# TEST REPORT

## COMPLIANCE EMISSION TEST PROGRAM
SRU NO. 3 SCOT TAILGAS INCINERATOR: EPN 121

TCEQ FLEXIBLE AIR PERMIT NOS. 38754 AND PSD-TX-324M12

REGULATED ENTITY NO. RN100214286

CUSTOMER REFERENCE NO. CN600127468

TCEQ ACCOUNT NO. NE-0112-G

## VALERO REFINING – TEXAS, L.P.
## CORPUS CHRISTI, TEXAS

PREPARED FOR:

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ARI Project No. H555-313
ARI Proposal No. H7409
Valero Contract No. 4501652268
Test Dates: April 21 and 22, 2009

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# REPORT CERTIFICATION

## STATEMENT OF CONFORMANCE AND TEST REPORT CERTIFICATION

I certify, to the best of my knowledge, that this test program was conducted in a manner conforming to the criteria set forth in ASTM D 7036-04: Standard Practice for Competence of Air Emission Testing Bodies, and that project management and supervision of all project related activities were performed by qualified individuals as defined by this practice.

I further certify that this test report and all attachments were prepared under my direction or supervision in accordance with the ARI Environmental, Inc. quality management system designed to ensure that qualified personnel gathered and evaluated the test information submitted. Based on my inquiry of the person or persons who performed the sampling and analysis relating to this performance test, the information submitted in this test report is, to the best of my knowledge and belief, true, accurate, and complete.

W Pearce 6-5-09

Bill Pearce
Project Manager, Source Testing Division
ARI Environmental, Inc.

Daniel Fitzgerald 6-4-09

Daniel E. Fitzgerald
Division Manager, Source Testing
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# SECTION ONE Introduction and Summary

ARI Environmental, Inc. (ARI) was retained by Valero Refining - Texas, L.P. (Valero) to conduct an emission test program at the West Plant of Valero's Bill Greehey Refinery located in Corpus Christi, Texas. The emission test program consisted of an emission compliance program performed on the exhaust stream of the SRU No. 3 Scot Tailgas Incinerator.

Compliance testing at the SRU No. 3 Scot Tailgas Incinerator exhaust was conducted to determine the concentrations and mass emission rates of particulate matter (PM), nitrogen oxides ($NO_x$), carbon monoxide (CO), hydrogen sulfide ($H_2S$), carbonyl sulfide (COS), carbon disulfide ($CS_2$) and reduced sulfur compounds (RSC) as $H_2S$. The test programs followed the regulatory requirements and sampling procedures listed below:

- Code of Federal Regulations, Title 40, Part 51 (40 CFR 51), Appendix M, USEPA Method 205.
- 40 CFR 60, Appendix A, USEPA Methods 1-5, 7E, 10 and 15.
- 40 CFR 60, Subpart J, Standards of Performance for Petroleum Refineries.
- Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.
- Texas Commission on Environmental Quality (TCEQ) Sampling Procedures Manual.

Under the direction of Mr. Dan Fitzgerald, the ARI field test team consisted of Messrs. Bill Pearce, Matt Badertscher and Jeff Goldfine. Mr. Sam Sanders of Valero coordinated the test activities with plant operations and provided process data to ARI for inclusion in this report. The test program was performed on April 21 and 22, 2009.

The results of the compliance test program are summarized in Table 1-1.

# SECTION ONE Introduction and Summary

*TABLE 1-1. SUMMARY OF SRU NO. 3 SCOT TAILGAS INCINERATOR COMPLIANCE TEST RESULTS*

| RUN NO. : | SRU3-1 | SRU3-2 | SRU3-3 | | |
|---|---|---|---|---|---|
| TEST DATE : | 4/21/09 | 4/21/09 | 4/22/09 | | |
| TEST TIME : | 13:22 – 16:58 | 17:45 – 21:12 | 09:00 – 12:24 | Average | Allowable |
| **Particulate Matter** | | | | | |
| lb/hr | 3.46 | 2.80 | 3.48 | 3.25 | |
| **Nitrogen Oxides** | | | | | |
| lb/hr | 3.73 | 3.27 | 3.03 | 2.86 | |
| **Carbon Monoxide** | | | | | |
| lb/hr | 9.70 | 24.02 | 25.12 | 19.62 | |
| **Hydrogen Sulfide** | | | | | |
| lb/hr | < 0.142 | < 0.136 | < 0.110 | < 0.129 | |
| **Carbonyl Sulfide** | | | | | |
| lb/hr | < 0.281 | < 0.270 | < 0.161 | < 0.237 | |
| **Carbon Disulfide** | | | | | |
| lb/hr | < 0.230 | < 0.221 | < 0.325 | < 0.259 | |
| **RSC as $H_2S$** | | | | | |
| ppmv db @ 3% $O_2$ | <2.95 | <2.88 | <3.17 | <3.00 | 5 |
| lb/hr | < 0.507 | < 0.487 | < 0.493 | < 0.496 | |
| **Firebox Temperature** | | | | | |
| °F | 1526 | 1521 | 1519 | 1522 | >1500 |
| **Stack Oxygen Content** | | | | | |
| % by vol db | 5.26 | 4.85 | 4.64 | 4.92 | >3.0 |

Values represented as less than are calculated by using the analytical detection limit. If these constituents were present in the exhaust gas stream, they existed at concentrations and mass emission rates below the reported values.

# SECTION TWO Testing and Analytical Procedures

## 2.1 OVERVIEW

ARI conducted a compliance emission test on the SRU No. 3 Scot Tailgas Incinerator exhaust at Valero's West Plant of the Bill Greehey Refinery located in Corpus Christi, Texas. The purpose of the test program was to determine various pollutant concentrations and mass emission rates to atmosphere.

Test methods followed those as detailed in 40 CFR, Part 60, Appendix A, USEPA Methods 1-5, 7E, 10 and 15; and 40 CFR, Part 51, Appendix M, USEPA Method 205 as detailed in Table 2-1.

*TABLE 2-1. USEPA TEST METHODS*

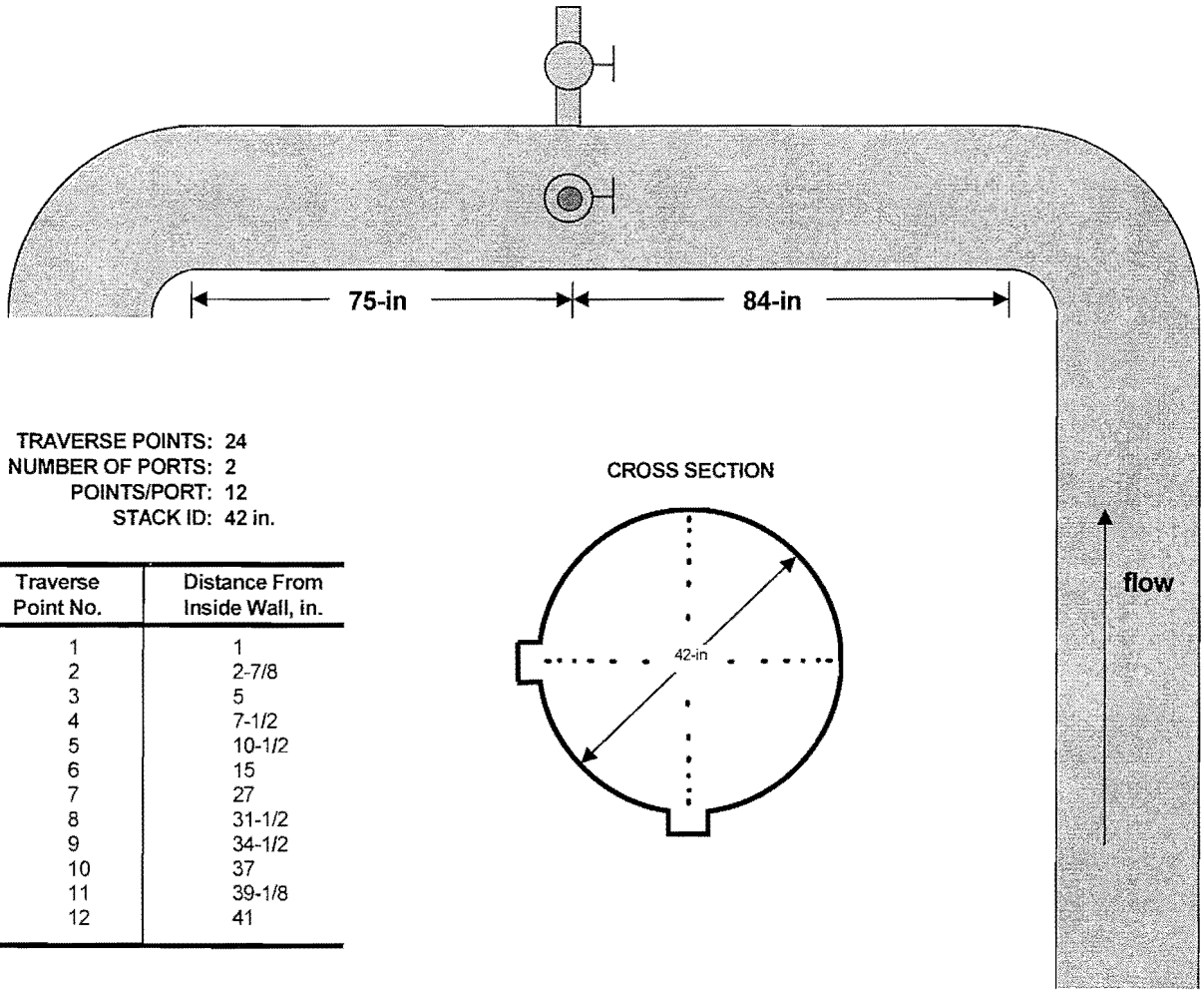
| USEPA Method | Description |
|---|---|
| 1 | Sample and Velocity Traverses for Stationary Sources |
| 2 | Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube) |
| 3A | Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure) |
| 4 | Determination of Moisture Content in Stack Gases |
| 5 | Determination of Particulate Matter Emissions from Stationary Sources |
| 7E | Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure) |
| 10 | Determination of Carbon Monoxide Emissions from Stationary Sources |
| 15 | Determination of Hydrogen Sulfide, Carbonyl Sulfide and Carbon Disulfide Emissions from Stationary Sources |
| 205 | Verification of Gas Dilution Systems for Field Instrument Calibrations |

Testing of the Tailgas Incinerator exhaust consisted of three 3-hour runs.

## 2.2 USEPA METHOD 1 - SAMPLE AND VELOCITY TRAVERSE LOCATIONS

Sampling at the incinerator exhaust was conducted using the two 4-inch diameter sampling ports provided on the exhaust duct. The sampling port locations on the 42-inch diameter duct are located approximately 75 inches (~1.8 duct diameters) upstream and approximately 84 inches (~2.0 duct diameters) downstream from the nearest flow disturbances. The sampling point locations were determined following USEPA Method 1 procedures. Specifically, twelve sampling points were used for each sample port for a total of twenty-four sampling points as presented in Figure 2-1.

# SECTION TWO Testing and Analytical Procedures




TRAVERSE POINTS: 24
NUMBER OF PORTS: 2
POINTS/PORT: 12
STACK ID: 42 in.

| Traverse Point No. | Distance From Inside Wall, in. |
|---|---|
| 1 | 1 |
| 2 | 2-7/8 |
| 3 | 5 |
| 4 | 7-1/2 |
| 5 | 10-1/2 |
| 6 | 15 |
| 7 | 27 |
| 8 | 31-1/2 |
| 9 | 34-1/2 |
| 10 | 37 |
| 11 | 39-1/8 |
| 12 | 41 |

*FIGURE 2-1. VALERO REFINING – TEXAS L.P.*
*SRU NO. 3 SCOT TAILGAS INCINERATOR EXHAUST SAMPLING LOCATION*

# SECTION TWO Testing and Analytical Procedures

## 2.3 USEPA METHOD 2 – VELOCITY AND VOLUMETRIC FLOW RATE DETERMINATION

Velocity traverses were performed using a Type "S" pitot tube with the velocity head pressure measured on a Dwyer oil gauge inclined manometer to the nearest 0.01 in. $H_2O$. Temperature measurements in the ducts were performed with a Chromel-Alumel thermocouple connected to a digital direct read-out potentiometer. A pre-test cyclonic flow check was performed prior to the pollutant sampling and the average angle of flow was measured at less than 20 degrees.

## 2.4 USEPA METHOD 3A - $CO_2$, $O_2$ AND MOLECULAR WEIGHT DETERMINATION

The molecular weight of the stack gas was determined following USEPA Method 3A. Specifically, for each sampling run, the exhaust gas was analyzed for carbon dioxide ($CO_2$), oxygen ($O_2$) and nitrogen ($N_2$) (by difference) using the analyzers described in Subsection 2.7.

## 2.5 USEPA METHOD 4 – STACK GAS MOISTURE CONTENT

Stack gas moisture determination was conducted in accordance with USEPA Method 4 procedures and in conjunction with the USEPA Method 5 sampling train. Specifically, stack gas was extracted at an isokinetic rate through a series of chilled impingers. The first two impingers contained deionized/distilled water, the third was initially empty and the final impinger contained silica gel for final water vapor removal. Total moisture collected was determined based upon the weight gains of impingers one through four. Stack gas moisture was determined from the weight of water vapor condensed from the stack gas and the standard volume of gas sampled.

## 2.6 USEPA METHOD 5 - PARTICULATE MATTER

The sampling procedures for this test program were those described in USEPA Method 5 - Determination of Particulate Matter from Stationary Sources. Analysis of the collected samples was performed by ARI's laboratory located in Wauconda, Illinois (Texas NELAP Certificate No. T104704428-08A-TX).

### 2.6.1 Sampling Apparatus

The particulate sampling train, as shown in Figure 2-2, used at the exit stack during the test program met the design specifications established by the USEPA. The sample train consisted of the following:

Nozzle – Stainless steel (316 grade) with sharp, tapered, leading edge and accurately measured round opening.

Probe - Stainless steel (316 grade) outer sheath with a heating system capable of maintaining a gas temperature of 248°F ± 25°F, with a 5/8-in. O.D. borosilicate glass inner liner for sample transport.

Pitot Tube - A Type-S pitot tube that meets all geometric standards; attached to the probe to monitor stack gas velocity.

# SECTION TWO Testing and Analytical Procedures

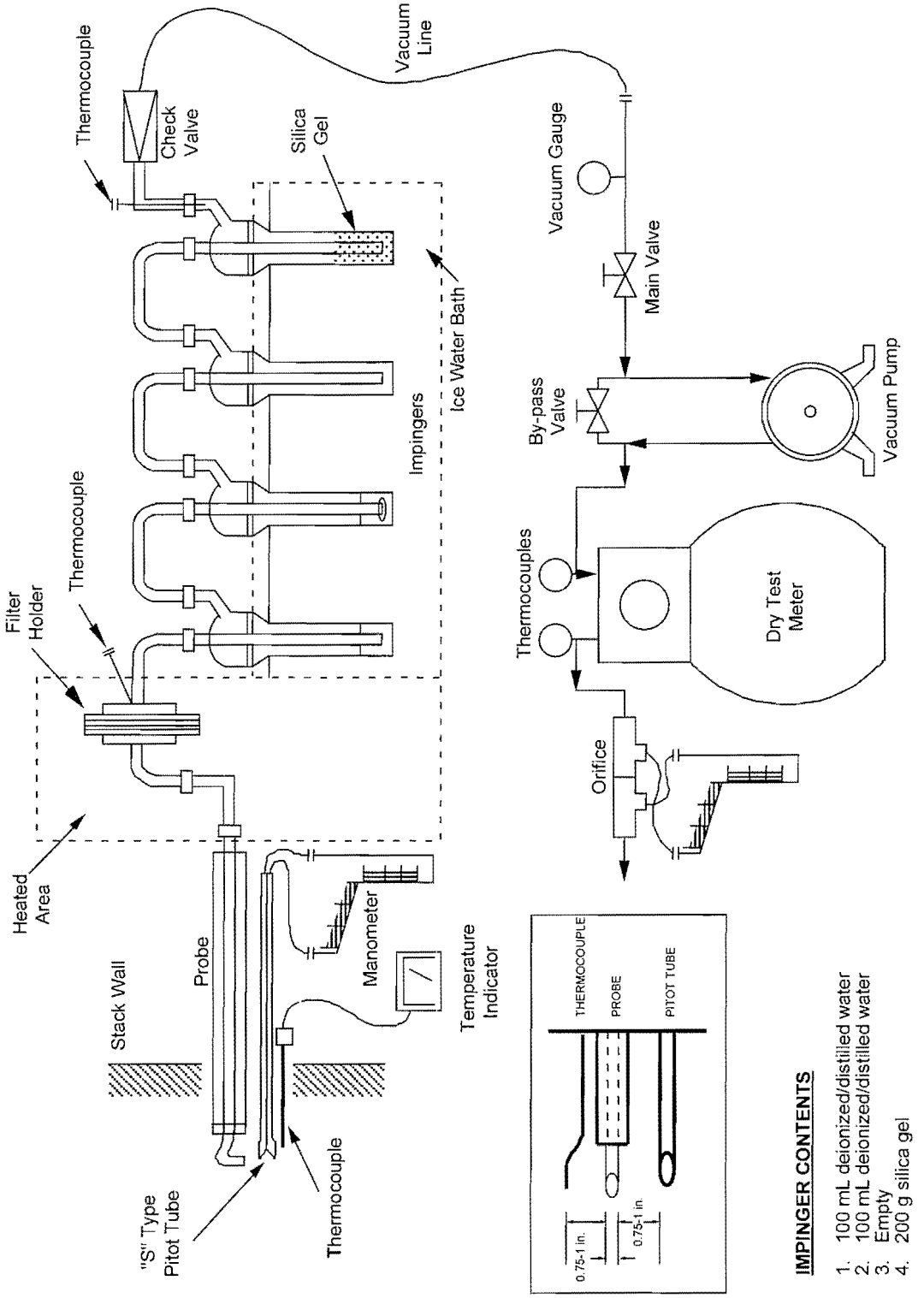



*FIGURE 2-2. USEPA METHOD 5 - PARTICULATE MATTER SAMPLING TRAIN*

Filter Holder - Borosilicate glass with a heating system capable of maintaining a filter temperature of 248°F ± 25°F. A thermocouple is placed in the back-half of the filter support in direct contact with the sample stream.

Filter – Fisher Brand G6 glass-fiber, 4-in. diameter.

Draft Gauge - A dual-inclined manometer made by Dwyer with a readability of 0.01 in. $H_2O$ in the 0 to 1-in. range and 0.1 in. $H_2O$ in the 1 to 10-in. range.

Impingers - Four impingers connected in series with glass ball joints. The second impinger was of the Greenburg-Smith design. The first, third and fourth impingers were of the Greenburg-Smith design but modified by replacing the tip with a 1/2-in. i.d. glass tube extending to 1/2-in. from the bottom of the flask.

Metering System - Vacuum gauge, leak-free pump, thermometers capable of measuring temperature to within 5°F, dry gas meter with 2 percent accuracy, and related equipment to maintain an isokinetic sampling rate and to determine sample volume.

Barometer - Aneroid type to measure atmospheric pressure to ±0.1 in. Hg.

### *2.6.2 Sampling Procedure*

The sample train was assembled as shown in Figure 2-2. Glass-fiber filters were initially desiccated for at least 24 hours and weighed to the nearest 0.1 mg on an analytical balance. One hundred milliliters (mL) of deionized/distilled water were placed in each of the first two impingers; the third impinger was initially empty; and the fourth impinger contained approximately 200 grams of silica gel. The sampling train was leak-checked at the sampling site prior to each test run by plugging the inlet to the nozzle and pulling a 15-in. Hg vacuum; and at the conclusion of the test, by plugging the inlet to the nozzle and pulling a vacuum equal to at least the highest vacuum reached during the test run.

The pitot tube and lines were leak-checked at the test site prior to and at the conclusion of each test run. The check was made by blowing into the impact opening of the pitot tube until 3 or more inches of water was recorded on the manometer and then capping the impact opening and holding it for 15 seconds to assure it was leak-free. The negative pressure side of the pitot tube was leak-checked by the same procedure, except suction was used to obtain the 3-in. $H_2O$ manometer reading. Crushed ice was placed around the impingers to keep the temperature of the gases leaving the last impinger at 68°F or less.

During sampling, stack gas and sampling train data were recorded and isokinetic sampling rates were set at each sampling point. All sampling data was recorded on the field data sheets provided in Appendix B.

The sample ports were located on a circular horizontal duct that required the sampling probe to access the duct horizontally from the side and vertically from the top. This required the probe and filter holder assembly to be disassembled and reassembled at port change. A port change sample train leak check was performed prior to disassembly and again after reassembly.

### 2.6.3 Sample Recovery Procedure

The sampling train was moved carefully from the test site to the cleanup area. The volume of water from the first three impingers was measured, and sample fractions were recovered as follows:

Container No. 1 - The filter was removed from its holder and placed in a petri dish and sealed.

Container No. 2 - Loose particulate and acetone washings from all sample-exposed surfaces prior to the filter were placed in a glass container, sealed, and labeled. Particulate was removed from the probe with the aid of a nylon brush. The liquid level was marked after the container was sealed.

Container No. 3 - The contents of the first three impingers were measured gravimetrically and recorded on the field recovery sheet. The contents and subsequent $H_2O$ rinse of the impingers and connecting glassware were placed in a polyethylene jar.

The silica gel from the fourth impinger was weighed, and this value was recorded on the field data sheet. An unused filter, acetone and distilled water were taken as blanks.

### 2.6.4 Analytical Procedures

The analytical procedures followed during this program were those described in USEPA Method 5.

Container No. 1 - The filter and any loose particulate matter from this sample container were placed in a tared glass weighing dish, placed in a desiccator for 24 hours and measured to a constant weight to the nearest 0.1 mg.

Container No. 2 - The acetone washings were transferred to a tared beaker and evaporated to dryness on a hot plate by heating at 45°C. The beaker and the contents were placed in a desiccator for 24 hours and measured to a constant weight to the nearest 0.1 mg.

Container No. 3 - The impinger contents and associated rinse were transferred to a tared beaker and evaporated to dryness on a hot plate by heating to 105°C. The beaker and the contents were placed in a desiccator for 24 hours and measured to a constant weight to the nearest 0.1 mg.

The acetone and water blanks were analyzed in the same way as their respective sample fractions.

The term "constant weight" means a difference of no more than 0.5 mg or 1 percent of total weight less tare weight, whichever is greater between two consecutive readings, with no less than 6 hours of desiccation between weighings. All analytical data is presented in Appendix C.

## 2.7 USEPA METHODS 3A, 7E AND 10 - $O_2$, $CO_2$, $NO_x$ AND CO

Sampling for $O_2$, $CO_2$, $NO_x$ and CO was performed following procedures from USEPA Methods 3A, 7E and 10. ARI's gaseous reference method (RM) sampling system consisted of a heated probe with an in-stack filter followed by a calibration tee connected to a heated Teflon sample line. The Teflon sample line was used to transport sample to an electronic sample conditioner (Universal Analyzer Model No. 3082) to condition the sample by cooling and removing moisture. A sample

manifold was connected to the exhaust side of the sample conditioner with intake lines for ARI's $O_2$, $CO_2$, $NO_x$ and CO analyzers as presented in Figure 2-3.

USEPA Method 3A was used for RM sampling of $O_2$ and $CO_2$ using ARI's Servomex Model 1440 combination analyzer. For the analysis of $O_2$ in the sample stream, a paramagnetic detector was utilized. For the measurement of $CO_2$, a non-dispersive infrared detector was utilized. USEPA Method 7E was used for RM sampling of $NO_x$ using ARI's California Analytical Instruments Model 600 chemiluminescent analyzer. USEPA Method 10 was used for CO analysis of the sample stream using ARI's Thermo Environmental Instruments, Inc. Model 48 gas filter correlation infrared analyzer.

Prior to the test, initial calibration error checks were performed for each constituent using zero gas ($N_2$), followed by high and mid level standards prepared from an EPA Protocol standard diluted with $N_2$ following the procedures from USEPA Method 205 as detailed in Subsection 2.9. The analyzer response for each calibration gas introduced was less than 2% of the corresponding span value as determined by the span gas concentration.

Following the calibration error test and prior to sampling, a $NO_2$ converter test was performed using a certified $NO_2$ standard of approximately 50 ppm. The results were within 10% of the cylinder certified concentration.

Immediately before and after each test run, system bias checks were performed for each RM analyzer. This bias check consisted of introducing calibration gases into the sample system at a calibration tee placed between the sample probe and the heated sample line. The sample gas was introduced at a rate slightly higher than the sample rate to ensure excess gas flows out the tip of the probe, preventing stack gas from entering the sample system during calibrations. System bias checks were performed using a zero gas and either the mid or span level calibration gas (whichever is closer to the actual stack gas concentrations).

The pre-test and post-test system bias results were within the 5% of span allowed for each calibration gas. The system bias results were also used to calculate system drift during each run. The drift test results were within the 3% of span allowed for each test run.

Prior to the first run, response times were determined upscale and downscale for each analyzer. The start of each run was delayed for a period of at least twice the length of the longest response time following calibrations.

Data was recorded and archived on ARI's data acquisition system consisting of a data recorder/logger linked to a computer for digital data archives and reduction. All calibration data, including calibration gas specifications, calibration span values, recorded responses, and certifications relevant to this test program are presented in the appendices of this report.

All calibration gases were certified by USEPA Protocol 1 procedures. ARI's Environics Model 4040 Gas Dilution System introduced calibration gases to the analyzers. The gas dilution system was determined to be acceptable following the procedures described in USEPA Method 205. The procedures and results are discussed in Subsection 2.9.

# SECTION TWO Testing and Analytical Procedures

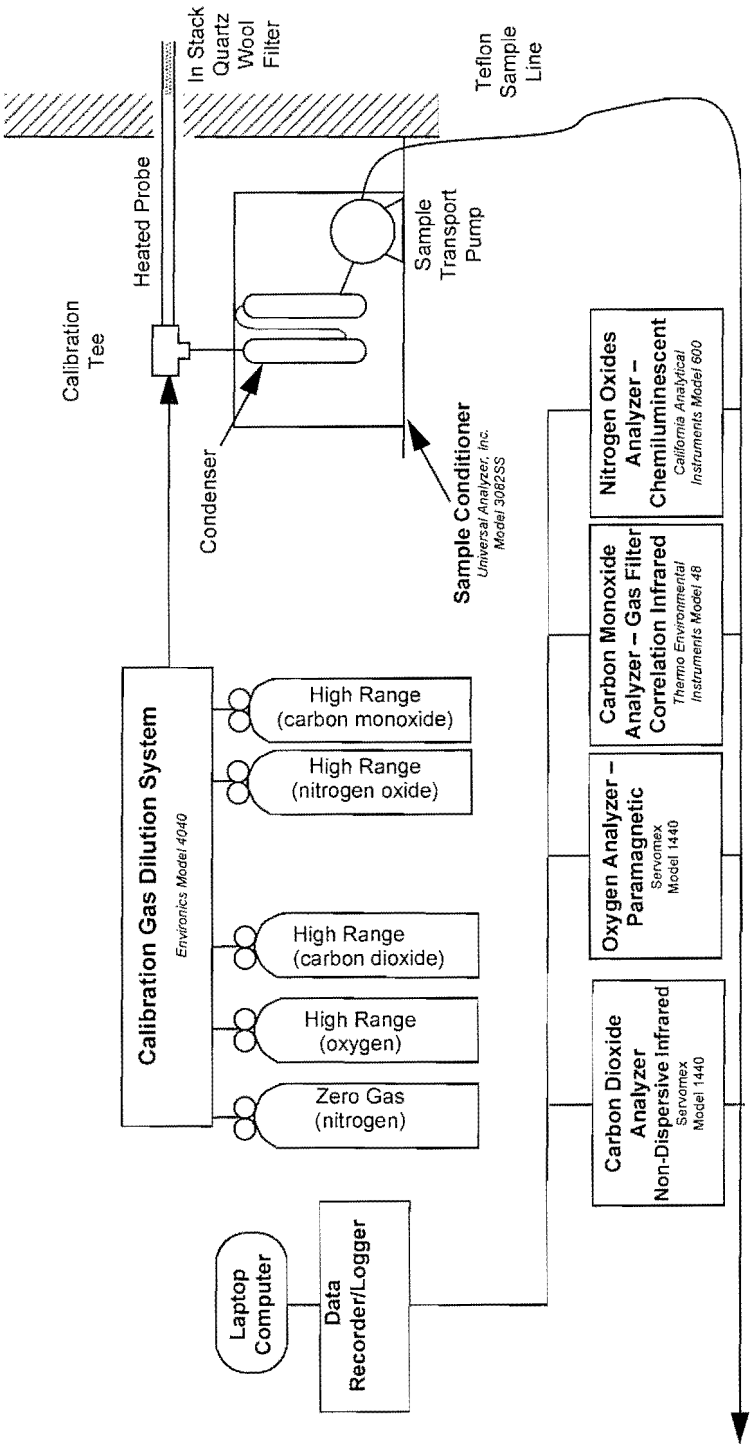



*FIGURE 2-3. ARI REFERENCE METHOD $O_2$, $CO_2$, $NO_X$ AND CO SAMPLING SYSTEM*

### 2.8 USEPA METHOD 15 – COS, $CS_2$ AND $H_2S$

Determination of TRS was conducted in accordance with USEPA Method 15 using a gas chromatograph (GC) for separation of sulfur compounds and measurement by a flame photometric detector (FPD).

Modifications and improvements to USEPA Method 15 during the testing included the following:

1. No sample dilution was required (GC range ~50 ppm TRS)
2. USEPA Protocol 1 calibration gases were used to calibrate the GC (no permeation tubes used)
3. During pre and post-test calibrations, gas standards were injected through the entire sample transport system. Therefore, a line loss study was not applicable.

The TRS gas sampling system consisted of a heated glass lined probe connected to a heated Teflon sampling line. The exhaust gas was then conveyed through a series of Teflon impingers located on the sampling platform containing a citrate buffer solution to remove $SO_2$ from the sample stream.

A Teflon lined sample pump transported the sample through 0.375-inch OD Teflon tubing to the ARI mobile laboratory located at grade approximately 25 feet from the sampling location. The sample was run to a manifold system at a flow rate of approximately 3 liters per minute from which a sample was introduced to the GC-FPD.

The GC-FPD system consisted of an SRI Model 9300B field GC containing a heated gas sampling valve, column oven and detector. A computer based integrator utilizing Peak Simple W95 software was used for data acquisition and integration.

The GC-FPD was calibrated with a USEPA Protocol 1 TRS gas standard obtained from Specialty Gas Products. The gas standard was generated using an Environics Model 4040 mass flow controller gas dilution system. The dilution system was verified onsite in accordance with USEPA Method 205 (see Subsection 2.9).

The TRS results were converted to equivalent $SO_2$ concentration in parts per million (ppmv) using the following equation:

$$\Sigma\, SO_2 = COS + H_2S + 2CS_2$$

During each compliance test run, there were 18 injections to the GC-FPD.

### 2.9 USEPA METHOD 205 - GAS DILUTION SYSTEM VERIFICATION

All diluted calibration standards were prepared using an Environics Model 4040 Dilution System, which was verified by a field evaluation at the job site prior to testing following the requirements of USEPA Method 205.

ARI's Servomex Model 1440 paramagnetic $O_2$ gas analyzer was calibrated following USEPA Method 3A procedures. After the calibration procedure was complete, diluted mid and high

range standards and a mid-range USEPA Protocol 1 standard were alternately introduced in triplicate and an average instrument response was calculated for each standard. No single response differed by more than ±2% from the average response for each standard.

The difference between the instrument average and the predicted concentration was less than ±2% for each diluted standard. The difference between the certified gas concentration and the average instrument response for the mid-range USEPA Protocol 1 standard was less than ±2%. Complete documentation of the USEPA Method 205 Dilution System Verification is presented in Appendix E.

# SECTION THREE Results

The data collected for the compliance emission testing on the SRU No. 3 Scot Tailgas Incinerator exhaust is presented in Table 3-1.

Appendix A presents example calculations and computer generated printouts of calculated values from the field data. Appendix B presents the field data. The analytical data is presented in Appendix C. Appendix D contains the 15-second interval data recorded from each of ARI's reference method analyzers. Appendix E presents the calibration data and cylinder gas certification sheets. The data supplied by plant personnel for the process operating levels are presented in Appendix F. Appendix G presents test personnel resumes.

# SECTION THREE Results

### *TABLE 3-1. SRU NO. 3 SCOT TAILGAS INCINERATOR TEST RESULTS*

| | | | | |
|---|---|---|---|---|
| Company | : Valero Refining - Texas, L.P. | | | |
| Location | : Corpus Christi, Texas | | | |
| Source | : SRU No. 3 Scot Tailgas Incinerator | | | |
| Operators | : D. Fitzgerald, B. Pearce, M. Badertscher, J. Goldfine | | | |
| Test Run | : SRU3-1 | SRU3-2 | SRU3-3 | |
| Test Date | : 4/21/09 | 4/21/09 | 4/22/09 | |
| Test Time | : 13:22 – 16:58 | 17:45 – 21:12 | 09:00 – 12:24 | Average |
| **PROCESS DATA** | | | | |
| TGI Firebox Temperature, °F | 1,526.18 | 1,520.68 | 1,519.31 | 1,522.06 |
| Sulfur Production, ltpd (calculated) | 328.81 | 328.08 | 332.35 | 329.75 |
| **STACK GAS PARAMETERS** | | | | |
| Temperature, av. °F | 619.2 | 609.9 | 606.1 | 611.7 |
| Velocity, ft/sec | 144.95 | 139.34 | 126.14 | 136.81 |
| Volume flow, acfm | 83,672 | 80,439 | 72,817 | 78,976 |
| Volume flow, scfh | 2,466,392 | 2,373,398 | 2,156,895 | 2,332,228 |
| Volume flow, dscfh | 2,194,699 | 2,111,146 | 1,913,266 | 2,073,037 |
| Moisture, % vol | 11.02 | 11.05 | 11.30 | 11.12 |
| $CO_2$, % vol, db | 5.05 | 4.99 | 5.04 | 5.03 |
| $O_2$, % vol, db | 5.26 | 4.85 | 4.64 | 4.92 |
| **PARTICULATE MATTER** | | | | |
| Sample volume, dscf | 134.258 | 129.097 | 118.214 | 127.190 |
| % Isokinetic | 101.8 | 101.7 | 102.8 | 102.1 |
| Total Particulate, mg | 96.1 | 77.8 | 97.6 | 90.5 |
| Total Concentration | | | | |
| gr/dscf | 0.011 | 0.009 | 0.013 | 0.011 |
| lb/dscf x $10^{-6}$ | 1.578 | 1.329 | 1.820 | 1.576 |
| Total Emission rate | | | | |
| lb/hr | 3.46 | 2.80 | 3.48 | 3.25 |
| **NITROGEN OXIDES as $NO_2$** | | | | |
| Concentration | | | | |
| ppmv db | 14.2 | 13.0 | 13.2 | 13.5 |
| lb/dscf x $10^{-6}$ | 1.698 | 1.547 | 1.582 | 1.609 |
| Emission rate | | | | |
| lb/hr | 3.727 | 3.266 | 3.027 | 2.858 |

# SECTION THREE Results

*TABLE 3-1 (CONTINUED): SRU NO. 3 SCOT TAILGAS INCINERATOR TEST RESULTS*

| Test Run | SRU3-1 | SRU3-2 | SRU3-3 | |
|---|---|---|---|---|
| Test Date | 4/21/09 | 4/21/09 | 4/22/09 | |
| Test Time | 13:22 – 16:58 | 17:45 – 21:12 | 09:00 – 12:24 | Average |
| **CARBON MONOXIDE** | | | | |
| Concentration | | | | |
| ppmv db | 60.8 | 156.5 | 180.7 | 132.7 |
| lb/dscf x $10^{-6}$ | 4.422 | 11.377 | 13.132 | 9.644 |
| Emission rate | | | | |
| lb/hr | 9.705 | 24.018 | 25.125 | 19.616 |
| **CARBONYL SULFIDE** | | | | |
| Concentration | | | | |
| ppmv db | < 0.82 | < 0.82 | < 0.54 | < 0.73 |
| lb/dscf x $10^{-6}$ | < 0.128 | < 0.128 | < 0.084 | < 0.113 |
| Emission rate | | | | |
| lb/hr | < 0.281 | < 0.270 | < 0.161 | < 0.237 |
| **CARBON DISULFIDE** | | | | |
| Concentration | | | | |
| ppmv db | < 0.53 | < 0.53 | < 0.86 | < 0.64 |
| lb/dscf x $10^{-6}$ | < 0.105 | < 0.105 | < 0.170 | < 0.127 |
| Emission rate | | | | |
| lb/hr | < 0.230 | < 0.221 | < 0.325 | < 0.259 |
| **HYDROGEN SULFIDE** | | | | |
| Concentration | | | | |
| ppmv db | < 0.73 | < 0.73 | < 0.65 | < 0.70 |
| lb/dscf x $10^{-6}$ | < 0.065 | < 0.065 | < 0.057 | < 0.062 |
| Emission rate | | | | |
| lb/hr | < 0.142 | < 0.136 | < 0.110 | < 0.129 |
| **RSC as $H_2S$** | | | | |
| Concentration | | | | |
| ppmv db @ 3% $O_2$ | < 2.95 | < 2.88 | < 3.17 | < 3.00 |
| ppmv db | < 2.61 | < 2.61 | < 2.91 | < 2.71 |
| lb/dscf x $10^{-6}$ | < 0.231 | < 0.231 | < 0.257 | < 0.240 |
| Emission rate | | | | |
| lb/hr | < 0.507 | < 0.487 | < 0.493 | < 0.496 |

# APPENDIX A

# Calculation Summaries

MONITOR DATA SUMMARY

| | |
|---|---|
| **COMPANY :** | Valero Refining - Texas, L.P. |
| **SOURCE :** | SRU No. 3 TGI Exhaust |
| **REPETITION :** | SRU3-1 |
| **TEST DATE :** | 4/21/2009 |
| **START TIME :** | 13:22 |
| **END TIME :** | 16:58 |

**GAS ANALYZER** $NO_x$

| | |
|---|---|
| SCALE : | 0 - 90 ppm |
| AVERAGE CAL. BIAS ($C_m$): | 44.85 |
| AVERAGE ZERO BIAS ($C_o$): | 0.20 |
| CALIBRATION GAS: | EPA Protocol $NO_x$ |
| CALIBRATION PPM ($C_{ma}$): | 45.0 |
| **PPM CORRECTED ($C_{gas}$):** | **14.2** |

**GAS ANALYZER** CO

| | |
|---|---|
| SCALE : | 0 - 450 ppm |
| AVERAGE CAL. BIAS ($C_m$): | 223.60 |
| AVERAGE ZERO BIAS ($C_o$): | 0.95 |
| CALIBRATION GAS: | EPA Protocol CO |
| CALIBRATION PPM ($C_{ma}$): | 225.0 |
| **PPM CORRECTED ($C_{gas}$):** | **60.8** |

**GAS ANALYZER** $O_2$

| | |
|---|---|
| SCALE : | 0 - 9.00 % |
| AVERAGE CAL. BIAS ($C_m$): | 4.445 |
| AVERAGE ZERO BIAS ($C_o$): | 0.035 |
| CALIBRATION GAS: | EPA Protocol $O_2$ |
| CALIBRATION PPM ($C_{ma}$): | 4.50 |
| **PPM CORRECTED ($C_{gas}$):** | **5.26** |

**GAS ANALYZER** $CO_2$

| | |
|---|---|
| SCALE : | 0 - 9.00 % |
| AVERAGE CAL. BIAS ($C_m$): | 4.575 |
| AVERAGE ZERO BIAS ($C_o$): | 0.050 |
| CALIBRATION GAS: | EPA Protocol $CO_2$ |
| CALIBRATION % ($C_{ma}$): | 4.50 |
| **% CORRECTED ($C_{gas}$):** | **5.05** |

**$NO_x$, ppm @ 0% $O_2$ =** **19.0**
**CO, ppm @ 0% $O_2$ =** **81.3**

**Example Calculation =**

$$C_{gas} = \left(\overline{C} - C_o\right)\frac{C_{ma}}{C_m - C_o}$$

| CLOCK TIME | ELAPSED TIME | Uncorrected $O_2$ % vol db | Uncorrected $CO_2$ % vol db | Uncorrected $NO_x$ ppmv db | Uncorrected CO ppmv db |
|---|---|---|---|---|---|
| 13:22 | 0 | ------- | ------- | ------- | ------- |
| 13:23 | 1 | 5.36 | 5.17 | 14.1 | 23.8 |
| 13:24 | 2 | 5.32 | 5.21 | 14.2 | 17.8 |
| 13:25 | 3 | 5.25 | 5.28 | 14.4 | 11.0 |
| 13:26 | 4 | 5.22 | 5.31 | 14.4 | 8.2 |
| 13:27 | 5 | 5.22 | 5.30 | 14.3 | 9.1 |
| 13:28 | 6 | 5.29 | 5.24 | 14.4 | 11.3 |
| 13:29 | 7 | 5.36 | 5.17 | 14.5 | 15.9 |
| 13:30 | 8 | 5.42 | 5.12 | 14.3 | 23.6 |
| 13:31 | 9 | 5.49 | 5.09 | 14.2 | 37.2 |
| 13:32 | 10 | 5.57 | 5.02 | 14.0 | 56.9 |
| 13:33 | 11 | 5.56 | 5.03 | 14.1 | 56.5 |
| 13:34 | 12 | 5.56 | 5.06 | 14.2 | 52.9 |
| 13:35 | 13 | 5.44 | 5.13 | 14.5 | 32.9 |
| 13:36 | 14 | 5.38 | 5.16 | 14.6 | 22.9 |
| 13:37 | 15 | 5.33 | 5.18 | 14.7 | 16.6 |
| 13:38 | 16 | 5.35 | 5.17 | 14.4 | 20.9 |
| 13:39 | 17 | 5.39 | 5.17 | 14.2 | 27.7 |
| 13:40 | 18 | 5.40 | 5.18 | 14.3 | 31.0 |
| 13:41 | 19 | 5.44 | 5.14 | 14.4 | 38.4 |
| 13:42 | 20 | 5.42 | 5.14 | 14.5 | 31.7 |
| 13:43 | 21 | 5.41 | 5.13 | 14.6 | 27.7 |
| 13:44 | 22 | 5.43 | 5.10 | 14.3 | 25.1 |
| 13:45 | 23 | 5.40 | 5.10 | 14.2 | 25.1 |
| 13:46 | 24 | 5.40 | 5.09 | 14.3 | 22.1 |
| 13:47 | 25 | 5.42 | 5.07 | 14.1 | 22.7 |
| 13:48 | 26 | 5.40 | 5.10 | 14.1 | 24.9 |
| 13:49 | 27 | 5.43 | 5.08 | 14.0 | 28.6 |
| 13:50 | 28 | 5.49 | 5.08 | 14.0 | 36.1 |
| 13:51 | 29 | 5.43 | 5.13 | 14.1 | 27.6 |
| 13:52 | 30 | 5.39 | 5.13 | 14.2 | 23.6 |
| 13:53 | 31 | 5.38 | 5.12 | 14.0 | 20.3 |
| 13:54 | 32 | 5.35 | 5.13 | 14.0 | 18.5 |
| 13:55 | 33 | 5.36 | 5.11 | 14.1 | 18.4 |
| 13:56 | 34 | 5.45 | 5.08 | 14.1 | 25.8 |
| 13:57 | 35 | 5.46 | 5.09 | 14.2 | 31.0 |
| 13:58 | 36 | 5.49 | 5.06 | 14.0 | 38.4 |
| 13:59 | 37 | 5.57 | 5.00 | 13.7 | 61.3 |
| 14:00 | 38 | 5.58 | 5.00 | 13.8 | 67.6 |
| 14:01 | 39 | 5.50 | 5.04 | 14.2 | 50.2 |
| 14:02 | 40 | 5.39 | 5.10 | 14.2 | 31.9 |
| 14:03 | 41 | 5.34 | 5.13 | 14.1 | 26.2 |
| 14:04 | 42 | 5.38 | 5.11 | 13.8 | 29.9 |
| 14:05 | 43 | 5.37 | 5.10 | 14.2 | 31.4 |
| 14:06 | 44 | 5.37 | 5.12 | 14.1 | 29.4 |
| 14:07 | 45 | 5.39 | 5.10 | 14.0 | 36.9 |
| 14:08 | 46 | 5.43 | 5.07 | 14.0 | 45.4 |
| 14:09 | 47 | 5.51 | 5.01 | 13.9 | 62.0 |
| 14:10 | 48 | 5.53 | 5.00 | 13.9 | 68.7 |
| 14:11 | 49 | 5.49 | 5.03 | 14.0 | 61.7 |
| 14:12 | 50 | 5.33 | 5.13 | 14.3 | 35.3 |
| 14:13 | 51 | 5.31 | 5.14 | 14.5 | 32.4 |
| 14:14 | 52 | 5.32 | 5.14 | 14.6 | 24.7 |
| 14:15 | 53 | 5.31 | 5.15 | 14.5 | 22.2 |
| 14:16 | 54 | 5.37 | 5.12 | 14.4 | 28.8 |
| 14:17 | 55 | 5.35 | 5.13 | 14.3 | 26.9 |
| 14:18 | 56 | 5.34 | 5.14 | 14.4 | 26.8 |
| 14:19 | 57 | 5.37 | 5.12 | 14.1 | 32.4 |
| 14:20 | 58 | 5.39 | 5.11 | 13.8 | 36.5 |
| 14:21 | 59 | 5.37 | 5.12 | 14.2 | 35.6 |
| 14:22 | 60 | 5.38 | 5.12 | 14.3 | 38.2 |
| 14:23 | 61 | 5.37 | 5.14 | 14.4 | 30.0 |
| 14:24 | 62 | 5.38 | 5.13 | 14.5 | 31.7 |
| 14:25 | 63 | 5.39 | 5.11 | 14.5 | 32.2 |
| 14:26 | 64 | 5.37 | 5.14 | 14.5 | 31.5 |
| 14:27 | 65 | 5.40 | 5.12 | 14.5 | 34.8 |
| 14:28 | 66 | 5.46 | 5.09 | 14.4 | 44.1 |
| 14:29 | 67 | 5.52 | 5.05 | 14.3 | 50.9 |
| 14:30 | 68 | 5.56 | 5.01 | 13.9 | 60.1 |
| 14:31 | 69 | 5.54 | 5.02 | 14.0 | 58.4 |
| 14:32 | 70 | 5.49 | 5.09 | 14.0 | 40.5 |
| 14:33 | 71 | 5.50 | 5.07 | 14.1 | 42.5 |
| 14:34 | 72 | 5.56 | 4.99 | 13.8 | 49.3 |
| 14:35 | 73 | 5.53 | 5.00 | 13.8 | 56.6 |
| 14:36 | 74 | 5.53 | 5.04 | 13.9 | 47.4 |
| 14:37 | 75 | 5.42 | 5.11 | 13.8 | 28.5 |
| 14:38 | 76 | 5.38 | 5.14 | 13.9 | 19.1 |
| 14:39 | 77 | 5.37 | 5.15 | 14.0 | 17.8 |
| 14:40 | 78 | 5.41 | 5.12 | 13.8 | 21.6 |
| 14:41 | 79 | 5.42 | 5.10 | 13.9 | 24.7 |
| 14:42 | 80 | 5.42 | 5.11 | 13.8 | 27.7 |
| 14:43 | 81 | 5.42 | 5.11 | 13.5 | 29.0 |
| 14:44 | 82 | 5.42 | 5.13 | 13.4 | 31.3 |
| 14:45 | 83 | 5.46 | 5.10 | 13.4 | 41.9 |
| 14:46 | 84 | 5.55 | 5.02 | 13.1 | 57.3 |
| 14:47 | 85 | 5.49 | 5.05 | 13.4 | 50.7 |
| 14:48 | 86 | 5.42 | 5.10 | 13.5 | 35.3 |
| 14:49 | 87 | 5.37 | 5.13 | 13.5 | 27.2 |
| 14:50 | 88 | 5.36 | 5.15 | 13.9 | 24.4 |
| 14:51 | 89 | 5.40 | 5.10 | 13.7 | 27.2 |
| 14:52/15:28 | 90 | 5.45 | 5.09 | 13.5 | 31.3 |

| | | | | | |
|---|---|---|---|---|---|
| 15:29 | 91 | 5.20 | 5.23 | 14.8 | 21.0 |
| 15:30 | 92 | 5.23 | 5.21 | 14.8 | 32.0 |
| 15:31 | 93 | 5.25 | 5.20 | 14.9 | 32.0 |
| 15:32 | 94 | 5.29 | 5.17 | 15.0 | 33.7 |
| 15:33 | 95 | 5.29 | 5.16 | 15.2 | 36.6 |
| 15:34 | 96 | 5.15 | 5.20 | 15.5 | 37.4 |
| 15:35 | 97 | 5.11 | 5.20 | 15.7 | 46.1 |
| 15:36 | 98 | 5.03 | 5.22 | 15.9 | 46.2 |
| 15:37 | 99 | 4.98 | 5.21 | 16.0 | 39.5 |
| 15:38 | 100 | 4.90 | 5.27 | 15.8 | 28.5 |
| 15:39 | 101 | 4.87 | 5.27 | 15.8 | 23.3 |
| 15:40 | 102 | 4.84 | 5.29 | 15.8 | 21.9 |
| 15:41 | 103 | 4.83 | 5.28 | 15.6 | 22.8 |
| 15:42 | 104 | 4.88 | 5.25 | 15.5 | 29.7 |
| 15:43 | 105 | 4.89 | 5.24 | 15.5 | 31.3 |
| 15:44 | 106 | 4.97 | 5.20 | 15.5 | 47.7 |
| 15:45 | 107 | 5.05 | 5.16 | 15.5 | 61.0 |
| 15:46 | 108 | 5.09 | 5.13 | 15.3 | 67.0 |
| 15:47 | 109 | 5.06 | 5.15 | 15.4 | 56.2 |
| 15:48 | 110 | 5.01 | 5.17 | 15.7 | 43.3 |
| 15:49 | 111 | 4.99 | 5.18 | 15.3 | 43.5 |
| 15:50 | 112 | 5.00 | 5.16 | 15.2 | 49.5 |
| 15:51 | 113 | 4.99 | 5.16 | 15.2 | 52.0 |
| 15:52 | 114 | 5.02 | 5.13 | 15.1 | 56.7 |
| 15:53 | 115 | 5.03 | 5.14 | 14.8 | 60.3 |
| 15:54 | 116 | 4.99 | 5.18 | 14.5 | 62.6 |
| 15:55 | 117 | 5.02 | 5.16 | 14.6 | 67.4 |
| 15:56 | 118 | 5.02 | 5.14 | 14.8 | 65.6 |
| 15:57 | 119 | 5.03 | 5.15 | 14.8 | 63.6 |
| 15:58 | 120 | 5.03 | 5.14 | 14.9 | 55.9 |
| 15:59 | 121 | 5.08 | 5.11 | 14.9 | 67.7 |
| 16:00 | 122 | 5.08 | 5.13 | 14.5 | 82.2 |
| 16:01 | 123 | 5.14 | 5.09 | 14.3 | 112.8 |
| 16:02 | 124 | 5.19 | 5.04 | 14.3 | 127.6 |
| 16:03 | 125 | 5.16 | 5.03 | 14.3 | 124.5 |
| 16:04 | 126 | 5.11 | 5.05 | 14.3 | 119.2 |
| 16:05 | 127 | 5.03 | 5.11 | 14.4 | 95.4 |
| 16:06 | 128 | 4.99 | 5.14 | 14.7 | 80.9 |
| 16:07 | 129 | 4.97 | 5.15 | 14.6 | 69.8 |
| 16:08 | 130 | 4.97 | 5.15 | 14.8 | 64.3 |
| 16:09 | 131 | 5.01 | 5.10 | 14.8 | 68.6 |
| 16:10 | 132 | 5.07 | 5.06 | 14.4 | 90.6 |
| 16:11 | 133 | 5.18 | 4.98 | 14.3 | 132.0 |
| 16:12 | 134 | 5.16 | 5.01 | 14.5 | 129.7 |
| 16:13 | 135 | 5.08 | 5.06 | 14.6 | 102.9 |
| 16:14 | 136 | 5.06 | 5.08 | 14.4 | 92.2 |
| 16:15 | 137 | 5.07 | 5.09 | 14.5 | 95.8 |
| 16:16 | 138 | 5.09 | 5.07 | 14.4 | 104.6 |
| 16:17 | 139 | 5.09 | 5.08 | 14.5 | 98.9 |
| 16:18 | 140 | 5.05 | 5.09 | 14.6 | 91.3 |
| 16:19 | 141 | 5.07 | 5.07 | 14.5 | 97.9 |
| 16:20 | 142 | 5.06 | 5.09 | 14.6 | 104.3 |
| 16:21 | 143 | 5.06 | 5.07 | 14.5 | 104.5 |
| 16:22 | 144 | 5.08 | 5.06 | 13.8 | 121.6 |
| 16:23 | 145 | 5.14 | 5.01 | 13.3 | 156.2 |
| 16:24 | 146 | 5.15 | 5.00 | 13.3 | 158.7 |
| 16:25 | 147 | 5.12 | 5.01 | 13.3 | 140.4 |
| 16:26 | 148 | 5.05 | 5.07 | 13.4 | 114.8 |
| 16:27 | 149 | 4.98 | 5.10 | 13.5 | 105.1 |
| 16:28 | 150 | 4.98 | 5.10 | 13.5 | 104.2 |
| 16:29 | 151 | 4.93 | 5.15 | 13.6 | 79.5 |
| 16:30 | 152 | 4.86 | 5.21 | 13.9 | 63.2 |
| 16:31 | 153 | 4.86 | 5.20 | 14.1 | 54.6 |
| 16:32 | 154 | 4.75 | 5.25 | 14.2 | 49.3 |
| 16:33 | 155 | 4.74 | 5.24 | 14.1 | 55.4 |
| 16:34 | 156 | 4.73 | 5.23 | 14.0 | 66.7 |
| 16:35 | 157 | 4.74 | 5.21 | 14.0 | 74.9 |
| 16:36 | 158 | 4.75 | 5.19 | 13.9 | 86.0 |
| 16:37 | 159 | 4.79 | 5.16 | 13.7 | 104.8 |
| 16:38 | 160 | 4.80 | 5.16 | 13.6 | 125.0 |
| 16:39 | 161 | 4.84 | 5.13 | 13.6 | 136.2 |
| 16:40 | 162 | 4.83 | 5.14 | 13.7 | 133.9 |
| 16:41 | 163 | 4.81 | 5.15 | 14.1 | 115.1 |
| 16:42 | 164 | 4.84 | 5.10 | 14.1 | 123.8 |
| 16:43 | 165 | 4.79 | 5.10 | 14.2 | 119.6 |
| 16:44 | 166 | 4.77 | 5.10 | 14.4 | 123.7 |
| 16:45 | 167 | 4.79 | 5.09 | 14.3 | 132.3 |
| 16:46 | 168 | 4.72 | 5.15 | 14.3 | 125.8 |
| 16:47 | 169 | 4.64 | 5.23 | 14.3 | 111.2 |
| 16:48 | 170 | 4.67 | 5.21 | 14.2 | 117.6 |
| 16:49 | 171 | 4.66 | 5.18 | 14.0 | 124.2 |
| 16:50 | 172 | 4.67 | 5.19 | 14.0 | 131.6 |
| 16:51 | 173 | 4.74 | 5.16 | 13.9 | 153.8 |
| 16:52 | 174 | 4.79 | 5.12 | 14.0 | 166.7 |
| 16:53 | 175 | 4.83 | 5.10 | 14.0 | 176.5 |
| 16:54 | 176 | 4.83 | 5.13 | 14.1 | 168.3 |
| 16:55 | 177 | 4.77 | 5.14 | 14.3 | 148.5 |
| 16:56 | 178 | 4.69 | 5.17 | 14.3 | 135.8 |
| 16:57 | 179 | 4.72 | 5.15 | 14.0 | 149.9 |
| 16:58 | 180 | 4.72 | 5.17 | 13.9 | 152.1 |
| | **Uncorrected Average =** | **5.188** | **5.126** | **14.31** | **61.16** |

**ARI ENVIRONMENTAL, INC.**
**MOISTURE CALCULATION SUMMARY**

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**TEST DATE:** 4/21/2009
**RUN NUMBER:** 1

| | | | |
|---|---|---|---|
| **γ FACTOR:** | 0.998 | **STACK DIAM:** | 42.0 **inches** |
| **BAROMETRIC:** | 30.00 **in. Hg** | **METER VOLUME:** | 145.502 **$ft^3$** |
| **STATIC PRES:** | 0.60 **in.$H_2O$** | **METER TEMP:** | 115.2 **°F** |
| **STACK TEMP:** | 619.2 **°F** | **LIQUID COLL:** | 353.1 **milliliters** |
| **SQ.RT ΔP:** | 1.7758 **in.$H_2O$** | **$CO_2$:** | 5.05 **% by volume** |
| **ΔH:** | 1.85 **in.$H_2O$** | **$O_2$:** | 5.26 **% by volume** |

**ENGLISH UNITS**
**(29.92 in.Hg & 68 °F)**

**VOLUME OF SAMPLE**
**@ STANDARD CONDITIONS, DRY BASIS**

$$V_{mstd} = \left(\frac{528}{29.92}\right) \times V_m \times \gamma \left[\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m}\right] = 134.258 \text{ dscf}$$

$\gamma$ = 0.998

**VOLUME OF WATER IN SAMPLE**
**@ STANDARD CONDITIONS**

$$V_{wstd} = 0.04707 \times V_{lc} = 16.620 \text{ scf}$$

$V_{lc}$ = 353.1 mL

**FRACTIONAL MOISTURE CONTENT OF STACK GAS AS MEASURED**

$$B_{ws} = \frac{V_{wstd}}{V_{wstd} + V_{mstd}} = 0.1102$$

**FRACTIONAL MOISTURE CONTENT OF STACK GAS @ SATURATION**

$$MF = \frac{\left(10^{\left[8.361 - \left(\frac{1893.5}{T - 27.65}\right)\right]}\right)^{-0.5}}{P} = 1.000$$

T = 599.2 °K
P = 763.1 mmHg

**FRACTIONAL MOISTURE CONTENT USED IN CALCULATIONS**

$B_{ws}$ = 0.1102

**ARI ENVIRONMENTAL, INC.**
**FLOW RATE CALCULATION SUMMARY**

**COMPANY:** Valero Refining - Texas
**LOCATION:** Corpus Christi, TX
**RUN NUMBER:** 1
**SOURCE:** SRU No. 3 TGI Exhaust
**TEST DATE:** 4/21/2009

| | | | |
|---|---|---|---|
| **BAROMETRIC:** | 30.00 **in. Hg** | **STACK DIAM:** | 42.0 **inches** |
| **STATIC PRES:** | 0.6 **in.$H_2O$** | **$CO_2$:** | 5.05 **% by volume** |
| **STACK TEMP:** | 619.2 **°F** | **$O_2$:** | 5.26 **% by volume** |
| **SQ.RT ΔP:** | 1.7758 **in.$H_2O$** | | |

| | | | |
|---|---|---|---|
| **DRY MOLECULAR WEIGHT OF STACK GAS** | | | |
| $M_d = 0.44(\%CO_2) + 0.32(\%O_2) + 0.28(\%N_2 + \%CO)$ | = | 29.02 | **lb/lb-mole** |
| **MOLECULAR WEIGHT OF STACK GAS, wet basis** | | | |
| $M_s = M_d(1 - B_{ws}) + 18B_{ws}$ | = | 27.80 | **lb/lb-mole** |
| **PITOT TUBE COEFFICIENT** | | | |
| $C_p$ (from calibration curve or geometric specifications) | = | 0.84 | |
| **AVERAGE VELOCITY HEAD OF STACK GAS, in. $H_2O$** | | | |
| $\overline{\sqrt{\Delta P}} = \frac{1}{n}\sum_{i=1}^{n}\sqrt{\Delta p}$ | = | 1.7758 | **in. $H_2O$** |
| **AVERAGE ABSOLUTE STACK GAS TEMPERATURE** | | | |
| $T_s =$ 619.2 °F + 460 | = | 1,079.2 | **°R** |
| **ABSOLUTE STACK GAS PRESSURE** | | | |
| $P_s = P_{bar} + \frac{P_{static}}{13.6}$ | = | 30.04 | **in.Hg** |
| **STACK GAS VELOCITY** | | | |
| $V_s = (85.49)(C_p)(\text{avg}\sqrt{\Delta P})\sqrt{\frac{T_s}{(P_s)(M_s)}}$ | = | 144.945 | **ft/sec** |
| **STACK GAS VOLUMETRIC FLOW RATE, actual** | | | |
| $Q_s = 60 \times V_s \times A_s$ | = | 83,672 | **acfm** |
| Stack Area = 9.6211 $ft^2$ | | | |
| **STACK GAS VOLUMETRIC FLOW RATE, standard conditions, wet basis** | | | |
| $Q_{stdw} = \left(\frac{528}{29.92}\right)(Q_s)\left(\frac{P_s}{T_s}\right)$ | = | 41,106.5<br>2,466,392 | **scfm, wb**<br>**scfh, wb** |
| **STACK GAS VOLUMETRIC FLOW RATE, standard conditions, dry basis** | | | |
| $Q_{std} = \left(\frac{528}{29.92}\right)(Q_s)\left(\frac{P_s}{T_s}\right)(1 - B_{ws})$ | = | 36,578.3<br>2,194,699 | **dscfm**<br>**dscfh** |

ARI ENVIRONMENTAL, INC.
TOTAL PARTICULATE CALCULATION SUMMARY

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**TEST DATE:** 4/21/2009
**RUN NUMBER:** SRU3-1

**INPUT**

| | | | | | |
|---|---|---|---|---|---|
| $V_m$: | 145.502 | $ft^3$ | $Q_s$: | 36,578 | dscfm |
| $\gamma$ FACTOR: | 0.998 | | $T_s$: | 619.2 | °F |
| $P_{bar}$: | 30 | in.Hg | Runtime: | 180 | minutes |
| $\Delta H$: | 1.85 | $in.H_2O$ | $V_s$: | 144.945 | ft/sec |
| $T_m$: | 115.2 | °F | $P_s$: | 30.04 | in.Hg |
| $V_{lc}$: | 353.1 | mL | Noz. diam: | 0.188 | inches |
| $M_n$ front: | 36.66 | mg | | | |
| $M_n$ back: | 59.45 | mg | | | |

**ENGLISH UNITS**
**(29.92 in.Hg & 68 °F)**

**VOLUME OF SAMPLE @ STANDARD CONDITIONS, DRY BASIS**

$$V_{mstd} = \left(\frac{528}{29.92}\right) \times V_m \times \gamma \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m}\right) = 134.258 \text{ dscf}$$

$\gamma$ = 0.998

**VOLUME OF WATER IN SAMPLE @ STANDARD CONDITIONS**

$$V_{wstd} = 0.04707 \times V_{lc} = 16.620 \text{ scf}$$

**FRACTIONAL MOISTURE CONTENT OF STACK GAS**

$$B_{ws} = \frac{V_{wstd}}{V_{wstd} + V_{mstd}} \times 100 = 11.02 \%$$

**PARTICULATE CONCENTRATION IN STACK GAS ON A DRY BASIS**

$$C_s = (0.01543)\left(\frac{M_n}{V_{mstd}}\right)$$

| | | | |
|---|---|---|---|
| Front | = | 0.0042133 | gr/dscf |
| Back | = | 0.0068325 | gr/dscf |
| Total | = | 0.0110458 | gr/dscf |

$$C_s' = \left(2.205 \times 10^{-6}\right)\left(\frac{M_n}{V_{mstd}}\right)$$

| | | | |
|---|---|---|---|
| C's Front | = | 0.60209 | x $10^{-6}$ lbs/dscf |
| C's Back | = | 0.97639 | x $10^{-6}$ lbs/dscf |
| C's Total | = | 1.57848 | x $10^{-6}$ lbs/dscf |

**EMISSION RATE**

$$pmr = \left(\frac{C_s}{7000}\right)(Q_{std})(60)$$

| | | | |
|---|---|---|---|
| Front | = | 1.32098 | lbs/hr |
| Back | = | 2.14218 | lbs/hr |
| Total | = | 3.46316 | lbs/hr |

**ISOKINETIC SAMPLING RATE**

$$\%ISO = \frac{(100)(T_s)\left[(0.002669 \times V_{lc}) + \left(\frac{V_m}{T_m}\right)(\gamma)\left(P_{bar} + \left(\frac{\Delta H}{13.6}\right)\right)\right]}{(60)(\theta)(V_s)(P_s)(A_n)} = 101.78 \%I$$

$A_n$ = 0.00019277 $ft^2$ Runtime = 180 minutes

# $NO_x$ CALCULATION DATA SHEET
# USEPA METHOD 7E

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** California Analytical Instruments Model 600
**RUN NO:** SRU3-1
**TEST DATE:** 4/21/2009

## INPUT

$NO_x$ AVERAGE READING (C): 14.2 ppmv

STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): 2,194,699 dscfh

## CALCULATIONS

## STACK $NO_x$ CONCENTRATION

$NO_x$ CONC.(lbs/dscf) =

$$C_{gas,lb/dscf} = (C_{gas,ppm})\left(\frac{46 lb/lb-mole}{385.26\times10^6 ft^3/lb-mole}\right) = 1.6983 \times 10^{-6} \text{ lbs/dscf}$$

## $NO_x$ EMISSION RATE:

STACK GAS VOLUMETRIC FLOW RATE = 2,194,699 dscfh

STACK $NO_x$ EMISSION RATE =

$$NO_{xpmr} = (C_{gas,lb/dscf})(Q_{std}) = 3.7273 \text{ lbs/hr} = 16.326 \text{ ton/yr}$$

# CO CALCULATION DATA SHEET
# USEPA METHOD 10

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** Thermo Environmental Model 48i
**RUN NO:** SRU3-1
**TEST DATE:** 4/21/2009

## INPUT

CO AVERAGE READING (C): 60.8 ppmv

STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): 2,194,699 dscfh

## CALCULATIONS

### STACK CO CONCENTRATION

CO CONC.(lbs/dscf) =

$$C_{gas,lb/dscf} = (C_{gas,ppm})\left(\frac{28 lb/lb-mole}{385.26 \times 10^6 ft^3/lb-mole}\right) = 4.4220 \times 10^{-6} \text{ lbs/dscf}$$

### CO EMISSION RATE:

STACK GAS VOLUMETRIC FLOW RATE = 2,194,699 dscfh

STACK CO EMISSION RATE =

$$CO_{pmr} = (C_{gas,lb/dscf})(Q_{std}) = 9.7050 \text{ lbs/hr} = 42.508 \text{ ton/yr}$$

# CARBONYL SULFIDE EMISSION RATE CALCULATION SHEET
# USEPA METHOD 15

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** SRI-9300B: GC-FPD
**RUN NO:** SRU3-1
**TEST DATE:** 4/21/2009

**INPUT**

| | | |
|---|---|---|
| COS CONCENTRATION (C): | < 0.82 | ppmv |
| STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): | 2,194,699 | dscfh |

**CALCULATIONS**

STACK COS AVERAGE CHART READING = < 0.82 ppmv

**COS CONCENTRATION (lbs/dscf) =**

$$C_{gas,lb/dscf} = \left(C_{gas,ppm}\right)\left(\frac{60.07 lb/lb-mole}{385.26\times10^{-6} ft^3/lb-mole}\right)$$

= < 0.128 x $10^{-6}$ lbs/dscf

**COS EMISSION RATE:**

STACK GAS VOLUMETRIC FLOW RATE = 2,194,699 dscfh

STACK COS EMISSION RATE =

$$COS_{pmr} = \left(C_{gas,lb/dscf}\right)\left(Q_{std}\right)$$

= < 0.2806 lbs/hr
= < 1.229 ton/yr

# CARBON DISULFIDE EMISSION RATE CALCULATION SHEET
# USEPA METHOD 15

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** SRI-9300B: GC-FPD
**RUN NO:** SRU3-1
**TEST DATE:** 4/21/2009

## INPUT

| | | |
|---|---|---|
| $CS_2$ CONCENTRATION (C): | < 0.53 | ppmv |
| STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): | 2,194,699 | dscfh |

## CALCULATIONS

STACK $CS_2$ AVERAGE CHART READING = < 0.53 ppmv

**$CS_2$ CONCENTRATION (lbs/dscf) =**

$$C_{gas,lb/dscf} = (C_{gas,ppm})\left(\frac{76.1 lb/lb-mole}{385.26 \times 10^{-6} ft^3/lb-mole}\right)$$

= < 0.105 x $10^{-6}$ lbs/dscf

## $CS_2$ EMISSION RATE:

STACK GAS VOLUMETRIC FLOW RATE = 2,194,699 dscfh

STACK $CS_2$ EMISSION RATE =

$$CS_{2pmr} = (C_{gas,lb/dscf})(Q_{std})$$

= < 0.2298 lbs/hr
= < 1.006 ton/yr

# HYDROGEN SULFIDE EMISSION RATE CALCULATION SHEET
# USEPA METHOD 15

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** SRI-9300B: GC-FPD
**RUN NO:** SRU3-1
**TEST DATE:** 4/21/2009

## INPUT

| | | |
|---|---|---|
| $H_2S$ CONCENTRATION (C): | < 0.73 | ppmv |
| STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): | 2,194,699 | dscfh |

## CALCULATIONS

STACK $H_2S$ AVERAGE CHART READING = < 0.73 ppmv

**$H_2S$ CONCENTRATION (lbs/dscf) =**

$$C_{gas,lb/dscf} = \left(C_{gas,ppm}\right)\left(\frac{34.08 lb/lb-mole}{385.26\times10^{-6} ft^3/lb-mole}\right)$$

= < 0.065 x $10^{-6}$ lbs/dscf

## $H_2S$ EMISSION RATE:

STACK GAS VOLUMETRIC FLOW RATE = 2,194,699 dscfh

STACK $H_2S$ EMISSION RATE =

$$H_2S_{pmr} = \left(C_{gas,lb/dscf}\right)\left(Q_{std}\right)$$

= < 0.1417 lbs/hr
= < 0.621 ton/yr

# RSC as $H_2S$ EMISSION RATE CALCULATION SHEET
# USEPA METHOD 15

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** SRI-9300B: GC-FPD
**RUN NO:** SRU3-1
**TEST DATE:** 4/21/2009

## INPUT

| | | |
|---|---|---|
| COS CONCENTRATION (C): | < 0.82 | ppmv |
| $CS_2$ CONCENTRATION (C): | < 0.53 | ppmv |
| $H_2S$ CONCENTRATION (C): | < 0.73 | ppmv |
| STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): | 2,194,699 | dscfh |
| STACK OXYGEN CONTENT ($\%O_2$): | 5.26 | % |

## CALCULATIONS

AVERAGE STACK RSC as $H_2S$ = < 2.61 ppmv

**AVERAGE STACK RSC as $H_2S$ @ 3% $O_2$**

$$C_{gas,ppm@3\%O_2} = \left(C_{gas,ppm}\right)\left(\frac{17.9}{20.9 - \%O_2}\right)$$

= < 2.95 ppmv @ 3% $O_2$

**RSC as $H_2S$ CONCENTRATION (lbs/dscf) =**

$$C_{gas,lb/dscf} = \left(C_{gas,ppm}\right)\left(\frac{34.08 lb/lb-mole}{385.26 \times 10^{-6} ft^3/lb-mole}\right)$$

= < 0.231 x $10^{-6}$ lbs/dscf

## RSC as $H_2S$ EMISSION RATE:

STACK GAS VOLUMETRIC FLOW RATE = 2,194,699 dscfh

STACK RSC as $H_2S$ EMISSION RATE =

$$RSC_{pmr} = \left(C_{gas,lb/dscf}\right)\left(Q_{std}\right)$$

= < 0.5067 lbs/hr
= < 2.219 ton/yr

MONITOR DATA SUMMARY

| | |
|---|---|
| **COMPANY :** | Valero Refining - Texas, L.P. |
| **SOURCE :** | SRU No. 3 TGI Exhaust |
| **REPETITION :** | SRU3-2 |
| **TEST DATE :** | 4/21/2009 |
| **START TIME :** | 17:45 |
| **END TIME :** | 21:12 |

**GAS ANALYZER** $NO_x$

| | |
|---|---|
| SCALE : | 0 - 90 ppm |
| AVERAGE CAL. BIAS ($C_m$): | 44.05 |
| AVERAGE ZERO BIAS ($C_o$): | 0.25 |
| CALIBRATION GAS: | EPA Protocol $NO_x$ |
| CALIBRATION PPM ($C_{ma}$): | 45.0 |
| **PPM CORRECTED ($C_{gas}$):** | **13.0** |

**GAS ANALYZER** CO

| | |
|---|---|
| SCALE : | 0 - 450 ppm |
| AVERAGE CAL. BIAS ($C_m$): | 223.00 |
| AVERAGE ZERO BIAS ($C_o$): | 0.40 |
| CALIBRATION GAS: | EPA Protocol CO |
| CALIBRATION PPM ($C_{ma}$): | 225.0 |
| **PPM CORRECTED ($C_{gas}$):** | **156.5** |

**GAS ANALYZER** $O_2$

| | |
|---|---|
| SCALE : | 0 - 9.00 % |
| AVERAGE CAL. BIAS ($C_m$): | 4.440 |
| AVERAGE ZERO BIAS ($C_o$): | 0.055 |
| CALIBRATION GAS: | EPA Protocol $O_2$ |
| CALIBRATION PPM ($C_{ma}$): | 4.50 |
| **PPM CORRECTED ($C_{gas}$):** | **4.85** |

**GAS ANALYZER** $CO_2$

| | |
|---|---|
| SCALE : | 0 - 9.00 % |
| AVERAGE CAL. BIAS ($C_m$): | 4.650 |
| AVERAGE ZERO BIAS ($C_o$): | 0.050 |
| CALIBRATION GAS: | EPA Protocol $CO_2$ |
| CALIBRATION % ($C_{ma}$): | 4.50 |
| **% CORRECTED ($C_{gas}$):** | **4.99** |

**$NO_x$, ppm @ 0% $O_2$ =** **16.9**
**CO, ppm @ 0% $O_2$ =** **203.9**

**Example Calculation =**

$$C_{gas} = \left(\overline{C} - C_o\right)\frac{C_{ma}}{C_m - C_o}$$

| CLOCK TIME | ELAPSED TIME | Uncorrected $O_2$ % vol db | Uncorrected $CO_2$ % vol db | Uncorrected $NO_x$ ppmv db | Uncorrected CO ppmv db |
|---|---|---|---|---|---|
| 17:45 | 0 | ---- | ---- | ---- | ---- |
| 17:46 | 1 | 4.77 | 5.16 | 13.6 | 170.4 |
| 17:47 | 2 | 4.78 | 5.13 | 13.6 | 172.5 |
| 17:48 | 3 | 4.67 | 5.20 | 13.8 | 142.3 |
| 17:49 | 4 | 4.64 | 5.20 | 13.9 | 126.5 |
| 17:50 | 5 | 4.68 | 5.17 | 13.7 | 137.8 |
| 17:51 | 6 | 4.72 | 5.15 | 13.6 | 153.6 |
| 17:52 | 7 | 4.80 | 5.12 | 13.7 | 173.3 |
| 17:53 | 8 | 4.82 | 5.09 | 13.5 | 186.7 |
| 17:54 | 9 | 4.76 | 5.13 | 13.6 | 162.0 |
| 17:55 | 10 | 4.67 | 5.20 | 13.6 | 150.3 |
| 17:56 | 11 | 4.70 | 5.20 | 13.5 | 163.3 |
| 17:57 | 12 | 4.71 | 5.22 | 13.4 | 165.5 |
| 17:58 | 13 | 4.79 | 5.14 | 13.3 | 178.5 |
| 17:59 | 14 | 4.82 | 5.10 | 13.3 | 182.1 |
| 18:00 | 15 | 4.78 | 5.14 | 13.5 | 163.2 |
| 18:01 | 16 | 4.76 | 5.13 | 13.6 | 153.2 |
| 18:02 | 17 | 4.70 | 5.18 | 13.7 | 141.1 |
| 18:03 | 18 | 4.64 | 5.22 | 13.7 | 130.6 |
| 18:04 | 19 | 4.70 | 5.16 | 13.5 | 145.6 |
| 18:05 | 20 | 4.84 | 5.10 | 13.3 | 183.7 |
| 18:06 | 21 | 4.82 | 5.11 | 13.2 | 190.0 |
| 18:07 | 22 | 4.79 | 5.12 | 13.4 | 162.6 |
| 18:08 | 23 | 4.78 | 5.11 | 13.3 | 162.4 |
| 18:09 | 24 | 4.77 | 5.13 | 13.3 | 162.7 |
| 18:10 | 25 | 4.75 | 5.12 | 13.4 | 150.9 |
| 18:11 | 26 | 4.70 | 5.16 | 13.6 | 140.7 |
| 18:12 | 27 | 4.65 | 5.21 | 13.6 | 135.6 |
| 18:13 | 28 | 4.69 | 5.20 | 13.7 | 143.0 |
| 18:14 | 29 | 4.67 | 5.20 | 13.5 | 151.9 |
| 18:15 | 30 | 4.70 | 5.19 | 13.4 | 170.9 |
| 18:16 | 31 | 4.77 | 5.13 | 13.3 | 224.3 |
| 18:17 | 32 | 4.76 | 5.14 | 13.3 | 223.3 |
| 18:18 | 33 | 4.77 | 5.17 | 13.3 | 205.9 |
| 18:19 | 34 | 4.86 | 5.10 | 13.1 | 232.0 |
| 18:20 | 35 | 4.83 | 5.11 | 13.2 | 216.5 |
| 18:21 | 36 | 4.80 | 5.15 | 13.4 | 193.7 |
| 18:22 | 37 | 4.70 | 5.20 | 13.5 | 180.3 |
| 18:23 | 38 | 4.66 | 5.23 | 13.6 | 163.1 |
| 18:24 | 39 | 4.67 | 5.26 | 13.7 | 160.4 |
| 18:25 | 40 | 4.77 | 5.20 | 13.5 | 184.8 |
| 18:26 | 41 | 4.81 | 5.16 | 13.3 | 195.1 |
| 18:27 | 42 | 4.85 | 5.11 | 13.4 | 192.1 |
| 18:28 | 43 | 4.86 | 5.08 | 13.3 | 181.7 |
| 18:29 | 44 | 4.83 | 5.10 | 13.3 | 174.3 |
| 18:30 | 45 | 4.83 | 5.10 | 13.3 | 171.3 |
| 18:31 | 46 | 4.79 | 5.14 | 13.4 | 163.2 |
| 18:32 | 47 | 4.71 | 5.20 | 13.4 | 157.6 |
| 18:33 | 48 | 4.74 | 5.20 | 13.5 | 166.9 |
| 18:34 | 49 | 4.80 | 5.17 | 13.4 | 189.3 |
| 18:35 | 50 | 4.86 | 5.12 | 13.4 | 203.9 |
| 18:36 | 51 | 4.89 | 5.11 | 13.5 | 196.1 |
| 18:37 | 52 | 4.86 | 5.13 | 13.6 | 184.0 |
| 18:38 | 53 | 4.73 | 5.20 | 13.7 | 144.1 |
| 18:39 | 54 | 4.76 | 5.17 | 13.5 | 160.0 |
| 18:40 | 55 | 4.85 | 5.12 | 13.3 | 179.3 |
| 18:41 | 56 | 4.86 | 5.12 | 13.3 | 188.6 |
| 18:42 | 57 | 4.76 | 5.20 | 13.2 | 166.7 |
| 18:43 | 58 | 4.77 | 5.20 | 13.2 | 180.3 |
| 18:44 | 59 | 4.77 | 5.18 | 13.4 | 176.3 |
| 18:45 | 60 | 4.81 | 5.13 | 13.5 | 168.9 |
| 18:46 | 61 | 4.81 | 5.12 | 13.5 | 162.5 |
| 18:47 | 62 | 4.81 | 5.13 | 13.6 | 159.5 |
| 18:48 | 63 | 4.71 | 5.20 | 13.7 | 116.8 |
| 18:49 | 64 | 4.66 | 5.22 | 13.6 | 104.5 |
| 18:50 | 65 | 4.64 | 5.22 | 13.6 | 84.6 |
| 18:51 | 66 | 4.70 | 5.17 | 13.4 | 102.6 |
| 18:52 | 67 | 4.75 | 5.13 | 13.2 | 122.7 |
| 18:53 | 68 | 4.78 | 5.14 | 13.3 | 135.9 |
| 18:54 | 69 | 4.79 | 5.13 | 13.1 | 147.5 |
| 18:55 | 70 | 4.77 | 5.12 | 13.1 | 152.7 |
| 18:56 | 71 | 4.76 | 5.12 | 13.3 | 145.5 |
| 18:57 | 72 | 4.79 | 5.10 | 13.2 | 172.4 |
| 18:58 | 73 | 4.83 | 5.10 | 13.3 | 185.8 |
| 18:59 | 74 | 4.72 | 5.15 | 13.5 | 158.2 |
| 19:00 | 75 | 4.78 | 5.13 | 13.3 | 185.9 |
| 19:01 | 76 | 4.82 | 5.12 | 13.2 | 185.2 |
| 19:02 | 77 | 4.85 | 5.11 | 13.0 | 210.3 |
| 19:03 | 78 | 4.86 | 5.12 | 13.1 | 217.6 |
| 19:04 | 79 | 4.76 | 5.18 | 13.4 | 175.8 |
| 19:05 | 80 | 4.69 | 5.19 | 13.2 | 147.5 |
| 19:06 | 81 | 4.72 | 5.16 | 13.0 | 162.9 |
| 19:07 | 82 | 4.81 | 5.09 | 13.0 | 187.4 |
| 19:08 | 83 | 4.82 | 5.10 | 13.1 | 193.1 |
| 19:09 | 84 | 4.85 | 5.10 | 13.2 | 194.7 |
| 19:10 | 85 | 4.82 | 5.12 | 13.3 | 175.9 |
| 19:11 | 86 | 4.69 | 5.20 | 13.4 | 137.2 |
| 19:12 | 87 | 4.71 | 5.19 | 13.2 | 147.8 |
| 19:13 | 88 | 4.73 | 5.17 | 13.2 | 151.3 |

| | | | | | |
|---|---|---|---|---|---|
| 19:14 | 89 | 4.78 | 5.14 | 13.1 | 174.3 |
| 19:15/19:42 | 90 | 4.85 | 5.13 | 13.0 | 192.0 |
| 19:43 | 91 | 4.75 | 5.13 | 13.3 | 151.9 |
| 19:44 | 92 | 4.78 | 5.11 | 13.2 | 152.4 |
| 19:45 | 93 | 4.78 | 5.09 | 13.3 | 142.5 |
| 19:46 | 94 | 4.74 | 5.09 | 13.3 | 129.4 |
| 19:47 | 95 | 4.76 | 5.07 | 13.2 | 126.7 |
| 19:48 | 96 | 4.68 | 5.15 | 13.2 | 104.1 |
| 19:49 | 97 | 4.72 | 5.10 | 13.1 | 118.9 |
| 19:50 | 98 | 4.77 | 5.08 | 12.8 | 140.9 |
| 19:51 | 99 | 4.80 | 5.10 | 12.8 | 160.2 |
| 19:52 | 100 | 4.80 | 5.12 | 12.7 | 160.9 |
| 19:53 | 101 | 4.78 | 5.14 | 12.9 | 158.5 |
| 19:54 | 102 | 4.66 | 5.22 | 13.0 | 124.1 |
| 19:55 | 103 | 4.67 | 5.18 | 13.1 | 130.2 |
| 19:56 | 104 | 4.82 | 5.07 | 12.9 | 167.3 |
| 19:57 | 105 | 4.83 | 5.06 | 12.8 | 176.2 |
| 19:58 | 106 | 4.84 | 5.05 | 12.9 | 192.9 |
| 19:59 | 107 | 4.81 | 5.10 | 12.8 | 187.1 |
| 20:00 | 108 | 4.74 | 5.22 | 12.8 | 178.8 |
| 20:01 | 109 | 4.72 | 5.21 | 12.8 | 175.2 |
| 20:02 | 110 | 4.73 | 5.23 | 12.7 | 162.0 |
| 20:03 | 111 | 4.79 | 5.18 | 12.6 | 175.1 |
| 20:04 | 112 | 4.86 | 5.12 | 12.7 | 190.2 |
| 20:05 | 113 | 4.83 | 5.14 | 12.7 | 182.2 |
| 20:06 | 114 | 4.81 | 5.13 | 13.0 | 145.3 |
| 20:07 | 115 | 4.74 | 5.12 | 13.2 | 121.6 |
| 20:08 | 116 | 4.74 | 5.11 | 13.0 | 129.3 |
| 20:09 | 117 | 4.83 | 5.10 | 12.7 | 156.2 |
| 20:10 | 118 | 4.88 | 5.11 | 12.6 | 183.4 |
| 20:11 | 119 | 4.85 | 5.14 | 12.6 | 162.9 |
| 20:12 | 120 | 4.79 | 5.19 | 12.5 | 149.6 |
| 20:13 | 121 | 4.81 | 5.16 | 12.6 | 134.9 |
| 20:14 | 122 | 4.77 | 5.15 | 12.5 | 128.6 |
| 20:15 | 123 | 4.78 | 5.15 | 12.5 | 133.0 |
| 20:16 | 124 | 4.81 | 5.14 | 12.5 | 140.8 |
| 20:17 | 125 | 4.77 | 5.19 | 12.5 | 132.5 |
| 20:18 | 126 | 4.80 | 5.15 | 12.5 | 132.9 |
| 20:19 | 127 | 4.81 | 5.15 | 12.6 | 119.9 |
| 20:20 | 128 | 4.76 | 5.18 | 12.6 | 90.6 |
| 20:21 | 129 | 4.72 | 5.17 | 12.5 | 79.2 |
| 20:22 | 130 | 4.73 | 5.16 | 12.1 | 88.1 |
| 20:23 | 131 | 4.82 | 5.11 | 12.1 | 118.1 |
| 20:24 | 132 | 4.81 | 5.14 | 12.2 | 126.6 |
| 20:25 | 133 | 4.84 | 5.13 | 12.1 | 144.1 |
| 20:26 | 134 | 4.83 | 5.16 | 12.0 | 137.9 |
| 20:27 | 135 | 4.79 | 5.19 | 12.2 | 119.4 |
| 20:28 | 136 | 4.71 | 5.21 | 12.2 | 104.2 |
| 20:29 | 137 | 4.75 | 5.18 | 12.1 | 126.1 |
| 20:30 | 138 | 4.86 | 5.08 | 12.0 | 173.9 |
| 20:31 | 139 | 4.92 | 5.07 | 11.7 | 204.8 |
| 20:32 | 140 | 4.92 | 5.09 | 11.8 | 229.7 |
| 20:33 | 141 | 4.81 | 5.18 | 11.9 | 179.3 |
| 20:34 | 142 | 4.79 | 5.20 | 12.0 | 168.1 |
| 20:35 | 143 | 4.70 | 5.26 | 12.1 | 113.5 |
| 20:36 | 144 | 4.70 | 5.25 | 12.0 | 105.6 |
| 20:37 | 145 | 4.74 | 5.23 | 11.8 | 109.3 |
| 20:38 | 146 | 4.78 | 5.20 | 11.9 | 133.3 |
| 20:39 | 147 | 4.86 | 5.16 | 11.9 | 168.9 |
| 20:40 | 148 | 4.95 | 5.15 | 11.9 | 206.4 |
| 20:41 | 149 | 4.97 | 5.14 | 11.9 | 228.5 |
| 20:42 | 150 | 4.96 | 5.13 | 12.0 | 231.4 |
| 20:43 | 151 | 4.82 | 5.20 | 12.1 | 172.5 |
| 20:44 | 152 | 4.73 | 5.22 | 12.2 | 118.2 |
| 20:45 | 153 | 4.70 | 5.23 | 12.2 | 84.0 |
| 20:46 | 154 | 4.68 | 5.22 | 12.1 | 72.1 |
| 20:47 | 155 | 4.77 | 5.15 | 12.0 | 96.2 |
| 20:48 | 156 | 4.88 | 5.15 | 11.7 | 136.5 |
| 20:49 | 157 | 4.91 | 5.15 | 11.7 | 149.2 |
| 20:50 | 158 | 4.87 | 5.17 | 11.9 | 127.2 |
| 20:51 | 159 | 4.84 | 5.17 | 12.1 | 109.0 |
| 20:52 | 160 | 4.76 | 5.21 | 12.0 | 89.6 |
| 20:53 | 161 | 4.79 | 5.17 | 12.0 | 97.3 |
| 20:54 | 162 | 4.80 | 5.12 | 11.8 | 119.1 |
| 20:55 | 163 | 4.87 | 5.06 | 11.7 | 159.5 |
| 20:56 | 164 | 4.89 | 5.08 | 11.7 | 178.9 |
| 20:57 | 165 | 4.91 | 5.08 | 11.7 | 197.0 |
| 20:58 | 166 | 4.88 | 5.14 | 11.7 | 187.1 |
| 20:59 | 167 | 4.85 | 5.16 | 11.7 | 166.1 |
| 21:00 | 168 | 4.83 | 5.20 | 11.9 | 147.9 |
| 21:01 | 169 | 4.80 | 5.21 | 11.9 | 136.4 |
| 21:02 | 170 | 4.79 | 5.19 | 12.0 | 123.9 |
| 21:03 | 171 | 4.82 | 5.14 | 11.9 | 118.8 |
| 21:04 | 172 | 4.78 | 5.14 | 12.0 | 110.7 |
| 21:05 | 173 | 4.76 | 5.15 | 12.1 | 100.6 |
| 21:06 | 174 | 4.77 | 5.12 | 11.9 | 107.7 |
| 21:07 | 175 | 4.82 | 5.11 | 11.8 | 131.3 |
| 21:08 | 176 | 4.84 | 5.13 | 11.9 | 144.4 |
| 21:09 | 177 | 4.86 | 5.15 | 11.7 | 157.7 |
| 21:10 | 178 | 4.83 | 5.20 | 11.8 | 137.8 |
| 21:11 | 179 | 4.82 | 5.17 | 11.9 | 130.0 |
| 21:12 | 180 | 4.82 | 5.17 | 11.8 | 127.5 |
| | **Uncorrected Average =** | **4.783** | **5.150** | **12.86** | **155.27** |

**ARI ENVIRONMENTAL, INC.**
**MOISTURE CALCULATION SUMMARY**

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**TEST DATE:** 4/21/2009
**RUN NUMBER:** SRU3-2

| | | | |
|---|---|---|---|
| **γ FACTOR:** | 0.998 | **STACK DIAM:** | 42.0 **inches** |
| **BAROMETRIC:** | 29.77 **in. Hg** | **METER VOLUME:** | 139.605 **$ft^3$** |
| **STATIC PRES:** | 0.60 **in.$H_2O$** | **METER TEMP:** | 109.4 **°F** |
| **STACK TEMP:** | 609.9 **°F** | **LIQUID COLL:** | 340.7 **milliliters** |
| **SQ.RT ΔP:** | 1.7072 **in.$H_2O$** | **$CO_2$:** | 4.99 **% by volume** |
| **ΔH:** | 1.73 **in.$H_2O$** | **$O_2$:** | 4.85 **% by volume** |

**ENGLISH UNITS**
**(29.92 in.Hg & 68 °F)**

**VOLUME OF SAMPLE**
**@ STANDARD CONDITIONS, DRY BASIS**

$$V_{mstd} = \left(\frac{528}{29.92}\right) \times V_m \times \gamma \left[\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m}\right] = 129.097 \text{ dscf}$$

$\gamma$ = 0.998

**VOLUME OF WATER IN SAMPLE**
**@ STANDARD CONDITIONS**

$$V_{wstd} = 0.04707 \times V_{lc} = 16.037 \text{ scf}$$

$V_{lc}$ = 340.7 mL

**FRACTIONAL MOISTURE CONTENT OF STACK GAS AS MEASURED**

$$B_{ws} = \frac{V_{wstd}}{V_{wstd} + V_{mstd}} = 0.1105$$

**FRACTIONAL MOISTURE CONTENT OF STACK GAS @ SATURATION**

$$MF = \frac{\left(10^{\left[8.361 - \left(\frac{1893.5}{T - 27.65}\right)\right]}\right) - 0.5}{P} = 1.000$$

T = 594.1 °K
P = 757.3 mmHg

**FRACTIONAL MOISTURE CONTENT USED IN CALCULATIONS**

$B_{ws}$ = 0.1105

**ARI ENVIRONMENTAL, INC.**
**FLOW RATE CALCULATION SUMMARY**

**COMPANY:** Valero Refining - Texas
**LOCATION:** Corpus Christi, TX
**RUN NUMBER:** SRU3-2
**SOURCE:** SRU No. 3 TGI Exhaust
**TEST DATE:** 4/21/2009

| | | | |
|---|---|---|---|
| **BAROMETRIC:** | 29.77 **in. Hg** | **STACK DIAM:** | 42.0 **inches** |
| **STATIC PRES:** | 0.6 **in.$H_2O$** | **$CO_2$:** | 4.99 **% by volume** |
| **STACK TEMP:** | 609.9 **°F** | **$O_2$:** | 4.85 **% by volume** |
| **SQ.RT ΔP:** | 1.7072 **in.$H_2O$** | | |

| | | | |
|---|---|---|---|
| **DRY MOLECULAR WEIGHT OF STACK GAS** | | | |
| $M_d = 0.44(\%CO_2) + 0.32(\%O_2) + 0.28(\%N_2 + \%CO)$ | = | 28.99 | **lb/lb-mole** |
| **MOLECULAR WEIGHT OF STACK GAS, wet basis** | | | |
| $M_s = M_d(1 - B_{ws}) + 18B_{ws}$ | = | 27.78 | **lb/lb-mole** |
| **PITOT TUBE COEFFICIENT** | | | |
| $C_p$ (from calibration curve or geometric specifications) | = | 0.84 | |
| **AVERAGE VELOCITY HEAD OF STACK GAS, in. $H_2O$** | | | |
| $\overline{\sqrt{\Delta P}} = \frac{1}{n}\sum_{i=1}^{n}\sqrt{\Delta p}$ | = | 1.7072 | **in. $H_2O$** |
| **AVERAGE ABSOLUTE STACK GAS TEMPERATURE** | | | |
| $T_s =$ 609.9 °F + 460 | = | 1,069.9 | **°R** |
| **ABSOLUTE STACK GAS PRESSURE** | | | |
| $P_s = P_{bar} + \frac{P_{static}}{13.6}$ | = | 29.81 | **in.Hg** |
| **STACK GAS VELOCITY** | | | |
| $V_s = (85.49)(C_p)(\text{avg}\sqrt{\Delta P})\sqrt{\frac{T_s}{(P_s)(M_s)}}$ | = | 139.345 | **ft/sec** |
| **STACK GAS VOLUMETRIC FLOW RATE, actual** | | | |
| $Q_s = 60 \times V_s \times A_s$ | = | 80,439 | **acfm** |
| Stack Area = 9.6211 $ft^2$ | | | |
| **STACK GAS VOLUMETRIC FLOW RATE, standard conditions, wet basis** | | | |
| $Q_{stdw} = \left(\frac{528}{29.92}\right)(Q_s)\left(\frac{P_s}{T_s}\right)$ | = | 39,556.6<br>2,373,398 | **scfm, wb**<br>**scfh, wb** |
| **STACK GAS VOLUMETRIC FLOW RATE, standard conditions, dry basis** | | | |
| $Q_{std} = \left(\frac{528}{29.92}\right)(Q_s)\left(\frac{P_s}{T_s}\right)(1 - B_{ws})$ | = | 35,185.8<br>2,111,146 | **dscfm**<br>**dscfh** |

ARI ENVIRONMENTAL, INC.
TOTAL PARTICULATE CALCULATION SUMMARY

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**TEST DATE:** 4/21/2009
**RUN NUMBER:** SRU3-2

**INPUT**

| | | | | | |
|---|---|---|---|---|---|
| $V_m$: | 139.605 | $ft^3$ | $Q_s$: | 35,186 | dscfm |
| γ FACTOR: | 0.998 | | $T_s$: | 609.9 | °F |
| $P_{bar}$: | 29.77 | in.Hg | Runtime: | 180 | minutes |
| ΔH: | 1.73 | $in.H_2O$ | $V_s$: | 139.345 | ft/sec |
| $T_m$: | 109.4 | °F | $P_s$: | 29.81 | in.Hg |
| $V_{lc}$: | 340.7 | mL | Noz. diam: | 0.188 | inches |
| $M_n$ front: | 29.86 | mg | | | |
| $M_n$ back: | 47.95 | mg | | | |

**ENGLISH UNITS**
**(29.92 in.Hg & 68 °F)**

**VOLUME OF SAMPLE @ STANDARD CONDITIONS, DRY BASIS**

$$V_{mstd} = \left(\frac{528}{29.92}\right) \times V_m \times \gamma \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m}\right)$$

= 129.097 **dscf**

γ = 0.998

**VOLUME OF WATER IN SAMPLE @ STANDARD CONDITIONS**

$$V_{wstd} = 0.04707 \times V_{lc}$$

= 16.037 **scf**

**FRACTIONAL MOISTURE CONTENT OF STACK GAS**

$$B_{ws} = \frac{V_{wstd}}{V_{wstd} + V_{mstd}} \times 100$$

= 11.05 **%**

**PARTICULATE CONCENTRATION IN STACK GAS ON A DRY BASIS**

$$C_s = (0.01543)\left(\frac{M_n}{V_{mstd}}\right)$$

| | | | |
|---|---|---|---|
| Front | = | 0.0035689 | **gr/dscf** |
| Back | = | 0.0057311 | **gr/dscf** |
| Total | = | 0.0093000 | **gr/dscf** |

$$C_s' = \left(2.205 \times 10^{-6}\right)\left(\frac{M_n}{V_{mstd}}\right)$$

| | | | |
|---|---|---|---|
| C's Front | = | 0.51001 | **x $10^{-6}$ lbs/dscf** |
| C's Back | = | 0.81899 | **x $10^{-6}$ lbs/dscf** |
| C's Total | = | 1.32901 | **x $10^{-6}$ lbs/dscf** |

**EMISSION RATE**

$$pmr = \left(\frac{C_s}{7000}\right)(Q_{std})(60)$$

| | | | |
|---|---|---|---|
| Front | = | 1.07636 | **lbs/hr** |
| Back | = | 1.72845 | **lbs/hr** |
| Total | = | 2.80482 | **lbs/hr** |

**ISOKINETIC SAMPLING RATE**

$$\%ISO = \frac{(100)(T_s)\left[(0.002669 \times V_{lc}) + \left(\frac{V_m}{T_m}\right)(\gamma)\left(P_{bar} + \left(\frac{\Delta H}{13.6}\right)\right)\right]}{(60)(\theta)(V_s)(P_s)(A_n)}$$

= 101.74 **% I**

$A_n$ = 0.00019277 $ft^2$ Runtime = 180 minutes

# $NO_x$ CALCULATION DATA SHEET
# USEPA METHOD 7E

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** California Analytical Instruments Model 600
**RUN NO:** SRU3-2
**TEST DATE:** 4/21/2009

## INPUT

$NO_x$ AVERAGE READING (C): 13.0 ppmv

STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): 2,111,146 dscfh

## CALCULATIONS

### STACK $NO_x$ CONCENTRATION

$NO_x$ CONC.(lbs/dscf) =

$$C_{gas,lb/dscf} = \left(C_{gas,ppm}\right)\left(\frac{46 lb/lb-mole}{385.26\times10^{6} ft^3/lb-mole}\right) = 1.5469 \times 10^{-6} \text{ lbs/dscf}$$

### $NO_x$ EMISSION RATE:

STACK GAS VOLUMETRIC FLOW RATE = 2,111,146 dscfh

STACK $NO_x$ EMISSION RATE =

$$NO_{xpmr} = \left(C_{gas,lb/dscf}\right)\left(Q_{std}\right)$$

= 3.2657 lbs/hr
= 14.304 ton/yr

# CO CALCULATION DATA SHEET
# USEPA METHOD 10

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** Thermo Environmental Model 48i
**RUN NO:** SRU3-2
**TEST DATE:** 4/21/2009

## INPUT

CO AVERAGE READING (C): 156.5 ppmv

STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): 2,111,146 dscfh

## CALCULATIONS

### STACK CO CONCENTRATION

CO CONC.(lbs/dscf) =

$$C_{gas,lb/dscf} = (C_{gas,ppm})\left(\frac{28 lb/lb-mole}{385.26 \times 10^6 ft^3/lb-mole}\right) = 11.3767 \times 10^{-6} \text{ lbs/dscf}$$

### CO EMISSION RATE:

STACK GAS VOLUMETRIC FLOW RATE = 2,111,146 dscfh

STACK CO EMISSION RATE =

$$CO_{pmr} = (C_{gas,lb/dscf})(Q_{std}) = 24.0180 \text{ lbs/hr} = 105.199 \text{ ton/yr}$$

# CARBONYL SULFIDE EMISSION RATE CALCULATION SHEET
# USEPA METHOD 15

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** SRI-9300B: GC-FPD
**RUN NO:** SRU3-2
**TEST DATE:** 4/21/2009

## INPUT

| | | |
|---|---|---|
| COS CONCENTRATION (C): | < 0.82 | ppmv |
| STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): | 2,111,146 | dscfh |

## CALCULATIONS

STACK COS AVERAGE CHART READING = < 0.82 ppmv

**COS CONCENTRATION (lbs/dscf) =**

$$C_{gas,lb/dscf} = (C_{gas,ppm})\left(\frac{60.07 lb/lb-mole}{385.26 \times 10^{-6} ft^3/lb-mole}\right)$$

= < 0.128 x $10^{-6}$ lbs/dscf

## COS EMISSION RATE:

STACK GAS VOLUMETRIC FLOW RATE = 2,111,146 dscfh

STACK COS EMISSION RATE =

$$COS_{pmr} = (C_{gas,lb/dscf})(Q_{std})$$

= < 0.2699 lbs/hr
= < 1.182 ton/yr

# CARBON DISULFIDE EMISSION RATE CALCULATION SHEET
# USEPA METHOD 15

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** SRI-9300B: GC-FPD
**RUN NO:** SRU3-2
**TEST DATE:** 4/21/2009

**INPUT**

| | | |
|---|---|---|
| $CS_2$ CONCENTRATION (C): | < 0.53 | ppmv |
| STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): | 2,111,146 | dscfh |

**CALCULATIONS**

STACK $CS_2$ AVERAGE CHART READING = < 0.53 ppmv

**$CS_2$ CONCENTRATION (lbs/dscf) =**

$$C_{gas,lb/dscf} = \left(C_{gas,ppm}\right)\left(\frac{76.1lb/lb-mole}{385.26\times10^{-6}ft^3/lb-mole}\right)$$

= < 0.105 x $10^{-6}$ lbs/dscf

**$CS_2$ EMISSION RATE:**

STACK GAS VOLUMETRIC FLOW RATE = 2,111,146 dscfh

STACK $CS_2$ EMISSION RATE =

$$CS_{2pmr} = \left(C_{gas,lb/dscf}\right)\left(Q_{std}\right)$$

= < 0.2210 lbs/hr
= < 0.968 ton/yr

# HYDROGEN SULFIDE CALIBRATION CORRECTION DATA SHEET
# USEPA METHOD 15

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** SRI-9300B: GC-FPD
**RUN NO:** SRU3-2
**TEST DATE:** 4/21/2009

## INPUT

| | | |
|---|---|---|
| $H_2S$ CONCENTRATION (C): | < 0.73 | ppmv |
| STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): | 2,111,146 | dscfh |

## CALCULATIONS

STACK $H_2S$ AVERAGE CHART READING = < 0.73 ppmv

**$H_2S$ CONCENTRATION (lbs/dscf) =**

$$C_{gas,lb/dscf} = \left(C_{gas,ppm}\right)\left(\frac{34.08 lb/lb-mole}{385.26 \times 10^{-6} ft^3/lb-mole}\right)$$

= < 0.065 x $10^{-6}$ lbs/dscf

## $H_2S$ EMISSION RATE:

STACK GAS VOLUMETRIC FLOW RATE = 2,111,146 dscfh

STACK $H_2S$ EMISSION RATE =

$$H_2S_{pmr} = \left(C_{gas,lb/dscf}\right)\left(Q_{std}\right)$$

= < 0.1363 lbs/hr
= < 0.597 ton/yr

# RSC as $H_2S$ EMISSION RATE CALCULATION SHEET
# USEPA METHOD 15

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** SRI-9300B: GC-FPD
**RUN NO:** SRU3-2
**TEST DATE:** 4/21/2009

## INPUT

| | | |
|---|---|---|
| COS CONCENTRATION (C): | < 0.82 | ppmv |
| $CS_2$ CONCENTRATION (C): | < 0.53 | ppmv |
| $H_2S$ CONCENTRATION (C): | < 0.73 | ppmv |
| STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): | 2,111,146 | dscfh |
| STACK OXYGEN CONTENT ($\%O_2$): | 4.85 | % |

## CALCULATIONS

AVERAGE STACK RSC as $H_2S$ = < 2.61 ppmv

**AVERAGE STACK RSC as $H_2S$ @ 3% $O_2$**

$$C_{gas,ppm@3\%O_2} = \left(C_{gas,ppm}\right)\left(\frac{17.9}{20.9 - \%O_2}\right)$$

= < 2.88 ppmv @ 3% $O_2$

**RSC as $H_2S$ CONCENTRATION (lbs/dscf) =**

$$C_{gas,lb/dscf} = \left(C_{gas,ppm}\right)\left(\frac{34.08 lb/lb-mole}{385.26 \times 10^{-6} ft^3/lb-mole}\right)$$

= < 0.231 x $10^{-6}$ lbs/dscf

## RSC as $H_2S$ EMISSION RATE:

STACK GAS VOLUMETRIC FLOW RATE = 2,111,146 dscfh

STACK RSC as $H_2S$ EMISSION RATE =

$$RSC_{pmr} = \left(C_{gas,lb/dscf}\right)\left(Q_{std}\right)$$

= < 0.4874 lbs/hr
= < 2.135 ton/yr

## MONITOR DATA SUMMARY

**COMPANY :** Valero Refining - Texas, L.P.
**SOURCE :** SRU No. 3 TGI Exhaust
**REPETITION :** SRU3-3
**TEST DATE :** 4/21/2009
**START TIME :** 9:00
**END TIME :** 12:24

### GAS ANALYZER $NO_x$

SCALE : 0 - 90 ppm
AVERAGE CAL. BIAS ($C_m$): 43.10
AVERAGE ZERO BIAS ($C_o$): 0.30

CALIBRATION GAS: EPA Protocol $NO_x$
CALIBRATION PPM ($C_{ma}$): 45.0
**PPM CORRECTED ($C_{gas}$):** 13.2

### GAS ANALYZER CO

SCALE : 0 - 450 ppm
AVERAGE CAL. BIAS ($C_m$): 223.50
AVERAGE ZERO BIAS ($C_o$): 0.65

CALIBRATION GAS: EPA Protocol CO
CALIBRATION PPM ($C_{ma}$): 225.0
**PPM CORRECTED ($C_{gas}$):** 180.7

### GAS ANALYZER $O_2$

SCALE : 0 - 9.00 %
AVERAGE CAL. BIAS ($C_m$): 4.460
AVERAGE ZERO BIAS ($C_o$): 0.050

CALIBRATION GAS: EPA Protocol $O_2$
CALIBRATION PPM ($C_{ma}$): 4.50
**PPM CORRECTED ($C_{gas}$):** 4.64

### GAS ANALYZER $CO_2$

SCALE : 0 - 9.00 %
AVERAGE CAL. BIAS ($C_m$): 4.660
AVERAGE ZERO BIAS ($C_o$): 0.045

CALIBRATION GAS: EPA Protocol $CO_2$
CALIBRATION % ($C_{ma}$): 4.50
**% CORRECTED ($C_{gas}$):** 5.04

**$NO_x$, ppm @ 0% $O_2$ =** 17.0
**CO, ppm @ 0% $O_2$ =** 232.2

**Example Calculation =**

$$C_{gas} = (\overline{C} - C_o)\frac{C_{ma}}{C_m - C_o}$$

| CLOCK TIME | ELAPSED TIME | Uncorrected $O_2$ % vol db | Uncorrected $CO_2$ % vol db | Uncorrected $NO_x$ ppmv db | Uncorrected CO ppmv db |
|---|---|---|---|---|---|
| 9:00 | 0 | ----- | ----- | ----- | ----- |
| 9:01 | 1 | 4.60 | 5.30 | 12.2 | 147.9 |
| 9:02 | 2 | 4.59 | 5.30 | 12.1 | 157.1 |
| 9:03 | 3 | 4.70 | 5.25 | 11.8 | 196.4 |
| 9:04 | 4 | 4.79 | 5.22 | 11.8 | 217.2 |
| 9:05 | 5 | 4.74 | 5.25 | 11.9 | 203.1 |
| 9:06 | 6 | 4.66 | 5.29 | 12.1 | 170.2 |
| 9:07 | 7 | 4.64 | 5.28 | 12.2 | 156.6 |
| 9:08 | 8 | 4.67 | 5.25 | 12.2 | 160.2 |
| 9:09 | 9 | 4.69 | 5.23 | 12.0 | 171.2 |
| 9:10 | 10 | 4.64 | 5.29 | 12.1 | 168.0 |
| 9:11 | 11 | 4.61 | 5.30 | 12.1 | 158.5 |
| 9:12 | 12 | 4.60 | 5.29 | 12.1 | 161.3 |
| 9:13 | 13 | 4.57 | 5.32 | 12.1 | 142.6 |
| 9:14 | 14 | 4.55 | 5.33 | 12.2 | 132.7 |
| 9:15 | 15 | 4.56 | 5.31 | 12.1 | 131.0 |
| 9:16 | 16 | 4.60 | 5.28 | 11.9 | 131.5 |
| 9:17 | 17 | 4.70 | 5.26 | 12.0 | 162.3 |
| 9:18 | 18 | 4.70 | 5.22 | 12.1 | 169.8 |
| 9:19 | 19 | 4.63 | 5.26 | 12.4 | 142.9 |
| 9:20 | 20 | 4.58 | 5.27 | 12.6 | 145.1 |
| 9:21 | 21 | 4.55 | 5.27 | 12.5 | 136.6 |
| 9:22 | 22 | 4.43 | 5.37 | 12.6 | 115.5 |
| 9:23 | 23 | 4.39 | 5.38 | 12.5 | 111.2 |
| 9:24 | 24 | 4.44 | 5.35 | 12.3 | 123.7 |
| 9:25 | 25 | 4.50 | 5.30 | 12.2 | 155.0 |
| 9:26 | 26 | 4.57 | 5.27 | 12.2 | 185.2 |
| 9:27 | 27 | 4.59 | 5.25 | 12.3 | 193.7 |
| 9:28 | 28 | 4.53 | 5.27 | 12.5 | 184.6 |
| 9:29 | 29 | 4.47 | 5.32 | 12.6 | 176.9 |
| 9:30 | 30 | 4.46 | 5.33 | 12.7 | 191.8 |
| 9:31 | 31 | 4.48 | 5.31 | 12.7 | 184.3 |
| 9:32 | 32 | 4.57 | 5.25 | 12.4 | 209.6 |
| 9:33 | 33 | 4.57 | 5.26 | 12.5 | 209.8 |
| 9:34 | 34 | 4.58 | 5.27 | 12.5 | 213.3 |
| 9:35 | 35 | 4.53 | 5.31 | 12.6 | 199.5 |
| 9:36 | 36 | 4.52 | 5.30 | 12.4 | 214.8 |
| 9:37 | 37 | 4.60 | 5.24 | 12.6 | 218.3 |
| 9:38 | 38 | 4.64 | 5.23 | 12.7 | 219.0 |
| 9:39 | 39 | 4.59 | 5.27 | 12.8 | 192.7 |
| 9:40 | 40 | 4.50 | 5.31 | 13.0 | 166.4 |
| 9:41 | 41 | 4.50 | 5.31 | 13.0 | 164.7 |
| 9:42 | 42 | 4.56 | 5.27 | 12.9 | 177.7 |
| 9:43 | 43 | 4.58 | 5.27 | 12.8 | 180.0 |
| 9:44 | 44 | 4.59 | 5.26 | 12.8 | 178.3 |
| 9:45 | 45 | 4.54 | 5.28 | 12.8 | 165.3 |
| 9:46 | 46 | 4.42 | 5.36 | 12.9 | 138.8 |
| 9:47 | 47 | 4.43 | 5.35 | 12.8 | 142.0 |
| 9:48 | 48 | 4.43 | 5.36 | 12.7 | 139.2 |
| 9:49 | 49 | 4.50 | 5.30 | 12.7 | 162.6 |
| 9:50 | 50 | 4.58 | 5.25 | 12.6 | 185.2 |
| 9:51 | 51 | 4.57 | 5.26 | 12.7 | 181.5 |
| 9:52 | 52 | 4.57 | 5.26 | 12.8 | 186.2 |
| 9:53 | 53 | 4.61 | 5.25 | 12.8 | 196.4 |
| 9:54 | 54 | 4.46 | 5.38 | 12.8 | 170.8 |
| 9:55 | 55 | 4.48 | 5.37 | 12.8 | 193.7 |
| 9:56 | 56 | 4.54 | 5.33 | 12.7 | 204.4 |
| 9:57 | 57 | 4.57 | 5.31 | 12.4 | 214.7 |
| 9:58 | 58 | 4.66 | 5.25 | 12.4 | 248.5 |
| 9:59 | 59 | 4.67 | 5.26 | 12.5 | 246.1 |
| 10:00 | 60 | 4.70 | 5.25 | 12.6 | 250.2 |
| 10:01 | 61 | 4.66 | 5.28 | 12.7 | 229.5 |
| 10:02 | 62 | 4.51 | 5.35 | 12.8 | 188.4 |
| 10:03 | 63 | 4.49 | 5.38 | 12.8 | 182.7 |
| 10:04 | 64 | 4.49 | 5.37 | 12.9 | 172.1 |
| 10:05 | 65 | 4.51 | 5.36 | 12.9 | 180.4 |
| 10:06 | 66 | 4.50 | 5.36 | 13.0 | 167.5 |
| 10:07 | 67 | 4.56 | 5.30 | 12.8 | 188.7 |
| 10:08 | 68 | 4.66 | 5.23 | 12.6 | 212.6 |
| 10:09 | 69 | 4.64 | 5.26 | 12.7 | 204.8 |
| 10:10 | 70 | 4.56 | 5.29 | 12.9 | 161.9 |
| 10:11 | 71 | 4.44 | 5.33 | 13.0 | 128.3 |
| 10:12 | 72 | 4.31 | 5.39 | 13.1 | 100.4 |
| 10:13 | 73 | 4.23 | 5.45 | 13.2 | 75.8 |
| 10:14 | 74 | 4.21 | 5.46 | 13.1 | 72.4 |
| 10:15 | 75 | 4.27 | 5.42 | 12.6 | 89.9 |
| 10:16 | 76 | 4.37 | 5.37 | 12.9 | 126.7 |
| 10:17 | 77 | 4.39 | 5.35 | 12.7 | 120.5 |
| 10:18 | 78 | 4.40 | 5.33 | 12.5 | 137.9 |
| 10:19 | 79 | 4.48 | 5.23 | 12.2 | 173.5 |
| 10:20 | 80 | 4.56 | 5.16 | 12.1 | 213.4 |
| 10:21 | 81 | 4.65 | 5.10 | 12.2 | 229.4 |
| 10:22 | 82 | 4.67 | 5.09 | 12.3 | 241.7 |
| 10:23 | 83 | 4.63 | 5.12 | 12.4 | 222.4 |
| 10:24 | 84 | 4.58 | 5.18 | 12.5 | 217.2 |
| 10:25 | 85 | 4.53 | 5.23 | 12.2 | 227.5 |
| 10:26 | 86 | 4.48 | 5.25 | 12.5 | 219.1 |
| 10:27 | 87 | 4.47 | 5.25 | 12.7 | 189.0 |
| 10:28 | 88 | 4.50 | 5.21 | 12.9 | 184.8 |

| | | | | | |
|---|---|---|---|---|---|
| 10:29 | 89 | 4.58 | 5.18 | 12.8 | 201.3 |
| 10:30/10:54 | 90 | 4.68 | 5.14 | 12.8 | 233.4 |
| 10:55 | 91 | 4.51 | 5.17 | 12.6 | 193.1 |
| 10:56 | 92 | 4.62 | 5.09 | 12.7 | 223.5 |
| 10:57 | 93 | 4.65 | 5.07 | 12.6 | 237.7 |
| 10:58 | 94 | 4.68 | 5.10 | 12.4 | 267.3 |
| 10:59 | 95 | 4.71 | 5.11 | 12.5 | 279.7 |
| 11:00 | 96 | 4.70 | 5.13 | 13.1 | 254.2 |
| 11:01 | 97 | 4.54 | 5.20 | 13.1 | 196.3 |
| 11:02 | 98 | 4.70 | 5.10 | 12.9 | 215.8 |
| 11:03 | 99 | 4.82 | 5.04 | 12.8 | 230.3 |
| 11:04 | 100 | 4.82 | 5.05 | 12.7 | 232.0 |
| 11:05 | 101 | 4.83 | 5.06 | 12.8 | 228.8 |
| 11:06 | 102 | 4.84 | 5.06 | 12.7 | 235.3 |
| 11:07 | 103 | 4.84 | 5.07 | 12.7 | 223.2 |
| 11:08 | 104 | 4.81 | 5.08 | 12.5 | 209.2 |
| 11:09 | 105 | 4.70 | 5.16 | 12.8 | 174.0 |
| 11:10 | 106 | 4.60 | 5.22 | 12.6 | 135.9 |
| 11:11 | 107 | 4.62 | 5.23 | 12.8 | 126.1 |
| 11:12 | 108 | 4.62 | 5.20 | 12.8 | 138.3 |
| 11:13 | 109 | 4.65 | 5.17 | 12.9 | 138.6 |
| 11:14 | 110 | 4.70 | 5.11 | 12.8 | 165.7 |
| 11:15 | 111 | 4.79 | 5.05 | 12.9 | 194.4 |
| 11:16 | 112 | 4.77 | 5.06 | 12.4 | 200.3 |
| 11:17 | 113 | 4.77 | 5.08 | 12.8 | 203.1 |
| 11:18 | 114 | 4.74 | 5.12 | 12.8 | 196.6 |
| 11:19 | 115 | 4.63 | 5.20 | 12.9 | 170.3 |
| 11:20 | 116 | 4.63 | 5.20 | 13.1 | 155.5 |
| 11:21 | 117 | 4.60 | 5.21 | 13.0 | 135.9 |
| 11:22 | 118 | 4.48 | 5.28 | 13.1 | 97.4 |
| 11:23 | 119 | 4.49 | 5.27 | 13.1 | 103.5 |
| 11:24 | 120 | 4.50 | 5.26 | 13.2 | 103.0 |
| 11:25 | 121 | 4.53 | 5.26 | 13.4 | 119.9 |
| 11:26 | 122 | 4.64 | 5.21 | 13.3 | 161.8 |
| 11:27 | 123 | 4.71 | 5.18 | 13.1 | 213.2 |
| 11:28 | 124 | 4.73 | 5.17 | 13.3 | 222.2 |
| 11:29 | 125 | 4.73 | 5.14 | 13.2 | 214.8 |
| 11:30 | 126 | 4.80 | 5.10 | 13.1 | 230.7 |
| 11:31 | 127 | 4.79 | 5.11 | 13.2 | 214.5 |
| 11:32 | 128 | 4.79 | 5.11 | 13.1 | 209.0 |
| 11:33 | 129 | 4.77 | 5.12 | 13.2 | 191.7 |
| 11:34 | 130 | 4.58 | 5.22 | 13.5 | 136.0 |
| 11:35 | 131 | 4.55 | 5.22 | 13.7 | 115.3 |
| 11:36 | 132 | 4.54 | 5.24 | 13.8 | 92.8 |
| 11:37 | 133 | 4.48 | 5.25 | 13.7 | 84.0 |
| 11:38 | 134 | 4.54 | 5.20 | 13.3 | 111.5 |
| 11:39 | 135 | 4.63 | 5.15 | 13.2 | 173.7 |
| 11:40 | 136 | 4.69 | 5.12 | 13.3 | 221.3 |
| 11:41 | 137 | 4.76 | 5.06 | 13.0 | 244.2 |
| 11:42 | 138 | 4.80 | 5.02 | 13.1 | 248.9 |
| 11:43 | 139 | 4.72 | 5.06 | 13.3 | 205.2 |
| 11:44 | 140 | 4.72 | 5.05 | 13.2 | 203.8 |
| 11:45 | 141 | 4.62 | 5.14 | 13.4 | 168.7 |
| 11:46 | 142 | 4.58 | 5.16 | 13.7 | 153.5 |
| 11:47 | 143 | 4.67 | 5.07 | 13.8 | 159.3 |
| 11:48 | 144 | 4.69 | 5.05 | 13.5 | 162.4 |
| 11:49 | 145 | 4.71 | 5.06 | 13.5 | 173.5 |
| 11:50 | 146 | 4.69 | 5.15 | 13.3 | 169.1 |
| 11:51 | 147 | 4.55 | 5.27 | 13.7 | 118.9 |
| 11:52 | 148 | 4.37 | 5.36 | 13.8 | 74.4 |
| 11:53 | 149 | 4.35 | 5.34 | 13.6 | 64.8 |
| 11:54 | 150 | 4.24 | 5.38 | 13.5 | 55.0 |
| 11:55 | 151 | 4.34 | 5.30 | 13.4 | 90.5 |
| 11:56 | 152 | 4.49 | 5.19 | 13.4 | 150.4 |
| 11:57 | 153 | 4.54 | 5.16 | 13.4 | 200.4 |
| 11:58 | 154 | 4.64 | 5.11 | 13.4 | 257.6 |
| 11:59 | 155 | 4.72 | 5.06 | 13.4 | 298.0 |
| 12:00 | 156 | 4.80 | 5.03 | 13.4 | 288.3 |
| 12:01 | 157 | 4.79 | 5.03 | 13.4 | 278.4 |
| 12:02 | 158 | 4.75 | 5.05 | 13.4 | 258.1 |
| 12:03 | 159 | 4.72 | 5.07 | 13.3 | 242.9 |
| 12:04 | 160 | 4.62 | 5.11 | 13.4 | 197.1 |
| 12:05 | 161 | 4.50 | 5.18 | 13.4 | 168.4 |
| 12:06 | 162 | 4.46 | 5.23 | 13.5 | 158.3 |
| 12:07 | 163 | 4.53 | 5.22 | 13.5 | 181.6 |
| 12:08 | 164 | 4.56 | 5.20 | 13.5 | 190.9 |
| 12:09 | 165 | 4.58 | 5.21 | 13.7 | 190.1 |
| 12:10 | 166 | 4.66 | 5.14 | 13.8 | 216.7 |
| 12:11 | 167 | 4.71 | 5.09 | 13.9 | 211.0 |
| 12:12 | 168 | 4.68 | 5.10 | 14.1 | 203.8 |
| 12:13 | 169 | 4.66 | 5.12 | 13.8 | 201.1 |
| 12:14 | 170 | 4.61 | 5.14 | 13.9 | 196.1 |
| 12:15 | 171 | 4.52 | 5.20 | 13.8 | 172.8 |
| 12:16 | 172 | 4.54 | 5.19 | 13.8 | 181.8 |
| 12:17 | 173 | 4.56 | 5.18 | 13.7 | 175.3 |
| 12:18 | 174 | 4.57 | 5.18 | 13.6 | 176.8 |
| 12:19 | 175 | 4.68 | 5.10 | 13.5 | 203.1 |
| 12:20 | 176 | 4.68 | 5.10 | 13.9 | 182.7 |
| 12:21 | 177 | 4.60 | 5.12 | 14.1 | 155.5 |
| 12:22 | 178 | 4.52 | 5.18 | 13.9 | 149.8 |
| 12:23 | 179 | 4.53 | 5.18 | 14.0 | 157.9 |
| 12:24 | 180 | 4.52 | 5.20 | 13.6 | 168.1 |
| | **Uncorrected Average =** | **4.593** | **5.218** | **12.90** | **179.61** |

**ARI ENVIRONMENTAL, INC.**
**MOISTURE CALCULATION SUMMARY**

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**TEST DATE:** 4/22/2009
**RUN NUMBER:** SRU3-3

| | | | |
|---|---|---|---|
| **γ FACTOR:** | 0.998 | **STACK DIAM:** | 42.0 **inches** |
| **BAROMETRIC:** | 29.78 **in. Hg** | **METER VOLUME:** | 125.067 **$ft^3$** |
| **STATIC PRES:** | 0.60 **in.$H_2O$** | **METER TEMP:** | 96.8 **°F** |
| **STACK TEMP:** | 606.1 **°F** | **LIQUID COLL:** | 319.8 **milliliters** |
| **SQ.RT ΔP:** | 1.5477 **in.$H_2O$** | **$CO_2$:** | 5.04 **% by volume** |
| **ΔH:** | 1.40 **in.$H_2O$** | **$O_2$:** | 4.64 **% by volume** |

