Addendum to Guarantee Testing Results from the Greenidge Multi-Pollutant Control Project:

Additional NH_3, NO_x, and CO Testing Results

Topical Report of Work Performed
May 30, 2007 - June 21, 2007

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March 2008

U.S. Department of Energy Cooperative Agreement
DE-FC26-06NT41426

Submitted By

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DISCLAIMER

ADDENDUM TO
GUARANTEE TEST REPORT
MULTI-POLLUTANT CONTROL PROJECT
AES GREENIDGE UNIT 4
DRESDEN, NEW YORK

Results of Ammonia, Oxides of Nitrogen, and Carbon Monoxide Sampling Performed on May 30-June 1, 2007, and Ammonia Sampling Performed on June 20-21, 2007

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Report Issue Date	:	March 26, 2008 (Revision 01)

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ACRONYMS AND ABBREVIATIONS

ASTM	American Society for Testing and Materials
BPEI	Babcock Power Environmental Inc.
CAE	Clean Air Engineering
CEM	continuous emission monitor
CO	carbon monoxide
CONSOL R&D	CONSOL Energy Inc., Research & Development
CTM	Conditional Test Method
DOE	U.S. Department of Energy
dscf	dry standard cubic foot
EPA	U.S. Environmental Protection Agency
EPC	engineering, procurement, and construction
g	grams
HCl	hydrogen chloride
HF	hydrogen fluoride
Hg	mercury
HHV	higher heating value
H_2SO_4	sulfuric acid
IC	ion chromatography
ICP-AES	inductively coupled plasma-atomic emission spectrometry
ISE	ion selective electrode
L	liter
lb	pound
LPA	large particle ash
MASS	Multipoint Automated Sampling System
mg	milligram
mL	milliliter
mmBtu	million British thermal units
MW	megawatt
N	normal
NH_3	ammonia
NH_3-N	ammonia reported as nitrogen
NO_x	oxides of nitrogen
O_2	oxygen
pH	measurement of acidity or alkalinity of a solution
ppmvd	parts per million by volume dry
QA/QC	quality assurance/quality control
RPD	relative percent difference
SCR	selective catalytic reduction
SNCR	selective non-catalytic reduction
SO_2	sulfur dioxide
SO_3	sulfur trioxide
U.S.	United States

SUMMARY

On March 28-30 and May 1-4, 2007, CONSOL Energy Inc. Research & Development (CONSOL R&D) performed flue gas sampling at AES Greenidge to verify the performance of the multi-pollutant control system recently installed by Babcock Power Environmental Inc. (BPEI) on the 107-MW Unit 4 (Boiler 6). The multi-pollutant control system includes combustion modifications and a hybrid selective non-catalytic reduction (SNCR) / in-duct selective catalytic reduction (SCR) system to reduce NO_x emissions, followed by a Turbosorp® circulating fluidized bed dry scrubber system and baghouse to reduce emissions of SO_2, SO_3, HCl, HF, and particulate matter. Mercury removal is provided via the co-benefits afforded by the in-duct SCR, dry scrubber, and baghouse and by injection of activated carbon upstream of the scrubber, as required. The testing in March and May demonstrated that the multi-pollutant control system attained its performance targets for NO_x emissions, SO_2 removal efficiency, acid gas (SO_3, HCl, and HF) removal efficiency, and mercury removal efficiency. However, the ammonia slip measured between the SCR outlet and air heater inlet was consistently greater than the guarantee of 2 ppmvd @ 3% O_2. As a result, additional testing was performed on May 30-June 1 and on June 20-21, 2007, in conjunction with tuning of the hybrid NO_x control system by BPEI, in an effort to achieve the performance target for ammonia slip. This additional testing occurred after the installation of a large particle ash (LPA) screen and removal system just above the SCR reactor and a fresh SCR catalyst layer in mid-May. This report describes the results of the additional tests.

During the May 30-June 1 sampling period, CONSOL R&D and Clean Air Engineering (CAE) each measured flue gas ammonia concentrations at the air heater inlet, downstream of the in-duct SCR reactor. In addition, CONSOL R&D measured flue gas ammonia concentrations at the economizer outlet, upstream of the SCR reactor, and CAE measured flue gas NO_x and CO concentrations at the sampling grids located at the inlet and outlet of the SCR reactor. During the June 20-21 sampling period, CONSOL R&D measured flue gas ammonia concentrations at the air heater inlet. All ammonia measurements were performed using a modified version of U.S. Environmental Protection Agency (EPA) Conditional Test Method (CTM) 027. The NO_x and CO measurements were performed using U.S. EPA Methods 7E and 10, respectively.

Table 1 summarizes the ammonia concentrations measured at the air heater inlet by CONSOL R&D during the test periods, along with the net unit load and NO_x emission rate observed during those periods. (The NO_x and CO measurements at the SCR inlet and outlet grids and the NH_3 measurements at the economizer outlet were performed primarily to aid BPEI's tuning efforts; these measurements are summarized in the body of the report. The CAE ammonia slip measurements at the air heater inlet were considered to be invalid, per the discussion later in this report). For all three tests on May 31-June 1, the ammonia concentrations measured at the air heater inlet were greater than the performance target of 2 ppmvd @ 3% O_2. Measured ammonia concentrations decreased throughout the day on June 20, 2007, as BPEI tuned the combustion system and SNCR system. The third test performed on that day indicated

2 ppmvd NH_3 @ 3% O_2 (to one significant digit) while the Unit 4 NO_x emission rate was <0.10 lb/mmBtu, consistent with the performance target for ammonia slip. The testing on June 21 was performed to support tuning activities focused on establishing a set of acceptable boiler operating conditions for routine operation of the NO_x control system under its permitted high-load NO_x emission rate of 0.15 lb/mmBtu. Hence, NO_x emissions during the NH_3 slip tests on June 21 were greater than 0.10 lb/mmBtu.

Table 1. Summary of Ammonia Slip Measured by CONSOL R&D at the Air Heater Inlet on May 31-June 1 and June 20-21, 2007

Test Date & Time (MM/DD/YY: hhmm-hhmm)	Average Net Unit Load,[a] MW_e	Average NO_x Emission Rate,[a] lb/mmBtu	NH_3 @ Air Heater Inlet, ppmvd @ 3% O_2
05/31/07: 1804-1910	97.3	0.103[b]	> 2.5[c,d]
06/01/07: 1020-1108	100.5	0.098	4.6[c]
06/01/07: 1205-1252	100.5	0.103	4.3[c]
06/20/07: 0935-1035	99.5	0.101	5.6[e]
06/20/07: 1755-1836	95.6	0.100	3.4[e]
06/20/07: 2002-2047	95.6	0.099	2.4[e]
06/21/07: 1109-1150	99.4	0.161	2.1[e]
06/21/07: 1517-1557	99.4	0.138	2.5[e]

[a]Calculated by CONSOL as the arithmetic mean of 1-minute CEM data provided by AES. [b]NO_x emission data were not available for 49% of the 1-minute intervals during the testing period. [c]Average of results determined by ion chromatography and ion selective electrode. CAE also measured ammonia slip during this period, but results were considered to be invalid. [d]A portion of the sample line rinse was lost during sample recovery. Hence, the actual amount of NH_3 present in the flue gas was greater than the amount determined from the recovered sample. [e]Result determined by ion selective electrode.

BACKGROUND

CONSOL Energy Inc. Research & Development, AES Greenidge LLC, and Babcock Power Environmental Inc. were awarded a cooperative agreement from the U.S. Department of Energy (DOE) to install and test an integrated multi-pollutant control system on the 107-MW AES Greenidge Unit 4. The project seeks to be the first to demonstrate:

- Full-load NO_x emissions of ≤0.10 lb/mmBtu using a hybrid selective non-catalytic reduction / selective catalytic reduction (hybrid SNCR/SCR) system, in combination with low-NO_x combustion technology, on a unit firing coal and biomass

- SO_2 removal of ≥95% using a Turbosorp® circulating fluidized bed dry scrubber (including a new baghouse) on a unit firing greater than 2%-sulfur bituminous coal
- Mercury reduction of ≥90% via the co-benefits afforded by the in-duct SCR, Turbosorp® scrubber, and baghouse, and by the addition of activated carbon into the Turbosorp® system, as required
- Acid gas (SO_3, HCl, HF) removal of ≥95% in the Turbosorp® system

The goal of the project is to demonstrate substantial improvements in mercury, SO_3, and particulate matter control, and substantial reductions in the cost for NO_x and SO_2 control, compared to conventional technologies when applied to the large number of smaller coal-fired generating units in the United States.

On March 28-30 and May 1-4, 2007, CONSOL R&D performed guarantee testing to verify the ability of the multi-pollutant control system to meet the performance targets set forth in the engineering, procurement, and construction (EPC) agreement between AES Greenidge and Babcock Power Environmental Inc. That testing demonstrated that the multi-pollutant control system attained its performance targets for NO_x emissions, SO_2 removal efficiency, acid gas removal efficiency, and mercury removal efficiency. However, the ammonia slip measured between the SCR outlet and air heater inlet was consistently greater than the guarantee of 2 ppmvd @ 3% O_2. As a result, additional testing was performed on May 30-June 1 and on June 20-21, 2007, in conjunction with tuning of the hybrid NO_x control system by Babcock Power Environmental Inc., in an effort to achieve the performance target for ammonia slip. This additional testing occurred after the installation of a large particle ash screen and removal system just above the SCR reactor and a fresh SCR catalyst layer in mid-May. Described herein are the results of these additional tests and the methods used.

SAMPLING RESULTS

During the May 30-June 1 sampling period, CONSOL R&D and Clean Air Engineering, working under subcontract to CONSOL R&D, each measured flue gas ammonia concentrations at the air heater inlet sampling location. In addition, CONSOL R&D measured flue gas ammonia concentrations at the economizer outlet sampling location, and CAE measured flue gas NO_x and CO concentrations at the permanent sampling grids located at the inlet and outlet of the SCR reactor. During the June 20-21 sampling period, CONSOL R&D measured flue gas ammonia concentrations at the air heater inlet sampling location. (CAE was also on site to perform NO_x and CO grid point sampling under contract to AES Greenidge; results of that sampling are not included in this report). All sampling was performed at a constant sampling rate. The measured results from each sampling period are summarized below. The sampling and analytical methods used to perform the measurements are described in the Experimental section later in this report. All times reported herein are local (i.e., Eastern Daylight) times.

May 30 – June 1 Sampling Period

Clean Air Engineering completed 29 measurement runs using their Multipoint Automated Sampling System (MASS) on May 30–June 1 to simultaneously characterize the NO_x and CO concentration profiles at the inlet and outlet of the SCR reactor. Each 24-minute run included one complete traverse of the SCR inlet and outlet sampling grids. The purpose of most of these runs was to provide near-real-time data to BPEI for use in tuning the combustion and SNCR systems. Hence, the results of each individual run are not summarized here. All of the NO_x and CO measurement results are, however, presented in the CAE report that is included as Appendix A to this report. Moreover, average NO_x and CO concentrations measured by CAE at the SCR inlet and outlet during each of the ammonia slip tests are summarized below as part of the discussion of the results of those tests.

Three ammonia slip tests were completed during the May 30–June 1 sampling period: one test on the evening of May 31 and two tests on June 1. (May 30 and much of May 31 were spent tuning the combustion system and SNCR system to try to achieve NO_x and CO profiles that would be associated with low ammonia slip). Table 2 summarizes the net unit load and NO_x emission rate recorded by the unit's stack continuous emissions monitor (CEM) during each of the tests. Table 3 summarizes the results of analyses of coal samples collected during each of the two tests on June 1. Tables 4 and 5 summarize the average NO_x and CO concentrations measured by CAE during each of the tests. A more detailed presentation of the NO_x and CO sampling results is provided in the CAE report included as Appendix A to this report. (Each ammonia slip test approximately coincided with two complete traverses of the SCR inlet and outlet sampling grids; the results reported in Tables 4 and 5 for each test are the averages of the values measured during the traverses performed during that test. NO_x and CO concentrations were converted to a standard oxygen basis of 3% using O_2 concentrations measured by CAE at the SCR inlet and outlet grids using EPA Method 3A. NO_x emission rates at the SCR outlet were computed by CONSOL R&D according to the procedures set forth in EPA Method 19, using NO_x and O_2 concentrations measured by CAE at the SCR outlet grid and an O_2-based fuel factor, F_d, of 9780 dscf/mmBtu. During Runs 2 and 3 on June 1, several points at the inlet and outlet MASS sampling grids developed leaks. These points, which are identified in the CAE report in Appendix A, were excluded from the averages presented in Tables 4 and 5).

The NO_x emission rates calculated from the CAE measurements at the SCR outlet grid were consistently biased low relative to the NO_x emission rates reported by the unit's stack CEM. The cause of this discrepancy is unknown. Possible causes include measurement error or flow stratification at the SCR outlet. (All grid point measurements were weighted equally when computing the average NO_x and O_2 concentrations at the SCR outlet. NO_x concentrations are inhomogeneous across the SCR outlet grid; hence, if significant flow stratification existed, the use of unweighted average concentrations could have accounted for the discrepancy between the SCR outlet and stack. Space limitations around the SCR reactor prevented the performance of a manual traverse to determine the velocity profile at the SCR outlet).

Table 2. Summary of AES Greenidge Unit 4 CEM Data during the Ammonia Slip Testing Periods on May 31 and June 1, 2007

Test No.	Date & Time (MM/DD/YY: hhmm-hhmm)	Average Net Unit Load,[a] MW_e	Average NO_x Emission Rate,[a] lb/mmBtu
Test #1	05/31/07: 1804-1916	97.3	0.103[b]
Test #2	06/01/07: 1018-1108	100.5	0.098
Test #3	06/01/07: 1205-1252	100.5	0.103

[a]Calculated by CONSOL as the arithmetic mean of 1-minute CEM data provided by AES. [b]NO_x emission data were not available for 49% of the 1-minute intervals during the testing period.

Table 3. Coal Sample Analysis Results from June 1, 2007

Analytical Number	20073004	20073005
Date & Time of Collection	6/1/2007 10:30	6/1/2007 14:00
Total Moisture, %	5.56	5.57
As Determined Moisture, %	1.53	1.52
Volatile Matter, % dry	37.90	37.70
Fixed Carbon, % dry	54.03	54.27
Ash, % dry	8.07	8.03
Carbon, % dry	76.12	76.67
Hydrogen, % dry	4.59	4.56
Nitrogen, % dry	1.40	1.40
Sulfur, % dry	2.67	2.82
Chlorine, % dry	0.080	0.081
HHV, Btu/lb dry	13811	13815
Major Ash Elements, % of ash		
SiO_2	44.52	44.50
Al_2O_3	22.04	21.56
TiO_2	0.94	0.94
Fe_2O_3	18.23	19.56
CaO	4.92	5.07
MgO	0.93	0.94
Na_2O	0.95	0.92
K_2O	1.66	1.65
P_2O_5	0.27	0.32
SO_3	5.27	5.37

Table 4. Summary of NO_x Measurements at the SCR Inlet and Outlet during the Ammonia Slip Testing Periods on May 31 and June 1, 2007

Test No.	Date (MM/DD/YY)	SCR NO_x Data @ 3% O_2			SCR Outlet NO_x Emissions,[b] lb/mmBtu
		Average Concentration at SCR Inlet, ppmvd	Average Concentration at SCR Outlet, ppmvd	Removal,[a] %	
Test #1	05/31/07	107.0	57.3	46.4	0.078
Test #2[c]	06/01/07	95.4	57.6	39.6	0.079
Test #3[c]	06/01/07	93.6	68.5	26.8	0.093

[a]Percent removal calculated by CONSOL R&D based on overall mean inlet and outlet concentrations reported by CAE for each test. [b]Calculated by CONSOL R&D using the mean NO_x and O_2 concentrations measured by CAE at the SCR outlet and an O_2-based F-factor, F_d, of 9780 dscf/mmBtu. [c]Several points at the inlet and outlet sampling grids developed leaks during the test; these points, which are identified in Appendix A, were excluded when deriving the data presented here.

Table 5. Summary of CO Measurements at the SCR Inlet and Outlet during the Ammonia Slip Testing Periods on May 31 and June 1, 2007

Test No.	Date (MM/DD/YY)	SCR Inlet Concentrations @ 3% O_2		SCR Outlet Concentrations @ 3% O_2	
		Average, ppmvd	Maximum Single Point, ppmvd	Average, ppmvd	Maximum Single Point, ppmvd
Test #1	05/31/07	175.4	345.6	155.5	476.8
Test #2[a]	06/01/07	102.9	388.3	160.0	619.5
Test #3[a]	06/01/07	87.8	353.1	96.9	321.9

[a]Several points at the inlet and outlet sampling grids developed leaks during the test; these points, which are identified in Appendix A, were excluded when deriving the data presented here.

During each ammonia slip test, CONSOL R&D and CAE simultaneously performed ammonia sampling at the air heater inlet through a pair of ports: one each on the southern sides of the eastern and western air heater inlet ducts. During the first half of each test, one group sampled the eastern duct while the other group sampled the western duct. The groups then exchanged positions for the second half of the test, such that each collected a composite sample representing the average concentration in both ducts. The test on May 31 was 60 minutes in duration, and the tests on June 1 were each 40 minutes in duration. Both groups conducted sampling using a modified version of U.S. EPA Conditional Test Method 027 (see the Experimental section for a

detailed description of the sampling methodology), and both analyzed the collected samples for ammonia in the field using an ion selective electrode (ISE) and again in the laboratory using ion chromatography (IC).

Table 6 summarizes the ammonia concentrations measured at the air heater inlet (composite of both ducts) by CONSOL R&D. (NH_3 concentrations were converted to a standard oxygen basis of 3% using O_2 concentrations measured by CONSOL R&D at the sampling train exhaust using a Teledyne Max V portable electrochemical O_2 analyzer). During Test #1 on May 31, a portion of the sample line rinse was spilled during sample recovery. Because much of the sampled NH_3 is collected in the sample line, the actual amount of NH_3 present in the flue gas was greater than the amount determined from the recovered sample, as indicated in the table. The ammonia concentrations determined by ISE exhibited reasonable agreement with those determined by IC; the relative percent difference (RPD) between the two methods was less than 25% for each of the three tests. For all three tests, ammonia concentrations determined by both IC and ISE were greater than the performance target of 2 ppmvd @ 3% O_2.

Table 6. NH_3 Concentrations Measured by CONSOL R&D at the Air Heater Inlet on May 31 and June 1, 2007

Test No.	Date & Time (MM/DD/YY: hhmm-hhmm)	NH_3, ppmvd @ 3% O_2			RPD[a] (%)
		IC	ISE	Average of IC, ISE	
Test #1	05/31/07: 1804-1910	> 2.5[b]	> 2.5[b]	> 2.5[b]	0.0
Test #2	06/01/07: 1020-1108	4.9	4.2	4.6	15
Test #3	06/01/07: 1205-1252	4.7	3.8	4.3	21

[a]RPD = 100 x | IC – ISE | / ((IC +ISE)/2) [b]A portion of the sample line rinse was spilled during sample recovery. Hence, the actual amount of NH_3 present in the flue gas was greater than the amount determined from the recovered sample.

Table 7 summarizes the ammonia concentrations measured at the air heater inlet (composite of both ducts) by CAE. (A more detailed presentation of these results is provided in the CAE report that is included as Appendix A to this report). The IC and ISE results determined by CAE exhibited poor agreement. The ISE results were more than a factor of four greater than the IC results for all three tests, and the RPD between the two methods was greater than 120% in all cases. Neither the CAE IC results nor the CAE ISE results agreed well with the CONSOL R&D IC and ISE results. Some disparity between the CONSOL R&D and CAE measurements may be expected to result from random error and from minor methodological differences, including the fact that the groups sampled the eastern and western ducts at different points in time and that CONSOL R&D used a slightly longer probe than CAE, allowing CONSOL R&D to extract samples from deeper points in the duct (closer to the center)

than CAE. However, the large unexplained disparity between the CAE IC and ISE results, which bracket the CONSOL R&D IC and ISE results, call the validity of these CAE results into question. The CAE report (Appendix A) identifies exceptions to QA/QC guidelines, including the guidelines for sample hold time and sample storage temperature, that might have contributed to the discrepancies among the results. Because of these exceptions and the inconsistency between the ISE and IC results, the CAE ammonia slip measurements from May 31 and June 1 are considered to be invalid.

Table 7. NH_3 Concentrations Measured by CAE at the Air Heater Inlet on May 31 and June 1, 2007

Test No.	Date & Time (MM/DD/YY: hhmm-hhmm)	NH_3, ppmvd @ 3% O_2			RPD[a] (%)
		IC	ISE	Average of IC, ISE	
Test #1	05/31/07: 1804-1914	1.39	6.20	3.80	127
Test #2	06/01/07: 1020-1107	1.98	8.11	5.05	122
Test #3	06/01/07: 1205-1252	2.39	10.9	6.65	128

[a]RPD = 100 x | IC – ISE | / ((IC +ISE)/2)

In addition to the ammonia measurements performed at the air heater inlet, CONSOL R&D performed ammonia measurements during each of the three tests at the economizer outlet, upstream of the in-duct SCR, static mixers, and LPA screen. During each test, a composite sample was drawn from four ports in the economizer outlet duct; two of these ports were located on the eastern wall of the duct, and two were located on the western wall. Again, sampling was performed using a modified version of U.S. EPA CTM 027. As discussed in the Experimental section, support beams located inside the duct at the same level as the ports prevented the completion of a full traverse of the duct. Hence, the measured ammonia concentrations may not be representative of the average concentrations across the entire cross section of the duct. Table 8 summarizes the average ammonia concentrations measured at the economizer outlet during each of the tests on May 31 and June 1. (NH_3 concentrations were converted to a standard oxygen basis of 3% using O_2 concentrations measured by CONSOL R&D at the sampling train exhaust using a Teledyne Max V portable electrochemical O_2 analyzer). As with the samples collected at the air heater inlet, the samples collected at the economizer outlet were analyzed by both ISE and IC. The results determined by the two methods showed reasonable agreement; the inter-method RPD was less than 10% for all three runs.

Table 8. NH_3 Concentrations Measured by CONSOL R&D at the Economizer Outlet on May 31 and June 1, 2007

Test No.	Date & Time (MM/DD/YY: hhmm-hhmm)	NH_3, ppmvd @ 3% O_2			RPD[a] (%)
		IC	ISE	Average of IC, ISE	
Test #1	05/31/07: 1804-1916	74.9	67.9	71.4	9.8
Test #2	06/01/07: 1018-1104	85.2	80.4	82.8	5.8
Test #3	06/01/07: 1205-1250	71.9	66.6	69.3	7.7

[a]RPD = 100 x | IC – ISE | / ((IC +ISE)/2)

June 20 – June 21 Sampling Period

CONSOL R&D conducted additional ammonia slip testing at the air heater inlet sampling location on June 20 and 21, 2007. Three tests were completed on June 20, and two tests were completed on June 21. Table 9 summarizes the average net unit load and NO_x emission rate recorded by the unit's stack CEM during each of the tests. Table 10 summarizes the chemical analysis results for a coal sample collected during the testing on June 20.

Table 9. Summary of AES Greenidge Unit 4 CEM Data during the Ammonia Slip Testing Periods on June 20 and 21, 2007

Test No.	Date & Time (MM/DD/YY: hhmm-hhmm)	Average Net Unit Load,[a] MW_e	Average NO_x Emission Rate,[a] lb/mmBtu
Test #1	06/20/07: 0935-1035	99.5	0.101
Test #2	06/20/07: 1755-1836	95.6	0.100
Test #3	06/20/07: 2002-2047	95.6	0.099
Test #4	06/21/07: 1109-1150	99.4	0.161
Test #5	06/21/07: 1517-1557	99.4	0.138

[a]Calculated by CONSOL as the arithmetic mean of 1-minute CEM data provided by AES.

Table 10. Coal Sample Analysis Results from June 20, 2007

Analytical Number	20073422
Date & Time of Collection	6/20/2007
Total Moisture, %	4.28
As Determined Moisture, %	1.32
Volatile Matter, % dry	36.92
Fixed Carbon, % dry	54.51
Ash, % dry	8.57
Carbon, % dry	71.16
Hydrogen, % dry	5.43
Nitrogen, % dry	1.27
Sulfur, % dry	2.50
Chlorine, % dry	0.093
HHV, Btu/lb dry	13851
Major Ash Elements, % of ash	
SiO_2	47.71
Al_2O_3	23.32
TiO_2	1.04
Fe_2O_3	15.98
CaO	4.04
MgO	0.97
Na_2O	1.04
K_2O	1.86
P_2O_5	0.48
SO_3	4.07

As with the tests performed on May 31–June 1, sampling was conducted using a modified version of U.S. EPA Conditional Test Method 027 (see the Experimental section for method details). However, for the tests on June 20 and June 21, the eastern and western air heater inlet ducts were sampled independently using separate trains for the full duration of each test, thereby generating data regarding the distribution of ammonia between the two ducts. The collected samples were analyzed for ammonia in the field using ISE. (AES Greenidge, Babcock Power Environmental, and CONSOL R&D mutually agreed to forego follow-up analysis by IC).

Table 11 summarizes the ammonia concentrations measured at the air heater inlet on June 20 and 21. (NH_3 concentrations were converted to a standard oxygen basis of 3% using O_2 concentrations measured by CONSOL R&D at the sampling train exhaust using a Teledyne Max V portable electrochemical O_2 analyzer). All tests were 40 minutes in duration, except where noted. Measured ammonia concentrations decreased throughout the day on June 20, 2007, as BPEI tuned the combustion system and SNCR system. The third test performed on that day indicated 2 ppmvd

NH_3 @ 3% O_2 (to one significant digit) while the Unit 4 NO_x emission rate was <0.10 lb/mmBtu, consistent with the performance target for ammonia slip. The testing on June 21 was performed to support tuning activities focused on establishing a set of acceptable boiler operating conditions for routine operation of the NO_x control system under its permitted high-load NO_x emission rate of 0.15 lb/mmBtu. Hence, NO_x emissions during the NH_3 slip tests on June 21 were greater than 0.10 lb/mmBtu. The average ammonia slip measured at the air heater inlet during the two tests on June 21 was 2.3 ppmvd @ 3% O_2.

Table 11. NH_3 Concentrations Measured by CONSOL R&D at the Air Heater Inlet on June 20 and June 21, 2007

Test No.	Date & Time (MM/DD/YY: hhmm-hhmm)	NH_3, ppmvd @ 3% O_2		
		East Duct	West Duct	Average
Test #1	06/20/07: 0935-1035	3.4	7.8[a]	5.6
Test #2	06/20/07: 1755-1836	3.9	2.9	3.4
Test #3	06/20/07: 2002-2047	1.6	3.1	2.4
Test #4	06/21/07: 1109-1150	1.3	3.0	2.1
Test #5	06/21/07: 1517-1557	1.6	3.4	2.5

[a]Sampling was conducted for 50 minutes. All other tests were 40 minutes in duration.

EXPERIMENTAL

Sampling Locations

Figure 1 presents a schematic showing the locations where flue gas sampling was conducted at AES Greenidge on May 31-June 1 and June 20-21, 2007. These sampling locations are described below.

Economizer Outlet

NH_3 tests were conducted at the economizer outlet on May 31–June 1. For each test, a composite sample was extracted from four, four-inch ports located downstream of the economizer but upstream of the in-duct SCR catalyst, static mixers, and large particle ash screen. Two of these ports (labeled E-1 and E-3) are located on the eastern wall of the economizer outlet duct, and the other two (labeled W-1 and W-3) are located on the western wall of the duct. Figure 2 presents photographs showing the four ports. During the 60-minute ammonia slip test on May 31, each of these ports was sampled for 15 minutes. During the 40-minute ammonia slip tests on June 1, each port was sampled for 10 minutes. On both the eastern and western sides of the

economizer outlet, a support beam level with the sampling ports is located inside the duct at a depth of several feet. These support beams prevented the performance of an isokinetic traverse of the economizer outlet duct. Instead, sampling through each port was conducted at a constant sampling rate at the single, deepest point that could be reached using a 10-foot probe. (In some instances, the probe was inserted at an angle to allow it to pass under the support beam).

SCR Inlet

NO_x and CO tests were conducted at the SCR inlet on May 30–June 1. The eastern wall of the SCR inlet duct is outfitted with four, four-inch flange ports, each of which contains six permanent sampling tubes. The six tubes installed through each of the four ports terminate at different depths in the duct, creating a 24-point grid of sample points covering the cross section of the duct. Clean Air Engineering performed NO_x and CO testing using an automated sampling system that sequentially extracted samples from the grid points. Each of the 24 grid points was sampled for a one-minute interval during each 24-minute test. A diagram showing the locations of the SCR inlet grid sampling points is provided in the CAE report that is included as Appendix A to this report.

SCR Outlet

NO_x and CO tests were conducted at the SCR outlet on May 30–June 1. As with the SCR inlet duct, the eastern wall of the SCR outlet duct is outfitted with four, four-inch flange ports, each of which contains six permanent sampling tubes. The six tubes installed through each of the four ports terminate at different depths in the duct, creating a 24-point grid of sample points covering the cross section of the duct. Clean Air Engineering performed NO_x and CO testing using an automated sampling system that sequentially extracted samples from the grid points. Each of the 24 grid points was sampled for a one-minute interval during each 24-minute test. A diagram showing the locations of the SCR outlet grid sampling points is provided in the CAE report that is included as Appendix A to this report.

Air Heater Inlet

Ammonia sampling at the air heater inlet was conducted through two ports located immediately upstream of the unit's two air heaters. One port was located at approximately the center (horizontal dimension) of the south wall of the eastern air heater inlet duct, and the other port was located at approximately the center of the south wall of the western air heater inlet duct.

During each ammonia slip test on May 31 and June 1, CONSOL R&D and Clean Air Engineering simultaneously performed ammonia sampling through these ports. During the first half of each test, one group sampled the eastern duct while the other group sampled the western duct. The groups then exchanged positions for the second half of the test, such that each collected a composite sample representing the average concentration in both ducts. Both groups drew samples at a constant rate from a single point located near the center of each duct. The test on May 31 was 60 minutes in duration, and the tests on June 1 were each 40 minutes in duration.

During each ammonia slip test on June 20 and 21, CONSOL R&D used two sampling trains to simultaneously extract separate samples from the eastern and western air heater inlet ducts. Each sample was drawn at a constant rate from a single point located near the center of the duct. With the exception of the first test in the western duct, which lasted 50 minutes, all of the tests on June 20 and 21 were 40 minutes in duration. Figure 3 presents a photograph of the air heater inlet sampling location.

Flue Gas Measurements

Oxides of Nitrogen

All NO_x measurements were performed by Clean Air Engineering using U.S. EPA Method 7E, modified to incorporate the use of CAE's Multipoint Automated Sampling System. A complete description of the methodology is provided in the CAE report that is included as Appendix A to this report.

Carbon Monoxide

All CO measurements were performed by Clean Air Engineering using U.S. EPA Method 10, modified to incorporate the use of CAE's Multipoint Automated Sampling System. A complete description of the methodology is provided in the CAE report that is included as Appendix A to this report.

Ammonia

CONSOL R&D

CONSOL R&D performed ammonia sampling using a modified version of U.S. EPA Conditional Test Method 027. Because of space constraints at the sampling locations, complete isokinetic traverses could not be completed as specified in the method (as discussed above, all sampling was conducted at a constant sampling rate), and a heated Teflon sample line was required to connect the sampling probe to the impingers. Given the presence of SO_2 and SO_3 in the flue gas and the temperature of the heated line (~250 °F), some of the collected ammonia was expected to condense out of the sample stream as ammonium bisulfate in the Teflon line, before reaching the impingers. Hence, the contents of line were collected by rinsing with deionized water, and this line rinse was analyzed to account for the ammonia collected there. The sampling procedure is described in more detail below.

Samples were collected by pulling flue gas through an in-stack filter assembly containing a quartz fiber filter and a temperature-controlled quartz-lined probe that was heated to a temperature of approximately 250 °F. Upon exiting the probe, the flue gas passed through a heated Teflon sample line (maintained at ~250 °F) to the impinger train, where it flowed through a series of chilled impingers. The first two impingers were Greenburg-Smith design, each containing 100 mL of a 0.1 normal (N) sulfuric acid (H_2SO_4) solution. The third impinger, also containing 0.1 N H_2SO_4, was a Greenburg-Smith with the tip removed and was used to evaluate NH_3 breakthrough. The final impinger, a Greenburg-Smith without the tip, was filled with approximately 200 g of silica desiccant for moisture removal. After exiting the impingers, the gas

sample passed through a dry test meter where its volume was measured. The O_2 concentration in the gas exiting the dry test meter was monitored using a Teledyne Max V portable electrochemical O_2 analyzer.

Prior to sampling, the system was leak checked under a vacuum of approximately 10" Hg. The sample probe was placed at the proper location in the sample port; the sample port opening was sealed, and gas was sampled for 40-60 minutes. The following data were recorded: (1) starting gas volume, (2) interval gas volume, (3) final gas volume, (4) probe temperature, (5) heated line temperature, (6) meter differential pressure setting, (7) dry test meter temperature, (8) system vacuum, (9) exit gas O_2 concentration, (10) barometric pressure, and (11) sampling time. Copies of the field data sheets are provided in Appendix B. After sampling, the probe was removed from the duct and leak checked under a vacuum equal to or greater than the highest vacuum observed during testing, and the train components were disassembled for sample recovery. The sample train components were recovered in the following manner:

Sample Probe and In-Stack Filter Assembly - The quartz probe liner was rinsed with deionized water, and the rinse was collected in an approved sample container. The filter was collected, but not analyzed, and the filter assembly was cleaned with deionized water. (The filter assembly rinse was not recovered). The probe rinse was diluted to a known volume and refrigerated until analysis.

Heated line - The heated Teflon line was rinsed with deionized water, and the rinse was collected in an approved sample container. The rinse was then diluted to a known volume and refrigerated until analysis.

Impingers - The contents of the first three impingers and connecting glassware (including rinses of these sample train components with deionized water) were collected in approved sample containers. These samples were then diluted to known volumes and refrigerated until analysis.

All samples were analyzed in the field for ammonium ion by ion selective electrode, per the request of AES and Babcock Power Environmental Inc. (ISE is not specified in EPA CTM 027). The ISE analyses were performed in accordance with Standard Method 4500-NH_3 D, using a Thermo Scientific Orion Model 95-12 ammonia gas-sensing ion specific electrode coupled with an Oakton model pH 2100 pH/ion meter.

In addition, all samples collected on May 31-June 1 were analyzed for ammonium ion by ion chromatography per CTM 027.

For both the ISE and the IC analyses, the concentration of ammonia in the flue gas was calculated based on the mass of ammonium ion collected (sum of masses determined in the probe, heated line, and impingers) and the volume of flue gas sampled during the test.

Clean Air Engineering

Clean Air Engineering performed ammonia sampling using a modified version of U.S. EPA Conditional Test Method 027. Ammonia concentrations in the collected samples were determined by ion selective electrode in the field and by ion chromatography in the laboratory. A complete description of the methodology is provided in the CAE report that is included as Appendix A to this report.

Coal Sample Analyses

Coal samples were analyzed using the following methods:

ASTM D 2013 Preparing Coal Samples for Analysis. This standard practice covers the reduction and division of gross or divided samples up to and including the individual portions used for laboratory analysis.

ASTM D 3302 Standard Test Method for Total Moisture in Coal. All of the moisture in and on a sample of coal is determined based on the loss of weight in a coal sample in an air atmosphere under rigidly controlled conditions of temperature, time, and air flow.

ASTM D 5142 Proximate Analysis of the Analysis Sample of Coal and Coke by Instrumental Procedures. Moisture, volatile matter and ash are determined sequentially in a single instrumental procedure by establishing the loss in mass of the analysis specimen when heated under rigidly controlled conditions of temperature, time, atmosphere, and specimen mass.

ASTM D 5373 Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Laboratory Samples of Coal and Coke. Carbon, Hydrogen, and Nitrogen are determined concurrently in a single instrumental procedure. The conversion of the subject materials in each sample occurs during combustion of the sample at an elevated temperature in an atmosphere of purified oxygen.

ASTM D 4239 Sulfur in the Analysis Sample of Coal and Coke Using High-Temperature Combustion and Infrared Absorption. The test specimen is heated in a tube furnace in a stream of oxygen to oxidize the sulfur to sulfur dioxide. The gas stream containing the sulfur dioxide is passed through a cell where it is measured at a precise wavelength by an infrared absorption detector.

ASTM D 5865 Gross Calorific Value of Coal and Coke. A weighed sample of coal is burned under controlled conditions in an oxygen bomb calorimeter. The higher heating value is calculated from the temperature rise of the water in the calorimeter vessel and the effective heat capacity of the system. Corrections are made for the heat released by the ignition of the fuse and the thermochemical reactions forming nitric and sulfuric acids.

ASTM D 6721 Determination of Chlorine by Oxidative Hydrolysis Microcoulometry. A weighed sample is combusted with tungsten accelerator in a humidified oxygen gas flow, at 900 °C. Halogens are oxidized and converted to hydrogenated halides, which are flushed into a titration cell where they accumulate. Chlorine is converted to hydrochloric acid. Once the chloride is captured in the electrolyte of the titration cell, it can be quantitatively determined by microcoulometry.

ASTM D 6349 Determination of Major and Minor Elements in Coal, Coke, and Solid Residues from Combustion of Coal and Coke by Inductively Coupled Plasma-Atomic Emission Spectrometry. The sample to be analyzed is ashed under standard conditions and ignited to a constant weight. The ash is digested in a mixture of hydrofluoric, nitric, and hydrochloric acids. The solution is then analyzed by ICP-AES, in which characteristic line emission spectra are produced by a radio-frequency inductively coupled plasma. The intensity of these emissions is proportional to the concentration of analyte in the sample.

QUALITY ASSURANCE AND QUALITY CONTROL

Test Equipment

The CONSOL field sampling team uses standard EPA-type sampling equipment. Most of the equipment was obtained from Thermo-Andersen (formerly known as Andersen Instruments, Graseby-Nutech, and Nutech) and conforms to all applicable test codes. All sampling trains were leak checked prior to each test and again at the end of each test.

A Teledyne Max V portable gas analyzer was used for determining flue gas composition at the sample train discharge. The meter operator uses the readings to assess the operation of the sampling train and the unit operation. Past experience has indicated that the accuracy of the oxygen determination by this analyzer is equal to or better than that of a manual Orsat analyzer.

The test equipment used by Clean Air Engineering is described in the CAE report that is included as Appendix A to this report.

Oxides of Nitrogen Measurements

Quality assurance / quality control information for the NO_x measurements is provided in the Clean Air Engineering report that is included as Appendix A to this report.

Carbon Monoxide Measurements

Quality assurance / quality control information for the CO measurements is provided in the Clean Air Engineering report that is included as Appendix A to this report.

Ammonia Measurements

CONSOL R&D

For the ISE analyses, at the beginning of each analytical day, fresh calibration standards with concentrations of 0.1, 1.0, 10, and 100 mg/L NH_3-N were prepared. These were used to develop a standard semilogarithmic curve relating concentrations of NH_3-N to the ion meter's millivolt readings. Blank samples of the deionized water and 0.1 N H_2SO_4 reagents used for sample recovery were run to confirm that they were not contaminated.

For the ion chromatography analyses, although not required by method, samples were run in duplicate. The average result for each sample was reported. In all cases, the duplicate results had a relative percent difference of ≤10%. An independent quality control standard with a concentration of approximately the midpoint of the calibration curve range was run immediately after calibration and after every 10 samples. In all cases, recovery of the quality control standard was between 90% and 110%. One sample per batch was spiked at 2 mg/L NH_3-N to assess any possible matrix issues; none were discovered. Blank samples of the deionized water and 0.1 N H_2SO_4 reagents used for sample recovery were also run to confirm that they were not contaminated.

In addition to the standard QA/QC procedures specified in CTM 027, blank samples were obtained after one of the tests on June 1 and after one of the tests on June 20 by performing a second rinsing of the probe and line that were used for sampling at the air heater inlet. This was done to ensure that: (1) the initial rinses succeeded in recovering all of the ammonia collected in the probe and line, and (2) there was no residual ammonia from the test that could affect the results of a subsequent test. The blank rinses from June 1 were analyzed by ISE and IC, and the blank rinses from June 20 were analyzed by ISE. The ammonium concentrations in the probe rinse blanks were less than or equal to the ammonium concentrations in the deionized water blanks, and the amount of ammonium recovered in the line rinse blanks was ≤3% of the amount recovered in the original line rinses. Moreover, during the May 31-June 1 testing period, the impingers from a blank CTM 027 train were recovered in the field and analyzed for ammonium; ammonium concentrations in all three field blank impingers were less than the IC limit of detection (0.1 mg/L NH_3-N).

Clean Air Engineering

Quality assurance / quality control information for the NH_3 measurements made by Clean Air Engineering is provided in the CAE report that is included as Appendix A to this report.

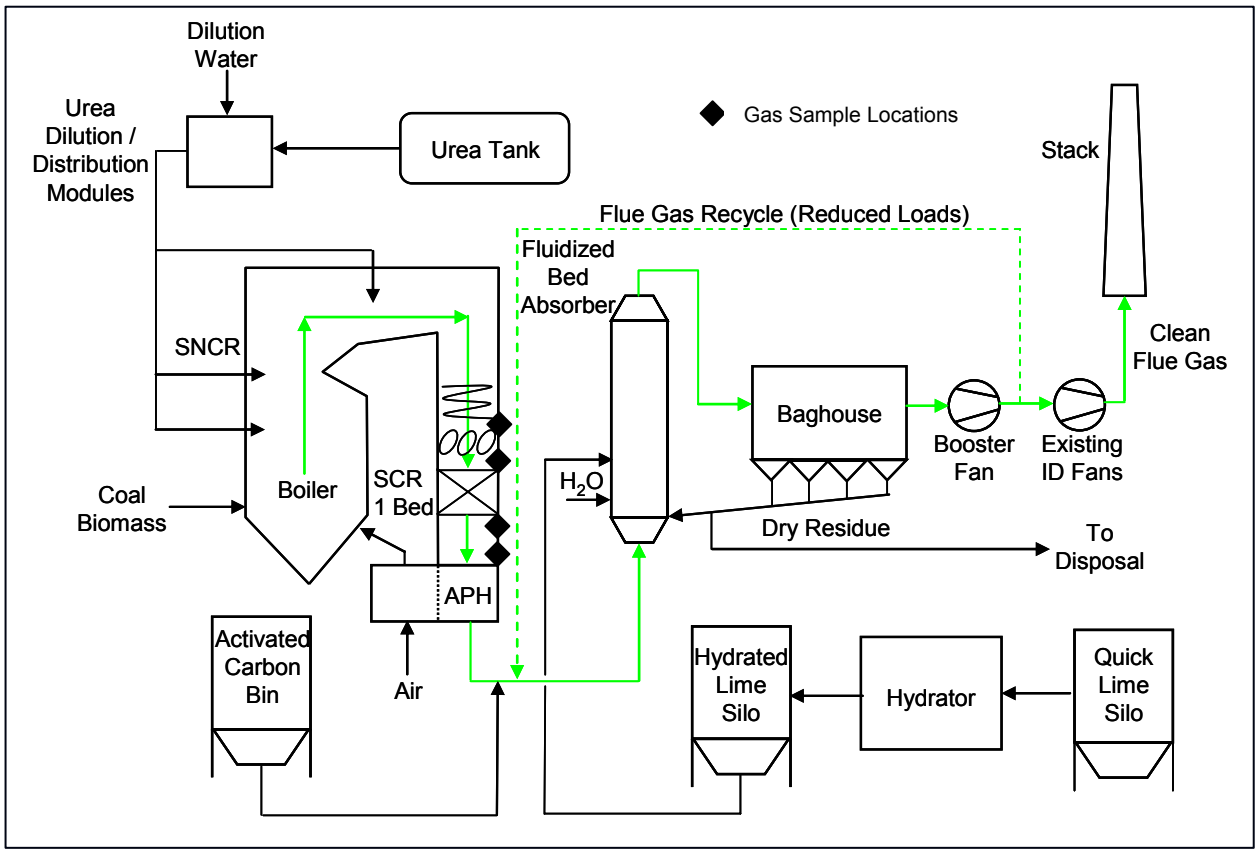

Figure 1. Sampling locations

Figure 2. Economizer outlet sampling ports

Figure 3. Air heater inlet sampling location

APPENDIX A
Clean Air Engineering Report (NOx, CO, and NH_3 Sampling)

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REPORT ON POLLUTANT EMISSION CHARACTERIZATION

Performed for:
CONSOL ENERGY, INC.
AIR HEATER INLET AND
UNIT 4 SCR INLET & OUTLET
AES GREENIDGE STATION
DRESDEN, NEW YORK

Client Reference No: 4700146642
CleanAir Project No: 10247
Revision 0: September 7, 2007
Revision 1: November 16, 2007

To the best of our knowledge, the data presented in this report are accurate, complete, error free, legible and representative of the actual emissions during the test program.

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REVISION HISTORY

REPORT ON POLLUTANT EMISSION CHARACTERIZATION

Revision History

Revision No:	Date	Pages	Comments
R1	11/16/07		Revision 1 version of original R0 document.
R0	09/07/07	All	Final version of original document.

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CONTENTS

PROJECT OVERVIEW

CONSOL Energy, Inc. (CONSOL) contracted Clean Air Engineering (CleanAir) to perform emissions measurements at the AES Greenidge Station located in Dresden, New York in order to characterize pollutant concentration profiles following the installation of a mesh grid to remove popcorn ash buildup in the process.

All testing was performed in accordance with regulations set forth by the United States Environmental Protection Agency (USEPA).

The test parameters included the following pollutants:

- ammonia (NH_3)
- nitrogen oxide (NO_x)
- carbon monoxide (CO)
- flue gas composition (e.g., O_2, CO_2)

The testing took place at the Unit 4 Air Heater Inlet and the Unit 4 Selective Catalytic Reduction (SCR) system (Inlet and Outlet) on May 30 through June 1, 2007. Coordinating the field testing were:

J. Locke – CONSOL Energy
D. Dreska – Clean Air Engineering

Table 1-1 outlines the schedule adhered to during the test program. Table 1-2 summarizes the results of the test program. A more detailed presentation of the test conditions and results of analysis are shown in the Tables and Figures on pages 2-1 through 2-20.

Table 1-1:
Schedule of Activities

Run Number	Location	Method	Analyte	Date	Start Time	End Time
1	Unit 4 Air Heater Inlet	CTM-027	Ammonia	05/31/07	18:04	19:14
2	Unit 4 Air Heater Inlet	CTM-027	Ammonia	06/01/07	10:20	11:07
3	Unit 4 Air Heater Inlet	CTM-027	Ammonia	06/01/07	12:05	12:52
As Found	SCR Inlet/Outlet	MASS	O_2, CO_2, NO_X, CO	05/30/07	11:12	11:35
Final Tuning	SCR Inlet/Outlet	MASS	O_2, CO_2, NO_X, CO	05/31/07	17:36	17:59
1	SCR Inlet/Outlet	MASS	O_2, CO_2, NO_X, CO	05/31/07	18:00	19:11
2	SCR Inlet/Outlet	MASS	O_2, CO_2, NO_X, CO	06/01/07	10:24	11:11
3	SCR Inlet/Outlet	MASS	O_2, CO_2, NO_X, CO	06/01/07	12:00	12:47

Table 1-2:
Summary of Test Results

Source / Constituent	Sampling Method	Average Emission[1]
Unit 4 Air Heater Inlet		
NH_3 (ppm @3% O_2)	CTM-027	1.92
Unit 4 SCR Inlet		
NO_x (ppmdv @3% O_2)	EPA M7E	98.7
CO (ppmdv @3% O_2)	EPA M10	122.3
O_2 (% dv)	EPA M3A	4.4
CO_2 (% dv)	EPA M3A	15.3
Unit 4 SCR Outlet		
NO_x (ppmdv @3% O_2)	EPA M7E	60.5
NO_x Removal Efficiency (%)	EPA M7E	41.4
CO (ppmdv @3% O_2)	EPA M10	140.5
O_2 (% dv)	EPA M3A	4.7
CO_2 (% dv)	EPA M3A	14.6

[1] CEMs average emissions are calculated using data collected during the three ammonia runs.

DISCUSSION OF TEST PROGRAM

Unit 4 Air Heater Inlet – NH_3 Concentration Testing

Testing for ammonia concentration at the air heater inlet was performed using Conditional Test Method 027 (CTM-027) procedures. Sampling was performed in the available sample ports following the SCR Outlet location.

The allowable clearance outside the test ports prevented the test crew from using the heated probes initially planned for the project. Therefore, the sampling point was approximately 1 foot into the gas stream and the glass liner support was modified unheated pipe.

CleanAir performed on-site ammonia analysis using an ion specific electrode (ISE) to evaluate the data obtained. The samples were also analyzed later by ion chromatography (IC) performed offsite at the Clean Air Engineering laboratory located in Palatine, Illinois. A comparison of the results in shown on Table 2-1 page 2-1.

DISCUSSION OF TEST PROGRAM (CONTINUED)

Unit 4 Air Heater Inlet – NH_3 Concentration Testing (Continued)

There was a large discrepancy between the results of the two analytical methods. The IC results were on average 4 times lower than the on-site ISE results. Several other QA/QC items were noted between the two analytical methods.

1. The samples were slightly outside the hold time stated in CTM-027 for the IC analysis by 5-6 days.
2. The samples were not kept at 4°C per CTM-027. There is some speculation that this is not a factor so long as the acidity of the sample is maintained.
3. The ISE is temperature sensitive. It is not clear if the ISE equipment performed an automatic temperature correction. A 1°C difference in temperature will give a rise to about 2% measurement error according to electrode manufacturer's instructions. ISE analysis notes show sample temperatures ranging from 69-84°F. This would be an error range of 17%.
4. The ISE ammonia standard (1,000ppm+/-5ppm) for developing the ISE calibration curve was expired by a few months but otherwise new/unopened.
5. The ISE curve was developed for 0-100mg/L. The IC curve was 0-10mg/L
6. The IC QA/QC steps were much more rigorous then that used for the ISE (see Appendix G for copies of both the IC and ISE raw data).

In both cases nearly all (>90%) of the ammonia was found to be in the probe rinse portion of the sample instead of the first impinger catch. This is probably due to the unheated probe extension. Also, both techniques show the results from each individual run trended the same direction with each successive test run having a higher ammonia concentration than the previous.

Unit 4 SCR Inlet/Outlet – NO_x and CO

Runs were performed at the Unit 4 SCR Inlet and SCR Outlet locations using USEPA Methods 7E and 10 procedures modified to include the use of CleanAir's Multi-Point, Automated Sampling System (MASS®) to obtain a concentration profile of the NO_x and CO.

In order to assess local NO_x reductions, CleanAir has developed a proprietary flue gas profiling system called the MASS® system. The MASS® system allows duct emission profiles to be characterized in a matter of minutes, as opposed much longer sampling times for traditional duct emission traverses using "manual" traversing techniques.

DISCUSSION OF TEST PROGRAM (CONTINUED)

Unit 4 SCR Inlet/Outlet – NO_x and CO (Continued)

CleanAir's MASS® system uses a series of automated 8-point sample modules with integrated programmable logic controllers (PLC's) to sequentially and rapidly cycle through a multi-point sample grid.

The MASS® system's lightweight modular approach facilitates a fast and easy setup. The system is designed for reliable and consistent operation with features such as pre-purged sample points, automated sequencing, and moisture and particulate removal. The system allows for rapid and efficient sampling of large test grids. The 8-point sample selection modules may be configured in various ways to accommodate a variety of sample time requirements for as many points as needed. For this test program a single set of instruments per location was used which provided one-minute cycle times per sampling point.

Sampling was performed at the existing grid probes located in four (4) ports at each location. There are currently 24 sampling points available at each of the test locations. CleanAir performed a complete grid profile measurement over a 24-minute period.

Prior to beginning sampling, NO_x measurements were conducted at each test location at a stationary point to verify steady state test conditions. Once satisfactory conditions existed sampling was performed. NO_x grid measurements where taken while the plant was tuning the boiler and SCR.

During Runs 2 and 3 some individual sampling points in the MASS® grid develop leaks that later become apparent upon data analysis especially in comparison to Run 1. These points have been left out of the averages, grids and plots of the Section 2 results.

Full results using CleanAir's MASS® system are found in Appendix C, Parameters.

RESULTS

Table 2-1:
Unit 4 Air Heater Inlet – NH_3 Results

Run No.		1	2	3	Average
Date (2007)		May 31	Jun 1	Jun 1	
Start Time (approx.)		18:04	10:20	12:05	
Stop Time (approx.)		19:14	11:07	12:52	
Gas Conditions					
O_2	Oxygen (dry volume %)	4.4	5.1	6.4	**5.3**
CO_2	Carbon dioxide (dry volume %)	16.5	13.4	12.4	**14.1**
Ammonia (NH_3) Results - Total Combined Results (IC)					
C_{sd}	Ammonia Concentration (ppmdv)	1.28	1.74	1.93	**1.65**
C_{sd7}	Ammonia Concentration @3% O_2 (ppmdv)	1.39	1.98	2.39	**1.92**
C_{sd12}	Ammonia Concentration @12% CO_2 (ppmdv)	0.934	1.56	1.87	**1.45**
Ammonia (NH_3) Results - Total Combined Results (ISE)					
C_{sd}	Ammonia Concentration (ppmdv)	5.72	7.16	8.87	**7.25**
C_{sd7}	Ammonia Concentration @3% O_2 (ppmdv)	6.20	8.11	10.9	**8.42**
C_{sd12}	Ammonia Concentration @12% CO_2 (ppmdv)	4.16	6.41	8.58	**6.38**

111507 203612
OHP@_N

RESULTS

Table 2-2:
Unit 4 SCR Inlet – As Found MASS Results

SCR Inlet
NOx (ppmdv @ 3% O2)

	1	2	3	4	Average
6	121.8	103.0	101.5	93.7	105.0
5	83.0	66.9	75.7	68.5	73.5
4	93.8	84.1	98.0	85.5	90.3
3	113.0	99.7	118.0	105.2	109.0
2	98.4	98.4	95.3	84.6	94.2
1	103.7	84.0	78.3	70.7	84.2
Average	102.3	89.4	94.5	84.7	92.7
			→	North	

SCR Inlet
CO2 (%dv)

	1	2	3	4	Average
6	12.5	14.4	14.7	14.5	14.0
5	16.9	17.2	16.9	17.1	17.0
4	17.1	17.7	17.3	17.5	17.4
3	17.7	18.1	18.6	17.9	18.1
2	14.7	18.9	19.1	17.8	17.6
1	19.1	17.4	18.1	16.2	17.7
Average	16.3	17.3	17.5	16.8	17.0
			→	North	

SCR Inlet
O2 (%dv)

	1	2	3	4	Average
6	8.5	6.6	6.3	6.5	7.0
5	3.9	3.7	3.9	3.8	3.8
4	3.8	3.4	3.6	3.5	3.6
3	3.4	2.8	2.6	3.1	3.0
2	6.6	2.1	2.1	3.2	3.5
1	1.9	3.5	2.7	4.4	3.1
Average	4.7	3.7	3.5	4.1	4.0
			→	North	

SCR Inlet
CO (ppmdv @ 3% O2)

	1	2	3	4	Average
6	64.6	24.7	58.4	72.8	55.1
5	73.5	99.8	112.6	142.6	107.1
4	118.1	95.3	84.0	65.0	90.6
3	49.5	25.4	26.2	30.8	33.0
2	418.3	603.1	340.5	281.5	410.8
1	302.1	490.8	410.4	377.4	395.2
Average	171.0	223.2	172.0	161.7	182.0
			→	North	

RESULTS

Table 2-3:
Unit 4 SCR Outlet – As Found MASS Results

SCR Outlet
NOx (ppmdv @ 3% O2)

	1	2	3	4	Average
6	76.1	19.2	1.4	8.3	26.3
5	97.6	80.9	99.0	2.7	70.0
4	81.4	102.0	105.4	60.5	87.3
3	96.1	89.2	83.2	19.9	72.1
2	82.6	11.4	2.5	1.4	24.5
1	88.5	48.2	3.2	32.1	43.0
Average	87.0	58.5	49.1	20.8	53.9
			→	North	

SCR Outlet
CO (ppmdv @ 3% O2)

	1	2	3	4	Average
6	168.3	594.5	671.9	546.2	495.2
5	184.7	315.2	760.6	353.7	403.6
4	216.7	53.9	30.6	24.9	81.6
3	34.0	26.6	32.7	44.1	34.4
2	68.2	87.3	147.2	236.0	134.7
1	170.6	98.6	104.9	280.1	163.5
Average	140.4	196.0	291.3	247.5	218.8
			→	North	

SCR Outlet
O2 (%dv)

	1	2	3	4	Average
6	5.4	3.6	3.0	3.9	4.0
5	4.1	3.9	2.8	2.4	3.3
4	4.3	4.0	3.2	2.8	3.6
3	3.8	4.7	5.2	3.5	4.3
2	5.1	4.7	3.5	3.4	4.2
1	6.6	6.3	4.5	5.3	5.7
Average	4.9	4.5	3.7	3.6	4.2
			→	North	

SCR Outlet
NOx Removal Efficiency % (@ 3%O2)

	1	2	3	4	Average
6	37.5	81.3	98.6	91.1	77.2
5	-17.6	-20.8	-30.8	96.0	6.7
4	13.2	-21.3	-7.5	29.2	3.4
3	15.0	10.6	29.4	81.1	34.0
2	16.1	88.4	97.4	98.3	75.1
1	14.7	42.7	96.0	54.6	52.0
Average	13.1	30.1	47.2	75.1	41.4
			→	North	

SCR Outlet
CO2 (%dv)

	1	2	3	4	Average
6	13.2	14.6	15.2	14.5	14.4
5	14.2	14.4	15.5	15.9	15.0
4	14.4	14.4	15.2	15.6	14.9
3	14.7	13.9	13.5	14.9	14.3
2	13.6	13.7	14.9	15.1	14.3
1	12.3	12.4	14.0	13.4	13.0
Average	13.7	13.9	14.7	14.9	14.3
			→	North	

RESULTS

Table 2-4:
Unit 4 SCR Inlet – Final Tuning MASS Results

SCR Inlet
NOx (ppmdv @ 3% O2)

	1	2	3	4	Average
6	113.1	106.2	102.2	101.8	105.8
5	87.5	88.7	84.6	75.1	84.0
4	96.6	105.9	120.7	91.3	103.6
3	128.1	102.5	125.7	111.7	117.0
2	105.5	110.4	108.2	82.1	101.5
1	130.1	104.7	111.0	108.6	113.6
Average	110.1	103.1	108.7	95.1	104.3

→ North

SCR Inlet
CO2 (%dv)

	1	2	3	4	Average
6	14.6	15.8	17.7	15.7	16.0
5	15.2	18.1	18.6	18.2	17.5
4	16.3	16.3	16.5	18.1	16.8
3	16.0	17.2	18.2	18.4	17.5
2	17.0	18.7	18.9	19.1	18.4
1	17.0	17.1	17.9	16.1	17.0
Average	16.0	17.2	18.0	17.6	17.2

→ North

SCR Inlet
O2 (%dv)

	1	2	3	4	Average
6	6.4	5.8	4.1	5.5	5.5
5	5.6	3.8	3.5	3.2	4.0
4	4.7	5.2	5.2	3.3	4.6
3	5.1	4.3	3.6	3.0	4.0
2	4.3	3.2	2.9	2.3	3.2
1	4.4	4.8	3.9	5.0	4.5
Average	5.1	4.5	3.9	3.7	4.3

→ North

SCR Inlet
CO (ppmdv @ 3% O2)

	1	2	3	4	Average
6	694.6	129.6	200.9	207.2	308.1
5	195.3	266.3	325.2	379.1	291.5
4	333.8	105.2	96.0	77.1	153.0
3	120.8	94.5	91.1	60.3	91.6
2	134.0	139.8	136.8	367.3	194.5
1	321.2	172.7	291.0	413.3	299.5
Average	300.0	151.3	190.2	250.7	223.0

→ North

RESULTS

Table 2-5:
Unit 4 SCR Outlet – Final Tuning MASS Results

SCR Outlet
NOx (ppmdv @ 3% O2)

	1	2	3	4	Average
6	88.5	40.1	2.8	4.1	33.9
5	65.7	4.5	0.6	1.0	18.0
4	72.7	85.1	76.4	4.1	59.6
3	83.4	105.6	110.3	57.9	89.3
2	158.8	73.2	102.6	2.4	84.3
1	68.0	8.2	1.0	2.6	19.9
Average	89.5	52.8	49.0	12.0	50.8

→ North

SCR Outlet
CO (ppmdv @ 3% O2)

	1	2	3	4	Average
6	701.9	234.9	504.4	482.4	480.9
5	166.0	155.5	264.9	220.1	201.6
4	200.9	68.8	34.9	53.2	89.5
3	73.8	34.8	29.6	46.0	46.0
2	92.4	61.4	71.5	165.0	97.6
1	274.9	277.3	341.8	381.9	319.0
Average	251.6	138.8	207.9	224.8	205.8

→ North

SCR Outlet
O2 (%dv)

	1	2	3	4	Average
6	8.1	3.6	6.4	7.4	6.4
5	4.8	3.4	3.9	4.4	4.1
4	4.3	3.4	4.4	3.8	4.0
3	4.1	3.3	3.7	3.7	3.7
2	9.0	3.1	3.1	2.9	4.5
1	3.2	4.1	5.4	7.7	5.1
Average	5.6	3.5	4.5	5.0	4.6

→ North

SCR Outlet
NOx Removal Efficiency % (@ 3%O2)

	1	2	3	4	Average
6	21.7	62.2	97.2	96.0	69.3
5	24.9	94.9	99.3	98.7	79.4
4	24.7	19.7	36.7	95.5	44.2
3	34.9	-2.9	12.2	48.2	23.1
2	-50.6	33.7	5.2	97.1	21.3
1	47.8	92.2	99.1	97.6	84.2
Average	17.2	50.0	58.3	88.9	53.6

→ North

SCR Outlet
CO2 (%dv)

	1	2	3	4	Average
6	9.4	15.5	15.0	14.8	13.7
5	15.0	15.3	22.0	20.5	18.2
4	19.0	14.8	19.4	20.2	18.4
3	19.3	15.1	21.3	21.1	19.2
2	15.9	18.9	22.4	22.3	19.9
1	19.5	20.5	24.5	18.7	20.8
Average	16.4	16.7	20.8	19.6	18.4

→ North

RESULTS

Table 2-6:
Unit 4 SCR Inlet – Run 1 MASS Results

SCR Inlet
NOx (ppmdv @ 3% O2)

	1	2	3	4	Average
6	112.7	117.1	110.2	106.7	111.7
5	94.6	97.6	90.9	79.3	90.6
4	98.6	109.5	129.2	93.5	107.7
3	117.2	102.6	129.8	108.6	114.6
2	96.5	106.3	104.0	87.7	98.7
1	134.3	105.8	119.8	114.2	118.5
Average	109.0	106.5	114.0	98.3	107.0

→ North

SCR Inlet
CO2 (%dv)

	1	2	3	4	Average
6	14.4	16.0	17.8	16.3	16.1
5	16.5	18.2	18.2	18.4	17.8
4	16.9	16.8	16.5	18.3	17.1
3	16.4	17.9	18.4	18.8	17.9
2	18.4	17.9	17.0	17.0	17.5
1	15.2	15.3	15.6	14.6	15.2
Average	16.3	17.0	17.2	17.2	16.9

→ North

SCR Inlet
O2 (%dv)

	1	2	3	4	Average
6	7.0	6.0	4.0	5.2	5.5
5	5.2	3.9	3.6	3.3	4.0
4	4.6	5.4	5.6	3.3	4.7
3	5.2	4.3	3.6	2.9	4.0
2	4.3	3.1	2.8	2.5	3.1
1	4.4	4.9	4.2	5.2	4.7
Average	5.1	4.6	4.0	3.7	4.3

→ North

SCR Inlet
CO (ppmdv @ 3% O2)

	1	2	3	4	Average
6	128.9	86.6	200.1	296.0	177.9
5	345.6	162.9	246.8	341.4	274.2
4	226.4	94.6	102.0	77.1	125.0
3	98.4	105.3	85.0	62.1	87.7
2	157.6	225.2	191.9	228.5	200.8
1	206.2	153.8	193.1	194.4	186.9
Average	193.8	138.1	169.8	199.9	175.4

→ North

RESULTS

Table 2-7:
Unit 4 SCR Outlet – Run 1 MASS Results

SCR Outlet
NOx (ppmdv @ 3% O2)

	1	2	3	4	Average
6	113.2	63.1	4.6	40.3	55.3
5	85.5	11.0	1.0	1.4	24.7
4	89.1	92.7	85.5	16.5	71.0
3	90.2	112.6	110.9	58.6	93.1
2	141.3	72.6	99.9	2.4	79.1
1	64.8	13.4	1.3	2.5	20.5
Average	97.4	60.9	50.5	20.3	57.3
			→	North	

SCR Outlet
CO (ppmdv @ 3% O2)

	1	2	3	4	Average
6	191.2	164.4	405.2	476.8	309.4
5	229.0	122.5	179.4	270.6	200.4
4	155.1	47.4	35.6	47.6	71.4
3	61.2	34.5	30.7	40.6	41.8
2	92.7	87.1	83.3	128.5	97.9
1	218.8	260.7	181.6	187.8	212.3
Average	158.0	119.4	152.7	192.0	155.5
			→	North	

SCR Outlet
O2 (%dv)

	1	2	3	4	Average
6	9.1	3.9	6.4	6.9	6.6
5	4.1	3.2	4.0	4.2	3.8
4	3.4	2.9	3.9	3.6	3.4
3	3.7	3.5	3.4	3.2	3.4
2	7.4	3.1	2.8	3.1	4.1
1	2.4	3.6	4.5	7.1	4.4
Average	5.0	3.3	4.1	4.7	4.3
			→	North	

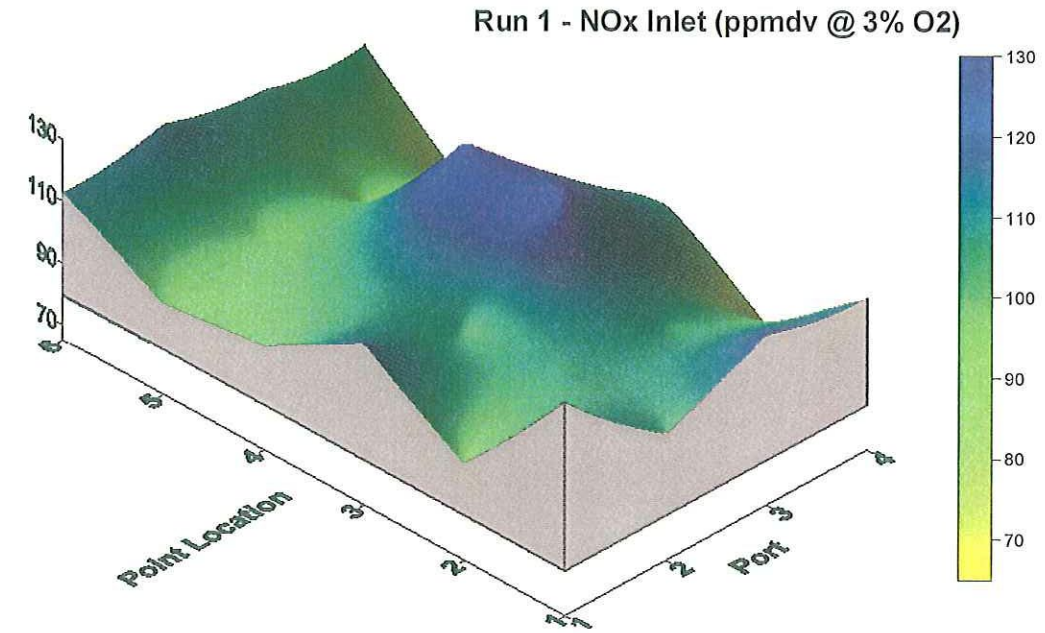
SCR Outlet
NOx Removal Efficiency % (@ 3%O2)

