.94	17.06	4.3
Med	185.00	178.57	6.43	3.6
Low	70.00	69.34	0.66	1.0
Zero	2.00	0.00	2.00	----
Mean Absolute % Difference =				2.9

Slope = 1.041 Intercept = -0.145  $r^2 = 0.999899$



Results of NO2 Continuous Audit  
for 1st Quarter 2005

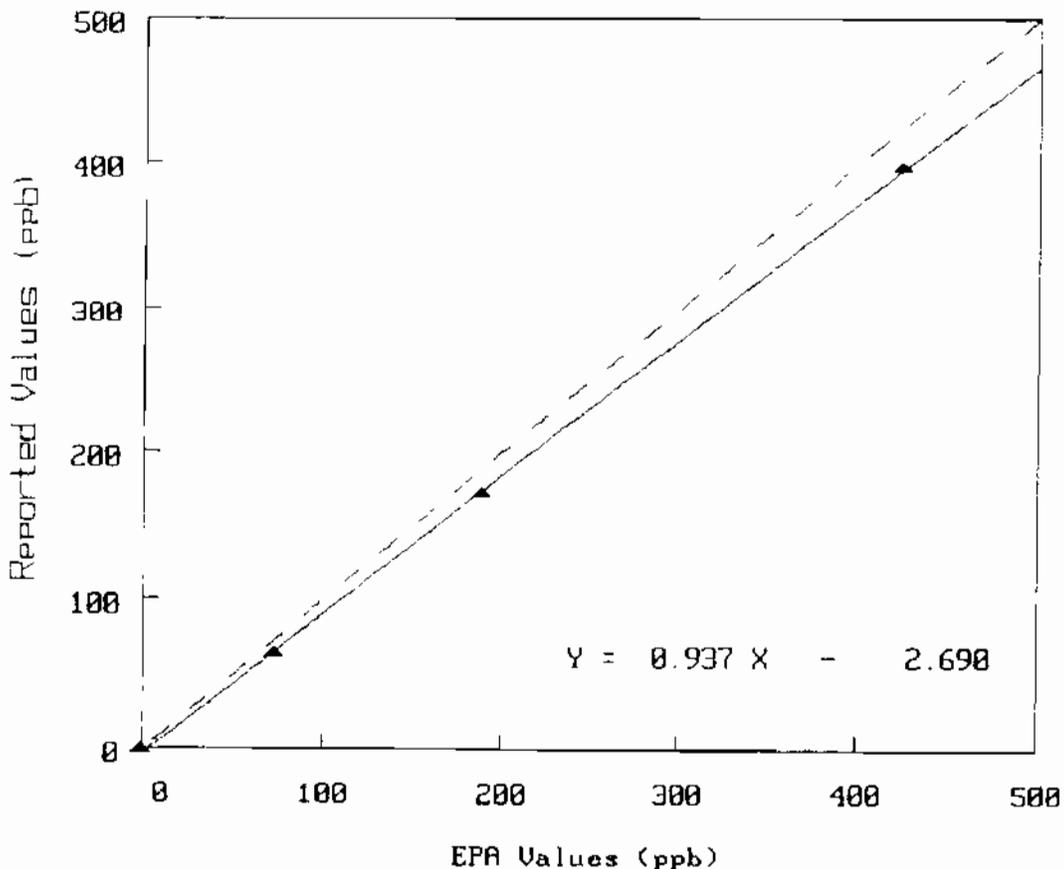
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:	Audit Date: 04/19/2005
Monitor Serial #: 223	NO Cyl. No.: FF11036
Site ID: SAG	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	397.00	425.17	-28.17	-6.6
Med	173.00	190.31	-17.31	-9.1
Low	65.00	73.90	-8.90	-12.0
Zero	0.00	0.00	0.00	----
Mean Absolute % Difference =				9.3

NO Slope = 0.937      Intercept = -2.690      r<sup>2</sup> = 0.999799











Results of NO2 Continuous Audit  
for 1st Quarter 2005



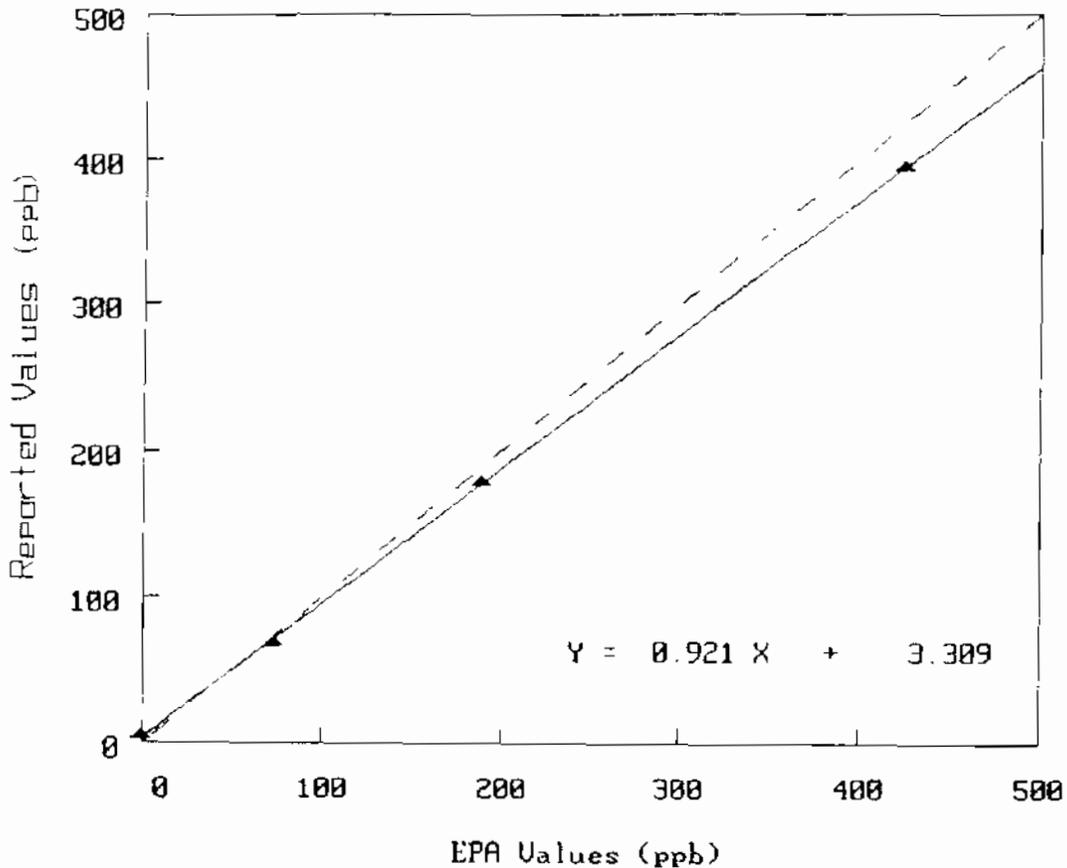
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:                    Audit Date: 04/19/2005  
Monitor Serial #: 530                    NO Cyl. No.: FF11036  
Site ID: XAL                    Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	( - - - - - ppb - - - - - )			
High	395.00	425.17	-30.17	-7.1
Med	179.00	190.31	-11.31	-5.9
Low	69.00	73.90	-4.90	-6.6
Zero	5.00	0.00	5.00	----
Mean Absolute % Difference =			6.6	

NO Slope = 0.921      Intercept = 3.309      r<sup>2</sup> = 0.999902



AIRS Site Number:

Audit Date: 04/19/2005

Monitor Serial #: 530

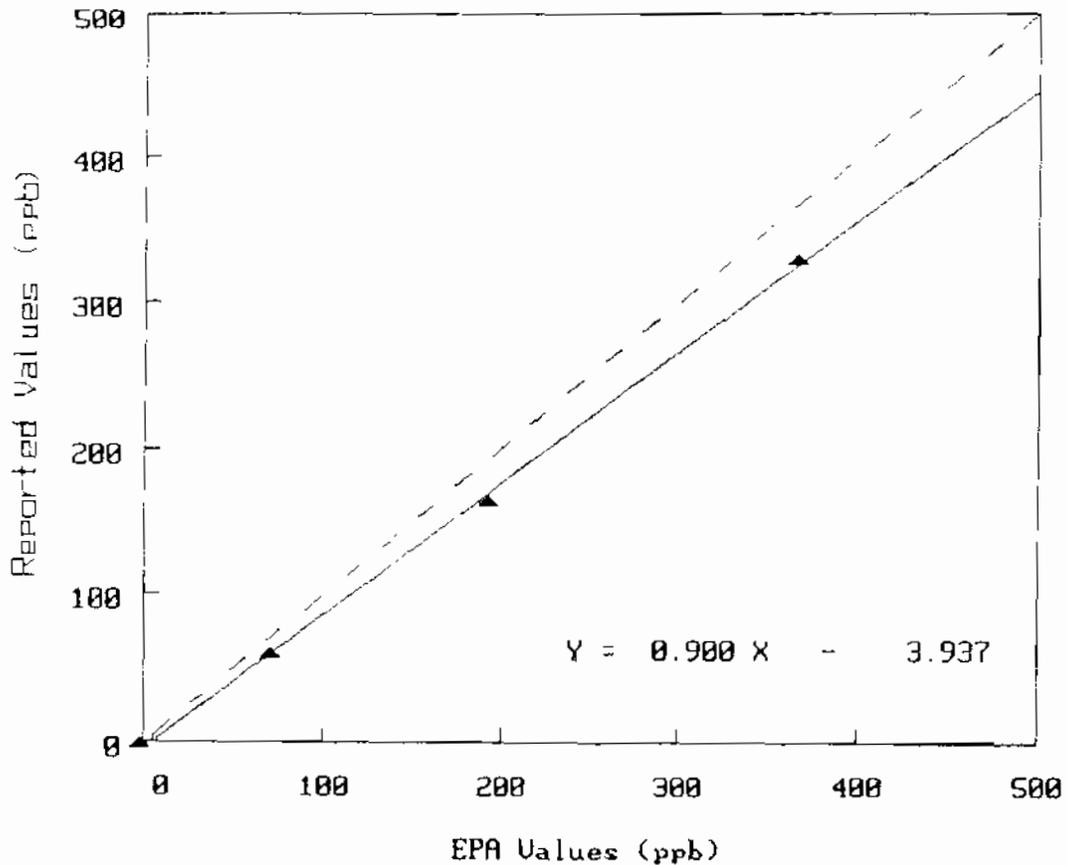
Device No.: 40396

Your Site ID: XAL

Pot Setting	Reported Values	Actual Values	Difference	% Difference
	( - - - - )	ppb	( - - - - )	
730	330.00	367.00	-37.00	-10.1
525	165.00	194.70	-29.70	-15.3
440	60.00	71.70	-11.70	-16.3
Zero	-2.00	-1.70	-0.30	----

Mean Absolute % Difference = 13.9

NO<sub>2</sub> Slope = 0.900 Intercept = -3.937 r<sup>2</sup> = 0.998970



Results of Carbon Monoxide (CO) Audit  
for 1st Quarter 2005

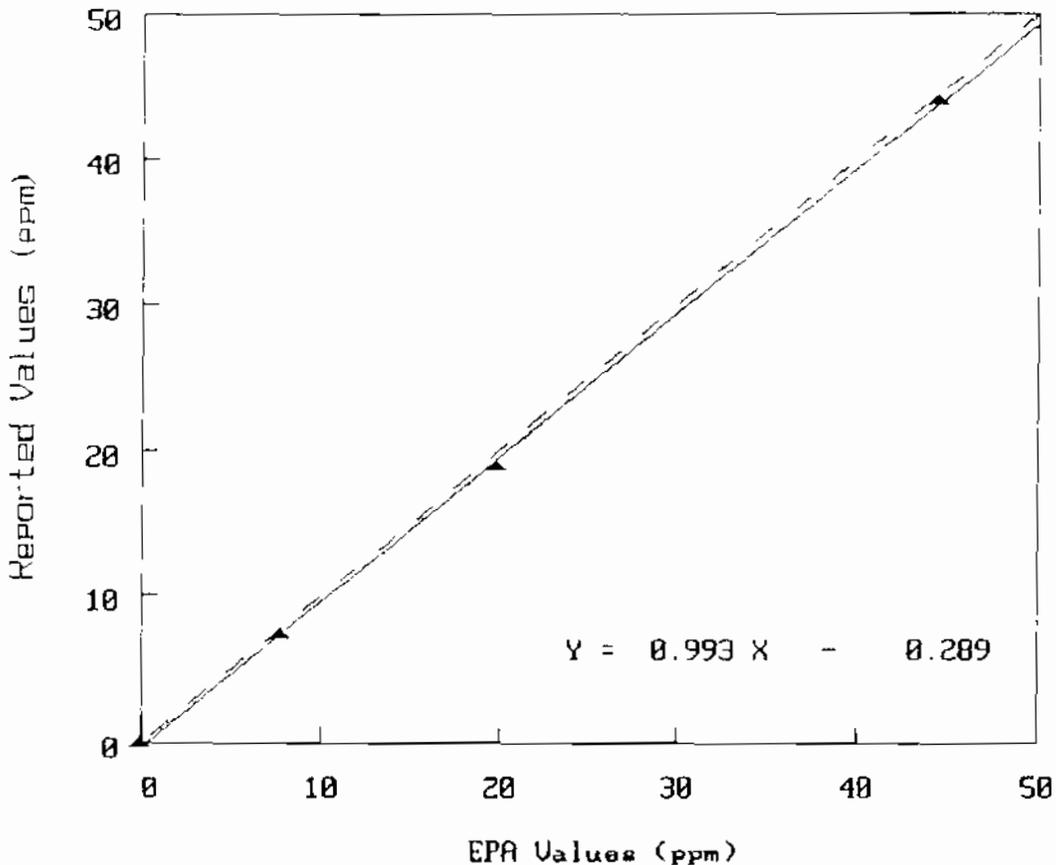
06/02/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:	Audit Date: 04/29/2005
Your Site ID: VIF	Cyl. No.: FF11036
Monitor Serial #: 1161	Device No.: 40396

