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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I. <u>Executive Summary</u>

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_3) and Carbon Monoxide (CO), and the potential for system improvements should be explored for Nitrogen Dioxide (NO₂) and Sulfur Dioxide (SO₂) 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_2 results reflect an improvement in bias and an erosion is 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 thinking¹.

¹ 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 Panamerican de Muestreo Normalizado*). In 1971, Mexico passed the Law for Preventing and Controlling Environmental Contamination, (*Ley para Prevenir y Controlar la Contaminatión 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 heath 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 Subsecratary 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 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. <u>USEPA Performance Audits and the National Performance Audit</u> <u>Program (NPAP)</u>

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 auditspecific 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 NISTtraceably 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. <u>Technical System Audits (TSAs) and Management System</u> <u>Reviews (MSRs)</u>

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.

<u>Table 1</u>

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

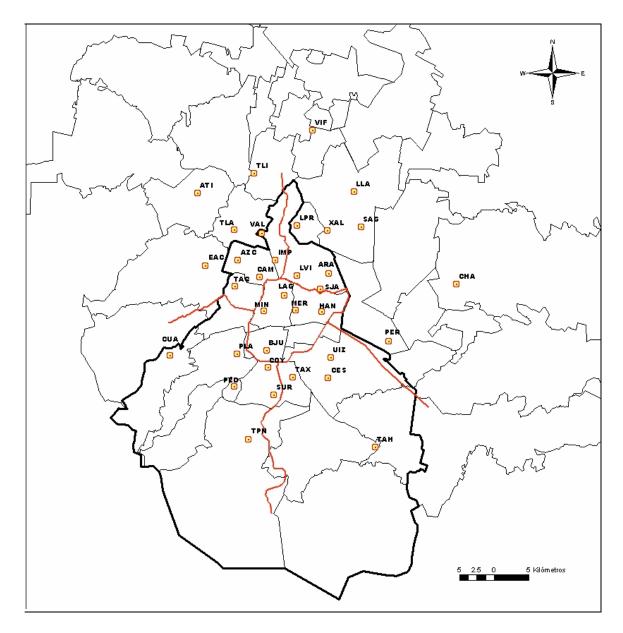
Actual Instrumentation

Zone	Station Name	Initials	O ₃	CO	SO ₂	NOx	PM ₁₀	PM _{2.5}
	Vallejo	VAL						
	Tacuba	TAC						
	ENEP Acatlán	EAC						
	Azcapotzalco	AZC						
Northwest	Tlalnepantla	TLA						
	I. M. P.	IMP						
	Tultitlán	TLI						
	Atizapán	ATI						
	Cuitlahuac	CUI						
	Camarones	CAM						
	Los Laureles	LLA						
	La Presa	LPR						
	La Villa	LVI						
	San Agustín	SAG						
	Xalostoc	XAL						
Northeast	Aragón	ARA						
	Nezahualcoyotl	NET						
	Villa de las Flores	VIF						
	Chapingo	CHA						
	Perla Reforma	PER						
	San Juan de Aragón	SJA						
	Lagunilla	LAG						
	Merced	MER						
Center	Hangars	HAN						
	Benito Juárez	BJU						
	Metro Insurgentes	MIN						
	Santa Ursula	SUR						
	Pedregal	PED						
Southwest	Plateros	PLA						
	Cuajimalpa	CUA						
	Tlalpan	TPN						
	Coyoacán	COY						
	Cerro de la Estrella	CES						
Southeast	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 (O₃), Nitric Oxide (NO), Nitrogen Dioxide (NO₂) Carbon Monoxide (CO), and Sulfur Dioxide (SO₂). The 2005 audit included NO₂ analysis, rather than analyzing NO as being representative of NO_x. 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 excedances 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. <u>Audits conducted in 2005</u>

1. <u>Ozone (O₃)</u>

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. <u>Nitric Oxide (NO)</u>

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. <u>Nitrogen Dioxide (NO₂)</u>

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. <u>Sulfur Dioxide (SO₂)</u>

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. <u>Ozone (O₃)</u>

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. <u>Nitric Oxide (NO)</u>

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. <u>Nitrogen Dioxide (NO₂)</u>

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. <u>Sulfur Dioxide (SO₂)</u>

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.

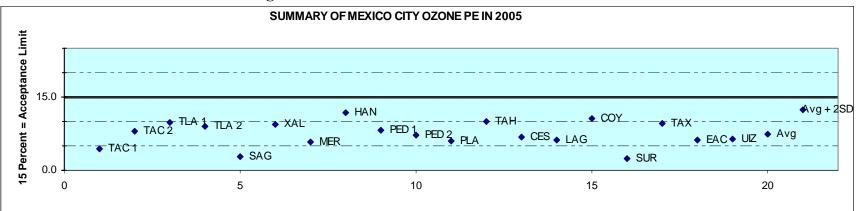
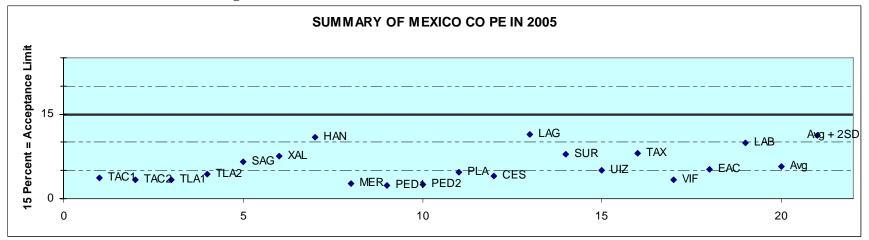


Figure 2 Ozone Mean Absolute Percent Difference

Figure 3 Carbon Monoxide Mean Absolute Percent Difference



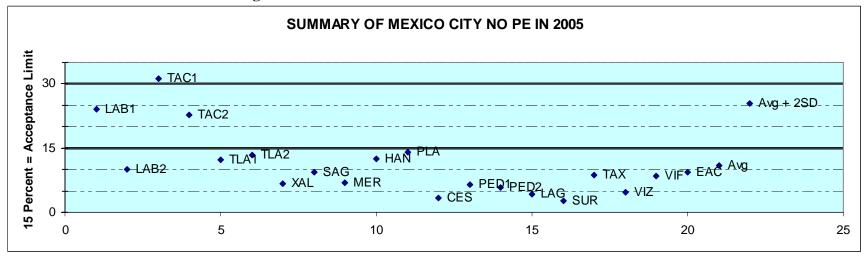
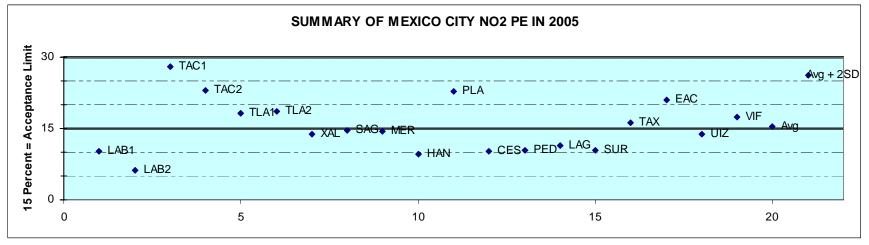


Figure 4 Nitric Oxide Mean Absolute Percent Difference

Figure 5 Nitrogen Dioxide Mean Absolute Percent Difference



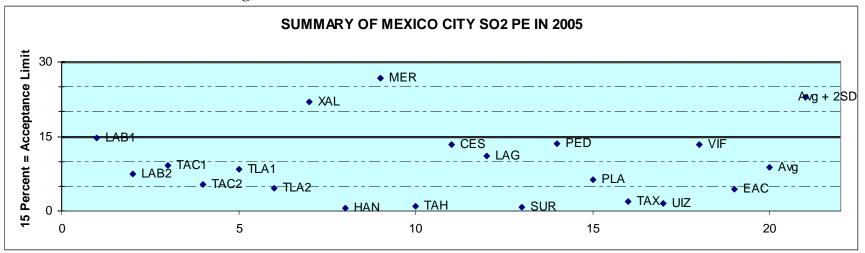
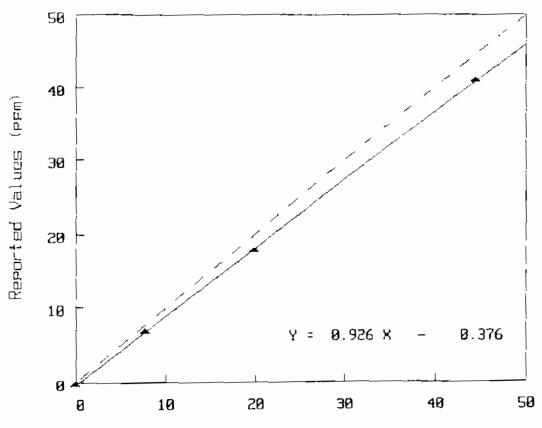


Figure 6 Sulfur Dioxide Mean Absolute Percent Difference

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: 05/02/2005 Your Site ID: LAB Cyl. No.: FF11036 Monitor Serial #: 1781. Device No.: 40396 Valve Reported Actual 5 Value Value Position Difference Difference ____ ____ (----- ppm - - ; High 41.00 44.57 -3.57 -8.0 17.80 -2.15 Med 19.95 -10.8 7.75 Low 6.90 -0.85 -11.0 Zero -0.30 0.00 -0.30 ____ - - - - -Mean Absolute % Difference 9.9 \equiv Slope = 0.926 Intercept = -0.376 $r^2 = 0.399882$

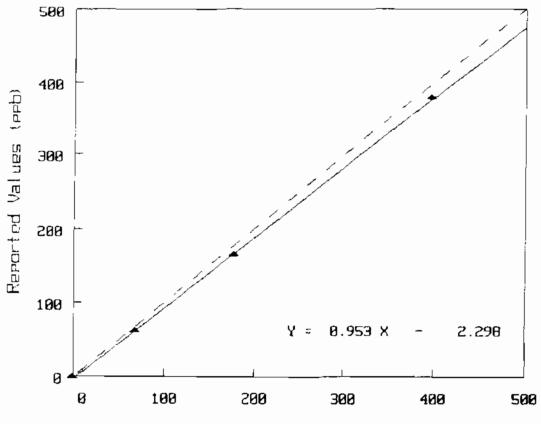


EPA Values (ppm)

Results of SO2 Continuous Audit

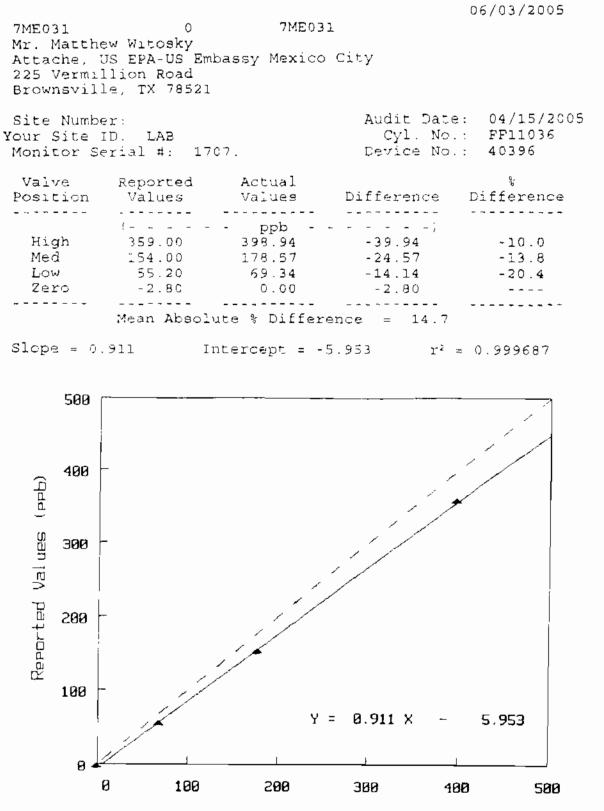
for 1st Quarter 2005

06/03/2005 7ME031 0 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 05/02/2005 Site Number: Cyl. No.: FF11036 Your Site ID: LAB Monitor Serial #: 1707 Device No.: 40396 ŝ Valve Reported Actual Difference Difference Position Values Values ------_ _ _ _ _ _ _ _ _ - - - - - -(- - -_ ppb - - ~ -] 379.20 398.94 -19.74 -4.9 High 165.10 Med 178.57 -13.47 -7.5 62.30 69.34 -7.04 -10.2 Low 0.00 0.40 - - - -Zero 0.40 ----------. Mean Absolute % Difference = 7.5 Slope = 0.953 Intercept = -2.298 r² = 0.999772



EPA Values (ppb)

 \checkmark



EPA Values (ppb)

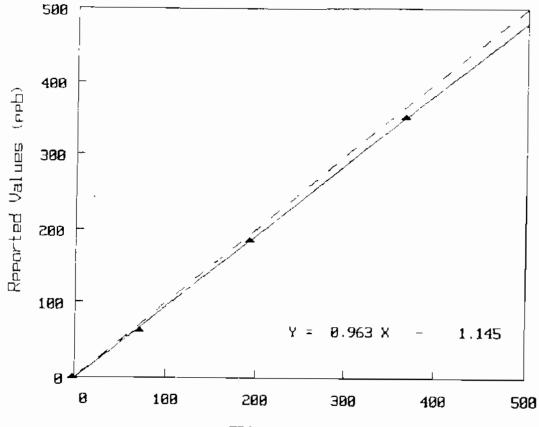
Results of NO₂ Continuous Audit -- Page 2

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

Pot	Reported	Actual		2
Setting	Values	Values	Difference	Difference
	(dqq	•)	
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
Zerc	0.60	-1.70	2 30	

Mean Absolute % Difference = 6.3

 NO_2 Slope = 0.963 Intercept =-1.145 $r^2 = 0.999603$



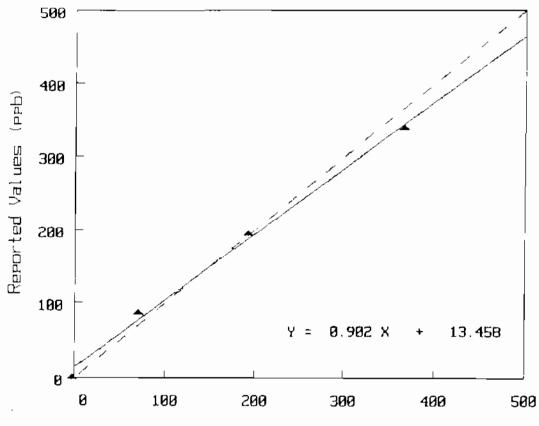
EPA Values (ppb)

Results of NO₂ Continuous Audit -- Page 2

AIRS Site Number: Audit Date: 04/15/2005 Monitor Serial #: 2356. Device No.: 40395 Your Site ID: LAB

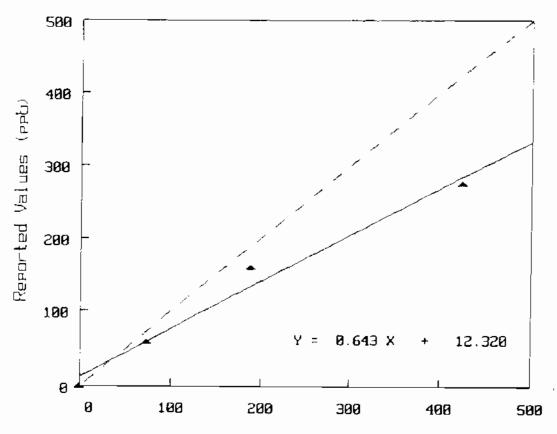
Pot Setting	Reported Values	Actual Values	Difference	¥ Difference
	{	dqq -)	
730	339.20	367.00	-27.80	-7,6
525	195.50	194.70	0.80	0.4
440	88.20	71.70	16.50	23.0
Zero	0.90	-1.70	2.60	

Mean Absolute % Difference = 10.3NO₂ Slope = 0.902 Intercept = 13.458 r² = 0.995419



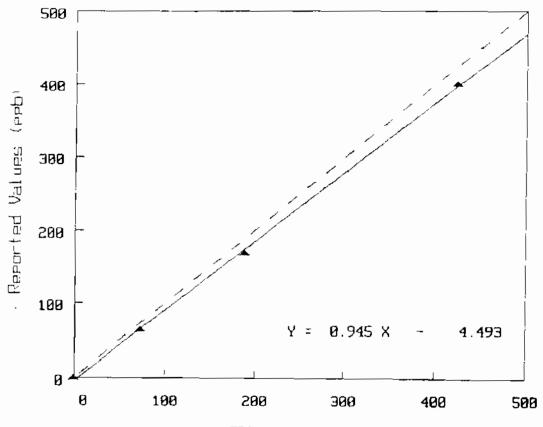
EPA Values (ppb)

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 Device No.: 40396 Site ID: LAB ¥. Valve Reported Actual Position Values Values Difference Difference ---**---**--(---ppb - - - - -) 274.80 425.17 -150.37 Hidh -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 r² = 0.979805



EPA Values (ppb)