	1	2	3	4	Average
6	-0.5	46.1	95.8	62.3	50.9
5	9.5	88.7	99.0	98.2	73.8
4	9.5	15.3	33.7	82.3	35.2
3	21.0	-9.7	14.5	46.0	17.9
2	-46.5	31.7	3.9	97.3	21.6
1	51.7	87.3	98.9	97.8	84.0
Average	7.4	43.2	57.6	80.7	47.2
			→	North	

SCR Outlet
CO2 (%dv)

	1	2	3	4	Average
6	12.1	13.9	16.4	16.3	14.7
5	15.1	11.8	16.1	18.4	15.3
4	11.6	10.9	15.4	18.5	14.1
3	15.4	16.3	18.4	19.3	17.3
2	12.4	19.5	19.5	20.1	17.8
1	15.8	17.1	15.8	15.4	16.0
Average	13.7	14.9	16.9	18.0	15.9
			→	North	

Figure 2-1:
Unit 4 SCR Inlet & Outlet – Run 1 Nitrogen Oxides



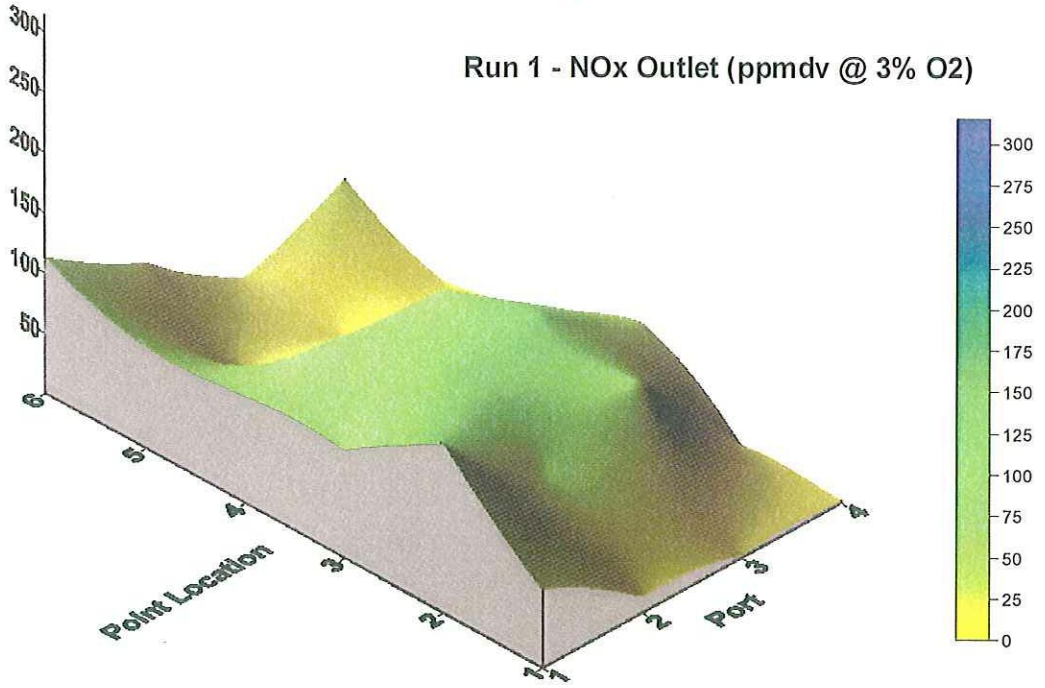
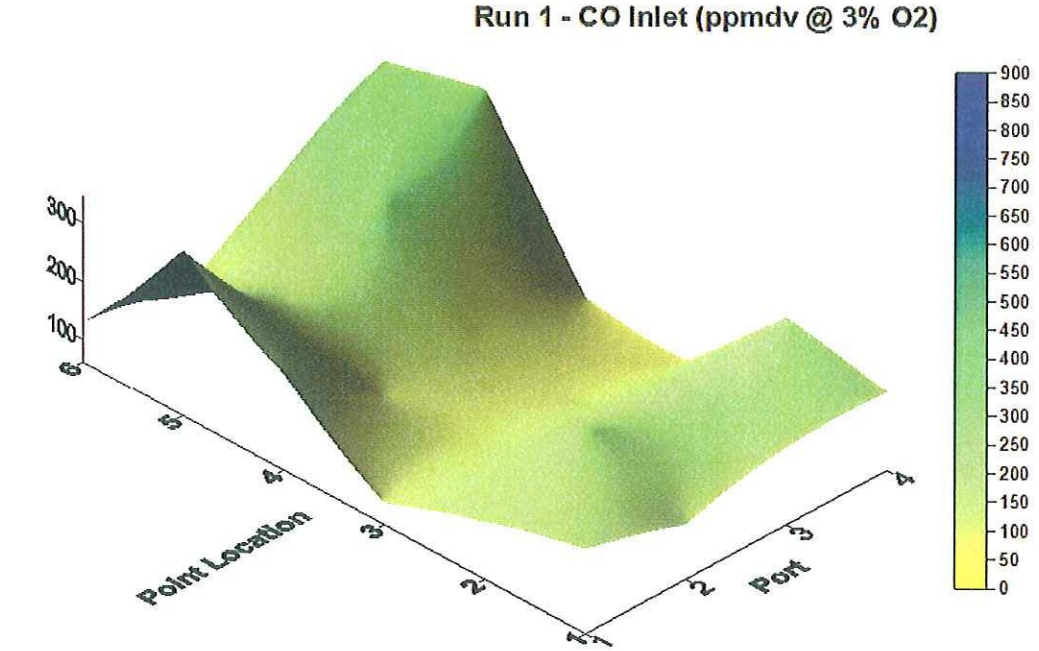
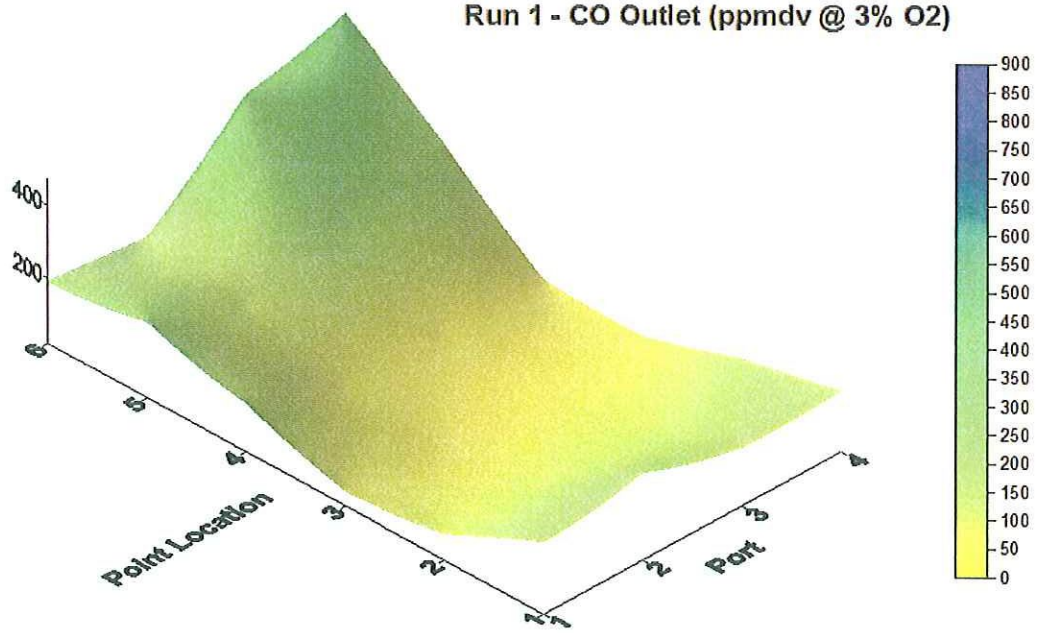


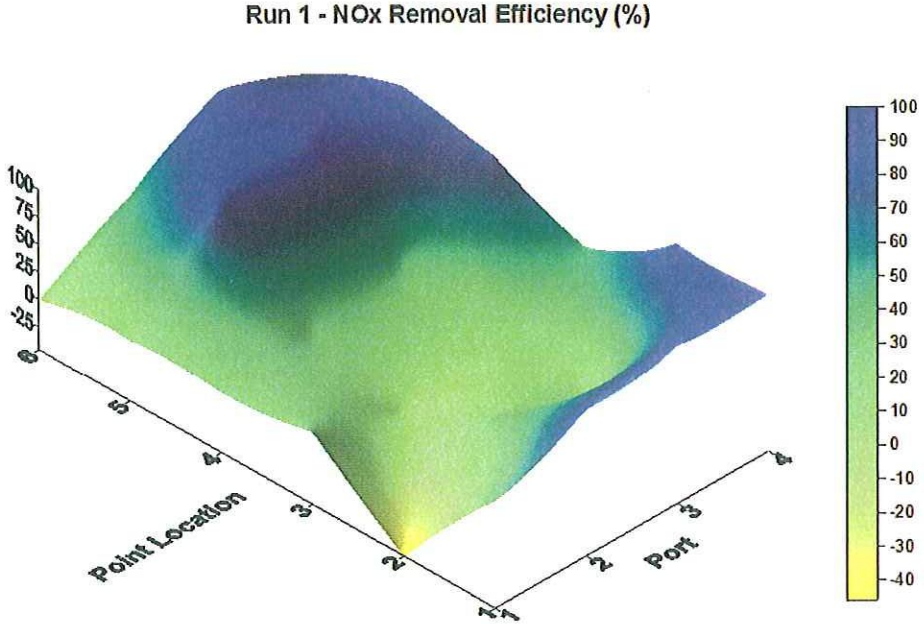
Figure 2-2:
Unit 4 SCR Inlet & Outlet – Run 1 Carbon Monoxide





RESULTS

Figure 2-3:
Unit 4 SCR – Run 1 Nitrogen Oxides Removal Efficiency



RESULTS

Table 2-8:
Unit 4 SCR Inlet – Run 2 MASS Results

SCR Inlet
NOx (ppmdv @ 3% O2)

	1	2	3	4	Average
6	120.7	114.8	96.5	96.6	107.2
5	98.9	72.8	65.9	68.1	76.4
4	98.4	80.7	88.2	87.5	88.7
3	121.2	82.2	111.9	96.9	103.0
2	119.1	98.4	87.2	73.2	94.5
1	107.5	110.1		97.1	104.9
Average	111.0	93.2	89.9	86.6	95.4
			→	North	

SCR Inlet
CO2 (%dv)

	1	2	3	4	Average
6	11.9	12.5	14.0	12.8	12.8
5	13.7	14.9	15.3	15.2	14.8
4	15.1	14.1	13.4	13.8	14.1
3	13.9	15.3	15.5	15.8	15.1
2	15.5	16.8	16.4	16.1	16.2
1	14.4	14.8		14.8	14.6
Average	14.1	14.7	14.9	14.7	14.6
			→	North	

SCR Inlet
O2 (%dv)

	1	2	3	4	Average
6	7.4	7.1	5.4	6.0	6.5
5	5.4	4.4	4.0	3.4	4.3
4	4.1	5.4	5.3	5.1	4.9
3	5.1	4.1	3.4	2.7	3.8
2	3.4	2.7	2.2	2.4	2.6
1	4.5	4.6		3.6	4.2
Average	5.0	4.7	4.0	3.8	4.4
			→	North	

SCR Inlet
CO (ppmdv @ 3% O2)

	1	2	3	4	Average
6	132.6	31.1	20.0	53.0	59.2
5	129.9	136.7	77.4	109.2	113.3
4	100.7	45.5	44.1	45.4	58.9
3	71.7	43.2	28.6	27.5	42.7
2	130.3	206.1	79.5	77.3	123.3
1	309.6	388.3		80.3	259.4
Average	145.8	141.8	49.9	65.4	102.9
			→	North	

RESULTS

Table 2-9:
Unit 4 SCR Outlet – Run 2 MASS Results

SCR Outlet
NOx (ppmdv @ 3% O2)

	1	2	3	4	Average
6	105.9	64.8		12.7	61.1
5	70.3	30.1		3.5	34.6
4	98.7			8.4	53.5
3	79.7			55.7	67.7
2	96.5	71.6		2.5	56.8
1	106.6	56.9			81.7
Average	93.0	55.8		16.6	57.6

→ North

SCR Outlet
CO (ppmdv @ 3% O2)

	1	2	3	4	Average
6	188.9	57.0		123.2	123.0
5	91.1	116.4		87.1	98.2
4	37.1			125.0	81.1
3	161.7			30.3	96.0
2	78.1	138.7		164.7	127.2
1	381.6	619.5			500.6
Average	156.4	175.1	380.6	143.3	160.0

→ North

SCR Outlet
O2 (%dv)

	1	2	3	4	Average
6	8.2	6.5		6.7	7.1
5	4.0	7.1		3.7	4.9
4	3.7			3.1	3.4
3	2.8			3.2	3.0
2	1.6	1.9		2.4	2.0
1	6.8	7.3			7.0
Average	4.5	5.7		3.8	4.6

→ North

SCR Outlet
NOx Removal Efficiency % (@ 3%O2)

	1	2	3	4	Average
6	12.2	43.5		87.2	47.7
5	29.0	58.8		94.8	60.9
4	-0.3			90.3	45.0
3	34.2			42.5	38.4
2	19.0	27.3		96.6	47.6
1	0.7	48.3			24.5
Average	15.8	44.5		82.3	45.6

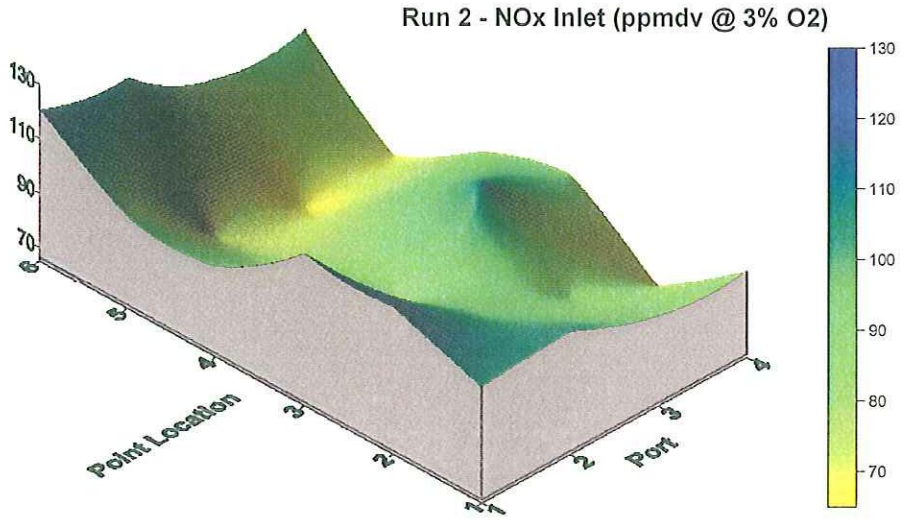
→ North

SCR Outlet
CO2 (%dv)

	1	2	3	4	Average
6	10.8	12.3		12.0	11.7
5	14.5	11.8		14.8	13.7
4	14.9			15.3	15.1
3	15.6			15.3	15.4
2	16.7	16.5		16.0	16.4
1	12.0	11.5			11.7
Average	14.1	13.0		14.6	14.0

→ North

Figure 2-4:
Unit 4 SCR Inlet & Outlet – Run 2 Nitrogen Oxides



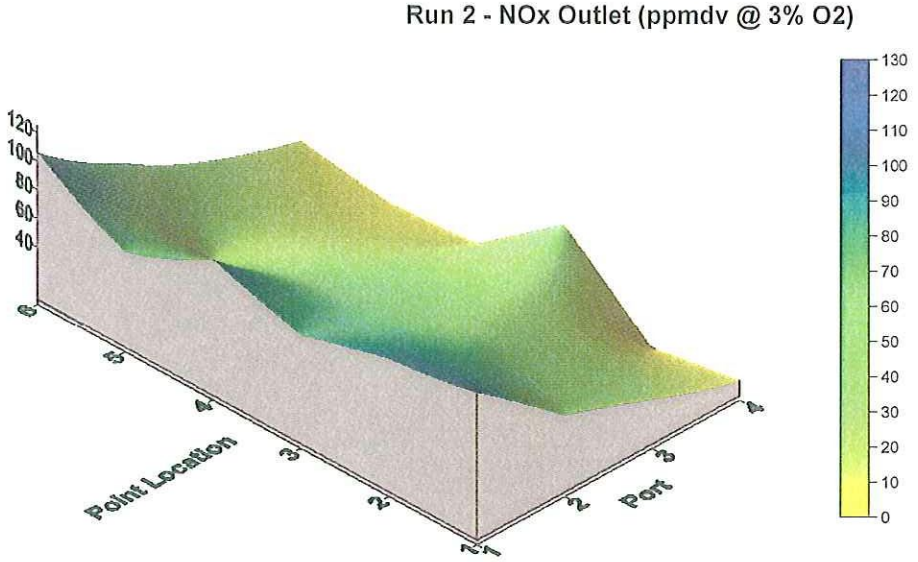
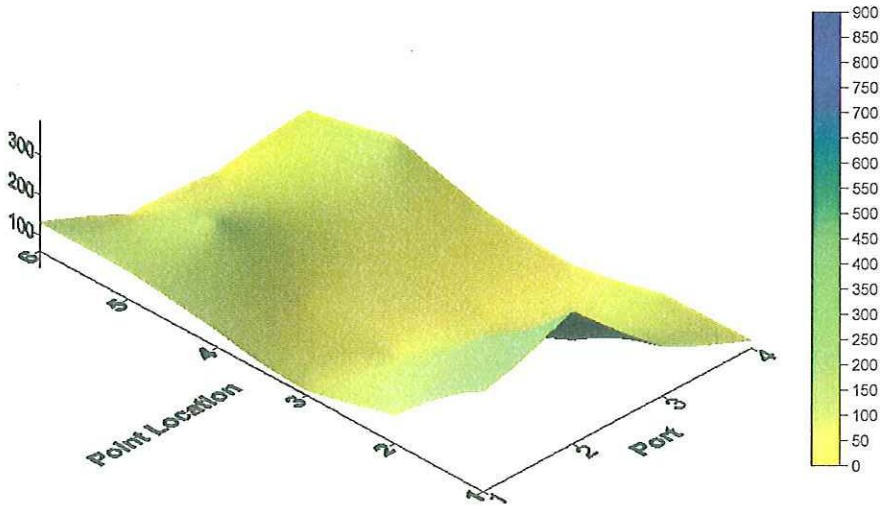


Figure 2-5:
Unit 4 SCR Inlet & Outlet – Run 2 Carbon Monoxide

Run 2 - CO Inlet (ppmdv @ 3% O2)



Run 2 - CO Outlet (ppmdv @ 3% O2)

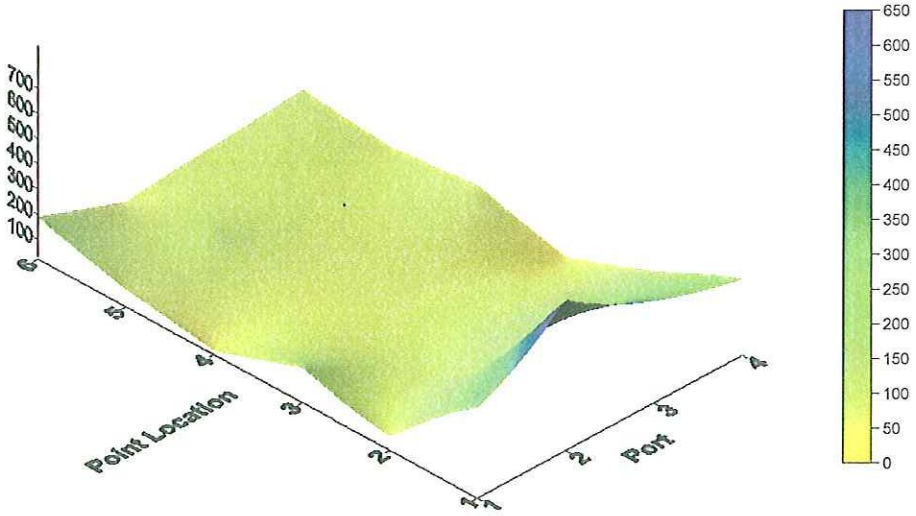
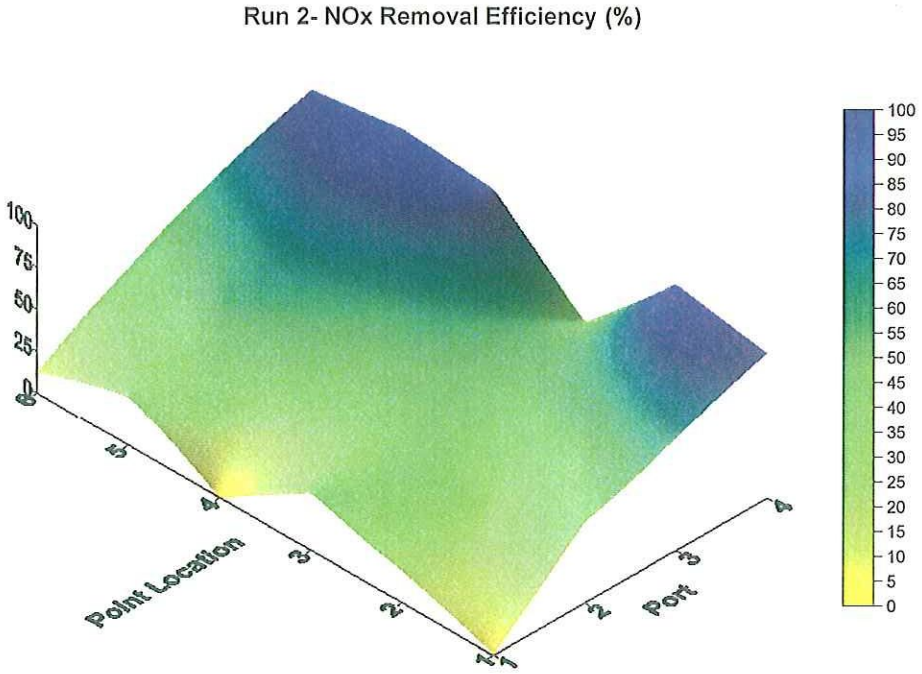


Figure 2-6:
Unit 4 SCR – Run 2 Nitrogen Oxides Removal Efficiency



RESULTS

Table 2-10:
Unit 4 SCR Inlet – Run 3 MASS Results

SCR Inlet
NOx (ppmdv @ 3% O2)

	1	2	3	4	Average
6	111.9	103.8	112.9	100.2	107.2
5	91.0	75.2	77.8	67.2	77.8
4	94.9	86.5	81.0	88.6	87.7
3	122.0	83.3	101.6	99.0	101.5
2	121.4	83.0	86.2	71.1	90.4
1	106.5	83.8	101.3	95.1	96.7
Average	108.0	85.9	93.5	86.9	93.6
			→	North	

SCR Inlet
CO2 (%dv)

	1	2	3	4	Average
6	11.7	12.5	13.6	12.5	12.6
5	13.3	14.6	14.9	15.0	14.4
4	15.0	14.3	13.8	13.4	14.1
3	14.0	15.3	15.5	15.6	15.1
2	15.2	16.1	16.5	15.9	15.9
1	14.4	14.3	14.5	14.9	14.5
Average	13.9	14.5	14.8	14.5	14.4
			→	North	

SCR Inlet
O2 (%dv)

	1	2	3	4	Average
6	7.6	6.9	5.5	6.1	6.5
5	5.7	4.6	4.0	3.6	4.4
4	4.1	5.2	5.3	5.5	5.0
3	5.1	4.1	3.3	2.8	3.8
2	3.4	2.7	2.3	2.4	2.7
1	4.3	4.7	4.2	3.5	4.2
Average	5.0	4.7	4.1	4.0	4.4
			→	North	

SCR Inlet
CO (ppmdv @ 3% O2)

	1	2	3	4	Average
6	87.2	45.7	51.4	36.6	55.2
5	67.2	63.8	30.7	60.4	55.5
4	87.1	40.3	45.5	71.1	61.0
3	60.8	45.4	47.7	27.4	45.3
2	136.4	166.2	77.6	88.7	117.2
1	235.4	353.1	92.0	88.9	192.4
Average	112.3	119.1	57.5	62.2	87.8
			→	North	

RESULTS

Table 2-11:
Unit 4 SCR Outlet – Run 3 MASS Results

SCR Outlet
NOx (ppmdv @ 3% O2)

	1	2	3	4	Average
6		83.3		13.0	48.2
5	87.9	22.8		3.0	37.9
4	115.6	120.9		8.5	81.7
3	89.6	133.3		47.5	90.1
2	101.2	92.5		2.1	65.3
1	106.9				106.9
Average	100.2	90.6		14.8	68.5
		→		North	

SCR Outlet
CO (ppmdv @ 3% O2)

	1	2	3	4	Average
6		101.6		158.6	130.1
5	71.4	102.1		107.9	93.8
4	39.8	30.2		69.4	46.5
3	118.3	29.0		21.6	56.3
2	52.3	113.8		115.3	93.8
1	321.9				321.9
Average	120.8	75.3		94.6	96.9
		→		North	

SCR Outlet
O2 (%dv)

	1	2	3	4	Average
6		7.5		7.0	7.3
5	6.7	8.8		3.6	6.4
4	5.6	8.3		3.0	5.6
3	4.1	6.5		2.7	4.4
2	2.2	6.3		2.7	3.7
1	6.8				6.8
Average	5.1	7.5		3.8	5.4
		→		North	

SCR Outlet
NOx Removal Efficiency % (@ 3%O2)

	1	2	3	4	Average
6		16.8		87.1	51.9
5	2.8	69.3		95.5	55.9
4	-22.4	-39.8		90.4	9.4
3	26.5	-60.1		52.1	6.2
2	16.7	-14.4		97.0	33.1
1	-0.4				-0.4
Average	4.6	-5.6		84.4	27.8
		→		North	

SCR Outlet
CO2 (%dv)

	1	2	3	4	Average
6		11.4		11.8	11.6
5	12.0	10.1		14.9	12.3
4	13.1	10.7		15.5	13.1
3	14.6	12.2		15.8	14.2
2	16.3	12.3		15.8	14.8
1	12.1				12.1
Average	13.6	11.3		14.7	13.2
		→		North	

Figure 2-7:
Unit 4 SCR Inlet & Outlet – Run 3 Nitrogen Oxides

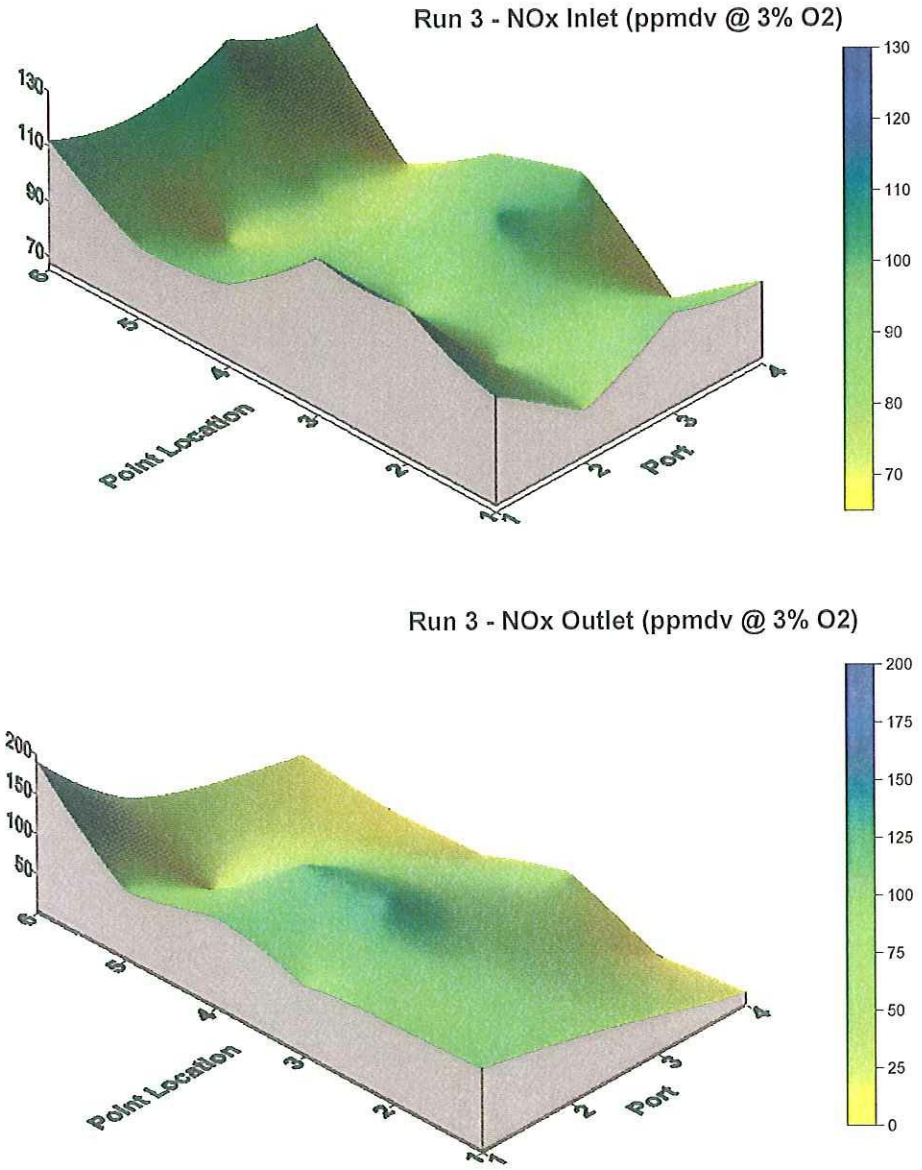
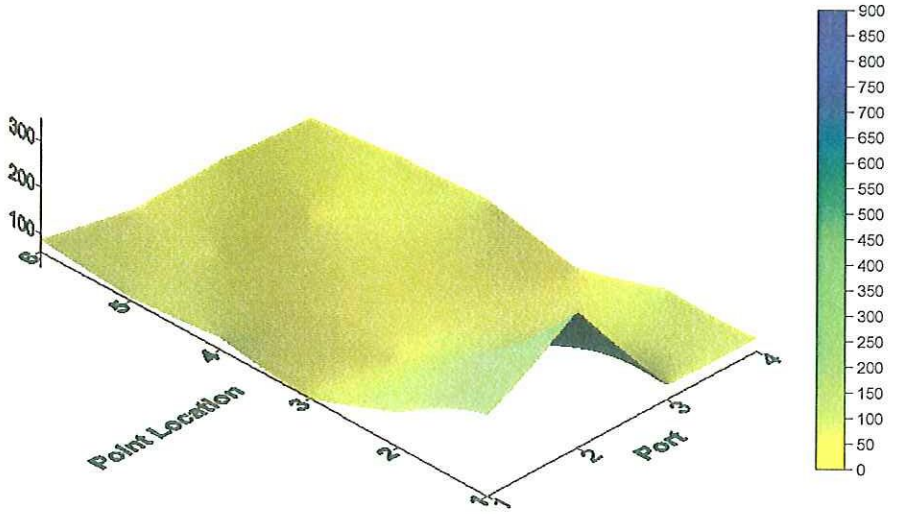


Figure 2-8:
Unit 4 SCR Inlet & Outlet – Run 3 Carbon Monoxide

Run 3 - CO Inlet (ppmdv @ 3% O2)



Run 3 - CO Outlet (ppmdv @ 3% O2)

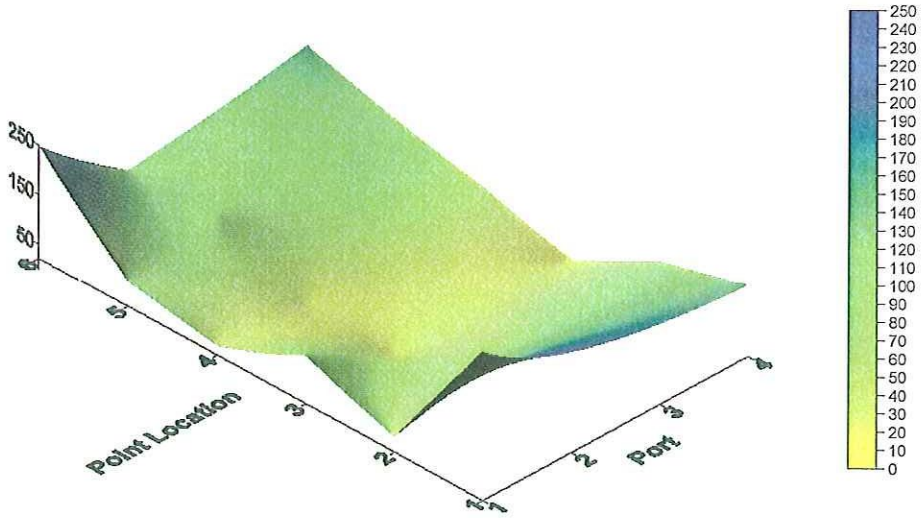
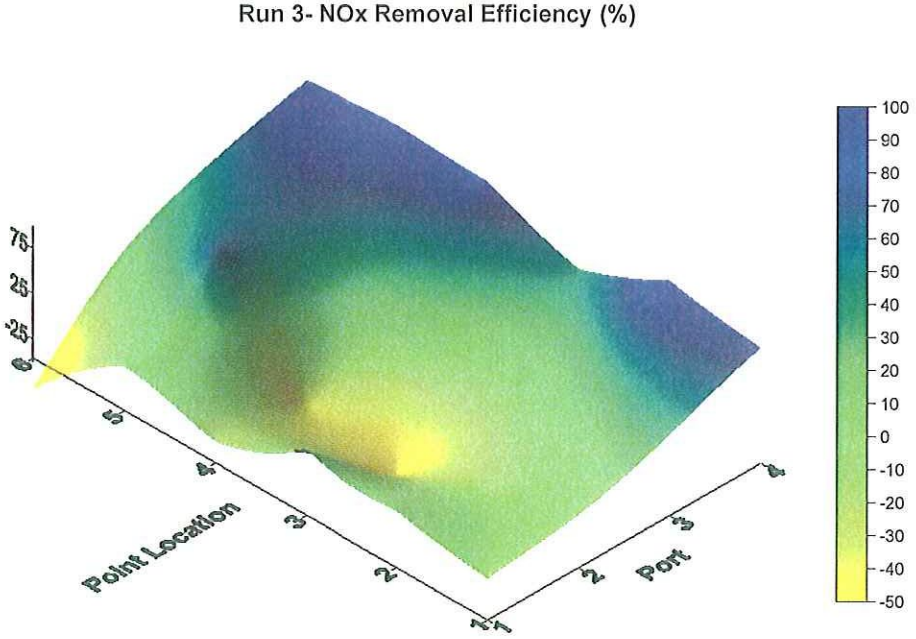


Figure 2-9:
Unit 4 SCR – Run 3 Nitrogen Oxides Removal Efficiency



DESCRIPTION OF INSTALLATION

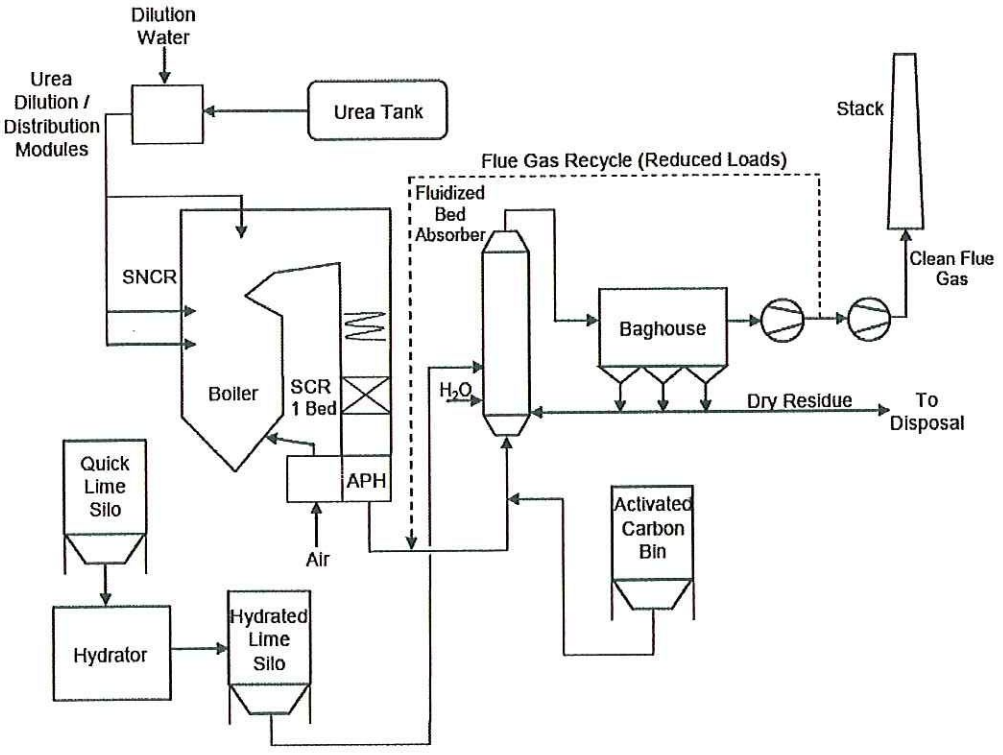
PROCESS DESCRIPTION

AES Greenidge Unit 4 is representative of 492 coal-fired electricity generating units in the United States with capacities of 50-300 MWe. AES Greenidge Unit 4 is a 104-MW coal-fired unit.

The unit has an integrated multi-pollutant control system installed in order to reduce emissions in an economically viable way. This new technology utilizes a hybrid selective non-catalytic reduction / selective catalytic reduction system for NO_x reduction and a circulating fluidized-bed dry scrubber for SO_2 and mercury reduction.

The testing was performed at the Unit 4 SCR Inlet and Outlet and the Unit 4 Air Heater Inlet.

A schematic of the process indicating sampling locations is shown in Figure 3-1.



Source: Quarterly Progress Report, May 19 – June 30, 2006, U.S. DOE Cooperative Agreement No. DE-FC26-06NT41426, D.P Connell, CONSOL Energy, Inc.

Figure 3-1: Process Schematic

DESCRIPTION OF INSTALLATION

DESCRIPTION OF SAMPLING LOCATIONS

Sampling point locations were determined according to EPA Method 1.

Table 3-1 outlines the sampling point configurations. Figures 3-2 through 3-4 illustrate the sampling points and orientation of sampling ports for each of the sources tested in the program.

Table 3-1:
Sampling Points

Location	Constituent	Method	Run No.	Ports	Points per Port[1]	Minutes per Point	Total Minutes	Figure
Unit 4 Air Heater Inlet								
	NH_3	CTM-027	1	2	1	30	60	3-2
	NH_3	CTM-027	2, 3	2	1	20	40	3-2
Unit 4 SCR Inlet and Outlet								
	NO_X, CO, O_2, CO_2	3A, 7E, 10	1-3	4	6	1	24	3-3
	NO_X, CO, O_2, CO_2	3A, 7E, 10	1-3	4	6	1	24	3-4

[1] NH_3 testing was performed at a single point for both the East and West ducts. Due to the length of the sampling probes, testing was conducted slightly closer to the actual ports, rather than the center of the ducts.

DESCRIPTION OF INSTALLATION

DESCRIPTION OF SAMPLING LOCATIONS (CONTINUED)

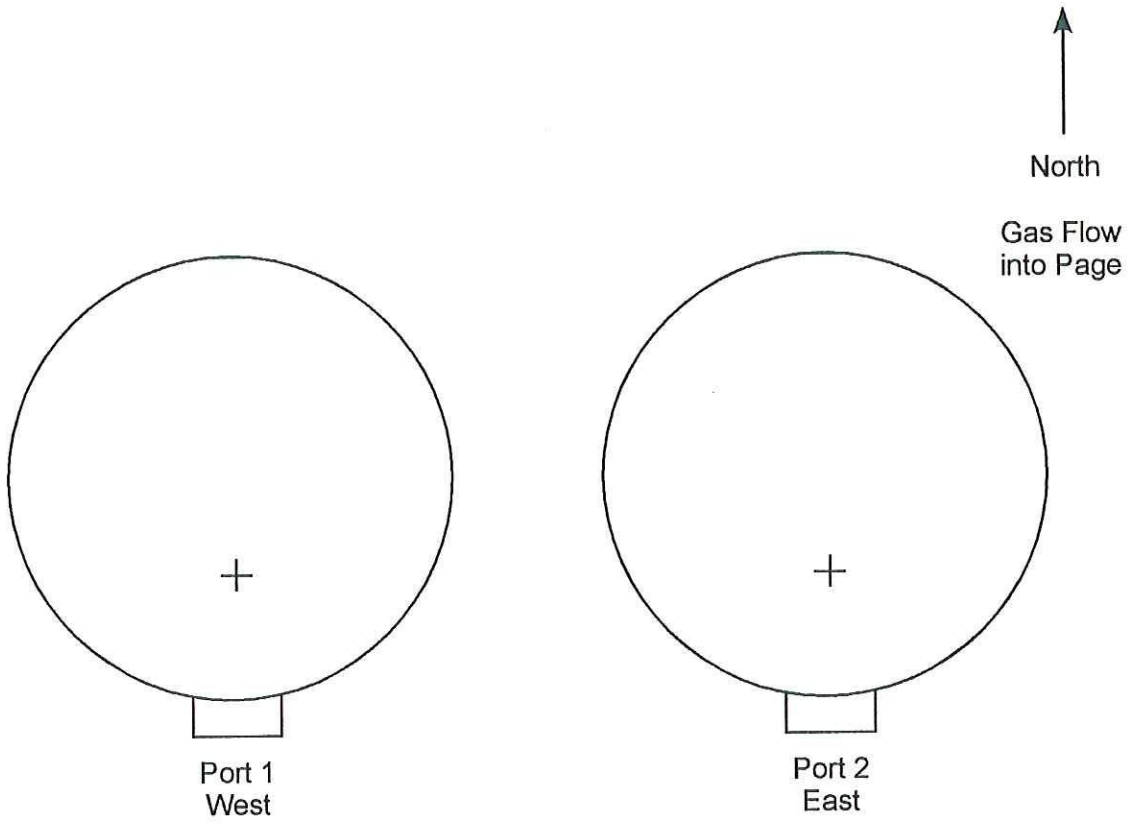
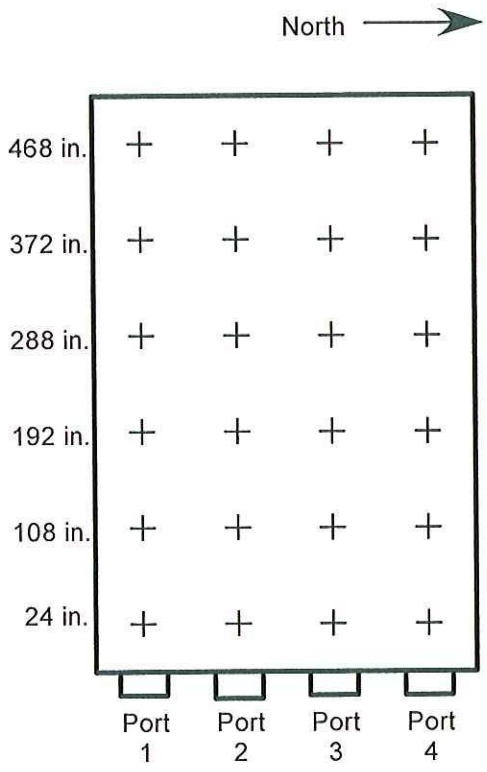


Figure 3-2: Unit 4 Air Heater Inlet Sampling Point Determination (EPA Method 1)

DESCRIPTION OF INSTALLATION

DESCRIPTION OF SAMPLING LOCATIONS (CONTINUED)

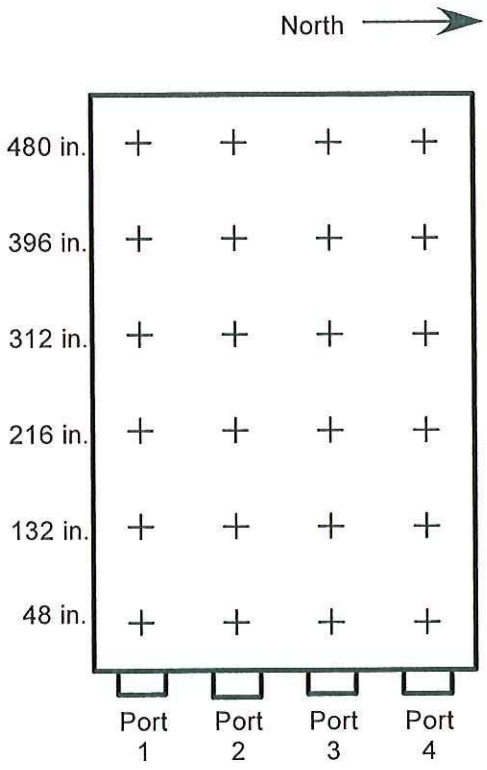


Traverse Point	Port to Point Distance (in.)
1	24
2	108
3	192
4	288
5	372
6	468

Figure 3-3: Unit 4 SCR Inlet – Sampling Point Determination (EPA Method 1)

DESCRIPTION OF INSTALLATION

DESCRIPTION OF SAMPLING LOCATIONS (CONTINUED)



Traverse Point	Port to Point Distance (in.)
1	48
2	132
3	216
4	312
5	396
6	480

Figure 3-4: Unit 4 SCR Outlet – Sampling Point Determination (EPA Method 1)

METHODOLOGY

Clean Air Engineering followed procedures as detailed in USEPA Methods 1, 2, 3A, 4, 7E, 10 and CTM-027, as well as the CleanAir Proprietary MASS® Method. The following table summarizes the methods and their respective sources.

Table 4-1:
Summary of Sampling Procedures

Title 40 CFR Part 60 Appendix A	
Method 1	"Sample and Velocity Traverses for Stationary Sources"
Method 2	"Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)"
Method 3A	"Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)"
Method 7E	"Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)"
Method 10	"Determination of Carbon Monoxide Emissions from Stationary Sources"
Conditional Test Methods (CTM)	
CTM-027	"Procedure for Collection and Analysis of Ammonia in Stationary Sources"
CleanAir Proprietary Methods	
MASS®	"Multipoint Automated Sampling System for Stationary Grid Gas Analysis"

These methods appear in detail in Title 40 of the Code of Federal Regulations (CFR) and on the World Wide Web at http://www.cleanair.com.

Diagrams of the sampling apparatus and major specifications of the sampling, recovery and analytical procedures are summarized for each method in Appendix A.

CleanAir followed specific quality assurance and quality control (QA/QC) procedures as outlined in the individual methods and in USEPA "Quality Assurance Handbook for Air Pollution Measurement Systems: Volume III Stationary Source-Specific Methods", EPA/600/R-94/038C. Additional QA/QC methods as prescribed in CleanAir's internal Quality Manual were also followed. Results of all QA/QC activities performed by CleanAir are summarized in Appendix D.

APPENDIX

TEST METHOD SPECIFICATIONS

A

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Specification Sheet for Conditional Test Method (CTM) 027

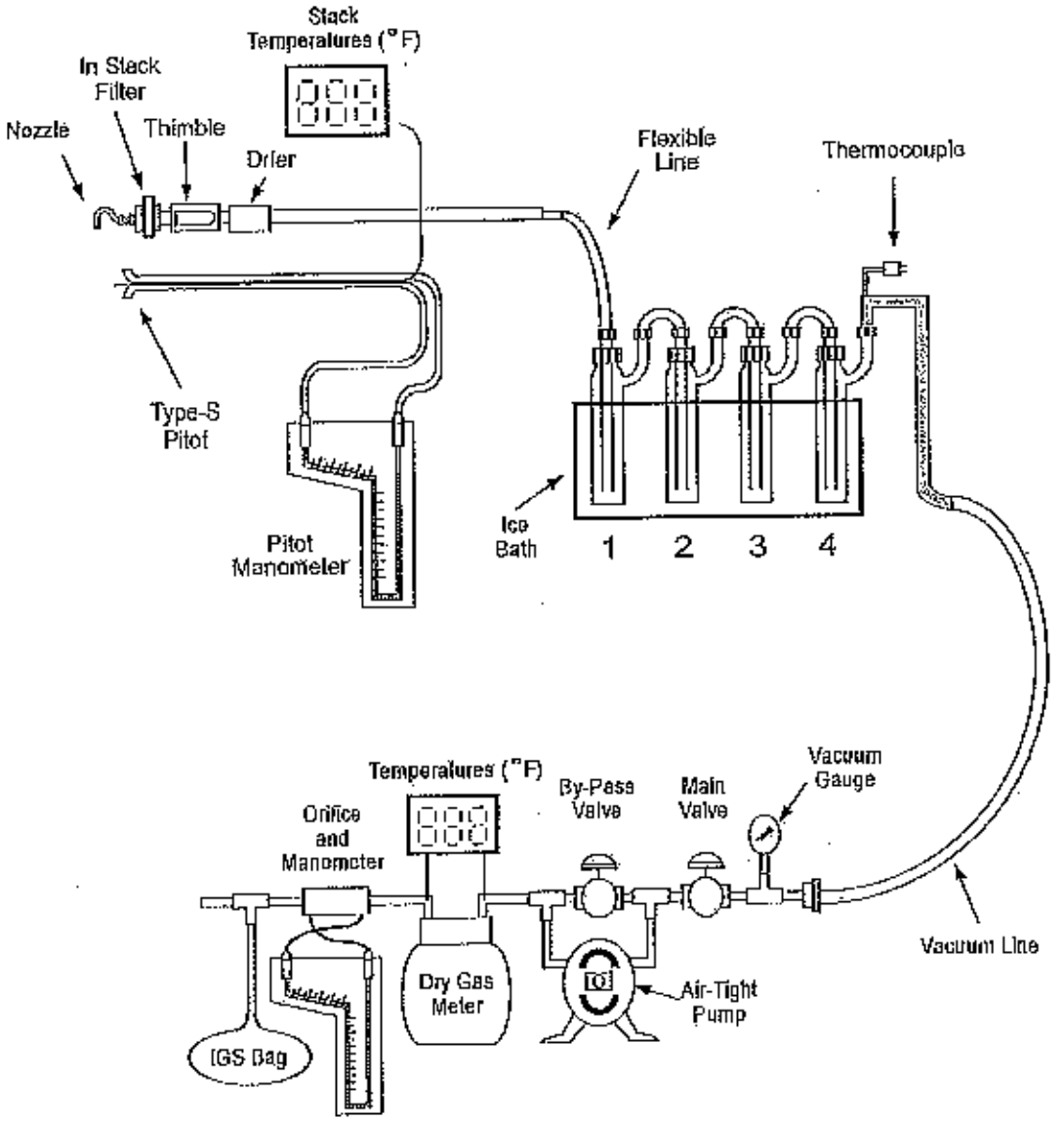
Source Location Name(s)	Unit 4 Air Heater Inlet
Pollutant(s) to be Determined	Ammonia
Other Parameters to be Determined from Train	Gas Density, Moisture

	Standard Method Specification	Actual Specification Used
Pollutant Sampling Information		
Duration of Run	N/A	Run 1 = 60 minutes; Runs 2-3 = 40 minutes
No. of Sample Traverse Points	N/A	1
Sample Time per Point	N/A	5 minutes
Sampling Rate	Isokinetic (90-110%)	N/A
Sampling Probe		
Nozzle Material	Borosilicate or Quartz Glass	None
Nozzle Design	Button-Hook or Elbow	N/A
Probe Liner Material	Borosilicate or Quartz Glass	Borosilicate Glass
Effective Probe Length	N/A	N/A
Probe Temperature Set-Point	Stack Temperature	None
Velocity Measuring Equipment		
Pitot Tube Design	Type S	None
Pitot Tube Coefficient	N/A	N/A
Pitot Tube Calibration by	Geometric or Wind Tunnel	N/A
Pitot Tube Attachment	Attached to Probe	N/A
Metering System Console		
Meter Type	Dry Gas Meter	Dry Gas Meter
Meter Accuracy	±2%	±1%
Meter Resolution	N/A	0.01 cubic feet
Meter Size	N/A	0.1 dcf/revolution
Meter Calibrated Against	Wet Test Meter or Standard DGM	Wet Test Meter
Pump Type	N/A	Rotary Vane
Temperature Measurements	N/A	Type K Thermocouple/Pyrometer
Temperature Resolution	5.4°F	1.0°F
ΔP Differential Pressure Gauge	Inclined Manometer or Equivalent	N/A
ΔH Differential Pressure Gauge	Inclined Manometer or Equivalent	Inclined Manometer
Barometer	Mercury or Aneroid	Digital Barometer calibrated w/Mercury Aneroid
Filter Description		
Filter Location	In Stack	In-Stack
Filter Holder Material	Borosilicate Glass or Teflon	Borosilicate Glass
Filter Support Material	Borosilicate Glass or Teflon	Teflon
Thimble Material	N/A	Glass
Filter Heater Set-Point	N/A	Stack Temp
Filter Material	Glass Fiber	Glass Fiber
Other Components		
Description	N/A	N/A
Location	N/A	N/A
Operating Temperature	N/A	N/A

Specification Sheet for Conditional Test Method (CTM) 027

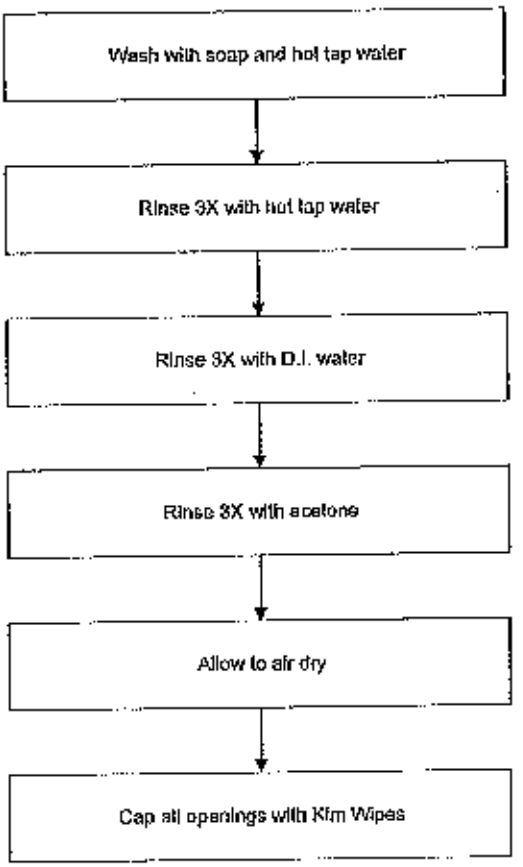
	Standard Method Specification	Actual Specification Used
Impinger Train Description		
Type of Glassware Connections	Leak-Free Glass Connectors	Screw Joint with Silicone Gasket
Connection to Probe or Filter by	Direct or Flexible Tubing	Flexible Teflon Line
Number of Impingers	4	4
Impinger Stem Types		
Impinger 1	Greenburg-Smith	Greenburg-Smith
Impinger 2	Greenburg-Smith	Greenburg-Smith
Impinger 3	Modified Greenburg-Smith	Modified Greenburg-Smith
Impinger 4	Modified Greenburg-Smith	Modified Greenburg-Smith
Impinger 5		
Impinger 6		
Impinger 7		
Impinger 8		
Gas Density Determination		
Sample Collection	Multi-point Integrated	Single Point Grab
Sample Collection Medium	Flexible Gas Bag	Direct Interface
Sample Analysis	Orsat or Fyrite Analyzer	CEM
Sample Recovery Information		
Probe Brush Material	None	None
Probe Rinse Reagent	Deionized Water	Deionized Water
Probe Rinse Wash Bottle Material	Polyethylene	Polyethylene
Probe Rinse Storage Container	Polyethylene	Polyethylene
Filter Recovered?	No	Archived
Filter Storage Container	N/A	Polystyrene
Impinger Contents Recovered?	Yes	Yes
Impinger Rinse Reagent	Deionized Water	Deionized Water
Impinger Wash Bottle	Polyethylene	Polyethylene
Impinger Storage Container	Polyethylene	Polyethylene
Analytical Information		
Method 4 H_2O Determination by	Volumetric or Gravimetric	Gravimetric and Volumetric
Filter Preparation Conditions	N/A	N/A
Front-Half Rinse Preparation	Combined with back-half	See Analytical Flow Chart
Back-Half Analysis	Ion Chromatography Analysis	Ion Chromatography
Additional Analysis	N/A	None

CTM-027
Sampling Train Configuration



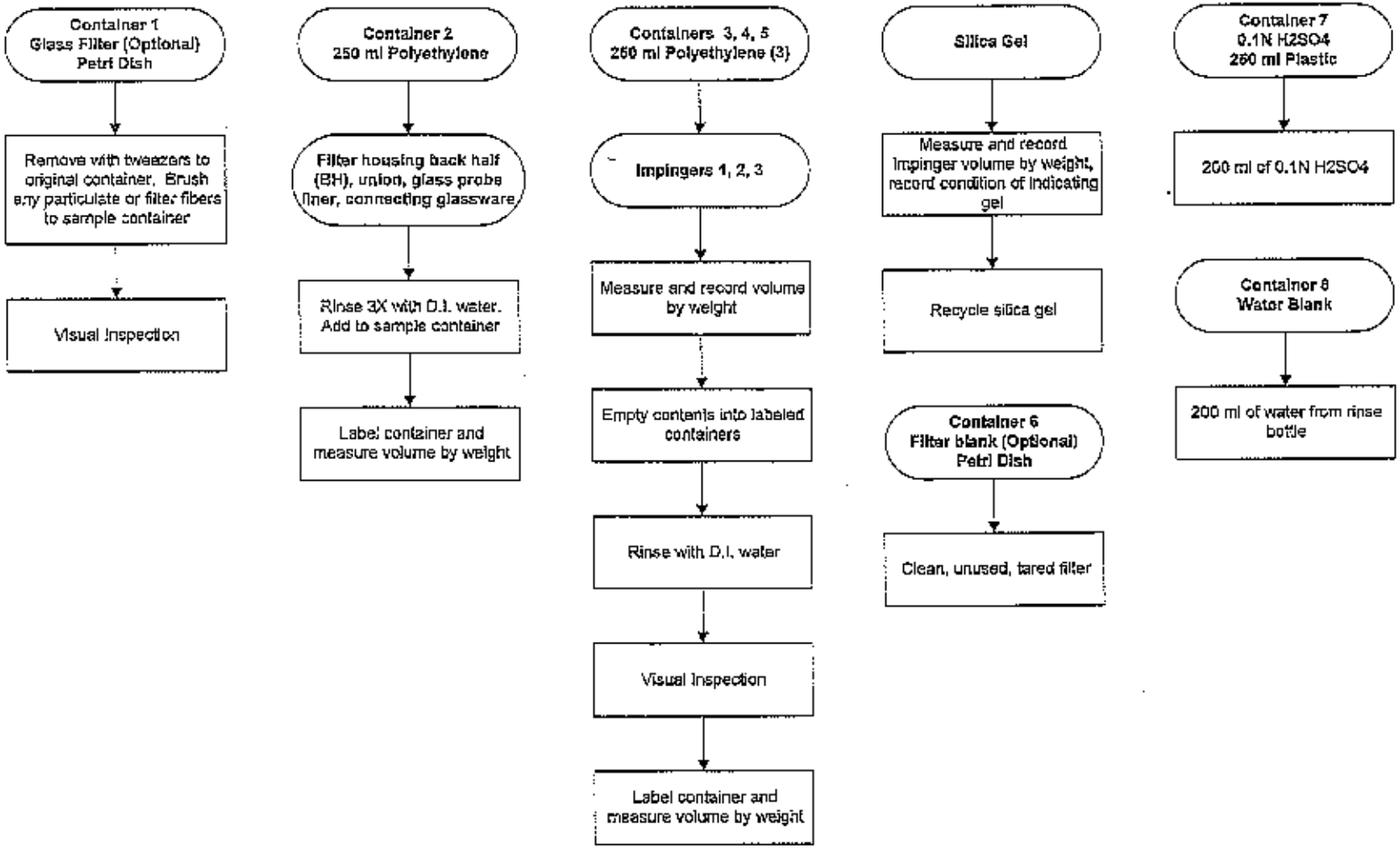
Impinger Contents	
Impinger 1	0.1N H_2SO_4
Impinger 2	0.1N H_2SO_4
Impinger 3	Empty
Impinger 4	Silica Gel

CTM-027
Glassware Preparation Procedures



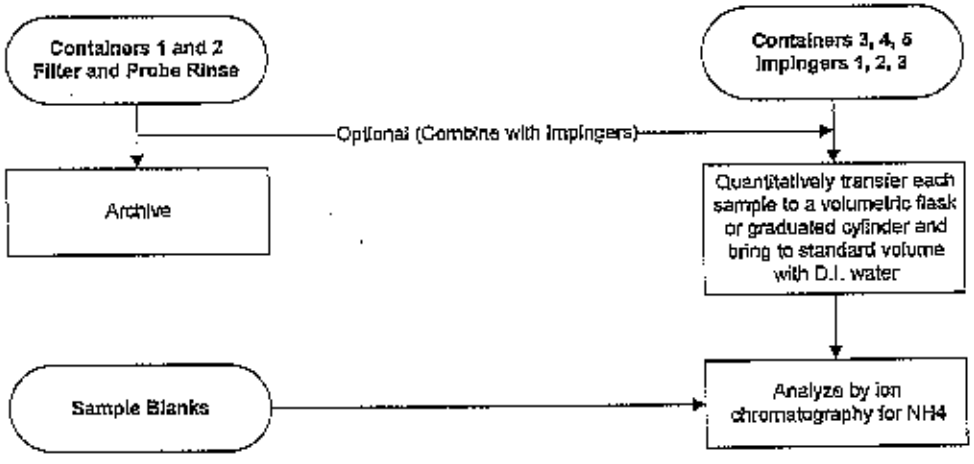
CTM-027
Sample Recovery Flowchart

- Tare all sample containers before sample collection
- Mark all liquid levels and final weights on the outside of each sample container
- Seal all sample containers with Teflon tape
- If recycling, bake silica gel for two hours at 350 degrees F (175 degrees C)
- Store and ship all samples at ice temperature.



CTM-027
Analytical Flowchart

- Log each sample in shipment and verify against chain-of-custody sheet
- Note liquid levels in the sample containers and confirm on the chain-of-custody sheet condition



Specification Sheet for EPA Methods 3A, 7E and 10 with MASS

Source Location Name(s)	SCR Inlet & Outlet Test Grid
Pollutant(s) to be Determined	Determination of Nitrogen Oxides (NO_x) and Carbon Monoxide (CO) Emissions
Other Parameters to be Determined from Train	O2 and CO2 (EPA Method 3A)

	Standard Method Specification	Actual Specification Used
Pollutant Sampling Information		
Duration of Run	N/A	24 minutes
No. of Sample Traverse Points	N/A	24
Sample Time per Point	N/A	1 minute
Sampling Rate	Constant Rate	Constant Rate
Sampling Probe		
Nozzle Material	N/A	None
Nozzle Design	N/A	N/A
Probe Liner Material	Stainless Steel or Pyrex Glass	Test Grid
Effective Probe Length	Sufficient to Traverse Points	Test Grid Probes
Probe Temperature Set-Point	Prevent Condensation	Stack Temp
Particulate Filter		
In-Stack Filter	Yes	No
In-Stack Filter Material	Non-reactive to gas	N/A
External Filter	Yes	Yes
External Filter Material	Borosilicate, Quartz Glass Wool or Fiber Mat	Borosilicate Glass Fiber Mat
External Filter Set-Point	Prevent Condensation	Ambient
Sample Delivery System		
Heated Sample Line Material	Stainless Steel or Teflon	Teflon
Heated Sample Line Set-Point	Prevent Condensation	Ambient
Heated Sample Line Connections	Probe Exit to Moisture Removal System	N/A
Moisture Removal System	Refrigerator-type condenser or similar	Coil - Condenser Type
Sample Pump Type	Leak-Free, minimal response time	Piston
Sample Pump Material	Non-reactive to sample gases	Teflon
Sample Flow Control	Constant Rate	Constant Rate (±10%)
Non-Heated Sample Line Material	Stainless Steel or Teflon	Teflon
Non-Heated Sample Line Connections	Moisture Removal to Sample Gas Manifold	Probe to Sample Gas Manifold
Additional Filters	Optional	Yes
Additional Filter Type	N/A	Particulate Removal
Additional Filter Location	Optional	Entrance to Sample Manifold
Filter Material	Non-reactive to sample gases	Glass Fiber
Analyzer Description		
Oxygen (O_2)	EPA Method 3A (Paramagnetic)	EPA Method 3A (Paramagnetic)
Carbon Dioxide (CO_2)	EPA Method 3A (Paramagnetic)	EPA Method 3A (Paramagnetic)
Sulfur Dioxide (SO_2)	N/A	N/A
Nitrogen Oxides (NO_x)	EPA Method 7E (Chemiluminescent)	EPA Method 7E (Chemiluminescent)
Carbon Monoxide (CO)	EPA Method 10 (Gas Filter Correlation IR)	EPA Method 10 (Gas Filter Correlation IR)
Total Hydrocarbon (THC)	N/A	N/A
Hydrogen Chloride (HCl)	N/A	N/A
Ammonia (NH_3)	N/A	N/A

Specification Sheet for EPA Methods 3A, 7E and 10 with MASS

	Standard Method Specification	Actual Specification Used
Instrument Span Range		
Oxygen (O_2)	≤ 1.33 x Expected Maximum	0-15%
Carbon Dioxide (CO_2)	≤ 1.33 x Expected Maximum	0-15%
Sulfur Dioxide (SO_2)		N/A
Nitrogen Oxides (NO_x)	≤ 1.33 x Expected Maximum	0-200 ppm
Carbon Monoxide (CO)	≤ 1.33 x Expected Maximum	0-1,000 ppm
Total Hydrocarbon (THC)	N/A	N/A
Hydrogen Chloride (HCl)	N/A	N/A
Ammonia (NH_3)	N/A	N/A
Data Acquisition		
Data Recorder	Strip chart, Analog Computer or Digital Recorder	Analog Computer
Recorder Resolution	0.5 Percent of Span	0.1 Percent of Span
Data Storage	Manually or Automatic	Manually
Measurement Freq. <60 min. Sample Time	1-min. intervals or 30 measurements (less restrictive)	One reading per second
Recording Freq. <60 min. Sample Time	1-min. intervals or 30 measurements (less restrictive)	One Minute Average (60, 1 second readings)
Measurement Freq. >60 min. Sample Time	2-min. intervals or 96 measurements (less restrictive)	N/A
Recording Freq. >60 min. Sample Time	2-min. intervals or 96 measurements (less restrictive)	N/A
Calibration Gas Specifications		
Oxygen (O_2)	EPA Protocol 1	EPA Protocol 1
Carbon Dioxide (CO_2)	N/A	EPA Protocol 1
Sulfur Dioxide (SO_2)	N/A	
Nitrogen Oxides (NO_x)	EPA Protocol 1	EPA Protocol 1
Carbon Monoxide (CO)	N/A	EPA Protocol 1
Total Hydrocarbon (THC)	N/A	
Hydrogen Chloride (HCl)	N/A	
Ammonia (NH_3)	N/A	

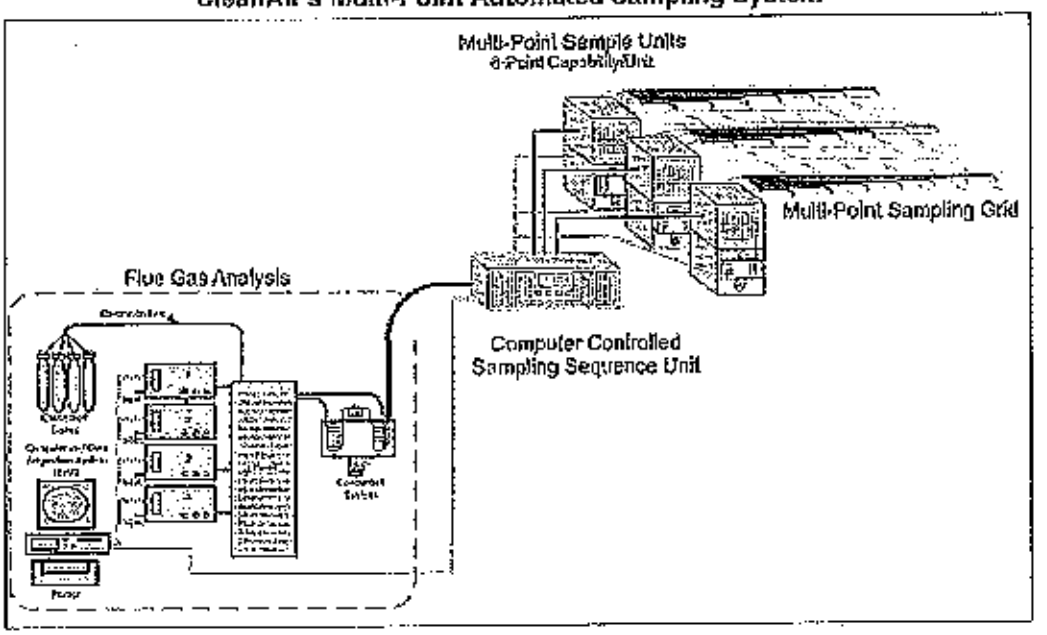
Multi-Point Automated Sampling System®

The NO_x, CO, O_2 and CO_2 distributions at the SCR Inlet and Outlet were measured simultaneously using an extractive continuous emission monitoring (CEM) package contained in a mobile emission laboratory. The system is comprised of three basic subsystems, including; 1) a flue gas sample acquisition and conditioning system, 2) a calibration gas system, and 3) the electronic gas analyzers.