**ENGLISH UNITS**
**(29.92 in.Hg & °F)**

**VOLUME OF SAMPLE**
**@ STANDARD CONDITIONS, DRY BASIS**

$$V_{mstd} = \left(\frac{528}{29.92}\right) \times V_m \times \gamma \left[\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m}\right] = 118.214 \text{ dscf}$$

$\gamma$ = 0.998

**VOLUME OF WATER IN SAMPLE**
**@ STANDARD CONDITIONS**

$$V_{wstd} = 0.04707 \times V_{lc} = 15.053 \text{ scf}$$

$V_{lc}$ = 319.8 mL

**FRACTIONAL MOISTURE CONTENT OF STACK GAS AS MEASURED**

$$B_{ws} = \frac{V_{wstd}}{V_{wstd} + V_{mstd}} = 0.1130$$

**FRACTIONAL MOISTURE CONTENT OF STACK GAS @ SATURATION**

$$MF = \frac{\left(10^{\left[8.361 - \left(\frac{1893.5}{T - 27.65}\right)\right]}\right) - 0.5}{P} = 1.000$$

T = 591.9 °K
P = 757.5 mmHg

**FRACTIONAL MOISTURE CONTENT USED IN CALCULATIONS**

$B_{ws}$ = 0.1130

**ARI ENVIRONMENTAL, INC.**
**FLOW RATE CALCULATION SUMMARY**

**COMPANY:** Valero Refining - Texas
**LOCATION:** Corpus Christi, TX
**RUN NUMBER:** SRU3-3
**SOURCE:** SRU No. 3 TGI Exhaust
**TEST DATE:** 4/22/2009

| | | | |
|---|---|---|---|
| **BAROMETRIC:** | 29.78 **in. Hg** | **STACK DIAM:** | 42.0 **inches** |
| **STATIC PRES:** | 0.6 **in.$H_2O$** | **$CO_2$:** | 5.04 **% by volume** |
| **STACK TEMP:** | 606.1 **°F** | **$O_2$:** | 4.64 **% by volume** |
| **SQ.RT ΔP:** | 1.5477 **in.$H_2O$** | | |

| | | | |
|---|---|---|---|
| **DRY MOLECULAR WEIGHT OF STACK GAS** | | | |
| $M_d = 0.44(\%CO_2) + 0.32(\%O_2) + 0.28(\%N_2 + \%CO)$ | = | 28.99 | **lb/lb-mole** |
| **MOLECULAR WEIGHT OF STACK GAS, wet basis** | | | |
| $M_s = M_d(1 - B_{ws}) + 18B_{ws}$ | = | 27.75 | **lb/lb-mole** |
| **PITOT TUBE COEFFICIENT** | | | |
| $C_p$ (from calibration curve or geometric specifications) | = | 0.84 | |
| **AVERAGE VELOCITY HEAD OF STACK GAS, in. $H_2O$** | | | |
| $\overline{\sqrt{\Delta P}} = \frac{1}{n}\sum_{i=1}^{n}\sqrt{\Delta p}$ | = | 1.5477 | **in. $H_2O$** |
| **AVERAGE ABSOLUTE STACK GAS TEMPERATURE** | | | |
| $T_s =$ 606.1 °F + 460 | = | 1,066.1 | **°R** |
| **ABSOLUTE STACK GAS PRESSURE** | | | |
| $P_s = P_{bar} + \frac{P_{static}}{13.6}$ | = | 29.82 | **in.Hg** |
| **STACK GAS VELOCITY** | | | |
| $V_s = (85.49)(C_p)(\text{avg}\sqrt{\Delta P})\sqrt{\frac{T_s}{(P_s)(M_s)}}$ | = | 126.142 | **ft/sec** |
| **STACK GAS VOLUMETRIC FLOW RATE, actual** | | | |
| $Q_s = 60 \times V_s \times A_s$ | = | 72,817 | **acfm** |
| Stack Area = 9.6211 $ft^2$ | | | |
| **STACK GAS VOLUMETRIC FLOW RATE, standard conditions, wet basis** | | | |
| $Q_{stdw} = \left(\frac{528}{29.92}\right)(Q_s)\left(\frac{P_s}{T_s}\right)$ | = | 35,948.2<br>2,156,895 | **scfm, wb**<br>**scfh, wb** |
| **STACK GAS VOLUMETRIC FLOW RATE, standard conditions, dry basis** | | | |
| $Q_{std} = \left(\frac{528}{29.92}\right)(Q_s)\left(\frac{P_s}{T_s}\right)(1 - B_{ws})$ | = | 31,887.8<br>1,913,266 | **dscfm**<br>**dscfh** |

ARI ENVIRONMENTAL, INC.
TOTAL PARTICULATE CALCULATION SUMMARY

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**TEST DATE:** 4/22/2009
**RUN NUMBER:** SRU3-3

**INPUT**

| | | | | | |
|---|---|---|---|---|---|
| $V_m$: | 125.067 | $ft^3$ | $Q_s$: | 31,888 | dscfm |
| γ FACTOR: | 0.998 | | $T_s$: | 606.1 | °F |
| $P_{bar}$: | 29.78 | in.Hg | Runtime: | 180 | minutes |
| ΔH: | 1.4 | $in.H_2O$ | $V_s$: | 126.142 | ft/sec |
| $T_m$: | 96.8 | °F | $P_s$: | 29.82 | in.Hg |
| $V_{lc}$: | 319.8 | mL | Noz. diam: | 0.188 | inches |
| $M_n$ front: | 25.70 | mg | | | |
| $M_n$ back: | 71.90 | mg | | | |

**ENGLISH UNITS**
**(29.92 in.Hg & 68 °F)**

**VOLUME OF SAMPLE @ STANDARD CONDITIONS, DRY BASIS**

$$V_{mstd} = \left(\frac{528}{29.92}\right) \times V_m \times \gamma \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m}\right)$$

= 118.214 **dscf**

γ = 0.998

**VOLUME OF WATER IN SAMPLE @ STANDARD CONDITIONS**

$$V_{wstd} = 0.04707 \times V_{lc}$$

= 15.053 **scf**

**FRACTIONAL MOISTURE CONTENT OF STACK GAS**

$$B_{ws} = \frac{V_{wstd}}{V_{wstd} + V_{mstd}} \times 100$$

= 11.30 **%**

**PARTICULATE CONCENTRATION IN STACK GAS ON A DRY BASIS**

$$C_s = (0.01543)\left(\frac{M_n}{V_{mstd}}\right)$$

| | | | |
|---|---|---|---|
| Front | = | 0.0033545 | **gr/dscf** |
| Back | = | 0.0093848 | **gr/dscf** |
| Total | = | 0.0127393 | **gr/dscf** |

$$C_s' = \left(2.205 \times 10^{-6}\right)\left(\frac{M_n}{V_{mstd}}\right)$$

| | | | |
|---|---|---|---|
| C's Front | = | 0.47937 | **x $10^{-6}$ lbs/dscf** |
| C's Back | = | 1.34112 | **x $10^{-6}$ lbs/dscf** |
| C's Total | = | 1.82049 | **x $10^{-6}$ lbs/dscf** |

**EMISSION RATE**

$$pmr = \left(\frac{C_s}{7000}\right)(Q_{std})(60)$$

| | | | |
|---|---|---|---|
| Front | = | 0.91687 | **lbs/hr** |
| Back | = | 2.56509 | **lbs/hr** |
| Total | = | 3.48196 | **lbs/hr** |

**ISOKINETIC SAMPLING RATE**

$$\%ISO = \frac{(100)(T_s)\left[(0.002669 \times V_{lc}) + \left(\frac{V_m}{T_m}\right)(\gamma)\left(P_{bar} + \left(\frac{\Delta H}{13.6}\right)\right)\right]}{(60)(\theta)(V_s)(P_s)(A_n)}$$

= 102.80 **% I**

$A_n$ = 0.00019277 $ft^2$ Runtime = 180 minutes

# $NO_x$ CALCULATION DATA SHEET
# USEPA METHOD 7E

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** California Analytical Instruments Model 600
**RUN NO:** SRU3-3
**TEST DATE:** 4/22/2009

## INPUT

$NO_x$ AVERAGE READING (C): 13.2 ppmv

STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): 1,913,266 dscfh

## CALCULATIONS

### STACK $NO_x$ CONCENTRATION

$NO_x$ CONC.(lbs/dscf) =

$$C_{gas,lb/dscf} = (C_{gas,ppm})\left(\frac{46 lb/lb-mole}{385.26\times10^6 ft^3/lb-mole}\right) = 1.5819 \times 10^{-6} \text{ lbs/dscf}$$

### $NO_x$ EMISSION RATE:

STACK GAS VOLUMETRIC FLOW RATE = 1,913,266 dscfh

STACK $NO_x$ EMISSION RATE =

$$NO_{xpmr} = (C_{gas,lb/dscf})(Q_{std}) = 3.0266 \text{ lbs/hr} = 13.256 \text{ ton/yr}$$

# CO CALCULATION DATA SHEET
# USEPA METHOD 10

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** Thermo Environmental Model 48i
**RUN NO:** SRU3-3
**TEST DATE:** 4/22/2009

## INPUT

CO AVERAGE READING (C): 180.7 ppmv

STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): 1,913,266 dscfh

## CALCULATIONS

### STACK CO CONCENTRATION

CO CONC.(lbs/dscf) =

$$C_{gas,lb/dscf} = (C_{gas,ppm})\left(\frac{28 lb/lb-mole}{385.26 \times 10^6 ft^3/lb-mole}\right) = 13.1320 \times 10^{-6} \text{ lbs/dscf}$$

### CO EMISSION RATE:

STACK GAS VOLUMETRIC FLOW RATE = 1,913,266 dscfh

STACK CO EMISSION RATE =

$$CO_{pmr} = (C_{gas,lb/dscf})(Q_{std}) = 25.1249 \text{ lbs/hr} = 110.047 \text{ ton/yr}$$

# CARBONYL SULFIDE EMISSION RATE CALCULATION SHEET
# USEPA METHOD 15

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** SRI-9300B: GC-FPD
**RUN NO:** SRU3-3
**TEST DATE:** 4/22/2009

## INPUT

| | | |
|---|---|---|
| COS CONCENTRATION (C): | < 0.54 | ppmv |
| STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): | 1,913,266 | dscfh |

## CALCULATIONS

STACK COS AVERAGE CHART READING = < 0.54 ppmv

**COS CONCENTRATION (lbs/dscf) =**

$$C_{gas,lb/dscf} = (C_{gas,ppm})\left(\frac{60.07 lb/lb-mole}{385.26 \times 10^{-6} ft^3/lb-mole}\right)$$

= < 0.084 x $10^{-6}$ lbs/dscf

## COS EMISSION RATE:

STACK GAS VOLUMETRIC FLOW RATE = 1,913,266 dscfh

STACK COS EMISSION RATE =

$$COS_{pmr} = (C_{gas,lb/dscf})(Q_{std})$$

= < 0.1611 lbs/hr
= < 0.706 ton/yr

# CARBON DISULFIDE EMISSION RATE CALCULATION SHEET
# USEPA METHOD 15

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** SRI-9300B: GC-FPD
**RUN NO:** SRU3-3
**TEST DATE:** 4/22/2009

## INPUT

| | | |
|---|---|---|
| $CS_2$ CONCENTRATION (C): | < 0.86 | ppmv |
| STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): | 1,913,266 | dscfh |

## CALCULATIONS

STACK $CS_2$ AVERAGE CHART READING = < 0.86 ppmv

**$CS_2$ CONCENTRATION (lbs/dscf) =**

$$C_{gas,lb/dscf} = \left(C_{gas,ppm}\right)\left(\frac{76.1 lb/lb-mole}{385.26 \times 10^{-6} ft^3/lb-mole}\right)$$

= < 0.170 x $10^{-6}$ lbs/dscf

## $CS_2$ EMISSION RATE:

STACK GAS VOLUMETRIC FLOW RATE = 1,913,266 dscfh

STACK $CS_2$ EMISSION RATE =

$$CS_{2pmr} = \left(C_{gas,lb/dscf}\right)\left(Q_{std}\right)$$

= < 0.3250 lbs/hr
= < 1.424 ton/yr

# HYDROGEN SULFIDE CALIBRATION CORRECTION DATA SHEET
# USEPA METHOD 15

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** SRI-9300B: GC-FPD
**RUN NO:** SRU3-3
**TEST DATE:** 4/22/2009

## INPUT

| | | |
|---|---|---|
| $H_2S$ CONCENTRATION (C): | < 0.65 | ppmv |
| STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): | 1,913,266 | dscfh |

## CALCULATIONS

STACK $H_2S$ AVERAGE CHART READING = < 0.65 ppmv

**$H_2S$ CONCENTRATION (lbs/dscf) =**

$$C_{gas,lb/dscf} = (C_{gas,ppm})\left(\frac{34.08 lb/lb-mole}{385.26 \times 10^{-6} ft^3/lb-mole}\right)$$

= < 0.057 x $10^{-6}$ lbs/dscf

## $H_2S$ EMISSION RATE:

STACK GAS VOLUMETRIC FLOW RATE = 1,913,266 dscfh

STACK $H_2S$ EMISSION RATE =

$$H_2S_{pmr} = (C_{gas,lb/dscf})(Q_{std})$$

= < 0.1100 lbs/hr
= < 0.482 ton/yr

# RSC as $H_2S$ EMISSION RATE CALCULATION SHEET
# USEPA METHOD 15

**COMPANY:** Valero Refining - Texas, L.P.
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**MONITOR ID:** SRI-9300B: GC-FPD
**RUN NO:** SRU3-3
**TEST DATE:** 4/22/2009

## INPUT

| | | |
|---|---|---|
| COS CONCENTRATION (C): | < 0.54 | ppmv |
| $CS_2$ CONCENTRATION (C): | < 0.86 | ppmv |
| $H_2S$ CONCENTRATION (C): | < 0.65 | ppmv |
| STACK GAS VOLUMETRIC FLOW RATE ($Q_{std}$): | 1,913,266 | dscfh |
| STACK OXYGEN CONTENT ($\%O_2$): | 4.64 | % |

## CALCULATIONS

AVERAGE STACK RSC as $H_2S$ = < 2.91 ppmv

**AVERAGE STACK RSC as $H_2S$ @ 3% $O_2$**

$$C_{gas,ppm@3\%O_2} = (C_{gas,ppm})\left(\frac{17.9}{20.9 - \%O_2}\right)$$

= < 3.17 ppmv @ 3% $O_2$

**RSC as $H_2S$ CONCENTRATION (lbs/dscf) =**

$$C_{gas,lb/dscf} = (C_{gas,ppm})\left(\frac{34.08 lb/lb-mole}{385.26\times10^{-6} ft^3/lb-mole}\right)$$

= < 0.257 x $10^{-6}$ lbs/dscf

**RSC as $H_2S$ EMISSION RATE:**

STACK GAS VOLUMETRIC FLOW RATE = 1,913,266 dscfh

STACK RSC as $H_2S$ EMISSION RATE =

$$RSC_{pmr} = (C_{gas,lb/dscf})(Q_{std})$$

= < 0.4925 lbs/hr
= < 2.157 ton/yr

# APPENDIX B

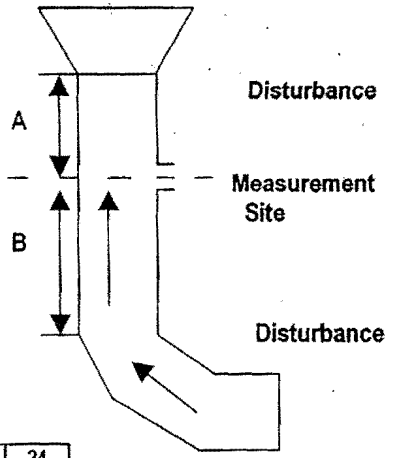
# Field Data

# TRAVERSE POINT LOCATION FOR CIRCULAR AND RECTANGULAR DUCTS

PLANT Valero
DATE 4-20-09
SAMPLING LOCATION SRU #3
INSIDE OF FAR WALL TO
OUTSIDE OF PORT (DISTANCE C) 55'
INSIDE OF NEAR WALL TO
OUTSIDE OF PORT (DISTANCE D) 13'
STACK ID 42
NEAREST UPSTREAM FROM DISTURBANCE (A) 75'
NEAREST DOWNSTREAM FROM DISTURBANCE (B) 84'
CALCULATOR JF, MB

Location of Traverse Points in Rectangular Stacks

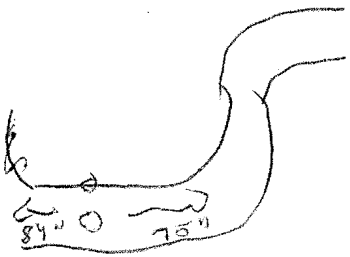
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 25.0 | 16.7 | 12.5 | 10.0 | 8.3 | 7.1 | 6.3 | 5.6 | 5.0 | 4.5 | 4.2 |
| 2 | 75.0 | 50.0 | 37.5 | 30.0 | 25.0 | 21.4 | 18.8 | 16.7 | 15.0 | 13.6 | 12.5 |
| 3 | | 83.3 | 62.5 | 50.0 | 41.7 | 35.7 | 31.3 | 27.8 | 25.0 | 22.7 | 20.8 |
| 4 | | | 87.5 | 70.0 | 58.3 | 50.0 | 43.8 | 38.9 | 35.0 | 31.8 | 29.2 |
| 5 | | | | 90.0 | 75.0 | 64.3 | 56.3 | 50.0 | 45.0 | 40.9 | 37.5 |
| 6 | | | | | 91.7 | 78.6 | 68.8 | 61.1 | 55.0 | 50.0 | 45.8 |
| 7 | | | | | | 92.9 | 81.3 | 72.2 | 65.0 | 59.1 | 54.2 |
| 8 | | | | | | | 93.8 | 83.3 | 75.0 | 68.2 | 62.5 |
| 9 | | | | | | | | 94.4 | 85.0 | 77.3 | 70.8 |
| 10 | | | | | | | | | 95.0 | 86.4 | 79.2 |
| 11 | | | | | | | | | | 95.5 | 87.5 |
| 12 | | | | | | | | | | | 95.8 |



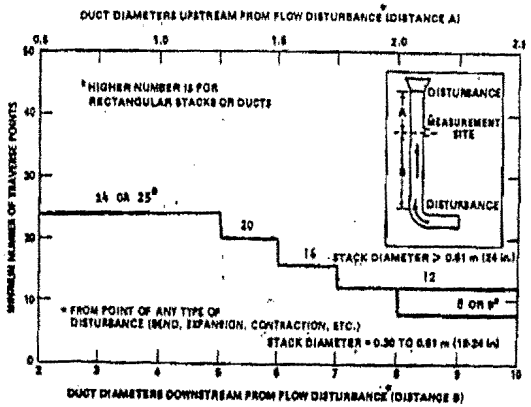

Rectangular Duct Equivalent Diameter Determination $\frac{2 \times L \times W}{L + W}$

LOCATION OF TRAVERSE POINTS ON CIRCULAR STACKS

| | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.7 | 4.4 | 3.2 | 2.6 | 2.1 | 1.8 | 1.6 | 1.4 | 1.3 | 1.1 | 1.1 |
| 2 | 25.0 | 14.6 | 10.5 | 8.2 | 6.7 | 5.7 | 4.9 | 4.4 | 3.9 | 3.5 | 3.2 |
| 3 | 75.0 | 29.6 | 19.4 | 14.6 | 11.8 | 9.9 | 8.5 | 7.5 | 6.7 | 6.0 | 5.5 |
| 4 | 93.3 | 70.4 | 32.3 | 22.6 | 17.7 | 14.6 | 12.5 | 10.9 | 9.7 | 8.7 | 7.9 |
| 5 | | 85.4 | 67.7 | 34.2 | 25.0 | 20.1 | 16.9 | 14.6 | 12.9 | 11.6 | 10.5 |
| 6 | | 95.6 | 80.6 | 65.8 | 35.6 | 26.9 | 22.0 | 18.8 | 16.5 | 14.6 | 13.2 |
| 7 | | | 89.5 | 77.4 | 64.4 | 36.6 | 28.3 | 23.6 | 20.4 | 18.0 | 16.1 |
| 8 | | | 96.8 | 85.4 | 75.0 | 63.4 | 37.5 | 29.6 | 25.0 | 21.8 | 19.4 |
| 9 | | | | 91.8 | 82.3 | 73.1 | 62.5 | 38.2 | 30.6 | 26.2 | 23.0 |
| 10 | | | | 97.4 | 88.2 | 79.9 | 71.7 | 61.8 | 38.8 | 31.5 | 27.2 |
| 11 | | | | | 93.3 | 85.4 | 78.0 | 70.4 | 61.2 | 39.3 | 32.3 |
| 12 | | | | | 97.9 | 90.1 | 83.1 | 76.4 | 69.4 | 60.7 | 39.8 |
| 13 | | | | | | 94.3 | 87.5 | 81.2 | 75.0 | 68.5 | 60.2 |
| 14 | | | | | | 98.2 | 91.5 | 85.4 | 79.6 | 73.8 | 67.7 |
| 15 | | | | | | | 95.1 | 89.1 | 83.5 | 78.2 | 72.8 |
| 16 | | | | | | | 98.4 | 92.5 | 87.1 | 82.0 | 77.0 |
| 17 | | | | | | | | 95.6 | 90.3 | 85.4 | 80.6 |
| 18 | | | | | | | | 98.6 | 93.3 | 88.4 | 83.9 |
| 19 | | | | | | | | | 96.1 | 91.3 | 86.8 |
| 20 | | | | | | | | | 98.7 | 94.0 | 89.5 |
| 21 | | | | | | | | | | 96.5 | 92.1 |
| 22 | | | | | | | | | | 98.9 | 94.5 |
| 23 | | | | | | | | | | | 96.8 |
| 24 | | | | | | | | | | | 98.9 |




| TRAVERSE POINT NUMBER | FRACTION OF STACK I.D. | STACK I.D. | PRODUCT OF COLUMNS 1 AND 2 (TO NEAREST1/8 INCH) | DISTANCE D (PORT DEPTH) | TRAVERSE POINT LOCATION FROM OUTSIDE OF PORT(SUM OF COLUMNS 3 AND 4) |
|---|---|---|---|---|---|
| 1 | 0.021 | 42 | 0.88 | 13 | 13.88 |
| 2 | 0.067 | 1 | 2.81 | 1 | 15.81 |
| 3 | 0.118 | | 4.96 | | 17.96 |
| 4 | 0.177 | | 7.43 | | 20.43 |
| 5 | 0.250 | | 10.50 | | 23.50 |
| 6 | 0.356 | | 14.95 | | 27.95 |
| 7 | 0.501 | | 27.05 | | 40.05 |
| 8 | 0.750 | | 31.50 | | 44.50 |
| 9 | 0.823 | | 34.57 | | 47.57 |
| 10 | 0.894 | | 37.54 | | 50.04 |
| 11 | 0.933 | | 39.19 | | 52.19 |
| 12 | 0.979 | | 41.12 | | 54.12 |
| 13 | | | CEMS | | |
| 14 | | | | | |
| 15 | 0.167 | 42 | 7.01 | 13 | 20.01 |
| 16 | 0.500 | | 21.00 | | 34.00 |
| 17 | 0.833 | | 34.99 | | 47.99 |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |



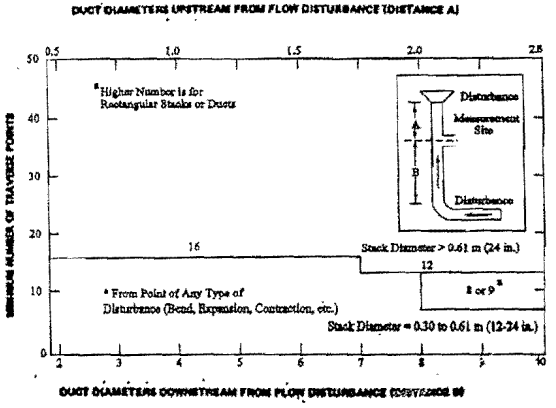




Figure 1-2. Minimum number of traverse points for velocity (nonparticulate) traverses.

# VELOCITY TRAVERSE AND CYCLONIC FLOW VERIFICATION

PLANT Valero Corpus
DATE 4-21-09
LOCATION Corpus Christi, TX
SOURCE SRU #3
STACK ID 42"
PROBE # / TC # 25
BAROMETRIC PRESSURE, in. Hg 30.00
OPERATORS MB, JG

SCHEMATIC OF TRAVERSE POINT LAYOUT

RUN NO. Prelim STATIC, in.H2O _____

| TRAVERSE POINT NUMBER | VELOCITY HEAD (ΔPs), in.H2O | STACK TEMP. (Ts), °F | YAW ANGLE ° |
|---|---|---|---|
| 1 | 1.8 | 593 | |
| 2 | 1.9 | 593 | |
| 3 | 2.0 | 594 | |
| 4 | 2.1 | 595 | |
| 5 | 2.0 | 595 | |
| 6 | 2.0 | 595 | |
| 7 | 2.0 | 595 | |
| 8 | 2.0 | 595 | |
| 9 | 2.1 | 596 | |
| 10 | 2.0 | 596 | |
| 11 | 2.1 | 595 | |
| 12 | 2.0 | 594 | |
| AVERAGE | | 594.7 | |

RUN NO. Cyclonic ✓ STATIC, in.H2O _____

| TRAVERSE POINT NUMBER | VELOCITY HEAD (ΔPs), in.H2O | STACK TEMP. (Ts), °F | YAW ANGLE ° |
|---|---|---|---|
| 1 | | | 2 |
| 2 | | | 6 |
| 3 | | | 6 |
| 4 | | | 2 |
| 5 | | | 4 |
| 6 | | | 1 |
| 7 | | | 2 |
| 8 | | | 3 |
| 9 | | | 2 |
| 10 | | | 3 |
| 11 | | | 5 |
| 12 | | | 6 |
| AVERAGE | | | |

 ΔP = 2.0

# ARI REFERENCE METHOD CEMS DATA
# USEPA METHOD 205
# DILUTION SYSTEM VERIFICATION

**Company:** VALERO
**Location:** CORPUS CHRISTI, TX
**Dilution System ID:** 3600
**Dilution Flow Rate:** 7.0 LPM
**Verification date:** 4-20-09

**Analyzer Info**

**Monitor type:** SERVOMEX 1440 $O_2$
**Monitor range:** 18.00%
**Monitor Serial No.:** 01440D1/4143

## Initial Calibration Data

| | Calibration Concentration | Calibration results | Time |
|---|---|---|---|
| Zero: | 0.00 | 0.02 | 1812 |
| Low: | | | |
| Mid: | 9.00 | 9.06 | 1820 |
| High: | 18.00 | 18.03 | 1817 |

## Dilution System Verification

Mid level gas type: USEPA Protocol 1
Mid level concentration: 7.54
Mid level tank serial #: AAL8051

High level dilution gas type: USEPA Protocol 1
High level concentration: 22.00%
High level tank serial #: ALM035230
Target concentration No. 1: 4.50
Target concentration No. 2: 13.50

## Dilution System Results

| | Target Concentration No. 1 | | Target Concentration No. 2 | |
|---|---|---|---|---|
| | Instrument Response | Time | Instrument Response | Time |
| Trial No. 1: | 4.53 | 1822 | 13.54 | 1825 |
| Trial No. 2: | 4.48 | 1832 | 13.53 | 1834 |
| Trial No. 3: | 4.49 | 1839 | 13.53 | 1842 |
| Average: | | | | |

% Difference from target concentration: _____ % Difference from target concentration: _____

## Mid Level Calibration Gas Results

| | Instrument Response | Time |
|---|---|---|
| Trial No. 1: | 7.56 | 1830 |
| Trial No. 2: | 7.56 | 1837 |
| Trial No. 3: | 7.56 | 1844 |

# CEMS CALIBRATION DATA

| | |
|---|---|
| Plant Name | Valero Refining - Texas, L.P. |
| Sampling Location | SRU No. 3 TGI Exhaust |
| Date | 4-21-09 |
| Run Number | SRU3-1 |
| Start Time | 1322 |
| Stop Time | 1658 |

| | |
|---|---|
| Plant Rep. | Sam Sanders |
| Team Leader | Dan Fitzgerald |
| CEM Operator | Dan Fitzgerald |

Analyzer Span Values (% or ppm)

| | | |
|---|---|---|
| CO | ~~450~~ ~~500.0~~ | ppm |
| $CO_2$ | 9.00 | % |
| $O_2$ | 9.00 | % |
| ~~$SO_2$~~ | ~~90.0~~ | ~~ppm~~ |
| $NO_x$ | 90.0 | ppm |

TEMP. CONTROLLER = 2549°F

CHANGE OF PORTS: 1452-1528

| | CALIBRATION ERROR - 0928 hrs | | | | SYSTEM BIAS CHECK | | | | | Calibration |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Pretest: 1109 | | Posttest: 1704 hrs | | | |
| | Cylinder Value (% or ppm) | Cylinder Number | Analyzer Calibration Response | Time | System Response | Time | System Response | Time | Drift (% of Span) | Correction Factors |
| CO Zero | 0.0 | EB0014177 | 0.9 | 0946 | 1.3 | 1127 | 0.6 | 1710 | | Co= |
| CO Low | | Diluted from | | | | | | | | |
| CO Mid | 225.0 | EB0003638 | 225.3 | 1101 | 223.8 | 1137 | 223.4 | 1713 | | Cm= |
| CO High | 450.0 | 1,983 ppm | 450.3 | 1059 | | | | | | |
| $CO_2$ Zero | 0.00 | EB0014177 | 0.03 | 0931 | 0.05 | 1109 | 0.05 | 1704 | | Co= |
| $CO_2$ Low | | Diluted from | | | | | | | | |
| $CO_2$ Mid | 4.50 | ALM038208 | 4.54 | 0946 | 4.50 | 1127 | 4.65 | 1710 | | Cm= |
| $CO_2$ High | 9.00 | 23.00% | 9.01 | 0940 | | | | | | |
| $O_2$ Zero | 0.00 | EB0014177 | 0.00 | 1101 | 0.02 | 1137 | 0.05 | 1713 | | Co= |
| $O_2$ Low | | Diluted from | | | | | | | | |
| $O_2$ Mid | 4.50 | ALM035230 | 4.49 | 0931 | 4.46 | 1109 | 4.43 | 1704 | | Cm= |
| $O_2$ High | 9.00 | 22.00% | 9.02 | 0928 | | | | | | |
| $NO_x$ Zero | 0.0 | EB0014177 | 0.0 | 0931 | 0.2 | 1109 | 0.2 | 1704 | | Co= |
| $NO_x$ Low | | Diluted from | | | | | | | | |
| $NO_x$ Mid | 45.0 | ALM031560 | 44.8 | 1019 | 45.1 | 1205 | 44.6 | 1727 | | Cm= |
| $NO_x$ High | 90.0 | 2,030 ppm | 90.1 | 1017 | | | | | | |

$NO_x$ CONVERTER CHECK @ 1035

CYL # ALM018362

51.9 ppm $NO_2$ = CYL. GAS

47.4 ppm $NO_2$ = ACTUAL

92.28% CONVERSION

RESPONSE TIME CHECKS

$NO_x$ - LOW = 45 SECONDS

HIGH = 45 SEC.

CO - LOW = 90 SEC.

HIGH = 90 SEC.

$CO_2$ - LOW = 90 SEC.

HIGH = 75 SEC.

$O_2$ - LOW = 90 SEC.

HIGH = 90 SEC.

70.312 first half volume
75.190 second half

# FIELD DATA

@1452 Stop $V_m$ = 586.412
@1528 Start $V_m$ = 587.375

OK 4/22/09

| | | | | | |
|---|---|---|---|---|---|
| PLANT | Valero Corpus | AMBIENT TEMPERATURE | 70 | PROBE HEATER SETTING | 250 |
| DATE | 4-21-09 | BAROMETRIC PRESSURE | 30.00 | HEATER BOX SETTING | 250 |
| LOCATION | Corpus Christi, TX | ASSUMED MOISTURE, % | 10% | METER $H_@$ | 1.77 |
| OPERATOR | MB | PROBE LENGTH, in. | 8 | $C_p$ FACTOR | 0.84 |
| STACK NO. | SRU #3 | NOZZLE DIAMETER, in. | 0.188" | $Y_d$ FACTOR | 0.998 |
| RUN NO. | SRU3-1 | STACK DIAMETER, in. | 42" | PITOT/THERM # | 25 |
| SAMPLE BOX NO. | ACEX | MINUTES PER POINT | 7.5 | | |
| METER BOX NO. | 8901005 | NUMBER OF POINTS | 24 Total | | |
| START TIME | 1322 | NUMBER OF PORTS | 2 | | |

| WEIGHT OF PARTICULATE, mg | | |
|---|---|---|
| Filter No. | | |
| Sample | | |
| Final wt | | |
| Tare wt | | |
| Wt. gain | | |
| TOTAL | | mg |

A= B=

CROSS SECTION

| CLOCK TIME | TRAVERSE POINT NUMBER | SAMPLING TIME (Θ) min. | STATIC PRESSURE (in. $H_2O$) | STACK TEMP ($T_s$) °F | VELOCITY HEAD ($\Delta P_s$) | VELOCITY HEAD ($\sqrt{\Delta P_s}$) | PRESSURE DIFFERENTIAL ACROSS ORIFICE METER (ΔH) in. $H_2O$ ACTUAL | PRESSURE DIFFERENTIAL ACROSS ORIFICE METER (ΔH) in. $H_2O$ DESIRED | GAS SAMPLE VOLUME (Vm) $ft^3$ | GAS SAMPLE TEMP AT DRY GAS METER INLET ($T_{m_{in}}$) °F | GAS SAMPLE TEMP AT DRY GAS METER OUTLET ($T_{m_{out}}$) °F | SAMPLE BOX TEMP. °F | ~~PROBE~~ ~~COND.~~ EXIT TEMP °F | ~~SORBENT~~ ~~MODULE~~ TEMP. °F | LAST IMPINGER OUTLET TEMP. °F | PUMP VACUUM in. Hg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1322 | 12 | 0 | 0.60 | 620 | 3.3 | | 1.9 | 1.89 | 516.100 | 100 | 99 | 260 | 258 | 275 | 66 | 1 |
| | 11 | 7.5 | | 622 | 3.4 | | 2.0 | 1.95 | 522.2 | 102 | 99 | 260 | 257 | 334 | 65 | 1 |
| | 10 | 15 | | 622 | 3.3 | | 1.9 | 1.89 | 528.3 | 105 | 98 | 261 | 259 | 355 | 64 | 1 |
| | 9 | | | 622 | 3.1 | | 1.8 | 1.79 | 534.4 | 109 | 98 | 257 | 257 | 358 | 64 | 1 |
| | 8 | 30 | | 622 | 3.0 | | 1.7 | 1.74 | 540.3 | 113 | 98 | 252 | 256 | 355 | 63 | 1 |
| | 7 | | | 620 | 2.9 | | 1.7 | 1.68 | 546.2 | 116 | 99 | 251 | 255 | 352 | 62 | 1 |
| | 6 | 45 | | 621 | 3.0 | | 1.7 | 1.74 | 551.9 | 120 | 100 | 250 | 254 | 345 | 63 | 1 |
| | 5 | | | 623 | 3.0 | | 1.7 | 1.74 | 557.7 | 122 | 101 | 252 | 258 | 340 | 63 | 1 |
| | 4 | 60 | | 623 | 2.9 | | 1.7 | 1.68 | 563.5 | 124 | 102 | 251 | 259 | 333 | 64 | 1 |
| | 3 | | | 622 | 2.9 | | 1.7 | 1.68 | 569.3 | 126 | 103 | 252 | 258 | 326 | 64 | 1 |
| | 2 | 75 | | 623 | 2.9 | | 1.7 | 1.68 | 575.1 | 127 | 105 | 254 | 256 | 322 | 64 | 1 |
| | 1 | | | 622 | 2.8 | | 1.6 | 1.62 | 580.8 | 128 | 106 | 255 | 255 | 320 | 65 | 1 |
| 1452/1528 | 12 | 90 | | 621 | 3.8 | | 2.2 | 2.22 | 586.412 | 115 | 110 | 251 | 249 | 203 | 66 | 1 |
| | 11 | | | 620 | 3.6 | | 2.1 | 2.16 | start 587.375 | 120 | 112 | 254 | 258 | 268 | 65 | 1 |
| | 10 | 105 | | 619 | 3.4 | | 2.0 | 1.99 | 594.10 600.4 | 126 | 114 | 255 | 249 | 300 | 64 | 1 |
| | 9 | | | 616 | 3.5 | | 2.1 | 2.10 | 606.7 | 133 | 115 | 254 | 255 | 308 | 63 | 1 |
| | 8 | 120 | | 615 | 3.4 | | 2.0 | 2.04 | 613.2 | 133 | 116 | 251 | 254 | 315 | 63 | 1 |
| | 7 | | | 617 | 3.3 | | 2.0 | 1.98 | 619.7 | 132 | 117 | 255 | 255 | 313 | 64 | 1 |
| | 6 | 135 | | 616 | 3.2 | | 1.9 | 1.92 | 626.0 | 131 | 117 | 256 | 256 | 313 | 64 | 1 |
| | 5 | | | 615 | 3.1 | | 1.9 | 1.86 | 632.3 | 132 | 119 | 254 | 257 | 314 | 64 | 1 |
| | 4 | 150 | | 616 | 3.1 | | 1.9 | 1.86 | 638.4 | 132 | 117 | 255 | 256 | 315 | 63 | 1 |
| | 3 | | | 615 | 3.0 | | 1.8 | 1.80 | 644.5 | 132 | 117 | 260 | 257 | 314 | 64 | 1 |
| | 2 | 165 | | 614 | 3.0 | | 1.8 | 1.80 | 650.6 | 131 | 116 | 255 | 255 | 311 | 64 | 1 |
| | 1 | | | 614 | 2.9 | | 1.7 | 1.74 | 656.6 | 130 | 115 | 253 | 252 | 310 | 64 | 1 |
| 1658 | | 180 | | | | | | | 662.565 | | | | | | | Max |
| AVERAGE | 24/25 | 180 | 0.60 | 619.2 | NA | | 1.778 | 1.85 | NA | 145.502 | 1225 | 108.0 | ~250 | ~250 | | 268 | 1 |

1157

| VOLUME OR WEIGHT OF LIQUID WATER COLLECTED | IMPINGER VOLUME (ml) OR WEIGHT (g) #1 | #2 | #3 | #4 | SILICA GEL WEIGHT g |
|---|---|---|---|---|---|
| FINAL | | | | | |
| INITIAL | | | | | |
| LIQUID COLLECTED | | | | | |
| TOTAL | COLLECTED (specify ml or g) | | | | |

| ORSAT DATA | TIME | $CO_2$ | $O_2$ |
|---|---|---|---|
| TRIAL 1 | | | |
| TRIAL 2 | | | |
| TRIAL 3 | | | |
| Average | | | |

Nozzle
0.188
0.187
0.188

| LEAK CHECK | | |
|---|---|---|
| SYSTEM PRE: | 5.010 | CFM@15"Hg |
| POST: | 0.00 | CFM@15"Hg |
| PITOT PRE: | +/- ok | @ > 3"$H_2O$ |
| POST: | +/- ok | @ > 3"$H_2O$ |

B-5

# IMPINGER RECOVERY DATA SHEET

ENVIRONMENTAL INC.

| | | | |
|---|---|---|---|
| Company: | VALERO REFINING-TEXAS, LP | Date Set-up: | 4-21-09 |
| Location: | CORPUS CHRISTI, TX | Test Date: | 4-21-09 |
| Source: | SRU #3 TGI EXHAUST | Date Recovered: | 4-21-09 |
| Run No.: | SRU3-1 | USEPA Method: | 5/TCEQ 23 |
| | | Corresponding Filter Net Wgt: | 537.5 mg |
| | | Filter Container No: | 33847 |
| | | Probe Wash Cont. No: | H24609 |

Measurement Method: Weight or Volume

| Impinger No. | Impinger Contents | Initial wt/vol g/mL | Final wt/vol g/mL | Difference wt/vol g/mL | Sample Container No. |
|---|---|---|---|---|---|
| 1 | 100mL $H_2O$ | 700.9 | 938.2 | 237.3 | H24551 |
| 2 | 100mL $H_2O$ | 695.6 | 770.1 | 74.5 | H24551 |
| 3 | EMPTY | 600.2 | 612.1 | 11.9 | H24551 |
| 4 | ~300g SILICA GEL | 863.6 | 893.0 | 29.4 | N/A |
| 5 | | | TOTAL = | 353.1 | |
| 6 | | | | | |

# CEMS CALIBRATION DATA

| | |
|---|---|
| Plant Name | Valero Refining - Texas, L.P. |
| Sampling Location | SRU No. 3 TGI Exhaust |
| Date | 4-21-09 |
| Run Number | SRU3-2 |
| Start Time | 1745 |
| Stop Time | 2112 |

| | |
|---|---|
| Plant Rep. | Sam Sanders |
| Team Leader | Dan Fitzgerald |
| CEM Operator | Dan Fitzgerald |

TEMP. CONTROLLER = 275°F

CHANGE OF REGTS: 1915 - 1942

Analyzer Span Values (% or ppm)

| | | |
|---|---|---|
| CO | ~~500.0~~ 450 | ppm |
| $CO_2$ | 9.00 | % |
| $O_2$ | 9.00 | % |
| ~~$SO_2$~~ | ~~90.0~~ | ~~ppm~~ |
| $NO_x$ | 90.0 | ppm |

| | CALIBRATION ERROR - 0928 hrs | | | | SYSTEM BIAS CHECK | | | | | Calibration Correction Factors |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Pretest: 1704 | | Posttest: 2122 hrs | | | |
| | Cylinder Value (% or ppm) | Cylinder Number | Analyzer Calibration Response | Time | System Response | Time | System Response | Time | Drift (% of Span) | |
| CO Zero | 0.0 | EB0014177 | 0.9 | 0946 | 0.6 | 1710 | 0.2 | 2127 | | Co= |
| CO Low | | Diluted from | | | | | | | | |
| CO Mid | 225.0 | EB0003638 | 225.3 | 1101 | 223.4 | 1713 | 222.6 | 2131 | | Cm= |
| CO High | 450.0 | 1,983 ppm | 450.3 | 1059 | | | | | | |
| $CO_2$ Zero | 0.00 | EB0014177 | 0.03 | 0931 | 0.05 | 1704 | 0.05 | 2122 | | Co= |
| $CO_2$ Low | | Diluted from | | | | | | | | |
| $CO_2$ Mid | 4.50 | ALM038208 | 4.54 | 0946 | 4.65 | 1710 | 4.65 | 2127 | | Cm= |
| $CO_2$ High | 9.00 | 23.00% | 9.01 | 0940 | | | | | | |
| $O_2$ Zero | 0.00 | EB0014177 | 0.00 | 1101 | 0.05 | 1713 | 0.06 | 2131 | | Co= |
| $O_2$ Low | | Diluted from | | | | | | | | |
| $O_2$ Mid | 4.50 | ALM035230 | 4.49 | 0931 | 4.43 | 1704 | 4.45 | 2122 | | Cm= |
| $O_2$ High | 9.00 | 22.00% | 9.02 | 0928 | | | | | | |
| $NO_x$ Zero | 0.0 | EB0014177 | 0.0 | 0931 | 0.2 | 1704 | 0.3 | 2122 | | Co= |
| $NO_x$ Low | | Diluted from | | | | | | | | |
| $NO_x$ Mid | 45.0 | ALM031560 | 44.8 | 1019 | 44.6 | 1727 | 43.5 | 2146 | | Cm= |
| $NO_x$ High | 90.0 | 2.030 ppm | 90.1 | 1017 | | | | | | |

1915 stop: 742.08
1942 Restart: 742.33

SRU 73-2

OK 4/22/09

B-8

# FIELD DATA

| | | | | | |
|---|---|---|---|---|---|
| PLANT | Valero Corpus | AMBIENT TEMPERATURE | 80 | PROBE HEATER SETTING | 250 |
| DATE | 4-21-09 | BAROMETRIC PRESSURE | ~~29.00~~ 29.77 | HEATER BOX SETTING | 250 |
| LOCATION | Corpus Christi, TX | ASSUMED MOISTURE, % | 10% | METER $H_@$ | 1.77 |
| OPERATOR | MB | PROBE LENGTH, in. | 5' | $C_p$ FACTOR | 0.84 |
| STACK NO. | SRU #3 | NOZZLE DIAMETER, in. | 0.188" | $Y_d$ FACTOR | 0.998 |
| RUN NO. | ~~#2~~ SRU#3-2 | STACK DIAMETER, in. | 4' 11" | PITOT/THERM # | 23 |
| SAMPLE BOX NO. | APEX | MINUTES PER POINT | 7.5 | | |
| METER BOX NO. | 80 1005 | NUMBER OF POINTS | 24 Total | | |
| START TIME | 1745 | NUMBER OF PORTS | 2 | | |

| WEIGHT OF PARTICULATE, mg | | |
|---|---|---|
| Filter No. | | |
| Sample | | |
| Final wt | | |
| Tare wt | | |
| Wt. gain | | |
| TOTAL | | mg |

A= B=

CROSS SECTION

| CLOCK TIME | TRAVERSE POINT NUMBER | SAMPLING TIME (Θ) min. | STATIC PRESSURE (in. $H_2O$) | STACK TEMP ($T_s$) °F | VELOCITY HEAD ($\Delta P_s$) | VELOCITY HEAD ($\sqrt{\Delta P_s}$) | PRESSURE DIFFERENTIAL ACROSS ORIFICE METER (ΔH) in. $H_2O$ ACTUAL | PRESSURE DIFFERENTIAL ACROSS ORIFICE METER (ΔH) in. $H_2O$ DESIRED | GAS SAMPLE VOLUME (Vm) $ft^3$ | GAS SAMPLE TEMP AT DRY GAS METER INLET ($Tm_{in}$) °F | GAS SAMPLE TEMP AT DRY GAS METER OUTLET ($Tm_{out}$) °F | SAMPLE BOX TEMP. °F | ~~PROBE~~ COND. EXIT TEMP °F | ~~FILTER EXIT~~ SORBENT MODULE TEMP. °F | LAST IMPINGER OUTLET TEMP. °F | PUMP VACUUM in. Hg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1745 | 12 | 0 | 0.60 | 606 | 2.7 | | 1.6 | 1.59 | 667.700 | 110 | 110 | 251 | 254 | 253 | 63 | 1 |
| | 11 | 7.5 | | 612 | 2.9 | | 1.7 | 1.72 | 673.32 | 122 | 110 | 250 | 259 | 263 | 61 | 1 |
| | 10 | 15 | | 615 | 3.0 | | 1.8 | 1.79 | 679.19 | 126 | 110 | 253 | 261 | 265 | 62 | 1 |
| | 9 | | | 612 | 3.0 | | 1.8 | 1.79 | 685.18 | 125 | 111 | 253 | 257 | 275 | 64 | 1 |
| 1815 | 8 | 30 | | ~~627~~ 617 | 3.2 | | 1.9 | 1.90 | 691.17 | 126 | 111 | 251 | 259 | 302 | 65 | 1 |
| | 7 | | | 621 | 3.5 | | 2.1 | 2.07 | 697.41 | 126 | 111 | 250 | 258 | 312 | 66 | 1 |
| | 6 | 45 | | 620 | 3.5 | | 2.1 | 2.07 | 703.82 | 125 | 110 | 256 | 257 | 315 | 65 | 1 |
| | 5 | | | 619 | 3.7 | | 2.2 | 2.19 | 709.78 | 124 | 109 | 253 | 257 | 319 | 57 | 1 |
| 1845 | 4 | 60 | | 619 | 3.8 | | 2.2 | 2.24 | 716.33 | 124 | 107 | 250 | 257 | 322 | 50 | 1 |
| | 3 | | | 613 | 3.3 | | 2.0 | 1.96 | 722.99 | 123 | 107 | 252 | 259 | 323 | 53 | 1 |
| | 2 | 75 | | 610 | 3.3 | | 2.0 | 1.96 | 729.71 | 122 | 105 | 250 | 258 | 325 | 54 | 1 |
| | 1 | | | 612 | 3.2 | | 1.9 | 1.89 | 735.95 | 121 | 104 | 251 | 255 | 323 | 56 | 1 |
| 1915/1942 | 12 | 90 | | 605 | 2.9 | | 1.7 | 1.68 | 742.08/742.33 | 97 | 96 | 251 | 255 | 251 | 59 | 1 |
| | 11 | | | 605 | 2.8 | | 1.6 | 1.62 | 748.02 | 106 | 96 | 249 | 249 | 298 | 52 | 1 |
| | 10 | 105 | | 607 | 2.8 | | 1.6 | 1.62 | 753.61 | 111 | 96 | 251 | 252 | 332 | 51 | 1 |
| | 9 | | | 604 | 2.7 | | 1.5 | 1.59 | 759.20 | 112 | 96 | 250 | 257 | 331 | 56 | 1 |
| 2012 | 8 | 120 | | 605 | 2.5 | | 1.5 | 1.47 | 764.73 | 113 | 96 | 250 | 258 | 333 | 57 | 1 |
| | 7 | | | 606 | 2.6 | | 1.5 | 1.52 | 770.20 | 113 | 96 | 250 | ~~258~~ 258 | 330 | 58 | 1 |
| | 6 | 135 | | 608 | 2.4 | | 1.4 | 1.40 | 775.40 | 113 | 95 | 252 | 257 | 331 | 59 | 1 |
| | 5 | | | 609 | 2.5 | | 1.5 | 1.46 | 780.75 | 113 | 95 | 251 | 259 | 332 | 59 | 1 |
| 2042 | 4 | 150 | | 606 | 2.7 | | 1.6 | 1.58 | 786.24 | 113 | 95 | 250 | 255 | 330 | 61 | 1 |
| | 3 | | | 605 | 2.6 | | 1.5 | 1.52 | 791.75 | 112 | 94 | 252 | 257 | 327 | 62 | 1 |
| | 2 | 165 | | 602 | 2.4 | | 1.4 | 1.41 | 797.24 | 112 | 94 | 251 | 255 | 323 | 62 | 1 |
| | 1 | | | 600 | 2.3 | | 1.3 | 1.35 | 802.51 | 112 | 94 | | | | | |
| 2112 | | 180 | | | | | | | 807.555 | | | | | | | |
| AVERAGE | 24pts | 180min | 0.60 | 609.9 | 1.7072 | | 1.73 | | 139.605 | 109.4 | | ≥250 | ≥250 | ≥300 | <68 | Max 1 |

| VOLUME OR WEIGHT OF LIQUID WATER COLLECTED | IMPINGER VOLUME (ml) OR WEIGHT (g) #1 | #2 | #3 | #4 | SILICA GEL WEIGHT g |
|---|---|---|---|---|---|
| FINAL | | | | | |
| INITIAL | | | - | | |
| LIQUID COLLECTED | | | | | |
| TOTAL COLLECTED (specify ml or g) | | | | | |

| ORSAT DATA | TIME | $CO_2$% | $O_2$ |
|---|---|---|---|
| TRIAL 1 | | | |
| TRIAL 2 | | | |
| TRIAL 3 | | | |
| Average | | | |

| LEAK CHECK | | |
|---|---|---|
| SYSTEM PRE: | 0.001 | CFM@15"Hg |
| POST: | 0.001 | CFM@15"Hg |
| PITOT PRE: | +/- ok | @ > 3"$H_2O$ |
| POST: | +/- ok | @ > 3"$H_2O$ |

Top side Port 1 = 74.380 Port 2 = 65.225 total = 139.605

# IMPINGER RECOVERY DATA SHEET

ENVIRONMENTAL INC.

| | | | |
|---|---|---|---|
| Company: | Valero Refining-Texas, L.P. | Date Set-up: | 4-21-09 |
| Location: | Corpus Christi, TX | Test Date: | 4-21-09 |
| Source: | SRU #3 TGI Exhaust | Date Recovered: | 4-22-09 |
| Run No.: | SRU3-2 | USEPA Method: | 5 / TCEQ 23 |
| | | Corresponding Filter No: (EXT) | 540.9 |
| | | Filter Container No: | 33850 |
| | | Probe Wash Cont. #: | HZ4543 |

Measurement Method: Weight or Volume

| Impinger No. | Impinger Contents | Initial wt/vol g/mL | Final wt/vol g/mL | Difference wt/vol g/mL | Sample Container No. |
|---|---|---|---|---|---|
| 1 | 100mL $H_2O$ | 699.3 | 950.2 | 250.9 | HZ6012 |
| 2 | 100mL $H_2O$ | 685.4 | 735.3 | 49.9 | HZ6012 |
| 3 | Empty | 604.7 | 616.0 | 11.3 | HZ6012 |
| 4 | 300g Silica Gel | 388.2 | 916.8 | 28.6 | N/A |
| 5 | | | TOTAL = | 340.7 | |
| 6 | | | | | |

# CEMS CALIBRATION DATA

| | |
|---|---|
| Plant Name | Valero Refining - Texas, L.P. |
| Sampling Location | SRU No. 3 TGI Exhaust |
| Date | 4-22-09 |
| Run Number | SRU3-3 |
| Start Time | 0900 |
| Stop Time | 1224 |

| | |
|---|---|
| Plant Rep. | Sam Sanders |
| Team Leader | Dan Fitzgerald |
| CEM Operator | Dan Fitzgerald |

Analyzer Span Values (% or ppm)

| | | |
|---|---|---|
| CO | ~~450~~ ~~500.0~~ | ppm |
| $CO_2$ | 9.00 | % |
| $O_2$ | 9.00 | % |
| $SO_2$ | 90.0 | ppm |
| $NO_x$ | 90.0 | ppm |

TEMP. CONTROLLER = 275°F

CHANGE OF PORTS: 1030 - 1054

| | CALIBRATION ERROR - 0805 hrs | | | | SYSTEM BIAS CHECK | | | | | Calibration Correction Factors |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Pretest: 0843 | | Posttest: 1228 hrs | | | |
| | Cylinder Value (% or ppm) | Cylinder Number | Analyzer Calibration Response | Time | System Response | Time | System Response | Time | Drift (% of Span) | |
| CO Zero | 0.0 | EB0014177 | 0.6 | 0814 | 0.7 | 0847 | 0.6 | 1233 | | Co= |
| CO Low | | Diluted from | | | | | | | | |
| CO Mid | 225.0 | EB0003638 | 225.7 | 0821 | 223.3 | 0850 | 223.7 | 1237 | | Cm= |
| CO High | 450.0 | 1,983 ppm | 454.2 | 0817 | | | | | | |
| $CO_2$ Zero | 0.00 | EB0014177 | 0.04 | 0809 | 0.04 | 0843 | 0.05 | 1228 | | Co= |
| $CO_2$ Low | | Diluted from | | | | | | | | |
| $CO_2$ Mid | 4.50 | ALM038208 | 4.53 | 0814 | 4.66 | 0847 | 4.66 | 1233 | | Cm= |
| $CO_2$ High | 9.00 | 23.00% | 8.93 | 0812 | | | | | | |
| $O_2$ Zero | 0.00 | EB0014177 | 0.01 | 0821 | 0.05 | 0850 | 0.05 | 1237 | | Co= |
| $O_2$ Low | | Diluted from | | | | | | | | |
| $O_2$ Mid | 4.50 | ALM035230 | 4.49 | 0809 | 4.48 | 0843 | 4.44 | 1228 | | Cm= |
| $O_2$ High | 9.00 | 22.00% | 9.01 | 0805 | | | | | | |
| $NO_x$ Zero | 0.0 | EB0014177 | 0.1 | 0809 | 0.4 | 0843 | 0.2 | 1228 | | Co= |
| $NO_x$ Low | | Diluted from | | | | | | | | |
| $NO_x$ Mid | 45.0 | ALM031560 | 44.5 | 0834 | 44.2 | 0855 | 42.0 | 1245 | | Cm= |
| $NO_x$ High | 90.0 | 2,030 ppm | 89.7 | 0832 | | | | | | |

$NO_x$ CONVERTER CHECK @ 0838

CYL # ALM018362: 51.9 ppm $NO_2$

ACTUAL = 47.9 ppm as $NO_x$

92.36% CONVERSION

0900-1030 = 808.200 - 870.717
1054-1224 = 871.100 - 933.650

62.517
62.550

# FIELD DATA

OK 4/22/09

| | | | | | |
|---|---|---|---|---|---|
| PLANT | Valero Corpus | AMBIENT TEMPERATURE | 70 | PROBE HEATER SETTING | 250 |
| DATE | 4-22-09 | BAROMETRIC PRESSURE | 29.78 | HEATER BOX SETTING | 250 |
| LOCATION | Corpus Christi | ASSUMED MOISTURE, % | 10% | METER $H_@$ | 1.72 |
| OPERATOR | MB | PROBE LENGTH, in. | 5' | $C_p$ FACTOR | 0.84 |
| STACK NO. | SRU #3 | NOZZLE DIAMETER, in. | 0.188" | $Y_d$ FACTOR | 0.998 |
| RUN NO. | SRU #3 - 3 | STACK DIAMETER, in. | 42" | PITOT/THERM # | 25 |
| SAMPLE BOX NO. | APEX | MINUTES PER POINT | 7.5 | | |
| METER BOX NO. | 801005 | NUMBER OF POINTS | 24 total | | |
| START TIME | 0900 | NUMBER OF PORTS | 2 | | |

| WEIGHT OF PARTICULATE, mg | | |
|---|---|---|
| Filter No. | | |
| Sample | | |
| Final wt | | |
| Tare wt | | |
| Wt. gain | | |
| TOTAL | | mg |

A= B=

CROSS SECTION

| CLOCK TIME | TRAVERSE POINT NUMBER | SAMPLING TIME (Θ) min. | STATIC PRESSURE (in. $H_2O$) | STACK TEMP ($T_S$) °F | VELOCITY HEAD ($\Delta P_S$) | VELOCITY HEAD ($\sqrt{\Delta P_S}$) | PRESSURE DIFFERENTIAL ACROSS ORIFICE METER (ΔH) in. $H_2O$ ACTUAL | PRESSURE DIFFERENTIAL ACROSS ORIFICE METER (ΔH) in. $H_2O$ DESIRED | GAS SAMPLE VOLUME (Vm) $ft^3$ | GAS SAMPLE TEMP AT DRY GAS METER INLET ($T_{m_{in}}$) °F | GAS SAMPLE TEMP AT DRY GAS METER OUTLET ($T_{m_{out}}$) °F | SAMPLE BOX TEMP. °F | ~~PROBE~~ COND. EXIT TEMP °F | ~~SORBENT~~ MODULE TEMP. °F | LAST IMPINGER OUTLET TEMP. °F | PUMP VACUUM in. Hg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0900 | 12 | 0 | 0.60 | 605 | 2.7 | | 1.6 | 1.56 | 808.200 | 75 | 73 | 255 | 249 | 250 | 47 | 1 |
| | 11 | 7.5 | | 604 | 2.8 | | 1.6 | 1.62 | 813.7 | 84 | 74 | 255 | 255 | 320 | 44 | 1 |
| | 10 | 15 | | 605 | 2.7 | | 1.6 | 1.56 | 819.4 | 90 | 75 | 253 | 259 | 344 | 45 | 1 |
| | 9 | | | 606 | 2.5 | | 1.5 | 1.45 | 824.9 | 95 | 77 | 256 | 257 | 356 | 47 | 1 |
| | 8 | 30 | | 605 | 2.5 | | 1.5 | 1.45 | 830.2 | 98 | 79 | 260 | 256 | 358 | 50 | 1 |
| | 7 | | | 603 | 2.0 | | 1.2 | 1.16 | 835.5 | 99 | 80 | 260 | 257 | 356 | 52 | 1 |
| | 6 | 45 | | 605 | 2.4 | | 1.4 | 1.39 | 840.3 | 100 | 81 | 261 | 259 | 348 | 55 | 1 |
| | 5 | | | 606 | 2.3 | | 1.3 | 1.33 | 845.5 | 102 | 83 | 258 | 255 | 341 | 56 | 1 |
| | 4 | 60 | | 605 | 2.2 | | 1.3 | 1.27 | 850.6 | 104 | 84 | 257 | 260 | 336 | 57 | 1 |
| | 3 | | | 604 | 2.3 | | 1.3 | 1.33 | 855.6 | 105 | 85 | 259 | 258 | 331 | 58 | 1 |
| | 2 | 75 | | 608 | 2.3 | | 1.3 | 1.33 | 860.7 | 106 | 86 | 260 | 259 | 326 | 59 | 1 |
| | 1 | | | 608 | 2.1 | | 1.2 | 1.22 | 865.8 | 109 | 88 | 258 | 257 | 325 | 60 | 1 |
| 1030/1054 | 12 | 90 | | 603 | 2.1 | | 1.2 | 1.22 | 870.717/871.100 | 92 | 89 | 256 | 250 | 200 | 65 | 1 |
| | 11 | | | 604 | 2.5 | | 1.2 | 1.16 | 875.9 | 104 | 90 | 255 | 256 | 276 | 53 | 1 |
| | 10 | 105 | | 605 | 2.4 | | 1.4 | 1.39 | 880.7 | 109 | 91 | 256 | 254 | 317 | 49 | 1 |
| | 9 | | | 606 | 2.3 | | 1.3 | 1.33 | 885.9 | 113 | 92 | 250 | 253 | 327 | 48 | 1 |
| | 8 | 120 | | 610 | 2.5 | | 1.5 | 1.45 | 891.1 | 115 | 93 | 253 | 249 | 325 | 48 | 1 |
| | 7 | | | 607 | 2.4 | | 1.4 | 1.39 | 896.4 | 115 | 95 | 249 | 249 | 328 | 50 | 1 |
| | 6 | 135 | | 608 | 2.6 | | 1.5 | 1.51 | 901.6 | 118 | 96 | 254 | 251 | 332 | 51 | 1 |
| | 5 | | | 608 | 2.5 | | 1.5 | 1.45 | 907.0 | 118 | 97 | 253 | 251 | 333 | 52 | 1 |
| | 4 | 150 | | 609 | 2.6 | | 1.5 | 1.51 | 912.4 | 120 | 98 | 251 | 249 | 331 | 52 | 1 |
| | 3 | | | 607 | 2.5 | | 1.5 | 1.45 | 917.8 | 121 | 99 | 254 | 251 | 331 | 53 | 1 |
| | 2 | 165 | | 607 | 2.5 | | 1.5 | 1.45 | 923.1 | 123 | 101 | 253 | 250 | 331 | 53 | 1 |
| | 1 | | | 608 | 2.4 | | 1.4 | 1.39 | 928.4 | 124 | 102 | 249 | 248 | 329 | 54 | 1 |
| 1224 | | 180 | | | | | | | 933.650 | | | | | | | Leak |
| AVERAGE | 24/5 | 180 min | 0.60 | 606.1 | NA | 1.547 | 1.40 | NA | 125.067 | | | ~256 | ~250 | | 468 | 1 |

.968

| VOLUME OR WEIGHT OF LIQUID WATER COLLECTED | IMPINGER VOLUME (ml) OR WEIGHT (g) #1 | #2 | #3 | #4 | SILICA GEL WEIGHT g |
|---|---|---|---|---|---|
| FINAL | | | | | |
| INITIAL | | | | | |
| LIQUID COLLECTED | | | | | |
| TOTAL COLLECTED (specify ml or g) | | | | | |

| ORSAT DATA | TIME | $CO_2$ | $O_2$ |
|---|---|---|---|
| TRIAL 1 | | | |
| TRIAL 2 | | | |
| TRIAL 3 | | | |
| Average | | | |

| LEAK CHECK | | |
|---|---|---|
| SYSTEM PRE: | 0.001 | CFM@15"Hg |
| POST: | 0.021 | CFM@15"Hg |
| PITOT PRE: | +/- 0.5 | @ > 3"$H_2O$ |
| POST: | +/- 1.5 | @ > 3"$H_2O$ |

# IMPINGER RECOVERY DATA SHEET

ARI ENVIRONMENTAL INC.

| | | | |
|---|---|---|---|
| Company: | Valero Refining-Texas, LP | Date Set-up: | 4-21-09 |
| Location: | Corpus Christi, TX | Test Date: | 4-22-09 |
| Source: | SRU #3 TGI Exhaust | Date Recovered: | 4-22-09 |
| Run No.: | SRU3-3 | USEPA Method: | 5 / TCEQ 23 |
| | | Corresponding Filter Wt: | 539.4 mg |
| | | Filter Container No: | 33854 |
| | | Probe Wash Cont. #: | H26029 |

Measurement Method: Weight or Volume

| Impinger No. | Impinger Contents | Initial wt/vol g/mL | Final wt/vol g/mL | Difference wt/vol g/mL | Sample Container No. |
|---|---|---|---|---|---|
| 1 | 100mL $H_2O$ | 703.0 | 930.2 | 227.2 | H27480 |
| 2 | 100mL $H_2O$ | 698.5 | 756.0 | 57.5 | H27480 |
| 3 | Empty | 602.5 | 613.0 | 10.5 | H27480 |
| 4 | ~300g Silica Gel | 887.6 | 912.2 | 24.6 | N/A |
| 5 | | | TOTAL = | 319.8 | |
| 6 | | | | | |

# APPENDIX C

# Analytical Data

951 Old Rand Road # 106

Wauconda, IL 60084

ARI ENVIRONMENTAL ANALYTICAL REPORT

**Lab Project #: 08-82**

Valero
Corpus Christi, TX
SRU #3

**Received:** 4/28/2009
**Reported:**

**Sample ID:** Run SRU3-1 Filter
**Lab Sample #:** 0409023

**Date Sampled:** 04/21/2009
**Sampled By:** DF
**Sample Matrix:** Filter

| Analyte | Result | Units | Method | Analyst | Analysis Date |
|---|---|---|---|---|---|
| Particulate | 26.50 | mg | USEPA Method 5 | Eric Vogt | 05/06/2009 |

**Sample ID:** Run SRU3-2 Filter
**Lab Sample #:** 0409024

**Date Sampled:** 04/21/2009
**Sampled By:** DF
**Sample Matrix:** Filter

| Analyte | Result | Units | Method | Analyst | Analysis Date |
|---|---|---|---|---|---|
| Particulate | 21.50 | mg | USEPA Method 5 | Eric Vogt | 05/06/2009 |

**Sample ID:** Run SRU3-3 Filter
**Lab Sample #:** 0409025

**Date Sampled:** 04/21/2009
**Sampled By:** DF
**Sample Matrix:** Filter

| Analyte | Result | Units | Method | Analyst | Analysis Date |
|---|---|---|---|---|---|
| Particulate | 19.80 | mg | USEPA Method 5 | Eric Vogt | |

**Sample ID:** Filter Blank
**Lab Sample #:** 0409026

**Date Sampled:** 04/21/2009
**Sampled By:** DF
**Sample Matrix:** Filter

| Analyte | Result | Units | Method | Analyst | Analysis Date |
|---|---|---|---|---|---|
| Particulate | 0.45 | mg | USEPA Method 5 | Eric Vogt | 05/05/2009 |

951 Old Rand Road # 106

Wauconda, IL 60084

ARI ENVIRONMENTAL ANALYTICAL REPORT **Lab Project #: 08-82**

Valero
Corpus Christi, TX
SRU #3

**Received:** 4/28/2009
**Reported:**

**Sample ID:** Run SRU3-1 Probe Wash
**Lab Sample #:** 0409027

**Date Sampled:** 04/21/2009
**Sampled By:** DF
**Sample Matrix:** Probe Wash

| Analyte | Result | Units | Method | Analyst | Analysis Date |
|---|---|---|---|---|---|
| Particulate | 10.16 | mg | USEPA Method 5 | Eric Vogt | 05/06/2009 |

**Sample ID:** Run SRU3-2 Probe Wash
**Lab Sample #:** 0409028

**Date Sampled:** 04/21/2009
**Sampled By:** DF
**Sample Matrix:** Probe Wash

| Analyte | Result | Units | Method | Analyst | Analysis Date |
|---|---|---|---|---|---|
| Particulate | 8.36 | mg | USEPA Method 5 | Eric Vogt | 05/05/2009 |

**Sample ID:** Run SRU3-3 Probe Wash
**Lab Sample #:** 0409029

**Date Sampled:** 04/21/2009
**Sampled By:** DF
**Sample Matrix:** Probe Wash

| Analyte | Result | Units | Method | Analyst | Analysis Date |
|---|---|---|---|---|---|
| Particulate | 5.90 | mg | USEPA Method 5 | Eric Vogt | 05/06/2009 |

**Sample ID:** Acetone Blank
**Lab Sample #:** 0409030

**Date Sampled:** 04/21/2009
**Sampled By:** DF
**Sample Matrix:** Probe Wash

| Analyte | Result | Units | Method | Analyst | Analysis Date |
|---|---|---|---|---|---|
| Particulate | 0.30 | mg | USEPA Method 5 | Eric Vogt | 05/06/2009 |

951 Old Rand Road # 106

Wauconda, IL 60084

ARI ENVIRONMENTAL ANALYTICAL REPORT **Lab Project #: 08-82**

Valero
Corpus Christi, TX
SRU #3

**Received:** 4/28/2009
**Reported:**

**Sample ID:** Run SRU3-1 Imp Contents
**Lab Sample #:** 0409064

**Date Sampled:** 04/21/2009
**Sampled By:** DF
**Sample Matrix:** Imp Contents

| Analyte | Result | Units | Method | Analyst | Analysis Date |
|---|---|---|---|---|---|
| Impinger Residue | 59.4 | mg | TCEQ Method 23 | Eric Vogt | 05/06/2009 |

**Sample ID:** Run SRU3-2 Imp Contents
**Lab Sample #:** 0409065

**Date Sampled:** 04/21/2009
**Sampled By:** DF
**Sample Matrix:** Imp Contents

| Analyte | Result | Units | Method | Analyst | Analysis Date |
|---|---|---|---|---|---|
| Impinger Residue | 48.0 | mg | TCEQ Method 23 | Eric Vogt | 05/06/2009 |

**Sample ID:** Run SRU3-3 Imp Contents
**Lab Sample #:** 0409066

**Date Sampled:** 04/22/2009
**Sampled By:** DF
**Sample Matrix:** Imp Contents

| Analyte | Result | Units | Method | Analyst | Analysis Date |
|---|---|---|---|---|---|
| Impinger Residue | 71.9 | mg | TCEQ Method 23 | Eric Vogt | 05/06/2009 |

**Sample ID:** DI Water Blank
**Lab Sample #:** 0409067

**Date Sampled:** 04/21/2009
**Sampled By:** DF
**Sample Matrix:** Imp Contents

| Analyte | Result | Units | Method | Analyst | Analysis Date |
|---|---|---|---|---|---|
| Impinger Residue | 0.8 | mg | TCEQ Method 23 | Eric Vogt | 05/06/2009 |

# ANALYTICAL SUMMARY

**CLIENT:** Valero
**LOCATION:** Corpus Christi, TX
**SOURCE:** SRU No. 3 TGI Exhaust
**SAMPLE DATE:** 4/21 - 4/22/2009
**ANALYSIS:** Particulates
**METHOD:** USEPA M5/TCEQ M23

| Run | | Mass (g) | Tare #1 | WT 1 | WT 2 | Particulate (mg) | Blank Corrected WT (mg) |
|---|---|---|---|---|---|---|---|
| SRU3-1 | Filter | - | 537.5 | 563.9 | 564.1 | 26.50 | |
| SRU3-2 | Filter | - | 540.9 | 562.3 | 562.5 | 21.50 | |
| SRU3-3 | Filter | - | 539.4 | 559.1 | 559.3 | 19.80 | |
| Blank | Filter | - | 533.9 | 534.3 | 534.4 | 0.45 | |
| SRU3-1 | PW | 140.1 | 125226.5 | 125236.9 | 125236.9 | 10.40 | 10.16 |
| SRU3-2 | PW | 136.8 | 121433.7 | 121442.2 | 121442.4 | 8.60 | 8.36 |
| SRU3-3 | PW | 116.0 | 119904.6 | 119910.6 | 119910.8 | 6.10 | 5.90 |
| Blank | PW | 172.8 | 121814.3 | 121814.6 | 121814.6 | 0.30 | |
| SRU3-1 | Imps | 200 | 118320.5 | 118380.8 | 118380.7 | 60.25 | 59.45 |
| SRU3-2 | Imps | 200 | 117352.3 | 117401.1 | 117401.0 | 48.75 | 47.95 |
| SRU3-3 | Imps | 200 | 117541.2 | 117613.7 | 117614.1 | 72.70 | 71.90 |
| Blank | Imps | 200 | 120498.0 | 120498.7 | 120498.9 | 0.80 | |

Analyst: E. Vogt
Date: 05/06/09

# Laboratory Case Narrative
# Valero, Corpus Christi, TX; 4/21 – 4/22/09
# SRU #3
## US EPA Method 5 40CFR, App. A, Particulate Analysis and TCEQ Method 23 Particulate

**1) Sample Receipt**

Twelve (12) samples were received in good condition on 4/28/09 and logged in for analysis.

**2) Laboratory Analysis**

Filter and probe washes were analyzed according to USEPA Method 5 for particulate without complications or deviations.

Impinger contents were analyzed according to TCEQ Method 23 without complications or deviations.

**3) Qa/Qc**

All criteria as specified in USEPA Method 5 and TCEQ Method 23 were met.

**4) Discussion**

These are final results for your review. Any questions can be directed to Eric Vogt at ARI at (847) 487-1580 x116.

Respectfully submitted,

Eric Vogt
Lab Manager
ARI Environmental, Inc.

6956

C-6

# CHAIN OF CUSTODY RECORD

PROJ. NO.

PROJECT NAME: VALERO-GG; SRU No.3

SAMPLERS: (Signature)

| LAB NO. | SAMPLE NO. | DATE | TIME | SAMPLE LOCATION | NO. OF CONTAINERS | USEPA 5 | TCEQ 23 | REMARKS |
|---|---|---|---|---|---|---|---|---|
| | 33847 | 4/21/09 | | SRU No.3 TGI EXHAUST | 1 | ✓ | | FILTER RUN No. SRU3-1 |
| | 33850 | 4/21/09 | | | 1 | ✓ | | SRU3-2 |
| | 33854 | 4/22/09 | | | 1 | ✓ | | SRU-3-3 |
| | 33846 | 4/22/09 | | | 1 | ✓ | | BLANK |
| | H24609 | 4/21/09 | | | 1 | ✓ | | PROBE WASH RUN No. SRU3-1 |
| | H24543 | 4/21/09 | | | 1 | ✓ | | SRU3-2 |
| | H26029 | 4/22/09 | | | 1 | ✓ | | SRU33 |
| | H26028 | 4/22/09 | | | 1 | ✓ | | BLANK |
| | H24551 | 4/21/09 | | | 1 | | ✓ | IMPINGER CONTENTS/RINSE RUN No. SRU3-1 |
| | H26012 | 4/21/09 | | | 1 | | ✓ | SRU3-2 |
| | H24580 | 4/22/09 | | | 1 | | ✓ | SRU3-3 |
| | H24608 | 4/21/09 | | | 1 | | ✓ | BLANK |

| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
|---|---|---|---|---|---|
| | 4/23/09 1450 | | | | |
| | 4/27/09 0845 | | | | |

| Relinquished by: (Signature) | Date / Time | Received for Laboratory by: | Date / Time |
|---|---|---|---|
| | | | 4/29/09 11:45am |

REMARKS:


ARI ENVIRONMENTAL INC.
951 Old Rand Road, Unit 106
Wauconda, IL 60084
Telephone (847) 487-1580
Fax (847) 487-1587


PRINT FILE COPY - WHITE  RECORD FILE COPY - CANARY  RETAIN COPY - PINK  CUSTOMER COPY - GOLDENROD

## SUMMARY OF TOTAL REDUCED SULFUR COMPOUNDS

**Company:** Valero CC
**Location:** Corpus Christi, TX
**Source:** SRU #3
**Date:** 4/21/09
**Run No.:** SRU3 - 1

**Line Loss Ratios**
COS= 1.000
H2S= 1.000
CS2= 1.000

| Run | Date | Time | COS Area (mV) | COS Conc (ppm v db) | H2S Area (mV) | H2S Conc (ppm v db) | CS2 Area (mV) | CS2 Conc (ppm v db) | TRS Conc (as $SO_2$) | Injection |
|---|---|---|---|---|---|---|---|---|---|---|
| Valero20.CHR | 4/21/2009 | 13:22:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-1** |
| Valero21.CHR | 4/21/2009 | 13:32:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-2** |
| Valero22.CHR | 4/21/2009 | 13:42:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-3** |
| Valero23.CHR | 4/21/2009 | 13:52:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-4** |
| Valero24.CHR | 4/21/2009 | 14:02:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-5** |
| Valero25.CHR | 4/21/2009 | 14:12:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-6** |
| Valero26.CHR | 4/21/2009 | 14:22:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-7** |
| Valero27.CHR | 4/21/2009 | 14:32:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-8** |
| Valero28.CHR | 4/21/2009 | 14:42:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-9** |
| Valero29.CHR | 4/21/2009 | 14:52:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-10** |
| Valero30.CHR | 4/21/2009 | 15:02:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-11** |
| Valero31.CHR | 4/21/2009 | 15:12:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-12** |
| Valero32.CHR | 4/21/2009 | 15:22:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-13** |
| Valero33.CHR | 4/21/2009 | 15:32:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-14** |
| Valero34.CHR | 4/21/2009 | 15:42:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-15** |
| Valero35.CHR | 4/21/2009 | 15:52:01 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-16** |
| Valero36.CHR | 4/21/2009 | 16:02:01 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-17** |
| Valero37.CHR | 4/21/2009 | 16:12:01 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | **<0.53** | **<1.55** | **1-18** |
| | | **Average Values** | | **<0.82** | | **<0.73** | | **<0.53** | **<1.55** | |

## SUMMARY OF TOTAL REDUCED SULFUR COMPOUNDS

**Company:** Valero CC
**Location:** Corpus Christi, TX
**Source:** SRU #3
**Date:** 4/21/2009
**Run No.:** SU3 - 2

**Line Loss Ratios**
COS= 1.000
H2S= 1.000
CS2= 1.000

| Run | Date | Time | COS Area (mV) | COS Conc (ppm v db) | H2S Area (mV) | H2S Conc (ppm v db) | CS2 Area (mV) | CS2 Conc (ppm v db) | TRS Conc (as $SO_2$) | Injection |
|---|---|---|---|---|---|---|---|---|---|---|
| Valero44.CHR | 4/21/2009 | 17:57:59 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-1** |
| Valero45.CHR | 4/21/2009 | 18:07:59 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-2** |
| Valero46.CHR | 4/21/2009 | 18:17:59 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-3** |
| Valero47.CHR | 4/21/2009 | 18:27:59 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-4** |
| Valero48.CHR | 4/21/2009 | 18:37:59 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-5** |
| Valero49.CHR | 4/21/2009 | 18:47:59 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-6** |
| Valero50.CHR | 4/21/2009 | 18:57:59 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-7** |
| Valero51.CHR | 4/21/2009 | 19:07:59 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-8** |
| Valero52.CHR | 4/21/2009 | 19:17:59 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-9** |
| Valero53.CHR | 4/21/2009 | 19:27:59 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-10** |
| Valero54.CHR | 4/21/2009 | 19:37:59 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-11** |
| Valero55.CHR | 4/21/2009 | 19:47:59 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-12** |
| Valero56.CHR | 4/21/2009 | 19:57:59 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-13** |
| Valero57.CHR | 4/21/2009 | 20:07:59 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-14** |
| Valero58.CHR | 4/21/2009 | 20:18:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-15** |
| Valero59.CHR | 4/21/2009 | 20:28:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-16** |
| Valero60.CHR | 4/21/2009 | 20:38:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-17** |
| Valero61.CHR | 4/21/2009 | 20:48:00 | <250.00 | **<0.82** | <125.00 | **<0.73** | <500.00 | <0.53 | **<1.55** | **2-18** |
| | | **Average Values** | | **<0.82** | | **<0.73** | | **<0.53** | **<1.55** | |

# TRS STANDARDS PRETEST DATA

**Client:** Valero CC
**Location:** Corpus Christi, TX
**Source:** SRU #3
**Date sampled:** 4/21/2009
**Run Number:** Run 1 & 2
**Compound Analyzed:** TRS
**Method:** USEPA Method 15
**Instrument:** SRI-9300B
**Detector** GC-FPD
**Units of Detection:** ppm

| Carbonyl Sulfide Standards | | | |
|---|---|---|---|
| **Standard No** | **Concentration** | **Area** | **Sq Rt Area Counts** |
| 1 | 0.0 | 0.0 | 0.0 |
| 2 | 24.3 | 9119.41 | 95.5 |
| 3 | 48.6 | 27981.64 | 167.3 |
| 4 | 82.7 | 45,448.4 | 213.2 |
| | | | |

| Hydrogen Sulfide Standards | | | |
|---|---|---|---|
| **Standard No** | **Concentration** | **Area** | **Sq Rt Area Counts** |
| 1 | 0.0 | 0.0 | 0.0 |
| 2 | 25.0 | 5,041.5 | 71.0 |
| 3 | 50.0 | 16,249.4 | 127.5 |
| 4 | 85.0 | 27,379.0 | 165.5 |
| | | | |

| Carbon Disulfide Standards | | | |
|---|---|---|---|
| **Standard No** | **Concentration** | **Area** | **Sq Rt Area Counts** |
| 1 | 0.0 | 0.0 | 0.0 |
| 2 | 26.0 | 19,946.0 | 141.2 |
| 3 | 52.1 | 37,869.9 | 194.6 |
| 4 | 88.5 | 52,578.2 | 229.3 |
| | | | |

# Analytical Calculation Summary

## Calibration Standards Area Linear Regression Fit

**Client:** Valero CC
**Location:** Corpus Christi, TX
**Source:** SRU #3
**Date sampled:** 4/21/2009
**Run Number:** Run 1 & 2
**Compound Analyzed:** Hydrogen Sulfide
**Method:** USEPA Method 15
**Instrument:** SRI-9300B
**Detector** GC-FPD
**Units of Detection:** ppm

**Calibration Standards**

| Standard # | Standard Peak Area (mv) | Square Root Peak Area (mv) | Standard Concentration (ppm) |
|---|---|---|---|
| 1 | 0.0 | 0.0 | 0.0 |
| 2 | 5,041.5 | 71.0 | 25.0 |
| 3 | 16,249.4 | 127.5 | 50.0 |
| 4 | 27,379.0 | 165.5 | 85.0 |

**Statistical Analysis Summary**

| | |
|---|---|
| $\Sigma xy$: | 22213.4 |
| $\Sigma x$: | 363.9 |
| $\Sigma y$: | 160 |
| $\Sigma x^2$: | 48670 |
| $\Sigma(x)^2$: | 132454 |
| N: | 4 |
| m: | 0.49212 |
| b: | -4.77627 |

# Analytical Calculation Summary

## Calibration Standards Area Linear Regression Fit

| | |
|---|---|
| **Client:** | Valero CC |
| **Location:** | Corpus Christi, TX |
| **Source:** | SRU #3 |
| **Date sampled:** | 4/21/2009 |
| **Run Number:** | Run 1 & 2 |
| **Compound Analyzed:** | Carbonyl Sulfide |
| **Method:** | USEPA Method 15 |
| **Instrument:** | SRI-9300B |
| **Detector** | GC-FPD |
| **Units of Detection:** | ppm |

**Calibration Standards**

| Standard # | Standard Peak Area (mv) | Square Root Peak Area (mv) | Standard Concentration (ppm) |
|---|---|---|---|
| 1 | 0.0 | 0.0 | 0.0 |
| 2 | 9,119.4 | 95.5 | 24.3 |
| 3 | 27,981.6 | 167.3 | 48.6 |
| 4 | 45,448.4 | 213.2 | 82.7 |

**Statistical Analysis Summary**

| | |
|---|---|
| $\Sigma xy$: | 28077.9 |
| $\Sigma x$: | 476.0 |
| $\Sigma y$: | 155.6 |
| $\Sigma x^2$: | 82549 |
| $\Sigma(x)^2$: | 226537 |
| N: | 4 |
| m: | 0.36902 |
| b: | -5.00989 |

# Analytical Calculation Summary

## Calibration Standards Area Linear Regression Fit

**Client:** Valero CC
**Location:** Corpus Christi, TX
**Source:** SRU #3
**Date sampled:** 4/21/2009
**Run Number:** Run 1 & 2
**Compound Analyzed:** Carbon Disulfide
**Method:** USEPA Method 15
**Instrument:** SRI-9300B
**Detector** GC-FPD
**Units of Detection:** ppm

**Calibration Standards**

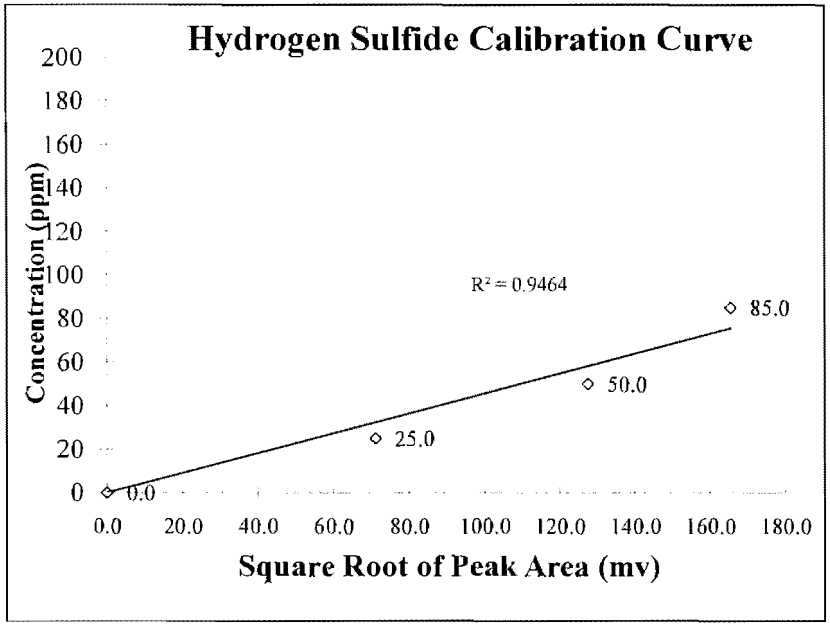
| Standard # | Standard Peak Area (mv) | Square Root Peak Area (mv) | Standard Concentration (ppm) |
|---|---|---|---|
| 1 | 0.0 | 0.0 | 0.0 |
| 2 | 19,946.0 | 141.2 | 26.0 |
| 3 | 37,869.9 | 194.6 | 52.1 |
| 4 | 52,578.2 | 229.3 | 88.5 |

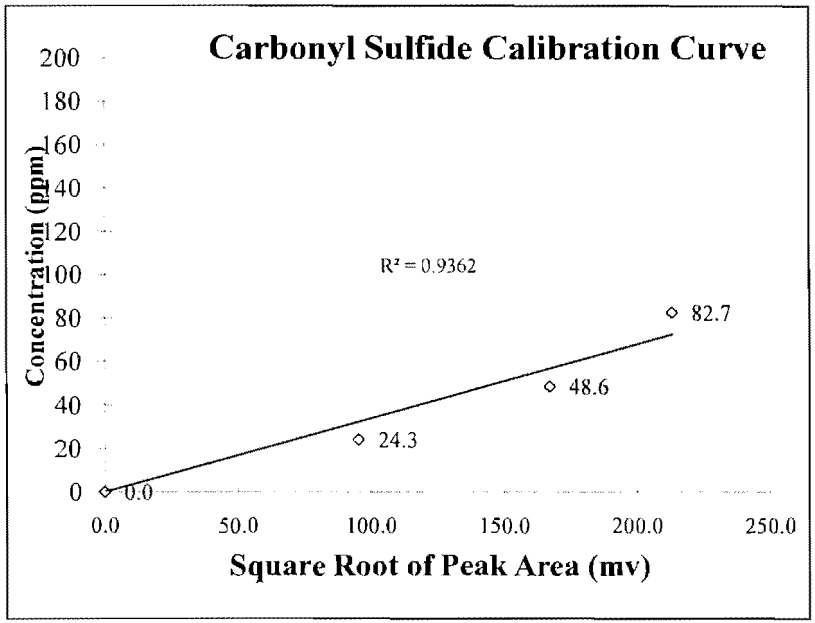
**Statistical Analysis Summary**

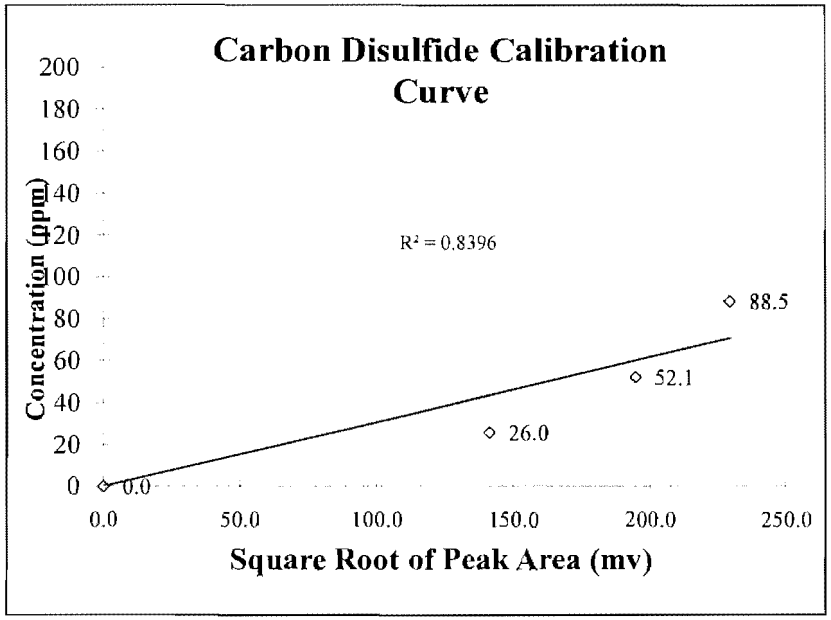
| | |
|---|---|
| $\Sigma xy$: | 34102.5 |
| $\Sigma x$: | 565.1 |
| $\Sigma y$: | 166.6 |
| $\Sigma x^2$: | 110394 |
| $\Sigma(x)^2$: | 319374 |
| N: | 4 |
| m: | 0.34581 |
| b: | -7.20631 |

## Calibration Curves

**April 21, 2009**



# TRS STANDARDS POSTTEST DATA

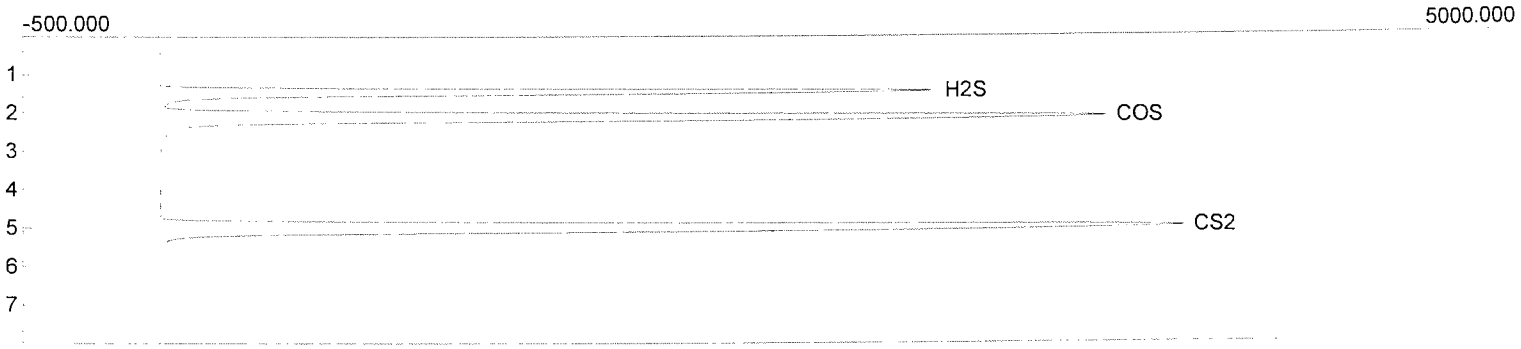
**Client:** Valero CC
**Location:** Corpus Christi, TX
**Source:** SRU #3
**Date sampled:** 4/21/2009
**Run Number:** Run 1 & 2
**Compound Analyzed:** TRS
**Method:** USEPA Method 15
**Instrument:** SRI-9300B
**Detector** GC-FPD
**Units of Detection:** ppm

| Carbonyl Sulfide Standards | | | | Drift |
|---|---|---|---|---|
| Standard No | Concentration | Area | Sq Rt Area Counts | % |
| 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | 24.3 | 9,511.1 | 97.5 | -2.1 |
| 3 | 48.6 | 29,717.4 | 172.4 | -3.1 |
| 4 | 82.7 | 46,062.7 | 214.6 | -0.7 |
| | | | | |

| Hydrogen Sulfide Standards | | | | Drift |
|---|---|---|---|---|
| Standard No | Concentration | Area | Sq Rt Area Counts | % |
| 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | 25.0 | 5,350.9 | 73.2 | -3.0 |
| 3 | 50.0 | 17,137.0 | 130.9 | -2.7 |
| 4 | 85.0 | 27,897.0 | 167.0 | -0.9 |
| | | | | |

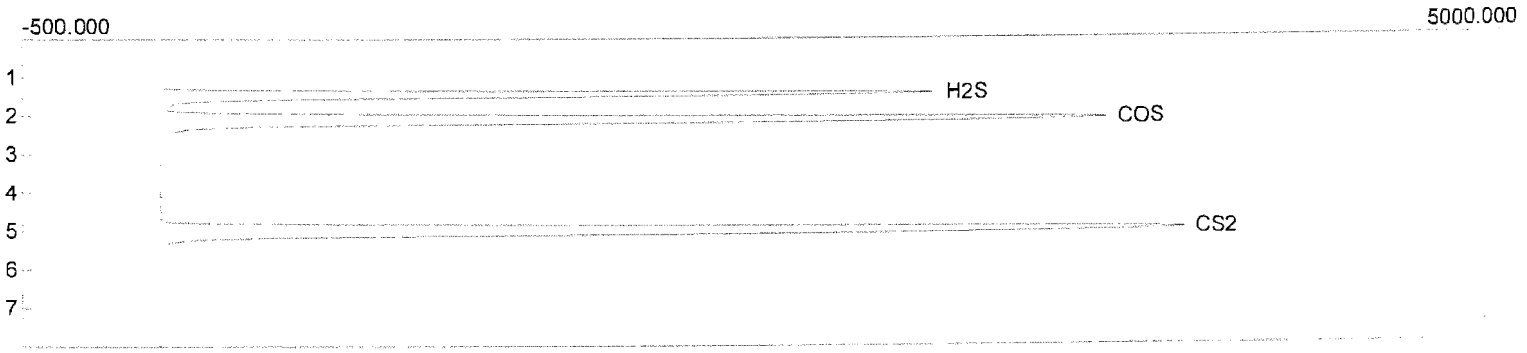
| Carbon Disulfide Standards | | | | Drift |
|---|---|---|---|---|
| Standard No | Concentration | Area | Sq Rt Area Counts | % |
| 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | 26.0 | 20,791.3 | 144.2 | -2.1 |
| 3 | 52.1 | 40,422.9 | 201.1 | -3.3 |
| 4 | 88.5 | 53,957.0 | 232.3 | -1.3 |
| | | | | |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Sample: 85 ppm precal
Operator: BP



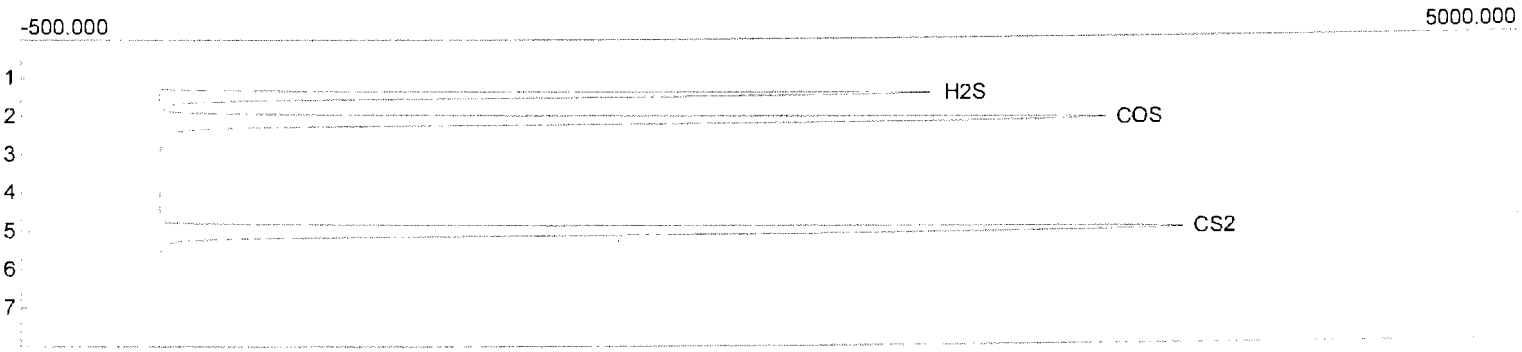

| Component | Area |
|---|---|
| H2S | 27343.0940 |
| COS | 45632.4480 |
| CS2 | 53088.7240 |
| | 126064.2660 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Sample: 85 ppm precal
Operator: BP



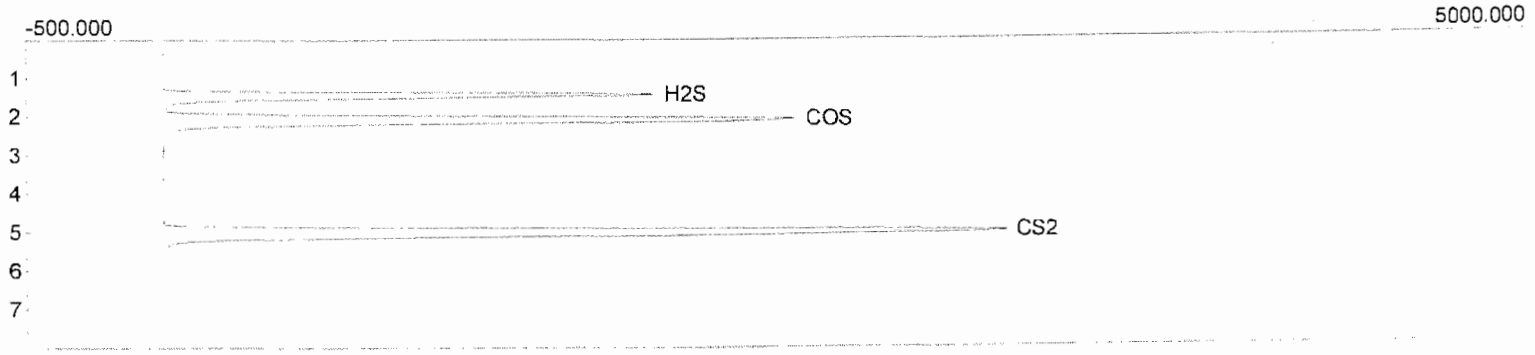

| Component | Area |
|---|---|
| H2S | 26474.3150 |
| COS | 44047.1040 |
| CS2 | 50556.8430 |
| | 121078.2620 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Sample: 85 ppm precal
Operator: BP



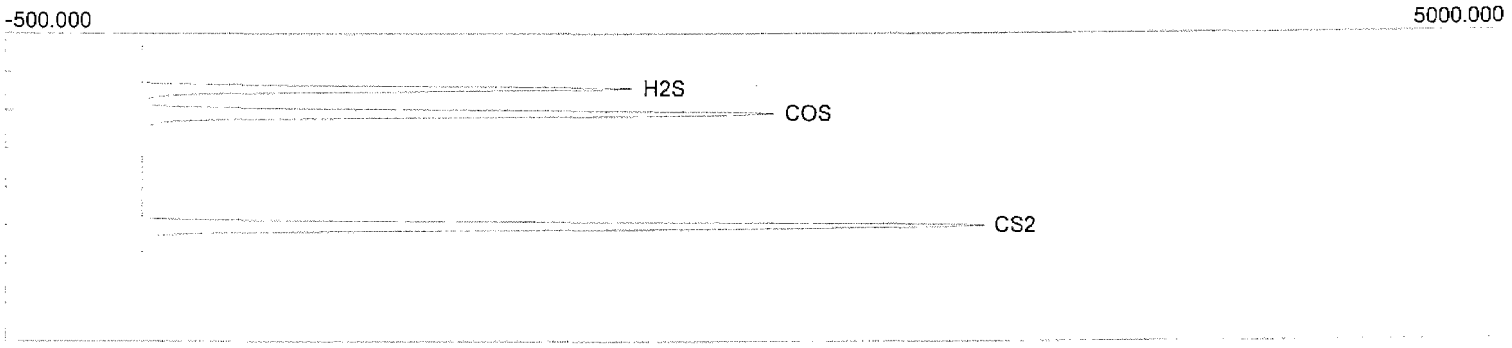

| Component | Area |
|---|---|
| H2S | 28319.4545 |
| COS | 46665.5070 |
| CS2 | 54089.0380 |
| | 129073.9995 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Sample: 50 ppm precal
Operator: BP



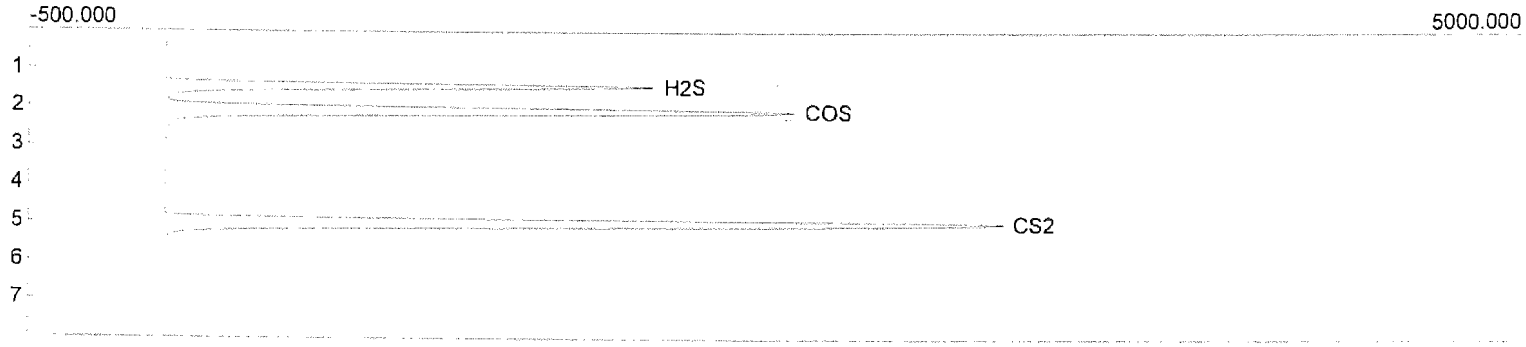

| Component | Area |
|---|---|
| H2S | 16770.1665 |
| COS | 28313.0120 |
| CS2 | 38379.2535 |
| | 83462.4320 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Sample: 50 ppm precal
Operator: BP



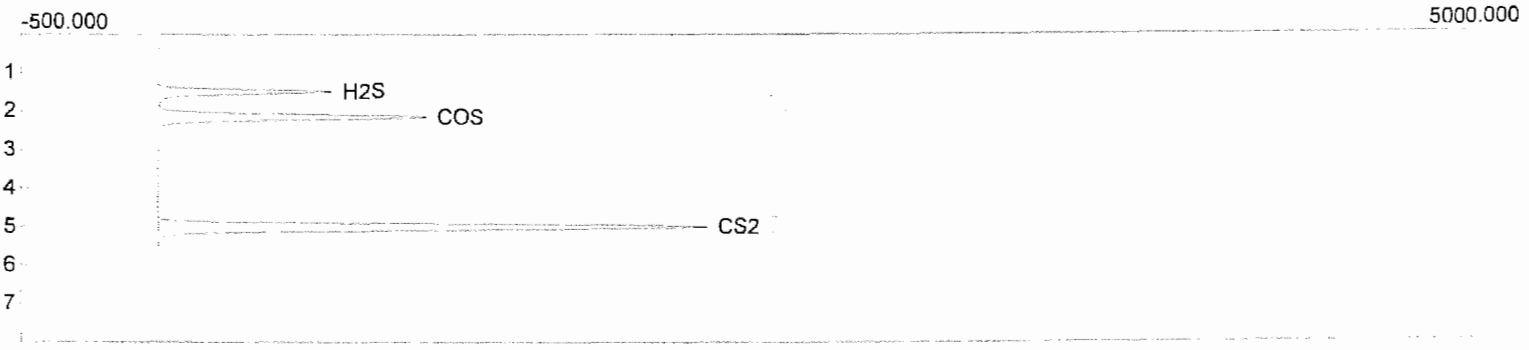

| Component | Area |
|---|---|
| H2S | 15323.0325 |
| COS | 26946.0900 |
| CS2 | 36388.9330 |
| | 78658.0555 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-212-0-9
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Sample: 50 ppm precal
Operator: BP



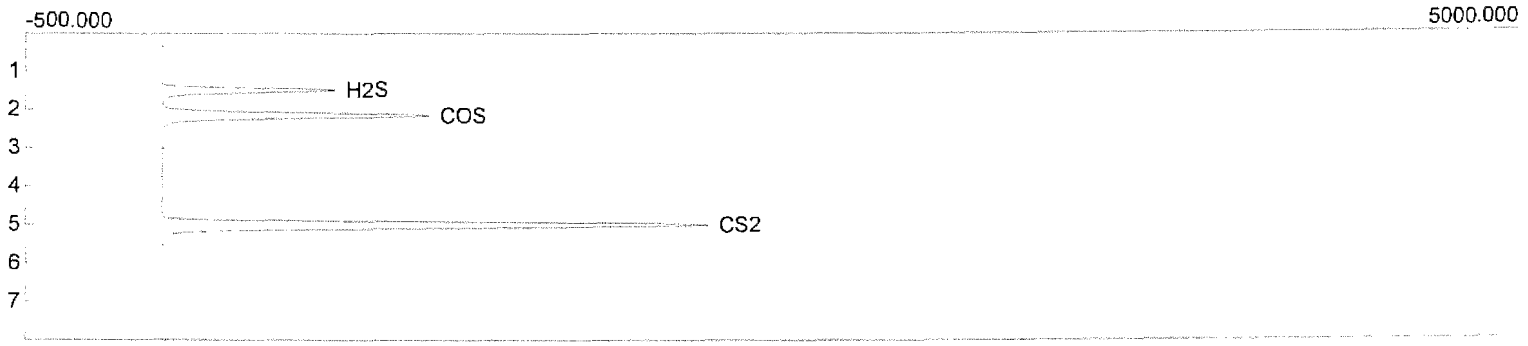

| Component | Area |
|---|---|
| H2S | 16655.0715 |
| COS | 28685.8080 |
| CS2 | 38841.3960 |
| | 84182.2755 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: pre cal07.CHR ()
Sample: 25 ppm precal
Operator: BP



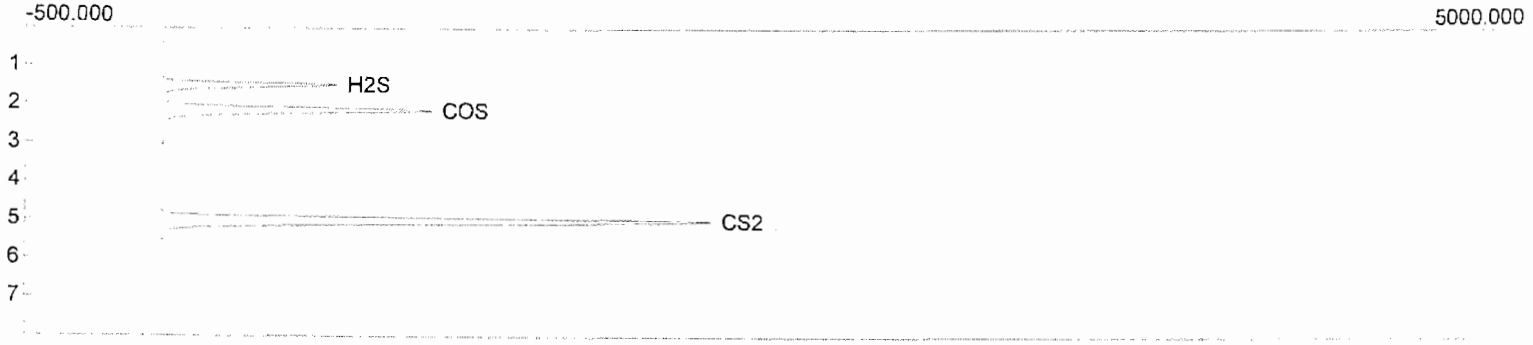

| Component | Area |
|---|---|
| H2S | 5348.1170 |
| COS | 9176.0805 |
| CS2 | 21739.3580 |
| | 36263.5555 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4--21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Sample: 25 ppm precal
Operator: BP



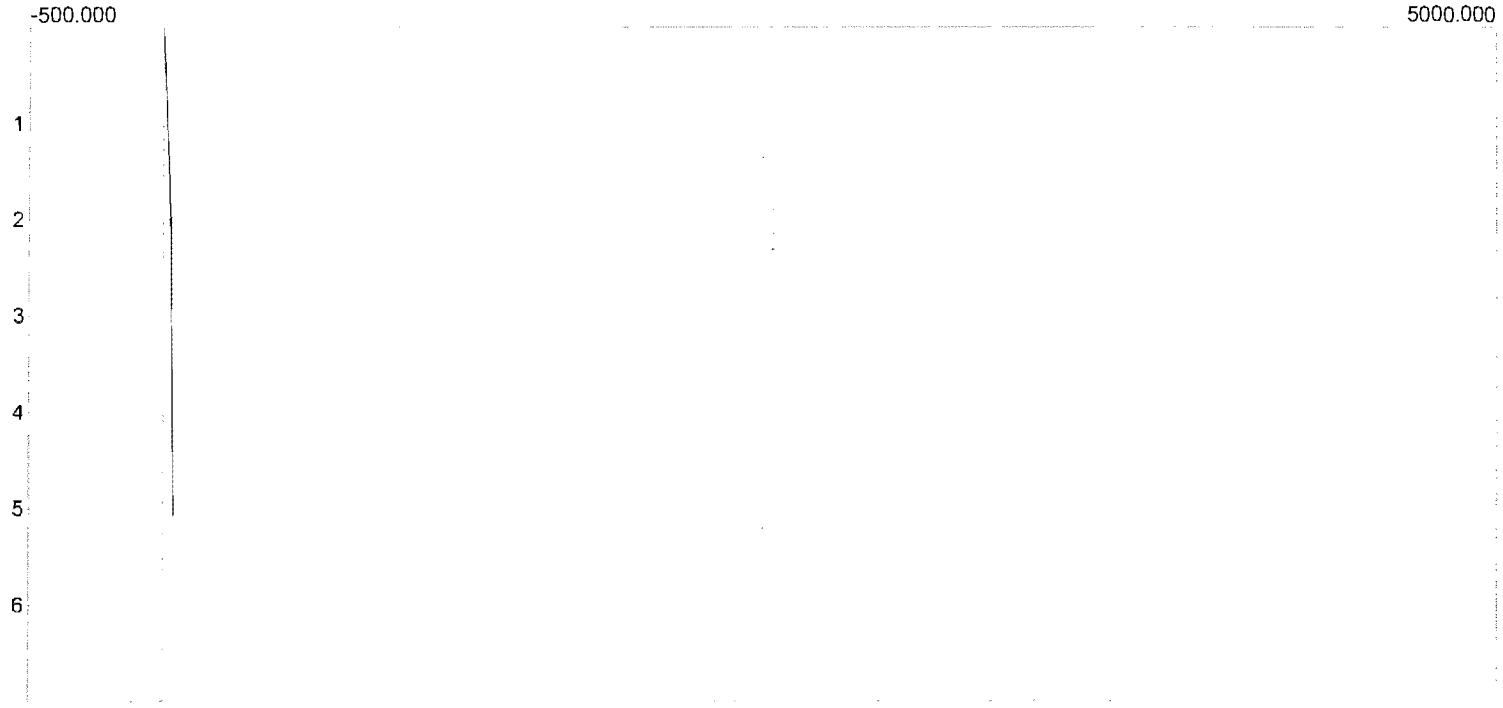

| Component | Area |
|---|---|
| H2S | 4665.1380 |
| COS | 8508.8550 |
| CS2 | 19351.3760 |
| | 32525.3690 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: pre cal09.CHR ()
Sample: 25 ppm precal
Operator: BP



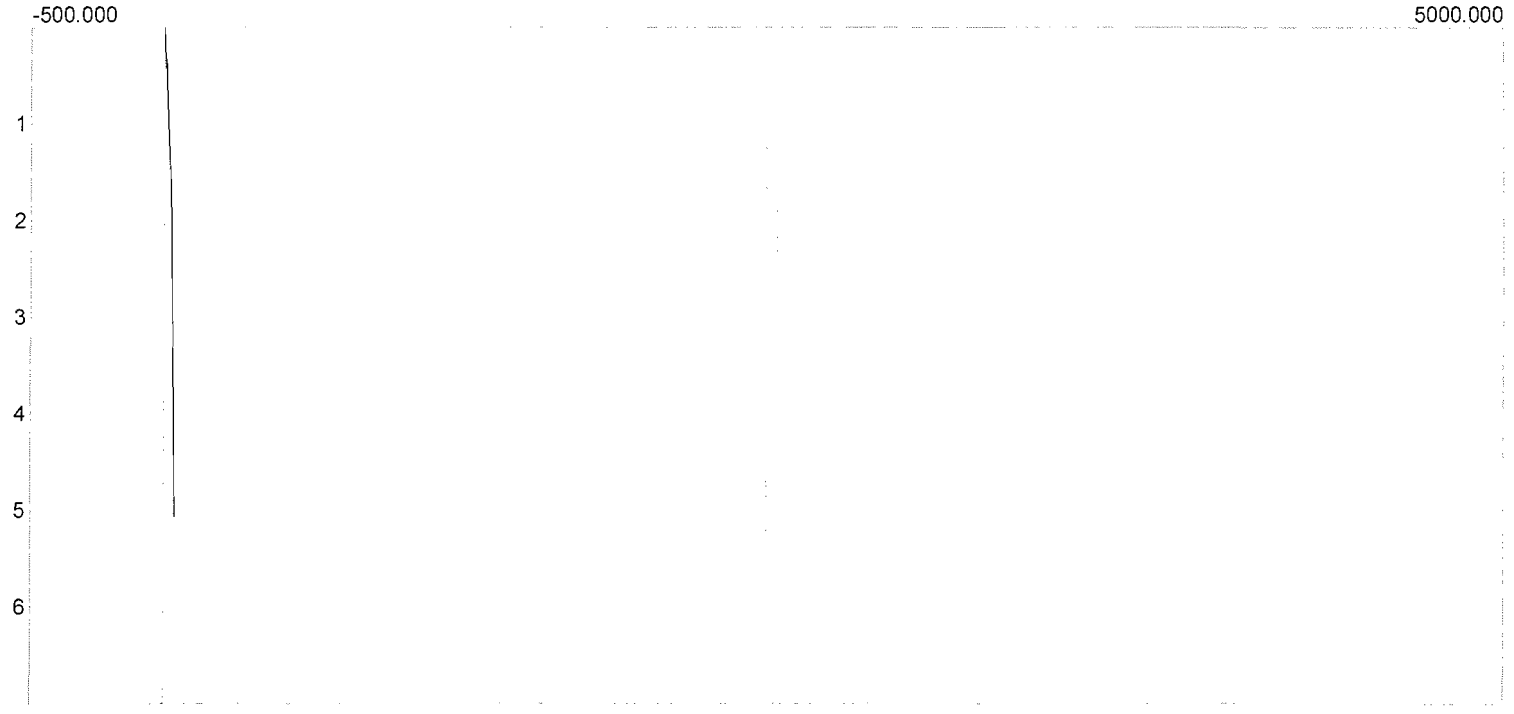

| Component | Area |
|---|---|
| H2S | 5111.2920 |
| COS | 9673.2975 |
| CS2 | 18747.3155 |
| | 33531.9050 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Sample: 0 ppm precal
Operator: BP



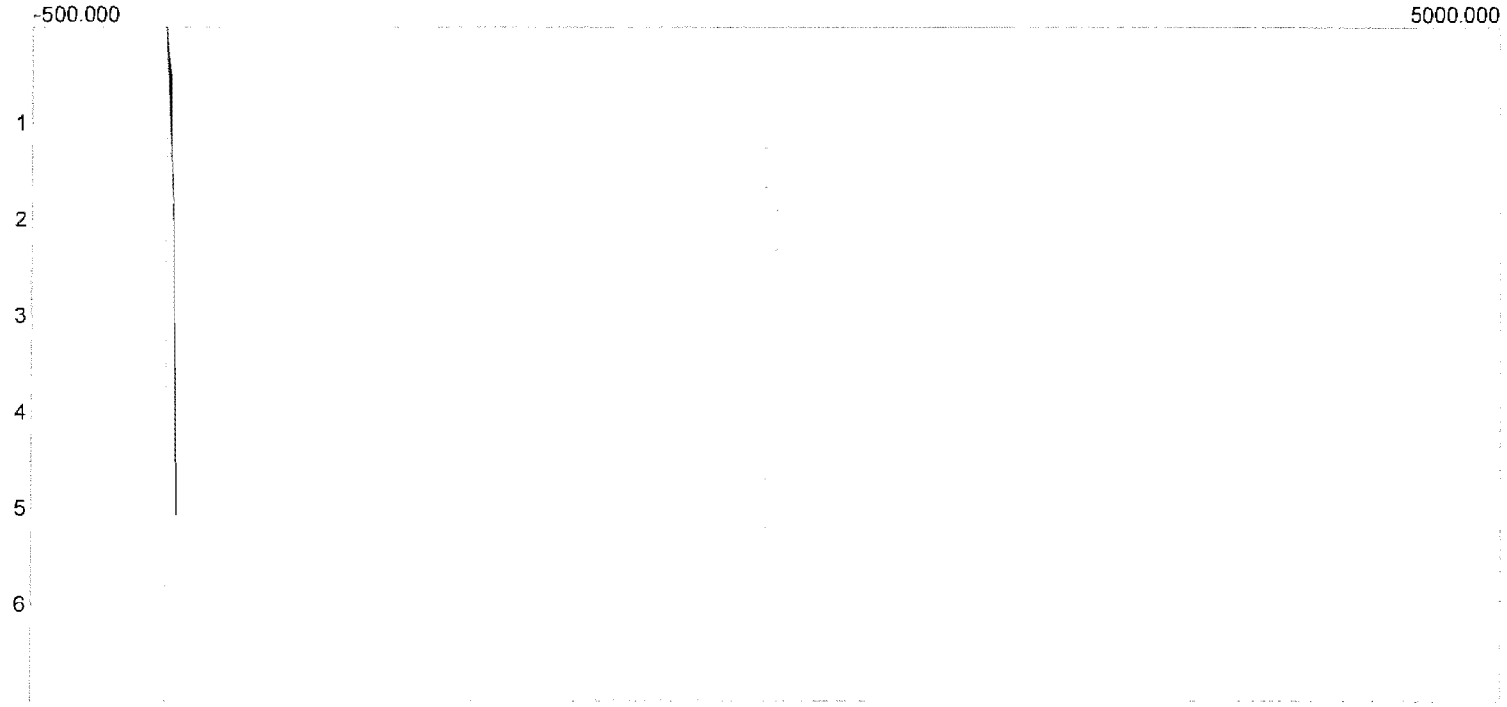

| Component | Area |
|---|---|
| | 0.0000 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Sample: 0 ppm precal
Operator: BP




| Component | Area |
|---|---|
| | 0.0000 |

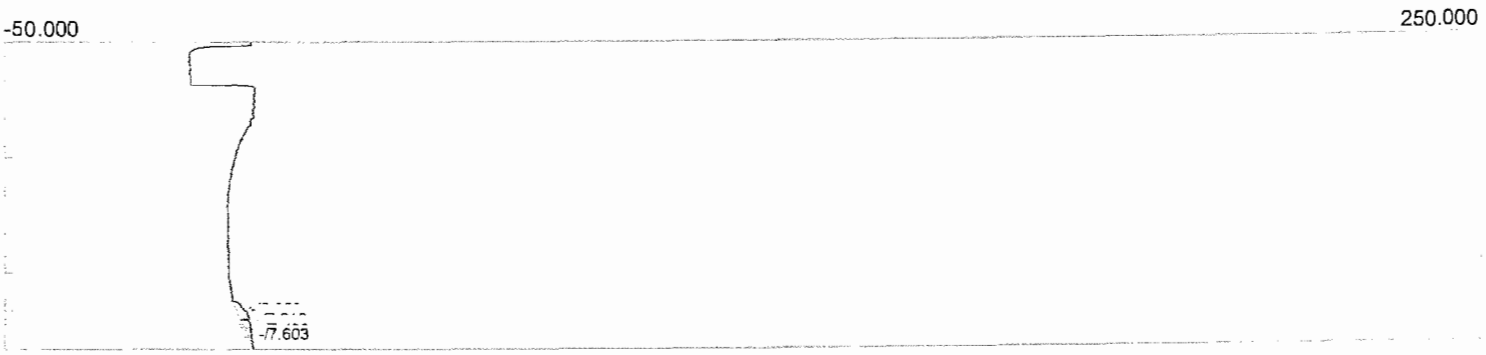
Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Sample: 0 ppm precal
Operator: BP




| Component | Area |
|---|---|
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 13:22:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero20.CHR ()
Sample: Test Runs
Operator: BP

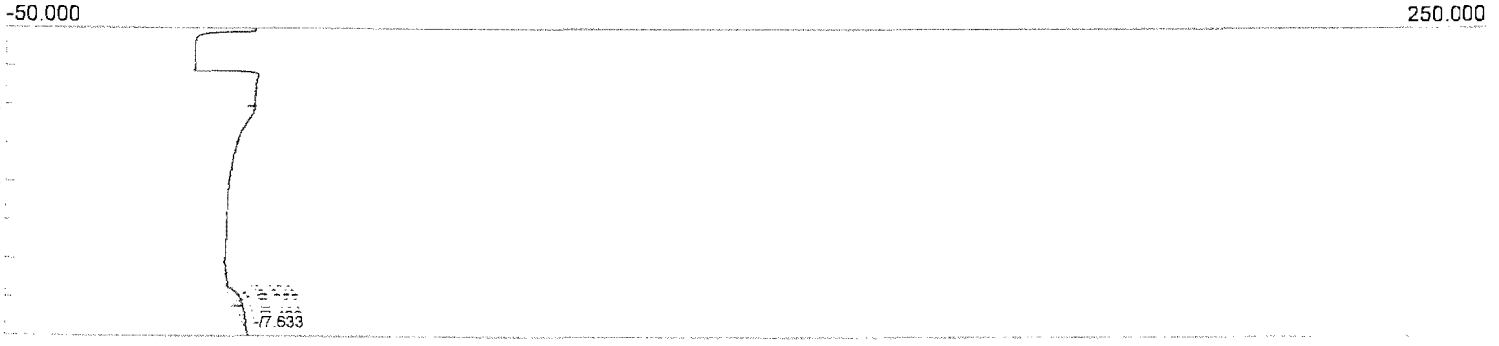
1-1




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 13:32:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero21.CHR ()
Sample: Test Runs
Operator: BP

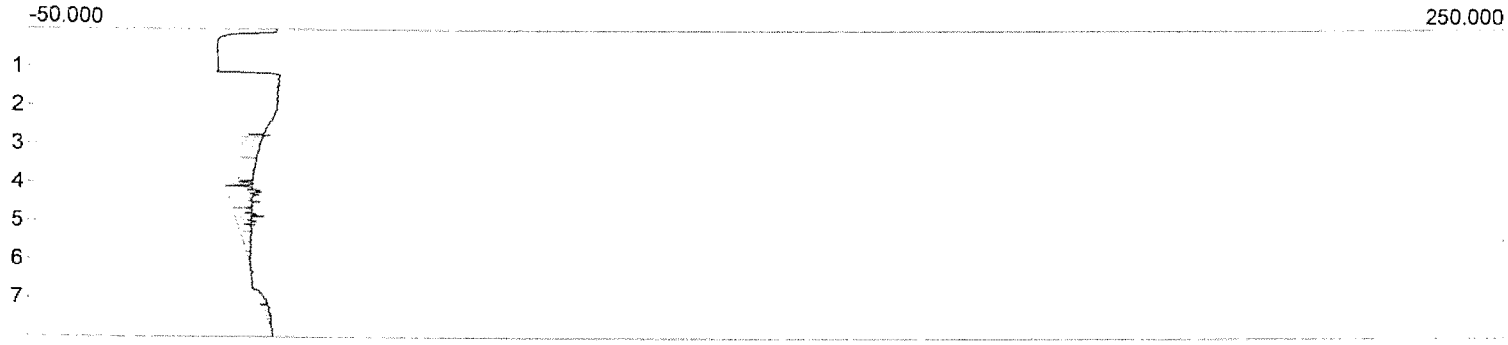
1-2




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 13:42:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero22.CHR ()
Sample: Test Runs
Operator: BP