06/03/2005 Ď 7ME031 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 05/02/2005 AIRS Site Number: Monitor Serial #: 2356 NO Cyl. No.: FF11036 Device No.: 40396 Site ID: LAB ŝ Valve Reported Actual Difference Difference Values Values Position -----_ _ _ _ _ _ _ _ _ _ 1---ppb - - - -) 400.10 -25.07 -5.9 High 425.17 Med 170.20 190.31 -20,11 -10.6 Low 73.90 -10.10 63.80 -13.7 -0.30 Zero -0.30 0.00 ~ **- - - - -**-----------Mean Absolute % Difference = 10.0 NO Slope = 0.945 Intercept = -4.493 r² = 0.999414



EPA Values (ppb)

Results of Ozone (O3) Audit

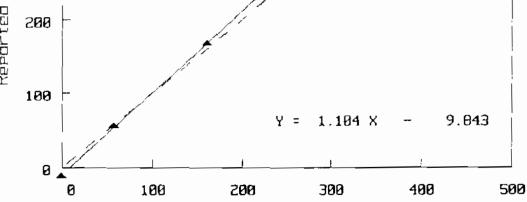
for 1st Quarter 2005

06/02/2005 7ME031 0 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, FX 78521 Actual values adjusted for site barometric pressure: 586.67 mm Hg AIRS Site Number: Audit Date: 04/18/2005 Monitor Serial #: 444 Audit Device No.: 40396 Your Site ID: TAC ĥ Pot. Reported Actual Setting Values Values Difference Difference ------ - -_ _ _ _ ... _ ppb - Ì Ô -3.0 0.5 -3.5 690 363.0 341.7 21.3 6.2 525 174.0 161 8 12.2 7.5 440 64.0 58.1 5.9 10.2 Mean Absolute % Difference = 8.0 Slope = 1.067 Intercept = -0.472 r² = 0.999739500 400 Reported Values (ppb) 300 200 100 $Y = 1.067 \times -$ 0.472 0 Ø 100 80S 380 400 500

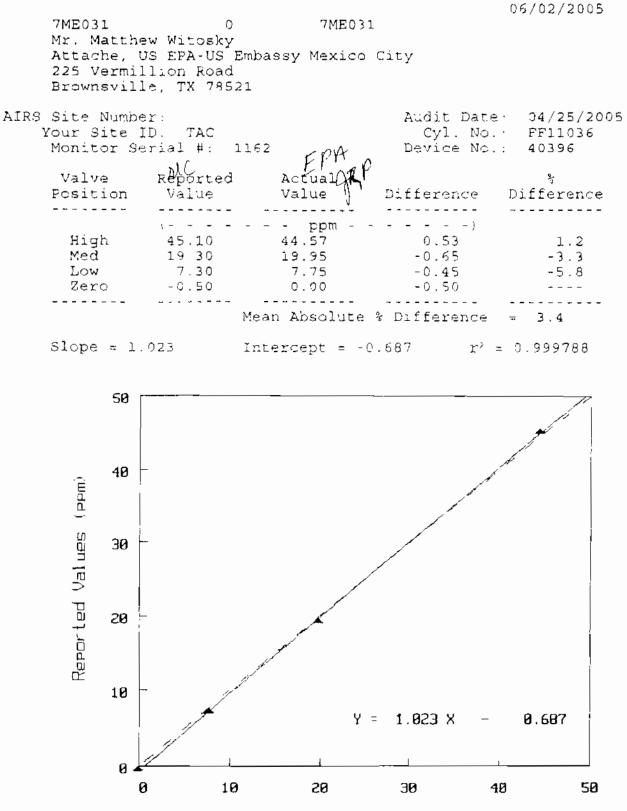
EPA Values (ppb)

 \checkmark

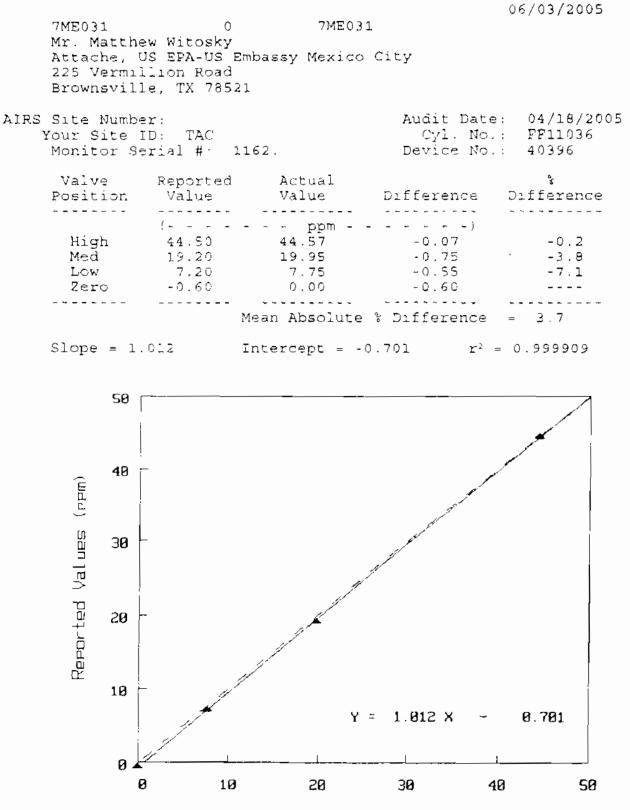
06/02/2005 7ME031 Э 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Actual values adjusted for site barcmetric pressure: 584.14 mm Hg AIRS Site Number . Audit Date: 04/12/2005 Monitor Serial #: 444. Audit Device No.: 40396 Your Site ID: TAC Pot. Reported Actual Ŷ Setting Values Values Difference Difference -----. _ _ _ _ _ _ _ _ _ _ _ _ -----(- - - ppb - - - } -12.0 0.5 -12.5 0 _ _ _ _ 366.0 690 341.2 24.8 7.3 525 169.C 161.5 7.5 4.6 57.0 58.0 -1.7 440 -1.0 - - - - - -. Mean Absolute % Difference = 4.5 Slope = 1.104 Intercept = -9.843 r² = 0.999804 500 400 Reported Values (PPb) 300 200



EPA Values (ppb)



EPA Values (ppm)



EPA Values (ppm)

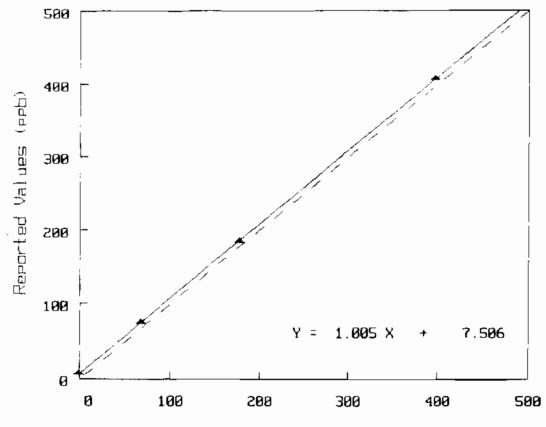
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Results of SO2 Continuous Audit

for 1st Quarter 2005

06/03/2005

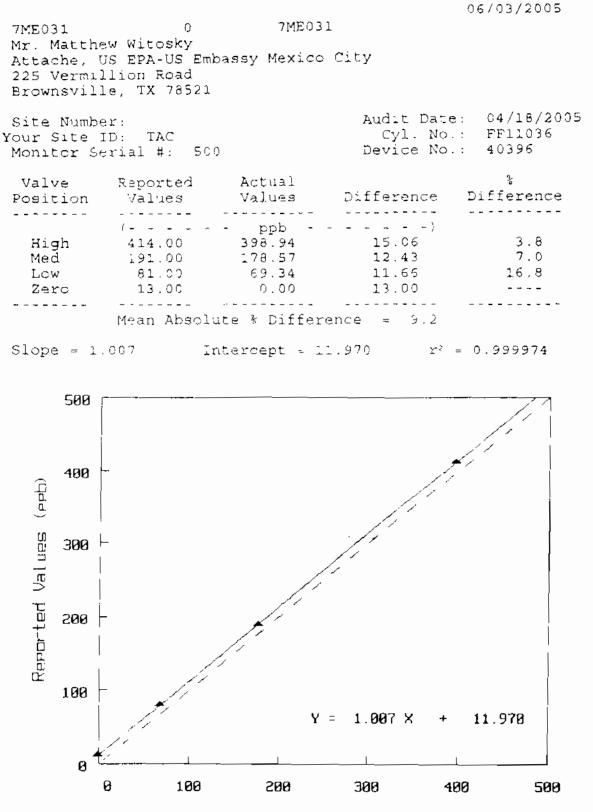
7ME031		7ME03	l	
225 Vermil	IS EPA-US Emb	авву Мехісо	City	
Site Numbe Your Site I Monitor Se		·.	Audit Date: Cyl. No.: Device No.:	FF11036
	Reported	Actual		85
Position	Values	Values	Difference D	literence
	(- daa -)	_
High	409.00	398.94	10.06	2.5
	186.00			4.2
	76.00		6.66	9.6
			9.00	
			ence ≈ 5.4	
Slope = 1.	.005 Ir.	itercept = 7	$.506$ $r^{2} = 0$.999947





Results of SO2 Continuous Audit

for 1st Quarter 2005

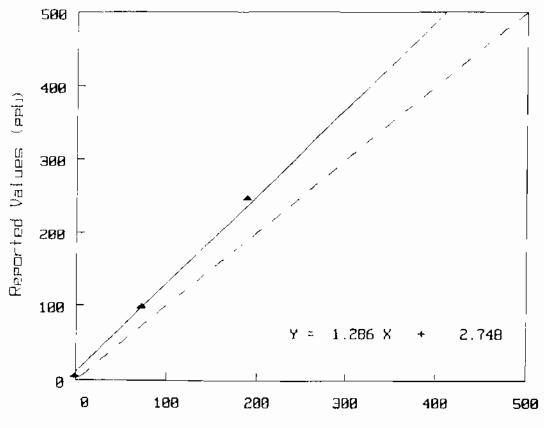


EPA Values (ppb)

Results of NO2 Continuous Audit

for 1st Quarter 2005

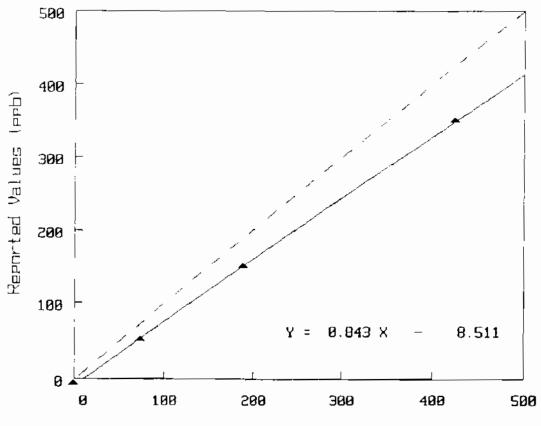
06/03/2005 7ME031 7ME031 0 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/18/2005 AIRS Site Number: NO Cyl. No.: FF11036 Monitor Serial #: 215. Device No.: 40396 Site ID: TAC 3 Valve Reported Actual Difference Values Values Difference Position - - - - - - - -_ _ _ _ _ _ _ _ _ (- - - -_ ppb - -- J High 551.00 425.17 125.83 29.6 Med 247.00 190.31 56.69 29.8 Low 39.00 73.90 25.10 34.0 Zero 6.00 0.00 6.00 - - - -----Mean Absolute % Difference = 31.1 NO Slope = 1.283 Intercept = 4.636 r' = 0.999964



EPA Values (ppb)

06/03/2005 0 7ME031 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Browneville, TX 78521 AIRS Site Number: Audit Date: 04/25/2005 NO Cyl. No.: FF11036 Monitor Serial #: 215 Device No.: 40396 Site ID: TAC Valve Reported Actual 3 Values Values Difference Difference Position ----------------------_ _ _ _ _ _ _ _ _ _ _ _ - - -~ - - -) ppb 351.00 425.17 -74.17 -17.4 High -40.31 150.00 -21.2 Med 190.31 Low 52.00 73.90 -21.30 -29.6 -6.00 Zero -6.00 0.00 ---------- - - - - ------- - -Mean Absolute % Difference = 22.8

NO Slope = 0.843 Intercept = -8.511 $r^2 = 0.999805$

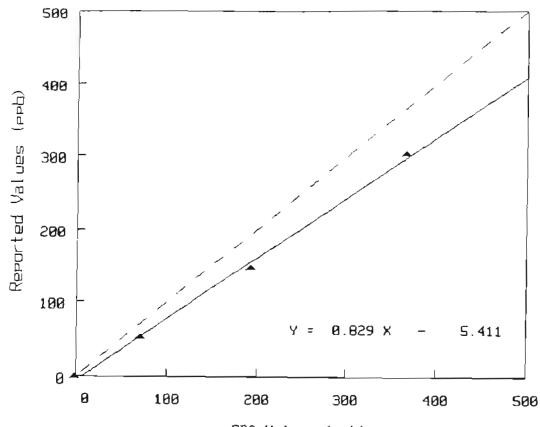


EPA Values (ppb)

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	<pre>% Difference</pre>
	(daa)	
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 3 Difference = 23.0 NO₂ Slope = 0.829 Intercept =-5.411 $r^2 = 0.997290$



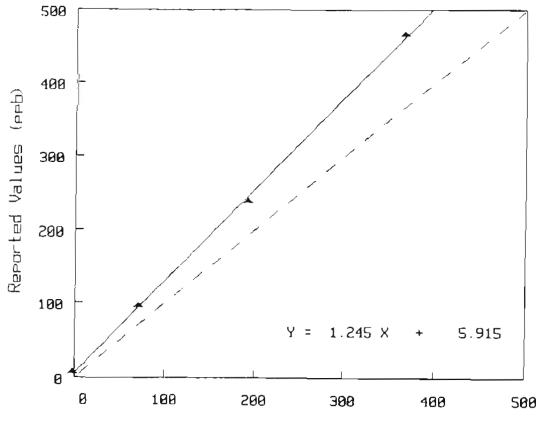
EPA Ualues (ppb)

Results of NO, Continuous Audit -- Page 2

AIRS Site Number: Audit Date: 04/18/2005 Monitor Serial #: 215. Device No.: 40396 Your Site ID: TAC

Pot	Reported	Actual		alo
Setting	Valuee	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 NO₂ Slope = 1.245 Intercept =5.915 $r^2 = 0.999194$



Results of Ozone (O3) Audit

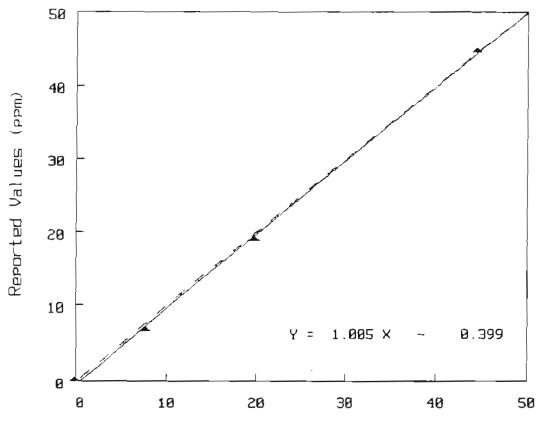
for 1st Quarter 2005

06/02/2005 7ME031 7ME031 0 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. Reported Actual સ Values Values Difference Setting Difference _ _ _ _ _ _ _ _ _ _ _ _ . ------ - -) (ppb -8.0 0.5 -8.5 Ô _ _ _ _ 690 363.0 340.9 22.1 6.5 525 165.0 161.4 3.6 2.2 52.0 57.9 -5.9 440 -10.2 ------_____ -----Mean Absolute % Difference = 6.3 Slope = 1.092 Intercept = -10.098 $r^2 = 0.999926$ 500 400 Reported Values (ppb) 300 200 100 Y = 1.092 X - 10.098 0 👗 0 100 200 300 400 500

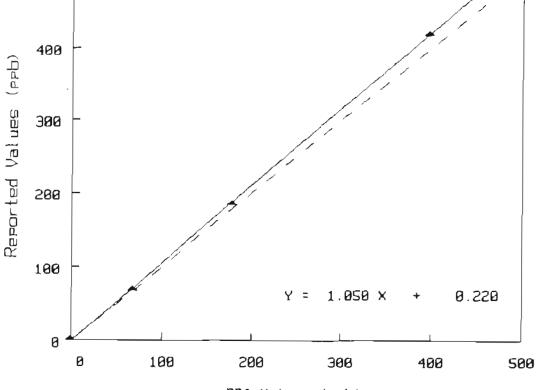
Results of Carbon Monoxide (CO) Audit

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 Cyl. No.: FF11036 Your Site ID: EAC Monitor Serial #: 300 Device No.: 40396 Valve Reported Actual à Value Value Difference Difference Position _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _____ -----(- - - -- ppm -- - -) High 44.70 44.57 0.13 0,3 Med 19.10 19.95 -0.85 -4.3 6.90 7.75 -0.85 Low -11.0 0.30 Zero 0,00 0.30 - - - ----------------------Mean Absolute % Difference = 5.2 Slope = 1.005 Intercept = -0.399 $r^2 = 0.999025$