In order to assess local NO_x and CO reductions, CleanAir has developed a proprietary flue gas profiling system called the **Multi-Point Automated Sampling System (MASS®)**. The MASS® system allows duct emission profiles to be characterized in a matter of minutes, as opposed much longer sampling times for traditional duct emission traverses using "manual" traversing techniques.

Clean Air Engineering's MASS® system uses a series of automated 8-point sample modules with integrated programmable logic controllers (PLC's) to sequentially and rapidly cycle through a multi-point sample grid. A diagram of the sampling system is provided in Figure 1.

Figure 1:
CleanAir's Multi-Point Automated Sampling System®



Based on a 24 point grid system (inlet and outlet) for the reactor module, three (3) cycles were performed to obtain a test duration of 24 minutes. A total of three test runs were performed concurrently at both the SCR Inlet and Outlet test grid locations.

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SAMPLE CALCULATIONS

B

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CONSOL Energy - AES Greenidge
Clean Air Project No: 10247
Unit 4 Air Heater Inlet

CTM-027 (Ammonia)
Sampling, Velocity and Moisture Sample Calculations

Sample data taken from Run 1

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results, and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

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D

1. Volume of water collected (wscf)

$$V_{wstd} = (0.04707)(V_{lc})$$

Where:

V_{lc}	= total volume of liquid collected in impingers and silica gel (ml)	=	70.4	ml
0.04707	= ideal gas conversion factor (ft^3 water vapor/ml or gm)	=	0.04707	ft^3/ml
V_{wstd}	= volume of water vapor collected at standard conditions (ft^3)	=	3.31	ft^3

2. Volume of gas metered, standard conditions (dscf)

$$V_{mstd} = \frac{(17.64)(V_m)(Y_d)\left(P_{bar} + \frac{\Delta H}{13.6}\right)}{(460 + T_m)}$$

Where:

P_{bar}	= barometric pressure (in. Hg)	=	29.44	in. Hg
T_m	= average dry gas meter temperature (°F)	=	102.46	°F
V_m	= volume of gas sample through the dry gas meter at meter conditions (dcf)	=	39.48	dcf
Y_d	= gas meter correction factor (dimensionless)	=	1.0071	
ΔH	= average pressure drop across meter box orifice (in. H_2O)	=	1.50	in. H_2O
17.64	= standard temperature to pressure ratio (°R/in. Hg)	=	17.64	°R/in. Hg
13.6	= conversion factor (in. H_2O/in. Hg)	=	13.6	in.H_2O/in. Hg
460	= °F to °R conversion constant	=	460	
V_{mstd}	= volume of gas sampled through the dry gas meter at standard conditions (dscf)	=	36.848	dscf

Prepared by Clean Air Engineering Proprietary Software
RS ISOKINETIC Version 2006.13a

QA/QC JWJ
Date 9/19/07

3. Moisture measured in sample (% by volume)

$$B_{wo} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})}$$

Where:

V_{mstd}	= volume of gas sampled through the dry gas meter at standard conditions (dscf)	=	36.848	dscf
V_{wstd}	= volume of water collected at standard conditions (scf)	=	3.31	scf
B_{wo}	= proportion of water measured in the gas stream by volume	=	0.0825	
		=	8.25	%

4. Nitrogen (plus carbon monoxide) in gas stream (% by volume, dry)

$$N_2 + CO = 100 - CO_2 - O_2$$

Where:

CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	16.5	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	4.4	%
100	= conversion factor (%)	=	100	%
N_2+CO	= proportion of nitrogen and CO in the gas stream by volume (%)	=	79.10	%

5. Molecular weight of dry gas stream (lb/lb-mole)

$$M_d = (M_{CO_2})\frac{(CO_2)}{(100)} + (M_{O_2})\frac{(O_2)}{(100)} + (M_{N_2+CO})\frac{(N_2+CO)}{(100)}$$

Where:

M_{CO2}	= molecular weight of carbon dioxide (lb/lb-mole)	=	44.00	lb/lb-mole
M_{O2}	= molecular weight of oxygen (lb/lb-mole)	=	32.00	lb/lb-mole
M_{N2+CO}	= molecular weight of nitrogen and carbon monoxide (lb/lb-mole)	=	28.00	lb/lb-mole
CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	16.5	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	4.4	%
N_2+CO	= proportion of nitrogen and CO in the gas stream by volume (%)	=	79.1	%
100	= conversion factor (%)	=	100	%
M_d	= dry molecular weight of sample gas (lb/lb-mole)	=	30.82	lb/lb-mole

QA/QC
Date

CTM-027
NH_3 Analyte Calculations - Front Half Rinse (Fraction 1)

Sample data taken from Run 1

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results, and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

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49

1. Ammonium to NH_3 conversion factor

$$K_{NH_3} = \frac{MW_{NH_3}}{n \times MW_{NH_4^+}}$$

Where:

MW_{NH3}	= molecular weight of NH_3 (mg/mg-mole)	=	17.030	mg/mg-mole
MW_{NH4+}	= molecular weight of ammonium ion (mg/mg-mole)	=	18.040	mg/mg-mole
n	= molar ratio of ammonium to NH_3	=	1.0	mole NH_4/mole NH_3
K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	

2. Total NH_3 collected (mg)

$$m_{NH_3} = K_{NH_3} \times \frac{(S_{NH_4} v_1 + S_{NH_4} v_2)}{1000}$$

Where:

K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	
S_{NH4-1}	= ammonium concentration of sample fraction 1 (mg/liter)	=	4.4900	mg/liter
v_1	= liquid volume of sample fraction 1 (ml)	=	208.0	ml
S_{NH4-2}	= ammonium concentration of sample fraction 2 (mg/liter)	=	0.0000	mg/liter
v_2	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
m_{NH3}	= total NH_3 collected in sample (mg)	=	0.8816	mg

Note: Non-detects are treated as zero in summations.

DEFINITION
Fraction 1 = entire sample except last impinger containing applicable absorbing reagent.
Fraction 2 = last impinger containing applicable absorbing reagent, analyzed separately to evaluate collection efficiency.
If entire sample is analyzed as a single fraction, then data is included as Fraction 1 (Fraction 2 = 0).

3. Allowable blank subtraction (mg)

$$m_b = K_{NH_3} \times B_{NH_4} \times \frac{(v_1 + v_2)}{1000}$$

$$m_b = 0 \quad \text{if } B_{NH_4} < MDL$$

Where:

K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	
B_{NH4}	= ammonium concentration of blank (mg/liter)	=	<0.0530	mg/liter
v_1	= liquid volume of sample fraction 1 (ml)	=	208.0	ml
v_2	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
m_b	= allowable blank subtraction (mg)	=	0.0000	mg

QA/QC JLW
Date 9/18

4. Total NH3 collected, corrected for blank (mg)

$$m_{nb} = m_{NH_3} - m_b$$

Where:

m_{NH3}	= total NH_3 collected in sample (mg)	=	0.8816	mg
m_b	= allowable blank subtraction (mg)	=	0.0000	mg
m_{nb}	= total NH_3 collected, corrected for blank (mg)	=	0.8816	mg

5. Minimum detectable NH3 (mg)

$$m_{MDL} = K_{NH_3} \times MDL \times \frac{(v_1 + v_2)}{1000}$$

Where:

K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	
MDL	= minimum detectable ammonium concentration	=	0.053	mg/liter
v_1	= liquid volume of sample fraction 1 (ml)	=	208.0	ml
v_2	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
m_{MDL}	= minimum detectable NH_3 (mg)	=	0.0104	mg

6. Total NH3 value used in emission calculations (mg)

$$m_n = MAXIMUM\ [m_{nb}\ \ or\ \ < m_{MDL}]$$

Where:

m_{nb}	= total NH_3 collected, corrected for blank (mg)	=	0.8816	mg
m_{MDL}	= minimum detectable NH_3 (mg)	=	0.0104	mg
m_n	= total NH_3 value used in emission calculations (mg)	=	0.8816	mg

QA/QC JW
Date 9/18

CTM-027
NH_3 Sample Calculations - Front Half Rinse (Fraction 1)

Sample data taken from Run 1

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results, and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

021807 131635
D_R

1. NH_3 concentration (lb/dscf)

$$C_{sd} = \left(\frac{m_n}{V_{mstd}}\right)\left(\frac{2.205 \times 10^{-3}}{1000}\right)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	0.8816	mg
V_{mstd}	= volume metered, standard (dscf)	=	38.8485	dscf
2.205×10^{-3}	= conversion factor (lb/g)	=	2.205E-03	lb/g
1000	= conversion factor (mg/g)	=	1,000	mg/g
C_{sd}	= NH_3 concentration (lb/dscf)	=	5.2756E-08	lb/dscf

2. NH_3 concentration (ppmdv)

$$C_{sd} = \left(\frac{m_n}{V_{mstd}}\right)\left(\frac{0.850}{1000}\right)\left(\frac{10^6}{MW}\right)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	0.8816	mg
V_{mstd}	= volume metered, standard (dscf)	=	38.8485	dscf
MW	= molecular weight of NH_3 (g/g-mole)	=	17.030	g/g-mole
0.850	= conversion factor (dscf/g-mole)	=	0.850	dscf/g-mole
1000	= conversion factor (mg/g)	=	1,000	mg/g
10^6	= conversion factor (ppm)	=	10^6	ppm
C_{sd}	= NH_3 concentration (ppmdv)	=	1.1942	ppmdv

3. NH_3 concentration (ppmwv)

$$C_w = C_{sd}\left(1 - \frac{B_w}{100}\right)$$

Where:

C_{sd}	= NH_3 concentration (ppmdv)	=	1.1942	ppmdv
B_w	= actual water vapor in gas (% v/v)	=	8.2509	% v/v
100	= conversion factor (%)	=	100	%
C_w	= NH_3 concentration (ppmwv)	=	1.0956	ppmwv

QA/QC JW
Date 9/18

4. NH_3 concentration (mg/dscm)

$$C_{sd} = \left(\frac{m_n}{V_{mstd}}\right)(35.31)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	0.8816	mg
V_{msld}	= volume metered, standard (dscf)	=	36.8485	dscf
35.31	= conversion factor (dscf/dscm)	=	35.31	dscf/dscm
C_{sd}	= NH_3 concentration (mg/dscm)	=	0.8448	mg/dscm

5. NH_3 concentration (mg/Nm^3 dry)

$$C_{sd} = \left(\frac{m_n}{V_{msld}}\right)(35.31)\left(\frac{68 + 460}{32 + 460}\right)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	0.8816	mg
V_{msld}	= volume metered, standard (dscf)	=	36.8485	dscf
35.31	= conversion factor (dscf/dscm)	=	35.31	dscf/dscm
68	= standard temperature (°F)	=	68	°F
32	= normal temperature (°F)	=	32	°F
460	= °F to °R conversion constant	=	460	
C_{sd}	= NH_3 concentration (mg/Nm^3 dry)	=	0.9066	mg/Nm^3 dry

6. NH_3 concentration corrected to x% O_2 (ppmdv example)

$$C_{sdx} = C_{sd}\left(\frac{20.9 - x}{20.9 - O_2}\right)$$

Where:

C_{sd}	= NH_3 concentration (ppmdv)	=	1.1942	ppmdv
x	= oxygen content of corrected gas (%)	=	3.0	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	4.4	%
20.9	= oxygen content of ambient air (%)	=	20.9	%
C_{sdx}	= NH_3 concentration corrected to x%O_2 (ppmdv)	=	1.2955	ppmdv @ x%O_2

7. NH_3 concentration corrected to y% CO_2 (ppmdv example)

$$C_{sdy} = C_{sd}\left(\frac{y}{CO_2}\right)$$

Where:

C_{sd}	= NH_3 concentration (ppmdv)	=	1.1942	ppmdv
y	= carbon dioxide content of corrected gas (%)	=	12.0	%
CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	16.5	%
C_{sdy}	= NH_3 concentration corrected to y%CO_2 (ppmdv)	=	0.8685	ppmdv @ y%CO_2

QA/QC _____
Date 9/11/10

CTM-027
NH_3 Analyte Calculations - Impinger 1 (Fraction 2)

Sample data taken from Run 1

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate those results using a calculator. The reference method data, results, and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

051807 103709
N

1. Ammonium to NH_3 conversion factor

$$K_{NH_3} = \frac{MW_{NH_3}}{n \times MW_{NH_4^+}}$$

Where:

MW_{NH3}	= molecular weight of NH_3 (mg/mg-mole)	=	17.030	mg/mg-mole
MW_{NH4+}	= molecular weight of ammonium ion (mg/mg-mole)	=	18.040	mg/mg-mole
n	= molar ratio of ammonium to NH_3	=	1.0	mole NH_4/mole NH_3
K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	

2. Total NH_3 collected (mg)

$$m_{NH_3} = K_{NH_3} \times \frac{\left(S_{NH_4} v_1 + S_{NH_4} v_2\right)}{1000}$$

Where:

K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	
S_{NH4-1}	= ammonium concentration of sample fraction 1 (mg/liter)	=	0.3600	mg/liter
v_1	= liquid volume of sample fraction 1 (ml)	=	195.0	ml
S_{NH4-2}	= ammonium concentration of sample fraction 2 (mg/liter)	=	0.0000	mg/liter
v_2	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
m_{NH3}	= total NH_3 collected in sample (mg)	=	0.0663	mg

Note: Non-detects are treated as zero in summations.

DEFINITION
Fraction 1 = entire sample except last impinger containing applicable absorbing reagent.
Fraction 2 = last impinger containing applicable absorbing reagent, analyzed separately to evaluate collection efficiency.
If entire sample is analyzed as a single fraction, then data is included as Fraction 1 (Fraction 2 = 0).

3. Allowable blank subtraction (mg)

$$m_b = K_{NH_3} \times B_{NH_4} \times \frac{\left(v_1 + v_2\right)}{1000}$$

$$m_b = 0 \quad \text{if } B_{NH_4} < MDL$$

Where:

K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	
B_{NH4}	= ammonium concentration of blank (mg/liter)	=	<0.0530	mg/liter
v_1	= liquid volume of sample fraction 1 (ml)	=	195.0	ml
v_2	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
m_b	= allowable blank subtraction (mg)	=	0.0000	mg

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4. Total NH3 collected, corrected for blank (mg)

$$m_{nb} = m_{NH_3} - m_b$$

Where:

m_{NH3}	= total NH_3 collected in sample (mg)	=	0.0663	mg
m_b	= allowable blank subtraction (mg)	=	0.0000	mg
m_{nb}	= total NH_3 collected, corrected for blank (mg)	=	0.0663	mg

6. Minimum detectable NH3 (mg)

$$m_{MDL} = K_{NH_3} \times MDL \times \frac{(v_1 + v_2)}{1000}$$

Where:

K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	
MDL	= minimum detectable ammonium concentration	=	0.053	mg/liter
v_1	= liquid volume of sample fraction 1 (ml)	=	195.0	ml
v_2	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
m_{MDL}	= minimum detectable NH_3 (mg)	=	0.0098	mg

6. Total NH3 value used in emission calculations (mg)

$$m_n = MAXIMUM \left[m_{nb} \quad or \quad < m_{MDL} \right]$$

Where:

m_{nb}	= total NH_3 collected, corrected for blank (mg)	=	0.0663	mg
m_{MDL}	= minimum detectable NH_3 (mg)	=	0.0098	mg
m_n	= total NH_3 value used in emission calculations (mg)	=	0.0663	mg

QA/QC JWO
Date 9/18

CTM-027
NH_3 Sample Calculations - Impinger 1 (Fraction 2)

Sample data taken from Run 1

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results, and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

041807 113109
O_N

1. NH_3 concentration (lb/dscf)

$$C_{sd} = \left(\frac{m_n}{V_{msld}}\right)\left(\frac{2.205 \times 10^{-3}}{1000}\right)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	0.0663	mg
V_{msld}	= volume metered, standard (dscf)	=	36.8485	dscf
2.205×10^{-3}	= conversion factor (lb/g)	=	2.205E-03	lb/g
1000	= conversion factor (mg/g)	=	1,000	mg/g
C_{sd}	= NH_3 concentration (lb/dscf)	=	3.9656E-09	lb/dscf

2. NH_3 concentration (ppmdv)

$$C_{sd} = \left(\frac{m_n}{V_{msld}}\right)\left(\frac{0.850}{1000}\right)\left(\frac{10^6}{MW}\right)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	0.0663	mg
V_{msld}	= volume metered, standard (dscf)	=	36.8485	dscf
MW	= molecular weight of NH_3 (g/g-mole)	=	17.030	g/g-mole
0.850	= conversion factor (dscf/g-mole)	=	0.850	dscf/g-mole
1000	= conversion factor (mg/g)	=	1,000	mg/g
10^6	= conversion factor (ppm)	=	10^6	ppm
C_{sd}	= NH_3 concentration (ppmdv)	=	0.0898	ppmdv

3. NH_3 concentration (ppmwv)

$$C_w = C_{sd}\left(1 - \frac{B_w}{100}\right)$$

Where:

C_{sd}	= NH_3 concentration (ppmdv)	=	0.0898	ppmdv
B_w	= actual water vapor in gas (% v/v)	=	8.2509	% v/v
100	= conversion factor (%)	=	100	%
C_w	= NH_3 concentration (ppmwv)	=	0.0824	ppmwv

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4. NH_3 concentration (mg/dscm)

$$C_{sd} = \left(\frac{m_n}{V_{mstd}}\right)(35.31)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	0.0663	mg
V_{mstd}	= volume metered, standard (dscf)	=	36.8485	dscf
35.31	= conversion factor (dscf/dscm)	=	35.31	dscf/dscm
C_{sd}	= NH_3 concentration (mg/dscm)	=	0.0635	mg/dscm

5. NH_3 concentration (mg/Nm^3 dry)

$$C_{sd} = \left(\frac{m_n}{V_{mstd}}\right)(35.31)\left(\frac{68 + 460}{32 + 460}\right)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	0.0663	mg
V_{mstd}	= volume metered, standard (dscf)	=	36.8485	dscf
35.31	= conversion factor (dscf/dscm)	=	35.31	dscf/dscm
68	= standard temperature (°F)	=	68	°F
32	= normal temperature (°F)	=	32	°F
460	= °F to °R conversion constant	=	460	
C_{sd}	= NH_3 concentration (mg/Nm^3 dry)	=	0.0681	mg/Nm^3 dry

6. NH_3 concentration corrected to x% O_2 (ppmdv example)

$$C_{sdx} = C_{sd}\left(\frac{20.9 - x}{20.9 - O_2}\right)$$

Where:

C_{sd}	= NH_3 concentration (ppmdv)	=	0.0898	ppmdv
x	= oxygen content of corrected gas (%)	=	3.0	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	4.4	%
20.9	= oxygen content of ambient air (%)	=	20.9	%
C_{sdx}	= NH_3 concentration corrected to x%O_2 (ppmdv)	=	0.0974	ppmdv @ x%O_2

7. NH_3 concentration corrected to y% CO_2 (ppmdv example)

$$C_{sdy} = C_{sd}\left(\frac{y}{CO_2}\right)$$

Where:

C_{sd}	= NH_3 concentration (ppmdv)	=	0.0898	ppmdv
y	= carbon dioxide content of corrected gas (%)	=	12.0	%
CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	16.5	%
C_{sdy}	= NH_3 concentration corrected to y%CO_2 (ppmdv)	=	0.0653	ppmdv @ y%CO_2

QA/QC JW
Date 9/18

CTM-027
NH_3 Analyte Calculations - Impingers 2 & 3 (Fraction 3)

Sample data taken from Run 1

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results, and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

1. Ammonium to NH_3 conversion factor

$$K_{NH_3} = \frac{MW_{NH_3}}{n \times MW_{NH_4^+}}$$

Where:

MW_{NH3}	= molecular weight of NH_3 (mg/mg-mole)	=	17.030	mg/mg-mole
MW_{NH4+}	= molecular weight of ammonium ion (mg/mg-mole)	=	18.040	mg/mg-mole
n	= molar ratio of ammonium to NH_3	=	1.0	mole NH_4/mole NH_3
K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	

2. Total NH_3 collected (mg)

$$m_{NH_3} = K_{NH_3} \times \frac{(S_{NH_4} v_1 + S_{NH_4} v_2)}{1000}$$

Where:

K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	
S_{NH4-1}	= ammonium concentration of sample fraction 1 (mg/liter)	=	<0.0530	mg/liter
v_1	= liquid volume of sample fraction 1 (ml)	=	280.0	ml
S_{NH4-2}	= ammonium concentration of sample fraction 2 (mg/liter)	=	0.0000	mg/liter
v_2	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
m_{NH3}	= total NH_3 collected in sample (mg)	=	<0.0140	mg

Note: Non-detects are treated as zero in summations.

DEFINITION
Fraction 1 = entire sample except last impinger containing applicable absorbing reagent.
Fraction 2 = last impinger containing applicable absorbing reagent, analyzed separately to evaluate collection efficiency.
If entire sample is analyzed as a single fraction, then data is included as Fraction 1 (Fraction 2 = 0).

3. Allowable blank subtraction (mg)

$$m_b = K_{NH_3} \times B_{NH_4} \times \frac{(v_1 + v_2)}{1000}$$

$$m_b = 0 \quad \text{if } B_{NH_4} < MDL$$

Where:

K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	
B_{NH4}	= ammonium concentration of blank (mg/liter)	=	<0.0530	mg/liter
v_1	= liquid volume of sample fraction 1 (ml)	=	280.0	ml
v_2	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
m_b	= allowable blank subtraction (mg)	=	0.0000	mg

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SS-FPA76-1 Version 2006-10a (NH3)

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4. Total NH3 collected, corrected for blank (mg)

$$m_{nb} = m_{NH_3} - m_b$$

Where:

m_{NH3}	= total NH_3 collected in sample (mg)	=	<0.0140	mg
m_b	= allowable blank subtraction (mg)	=	0.0000	mg
m_{nb}	= total NH_3 collected, corrected for blank (mg)	=	<0.0140	mg

5. Minimum detectable NH3 (mg)

$$m_{MDL} = K_{NH_3} \times MDL \times \frac{(v_1 + v_2)}{1000}$$

Where:

K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	
MDL	= minimum detectable ammonium concentration	=	0.053	mg/liter
v_1	= liquid volume of sample fraction 1 (ml)	=	280.0	ml
v_2	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
m_{MDL}	= minimum detectable NH_3 (mg)	=	0.0140	mg

6. Total NH3 value used in emission calculations (mg)

$$m_n = MAXIMUM \left[m_{nb} \quad or \quad < m_{MDL} \right]$$

Where:

m_{nb}	= total NH_3 collected, corrected for blank (mg)	=	<0.0140	mg
m_{MDL}	= minimum detectable NH_3 (mg)	=	0.0140	mg
m_n	= total NH_3 value used in emission calculations (mg)	=	<0.0140	mg

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Date 9/18

CTM-027
NH_3 Sample Calculations - Impingers 2 & 3 (Fraction 3)

Sample data taken from Run 1

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results, and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

091807 151203
0_1f

1. NH_3 concentration (lb/dscf)

$$C_{sd} = \left(\frac{m_n}{V_{mstd}}\right)\left(\frac{2.205\times10^{-3}}{1000}\right)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	<0.0140	mg
V_{mstd}	= volume metered, standard (dscf)	=	36.8485	dscf
2.205×10^{-3}	= conversion factor (lb/g)	=	2.205E-03	lb/g
1000	= conversion factor (mg/g)	=	1,000	mg/g
C_{sd}	= NH_3 concentration (lb/dscf)	=	<8.3829E-10	lb/dscf

2. NH_3 concentration (ppmdv)

$$C_{sd} = \left(\frac{m_n}{V_{mstd}}\right)\left(\frac{0.850}{1000}\right)\left(\frac{10^6}{MW}\right)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	<0.0140	mg
V_{mstd}	= volume metered, standard (dscf)	=	36.8485	dscf
MW	= molecular weight of NH_3 (g/g-mole)	=	17.030	g/g-mole
0.850	= conversion factor (dscf/g-mole)	=	0.850	dscf/g-mole
1000	= conversion factor (mg/g)	=	1,000	mg/g
10^6	= conversion factor (ppm)	=	10^6	ppm
C_{sd}	= NH_3 concentration (ppmdv)	=	<0.0190	ppmdv

3. NH_3 concentration (ppmwv)

$$C_w = C_{sd}\left(1-\frac{B_w}{100}\right)$$

Where:

C_{sd}	= NH_3 concentration (ppmdv)	=	<0.0190	ppmdv
B_w	= actual water vapor in gas (% v/v)	=	8.2509	% v/v
100	= conversion factor (%)	=	100	%
C_w	= NH_3 concentration (ppmwv)	=	<0.0174	ppmwv

QA/QC ___JW___
Date ___9/18___

4. NH_3 concentration (mg/dscm)

$$C_{sd} = \left(\frac{m_n}{V_{mstd}}\right)(35.31)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	<0.0140	mg
V_{mstd}	= volume metered, standard (dscf)	=	36.8485	dscf
35.31	= conversion factor (dscf/dscm)	=	35.31	dscf/dscm
C_{sd}	= NH_3 concentration (mg/dscm)	=	<0.0134	mg/dscm

5. NH_3 concentration (mg/Nm^3 dry)

$$C_{sd} = \left(\frac{m_n}{V_{mstd}}\right)(35.31)\left(\frac{68+460}{32+460}\right)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	<0.0140	mg
V_{mstd}	= volume metered, standard (dscf)	=	36.8485	dscf
35.31	= conversion factor (dscf/dscm)	=	35.31	dscf/dscm
68	= standard temperature (°F)	=	68	°F
32	= normal temperature (°F)	=	32	°F
460	= °F to °R conversion constant	=	460	
C_{sd}	= NH_3 concentration (mg/Nm^3 dry)	=	<0.0144	mg/Nm^3 dry

6. NH_3 concentration corrected to x% O_2 (ppmdv example)

$$C_{sdx} = C_{sd}\left(\frac{20.9-x}{20.9-O_2}\right)$$

Where:

C_{sd}	= NH_3 concentration (ppmdv)	=	<0.0190	ppmdv
x	= oxygen content of corrected gas (%)	=	3.0	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	4.4	%
20.9	= oxygen content of ambient air (%)	=	20.9	%
C_{sdx}	= NH_3 concentration corrected to x%O_2 (ppmdv)	=	<0.0206	ppmdv @ x%O_2

7. NH_3 concentration corrected to y% CO_2 (ppmdv example)

$$C_{sdy} = C_{sd}\left(\frac{y}{CO_2}\right)$$

Where:

C_{sd}	= NH_3 concentration (ppmdv)	=	<0.0190	ppmdv
y	= carbon dioxide content of corrected gas (%)	=	12.0	%
CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	16.5	%
C_{sdy}	= NH_3 concentration corrected to y%CO_2 (ppmdv)	=	<0.0138	ppmdv @ y%CO_2

QA/QC _____
Date 9/18

CTM-027
NH_3 Analyte Calculations - Total Combined Results

Sample data taken from Run 1

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results, and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

ctf1807 103709
N

1. Ammonium to NH_3 conversion factor

$$K_{NH_3} = \frac{MW_{NH_3}}{n \times MW_{NH_4^+}}$$

Where:

MW_{NH3}	= molecular weight of NH_3 (mg/mg-mole)	=	17.030	mg/mg-mole
MW_{NH4+}	= molecular weight of ammonium ion (mg/mg-mole)	=	18.040	mg/mg-mole
n	= molar ratio of ammonium to NH_3	=	1.0	mole NH_4/mole NH_3
K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	

2. Total NH_3 collected (mg)

$$m_{NH_3} = K_{NH_3} \times \frac{(S_{NH_4} v_1 + S_{NH_4} v_2)}{1000}$$

Where:

K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	
S_{NH4-1}	= ammonium concentration of sample fraction 1 (mg/liter)	=	0.9479	mg/liter
v_1	= liquid volume of sample fraction 1 (ml)	=	0.0	ml
S_{NH4-2}	= ammonium concentration of sample fraction 2 (mg/liter)	=	<0.0140	mg/liter
v_2	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
m_{NH3}	= total NH_3 collected in sample (mg)	=	0.0000	mg

Note: Non-detects are treated as zero in summations.

DEFINITION
Fraction 1 = entire sample except last impinger containing applicable absorbing reagent.
Fraction 2 = last impinger containing applicable absorbing reagent, analyzed separately to evaluate collection efficiency.
If entire sample is analyzed as a single fraction, then data is included as Fraction 1 (Fraction 2 = 0).

3. Allowable blank subtraction (mg)

$$m_b = K_{NH_3} \times B_{NH_4} \times \frac{(v_1 + v_2)}{1000}$$

$$m_b = 0 \quad \text{if } B_{NH_4} < MDL$$

Where:

K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	
B_{NH4}	= ammonium concentration of blank (mg/liter)	=	<0.0530	mg/liter
v_1	= liquid volume of sample fraction 1 (ml)	=	0.0	ml
v_2	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
m_b	= allowable blank subtraction (mg)	=	0.0000	mg

QA/QC _____
Date _____

4. Total NH3 collected, corrected for blank (mg)

$$m_{nb} = m_{NH_3} - m_b$$

Where:

m_{NH3}	= total NH_3 collected in sample (mg)	=	0.0000	mg
m_b	= allowable blank subtraction (mg)	=	0.0000	mg
m_{nb}	= total NH_3 collected, corrected for blank (mg)	=	0.0000	mg

5. Minimum detectable NH3 (mg)

$$m_{MDL} = K_{NH_3} \times MDL \times \frac{(v_1 + v_2)}{1000}$$

Where:

K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	
MDL	= minimum detectable ammonium concentration	=	0.053	mg/liter
v_1	= liquid volume of sample fraction 1 (ml)	=	0.0	ml
v_2	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
m_{MDL}	= minimum detectable NH_3 (mg)	=	0.0000	mg

6. Total NH3 value used in emission calculations (mg)

$$m_n = MAXIMUM \left[m_{nb} \quad or \quad < m_{MDL} \right]$$

Where:

m_{nb}	= total NH_3 collected, corrected for blank (mg)	=	0.0000	mg
m_{MDL}	= minimum detectable NH_3 (mg)	=	0.0000	mg
m_n	= total NH_3 value used in emission calculations (mg)	=	0.9479	mg

7. Collection QC check (% mass collected in second fraction)

$$EFF = 100 \times \frac{K_{NH_3} \times S_{NH_4\text{-}2} \times \frac{v_2}{1000}}{m_{NH_3}}$$

Where:

K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	
$S_{NH4\text{-}2}$	= ammonium concentration of sample fraction 2 (mg/liter)	=	<0.0140	mg/liter
v_2	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
m_{NH3}	= total NH_3 collected in sample (mg)	=	0.0000	mg
1000	= conversion factor (ml/liter)	=	1000	ml/liter
100	= conversion factor	=	100	%
EFF	= Collection QC check (% mass collected in second fraction)	=	<1.48	%

QA/QC JLW
Date 9/18

CTM-027
NH_3 Sample Calculations - Total Combined Results

Sample data taken from Run 1

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results, and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

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O_N

1. NH_3 concentration (lb/dscf)

$$C_{sd} = \left(\frac{m_n}{V_{mstd}}\right)\left(\frac{2.205 \times 10^{-3}}{1000}\right)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	0.9479	mg
V_{mstd}	= volume metered, standard (dscf)	=	36.8485	dscf
2.205×10^{-3}	= conversion factor (lb/g)	=	2.205E-03	lb/g
1000	= conversion factor (mg/g)	=	1,000	mg/g
C_{sd}	= NH_3 concentration (lb/dscf)	=	5.6721E-08	lb/dscf

2. NH_3 concentration (ppmdv)

$$C_{sd} = \left(\frac{m_n}{V_{mstd}}\right)\left(\frac{0.850}{1000}\right)\left(\frac{10^6}{MW}\right)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	0.9479	mg
V_{mstd}	= volume metered, standard (dscf)	=	36.8485	dscf
MW	= molecular weight of NH_3 (g/g-mole)	=	17.030	g/g-mole
0.850	= conversion factor (dscf/g-mole)	=	0.850	dscf/g-mole
1000	= conversion factor (mg/g)	=	1,000	mg/g
10^6	= conversion factor (ppm)	=	10^6	ppm
C_{sd}	= NH_3 concentration (ppmdv)	=	1.2839	ppmdv

3. NH_3 concentration (ppmwv)

$$C_w = C_{sd}\left(1 - \frac{B_w}{100}\right)$$

Where:

C_{sd}	= NH_3 concentration (ppmdv)	=	1.2839	ppmdv
B_w	= actual water vapor in gas (% v/v)	=	8.2509	% v/v
100	= conversion factor (%)	=	100	%
C_w	= NH_3 concentration (ppmwv)	=	1.1780	ppmwv

QA/QC JJW
Date 9/18

4. NH_3 concentration (mg/dscm)

$$C_{sd} = \left(\frac{m_n}{V_{mstd}}\right)(35.31)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	0.9479	mg
V_{mstd}	= volume metered, standard (dscf)	=	36.8485	dscf
35.31	= conversion factor (dscf/dscm)	=	35.31	dscf/dscm
C_{sd}	= NH_3 concentration (mg/dscm)	=	0.9083	mg/dscm

5. NH_3 concentration (mg/Nm^3 dry)

$$C_{sd} = \left(\frac{m_n}{V_{mstd}}\right)(35.31)\left(\frac{68 + 460}{32 + 460}\right)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	0.9479	mg
V_{mstd}	= volume metered, standard (dscf)	=	36.8485	dscf
35.31	= conversion factor (dscf/dscm)	=	35.31	dscf/dscm
68	= standard temperature (°F)	=	68	°F
32	= normal temperature (°F)	=	32	°F
460	= °F to °R conversion constant	=	460	
C_{sd}	= NH_3 concentration (mg/Nm^3 dry)	=	0.9748	mg/Nm^3 dry

6. NH_3 concentration corrected to x% O_2 (ppmdv example)

$$C_{sdx} = C_{sd}\left(\frac{20.9 - x}{20.9 - O_2}\right)$$

Where:

C_{sd}	= NH_3 concentration (ppmdv)	=	1.2839	ppmdv
x	= oxygen content of corrected gas (%)	=	3.0	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	4.4	%
20.9	= oxygen content of ambient air (%)	=	20.9	%
C_{sdx}	= NH_3 concentration corrected to x%O_2 (ppmdv)	=	1.3929	ppmdv @ x%O_2

7. NH_3 concentration corrected to y% CO_2 (ppmdv example)

$$C_{sdy} = C_{sd}\left(\frac{y}{CO_2}\right)$$

Where:

C_{sd}	= NH_3 concentration (ppmdv)	=	1.2839	ppmdv
y	= carbon dioxide content of corrected gas (%)	=	12.0	%
CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	16.5	%
C_{sdy}	= NH_3 concentration corrected to y%CO_2 (ppmdv)	=	0.9338	ppmdv @ y%CO_2

QA/QC _____
Date 9/18

CTM-027
NH_3 Analyte Calculations - Preliminary Field Titration

Sample data taken from Run 1

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate those results using a calculator. The reference method data, results, and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

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M

1. Ammonium to NH_3 conversion factor

$$K_{NH_3} = \frac{MW_{NH_3}}{n \times MW_{NH_4^+}}$$

Where:

MW_{NH3}	= molecular weight of NH_3 (mg/mg-mole)	=	17.030	mg/mg-mole
MW_{NH4+}	= molecular weight of ammonium ion (mg/mg-mole)	=	18.040	mg/mg-mole
n	= molar ratio of ammonium to NH_3	=	1.0	mole NH_4/mole NH_3
K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	

2. Total NH_3 collected (mg)

$$m_{NH_3} = K_{NH_3} \times \frac{\left(S_{NH_4} v_1 + S_{NH_4} v_2\right)}{1000}$$

Where:

K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	
S_{NH4-1}	= ammonium concentration of sample fraction 1 (mg/liter)	=	4.2126	mg/liter
v_1	= liquid volume of sample fraction 1 (ml)	=	0.0	ml
S_{NH4-2}	= ammonium concentration of sample fraction 2 (mg/liter)	=	0.0070	mg/liter
v_2	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
m_{NH3}	= total NH_3 collected in sample (mg)	=	0.0000	mg

DEFINITION
Fraction 1 = entire sample except last impinger containing applicable absorbing reagent.
Fraction 2 = last impinger containing applicable absorbing reagent, analyzed separately to evaluate collection efficiency.
If entire sample is analyzed as a single fraction, then data is included as Fraction 1 (Fraction 2 = 0).

3. Allowable blank subtraction (mg)

$$m_b = K_{NH_3} \times B_{NH_4} \times \frac{(v_1 + v_2)}{1000}$$

$$m_b = 0 \quad \text{if } B_{NH_4} < MDL$$

Where:

K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	
B_{NH4}	= ammonium concentration of blank (mg/liter)	=	0.5174	mg/liter
v_1	= liquid volume of sample fraction 1 (ml)	=	0.0	ml
v_2	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
m_b	= allowable blank subtraction (mg)	=	0.0000	mg

QA/QC _____
Date _____

4. Total NH3 collected, corrected for blank (mg)

$$m_{nb} = m_{NH_3} - m_b$$

Where:

m_{NH3}	= total NH_3 collected in sample (mg)	=	0.0000	mg
m_b	= allowable blank subtraction (mg)	=	0.0000	mg
m_{nb}	= total NH_3 collected, corrected for blank (mg)	=	0.0000	mg

5. Minimum detectable NH3 (mg)

$$m_{MDL} = K_{NH_3} \times MDL \times \frac{(v_1 + v_2)}{1000}$$

Where:

K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	
MDL	= minimum detectable ammonium concentration	=	0.000	mg/liter
v_1	= liquid volume of sample fraction 1 (ml)	=	0.0	ml
v_2	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
m_{MDL}	= minimum detectable NH_3 (mg)	=	0.0000	mg

6. Total NH3 value used in emission calculations (mg)

$$m_n = MAXIMUM \left[m_{nb} \text{ or } < m_{MDL} \right]$$

Where:

m_{nb}	= total NH_3 collected, corrected for blank (mg)	=	0.0000	mg
m_{MDL}	= minimum detectable NH_3 (mg)	=	0.0000	mg
m_n	= total NH_3 value used in emission calculations (mg)	=	4.2196	mg

7. Collection QC check (% mass collected in second fraction)

$$EFF = 100 \times \frac{K_{NH_3} \times S_{NH_4-2} \times \frac{v_2}{1000}}{m_{NH_3}}$$

Where:

K_{NH3}	= conversion factor to convert mass NH_4^+ to mass NH_3	=	0.944	
S_{NH4-2}	= ammonium concentration of sample fraction 2 (mg/liter)	=	0.0070	mg/liter
v_2	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
m_{NH3}	= total NH_3 collected in sample (mg)	=	0.0000	mg
1000	= conversion factor (ml/liter)	=	1000	ml/liter
100	= conversion factor	=	100	%
EFF	= Collection QC check (% mass collected in second fraction)	=	0.17	%

QA/QC _____
Date 9/18

CTM-027
NH_3 Sample Calculations - Preliminary Field Titration

Sample data taken from Run 1

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results, and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

001807 111648
D_M

1. NH_3 concentration (lb/dscf)

$$C_{sd} = \left(\frac{m_n}{V_{msld}}\right)\left(\frac{2.205 \times 10^{-3}}{1000}\right)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	4.2196	mg
V_{msld}	= volume metered, standard (dscf)	=	36.8485	dscf
2.205×10^{-3}	= conversion factor (lb/g)	=	2.205E-03	lb/g
1000	= conversion factor (mg/g)	=	1,000	mg/g
C_{sd}	= NH_3 concentration (lb/dscf)	=	2.5250E-07	lb/dscf

2. NH_3 concentration (ppmdv)

$$C'_{sd} = \left(\frac{m_n}{V_{msld}}\right)\left(\frac{0.850}{1000}\right)\left(\frac{10^6}{MW}\right)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	4.2196	mg
V_{msld}	= volume metered, standard (dscf)	=	36.8485	dscf
MW	= molecular weight of NH_3 (g/g-mole)	=	17.030	g/g-mole
0.850	= conversion factor (dscf/g-mole)	=	0.850	dscf/g-mole
1000	= conversion factor (mg/g)	=	1,000	mg/g
10^6	= conversion factor (ppm)	=	10^6	ppm
C_{sd}	= NH_3 concentration (ppmdv)	=	5.7155	ppmdv

3. NH_3 concentration (ppmwv)

$$C_w = C_{sd}\left(1 - \frac{B_w}{100}\right)$$

Where:

C_{sd}	= NH_3 concentration (ppmdv)	=	5.7155	ppmdv
B_w	= actual water vapor in gas (% v/v)	=	8.2509	% v/v
100	= conversion factor (%)	=	100	%
C_w	= NH_3 concentration (ppmwv)	=	5.2439	ppmwv

QA/QC JWO
Date 9/18

4. NH_3 concentration (mg/dscm)

$$C_{sd} = \left(\frac{m_n}{V_{mstd}}\right)(35.31)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	4.2196	mg
V_{mstd}	= volume metered, standard (dscf)	=	36.8485	dscf
35.31	= conversion factor (dscf/dscm)	=	35.31	dscf/dscm
C_{sd}	= NH_3 concentration (mg/dscm)	=	4.0434	mg/dscm

5. NH_3 concentration (mg/Nm^3 dry)

$$C_{sd} = \left(\frac{m_n}{V_{mstd}}\right)(35.31)\left(\frac{68 + 460}{32 + 460}\right)$$

Where:

m_n	= total NH_3 collected, corrected for applicable blank (mg)	=	4.2196	mg
V_{mstd}	= volume metered, standard (dscf)	=	36.8485	dscf
35.31	= conversion factor (dscf/dscm)	=	35.31	dscf/dscm
68	= standard temperature (°F)	=	68	°F
32	= normal temperature (°F)	=	32	°F
460	= °F to °R conversion constant	=	460	
C_{sd}	= NH_3 concentration (mg/Nm^3 dry)	=	4.3393	mg/Nm^3 dry

6. NH_3 concentration corrected to x% O_2 (ppmdv example)

$$C_{sdx} = C_{sd}\left(\frac{20.9 - x}{20.9 - O_2}\right)$$

Where:

C_{sd}	= NH_3 concentration (ppmdv)	=	5.7155	ppmdv
x	= oxygen content of corrected gas (%)	=	3.0	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	4.4	%
20.9	= oxygen content of ambient air (%)	=	20.9	%
C_{sdx}	= NH_3 concentration corrected to x%O_2 (ppmdv)	=	6.2006	ppmdv @ x%O_2

7. NH_3 concentration corrected to y% CO_2 (ppmdv example)

$$C_{sdy} = C_{sd}\left(\frac{y}{CO_2}\right)$$

Where:

C_{sd}	= NH_3 concentration (ppmdv)	=	5.7155	ppmdv
y	= carbon dioxide content of corrected gas (%)	=	12.0	%
CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	16.5	%
C_{sdy}	= NH_3 concentration corrected to y%CO_2 (ppmdv)	=	4.1567	ppmdv @ y%CO_2

QA/QC JJO
Date 9/18

PARAMETERS	C

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TEST LOG

Client: CONSOL Energy - AES Greenidge
Project No: 10247

Run Number	Location	Method	Analyte	Date	Start Time	End Time	Notes
1	Unit 4 Air Heater Inlet	CTM-027	Ammonia	05/31/07	18:04	19:14	
2	Unit 4 Air Heater Inlet	CTM-027	Ammonia	06/01/07	10:20	11:07	
3	Unit 4 Air Heater Inlet	CTM-027	Ammonia	06/01/07	12:05	12:52	

Notes:
None

QA/QC JWJ
Date 9/18

CONSOL Energy - AES Greenidge
Clean Air Project No: 10247
Unit 4 Air Heater Inlet

CTM-027 (Ammonia)
Sampling, Velocity and Moisture Parameters

Run No.		1	2	3	Average
Date (2007)		May 31	Jun 1	Jun 1	
Start Time (approx.)		18:04	10:20	12:05	
Stop Time (approx.)		19:14	11:07	12:52	
Sampling Conditions					
Y_d	Dry gas meter correction factor	1.0071	1.0071	1.0071	
C_p	Pitot tube coefficient	0.84	0.84	0.84	
P_g	Static pressure (in. H_2O)	0.0000	0.0000	0.0000	
P_{bar}	Barometric pressure (in. Hg)	29.44	29.47	29.44	29.4500
O_2	Oxygen (dry volume %)	4.4000	5.1000	6.4000	5.3000
CO_2	Carbon dioxide (dry volume %)	16.5000	13.4000	12.4000	14.1000
N_2+CO	Nitrogen plus carbon monoxide (dry volume %)	79.1000	81.5000	81.2000	80.6000
V_{lc}	Total Liquid collected (ml)	70.40	57.60	48.80	
V_m	Volume metered, meter conditions (ft^3)	39.4800	26.1850	26.6400	
T_m	Dry gas meter temperature (°F)	102.4583	91.5000	95.6250	
T_s	Sample temperature (°F)	636.7500	0.0000	0.0000	212.2500
ΔH	Meter box orifice pressure drop (in. H_2O)	1.5000	1.5000	1.5000	
θ	Total sampling time (min)	60.0	40.0	40.0	
Flow Results					
V_{wstd}	Volume of water collected (ft^3)	3.3137	2.7112	2.2970	2.7740
V_{mstd}	Volume metered, standard (dscf)	36.8485	24.9506	25.1701	28.9897
B_{ws}	Moisture measured in sample (% by volume)	8.2503	9.8014	8.3628	8.8050
M_d	MW of sample gas, dry (lb/lb-mole)	30.8160	30.3480	30.2400	30.4680

Comments:
Average includes 3 runs.

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OHP@

QA/QC [signature]
Date 9/18

CONSOL Energy - AES Greenidge
Clean Air Project No: 10247
Unit 4 Air Heater Inlet

CTM-027
Ammonium Laboratory Data Summary

Run No.	Blank	1	2	3
Date (2007)		May 31	Jun 1	Jun 1
Start Time (approx.)		18:04	10:20	12:05
Stop Time (approx.)		19:14	11:07	12:52

☐ DRAFT LAB DATA

MDL Min. detectable limit (mg NH_4^+/liter) 0.0530

NH_3 as Total Ammonium (NH_4^+) - Front Half Rinse (Fraction 1)

B_{NH4} Blank concentration (mg NH_4^+/liter) <0.0530

S_{NH4-1}	Fraction 1 concentration (mg NH_4^+/liter)	4.4900	5.6800	5.0200	
v_1	Fraction 1 sample volume (ml)	208.0	153.0	192.0	
m_{NH3}	NH_3 collected before blank subtraction (mg)	0.8816	0.8059	0.9099	
m_b	Allowable blank subtraction (mg)	0.0000	0.0000	0.0000	
m_{nb}	NH_3 collected after blank subtraction (mg)	0.8816	0.8059	0.9099	
m_{MDL}	Minimum detectable NH_3 (mg)	0.0104	0.0077	0.0096	
m_n	*Total NH_3 used in emission calculations (mg)*	0.8816	0.8059	0.9099	

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N

Prepared by Clean Air Engineering Proprietary Software
SS EPA26-1 Version 2000-10a (NH3)

QA/QC JWJ
Date 9/18

CONSOL Energy - AES Greenidge
Clean Air Project No: 10247
Unit 4 Air Heater Inlet

CTM-027
NH_3 Parameters

Run No.		1	2	3	Average
Date (2007)		May 31	Jun 1	Jun 1	
Start Time (approx.)		18:04	10:20	12:05	
Stop Time (approx.)		19:14	11:07	12:52	
Gas Conditions					
O_2	Oxygen (dry volume %)	4.4000	5.1000	6.4000	**5.3000**
CO_2	Carbon dioxide (dry volume %)	16.5000	13.4000	12.4000	**14.1000**
T_s	Sample temperature (°F)	636.7500	0.0000	0.0000	**212.2500**
B_w	Actual water vapor in gas (% by volume)	8.2609	0.1425	0.1426	**2.8453**
Sampling Data					
V_{mstd}	Volume metered, standard (dscf)	36.8485	24.9506	25.1701	**28.9897**
Laboratory Data					
m_n	Total NH_3 collected (mg)	0.8816	0.8059	0.9099	**0.8658**
Ammonia (NH_3) Results - Front Half Rinse (Fraction 1)					
C_{sd}	Ammonia Concentration (lb/dscf)	5.2756E-08	7.1224E-08	7.9708E-08	**6.7896E-08**
C_{sd7}	Ammonia Concentration @3% O_2 (lb/dscf)	5.7232E-08	8.0690E-08	9.8398E-08	**7.8773E-08**
C_{sd12}	Ammonia Concentration @12% CO_2 (lb/dscf)	3.8368E-08	6.3783E-08	7.7136E-08	**5.9762E-08**
C_{sd}	Ammonia Concentration (ppmdv)	1.1942	1.6122	1.8042	**1.5369**
C_{sd7}	Ammonia Concentration @3% O_2 (ppmdv)	1.2955	1.8265	2.2273	**1.7831**
C_{sd12}	Ammonia Concentration @12% CO_2 (ppmdv)	0.8685	1.4438	1.7460	**1.3528**
C_w	Ammonia Concentration (ppmwv)	1.0956	1.6099	1.8017	**1.5024**
C_{sd}	Ammonia Concentration (mg/dscm)	0.8448	1.1406	1.2764	**1.0873**
C_{sd7}	Ammonia Concentration @3% O_2 (mg/dscm)	0.9165	1.2921	1.5757	**1.2614**
C_{sd12}	Ammonia Concentration @12% CO_2 (mg/dscm)	0.6144	1.0214	1.2352	**0.9570**
C_{sd}	Ammonia Concentration (mg/Nm^3 dry)	0.9066	1.2240	1.3698	**1.1668**
C_{sd7}	Ammonia Concentration @3% O_2 (mg/Nm^3 dry)	0.9836	1.3867	1.6910	**1.3537**
C_{sd12}	Ammonia Concentration @12% CO_2 (mg/Nm^3 dry)	0.6594	1.0961	1.3256	**1.0270**

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QA/QC JW
Date 9/18

CONSOL Energy - AES Greenidge
Clean Air Project No: 10247
Unit 4 Air Heater Inlet

CTM-027
Ammonium Laboratory Data Summary

Run No.	Blank	1	2	3
Date (2007)		May 31	Jun 1	Jun 1
Start Time (approx.)		18:04	10:20	12:05
Stop Time (approx.)		19:14	11:07	12:52

☐ DRAFT LAB DATA

MDL Min. detectable limit (mg NH_4^+/filter) 0.0530

NH_3 as Total Ammonium (NH_4^+) - Impinger 1 (Fraction 2)

B_{NH4} Blank concentration (mg NH_4^+/filter) <0.0530

S_{NH4-1}	Fraction 1 concentration (mg NH_4^+/liter)	0.3600	0.3300	0.3500
v_1	Fraction 1 sample volume (ml)	195.0	211.0	195.0
m_{NH3}	NH_3 collected before blank subtraction (mg)	0.0663	0.0657	0.0644
m_b	Allowable blank subtraction (mg)	0.0000	0.0000	0.0000
m_{nb}	NH_3 collected after blank subtraction (mg)	0.0663	0.0657	0.0644
m_{MDL}	Minimum detectable NH_3 (mg)	0.0098	0.0106	0.0098
m_n	*Total NH_3 used in emission calculations (mg)*	0.0663	0.0657	0.0644

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Prepared by Clean Air Engineering Proprietary Software
SS EPA26-1 Version 2006-10a (NH3)

QA/QC _____
Date 9/18

CONSOL Energy - AES Greenidge
Clean Air Project No: 10247
Unit 4 Air Heater Inlet

CTM-027
NH_3 Parameters

Run No.		1	2	3	Average
Date (2007)		May 31	Jun 1	Jun 1	
Start Time (approx.)		18:04	10:20	12:05	
Stop Time (approx.)		19:14	11:07	12:52	
Gas Conditions					
O_2	Oxygen (dry volume %)	4.4000	5.1000	6.4000	**5.3000**
CO_2	Carbon dioxide (dry volume %)	16.5000	13.4000	12.4000	**14.1000**
T_s	Sample temperature (°F)	636.7500	0.0000	0.0000	**212.2500**
B_w	Actual water vapor in gas (% by volume)	8.2509	0.1425	0.1426	**2.8453**
Sampling Data					
V_{mstd}	Volume metered, standard (dscf)	36.8485	24.9506	25.1701	**28.9897**
Laboratory Data					
m_n	Total NH_3 collected (mg)	0.0663	0.0657	0.0644	**0.0655**
Ammonia (NH_3) Results - Impinger 1 (Fraction 2)					
C_{sd}	Ammonia Concentration (lb/dscf)	3.9655E-09	5.8089E-09	5.6441E-09	**5.1395E-09**
C_{sd7}	Ammonia Concentration @3% O_2 (lb/dscf)	4.3020E-09	6.5810E-09	6.9876E-09	**5.9502E-09**
C_{sd12}	Ammonia Concentration @12% CO_2 (lb/dscf)	2.8840E-09	5.2020E-09	5.4621E-09	**4.5160E-09**
C_{sd}	Ammonia Concentration (ppmdv)	0.0898	0.1315	0.1278	**0.1163**
C_{sd7}	Ammonia Concentration @3% O_2 (ppmdv)	0.0974	0.1490	0.1577	**0.1347**
C_{sd12}	Ammonia Concentration @12% CO_2 (ppmdv)	0.0653	0.1178	0.1236	**0.1022**
C_w	Ammonia Concentration (ppmwv)	0.0824	0.1313	0.1276	**0.1137**
C_{sd}	Ammonia Concentration (mg/dscm)	0.0635	0.0930	0.0904	**0.0823**
C_{sd7}	Ammonia Concentration @3% O_2 (mg/dscm)	0.0689	0.1054	0.1116	**0.0953**
C_{sd12}	Ammonia Concentration @12% CO_2 (mg/dscm)	0.0462	0.0833	0.0875	**0.0723**
C_{sd}	Ammonia Concentration (mg/Nm^3 dry)	0.0681	0.0998	0.0970	**0.0883**
C_{sd7}	Ammonia Concentration @3% O_2 (mg/Nm^3 dry)	0.0739	0.1131	0.1197	**0.1023**
C_{sd12}	Ammonia Concentration @12% CO_2 (mg/Nm^3 dry)	0.0496	0.0894	0.0939	**0.0776**

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SS EPA28-5 Version 2006-1Pa (NH3)

QA/QC _____
Date _____

CONSOL Energy - AES Greenidge
Clean Air Project No: 10247
Unit 4 Air Heater Inlet

CTM-027
Ammonium Laboratory Data Summary

Run No.	Blank	1	2	3
Date (2007)		May 31	Jun 1	Jun 1
Start Time (approx.)		18:04	10:20	12:05
Stop Time (approx.)		19:14	11:07	12:52

☐ DRAFT LAB DATA

MDL Min. detectable limit (mg NH_4^+/liter) 0.0530

NH_3 as Total Ammonium (NH_4^+) - Impingers 2 & 3 (Fraction 3)

B_{NH4} Blank concentration (mg NH_4^+/liter) <0.0530

S_{NH4-1}	Fraction 1 concentration (mg NH_4^+/liter)	<0.0530	<0.0530	<0.0530
v_s	Fraction 1 sample volume (ml)	280.0	210.0	265.0
m_{NH3}	NH_3 collected before blank subtraction (mg)	<0.0140	<0.0105	<0.0133
m_b	Allowable blank subtraction (mg)	0.0000	0.0000	0.0000
m_{nb}	NH_3 collected after blank subtraction (mg)	<0.0140	<0.0105	<0.0133
m_{MDL}	Minimum detectable NH_3 (mg)	0.0140	0.0105	0.0133
m_n	*Total NH_3 used in emission calculations (mg)*	<0.0140	<0.0105	<0.0133

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Prepared by Clean Air Engineering Proprietary Software
SS EPA26-1 Version 2006-10a (NH3)

QA/QC _____
Date 9/18

CONSOL Energy - AES Greenidge
Clean Air Project No: 10247
Unit 4 Air Heater Inlet

CTM-027
NH_3 Parameters

Run No.		1	2	3	Average
Date (2007)		May 31	Jun 1	Jun 1	
Start Time (approx.)		18:04	10:20	12:05	
Stop Time (approx.)		19:14	11:07	12:52	
Gas Conditions					
O_2	Oxygen (dry volume %)	4.4000	5.1000	6.4000	5.3000
CO_2	Carbon dioxide (dry volume %)	16.5000	13.4000	12.4000	14.1000
T_s	Sample temperature (°F)	636.7500	0.0000	0.0000	212.2500
B_w	Actual water vapor in gas (% by volume)	8.2509	0.1426	0.1426	2.8453
Sampling Data					
V_{mstd}	Volume metered, standard (dscf)	36.8485	24.9506	25.1701	28.9897
Laboratory Data					
m_n	Total NH_3 collected (mg)	<0.0140	<0.0105	<0.0133	<0.0126
Ammonia (NH_3) Results - Impingers 2 & 3 (Fraction 3)					
C_{sd}	Ammonia Concentration (lb/dscf)	<8.3829E-10	<9.2853E-10	<1.1615E-09	<9.7610E-10
C_{sd7}	Ammonia Concentration @3% O_2 (lb/dscf)	<9.0942E-10	<1.0519E-09	<1.4338E-09	<1.1317E-09
C_{sd12}	Ammonia Concentration @12% CO_2 (lb/dscf)	<6.0967E-10	<8.3152E-10	<1.1240E-09	<8.5507E-10
C_{vd}	Ammonia Concentration (ppmdv)	<0.0190	<0.0210	<0.0263	<0.0221
C_{vd7}	Ammonia Concentration @3% O_2 (ppmdv)	<0.0206	<0.0239	<0.0325	<0.0256
C_{vd12}	Ammonia Concentration @12% CO_2 (ppmdv)	<0.0138	<0.0189	<0.0254	<0.0194
C_w	Ammonia Concentration (ppmwv)	<0.0174	<0.0210	<0.0263	<0.0216
C_{sd}	Ammonia Concentration (mg/dscm)	<0.0134	<0.0149	<0.0186	<0.0156
C_{sd7}	Ammonia Concentration @3% O_2 (mg/dscm)	<0.0146	<0.0168	<0.0230	<0.0181
C_{sd12}	Ammonia Concentration @12% CO_2 (mg/dscm)	<0.0098	<0.0133	<0.0180	<0.0137
C_{sd}	Ammonia Concentration (mg/Nm^3 dry)	<0.0144	<0.0160	<0.0200	<0.0168
C_{sd7}	Ammonia Concentration @3% O_2 (mg/Nm^3 dry)	<0.0156	<0.0181	<0.0246	<0.0194
C_{sd12}	Ammonia Concentration @12% CO_2 (mg/Nm^3 dry)	<0.0105	<0.0143	<0.0193	<0.0147

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Date _____

CONSOL Energy - AES Greenidge
Clean Air Project No: 10247
Unit 4 Air Heater Inlet

CTM-027
Ammonium Laboratory Data Summary

Run No.	Blank	1	2	3
Date (2007)		May 31	Jun 1	Jun 1
Start Time (approx.)		18:04	10:20	12:05
Stop Time (approx.)		19:14	11:07	12:52

☐ DRAFT LAB DATA

MDL Min. detectable limit (mg NH_4^+/liter) 0.0530

NH_3 as Total Ammonium (NH_4^+) - Total Combined Fractions

B_{NH4}	Blank concentration (mg NH_4^+/liter)	<0.0530			
S_{NH4-1}	Fraction 1&2 Total NH_3 (mg)		0.9479	0.8717	0.9743
S_{NH4-2}	Fraction 3 Total NH_3 (mg)		<0.0140	<0.0105	<0.0133
m_n	*Total NH_3 used in emission calculations (mg)*		0.9479	0.8717	0.9743
EFF	Collection QC Check (% collected in Fraction 3)		<1.48%	<1.21%	<1.36%
			0.9479	0.8717	0.9743

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QA/QC JJJ
Date 9/26

CONSOL Energy - AES Greenidge
Clean Air Project No: 10247
Unit 4 Air Heater Inlet

CTM-027
NH_3 Parameters

Run No.		1	2	3	Average
Date (2007)		May 31	Jun 1	Jun 1	
Start Time (approx.)		18:04	10:20	12:05	
Stop Time (approx.)		19:14	11:07	12:52	
Gas Conditions					
O_2	Oxygen (dry volume %)	4.4000	5.1000	6.4000	**5.3000**
CO_2	Carbon dioxide (dry volume %)	16.5000	13.4000	12.4000	**14.1000**
T_s	Sample temperature (°F)	636.7500	0.0000	0.0000	**212.2500**
B_w	Actual water vapor in gas (% by volume)	8.2500	0.1425	0.1426	**2.8453**
Sampling Data					
V_{mstd}	Volume metered, standard (dscf)	36.8485	24.9506	25.1701	**28.9897**
Laboratory Data					
m_n	Total NH_3 collected (mg)	0.9479	0.8717	0.9743	**0.9313**
Ammonia (NH_3) Results - Total Combined Fractions					
C_{sd}	Ammonia Concentration (lb/dscf)	5.6721E-08	7.7033E-08	8.5362E-08	**7.3035E-08**
C_{sd7}	Ammonia Concentration @3% O_2 (lb/dscf)	6.1534E-08	8.7271E-08	1.0537E-07	**8.4724E-08**
C_{sd12}	Ammonia Concentration @12% CO_2 (lb/dscf)	4.1252E-08	6.8985E-08	8.2599E-08	**6.4278E-08**
C_{sd}	Ammonia Concentration (ppmdv)	1.2839	1.7437	1.9320	**1.6632**
C_{sd7}	Ammonia Concentration @3% O_2 (ppmdv)	1.3929	1.9765	2.3850	**1.9178**
C_{sd12}	Ammonia Concentration @12% CO_2 (ppmdv)	0.9338	1.5615	1.8697	**1.4550**
C_w	Ammonia Concentration (ppmwv)	1.1780	1.7412	1.9293	**1.6162**
C_{sd}	Ammonia Concentration (mg/dscm)	0.9083	1.2336	1.3668	**1.1696**
C_{sd7}	Ammonia Concentration @3% O_2 (mg/dscm)	0.9854	1.3975	1.6873	**1.3567**
C_{sd12}	Ammonia Concentration @12% CO_2 (mg/dscm)	0.6606	1.1047	1.3227	**1.0293**
C_{sd}	Ammonia Concentration (mg/Nm^3 dry)	0.9748	1.3238	1.4666	**1.2551**
C_{sd7}	Ammonia Concentration @3% O_2 (mg/Nm^3 dry)	1.0575	1.4998	1.8107	**1.4560**
C_{sd12}	Ammonia Concentration @12% CO_2 (mg/Nm^3 dry)	0.7089	1.1855	1.4195	**1.1046**

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Prepared by Clean Air Engineering Proprietary Software
SS EPA38-1 Version 2005-10a (NH3)

QA/QC JJW
Date 9/18

CONSOL Energy - AES Greenidge
Clean Air Project No: 10247
Unit 4 Air Heater Inlet

CTM-027
Ammonium Preliminary Field Titration Data Summary

Run No.	Blank	1	2	3
Date (2007)		May 31	Jun 1	Jun 1
Start Time (approx.)		18:04	10:20	12:05
Stop Time (approx.)		19:14	11:07	12:52

☐ DRAFT LAB DATA

MDL Min. detectable limit (mg NH_4^+/liter) NA

NH_3 as Total Ammonium (NH_4^+) - Preliminary Field Titration Total Combined Fractions

B_{NH4} Blank concentration (mg NH_4^+/liter) 0.5174

S_{NH4-1}	Fraction 1&2 Total NH_3 (mg)	4.2126	3.5780	4.0166
S_{NH4-2}	Fraction 3 Total NH_3 (mg)	0.0070	0.0002	0.4563
m_a	*Total NH_3 used in emission calculations (mg)*	4.2196	3.5782	4.4729
EFF	Collection QC Check (% collected in Fraction 3)	0.17%	0.01%	11.36%
		4.2196	3.5782	4.4729

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Prepared by Clean Air Engineering Proprietary Software
SS EPA26-1 Version 2005-08a (NH3)

QA/QC JWJ
Date 9/18

CONSOL Energy - AES Greenidge
Clean Air Project No: 10247
Unit 4 Air Heater Inlet

CTM-027
NH_3 Preliminary Field Titration Parameters

Run No.		1	2	3	Average
Date (2007)		May 31	Jun 1	Jun 1	
Start Time (approx.)		18:04	10:20	12:05	
Stop Time (approx.)		19:14	11:07	12:52	
Gas Conditions					
O_2	Oxygen (dry volume %)	4.4000	5.1000	6.4000	5.3000
CO_2	Carbon dioxide (dry volume %)	18.5000	13.4000	12.4000	14.1000
T_s	Sample temperature (°F)	636.7500	0.0000	0.0000	212.2500
B_w	Actual water vapor in gas (% by volume)	8.2509	0.1425	0.1426	2.8453
Sampling Data					
V_{mstd}	Volume metered, standard (dscf)	36.8485	24.9506	25.1701	28.9897
Laboratory Data					
m_n	Total NH_3 collected (mg)	4.2196	3.5782	4.4729	4.0902
Ammonia (NH_3) Results - Preliminary Field Titration Total Combined Fractions					
C_{sd}	Ammonia Concentration (lb/dscf)	2.5250E-07	3.1622E-07	3.9184E-07	3.2019E-07
C_{sd7}	Ammonia Concentration @3% O_2 (lb/dscf)	2.7392E-07	3.5825E-07	4.8372E-07	3.7197E-07
C_{sd12}	Ammonia Concentration @12% CO_2 (lb/dscf)	1.8364E-07	2.8318E-07	3.7920E-07	2.8201E-07
C_{sd}	Ammonia Concentration (ppmdv)	5.7155	7.1579	8.8697	7.2477
C_{sd7}	Ammonia Concentration @3% O_2 (ppmdv)	6.2005	8.1093	10.9495	8.4198
C_{sd12}	Ammonia Concentration @12% CO_2 (ppmdv)	4.1567	6.4101	8.5836	6.3835
C_w	Ammonia Concentration (ppmwv)	5.2439	7.1477	8.8570	7.0829
C_{sd}	Ammonia Concentration (mg/dscm)	4.0434	5.0839	6.2748	5.1274
C_{sd7}	Ammonia Concentration @3% O_2 (mg/dscm)	4.3865	5.7369	7.7462	5.9565
C_{sd12}	Ammonia Concentration @12% CO_2 (mg/dscm)	2.9407	4.5348	6.0724	4.5160
C_{sd}	Ammonia Concentration (mg/Nm^3 dry)	4.3393	5.4344	6.7340	5.5025
C_{sd7}	Ammonia Concentration @3% O_2 (mg/Nm^3 dry)	4.7075	6.1567	8.3130	6.3924
C_{sd12}	Ammonia Concentration @12% CO_2 (mg/Nm^3 dry)	3.1558	4.8668	6.5167	4.8464

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Prepared by Clean Air Engineering Proprietary Software
SS FFADS-3 Version 2006-10a (NH3)

QA/QC JCJ
Date 9/18

Clean Air Engineering Project #10247
Consol Energy
AES Dresden

Date: 5/30/2007
Start Time: 11:12
End Time: 11:35

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev From Avg.
1-1	11:12	84.4		-2.8	6.6		15.2		121.8	29.1	-999.0		-888.5	-1442.1	-1539.6
1-2	11:16	75.8		-9.4	3.9		16.0		93.0	-8.7	69.9		169.3	73.5	206.0
1-3	11:20	89.5	92.0	2.4	3.6	4.7	17.1	16.3	93.8	1.1	112.8	-241.1	212.3	116.1	250.6
1-4	11:24	110.5		23.3	3.4		17.7		113.0	20.3	48.4		147.8	49.6	182.0
1-5	11:28	78.8		-8.8	6.6		14.7		96.4	3.7	-999.0		-999.5	-1250.5	-1118.0
1-6	11:32	110.1		22.9	1.9		19.1		103.7	11.0	320.7		420.2	362.1	434.7
2-1	11:13	82.3		-4.9	6.6		14.4		100.0	10.3	19.7		119.2	24.7	157.2
2-2	11:17	64.3		-22.9	3.7		17.2		66.9	-25.8	95.9		195.4	99.8	232.3
2-3	11:21	82.2	85.8	-5.0	3.4	3.7	17.7	17.5	84.1	-8.6	90.2	-21.9	182.7	95.3	227.9
2-4	11:25	100.8		13.6	2.8		18.1		99.7	7.0	25.7		125.2	25.4	157.9
2-5	11:29	103.3		16.1	2.1		18.9		98.4	5.7	833.4		732.9	608.1	735.6
2-6	11:33	81.7		-5.5	3.5		17.4		84.0	-8.7	-999.0		-899.5	-1027.7	-895.2
3-1	11:14	82.8		-4.4	6.3		14.7		101.5	8.8	47.6		147.1	58.4	190.9
3-2	11:18	71.9		-15.3	3.9		16.9		75.7	-17.0	106.9		206.4	112.5	245.1
3-3	11:22	94.7	91.6	7.5	3.6	3.5	17.3	17.5	96.0	5.3	81.2	-93.2	180.7	84.0	216.5
3-4	11:26	120.5		33.4	2.6		18.5		116.0	25.3	25.6		125.3	29.2	158.7
3-5	11:30	100.1		12.9	2.1		19.1		95.3	2.6	357.6		457.1	340.5	473.0
3-6	11:34	79.6		-7.5	2.7		18.1		78.8	-14.4	-999.0		-899.5	-982.5	-850.0
4-1	11:15	75.4		-11.6	6.5		14.5		93.7	1.0	56.6		156.1	72.8	209.4
4-2	11:19	65.4		-21.6	3.6		17.1		68.5	-24.2	188.2		235.7	142.6	275.1
4-3	11:23	93.1	79.6	-4.1	3.5	4.1	17.5	16.8	85.5	-7.2	68.2	-72.0	162.7	65.0	197.5
4-4	11:27	104.6		17.4	3.1		17.9		105.2	12.5	30.8		130.1	30.8	163.3
4-5	11:31	83.7		-3.5	3.2		17.8		94.6	-8.1	278.4		377.9	281.5	414.1
4-6	11:35	65.2		-22.0	4.4		16.2		70.7	-22.0	-999.0		-899.5	-1083.8	-851.2
Inlet Averages		87.2			4.0		17.0		92.7		-99.5			-132.8	

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff W/ O2 correction	CO Removal Efficiency	CO Removal Eff W/ O2 correction
1-1	11:12	85.9		16.1	5.4		13.2		76.1	22.2	145.7		172.2	266.3	194.7	21.9	37.5	[illegible]	[illegible]
1-2	11:16	91.5		41.8	4.1		14.2		87.6	49.7	-999.0		-972.5	-1064.4	-1038.0	-15.2	-17.6	[illegible]	[illegible]
1-3	11:20	76.5	78.1	25.7	4.3	4.9	14.4	13.7	61.4	27.5	201.0	-70.5	227.5	218.7	243.1	15.7	13.2	[illegible]	[illegible]
1-4	11:24	91.8		42.0	3.8		14.7		66.1	42.2	32.5		58.0	34.0	60.4	18.9	15.0	[illegible]	[illegible]
1-5	11:28	72.8		23.1	5.1		13.8		62.6	28.7	80.2		85.7	68.2	94.6	7.8	16.3	[illegible]	[illegible]
1-6	11:32	70.7		20.8	5.6		12.3		58.5	34.6	136.5		162.8	170.6	197.0	35.8	14.2	[illegible]	[illegible]
2-1	11:13	18.6		-31.2	3.6		14.8		19.2	-34.6	574.6		601.1	594.5	620.9	77.4	81.3	[illegible]	[illegible]
2-2	11:17	76.8		27.0	3.9		14.4		80.8	27.0	-999.0		-972.5	-1051.9	-1025.5	-19.4	-20.8	[illegible]	[illegible]
2-3	11:21	96.3	53.7	46.5	4.0	4.5	14.4	13.8	102.0	48.1	50.9	-31.7	77.4	53.9	80.3	-17.2	-21.3	[illegible]	[illegible]
2-4	11:25	60.7		30.9	4.7		13.9		69.2	35.3	24.1		50.6	26.6	53.0	19.8	10.8	[illegible]	[illegible]
2-5	11:29	10.3		-39.5	4.7		13.7		11.4	-42.5	78.0		105.5	97.3	113.7	90.0	89.4	[illegible]	[illegible]
2-6	11:33	39.3		-10.5	6.3		12.4		48.2	-5.7	80.4		108.9	98.6	125.0	51.9	42.7	[illegible]	[illegible]
3-1	11:14	1.4		-48.4	3.0		15.2		1.4	-52.5	-999.0		-972.5	-999.0	-972.8	93.3	96.6	[illegible]	[illegible]
3-2	11:18	100.1		50.3	2.8		15.5		99.0	45.1	789.1		795.6	780.6	787.0	-38.2	-30.8	[illegible]	[illegible]
3-3	11:22	104.2	47.3	54.4	3.2	3.7	15.2	14.7	105.4	51.5	30.3	11.4	50.8	30.5	57.0	-10.0	-7.5	[illegible]	[illegible]
3-4	11:26	73.0		23.2	5.2		13.5		83.2	29.4	28.7		53.2	32.7	59.1	39.5	29.4	[illegible]	[illegible]
3-5	11:30	2.4		-47.4	3.5		14.9		2.5	-51.4	143.1		169.6	147.2	173.6	97.6	97.4	[illegible]	[illegible]
3-6	11:34	2.9		-46.9	4.5		14.0		3.2	-50.7	96.1		122.6	104.9	131.3	96.4	96.6	[illegible]	[illegible]
4-1	11:15	7.8		-41.9	3.9		14.5		8.5	-45.5	-999.0		-972.5	-1051.9	-1025.5	85.5	91.7	[illegible]	[illegible]
4-2	11:19	2.8		-47.0	2.4		15.9		2.7	-51.2	365.6		392.1	353.7	380.1	85.7	86.0	[illegible]	[illegible]
4-3	11:23	61.2	20.1	11.4	2.8	3.6	15.6	14.9	60.5	8.7	25.2	-15.1	51.7	24.6	54.5	29.4	28.2	[illegible]	[illegible]
4-4	11:27	19.3		-30.5	3.5		14.9		19.9	-34.0	42.9		69.4	44.7	70.5	81.5	81.1	[illegible]	[illegible]
4-5	11:31	1.4		-48.4	3.4		15.1		1.4	-52.4	230.7		257.2	236.8	262.4	98.3	98.3	[illegible]	[illegible]
4-6	11:35	28.0		-21.8	5.5		13.4		32.1	-21.7	244.1		270.6	280.1	306.5	87.1	84.6	[illegible]	[illegible]
Outlet Averages		49.8			4.2		14.3		53.9		-28.5			-36.4		42.8	41.4	154.1	159.7

* -999.0 Indicates that the analyzer was out of range.