Valve Position	Reported Value	Actual Value	Difference	% Difference
	(----- ppm -----)			
High	44.20	44.57	-0.37	-0.8
Med	19.00	19.95	-0.95	-4.8
Low	7.40	7.75	-0.35	-4.5
Zero	0.00	0.00	0.00	----
Mean Absolute % Difference				= 3.4

Slope = 0.993                    Intercept = -0.289                    r<sup>2</sup> = 0.999636



Results of SO2 Continuous Audit  
for 1st Quarter 2005

06/03/2005

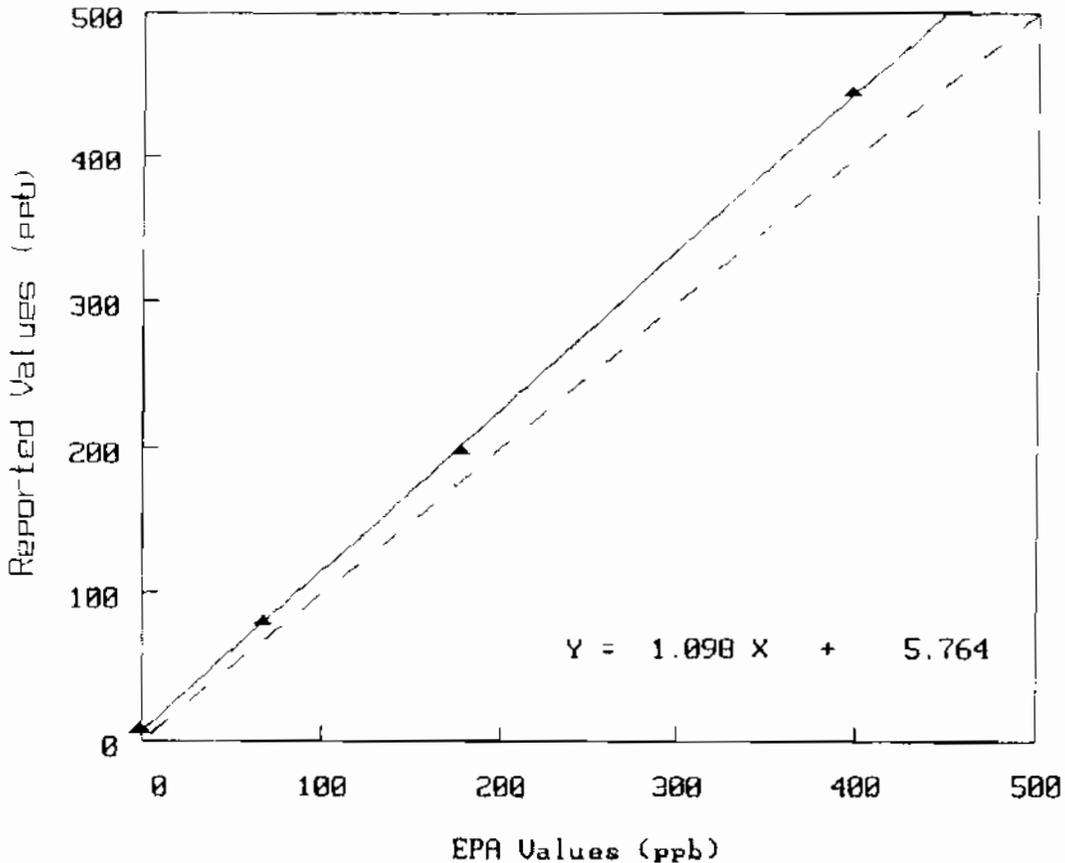
7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

Site Number:  
Your Site ID: VIE VIF *gpp*  
Monitor Serial #: 448

Audit Date: 04/29/2005  
Cyl. No.: FF11036  
Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	445.00	398.94	46.06	11.5
Med	199.00	178.57	20.43	11.4
Low	81.00	69.34	11.66	16.8
Zero	8.00	0.00	8.00	----
Mean Absolute % Difference =			13.3	

Slope = 1.098                    Intercept = 5.764                    r<sup>2</sup> = 0.993862





AIRS Site Number:

Audit Date: 04/29/2005

Monitor Serial #: 231

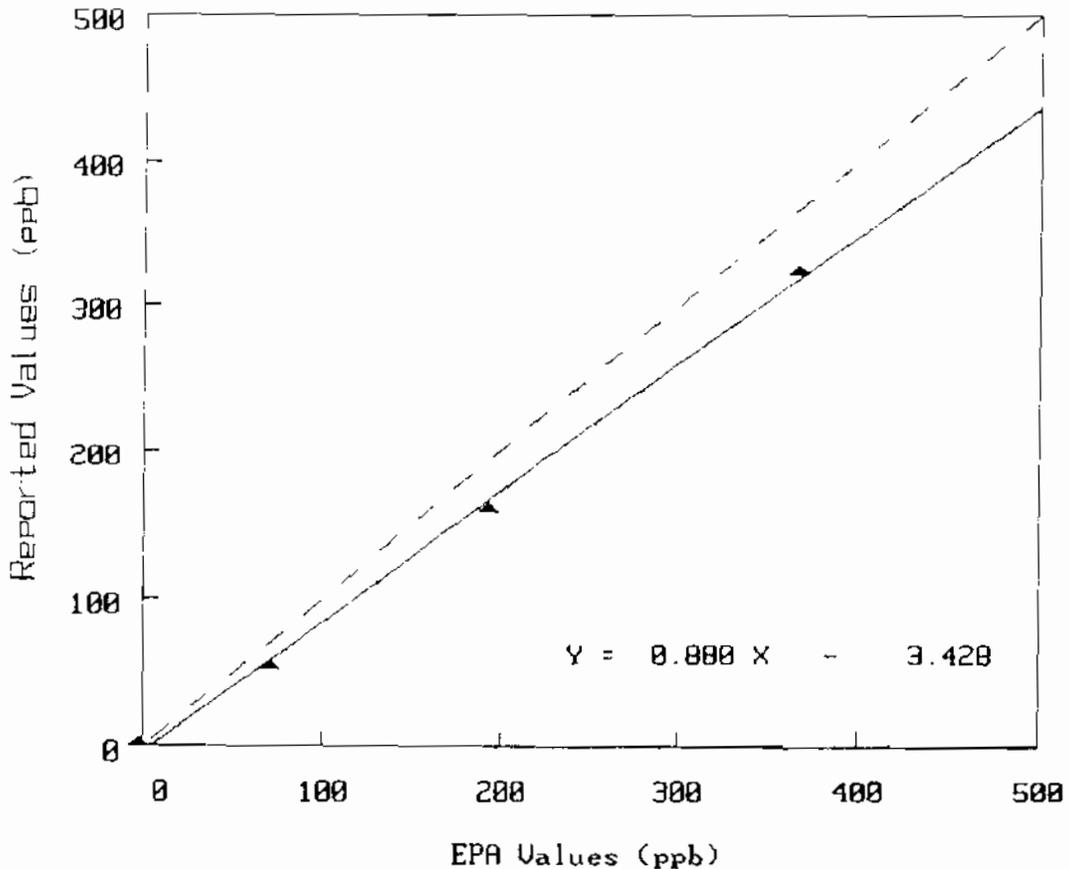
Device No.: 40396

Your Site ID: VIE VIF *OK*

Pot Setting	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
730	324.00	367.00	-43.00	-11.7
525	161.00	194.70	-33.70	-17.3
440	55.00	71.70	-16.70	-23.3
Zero	2.00	-1.70	3.70	----

Mean Absolute % Difference = 17.4

NO<sub>2</sub> Slope = 0.880 Intercept = -3.428 r<sup>2</sup> = 0.997728









Results of NO2 Continuous Audit  
for 1st Quarter 2005

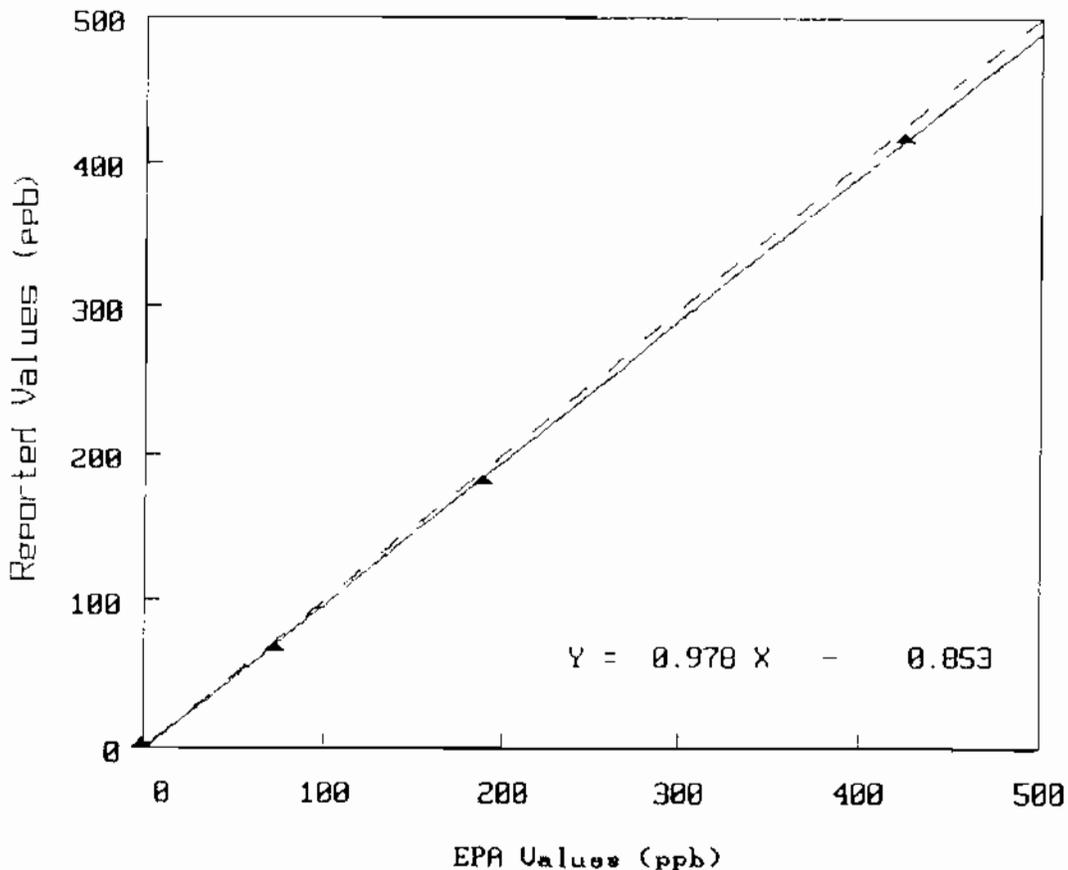
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:	Audit Date: 04/26/2005
Monitor Serial #: 579	NO Cyl. No.: FF11036
Site ID: LAG	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	417.00	425.17	-8.17	-1.9
Med	182.00	190.31	-8.31	-4.4
Low	69.00	73.90	-4.90	-6.6
Zero	3.00	0.00	3.00	----
Mean Absolute % Difference = 4.3				

NO Slope = 0.978      Intercept = -0.853      r<sup>2</sup> = 0.999642



AIRS Site Number:

Audit Date: 04/26/2005

Monitor Serial #: 579

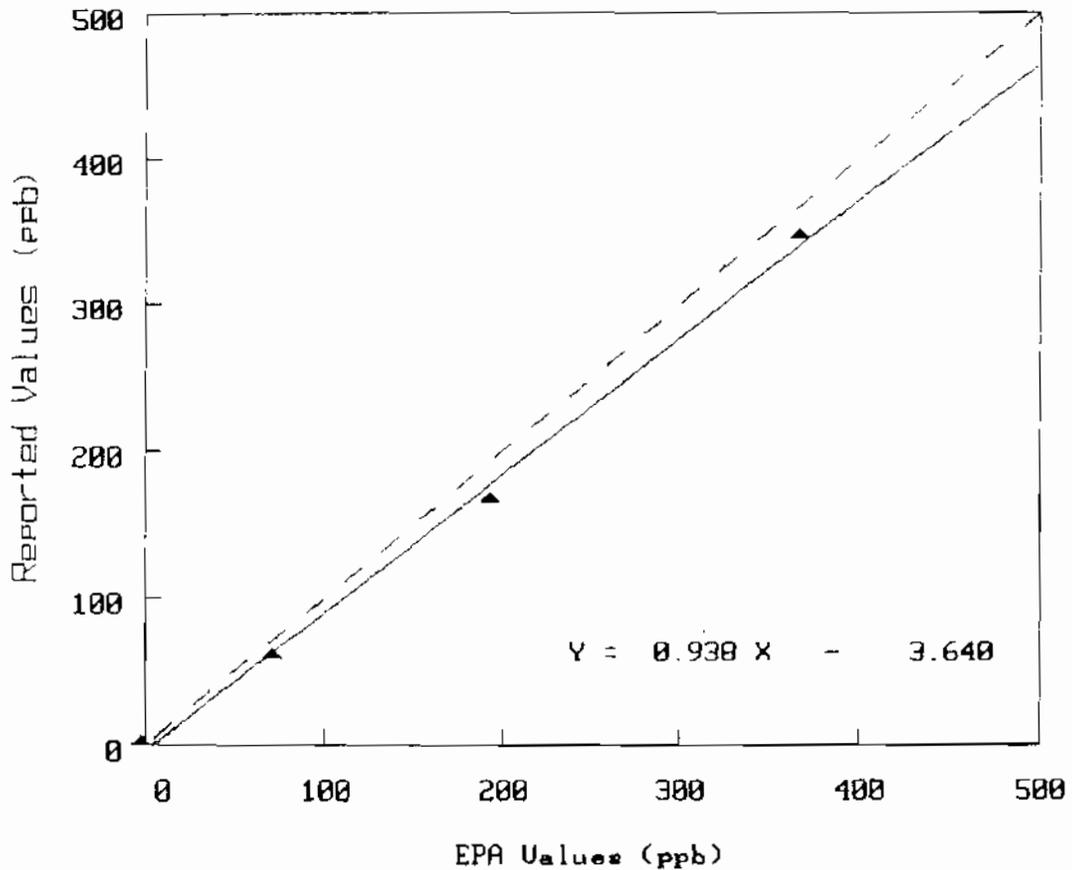
Device No.: 40396

Your Site ID: LAG

Pot Setting	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
730	347.00	367.00	-20.00	-5.4
525	168.00	194.70	-26.70	-13.7
440	61.00	71.70	-10.70	-14.9
Zero	2.00	-1.70	3.70	----

Mean Absolute % Difference = 11.4

NO<sub>2</sub> Slope = 0.938 Intercept = -3.640 r<sup>2</sup> = 0.996792





Results of Carbon Monoxide (CO) Audit  
for 1st Quarter 2005

06/02/2005

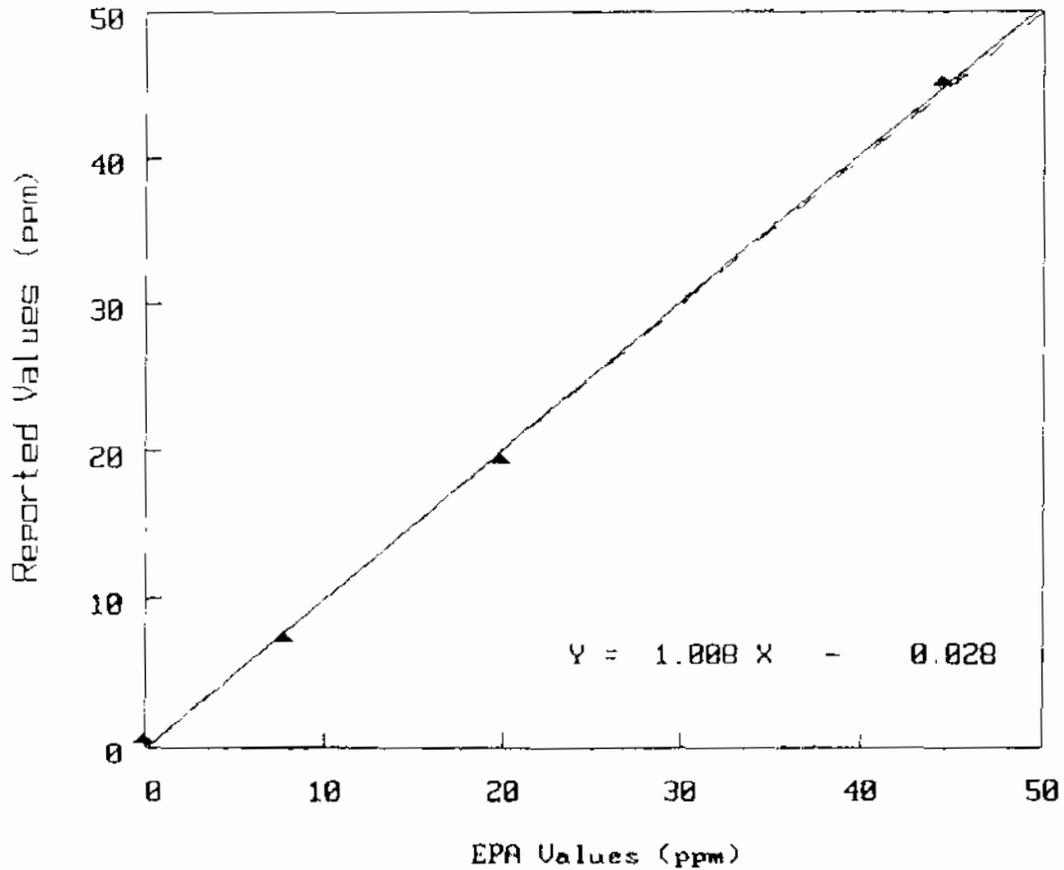
7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:	Audit Date: 04/20/2005
Your Site ID: MER	Cyl. No.: FF11036
Monitor Serial #: 091	Device No.: 40396

Valve Position	Reported Value	Actual Value	Difference	% Difference
	(----- ppm -----)			
High	45.20	44.57	0.63	1.4
Med	19.50	19.95	-0.45	-2.3
Low	7.40	7.75	-0.35	-4.5
Zero	0.60	0.00	0.60	----

Mean Absolute % Difference = 2.7

Slope = 1.008                    Intercept = -0.028                    r<sup>2</sup> = 0.999164







AIRS Site Number:

Audit Date: 04/20/2005

Monitor Serial #: 499

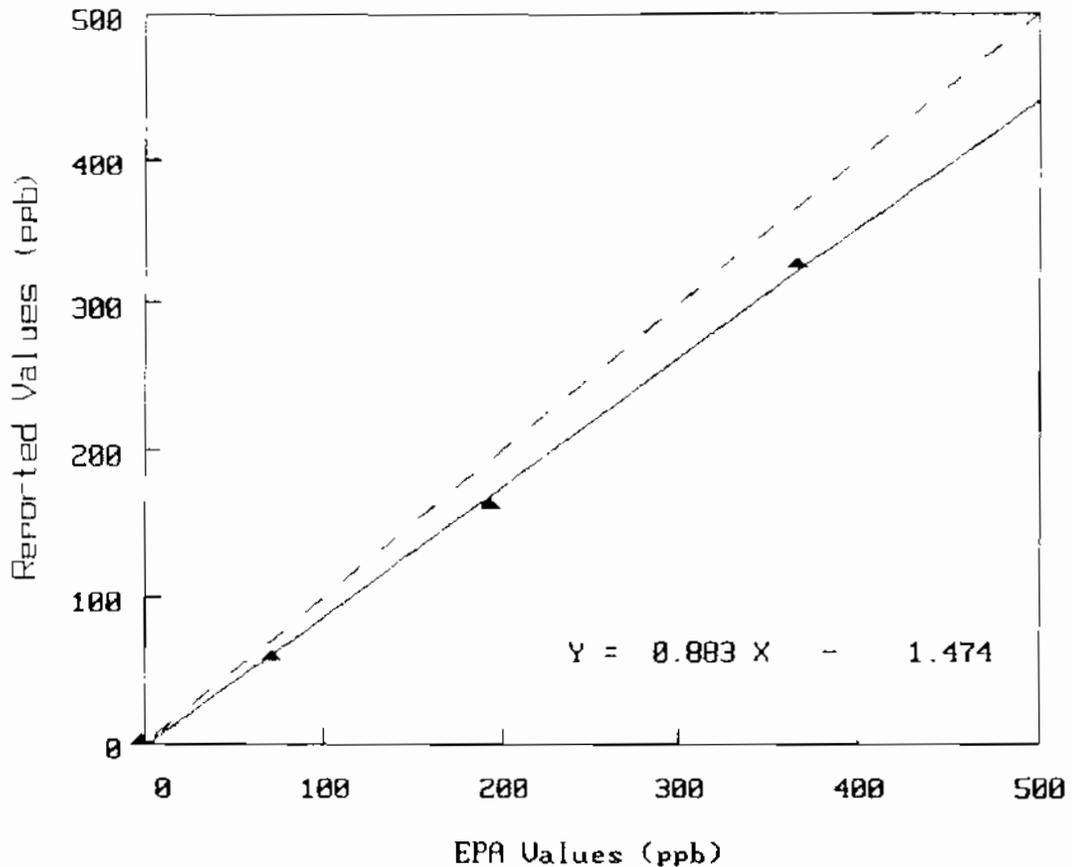
Device No.: 40396

Your Site ID: MER

Pot Setting	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
730	327.00	367.00	-40.00	-10.9
525	163.00	194.70	-31.70	-16.3
440	60.00	71.70	-11.70	-16.3
Zero	2.00	-1.70	3.70	----

Mean Absolute % Difference = 14.5

NO<sub>2</sub> Slope = 0.883 Intercept = -1.474 r<sup>2</sup> = 0.998309







Results of SO2 Continuous Audit  
for 1st Quarter 2005

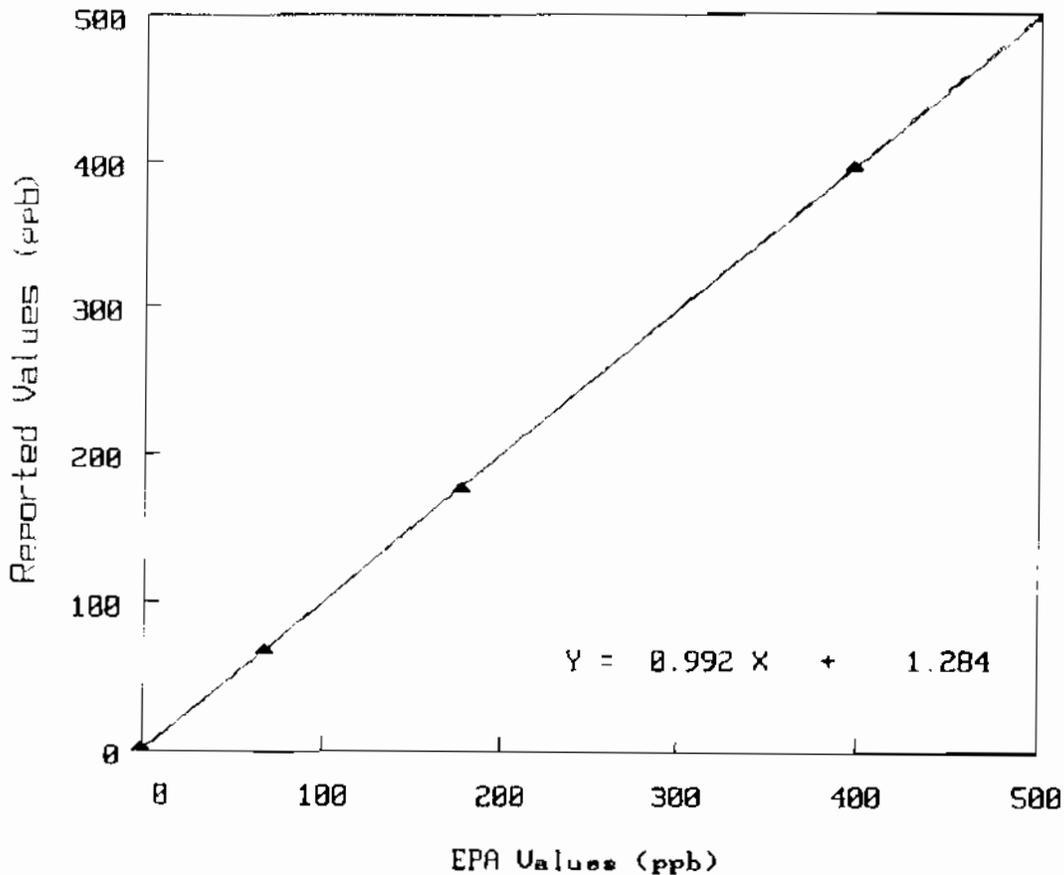
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