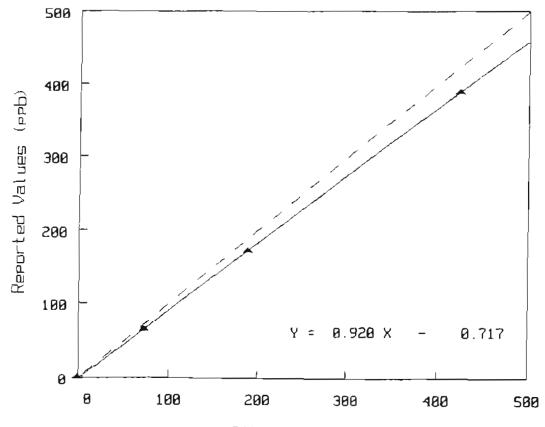


06/03/2005 7ME031 7ME031 0 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/29/2005 Site Number: Cyl. No.: FF11036 Your Site ID: EAC Device No.: 40396 Monitor Serial #: 235 à Actual Valve Reported Difference Difference Position Values Values -----_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ - - dqq - Ì Hıgh 420.00 398.94 21.06 5.3 Med 186.00 178.57 7.43 4.2 72.00 3.8 Low 69.34 2.66 2.00 Zero 2.00 0.00 ----. _____ ----~ Mean Absolute % Difference = 4.4 Slope = 1,050 Intercept = 0.220 $r^2 = 0.999921$ 500 400



06/03/2005 7ME031 7ME031 0 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/29/2005 AIRS Site Number: Monitor Serial #: 577 NO Cyl. No.: FF11036 Device No.: 40396 Site ID: EAC Valve Reported Actual °, Difference Posítion Values Values Difference _ _ _ _ _ _ _ _ _ ------ - - - - - - - - -. ppb - - - -) (-----8.0 425.17 -34.17 High 391.00 Med 173.00 190.31 -17.31 -9.1 Low 66,00 73.90 -7.90 -10.7 Zero 1.00 0.00 1.00 - - - ------- - - - - -----Mean Absolute % Difference = 9.3

NO Slope = 0.920 Intercept = -0.717 $r^2 = 0.999924$



EPA Values (ppb)

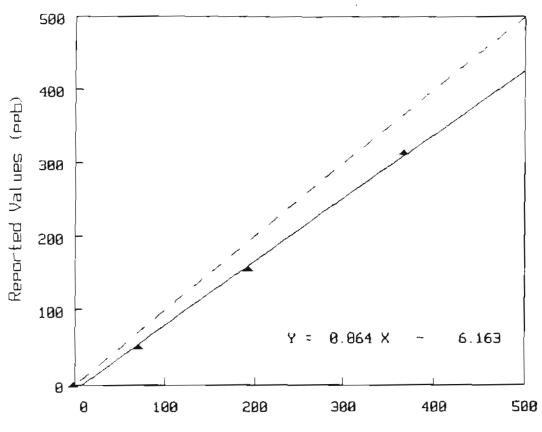
 ν

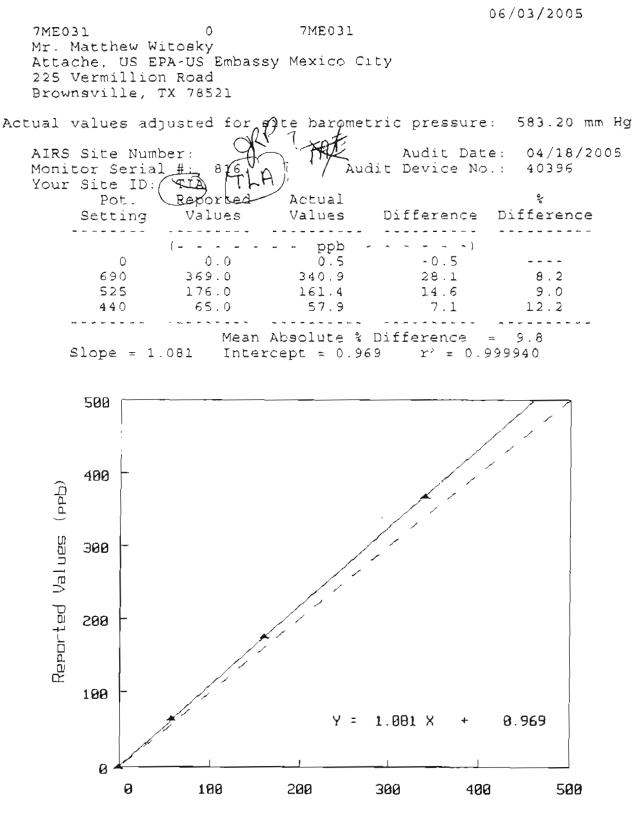
Results of NO₂ Continuous Audit -- Page 2

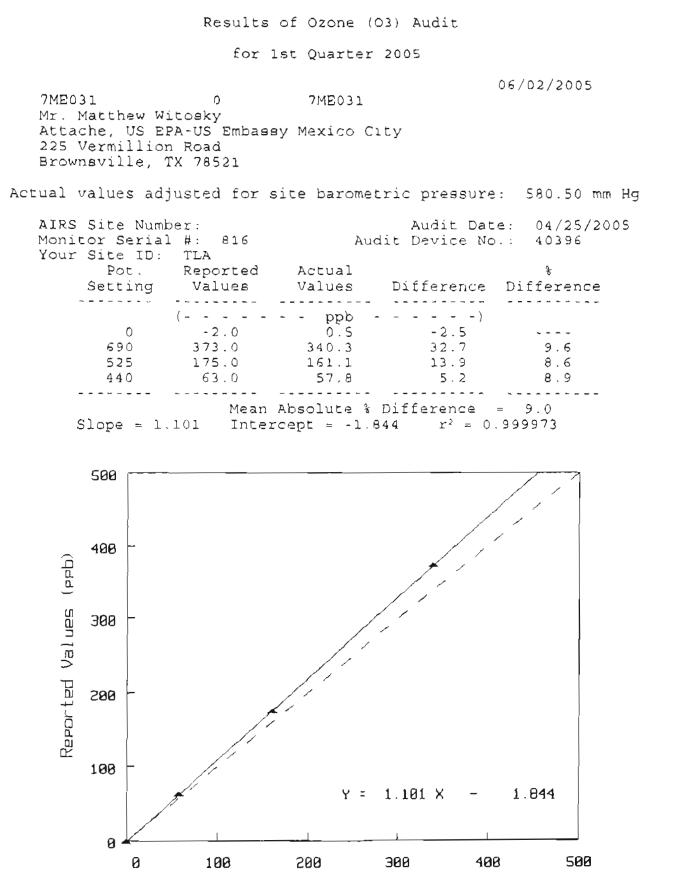
AIRS Site Number: Audit Date: 04/29/2005 Monitor Serial #: 577 Device No.: 40396 Your Site ID: EAC

Pot Setting	Reported Values	Actual Values	Difference	* Difference
		dad	·	
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 NO₂ Slope = 0.864 Intercept =-6.163 $r^2 = 0.997939$



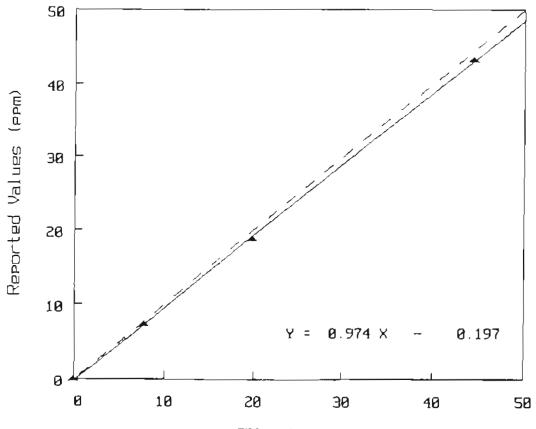




Results of Carbon Monoxide (CO) Audit

for 1st Quarter 2005

06/02/2005 0 7ME031 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 Actual Reported ŝ Position Value 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 r² = 0.999755

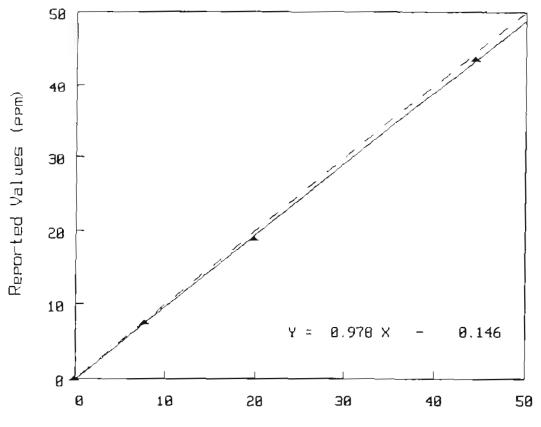


EPA Ualues (ppm)

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: TLA Cyl. No.: FF11036 Monitor Serial #: 1160. 40396 Device No.: Valve Reported Actual e e Value Value Difference Position Difference (- - - -- - > - ppm -High 43.60 -0.97 44.57 -2.2 Med 19.00 19.95 -0.95 -4.8 Low 7.50 7.75 -0.25 -3.2 0.00 0.00 Zero 0.00 ----_____ _ _ _ _ _ _ _ _ ------------Mean Absolute % Difference = 3.4 Slope = 0.978 Intercept = -0.146 r² = 0.999831



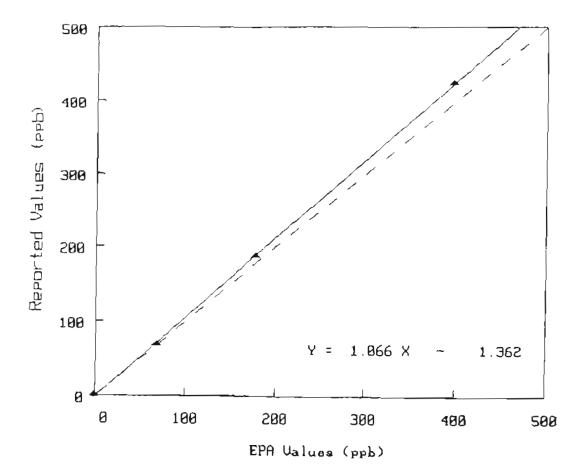
EPA Ualues (ppm)

 \checkmark

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 Audit Date: 04/25/2005 Site Number: Cyl. No.: FF11036 Your Site ID: TLA Device No.: 40396 Monitor Serial #: 458. ₽ Valve Reported Actual Position Values Values Difference Difference -----(- - - ppb - -) 398.94 26.06 High 425.00 6.S 178.57 Med 187.00 8.43 4.7 Low 71.00 1.66 2.4 69.34 1.00 Zero 0.00 1.00 - - ------Mean Absolute % Difference 4.5 Ξ Slope = 1.066 Intercept = -1.362 $r^2 = 0.999873$



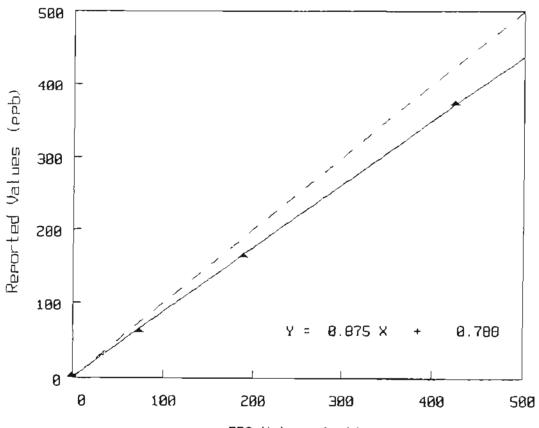
Results of 502 Continuous Audit

for 1st Quarter 2005

06/03/2005 7ME031 7ME031 0 Mr. Matchew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/18/2005 Site Number: Cyl. No.: FF11036 Your Site ID: TLA Device No.: 40396 Monitor Serial #: 458 જ Reported Actual Valve Difference Difference Position Valuee Values _ _ _ _ _ _ _ _ _ _ . _ _ _ _ . . ppb (- - - -~ ~ - > 29.06 7.3 428.00 398.94 High 12.43 7.0 Med 191.00 178.57 7.66 11.0 Low 77.00 69.34 Zero б.ОО 0.00 5.00 - - - ----------_ _ _ _ _ _ _ _ _ Mean Absolute % Difference = 8.4 Slope = 1.060 Intercept = 4.173 $r^2 = 0.999896$ 500 400 Reported Values (ppb) 300 200 100 Y = 1.060 X + 4.173 0 0 100 200 300 400 500

06/03/2005

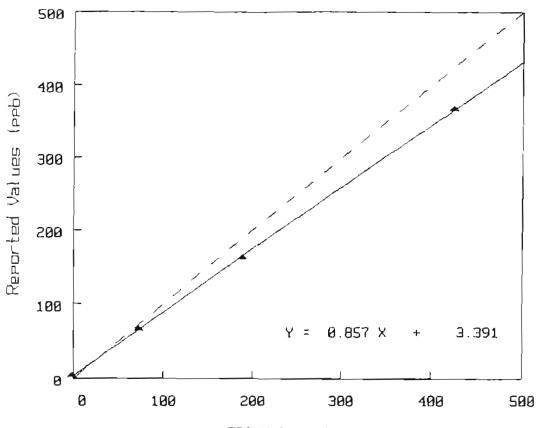
7ME031	0	7ME03	1	
Attache, 1 225 Vermi	ew Witosky JS EPA-US Emb llion Road le, TX 78521	bassy Mexico	City	
AIRS Site Monitor S Site ID:	erial #: 580	Ο.	Audit Date: NO Cyl. No.: Device No.:	FF11036
			Difference	% Difference
Med	(374.00 165.00 63.00	- ppb - 425.17 190.31 73.90) -51.17 -25.31	-12.0 -13.3 -14.7
	Mean Absolu	ite % Differ	ence = 13.4	
NO Slope	= 0.875	Intercept =	0.780 r^{2}	= 0.999710



Results of NO2 Continuous Audit

for 1st Quarter 2005

06/03/2005 0 7ME031 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/18/2005 AIRS Site Number: NO Cyl. No.: FF11036 Monitor Serial #: 580 Device No.: 40396 Site ID: TLA Valve Reported Actual Ŷ Difference Values Values Difference Position - - - - - - - ------(---dqq - - } 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 $r^2 = 0.999786$



EPA Ualuse (ppb)

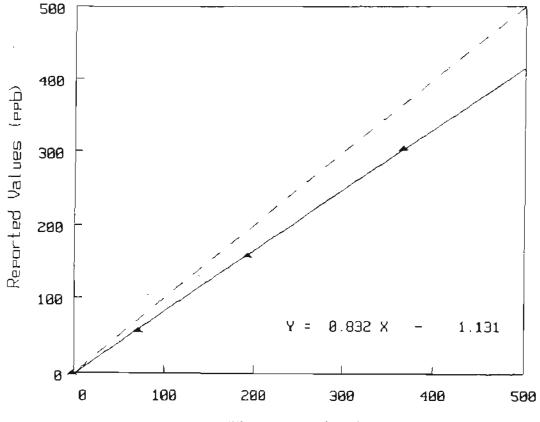
Results of NO, Continuous Audit -- Page 2

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

Pot Setting	Reported Values	Actual Values	Difference	२ Difference
	<	- dag -)	
730	306.00	367.00	-61.00	~16.6
525	158.00	194,70	-36.70	-18.8
440	57,00	71.70	-14.70	-20.5
Zero	0.00	-1.70	1.70	

Mean Absolute % Difference = 18.7

NO, Slope = 0.832 Intercept =-1.131 $r^2 \approx 0.999626$

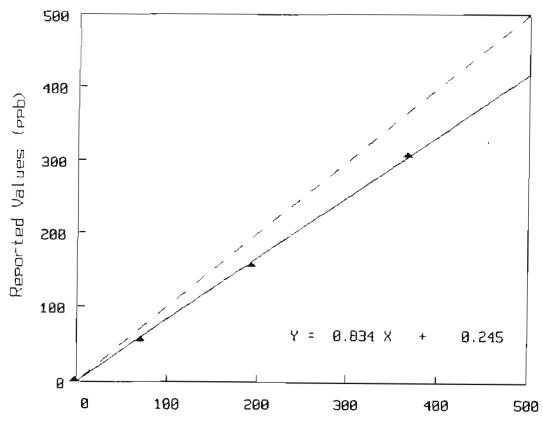


Results of NO2 Continuous Audit -- Page 2

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	۶ Difference
	(- dag -	>	
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 = 18.2NO₂ Slope = 0.834 Intercept = 0.245 $r^2 = 0.999136$

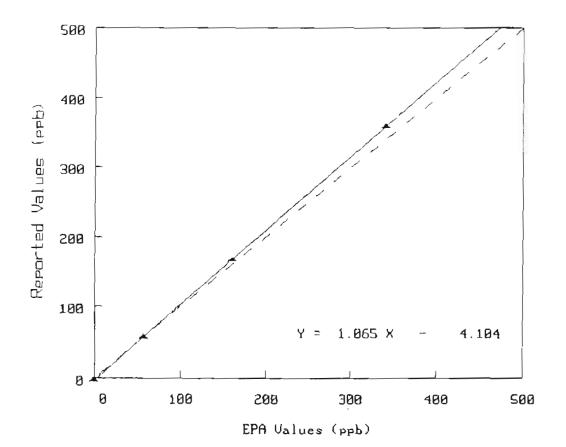


06/03/2005

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: 588.34 mm Hg

AIRS Site Numb Monitor Serial Your Site ID:		Aud	Audit Dat dit Device No	e: 04/19/2005 .: 40396
	Reported	Actual		4
	Values	Values	Difference	Difference
	(- ppb	>	
0	-3.0	0.5	-3.S	
690	361.0	342.1	18,9	5.5
525	167.0	162.0	5.0	3.1
440	58.0	58.1	-0.1	-0.2
	Mean A	bsolute %	Difference	= 2.9
Slope = 1.	065 Interc	ept = -4.2	$104 r^2 = 0.$	999961