Clean Air Engineering Project #10247
Consol Energy
AES Dresden

Date: 9/30/2007
Start Time: 12:24
End Time: 12:47

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.
1-1	12:24	97.1		-9.4	3.1		12.5		133.8	23.4	-999.0		-908.4	-1397.0	-1260.6
1-2	12:28	111.8		5.4	3.4		17.8		114.5	2.1	467.6		557.2	478.3	594.7
1-3	12:32	113.8	106.4	7.3	3.7	4.5	16.9	16.1	119.4	6.1	140.0	+183.6	229.6	145.7	262.1
1-4	12:36	113.9		7.4	3.8		17.2		117.9	5.6	25.6		115.2	29.5	142.9
1-5	12:40	91.1		-25.4	5.4		14.3		100.1	-12.2	-999.0		-909.4	-1293.2	-1116.8
1-6	12:44	120.4		13.9	1.9		18.7		113.4	1.1	581.3		690.9	528.8	645.2
2-1	12:25	104.0		-2.5	6.0		14.5		124.8	12.5	90.4		180.0	108.8	225.0
2-2	12:29	103.3		-3.2	3.2		17.1		104.5	-7.9	468.4		558.0	473.7	590.1
2-3	12:33	107.4	104.8	0.9	3.2	3.6	17.4	17.3	108.8	-3.7	58.9	-227.7	149.4	58.5	175.9
2-4	12:37	111.7		5.2	3.9		17.7		114.7	-0.6	14.5		104.1	14.5	130.9
2-5	12:41	112.3		5.8	2.2		18.3		107.5	-4.9	-999.0		-908.4	-965.8	-838.8
2-6	12:45	90.3		-16.2	3.5		16.9		82.6	-19.5	-999.0		-908.4	-1027.7	-911.3
3-1	12:26	106.0		1.5	5.8		14.8		126.0	15.7	61.3		150.9	72.7	189.1
3-2	12:30	115.3		8.8	2.5		17.1		118.8	8.3	308.2		397.8	317.1	433.5
3-3	12:34	108.3	107.1	2.3	3.5	3.5	17.2	17.1	111.9	-0.4	73.4	-0.9	163.0	75.5	191.9
3-4	12:38	113.2		6.7	2.8		17.7		112.6	0.2	72.4		162.0	123	128.7
3-5	12:42	107.6		1.1	2.3		18.2		108.8	-3.8	538.6		628.1	519.2	634.7
3-6	12:46	89.5		-17.0	2.7		17.6		88.0	-24.3	-999.0		-909.4	-982.5	-866.1
4-1	12:27	106.6		-0.9	5.6		14.9		123.5	11.2	205.7		295.3	240.7	337.1
4-2	12:31	108.5		2.1	3.9		17.0		111.7	-0.6	484.6		574.2	447.1	583.5
4-3	12:35	112.6	107.7	6.1	3.5	4.0	17.2	16.8	116.8	3.5	52.5	3.9	142.1	54.0	170.4
4-4	12:39	110.1		12.5	3.3		17.3		121.1	8.8	12.6		102.4	13.0	129.4
4-5	12:43	110.1		3.6	3.2		17.6		111.3	-1.0	516.9		606.5	520.5	635.9
4-6	12:47	90.4		-16.1	4.7		15.7		99.9	-12.5	-999.0		-909.4	-1103.8	-987.4
Inlet Averages		106.5			3.9		16.7		112.5		-89.6			-116.4	

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff w/ O2 correction	CO Removal Efficiency	CO Removal Eff w/ O2 correction
1-1	12:24	92.3		-13.2	3.8		14.4		97.2	-15.3	-999.0		-887.6	-1051.9	-940.4	4.9	28.4	0.0	24.8
1-2	12:28	98.8		-6.8	3.3		14.6		101.0	-11.5	-999.0		-887.6	-1051.9	-940.4	14.3	11.8	11.0	24.8
1-3	12:32	106.3	99.5	0.8	5.0	5.1	13.7	13.6	119.7	7.2	99.5	-287.7	210.9	112.0	223.6	6.6	-1.0	78.2	71.3
1-4	12:36	111.0		5.5	4.2		14.4		119.0	6.5	14.2		126.6	15.2	126.7	2.3	-1.0	44.5	46.7
1-5	12:40	109.1		3.6	5.1		13.6		123.6	11.2	42.9		154.3	48.6	160.1	-34.5	-23.5	52.0	50.9
1-6	12:44	82.5		-23.0	8.2		11.1		116.3	3.8	115.1		226.5	162.2	273.7	31.5	-2.5	82.2	69.5
2-1	12:25	95.6		-9.9	2.9		15.3		95.1	-17.4	-999.0		-887.6	-883.5	-852.0	8.1	20.9	0.0	24.4
2-2	12:29	112.1		6.6	2.5		15.9		108.1	-3.4	523.8		641.2	515.4	626.9	-8.5	-4.4	-12.1	-6.4
2-3	12:33	97.6	102.2	-8.5	4.5	4.1	14.0	14.4	105.8	-5.8	19.9	-25.2	131.3	21.7	133.2	9.7	2.5	86.7	92.5
2-4	12:37	92.1		-13.4	4.5		14.0		100.5	-11.9	13.7		125.1	15.0	126.4	17.5	10.0	87.0	92.1
2-5	12:41	117.4		11.8	3.8		14.9		121.5	9.0	99.7		211.1	109.2	214.6	-4.5	-13.0	79.5	73.5
2-6	12:45	98.8		-6.7	5.8		12.0		123.7	11.2	185.0		296.4	231.8	343.0	-6.4	-33.7	66.8	62.5
3-1	12:26	96.6		-8.9	2.8		15.4		98.3	-14.2	-999.0		-887.6	-888.0	-876.5	10.6	25.4	0.0	14.8
3-2	12:30	117.3		11.8	2.3		16.1		112.9	0.4	399.1		400.5	278.2	369.7	-1.7	4.6	22.3	32.7
3-3	12:34	110.8	111.4	5.3	3.4	3.6	15.1	14.9	119.5	7.6	19.3	-99.4	130.7	19.7	131.2	-7.4	-9.7	73.5	73.9
3-4	12:38	106.8		1.3	5.0		13.5		120.2	7.8	18.5		129.9	20.8	132.3	5.7	-8.9	81.4	85.1
3-5	12:42	114.1		8.6	3.4		15.0		116.7	4.3	99.9		211.9	122.2	213.6	-8.0	-12.7	80.4	81.0
3-6	12:45	116.5		10.9	4.4		14.1		126.4	13.9	161.9		273.3	175.6	287.1	-30.2	-45.6	76.0	69.6
4-1	12:27	89.5		-16.0	3.7		14.5		93.1	-19.3	-999.0		-887.6	-1039.7	-928.2	15.2	24.6	0.0	16.6
4-2	12:31	112.6		7.1	2.6		15.9		110.1	-2.3	319.9		430.3	311.9	423.4	-3.7	1.4	33.7	32.1
4-3	12:35	110.6	109.0	5.1	2.9	3.5	15.5	14.9	118.9	6.5	18.5	-84.5	127.8	19.4	127.9	-8.2	-2.7	89.0	89.0
4-4	12:39	116.3		10.8	3.3		15.1		118.3	5.8	82.5		140.9	33.1	144.5	2.4	2.4	33.9	33.9
4-5	12:43	108.9		4.4	3.3		15.1		111.8	-0.7	112.1		223.5	114.0	225.6	0.2	-0.4	69.4	69.4
4-6	12:47	106.2		0.7	5.4		13.3		122.8	10.2	132.3		243.7	152.8	264.3	-17.5	-22.9	77.5	77.5
Outlet Averages		105.5			4.1		14.4		112.4		-111.4			-115.8		0.0	-1.8	59.9	175.6

* -999.0 indicates that the analyzer was out of range.

Clean Air Engineering Project #10247
Consol Energy
AES Dresden

Date: 5/30/2007
Start Time: 13:12
End Time: 13:35

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv.	O2 Port Avg	CO2 %dv.	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.
1-1	13:12	90.5		-5.1	6.0		12.2		125.6	-18.2	-999.0		-801.1	-1385.2	-977.5
1-2	13:16	111.1		15.5	3.6		15.7		115.0	-28.8	71.2		269.1	73.7	465.4
1-3	13:20	101.9	99.0	6.3	2.9	4.6	16.4	15.9	107.3	-36.5	41.4	-476.4	239.3	49.8	455.3
1-4	13:24	107.4		11.8	3.6		17.2		111.1	-32.8	26.2		224.1	27.1	436.8
1-5	13:28	73.6		-20.0	6.2		14.3		82.1	-61.7	-999.0		-801.1	-1235.5	-804.7
1-6	13:32	107.4		11.8	2.1		16.6		102.8	-41.5	-999.0		-801.1	-951.2	-638.4
2-1	13:13	73.0		-22.6	17.7		2.7		466.3	264.6	61.5		279.4	455.9	887.0
2-2	13:17	98.3		2.7	3.8		16.7		101.1	-42.6	117.4		315.3	120.8	532.6
2-3	13:21	88.2	95.2	-7.4	3.8	8.9	16.4	16.3	92.3	-51.4	38.1	-280.1	236.0	39.8	451.6
2-4	13:25	101.5		5.9	3.2		17.5		102.8	-41.1	20.2		218.1	20.4	432.2
2-5	13:29	72.7		-22.9	15.3		4.8		232.4	88.6	-999.0		-801.1	-3193.2	-2781.5
2-6	13:33	93.3		-12.8	18.1		4.1		310.6	166.9	-999.0		-801.1	-3725.4	-3818.7
3-1	13:14	97.1		7.6	9.1		11.5		147.3	3.5	128.9		326.6	195.5	607.8
3-2	13:18	101.2		5.6	3.5		16.7		104.1	-38.7	134.0		331.9	137.9	548.6
3-3	13:22	85.1	96.6	-10.5	15.3	6.6	3.5	13.5	331.2	187.4	28.6	81.9	226.6	112.5	524.2
3-4	13:26	106.1		10.5	3.1		17.6		108.7	-37.1	22.5		220.4	22.6	434.4
3-5	13:30	102.4		6.8	3.7		16.9		105.6	-37.2	872.7		1070.8	909.2	1319.9
3-6	13:34	87.6		-8.0	5.4		14.6		101.2	-42.6	-999.0		-801.1	-1153.7	-742.0
4-1	13:15	107.9		11.4	6.2		14.1		130.9	-13.5	67.0		294.5	91.6	493.3
4-2	13:19	102.9		7.3	4.2		16.1		110.3	-33.5	88.8		295.7	105.9	517.6
4-3	13:23	96.4	100.7	0.8	3.5	4.3	17.2	16.2	98.2	-44.6	22.9	-56.3	220.7	23.5	435.2
4-4	13:27	111.1		15.5	3.4		17.1		113.6	-30.1	24.4		222.3	25.0	438.7
4-5	13:31	102.6		7.0	3.5		17.5		105.5	-38.2	448.5		646.4	481.4	873.1
4-6	13:35	84.3		-11.3	4.8		16.4		93.7	-50.0	-999.0		-801.1	-1110.7	-699.0
Inlet Averages		95.6			6.4		14.0		143.8		-197.9			-411.7	

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff. W/ O2 correction	CO Removal Efficiency	CO Removal Eff W/ O2 correction
1-1	13:12	88.7		-6.9	5.4		13.3		102.4	-0.4	-999.0		-921.2	-1153.7	-1061.3	2.0	18.4	[illegible]	[illegible]
1-2	13:16	91.7		-3.9	6.7		12.9		106.0	5.2	108.7		186.5	128.0	220.4	17.5	8.1	[illegible]	[illegible]
1-3	13:20	90.0	90.1	-5.6	4.0	4.6	14.5	13.5	95.5	-7.5	85.6	-35.4	163.6	99.8	193.3	13.7	11.2	[illegible]	[illegible]
1-4	13:24	90.4		-5.2	4.8		13.9		99.3	-3.5	24.1		101.9	26.5	116.9	15.8	10.7	[illegible]	[illegible]
1-5	13:28	94.9		-0.7	3.8		14.8		99.3	-3.5	78.4		151.2	76.8	168.2	-25.5	-7.9	[illegible]	[illegible]
1-6	13:32	84.6		-11.0	3.9		14.4		88.1	-13.7	484.4		572.2	520.8	613.0	21.2	12.8	[illegible]	[illegible]
2-1	13:13	76.8		-18.8	5.7		12.0		98.8	-6.0	-999.0		-921.2	-1258.3	-1166.9	-5.2	76.3	[illegible]	[illegible]
2-2	13:17	95.4		-0.2	4.8		13.7		106.1	3.3	100.7		178.5	112.0	204.4	3.0	-4.9	[illegible]	[illegible]
2-3	13:21	89.2	89.2	-6.4	4.6	4.8	14.6	13.9	97.4	-5.4	53.0	-285.5	140.8	69.8	161.2	-1.1	-5.5	[illegible]	[illegible]
2-4	13:25	91.1		-4.5	4.4		14.1		98.8	-4.0	22.1		99.9	24.0	114.4	10.2	3.7	[illegible]	[illegible]
2-5	13:29	96.9		1.3	3.4		14.9		99.1	-3.7	213.2		291.0	218.1	310.5	-33.8	57.9	[illegible]	[illegible]
2-6	13:33	85.5		-10.1	3.6		14.8		88.0	-14.8	-999.0		-921.2	-1027.7	-966.3	-2.8	71.7	[illegible]	[illegible]
3-1	13:14	114.2		18.8	4.5		14.0		124.8	21.8	715.4		793.2	793.8	873.2	-17.9	15.4	[illegible]	[illegible]
3-2	13:18	103.4		7.8	4.0		14.3		108.5	6.7	129.7		207.5	134.2	226.8	-2.2	-5.2	[illegible]	[illegible]
3-3	13:22	91.6	102.4	-4.1	5.4	4.0	13.8	14.5	105.7	2.0	43.5	88.1	121.3	50.2	142.7	-7.5	86.1	[illegible]	[illegible]
3-4	13:26	105.3		9.7	3.7		14.7		109.5	9.8	17.9		95.7	16.6	111.0	0.8	-2.7	[illegible]	[illegible]
3-5	13:30	105.2		9.6	2.7		15.6		103.5	0.7	324.1		401.9	318.8	411.2	-2.7	2.8	[illegible]	[illegible]
3-6	13:34	95.0		-0.6	3.4		14.8		97.2	-5.6	-999.0		-921.2	-1021.8	-928.4	-9.4	3.9	[illegible]	[illegible]
4-1	13:15	107.7		12.1	5.8		13.2		125.2	22.4	205.3		283.1	236.6	331.0	-0.7	3.5	[illegible]	[illegible]
4-2	13:19	99.5		3.9	3.8		14.7		104.2	1.4	120.6		198.4	126.2	218.7	3.3	5.8	[illegible]	[illegible]
4-3	13:23	96.3	100.9	0.7	3.5	3.8	14.8	14.6	98.1	-3.7	23.4	-47.2	101.2	24.1	116.5	0.1	0.1	[illegible]	[illegible]
4-4	13:27	112.2		16.6	3.2		15.2		113.5	18.7	23.4		101.2	23.7	116.1	-1.0	0.2	[illegible]	[illegible]
4-5	13:31	104.2		8.3	2.9		15.5		104.3	1.5	342.9		420.7	341.0	433.4	-2.2	1.2	[illegible]	[illegible]
4-6	13:35	84.8		-10.8	4.3		14.1		91.4	-13.4	-999.0		-921.2	-1077.2	-984.8	-0.6	2.4	[illegible]	[illegible]
Outlet Averages		95.8			4.2		14.2		102.8		-77.8			-82.4		-1.1	14.4	36.3	10.1

* -999.0 indicates that the analyzer was out of range.

Clean Air Engineering Project #10247
Consol Energy
AES Dresden

Date: 5/30/2007
Start Time: 16:55
End Time: 17:16

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.
1-5	17:12	133.4		15.8	7.6		18.8		147.2	16.9	388.3		458.3	522.6	584.8
1-6	17:16	125.3		7.1	6.9		20.6		148.5	19.2	89.5		80.5	23.3	85.6
1-4	16:56	139.1	121.1	0.8	4.2	5.2	23.0	21.6	127.7	-2.7	16.7	131.2	89.7	20.0	92.4
1-3	17:00	130.6		12.8	5.2		21.5		149.1	18.8	27.4		88.4	31.2	103.5
1-2	17:04	95.7		-22.5	4.2		23.4		109.6	-27.8	245.5		316.5	263.2	335.6
1-1	17:08	146.2		28.0	4.3		23.7		167.6	27.3	87.6		158.9	94.3	167.1
2-5	17:13	114.7		-3.5	7.0		19.7		147.7	17.3	11.8		82.8	15.2	87.5
2-6	17:17	104.6		-13.6	4.7		22.3		116.8	-14.8	23.2		94.2	25.6	98.0
2-4	16:57	106.6	108.9	-11.3	5.2	4.7	21.2	22.7	121.9	-8.5	12.6	-113.2	88.6	14.4	88.7
2-3	17:01	89.4		-28.8	4.2		22.9		96.8	-34.6	29.7		100.7	31.8	104.2
2-2	17:05	120.6		2.2	2.8		26.0		119.2	-12.2	242.6		313.6	239.9	312.2
2-1	17:09	117.4		-0.8	4.0		23.8		124.3	-8.0	-999.0		-928.0	-1058.1	-985.8
3-5	17:14	119.0		0.8	5.9		21.1		142.0	11.8	10.5		81.5	12.6	86.0
3-6	17:18	114.8		-3.4	4.3		23.0		123.8	-6.6	17.9		86.9	18.3	91.6
3-4	16:58	118.9	118.8	0.7	5.2	4.2	21.6	-147.6	135.6	5.2	11.4	-151.5	82.4	13.0	85.3
3-3	17:02	121.8		3.7	3.4		24.2		124.7	-3.7	13.2		84.2	13.5	85.8
3-2	17:06	129.8		11.7	2.6		-999.0		139.4	-4.0	37.0		109.0	39.0	109.3
3-1	17:10	108.5		-9.7	4.0		23.8		114.8	-16.4	-999.0		-928.0	-1056.1	-985.8
4-5	17:15	125.2		6.0	5.9		19.5		161.4	31.0	14.2		85.2	16.2	90.5
4-6	16:55	118.3		0.1	4.0		22.6		125.3	-5.1	16.9		89.9	20.0	92.3
4-4	16:59	124.3	124.2	6.1	3.8	4.2	23.2	23.3	139.1	-0.2	12.4	-150.6	83.4	13.0	85.3
4-3	17:03	137.6		18.8	3.0		24.8		137.0	8.6	14.6		95.8	14.8	86.8
4-2	17:07	126.1		9.9	2.9		28.8		127.4	-3.0	35.3		105.3	35.1	107.4
4-1	17:11	111.0		-7.2	4.6		22.6		129.9	-6.5	-999.0		-928.0	-1097.1	-1024.7
Inlet Averages		118.2			4.6		-19.9		130.4		-71.0			-72.3	

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff. W/O O2 correction	CO Removal Efficiency	CO Removal Eff W/O O2 correction
5-5	17:12	110.2		-8.0	6.0		12.8		132.4	4.6	309.8		343.0	507.5	436.7	-0.7	10.1	[illegible]	[illegible]
5-6	17:16	111.7		-6.5	6.1		12.5		135.1	7.3	17.3		-149.5	20.9	-150.0	10.9	9.6	[illegible]	[illegible]
5-4	16:56	124.6	114.5	6.6	4.1	4.3	14.4	14.3	133.0	5.2	28.8	167.7	-133.9	30.8	-140.1	-4.6	-4.2	[illegible]	[illegible]
5-3	17:00	114.9		-3.3	3.5		14.9		116.2	-9.6	17.0		-145.6	17.5	-153.4	12.2	20.7	[illegible]	[illegible]
5-2	17:04	113.8		-4.4	3.3		15.2		115.7	-12.0	43.1		-119.7	43.6	-127.1	-16.9	-12.6	[illegible]	[illegible]
5-1	17:08	111.5		-6.7	2.7		15.6		106.7	-16.1	393.6		231.0	387.3	216.4	23.7	33.4	[illegible]	[illegible]
6-5	17:13	114.5		-3.7	5.0		11.0		158.9	31.1	35.7		-127.1	49.5	-121.4	0.2	-7.6	[illegible]	[illegible]
6-6	17:17	110.2		-8.0	4.6		14.1		121.0	-6.7	18.5		-143.2	21.5	-149.4	-5.4	-4.7	[illegible]	[illegible]
6-4	16:57	114.8	116.8	-3.4	4.0	4.6	14.8	14.1	121.8	-5.2	17.8	148.1	-145.0	18.9	-152.0	-7.4	0.2	[illegible]	[illegible]
6-3	17:01	118.1		0.1	2.9		15.5		117.4	-10.8	15.9		-146.5	15.8	-155.1	-32.1	-22.8	[illegible]	[illegible]
6-2	17:05	128.8		10.8	6.3		13.4		147.8	20.0	172.8		9.8	186.0	27.1	-8.9	-24.0	[illegible]	[illegible]
6-1	17:09	115.0		-3.2	2.7		15.8		113.1	-14.7	814.7		451.9	804.6	433.7	2.0	9.9	[illegible]	[illegible]
7-5	17:14	119.9		1.7	5.7		12.2		151.1	23.4	21.4		-141.4	27.0	-143.9	-0.8	-8.4	[illegible]	[illegible]
7-6	17:18	111.2		-7.0	4.6		14.0		121.4	-6.4	23.3		-139.5	25.4	-145.5	3.1	2.0	[illegible]	[illegible]
7-4	16:58	118.4	121.9	-2.8	3.8	4.1	14.9	14.4	119.4	-8.4	13.4	165.1	-148.4	13.9	-157.0	2.5	11.9	[illegible]	[illegible]
7-3	17:02	132.4		14.2	3.5		14.8		136.2	8.4	21.7		-141.1	22.8	-148.6	-8.8	-9.2	[illegible]	[illegible]
7-2	17:06	137.1		18.9	2.5		15.7		133.4	5.6	139.4		-24.4	134.5	-36.3	-6.5	-5.5	[illegible]	[illegible]
7-1	17:10	115.1		-3.1	3.8		14.8		120.5	-7.5	772.3		609.5	808.4	637.5	-6.1	-4.8	[illegible]	[illegible]
8-5	17:15	121.7		3.5	5.7		12.1		153.4	25.5	20.4		-142.4	25.7	-145.2	3.8	4.9	[illegible]	[illegible]
8-6	16:55	111.1		-7.1	4.4		14.2		120.5	-7.2	29.5		-133.3	32.0	-139.9	8.1	3.8	[illegible]	[illegible]
8-4	16:59	117.3	118.6	-0.9	3.6	3.9	14.6	14.6	122.8	-5.0	13.8	172.4	-149.9	14.8	-158.3	5.6	5.6	[illegible]	[illegible]
8-3	17:03	135.1		16.9	2.7		15.6		132.9	5.1	20.2		-142.6	19.6	-151.0	5.4	9.0	[illegible]	[illegible]
8-2	17:07	128.8		8.4	2.5		15.8		123.2	-4.6	115.9		-46.9	112.8	-58.1	5.2	3.3	[illegible]	[illegible]
8-1	17:11	105.8		-12.5	3.3		15.1		107.7	-20.1	834.5		671.7	848.7	677.8	4.8	11.6	[illegible]	[illegible]
Outlet Averages		118.2			4.2		14.3		127.8		162.8			170.9		-0.6	1.9	-33.5	-31.9

* -999.0 indicates that the analyzer was out of range.

Clean Air Engineering Project #10247
Consol Energy
AES Dresden

Date: 5/30/2007
Start Time: 17:32
End Time: 17:55

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O_2 %dv	O_2 Port Avg	CO_2 %dv	CO_2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O_2	PPM Dev from Avg.
1-8	17:36	111.3		-12.9	5.7				140.6	4.9	42.8		-6.9	54.0	0.6
1-9	17:40	127.6		3.2	5.6				152.9	16.9	23.7		-25.9	28.8	-25.1
1-4	17:44	126.0	124.0	1.6	4.0	5.1			133.6	-2.8	23.6	50.1	-25.8	25.2	-28.2
1-5	17:48	135.2		10.8	4.8				150.9	14.1	52.1		2.5	57.9	4.6
1-6	17:52	108.2		-16.2	4.3				116.7	-19.8	26.3		-23.3	28.4	-25.0
1-7	17:55	147.7		23.3	5.0				166.3	30.0	182.1		82.5	146.7	86.4
2-8	17:37	119.6		-4.8	5.8				151.6	15.8	7.7		-41.9	9.8	-43.0
2-9	17:41	111.4		-13.0	4.4				120.9	-15.4	21.7		-27.9	23.5	-29.8
2-4	17:45	119.4	125.2	-5.0	5.2	4.7			131.5	-4.7	21.4	50.9	-28.2	24.4	-28.0
2-5	17:49	139.6		14.2	4.3				149.6	13.2	81.7		32.1	89.1	34.7
2-6	17:53	136.1		11.7	2.9				135.8	-0.9	58.8		9.0	58.3	4.9
2-7	17:33	118.0		-6.4	4.6				129.6	-6.7	214.1		64.5	125.3	71.9
3-8	17:38	116.1		-8.3	6.3				133.2	-3.0	9.0		-40.6	10.3	-43.0
3-9	17:42	111.1		-13.3	4.1				118.4	-17.9	22.1		-27.5	23.5	-29.8
3-4	17:46	126.5	123.8	2.1	5.2	4.2			144.2	8.0	76.2	51.1	-81.4	20.8	-32.6
3-5	17:50	138.0		14.6	3.4				142.2	5.9	72.8		28.2	74.5	21.1
3-6	17:54	131.5		7.1	2.8				128.8	-7.5	109.7		60.1	107.3	53.9
3-7	17:34	118.2		-6.2	4.4				128.3	-8.9	75.0		25.4	81.4	28.0
4-8	17:39	124.7		0.3	9.7				157.2	21.0	14.6		-34.7	18.8	-34.5
4-9	17:43	120.8		-3.6	3.6				125.0	-11.2	34.3		-15.8	35.5	-17.9
4-4	17:47	126.9	124.4	4.4	3.3	4.0			131.0	-5.2	17.6	46.2	-32.0	17.9	-35.5
4-5	17:51	137.2		12.8	2.8				135.7	-0.5	48.1		-3.5	46.6	-7.8
4-6	17:55	125.8		1.4	2.8				123.1	-13.2	83.8		34.2	82.0	28.5
4-7	17:35	109.2		-15.2	5.1				123.7	-12.5	80.7		31.1	91.4	38.1
Inlet Averages		124.4			4.5		15.1		136.2		49.6			53.4	

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O_2 %dv	O_2 Port Avg	CO_2 %dv	CO_2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O_2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff W/ O2 correction	CO Removal Efficiency	CO Removal Eff W/ O_2 correction
1-8	17:36	105.0		-15.3	6.3		12.6		129.7	1.1	83.8		41.0	102.7	57.4	5.6	8.4	-68.6	-68.6
1-9	17:40	110.6		-9.7	5.8		13.0		131.1	3.5	16.9		-23.9	22.4	-22.9	13.8	13.9	-27.9	-27.9
1-4	17:44	124.6	115.6	4.5	3.7	4.0	14.7	14.6	128.9	2.9	39.3	43.2	-3.5	49.9	-4.4	1.5	2.7	-10.5	-9.2
1-5	17:48	109.4		-10.9	3.0		15.4		108.4	-18.2	22.6		-20.2	22.6	-22.7	16.1	27.2	-27.2	-15.6
1-6	17:52	123.1		2.8	2.7		15.6		121.1	-5.5	36.9		-4.0	38.2	-7.2	-13.8	-3.8	-47.9	-36.4
1-7	17:32	120.6		0.3	2.4		16.9		116.7	-10.0	56.6		12.7	53.7	8.4	18.3	20.9	-54.6	-54.6
2-8	17:37	116.1		-4.2	7.6		11.3		158.8	29.8	23.5		-19.8	31.8	-13.7	2.9	-2.9	-204.3	-204.3
2-9	17:41	110.4		-9.9	3.8		14.7		115.8	-12.1	22.7		-20.1	23.9	-21.6	6.8	4.4	-105.6	-105.6
2-4	17:45	119.5	120.0	-0.8	3.4	4.2	15.0	14.4	122.2	-5.4	22.8	35.2	-20.0	23.3	-22.0	-3.6	7.1	-104.4	-92.4
2-5	17:49	129.0		8.7	2.8		15.8		126.2	-1.4	21.2		-21.6	20.7	-24.6	6.9	15.6	-101.1	-77.1
2-6	17:53	131.7		11.4	5.6		13.2		154.1	26.5	78.8		34.1	80.0	44.5	9.2	-13.8	-39.6	-39.6
2-7	17:33	113.2		-7.1	2.1		15.2		107.6	-19.8	44.2		1.4	42.1	-3.2	4.1	16.9	-95.4	-95.4
3-8	17:38	120.5		0.2	8.4		12.4		149.8	21.1	20.9		-21.9	25.8	-19.5	-3.8	-11.7	-122.6	-122.6
3-9	17:42	116.4		-3.9	4.4		14.2		126.3	-1.8	28.3		-15.5	28.5	-16.8	-4.8	-5.7	-59.2	-59.2
3-4	17:46	120.7	124.4	0.4	3.1	3.7	15.3	14.8	121.4	-6.2	15.1	44.9	-27.7	15.2	-30.1	4.6	15.8	-47.9	-29.9
3-5	17:50	136.2		14.9	2.2		16.2		129.4	1.8	28.8		-14.0	27.6	-17.8	2.7	9.0	-80.4	-64.5
3-6	17:54	141.7		21.4	2.0		16.3		134.2	6.6	102.8		60.0	97.4	52.0	-7.8	-4.3	-9.0	-9.0
3-7	17:34	119.6		-6.7	4.1		14.5		118.9	-8.7	75.4		32.6	80.3	35.0	5.4	8.0	-42.5	-42.5
4-8	17:39	120.6		0.3	6.6		12.3		149.9	22.3	28.9		-14.0	35.6	-9.5	3.3	4.9	-98.0	-98.0
4-9	17:43	113.9		-6.4	4.6		13.9		125.1	-2.5	45.7		2.9	50.2	4.9	8.7	-0.1	-19.4	-19.4
4-4	17:47	128.4	121.1	8.1	3.2	3.9	15.2	14.7	127.6	0.2	17.8	48.1	-25.0	18.0	-27.3	1.6	2.4	-9.1	-9.8
4-5	17:51	135.1		14.8	2.3		15.1		130.0	2.4	29.4		-13.4	28.3	-17.0	1.5	4.2	-17.9	-17.9
4-6	17:55	125.2		4.9	2.2		15.1		119.6	-7.8	85.8		43.0	82.1	36.8	3.5	2.5	-7.1	-9.2
4-7	17:35	105.4		-14.9	4.1		14.5		112.3	-15.3	61.2		38.4	98.5	41.2	3.5	9.2	-5.6	-5.6
Outlet Averages		120.3			3.9		14.6		127.6		42.6			45.3		3.0	5.9	-14.5	-13.9

Clean Air Engineering Project #10247
Consol Energy
AES Dresden

Date: 5/30/2007
Start Time: 18:40
End Time: 19:03

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg		NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.
3-6	18:48	214.2		14.7	5.6			250.8	26.5	30.8		3.8	35.8	8.2
3-5	18:52	216.5		17.0	4.7			239.2	15.1	66.2		39.2	73.1	43.5
3-4	18:56	202.7	207.5	3.2	6.5	5.7		235.8	11.5	17.8	28.8	-9.1	20.8	-8.8
3-3	19:00	208.9		7.4	5.7			243.7	19.5	11.1		-15.9	18.1	-10.6
3-2	18:48	182.7		-18.8	6.0			219.6	-4.7	4.8		-22.2	5.6	-23.8
3-1	18:44	222.1		22.6	6.8			282.0	57.6	19.8		-19.2	13.7	-15.8
2-6	18:49	224.0		25.5	4.8			251.8	27.1	73.1		46.1	81.8	51.6
2-5	18:53	197.4		-2.1	3.5			203.1	-21.1	55.1		29.1	57.7	28.1
2-4	18:57	194.0	203.6	-5.5	5.8	5.1		230.0	5.8	14.1	29.0	-12.8	18.7	-12.8
2-3	19:01	209.1		9.6	5.8			247.9	23.7	8.0		-18.0	10.7	-18.0
2-2	18:41	209.7		10.2	4.7			231.7	7.6	9.7		-17.3	10.7	-18.9
2-1	18:45	186.4		-14.1	6.1			224.2	0.1	12.1		-14.9	14.6	-15.0
1-6	18:50	194.2		-5.3	4.0			205.7	-19.4	63.0		36.0	66.7	37.1
1-5	18:54	191.7		-17.8	3.5			188.9	-37.2	49.2		22.2	50.6	21.0
1-4	18:58	192.9	198.9	-6.7	5.5	4.6		224.1	0.0	11.1	28.3	-15.9	12.9	-15.7
1-3	19:02	204.3		4.8	4.8			224.4	0.2	11.4		-15.8	12.5	-17.1
1-2	18:42	185.4		-13.1	4.3			201.0	-23.1	8.5		-18.5	9.2	-20.6
1-1	18:46	173.9		-25.9	5.4			200.8	-23.3	14.5		-12.5	16.7	-12.9
4-6	18:51	216.4		15.8	4.7			238.1	15.0	71.5		44.5	78.1	48.5
4-5	18:55	183.3		-16.2	3.7			180.8	-33.4	52.7		26.7	55.9	25.2
4-4	18:59	201.1	197.9	1.6	3.6	4.2		209.1	-16.1	12.5	28.1	-14.5	12.9	-15.7
4-3	19:03	210.3		10.8	3.6			217.9	-6.5	12.8		-14.4	13.0	-16.6
4-2	18:43	195.9		-3.6	3.2			199.1	-28.0	11.4		-15.8	11.5	-18.1
4-1	18:47	190.3		-29.2	6.5			224.1	0.0	13.0		-14.0	16.2	-13.5
Inlet Averages		199.5			4.9			224.1		27.0			28.6	

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff. W/ O2 correction	CO Removal Efficiency	CO Removal Eff W/ O2 correction
1-6	19:46	205.7		12.1	5.7		12.1		238.3	32.8	40.2		19.8	50.7	24.1	4.0	-3.5	[illegible]	[illegible]
1-5	19:52	206.1		12.5	4.0		14.5		216.3	11.8	81.2		58.8	84.9	58.3	4.3	8.7	[illegible]	[illegible]
1-4	19:56	185.0	193.6	-7.9	3.8	4.1	14.6	14.4	195.8	-10.9	21.4	27.3	-3.2	22.5	-4.0	8.2	16.9	[illegible]	[illegible]
1-3	19:59	192.9		-0.7	3.7		14.9		200.8	-5.7	12.5		-12.1	13.0	-13.6	6.6	17.6	[illegible]	[illegible]
1-2	19:40	170.4		-23.2	3.4		15.6		174.3	-32.2	13.5		-11.1	13.9	-12.6	6.7	20.6	[illegible]	[illegible]
1-1	19:44	177.4		-16.2	3.1		15.3		176.4	-28.1	24.9		-8.7	25.0	-11.6	20.1	38.7	[illegible]	[illegible]
2-6	19:49	209.5		15.9	5.8		13.1		245.1	39.6	45.6		21.0	53.3	26.8	7.3	2.5	[illegible]	[illegible]
2-5	19:53	193.7		0.1	3.0		16.5		198.7	-12.8	30.7		6.1	30.7	4.1	1.9	4.6	[illegible]	[illegible]
2-4	19:57	191.7	191.4	-1.9	3.3	4.2	15.2	14.4	195.0	-11.5	21.7	21.2	-12.9	11.9	-14.7	1.2	15.2	[illegible]	[illegible]
2-3	19:01	188.7		-4.8	4.3		14.3		208.5	-8.0	21.2		-13.4	12.1	-14.5	9.8	17.9	[illegible]	[illegible]
2-2	19:41	189.5		-5.1	4.6		14.0		207.0	0.5	18.0		-11.8	14.3	-12.3	10.1	10.7	[illegible]	[illegible]
2-1	19:45	176.2		-17.4	4.6		14.2		192.5	-14.1	15.0		-5.8	16.4	-20.2	5.0	14.2	[illegible]	[illegible]
3-6	19:50	214.3		20.7	4.4		14.2		232.5	26.0	50.9		29.4	54.2	27.7	-10.4	-13.0	[illegible]	[illegible]
3-5	19:54	190.9		-2.7	3.1		16.3		192.0	-14.5	44.9		23.3	45.2	18.8	-5.1	-2.7	[illegible]	[illegible]
3-4	19:58	196.5	200.1	4.8	3.4	3.9	15.2	14.8	206.0	-3.4	10.6	24.7	-14.1	10.7	-15.8	-3.0	8.4	[illegible]	[illegible]
3-3	19:02	202.9		9.3	3.7		14.9		211.2	4.7	11.5		-13.1	12.0	-14.8	0.7	5.9	[illegible]	[illegible]
3-2	18:42	205.7		12.1	3.0		15.4		205.7	-0.8	13.4		-11.2	13.4	-13.2	-10.4	-2.3	[illegible]	[illegible]
3-1	18:46	183.6		-5.1	5.9		12.3		224.9	18.5	18.0		-6.6	21.5	-5.1	-9.4	-12.0	[illegible]	[illegible]
4-6	19:55	208.0		14.4	4.4		14.2		225.8	19.2	62.9		39.3	66.2	41.7	3.9	5.8	[illegible]	[illegible]
4-5	19:55	178.2		-15.4	3.0		15.4		178.2	-28.3	33.8		9.0	33.6	7.0	2.6	6.8	[illegible]	[illegible]
4-4	19:59	199.4	193.1	5.8	3.4	3.9	15.0	14.8	204.0	-2.5	12.0	25.4	-12.8	12.3	-14.3	0.6	2.8	[illegible]	[illegible]
4-3	19:03	205.5		11.9	3.6		14.9		212.6	6.2	11.4		-13.2	11.8	-14.8	2.5	2.9	[illegible]	[illegible]
4-2	18:43	184.8		1.2	3.1		15.3		186.6	-10.5	14.0		-10.6	14.1	-12.5	0.6	1.1	[illegible]	[illegible]
4-1	18:47	172.7		-20.9	5.9		12.9		208.1	-0.4	18.4		-6.2	22.0	-4.6	4.2	8.8	[illegible]	[illegible]
Outlet Averages		193.6			4.0		14.5		208.5		24.6			26.6		2.7	7.2	-12.8	-5.2

Clean Air Engineering Project #10247
Consol Energy
AES Greenridge

Date: 5/31/2007
Start Time: 9:35
End Time: 9:59

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.
	9:36	91.6		-3.7	19.7		0.9		1366.4	1211.2	910.9		-132.1	1664.3	1333.6
	9:40	88.0		-7.3	5.2		13.5		100.3	-54.8	261.4		-41.6	229.6	-91.0
	9:44	108.0	110.0	10.7	4.5	7.2	14.6	11.8	114.3	-40.6	267.7	257.1	-35.3	224.0	-96.7
	9:48	127.2		31.9	5.9		13.6		143.2	-11.9	985.0		-68.0	219.5	-101.1
	9:52	108.7		13.4	4.1		14.4		115.9	-39.3	964.0		-79.0	174.7	-145.9
	9:56	138.2		42.9	4.9		13.7		154.6	-0.5	723.5		450.6	809.6	488.9
	9:37	81.7		-13.6	5.3		13.5		100.2	-55.0	40.7		-302.9	49.9	-270.8
	9:41	59.2		-36.1	3.7		16.3		61.6	-93.5	163.1		-89.9	159.3	-161.3
	9:45	53.8	76.8	-41.5	5.2	4.6	14.2	15.1	61.3	-93.8	73.6	140.1	-168.4	83.9	-236.8
	9:49	80.2		-35.1	4.0		15.1		83.6	-91.4	137.4		-105.6	145.5	-175.1
	9:53	101.1		5.8	3.0		16.7		101.1	-54.0	168.4		-74.6	168.4	-152.3
	9:57	103.7		8.4	4.9		14.8		116.0	-38.1	267.2		24.2	298.9	-21.7
	9:38	89.6		-5.7	4.6		14.5		98.6	-39.5	43.2		-199.8	48.0	-272.6
	9:42	80.9		-14.4	3.4		15.9		82.7	-72.4	228.9		-14.1	294.1	-66.5
	9:46	112.8	104.5	17.5	5.6	5.9	14.1	15.3	132.0	-23.2	103.3	226.5	-139.7	120.9	-199.8
	9:50	131.7		36.4	3.0		15.5		131.7	-23.4	219.7		-23.3	219.7	-101.0
	9:54	100.6		5.3	2.6		16.6		97.9	-57.3	649.2		406.2	691.8	370.9
	9:58	111.2		15.9	4.2		14.9		119.2	-35.9	114.9		-128.1	123.2	-197.6
	9:39	76.7		-15.6	5.1		12.9		95.2	-58.8	36.8		-306.2	-44.5	-376.2
	9:43	74.1		-21.2	3.1		15.6		74.5	-80.6	202.8		-40.2	203.9	-116.7
	9:47	91.4	90.0	-3.9	3.0	3.6	15.7	15.1	91.4	-63.7	92.0	338.4	-150.1	92.9	-227.9
	9:51	117.6		22.3	2.3		16.1		113.2	-41.8	215.2		-27.8	207.1	-113.6
	9:55	81.0		-14.3	2.0		16.5		78.7	-76.4	686.2		443.2	648.8	329.2
	9:59	97.3		2.0	5.1		13.6		110.2	-44.8	796.7		553.7	902.6	581.9
Inlet Averages		95.3			4.8		14.3		155.1		243.0			320.7	

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff. W/ O2 correction	CO Removal Efficiency	CO Removal Eff. W/ O2 correction
	9:35	2.3		-45.9	11.3		18.4		4.3	-47.6	121.0		-13.0	225.8	74.2	97.5	98.7		
	9:40	51.6		13.4	4.4		25.0		65.8	14.0	61.4		-72.6	66.6	-84.8	30.0	33.4		
	9:44	97.9	73.1	49.7	4.4	5.0	25.0	-147.6	106.2	54.2	125.3	151.9	-8.7	135.9	+15.6	7.8	7.1		
	9:48	86.8		38.6	5.6		24.0		89.8	37.8	57.8		-76.7	58.3	-62.2	31.8	37.3		
	9:52	113.3		65.1	9.8		19.3		182.7	130.9	188.9		4.9	224.0	72.6	-4.2	-57.9		
	9:56	78.5		29.3	2.5		-999.0		74.4	22.5	404.0		270.0	398.0	246.6	44.6	51.9		
	9:37	26.5		-22.6	7.2		17.2		33.4	-18.5	39.2		-94.8	51.2	+100.2	66.7	66.6		
	9:41	4.9		-43.3	3.9		11.1		5.2	-46.8	128.2		-7.8	132.9	+18.8	91.7	91.6		
	9:45	94.6	53.4	46.6	3.0	4.2	11.4	15.9	94.6	42.8	32.2	81.2	-101.6	32.2	+119.2	-76.2	-54.6		
	9:49	116.4		68.2	2.5		10.4		113.9	61.8	36.1		-97.8	35.3	+116.1	-93.4	-76.6		
	9:53	73.5		25.3	2.5		24.9		71.9	20.0	165.4		22.4	153.0	1.5	27.5	28.9		
	9:57	5.4		-42.8	5.8		13.6		8.4	-45.5	98.9		-37.1	114.9	+38.6	94.8	94.5		
	9:38	1.9		-46.3	8.2		21.9		2.7	-49.2	85.8		-48.4	120.6	-30.8	97.9	97.3		
	9:42	0.8		-47.3	4.8		21.5		1.0	-51.0	142.5		8.5	150.9	-0.5	98.9	98.8		
	9:46	76.2	50.9	28.0	4.0	4.5	22.4	-316.4	80.7	28.8	34.5	111.1	-99.5	38.5	+114.9	32.4	38.8		
	9:50	117.8		69.6	2.4		22.1		114.0	62.1	83.4		-50.6	80.7	+70.7	10.8	13.5		
	9:54	106.9		58.7	2.6		-999.0		104.6	52.7	163.0		29.0	159.4	8.0	-8.8	-8.8		
	9:58	0.9		-47.3	5.7		-999.0		1.1	-50.9	157.5		23.5	185.6	34.0	99.2	99.1		
	9:39	2.4		-45.8	7.8		16.7		3.3	-48.6	32.0		-62.0	112.0	-39.4	97.8	95.8		
	9:43	0.8		-47.3	4.0		19.7		1.0	-51.0	178.5		45.5	190.1	38.7	98.8	98.7		
	9:47	11.4	15.5	-36.8	3.1	4.4	20.7	16.5	11.5	-40.4	58.4	182.3	+75.5	58.7	-92.7	87.5	87.5		
	9:51	73.8		25.6	3.5		21.0		71.8	19.8	118.3		-15.7	115.1	-36.4	37.2	36.6		
	9:55	2.4		-45.8	2.3		23.4		2.3	-49.6	260.8		226.8	347.2	195.8	97.9	97.0		
	9:59	1.5		-46.4	6.9		18.0		3.3	-48.6	354.8		320.9	453.8	302.3	99.2	97.9		
Outlet Averages		48.2			4.8		-107.5		51.9		134.0			151.4		48.7	49.0	25.3	24.5

Clean Air Engineering Project #10247
Consol Energy
AES Greenidge

Date: 5/31/2007
Start Time: 10:00
End Time: 10:23

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O_2 %dv	O_2 Port Avg	CO_2 %dv	CO_2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O_2	PPM Dev from Avg.
1-6	10:00	101.9		5.7	19.7		0.8		1506.6	1345.6	151.4		-134.7	2238.4	1853.9
1-5	10:04	87.2		-8.1	6.4		11.9		107.6	-53.4	684.4		398.3	844.9	460.3
1-4	10:08	104.6	113.2	9.3	4.4	7.5	14.1	11.4	113.5	-47.5	396.0	336.4	109.9	429.6	35.0
1-3	10:12	139.7		34.4	5.2		13.5		147.9	-13.1	200.0		-86.1	226.0	-168.5
1-2	10:16	105.0		10.7	4.4		14.2		115.0	-46.0	157.1		-129.0	170.4	-224.1
1-1	10:20	132.9		37.6	4.5		13.8		147.9	-13.3	423.3		137.2	470.6	76.1
2-6	10:01	88.0		-7.3	5.0		13.4		105.7	-55.3	99.6		-186.5	119.7	-274.9
2-5	10:05	82.4		-32.8	3.6		16.2		84.2	-86.8	591.8		305.7	608.8	214.2
2-4	10:09	87.5	77.3	-37.2	5.3	4.6	13.7	14.8	76.5	-90.5	240.2	227.5	-45.9	294.5	-100.1
2-3	10:13	70.7		-24.6	4.5		14.5		77.2	-83.8	109.7		-175.4	119.7	-274.8
2-2	10:17	89.6		-5.7	2.8		16.5		98.6	-72.4	301.7		-184.4	100.8	-294.0
2-1	10:21	96.8		0.6	4.5		14.5		104.6	-56.4	222.0		-64.1	242.3	-152.3
3-6	10:02	97.8		2.5	4.2		14.9		104.3	-56.2	145.3		-140.8	155.7	-238.8
3-5	10:06	80.6		-14.7	3.4		15.5		82.4	-78.6	483.3		197.2	494.3	99.8
3-4	10:10	111.8	104.8	16.5	5.4	3.9	13.5	15.3	129.1	-31.9	278.1	263.0	-16.0	311.9	-82.6
3-3	10:14	132.3		37.0	3.5		16.5		136.1	-24.9	134.1		-152.0	138.0	-256.6
3-2	10:18	101.8		6.5	2.5		16.5		99.6	-61.4	473.3		187.2	483.0	68.4
3-1	10:22	104.7		9.4	4.0		15.2		110.9	-50.1	252.0		-34.1	266.9	-127.7
4-6	10:03	90.7		-4.6	5.2		13.4		103.4	-57.6	212.1		-74.0	241.8	-152.7
4-5	10:07	69.0		-26.3	2.9		16.5		69.6	-92.4	577.2		391.1	573.4	276.9
4-4	10:11	87.2	88.7	-8.1	3.1	3.6	15.5	14.9	87.7	-73.3	113.8	288.6	-172.3	114.4	-280.1
4-3	10:15	117.8		22.3	2.6		15.8		115.0	-46.0	142.3		-143.8	139.2	-255.4
4-2	10:19	84.3		-14.0	2.2		16.1		77.8	-83.2	475.2		189.1	454.9	60.3
4-1	10:23	85.3		-9.0	5.4		13.3		99.7	-61.3	111.2		-174.8	128.4	-266.1
Inlet Averages		98.3			4.9		14.1		161.0		296.1			394.6	

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O_2 %dv	O_2 Port Avg	CO_2 %dv	CO_2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O_2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff W/ O_2 correction	CO Removal Efficiency	CO Removal Eff W/ O_2 correction
5-6	10:00	2.1		-48.9	11.2		18.1		3.9	-51.2	124.4		-35.2	229.6	-8.4	97.9	99.7	89.7	89.7
5-5	10:04	52.3		11.3	4.0		25.0		66.0	10.9	413.5		203.9	438.0	202.0	25.8	38.7	30.4	46.0
5-4	10:08	100.9	72.9	49.9	4.3	6.0	24.6	23.0	108.6	53.6	240.9	210.5	31.3	269.6	23.8	9.5	4.1	34.7	34.4
5-3	10:12	68.6		29.6	4.0		25.0		95.1	40.1	96.9		-120.7	94.2	-141.8	30.8	35.7	25.1	25.1
5-2	10:16	113.9		52.9	9.8		19.0		183.7	128.6	117.5		-92.1	189.5	-46.4	-7.5	-59.7	44.7	44.7
5-1	10:20	67.7		16.7	2.5		25.2		65.9	10.8	278.0		68.4	270.4	34.5	49.1	55.4	46.3	46.3
6-6	10:01	49.1		-1.9	6.5		14.6		61.0	6.0	170.1		-39.5	211.4	-24.5	44.2	42.3	27.5	27.5
6-5	10:05	5.4		-44.5	4.5		17.7		7.0	-48.1	406.5		196.9	443.7	207.8	89.7	89.1	72.5	72.5
6-4	10:09	95.5	89.7	47.5	2.7	3.5	13.5	12.9	98.9	41.8	45.6	181.7	-164.0	44.8	-191.1	-71.3	-37.4	94.9	94.9
6-3	10:13	120.5		69.5	2.7		12.5		116.5	63.5	34.7		-174.9	34.1	-201.8	-70.4	-53.6	97.2	97.2
6-2	10:17	72.3		26.3	2.9		11.5		78.9	25.8	230.6		71.0	279.0	43.1	11.5	11.0	117.4	117.4
6-1	10:21	4.4		-45.6	1.7		13.7		4.1	-50.9	152.6		-57.0	142.3	-93.7	95.4	96.1	96.2	96.2
7-6	10:02	2.3		-48.7	7.3		20.6		3.1	-51.9	352.3		142.7	481.4	245.5	97.6	97.0	100.0	100.0
7-5	10:06	0.8		-50.1	3.4		21.2		0.9	-54.1	377.0		167.4	395.6	149.7	98.9	98.9	97.9	97.9
7-4	10:10	76.8	52.7	25.9	4.0	4.2	20.0	21.3	81.3	26.3	43.4	220.9	-166.2	46.0	-190.0	31.3	37.0	98.0	98.0
7-3	10:14	121.8		70.8	2.7		20.9		119.8	64.8	37.4		-172.2	36.8	-189.1	7.9	12.0	76.2	76.2
7-2	10:18	113.5		62.5	2.1		22.6		108.1	53.0	262.0		52.4	249.5	13.5	-11.5	-8.5	46.9	46.9
7-1	10:22	0.9		-50.1	5.2		23.4		1.0	-54.0	253.0		43.4	238.5	52.5	99.1	99.1	72.2	72.2
8-6	10:03	19.0		-32.0	6.7		17.8		24.0	-31.1	448.0		239.4	566.0	330.1	79.1	75.8	111.7	111.7
8-5	10:07	0.9		-50.1	3.5		20.3		0.9	-54.1	375.6		156.0	395.4	150.5	98.7	98.7	102.6	102.6
8-4	10:11	7.6	16.8	-43.4	3.0	4.3	20.0	19.9	7.6	-47.4	76.9	225.5	-132.7	78.9	-158.0	91.8	91.9	73.8	73.8
8-3	10:15	51.5		30.5	2.7		20.5		50.2	25.1	72.5		-137.1	71.3	-164.6	30.7	30.3	67.9	67.9
8-2	10:19	2.6		-49.5	2.5		21.4		2.4	-52.6	194.6		-15.0	189.3	-65.6	98.9	98.9	50.1	50.1
8-1	10:23	1.4		-49.8	7.6		19.2		1.9	-53.2	184.1		-25.5	247.8	11.9	98.4	98.1	42.2	42.2
Outlet Averages		51.9			4.8		19.3		55.9		209.6			235.9		46.7	47.9	11.0	8.5

Clean Air Engineering Project #10247
Consol Energy
AES Greenidge

Date: 5/31/2007
Start Time: 11:36
End Time: 11:59

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv.	O2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.
1-6	11:38	94.1		1.1	20.5		4385.0	4108.7	35.8		-112.5	1648.8	1421.3
1-5	11:40	91.2		-5.8	5.5		106.0	-177.3	221.1		71.8	257.0	31.5
1-4	11:44	116.0	109.6	19.0	4.3	7.5	118.6	-164.7	318.5	173.0	169.2	343.4	117.9
1-3	11:48	125.8		31.8	6.3		147.8	-135.5	105.5		-43.8	121.1	-104.5
1-2	11:52	100.9		3.0	4.1		106.5	-176.8	99.9		-79.4	74.5	-151.0
1-1	11:56	128.9		31.9	5.2		147.0	-136.3	288.9		137.0	326.4	100.9
2-6	11:37	74.6		-22.4	6.5		92.7	-190.6	22.2		-127.1	27.6	-197.9
2-5	11:41	71.5		-25.5	4.0		75.7	-207.6	149.1		-0.2	157.9	-67.6
2-4	11:45	72.6	85.3	-24.4	5.4	4.7	83.8	-199.5	223.2	100.4	73.9	257.8	32.2
2-3	11:49	101.5		4.5	4.3		108.4	-173.9	60.4		-89.9	65.1	-160.4
2-2	11:53	99.1		2.1	2.9		98.5	-184.9	59.1		-96.2	52.8	-172.7
2-1	11:57	92.2		-4.8	5.1		104.5	-178.8	94.1		-55.2	105.6	-118.9
3-6	11:38	97.6		0.6	4.6		107.2	-176.1	46.3		-103.0	50.8	-174.7
3-5	11:42	83.4		-13.6	3.6		85.8	-197.5	176.0		26.7	181.1	-44.5
3-4	11:46	116.4	104.6	19.4	5.4	3.9	134.4	-148.9	177.5	158.5	28.2	205.0	-20.5
3-3	11:50	130.0		33.6	3.2		132.1	-151.2	67.0		-82.3	87.8	-157.8
3-2	11:54	96.0		1.0	2.3		94.3	-189.0	437.0		287.7	420.6	195.0
3-1	11:58	101.5		4.5	4.4		110.1	-173.2	46.9		-102.4	50.9	-174.6
4-6	11:39	86.5		-10.5	5.8		102.5	-180.8	64.8		-84.5	76.8	-148.7
4-5	11:43	70.7		-26.3	3.2		71.5	-211.9	359.2		209.9	357.2	131.7
4-4	11:47	92.3	88.6	-4.7	3.3	3.7	93.9	-189.4	75.8	185.6	-73.5	77.1	-148.4
4-3	11:51	115.8		18.8	2.4		112.0	-171.3	79.0		-70.3	76.4	-149.1
4-2	11:55	83.4		-13.6	2.1		79.4	-203.9	361.2		211.9	343.9	118.4
4-1	11:59	83.1		-13.9	5.3		95.4	-188.0	59.3		-90.0	69.0	-157.5
Inlet Averages		97.0			4.5		283.3		148.3			225.5	

Outlet Point	Time Sampled	NOx ppmdv	NOx Post Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff W/ O2 correction	CO Removal Efficiency	CO Removal Eff W/ O2 correction
1-6	11:35	0.5		-46.2	11.9		1.0	-52.6	27.7		-72.4	55.1	-59.5	99.5	100.0	[illegible]	[illegible]
1-5	11:40	72.5		23.8	5.1		82.1	28.3	75.6		-24.5	85.6	-28.9	29.5	22.5	[illegible]	[illegible]
1-4	11:44	108.5	74.2	59.9	4.9	6.5	121.5	67.7	116.8	82.7	16.7	130.7	16.1	1.2	-2.4	[illegible]	[illegible]
1-3	11:48	93.3		44.6	3.9		98.2	44.4	46.9		-53.2	49.4	-65.2	27.6	32.5	[illegible]	[illegible]
1-2	11:52	108.1		59.4	10.5		186.1	132.2	90.1		-20.0	137.9	23.3	-8.1	-74.5	[illegible]	[illegible]
1-1	11:56	62.0		13.6	2.6		60.6	6.8	149.1		46.0	145.8	31.9	51.9	58.7	[illegible]	[illegible]
2-6	11:37	43.9		-4.6	4.9		48.1	-4.7	82.5		-37.6	69.9	-44.6	41.2	47.0	[illegible]	[illegible]
2-5	11:41	44		-44.5	5.9		5.3	-48.6	161.2		81.1	192.4	77.9	93.8	93.1	[illegible]	[illegible]
2-4	11:45	102.0	55.3	53.3	4.5	4.2	111.3	57.5	31.6	53.9	-65.8	34.2	-80.4	-40.5	-32.8	[illegible]	[illegible]
2-3	11:49	116.5		67.8	2.3		112.1	58.3	27.8		-72.3	25.8	-87.8	-14.8	-2.4	[illegible]	[illegible]
2-2	11:53	61.4		12.7	2.3		59.1	5.3	168.2		68.1	161.9	47.3	38.0	40.0	[illegible]	[illegible]
2-1	11:57	3.4		-45.3	5.0		3.6	-50.0	52.3		-47.8	55.9	-55.7	96.3	96.3	[illegible]	[illegible]
3-6	11:38	1.9		-46.8	8.0		2.6	-51.2	151.9		51.8	210.9	96.2	98.1	97.5	[illegible]	[illegible]
3-5	11:42	0.9		-47.8	4.4		1.0	-52.8	198.4		98.3	215.2	100.7	99.0	98.9	[illegible]	[illegible]
3-4	11:46	30.9	49.9	32.2	4.9	4.7	90.5	36.7	34.8	112.0	-65.3	38.9	-75.6	30.5	32.7	[illegible]	[illegible]
3-3	11:50	115.6		67.9	2.4		111.9	58.0	33.6		-66.5	32.5	-82.0	11.5	15.3	[illegible]	[illegible]
3-2	11:54	99.1		51.4	2.8		99.0	44.2	166.7		66.6	164.9	50.3	-1.1	-3.9	[illegible]	[illegible]
3-1	11:58	0.9		-47.8	5.5		1.0	-52.8	36.3		-13.8	100.3	-14.2	99.1	99.0	[illegible]	[illegible]
4-6	11:39	11.6		-37.1	7.5		15.9	-38.0	166.5		68.4	230.2	115.7	86.6	84.5	[illegible]	[illegible]
4-5	11:43	0.9		-47.8	3.9		0.9	-52.9	196.9		98.7	209.8	94.8	98.7	98.7	[illegible]	[illegible]
4-4	11:47	14.4	15.5	-34.3	3.6	4.7	14.9	-38.9	43.5	122.0	-56.6	45.0	-69.4	84.4	84.1	[illegible]	[illegible]
4-3	11:51	62.6		13.8	2.6		61.1	7.3	48.5		-50.6	48.4	-65.1	46.0	45.4	[illegible]	[illegible]
4-2	11:55	2.1		-46.6	2.9		2.1	-51.7	159.5		59.4	159.6	44.1	97.5	97.4	[illegible]	[illegible]
4-1	11:59	1.4		-47.3	7.2		1.8	-52.0	112.2		12.1	146.6	32.0	98.3	98.1	[illegible]	[illegible]
Outlet Averages		48.7			5.0		53.8		100.1			114.5		52.3	51.1	-7.6	-13.1