Site Number:	Audit Date: 04/20/2005
Your Site ID: HAN	Cyl. No.: FF11036
Monitor Serial #: 237	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	398.00	398.94	-0.94	-0.2
Med	177.00	178.57	-1.57	-0.9
Low	69.00	69.34	-0.34	-0.5
Zero	3.00	0.00	3.00	----
Mean Absolute % Difference			=	0.5

Slope = 0.992                    Intercept = 1.284                    r<sup>2</sup> = 0.999922





AIRS Site Number:

Audit Date: 04/20/2005

Monitor Serial #: 496

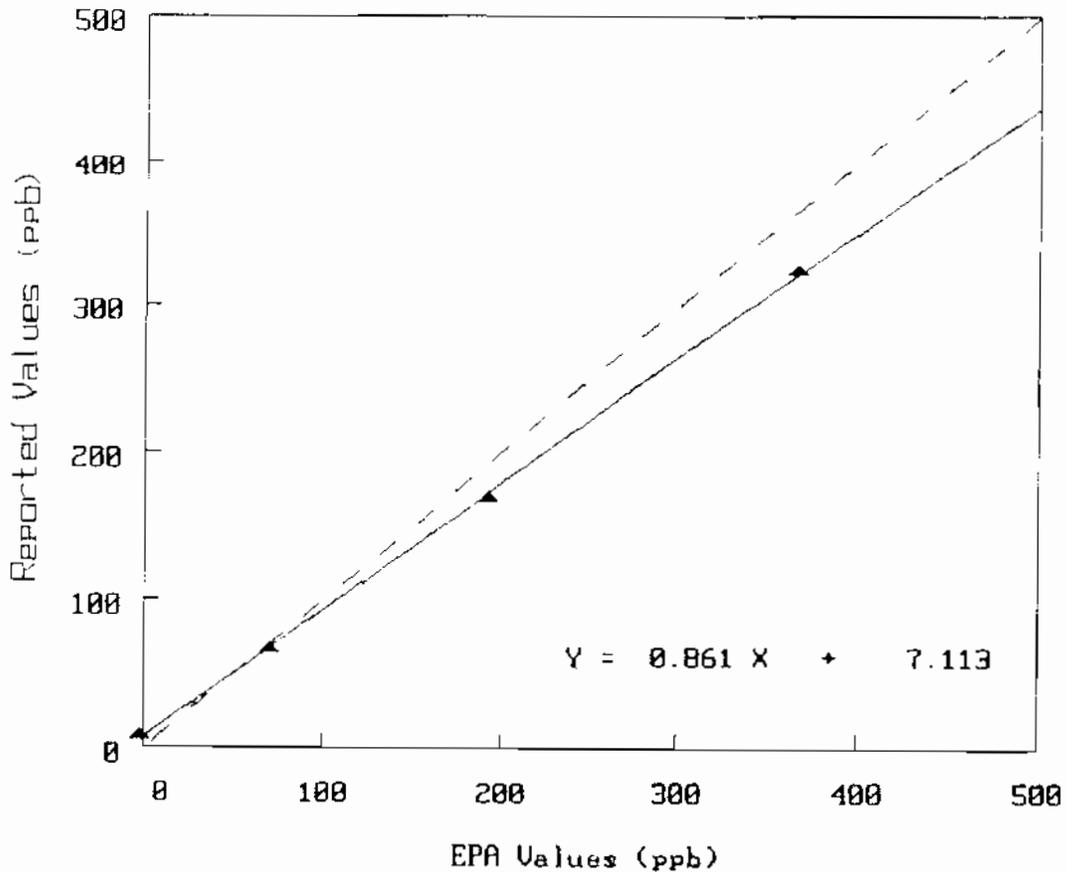
Device No.: 40396

Your Site ID: HAN

Pot Setting	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
730	325.00	367.00	-42.00	-11.4
525	171.00	194.70	-23.70	-12.2
440	68.00	71.70	-3.70	-5.2
Zero	8.00	-1.70	9.70	----

Mean Absolute % Difference = 3.6

NO<sub>2</sub> Slope = 0.861 Intercept = 7.113 r<sup>2</sup> = 0.999587







✓

Results of SO2 Continuous Audit

for 1st Quarter 2005

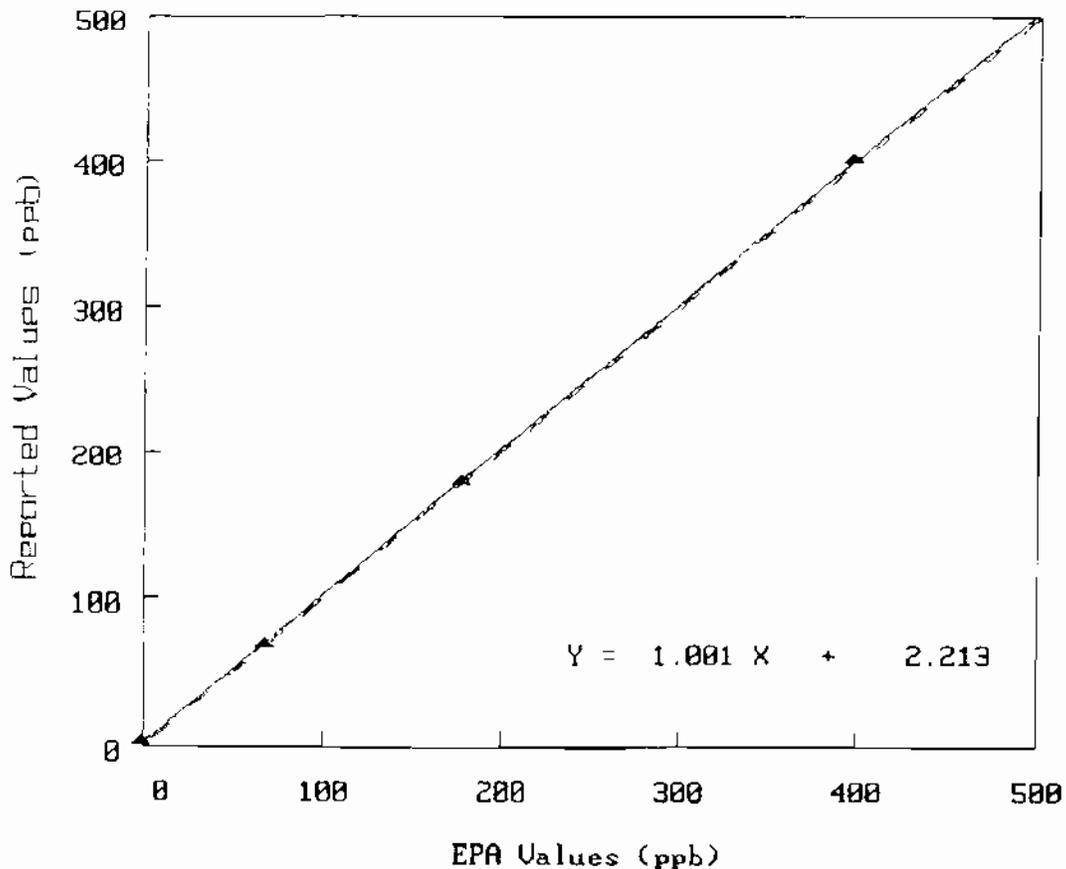
06/03/2005

7ME031                    0                    7ME031  
 Mr. Matthew Witosky  
 Attache, US EPA-US Embassy Mexico City  
 225 Vermillion Road  
 Brownsville, TX 78521

Site Number:	Audit Date: 04/27/2005
Your Site ID: SUR	Cyl. No.: FF11036
Monitor Serial #: 236	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
		ppb		
High	402.00	398.94	3.06	0.8
Med	180.00	178.57	1.43	0.8
Low	70.00	69.34	0.66	1.0
Zero	4.00	0.00	4.00	----
Mean Absolute % Difference			=	0.8

Slope = 1.001                    Intercept = 2.213                    r<sup>2</sup> = 0.999925



Results of NO2 Continuous Audit  
for 1st Quarter 2005

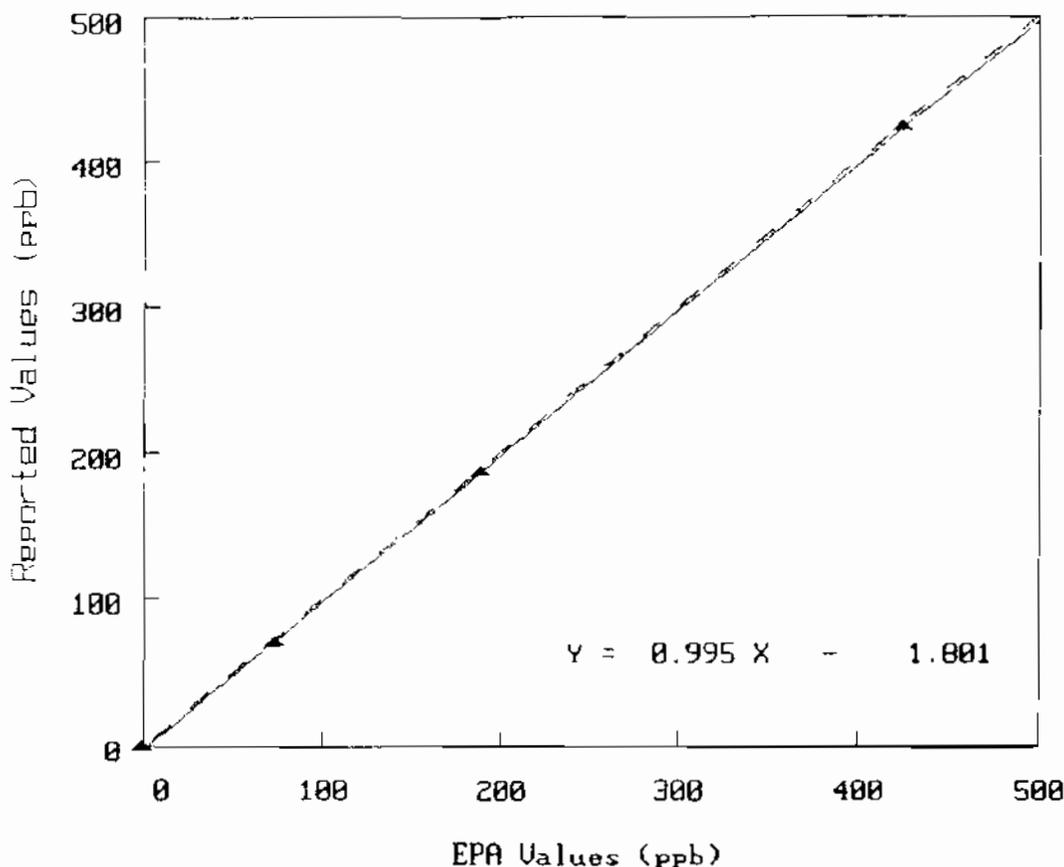
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:                    Audit Date:    04/27/2005  
Monitor Serial #:    525            NO Cyl. No.:    FF11036  
Site ID:    SUR                    Device No.:    40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	422.00	425.17	-3.17	-0.7
Med	187.00	190.31	-3.31	-1.7
Low	73.00	73.90	-0.90	-1.2
Zero	0.00	0.00	0.00	---
Mean Absolute % Difference =				2.6