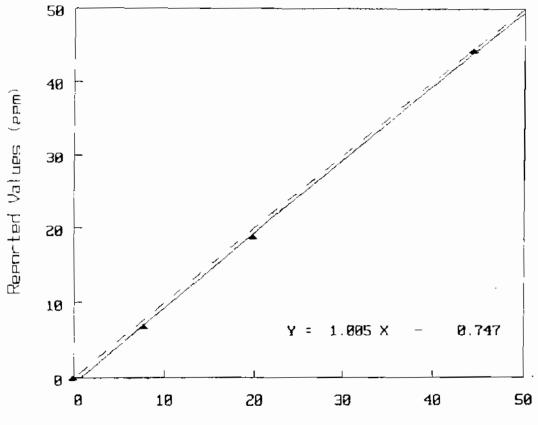


Results of Carbon Monoxide (CO) Audit

for 1st Quarter 2005

				06/02/2005
7ME031	0	7ME01	31	
Mr. Matthe	ew Witosky			
Attache, N	US EPA-US E	mbassy Mexico	o City	
	llion Road		-	
Brownsvill	le, TX 7852	1		
AIRS Site Numb	er:		Audit Date	e: 04/19/2005
Your Site :	ID: SAG		Cyl. No.	: FF11036
	erial #: 3	06	Device No.	
Valve	Reported	Actual		ૠ
Position	Value	Value	Difference	Difference
	()	
High	44.30	44.57	-0.27	-0.6
Med	18.80	19.95	-1,15	-5,8
Low	6.70	7.75	-1.05	-13.5
Zerc	-0.20	0.00	-0.20	

	:	Mean Absolute	e % Difference	= 6.6
Slope = 1	.005	Intercept = -	-0.747 r ⁻²	= 0.999365



EPA Values (ppm)

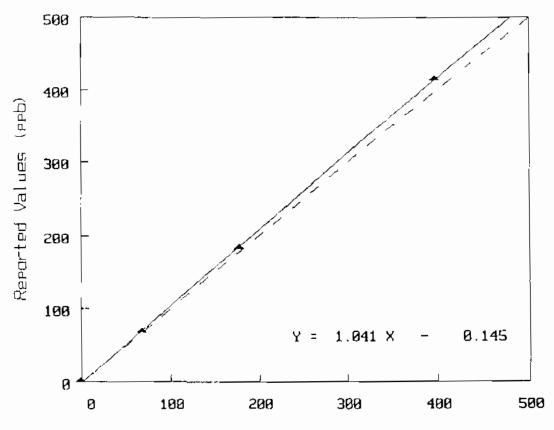
V

Results of SO2 Continuous Audit

_ -

for 1st Quarter 2005

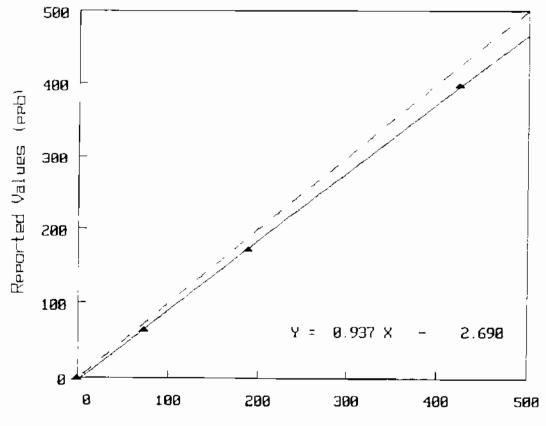
08/31/2005 7ME031 0 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Site Number: Audit Date: 04/19/2005 Your Site ID: SAG Cyl. No.: FF11036 Monitor Serial #: 464 Device No.: 40396 Valve 0¹0 Reported Actual Difference Position Values Values Difference ---------- - -........ (____ - - -) ppb High 416.00 398.94 17.06 4.3 Med 185.00 178.57 6.43 3.6 0.66 Low 70.00 69.34 1.0 2.00 Zero 0.00 2.00 - - ---------Mean Absolute % Difference = 2.9 Slope - 1.041 Intercept = -0.145 $r^2 = 0.399899$



EPA Values (ppb)

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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 ŝ Valve Reported Actual Position Values Values Difference Difference --------_ _ _ _ _ _ _ _ _ _ - - -) dqq 397.00 425.17 -28.17 -6.6 High -9.1 Med -17.31 173,00 190.31 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 $r^2 = 0.999799$





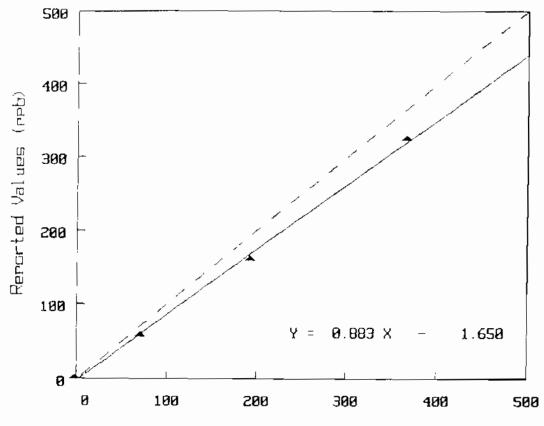
Ľ

Results of NO2 Continuous Audit -- Page 2

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

Pot Setting	Reported Values	Actual Values	Difference	ء Difference
	í	dqq)	
730	327.00	367.00	-40.00	-10.9
525	162.00	194.70	-32.70	-16.8
440	60.00	71.70	-11.70	-16.3
Zero	2.00	-1.70	3.70	
	_ ~ • • • •			

Mean Absolute % Difference = 14.7 NO, Slope = 0.883 Intercept =-1.650 r² = 0.998050



EPA Values (ppb)

06/02/2005 7ME031 Û 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Actual values adjusted for site barometric pressure: 585.64 mm Hg Audit Date: 04/19/2005 AIRS Site Number: Audit Device No.: 40396 Monitor Serial #: 441 Your Site ID: XAL Ŷ Pot. Reported Actual Setting Values Values Difference Difference _ _ _ _ _ _ _ _ _ ----ppb ~) 0.5 0 -4.0 -4.5 690 382.0 341.5 40.5 11.9 177.0 525 161.7 15.3 9.5 440 58.0 62.0 4.0 6.9 Mean Absolute % Difference = 9.4 Slope = 1.130 Intercept = -4.467 $r^2 = 0.999969$ 500 400 Reported Values (PPD) 399 200 100 Y = 1.130 X -4.467 0 0 100 200 309 400 500

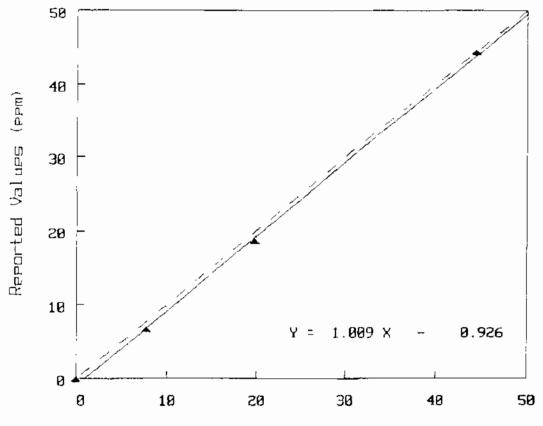
EPA Values (ppb)

V

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: 04/19/2005 Your Site ID: XAL Cyl. No.: FF11036 Monitor Serial #: 097 Device No.: 40396 Valve Reported $\mathcal{F}_{\mathcal{C}}$ Actual Difference Position Value Value Difference _____ 1 - - -ppm- - > -0.17 High 44.40 44.57 -0.4 Med 18.50 19.95 -1.45 -7.3 7.75 Low 6.60 -1.15 -14.8 0.00 -0.30 Zero -0.30 - - - - - - --------------------Mean Absolute % Difference = 7.5 Slope = 1.009 Intercept = -0.926 $r^2 = 0.999055$

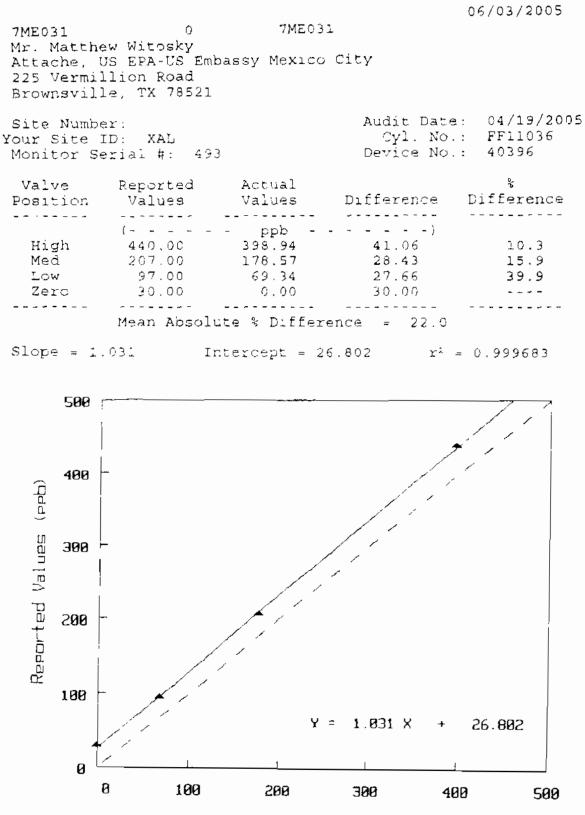


EPA Values (ppm)

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Results of SO2 Continuous Audit

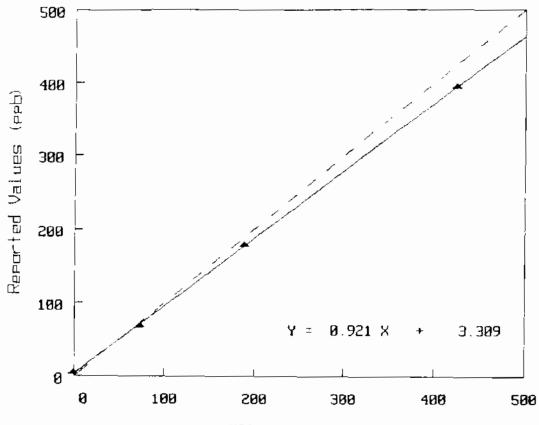
for 1st Quarter 2005



Results of NO2 Continuous Audit

for 1st Quarter 2005

06/03/2005 7ME031 7ME031 0 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 AIRS Site Number: Audit Date: 04/19/2005 NO Cyl. No.: FF11036 Monitor Serial #: 530 Device No.: 40396 Site ID: XAL Reported ە\ە Valve Actual Values Difference Difference Position Values ----ppb - -) (----395.00 425.17 -30.17 ~7.1 High -11.31 -5.9 190.31 Med 179.00 -4.90 Low 69.00 73.90 -6.6 Zero 5.00 0.00 5.00 - - - -. -----_ _ _ _ _ _ _ _ - - - -Mean Absolute % Difference = 6.6 NO Slope = 0.921 Intercept = 3.309 r² = 0.999902

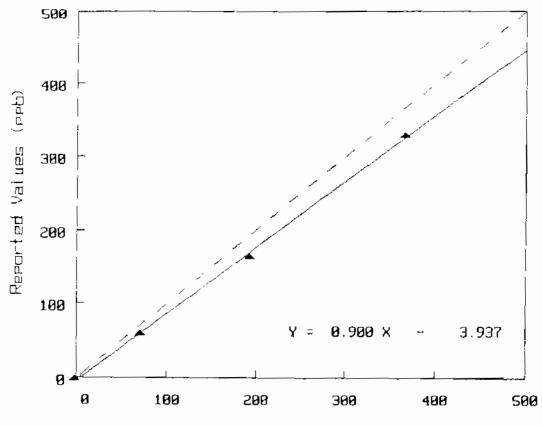


Results of NO, Continuous Audit -- Page 2 V

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

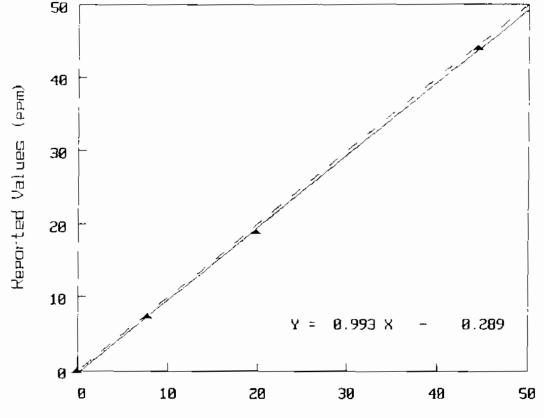
Pot Setting	Reported Values	Actual ρ^{Values}	Difference	% Difference
730	(ppb -) -37.00	-10.1
525	165.00 163	194.70	-29.70	-15.3
440	60.00	71.70	-11.70	-16.3
Zero	-2.00	-1.70	-0.30	

Mean Absolute % Difference = 13.9 NO₂ Slope = 0.900 Intercept =-3.937 $x^2 = 0.998970$



EPA Values (ppb)

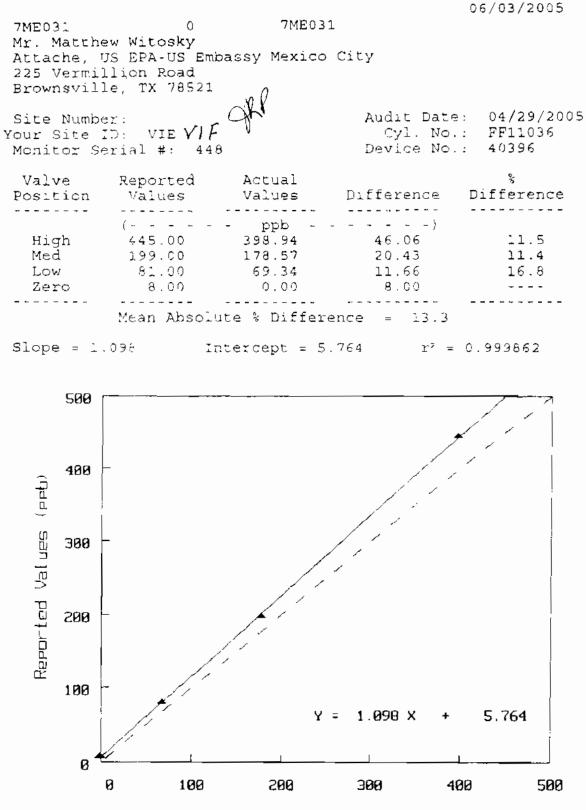
06/02/2005 7ME031 0 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/29/2005 AIRS Site Number: Cvl. No.: FF11036 Your Site ID: VIF Monitor Serial #: 1161 Device No.: 40396 Reported Valve Actual \$ Value Value Difference Difference Position. -----------(- - - --- ppm -44.57 - - - -) 44.20 -0.37 -0.8 Hıgh Med 19.00 19.95 -0.95 -4.8 Low 7.40 7.75 -0.35 -4.5 0.00 0.00 0.00 - - - -Zero ---------------- - - - - - - -Mean Absolute % Difference - 3.4 Slope = 0.993 Intercept = -0.289 $r^2 = 0.999636$



EPA Values (ppm)

Results of SO2 Continuous Audit

for 1st Quarter 2005

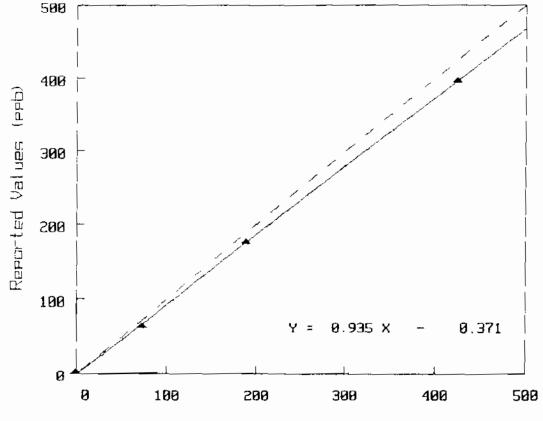


EPA Values (ppb)

Reaults 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: 04/29/2005 Monitor Serial #: 231 NO Cyl. No.: FF11036 Site ID: VIE YIF Device No.: 40396 ŝ Valve Reported Actual Difference Difference Values Values Position --------- - - - - - - - -(- - - -- ppb - - - - } 398.00 425.17 -27.17 -6.4 High 190.31 -13.31 -7.0 Med 177.00 -8.90 -12.0 Low 65.00 73.90 3.00 3.00 0.00 Zero _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ ---------Mean Absolute % Difference = 8.5 NO Slope = 0.935 Intercept = -0.371 $r^2 = 0.999710$