Clean Air Engineering Project #10247
Consol Energy
ABS Greenridge

Date: 5/31/2007
Start Time: 12:00
End Time: 12:23

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg		NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.
1-6	12:00	99.4		-26.6	20.4			3558.5	3279.1	70.4		-31.2	2520.3	2309.5
1-5	12:04	132.1		6.1	5.4			152.6	-126.9	294.0		192.5	339.5	128.6
1-4	12:08	137.0	126.0	11.0	3.6	7.4		141.8	-137.7	-989.0	-58.6	-1160.6	-1083.5	-1244.4
1-3	12:12	140.5		14.5	5.4			162.3	-117.2	58.7		-32.9	79.3	-191.4
1-2	12:16	118.5		-7.5	4.4			126.6	-150.9	28.0		-73.6	30.4	-180.4
1-1	12:20	131.8		25.8	5.0			170.9	-108.5	126.2		24.7	142.1	-69.7
2-6	12:01	80.4		-46.5	6.3			98.6	-180.9	42.5		-59.1	52.1	-158.7
2-5	12:05	102.0		-24.0	3.5			104.9	-174.5	281.0		179.5	289.1	78.3
2-4	12:09	107.7	112.3	-18.3	5.8	4.7		126.5	-150.9	154.4	114.5	52.9	184.3	-26.5
2-3	12:13	102.2		6.2	4.3			142.6	-136.9	97.4		-14.2	94.2	-116.5
2-2	12:17	100.9		4.9	3.1			131.6	-147.8	24.3		-77.9	24.4	-186.3
2-1	12:21	120.4		-5.6	5.2			137.3	-142.2	97.3		-4.9	110.9	-99.8
3-6	12:02	114.6		-11.5	4.2			122.7	-156.7	91.1		-10.5	97.6	-113.1
3-5	12:06	130.1		4.1	3.1			130.8	-148.6	477.9		376.4	480.6	269.8
3-4	12:10	134.7	132.4	8.7	5.7	3.9		159.6	-120.8	230.2	159.2	128.7	271.1	60.3
3-3	12:14	145.2		19.2	3.4			148.5	-130.9	86.5		-13.1	90.5	-120.2
3-2	12:18	136.8		10.8	2.7			134.5	-144.9	91.1		-10.5	88.6	-121.2
3-1	12:22	132.9		6.9	4.3			143.3	-136.1	36.6		-65.0	39.5	-171.3
4-6	12:00	127.5		1.5	5.5			148.2	-131.2	140.4		38.9	163.2	-47.6
4-5	12:07	123.9		-2.1	2.5			120.5	-158.9	716.4		614.9	696.9	486.2
4-4	12:11	133.7	129.6	7.7	3.4	3.6		136.8	-142.7	33.6	191.1	-68.0	34.4	-176.4
4-3	12:15	142.1		16.1	2.6			139.0	-140.4	39.9		-61.7	39.0	-171.7
4-2	12:19	128.3		2.3	2.3			124.4	-155.0	141.8		40.3	136.5	-74.3
4-1	12:23	121.1		-4.9	6.5			140.8	-138.7	74.5		-27.1	86.6	-124.2
Inlet Averages		126.0			4.9			279.4		191.6			210.6	

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg		NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff W/ O2 correction	CO Removal Efficiency	CO Removal Eff W/ O2 correction
1-6	12:00	0.5		-100.1	11.5			1.0	-110.3	55.4		-85.4	105.5	-36.3	99.5	100.0	[illegible]	[illegible]
1-5	12:04	113.1		12.5	4.8			125.7	14.5	161.6		40.8	179.7	-42.7	14.4	17.6	[illegible]	[illegible]
1-4	12:08	128.8	104.2	28.2	5.0	6.3		146.1	34.9	491.5	136.1	370.7	553.8	416.4	5.3	-3.1	[illegible]	[illegible]
1-3	12:12	120.3		19.7	3.7			125.2	14.0	25.2		-95.6	28.2	-110.7	14.4	22.8	[illegible]	[illegible]
1-2	12:16	134.6		34.0	10.3			227.3	116.1	25.1		-94.7	44.1	-92.8	-13.6	-75.8	[illegible]	[illegible]
1-1	12:20	126.9		26.3	2.6			124.1	12.9	68.7		-52.1	67.2	-69.6	16.4	27.4	[illegible]	[illegible]
2-6	12:01	80.6		-10.1	6.1			108.5	-1.6	82.7		-35.1	100.0	-36.9	-12.6	-11.0	[illegible]	[illegible]
2-5	12:05	27.1		-73.6	3.3			27.6	-83.7	218.0		95.2	219.7	82.7	73.4	73.7	[illegible]	[illegible]
2-4	12:09	126.6	100.2	26.0	3.0	4.0		126.6	15.4	65.7	80.4	-55.1	65.7	-71.3	-17.5	1.5	[illegible]	[illegible]
2-3	12:13	135.8		35.2	2.6			132.8	21.6	24.1		-96.7	23.6	-113.4	-2.7	5.8	[illegible]	[illegible]
2-2	12:17	140.3		39.7	2.3			135.0	23.8	53.0		-67.8	51.8	-85.0	-7.2	-2.6	[illegible]	[illegible]
2-1	12:21	81.0		-19.6	6.7			102.1	-9.1	41.1		-79.7	51.8	-85.2	32.7	25.6	[illegible]	[illegible]
3-6	12:02	4.3		-96.3	7.4			5.7	-105.5	219.4		98.6	290.9	153.9	96.2	95.4	[illegible]	[illegible]
3-5	12:06	10.2		-90.4	3.8			10.7	-100.6	382.2		241.4	379.1	242.2	92.2	91.8	[illegible]	[illegible]
3-4	12:10	119.4	82.8	18.8	5.2	4.6		136.1	24.9	16.9	123.7	-103.9	19.3	-117.7	11.4	14.2	[illegible]	[illegible]
3-3	12:14	138.0		38.4	3.4			142.2	30.9	34.6		-86.3	36.3	-101.7	4.3	4.3	[illegible]	[illegible]
3-2	12:18	144.5		49.9	3.0			144.5	33.3	55.8		-65.0	55.8	-81.2	-5.6	-7.4	[illegible]	[illegible]
3-1	12:22	85.4		-15.2	5.0			96.1	-15.1	53.2		-67.6	59.9	-77.1	35.7	32.9	[illegible]	[illegible]
4-6	12:03	116.9		15.3	7.2			151.4	40.2	275.6		154.8	360.1	223.1	9.1	-2.2	[illegible]	[illegible]
4-5	12:07	99.8		-0.8	3.0			99.8	-11.4	351.4		230.6	351.4	214.4	19.5	17.2	[illegible]	[illegible]
4-4	12:11	128.5	114.2	27.9	3.8	4.4		134.5	23.3	18.8	141.0	-102.0	19.7	-117.3	3.9	1.5	[illegible]	[illegible]
4-3	12:15	140.0		39.4	3.0			140.0	28.8	28.8		-94.2	28.8	-110.4	1.5	-0.7	[illegible]	[illegible]
4-2	12:19	99.3		-1.3	2.3			96.2	-13.0	66.0		-54.9	65.3	-71.7	23.2	21.1	[illegible]	[illegible]
4-1	12:23	101.6		1.0	5.6			127.2	15.9	107.8		-13.0	134.9	-2.5	19.1	9.6	[illegible]	[illegible]
Outlet Averages		100.6			4.8			111.2		120.8			137.9		21.2	19.2	16.7	14.5

Clean Air Engineering Project #10247
Consol Energy
ABS Greenidge

Date: 5/31/2007
Start Time: 12:24
End Time: 12:47

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg		NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.
1-6	12:24	116.8		-13.7	7.2			152.6	11.2	57.5		-89.3	75.1	-77.5
1-5	12:28	137.8		7.3	5.2			157.1	15.7	421.2		280.4	480.2	327.6
1-4	12:32	136.8	135.3	6.3	4.5	5.3		147.5	6.1	392.1	219.8	241.3	412.0	259.4
1-3	12:36	145.5		15.0	5.1			164.8	23.4	99.2		-41.6	112.4	-40.2
1-2	12:40	119.4		-11.1	4.5			130.3	-11.1	78.7		-62.1	85.9	-66.7
1-1	12:44	155.5		25.0	5.2			177.3	35.9	276.6		137.8	317.6	165.0
2-6	12:25	117.0		-13.5	6.1			141.5	0.1	105.1		-35.7	127.1	-25.5
2-5	12:29	120.7		-9.8	3.6			124.2	-17.2	424.2		283.4	436.4	283.8
2-4	12:33	118.9	119.2	-11.6	5.6	4.7		139.1	-2.3	84.5	149.0	-56.3	98.9	-53.7
2-3	12:37	108.9		-21.6	4.4			116.1	-23.3	76.1		-64.7	82.6	-70.1
2-2	12:41	127.2		-3.3	3.4			130.1	-11.3	50.3		-90.5	51.4	-101.2
2-1	12:45	122.4		-8.1	5.1			136.7	-2.7	154.0		13.2	174.5	21.9
3-6	12:26	125.4		-4.1	4.1			134.7	-8.7	178.1		32.3	184.4	31.8
3-5	12:30	136.9		5.4	3.0			136.9	-4.5	-999.0		-1139.8	-999.0	-1151.6
3-4	12:34	139.5	135.7	9.0	5.1	3.8		158.0	16.6	79.9	-70.9	-61.0	90.4	-62.2
3-3	12:38	144.3		13.8	3.4			147.8	6.2	105.8		-35.2	109.0	-44.6
3-2	12:42	137.6		7.0	2.7			135.2	-6.2	157.7		16.9	155.1	2.5
3-1	12:46	129.4		-1.1	4.3			139.5	-1.9	57.3		-83.5	61.8	-90.8
4-6	12:27	130.4		-0.1	6.1			147.7	6.3	199.3		58.5	225.6	73.2
4-5	12:31	129.1		-1.4	2.8			127.7	-13.7	1006.3		867.5	997.2	844.6
4-4	12:35	136.4	132.0	5.9	3.2	3.6		137.9	-3.5	91.9	265.7	-58.9	82.8	-69.8
4-3	12:39	145.7		15.2	2.7			143.3	1.9	109.9		-30.9	109.1	-44.5
4-2	12:43	132.5		2.0	2.1			126.2	-15.3	155.3		15.5	148.8	-3.8
4-1	12:47	117.3		-12.7	5.6			137.8	-3.6	38.5		-102.3	45.9	-107.6
Inlet Averages		130.5			4.3			141.4		140.9			152.6	

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg		NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff W/ O2 correction	CO Removal Efficiency	CO Removal Eff W/ O2 correction
1-6	12:24	116.7		-13.6	10.2			193.6	50.8	73.1		-79.1	122.3	-47.7	0.9	-26.9	[illegible]	[illegible]
1-5	12:28	121.8		-7.8	4.0			129.8	-13.9	228.1		75.9	241.6	71.6	11.8	18.0	[illegible]	[illegible]
1-4	12:32	132.3	127.1	2.9	4.6	5.9		144.4	1.7	140.0	120.6	-12.2	152.8	-17.2	3.3	2.1	[illegible]	[illegible]
1-3	12:36	123.6		-5.6	4.3			133.5	-9.2	56.0		-96.2	60.4	-109.6	14.5	19.0	[illegible]	[illegible]
1-2	12:40	136.2		6.8	9.7			217.7	75.0	87.0		-65.2	199.0	-31.0	-14.3	-67.0	[illegible]	[illegible]
1-1	12:44	132.7		3.3	2.5			129.1	-13.6	139.5		-12.7	135.7	-24.3	14.7	27.2	[illegible]	[illegible]
2-6	12:25	124.7		-4.7	6.7			157.2	14.5	211.0		58.8	266.0	95.0	-5.6	-11.1	[illegible]	[illegible]
2-5	12:29	129.1		-0.3	2.9			126.4	-14.3	259.5		107.3	258.1	86.1	-7.0	-3.4	[illegible]	[illegible]
2-4	12:33	131.4	121.4	2.0	2.6	3.9		128.5	-14.2	31.0	113.7	-121.2	30.3	-139.7	-10.5	7.6	[illegible]	[illegible]
2-3	12:37	139.2		9.8	2.9			138.4	-4.3	30.9		-121.4	30.6	-139.4	-27.8	-17.2	[illegible]	[illegible]
2-2	12:41	143.2		13.8	2.4			136.6	-4.2	95.0		-55.2	92.9	-77.1	-12.6	-6.5	[illegible]	[illegible]
2-1	12:45	120.5		-8.9	5.6			141.0	-1.7	53.9		-96.4	62.9	-107.1	1.6	-1.7	[illegible]	[illegible]
3-6	12:26	126.6		-2.6	7.1			164.5	21.8	593.0		230.8	496.6	326.9	-4.3	-22.1	[illegible]	[illegible]
3-5	12:30	122.2		-7.2	3.1			122.9	-19.8	396.8		244.6	399.0	229.0	10.7	10.2	[illegible]	[illegible]
3-4	12:34	129.7	130.9	0.3	3.8	3.9		135.8	-6.9	82.9	166.8	-119.3	34.4	-135.6	7.0	14.1	[illegible]	[illegible]
3-3	12:38	141.7		12.3	2.9			140.9	-1.8	26.2		-125.0	25.1	-144.0	1.8	4.5	[illegible]	[illegible]
3-2	12:42	148.1		18.7	2.3			142.6	-0.2	74.3		-77.9	71.5	-98.5	-7.7	-5.4	[illegible]	[illegible]
3-1	12:46	117.1		-12.4	4.2			125.5	-17.2	86.6		-65.6	92.8	-77.2	9.5	10.0	[illegible]	[illegible]
4-6	12:27	125.2		-4.2	8.3			153.5	10.8	444.9		292.7	545.5	375.5	4.0	-3.9	[illegible]	[illegible]
4-5	12:31	124.3		-5.1	3.5			127.9	-14.8	505.8		353.6	520.3	350.3	3.7	-4.2	[illegible]	[illegible]
4-4	12:35	134.1	128.5	4.7	3.3	3.8		136.4	-6.3	51.9	207.7	-100.3	52.6	-117.2	1.7	1.1	[illegible]	[illegible]
4-3	12:39	142.2		12.8	2.6			139.1	-3.6	60.2		-92.0	58.9	-111.1	2.4	2.9	[illegible]	[illegible]
4-2	12:43	129.8		0.4	2.3			124.9	-17.8	114.9		-37.3	110.6	-59.4	2.0	1.0	[illegible]	[illegible]
4-1	12:47	115.2		-14.3	5.3			132.2	-10.5	68.7		-83.5	78.8	-91.2	2.2	4.1	[illegible]	[illegible]
Outlet Averages		129.5			4.4			142.7		152.2			170.0		0.2	-1.8	12.9	7.9

Clean Air Engineering Project #10247
Consol Energy
AES Greenidge

Date: 5/31/2007
Start Time: 12:48
End Time: 13:11

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg		NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.
1-6	12:48	117.3		-6.9	7.2			153.2	18.8	40.4		-151.6	52.8	-152.8
1-5	12:52	142.0		17.8	5.2			161.8	27.4	547.9		355.7	624.7	419.1
1-4	12:56	143.6	140.2	19.3	4.4	5.4		155.7	21.2	483.8	237.4	291.6	524.8	319.3
1-3	13:00	143.5		19.3	5.1			162.6	28.1	148.9		-43.3	168.7	-36.8
1-2	13:04	127.4		3.2	4.7			140.8	6.3	88.8		-103.4	98.1	-107.4
1-1	13:08	167.5		43.3	6.5			194.7	60.2	114.4		-77.8	133.0	-72.6
2-6	12:49	103.2		-21.0	5.9			123.2	-11.3	98.8		-160.4	111.9	-93.6
2-5	12:53	98.6		-25.6	3.3			100.3	-34.2	351.7		159.5	357.7	152.2
2-4	12:57	113.1	79.4	-11.1	5.4	4.6		130.6	-3.9	135.5	126.2	-56.6	156.5	-48.9
2-3	13:01	108.5		-15.7	4.4			117.7	-16.8	132.5		-59.7	143.7	-61.8
2-2	13:05	25.3		-98.9	3.2			25.8	-108.9	12.0		-180.2	12.1	-193.4
2-1	13:09	37.8		-86.4	5.2			31.7	-102.9	43.4		-148.8	49.5	-156.1
3-6	12:50	130.1		5.9	3.7			135.4	0.9	179.2		-13.0	186.5	-19.0
3-5	12:54	135.3		11.1	3.0			135.3	0.8	469.6		297.4	485.5	284.1
3-4	12:58	135.2	138.6	14.0	5.2	3.8		157.6	23.1	225.7	192.3	33.5	257.3	51.8
3-3	13:02	143.6		19.4	3.7			149.4	15.0	110.2		-82.0	114.7	-90.9
3-2	13:06	144.4		20.2	3.0			144.4	9.8	69.4		-103.8	69.4	-122.1
3-1	13:10	141.4		17.2	4.3			162.5	18.0	55.8		-125.4	71.0	-134.5
4-6	12:51	134.0		9.8	4.5			148.0	14.5	280.6		66.4	289.7	84.2
4-5	12:55	135.5		11.3	3.0			135.5	1.0	696.5		504.3	696.5	491.0
4-4	12:59	140.4	138.3	16.2	2.0	3.5		140.4	5.9	65.0	210.9	-127.2	65.0	-140.5
4-3	13:03	148.5		24.3	2.5			145.3	10.8	72.3		-119.9	70.7	-134.8
4-2	13:07	145.0		20.8	2.4			140.3	5.8	119.6		-78.6	109.9	-95.6
4-1	13:11	128.2		2.0	5.3			144.8	10.3	56.6		-135.6	64.9	-140.6
Inlet Averages		124.2			4.3			134.5		192.2			205.5	

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg		NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff W/ O2 correction	CO Removal Efficiency	CO Removal Eff W/ O2 correction
1-6	12:48	116.7		-18.8	8.0			161.9	19.9	118.4		-54.2	164.3	-18.6	0.5	-5.7	[illegible]	[illegible]
1-5	12:52	127.1		-8.4	3.1			127.8	-14.2	343.4		170.8	345.3	162.5	10.5	21.1	[illegible]	[illegible]
1-4	12:56	141.1	133.0	5.6	3.4	4.7		144.3	2.3	159.5	138.8	-13.1	163.1	-19.7	1.7	7.3	[illegible]	[illegible]
1-3	13:00	131.4		-4.1	3.1			132.1	-9.9	54.0		-118.6	54.3	-128.6	8.4	18.7	[illegible]	[illegible]
1-2	13:04	140.1		4.6	5.1			185.9	53.9	71.5		-101.1	100.0	-82.9	-10.0	-39.2	[illegible]	[illegible]
1-1	13:08	141.6		6.1	2.6			139.5	-3.5	85.8		-86.8	83.9	-98.8	15.5	28.9	[illegible]	[illegible]
2-6	12:49	127.8		-7.7	4.7			141.2	-0.8	243.0		70.4	268.5	85.6	-23.9	-14.7	[illegible]	[illegible]
2-5	12:53	133.9		-1.9	4.4			144.9	2.9	315.1		142.5	341.8	159.0	-35.5	-44.5	[illegible]	[illegible]
2-4	12:57	139.4	137.3	3.9	2.4	3.3		134.9	-7.1	32.3	127.1	-140.2	31.3	-151.6	-23.3	-8.3	[illegible]	[illegible]
2-3	13:01	140.4		4.9	2.4			135.8	-6.2	42.2		-130.4	40.6	-142.0	-28.4	-15.4	[illegible]	[illegible]
2-2	13:05	146.9		11.4	3.3			149.4	7.4	62.2		-110.4	63.3	-119.6	-480.6	-483.9	[illegible]	[illegible]
2-1	13:09	136.7		0.2	2.8			132.7	-9.3	68.0		-104.6	66.5	-116.4	-388.1	-318.8	[illegible]	[illegible]
3-6	12:50	132.1		-3.4	5.4			152.6	10.6	402.5		230.9	466.0	283.1	-1.5	-12.7	[illegible]	[illegible]
3-5	12:54	127.2		-8.3	2.2			121.8	-20.3	543.1		370.5	519.8	337.0	6.0	10.0	[illegible]	[illegible]
3-4	12:58	131.6	136.4	-3.9	3.4	3.3		134.5	-7.4	33.3	194.7	-139.5	34.1	-148.8	4.8	14.6	[illegible]	[illegible]
3-3	13:02	144.5		9.0	2.8			142.9	0.9	29.0		-143.6	28.7	-154.2	-0.6	4.4	[illegible]	[illegible]
3-2	13:06	153.7		18.2	2.0			145.6	3.5	74.4		-98.2	70.5	-112.4	-6.4	-0.8	[illegible]	[illegible]
3-1	13:10	129.4		-6.1	3.7			134.7	-7.4	84.6		-88.0	88.0	-94.8	8.5	11.7	[illegible]	[illegible]
4-6	12:51	129.4		-6.1	6.0			145.7	8.7	611.9		439.3	668.9	506.0	3.4	2.2	[illegible]	[illegible]
4-5	12:55	131.6		-3.9	2.7			129.4	-12.6	482.3		309.7	474.4	291.5	2.9	4.5	[illegible]	[illegible]
4-4	12:59	135.0	135.4	2.5	2.6	3.5		135.0	-7.0	48.7	229.8	-125.9	45.7	-137.2	1.7	3.9	[illegible]	[illegible]
4-3	13:03	146.6		10.1	2.3			140.1	-1.9	47.2		-125.4	45.4	-137.4	2.0	3.5	[illegible]	[illegible]
4-2	13:07	141.2		5.7	2.3			135.9	-6.1	101.9		-70.7	98.1	-84.8	2.5	3.1	[illegible]	[illegible]
4-1	13:11	125.4		-9.1	5.9			150.6	8.6	86.9		-85.7	105.1	-78.8	-3.2	-4.2	[illegible]	[illegible]
Outlet Averages		135.5			3.7			142.9		172.6			182.9		-36.9	-33.7	-22.5	-22.1

Clean Air Engineering Project #10247
Consol Energy
AES Greenidge

Date: 5/31/2007
Start Time: 13:12
End Time: 13:35

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg		NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.
1-6	13:12	128.4		-16.3	5.5			157.1	2.3	309.0		-110.2	382.9	-60.0
1-5	13:16	162.0		9.3	5.0			171.1	16.3	2000.0		1581.7	2251.5	1808.7
1-4	13:20	148.5	145.7	3.9	4.6	5.5		160.9	6.1	425.9	466.7	8.6	468.8	26.0
1-3	13:24	147.9		5.2	5.7			174.2	19.3	97.0		-321.3	114.2	-328.6
1-2	13:28	136.3		-6.4	5.3			156.4	1.6	94.4		-323.9	108.3	-334.5
1-1	13:32	165.3		22.6	5.7			194.7	39.6	54.1		-364.2	63.7	-379.1
2-6	13:13	126.2		-18.5	4.9			141.2	-13.6	319.3		-99.0	357.2	-85.8
2-5	13:17	123.0		-19.7	3.3			125.1	-29.7	633.6		215.3	544.4	201.5
2-4	13:21	124.3	128.8	-18.4	5.8	4.6		145.4	-9.4	89.7	192.0	-328.6	104.9	-337.9
2-3	13:25	131.4		-11.3	4.6			144.3	-10.5	49.6		-368.7	54.5	-388.4
2-2	13:29	141.1		-1.6	3.9			148.5	-6.3	33.7		-384.6	35.6	-407.3
2-1	13:33	128.7		-16.0	5.0			142.8	-12.2	26.1		-392.2	28.4	-413.4
3-6	13:14	149.6		6.9	3.0			149.6	-5.2	520.0		101.7	520.0	77.2
3-5	13:18	152.4		9.7	3.0			152.4	-2.4	2000.0		1581.7	2000.0	1557.2
3-4	13:22	151.7	151.9	9.0	3.4	3.8		179.2	20.4	134.8	475.0	-283.7	155.4	-287.4
3-3	13:26	138.1		13.4	3.7			162.5	7.6	90.8		-327.5	94.5	-348.3
3-2	13:30	160.5		17.8	3.5			165.1	10.3	79.8		-338.5	82.1	-360.7
3-1	13:34	141.1		-1.6	4.2			151.2	-3.6	24.9		-393.4	26.7	-416.1
4-6	13:16	145.5		2.8	4.3			156.9	2.1	758.3		340.0	817.7	374.9
4-5	13:19	136.0		-6.7	3.1			136.8	-18.1	2000.0		1581.7	2011.2	1568.4
4-4	13:23	146.6	144.4	3.9	3.2	3.6		148.3	-6.6	70.7	509.3	-347.6	71.5	-371.3
4-3	13:27	159.2		16.5	2.9			158.3	3.5	129.9		-288.4	129.2	-313.6
4-2	13:31	151.9		9.2	2.7			149.4	-5.4	48.5		-369.8	47.7	-395.1
4-1	13:35	127.1		-15.6	5.6			148.7	-6.1	46.2		-370.1	56.4	-386.4
Inlet Averages		142.7			4.4			154.8		416.3			462.5	

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg		NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff. W/ O2 correction	CO Removal Efficiency	CO Removal Eff W/ O2 correction
1-6	13:12	127.3		-10.5	5.6			168.3	36.7	290.8		-27.4	430.2	78.5	-0.7	-19.9	[illegible]	[illegible]
1-5	13:16	136.5		-4.0	5.3			135.1	-12.4	493.4		172.2	498.8	147.1	10.0	16.7	[illegible]	[illegible]
1-4	13:20	143.5	139.0	2.8	5.8	5.1		151.2	-0.4	120.1	175.9	-198.1	126.5	-225.2	2.9	6.0	[illegible]	[illegible]
1-3	13:24	134.9		-5.9	3.8			141.2	-10.4	42.4		-275.8	44.4	-307.3	6.9	16.9	[illegible]	[illegible]
1-2	13:28	149.1		8.3	5.4			213.5	61.9	65.2		-253.0	93.4	-258.3	-9.4	-35.5	[illegible]	[illegible]
1-1	13:32	142.0		1.2	2.8			138.9	-12.7	46.5		-271.7	45.5	-305.2	14.1	26.8	[illegible]	[illegible]
2-6	13:13	137.6		-3.2	5.0			154.9	3.3	756.7		438.5	851.9	500.2	-9.9	-9.7	[illegible]	[illegible]
2-5	13:17	140.3		-0.5	3.0			140.3	-11.3	406.2		88.0	406.2	54.5	-14.1	-12.2	[illegible]	[illegible]
2-4	13:21	139.8	143.4	-1.0	2.5	3.4		136.9	-15.8	25.9	215.7	-292.3	25.2	-326.5	-12.5	6.5	[illegible]	[illegible]
2-3	13:25	143.7		2.9	2.7			141.3	-10.2	27.3		-290.9	26.9	-324.8	-9.4	2.1	[illegible]	[illegible]
2-2	13:29	160.5		19.7	2.8			158.1	4.6	29.2		-289.0	28.4	-323.3	-13.7	-5.1	[illegible]	[illegible]
2-1	13:33	138.6		-2.2	4.5			152.2	0.6	48.8		-259.4	53.6	-298.1	-9.5	-6.7	[illegible]	[illegible]
3-6	13:14	140.5		-0.5	4.9			157.2	5.6	2000.0		1681.8	2237.5	1685.8	6.1	-5.1	[illegible]	[illegible]
3-5	13:18	132.1		-9.7	3.3			134.4	-17.2	453.0		134.8	460.7	109.0	13.3	11.8	[illegible]	[illegible]
3-4	13:22	133.1	140.6	-7.7	5.1	4.0		150.9	-0.8	26.0	437.4	-292.2	29.5	-322.2	12.3	13.9	[illegible]	[illegible]
3-3	13:26	145.3		4.5	3.6			150.3	-1.2	36.0		-282.2	37.2	-314.4	6.9	7.5	[illegible]	[illegible]
3-2	13:30	161.6		20.8	3.2			163.4	11.9	39.8		-288.4	39.1	-322.6	-0.7	1.0	[illegible]	[illegible]
3-1	13:34	130.7		-10.1	3.6			135.2	-16.3	80.7		-237.5	83.5	-268.2	7.4	10.6	[illegible]	[illegible]
4-6	13:15	140.8		0.0	4.9			157.5	5.8	2000.0		1681.8	2237.5	1685.8	3.2	-0.4	[illegible]	[illegible]
4-5	13:19	134.0		-6.8	3.7			139.5	-12.1	428.7		110.5	446.1	94.5	1.5	-2.0	[illegible]	[illegible]
4-4	13:23	144.0	140.5	3.2	3.6	4.0		149.0	-2.6	42.3	443.7	-275.9	43.8	-307.9	1.9	-0.5	[illegible]	[illegible]
4-3	13:27	152.1		11.3	2.5			150.4	-1.2	58.4		-254.6	62.7	-289.0	4.5	5.0	[illegible]	[illegible]
4-2	13:31	148.1		7.3	3.0			148.1	-3.5	54.3		-259.9	54.3	-297.4	2.5	0.9	[illegible]	[illegible]
4-1	13:35	123.8		-17.0	6.0			148.7	-2.8	73.2		-245.0	87.9	-263.8	2.6	0.0	[illegible]	[illegible]
Outlet Averages		140.8			4.1			151.6		316.2			351.7		0.7	1.4	-3.7	-5.4

Clean Air Engineering Project #10247
Consol Energy
AES Greenidge

Date: 5/31/2007
Start Time: 15:35
End Time: 15:59

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.
1-6	15:36	137.7		-7.5	7.6		153.9	22.5	66.5		-35.2	114.9	-15.3
1-5	15:40	177.8		32.6	6.0		213.6	52.1	20.6		-100.0	25.0	-104.6
1-4	15:44	145.2	150.2	20.0	4.1	5.3	176.0	14.6	17.0	97.3	-103.6	18.1	-111.5
1-3	15:48	158.2		13.0	5.2		190.4	18.9	66.3		-54.5	75.6	-54.0
1-2	15:52	106.8		-38.3	4.6		117.4	-44.1	104.9		-15.9	113.2	-14.4
1-1	15:56	155.6		10.4	4.4		168.8	7.3	289.1		169.3	313.8	184.0
2-6	15:37	165.2		23.0	6.2		204.6	43.4	11.3		-109.5	13.6	-115.9
2-5	15:41												
2-4	15:45	170.7	150.5	25.5	5.2	4.6	194.6	33.2	13.5	93.7	-107.3	15.4	-114.2
2-3	15:49	140.2		-5.0	4.3		151.2	-10.3	114.3		-6.5	123.3	-6.4
2-2	15:53	137.3		-7.9	2.9		136.5	-24.9	90.0		-30.8	89.5	-40.1
2-1	15:57	135.1		-9.1	4.2		146.8	-14.7	189.6		68.8	204.4	74.8
3-6	15:38	20.7		-124.5	5.9		24.7	-136.8	12.7		-108.1	15.2	-114.5
3-5	15:42	173.3		28.1	5.3		198.9	37.4	5.7		-115.1	6.5	-123.1
3-4	15:46	145.2	129.5	20.0	5.6	4.5	192.0	30.6	15.7	129.7	-105.1	18.2	-111.4
3-3	15:50	152.7		8.5	3.4		157.2	-4.2	199.6		78.8	204.2	74.5
3-2	15:54	133.7		-11.5	2.4		129.4	-32.1	275.1		154.3	268.2	138.6
3-1	15:58	124.6		-20.6	4.2		133.6	-27.9	233.6		112.8	250.4	120.8
4-6	15:39	185.2		40.0	6.7		239.5	72.0	18.4		-102.4	23.2	-106.4
4-5	15:43	190.2		45.0	4.7		210.2	48.7	13.4		-107.4	14.9	-114.9
4-4	15:47	148.8	152.6	3.6	3.7	4.3	154.9	-6.6	24.5	172.1	-96.3	25.5	-104.1
4-3	15:51	148.9		3.7	2.7		146.4	-15.0	194.8		74.0	191.6	62.9
4-2	15:55	125.2		-20.0	2.8		123.8	-37.6	272.4		151.6	269.4	139.8
4-1	15:59	117.0		-28.2	5.4		135.1	-26.3	509.1		388.3	587.9	458.3
Inlet Averages		145.2			4.7		161.5		120.8			129.5	

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff W/ O2 correction	CO Removal Efficiency	CO Removal Eff W/ O2 correction
1-6	15:36	115.4		16.6	10.8		204.5	89.2	422.0		259.9	747.9	568.4	16.2	-11.2	[illegible]	[illegible]
1-5	15:40	127.6		28.8	4.9		142.8	23.5	15.2		-146.9	17.0	-172.5	28.2	53.2	[illegible]	[illegible]
1-4	15:44	135.7	111.9	36.9	4.1	5.5	144.6	25.3	29.1	176.7	-133.0	31.0	-158.5	17.9	17.9	[illegible]	[illegible]
1-3	15:48	111.4		12.6	3.0		111.4	-7.9	34.5		-127.6	34.5	-155.0	29.5	58.2	[illegible]	[illegible]
1-2	15:52	105.6		7.0	7.9		145.7	26.4	124.5		-37.6	171.4	-18.1	1.0	-24.1	[illegible]	[illegible]
1-1	15:56	75.3		-23.5	2.1		71.7	-47.6	434.6		272.5	413.8	224.3	51.6	57.5	[illegible]	[illegible]
2-6	15:37	122.6		27.0	6.1		152.2	32.9	129.6		-32.5	156.7	-32.7	25.2	25.7	[illegible]	[illegible]
2-5	15:41			-98.6													
2-4	15:45	124.4	93.1	26.6	4.2	4.1	133.3	14.1	23.7	250.1	-139.4	24.3	-165.2	27.1	31.5	[illegible]	[illegible]
2-3	15:49	120.5		21.7	2.9		118.8	0.6	35.0		-127.1	34.8	-154.7	14.1	20.7	[illegible]	[illegible]
2-2	15:53	71.9		-26.9	2.7		70.7	-48.6	122.4		-39.7	120.4	-68.1	47.8	48.2	[illegible]	[illegible]
2-1	15:57	23.0		-75.8	4.5		25.1	-94.2	940.9		778.8	1527.0	837.5	80.1	82.9	[illegible]	[illegible]
3-6	15:38	186.0		87.2	13.1		356.0	259.7	62.8		-99.3	144.1	-45.4	-853.6	-1349.3	[illegible]	[illegible]
3-5	15:42	152.1		53.3	4.8		169.1	49.8	17.0		-145.1	16.9	-170.6	12.2	15.0	[illegible]	[illegible]
3-4	15:46	128.3	113.0	30.2	4.0	5.1	136.4	17.1	15.0	123.7	-147.1	15.9	-173.6	22.0	29.0	[illegible]	[illegible]
3-3	15:50	121.4		22.6	2.5		118.1	-1.2	76.7		-85.4	74.6	-114.5	21.0	24.9	[illegible]	[illegible]
3-2	15:54	106.0		7.2	2.3		102.0	-17.3	173.1		11.0	166.8	-22.9	20.7	21.1	[illegible]	[illegible]
3-1	15:58	1.9		-96.9	3.6		2.0	-117.3	357.6		235.5	411.4	221.9	98.5	98.5	[illegible]	[illegible]
4-6	15:39	157.6		59.0	6.9		201.8	82.5	18.9		-149.2	24.2	-165.3	14.8	13.6	[illegible]	[illegible]
4-5	15:43	154.9		56.1	6.2		176.6	57.3	20.7		-141.4	23.6	-165.9	18.6	16.0	[illegible]	[illegible]
4-4	15:47	77.9	78.1	-20.9	3.5	4.5	80.1	-39.1	18.8	112.6	-143.3	19.3	-170.2	47.6	48.2	[illegible]	[illegible]
4-3	15:51	76.3		-22.5	2.6		68.9	-50.5	109.4		-52.7	107.0	-82.5	52.8	53.0	[illegible]	[illegible]
4-2	15:55	4.0		-94.8	3.0		4.0	-115.3	156.8		-3.3	158.8	-30.7	96.6	96.8	[illegible]	[illegible]
4-1	15:59	3.9		-94.9	5.3		4.6	-114.8	350.1		196.0	415.0	225.5	96.7	96.6	[illegible]	[illegible]
Outlet Averages		95.8			4.8		119.3		152.1			189.5		8.2	-22.4	-104.9	-130.3

Clean Air Engineering Project #10247
Consol Energy
AES Greenidge

Date: 5/31/2007
Start Time: 16:00
End Time: 16:23

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg		NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.
1-6	16:00	128.1		-6.8	6.8			177.9	26.2	192.7		93.4	267.4	154.6
1-5	16:04	135.2		0.8	6.7			159.2	9.7	93.2		-69.1	39.1	-73.7
1-4	16:08	133.6	135.6	-0.9	4.4	5.3		144.8	-4.7	27.7	101.3	-74.6	30.1	-82.8
1-3	16:12	155.6		21.2	6.2			177.4	27.9	24.8		-77.5	28.2	-84.5
1-2	16:16	103.5		-31.1	3.9			108.8	-40.8	141.1		38.8	148.6	35.7
1-1	16:20	157.9		23.5	4.3			170.9	20.7	188.1		85.8	202.8	90.0
2-6	16:01	133.7		-0.7	7.2			174.7	25.1	15.1		-87.2	19.7	-93.1
2-5	16:05	128.3		-5.1	5.0			145.8	-4.0	25.1		-77.2	28.3	-84.6
2-4	16:09	126.5	133.0	-7.6	5.4	4.9		146.2	-3.3	16.0	55.6	-86.3	18.5	-94.3
2-3	16:13	132.3		-2.1	4.0			140.1	-9.4	24.5		-77.8	25.9	-86.9
2-2	16:17	145.3		11.4	2.8			145.0	-4.6	175.0		72.7	174.0	61.2
2-1	16:21	130.3		-4.1	4.7			144.0	-5.6	95.6		-6.7	105.6	-7.2
3-6	16:02	95.7		-38.7	5.6			112.0	-37.6	17.4		-84.9	20.4	-92.5
3-5	16:06	128.1		-6.3	4.9			148.3	-6.2	22.6		-79.7	25.3	-87.5
3-4	16:10	133.6	130.1	-0.6	5.7	4.5		157.6	8.0	17.4	75.3	-84.9	20.5	-92.3
3-3	16:14	156.3		21.9	3.4			159.9	10.3	33.4		-68.9	34.2	-79.7
3-2	16:18	106.1		-11.7	2.8			144.5	-5.1	140.5		38.2	138.9	26.1
3-1	16:22	120.6		-13.8	4.3			130.0	-19.5	229.5		118.2	237.8	124.9
4-6	16:03	166.6		22.2	5.4			193.3	43.8	30.0		-72.3	37.0	-75.8
4-5	16:07	118.2		-16.2	4.4			128.2	-21.3	25.8		-76.5	28.0	-84.8
4-4	16:11	135.6	138.7	1.2	4.7	4.4		149.6	0.3	19.8	174.2	-82.5	21.9	-90.9
4-3	16:15	162.3		27.9	3.1			163.2	13.7	36.5		-65.8	35.7	-78.1
4-2	16:19	139.3		4.9	2.7			137.0	-12.5	256.8		154.5	252.6	139.7
4-1	16:23	120.4		-14.0	5.1			136.4	-13.1	676.4		574.1	765.3	653.5
Inlet Averages		134.4			4.7			149.5		102.3			112.8	

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg		NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff. W/ O2 correction	CO Removal Efficiency	CO Removal Eff. W/ O2 correction
1-6	16:00	82.7		25.9	5.8			122.3	61.0	229.6		182.6	339.7	230.6	35.4	31.2	[illegible]	[illegible]
1-5	16:04	72.8		17.0	5.0			92.1	20.8	26.2		-68.7	31.9	-77.2	46.1	48.5	[illegible]	[illegible]
1-4	16:08	99.9	67.5	44.0	4.4	5.1		108.4	47.1	34.2	94.9	-62.8	37.1	-72.0	28.2	25.2	[illegible]	[illegible]
1-3	16:12	50.6		34.7	3.3			62.1	30.8	19.5		-77.5	19.8	-89.3	41.8	46.1	[illegible]	[illegible]
1-2	16:16	100.8		44.9	6.5			126.0	65.7	58.3		-35.7	74.0	-36.1	2.4	-17.6	[illegible]	[illegible]
1-1	16:20	78.3		22.4	2.0			74.2	12.9	169.7		102.7	169.1	80.0	50.4	56.4	[illegible]	[illegible]
2-6	16:01	50.7		-5.2	4.9			55.7	-4.6	30.9		-66.2	34.5	-74.6	62.1	67.5	[illegible]	[illegible]
2-5	16:05	10.7		-45.2	4.3			11.5	-48.8	30.9		-66.1	33.3	-75.8	91.7	92.1	[illegible]	[illegible]
2-4	16:09	97.1	62.5	41.2	4.1	4.1		103.5	42.2	18.6	89.8	-78.4	19.8	-89.3	23.3	29.2	[illegible]	[illegible]
2-3	16:13	118.6		62.7	4.2			127.1	65.8	23.0		-74.0	24.7	-84.4	10.4	9.3	[illegible]	[illegible]
2-2	16:17	61.0		25.1	2.9			80.6	19.3	95.0		-7.0	89.5	-19.8	44.4	44.4	[illegible]	[illegible]
2-1	16:21	17.1		-38.8	4.2			18.3	-43.0	345.5		248.5	370.3	261.2	86.9	87.3	[illegible]	[illegible]
3-6	16:02	8.5		-50.4	12.1			11.2	-50.1	31.9		-65.1	64.9	-44.2	94.3	90.0	[illegible]	[illegible]
3-5	16:06	1.4		-54.5	4.8			1.8	-59.7	35.6		-61.4	39.6	-69.5	98.9	98.9	[illegible]	[illegible]
3-4	16:10	73.6	50.4	17.7	4.2	5.1		78.9	17.6	14.9	85.7	-82.1	16.0	-83.1	45.0	49.9	[illegible]	[illegible]
3-3	16:14	113.7		57.8	2.9			113.1	51.8	31.3		-65.7	31.1	-78.0	27.3	29.3	[illegible]	[illegible]
3-2	16:18	106.6		50.7	2.6			104.3	43.0	62.6		-14.4	80.8	-28.3	27.0	27.6	[illegible]	[illegible]
3-1	16:22	1.4		-54.5	3.9			1.5	-59.8	317.6		220.8	334.5	225.5	98.8	98.9	[illegible]	[illegible]
4-6	16:03	47.1		-8.8	5.8			59.8	-1.0	39.5		-58.2	48.3	-53.8	69.9	69.1	[illegible]	[illegible]
4-5	16:07	1.4		-54.5	4.9			1.6	-59.7	33.3		-63.7	37.3	-71.6	98.8	98.8	[illegible]	[illegible]
4-4	16:11	10.5	23.3	-45.4	5.0	4.8		11.8	-49.5	15.9	117.7	-81.1	17.9	-81.2	92.3	92.1	[illegible]	[illegible]
4-3	16:15	73.1		17.2	3.4			74.8	13.5	34.2		-62.8	35.0	-74.1	55.0	54.2	[illegible]	[illegible]
4-2	16:19	4.1		-51.8	3.0			4.1	-57.2	169.9		72.9	169.9	60.8	97.1	97.0	[illegible]	[illegible]
4-1	16:23	3.4		-52.5	5.4			3.9	-57.4	414.3		317.3	478.4	369.3	97.2	97.1	[illegible]	[illegible]
Outlet Averages		55.0			4.7			61.3		97.0			109.1		59.2	58.4	-16.1	-19.1

Clean Air Engineering Project #10247
Consol Energy
AES Greenridge

Date: 5/31/2007
Start Time: 16:24
End Time: 16:47

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx lb/MMBtu
1-6	16:24	109.6		4.2	4.6		16.2		120.6	4.7	543.6		442.6	597.8	497.8	
1-5	16:28	0.6		-105.0	6.9		13.8		0.8	-115.2	42.6		-58.9	54.5	-54.9	
1-4	16:32	0.6	25.4	-105.0	6.0	4.6	15.7	16.3	0.7	-115.2	26.4	151.4	-75.1	29.7	-79.7	
1-3	16:36	0.4		-105.2	4.3		16.6		0.4	-115.5	34.2		-67.3	36.9	-72.5	
1-2	16:40	0.3		-105.3	2.9		18.2		0.3	-115.6	86.7		-14.8	95.2	-28.2	
1-1	16:44	40.9		-64.7	3.7		17.6		42.6	-73.4	174.5		73.1	181.6	72.2	
2-6	16:26	134.2		28.6	6.8		14.8		170.4	54.4	21.6		-79.9	27.4	-82.0	0.232
2-5	16:29	126.8		21.2	6.3		14.5		145.5	29.6	35.6		-64.6	42.3	-67.0	0.198
2-4	16:33	125.4	129.5	19.8	6.5	4.9	15.5	17.0	143.9	28.0	42.6	52.1	-58.6	49.2	-60.2	0.196
2-3	16:37	123.2		23.6	3.9		16.3		138.0	20.1	19.6		-81.9	20.6	-86.8	0.196
2-2	16:41	137.8		32.2	3.1		19.0		139.6	22.6	70.0		-31.5	70.4	-38.0	0.189
2-1	16:45	123.6		17.9	4.9		17.0		138.2	22.2	121.5		20.1	135.9	26.5	0.188
3-6	16:26	134.2		28.6	5.4		16.2		155.0	39.1	23.3		-78.2	28.9	-82.5	0.211
3-5	16:30	126.2		22.6	5.2		16.4		146.2	30.2	19.3		-82.2	22.0	-87.4	0.199
3-4	16:34	132.6	134.7	29.0	5.6	4.4	16.8	17.3	153.6	38.1	18.3	68.0	-83.2	21.4	-88.0	0.211
3-3	16:38	162.6		59.0	3.2		18.7		164.3	49.4	48.3		-58.2	48.9	-60.5	0.224
3-2	16:42	142.3		38.7	2.6		18.3		139.2	23.3	125.9		24.9	123.5	14.2	0.190
3-1	16:45	103.4		2.8	4.2		17.2		116.2	0.3	172.7		71.9	185.1	75.7	0.158
4-6	16:27	143.1		37.5	6.5		14.6		177.9	62.0	28.1		-72.4	35.2	-75.2	0.243
4-5	16:31	128.1		23.5	5.9		15.3		145.3	29.4	23.8		-77.9	28.8	-82.8	0.198
4-4	16:35	139.2	132.6	33.6	4.1	4.4	17.3	16.9	148.3	32.4	23.5	134.3	-78.0	25.0	-84.3	0.202
4-3	16:39	151.5		45.8	2.8		18.8		149.8	33.9	88.3		-15.2	85.3	-24.0	0.204
4-2	16:43	133.1		27.5	2.8		18.7		131.8	15.7	272.5		171.1	268.5	160.1	0.178
4-1	16:47	101.3		-4.3	5.2		15.7		115.5	-0.4	370.8		269.4	422.9	313.4	0.157
Inlet Averages		105.6			4.5		15.9		115.9		101.5			108.4		0.193

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff. W/ O2 correction	CO Removal Efficiency	CO Removal Eff W/ O2 correction	NOx lb/MMBtu
1-6	16:24	54.9		20.0	8.6		9.5		90.1	59.0	659.5		549.5	915.1	782.2	40.9	25.3			0.1226
1-5	16:28	61.4		16.5	8.5		10.3		76.3	25.3	30.9		-79.3	38.4	-94.5	-10153.3	-9849.1			0.1341
1-4	16:32	51.7	53.8	6.6	8.7	7.8	11.1	9.5	60.9	9.9	37.9	172.2	-72.2	44.6	-88.3	-8516.7	-8613.5			0.0930
1-3	16:36	51.7		6.6	8.0		9.2		71.7	20.7	31.3		-78.8	43.4	-89.5	-12625.3	-16532.2			0.0978
1-2	16:40	48.0		3.1	9.5		7.5		77.4	26.4	96.7		-11.2	159.2	26.2	-15900.0	-25845.9			0.1055
1-1	16:44	43.7		-1.2	8.8		9.1		64.8	13.8	174.6		64.7	259.3	125.3	-8.8	-51.9			0.0882
2-6	16:26	62.4		7.5	4.5		13.9		57.5	6.5	186.9		79.0	207.4	74.5	61.0	66.2			0.0765
2-5	16:29	8.9		-36.0	4.4		12.7		8.7	-41.4	35.1		-74.8	38.1	-94.9	93.0	93.4			0.0182
2-4	16:33	90.4	61.1	45.5	3.9	3.9	12.9	13.9	98.3	47.8	26.9	93.1	-83.0	29.3	-104.6	25.5	31.7			0.1341
2-3	16:37	118.8		73.9	4.1		12.8		126.5	75.5	34.4		-75.5	38.7	-95.3	8.0	7.0			0.1725
2-2	16:41	74.0		29.1	2.9		13.7		73.8	22.6	100.0		-9.9	99.4	-53.5	46.3	46.9			0.1009
2-1	16:45	19.1		-25.8	3.5		13.9		19.5	-31.4	173.2		63.3	179.2	45.2	84.5	85.8			0.0269
3-6	16:26	4.3		-40.6	5.3		13.2		5.5	-45.6	32.7		-77.2	41.5	-91.4	96.8	96.5			0.0074
3-5	16:30	1.4		-43.5	4.9		13.1		1.6	-49.5	27.6		-82.3	30.9	-102.1	98.9	98.9			0.0021
3-4	16:34	74.1	50.1	29.2	4.2	4.2	14.9	15.0	76.4	29.4	16.4	73.4	-93.5	17.6	-115.4	44.1	48.6			0.1063
3-3	16:38	113.9		71.0	2.5		16.9		112.6	61.7	40.6		-89.3	39.5	-93.4	28.7	31.4			0.1537
3-2	16:42	100.7		58.8	2.5		16.6		100.9	49.8	98.8		-10.0	97.2	-33.8	27.1	27.5			0.1376
3-1	16:45	1.4		-43.5	4.0		13.2		1.5	-49.5	223.2		113.3	236.4	103.5	98.7	98.7			0.0020
4-6	16:27	22.6		-22.3	7.9		11.7		29.1	-21.9	37.1		-72.8	47.8	-85.2	84.2	83.8			0.0397
4-5	16:31	1.4		-43.5	5.2		13.3		1.8	-49.4	32.7		-77.2	37.3	-95.7	98.9	98.8			0.0022
4-4	16:35	5.3	14.9	-39.6	4.7	4.8	13.7	13.4	5.9	-45.2	18.5	101.1	-90.4	21.5	-111.4	96.2	96.1			0.0060
4-3	16:39	64.7		9.8	2.9		15.1		54.4	3.4	52.5		-57.4	52.2	-80.7	63.9	63.7			0.0742
4-2	16:43	3.6		-41.4	3.0		14.9		3.5	-47.5	144.0		34.1	144.0	11.1	97.4	97.3			0.0048
4-1	16:47	2.0		-42.9	5.7		11.9		2.4	-48.7	320.7		210.8	377.7	244.7	98.0	98.0			0.0032
Outlet Averages		44.9			5.2		12.3		51.0		109.9			132.5		-1520.4	-2455.7	-38.6	-41.6	0.070

Clean Air Engineering Project #10247
Consol Energy
AES Greenridge

Date: 5/31/2007
Start Time: 17:36
End Time: 17:59

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx lb/MMBtu
1-A	17:36	91.5		-4.9	5.4		14.6		113.1	8.9	362.7		357.3	894.8	471.8	0.164
1-B	17:40	74.8		-21.7	5.6		15.2		87.5	-16.8	166.9		-38.3	195.3	-27.8	0.119
1-C	17:44	97.4	97.4	-9.1	4.7	5.1	16.3	16.0	96.6	-7.7	302.1	299.8	96.9	339.8	116.8	0.132
1-D	17:48	113.1		18.6	5.1		16.0		128.1	23.8	106.6		-98.6	120.8	-102.3	0.175
1-E	17:52	97.8		1.3	4.3		17.0		105.5	1.2	124.8		-80.9	134.6	-88.6	0.144
1-F	17:56	119.8		23.4	4.4		17.0		130.1	25.8	296.1		90.9	321.2	98.2	0.177
2-A	17:37	89.6		-6.9	5.5		16.6		106.2	1.9	106.3		-95.9	129.6	-93.5	0.145
2-B	17:41	84.7		-11.8	3.3		18.1		88.7	-15.6	254.4		49.2	266.3	43.3	0.121
2-C	17:45	92.9	94.3	-3.6	5.2	4.5	16.3	17.2	105.9	1.7	92.3	138.5	-112.8	105.2	-117.8	0.144
2-D	17:49	96.1		-1.4	4.3		17.2		102.5	-1.7	87.6		-117.5	94.5	-128.6	0.140
2-E	17:53	108.2		12.7	3.2		18.7		110.4	6.2	139.2		-67.0	139.8	-83.3	0.151
2-F	17:57	94.2		-2.3	4.8		17.1		104.7	0.5	155.3		-49.9	172.7	-50.4	0.143
3-A	17:38	95.9		-0.6	4.1		17.7		102.2	-2.1	189.6		-15.6	200.9	-22.1	0.139
3-B	17:42	82.2		-14.3	3.8		18.5		84.6	-19.7	316.1		110.9	325.2	102.1	0.115
3-C	17:46	106.9	103.3	9.4	5.2	3.9	16.5	18.0	120.7	16.5	84.2	191.8	-121.0	68.0	-127.0	0.165
3-D	17:50	121.6		25.0	3.8		18.2		125.7	21.4	68.0		-137.2	91.1	-132.0	0.171
3-E	17:54	108.6		12.3	2.9		18.9		108.2	3.9	137.6		-67.6	136.8	-86.2	0.148
3-F	17:58	105.4		9.8	3.9		17.8		111.0	6.7	276.4		71.2	291.0	68.0	0.151
4-A	17:39	87.5		-8.9	5.5		16.7		101.8	-2.4	178.3		-36.9	207.2	-15.8	0.139
4-B	17:43	74.3		-22.2	3.2		18.2		75.1	-29.1	374.6		169.7	379.1	156.1	0.102
4-C	17:47	89.3	90.9	-6.7	3.3	3.7	18.1	17.6	91.3	-12.9	75.8	239.7	-129.4	77.1	-146.0	0.125
4-D	17:51	111.7		15.2	3.6		18.4		111.7	7.4	60.3		-144.9	60.3	-162.7	0.152
4-E	17:55	85.3		-11.2	2.3		19.1		82.1	-22.2	361.7		176.5	367.3	144.3	0.112
4-F	17:59	96.5		0.0	5.0		16.1		108.5	4.1	387.1		161.9	413.3	190.2	0.148
Inlet Averages		96.5			4.3		17.2		104.3		205.2			225.8		0.142

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff w/ O2 correction	CO Removal Efficiency	CO Removal Eff w/ O2 correction	NOx lb/MMBtu
1-A	17:36	63.3		17.4	5.1		9.4		69.5	37.7	501.9		325.3	701.9	498.1	30.9	31.7			0.1207
1-B	17:40	68.1		13.2	4.8		15.0		85.7	14.9	149.3		-27.3	166.0	-39.8	21.0	24.9			0.0996
1-C	17:44	57.4	79.5	21.5	4.3	5.6	15.0	16.4	72.7	21.8	186.3	205.7	9.7	200.9	-4.9	22.9	24.7			0.0961
1-D	17:48	75.3		32.4	4.1		19.3		83.4	32.6	99.3		-107.3	73.8	-131.9	30.6	34.9			0.1138
1-E	17:52	105.6		58.7	9.0		15.9		159.8	109.0	61.4		-115.2	92.4	-113.4	-6.0	-50.6			0.2166
1-F	17:56	57.2		21.3	3.2		19.5		66.0	17.1	271.8		85.2	274.9	69.1	44.0	47.9			0.0927
2-A	17:37	33.8		-7.1	3.5		16.5		40.1	-10.7	227.0		50.4	234.9	29.1	58.7	62.2			0.0547
2-B	17:41	4.4		-41.5	3.4		16.3		4.5	-46.3	152.0		-24.6	155.5	-50.3	94.8	94.9			0.0061
2-C	17:45	53.2	51.9	37.3	3.4	3.5	14.8	16.7	65.1	34.3	67.3	133.7	-109.3	68.8	-136.9	10.4	19.7			0.1160
2-D	17:49	103.5		57.9	3.3		16.1		125.6	54.8	34.2		-142.4	34.8	-171.0	-9.1	-2.9			0.1440
2-E	17:53	72.5		26.9	3.1		18.9		73.2	22.4	61.1		-115.5	61.4	-144.3	33.3	33.7			0.0998
2-F	17:57	7.7		-38.2	4.1		20.5		8.2	-42.6	260.3		83.7	277.3	71.6	91.8	92.2			0.0112
3-A	17:38	2.3		-43.6	6.4		15.0		2.8	-48.0	408.6		232.0	504.4	298.6	97.6	97.2			0.0039
3-B	17:42	0.6		-45.3	3.9		22.0		0.6	-50.2	251.8		75.0	264.9	59.2	99.3	99.3			0.0009
3-C	17:46	70.4	47.0	24.5	4.4	4.5	19.4	20.8	78.4	25.6	32.2	191.3	-144.4	34.9	-170.8	33.5	35.7			0.1041
3-D	17:50	108.0		60.1	3.7		21.3		119.3	66.5	28.4		-148.2	29.8	-176.2	12.8	12.2			0.1504
3-E	17:54	102.0		56.1	3.1		22.4		102.6	51.8	71.1		-135.5	71.5	-134.9	6.3	5.2			0.1399
3-F	17:58	0.9		-45.0	6.4		24.3		1.0	-49.8	296.0		119.4	341.6	135.1	99.1	99.1			0.0014
4-A	17:39	3.1		-42.8	7.4		14.8		4.1	-46.7	353.9		187.2	492.4	275.8	96.5	96.0			0.0056
4-B	17:43	0.9		-45.0	4.4		20.5		1.0	-49.8	202.9		26.3	229.1	14.4	98.8	98.7			0.0013
4-C	17:47	3.9	11.8	-42.0	3.8	5.0	20.2	19.8	4.1	-46.7	50.6	184.9	-125.6	53.2	-152.6	95.7	96.5			0.0056
4-D	17:51	55.8		9.7	3.7		21.1		57.9	7.0	44.2		-132.4	46.6	-159.6	50.2	46.2			0.0789
4-E	17:55	2.4		-43.5	2.9		22.3		2.4	-48.4	185.9		-10.7	185.0	-60.8	97.2	97.1			0.0033
4-F	17:59	1.9		-44.0	7.7		13.7		2.6	-48.2	291.5		105.0	381.9	176.1	98.0	97.6			0.0035
Outlet Averages		46.9			4.6		18.4		50.8		176.6			205.8		64.8	53.6	13.2	10.3	0.069

Clean Air Engineering Project #10247
Consol Energy
AES Greenidge

Fd 9780

Date: 5/31/2007
Start Time: 18:00
End Time: 19:23

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx lb/MMBtu
1-6	18:00	97.3		-10.1	6.9		14.4		111.8	6.8	129.4		-76.4	157.8	-38.2	0.15
1-5	18:04	87.3		-9.8	5.2		16.6		100.1	-5.0	378.6		156.8	422.5	206.8	0.14
1-4	18:08	93.4	93.9	-7.0	4.4	5.0	17.1	16.5	98.1	-7.0	227.2	189.4	25.4	248.5	30.5	0.13
1-3	18:12	87.0		-13.4	5.2		16.3		99.2	-5.8	99.5		-112.9	101.5	-114.5	0.14
1-2	18:16	99.0		-8.4	4.1		17.7		94.8	-10.2	158.1		-43.7	166.5	-47.5	0.13
1-1	18:20	121.9		24.5	4.4		17.1		132.2	27.2	227.8		26.1	247.2	31.6	0.18
2-6	18:01	96.7		-3.7	5.7		16.7		113.9	8.9	93.9		-117.9	68.8	-117.1	0.16
2-5	18:05	91.9		-5.6	2.9		17.8		96.8	-8.3	200.1		-1.7	210.7	-5.3	0.13
2-4	18:09	96.6	96.5	-1.8	5.3	4.5	16.7	17.3	109.7	4.6	78.9	146.3	-121.9	91.7	-124.3	0.15
2-3	18:13	96.2		-5.6	4.3		17.7		103.3	-1.8	108.7		-93.1	117.2	-98.7	0.14
2-2	18:17	106.2		8.8	3.8		18.9		106.2	1.1	250.9		49.1	250.9	34.9	0.14
2-1	18:21	92.5		-4.8	4.8		17.2		103.2	-1.9	148.1		-53.7	164.7	-51.3	0.14
3-6	18:02	104.4		7.0	3.8		17.8		109.3	4.2	398.2		66.4	260.7	64.8	0.15
3-5	18:06	87.5		-9.9	3.6		18.0		90.5	-14.5	313.1		111.3	324.0	108.0	0.12
3-4	18:10	109.7	105.1	12.3	5.3	3.9	16.4	17.9	125.9	20.8	98.1	213.1	-103.7	112.8	-103.4	0.17
3-3	18:14	124.2		26.8	3.5		16.2		127.8	22.7	90.4		-111.4	80.0	-123.0	0.17
3-2	18:18	103.5		6.1	2.8		19.1		102.4	-2.7	265.7		63.9	282.8	46.9	0.14
3-1	18:22	107.5		10.1	4.1		17.7		114.5	9.5	242.8		41.0	258.7	42.7	0.16
4-6	18:03	94.8		-2.6	5.0		16.1		106.7	1.7	391.5		189.7	440.7	224.8	0.13
4-5	18:07	78.5		-18.9	3.3		18.1		79.8	-25.2	371.4		169.6	377.7	161.8	0.11
4-4	18:11	92.5	93.0	-4.9	3.3	3.7	18.0	17.8	94.1	-11.0	77.1	248.7	-124.7	78.4	-137.5	0.13
4-3	18:15	106.2		8.8	2.8		18.7		105.0	0.0	79.0		-122.8	78.1	-137.8	0.14
4-2	18:19	85.3		-8.1	2.5		19.1		88.9	-16.2	381.4		159.8	351.5	135.6	0.12
4-1	18:23	96.6		-0.8	5.1		16.8		109.4	4.4	217.7		15.9	249.8	30.7	0.15
Inlet Averages		97.4			4.3		17.4		105.06		201.8			216.0		0.1

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff. W/ O2 correction	CO Removal Efficiency	CO Removal Eff. W/ O2 correction	NOx lb/MMBtu
1-6	18:00	74.0		20.1	5.8		13.5		119.3	80.2	140.9		-19.2	227.2	44.7	15.2	-6.9	43.7	40.0	0.163
1-5	18:04	82.7		28.8	3.9		17.6		87.1	28.0	225.6		65.5	237.5	55.1	5.8	13.0	40.1	47.8	0.119
1-4	18:08	106.3	87.5	52.6	3.6	5.1	11.7	14.5	109.6	50.5	136.2	153.5	-22.9	140.1	-42.4	-17.6	-11.7	70.1	71.3	0.149
1-3	18:12	68.1		34.2	3.7		13.7		91.7	32.6	50.9		-108.2	53.0	-129.5	-1.3	7.5	42.8	47.8	0.125
1-2	18:16	106.8		52.9	7.4		13.7		141.6	82.5	88.3		-70.8	117.1	-65.4	-20.0	-49.3	44.1	29.7	0.193
1-1	18:20	66.9		13.0	2.8		16.8		65.1	6.0	276.9		118.8	271.3	88.8	45.1	59.8	27.4	45.5	0.089
2-6	18:01	68.9		5.0	3.7		17.0		81.3	2.2	187.4		28.3	195.0	12.5	39.1	49.2	52.4	49.7	0.094
2-5	18:05	8.0		-44.9	3.1		11.2		8.1	-50.0	131.6		-27.6	132.2	-50.2	90.2	90.8	34.5	31.2	0.012
2-4	18:09	65.1	59.7	41.2	2.5	3.4	9.5	15.6	94.0	35.9	32.8	191.8	-126.3	32.4	-150.0	0.5	14.3	84.6	84.6	0.126
2-3	18:13	109.9		56.0	3.8		15.3		115.0	56.9	33.1		-126.0	34.6	-147.8	-14.7	-11.4	69.3	70.4	0.157
2-2	18:17	72.7		18.8	3.1		21.3		75.1	14.0	180.6		-58.5	181.2	-81.3	31.5	31.2	28.0	28.7	0.100
2-1	18:21	12.6		-41.3	3.5		17.5		13.0	-46.0	304.0		144.9	314.5	132.1	86.4	87.4	-12.3	-15.0	0.018
3-6	18:02	3.5		-50.5	7.2		21.9		4.7	-54.4	405.3		246.2	529.6	347.1	96.5	95.7	-1.8	-7.8	0.006
3-5	18:06	0.9		-53.0	4.7		18.9		1.5	-58.1	178.8		20.8	188.8	16.3	99.0	99.9	42.9	39.6	0.001
3-4	18:10	83.7	49.5	29.8	4.3	4.8	19.3	22.0	90.3	31.2	35.7	156.0	-123.4	36.5	-144.0	23.7	28.3	83.6	83.9	0.123
3-3	18:14	107.5		53.8	3.9		25.7		113.2	54.1	29.1		-130.0	30.6	-151.8	13.4	11.4	81.4	82.1	0.154
3-2	18:18	100.6		46.7	3.2		25.5		101.7	42.7	94.4		-64.7	95.5	-87.0	2.8	0.6	49.5	51.5	0.139
3-1	18:22	0.9		-53.0	5.2		21.4		1.0	-58.1	191.3		32.2	218.1	35.6	99.2	99.1	21.6	14.5	0.007
4-6	18:03	35.8		-18.1	7.3		18.9		47.1	-12.0	900.9		341.8	959.3	476.8	62.2	65.8	-48.6	-48.6	0.054
4-5	18:07	1.4		-52.5	4.5		20.7		1.5	-57.8	283.6		104.7	287.9	105.3	98.2	98.1	25.1	25.1	0.002
4-4	18:11	15.6	18.7	-38.3	3.9	5.0	20.8	20.5	16.4	-42.7	42.8	185.5	-116.3	45.1	-137.4	83.1	82.5	77.0	77.0	0.022
4-3	18:15	55.2		1.3	3.3		22.5		56.1	-2.6	43.2		-115.9	43.9	-138.5	48.0	46.5	45.1	42.9	0.077
4-2	18:19	2.4		-51.5	3.3		22.3		2.4	-56.8	165.7		5.6	166.5	-14.0	97.3	97.2	56.2	56.2	0.003
4-1	18:23	1.9		-52.0	7.4		17.5		2.5	-56.8	158.4		-2.7	207.6	24.9	98.0	97.7	23.0	23.0	0.003
Outlet Averages		53.9			4.5		18.2		58.1		158.1			182.5		45.1	44.7	27.1	18.6	0.081