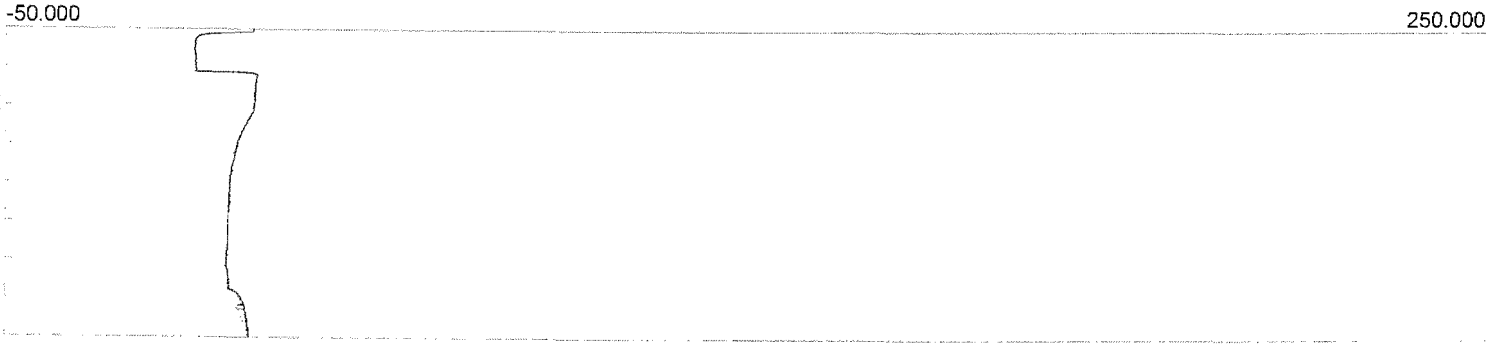
1-3




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 13:52:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero23.CHR ()
Sample: Test Runs
Operator: BP

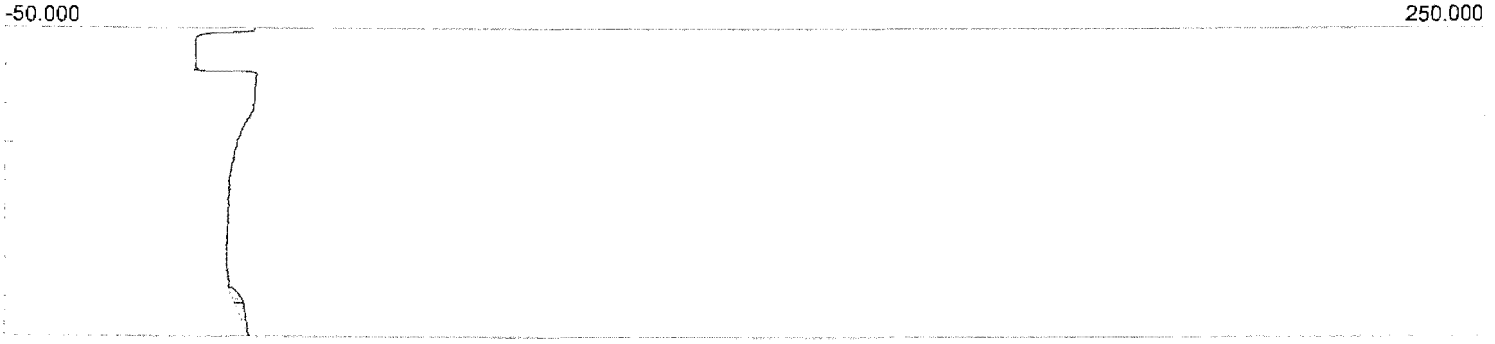
1-4




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 14:02:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero24.CHR ()
Sample: Test Runs
Operator: BP

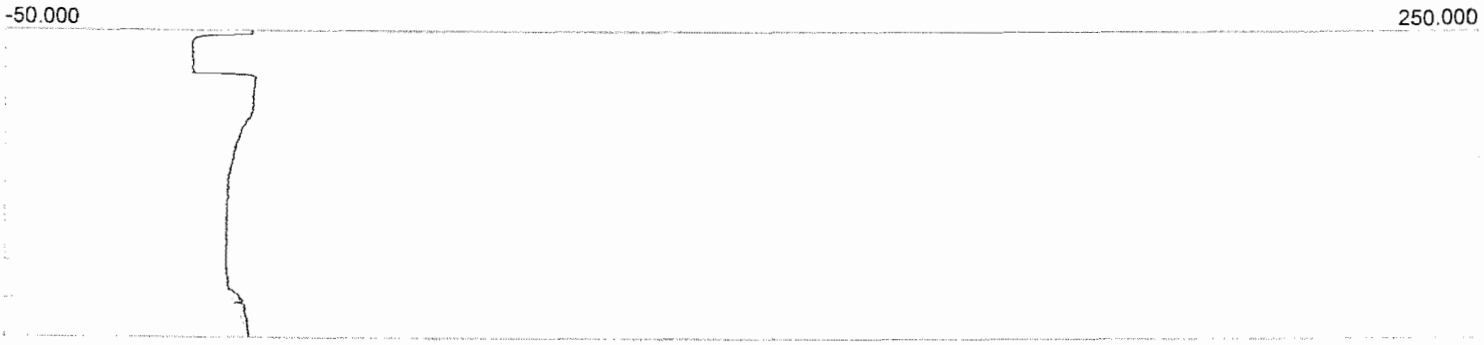
1-5




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 14:12:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero25.CHR ()
Sample: Test Runs
Operator: BP

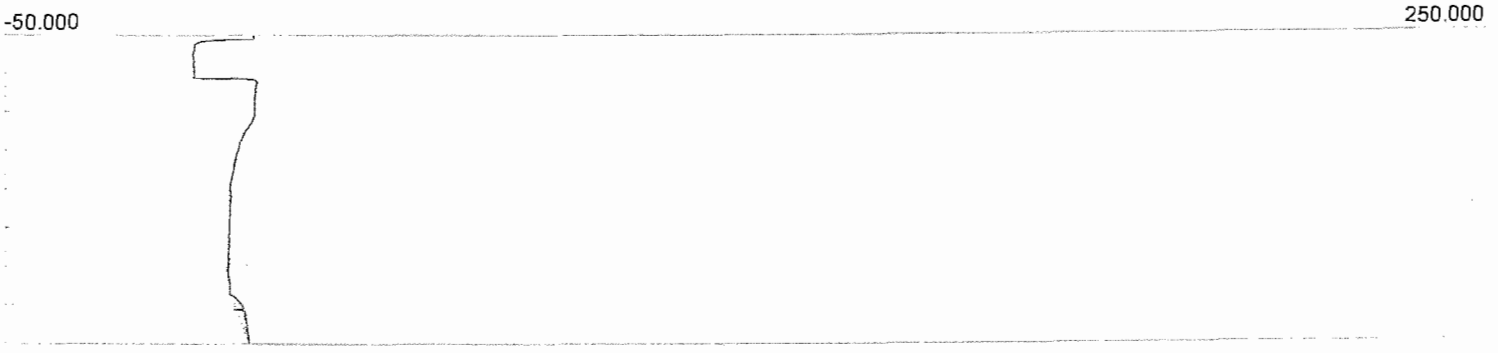
1-6




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 14:22:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero26.CHR ()
Sample: Test Runs
Operator: BP

1-7




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

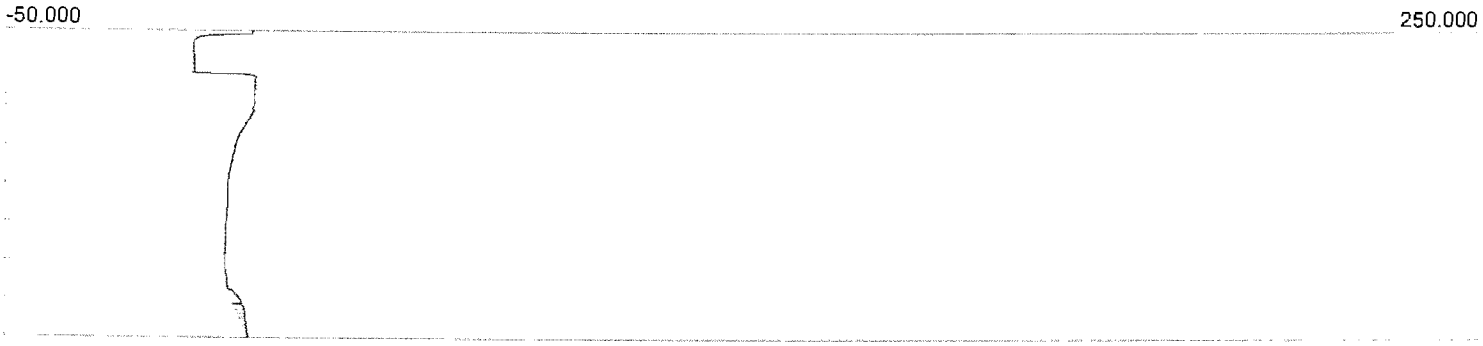
Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 14:32:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero27.CHR ()
Sample: Test Runs
Operator: BP

1-8


| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 14:42:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero28.CHR ()
Sample: Test Runs
Operator: BP

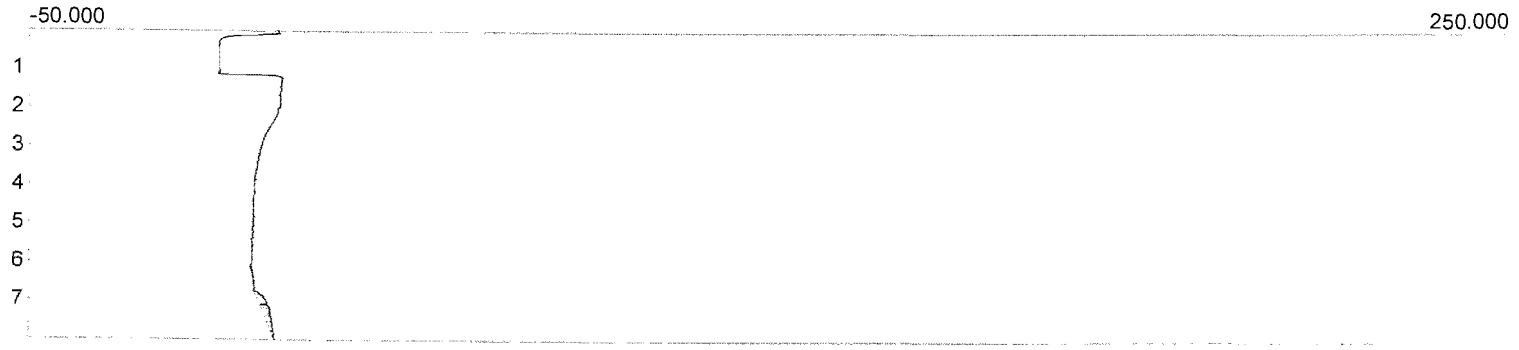
1-9




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 14:52:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero29.CHR ()
Sample: Test Runs
Operator: BP

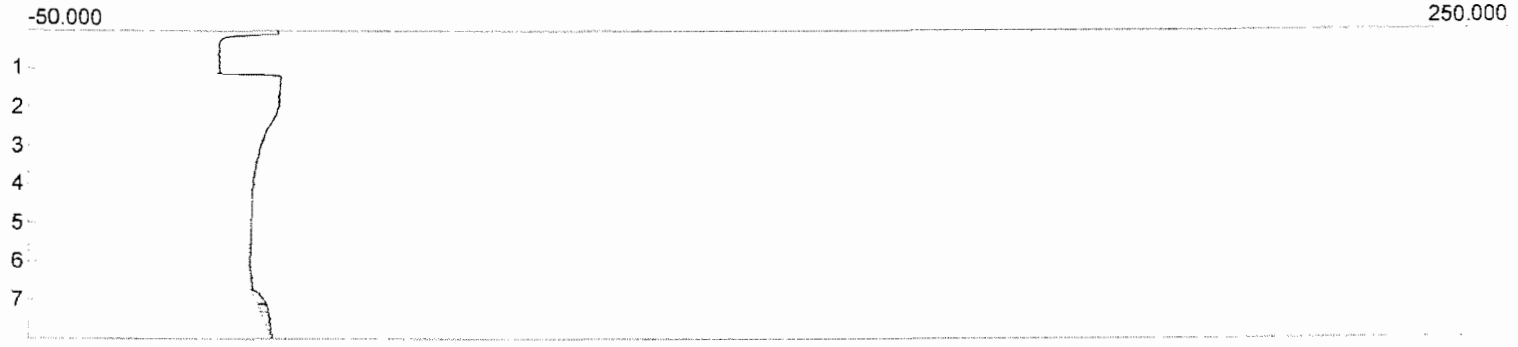
1-10




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 15:02:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero30.CHR ()
Sample: Test Runs
Operator: BP

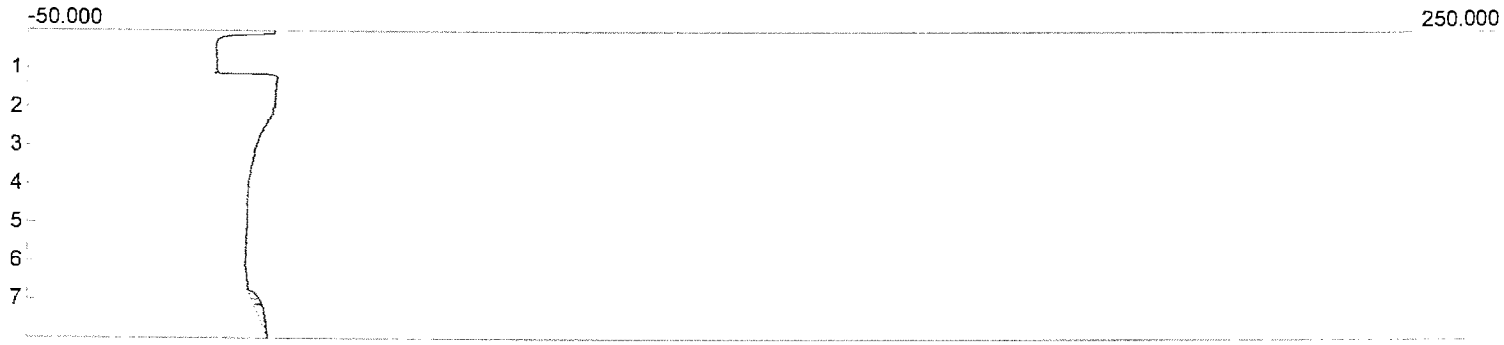
1-11




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 15:12:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero31.CHR ()
Sample: Test Runs
Operator: BP

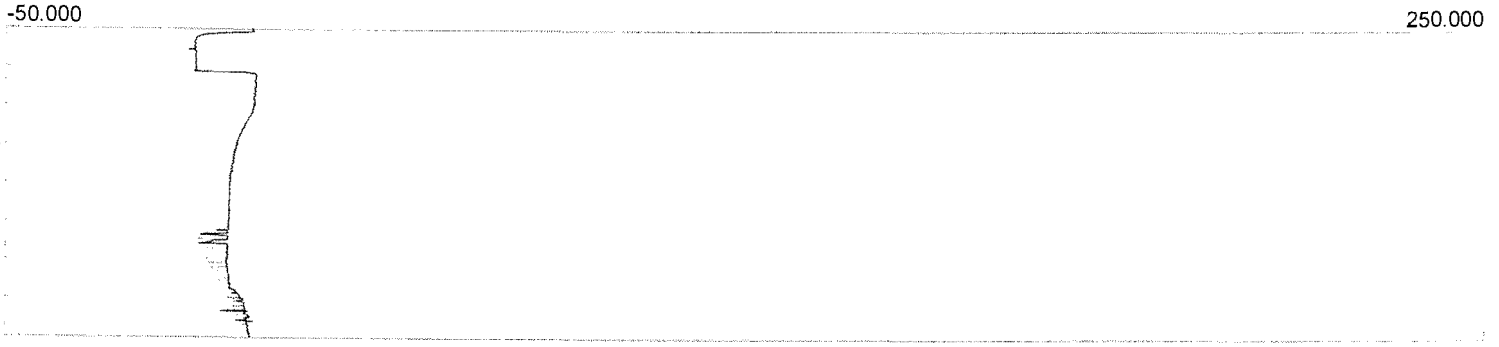
1-12




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 15:22:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero32.CHR ()
Sample: Test Runs
Operator: BP

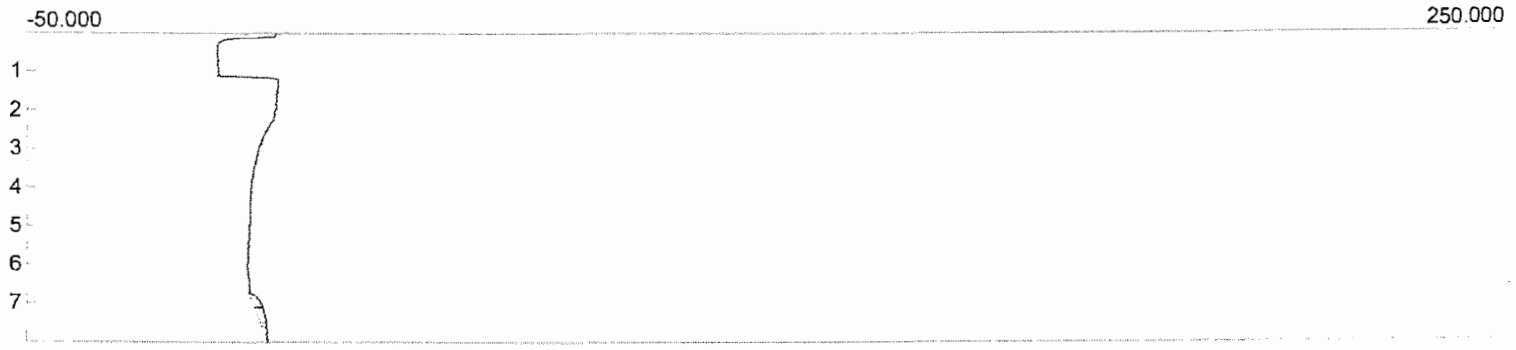
1-13




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 15:32:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero33.CHR ()
Sample: Test Runs
Operator: BP

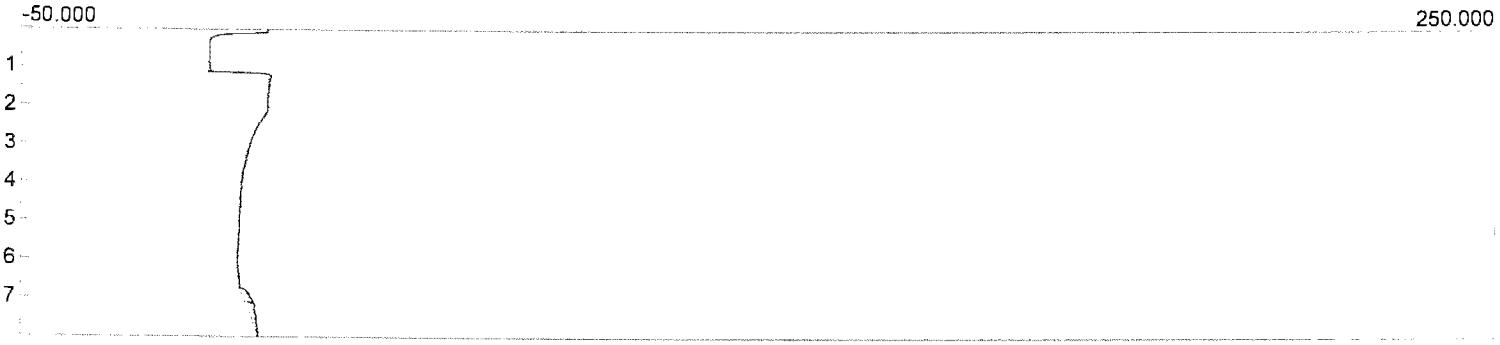
1-14




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 15:42:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero34.CHR ()
Sample: Test Runs
Operator: BP

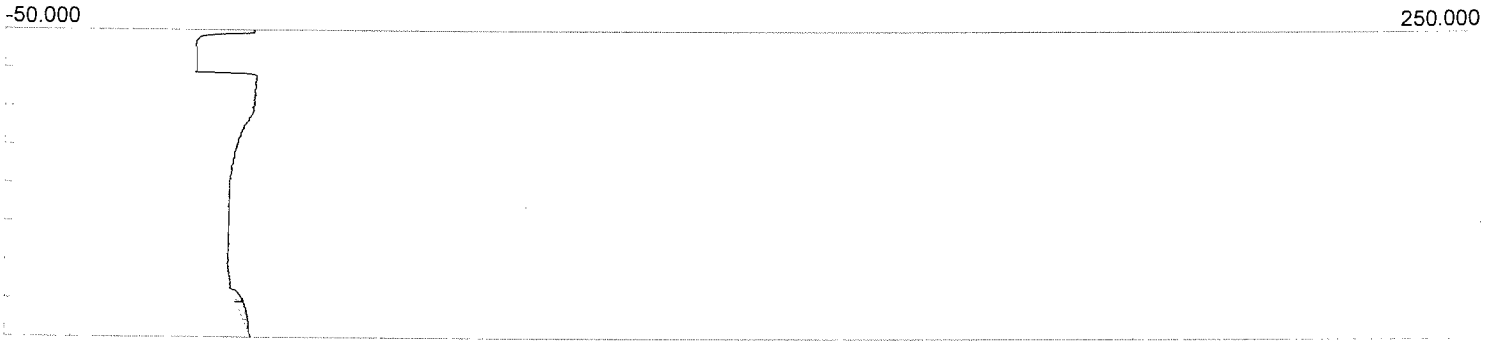
1-15




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 15:52:01
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero35.CHR ()
Sample: Test Runs
Operator: BP

1-16




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 16:02:01
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero36.CHR ()
Sample: Test Runs
Operator: BP

1-17


| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 16:12:01
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero37.CHR ()
Sample: Test Runs
Operator: BP

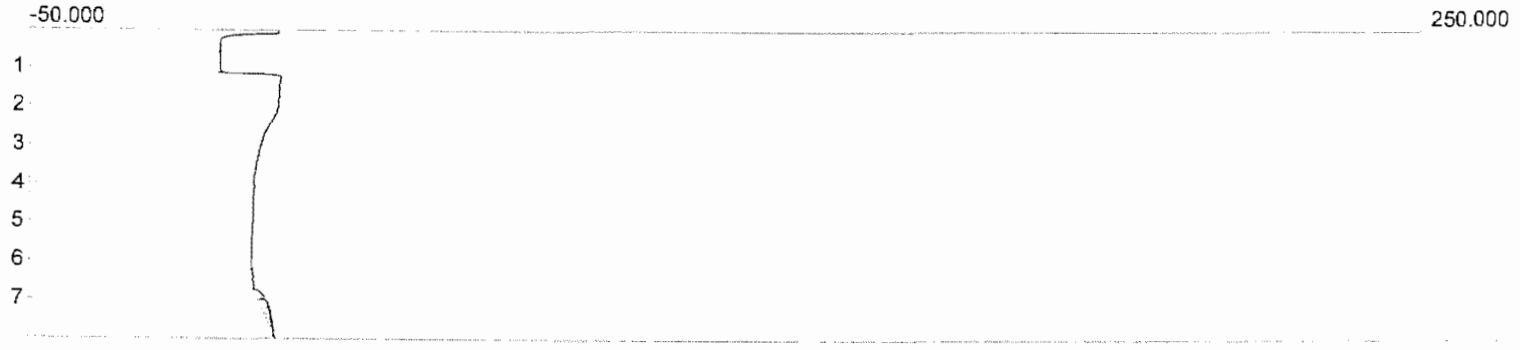
1-18


| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 16:34:28
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero38.CHR ()
Sample: Test Runs
Operator: BP

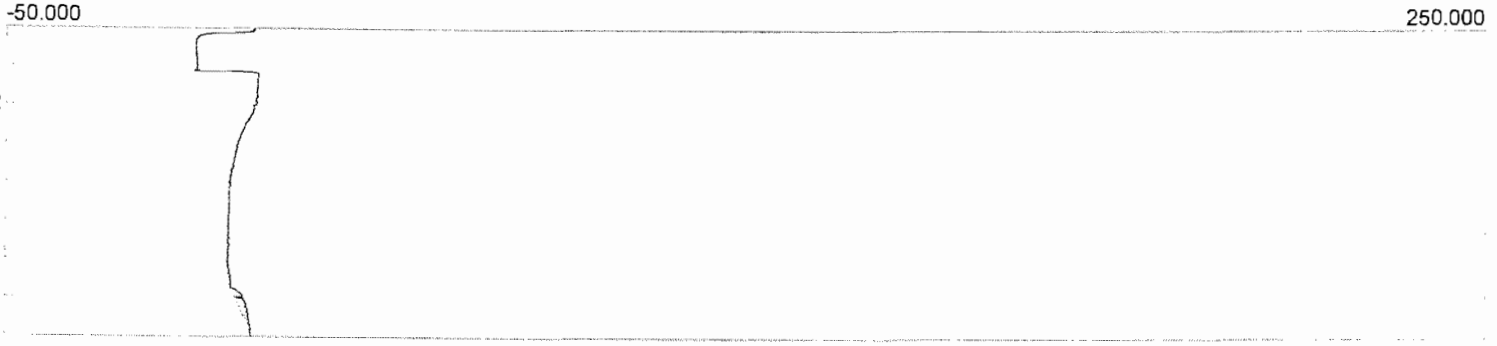

| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 16:44:28
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero39.CHR ()
Sample: Test Runs
Operator: BP




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

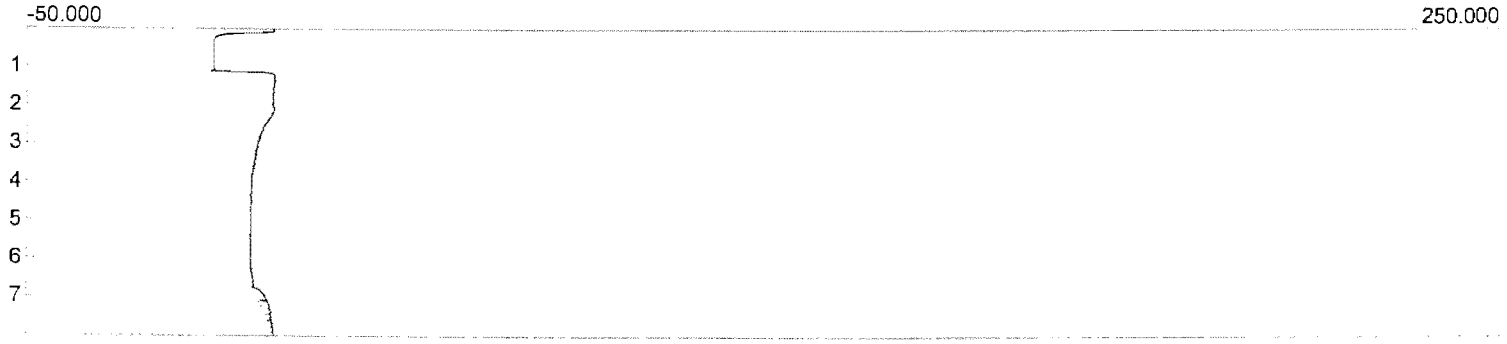
Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 16:54:28
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero40.CHR ()
Sample: Test Runs
Operator: BP




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 17:57:59
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero44.CHR ()
Sample: Test Runs
Operator: BP

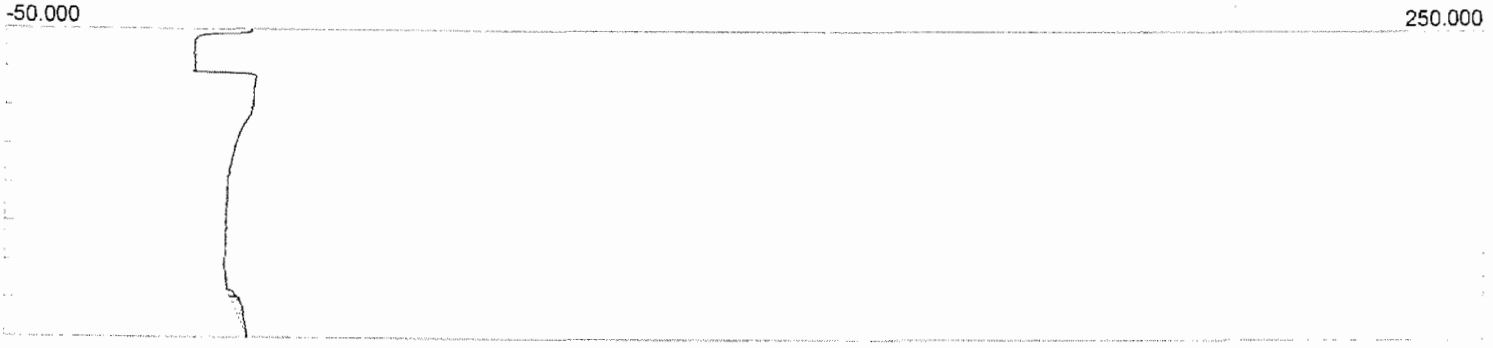
Z-1




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 18:07:59
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero45.CHR ()
Sample: Test Runs
Operator: BP

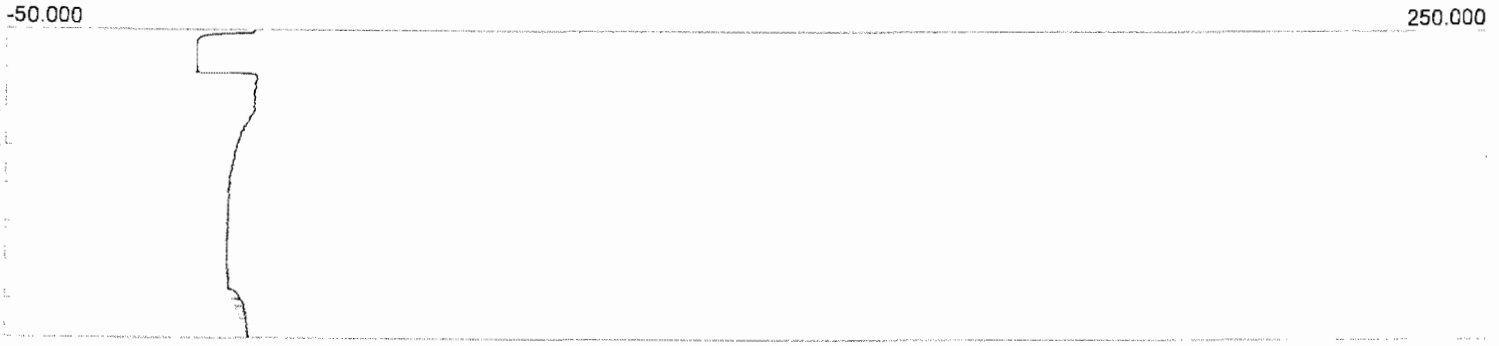
2-2




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 18:17:59
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero46.CHR ()
Sample: Test Runs
Operator: BP

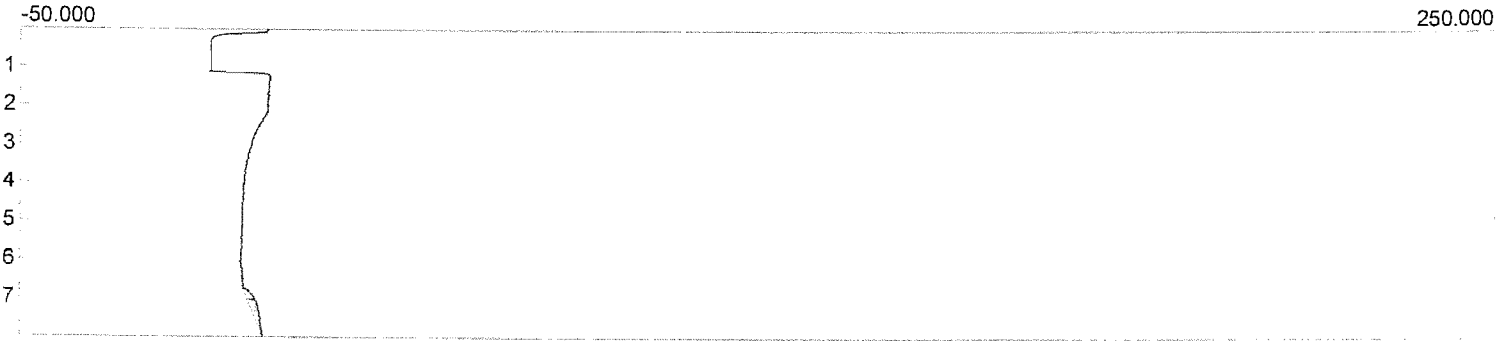
2-3




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 18:27:59
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero47.CHR ()
Sample: Test Runs
Operator: BP

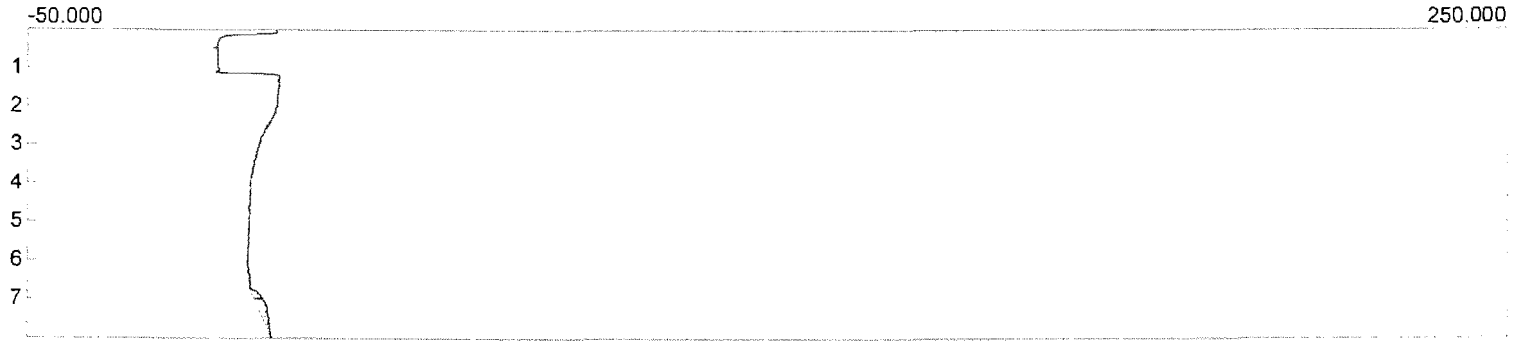
2-4




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 18:37:59
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero48.CHR ()
Sample: Test Runs
Operator: BP

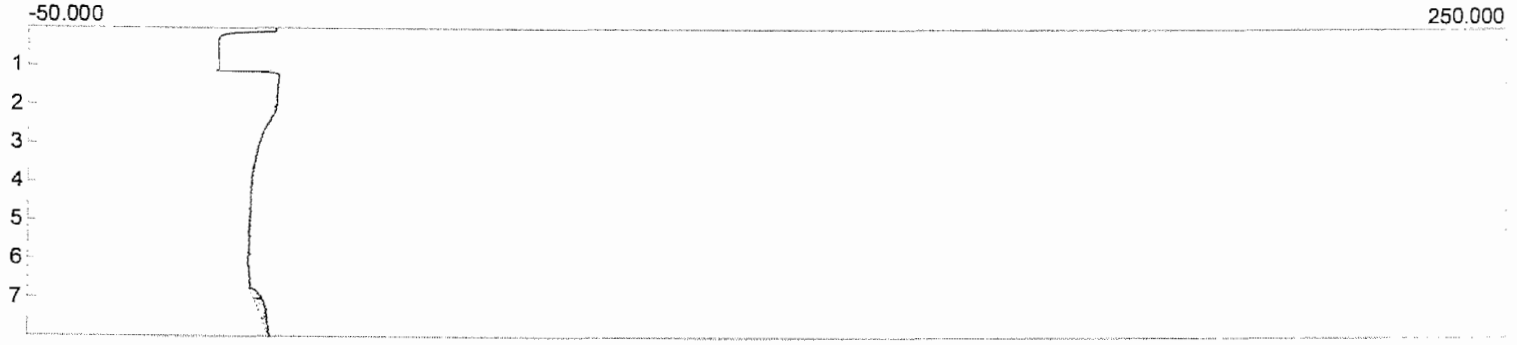
Z-5




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 18:47:59
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero49.CHR ()
Sample: Test Runs
Operator: BP

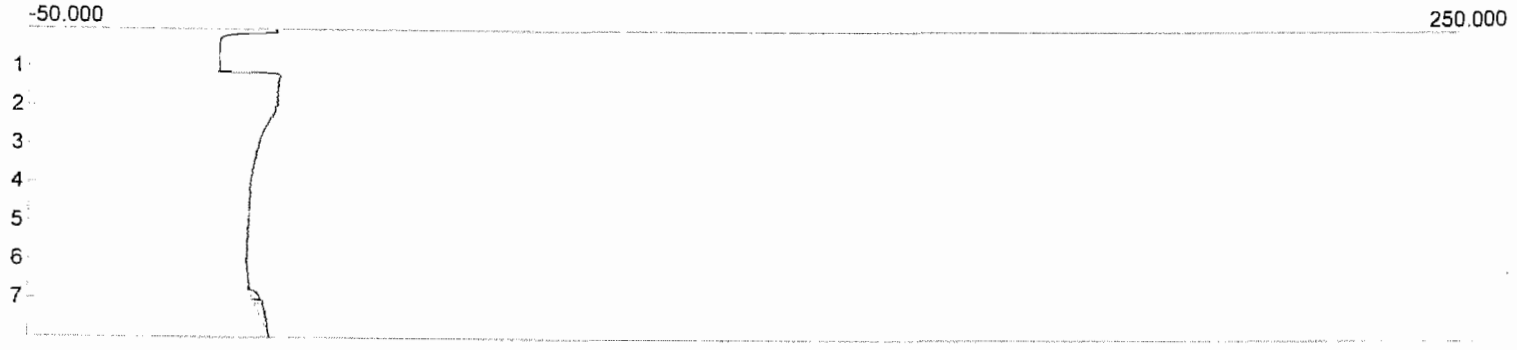
2-6




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 18:57:59
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero50.CHR ()
Sample: Test Runs
Operator: BP

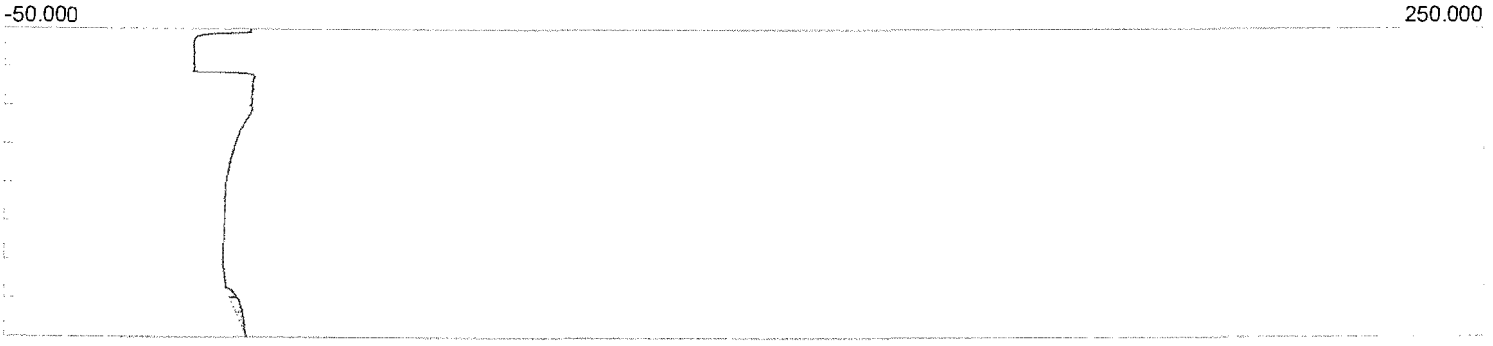
2-7




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 19:07:59
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero51.CHR ()
Sample: Test Runs
Operator: BP

C-2




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

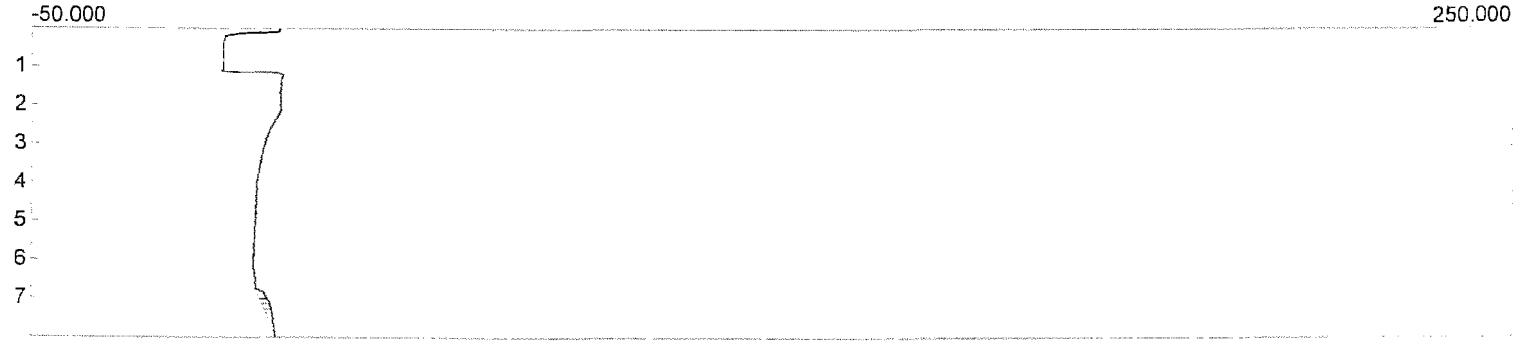
Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 19:17:59
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero52.CHR ()
Sample: Test Runs
Operator: BP

2-9


| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 19:27:59
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero53.CHR ()
Sample: Test Runs
Operator: BP

2.10




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 19:37:59
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero54.CHR ()
Sample: Test Runs
Operator: BP

2.11


| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

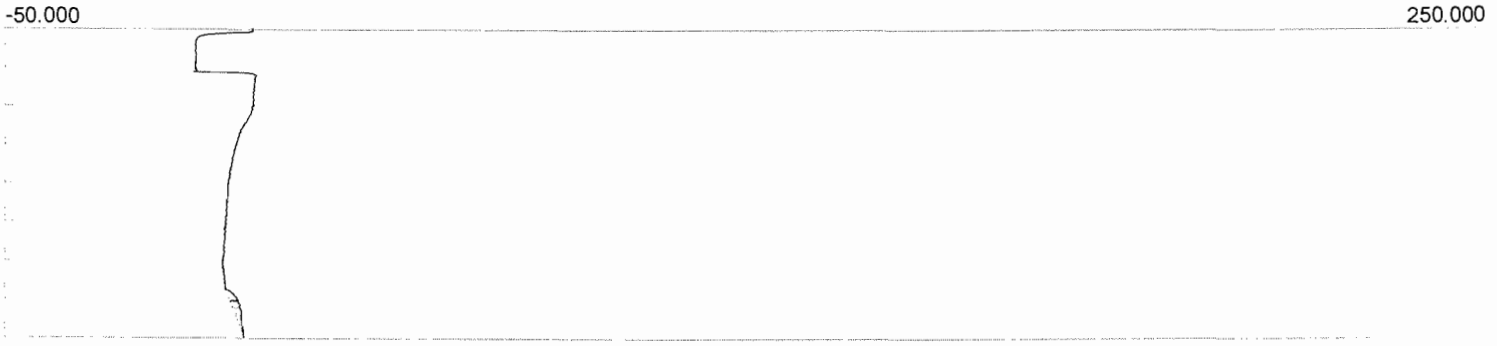
Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 19:47:59
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero55.CHR ()
Sample: Test Runs
Operator: BP

2.12


| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 19:57:59
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero56.CHR ()
Sample: Test Runs
Operator: BP

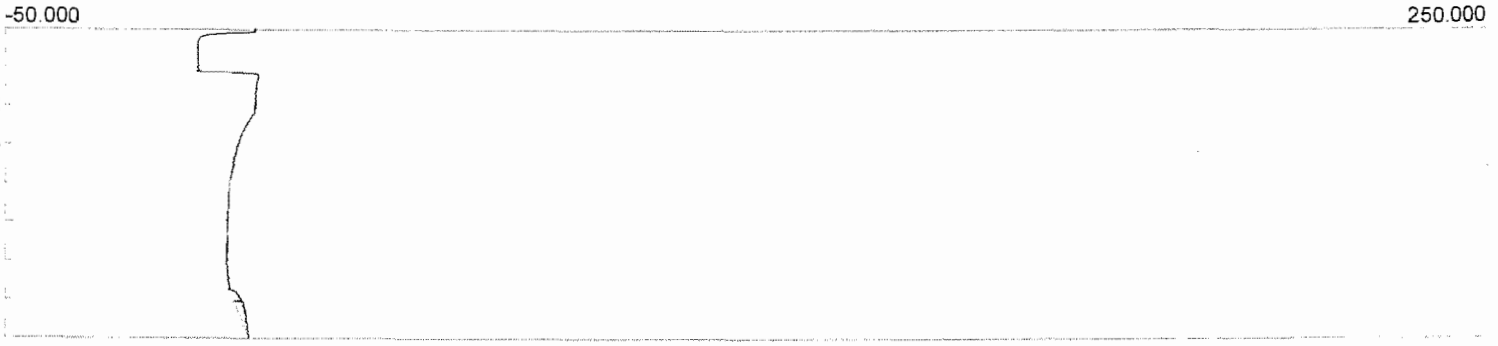
2.13




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

2.14

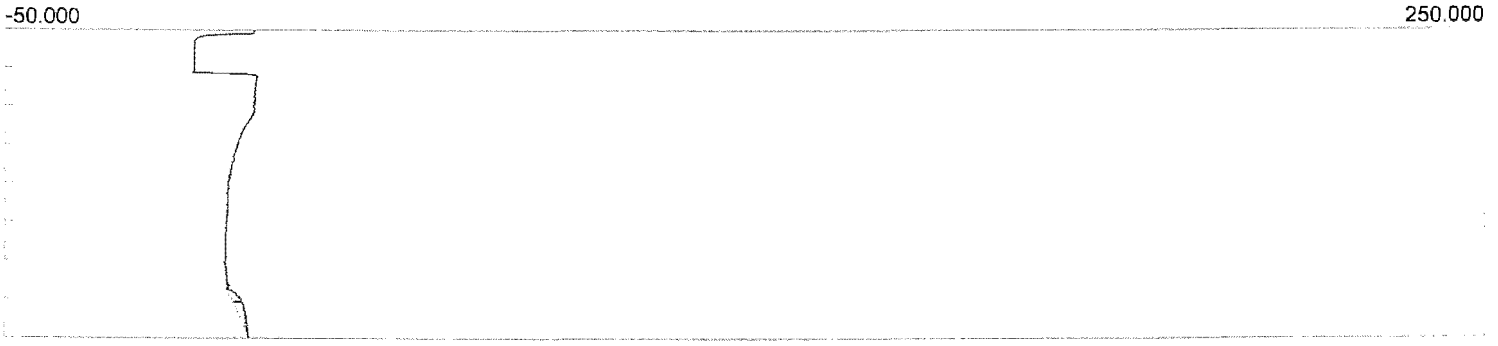
Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 20:07:59
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero57.CHR ()
Sample: Test Runs
Operator: BP




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 20:18:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero58.CHR ()
Sample: Test Runs
Operator: BP

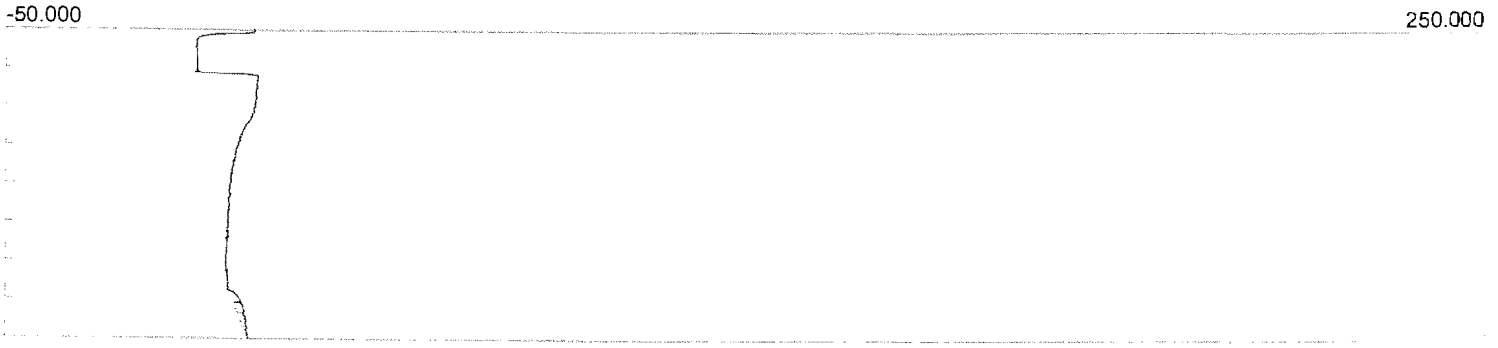
2.15




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 20:28:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero59.CHR ()
Sample: Test Runs
Operator: BP

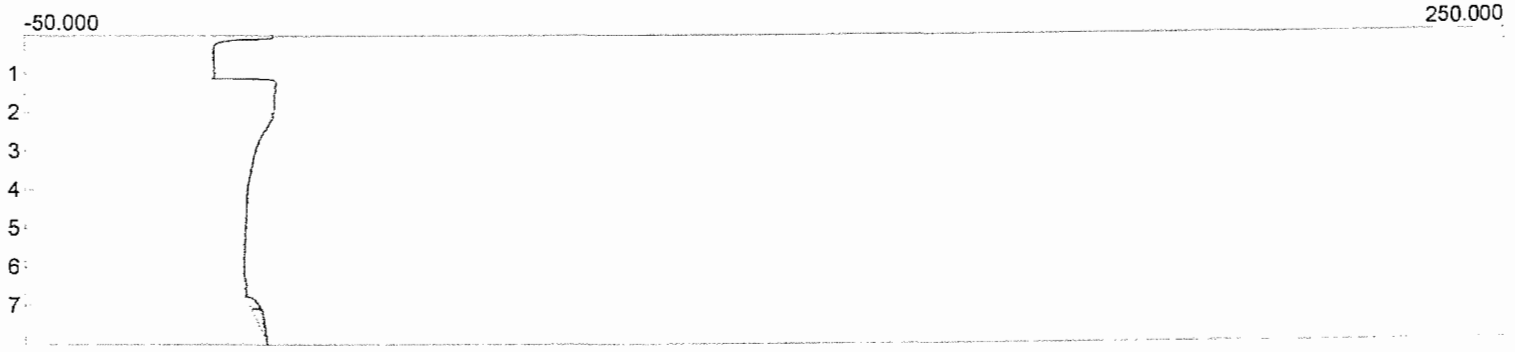
2-16




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 20:38:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero60.CHR ()
Sample: Test Runs
Operator: BP

2.17




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 20:48:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero61.CHR ()
Sample: Test Runs
Operator: BP

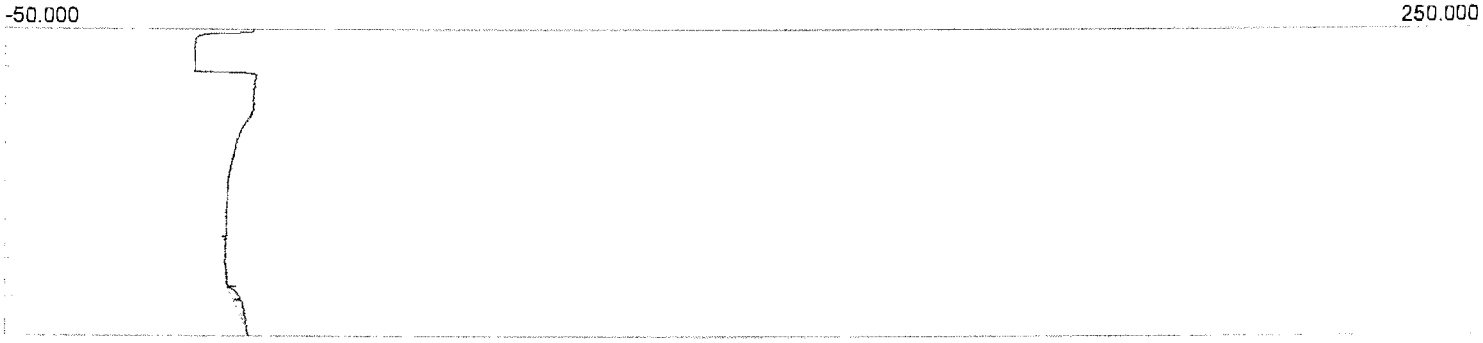
Z·18


| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 20:58:13
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero62.CHR ()
Sample: Test Runs
Operator: BP

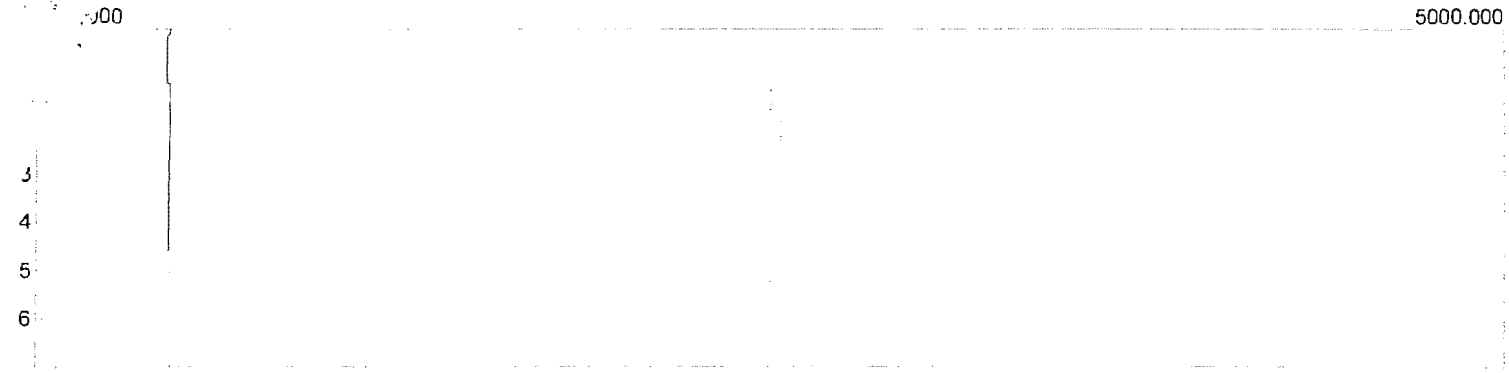

| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/21/2009 21:08:13
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero63.CHR ()
Sample: Test Runs
Operator: BP



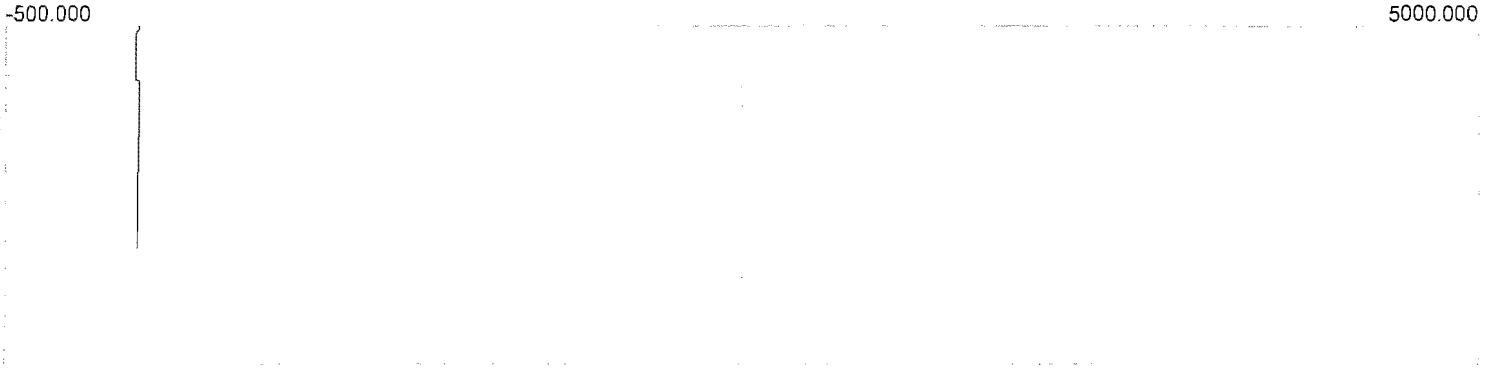

| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

,ronmnetal, Inc
:C
.3
09
:PA Method 15
.STEK Sulfur
,trogen
/alero66.CHR ()
Test Runs
: BP



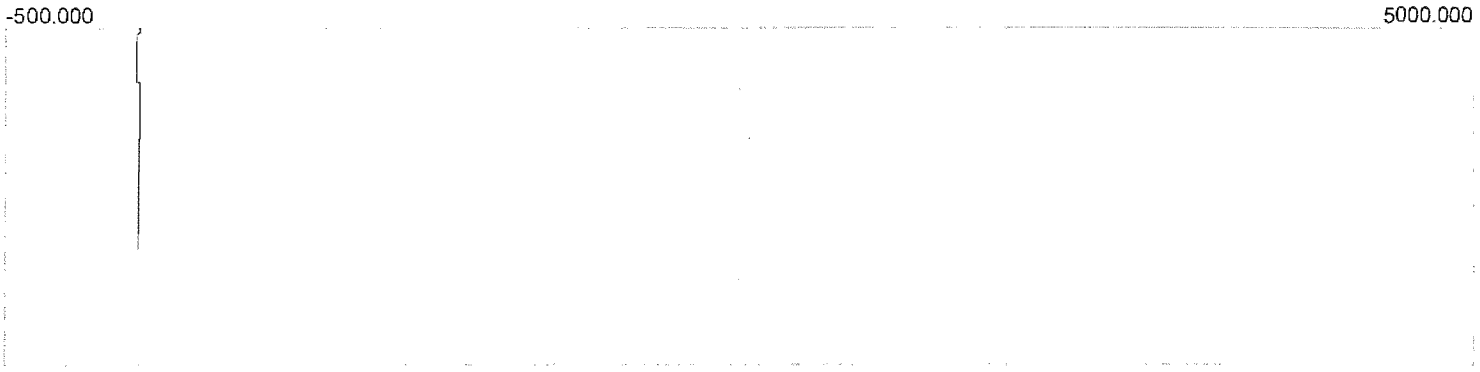

| Component | Area |
|---|---|
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero67.CHR ()
Sample: 0 ppm post cal
Operator: BP



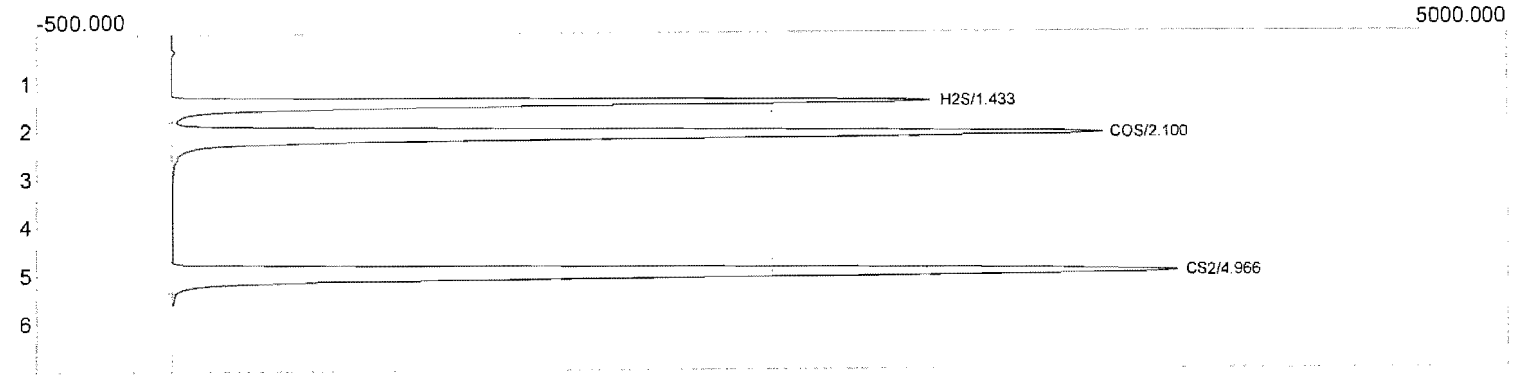

| Component | Area |
|---|---|
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero68.CHR ()
Sample: 0 ppm post cal
Operator: BP



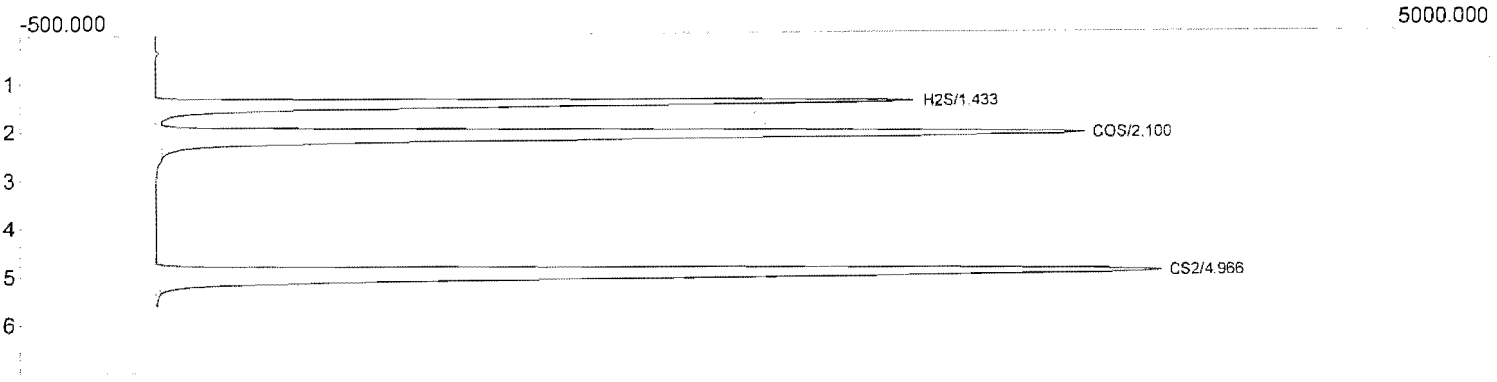

| Component | Area |
|---|---|
| | 0.0000 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero69.CHR ()
Sample: 85 ppm post cal
Operator: BP



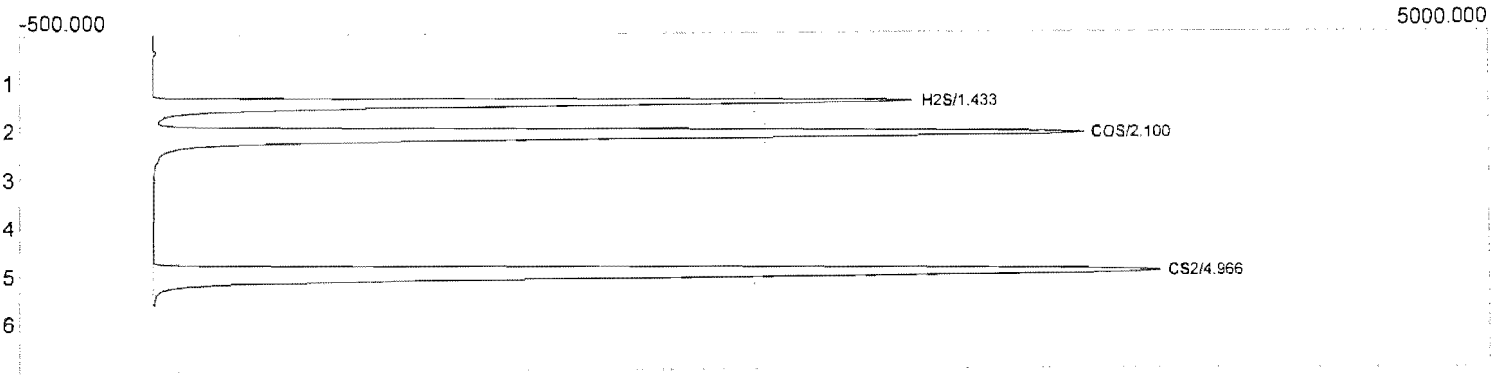

| Component | Area |
|---|---|
| H2S | 28721.7180 |
| COS | 46799.7480 |
| CS2 | 54451.7200 |
| | 129973.1860 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero70.CHR ()
Sample: 85 ppm post cal
Operator: BP



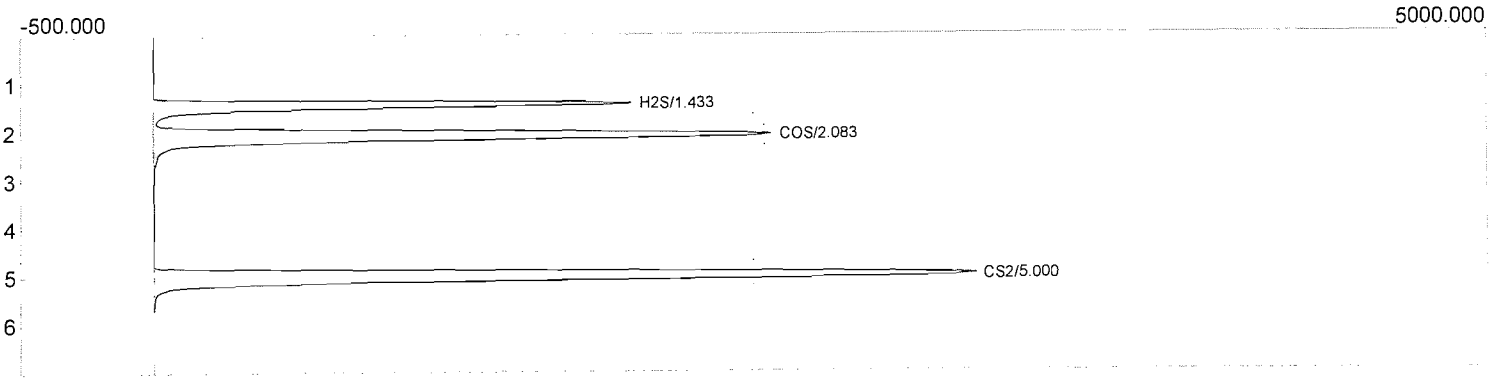

| Component | Area |
|---|---|
| H2S | 27672.9920 |
| COS | 45332.7680 |
| CS2 | 53329.3435 |
| | 126335.1035 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero71.CHR ()
Sample: 85 ppm post cal
Operator: BP



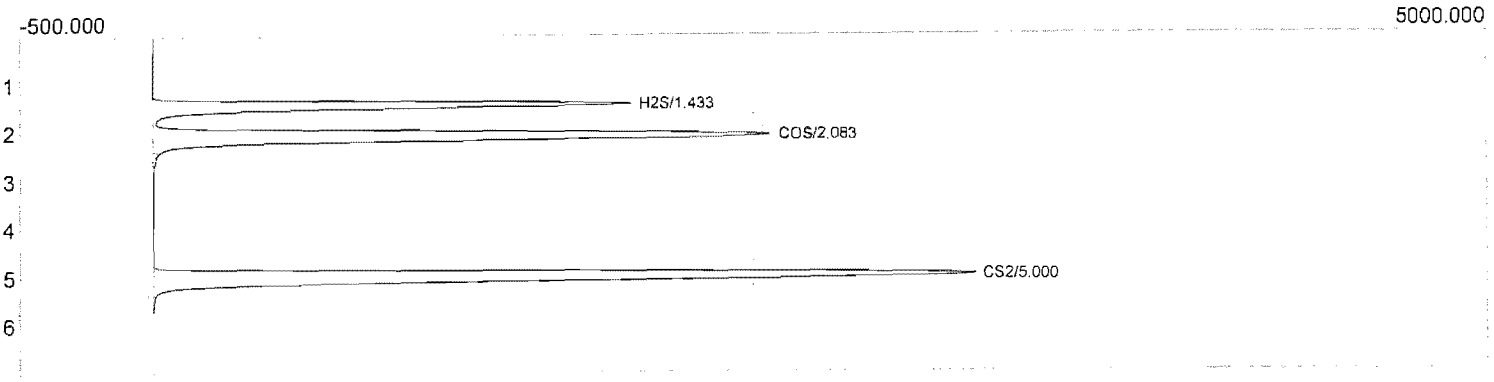

| Component | Area |
|---|---|
| H2S | 27296.2000 |
| COS | 46055.7020 |
| CS2 | 54090.0080 |
| | 127441.9100 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero72.CHR ()
Sample: 50 ppm post cal
Operator: BP



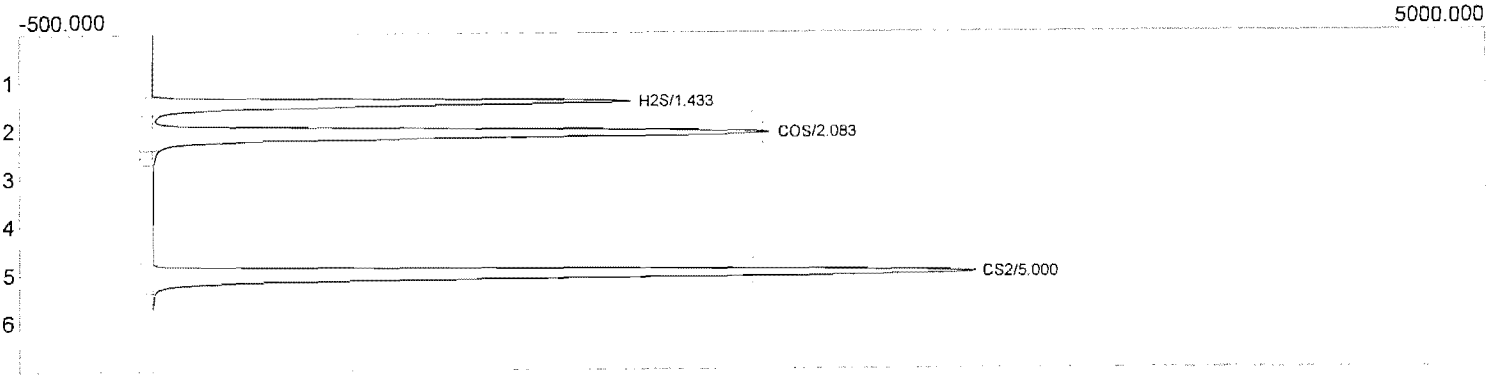

| Component | Area |
|---|---|
| H2S | 17183.4020 |
| COS | 29364.3945 |
| CS2 | 39352.3340 |
| | 85900.1305 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero73.CHR ()
Sample: 50 ppm post cal
Operator: BP



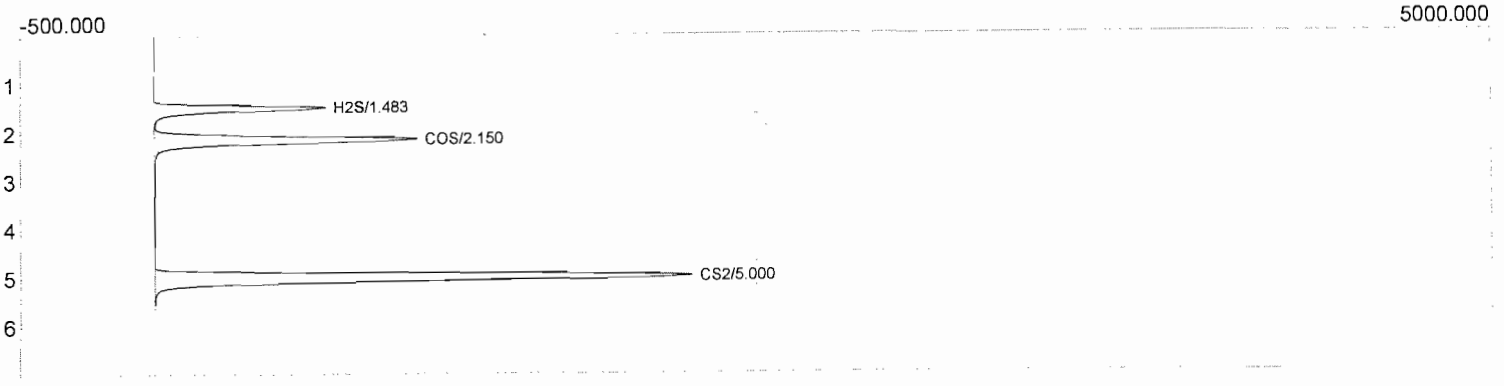

| Component | Area |
|---|---|
| H2S | 16380.9630 |
| COS | 29396.0050 |
| CS2 | 41453.9650 |
| | 87230.9330 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero74.CHR ()
Sample: 50 ppm post cal
Operator: BP



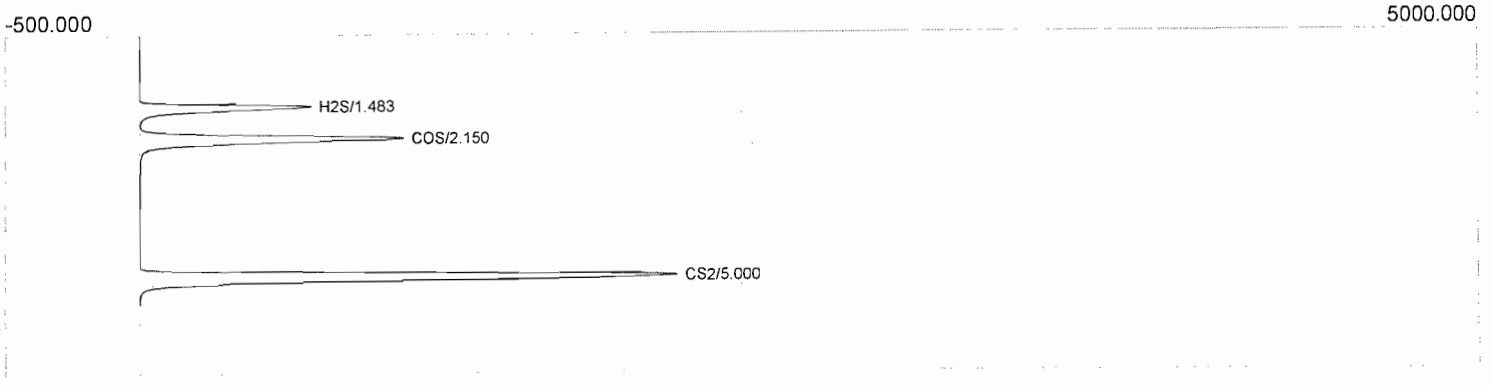

| Component | Area |
|---|---|
| H2S | 17846.7615 |
| COS | 30391.7030 |
| CS2 | 40462.3100 |
| | 88700.7745 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4-21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero75.CHR ()
Sample: 25 ppm post cal
Operator: BP



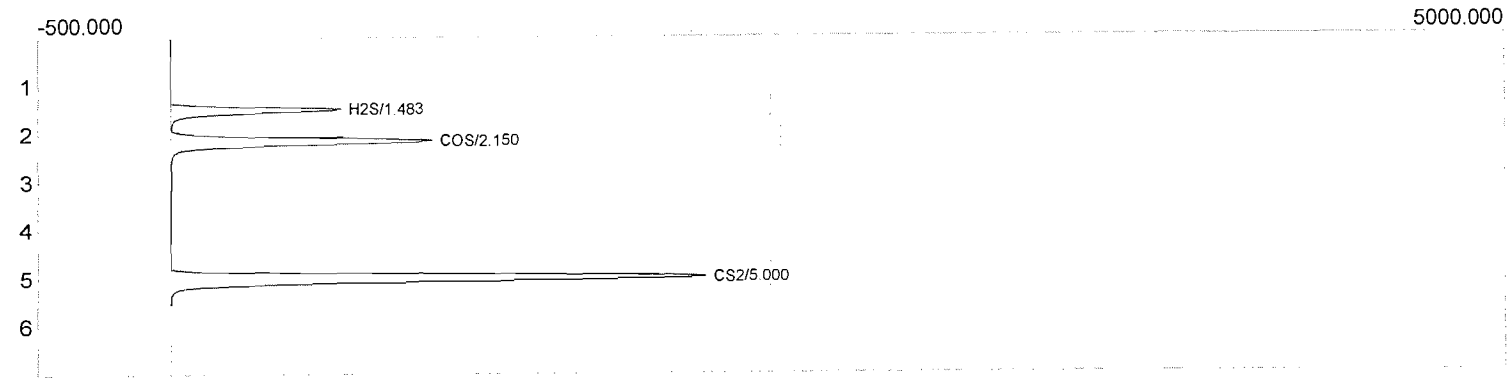

| Component | Area |
|---|---|
| H2S | 5482.0520 |
| COS | 9914.4680 |
| CS2 | 21779.7320 |
| | 37176.2520 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4--21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero76.CHR ()
Sample: 25 ppm post cal
Operator: BP




| Component | Area |
|---|---|
| H2S | 5308.8720 |
| COS | 9484.8420 |
| CS2 | 20498.2510 |
| | 35291.9650 |

Lab name: ARI Environmental, Inc.
Client: Valero CC
Client ID: SRU #3
Collected: 4--21-09
Method: Direct Interface
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero77.CHR ()
Sample: 25 ppm post cal
Operator: BP




| Component | Area |
|---|---|
| H2S | 5261.9255 |
| COS | 9134.0040 |
| CS2 | 20095.9640 |
| | 34491.8935 |

## SUMMARY OF TOTAL REDUCED SULFUR COMPOUNDS

**Company:** Valero CC
**Location:** Corpus Christi, TX
**Source:** SRU #3
**Date:** 4/22/09
**Run No.:** SRU3 - 3

**Line Loss Ratios**

| | |
|---|---|
| COS= | 1.000 |
| H2S= | 1.000 |
| CS2= | 1.000 |

| Run | Date | Time | COS Area (mV) | COS Conc (ppm v db) | H2S Area (mV) | H2S Conc (ppm v db) | CS2 Area (mV) | CS2 Conc (ppm v db) | TRS Conc (as $SO_2$) | Injection |
|---|---|---|---|---|---|---|---|---|---|---|
| Valero117.CHR | 4/22/2009 | 9:00:00 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-1** |
| Valero120.CHR | 4/22/2009 | 9:28:06 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-2** |
| Valero121.CHR | 4/22/2009 | 9:40:25 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-3** |
| Valero122.CHR | 4/22/2009 | 9:50:25 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-4** |
| Valero123.CHR | 4/22/2009 | 10:00:25 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-5** |
| Valero124.CHR | 4/22/2009 | 10:10:25 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-6** |
| Valero125.CHR | 4/22/2009 | 10:20:25 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-7** |
| Valero126.CHR | 4/22/2009 | 10:30:25 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-8** |
| Valero127.CHR | 4/22/2009 | 10:40:25 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-9** |
| Valero128.CHR | 4/22/2009 | 10:50:25 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-10** |
| Valero129.CHR | 4/22/2009 | 11:00:25 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-11** |
| Valero130.CHR | 4/22/2009 | 11:10:25 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-12** |
| Valero131.CHR | 4/22/2009 | 11:20:26 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-13** |
| Valero132.CHR | 4/22/2009 | 11:30:26 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-14** |
| Valero133.CHR | 4/22/2009 | 11:40:26 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-15** |
| Valero134.CHR | 4/22/2009 | 11:50:26 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-16** |
| Valero135.CHR | 4/22/2009 | 12:00:26 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-17** |
| Valero136.CHR | 4/22/2009 | 12:10:26 | <2.00 | **<0.54** | <1.00 | **<0.65** | <10.00 | <0.86 | **<1.19** | **3-18** |
| | | **Average Values** | | **<0.54** | | **<0.65** | | **<0.86** | **<1.19** | |

# TRS STANDARDS PRETEST DATA

| | |
|---|---|
| **Client:** | Valero CC |
| **Location:** | Corpus Christi, TX |
| **Source:** | SRU #3 |
| **Date sampled:** | 4/22/2009 |
| **Run Number:** | 3 |
| **Compound Analyzed:** | TRS |
| **Method:** | USEPA Method 15 |
| **Instrument:** | SRI-9300B |
| **Detector** | GC-FPD |
| **Units of Detection:** | ppm |

| Carbonyl Sulfide Standards | | | |
|---|---|---|---|
| **Standard No** | **Concentration** | **Area** | **Sq Rt Area Counts** |
| 1 | 0.0 | 0.0 | 0.0 |
| 2 | 9.7 | 268.74 | 16.4 |
| 3 | 24.3 | 2012.46 | 44.9 |
| 4 | 48.6 | 6,899.9 | 83.1 |
| | | | |

| Hydrogen Sulfide Standards | | | |
|---|---|---|---|
| **Standard No** | **Concentration** | **Area** | **Sq Rt Area Counts** |
| 1 | 0.0 | 0.0 | 0.0 |
| 2 | 10.0 | 150.1 | 12.3 |
| 3 | 25.0 | 1,203.6 | 34.7 |
| 4 | 50.0 | 4,149.1 | 64.4 |
| | | | |

| Carbon Disulfide Standards | | | |
|---|---|---|---|
| **Standard No** | **Concentration** | **Area** | **Sq Rt Area Counts** |
| 1 | 0.0 | 0.0 | 0.0 |
| 2 | 10.4 | 803.9 | 28.4 |
| 3 | 26.0 | 6,478.5 | 80.5 |
| 4 | 52.1 | 21,602.7 | 147.0 |
| | | | |

# Analytical Calculation Summary

## Calibration Standards Area Linear Regression Fit

**Client:** Valero CC
**Location:** Corpus Christi, TX
**Source:** SRU #3
**Date sampled:** 4/22/2009
**Run Number:** 3
**Compound Analyzed:** Hydrogen Sulfide
**Method:** USEPA Method 15
**Instrument:** SRI-9300B
**Detector** GC-FPD
**Units of Detection:** ppm

**Calibration Standards**

| Standard # | Standard Peak Area (mv) | Square Root Peak Area (mv) | Standard Concentration (ppm) |
|---|---|---|---|
| 1 | 0.0 | 0.0 | 0.0 |
| 2 | 150.1 | 12.3 | 10.0 |
| 3 | 1,203.6 | 34.7 | 25.0 |
| 4 | 4,149.1 | 64.4 | 50.0 |

**Statistical Analysis Summary**

| | |
|---|---|
| $\Sigma xy$: | 4210.49 |
| $\Sigma x$: | 111.4 |
| $\Sigma y$: | 85 |
| $\Sigma x^2$: | 5503 |
| $\Sigma(x)^2$: | 12400 |
| N: | 4 |
| m: | 0.76755 |
| b: | -0.11784 |

# Analytical Calculation Summary

## Calibration Standards Area Linear Regression Fit

**Client:** Valero CC
**Location:** Corpus Christi, TX
**Source:** SRU #3
**Date sampled:** 4/22/2009
**Run Number:** 3
**Compound Analyzed:** Carbonyl Sulfide
**Method:** USEPA Method 15
**Instrument:** SRI-9300B
**Detector** GC-FPD
**Units of Detection:** ppm

**Calibration Standards**

| Standard # | Standard Peak Area (mv) | Square Root Peak Area (mv) | Standard Concentration (ppm) |
|---|---|---|---|
| 1 | 0.0 | 0.0 | 0.0 |
| 2 | 268.7 | 16.4 | 9.7 |
| 3 | 2,012.5 | 44.9 | 24.3 |
| 4 | 6,899.9 | 83.1 | 48.6 |

**Statistical Analysis Summary**

| | |
|---|---|
| $\Sigma xy$: | 5289.14 |
| $\Sigma x$: | 144.3 |
| $\Sigma y$: | 82.7 |
| $\Sigma x^2$: | 9181 |
| $\Sigma(x)^2$: | 20828 |
| N: | 4 |
| m: | 0.58044 |
| b: | -0.27656 |

# Analytical Calculation Summary

## Calibration Standards Area Linear Regression Fit

**Client:** Valero CC
**Location:** Corpus Christi, TX
**Source:** SRU #3
**Date sampled:** 4/22/2009
**Run Number:** 3
**Compound Analyzed:** Carbon Disulfide
**Method:** USEPA Method 15
**Instrument:** SRI-9300B
**Detector** GC-FPD
**Units of Detection:** ppm

**Calibration Standards**

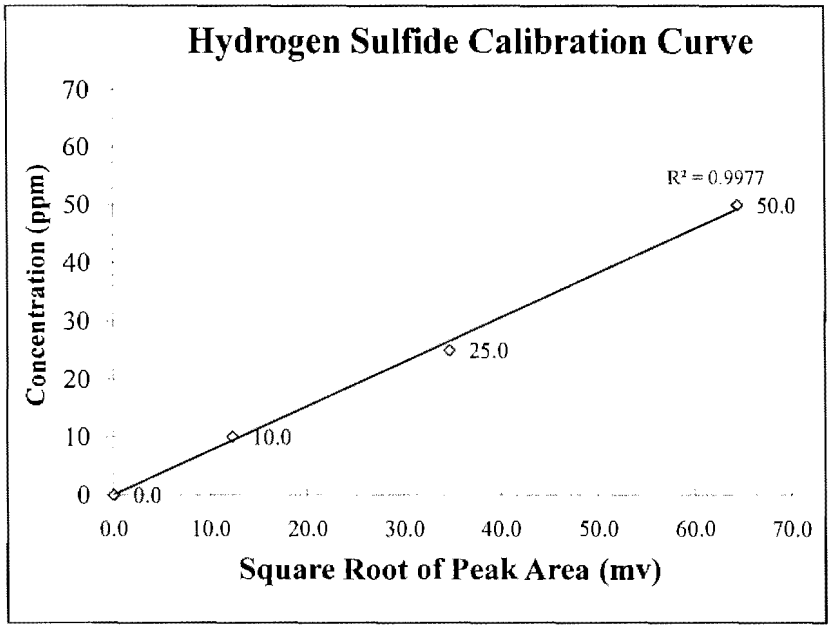
| Standard # | Standard Peak Area (mv) | Square Root Peak Area (mv) | Standard Concentration (ppm) |
|---|---|---|---|
| 1 | 0.0 | 0.0 | 0.0 |
| 2 | 803.9 | 28.4 | 10.4 |
| 3 | 6,478.5 | 80.5 | 26.0 |
| 4 | 21,602.7 | 147.0 | 52.1 |

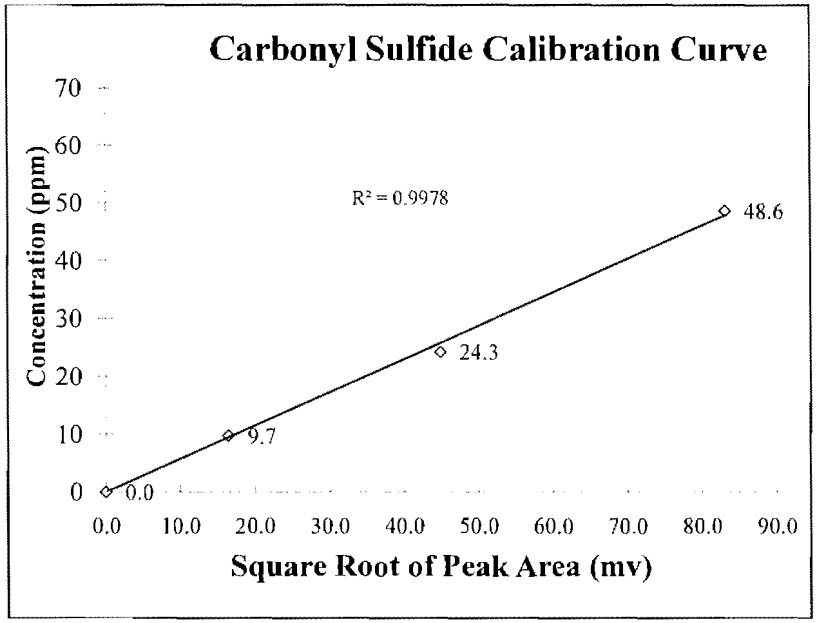
**Statistical Analysis Summary**

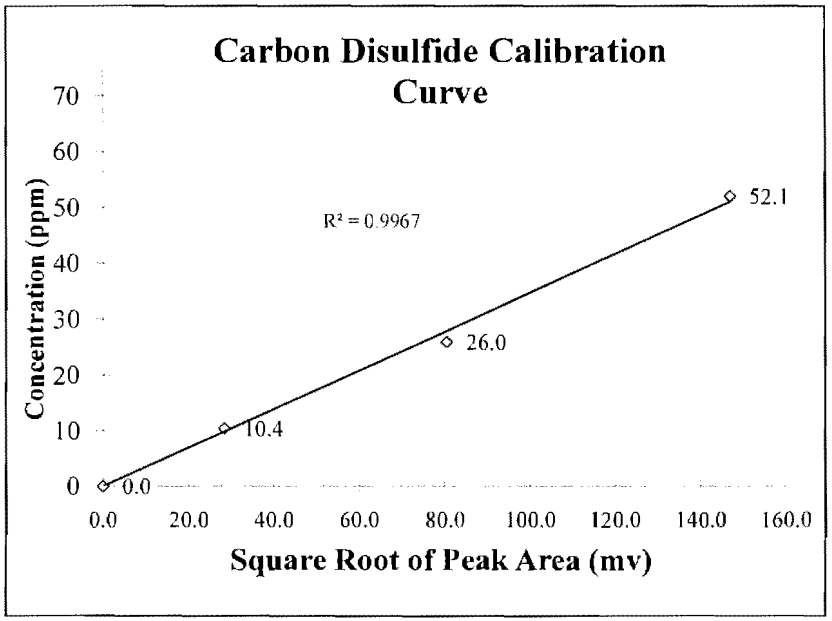
| | |
|---|---|
| $\Sigma xy$: | 10042.6 |
| $\Sigma x$: | 255.8 |
| $\Sigma y$: | 88.5 |
| $\Sigma x^2$: | 28885 |
| $\Sigma(x)^2$: | 65444 |
| N: | 4 |
| m: | 0.3499 |
| b: | -0.25096 |

## Calibration Curves

**April 22, 2009**



# TRS STANDARDS POSTTEST DATA

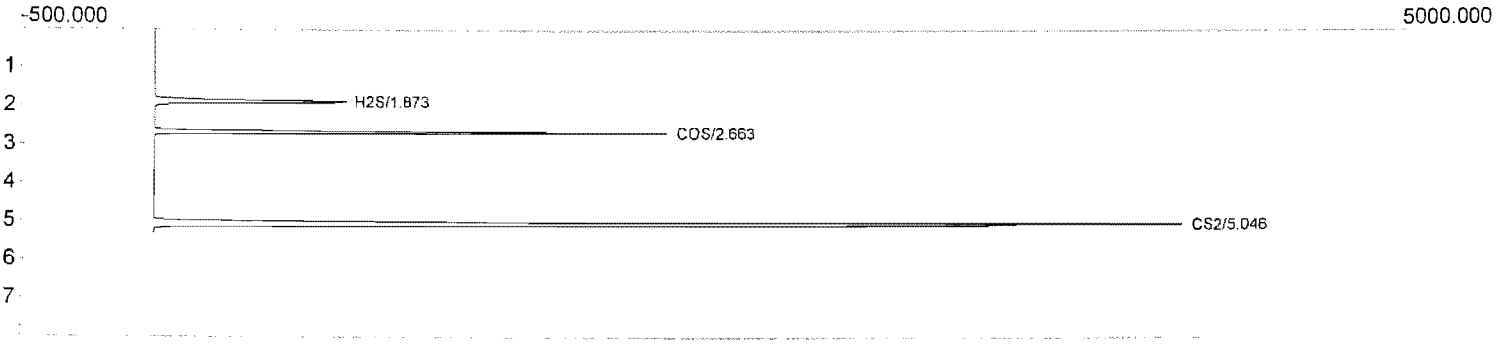
**Client:** Valero CC
**Location:** Corpus Christi, TX
**Source:** SRU #3
**Date sampled:** 4/22/2009
**Run Number:** 3
**Compound Analyzed:** TRS
**Method:** USEPA Method 15
**Instrument:** SRI-9300B
**Detector** GC-FPD
**Units of Detection:** ppm

| Carbonyl Sulfide Standards | | | | Drift |
|---|---|---|---|---|
| Standard No | Concentration | Area | Sq Rt Area Counts | % |
| 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | 9.7 | 271.7 | 16.5 | -0.6 |
| 3 | 25.0 | 2,150.0 | 46.4 | -3.4 |
| 4 | 50.0 | 6,950.8 | 83.4 | -0.4 |
| | | | | |

| Hydrogen Sulfide Standards | | | | Drift |
|---|---|---|---|---|
| Standard No | Concentration | Area | Sq Rt Area Counts | % |
| 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | 10.0 | 144.3 | 12.0 | 2.0 |
| 3 | 25.0 | 1,211.4 | 34.8 | -0.3 |
| 4 | 50.0 | 3,988.0 | 63.2 | 2.0 |
| | | | | |

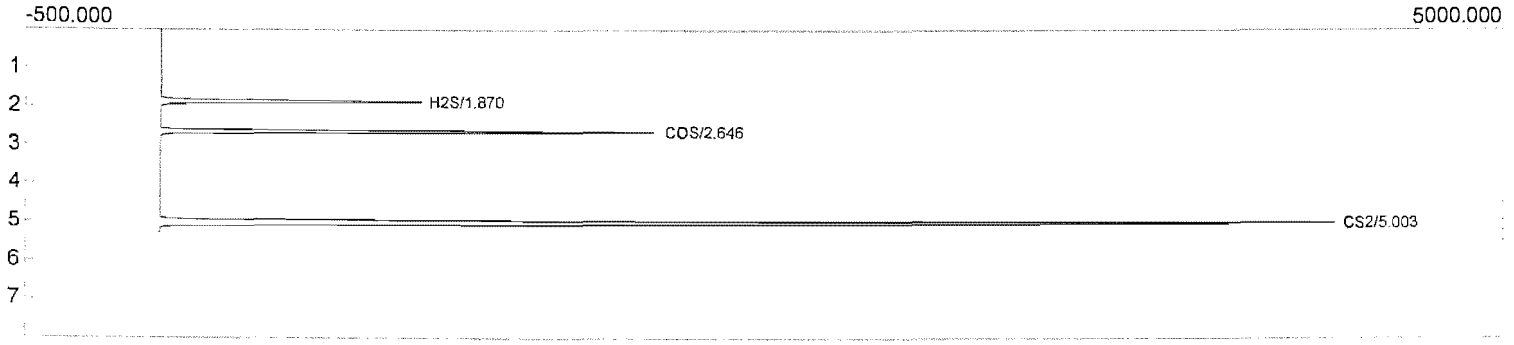
| Carbon Disulfide Standards | | | | Drift |
|---|---|---|---|---|
| Standard No | Concentration | Area | Sq Rt Area Counts | % |
| 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | 10.4 | 840.7 | 29.0 | -2.3 |
| 3 | 26.0 | 6,433.0 | 80.2 | 0.4 |
| 4 | 52.1 | 20,748.9 | 144.0 | 2.0 |
| | | | | |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 06:12:12
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero101.chr ()
Sample: 50 ppm pre cal
Operator: BP



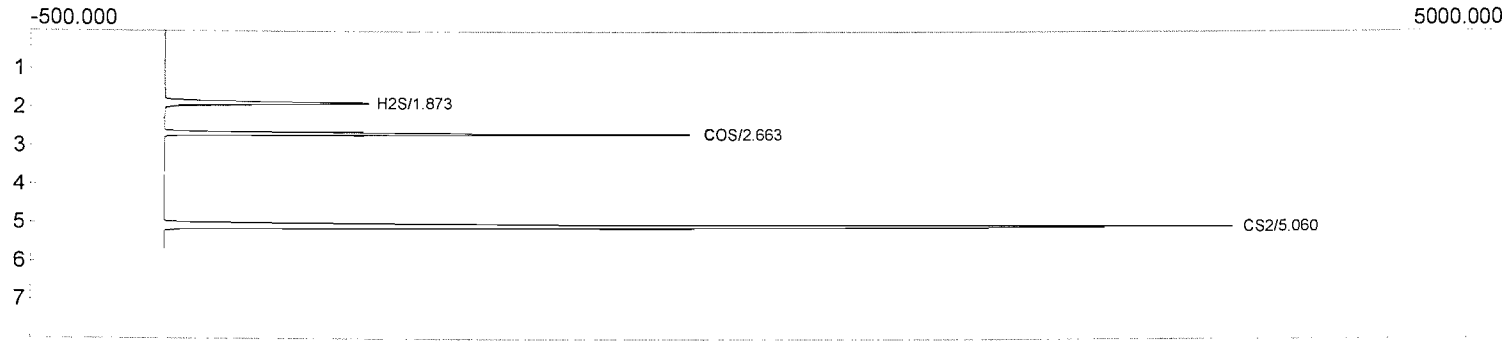

| Component | Area |
|---|---|
| H2S | 3913.0838 |
| COS | 6614.3724 |
| CS2 | 20436.6613 |
| | 30964.1175 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 06:19:40
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero102.CHR ()
Sample: 50 ppm pre cal
Operator: BP



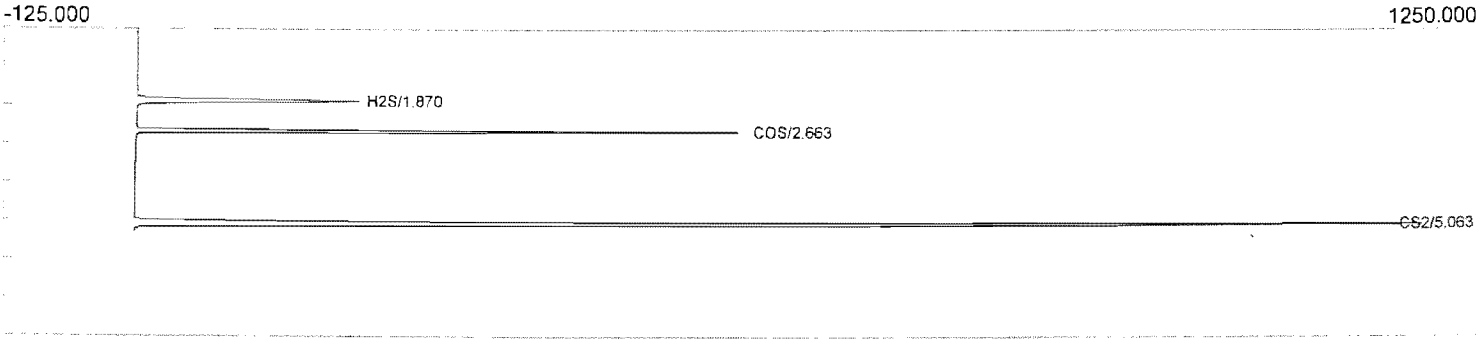

| Component | Area |
|---|---|
| H2S | 4368.1560 |
| COS | 7093.8802 |
| CS2 | 23173.6379 |
| | 34635.6741 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 06:29:01
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero103.CHR ()
Sample: 50 ppm pre cal
Operator: BP



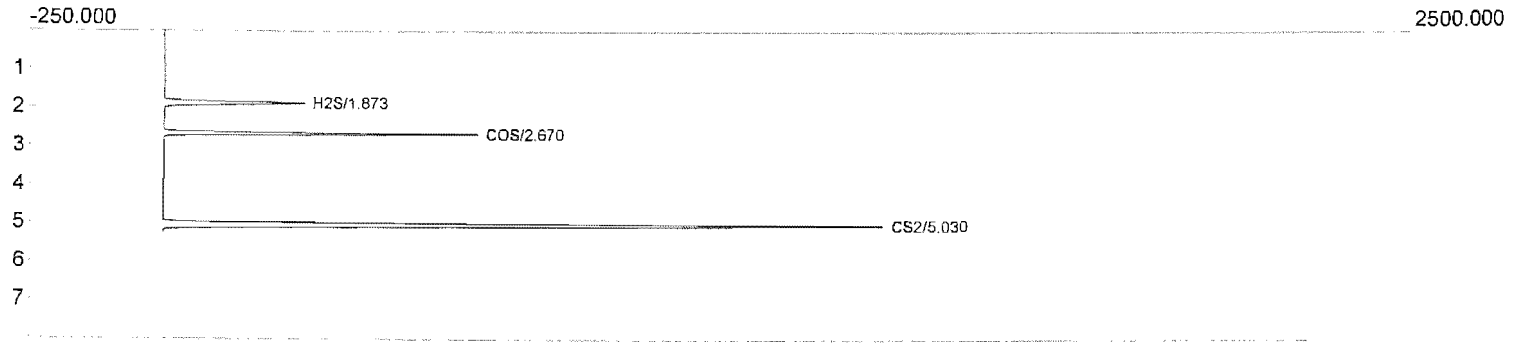

| Component | Area |
|---|---|
| H2S | 4166.0326 |
| COS | 6991.4477 |
| CS2 | 21197.9114 |
| | 32355.3917 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 06:47:44
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero105.CHR ()
Sample: 25 ppm pre cal
Operator: BP



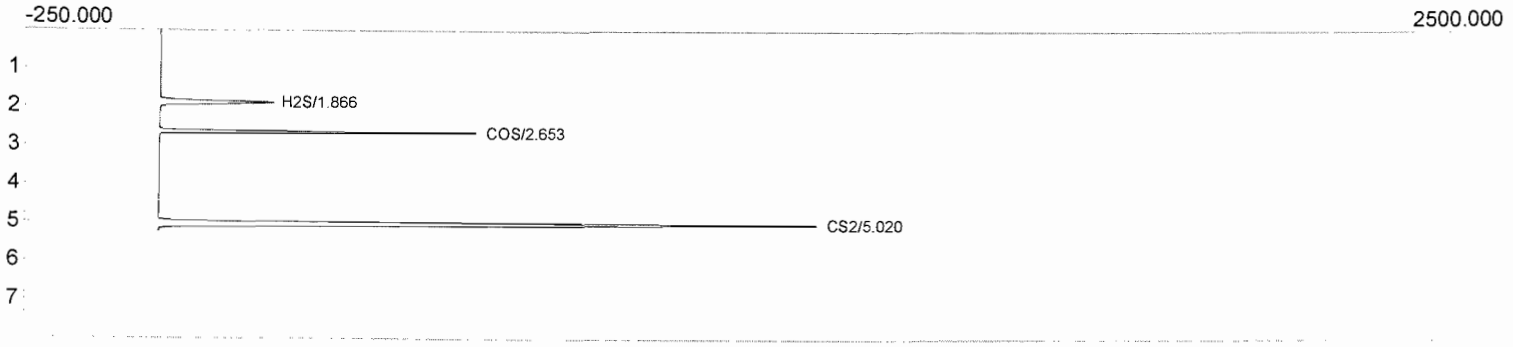

| Component | Area |
|---|---|
| H2S | 1125.9770 |
| COS | 1980.3762 |
| CS2 | 6234.6906 |
| | 9341.0438 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 06:55:10
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero106.CHR ()
Sample: 25 ppm pre cal
Operator: BP



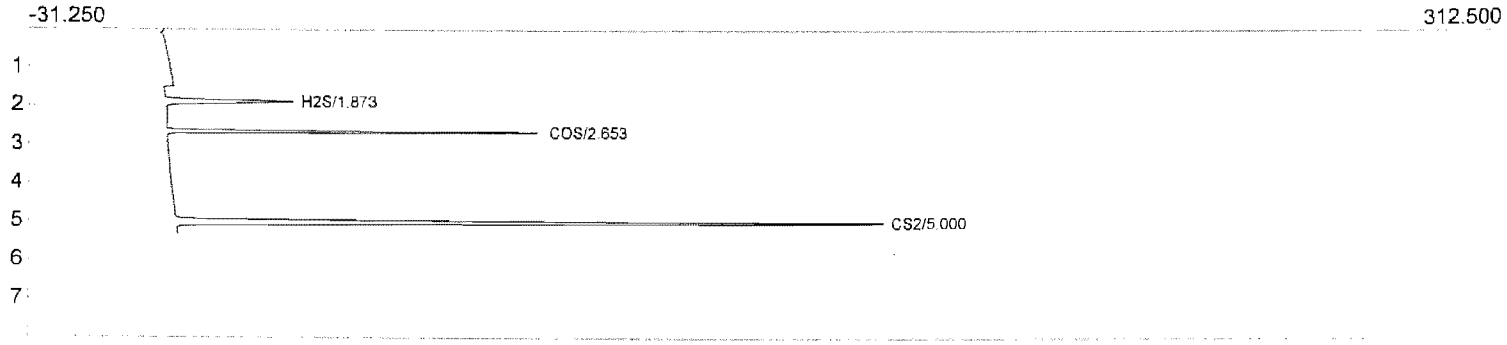

| Component | Area |
|---|---|
| H2S | 1334.8533 |
| COS | 2050.4640 |
| CS2 | 6909.7877 |
| | 10295.1050 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 07:03:46
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero107.CHR ()
Sample: 25 ppm pre cal
Operator: BP



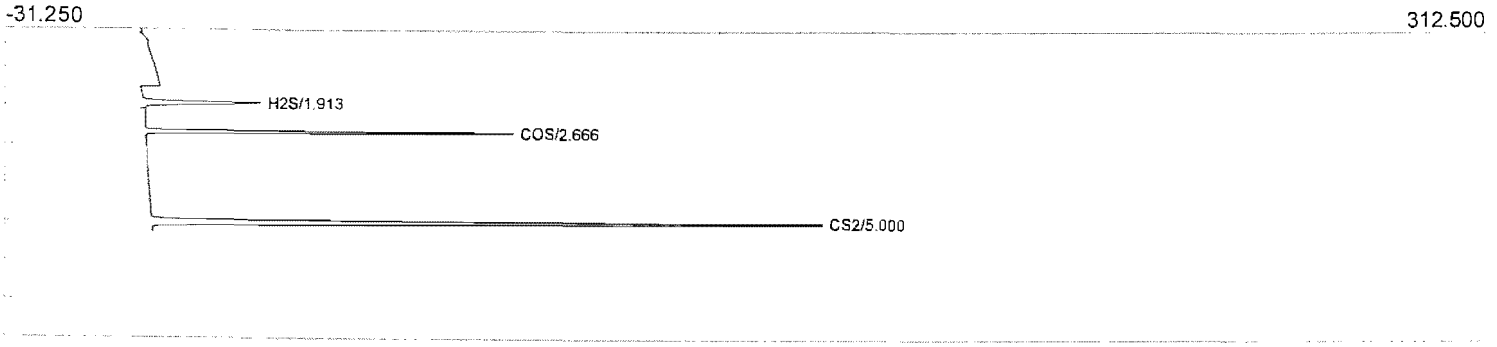

| Component | Area |
|---|---|
| H2S | 1149.9204 |
| COS | 2006.5368 |
| CS2 | 6290.7658 |
| | 9447.2230 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 07:33:37
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero110.CHR ()
Sample: 10 ppm pre cal
Operator: BP



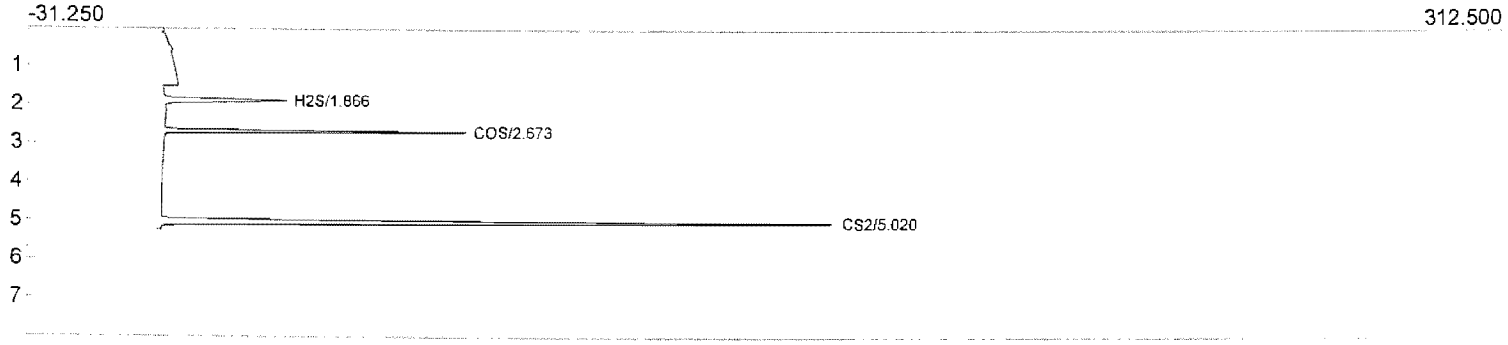

| Component | Area |
|---|---|
| H2S | 159.6212 |
| COS | 289.2866 |
| CS2 | 836.4749 |
| | 1285.3827 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 07:41:25
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero111.CHR ()
Sample: 10 ppm pre cal
Operator: BP




| Component | Area |
|---|---|
| H2S | 145.8262 |
| COS | 271.9642 |
| CS2 | 782.5514 |
| | 1200.3418 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 07:49:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero112.CHR ()
Sample: 10 ppm pre cal
Operator: BP

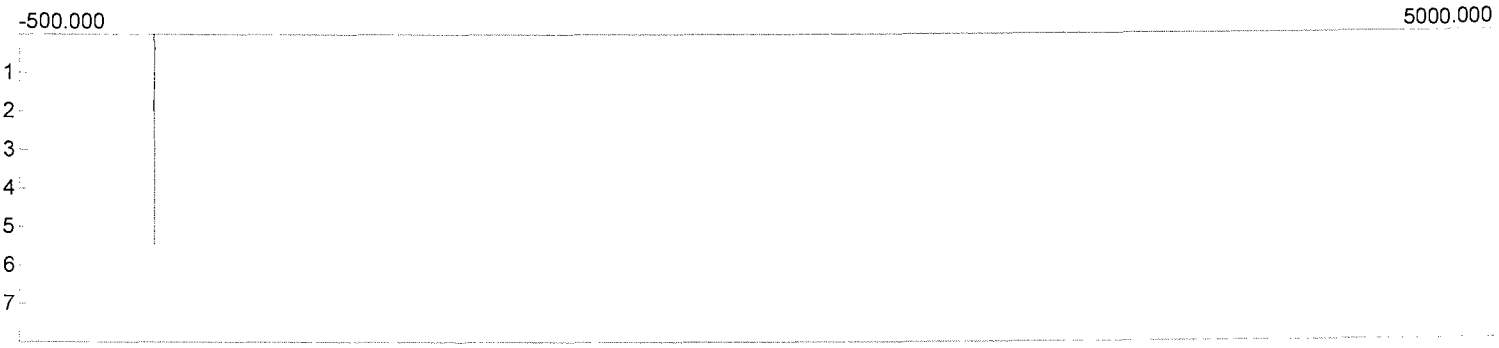



| Component | Area |
|---|---|
| H2S | 144.7696 |
| COS | 244.9820 |
| CS2 | 792.5808 |
| | 1182.3324 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 08:23:07
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero114.CHR ()
Sample: 0 ppm pre cal
Operator: BP

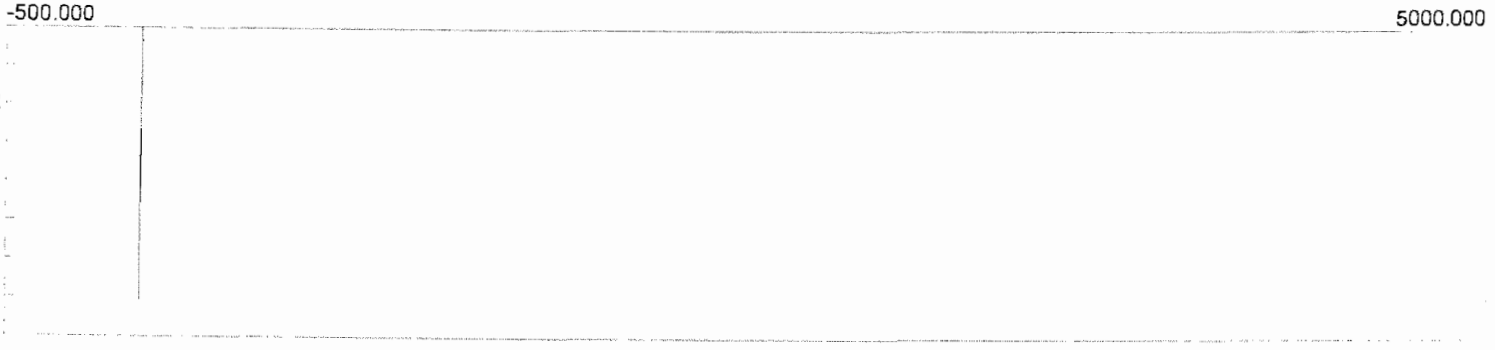

| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 08:29:22
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero115.CHR ()
Sample: 0 ppm pre cal
Operator: BP




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

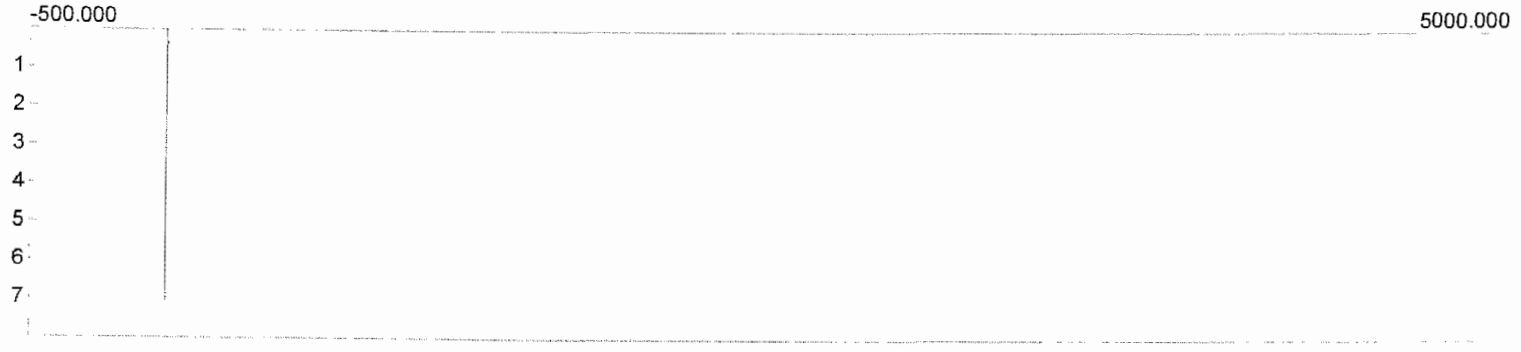
Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 08:37:57
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero116.CHR ()
Sample: 0 ppm pre cal
Operator: BP




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 09:00:00
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero117.CHR ()
Sample: Test Runs
Operator: BP

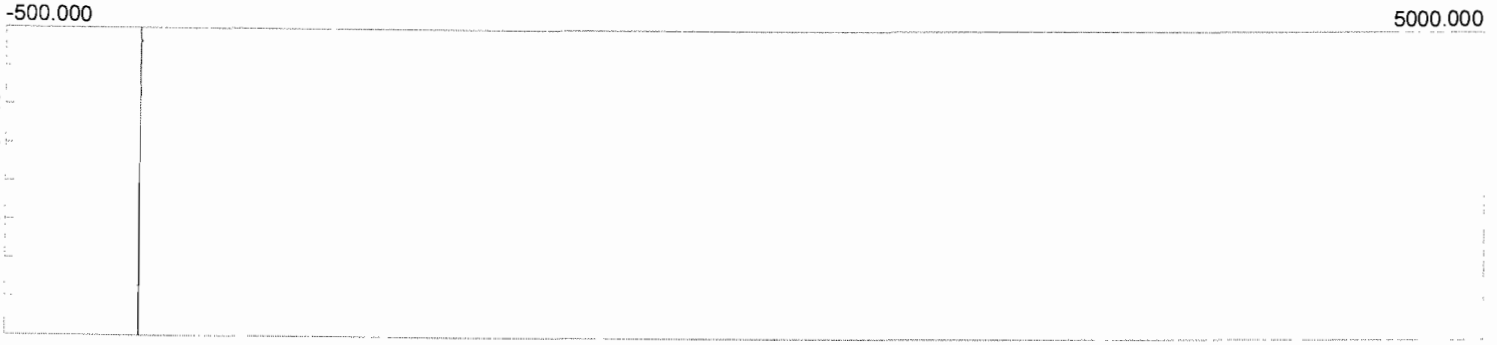
3-1




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 09:28:06
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero120.CHR ()
Sample: Test Runs
Operator: BP

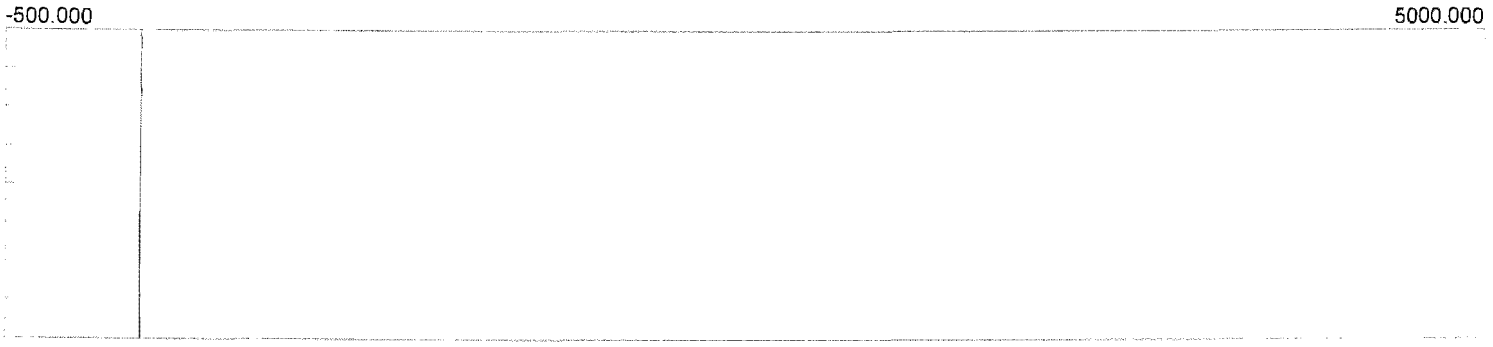
3-2




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 09:40:25
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero121.CHR ()
Sample: Test Runs
Operator: BP

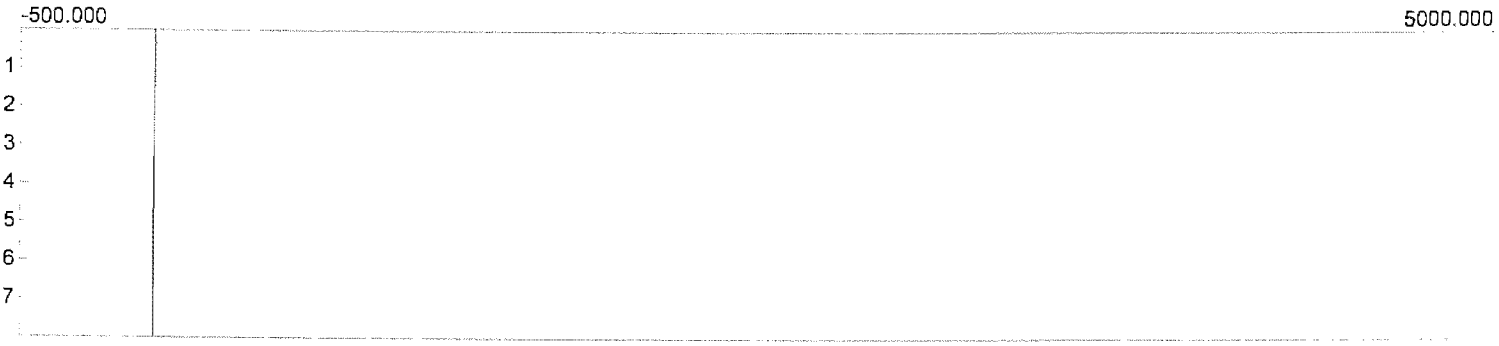
3-3




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 09:50:25
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero122.CHR ()
Sample: Test Runs
Operator: BP

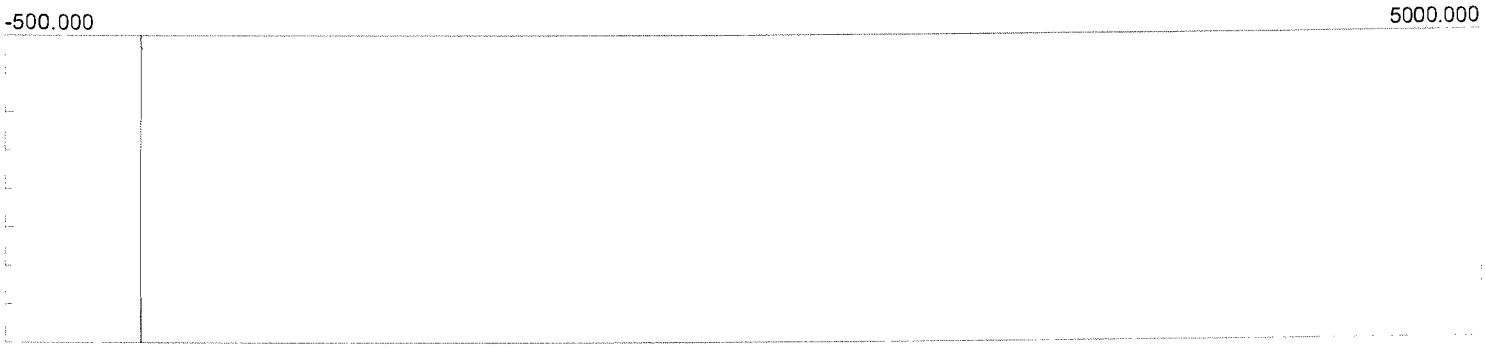
3-4




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 10:00:25
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero123.CHR ()
Sample: Test Runs
Operator: BP

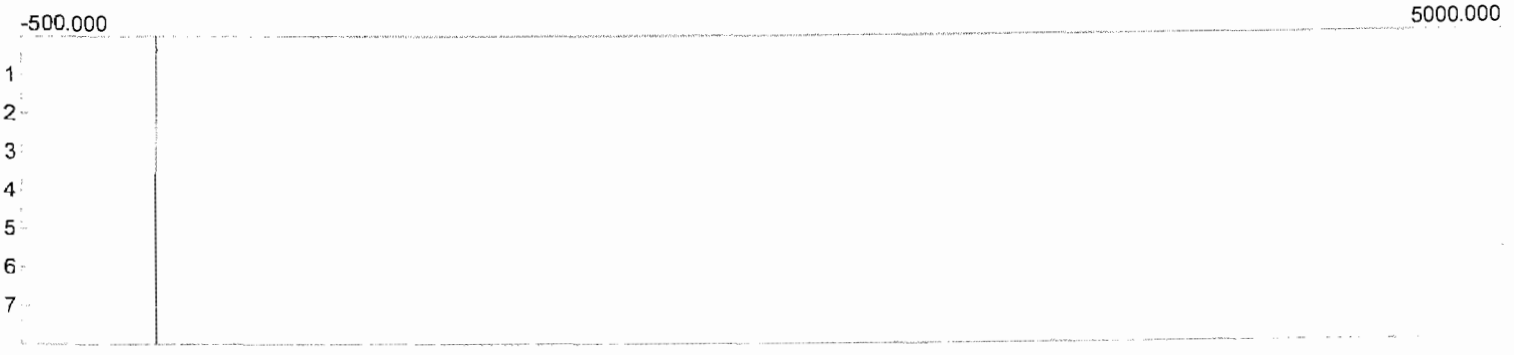
3-5




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 10:10:25
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero124.CHR ()
Sample: Test Runs
Operator: BP

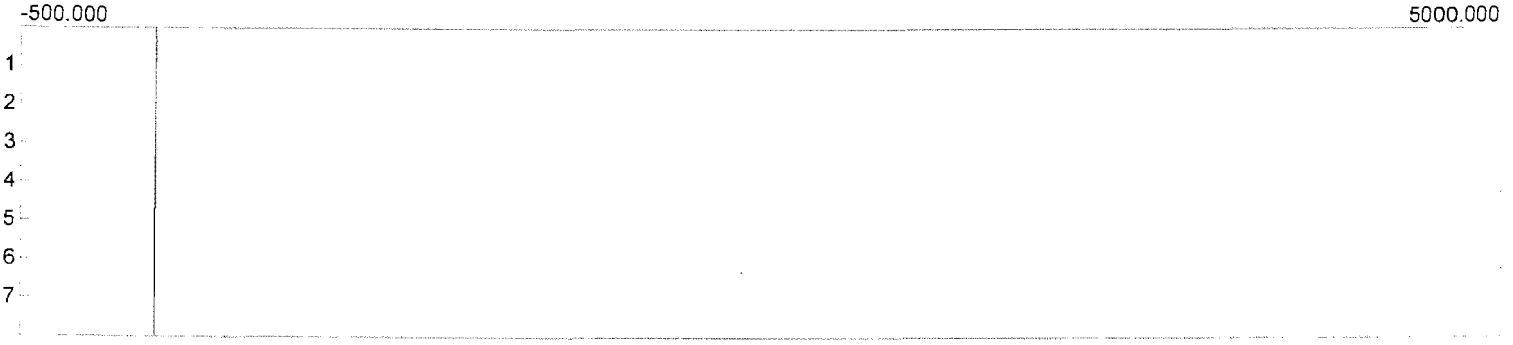
3-6




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 10:20:25
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero125.CHR ()
Sample: Test Runs
Operator: BP