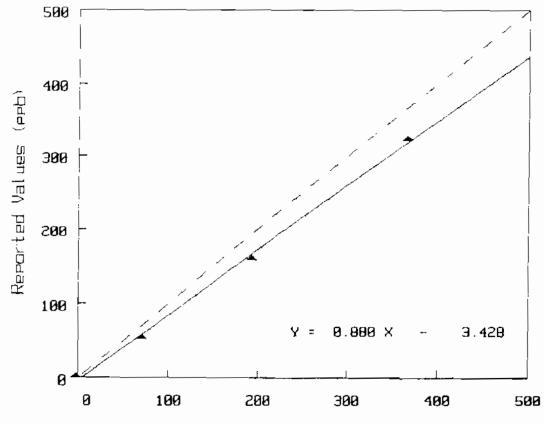
Results of NO, Continuous Audit -- Page 2

AIRS Site Number: Audit Date: 04/29/2005 Monitor Serial #: 231 Device No.: 40396 Your Site ID: VIE VIE

Pot	Reported	Actual		e.10
Setting	Values	Values	Difference	Difference
	í	dqq)	
730	324.00	367.00	-43.00	-11.7
525	161,00	134.70	-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_2 Slope = 0.880 Intercept =-3.428 r^2 = 0.997728



Results of Ozone (O3) Audit

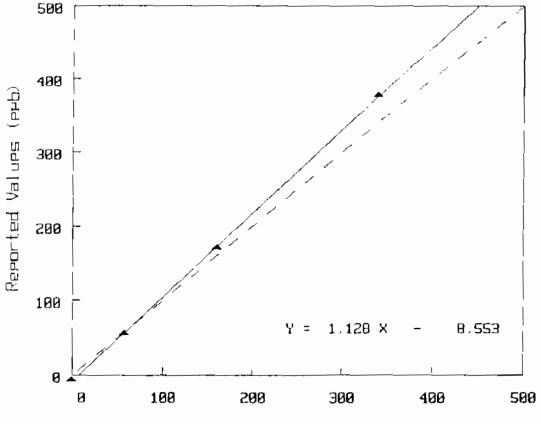
for 1st Quarter 2005

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: 586.99 mm Hg

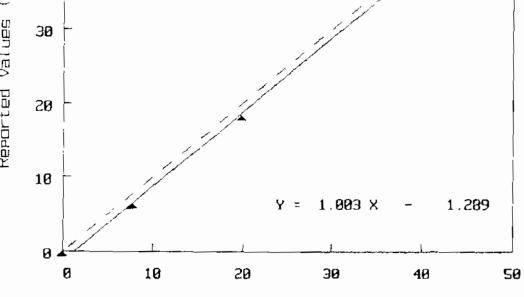
AIRS Site Number: Audit Date: 04/26/2005 Monitor Serial #: 791 Audit Device No.: 40396 Your Site ID: LAG Pot. Reported Actual 2 Values Difference Difference Setting Values -----. {~ ppb -7.0 0.5 -7,5 0 - - - -690 378.0 341.8 36.2 10.6 525 172.0 161.9 10.2 6.3 58.1 440 57.0 -1.1 -1.9 Mean Absolute % Difference = 6.2 Slope = 1.128 Intercept = -8.553 $r^2 = 0.999929$



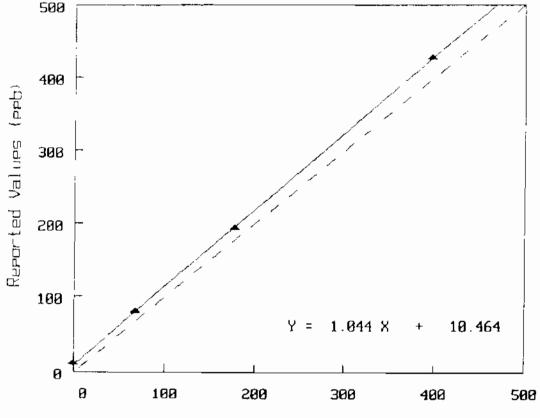
Results of Carbon Monoxide (CO) Audit

for 1st Quarter 2005

06/02/2005 7ME031 7ME031 0 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 AIRS Site Number: Audit Date: 04/26/2005 Your Site ID: LAG Cyl. No.: FF11036 Monitor Serial #: 095 Device No.: 40396 Valve Reported Actual ક્ર Value Position Value Difference Difference -----____ _ _ _ _ _ _ _ _ _ ------(- - - -÷ - ppm 44.57 -0.77 High 43.80 -1.7 -1.95 Med 18.00 19.95 -9.8 -1.75 7.75 Low 6.00 -22.6 0.00 Zero -0.50 -0.50 - - - - - - - -. . . . Mean Absolute % Difference 11.4 Slope = 1.003Intercept = -1.289 $r^2 = 0.998673$ 50 40 Reported Values (ppm) 30 20



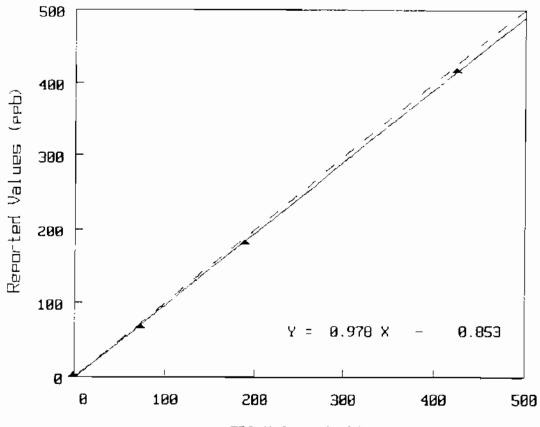
06/03/2005 7ME031 0 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embasey Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/26/2005 Site Number: Cyl. No.: FF11036 Your Site ID: LAG Device No.: 40396 Monitor Serial #: 451 Actual 2 Reported Valve Difference Values Difference Values Position _ _ _ _ _ _ (-- dqq - - j 29.06 7.3 428.00 398.94 High 16.43 9.2 178.57 Med 195.00 01.00 11.66 16.8 69.34 Low 13.00 0.00 13.00 Zero - - - ------- - - - - ---------------Mean Absolute % Difference = 11.1 Slope = 1.044 Intercept = 10.464 r⁷ = 0.999854



EPA Values (ppb)

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 Reported Actual % Position Values Values Difference Difference ------_ _ _ _ _ _ _ _ _ -----_ _ _ _ _ _ _ _ _ _ - - - - - - - - - -(- - - dqq - - -) 417.00 Hıgh 425.17 ~8.17 -1.9 Med 182.00 190.31 -8.31 -4.4 Low 69 00 73.90 -4.90 -6.6 3.00 Zero C.OO 3.00 - - - -- - - - - - - - -_ _ _ _ _ _ -----Mean Absolute & Difference = 4.3

NO Slope = 0.978 Intercept = -0.853 $r^2 = 0.999642$



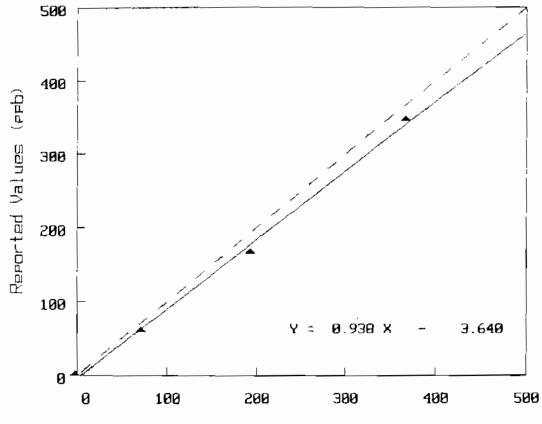
Results of NO, Continuous Audit -- Page 2

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	۶ Difference
	(daa)	
730	347.00	367.00	-20.00	-5.4
525	168.00	194.70	-26.70	-13.7
440	51.00	71.70	-10.70	-14.9
Zero	2.00	-1.70	3.70	

Mean Absolute % Difference = 11.4

NC.	Slope =	938.0	Intercept	=-3.640	r ² =	0.996792
-----	---------	-------	-----------	---------	------------------	----------



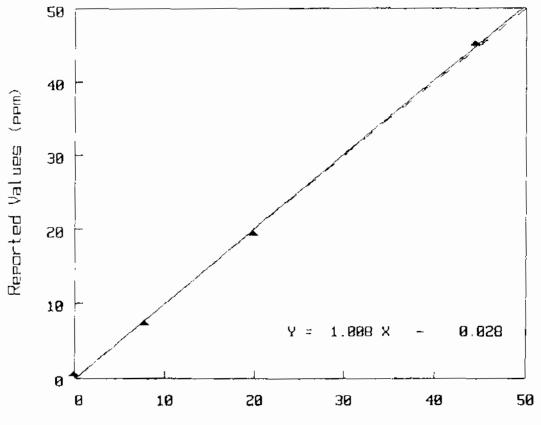
06/02/2005 7ME031 0 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Actual values adjusted for site barometric pressure: 587.67 mm Hg Audit Date: 04/20/2005 AIRS Site Number: Audit Device No.: 40396 Monitor Serial #: 159 Your Site ID: MER Pot. Reported Actual Ŷ Values Values Difference Setting Difference - - - - - - - - -- - - - - - ppb í --) 0.5 -6.5 Ο -6.0 ----690 376.0 342.0 34.0 10.0 525 172.0 161.9 10.1 6.2 59.0 0.9 440 58.L 1.5 Mean Absolute % Difference = 5.9 Slope = 1.117 Intercept = -6.827 $r^2 = 0.999931$ 500 400 Reported Values (ppb) 300 200 100 Y = 1.117 X -6.827 Ø 0 100 200 300 400 500



Results of Carbon Monoxide (CO) Audit

for 1st Quarter 2005

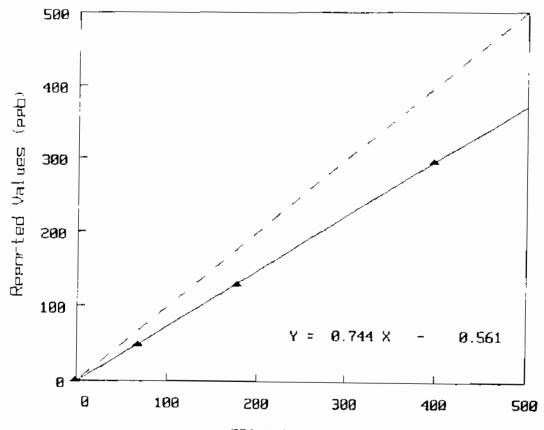
06/02/2005 7ME031 0 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/20/2005 AIRS Site Number: Your Site ID: MER Cyl. No.: FF11036 Device No.: 40396 Monitor Serial #: 091 6 Valve Reported Actual Value Difference Difference Value Position _ _ _ _ _ _ _ _ _ --------_ _ _ _ _ _ _ _ _ _ _ _ - - - - - - - -{- - - -- - ppm -- - - -) 45.20 44,57 0.63 1.4 High 19.95 -0,45 -2.3 Med 19.50 7.40 7,75 -0.35 -4.5 Low 0.60 - - - -Zero 0.60 0.00 -----. ----------- - - - - - - - -Mean Absolute & Difference = 2.7 Slope = 1 008 Intercept = -0.028 $r^2 = 0.999164$



Results of SO2 Continuous Audit

for 1st Quarter 2005

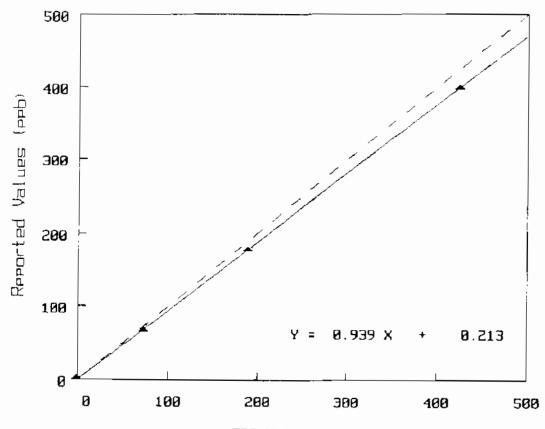
06/03/2005 7ME031 7ME031 0 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/20/2005 Site Number: Cyl. No.: FF11036 Your Site ID: MER Device No.: 40396 Monitor Serial #: 501 8 Valve Reported Actual Values Values Difference Difference Position - -(----dqq + - -) High 297.00 398.94 -101.94 -25.6 131.00 Med 178.57 -47.57 -26.6 Low 50.00 69.34 -19.34-27.9 Zero 1,00 1.00 0.00 - - - -_ _ _ _ _ _ _ _ _ ----------- - - - - - -_ _ _ _ _ _ Mean Absolute % Difference = 26.7 Slope = 0.744 Intercept = -0.561 r² = 0.999887



Results of NO2 Continuous Audit

for 1st Quarter 2005

06/03/2005 Û 7ME031 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/20/2005 AIRS Site Number: NO Cyl. No.: FF11036 Monitor Serial #: 499 Device No.: 40396 Site ID: MER Valve Reported Actual 2 Difference Difference Position Values Values _ _ _ _ _ _ _ . _ --------_ _ _ _ _ _ _ _ _ (- - - dqq - - - - ; -25.17 -5.9 400.00 425.17 High -6.5 Med 178.00 190.31 -12.31 -5.90 -8.0 Lcw 68.00 73.90 - - - -2.00 2.00 0.00 Zero -----_____ -----_ _ _ _ _ _ ----Mean Absolute & Difference = 6.8 NO Slope = 0.939 Intercept = 0.213 r' = 0.999925

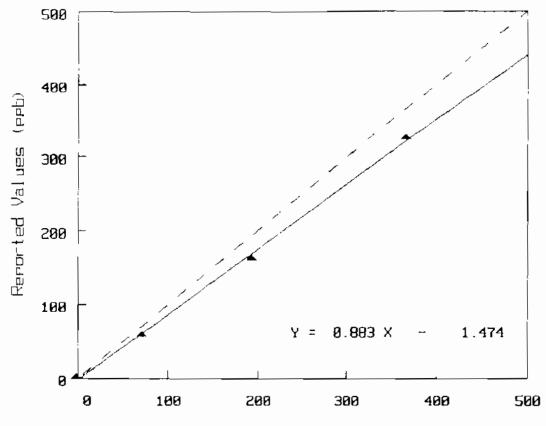


Results of NO: Continuous Audit -- Page 2

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
	i	ppb		
730	327.00	367.00	-4C.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 NO₂ Slope = 0.883 Intercept \approx -1.474 r² = 0.998309



EPA Values (ppb)

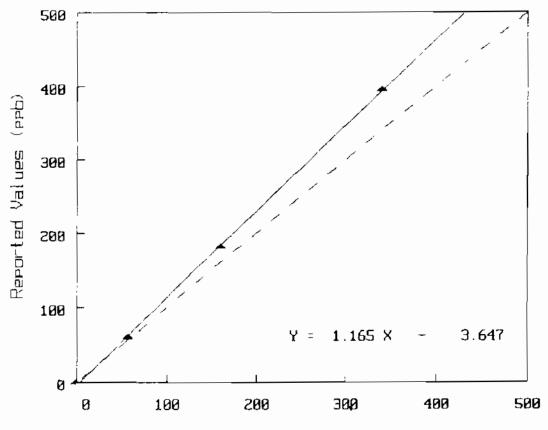


06/02/2005

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: 586.02 mm Hg

AIRS Site Number Monitor Serial # Your Site ID: H	: 262	Audi	Audit Date it Device No	e: 04/20/2005 .: 40396
Pot. R	eported	Actual		
Setting	Values	Values	Difference	Difference
-		- dqq -)	
0	0.0	0.5	-0.5	~
690	396.0	341.6	54.4	15.9
525	182.0	161.7	20.3	12.5
440	52.0	58.0	4.0	6.8
5lope = 1.16			Difference $r^{2} = 0$.	