Clean Air Engineering Project #10247
Corpsol Energy
AES Greenidge

Fd 3780

Date: 5/31/2007
Start Time: 18:48
End Time: 19:11

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx lb/MMBtu
1-1	18:48	88.4		-11.6	7.0		14.3		113.6	5.0	77.6		-47.1	99.9	-34.9	0.155
1-2	18:52	78.7		-21.3	5.1		16.3		88.2	-19.7	237.1		112.4	268.6	133.7	0.122
1-3	18:55	89.7	88.7	-10.3	4.7	5.1	16.5	16.0	99.1	-9.7	185.7	145.5	62.6	206.9	71.4	0.135
1-4	19:00	119.4		19.4	5.1		16.5		135.3	26.4	84.2		-40.5	95.4	-39.5	0.184
1-5	19:04	90.5		-9.5	4.4		15.0		99.2	-10.7	135.2		10.5	148.7	11.8	0.134
1-6	19:06	125.6		25.6	4.4		12.3		135.3	27.4	152.3		27.6	165.2	30.4	0.186
2-6	18:49	98.8		-1.2	6.2		16.2		120.3	11.5	69.1		-83.6	74.4	-60.5	0.164
2-5	18:53	93.4		-6.6	3.9		12.5		96.3	-10.5	109.4		-15.3	115.2	-19.7	0.134
2-4	18:57	94.7	97.4	-5.3	5.4	4.5	16.8	16.8	109.4	0.5	94.4	311.3	-40.3	97.5	-37.4	0.149
2-3	19:01	94.5		-5.5	4.3		16.0		101.9	-6.9	96.6		-53.1	99.4	-41.5	0.139
2-2	19:05	105.9		5.9	3.1		15.2		108.5	2.4	198.4		78.7	199.5	84.6	0.145
2-1	19:09	96.9		-3.1	4.9		13.3		109.4	0.4	127.7		8.0	142.9	8.0	0.149
3-6	18:50	103.6		3.6	4.2		17.7		111.0	2.2	111.5		-13.2	119.5	-15.4	0.151
3-5	18:54	88.2		-11.8	3.6		13.3		91.3	-17.6	183.9		59.2	189.8	54.7	0.124
3-4	18:58	111.1	109.0	11.1	5.9	4.1	16.5	16.8	132.6	23.7	76.7	111.3	-48.0	91.5	-43.3	0.151
3-3	19:02	127.4		27.4	3.5		16.5		131.9	23.0	74.4		-50.3	77.0	-57.9	0.180
3-2	19:06	107.5		7.5	2.7		14.6		105.7	-3.1	123.1		-1.6	121.1	-13.8	0.144
3-1	19:10	116.0		16.0	4.3		13.5		125.1	16.2	118.2		-6.5	127.5	-7.4	0.171
4-6	18:51	92.4		-7.6	5.4		16.5		106.7	-2.1	139.9		8.2	151.2	16.3	0.146
4-5	18:55	77.4		-22.6	3.3		16.5		78.7	-30.1	300.0		175.3	305.1	170.2	0.107
4-4	18:59	91.6	94.9	-8.8	3.3	3.6	16.5	16.7	93.0	-15.8	74.5	130.9	-50.2	75.8	-59.1	0.127
4-3	19:03	112.8		12.8	2.9		15.9		112.2	3.3	46.4		-78.3	46.1	-89.7	0.153
4-2	19:07	91.1		-8.9	2.5		14.6		96.6	-20.2	109.3		-15.4	105.4	-29.5	0.121
4-1	19:11	104.6		4.6	5.2		12.5		119.0	10.2	124.7		0.0	142.2	7.3	0.152
Inlet Averages		100.9			4.4		15.5		153.6		124.7			134.9		0.148

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff W/ O2 correction	CO Removal Efficiency	CO Removal Eff W/ O2 correction	NOx lb/MMBtu
5-6	18:48	75.4		-23.4	8.3		10.7		107.1	51.6	109.2		-9.3	155.1	35.6	14.7	5.9	[illegible]	[illegible]	0.1461
5-5	18:52	77.5		-25.9	4.3		12.6		83.9	28.4	204.4		85.9	220.4	91.9	1.1	5.9	[illegible]	[illegible]	0.1144
5-4	18:56	87.5	80.0	15.5	3.3	4.8	11.5	12.9	88.7	13.2	167.2	128.8	48.7	175.1	41.5	24.7	30.7	[illegible]	[illegible]	0.0936
5-3	19:00	85.3		33.3	3.7		17.1		88.8	33.3	66.8		-51.7	69.5	-59.0	26.6	24.4	[illegible]	[illegible]	0.1210
5-2	19:04	106.4		54.4	7.4		11.0		141.1	85.6	51.5		-66.9	89.4	-80.1	-17.8	-43.7	[illegible]	[illegible]	0.1924
5-1	19:08	67.4		15.4	2.2		14.7		64.5	9.1	173.8		55.3	188.4	37.8	48.3	52.7	[illegible]	[illegible]	0.0860
6-6	18:49	51.3		8.3	3.6		10.7		64.8	9.5	126.3		7.8	133.8	5.2	38.0	48.0	[illegible]	[illegible]	0.0665
6-5	18:53	12.8		-39.1	1.2		12.4		15.0	-42.4	111.5		-7.0	112.8	-15.8	86.2	86.7	[illegible]	[illegible]	0.0178
6-4	18:57	91.4	83.1	39.4	3.0	3.3	12.2	14.0	91.4	35.9	62.3	101.4	-56.2	62.3	-66.8	3.5	18.4	[illegible]	[illegible]	0.1245
6-3	19:01	109.5		57.5	3.1		14.3		110.1	54.6	34.1		-84.4	34.3	-94.8	-15.9	-8.1	[illegible]	[illegible]	0.1502
6-2	19:05	72.1		20.1	3.0		17.6		72.1	16.5	73.1		-45.4	73.1	-55.5	31.5	33.3	[illegible]	[illegible]	0.0933
6-1	19:09	13.4		-38.6	3.5		18.6		13.6	-41.7	201.1		82.6	206.9	78.3	86.2	87.3	[illegible]	[illegible]	0.0188
7-6	18:50	3.9		-48.1	5.8		11.8		4.6	-50.9	240.0		121.5	280.8	152.2	96.2	95.8	[illegible]	[illegible]	0.0052
7-5	18:54	6.8		-51.1	3.2		13.2		6.9	-54.6	159.3		39.8	160.1	31.5	99.0	96.0	[illegible]	[illegible]	0.0012
7-4	18:58	79.0	49.5	27.0	3.4	3.5	11.5	11.9	80.6	25.3	31.9	112.4	-86.6	32.5	-95.9	28.9	36.1	[illegible]	[illegible]	0.1102
7-3	19:02	105.9		57.9	2.8		11.1		138.7	53.2	31.2		-87.3	30.9	-97.7	13.7	17.5	[illegible]	[illegible]	0.1462
7-2	19:06	101.9		49.9	2.3		13.4		98.1	42.6	74.0		-44.5	73.2	-57.3	5.2	7.2	[illegible]	[illegible]	0.1337
7-1	19:10	1.6		-53.5	3.8		10.2		1.8	-53.9	236.7		20.2	245.2	15.6	99.7	99.7	[illegible]	[illegible]	0.0021
8-6	18:51	26.9		-25.1	6.5		13.7		33.4	-22.0	236.7		116.2	284.2	165.7	70.9	69.7	[illegible]	[illegible]	0.0459
8-5	18:55	1.3		-50.7	3.8		16.1		1.4	-54.1	242.0		123.5	253.3	124.8	99.3	99.3	[illegible]	[illegible]	0.0019
8-4	18:59	16.4	16.8	-35.6	3.2	4.4	15.1	15.5	16.5	-38.9	48.5	131.4	-69.0	53.1	-78.5	82.1	82.2	[illegible]	[illegible]	0.0226
8-3	19:02	60.8		8.8	3.1		16.0		61.1	5.7	37.0		-81.5	37.2	-91.8	45.1	45.5	[illegible]	[illegible]	0.0834
8-2	19:07	2.3		-49.7	2.8		17.5		2.3	-53.2	89.4		-29.1	93.4	-40.1	97.5	97.4	[illegible]	[illegible]	0.0031
8-1	19:11	1.9		-50.1	6.7		13.3		2.4	-53.1	193.5		15.0	198.5	39.7	98.2	98.0	[illegible]	[illegible]	0.0033
Outlet Averages		52.0			4.6		12.6		55.5		116.5			126.6		43.4	49.6	2.7	4.6	0.076

Clean Air Engineering Project #10247
Consol Energy
AES Greenidge

Fc 9780

Date: 5/31/2007
Start Time: 19:36
End Time: 19:59

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx lb/MMBtu
1-6	19:36	100.4		-8.2	5.7		11.4		128.6	9.9	56.5		-21.2	73.7	-12.7	0.173
1-5	19:40	115.7		7.1	4.8		12.5		129.4	11.7	355.2		275.6	397.4	310.9	0.177
1-4	19:44	109.9	114.6	0.4	4.5	5.1	13.3	12.9	119.0	1.3	117.8	102.7	38.2	128.5	42.1	0.162
1-3	19:48	122.5		14.0	5.2		12.8		139.8	22.1	26.4		-53.3	30.1	-56.3	0.191
1-2	19:52	103.8		-4.8	4.4		13.4		112.6	-5.1	42.5		-37.2	48.1	-40.3	0.154
1-1	19:56	137.3		28.7	4.8		12.9		152.7	35.0	15.8		-63.9	17.8	-68.6	0.209
2-6	19:37	116.8		8.0	5.8		12.1		138.2	20.5	46.2		-31.5	57.1	-29.3	0.189
2-5	19:41	122.2		13.6	3.8		14.0		126.4	8.7	134.7		55.1	139.4	52.8	0.172
2-4	19:45	123.2	124.1	14.6	5.1	4.5	12.8	13.3	139.6	21.9	36.0	61.7	-43.7	40.8	-43.7	0.190
2-3	19:49	122.0		13.4	4.3		13.4		131.6	13.9	39.8		-39.9	42.9	-49.5	0.179
2-2	19:53	136.8		27.2	3.4		14.2		138.9	21.2	66.9		-12.8	69.4	-16.0	0.189
2-1	19:57	124.9		16.3	4.9		12.6		139.7	22.0	44.6		-35.1	49.9	-35.5	0.191
3-6	19:38	69.6		-48.9	4.2		13.8		88.0	-32.7	77.0		-2.6	82.5	-3.9	0.089
3-5	19:42	8.5		-102.1	3.6		14.1		8.7	-111.6	112.9		33.3	116.8	30.4	0.009
3-4	19:46	0.8	57.3	-107.7	5.3	4.0	12.7	13.8	1.0	-116.7	24.2	59.4	-55.6	27.8	-58.7	0.001
3-3	19:50	51.5		-57.0	3.4		14.3		52.9	-54.9	67.5		-12.2	69.0	-17.4	0.072
3-2	19:54	141.3		32.7	3.3		14.4		143.7	26.0	19.5		-60.2	19.8	-66.6	0.198
3-1	19:58	143.1		34.5	4.4		13.6		155.2	37.5	65.0		-24.7	69.7	-26.8	0.212
4-6	19:39	122.0		13.4	4.7		13.1		134.8	17.1	138.5		118.9	219.3	132.9	0.184
4-5	19:43	122.6		13.8	3.3		14.2		124.6	6.9	221.5		141.9	225.3	138.8	0.170
4-4	19:47	127.7	128.2	19.1	3.4	3.8	14.1	13.8	130.6	12.9	21.8	94.9	-57.9	22.3	-64.2	0.176
4-3	19:51	133.8		25.2	3.9		14.4		133.8	16.1	18.7		-61.0	18.7	-67.7	0.182
4-2	19:55	133.3		24.7	3.1		14.5		134.3	16.4	17.3		-62.4	17.4	-69.1	0.183
4-1	19:59	129.8		21.2	3.2		12.7		148.6	30.3	91.3		11.7	104.1	17.6	0.202
Inlet Averages		108.6			4.4		13.4		117.7		79.7			85.4		0.160

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff. W/O2 correction	CO Removal Efficiency	CO Removal Eff. W/O2 correction	NOx lb/MMBtu
1-6	19:36	103.4		-18.9	6.9		7.6		132.2	9.5	115.9		12.3	148.2	40.2	-3.0	-2.5			0.1803
1-5	19:40	111.7		-10.5	2.5		9.9		111.1	-15.6	372.1		268.5	370.0	262.0	3.5	14.2			0.1515
1-4	19:44	120.1	118.2	-2.2	3.1	4.1	9.7	8.9	120.8	-5.9	102.9	116.1	-0.7	103.5	-4.5	-10.2	-1.5			0.1647
1-3	19:48	113.6		-8.7	3.1		9.8		114.2	-12.5	24.7		-78.9	24.8	-83.2	7.3	18.3			0.1558
1-2	19:52	126.7		4.4	6.2		8.4		154.3	27.6	29.7		-73.9	35.2	-71.8	-22.1	-37.0			0.2104
1-1	19:56	133.6		11.2	2.6		7.9		129.8	3.2	51.1		-52.5	49.7	-58.3	2.9	14.9			0.1771
2-6	19:37	106.2		-16.0	4.0		9.2		112.5	-14.2	111.1		7.5	117.7	9.7	6.9	18.6			0.1534
2-5	19:41	112.6		-9.7	2.9		10.3		112.0	-14.7	165.4		61.6	164.5	56.5	7.9	11.4			0.1527
2-4	19:45	114.1	118.3	-8.2	3.6	3.0	10.1	9.8	114.1	-12.6	22.1	74.3	-81.5	22.1	-85.9	7.4	16.3			0.1556
2-3	19:49	121.9		-0.4	2.7		10.2		119.9	-6.8	17.3		-86.3	17.0	-91.0	0.1	8.9			0.1635
2-2	19:53	131.3		9.0	2.5		9.3		127.7	1.0	38.1		-65.5	37.1	-70.9	3.3	9.0			0.1742
2-1	19:57	123.4		1.1	2.9		9.7		122.7	-4.0	91.6		-12.0	91.1	-18.9	1.2	12.2			0.1673
3-6	19:38	121.0		-1.3	4.6		8.2		132.9	6.2	238.2		132.6	258.4	151.4	-90.7	-104.6			0.1812
3-5	19:42	110.2		-12.1	2.7		9.7		108.4	-18.3	213.6		110.0	210.1	102.1	-1595.4	-1511.5			0.1478
3-4	19:46	118.8	126.8	-3.7	5.5	3.7	7.9	7.4	137.9	11.1	20.4	109.2	-83.2	23.7	-84.3	-13077.6	-13245.9			0.1890
3-3	19:50	133.5		11.2	4.8		7.3		146.7	19.0	19.9		-83.7	21.7	-85.3	-158.7	-176.1			0.1987
3-2	19:54	148.3		26.0	2.2		6.5		142.0	15.3	30.4		-73.2	28.1	-78.9	-5.0	1.2			0.1936
3-1	19:58	127.9		5.6	2.8		6.6		127.2	0.5	134.9		31.3	134.2	28.2	10.6	18.1			0.1734
4-6	19:39	119.6		-2.7	4.6		8.8		131.3	4.6	342.3		238.7	375.9	267.9	2.0	2.6			0.1791
4-5	19:43	118.4		-3.9	3.2		10.1		119.7	-7.0	203.5		99.9	205.8	97.8	3.3	3.9			0.1683
4-4	19:47	125.5	126.2	3.3	2.9	3.4	10.3	9.9	124.9	-1.8	21.7	114.9	-81.9	21.6	-86.4	1.5	4.4			0.1703
4-3	19:51	134.6		12.3	2.4		9.8		130.2	3.5	20.7		-82.9	20.0	-88.0	-0.9	2.7			0.1776
4-2	19:55	130.9		8.6	2.6		9.1		128.0	1.3	23.1		-80.5	22.6	-85.4	1.8	4.5			0.1746
4-1	19:59	127.9		5.6	4.7		6.4		141.3	14.6	77.9		-25.8	86.0	-22.0	1.5	4.5			0.1927
Outlet Averages		122.3			3.6		9.3		125.7		103.6			108.0		-521.2	-521.6	-37.6	-30.6	0.173

Clean Air Engineering Project #10347
Consol Energy
AES Greenidge

Date: 6/1/2007
Start Time: 8:48
End Time: 9:11

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx lb/MMBtu
1-4	8:48	93.9		-0.2	6.1		12.4		114.3	12.9	4.5		-104.3	5.5	-108.6	0.156
1-5	8:52	90.2		-3.9	5.5		13.0		104.8	3.4	52.6		-46.2	72.8	-41.5	0.143
1-6	8:56	97.5	103.7	3.4	3.6	4.7	14.7	14.0	102.1	0.6	60.8	106.9	-46.0	83.6	-50.6	0.139
1-1	9:00	112.8		18.8	4.9		13.8		126.3	24.9	58.3		-52.5	83.0	-51.2	0.172
1-2	9:04	121.5		27.8	3.5		16.0		125.4	24.0	117.6		6.8	121.0	6.7	0.171
1-3	9:08	106.9		11.8	4.0		14.9		112.2	10.7	339.8		231.0	359.9	245.7	0.153
2-4	8:49	90.0		-4.1	7.1		11.6		116.7	15.8	14.8		-94.0	19.2	-95.0	0.159
2-5	8:53	78.5		-15.5	4.2		14.6		84.2	-17.2	100.8		-8.0	106.0	-5.2	0.115
2-6	8:57	82.2	88.9	-11.9	5.2	4.5	13.9	14.4	93.7	-7.7	27.2	145.6	-81.6	31.0	-83.2	0.126
2-1	9:01	86.7		-7.4	3.8		15.0		90.8	-10.7	36.5		-72.3	38.2	-76.0	0.124
2-2	9:05	98.5		4.4	2.4		16.4		95.3	-6.1	262.0		153.2	253.5	139.3	0.130
2-3	9:09	95.5		1.5	4.5		14.6		93.4	-8.0	432.3		323.5	471.8	357.6	0.127
3-4	8:50	97.2		3.1	5.7		13.1		114.5	13.0	19.0		-59.8	22.4	-91.9	0.155
3-5	8:54	86.1		-8.0	3.8		14.8		90.7	-10.8	63.2		-45.8	66.5	-47.7	0.124
3-6	8:58	82.5	100.6	-1.6	6.2	4.0	13.6	14.7	105.8	4.0	21.2	63.7	-87.6	24.2	-89.1	0.144
3-1	9:02	116.7		22.6	3.2		15.5		118.0	16.8	33.1		-75.7	33.5	-80.8	0.161
3-2	9:06	96.0		1.9	2.2		16.5		91.9	-9.5	106.6		-0.2	104.0	-10.8	0.125
3-3	9:10	114.9		20.8	4.0		14.6		121.7	20.3	257.3		148.5	272.5	158.3	0.166
4-4	8:51	84.9		-9.2	6.9		13.4		101.3	-0.1	38.9		-69.9	46.4	-67.5	0.138
4-5	8:55	76.1		-24.0	3.1		16.7		70.5	-30.9	74.3		-34.5	74.7	-39.5	0.096
4-6	8:59	91.4	85.1	-12.7	4.4	3.7	14.5	15.4	88.3	-13.1	48.2	96.9	-60.6	52.3	-61.9	0.120
4-1	9:03	92.6		4.5	2.6		16.4		85.4	-5.0	32.0		-76.8	31.3	-82.9	0.152
4-2	9:07	75.0		-15.1	2.5		16.7		76.9	-24.6	88.2		-20.6	85.8	-28.4	0.105
4-3	9:11	96.5		2.4	3.5		15.7		99.3	-2.2	311.5		202.7	329.5	205.2	0.135
Inlet Averages		94.1			4.2		14.6		101.4		108.8			114.2		0.132

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff. w/ O2 correction	CO Removal Efficiency	CO Removal Eff w/ O2 correction	NOx lb/MMBtu
1-6	8:49	72.4		20.7	14.2		5.2		193.4	123.1	117.8		-20.9	314.2	140.2	22.9	-89.2	[illegible]	[illegible]	0.2636
1-5	8:52	70.5		18.8	4.3		14.0		78.1	5.8	84.4		-74.1	89.4	-104.5	21.7	27.4	[illegible]	[illegible]	0.1008
1-4	8:56	92.9	85.7	41.2	3.7	5.5	14.6	13.1	96.7	25.4	42.2	160.4	-96.3	43.9	-130.0	4.7	5.3	[illegible]	[illegible]	0.1318
1-3	9:00	81.0		29.3	2.7		15.7		79.7	8.3	340.6		202.1	335.0	161.0	28.3	36.9	[illegible]	[illegible]	0.1068
1-2	9:04	107.0		55.3	1.6		16.8		99.2	28.9	100.1		-35.4	95.6	-78.3	12.2	20.9	[illegible]	[illegible]	0.1353
1-1	9:08	90.0		38.3	6.5		12.2		111.9	41.5	294.3		155.8	365.8	191.9	15.0	0.3	[illegible]	[illegible]	0.1526
2-6	8:49	61.7		0.0	12.4		6.9		108.9	38.5	72.4		-66.1	132.6	-21.5	42.6	6.7	[illegible]	[illegible]	0.1485
2-5	8:53	21.5		-30.2	8.7		9.4		34.4	-36.0	69.2		-69.3	110.6	-63.4	72.6	59.2	[illegible]	[illegible]	0.0459
2-4	8:57	78.1	63.1	26.4	12.8	8.6	6.9	10.4	165.4	96.1	25.6	152.9	-112.9	54.6	-119.4	5.0	-77.8	[illegible]	[illegible]	0.2269
2-3	9:01	104.0		52.3	11.6		7.7		200.2	129.8	64.7		-73.8	124.5	-45.4	-20.0	-120.8	[illegible]	[illegible]	0.2730
2-2	9:05	74.1		22.4	1.9		16.5		69.8	-0.5	142.5		4.0	134.3	-36.7	24.8	26.6	[illegible]	[illegible]	0.0952
2-1	9:09	48.4		-2.3	3.8		14.9		50.8	-19.5	543.1		404.6	558.7	384.8	42.3	45.6	[illegible]	[illegible]	0.0693
3-4	8:50	3.4		-48.3	10.9		8.9		5.8	-64.7	67.7		-70.8	111.2	-82.8	95.5	95.1	[illegible]	[illegible]	0.0076
3-5	8:54	0.9		-50.8	7.9		10.8		1.2	-69.1	133.4		-5.1	179.6	5.6	99.0	98.8	[illegible]	[illegible]	0.0017
3-6	8:58	85.1	45.0	13.4	7.4	7.1	11.3	11.6	86.3	16.0	19.6	129.2	-116.8	26.0	-149.0	29.6	19.2	[illegible]	[illegible]	0.1177
3-1	9:02	98.1		47.4	5.1		13.4		172.3	41.9	24.7		-113.8	26.0	-166.0	15.1	4.9	[illegible]	[illegible]	0.1531
3-2	9:06	93.5		41.8	4.6		13.7		104.0	33.6	178.4		39.9	196.3	24.4	2.6	-13.1	[illegible]	[illegible]	0.1418
3-3	9:10	7.5		-43.9	7.4		11.4		19.3	-50.0	358.5		216.0	470.0	266.1	89.2	91.5	[illegible]	[illegible]	0.0141
4-4	8:51	6.7		-45.0	6.9		11.8		8.6	-61.8	86.9		-55.5	111.1	-82.8	92.1	91.5	[illegible]	[illegible]	0.0117
4-5	8:55	3.4		-48.3	3.7		14.8		3.5	-66.8	88.9		-49.5	92.5	-81.4	96.1	95.0	[illegible]	[illegible]	0.0048
4-6	8:59	17.4	13.1	-34.3	3.1	4.9	15.3	13.6	17.5	-52.8	159.1	111.5	50.6	195.2	16.2	78.6	80.2	[illegible]	[illegible]	0.0239
4-1	9:03	47.8		-4.1	2.6		15.8		46.8	-23.8	33.4		-105.1	32.7	-141.3	51.7	51.7	[illegible]	[illegible]	0.0535
4-2	9:07	2.4		-49.3	2.5		15.9		2.3	-68.0	117.0		-21.5	113.8	-60.1	97.0	97.0	[illegible]	[illegible]	0.0032
4-3	9:11	1.3		-50.4	10.4		8.9		2.2	-68.1	158.9		15.4	282.4	88.4	58.7	57.8	[illegible]	[illegible]	0.0030
Outlet Averages		51.7			6.5		12.2		70.3		138.5			174.0		45.7	32.1	-176.2	-339.5	0.096

Clean Air Engineering Project #10347
Consol Energy
AES Greenridge

Fd 9790

Date: 8/1/2007
Start Time: 9:12
End Time: 9:35

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx lb/MMBtu
1-8	9:12	86.0		1.7	7.6		11.8		127.7	28.0	69.8		-76.1	91.6	-61.4	0.174
1-5	9:16	89.4		-4.5	5.6		14.2		104.6	2.9	70.2		-74.5	92.1	-70.9	0.143
1-4	9:20	99.9	101.0	-3.0	3.9	5.0	15.4	14.3	95.7	-6.0	223.2	150.8	78.6	235.0	92.0	0.131
1-3	9:24	107.5		13.1	5.0		14.3		120.5	18.7	66.6		-88.7	63.0	-90.0	0.164
1-2	9:28	117.5		23.9	3.7		13.5		122.6	20.9	198.0		41.8	193.6	40.5	0.167
1-1	9:32	105.2		11.9	4.1		14.8		112.1	10.4	300.7		155.0	320.4	167.3	0.153
2-8	9:12	84.2		0.3	6.8		12.5		119.6	17.9	26.7		-118.0	33.9	-119.2	0.163
2-5	9:17	79.2		-14.7	4.4		14.8		85.8	-15.8	79.7		-65.0	86.5	-66.6	0.117
2-4	9:21	84.7	91.1	-9.2	5.1	4.5	14.2	14.6	96.0	-5.8	83.7	167.4	-61.0	94.6	-58.2	0.131
2-3	9:25	83.2		-10.7	3.8		15.2		87.6	-14.1	59.0		-85.7	63.1	-90.0	0.119
2-2	9:29	103.0		9.1	2.8		16.3		100.2	-1.5	236.5		91.8	230.1	77.0	0.137
2-1	9:33	102.2		8.3	4.5		14.3		111.5	9.8	519.8		375.1	557.3	414.3	0.152
3-8	9:14	96.7		2.8	5.1		13.9		109.6	7.9	24.5		-120.2	27.6	-125.3	0.149
3-6	9:18	85.3		-8.6	3.6		15.5		88.9	-13.5	105.8		-38.9	109.5	-43.6	0.120
3-4	9:22	99.0	89.3	-3.9	6.3	3.9	14.0	15.1	103.9	1.5	51.8	143.9	-62.9	58.4	-98.6	0.141
3-3	9:26	113.7		19.8	3.1		15.8		114.3	12.6	53.0		-61.7	53.3	-99.8	0.156
3-2	9:30	95.5		1.6	2.7		16.1		93.9	-7.8	102.1		-42.6	100.4	-52.6	0.128
3-1	9:34	114.5		20.7	3.8		15.0		120.0	18.2	526.4		381.7	551.0	398.0	0.164
4-8	9:16	82.7		-11.2	6.0		13.5		99.4	-2.4	32.1		-512.5	38.6	-114.5	0.135
4-6	9:19	67.0		-26.9	3.1		16.3		67.4	-34.3	224.4		79.7	225.7	72.6	0.092
4-4	9:23	81.0	84.4	-12.9	4.4	3.7	14.7	15.5	87.9	-13.9	41.1	116.6	-103.6	44.6	-106.5	0.120
4-3	9:27	101.3		7.4	2.8		16.2		100.2	-1.5	38.4		-106.3	38.0	-115.1	0.137
4-2	9:31	75.9		-14.0	2.4		16.6		77.3	-24.4	82.9		-61.8	80.2	-72.9	0.105
4-1	9:35	84.4		0.5	3.3		15.5		98.0	-5.7	289.6		135.9	285.4	132.9	0.131
Inlet Averages		93.9			4.3		14.9		101.7		144.7			153.1		0.139

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff. w/ O2 correction	CO Removal Efficiency	CO Removal Eff. w/ O2 correction	NOx lb/MMBtu
1-8	9:12	76.7		23.1	5.2		10.8		108.1	39.5	99.9		-29.5	139.3	-32.2	19.9	15.3	[illegible]	[illegible]	0.1474
1-5	9:16	73.4		19.9	4.0		14.5		77.7	9.0	91.1		-77.2	94.1	-117.4	17.9	25.7	[illegible]	[illegible]	0.1060
1-4	9:20	101.0	86.8	47.4	3.4	4.4	15.0	14.1	109.3	34.5	50.9	125.6	-77.4	52.1	-119.4	-11.1	-7.9	[illegible]	[illegible]	0.1408
1-3	9:24	81.7		26.1	2.7		15.6		80.4	11.6	138.9		10.5	136.5	-34.9	23.8	33.3	[illegible]	[illegible]	0.1096
1-2	9:28	107.1		53.5	1.6		16.7		99.3	30.6	90.1		-38.2	83.5	-87.9	9.1	18.0	[illegible]	[illegible]	0.1354
1-1	9:32	93.1		38.5	6.6		12.1		118.5	47.6	324.0		195.7	405.6	234.1	11.5	-4.0	[illegible]	[illegible]	0.1569
2-8	9:13	58.4		2.8	5.1		12.7		86.2	-0.6	47.3		-91.0	57.2	-114.3	40.1	43.0	[illegible]	[illegible]	0.0930
2-5	9:17	23.4		-32.2	3.3		15.1		23.6	-45.0	52.1		-76.2	53.0	-118.5	70.6	72.3	[illegible]	[illegible]	0.0325
2-4	9:21	52.5	64.9	29.2	4.3	3.9	14.4	14.7	89.3	20.5	28.9	131.5	-100.4	29.6	-142.5	3.2	7.9	[illegible]	[illegible]	0.1217
2-3	9:25	103.3		49.7	4.3		14.4		111.4	42.5	23.3		-105.0	25.1	-146.4	-24.2	-27.2	[illegible]	[illegible]	0.1519
2-2	9:29	75.4		21.8	1.7		15.7		79.3	1.5	188.3		41.0	187.8	-13.6	26.8	25.8	[illegible]	[illegible]	0.0859
2-1	9:33	45.1		-5.5	3.5		15.0		49.5	-19.3	470.2		341.9	483.7	312.2	52.9	55.6	[illegible]	[illegible]	0.0575
3-8	9:14	2.9		-50.7	10.5		8.5		5.0	-63.7	62.5		-64.8	110.4	-61.1	97.0	95.4	[illegible]	[illegible]	0.0069
3-6	9:18	1.2		-52.4	9.5		9.3		1.9	-66.9	124.2		-4.1	196.7	25.3	98.6	97.8	[illegible]	[illegible]	0.0026
3-4	9:22	69.1	47.0	15.8	10.4	10.8	8.6	8.3	117.8	48.0	25.2	126.0	-103.1	43.0	-128.5	23.2	-14.1	[illegible]	[illegible]	0.1606
3-3	9:25	100.2		46.8	12.4		8.9		211.0	142.2	24.3		-104.8	51.2	-120.3	11.5	-84.5	[illegible]	[illegible]	0.2877
3-2	9:30	93.8		40.0	12.9		8.4		209.4	140.7	138.0		8.7	208.8	137.3	2.0	-123.0	[illegible]	[illegible]	0.2855
3-1	9:34	14.9		-38.7	8.8		10.1		22.0	-46.7	380.7		252.4	563.2	391.7	97.0	61.6	[illegible]	[illegible]	0.0301
4-8	9:15	9.8		-44.8	6.7		12.0		11.3	-57.4	99.7		-39.6	111.9	-69.7	99.1	88.6	[illegible]	[illegible]	0.0135
4-6	9:19	3.9		-49.7	3.2		15.1		9.9	-64.8	164.5		35.2	166.4	-5.1	94.2	94.1	[illegible]	[illegible]	0.0054
4-4	9:23	16.2	13.7	-37.4	3.0	5.3	15.3	13.9	16.2	-52.6	142.2	130.2	13.9	142.2	-29.3	80.0	81.6	[illegible]	[illegible]	0.0221
4-3	9:27	49.0		-4.8	2.7		15.8		48.2	-20.6	33.6		-96.3	32.5	-139.0	51.6	51.9	[illegible]	[illegible]	0.0657
4-2	9:31	2.4		-51.2	2.5		15.9		2.3	-66.4	114.4		-13.9	111.3	-60.2	97.0	97.0	[illegible]	[illegible]	0.0032
4-1	9:35	1.4		-52.2	13.8		5.6		3.5	-65.2	239.4		110.1	601.0	429.6	98.5	96.9	[illegible]	[illegible]	0.0048
Outlet Averages		53.8			6.1		12.6		68.8		128.3			171.5		44.6	34.4	-16.8	-29.8	0.094

Clean Air Engineering Project #10247
Consol Energy
AES Greenidge

Fd 9780

Date: 6/1/2007
Start Time: 9:36
End Time: 9:59

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx lb/MMBtu
1-6	9:36	94.9		2.1	7.4		11.8		125.8	25.4	58.6		-59.4	77.7	-46.5	0.172
1-5	9:40	87.6		-5.2	6.2		13.7		99.8	-0.5	99.6		-17.2	113.8	-10.4	0.136
1-4	9:44	93.0	102.0	0.2	6.1	4.9	14.0	14.1	99.1	-1.3	134.9	151.2	17.8	143.7	19.6	0.135
1-3	9:48	110.3		17.5	5.1		14.0		125.0	24.6	59.1		-57.9	67.8	-57.2	0.170
1-2	9:52	122.0		29.2	3.5		15.4		125.5	25.1	143.3		26.3	147.4	22.3	0.171
1-1	9:56	104.1		11.3	4.1		14.8		110.8	10.5	284.3		174.3	210.4	196.2	0.151
2-6	9:37	90.1		-2.7	6.7		12.3		113.6	13.2	31.6		-65.4	38.8	-84.3	0.155
2-5	9:41	88.1		-23.7	4.2		14.8		74.1	-26.3	87.4		-29.6	93.7	-30.5	0.101
2-4	9:45	89.7	94.5	-23.1	5.5	4.6	13.8	14.4	81.0	-19.4	49.8	134.4	-76.2	47.4	-76.7	0.110
2-3	9:49	73.8		-19.0	4.0		15.0		78.2	-22.2	32.3		-84.7	34.2	-90.0	0.107
2-2	9:53	101.7		6.9	2.6		16.2		99.5	-0.9	219.4		102.4	214.6	90.4	0.136
2-1	9:57	102.3		9.5	4.3		14.6		110.3	9.9	384.9		277.8	423.8	301.7	0.150
3-6	9:38	92.5		-0.2	5.0		13.8		104.2	3.9	24.0		-93.0	27.0	-97.1	0.142
3-5	9:42	85.0		-9.8	4.2		14.9		89.0	-11.4	89.1		-35.9	95.6	-37.2	0.121
3-4	9:46	93.3	100.9	0.5	5.5	4.0	13.7	14.9	108.4	8.1	46.6	111.8	-70.4	54.2	-70.0	0.148
3-3	9:50	118.5		25.7	3.2		15.7		119.8	19.5	33.7		-84.3	39.1	-91.1	0.163
3-2	9:54	98.7		5.9	2.2		16.5		94.5	-5.9	111.5		-5.5	109.7	-17.4	0.129
3-1	9:58	115.6		22.8	4.0		14.9		122.4	22.1	375.0		258.0	397.2	270.0	0.167
4-6	9:39	81.2		-11.6	6.6		13.3		93.0	-8.4	43.0		-74.0	50.3	-73.9	0.130
4-5	9:43	87.2		-25.6	3.2		15.6		69.0	-32.4	115.5		-1.5	116.6	-7.4	0.093
4-4	9:47	82.2	84.6	-10.6	4.8	3.7	13.7	15.0	91.4	-9.0	69.6	90.7	-47.4	77.4	-46.8	0.125
4-3	9:51	102.1		9.3	2.7		15.8		100.4	0.0	24.7		-92.3	24.3	-99.9	0.137
4-2	9:55	82.0		-10.8	2.4		16.1		79.3	-21.0	96.1		-20.9	93.0	-31.2	0.109
4-1	9:59	92.8		0.1	3.2		15.3		93.9	-6.4	186.3		78.3	197.6	73.3	0.129
Inlet Averages		92.8			4.3		14.5		100.4		117.0			124.2		0.137

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff W/ O2 correction	CO Removal Efficiency	CO Removal Eff W/ O2 correction	NOx lb/MMBtu
1-6	9:36	75.1		19.7	6.1		10.8		105.0	17.1	129.3		-2.6	180.8	3.4	20.9	16.5	[illegible]	[illegible]	0.1462
1-5	9:40	71.7		12.3	3.8		14.7		75.1	-12.8	85.7		-46.4	89.7	-87.7	18.2	24.9	[illegible]	[illegible]	0.1023
1-4	9:44	96.7	91.9	37.3	3.8	4.4	15.0	14.2	99.5	11.5	43.5	142.5	-89.6	44.8	-132.7	-4.0	-0.4	[illegible]	[illegible]	0.1356
1-3	9:48	83.3		23.9	2.8		15.6		82.4	-5.6	188.6		53.5	183.5	6.1	24.5	34.1	[illegible]	[illegible]	0.1123
1-2	9:52	113.7		54.3	1.8		16.7		105.5	17.5	84.1		-48.0	78.0	-99.4	5.6	16.0	[illegible]	[illegible]	0.1438
1-1	9:56	110.8		51.4	5.5		12.2		137.7	49.8	327.0		194.9	405.5	229.1	-5.4	-24.2	[illegible]	[illegible]	0.1878
2-6	9:37	62.5		-8.9	6.3		12.3		64.4	-23.8	58.4		-73.7	71.6	-105.8	41.7	43.3	[illegible]	[illegible]	0.0876
2-5	9:41	24.5		-37.9	11.2		8.0		39.7	-48.3	73.4		-58.7	135.4	-42.0	68.9	46.4	[illegible]	[illegible]	0.0541
2-4	9:45	80.8	73.7	21.4	10.5	9.5	9.3	9.5	328.7	240.7	27.2	153.0	-104.9	110.7	-66.8	-15.9	-305.7	[illegible]	[illegible]	0.4482
2-3	9:49	107.0		47.6	14.4		5.0		294.7	206.7	23.2		-108.9	63.6	-113.6	-45.0	-277.0	[illegible]	[illegible]	0.4016
2-2	9:53	98.0		38.6	3.2		16.3		99.1	11.1	156.6		24.5	169.4	-19.1	3.6	0.4	[illegible]	[illegible]	0.1351
2-1	9:57	92.4		23.0	5.3		13.2		84.5	6.8	459.4		327.3	527.1	349.7	19.5	14.3	[illegible]	[illegible]	0.1289
3-6	9:38	2.9		-56.6	11.0		8.1		5.2	-92.7	98.5		-32.6	179.9	2.5	96.9	95.0	[illegible]	[illegible]	0.0071
3-5	9:42	1.2		-58.2	9.6		8.3		1.9	-96.1	142.1		10.0	225.1	47.7	98.6	97.9	[illegible]	[illegible]	0.0026
3-4	9:46	71.5	53.3	12.1	9.2	9.1	9.7	9.8	109.4	21.4	32.6	127.9	-93.5	43.9	-127.8	23.4	-0.9	[illegible]	[illegible]	0.1492
3-3	9:50	110.5		51.1	9.8		9.9		166.2	78.2	25.5		-108.6	33.4	-136.1	6.8	-38.7	[illegible]	[illegible]	0.2266
3-2	9:54	105.8		50.4	8.5		10.3		159.5	70.5	126.2		-11.9	173.5	-3.9	-11.2	-67.9	[illegible]	[illegible]	0.2161
3-1	9:58	23.7		-35.7	7.2		11.6		31.0	-57.9	347.4		215.3	453.8	276.5	79.5	74.7	[illegible]	[illegible]	0.0422
4-6	9:39	5.2		-53.6	5.3		12.3		7.1	-80.9	122.8		-9.5	150.3	-27.1	82.9	82.5	[illegible]	[illegible]	0.0097
4-5	9:43	3.4		-56.0	3.4		15.0		3.5	-84.5	128.1		-4.0	131.3	-46.4	94.9	94.9	[illegible]	[illegible]	0.0047
4-4	9:47	15.7	18.6	-43.7	3.0	5.2	15.3	13.4	15.7	-72.3	68.9	125.1	-43.2	88.9	-89.5	80.9	82.6	[illegible]	[illegible]	0.0214
4-3	9:51	81.0		21.6	2.6		15.7		78.2	-8.7	24.6		-107.5	24.1	-153.4	20.7	21.1	[illegible]	[illegible]	0.1030
4-2	9:55	4.1		-55.3	2.4		16.8		4.0	-64.0	181.1		29.0	155.9	-21.6	95.0	95.0	[illegible]	[illegible]	0.0054
4-1	9:59	1.4		-58.0	13.4		6.1		3.3	-64.6	225.0		92.9	587.0	359.6	98.5	98.4	[illegible]	[illegible]	0.0046
Outlet Averages		59.4			7.0		11.7		85.0		132.1			177.4		57.9	9.6	-36.0	-75.7	0.120

Clean Air Engineering Project #10247
Consol Energy
AES Greenidge

Fd 9780

Date: 6/1/2007
Start Time: 10:00
End Time: 10:23

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx lb/MMBtu
1-1	10:00	90.8		2.7	7.6		11.8		122.3	28.7	61.9		-75.4	83.3	-63.6	0.167
1-2	10:04	82.8		-5.4	6.5		13.7		95.0	-0.6	132.2		-5.1	151.7	4.5	0.130
1-3	10:08	89.5	87.4	1.3	5.9	4.9	14.4	14.0	94.2	-1.4	168.1	134.1	30.8	177.0	29.8	0.128
1-4	10:12	106.4		18.2	5.2		14.0		121.3	25.7	82.0		-75.5	79.7	-76.5	0.165
1-5	10:16	114.8		26.5	5.6		15.4		118.8	23.1	113.1		-34.2	117.0	-30.1	0.162
1-6	10:20	99.6		11.8	4.0		14.7		105.7	10.1	267.5		130.2	285.3	138.2	0.144
2-5	10:01	81.7		-6.5	6.7		12.2		103.0	7.3	27.2		-110.1	34.2	-112.9	0.140
2-4	10:05	84.1		-24.1	4.5		14.4		70.0	-25.7	139.0		1.7	151.7	4.6	0.095
2-3	10:09	75.5	81.2	-12.7	5.1	4.6	13.8	14.5	85.5	-10.1	71.8	185.4	-65.7	81.1	-66.0	0.117
2-2	10:13	87.3		-0.8	4.0		14.8		92.5	-3.2	45.9		-91.5	48.5	-96.6	0.126
2-1	10:17	89.4		1.2	2.9		16.0		88.9	-6.7	223.1		35.6	221.9	74.7	0.121
2-6	10:21	89.1		0.9	4.6		14.8		97.8	2.2	605.8		468.5	655.3	516.1	0.133
3-6	10:02	95.9		8.7	6.0		13.8		109.1	13.4	28.7		-108.6	32.3	-114.8	0.149
3-5	10:06	79.8		-8.4	3.9		15.0		84.0	-11.6	126.8		-10.5	133.5	-13.6	0.115
3-4	10:10	86.3	86.0	-1.4	6.2	3.9	13.8	15.1	99.0	3.3	69.5	134.9	-77.8	67.8	-79.3	0.135
3-3	10:14	112.5		24.3	3.2		16.0		113.8	18.1	46.1		-81.2	45.6	-100.5	0.155
3-2	10:18	89.4		1.2	2.2		16.4		85.6	-10.1	114.1		-23.2	109.2	-37.9	0.117
3-1	10:22	110.5		22.4	4.1		15.5		117.9	22.2	814.2		776.9	834.8	787.6	0.151
4-6	10:03	82.3		-5.4	6.7		13.2		97.5	1.9	158.3		21.0	165.4	39.3	0.133
4-5	10:07	62.6		-25.7	3.3		15.2		63.8	-32.1	105.7		-31.6	107.5	-38.6	0.087
4-4	10:11	74.0	76.4	-14.2	4.8	3.7	14.1	15.0	82.3	-13.4	45.7	114.6	-80.6	51.9	-85.2	0.112
4-3	10:15	94.8		6.6	2.7		15.8		83.2	-2.4	29.8		-107.7	26.1	-110.6	0.127
4-2	10:19	69.1		-19.1	2.3		16.3		66.5	-29.1	100.1		-37.2	96.3	-50.3	0.091
4-1	10:23	87.9		-1.2	3.2		15.3		88.0	-7.7	247.3		110.0	250.1	103.5	0.120
Inlet Averages		88.2			4.3		14.5		95.6		137.3			147.1		0.130

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff W/ O2 correction	CO Removal Efficiency	CO Removal Eff W/ O2 correction	NOx lb/MMBtu
1-6	10:00	75.3		29.8	8.1		10.8		106.7	48.2	112.8		-40.6	137.7	-76.7	16.1	12.8	[illegible]	[illegible]	0.1455
1-5	10:04	75.3		28.8	4.1		14.4		80.2	21.8	141.1		-12.3	150.3	-85.1	9.1	15.6	[illegible]	[illegible]	0.1094
1-4	10:08	81.3	80.7	35.3	3.6	4.6	14.9	14.1	84.6	26.2	57.2	119.0	-96.2	59.2	-177.3	8.6	10.2	[illegible]	[illegible]	0.1154
1-3	10:12	73.0		26.5	2.8		15.6		72.2	13.7	153.9		0.5	152.2	-84.2	31.4	40.5	[illegible]	[illegible]	0.0984
1-2	10:16	102.2		55.7	1.7		16.6		95.3	36.8	68.7		-84.7	64.0	-172.4	11.0	19.8	[illegible]	[illegible]	0.1299
1-1	10:20	75.7		29.2	6.5		12.2		94.1	35.6	180.4		27.0	224.2	-12.2	24.1	11.0	[illegible]	[illegible]	0.1292
2-5	10:01	52.6		6.1	10.9		8.2		94.2	35.7	67.1		-86.3	120.1	-116.3	35.6	8.6	[illegible]	[illegible]	0.1284
2-4	10:05	47.8		-28.7	7.9		10.8		24.5	-34.0	154.4		1.0	212.6	-23.9	72.2	56.0	[illegible]	[illegible]	0.0834
2-3	10:09	73.5	54.1	27.3	7.8	7.2	11.3	11.6	100.8	42.4	34.9	175.5	-118.5	47.7	-188.9	2.3	-17.9	[illegible]	[illegible]	0.1375
2-2	10:13	67.3		50.3	7.4		11.5		129.0	70.5	27.2		-125.2	36.1	-200.4	-11.5	-39.5	[illegible]	[illegible]	0.1756
2-1	10:17	59.8		12.6	3.1		15.2		59.4	1.0	117.3		-36.1	118.0	-116.5	33.9	33.1	[illegible]	[illegible]	0.0810
2-6	10:21	24.0		-22.5	8.3		12.6		29.4	-29.0	552.3		498.9	798.7	563.3	73.1	69.9	[illegible]	[illegible]	0.0401
3-5	10:02	3.9		-42.6	12.2		7.1		6.0	-50.4	114.9		-36.5	238.4	0.0	96.0	92.6	[illegible]	[illegible]	0.0109
3-6	10:06	0.9		-45.6	9.7		9.2		1.4	-57.0	156.7		3.3	250.4	14.0	98.9	98.3	[illegible]	[illegible]	0.0022
3-4	10:10	63.8	41.4	17.3	8.6	10.4	9.4	8.7	100.2	41.7	29.8	164.2	-123.6	46.8	-189.7	26.5	-1.2	[illegible]	[illegible]	0.1586
3-3	10:14	94.1		47.6	8.3		10.6		130.7	75.2	25.4		-126.0	36.1	-200.4	16.4	-17.5	[illegible]	[illegible]	0.1623
3-2	10:18	24.0		-37.5	8.6		10.4		121.9	62.8	180.3		6.9	231.4	-5.0	8.0	-41.7	[illegible]	[illegible]	0.1653
3-1	10:22	1.9		-44.6	14.0		6.6		4.9	-58.5	467.9		344.5	1291.7	1055.2	98.3	95.8	[illegible]	[illegible]	0.0087
4-6	10:03	12.6		-34.0	6.9		12.1		15.6	-42.9	215.9		62.5	270.3	33.8	84.9	84.0	[illegible]	[illegible]	0.0213
4-5	10:07	2.8		-43.7	3.6		14.8		2.9	-55.6	103.9		-49.5	107.5	-128.9	95.5	95.4	[illegible]	[illegible]	0.0040
4-4	10:11	4.6	6.8	-41.9	3.1	5.3	16.2	13.2	4.6	-53.8	115.5	155.0	-37.9	116.1	-120.3	93.8	94.4	[illegible]	[illegible]	0.0063
4-3	10:15	35.8		-9.7	2.5		15.8		35.0	-22.5	30.1		-123.3	28.4	-207.0	61.2	61.4	[illegible]	[illegible]	0.0491
4-2	10:19	2.0		-44.5	2.3		16.0		1.9	-56.5	155.9		2.5	159.0	-86.4	97.1	97.1	[illegible]	[illegible]	0.0026
4-1	10:23	0.9		-45.6	13.7		6.7		2.2	-56.2	308.4		155.0	756.7	530.3	99.0	97.5	[illegible]	[illegible]	0.0031
Outlet Averages		46.5			6.5		11.9		58.5		153.4			236.4		49.1	41.0	-28.9	-73.5	0.080

Clean Air Engineering Project #10247
Consol Energy
AES Greenidge

Fd 9780

Date: 6/1/2007
Start Time: 10:24
End Time: 10:47

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx lb/MMBtu
1-5	10:24	91.2		4.4	7.3		12.1		120.7	25.4	148.3		58.5	196.6	94.6	0.165
1-6	10:28	84.8		-2.4	8.4		13.5		99.0	2.8	84.2		-32.5	82.5	-31.4	0.134
1-4	10:32	84.1	89.0	6.8	6.2	6.1	15.2	14.1	100.9	5.8	76.0	113.6	-8.7	83.6	-10.4	0.138
1-3	10:36	108.6		19.3	5.1		14.0		120.7	25.4	42.4		-44.3	48.0	-46.0	0.165
1-2	10:40	118.7		31.5	3.4		15.4		121.4	26.1	105.6		18.9	108.0	14.0	0.165
1-1	10:44	98.0		10.9	4.5		14.1		109.5	14.4	257.8		171.1	288.4	194.4	0.150
2-5	10:25	88.3		1.0	7.1		12.9		114.9	19.3	24.8		-62.1	35.9	-62.1	0.156
2-6	10:29	66.5		-20.7	4.5		14.8		72.7	-22.6	88.4		11.7	107.4	13.4	0.099
2-4	10:33	72.1	84.4	-15.2	5.5	4.7	13.8	14.7	83.8	-11.6	39.4	113.1	-47.8	45.8	-48.2	0.114
2-3	10:37	79.3		-8.0	4.1		15.3		84.5	-10.8	37.4		-49.8	39.8	-54.2	0.115
2-2	10:41	100.7		13.5	2.5		15.9		99.0	2.7	204.6		117.9	169.0	105.0	0.134
2-1	10:45	99.4		12.2	4.6		14.5		109.2	13.9	274.0		187.3	300.9	206.9	0.149
3-5	10:26	83.9		-3.4	5.6		14.4		98.2	2.9	18.9		-72.8	16.8	-77.8	0.134
3-6	10:30	41.0		-46.3	4.0		15.9		43.4	-51.8	58.8		-27.9	62.8	-31.7	0.059
3-4	10:34	66.7	85.3	-20.6	5.4	4.1	13.2	15.0	77.0	-18.2	25.4	85.4	-61.3	29.3	-64.7	0.105
3-3	10:38	105.3		18.1	3.5		15.8		108.3	13.1	22.8		-63.9	23.5	-70.5	0.148
3-2	10:42	80.2		2.6	2.3		15.2		86.6	-8.5	74.7		-12.0	71.9	-22.1	0.118
3-1	10:46	112.9		25.7	4.0		14.7		118.6	24.3	196.7		110.0	208.3	114.3	0.163
4-5	10:27	75.0		-9.3	6.0		12.8		93.7	-1.6	25.3		-61.4	30.4	-63.6	0.128
4-6	10:31	67.0		-20.3	3.5		16.2		66.3	-25.9	84.9		-1.8	87.8	-6.2	0.095
4-4	10:35	78.2	82.3	-9.1	5.0	3.8	14.0	14.8	88.0	-7.2	95.2	54.9	-50.5	40.8	-53.3	0.120
4-3	10:39	89.9		12.7	2.8		15.7		98.6	3.5	22.1		-64.6	21.9	-72.2	0.135
4-2	10:43	75.4		-10.9	2.3		15.2		73.5	-21.7	68.5		-20.2	64.0	-30.0	0.100
4-1	10:47	94.2		6.5	3.3		15.1		95.6	0.5	94.4		7.7	88.0	2.0	0.131
Inlet Averages		87.3			4.4		14.5		95.3		85.7			94.0		0.130

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff W/ O2 correction	CO Removal Efficiency	CO Removal Eff W/ O2 correction	NOx lb/MMBtu
1-5	10:24	73.0		24.3	8.1		10.8		102.1	6.2	168.6		82.7	235.8	-79.4	20.4	19.4			0.1392
1-6	10:28	55.5		6.8	4.1		14.4		59.1	-42.6	47.5		-38.4	50.6	-204.6	34.6	39.7			0.0808
1-4	10:32	64.3	61.6	45.6	3.7	4.5	14.3	14.0	65.1	-3.6	23.5	125.9	-36.4	30.7	-224.5	-0.2	2.7			0.1330
1-3	10:36	60.7		32.0	2.8		15.5		79.8	-22.1	152.1		36.2	150.4	-104.7	24.2	33.9			0.1088
1-2	10:40	165.4		96.7	1.7		15.8		98.3	-3.6	76.0		-39.9	73.9	-184.3	11.2	19.1			0.1340
1-1	10:44	60.9		32.2	6.7		12.0		102.0	0.1	281.6		165.6	354.8	99.7	17.4	7.0			0.1391
2-5	10:25	43.4		-5.3	6.4		12.3		53.8	-48.3	47.5		-59.4	58.8	-156.5	50.8	53.2			0.0731
2-6	10:29	7.7		-41.0	3.9		14.6		8.1	-93.8	70.5		-45.4	74.2	-180.9	88.4	89.8			0.0111
2-4	10:33	80.8	58.5	32.1	13.2	7.7	6.3	11.2	187.8	85.9	22.5	126.4	-69.4	52.3	-202.9	-12.1	-124.1			0.2561
2-3	10:37	104.1		55.4	13.6		5.9		255.3	153.4	24.2		-67.7	59.3	-195.8	-31.3	-202.1			0.3481
2-2	10:41	77.2		28.5	1.9		16.4		72.7	-26.2	147.1		31.2	139.8	-115.6	23.3	25.8			0.0892
2-1	10:45	43.5		-5.2	5.9		11.7		55.6	-46.3	446.4		330.5	570.6	315.6	55.2	49.0			0.0756
3-5	10:26	1.8		-46.9	17.9		2.0		11.3	-90.6	77.6		-39.1	464.2	209.0	97.7	88.5			0.0155
3-6	10:30	0.9		-47.8	18.1		1.8		5.8	-96.1	163.6		-12.3	982.3	407.1	97.8	86.8			0.0078
3-4	10:34	69.9	42.7	11.2	17.4	17.4	2.5	2.5	206.3	204.5	22.9	110.6	-93.0	117.1	-138.0	10.2	-297.7			0.4177
3-3	10:38	95.4		48.7	17.1		2.7		449.4	347.5	30.5		-85.4	143.7	-111.5	9.4	-314.8			0.6126
3-2	10:42	93.4		44.7	16.8		2.8		407.8	305.9	171.5		55.6	748.7	493.6	-3.6	-369.8			0.5580
3-1	10:46	6.5		-44.2	17.0		2.8		20.7	-81.2	257.2		141.3	2186.5	925.3	96.0	82.7			0.0252
4-5	10:27	1.9		-46.9	6.8		11.9		2.4	-89.5	77.4		-33.5	99.3	-156.9	97.5	97.4			0.0033
4-6	10:31	2.8		-45.8	3.7		14.8		3.0	-88.9	58.3		-57.6	60.7	-194.5	95.7	95.6			0.0041
4-4	10:35	3.0	11.0	-45.7	3.2	5.6	15.2	12.9	3.0	-88.8	118.0	100.8	2.1	119.3	-135.6	96.2	95.6			0.0041
4-3	10:39	54.2		5.5	3.5		14.7		55.7	-45.2	32.2		-83.7	33.7	-221.5	45.7	43.6			0.0774
4-2	10:43	2.6		-45.2	2.4		16.9		2.4	-89.5	137.2		21.3	132.8	-122.4	96.7	95.7			0.0033
4-1	10:47	1.4		-47.8	14.5		4.9		4.0	-87.9	191.5		65.6	515.7	260.5	98.5	95.8			0.0054
Outlet Averages		46.7			8.3		10.1		101.9		115.9			255.2		46.7	-8.9	-55.4	-301.7	0.130

Clean Air Engineering Project #10247
Consol Energy
AES Greenridge

Fd 9780

Date: 6/1/2007
Start Time: 10:46
End Time: 11:11

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx lb/MMBtu
1-6	10:46	90.4		0.4	7.6		11.7		120.6	-81.6	57.4		-55.0	76.7	-216.4	0.165
1-5	10:52	86.4		-3.6	5.4		13.7		99.8	-102.5	170.8		58.4	197.2	-95.8	0.135
1-4	10:56	91.2	98.1	1.2	3.9	4.9	14.9	14.1	96.0	-106.2	111.9	147.3	-0.5	117.8	-175.2	0.131
1-3	11:00	107.5		17.5	5.1		13.8		121.8	-83.5	84.1		-28.3	95.3	-197.7	0.166
1-2	11:04	114.2		24.2	3.4		15.6		116.8	-85.5	149.1		36.7	152.5	-140.5	0.158
1-1	11:08	88.9		8.6	4.1		14.7		105.4	-96.9	310.5		198.1	330.8	37.8	0.144
2-6	10:49	88.3		-0.7	7.0		12.4		115.0	-87.3	23.5		-88.9	30.3	-262.8	0.157
2-5	10:53	67.7		-22.3	4.3		15.0		73.0	-129.3	153.9		41.5	166.0	-127.1	0.100
2-4	10:57	86.0	83.6	-22.0	5.2	4.7	14.2	14.7	77.5	-124.7	39.5	161.6	-72.9	48.1	-247.9	0.106
2-3	11:01	75.4		-14.6	4.9		15.2		79.9	-122.4	43.9		-68.5	46.5	-248.5	0.109
2-2	11:05	89.9		9.9	2.8		16.7		98.8	-103.5	215.6		109.2	219.2	-79.8	0.135
2-1	11:09	101.1		11.1	4.6		14.9		111.0	-91.2	433.1		320.7	475.6	152.6	0.151
3-6	10:50	83.2		-5.8	5.2		13.5		94.9	-107.4	20.6		-91.5	23.7	-269.3	0.129
3-5	10:54	83.4		-5.6	4.0		14.7		88.3	-113.9	87.3		-25.1	92.5	-200.5	0.120
3-4	10:58	87.1	96.4	-2.9	5.2	6.6	13.6	12.4	99.3	-103.0	51.6	78.9	-60.8	58.8	-234.2	0.135
3-3	11:02	114.2		24.2	3.2		15.4		115.6	-86.6	33.3		-79.1	33.7	-259.4	0.157
3-2	11:06	92.5		2.5	2.9		15.5		97.8	-114.7	92.0		-20.4	97.1	-205.9	0.119
3-1	11:10	117.7		27.7	20.4		0.7		2693.5	2481.5	194.2		81.8	4945.2	4052.2	3.591
4-6	10:51	83.4		-6.6	5.9		12.8		98.5	-102.7	83.4		-49.0	79.7	-217.4	0.136
4-5	10:55	66.1		-23.9	3.2		15.2		66.8	-135.4	129.1		16.7	130.8	-162.5	0.091
4-4	10:59	76.7	82.0	-13.3	5.1	3.9	13.6	14.6	86.9	-115.4	44.1	70.9	-68.3	50.0	-243.1	0.118
4-3	11:03	97.1		7.1	2.8		15.8		95.0	-107.3	33.9		-78.5	33.2	-259.9	0.130
4-2	11:07	75.4		-14.6	2.4		15.0		73.0	-129.3	93.7		-18.7	90.7	-202.4	0.099
4-1	11:11	93.4		3.4	3.9		14.4		98.3	-108.9	61.8		-51.1	64.5	-228.5	0.134
Inlet Averages		90.0			5.0		14.0		202.3		112.4			283.0		0.276

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff W/ O2 correction	CO Removal Efficiency	CO Removal Eff W/ O2 correction	NOx lb/MMBtu
1-6	10:46	77.8		24.4	8.2		10.7		109.6	34.0	100.8		-23.8	142.1	-30.5	13.6	9.1	[illegible]	[illegible]	0.1497
1-5	10:52	77.4		23.9	3.9		14.6		91.5	5.7	124.9		0.4	131.5	-41.0	10.4	18.3	[illegible]	[illegible]	0.1511
1-4	10:56	96.9	97.1	42.4	3.6	4.5	14.9	14.1	99.2	23.4	42.1	143.0	-82.5	43.6	-129.0	-5.2	-3.3	[illegible]	[illegible]	0.1363
1-3	11:00	81.0		27.5	2.7		15.8		78.7	3.8	175.9		51.4	173.0	0.4	24.7	34.8	[illegible]	[illegible]	0.1688
1-2	11:04	102.7		49.2	1.5		16.3		94.8	18.9	92.4		-32.2	95.9	-87.3	10.1	18.9	[illegible]	[illegible]	0.1292
1-1	11:08	87.6		34.1	5.8		11.9		111.2	35.4	321.7		197.2	409.4	235.8	13.4	-5.5	[illegible]	[illegible]	0.1516
2-6	10:49	51.2		7.7	5.5		12.2		76.1	0.2	44.5		-30.1	55.3	-117.2	33.5	33.6	[illegible]	[illegible]	0.1087
2-5	10:53	31.1		-22.4	10.2		8.9		52.0	-23.8	94.6		-29.8	158.6	-14.0	54.1	28.7	[illegible]	[illegible]	0.0709
2-4	10:57	83.9	66.4	30.3	10.4	9.6	8.7	10.4	142.9	67.0	24.5	139.5	-100.1	41.8	-130.8	-28.2	-84.3	[illegible]	[illegible]	0.1648
2-3	11:01	104.1		50.6	14.9		4.7		310.6	234.7	28.4		-96.2	84.7	-87.8	-36.1	-288.9	[illegible]	[illegible]	0.4235
2-2	11:05	75.1		21.6	1.8		16.8		70.4	-5.5	148.2		23.7	138.9	-33.7	24.6	28.6	[illegible]	[illegible]	0.0960
2-1	11:09	43.2		-10.3	7.6		11.3		59.1	-17.7	496.5		372.0	588.2	485.7	57.3	47.6	[illegible]	[illegible]	0.0793
3-6	10:50	3.5		-50.2	13.9		5.4		9.4	-67.4	69.6		-53.8	168.3	-4.3	96.0	91.1	[illegible]	[illegible]	0.0115
3-5	10:54	1.1		-52.4	10.5		8.6		1.9	-73.9	82.2		-32.4	158.7	-13.9	98.7	97.9	[illegible]	[illegible]	0.0026
3-4	10:58	69.9	44.4	16.4	10.1	11.1	8.9	9.0	115.9	45.0	26.3	109.3	-98.3	43.6	-129.0	19.7	-10.7	[illegible]	[illegible]	0.1560
3-3	11:02	37.7		44.2	9.7		9.1		156.1	80.3	24.1		-100.5	33.5	-134.0	14.4	-35.2	[illegible]	[illegible]	0.2129
3-2	11:06	94.9		40.5	9.7		9.0		150.2	74.4	172.0		47.5	274.9	102.3	-1.6	-71.5	[illegible]	[illegible]	0.2049
3-1	11:10	0.5		-53.0	12.4		6.9		1.1	-74.8	268.2		144.7	596.9	394.3	99.5	100.0	[illegible]	[illegible]	0.0014
4-6	10:51	18.3		-35.2	5.5		12.9		22.9	-52.9	116.3		-5.2	149.1	-24.5	78.1	77.0	[illegible]	[illegible]	0.0312
4-5	10:55	3.9		-49.6	3.5		14.3		4.0	-71.8	108.7		-14.9	113.5	-59.0	94.1	94.0	[illegible]	[illegible]	0.0055
4-4	10:59	13.8	16.0	-39.7	3.9	5.4	15.3	13.2	13.6	-62.0	130.7	107.5	5.2	130.7	-41.9	92.0	84.1	[illegible]	[illegible]	0.0169
4-3	11:03	56.2		2.7	2.5		15.8		54.7	-21.2	27.7		-95.8	26.8	-145.8	42.1	42.4	[illegible]	[illegible]	0.0746
4-2	11:07	2.6		-50.9	2.4		15.0		2.5	-73.3	203.3		78.8	196.7	24.2	96.6	96.8	[illegible]	[illegible]	0.0034
4-1	11:11	0.9		-52.6	14.0		5.6		2.3	-73.5	55.2		-69.4	143.2	-29.4	99.0	97.6	[illegible]	[illegible]	0.0032
Outlet Averages		53.5			7.4		11.4		75.3		124.6			172.8		41.3	20.5	-27.1	-81.3	0.1331

Clean Air Engineering Project #10247
Consol Energy
AES Greenidge

Pd 9760

Date: 8/1/2007
Start Time: 11:12
End Time: 11:35

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx lb/MMBtu
1-5	11:12	83.4		9.4	7.8		11.8		127.6	35.6	47.9		-29.1	65.5	-17.6	0.174
1-6	11:16	83.7		-0.3	5.5		13.3		97.3	5.3	86.5		18.5	111.0	27.9	0.133
1-4	11:20	87.5	76.3	3.5	4.8	4.9	14.6	14.0	92.7	0.6	130.9	73.0	53.9	136.6	55.6	0.125
1-3	11:24	105.5		21.5	5.0		14.0		116.8	25.7	73.2		-3.8	82.4	-0.6	0.162
1-2	11:28	82.6		-1.2	3.4		15.1		84.7	-7.3	25.5		-51.6	28.1	-57.0	0.115
1-1	11:32	4.6		-79.4	3.7		15.1		4.8	-87.2	65.1		-11.9	67.7	-15.3	0.007
2-6	11:13	94.6		10.8	6.6		12.7		120.3	28.3	51.8		-25.2	65.8	-17.3	0.164
2-5	11:17	78.3		-5.7	4.6		14.6		96.0	-6.0	104.4		27.4	114.6	31.6	0.117
2-4	11:21	79.6	83.5	-4.4	5.2	4.7	13.9	14.5	93.8	-1.3	89.1	67.2	11.1	100.4	17.4	0.124
2-3	11:25	76.7		-7.3	4.1		15.0		91.7	-10.3	72.7		-4.9	77.5	-5.6	0.111
2-2	11:29	91.9		7.9	2.8		15.3		93.9	-1.2	46.5		-30.5	46.0	-37.1	0.124
2-1	11:33	79.7		-4.3	4.5		14.4		88.6	-3.4	89.7		-37.9	44.1	-39.9	0.121
3-6	11:14	109.2		16.2	5.5		15.3		115.5	24.4	72.5		-4.5	84.9	1.2	0.159
3-5	11:18	78.1		-5.9	4.9		14.7		92.7	-9.3	58.0		-9.0	72.0	-11.0	0.113
3-4	11:22	85.3	97.3	1.3	5.6	4.1	13.6	14.6	89.6	7.6	54.8	65.3	-22.2	64.1	-19.9	0,136
3-3	11:26	114.0		30.0	3.3		16.0		115.9	23.9	53.1		-23.9	54.0	-29.1	0,156
3-2	11:30	91.6		7.6	2.2		16.6		87.7	-4.4	82.7		5.7	79.2	-3.9	0.120
3-1	11:34	114.5		30.5	4.1		14.5		122.0	30.0	80.8		-16.1	84.9	-18.2	0.165
4-6	11:15	80.4		-3.6	6.2		12.4		97.9	5.9	63.2		-23.8	84.9	-18.3	0.133
4-5	11:19	61.7		-22.3	3.3		16.6		92.8	-29.3	141.4		64.4	148.8	80.8	0.086
4-4	11:23	72.4	79.1	-11.6	6.1	3.8	13.7	14.6	92.0	-10.0	99.1	102.6	-20.9	83.6	-19.5	0.112
4-3	11:27	98.8		14.5	2.6		15.6		96.3	4.3	49.2		-26.8	47.1	-35.9	0.131
4-2	11:31	79.4		-13.5	2.4		15.9		88.1	-23.9	122.8		45.6	118.5	35.5	0,099
4-1	11:35	91.4		7.4	3.3		14.9		93.0	0.9	194.0		117.0	197.3	114.2	0.127
Inlet Averages:		84.0			4.4		14.4		92.0		77.9			83.1		0.125