NO Slope = 0.995    Intercept = -1.801    r<sup>2</sup> = 0.999931

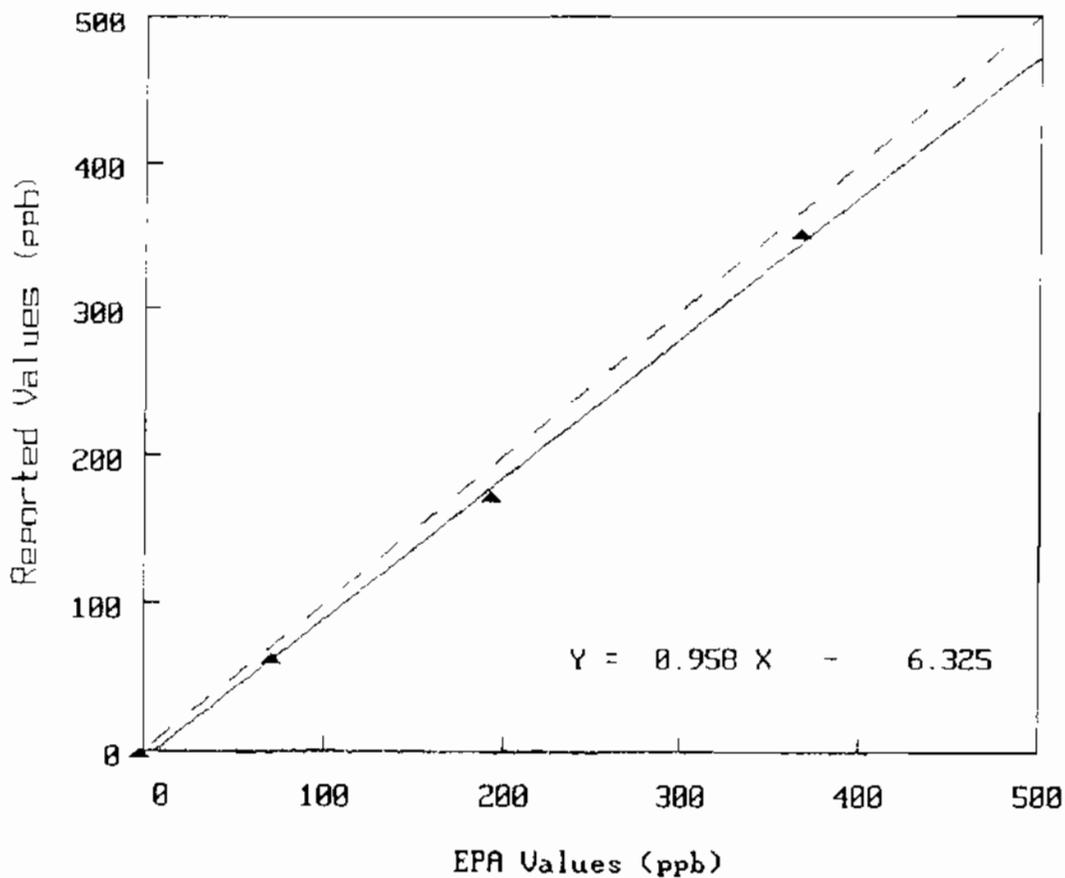


AIRS Site Number:                      Audit Date: 04/27/2005  
 Monitor Serial #: 525                    Device No.: 40396  
 Your Site ID: SUR

Pot Setting	Reported Values	Actual Values	Difference	% Difference
	(-----)                      ppb                      (-----)			
730	350.00	367.00	-17.00	-4.6
525	172.00	194.70	-22.70	-11.7
440	61.00	71.70	-10.70	-14.9
Zero	-3.00	-1.70	-1.30	----

Mean Absolute % Difference = 10.4

NO<sub>2</sub> Slope = 0.958                      Intercept = -6.325                      r<sup>2</sup> = 0.998382









Results of Carbon Monoxide (CO) Audit  
for 1st Quarter 2005

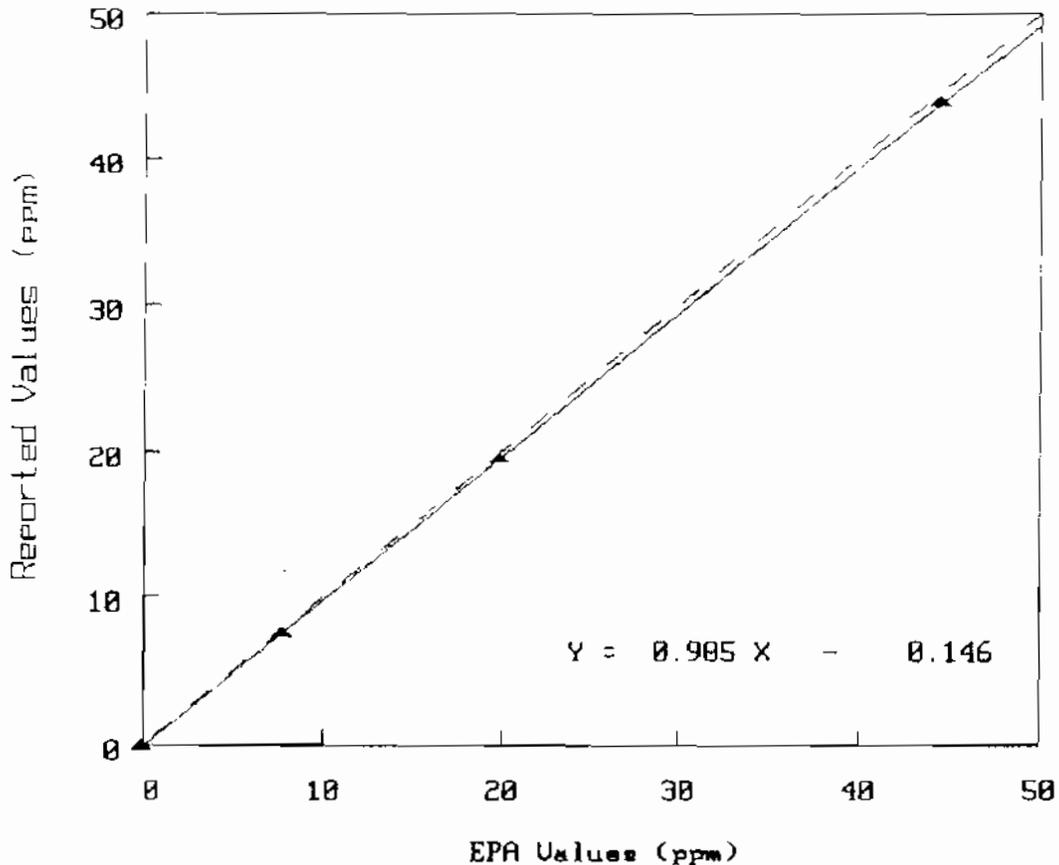
06/02/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:                    Audit Date: 04/27/2005  
Your Site ID: PED                    Cyl. No.: FF11036  
Monitor Serial #: 1169                Device No.: 40396

Valve Position	Reported Value	Actual Value	Difference	% Difference
	(----- ppm -----)			
High	43.80	44.57	-0.77	-1.7
Med	19.40	19.95	-0.55	-2.8
Low	7.50	7.75	-0.25	-3.2
Zero	-0.10	0.00	-0.10	----
Mean Absolute % Difference				= 2.6

Slope = 0.985                    Intercept = -0.146                    r<sup>2</sup> = 0.999986





Results of NO2 Continuous Audit  
for 1st Quarter 2005

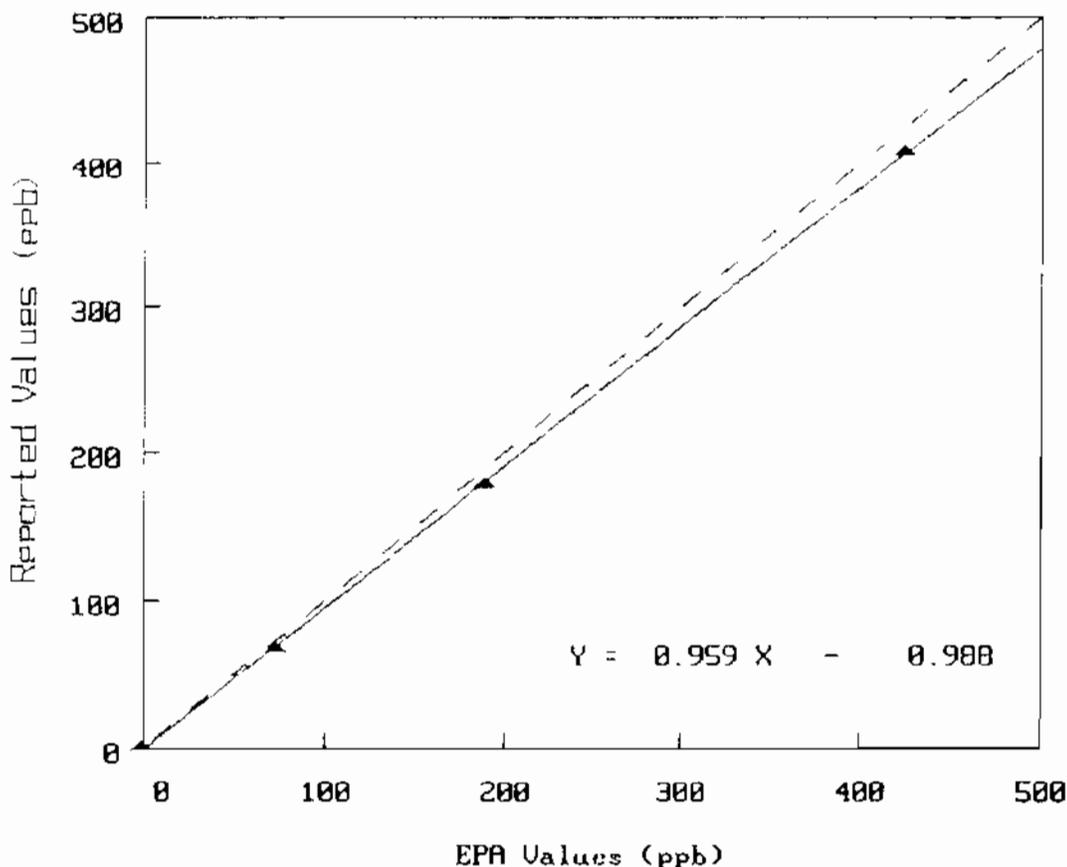
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:	Audit Date: 04/27/2005
Monitor Serial #: 517	NO Cyl. No.: FF11036
Site ID: PED	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	( - - - - - ppb - - - - - )			
High	408.10	425.17	-17.07	-4.0
Med	179.30	190.31	-11.01	-5.8
Low	68.00	73.90	-5.90	-8.0
Zero	1.80	0.00	1.80	----
Mean Absolute % Difference = 5.9				

NO Slope = 0.959      Intercept = -0.988      r<sup>2</sup> = 0.999811



Results of NO2 Continuous Audit  
for 1st Quarter 2005



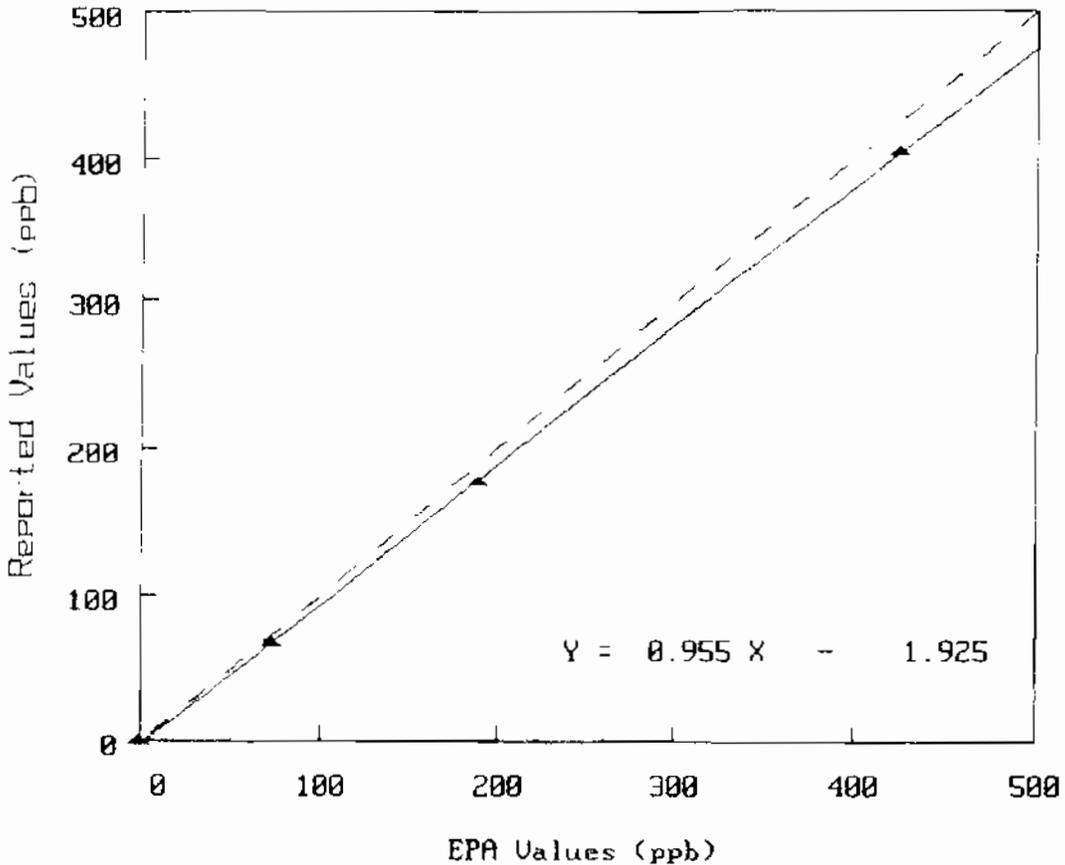
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:	Audit Date:	04/23/2005
Monitor Serial #: 517.	NO Cyl. No.:	FF11036
Site ID: PED	Device No.:	40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	( - - - - - ppb - - - - - )			
High	405.40	425.17	-19.77	-4.6
Med	177.10	190.31	-13.21	-6.9
Low	68.00	73.90	-5.90	-8.0
Zero	0.10	0.00	0.10	----
Mean Absolute % Difference =			6.5	

NO Slope = 0.955      Intercept = -1.925      r<sup>2</sup> = 0.999856



AIRS Site Number:

Audit Date: 04/23/2005

Monitor Serial #: 517.