EPA Values (ppb)

Results of Carbon Monoxide (CO) Audit

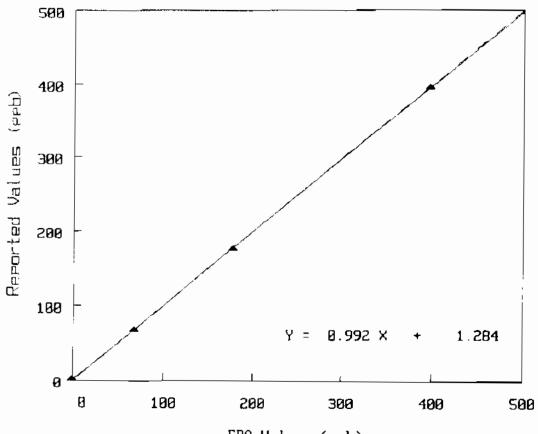
for 1st Quarter 2005

06/02/2005 7ME031 7ME031 0 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: HAN Cyl. No.: FF11036 Monitor Serial #: 113 Device No.: 40396 Actual 2 Valve Reported Difference Difference Value Value Position -----**. . .** ------------------- - - } (-- -- mqq -3.07 44.57 -6.9 High 41.50 ~9.8 Med 18.00 19.95 -1.95 -16.1 6.50 7.75 -1.25 Low 0.00 -0.10 - - - -Zero -0.10 _____ _ _ _ _ _ _ ----Mean Absolute % Difference = 10.9 Slope = 0.938Intercept = -0.475 x² = 0.999691 50 40 Reported Values (ppm) 30 20 10 Y = 0.938 X - 0.475 0 40 50 20 30 0 10

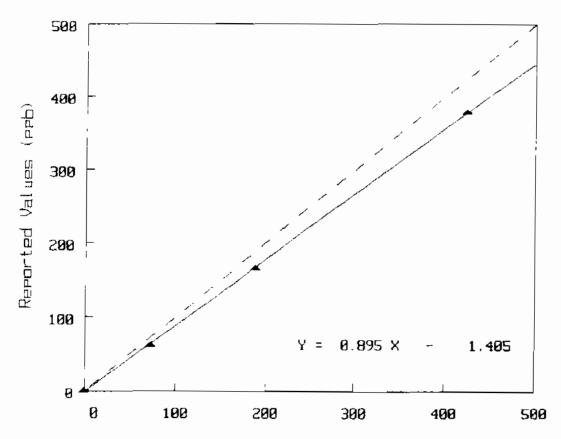
Results of SO2 Continuous Audit

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 Audit Date: 04/20/2005 Site Number: Cyl. No.: FF11036 Your Site ID: HAN Device No.: 40396 Monitor Serial #: 237 ŝ Actual Valve Reported Difference Values Values Difference Position _ _ _ _ _ _ _ _ _ -------------- - > (---ppb _ -0.94 -0.2 398.00 398.94 High -1.57 -0.9 178.57 177.00 Med -0.5 69.00 69.34 -0.34 Low 3.00 3.00 - - - -Zero 0.00 - - - - -- - - - - - -- - - - -Mean Absolute % Difference = 0.5 Slope = 0.992 Intercept = 1.284 $r^2 = 0.999922$



Attache, U 225 Vermil	0 w Witosky JS EPA-US EmJ Llion Road Le, TX 78521	7ME0. Dassy Mexico		06/03/2005
AIRS Site Monitor Se Site ID:	erial #: 490	6	Audit Date: NO Cyl. No.: Device No.:	FF11036
	Reported Values		Difference	پ Difference
-	167.00	425.17		-10.6 -12.2 -14.7
NO Slope	Mean Absolu = 0.895		rence = 12.5 = -1.405 r^2	= 0.999841



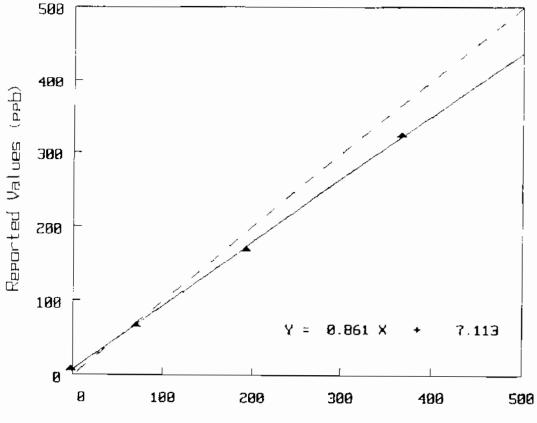
EPA Values (ppb)

Results of NO₂ Continuous Audit -- Page 2

AIRS Site Number: Audit Date: 04/20/2005 Monitor Serial #: 496 Device No.: 40396 Your Site ID: HAN

Pot	Reported	Actual	D: 00	9
Setting	Values	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



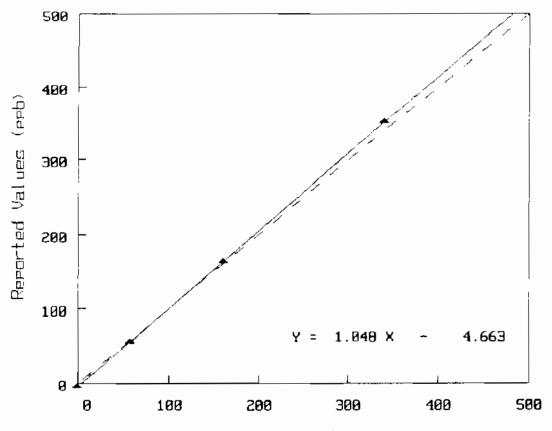
EPA Values (ppb)

06/02/2005

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

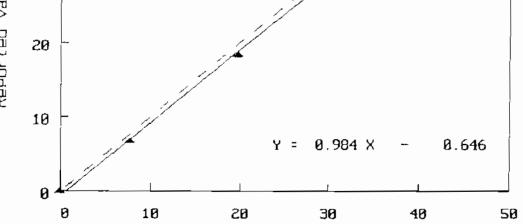
Actual values adjusted for site barometric pressure: 586.09 mm Hg

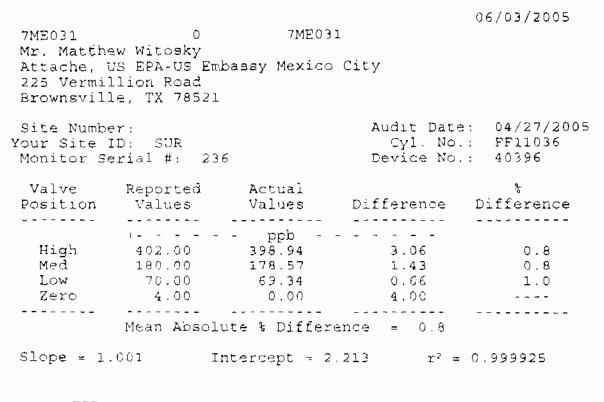
AIRS Site Num Monitor Seria Your Site ID:	1 #: 259	Aud	Audit Dat Ait Device No	e: 04/27/2005 : 40396
	Reported			0 ¹⁰
Setting	Values	Values	Difference	Difference
	(/	
· 0	-S.O	0.5	-5.5	
690	353.0	341.6	11.4	3.3
525	165.0	161.8	3.2	2.0
440	57.0	58.0	-1 0	-1.8
	Mean A	bsolute १	Difference	= 2.4
Slope ≃ 1.			$r^2 = 0$.	

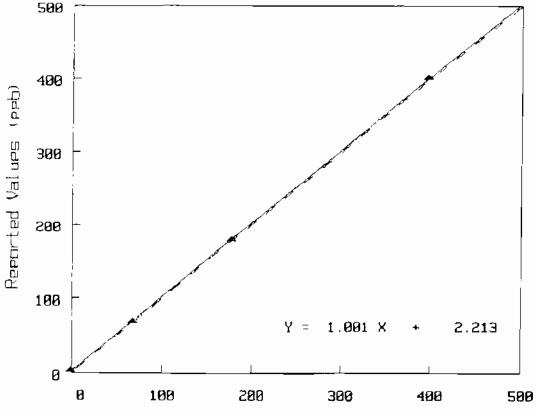


EPA Values (ppb)

06/02/2005 7ME031 7ME031 0 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 AIRS Site Number: Audit Date: 04/27/2005 Cyl. No.: FF11036 Your Site ID: SUR Monitor Serial #: 301 Device No.: 40396 Valve Reported Actual * Difference Position Value Value Difference -------- - - **- - -** - --------------- ppm 44.57 (- - -43.50 High -1.07 -2.4 18,40 19.95 -1.55 -7.8 Med Low 6.70 7.75 -1.05 -13.5 0.00 -0.10 ----Zero -0.10 ------. ----Mean Absolute % Difference = 7.9 Slope = 0.984 Intercept = -0.646 r² = 0.99927550 40 Reported Values (ppm) 3Ø 20



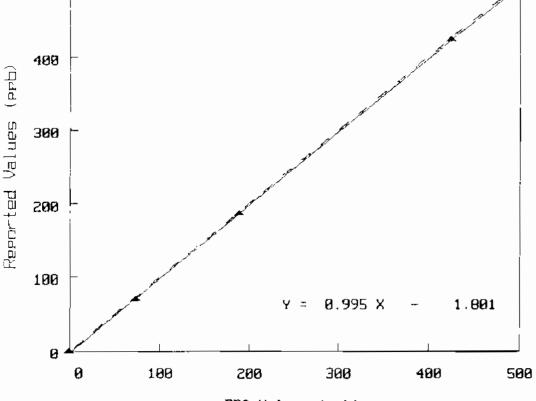




EPA Values (ppb)

V

06/03/2005 7ME031 7ME031 0 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 Reported Actual o'o Position Values Difference Difference Values _ _ _ _ _ _ _ _ _ --------_ _ _ _ _ _ _ _ _ _ _ ----------(- - - ppb - -) 422.00 425.17 -3.17 -0.7 High -1.7 1,87.00 190.31 -3.31 Med -5.3 70.00 73.90 -3.90 Low 0.00 0.00 C.00 - - - -Zero -----------Mean Absolute % Difference = 2.6 NO Slope = 0.995 Intercept = -1.801 r² = 0.999931 500 400

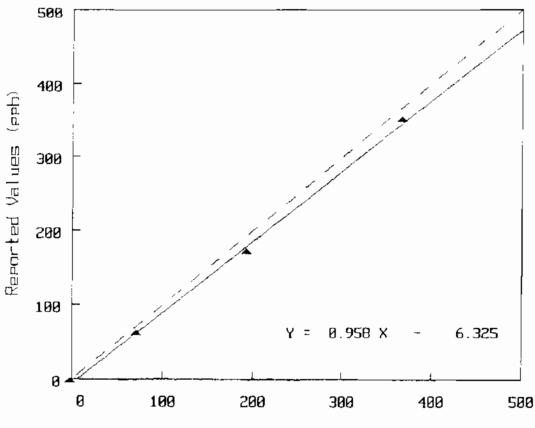


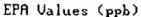
Results of NO2 Continuous Audit -- Page 2

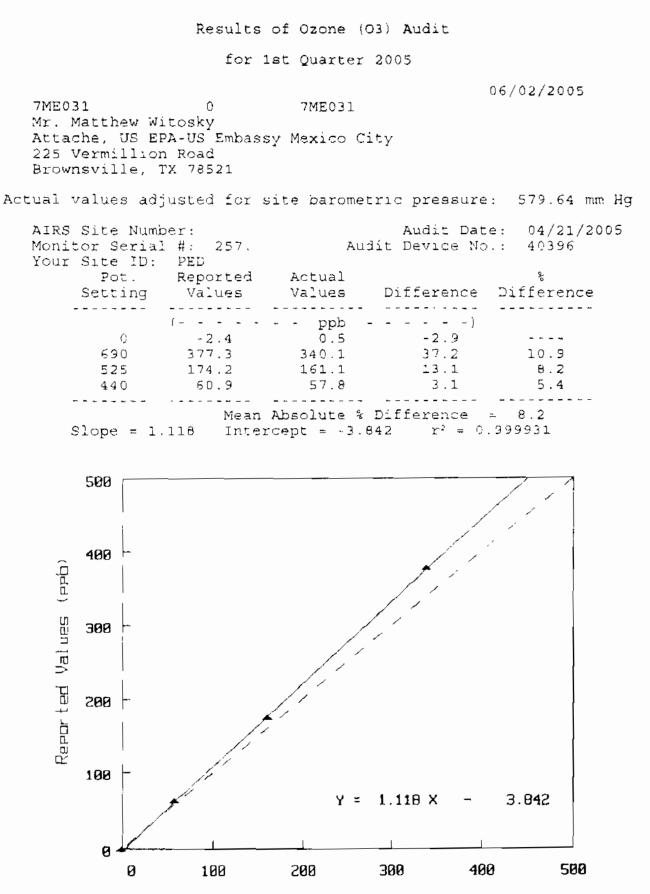
AIRS Site Number: Audit Date: 04/27/2005 Monitor Serial #: 525 Device No.: 40396 Your Site ID: SUR

Pot Setting	Reported Values	Actual Values	Difference	<pre>% Difference</pre>
	í -	dag -		
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 = 10.4NO₂ Slope = 0.958 Intercept = -6.325 r² = 0.998382







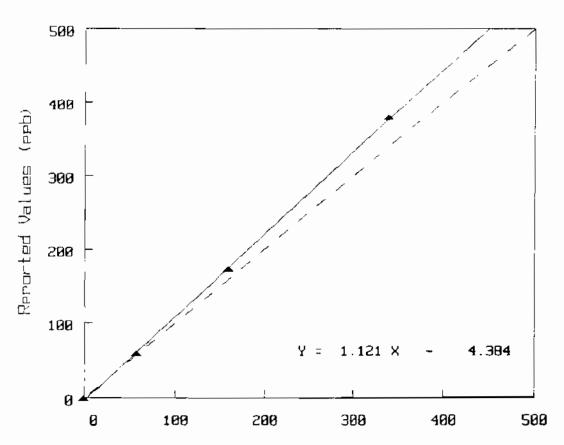
EPA Values (ppb)

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: 578.89 mm Hg

AIRS Site Number: Audit Date: 04/27/2005 Monitor Serial #: 257 Audit Device No.: 40396 Your Site ID: PED Pot. Reported Actual ¥ Setting Values Values Difference Difference - - - - - - - ------- - - - - - - - - ppb _ _ _ _) - --1.9 0 0.5 -2.4 - - - -690 378.0 340.0 38.0 11.2 173.9 525 161.0 12.3 8.0 440 59.4 57.8 1.6 2.8 _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ Mean Absolute % Difference = 7.3 Slope = 1.121 Intercept = -4.384 $r^2 = 0.999867$

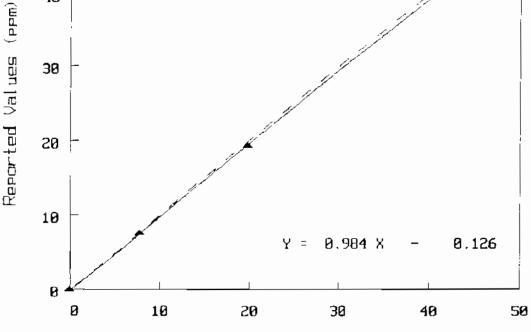


EPA Values (ppb)

Results of Carbon Monoxide (CO) Audit

for 1st Quarter 2005

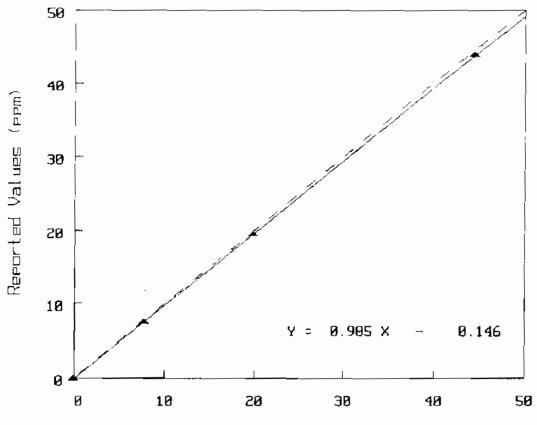
06/02/2005 7ME031 7ME031 0 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/21/2005 AIRS Site Number: Your Site ID: PED Cyl. No.: FF11036 Monitor Serial #: 1169. Device No.: 40396 Valve Reported ş Actual Difference Value Difference Position Value _ _ _ _ _ _ _ _ - - - - - - - - --- ppm -44.57 (- - - -- - - -) -0.77 43.80 -1.7 High 19.30 19.95 -0.65 Med -3.3 7.75 -0.15 Low 7.60 ~1.9 0.00 -0.10 Zero -0.10 - - - -_ _ _ _ _ _ _ _ _ ---------Mean Absolute % Difference = 2.3 Slope = 0.984 Intercept = -0.126 $r^2 = 0.999947$ 50 40 30



Results of Carbon Monoxide (CO) Audit

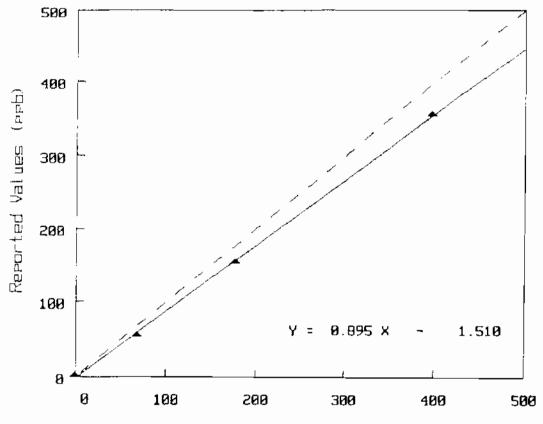
for 1st Quarter 2005

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 Reported ŝ Actual Position Value Value Difference Difference -------_ - ppm -44.57 (- - - -- - - -) 43,80 ÷0.77 -1.7 High 19.40 -2.8 Med 19.95 -0.55 Low 7.50 7,75 -0.25 -3.2 -0.10 0.00 -0.10 Zero ------------• - - - **- -** - - ------Mean Absolute % Difference = 2.6 Slope = 0.985 Intercept = -0.146 $r^2 = 0.999986$



EPA Ualues (ppm)

06/03/2005 7ME031 7ME031 0 Mr. Matthew Witosky Attache, US EPA-US Embasey Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/27/2005 Site Number: Cyl. No.: FF11036 Your Site ID: PED Device No.: 40396 Monitor Serial #: 495 8 Reported Valve Actual Difference Difference Position Values Values -----------. - ppb - - - > 356.90 398.94 -42.04-10.5 High Med 156.50 178.57 -22.07 -12.4 -12.34 -17.9 Low 57.00 69.34 2.40 Zero 0 00 2.40 _ _ _ _ _ _ _ _ _ ----------- - - - -Mean Absolute % Difference = 13.6 Slope = 0.895 Intercept = -1.510 r² = 0.999549