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff W/ O2 correction	CO Removal Efficiency	CO Removal Eff W/ O2 correction	NOx lb/MMBtu
1-6	11:12	78.3		26.8	8.2		10.7		110.4	-52.5	135.8		13.3	191.4	-175.3	16.2	13.5	[illegible]	[illegible]	0.1505
1-5	11:16	74.2		22.5	4.2		14.3		79.5	-83.4	112.8		-8.7	120.9	-245.8	11.4	18.3	[illegible]	[illegible]	0.1064
1-4	11:20	92.9	84.2	40.3	3.7	9.6	14.8	9.5	95.7	-67.1	49.7	117.1	-72.9	91.7	-315.9	-5.1	-3.3	[illegible]	[illegible]	0.1306
1-3	11:24	79.6		27.9	3.2		15.3		85.5	-82.4	148.6		28.1	150.3	-216.4	24.5	32.2	[illegible]	[illegible]	0,1099
1-2	11:28	163.9		52.2	19.1		1.9		654.2	501.8	78.9		-43.8	504.4	137.7	-25.5	-684.3	[illegible]	[illegible]	0,6057
1-1	11:32	77.6		25.9	20.2		0.0		1984.3	1831.5	177.0		54.5	4526.1	4159.5	-1587.0	-41350.9	[illegible]	[illegible]	2,7059
2-6	11:13	63.9		12.2	4.6		14.0		79.2	-52.7	113.6		-8.9	124.8	-241.9	32.6	41.2	[illegible]	[illegible]	0,0957
2-5	11:17	27.5		-24.2	3.2		15.2		27.6	-195.1	97.3		-25.2	98.4	-268.3	64.9	67.7	[illegible]	[illegible]	0,0379
2-4	11:21	50.4	63.9	28.7	3.2	3.3	15.2	15.1	61.3	-81.6	27.0	118.0	-95.5	27.3	-338.4	-1.0	10.4	[illegible]	[illegible]	0,1°08
2-3	11:25	101.2		49.5	3.2		15.2		102.3	-60.5	26.9		-96.6	26.2	-340.5	-31.8	-25.2	[illegible]	[illegible]	0,1396
2-2	11:29	71.8		19.9	2.3		16.0		68.9	-94.0	116.4		-6.1	112.0	-254.7	22.1	24.2	[illegible]	[illegible]	0,0840
2-1	11:33	38.7		-13.0	3.3		15.1		39.4	-123.5	327.9		205.4	333.5	-33.2	51.4	55.6	[illegible]	[illegible]	0,0537
3-6	11:14	3.8		-47.9	10.6		8.6		6.8	-156.3	125.8		3.3	218.6	-148.1	96.2	94.3	[illegible]	[illegible]	0,0050
3-5	11:18	0.9		-50.8	9.7		9.3		1.4	-161.5	146.9		24.4	234.8	-131.9	98.8	98.3	[illegible]	[illegible]	0,0020
3-4	11:22	66.6	43.7	14.9	9.2	10.3	9.8	8.6	101.9	-61.0	28.3	122.8	-96.2	40.2	-326.5	21.9	-2.1	[illegible]	[illegible]	0,1388
3-3	11:26	94.3		42.6	9.2		9.8		144.3	-18.8	20.0		-102.5	30.6	-336.1	17.3	-24.4	[illegible]	[illegible]	0,1957
3-2	11:30	92.9		41.2	9.4		9.6		144.6	-18.5	126.6		3.1	195.5	-171.2	-1.4	-64.9	[illegible]	[illegible]	0,1972
3-1	11:34	3.8		-47.9	13.5		5.9		9.2	-153.7	262.6		170.1	707.8	341.1	96.7	92.5	[illegible]	[illegible]	0,0125
4-6	11:15	21.9		-29.8	6.9		11.8		26.0	-134.9	200.6		78.1	255.5	-110.2	72.6	71.2	[illegible]	[illegible]	0,0382
4-5	11:19	3.4		-48.3	3.5		14.8		3.5	-156.4	149.9		27.4	154.2	-212.5	94.5	94.4	[illegible]	[illegible]	0,0048
4-4	11:23	16.3	15.1	-41.4	2.9	5.3	16.4	13.3	10.2	-152.8	104.4	132.0	-18.1	103.8	-262.9	85.8	87.5	[illegible]	[illegible]	0,0140
4-3	11:27	51.6		-0.1	2.6		15.8		50.5	-112.4	35.2		-97.3	24.6	-342.0	47.8	47.6	[illegible]	[illegible]	0,0588
4-2	11:31	2.4		-49.3	2.2		16.1		2.3	-160.6	144.5		22.0	139.3	-228.4	98.6	98.6	[illegible]	[illegible]	0,003:
4-1	11:35	0.8		-50.8	10.9		5.5		2.3	-160.5	167.8		45.1	428.5	61.9	99.0	97.5	[illegible]	[illegible]	0,003:
Outlet Averages:		51.7			7.1		11.7		162.9		122.5			396.7		-25.1	-1713.0	-96.3	-469.4	0.222

Clean Air Engineering Project #10247
Consol Energy
AES Greenidge

Fc 9780

Date: 6/1/2007
Start Time: 12:00
End Time: 12:23

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx lb/MMBtu
1-6	12:00	73.1		-11.5	7.6		11.8		101.1	6.2	82.9		-1.5	111.6	19.9	0.133
1-5	12:04	71.6		-15.0	6.9		13.2		84.9	-10.0	50.8		-33.6	60.0	-31.7	0.116
1-4	12:08	91.5	94.1	4.9	4.1	5.0	16.0	14.1	97.5	2.7	79.9	106.3	-4.5	85.1	-6.6	0.133
1-3	12:12	109.4		22.8	6.1		14.1		123.9	28.1	50.8		-33.6	57.6	-34.2	0.168
1-2	12:16	118.6		32.0	3.5		15.6		122.0	27.2	107.3		22.9	110.4	18.7	0.165
1-1	12:20	98.4		11.8	4.1		14.6		104.3	10.0	284.1		199.7	302.7	211.0	0.143
2-6	12:01	89.3		2.7	7.0		12.3		115.0	20.2	39.0		-45.4	48.9	-42.8	0.157
2-5	12:05	70.6		-16.3	4.8		14.2		78.5	-16.3	49.3		-35.1	54.8	-36.9	0.107
2-4	12:09	75.6	77.8	-11.1	5.3	4.8	14.4	14.5	85.6	-9.2	41.1	111.2	-43.3	47.2	-44.8	0.119
2-3	12:13	78.0		-8.6	4.1		15.1		83.1	-11.7	40.0		-44.4	42.6	-49.1	0.113
2-2	12:17	77.9		-9.7	2.8		16.8		76.2	-18.6	123.3		38.9	120.6	28.9	0.104
2-1	12:21	75.2		-11.4	4.8		14.7		83.6	-11.2	375.8		291.2	417.6	325.9	0.114
3-6	12:02	106.5		20.0	5.6		13.2		124.7	29.9	42.7		-41.7	50.0	-41.8	0.170
3-5	12:06	71.6		-15.0	4.1		14.7		76.3	-18.5	28.5		-55.9	30.4	-61.4	0.104
3-4	12:10	74.3	92.8	-12.3	5.4	4.1	13.7	14.7	85.8	-9.0	38.9	57.6	-45.5	44.9	-46.8	0.117
3-3	12:14	108.7		22.1	3.2		15.4		109.9	15.1	37.1		-47.3	37.4	-54.2	0.150
3-2	12:18	90.2		3.6	2.3		16.6		86.8	-8.0	69.5		-14.9	66.9	-24.8	0.136
3-1	12:22	106.6		18.0	4.2		14.8		113.2	18.4	129.0		44.6	138.3	46.6	0.154
4-6	12:03	81.9		-4.7	6.4		12.2		101.1	6.3	31.8		-52.6	39.3	-52.5	0.128
4-5	12:07	65.1		-21.5	3.6		16.0		67.0	-27.9	58.9		-25.5	60.6	-31.1	0.091
4-4	12:11	76.2	81.7	-10.4	6.6	4.0	13.3	14.5	89.1	-5.7	57.2	59.8	-27.2	66.9	-24.8	0.122
4-3	12:15	101.7		15.1	2.8		15.5		100.6	5.7	21.8		-62.6	21.7	-70.1	0.137
4-2	12:19	74.7		-11.9	2.3		16.0		71.9	-22.9	86.8		2.4	83.5	-8.2	0.096
4-1	12:21	90.7		4.1	3.3		15.1		92.2	-2.6	100.8		16.4	102.5	10.8	0.126
Inlet Averages		86.6			4.5		14.5		94.8		84.4			91.7		0.129

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff. W/ O2 correction	CO Removal Efficiency	CO Removal Eff. W/ O2 correction	NOx lb/MMBtu
1-6	12:00	21.3		28.2	16.6		4.1		274.6	202.2	104.3		6.0	352.3	207.5	-6.3	-171.7	[illegible]	[illegible]	0.2744
1-5	12:04	66.3		14.2	7.8		10.8		80.6	16.2	59.8		-38.7	81.4	-63.8	7.4	-6.7	[illegible]	[illegible]	0.1235
1-4	12:08	96.8	57.7	44.5	3.8	5.8	14.7	12.2	101.1	28.7	30.7	126.2	-67.6	32.1	-112.6	-5.8	-3.7	[illegible]	[illegible]	0.1378
1-3	12:12	84.2		32.1	3.0		15.5		84.2	11.8	120.0		21.7	120.0	-24.8	23.0	32.1	[illegible]	[illegible]	0.1148
1-2	12:16	109.4		57.3	2.6		15.8		107.3	34.6	78.4		-16.9	77.7	-67.1	7.8	12.3	[illegible]	[illegible]	0.1456
1-1	12:20	88.6		36.4	6.5		12.2		110.0	37.6	375.3		277.0	466.5	321.7	10.1	-4.9	[illegible]	[illegible]	0.1500
2-6	12:01	67.2		3.1	5.1		13.5		84.3	-7.6	43.4		-54.9	49.2	-65.6	25.9	45.6	[illegible]	[illegible]	0.0894
2-5	12:05	14.4		-37.7	6.6		11.5		18.0	-54.4	51.6		-46.7	64.6	-80.2	79.6	77.0	[illegible]	[illegible]	0.0245
2-4	12:09	83.0	52.7	30.9	8.2	7.7	10.8	11.1	117.0	44.6	21.5	105.1	-76.9	30.3	-114.5	-9.5	-35.0	[illegible]	[illegible]	0.1595
2-3	12:13	106.8		54.7	7.3		11.4		140.6	68.2	21.1		-77.2	27.8	-117.0	-36.9	-69.1	[illegible]	[illegible]	0.1917
2-2	12:17	72.4		20.3	9.6		9.1		114.7	42.3	113.0		14.7	179.0	34.2	7.1	-50.5	[illegible]	[illegible]	0.1564
2-1	12:21	42.6		-9.9	9.3		9.6		65.6	-6.9	392.1		291.9	586.5	441.8	43.5	21.6	[illegible]	[illegible]	0.0894
3-6	12:02	2.5		-49.6	6.4		12.3		3.1	-69.3	68.1		-30.2	84.1	-60.7	97.7	97.5	[illegible]	[illegible]	0.0042
3-5	12:06	0.9		-51.2	13.3		6.1		2.1	-70.3	64.2		-34.1	151.2	5.4	98.7	97.2	[illegible]	[illegible]	0.0029
3-4	12:10	67.0	45.2	14.8	8.9	9.3	8.8	10.5	99.3	27.6	19.3	89.0	-79.0	28.8	-116.0	9.8	-16.5	[illegible]	[illegible]	0.1389
3-3	12:14	101.6		49.5	7.6		11.2		136.7	64.4	19.1		-79.2	25.7	-119.1	6.5	-24.4	[illegible]	[illegible]	0.1865
3-2	12:18	96.0		43.8	6.7		11.9		121.0	48.6	95.2		-3.1	120.0	-24.8	-6.4	-39.4	[illegible]	[illegible]	0.1650
3-1	12:22	3.4		-48.7	7.1		11.6		4.4	-68.0	148.0		49.7	192.0	47.2	96.8	95.1	[illegible]	[illegible]	0.0060
4-6	12:03	10.7		-41.4	7.4		11.4		14.2	-58.2	121.3		23.0	160.8	16.1	86.5	86.0	[illegible]	[illegible]	0.0183
4-5	12:07	2.9		-49.2	3.8		14.9		3.0	-69.4	102.4		4.1	106.0	-38.8	96.5	96.5	[illegible]	[illegible]	0.0041
4-4	12:11	8.4	12.9	-43.7	3.0	5.8	15.4	13.1	9.4	-64.0	71.6	90.7	-26.7	71.6	-73.2	89.0	90.6	[illegible]	[illegible]	0.0115
4-3	12:15	52.3		-0.2	2.7		15.7		51.4	-20.9	21.4		-76.9	21.0	-123.7	48.6	48.9	[illegible]	[illegible]	0.0701
4-2	12:19	2.3		-49.8	2.4		16.0		2.2	-70.2	98.4		0.1	95.2	-49.6	96.8	96.8	[illegible]	[illegible]	0.0030
4-1	12:23	0.8		-51.2	14.3		5.2		2.4	-69.9	129.3		31.0	350.7	205.8	99.0	97.4	[illegible]	[illegible]	0.0033
Outlet Averages		52.1			7.0		11.7		72.4		98.3			144.8		40.5	23.8	-24.9	-83.4	0.089

Clean Air Engineering Project #10247
Consol Energy
AES Greenridge

Fd 9780

Date: 6/1/2007
Start Time: 12:24
End Time: 12:47

Inlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx lb/MMBtu
1-6	12:24	91.9		7.2	7.5		11.6		122.8	30.5	47.0		-21.4	62.8	-21.0	0.167
1-5	12:28	83.0		-1.8	5.6		13.4		97.1	4.8	68.6		-14.8	74.4	-8.4	0.132
1-4	12:32	87.1	97.7	2.3	4.0	5.0	15.0	13.8	92.3	0.0	84.0	94.1	5.6	89.0	5.2	0.126
1-3	12:36	106.9		21.8	5.1		13.9		120.1	27.8	58.6		-21.8	64.1	-19.7	0.164
1-2	12:40	116.6		34.1	3.3		14.8		120.9	28.6	159.5		81.2	162.3	78.5	0.165
1-1	12:44	99.1		14.4	4.5		14.0		108.2	15.9	154.0		75.6	158.1	54.3	0.147
2-6	12:25	72.9		-11.5	6.8		12.6		92.8	0.8	38.5		-44.9	42.5	-41.3	0.126
2-5	12:29	66.6		-16.2	4.3		15.0		71.8	-20.5	87.5		-10.9	72.6	-11.0	0.098
2-4	12:33	76.2	77.1	-6.6	6.1	4.6	14.5	14.5	86.3	-5.9	29.5	109.3	-48.9	33.4	-50.4	0.119
2-3	12:37	79.3		-3.5	4.1		15.5		89.4	-2.8	45.3		-33.1	48.3	-35.6	0.114
2-2	12:41	91.4		6.7	2.7		15.3		89.8	-2.4	215.4		137.0	211.8	128.0	0.123
2-1	12:45	77.0		-7.8	4.5		13.8		84.0	-8.2	264.5		186.1	266.7	204.8	0.115
3-6	12:26	87.5		2.8	3.4		13.9		101.2	8.9	45.8		-32.8	52.9	-30.9	0.136
3-5	12:30	75.7		-9.1	3.8		15.0		79.2	-13.0	28.7		-49.7	31.1	-52.7	0.105
3-4	12:34	67.2	82.5	-17.6	5.1	4.0	13.9	14.8	78.1	-15.1	40.7	55.3	-37.7	46.1	-37.7	0.104
3-3	12:38	91.7		7.0	3.0		15.6		93.0	1.0	58.9		-21.5	57.9	-25.8	0.127
3-2	12:42	89.0		4.3	2.3		16.4		85.7	-6.5	91.8		13.4	86.3	4.5	0.117
3-1	12:46	83.5		-1.9	4.2		14.2		89.5	-2.8	42.6		-35.8	45.7	-36.2	0.122
4-6	12:27	83.7		-1.1	5.8		12.8		98.2	7.0	28.7		-49.7	34.0	-49.8	0.135
4-5	12:31	65.2		-19.6	3.6		15.0		67.5	-24.8	59.1		-20.3	60.1	-23.7	0.092
4-4	12:35	76.3	91.9	-8.5	5.4	3.9	13.4	14.5	88.1	-4.2	65.1	59.1	-13.3	75.2	-8.6	0.120
4-3	12:39	98.0		14.3	2.7		15.6		97.4	5.1	33.8		-44.3	33.0	-50.8	0.133
4-2	12:43	73.2		-12.6	2.5		15.7		70.2	-22.0	98.4		16.0	93.5	10.0	0.096
4-1	12:47	94.6		9.6	3.8		14.6		97.9	5.8	72.8		-5.8	75.9	-8.5	0.133
Inlet Averages		84.8			4.4		14.4		92.3		78.4			83.8		0.128

Outlet Point	Time Sampled	NOx ppmdv	NOx Port Avg	PPM Dev from Avg.	O2 %dv	O2 Port Avg	CO2 %dv	CO2 Port Avg	NOx @ 3% O2	PPM Dev from Avg.	CO ppmdv	CO Port Avg	PPM Dev from Avg.	CO @ 3% O2	PPM Dev from Avg.	NOx Removal Efficiency	NOx Removal Eff W/O2 correction	CO Removal Efficiency	CO Removal Eff W/O2 correction	NOx lb/MMBtu
1-6	12:24	76.3		24.5	8.2		10.7		107.5	37.0	101.6		-3.8	143.2	-39.8	17.0	12.4	[illegible]	[illegible]	0.1499
1-5	12:28	72.8		21.0	5.6		13.1		95.2	14.7	52.5		-49.7	61.4	-121.6	12.9	12.9	[illegible]	[illegible]	0.1161
1-4	12:32	86.9	85.7	47.1	7.3	5.8	11.5	12.9	130.2	58.7	36.1	76.5	-68.1	47.5	-135.6	-13.5	-41.1	[illegible]	[illegible]	0.1775
1-3	12:36	63.3		31.5	5.2		13.6		95.0	24.5	102.3		0.1	118.6	-65.9	21.4	20.9	[illegible]	[illegible]	0.1295
1-2	12:40	102.3		50.5	1.7		16.7		93.4	24.9	28.9		-73.3	28.9	-155.5	13.9	23.1	[illegible]	[illegible]	0.1301
1-1	12:44	80.8		28.8	7.0		11.6		103.8	33.3	137.7		35.5	177.3	-5.1	16.7	4.0	[illegible]	[illegible]	0.1415
2-6	12:25	62.6		10.8	9.9		9.2		101.9	31.4	94.2		-7.5	154.1	-28.4	14.1	-10.1	[illegible]	[illegible]	0.1399
2-5	12:29	15.3		-36.5	11.0		8.2		27.7	-42.8	77.2		-25.0	139.6	-42.9	77.0	61.5	[illegible]	[illegible]	0.0377
2-4	12:33	37.1	63.4	-15.3	8.4	7.8	10.6	11.3	124.7	54.2	21.5	86.1	-81.2	33.1	-152.4	-14.3	-44.5	[illegible]	[illegible]	0.1701
2-3	12:37	107.7		55.9	5.6		12.9		125.0	55.5	25.8		-76.4	30.2	-152.9	-27.5	-51.0	[illegible]	[illegible]	0.1715
2-2	12:41	76.4		18.6	3.0		15.4		70.4	-0.1	48.8		-53.6	48.8	-133.9	23.0	21.7	[illegible]	[illegible]	0.0960
2-1	12:45	37.3		-14.5	7.5		11.4		49.6	-20.7	248.0		146.6	332.6	160.2	51.6	40.7	[illegible]	[illegible]	0.0678
3-6	12:26	3.2		-48.6	15.8		4.4		11.2	-59.9	113.1		10.9	997.0	214.6	98.3	98.9	[illegible]	[illegible]	0.0153
3-5	12:30	0.9		-50.9	14.4		6.2		2.5	-68.6	106.2		4.0	282.5	110.0	88.8	96.9	[illegible]	[illegible]	0.0034
3-4	12:34	73.8	46.7	22.0	11.7	12.7	7.5	8.8	148.8	73.1	23.2	122.6	-79.0	45.1	-137.3	-5.8	-89.8	[illegible]	[illegible]	0.1556
3-3	12:38	100.2		48.4	10.9		8.3		179.4	105.9	23.4		-78.8	41.9	-140.6	-6.3	-92.3	[illegible]	[illegible]	0.2446
3-2	12:42	98.9		47.1	9.8		9.2		166.5	93.0	110.9		8.7	178.8	-3.6	-11.1	-98.2	[illegible]	[illegible]	0.2175
3-1	12:46	2.9		-48.9	13.6		6.9		7.1	-66.4	368.8		258.4	678.3	496.8	96.5	82.1	[illegible]	[illegible]	0.0097
4-6	12:27	9.4		-42.4	6.6		12.1		11.8	-59.7	124.9		22.7	156.3	-28.1	88.8	88.1	[illegible]	[illegible]	0.0150
4-5	12:31	2.9		-48.9	3.5		14.9		3.0	-67.5	106.7		4.5	109.8	-72.7	95.8	96.6	[illegible]	[illegible]	0.0041
4-4	12:35	8.6	11.4	-43.2	2.8	5.4	15.3	13.2	8.6	-61.9	87.6	123.5	-34.6	87.2	-115.2	88.7	90.8	[illegible]	[illegible]	0.0117
4-3	12:39	44.5		-7.3	2.6		15.8		43.5	-27.0	22.6		-79.6	22.1	-180.4	55.1	55.8	[illegible]	[illegible]	0.0584
4-2	12:43	2.0		-49.8	2.9		15.8		2.0	-68.6	128.2		34.0	126.4	-47.0	97.2	97.2	[illegible]	[illegible]	0.0027
4-1	12:47	0.9		-50.8	14.1		5.5		2.4	-68.1	283.2		181.0	745.5	563.0	99.0	97.6	[illegible]	[illegible]	0.0032
Outlet Averages		51.8			7.9		11.0		70.5		102.2			182.5		48.4	24.3	-77.4	-209.8	0.096

QA/QC DATA

D

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CONSOL Energy - AES Greenidge
Clean Air Project No: 10247
Unit 4 Air Heater Inlet

CTM-027 (Ammonia)
QA/QC Results

	Run No.	1	2	3
	Date (2007)	May 31	Jun 1	Jun 1
	Start Time (approx.)	18:04	10:20	12:05
	Stop Time (approx.)	19:14	11:07	12:52
	Total Duration of Test Run (min.)	70	47	47
	Net Sampling Time (min.)	60	40	40
	Sampling System Calibration Summary			
	Nozzle ID No:	NA	NA	NA
D_n	Nozzle Diameter (in):	NA	NA	NA
	Probe ID No:	NA	NA	NA
C_p	Pitot Coefficient:	0.840	0.840	0.840
	Meter Box ID. No:	68-B	68-B	68-B
Y_d	Meter Box Yd - Field Sheet	1.0071	1.0071	1.0071
	Meter Box Yd - Database	1.0071	1.0071	1.0071
	Meter Box ΔH@ - Field Sheet	1.8055	1.8055	1.8055
	Meter Box ΔH@ - Database	1.8055	1.8055	1.8055
	QA/QC			
	Final Leak Check			
	(a) 4% of Sampling Rate (cfm)	0.0263	0.0262	0.0266
	(b) Allowable Rate from Method (cfm)	0.0200	0.0200	0.0200
	Allowable Limit - minimum of a and b (cfm)	0.0200	0.0200	0.0200
	Actual Final Leak Rate (cfm)	0.0030	0.0020	0.0030

QA/QC _____
Date _____

Certificate of Calibration

Customer:	CLEAN AIR ENGINEERING INC.
Customer P.O.:	029486865000
Instrument:	Omega CL23A
Work Order Number:	707991284
Description:	CALIBRATOR THERMOMETER
Serial Number:	T-119130
Equipment I.D.#:	605945856
A.R. Number:	707-5530

Cal-3

Omega Engineering, Inc. hereby certifies that the above instrumentation has been calibrated and tested to meet or exceed the published specifications. This calibration and testing was performed using instrumentation and standards that are traceable to the **National Institute of Standards and Technology**. Omega Engineering, Inc. is in compliance with ISO 10012-1, ISO 9001:2000 and ANSI/NCSL Z540-1-1994. This certificate shall not be reproduced, except in full, without the written consent of Omega Engineering, Inc.

CALIBRATION INFORMATION

Cal Date: 17-Jul-07
Cal Due Date: 17-Jul-08

Temperature: 22 C ± 5 C
Humidity: Below 80%

Absolute Uncertainty: 0.19F
Comments:

Pass: Y **Technician:** VA
Procedure: QAP-2100

Seals OK: Yes
Certificate #: 707991284

STANDARDS USED FOR CALIBRATION

Asset Number	Description	NIST Traceable Number	Cal. Date	Due Date
ST-098-04	FLUKE 5700A Multicalibrator	10NNST09804	23-Mar-07	23-Mar-08
CL-098-19	Omega TRCIII Ice Point	10NNCL09819	21-Jul-06	21-Jul-07
DM-098-22	Agilent 34401A Multimeter	10NNDM09822	11-Aug-06	11-Aug-07

Metrology Technician:

Quality Assurance Inspector:

OMEGA Engineering, Inc., One Omega Circle, P.O. Box 336, Bridgeport, NJ 08014-0336 Telephone: (856) 467-4200 · FAX: (856) 467-1212
www.omega.com e-mail: info@omega.com

Calibration Results

Customer:	CLEAN AIR ENGINEERING INC.	Result:	PASS
P.O. Number:	029486865000	Cal Date:	17-Jul-07
Work Order #:	707991284	Cal Due Date:	17-Jul-08
Instrument:	Omega CL23A	Technician:	VA
Description:	CALIBRATOR THERMOMETER	Temperature:	22 °C ± 5 °C
Serial Number:	T-119130	Humidity:	Below 80%
Equipment I.D.#:	605945856	Condition F/L:	AS-LEFT
A.R. Number:	707-5530	Procedure:	QAP-2100
		Certificate #:	707991284

Standards Used

Asset #	Description	NIST Traceable Number	Cal Date	Due Date
CL-098-19	Omega TRCIII Ice Point	10NNCI09819	21-Jul-06	21-Jul-07
DM-098-22	Agilent 34401A Multimeter	10NNDM09822	11-Aug-06	11-Aug-07
ST-098-04	FLUKE 5700A Multicalibrator	10NNST09804	23-Mar-07	23-Mar-08

Test Data

Test Description	True Value	Test Result	Lower limit	Upper limit	
Thermocouple Input					
32.0 DegreeKF		32.1	31.5	32.5	Pass
2400.0 DegreeKF		2400.1	2399.0	2401.0	Pass
32.0 DegreeTF		31.6	31.5	32.5	Pass
1390.0 DegreeJF		1389.7	1389.4	1390.6	Pass
32.0 DegreeTF		32.1	31.5	32.5	Pass
750.0 DegreeTF		749.9	749.5	750.5	Pass
Thermocouple Output					
0.000 mV		-0.002	-0.011	0.011	Pass
52.952 mV		52.943	52.933	52.971	Pass
0.000 mV		0.008	-0.014	0.014	Pass
42.564 mV		42.567	42.543	42.585	Pass
0.000 mV		-0.004	-0.011	0.011	Pass
20.803 mV		20.796	20.786	20.820	Pass

End of Test Data

OMEGA Engineering, Inc., One Omega Circle, P.O. Box 336, Bridgeport, NJ 08014-0336 Telephone: (856) 467-4200 · FAX: (856) 467-1212

www.omega.com e-mail: info@omega.com

Meter Box Full Test Calibration

Meter Box No: 68-B

Date of Calibration: 3/12/2007

Meter Box Y_d: 1.0071

Calibration conducted by: Bill Dimitroff

Meter Box ΔH@: 1.8055

Barometric Pressure: 29.38

Signature

				Standard Meter Gas Volume (ft^3)			Meter Box Gas Volume (ft^3)			Std. Meter Temperature (°F)			Meter Box Temperature (°F)			Time (min.)	Calibration Results	
Q	ΔH	ΔP	Y_{ds}	Initial	Final	V_{ds} Net	Initial	Final	V_d Net	In	Out	T_{ds} Avg.	In	T_c Out	T_d Avg.	Θ	Y_c	ΔH@
0.392	0.50	-0.20	1.0000	12.000	24.000	12.000	768.840	780.940	12.100	71.0	71.0	71.00	77.5	73.0	75.25	29.88	0.9979	1.7810
0.393	0.50	-0.20	1.0000	24.000	34.000	10.000	780.940	791.000	10.060	71.0	71.0	71.00	77.0	73.5	75.25	24.83	1.0002	1.7694
0.679	1.50	-0.40	1.0000	38.000	48.000	10.000	794.990	805.020	10.030	71.0	71.0	71.00	80.5	74.0	77.25	14.37	1.0040	1.7750
0.674	1.50	-0.40	1.0000	48.000	58.000	10.000	805.020	814.980	9.960	71.0	71.0	71.00	81.5	74.5	78.00	14.46	1.0124	1.8022
0.940	3.00	-0.80	1.0000	62.000	80.000	18.000	816.960	836.840	17.880	71.0	71.0	71.00	84.5	75.5	80.00	19.69	1.0146	1.8478
0.937	3.00	-0.80	1.0000	80.000	90.000	10.000	836.840	846.800	9.960	71.0	71.0	71.00	85.0	76.5	80.75	10.42	1.0133	1.8575
																Averages	1.00708	1.80549

Nomenclature

- P_b Barometric Pressure (in. Hg)
- Q Flow Rate (cfm)
- ΔH Orifice Pressure differential (in. H_2O)
- ΔP Inlet Pressure Differential (in. H_2O)
- V_d Gas Meter Volume - Dry (ft^3)
- V_{ds} Standard Meter Volume - Dry (ft^3)
- T_d Average Meter Box Temperature (°F)
- T_c Outlet Meter Box Temperature (°F)
- T_{ds} Average Standard Meter Temperature (°F)
- Y_d Meter Correction Factor (unitless), $Y_i \leq Y_{avg} \pm 0.02$
- Y_{ds} Standard Meter Correction Factor (unitless)
- ΔH@ Orifice Pressure Differential giving 0.75 cfm of air at 68°F and 29.92 in. Hg (in. H_2O) $\Delta H@_i \leq \Delta H@_{avg} \pm 0.2$
- Θ Duration of Run (minutes)

Equations

$$Y_d = (Y_{ds})\left[\frac{V_{ds}}{V_d}\right]\left[\frac{T_d + 460}{T_{ds} + 460}\right]\left[\frac{P_b + \Delta P/13.6}{P_b + \Delta H/13.6}\right]$$

$$\Delta H@ = \frac{(0.0319)(\Delta H)}{P_b(T_c + 460)}\left[\frac{(T_{ds} + 460)\Theta}{(V_{ds})(Y_{ds})}\right]^2$$

$$Q = \frac{17.64(V_{ds})(P_b)}{(T_{ds} + 460)(\Theta)}$$

Vacuum Gauge

Standard (in.Hg)	Gauge (in.Hg)
5.0	5.0
10.0	10.0
15.0	15.0
20.0	20.0
25.0	25.0

CleanAir Engineering

Meter Box - Pyrometer Calibration Sheet

Meter Box No: 68-B

Calibrated by: Bill Dimitroff

Date: 3/12/07

Temperature Scale Used: Fahrenheit

Office: Pittsburgh

Client: NA

Job No: NA

Type of Calibration: Full-Test

Calibration Reference Settings (°F)	Pyrometer Reading for each Channel (°F)						
	1 Stack	2 Probe	3 Filter	4 Imp Out	5 Aux	6 DGM In	7 DGM Out
50	50	49	49	50	50	50	50
100	100	99	99	100	100	100	100
150	151	150	149	151	151	151	151
200	202	201	199				
250	252	250	249				
300	302	300	299				
350	352	350	349				
400	401	400	399				
450	450	449	449				
500	500	500	499				
550	551	549	549				
600	601	600	599				

Tolerance = ±2°F difference from reference setting.

Calibration Reference Information

Reference Used: Digimite

Calibrated By: Omega

Calibration Report No: 503977790

Serial No: T119130

Date Calibrated: 5/26/2006

CleanAir Engineering

Meter Box Critical Orifice Post-Test Calibration Data

Project No. 10247 Meter No. 68-B Orifice 63-G

Location Office Meter Yd 1.0071 Orifice K' 0.5759

Test Date 06/07/07 Meter ΔH@ 1.8055 Orifice Cal. Date 01/24/07

Operator Bill Dimitroff Full Test Cal. Date 03/12/07

Leak Checks

Negative Pressure ☑ Pass

No movement of manometer in one-minute

Positive Pressure ☑ Pass

No movement of manometer in one-minute

Important: All leak checks must pass in order for calibration to be valid.

Barom. Press. (P_b) 29.21 in. Hg

Run	Elapsed Time, θ (minutes)	Meter Volume, V_m (dcf)	Meter Temperature Inlet (°F)	Meter Temperature Outlet (°F)	Ambient Temp. (°F)	Orifice ΔH (in. W.C.)	Vacuum (in. Hg)	Net Run Time, θ (minutes)	Net Meter Volume for Run, V_m (dcf)	Avg Meter Temp. for Run, T_m (°F)	DGM Calibration Factor, Y_i	% Percent Variation, ΔY
	0.0	285.00	77	73								
1	10.0	292.55	77	74	71	1.70	19	10.0	7.55	75.3	1.0001	0.0%
2	16.0	297.07	78	74	71	1.70	19	6.0	4.52	75.8	1.0033	0.3%
3	28.0	306.18	78	74	71	1.70	19	12.0	9.11	76.0	0.9960	-0.4%
										Average Y_i	0.9998	
										Cal. Error	-0.7%	

Calculations and Specifications

$$Y_i = \frac{K' \times P_b \times (T_m + 460) \times \theta}{17.64 \times V_m \times \left(P_b + \Delta H/13.6\right) \times \sqrt{T_{amb} + 460}}$$

$$\Delta Y_i = \frac{Y_i - \overline{Y}_i}{\overline{Y}_i} \times 100 \qquad \text{Spec.: } \Delta Y_i \le \pm 2\%$$

$$Cal\,Error = \frac{\overline{Y}_i - Y_d}{Y_d} \times 100 \qquad \text{Spec.: } Cal\,Error \le \pm 5\%$$

CleanAir ENGINEERING

DENVER INSTRUMENT

Report of Traceability

All Denver Instrument Company weights have been verified using standards of mass traceable to the International Prototype Kilogram (IPK) through the National Institute of Standards and Technology (NIST),and meet or exceed specifications for type and class.

Chain of Traceability

Primary Standards MT57 Calibrated at NIST 02/11/03 under test # 822/268214-03
1kg A & 1kg B
↓
Working Standards MT7, MT50 and MT53 Calibrated at Denver Instrument Co. 11/09/04 under test #04-102604
↓

Class 1 Weight Range: 1000 g: S/N: 05-J06467-8 Date of Report: 01/10/05
all weights were found to be in tolerance see chart page 2.

Denver Instrument Reported Uncertainties

Nominal Value	Uncertainty K=2	Nominal Value	Uncertainty K=2	Nominal Value	Uncertainty K=2
5000g	1.5 mg	100g	0.025 mg	500mg	0.0015 mg
2000g	0.75 mg	50g	0.017 mg	200mg	0.0014 mg
1000g	0.332 mg	30g	0.012 mg	100mg	0.0014 mg
500g	0.192 mg	20g	0.011 mg	50mg	0.0014 mg
400g	0.117mg	10g	0.008 mg	20mg	0.0014 mg
300g	0.116mg	5g	0.005 mg	10mg	0.0014 mg
200g	0.076mg	2g	0.005 mg	5mg	0.0014 mg
160g	0.041 mg	1g	0.005 mg	2mg	0.0014 mg
150g	0.041 mg			1mg	0.0014 mg

Type: 1
5kg – 10mg
Material: Stainless Steel Assumed Density: 7.85g/cm^3
5mg – 1mg
Material: Aluminum Assumed Density: 2.70g/cm^3

Signature: *Michael Sunnegard*
Production Coordinator

NVLAP
NVLAP Lab Code 200106-0

This report pertains to the above listed artifacts and parameters only. At the time of test, which may vary from date of report the weight(s) were found to meet the stated specification. Weights are calibrated using weighing designs A2.1 or A2.3 described in NBS Tech note 952 data reduction uses the NIST masscode software. Using the NIST provided massconde software we propagate mass values from our primary standards MT57, which are calibrated every three years, and use the values reported under NIST test #822/268214-03 dated 02/11/03. Our working standards MT7, MT50 and MT53 are calibrated every 6 months the last Calibration was on 05/17/04 under test number 04-051401. *Therefore, the reported values provide traceability to the International Prototype Kilogram through NIST* and comply with ANSI/NCSL Z540 and ANSI/ISO/IEC 17025:2000. Accredited by NVLAP for the specific scope of accreditation under lab code 200106-0. This report does not provide endorsement by NVLAP or any other government agency, and may not be reproduced except in full without our written permission.

1855 Blake Street, Suite 201 • Denver, CO 80202
800.321.1135 • 303.431.7255 • 303.423.4831 FAX
www.denverinstrument.com

Table of Weight Tolerances

	ASTM E617					NBS Circular 547				OIML R-111			
	Class 0(U*)	Class 1	Class 2	Class 3	Class 4	Class M	Class S	Class S1	Class P	Class E1	Class E2	Class F1	Class F2
Nominal Value	Tolerance in mg	Tolerance in mg	Tolerance in mg	Tolerance in mg	Tolerance in mg	Tolerance in mg	Tolerance in mg	Tolerance in mg	Tolerance in mg	Tolerance in mg	Tolerance in mg	Tolerance in mg	Tolerance in mg
5 kg	6.00	12.0	25.0	50	100	25.0	12.0	50	100	2.5	7.5	25	75
3 kg	3.75	7.5	15.0	30	60	15.0	7.5	30	60				
2 kg	2.50	5.0	10.0	20	40	10.0	5.0	20	40	1.0	3.0	10	30
1 kg	1.25	2.5	5.0	10	20	5.0	2.5	10	20	0.5	1.5	5	15
500 g	0.600	1.20	2.50	5.0	10.0	2.50	1.20	5.0	10.0	0.25	0.75	2.5	7.5
300 g	0.380	0.75	1.50	3.0	6.0	1.50	0.75	3.0	6.0				
200 g	0.250	0.50	1.00	2.0	4.0	1.00	0.50	2.0	4.0	0.10	0.30	1.0	3.0
100 g	0.125	0.25	0.50	1.0	2.0	0.50	0.25	1.0	2.0	0.05	0.15	0.5	1.5
50 g	0.060	0.120	0.250	0.60	1.20	0.250	0.120	0.60	1.20	0.030	0.10	0.30	1.0
30 g	0.037	0.074	0.150	0.45	0.90	0.150	0.074	0.45	0.90				
20 g	0.037	0.074	0.100	0.35	0.70	0.100	0.074	0.35	0.70	0.025	0.080	0.25	0.8
10 g	0.025	0.050	0.074	0.25	0.50	0.050	0.074	0.25	0.50	0.020	0.050	0.20	0.6
5 g	0.017	0.034	0.054	0.18	0.36	0.034	0.054	0.18	0.36	0.015	0.050	0.15	0.5
3 g	0.017	0.034	0.054	0.15	0.30	0.034	0.054	0.15	0.30				
2 g	0.017	0.034	0.054	0.13	0.26	0.034	0.054	0.13	0.26	0.012	0.040	0.12	0.4
1 g	0.017	0.034	0.054	0.10	0.20	0.034	0.054	0.10	0.20	0.010	0.030	0.10	0.3
500 mg	0.005	0.010	0.025	0.080	0.16	0.010	0.025	0.080	0.16	0.008	0.025	0.08	0.25
300 mg	0.005	0.010	0.025	0.070	0.14	0.010	0.025	0.070	0.14				
200 mg	0.005	0.010	0.025	0.060	0.12	0.010	0.025	0.060	0.12	0.008	0.020	0.06	0.20
100 mg	0.005	0.010	0.025	0.050	0.10	0.010	0.025	0.050	0.10	0.005	0.015	0.05	0.15
50 mg	0.005	0.010	0.014	0.042	0.085	0.010	0.014	0.042	0.085	0.004	0.012	0.04	0.12
30 mg	0.005	0.010	0.014	0.038	0.075	0.010	0.014	0.038	0.075				
20 mg	0.005	0.010	0.014	0.035	0.070	0.010	0.014	0.035	0.070	0.003	0.010	0.030	0.10
10 mg	0.005	0.010	0.014	0.030	0.060	0.010	0.014	0.030	0.060	0.002	0.008	0.025	0.08
5 mg	0.005	0.010	0.014	0.028	0.055	0.010	0.014	0.028	0.055	0.002	0.006	0.020	0.06
3 mg	0.005	0.010	0.014	0.026	0.052	0.010	0.014	0.026	0.052				
2 mg	0.005	0.010	0.014	0.025	0.050	0.010	0.014	0.025	0.050	0.002	0.005	0.020	0.05
1 mg	0.005	0.010	0.014	0.025	0.050	0.010	0.014	0.025	0.050	0.002	0.005	0.020	0.05

For values between those shown on the chart use the value of the weight which would fall below it on the chart. For non-metric weights convert to metric and follow the same procedure. For example: If using a 400 gram or a 1 lb (453.6g) weight use the tolerance for 300 grams. For classes not shown contact Denver Instrument Company for tolerances. * Class U is a Denver Instrument classification in which the weights are adjusted to class zero tolerances but meet class 1 specifications for markings and density.

Uncertainty

The combined uncertainty includes: Type A components: The standard deviation of the balance. Type B components: Uncertainty of the Air Density Calculation, Uncertainty of the Standard, Uncertainty of the Standard's Density, and the Uncertainty of the Density of the mass under test. The combined uncertainty is multiplied by a coverage factor of 2 to give the expanded uncertainty at the 95 percent confidence level. The expanded uncertainty presented in this report is consistent with the ISO Guide to the Expression of Uncertainty in Measurement. The expanded uncertainty should not be used as a tolerance limit by the user during application.

When to Recertify Mass Standards

ISO/IEC 17025 paragraph 5.10.4.4 states: *"A calibration certificate (or calibration label) shall not contain any recommendation on the calibration interval except where this has been agreed with the client."* Therefore, Denver Instrument Company does not provide a calibration due date. Setting calibration intervals is the responsibility of the end user. As a general guideline the following calibration intervals may be appropriate:

1. Normal usage; One year
2. Heavy daily use; Three – six months
3. Light usage; Two – three years

Normal usage can be daily but only one or two times a day. Heavy usage is daily use in excess of ten or more times a day. Light usage would be two or three times in a three-month period. Weights should also be recertified if they become contaminated with foreign material or are subjected to dropping, abrasion, scratching or denting. If the user experiences significant changes in mass between calibrations a reduction in the calibration interval should be considered. If you would like to discuss your specific requirements please give us a call.

Report of Traceability

ANSI/ASTM Class1

100 gram(s)

S/N: 97-J32977-1 Date: 04/10/97

Type: 1
Material: Stainless Steel
Density: 7.85 g/cm^3

All Denver Instrument Company weights have been verified using standards of mass traceable to the National Institute of Standards and Technology (NIST) and meet or exceed specifications for type and class.

Primary Set MT55 NIST Test #822/257022-96 6/14/96

Secondary Set # MT50 Date 11/20/96

Signature: RPB

Date Seal Broken:

Denver Instrument Company

6542 Fig Street • Arvada, Colorado 80004
303/431-7255 •1-800-321-1135• FAX 303-423-4831

LITHO IN U.S.A.

Report of Traceability

ANSI/ASTM Class 1

10 gram(s)

S/N: 97-J32832-18 Date: 04/28/97

Type: 1
Material: Stainless Steel
Density: 7.85 g/cm^3

All Denver Instrument Company weights have been verified using standards of mass traceable to the National Institute of Standards and Technology (NIST) and meet or exceed specifications for type and class.

Primary Set MT55 NIST Test #822/257022-96 6/14/96

Secondary Set # MT50 Date 11/20/96

Signature: T. Reynolds

Date Seal Broken:

Denver Instrument Company

6542 Fig Street • Arvada, Colorado 80004
303/431-7255 •1-800-321-1135• FAX 303-423-4831

LITHO IN U.S.A.

Report of Traceability

ANSI/ASTM Class 1

1 gram(s)

S/N: 97-133700-21 Date: 05/27/97

Type: 1
Material: Stainless Steel
Density: 7.85g/cm^3

All Denver Instrument Company weights have been verified using standards of mass traceable to the National Institute of Standards and Technology (NIST) and meet or exceed specifications for type and class.

Primary Set MT55 NIST Test #822/257022-96 6/14/96

Secondary Set # MT50 Date 05/20/97

Signature:

Date Seal Broken:

Denver Instrument Company

6542 Fig Street • Arvada, Colorado 80004
303/431-7255 •1-800-321-1135• FAX 303-423-4831

LITHO. IN U.S.A.

Analytical Instruments Company, Inc.

Laboratory Balance Service, Calibration & Repair Since 1975

Member, American Society for Quality (ASQ)

P.O. Box 97112 Pittsburgh PA 15229-0112

Phone or Fax (412)-367-5776

CALIBRATION REPORT

DATE OF SERVICE: August 29, 2006

NEXTCALIBRATION DUE DATE: August 30, 2007

CLEAN AIR ENGINEERING, INC.
ATTN: LILLIAN CRAWFORD
1301 PARKWAY VIEW DRIVE
PARKWAY WEST INDUSTRIAL PARK BLDG 16
PITTSBURGH PA 15205-1408

Procedures:
A.) Toploading balances > one kilogram capacity use procedure A5A.
B.) Toploading balances <= one kilogram capacity use procedure A4A.
C.) Analytical balances use calibration procedure A1A.
D.) Micro balances use procedure A2A.

Nr.	Manuf.	Model	Serial Nr.	Location	Cal. Weight/ Procedure	Pre-Service Reading	Post-Service Reading	Readability ±mg	Repeatability ±mg	Condition or Not/Serviced
1	FISHER	XA-200	4160	FIELD	200g / B	NOT IN LAB	NOT SERVICED	----	----	NOT SERVICED
2	OHAUS	AP250D	1127292828	LAB	100g / C	10.00039/ 50.00160/ 100.0027/ 200.0052	10.00000=> 50.00000/ 100.0000=> 200.0000	0.1	0.03/ 0.2	GOOD SC INT
3	A&D	EK4100I	P1840031	FIELD	4 kg / A	500.1/ 1000.1/ 2000.2/ 3000.3/4000.4	500.0=> 4000.0	100	100	GOOD SC EXT
4	A&D	EK4100I	P1840029	FIELD	4 kg / A	1000.0/ 2000.0/ 2999.9/ 3999.8	1000.0=> 4000.0	100	100	GOOD SC EXT
5	A&D	EK4100I	P1840031	FIELD	4 kg / A	1000.1/ 2000.2/ 3000.4/ 4000.6	1000.0=> 4000.0	100	100	GOOD SC EXT
6	A&D	EK4100I	P1840031	FIELD	4 kg / A	1000.0/ 1999.9/ 3000.0/ 3999.9	1000.0=> 4000.0	100	100	GOOD SC EXT
7	OHAUS	TS4000	4970	FIELD	4 kg / A	1000.0/ 2000.2/ 3000.3/ 4000.4	1000.0=> 4000.0	100	100	GOOD SC EXT
8	OHAUS	AP250D	1127293152	FIELD	100g / C	10.00011/ 50.00027/ 100.0001/ 200.0005	10.00000/ 50.00000/ 100.0000/ 200.0000	0.01/ 0.1	0.03/0.2	GOOD SC INT

Samuel M. Prepelka, Pres.

August 29, 2006
Date

◊ NIST TRACEABLE WEIGHTS CERTIFICATION ◊ NRD ANTISTATIC PRODUCTS ◊ MEMBER, AMERICAN SOCIETY FOR QUALITY (ASQ) ◊
SERVICING BALANCES FROM NEW YORK TO CALIFORNIA FOR OVER THIRTY YEARS THANK YOU FOR CHOOSING ANALYTICAL INSTRUMENTS COMPANY!

Search Subjects

PENNSYLVANIA Department of Environmental Protection

Registered Environmental Laboratories Search Results

Search Results: 1 records found for the following search criteria:
Name like: Clean Air Engineering
County: ALLEGHENY
State: PA

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2-760: Clean Air Engineering

Timothy D Rodak
1601 Parkway View Dr
Pittsburgh , PA 15205-1409
Allegheny County
(412) 787-9130

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DEPARTMENT OF ENVIRONMENTAL QUALITY
KATHLEEN BABINEAUX BLANCO
GOVERNOR
MIKE D. McDANIEL, Ph.D.
SECRETARY

CERTIFIED MAIL #7007 0710 0005 6108 1458
Return Receipt Requested

June 30, 2007

AI #85668 **LELAP Certificate #03099**

Mr. Robert Doran
Clean Air Engineering
321 Century Plaza #130
Houston, TX 77073

RE: Accreditation Certificate

Dear Mr. Doran:

In accordance with Louisiana Administrative Code, Title 33, Part I, Subpart 3, Laboratory Accreditation, the State of Louisiana formally recognizes that this laboratory has successfully completed the accreditation process and is technically competent to perform the environmental analyses listed on the scope of accreditation detailed in the attachment. Accreditation does not constitute an endorsement of the suitability of the listed methods for any specific purpose. Parameters or analytes that the laboratory has applied for accreditation not included in the scope of accreditation attachment are not accredited.

NELAP accreditation is granted only for those methods/analytes for which "NELAP" is indicated as the type of accreditation. "STATE" is indicated as the type of accreditation for those methods/analytes for which NELAP accreditation is not available. Accreditation is dependent on the laboratory's successful ongoing compliance with regulations as outlined in the Louisiana Administrative Code, Title 33, Part I, Subpart 3, Laboratory Accreditation.

The enclosed accreditation certificate is property of the State of Louisiana. Should a change in accreditation status occur, the Department may recall the original accreditation certificate and attachments. The recalled certificate and attachments should be returned

ENVIRONMENTAL **ASSESSMENT**
LABORATORY SERVICES DIVISION
: PO BOX 4314, BATON ROUGE, LA 70821-4314
P:225-219-9800 F:225-219-9898
WWW.DEQ.LOUISIANA.GOV

to: Office of Environmental Assessment, Louisiana Environmental Laboratory Accreditation Program, P.O. Box 4314, Baton Rouge, LA 70821-4314, Attention: Dr. David L. Boucher.

LAC 33:I.5313.A requires that the laboratory report must include all relevant information. Therefore, the certificate number shall be placed in the upper right corner of all laboratory reports. If the test report includes results of any test for which the laboratory is not accredited, the unaccredited results must be clearly identified as such.

Please be advised that it is your responsibility to examine the scope of accreditation attachment for accuracy and completeness. If you find that an analyte for which you expected to be accredited is not listed, please examine your records to ensure that:

1. You have met the requirements for successful participation in proficiency test studies as outlined in LAC 33:I.4711 and in the NELAC Standard 2.7.2.

2. In the case of accreditation by recognition, the requested analyte must be listed for the requested method and matrix on **both** the certificate issued by the Primary AA ***and*** on the Louisiana application form.

If you have any questions, please contact the Louisiana Environmental Laboratory Accreditation Program at (225) 219-9800.

Sincerely,

Dr. David L. Boucher, Acting Supervisor
Louisiana Environmental Laboratory Accreditation Program

db

Enclosure

STATE OF LOUISIANA
DEPARTMENT OF ENVIRONMENTAL QUALITY

Is hereby granting a Louisiana Environmental Laboratory Accreditation to:

Clean Air Engineering
321 Century Plaza #130
Houston, TX 77073

Agency Interest No: 85668

According to the Louisiana Administrative Code, Title 33, Part I, Subpart 3, LABORATORY ACCREDITATION, the State of Louisiana formally recognizes that this laboratory is technically competent to perform the environmental analyses listed on the scope of accreditation detailed in the attachment.

The laboratory agrees to perform all analyses listed on this scope of accreditation according to the Part I, Subpart 3 requirements and acknowledges that continued accreditation is dependent on successful ongoing compliance with the applicable requirements of Part I. Please contact the Department of Environmental Quality, Louisiana Environmental Laboratory Accreditation Program (LELAP) to verify the laboratory's scope of accreditation and accreditation status. Accreditation by the State of Louisiana is not an endorsement or a guarantee of validity of the data generated by the laboratory, and does not constitute an endorsement of the suitability of the listed methods for any specific application.

To be accredited initially and maintain accreditation, the laboratory agrees to participate in two single-blind, single-concentration PT studies, where available, per year for each field of testing for which it seeks accreditation or maintains accreditation as required in LAC 33:I.4711.

Melvin C. Mitchell Sr., Accreditation Officer
Louisiana Environmental Laboratory Accreditation Program

Certificate Number: 03099
Expiration Date: June 30, 2008
Issued On: July 1, 2007

Louisiana Environmental Laboratory
LELAP
Accreditation Program

Laboratory Scope of Accreditation

Organization

03099 (281) 443-6400
Clean Air Engineering
321 Century Plaza #130
Houston , TX 77073

Louisiana Stack Testing Program Certification

Method Code	Method Ref	Analyte	Status	Date Effective	Type	AA
695	NCASI DI/MEOH 94.03	Methanol	Accredited	7/1/2003	STATE	LA
1217	Method 1 40 CFR 60 App. A	Traverse Points	Accredited	7/1/2003	STATE	LA
1219	Method 10 40 CFR 60 App. A	Carbon monoxide (CO)	Accredited	7/1/2003	STATE	LA
1232	Method 10A 40 CFR 60 App. A	Carbon monoxide (CO)	Accredited	7/1/2003	STATE	LA
1233	Method 10B 40 CFR 60 App. A	Carbon monoxide (CO)	Accredited	7/1/2003	STATE	LA
1248	Method 1A 40 CFR 60 App. A	Traverse Points	Accredited	7/1/2003	STATE	LA
1249	Method 2 40 CFR 60 App. A	Stack gas velocity volume flow rate	Accredited	7/1/2003	STATE	LA
1250	Method 20 40 CFR 60 App. A	Nitrogen Oxides (NOx)	Accredited	7/1/2003	STATE	LA
1250	Method 20 40 CFR 60 App. A	Oxygen	Accredited	7/1/2003	STATE	LA
1250	Method 20 40 CFR 60 App. A	Sulfur dioxide	Accredited	7/1/2003	STATE	LA
1251	Method 201A 40 CFR 51 App. M	Particulates <10 um	Accredited	7/1/2003	STATE	LA
1252	Method 202 40 CFR 51 App. M	Particulate Matter <2.5 um	Accredited	7/1/2003	STATE	LA
1262	Method 22 40 CFR 60 App. A	Visible emissions from coke oven batteries	Accredited	7/1/2003	STATE	LA
1271	Method 2A 40 CFR 60 App. A	Stack gas velocity volume flow rate in small stacks/ducts	Accredited	7/1/2003	STATE	LA
1272	Method 2B 40 CFR 60 App. A	Stack gas velocity volume flow rate	Accredited	7/1/2003	STATE	LA
1273	Method 2C 40 CFR 60 App. A	Stack gas velocity volume flow rate in small stacks/ducts	Accredited	7/1/2003	STATE	LA
1274	Method 2D 40 CFR 60 App. A	Stack gas velocity volume flow rate in small stacks/ducts	Accredited	7/1/2003	STATE	LA
1275	Method 2E 40 CFR 60 App. A	Stack gas velocity volume flow rate	Accredited	7/1/2003	STATE	LA
1276	Method 2F 40 CFR 60 App. A	Stack gas velocity volume flow rate	Accredited	7/1/2003	STATE	LA
1277	Method 2G 40 CFR 60 App. A	Stack gas velocity volume flow rate	Accredited	7/1/2003	STATE	LA
1278	Method 2H 40 CFR 60 App. A	Stack gas velocity volume flow rate	Accredited	7/1/2003	STATE	LA
1279	Method 3 40 CFR 60 App. A	Carbon dioxide oxygen dry molecular weight	Accredited	7/1/2003	STATE	LA
1293	Method 3A 40 CFR 60 App. A	Carbon dioxide	Accredited	7/1/2003	STATE	LA
1295	Method 3A 40 CFR 60 App. A	Oxygen	Accredited	7/1/2003	STATE	LA
1297	Method 3B 40 CFR 60 App. A	Emission Rate Correction Factors	Accredited	7/1/2003	STATE	LA
1298	Method 3C 40 CFR 60 App. A	Carbon dioxide	Accredited	7/1/2003	STATE	LA
1302	Method 4 40 CFR 60 App. A	Moisture content	Accredited	7/1/2003	STATE	LA

Issue Date: July 1, 2007
Expiration Date: June 30, 2008

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Louisiana Environmental Laboratory
LELAP
Accreditation Program

Laboratory Scope of Accreditation

Organization

03099 (281) 443-6400
Clean Air Engineering
321 Century Plaza #130
Houston , TX 77073

Louisiana Stack Testing Program Certification

Method Code	Method Ref	Analyte	Status	Date Effective	Type	AA
1303	Method 5 40 CFR 60 App. A	Particulates	Accredited	7/1/2003	STATE	LA
1304	Method 5A 40 CFR 60 App. A	Particulates from asphalt processing	Accredited	7/1/2003	STATE	LA
1305	Method 5B 40 CFR 60 App. A	Particulates	Accredited	7/1/2003	STATE	LA
1306	Method 5D 40 CFR 60 App. A	Particulates from fabric filters	Accredited	7/1/2003	STATE	LA
1307	Method 5E 40 CFR 60 App. A	Particulates from wool fiberglass insulation	Accredited	7/1/2003	STATE	LA
1308	Method 5F 40 CFR 60 App. A	Particulates	Accredited	7/1/2003	STATE	LA
1315	Method 6C 40 CFR 60 App. A	Sulfur dioxide	Accredited	7/1/2003	STATE	LA
1321	Method 7E 40 CFR 60 App. A	Nitrogen Oxides (NOx)	Accredited	7/1/2003	STATE	LA
1761	Method 101A 40 CFR 61 App. B (Sample Only)	Mercury	Accredited	7/1/2003	STATE	LA
1789	Method 11 40 CFR 60 App. A (Sample Only)	Hydrogen sulfide	Accredited	7/1/2003	STATE	LA
1793	Method 12 40 CFR 60 App. A (Sample Only)	Lead	Accredited	7/1/2003	STATE	LA
1797	Method 13B 40 CFR 60 App. A (Sample Only)	Fluoride	Accredited	7/1/2003	STATE	LA
1799	Method 14 40 CFR 60 App. A (Sample Only)	Fluoride	Accredited	7/1/2003	STATE	LA
1501	Method 15 40 CFR 60 App. A (Sample Only)	Carbon disulfide	Accredited	7/1/2003	STATE	LA
1801	Method 15 40 CFR 60 App. A (Sample Only)	Carbonyl sulfide	Accredited	7/1/2003	STATE	LA
1801	Method 15 40 CFR 60 App. A (Sample Only)	Hydrogen sulfide	Accredited	7/1/2003	STATE	LA
1803	Method 15A 40 CFR 60 App. A (Sample Only)	Total reduced sulfur	Accredited	7/1/2003	STATE	LA
1805	Method 16 40 CFR 60 App. A (Sample Only)	Dimethyl Disulfide	Accredited	7/1/2003	STATE	LA
1805	Method 16 40 CFR 60 App. A (Sample Only)	Dimethyl Sulfide	Accredited	7/1/2003	STATE	LA
1805	Method 16 40 CFR 60 App. A (Sample Only)	Hydrogen sulfide	Accredited	7/1/2003	STATE	LA
1805	Method 16 40 CFR 60 App. A (Sample Only)	Methyl Mercaptan	Accredited	7/1/2003	STATE	LA
1807	Method 16A 40 CFR 60 App. A (Sample Only)	Total reduced sulfur	Accredited	7/1/2003	STATE	LA
1809	Method 16B 40 CFR 60 App. A (Sample Only)	Total reduced sulfur	Accredited	7/1/2003	STATE	LA
1811	Method 17 40 CFR 60 App. A (Sample Only)	Particulates	Accredited	7/1/2003	STATE	LA
1813	Method 18 40 CFR 60 App. A (Sample Only)	Gaseous Organic Compound Emissions	Accredited	7/1/2003	STATE	LA
1815	Method 19 40 CFR 60 App. A (Sample Only)	Nitrogen Oxides (NOx)	Accredited	7/1/2003	STATE	LA
1815	Method 19 40 CFR 60 App. A (Sample Only)	Particulates SO2 NOx sulfur removal efficiency	Accredited	7/1/2003	STATE	LA

Issue Date: July 1, 2007
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Laboratory Scope of Accreditation

Organization

03099 (281) 443-6400
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321 Century Plaza #130
Houston , TX 77073

Louisiana Stack Testing Program Certification

Method Code	Method Ref	Analyte	Status	Date Effective	Type	AA
1815	Method 19 40 CFR 60 App. A (Sample Only)	Sulfur dioxide	Accredited	7/1/2003	STATE	LA
1847	Method 23 40 CFR 60 App. A (Sample Only)	Dioxins/Furans	Accredited	7/1/2003	STATE	LA
1849	Method 25 40 CFR 60 App. A (Sample Only)	Gaseous Nonmethane Organic Emissions	Accredited	7/1/2003	STATE	LA
1851	Method 25A 40 CFR 60 App. A (Sample Only)	Gaseous Organic Emissions	Accredited	7/1/2003	STATE	LA
1857	Method 26 40 CFR 60 App. A (Sample Only)	Bromine (Br2)	Accredited	7/1/2003	STATE	LA
1857	Method 26 40 CFR 60 App. A (Sample Only)	Chlorine	Accredited	7/1/2003	STATE	LA
1857	Method 26 40 CFR 60 App. A (Sample Only)	Hydrochloric acid (Hydrogen chloride (gas only))	Accredited	7/1/2003	STATE	LA
1857	Method 26 40 CFR 60 App. A (Sample Only)	Hydrogen Bromide (HBr)	Accredited	7/1/2003	STATE	LA
1857	Method 26 40 CFR 60 App. A (Sample Only)	Hydrogen fluoride (Hydrofluoric acid)	Accredited	7/1/2003	STATE	LA
1859	Method 26A 40 CFR 60 App. A (Sample Only)	Bromine (Br2)	Accredited	7/1/2003	STATE	LA
1859	Method 26A 40 CFR 60 App. A (Sample Only)	Chlorine	Accredited	7/1/2003	STATE	LA
1859	Method 26A 40 CFR 60 App. A (Sample Only)	Hydrochloric acid (Hydrogen chloride (gas only))	Accredited	7/1/2003	STATE	LA
1859	Method 26A 40 CFR 60 App. A (Sample Only)	Hydrogen Bromide (HBr)	Accredited	7/1/2003	STATE	LA
1859	Method 26A 40 CFR 60 App. A (Sample Only)	Hydrogen fluoride (Hydrofluoric acid)	Accredited	7/1/2003	STATE	LA
1861	Method 29 40 CFR 60 App. A (Sample Only)	Antimony	Accredited	7/1/2003	STATE	LA
1861	Method 29 40 CFR 60 App. A (Sample Only)	Arsenic	Accredited	7/1/2003	STATE	LA
1861	Method 29 40 CFR 60 App. A (Sample Only)	Barium	Accredited	7/1/2003	STATE	LA
1861	Method 29 40 CFR 60 App. A (Sample Only)	Beryllium	Accredited	7/1/2003	STATE	LA
1861	Method 29 40 CFR 60 App. A (Sample Only)	Cadmium	Accredited	7/1/2003	STATE	LA
1861	Method 29 40 CFR 60 App. A (Sample Only)	Chromium	Accredited	7/1/2003	STATE	LA
1861	Method 29 40 CFR 60 App. A (Sample Only)	Cobalt	Accredited	7/1/2003	STATE	LA
1861	Method 29 40 CFR 60 App. A (Sample Only)	Copper	Accredited	7/1/2003	STATE	LA
1861	Method 29 40 CFR 60 App. A (Sample Only)	Lead	Accredited	7/1/2003	STATE	LA
1861	Method 29 40 CFR 60 App. A (Sample Only)	Manganese	Accredited	7/1/2003	STATE	LA
1861	Method 29 40 CFR 60 App. A (Sample Only)	Mercury	Accredited	7/1/2003	STATE	LA
1861	Method 29 40 CFR 60 App. A (Sample Only)	Nickel	Accredited	7/1/2003	STATE	LA
1861	Method 29 40 CFR 60 App. A (Sample Only)	Phosphorus, total	Accredited	7/1/2003	STATE	LA

Issue Date: July 1, 2007
Expiration Date: June 30, 2008

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Louisiana Environmental Laboratory
LELAP
Accreditation Programs

Laboratory Scope of Accreditation

Organization

03099 (281) 443-6400

Clean Air Engineering
321 Century Plaza #130
Houston , TX 77073

Louisiana Stack Testing Program Certification

Method Code	Method Ref	Analyte	Status	Date Effective	Type	AA
1861	Method 29 40 CFR 60 App. A (Sample Only)	Selenium	Accredited	7/1/2003	STATE	LA
1851	Method 29 40 CFR 60 App. A (Sample Only)	Silver	Accredited	7/1/2003	STATE	LA
1961	Method 29 40 CFR 60 App. A (Sample Only)	Thallium	Accredited	7/1/2003	STATE	LA
1861	Method 29 40 CFR 60 App. A (Sample Only)	Zinc	Accredited	7/1/2003	STATE	LA
1885	Method 306 40 CFR 63 App. A (Sample Only)	Chromium	Accredited	7/1/2003	STATE	LA
1889	Method 308 40 CFR 63 App. A (Sample Only)	Methanol	Accredited	7/1/2003	STATE	LA
1911	Method 316 40 CFR 63 App. A (Sample Only)	Formaldehyde	Accredited	7/1/2003	STATE	LA
1945	Method 6 40 CFR 60 App. A (Sample Only)	Sulfur dioxide	Accredited	7/1/2003	STATE	LA
1953	Method 7 40 CFR 60 App. A (Sample Only)	Nitrogen Oxides (NOx)	Accredited	7/1/2003	STATE	LA
1955	Method 7A 40 CFR 60 App. A (Sample Only)	Nitrogen Oxides (NOx)	Accredited	7/1/2003	STATE	LA
1957	Method 7B 40 CFR 60 App. A (Sample Only)	Nitrogen Oxides (NOx)	Accredited	7/1/2003	STATE	LA
1959	Method 7C 40 CFR 60 App. A (Sample Only)	Nitrogen Oxides (NOx)	Accredited	7/1/2003	STATE	LA
1961	Method 7D 40 CFR 60 App. A (Sample Only)	Nitrogen Oxides (NOx)	Accredited	7/1/2003	STATE	LA
1965	Method 8 40 CFR 60 App. A (Sample Only)	Sulfuric Acid Mist	Accredited	7/1/2003	STATE	LA
1967	Method 9 40 CFR 60 App. A (Sample Only)	Opacity	Accredited	7/1/2003	STATE	LA
1977	SW-846 0010 (Sample Only)	Modified Method 5 Sample Train	Accredited	7/1/2003	STATE	LA
1979	SW-846 0011 (Sample Only)	Acetaldehyde	Accredited	7/1/2003	STATE	LA
1979	SW-846 0011 (Sample Only)	Acetophenone	Accredited	7/1/2003	STATE	LA
1979	SW-846 0011 (Sample Only)	Formaldehyde	Accredited	7/1/2003	STATE	LA
1979	SW-846 0011 (Sample Only)	Isophorone	Accredited	7/1/2003	STATE	LA
1979	SW-846 0011 (Sample Only)	Propionaldehyde	Accredited	7/1/2003	STATE	LA
1983	SW-846 0023A (Sample Only)	Dioxin & Furan Sampling System	Accredited	7/1/2003	STATE	LA
1985	SW-846 0030 (Sample Only)	Volatile Organic Sampling Train (VOST)	Accredited	7/1/2003	STATE	LA
1987	SW-846 0031 (Sample Only)	Sampling Method for VOCs (SMVOC)	Accredited	7/1/2003	STATE	LA
1951	SW-846 0050 (Sample Only)	Isokinetic HCl/Cl2 Sampling Train	Accredited	7/1/2003	STATE	LA
1994	SW-846 0051 (Analysis Only)	Midget Impinger HCl/Cl2 Sampling Train	Accredited	7/1/2003	STATE	LA
1995	SW-846 0060 (Sample Only)	Antimony	Accredited	7/1/2003	STATE	LA