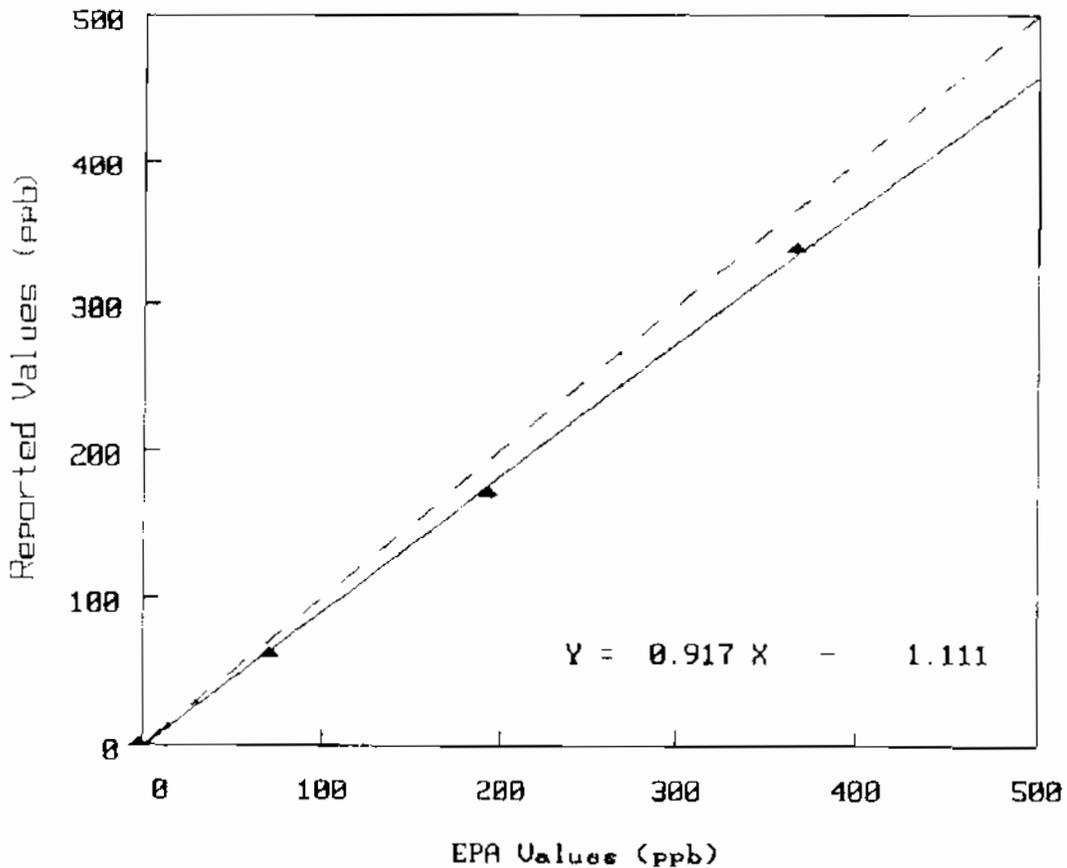
Device No.: 40396

Your Site ID: PED

Pot Setting	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
730	338.80	367.00	-28.20	-7.7
525	172.00	194.70	-22.70	-11.7
440	62.90	71.70	-8.80	-12.3
Zero	1.30	-1.70	3.00	----

Mean Absolute % Difference = 10.5

NO<sub>2</sub> Slope = 0.917 Intercept = -1.111 r<sup>2</sup> = 0.999092





Results of Carbon Monoxide (CO) Audit  
for 1st Quarter 2005

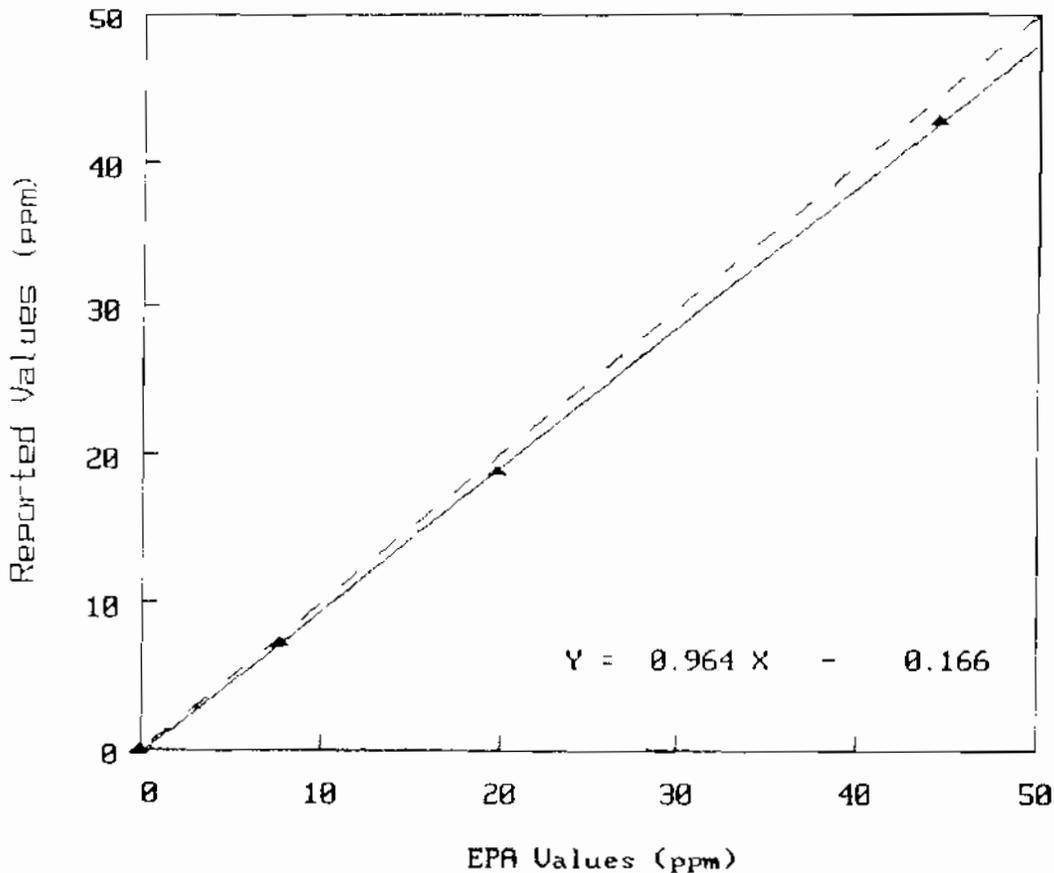
06/02/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:	Audit Date: 04/21/2005
Your Site ID: PLA	Cyl. No.: FF11036
Monitor Serial #: 488	Device No.: 40396

Valve Position	Reported Value	Actual Value	Difference	% Difference
	(----- ppm -----)			
High	42.90	44.57	-1.67	-3.7
Med	18.80	19.95	-1.15	-5.8
Low	7.40	7.75	-0.35	-4.5
Zero	-0.10	0.00	-0.10	----
Mean Absolute % Difference =				4.7

Slope = 0.964                    Intercept = -0.166                    r<sup>2</sup> = 0.999911



Results of SO2 Continuous Audit  
for 1st Quarter 2005

08/31/2005

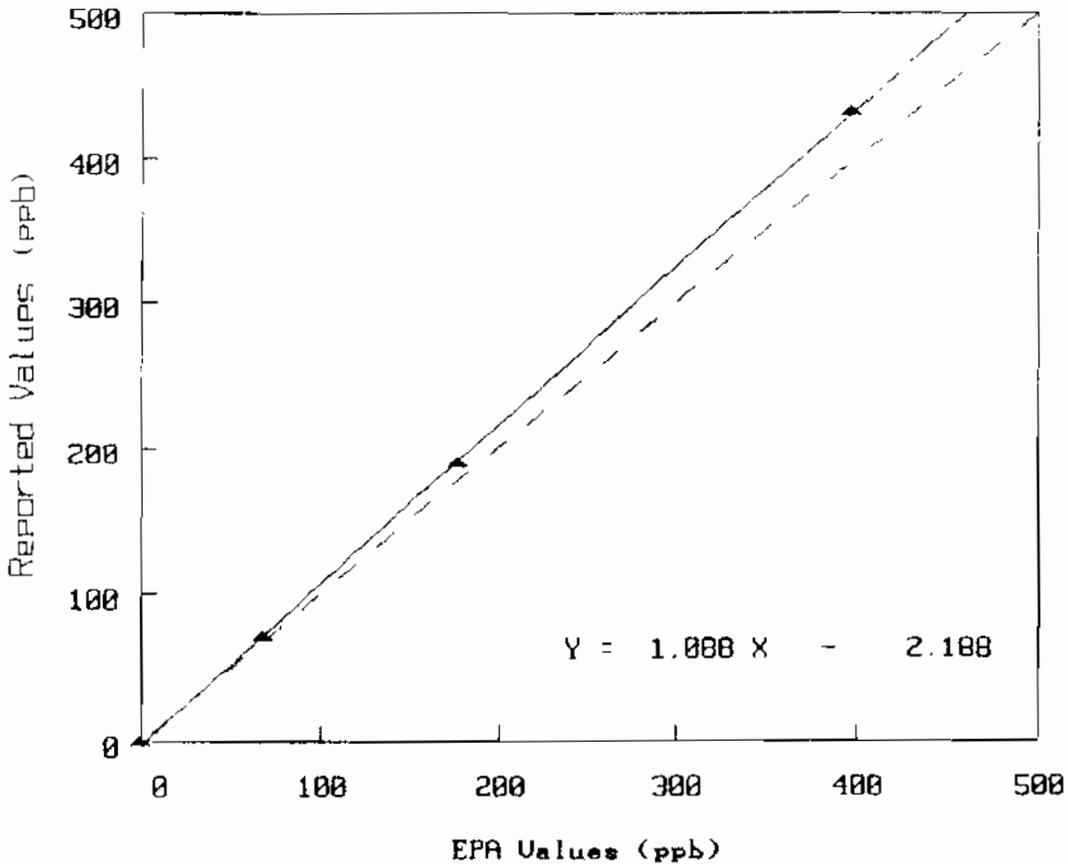
7ME031                      0                      7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

Site Number:	Audit Date: 04/21/2005
Your Site ID. PLA	Cyl. No.: FF11036
Monitor Serial #: 459	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	433.00	398.94	34.06	8.5
Med	190.00	178.57	11.43	6.4
Low	72.00	69.34	2.66	3.8
Zero	0.00	0.00	0.00	----

Mean Absolute % Difference = 6.3

Slope = 1.088                      Intercept = -2.188                      r<sup>2</sup> = 0.999888