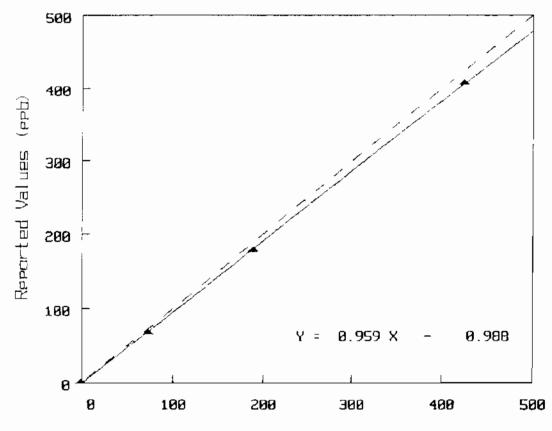
EPA Values (ppb)

Ś

Results of NO2 Continuous Audit

for 1st Quarter 2005

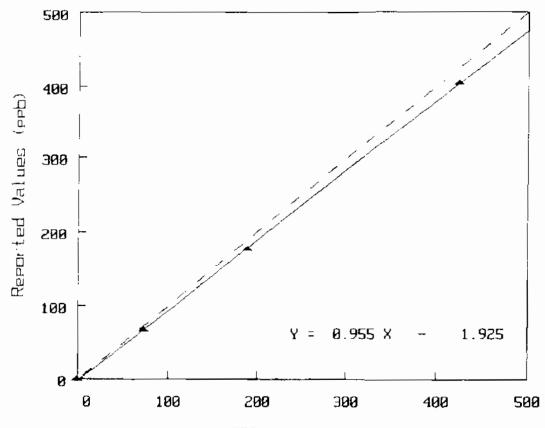
06/03/2005 7ME031 0 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/27/2005 AIRS Site Number: NO Cyl. No.: FF11036 Monitor Serial #: 517 Device No.: 40396 Site ID: PED Valve Reported Actual ŝ Difference Difference Values Values Position - - - -- - - - - - - - --------- - - - > í - - - ppb -17.07 -4.0 High 408.10 425.17 ~5.8 Med 179.30 190.31 -11.01 Low 68.00 73.90 -5.90 -8.0 0.00 1.80 _ _ _ _ 1.80 Zero _ _ _ _ _ _ _ _ _ _ _ - - - - - -- - - - - -Mean Absolute % Difference = 5.9 NO Slope = 0.959 Intercept = -0.988 $r^2 = 0.999811$



EPA Values (ppb)

06/03/2005 0 7ME031 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/23/2005 AIRS Site Number: NO Cyl. No.: FF11036 Monitor Serial #: 517. Device No.: 40396 Site ID: PED 2 Reported Actual Valve Difference Difference Values Values Position - - - - - - - - -_ _ _ _ _ _ _ _ _ _ -----рро _ _ _ 405.40 425.17 -19.77-4.6 High 177.10 190.31 -13.21 -6.9 Med -5.90 -8.0 68.00 73.90 Low 0.10 - - - -Zero 0.10 0.00 - - - - - -Mean Absolute % Difference = 6.5

NO Slope = 0.955 Intercept = -1.925 r² = 0.999856



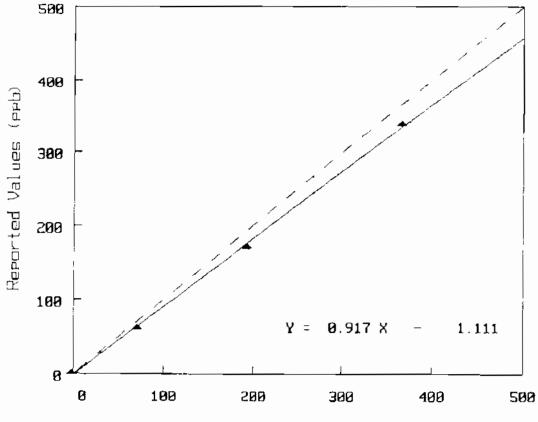
Results of NO2 Continuous Audit -- Page 2

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

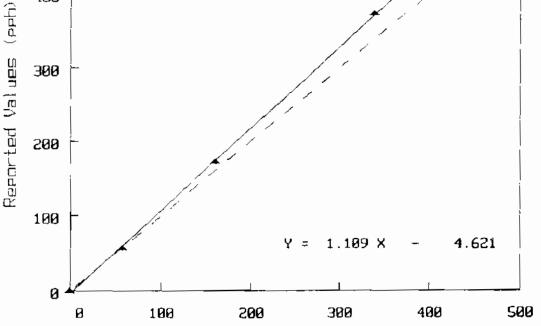
Pot Setting	Reported Values	Actual Values	Difference	۶ Difference
Seccrug	/alues		DITICICNCC	F.715000000
	l	daa -		
730	338.80	367.00	-28.20	-7.7
525	172.00	194.70	-22.70	-11.7
440	62.90	71.70	-8.80	-12.3
Zero	1.30	-1.70	З,00	
	······			

Mean Absolute % Difference = 10.5

NO₂ Slope = 0.917 Intercept =-1.111 $r^2 = 0.999092$



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: 579.34 mm Hg AIRS Site Number: Audit Date: 04/21/2005 Monitor Serial # 132 Audit Device No.: 40396 Your Site ID: PLA Pot. Reported Actual 5 Difference Difference Values Valuee Setting ppb - - - -) -1.0 0.5 -1.5 0 ----33.9 374.0 340.1 10.0 690 525 172.0 161.0 11.0 6.8 440 57.0 57.8 -0.8 -1.4 Mean Absolute % Difference = 6.0 Slope = 1.109 Intercept = -4.621 r² = 0.999735 500 400 300



06/02/2005 7ME031 0 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/21/2005 AIRS Site Number: Cyl. No.: FF11036 Your Site ID: PLA Monitor Serial #: 488 Device No.: 40396 Valve Reported ŝ Actual Value Difference Difference Position Value _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ - - - - - - - - - - -- - mqq - -(- - - -- - - -) 42.90 44.57 -1.67 -3.7 High Med 18.80 19.95 -1.15 -5.8 7.75 -0.35 Low 7.40 -4.5 0.00 Zero -0.10 -0.10 ------_____ - - - - **- - -** - - - -Mean Absolute % Difference = 4.7 Slope = 0.964 Intercept = -0.166 $r^2 = 0.999911$ 50 40 Reported Values (ppm) 30 20 10 Y = 0.964 X - 0.166

EPA Values (ppm)

30

40

50

20

0

0

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 Cyl. No.: FF11036 Your Site ID. PLA Monitor Serial #: 459 Device No.: 40396 Valve Reported Actual š Position Values Difference Difference Values ------ - - - - - - - - -_ _ _ _ _ _ _ _ _ -----_ _ _ _ _ _ _ _ _ _ (---ppb -) 433,00 398.94 34.06 8.5 High 11.43 6.4 190.00 178.57 Med Low 72.00 69.34 2.66 3.8 0.00 0.00 0.00 - - - -Zero _ _ _ _ _ _ ------ - - - - -Mean Absolute % Difference = 6.3 Slope = 1.088 Intercept = -2.188 r² = 0.999888 500 400 Reported Values (PPD) 300 200 100 Y = 1.088 X - 2.188Ø

EPA Ualues (ppb)

300

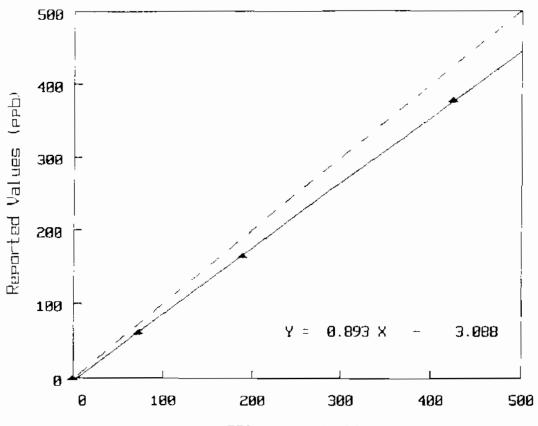
400

500

200

0

06/03/2005 0 7ME031 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/21/2005 AIRS Site Number: NO Cyl. No.: FF11036 Monitor Serial #: 529 Device No.: 40396 Site ID: PLA Actual Reported Valve Values Difference Difference Values Position _ _ _ _ _ _ _ _ _ _ _ _ - - - - - - - - -- - - - - - - - - -- - - - - - - - -----ppb - - - -) (- - - -425.17 -47.17 -11.1 378.00 High -26.31 -13.8 164.00 190.31 Med -12.90 -17.5 €1.00 73.90 Low 0.00 0.00 - - - -Zero 0.00 ---------- - -- -Mean Absolute % Difference = 14.1 NO Slope = 0.893 Intercept = -3.088 r² = 0.999718



EPA Values (ppb)

J

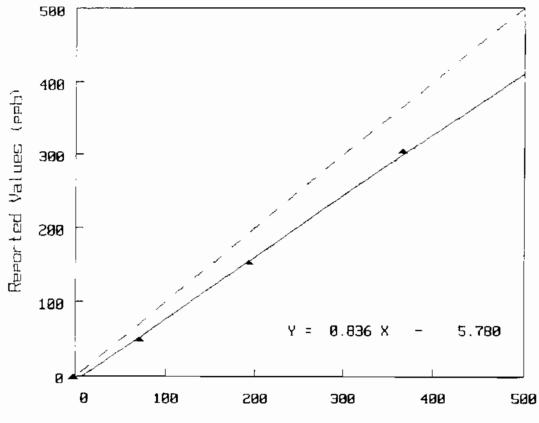
Results of NO, Continuous Audit -- Page 2

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	ہ Difference
				
	(dqq)	
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,	Slope :	=	0.836	Intercept	=-5.780	r²	=	0.998734
-----	---------	---	-------	-----------	---------	----	---	----------



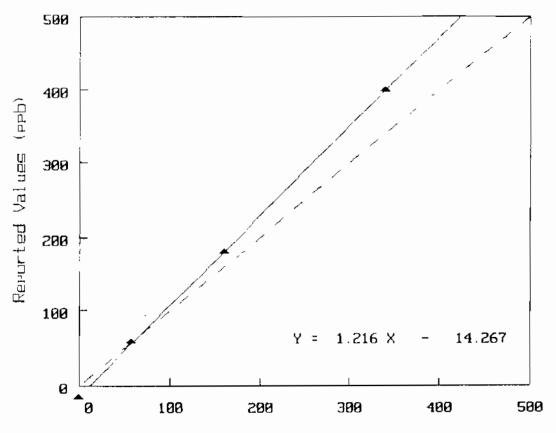
EPA Values (ppb)

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: 584.14 mm Hg

AIRS Site Number: Audit Date: 04/26/2005 Monitor Serial #: 792 Audit Device No.: 40396 Your Site ID: COY Actual Pot. Reported ŝ Values Difference Setting Values Difference _ _ _ _ _ _ _ _ _ ppb •) -16.0 0.5 -16.5 Ó - - - -690 400.0 341.2 59.8 17.2 20.5 12.7 525 182.0 161.5 440 59.0 58.0 1.0 1.8 _ - - - - - - - -Mean Absolute % Difference 10.6 = Slope = 1.216 Intercept = -14.267 $r^{2} = 0.999866$

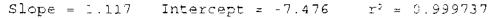


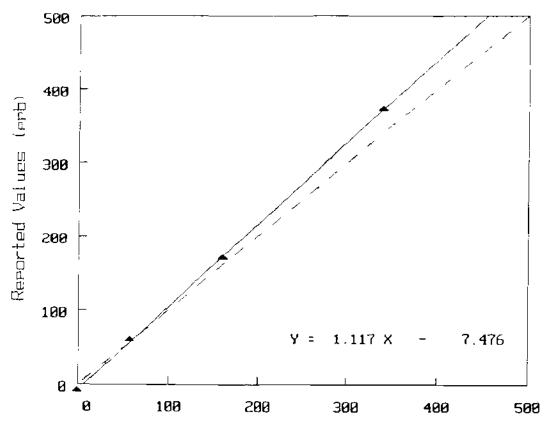
06/02/2005

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: 584.29 mm Hg AIRS Site Number: Audit Date: 04/22/2005 Monitor Serial #: 438 Audit Device No.: 40396 Your Site ID. CES

q. Pot. Reported Actual Setting Values Values Difference Difference _ ~ ~ ~ _ _ _ _ ----aqq - } 0 -9.0 0.5 -9.5 374.0 341.2 690 32.8 9.6 525 171.0 161.6 Э.4 5.8 440 61.0 58.0 3.0 5.2 ------------. Mean Absolute % Difference 6.9 =

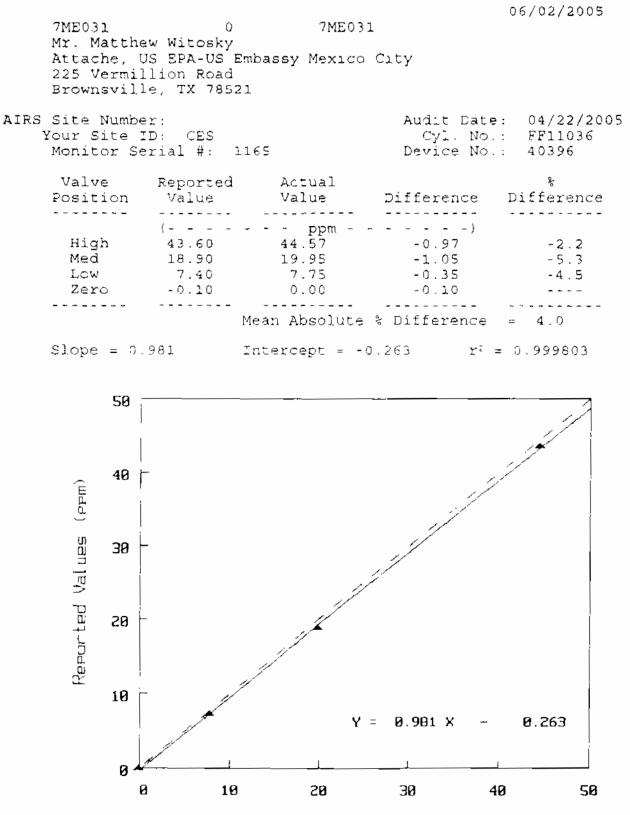




EPA Values (ppb)

Results of Carbon Monoxide (CO) Audit

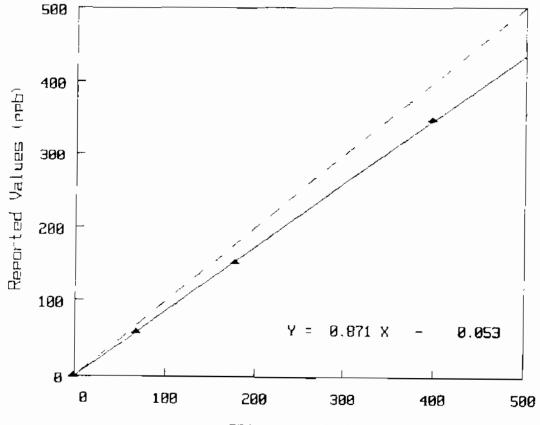
for 1st Quarter 2005



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 Audit Date: 04/22/2005 Site Number: Cyl. No.: FF11036 Your Site ID: CES Monitor Serial #: 498 Device No.: 40396 f Valve Reported Actual Values Difference Difference Position Values ------ -_ _ _ _ _ _ _ _ _ (---dqq - - -) 348.00 398.94 -50.94 -12.8 High Med 154.00 -13.8 178.57 -24.57 Low 60.00 69.34 -9.34 -13.5 Zero 1.00 1.00 ----0.00 -----_ ------_ _ - - - -Mean Absolute % Difference = 13.3 Slope = 0.971 Intercept = -0.053 $r^2 = 0.999946$



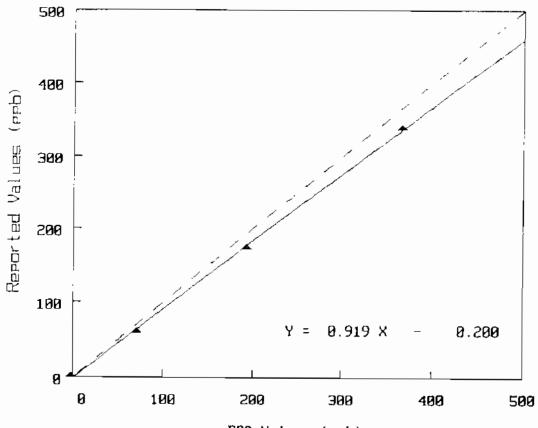
EPA Values (ppb)