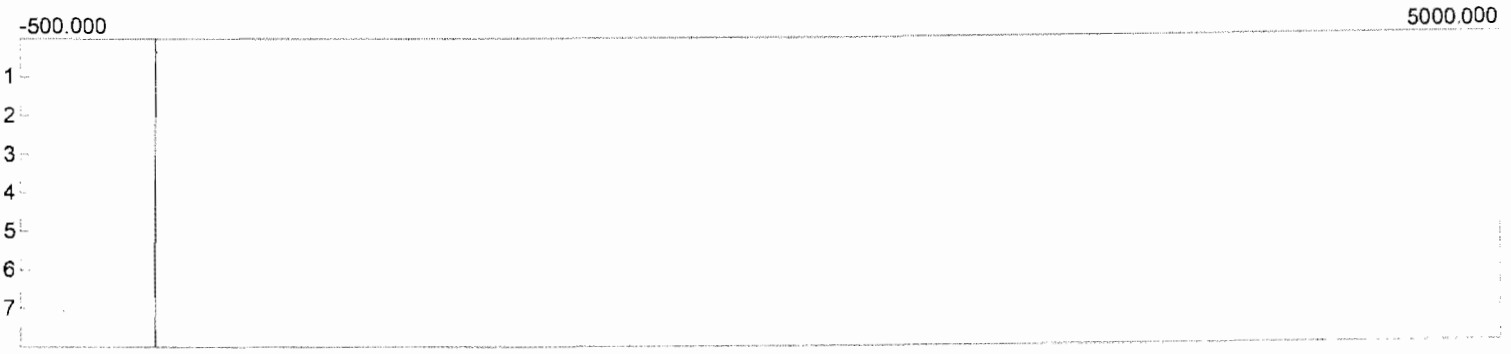
3-7




| Component | Area |
|---|---|
| $H_2S$ | 0.0000 |
| COS | 0.0000 |
| $CS_2$ | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 10:30:25
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero126.CHR ()
Sample: Test Runs
Operator: BP

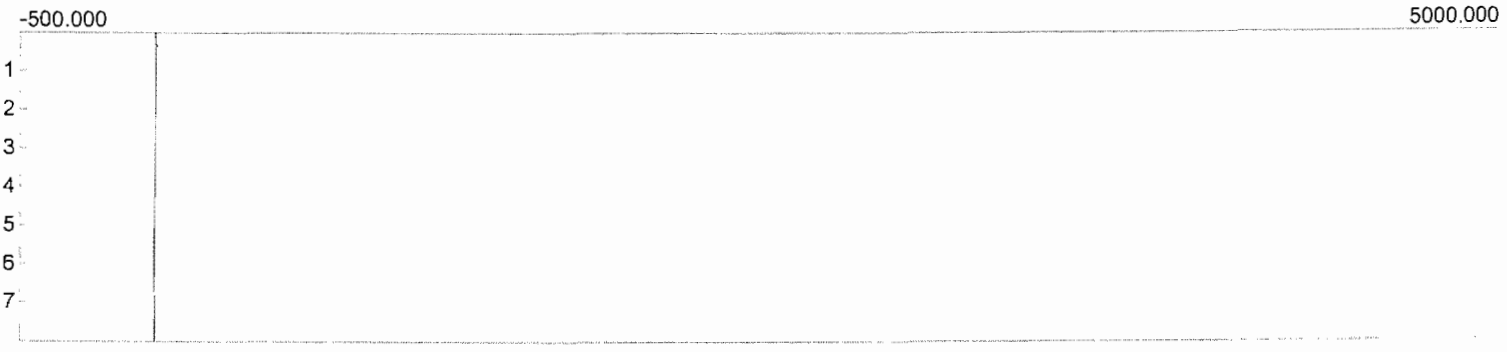
3-8




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 10:40:25
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero127.CHR ()
Sample: Test Runs
Operator: BP

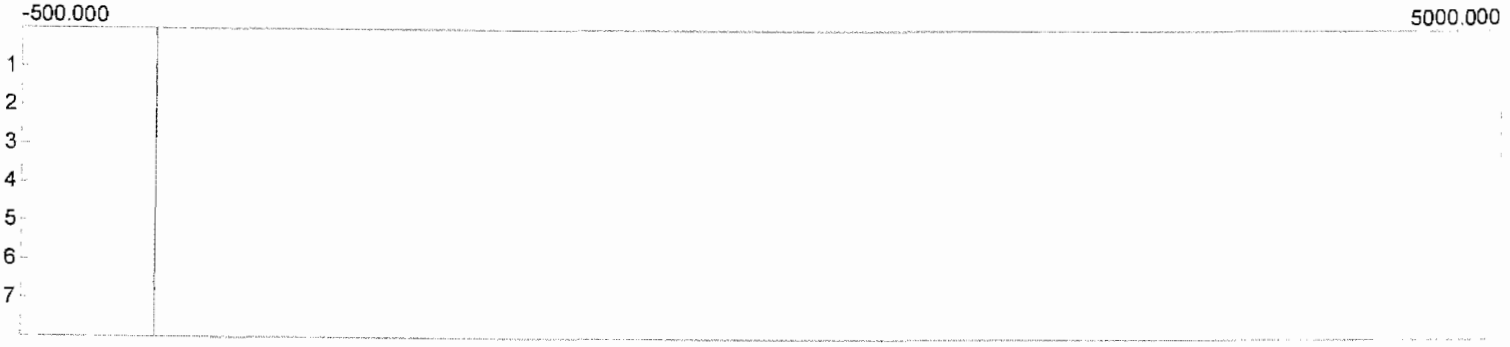
3-9




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 10:50:25
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero128.CHR ()
Sample: Test Runs
Operator: BP

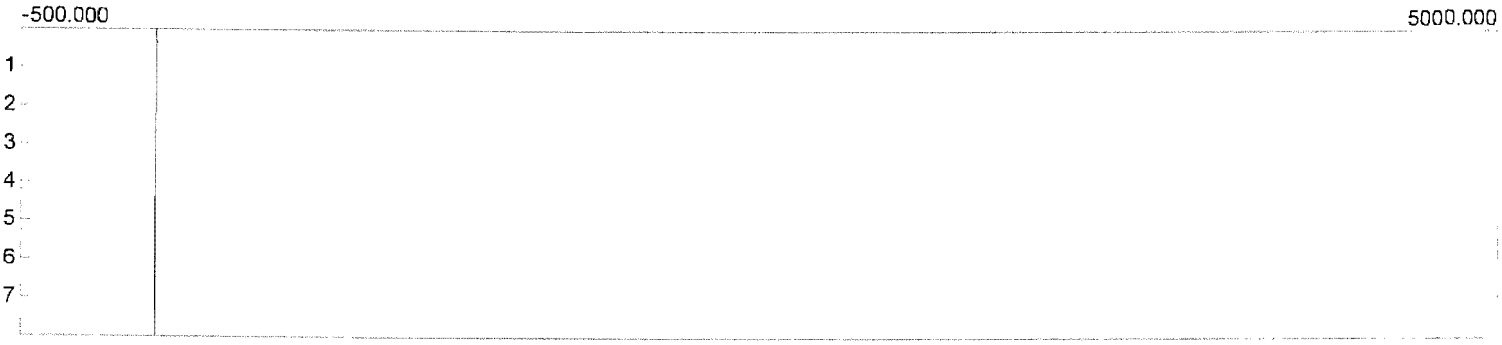
3-10




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 11:00:25
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero129.CHR ()
Sample: Test Runs
Operator: BP

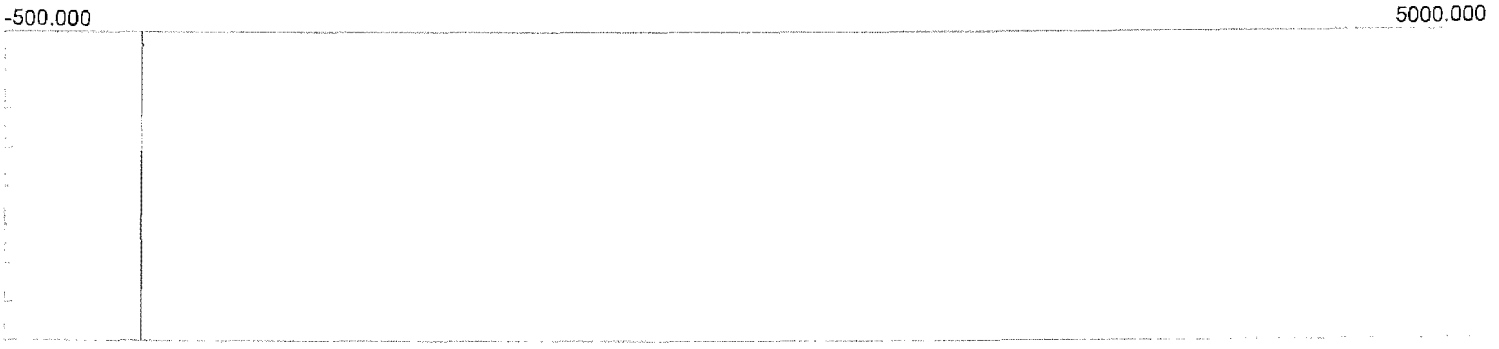
3-11




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 11:10:26
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero130.CHR ()
Sample: Test Runs
Operator: BP

3.12




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

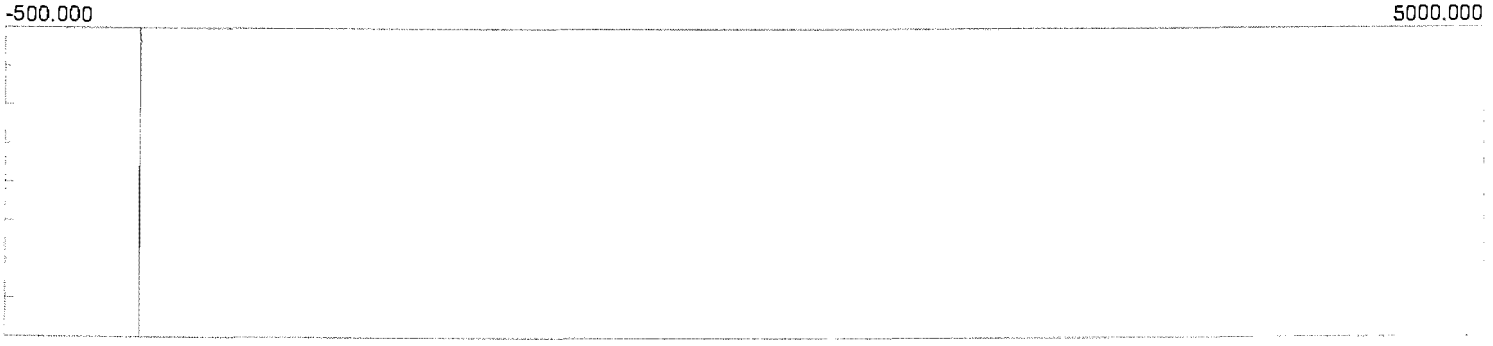
Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 11:20:26
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero131.CHR ()
Sample: Test Runs
Operator: BP

3.13


| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 11:30:26
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero132.CHR ()
Sample: Test Runs
Operator: BP

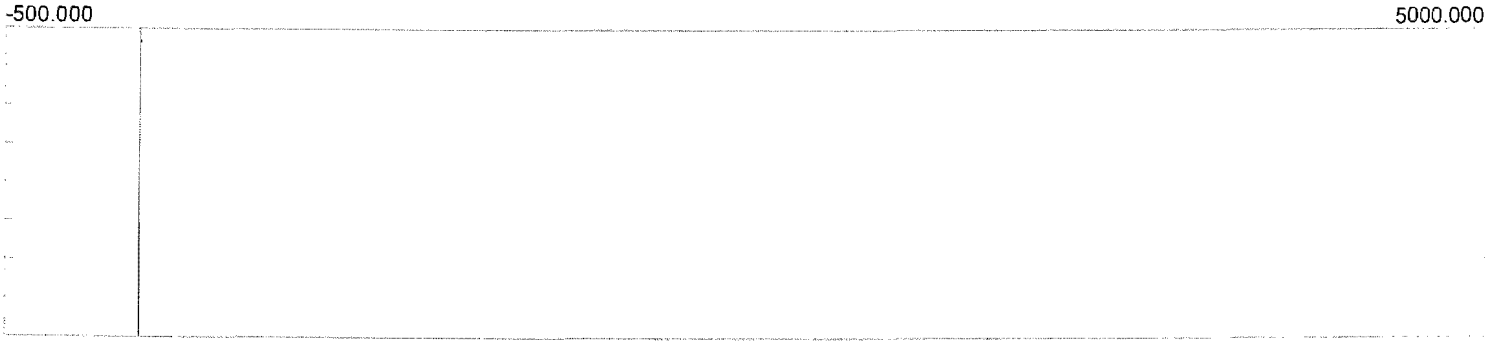
3-14




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 11:40:26
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero133.CHR ()
Sample: Test Runs
Operator: BP

3-15




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

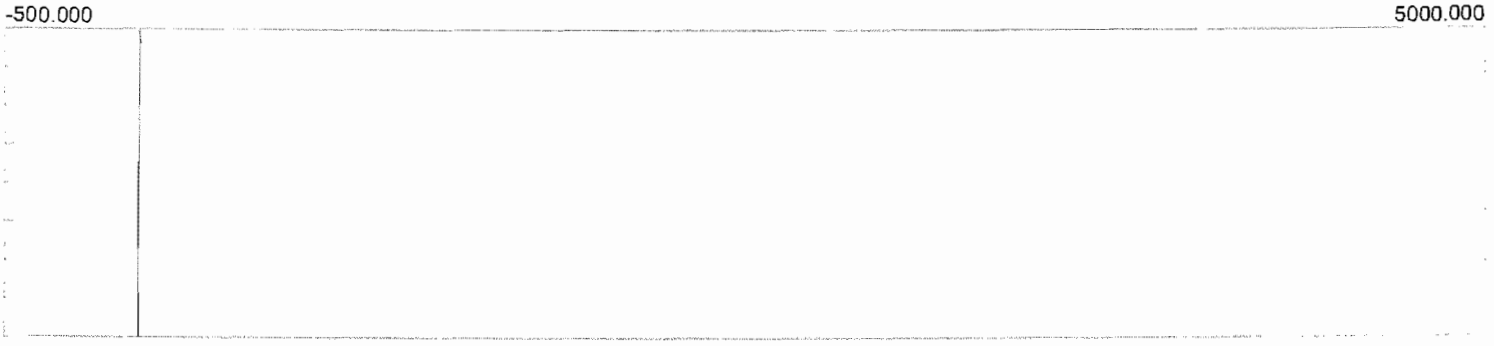
Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 11:50:26
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero134.CHR ()
Sample: Test Runs
Operator: BP

3-16


| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 12:00:26
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero135.CHR ()
Sample: Test Runs
Operator: BP

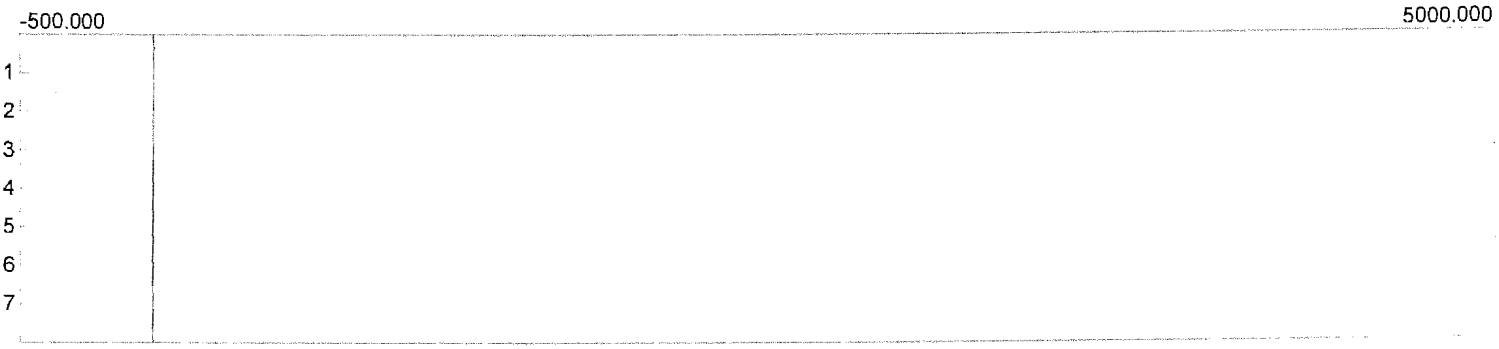
3-17




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

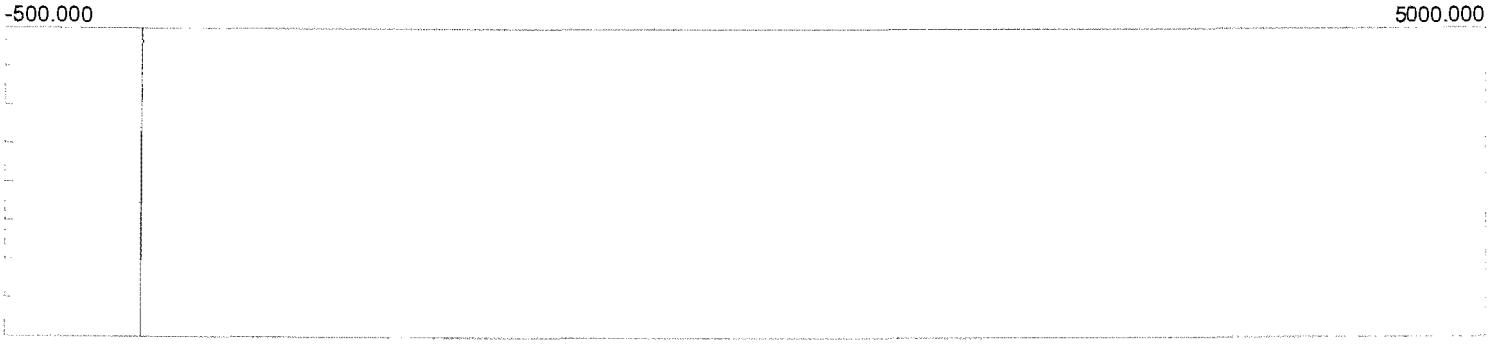
Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 12:10:26
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero136.CHR ()
Sample: Test Runs
Operator: BP

3-18



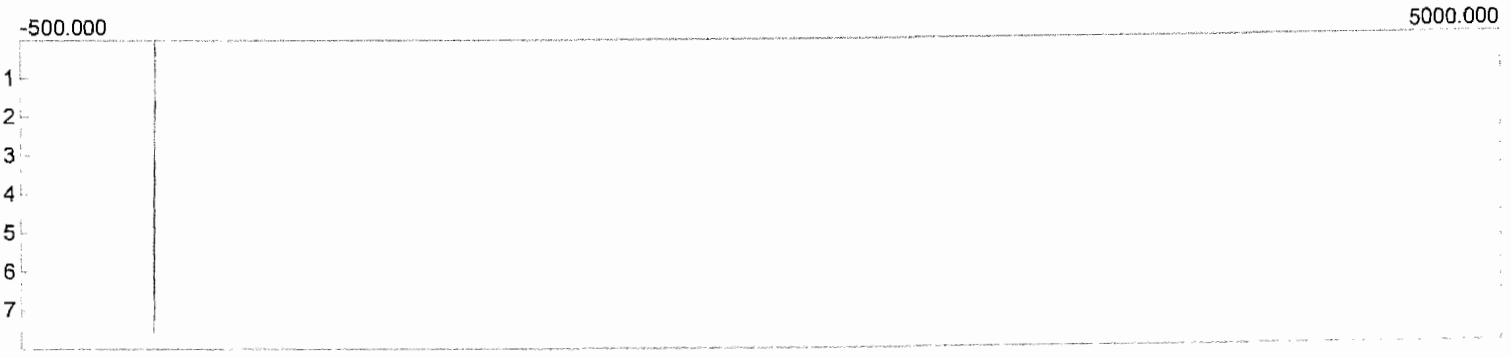

| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 12:20:26
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero137.CHR ()
Sample: Test Runs
Operator: BP



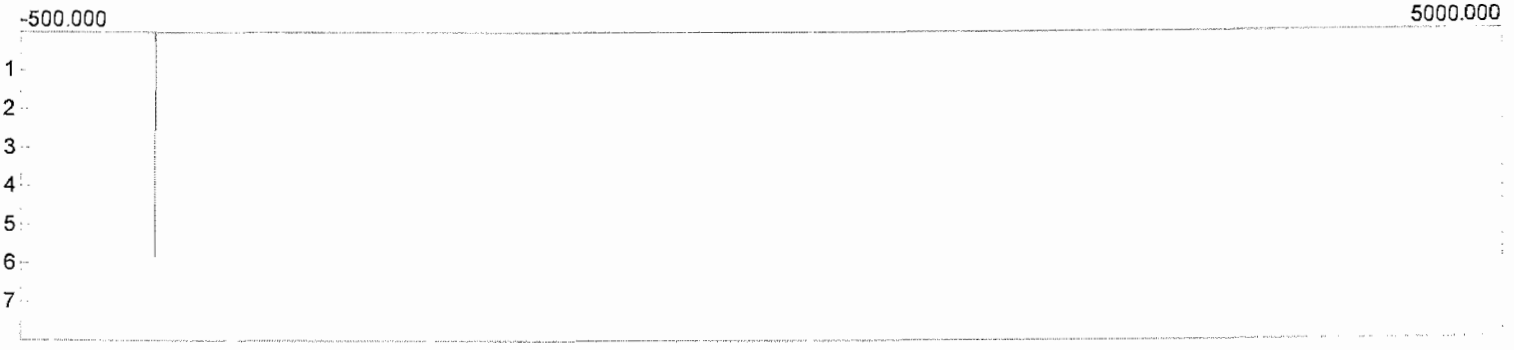

| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 12:30:26
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero138.CHR ()
Sample: 0 ppm post cal
Operator: BP




| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 12:38:41
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero139.CHR ()
Sample: 0 ppm post cal
Operator: BP

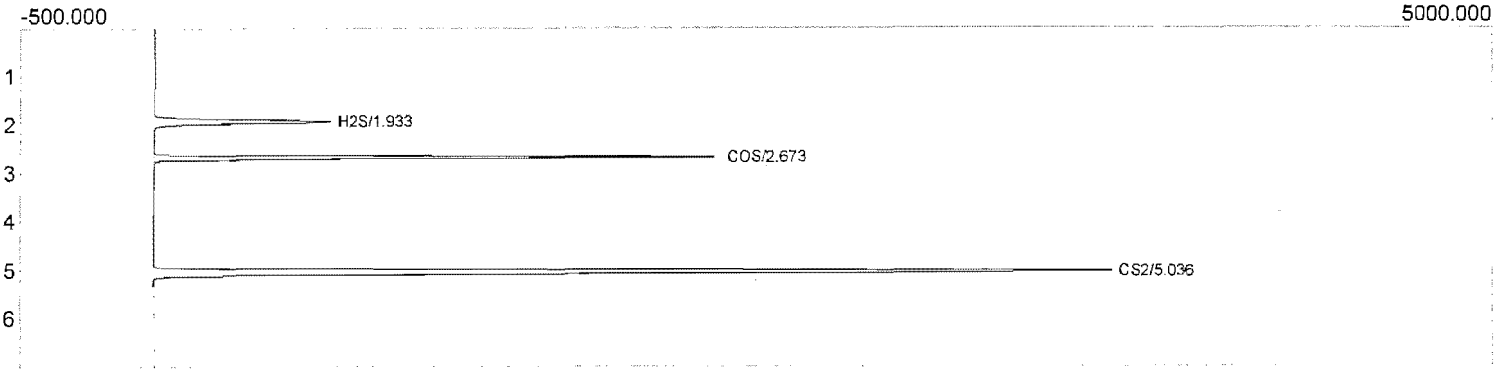



| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 12:45:16
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero140.CHR ()
Sample: 0 ppm post cal
Operator: BP

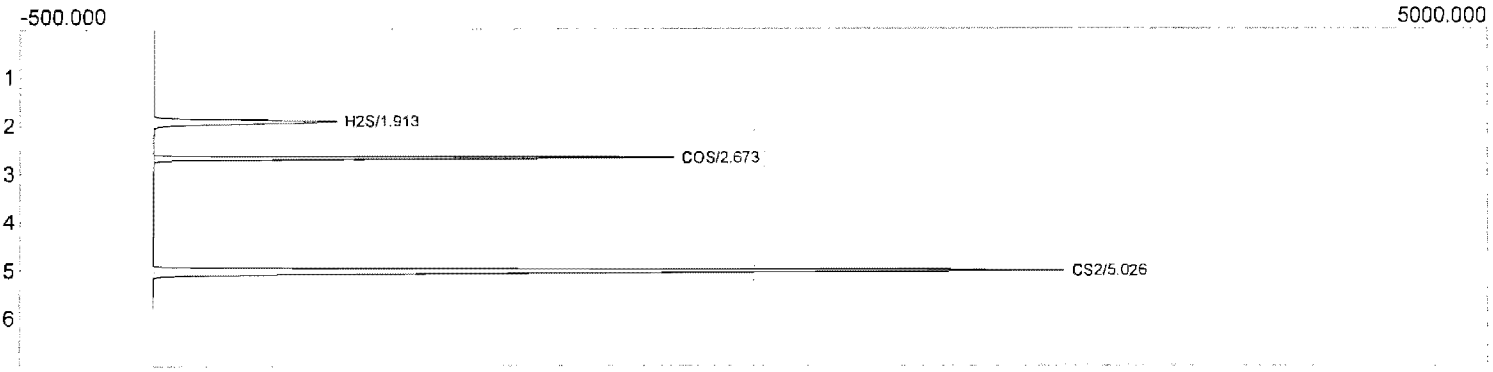

| Component | Area |
|---|---|
| H2S | 0.0000 |
| COS | 0.0000 |
| CS2 | 0.0000 |
| | 0.0000 |

Lab name: ARI Environmneta!, Inc
Client: Valero CC
Client ID: SRU #3
Analysis date: 04/22/2009 13:00:47
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero142.CHR ()
Sample: 50 ppm post cal
Operator: BP



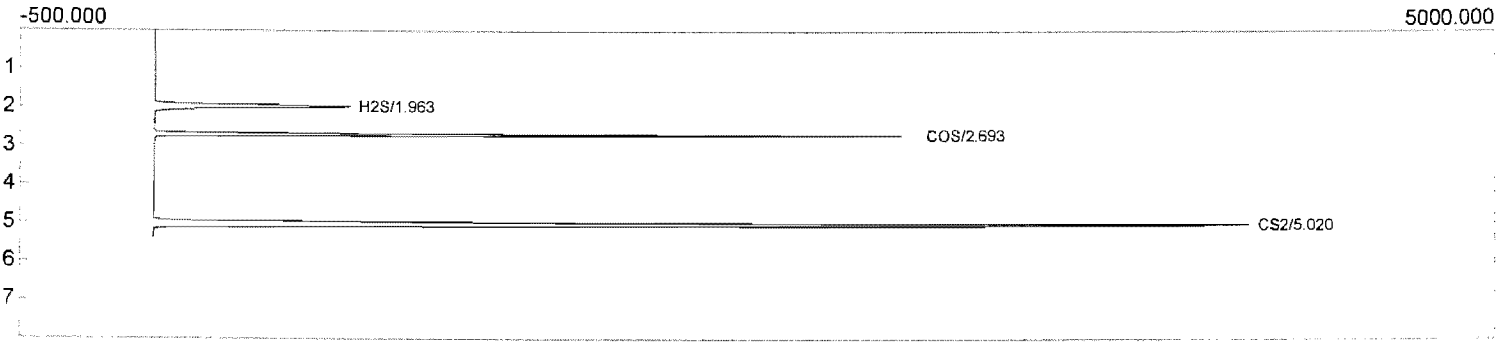

| Component | Area |
|---|---|
| H2S | 3876.6863 |
| COS | 7062.5184 |
| CS2 | 19991.2236 |
| | 30930.4283 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Client ID: SRU #3
Analysis date: 04/22/2009 13:09:07
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero143.CHR ()
Sample: 50 ppm post cal
Operator: BP




| Component | Area |
|---|---|
| H2S | 3760.2005 |
| COS | 6330.9998 |
| CS2 | 20365.7697 |
| | 30456.9700 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 13:16:57
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero144.CHR ()
Sample: 50 ppm post cal
Operator: BP




| Component | Area |
|---|---|
| H2S | 4327.0935 |
| COS | 7458.9362 |
| CS2 | 21889.8235 |
| | 33675.8532 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Client ID: SRU #3
Analysis date: 04/22/2009 13:24:47
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero145.CHR ()
Sample: 25 ppm post cal
Operator: BP


| Component | Area |
|---|---|
| H2S | 1128.7614 |
| COS | 1816.3382 |
| CS2 | 6101.7804 |
| | 9046.8800 |

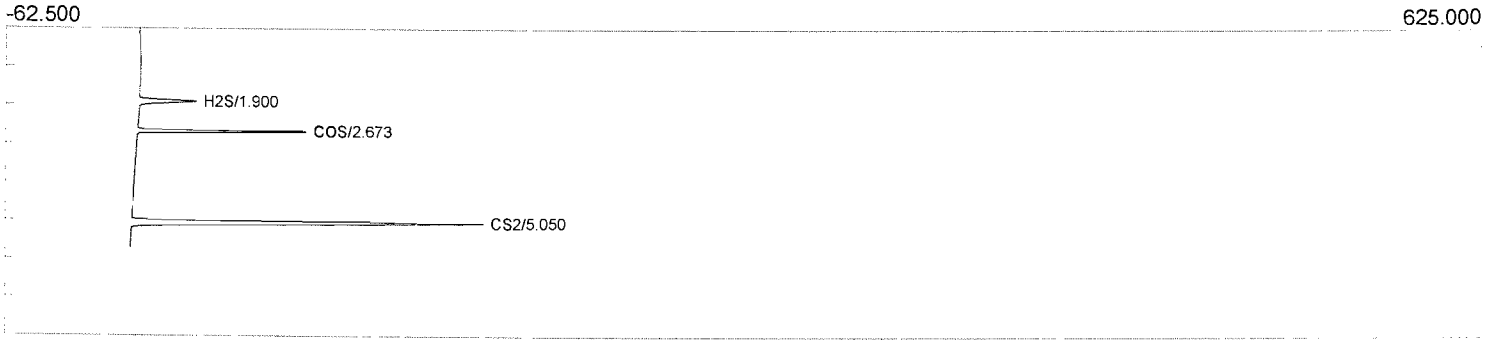
Lab name: ARI Environmnetal, Inc
Client: Valero CC
Client ID: SRU #3
Analysis date: 04/22/2009 13:33:52
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero146.CHR ()
Sample: 25 ppm post cal
Operator: BP


| Component | Area |
|---|---|
| H2S | 1242.9566 |
| COS | 2071.2738 |
| CS2 | 6704.1303 |
| | 10018.3607 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Client ID: SRU #3
Analysis date: 04/22/2009 13:41:58
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero147.CHR ()
Sample: 25 ppm post cal
Operator: BP

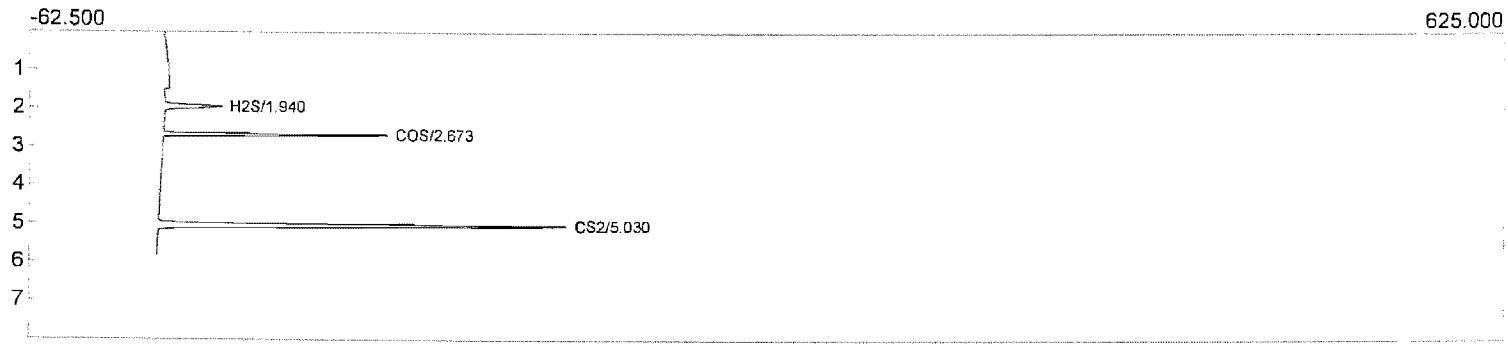

| Component | Area |
|---|---|
| H2S | 1262.4114 |
| COS | 2562.3656 |
| CS2 | 6493.2010 |
| | 10317.9780 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 13:50:26
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero148.CHR ()
Sample: 10 ppm post cal
Operator: BP



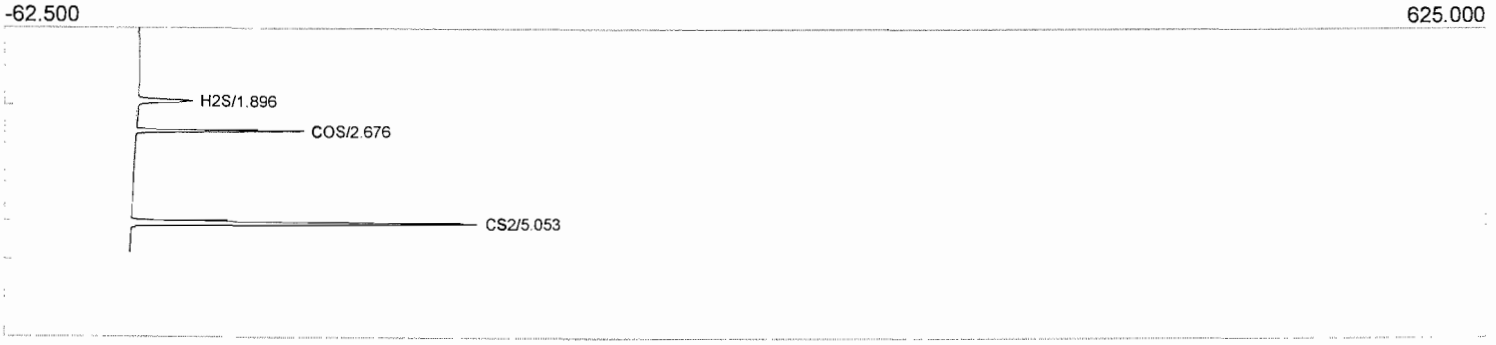

| Component | Area |
|---|---|
| H2S | 137.9524 |
| COS | 266.0000 |
| CS2 | 828.2202 |
| | 1232.1726 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 13:58:19
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero149.CHR ()
Sample: 10 ppm post cal
Operator: BP




| Component | Area |
|---|---|
| H2S | 149.6474 |
| COS | 295.8168 |
| CS2 | 880.3134 |
| | 1325.7776 |

Lab name: ARI Environmnetal, Inc
Client: Valero CC
Analysis date: 04/22/2009 14:07:58
Method: USEPA Method 15
Column: RESTEK Sulfur
Carrier: Nitrogen
Data file: Valero150.CHR ()
Sample: 10 ppm post cal
Operator: BP




| Component | Area |
|---|---|
| H2S | 145.1962 |
| COS | 253.3316 |
| CS2 | 813.4484 |
| | 1211.9762 |

# APPENDIX D

# ARI Reference Method Monitoring Data

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 8:50:00 | 20.63 | 0.12 | 0.0 | 12.5 | |
| 4/21/09 8:50:15 | 20.64 | 0.12 | 0.0 | 12.6 | |
| 4/21/09 8:50:30 | 20.64 | 0.12 | 0.0 | 12.7 | |
| 4/21/09 8:50:45 | 20.64 | 0.12 | 0.0 | 12.6 | |
| 4/21/09 8:51:00 | 20.64 | 0.12 | 0.0 | 12.5 | |
| 4/21/09 8:51:15 | 20.65 | 0.12 | 0.0 | 12.5 | |
| 4/21/09 8:51:30 | 20.65 | 0.12 | 0.0 | 12.7 | |
| 4/21/09 8:51:45 | 20.65 | 0.12 | 0.0 | 12.8 | |
| 4/21/09 8:52:00 | 20.65 | 0.12 | 0.0 | 12.6 | |
| 4/21/09 8:52:15 | 20.66 | 0.12 | 0.0 | 12.5 | |
| 4/21/09 8:52:30 | 20.66 | 0.12 | 0.0 | 12.6 | |
| 4/21/09 8:52:45 | 20.66 | 0.11 | 0.0 | 12.6 | |
| 4/21/09 8:53:00 | 20.66 | 0.11 | 0.0 | 12.7 | |
| 4/21/09 8:53:15 | 20.66 | 0.11 | 0.0 | 12.6 | |
| 4/21/09 8:53:30 | 20.66 | 0.11 | 0.0 | 12.5 | |
| 4/21/09 8:53:45 | 20.67 | 0.11 | 0.0 | 12.5 | |
| 4/21/09 8:54:00 | 20.67 | 0.11 | 0.0 | 12.7 | |
| 4/21/09 8:54:15 | 20.67 | 0.11 | 0.0 | 12.7 | |
| 4/21/09 8:54:30 | 20.67 | 0.11 | 0.0 | 12.6 | |
| 4/21/09 8:54:45 | 20.67 | 0.11 | 0.0 | 12.5 | |
| 4/21/09 8:55:00 | 20.67 | 0.11 | 0.0 | 12.6 | |
| 4/21/09 8:55:15 | 20.68 | 0.11 | 0.0 | 12.7 | |
| 4/21/09 8:55:30 | 20.68 | 0.11 | 0.0 | 12.7 | |
| 4/21/09 8:55:45 | 20.68 | 0.11 | 0.0 | 12.6 | |
| 4/21/09 8:56:00 | 20.68 | 0.11 | 0.0 | 12.6 | |
| 4/21/09 8:56:15 | 20.68 | 0.11 | 0.0 | 12.6 | |
| 4/21/09 8:56:30 | 20.68 | 0.11 | 0.0 | 12.8 | |
| 4/21/09 8:56:45 | 20.67 | 0.11 | 0.0 | 12.7 | |
| 4/21/09 8:57:00 | 20.67 | 0.11 | 0.0 | 12.5 | |
| 4/21/09 8:57:15 | 20.67 | 0.11 | 0.0 | 12.6 | |
| 4/21/09 8:57:30 | 20.67 | 0.11 | 0.0 | 12.7 | |
| 4/21/09 8:57:45 | 20.67 | 0.11 | 0.0 | 12.8 | |
| 4/21/09 8:58:00 | 20.67 | 0.11 | 0.0 | 12.6 | |
| 4/21/09 8:58:15 | 20.67 | 0.11 | 0.0 | 12.6 | |
| 4/21/09 8:58:30 | 20.66 | 0.12 | 0.0 | 12.6 | |
| 4/21/09 8:58:45 | 20.66 | 0.12 | 0.0 | 12.7 | |
| 4/21/09 8:59:00 | 20.66 | 0.12 | 0.0 | 12.9 | |
| 4/21/09 8:59:15 | 20.65 | 0.12 | 0.0 | 12.8 | |
| 4/21/09 8:59:30 | 20.65 | 0.12 | 0.0 | 12.6 | |
| 4/21/09 8:59:45 | 20.65 | 0.12 | 0.0 | 12.6 | |
| 4/21/09 9:00:00 | 20.64 | 0.12 | 0.0 | 12.8 | |
| 4/21/09 9:00:15 | 20.64 | 0.12 | 0.0 | 12.9 | |
| 4/21/09 9:00:30 | 20.64 | 0.12 | 0.0 | 12.7 | |
| 4/21/09 9:00:45 | 20.63 | 0.12 | 0.0 | 12.6 | |
| 4/21/09 9:01:00 | 20.63 | 0.12 | 0.0 | 12.7 | |
| 4/21/09 9:01:15 | 20.63 | 0.12 | 0.0 | 12.8 | |
| 4/21/09 9:01:30 | 20.62 | 0.12 | 0.0 | 12.8 | |
| 4/21/09 9:01:45 | 20.62 | 0.12 | 0.0 | 12.7 | |
| 4/21/09 9:02:00 | 20.62 | 0.12 | 0.0 | 12.6 | |
| 4/21/09 9:02:15 | 20.61 | 0.11 | 0.0 | 12.7 | |
| 4/21/09 9:02:30 | 20.61 | 0.11 | 0.0 | 12.8 | |
| 4/21/09 9:02:45 | 20.61 | 0.11 | 0.0 | 12.8 | |
| 4/21/09 9:03:00 | 20.61 | 0.11 | 0.0 | 12.6 | |
| 4/21/09 9:03:15 | 20.61 | 0.11 | 0.0 | 12.6 | |
| 4/21/09 9:03:30 | 20.61 | 0.11 | 0.0 | 12.7 | |
| 4/21/09 9:03:45 | 20.61 | 0.11 | 0.0 | 12.8 | |
| 4/21/09 9:04:00 | 20.61 | 0.11 | 0.0 | 12.7 | |
| 4/21/09 9:04:15 | 20.61 | 0.10 | 0.0 | 12.6 | |
| 4/21/09 9:04:30 | 20.61 | 0.10 | 0.0 | 12.7 | |
| 4/21/09 9:04:45 | 20.61 | 0.10 | 0.0 | 12.8 | |
| 4/21/09 9:05:00 | 20.61 | 0.10 | 0.0 | 12.8 | |
| 4/21/09 9:05:15 | 20.61 | 0.10 | 0.0 | 12.7 | |
| 4/21/09 9:05:30 | 20.61 | 0.10 | 0.0 | 12.6 | |
| 4/21/09 9:05:45 | 20.62 | 0.10 | 0.0 | 12.6 | |
| 4/21/09 9:06:00 | 20.62 | 0.10 | 0.0 | 12.8 | |
| 4/21/09 9:06:15 | 20.62 | 0.10 | 0.0 | 12.8 | |
| 4/21/09 9:06:30 | 20.63 | 0.10 | 0.0 | 12.6 | |
| 4/21/09 9:06:45 | 20.63 | 0.10 | 0.0 | 12.5 | |
| 4/21/09 9:07:00 | 20.63 | 0.10 | 0.0 | 12.6 | |
| 4/21/09 9:07:15 | 20.63 | 0.10 | 0.0 | 12.8 | |
| 4/21/09 9:07:30 | 20.63 | 0.10 | 0.0 | 12.8 | |
| 4/21/09 9:07:45 | 20.63 | 0.10 | 0.0 | 12.8 | |
| 4/21/09 9:08:00 | 20.59 | 0.10 | 0.0 | 12.2 | |
| 4/21/09 9:08:15 | 12.66 | 0.06 | 0.0 | 12.3 | |
| 4/21/09 9:08:30 | 2.02 | 0.03 | 0.0 | 12.4 | |
| 4/21/09 9:08:45 | 0.21 | 0.03 | 0.0 | 12.7 | |
| 4/21/09 9:09:00 | 0.11 | 0.03 | 0.0 | 12.1 | |
| 4/21/09 9:09:15 | 4.31 | 0.05 | 0.0 | 12.1 | |
| 4/21/09 9:09:30 | 2.02 | 0.03 | 0.0 | 12.2 | |
| 4/21/09 9:09:45 | 0.23 | 0.03 | 0.0 | 12.3 | |
| 4/21/09 9:10:00 | 0.05 | 0.03 | 0.0 | 12.3 | |
| 4/21/09 9:10:15 | 0.03 | 0.03 | 0.0 | 12.2 | |
| 4/21/09 9:10:30 | 0.03 | 0.03 | 0.0 | 12.2 | |
| 4/21/09 9:10:45 | 0.03 | 0.03 | 0.0 | 12.3 | |
| 4/21/09 9:11:00 | 0.02 | 0.03 | 0.0 | 12.4 | |
| 4/21/09 9:11:15 | 0.02 | 0.03 | 0.0 | 12.4 | |
| 4/21/09 9:11:30 | 0.02 | 0.03 | 0.0 | 12.2 | |
| 4/21/09 9:11:45 | 0.02 | 0.03 | 0.0 | 0.0 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 9:12:00 | 0.02 | 0.03 | 0.0 | 0.2 | |
| 4/21/09 9:12:15 | 0.02 | 0.03 | 0.0 | 0.3 | |
| 4/21/09 9:12:30 | 0.03 | 0.03 | 0.0 | 0.2 | |
| 4/21/09 9:12:45 | 0.84 | 0.03 | 0.0 | 0.2 | |
| 4/21/09 9:13:00 | 12.30 | 0.07 | 0.0 | 0.8 | |
| 4/21/09 9:13:15 | 19.45 | 0.08 | 0.0 | 1.0 | |
| 4/21/09 9:13:30 | 20.65 | 0.08 | 0.0 | 0.7 | |
| 4/21/09 9:13:45 | 20.81 | 0.08 | 0.0 | 0.4 | |
| 4/21/09 9:14:00 | 20.84 | 0.07 | 0.0 | 0.0 | |
| 4/21/09 9:14:15 | 20.84 | 0.07 | 0.0 | 0.0 | |
| 4/21/09 9:14:30 | 20.83 | 0.07 | 0.0 | 0.1 | |
| 4/21/09 9:14:45 | 20.83 | 0.07 | 0.0 | 0.1 | |
| 4/21/09 9:15:00 | 20.82 | 0.07 | 0.0 | -0.1 | |
| 4/21/09 9:15:15 | 20.82 | 0.07 | 0.0 | -0.1 | |
| 4/21/09 9:15:30 | 20.81 | 0.07 | 0.0 | 0.0 | |
| 4/21/09 9:15:45 | 20.81 | 0.07 | 0.0 | 0.1 | |
| 4/21/09 9:16:00 | 20.78 | 0.07 | 0.0 | 0.0 | |
| 4/21/09 9:16:15 | 20.63 | 0.08 | 0.0 | -0.1 | |
| 4/21/09 9:16:30 | 20.63 | 0.08 | 0.0 | 0.0 | |
| 4/21/09 9:16:45 | 20.76 | 0.07 | 0.0 | 0.0 | |
| 4/21/09 9:17:00 | 20.76 | 0.07 | 0.0 | 0.1 | |
| 4/21/09 9:17:15 | 20.78 | 0.08 | 0.0 | 0.0 | |
| 4/21/09 9:17:30 | 20.78 | 0.07 | 0.0 | -0.1 | |
| 4/21/09 9:17:45 | 20.78 | 0.07 | 0.0 | -0.1 | |
| 4/21/09 9:18:00 | 20.78 | 0.08 | 0.0 | 0.1 | |
| 4/21/09 9:18:15 | 20.78 | 0.07 | 0.0 | 0.2 | |
| 4/21/09 9:18:30 | 20.79 | 0.07 | 0.0 | -0.1 | |
| 4/21/09 9:18:45 | 20.79 | 0.07 | 0.0 | -0.1 | |
| 4/21/09 9:19:00 | 20.79 | 0.07 | 0.0 | 0.0 | |
| 4/21/09 9:19:15 | 20.79 | 0.08 | 0.0 | 0.1 | |
| 4/21/09 9:19:30 | 20.79 | 0.08 | 0.0 | 0.2 | |
| 4/21/09 9:19:45 | 20.79 | 0.08 | 0.0 | 0.0 | |
| 4/21/09 9:20:00 | 19.50 | 0.07 | 0.0 | -0.1 | |
| 4/21/09 9:20:15 | 7.65 | 0.04 | 0.0 | 0.0 | |
| 4/21/09 9:20:30 | 0.84 | 0.03 | 0.0 | 0.2 | |
| 4/21/09 9:20:45 | 0.10 | 0.03 | 0.0 | 0.2 | |
| 4/21/09 9:21:00 | 0.04 | 0.03 | 0.0 | -0.1 | |
| 4/21/09 9:21:15 | 0.03 | 0.03 | 0.0 | -0.1 | |
| 4/21/09 9:21:30 | 0.03 | 0.03 | 0.0 | 0.2 | |
| 4/21/09 9:21:45 | 0.03 | 0.03 | 0.0 | 0.2 | |
| 4/21/09 9:22:00 | 0.03 | 0.03 | 0.0 | 0.2 | |
| 4/21/09 9:22:15 | 0.02 | 0.03 | 0.0 | 0.1 | |
| 4/21/09 9:22:30 | 0.02 | 0.03 | 0.0 | 0.1 | |
| 4/21/09 9:22:45 | 0.02 | 0.03 | 0.0 | 0.2 | |
| 4/21/09 9:23:00 | 0.02 | 0.03 | 0.0 | 0.3 | |
| 4/21/09 9:23:15 | 0.02 | 0.03 | 0.0 | 0.2 | |
| 4/21/09 9:23:30 | 0.02 | 0.03 | 0.0 | 0.1 | |
| 4/21/09 9:23:45 | 0.02 | 0.03 | 0.0 | 0.1 | |
| 4/21/09 9:24:00 | 0.01 | 0.03 | 0.0 | 0.3 | |
| 4/21/09 9:24:15 | 0.01 | 0.03 | 0.0 | 0.3 | |
| 4/21/09 9:24:30 | 0.01 | 0.02 | 0.0 | 0.2 | |
| 4/21/09 9:24:45 | 0.01 | 0.02 | 0.0 | 0.1 | |
| 4/21/09 9:25:00 | 0.01 | 0.02 | 0.0 | 0.3 | |
| 4/21/09 9:25:15 | 0.02 | 0.02 | 0.5 | 0.4 | |
| 4/21/09 9:25:30 | 0.01 | 0.02 | 0.0 | 0.3 | |
| 4/21/09 9:25:45 | 3.10 | 0.03 | 0.0 | 0.3 | |
| 4/21/09 9:26:00 | 7.80 | 0.03 | 0.0 | 0.4 | |
| 4/21/09 9:26:15 | 8.74 | 0.02 | 0.0 | 0.5 | |
| 4/21/09 9:26:30 | 8.60 | 0.02 | 0.0 | 0.5 | |
| 4/21/09 9:26:45 | 8.53 | 0.02 | 0.0 | 0.4 | |
| 4/21/09 9:27:00 | 8.71 | 0.02 | 0.0 | 0.2 | |
| 4/21/09 9:27:15 | 8.87 | 0.02 | 0.0 | 0.3 | |
| 4/21/09 9:27:30 | 8.95 | 0.02 | 0.0 | 0.5 | |
| 4/21/09 9:27:45 | 8.99 | 0.02 | 0.0 | 0.5 | |
| 4/21/09 9:28:00 | 9.00 | 0.02 | 0.0 | 0.3 | |
| 4/21/09 9:28:15 | 9.01 | 0.02 | 0.0 | 0.3 | |
| 4/21/09 9:28:30 | 9.01 | 0.02 | 0.0 | 0.4 | Calibration Error |
| **4/21/09 9:28:45** | **9.02** | 0.02 | 0.0 | 0.5 | **9.02 9.00% $O_2$** |
| **4/21/09 9:29:00** | **9.02** | 0.02 | 0.0 | 0.5 | |
| **4/21/09 9:29:15** | **9.02** | 0.03 | 0.0 | 0.4 | |
| **4/21/09 9:29:30** | **9.02** | 0.03 | 0.0 | 0.4 | |
| 4/21/09 9:29:45 | 9.02 | 0.03 | 0.0 | 0.5 | |
| 4/21/09 9:30:00 | 7.80 | 0.03 | 0.0 | 0.5 | |
| 4/21/09 9:30:15 | 4.83 | 0.03 | 0.0 | 0.5 | |
| 4/21/09 9:30:30 | 4.50 | 0.03 | 0.0 | 0.3 | |
| 4/21/09 9:30:45 | 4.49 | 0.03 | 0.0 | 0.4 | |
| 4/21/09 9:31:00 | 4.49 | 0.03 | 0.0 | 0.6 | |
| 4/21/09 9:31:15 | 4.49 | 0.03 | 0.0 | 0.7 | Calibration Error |
| **4/21/09 9:31:30** | **4.49** | **0.03** | **0.0** | 0.5 | **4.49 4.60% $O_2$** |
| **4/21/09 9:31:45** | **4.49** | **0.03** | **0.0** | 0.4 | **0.03 Zero $CO_2$** |
| **4/21/09 9:32:00** | **4.49** | **0.03** | **0.0** | 0.5 | **0.0 Zero $NO_x$** |
| **4/21/09 9:32:15** | **4.49** | **0.03** | **0.0** | 0.6 | |
| 4/21/09 9:32:30 | 4.51 | 0.03 | 0.0 | 0.6 | |
| 4/21/09 9:32:45 | 4.58 | 0.03 | 0.1 | 0.5 | |
| 4/21/09 9:33:00 | 8.43 | 0.05 | 0.0 | 0.1 | |
| 4/21/09 9:33:15 | 5.65 | 2.91 | 0.0 | -0.3 | |
| 4/21/09 9:33:30 | 1.18 | 5.54 | 0.0 | -0.6 | |
| 4/21/09 9:33:45 | 0.20 | 5.69 | 0.0 | -0.9 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 9:34:00 | 0.06 | 7.00 | 0.0 | -1.3 | |
| 4/21/09 9:34:15 | 0.02 | 6.45 | 0.0 | -1.5 | |
| 4/21/09 9:34:30 | 0.00 | 6.98 | 0.0 | -1.4 | |
| 4/21/09 9:34:45 | -0.01 | 9.10 | 0.0 | -1.3 | |
| 4/21/09 9:35:00 | -0.01 | 9.14 | 0.0 | -1.4 | |
| 4/21/09 9:35:15 | -0.01 | 9.15 | 0.0 | -1.5 | |
| 4/21/09 9:35:30 | -0.02 | 9.16 | 0.0 | -1.4 | |
| 4/21/09 9:35:45 | -0.02 | 9.17 | 0.0 | -1.3 | |
| 4/21/09 9:36:00 | -0.02 | 9.17 | 0.0 | -1.2 | |
| 4/21/09 9:36:15 | -0.02 | 9.17 | 0.0 | -1.3 | |
| 4/21/09 9:36:30 | -0.02 | 9.18 | 0.0 | -1.5 | |
| 4/21/09 9:36:45 | -0.02 | 9.18 | 0.0 | -1.5 | |
| 4/21/09 9:37:00 | -0.02 | 9.18 | 0.0 | -1.3 | |
| 4/21/09 9:37:15 | -0.02 | 9.18 | 0.0 | -1.2 | |
| 4/21/09 9:37:30 | -0.02 | 9.18 | 0.0 | -1.4 | |
| 4/21/09 9:37:45 | -0.02 | 9.18 | 0.0 | -1.5 | |
| 4/21/09 9:38:00 | -0.02 | 9.19 | 0.0 | -1.3 | |
| 4/21/09 9:38:15 | -0.02 | 9.19 | 0.0 | -1.3 | |
| 4/21/09 9:38:30 | -0.02 | 9.19 | 0.0 | -1.3 | |
| 4/21/09 9:38:45 | -0.02 | 9.01 | 0.0 | -1.4 | |
| 4/21/09 9:39:00 | -0.02 | 9.01 | 0.0 | 0.0 | |
| 4/21/09 9:39:15 | -0.02 | 9.01 | 0.0 | 0.1 | |
| 4/21/09 9:39:30 | -0.02 | 9.01 | 0.0 | 0.2 | |
| 4/21/09 9:39:45 | -0.03 | 9.01 | 0.0 | 0.2 | |
| 4/21/09 9:40:00 | -0.02 | 9.01 | 0.0 | 0.0 | |
| 4/21/09 9:40:15 | -0.02 | 9.01 | 0.0 | 0.0 | Calibration Error |
| **4/21/09 9:40:30** | -0.02 | **9.01** | 0.0 | 0.2 | |
| **4/21/09 9:40:45** | -0.02 | **9.01** | 0.0 | 0.2 | 9.01 9.00% $CO_2$ |
| **4/21/09 9:41:00** | -0.02 | **9.01** | 0.0 | 0.2 | |
| **4/21/09 9:41:15** | -0.03 | **9.01** | 0.0 | 0.0 | |
| 4/21/09 9:41:30 | -0.03 | 9.02 | 0.0 | 0.1 | |
| 4/21/09 9:41:45 | -0.03 | 9.01 | 0.0 | 0.2 | |
| 4/21/09 9:42:00 | -0.02 | 7.51 | 0.0 | 0.5 | |
| 4/21/09 9:42:15 | -0.02 | 6.09 | 0.0 | 0.5 | |
| 4/21/09 9:42:30 | -0.02 | 5.90 | 0.0 | 0.4 | |
| 4/21/09 9:42:45 | -0.02 | 5.88 | 0.0 | 0.5 | |
| 4/21/09 9:43:00 | -0.02 | 5.87 | 0.0 | 0.6 | |
| 4/21/09 9:43:15 | -0.02 | 5.87 | 0.0 | 0.7 | |
| 4/21/09 9:43:30 | -0.02 | 5.87 | 0.0 | 0.6 | |
| 4/21/09 9:43:45 | -0.01 | 5.85 | 0.0 | 0.5 | |
| 4/21/09 9:44:00 | -0.02 | 5.87 | 0.0 | 0.6 | |
| 4/21/09 9:44:15 | 0.13 | 6.54 | 0.0 | 0.7 | |
| 4/21/09 9:44:30 | 0.15 | 6.37 | 0.0 | 0.6 | |
| 4/21/09 9:44:45 | 0.00 | 5.60 | 0.0 | 0.7 | |
| 4/21/09 9:45:00 | -0.01 | 2.11 | 0.0 | 0.9 | |
| 4/21/09 9:45:15 | -0.01 | 3.18 | 0.0 | 1.0 | |
| 4/21/09 9:45:30 | -0.01 | 4.35 | 0.0 | 1.0 | |
| 4/21/09 9:45:45 | -0.01 | 4.50 | 0.0 | 0.9 | |
| 4/21/09 9:46:00 | -0.01 | 4.52 | 0.0 | 0.7 | |
| 4/21/09 9:46:15 | -0.02 | 4.53 | 0.0 | 0.8 | |
| 4/21/09 9:46:30 | -0.01 | 4.53 | 0.0 | 1.0 | Calibration Error |
| **4/21/09 9:46:45** | -0.02 | **4.54** | 0.0 | **1.0** | |
| **4/21/09 9:47:00** | -0.01 | **4.54** | 0.0 | **0.8** | 4.54 4.50% $CO_2$ |
| **4/21/09 9:47:15** | -0.01 | **4.54** | 0.0 | **0.8** | |
| **4/21/09 9:47:30** | -0.02 | **4.54** | 0.0 | **1.0** | 0.9 Zero CO |
| 4/21/09 9:47:45 | 0.00 | 4.54 | 0.0 | 1.1 | |
| 4/21/09 9:48:00 | 0.35 | 4.36 | 0.0 | 1.0 | |
| 4/21/09 9:48:15 | 3.77 | 2.87 | 0.0 | 1.1 | |
| 4/21/09 9:48:30 | 1.09 | 0.72 | 0.0 | 1.7 | |
| 4/21/09 9:48:45 | 0.08 | 0.11 | 0.0 | 2.0 | |
| 4/21/09 9:49:00 | 0.00 | 0.05 | 0.0 | 2.2 | |
| 4/21/09 9:49:15 | 0.00 | 0.05 | 0.0 | 2.1 | |
| 4/21/09 9:49:30 | 0.00 | 0.04 | 0.0 | 2.1 | |
| 4/21/09 9:49:45 | 0.00 | 0.04 | 0.0 | 2.2 | |
| 4/21/09 9:50:00 | 0.00 | 0.04 | 0.0 | 2.3 | |
| 4/21/09 9:50:15 | 0.00 | 0.04 | 0.0 | 2.2 | |
| 4/21/09 9:50:30 | 0.00 | 0.04 | 0.0 | 2.1 | |
| 4/21/09 9:50:45 | 0.00 | 0.04 | 0.0 | 2.2 | |
| 4/21/09 9:51:00 | 0.00 | 0.04 | 0.0 | 2.4 | |
| 4/21/09 9:51:15 | 0.00 | 0.04 | 0.0 | 2.4 | |
| 4/21/09 9:51:30 | 0.00 | 0.04 | 0.0 | 2.2 | |
| 4/21/09 9:51:45 | 0.00 | 0.04 | 0.0 | 2.1 | |
| 4/21/09 9:52:00 | 0.00 | 0.04 | 0.0 | 2.3 | |
| 4/21/09 9:52:15 | 0.08 | 0.15 | 0.0 | 3.3 | |
| 4/21/09 9:52:30 | 0.52 | 0.11 | 0.0 | 23.9 | |
| 4/21/09 9:52:45 | 0.28 | 0.05 | 0.0 | 44.9 | |
| 4/21/09 9:53:00 | 0.07 | 0.04 | 0.0 | 79.6 | |
| 4/21/09 9:53:15 | 0.03 | 0.04 | 0.0 | 86.8 | |
| 4/21/09 9:53:30 | 0.02 | 0.04 | 0.0 | 90.5 | |
| 4/21/09 9:53:45 | 0.02 | 0.04 | 0.0 | 90.7 | |
| 4/21/09 9:54:00 | 0.02 | 0.04 | 0.0 | 91.1 | |
| 4/21/09 9:54:15 | 0.02 | 0.04 | 0.0 | 91.4 | |
| 4/21/09 9:54:30 | 0.02 | 0.04 | 0.0 | 92.3 | |
| 4/21/09 9:54:45 | 0.02 | 0.04 | 0.0 | 92.6 | |
| 4/21/09 9:55:00 | 0.02 | 0.04 | 0.0 | 92.7 | |
| 4/21/09 9:55:15 | 0.02 | 0.04 | 0.0 | 92.7 | |
| 4/21/09 9:55:30 | 0.02 | 0.04 | 0.0 | 92.7 | |
| 4/21/09 9:55:45 | 0.01 | 0.03 | 0.0 | 92.8 | |

# Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 9:56:00 | 0.01 | 0.03 | 0.0 | 92.6 | |
| 4/21/09 9:56:15 | 0.01 | 0.03 | 0.0 | 92.4 | |
| 4/21/09 9:56:30 | 0.01 | 0.03 | 0.0 | 92.1 | |
| 4/21/09 9:56:45 | 0.01 | 0.03 | 0.0 | 90.0 | |
| 4/21/09 9:57:00 | 0.01 | 0.03 | 0.0 | 90.1 | |
| 4/21/09 9:57:15 | 0.01 | 0.03 | 0.0 | 90.2 | |
| 4/21/09 9:57:30 | 0.00 | 0.03 | 0.0 | 89.7 | |
| 4/21/09 9:57:45 | 0.00 | 0.03 | 0.0 | 89.6 | |
| 4/21/09 9:58:00 | 0.00 | 0.03 | 0.0 | 89.8 | |
| 4/21/09 9:58:15 | 0.00 | 0.03 | 0.0 | 89.9 | |
| 4/21/09 9:58:30 | 0.00 | 0.03 | 0.0 | 89.7 | |
| 4/21/09 9:58:45 | 0.00 | 0.03 | 0.0 | 89.5 | |
| 4/21/09 9:59:00 | 0.00 | 0.03 | 0.0 | 81.9 | |
| 4/21/09 9:59:15 | 0.00 | 0.03 | 0.0 | 71.1 | |
| 4/21/09 9:59:30 | 0.00 | 0.03 | 0.0 | 50.9 | |
| 4/21/09 9:59:45 | 0.00 | 0.03 | 0.0 | 47.1 | |
| 4/21/09 10:00:00 | 0.00 | 0.03 | 0.0 | 45.9 | |
| 4/21/09 10:00:15 | 0.00 | 0.03 | 0.0 | 45.9 | |
| 4/21/09 10:00:30 | 0.00 | 0.03 | 0.0 | 46.1 | |
| 4/21/09 10:00:45 | 0.00 | 0.03 | 0.0 | 46.1 | |
| 4/21/09 10:01:00 | 0.00 | 0.03 | 0.0 | 45.8 | |
| 4/21/09 10:01:15 | 0.00 | 0.03 | 0.0 | 45.8 | |
| 4/21/09 10:01:30 | 0.00 | 0.03 | 0.0 | 46.0 | |
| 4/21/09 10:01:45 | 0.01 | 0.03 | 0.0 | 47.5 | |
| 4/21/09 10:02:00 | 0.02 | 0.03 | 0.2 | 47.5 | |
| 4/21/09 10:02:15 | 2.29 | 0.05 | 6.7 | 46.7 | |
| 4/21/09 10:02:30 | 1.20 | 0.05 | 16.9 | 27.8 | |
| 4/21/09 10:02:45 | 0.45 | 0.04 | 20.5 | 15.2 | |
| 4/21/09 10:03:00 | 0.11 | 0.04 | 41.8 | 4.1 | |
| 4/21/09 10:03:15 | 0.03 | 0.03 | 39.9 | 3.2 | |
| 4/21/09 10:03:30 | 0.01 | 0.04 | 39.0 | 2.7 | |
| 4/21/09 10:03:45 | 0.01 | 0.03 | 38.6 | 2.7 | |
| 4/21/09 10:04:00 | 0.01 | 0.03 | 38.3 | 2.7 | |
| 4/21/09 10:04:15 | 0.00 | 0.03 | 37.9 | 2.8 | |
| 4/21/09 10:04:30 | 0.00 | 0.03 | 37.6 | 2.5 | |
| 4/21/09 10:04:45 | 0.00 | 0.03 | 37.1 | 2.5 | |
| 4/21/09 10:05:00 | 0.00 | 0.03 | 36.8 | 2.5 | |
| 4/21/09 10:05:15 | 0.00 | 0.03 | 36.3 | 2.6 | |
| 4/21/09 10:05:30 | 0.00 | 0.03 | 35.9 | 2.6 | |
| 4/21/09 10:05:45 | 0.00 | 0.03 | 35.3 | 2.5 | |
| 4/21/09 10:06:00 | 0.00 | 0.03 | 35.9 | 2.4 | |
| 4/21/09 10:06:15 | 0.00 | 0.03 | 36.7 | 2.5 | |
| 4/21/09 10:06:30 | 0.00 | 0.03 | 33.4 | 2.6 | |
| 4/21/09 10:06:45 | 0.00 | 0.03 | 31.3 | 2.6 | |
| 4/21/09 10:07:00 | 0.00 | 0.03 | 32.3 | 2.4 | |
| 4/21/09 10:07:15 | 0.00 | 0.03 | 35.1 | 2.3 | |
| 4/21/09 10:07:30 | 0.00 | 0.03 | 37.6 | 2.5 | |
| 4/21/09 10:07:45 | 0.00 | 0.03 | 39.2 | 2.5 | |
| 4/21/09 10:08:00 | 0.00 | 0.03 | 40.1 | 2.5 | |
| 4/21/09 10:08:15 | 0.00 | 0.02 | 40.7 | 2.4 | |
| 4/21/09 10:08:30 | 0.00 | 0.03 | 41.2 | 2.4 | |
| 4/21/09 10:08:45 | 0.00 | 0.03 | 41.6 | 2.5 | |
| 4/21/09 10:09:00 | 0.00 | 0.03 | 42.0 | 2.6 | |
| 4/21/09 10:09:15 | 0.00 | 0.03 | 42.6 | 2.6 | |
| 4/21/09 10:09:30 | 0.00 | 0.03 | 43.1 | 2.3 | |
| 4/21/09 10:09:45 | 0.00 | 0.03 | 43.4 | 2.3 | |
| 4/21/09 10:10:00 | | | | | |
| 4/21/09 10:10:15 | | | | | |
| 4/21/09 10:10:30 | | | | | |
| 4/21/09 10:10:45 | | | | | |
| 4/21/09 10:11:00 | 0.00 | 0.02 | 84.2 | 2.5 | |
| 4/21/09 10:11:15 | 0.00 | 0.02 | 77.9 | 2.3 | |
| 4/21/09 10:11:30 | 0.00 | 0.02 | 74.2 | 2.3 | |
| 4/21/09 10:11:45 | 0.00 | 0.02 | 75.5 | 2.5 | |
| 4/21/09 10:12:00 | 0.00 | 0.02 | 79.7 | 2.5 | |
| 4/21/09 10:12:15 | 0.01 | 0.02 | 83.0 | 2.4 | |
| 4/21/09 10:12:30 | 0.00 | 0.03 | 85.2 | 2.3 | |
| 4/21/09 10:12:45 | 0.00 | 0.02 | 86.5 | 2.3 | |
| 4/21/09 10:13:00 | 0.00 | 0.03 | 87.3 | 2.4 | |
| 4/21/09 10:13:15 | 0.00 | 0.03 | 87.7 | 2.5 | |
| 4/21/09 10:13:30 | 0.00 | 0.03 | 88.0 | 2.4 | |
| 4/21/09 10:13:45 | 0.00 | 0.03 | 88.1 | 2.3 | |
| 4/21/09 10:14:00 | 0.00 | 0.03 | 88.3 | 2.3 | |
| 4/21/09 10:14:15 | 0.00 | 0.03 | 88.4 | 2.4 | |
| 4/21/09 10:14:30 | 0.00 | 0.03 | 88.4 | 2.4 | |
| 4/21/09 10:14:45 | 0.00 | 0.03 | 88.6 | 2.3 | |
| 4/21/09 10:15:00 | 0.00 | 0.03 | 88.5 | 2.3 | |
| 4/21/09 10:15:15 | 0.00 | 0.03 | 88.7 | 2.4 | |
| 4/21/09 10:15:30 | 0.00 | 0.03 | 88.6 | 2.5 | |
| 4/21/09 10:15:45 | 0.00 | 0.03 | 88.7 | 2.4 | |
| 4/21/09 10:16:00 | 0.00 | 0.03 | 88.7 | 2.3 | |
| 4/21/09 10:16:15 | 0.00 | 0.03 | 88.8 | 2.3 | |
| 4/21/09 10:16:30 | 0.00 | 0.03 | 88.8 | 2.4 | |
| 4/21/09 10:16:45 | 0.00 | 0.03 | 89.6 | 2.5 | |
| 4/21/09 10:17:00 | 0.00 | 0.03 | 80.0 | 2.4 | Calibration Error |
| 4/21/09 10:17:15 | 0.00 | 0.03 | 90.2 | 2.3 | |
| 4/21/09 10:17:30 | 0.00 | 0.03 | 89.9 | 2.3 | |
| 4/21/09 10:17:45 | 0.00 | 0.03 | 90.1 | 2.4 | 90.1 90.0 ppm $NO_x$ |

# Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 10:18:00 | 0.00 | 0.03 | 89.9 | 2.4 | |
| 4/21/09 10:18:15 | 0.00 | 0.03 | 90.0 | 2.3 | |
| 4/21/09 10:18:30 | 0.00 | 0.03 | 71.8 | 2.2 | |
| 4/21/09 10:18:45 | 0.00 | 0.03 | 44.6 | 2.3 | |
| 4/21/09 10:19:00 | 0.00 | 0.03 | 44.8 | 2.4 | |
| 4/21/09 10:19:15 | 0.00 | 0.03 | 44.7 | 2.4 | Calibration Error |
| 4/21/09 10:19:30 | 0.00 | 0.03 | 44.8 | 2.3 | |
| 4/21/09 10:19:45 | 0.00 | 0.03 | 44.8 | 2.3 | |
| 4/21/09 10:20:00 | 0.00 | 0.03 | 44.8 | 2.4 | 44.8 45.0 ppm $NO_x$ |
| 4/21/09 10:20:15 | 0.00 | 0.03 | 44.8 | 2.5 | |
| 4/21/09 10:20:30 | 0.01 | 0.02 | 25.1 | 2.5 | |
| 4/21/09 10:20:45 | 0.02 | 0.02 | 0.3 | 2.3 | |
| 4/21/09 10:21:00 | 3.25 | 0.03 | 5.8 | 2.5 | |
| 4/21/09 10:21:15 | 6.98 | 0.03 | 3.1 | 2.6 | |
| 4/21/09 10:21:30 | 11.89 | 0.05 | 2.2 | 2.6 | |
| 4/21/09 10:21:45 | 13.33 | 0.08 | 1.9 | 2.5 | |
| 4/21/09 10:22:00 | 14.37 | 0.09 | 1.7 | 2.3 | |
| 4/21/09 10:22:15 | 16.15 | 0.09 | 2.4 | 2.3 | |
| 4/21/09 10:22:30 | 17.46 | 0.10 | 24.4 | 2.3 | |
| 4/21/09 10:22:45 | 19.41 | 0.07 | 28.6 | 2.4 | |
| 4/21/09 10:23:00 | 20.69 | 0.03 | 33.6 | 2.1 | |
| 4/21/09 10:23:15 | 20.87 | 0.02 | 38.7 | 2.1 | |
| 4/21/09 10:23:30 | 20.89 | 0.02 | 41.3 | 2.3 | |
| 4/21/09 10:23:45 | 20.90 | 0.03 | 42.2 | 2.3 | |
| 4/21/09 10:24:00 | 20.91 | 0.02 | 43.0 | 2.2 | |
| 4/21/09 10:24:15 | 20.91 | 0.03 | 43.3 | 2.1 | |
| 4/21/09 10:24:30 | 20.91 | 0.03 | 43.7 | 2.2 | |
| 4/21/09 10:24:45 | 20.91 | 0.03 | 44.0 | 2.3 | |
| 4/21/09 10:25:00 | 20.91 | 0.03 | 44.3 | 2.3 | |
| 4/21/09 10:25:15 | 20.92 | 0.03 | 44.5 | 2.2 | |
| 4/21/09 10:25:30 | 20.92 | 0.03 | 44.7 | 2.2 | |
| 4/21/09 10:25:45 | 20.92 | 0.03 | 44.9 | 2.3 | |
| 4/21/09 10:26:00 | 20.92 | 0.03 | 45.1 | 2.4 | |
| 4/21/09 10:26:15 | 20.92 | 0.03 | 45.2 | 2.3 | |
| 4/21/09 10:26:30 | 20.92 | 0.03 | 45.3 | 2.1 | |
| 4/21/09 10:26:45 | 20.92 | 0.03 | 45.5 | 2.1 | |
| 4/21/09 10:27:00 | 20.92 | 0.03 | 45.6 | 2.4 | |
| 4/21/09 10:27:15 | 20.93 | 0.03 | 45.7 | 2.4 | |
| 4/21/09 10:27:30 | 20.93 | 0.03 | 45.8 | 2.2 | |
| 4/21/09 10:27:45 | 20.92 | 0.03 | 45.9 | 2.1 | |
| 4/21/09 10:28:00 | 20.93 | 0.03 | 46.1 | 2.3 | |
| 4/21/09 10:28:15 | 20.93 | 0.03 | 46.3 | 2.4 | |
| 4/21/09 10:28:30 | 20.93 | 0.03 | 46.4 | 2.4 | |
| 4/21/09 10:28:45 | 20.93 | 0.03 | 46.5 | 2.3 | |
| 4/21/09 10:29:00 | 20.93 | 0.03 | 46.6 | 2.2 | |
| 4/21/09 10:29:15 | 20.93 | 0.03 | 46.7 | 2.3 | |
| 4/21/09 10:29:30 | 20.93 | 0.03 | 46.8 | 2.4 | |
| 4/21/09 10:29:45 | 20.94 | 0.03 | 46.9 | 2.4 | |
| 4/21/09 10:30:00 | 20.93 | 0.03 | 46.9 | 2.2 | |
| 4/21/09 10:30:15 | 20.94 | 0.03 | 46.9 | 2.3 | |
| 4/21/09 10:30:30 | 20.94 | 0.03 | 47.0 | 2.4 | |
| 4/21/09 10:30:45 | 20.93 | 0.03 | 47.1 | 2.5 | |
| 4/21/09 10:31:00 | 20.94 | 0.03 | 47.1 | 2.3 | |
| 4/21/09 10:31:15 | 20.94 | 0.02 | 47.2 | 2.2 | |
| 4/21/09 10:31:30 | 20.94 | 0.02 | 47.3 | 2.3 | |
| 4/21/09 10:31:45 | 20.94 | 0.02 | 47.3 | 2.4 | |
| 4/21/09 10:32:00 | 20.94 | 0.02 | 47.4 | 2.4 | |
| 4/21/09 10:32:15 | 20.94 | 0.02 | 47.4 | 2.3 | |
| 4/21/09 10:32:30 | 20.94 | 0.02 | 47.6 | 2.3 | |
| 4/21/09 10:32:45 | 20.94 | 0.02 | 47.6 | 2.4 | |
| 4/21/09 10:33:00 | 20.94 | 0.02 | 47.6 | 2.5 | |
| 4/21/09 10:33:15 | 20.94 | 0.02 | 47.7 | 2.5 | |
| 4/21/09 10:33:30 | 20.94 | 0.02 | 47.7 | 2.3 | |
| 4/21/09 10:33:45 | 20.94 | 0.02 | 47.8 | 2.3 | |
| 4/21/09 10:34:00 | 20.94 | 0.03 | 47.7 | 2.5 | |
| 4/21/09 10:34:15 | 20.94 | 0.03 | 47.8 | 2.5 | |
| 4/21/09 10:34:30 | 20.94 | 0.03 | 47.7 | 2.4 | |
| 4/21/09 10:34:45 | 20.94 | 0.03 | 47.8 | 2.3 | |
| 4/21/09 10:35:00 | 20.94 | 0.03 | 47.8 | 2.4 | |
| 4/21/09 10:35:15 | 20.94 | 0.03 | 47.8 | 2.5 | $NO_2$ Converter Check |
| 4/21/09 10:35:30 | 20.94 | 0.03 | 47.8 | 2.5 | 47.9 51.9 ppm $NO_2$ |
| 4/21/09 10:35:45 | 20.94 | 0.03 | 47.9 | 2.4 | Cyl# ALM018362 |
| 4/21/09 10:36:00 | 20.94 | 0.03 | 47.9 | 2.3 | |
| 4/21/09 10:36:15 | 20.94 | 0.03 | 47.9 | 2.4 | 92.28 % Conversion |
| 4/21/09 10:36:30 | 20.94 | 0.03 | 48.0 | 2.5 | |
| 4/21/09 10:36:45 | 20.95 | 0.03 | 21.1 | 2.6 | |
| 4/21/09 10:37:00 | 20.95 | 0.03 | 5.5 | 2.4 | |
| 4/21/09 10:37:15 | 20.92 | 0.06 | 2.2 | 2.8 | |
| 4/21/09 10:37:30 | 20.85 | 0.09 | 1.3 | 6.8 | |
| 4/21/09 10:37:45 | 20.87 | 0.09 | 1.1 | 7.7 | |
| 4/21/09 10:38:00 | 20.94 | 0.08 | 1.0 | 4.3 | |
| 4/21/09 10:38:15 | 20.95 | 0.08 | 0.9 | 2.9 | |
| 4/21/09 10:38:30 | 20.94 | 0.08 | 0.8 | 2.2 | |
| 4/21/09 10:38:45 | 20.94 | 0.08 | 0.7 | 2.2 | |
| 4/21/09 10:39:00 | 20.93 | 0.08 | 0.7 | 2.3 | |
| 4/21/09 10:39:15 | 20.93 | 0.08 | 1.6 | 2.2 | |
| 4/21/09 10:39:30 | 20.92 | 0.08 | 12.2 | 15.2 | |
| 4/21/09 10:39:45 | 17.96 | 1.54 | 14.7 | 45.9 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 10:40:00 | 7.72 | 4.41 | 15.2 | 116.6 | |
| 4/21/09 10:40:15 | 4.42 | 5.14 | 15.0 | 116.6 | |
| 4/21/09 10:40:30 | 3.99 | 5.27 | 15.2 | 116.6 | |
| 4/21/09 10:40:45 | 3.89 | 5.32 | 15.2 | 116.6 | |
| 4/21/09 10:41:00 | 3.88 | 5.34 | 14.9 | 116.6 | |
| 4/21/09 10:41:15 | 3.87 | 5.35 | 15.1 | 116.6 | |
| 4/21/09 10:41:30 | 3.83 | 5.36 | 15.0 | 116.6 | |
| 4/21/09 10:41:45 | 3.83 | 5.36 | 15.1 | 116.6 | |
| 4/21/09 10:42:00 | 3.79 | 5.36 | 15.2 | 116.6 | |
| 4/21/09 10:42:15 | 3.76 | 5.36 | 15.2 | 116.6 | |
| 4/21/09 10:42:30 | 3.76 | 5.36 | 15.1 | 116.6 | |
| 4/21/09 10:42:45 | 3.71 | 5.43 | 47.7 | 116.6 | |
| 4/21/09 10:43:00 | 3.66 | 5.38 | 2.6 | 116.6 | |
| 4/21/09 10:43:15 | 2.42 | 2.83 | 1.3 | 116.6 | |
| 4/21/09 10:43:30 | 0.55 | 0.50 | 0.9 | 116.6 | |
| 4/21/09 10:43:45 | 0.08 | 0.07 | 0.7 | 116.6 | |
| 4/21/09 10:44:00 | 0.03 | 0.04 | 0.6 | 58.0 | |
| 4/21/09 10:44:15 | | | | | |
| 4/21/09 10:44:30 | | | | | |
| 4/21/09 10:44:45 | | | | | |
| 4/21/09 10:45:00 | 0.02 | 0.03 | 0.4 | 175.5 | |
| 4/21/09 10:45:15 | 0.01 | 0.03 | 0.4 | 178.1 | |
| 4/21/09 10:45:30 | 0.01 | 0.03 | 0.3 | 189.4 | |
| 4/21/09 10:45:45 | 0.01 | 0.03 | 0.3 | 234.6 | |
| 4/21/09 10:46:00 | 0.01 | 0.03 | 0.3 | 251.9 | |
| 4/21/09 10:46:15 | 0.01 | 0.03 | 0.3 | 262.4 | |
| 4/21/09 10:46:30 | 0.01 | 0.03 | 0.2 | 263.0 | |
| 4/21/09 10:46:45 | 0.01 | 0.03 | 0.2 | 262.8 | |
| 4/21/09 10:47:00 | 0.01 | 0.03 | 0.2 | 262.6 | |
| 4/21/09 10:47:15 | 0.01 | 0.03 | 0.2 | 262.7 | |
| 4/21/09 10:47:30 | 0.01 | 0.03 | 0.2 | 263.0 | |
| 4/21/09 10:47:45 | 0.01 | 0.04 | 0.2 | 263.1 | |
| 4/21/09 10:48:00 | 0.01 | 0.04 | 0.2 | 269.9 | |
| 4/21/09 10:48:15 | 0.01 | 0.04 | 0.2 | 269.7 | |
| 4/21/09 10:48:30 | 0.00 | 0.04 | 0.2 | 269.9 | |
| 4/21/09 10:48:45 | 0.00 | 0.04 | 0.2 | 270.3 | |
| 4/21/09 10:49:00 | 0.00 | 0.04 | 0.2 | 270.2 | |
| 4/21/09 10:49:15 | 0.00 | 0.04 | 0.2 | 269.8 | |
| 4/21/09 10:49:30 | 0.00 | 0.04 | 0.2 | 269.8 | |
| 4/21/09 10:49:45 | 0.00 | 0.04 | 0.2 | 270.2 | |
| 4/21/09 10:50:00 | 0.00 | 0.03 | 0.1 | 263.6 | |
| 4/21/09 10:50:15 | 0.00 | 0.03 | 0.1 | 204.2 | |
| 4/21/09 10:50:30 | 0.00 | 0.03 | 0.1 | 168.6 | |
| 4/21/09 10:50:45 | 0.00 | 0.03 | 0.1 | 138.2 | |
| 4/21/09 10:51:00 | 0.00 | 0.03 | 0.1 | 136.4 | |
| 4/21/09 10:51:15 | 0.00 | 0.03 | 0.1 | 136.3 | |
| 4/21/09 10:51:30 | 0.00 | 0.03 | 0.1 | 136.0 | |
| 4/21/09 10:51:45 | 0.00 | 0.03 | 0.1 | 136.0 | |
| 4/21/09 10:52:00 | 0.00 | 0.03 | 0.1 | 136.1 | |
| 4/21/09 10:52:15 | 0.00 | 0.03 | 0.1 | 136.3 | |
| 4/21/09 10:52:30 | 0.00 | 0.03 | 0.1 | 136.3 | |
| 4/21/09 10:52:45 | 0.00 | 0.03 | 0.1 | 134.8 | |
| 4/21/09 10:53:00 | 0.01 | 0.03 | 14.9 | 138.5 | |
| 4/21/09 10:53:15 | 0.57 | 1.20 | 17.6 | 145.2 | |
| 4/21/09 10:53:30 | 2.87 | 3.92 | 14.6 | 158.8 | |
| 4/21/09 10:53:45 | 3.79 | 5.09 | 14.1 | 197.1 | |
| 4/21/09 10:54:00 | 3.79 | 5.33 | 14.2 | 211.7 | |
| 4/21/09 10:54:15 | 3.77 | 5.36 | 14.1 | 221.5 | |
| 4/21/09 10:54:30 | 3.77 | 5.36 | 14.1 | 220.2 | |
| 4/21/09 10:54:45 | 3.79 | 5.37 | 14.0 | 211.3 | |
| 4/21/09 10:55:00 | 3.80 | 5.38 | 14.0 | 208.0 | |
| 4/21/09 10:55:15 | 3.82 | 5.37 | 13.7 | 212.4 | |
| 4/21/09 10:55:30 | 3.84 | 5.34 | 13.8 | 218.0 | |
| 4/21/09 10:55:45 | 3.90 | 5.31 | 13.6 | 228.1 | |
| 4/21/09 10:56:00 | 3.93 | 5.29 | 13.8 | 231.7 | |
| 4/21/09 10:56:15 | 3.95 | 5.26 | 10.6 | 248.5 | |
| 4/21/09 10:56:30 | 3.99 | 5.24 | 1.5 | 144.8 | |
| 4/21/09 10:56:45 | | | | | |
| 4/21/09 10:57:00 | 20.67 | 0.09 | 0.2 | 1.5 | |
| 4/21/09 10:57:15 | 15.13 | 1.78 | 0.5 | 78.8 | |
| 4/21/09 10:57:30 | 16.14 | 1.43 | 2.9 | 63.2 | |
| 4/21/09 10:57:45 | 16.57 | 0.81 | 0.2 | 119.2 | |
| 4/21/09 10:58:00 | 6.01 | 0.29 | 0.1 | 212.0 | |
| 4/21/09 10:58:15 | 0.57 | 0.06 | 0.1 | 402.7 | |
| 4/21/09 10:58:30 | 0.04 | 0.04 | 0.1 | 437.7 | |
| 4/21/09 10:58:45 | 0.01 | 0.04 | 0.1 | 448.3 | |
| 4/21/09 10:59:00 | 0.00 | 0.04 | 0.1 | 449.2 | Calibration Error |
| **4/21/09 10:59:15** | 0.00 | 0.04 | 0.1 | **450.3** | |
| **4/21/09 10:59:30** | 0.00 | 0.03 | 0.1 | **450.4** | |
| **4/21/09 10:59:45** | 0.00 | 0.04 | 0.1 | **450.1** | |
| **4/21/09 11:00:00** | 0.00 | 0.04 | 0.1 | **450.3** | 450.3 450.0 ppm CO |
| 4/21/09 11:00:15 | 0.00 | 0.04 | 0.1 | 451.1 | |
| 4/21/09 11:00:30 | 0.00 | 0.04 | 0.3 | 449.2 | |
| 4/21/09 11:00:45 | 0.00 | 0.04 | 0.1 | 385.4 | |
| 4/21/09 11:01:00 | 0.00 | 0.04 | 0.1 | 321.5 | |
| 4/21/09 11:01:15 | 0.00 | 0.04 | 0.1 | 239.4 | |
| 4/21/09 11:01:30 | -0.01 | 0.04 | 0.1 | 228.5 | Calibration Error |
| **4/21/09 11:01:45** | 0.00 | 0.04 | 0.1 | **225.5** | 0.00 Zero $O_2$ |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| **4/21/09 11:02:00** | **0.00** | 0.04 | 0.1 | **225.3** | |
| **4/21/09 11:02:15** | **0.00** | 0.03 | 0.1 | **225.2** | |
| **4/21/09 11:02:30** | **0.00** | 0.04 | 0.1 | **225.3** | **225.3 225.0 ppm CO** |
| 4/21/09 11:02:45 | 0.02 | 0.03 | 0.2 | 236.8 | |
| 4/21/09 11:03:00 | 0.03 | 0.03 | 13.8 | 215.9 | |
| 4/21/09 11:03:15 | 4.10 | 1.11 | 17.0 | 199.0 | |
| 4/21/09 11:03:30 | 5.01 | 3.91 | 14.1 | 209.2 | |
| 4/21/09 11:03:45 | 4.37 | 5.03 | 13.9 | 237.7 | |
| 4/21/09 11:04:00 | 4.01 | 5.28 | 14.0 | 244.0 | |
| 4/21/09 11:04:15 | 3.95 | 5.30 | 14.1 | 246.1 | |
| 4/21/09 11:04:30 | 3.94 | 5.30 | 14.1 | 246.8 | |
| 4/21/09 11:04:45 | 3.93 | 5.30 | 14.0 | 253.0 | |
| 4/21/09 11:05:00 | 3.94 | 5.28 | 13.9 | 257.4 | |
| 4/21/09 11:05:15 | 3.96 | 5.26 | 14.0 | 265.3 | |
| 4/21/09 11:05:30 | 3.96 | 5.24 | 14.1 | 267.3 | |
| 4/21/09 11:05:45 | 3.97 | 5.25 | 14.1 | 264.3 | |
| 4/21/09 11:06:00 | 3.96 | 5.25 | 14.2 | 261.7 | |
| 4/21/09 11:06:15 | 3.92 | 5.27 | 14.3 | 254.2 | |
| 4/21/09 11:06:30 | 3.87 | 5.30 | 14.1 | 248.2 | |
| 4/21/09 11:06:45 | 3.85 | 5.30 | 13.8 | 238.9 | |
| 4/21/09 11:07:00 | 4.08 | 5.18 | 13.3 | 238.0 | |
| 4/21/09 11:07:15 | 4.35 | 5.08 | 0.8 | 221.4 | |
| 4/21/09 11:07:30 | 5.91 | 4.02 | 0.4 | 178.3 | |
| 4/21/09 11:07:45 | 7.36 | 1.02 | 0.4 | 59.3 | |
| 4/21/09 11:08:00 | 4.97 | 0.18 | 0.3 | 24.1 | |
| 4/21/09 11:08:15 | 4.51 | 0.08 | 0.3 | 4.7 | |
| 4/21/09 11:08:30 | 4.47 | 0.06 | 0.3 | 3.9 | |
| 4/21/09 11:08:45 | 4.47 | 0.06 | 0.3 | 3.8 | |
| 4/21/09 11:09:00 | 4.47 | 0.05 | 0.3 | 3.6 | |
| 4/21/09 11:09:15 | 4.46 | 0.05 | 0.3 | 3.6 | System Bias |
| **4/21/09 11:09:30** | **4.46** | **0.05** | **0.3** | 3.6 | **4.46 4.50% $O_2$** |
| **4/21/09 11:09:45** | **4.46** | **0.05** | **0.2** | 3.8 | **0.05 Zero $CO_2$** |
| **4/21/09 11:10:00** | **4.46** | **0.05** | **0.2** | 3.8 | **0.2 Zero $NO_x$** |
| **4/21/09 11:10:15** | **4.46** | **0.05** | **0.2** | 3.6 | |
| 4/21/09 11:10:30 | 4.54 | 0.04 | 0.2 | 3.8 | |
| 4/21/09 11:10:45 | 7.10 | 0.04 | 0.2 | 4.2 | |
| 4/21/09 11:11:00 | 8.73 | 0.04 | 0.2 | 4.4 | |
| 4/21/09 11:11:15 | 8.92 | 0.04 | 0.2 | 4.5 | |
| 4/21/09 11:11:30 | 8.94 | 0.04 | 0.2 | 4.7 | |
| 4/21/09 11:11:45 | 8.94 | 0.04 | 0.2 | 5.0 | |
| 4/21/09 11:12:00 | 8.95 | 0.04 | 0.2 | 5.0 | |
| 4/21/09 11:12:15 | 8.95 | 0.04 | 0.2 | 5.0 | |
| 4/21/09 11:12:30 | 8.95 | 0.04 | 0.2 | 5.0 | |
| 4/21/09 11:12:45 | 8.95 | 0.04 | 0.2 | 5.1 | |
| 4/21/09 11:13:00 | 8.95 | 0.04 | 0.2 | 5.3 | |
| 4/21/09 11:13:15 | 8.95 | 0.04 | 0.2 | 5.3 | |
| 4/21/09 11:13:30 | 8.96 | 0.04 | 0.2 | 5.3 | |
| 4/21/09 11:13:45 | 8.96 | 0.04 | 0.2 | 5.1 | |
| 4/21/09 11:14:00 | 8.96 | 0.04 | 0.2 | 5.1 | |
| 4/21/09 11:14:15 | 8.97 | 0.04 | 0.2 | 5.4 | |
| 4/21/09 11:14:30 | 9.01 | 0.04 | 0.2 | 5.6 | |
| 4/21/09 11:14:45 | 9.06 | 0.04 | 0.2 | 6.0 | |
| 4/21/09 11:15:00 | 9.07 | 0.04 | 0.2 | 6.2 | **Stop Gas** |
| 4/21/09 11:15:15 | 9.06 | 0.04 | 0.2 | 6.2 | |
| 4/21/09 11:15:30 | 9.05 | 0.04 | 6.5 | 6.0 | |
| 4/21/09 11:15:45 | 9.04 | 0.08 | 14.8 | 43.8 | |
| 4/21/09 11:16:00 | 7.08 | 2.59 | 14.7 | 94.1 | |
| 4/21/09 11:16:15 | 4.64 | 4.65 | 14.6 | 192.8 | |
| 4/21/09 11:16:30 | 4.05 | 5.12 | 14.6 | 215.3 | |
| 4/21/09 11:16:45 | 3.99 | 5.18 | 14.8 | 232.7 | |
| 4/21/09 11:17:00 | 3.99 | 5.20 | 14.9 | 236.7 | |
| 4/21/09 11:17:15 | 4.01 | 5.19 | 14.8 | 240.8 | |
| 4/21/09 11:17:30 | 4.05 | 5.18 | 14.8 | 240.8 | **Inject 9.00% $O_2$** |
| 4/21/09 11:17:45 | 4.06 | 5.17 | 14.8 | 235.4 | |
| 4/21/09 11:18:00 | 4.07 | 5.18 | 10.0 | 231.0 | |
| 4/21/09 11:18:15 | 4.05 | 5.17 | 0.5 | 189.4 | **$NO_x$ Response Time - Low = 45 seconds** |
| 4/21/09 11:18:30 | 5.73 | 2.98 | 0.3 | 136.1 | |
| 4/21/09 11:18:45 | 8.48 | 0.55 | 0.3 | 36.2 | |
| 4/21/09 11:19:00 | 9.01 | 0.12 | 0.3 | 14.6 | **$O_2$ Response - High/CO & $CO_2$ Response - Low = 90 seconds** |
| 4/21/09 11:19:15 | 9.04 | 0.07 | 0.2 | 5.6 | |
| 4/21/09 11:19:30 | 9.04 | 0.06 | 0.2 | 5.3 | |
| 4/21/09 11:19:45 | 9.04 | 0.05 | 0.2 | 5.3 | |
| 4/21/09 11:20:00 | 9.04 | 0.05 | 0.2 | 5.4 | |
| 4/21/09 11:20:15 | 9.05 | 0.05 | 0.2 | 5.3 | |
| 4/21/09 11:20:30 | 9.05 | 0.05 | 0.2 | 5.1 | |
| 4/21/09 11:20:45 | 9.05 | 0.05 | 0.2 | 5.1 | |
| 4/21/09 11:21:00 | 9.05 | 0.04 | 0.2 | 5.1 | |
| 4/21/09 11:21:15 | 9.05 | 0.04 | 1.9 | 5.3 | |
| 4/21/09 11:21:30 | 9.05 | 0.05 | 6.5 | 13.6 | |
| 4/21/09 11:21:45 | 7.93 | 1.63 | 0.3 | 48.9 | |
| 4/21/09 11:22:00 | 5.27 | 2.02 | 0.2 | 50.1 | |
| 4/21/09 11:22:15 | 1.62 | 3.11 | 0.2 | 17.1 | |
| 4/21/09 11:22:30 | 0.47 | 4.12 | 0.2 | 6.6 | |
| 4/21/09 11:22:45 | 0.30 | 4.31 | 0.2 | 2.0 | |
| 4/21/09 11:23:00 | 0.27 | 4.24 | 0.2 | 1.7 | |
| 4/21/09 11:23:15 | 0.27 | 4.16 | 0.2 | 1.6 | |
| 4/21/09 11:23:30 | 0.27 | 4.12 | 0.2 | 1.8 | |
| 4/21/09 11:23:45 | 0.26 | 4.14 | 0.2 | 1.7 | |

# Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 11:24:00 | 0.26 | 4.24 | 0.2 | 1.5 | |
| 4/21/09 11:24:15 | 0.25 | 4.34 | 0.2 | 1.5 | |
| 4/21/09 11:24:30 | 0.25 | 4.40 | 0.2 | 1.7 | |
| 4/21/09 11:24:45 | 0.25 | 4.42 | 0.1 | 1.7 | |
| 4/21/09 11:25:00 | 0.25 | 4.43 | 0.1 | 1.5 | |
| 4/21/09 11:25:15 | 0.25 | 4.44 | 2.1 | 2.6 | |
| 4/21/09 11:25:30 | 0.20 | 4.45 | 0.2 | 5.7 | |
| 4/21/09 11:25:45 | 0.31 | 4.51 | 0.1 | 9.8 | |
| 4/21/09 11:26:00 | 0.13 | 4.50 | 0.1 | 7.2 | |
| 4/21/09 11:26:15 | 0.04 | 4.49 | 0.1 | 2.0 | |
| 4/21/09 11:26:30 | 0.03 | 4.49 | 0.1 | 1.4 | |
| 4/21/09 11:26:45 | 0.04 | 4.50 | 0.1 | 1.4 | System Bias |
| **4/21/09 11:27:00** | 0.03 | **4.50** | 0.1 | **1.4** | |
| **4/21/09 11:27:15** | 0.03 | **4.50** | 0.1 | **1.2** | 4.50 4.50% $CO_2$ |
| **4/21/09 11:27:30** | 0.03 | **4.51** | 0.1 | **1.2** | |
| **4/21/09 11:27:45** | 0.03 | **4.50** | 0.1 | **1.2** | 1.3 Zero CO |
| 4/21/09 11:28:00 | 0.03 | 4.64 | 0.1 | 1.2 | |
| 4/21/09 11:28:15 | 0.02 | 7.24 | 0.1 | 0.8 | |
| 4/21/09 11:28:30 | 0.02 | 8.66 | 0.1 | 0.6 | |
| 4/21/09 11:28:45 | 0.02 | 8.86 | 0.1 | 0.6 | |
| 4/21/09 11:29:00 | 0.02 | 8.89 | 0.1 | 0.6 | |
| 4/21/09 11:29:15 | 0.01 | 8.90 | 0.1 | 0.8 | |
| 4/21/09 11:29:30 | 0.01 | 8.91 | 0.1 | 0.8 | |
| 4/21/09 11:29:45 | 0.01 | 8.91 | 0.1 | 0.6 | |
| 4/21/09 11:30:00 | 0.01 | 8.92 | 0.1 | 0.6 | |
| 4/21/09 11:30:15 | 0.01 | 8.92 | 6.5 | 3.0 | |
| 4/21/09 11:30:30 | 0.02 | 8.90 | 15.2 | 24.8 | |
| 4/21/09 11:30:45 | 1.33 | 7.36 | 15.1 | 150.2 | |
| 4/21/09 11:31:00 | 3.31 | 5.68 | 15.1 | 221.2 | |
| 4/21/09 11:31:15 | 3.68 | 5.39 | 15.1 | 273.3 | |
| 4/21/09 11:31:30 | 3.69 | 5.36 | 15.1 | 270.0 | |
| 4/21/09 11:31:45 | 3.69 | 5.36 | 14.9 | 261.3 | |
| 4/21/09 11:32:00 | 3.69 | 5.36 | 15.1 | 256.9 | |
| 4/21/09 11:32:15 | 3.68 | 5.37 | 15.1 | 242.9 | Start Injection of 9.00% $CO_2$ |
| 4/21/09 11:32:30 | 3.66 | 5.38 | 15.0 | 238.5 | |
| 4/21/09 11:32:45 | 3.70 | 5.37 | 9.1 | 233.6 | |
| 4/21/09 11:33:00 | 3.72 | 5.38 | 0.3 | 213.0 | |
| 4/21/09 11:33:15 | 2.43 | 7.05 | 0.2 | 104.5 | |
| 4/21/09 11:33:30 | 0.52 | 8.64 | 0.2 | 51.8 | $CO_2$ Response Time - Up = 75 seconds |
| 4/21/09 11:33:45 | 0.07 | 8.89 | 0.2 | 6.1 | $O_2$ Response Time - Down = 90 seconds |
| 4/21/09 11:34:00 | 0.02 | 8.91 | 0.1 | 2.0 | |
| 4/21/09 11:34:15 | 0.01 | 8.91 | 0.1 | 0.8 | |
| 4/21/09 11:34:30 | 0.00 | 8.92 | 0.1 | 0.6 | |
| 4/21/09 11:34:45 | 0.01 | 8.93 | 10.9 | 8.9 | |
| 4/21/09 11:35:00 | 0.09 | 8.77 | 0.6 | 34.6 | |
| 4/21/09 11:35:15 | 1.50 | 6.50 | 0.1 | 127.3 | |
| 4/21/09 11:35:30 | 0.69 | 2.44 | 0.1 | 168.0 | |
| 4/21/09 11:35:45 | 0.12 | 0.43 | 0.1 | 212.6 | |
| 4/21/09 11:36:00 | 0.03 | 0.16 | 0.1 | 220.2 | |
| 4/21/09 11:36:15 | 0.02 | 0.11 | 0.1 | 223.4 | |
| 4/21/09 11:36:30 | 0.02 | 0.10 | 0.1 | 223.4 | |
| 4/21/09 11:36:45 | 0.02 | 0.09 | 0.1 | 223.7 | |
| 4/21/09 11:37:00 | 0.02 | 0.08 | 0.1 | 224.0 | |
| 4/21/09 11:37:15 | 0.02 | 0.07 | 0.1 | 224.2 | System Bias |
| **4/21/09 11:37:30** | **0.02** | 0.07 | 0.1 | **224.0** | 0.02 Zero $O_2$ |
| **4/21/09 11:37:45** | **0.02** | 0.06 | 0.1 | **223.7** | |
| **4/21/09 11:38:00** | **0.02** | 0.06 | 0.1 | **224.0** | |
| **4/21/09 11:38:15** | **0.02** | 0.06 | 0.1 | **223.6** | 223.8 225.0 ppm CO |
| 4/21/09 11:38:30 | 0.02 | 0.06 | 0.1 | 224.6 | |
| 4/21/09 11:38:45 | 0.02 | 0.14 | 0.1 | 295.3 | |
| 4/21/09 11:39:00 | 0.02 | 0.09 | 0.1 | 362.5 | |
| 4/21/09 11:39:15 | 0.02 | 0.06 | 0.1 | 439.1 | |
| 4/21/09 11:39:30 | 0.02 | 0.05 | 0.1 | 446.4 | |
| 4/21/09 11:39:45 | 0.02 | 0.05 | 0.1 | 448.1 | |
| 4/21/09 11:40:00 | 0.02 | 0.05 | 0.1 | 448.4 | |
| 4/21/09 11:40:15 | 0.02 | 0.05 | 0.1 | 449.4 | |
| 4/21/09 11:40:30 | 0.02 | 0.05 | 2.9 | 449.8 | |
| 4/21/09 11:40:45 | 0.02 | 0.05 | 14.3 | 439.9 | |
| 4/21/09 11:41:00 | 1.30 | 2.17 | 13.8 | 421.5 | |
| 4/21/09 11:41:15 | 3.37 | 4.37 | 13.5 | 387.8 | |
| 4/21/09 11:41:30 | 4.08 | 5.03 | 13.8 | 384.8 | |
| 4/21/09 11:41:45 | 4.18 | 5.13 | 13.9 | 379.1 | |
| 4/21/09 11:42:00 | 4.16 | 5.16 | 13.8 | 369.3 | |
| 4/21/09 11:42:15 | 4.15 | 5.17 | 13.9 | 348.4 | |
| 4/21/09 11:42:30 | 4.14 | 5.17 | 13.7 | 343.8 | |
| 4/21/09 11:42:45 | 4.17 | 5.15 | 13.7 | 345.7 | |
| 4/21/09 11:43:00 | 4.16 | 5.15 | 13.6 | 345.7 | Inject 450 ppm CO |
| 4/21/09 11:43:15 | 4.18 | 5.15 | 13.6 | 345.8 | |
| 4/21/09 11:43:30 | 4.18 | 5.15 | 9.5 | 350.7 | |
| 4/21/09 11:43:45 | 4.17 | 5.15 | 0.3 | 356.2 | |
| 4/21/09 11:44:00 | 2.83 | 3.07 | 0.2 | 360.7 | |
| 4/21/09 11:44:15 | 0.67 | 0.68 | 0.2 | 402.4 | |
| 4/21/09 11:44:30 | 0.08 | 0.14 | 0.1 | 427.6 | CO Response Time - Up = 90 seconds |
| 4/21/09 11:44:45 | 0.03 | 0.08 | 0.1 | 448.0 | |
| 4/21/09 11:45:00 | 0.02 | 0.07 | 0.1 | 449.2 | |
| 4/21/09 11:45:15 | 0.02 | 0.06 | 0.1 | 450.1 | |
| 4/21/09 11:45:30 | 0.02 | 0.06 | 0.1 | 449.8 | |
| 4/21/09 11:45:45 | 0.02 | 0.06 | 10.5 | 445.7 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 11:46:00 | 0.56 | 1.01 | 0.3 | 424.4 | |
| 4/21/09 11:46:15 | 1.73 | 1.94 | 8.6 | 254.1 | |
| 4/21/09 11:46:30 | 0.50 | 0.47 | 14.5 | 149.0 | |
| 4/21/09 11:46:45 | 0.06 | 0.12 | 17.9 | 32.5 | |
| 4/21/09 11:47:00 | 0.04 | 0.06 | 22.0 | 13.9 | |
| 4/21/09 11:47:15 | 0.04 | 0.05 | 24.4 | 4.8 | |
| 4/21/09 11:47:30 | 0.03 | 0.05 | 25.7 | 4.1 | |
| 4/21/09 11:47:45 | 0.03 | 0.05 | 26.1 | 3.6 | |
| 4/21/09 11:48:00 | 0.03 | 0.05 | 30.6 | 3.5 | |
| 4/21/09 11:48:15 | 0.03 | 0.04 | 47.4 | 3.5 | |
| 4/21/09 11:48:30 | 0.03 | 0.04 | 46.5 | 3.5 | |
| 4/21/09 11:48:45 | 0.03 | 0.04 | 45.5 | 3.2 | |
| 4/21/09 11:49:00 | 0.03 | 0.04 | 45.2 | 3.0 | |
| 4/21/09 11:49:15 | 0.03 | 0.04 | 44.8 | 3.0 | |
| 4/21/09 11:49:30 | 0.02 | 0.04 | 44.6 | 3.2 | |
| 4/21/09 11:49:45 | 0.03 | 0.04 | 44.4 | 3.2 | |
| 4/21/09 11:50:00 | 0.03 | 0.04 | 44.3 | 3.0 | |
| 4/21/09 11:50:15 | 0.03 | 0.04 | 44.0 | 2.9 | |
| 4/21/09 11:50:30 | 0.03 | 0.04 | 43.9 | 2.9 | |
| 4/21/09 11:50:45 | 0.03 | 0.04 | 43.7 | 3.0 | |
| 4/21/09 11:51:00 | 0.03 | 0.04 | 43.6 | 3.2 | |
| 4/21/09 11:51:15 | 0.03 | 0.04 | 43.5 | 2.9 | |
| 4/21/09 11:51:30 | 0.03 | 0.04 | 43.3 | 2.7 | |
| 4/21/09 11:51:45 | 0.03 | 0.04 | 43.1 | 3.0 | |
| 4/21/09 11:52:00 | 0.03 | 0.04 | 43.0 | 3.0 | |
| 4/21/09 11:52:15 | 0.03 | 0.04 | 42.7 | 2.9 | |
| 4/21/09 11:52:30 | 0.03 | 0.04 | 42.5 | 2.7 | |
| 4/21/09 11:52:45 | 0.03 | 0.04 | 42.3 | 2.9 | |
| 4/21/09 11:53:00 | 0.03 | 0.04 | 42.1 | 3.0 | |
| 4/21/09 11:53:15 | 0.03 | 0.04 | 42.0 | 2.9 | |
| 4/21/09 11:53:30 | 0.03 | 0.04 | 41.8 | 2.7 | |
| 4/21/09 11:53:45 | 0.03 | 0.04 | 41.8 | 2.7 | |
| 4/21/09 11:54:00 | 0.03 | 0.04 | 59.2 | 2.9 | |
| 4/21/09 11:54:15 | 0.02 | 0.04 | 83.1 | 3.0 | |
| 4/21/09 11:54:30 | 0.03 | 0.04 | 83.0 | 2.9 | |
| 4/21/09 11:54:45 | 0.03 | 0.04 | 82.9 | 2.7 | |
| 4/21/09 11:55:00 | 0.03 | 0.04 | 83.0 | 2.7 | |
| 4/21/09 11:55:15 | 0.03 | 0.04 | 82.8 | 3.0 | |
| 4/21/09 11:55:30 | 0.03 | 0.04 | 83.0 | 2.9 | |
| 4/21/09 11:55:45 | 0.03 | 0.04 | 83.2 | 2.7 | |
| 4/21/09 11:56:00 | 0.03 | 0.04 | 89.7 | 2.7 | |
| 4/21/09 11:56:15 | 0.03 | 0.04 | 90.5 | 2.9 | |
| 4/21/09 11:56:30 | 0.03 | 0.04 | 44.4 | 3.0 | |
| 4/21/09 11:56:45 | 0.03 | 0.08 | 15.7 | 63.2 | |
| 4/21/09 11:57:00 | 1.87 | 2.54 | 15.0 | 142.3 | Inject 45 ppm $NO_x$ |
| 4/21/09 11:57:15 | 3.93 | 4.46 | 14.9 | 269.9 | |
| 4/21/09 11:57:30 | 4.48 | 4.95 | 47.2 | 310.8 | |
| 4/21/09 11:57:45 | 4.53 | 4.95 | 90.0 | 245.9 | $NO_x$ Response Time - High = 45 seconds |
| 4/21/09 11:58:00 | 2.70 | 2.58 | 88.9 | 168.0 | |
| 4/21/09 11:58:15 | 0.56 | 0.50 | 88.8 | 39.5 | |
| 4/21/09 11:58:30 | 0.08 | 0.10 | 88.6 | 13.7 | |
| 4/21/09 11:58:45 | 0.03 | 0.06 | 88.6 | 3.3 | |
| 4/21/09 11:59:00 | 0.03 | 0.05 | 89.2 | 2.9 | |
| 4/21/09 11:59:15 | 0.03 | 0.04 | 89.4 | 2.7 | |
| 4/21/09 11:59:30 | 0.03 | 0.04 | 89.6 | 2.7 | |
| 4/21/09 11:59:45 | 0.02 | 0.04 | 89.9 | 2.9 | |
| 4/21/09 12:00:00 | 0.03 | 0.04 | 90.0 | 2.9 | |
| 4/21/09 12:00:15 | 0.02 | 0.04 | 90.1 | 2.6 | |
| 4/21/09 12:00:30 | 0.02 | 0.04 | 90.2 | 2.7 | |
| 4/21/09 12:00:45 | 0.02 | 0.04 | 90.2 | 2.9 | |
| 4/21/09 12:01:00 | 0.02 | 0.04 | 90.2 | 2.9 | |
| 4/21/09 12:01:15 | 0.02 | 0.04 | 90.3 | 2.6 | |
| 4/21/09 12:01:30 | 0.02 | 0.04 | 90.3 | 2.6 | |
| 4/21/09 12:01:45 | 0.02 | 0.04 | 90.3 | 2.7 | |
| 4/21/09 12:02:00 | 0.02 | 0.04 | 90.2 | 2.9 | |
| 4/21/09 12:02:15 | 0.02 | 0.04 | 90.2 | 2.7 | |
| 4/21/09 12:02:30 | 0.02 | 0.04 | 90.2 | 2.6 | |
| 4/21/09 12:02:45 | 0.02 | 0.04 | 87.7 | 2.7 | |
| 4/21/09 12:03:00 | 0.02 | 0.04 | 79.6 | 7.7 | |
| 4/21/09 12:03:15 | 0.41 | 0.62 | 90.0 | 22.4 | |
| 4/21/09 12:03:30 | 0.45 | 0.45 | 83.7 | 20.8 | |
| 4/21/09 12:03:45 | 0.08 | 0.09 | 84.1 | 7.1 | |
| 4/21/09 12:04:00 | 0.02 | 0.05 | 83.7 | 3.8 | |
| 4/21/09 12:04:15 | 0.02 | 0.04 | 77.9 | 2.9 | |
| 4/21/09 12:04:30 | 0.02 | 0.04 | 84.2 | 2.7 | |
| 4/21/09 12:04:45 | 0.02 | 0.04 | 84.1 | 2.6 | |
| 4/21/09 12:05:00 | 0.02 | 0.04 | 72.0 | 2.6 | |
| 4/21/09 12:05:15 | 0.02 | 0.04 | 44.9 | 2.7 | |
| 4/21/09 12:05:30 | 0.02 | 0.04 | 45.2 | 2.7 | System Bias |
| **4/21/09 12:05:45** | 0.02 | 0.04 | **45.1** | 2.6 | |
| **4/21/09 12:06:00** | 0.02 | 0.04 | **45.1** | 2.4 | |
| **4/21/09 12:06:15** | 0.02 | 0.04 | **45.0** | 2.6 | **45.1 45.0 ppm $NO_x$** |
| **4/21/09 12:06:30** | 0.02 | 0.04 | **45.0** | 2.7 | |
| 4/21/09 12:06:45 | 0.02 | 0.04 | 45.0 | 2.6 | |
| 4/21/09 12:07:00 | 0.01 | 0.04 | 37.0 | 2.6 | |
| 4/21/09 12:07:15 | 0.02 | 0.07 | 15.7 | 30.5 | |
| 4/21/09 12:07:30 | 1.59 | 2.39 | 15.1 | 71.5 | |
| 4/21/09 12:07:45 | 3.73 | 4.50 | 15.2 | 159.3 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 12:08:00 | 4.40 | 5.13 | 15.2 | 179.2 | |
| 4/21/09 12:08:15 | 4.51 | 5.20 | 15.2 | 186.7 | |
| 4/21/09 12:08:30 | 4.53 | 5.21 | 15.2 | 187.1 | |
| 4/21/09 12:08:45 | 4.52 | 5.21 | 15.2 | 185.1 | |
| 4/21/09 12:09:00 | 4.53 | 5.21 | 15.0 | 184.8 | |
| 4/21/09 12:09:15 | 4.56 | 5.20 | 14.9 | 189.0 | |
| 4/21/09 12:09:30 | 4.60 | 5.19 | 14.9 | 191.8 | |
| 4/21/09 12:09:45 | 4.64 | 5.17 | 14.8 | 199.6 | |
| 4/21/09 12:10:00 | 4.65 | 5.17 | 14.6 | 204.8 | |
| 4/21/09 12:10:15 | 4.63 | 5.17 | 14.4 | 213.5 | |
| 4/21/09 12:10:30 | 4.66 | 5.16 | 14.3 | 217.5 | |
| 4/21/09 12:10:45 | 4.68 | 5.14 | 14.1 | 229.8 | |
| 4/21/09 12:11:00 | 4.71 | 5.12 | 14.0 | 234.8 | |
| 4/21/09 12:11:15 | 4.75 | 5.09 | 14.1 | 239.2 | |
| 4/21/09 12:11:30 | 4.76 | 5.08 | 14.0 | 241.5 | |
| 4/21/09 12:11:45 | 4.75 | 5.08 | 13.8 | 243.7 | |
| 4/21/09 12:12:00 | 4.76 | 5.07 | 13.8 | 242.4 | |
| 4/21/09 12:12:15 | 4.77 | 5.07 | 13.5 | 241.9 | |
| 4/21/09 12:12:30 | 4.80 | 5.06 | 13.3 | 246.2 | |
| 4/21/09 12:12:45 | 4.85 | 5.03 | 13.2 | 269.6 | |
| 4/21/09 12:13:00 | 4.90 | 5.00 | 13.1 | 281.2 | |
| 4/21/09 12:13:15 | 4.92 | 4.99 | 13.1 | 286.7 | |
| 4/21/09 12:13:30 | 4.94 | 4.99 | 13.4 | 281.1 | |
| 4/21/09 12:13:45 | 4.90 | 5.02 | 13.4 | 255.1 | |
| 4/21/09 12:14:00 | 4.79 | 5.09 | 13.3 | 239.2 | |
| 4/21/09 12:14:15 | 4.74 | 5.11 | 13.4 | 222.3 | |
| 4/21/09 12:14:30 | 4.78 | 5.10 | 13.5 | 219.9 | |
| 4/21/09 12:14:45 | 4.78 | 5.11 | 13.2 | 216.6 | |
| 4/21/09 12:15:00 | 4.81 | 5.11 | 13.0 | 218.4 | |
| 4/21/09 12:15:15 | 4.83 | 5.11 | 13.0 | 230.5 | |
| 4/21/09 12:15:30 | 4.83 | 5.11 | 13.1 | 234.2 | |
| 4/21/09 12:15:45 | 4.84 | 5.10 | 13.1 | 231.5 | |
| 4/21/09 12:16:00 | 4.88 | 5.09 | 12.8 | 230.1 | |
| 4/21/09 12:16:15 | 4.94 | 5.08 | 13.3 | 223.7 | |
| 4/21/09 12:16:30 | 4.99 | 5.07 | 13.3 | 214.3 | |
| 4/21/09 12:16:45 | 4.94 | 5.11 | 13.1 | 194.1 | |
| 4/21/09 12:17:00 | 4.98 | 5.09 | 13.2 | 192.7 | |
| 4/21/09 12:17:15 | 5.03 | 5.06 | 13.4 | 200.0 | |
| 4/21/09 12:17:30 | 5.05 | 5.05 | 13.1 | 200.4 | |
| 4/21/09 12:17:45 | 5.08 | 5.03 | 13.2 | 200.9 | |
| 4/21/09 12:18:00 | 5.13 | 5.02 | 13.0 | 203.1 | |
| 4/21/09 12:18:15 | 5.12 | 5.03 | 12.8 | 206.5 | |
| 4/21/09 12:18:30 | 5.14 | 5.02 | 12.8 | 210.1 | |
| 4/21/09 12:18:45 | 5.18 | 5.01 | 12.8 | 217.2 | |
| 4/21/09 12:19:00 | 5.19 | 5.01 | 12.7 | 215.6 | |
| 4/21/09 12:19:15 | 5.20 | 5.01 | 12.8 | 208.0 | |
| 4/21/09 12:19:30 | 5.16 | 5.03 | 13.0 | 204.1 | |
| 4/21/09 12:19:45 | 5.13 | 5.06 | 13.2 | 199.5 | |
| 4/21/09 12:20:00 | 5.12 | 5.08 | 13.0 | 180.5 | |
| 4/21/09 12:20:15 | 5.12 | 5.09 | 13.3 | 170.3 | |
| 4/21/09 12:20:30 | 5.17 | 5.07 | 13.8 | 166.6 | |
| 4/21/09 12:20:45 | 5.15 | 5.09 | 14.2 | 143.1 | |
| 4/21/09 12:21:00 | 5.02 | 5.15 | 14.0 | 125.0 | |
| 4/21/09 12:21:15 | 4.98 | 5.17 | 14.1 | 102.0 | |
| 4/21/09 12:21:30 | 5.01 | 5.16 | 14.0 | 99.3 | |
| 4/21/09 12:21:45 | 4.98 | 5.17 | 14.4 | 94.7 | |
| 4/21/09 12:22:00 | 4.96 | 5.19 | 14.4 | 88.3 | |
| 4/21/09 12:22:15 | 4.91 | 5.22 | 14.4 | 77.1 | |
| 4/21/09 12:22:30 | 4.93 | 5.20 | 14.7 | 75.0 | |
| 4/21/09 12:22:45 | 5.01 | 5.17 | 14.4 | 71.6 | |
| 4/21/09 12:23:00 | 4.98 | 5.17 | 14.3 | 70.8 | |
| 4/21/09 12:23:15 | 4.99 | 5.15 | 14.3 | 77.4 | |
| 4/21/09 12:23:30 | 5.06 | 5.10 | 14.4 | 82.2 | |
| 4/21/09 12:23:45 | 5.11 | 5.06 | 14.2 | 88.0 | |
| 4/21/09 12:24:00 | 5.12 | 5.05 | 14.1 | 91.7 | |
| 4/21/09 12:24:15 | 5.14 | 5.04 | 13.8 | 100.8 | |
| 4/21/09 12:24:30 | 5.14 | 5.05 | 14.1 | 104.4 | |
| 4/21/09 12:24:45 | 5.15 | 5.06 | 13.9 | 106.7 | |
| 4/21/09 12:25:00 | 5.14 | 5.07 | 13.8 | 106.1 | |
| 4/21/09 12:25:15 | 5.15 | 5.08 | 13.9 | 109.2 | |
| 4/21/09 12:25:30 | 5.14 | 5.08 | 14.0 | 109.9 | |
| 4/21/09 12:25:45 | 5.13 | 5.10 | 14.0 | 99.0 | |
| 4/21/09 12:26:00 | 5.09 | 5.13 | 14.1 | 91.3 | |
| 4/21/09 12:26:15 | 5.06 | 5.15 | 14.0 | 86.8 | |
| 4/21/09 12:26:30 | 5.09 | 5.14 | 14.0 | 90.2 | |
| 4/21/09 12:26:45 | 5.12 | 5.13 | 14.1 | 99.4 | |
| 4/21/09 12:27:00 | 5.13 | 5.13 | 14.4 | 101.8 | |
| 4/21/09 12:27:15 | 5.12 | 5.13 | 14.0 | 96.5 | |
| 4/21/09 12:27:30 | 5.11 | 5.14 | 13.8 | 93.7 | |
| 4/21/09 12:27:45 | 5.14 | 5.13 | 13.6 | 97.5 | |
| 4/21/09 12:28:00 | 5.17 | 5.13 | 13.8 | 100.3 | |
| 4/21/09 12:28:15 | 5.20 | 5.12 | 13.9 | 103.3 | |
| 4/21/09 12:28:30 | 5.18 | 5.12 | 13.9 | 101.4 | |
| 4/21/09 12:28:45 | 5.19 | 5.13 | 13.8 | 89.0 | |
| 4/21/09 12:29:00 | 5.18 | 5.14 | 14.0 | 84.9 | |
| 4/21/09 12:29:15 | 5.21 | 5.11 | 13.8 | 85.1 | |
| 4/21/09 12:29:30 | 5.24 | 5.09 | 13.7 | 85.7 | |
| 4/21/09 12:29:45 | 5.28 | 5.07 | 13.5 | 90.5 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 12:30:00 | 5.29 | 5.06 | 13.2 | 96.5 | |
| 4/21/09 12:30:15 | 5.28 | 5.06 | 13.4 | 110.1 | |
| 4/21/09 12:30:30 | 5.32 | 5.03 | 13.5 | 114.1 | |
| 4/21/09 12:30:45 | 5.34 | 5.03 | 13.6 | 109.9 | |
| 4/21/09 12:31:00 | 5.35 | 5.03 | 13.5 | 105.9 | |
| 4/21/09 12:31:15 | 5.36 | 5.03 | 13.4 | 107.3 | |
| 4/21/09 12:31:30 | 5.39 | 5.03 | 12.9 | 114.6 | |
| 4/21/09 12:31:45 | 5.43 | 5.01 | 12.8 | 142.7 | |
| 4/21/09 12:32:00 | 5.51 | 4.96 | 12.6 | 155.1 | |
| 4/21/09 12:32:15 | 5.56 | 4.93 | 13.2 | 161.7 | |
| 4/21/09 12:32:30 | 5.57 | 4.93 | 13.1 | 157.6 | |
| 4/21/09 12:32:45 | 5.53 | 4.95 | 13.0 | 145.0 | |
| 4/21/09 12:33:00 | 5.54 | 4.94 | 12.9 | 141.2 | |
| 4/21/09 12:33:15 | 5.55 | 4.94 | 13.0 | 140.0 | |
| 4/21/09 12:33:30 | 5.54 | 4.95 | 13.1 | 142.6 | |
| 4/21/09 12:33:45 | 5.53 | 4.95 | 13.1 | 142.0 | |
| 4/21/09 12:34:00 | 5.55 | 4.95 | 13.3 | 135.9 | |
| 4/21/09 12:34:15 | 5.57 | 4.95 | 13.2 | 125.8 | |
| 4/21/09 12:34:30 | 5.56 | 4.95 | 13.1 | 123.1 | |
| 4/21/09 12:34:45 | 5.54 | 4.96 | 12.9 | 118.7 | |
| 4/21/09 12:35:00 | 5.52 | 4.96 | 13.1 | 122.5 | |
| 4/21/09 12:35:15 | 5.55 | 4.93 | 13.1 | 133.8 | |
| 4/21/09 12:35:30 | 5.56 | 4.94 | 13.2 | 132.4 | |
| 4/21/09 12:35:45 | 5.52 | 4.96 | 13.4 | 122.2 | |
| 4/21/09 12:36:00 | 5.53 | 4.98 | 13.5 | 116.1 | |
| 4/21/09 12:36:15 | 5.49 | 5.01 | 13.5 | 101.5 | |
| 4/21/09 12:36:30 | 5.47 | 5.03 | 13.5 | 97.4 | |
| 4/21/09 12:36:45 | 5.44 | 5.04 | 13.4 | 92.9 | |
| 4/21/09 12:37:00 | 5.43 | 5.05 | 13.7 | 88.4 | |
| 4/21/09 12:37:15 | 5.41 | 5.06 | 14.0 | 78.6 | |
| 4/21/09 12:37:30 | 5.39 | 5.07 | 14.2 | 72.8 | |
| 4/21/09 12:37:45 | 5.36 | 5.09 | 14.3 | 56.3 | |
| 4/21/09 12:38:00 | 5.31 | 5.12 | 14.4 | 48.9 | |
| 4/21/09 12:38:15 | 5.29 | 5.13 | 14.3 | 44.1 | |
| 4/21/09 12:38:30 | 5.31 | 5.12 | 14.3 | 45.8 | |
| 4/21/09 12:38:45 | 5.33 | 5.11 | 14.5 | 47.6 | |
| 4/21/09 12:39:00 | 5.33 | 5.12 | 14.7 | 46.2 | |
| 4/21/09 12:39:15 | 5.30 | 5.14 | 14.5 | 41.3 | |
| 4/21/09 12:39:30 | 5.28 | 5.15 | 14.5 | 38.8 | |
| 4/21/09 12:39:45 | 5.27 | 5.16 | 14.5 | 36.7 | |
| 4/21/09 12:40:00 | 5.28 | 5.16 | 14.6 | 37.2 | |
| 4/21/09 12:40:15 | 5.28 | 5.16 | 14.5 | 38.3 | |
| 4/21/09 12:40:30 | 5.26 | 5.17 | 14.6 | 38.1 | |
| 4/21/09 12:40:45 | 5.25 | 5.17 | 14.5 | 38.0 | |
| 4/21/09 12:41:00 | 5.28 | 5.16 | 14.5 | 39.1 | |
| 4/21/09 12:41:15 | 5.31 | 5.14 | 14.7 | 43.4 | |
| 4/21/09 12:41:30 | 5.31 | 5.13 | 14.7 | 45.1 | |
| 4/21/09 12:41:45 | 5.32 | 5.13 | 14.8 | 44.9 | |
| 4/21/09 12:42:00 | 5.30 | 5.13 | 14.5 | 45.4 | |
| 4/21/09 12:42:15 | 5.33 | 5.12 | 14.2 | 52.1 | |
| 4/21/09 12:42:30 | 5.42 | 5.08 | 14.0 | 59.0 | |
| 4/21/09 12:42:45 | 5.52 | 5.03 | 14.4 | 73.2 | |
| 4/21/09 12:43:00 | 5.54 | 5.02 | 14.7 | 73.5 | |
| 4/21/09 12:43:15 | 5.52 | 5.05 | 14.6 | 59.3 | |
| 4/21/09 12:43:30 | 5.47 | 5.08 | 14.6 | 53.8 | |
| 4/21/09 12:43:45 | 5.48 | 5.08 | 14.6 | 53.2 | |
| 4/21/09 12:44:00 | 5.49 | 5.07 | 14.5 | 54.8 | |
| 4/21/09 12:44:15 | 5.51 | 5.06 | 14.6 | 59.6 | |
| 4/21/09 12:44:30 | 5.52 | 5.06 | 14.7 | 60.7 | |
| 4/21/09 12:44:45 | 5.50 | 5.07 | 14.8 | 57.3 | |
| 4/21/09 12:45:00 | 5.51 | 5.07 | 14.7 | 53.3 | |
| 4/21/09 12:45:15 | 5.46 | 5.10 | 14.8 | 42.4 | |
| 4/21/09 12:45:30 | 5.42 | 5.12 | 14.7 | 38.8 | |
| 4/21/09 12:45:45 | 5.40 | 5.12 | 14.7 | 33.7 | |
| 4/21/09 12:46:00 | 5.39 | 5.12 | 14.8 | 30.5 | |
| 4/21/09 12:46:15 | 5.37 | 5.14 | 14.8 | 27.5 | |
| 4/21/09 12:46:30 | 5.36 | 5.13 | 14.9 | 29.5 | |
| 4/21/09 12:46:45 | 5.41 | 5.10 | 14.8 | 35.2 | |
| 4/21/09 12:47:00 | 5.43 | 5.09 | 14.7 | 37.4 | |
| 4/21/09 12:47:15 | 5.45 | 5.07 | 14.6 | 40.9 | |
| 4/21/09 12:47:30 | 5.46 | 5.07 | 14.6 | 41.5 | |
| 4/21/09 12:47:45 | 5.47 | 5.06 | 14.4 | 41.8 | |
| 4/21/09 12:48:00 | 5.47 | 5.05 | 14.3 | 43.5 | |
| 4/21/09 12:48:15 | 5.46 | 5.07 | 14.3 | 46.5 | |
| 4/21/09 12:48:30 | 5.46 | 5.08 | 14.4 | 46.0 | |
| 4/21/09 12:48:45 | 5.43 | 5.09 | 14.1 | 46.2 | |
| 4/21/09 12:49:00 | 5.42 | 5.11 | 14.3 | 47.9 | |
| 4/21/09 12:49:15 | 5.45 | 5.10 | 14.2 | 50.0 | |
| 4/21/09 12:49:30 | 5.48 | 5.09 | 14.1 | 51.8 | |
| 4/21/09 12:49:45 | 5.51 | 5.06 | 14.0 | 64.3 | |
| 4/21/09 12:50:00 | 5.54 | 5.02 | 14.0 | 71.3 | |
| 4/21/09 12:50:15 | 5.56 | 5.01 | 14.0 | 74.7 | |
| 4/21/09 12:50:30 | 5.59 | 5.01 | 13.8 | 73.8 | |
| 4/21/09 12:50:45 | 5.62 | 5.01 | 13.7 | 73.5 | |
| 4/21/09 12:51:00 | 5.61 | 5.02 | 13.9 | 74.7 | |
| 4/21/09 12:51:15 | 5.60 | 5.04 | 14.0 | 79.1 | |
| 4/21/09 12:51:30 | 5.58 | 5.05 | 14.3 | 79.5 | |
| 4/21/09 12:51:45 | 5.58 | 5.05 | 14.3 | 76.2 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 12:52:00 | 5.56 | 5.06 | 14.4 | 72.6 | |
| 4/21/09 12:52:15 | 5.55 | 5.07 | 14.4 | 60.4 | |
| 4/21/09 12:52:30 | 5.53 | 5.09 | 14.5 | 55.7 | |
| 4/21/09 12:52:45 | 5.53 | 5.08 | 14.6 | 53.9 | |
| 4/21/09 12:53:00 | 5.54 | 5.06 | 14.6 | 54.1 | |
| 4/21/09 12:53:15 | 5.53 | 5.07 | 14.6 | 51.5 | |
| 4/21/09 12:53:30 | 5.54 | 5.06 | 14.7 | 48.9 | |
| 4/21/09 12:53:45 | 5.53 | 5.07 | 14.9 | 43.8 | |
| 4/21/09 12:54:00 | 5.50 | 5.08 | 15.0 | 40.6 | |
| 4/21/09 12:54:15 | 5.47 | 5.10 | 15.0 | 30.7 | |
| 4/21/09 12:54:30 | 5.44 | 5.13 | 15.0 | 25.9 | |
| 4/21/09 12:54:45 | 5.39 | 5.15 | 15.1 | 21.4 | |
| 4/21/09 12:55:00 | 5.39 | 5.14 | 14.9 | 21.6 | |
| 4/21/09 12:55:15 | 5.39 | 5.14 | 14.9 | 23.3 | |
| 4/21/09 12:55:30 | 5.41 | 5.14 | 14.7 | 24.4 | |
| 4/21/09 12:55:45 | 5.42 | 5.13 | 14.8 | 27.3 | |
| 4/21/09 12:56:00 | 5.42 | 5.11 | 14.8 | 28.3 | |
| 4/21/09 12:56:15 | 5.45 | 5.09 | 14.8 | 28.6 | |
| 4/21/09 12:56:30 | 5.44 | 5.08 | 14.9 | 29.3 | |
| 4/21/09 12:56:45 | 5.43 | 5.09 | 14.8 | 31.9 | |
| 4/21/09 12:57:00 | 5.42 | 5.10 | 14.7 | 32.9 | |
| 4/21/09 12:57:15 | 5.45 | 5.09 | 14.4 | 34.6 | |
| 4/21/09 12:57:30 | 5.46 | 5.09 | 14.5 | 36.2 | |
| 4/21/09 12:57:45 | 5.48 | 5.08 | 14.4 | 40.9 | |
| 4/21/09 12:58:00 | 5.47 | 5.08 | 14.4 | 41.5 | |
| 4/21/09 12:58:15 | 5.46 | 5.08 | 14.2 | 40.0 | |
| 4/21/09 12:58:30 | 5.46 | 5.07 | 14.3 | 39.7 | |
| 4/21/09 12:58:45 | 5.49 | 5.05 | 14.1 | 43.5 | |
| 4/21/09 12:59:00 | 5.51 | 5.03 | 14.2 | 49.4 | |
| 4/21/09 12:59:15 | 5.56 | 5.00 | 14.3 | 61.9 | |
| 4/21/09 12:59:30 | 5.56 | 5.00 | 14.3 | 65.2 | |
| 4/21/09 12:59:45 | 5.57 | 5.00 | 14.2 | 71.8 | |
| 4/21/09 13:00:00 | 5.57 | 5.01 | 14.2 | 74.3 | |
| 4/21/09 13:00:15 | 5.56 | 5.02 | 14.2 | 70.1 | |
| 4/21/09 13:00:30 | 5.55 | 5.04 | 14.2 | 66.3 | |
| 4/21/09 13:00:45 | 5.53 | 5.05 | 14.1 | 62.8 | |
| 4/21/09 13:01:00 | 5.53 | 5.05 | 14.1 | 62.9 | |
| 4/21/09 13:01:15 | 5.51 | 5.05 | 14.2 | 65.6 | |
| 4/21/09 13:01:30 | 5.52 | 5.04 | 14.1 | 65.5 | |
| 4/21/09 13:01:45 | 5.51 | 5.05 | 14.3 | 60.4 | |
| 4/21/09 13:02:00 | 5.49 | 5.05 | 14.3 | 58.2 | |
| 4/21/09 13:02:15 | 5.47 | 5.08 | 14.4 | 53.2 | |
| 4/21/09 13:02:30 | 5.44 | 5.10 | 14.5 | 49.2 | |
| 4/21/09 13:02:45 | 5.44 | 5.10 | 14.5 | 42.4 | |
| 4/21/09 13:03:00 | 5.43 | 5.12 | 14.5 | 40.3 | |
| 4/21/09 13:03:15 | 5.41 | 5.14 | 14.7 | 36.4 | |
| 4/21/09 13:03:30 | 5.41 | 5.16 | 14.7 | 34.4 | |
| 4/21/09 13:03:45 | 5.38 | 5.17 | 14.5 | 34.6 | Stratification Check - Point #1 |
| **4/21/09 13:04:00** | **5.39** | **5.17** | **14.7** | **35.5** | **5.40 % $O_2$** |
| **4/21/09 13:04:15** | **5.41** | **5.15** | **14.8** | **35.8** | **5.15 % $CO_2$** |
| **4/21/09 13:04:30** | **5.39** | **5.16** | **14.8** | **34.9** | **14.6 ppm $NO_x$** |
| **4/21/09 13:04:45** | **5.38** | **5.17** | **14.7** | **30.5** | **35.4 ppm CO** |
| **4/21/09 13:05:00** | **5.36** | **5.18** | **14.6** | **29.8** | |
| **4/21/09 13:05:15** | **5.38** | **5.15** | **14.4** | **36.1** | |
| **4/21/09 13:05:30** | **5.43** | **5.12** | **14.3** | **39.3** | |
| **4/21/09 13:05:45** | **5.44** | **5.12** | **14.6** | **41.0** | |
| 4/21/09 13:06:00 | 5.43 | 5.13 | 14.5 | 41.6 | |
| 4/21/09 13:06:15 | 5.44 | 5.13 | 14.6 | 44.9 | |
| 4/21/09 13:06:30 | 5.46 | 5.11 | 14.5 | 47.4 | |
| 4/21/09 13:06:45 | 5.49 | 5.08 | 14.6 | 56.3 | |
| 4/21/09 13:07:00 | 5.52 | 5.06 | 14.4 | 60.9 | |
| 4/21/09 13:07:15 | 5.55 | 5.04 | 14.1 | 66.5 | |
| 4/21/09 13:07:30 | 5.54 | 5.04 | 14.1 | 69.1 | |
| 4/21/09 13:07:45 | 5.58 | 5.03 | 14.2 | 74.1 | |
| 4/21/09 13:08:00 | 5.66 | 5.01 | 14.2 | 74.3 | |
| 4/21/09 13:08:15 | 5.66 | 4.99 | 14.0 | 74.8 | |
| 4/21/09 13:08:30 | 5.63 | 5.00 | 14.2 | 74.4 | |
| 4/21/09 13:08:45 | 5.59 | 5.02 | 14.2 | 70.0 | |
| 4/21/09 13:09:00 | 5.58 | 5.03 | 14.3 | 69.6 | |
| 4/21/09 13:09:15 | 5.57 | 5.03 | 14.4 | 65.5 | |
| 4/21/09 13:09:30 | 5.56 | 5.04 | 14.3 | 62.2 | |
| 4/21/09 13:09:45 | 5.55 | 5.04 | 14.3 | 60.5 | Stratification Check - Point #2 |
| **4/21/09 13:10:00** | **5.53** | **5.04** | **14.1** | **60.4** | **5.53 % $O_2$** |
| **4/21/09 13:10:15** | **5.54** | **5.04** | **14.0** | **58.6** | **5.05 % $CO_2$** |
| **4/21/09 13:10:30** | **5.53** | **5.04** | **13.8** | **59.6** | **13.8 ppm $NO_x$** |
| **4/21/09 13:10:45** | **5.54** | **5.04** | **13.8** | **62.6** | **57.7 ppm CO** |
| **4/21/09 13:11:00** | **5.54** | **5.04** | **13.7** | **61.9** | |
| **4/21/09 13:11:15** | **5.54** | **5.05** | **13.7** | **58.6** | |
| **4/21/09 13:11:30** | **5.52** | **5.06** | **13.8** | **55.1** | |
| **4/21/09 13:11:45** | **5.48** | **5.08** | **13.8** | **44.9** | |
| 4/21/09 13:12:00 | 5.43 | 5.11 | 13.7 | 42.4 | |
| 4/21/09 13:12:15 | 5.42 | 5.12 | 13.7 | 41.6 | |
| 4/21/09 13:12:30 | 5.41 | 5.12 | 13.7 | 41.0 | |
| 4/21/09 13:12:45 | 5.41 | 5.13 | 13.4 | 42.1 | |
| 4/21/09 13:13:00 | 5.42 | 5.11 | 13.4 | 44.0 | |
| 4/21/09 13:13:15 | 5.45 | 5.09 | 13.6 | 47.4 | |
| 4/21/09 13:13:30 | 5.47 | 5.07 | 13.4 | 48.1 | |
| 4/21/09 13:13:45 | 5.50 | 5.05 | 13.3 | 49.7 | |

# Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 13:14:00 | 5.51 | 5.05 | 12.9 | 51.0 | |
| 4/21/09 13:14:15 | 5.50 | 5.06 | 13.0 | 56.9 | |
| 4/21/09 13:14:30 | 5.54 | 5.04 | 13.0 | 59.6 | |
| 4/21/09 13:14:45 | 5.55 | 5.04 | 13.1 | 61.7 | |
| 4/21/09 13:15:00 | 5.56 | 5.04 | 13.0 | 61.6 | |
| 4/21/09 13:15:15 | 5.54 | 5.06 | 13.0 | 57.8 | |
| 4/21/09 13:15:30 | 5.52 | 5.09 | 13.1 | 55.6 | |
| 4/21/09 13:15:45 | 5.51 | 5.09 | 13.3 | 53.5 | Statification Check - Point #3 |
| 4/21/09 13:16:00 | 5.53 | 5.08 | 13.2 | 52.9 | 5.55 % $O_2$ |
| 4/21/09 13:16:15 | 5.54 | 5.07 | 13.2 | 54.5 | 5.07 % $CO_2$ |
| 4/21/09 13:16:30 | 5.54 | 5.07 | 13.2 | 57.3 | 13.4 ppm $NO_x$ |
| 4/21/09 13:16:45 | 5.57 | 5.07 | 13.3 | 60.5 | 56.7 ppm CO |
| 4/21/09 13:17:00 | 5.57 | 5.07 | 13.4 | 60.2 | |
| 4/21/09 13:17:15 | 5.57 | 5.06 | 13.6 | 57.7 | |
| 4/21/09 13:17:30 | 5.57 | 5.05 | 13.6 | 56.3 | |
| 4/21/09 13:17:45 | 5.55 | 5.06 | 13.5 | 54.4 | |
| 4/21/09 13:18:00 | 5.55 | 5.07 | 13.4 | 52.3 | |
| 4/21/09 13:18:15 | 5.55 | 5.07 | 13.4 | 49.4 | 3-point average |
| 4/21/09 13:18:30 | 5.55 | 5.06 | 13.3 | 50.0 | |
| 4/21/09 13:18:45 | 5.55 | 5.05 | 13.6 | 51.5 | 5.49 % $O_2$ |
| 4/21/09 13:19:00 | 5.55 | 5.04 | 13.7 | 51.3 | 5.09 % $CO_2$ |
| 4/21/09 13:19:15 | 5.53 | 5.04 | 13.7 | 51.5 | 14.0 ppm $NO_x$ |
| 4/21/09 13:19:30 | 5.53 | 5.03 | 14.1 | 51.7 | 49.9 ppm CO |
| 4/21/09 13:19:45 | 5.54 | 5.04 | 14.0 | 45.4 | |
| 4/21/09 13:20:00 | 5.50 | 5.07 | 14.0 | 40.5 | % Deviation |
| 4/21/09 13:20:15 | 5.48 | 5.08 | 14.0 | 34.6 | |
| 4/21/09 13:20:30 | 5.44 | 5.11 | 14.0 | 32.0 | -1.75 % $O_2$ |
| 4/21/09 13:20:45 | 5.41 | 5.13 | 14.1 | 26.9 | 1.24 % $CO_2$ |
| 4/21/09 13:21:00 | 5.41 | 5.14 | 14.2 | 25.6 | 4.83 ppm $NO_x$ |
| 4/21/09 13:21:15 | 5.39 | 5.15 | 13.9 | 24.5 | -29.17 ppm CO (Process Variability) |
| 4/21/09 13:21:30 | 5.38 | 5.16 | 14.1 | 24.7 | |
| 4/21/09 13:21:45 | 5.38 | 5.16 | 14.2 | 26.0 | Begin Run No. SRU3-1 |
| 4/21/09 13:22:00 | 5.36 | 5.17 | 14.1 | 26.0 | |
| 4/21/09 13:22:15 | 5.35 | 5.17 | 14.1 | 23.9 | |
| 4/21/09 13:22:30 | 5.35 | 5.17 | 14.2 | 23.0 | |
| 4/21/09 13:22:45 | 5.37 | 5.17 | 14.0 | 22.1 | |
| 4/21/09 13:23:00 | 5.35 | 5.19 | 14.3 | 21.3 | |
| 4/21/09 13:23:15 | 5.34 | 5.20 | 14.1 | 18.0 | |
| 4/21/09 13:23:30 | 5.32 | 5.22 | 14.1 | 16.8 | |
| 4/21/09 13:23:45 | 5.28 | 5.24 | 14.4 | 15.1 | |
| 4/21/09 13:24:00 | 5.27 | 5.26 | 14.3 | 13.5 | |
| 4/21/09 13:24:15 | 5.26 | 5.27 | 14.6 | 11.0 | |
| 4/21/09 13:24:30 | 5.24 | 5.29 | 14.5 | 10.5 | |
| 4/21/09 13:24:45 | 5.23 | 5.31 | 14.4 | 9.0 | |
| 4/21/09 13:25:00 | 5.21 | 5.32 | 14.4 | 8.5 | |
| 4/21/09 13:25:15 | 5.21 | 5.31 | 14.4 | 8.1 | |
| 4/21/09 13:25:30 | 5.23 | 5.31 | 14.5 | 8.3 | |
| 4/21/09 13:25:45 | 5.22 | 5.31 | 14.4 | 8.1 | |
| 4/21/09 13:26:00 | 5.21 | 5.32 | 14.4 | 8.0 | |
| 4/21/09 13:26:15 | 5.21 | 5.32 | 14.2 | 8.3 | |
| 4/21/09 13:26:30 | 5.22 | 5.30 | 14.3 | 9.2 | |
| 4/21/09 13:26:45 | 5.25 | 5.28 | 14.4 | 11.1 | |
| 4/21/09 13:27:00 | 5.26 | 5.26 | 14.4 | 11.1 | |
| 4/21/09 13:27:15 | 5.28 | 5.25 | 14.4 | 10.7 | |
| 4/21/09 13:27:30 | 5.29 | 5.23 | 14.4 | 11.1 | |
| 4/21/09 13:27:45 | 5.31 | 5.22 | 14.4 | 12.3 | |
| 4/21/09 13:28:00 | 5.31 | 5.21 | 14.5 | 13.3 | |
| 4/21/09 13:28:15 | 5.35 | 5.18 | 14.5 | 16.3 | |
| 4/21/09 13:28:30 | 5.37 | 5.16 | 14.4 | 16.8 | |
| 4/21/09 13:28:45 | 5.38 | 5.15 | 14.4 | 17.1 | |
| 4/21/09 13:29:00 | 5.40 | 5.14 | 14.3 | 18.6 | |
| 4/21/09 13:29:15 | 5.41 | 5.12 | 14.4 | 22.7 | |
| 4/21/09 13:29:30 | 5.43 | 5.11 | 14.3 | 24.5 | |
| 4/21/09 13:29:45 | 5.45 | 5.11 | 14.4 | 28.5 | |
| 4/21/09 13:30:00 | 5.46 | 5.11 | 14.3 | 29.8 | |
| 4/21/09 13:30:15 | 5.46 | 5.11 | 14.2 | 32.8 | |
| 4/21/09 13:30:30 | 5.49 | 5.09 | 14.2 | 37.1 | |
| 4/21/09 13:30:45 | 5.54 | 5.04 | 14.2 | 49.1 | |
| 4/21/09 13:31:00 | 5.58 | 5.02 | 14.0 | 53.5 | |
| 4/21/09 13:31:15 | 5.57 | 5.02 | 14.1 | 57.1 | |
| 4/21/09 13:31:30 | 5.56 | 5.02 | 14.0 | 58.0 | |
| 4/21/09 13:31:45 | 5.58 | 5.02 | 14.0 | 59.0 | |
| 4/21/09 13:32:00 | 5.57 | 5.02 | 14.0 | 59.5 | |
| 4/21/09 13:32:15 | 5.57 | 5.02 | 14.2 | 58.1 | |
| 4/21/09 13:32:30 | 5.56 | 5.04 | 14.0 | 55.9 | |
| 4/21/09 13:32:45 | 5.56 | 5.04 | 14.1 | 52.7 | |
| 4/21/09 13:33:00 | 5.57 | 5.05 | 14.1 | 53.8 | |
| 4/21/09 13:33:15 | 5.57 | 5.06 | 14.0 | 56.9 | |
| 4/21/09 13:33:30 | 5.56 | 5.06 | 14.3 | 55.4 | |
| 4/21/09 13:33:45 | 5.55 | 5.07 | 14.3 | 45.4 | |
| 4/21/09 13:34:00 | 5.49 | 5.11 | 14.3 | 39.7 | |
| 4/21/09 13:34:15 | 5.44 | 5.13 | 14.5 | 32.6 | |
| 4/21/09 13:34:30 | 5.42 | 5.14 | 14.6 | 30.5 | |
| 4/21/09 13:34:45 | 5.41 | 5.14 | 14.6 | 28.9 | |
| 4/21/09 13:35:00 | 5.40 | 5.14 | 14.5 | 27.7 | |
| 4/21/09 13:35:15 | 5.38 | 5.16 | 14.7 | 23.2 | |
| 4/21/09 13:35:30 | 5.37 | 5.16 | 14.6 | 21.3 | |
| 4/21/09 13:35:45 | 5.37 | 5.16 | 14.6 | 19.3 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 13:36:00 | 5.37 | 5.16 | 14.7 | 19.0 | |
| 4/21/09 13:36:15 | 5.35 | 5.17 | 14.8 | 17.6 | |
| 4/21/09 13:36:30 | 5.33 | 5.19 | 14.7 | 15.9 | |
| 4/21/09 13:36:45 | 5.28 | 5.21 | 14.4 | 13.9 | |
| 4/21/09 13:37:00 | 5.28 | 5.21 | 14.4 | 15.1 | |
| 4/21/09 13:37:15 | 5.35 | 5.17 | 14.4 | 20.7 | |
| 4/21/09 13:37:30 | 5.38 | 5.16 | 14.4 | 22.9 | |
| 4/21/09 13:37:45 | 5.38 | 5.16 | 14.3 | 25.0 | |
| 4/21/09 13:38:00 | 5.38 | 5.16 | 14.0 | 26.8 | |
| 4/21/09 13:38:15 | 5.39 | 5.17 | 14.3 | 28.7 | |
| 4/21/09 13:38:30 | 5.38 | 5.17 | 14.3 | 28.1 | |
| 4/21/09 13:38:45 | 5.39 | 5.17 | 14.2 | 27.2 | |
| 4/21/09 13:39:00 | 5.40 | 5.17 | 14.3 | 28.3 | |
| 4/21/09 13:39:15 | 5.40 | 5.18 | 14.4 | 31.4 | |
| 4/21/09 13:39:30 | 5.39 | 5.19 | 14.3 | 31.3 | |
| 4/21/09 13:39:45 | 5.41 | 5.18 | 14.2 | 32.9 | |
| 4/21/09 13:40:00 | 5.42 | 5.16 | 14.4 | 36.1 | |
| 4/21/09 13:40:15 | 5.44 | 5.14 | 14.3 | 40.9 | |
| 4/21/09 13:40:30 | 5.46 | 5.13 | 14.3 | 40.6 | |
| 4/21/09 13:40:45 | 5.45 | 5.13 | 14.4 | 35.9 | |
| 4/21/09 13:41:00 | 5.42 | 5.15 | 14.5 | 34.0 | |
| 4/21/09 13:41:15 | 5.42 | 5.15 | 14.4 | 32.5 | |
| 4/21/09 13:41:30 | 5.42 | 5.14 | 14.6 | 31.3 | |
| 4/21/09 13:41:45 | 5.42 | 5.14 | 14.4 | 28.9 | |
| 4/21/09 13:42:00 | 5.40 | 5.14 | 14.6 | 27.8 | |
| 4/21/09 13:42:15 | 5.39 | 5.14 | 14.6 | 26.7 | |
| 4/21/09 13:42:30 | 5.41 | 5.13 | 14.7 | 27.0 | |
| 4/21/09 13:42:45 | 5.42 | 5.11 | 14.6 | 29.3 | |
| 4/21/09 13:43:00 | 5.44 | 5.10 | 14.5 | 29.8 | |
| 4/21/09 13:43:15 | 5.42 | 5.11 | 14.3 | 25.7 | |
| 4/21/09 13:43:30 | 5.43 | 5.10 | 14.3 | 23.2 | |
| 4/21/09 13:43:45 | 5.42 | 5.10 | 14.1 | 21.9 | |
| 4/21/09 13:44:00 | 5.40 | 5.11 | 14.1 | 22.7 | |
| 4/21/09 13:44:15 | 5.40 | 5.10 | 14.3 | 26.2 | |
| 4/21/09 13:44:30 | 5.42 | 5.10 | 14.3 | 27.0 | |
| 4/21/09 13:44:45 | 5.40 | 5.11 | 14.1 | 24.7 | |
| 4/21/09 13:45:00 | 5.39 | 5.11 | 14.1 | 22.4 | |
| 4/21/09 13:45:15 | 5.41 | 5.09 | 14.3 | 21.4 | |
| 4/21/09 13:45:30 | 5.41 | 5.08 | 14.5 | 22.1 | |
| 4/21/09 13:45:45 | 5.41 | 5.08 | 14.3 | 22.4 | |
| 4/21/09 13:46:00 | 5.42 | 5.07 | 14.2 | 22.0 | |
| 4/21/09 13:46:15 | 5.41 | 5.07 | 14.1 | 22.1 | |
| 4/21/09 13:46:30 | 5.42 | 5.07 | 14.2 | 22.5 | |
| 4/21/09 13:46:45 | 5.41 | 5.07 | 14.1 | 24.1 | |
| 4/21/09 13:47:00 | 5.42 | 5.08 | 14.1 | 25.4 | |
| 4/21/09 13:47:15 | 5.41 | 5.09 | 14.2 | 25.8 | |
| 4/21/09 13:47:30 | 5.39 | 5.11 | 14.0 | 24.9 | |
| 4/21/09 13:47:45 | 5.38 | 5.12 | 14.1 | 23.5 | |
| 4/21/09 13:48:00 | 5.39 | 5.11 | 14.1 | 24.1 | |
| 4/21/09 13:48:15 | 5.42 | 5.09 | 14.0 | 27.0 | |
| 4/21/09 13:48:30 | 5.45 | 5.07 | 13.9 | 29.0 | |
| 4/21/09 13:48:45 | 5.47 | 5.06 | 14.0 | 34.3 | |
| 4/21/09 13:49:00 | 5.49 | 5.06 | 14.0 | 36.2 | |
| 4/21/09 13:49:15 | 5.52 | 5.07 | 14.0 | 37.0 | |
| 4/21/09 13:49:30 | 5.49 | 5.08 | 14.0 | 36.8 | |
| 4/21/09 13:49:45 | 5.47 | 5.10 | 14.1 | 34.6 | |
| 4/21/09 13:50:00 | 5.45 | 5.11 | 14.2 | 31.9 | |
| 4/21/09 13:50:15 | 5.42 | 5.13 | 14.0 | 26.6 | |
| 4/21/09 13:50:30 | 5.43 | 5.14 | 14.0 | 25.6 | |
| 4/21/09 13:50:45 | 5.43 | 5.14 | 14.1 | 26.3 | |
| 4/21/09 13:51:00 | 5.40 | 5.13 | 14.2 | 26.6 | |
| 4/21/09 13:51:15 | 5.41 | 5.12 | 14.2 | 24.1 | |
| 4/21/09 13:51:30 | 5.38 | 5.13 | 14.2 | 22.3 | |
| 4/21/09 13:51:45 | 5.36 | 5.13 | 14.1 | 21.3 | |
| 4/21/09 13:52:00 | 5.38 | 5.11 | 14.2 | 21.4 | |
| 4/21/09 13:52:15 | 5.39 | 5.11 | 14.0 | 20.2 | |
| 4/21/09 13:52:30 | 5.38 | 5.12 | 14.2 | 19.8 | |
| 4/21/09 13:52:45 | 5.36 | 5.13 | 13.7 | 19.9 | |
| 4/21/09 13:53:00 | 5.34 | 5.15 | 13.8 | 19.8 | |
| 4/21/09 13:53:15 | 5.34 | 5.14 | 14.0 | 18.6 | |
| 4/21/09 13:53:30 | 5.35 | 5.12 | 14.0 | 17.9 | |
| 4/21/09 13:53:45 | 5.36 | 5.11 | 14.2 | 17.7 | |
| 4/21/09 13:54:00 | 5.37 | 5.10 | 14.1 | 17.6 | |
| 4/21/09 13:54:15 | 5.35 | 5.12 | 14.1 | 16.0 | |
| 4/21/09 13:54:30 | 5.34 | 5.12 | 14.1 | 17.3 | |
| 4/21/09 13:54:45 | 5.39 | 5.09 | 14.1 | 22.6 | |
| 4/21/09 13:55:00 | 5.43 | 5.07 | 14.1 | 24.1 | |
| 4/21/09 13:55:15 | 5.45 | 5.07 | 14.0 | 24.8 | |
| 4/21/09 13:55:30 | 5.46 | 5.08 | 14.0 | 25.6 | |
| 4/21/09 13:55:45 | 5.45 | 5.09 | 14.1 | 28.7 | |
| 4/21/09 13:56:00 | 5.45 | 5.09 | 14.3 | 30.1 | |
| 4/21/09 13:56:15 | 5.46 | 5.08 | 14.3 | 31.6 | |
| 4/21/09 13:56:30 | 5.47 | 5.09 | 14.2 | 31.3 | |
| 4/21/09 13:56:45 | 5.47 | 5.09 | 14.3 | 31.0 | |
| 4/21/09 13:57:00 | 5.46 | 5.09 | 14.2 | 32.8 | |
| 4/21/09 13:57:15 | 5.48 | 5.08 | 14.1 | 37.4 | |
| 4/21/09 13:57:30 | 5.50 | 5.05 | 14.0 | 38.8 | |
| 4/21/09 13:57:45 | 5.53 | 5.03 | 14.0 | 44.5 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 13:58:00 | 5.55 | 5.02 | 13.9 | 50.3 | |
| 4/21/09 13:58:15 | 5.55 | 5.00 | 13.7 | 60.9 | |
| 4/21/09 13:58:30 | 5.58 | 5.00 | 13.6 | 64.1 | |
| 4/21/09 13:58:45 | 5.58 | 4.99 | 13.5 | 69.9 | |
| 4/21/09 13:59:00 | 5.58 | 4.99 | 13.7 | 71.2 | |
| 4/21/09 13:59:15 | 5.58 | 4.99 | 13.7 | 68.0 | |
| 4/21/09 13:59:30 | 5.58 | 5.00 | 13.8 | 66.0 | |
| 4/21/09 13:59:45 | 5.56 | 5.01 | 14.1 | 65.0 | |
| 4/21/09 14:00:00 | 5.56 | 5.02 | 14.2 | 61.7 | |
| 4/21/09 14:00:15 | 5.51 | 5.04 | 14.2 | 51.7 | |
| 4/21/09 14:00:30 | 5.47 | 5.05 | 14.2 | 47.4 | |
| 4/21/09 14:00:45 | 5.44 | 5.07 | 14.3 | 40.1 | |
| 4/21/09 14:01:00 | 5.42 | 5.09 | 14.3 | 37.1 | |
| 4/21/09 14:01:15 | 5.39 | 5.11 | 14.3 | 32.9 | |
| 4/21/09 14:01:30 | 5.37 | 5.11 | 14.1 | 30.7 | |
| 4/21/09 14:01:45 | 5.38 | 5.11 | 14.1 | 26.7 | |
| 4/21/09 14:02:00 | 5.36 | 5.13 | 13.9 | 26.4 | |
| 4/21/09 14:02:15 | 5.33 | 5.14 | 14.0 | 26.5 | |
| 4/21/09 14:02:30 | 5.34 | 5.14 | 14.2 | 26.0 | |
| 4/21/09 14:02:45 | 5.35 | 5.13 | 14.2 | 25.7 | |
| 4/21/09 14:03:00 | 5.37 | 5.12 | 14.2 | 26.8 | |
| 4/21/09 14:03:15 | 5.39 | 5.11 | 13.7 | 29.8 | |
| 4/21/09 14:03:30 | 5.39 | 5.10 | 13.7 | 30.8 | |
| 4/21/09 14:03:45 | 5.38 | 5.10 | 13.7 | 32.3 | |
| 4/21/09 14:04:00 | 5.37 | 5.09 | 13.9 | 32.4 | |
| 4/21/09 14:04:15 | 5.38 | 5.10 | 14.3 | 31.5 | |
| 4/21/09 14:04:30 | 5.37 | 5.10 | 14.4 | 31.6 | |
| 4/21/09 14:04:45 | 5.37 | 5.12 | 14.3 | 30.4 | |
| 4/21/09 14:05:00 | 5.36 | 5.13 | 14.2 | 28.9 | |
| 4/21/09 14:05:15 | 5.37 | 5.13 | 14.2 | 28.1 | |
| 4/21/09 14:05:30 | 5.37 | 5.12 | 14.1 | 28.9 | |
| 4/21/09 14:05:45 | 5.38 | 5.11 | 14.1 | 31.9 | |
| 4/21/09 14:06:00 | 5.39 | 5.11 | 13.9 | 34.5 | |
| 4/21/09 14:06:15 | 5.38 | 5.10 | 14.1 | 37.7 | |
| 4/21/09 14:06:30 | 5.40 | 5.09 | 13.8 | 37.8 | |
| 4/21/09 14:06:45 | 5.39 | 5.09 | 14.1 | 37.5 | |
| 4/21/09 14:07:00 | 5.41 | 5.09 | 14.2 | 38.5 | |
| 4/21/09 14:07:15 | 5.41 | 5.09 | 14.0 | 43.1 | |
| 4/21/09 14:07:30 | 5.42 | 5.08 | 14.0 | 47.1 | |
| 4/21/09 14:07:45 | 5.47 | 5.05 | 13.9 | 52.9 | |
| 4/21/09 14:08:00 | 5.48 | 5.03 | 13.9 | 55.4 | |
| 4/21/09 14:08:15 | 5.51 | 5.01 | 14.0 | 60.1 | |
| 4/21/09 14:08:30 | 5.52 | 5.01 | 14.0 | 63.8 | |
| 4/21/09 14:08:45 | 5.53 | 5.00 | 13.8 | 68.8 | |
| 4/21/09 14:09:00 | 5.53 | 5.00 | 14.0 | 68.9 | |
| 4/21/09 14:09:15 | 5.53 | 4.99 | 13.8 | 67.8 | |
| 4/21/09 14:09:30 | 5.54 | 4.99 | 14.0 | 68.0 | |
| 4/21/09 14:09:45 | 5.54 | 5.01 | 14.0 | 70.3 | |
| 4/21/09 14:10:00 | 5.52 | 5.01 | 13.9 | 70.9 | |
| 4/21/09 14:10:15 | 5.51 | 5.02 | 13.8 | 67.3 | |
| 4/21/09 14:10:30 | 5.50 | 5.03 | 14.2 | 60.8 | |
| 4/21/09 14:10:45 | 5.44 | 5.07 | 14.1 | 47.9 | |
| 4/21/09 14:11:00 | 5.38 | 5.11 | 14.0 | 41.0 | |
| 4/21/09 14:11:15 | 5.33 | 5.13 | 14.5 | 34.2 | |
| 4/21/09 14:11:30 | 5.30 | 5.15 | 14.3 | 33.4 | |
| 4/21/09 14:11:45 | 5.31 | 5.15 | 14.5 | 32.4 | |
| 4/21/09 14:12:00 | 5.31 | 5.15 | 14.6 | 31.7 | |
| 4/21/09 14:12:15 | 5.32 | 5.14 | 14.4 | 32.7 | |
| 4/21/09 14:12:30 | 5.32 | 5.13 | 14.6 | 33.4 | |
| 4/21/09 14:12:45 | 5.31 | 5.14 | 14.5 | 31.6 | |
| 4/21/09 14:13:00 | 5.30 | 5.15 | 14.4 | 26.4 | |
| 4/21/09 14:13:15 | 5.31 | 5.14 | 14.6 | 24.5 | |
| 4/21/09 14:13:30 | 5.32 | 5.14 | 14.7 | 24.1 | |
| 4/21/09 14:13:45 | 5.34 | 5.14 | 14.7 | 23.8 | |
| 4/21/09 14:14:00 | 5.32 | 5.15 | 14.6 | 22.4 | |
| 4/21/09 14:14:15 | 5.30 | 5.16 | 14.5 | 21.2 | |
| 4/21/09 14:14:30 | 5.31 | 5.16 | 14.4 | 21.7 | |
| 4/21/09 14:14:45 | 5.32 | 5.14 | 14.5 | 23.3 | |
| 4/21/09 14:15:00 | 5.36 | 5.13 | 14.5 | 27.2 | |
| 4/21/09 14:15:15 | 5.37 | 5.11 | 14.5 | 29.6 | |
| 4/21/09 14:15:30 | 5.36 | 5.12 | 14.3 | 29.9 | |
| 4/21/09 14:15:45 | 5.37 | 5.12 | 14.4 | 28.5 | |
| 4/21/09 14:16:00 | 5.36 | 5.13 | 14.6 | 28.0 | |
| 4/21/09 14:16:15 | 5.36 | 5.13 | 14.3 | 28.0 | |
| 4/21/09 14:16:30 | 5.34 | 5.13 | 14.1 | 26.1 | |
| 4/21/09 14:16:45 | 5.34 | 5.14 | 14.3 | 25.7 | |
| 4/21/09 14:17:00 | 5.33 | 5.14 | 14.3 | 25.6 | |
| 4/21/09 14:17:15 | 5.34 | 5.14 | 14.4 | 25.7 | |
| 4/21/09 14:17:30 | 5.35 | 5.14 | 14.4 | 27.3 | |
| 4/21/09 14:17:45 | 5.36 | 5.13 | 14.4 | 28.5 | |
| 4/21/09 14:18:00 | 5.36 | 5.13 | 14.0 | 29.3 | |
| 4/21/09 14:18:15 | 5.36 | 5.13 | 14.1 | 30.4 | |
| 4/21/09 14:18:30 | 5.36 | 5.12 | 14.1 | 34.3 | |
| 4/21/09 14:18:45 | 5.39 | 5.10 | 14.0 | 35.5 | |
| 4/21/09 14:19:00 | 5.40 | 5.10 | 14.0 | 37.2 | |
| 4/21/09 14:19:15 | 5.40 | 5.11 | 13.8 | 37.5 | |
| 4/21/09 14:19:30 | 5.39 | 5.12 | 14.0 | 36.1 | |
| 4/21/09 14:19:45 | 5.36 | 5.13 | 13.5 | 35.3 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 14:20:00 | 5.38 | 5.13 | 14.0 | 33.6 | |
| 4/21/09 14:20:15 | 5.37 | 5.12 | 14.4 | 33.9 | |
| 4/21/09 14:20:30 | 5.37 | 5.12 | 14.3 | 37.0 | |
| 4/21/09 14:20:45 | 5.37 | 5.12 | 14.2 | 37.8 | |
| 4/21/09 14:21:00 | 5.39 | 5.12 | 14.1 | 38.8 | |
| 4/21/09 14:21:15 | 5.39 | 5.11 | 14.0 | 39.2 | |
| 4/21/09 14:21:30 | 5.37 | 5.12 | 14.4 | 38.0 | |
| 4/21/09 14:21:45 | 5.38 | 5.12 | 14.5 | 36.8 | |
| 4/21/09 14:22:00 | 5.39 | 5.12 | 14.4 | 31.9 | |
| 4/21/09 14:22:15 | 5.38 | 5.14 | 14.4 | 29.0 | |
| 4/21/09 14:22:30 | 5.36 | 5.15 | 14.4 | 28.9 | |
| 4/21/09 14:22:45 | 5.36 | 5.15 | 14.4 | 30.2 | |
| 4/21/09 14:23:00 | 5.36 | 5.14 | 14.5 | 31.3 | |
| 4/21/09 14:23:15 | 5.38 | 5.13 | 14.5 | 31.7 | |
| 4/21/09 14:23:30 | 5.39 | 5.13 | 14.5 | 32.4 | |
| 4/21/09 14:23:45 | 5.39 | 5.12 | 14.5 | 31.4 | |
| 4/21/09 14:24:00 | 5.39 | 5.11 | 14.5 | 31.1 | |
| 4/21/09 14:24:15 | 5.40 | 5.11 | 14.5 | 32.0 | |
| 4/21/09 14:24:30 | 5.39 | 5.11 | 14.6 | 33.1 | |
| 4/21/09 14:24:45 | 5.40 | 5.12 | 14.5 | 32.5 | |
| 4/21/09 14:25:00 | 5.37 | 5.14 | 14.4 | 29.9 | |
| 4/21/09 14:25:15 | 5.36 | 5.14 | 14.6 | 30.1 | |
| 4/21/09 14:25:30 | 5.38 | 5.13 | 14.7 | 32.6 | |
| 4/21/09 14:25:45 | 5.37 | 5.13 | 14.5 | 33.4 | |
| 4/21/09 14:26:00 | 5.38 | 5.13 | 14.7 | 33.4 | |
| 4/21/09 14:26:15 | 5.39 | 5.12 | 14.5 | 33.7 | |
| 4/21/09 14:26:30 | 5.40 | 5.11 | 14.4 | 35.1 | |
| 4/21/09 14:26:45 | 5.44 | 5.10 | 14.5 | 37.0 | |
| 4/21/09 14:27:00 | 5.45 | 5.09 | 14.2 | 41.8 | |
| 4/21/09 14:27:15 | 5.46 | 5.09 | 14.4 | 43.4 | |
| 4/21/09 14:27:30 | 5.45 | 5.09 | 14.5 | 45.2 | |
| 4/21/09 14:27:45 | 5.48 | 5.08 | 14.4 | 46.1 | |
| 4/21/09 14:28:00 | 5.52 | 5.06 | 14.4 | 50.3 | |
| 4/21/09 14:28:15 | 5.53 | 5.05 | 14.4 | 52.6 | |
| 4/21/09 14:28:30 | 5.51 | 5.05 | 14.3 | 51.5 | |
| 4/21/09 14:28:45 | 5.52 | 5.05 | 14.2 | 49.4 | |
| 4/21/09 14:29:00 | 5.52 | 5.04 | 14.1 | 49.1 | |
| 4/21/09 14:29:15 | 5.54 | 5.02 | 13.9 | 52.4 | |
| 4/21/09 14:29:30 | 5.58 | 4.99 | 13.9 | 66.0 | |
| 4/21/09 14:29:45 | 5.61 | 4.97 | 13.8 | 73.1 | |
| 4/21/09 14:30:00 | 5.62 | 4.97 | 14.1 | 74.0 | |
| 4/21/09 14:30:15 | 5.56 | 5.00 | 13.9 | 66.4 | |
| 4/21/09 14:30:30 | 5.50 | 5.04 | 13.8 | 49.1 | |
| 4/21/09 14:30:45 | 5.48 | 5.06 | 14.1 | 44.0 | |
| 4/21/09 14:31:00 | 5.49 | 5.07 | 14.0 | 40.1 | |
| 4/21/09 14:31:15 | 5.49 | 5.08 | 14.1 | 39.8 | |
| 4/21/09 14:31:30 | 5.48 | 5.09 | 14.0 | 40.9 | |
| 4/21/09 14:31:45 | 5.49 | 5.10 | 14.1 | 41.2 | |
| 4/21/09 14:32:00 | 5.49 | 5.10 | 14.1 | 41.5 | |
| 4/21/09 14:32:15 | 5.50 | 5.08 | 14.2 | 42.4 | |
| 4/21/09 14:32:30 | 5.49 | 5.07 | 14.2 | 43.7 | |
| 4/21/09 14:32:45 | 5.52 | 5.04 | 14.0 | 42.7 | |
| 4/21/09 14:33:00 | 5.53 | 5.02 | 13.8 | 41.5 | |
| 4/21/09 14:33:15 | 5.55 | 5.00 | 13.9 | 44.3 | |
| 4/21/09 14:33:30 | 5.57 | 4.98 | 13.8 | 54.1 | |
| 4/21/09 14:33:45 | 5.58 | 4.97 | 13.8 | 57.5 | |
| 4/21/09 14:34:00 | 5.56 | 4.98 | 13.8 | 59.8 | |
| 4/21/09 14:34:15 | 5.54 | 5.00 | 13.8 | 58.7 | |
| 4/21/09 14:34:30 | 5.52 | 5.02 | 13.8 | 54.8 | |
| 4/21/09 14:34:45 | 5.52 | 5.02 | 14.0 | 53.0 | |
| 4/21/09 14:35:00 | 5.56 | 5.01 | 14.0 | 52.3 | |
| 4/21/09 14:35:15 | 5.55 | 5.02 | 14.1 | 52.1 | |
| 4/21/09 14:35:30 | 5.53 | 5.04 | 13.8 | 45.4 | |
| 4/21/09 14:35:45 | 5.48 | 5.08 | 13.8 | 39.8 | |
| 4/21/09 14:36:00 | 5.45 | 5.10 | 13.8 | 31.4 | |
| 4/21/09 14:36:15 | 5.43 | 5.11 | 13.7 | 29.0 | |
| 4/21/09 14:36:30 | 5.41 | 5.12 | 13.7 | 27.2 | |
| 4/21/09 14:36:45 | 5.40 | 5.12 | 13.9 | 26.3 | |
| 4/21/09 14:37:00 | 5.39 | 5.13 | 13.7 | 22.4 | |
| 4/21/09 14:37:15 | 5.38 | 5.14 | 13.9 | 20.5 | |
| 4/21/09 14:37:30 | 5.38 | 5.15 | 13.8 | 17.3 | |
| 4/21/09 14:37:45 | 5.36 | 5.15 | 13.9 | 16.0 | |
| 4/21/09 14:38:00 | 5.34 | 5.16 | 14.1 | 15.6 | |
| 4/21/09 14:38:15 | 5.35 | 5.16 | 14.0 | 16.5 | |
| 4/21/09 14:38:30 | 5.38 | 5.15 | 14.0 | 19.0 | |
| 4/21/09 14:38:45 | 5.40 | 5.14 | 14.0 | 20.2 | |
| 4/21/09 14:39:00 | 5.41 | 5.12 | 13.9 | 21.6 | |
| 4/21/09 14:39:15 | 5.42 | 5.11 | 13.6 | 21.7 | |
| 4/21/09 14:39:30 | 5.41 | 5.12 | 13.8 | 21.4 | |
| 4/21/09 14:39:45 | 5.41 | 5.13 | 13.7 | 21.7 | |
| 4/21/09 14:40:00 | 5.42 | 5.12 | 13.6 | 23.8 | |
| 4/21/09 14:40:15 | 5.42 | 5.10 | 14.0 | 25.0 | |
| 4/21/09 14:40:30 | 5.42 | 5.09 | 14.0 | 25.0 | |
| 4/21/09 14:40:45 | 5.42 | 5.09 | 14.1 | 25.3 | |
| 4/21/09 14:41:00 | 5.41 | 5.11 | 13.9 | 27.3 | |
| 4/21/09 14:41:15 | 5.41 | 5.12 | 13.8 | 27.7 | |
| 4/21/09 14:41:30 | 5.42 | 5.12 | 13.9 | 28.0 | |
| 4/21/09 14:41:45 | 5.43 | 5.11 | 13.5 | 27.8 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 14:42:00 | 5.42 | 5.11 | 13.4 | 27.7 | |
| 4/21/09 14:42:15 | 5.42 | 5.11 | 13.5 | 28.6 | |
| 4/21/09 14:42:30 | 5.43 | 5.11 | 13.6 | 30.1 | |
| 4/21/09 14:42:45 | 5.42 | 5.12 | 13.5 | 29.8 | |
| 4/21/09 14:43:00 | 5.43 | 5.12 | 13.5 | 28.9 | |
| 4/21/09 14:43:15 | 5.43 | 5.12 | 13.5 | 29.2 | |
| 4/21/09 14:43:30 | 5.42 | 5.13 | 13.4 | 32.2 | |
| 4/21/09 14:43:45 | 5.42 | 5.13 | 13.4 | 34.9 | |
| 4/21/09 14:44:00 | 5.43 | 5.13 | 13.6 | 40.0 | |
| 4/21/09 14:44:15 | 5.45 | 5.11 | 13.6 | 41.3 | |
| 4/21/09 14:44:30 | 5.46 | 5.09 | 13.2 | 41.8 | |
| 4/21/09 14:44:45 | 5.48 | 5.07 | 13.0 | 44.3 | |
| 4/21/09 14:45:00 | 5.52 | 5.03 | 12.9 | 56.1 | |
| 4/21/09 14:45:15 | 5.56 | 5.01 | 13.0 | 59.9 | |
| 4/21/09 14:45:30 | 5.56 | 5.01 | 13.2 | 57.7 | |
| 4/21/09 14:45:45 | 5.55 | 5.01 | 13.2 | 55.6 | |
| 4/21/09 14:46:00 | 5.53 | 5.02 | 13.2 | 54.4 | |
| 4/21/09 14:46:15 | 5.50 | 5.04 | 13.3 | 54.2 | |
| 4/21/09 14:46:30 | 5.49 | 5.05 | 13.5 | 49.4 | |
| 4/21/09 14:46:45 | 5.45 | 5.08 | 13.6 | 44.9 | |
| 4/21/09 14:47:00 | 5.43 | 5.09 | 13.6 | 38.3 | |
| 4/21/09 14:47:15 | 5.42 | 5.09 | 13.6 | 36.4 | |
| 4/21/09 14:47:30 | 5.41 | 5.10 | 13.3 | 33.9 | |
| 4/21/09 14:47:45 | 5.40 | 5.11 | 13.5 | 32.5 | |
| 4/21/09 14:48:00 | 5.38 | 5.13 | 13.3 | 29.0 | |
| 4/21/09 14:48:15 | 5.37 | 5.13 | 13.5 | 27.5 | |
| 4/21/09 14:48:30 | 5.36 | 5.14 | 13.6 | 26.3 | |
| 4/21/09 14:48:45 | 5.35 | 5.15 | 13.8 | 25.2 | |
| 4/21/09 14:49:00 | 5.35 | 5.16 | 14.0 | 25.3 | |
| 4/21/09 14:49:15 | 5.35 | 5.15 | 14.0 | 24.5 | |
| 4/21/09 14:49:30 | 5.36 | 5.14 | 13.9 | 23.6 | |
| 4/21/09 14:49:45 | 5.37 | 5.13 | 13.6 | 24.2 | |
| 4/21/09 14:50:00 | 5.37 | 5.12 | 13.8 | 25.3 | |
| 4/21/09 14:50:15 | 5.38 | 5.11 | 13.7 | 25.7 | |
| 4/21/09 14:50:30 | 5.41 | 5.09 | 13.6 | 28.1 | |
| 4/21/09 14:50:45 | 5.44 | 5.08 | 13.6 | 29.8 | |
| 4/21/09 14:51:00 | 5.45 | 5.07 | 13.6 | 31.6 | |
| 4/21/09 14:51:15 | 5.47 | 5.08 | 13.5 | 31.6 | |
| 4/21/09 14:51:30 | 5.45 | 5.10 | 13.4 | 31.0 | |
| 4/21/09 14:51:45 | 5.44 | 5.11 | 13.5 | 31.2 | |
| 4/21/09 14:52:00 | 5.45 | 5.10 | 13.5 | 32.2 | Change of Ports |
| 4/21/09 14:52:15 | 5.46 | 5.09 | 13.6 | 32.2 | |
| 4/21/09 14:52:30 | 5.47 | 5.09 | 13.5 | 30.2 | |
| 4/21/09 14:52:45 | 5.45 | 5.09 | 13.6 | 28.4 | |
| 4/21/09 14:53:00 | 5.44 | 5.09 | 13.5 | 25.7 | |
| 4/21/09 14:53:15 | 5.42 | 5.09 | 13.5 | 25.9 | |
| 4/21/09 14:53:30 | 5.41 | 5.09 | 13.7 | 26.0 | |
| 4/21/09 14:53:45 | 5.41 | 5.10 | 13.8 | 27.7 | |
| 4/21/09 14:54:00 | 5.40 | 5.11 | 13.6 | 24.5 | |
| 4/21/09 14:54:15 | 5.38 | 5.13 | 13.6 | 23.6 | |
| 4/21/09 14:54:30 | 5.38 | 5.14 | 13.5 | 24.7 | |
| 4/21/09 14:54:45 | 5.40 | 5.13 | 13.4 | 25.4 | |
| 4/21/09 14:55:00 | 5.44 | 5.11 | 13.4 | 26.6 | |
| 4/21/09 14:55:15 | 5.45 | 5.10 | 13.4 | 28.1 | |
| 4/21/09 14:55:30 | 5.47 | 5.09 | 13.5 | 32.8 | |
| 4/21/09 14:55:45 | 5.49 | 5.07 | 13.3 | 34.0 | |
| 4/21/09 14:56:00 | 5.51 | 5.04 | 13.1 | 37.4 | |
| 4/21/09 14:56:15 | 5.54 | 5.01 | 13.2 | 42.2 | |
| 4/21/09 14:56:30 | 5.58 | 5.00 | 13.1 | 49.8 | |
| 4/21/09 14:56:45 | 5.60 | 5.00 | 13.1 | 49.5 | |
| 4/21/09 14:57:00 | 5.59 | 5.00 | 13.2 | 47.8 | |
| 4/21/09 14:57:15 | 5.59 | 5.00 | 13.3 | 46.3 | |
| 4/21/09 14:57:30 | 5.58 | 5.00 | 13.3 | 47.0 | |
| 4/21/09 14:57:45 | 5.55 | 5.01 | 13.3 | 45.4 | |
| 4/21/09 14:58:00 | 5.54 | 5.02 | 13.3 | 40.9 | |
| 4/21/09 14:58:15 | 5.51 | 5.04 | 13.5 | 37.4 | |
| 4/21/09 14:58:30 | 5.47 | 5.07 | 13.7 | 31.3 | |
| 4/21/09 14:58:45 | 5.45 | 5.07 | 13.8 | 29.3 | |
| 4/21/09 14:59:00 | 5.44 | 5.07 | 13.8 | 26.8 | |
| 4/21/09 14:59:15 | 5.46 | 5.07 | 13.8 | 26.0 | |
| 4/21/09 14:59:30 | 5.45 | 5.08 | 13.6 | 26.7 | |
| 4/21/09 14:59:45 | 5.46 | 5.08 | 13.6 | 28.6 | |
| 4/21/09 15:00:00 | 5.48 | 5.08 | 13.6 | 31.5 | |
| 4/21/09 15:00:15 | 5.50 | 5.08 | 13.7 | 31.2 | |
| 4/21/09 15:00:30 | 5.51 | 5.09 | 13.6 | 32.2 | |
| 4/21/09 15:00:45 | 5.51 | 5.11 | 13.6 | 34.3 | |
| 4/21/09 15:01:00 | 5.50 | 5.13 | 13.6 | 38.0 | |
| 4/21/09 15:01:15 | 5.51 | 5.14 | 13.4 | 38.5 | |
| 4/21/09 15:01:30 | 5.52 | 5.13 | 13.4 | 40.3 | |
| 4/21/09 15:01:45 | 5.54 | 5.13 | 13.4 | 43.2 | |
| 4/21/09 15:02:00 | 5.57 | 5.11 | 13.2 | 50.5 | |
| 4/21/09 15:02:15 | 5.57 | 5.10 | 13.2 | 52.4 | |
| 4/21/09 15:02:30 | 5.59 | 5.09 | 13.1 | 54.5 | |
| 4/21/09 15:02:45 | 5.60 | 5.08 | 13.2 | 55.3 | |
| 4/21/09 15:03:00 | 5.60 | 5.08 | 13.3 | 55.1 | |
| 4/21/09 15:03:15 | 5.59 | 5.08 | 13.1 | 54.2 | |
| 4/21/09 15:03:30 | 5.61 | 5.08 | 13.0 | 52.8 | |
| 4/21/09 15:03:45 | 5.62 | 5.07 | 12.8 | 54.2 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 15:04:00 | 5.66 | 5.04 | 12.9 | 58.0 | |
| 4/21/09 15:04:15 | 5.66 | 5.04 | 12.5 | 57.2 | |
| 4/21/09 15:04:30 | 5.64 | 5.05 | 12.4 | 55.1 | |
| 4/21/09 15:04:45 | 5.59 | 5.06 | 12.7 | 53.9 | |
| 4/21/09 15:05:00 | 5.57 | 5.07 | 13.0 | 50.9 | |
| 4/21/09 15:05:15 | 5.57 | 5.07 | 13.1 | 49.8 | |
| 4/21/09 15:05:30 | 5.60 | 5.06 | 13.1 | 45.5 | |
| 4/21/09 15:05:45 | 5.61 | 5.06 | 8.7 | 42.5 | |
| 4/21/09 15:06:00 | 5.59 | 5.05 | 0.4 | 35.1 | |
| 4/21/09 15:06:15 | 10.32 | 3.10 | 0.4 | 27.0 | |
| 4/21/09 15:06:30 | 18.64 | 0.63 | 0.6 | 8.7 | |
| 4/21/09 15:06:45 | 20.38 | 0.24 | 0.3 | 4.4 | |
| 4/21/09 15:07:00 | 20.43 | 0.22 | 8.0 | 2.6 | |
| 4/21/09 15:07:15 | 20.47 | 0.26 | 14.0 | 5.0 | |
| 4/21/09 15:07:30 | 14.24 | 2.80 | 14.2 | 19.6 | |
| 4/21/09 15:07:45 | 7.18 | 4.61 | 14.3 | 28.4 | |
| 4/21/09 15:08:00 | 5.76 | 4.98 | 14.3 | 35.6 | |
| 4/21/09 15:08:15 | 5.59 | 5.06 | 14.3 | 33.7 | |
| 4/21/09 15:08:30 | 5.57 | 5.08 | 14.3 | 27.2 | |
| 4/21/09 15:08:45 | 5.56 | 5.09 | 13.8 | 25.4 | |
| 4/21/09 15:09:00 | 5.53 | 5.12 | 13.8 | 26.3 | |
| 4/21/09 15:09:15 | 5.51 | 5.13 | 13.9 | 27.2 | |
| 4/21/09 15:09:30 | 5.51 | 5.13 | 14.1 | 26.1 | |
| 4/21/09 15:09:45 | 5.50 | 5.14 | 14.0 | 24.7 | |
| 4/21/09 15:10:00 | 5.49 | 5.14 | 14.3 | 21.7 | |
| 4/21/09 15:10:15 | 5.49 | 5.13 | 14.1 | 21.1 | |
| 4/21/09 15:10:30 | 5.51 | 5.12 | 13.9 | 21.7 | |
| 4/21/09 15:10:45 | 5.52 | 5.11 | 14.2 | 22.0 | |
| 4/21/09 15:11:00 | 5.51 | 5.11 | 14.1 | 23.2 | |
| 4/21/09 15:11:15 | 5.53 | 5.12 | 14.2 | 24.2 | |
| 4/21/09 15:11:30 | 5.54 | 5.12 | 14.0 | 26.7 | |
| 4/21/09 15:11:45 | 5.55 | 5.12 | 14.1 | 27.8 | |
| 4/21/09 15:12:00 | 5.54 | 5.12 | 14.1 | 27.0 | |
| 4/21/09 15:12:15 | 5.52 | 5.15 | 14.1 | 24.2 | |
| 4/21/09 15:12:30 | 5.49 | 5.16 | 14.1 | 20.1 | |
| 4/21/09 15:12:45 | 5.50 | 5.14 | 13.9 | 20.7 | |
| 4/21/09 15:13:00 | 5.53 | 5.13 | 13.8 | 24.2 | |
| 4/21/09 15:13:15 | 5.55 | 5.12 | 13.5 | 26.3 | |
| 4/21/09 15:13:30 | 5.57 | 5.10 | 13.2 | 33.4 | |
| 4/21/09 15:13:45 | 5.59 | 5.09 | 13.2 | 38.6 | |
| 4/21/09 15:14:00 | 5.59 | 5.08 | 13.1 | 45.9 | |
| 4/21/09 15:14:15 | 5.61 | 5.05 | 13.1 | 48.6 | |
| 4/21/09 15:14:30 | 5.63 | 5.03 | 13.2 | 56.0 | |
| 4/21/09 15:14:45 | 5.64 | 5.02 | 13.3 | 57.5 | |
| 4/21/09 15:15:00 | 5.62 | 5.03 | 13.2 | 55.3 | |
| 4/21/09 15:15:15 | 5.61 | 5.04 | 13.6 | 54.1 | |
| 4/21/09 15:15:30 | 5.59 | 5.05 | 13.7 | 50.3 | |
| 4/21/09 15:15:45 | 5.59 | 5.06 | 13.8 | 46.7 | |
| 4/21/09 15:16:00 | 5.57 | 5.07 | 13.8 | 38.0 | |
| 4/21/09 15:16:15 | 5.53 | 5.08 | 13.6 | 33.7 | |
| 4/21/09 15:16:30 | 5.52 | 5.08 | 13.8 | 27.3 | |
| 4/21/09 15:16:45 | 5.53 | 5.09 | 13.5 | 26.1 | |
| 4/21/09 15:17:00 | 5.53 | 5.09 | 13.5 | 27.2 | |
| 4/21/09 15:17:15 | 5.54 | 5.09 | 13.7 | 28.4 | |
| 4/21/09 15:17:30 | 5.53 | 5.12 | 13.6 | 25.0 | |
| 4/21/09 15:17:45 | 5.48 | 5.14 | 13.5 | 21.4 | |
| 4/21/09 15:18:00 | 5.47 | 5.15 | 13.7 | 19.6 | |
| 4/21/09 15:18:15 | 5.47 | 5.15 | 13.7 | 20.8 | |
| 4/21/09 15:18:30 | 5.47 | 5.16 | 13.8 | 21.6 | |
| 4/21/09 15:18:45 | 5.46 | 5.16 | 14.1 | 21.4 | |
| 4/21/09 15:19:00 | 5.46 | 5.15 | 7.7 | 20.4 | |
| 4/21/09 15:19:15 | 5.10 | 4.08 | 0.4 | 17.6 | |
| 4/21/09 15:19:30 | 2.15 | 1.35 | 0.3 | 8.6 | |
| 4/21/09 15:19:45 | 0.31 | 0.24 | 0.2 | 5.1 | |
| 4/21/09 15:20:00 | 0.05 | 0.11 | 0.2 | 2.3 | |
| 4/21/09 15:20:15 | 0.04 | 0.09 | 0.2 | 2.1 | |
| 4/21/09 15:20:30 | 0.03 | 0.08 | 0.7 | 2.1 | |
| 4/21/09 15:20:45 | 0.03 | 0.07 | 13.5 | 2.6 | |
| 4/21/09 15:21:00 | 1.08 | 1.54 | 14.1 | 9.3 | |
| 4/21/09 15:21:15 | 3.94 | 3.96 | 14.1 | 14.8 | |
| 4/21/09 15:21:30 | 5.25 | 4.92 | 14.1 | 20.2 | |
| 4/21/09 15:21:45 | 5.43 | 5.08 | 14.2 | 20.4 | |
| 4/21/09 15:22:00 | 5.43 | 5.10 | 14.5 | 21.4 | |
| 4/21/09 15:22:15 | 5.43 | 5.11 | 14.5 | 22.0 | |
| 4/21/09 15:22:30 | 5.44 | 5.12 | 14.4 | 22.2 | |
| 4/21/09 15:22:45 | 5.46 | 5.12 | 14.4 | 21.6 | |
| 4/21/09 15:23:00 | 5.46 | 5.13 | 14.4 | 20.2 | |
| 4/21/09 15:23:15 | 5.44 | 5.14 | 13.8 | 20.1 | |
| 4/21/09 15:23:30 | 5.43 | 5.16 | 13.6 | 19.6 | |
| 4/21/09 15:23:45 | 5.41 | 5.17 | 13.8 | 19.0 | |
| 4/21/09 15:24:00 | 5.38 | 5.18 | 14.0 | 17.7 | |
| 4/21/09 15:24:15 | 5.39 | 5.19 | 13.5 | 17.0 | |
| 4/21/09 15:24:30 | 5.38 | 5.18 | 13.4 | 15.9 | |
| 4/21/09 15:24:45 | 5.39 | 5.18 | 13.4 | 16.3 | |
| 4/21/09 15:25:00 | 5.38 | 5.17 | 13.7 | 18.6 | |
| 4/21/09 15:25:15 | 5.37 | 5.18 | 14.0 | 19.2 | |
| 4/21/09 15:25:30 | 5.35 | 5.20 | 14.3 | 18.7 | |
| 4/21/09 15:25:45 | 5.30 | 5.21 | 14.6 | 17.7 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 15:26:00 | 5.25 | 5.24 | 14.7 | 14.8 | |
| 4/21/09 15:26:15 | 5.20 | 5.27 | 14.6 | 13.6 | |
| 4/21/09 15:26:30 | 5.16 | 5.29 | 14.8 | 11.7 | |
| 4/21/09 15:26:45 | 5.10 | 5.29 | 14.9 | 11.0 | |
| 4/21/09 15:27:00 | 5.09 | 5.29 | 14.8 | 10.4 | |
| 4/21/09 15:27:15 | 5.13 | 5.27 | 14.7 | 10.7 | |
| 4/21/09 15:27:30 | 5.15 | 5.25 | 14.9 | 13.0 | |
| 4/21/09 15:27:45 | 5.15 | 5.25 | 14.7 | 15.1 | Resume Sampling |
| 4/21/09 15:28:00 | 5.18 | 5.24 | 14.8 | 19.0 | |
| 4/21/09 15:28:15 | 5.19 | 5.24 | 14.8 | 20.1 | |
| 4/21/09 15:28:30 | 5.22 | 5.22 | 14.7 | 21.7 | |
| 4/21/09 15:28:45 | 5.22 | 5.22 | 14.6 | 23.2 | |
| 4/21/09 15:29:00 | 5.22 | 5.23 | 14.5 | 27.5 | |
| 4/21/09 15:29:15 | 5.21 | 5.22 | 14.9 | 30.4 | |
| 4/21/09 15:29:30 | 5.23 | 5.21 | 14.8 | 34.8 | |
| 4/21/09 15:29:45 | 5.26 | 5.20 | 15.0 | 35.3 | |
| 4/21/09 15:30:00 | 5.26 | 5.20 | 14.9 | 34.2 | |
| 4/21/09 15:30:15 | 5.25 | 5.20 | 14.9 | 32.6 | |
| 4/21/09 15:30:30 | 5.25 | 5.20 | 14.9 | 30.4 | |
| 4/21/09 15:30:45 | 5.25 | 5.19 | 15.0 | 30.8 | |
| 4/21/09 15:31:00 | 5.28 | 5.17 | 15.1 | 32.6 | |
| 4/21/09 15:31:15 | 5.31 | 5.17 | 15.0 | 33.1 | |
| 4/21/09 15:31:30 | 5.30 | 5.18 | 14.9 | 34.3 | |
| 4/21/09 15:31:45 | 5.29 | 5.18 | 15.0 | 34.8 | |
| 4/21/09 15:32:00 | 5.30 | 5.17 | 15.0 | 37.0 | |
| 4/21/09 15:32:15 | 5.30 | 5.16 | 15.1 | 38.3 | |
| 4/21/09 15:32:30 | 5.30 | 5.15 | 15.4 | 36.4 | |
| 4/21/09 15:32:45 | 5.27 | 5.17 | 15.3 | 34.8 | |
| 4/21/09 15:33:00 | 5.19 | 5.19 | 15.3 | 36.7 | |
| 4/21/09 15:33:15 | 5.18 | 5.19 | 15.5 | 38.3 | |
| 4/21/09 15:33:30 | 5.14 | 5.21 | 15.7 | 37.8 | |
| 4/21/09 15:33:45 | 5.10 | 5.22 | 15.6 | 37.0 | |
| 4/21/09 15:34:00 | 5.11 | 5.21 | 15.7 | 38.8 | |
| 4/21/09 15:34:15 | 5.11 | 5.20 | 15.8 | 42.7 | |
| 4/21/09 15:34:30 | 5.11 | 5.19 | 15.5 | 50.6 | |
| 4/21/09 15:34:45 | 5.11 | 5.20 | 15.7 | 52.3 | |
| 4/21/09 15:35:00 | 5.09 | 5.21 | 16.0 | 52.1 | |
| 4/21/09 15:35:15 | 5.07 | 5.20 | 15.9 | 50.3 | |
| 4/21/09 15:35:30 | 5.01 | 5.21 | 15.8 | 43.1 | |
| 4/21/09 15:35:45 | 4.95 | 5.25 | 15.9 | 39.2 | |
| 4/21/09 15:36:00 | 4.93 | 5.24 | 15.9 | 34.9 | |
| 4/21/09 15:36:15 | 4.96 | 5.21 | 16.0 | 36.5 | |
| 4/21/09 15:36:30 | 5.02 | 5.18 | 16.1 | 43.4 | |
| 4/21/09 15:36:45 | 5.01 | 5.20 | 15.8 | 43.2 | |
| 4/21/09 15:37:00 | 4.95 | 5.25 | 15.8 | 34.3 | |
| 4/21/09 15:37:15 | 4.88 | 5.29 | 15.7 | 29.8 | |
| 4/21/09 15:37:30 | 4.87 | 5.27 | 15.9 | 26.1 | |
| 4/21/09 15:37:45 | 4.89 | 5.25 | 15.9 | 24.8 | |
| 4/21/09 15:38:00 | 4.88 | 5.27 | 15.7 | 24.7 | |
| 4/21/09 15:38:15 | 4.85 | 5.28 | 15.8 | 23.5 | |
| 4/21/09 15:38:30 | 4.88 | 5.28 | 15.8 | 22.3 | |
| 4/21/09 15:38:45 | 4.87 | 5.28 | 15.7 | 22.7 | |
| 4/21/09 15:39:00 | 4.89 | 5.27 | 15.8 | 22.7 | |
| 4/21/09 15:39:15 | 4.85 | 5.28 | 15.8 | 22.0 | |
| 4/21/09 15:39:30 | 4.80 | 5.30 | 15.8 | 21.1 | |
| 4/21/09 15:39:45 | 4.82 | 5.29 | 15.8 | 21.9 | |
| 4/21/09 15:40:00 | 4.83 | 5.28 | 15.9 | 22.9 | |
| 4/21/09 15:40:15 | 4.82 | 5.30 | 15.7 | 22.3 | |
| 4/21/09 15:40:30 | 4.80 | 5.30 | 15.6 | 22.1 | |
| 4/21/09 15:40:45 | 4.87 | 5.26 | 15.3 | 23.9 | |
| 4/21/09 15:41:00 | 4.91 | 5.25 | 15.5 | 28.5 | |
| 4/21/09 15:41:15 | 4.88 | 5.25 | 15.5 | 30.4 | |
| 4/21/09 15:41:30 | 4.87 | 5.25 | 15.4 | 30.2 | |
| 4/21/09 15:41:45 | 4.88 | 5.24 | 15.8 | 29.8 | |
| 4/21/09 15:42:00 | 4.86 | 5.24 | 15.6 | 28.9 | |
| 4/21/09 15:42:15 | 4.87 | 5.25 | 15.6 | 28.3 | |
| 4/21/09 15:42:30 | 4.90 | 5.24 | 15.3 | 31.9 | |
| 4/21/09 15:42:45 | 4.91 | 5.23 | 15.5 | 36.4 | |
| 4/21/09 15:43:00 | 4.94 | 5.22 | 15.6 | 45.8 | |
| 4/21/09 15:43:15 | 4.97 | 5.20 | 15.5 | 48.3 | |
| 4/21/09 15:43:30 | 4.99 | 5.20 | 15.5 | 48.6 | |
| 4/21/09 15:43:45 | 4.99 | 5.19 | 15.5 | 48.2 | |
| 4/21/09 15:44:00 | 5.02 | 5.19 | 15.4 | 49.5 | |
| 4/21/09 15:44:15 | 5.03 | 5.18 | 15.3 | 53.6 | |
| 4/21/09 15:44:30 | 5.06 | 5.15 | 15.5 | 68.0 | |
| 4/21/09 15:44:45 | 5.11 | 5.13 | 15.6 | 72.9 | |
| 4/21/09 15:45:00 | 5.08 | 5.14 | 15.4 | 70.8 | |
| 4/21/09 15:45:15 | 5.09 | 5.14 | 15.3 | 67.6 | |
| 4/21/09 15:45:30 | 5.08 | 5.13 | 15.3 | 64.4 | |
| 4/21/09 15:45:45 | 5.11 | 5.11 | 15.3 | 65.2 | |
| 4/21/09 15:46:00 | 5.12 | 5.12 | 15.4 | 64.9 | |
| 4/21/09 15:46:15 | 5.07 | 5.14 | 15.3 | 61.3 | |
| 4/21/09 15:46:30 | 5.03 | 5.17 | 15.6 | 51.3 | |
| 4/21/09 15:46:45 | 5.01 | 5.17 | 15.4 | 47.1 | |
| 4/21/09 15:47:00 | 5.00 | 5.17 | 15.7 | 44.3 | |
| 4/21/09 15:47:15 | 5.01 | 5.17 | 15.8 | 44.6 | |
| 4/21/09 15:47:30 | 5.02 | 5.17 | 15.7 | 42.5 | |
| 4/21/09 15:47:45 | 5.00 | 5.18 | 15.5 | 41.6 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 15:48:00 | 4.98 | 5.19 | 15.3 | 44.0 | |
| 4/21/09 15:48:15 | 4.98 | 5.19 | 15.3 | 44.1 | |
| 4/21/09 15:48:30 | 5.00 | 5.17 | 15.3 | 42.5 | |
| 4/21/09 15:48:45 | 5.01 | 5.16 | 15.2 | 43.4 | |
| 4/21/09 15:49:00 | 5.01 | 5.16 | 15.3 | 47.3 | |
| 4/21/09 15:49:15 | 5.00 | 5.16 | 15.3 | 49.1 | |
| 4/21/09 15:49:30 | 5.01 | 5.15 | 14.9 | 50.5 | |
| 4/21/09 15:49:45 | 4.99 | 5.16 | 15.2 | 51.2 | |
| 4/21/09 15:50:00 | 4.98 | 5.16 | 15.2 | 53.0 | |
| 4/21/09 15:50:15 | 4.99 | 5.16 | 15.2 | 52.6 | |
| 4/21/09 15:50:30 | 5.01 | 5.16 | 15.1 | 51.0 | |
| 4/21/09 15:50:45 | 4.99 | 5.15 | 15.1 | 51.3 | |
| 4/21/09 15:51:00 | 5.00 | 5.14 | 15.2 | 54.1 | |
| 4/21/09 15:51:15 | 5.02 | 5.13 | 15.1 | 55.7 | |
| 4/21/09 15:51:30 | 5.03 | 5.13 | 15.0 | 58.0 | |
| 4/21/09 15:51:45 | 5.04 | 5.12 | 15.0 | 59.2 | |
| 4/21/09 15:52:00 | 5.05 | 5.13 | 14.9 | 60.1 | |
| 4/21/09 15:52:15 | 5.05 | 5.13 | 15.0 | 59.6 | |
| 4/21/09 15:52:30 | 5.02 | 5.15 | 15.0 | 60.4 | |
| 4/21/09 15:52:45 | 5.01 | 5.16 | 14.5 | 61.3 | |
| 4/21/09 15:53:00 | 5.01 | 5.18 | 14.3 | 60.7 | |
| 4/21/09 15:53:15 | 4.98 | 5.19 | 14.5 | 60.9 | |
| 4/21/09 15:53:30 | 4.96 | 5.19 | 14.8 | 64.1 | |
| 4/21/09 15:53:45 | 5.01 | 5.17 | 14.5 | 64.6 | |
| 4/21/09 15:54:00 | 5.03 | 5.17 | 14.6 | 65.6 | |
| 4/21/09 15:54:15 | 5.01 | 5.16 | 14.5 | 67.3 | |
| 4/21/09 15:54:30 | 5.01 | 5.16 | 14.7 | 68.9 | |
| 4/21/09 15:54:45 | 5.04 | 5.15 | 14.7 | 67.9 | |
| 4/21/09 15:55:00 | 5.03 | 5.14 | 14.7 | 67.3 | |
| 4/21/09 15:55:15 | 5.01 | 5.14 | 14.8 | 68.0 | |
| 4/21/09 15:55:30 | 5.01 | 5.14 | 14.8 | 65.2 | |
| 4/21/09 15:55:45 | 5.02 | 5.14 | 14.8 | 61.7 | |
| 4/21/09 15:56:00 | 5.03 | 5.15 | 14.7 | 60.9 | |
| 4/21/09 15:56:15 | 5.04 | 5.15 | 14.8 | 64.7 | |
| 4/21/09 15:56:30 | 5.05 | 5.15 | 14.7 | 66.8 | |
| 4/21/09 15:56:45 | 5.03 | 5.16 | 14.9 | 61.9 | |
| 4/21/09 15:57:00 | 5.00 | 5.17 | 14.8 | 51.1 | |
| 4/21/09 15:57:15 | 5.00 | 5.16 | 14.9 | 50.9 | |
| 4/21/09 15:57:30 | 5.05 | 5.11 | 15.0 | 59.3 | |
| 4/21/09 15:57:45 | 5.07 | 5.11 | 15.0 | 62.3 | |
| 4/21/09 15:58:00 | 5.07 | 5.11 | 15.0 | 64.3 | |
| 4/21/09 15:58:15 | 5.07 | 5.11 | 14.8 | 65.8 | |
| 4/21/09 15:58:30 | 5.07 | 5.11 | 15.0 | 69.9 | |
| 4/21/09 15:58:45 | 5.09 | 5.12 | 14.8 | 71.1 | |
| 4/21/09 15:59:00 | 5.07 | 5.13 | 14.8 | 72.3 | |
| 4/21/09 15:59:15 | 5.06 | 5.13 | 14.5 | 75.1 | |
| 4/21/09 15:59:30 | 5.08 | 5.13 | 14.4 | 87.1 | |
| 4/21/09 15:59:45 | 5.10 | 5.12 | 14.4 | 94.3 | |
| 4/21/09 16:00:00 | 5.12 | 5.11 | 14.4 | 106.5 | |
| 4/21/09 16:00:15 | 5.14 | 5.09 | 14.3 | 110.4 | |
| 4/21/09 16:00:30 | 5.16 | 5.08 | 14.3 | 115.3 | |
| 4/21/09 16:00:45 | 5.16 | 5.07 | 14.2 | 118.9 | |
| 4/21/09 16:01:00 | 5.19 | 5.04 | 14.2 | 127.0 | |
| 4/21/09 16:01:15 | 5.19 | 5.04 | 14.2 | 130.1 | |
| 4/21/09 16:01:30 | 5.19 | 5.04 | 14.2 | 128.6 | |
| 4/21/09 16:01:45 | 5.18 | 5.05 | 14.4 | 124.7 | |
| 4/21/09 16:02:00 | 5.16 | 5.04 | 14.4 | 122.0 | |
| 4/21/09 16:02:15 | 5.17 | 5.03 | 14.4 | 123.4 | |
| 4/21/09 16:02:30 | 5.15 | 5.03 | 14.2 | 126.4 | |
| 4/21/09 16:02:45 | 5.14 | 5.03 | 14.3 | 126.2 | |
| 4/21/09 16:03:00 | 5.14 | 5.03 | 14.2 | 123.6 | |
| 4/21/09 16:03:15 | 5.12 | 5.03 | 14.2 | 123.0 | |
| 4/21/09 16:03:30 | 5.11 | 5.05 | 14.2 | 118.1 | |
| 4/21/09 16:03:45 | 5.08 | 5.08 | 14.4 | 112.2 | |
| 4/21/09 16:04:00 | 5.04 | 5.10 | 14.4 | 102.2 | |
| 4/21/09 16:04:15 | 5.04 | 5.10 | 14.4 | 99.3 | |
| 4/21/09 16:04:30 | 5.02 | 5.11 | 14.4 | 91.9 | |
| 4/21/09 16:04:45 | 5.01 | 5.13 | 14.5 | 88.1 | |
| 4/21/09 16:05:00 | 4.99 | 5.15 | 14.5 | 84.1 | |
| 4/21/09 16:05:15 | 4.99 | 5.15 | 14.6 | 83.0 | |
| 4/21/09 16:05:30 | 4.99 | 5.14 | 14.7 | 79.4 | |
| 4/21/09 16:05:45 | 5.01 | 5.13 | 14.9 | 77.0 | |
| 4/21/09 16:06:00 | 4.97 | 5.15 | 14.5 | 72.3 | |
| 4/21/09 16:06:15 | 4.96 | 5.15 | 14.6 | 70.3 | |
| 4/21/09 16:06:30 | 4.97 | 5.15 | 14.7 | 68.2 | |
| 4/21/09 16:06:45 | 4.98 | 5.14 | 14.7 | 68.3 | |
| 4/21/09 16:07:00 | 4.97 | 5.15 | 14.9 | 67.2 | |
| 4/21/09 16:07:15 | 4.96 | 5.15 | 14.9 | 64.9 | |
| 4/21/09 16:07:30 | 4.96 | 5.15 | 14.7 | 62.2 | |
| 4/21/09 16:07:45 | 4.99 | 5.14 | 14.9 | 62.9 | |
| 4/21/09 16:08:00 | 5.01 | 5.12 | 14.9 | 66.3 | |
| 4/21/09 16:08:15 | 5.02 | 5.11 | 14.8 | 67.7 | |
| 4/21/09 16:08:30 | 5.00 | 5.10 | 14.8 | 69.4 | |
| 4/21/09 16:08:45 | 5.02 | 5.09 | 14.9 | 71.2 | |
| 4/21/09 16:09:00 | 5.02 | 5.08 | 14.6 | 79.2 | |
| 4/21/09 16:09:15 | 5.04 | 5.07 | 14.3 | 83.9 | |
| 4/21/09 16:09:30 | 5.09 | 5.05 | 14.4 | 95.5 | |
| 4/21/09 16:09:45 | 5.12 | 5.02 | 14.1 | 103.8 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 16:10:00 | 5.15 | 5.00 | 14.4 | 124.1 | |
| 4/21/09 16:10:15 | 5.19 | 4.98 | 14.3 | 132.2 | |
| 4/21/09 16:10:30 | 5.19 | 4.98 | 14.2 | 135.9 | |
| 4/21/09 16:10:45 | 5.19 | 4.98 | 14.3 | 135.9 | |
| 4/21/09 16:11:00 | 5.17 | 4.99 | 14.4 | 134.8 | |
| 4/21/09 16:11:15 | 5.15 | 5.00 | 14.5 | 133.3 | |
| 4/21/09 16:11:30 | 5.17 | 5.00 | 14.5 | 128.5 | |
| 4/21/09 16:11:45 | 5.14 | 5.03 | 14.7 | 122.0 | |
| 4/21/09 16:12:00 | 5.10 | 5.04 | 14.7 | 107.7 | |
| 4/21/09 16:12:15 | 5.09 | 5.05 | 14.7 | 104.1 | |
| 4/21/09 16:12:30 | 5.08 | 5.06 | 14.6 | 100.7 | |
| 4/21/09 16:12:45 | 5.07 | 5.07 | 14.5 | 99.0 | |
| 4/21/09 16:13:00 | 5.05 | 5.08 | 14.4 | 96.9 | |
| 4/21/09 16:13:15 | 5.05 | 5.08 | 14.4 | 94.9 | |
| 4/21/09 16:13:30 | 5.07 | 5.08 | 14.3 | 88.6 | |
| 4/21/09 16:13:45 | 5.06 | 5.09 | 14.4 | 88.3 | |
| 4/21/09 16:14:00 | 5.07 | 5.09 | 14.5 | 92.9 | |
| 4/21/09 16:14:15 | 5.08 | 5.09 | 14.4 | 93.8 | |
| 4/21/09 16:14:30 | 5.07 | 5.09 | 14.5 | 95.5 | |
| 4/21/09 16:14:45 | 5.06 | 5.08 | 14.5 | 100.8 | |
| 4/21/09 16:15:00 | 5.08 | 5.07 | 14.5 | 109.8 | |
| 4/21/09 16:15:15 | 5.11 | 5.07 | 14.4 | 108.0 | |
| 4/21/09 16:15:30 | 5.10 | 5.07 | 14.4 | 101.1 | |
| 4/21/09 16:15:45 | 5.09 | 5.07 | 14.4 | 99.3 | |
| 4/21/09 16:16:00 | 5.09 | 5.07 | 14.5 | 100.5 | |
| 4/21/09 16:16:15 | 5.10 | 5.08 | 14.4 | 101.3 | |
| 4/21/09 16:16:30 | 5.08 | 5.08 | 14.5 | 98.1 | |
| 4/21/09 16:16:45 | 5.08 | 5.09 | 14.6 | 95.6 | |
| 4/21/09 16:17:00 | 5.07 | 5.10 | 14.5 | 92.2 | |
| 4/21/09 16:17:15 | 5.05 | 5.10 | 14.5 | 91.3 | |
| 4/21/09 16:17:30 | 5.03 | 5.09 | 14.7 | 91.3 | |
| 4/21/09 16:17:45 | 5.04 | 5.08 | 14.7 | 90.7 | |
| 4/21/09 16:18:00 | 5.05 | 5.08 | 14.5 | 91.6 | |
| 4/21/09 16:18:15 | 5.05 | 5.08 | 14.4 | 95.0 | |
| 4/21/09 16:18:30 | 5.08 | 5.07 | 14.6 | 101.6 | |
| 4/21/09 16:18:45 | 5.10 | 5.07 | 14.6 | 103.3 | |
| 4/21/09 16:19:00 | 5.08 | 5.07 | 14.6 | 105.1 | |
| 4/21/09 16:19:15 | 5.06 | 5.09 | 14.4 | 104.7 | |
| 4/21/09 16:19:30 | 5.05 | 5.10 | 14.5 | 103.8 | |
| 4/21/09 16:19:45 | 5.05 | 5.10 | 14.7 | 103.8 | |
| 4/21/09 16:20:00 | 5.05 | 5.09 | 14.5 | 102.3 | |
| 4/21/09 16:20:15 | 5.05 | 5.08 | 14.5 | 102.6 | |
| 4/21/09 16:20:30 | 5.06 | 5.06 | 14.7 | 105.9 | |
| 4/21/09 16:20:45 | 5.07 | 5.06 | 14.4 | 107.1 | |
| 4/21/09 16:21:00 | 5.05 | 5.08 | 14.2 | 110.7 | |
| 4/21/09 16:21:15 | 5.05 | 5.08 | 13.7 | 114.3 | |
| 4/21/09 16:21:30 | 5.09 | 5.06 | 13.8 | 127.0 | |
| 4/21/09 16:21:45 | 5.12 | 5.04 | 13.5 | 134.4 | |
| 4/21/09 16:22:00 | 5.13 | 5.02 | 13.3 | 148.9 | |
| 4/21/09 16:22:15 | 5.15 | 5.01 | 13.4 | 155.6 | |
| 4/21/09 16:22:30 | 5.14 | 5.01 | 13.4 | 160.6 | |
| 4/21/09 16:22:45 | 5.14 | 5.01 | 13.2 | 159.7 | |
| 4/21/09 16:23:00 | 5.15 | 5.00 | 13.4 | 160.8 | |
| 4/21/09 16:23:15 | 5.16 | 4.99 | 13.3 | 162.7 | |
| 4/21/09 16:23:30 | 5.15 | 5.00 | 13.2 | 158.7 | |
| 4/21/09 16:23:45 | 5.13 | 5.01 | 13.3 | 152.6 | |
| 4/21/09 16:24:00 | 5.13 | 5.01 | 13.2 | 144.1 | |
| 4/21/09 16:24:15 | 5.13 | 5.01 | 13.3 | 143.8 | |
| 4/21/09 16:24:30 | 5.13 | 5.01 | 13.3 | 139.8 | |
| 4/21/09 16:24:45 | 5.11 | 5.03 | 13.2 | 133.7 | |
| 4/21/09 16:25:00 | 5.08 | 5.04 | 13.3 | 124.9 | |
| 4/21/09 16:25:15 | 5.07 | 5.05 | 13.4 | 122.2 | |
| 4/21/09 16:25:30 | 5.04 | 5.08 | 13.3 | 109.2 | |
| 4/21/09 16:25:45 | 5.00 | 5.10 | 13.5 | 102.7 | |
| 4/21/09 16:26:00 | 4.98 | 5.10 | 13.5 | 100.3 | |
| 4/21/09 16:26:15 | 4.98 | 5.10 | 13.5 | 102.3 | |
| 4/21/09 16:26:30 | 4.98 | 5.10 | 13.5 | 107.5 | |
| 4/21/09 16:26:45 | 4.97 | 5.10 | 13.4 | 110.4 | |
| 4/21/09 16:27:00 | 4.98 | 5.09 | 13.5 | 111.0 | |
| 4/21/09 16:27:15 | 4.98 | 5.09 | 13.5 | 107.7 | |
| 4/21/09 16:27:30 | 4.97 | 5.10 | 13.6 | 100.7 | |
| 4/21/09 16:27:45 | 4.96 | 5.11 | 13.4 | 97.7 | |
| 4/21/09 16:28:00 | 4.95 | 5.12 | 13.5 | 89.9 | |
| 4/21/09 16:28:15 | 4.94 | 5.14 | 13.6 | 84.9 | |
| 4/21/09 16:28:30 | 4.92 | 5.16 | 13.7 | 73.7 | |
| 4/21/09 16:28:45 | 4.89 | 5.19 | 13.7 | 69.6 | |
| 4/21/09 16:29:00 | 4.86 | 5.22 | 13.8 | 64.0 | |
| 4/21/09 16:29:15 | 4.86 | 5.22 | 13.8 | 62.0 | |
| 4/21/09 16:29:30 | 4.87 | 5.21 | 13.9 | 63.2 | |
| 4/21/09 16:29:45 | 4.87 | 5.20 | 14.0 | 63.7 | |
| 4/21/09 16:30:00 | 4.87 | 5.19 | 14.0 | 57.7 | |
| 4/21/09 16:30:15 | 4.87 | 5.20 | 14.0 | 54.7 | |
| 4/21/09 16:30:30 | 4.86 | 5.20 | 14.1 | 53.0 | |
| 4/21/09 16:30:45 | 4.84 | 5.21 | 14.2 | 53.2 | |
| 4/21/09 16:31:00 | 4.78 | 5.23 | 14.3 | 52.6 | |
| 4/21/09 16:31:15 | 4.75 | 5.25 | 14.3 | 50.8 | |
| 4/21/09 16:31:30 | 4.72 | 5.27 | 14.2 | 47.4 | |
| 4/21/09 16:31:45 | 4.72 | 5.27 | 14.1 | 46.4 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 16:32:00 | 4.73 | 5.26 | 14.1 | 48.4 | |
| 4/21/09 16:32:15 | 4.74 | 5.24 | 14.1 | 52.7 | |
| 4/21/09 16:32:30 | 4.76 | 5.23 | 14.1 | 59.5 | |
| 4/21/09 16:32:45 | 4.73 | 5.23 | 14.1 | 61.1 | |
| 4/21/09 16:33:00 | 4.72 | 5.23 | 14.1 | 65.8 | |
| 4/21/09 16:33:15 | 4.73 | 5.23 | 14.0 | 66.7 | |
| 4/21/09 16:33:30 | 4.73 | 5.23 | 14.0 | 66.4 | |
| 4/21/09 16:33:45 | 4.74 | 5.21 | 14.0 | 68.0 | |
| 4/21/09 16:34:00 | 4.75 | 5.21 | 14.1 | 74.1 | |
| 4/21/09 16:34:15 | 4.74 | 5.21 | 14.0 | 76.1 | |
| 4/21/09 16:34:30 | 4.73 | 5.22 | 14.0 | 75.0 | |
| 4/21/09 16:34:45 | 4.74 | 5.21 | 13.9 | 74.3 | |
| 4/21/09 16:35:00 | 4.71 | 5.21 | 14.0 | 77.1 | |
| 4/21/09 16:35:15 | 4.74 | 5.20 | 13.9 | 80.4 | |
| 4/21/09 16:35:30 | 4.77 | 5.18 | 13.8 | 91.1 | |
| 4/21/09 16:35:45 | 4.78 | 5.17 | 13.8 | 95.5 | |
| 4/21/09 16:36:00 | 4.78 | 5.16 | 13.7 | 100.0 | |
| 4/21/09 16:36:15 | 4.80 | 5.15 | 13.7 | 103.2 | |
| 4/21/09 16:36:30 | 4.79 | 5.15 | 13.8 | 107.7 | |
| 4/21/09 16:36:45 | 4.78 | 5.17 | 13.8 | 108.3 | |
| 4/21/09 16:37:00 | 4.78 | 5.17 | 13.6 | 114.1 | |
| 4/21/09 16:37:15 | 4.79 | 5.16 | 13.5 | 120.1 | |
| 4/21/09 16:37:30 | 4.80 | 5.15 | 13.6 | 131.6 | |
| 4/21/09 16:37:45 | 4.80 | 5.14 | 13.7 | 134.1 | |
| 4/21/09 16:38:00 | 4.84 | 5.13 | 13.6 | 132.1 | |
| 4/21/09 16:38:15 | 4.84 | 5.13 | 13.6 | 133.0 | |
| 4/21/09 16:38:30 | 4.84 | 5.13 | 13.5 | 139.1 | |
| 4/21/09 16:38:45 | 4.84 | 5.13 | 13.6 | 140.5 | |
| 4/21/09 16:39:00 | 4.85 | 5.12 | 13.7 | 142.4 | |
| 4/21/09 16:39:15 | 4.84 | 5.13 | 13.8 | 141.6 | |
| 4/21/09 16:39:30 | 4.82 | 5.14 | 13.8 | 129.2 | |
| 4/21/09 16:39:45 | 4.80 | 5.15 | 13.8 | 122.4 | |
| 4/21/09 16:40:00 | 4.82 | 5.16 | 13.9 | 116.4 | |
| 4/21/09 16:40:15 | 4.81 | 5.16 | 14.1 | 115.6 | |
| 4/21/09 16:40:30 | 4.79 | 5.16 | 14.1 | 114.3 | |
| 4/21/09 16:40:45 | 4.84 | 5.14 | 14.1 | 114.1 | |
| 4/21/09 16:41:00 | 4.84 | 5.12 | 14.1 | 118.4 | |
| 4/21/09 16:41:15 | 4.85 | 5.11 | 14.1 | 122.5 | |
| 4/21/09 16:41:30 | 4.84 | 5.10 | 14.1 | 127.6 | |
| 4/21/09 16:41:45 | 4.83 | 5.08 | 14.2 | 126.5 | |
| 4/21/09 16:42:00 | 4.81 | 5.08 | 14.3 | 120.8 | |
| 4/21/09 16:42:15 | 4.80 | 5.09 | 14.2 | 118.7 | |
| 4/21/09 16:42:30 | 4.77 | 5.11 | 14.2 | 119.0 | |
| 4/21/09 16:42:45 | 4.77 | 5.11 | 14.2 | 119.9 | |
| 4/21/09 16:43:00 | 4.78 | 5.10 | 14.3 | 122.5 | |
| 4/21/09 16:43:15 | 4.78 | 5.10 | 14.5 | 124.0 | |
| 4/21/09 16:43:30 | 4.77 | 5.10 | 14.5 | 124.5 | |
| 4/21/09 16:43:45 | 4.75 | 5.11 | 14.2 | 123.7 | |
| 4/21/09 16:44:00 | 4.75 | 5.10 | 14.2 | 126.4 | |
| 4/21/09 16:44:15 | 4.81 | 5.08 | 14.4 | 129.8 | |
| 4/21/09 16:44:30 | 4.81 | 5.07 | 14.4 | 135.6 | |
| 4/21/09 16:44:45 | 4.80 | 5.09 | 14.2 | 137.4 | |
| 4/21/09 16:45:00 | 4.79 | 5.09 | 14.3 | 136.1 | |
| 4/21/09 16:45:15 | 4.75 | 5.13 | 14.3 | 130.7 | |
| 4/21/09 16:45:30 | 4.68 | 5.17 | 14.2 | 118.9 | |
| 4/21/09 16:45:45 | 4.65 | 5.20 | 14.4 | 117.2 | |
| 4/21/09 16:46:00 | 4.66 | 5.21 | 14.3 | 116.2 | |
| 4/21/09 16:46:15 | 4.65 | 5.24 | 14.3 | 113.2 | |
| 4/21/09 16:46:30 | 4.63 | 5.24 | 14.3 | 107.5 | |
| 4/21/09 16:46:45 | 4.62 | 5.24 | 14.2 | 107.7 | |
| 4/21/09 16:47:00 | 4.66 | 5.22 | 14.3 | 114.0 | |
| 4/21/09 16:47:15 | 4.67 | 5.21 | 14.3 | 117.5 | |
| 4/21/09 16:47:30 | 4.68 | 5.20 | 14.1 | 119.3 | |
| 4/21/09 16:47:45 | 4.68 | 5.20 | 14.3 | 119.6 | |
| 4/21/09 16:48:00 | 4.67 | 5.19 | 13.9 | 123.1 | |
| 4/21/09 16:48:15 | 4.66 | 5.18 | 14.1 | 124.3 | |
| 4/21/09 16:48:30 | 4.66 | 5.17 | 14.1 | 124.9 | |
| 4/21/09 16:48:45 | 4.67 | 5.18 | 14.1 | 124.7 | |
| 4/21/09 16:49:00 | 4.65 | 5.19 | 13.8 | 123.4 | |
| 4/21/09 16:49:15 | 4.67 | 5.19 | 14.0 | 125.0 | |
| 4/21/09 16:49:30 | 4.68 | 5.19 | 14.0 | 136.3 | |
| 4/21/09 16:49:45 | 4.69 | 5.19 | 14.1 | 141.9 | |
| 4/21/09 16:50:00 | 4.71 | 5.18 | 13.7 | 148.4 | |
| 4/21/09 16:50:15 | 4.73 | 5.16 | 13.8 | 152.1 | |
| 4/21/09 16:50:30 | 4.77 | 5.14 | 14.1 | 157.8 | |
| 4/21/09 16:50:45 | 4.76 | 5.14 | 14.1 | 156.7 | |
| 4/21/09 16:51:00 | 4.75 | 5.15 | 13.9 | 157.8 | |
| 4/21/09 16:51:15 | 4.76 | 5.13 | 14.1 | 162.6 | |
| 4/21/09 16:51:30 | 4.83 | 5.10 | 14.1 | 172.2 | |
| 4/21/09 16:51:45 | 4.82 | 5.11 | 14.1 | 174.2 | |
| 4/21/09 16:52:00 | 4.79 | 5.12 | 13.9 | 173.3 | |
| 4/21/09 16:52:15 | 4.80 | 5.11 | 13.8 | 174.1 | |
| 4/21/09 16:52:30 | 4.85 | 5.09 | 14.1 | 179.3 | |
| 4/21/09 16:52:45 | 4.86 | 5.09 | 14.1 | 179.3 | |
| 4/21/09 16:53:00 | 4.86 | 5.10 | 14.1 | 172.9 | |
| 4/21/09 16:53:15 | 4.82 | 5.13 | 14.1 | 170.7 | |
| 4/21/09 16:53:30 | 4.83 | 5.14 | 14.1 | 167.4 | |
| 4/21/09 16:53:45 | 4.82 | 5.15 | 14.1 | 162.1 | |

# Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 16:54:00 | 4.80 | 5.14 | 14.2 | 153.5 | |
| 4/21/09 16:54:15 | 4.79 | 5.13 | 14.3 | 152.3 | |
| 4/21/09 16:54:30 | 4.77 | 5.14 | 14.2 | 146.4 | |
| 4/21/09 16:54:45 | 4.72 | 5.16 | 14.3 | 141.9 | |
| 4/21/09 16:55:00 | 4.70 | 5.17 | 14.2 | 138.1 | |
| 4/21/09 16:55:15 | 4.69 | 5.17 | 14.4 | 137.5 | |
| 4/21/09 16:55:30 | 4.70 | 5.17 | 14.4 | 133.5 | |
| 4/21/09 16:55:45 | 4.68 | 5.18 | 14.3 | 134.2 | |
| 4/21/09 16:56:00 | 4.69 | 5.17 | 14.1 | 144.7 | |
| 4/21/09 16:56:15 | 4.72 | 5.16 | 14.1 | 148.7 | |
| 4/21/09 16:56:30 | 4.74 | 5.14 | 13.9 | 152.3 | |
| 4/21/09 16:56:45 | 4.74 | 5.15 | 13.9 | 153.9 | |
| 4/21/09 16:57:00 | 4.74 | 5.16 | 13.7 | 156.6 | |
| 4/21/09 16:57:15 | 4.73 | 5.17 | 13.8 | 155.4 | |
| 4/21/09 16:57:30 | 4.71 | 5.17 | 14.1 | 149.2 | |
| 4/21/09 16:57:45 | 4.71 | 5.17 | 13.9 | 147.1 | |
| 4/21/09 16:58:00 | 4.71 | 5.17 | 13.9 | 143.8 | End Run No. SRU3-1 |
| 4/21/09 16:58:15 | 4.74 | 5.17 | 13.8 | 143.2 | |
| 4/21/09 16:58:30 | 4.72 | 5.17 | 13.9 | 149.0 | |
| 4/21/09 16:58:45 | 4.73 | 5.16 | 13.7 | 155.1 | |
| 4/21/09 16:59:00 | 4.78 | 5.13 | 13.5 | 176.5 | |
| 4/21/09 16:59:15 | 4.84 | 5.09 | 13.6 | 190.0 | |
| 4/21/09 16:59:30 | 4.86 | 5.07 | 13.6 | 209.0 | |
| 4/21/09 16:59:45 | 4.90 | 5.07 | 13.5 | 211.5 | |
| 4/21/09 17:00:00 | 4.90 | 5.08 | 13.3 | 212.1 | |
| 4/21/09 17:00:15 | 4.89 | 5.08 | 25.4 | 215.1 | |
| 4/21/09 17:00:30 | 4.87 | 4.84 | 4.3 | 177.7 | |
| 4/21/09 17:00:45 | 3.71 | 2.30 | 1.3 | 123.0 | |
| 4/21/09 17:01:00 | 3.72 | 0.46 | 0.8 | 29.2 | |
| 4/21/09 17:01:15 | 4.28 | 0.15 | 0.7 | 10.2 | |
| 4/21/09 17:01:30 | 4.38 | 0.10 | 0.6 | 2.6 | |
| 4/21/09 17:01:45 | 4.38 | 0.08 | 0.5 | 2.4 | |
| 4/21/09 17:02:00 | 4.36 | 0.08 | 0.4 | 2.3 | |
| 4/21/09 17:02:15 | 4.33 | 0.07 | 0.4 | 2.1 | |
| 4/21/09 17:02:30 | 4.31 | 0.07 | 0.4 | 2.1 | |
| 4/21/09 17:02:45 | 4.32 | 0.06 | 0.4 | 2.1 | |
| 4/21/09 17:03:00 | 4.32 | 0.06 | 0.3 | 2.3 | |
| 4/21/09 17:03:15 | 4.36 | 0.06 | 0.3 | 2.1 | |
| 4/21/09 17:03:30 | 4.39 | 0.06 | 0.3 | 2.0 | |
| 4/21/09 17:03:45 | 4.41 | 0.06 | 0.3 | 2.0 | |
| 4/21/09 17:04:00 | 4.42 | 0.06 | 0.3 | 2.1 | |
| 4/21/09 17:04:15 | 4.42 | 0.05 | 0.3 | 2.1 | System Bias |
| 4/21/09 17:04:30 | 4.43 | 0.05 | 0.3 | 2.0 | 4.43 4.50% $O_2$ |
| 4/21/09 17:04:45 | 4.43 | 0.05 | 0.3 | 1.8 | 0.05 Zero $CO_2$ |
| 4/21/09 17:05:00 | 4.43 | 0.05 | 0.2 | 2.0 | 0.2 Zero $NO_x$ |
| 4/21/09 17:05:15 | 4.44 | 0.05 | 0.2 | 2.0 | |
| 4/21/09 17:05:30 | 4.43 | 0.05 | 0.2 | 2.1 | |
| 4/21/09 17:05:45 | 4.44 | 0.05 | 6.4 | 2.0 | |
| 4/21/09 17:06:00 | 4.43 | 0.12 | 4.9 | 15.2 | |
| 4/21/09 17:06:15 | 4.46 | 1.70 | 0.5 | 25.0 | |
| 4/21/09 17:06:30 | 2.62 | 2.18 | 0.3 | 19.5 | |
| 4/21/09 17:06:45 | 0.64 | 3.68 | 0.2 | 10.1 | |
| 4/21/09 17:07:00 | 0.14 | 4.33 | 0.2 | 1.4 | |
| 4/21/09 17:07:15 | 0.07 | 4.27 | 0.2 | 0.8 | |
| 4/21/09 17:07:30 | 0.06 | 4.10 | 0.2 | 0.8 | |
| 4/21/09 17:07:45 | 0.06 | 3.98 | 0.2 | 0.9 | |
| 4/21/09 17:08:00 | 0.06 | 3.99 | 0.2 | 0.8 | |
| 4/21/09 17:08:15 | 0.05 | 4.16 | 0.2 | 0.6 | |
| 4/21/09 17:08:30 | 0.05 | 4.39 | 0.2 | 0.6 | |
| 4/21/09 17:08:45 | 0.04 | 4.53 | 0.1 | 0.6 | |
| 4/21/09 17:09:00 | 0.04 | 4.59 | 0.2 | 0.8 | |
| 4/21/09 17:09:15 | 0.04 | 4.62 | 0.2 | 0.6 | |
| 4/21/09 17:09:30 | 0.04 | 4.63 | 0.1 | 0.5 | |
| 4/21/09 17:09:45 | 0.04 | 4.64 | 0.1 | 0.5 | System Bias |
| 4/21/09 17:10:00 | 0.04 | 4.64 | 0.1 | 0.6 | |
| 4/21/09 17:10:15 | 0.04 | 4.65 | 0.1 | 0.6 | 4.65 4.50% $CO_2$ |
| 4/21/09 17:10:30 | 0.03 | 4.65 | 0.1 | 0.6 | |
| 4/21/09 17:10:45 | 0.03 | 4.65 | 6.6 | 0.5 | 0.6 Zero CO |
| 4/21/09 17:11:00 | 0.06 | 4.66 | 20.1 | 25.0 | |
| 4/21/09 17:11:15 | 1.38 | 4.58 | 0.7 | 59.3 | |
| 4/21/09 17:11:30 | 0.99 | 2.14 | 0.3 | 148.3 | |
| 4/21/09 17:11:45 | 0.26 | 0.42 | 0.2 | 164.2 | |
| 4/21/09 17:12:00 | 0.08 | 0.15 | 0.2 | 216.9 | |
| 4/21/09 17:12:15 | 0.05 | 0.10 | 0.2 | 220.8 | |
| 4/21/09 17:12:30 | 0.05 | 0.08 | 0.1 | 222.8 | |
| 4/21/09 17:12:45 | 0.04 | 0.08 | 0.2 | 223.0 | System Bias |
| 4/21/09 17:13:00 | 0.05 | 0.07 | 0.2 | 223.0 | 0.05 Zero $O_2$ |
| 4/21/09 17:13:15 | 0.05 | 0.07 | 0.1 | 223.3 | |
| 4/21/09 17:13:30 | 0.05 | 0.06 | 0.1 | 223.6 | |
| 4/21/09 17:13:45 | 0.04 | 0.06 | 0.1 | 223.6 | 223.4 225.0 ppm CO |
| 4/21/09 17:14:00 | 0.04 | 0.06 | 0.6 | 223.1 | |
| 4/21/09 17:14:15 | 0.04 | 0.06 | 4.3 | 220.4 | |
| 4/21/09 17:14:30 | 0.64 | 0.94 | 0.3 | 176.0 | |
| 4/21/09 17:14:45 | 1.11 | 1.12 | 9.2 | 130.9 | |
| 4/21/09 17:15:00 | 0.26 | 0.28 | 15.9 | 49.7 | |
| 4/21/09 17:15:15 | 0.08 | 0.10 | 18.6 | 26.3 | |
| 4/21/09 17:15:30 | 0.06 | 0.06 | 20.1 | 6.5 | |
| 4/21/09 17:15:45 | 0.06 | 0.05 | 20.7 | 3.8 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 17:16:00 | 0.06 | 0.05 | 20.7 | 2.7 | |
| 4/21/09 17:16:15 | 0.07 | 0.05 | 21.4 | 2.6 | |
| 4/21/09 17:16:30 | 0.06 | 0.05 | 38.5 | 2.3 | |
| 4/21/09 17:16:45 | 0.06 | 0.05 | 45.1 | 2.1 | |
| 4/21/09 17:17:00 | 0.05 | 0.04 | 43.1 | 2.3 | |
| 4/21/09 17:17:15 | 0.04 | 0.04 | 42.3 | 2.3 | |
| 4/21/09 17:17:30 | 0.04 | 0.04 | 41.8 | 2.1 | |
| 4/21/09 17:17:45 | 0.04 | 0.04 | 41.6 | 2.0 | |
| 4/21/09 17:18:00 | 0.04 | 0.04 | 41.4 | 2.0 | |
| 4/21/09 17:18:15 | 0.04 | 0.04 | 41.3 | 2.1 | |
| 4/21/09 17:18:30 | 0.04 | 0.04 | 80.4 | 2.1 | |
| 4/21/09 17:18:45 | 0.04 | 0.04 | 81.5 | 2.0 | |
| 4/21/09 17:19:00 | 0.04 | 0.04 | 81.5 | 1.8 | |
| 4/21/09 17:19:15 | 0.04 | 0.04 | 81.4 | 2.0 | |
| 4/21/09 17:19:30 | 0.04 | 0.04 | 81.5 | 2.1 | |
| 4/21/09 17:19:45 | 0.04 | 0.04 | 81.6 | 2.1 | |
| 4/21/09 17:20:00 | 0.04 | 0.04 | 81.6 | 1.8 | |
| 4/21/09 17:20:15 | 0.04 | 0.04 | 81.9 | 1.8 | |
| 4/21/09 17:20:30 | 0.04 | 0.04 | 67.9 | 2.1 | |
| 4/21/09 17:20:45 | 0.04 | 0.05 | 31.0 | 11.6 | |
| 4/21/09 17:21:00 | 1.45 | 2.07 | 31.9 | 62.3 | |
| 4/21/09 17:21:15 | 2.57 | 2.59 | 40.8 | 71.6 | |
| 4/21/09 17:21:30 | 0.78 | 0.67 | 41.4 | 30.1 | |
| 4/21/09 17:21:45 | 0.12 | 0.13 | 41.6 | 12.4 | |
| 4/21/09 17:22:00 | 0.05 | 0.06 | 41.8 | 2.6 | |
| 4/21/09 17:22:15 | 0.04 | 0.05 | 41.9 | 2.0 | |
| 4/21/09 17:22:30 | 0.04 | 0.05 | 42.1 | 1.7 | |
| 4/21/09 17:22:45 | 0.04 | 0.05 | 42.2 | 1.7 | |
| 4/21/09 17:23:00 | 0.04 | 0.04 | 42.4 | 2.0 | |
| 4/21/09 17:23:15 | 0.04 | 0.04 | 42.6 | 2.0 | |
| 4/21/09 17:23:30 | 0.04 | 0.04 | 42.8 | 1.8 | |
| 4/21/09 17:23:45 | 0.04 | 0.04 | 43.0 | 1.7 | |
| 4/21/09 17:24:00 | 0.04 | 0.04 | 43.1 | 1.8 | |
| 4/21/09 17:24:15 | 0.04 | 0.04 | 43.2 | 2.0 | |
| 4/21/09 17:24:30 | 0.04 | 0.04 | 43.4 | 1.8 | |
| 4/21/09 17:24:45 | 0.04 | 0.04 | 43.5 | 1.7 | |
| 4/21/09 17:25:00 | 0.04 | 0.04 | 43.6 | 1.7 | |
| 4/21/09 17:25:15 | 0.04 | 0.04 | 43.7 | 1.8 | |
| 4/21/09 17:25:30 | 0.04 | 0.04 | 43.9 | 2.0 | |
| 4/21/09 17:25:45 | 0.04 | 0.04 | 44.0 | 1.8 | |
| 4/21/09 17:26:00 | 0.04 | 0.04 | 44.1 | 1.7 | |
| 4/21/09 17:26:15 | 0.04 | 0.04 | 44.2 | 1.7 | |
| 4/21/09 17:26:30 | 0.04 | 0.04 | 44.3 | 1.8 | |
| 4/21/09 17:26:45 | 0.03 | 0.04 | 44.4 | 1.8 | System Bias |
| **4/21/09 17:27:00** | 0.04 | 0.04 | **44.5** | 1.8 | |
| **4/21/09 17:27:15** | 0.04 | 0.04 | **44.5** | 1.7 | |
| **4/21/09 17:27:30** | 0.04 | 0.04 | **44.6** | 1.8 | **44.6 45.0 ppm $NO_x$** |
| **4/21/09 17:27:45** | 0.04 | 0.04 | **44.7** | 1.8 | |
| 4/21/09 17:28:00 | 0.04 | 0.03 | 32.1 | 3.2 | |
| 4/21/09 17:28:15 | 0.07 | 0.14 | 15.4 | 17.6 | |
| 4/21/09 17:28:30 | 2.02 | 2.58 | 14.7 | 98.6 | |
| 4/21/09 17:28:45 | 4.14 | 4.45 | 14.6 | 145.6 | |
| 4/21/09 17:29:00 | 4.76 | 4.94 | 14.3 | 189.4 | |
| 4/21/09 17:29:15 | 4.82 | 5.03 | 14.3 | 189.8 | |
| 4/21/09 17:29:30 | 4.82 | 5.05 | 14.3 | 185.5 | |
| 4/21/09 17:29:45 | 4.82 | 5.06 | 14.3 | 186.7 | |
| 4/21/09 17:30:00 | 4.83 | 5.06 | 14.3 | 192.2 | |
| 4/21/09 17:30:15 | 4.82 | 5.08 | 14.1 | 193.7 | |
| 4/21/09 17:30:30 | 4.82 | 5.08 | 14.0 | 199.3 | |
| 4/21/09 17:30:45 | 4.87 | 5.06 | 13.8 | 202.2 | |
| 4/21/09 17:31:00 | 4.87 | 5.06 | 13.9 | 203.1 | |
| 4/21/09 17:31:15 | 4.88 | 5.05 | 13.9 | 204.1 | |
| 4/21/09 17:31:30 | 4.87 | 5.05 | 13.9 | 205.7 | |
| 4/21/09 17:31:45 | 4.86 | 5.05 | 13.7 | 204.4 | |
| 4/21/09 17:32:00 | 4.87 | 5.06 | 13.8 | 198.5 | |
| 4/21/09 17:32:15 | 4.83 | 5.08 | 13.6 | 192.8 | |
| 4/21/09 17:32:30 | 4.84 | 5.08 | 13.8 | 184.8 | |
| 4/21/09 17:32:45 | 4.83 | 5.09 | 13.7 | 181.7 | |
| 4/21/09 17:33:00 | 4.80 | 5.11 | 13.7 | 173.0 | |
| 4/21/09 17:33:15 | 4.78 | 5.12 | 13.8 | 169.8 | |
| 4/21/09 17:33:30 | 4.79 | 5.12 | 13.8 | 163.2 | |
| 4/21/09 17:33:45 | 4.79 | 5.12 | 14.4 | 162.0 | |
| 4/21/09 17:34:00 | 4.79 | 5.11 | 14.0 | 163.5 | |
| 4/21/09 17:34:15 | 4.79 | 5.11 | 13.8 | 161.7 | |
| 4/21/09 17:34:30 | 4.78 | 5.13 | 13.8 | 158.0 | |
| 4/21/09 17:34:45 | 4.74 | 5.14 | 13.5 | 159.3 | |
| 4/21/09 17:35:00 | 4.74 | 5.15 | 13.7 | 162.3 | |
| 4/21/09 17:35:15 | 4.75 | 5.15 | 13.8 | 164.0 | |
| 4/21/09 17:35:30 | 4.72 | 5.17 | 13.8 | 164.1 | |
| 4/21/09 17:35:45 | 4.69 | 5.19 | 13.7 | 160.0 | |
| 4/21/09 17:36:00 | 4.70 | 5.19 | 13.8 | 154.1 | |
| 4/21/09 17:36:15 | 4.71 | 5.18 | 13.8 | 156.0 | |
| 4/21/09 17:36:30 | 4.72 | 5.17 | 13.7 | 165.4 | |
| 4/21/09 17:36:45 | 4.74 | 5.17 | 13.8 | 169.9 | |
| 4/21/09 17:37:00 | 4.75 | 5.16 | 13.8 | 173.4 | |
| 4/21/09 17:37:15 | 4.77 | 5.15 | 13.8 | 170.1 | |
| 4/21/09 17:37:30 | 4.75 | 5.16 | 13.8 | 167.2 | |
| 4/21/09 17:37:45 | 4.77 | 5.14 | 13.7 | 172.1 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 17:38:00 | 4.82 | 5.11 | 13.7 | 185.6 | |
| 4/21/09 17:38:15 | 4.85 | 5.08 | 13.7 | 189.5 | |
| 4/21/09 17:38:30 | 4.85 | 5.08 | 13.8 | 183.7 | |
| 4/21/09 17:38:45 | 4.84 | 5.09 | 13.8 | 176.7 | |
| 4/21/09 17:39:00 | 4.83 | 5.10 | 14.0 | 168.4 | |
| 4/21/09 17:39:15 | 4.83 | 5.10 | 13.8 | 166.7 | |
| 4/21/09 17:39:30 | 4.83 | 5.11 | 13.9 | 161.4 | |
| 4/21/09 17:39:45 | 4.83 | 5.10 | 13.8 | 160.0 | |
| 4/21/09 17:40:00 | 4.84 | 5.09 | 13.8 | 168.9 | |
| 4/21/09 17:40:15 | 4.88 | 5.06 | 13.8 | 176.5 | |
| 4/21/09 17:40:30 | 4.89 | 5.05 | 13.8 | 180.7 | |
| 4/21/09 17:40:45 | 4.88 | 5.06 | 13.7 | 177.3 | |
| 4/21/09 17:41:00 | 4.86 | 5.06 | 13.8 | 168.3 | |
| 4/21/09 17:41:15 | 4.84 | 5.08 | 13.8 | 162.4 | |
| 4/21/09 17:41:30 | 4.79 | 5.12 | 13.7 | 148.1 | |
| 4/21/09 17:41:45 | 4.76 | 5.13 | 13.7 | 142.3 | |
| 4/21/09 17:42:00 | 4.75 | 5.14 | 13.8 | 139.3 | |
| 4/21/09 17:42:15 | 4.74 | 5.15 | 13.7 | 140.5 | |
| 4/21/09 17:42:30 | 4.73 | 5.16 | 13.6 | 141.2 | |
| 4/21/09 17:42:45 | 4.72 | 5.15 | 13.5 | 141.9 | |
| 4/21/09 17:43:00 | 4.74 | 5.14 | 13.4 | 151.0 | |
| 4/21/09 17:43:15 | 4.76 | 5.13 | 13.4 | 156.7 | |
| 4/21/09 17:43:30 | 4.78 | 5.13 | 13.4 | 165.4 | |
| 4/21/09 17:43:45 | 4.78 | 5.14 | 13.3 | 167.9 | |
| 4/21/09 17:44:00 | 4.77 | 5.15 | 13.3 | 169.8 | |
| 4/21/09 17:44:15 | 4.78 | 5.15 | 13.4 | 173.4 | |
| 4/21/09 17:44:30 | 4.82 | 5.14 | 13.6 | 182.2 | |
| 4/21/09 17:44:45 | 4.81 | 5.15 | 13.7 | 181.4 | Begin Run No. SRU3-2 |
| **4/21/09 17:45:00** | **4.75** | **5.18** | **13.5** | **172.1** | |
| **4/21/09 17:45:15** | **4.77** | **5.17** | **13.6** | **169.9** | |
| **4/21/09 17:45:30** | **4.77** | **5.15** | **13.5** | **169.5** | |
| **4/21/09 17:45:45** | **4.80** | **5.13** | **13.7** | **170.3** | |
| **4/21/09 17:46:00** | **4.80** | **5.12** | **13.6** | **175.3** | |
| **4/21/09 17:46:15** | **4.79** | **5.12** | **13.5** | **176.9** | |
| **4/21/09 17:46:30** | **4.78** | **5.13** | **13.6** | **171.3** | |
| **4/21/09 17:46:45** | **4.77** | **5.14** | **13.7** | **166.5** | |
| **4/21/09 17:47:00** | **4.72** | **5.16** | **13.7** | **156.2** | |
| **4/21/09 17:47:15** | **4.68** | **5.19** | **13.8** | **148.7** | |
| **4/21/09 17:47:30** | **4.65** | **5.21** | **13.8** | **135.4** | |
| **4/21/09 17:47:45** | **4.62** | **5.23** | **13.8** | **128.9** | |
| **4/21/09 17:48:00** | **4.61** | **5.23** | **13.8** | **120.2** | |
| **4/21/09 17:48:15** | **4.63** | **5.21** | **13.8** | **121.4** | |
| **4/21/09 17:48:30** | **4.64** | **5.19** | **14.0** | **130.3** | |
| **4/21/09 17:48:45** | **4.67** | **5.18** | **13.8** | **134.2** | |
| **4/21/09 17:49:00** | **4.68** | **5.18** | **13.8** | **137.1** | |
| **4/21/09 17:49:15** | **4.67** | **5.18** | **13.7** | **137.5** | |
| **4/21/09 17:49:30** | **4.69** | **5.17** | **13.8** | **138.5** | |
| **4/21/09 17:49:45** | **4.70** | **5.16** | **13.6** | **138.2** | |
| **4/21/09 17:50:00** | **4.71** | **5.15** | **13.7** | **141.7** | |
| **4/21/09 17:50:15** | **4.69** | **5.16** | **13.7** | **147.2** | |
| **4/21/09 17:50:30** | **4.72** | **5.15** | **13.6** | **160.3** | |
| **4/21/09 17:50:45** | **4.76** | **5.13** | **13.6** | **165.2** | |
| **4/21/09 17:51:00** | **4.78** | **5.12** | **13.7** | **169.8** | |
| **4/21/09 17:51:15** | **4.80** | **5.12** | **13.9** | **171.5** | |
| **4/21/09 17:51:30** | **4.80** | **5.12** | **13.7** | **175.1** | |
| **4/21/09 17:51:45** | **4.81** | **5.12** | **13.7** | **176.8** | |
| **4/21/09 17:52:00** | **4.81** | **5.11** | **13.5** | **181.7** | |
| **4/21/09 17:52:15** | **4.83** | **5.09** | **13.5** | **186.4** | |
| **4/21/09 17:52:30** | **4.82** | **5.08** | **13.5** | **191.1** | |
| **4/21/09 17:52:45** | **4.83** | **5.08** | **13.6** | **187.4** | |
| **4/21/09 17:53:00** | **4.81** | **5.09** | **13.7** | **173.3** | |
| **4/21/09 17:53:15** | **4.78** | **5.11** | **13.6** | **167.1** | |
| **4/21/09 17:53:30** | **4.75** | **5.14** | **13.5** | **156.7** | |
| **4/21/09 17:53:45** | **4.71** | **5.17** | **13.6** | **151.0** | |
| **4/21/09 17:54:00** | **4.69** | **5.19** | **13.7** | **144.2** | |
| **4/21/09 17:54:15** | **4.65** | **5.20** | **13.7** | **145.7** | |
| **4/21/09 17:54:30** | **4.66** | **5.21** | **13.5** | **154.3** | |
| **4/21/09 17:54:45** | **4.67** | **5.20** | **13.5** | **156.9** | |
| **4/21/09 17:55:00** | **4.70** | **5.20** | **13.6** | **161.7** | |
| **4/21/09 17:55:15** | **4.70** | **5.19** | **13.5** | **166.2** | |
| **4/21/09 17:55:30** | **4.71** | **5.20** | **13.5** | **164.9** | |
| **4/21/09 17:55:45** | **4.69** | **5.22** | **13.4** | **160.5** | |
| **4/21/09 17:56:00** | **4.68** | **5.23** | **13.4** | **158.7** | |
| **4/21/09 17:56:15** | **4.69** | **5.23** | **13.4** | **161.2** | |
| **4/21/09 17:56:30** | **4.70** | **5.22** | **13.3** | **169.1** | |
| **4/21/09 17:56:45** | **4.76** | **5.18** | **13.3** | **173.2** | |
| **4/21/09 17:57:00** | **4.79** | **5.17** | **13.4** | **178.2** | |
| **4/21/09 17:57:15** | **4.77** | **5.15** | **13.3** | **179.3** | |
| **4/21/09 17:57:30** | **4.78** | **5.14** | **13.3** | **178.6** | |
| **4/21/09 17:57:45** | **4.80** | **5.12** | **13.3** | **177.9** | |
| **4/21/09 17:58:00** | **4.83** | **5.09** | **13.4** | **181.3** | |
| **4/21/09 17:58:15** | **4.82** | **5.09** | **13.2** | **183.6** | |
| **4/21/09 17:58:30** | **4.81** | **5.10** | **13.2** | **182.5** | |
| **4/21/09 17:58:45** | **4.81** | **5.11** | **13.3** | **180.8** | |
| **4/21/09 17:59:00** | **4.81** | **5.12** | **13.4** | **174.5** | |
| **4/21/09 17:59:15** | **4.79** | **5.14** | **13.5** | **168.0** | |
| **4/21/09 17:59:30** | **4.77** | **5.15** | **13.6** | **156.9** | |
| **4/21/09 17:59:45** | **4.75** | **5.15** | **13.6** | **153.3** | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 18:00:00 | 4.74 | 5.14 | 13.5 | 148.1 | |
| 4/21/09 18:00:15 | 4.75 | 5.13 | 13.6 | 148.3 | |
| 4/21/09 18:00:30 | 4.76 | 5.12 | 13.7 | 156.9 | |
| 4/21/09 18:00:45 | 4.77 | 5.12 | 13.7 | 159.6 | |
| 4/21/09 18:01:00 | 4.74 | 5.15 | 13.7 | 151.8 | |
| 4/21/09 18:01:15 | 4.70 | 5.18 | 13.6 | 145.0 | |
| 4/21/09 18:01:30 | 4.70 | 5.19 | 13.7 | 134.8 | |
| 4/21/09 18:01:45 | 4.67 | 5.20 | 13.8 | 132.8 | |
| 4/21/09 18:02:00 | 4.63 | 5.22 | 13.7 | 131.8 | |
| 4/21/09 18:02:15 | 4.62 | 5.24 | 13.7 | 130.9 | |
| 4/21/09 18:02:30 | 4.63 | 5.23 | 13.7 | 129.4 | |
| 4/21/09 18:02:45 | 4.66 | 5.20 | 13.7 | 130.4 | |
| 4/21/09 18:03:00 | 4.68 | 5.18 | 13.8 | 134.2 | |
| 4/21/09 18:03:15 | 4.67 | 5.18 | 13.5 | 136.8 | |
| 4/21/09 18:03:30 | 4.68 | 5.17 | 13.3 | 150.8 | |
| 4/21/09 18:03:45 | 4.77 | 5.13 | 13.3 | 160.8 | |
| 4/21/09 18:04:00 | 4.83 | 5.10 | 13.3 | 175.4 | |
| 4/21/09 18:04:15 | 4.86 | 5.09 | 13.2 | 179.6 | |
| 4/21/09 18:04:30 | 4.84 | 5.09 | 13.2 | 187.9 | |
| 4/21/09 18:04:45 | 4.82 | 5.10 | 13.2 | 191.9 | |
| 4/21/09 18:05:00 | 4.83 | 5.11 | 13.2 | 194.7 | |
| 4/21/09 18:05:15 | 4.84 | 5.11 | 13.2 | 193.3 | |
| 4/21/09 18:05:30 | 4.82 | 5.11 | 13.2 | 188.5 | |
| 4/21/09 18:05:45 | 4.81 | 5.12 | 13.4 | 183.6 | |
| 4/21/09 18:06:00 | 4.80 | 5.12 | 13.4 | 173.0 | |
| 4/21/09 18:06:15 | 4.80 | 5.13 | 13.5 | 168.7 | |
| 4/21/09 18:06:30 | 4.77 | 5.12 | 13.5 | 156.2 | |
| 4/21/09 18:06:45 | 4.78 | 5.12 | 13.4 | 152.4 | |
| 4/21/09 18:07:00 | 4.78 | 5.12 | 13.4 | 158.6 | |
| 4/21/09 18:07:15 | 4.77 | 5.11 | 13.3 | 163.2 | |
| 4/21/09 18:07:30 | 4.79 | 5.11 | 13.2 | 164.6 | |
| 4/21/09 18:07:45 | 4.80 | 5.12 | 13.2 | 163.4 | |
| 4/21/09 18:08:00 | 4.77 | 5.13 | 13.3 | 164.7 | |
| 4/21/09 18:08:15 | 4.77 | 5.13 | 13.3 | 165.9 | |
| 4/21/09 18:08:30 | 4.76 | 5.14 | 13.3 | 162.6 | |
| 4/21/09 18:08:45 | 4.76 | 5.13 | 13.4 | 157.8 | |
| 4/21/09 18:09:00 | 4.76 | 5.13 | 13.4 | 149.3 | |
| 4/21/09 18:09:15 | 4.74 | 5.12 | 13.3 | 147.8 | |
| 4/21/09 18:09:30 | 4.75 | 5.12 | 13.4 | 151.7 | |
| 4/21/09 18:09:45 | 4.76 | 5.11 | 13.5 | 154.8 | |
| 4/21/09 18:10:00 | 4.76 | 5.12 | 13.6 | 151.8 | |
| 4/21/09 18:10:15 | 4.71 | 5.16 | 13.5 | 144.7 | |
| 4/21/09 18:10:30 | 4.69 | 5.18 | 13.5 | 133.9 | |
| 4/21/09 18:10:45 | 4.66 | 5.20 | 13.6 | 132.2 | |
| 4/21/09 18:11:00 | 4.65 | 5.20 | 13.5 | 132.7 | |
| 4/21/09 18:11:15 | 4.65 | 5.21 | 13.6 | 135.4 | |
| 4/21/09 18:11:30 | 4.67 | 5.21 | 13.7 | 137.9 | |
| 4/21/09 18:11:45 | 4.65 | 5.22 | 13.7 | 136.3 | |
| 4/21/09 18:12:00 | 4.67 | 5.21 | 13.8 | 137.4 | |
| 4/21/09 18:12:15 | 4.69 | 5.20 | 13.7 | 140.3 | |
| 4/21/09 18:12:30 | 4.71 | 5.19 | 13.7 | 146.9 | |
| 4/21/09 18:12:45 | 4.69 | 5.19 | 13.6 | 147.4 | |
| 4/21/09 18:13:00 | 4.67 | 5.20 | 13.6 | 145.1 | |
| 4/21/09 18:13:15 | 4.65 | 5.20 | 13.5 | 148.0 | |
| 4/21/09 18:13:30 | 4.69 | 5.20 | 13.5 | 156.5 | |
| 4/21/09 18:13:45 | 4.68 | 5.20 | 13.5 | 158.1 | |
| 4/21/09 18:14:00 | 4.68 | 5.20 | 13.5 | 163.1 | |
| 4/21/09 18:14:15 | 4.68 | 5.19 | 13.5 | 166.7 | |
| 4/21/09 18:14:30 | 4.71 | 5.18 | 13.3 | 171.8 | |
| 4/21/09 18:14:45 | 4.72 | 5.17 | 13.4 | 182.0 | |
| 4/21/09 18:15:00 | 4.75 | 5.14 | 13.3 | 219.9 | |
| 4/21/09 18:15:15 | 4.78 | 5.13 | 13.3 | 231.5 | |
| 4/21/09 18:15:30 | 4.77 | 5.13 | 13.2 | 226.2 | |
| 4/21/09 18:15:45 | 4.78 | 5.13 | 13.2 | 219.6 | |
| 4/21/09 18:16:00 | 4.77 | 5.13 | 13.2 | 218.5 | |
| 4/21/09 18:16:15 | 4.77 | 5.13 | 13.2 | 223.3 | |
| 4/21/09 18:16:30 | 4.75 | 5.14 | 13.4 | 228.2 | |
| 4/21/09 18:16:45 | 4.75 | 5.15 | 13.5 | 223.3 | |
| 4/21/09 18:17:00 | 4.76 | 5.18 | 13.3 | 203.0 | |
| 4/21/09 18:17:15 | 4.73 | 5.20 | 13.2 | 198.4 | |
| 4/21/09 18:17:30 | 4.76 | 5.17 | 13.2 | 207.1 | |
| 4/21/09 18:17:45 | 4.83 | 5.12 | 13.3 | 215.1 | |
| 4/21/09 18:18:00 | 4.85 | 5.10 | 13.2 | 227.6 | |
| 4/21/09 18:18:15 | 4.86 | 5.10 | 13.2 | 230.5 | |
| 4/21/09 18:18:30 | 4.85 | 5.10 | 13.0 | 234.8 | |
| 4/21/09 18:18:45 | 4.86 | 5.09 | 13.0 | 235.2 | |
| 4/21/09 18:19:00 | 4.85 | 5.09 | 13.1 | 231.5 | |
| 4/21/09 18:19:15 | 4.84 | 5.10 | 13.2 | 225.5 | |
| 4/21/09 18:19:30 | 4.81 | 5.13 | 13.2 | 207.8 | |
| 4/21/09 18:19:45 | 4.80 | 5.14 | 13.2 | 201.2 | |
| 4/21/09 18:20:00 | 4.80 | 5.14 | 13.3 | 196.2 | |
| 4/21/09 18:20:15 | 4.81 | 5.14 | 13.4 | 195.8 | |
| 4/21/09 18:20:30 | 4.80 | 5.14 | 13.3 | 193.2 | |
| 4/21/09 18:20:45 | 4.79 | 5.16 | 13.5 | 189.5 | |
| 4/21/09 18:21:00 | 4.73 | 5.17 | 13.5 | 182.0 | |
| 4/21/09 18:21:15 | 4.70 | 5.20 | 13.5 | 181.2 | |
| 4/21/09 18:21:30 | 4.70 | 5.20 | 13.5 | 180.1 | |
| 4/21/09 18:21:45 | 4.68 | 5.21 | 13.6 | 178.0 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 18:22:00 | 4.67 | 5.22 | 13.7 | 169.2 | |
| 4/21/09 18:22:15 | 4.66 | 5.24 | 13.5 | 164.3 | |
| 4/21/09 18:22:30 | 4.66 | 5.24 | 13.6 | 160.5 | |
| 4/21/09 18:22:45 | 4.67 | 5.23 | 13.7 | 158.6 | |
| 4/21/09 18:23:00 | 4.65 | 5.25 | 13.7 | 149.3 | |
| 4/21/09 18:23:15 | 4.63 | 5.28 | 13.7 | 147.9 | |
| 4/21/09 18:23:30 | 4.67 | 5.26 | 13.8 | 165.7 | |
| 4/21/09 18:23:45 | 4.73 | 5.24 | 13.6 | 178.6 | |
| 4/21/09 18:24:00 | 4.75 | 5.21 | 13.6 | 188.6 | |
| 4/21/09 18:24:15 | 4.76 | 5.20 | 13.5 | 185.6 | |
| 4/21/09 18:24:30 | 4.77 | 5.20 | 13.4 | 181.0 | |
| 4/21/09 18:24:45 | 4.80 | 5.17 | 13.5 | 184.0 | |
| 4/21/09 18:25:00 | 4.81 | 5.17 | 13.4 | 192.2 | |
| 4/21/09 18:25:15 | 4.79 | 5.18 | 13.4 | 195.5 | |
| 4/21/09 18:25:30 | 4.80 | 5.17 | 13.4 | 196.6 | |
| 4/21/09 18:25:45 | 4.83 | 5.15 | 13.3 | 196.1 | |
| 4/21/09 18:26:00 | 4.85 | 5.13 | 13.4 | 196.1 | |
| 4/21/09 18:26:15 | 4.84 | 5.11 | 13.4 | 194.0 | |
| 4/21/09 18:26:30 | 4.86 | 5.09 | 13.6 | 190.0 | |
| 4/21/09 18:26:45 | 4.86 | 5.09 | 13.4 | 188.3 | |
| 4/21/09 18:27:00 | 4.88 | 5.09 | 13.4 | 183.1 | |
| 4/21/09 18:27:15 | 4.86 | 5.08 | 13.5 | 182.4 | |
| 4/21/09 18:27:30 | 4.85 | 5.08 | 13.3 | 181.7 | |
| 4/21/09 18:27:45 | 4.85 | 5.08 | 13.2 | 179.5 | |
| 4/21/09 18:28:00 | 4.86 | 5.08 | 13.2 | 175.3 | |
| 4/21/09 18:28:15 | 4.83 | 5.09 | 13.3 | 174.5 | |
| 4/21/09 18:28:30 | 4.82 | 5.10 | 13.3 | 174.1 | |
| 4/21/09 18:28:45 | 4.83 | 5.12 | 13.3 | 173.5 | |
| 4/21/09 18:29:00 | 4.83 | 5.12 | 13.3 | 168.9 | |
| 4/21/09 18:29:15 | 4.83 | 5.11 | 13.3 | 167.1 | |
| 4/21/09 18:29:30 | 4.83 | 5.10 | 13.2 | 171.3 | |
| 4/21/09 18:29:45 | 4.84 | 5.09 | 13.3 | 177.7 | |
| 4/21/09 18:30:00 | 4.85 | 5.08 | 13.4 | 182.2 | |
| 4/21/09 18:30:15 | 4.82 | 5.11 | 13.5 | 173.3 | |
| 4/21/09 18:30:30 | 4.75 | 5.17 | 13.3 | 150.6 | |
| 4/21/09 18:30:45 | 4.72 | 5.19 | 13.4 | 146.6 | |
| 4/21/09 18:31:00 | 4.72 | 5.19 | 13.5 | 154.2 | |
| 4/21/09 18:31:15 | 4.72 | 5.20 | 13.4 | 158.4 | |
| 4/21/09 18:31:30 | 4.72 | 5.20 | 13.3 | 158.7 | |
| 4/21/09 18:31:45 | 4.71 | 5.21 | 13.3 | 159.0 | |
| 4/21/09 18:32:00 | 4.74 | 5.20 | 13.5 | 164.6 | |
| 4/21/09 18:32:15 | 4.73 | 5.20 | 13.4 | 166.7 | |
| 4/21/09 18:32:30 | 4.74 | 5.20 | 13.6 | 168.3 | |
| 4/21/09 18:32:45 | 4.77 | 5.19 | 13.5 | 168.0 | |
| 4/21/09 18:33:00 | 4.77 | 5.20 | 13.4 | 170.7 | |
| 4/21/09 18:33:15 | 4.76 | 5.20 | 13.4 | 179.3 | |
| 4/21/09 18:33:30 | 4.81 | 5.16 | 13.3 | 200.0 | |
| 4/21/09 18:33:45 | 4.87 | 5.11 | 13.5 | 207.1 | |
| 4/21/09 18:34:00 | 4.88 | 5.11 | 13.5 | 210.9 | |
| 4/21/09 18:34:15 | 4.85 | 5.13 | 13.4 | 207.4 | |
| 4/21/09 18:34:30 | 4.85 | 5.13 | 13.4 | 199.7 | |
| 4/21/09 18:34:45 | 4.87 | 5.13 | 13.5 | 197.8 | |
| 4/21/09 18:35:00 | 4.89 | 5.12 | 13.5 | 196.1 | |
| 4/21/09 18:35:15 | 4.90 | 5.12 | 13.5 | 195.3 | |
| 4/21/09 18:35:30 | 4.88 | 5.12 | 13.5 | 195.9 | |
| 4/21/09 18:35:45 | 4.91 | 5.11 | 13.7 | 197.2 | |
| 4/21/09 18:36:00 | 4.88 | 5.11 | 13.5 | 193.7 | |
| 4/21/09 18:36:15 | 4.84 | 5.13 | 13.4 | 188.3 | |
| 4/21/09 18:36:30 | 4.86 | 5.13 | 13.6 | 179.0 | |
| 4/21/09 18:36:45 | 4.84 | 5.14 | 13.8 | 174.8 | |
| 4/21/09 18:37:00 | 4.80 | 5.18 | 13.8 | 153.5 | |
| 4/21/09 18:37:15 | 4.70 | 5.23 | 13.7 | 141.1 | |
| 4/21/09 18:37:30 | 4.69 | 5.22 | 13.6 | 137.9 | |
| 4/21/09 18:37:46 | 4.73 | 5.19 | 13.7 | 144.0 | |
| 4/21/09 18:38:00 | 4.75 | 5.18 | 13.7 | 154.5 | |
| 4/21/09 18:38:15 | 4.73 | 5.19 | 13.5 | 157.4 | |
| 4/21/09 18:38:30 | 4.76 | 5.18 | 13.3 | 161.5 | |
| 4/21/09 18:38:45 | 4.80 | 5.15 | 13.3 | 166.7 | |
| 4/21/09 18:39:00 | 4.86 | 5.12 | 13.3 | 177.1 | |
| 4/21/09 18:39:15 | 4.87 | 5.12 | 13.4 | 178.7 | |
| 4/21/09 18:39:30 | 4.86 | 5.11 | 13.2 | 180.1 | |
| 4/21/09 18:39:45 | 4.84 | 5.12 | 13.2 | 181.4 | |
| 4/21/09 18:40:00 | 4.85 | 5.12 | 13.2 | 187.4 | |
| 4/21/09 18:40:15 | 4.87 | 5.11 | 13.3 | 191.4 | |
| 4/21/09 18:40:30 | 4.88 | 5.11 | 13.5 | 190.7 | |
| 4/21/09 18:40:45 | 4.83 | 5.15 | 13.4 | 184.8 | |
| 4/21/09 18:41:00 | 4.77 | 5.19 | 13.4 | 167.2 | |
| 4/21/09 18:41:15 | 4.75 | 5.20 | 13.2 | 160.8 | |
| 4/21/09 18:41:30 | 4.74 | 5.21 | 13.2 | 165.2 | |
| 4/21/09 18:41:45 | 4.77 | 5.19 | 13.2 | 173.6 | |
| 4/21/09 18:42:00 | 4.78 | 5.18 | 13.2 | 184.0 | |
| 4/21/09 18:42:15 | 4.78 | 5.19 | 13.2 | 184.8 | |
| 4/21/09 18:42:30 | 4.76 | 5.21 | 13.1 | 177.9 | |
| 4/21/09 18:42:45 | 4.75 | 5.22 | 13.3 | 174.4 | |
| 4/21/09 18:43:00 | 4.74 | 5.21 | 13.3 | 177.7 | |
| 4/21/09 18:43:15 | 4.76 | 5.18 | 13.3 | 179.6 | |
| 4/21/09 18:43:30 | 4.78 | 5.17 | 13.4 | 175.9 | |
| 4/21/09 18:43:45 | 4.80 | 5.16 | 13.5 | 171.9 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 18:44:00 | 4.80 | 5.16 | 13.5 | 169.8 | |
| 4/21/09 18:44:15 | 4.81 | 5.14 | 13.5 | 171.9 | |
| 4/21/09 18:44:30 | 4.81 | 5.13 | 13.5 | 169.6 | |
| 4/21/09 18:44:45 | 4.82 | 5.11 | 13.6 | 164.3 | |
| 4/21/09 18:45:00 | 4.81 | 5.12 | 13.5 | 156.9 | |
| 4/21/09 18:45:15 | 4.80 | 5.13 | 13.5 | 157.4 | |
| 4/21/09 18:45:30 | 4.80 | 5.13 | 13.4 | 165.0 | |
| 4/21/09 18:45:45 | 4.83 | 5.12 | 13.5 | 170.6 | |
| 4/21/09 18:46:00 | 4.84 | 5.12 | 13.6 | 175.1 | |
| 4/21/09 18:46:15 | 4.83 | 5.13 | 13.6 | 169.5 | |
| 4/21/09 18:46:30 | 4.79 | 5.13 | 13.6 | 150.2 | |
| 4/21/09 18:46:45 | 4.77 | 5.14 | 13.6 | 143.2 | |
| 4/21/09 18:47:00 | 4.75 | 5.17 | 13.8 | 130.7 | |
| 4/21/09 18:47:15 | 4.72 | 5.19 | 13.7 | 122.2 | |
| 4/21/09 18:47:30 | 4.70 | 5.21 | 13.7 | 108.3 | |
| 4/21/09 18:47:45 | 4.67 | 5.22 | 13.7 | 105.8 | |
| 4/21/09 18:48:00 | 4.66 | 5.23 | 13.5 | 106.4 | |
| 4/21/09 18:48:15 | 4.66 | 5.23 | 13.6 | 106.5 | |
| 4/21/09 18:48:30 | 4.66 | 5.22 | 13.8 | 103.9 | |
| 4/21/09 18:48:45 | 4.66 | 5.21 | 13.6 | 101.4 | |
| 4/21/09 18:49:00 | 4.66 | 5.21 | 13.7 | 92.3 | |
| 4/21/09 18:49:15 | 4.64 | 5.23 | 13.6 | 86.4 | |
| 4/21/09 18:49:30 | 4.63 | 5.23 | 13.6 | 78.8 | |
| 4/21/09 18:49:45 | 4.61 | 5.22 | 13.6 | 81.1 | |
| 4/21/09 18:50:00 | 4.62 | 5.21 | 13.4 | 94.3 | |
| 4/21/09 18:50:15 | 4.68 | 5.18 | 13.4 | 99.4 | |
| 4/21/09 18:50:30 | 4.73 | 5.15 | 13.3 | 106.5 | |
| 4/21/09 18:50:45 | 4.76 | 5.13 | 13.4 | 110.2 | |
| 4/21/09 18:51:00 | 4.76 | 5.12 | 13.2 | 117.1 | |
| 4/21/09 18:51:15 | 4.75 | 5.12 | 13.3 | 120.2 | |
| 4/21/09 18:51:30 | 4.75 | 5.13 | 13.2 | 125.8 | |
| 4/21/09 18:51:45 | 4.76 | 5.14 | 13.2 | 127.6 | |
| 4/21/09 18:52:00 | 4.75 | 5.15 | 13.2 | 131.9 | |
| 4/21/09 18:52:15 | 4.78 | 5.15 | 13.3 | 135.3 | |
| 4/21/09 18:52:30 | 4.79 | 5.14 | 13.2 | 138.4 | |
| 4/21/09 18:52:45 | 4.79 | 5.14 | 13.3 | 138.1 | |
| 4/21/09 18:53:00 | 4.78 | 5.14 | 13.2 | 139.7 | |
| 4/21/09 18:53:15 | 4.79 | 5.13 | 13.1 | 142.9 | |
| 4/21/09 18:53:30 | 4.80 | 5.12 | 13.1 | 151.8 | |
| 4/21/09 18:53:45 | 4.78 | 5.12 | 13.1 | 155.7 | |
| 4/21/09 18:54:00 | 4.77 | 5.11 | 13.2 | 160.2 | |
| 4/21/09 18:54:15 | 4.78 | 5.12 | 13.1 | 158.4 | |
| 4/21/09 18:54:30 | 4.76 | 5.12 | 13.1 | 147.4 | |
| 4/21/09 18:54:45 | 4.76 | 5.12 | 13.1 | 144.7 | |
| 4/21/09 18:55:00 | 4.77 | 5.12 | 13.2 | 145.1 | |
| 4/21/09 18:55:15 | 4.77 | 5.12 | 13.3 | 144.1 | |
| 4/21/09 18:55:30 | 4.76 | 5.12 | 13.4 | 144.1 | |
| 4/21/09 18:55:45 | 4.76 | 5.12 | 13.5 | 148.9 | |
| 4/21/09 18:56:00 | 4.76 | 5.12 | 13.2 | 164.6 | |
| 4/21/09 18:56:15 | 4.79 | 5.10 | 13.2 | 170.6 | |
| 4/21/09 18:56:30 | 4.79 | 5.10 | 13.2 | 176.0 | |
| 4/21/09 18:56:45 | 4.82 | 5.10 | 13.2 | 178.3 | |
| 4/21/09 18:57:00 | 4.84 | 5.10 | 13.3 | 183.6 | |
| 4/21/09 18:57:15 | 4.82 | 5.11 | 13.2 | 186.0 | |
| 4/21/09 18:57:30 | 4.83 | 5.10 | 13.3 | 188.2 | |
| 4/21/09 18:57:45 | 4.84 | 5.09 | 13.5 | 185.6 | |
| 4/21/09 18:58:00 | 4.80 | 5.10 | 13.5 | 166.5 | |
| 4/21/09 18:58:15 | 4.71 | 5.15 | 13.5 | 156.0 | |
| 4/21/09 18:58:30 | 4.68 | 5.17 | 13.5 | 153.3 | |
| 4/21/09 18:58:45 | 4.69 | 5.18 | 13.4 | 156.9 | |
| 4/21/09 18:59:00 | 4.70 | 5.17 | 13.4 | 171.5 | |
| 4/21/09 18:59:15 | 4.77 | 5.13 | 13.4 | 182.4 | |
| 4/21/09 18:59:30 | 4.83 | 5.11 | 13.3 | 195.2 | |
| 4/21/09 18:59:45 | 4.84 | 5.11 | 13.2 | 194.4 | |
| 4/21/09 19:00:00 | 4.81 | 5.12 | 13.2 | 184.2 | |
| 4/21/09 19:00:15 | 4.82 | 5.13 | 13.2 | 181.0 | |
| 4/21/09 19:00:30 | 4.83 | 5.12 | 13.2 | 185.6 | |
| 4/21/09 19:00:45 | 4.83 | 5.11 | 13.1 | 190.1 | |
| 4/21/09 19:01:00 | 4.84 | 5.11 | 13.2 | 199.1 | |
| 4/21/09 19:01:15 | 4.84 | 5.12 | 13.0 | 204.5 | |
| 4/21/09 19:01:30 | 4.85 | 5.11 | 13.0 | 216.5 | |
| 4/21/09 19:01:45 | 4.86 | 5.10 | 13.0 | 221.2 | |
| 4/21/09 19:02:00 | 4.88 | 5.10 | 13.1 | 225.6 | |
| 4/21/09 19:02:15 | 4.87 | 5.11 | 13.1 | 224.2 | |
| 4/21/09 19:02:30 | 4.87 | 5.13 | 13.0 | 213.1 | |
| 4/21/09 19:02:45 | 4.85 | 5.15 | 13.1 | 207.5 | |
| 4/21/09 19:03:00 | 4.83 | 5.15 | 13.3 | 196.2 | |
| 4/21/09 19:03:15 | 4.80 | 5.17 | 13.5 | 187.9 | |
| 4/21/09 19:03:30 | 4.74 | 5.19 | 13.5 | 165.0 | |
| 4/21/09 19:03:45 | 4.69 | 5.21 | 13.4 | 154.2 | |
| 4/21/09 19:04:00 | 4.67 | 5.21 | 13.2 | 142.4 | |
| 4/21/09 19:04:15 | 4.67 | 5.20 | 13.3 | 143.3 | |
| 4/21/09 19:04:30 | 4.70 | 5.18 | 13.3 | 151.8 | |
| 4/21/09 19:04:45 | 4.71 | 5.17 | 13.2 | 152.6 | |
| 4/21/09 19:05:00 | 4.69 | 5.18 | 13.2 | 152.1 | |
| 4/21/09 19:05:15 | 4.69 | 5.18 | 13.1 | 155.0 | |
| 4/21/09 19:05:30 | 4.73 | 5.17 | 12.9 | 167.5 | |
| 4/21/09 19:05:45 | 4.78 | 5.13 | 12.9 | 177.0 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 19:06:00 | 4.83 | 5.09 | 13.0 | 188.6 | |
| 4/21/09 19:06:15 | 4.83 | 5.09 | 13.2 | 187.4 | |
| 4/21/09 19:06:30 | 4.80 | 5.09 | 12.9 | 184.8 | |
| 4/21/09 19:06:45 | 4.80 | 5.09 | 13.0 | 188.8 | |
| 4/21/09 19:07:00 | 4.82 | 5.08 | 13.1 | 196.9 | |
| 4/21/09 19:07:15 | 4.83 | 5.09 | 13.1 | 195.6 | |
| 4/21/09 19:07:30 | 4.82 | 5.11 | 13.2 | 190.0 | |
| 4/21/09 19:07:45 | 4.81 | 5.13 | 13.1 | 190.1 | |
| 4/21/09 19:08:00 | 4.82 | 5.13 | 13.1 | 196.7 | |
| 4/21/09 19:08:15 | 4.85 | 5.10 | 13.1 | 198.4 | |
| 4/21/09 19:08:30 | 4.86 | 5.09 | 13.2 | 192.9 | |
| 4/21/09 19:08:45 | 4.85 | 5.09 | 13.3 | 190.7 | |
| 4/21/09 19:09:00 | 4.86 | 5.09 | 13.3 | 186.2 | |
| 4/21/09 19:09:15 | 4.84 | 5.11 | 13.2 | 181.6 | |
| 4/21/09 19:09:30 | 4.82 | 5.12 | 13.4 | 171.8 | |
| 4/21/09 19:09:45 | 4.78 | 5.15 | 13.5 | 164.1 | |
| 4/21/09 19:10:00 | 4.73 | 5.18 | 13.4 | 143.9 | |
| 4/21/09 19:10:15 | 4.71 | 5.19 | 13.5 | 137.4 | |
| 4/21/09 19:10:30 | 4.67 | 5.21 | 13.4 | 133.0 | |
| 4/21/09 19:10:45 | 4.67 | 5.21 | 13.3 | 134.7 | |
| 4/21/09 19:11:00 | 4.70 | 5.20 | 13.3 | 144.4 | |
| 4/21/09 19:11:15 | 4.71 | 5.19 | 13.3 | 147.8 | |
| 4/21/09 19:11:30 | 4.71 | 5.19 | 13.2 | 149.3 | |
| 4/21/09 19:11:45 | 4.72 | 5.18 | 13.2 | 149.8 | |
| 4/21/09 19:12:00 | 4.71 | 5.18 | 13.1 | 150.0 | |
| 4/21/09 19:12:15 | 4.72 | 5.18 | 13.2 | 150.5 | |
| 4/21/09 19:12:30 | 4.73 | 5.17 | 13.2 | 151.8 | |
| 4/21/09 19:12:45 | 4.74 | 5.17 | 13.2 | 153.0 | |
| 4/21/09 19:13:00 | 4.73 | 5.17 | 13.2 | 161.3 | |
| 4/21/09 19:13:15 | 4.76 | 5.15 | 13.0 | 167.2 | |
| 4/21/09 19:13:30 | 4.80 | 5.13 | 13.0 | 180.7 | |
| 4/21/09 19:13:45 | 4.83 | 5.12 | 13.0 | 187.9 | |
| 4/21/09 19:14:00 | 4.87 | 5.12 | 13.0 | 195.0 | |
| 4/21/09 19:14:15 | 4.85 | 5.13 | 13.0 | 194.7 | |
| 4/21/09 19:14:30 | 4.85 | 5.13 | 12.9 | 191.0 | |
| 4/21/09 19:14:45 | 4.84 | 5.13 | 13.0 | 187.3 | |
| 4/21/09 19:15:00 | 4.81 | 5.13 | 13.0 | 174.1 | Change of Ports |
| 4/21/09 19:15:15 | 4.80 | 5.13 | 13.2 | 166.8 | |
| 4/21/09 19:15:30 | 4.78 | 5.15 | 13.4 | 155.4 | |
| 4/21/09 19:15:45 | 4.71 | 5.19 | 13.5 | 146.0 | |
| 4/21/09 19:16:00 | 4.63 | 5.24 | 13.3 | 118.0 | |
| 4/21/09 19:16:15 | 4.60 | 5.25 | 13.3 | 104.4 | |
| 4/21/09 19:16:30 | 4.58 | 5.24 | 13.3 | 94.6 | |
| 4/21/09 19:16:45 | 4.60 | 5.22 | 13.4 | 99.1 | |
| 4/21/09 19:17:00 | 4.59 | 5.21 | 2.9 | 104.5 | |
| 4/21/09 19:17:15 | 5.10 | 4.86 | 0.3 | 90.4 | |
| 4/21/09 19:17:30 | 13.48 | 2.02 | 0.2 | 35.2 | |
| 4/21/09 19:17:45 | 19.51 | 0.43 | 0.2 | 15.9 | |
| 4/21/09 19:18:00 | 20.47 | 0.19 | 0.1 | 2.4 | |
| 4/21/09 19:18:15 | 20.58 | 0.14 | 0.1 | 1.7 | |
| 4/21/09 19:18:30 | 20.60 | 0.13 | 0.1 | 1.5 | |
| 4/21/09 19:18:45 | 20.62 | 0.12 | 0.1 | 1.4 | |
| 4/21/09 19:19:00 | 20.63 | 0.12 | 0.1 | 1.2 | |
| 4/21/09 19:19:15 | 20.63 | 0.11 | 0.1 | 1.2 | |
| 4/21/09 19:19:30 | 20.63 | 0.11 | 0.1 | 1.4 | |
| 4/21/09 19:19:45 | 20.64 | 0.11 | 0.1 | 1.4 | |
| 4/21/09 19:20:00 | 20.64 | 0.11 | 0.1 | 1.2 | |
| 4/21/09 19:20:15 | 20.65 | 0.10 | 0.1 | 1.2 | |
| 4/21/09 19:20:30 | 20.64 | 0.10 | 0.1 | 1.4 | |
| 4/21/09 19:20:45 | 20.65 | 0.10 | 0.1 | 1.4 | |
| 4/21/09 19:21:00 | 20.65 | 0.10 | 0.1 | 1.4 | |
| 4/21/09 19:21:15 | 20.65 | 0.10 | 0.1 | 1.2 | |
| 4/21/09 19:21:30 | 20.65 | 0.10 | 0.1 | 1.2 | |
| 4/21/09 19:21:45 | 20.66 | 0.10 | 0.1 | 1.4 | |
| 4/21/09 19:22:00 | 20.66 | 0.10 | 0.1 | 1.4 | |
| 4/21/09 19:22:15 | 20.65 | 0.10 | 0.1 | 1.4 | |
| 4/21/09 19:22:30 | 20.65 | 0.10 | 0.1 | 1.2 | |
| 4/21/09 19:22:45 | 20.66 | 0.09 | 0.1 | 1.2 | |
| 4/21/09 19:23:00 | 20.66 | 0.09 | 2.7 | 2.0 | |
| 4/21/09 19:23:15 | 20.63 | 0.11 | 12.9 | 12.1 | |
| 4/21/09 19:23:30 | 17.10 | 1.73 | 13.3 | 77.4 | |
| 4/21/09 19:23:45 | 8.13 | 4.25 | 13.3 | 116.6 | |
| 4/21/09 19:24:00 | 5.30 | 4.91 | 13.2 | 151.5 | |
| 4/21/09 19:24:15 | 4.94 | 5.03 | 13.2 | 153.3 | |
| 4/21/09 19:24:30 | 4.90 | 5.05 | 13.3 | 157.6 | |
| 4/21/09 19:24:45 | 4.87 | 5.05 | 13.3 | 159.3 | |
| 4/21/09 19:25:00 | 4.84 | 5.07 | 13.3 | 155.1 | |
| 4/21/09 19:25:15 | 4.84 | 5.07 | 13.2 | 152.5 | |
| 4/21/09 19:25:30 | 4.85 | 5.08 | 13.1 | 146.2 | |
| 4/21/09 19:25:45 | 4.83 | 5.09 | 13.2 | 143.3 | |
| 4/21/09 19:26:00 | 4.81 | 5.09 | 13.3 | 142.3 | |
| 4/21/09 19:26:15 | 4.80 | 5.11 | 13.3 | 141.1 | |
| 4/21/09 19:26:30 | 4.77 | 5.12 | 13.3 | 137.5 | |
| 4/21/09 19:26:45 | 4.73 | 5.12 | 13.2 | 138.4 | |
| 4/21/09 19:27:00 | 4.74 | 5.11 | 13.3 | 143.6 | |
| 4/21/09 19:27:15 | 4.77 | 5.11 | 13.3 | 145.6 | |
| 4/21/09 19:27:30 | 4.74 | 5.14 | 13.2 | 146.5 | |
| 4/21/09 19:27:45 | 4.72 | 5.16 | 13.3 | 146.9 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 19:26:00 | 4.70 | 5.17 | 13.2 | 151.7 | |
| 4/21/09 19:28:15 | 4.72 | 5.17 | 13.2 | 159.4 | |
| 4/21/09 19:28:30 | 4.74 | 5.16 | 13.1 | 177.7 | |
| 4/21/09 19:28:45 | 4.73 | 5.17 | 13.2 | 181.9 | |
| 4/21/09 19:29:00 | 4.74 | 5.17 | 13.6 | 181.3 | |
| 4/21/09 19:29:15 | 4.72 | 5.18 | 9.4 | 174.6 | |
| 4/21/09 19:29:30 | 4.43 | 4.18 | 0.5 | 110.5 | |
| 4/21/09 19:29:45 | 1.98 | 1.47 | 0.3 | 64.6 | |
| 4/21/09 19:30:00 | 0.34 | 0.27 | 0.2 | 11.0 | |
| 4/21/09 19:30:15 | 0.09 | 0.11 | 0.2 | 3.8 | |
| 4/21/09 19:30:30 | 0.07 | 0.08 | 0.2 | 1.8 | |
| 4/21/09 19:30:45 | 0.06 | 0.07 | 0.2 | 1.5 | |
| 4/21/09 19:31:00 | 0.05 | 0.07 | 0.2 | 1.4 | |
| 4/21/09 19:31:15 | 0.05 | 0.06 | 0.1 | 1.4 | |
| 4/21/09 19:31:30 | 0.05 | 0.06 | 0.1 | 1.5 | |
| 4/21/09 19:31:45 | 0.05 | 0.06 | 0.1 | 1.7 | |
| 4/21/09 19:32:00 | 0.05 | 0.05 | 0.1 | 1.4 | |
| 4/21/09 19:32:15 | 0.05 | 0.05 | 0.1 | 1.4 | |
| 4/21/09 19:32:30 | 0.05 | 0.05 | 0.1 | 1.5 | |
| 4/21/09 19:32:45 | 0.04 | 0.05 | 0.1 | 1.7 | |
| 4/21/09 19:33:00 | 0.05 | 0.05 | 0.1 | 1.5 | |
| 4/21/09 19:33:15 | 0.05 | 0.04 | 0.1 | 1.4 | |
| 4/21/09 19:33:30 | 0.04 | 0.04 | 0.1 | 1.4 | |
| 4/21/09 19:33:45 | 0.04 | 0.04 | 0.1 | 1.4 | |
| 4/21/09 19:34:00 | 0.04 | 0.04 | 0.1 | 1.5 | |
| 4/21/09 19:34:15 | 0.04 | 0.04 | 0.1 | 1.5 | |
| 4/21/09 19:34:30 | 0.04 | 0.04 | 0.1 | 1.2 | |
| 4/21/09 19:34:45 | 0.04 | 0.04 | 0.1 | 1.2 | |
| 4/21/09 19:35:00 | 0.04 | 0.04 | 8.6 | 5.9 | |
| 4/21/09 19:35:15 | 0.12 | 0.28 | 13.5 | 26.7 | |
| 4/21/09 19:35:30 | 2.34 | 2.92 | 13.7 | 107.5 | |
| 4/21/09 19:35:45 | 4.21 | 4.62 | 13.8 | 135.6 | |
| 4/21/09 19:36:00 | 4.62 | 5.09 | 13.8 | 141.9 | |
| 4/21/09 19:36:15 | 4.64 | 5.18 | 13.8 | 136.4 | |
| 4/21/09 19:36:30 | 4.64 | 5.19 | 13.9 | 132.1 | |
| 4/21/09 19:36:45 | 4.64 | 5.19 | 13.8 | 131.5 | |
| 4/21/09 19:37:00 | 4.63 | 5.21 | 13.6 | 130.6 | |
| 4/21/09 19:37:15 | 4.63 | 5.21 | 13.5 | 130.2 | |
| 4/21/09 19:37:30 | 4.67 | 5.19 | 13.3 | 130.9 | |
| 4/21/09 19:37:45 | 4.70 | 5.16 | 13.3 | 135.0 | |
| 4/21/09 19:38:00 | 4.76 | 5.13 | 13.3 | 148.0 | |
| 4/21/09 19:38:15 | 4.80 | 5.11 | 13.2 | 152.5 | |
| 4/21/09 19:38:30 | 4.80 | 5.10 | 13.3 | 155.9 | |
| 4/21/09 19:38:45 | 4.78 | 5.10 | 13.2 | 155.3 | |
| 4/21/09 19:39:00 | 4.80 | 5.09 | 13.3 | 151.8 | |
| 4/21/09 19:39:15 | 4.81 | 5.08 | 13.4 | 151.3 | |
| 4/21/09 19:39:30 | 4.81 | 5.07 | 13.3 | 151.7 | |
| 4/21/09 19:39:45 | 4.80 | 5.07 | 13.2 | 151.3 | |
| 4/21/09 19:40:00 | 4.79 | 5.08 | 13.2 | 153.9 | |
| 4/21/09 19:40:15 | 4.79 | 5.08 | 13.3 | 159.4 | |
| 4/21/09 19:40:30 | 4.80 | 5.07 | 13.1 | 165.9 | |
| 4/21/09 19:40:45 | 4.80 | 5.07 | 13.1 | 163.8 | |
| 4/21/09 19:41:00 | 4.79 | 5.08 | 13.0 | 160.0 | |
| 4/21/09 19:41:15 | 4.80 | 5.09 | 13.1 | 159.4 | |
| 4/21/09 19:41:30 | 4.81 | 5.10 | 13.2 | 157.9 | |
| 4/21/09 19:41:45 | 4.79 | 5.11 | 13.2 | 156.4 | Resume Sampling |
| **4/21/09 19:42:00** | **4.78** | **5.12** | **13.4** | **153.6** | |
| **4/21/09 19:42:15** | **4.75** | **5.13** | **13.4** | **152.1** | |
| **4/21/09 19:42:30** | **4.73** | **5.14** | **13.3** | **150.3** | |
| **4/21/09 19:42:45** | **4.74** | **5.13** | **13.2** | **151.5** | |
| **4/21/09 19:43:00** | **4.76** | **5.12** | **13.2** | **156.7** | |
| **4/21/09 19:43:15** | **4.78** | **5.11** | **13.2** | **156.2** | |
| **4/21/09 19:43:30** | **4.79** | **5.11** | **13.2** | **149.6** | |
| **4/21/09 19:43:45** | **4.81** | **5.10** | **13.2** | **147.1** | |
| **4/21/09 19:44:00** | **4.79** | **5.10** | **13.2** | **143.6** | |
| **4/21/09 19:44:15** | **4.78** | **5.09** | **13.2** | **142.9** | |
| **4/21/09 19:44:30** | **4.79** | **5.08** | **13.4** | **141.7** | |
| **4/21/09 19:44:45** | **4.78** | **5.08** | **13.4** | **141.6** | |
| **4/21/09 19:45:00** | **4.77** | **5.09** | **13.3** | **136.8** | |
| **4/21/09 19:45:15** | **4.75** | **5.09** | **13.3** | **130.9** | |
| **4/21/09 19:45:30** | **4.72** | **5.09** | **13.4** | **124.6** | |
| **4/21/09 19:45:45** | **4.73** | **5.08** | **13.3** | **125.3** | |
| **4/21/09 19:46:00** | **4.74** | **5.07** | **13.1** | **127.3** | |
| **4/21/09 19:46:15** | **4.77** | **5.07** | **13.2** | **127.9** | |
| **4/21/09 19:46:30** | **4.79** | **5.07** | **13.3** | **127.0** | |
| **4/21/09 19:46:45** | **4.76** | **5.08** | **13.2** | **124.9** | |
| **4/21/09 19:47:00** | **4.73** | **5.11** | **13.3** | **114.6** | |
| **4/21/09 19:47:15** | **4.68** | **5.15** | **13.2** | **106.4** | |
| **4/21/09 19:47:30** | **4.66** | **5.17** | **13.2** | **97.5** | |
| **4/21/09 19:47:45** | **4.67** | **5.16** | **13.1** | **98.1** | |
| **4/21/09 19:48:00** | **4.68** | **5.15** | **13.0** | **105.0** | |
| **4/21/09 19:48:15** | **4.69** | **5.11** | **13.0** | **112.8** | |
| **4/21/09 19:48:30** | **4.74** | **5.07** | **13.1** | **127.3** | |
| **4/21/09 19:48:45** | **4.78** | **5.06** | **13.2** | **130.6** | |
| **4/21/09 19:49:00** | **4.76** | **5.08** | **12.9** | **134.4** | |
| **4/21/09 19:49:15** | **4.77** | **5.08** | **12.9** | **137.9** | |
| **4/21/09 19:49:30** | **4.77** | **5.09** | **12.8** | **144.4** | |
| **4/21/09 19:49:45** | **4.77** | **5.10** | **12.7** | **147.1** | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 19:50:00 | 4.79 | 5.09 | 12.7 | 157.6 | |
| 4/21/09 19:50:15 | 4.81 | 5.09 | 12.8 | 161.8 | |
| 4/21/09 19:50:30 | 4.82 | 5.10 | 12.8 | 161.8 | |
| 4/21/09 19:50:45 | 4.79 | 5.11 | 12.8 | 159.6 | |
| 4/21/09 19:51:00 | 4.79 | 5.12 | 12.7 | 154.0 | |
| 4/21/09 19:51:15 | 4.80 | 5.12 | 12.7 | 155.4 | |
| 4/21/09 19:51:30 | 4.81 | 5.12 | 12.8 | 165.4 | |
| 4/21/09 19:51:45 | 4.81 | 5.12 | 12.8 | 168.6 | |
| 4/21/09 19:52:00 | 4.79 | 5.13 | 12.8 | 169.6 | |
| 4/21/09 19:52:15 | 4.80 | 5.12 | 12.9 | 167.9 | |
| 4/21/09 19:52:30 | 4.79 | 5.14 | 12.9 | 153.6 | |
| 4/21/09 19:52:45 | 4.73 | 5.17 | 13.0 | 143.1 | |
| 4/21/09 19:53:00 | 4.68 | 5.20 | 13.1 | 125.4 | |
| 4/21/09 19:53:15 | 4.65 | 5.22 | 13.0 | 120.7 | |
| 4/21/09 19:53:30 | 4.64 | 5.23 | 12.9 | 123.1 | |
| 4/21/09 19:53:45 | 4.66 | 5.23 | 13.1 | 127.3 | |
| 4/21/09 19:54:00 | 4.66 | 5.22 | 13.2 | 129.4 | |
| 4/21/09 19:54:15 | 4.66 | 5.19 | 13.1 | 128.3 | |
| 4/21/09 19:54:30 | 4.68 | 5.17 | 13.1 | 129.4 | |
| 4/21/09 19:54:45 | 4.70 | 5.14 | 13.0 | 133.6 | |
| 4/21/09 19:55:00 | 4.77 | 5.10 | 13.0 | 152.4 | |
| 4/21/09 19:55:15 | 4.82 | 5.06 | 12.9 | 163.5 | |
| 4/21/09 19:55:30 | 4.85 | 5.05 | 12.8 | 176.5 | |
| 4/21/09 19:55:45 | 4.86 | 5.06 | 12.8 | 177.0 | |
| 4/21/09 19:56:00 | 4.84 | 5.07 | 12.8 | 171.5 | |
| 4/21/09 19:56:15 | 4.82 | 5.06 | 12.8 | 171.8 | |
| 4/21/09 19:56:30 | 4.84 | 5.05 | 12.9 | 179.5 | |
| 4/21/09 19:56:45 | 4.83 | 5.06 | 12.9 | 182.2 | |
| 4/21/09 19:57:00 | 4.83 | 5.06 | 13.0 | 185.9 | |
| 4/21/09 19:57:15 | 4.82 | 5.05 | 12.8 | 189.5 | |
| 4/21/09 19:57:30 | 4.85 | 5.04 | 12.8 | 197.3 | |
| 4/21/09 19:57:45 | 4.88 | 5.03 | 12.8 | 198.7 | |
| 4/21/09 19:58:00 | 4.86 | 5.04 | 12.8 | 197.9 | |
| 4/21/09 19:58:15 | 4.84 | 5.07 | 12.9 | 195.2 | |
| 4/21/09 19:58:30 | 4.80 | 5.11 | 12.9 | 181.0 | |
| 4/21/09 19:58:45 | 4.74 | 5.18 | 12.8 | 174.3 | |
| 4/21/09 19:59:00 | 4.74 | 5.21 | 12.8 | 175.3 | |
| 4/21/09 19:59:15 | 4.75 | 5.22 | 12.8 | 179.8 | |
| 4/21/09 19:59:30 | 4.75 | 5.22 | 12.9 | 182.2 | |
| 4/21/09 19:59:45 | 4.73 | 5.24 | 12.9 | 177.9 | |
| 4/21/09 20:00:00 | 4.69 | 5.24 | 12.8 | 169.6 | |
| 4/21/09 20:00:15 | 4.70 | 5.22 | 12.8 | 171.5 | |
| 4/21/09 20:00:30 | 4.75 | 5.19 | 12.8 | 179.2 | |
| 4/21/09 20:00:45 | 4.76 | 5.18 | 12.9 | 180.7 | |
| 4/21/09 20:01:00 | 4.74 | 5.20 | 12.8 | 174.1 | |
| 4/21/09 20:01:15 | 4.75 | 5.22 | 12.8 | 166.6 | |
| 4/21/09 20:01:30 | 4.72 | 5.25 | 12.7 | 154.3 | |
| 4/21/09 20:01:45 | 4.73 | 5.25 | 12.8 | 153.1 | |
| 4/21/09 20:02:00 | 4.73 | 5.23 | 12.7 | 162.1 | |
| 4/21/09 20:02:15 | 4.77 | 5.19 | 12.7 | 169.3 | |
| 4/21/09 20:02:30 | 4.80 | 5.16 | 12.6 | 181.4 | |
| 4/21/09 20:02:45 | 4.84 | 5.13 | 12.6 | 187.6 | |
| 4/21/09 20:03:00 | 4.86 | 5.12 | 12.7 | 197.8 | |
| 4/21/09 20:03:15 | 4.87 | 5.11 | 12.7 | 196.2 | |
| 4/21/09 20:03:30 | 4.88 | 5.12 | 12.7 | 185.1 | |
| 4/21/09 20:03:45 | 4.84 | 5.13 | 12.7 | 181.9 | |
| 4/21/09 20:04:00 | 4.81 | 5.14 | 12.6 | 181.9 | |
| 4/21/09 20:04:15 | 4.82 | 5.14 | 12.5 | 182.7 | |
| 4/21/09 20:04:30 | 4.83 | 5.14 | 12.7 | 183.9 | |
| 4/21/09 20:04:45 | 4.85 | 5.13 | 12.8 | 180.5 | |
| 4/21/09 20:05:00 | 4.83 | 5.14 | 12.9 | 162.6 | |
| 4/21/09 20:05:15 | 4.81 | 5.14 | 12.9 | 152.8 | |
| 4/21/09 20:05:30 | 4.81 | 5.13 | 13.0 | 135.7 | |
| 4/21/09 20:05:45 | 4.80 | 5.12 | 13.1 | 130.1 | |
| 4/21/09 20:06:00 | 4.78 | 5.10 | 13.2 | 127.9 | |
| 4/21/09 20:06:15 | 4.75 | 5.11 | 13.1 | 125.4 | |
| 4/21/09 20:06:30 | 4.72 | 5.14 | 13.2 | 117.4 | |
| 4/21/09 20:06:45 | 4.71 | 5.14 | 13.2 | 115.9 | |
| 4/21/09 20:07:00 | 4.69 | 5.14 | 13.0 | 117.7 | |
| 4/21/09 20:07:15 | 4.73 | 5.11 | 13.1 | 122.5 | |
| 4/21/09 20:07:30 | 4.76 | 5.10 | 13.1 | 136.6 | |
| 4/21/09 20:07:45 | 4.76 | 5.10 | 12.9 | 140.5 | |
| 4/21/09 20:08:00 | 4.78 | 5.10 | 12.8 | 145.9 | |
| 4/21/09 20:08:15 | 4.84 | 5.09 | 12.7 | 151.2 | |
| 4/21/09 20:08:30 | 4.85 | 5.10 | 12.8 | 162.0 | |
| 4/21/09 20:08:45 | 4.86 | 5.10 | 12.7 | 165.7 | |
| 4/21/09 20:09:00 | 4.86 | 5.11 | 12.8 | 173.3 | |
| 4/21/09 20:09:15 | 4.87 | 5.11 | 12.5 | 178.7 | |
| 4/21/09 20:09:30 | 4.88 | 5.11 | 12.5 | 189.5 | |
| 4/21/09 20:09:45 | 4.91 | 5.10 | 12.6 | 192.1 | |
| 4/21/09 20:10:00 | 4.90 | 5.10 | 12.6 | 185.1 | |
| 4/21/09 20:10:15 | 4.88 | 5.12 | 12.7 | 174.3 | |
| 4/21/09 20:10:30 | 4.85 | 5.15 | 12.6 | 149.8 | |
| 4/21/09 20:10:45 | 4.78 | 5.19 | 12.6 | 142.6 | |
| 4/21/09 20:11:00 | 4.74 | 5.21 | 12.6 | 146.3 | |
| 4/21/09 20:11:15 | 4.78 | 5.19 | 12.5 | 151.1 | |
| 4/21/09 20:11:30 | 4.82 | 5.18 | 12.5 | 151.4 | |
| 4/21/09 20:11:45 | 4.84 | 5.18 | 12.6 | 149.5 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 20:12:00 | 4.83 | 5.17 | 12.6 | 142.9 | |
| 4/21/09 20:12:15 | 4.81 | 5.16 | 12.6 | 138.4 | |
| 4/21/09 20:12:30 | 4.79 | 5.15 | 12.5 | 130.9 | |
| 4/21/09 20:12:45 | 4.79 | 5.14 | 12.5 | 127.6 | |
| 4/21/09 20:13:00 | 4.77 | 5.15 | 12.5 | 126.1 | |
| 4/21/09 20:13:15 | 4.77 | 5.15 | 12.5 | 128.2 | |
| 4/21/09 20:13:30 | 4.76 | 5.15 | 12.5 | 130.2 | |
| 4/21/09 20:13:45 | 4.77 | 5.15 | 12.5 | 129.8 | |
| 4/21/09 20:14:00 | 4.78 | 5.14 | 12.5 | 130.6 | |
| 4/21/09 20:14:15 | 4.79 | 5.14 | 12.6 | 131.0 | |
| 4/21/09 20:14:30 | 4.77 | 5.15 | 12.6 | 134.2 | |
| 4/21/09 20:14:45 | 4.77 | 5.16 | 12.5 | 136.2 | |
| 4/21/09 20:15:00 | 4.79 | 5.14 | 12.5 | 136.9 | |
| 4/21/09 20:15:15 | 4.81 | 5.13 | 12.4 | 138.2 | |
| 4/21/09 20:15:30 | 4.83 | 5.13 | 12.5 | 143.8 | |
| 4/21/09 20:15:45 | 4.81 | 5.15 | 12.6 | 144.4 | |
| 4/21/09 20:16:00 | 4.75 | 5.19 | 12.5 | 136.4 | |
| 4/21/09 20:16:15 | 4.75 | 5.20 | 12.5 | 132.2 | |
| 4/21/09 20:16:30 | 4.77 | 5.19 | 12.6 | 130.4 | |
| 4/21/09 20:16:45 | 4.79 | 5.17 | 12.6 | 131.0 | |
| 4/21/09 20:17:00 | 4.79 | 5.16 | 12.5 | 132.1 | |
| 4/21/09 20:17:15 | 4.80 | 5.15 | 12.5 | 133.0 | |
| 4/21/09 20:17:30 | 4.81 | 5.15 | 12.5 | 133.8 | |
| 4/21/09 20:17:45 | 4.81 | 5.15 | 12.6 | 132.8 | |
| 4/21/09 20:18:00 | 4.82 | 5.14 | 12.6 | 129.4 | |
| 4/21/09 20:18:15 | 4.81 | 5.14 | 12.6 | 126.8 | |
| 4/21/09 20:18:30 | 4.81 | 5.15 | 12.5 | 115.6 | |
| 4/21/09 20:18:45 | 4.78 | 5.17 | 12.6 | 107.7 | |
| 4/21/09 20:19:00 | 4.78 | 5.18 | 12.5 | 96.9 | |
| 4/21/09 20:19:15 | 4.76 | 5.18 | 12.7 | 93.7 | |
| 4/21/09 20:19:30 | 4.74 | 5.17 | 12.6 | 87.2 | |
| 4/21/09 20:19:45 | 4.73 | 5.18 | 12.6 | 84.6 | |
| 4/21/09 20:20:00 | 4.72 | 5.18 | 12.6 | 82.3 | |
| 4/21/09 20:20:15 | 4.74 | 5.16 | 12.4 | 81.0 | |
| 4/21/09 20:20:30 | 4.72 | 5.17 | 12.6 | 76.9 | |
| 4/21/09 20:20:45 | 4.70 | 5.18 | 12.4 | 76.7 | |
| 4/21/09 20:21:00 | 4.71 | 5.18 | 12.3 | 77.7 | |
| 4/21/09 20:21:15 | 4.72 | 5.17 | 12.2 | 79.8 | |
| 4/21/09 20:21:30 | 4.74 | 5.15 | 12.1 | 93.2 | |
| 4/21/09 20:21:45 | 4.77 | 5.12 | 12.0 | 101.7 | |
| 4/21/09 20:22:00 | 4.81 | 5.11 | 12.1 | 115.5 | |
| 4/21/09 20:22:15 | 4.82 | 5.10 | 12.1 | 119.9 | |
| 4/21/09 20:22:30 | 4.83 | 5.11 | 12.2 | 119.5 | |
| 4/21/09 20:22:45 | 4.82 | 5.13 | 12.1 | 117.7 | |
| 4/21/09 20:23:00 | 4.80 | 5.14 | 12.2 | 121.3 | |
| 4/21/09 20:23:15 | 4.81 | 5.14 | 12.2 | 124.3 | |
| 4/21/09 20:23:30 | 4.81 | 5.14 | 12.2 | 129.4 | |
| 4/21/09 20:23:45 | 4.82 | 5.14 | 12.1 | 131.5 | |
| 4/21/09 20:24:00 | 4.83 | 5.13 | 12.0 | 137.7 | |
| 4/21/09 20:24:15 | 4.84 | 5.13 | 12.1 | 142.9 | |
| 4/21/09 20:24:30 | 4.84 | 5.13 | 12.1 | 148.3 | |
| 4/21/09 20:24:45 | 4.85 | 5.13 | 12.1 | 147.7 | |
| 4/21/09 20:25:00 | 4.84 | 5.14 | 12.1 | 146.0 | |
| 4/21/09 20:25:15 | 4.83 | 5.16 | 12.0 | 143.2 | |
| 4/21/09 20:25:30 | 4.83 | 5.18 | 12.1 | 132.5 | |
| 4/21/09 20:25:45 | 4.82 | 5.18 | 12.0 | 130.0 | |
| 4/21/09 20:26:00 | 4.84 | 5.17 | 12.2 | 130.7 | |
| 4/21/09 20:26:15 | 4.84 | 5.17 | 12.3 | 127.7 | |
| 4/21/09 20:26:30 | 4.76 | 5.20 | 12.2 | 112.8 | |
| 4/21/09 20:26:45 | 4.72 | 5.22 | 12.3 | 106.4 | |
| 4/21/09 20:27:00 | 4.72 | 5.22 | 12.2 | 102.4 | |
| 4/21/09 20:27:15 | 4.72 | 5.21 | 12.3 | 103.3 | |
| 4/21/09 20:27:30 | 4.71 | 5.20 | 12.2 | 105.3 | |
| 4/21/09 20:27:45 | 4.70 | 5.20 | 12.2 | 105.8 | |
| 4/21/09 20:28:00 | 4.70 | 5.21 | 12.2 | 109.6 | |
| 4/21/09 20:28:15 | 4.71 | 5.20 | 12.1 | 116.1 | |
| 4/21/09 20:28:30 | 4.77 | 5.17 | 12.1 | 134.4 | |
| 4/21/09 20:28:45 | 4.81 | 5.13 | 12.2 | 144.2 | |
| 4/21/09 20:29:00 | 4.84 | 5.10 | 12.1 | 159.3 | |
| 4/21/09 20:29:15 | 4.84 | 5.09 | 12.1 | 165.9 | |
| 4/21/09 20:29:30 | 4.86 | 5.08 | 12.1 | 182.4 | |
| 4/21/09 20:29:45 | 4.90 | 5.06 | 11.8 | 188.0 | |
| 4/21/09 20:30:00 | 4.92 | 5.06 | 12.0 | 193.1 | |
| 4/21/09 20:30:15 | 4.91 | 5.06 | 11.8 | 195.9 | |
| 4/21/09 20:30:30 | 4.92 | 5.07 | 11.5 | 209.5 | |
| 4/21/09 20:30:45 | 4.92 | 5.08 | 11.7 | 220.8 | |
| 4/21/09 20:31:00 | 4.93 | 5.07 | 11.7 | 238.8 | |
| 4/21/09 20:31:15 | 4.96 | 5.06 | 11.7 | 240.6 | |
| 4/21/09 20:31:30 | 4.93 | 5.09 | 11.9 | 227.0 | |
| 4/21/09 20:31:45 | 4.87 | 5.14 | 12.0 | 212.4 | |
| 4/21/09 20:32:00 | 4.82 | 5.18 | 12.0 | 181.0 | |
| 4/21/09 20:32:15 | 4.80 | 5.19 | 11.9 | 173.0 | |
| 4/21/09 20:32:30 | 4.80 | 5.18 | 11.9 | 178.1 | |
| 4/21/09 20:32:45 | 4.81 | 5.17 | 11.9 | 185.2 | |
| 4/21/09 20:33:00 | 4.82 | 5.16 | 11.9 | 190.4 | |
| 4/21/09 20:33:15 | 4.80 | 5.19 | 12.0 | 182.5 | |
| 4/21/09 20:33:30 | 4.77 | 5.21 | 12.0 | 155.3 | |
| 4/21/09 20:33:45 | 4.75 | 5.22 | 12.1 | 144.1 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 20:34:00 | 4.72 | 5.24 | 12.1 | 128.2 | |
| 4/21/09 20:34:15 | 4.69 | 5.26 | 12.2 | 119.9 | |
| 4/21/09 20:34:30 | 4.68 | 5.27 | 12.1 | 104.4 | |
| 4/21/09 20:34:45 | 4.70 | 5.27 | 12.1 | 101.5 | |
| 4/21/09 20:35:00 | 4.69 | 5.26 | 12.1 | 105.1 | |
| 4/21/09 20:35:15 | 4.69 | 5.25 | 12.0 | 107.7 | |
| 4/21/09 20:35:30 | 4.70 | 5.25 | 12.0 | 105.9 | |
| 4/21/09 20:35:45 | 4.73 | 5.24 | 12.0 | 103.8 | |
| 4/21/09 20:36:00 | 4.73 | 5.24 | 11.9 | 105.1 | |
| 4/21/09 20:36:15 | 4.72 | 5.23 | 11.7 | 107.0 | |
| 4/21/09 20:36:30 | 4.74 | 5.22 | 11.8 | 111.0 | |
| 4/21/09 20:36:45 | 4.77 | 5.21 | 11.8 | 114.0 | |
| 4/21/09 20:37:00 | 4.77 | 5.21 | 11.8 | 121.0 | |
| 4/21/09 20:37:15 | 4.77 | 5.20 | 11.8 | 126.5 | |
| 4/21/09 20:37:30 | 4.78 | 5.19 | 11.8 | 140.3 | |
| 4/21/09 20:37:45 | 4.81 | 5.18 | 11.9 | 145.3 | |
| 4/21/09 20:38:00 | 4.82 | 5.18 | 12.0 | 155.1 | |
| 4/21/09 20:38:15 | 4.84 | 5.17 | 11.9 | 161.5 | |
| 4/21/09 20:38:30 | 4.87 | 5.15 | 11.8 | 175.9 | |
| 4/21/09 20:38:45 | 4.92 | 5.13 | 11.8 | 183.1 | |
| 4/21/09 20:39:00 | 4.94 | 5.14 | 11.9 | 197.2 | |
| 4/21/09 20:39:15 | 4.94 | 5.15 | 11.8 | 202.7 | |
| 4/21/09 20:39:30 | 4.96 | 5.15 | 11.8 | 210.6 | |
| 4/21/09 20:39:45 | 4.95 | 5.16 | 11.9 | 215.3 | |
| 4/21/09 20:40:00 | 4.96 | 5.15 | 11.8 | 221.2 | |
| 4/21/09 20:40:15 | 4.95 | 5.14 | 11.9 | 224.5 | |
| 4/21/09 20:40:30 | 4.99 | 5.13 | 12.0 | 234.1 | |
| 4/21/09 20:40:45 | 4.99 | 5.12 | 12.1 | 234.1 | |
| 4/21/09 20:41:00 | 4.97 | 5.13 | 11.9 | 226.8 | |
| 4/21/09 20:41:15 | 4.96 | 5.13 | 12.0 | 227.9 | |
| 4/21/09 20:41:30 | 4.96 | 5.13 | 12.0 | 236.5 | |
| 4/21/09 20:41:45 | 4.95 | 5.13 | 12.0 | 234.2 | |
| 4/21/09 20:42:00 | 4.90 | 5.17 | 12.2 | 206.5 | |
| 4/21/09 20:42:15 | 4.84 | 5.20 | 12.1 | 186.4 | |
| 4/21/09 20:42:30 | 4.79 | 5.22 | 12.1 | 153.6 | |
| 4/21/09 20:42:45 | 4.77 | 5.22 | 11.9 | 143.3 | |
| 4/21/09 20:43:00 | 4.74 | 5.22 | 12.2 | 131.0 | |
| 4/21/09 20:43:15 | 4.74 | 5.21 | 12.3 | 126.5 | |
| 4/21/09 20:43:30 | 4.75 | 5.21 | 12.1 | 112.3 | |
| 4/21/09 20:43:46 | 4.70 | 5.22 | 12.2 | 102.9 | |
| 4/21/09 20:44:00 | 4.70 | 5.22 | 12.1 | 88.3 | |
| 4/21/09 20:44:15 | 4.70 | 5.23 | 12.1 | 85.1 | |
| 4/21/09 20:44:30 | 4.70 | 5.23 | 12.2 | 82.3 | |
| 4/21/09 20:44:45 | 4.69 | 5.23 | 12.2 | 80.2 | |
| 4/21/09 20:45:00 | 4.68 | 5.23 | 12.2 | 72.4 | |
| 4/21/09 20:45:15 | 4.67 | 5.22 | 12.1 | 68.3 | |
| 4/21/09 20:45:30 | 4.68 | 5.21 | 12.1 | 70.1 | |
| 4/21/09 20:45:45 | 4.69 | 5.20 | 12.0 | 77.4 | |
| 4/21/09 20:46:00 | 4.74 | 5.16 | 12.1 | 91.6 | |
| 4/21/09 20:46:15 | 4.79 | 5.13 | 12.0 | 94.1 | |
| 4/21/09 20:46:30 | 4.76 | 5.15 | 12.0 | 97.5 | |
| 4/21/09 20:46:45 | 4.78 | 5.15 | 11.9 | 101.7 | |
| 4/21/09 20:47:00 | 4.82 | 5.15 | 11.8 | 116.8 | |
| 4/21/09 20:47:15 | 4.86 | 5.15 | 11.6 | 127.7 | |
| 4/21/09 20:47:30 | 4.90 | 5.15 | 11.5 | 147.5 | |
| 4/21/09 20:47:45 | 4.94 | 5.15 | 11.7 | 153.9 | |
| 4/21/09 20:48:00 | 4.91 | 5.16 | 11.7 | 156.0 | |
| 4/21/09 20:48:15 | 4.91 | 5.15 | 11.7 | 153.1 | |
| 4/21/09 20:48:30 | 4.92 | 5.14 | 11.8 | 146.3 | |
| 4/21/09 20:48:45 | 4.91 | 5.14 | 11.8 | 141.4 | |
| 4/21/09 20:49:00 | 4.89 | 5.15 | 11.9 | 133.3 | |
| 4/21/09 20:49:15 | 4.88 | 5.16 | 11.9 | 130.2 | |
| 4/21/09 20:49:30 | 4.87 | 5.17 | 12.0 | 123.6 | |
| 4/21/09 20:49:45 | 4.86 | 5.18 | 12.0 | 121.9 | |
| 4/21/09 20:50:00 | 4.86 | 5.16 | 12.0 | 121.1 | |
| 4/21/09 20:50:15 | 4.87 | 5.15 | 12.0 | 118.0 | |
| 4/21/09 20:50:30 | 4.84 | 5.16 | 12.2 | 102.6 | |
| 4/21/09 20:50:45 | 4.78 | 5.19 | 12.2 | 94.3 | |
| 4/21/09 20:51:00 | 4.74 | 5.22 | 12.0 | 87.1 | |
| 4/21/09 20:51:15 | 4.75 | 5.21 | 12.1 | 86.1 | |
| 4/21/09 20:51:30 | 4.77 | 5.21 | 12.0 | 91.4 | |
| 4/21/09 20:51:45 | 4.78 | 5.20 | 12.1 | 91.6 | |
| 4/21/09 20:52:00 | 4.79 | 5.19 | 12.0 | 91.6 | |
| 4/21/09 20:52:15 | 4.78 | 5.18 | 12.0 | 93.7 | |
| 4/21/09 20:52:30 | 4.79 | 5.17 | 12.0 | 100.7 | |
| 4/21/09 20:52:45 | 4.79 | 5.16 | 12.0 | 103.3 | |
| 4/21/09 20:53:00 | 4.80 | 5.14 | 12.0 | 109.4 | |
| 4/21/09 20:53:15 | 4.79 | 5.13 | 11.9 | 113.8 | |
| 4/21/09 20:53:30 | 4.81 | 5.12 | 11.8 | 124.3 | |
| 4/21/09 20:53:45 | 4.82 | 5.10 | 11.6 | 129.1 | |
| 4/21/09 20:54:00 | 4.87 | 5.06 | 11.8 | 142.0 | |
| 4/21/09 20:54:15 | 4.88 | 5.04 | 11.7 | 152.4 | |
| 4/21/09 20:54:30 | 4.87 | 5.05 | 11.7 | 170.1 | |
| 4/21/09 20:54:45 | 4.86 | 5.08 | 11.7 | 173.6 | |
| 4/21/09 20:55:00 | 4.86 | 5.09 | 11.6 | 174.8 | |
| 4/21/09 20:55:15 | 4.89 | 5.08 | 11.7 | 175.6 | |
| 4/21/09 20:55:30 | 4.89 | 5.08 | 11.7 | 180.7 | |
| 4/21/09 20:55:45 | 4.91 | 5.07 | 11.7 | 184.5 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 20:56:00 | 4.91 | 5.07 | 11.6 | 193.4 | |
| 4/21/09 20:56:15 | 4.91 | 5.07 | 11.7 | 196.4 | |
| 4/21/09 20:56:30 | 4.92 | 5.08 | 11.8 | 199.1 | |
| 4/21/09 20:56:45 | 4.90 | 5.10 | 11.7 | 199.3 | |
| 4/21/09 20:57:00 | 4.90 | 5.11 | 11.7 | 195.3 | |
| 4/21/09 20:57:15 | 4.89 | 5.14 | 11.6 | 192.1 | |
| 4/21/09 20:57:30 | 4.87 | 5.15 | 11.7 | 183.0 | |
| 4/21/09 20:57:45 | 4.85 | 5.16 | 11.8 | 177.9 | |
| 4/21/09 20:58:00 | 4.85 | 5.16 | 11.7 | 169.5 | |
| 4/21/09 20:58:15 | 4.85 | 5.15 | 11.7 | 167.1 | |
| 4/21/09 20:58:30 | 4.85 | 5.16 | 11.7 | 164.1 | |
| 4/21/09 20:58:45 | 4.86 | 5.17 | 11.7 | 163.7 | |
| 4/21/09 20:59:00 | 4.88 | 5.17 | 11.7 | 161.1 | |
| 4/21/09 20:59:15 | 4.86 | 5.19 | 11.9 | 155.0 | |
| 4/21/09 20:59:30 | 4.81 | 5.21 | 12.0 | 139.1 | |
| 4/21/09 20:59:45 | 4.76 | 5.23 | 11.9 | 136.4 | |
| 4/21/09 21:00:00 | 4.75 | 5.23 | 11.8 | 139.6 | |
| 4/21/09 21:00:15 | 4.79 | 5.20 | 12.0 | 140.5 | |
| 4/21/09 21:00:30 | 4.83 | 5.20 | 11.8 | 134.7 | |
| 4/21/09 21:00:45 | 4.82 | 5.20 | 12.0 | 130.9 | |
| 4/21/09 21:01:00 | 4.81 | 5.20 | 12.0 | 127.1 | |
| 4/21/09 21:01:15 | 4.77 | 5.20 | 12.0 | 125.3 | |
| 4/21/09 21:01:30 | 4.78 | 5.19 | 12.0 | 121.3 | |
| 4/21/09 21:01:45 | 4.80 | 5.18 | 12.1 | 121.9 | |
| 4/21/09 21:02:00 | 4.81 | 5.16 | 12.0 | 123.7 | |
| 4/21/09 21:02:15 | 4.81 | 5.15 | 12.0 | 123.3 | |
| 4/21/09 21:02:30 | 4.82 | 5.14 | 11.8 | 115.8 | |
| 4/21/09 21:02:45 | 4.82 | 5.13 | 11.7 | 112.6 | |
| 4/21/09 21:03:00 | 4.79 | 5.12 | 11.9 | 115.9 | |
| 4/21/09 21:03:15 | 4.77 | 5.14 | 12.0 | 115.9 | |
| 4/21/09 21:03:30 | 4.78 | 5.14 | 12.0 | 107.4 | |
| 4/21/09 21:03:45 | 4.77 | 5.16 | 12.0 | 103.5 | |
| 4/21/09 21:04:00 | 4.76 | 5.16 | 12.0 | 102.4 | |
| 4/21/09 21:04:15 | 4.75 | 5.15 | 12.1 | 103.5 | |
| 4/21/09 21:04:30 | 4.77 | 5.14 | 12.2 | 100.0 | |
| 4/21/09 21:04:45 | 4.75 | 5.15 | 12.1 | 96.3 | |
| 4/21/09 21:05:00 | 4.73 | 5.15 | 12.0 | 92.9 | |
| 4/21/09 21:05:15 | 4.75 | 5.13 | 12.0 | 97.8 | |
| 4/21/09 21:05:30 | 4.77 | 5.11 | 11.8 | 116.8 | |
| 4/21/09 21:05:45 | 4.83 | 5.09 | 11.8 | 123.3 | |
| 4/21/09 21:06:00 | 4.84 | 5.09 | 11.9 | 129.9 | |
| 4/21/09 21:06:15 | 4.82 | 5.11 | 11.9 | 131.2 | |
| 4/21/09 21:06:30 | 4.80 | 5.13 | 11.7 | 131.3 | |
| 4/21/09 21:06:45 | 4.80 | 5.13 | 11.7 | 132.7 | |
| 4/21/09 21:07:00 | 4.82 | 5.13 | 11.9 | 138.1 | |
| 4/21/09 21:07:15 | 4.83 | 5.13 | 12.0 | 140.8 | |
| 4/21/09 21:07:30 | 4.84 | 5.13 | 11.9 | 147.8 | |
| 4/21/09 21:07:45 | 4.85 | 5.12 | 11.8 | 151.1 | |
| 4/21/09 21:08:00 | 4.86 | 5.13 | 11.7 | 156.6 | |
| 4/21/09 21:08:15 | 4.87 | 5.14 | 11.7 | 159.7 | |
| 4/21/09 21:08:30 | 4.86 | 5.15 | 11.8 | 159.4 | |
| 4/21/09 21:08:45 | 4.85 | 5.18 | 11.7 | 155.1 | |
| 4/21/09 21:09:00 | 4.84 | 5.19 | 11.8 | 145.3 | |
| 4/21/09 21:09:15 | 4.83 | 5.21 | 11.7 | 140.6 | |
| 4/21/09 21:09:30 | 4.82 | 5.21 | 11.8 | 133.3 | |
| 4/21/09 21:09:45 | 4.81 | 5.19 | 11.8 | 132.2 | |
| 4/21/09 21:10:00 | 4.83 | 5.17 | 11.9 | 132.4 | |
| 4/21/09 21:10:15 | 4.82 | 5.16 | 11.9 | 131.6 | |
| 4/21/09 21:10:30 | 4.81 | 5.17 | 11.9 | 129.0 | |
| 4/21/09 21:10:45 | 4.81 | 5.17 | 11.9 | 127.1 | |
| 4/21/09 21:11:00 | 4.82 | 5.17 | 11.8 | 125.6 | |
| 4/21/09 21:11:15 | 4.83 | 5.17 | 11.9 | 126.8 | |
| 4/21/09 21:11:30 | 4.83 | 5.18 | 11.9 | 128.7 | |
| 4/21/09 21:11:45 | 4.82 | 5.17 | 11.8 | 128.7 | |
| 4/21/09 21:12:00 | 4.80 | 5.17 | 11.8 | 128.5 | End Run No. SRU3-2 |
| 4/21/09 21:12:15 | 4.83 | 5.15 | 12.0 | 128.2 | |
| 4/21/09 21:12:30 | 4.79 | 5.16 | 12.0 | 126.7 | |
| 4/21/09 21:12:45 | 4.78 | 5.16 | 11.9 | 126.5 | |
| 4/21/09 21:13:00 | 4.81 | 5.15 | 11.9 | 129.7 | |
| 4/21/09 21:13:15 | 4.85 | 5.14 | 11.9 | 132.7 | |
| 4/21/09 21:13:30 | 4.86 | 5.13 | 11.7 | 142.4 | |
| 4/21/09 21:13:45 | 4.86 | 5.12 | 11.8 | 148.0 | |
| 4/21/09 21:14:00 | 4.86 | 5.12 | 11.9 | 152.0 | |
| 4/21/09 21:14:15 | 4.86 | 5.11 | 11.7 | 151.1 | |
| 4/21/09 21:14:30 | 4.87 | 5.12 | 11.6 | 150.5 | |
| 4/21/09 21:14:45 | 4.87 | 5.13 | 11.8 | 150.0 | |
| 4/21/09 21:15:00 | 4.85 | 5.14 | 11.8 | 151.2 | |
| 4/21/09 21:15:15 | 4.84 | 5.14 | 11.8 | 153.8 | |
| 4/21/09 21:15:30 | 4.85 | 5.12 | 11.9 | 154.2 | |
| 4/21/09 21:15:45 | 4.86 | 5.11 | 11.8 | 150.6 | |
| 4/21/09 21:16:00 | 4.86 | 5.10 | 12.0 | 143.6 | |
| 4/21/09 21:16:15 | 4.85 | 5.10 | 2.1 | 140.2 | |
| 4/21/09 21:16:30 | 5.55 | 4.67 | 0.3 | 96.2 | |
| 4/21/09 21:16:45 | 14.28 | 1.80 | 0.2 | 58.4 | |
| 4/21/09 21:17:00 | 19.68 | 0.39 | 0.2 | 10.7 | |
| 4/21/09 21:17:15 | 20.48 | 0.18 | 0.2 | 4.1 | |
| 4/21/09 21:17:30 | 20.57 | 0.14 | 0.2 | 2.1 | |
| 4/21/09 21:17:45 | 20.59 | 0.13 | 0.2 | 2.1 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 21:18:00 | 20.60 | 0.12 | 0.2 | 2.0 | |
| 4/21/09 21:18:15 | 20.62 | 0.12 | 0.1 | 1.8 | |
| 4/21/09 21:18:30 | 20.63 | 0.11 | 0.1 | 1.8 | |
| 4/21/09 21:18:45 | 20.62 | 0.11 | 0.1 | 2.0 | |
| 4/21/09 21:19:00 | 20.64 | 0.11 | 0.1 | 2.0 | |
| 4/21/09 21:19:15 | 20.64 | 0.10 | 19.9 | 2.0 | |
| 4/21/09 21:19:30 | 20.40 | 0.12 | 3.8 | 3.5 | |
| 4/21/09 21:19:45 | 12.27 | 0.22 | 1.1 | 4.1 | |
| 4/21/09 21:20:00 | 5.21 | 0.11 | 0.7 | 2.9 | |
| 4/21/09 21:20:15 | 4.50 | 0.06 | 0.6 | 2.3 | |
| 4/21/09 21:20:30 | 4.47 | 0.05 | 0.5 | 1.7 | |
| 4/21/09 21:20:45 | 4.45 | 0.05 | 0.4 | 1.7 | |
| 4/21/09 21:21:00 | 4.43 | 0.05 | 0.4 | 1.7 | |
| 4/21/09 21:21:15 | 4.40 | 0.05 | 0.4 | 1.8 | |
| 4/21/09 21:21:30 | 4.36 | 0.05 | 0.4 | 1.7 | |
| 4/21/09 21:21:45 | 4.37 | 0.05 | 0.3 | 1.7 | |
| 4/21/09 21:22:00 | 4.40 | 0.05 | 0.3 | 1.7 | |
| 4/21/09 21:22:15 | 4.43 | 0.05 | 0.3 | 1.7 | System Bias |
| **4/21/09 21:22:30** | **4.44** | **0.05** | **0.3** | 1.8 | **4.45 4.50% $O_2$** |
| **4/21/09 21:22:45** | **4.44** | **0.05** | **0.3** | 1.7 | **0.05 Zero $CO_2$** |
| **4/21/09 21:23:00** | **4.45** | **0.05** | **0.3** | 1.5 | **0.3 Zero $NO_x$** |
| **4/21/09 21:23:15** | **4.45** | **0.05** | **0.3** | 1.5 | |
| 4/21/09 21:23:30 | 4.46 | 0.05 | 2.1 | 1.7 | |
| 4/21/09 21:23:45 | 6.02 | 0.06 | 0.8 | 1.7 | |
| 4/21/09 21:24:00 | 6.38 | 0.75 | 0.3 | 1.1 | |
| 4/21/09 21:24:15 | 1.66 | 3.21 | 0.3 | 0.6 | |
| 4/21/09 21:24:30 | 0.30 | 4.27 | 0.2 | 0.3 | |
| 4/21/09 21:24:45 | 0.12 | 4.35 | 0.2 | 0.3 | |
| 4/21/09 21:25:00 | 0.09 | 4.21 | 0.2 | 0.5 | |
| 4/21/09 21:25:15 | 0.09 | 4.09 | 0.2 | 0.5 | |
| 4/21/09 21:25:30 | 0.08 | 4.07 | 0.2 | 0.2 | |
| 4/21/09 21:25:45 | 0.08 | 4.19 | 0.2 | 0.3 | |
| 4/21/09 21:26:00 | 0.07 | 4.39 | 0.2 | 0.3 | |
| 4/21/09 21:26:15 | 0.07 | 4.53 | 0.2 | 0.3 | |
| 4/21/09 21:26:30 | 0.07 | 4.59 | 0.2 | 0.2 | |
| 4/21/09 21:26:45 | 0.06 | 4.62 | 0.2 | 0.2 | |
| 4/21/09 21:27:00 | 0.07 | 4.63 | 0.2 | 0.3 | |
| 4/21/09 21:27:15 | 0.06 | 4.64 | 0.2 | 0.3 | System Bias |
| **4/21/09 21:27:30** | 0.06 | **4.64** | 0.1 | **0.3** | |
| **4/21/09 21:27:45** | 0.06 | **4.65** | 0.1 | **0.2** | **4.65 4.50% $CO_2$** |
| **4/21/09 21:28:00** | 0.06 | **4.65** | 0.1 | **0.2** | |
| **4/21/09 21:28:15** | 0.06 | **4.65** | 0.2 | **0.2** | **0.2 Zero CO** |
| 4/21/09 21:28:30 | 0.06 | 4.65 | 0.1 | 0.5 | |
| 4/21/09 21:28:45 | 0.15 | 4.60 | 19.6 | 1.2 | |
| 4/21/09 21:29:00 | 6.10 | 3.12 | 0.8 | 47.7 | |
| 4/21/09 21:29:15 | 4.50 | 1.41 | 0.3 | 101.0 | |
| 4/21/09 21:29:30 | 0.77 | 0.33 | 0.3 | 195.3 | |
| 4/21/09 21:29:45 | 0.13 | 0.13 | 0.2 | 214.1 | |
| 4/21/09 21:30:00 | 0.07 | 0.09 | 0.2 | 221.4 | |
| 4/21/09 21:30:15 | 0.07 | 0.08 | 0.2 | 221.5 | |
| 4/21/09 21:30:30 | 0.07 | 0.07 | 0.2 | 222.1 | |
| 4/21/09 21:30:45 | 0.07 | 0.06 | 0.2 | 222.6 | |
| 4/21/09 21:31:00 | 0.07 | 0.06 | 0.1 | 222.8 | |
| 4/21/09 21:31:15 | 0.06 | 0.06 | 0.1 | 222.8 | System Bias |
| **4/21/09 21:31:30** | **0.07** | 0.06 | 0.1 | **222.6** | **0.06 Zero $O_2$** |
| **4/21/09 21:31:45** | **0.06** | 0.05 | 0.1 | **222.4** | |
| **4/21/09 21:32:00** | **0.06** | 0.05 | 0.1 | **222.7** | |
| **4/21/09 21:32:15** | **0.06** | 0.05 | 0.1 | **222.7** | **222.6 225.0 ppm CO** |
| 4/21/09 21:32:30 | 0.06 | 0.05 | 0.1 | 222.4 | |
| 4/21/09 21:32:45 | 0.06 | 0.05 | 0.1 | 220.8 | |
| 4/21/09 21:33:00 | 0.45 | 0.05 | 11.4 | 179.3 | |
| 4/21/09 21:33:15 | 5.71 | 0.07 | 38.5 | 135.7 | |
| 4/21/09 21:33:30 | 2.51 | 0.08 | 42.8 | 50.6 | |
| 4/21/09 21:33:45 | 0.36 | 0.06 | 43.1 | 23.8 | |
| 4/21/09 21:34:00 | 0.12 | 0.05 | 78.2 | 4.2 | |
| 4/21/09 21:34:15 | 0.10 | 0.05 | 84.6 | 2.7 | |
| 4/21/09 21:34:30 | 0.08 | 0.05 | 83.3 | 2.3 | |
| 4/21/09 21:34:45 | 0.07 | 0.05 | 82.7 | 2.1 | |
| 4/21/09 21:35:00 | 0.06 | 0.05 | 81.9 | 1.8 | |
| 4/21/09 21:35:15 | 0.06 | 0.05 | 81.5 | 1.8 | |
| 4/21/09 21:35:30 | 0.06 | 0.05 | 74.9 | 1.8 | |
| 4/21/09 21:35:45 | 0.06 | 0.05 | 34.0 | 2.0 | |
| 4/21/09 21:36:00 | 2.83 | 0.06 | 39.9 | 1.7 | |
| 4/21/09 21:36:15 | 3.55 | 0.06 | 40.2 | 1.5 | |
| 4/21/09 21:36:30 | 0.63 | 0.05 | 40.3 | 1.7 | |
| 4/21/09 21:36:45 | 0.12 | 0.05 | 40.2 | 1.7 | |
| 4/21/09 21:37:00 | 0.07 | 0.05 | 40.3 | 1.7 | |
| 4/21/09 21:37:15 | 0.05 | 0.05 | 40.3 | 1.5 | |
| 4/21/09 21:37:30 | 0.06 | 0.04 | 40.2 | 1.4 | |
| 4/21/09 21:37:45 | 0.06 | 0.04 | 40.3 | 1.5 | |
| 4/21/09 21:38:00 | 0.06 | 0.04 | 40.4 | 1.7 | |
| 4/21/09 21:38:15 | 0.06 | 0.04 | 40.5 | 1.7 | |
| 4/21/09 21:38:30 | 0.06 | 0.04 | 40.6 | 1.4 | |
| 4/21/09 21:38:45 | 0.05 | 0.04 | 40.6 | 1.4 | |
| 4/21/09 21:39:00 | 0.05 | 0.04 | 40.7 | 1.5 | |
| 4/21/09 21:39:15 | 0.05 | 0.04 | 40.8 | 1.5 | |
| 4/21/09 21:39:30 | 0.06 | 0.04 | 40.9 | 1.5 | |
| 4/21/09 21:39:45 | 0.05 | 0.04 | 40.9 | 1.4 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/21/09 21:40:00 | 0.05 | 0.04 | 41.0 | 1.4 | |
| 4/21/09 21:40:15 | 0.05 | 0.04 | 41.1 | 1.5 | |
| 4/21/09 21:40:30 | 0.06 | 0.04 | 41.2 | 1.7 | |
| 4/21/09 21:40:45 | 0.06 | 0.04 | 41.3 | 1.5 | |
| 4/21/09 21:41:00 | 0.05 | 0.04 | 41.4 | 1.4 | |
| 4/21/09 21:41:15 | 0.05 | 0.04 | 41.5 | 1.4 | |
| 4/21/09 21:41:30 | 0.05 | 0.04 | 41.6 | 1.5 | |
| 4/21/09 21:41:45 | 0.05 | 0.04 | 41.7 | 1.5 | |
| 4/21/09 21:42:00 | 0.05 | 0.04 | 41.9 | 1.4 | |
| 4/21/09 21:42:15 | 0.05 | 0.04 | 41.9 | 1.4 | |
| 4/21/09 21:42:30 | 0.05 | 0.04 | 42.1 | 1.4 | |
| 4/21/09 21:42:45 | 0.05 | 0.04 | 42.2 | 1.5 | |
| 4/21/09 21:43:00 | 0.06 | 0.04 | 42.3 | 1.5 | |
| 4/21/09 21:43:15 | 0.05 | 0.04 | 42.4 | 1.4 | |
| 4/21/09 21:43:30 | 0.05 | 0.04 | 42.5 | 1.2 | |
| 4/21/09 21:43:45 | 0.05 | 0.04 | 42.6 | 1.4 | |
| 4/21/09 21:44:00 | 0.05 | 0.04 | 42.7 | 1.5 | |
| 4/21/09 21:44:15 | 0.05 | 0.04 | 42.8 | 1.5 | |
| 4/21/09 21:44:30 | 0.05 | 0.04 | 42.8 | 1.2 | |
| 4/21/09 21:44:45 | 0.05 | 0.04 | 42.9 | 1.2 | |
| 4/21/09 21:45:00 | 0.05 | 0.04 | 43.0 | 1.4 | |
| 4/21/09 21:45:15 | 0.05 | 0.04 | 43.1 | 1.5 | |
| 4/21/09 21:45:30 | 0.05 | 0.04 | 43.2 | 1.4 | |
| 4/21/09 21:45:45 | 0.05 | 0.04 | 43.3 | 1.4 | |
| 4/21/09 21:46:00 | 0.05 | 0.04 | 43.3 | 1.4 | System Bias |
| **4/21/09 21:46:15** | 0.05 | 0.04 | **43.4** | 1.4 | |
| **4/21/09 21:46:30** | 0.05 | 0.04 | **43.4** | 1.5 | |
| **4/21/09 21:46:45** | 0.05 | 0.04 | **43.5** | 1.4 | **43.5 45.0 ppm $NO_x$** |
| **4/21/09 21:47:00** | 0.05 | 0.04 | **43.5** | 1.2 | |
| 4/21/09 21:47:15 | 0.05 | 0.04 | 43.5 | 1.4 | |
| 4/21/09 21:47:30 | 0.05 | 0.04 | 15.4 | 1.5 | |
| 4/21/09 21:47:45 | 0.71 | 0.05 | 1.1 | 1.5 | |
| 4/21/09 21:48:00 | 10.91 | 0.07 | 0.6 | 1.4 | |
| 4/21/09 21:48:15 | 18.73 | 0.08 | 0.5 | 1.4 | |
| 4/21/09 21:48:30 | 20.38 | 0.09 | 0.4 | 1.5 | |
| 4/21/09 21:48:45 | 20.55 | 0.09 | 0.4 | 1.5 | |
| 4/21/09 21:49:00 | 20.59 | 0.09 | 0.4 | 1.5 | |
| 4/21/09 21:49:15 | 20.61 | 0.09 | 0.4 | 1.4 | |
| 4/21/09 21:49:30 | 20.62 | 0.09 | 0.3 | 1.4 | |
| 4/21/09 21:49:45 | 20.63 | 0.09 | 0.3 | 1.5 | |
| 4/21/09 21:50:00 | 20.64 | 0.09 | 0.3 | 1.5 | |
| 4/21/09 21:50:15 | 20.63 | 0.08 | 0.3 | 1.5 | |
| 4/21/09 21:50:30 | 20.64 | 0.08 | 0.3 | 1.4 | |
| 4/21/09 21:50:45 | 20.64 | 0.08 | 0.3 | 1.4 | |
| 4/21/09 21:51:00 | 20.64 | 0.08 | 0.2 | 1.5 | |
| 4/21/09 21:51:15 | 20.66 | 0.08 | 0.3 | 1.5 | |
| 4/21/09 21:51:30 | 20.66 | 0.08 | 0.2 | 1.5 | |
| 4/21/09 21:51:45 | 20.65 | 0.08 | 0.2 | 1.4 | |
| 4/21/09 21:52:00 | 20.66 | 0.08 | 0.2 | 1.4 | |
| 4/21/09 21:52:15 | 20.66 | 0.08 | 0.2 | 1.7 | |
| 4/21/09 21:52:30 | 20.66 | 0.08 | 0.2 | 1.7 | |
| 4/21/09 21:52:45 | 20.65 | 0.08 | 0.2 | 1.4 | |
| 4/21/09 21:53:00 | 20.64 | 0.08 | 0.3 | 1.4 | |
| 4/21/09 21:53:15 | 20.66 | 0.08 | 0.3 | 1.5 | |

# Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/22/09 8:00:00 | 16.43 | 0.23 | 0.1 | 13.5 | |
| 4/22/09 8:00:15 | 9.23 | 0.12 | 0.1 | 9.6 | |
| 4/22/09 8:00:30 | 6.28 | 0.06 | 0.1 | 5.6 | |
| 4/22/09 8:00:45 | 4.86 | 0.05 | 2.8 | 4.2 | |
| 4/22/09 8:01:00 | 5.20 | 0.23 | 8.2 | 9.8 | |
| 4/22/09 8:01:15 | 3.08 | 0.99 | 11.6 | 52.7 | |
| 4/22/09 8:01:30 | 3.14 | 3.32 | 11.7 | 91.1 | |
| 4/22/09 8:01:45 | 4.41 | 4.72 | 11.5 | 155.0 | |
| 4/22/09 8:02:00 | 4.75 | 5.08 | 11.3 | 169.8 | |
| 4/22/09 8:02:15 | 4.84 | 5.12 | 11.2 | 188.5 | |
| 4/22/09 8:02:30 | 4.87 | 5.13 | 11.1 | 196.2 | |
| 4/22/09 8:02:45 | 4.88 | 5.14 | 11.0 | 209.0 | |
| 4/22/09 8:03:00 | 4.86 | 5.18 | 11.0 | 212.6 | |
| 4/22/09 8:03:15 | 4.82 | 5.11 | 0.2 | 180.1 | |
| 4/22/09 8:03:30 | 4.70 | 3.43 | 0.1 | 141.2 | |
| 4/22/09 8:03:45 | 7.59 | 0.67 | 0.1 | 43.7 | |
| 4/22/09 8:04:00 | 8.72 | 0.10 | 0.1 | 16.8 | |
| 4/22/09 8:04:15 | 8.65 | 0.05 | 0.1 | 2.4 | |
| 4/22/09 8:04:30 | 8.65 | 0.05 | 0.1 | 1.8 | |
| 4/22/09 8:04:45 | 8.83 | 0.04 | 0.1 | 1.5 | |
| 4/22/09 8:05:00 | 8.94 | 0.04 | 0.1 | 1.7 | |
| 4/22/09 8:05:15 | 8.98 | 0.04 | 0.1 | 1.8 | |
| 4/22/09 8:05:30 | 9.00 | 0.04 | 0.1 | 1.8 | Calibration Error |
| **4/22/09 8:05:45** | **9.01** | 0.04 | 0.1 | 1.5 | **9.01 9.00% $O_2$** |
| **4/22/09 8:06:00** | **9.01** | 0.04 | 0.1 | 1.7 | |
| **4/22/09 8:06:15** | **9.01** | 0.04 | 0.1 | 1.8 | |
| **4/22/09 8:06:30** | **9.01** | 0.04 | 0.1 | 1.8 | |
| 4/22/09 8:06:45 | 8.35 | 0.04 | 0.1 | 1.5 | |
| 4/22/09 8:07:00 | 5.08 | 0.04 | 0.1 | 1.5 | |
| 4/22/09 8:07:15 | 4.51 | 0.04 | 0.0 | 1.7 | |
| 4/22/09 8:07:30 | 4.50 | 0.04 | 0.1 | 1.8 | |
| 4/22/09 8:07:45 | 4.49 | 0.04 | 0.1 | 1.7 | |
| 4/22/09 8:08:00 | 4.49 | 0.04 | 0.1 | 1.7 | |
| 4/22/09 8:08:15 | 4.49 | 0.04 | 0.1 | 1.7 | |
| 4/22/09 8:08:30 | 4.49 | 0.04 | 0.1 | 1.8 | Calibration Error |
| **4/22/09 8:08:45** | **4.49** | **0.04** | **0.1** | 1.8 | **4.49 4.50% $O_2$** |
| **4/22/09 8:09:00** | **4.49** | **0.04** | **0.1** | 1.8 | **0.04 Zero $CO_2$** |
| **4/22/09 8:09:15** | **4.49** | **0.04** | **0.1** | 1.7 | **0.1 Zero $NO_x$** |
| **4/22/09 8:09:30** | **4.49** | **0.04** | **0.1** | 1.7 | |
| 4/22/09 8:09:45 | 5.17 | 1.28 | 0.1 | 1.1 | |
| 4/22/09 8:10:00 | 2.55 | 5.56 | 0.1 | 0.6 | |
| 4/22/09 8:10:15 | 0.47 | 7.17 | 0.1 | 0.0 | |
| 4/22/09 8:10:30 | 0.08 | 7.03 | 0.1 | 0.0 | |
| 4/22/09 8:10:45 | 0.04 | 7.66 | 0.1 | 0.0 | |
| 4/22/09 8:11:00 | 0.02 | 8.50 | 0.1 | 0.0 | |
| 4/22/09 8:11:15 | 0.02 | 8.81 | 0.1 | 0.0 | |
| 4/22/09 8:11:30 | 0.02 | 8.86 | 0.1 | -0.1 | |
| 4/22/09 8:11:45 | 0.01 | 8.91 | 0.1 | -0.3 | |
| 4/22/09 8:12:00 | 0.01 | 8.92 | 0.1 | -0.1 | |
| 4/22/09 8:12:15 | 0.01 | 8.93 | 0.1 | 0.0 | Calibration Error |
| **4/22/09 8:12:30** | 0.01 | **8.93** | 0.1 | 0.2 | |
| **4/22/09 8:12:45** | 0.01 | **8.93** | 0.1 | -0.1 | **8.93 9.00% $CO_2$** |
| **4/22/09 8:13:00** | 0.01 | **8.94** | 0.1 | -0.1 | |
| **4/22/09 8:13:15** | 0.01 | **8.94** | 0.0 | 0.0 | |
| 4/22/09 8:13:30 | 0.01 | 8.78 | 0.0 | 0.2 | |
| 4/22/09 8:13:45 | 0.01 | 6.14 | 0.0 | 0.3 | |
| 4/22/09 8:14:00 | 0.01 | 4.65 | 0.0 | 0.3 | |
| 4/22/09 8:14:15 | 0.01 | 4.55 | 0.0 | 0.5 | |
| 4/22/09 8:14:30 | 0.01 | 4.54 | 0.0 | 0.5 | Calibration Error |
| **4/22/09 8:14:45** | 0.01 | **4.54** | 0.1 | **0.6** | |
| **4/22/09 8:15:00** | 0.01 | **4.53** | 0.0 | **0.6** | **4.53 4.50% $CO_2$** |
| **4/22/09 8:15:15** | 0.01 | **4.53** | 0.1 | **0.5** | |
| **4/22/09 8:15:30** | 0.01 | **4.53** | 0.0 | **0.5** | **0.6 Zero CO** |
| 4/22/09 8:15:45 | 0.01 | 4.53 | 0.1 | 0.8 | |
| 4/22/09 8:16:00 | 0.02 | 4.52 | 0.1 | 2.3 | |
| 4/22/09 8:16:15 | 1.32 | 3.50 | 0.0 | 103.3 | |
| 4/22/09 8:16:30 | 0.78 | 0.88 | 0.0 | 219.5 | |
| 4/22/09 8:16:45 | 0.12 | 0.15 | 0.0 | 413.0 | |
| 4/22/09 8:17:00 | 0.03 | 0.07 | 0.1 | 445.1 | |
| 4/22/09 8:17:15 | 0.03 | 0.06 | 0.0 | 455.2 | |
| 4/22/09 8:17:30 | 0.03 | 0.06 | 0.0 | 455.1 | Calibration Error |
| **4/22/09 8:17:45** | 0.02 | 0.06 | 0.0 | **454.2** | |
| **4/22/09 8:18:00** | 0.01 | 0.06 | 0.0 | **454.1** | |
| **4/22/09 8:18:15** | 0.01 | 0.05 | 0.0 | **454.3** | |
| **4/22/09 8:18:30** | 0.01 | 0.05 | 0.0 | **454.3** | **454.2 450.0 ppm CO** |
| 4/22/09 8:18:45 | 0.01 | 0.05 | 0.1 | 451.6 | |
| 4/22/09 8:19:00 | 0.01 | 0.05 | 0.1 | 429.4 | |
| 4/22/09 8:19:15 | 0.01 | 0.05 | 0.0 | 318.4 | |
| 4/22/09 8:19:30 | 0.01 | 0.05 | 0.0 | 268.3 | |
| 4/22/09 8:19:45 | 0.01 | 0.05 | 0.0 | 228.7 | |
| 4/22/09 8:20:00 | 0.01 | 0.05 | 0.0 | 225.9 | |
| 4/22/09 8:20:15 | 0.01 | 0.05 | 0.1 | 225.7 | |
| 4/22/09 8:20:30 | 0.01 | 0.05 | 0.0 | 225.9 | |
| 4/22/09 8:20:45 | 0.01 | 0.05 | 0.0 | 226.0 | Calibration Error |
| **4/22/09 8:21:00** | **0.01** | 0.04 | 0.1 | **225.7** | **0.01 Zero $O_2$** |
| **4/22/09 8:21:15** | **0.01** | 0.04 | 0.0 | **225.6** | |
| **4/22/09 8:21:30** | **0.01** | 0.04 | 0.0 | **225.7** | |
| **4/22/09 8:21:45** | **0.01** | 0.04 | 0.0 | **225.8** | **225.7 225.0 ppm CO** |

# Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/22/09 8:22:00 | 0.01 | 0.04 | 0.1 | 231.0 | |
| 4/22/09 8:22:15 | 0.20 | 0.04 | 31.1 | 194.4 | |
| 4/22/09 8:22:30 | 1.69 | 0.06 | 35.0 | 148.9 | |
| 4/22/09 8:22:45 | 0.43 | 0.05 | 33.5 | 46.1 | |
| 4/22/09 8:23:00 | 0.11 | 0.04 | 47.6 | 18.4 | |
| 4/22/09 8:23:15 | 0.08 | 0.04 | 91.7 | 3.5 | |
| 4/22/09 8:23:30 | 0.06 | 0.04 | 88.2 | 2.7 | |
| 4/22/09 8:23:45 | 0.02 | 0.04 | 87.3 | 2.4 | |
| 4/22/09 8:24:00 | 0.02 | 0.04 | 86.9 | 2.4 | |
| 4/22/09 8:24:15 | 0.02 | 0.04 | 86.8 | 2.6 | |
| 4/22/09 8:24:30 | 0.01 | 0.04 | 86.6 | 2.4 | |
| 4/22/09 8:24:45 | 0.01 | 0.04 | 86.7 | 2.1 | |
| 4/22/09 8:25:00 | 0.01 | 0.04 | 86.7 | 2.1 | |
| 4/22/09 8:25:15 | 0.01 | 0.04 | 86.7 | 2.3 | |
| 4/22/09 8:25:30 | 0.01 | 0.04 | 86.8 | 2.3 | |
| 4/22/09 8:25:45 | 0.01 | 0.04 | 86.8 | 2.3 | |
| 4/22/09 8:26:00 | 0.02 | 0.04 | 87.1 | 2.1 | |
| 4/22/09 8:26:15 | 0.01 | 0.04 | 87.4 | 2.1 | |
| 4/22/09 8:26:30 | 0.01 | 0.04 | 87.6 | 2.3 | |
| 4/22/09 8:26:45 | 0.01 | 0.04 | 88.0 | 2.3 | |
| 4/22/09 8:27:00 | 0.01 | 0.04 | 88.1 | 2.3 | |
| 4/22/09 8:27:15 | 0.01 | 0.04 | 88.4 | 2.0 | |
| 4/22/09 8:27:30 | 0.01 | 0.04 | 88.8 | 2.1 | |
| 4/22/09 8:27:45 | 0.02 | 0.04 | 89.2 | 2.3 | |
| 4/22/09 8:28:00 | 0.01 | 0.04 | 89.7 | 2.3 | |
| 4/22/09 8:28:15 | 0.01 | 0.04 | 89.7 | 2.1 | |
| 4/22/09 8:28:30 | 0.02 | 0.04 | 90.2 | 2.0 | |
| 4/22/09 8:28:45 | 0.01 | 0.04 | 90.6 | 2.3 | |
| 4/22/09 8:29:00 | 0.01 | 0.04 | 90.8 | 2.3 | |
| 4/22/09 8:29:15 | 0.02 | 0.04 | 91.2 | 2.3 | |
| 4/22/09 8:29:30 | 0.01 | 0.04 | 91.5 | 2.1 | |
| 4/22/09 8:29:45 | 0.01 | 0.04 | 91.7 | 2.0 | |
| 4/22/09 8:30:00 | 0.01 | 0.04 | 91.9 | 2.1 | |
| 4/22/09 8:30:15 | 0.02 | 0.04 | 92.0 | 2.3 | |
| 4/22/09 8:30:30 | 0.01 | 0.04 | 92.1 | 2.3 | |
| 4/22/09 8:30:45 | 0.01 | 0.04 | 92.1 | 2.1 | |
| 4/22/09 8:31:00 | 0.01 | 0.04 | 92.0 | 2.0 | |
| 4/22/09 8:31:15 | 0.01 | 0.04 | 89.6 | 2.3 | |
| 4/22/09 8:31:30 | 0.01 | 0.04 | 90.0 | 2.3 | |
| 4/22/09 8:31:45 | 0.01 | 0.04 | 89.9 | 2.1 | |
| 4/22/09 8:32:00 | 0.01 | 0.04 | 89.9 | 2.1 | |
| 4/22/09 8:32:15 | 0.01 | 0.04 | 95.5 | 2.1 | Calibration Error |
| **4/22/09 8:32:30** | 0.01 | 0.04 | **89.8** | 2.3 | |
| **4/22/09 8:32:45** | 0.01 | 0.04 | **89.8** | 2.3 | |
| **4/22/09 8:33:00** | 0.01 | 0.04 | **89.7** | 2.1 | **89.7 90.0 ppm $NO_x$** |
| **4/22/09 8:33:15** | 0.01 | 0.04 | **89.7** | 2.1 | |
| 4/22/09 8:33:30 | 0.01 | 0.04 | 68.3 | 2.1 | |
| 4/22/09 8:33:45 | 0.01 | 0.03 | 44.4 | 2.3 | Calibration Error |
| **4/22/09 8:34:00** | 0.01 | 0.03 | **44.5** | 2.3 | |
| **4/22/09 8:34:15** | 0.01 | 0.03 | **44.6** | 2.0 | |
| **4/22/09 8:34:30** | 0.01 | 0.03 | **44.6** | 2.1 | **44.5 45.0 ppm $NO_x$** |
| **4/22/09 8:34:45** | 0.01 | 0.03 | **44.6** | 2.3 | |
| 4/22/09 8:35:00 | 0.01 | 0.03 | 44.4 | 2.3 | |
| 4/22/09 8:35:15 | 0.01 | 0.04 | 12.1 | 2.1 | |
| 4/22/09 8:35:30 | 1.64 | 0.04 | 40.3 | 2.1 | |
| 4/22/09 8:35:45 | 13.09 | 0.04 | 44.8 | 2.3 | |
| 4/22/09 8:36:00 | 19.70 | 0.03 | 46.2 | 2.4 | |
| 4/22/09 8:36:15 | 20.73 | 0.04 | 46.8 | 2.4 | |
| 4/22/09 8:36:30 | 20.83 | 0.03 | 47.1 | 2.4 | |
| 4/22/09 8:36:45 | 20.84 | 0.04 | 47.3 | 2.3 | |
| 4/22/09 8:37:00 | 20.85 | 0.04 | 47.5 | 2.4 | |
| 4/22/09 8:37:15 | 20.85 | 0.04 | 47.6 | 2.6 | |
| 4/22/09 8:37:30 | 20.86 | 0.04 | 47.7 | 2.6 | |
| 4/22/09 8:37:45 | 20.86 | 0.04 | 47.7 | 2.3 | |
| 4/22/09 8:38:00 | 20.86 | 0.04 | 47.9 | 2.3 | $NO_x$ Converter Check |
| **4/22/09 8:38:15** | 20.86 | 0.04 | **47.9** | 2.4 | **47.9 51.9 ppm $NO_2$** |
| **4/22/09 8:38:30** | 20.87 | 0.04 | **47.9** | 2.6 | **Cyl# ALM018362** |
| **4/22/09 8:38:45** | 20.87 | 0.04 | **47.9** | 2.3 | |
| **4/22/09 8:39:00** | 20.87 | 0.04 | **48.0** | 2.3 | **92.36 % Conversion** |
| 4/22/09 8:39:15 | 20.87 | 0.04 | 47.8 | 2.3 | |
| 4/22/09 8:39:30 | 20.87 | 0.04 | 14.1 | 4.6 | |
| 4/22/09 8:39:45 | 19.69 | 0.72 | 14.2 | 54.0 | |
| 4/22/09 8:40:00 | 10.99 | 3.30 | 36.2 | 116.8 | |
| 4/22/09 8:40:15 | 6.84 | 3.85 | 2.3 | 137.8 | |
| 4/22/09 8:40:30 | 4.13 | 1.70 | 1.3 | 95.0 | |
| 4/22/09 8:40:45 | 4.24 | 0.29 | 1.0 | 21.3 | |
| 4/22/09 8:41:00 | 4.47 | 0.10 | 0.9 | 7.7 | |
| 4/22/09 8:41:15 | 4.49 | 0.07 | 0.7 | 2.6 | |
| 4/22/09 8:41:30 | 4.49 | 0.06 | 0.7 | 2.4 | |
| 4/22/09 8:41:45 | 4.48 | 0.06 | 0.6 | 2.4 | |
| 4/22/09 8:42:00 | 4.47 | 0.05 | 0.5 | 2.4 | |
| 4/22/09 8:42:15 | 4.48 | 0.05 | 0.5 | 2.1 | |
| 4/22/09 8:42:30 | 4.48 | 0.05 | 0.5 | 2.1 | |
| 4/22/09 8:42:45 | 4.48 | 0.05 | 0.5 | 2.1 | System Bias |
| **4/22/09 8:43:00** | **4.48** | **0.05** | **0.4** | 2.3 | **4.48 4.50% $O_2$** |
| **4/22/09 8:43:15** | **4.48** | **0.05** | **0.4** | 2.1 | **0.04 Zero $CO_2$** |
| **4/22/09 8:43:30** | **4.48** | **0.04** | **0.4** | 2.0 | **0.4 Zero $NO_x$** |
| **4/22/09 8:43:45** | **4.48** | **0.04** | **0.4** | 2.0 | |

# Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/22/09 8:44:00 | 4.48 | 0.04 | 5.7 | 2.1 | |
| 4/22/09 8:44:15 | 4.46 | 0.13 | 3.7 | 15.2 | |
| 4/22/09 8:44:30 | 4.42 | 1.38 | 0.4 | 23.5 | |
| 4/22/09 8:44:45 | 2.03 | 2.83 | 0.4 | 15.6 | |
| 4/22/09 8:45:00 | 0.42 | 4.26 | 0.3 | 7.5 | |
| 4/22/09 8:45:15 | 0.11 | 4.57 | 0.3 | 1.2 | |
| 4/22/09 8:45:30 | 0.07 | 4.58 | 0.3 | 0.9 | |
| 4/22/09 8:45:45 | 0.06 | 4.55 | 0.3 | 0.6 | |
| 4/22/09 8:46:00 | 0.06 | 4.53 | 0.3 | 0.6 | |
| 4/22/09 8:46:15 | 0.06 | 4.55 | 0.3 | 0.6 | |
| 4/22/09 8:46:30 | 0.06 | 4.58 | 0.2 | 0.8 | |
| 4/22/09 8:46:45 | 0.05 | 4.63 | 0.2 | 0.8 | |
| 4/22/09 8:47:00 | 0.05 | 4.65 | 0.2 | 0.6 | System Bias |
| **4/22/09 8:47:15** | 0.05 | **4.66** | 0.2 | **0.6** | |
| **4/22/09 8:47:30** | 0.05 | **4.66** | 0.3 | **0.6** | 4.66 4.50% $CO_2$ |
| **4/22/09 8:47:45** | 0.05 | **4.67** | 0.2 | **0.8** | |
| **4/22/09 8:48:00** | 0.05 | **4.67** | 0.6 | **0.8** | 0.7 Zero CO |
| 4/22/09 8:48:15 | 0.05 | 4.67 | 30.0 | 8.3 | |
| 4/22/09 8:48:30 | 0.55 | 4.75 | 1.1 | 26.3 | |
| 4/22/09 8:48:45 | 1.26 | 3.26 | 0.3 | 111.1 | |
| 4/22/09 8:49:00 | 0.35 | 0.77 | 0.2 | 160.9 | |
| 4/22/09 8:49:15 | 0.08 | 0.18 | 0.2 | 214.2 | |
| 4/22/09 8:49:30 | 0.05 | 0.10 | 0.2 | 220.5 | |
| 4/22/09 8:49:45 | 0.05 | 0.08 | 0.2 | 222.6 | |
| 4/22/09 8:50:00 | 0.05 | 0.08 | 0.2 | 223.0 | |
| 4/22/09 8:50:15 | 0.05 | 0.07 | 0.2 | 223.4 | System Bias |
| **4/22/09 8:50:30** | **0.05** | 0.07 | 0.1 | **223.3** | 0.05 Zero $O_2$ |
| **4/22/09 8:50:45** | **0.05** | 0.06 | 0.1 | **223.0** | |
| **4/22/09 8:51:00** | **0.05** | 0.06 | 0.1 | **223.3** | |
| **4/22/09 8:51:15** | **0.04** | 0.06 | 0.1 | 223.7 | 223.3 225.0 ppm CO |
| 4/22/09 8:51:30 | 0.05 | 0.06 | 0.3 | 223.9 | |
| 4/22/09 8:51:45 | 0.04 | 0.06 | 4.8 | 218.1 | |
| 4/22/09 8:52:00 | 0.62 | 0.95 | 0.2 | 198.5 | |
| 4/22/09 8:52:15 | 1.30 | 1.30 | 28.9 | 111.9 | |
| 4/22/09 8:52:30 | 0.32 | 0.30 | 39.6 | 69.2 | |
| 4/22/09 8:52:45 | 0.08 | 0.10 | 40.7 | 20.5 | |
| 4/22/09 8:53:00 | 0.05 | 0.06 | 41.2 | 10.2 | |
| 4/22/09 8:53:15 | 0.05 | 0.05 | 41.4 | 3.3 | |
| 4/22/09 8:53:30 | 0.05 | 0.05 | 41.5 | 2.9 | |
| 4/22/09 8:53:45 | 0.05 | 0.05 | 41.6 | 2.7 | |
| 4/22/09 8:54:00 | 0.05 | 0.05 | 43.5 | 2.6 | |
| 4/22/09 8:54:15 | 0.04 | 0.05 | 45.6 | 2.3 | |
| 4/22/09 8:54:30 | 0.05 | 0.04 | 44.9 | 2.3 | |
| 4/22/09 8:54:45 | 0.05 | 0.04 | 44.6 | 2.3 | |
| 4/22/09 8:55:00 | 0.05 | 0.04 | 44.4 | 2.3 | |
| 4/22/09 8:55:15 | 0.05 | 0.04 | 44.3 | 2.1 | System Bias |
| **4/22/09 8:55:30** | 0.04 | 0.04 | **44.3** | 2.0 | |
| **4/22/09 8:55:45** | 0.04 | 0.04 | **44.2** | 2.1 | |
| **4/22/09 8:56:00** | 0.04 | 0.04 | **44.2** | 2.1 | 44.2 45.0 ppm $NO_x$ |
| **4/22/09 8:56:15** | 0.05 | 0.04 | **44.2** | 2.1 | |
| 4/22/09 8:56:30 | 0.04 | 0.04 | 40.2 | 2.0 | |
| 4/22/09 8:56:45 | 0.04 | 0.04 | 12.9 | 15.9 | |
| 4/22/09 8:57:00 | 1.22 | 1.93 | 12.4 | 43.7 | |
| 4/22/09 8:57:15 | 3.59 | 4.22 | 12.3 | 119.8 | |
| 4/22/09 8:57:30 | 4.52 | 5.06 | 12.1 | 141.2 | |
| 4/22/09 8:57:45 | 4.66 | 5.21 | 12.1 | 152.8 | |
| 4/22/09 8:58:00 | 4.70 | 5.22 | 12.2 | 156.3 | |
| 4/22/09 8:58:15 | 4.71 | 5.22 | 12.2 | 151.1 | |
| 4/22/09 8:58:30 | 4.67 | 5.24 | 12.3 | 142.9 | |
| 4/22/09 8:58:45 | 4.64 | 5.24 | 11.9 | 144.4 | |
| 4/22/09 8:59:00 | 4.67 | 5.21 | 11.9 | 155.1 | |
| 4/22/09 8:59:15 | 4.72 | 5.18 | 12.0 | 178.9 | |
| 4/22/09 8:59:30 | 4.78 | 5.16 | 12.1 | 186.1 | |
| 4/22/09 8:59:45 | 4.73 | 5.20 | 12.1 | 179.8 | Begin Run No. SRU3-3 |
| **4/22/09 9:00:00** | **4.65** | **5.26** | **12.1** | **167.1** | |
| **4/22/09 9:00:15** | **4.61** | **5.30** | **12.2** | **142.9** | |
| **4/22/09 9:00:30** | **4.56** | **5.32** | **12.2** | **137.8** | |
| **4/22/09 9:00:45** | **4.56** | **5.31** | **12.2** | **143.9** | |
| **4/22/09 9:01:00** | **4.58** | **5.31** | **12.1** | **148.7** | |
| **4/22/09 9:01:15** | **4.59** | **5.31** | **12.1** | **155.6** | |
| **4/22/09 9:01:30** | **4.58** | **5.30** | **12.1** | **158.7** | |
| **4/22/09 9:01:45** | **4.61** | **5.29** | **11.9** | **165.4** | |
| **4/22/09 9:02:00** | **4.64** | **5.28** | **11.8** | **171.3** | |
| **4/22/09 9:02:15** | **4.68** | **5.26** | **11.9** | **192.5** | |
| **4/22/09 9:02:30** | **4.73** | **5.23** | **11.7** | **205.3** | |
| **4/22/09 9:02:45** | **4.77** | **5.22** | **11.6** | **216.3** | |
| **4/22/09 9:03:00** | **4.81** | **5.21** | **11.8** | **216.3** | |
| **4/22/09 9:03:15** | **4.78** | **5.22** | **11.7** | **217.3** | |
| **4/22/09 9:03:30** | **4.78** | **5.22** | **11.8** | **217.8** | |
| **4/22/09 9:03:45** | **4.77** | **5.23** | **11.8** | **217.5** | |
| **4/22/09 9:04:00** | **4.75** | **5.24** | **11.6** | **214.8** | |
| **4/22/09 9:04:15** | **4.77** | **5.24** | **11.9** | **205.4** | |
| **4/22/09 9:04:30** | **4.75** | **5.25** | **11.9** | **200.6** | |
| **4/22/09 9:04:45** | **4.70** | **5.27** | **12.0** | **191.6** | |
| **4/22/09 9:05:00** | **4.70** | **5.28** | **12.0** | **187.3** | |
| **4/22/09 9:05:15** | **4.68** | **5.29** | **12.0** | **174.8** | |
| **4/22/09 9:05:30** | **4.64** | **5.30** | **12.1** | **166.6** | |
| **4/22/09 9:05:45** | **4.62** | **5.30** | **12.1** | **152.1** | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/22/09 9:06:00 | 4.61 | 5.30 | 12.2 | 149.3 | |
| 4/22/09 9:06:15 | 4.64 | 5.29 | 12.3 | 153.6 | |
| 4/22/09 9:06:30 | 4.66 | 5.28 | 12.1 | 157.9 | |
| 4/22/09 9:06:45 | 4.65 | 5.27 | 12.2 | 165.4 | |
| 4/22/09 9:07:00 | 4.68 | 5.25 | 12.2 | 165.9 | |
| 4/22/09 9:07:15 | 4.68 | 5.25 | 12.2 | 162.4 | |
| 4/22/09 9:07:30 | 4.68 | 5.24 | 12.2 | 157.9 | |
| 4/22/09 9:07:45 | 4.66 | 5.25 | 12.2 | 153.6 | |
| 4/22/09 9:08:00 | 4.65 | 5.24 | 11.9 | 155.6 | |
| 4/22/09 9:08:15 | 4.68 | 5.22 | 12.0 | 170.7 | |
| 4/22/09 9:08:30 | 4.73 | 5.21 | 12.1 | 179.0 | |
| 4/22/09 9:08:45 | 4.70 | 5.24 | 12.1 | 179.3 | |
| 4/22/09 9:09:00 | 4.66 | 5.27 | 12.1 | 175.1 | |
| 4/22/09 9:09:15 | 4.65 | 5.28 | 12.1 | 168.4 | |
| 4/22/09 9:09:30 | 4.63 | 5.30 | 12.0 | 165.6 | |
| 4/22/09 9:09:45 | 4.62 | 5.30 | 12.2 | 162.9 | |
| 4/22/09 9:10:00 | 4.62 | 5.29 | 12.1 | 162.4 | |
| 4/22/09 9:10:15 | 4.61 | 5.29 | 12.2 | 160.2 | |
| 4/22/09 9:10:30 | 4.60 | 5.31 | 12.2 | 157.2 | |
| 4/22/09 9:10:45 | 4.60 | 5.31 | 12.1 | 154.2 | |
| 4/22/09 9:11:00 | 4.60 | 5.30 | 12.0 | 157.5 | |
| 4/22/09 9:11:15 | 4.60 | 5.29 | 12.1 | 164.1 | |
| 4/22/09 9:11:30 | 4.60 | 5.29 | 12.1 | 165.0 | |
| 4/22/09 9:11:45 | 4.58 | 5.30 | 12.0 | 158.6 | |
| 4/22/09 9:12:00 | 4.57 | 5.32 | 12.0 | 150.0 | |
| 4/22/09 9:12:15 | 4.56 | 5.33 | 12.1 | 140.8 | |
| 4/22/09 9:12:30 | 4.56 | 5.32 | 12.0 | 141.4 | |
| 4/22/09 9:12:45 | 4.58 | 5.32 | 12.2 | 136.2 | |
| 4/22/09 9:13:00 | 4.57 | 5.32 | 12.2 | 135.1 | |
| 4/22/09 9:13:15 | 4.56 | 5.33 | 12.2 | 131.3 | |
| 4/22/09 9:13:30 | 4.55 | 5.33 | 12.3 | 131.5 | |
| 4/22/09 9:13:45 | 4.52 | 5.33 | 12.1 | 132.8 | |
| 4/22/09 9:14:00 | 4.55 | 5.32 | 12.1 | 133.3 | |
| 4/22/09 9:14:15 | 4.57 | 5.31 | 12.2 | 132.5 | |
| 4/22/09 9:14:30 | 4.56 | 5.30 | 12.0 | 130.7 | |
| 4/22/09 9:14:45 | 4.57 | 5.29 | 12.1 | 127.4 | |
| 4/22/09 9:15:00 | 4.57 | 5.29 | 11.9 | 126.4 | |
| 4/22/09 9:15:15 | 4.58 | 5.28 | 11.9 | 126.5 | |
| 4/22/09 9:15:30 | 4.61 | 5.28 | 12.0 | 130.0 | |
| 4/22/09 9:15:45 | 4.65 | 5.28 | 11.9 | 143.3 | |
| 4/22/09 9:16:00 | 4.67 | 5.28 | 11.9 | 149.7 | |
| 4/22/09 9:16:15 | 4.70 | 5.27 | 11.9 | 160.3 | |
| 4/22/09 9:16:30 | 4.71 | 5.27 | 12.0 | 165.4 | |
| 4/22/09 9:16:45 | 4.70 | 5.25 | 12.1 | 173.8 | |
| 4/22/09 9:17:00 | 4.71 | 5.22 | 12.0 | 174.8 | |
| 4/22/09 9:17:15 | 4.72 | 5.22 | 12.0 | 172.1 | |
| 4/22/09 9:17:30 | 4.69 | 5.22 | 12.1 | 170.6 | |
| 4/22/09 9:17:45 | 4.69 | 5.23 | 12.2 | 161.7 | |
| 4/22/09 9:18:00 | 4.69 | 5.23 | 12.3 | 154.3 | |
| 4/22/09 9:18:15 | 4.64 | 5.25 | 12.4 | 143.0 | |
| 4/22/09 9:18:30 | 4.60 | 5.27 | 12.5 | 139.1 | |
| 4/22/09 9:18:45 | 4.57 | 5.28 | 12.5 | 135.3 | |
| 4/22/09 9:19:00 | 4.57 | 5.28 | 12.6 | 137.2 | |
| 4/22/09 9:19:15 | 4.57 | 5.27 | 12.6 | 146.6 | |
| 4/22/09 9:19:30 | 4.56 | 5.27 | 12.6 | 149.5 | |
| 4/22/09 9:19:45 | 4.61 | 5.26 | 12.5 | 147.1 | |
| 4/22/09 9:20:00 | 4.58 | 5.26 | 12.5 | 143.3 | |
| 4/22/09 9:20:15 | 4.55 | 5.27 | 12.5 | 135.1 | |
| 4/22/09 9:20:30 | 4.54 | 5.27 | 12.5 | 134.0 | |
| 4/22/09 9:20:45 | 4.54 | 5.28 | 12.5 | 133.9 | |
| 4/22/09 9:21:00 | 4.50 | 5.32 | 12.6 | 130.4 | |
| 4/22/09 9:21:15 | 4.45 | 5.37 | 12.6 | 115.8 | |
| 4/22/09 9:21:30 | 4.39 | 5.40 | 12.6 | 108.6 | |
| 4/22/09 9:21:45 | 4.38 | 5.40 | 12.7 | 107.1 | |
| 4/22/09 9:22:00 | 4.39 | 5.39 | 12.6 | 110.8 | |
| 4/22/09 9:22:15 | 4.38 | 5.39 | 12.7 | 112.9 | |
| 4/22/09 9:22:30 | 4.40 | 5.36 | 12.4 | 110.5 | |
| 4/22/09 9:22:45 | 4.41 | 5.37 | 12.3 | 110.5 | |
| 4/22/09 9:23:00 | 4.43 | 5.36 | 12.5 | 116.4 | |
| 4/22/09 9:23:15 | 4.44 | 5.34 | 12.4 | 128.3 | |
| 4/22/09 9:23:30 | 4.46 | 5.34 | 12.4 | 128.0 | |
| 4/22/09 9:23:45 | 4.43 | 5.36 | 12.0 | 122.0 | |
| 4/22/09 9:24:00 | 4.41 | 5.35 | 12.0 | 126.8 | |
| 4/22/09 9:24:15 | 4.50 | 5.30 | 12.1 | 152.8 | |
| 4/22/09 9:24:30 | 4.54 | 5.28 | 12.2 | 164.6 | |
| 4/22/09 9:24:45 | 4.56 | 5.28 | 12.3 | 175.9 | |
| 4/22/09 9:25:00 | 4.56 | 5.28 | 12.3 | 177.4 | |
| 4/22/09 9:25:15 | 4.55 | 5.28 | 12.2 | 181.2 | |
| 4/22/09 9:25:30 | 4.57 | 5.27 | 12.1 | 185.5 | |
| 4/22/09 9:25:45 | 4.59 | 5.25 | 12.2 | 196.9 | |
| 4/22/09 9:26:00 | 4.61 | 5.24 | 12.3 | 199.1 | |
| 4/22/09 9:26:15 | 4.60 | 5.25 | 12.4 | 194.4 | |
| 4/22/09 9:26:30 | 4.58 | 5.25 | 12.3 | 192.5 | |
| 4/22/09 9:26:45 | 4.55 | 5.26 | 12.4 | 188.9 | |
| 4/22/09 9:27:00 | 4.53 | 5.27 | 12.3 | 186.1 | |
| 4/22/09 9:27:15 | 4.55 | 5.26 | 12.4 | 184.0 | |
| 4/22/09 9:27:30 | 4.53 | 5.26 | 12.6 | 185.4 | |
| 4/22/09 9:27:45 | 4.51 | 5.28 | 12.6 | 183.0 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/22/09 9:28:00 | 4.49 | 5.30 | 12.6 | 177.3 | |
| 4/22/09 9:28:15 | 4.46 | 5.32 | 12.7 | 171.5 | |
| 4/22/09 9:28:30 | 4.46 | 5.32 | 12.5 | 174.6 | |
| 4/22/09 9:28:45 | 4.46 | 5.32 | 12.6 | 184.0 | |
| 4/22/09 9:29:00 | 4.48 | 5.32 | 12.6 | 187.9 | |
| 4/22/09 9:29:15 | 4.46 | 5.33 | 12.6 | 193.1 | |
| 4/22/09 9:29:30 | 4.46 | 5.33 | 12.6 | 193.7 | |
| 4/22/09 9:29:45 | 4.46 | 5.33 | 12.8 | 192.5 | |
| 4/22/09 9:30:00 | 4.48 | 5.32 | 12.7 | 191.0 | |
| 4/22/09 9:30:15 | 4.49 | 5.32 | 12.7 | 184.6 | |
| 4/22/09 9:30:30 | 4.46 | 5.32 | 12.7 | 180.8 | |
| 4/22/09 9:30:45 | 4.48 | 5.31 | 12.6 | 180.8 | |
| 4/22/09 9:31:00 | 4.49 | 5.30 | 12.3 | 186.8 | |
| 4/22/09 9:31:15 | 4.53 | 5.26 | 12.4 | 209.2 | |
| 4/22/09 9:31:30 | 4.61 | 5.23 | 12.5 | 219.3 | |
| 4/22/09 9:31:45 | 4.64 | 5.22 | 12.5 | 223.1 | |
| 4/22/09 9:32:00 | 4.61 | 5.23 | 12.5 | 217.5 | |
| 4/22/09 9:32:15 | 4.56 | 5.26 | 12.5 | 205.3 | |
| 4/22/09 9:32:30 | 4.54 | 5.27 | 12.4 | 204.1 | |
| 4/22/09 9:32:45 | 4.57 | 5.26 | 12.4 | 212.3 | |
| 4/22/09 9:33:00 | 4.60 | 5.25 | 12.5 | 216.6 | |
| 4/22/09 9:33:15 | 4.58 | 5.27 | 12.5 | 215.0 | |
| 4/22/09 9:33:30 | 4.55 | 5.29 | 12.6 | 212.0 | |
| 4/22/09 9:33:45 | 4.57 | 5.27 | 12.5 | 209.6 | |
| 4/22/09 9:34:00 | 4.54 | 5.29 | 12.8 | 206.9 | |
| 4/22/09 9:34:15 | 4.53 | 5.31 | 12.7 | 200.9 | |
| 4/22/09 9:34:30 | 4.53 | 5.32 | 12.6 | 198.7 | |
| 4/22/09 9:34:45 | 4.51 | 5.32 | 12.5 | 191.4 | |
| 4/22/09 9:35:00 | 4.48 | 5.33 | 12.3 | 193.5 | |
| 4/22/09 9:35:15 | 4.50 | 5.31 | 12.5 | 219.6 | |
| 4/22/09 9:35:30 | 4.55 | 5.29 | 12.5 | 227.9 | |
| 4/22/09 9:35:45 | 4.56 | 5.29 | 12.4 | 218.3 | |
| 4/22/09 9:36:00 | 4.56 | 5.28 | 12.6 | 214.2 | |
| 4/22/09 9:36:15 | 4.59 | 5.25 | 12.6 | 218.7 | |
| 4/22/09 9:36:30 | 4.62 | 5.22 | 12.7 | 220.6 | |
| 4/22/09 9:36:45 | 4.64 | 5.22 | 12.8 | 219.6 | |
| 4/22/09 9:37:00 | 4.63 | 5.22 | 12.6 | 220.6 | |
| 4/22/09 9:37:15 | 4.64 | 5.23 | 12.6 | 224.2 | |
| 4/22/09 9:37:30 | 4.64 | 5.24 | 12.7 | 222.0 | |
| 4/22/09 9:37:45 | 4.63 | 5.24 | 12.7 | 209.3 | |
| 4/22/09 9:38:00 | 4.62 | 5.25 | 12.6 | 201.3 | |
| 4/22/09 9:38:15 | 4.60 | 5.26 | 12.7 | 192.8 | |
| 4/22/09 9:38:30 | 4.58 | 5.27 | 12.9 | 191.8 | |
| 4/22/09 9:38:45 | 4.55 | 5.28 | 12.9 | 185.1 | |
| 4/22/09 9:39:00 | 4.55 | 5.28 | 12.9 | 178.7 | |
| 4/22/09 9:39:15 | 4.50 | 5.30 | 12.9 | 166.7 | |
| 4/22/09 9:39:30 | 4.47 | 5.32 | 12.9 | 162.7 | |
| 4/22/09 9:39:45 | 4.49 | 5.32 | 13.1 | 157.7 | |
| 4/22/09 9:40:00 | 4.47 | 5.33 | 13.1 | 156.3 | |
| 4/22/09 9:40:15 | 4.46 | 5.33 | 13.0 | 159.4 | |
| 4/22/09 9:40:30 | 4.50 | 5.31 | 12.9 | 165.2 | |
| 4/22/09 9:40:45 | 4.55 | 5.28 | 12.9 | 177.7 | |
| 4/22/09 9:41:00 | 4.57 | 5.27 | 13.1 | 179.2 | |
| 4/22/09 9:41:15 | 4.54 | 5.27 | 12.9 | 175.6 | |
| 4/22/09 9:41:30 | 4.53 | 5.28 | 12.8 | 176.0 | |
| 4/22/09 9:41:45 | 4.58 | 5.26 | 13.0 | 180.1 | |
| 4/22/09 9:42:00 | 4.58 | 5.26 | 12.8 | 180.7 | |
| 4/22/09 9:42:15 | 4.57 | 5.27 | 12.8 | 180.1 | |
| 4/22/09 9:42:30 | 4.59 | 5.27 | 12.9 | 180.5 | |
| 4/22/09 9:42:45 | 4.58 | 5.27 | 12.8 | 178.9 | |
| 4/22/09 9:43:00 | 4.57 | 5.27 | 12.8 | 176.0 | |
| 4/22/09 9:43:15 | 4.59 | 5.26 | 12.8 | 177.6 | |
| 4/22/09 9:43:30 | 4.60 | 5.24 | 12.9 | 181.6 | |
| 4/22/09 9:43:45 | 4.59 | 5.25 | 12.9 | 178.2 | |
| 4/22/09 9:44:00 | 4.55 | 5.27 | 12.6 | 170.9 | |
| 4/22/09 9:44:15 | 4.54 | 5.28 | 12.7 | 165.4 | |
| 4/22/09 9:44:30 | 4.54 | 5.28 | 12.9 | 167.1 | |
| 4/22/09 9:44:45 | 4.54 | 5.28 | 13.0 | 157.8 | |
| 4/22/09 9:45:00 | 4.49 | 5.32 | 12.9 | 147.8 | |
| 4/22/09 9:45:15 | 4.42 | 5.37 | 13.0 | 136.0 | |
| 4/22/09 9:45:30 | 4.38 | 5.38 | 12.9 | 134.8 | |
| 4/22/09 9:45:45 | 4.41 | 5.37 | 13.0 | 136.4 | |
| 4/22/09 9:46:00 | 4.44 | 5.35 | 12.8 | 139.4 | |
| 4/22/09 9:46:15 | 4.44 | 5.35 | 12.8 | 146.0 | |
| 4/22/09 9:46:30 | 4.42 | 5.35 | 12.8 | 145.6 | |
| 4/22/09 9:46:45 | 4.42 | 5.37 | 12.8 | 137.1 | |
| 4/22/09 9:47:00 | 4.39 | 5.37 | 12.7 | 135.6 | |
| 4/22/09 9:47:15 | 4.42 | 5.35 | 12.8 | 140.0 | |
| 4/22/09 9:47:30 | 4.45 | 5.35 | 12.7 | 141.4 | |
| 4/22/09 9:47:45 | 4.45 | 5.35 | 12.7 | 139.7 | |
| 4/22/09 9:48:00 | 4.44 | 5.35 | 12.7 | 141.2 | |
| 4/22/09 9:48:15 | 4.48 | 5.32 | 12.8 | 157.5 | |
| 4/22/09 9:48:30 | 4.53 | 5.28 | 12.7 | 168.3 | |
| 4/22/09 9:48:45 | 4.56 | 5.25 | 12.7 | 183.3 | |
| 4/22/09 9:49:00 | 4.59 | 5.24 | 12.8 | 186.8 | |
| 4/22/09 9:49:15 | 4.57 | 5.25 | 12.6 | 185.3 | |
| 4/22/09 9:49:30 | 4.57 | 5.26 | 12.5 | 183.0 | |
| 4/22/09 9:49:45 | 4.60 | 5.24 | 12.6 | 185.5 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/22/09 9:50:00 | 4.61 | 5.24 | 12.6 | 186.5 | |
| 4/22/09 9:50:15 | 4.57 | 5.26 | 12.7 | 183.1 | |
| 4/22/09 9:50:30 | 4.53 | 5.28 | 12.6 | 180.4 | |
| 4/22/09 9:50:45 | 4.56 | 5.27 | 12.7 | 175.9 | |
| 4/22/09 9:51:00 | 4.57 | 5.27 | 12.8 | 177.6 | |
| 4/22/09 9:51:15 | 4.56 | 5.27 | 12.8 | 186.7 | |
| 4/22/09 9:51:30 | 4.58 | 5.26 | 12.7 | 189.7 | |
| 4/22/09 9:51:45 | 4.58 | 5.26 | 12.6 | 191.0 | |
| 4/22/09 9:52:00 | 4.60 | 5.25 | 12.6 | 192.7 | |
| 4/22/09 9:52:15 | 4.62 | 5.24 | 12.8 | 200.9 | |
| 4/22/09 9:52:30 | 4.61 | 5.25 | 12.8 | 202.1 | |
| 4/22/09 9:52:45 | 4.59 | 5.28 | 12.8 | 190.1 | |
| 4/22/09 9:53:00 | 4.51 | 5.34 | 12.9 | 180.8 | |
| 4/22/09 9:53:15 | 4.44 | 5.38 | 12.9 | 169.1 | |
| 4/22/09 9:53:30 | 4.45 | 5.39 | 12.8 | 167.2 | |
| 4/22/09 9:53:45 | 4.44 | 5.40 | 12.7 | 166.2 | |
| 4/22/09 9:54:00 | 4.45 | 5.39 | 12.9 | 172.6 | |
| 4/22/09 9:54:15 | 4.49 | 5.37 | 12.8 | 194.9 | |
| 4/22/09 9:54:30 | 4.49 | 5.37 | 12.8 | 201.8 | |
| 4/22/09 9:54:45 | 4.48 | 5.36 | 12.8 | 205.4 | |
| 4/22/09 9:55:00 | 4.53 | 5.33 | 12.7 | 203.4 | |
| 4/22/09 9:55:15 | 4.54 | 5.32 | 12.7 | 204.7 | |
| 4/22/09 9:55:30 | 4.55 | 5.32 | 12.7 | 207.0 | |
| 4/22/09 9:55:45 | 4.53 | 5.33 | 12.8 | 202.4 | |
| 4/22/09 9:56:00 | 4.52 | 5.34 | 12.4 | 200.6 | |
| 4/22/09 9:56:15 | 4.53 | 5.34 | 12.2 | 209.9 | |
| 4/22/09 9:56:30 | 4.58 | 5.31 | 12.3 | 217.6 | |
| 4/22/09 9:56:45 | 4.63 | 5.27 | 12.5 | 230.7 | |
| 4/22/09 9:57:00 | 4.63 | 5.26 | 12.5 | 235.2 | |
| 4/22/09 9:57:15 | 4.64 | 5.25 | 12.2 | 245.2 | |
| 4/22/09 9:57:30 | 4.68 | 5.24 | 12.3 | 252.1 | |
| 4/22/09 9:57:45 | 4.71 | 5.23 | 12.5 | 261.6 | |
| 4/22/09 9:58:00 | 4.69 | 5.24 | 12.6 | 258.5 | |
| 4/22/09 9:58:15 | 4.67 | 5.26 | 12.4 | 243.1 | |
| 4/22/09 9:58:30 | 4.66 | 5.27 | 12.4 | 238.4 | |
| 4/22/09 9:58:45 | 4.67 | 5.26 | 12.5 | 244.6 | |
| 4/22/09 9:59:00 | 4.70 | 5.25 | 12.6 | 250.3 | |
| 4/22/09 9:59:15 | 4.70 | 5.24 | 12.6 | 254.8 | |
| 4/22/09 9:59:30 | 4.70 | 5.25 | 12.5 | 252.4 | |
| 4/22/09 9:59:45 | 4.69 | 5.26 | 12.5 | 243.1 | |
| 4/22/09 10:00:00 | 4.69 | 5.27 | 12.6 | 240.2 | |
| 4/22/09 10:00:15 | 4.69 | 5.26 | 12.7 | 236.0 | |
| 4/22/09 10:00:30 | 4.66 | 5.28 | 12.7 | 230.5 | |
| 4/22/09 10:00:45 | 4.61 | 5.31 | 12.7 | 211.4 | |
| 4/22/09 10:01:00 | 4.58 | 5.32 | 12.8 | 201.3 | |
| 4/22/09 10:01:15 | 4.53 | 5.34 | 12.7 | 185.8 | |
| 4/22/09 10:01:30 | 4.48 | 5.37 | 12.8 | 181.3 | |
| 4/22/09 10:01:45 | 4.47 | 5.38 | 12.8 | 185.0 | |
| 4/22/09 10:02:00 | 4.50 | 5.36 | 12.9 | 190.3 | |
| 4/22/09 10:02:15 | 4.50 | 5.38 | 12.7 | 188.6 | |
| 4/22/09 10:02:30 | 4.48 | 5.39 | 12.8 | 181.7 | |
| 4/22/09 10:02:45 | 4.47 | 5.39 | 13.0 | 170.3 | |
| 4/22/09 10:03:00 | 4.48 | 5.38 | 13.0 | 167.2 | |
| 4/22/09 10:03:15 | 4.46 | 5.38 | 12.9 | 168.6 | |
| 4/22/09 10:03:30 | 4.50 | 5.35 | 12.9 | 172.6 | |
| 4/22/09 10:03:45 | 4.52 | 5.35 | 12.9 | 180.1 | |
| 4/22/09 10:04:00 | 4.51 | 5.35 | 12.9 | 182.6 | |
| 4/22/09 10:04:15 | 4.50 | 5.36 | 12.8 | 186.0 | |
| 4/22/09 10:04:30 | 4.52 | 5.35 | 12.9 | 184.3 | |
| 4/22/09 10:04:45 | 4.51 | 5.37 | 12.9 | 168.5 | |
| 4/22/09 10:05:00 | 4.48 | 5.38 | 13.1 | 162.7 | |
| 4/22/09 10:05:15 | 4.48 | 5.36 | 12.9 | 167.5 | |
| 4/22/09 10:05:30 | 4.52 | 5.35 | 12.8 | 170.1 | |
| 4/22/09 10:05:45 | 4.52 | 5.34 | 13.1 | 169.5 | |
| 4/22/09 10:06:00 | 4.51 | 5.34 | 12.9 | 169.2 | |
| 4/22/09 10:06:15 | 4.51 | 5.33 | 12.8 | 178.6 | |
| 4/22/09 10:06:30 | 4.57 | 5.29 | 12.7 | 191.4 | |
| 4/22/09 10:06:45 | 4.63 | 5.25 | 12.7 | 215.6 | |
| 4/22/09 10:07:00 | 4.66 | 5.23 | 12.7 | 217.6 | |
| 4/22/09 10:07:15 | 4.68 | 5.22 | 12.5 | 213.5 | |
| 4/22/09 10:07:30 | 4.67 | 5.23 | 12.6 | 211.5 | |
| 4/22/09 10:07:45 | 4.63 | 5.24 | 12.6 | 207.7 | |
| 4/22/09 10:08:00 | 4.62 | 5.26 | 12.6 | 206.8 | |
| 4/22/09 10:08:15 | 4.64 | 5.26 | 12.6 | 208.9 | |
| 4/22/09 10:08:30 | 4.65 | 5.25 | 12.8 | 208.9 | |
| 4/22/09 10:08:45 | 4.64 | 5.26 | 12.9 | 194.7 | |
| 4/22/09 10:09:00 | 4.60 | 5.29 | 12.9 | 181.3 | |
| 4/22/09 10:09:15 | 4.54 | 5.31 | 12.8 | 158.3 | |
| 4/22/09 10:09:30 | 4.54 | 5.29 | 13.0 | 154.5 | |
| 4/22/09 10:09:45 | 4.56 | 5.26 | 13.0 | 153.5 | |
| 4/22/09 10:10:00 | 4.49 | 5.29 | 13.0 | 149.3 | |
| 4/22/09 10:10:15 | 4.48 | 5.31 | 12.9 | 128.8 | |
| 4/22/09 10:10:30 | 4.43 | 5.35 | 13.1 | 119.8 | |
| 4/22/09 10:10:45 | 4.37 | 5.37 | 13.0 | 115.2 | |
| 4/22/09 10:11:00 | 4.35 | 5.37 | 13.0 | 113.8 | |
| 4/22/09 10:11:15 | 4.33 | 5.38 | 13.0 | 102.3 | |
| 4/22/09 10:11:30 | 4.30 | 5.40 | 13.1 | 96.1 | |
| 4/22/09 10:11:45 | 4.27 | 5.42 | 13.2 | 89.5 | |

# Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/22/09 10:12:00 | 4.27 | 5.43 | 13.2 | 84.2 | |
| 4/22/09 10:12:15 | 4.23 | 5.46 | 13.2 | 72.3 | |
| 4/22/09 10:12:30 | 4.20 | 5.47 | 13.1 | 71.6 | |
| 4/22/09 10:12:45 | 4.24 | 5.46 | 13.2 | 74.9 | |
| 4/22/09 10:13:00 | 4.24 | 5.46 | 13.2 | 74.1 | |
| 4/22/09 10:13:15 | 4.20 | 5.46 | 13.0 | 70.4 | |
| 4/22/09 10:13:30 | 4.20 | 5.47 | 13.1 | 70.1 | |
| 4/22/09 10:13:45 | 4.22 | 5.46 | 13.0 | 75.0 | |
| 4/22/09 10:14:00 | 4.23 | 5.44 | 12.7 | 78.0 | |
| 4/22/09 10:14:15 | 4.25 | 5.44 | 12.6 | 82.3 | |
| 4/22/09 10:14:30 | 4.29 | 5.41 | 12.7 | 88.7 | |
| 4/22/09 10:14:45 | 4.31 | 5.39 | 12.5 | 110.4 | |
| 4/22/09 10:15:00 | 4.35 | 5.37 | 12.8 | 120.1 | |
| 4/22/09 10:15:15 | 4.38 | 5.36 | 12.8 | 132.2 | |
| 4/22/09 10:15:30 | 4.41 | 5.36 | 13.0 | 133.2 | |
| 4/22/09 10:15:45 | 4.35 | 5.37 | 12.8 | 121.4 | |
| 4/22/09 10:16:00 | 4.36 | 5.37 | 12.7 | 114.7 | |
| 4/22/09 10:16:15 | 4.38 | 5.35 | 12.6 | 116.5 | |
| 4/22/09 10:16:30 | 4.42 | 5.34 | 12.6 | 122.4 | |
| 4/22/09 10:16:45 | 4.40 | 5.35 | 12.7 | 128.3 | |
| 4/22/09 10:17:00 | 4.40 | 5.35 | 12.5 | 127.7 | |
| 4/22/09 10:17:15 | 4.38 | 5.35 | 12.5 | 132.8 | |
| 4/22/09 10:17:30 | 4.39 | 5.32 | 12.7 | 140.5 | |
| 4/22/09 10:17:45 | 4.42 | 5.30 | 12.4 | 150.5 | |
| 4/22/09 10:18:00 | 4.45 | 5.28 | 12.3 | 154.7 | |
| 4/22/09 10:18:15 | 4.47 | 5.24 | 12.2 | 168.1 | |
| 4/22/09 10:18:30 | 4.49 | 5.22 | 12.1 | 176.0 | |
| 4/22/09 10:18:45 | 4.53 | 5.19 | 12.1 | 195.2 | |
| 4/22/09 10:19:00 | 4.56 | 5.17 | 12.1 | 205.4 | |
| 4/22/09 10:19:15 | 4.56 | 5.16 | 12.1 | 217.8 | |
| 4/22/09 10:19:30 | 4.56 | 5.16 | 12.1 | 216.5 | |
| 4/22/09 10:19:45 | 4.56 | 5.16 | 12.1 | 213.8 | |
| 4/22/09 10:20:00 | 4.61 | 5.12 | 12.0 | 215.7 | |
| 4/22/09 10:20:15 | 4.62 | 5.12 | 12.2 | 223.6 | |
| 4/22/09 10:20:30 | 4.68 | 5.08 | 12.3 | 232.1 | |
| 4/22/09 10:20:45 | 4.69 | 5.08 | 12.3 | 246.1 | |
| 4/22/09 10:21:00 | 4.69 | 5.09 | 12.2 | 245.6 | |
| 4/22/09 10:21:15 | 4.67 | 5.10 | 12.2 | 242.7 | |
| 4/22/09 10:21:30 | 4.66 | 5.09 | 12.4 | 242.4 | |
| 4/22/09 10:21:45 | 4.65 | 5.08 | 12.5 | 235.9 | |
| 4/22/09 10:22:00 | 4.64 | 5.10 | 12.4 | 230.2 | |
| 4/22/09 10:22:15 | 4.64 | 5.12 | 12.2 | 218.2 | |
| 4/22/09 10:22:30 | 4.63 | 5.13 | 12.4 | 216.6 | |
| 4/22/09 10:22:45 | 4.63 | 5.13 | 12.4 | 224.6 | |
| 4/22/09 10:23:00 | 4.62 | 5.14 | 12.5 | 227.3 | |
| 4/22/09 10:23:15 | 4.59 | 5.16 | 12.6 | 218.8 | |
| 4/22/09 10:23:30 | 4.57 | 5.19 | 12.5 | 212.4 | |
| 4/22/09 10:23:45 | 4.54 | 5.22 | 12.3 | 210.5 | |
| 4/22/09 10:24:00 | 4.51 | 5.24 | 12.2 | 213.5 | |
| 4/22/09 10:24:15 | 4.51 | 5.24 | 12.1 | 225.2 | |
| 4/22/09 10:24:30 | 4.52 | 5.23 | 12.2 | 233.8 | |
| 4/22/09 10:24:45 | 4.57 | 5.22 | 12.2 | 237.4 | |
| 4/22/09 10:25:00 | 4.52 | 5.25 | 12.4 | 232.4 | |
| 4/22/09 10:25:15 | 4.47 | 5.26 | 12.5 | 223.6 | |
| 4/22/09 10:25:30 | 4.48 | 5.25 | 12.4 | 217.5 | |
| 4/22/09 10:25:45 | 4.47 | 5.25 | 12.6 | 202.7 | |
| 4/22/09 10:26:00 | 4.48 | 5.25 | 12.7 | 198.5 | |
| 4/22/09 10:26:15 | 4.48 | 5.24 | 12.9 | 195.3 | |
| 4/22/09 10:26:30 | 4.48 | 5.24 | 12.8 | 188.8 | |
| 4/22/09 10:26:45 | 4.44 | 5.25 | 12.6 | 173.4 | |
| 4/22/09 10:27:00 | 4.46 | 5.23 | 12.9 | 176.8 | |
| 4/22/09 10:27:15 | 4.50 | 5.20 | 12.8 | 190.0 | |
| 4/22/09 10:27:30 | 4.52 | 5.20 | 13.0 | 189.7 | |
| 4/22/09 10:27:45 | 4.52 | 5.21 | 12.9 | 182.8 | |
| 4/22/09 10:28:00 | 4.52 | 5.21 | 12.9 | 183.7 | |
| 4/22/09 10:28:15 | 4.57 | 5.18 | 12.8 | 197.8 | |
| 4/22/09 10:28:30 | 4.60 | 5.17 | 12.8 | 205.6 | |
| 4/22/09 10:28:45 | 4.62 | 5.17 | 12.7 | 218.2 | |
| 4/22/09 10:29:00 | 4.64 | 5.16 | 12.8 | 223.6 | |
| 4/22/09 10:29:15 | 4.68 | 5.14 | 12.8 | 233.2 | |
| 4/22/09 10:29:30 | 4.71 | 5.13 | 12.7 | 237.0 | |
| 4/22/09 10:29:45 | 4.71 | 5.12 | 12.8 | 240.0 | |
| 4/22/09 10:30:00 | 4.71 | 5.12 | 12.7 | 239.7 | Change of Ports |
| 4/22/09 10:30:15 | 4.69 | 5.14 | 12.8 | 237.3 | |
| 4/22/09 10:30:30 | 4.66 | 5.16 | 12.7 | 234.1 | |
| 4/22/09 10:30:45 | 4.62 | 5.19 | 12.7 | 219.6 | |
| 4/22/09 10:31:00 | 4.59 | 5.20 | 12.8 | 213.5 | |
| 4/22/09 10:31:15 | 4.60 | 5.19 | 12.8 | 210.2 | |
| 4/22/09 10:31:30 | 4.62 | 5.20 | 12.7 | 209.3 | |
| 4/22/09 10:31:45 | 4.60 | 5.21 | 12.8 | 204.1 | |
| 4/22/09 10:32:00 | 4.58 | 5.21 | 12.9 | 201.8 | |
| 4/22/09 10:32:15 | 4.58 | 5.22 | 12.9 | 194.1 | |
| 4/22/09 10:32:30 | 4.59 | 5.23 | 11.5 | 183.7 | |
| 4/22/09 10:32:45 | 4.54 | 5.26 | 0.5 | 143.8 | |
| 4/22/09 10:33:00 | 7.04 | 4.03 | 0.2 | 108.6 | |
| 4/22/09 10:33:15 | 16.99 | 0.95 | 0.2 | 34.9 | |
| 4/22/09 10:33:30 | 20.22 | 0.26 | 0.2 | 14.9 | |
| 4/22/09 10:33:45 | 20.61 | 0.15 | 0.2 | 4.7 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/22/09 10:34:00 | 20.64 | 0.14 | 0.2 | 4.4 | |
| 4/22/09 10:34:15 | 20.65 | 0.13 | 0.2 | 4.7 | |
| 4/22/09 10:34:30 | 20.65 | 0.13 | 0.2 | 4.6 | |
| 4/22/09 10:34:45 | 20.65 | 0.13 | 0.2 | 4.8 | |
| 4/22/09 10:35:00 | 20.67 | 0.12 | 0.1 | 4.7 | |
| 4/22/09 10:35:15 | 20.66 | 0.12 | 0.1 | 4.8 | |
| 4/22/09 10:35:30 | 20.67 | 0.12 | 0.1 | 4.9 | |
| 4/22/09 10:35:45 | 20.68 | 0.11 | 0.2 | 4.8 | |
| 4/22/09 10:36:00 | 20.68 | 0.12 | 0.1 | 4.7 | |
| 4/22/09 10:36:15 | 20.67 | 0.12 | 0.1 | 4.5 | |
| 4/22/09 10:36:30 | 20.68 | 0.11 | 0.1 | 4.7 | |
| 4/22/09 10:36:45 | 20.69 | 0.11 | 0.1 | 4.7 | |
| 4/22/09 10:37:00 | 20.70 | 0.11 | 0.1 | 4.5 | |
| 4/22/09 10:37:15 | 20.70 | 0.11 | 0.1 | 4.2 | |
| 4/22/09 10:37:30 | 20.71 | 0.11 | 0.1 | 4.1 | |
| 4/22/09 10:37:45 | 20.71 | 0.10 | 0.1 | 4.2 | |
| 4/22/09 10:38:00 | 20.71 | 0.10 | 0.1 | 4.2 | |
| 4/22/09 10:38:15 | 20.71 | 0.10 | 0.1 | 4.1 | |
| 4/22/09 10:38:30 | 20.71 | 0.10 | 0.1 | 3.9 | |
| 4/22/09 10:38:45 | 20.71 | 0.10 | 0.1 | 3.9 | |
| 4/22/09 10:39:00 | 20.71 | 0.10 | 0.1 | 3.9 | |
| 4/22/09 10:39:15 | 20.71 | 0.10 | 0.1 | 3.9 | |
| 4/22/09 10:39:30 | 20.72 | 0.10 | 0.1 | 3.8 | |
| 4/22/09 10:39:45 | 20.72 | 0.10 | 0.1 | 3.6 | |
| 4/22/09 10:40:00 | 20.70 | 0.10 | 9.1 | 4.2 | |
| 4/22/09 10:40:15 | 20.48 | 0.30 | 13.1 | 39.3 | |
| 4/22/09 10:40:30 | 12.95 | 3.09 | 13.2 | 77.6 | |
| 4/22/09 10:40:45 | 6.11 | 4.74 | 13.2 | 137.9 | |
| 4/22/09 10:41:00 | 4.78 | 5.07 | 13.2 | 148.1 | |
| 4/22/09 10:41:15 | 4.65 | 5.11 | 13.0 | 149.3 | |
| 4/22/09 10:41:30 | 4.62 | 5.12 | 12.6 | 149.3 | |
| 4/22/09 10:41:45 | 4.61 | 5.11 | 12.8 | 154.8 | |
| 4/22/09 10:42:00 | 4.59 | 5.12 | 13.1 | 154.8 | |
| 4/22/09 10:42:15 | 4.53 | 5.17 | 13.1 | 137.5 | |
| 4/22/09 10:42:30 | 4.48 | 5.21 | 13.0 | 124.4 | |
| 4/22/09 10:42:45 | 4.44 | 5.23 | 12.8 | 109.8 | |
| 4/22/09 10:43:00 | 4.45 | 5.22 | 12.7 | 109.5 | |
| 4/22/09 10:43:15 | 4.42 | 5.22 | 13.0 | 112.2 | |
| 4/22/09 10:43:30 | 4.40 | 5.22 | 13.0 | 111.6 | |
| 4/22/09 10:43:45 | 4.40 | 5.23 | 13.1 | 109.9 | |
| 4/22/09 10:44:00 | 4.38 | 5.23 | 13.2 | 112.3 | |
| 4/22/09 10:44:15 | 4.41 | 5.22 | 13.2 | 116.9 | |
| 4/22/09 10:44:30 | 4.43 | 5.21 | 22.2 | 114.9 | |
| 4/22/09 10:44:45 | 4.45 | 5.18 | 1.5 | 92.9 | |
| 4/22/09 10:45:00 | 3.54 | 3.19 | 0.3 | 68.6 | |
| 4/22/09 10:45:15 | 1.15 | 0.77 | 0.2 | 20.1 | |
| 4/22/09 10:45:30 | 0.20 | 0.16 | 0.2 | 8.3 | |
| 4/22/09 10:45:45 | 0.12 | 0.09 | 0.2 | 2.7 | |
| 4/22/09 10:46:00 | 0.10 | 0.08 | 0.2 | 2.6 | |
| 4/22/09 10:46:15 | 0.09 | 0.07 | 0.2 | 2.6 | |
| 4/22/09 10:46:30 | 0.10 | 0.07 | 0.2 | 2.3 | |
| 4/22/09 10:46:45 | 0.10 | 0.07 | 11.2 | 8.3 | |
| 4/22/09 10:47:00 | 0.31 | 0.59 | 13.2 | 32.0 | |
| 4/22/09 10:47:15 | 2.66 | 3.29 | 13.2 | 122.8 | |
| 4/22/09 10:47:30 | 4.24 | 4.72 | 13.2 | 160.5 | |
| 4/22/09 10:47:45 | 4.56 | 5.04 | 13.2 | 192.1 | |
| 4/22/09 10:48:00 | 4.63 | 5.08 | 13.0 | 195.0 | |
| 4/22/09 10:48:15 | 4.62 | 5.09 | 13.1 | 194.4 | |
| 4/22/09 10:48:30 | 4.64 | 5.09 | 13.0 | 193.2 | |
| 4/22/09 10:48:45 | 4.64 | 5.10 | 13.1 | 189.7 | |
| 4/22/09 10:49:00 | 4.60 | 5.11 | 13.1 | 187.4 | |
| 4/22/09 10:49:15 | 4.58 | 5.12 | 13.1 | 185.2 | |
| 4/22/09 10:49:30 | 4.60 | 5.12 | 13.1 | 187.5 | |
| 4/22/09 10:49:45 | 4.64 | 5.11 | 13.1 | 195.5 | |
| 4/22/09 10:50:00 | 4.65 | 5.11 | 13.1 | 199.1 | |
| 4/22/09 10:50:15 | 4.65 | 5.11 | 13.1 | 203.0 | |
| 4/22/09 10:50:30 | 4.64 | 5.11 | 13.1 | 202.4 | |
| 4/22/09 10:50:45 | 4.65 | 5.10 | 13.2 | 193.7 | |
| 4/22/09 10:51:00 | 4.62 | 5.12 | 13.2 | 185.5 | |
| 4/22/09 10:51:15 | 4.53 | 5.16 | 13.2 | 165.3 | |
| 4/22/09 10:51:30 | 4.48 | 5.19 | 13.4 | 157.6 | |
| 4/22/09 10:51:45 | 4.44 | 5.20 | 13.2 | 151.7 | |
| 4/22/09 10:52:00 | 4.44 | 5.21 | 13.1 | 150.8 | |
| 4/22/09 10:52:15 | 4.42 | 5.22 | 13.1 | 158.1 | |
| 4/22/09 10:52:30 | 4.43 | 5.20 | 13.1 | 165.0 | |
| 4/22/09 10:52:45 | 4.47 | 5.18 | 12.8 | 170.7 | |
| 4/22/09 10:53:00 | 4.49 | 5.17 | 12.8 | 167.4 | |
| 4/22/09 10:53:15 | 4.45 | 5.18 | 12.7 | 163.4 | |
| 4/22/09 10:53:30 | 4.47 | 5.17 | 12.6 | 169.3 | |
| 4/22/09 10:53:45 | 4.52 | 5.16 | 12.8 | 184.8 | Resume Sampling |
| **4/22/09 10:54:00** | **4.51** | **5.17** | **12.7** | **188.9** | |
| **4/22/09 10:54:15** | **4.50** | **5.18** | **12.6** | **194.1** | |
| **4/22/09 10:54:30** | **4.50** | **5.17** | **12.5** | **192.9** | |
| **4/22/09 10:54:45** | **4.52** | **5.16** | **12.5** | **196.6** | |
| **4/22/09 10:55:00** | **4.55** | **5.13** | **12.5** | **206.5** | |
| **4/22/09 10:55:15** | **4.64** | **5.09** | **12.8** | **226.0** | |
| **4/22/09 10:55:30** | **4.64** | **5.07** | **12.8** | **230.1** | |
| **4/22/09 10:55:45** | **4.63** | **5.07** | **12.7** | **231.2** | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/22/09 10:56:00 | 4.67 | 5.06 | 12.7 | 233.6 | |
| 4/22/09 10:56:15 | 4.68 | 5.06 | 12.7 | 237.3 | |
| 4/22/09 10:56:30 | 4.64 | 5.08 | 12.5 | 235.7 | |
| 4/22/09 10:56:45 | 4.63 | 5.09 | 12.4 | 244.3 | |
| 4/22/09 10:57:00 | 4.67 | 5.08 | 12.3 | 255.0 | |
| 4/22/09 10:57:15 | 4.68 | 5.09 | 12.4 | 268.5 | |
| 4/22/09 10:57:30 | 4.69 | 5.10 | 12.3 | 271.0 | |
| 4/22/09 10:57:45 | 4.67 | 5.11 | 12.5 | 274.8 | |
| 4/22/09 10:58:00 | 4.66 | 5.11 | 12.6 | 276.1 | |
| 4/22/09 10:58:15 | 4.69 | 5.11 | 12.5 | 276.1 | |
| 4/22/09 10:58:30 | 4.70 | 5.12 | 12.5 | 279.3 | |
| 4/22/09 10:58:45 | 4.75 | 5.11 | 12.6 | 287.3 | |
| 4/22/09 10:59:00 | 4.75 | 5.11 | 13.1 | 285.6 | |
| 4/22/09 10:59:15 | 4.74 | 5.11 | 13.1 | 265.9 | |
| 4/22/09 10:59:30 | 4.70 | 5.14 | 13.1 | 248.6 | |
| 4/22/09 10:59:45 | 4.60 | 5.19 | 13.2 | 216.8 | |
| 4/22/09 11:00:00 | 4.52 | 5.21 | 13.1 | 206.2 | |
| 4/22/09 11:00:15 | 4.53 | 5.21 | 13.2 | 193.5 | |
| 4/22/09 11:00:30 | 4.53 | 5.21 | 13.0 | 192.2 | |
| 4/22/09 11:00:45 | 4.57 | 5.18 | 13.0 | 193.2 | |
| 4/22/09 11:01:00 | 4.63 | 5.16 | 12.9 | 197.6 | |
| 4/22/09 11:01:15 | 4.67 | 5.13 | 13.0 | 216.8 | |
| 4/22/09 11:01:30 | 4.74 | 5.08 | 12.8 | 223.1 | |
| 4/22/09 11:01:45 | 4.78 | 5.05 | 12.8 | 225.6 | |
| 4/22/09 11:02:00 | 4.79 | 5.04 | 12.7 | 228.3 | |
| 4/22/09 11:02:15 | 4.84 | 5.03 | 12.8 | 234.1 | |
| 4/22/09 11:02:30 | 4.85 | 5.04 | 12.8 | 232.9 | |
| 4/22/09 11:02:45 | 4.81 | 5.05 | 12.8 | 226.0 | |
| 4/22/09 11:03:00 | 4.81 | 5.05 | 12.7 | 225.3 | |
| 4/22/09 11:03:15 | 4.83 | 5.05 | 12.8 | 233.9 | |
| 4/22/09 11:03:30 | 4.82 | 5.06 | 12.7 | 238.2 | |
| 4/22/09 11:03:45 | 4.81 | 5.06 | 12.7 | 230.7 | |
| 4/22/09 11:04:00 | 4.83 | 5.06 | 12.7 | 223.0 | |
| 4/22/09 11:04:15 | 4.82 | 5.06 | 12.8 | 222.0 | |
| 4/22/09 11:04:30 | 4.83 | 5.06 | 12.8 | 229.3 | |
| 4/22/09 11:04:45 | 4.82 | 5.06 | 12.8 | 240.8 | |
| 4/22/09 11:05:00 | 4.84 | 5.06 | 12.7 | 240.0 | |
| 4/22/09 11:05:15 | 4.84 | 5.06 | 12.7 | 232.0 | |
| 4/22/09 11:05:30 | 4.84 | 5.06 | 12.6 | 231.0 | |
| 4/22/09 11:05:45 | 4.83 | 5.05 | 12.7 | 238.3 | |
| 4/22/09 11:06:00 | 4.85 | 5.05 | 12.6 | 238.8 | |
| 4/22/09 11:06:15 | 4.86 | 5.07 | 12.8 | 226.4 | |
| 4/22/09 11:06:30 | 4.81 | 5.08 | 12.7 | 218.5 | |
| 4/22/09 11:06:45 | 4.82 | 5.08 | 12.6 | 209.3 | |
| 4/22/09 11:07:00 | 4.83 | 5.07 | 12.5 | 208.4 | |
| 4/22/09 11:07:15 | 4.82 | 5.07 | 12.5 | 213.1 | |
| 4/22/09 11:07:30 | 4.81 | 5.08 | 12.5 | 213.8 | |
| 4/22/09 11:07:45 | 4.77 | 5.10 | 12.5 | 201.5 | |
| 4/22/09 11:08:00 | 4.72 | 5.14 | 12.6 | 193.5 | |
| 4/22/09 11:08:15 | 4.73 | 5.15 | 12.8 | 178.6 | |
| 4/22/09 11:08:30 | 4.69 | 5.17 | 12.9 | 169.5 | |
| 4/22/09 11:08:45 | 4.66 | 5.19 | 12.8 | 154.4 | |
| 4/22/09 11:09:00 | 4.63 | 5.21 | 12.6 | 148.4 | |
| 4/22/09 11:09:15 | 4.61 | 5.22 | 12.6 | 137.8 | |
| 4/22/09 11:09:30 | 4.58 | 5.23 | 12.6 | 132.5 | |
| 4/22/09 11:09:45 | 4.58 | 5.23 | 12.6 | 124.9 | |
| 4/22/09 11:10:00 | 4.61 | 5.23 | 12.9 | 124.0 | |
| 4/22/09 11:10:15 | 4.62 | 5.23 | 12.8 | 125.0 | |
| 4/22/09 11:10:30 | 4.62 | 5.23 | 12.8 | 125.2 | |
| 4/22/09 11:10:45 | 4.61 | 5.22 | 12.7 | 130.1 | |
| 4/22/09 11:11:00 | 4.64 | 5.20 | 12.7 | 136.3 | |
| 4/22/09 11:11:15 | 4.63 | 5.19 | 12.9 | 143.9 | |
| 4/22/09 11:11:30 | 4.61 | 5.20 | 12.8 | 140.9 | |
| 4/22/09 11:11:45 | 4.62 | 5.20 | 12.6 | 132.1 | |
| 4/22/09 11:12:00 | 4.64 | 5.19 | 12.9 | 133.6 | |
| 4/22/09 11:12:15 | 4.65 | 5.17 | 12.9 | 140.6 | |
| 4/22/09 11:12:30 | 4.66 | 5.16 | 13.0 | 141.2 | |
| 4/22/09 11:12:45 | 4.67 | 5.16 | 12.8 | 139.1 | |
| 4/22/09 11:13:00 | 4.67 | 5.15 | 12.8 | 139.7 | |
| 4/22/09 11:13:15 | 4.67 | 5.14 | 12.7 | 158.0 | |
| 4/22/09 11:13:30 | 4.71 | 5.10 | 12.8 | 172.6 | |
| 4/22/09 11:13:45 | 4.76 | 5.06 | 12.8 | 192.5 | |
| 4/22/09 11:14:00 | 4.80 | 5.04 | 13.1 | 194.9 | |
| 4/22/09 11:14:15 | 4.80 | 5.04 | 13.0 | 192.9 | |
| 4/22/09 11:14:30 | 4.78 | 5.05 | 12.9 | 193.7 | |
| 4/22/09 11:14:45 | 4.77 | 5.05 | 12.7 | 195.9 | |
| 4/22/09 11:15:00 | 4.77 | 5.06 | 12.5 | 197.3 | |
| 4/22/09 11:15:15 | 4.78 | 5.06 | 12.3 | 200.0 | |
| 4/22/09 11:15:30 | 4.77 | 5.07 | 12.3 | 200.3 | |
| 4/22/09 11:15:45 | 4.77 | 5.07 | 12.5 | 203.8 | |
| 4/22/09 11:16:00 | 4.76 | 5.08 | 12.8 | 207.1 | |
| 4/22/09 11:16:15 | 4.79 | 5.07 | 12.8 | 209.2 | |
| 4/22/09 11:16:30 | 4.78 | 5.08 | 12.8 | 203.4 | |
| 4/22/09 11:16:45 | 4.76 | 5.10 | 12.7 | 192.7 | |
| 4/22/09 11:17:00 | 4.77 | 5.09 | 12.8 | 195.2 | |
| 4/22/09 11:17:15 | 4.77 | 5.10 | 12.8 | 202.7 | |
| 4/22/09 11:17:30 | 4.74 | 5.12 | 12.8 | 200.4 | |
| 4/22/09 11:17:45 | 4.70 | 5.16 | 13.0 | 188.2 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/22/09 11:18:00 | 4.64 | 5.19 | 12.9 | 182.4 | |
| 4/22/09 11:18:15 | 4.63 | 5.20 | 12.8 | 169.8 | |
| 4/22/09 11:18:30 | 4.64 | 5.21 | 12.8 | 164.3 | |
| 4/22/09 11:18:45 | 4.61 | 5.22 | 13.1 | 164.6 | |
| 4/22/09 11:19:00 | 4.63 | 5.21 | 13.1 | 165.0 | |
| 4/22/09 11:19:15 | 4.63 | 5.20 | 13.1 | 158.4 | |
| 4/22/09 11:19:30 | 4.63 | 5.20 | 12.9 | 153.8 | |
| 4/22/09 11:19:45 | 4.63 | 5.20 | 13.1 | 144.8 | |
| 4/22/09 11:20:00 | 4.63 | 5.19 | 13.0 | 143.4 | |
| 4/22/09 11:20:15 | 4.62 | 5.20 | 12.9 | 140.5 | |
| 4/22/09 11:20:30 | 4.59 | 5.21 | 13.0 | 136.6 | |
| 4/22/09 11:20:45 | 4.56 | 5.23 | 13.1 | 123.3 | |
| 4/22/09 11:21:00 | 4.51 | 5.26 | 13.2 | 114.3 | |
| 4/22/09 11:21:15 | 4.50 | 5.27 | 13.1 | 96.9 | |
| 4/22/09 11:21:30 | 4.48 | 5.29 | 13.1 | 89.6 | |
| 4/22/09 11:21:45 | 4.43 | 5.31 | 12.9 | 88.6 | |
| 4/22/09 11:22:00 | 4.46 | 5.28 | 13.1 | 96.2 | |
| 4/22/09 11:22:15 | 4.50 | 5.27 | 13.2 | 107.9 | |
| 4/22/09 11:22:30 | 4.51 | 5.26 | 13.1 | 107.0 | |
| 4/22/09 11:22:45 | 4.50 | 5.26 | 13.0 | 102.9 | |
| 4/22/09 11:23:00 | 4.52 | 5.24 | 13.4 | 103.8 | |
| 4/22/09 11:23:15 | 4.50 | 5.26 | 13.3 | 104.2 | |
| 4/22/09 11:23:30 | 4.48 | 5.27 | 13.0 | 102.7 | |
| 4/22/09 11:23:45 | 4.48 | 5.28 | 13.2 | 101.4 | |
| 4/22/09 11:24:00 | 4.51 | 5.27 | 13.4 | 105.3 | |
| 4/22/09 11:24:15 | 4.52 | 5.26 | 13.4 | 118.9 | |
| 4/22/09 11:24:30 | 4.54 | 5.26 | 13.5 | 123.6 | |
| 4/22/09 11:24:45 | 4.57 | 5.24 | 13.3 | 131.9 | |
| 4/22/09 11:25:00 | 4.60 | 5.23 | 13.4 | 139.4 | |
| 4/22/09 11:25:15 | 4.66 | 5.20 | 13.3 | 157.5 | |
| 4/22/09 11:25:30 | 4.65 | 5.21 | 13.3 | 166.8 | |
| 4/22/09 11:25:45 | 4.67 | 5.20 | 13.1 | 183.6 | |
| 4/22/09 11:26:00 | 4.68 | 5.19 | 12.9 | 189.2 | |
| 4/22/09 11:26:15 | 4.70 | 5.19 | 13.2 | 209.5 | |
| 4/22/09 11:26:30 | 4.71 | 5.17 | 13.1 | 222.1 | |
| 4/22/09 11:26:45 | 4.75 | 5.16 | 13.3 | 232.1 | |
| 4/22/09 11:27:00 | 4.75 | 5.16 | 13.3 | 230.8 | |
| 4/22/09 11:27:15 | 4.74 | 5.16 | 13.4 | 222.6 | |
| 4/22/09 11:27:30 | 4.72 | 5.17 | 13.3 | 219.1 | |
| 4/22/09 11:27:45 | 4.71 | 5.17 | 13.2 | 216.5 | |
| 4/22/09 11:28:00 | 4.72 | 5.15 | 13.3 | 217.1 | |
| 4/22/09 11:28:15 | 4.72 | 5.14 | 13.2 | 219.8 | |
| 4/22/09 11:28:30 | 4.74 | 5.14 | 13.2 | 216.9 | |
| 4/22/09 11:28:45 | 4.76 | 5.14 | 13.1 | 205.4 | |
| 4/22/09 11:29:00 | 4.75 | 5.14 | 13.1 | 206.5 | |
| 4/22/09 11:29:15 | 4.77 | 5.12 | 12.9 | 229.8 | |
| 4/22/09 11:29:30 | 4.81 | 5.09 | 13.1 | 242.6 | |
| 4/22/09 11:29:45 | 4.87 | 5.06 | 13.2 | 243.8 | |
| 4/22/09 11:30:00 | 4.84 | 5.08 | 13.1 | 234.4 | |
| 4/22/09 11:30:15 | 4.80 | 5.10 | 13.3 | 216.9 | |
| 4/22/09 11:30:30 | 4.78 | 5.12 | 13.1 | 207.1 | |
| 4/22/09 11:30:45 | 4.75 | 5.14 | 13.2 | 200.6 | |
| 4/22/09 11:31:00 | 4.77 | 5.12 | 13.3 | 203.4 | |
| 4/22/09 11:31:15 | 4.79 | 5.12 | 13.1 | 206.5 | |
| 4/22/09 11:31:30 | 4.80 | 5.10 | 13.1 | 208.9 | |
| 4/22/09 11:31:45 | 4.81 | 5.09 | 13.0 | 217.2 | |
| 4/22/09 11:32:00 | 4.84 | 5.08 | 13.2 | 217.6 | |
| 4/22/09 11:32:15 | 4.81 | 5.09 | 13.2 | 199.4 | |
| 4/22/09 11:32:30 | 4.73 | 5.13 | 13.2 | 186.2 | |
| 4/22/09 11:32:45 | 4.71 | 5.16 | 13.3 | 163.5 | |
| 4/22/09 11:33:00 | 4.64 | 5.20 | 13.4 | 151.6 | |
| 4/22/09 11:33:15 | 4.56 | 5.24 | 13.4 | 130.9 | |
| 4/22/09 11:33:30 | 4.54 | 5.24 | 13.4 | 128.5 | |
| 4/22/09 11:33:45 | 4.59 | 5.21 | 13.7 | 133.0 | |
| 4/22/09 11:34:00 | 4.57 | 5.21 | 13.5 | 129.5 | |
| 4/22/09 11:34:15 | 4.55 | 5.22 | 13.7 | 115.0 | |
| 4/22/09 11:34:30 | 4.51 | 5.23 | 13.7 | 110.3 | |
| 4/22/09 11:34:45 | 4.57 | 5.22 | 13.7 | 106.4 | |
| 4/22/09 11:35:00 | 4.56 | 5.22 | 13.8 | 105.8 | |
| 4/22/09 11:35:15 | 4.56 | 5.22 | 13.8 | 98.4 | |
| 4/22/09 11:35:30 | 4.55 | 5.24 | 13.8 | 89.8 | |
| 4/22/09 11:35:45 | 4.50 | 5.26 | 13.7 | 77.1 | |
| 4/22/09 11:36:00 | 4.48 | 5.26 | 13.7 | 76.4 | |
| 4/22/09 11:36:15 | 4.49 | 5.25 | 13.6 | 81.3 | |
| 4/22/09 11:36:30 | 4.48 | 5.24 | 13.7 | 85.6 | |
| 4/22/09 11:36:45 | 4.49 | 5.23 | 13.6 | 92.8 | |
| 4/22/09 11:37:00 | 4.52 | 5.22 | 13.5 | 95.6 | |
| 4/22/09 11:37:15 | 4.53 | 5.21 | 13.4 | 103.8 | |
| 4/22/09 11:37:30 | 4.55 | 5.19 | 13.4 | 111.1 | |
| 4/22/09 11:37:45 | 4.57 | 5.17 | 13.1 | 135.6 | |
| 4/22/09 11:38:00 | 4.61 | 5.15 | 13.1 | 149.2 | |
| 4/22/09 11:38:15 | 4.63 | 5.14 | 13.3 | 170.1 | |
| 4/22/09 11:38:30 | 4.63 | 5.16 | 13.2 | 177.7 | |
| 4/22/09 11:38:45 | 4.65 | 5.16 | 13.2 | 197.6 | |
| 4/22/09 11:39:00 | 4.68 | 5.14 | 13.2 | 208.6 | |
| 4/22/09 11:39:15 | 4.70 | 5.12 | 13.4 | 223.6 | |
| 4/22/09 11:39:30 | 4.69 | 5.12 | 13.3 | 227.4 | |
| 4/22/09 11:39:45 | 4.70 | 5.12 | 13.2 | 225.8 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/22/09 11:40:00 | 4.71 | 5.11 | 13.1 | 226.7 | |
| 4/22/09 11:40:15 | 4.73 | 5.07 | 12.9 | 241.5 | |
| 4/22/09 11:40:30 | 4.78 | 5.04 | 13.0 | 251.0 | |
| 4/22/09 11:40:45 | 4.81 | 5.01 | 13.1 | 257.6 | |
| 4/22/09 11:41:00 | 4.82 | 5.01 | 13.1 | 256.8 | |
| 4/22/09 11:41:15 | 4.80 | 5.01 | 13.0 | 256.5 | |
| 4/22/09 11:41:30 | 4.80 | 5.02 | 13.1 | 252.7 | |
| 4/22/09 11:41:45 | 4.79 | 5.03 | 13.2 | 229.6 | |
| 4/22/09 11:42:00 | 4.75 | 5.05 | 13.2 | 216.4 | |
| 4/22/09 11:42:15 | 4.72 | 5.07 | 13.2 | 199.9 | |
| 4/22/09 11:42:30 | 4.71 | 5.07 | 13.4 | 200.7 | |
| 4/22/09 11:42:45 | 4.71 | 5.06 | 13.3 | 205.0 | |
| 4/22/09 11:43:00 | 4.71 | 5.06 | 13.2 | 205.0 | |
| 4/22/09 11:43:15 | 4.73 | 5.04 | 13.3 | 207.4 | |
| 4/22/09 11:43:30 | 4.73 | 5.04 | 13.2 | 208.9 | |
| 4/22/09 11:43:45 | 4.72 | 5.06 | 13.3 | 193.8 | |
| 4/22/09 11:44:00 | 4.69 | 5.10 | 13.2 | 179.8 | |
| 4/22/09 11:44:15 | 4.62 | 5.14 | 13.3 | 165.9 | |
| 4/22/09 11:44:30 | 4.60 | 5.15 | 13.4 | 165.9 | |
| 4/22/09 11:44:45 | 4.59 | 5.16 | 13.7 | 163.1 | |
| 4/22/09 11:45:00 | 4.58 | 5.17 | 13.5 | 158.8 | |
| 4/22/09 11:45:15 | 4.56 | 5.18 | 13.6 | 151.1 | |
| 4/22/09 11:45:30 | 4.55 | 5.17 | 13.8 | 149.8 | |
| 4/22/09 11:45:45 | 4.61 | 5.13 | 13.8 | 154.3 | |
| 4/22/09 11:46:00 | 4.64 | 5.09 | 14.0 | 157.8 | |
| 4/22/09 11:46:15 | 4.68 | 5.07 | 13.8 | 161.1 | |
| 4/22/09 11:46:30 | 4.69 | 5.07 | 13.7 | 160.6 | |
| 4/22/09 11:46:45 | 4.69 | 5.06 | 13.7 | 157.6 | |
| 4/22/09 11:47:00 | 4.69 | 5.05 | 13.7 | 157.9 | |
| 4/22/09 11:47:15 | 4.67 | 5.05 | 13.7 | 161.1 | |
| 4/22/09 11:47:30 | 4.70 | 5.04 | 13.3 | 162.4 | |
| 4/22/09 11:47:45 | 4.69 | 5.05 | 13.2 | 168.0 | |
| 4/22/09 11:48:00 | 4.70 | 5.04 | 13.5 | 171.5 | |
| 4/22/09 11:48:15 | 4.72 | 5.04 | 13.5 | 173.1 | |
| 4/22/09 11:48:30 | 4.71 | 5.06 | 13.5 | 173.4 | |
| 4/22/09 11:48:45 | 4.71 | 5.08 | 13.5 | 175.9 | |
| 4/22/09 11:49:00 | 4.71 | 5.11 | 13.2 | 176.0 | |
| 4/22/09 11:49:15 | 4.70 | 5.14 | 13.1 | 172.1 | |
| 4/22/09 11:49:30 | 4.68 | 5.16 | 13.3 | 169.5 | |
| 4/22/09 11:49:45 | 4.67 | 5.18 | 13.4 | 158.7 | |
| 4/22/09 11:50:00 | 4.63 | 5.22 | 13.6 | 148.0 | |
| 4/22/09 11:50:15 | 4.58 | 5.25 | 13.7 | 123.1 | |
| 4/22/09 11:50:30 | 4.53 | 5.28 | 13.6 | 112.2 | |
| 4/22/09 11:50:45 | 4.46 | 5.33 | 13.8 | 92.5 | |
| 4/22/09 11:51:00 | 4.40 | 5.36 | 13.7 | 84.7 | |
| 4/22/09 11:51:15 | 4.35 | 5.37 | 13.8 | 74.6 | |
| 4/22/09 11:51:30 | 4.37 | 5.36 | 13.8 | 70.9 | |
| 4/22/09 11:51:45 | 4.38 | 5.35 | 13.7 | 67.5 | |
| 4/22/09 11:52:00 | 4.36 | 5.34 | 13.7 | 67.2 | |
| 4/22/09 11:52:15 | 4.37 | 5.33 | 13.7 | 67.2 | |
| 4/22/09 11:52:30 | 4.35 | 5.34 | 13.5 | 66.1 | |
| 4/22/09 11:52:45 | 4.32 | 5.36 | 13.6 | 58.9 | |
| 4/22/09 11:53:00 | 4.28 | 5.38 | 13.5 | 55.9 | |
| 4/22/09 11:53:15 | 4.23 | 5.39 | 13.5 | 53.5 | |
| 4/22/09 11:53:30 | 4.21 | 5.39 | 13.4 | 53.2 | |
| 4/22/09 11:53:45 | 4.23 | 5.37 | 13.5 | 57.7 | |
| 4/22/09 11:54:00 | 4.26 | 5.35 | 13.5 | 63.2 | |
| 4/22/09 11:54:15 | 4.30 | 5.32 | 13.1 | 82.5 | |
| 4/22/09 11:54:30 | 4.37 | 5.28 | 13.5 | 95.9 | |
| 4/22/09 11:54:45 | 4.44 | 5.24 | 13.3 | 120.4 | |
| 4/22/09 11:55:00 | 4.48 | 5.22 | 13.4 | 130.8 | |
| 4/22/09 11:55:15 | 4.49 | 5.19 | 13.4 | 145.9 | |
| 4/22/09 11:55:30 | 4.50 | 5.18 | 13.3 | 152.8 | |
| 4/22/09 11:55:45 | 4.49 | 5.18 | 13.3 | 172.1 | |
| 4/22/09 11:56:00 | 4.49 | 5.18 | 13.3 | 179.9 | |
| 4/22/09 11:56:15 | 4.51 | 5.17 | 13.4 | 193.8 | |
| 4/22/09 11:56:30 | 4.55 | 5.15 | 13.4 | 204.7 | |
| 4/22/09 11:56:45 | 4.61 | 5.13 | 13.5 | 223.1 | |
| 4/22/09 11:57:00 | 4.62 | 5.12 | 13.5 | 230.2 | |
| 4/22/09 11:57:15 | 4.61 | 5.12 | 13.5 | 251.7 | |
| 4/22/09 11:57:30 | 4.65 | 5.10 | 13.3 | 263.9 | |
| 4/22/09 11:57:45 | 4.68 | 5.08 | 13.3 | 284.5 | |
| 4/22/09 11:58:00 | 4.70 | 5.07 | 13.4 | 292.3 | |
| 4/22/09 11:58:15 | 4.72 | 5.06 | 13.3 | 298.4 | |
| 4/22/09 11:58:30 | 4.71 | 5.07 | 13.3 | 299.0 | |
| 4/22/09 11:58:45 | 4.75 | 5.04 | 13.5 | 302.3 | |
| 4/22/09 11:59:00 | 4.80 | 5.02 | 13.5 | 299.6 | |
| 4/22/09 11:59:15 | 4.79 | 5.03 | 13.3 | 286.1 | |
| 4/22/09 11:59:30 | 4.81 | 5.03 | 13.3 | 283.0 | |
| 4/22/09 11:59:45 | 4.81 | 5.03 | 13.3 | 284.4 | |
| 4/22/09 12:00:00 | 4.79 | 5.04 | 13.3 | 284.5 | |
| 4/22/09 12:00:15 | 4.80 | 5.03 | 13.5 | 283.6 | |
| 4/22/09 12:00:30 | 4.80 | 5.02 | 13.5 | 280.1 | |
| 4/22/09 12:00:45 | 4.78 | 5.04 | 13.2 | 265.5 | |
| 4/22/09 12:01:00 | 4.74 | 5.04 | 13.4 | 260.6 | |
| 4/22/09 12:01:15 | 4.73 | 5.05 | 13.3 | 254.8 | |
| 4/22/09 12:01:30 | 4.75 | 5.05 | 13.4 | 255.7 | |
| 4/22/09 12:01:45 | 4.77 | 5.05 | 13.5 | 261.4 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/22/09 12:02:00 | 4.76 | 5.06 | 13.4 | 256.8 | |
| 4/22/09 12:02:15 | 4.72 | 5.08 | 13.4 | 244.4 | |
| 4/22/09 12:02:30 | 4.70 | 5.08 | 13.1 | 238.5 | |
| 4/22/09 12:02:45 | 4.71 | 5.08 | 13.3 | 229.9 | |
| 4/22/09 12:03:00 | 4.70 | 5.08 | 13.4 | 224.2 | |
| 4/22/09 12:03:15 | 4.67 | 5.09 | 13.4 | 203.9 | |
| 4/22/09 12:03:30 | 4.58 | 5.13 | 13.5 | 189.1 | |
| 4/22/09 12:03:45 | 4.52 | 5.16 | 13.3 | 171.3 | |
| 4/22/09 12:04:00 | 4.49 | 5.17 | 13.3 | 171.9 | |
| 4/22/09 12:04:15 | 4.48 | 5.18 | 13.4 | 171.6 | |
| 4/22/09 12:04:30 | 4.52 | 5.18 | 13.4 | 167.7 | |
| 4/22/09 12:04:45 | 4.49 | 5.20 | 13.5 | 162.3 | |
| 4/22/09 12:05:00 | 4.45 | 5.22 | 13.5 | 161.1 | |
| 4/22/09 12:05:15 | 4.44 | 5.23 | 13.6 | 157.1 | |
| 4/22/09 12:05:30 | 4.48 | 5.23 | 13.6 | 155.9 | |
| 4/22/09 12:05:45 | 4.49 | 5.23 | 13.4 | 159.0 | |
| 4/22/09 12:06:00 | 4.49 | 5.23 | 13.6 | 165.3 | |
| 4/22/09 12:06:15 | 4.54 | 5.21 | 13.5 | 181.9 | |
| 4/22/09 12:06:30 | 4.55 | 5.21 | 13.5 | 187.0 | |
| 4/22/09 12:06:45 | 4.53 | 5.22 | 13.5 | 192.4 | |
| 4/22/09 12:07:00 | 4.56 | 5.20 | 13.5 | 193.7 | |
| 4/22/09 12:07:15 | 4.56 | 5.19 | 13.5 | 193.3 | |
| 4/22/09 12:07:30 | 4.56 | 5.20 | 13.4 | 190.9 | |
| 4/22/09 12:07:45 | 4.56 | 5.21 | 13.5 | 186.0 | |
| 4/22/09 12:08:00 | 4.54 | 5.22 | 13.8 | 185.6 | |
| 4/22/09 12:08:15 | 4.58 | 5.21 | 13.7 | 188.8 | |
| 4/22/09 12:08:30 | 4.60 | 5.21 | 13.5 | 190.1 | |
| 4/22/09 12:08:45 | 4.60 | 5.20 | 13.6 | 195.9 | |
| 4/22/09 12:09:00 | 4.59 | 5.19 | 13.7 | 205.4 | |
| 4/22/09 12:09:15 | 4.63 | 5.15 | 13.8 | 221.7 | |
| 4/22/09 12:09:30 | 4.69 | 5.11 | 13.9 | 222.3 | |
| 4/22/09 12:09:45 | 4.72 | 5.09 | 14.0 | 217.2 | |
| 4/22/09 12:10:00 | 4.71 | 5.09 | 14.0 | 214.1 | |
| 4/22/09 12:10:15 | 4.71 | 5.09 | 13.8 | 209.5 | |
| 4/22/09 12:10:30 | 4.69 | 5.10 | 13.9 | 209.0 | |
| 4/22/09 12:10:45 | 4.71 | 5.09 | 14.0 | 211.2 | |
| 4/22/09 12:11:00 | 4.70 | 5.09 | 14.1 | 211.1 | |
| 4/22/09 12:11:15 | 4.70 | 5.10 | 14.0 | 204.1 | |
| 4/22/09 12:11:30 | 4.68 | 5.11 | 14.1 | 200.4 | |
| 4/22/09 12:11:45 | 4.66 | 5.12 | 14.0 | 199.6 | |
| 4/22/09 12:12:00 | 4.66 | 5.13 | 13.8 | 198.5 | |
| 4/22/09 12:12:15 | 4.63 | 5.14 | 13.8 | 197.2 | |
| 4/22/09 12:12:30 | 4.66 | 5.11 | 13.8 | 200.3 | |
| 4/22/09 12:12:45 | 4.68 | 5.10 | 13.8 | 208.3 | |
| 4/22/09 12:13:00 | 4.68 | 5.10 | 13.9 | 209.5 | |
| 4/22/09 12:13:15 | 4.64 | 5.12 | 13.8 | 200.6 | |
| 4/22/09 12:13:30 | 4.58 | 5.16 | 13.9 | 193.5 | |
| 4/22/09 12:13:45 | 4.54 | 5.18 | 13.8 | 181.0 | |
| 4/22/09 12:14:00 | 4.55 | 5.19 | 14.0 | 176.7 | |
| 4/22/09 12:14:15 | 4.52 | 5.20 | 13.9 | 172.4 | |
| 4/22/09 12:14:30 | 4.51 | 5.21 | 13.6 | 171.1 | |
| 4/22/09 12:14:45 | 4.50 | 5.22 | 13.5 | 171.2 | |
| 4/22/09 12:15:00 | 4.51 | 5.20 | 13.7 | 173.3 | |
| 4/22/09 12:15:15 | 4.53 | 5.19 | 13.8 | 182.4 | |
| 4/22/09 12:15:30 | 4.56 | 5.18 | 13.8 | 186.4 | |
| 4/22/09 12:15:45 | 4.58 | 5.18 | 13.8 | 185.1 | |
| 4/22/09 12:16:00 | 4.57 | 5.17 | 13.7 | 182.2 | |
| 4/22/09 12:16:15 | 4.58 | 5.17 | 13.8 | 178.3 | |
| 4/22/09 12:16:30 | 4.56 | 5.19 | 13.7 | 174.7 | |
| 4/22/09 12:16:45 | 4.54 | 5.21 | 13.6 | 166.0 | |
| 4/22/09 12:17:00 | 4.53 | 5.21 | 13.6 | 165.0 | |
| 4/22/09 12:17:15 | 4.56 | 5.20 | 13.6 | 170.4 | |
| 4/22/09 12:17:30 | 4.57 | 5.18 | 13.7 | 176.5 | |
| 4/22/09 12:17:45 | 4.61 | 5.15 | 13.5 | 195.2 | |
| 4/22/09 12:18:00 | 4.66 | 5.11 | 13.3 | 202.7 | |
| 4/22/09 12:18:15 | 4.69 | 5.09 | 13.3 | 205.1 | |
| 4/22/09 12:18:30 | 4.68 | 5.10 | 13.6 | 204.4 | |
| 4/22/09 12:18:45 | 4.70 | 5.09 | 13.8 | 200.3 | |
| 4/22/09 12:19:00 | 4.71 | 5.09 | 13.9 | 195.5 | |
| 4/22/09 12:19:15 | 4.70 | 5.09 | 14.0 | 187.4 | |
| 4/22/09 12:19:30 | 4.66 | 5.11 | 13.9 | 181.9 | |
| 4/22/09 12:19:45 | 4.64 | 5.12 | 13.9 | 165.9 | |
| 4/22/09 12:20:00 | 4.63 | 5.12 | 14.0 | 159.9 | |
| 4/22/09 12:20:15 | 4.61 | 5.11 | 14.2 | 155.1 | |
| 4/22/09 12:20:30 | 4.61 | 5.11 | 14.2 | 154.5 | |
| 4/22/09 12:20:45 | 4.56 | 5.16 | 14.1 | 152.4 | |
| 4/22/09 12:21:00 | 4.53 | 5.18 | 14.2 | 149.0 | |
| 4/22/09 12:21:15 | 4.52 | 5.19 | 14.0 | 142.9 | |
| 4/22/09 12:21:30 | 4.51 | 5.18 | 13.6 | 145.9 | |
| 4/22/09 12:21:45 | 4.51 | 5.18 | 14.0 | 161.5 | |
| 4/22/09 12:22:00 | 4.53 | 5.18 | 14.1 | 166.8 | |
| 4/22/09 12:22:15 | 4.53 | 5.18 | 14.1 | 160.2 | |
| 4/22/09 12:22:30 | 4.54 | 5.18 | 14.1 | 153.3 | |
| 4/22/09 12:22:45 | 4.51 | 5.20 | 13.6 | 151.4 | |
| 4/22/09 12:23:00 | 4.50 | 5.20 | 13.6 | 157.4 | |
| 4/22/09 12:23:15 | 4.52 | 5.20 | 13.4 | 170.3 | |
| 4/22/09 12:23:30 | 4.53 | 5.20 | 13.7 | 173.0 | |
| 4/22/09 12:23:45 | 4.53 | 5.21 | 13.7 | 171.8 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/22/09 12:24:00 | 4.50 | 5.23 | 13.7 | 171.2 | End Run No. SRU3-3 |
| 4/22/09 12:24:15 | 4.51 | 5.23 | 13.8 | 174.4 | |
| 4/22/09 12:24:30 | 4.51 | 5.23 | 13.1 | 173.0 | |
| 4/22/09 12:24:45 | 4.50 | 5.24 | 21.8 | 149.0 | |
| 4/22/09 12:25:00 | 4.19 | 4.17 | 1.5 | 116.4 | |
| 4/22/09 12:25:15 | 3.39 | 1.40 | 0.9 | 38.1 | |
| 4/22/09 12:25:30 | 4.08 | 0.25 | 0.6 | 15.6 | |
| 4/22/09 12:25:45 | 4.39 | 0.12 | 0.5 | 3.0 | |
| 4/22/09 12:26:00 | 4.42 | 0.09 | 0.5 | 2.4 | |
| 4/22/09 12:26:15 | 4.40 | 0.08 | 0.4 | 2.0 | |
| 4/22/09 12:26:30 | 4.39 | 0.08 | 0.4 | 2.0 | |
| 4/22/09 12:26:45 | 4.37 | 0.07 | 0.4 | 2.1 | |
| 4/22/09 12:27:00 | 4.36 | 0.07 | 0.3 | 2.3 | |
| 4/22/09 12:27:15 | 4.37 | 0.07 | 0.3 | 2.1 | |
| 4/22/09 12:27:30 | 4.40 | 0.06 | 0.3 | 2.0 | |
| 4/22/09 12:27:45 | 4.41 | 0.06 | 0.3 | 2.1 | |
| 4/22/09 12:28:00 | 4.43 | 0.06 | 0.3 | 2.1 | |
| 4/22/09 12:28:15 | 4.43 | 0.06 | 0.3 | 2.1 | System Bias |
| **4/22/09 12:28:30** | **4.44** | **0.06** | **0.2** | 2.0 | **4.44 4.50% $O_2$** |
| **4/22/09 12:28:45** | 4.43 | **0.05** | **0.2** | 1.8 | **0.05 Zero $CO_2$** |
| **4/22/09 12:29:00** | **4.44** | **0.05** | **0.2** | 2.0 | **0.2 Zero $NO_x$** |
| **4/22/09 12:29:15** | **4.45** | **0.05** | **0.2** | 2.1 | |
| 4/22/09 12:29:30 | 4.45 | 0.05 | 1.2 | 2.1 | |
| 4/22/09 12:29:45 | 5.78 | 0.06 | 0.9 | 1.8 | |
| 4/22/09 12:30:00 | 8.06 | 0.52 | 0.3 | 1.5 | |
| 4/22/09 12:30:15 | 2.27 | 3.03 | 0.2 | 1.1 | |
| 4/22/09 12:30:30 | 0.38 | 4.28 | 0.2 | 0.9 | |
| 4/22/09 12:30:45 | 0.11 | 4.44 | 0.2 | 0.6 | |
| 4/22/09 12:31:00 | 0.07 | 4.30 | 0.2 | 0.6 | |
| 4/22/09 12:31:15 | 0.07 | 4.17 | 0.2 | 0.8 | |
| 4/22/09 12:31:30 | 0.07 | 4.13 | 0.2 | 0.8 | |
| 4/22/09 12:31:45 | 0.06 | 4.22 | 0.2 | 0.8 | |
| 4/22/09 12:32:00 | 0.06 | 4.41 | 0.2 | 0.6 | |
| 4/22/09 12:32:15 | 0.05 | 4.55 | 0.1 | 0.5 | |
| 4/22/09 12:32:30 | 0.06 | 4.61 | 0.2 | 0.6 | |
| 4/22/09 12:32:45 | 0.05 | 4.63 | 0.1 | 0.8 | |
| 4/22/09 12:33:00 | 0.04 | 4.64 | 0.1 | 0.8 | |
| 4/22/09 12:33:15 | 0.05 | 4.65 | 0.1 | 0.5 | System Bias |
| **4/22/09 12:33:30** | 0.05 | **4.65** | 0.1 | **0.5** | |
| **4/22/09 12:33:45** | 0.05 | **4.66** | 0.1 | **0.6** | **4.66 4.50% $CO_2$** |
| **4/22/09 12:34:00** | 0.05 | **4.66** | 0.1 | **0.8** | |
| **4/22/09 12:34:15** | 0.05 | **4.66** | 0.1 | **0.6** | **0.6 Zero CO** |
| 4/22/09 12:34:30 | 0.05 | 4.66 | 11.9 | 0.5 | |
| 4/22/09 12:34:45 | 2.81 | 3.77 | 2.8 | 17.3 | |
| 4/22/09 12:35:00 | 8.85 | 2.05 | 0.4 | 53.5 | |
| 4/22/09 12:35:15 | 2.70 | 0.71 | 0.2 | 163.4 | |
| 4/22/09 12:35:30 | 0.33 | 0.19 | 0.2 | 199.6 | |
| 4/22/09 12:35:45 | 0.09 | 0.11 | 0.2 | 221.1 | |
| 4/22/09 12:36:00 | 0.06 | 0.09 | 0.1 | 222.6 | |
| 4/22/09 12:36:15 | 0.06 | 0.08 | 0.1 | 223.6 | |
| 4/22/09 12:36:30 | 0.06 | 0.07 | 0.1 | 223.6 | |
| 4/22/09 12:36:45 | 0.05 | 0.07 | 0.1 | 223.4 | |
| 4/22/09 12:37:00 | 0.06 | 0.07 | 0.1 | 223.4 | System Bias |
| **4/22/09 12:37:15** | **0.06** | 0.07 | 0.1 | **223.7** | **0.05 Zero $O_2$** |
| **4/22/09 12:37:30** | **0.05** | 0.06 | 0.1 | **224.0** | |
| **4/22/09 12:37:45** | **0.05** | 0.06 | 0.1 | **223.6** | |
| **4/22/09 12:38:00** | **0.05** | 0.06 | 0.1 | **223.4** | **223.7 225.0 ppm CO** |
| 4/22/09 12:38:15 | 0.05 | 0.06 | 0.1 | 223.4 | |
| 4/22/09 12:38:30 | 0.05 | 0.06 | 0.1 | 218.4 | |
| 4/22/09 12:38:45 | 1.87 | 0.06 | 0.1 | 158.5 | |
| 4/22/09 12:39:00 | 6.49 | 0.08 | 15.7 | 111.7 | |
| 4/22/09 12:39:15 | 1.71 | 0.07 | 22.6 | 42.7 | |
| 4/22/09 12:39:30 | 0.22 | 0.07 | 23.6 | 23.8 | |
| 4/22/09 12:39:45 | 0.08 | 0.05 | 24.7 | 6.5 | |
| 4/22/09 12:40:00 | 0.07 | 0.05 | 27.3 | 3.8 | |
| 4/22/09 12:40:15 | 0.06 | 0.05 | 27.0 | 2.4 | |
| 4/22/09 12:40:30 | 0.06 | 0.05 | 25.4 | 2.3 | |
| 4/22/09 12:40:45 | 0.07 | 0.05 | 33.5 | 2.3 | |
| 4/22/09 12:41:00 | 0.07 | 0.05 | 46.1 | 2.4 | |
| 4/22/09 12:41:15 | 0.06 | 0.05 | 45.4 | 2.3 | |
| 4/22/09 12:41:30 | 0.05 | 0.05 | 44.2 | 2.1 | |
| 4/22/09 12:41:45 | 0.05 | 0.05 | 43.7 | 2.0 | |
| 4/22/09 12:42:00 | 0.05 | 0.05 | 43.4 | 2.0 | |
| 4/22/09 12:42:15 | 0.05 | 0.05 | 43.1 | 2.1 | |
| 4/22/09 12:42:30 | 0.05 | 0.05 | 42.9 | 2.1 | |
| 4/22/09 12:42:45 | 0.05 | 0.05 | 42.7 | 1.8 | |
| 4/22/09 12:43:00 | 0.05 | 0.05 | 42.6 | 1.8 | |
| 4/22/09 12:43:15 | 0.05 | 0.05 | 42.5 | 2.0 | |
| 4/22/09 12:43:30 | 0.05 | 0.05 | 42.3 | 2.0 | |
| 4/22/09 12:43:45 | 0.05 | 0.05 | 42.3 | 2.0 | |
| 4/22/09 12:44:00 | 0.05 | 0.05 | 42.2 | 1.8 | |
| 4/22/09 12:44:15 | 0.05 | 0.05 | 42.1 | 1.8 | |
| 4/22/09 12:44:30 | 0.05 | 0.05 | 42.1 | 2.0 | |
| 4/22/09 12:44:45 | 0.05 | 0.05 | 42.0 | 2.0 | System Bias |
| **4/22/09 12:45:00** | 0.05 | 0.05 | **42.0** | 1.8 | |
| **4/22/09 12:45:15** | 0.05 | 0.05 | **42.0** | 1.7 | |
| **4/22/09 12:45:30** | 0.05 | 0.05 | **42.0** | 1.8 | **42.0 45.0 ppm $NO_x$** |
| **4/22/09 12:45:45** | 0.05 | 0.05 | **42.0** | 2.0 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method Monitoring Data

| Date/Time | $O_2$ % by vol db | $CO_2$ % by vol db | $NO_x$ ppmv db | CO ppmv db | Comments |
|---|---|---|---|---|---|
| 4/22/09 12:46:00 | 0.05 | 0.05 | 42.0 | 2.0 | |
| 4/22/09 12:46:15 | 0.04 | 0.05 | 32.5 | 1.7 | |
| 4/22/09 12:46:30 | 0.05 | 0.05 | 1.1 | 1.7 | |
| 4/22/09 12:46:45 | 6.42 | 0.07 | 0.5 | 1.8 | |
| 4/22/09 12:47:00 | 16.86 | 0.09 | 0.4 | 2.0 | |
| 4/22/09 12:47:15 | 20.17 | 0.10 | 0.3 | 1.8 | |
| 4/22/09 12:47:30 | 20.58 | 0.09 | 0.3 | 1.7 | |
| 4/22/09 12:47:45 | 20.63 | 0.09 | 0.3 | 1.7 | |
| 4/22/09 12:48:00 | 20.64 | 0.09 | 0.2 | 1.8 | |
| 4/22/09 12:48:15 | 20.65 | 0.09 | 0.2 | 2.0 | |
| 4/22/09 12:48:30 | 20.66 | 0.09 | 0.2 | 1.8 | |

# APPENDIX E

# Calibration Data

# CEMS CALIBRATION DATA

| | |
|---|---|
| Plant Name | Valero Refining - Texas, L.P. |
| Sampling Location | SRU No. 3 TGI Exhaust |
| Date | 4/21/2009 |
| Run Number | SRU3-1 |
| Start Time | 13:22 |
| Stop Time | 16:58 |

| | |
|---|---|
| Plant Rep. | Sam Sanders |
| Team Leader | Dan Fitzgerald |
| CEM Operator | Dan Fitzgerald |

| Analyzer Span Values (% or ppm) | | |
|---|---|---|
| CO | 450.0 | ppm |
| $CO_2$ | 9.00 | % |
| $O_2$ | 9.00 | % |
| $SO_2$ | | |
| $NO_x$ | 90.0 | ppm |

| | CALIBRATION ERROR - | | 9:28 hrs | | SYSTEM BIAS CHECK | | | | | Calibration |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Pretest: 11:09 | | Posttest: 17:04 hrs | | | |
| | Cylinder Value (% or ppm) | Cylinder Number | Analyzer Calibration Response | Difference (% of Span) | System Response | Syst. Bias (% of Span) | System Response | Syst. Bias (% of Span) | Drift (% of Span) | Correction Factors |
| CO Zero | 0.0 | EB0014177 | 0.9 | 0.2 | 1.3 | 0.1 | 0.6 | -0.1 | -0.2 | Co= |
| CO Low | | Diluted from | | | | | | | | **0.95** |
| CO Mid | 225.0 | EB0003638 | 225.3 | 0.1 | 223.8 | -0.3 | 223.4 | -0.4 | -0.1 | Cm= |
| CO High | 450.0 | 1,983 ppm | 450.3 | 0.1 | | | | | | **223.60** |
| $CO_2$ Zero | 0.00 | EB0014177 | 0.03 | 0.3 | 0.05 | 0.2 | 0.05 | 0.2 | 0.0 | Co= |
| $CO_2$ Low | | Diluted from | | | | | | | | **0.050** |
| $CO_2$ Mid | 4.50 | ALM038208 | 4.54 | 0.4 | 4.50 | -0.4 | 4.65 | 1.2 | 1.7 | Cm= |
| $CO_2$ High | 9.00 | 23.00% | 9.01 | 0.1 | | | | | | **4.575** |
| $O_2$ Zero | 0.00 | EB0014177 | 0.00 | 0.0 | 0.02 | 0.2 | 0.05 | 0.6 | 0.3 | Co= |
| $O_2$ Low | | Diluted from | | | | | | | | **0.035** |
| $O_2$ Mid | 4.50 | ALM035230 | 4.49 | -0.1 | 4.46 | -0.3 | 4.43 | -0.7 | -0.3 | Cm= |
| $O_2$ High | 9.00 | 22.00% | 9.02 | 0.2 | | | | | | **4.445** |
| $NO_x$ Zero | 0.0 | EB0014177 | 0.0 | 0.0 | 0.2 | 0.2 | 0.2 | 0.2 | 0.0 | Co= |
| $NO_x$ Low | | Diluted from | | | | | | | | **0.20** |
| $NO_x$ Mid | 45.0 | ALM031560 | 44.8 | -0.2 | 45.1 | 0.3 | 44.6 | -0.2 | -0.6 | Cm= |
| $NO_x$ High | 90.0 | 2,030 ppm | 90.1 | 0.1 | | | | | | **44.85** |

# CEMS CALIBRATION DATA

| | |
|---|---|
| Plant Name | Valero Refining - Texas, L.P. |
| Sampling Location | SRU No. 3 TGI Exhaust |
| Date | 4/21/2009 |
| Run Number | SRU3-2 |
| Start Time | 17:45 |
| Stop Time | 21:12 |

| | |
|---|---|
| Plant Rep. | Sam Sanders |
| Team Leader | Dan Fitzgerald |
| CEM Operator | Dan Fitzgerald |

| Analyzer Span Values (% or ppm) | | |
|---|---|---|
| CO | 450.0 | ppm |
| $CO_2$ | 9.00 | % |
| $O_2$ | 9.00 | % |
| $SO_2$ | | |
| $NO_x$ | 90.0 | ppm |

| | CALIBRATION ERROR - | | 9:28 hrs | | SYSTEM BIAS CHECK | | | | | Calibration |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Pretest: 17:04 | | Posttest: 21:22 hrs | | | |
| | Cylinder Value (% or ppm) | Cylinder Number | Analyzer Calibration Response | Difference (% of Span) | System Response | Syst. Bias (% of Span) | System Response | (% of Span) | Drift (% of Span) | Correction Factors |
| CO Zero | 0.0 | EB0014177 | 0.9 | 0.2 | 0.6 | -0.1 | 0.2 | -0.2 | -0.1 | Co= |
| CO Low | | Diluted from | | | | | | | | **0.40** |
| CO Mid | 225.0 | EB0003638 | 225.3 | 0.1 | 223.4 | -0.4 | 222.6 | -0.6 | -0.2 | Cm= |
| CO High | 450.0 | 1,983 ppm | 450.3 | 0.1 | | | | | | **223.00** |
| $CO_2$ Zero | 0.00 | EB0014177 | 0.03 | 0.3 | 0.05 | 0.2 | 0.05 | 0.2 | 0.0 | Co= |
| $CO_2$ Low | | Diluted from | | | | | | | | **0.050** |
| $CO_2$ Mid | 4.50 | ALM038208 | 4.54 | 0.4 | 4.65 | 1.2 | 4.65 | 1.2 | 0.0 | Cm= |
| $CO_2$ High | 9.00 | 23.00% | 9.01 | 0.1 | | | | | | **4.650** |
| $O_2$ Zero | 0.00 | EB0014177 | 0.00 | 0.0 | 0.05 | 0.6 | 0.06 | 0.7 | 0.1 | Co= |
| $O_2$ Low | | Diluted from | | | | | | | | **0.055** |
| $O_2$ Mid | 4.50 | ALM035230 | 4.49 | -0.1 | 4.43 | -0.7 | 4.45 | -0.4 | 0.2 | Cm= |
| $O_2$ High | 9.00 | 22.00% | 9.02 | 0.2 | | | | | | **4.440** |
| $NO_x$ Zero | 0.0 | EB0014177 | 0.0 | 0.0 | 0.2 | 0.2 | 0.3 | 0.3 | 0.1 | Co= |
| $NO_x$ Low | | Diluted from | | | | | | | | **0.25** |
| $NO_x$ Mid | 45.0 | ALM031560 | 44.8 | -0.2 | 44.6 | -0.2 | 43.5 | -1.4 | -1.2 | Cm= |
| $NO_x$ High | 90.0 | 2,030 ppm | 90.1 | 0.1 | | | | | | **44.05** |

# CEMS CALIBRATION DATA

| | |
|---|---|
| Plant Name | Valero Refining - Texas, L.P. |
| Sampling Location | SRU No. 3 TGI Exhaust |
| Date | 4/22/2009 |
| Run Number | SRU3-3 |
| Start Time | 9:00 |
| Stop Time | 12:24 |

| | |
|---|---|
| Plant Rep. | Sam Sanders |
| Team Leader | Dan Fitzgerald |
| CEM Operator | Dan Fitzgerald |

| Analyzer Span Values (% or ppm) | | |
|---|---|---|
| CO | 450.0 | ppm |
| $CO_2$ | 9.00 | % |
| $O_2$ | 9.00 | % |
| | | |
| $NO_x$ | 90.0 | ppm |

| | CALIBRATION ERROR - | | 8:05 hrs | | SYSTEM BIAS CHECK | | | | | Calibration |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Pretest: 8:43 | | Posttest: 12:28 hrs | | | Correction |
| | Cylinder Value (% or ppm) | Cylinder Number | Analyzer Calibration Response | Difference (% of Span) | System Response | Syst. Bias (% of Span) | System Response | (% of Span) | Drift (% of Span) | Factors |
| CO Zero | 0.0 | EB0014177 | 0.6 | 0.1 | 0.7 | 0.0 | 0.6 | 0.0 | 0.0 | Co= |
| CO Low | | Diluted from | | | | | | | | **0.65** |
| CO Mid | 225.0 | EB0003638 | 225.7 | 0.2 | 223.3 | -0.5 | 223.7 | -0.4 | 0.1 | Cm= |
| CO High | 450.0 | 1,983 ppm | 454.2 | 0.9 | | | | | | **223.50** |
| $CO_2$ Zero | 0.00 | EB0014177 | 0.04 | 0.4 | 0.04 | 0.0 | 0.05 | 0.1 | 0.1 | Co= |
| $CO_2$ Low | | Diluted from | | | | | | | | **0.045** |
| $CO_2$ Mid | 4.50 | ALM038208 | 4.53 | 0.3 | 4.66 | 1.4 | 4.66 | 1.4 | 0.0 | Cm= |
| $CO_2$ High | 9.00 | 23.00% | 8.93 | -0.8 | | | | | | **4.660** |
| $O_2$ Zero | 0.00 | EB0014177 | | | 0.05 | 0.6 | 0.05 | 0.6 | 0.0 | Co= |
| $O_2$ Low | | Diluted from | | | | | | | | **0.050** |
| $O_2$ Mid | 4.50 | ALM035230 | 4.49 | -0.1 | 4.48 | -0.1 | 4.44 | -0.6 | -0.4 | Cm= |
| $O_2$ High | 9.00 | 22.00% | 9.01 | 0.1 | | | | | | **4.460** |
| $NO_x$ Zero | 0.0 | EB0014177 | 0.1 | 0.1 | 0.4 | 0.3 | 0.2 | 0.1 | -0.2 | Co= |
| $NO_x$ Low | | Diluted from | | | | | | | | **0.30** |
| $NO_x$ Mid | 45.0 | ALM031560 | 44.5 | -0.6 | 44.2 | -0.3 | 42.0 | -2.8 | -2.4 | Cm= |
| $NO_x$ High | 90.0 | 2,030 ppm | 89.7 | -0.3 | | | | | | **43.10** |

# ARI REFERENCE METHOD CEMS DATA
# USEPA METHOD 205
# DILUTION SYSTEM VERIFICATION

**Company:** Valero Refining - Texas, L.P.
**Location:** Corpus Christi, TX
**Source:** Sulften TGI
**Dilution System ID:** 3600
**Dilution Flow Rate:** 7.0 Lpm
**Verification date:** 4/20/2009

**Analyzer Info**

**Monitor type:** Servomex 1440 $O_2$
**Monitor range:** 18%
**Monitor Serial No.:** 01440D1/4143

## Initial Calibration Data

| Calibration Concentration | | Calibration results | | % Difference | |
|---|---|---|---|---|---|
| Zero: | 0.00 | Zero: | 0.02 | Zero: | 0.11 |
| Low: | | Low: | | Low: | |
| Mid: | 9.00 | Mid: | 9.06 | Mid: | 0.33 |
| High: | 18.00 | High: | 18.03 | High: | 0.17 |

## Dilution System Verification

Mid level gas type: EPA Protocol 1
Mid level concentration: 7.54 %
Mid level tank serial #: AAL8051

High level dilution gas type: $O_2/N_2$
High level concentration: 22.00%
High level tank serial #: ALM035230
Target concentration No. 1: 4.50
Target concentration No. 2: 13.50

## Dilution System Results

| Target Concentration No. 1 | | | Target Concentration No. 2 | | |
|---|---|---|---|---|---|
| | Instrument Response | % difference from average* | | Instrument Response | % difference from average* |
| Trial No. 1: | 4.53 | 0.65 | Trial No. 1: | 13.54 | 0.05 |
| Trial No. 2: | 4.48 | 0.46 | Trial No. 2: | 13.53 | 0.02 |
| Trial No. 3: | 4.49 | 0.18 | Trial No. 3: | 13.53 | 0.02 |
| Average: | 4.501 | | Average: | 13.533 | |

% Difference from target concentration: 0.02%

% Difference from target concentration: 0.25%

## Mid Level Calibration Gas Results

| | Instrument Response |
|---|---|
| Trial No. 1: | 7.56 |
| Trial No. 2: | 7.56 |
| Trial No. 3: | 7.56 |

Mid Level calibration gas concentration: 7.54%
Average analyzer response: 7.56
Percent difference: 0.27 *

* Must be less than 2 %

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method 205 - Gas Dilution System Verification - 15 Second Data

| Date/Time | $O_2$ % by vol db | Comments |
|---|---|---|
| 4/20/09 18:08:00 | 0.36 | |
| 4/20/09 18:08:15 | 0.37 | |
| 4/20/09 18:08:30 | 0.37 | |
| 4/20/09 18:08:45 | 0.37 | |
| 4/20/09 18:09:00 | 0.36 | |
| 4/20/09 18:09:15 | 0.29 | |
| 4/20/09 18:09:30 | 0.11 | |
| 4/20/09 18:09:45 | 0.07 | |
| 4/20/09 18:10:00 | 0.07 | |
| 4/20/09 18:10:15 | 0.07 | |
| 4/20/09 18:10:30 | 0.07 | |
| 4/20/09 18:10:45 | 0.07 | |
| 4/20/09 18:11:00 | 0.07 | |
| 4/20/09 18:11:15 | 0.07 | |
| 4/20/09 18:11:30 | -0.13 | |
| 4/20/09 18:11:45 | 0.02 | |
| 4/20/09 18:12:00 | 0.02 | |
| 4/20/09 18:12:15 | 0.02 | |
| 4/20/09 18:12:30 | 0.02 | Calibration Error |
| **4/20/09 18:12:45** | **0.01** | **0.02 Zero $O_2$** |
| **4/20/09 18:13:00** | **0.02** | |
| **4/20/09 18:13:15** | **0.02** | |
| **4/20/09 18:13:30** | **0.02** | |
| 4/20/09 18:13:45 | 0.09 | |
| 4/20/09 18:14:00 | 8.70 | |
| 4/20/09 18:14:15 | 16.38 | |
| 4/20/09 18:14:30 | 16.56 | |
| 4/20/09 18:14:45 | 17.50 | |
| 4/20/09 18:15:00 | 18.05 | |
| 4/20/09 18:15:15 | 18.17 | |
| 4/20/09 18:15:30 | 18.19 | |
| 4/20/09 18:15:45 | 18.20 | |
| 4/20/09 18:16:00 | 18.21 | |
| 4/20/09 18:16:15 | 18.21 | |
| 4/20/09 18:16:30 | 18.21 | |
| 4/20/09 18:16:45 | 18.21 | |
| 4/20/09 18:17:00 | 18.22 | |
| 4/20/09 18:17:15 | 18.03 | Calibration Error |
| **4/20/09 18:17:30** | **18.03** | **18.03 18.00% $O_2$** |
| **4/20/09 18:17:45** | **18.03** | |
| **4/20/09 18:18:00** | **18.03** | |
| **4/20/09 18:18:15** | **18.04** | |
| 4/20/09 18:18:30 | 18.04 | |
| 4/20/09 18:18:45 | 17.86 | |
| 4/20/09 18:19:00 | 12.20 | |
| 4/20/09 18:19:15 | 9.27 | |
| 4/20/09 18:19:30 | 9.08 | |
| 4/20/09 18:19:45 | 9.07 | Calibration Error |
| **4/20/09 18:20:00** | **9.07** | **9.06 9.00% $O_2$** |
| **4/20/09 18:20:15** | **9.06** | |
| **4/20/09 18:20:30** | **9.06** | |
| **4/20/09 18:20:45** | **9.06** | |
| 4/20/09 18:21:00 | 9.07 | |
| 4/20/09 18:21:15 | 8.42 | |
| 4/20/09 18:21:30 | 5.19 | |
| 4/20/09 18:21:45 | 4.55 | |
| 4/20/09 18:22:00 | 4.54 | |
| 4/20/09 18:22:15 | 4.53 | |
| 4/20/09 18:22:30 | 4.53 | Target Concentration #1; Trial #1 |
| **4/20/09 18:22:45** | **4.53** | **4.53 4.50% $O_2$** |
| **4/20/09 18:23:00** | **4.53** | |
| **4/20/09 18:23:15** | **4.53** | |
| **4/20/09 18:23:30** | **4.52** | |
| 4/20/09 18:23:45 | 5.89 | |
| 4/20/09 18:24:00 | 11.96 | |
| 4/20/09 18:24:15 | 13.43 | |
| 4/20/09 18:24:30 | 13.53 | |
| 4/20/09 18:24:45 | 13.54 | |
| 4/20/09 18:25:00 | 13.54 | Target Concentration #2; Trial #1 |
| **4/20/09 18:25:15** | **13.54** | **13.54 13.50% $O_2$** |
| **4/20/09 18:25:30** | **13.54** | |
| **4/20/09 18:25:45** | **13.54** | |
| **4/20/09 18:26:00** | **13.55** | |
| 4/20/09 18:26:15 | 13.61 | |
| 4/20/09 18:26:30 | 15.28 | |
| 4/20/09 18:26:45 | 16.78 | |
| 4/20/09 18:27:00 | 16.66 | |
| 4/20/09 18:27:15 | 11.63 | |
| 4/20/09 18:27:30 | 7.99 | |
| 4/20/09 18:27:45 | 7.34 | |
| 4/20/09 18:28:00 | 7.28 | |
| 4/20/09 18:28:15 | 7.83 | |

## Valero Refining - Texas, L.P. - Corpus Christi, Texas
## SRU No. 3 Tailgas Incinerator Exhaust
## ARI Reference Method 205 - Gas Dilution System Verification - 15 Second Data

| | | |
|---|---|---|
| 4/20/09 18:28:30 | 8.33 | |
| 4/20/09 18:28:45 | 8.68 | |
| 4/20/09 18:29:00 | 8.98 | |
| 4/20/09 18:29:15 | 9.36 | |
| 4/20/09 18:29:30 | 9.25 | |
| 4/20/09 18:29:45 | 7.92 | |
| 4/20/09 18:30:00 | 7.59 | |
| 4/20/09 18:30:15 | 7.56 | Mid-Level Concentration; Trial #1 |
| **4/20/09 18:30:30** | **7.56** | **7.56 7.54% $O_2$** |
| **4/20/09 18:30:45** | **7.56** | |
| **4/20/09 18:31:00** | **7.55** | |
| **4/20/09 18:31:15** | **7.55** | |
| 4/20/09 18:31:30 | 7.55 | |
| 4/20/09 18:31:45 | 6.49 | |
| 4/20/09 18:32:00 | 4.40 | |
| 4/20/09 18:32:15 | 4.48 | Target Concentration #1; Trial #2 |
| **4/20/09 18:32:30** | **4.48** | **4.48 4.50% $O_2$** |
| **4/20/09 18:32:45** | **4.48** | |
| **4/20/09 18:33:00** | **4.49** | |
| **4/20/09 18:33:15** | **4.49** | |
| 4/20/09 18:33:30 | 4.49 | |
| 4/20/09 18:33:45 | 5.36 | |
| 4/20/09 18:34:00 | 11.57 | |
| 4/20/09 18:34:15 | 13.38 | |
| 4/20/09 18:34:30 | 13.52 | Target Concentration #2; Trial #2 |
| **4/20/09 18:34:45** | **13.53** | **13.53 13.50% $O_2$** |
| **4/20/09 18:35:00** | **13.53** | |
| **4/20/09 18:35:15** | **13.53** | |
| **4/20/09 18:35:30** | **13.53** | |
| 4/20/09 18:35:45 | 13.54 | |
| 4/20/09 18:36:00 | 13.35 | |
| 4/20/09 18:36:15 | 9.73 | |
| 4/20/09 18:36:30 | 7.79 | |
| 4/20/09 18:36:45 | 7.57 | Mid-Level Concentration; Trial #2 |
| **4/20/09 18:37:00** | **7.56** | **7.56 7.54% $O_2$** |
| **4/20/09 18:37:15** | **7.56** | |
| **4/20/09 18:37:30** | **7.56** | |
| **4/20/09 18:37:45** | **7.56** | |
| 4/20/09 18:38:00 | 7.55 | |
| 4/20/09 18:38:15 | 7.49 | |
| 4/20/09 18:38:30 | 4.92 | |
| 4/20/09 18:38:45 | 4.46 | |
| 4/20/09 18:39:00 | 4.50 | Target Concentration #1; Trial #3 |
| **4/20/09 18:39:15** | **4.49** | **4.49 4.50% $O_2$** |
| **4/20/09 18:39:30** | **4.49** | |
| **4/20/09 18:39:45** | **4.49** | |
| **4/20/09 18:40:00** | **4.49** | |
| 4/20/09 18:40:15 | 4.49 | |
| 4/20/09 18:40:30 | 5.25 | |
| 4/20/09 18:40:45 | 11.47 | |
| 4/20/09 18:41:00 | 13.37 | |
| 4/20/09 18:41:15 | 13.52 | |
| 4/20/09 18:41:30 | 13.53 | |
| 4/20/09 18:41:45 | 13.53 | Target Concentration #2; Trial #3 |
| **4/20/09 18:42:00** | **13.53** | **13.53 13.50% $O_2$** |
| **4/20/09 18:42:15** | **13.53** | |
| **4/20/09 18:42:30** | **13.53** | |
| **4/20/09 18:42:45** | **13.53** | |
| 4/20/09 18:43:00 | 13.54 | |
| 4/20/09 18:43:15 | 13.44 | |
| 4/20/09 18:43:30 | 10.11 | |
| 4/20/09 18:43:45 | 7.85 | |
| 4/20/09 18:44:00 | 7.58 | |
| 4/20/09 18:44:15 | 7.56 | |
| 4/20/09 18:44:30 | 7.56 | Mid-Level Concentration; Trial #3 |
| **4/20/09 18:44:45** | **7.56** | **7.56 7.54% $O_2$** |
| **4/20/09 18:45:00** | **7.56** | |
| **4/20/09 18:45:15** | **7.56** | |
| **4/20/09 18:45:30** | **7.56** | |
| 4/20/09 18:45:45 | 7.57 | |
| 4/20/09 18:46:00 | 8.84 | |
| 4/20/09 18:46:15 | 13.11 | |
| 4/20/09 18:46:30 | 14.42 | |

**Instrument:** 3600 **MFC:** 1

MAX Flow: 10,000.00 CCM
Cal Date: 08/08/2008 , 08:19:02
Reference Gas: NITROGEN
Description: Factory MFC #1 Calibration Table

| Set Flow | True Flow | - Table is selected |
|---|---|---|
| 500.00 | 496.86 | |
| 1,000.00 | 1,014.30 | |
| 2,000.00 | 2,059.61 | |
| 3,000.00 | 3,080.39 | |
| 4,000.00 | 4,121.22 | |
| 5,000.00 | 5,123.45 | |
| 6,000.00 | 6,132.34 | |
| 7,000.00 | 7,145.65 | |
| 8,000.00 | 8,105.62 | |
| 9,000.00 | 9,113.85 | |
| 10,000.00 | 10,114.58 | |

**Instrument:** 3600 **MFC:** 2

MAX Flow: 10,000.00 CCM
Cal Date: 08/08/2008 , 08:20:59
Reference Gas: NITROGEN
Description: Factory MFC #2 Calibration Table

| Set Flow | True Flow | - Table is selected |
|---|---|---|
| 500.00 | 528.93 | |
| 1,000.00 | 1,071.67 | |
| 2,000.00 | 2,133.30 | |
| 3,000.00 | 3,169.06 | |
| 4,000.00 | 4,192.87 | |
| 5,000.00 | 5,213.40 | |
| 6,000.00 | 6,213.50 | |
| 7,000.00 | 7,215.42 | |
| 8,000.00 | 8,154.29 | |
| 9,000.00 | 9,141.82 | |
| 10,000.00 | 10,140.79 | |

**Instrument:** 3600 **MFC:** 3

MAX Flow: 1,000.00 CCM
Cal Date: 08/08/2008 , 08:22:56
Reference Gas: NITROGEN
Description: Factory MFC #3 Calibration Table

| Set Flow | True Flow | - Table is selected |
|---|---|---|
| 50.00 | 48.92 | |
| 100.00 | 99.71 | |

| | |
|---|---|
| 200.00 | 201.39 |
| 300.00 | 302.73 |
| 400.00 | 403.82 |
| 500.00 | 504.21 |
| 600.00 | 605.42 |
| 700.00 | 705.57 |
| 800.00 | 809.22 |
| 900.00 | 908.71 |
| 1,000.00 | 1,012.05 |

**Instrument: 3600 MFC: 4**

MAX Flow: 100.00 CCM
Cal Date: 08/08/2008 , 08:24:55
Reference Gas: NITROGEN
Description: Factory MFC #4 Calibration Table

| Set Flow | True Flow - Table is selected |
|---|---|
| 5.00 | 5.14 |
| 10.00 | 10.46 |
| 20.00 | 21.01 |
| 30.00 | 31.37 |
| 40.00 | 41.64 |
| 50.00 | 51.79 |
| 60.00 | 61.82 |
| 70.00 | 71.76 |
| 80.00 | 81.68 |
| 90.00 | 91.60 |
| 100.00 | 101.97 |

# Interference Response

| | |
|---|---|
| Analyzer Type: | Oxygen ($O_2$) |
| Manufacturer: | Servomex |
| Detector Type: | Paramagnetic |
| Model No.: | 1440 |
| Serial No.: | 1420C/2765 |
| Calibration Span (%): | 11.27 |

| Test Gas | Test Gas Conc. | High Standard | | | Zero | | | Maximum % Interference |
|---|---|---|---|---|---|---|---|---|
| | | $O_2$ without interferent | $O_2$ with interferent | % Interference | Zero without interferent | Zero with interferent | % Interference | |
| $NH_3$ | 10 ppm | 11.27 | 11.27 | 0.00 | 0.03 | 0.01 | 0.18 | 0.18 |
| $SO_2$ | 20 ppm | 11.25 | 11.25 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 |
| $CH_4$ | 50 ppm | 11.24 | 11.25 | 0.09 | 0.02 | 0.04 | -0.18 | 0.18 |
| CO | 50 ppm | 11.23 | 11.24 | 0.09 | 0.00 | 0.01 | -0.09 | 0.09 |
| $CO_2$ | 5% | 11.23 | 11.26 | 0.27 | 0.00 | -0.01 | 0.09 | 0.27 |
| $CO_2$ | 12.55% | 11.25 | 11.27 | 0.18 | 0.03 | -0.02 | 0.44 | 0.44 |
| $NO_2$ | 15 ppm | 11.22 | 11.24 | 0.18 | 0.01 | 0.00 | 0.09 | 0.18 |
| $NO_x$ | 15 ppm | 11.22 | 11.25 | 0.27 | 0.01 | 0.01 | 0.00 | 0.27 |
| $H_2$ | 1,020 ppm | 11.24 | 11.23 | -0.09 | 0.02 | 0.01 | 0.09 | 0.09 |
| HCl | 10 ppm | 11.29 | 11.31 | 0.18 | 0.00 | -0.01 | 0.09 | 0.18 |

Sum of the highest absolute value obtained with and without the pollutant present: 1.88 %
Allowable interference response: 2.5 %

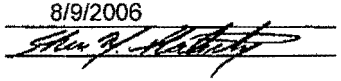
Certification Date: 8/9/2006
Operator:

# Interference Response

| | |
|---|---|
| Analyzer Type: | Carbon Dioxide ($CO_2$) |
| Manufacturer: | Servomex |
| Detector Type: | NDIR |
| Model No.: | 1440 |
| Serial No.: | 1415C |
| Calibration Span (%): | 11.41 |

| Test Gas | Test Gas Conc. | High Standard | | | Zero | | | Maximum % Interference |
|---|---|---|---|---|---|---|---|---|
| | | $CO_2$ without interferent | $CO_2$ with interferent | % Interference | Zero without interferent | Zero with interferent | % Interference | |
| $NH_3$ | 10 ppm | 11.41 | 11.39 | -0.18 | 0.01 | 0.01 | 0.00 | 0.18 |
| $SO_2$ | 20 ppm | 11.37 | 11.37 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 |
| $CH_4$ | 50 ppm | 11.37 | 11.37 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 |
| CO | 50 ppm | 11.41 | 11.41 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 |
| $NO_2$ | 15 ppm | 11.37 | 11.37 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 |
| $NO_x$ | 15 ppm | 11.37 | 11.37 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 |
| $H_2$ | 1,020 ppm | 11.37 | 11.37 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 |
| HCl | 10 ppm | 11.41 | 11.38 | -0.26 | 0.01 | 0.01 | 0.00 | 0.26 |

Sum of the highest absolute value obtained with and without the pollutant present: 0.44 %
Allowable interference response: 2.5 %

Certification Date: 8/9/2006
Operator: 

# Model 600 HCLD
# NO Interference Data

## Interference Response

Date of Test 7/26/2006

Analyzer Type NO
Model No. 600-HCLD
Serial No. S050301

Calibration Span 3000ppm

| Test Gas Type | | Concentration | | Analyzer Response | |
|---|---|---|---|---|---|
| | | (ppm) | | Wet | Dry |
| H2O | | 2.5% | | 0 | 0 |
| CO2 | | 5% | | 0 | 0 |
| CO2 | | 15% | | 0 | 0 |
| CO | | 50 | | 0 | 0 |
| CH4 | | 50 | | 0 | 0 |
| SO2 | | N/A | | N/A | N/A |
| NH3 | | 15 | | 0 | 0 |
| NO | | N/A | | N/A | N/A |
| N2O | | 9 | | 0 | 0 |
| NO2 | | N/A | | N/A | N/A |

# Interference Response

| | |
|---|---|
| Analyzer Type: | Carbon Monoxide (CO) |
| Manufacturer: | Thermo Environmental Instruments Inc. |
| Detector Type: | Non-Dispersive Infrared (NDIR) |
| Model No.: | 48H |
| Serial No.: | 000632 |
| Calibration Span (ppm): | 100 |

| Test Gas | Test Gas Conc. | High Standard | | | Zero | | | Maximum % Interference |
|---|---|---|---|---|---|---|---|---|
| | | CO without interferent | CO with interferent | % Interference | Zero without interferent | Zero with interferent | % Interference | |
| $NH_3$ | 10 ppm | 101.5 | 101.7 | 0.2 | 1.6 | 1.5 | -0.1 | 0.2 |
| $SO_2$ | 20 ppm | 101.5 | 101.6 | 0.1 | 1.6 | 1.9 | 0.3 | 0.3 |
| $CH_4$ | 50 ppm | 101.5 | 101.6 | 0.1 | 1.6 | 1.8 | 0.2 | 0.2 |
| $CO_2$ | 5% | 101.5 | 101.4 | -0.1 | 1.6 | 1.6 | 0.0 | 0.1 |
| $CO_2$ | 12.55% | 101.5 | 101.1 | -0.4 | 1.6 | 1.4 | -0.2 | 0.4 |
| $NO_2$ | 15 ppm | 101.5 | 101.6 | 0.1 | 1.6 | 1.6 | 0.0 | 0.1 |
| $NO_x$ | 15 ppm | 101.5 | 101.8 | 0.3 | 1.6 | 1.9 | 0.3 | 0.3 |
| $H_2$ | 1,020 ppm | 101.5 | 101.7 | 0.2 | 1.6 | 1.8 | 0.2 | 0.2 |
| HCl | 10 ppm | 101.5 | 101.6 | 0.1 | 1.6 | 1.8 | 0.2 | 0.2 |

Sum of the highest absolute value obtained with and without the pollutant present: 2.0 %
Allowable interference response: 2.5 %

Certification Date: 8-9-06
Operator: [signature]

# CERTIFIED MASTER CLASS

*Single-Certified Calibration Standard*

9810 BAY AREA BLVD, PASADENA, TX 77507 Phone: 281-474-5800 Fax: 281-474-5857

## CERTIFICATE OF ACCURACY: Certified Master Class Calibration Standard

**Product Information**
Project No.: 04-64351-001
Item No.: 04020004060PAL
P.O. No.: 03-049-08

Cylinder Number: ALM038866
Cylinder Size: AL
Certification Date: 12May2008
Expiration Date: 12May2009

**Customer**

ARI ENVIRONMENTAL, INC.
GREG BURCH
1710 C PRESTON RD
PASADENA, TX 77503

## CERTIFIED CONCENTRATION

| Component Name | Concentration (Moles) | | Accuracy (+/-%) |
|---|---|---|---|
| CARBON DISULFIDE | 530. | PPM | 2 |
| CARBONYL SULFIDE | 495. | PPM | 2 |
| HYDROGEN SULFIDE | 509. | PPM | 2 |
| NITROGEN | | BALANCE | |

## TRACEABILITY

**Traceable To**

NIST

APPROVED BY: _____ DATE: _____
LEROY JONES

## SPECIFICATIONS

| Component Name | Requested Concentration (Moles) | | Certified Concentration (Moles) | | Blend Tolerance Result (+/- %) | Certified Accuracy Result (+/- %) |
|---|---|---|---|---|---|---|
| CARBON DISULFIDE | 500. | PPM | 530. | PPM | 6.0 | 2.00 |
| CARBONYL SULFIDE | 500. | PPM | 495. | PPM | 1.0 | 2.00 |
| HYDROGEN SULFIDE | 500. | PPM | 509. | PPM | 1.8 | 2.00 |
| NITROGEN | | BAL | | BAL | | |

## TRACEABILITY

Traceable To
NIST

## PHYSICAL PROPERTIES

Cylinder Size: AL

Pressure: 2000 PSIG
Expiration Date: 12May2009

## SPECIAL HANDLING INSTRUCTIONS

Do not use or store cylinder at or below the stated dew point temperature. Possible condensation of heavier components could result. In the event the cylinder has been exposed to temperatures at or below the dew point, place cylinder in heated area for 24 hours and then roll cylinder for 15 minutes to re-mix.

**Use of calibration standards at or below dew point temperature may result in calibration error.**

AIR LIQUIDE | Air Liquide America Specialty Gases LLC | SCOTT™

# RATA CLASS

*Dual-Analyzed Calibration Standard*

9810 BAY AREA BLVD, PASADENA, TX 77507 Phone: 281-474-5800 Fax: 281-474-5857

## CERTIFICATE OF ACCURACY: EPA Protocol Gas

**Assay Laboratory**

SCOTT SPECIALTY GASES
9810 BAY AREA BLVD
PASADENA, TX 77507

P.O. No.: 03-118-08
Project No.: 04-70072-009

**Customer**

ARI ENVIRONMENTAL, INC.