Results of NO2 Continuous Audit  
for 1st Quarter 2005



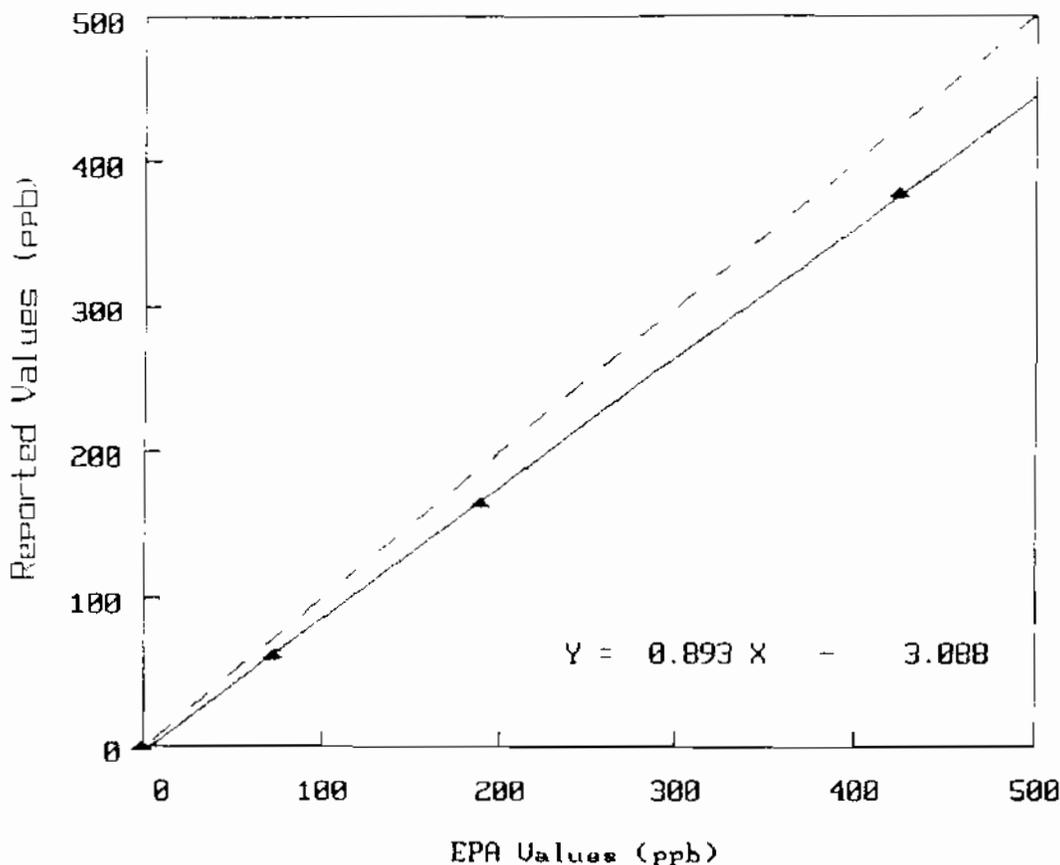
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:	Audit Date: 04/21/2005
Monitor Serial #: 529	NO Cyl. No.: FF11036
Site ID: PLA	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	378.00	425.17	-47.17	-11.1
Med	164.00	190.31	-26.31	-13.8
Low	61.00	73.90	-12.90	-17.5
Zero	0.00	0.00	0.00	----
Mean Absolute % Difference =				14.1

NO Slope = 0.893      Intercept = -3.088      r<sup>2</sup> = 0.999718



AIRS Site Number:

Audit Date: 04/21/2005

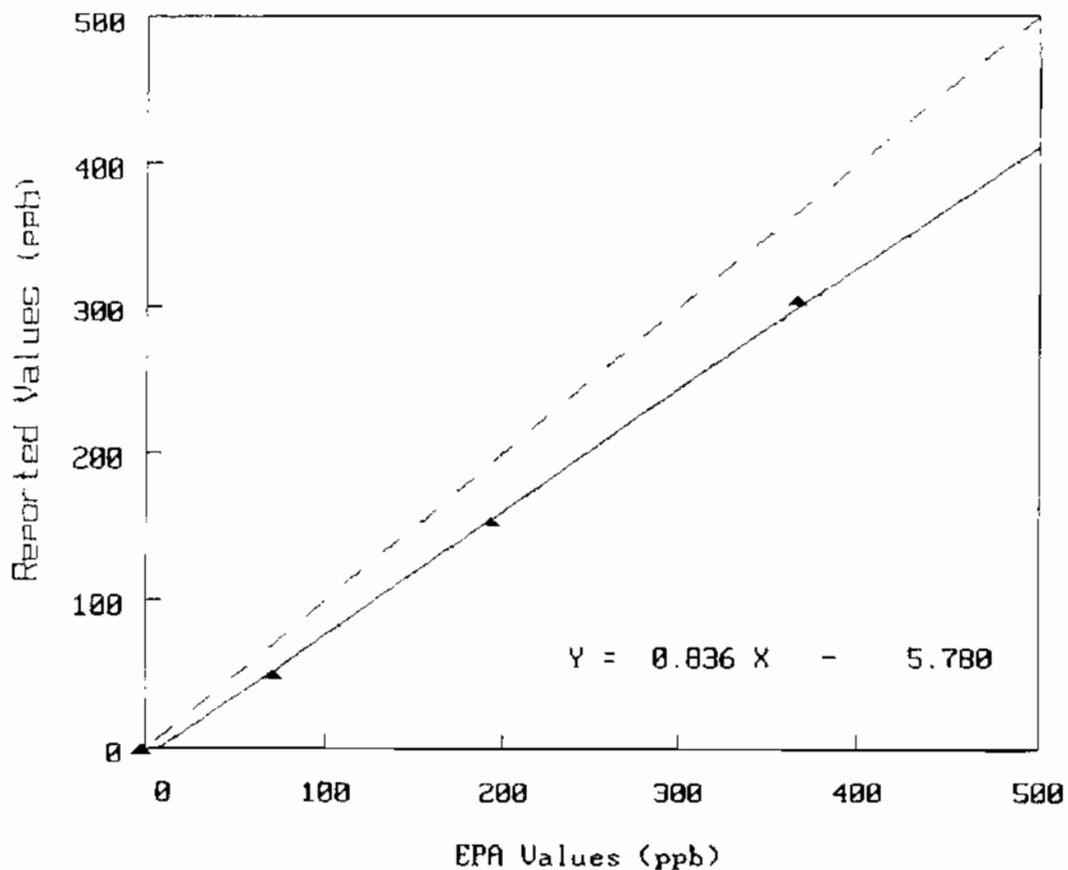
Monitor Serial #: 529

Device No.: 40396

Your Site ID: PLA

Pot Setting	Reported Values	Actual Values	Difference	% Difference
		ppb		
730	304.00	367.00	-63.00	-17.2
525	153.00	194.70	-41.70	-21.4
440	50.00	71.70	-21.70	-30.3
Zero	-2.00	-1.70	-0.30	----

Mean Absolute % Difference = 22.9

NO<sub>2</sub> Slope = 0.836 Intercept = -5.780 r<sup>2</sup> = 0.998734







Results of SO2 Continuous Audit  
for 1st Quarter 2005

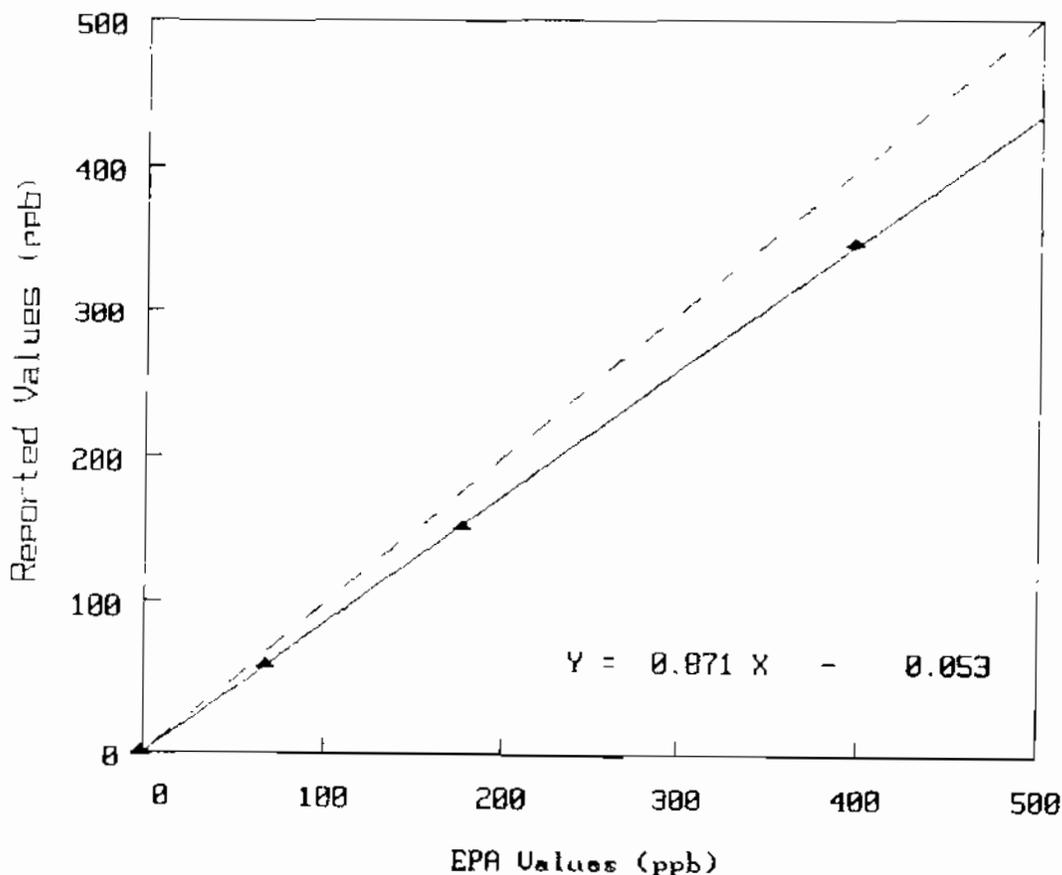
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

Site Number:	Audit Date: 04/22/2005
Your Site ID: CES	Cyl. No.: FF11036
Monitor Serial #: 498	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	348.00	398.94	-50.94	-12.8
Med	154.00	178.57	-24.57	-13.8
Low	60.00	69.34	-9.34	-13.5
Zero	1.00	0.00	1.00	-----
Mean Absolute % Difference =				13.3

Slope = 0.871                    Intercept = -0.053                    r<sup>2</sup> = 0.999946











Results of SO2 Continuous Audit  
for 1st Quarter 2005

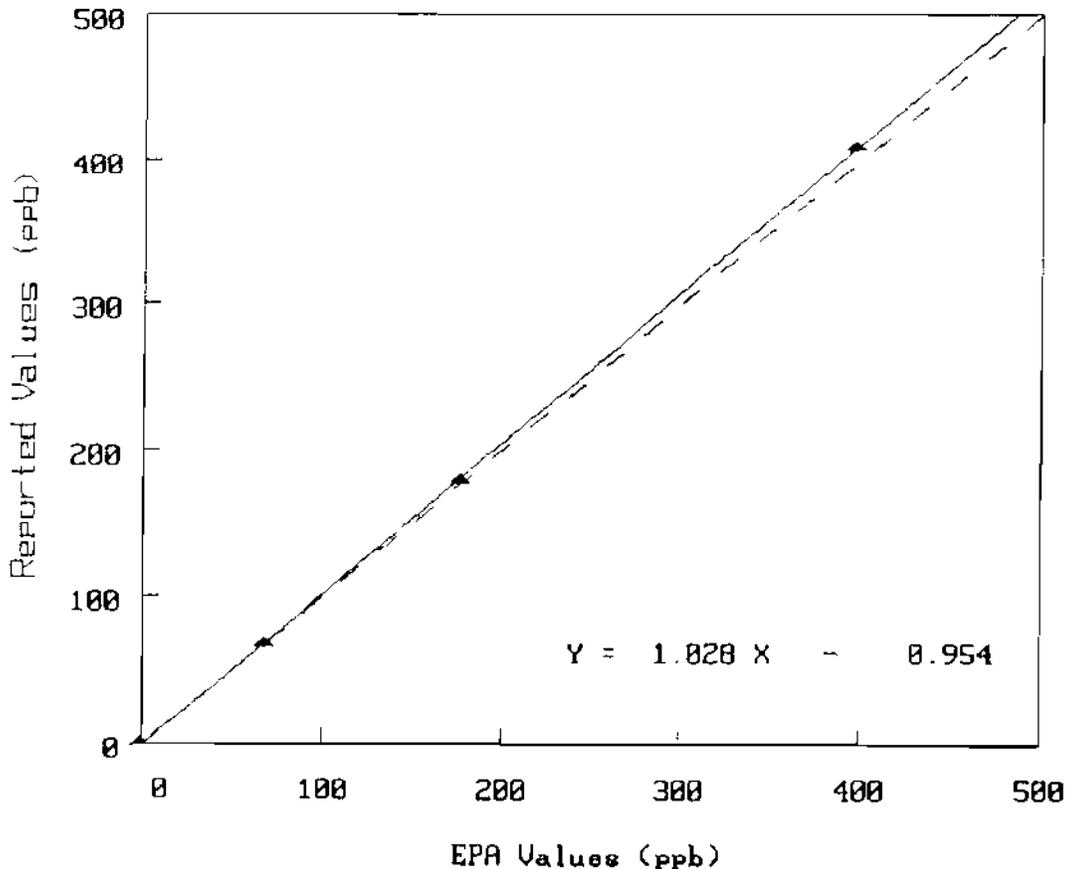
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