Results of NO₂ Continuous Audit -- Page 2

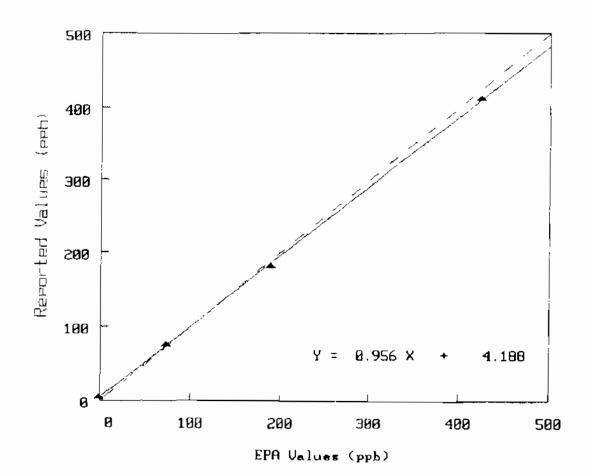
AIRS Site Number: Audit Date: 04/22/2005 Monitor Serial #: 524 Device No.: 40396 Your Site ID: CES

Pot	Reported	Actual		0.0
Setting	Values	Values	Difference	Difference
	~ ~ ~ ~ ~ ~ ~ ~ ~ ~			
	(dad		
730	340.00	367.00	-27.00	-7.4
525	175.00	194.70	-19.70	-10.1
440	62.00	71.70	-9.70	-13.5
Zero	3.00	-1.70	4.70	

Mean Absolute % Difference = 10.3 NO₂ Slope = 0.919 Intercept =-0.200 $r^2 = 0.999109$



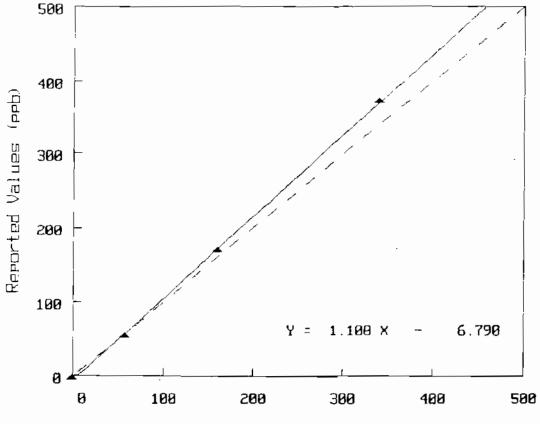
06/03/2005 0 7ME031 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/22/2005 AIRS Site Number: Monitor Serial #: 524 NO Cyl. No.: FF11036 Site ID: CES Device No.: 40396 Actual ş Valve Reported Difference Values Values Difference Position ~ - - - - - - --------- - - - - - - - - -{- - - -- dqq ~ - - -) 412.00 425.17 -13.17 -3.1 High 183 00 -7.31 Med 190.31 -3.8 2.8 Low 76.OC 73.9C 2,10 Zero 5.00 0.00 5.00 - - - -. ------ - - - - -Mean Absolute % Difference = 3.3 NO Slope = 0.956 Intercept = 4.188 $r^2 = 0.999857$



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: 585.94 mm Hg

AIRS Site Numb Monitor Serial Your Site ID:	#: 229	Aud	Audit Dat it Device No	e: 05/28/2009 .: 40396
	Reported	Actual		9 ,
Setting		Values	Difference	Difference
	(dqq)	
0	-3.0	0.5	-3.5	
690	373.0	341.6	31.4	9.2
525	170.0	161.7	8.3	5.1
440	55.0	58.0	-3.0	-5.2
Slope = 1.			Difference 90 r ² = 0.	



EPA Values (ppb)

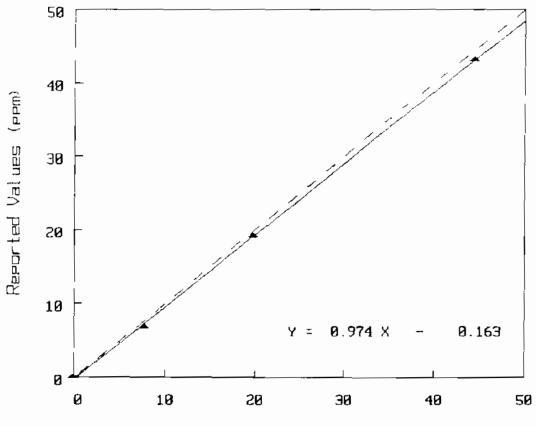
5

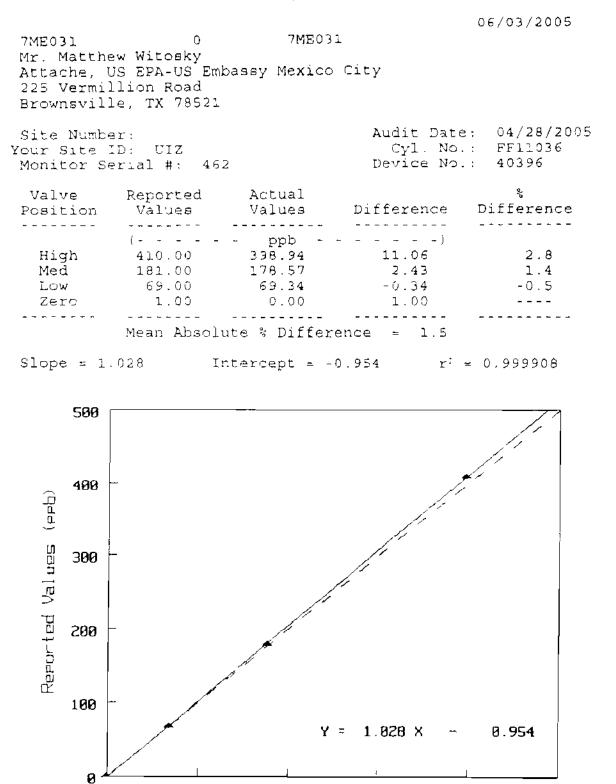
06/02/2005

Results of Carbon Monoxide (CO) Audit

for 1st Quarter 2005

06/02/2005 7ME031 7ME031 0 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 AIRS Site Number: Audit Date: 04/28/2005 Cyl. No.: FF11036 Your Site ID: UIZ Monitor Serial #: 092 Device No.: 40396 Actual Valve Reported % Value Value Difference Difference Position ----(----- - ppm -- - - -) 44.57 -1.27 43.30 -2.8 High 19.20 -3.8 Med 19.95 -0.75 Low 7.10 7.75 -0.65 -8.4 Zero 0.10 0.00 0.10 ---------_ Mean Absolute % Difference = 5.0 Slope = 0.974 Intercept = -0.163 $r^2 = 0.399856$







400

500

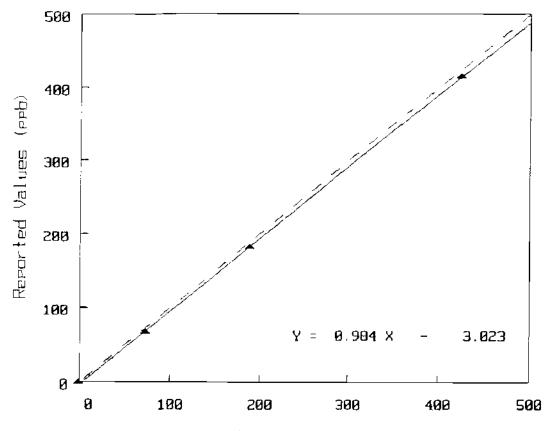
EPA Values (ppb)

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225 Vermil	aw Witosky JS EPA-US Emb	7ME0 Dassy Mexic		06/03/2005
AIRS Site Monitor Se Site ID:	erial #: 49 ⁻	(A)	Audit Date: NO Cyl. No.: Device No.:	FF11036
	Reported (Values	[:] Actual Values	Difference	ہ Difference
, '	(416.00 183.00 68.00 -1.00	425.17		-2.2 -3.8 -8.0
NO Slope	Mean Absolu = 0.984		rence = 4.7 = -3.023 r ²	= 0.999911

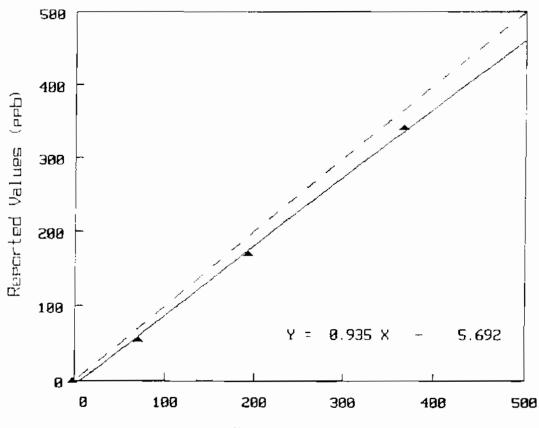


Results of NO₂ Continuous Audit -- Page 2

AIRS Site Number: Audit Date: 04/28/2005 Monitor Serial #: 497 Device No.: 40396 Your Site ID: MIZ

Pot Setting	Reported Values	Actual Values	Difference	م * Difference
	(- - daa -)	
730	342.00	367.00	-25.00	-6.8
525	170.00	194.70	-24.70	-12.7
440	56.00	71.70	-15.70	-21.9
Zero	0.00	-1.70	1,70	

Mean Absolute % Difference = 13.8 NO: Slope = 0.935 Intercept =-5.692 $r^2 = 0.997913$



EPA Values (ppb)

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: 589.17 mm Hg AIRS Site Number: Audit Date: 04/28/2005 Monitor Serial #: 447 Audit Device No.: 40396 Your Site ID: TAX Actual ŝ Pot. Reported Values Difference Values Difference Setting ------------ ppb ~ -1 -27.0 0.5 -27.5 () - - - -13.7 4.0 356.0 690 342.3 -4.1 -2.5 525 158.0 162.1 -13.2 440 45.0 58.2 -22.6 ----. ------- - - - - - - - ------Mean Absolute % Difference = 9.7 Slope = 1,113 Intercept = -23.604 $r^2 = 0.999599$ 500 400 Reported Values (Ppb) 300 200 190 Y = 1.113 X - 23.604 0

EPA Values (ppb)

300

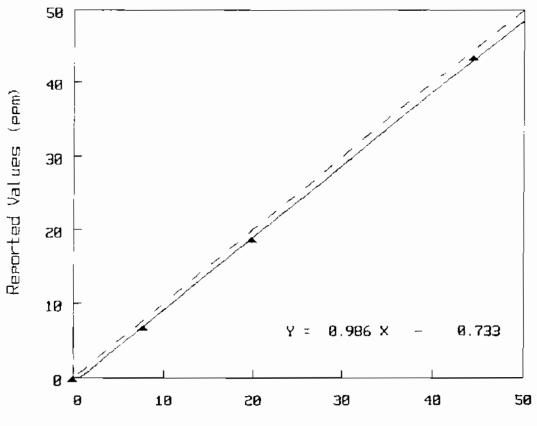
200

▲0

100

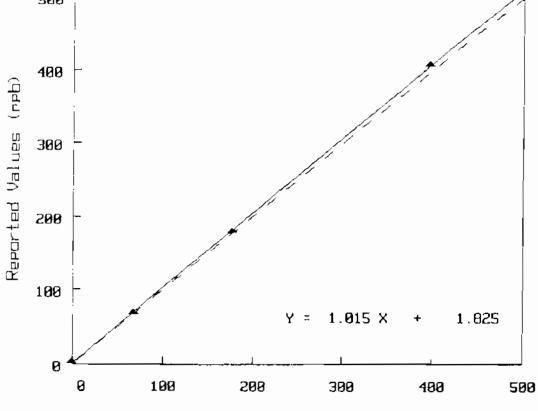
490

06/02/2005 7ME031 7ME031 0 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 AIRS Site Number: Audit Date: 04/28/2005 Your Site ID: TAX Cyl. No.: FF11036 Monitor Serial #: 309 Device No : 40396 ŝ Valve Reported Actual Value Value Difference Difference Position ----- - - - - - - -(_ - -- -) - ppm ---2.6 Hiqh 43.40 44.57 -1.17 18.60 19.95 -1.35 -6.8 Med 7.75 -1.15 Low 6.60 -14.8 Zero -0.30 0.00 -0.30 - - - -_____ _ _ _ _ _ _ _ _ _ ----------. Mean Absolute % Difference = 8.1 Slope = 0.986 Intercept = -0.733 $r^2 = 0.999612$



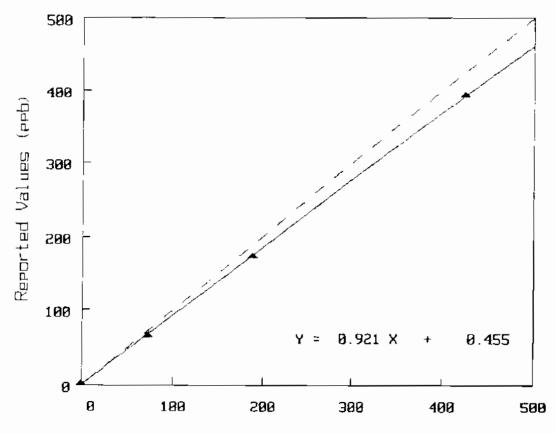
EPA Values (ppm)

06/03/2005 7ME031 0 7ME031 Mr. Matthew Witosky Attache, US EFA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/28/2005 Site Number: Your Site ID: TAX Cyl. No.: FF11036 Monitor Serial #: 252 Device No.: 40396 Reported * Valve Actual Difference Values Values Position Difference ----------. dqq (- - -- - - 1 408.00 9.06 High 398.94 2.3 Med 181.00 178.57 2.43 1.4 71.00 Low 69.34 1.66 2.4 Zero 4.00 0.00 4.00 - - - ------- - - - - - - -______ ----Mean Absolute % Difference = 2.0 Slope = 1.015 Intercept = 1.825 $r^2 = 0.999872$ 500



EPA Values (ppb)

06/03/2005 7ME031 0 7ME031 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Audit Date: 04/28/2005 AIRS Site Number: NO Cyl. No.. FF11036 Monitor Serial #: 521 Site ID: TAX Device No.: 40396 Valve Reported Actual e. Values Difference Difference Position Values . _ _ _ **_ _** _ _ _ _ _ _ _ _ ----- - - - > (- - - ppb High 393.00 425.17 -32.17-7.6 175.00 -15.31 -8.0 Med 190.31 66.00 -7.90 Low 73.90 -10.7 3.00 Zero 0.00 3.00 - - - -. --------------Mean Absolute % Difference = 8.8 NO Slope = 0.921 Intercept = 0.455 $r^2 = 0.999838$

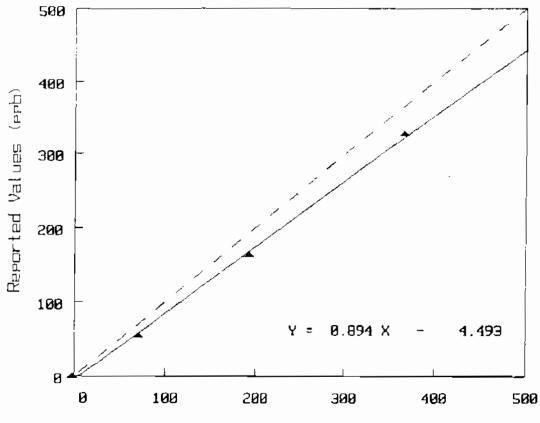


Results of NO, Continuous Audit -- Page 2

AIRS Site Number: Audit Date: 04/29/2005 Monitor Serial #: 521 Device No.: 40396 Your Site ID: TAX

Pot	Reported	Actual		3 7
Setting	Values	Values	Difference	Difference
			• • • • • • • • • • •	
	(- ppb		
730	328.00	367.00	-39.00	-10.6
525	163.00	194.70	-31.70	~16.3
440	56.00	71.70	-15.70	-21.9
Zerc	0.00	-1,70	1.70	

Mean Absolute % Difference = 16.3NO, Slope = 0.894 Intercept = -4.493 r² = 0.998214



EPA Values (ppb)

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06/02/2005 7ME031 7ME031 0 Mr. Matthew Witosky Attache, US EPA-US Embassy Mexico City 225 Vermillion Road Brownsville, TX 78521 Actual values adjusted for site barometric pressure: 583.54 mm Hg AIRS Site Number: Audit Date: 04/22/2005 Monitor Serial #: 443 Audit Device No.: 40396 Your Site ID: TAH Pot. Reported Actual £ Values Values Difference Difference Setting ------ - - -----ppb - - - > 7.0 0.5 6.5 0 - - - -690 383.0 341.0 42.0 12.3 179.0 161.5 17.5 10.9 525 7.0 57.9 4.1440 62.0 - - - - - ------- - - - -- - - -Mean Absolute % Difference = 10.1 Slope = 1.113 Intercept = 1.738 $r^2 = 0.999405$ 500 400 Reported Values (epb) 300 200 100 Y = 1.113 X + 1.730 Ø 400 500 90e 0 100 200

Results of SO2 Continuous Audit

for 1st Quarter 2005

			(06/03/2005
Attache, U 225 Vermil	ew Witosky JS EPA-US Emb	7ME03: Daesy Mexico		
Site Numbe Your Site I Monitor Se)	Audit Date; Cyl. No.: Device No.:	
Valve Posítion	Reported Values		Difference	% Difference
High	(398.94 178.57) C.O6	0.0 -0.9 -1.9
Slope = 0.		ate % Differenter ().	$r^2 = 0.9$.999871