1710 C PRESTON RD
PASADENA TX 77503

### ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

**Cylinder Number:** ALM035230 **Certification Date:** 30Dec2008 **Exp. Date:** 30Dec2011
**Cylinder Pressure***:** 2000 PSIG

| COMPONENT | CERTIFIED CONCENTRATION (Moles) | ANALYTICAL ACCURACY** | TRACEABILITY |
|---|---|---|---|
| OXYGEN | 22.0 % | +/- 1% | Direct NIST and NMi |
| NITROGEN | BALANCE | | |

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

### REFERENCE STANDARD

| TYPE/SRM NO. | EXPIRATION DATE | CYLINDER NUMBER | CONCENTRATION | COMPONENT |
|---|---|---|---|---|
| NTRM 2350 | 01Apr2012 | A6820 | 23.51 % | OXYGEN |

### INSTRUMENTATION

| INSTRUMENT/MODEL/SERIAL# | DATE LAST CALIBRATED | ANALYTICAL PRINCIPLE |
|---|---|---|
| SERVOMEX/MODEL 244A/701/716 | 15Dec2008 | PARAMAGNETIC |

### ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis | Second Triad Analysis | Calibration Curve

OXYGEN

| First Triad Analysis | | |
|---|---|---|
| Date: 30Dec2008 | Response Unit:VOLTS | |
| Z1=0.00000 | R1=0.99040 | T1=0.92640 |
| R2=0.99110 | Z2=0.00030 | T2=0.92710 |
| Z3=0.00030 | T3=0.92690 | R3=0.99110 |
| Avg. Concentration: | 21.95 % | |

| Calibration Curve | |
|---|---|
| Concentration=A+Bx+Cx2+Dx3+Ex4 | |
| r=0.9999972 | |
| Constants: | A=-0.00524423 |
| B=23.70794974 | C= |
| D= | E= |

APPROVED BY: DAVID KELLY

AIR LIQUIDE

Scott Specialty Gases
Air Liquide America Specialty Gases LLC

# RATA CLASS

*Dual-Analyzed Calibration Standard*

9810 BAY AREA BLVD, PASADENA, TX 77507 Phone: 281-474-5800 Fax: 281-474-5857

## CERTIFICATE OF ACCURACY: EPA Protocol Gas

**Assay Laboratory**

SCOTT SPECIALTY GASES
9810 BAY AREA BLVD
PASADENA, TX 77507

P.O. No.: 03-051-08
Project No.: 04-64806-001

**Customer**

ARI ENVIRONMENTAL, INC.
GREG BURCH
1710 C PRESTON RD
PASADENA TX 77503

## ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

**Cylinder Number:** ALM038208 **Certification Date:** 06Jun2008 **Exp. Date:** 06Jun2011
**Cylinder Pressure***:** 1924 PSIG

| COMPONENT | CERTIFIED CONCENTRATION (Moles) | | ANALYTICAL ACCURACY** | TRACEABILITY |
|---|---|---|---|---|
| CARBON DIOXIDE | 23.0 | % | +/- 1% | Direct NIST and NMi |
| NITROGEN | | BALANCE | | |

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

## REFERENCE STANDARD

| TYPE/SRM NO. | EXPIRATION DATE | CYLINDER NUMBER | CONCENTRATION | COMPONENT |
|---|---|---|---|---|
| NTRM 2300 | 02Jan2012 | K002682 | 23.01 % | CARBON DIOXIDE |

## INSTRUMENTATION

| INSTRUMENT/MODEL/SERIAL# | DATE LAST CALIBRATED | ANALYTICAL PRINCIPLE |
|---|---|---|
| FTIR//1602651 | 21May2008 | FTIR |

## ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

**First Triad Analysis**

CARBON DIOXIDE

Date: 06Jun2008 Responso Unit:%

| | | |
|---|---|---|
| Z1=0.00241 | R1=23.04902 | T1=22.96516 |
| R2=23.05442 | Z2=0.01765 | T2=23.00141 |
| Z3=0.02220 | T3=23.01244 | R3=23.06920 |

Avg. Concentration: 22.95 %

**Second Triad Analysis**

**Calibration Curve**

Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99997E-1

| | |
|---|---|
| Constants: | A=0.00000E+0 |
| B=9.03659E-1 | C=1.13550E-2 |
| D=0.00000E+0 | E=0.00000E+0 |

APPROVED BY: _____
Ramien JR

AIR LIQUIDE | Scott Specialty Gases
Air Liquide America Specialty Gases LLC

# RATA CLASS

*Dual-Analyzed Calibration Standard*

9810 BAY AREA BLVD, PASADENA, TX 77507 Phone: 281-474-5800 Fax: 281-474-5857

## CERTIFICATE OF ACCURACY: EPA Protocol Gas

**Assay Laboratory**

SCOTT SPECIALTY GASES
9810 BAY AREA BLVD
PASADENA, TX 77507

P.O. No.: 03-051-08
Project No.: 04-64798-003

**Customer**

ARI ENVIRONMENTAL, INC.
GREG BURCH
1710 C PRESTON RD
PASADENA TX 77503

## ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

**Cylinder Number:** ALM031560 **Certification Date:** 10Jun2008 **Exp. Date:** 10Jun2010
**Cylinder Pressure***:** 1924 PSIG

| COMPONENT | CERTIFIED CONCENTRATION (Moles) | | ANALYTICAL ACCURACY** | TRACEABILITY |
|---|---|---|---|---|
| NITRIC OXIDE | 2,030 | PPM | +/- 1% | Direct NIST and NMi |
| NITROGEN - OXYGEN FREE | | BALANCE | | |
| TOTAL OXIDES OF NITROGEN | 2,030. | PPM | | Reference Value Only |

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

### REFERENCE STANDARD

| TYPE/SRM NO. | EXPIRATION DATE | CYLINDER NUMBER | CONCENTRATION | COMPONENT |
|---|---|---|---|---|
| NTRM 2631 | 01May2011 | ALM048055 | 2780. PPM | NITRIC OXIDE |

### INSTRUMENTATION

| INSTRUMENT/MODEL/SERIAL# | DATE LAST CALIBRATED | ANALYTICAL PRINCIPLE |
|---|---|---|
| FTIR//1602651 | 02Jun2008 | FTIR |

### ANALYZER READINGS

(Z = Zero Gas R = Reference Gas T = Test Gas r = Correlation Coefficient)

**First Triad Analysis**

NITRIC OXIDE

Date: 03Jun2008 Response Unit:PPM
Z1 = 0.28839 R1 = 2767.274 T1 = 2018.455
R2 = 2767.716 Z2 = 1.84806 T2 = 2020.058
Z3 = 2.53291 T3 = 2020.176 R3 = 2769.794
Avg. Concentration: 2028. PPM

**Second Triad Analysis**

Date: 10Jun2008 Response Unit: PPM
Z1 = -0.15791 R1 = 2765.545 T1 = 2014.465
R2 = 2770.065 Z2 = 1.75697 T2 = 2015.392
Z3 = 2.57324 T3 = 2015.463 R3 = 2770.419
Avg. Concentration: 2023. PPM

**Calibration Curve**

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99995E-1
Constants:
A = 0.00000E+0
B = 3.83017E-1
C = 2.50000E-5
D = 0.00000E+0
E = 0.00000E+0

APPROVED BY: _____
Peter Brandon

COASTAL
Specialty Gas

**COASTAL SPECIALTY GAS**
25 NORTH FOURTH STREET
BEAUMONT, TX 77071
409-838-3757

| | | | | |
|---|---|---|---|---|
| Customer: | Coastal Welding | Protocol: | Reference # | Lot# |
| Cylinder Number: | EB0003638 | G1 | | 27913 |
| Cylinder Pressure: | 1900 PSIG | | | |
| Last Analysis Date: | 2/5/2007 | | | |
| Expiration Date: | 2/5/2010 | | | |

**DO NOT USE THIS CYLINDER WHEN THE PRESSURE FALLS BELOW 150 PSIG**

REPLICATE RESPONSES

| | | Date: | 1/29/2007 | Date: 2/5/2007 |
|---|---|---|---|---|
| Component: | Carbon Monoxide | | 1982 | 1983 |
| Mean Conc: | 1983 ppm +/- 1% rel | | 1982 | 1982 |
| | | | 1982 | 1984 |
| BALANCE GAS: | Nitrogen | | | |

REFERENCE STANDARDS:

| | |
|---|---|
| Component: | Carbon Monoxide |
| Reference Standard: | GMIS |
| Cylinder #: | CC38906 |
| Concentration: | 2483 ppm |
| Exp. Date: | 7/11/2007 |

CERTIFICATION INSTRUMENTS

| | |
|---|---|
| Component: | Carbon Monoxide |
| Make/Model: | Horiba VIA-510 |
| Serial Number: | 42321590022 |
| asurement Principle: | NDIR |
| Last Calibration: | 1/10/2007 |

Notes:

This Certification was performed according to EPA Traceability Protocol for Assay & Certification of Gaseous Calibration Standards September 1997, using procedure G1 and/or G2.

Analyst: _____ Date: 2/5/2007

Manufactured By Specialty Gas Products, a Matheson Tri-Gas Company, Pasadena, Texas.

AIR LIQUIDE

Scott Specialty Gases
Air Liquide America Specialty Gases LLC

# RATA CLASS

*Dual-Analyzed Calibration Standard*

9810 BAY AREA BLVD, PASADENA, TX 77507 Phone: 281-474-5800 Fax: 281-474-5857

## CERTIFICATE OF ACCURACY: EPA Protocol Gas

**Assay Laboratory**

SCOTT SPECIALTY GASES
9810 BAY AREA BLVD
PASADENA, TX 77507

P.O. No.: 03-042-08
Project No.: 04-63459-008

**Customer**

ARI ENVIRONMENTAL, INC.
GREG BURCH
1710 C PRESTON RD
PASADENA TX 77503

### ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

**Cylinder Number:** AAL8051 **Certification Date:** 08May2008 **Exp. Date:** 08May2011
**Cylinder Pressure***:** 1950 PSIG

| COMPONENT | CERTIFIED CONCENTRATION (Moles) | | ANALYTICAL ACCURACY** | TRACEABILITY |
|---|---|---|---|---|
| OXYGEN | 7.54 | % | +/- 1% | Direct NIST and NMi |
| NITROGEN | | BALANCE | | |

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

### REFERENCE STANDARD

| TYPE/SRM NO. | EXPIRATION DATE | CYLINDER NUMBER | CONCENTRATION | COMPONENT |
|---|---|---|---|---|
| NTRM 2658 | 01Jan2010 | K025996 | 10.03 % | OXYGEN |

### INSTRUMENTATION

| INSTRUMENT/MODEL/SERIAL# | DATE LAST CALIBRATED | ANALYTICAL PRINCIPLE |
|---|---|---|
| SERVOMEX/MODEL 244A/701/716 | 15Apr2008 | PARAMAGNETIC |

### ANALYZER READINGS

(Z = Zero Gas R = Reference Gas T = Test Gas r = Correlation Coefficient)

**First Triad Analysis**

OXYGEN

Date: 08May2008 Response Unit:%

| | | |
|---|---|---|
| Z1 = 0.00000 | R1 = 0.99000 | T1 = 0.74110 |
| R2 = 0.99010 | Z2 = 0.00000 | T2 = 0.74110 |
| Z3 = 0.00000 | T3 = 0.74110 | R3 = 0.99040 |

Avg. Concentration: 7.541 %

**Second Triad Analysis**

**Calibration Curve**

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = .9999767

| | |
|---|---|
| Constants: | A = 0.008852882 |
| B = 10.1649257 | C = |
| D = | E = |

APPROVED BY: Mark Soliz
MARK SOLIZ

SUPERVISOR:
SUSAN BRANDON

**ARI Environmental, Inc.**
**EPA METHOD 5**
**Initial Meter Box Calibration**

Model No: Apex 522
Serial No. 801005

Operator: DWM
Date: 10/29/2008

Pre-Test, Orifice Method
English Units

Barometric Pressure: 30.18 in.Hg

| ΔH | Time | | DRY GAS METER VOLUME | | | METER TEMPERATURE INLET / OUTLET | | ORIFICE | | VAC. | AMBIENT TEMPERATURE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Initial | Initial | | | | | | |
| in. H2O | Minutes | Seconds | Initial | Final | Total[1] | Final | Final | Number | K factor | in. Hg[2] | Inital | Final | Avg. |
| | | | | | | 57 | 57 | | | | | | |
| 0.52 | 12 | 35 | 4.100 | 9.300 | 5.200 | 59 | 57 | AJ47 | 0.3164 | 22.0 | 55 | 53 | 54.0 |
| | | | | | | 63 | 57 | | | | | | |
| 0.98 | 11 | 52 | 12.400 | 19.100 | 6.700 | 66 | 59 | AJ55 | 0.4303 | 20.5 | 53 | 54 | 53.5 |
| | | | | | | 72 | 60 | | | | | | |
| 1.60 | 13 | 19 | 25.100 | 34.700 | 9.600 | 74 | 62 | AJ63 | 0.5482 | 19.0 | 55 | 55 | 55.0 |
| | | | | | | 83 | 63 | | | | | | |
| 3.10 | 18 | 24 | 42.400 | 60.900 | 18.500 | 85 | 67 | AJ73 | 0.7621 | 17.5 | 56 | 58 | 57.0 |
| | | | | | | 91 | 67 | | | | | | |
| 4.70 | 10 | 55 | 65.500 | 78.900 | 13.400 | 93 | 70 | AJ81 | 0.9339 | 15.5 | 59 | 60 | 59.5 |

| METER FLOW (cubic feet) | ORIFICE FLOW (cubic feet) | METER CALIBRATION FACTOR, Yc[3] | DH @[4] |
|---|---|---|---|
| 5.358 | 5.300 | 0.9891 | 1.703 |
| 6.862 | 6.801 | 0.9910 | 1.724 |
| 9.740 | 9.708 | 0.9968 | 1.726 |
| 18.573 | 18.612 | 1.0021 | 1.725 |
| 13.361 | 13.499 | 1.0104 | 1.745 |

**AVG. PRETEST METER CALIBRATION FACTOR: Y[5] = 0.998 ΔH@[6] = 1.72**

1 Must pull at least 5 cubic feet per orifice
2 Vacuum must be 15" of Hg or greater
3 Individual Ys can not vary from +/-0.02Y of the average
4 Delta H@ can not be more than +/- 0.15 of average delta H
5 Ideal Y is 1.000 and can vary no more than +/- 0.05
6 Ideal Delta H@ is 1.84 and should not vary more than 0.2

# ARI ENVIRONMENTAL, INC.
# EPA METHOD 5
# THERMOCOUPLE DIGITIAL INDICATOR CALIBRATION DATA SHEET

Operator: DWM
Date: 10/29/2008

Meterbox No.: 801005
Calibrator No.: CL-300-21001

| Calibrato | Digital Temperature Readout | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Setting | PROBE | | STACK | | FILTER | | EXIT | | AUX | |
| ° F | Acutal | Diff. | Acutal | Diff. | Acutal | Diff. | Acutal | Diff. | Acutal | Diff. |
| **0** | -2 | 0.43 | -3 | 0.65 | -2 | 0.43 | -2 | 0.43 | -2 | 0.43 |
| **200** | 198 | 0.30 | 198 | 0.30 | 198 | 0.30 | 199 | 0.15 | 199 | 0.15 |
| **400** | 395 | 0.58 | 395 | 0.58 | 395 | 0.58 | 395 | 0.58 | 395 | 0.58 |
| **600** | 598 | 0.19 | 598 | 0.19 | 598 | 0.19 | 598 | 0.19 | 598 | 0.19 |
| **800** | 800 | 0.00 | 799 | 0.08 | 800 | 0.00 | 800 | 0.00 | 800 | 0.00 |
| **1000** | 999 | 0.07 | 999 | 0.07 | 999 | 0.07 | 999 | 0.07 | 999 | 0.07 |
| **1200** | 1197 | 0.18 | 1197 | 0.18 | 1197 | 0.18 | 1197 | 0.18 | 1197 | 0.18 |
| **1400** | 1395 | 0.27 | 1395 | 0.27 | 1395 | 0.27 | 1395 | 0.27 | 1396 | 0.22 |
| **1600** | 1597 | 0.15 | 1598 | 0.10 | 1597 | 0.15 | 1598 | 0.10 | 1598 | 0.10 |
| **1800** | 1795 | 0.22 | 1796 | 0.18 | 1796 | 0.18 | 1796 | 0.18 | 1796 | 0.18 |

**Actual Maximum Difference = 0.65 %**
Allowable Maximum Difference = 1.50 %

**ARI Environmental, Inc.**
**EPA METHOD 5**
**Post-test Meter Box Calibration**

Model #: Apex 522
Serial #: 801005
Pretest Y: 0.998
Pretest ΔH@: 1.72

Operator: DWM
Date: 5/4/2009

Post-Test, Orifice Method
English Units

Barometric Pressure: 29.77 in.Hg

| ΔH | Time | | DRY GAS METER VOLUME | | | METER TEMPERATURE | | ORIFICE | | VAC. | AMBIENT TEMPERATURE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | INLET | OUTLET | | | | | | |
| | | | | | | Initial | Initial | | | | | | |
| | Minutes | Seconds | Initial | Final | Total[1] | Final | Final | Number | K factor | in. Hg[2] | Inital | Final | Avg. |
| | | | | | | 84 | 73 | | | | | | |
| 1.60 | 10 | 19 | 127.800 | 135.300 | 7.500 | 88 | 76 | AJ63 | 0.5482 | 17.5 | 74 | 74 | 74.0 |
| | | | | | | 88 | 76 | | | | | | |
| 1.60 | 11 | 23 | 135.500 | 143.800 | 8.300 | 90 | 77 | AJ63 | 0.5482 | 17.0 | 74 | 75 | 74.5 |
| | | | | | | 90 | 77 | | | | | | |
| 1.60 | 10 | 1 | 144.100 | 151.400 | 7.300 | 91 | 79 | AJ63 | 0.5482 | 17.0 | 75 | 75 | 75.0 |

| METER FLOW (cubic feet) | ORIFICE FLOW (cubic feet) | METER CALIBRATION FACTOR, Yc[3] | DH @[4] |
|---|---|---|---|
| 7.322 | 7.286 | 0.9951 | 1.770 |
| 8.066 | 8.036 | 0.9963 | 1.763 |
| 7.074 | 7.067 | 0.9990 | 1.760 |

| | | |
|---|---|---|
| **AVG. POST-TEST METER CALIBRATION FACTOR =** | **0.997** | **1.76** |

**PERCENT DIFFERENCE FROM PRETEST Y= 0.12**
**MAXIMUM ALLOWABLE DIFFERENCE= 5.00**

1 Must pull at least 5 cubic feet per orifice
2 Vacuum must be 15" of Hg or greater
3 Individual Ys can not vary from +/-0.02Y of the average
4 Delta H@ can not be more than +/- 0.15 of average dealta H

# ARI ENVIRONMENTAL, INC.
# EPA METHOD 5
# THERMOCOUPLE DIGITIAL INDICATOR CALIBRATION DATA SHEET

Operator: DWM
Date: 5/4/2009

Meterbox No.: 801005
Calibrator No.: CL-300-21001

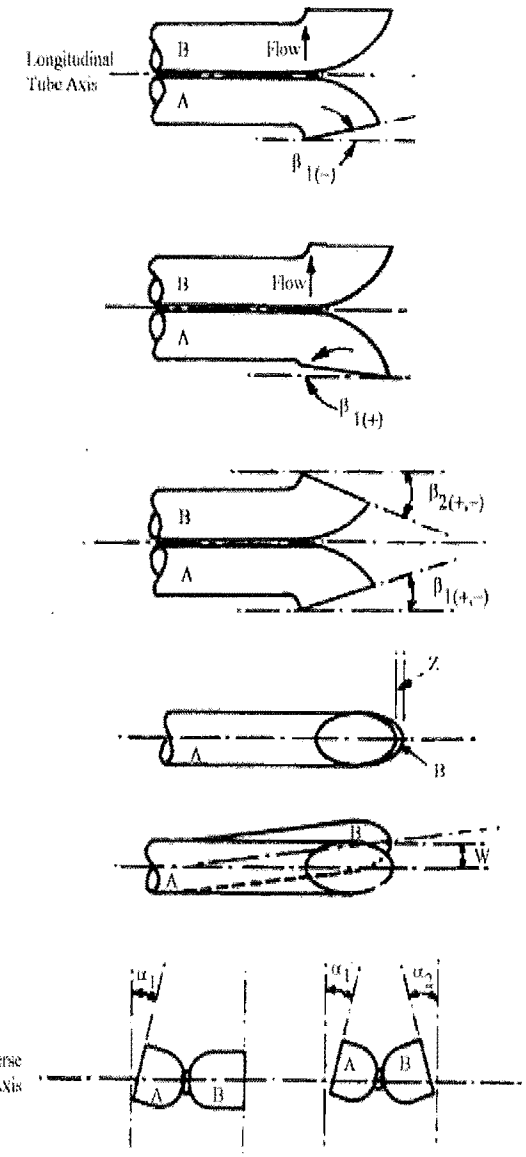
| Calibrator | Digital Temperature Readout | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Setting | PROBE | | STACK | | FILTER | | EXIT | | AUX | |
| ° F | Acutal | Diff. | Acutal | Diff. | Acutal | Diff. | Acutal | Diff. | Acutal | Diff. |
| **0** | -2 | 0.43 | -2 | 0.43 | -3 | 0.65 | -3 | 0.65 | -2 | 0.43 |
| **200** | 199 | 0.15 | 199 | 0.15 | 198 | 0.30 | 198 | 0.30 | 199 | 0.15 |
| **400** | 395 | 0.58 | 395 | 0.58 | 395 | 0.58 | 395 | 0.58 | 395 | 0.58 |
| **600** | 598 | 0.19 | 598 | 0.19 | 598 | 0.19 | 598 | 0.19 | 599 | 0.09 |
| **800** | 800 | 0.00 | 800 | 0.00 | 800 | 0.00 | 800 | 0.00 | 800 | 0.00 |
| **1000** | 1000 | 0.00 | 1000 | 0.00 | 1000 | 0.00 | 1000 | 0.00 | 1000 | 0.00 |
| **1200** | 1198 | 0.12 | 1198 | 0.12 | 1198 | 0.12 | 1198 | 0.12 | 1198 | 0.12 |
| **1400** | 1397 | 0.16 | 1396 | 0.22 | 1396 | 0.22 | 1397 | 0.16 | 1397 | 0.16 |
| **1600** | 1599 | 0.05 | 1599 | 0.05 | 1599 | 0.05 | 1599 | 0.05 | 1599 | 0.05 |
| **1800** | 1798 | 0.09 | 1797 | 0.13 | 1797 | 0.13 | 1797 | 0.13 | 1798 | 0.09 |

**Actual Maximum Difference = 0.65 %**
Allowable Maximum Difference = 1.50 %

# Pitot Tube Inspection Data

**Client Name:** _____

| | Pre-Sample | | Post-Sample |
|---|---|---|---|
| **Date:** | 3/30/2009 | **Date:** | 5/4/2009 |




| | | |
|---|---|---|
| y | **level?** | y |
| n | **obstructions?** | n |
| n | **damaged?** | n |
| 2 | $-10^\circ < \alpha_1 < +10^\circ$ | 0 |
| 2 | $-10^\circ < \alpha_2 < +10^\circ$ | 3 |
| 1 | $-5^\circ < \beta_1 < +5^\circ$ | 2 |
| 1 | $-5^\circ < \beta_2 < +5^\circ$ | 0 |
| 0 | $\gamma$ | 1 |
| 0 | $\theta$ | 1 |
| 1.035 | **A** | 1.035 |
| 0.518 | $0.39375 < P_A < 0.5625$ | 0.518 |
| 0.518 | $0.39375 < P_B < 0.5625$ | 0.518 |
| 0.375 | $0.1875 \leq D_t \leq 0.375$ | 0.375 |
| 0.000 | **A tan $\gamma$ < 0.125"** | 0.018 |
| 0.00000 | **A tan $\theta$ < 0.03125"** | 0.01806 |
| TRUE | $P_A = P_B$ +/- 0.063 | TRUE |
| PASS | **PASS/FAIL** | PASS |

**Comments:**

Pitot tube/probe number P25 meets or exceeds all specifications and criteria and/or applicable design features (per 40CFR60 Appendix A; Method 2) and is heareby assigned a pitot tube calibration factor of 0.84.

Signature: _____

Date: _____

## ARI Environmental Inc.
## Thermocouple Calibration Data Form

| | | |
|---|---|---|
| **Calibrator:** | AH | DWM |
| **Thermocouple ID.** | P25 | P25 |
| | **pretest** | **posttest** |
| **Date:** | 3/30/2009 | 5/4/2009 |
| **Barometric:** | | 29.65 |

**Reference Thermometer = Mercury in glass**

| | Reference Point Number | Source | Reference Thermometer Temperature | Meter Readout Temperature | Difference (%) |
|---|---|---|---|---|---|
| **Pre-Test** | T.C | Ice Water | 33.0 | 34.0 | -0.20 |
| | | Ambient | 68.0 | 68.0 | 0.00 |
| | | Hot Water | 156.0 | 156.0 | 0.00 |
| **Post-Test** | T.C | Ice Water | 33.0 | 34.0 | -0.20 |
| | | Ambient | 68.0 | 68.0 | 0.00 |
| | | Hot Water | 156.0 | 156.0 | 0.00 |

a (temp. diff.) = (ref.temp + 460) - (Thermo. temp. + 460) / (ref. temp. +460) x 100

Where $-1.5 < a < 1.5$

# BAROMETER CALIBRATION

## PRE-TEST

| CALIBRATOR INITIALS | BAROMETER NUMBER | CALIBRATION DATE | BAROMETER READING (in. Hg) | REFERENCE READING (in Hg.) | DIFFERENCE (+/- 0.1 in Hg) |
|---|---|---|---|---|---|
| DWM | EB833-T7 | 3/27/2009 | 29.29 | 29.32 | 0.03 |

## POST-TEST

| CALIBRATOR INITIALS | BAROMETER NUMBER | CALIBRATION DATE | BAROMETER READING (in. Hg) | REFERENCE READING (in Hg.) | DIFFERENCE (+/- 0.1 in Hg) |
|---|---|---|---|---|---|
| DWM | EB833-T7 | 5/21/2009 | 29.71 | 29.71 | 0 |

# NOZZLE CALIBRATION DATA FORM

Date: 4-21-09 Calibrated By: S. GOLDFINE

| Nozzle identification number | Nozzle Diameter[a] | | | $\Delta D$,[b] (in.) mm | $D_{avg}$[c] (in.) mm |
|---|---|---|---|---|---|
| | $D_1$ (in.) mm | $D_2$ (in.) mm | $D_3$ (in.) mm | | |
| SRU3-1 | 0.188 | 0.187 | 0.188 | 0.001 | 0.188 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

where:

[a] $D_{1,2,3,}$ = nozzle internal diameter measured to the nearest 0.001 in (0.025 mm)

[b] $\Delta D$ = maximum difference between any two diameters must be < 0.004 in. (0.10 mm)

[c] $D_{avg}$ = average of D1, D2, and D3.

# APPENDIX F

# Process Data

Valero Bill Greehey Refinery - West Plant SCOT Stack Test April 21 & 22, 2009 Production Data

| Date & Time | FFIC-413068A Conversion to LTPD of sulfur TRN 3 TOTAL AMINE GAS | FFIC-41305.PV Conversion to LTPD of sulfur HN3 GAS Z1 | Total Sulfur Production LTPD of sulfur | TI-41442.PV Deg F FIRE BOX Value | AI-41303.PV PPM SO2 Value | AI-41304.PV PPM EXCESS O2 Value |
|---|---|---|---|---|---|---|
| 4/21/09 13:20 | 293.96 | 39.80 | 333.75 | 1514.63 | 66.48 | 5.19 |
| 4/21/09 13:21 | 292.83 | 39.71 | 332.53 | 1516.17 | 67.09 | 5.21 |
| 4/21/09 13:22 | 292.35 | 39.74 | 332.09 | 1519.36 | 67.07 | 5.22 |
| 4/21/09 13:23 | 293.05 | 39.87 | 332.92 | 1525.81 | 70.88 | 5.15 |
| 4/21/09 13:24 | 295.13 | 39.94 | 335.06 | 1527.36 | 72.52 | 5.27 |
| 4/21/09 13:25 | 293.33 | 39.92 | 333.25 | 1529.00 | 71.80 | 5.34 |
| 4/21/09 13:26 | 295.43 | 39.82 | 335.25 | 1532.18 | 70.10 | 5.31 |
| 4/21/09 13:27 | 292.92 | 39.75 | 332.68 | 1535.36 | 70.25 | 5.46 |
| 4/21/09 13:28 | 293.97 | 39.77 | 333.74 | 1535.36 | 70.27 | 5.35 |
| 4/21/09 13:29 | 295.05 | 39.66 | 334.71 | 1533.82 | 68.18 | 5.33 |
| 4/21/09 13:30 | 292.88 | 39.67 | 332.55 | 1529.00 | 69.51 | 5.35 |
| 4/21/09 13:31 | 295.38 | 39.48 | 334.86 | 1522.54 | 68.44 | 5.25 |
| 4/21/09 13:32 | 295.50 | 39.43 | 334.93 | 1519.36 | 68.05 | 5.20 |
| 4/21/09 13:33 | 293.33 | 39.41 | 332.74 | 1516.17 | 68.28 | 5.36 |
| 4/21/09 13:34 | 295.16 | 39.70 | 334.86 | 1516.17 | 70.21 | 5.34 |
| 4/21/09 13:35 | 292.73 | 39.72 | 332.46 | 1519.36 | 71.80 | 5.32 |
| 4/21/09 13:36 | 293.88 | 39.87 | 333.75 | 1527.36 | 72.40 | 5.43 |
| 4/21/09 13:37 | 291.51 | 39.99 | 331.50 | 1529.00 | 71.80 | 5.33 |
| 4/21/09 13:38 | 292.39 | 39.99 | 332.38 | 1527.36 | 72.75 | 5.19 |
| 4/21/09 13:39 | 294.37 | 40.05 | 334.42 | 1527.36 | 72.54 | 5.32 |
| 4/21/09 13:40 | 292.10 | 40.11 | 332.21 | 1527.36 | 72.70 | 5.28 |
| 4/21/09 13:41 | 293.37 | 40.10 | 333.47 | 1525.81 | 72.75 | 5.33 |
| 4/21/09 13:42 | 292.60 | 40.04 | 332.64 | 1524.18 | 73.65 | 5.40 |
| 4/21/09 13:43 | 294.70 | 40.13 | 334.84 | 1525.81 | 72.19 | 5.33 |
| 4/21/09 13:44 | 293.11 | 40.21 | 333.32 | 1522.54 | 71.27 | 5.44 |
| 4/21/09 13:45 | 295.68 | 40.23 | 335.91 | 1522.54 | 69.92 | 5.43 |
| 4/21/09 13:46 | 292.48 | 40.21 | 332.69 | 1520.99 | 69.51 | 5.35 |
| 4/21/09 13:47 | 294.76 | 40.30 | 335.06 | 1522.54 | 67.62 | 5.29 |
| 4/21/09 13:48 | 294.37 | 40.45 | 334.82 | 1524.18 | 67.99 | 5.31 |
| 4/21/09 13:49 | 294.02 | 40.59 | 334.62 | 1520.99 | 68.87 | 5.22 |
| 4/21/09 13:50 | 293.01 | 40.73 | 333.74 | 1520.99 | 72.44 | 5.23 |
| 4/21/09 13:51 | 295.65 | 40.78 | 336.43 | 1522.54 | 72.58 | 5.35 |
| 4/21/09 13:52 | 295.10 | 40.91 | 336.02 | 1522.54 | 71.97 | 5.35 |
| 4/21/09 13:53 | 295.19 | 40.96 | 336.15 | 1524.18 | 74.39 | 5.38 |
| 4/21/09 13:54 | 295.68 | 41.11 | 336.79 | 1524.18 | 74.16 | 5.45 |
| 4/21/09 13:55 | 293.92 | 41.10 | 335.02 | 1525.81 | 74.65 | 5.34 |
| 4/21/09 13:56 | 293.29 | 41.20 | 334.49 | 1522.54 | 73.65 | 5.27 |
| 4/21/09 13:57 | 293.28 | 41.30 | 334.58 | 1520.99 | 71.91 | 5.33 |
| 4/21/09 13:58 | 294.21 | 41.32 | 335.53 | 1519.36 | 74.61 | 5.26 |
| 4/21/09 13:59 | 293.72 | 41.49 | 335.21 | 1514.63 | 75.12 | 5.22 |
| 4/21/09 14:00 | 294.40 | 41.53 | 335.93 | 1509.81 | 77.13 | 5.17 |
| 4/21/09 14:01 | 294.20 | 41.48 | 335.67 | 1508.17 | 76.19 | 5.37 |
| 4/21/09 14:02 | 293.31 | 41.52 | 334.83 | 1516.17 | 78.71 | 5.31 |
| 4/21/09 14:03 | 293.31 | 41.53 | 334.84 | 1520.99 | 79.90 | 5.26 |
| 4/21/09 14:04 | 294.92 | 41.50 | 336.41 | 1522.54 | 81.95 | 5.28 |

Valero Bill Greehey Refinery - West Plant SCOT Stack Test April 21 & 22, 2009 Production Data

| Date & Time | FFIC-413068A Conversion to LTPD of sulfur TRN 3 TOTAL AMINE GAS | FFIC-41305.PV Conversion to LTPD of sulfur HN3 GAS Z1 | Total Sulfur Production LTPD of sulfur | TI-41442.PV Deg F FIRE BOX Value | AI-41303.PV PPM SO2 Value | AI-41304.PV PPM EXCESS O2 Value |
|---|---|---|---|---|---|---|
| 4/21/09 14:05 | 292.56 | 41.52 | 334.08 | 1520.99 | 82.01 | 5.41 |
| 4/21/09 14:06 | 293.46 | 41.33 | 334.79 | 1520.99 | 82.75 | 5.18 |
| 4/21/09 14:07 | 293.44 | 41.26 | 334.70 | 1520.99 | 82.25 | 5.17 |
| 4/21/09 14:08 | 291.62 | 41.11 | 332.73 | 1516.17 | 80.63 | 5.17 |
| 4/21/09 14:09 | 294.48 | 41.00 | 335.48 | 1512.99 | 79.82 | 5.24 |
| 4/21/09 14:10 | 292.41 | 40.90 | 333.31 | 1511.35 | 80.21 | 5.24 |
| 4/21/09 14:11 | 294.94 | 40.87 | 335.81 | 1509.81 | 75.76 | 5.32 |
| 4/21/09 14:12 | 294.39 | 40.77 | 335.16 | 1517.81 | 83.52 | 5.33 |
| 4/21/09 14:13 | 292.83 | 40.67 | 333.50 | 1524.18 | 78.71 | 5.33 |
| 4/21/09 14:14 | 295.35 | 40.69 | 336.04 | 1525.81 | 77.87 | 5.39 |
| 4/21/09 14:15 | 295.29 | 40.63 | 335.93 | 1525.81 | 78.96 | 5.39 |
| 4/21/09 14:16 | 292.63 | 40.55 | 333.18 | 1525.81 | 79.20 | 5.29 |
| 4/21/09 14:17 | 295.16 | 40.56 | 335.71 | 1525.81 | 79.69 | 5.27 |
| 4/21/09 14:18 | 292.75 | 40.58 | 333.33 | 1525.81 | 78.57 | 5.23 |
| 4/21/09 14:19 | 295.05 | 40.55 | 335.60 | 1524.18 | 79.22 | 5.30 |
| 4/21/09 14:20 | 293.60 | 40.38 | 333.99 | 1520.99 | 77.46 | 5.29 |
| 4/21/09 14:21 | 294.75 | 40.24 | 334.99 | 1520.99 | 75.31 | 5.23 |
| 4/21/09 14:22 | 294.72 | 40.13 | 334.85 | 1520.99 | 75.14 | 5.30 |
| 4/21/09 14:23 | 292.44 | 40.02 | 332.46 | 1520.99 | 73.24 | 5.39 |
| 4/21/09 14:24 | 293.96 | 39.95 | 333.91 | 1522.54 | 71.76 | 5.46 |
| 4/21/09 14:25 | 291.82 | 39.99 | 331.80 | 1520.99 | 71.35 | 5.46 |
| 4/21/09 14:26 | 293.55 | 39.91 | 333.47 | 1522.54 | 69.47 | 5.25 |
| 4/21/09 14:27 | 291.96 | 39.87 | 331.84 | 1522.54 | 68.69 | 5.32 |
| 4/21/09 14:28 | 294.19 | 39.85 | 334.05 | 1519.36 | 68.67 | 5.39 |
| 4/21/09 14:29 | 289.87 | 39.78 | 329.65 | 1516.17 | 69.16 | 5.36 |
| 4/21/09 14:30 | 291.59 | 40.02 | 331.61 | 1514.63 | 65.86 | 5.30 |
| 4/21/09 14:31 | 289.93 | 40.06 | 329.99 | 1511.35 | 67.91 | 5.35 |
| 4/21/09 14:32 | 293.31 | 40.07 | 333.38 | 1516.17 | 68.07 | 5.25 |
| 4/21/09 14:33 | 290.95 | 40.16 | 331.11 | 1516.17 | 67.11 | 5.25 |
| 4/21/09 14:34 | 292.61 | 40.22 | 332.83 | 1516.17 | 67.62 | 5.25 |
| 4/21/09 14:35 | 292.00 | 40.38 | 332.39 | 1516.17 | 67.83 | 5.24 |
| 4/21/09 14:36 | 292.39 | 40.56 | 332.95 | 1517.81 | 69.77 | 5.27 |
| 4/21/09 14:37 | 290.01 | 40.67 | 330.67 | 1519.36 | 70.31 | 5.32 |
| 4/21/09 14:38 | 292.05 | 40.76 | 332.82 | 1522.54 | 73.57 | 5.34 |
| 4/21/09 14:39 | 288.83 | 40.83 | 329.66 | 1524.18 | 74.82 | 5.33 |
| 4/21/09 14:40 | 290.63 | 40.87 | 331.50 | 1524.18 | 75.64 | 5.35 |
| 4/21/09 14:41 | 288.78 | 40.72 | 329.51 | 1524.18 | 75.61 | 5.49 |
| 4/21/09 14:42 | 290.06 | 41.01 | 331.08 | 1522.54 | 77.38 | 5.43 |
| 4/21/09 14:43 | 287.74 | 40.90 | 328.64 | 1522.54 | 77.13 | 5.38 |
| 4/21/09 14:44 | 290.27 | 40.84 | 331.10 | 1520.99 | 79.06 | 5.32 |
| 4/21/09 14:45 | 288.30 | 40.87 | 329.17 | 1517.81 | 78.48 | 5.27 |
| 4/21/09 14:46 | 290.93 | 40.87 | 331.80 | 1514.63 | 80.14 | 5.33 |
| 4/21/09 14:47 | 288.74 | 40.79 | 329.53 | 1517.81 | 79.08 | 5.41 |
| 4/21/09 14:48 | 288.57 | 40.76 | 329.33 | 1519.36 | 78.95 | 5.29 |
| 4/21/09 14:49 | 288.39 | 40.71 | 329.10 | 1522.54 | 76.82 | 5.31 |

Valero Bill Greehey Refinery - West Plant SCOT Stack Test April 21 & 22, 2009 Production Data

| Date & Time | FFIC-413068A Conversion to LTPD of sulfur TRN 3 TOTAL AMINE GAS | FFIC-41305.PV Conversion to LTPD of sulfur HN3 GAS Z1 | Total Sulfur Production LTPD of sulfur | TI-41442.PV Deg F FIRE BOX Value | AI-41303.PV PPM SO2 Value | AI-41304.PV PPM EXCESS O2 Value |
|---|---|---|---|---|---|---|
| 4/21/09 14:50 | 288.98 | 40.68 | 329.66 | 1524.18 | 74.92 | 5.31 |
| 4/21/09 14:51 | 289.54 | 40.58 | 330.12 | 1525.81 | 71.95 | 5.41 |
| 4/21/09 14:52 | 288.03 | 40.52 | 328.55 | 1520.99 | 71.04 | 5.46 |
| 4/21/09 14:53 | 291.50 | 40.37 | 331.87 | 1517.81 | 71.86 | 5.46 |
| 4/21/09 14:54 | 288.95 | 40.19 | 329.13 | 1517.81 | 71.25 | 5.34 |
| 4/21/09 14:55 | 288.33 | 40.40 | 328.72 | 1524.18 | 69.63 | 5.42 |
| 4/21/09 14:56 | 291.19 | 40.39 | 331.58 | 1524.18 | 67.95 | 5.41 |
| 4/21/09 14:57 | 287.76 | 40.47 | 328.23 | 1522.54 | 66.19 | 5.48 |
| 4/21/09 14:58 | 285.91 | 40.52 | 326.42 | 1517.81 | 65.86 | 5.49 |
| 4/21/09 14:59 | 285.91 | 40.62 | 326.53 | 1516.17 | 63.81 | 5.47 |
| 4/21/09 15:00 | 285.61 | 40.61 | 326.22 | 1519.36 | 65.04 | 5.46 |
| 4/21/09 15:01 | 283.33 | 40.63 | 323.96 | 1520.99 | 64.45 | 5.54 |
| 4/21/09 15:02 | 282.74 | 40.55 | 323.30 | 1522.54 | 65.33 | 5.53 |
| 4/21/09 15:03 | 282.87 | 40.57 | 323.44 | 1519.36 | 65.76 | 5.52 |
| 4/21/09 15:04 | 281.36 | 40.71 | 322.07 | 1517.81 | 68.69 | 5.45 |
| 4/21/09 15:05 | 279.62 | 40.72 | 320.33 | 1512.99 | 69.75 | 5.47 |
| 4/21/09 15:06 | 279.84 | 40.66 | 320.50 | 1512.99 | 67.70 | 5.35 |
| 4/21/09 15:07 | 279.89 | 40.63 | 320.52 | 1519.36 | 68.16 | 5.42 |
| 4/21/09 15:08 | 280.74 | 40.66 | 321.41 | 1519.36 | 67.11 | 5.48 |
| 4/21/09 15:09 | 280.37 | 40.78 | 321.15 | 1520.99 | 67.03 | 5.48 |
| 4/21/09 15:10 | 280.34 | 40.82 | 321.16 | 1525.81 | 67.38 | 5.41 |
| 4/21/09 15:11 | 280.27 | 40.81 | 321.08 | 1525.81 | 69.06 | 5.41 |
| 4/21/09 15:12 | 280.37 | 40.93 | 321.31 | 1524.18 | 69.67 | 5.34 |
| 4/21/09 15:13 | 280.30 | 41.00 | 321.30 | 1522.54 | 71.09 | 5.41 |
| 4/21/09 15:14 | 279.82 | 41.06 | 320.88 | 1519.36 | 73.69 | 5.28 |
| 4/21/09 15:15 | 280.30 | 40.94 | 321.24 | 1517.81 | 72.34 | 5.42 |
| 4/21/09 15:16 | 281.12 | 40.92 | 322.04 | 1517.81 | 73.50 | 5.36 |
| 4/21/09 15:17 | 281.94 | 40.93 | 322.87 | 1517.81 | 71.46 | 5.33 |
| 4/21/09 15:18 | 280.41 | 41.05 | 321.46 | 1517.81 | 73.48 | 5.28 |
| 4/21/09 15:19 | 280.20 | 41.08 | 321.27 | 1522.54 | 73.95 | 5.27 |
| 4/21/09 15:20 | 280.49 | 41.13 | 321.61 | 1522.54 | 73.16 | 5.00 |
| 4/21/09 15:21 | 280.56 | 41.16 | 321.72 | 1525.81 | 73.75 | 5.05 |
| 4/21/09 15:22 | 280.45 | 41.14 | 321.59 | 1524.18 | 74.63 | 5.08 |
| 4/21/09 15:23 | 279.37 | 40.97 | 320.35 | 1522.54 | 75.06 | 5.08 |
| 4/21/09 15:24 | 280.99 | 40.81 | 321.80 | 1522.54 | 74.63 | 5.13 |
| 4/21/09 15:25 | 279.53 | 40.72 | 320.24 | 1524.18 | 74.49 | 5.04 |
| 4/21/09 15:26 | 280.43 | 40.68 | 321.11 | 1527.36 | 75.27 | 4.94 |
| 4/21/09 15:27 | 278.83 | 40.74 | 319.57 | 1535.36 | 73.50 | 4.94 |
| 4/21/09 15:28 | 281.03 | 40.58 | 321.61 | 1538.54 | 73.59 | 4.79 |
| 4/21/09 15:29 | 279.68 | 40.48 | 320.17 | 1538.54 | 74.65 | 4.80 |
| 4/21/09 15:30 | 280.12 | 40.43 | 320.55 | 1538.54 | 75.94 | 4.75 |
| 4/21/09 15:31 | 280.21 | 40.46 | 320.67 | 1535.36 | 75.21 | 4.80 |
| 4/21/09 15:32 | 279.67 | 40.41 | 320.08 | 1535.36 | 74.67 | 4.72 |
| 4/21/09 15:33 | 280.11 | 40.45 | 320.56 | 1537.00 | 77.13 | 4.76 |
| 4/21/09 15:34 | 279.84 | 40.61 | 320.45 | 1541.82 | 78.11 | 4.72 |

Valero Bill Greehey Refinery - West Plant SCOT Stack Test April 21 & 22, 2009 Production Data

| Date & Time | FFIC-413068A Conversion to LTPD of sulfur TRN 3 TOTAL AMINE GAS | FFIC-41305.PV Conversion to LTPD of sulfur HN3 GAS Z1 | Total Sulfur Production LTPD of sulfur | TI-41442.PV Deg F FIRE BOX Value | AI-41303.PV PPM SO2 Value | AI-41304.PV PPM EXCESS O2 Value |
|---|---|---|---|---|---|---|
| 4/21/09 15:35 | 279.62 | 40.54 | 320.16 | 1545.00 | 79.86 | 4.72 |
| 4/21/09 15:36 | 280.43 | 40.58 | 321.01 | 1548.18 | 78.77 | 4.80 |
| 4/21/09 15:37 | 280.46 | 40.65 | 321.10 | 1554.54 | 80.96 | 4.92 |
| 4/21/09 15:38 | 280.50 | 40.61 | 321.11 | 1557.82 | 83.24 | 4.88 |
| 4/21/09 15:39 | 280.49 | 40.62 | 321.11 | 1559.36 | 84.55 | 4.75 |
| 4/21/09 15:40 | 280.73 | 40.66 | 321.39 | 1561.00 | 80.72 | 4.75 |
| 4/21/09 15:41 | 281.09 | 40.79 | 321.88 | 1559.36 | 81.78 | 4.83 |
| 4/21/09 15:42 | 280.97 | 40.79 | 321.77 | 1557.82 | 81.76 | 4.83 |
| 4/21/09 15:43 | 281.18 | 40.85 | 322.04 | 1556.18 | 84.38 | 4.80 |
| 4/21/09 15:44 | 281.38 | 40.83 | 322.21 | 1549.82 | 82.09 | 4.77 |
| 4/21/09 15:45 | 281.49 | 40.75 | 322.24 | 1546.54 | 83.11 | 4.83 |
| 4/21/09 15:46 | 282.53 | 40.74 | 323.27 | 1543.36 | 81.78 | 4.87 |
| 4/21/09 15:47 | 282.65 | 40.70 | 323.35 | 1540.18 | 81.23 | 4.84 |
| 4/21/09 15:48 | 282.76 | 40.61 | 323.37 | 1543.36 | 78.67 | 4.85 |
| 4/21/09 15:49 | 282.31 | 40.64 | 322.95 | 1545.00 | 80.70 | 4.91 |
| 4/21/09 15:50 | 282.71 | 40.67 | 323.38 | 1543.36 | 79.24 | 5.01 |
| 4/21/09 15:51 | 282.75 | 40.71 | 323.46 | 1543.36 | 79.43 | 4.93 |
| 4/21/09 15:52 | 282.76 | 40.67 | 323.42 | 1543.36 | 79.02 | 4.91 |
| 4/21/09 15:53 | 281.79 | 40.78 | 322.57 | 1540.18 | 81.35 | 4.90 |
| 4/21/09 15:54 | 282.86 | 40.84 | 323.70 | 1538.54 | 81.25 | 5.00 |
| 4/21/09 15:55 | 283.33 | 40.85 | 324.18 | 1538.54 | 82.52 | 4.83 |
| 4/21/09 15:56 | 281.62 | 40.86 | 322.47 | 1538.54 | 83.52 | 4.89 |
| 4/21/09 15:57 | 282.00 | 40.99 | 322.99 | 1537.00 | 86.23 | 4.88 |
| 4/21/09 15:58 | 282.78 | 41.01 | 323.79 | 1535.36 | 86.41 | 4.80 |
| 4/21/09 15:59 | 283.70 | 40.94 | 324.64 | 1533.82 | 86.05 | 4.75 |
| 4/21/09 16:00 | 284.63 | 40.90 | 325.54 | 1532.18 | 87.42 | 4.76 |
| 4/21/09 16:01 | 283.72 | 40.78 | 324.50 | 1530.54 | 87.23 | 4.93 |
| 4/21/09 16:02 | 284.51 | 40.71 | 325.23 | 1527.36 | 84.71 | 5.05 |
| 4/21/09 16:03 | 284.73 | 40.65 | 325.38 | 1525.81 | 84.86 | 4.94 |
| 4/21/09 16:04 | 286.38 | 40.62 | 327.00 | 1525.81 | 86.09 | 5.00 |
| 4/21/09 16:05 | 286.68 | 40.55 | 327.24 | 1529.00 | 86.27 | 4.88 |
| 4/21/09 16:06 | 286.90 | 40.38 | 327.29 | 1530.54 | 82.95 | 4.96 |
| 4/21/09 16:07 | 287.04 | 40.31 | 327.35 | 1530.54 | 84.20 | 4.78 |
| 4/21/09 16:08 | 287.20 | 40.31 | 327.51 | 1532.18 | 80.31 | 4.88 |
| 4/21/09 16:09 | 287.71 | 40.34 | 328.05 | 1532.18 | 79.73 | 4.99 |
| 4/21/09 16:10 | 287.47 | 40.41 | 327.88 | 1525.81 | 79.88 | 4.87 |
| 4/21/09 16:11 | 287.65 | 40.55 | 328.20 | 1519.36 | 79.92 | 4.98 |
| 4/21/09 16:12 | 287.68 | 40.73 | 328.40 | 1519.36 | 80.27 | 4.87 |
| 4/21/09 16:13 | 287.58 | 40.77 | 328.35 | 1520.99 | 84.53 | 4.90 |
| 4/21/09 16:14 | 287.26 | 40.92 | 328.18 | 1522.54 | 86.82 | 4.94 |
| 4/21/09 16:15 | 287.31 | 41.10 | 328.41 | 1520.99 | 87.36 | 4.80 |
| 4/21/09 16:16 | 287.85 | 41.01 | 328.86 | 1524.18 | 88.11 | 4.81 |
| 4/21/09 16:17 | 287.71 | 41.12 | 328.83 | 1525.81 | 89.39 | 4.79 |
| 4/21/09 16:18 | 288.17 | 41.32 | 329.50 | 1525.81 | 89.47 | 4.67 |
| 4/21/09 16:19 | 286.38 | 41.32 | 327.71 | 1525.81 | 89.96 | 4.74 |

Valero Bill Greehey Refinery - West Plant SCOT Stack Test April 21 & 22, 2009 Production Data

| Date & Time | FFIC-413068A Conversion to LTPD of sulfur TRN 3 TOTAL AMINE GAS | FFIC-41305.PV Conversion to LTPD of sulfur HN3 GAS Z1 | Total Sulfur Production LTPD of sulfur | TI-41442.PV Deg F FIRE BOX Value | AI-41303.PV PPM SO2 Value | AI-41304.PV PPM EXCESS O2 Value |
|---|---|---|---|---|---|---|
| 4/21/09 16:20 | 287.14 | 41.51 | 328.65 | 1525.81 | 93.67 | 4.65 |
| 4/21/09 16:21 | 287.75 | 41.74 | 329.49 | 1524.18 | 96.50 | 4.47 |
| 4/21/09 16:22 | 287.02 | 42.08 | 329.10 | 1520.99 | 95.39 | 4.56 |
| 4/21/09 16:23 | 285.92 | 42.31 | 328.24 | 1519.36 | 98.07 | 4.62 |
| 4/21/09 16:24 | 286.45 | 42.40 | 328.85 | 1516.17 | 102.34 | 4.59 |
| 4/21/09 16:25 | 285.84 | 42.63 | 328.47 | 1516.17 | 103.57 | 4.53 |
| 4/21/09 16:26 | 286.83 | 42.96 | 329.79 | 1517.81 | 102.40 | 4.58 |
| 4/21/09 16:27 | 286.84 | 43.10 | 329.94 | 1519.36 | 106.15 | 4.53 |
| 4/21/09 16:28 | 286.98 | 43.16 | 330.14 | 1522.54 | 108.63 | 4.62 |
| 4/21/09 16:29 | 288.78 | 43.40 | 332.18 | 1525.81 | 109.38 | 4.61 |
| 4/21/09 16:30 | 286.96 | 43.31 | 330.27 | 1529.00 | 110.76 | 4.71 |
| 4/21/09 16:31 | 287.64 | 43.22 | 330.86 | 1529.00 | 111.78 | 4.68 |
| 4/21/09 16:32 | 287.28 | 43.27 | 330.55 | 1533.82 | 112.17 | 4.69 |
| 4/21/09 16:33 | 286.71 | 43.19 | 329.90 | 1537.00 | 114.86 | 4.42 |
| 4/21/09 16:34 | 287.19 | 43.15 | 330.34 | 1535.36 | 113.93 | 4.61 |
| 4/21/09 16:35 | 286.42 | 43.09 | 329.50 | 1533.82 | 116.82 | 4.51 |
| 4/21/09 16:36 | 286.20 | 43.00 | 329.20 | 1530.54 | 115.74 | 4.51 |
| 4/21/09 16:37 | 286.77 | 42.79 | 329.55 | 1529.00 | 122.64 | 4.48 |
| 4/21/09 16:38 | 288.36 | 42.73 | 331.08 | 1529.00 | 120.12 | 4.44 |
| 4/21/09 16:39 | 286.73 | 42.66 | 329.39 | 1525.81 | 120.10 | 4.45 |
| 4/21/09 16:40 | 287.89 | 42.81 | 330.70 | 1525.81 | 119.32 | 4.60 |
| 4/21/09 16:41 | 285.66 | 42.58 | 328.25 | 1524.18 | 122.44 | 4.55 |
| 4/21/09 16:42 | 286.28 | 42.58 | 328.86 | 1524.18 | 120.78 | 4.67 |
| 4/21/09 16:43 | 286.61 | 42.62 | 329.23 | 1525.81 | 120.68 | 4.63 |
| 4/21/09 16:44 | 286.35 | 42.61 | 328.96 | 1527.36 | 117.36 | 4.54 |
| 4/21/09 16:45 | 287.92 | 42.61 | 330.53 | 1527.36 | 120.64 | 4.46 |
| 4/21/09 16:46 | 286.47 | 42.42 | 328.88 | 1525.81 | 118.87 | 4.45 |
| 4/21/09 16:47 | 287.01 | 42.35 | 329.36 | 1530.54 | 115.33 | 4.71 |
| 4/21/09 16:48 | 286.90 | 42.34 | 329.24 | 1530.54 | 115.14 | 4.80 |
| 4/21/09 16:49 | 286.50 | 42.34 | 328.84 | 1530.54 | 139.69 | 4.60 |
| 4/21/09 16:50 | 286.73 | 42.42 | 329.15 | 1530.54 | 118.75 | 4.52 |
| 4/21/09 16:51 | 288.21 | 42.45 | 330.67 | 1527.36 | 115.43 | 4.54 |
| 4/21/09 16:52 | 287.10 | 42.61 | 329.71 | 1524.18 | 114.98 | 4.52 |
| 4/21/09 16:53 | 286.69 | 42.78 | 329.47 | 1520.99 | 116.23 | 4.53 |
| 4/21/09 16:54 | 285.72 | 42.84 | 328.57 | 1519.36 | 115.88 | 4.56 |
| 4/21/09 16:55 | 287.98 | 42.96 | 330.94 | 1520.99 | 118.30 | 4.35 |
| 4/21/09 16:56 | 285.92 | 42.86 | 328.78 | 1525.81 | 116.43 | 4.38 |
| 4/21/09 16:57 | 285.90 | 42.89 | 328.80 | 1525.81 | 116.88 | 4.38 |
| 4/21/09 16:58 | 286.93 | 42.85 | 329.78 | 1525.81 | 113.75 | 4.58 |
| SRU3-1 Average | 287.83 | 40.98 | 328.81 | 1526.18 | 82.38 | 5.07 |
| 4/21/09 16:59 | 287.24 | 42.77 | 330.02 | 1525.81 | 113.75 | 4.69 |
| 4/21/09 17:00 | 286.25 | 42.58 | 328.83 | 1519.36 | 113.95 | 4.60 |
| 4/21/09 17:01 | 285.73 | 42.55 | 328.29 | 1516.17 | 114.26 | 4.43 |
| 4/21/09 17:02 | 286.14 | 42.48 | 328.63 | 1516.17 | 113.67 | 4.50 |
| 4/21/09 17:03 | 286.21 | 42.38 | 328.60 | 1517.81 | 112.79 | 4.28 |

Valero Bill Greehey Refinery - West Plant SCOT Stack Test April 21 & 22, 2009 Production Data

| Date & Time | FFIC-413068A Conversion to LTPD of sulfur TRN 3 TOTAL AMINE GAS | FFIC-41305.PV Conversion to LTPD of sulfur HN3 GAS Z1 | Total Sulfur Production LTPD of sulfur | TI-41442.PV Deg F FIRE BOX Value | AI-41303.PV PPM SO2 Value | AI-41304.PV PPM EXCESS O2 Value |
|---|---|---|---|---|---|---|
| 4/21/09 17:04 | 287.30 | 42.40 | 329.70 | 1522.54 | 111.74 | 4.46 |
| 4/21/09 17:05 | 286.21 | 42.33 | 328.53 | 1524.18 | 111.58 | 4.58 |
| 4/21/09 17:06 | 286.48 | 42.33 | 328.81 | 1519.36 | 111.64 | 4.35 |
| 4/21/09 17:07 | 286.85 | 42.31 | 329.15 | 1525.81 | 113.07 | 4.53 |
| 4/21/09 17:08 | 284.12 | 42.18 | 326.30 | 1527.36 | 111.91 | 4.41 |
| 4/21/09 17:09 | 285.30 | 42.18 | 327.48 | 1529.00 | 111.88 | 4.60 |
| 4/21/09 17:10 | 285.73 | 42.09 | 327.82 | 1529.00 | 109.92 | 4.60 |
| 4/21/09 17:11 | 286.08 | 42.18 | 328.26 | 1522.54 | 108.63 | 4.66 |
| 4/21/09 17:12 | 284.95 | 42.24 | 327.19 | 1520.99 | 108.98 | 4.56 |
| 4/21/09 17:13 | 286.46 | 42.15 | 328.61 | 1527.36 | 108.11 | 4.51 |
| 4/21/09 17:14 | 284.44 | 42.15 | 326.59 | 1530.54 | 109.30 | 4.39 |
| 4/21/09 17:15 | 285.72 | 42.12 | 327.84 | 1530.54 | 106.70 | 4.65 |
| 4/21/09 17:16 | 285.62 | 42.11 | 327.73 | 1533.82 | 110.12 | 4.50 |
| 4/21/09 17:17 | 286.86 | 42.16 | 329.01 | 1532.18 | 109.45 | 4.68 |
| 4/21/09 17:18 | 285.14 | 42.23 | 327.37 | 1527.36 | 106.74 | 4.64 |
| 4/21/09 17:19 | 285.89 | 42.19 | 328.07 | 1527.36 | 107.64 | 4.69 |
| 4/21/09 17:20 | 285.84 | 42.11 | 327.95 | 1524.18 | 104.18 | 4.69 |
| 4/21/09 17:21 | 286.09 | 42.00 | 328.09 | 1522.54 | 105.37 | 4.62 |
| 4/21/09 17:22 | 284.56 | 42.01 | 326.57 | 1520.99 | 103.36 | 4.61 |
| 4/21/09 17:23 | 285.33 | 42.08 | 327.41 | 1520.99 | 103.30 | 4.53 |
| 4/21/09 17:24 | 284.99 | 42.16 | 327.15 | 1514.63 | 103.09 | 4.49 |
| 4/21/09 17:25 | 284.67 | 42.31 | 326.98 | 1517.81 | 101.45 | 4.49 |
| 4/21/09 17:26 | 284.87 | 42.30 | 327.17 | 1519.36 | 99.18 | 4.59 |
| 4/21/09 17:27 | 286.04 | 42.31 | 328.35 | 1519.36 | 98.75 | 4.72 |
| 4/21/09 17:28 | 284.69 | 42.28 | 326.97 | 1520.99 | 99.12 | 4.67 |
| 4/21/09 17:29 | 284.48 | 42.17 | 326.66 | 1520.99 | 98.89 | 4.70 |
| 4/21/09 17:30 | 284.90 | 42.18 | 327.08 | 1517.81 | 98.44 | 4.72 |
| 4/21/09 17:31 | 285.63 | 42.14 | 327.77 | 1516.17 | 98.71 | 4.50 |
| 4/21/09 17:32 | 284.31 | 42.19 | 326.51 | 1514.63 | 96.82 | 4.52 |
| 4/21/09 17:33 | 285.51 | 42.19 | 327.71 | 1514.63 | 96.33 | 4.62 |
| 4/21/09 17:34 | 283.84 | 42.22 | 326.06 | 1517.81 | 95.21 | 4.72 |
| 4/21/09 17:35 | 284.70 | 42.20 | 326.90 | 1519.36 | 94.82 | 4.62 |
| 4/21/09 17:36 | 284.46 | 42.13 | 326.60 | 1519.36 | 94.79 | 4.41 |
| 4/21/09 17:37 | 285.34 | 42.04 | 327.38 | 1520.99 | 94.98 | 4.59 |
| 4/21/09 17:38 | 284.46 | 41.98 | 326.44 | 1519.36 | 94.84 | 4.58 |
| 4/21/09 17:39 | 283.03 | 41.76 | 324.78 | 1517.81 | 94.36 | 4.68 |
| 4/21/09 17:40 | 283.11 | 41.48 | 324.59 | 1517.81 | 95.02 | 4.58 |
| 4/21/09 17:41 | 283.45 | 41.35 | 324.80 | 1517.81 | 92.91 | 4.59 |
| 4/21/09 17:42 | 283.68 | 41.27 | 324.95 | 1519.36 | 93.63 | 4.61 |
| 4/21/09 17:43 | 284.95 | 41.32 | 326.27 | 1522.54 | 93.48 | 4.59 |
| 4/21/09 17:44 | 283.82 | 41.25 | 325.08 | 1520.99 | 93.85 | 4.52 |
| **4/21/09 17:45** | **285.53** | **41.05** | **326.58** | **1520.99** | **93.01** | **4.62** |
| **4/21/09 17:46** | **283.48** | **41.11** | **324.59** | **1522.54** | **90.47** | **4.63** |
| **4/21/09 17:47** | **283.06** | **41.13** | **324.18** | **1524.18** | **92.03** | **4.62** |
| **4/21/09 17:48** | **283.91** | **41.13** | **325.04** | **1527.36** | **90.68** | **4.58** |

Valero Bill Greehey Refinery - West Plant SCOT Stack Test April 21 & 22, 2009 Production Data

| Date & Time | FFIC-413068A Conversion to LTPD of sulfur TRN 3 TOTAL AMINE GAS | FFIC-41305.PV Conversion to LTPD of sulfur HN3 GAS Z1 | Total Sulfur Production LTPD of sulfur | TI-41442.PV Deg F FIRE BOX Value | AI-41303.PV PPM SO2 Value | AI-41304.PV PPM EXCESS O2 Value |
|---|---|---|---|---|---|---|
| 4/21/09 17:49 | 284.99 | 41.16 | 326.15 | 1527.36 | 91.04 | 4.59 |
| 4/21/09 17:50 | 284.10 | 41.13 | 325.23 | 1527.36 | 90.55 | 4.54 |
| 4/21/09 17:51 | 284.67 | 41.07 | 325.74 | 1524.18 | 92.13 | 4.52 |
| 4/21/09 17:52 | 284.81 | 41.23 | 326.04 | 1520.99 | 91.89 | 4.64 |
| 4/21/09 17:53 | 285.26 | 41.12 | 326.38 | 1517.81 | 92.81 | 4.55 |
| 4/21/09 17:54 | 285.42 | 41.24 | 326.66 | 1517.81 | 90.82 | 4.68 |
| 4/21/09 17:55 | 285.95 | 41.22 | 327.17 | 1520.99 | 90.27 | 4.60 |
| 4/21/09 17:56 | 285.20 | 41.24 | 326.44 | 1520.99 | 88.96 | 4.55 |
| 4/21/09 17:57 | 285.69 | 41.20 | 326.89 | 1524.18 | 91.21 | 4.66 |
| 4/21/09 17:58 | 285.28 | 41.14 | 326.41 | 1522.54 | 90.55 | 4.68 |
| 4/21/09 17:59 | 286.41 | 41.12 | 327.53 | 1522.54 | 90.47 | 4.49 |
| 4/21/09 18:00 | 285.46 | 41.07 | 326.54 | 1522.54 | 90.33 | 4.47 |
| 4/21/09 18:01 | 285.60 | 41.10 | 326.70 | 1520.99 | 90.92 | 4.54 |
| 4/21/09 18:02 | 285.76 | 41.31 | 327.07 | 1524.18 | 89.34 | 4.43 |
| 4/21/09 18:03 | 286.47 | 41.53 | 328.00 | 1524.18 | 88.07 | 4.51 |
| 4/21/09 18:04 | 286.73 | 41.53 | 328.26 | 1522.54 | 88.89 | 4.56 |
| 4/21/09 18:05 | 286.54 | 41.66 | 328.20 | 1519.36 | 87.15 | 4.64 |
| 4/21/09 18:06 | 288.28 | 41.58 | 329.86 | 1517.81 | 89.10 | 4.56 |
| 4/21/09 18:07 | 286.34 | 41.56 | 327.90 | 1516.17 | 89.41 | 4.56 |
| 4/21/09 18:08 | 286.09 | 41.57 | 327.66 | 1517.81 | 87.68 | 4.66 |
| 4/21/09 18:09 | 287.31 | 41.60 | 328.91 | 1519.36 | 86.04 | 4.62 |
| 4/21/09 18:10 | 285.96 | 41.51 | 327.47 | 1520.99 | 86.95 | 4.50 |
| 4/21/09 18:11 | 286.01 | 41.43 | 327.44 | 1524.18 | 87.29 | 4.50 |
| 4/21/09 18:12 | 286.74 | 41.49 | 328.23 | 1525.81 | 87.09 | 4.60 |
| 4/21/09 18:13 | 286.02 | 41.43 | 327.44 | 1525.81 | 86.23 | 4.66 |
| 4/21/09 18:14 | 286.74 | 41.45 | 328.19 | 1525.81 | 86.13 | 4.70 |
| 4/21/09 18:15 | 286.68 | 41.34 | 328.01 | 1517.81 | 85.84 | 4.68 |
| 4/21/09 18:16 | 287.08 | 41.28 | 328.36 | 1516.17 | 83.03 | 4.84 |
| 4/21/09 18:17 | 286.04 | 41.19 | 327.23 | 1516.17 | 84.34 | 4.59 |
| 4/21/09 18:18 | 286.12 | 41.06 | 327.18 | 1514.63 | 85.51 | 4.60 |
| 4/21/09 18:19 | 283.19 | 40.92 | 324.11 | 1514.63 | 84.12 | 4.55 |
| 4/21/09 18:20 | 283.95 | 40.95 | 324.90 | 1512.99 | 82.85 | 4.57 |
| 4/21/09 18:21 | 283.96 | 40.90 | 324.87 | 1516.17 | 82.93 | 4.58 |
| 4/21/09 18:22 | 283.43 | 40.78 | 324.20 | 1520.99 | 83.69 | 4.69 |
| 4/21/09 18:23 | 283.19 | 40.72 | 323.91 | 1522.54 | 83.14 | 4.76 |
| 4/21/09 18:24 | 283.56 | 40.71 | 324.27 | 1522.54 | 81.91 | 4.76 |
| 4/21/09 18:25 | 282.58 | 40.69 | 323.27 | 1522.54 | 80.59 | 4.70 |
| 4/21/09 18:26 | 284.02 | 40.58 | 324.60 | 1519.36 | 81.89 | 4.53 |
| 4/21/09 18:27 | 283.53 | 40.57 | 324.10 | 1516.17 | 83.61 | 4.65 |
| 4/21/09 18:28 | 283.15 | 40.47 | 323.62 | 1516.17 | 80.82 | 4.76 |
| 4/21/09 18:29 | 283.22 | 40.43 | 323.65 | 1517.81 | 82.79 | 4.57 |
| 4/21/09 18:30 | 283.47 | 40.47 | 323.94 | 1519.36 | 82.66 | 4.59 |
| 4/21/09 18:31 | 283.25 | 40.63 | 323.87 | 1520.99 | 81.13 | 4.60 |
| 4/21/09 18:32 | 282.99 | 40.76 | 323.75 | 1522.54 | 81.76 | 4.66 |
| 4/21/09 18:33 | 285.17 | 40.95 | 326.13 | 1524.18 | 80.31 | 4.71 |

Valero Bill Greehey Refinery - West Plant SCOT Stack Test April 21 & 22, 2009 Production Data

| Date & Time | FFIC-413068A Conversion to LTPD of sulfur TRN 3 TOTAL AMINE GAS | FFIC-41305.PV Conversion to LTPD of sulfur HN3 GAS Z1 | Total Sulfur Production LTPD of sulfur | TI-41442.PV Deg F FIRE BOX Value | AI-41303.PV PPM SO2 Value | AI-41304.PV PPM EXCESS O2 Value |
|---|---|---|---|---|---|---|
| 4/21/09 18:34 | 283.57 | 41.10 | 324.67 | 1520.99 | 80.08 | 4.62 |
| 4/21/09 18:35 | 283.27 | 41.29 | 324.56 | 1519.36 | 81.46 | 4.63 |
| 4/21/09 18:36 | 284.33 | 41.51 | 325.85 | 1516.17 | 78.89 | 4.59 |
| 4/21/09 18:37 | 283.03 | 41.66 | 324.69 | 1517.81 | 80.31 | 4.53 |
| 4/21/09 18:38 | 284.11 | 41.63 | 325.73 | 1522.54 | 80.27 | 4.45 |
| 4/21/09 18:39 | 284.48 | 41.77 | 326.25 | 1520.99 | 81.37 | 4.60 |
| 4/21/09 18:40 | 285.07 | 41.82 | 326.89 | 1517.81 | 80.39 | 4.60 |
| 4/21/09 18:41 | 283.33 | 41.47 | 324.80 | 1517.81 | 79.20 | 4.64 |
| 4/21/09 18:42 | 283.47 | 41.49 | 324.96 | 1517.81 | 78.38 | 4.73 |
| 4/21/09 18:43 | 284.39 | 41.39 | 325.78 | 1519.36 | 78.38 | 4.67 |
| 4/21/09 18:44 | 284.45 | 41.28 | 325.73 | 1520.99 | 78.50 | 4.62 |
| 4/21/09 18:45 | 285.03 | 41.07 | 326.10 | 1522.54 | 80.20 | 4.64 |
| 4/21/09 18:46 | 285.42 | 40.92 | 326.35 | 1520.99 | 79.02 | 4.57 |
| 4/21/09 18:47 | 287.23 | 40.96 | 328.19 | 1522.54 | 78.96 | 4.59 |
| 4/21/09 18:48 | 286.04 | 41.01 | 327.04 | 1525.81 | 79.59 | 4.65 |
| 4/21/09 18:49 | 285.49 | 40.85 | 326.34 | 1529.00 | 78.89 | 4.57 |
| 4/21/09 18:50 | 285.85 | 40.87 | 326.72 | 1519.36 | 75.88 | 4.56 |
| 4/21/09 18:51 | 286.14 | 40.79 | 326.93 | 1522.54 | 78.52 | 4.49 |
| 4/21/09 18:52 | 286.59 | 40.78 | 327.37 | 1524.18 | 78.93 | 4.58 |
| 4/21/09 18:53 | 286.03 | 40.76 | 326.79 | 1522.54 | 78.69 | 4.58 |
| 4/21/09 18:54 | 286.37 | 40.72 | 327.10 | 1520.99 | 77.58 | 4.65 |
| 4/21/09 18:55 | 287.01 | 40.58 | 327.58 | 1520.99 | 78.42 | 4.62 |
| 4/21/09 18:56 | 286.57 | 40.58 | 327.15 | 1519.36 | 79.24 | 4.61 |
| 4/21/09 18:57 | 286.40 | 40.66 | 327.06 | 1519.36 | 78.52 | 4.60 |
| 4/21/09 18:58 | 286.22 | 40.76 | 326.98 | 1519.36 | 76.95 | 4.54 |
| 4/21/09 18:59 | 286.55 | 40.85 | 327.40 | 1522.54 | 76.39 | 4.65 |
| 4/21/09 19:00 | 287.04 | 40.93 | 327.97 | 1522.54 | 75.27 | 4.69 |
| 4/21/09 19:01 | 287.44 | 40.99 | 328.43 | 1517.81 | 75.86 | 4.64 |
| 4/21/09 19:02 | 286.26 | 41.17 | 327.43 | 1516.17 | 76.76 | 4.58 |
| 4/21/09 19:03 | 286.25 | 41.23 | 327.48 | 1514.63 | 76.95 | 4.44 |
| 4/21/09 19:04 | 285.87 | 41.31 | 327.18 | 1517.81 | 75.06 | 4.37 |
| 4/21/09 19:05 | 287.09 | 41.23 | 328.32 | 1520.99 | 74.38 | 4.47 |
| 4/21/09 19:06 | 287.68 | 41.31 | 329.00 | 1522.54 | 75.86 | 4.43 |
| 4/21/09 19:07 | 287.90 | 41.26 | 329.16 | 1519.36 | 74.65 | 4.54 |
| 4/21/09 19:08 | 287.42 | 41.40 | 328.82 | 1517.81 | 76.54 | 4.66 |
| 4/21/09 19:09 | 289.56 | 41.24 | 330.80 | 1514.63 | 76.17 | 4.59 |
| 4/21/09 19:10 | 288.15 | 41.11 | 329.26 | 1514.63 | 72.44 | 4.72 |
| 4/21/09 19:11 | 287.90 | 40.96 | 328.85 | 1520.99 | 75.33 | 4.62 |
| 4/21/09 19:12 | 288.54 | 40.76 | 329.31 | 1522.54 | 75.04 | 4.73 |
| 4/21/09 19:13 | 288.18 | 40.47 | 328.66 | 1522.54 | 74.86 | 4.58 |
| 4/21/09 19:14 | 288.00 | 40.47 | 328.47 | 1517.81 | 74.61 | 4.47 |
| 4/21/09 19:15 | 289.51 | 40.40 | 329.90 | 1517.81 | 74.00 | 4.53 |
| 4/21/09 19:16 | 286.46 | 40.26 | 326.71 | 1520.99 | 73.48 | 4.65 |
| 4/21/09 19:17 | 287.30 | 40.21 | 327.51 | 1525.81 | 72.70 | 4.64 |
| 4/21/09 19:18 | 287.72 | 40.17 | 327.89 | 1530.54 | 71.37 | 4.58 |

Valero Bill Greehey Refinery - West Plant SCOT Stack Test April 21 & 22, 2009 Production Data

| Date & Time | FFIC-413068A Conversion to LTPD of sulfur TRN 3 TOTAL AMINE GAS | FFIC-41305.PV Conversion to LTPD of sulfur HN3 GAS Z1 | Total Sulfur Production LTPD of sulfur | TI-41442.PV Deg F FIRE BOX Value | AI-41303.PV PPM SO2 Value | AI-41304.PV PPM EXCESS O2 Value |
|---|---|---|---|---|---|---|
| 4/21/09 19:19 | 287.86 | 40.12 | 327.98 | 1533.82 | 71.82 | 4.60 |
| 4/21/09 19:20 | 288.43 | 40.26 | 328.68 | 1530.54 | 70.16 | 4.69 |
| 4/21/09 19:21 | 287.91 | 40.26 | 328.17 | 1529.00 | 70.49 | 4.82 |
| 4/21/09 19:22 | 288.39 | 40.19 | 328.58 | 1527.36 | 69.86 | 4.56 |
| 4/21/09 19:23 | 288.90 | 40.15 | 329.05 | 1522.54 | 70.12 | 4.58 |
| 4/21/09 19:24 | 289.12 | 40.20 | 329.32 | 1520.99 | 70.14 | 4.63 |
| 4/21/09 19:25 | 288.31 | 40.18 | 328.49 | 1517.81 | 70.14 | 4.74 |
| 4/21/09 19:26 | 288.34 | 40.29 | 328.63 | 1516.17 | 71.62 | 4.57 |
| 4/21/09 19:27 | 288.52 | 40.41 | 328.93 | 1517.81 | 70.92 | 4.71 |
| 4/21/09 19:28 | 288.99 | 40.34 | 329.33 | 1519.36 | 70.41 | 4.56 |
| 4/21/09 19:29 | 288.44 | 40.64 | 329.08 | 1520.99 | 71.31 | 4.51 |
| 4/21/09 19:30 | 288.00 | 40.79 | 328.79 | 1520.99 | 69.98 | 4.64 |
| 4/21/09 19:31 | 288.10 | 40.86 | 328.96 | 1519.36 | 70.53 | 4.67 |
| 4/21/09 19:32 | 288.43 | 40.92 | 329.35 | 1514.63 | 70.68 | 4.66 |
| 4/21/09 19:33 | 288.60 | 40.88 | 329.48 | 1512.99 | 70.23 | 4.51 |
| 4/21/09 19:34 | 289.08 | 40.99 | 330.07 | 1511.35 | 70.90 | 4.59 |
| 4/21/09 19:35 | 289.38 | 40.95 | 330.32 | 1512.99 | 70.90 | 4.66 |
| 4/21/09 19:36 | 289.58 | 40.88 | 330.46 | 1517.81 | 69.90 | 4.71 |
| 4/21/09 19:37 | 289.52 | 40.82 | 330.33 | 1519.36 | 69.32 | 4.74 |
| 4/21/09 19:38 | 289.37 | 40.77 | 330.14 | 1522.54 | 71.07 | 4.66 |
| 4/21/09 19:39 | 289.42 | 40.72 | 330.14 | 1522.54 | 70.41 | 4.52 |
| 4/21/09 19:40 | 289.29 | 40.61 | 329.90 | 1522.54 | 69.28 | 4.48 |
| 4/21/09 19:41 | 290.47 | 40.40 | 330.87 | 1520.99 | 69.65 | 4.57 |
| 4/21/09 19:42 | 289.25 | 40.20 | 329.45 | 1519.36 | 69.18 | 4.67 |
| 4/21/09 19:43 | 289.67 | 40.09 | 329.76 | 1519.36 | 67.34 | 4.69 |
| 4/21/09 19:44 | 289.63 | 40.04 | 329.67 | 1520.99 | 68.75 | 4.71 |
| 4/21/09 19:45 | 291.63 | 40.00 | 331.64 | 1519.36 | 67.32 | 4.61 |
| 4/21/09 19:46 | 289.40 | 39.80 | 329.20 | 1519.36 | 68.01 | 4.59 |
| 4/21/09 19:47 | 289.72 | 39.75 | 329.47 | 1519.36 | 66.19 | 4.47 |
| 4/21/09 19:48 | 290.07 | 39.77 | 329.84 | 1524.18 | 66.33 | 4.57 |
| 4/21/09 19:49 | 290.09 | 39.74 | 329.82 | 1525.81 | 67.52 | 4.57 |
| 4/21/09 19:50 | 291.94 | 39.62 | 331.56 | 1522.54 | 67.71 | 4.67 |
| 4/21/09 19:51 | 289.95 | 39.44 | 329.39 | 1517.81 | 65.64 | 4.70 |
| 4/21/09 19:52 | 291.56 | 39.32 | 330.89 | 1517.81 | 66.00 | 4.57 |
| 4/21/09 19:53 | 289.10 | 39.30 | 328.40 | 1517.81 | 66.27 | 4.52 |
| 4/21/09 19:54 | 289.80 | 39.27 | 329.07 | 1522.54 | 66.31 | 4.58 |
| 4/21/09 19:55 | 288.79 | 39.23 | 328.02 | 1522.54 | 66.04 | 4.77 |
| 4/21/09 19:56 | 289.43 | 39.21 | 328.64 | 1517.81 | 66.54 | 4.74 |
| 4/21/09 19:57 | 292.57 | 39.13 | 331.69 | 1512.99 | 67.05 | 4.55 |
| 4/21/09 19:58 | 290.10 | 39.11 | 329.21 | 1508.17 | 65.84 | 4.65 |
| 4/21/09 19:59 | 291.62 | 39.12 | 330.74 | 1514.63 | 67.34 | 4.68 |
| 4/21/09 20:00 | 290.60 | 39.11 | 329.71 | 1517.81 | 67.25 | 4.63 |
| 4/21/09 20:01 | 290.09 | 39.00 | 329.10 | 1519.36 | 66.45 | 4.70 |
| 4/21/09 20:02 | 290.35 | 39.13 | 329.48 | 1520.99 | 65.06 | 4.80 |
| 4/21/09 20:03 | 291.71 | 39.21 | 330.91 | 1517.81 | 64.18 | 4.63 |

Valero Bill Greehey Refinery - West Plant SCOT Stack Test April 21 & 22, 2009 Production Data

| Date & Time | FFIC-413068A Conversion to LTPD of sulfur TRN 3 TOTAL AMINE GAS | FFIC-41305.PV Conversion to LTPD of sulfur HN3 GAS Z1 | Total Sulfur Production LTPD of sulfur | TI-41442.PV Deg F FIRE BOX Value | AI-41303.PV PPM SO2 Value | AI-41304.PV PPM EXCESS O2 Value |
|---|---|---|---|---|---|---|
| 4/21/09 20:04 | 289.42 | 39.43 | 328.84 | 1517.81 | 67.17 | 4.65 |
| 4/21/09 20:05 | 289.23 | 39.47 | 328.69 | 1520.99 | 66.72 | 4.55 |
| 4/21/09 20:06 | 291.08 | 39.52 | 330.60 | 1520.99 | 64.90 | 4.64 |
| 4/21/09 20:07 | 289.87 | 39.49 | 329.36 | 1524.18 | 64.94 | 4.86 |
| 4/21/09 20:08 | 290.81 | 39.51 | 330.32 | 1524.18 | 65.21 | 4.53 |
| 4/21/09 20:09 | 291.46 | 39.45 | 330.90 | 1517.81 | 64.22 | 4.77 |
| 4/21/09 20:10 | 291.32 | 39.44 | 330.77 | 1514.63 | 63.20 | 4.73 |
| 4/21/09 20:11 | 290.20 | 39.48 | 329.68 | 1517.81 | 64.00 | 4.68 |
| 4/21/09 20:12 | 291.48 | 39.33 | 330.81 | 1520.99 | 63.11 | 4.59 |
| 4/21/09 20:13 | 289.42 | 39.22 | 328.64 | 1522.54 | 65.49 | 4.55 |
| 4/21/09 20:14 | 289.14 | 39.05 | 328.19 | 1522.54 | 66.15 | 4.67 |
| 4/21/09 20:15 | 290.50 | 39.03 | 329.53 | 1522.54 | 63.95 | 4.80 |
| 4/21/09 20:16 | 290.80 | 38.98 | 329.78 | 1522.54 | 65.59 | 4.65 |
| 4/21/09 20:17 | 292.69 | 39.00 | 331.69 | 1524.18 | 63.24 | 4.84 |
| 4/21/09 20:18 | 291.07 | 38.74 | 329.82 | 1522.54 | 65.27 | 4.63 |
| 4/21/09 20:19 | 290.56 | 38.65 | 329.22 | 1520.99 | 64.04 | 4.55 |
| 4/21/09 20:20 | 290.48 | 38.66 | 329.13 | 1520.99 | 65.04 | 4.60 |
| 4/21/09 20:21 | 288.77 | 38.69 | 327.45 | 1524.18 | 62.89 | 4.69 |
| 4/21/09 20:22 | 289.45 | 38.67 | 328.12 | 1524.18 | 63.14 | 4.73 |
| 4/21/09 20:23 | 290.56 | 38.59 | 329.15 | 1524.18 | 63.71 | 4.73 |
| 4/21/09 20:24 | 290.09 | 38.62 | 328.71 | 1522.54 | 65.37 | 4.66 |
| 4/21/09 20:25 | 289.10 | 38.61 | 327.71 | 1522.54 | 65.04 | 4.87 |
| 4/21/09 20:26 | 290.44 | 38.44 | 328.88 | 1522.54 | 66.31 | 4.84 |
| 4/21/09 20:27 | 289.48 | 38.59 | 328.07 | 1525.81 | 67.21 | 4.70 |
| 4/21/09 20:28 | 289.51 | 38.55 | 328.06 | 1525.81 | 67.21 | 4.64 |
| 4/21/09 20:29 | 289.82 | 38.58 | 328.40 | 1525.81 | 70.10 | 4.61 |
| 4/21/09 20:30 | 290.39 | 38.68 | 329.07 | 1519.36 | 66.58 | 4.62 |
| 4/21/09 20:31 | 289.30 | 38.78 | 328.09 | 1514.63 | 64.79 | 4.65 |
| 4/21/09 20:32 | 289.33 | 38.89 | 328.22 | 1517.81 | 67.21 | 4.67 |
| 4/21/09 20:33 | 290.08 | 39.06 | 329.14 | 1517.81 | 66.37 | 4.75 |
| 4/21/09 20:34 | 289.32 | 39.17 | 328.49 | 1520.99 | 66.39 | 4.73 |
| 4/21/09 20:35 | 288.87 | 39.08 | 327.95 | 1525.81 | 64.69 | 4.68 |
| 4/21/09 20:36 | 289.25 | 39.13 | 328.38 | 1530.54 | 64.14 | 4.67 |
| 4/21/09 20:37 | 290.31 | 39.25 | 329.56 | 1530.54 | 64.28 | 4.67 |
| 4/21/09 20:38 | 288.55 | 39.24 | 327.79 | 1524.18 | 64.57 | 4.68 |
| 4/21/09 20:39 | 290.01 | 39.22 | 329.23 | 1517.81 | 66.62 | 4.74 |
| 4/21/09 20:40 | 289.50 | 39.34 | 328.84 | 1512.99 | 65.14 | 4.76 |
| 4/21/09 20:41 | 288.31 | 39.34 | 327.65 | 1511.35 | 65.74 | 4.80 |
| 4/21/09 20:42 | 289.91 | 39.30 | 329.21 | 1512.99 | 63.85 | 4.76 |
| 4/21/09 20:43 | 290.00 | 39.32 | 329.33 | 1516.17 | 64.67 | 4.70 |
| 4/21/09 20:44 | 288.97 | 39.39 | 328.36 | 1519.36 | 64.41 | 4.80 |
| 4/21/09 20:45 | 288.88 | 39.36 | 328.24 | 1524.18 | 66.00 | 4.61 |
| 4/21/09 20:46 | 289.34 | 39.50 | 328.85 | 1529.00 | 64.49 | 4.62 |
| 4/21/09 20:47 | 289.07 | 39.40 | 328.47 | 1529.00 | 65.72 | 4.63 |
| 4/21/09 20:48 | 287.70 | 39.38 | 327.08 | 1522.54 | 67.27 | 4.49 |

Valero Bill Greehey Refinery - West Plant SCOT Stack Test April 21 & 22, 2009 Production Data

| Date & Time | FFIC-413068A Conversion to LTPD of sulfur TRN 3 TOTAL AMINE GAS | FFIC-41305.PV Conversion to LTPD of sulfur HN3 GAS Z1 | Total Sulfur Production LTPD of sulfur | TI-41442.PV Deg F FIRE BOX Value | AI-41303.PV PPM SO2 Value | AI-41304.PV PPM EXCESS O2 Value |
|---|---|---|---|---|---|---|
| 4/21/09 20:49 | 287.89 | 39.23 | 327.12 | 1519.36 | 66.39 | 4.72 |
| 4/21/09 20:50 | 288.49 | 39.19 | 327.68 | 1519.36 | 64.65 | 4.78 |
| 4/21/09 20:51 | 289.11 | 39.26 | 328.37 | 1519.36 | 65.92 | 4.72 |
| 4/21/09 20:52 | 286.92 | 39.30 | 326.22 | 1524.18 | 65.51 | 4.67 |
| 4/21/09 20:53 | 289.48 | 39.26 | 328.74 | 1525.81 | 64.73 | 4.61 |
| 4/21/09 20:54 | 288.17 | 39.30 | 327.48 | 1522.54 | 64.98 | 4.65 |
| 4/21/09 20:55 | 289.88 | 39.29 | 329.17 | 1520.99 | 63.57 | 4.73 |
| 4/21/09 20:56 | 287.89 | 39.28 | 327.17 | 1517.81 | 65.14 | 4.65 |
| 4/21/09 20:57 | 288.37 | 39.22 | 327.58 | 1516.17 | 64.00 | 4.82 |
| 4/21/09 20:58 | 291.09 | 39.23 | 330.32 | 1516.17 | 66.43 | 4.64 |
| 4/21/09 20:59 | 289.62 | 39.21 | 328.84 | 1516.17 | 63.85 | 4.81 |
| 4/21/09 21:00 | 289.84 | 39.33 | 329.17 | 1517.81 | 64.47 | 4.80 |
| 4/21/09 21:01 | 291.44 | 39.31 | 330.75 | 1519.36 | 63.14 | 4.76 |
| 4/21/09 21:03 | 289.84 | 39.28 | 329.13 | 1522.54 | 64.18 | 4.75 |
| 4/21/09 21:04 | 291.01 | 39.39 | 330.40 | 1524.18 | 65.00 | 4.77 |
| 4/21/09 21:05 | 290.33 | 39.40 | 329.73 | 1525.81 | 64.65 | 4.65 |
| 4/21/09 21:06 | 292.23 | 39.49 | 331.72 | 1522.54 | 64.65 | 4.73 |
| 4/21/09 21:07 | 292.53 | 39.51 | 332.03 | 1522.54 | 63.59 | 4.80 |
| 4/21/09 21:08 | 290.77 | 39.47 | 330.25 | 1519.36 | 64.28 | 4.78 |
| 4/21/09 21:09 | 292.41 | 39.45 | 331.86 | 1517.81 | 63.98 | 4.78 |
| 4/21/09 21:10 | 289.84 | 39.42 | 329.26 | 1519.36 | 64.55 | 4.63 |
| 4/21/09 21:11 | 289.77 | 39.48 | 329.25 | 1520.99 | 65.20 | 4.74 |
| SRU3-2 Average | 287.86 | 40.22 | 328.08 | 1520.68 | 73.70 | 4.64 |
| 4/21/09 21:12 | 290.59 | 39.49 | 330.08 | 1520.99 | 65.39 | 4.62 |
| 4/21/09 21:13 | 291.29 | 39.49 | 330.78 | 1522.54 | 62.99 | 4.70 |
| 4/21/09 21:14 | 289.05 | 39.33 | 328.38 | 1519.36 | 65.53 | 4.69 |
| 4/22/09 8:56 | 290.20 | 39.05 | 329.25 | 1528.90 | 61.17 | 4.36 |
| 4/22/09 8:57 | 289.84 | 39.15 | 328.98 | 1528.90 | 60.14 | 4.46 |
| 4/22/09 8:58 | 291.52 | 39.08 | 330.60 | 1522.54 | 62.58 | 4.29 |
| 4/22/09 8:59 | 291.12 | 39.08 | 330.20 | 1522.54 | 60.00 | 4.43 |
| 4/22/09 9:00 | 291.38 | 39.09 | 330.47 | 1520.90 | 58.11 | 4.41 |
| 4/22/09 9:01 | 291.50 | 39.17 | 330.67 | 1520.90 | 56.54 | 4.42 |
| 4/22/09 9:02 | 291.86 | 39.22 | 331.09 | 1524.08 | 54.61 | 4.56 |
| 4/22/09 9:03 | 292.40 | 39.26 | 331.66 | 1525.72 | 56.84 | 4.51 |
| 4/22/09 9:04 | 292.73 | 39.39 | 332.12 | 1522.54 | 59.10 | 4.48 |
| 4/22/09 9:05 | 293.00 | 39.35 | 332.34 | 1519.36 | 59.00 | 4.35 |
| 4/22/09 9:06 | 292.69 | 39.39 | 332.09 | 1519.36 | 59.10 | 4.32 |
| 4/22/09 9:07 | 292.67 | 39.58 | 332.26 | 1520.90 | 58.71 | 4.61 |
| 4/22/09 9:08 | 292.33 | 39.75 | 332.08 | 1522.54 | 56.48 | 4.41 |
| 4/22/09 9:09 | 292.38 | 39.83 | 332.21 | 1520.90 | 55.94 | 4.44 |
| 4/22/09 9:10 | 292.59 | 39.99 | 332.58 | 1517.72 | 57.11 | 4.43 |
| 4/22/09 9:11 | 292.49 | 40.01 | 332.50 | 1519.36 | 57.15 | 4.34 |
| 4/22/09 9:12 | 293.12 | 39.89 | 333.01 | 1520.90 | 57.38 | 4.31 |
| 4/22/09 9:13 | 293.14 | 39.80 | 332.94 | 1522.54 | 58.09 | 4.42 |

Valero Bill Greehey Refinery - West Plant SCOT Stack Test April 21 & 22, 2009 Production Data

| Date & Time | FFIC-413068A Conversion to LTPD of sulfur TRN 3 TOTAL AMINE GAS | FFIC-41305.PV Conversion to LTPD of sulfur HN3 GAS Z1 | Total Sulfur Production LTPD of sulfur | TI-41442.PV Deg F FIRE BOX Value | AI-41303.PV PPM SO2 Value | AI-41304.PV PPM EXCESS O2 Value |
|---|---|---|---|---|---|---|
| 4/22/09 9:14 | 293.29 | 39.42 | 332.71 | 1525.72 | 55.98 | 4.49 |
| 4/22/09 9:15 | 294.25 | 39.00 | 333.25 | 1525.72 | 56.45 | 4.51 |
| 4/22/09 9:16 | 293.55 | 38.87 | 332.42 | 1524.08 | 55.55 | 4.45 |
| 4/22/09 9:17 | 293.52 | 38.50 | 332.02 | 1519.36 | 58.38 | 4.40 |
| 4/22/09 9:18 | 293.51 | 38.33 | 331.84 | 1516.08 | 56.13 | 4.49 |
| 4/22/09 9:19 | 293.98 | 38.01 | 332.00 | 1519.36 | 56.39 | 4.32 |
| 4/22/09 9:20 | 295.06 | 37.75 | 332.82 | 1520.90 | 58.52 | 4.34 |
| 4/22/09 9:21 | 294.21 | 37.69 | 331.91 | 1520.90 | 58.40 | 4.35 |
| 4/22/09 9:22 | 294.32 | 37.56 | 331.87 | 1525.72 | 57.66 | 4.43 |
| 4/22/09 9:23 | 294.46 | 37.48 | 331.95 | 1530.54 | 58.44 | 4.59 |
| 4/22/09 9:24 | 294.04 | 37.40 | 331.44 | 1530.54 | 60.88 | 4.50 |
| 4/22/09 9:25 | 293.96 | 37.24 | 331.20 | 1530.54 | 59.79 | 4.52 |
| 4/22/09 9:26 | 293.99 | 37.10 | 331.09 | 1524.08 | 59.79 | 4.55 |
| 4/22/09 9:27 | 293.54 | 37.13 | 330.67 | 1522.54 | 61.35 | 4.28 |
| 4/22/09 9:28 | 293.87 | 37.15 | 331.02 | 1522.54 | 60.47 | 4.35 |
| 4/22/09 9:29 | 294.46 | 37.29 | 331.75 | 1524.08 | 59.14 | 4.42 |
| 4/22/09 9:30 | 294.69 | 37.34 | 332.02 | 1522.54 | 58.01 | 4.46 |
| 4/22/09 9:31 | 294.58 | 37.61 | 332.19 | 1524.08 | 60.06 | 4.37 |
| 4/22/09 9:32 | 294.44 | 37.82 | 332.26 | 1522.54 | 60.76 | 4.33 |
| 4/22/09 9:33 | 294.64 | 37.88 | 332.52 | 1519.36 | 58.55 | 4.59 |
| 4/22/09 9:34 | 294.64 | 37.94 | 332.59 | 1520.90 | 59.75 | 4.72 |
| 4/22/09 9:35 | 295.25 | 38.15 | 333.40 | 1524.08 | 60.61 | 4.49 |
| 4/22/09 9:36 | 294.28 | 38.29 | 332.57 | 1522.54 | 61.11 | 4.24 |
| 4/22/09 9:37 | 293.41 | 38.33 | 331.74 | 1509.71 | 61.72 | 4.18 |
| 4/22/09 9:38 | 293.51 | 38.44 | 331.95 | 1508.08 | 62.54 | 4.28 |
| 4/22/09 9:39 | 294.00 | 38.48 | 332.49 | 1516.08 | 64.04 | 4.18 |
| 4/22/09 9:40 | 293.70 | 38.68 | 332.39 | 1522.54 | 65.51 | 4.24 |
| 4/22/09 9:41 | 293.71 | 38.79 | 332.50 | 1522.54 | 62.38 | 4.31 |
| 4/22/09 9:42 | 293.06 | 38.67 | 331.73 | 1516.08 | 61.93 | 4.29 |
| 4/22/09 9:43 | 293.71 | 38.77 | 332.48 | 1516.08 | 61.54 | 4.45 |
| 4/22/09 9:44 | 292.59 | 38.85 | 331.45 | 1517.72 | 61.89 | 4.49 |
| 4/22/09 9:45 | 292.55 | 38.70 | 331.25 | 1519.36 | 62.32 | 4.39 |
| 4/22/09 9:46 | 292.92 | 38.60 | 331.52 | 1522.54 | 61.68 | 4.56 |
| 4/22/09 9:47 | 292.97 | 38.49 | 331.47 | 1524.08 | 63.07 | 4.53 |
| 4/22/09 9:48 | 293.51 | 38.27 | 331.79 | 1525.72 | 63.61 | 4.43 |
| 4/22/09 9:49 | 293.65 | 38.05 | 331.70 | 1525.72 | 63.89 | 4.35 |
| 4/22/09 9:50 | 293.48 | 38.07 | 331.55 | 1524.08 | 62.25 | 4.25 |
| 4/22/09 9:51 | 293.90 | 37.92 | 331.82 | 1520.90 | 64.02 | 4.41 |
| 4/22/09 9:52 | 294.01 | 37.96 | 331.97 | 1520.90 | 64.51 | 4.28 |
| 4/22/09 9:53 | 293.82 | 37.92 | 331.74 | 1519.36 | 65.27 | 4.43 |
| 4/22/09 9:54 | 293.51 | 37.90 | 331.41 | 1520.90 | 64.18 | 4.45 |
| 4/22/09 9:55 | 293.43 | 37.92 | 331.35 | 1524.08 | 64.80 | 4.59 |
| 4/22/09 9:56 | 294.14 | 37.79 | 331.92 | 1524.08 | 65.27 | 4.45 |
| 4/22/09 9:57 | 293.86 | 37.76 | 331.62 | 1522.54 | 62.66 | 4.55 |
| 4/22/09 9:58 | 293.80 | 37.74 | 331.54 | 1517.72 | 61.66 | 4.56 |

Valero Bill Greehey Refinery - West Plant SCOT Stack Test April 21 & 22, 2009 Production Data

| Date & Time | FFIC-413068A Conversion to LTPD of sulfur TRN 3 TOTAL AMINE GAS | FFIC-41305.PV Conversion to LTPD of sulfur HN3 GAS Z1 | Total Sulfur Production LTPD of sulfur | TI-41442.PV Deg F FIRE BOX Value | AI-41303.PV PPM SO2 Value | AI-41304.PV PPM EXCESS O2 Value |
|---|---|---|---|---|---|---|
| 4/22/09 9:59 | 293.13 | 37.85 | 330.98 | 1516.08 | 62.17 | 4.20 |
| 4/22/09 10:00 | 293.50 | 37.95 | 331.46 | 1512.90 | 62.42 | 4.30 |
| 4/22/09 10:01 | 293.62 | 37.95 | 331.57 | 1512.90 | 62.66 | 4.30 |
| 4/22/09 10:02 | 293.64 | 38.02 | 331.67 | 1517.72 | 62.83 | 4.36 |
| 4/22/09 10:03 | 293.46 | 38.14 | 331.60 | 1519.36 | 62.93 | 4.33 |
| 4/22/09 10:04 | 294.45 | 38.22 | 332.67 | 1520.90 | 63.40 | 4.46 |
| 4/22/09 10:05 | 294.05 | 38.31 | 332.36 | 1520.90 | 99.71 | 4.45 |
| 4/22/09 10:06 | 294.33 | 38.47 | 332.79 | 1520.90 | 65.80 | 4.40 |
| 4/22/09 10:07 | 295.53 | 38.56 | 334.08 | 1520.90 | 66.93 | 4.37 |
| 4/22/09 10:08 | 294.11 | 38.63 | 332.74 | 1519.36 | 65.88 | 4.32 |
| 4/22/09 10:09 | 292.64 | 38.64 | 331.28 | 1514.54 | 65.88 | 4.45 |
| 4/22/09 10:10 | 293.19 | 38.65 | 331.84 | 1514.54 | 67.56 | 4.35 |
| 4/22/09 10:11 | 292.77 | 38.76 | 331.53 | 1520.90 | 67.58 | 4.48 |
| 4/22/09 10:12 | 293.31 | 38.87 | 332.18 | 1527.36 | 67.56 | 4.42 |
| 4/22/09 10:13 | 293.59 | 39.08 | 332.67 | 1532.08 | 69.32 | 4.48 |
| 4/22/09 10:14 | 293.89 | 39.13 | 333.01 | 1535.36 | 67.52 | 4.52 |
| 4/22/09 10:15 | 293.24 | 39.12 | 332.36 | 1536.90 | 66.62 | 4.50 |
| 4/22/09 10:16 | 292.56 | 39.09 | 331.64 | 1532.08 | 66.39 | 4.68 |
| 4/22/09 10:17 | 291.72 | 38.98 | 330.70 | 1532.08 | 66.74 | 4.33 |
| 4/22/09 10:18 | 292.43 | 38.84 | 331.27 | 1528.90 | 67.27 | 4.32 |
| 4/22/09 10:19 | 292.35 | 38.76 | 331.11 | 1524.08 | 66.39 | 4.24 |
| 4/22/09 10:20 | 292.62 | 38.67 | 331.30 | 1522.54 | 65.21 | 4.46 |
| 4/22/09 10:21 | 292.34 | 38.49 | 330.83 | 1516.08 | 69.34 | 4.30 |
| 4/22/09 10:22 | 292.73 | 38.33 | 331.06 | 1511.35 | 69.63 | 4.38 |
| 4/22/09 10:23 | 292.86 | 38.31 | 331.18 | 1511.35 | 68.18 | 4.42 |
| 4/22/09 10:24 | 293.46 | 38.26 | 331.72 | 1514.54 | 65.47 | 4.49 |
| 4/22/09 10:25 | 293.62 | 38.32 | 331.93 | 1516.08 | 68.79 | 4.32 |
| 4/22/09 10:26 | 293.68 | 38.33 | 332.00 | 1517.72 | 67.38 | 4.35 |
| 4/22/09 10:27 | 294.31 | 38.36 | 332.66 | 1520.90 | 66.58 | 4.36 |
| 4/22/09 10:28 | 293.72 | 38.47 | 332.19 | 1522.54 | 66.48 | 4.65 |
| 4/22/09 10:29 | 294.05 | 38.40 | 332.45 | 1520.90 | 65.49 | 4.57 |
| 4/22/09 10:30 | 295.84 | 38.48 | 334.32 | 1511.35 | 64.92 | 4.56 |
| 4/22/09 10:31 | 294.14 | 38.56 | 332.71 | 1508.08 | 65.96 | 4.46 |
| 4/22/09 10:32 | 294.96 | 38.68 | 333.63 | 1512.90 | 66.93 | 4.65 |
| 4/22/09 10:33 | 294.61 | 38.74 | 333.36 | 1509.71 | 66.13 | 4.51 |
| 4/22/09 10:34 | 294.71 | 38.85 | 333.57 | 1516.08 | 66.00 | 4.59 |
| 4/22/09 10:35 | 295.02 | 39.03 | 334.04 | 1522.54 | 65.98 | 4.41 |
| 4/22/09 10:36 | 297.36 | 39.05 | 336.41 | 1525.72 | 66.99 | 4.33 |
| 4/22/09 10:37 | 295.49 | 39.24 | 334.73 | 1525.72 | 181.45 | 4.37 |
| 4/22/09 10:38 | 295.83 | 39.33 | 335.16 | 1522.54 | 83.79 | 4.43 |
| 4/22/09 10:39 | 295.48 | 39.43 | 334.91 | 1519.36 | 75.04 | 4.69 |
| 4/22/09 10:40 | 296.41 | 39.69 | 336.10 | 1516.08 | 72.83 | 4.51 |
| 4/22/09 10:41 | 296.08 | 39.74 | 335.82 | 1516.08 | 73.50 | 4.49 |
| 4/22/09 10:42 | 295.80 | 39.80 | 335.60 | 1517.72 | 72.21 | 4.55 |
| 4/22/09 10:43 | 295.87 | 39.85 | 335.73 | 1519.36 | 73.20 | 4.40 |

Valero Bill Greehey Refinery - West Plant SCOT Stack Test April 21 & 22, 2009 Production Data

| Date & Time | FFIC-413068A Conversion to LTPD of sulfur TRN 3 TOTAL AMINE GAS | FFIC-41305.PV Conversion to LTPD of sulfur HN3 GAS Z1 | Total Sulfur Production LTPD of sulfur | TI-41442.PV Deg F FIRE BOX Value | AI-41303.PV PPM SO2 Value | AI-41304.PV PPM EXCESS O2 Value |
|---|---|---|---|---|---|---|
| 4/22/09 10:44 | 295.70 | 39.90 | 335.60 | 1522.54 | 73.65 | 4.48 |
| 4/22/09 10:45 | 295.85 | 39.87 | 335.72 | 1527.36 | 71.68 | 4.50 |
| 4/22/09 10:46 | 296.15 | 39.87 | 336.02 | 1528.90 | 71.58 | 4.51 |
| 4/22/09 10:47 | 295.36 | 39.79 | 335.15 | 1527.36 | 73.61 | 4.32 |
| 4/22/09 10:48 | 295.51 | 39.62 | 335.13 | 1520.90 | 75.41 | 4.42 |
| 4/22/09 10:49 | 295.54 | 39.58 | 335.12 | 1519.36 | 75.35 | 4.32 |
| 4/22/09 10:50 | 294.86 | 39.50 | 334.36 | 1517.72 | 75.39 | 4.39 |
| 4/22/09 10:51 | 294.80 | 39.38 | 334.18 | 1516.08 | 76.58 | 4.46 |
| 4/22/09 10:52 | 295.38 | 39.40 | 334.78 | 1514.54 | 76.76 | 4.57 |
| 4/22/09 10:53 | 294.32 | 39.38 | 333.70 | 1522.54 | 74.92 | 4.59 |
| 4/22/09 10:54 | 293.98 | 39.30 | 333.28 | 1522.54 | 78.13 | 4.50 |
| 4/22/09 10:55 | 294.61 | 39.43 | 334.04 | 1522.54 | 75.90 | 4.65 |
| 4/22/09 10:56 | 294.25 | 39.35 | 333.60 | 1517.72 | 74.86 | 4.57 |
| 4/22/09 10:57 | 294.18 | 39.37 | 333.55 | 1516.08 | 73.91 | 4.58 |
| 4/22/09 10:58 | 294.43 | 39.32 | 333.75 | 1514.54 | 72.68 | 4.61 |
| 4/22/09 10:59 | 293.92 | 39.33 | 333.26 | 1511.35 | 71.48 | 4.43 |
| 4/22/09 11:00 | 293.28 | 39.37 | 332.65 | 1509.71 | 70.57 | 4.49 |
| 4/22/09 11:01 | 293.20 | 39.40 | 332.61 | 1512.90 | 70.64 | 4.37 |
| 4/22/09 11:02 | 292.97 | 38.98 | 331.96 | 1511.35 | 70.64 | 4.43 |
| 4/22/09 11:03 | 293.09 | 38.95 | 332.03 | 1509.71 | 72.40 | 4.46 |
| 4/22/09 11:04 | 292.71 | 39.08 | 331.79 | 1506.53 | 75.76 | 4.43 |
| 4/22/09 11:05 | 293.27 | 39.21 | 332.48 | 1508.08 | 76.17 | 4.50 |
| 4/22/09 11:06 | 292.88 | 39.26 | 332.14 | 1506.53 | 76.95 | 4.53 |
| 4/22/09 11:07 | 292.93 | 39.33 | 332.26 | 1506.53 | 77.85 | 4.51 |
| 4/22/09 11:08 | 291.99 | 39.60 | 331.59 | 1506.53 | 82.32 | 4.53 |
| 4/22/09 11:09 | 291.54 | 39.70 | 331.24 | 1512.90 | 78.87 | 4.55 |
| 4/22/09 11:10 | 290.88 | 39.80 | 330.68 | 1516.08 | 78.28 | 4.48 |
| 4/22/09 11:11 | 290.65 | 39.90 | 330.55 | 1516.08 | 78.20 | 4.53 |
| 4/22/09 11:12 | 290.50 | 40.03 | 330.53 | 1517.72 | 81.05 | 4.47 |
| 4/22/09 11:13 | 290.25 | 40.09 | 330.34 | 1517.72 | 81.37 | 4.66 |
| 4/22/09 11:14 | 289.62 | 40.17 | 329.78 | 1516.08 | 84.38 | 4.49 |
| 4/22/09 11:15 | 290.09 | 39.96 | 330.05 | 1512.90 | 87.79 | 4.30 |
| 4/22/09 11:16 | 290.36 | 39.85 | 330.21 | 1511.35 | 89.92 | 4.33 |
| 4/22/09 11:17 | 290.35 | 39.92 | 330.27 | 1509.71 | 90.51 | 4.29 |
| 4/22/09 11:18 | 290.08 | 39.85 | 329.93 | 1511.35 | 94.84 | 4.12 |
| 4/22/09 11:19 | 290.80 | 39.73 | 330.53 | 1512.90 | 95.82 | 4.40 |
| 4/22/09 11:20 | 289.59 | 39.76 | 329.35 | 1517.72 | 95.51 | 4.35 |
| 4/22/09 11:21 | 288.82 | 39.83 | 328.65 | 1520.90 | 96.27 | 4.43 |
| 4/22/09 11:22 | 288.87 | 39.78 | 328.65 | 1522.54 | 97.71 | 4.34 |
| 4/22/09 11:23 | 288.64 | 39.88 | 328.52 | 1524.08 | 98.30 | 4.47 |
| 4/22/09 11:24 | 289.12 | 39.84 | 328.96 | 1525.72 | 98.65 | 4.58 |
| 4/22/09 11:25 | 288.56 | 39.88 | 328.45 | 1527.36 | 98.54 | 4.52 |
| 4/22/09 11:26 | 289.96 | 39.90 | 329.87 | 1527.36 | 100.61 | 4.45 |
| 4/22/09 11:27 | 288.60 | 39.77 | 328.37 | 1520.90 | 102.87 | 4.44 |
| 4/22/09 11:28 | 289.45 | 39.84 | 329.29 | 1516.08 | 103.71 | 4.33 |

Valero Bill Greehey Refinery - West Plant SCOT Stack Test April 21 & 22, 2009 Production Data

| Date & Time | FFIC-413068A Conversion to LTPD of sulfur TRN 3 TOTAL AMINE GAS | FFIC-41305.PV Conversion to LTPD of sulfur HN3 GAS Z1 | Total Sulfur Production LTPD of sulfur | TI-41442.PV Deg F FIRE BOX Value | AI-41303.PV PPM SO2 Value | AI-41304.PV PPM EXCESS O2 Value |
|---|---|---|---|---|---|---|
| 4/22/09 11:29 | 289.19 | 39.91 | 329.11 | 1516.08 | 102.66 | 4.34 |
| 4/22/09 11:30 | 289.39 | 39.90 | 329.29 | 1512.90 | 105.86 | 4.31 |
| 4/22/09 11:31 | 290.58 | 39.95 | 330.52 | 1512.90 | 105.88 | 4.30 |
| 4/22/09 11:32 | 290.72 | 39.91 | 330.63 | 1511.35 | 108.07 | 4.31 |
| 4/22/09 11:33 | 291.82 | 40.13 | 331.95 | 1509.71 | 107.52 | 4.38 |
| 4/22/09 11:34 | 291.90 | 40.22 | 332.13 | 1516.08 | 108.26 | 4.42 |
| 4/22/09 11:35 | 292.60 | 40.31 | 332.91 | 1522.54 | 110.02 | 4.39 |
| 4/22/09 11:36 | 292.59 | 40.49 | 333.08 | 1525.72 | 111.33 | 4.53 |
| 4/22/09 11:37 | 292.69 | 40.56 | 333.26 | 1525.72 | 112.34 | 4.48 |
| 4/22/09 11:38 | 293.69 | 40.68 | 334.37 | 1525.72 | 112.13 | 4.35 |
| 4/22/09 11:39 | 293.95 | 40.83 | 334.78 | 1519.36 | 111.95 | 4.33 |
| 4/22/09 11:40 | 294.07 | 40.92 | 334.99 | 1516.08 | 111.04 | 4.35 |
| 4/22/09 11:41 | 293.29 | 40.98 | 334.28 | 1514.54 | 112.42 | 4.37 |
| 4/22/09 11:42 | 294.03 | 41.08 | 335.11 | 1511.35 | 111.23 | 4.41 |
| 4/22/09 11:43 | 293.41 | 41.04 | 334.45 | 1511.35 | 109.73 | 4.49 |
| 4/22/09 11:44 | 294.21 | 40.91 | 335.12 | 1511.35 | 110.16 | 4.46 |
| 4/22/09 11:45 | 293.74 | 40.87 | 334.61 | 1512.90 | 111.89 | 4.31 |
| 4/22/09 11:46 | 293.02 | 40.73 | 333.75 | 1517.72 | 110.25 | 4.29 |
| 4/22/09 11:47 | 295.98 | 40.69 | 336.68 | 1519.36 | 108.87 | 4.35 |
| 4/22/09 11:48 | 297.59 | 40.57 | 338.17 | 1519.36 | 109.88 | 4.40 |
| 4/22/09 11:49 | 298.22 | 40.51 | 338.73 | 1516.08 | 110.18 | 4.28 |
| 4/22/09 11:50 | 297.10 | 40.33 | 337.43 | 1514.54 | 108.63 | 4.55 |
| 4/22/09 11:51 | 294.94 | 40.15 | 335.08 | 1517.72 | 110.57 | 4.26 |
| 4/22/09 11:52 | 294.43 | 40.07 | 334.50 | 1528.90 | 111.99 | 4.34 |
| 4/22/09 11:53 | 294.29 | 40.01 | 334.30 | 1532.08 | 110.02 | 4.39 |
| 4/22/09 11:54 | 293.73 | 39.92 | 333.65 | 1533.72 | 107.95 | 4.52 |
| 4/22/09 11:55 | 293.28 | 39.81 | 333.09 | 1535.36 | 111.19 | 4.43 |
| 4/22/09 11:56 | 293.39 | 39.67 | 333.06 | 1527.36 | 110.06 | 4.49 |
| 4/22/09 11:57 | 294.03 | 39.50 | 333.54 | 1525.72 | 111.93 | 4.49 |
| 4/22/09 11:58 | 294.10 | 39.45 | 333.55 | 1519.36 | 108.57 | 4.54 |
| 4/22/09 11:59 | 294.06 | 39.47 | 333.53 | 1509.71 | 110.68 | 4.46 |
| 4/22/09 12:00 | 294.38 | 39.00 | 333.38 | 1508.08 | 110.76 | 4.46 |
| 4/22/09 12:01 | 295.33 | 38.87 | 334.19 | 1508.08 | 112.77 | 4.34 |
| 4/22/09 12:02 | 294.61 | 38.48 | 333.09 | 1508.08 | 113.03 | 4.35 |
| 4/22/09 12:03 | 294.95 | 38.28 | 333.23 | 1509.71 | 111.45 | 4.41 |
| 4/22/09 12:04 | 295.00 | 38.11 | 333.10 | 1512.90 | 112.01 | 4.37 |
| 4/22/09 12:05 | 295.13 | 37.98 | 333.11 | 1514.54 | 114.82 | 4.39 |
| 4/22/09 12:06 | 295.20 | 37.55 | 332.75 | 1517.72 | 115.39 | 4.36 |
| 4/22/09 12:07 | 295.14 | 37.43 | 332.57 | 1520.90 | 116.95 | 4.57 |
| 4/22/09 12:08 | 295.06 | 37.33 | 332.39 | 1520.90 | 117.83 | 4.46 |
| 4/22/09 12:09 | 294.55 | 37.20 | 331.75 | 1520.90 | 122.99 | 4.48 |
| 4/22/09 12:10 | 293.75 | 37.24 | 330.99 | 1519.36 | 129.77 | 4.47 |
| 4/22/09 12:11 | 293.64 | 37.24 | 330.89 | 1514.54 | 133.18 | 4.40 |
| 4/22/09 12:12 | 293.33 | 37.27 | 330.60 | 1514.54 | 135.37 | 4.36 |
| 4/22/09 12:13 | 293.02 | 37.19 | 330.20 | 1514.54 | 136.97 | 4.28 |

Valero Bill Greehey Refinery - West Plant SCOT Stack Test April 21 & 22, 2009 Production Data

| Date & Time | FFIC-413068A Conversion to LTPD of sulfur TRN 3 TOTAL AMINE GAS | FFIC-41305.PV Conversion to LTPD of sulfur HN3 GAS Z1 | Total Sulfur Production LTPD of sulfur | TI-41442.PV Deg F FIRE BOX Value | AI-41303.PV PPM SO2 Value | AI-41304.PV PPM EXCESS O2 Value |
|---|---|---|---|---|---|---|
| 4/22/09 12:14 | 294.01 | 37.23 | 331.24 | 1519.36 | 133.96 | 4.43 |
| 4/22/09 12:15 | 293.28 | 37.38 | 330.66 | 1522.54 | 134.04 | 4.51 |
| 4/22/09 12:16 | 293.62 | 37.30 | 330.91 | 1524.08 | 131.23 | 4.51 |
| 4/22/09 12:17 | 293.37 | 37.25 | 330.63 | 1522.54 | 131.23 | 4.50 |
| 4/22/09 12:18 | 292.81 | 37.20 | 330.01 | 1520.90 | 128.59 | 4.58 |
| 4/22/09 12:19 | 293.02 | 37.03 | 330.05 | 1516.08 | 127.32 | 4.57 |
| 4/22/09 12:20 | 292.73 | 37.02 | 329.75 | 1514.54 | 129.84 | 4.45 |
| 4/22/09 12:21 | 292.45 | 36.88 | 329.32 | 1520.90 | 128.85 | 4.40 |
| 4/22/09 12:22 | 293.89 | 36.92 | 330.81 | 1522.54 | 125.78 | 4.30 |
| 4/22/09 12:23 | 291.64 | 36.85 | 328.50 | 1525.72 | 123.28 | 4.55 |
| SRU3-3 Average | 293.41 | 38.93 | 332.35 | 1519.31 | 82.39 | 4.43 |
| 4/22/09 12:24 | 292.36 | 37.02 | 329.38 | 1525.72 | 122.50 | 4.49 |
| 4/22/09 12:25 | 291.77 | 37.04 | 328.81 | 1524.08 | 118.09 | 4.48 |
| 4/22/09 12:26 | 292.00 | 36.99 | 328.99 | 1522.54 | 119.20 | 4.48 |
| 4/22/09 12:27 | 291.33 | 37.03 | 328.36 | 1525.72 | 120.96 | 4.50 |
| 4/22/09 12:28 | 290.24 | 37.01 | 327.25 | 1527.36 | 118.96 | 4.42 |

# APPENDIX G

# Program Qualifications

ARI Environmental's offices in Wauconda, Illinois and Pasadena, Texas; specialize in conducting stack emission, fugitive leak detection, ambient air and in-plant OSHA type testing for industrial clients.

ARI is organized so that its facilities and resources meet the requirements of ASTM D 7036, Standard Practice for Competence of Air Emission Testing Bodies. ARI's laboratories in Pasadena, Texas and Wauconda, Illinois hold TCEQ NELAP Certificate No. T104704428-8A-TX.

During the past 25 years, ARI personnel have conducted over 5,000 separate stack emission tests for a variety of industrial clients throughout North America for the determination of degree of source compliance and to yield emissions data and control equipment performance data for in-house engineering purposes.

ARI presently has over 80 trained personnel for conducting source emission sampling, fugitive leak detection monitoring, ambient air monitoring and OSHA sampling programs. All test programs are supervised and conducted by onsite Qualified Individuals (QI) and/or Qualified Stack Test Individuals (QSTI) pursuant to ASTM D 7036.

**Daniel Fitzgerald**

Mr. Fitzgerald is the Division Manager of ARI's Source Testing Division with offices located in Wauconda, Illinois and Houston, Texas. With over 30 years experience in process evaluation, emission compliance and control equipment efficiency test programs, Mr. Fitzgerald specializes in the technical planning, coordination and performance of environmental test programs. Mr. Fitzgerald has an extensive background in EPA sampling and analysis applications, incinerator design and optimization, VOC sampling and analysis, RCRA trial burn testing, sampling equipment design and fabrication, implementation of innovative sampling and analysis techniques, methods validation and R&D. Mr. Fitzgerald is presently certified as a QSTI by the Source Evaluation Society (SES) pursuant to the regulations of ASTM D7036-04.

His source sampling experience includes conducting over 1,000 separate test programs involving emissions testing at automotive manufacturing, steel mills, refineries, printing operations, food processing, chemical plants, fume incineration systems, hazardous waste incinerators, bulk gasoline terminals and power plants.

**William Pearce**

Mr. Pearce is a Project Manager with ARI. His 9 years of experience include emission compliance and CEM certification testing for a wide variety of industries including petrochemical, steel mills, electric utilities, cement plants, asphalt plants and general manufacturing plants.

Mr. Pearce is presently certified as a QSTI by the SES pursuant to the regulations of ASTM D7036-04.

**Jeff Goldfine**

Mr. Goldfine is a field technician specializing in sampling equipment preparation, maintenance and calibration, equipment setup, field sampling, sample recovery, and posttest equipment clean up. Mr. Goldfine has over 5 years experience in conducting various source emission test programs. Mr. Goldfine is presently certified as a QI by the SES pursuant to the regulations of ASTM D7036-04.

**Matt Badertscher**

Mr. Badertscher is a field technician specializing in sampling equipment preparation, maintenance and calibration, equipment setup, field sampling, sample recovery, and posttest equipment clean up.

# SOURCE EVALUATION SOCIETY

## Qualified Source Testing Individual

LET IT BE KNOWN THAT

## DANIEL E. FITZGERALD

HAS SUCCESSFULLY PASSED A COMPREHENSIVE EXAMINATION AND SATISFIED EXPERIENCE REQUIREMENTS IN ACCORDANCE WITH THE GUIDELINES ISSUED BY THE SES QUALIFIED SOURCE TEST INDIVIDUAL REVIEW BOARD FOR

***MANUAL GAS VOLUME MEASUREMENTS AND ISOKINETIC PARTICULATE SAMPLING METHODS***

ISSUED THIS 5TH DAY OF NOVEMBER 2008 AND EFFECTIVE UNTIL NOVEMBER 4TH, 2013

*Peter R. Westlin, QSTI/QSTO Review Board*

*C. David Bagwell, QSTI/QSTO Review Board*

*Peter S. Pakalnis, QSTI/QSTO Review Board*

*John R. Smith, QSTI/QSTO Review Board*

**APPLICATION NO. 2008-218**

# SOURCE EVALUATION SOCIETY

## Qualified Source Testing Individual

LET IT BE KNOWN THAT

## DANIEL E. FITZGERALD

HAS SUCCESSFULLY PASSED A COMPREHENSIVE EXAMINATION AND SATISFIED EXPERIENCE REQUIREMENTS IN ACCORDANCE WITH THE GUIDELINES ISSUED BY THE SES QUALIFIED SOURCE TEST INDIVIDUAL REVIEW BOARD FOR

***MANUAL GASEOUS POLLUTANTS SOURCE SAMPLING METHODS***

ISSUED THIS 5TH DAY OF NOVEMBER 2008 AND EFFECTIVE UNTIL NOVEMBER 4TH, 2013

*Peter R. Westlin, QSTI/QSTO Review Board*

*C. David Bagwell, QSTI/QSTO Review Board*

*Peter S. Pakalnis, QSTI/QSTO Review Board*

*John R. Smith, QSTI/QSTO Review Board*

**APPLICATION NO. 2008-218**

# SOURCE EVALUATION SOCIETY

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LET IT BE KNOWN THAT

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HAS SUCCESSFULLY PASSED A COMPREHENSIVE EXAMINATION AND SATISFIED EXPERIENCE REQUIREMENTS IN ACCORDANCE WITH THE GUIDELINES ISSUED BY THE SES QUALIFIED SOURCE TEST INDIVIDUAL REVIEW BOARD FOR

***GASEOUS POLLUTANTS INSTRUMENTAL SAMPLING METHODS***

ISSUED THIS 5TH DAY OF NOVEMBER 2008 AND EFFECTIVE UNTIL NOVEMBER 4H, 2013

*Peter R. Westlin, QSTI/QSTO Review Board*

*C. David Bagwell, QSTI/QSTO Review Board*

*Peter S. Pakalnis, QSTI/QSTO Review Board*

*John R. Smith, QSTI/QSTO Review Board*

**APPLICATION NO. 2008-218**

# SOURCE EVALUATION SOCIETY

## Qualified Source Testing Individual

LET IT BE KNOWN THAT

## WILLIAM H. PEARCE

HAS SUCCESSFULLY PASSED A COMPREHENSIVE EXAMINATION AND SATISFIED EXPERIENCE REQUIREMENTS IN ACCORDANCE WITH THE GUIDELINES ISSUED BY THE SES QUALIFIED SOURCE TEST INDIVIDUAL REVIEW BOARD FOR

***MANUAL GAS VOLUME MEASUREMENTS AND ISOKINETIC PARTICULATE SAMPLING METHODS***

ISSUED THIS 5TH DAY OF NOVEMBER 2008 AND EFFECTIVE UNTIL NOVEMBER 4TH, 2013

*Peter R. Westlin, QSTI/QSTO Review Board*

*C. David Bagwell, QSTI/QSTO Review Board*

*Peter S. Pakalnis, QSTI/QSTO Review Board*

*John R. Smith, QSTI/QSTO Review Board*

**APPLICATION NO. 2008-221**

# SOURCE EVALUATION SOCIETY

## Qualified Source Testing Individual

LET IT BE KNOWN THAT

## WILLIAM H. PEARCE

HAS SUCCESSFULLY PASSED A COMPREHENSIVE EXAMINATION AND SATISFIED EXPERIENCE REQUIREMENTS IN ACCORDANCE WITH THE GUIDELINES ISSUED BY THE SES QUALIFIED SOURCE TEST INDIVIDUAL REVIEW BOARD FOR

***MANUAL GASEOUS POLLUTANTS SOURCE SAMPLING METHODS***

ISSUED THIS 5TH DAY OF NOVEMBER 2008 AND EFFECTIVE UNTIL NOVEMBER 4TH, 2013

*Peter R. Westlin, QSTI/QSTO Review Board*

*C. David Bagwell, QSTI/QSTO Review Board*

*Peter S. Pakainis, QSTI/QSTO Review Board*

*John R. Smith, QSTI/QSTO Review Board*

**APPLICATION NO. 2008-221**

# SOURCE EVALUATION SOCIETY

## Qualified Source Testing Individual

LET IT BE KNOWN THAT

## WILLIAM H. PEARCE

HAS SUCCESSFULLY PASSED A COMPREHENSIVE EXAMINATION AND SATISFIED EXPERIENCE REQUIREMENTS IN ACCORDANCE WITH THE GUIDELINES ISSUED BY THE SES QUALIFIED SOURCE TEST INDIVIDUAL REVIEW BOARD FOR

***GASEOUS POLLUTANTS INSTRUMENTAL SAMPLING METHODS***

ISSUED THIS 5TH DAY OF NOVEMBER 2008 AND EFFECTIVE UNTIL NOVEMBER 4H, 2013

*Peter R. Westlin, QSTI/QSTO Review Board*

*C. David Bagwell, QSTI/QSTO Review Board*

*Peter S. Pakalnis, QSTI/QSTO Review Board*

*John R. Smith, QSTI/QSTO Review Board*

**APPLICATION NO. 2008-221**