Site Number:	Audit Date: 04/28/2005
Your Site ID: UIZ	Cyl. No.: FF11036
Monitor Serial #: 462	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	( - - - - - ppb - - - - - )			
High	410.00	398.94	11.06	2.8
Med	181.00	178.57	2.43	1.4
Low	69.00	69.34	-0.34	-0.5
Zero	1.00	0.00	1.00	----
Mean Absolute % Difference =				1.5

Slope = 1.028                    Intercept = -0.954                    r<sup>2</sup> = 0.999908











Results of SO2 Continuous Audit  
for 1st Quarter 2005

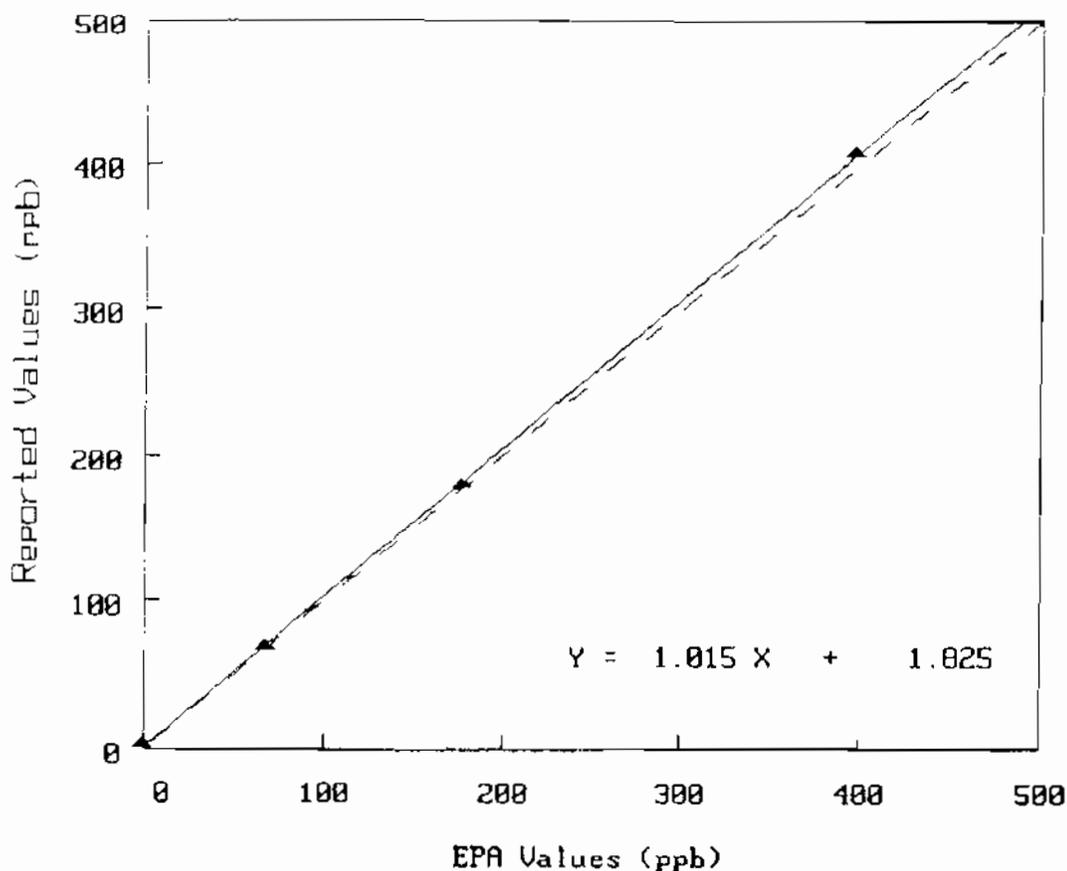
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

Site Number:	Audit Date: 04/28/2005
Your Site ID: TAX	Cyl. No.: FP11036
Monitor Serial #: 252	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	408.00	398.94	9.06	2.3
Med	181.00	178.57	2.43	1.4
Low	71.00	69.34	1.66	2.4
Zero	4.00	0.00	4.00	----
Mean Absolute % Difference =				2.0

Slope = 1.015                    Intercept = 1.825                    r<sup>2</sup> = 0.999872



Results of NO2 Continuous Audit  
for 1st Quarter 2005

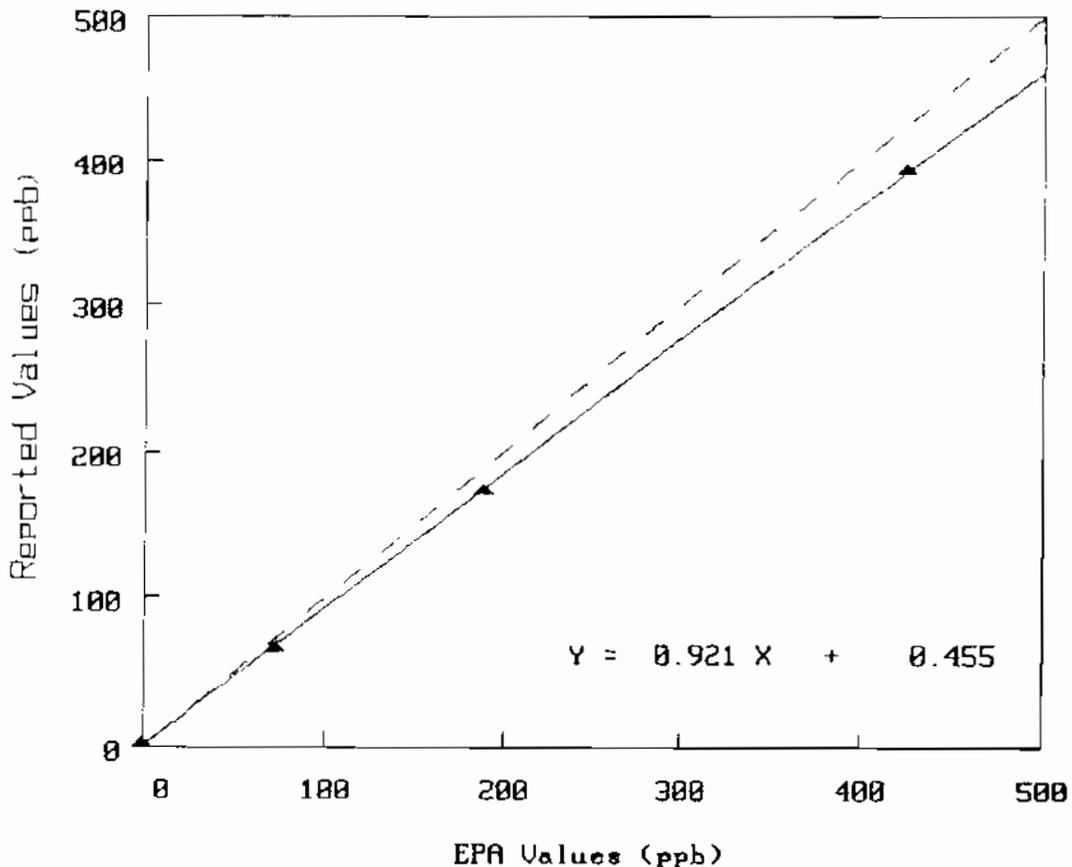
06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

AIRS Site Number:	Audit Date: 04/28/2005
Monitor Serial #: 521	NO Cyl. No.: FF11036
Site ID: TAX	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	393.00	425.17	-32.17	-7.6
Med	175.00	190.31	-15.31	-8.0
Low	66.00	73.90	-7.90	-10.7
Zero	3.00	0.00	3.00	----
-----				
Mean Absolute % Difference = 8.8				

NO Slope = 0.921      Intercept = 0.455      r<sup>2</sup> = 0.999838



AIRS Site Number:

Audit Date: 04/29/2005

Monitor Serial #: 521

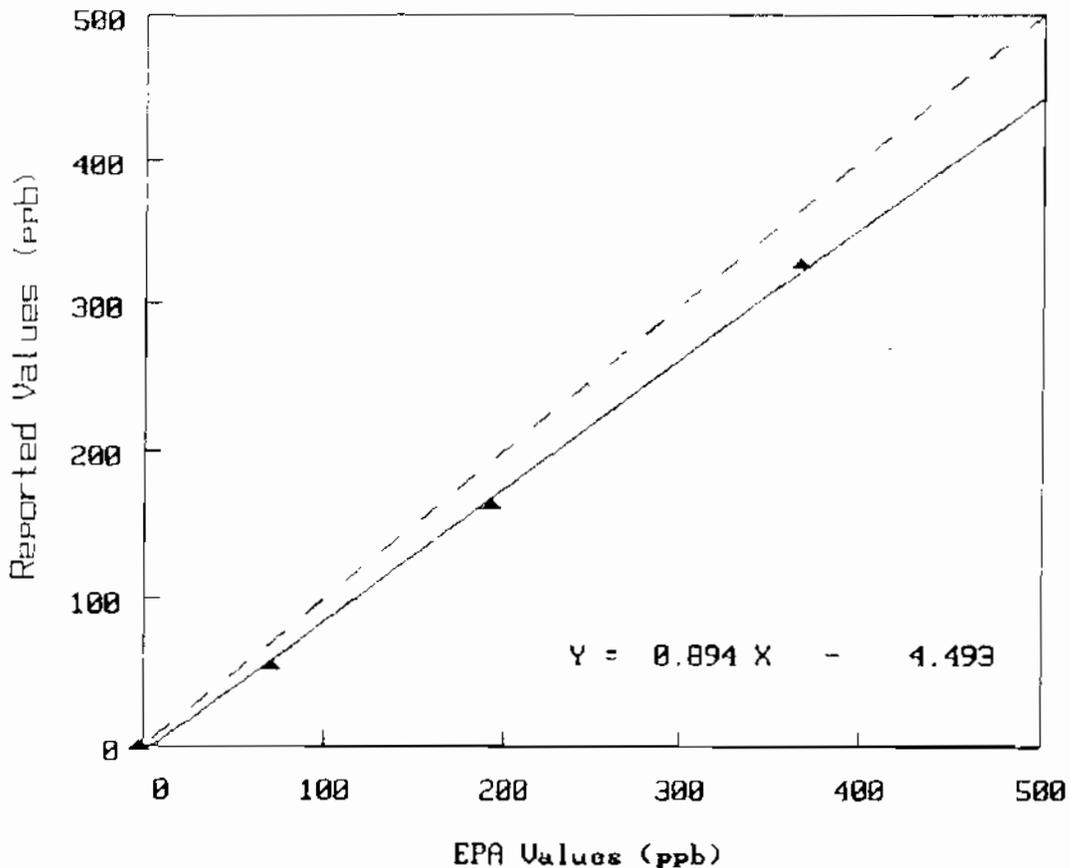
Device No.: 40396

Your Site ID: TAX

Pot Setting	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
730	328.00	367.00	-39.00	-10.6
525	183.00	194.70	-31.70	-16.3
440	56.00	71.70	-15.70	-21.9
Zero	0.00	-1.70	1.70	----

Mean Absolute % Difference = 16.3

NO<sub>2</sub> Slope = 0.894 Intercept = -4.493 r<sup>2</sup> = 0.998214





Results of SO2 Continuous Audit  
for 1st Quarter 2005

06/03/2005

7ME031                    0                    7ME031  
Mr. Matthew Witosky  
Attache, US EPA-US Embassy Mexico City  
225 Vermillion Road  
Brownsville, TX 78521

Site Number:	Audit Date: 04/22/2005
Your Site ID: TAH	Cyl. No.: FF11036
Monitor Serial #: 460	Device No.: 40396

Valve Position	Reported Values	Actual Values	Difference	% Difference
	(----- ppb -----)			
High	399.00	398.94	0.06	0.0
Med	177.00	178.57	-1.57	-0.9
Low	68.00	69.34	-1.34	-1.9
Zero	3.00	0.00	3.00	----
Mean Absolute % Difference =				0.9

Slope = 0.996                    Intercept = 0.700                    r<sup>2</sup> = 0.999871