Issue Date: July 1, 2007
Expiration Date: June 30, 2008

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Louisiana Environmental Laboratory
LELAP
Accreditation Program

Laboratory Scope of Accreditation

Organization

03099 (281) 443-6400
Clean Air Engineering
321 Century Plaza #130
Houston , TX 77073

Louisiana Stack Testing Program Certification

Method Code	Method Ref	Analyte	Status	Date Effective	Type	AA
1995	SW-846 0060 (Sample Only)	Arsenic	Accredited	7/1/2003	STATE	LA
1995	SW-846 0060 (Sample Only)	Barium	Accredited	7/1/2003	STATE	LA
1995	SW-846 0060 (Sample Only)	Beryllium	Accredited	7/1/2003	STATE	LA
1995	SW-846 0060 (Sample Only)	Cadmium	Accredited	7/1/2003	STATE	LA
1995	SW-846 0060 (Sample Only)	Cobalt	Accredited	7/1/2003	STATE	LA
1995	SW-846 0060 (Sample Only)	Copper	Accredited	7/1/2003	STATE	LA
1995	SW-846 0060 (Sample Only)	Lead	Accredited	7/1/2003	STATE	LA
1995	SW-846 0060 (Sample Only)	Manganese	Accredited	7/1/2003	STATE	LA
1995	SW-846 0060 (Sample Only)	Mercury	Accredited	7/1/2003	STATE	LA
1995	SW-846 0060 (Sample Only)	Nickel	Accredited	7/1/2003	STATE	LA
1995	SW-846 0060 (Sample Only)	Particulates	Accredited	7/1/2003	STATE	LA
1995	SW-846 0060 (Sample Only)	Phosphorus total	Accredited	7/1/2003	STATE	LA
1995	SW-846 0060 (Sample Only)	Selenium	Accredited	7/1/2003	STATE	LA
1995	SW-846 0060 (Sample Only)	Silver	Accredited	7/1/2003	STATE	LA
1995	SW-846 0060 (Sample Only)	Thallium	Accredited	7/1/2003	STATE	LA
1995	SW-846 0060 (Sample Only)	Total chromium	Accredited	7/1/2003	STATE	LA
1995	SW-846 0060 (Sample Only)	Zinc	Accredited	7/1/2003	STATE	LA
1997	SW-846 0061 (Sample Only)	Chromium VI	Accredited	7/1/2003	STATE	LA

Non-Potable Water Certification

Method Code	Method Ref	Analyte	Status	Date Effective	Type	AA
10053006	EPA 300.0	Chloride	Accredited	1/25/2006	STATE	LA
10053006	EPA 300.0	Fluoride	Accredited	1/25/2006	STATE	LA
10053006	EPA 300.0	Nitrite	Accredited	1/25/2006	STATE	LA
10053006	EPA 300.0	Sulfate	Accredited	1/25/2006	STATE	LA

Issue Date: July 1, 2007
Expiration Date: June 30, 2008

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State of New Jersey
Department of Environmental Protection

Certifies That

Clean Air Engineering Inc

Laboratory Certification ID #: IL004

having duly met the requirements of the

Regulations Governing The Certification Of
Laboratories And Environmental Measurements N.J.A.C. 7:18 et. seq.

is hereby approved as a

State Certified Environmental Laboratory

to perform the analyses as indicated on the Annual Certified Parameter List
which must accompany this certificate to be valid

Expiration Date June 30, 2008

Joseph F. Aiello, Chief
Office of Quality Assurance

THIS CERTIFICATE IS TO BE CONSPICUOUSLY DISPLAYED AT THE LABORATORY WITH THE ANNUAL CERTIFIED PARAMETER LIST IN A LOCATION ON THE PREMISES VISIBLE TO THE PUBLIC

New Jersey Department of Environmental Protection

Environmental Laboratory Certification Program

ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS

Effective as of 07/01/2007 until 06/30/2008

Laboratory Name: CLEAN AIR ENGINEERING INC Laboratory Number: IL004 Activity ID: SLC070001
500 WEST WOOD ST
PALATINE, IL 60067

Category: CAP01 – Atmos. Inorg. Parameters, Non-Metals

Status	Code	Matrix	Technique Description	Approved Method	Parameter Description
Dropped	CAP01.00005	AE	Thermal Conductivity	[EPA 3C]	Carbon Dioxide
Dropped	CAP01.00015	AE	Spectrophotometric	[EPA 10A]	Carbon monoxide
Dropped	CAP01.00020	AE	Gas Chromatography / FPD	[EPA 15]	Carbon disulfide
Dropped	CAP01.00025	AE	Gas Chromatography / FPD	[EPA 15]	Carbon oxysulfide (Carbonyl sulfide)
Dropped	CAP01.00035	AE	Specific Ion Electrode	[EPA 13B]	Fluoride
Dropped	CAP01.00040	AE	Primary Aluminum Plants	[EPA 14A]	Fluoride
Certified	CAP01.00045	AE	Ion Chromatography	[EPA 26] [EPA 26A]	Hydrogen chloride, Halides and Halogens
Dropped	CAP01.00050	AE	Gas Chromatography / FPD	[EPA 15]	Hydrogen sulfide
Applied	CAP01.00055	AE	Emission Sampling Train	[EPA 0051, Rev 0, 12/96]	Impinger HCl/Cl2
Dropped	CAP01.00060	AE	Gravimetric	[EPA 24A]	Inks and coatings
Certified	CAP01.00065	AE	Emission Sampling Train	[EPA 0050, Rev 0, 12/96]	Isokinetic HCl/Cl2
Applied	CAP01.00068	AE	Thermal Conductivity	[EPA 3C]	Methane
Applied	CAP01.00070	AE	Thermal Conductivity	[EPA 3C]	Nitrogen
Applied	CAP01.00100	AE	Thermal Conductivity	[EPA 3C]	Oxygen
Certified	CAP01.00105	AE	Gravimetric	[EPA 5] [EPA 17]	Particulate Matter
Certified	CAP01.00110	AE	Gravimetric	[EPA 5A]	Particulate Matter
Certified	CAP01.00115	AE	Gravimetric	[EPA 5B]	Particulate Matter
Certified	CAP01.00120	AE	Gravimetric	[EPA 5E]	Particulate Matter
Certified	CAP01.00125	AE	Gravimetric	[EPA 5F]	Particulate Matter
Certified	CAP01.00145	AE	Gravimetric	[EPA 201A]	Particulate Matter
Certified	CAP01.00150	AE	Gravimetric	[EPA 202]	Particulate Matter
Dropped	CAP01.00180	AE	Standard Methods	[EPA 24]	Surface coatings
Dropped	CAP01.00185	AE	Barium-Thorin Titration	[EPA 15A]	Sulfur, Total Reduced
Dropped	CAP01.00190	AE	Barium-Thorin Titration	[EPA 16A]	Sulfur, Total Reduced
Dropped	CAP01.00195	AE	Gas Chromatography / FPD	[EPA 16B]	Sulfur, Total Reduced
Applied	CAP01.00200	AE	Barium-Thorin Titration	[EPA 6]	Sulfur Dioxide
Applied	CAP01.00210	AE	Barium-Thorin Titration	[EPA 8]	Sulfuric acid

Category: CAP03 – Atmospheric Organic Parameters

Status	Code	Matrix	Technique Description	Approved Method	Parameter Description
Dropped	CAP03.00025	AE	GC/FID	[EPA 308]	Methyl alcohol (Methanol)

KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials

New Jersey Department of Environmental Protection

Environmental Laboratory Certification Program

ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS

Effective as of 07/01/2007 until 06/30/2008

Laboratory Name: CLEAN AIR ENGINEERING INC Laboratory Number: IL004 Activity ID: SLC070001
500 WEST WOOD ST
PALATINE, IL 60067

Category: CAP03 – Atmospheric Organic Parameters

Status	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	CAP03.00040	AE	GC	[EPA 18]	Volatile organics

Joseph F. Aiello, Chief

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KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials

New Jersey Department of Environmental Protection
Environmental Laboratory Certification Program

LABORATORY PERSONNEL LIST

Effective as of: 07/01/2007

Laboratory Name: CLEAN AIR ENGINEERING INC Laboratory Number: IL004 Activity ID: SLC070001
800 WEST WOOD ST
PALATINE, IL 60067

Position: Manager

Employee	Category/Instrument	Start Date	End Date	Documentation Status	Complete Date	Comments
DOUGLAS RHODES		7/1/2007		Complete/Qualified		
JAMES WRIGHT		4/27/2004	6/30/2007	Complete/Qualified		

Position: QA Officer

Employee	Category/Instrument	Start Date	End Date	Documentation Status	Complete Date	Comments
DOUGLAS RHODES		7/1/2007		Incomplete		
JAMES WRIGHT		4/27/2004	6/30/2007	Complete/Qualified		

Position: Supervisor/Tech Dir

Employee	Category/Instrument	Start Date	End Date	Documentation Status	Complete Date	Comments
DOUGLAS RHODES	SDW02, WPP02, CAP01 or CAP04	7/1/2007		Incomplete		
JAMES WRIGHT	SDW02, WPP02, CAP01 or CAP04	4/27/2004	6/30/2007	Complete/Qualified		
DOUGLAS RHODES	SDW04, WPP04, SHW04, 09, 10 or CAP02	7/1/2007		Incomplete		
JAMES WRIGHT	SDW04, WPP04, SHW04, 09, 10 or CAP02	4/27/2004	6/30/2007	Complete/Qualified		
DOUGLAS RHODES	SDW05, 06, WPP05-07, SHW05-12 or CAP03	7/1/2007		Incomplete		
JAMES WRIGHT	SDW05, 06, WPP05-07, SHW05-12 or CAP03	4/27/2004	6/30/2007	Complete/Qualified		

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STACK TESTING ACCREDITATION COUNCIL

35704 HUNT AVENUE
INGLESIDE, ILLINOIS 60041
E-MAIL: SEVANS@BETTERDATA.ORG

June 7, 2007

Mr.Rob Doran
Clean Air Engineering

VIA E-mail

Dear Mr. Doran,

On behalf of the STAC Board of Directors, I am pleased to inform you that Clean Air Engineering has been granted interim accreditation by the Stack Testing Accreditation Council (STAC). After careful review of your Quality System documentation and procedures, STAC has determined that they are in conformance with ASTM D7036-04 "Standard Practice for the Competency of Air Emission Testing Bodies". Final accreditation is contingent upon successful completion of your field audit. Please see Module 3 of STAC policy documentation for scheduling requirements.

During this period of interim accreditation, Clean Air Engineering may not claim to be a STAC accredited organization. This requires evidence that your Quality System is effectively implemented in your organization as determined by the field assessment. You may claim, however, that your Quality System meets ASTM D7036 requirements.

Please note that the Attestation of Compliance you signed as part of your application for accreditation requires Clean Air Engineering to be in continuous compliance with the provisions of ASTM D7036. You are also required to comply with all relevant STAC policies and procedures. I encourage you to review this information.

If you have any questions, please feel free to contact me at 847-654-4569. Thank you for your participation in the STAC process and congratulations.

Yours truly,

Scott Evans
Chair, STAC Board of Directors

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FIELD DATA

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Impinger Weight Sheet

Client:	CONSOL	Unit Name / Location:	Unit 4 Air Heater Inlet
Plant:	AES Greenidge	Job No.: 10247	Method: ~~4336~~ (JWJ) CTM-027

Run No.:	1	Filter Type:	GLASS FIBER	THIMBLE	Sample Box No.: 68-A
Date:	5/31/07	Lot No.:	NA		pH: NA
Analyst:	DD	Filter No.:	NA		Rinse: NA

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)
Impinger 1:	100 ml .1N H_2SO_4	799.7	762.8	36.9
Impinger 2:	100 ml .1N H_2SO_4	761.2	747.8	13.4
Impinger 3:	EMPTY	663.2	658.8	4.4
Impinger 4:	GEL	919.2	901.5	15.7
Impinger 5:				
Impinger 6:				
Impinger 7:				

QA/QC JM
Date: 6/18/07

Total Weight (gm)
54.7
70.4

Run No.:	2	Filter Type:	GLASS FIBER	THIMBLE	Sample Box No.: 68-C
Date:	6/1/07	Lot No.:	NA		pH: NA
Analyst:	DD	Filter No.:	NA		Rinse: NA

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)
Impinger 1:	100 ml .1N H_2SO_4	789.0	759.3	29.7
Impinger 2:	100 ml .1N H_2SO_4	775.3	764.9	10.4
Impinger 3:	EMPTY	664.9	660.0	4.9
Impinger 4:	GEL	843.7	831.1	12.6
Impinger 5:				
Impinger 6:				
Impinger 7:				

QA/QC JM
Date: 6/18/07

Total Weight (gm)
45.0
57.6

Run No.:	3	Filter Type:	GLASS FIBER	THIMBLE	Sample Box No.: 68-A
Date:	6/1/07	Lot No.:	10247-052507		pH: NA
Analyst:	ED	Filter No.:	Thimble GF		Rinse: NA

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)
Impinger 1:	100ml 0.1N H_2SO_4	793.8	766.5	27.3
Impinger 2:	100ml 0.1N H_2SO_4	760.4	751.6	8.8
Impinger 3:	EMPTY	663.2	660.5	2.7
Impinger 4:	GEL	926.5	916.5	10.0
Impinger 5:				
Impinger 6:				
Impinger 7:				

QA/QC JM
Date: 6/18/07

Total Weight (gm)
38.8
48.8

QA/QC JWJ
Date 8/23

CleanAir ENGINEERING

TEST LOCATION: Air Heater Inlet Ammonia TESTING METHOD: CTM-027 / 26 (JW) PAGE 1 OF 1

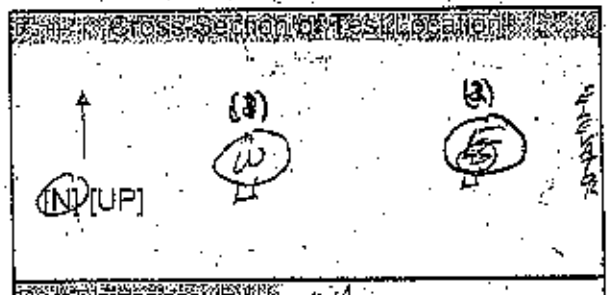
UNIT: 4 RUN: 1

FIELD DATA SHEET

Client: Consol	Project #: 10247
Plant: AES Greenidge	Date: 5-30-07
Meter Operator: Tim Richmond	
Probe Operator: Eric Dorr	

Meter Box:	68-B	Sample Box No:	68A
Meter Y:	1.0071	Meter ΔH:	1.8055
K Factor:	N/A	Probe ΔP:	0.84
Leak Rate Before:	.002 [cfm] [Lpm] @	10	[in. Hg]
Leak Rate After:	.003 [cfm] [Lpm] @	18	[in. Hg]
Pitot Tube Check Before:	[X] After: Good [✓] Bad [ ]		

Cross-Section of Test Location



Duct Dimensions (in.): N/A

Stack Press. [in. H2O]	Port Length [in.]	Gas Flow [in] [Out] Damper	Flow [in] [Out]
- NA	4.5		

Amb. Temp. [F]: 80	Bar. Press: 29.44	[in. Hg] [mbar]	
Probe ID:	N/A		
Liner Material:	GLASS		
Filter No.:	N/A		
Filter No.:	N/A		
Nozzle Diameter:	N/A	Nozzle ID:	N/A

Start Time: 18:04 Stop Time: 19.14

Traverse Point Number	Sample Time (min.)	Velocity ΔP	Orifice ΔH	Gas Sample Volume [ft³] [L]	Stack Temp. (°F)	Probe Temp. (°F)	Filter Temp. (°F)	Cond. Temp.	Dry Gas Meter Temp. In (°F)	Dry Gas Meter Temp. Out (°F)	Pump Vacuum (in. Hg)	CO2 Temp. (°F)	Notes
	30			60.615		TR 248	248						
2-1	5	N/A	TR 1.5	64.08	634	N/A	N/A	60	102	102	6	N/A	Vlc = 70.4
1	10			67.41	635			60	103	101	7		
1	15			70.71	635			60	103	100	8		
1	20			73.93	635			59	105	99	8		
1	25			TR 74. 77.10	634			59	106	99	10		
1	30			80.120	634			59	107	100	10		L.C. 0.003 @ 19"Hg
2-1	36			83.92	633			59	104	100	12		~~N.V 80.550~~
1	40			87.30	635			59	105	100	14		80.560
1	45			90.67	640			58	106	100	16		(-.4400)
1	50			94.05	642			58	106	100	17		4.4 O2
1	55			97.33	642			59	106	100	18		16.5 CO2
1	60			100.535	642			59	105	100	18		
	Total			39.480	7641					2549			
	Average		1.5		636.750				102.4583				

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC JW

Date 6/28

CleanAir ENGINEERING

CTM-027

TEST LOCATION: Air Heater Inlet Ammonia **TESTING - METHOD:** ~~26~~ CTM-027 **PAGE** 1 **OF** 1

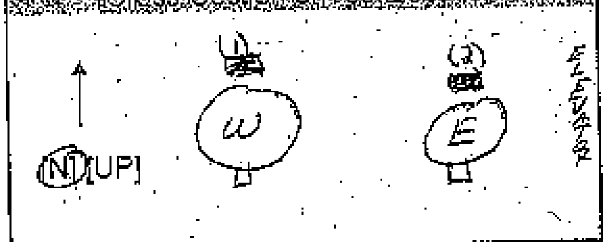
FIELD DATA SHEET

UNIT: 4 **RUN:** 2

Client	Consol	Project No.	10247
Plant	AES Greenidge	Date	~~5-31-07~~ 6-1-07 TR
Meter Operator	Tim Richards		
Probe Operator	Tim Rodak		

Meter Box	68 B	Sample Box No.	68C
Meter Y	1.0071	Meter ΔH@	1.8055
K-Factor	N/A	Pitot Cp	0.84
Leak Rate Before	0.003 (cfm) [Lpm] @ 15 (in. Hg)		
Leak Rate After	0.002 (cfm) [Lpm] @ 15 (in. Hg)		
Pitot Leak Check Before ☑	After Good ☑ Bad ☐		

Cross Section of Test Location



Port Dimensions: NA

Static Press (in H2O)	Port Length (in)	Gas Flow [In] (Out) Direction	Flue Gas Split at the Nozzle (In) [Out]
NA	4.5		

Amb Temp	75	Bar Press	29.47 (in. Hg) [mbar]
Probe ID No.	N/A		
Liner Material	Glass		

Filter No.	N/A		
Thimble No.	N/A		
Nozzle Diameter	N/A	Nozzle ID	N/A

Start Time: 10:20 Stop Time: 11:07

Traverse Point Number	Clock Time / Elapsed Time (min) 8:20	Velocity Head (in H2O)	Orifice Setting (in H2O)	Gas Sample Volume (ft³) 103.655	Stack Temp (°F)	Probe Temp (°F) Set Point TR 275	Filter Temp (°F) Set Point TR 275	Impinger Temp (°F)	DGM Inlet Temp (°F)	DGM Outlet Temp (°F)	Pump Vacuum (in Hg)	XAD Trap Temp (°F)	Notes
1D-1	5	N/A	~~1.215~~ TR	106.91	~~517~~	N/A	N/A	61	87	86	6	N/A	
-1	10			110.18				61	90	87	7		
-1	15			113.48				60	93	87	7		
-1	20			116.795				60	95	88	8		117.210 (-.4150)
2E -1	25			120.47				59	97	89	10		
-1	30			123.76				59	97	90	12		
-1	35			126.98				58	98	90	13		
TR ~~1~~ -1	~~40~~ 40			130.255				58	99	91	16		O_2 - 5.1
TR ~~-1~~	~~45~~												CO_2 - 13.4
TR ~~-1~~	~~50~~												
TR ~~-1~~	~~55~~												
TR ~~-1~~	~~60~~												
Total		*		(26.1850)						1464			
Average			(1.5)						(91.5000)				

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC JWU

Date 8/23

CleanAir ENGINEERING

E-5

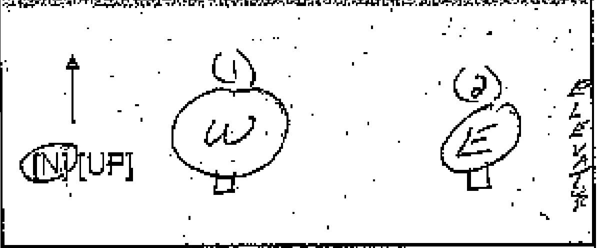
TEST LOCATION: Air Heater Inlet Ammonia **TESTING** METHOD: ~~26~~ CTM-027 (mod) PAGE 1 OF 1

UNIT: 4 RUN: 3 **FIELD DATA SHEET**

Client	Consol	Project No.	10247
Plant	AES Greenidge	Date	TR ~~5-31-07~~ 6-1-07
Meter Operator	Tim Richards		
Probe Operator	Tim Rodak		

Meter Box	68-B	Sample Box No.	68-A
Meter Y	1.0071	Meter ΔH@	1.8055
K Factor	N/A	Pitot Cp	0.84
Leak Rate Before	.003 [cfm] [Lpm]	@	15 (in. Hg)
Leak Rate After	.003 [cfm] [Lpm]	@	20 (in. Hg)
Pitot Leak Check Before ☑	After: Good ☑ Bad ☐		

Cross-Section of Test Location



Duct Dimensions (in.)	NA		
Static Press. (in. H2O)	Port Length (in.)	Gas Flow [In] [Out]	Nozzle Port [In] [Out]
NA	4.5		

Amb. Temp. (°F)	75	Bar. Press.	TR 29.47 [in. Hg] [mbar]
Probe ID No.	N/A		
Liner Material	Glass		
Filter No.	N/A		
Thimble No.	N/A		
Nozzle Diameter	N/A	Nozzle ID	N/A
Start Time	12:05	Stop Time	12:52

Traverse Point Number	Sample Time (min) 20 / Elapsed Time	Velocity Head (in. H2O)	Orifice Setting ΔH (in. H2O)	Gas Sample Volume [ft3] [L]	Stack Temp (°F)	Probe Temp (°F)	Filter Temp (°F)	Cond. Temp (°F)	DGM Inlet Temp (°F)	DGM Outlet Temp (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp (°F)	Notes
Initial				130.710		Set Points: TR ~~275~~	TR ~~275~~						
2 ~~1~~2-1	5	NA	TR ~~1.215~~	134.11	NA	N/A	N/A	61	93	93	7	N/A	
-1	10			137.42				61	94	92	8		
-1	15			140.68				60	97	92	9		
1	20			143.900				60	99	93	11.5		144.175
1 ~~W~~-1	25			147.50				61	98	93	13		-.2750
1	30			150.84				61	100	94	15		
TR ~~W~~ 1	35			154.24				61	101	94	16.5		
1	40			157.625				61	102	95	18		O_2 - 6.4
TR ~~1~~	~~45~~												CO_2 - 12.4
TR ~~1~~	~~50~~												
TR ~~1~~	~~55~~												
TR ~~1~~	~~60~~												
Total				26.040						1530			
Average			1.5						95.6250				

Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC TR
Date 6-1-07

CleanAir ENGINEERING

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E-6

FIELD DATA PRINTOUTS

F

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USEPA Method 3 Laboratory Data

Test Method: CTM-027
Analyte: Ammonia

Location: Unit 4 Air Heater Inlet
Client: CONSOL Energy - AES Greenidge
Project No: 10247
Method: EPA Method 3A
Fuel Type: Bituminous Coal
F_o for Fuel: 1.083 to 1.23

Analyst: D. Draska
Analyst Emp No: 364

Run Number	Trial	Percent CO_2	Percent O_2+CO_2	Percent O_2	Percent N_2	Dry Mol. Weight	F_o	Method of Analysis: CEM
1	1							
	2							
	3							
	Avg.							
CEM or Other Avg:		16.60000		4.40000	79.10000	30.81600	1.00000	☐ Fo value within expected range.

Run Number	Trial	Percent CO_2	Percent O_2+CO_2	Percent O_2	Percent N_2	Dry Mol. Weight	F_o	Method of Analysis: CEM
2	1							
	2							
	3							
	Avg.							
CEM or Other Avg:		13.40000		5.10000	81.50000	30.34800	1.17910	☑ Fo value within expected range.

Run Number	Trial	Percent CO_2	Percent O_2+CO_2	Percent O_2	Percent N_2	Dry Mol. Weight	F_o	Method of Analysis: CEM
3	1							
	2							
	3							
	Avg.							
CEM or Other Avg:		12.40000		6.40000	81.20000	30.24000	1.16936	☑ Fo value within expected range.

Run Number	Trial	Percent CO_2	Percent O_2+CO_2	Percent O_2	Percent N_2	Dry Mol. Weight	F_o	Method of Analysis:
	1							
	2							
	3							
	Avg.							
CEM or Other Avg:								☐ Fo value within expected range.

QA/QC WW
Date 9/18

USEPA Method 4 Laboratory Data

Location: Unit 4 Air Heater Inlet
Client: CONSOL Energy - AES Greenidge
Project No: 10247

Test Method: CTM-027
Analyte: Ammonia
Analyst: D. Dreska & E. Doak
Analyst Emp No: 384, 349

Test Run: 1

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	0.1 N H2SO4	799.7	762.8	36.9
Impinger 2	0.1 N H2SO4	761.2	747.8	13.4
Impinger 3	Empty	663.2	658.8	4.4
Impinger 4	Silica Gel	917.2	901.5	15.7
Impinger 5				
Impinger 6				
Impinger 7				
Impinger 8				

Rinse: (ml or gm)

		Field Data Check	
54.7	Liquid (gm)		
0.0	less rinse (gm)		
54.7	Net Liquid (gm)	54.7	☑ QA/QC OK
+ 15.7	Silica Gel (gm)	15.7	☑ QA/QC OK
70.4	Total Vic (gm)	70.4	☑ QA/QC OK

Test Run: 2

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	0.1 N H2SO4	780.0	750.3	29.7
Impinger 2	0.1 N H2SO4	776.3	764.9	10.4
Impinger 3	Empty	684.9	680.0	4.9
Impinger 4	Silica Gel	843.7	831.1	12.6
Impinger 5				
Impinger 6				
Impinger 7				
Impinger 8				

Rinse: (ml or gm)

		Field Data Check	
45.0	Liquid (gm)		
0.0	less rinse (gm)		
45.0	Net Liquid (gm)	45.0	☑ QA/QC OK
+ 12.6	Silica Gel (gm)	12.6	☑ QA/QC OK
57.6	Total Vic (gm)	57.6	☑ QA/QC OK

Test Run: 3

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	0.1 N H2SO4	793.8	766.5	27.3
Impinger 2	0.1 N H2SO4	760.4	751.6	8.8
Impinger 3	Empty	663.2	660.5	2.7
Impinger 4	Silica Gel	928.5	918.5	10.0
Impinger 5				
Impinger 6				
Impinger 7				
Impinger 8				

Rinse: (ml or gm)

		Field Data Check	
38.8	Liquid (gm)		
0.0	less rinse (gm)		
38.8	Net Liquid (gm)	38.8	☑ QA/QC OK
+ 10.0	Silica Gel (gm)	10.0	☑ QA/QC OK
48.8	Total Vic (gm)	48.8	☑ QA/QC OK

Test Run:

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1				
Impinger 2				
Impinger 3				
Impinger 4				
Impinger 5				
Impinger 6				
Impinger 7				
Impinger 8				

Rinse: (ml or gm)

		Field Data Check	
	Liquid (gm)		
	less rinse (gm)		
	Net Liquid (gm)		☐ QA/QC OK
	Silica Gel (gm)		☐ QA/QC OK
	Total Vic (gm)		☐ QA/QC OK

02/07/03
OHP@

QA/QC _____
Date 9/18

Field Data Printout

Test Method: CTM-027
Analyte: Ammonia

Location: Unit 4 Air Heater Inlet
Test Run: 1
Client: CONSOL Energy - AES Greenidge
Project No: 10247

Meter Operator: T. Richards | 714
Probe Operator: E. Dosk | 349
Test Date: 5/31/07
Start Time: 18:04
Stop Time: 19:14
Leak Rate Before: 0.002 cfm @ 10 "Hg
Leak Rate After: 0.003 cfm @ 10 "Hg

Bar. Press. (in. Hg): 29.44
O_2 (dry volume %): 4.40
CO_2 (dry volume %): 16.50
N_2+CO (dry volume %): 79.10

H_2O (condensate, ml or gm): 54.7
H_2O (silica, g): 15.7
Actual Moisture (%): 8.25

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: NA
Pitot C_p: 0.84
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: 68-8
Meter ΔH@: 1.80550
Meter Y_d: 1.00710

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter T_{m-in} (°F)	Dry Gas Meter T_{m-out} (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in. H_2O}$)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			60.615						
2-01	5.0		1.50	64.040	634	102	102		3.47	
2-01	10.0		1.50	67.410	635	103	101		3.33	
2-01	15.0		1.50	70.710	635	103	100		3.30	
2-01	20.0		1.50	73.930	635	105	90		3.22	
2-01	25.0		1.50	77.100	634	106	99		3.17	
2-01	30.0		1.50	80.120	634	107	100		3.02	
Leak Check	30.0			80.560						
1-01	35.0		1.50	83.920	639	104	100		3.36	
1-01	40.0		1.50	87.300	635	105	100		3.38	
1-01	45.0		1.50	90.670	640	106	100		3.37	
1-01	50.0		1.50	94.050	642	106	100		3.38	
1-01	55.0		1.50	97.330	642	106	100		3.28	
1-01	60.0		1.50	100.635	642	105	100		3.21	
Final	60.0		1.50000	39.48000	638.75000	102.45833			39.40000	
QC-Check/ Field Averages			1.5000	39.4800	638.7500	102.4583				
		☐ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

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QA/QC [signature]
Date

Field Data Printout

Test Method: CTM-027
Analyte: Ammonia

Location: Unit 4 Air Heater Inlet
Test Run: 2
Client: CONSOL Energy - AES Greenidge
Project No: 10247

Meter Operator: T. Richards | 714
Probe Operator: T. Rodak | 228

Test Date: 8/01/07
Start Time: 10:20
Stop Time: 11:07
Leak Rate Before: 0.003 cfm @ 15 "Hg
Leak Rate After: 0.002 cfm @ 15 "Hg

Bar. Press. (in. Hg): 29.47

O_2 (dry volume %): 5.10
CO_2 (dry volume %): 13.40
N_2+CO (dry volume %): 81.50

H_2O (condensate, ml or gm): 45.0
H_2O (silica, g): 12.8
Actual Moisture (%): 0.14

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: NA
Pitot C_p: 0.84
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: 69-B
Meter ΔH@: 1.80550
Meter Y_d: 1.00710

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{\text{in. } H_2O}$)	Volume (calculated) (ft³)	Isokinetics (calculated) (%)
	0.0			103.655						
1-01	5.0		1.50	106.910		87	86		3.26	
1-01	10.0		1.50	110.180		90	87		3.27	
1-01	15.0		1.50	113.480		93	87		3.30	
1-01	20.0		1.50	116.795		95	88		3.32	
Leak Check	20.0			117.210						
2-01	25.0		1.50	120.470		87	89		3.26	
2-01	30.0		1.50	123.760		97	90		3.29	
2-01	35.0		1.50	126.980		98	90		3.22	
2-01	40.0		1.50	130.255		99	91		3.27	
Final	40.0		1.60000	26.18500		91.50000			26.18500	
Off-Check: Field Averages			1.5000	26.1850		91.5000				

2 points sampled

☐ Avg. OK ☑ Avg. OK ☑ Avg. OK ☐ Avg. OK ☑ Avg. OK

QA/QC [signature]
Date [handwritten date]

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Field Data Printout

Test Method: CTM-027
Analyte: Ammonia

Location: Unit 4 Air Heater Inlet
Test Run: 3
Client: CONSOL Energy - AES Greenidge
Project No: 10247

Meter Operator: T. Richards | 714
Probe Operator: T. Rodak | 228
Test Date: 8/01/07
Start Time: 12:05
Stop Time: 12:52
Leak Rate Before: 0,003 cfm @ 15 "Hg
Leak Rate After: 0,003 cfm @ 20 "Hg

Bar. Press. (in. Hg): 29.44
O_2 (dry volume %): 6,40
CO_2 (dry volume %): 12.40
N_2+CO (dry volume %): 81.20

H_2O (condensate, ml or gm): 36.8
H_2O (silica, g): 10.0
Actual Moisture (%): 0.14

Nozzle ID No: NA
Nozzle Diameter (D_N): NA
Probe ID No: NA
Pitot C_p: 0.84
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: 6A-B
Meter ΔH@: 1.80550
Meter Y_d: 1.00710

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\,in}$ (°F)	Dry Gas Meter $T_{m\,out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.\ H_2O}$)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			130.710						
2-01	5.0		1.50	134.110		93	93		3.40	
2-01	10.0		1.60	137.420		94	92		3.31	
2-01	15.0		1.50	140.680		97	92		3.26	
2-01	20.0		1.60	143.900		99	93		3.22	
Leak Check	20.0			144.175						
1-01	25.0		1.50	147.500		98	93		3.32	
1-01	30.0		1.50	150.840		100	94		3.34	
1-01	35.0		1.50	154.240		101	94		3.40	
1-01	40.0		1.80	157.625		102	95		3.38	
Final	40.0		1.50000	26.84000		95.62500			26.84000	
2 points sampled / QC-Check Field Averages			1.5000	26.8400		95.6250				
		☐ Avg. OK	☑ Avg. OK	☑ Avg. OK	☐ Avg. OK	☑ Avg. OK				

QA/QC [signature]
Date 9/1/8

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LABORATORY DATA

G

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TOTAL AMMONIA ANALYSIS DATA SHEET
Analytical Technique: Ion Specific Electrode

Project No. 10247
Date of Analysis 05/31/07

CALIBRATION DATA

Concentration of Standard* C (mg/liter)	Electrode Reading P (mV)
100	39.2
50	56.3
10	93.5
5	109.5
1	146.2
0.5	162.0

* - assumes standard is ammonia as NH_3

Residuals

Calculated Concentration C (mg/liter)	Percentage Error
103.058	3.1
49.172	-1.7
9.832	-1.7
4.920	-1.6
1.005	0.5
0.507	1.5

Log (C) (mg/liter)

2.00000
1.69897
1.00000
0.69897
0.00000
-0.30103

Regression Analysis Results

Slope (m)	-0.01879
Intercept (b)	2.749754
Correlation (r2)	0.999884

Form of Equation:
Log(C)=(m)(P)+b

SCR 126.5' LEVEL SAMPLE DATA AND RESULTS

Sample Number	Sample Collection Date	Sample Volume ml	Electrode Potential mV	Dilution Factor	Ammonia Concentration mg/liter	Total Ammonia mg	
R1 Probe & Jumper	05/31/07	208	76.8	1	20.2518	4.2124	84 F
R1 Imp 1 Catch	05/31/07	195	301.0	1	0.0012	0.0002	69 F
R1 Imp 2&3 Catch	05/31/07	280	231.5	1	0.0261	0.0070	71 F

TOTAL AMMONIA ANALYSIS DATA SHEET
Analytical Technique: Ion Specific Electrode

Project No. 10247
Date of Analys 06/01/07

CALIBRATION DATA

Concentration of Standard* C (mg/liter)	Electrode Reading P (mV)
100	42.7
50	58.4
10	92.0
5	107.5
1	141.8
0.5	157.4

* - assumes standard is ammonia as nh3

Residuals

Calculated Concentration C (mg/liter)	Percentage Error
100.913	0.9
48.691	-2.6
10.235	2.4
4.984	-0.3
1.014	1.4
0.492	-1.7

Log (C) (mg/liter)
2.00000
1.69897
1.00000
0.69897
0.00000
-0.30103

Regression Analysis Results

Slope (m)	-0.02016
Intercept (b)	2.864755
Correlation (r2)	0.999906

Form of Equation:
Log(C)=(m)(P)+b

SCR 126.6' LEVEL SAMPLE DATA AND RESULTS

Sample Number	Sample Collection Date	Sample Volume ml	Electrode Potential mV	Dilution Factor	Ammonia Concentration mg/liter	Total Ammonia mg	
R2 Probe & Jumper	06/01/07	153	74.2	1	23.3844	3.5778	77.7 F
R2 Imp 1 Catch	06/01/07	211	293.1	1	0.0009	0.0002	69 F
R2 Imp 2&3 Catch	06/01/07	210	291.2	1	0.0010	0.0002	71.3 F
R3 Probe & Jumper	06/01/07	192	76.6	1	20.9191	4.0165	77.5 F
R3 Imp 1 Catch	06/01/07	195	303.4	1	0.0006	0.0001	69 F
R3 Imp 2&3 Catch	06/01/07	265	130.4	1	1.7217	0.4563	71.9 F
Field Blank	06/01/07	431	156.3	1	0.5174	0.2230	

CleanAir Engineering, Inc.
500 West Wood Street
Palatine, IL 60067

Laboratory Report
CleanAir Project No: 10247

Analytes
Ammonium

Applicable Analytical Method
CTM-027

Customer
Pittsburgh Engineering Group
1601 Parkway View Drive
Pittsburgh, PA 15205

CleanAir

Analysis Case Narrative
Ion Chromatography Analysis

Client Name:	Consol Energy	Date Received:	6/13/2007
Plant/Facility:	Greenridge Power Plant	Date Reported:	6/20/2007
Project Number:	10247	Sample Type:	Imp C&R
Sample Numbers:	-01 through -12	Parameters:	Ammonium
Applicable Analytical Method			CTM-027

Summary of Analysis
This report summarizes the results of analysis performed on samples received on: 06/13/07
The samples were anlayzed in accordance with procedures in the EPA Method listed above.

Method Detection Limits
Method Detection Limits have been determined in accordance with procedures in 40 CFR 136, Appendix B, and in accordance with procedures outlined in CleanAir SOP EPA5-11. Documentation showing the determination of detection limits are included with this report.

Reporting Detection Limits
Reporting limits have been determined in accordance with CleanAir SOPs in reference to the above listed EPA Method.

Sample Preparation
Samples were prepared according to the procedures listed in the EPA Method above. Each sample was analyzed at full strength and a dilution was prepared if necessary to achieve a concentration that was within calibration range limits.

Analysis QA/QC
In accordance with the corresponding CleanAir SOP, The following Quality Assurance steps were taken:
Before the first sample was analyzed and every twenty samples thereafter(and before the final calibration) a Continuing Calibration Blank (CCB) and a Continuing Calibration Verification (CCV) were analyzed. The CCB must show a a regression concentration of zero; and the CCV must show a regression concentration that matches its actual concentration within 10 percent of the actual concentration. The CCV is a standard that is prepared from the same stock as the calibration standards. A Quality Control (QC) sample was analyzed after the tenth sample and every twenty samples thereafter (as applicable). The QC is prepared from a stock that comes from a completely different manufacturer than used for calibration standards. The QC must also meet the same acceptance criteria as the CCV. In addition to the preceeding Quality Assurance steps a matrix spike analysis is performed on ten percent of the total number of samples. This sample is prepared with equal amounts of a sample and a calibration standard whose concentration is known to be larger than that of the sample. The Matrix Spike must have a recovery of 100 ± 10 percent.

CleanAir.

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CERTIFICATE OF ANALYSIS

Client Name: Consol Energy
Plant/Facility: Greenridge Power Plant
Project Number: 10247
Sample Numbers: -01 through -12

Date Received: 6/13/2007
Date Reported: 6/20/2007
Sample Type: Imp C&R
Parameters: Ammonium

Laboratory Number	Sample Identification	Sample Volume (ml)	NH4+ Sample Conc. (mg/l)	Detection Limit (mg/l)	Reporting Limit (mg/l)
		CleanAir			
10247-00	CCB	n.a.	<	0.053	0.264
10247-00	CCV	n.a.	Difference	0.54%	<10% Yes
		Reagent Blank			
10247-01	0.1 N H2SO4 & DI H2O	300	<	0.053	0.264
		Field Blank			
10247-02	Imp C&R	431	<	0.053	0.264
		Air Heater Inlet			
10247-03	R1 F1/2 Rinse	208	4.49	0.053	0.264
10247-04	R1 Imp 1 C&R	195	0.36	0.053	0.264
10247-05	R1 Imp 2&3 C&R	280	<	0.053	0.264
10247-06	R2 F1/2 Rinse	153	5.58	0.053	0.264
		CleanAir			
10247-00	QC	n.a.	Difference	0.34%	<10% Yes
		Air Heater Inlet			
10247-07	R2 Imp 1 C&R	211	0.33	0.053	0.264
10247-08	R2 Imp 2&3 C&R	210	<	0.053	0.264
10247-09	R3 F1/2 Rinse	192	5.02	0.053	0.264
10247-10	R3 Imp 1 C&R	195	0.35	0.053	0.264
10247-11	R3 Imp 2&3 C&R	265	<	0.053	0.264
10247-12	Post R3 Rinse	96	<	0.053	0.264
		CleanAir			
10247-00	CCV	n.a.	Difference	0.15%	<10% Yes
10247-00	CCB	n.a.	<	0.053	0.264

Matrix Spike Analysis	% Recovery
10247-09	100.2%
10247-11	97.6%

Analyst: Daniel J. Nuñez

CleanAir

CHROMATOGRAPHIC DATA REDUCTION

Client	Consol Energy
Project Number:	10247
Analyte	Ammonium
Date	6/20/2007
Stock Standard	5027.14 mg/l
Working Stock Conc.	50.2714 mg/l
CCV	8.0434 mg/l
QC	3.6100 mg/l

Analyte: Ammonium

Standards Calibration Data

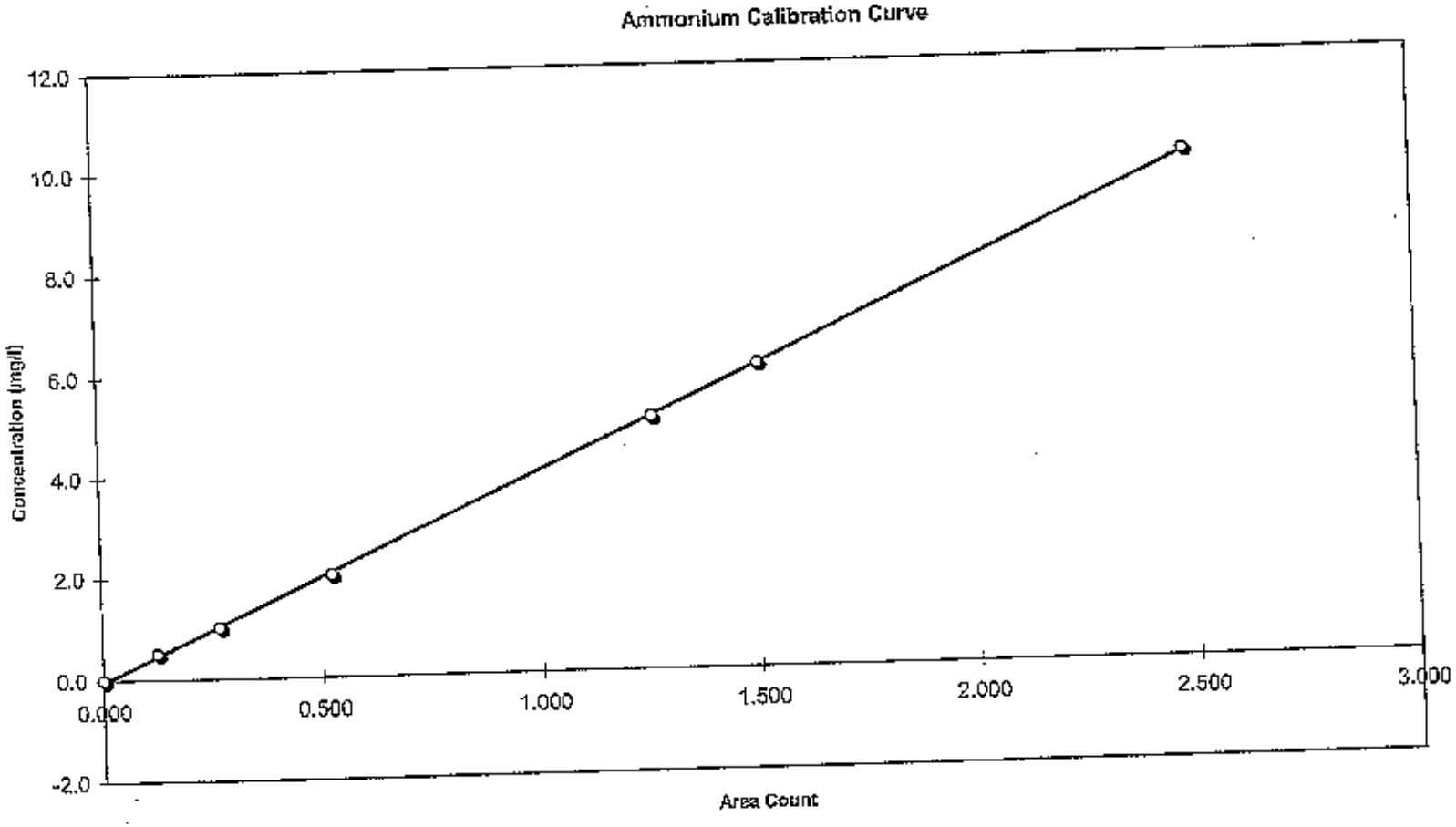
Calibration Point, Conc. (mg/l)	Date of Injection	1 0.0000	2 0.5027	3 1.0054	4 2.0109	5 5.0271	6 8.0326	7 10.0543
Pre-Cal 1 Trial 1	6/18/07	0.0000	0.1301	0.2610	0.5177	1.2522	1.5069	2.4952
Pre-Cal 1 Trial 2		0.0000	0.1264	0.2668	0.5059	1.2538	1.5062	2.5007
Pre-Cal 1 Trial 3			0.1231					
Pre-Cal 1 Trial 4			0.1242					
Pre-Cal 1 Trial 5			0.1213					
Post-Cal 1 Trial 1						1.2541		
Pre-Cal 2 Trial 1	6/19/07				0.5234			
Post-Cal 2 Trial 1			0.1172	0.2652	0.5337	1.2581	1.5064	2.4794
Post-Cal 2 Trial 2			0.1219	0.2678	0.5340	1.2825	1.5021	2.4703
Average		0.0000	0.1235	0.2652	0.5229	1.2601	1.5054	2.4864
%RSD		0.00	3.37	1.13	2.25	1.01	0.15	0.56
Response Factor		0.00	4.07	3.79	3.85	3.99	4.01	4.04
Avg RF=		3.96						
%RSD Resp. Factor		2.96						

Measured Area Counts (Counts)	Actual Concentration (mg/L)	Regression Concentration (mg/L)	Difference pt-Line (% Scale)	Is Difference Less Than 2% of Scale?	Difference pt-Line (Relative %)	Is Relative Difference Less Than 10%?
0.0000	0.000	-0.044	0.44%	Yes	0.00%	Yes
0.1235	0.503	0.455	0.47%	Yes	9.39%	Yes
0.2652	1.005	1.029	-0.23%	Yes	-2.34%	Yes
0.5229	2.011	2.072	-0.61%	Yes	-3.04%	Yes
1.2601	5.027	5.055	-0.28%	Yes	-0.56%	Yes
1.5054	6.033	6.048	-0.15%	Yes	-0.25%	Yes
2.4864	10.054	10.018	0.36%	Yes	0.36%	Yes

Regression Constants			Is Coefficient of Regression > 0.9957
Slope	m =	4.0468	
Intercept	b =	-0.0443	
Coefi.	R^2 =	0.9999	Yes

CHROMATOGRAPHIC DATA REDUCTION

Client	Consol Energy
Project Number:	10247
Analyte	Ammonium
Date	5/20/2007



CHROMATOGRAPHIC DATA REDUCTION

Client: Consol Energy
Project Number: 10247
Analyte: Ammonium
Date: 6/20/2007

MDL=	0.053 mg/l
MRL=	0.264 mg/l

Sample Location	Sample Identification Number	Sample Identification	Area Counts Trial 1	Area Counts Trial 2	Area Count Average	Area Count Duplicate Difference	Is Duplicate Difference Within Warning - Control Limits ?	Duplicate Relative Difference (%)	DF (Analysis Dilution Factor)	V_{soln} (Total Sample Volume, ml)	C_{reg} (Concentration, mg/l from Reg Curve)	C_{resp} (Concentration mg/l from Resp Factor)	$M_{analyte}$ Total Amount of Analyte (mg)
CleanAir	10247-00	CCB	0.0000	0.0000	0.0000	na	na	na	1	n.a.	<	<	
CleanAir	10247-00	CCV	2.0193	1.9991	2.0092	0.0202	Yes	1.0%	1	n.a.	8.09	Difference	0.54%
Reagent Blank	10247-01	0.1 N H2SO4 & DI H2O	0.0000	0.0000	0.0000	na	na	na	1	300	<	<	<0.079
Field Blank	10247-02	Imp C&R	0.0000	0.0000	0.0000	na	na	na	1	431	<	<	<0.114
Air Heater Inlet	10247-03	R1 F1/2 Rinse	1.0936	1.1488	1.1212	0.0552	Yes	4.9%	1	208	4.49	4.44	0.93
Air Heater Inlet	10247-04	R1 Imp 1 C&R	0.0991	0.0998	0.0995	0.0007	Yes	0.7%	1	155	0.36	0.39	0.07
Air Heater Inlet	10247-05	R1 Imp 2&3 C&R	0.0342	0.0343	0.0343	0.0001	Yes	0.3%	1	260	<	<	<0.074
Air Heater Inlet	10247-06	R2 F1/2 Rinse	1.4181	1.3600	1.3891	0.0581	Yes	4.2%	1	153	5.58	5.50	0.85
CleanAir	10247-00	QC	0.8753	0.8754	0.8754	0.0001	Yes	0.0%	1	n.a.	3.50	Difference	0.34%
Air Heater Inlet	10247-07	R2 Imp 1 C&R	0.0934	0.0920	0.0927	0.0014	Yes	1.5%	1	211	0.33	0.37	0.07
Air Heater Inlet	10247-08	R2 Imp 2&3 C&R	0.0429	0.0415	0.0422	0.0014	Yes	3.3%	1	210	<	<	<0.056
Air Heater Inlet	10247-09	R3 F1/2 Rinse	1.2537	1.2516	1.2527	0.0021	Yes	0.2%	1	192	5.02	4.96	0.96
Air Heater Inlet	10247-10	R3 Imp 1 C&R	0.0953	0.0998	0.0976	0.0045	Yes	4.6%	1	195	0.35	0.39	0.07
Air Heater Inlet	10247-11	R3 Imp 2&3 C&R	0.0347	0.0342	0.0345	0.0005	Yes	1.5%	1	285	<	<	<0.070
Air Heater Inlet	10247-12	Post R3 Rinse	0.0000	0.0000	0.0000	na	na	na	1	98	<	<	<0.025
CleanAir	10247-00	CCV	1.9983	1.9927	1.9955	0.0056	Yes	0.3%	1	n.a.	8.03	Difference	0.15%
CleanAir	10247-00	CCB	0.0000	0.0000	0.0000	na	na	na	1	n.a.	<	<	
													Spike Recovery
Matrix Spike	10247-09	R3 F1/2 Rinse	1.8675	1.8756	1.8716	0.0081	Yes	0.4%					100.2%
	10247-11	R3 Imp 2&3 C&R	0.2749	0.2700	0.2725	0.0049	Yes	1.8%					97.6%

Control Limits for Duplicate Analyses

Variable	Value
R_{avg}	0.0122
D_4	3.2680
UCL	0.0397
UWL	0.0305
LCL	0.0000
LWL	0.0000

CHROMATOGRAPHIC DATA REDUCTION

Client Consol Energy
Project Number: 10247
Analyte Ammonium
Date 6/20/2007

Determination of Control Limits for Duplicate Analyses

$$R_i = |AreaCount_1 - AreaCount_2|$$

$$R_{avg} = \frac{\sum_{i=1}^{n} R_i}{n}$$

Where: n = Number of duplicates
R_i = Range for each set of duplicates
D_4 = Constant (3.268 for duplicates)
UCL = Upper Control Limit
UWL = Upper Warning Limit
LCL = Lower Control Limit
LWL = Lower Warning Limit

$$UCL = D_4 R_{avg}$$

$$UWL = \tfrac{2}{3}(D_4 R_{avg}) + R_{avg}$$

Note: For duplicates, both LCL and LWL are zero.

Variable	Value
R_{avg}	0.0122
D_4	3.268
UCL	0.0397
UWL	0.0386
LCL	0.0000
LWL	0.0000

Values for	10247-03
m	4.0468
b	-0.0443
AreaCount	1.1212
DF	1
RF_{avg}	3.9579
V_{soln}	208
C_{reg}	4.49
C_{resp}	4.44
$M_{Analyte}$	0.93

QA/QC:

CCV: Calibration Control Verification
CCB: Calibration Control Blank
QC: Quality Check

Determination of Concentration of Analyte

$$C_{reg} = [m(AreaCount) + b]DF$$

Where: C_{reg} = Analyte concentration from regression curve (mg/l)
m = Slope of regression curve
b = Y-Intercept of regression curve
AreaCount = Average area count from duplicate analyses
DF = Sample dilution factor

$$C_{resp} = RF_{avg}(AreaCount)DF$$

Where: C_{resp} = Analyte concentration from response factors (mg/l)
RF_{avg} = Average response factor for analyte (ppm/Area Count)
DF = Sample dilution factor

$$M_{Analyte} = \frac{C_{reg}(V_{soln})}{1000}$$

Where: $M_{Analyte}$ = Total amount of analyte in sample (mg)
C_{reg} = Analyte concentration from regression curve (mg/l)
V_{soln} = Total sample volume (ml)
1000 = Conversion factor (ml/l)

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CHROMATOGRAPHIC DATA REDUCTION

Client: Consol Energy
Project Number: 10247
Analyte: Ammonium
Date: 6/20/2007

Determination of Detection Limit

(in accordance with 40 CFR 136, Appendix B)

Analyte	Ammonium
Area Count	
Trial 1	0.1304
Trial 2	0.1264
Trial 3	0.1231
Trial 4	0.1242
Trial 5	0.1213
Trial 6	0.1172
Trial 7	0.1219
Average	**0.1235**
Std Dev	0.0042
RMS Dev	3.37%

n	$t_{(n-1,0.99)}$
7	3.143
8	2.998
9	2.896
10	2.821
11	2.764
16	2.602

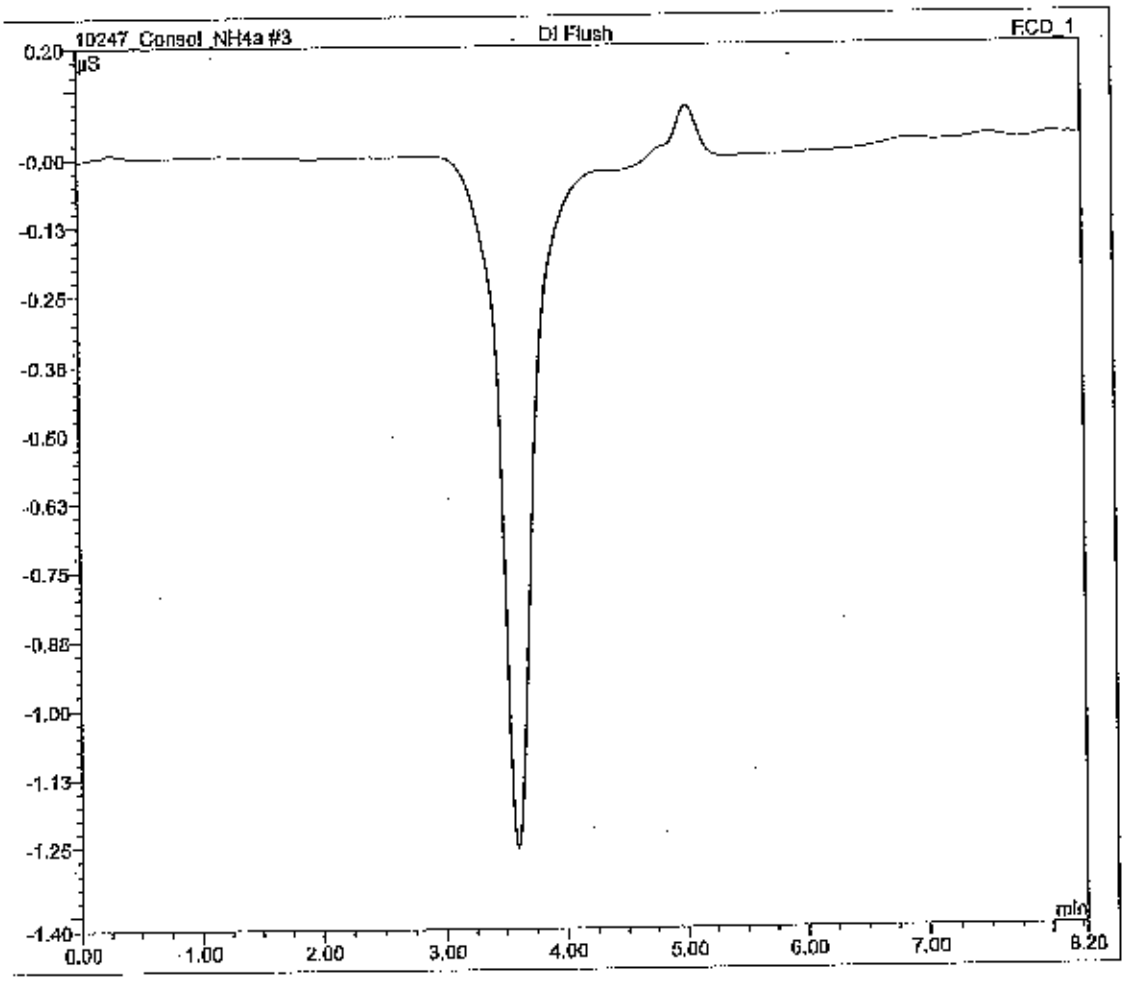
Average Response Factor	3.86
Measured Concentration (mg/l)	
Trial 1	0.483
Trial 2	0.467
Trial 3	0.454
Trial 4	0.456
Trial 5	0.447
Trial 6	0.430
Trial 7	0.449
Average	**0.455**
Std Dev	0.0168
RMS Dev	3.69%
$t_{(n-1,0.99)}$	3.143
Det Lim (mg/l)	0.053
Rep Lim (mg/L)	0.264

Actual Conc	0.5027
Slope	4.05E+00
Intercept	-0.0443
Coeff of Corr	0.9999

Integration Report - ECD_1

Sample Name:	DI Flush	Inj. Vol:	0
Sample Type:	unknown	Dilution Factor:	1.0000
Comment:		Operator:	Dantor J Nunez
Inj. Date/Time:	18/06/07 09:02	Run Time:	8.23

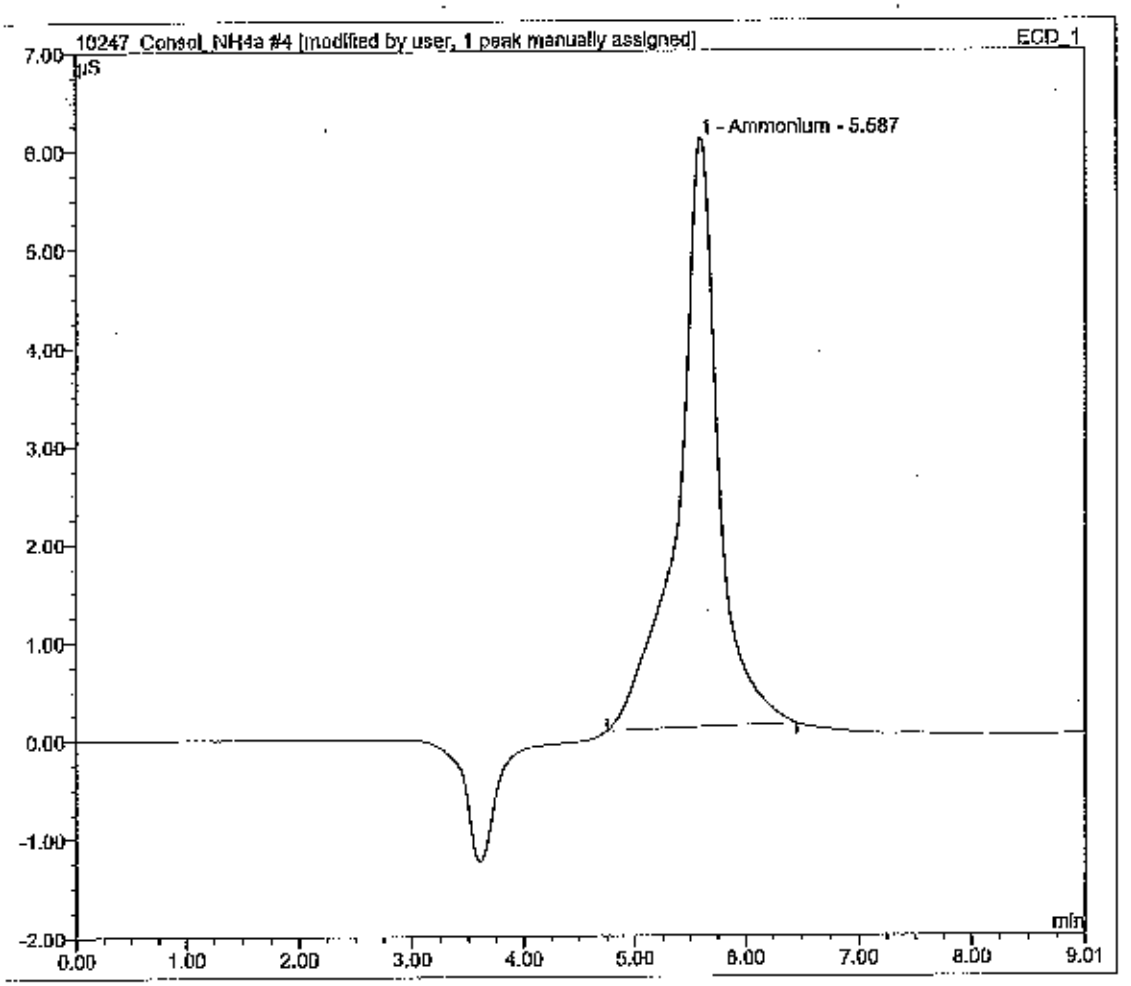
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
TOTAL:				0.00	0.00	0.00



Integration Report - ECD_1

Sample Name:	Cal 506	Inj Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	16.06.07 09:42	Run Time:	9.01

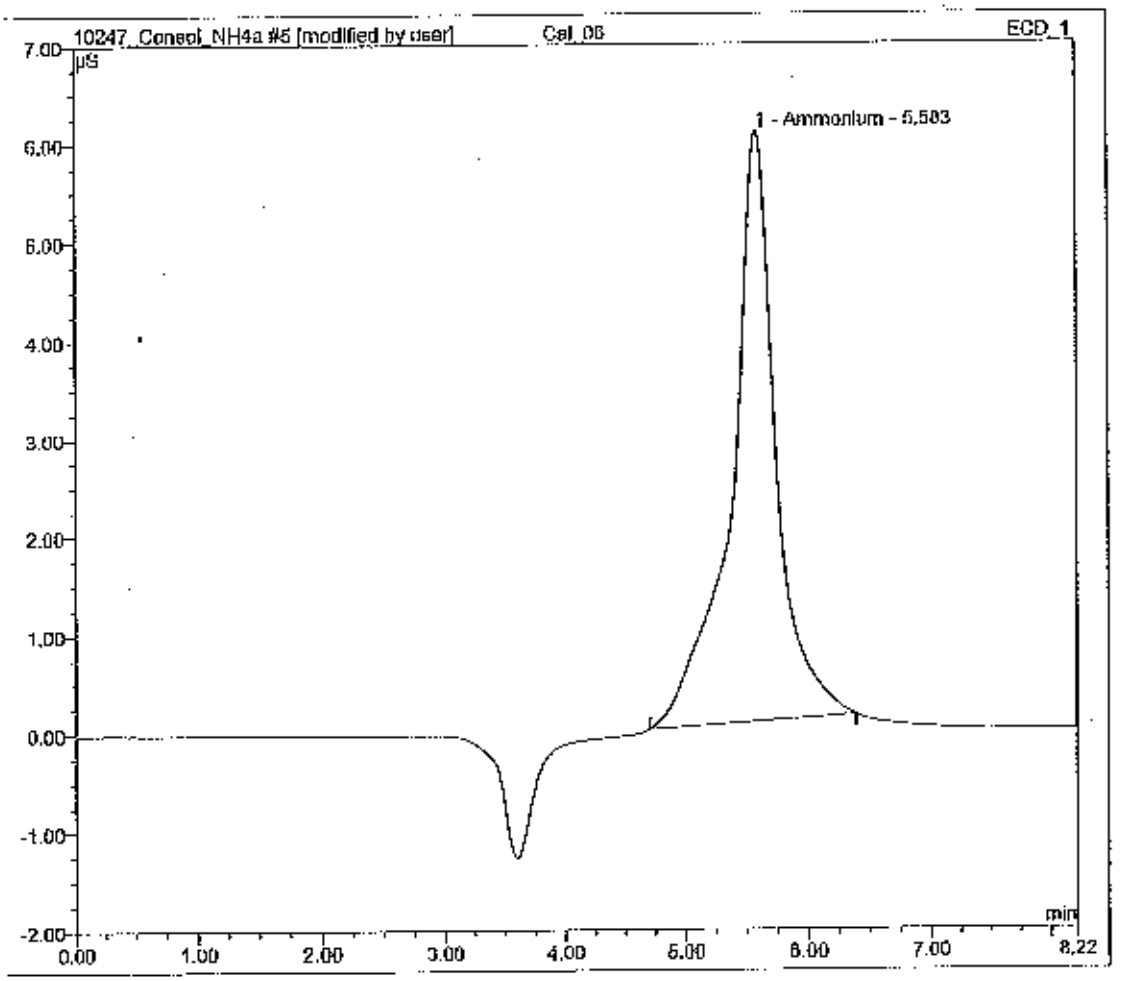
No.	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS·min	Height ECD_1 µS	Amount ECD_1
		TOTAL:		0.00	0.00	0.00



Integration Report - ECD_1

Sample Name:	Cal -05	Inj Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj Date/Time:	18.06.07 09:22	Run Time:	8.22

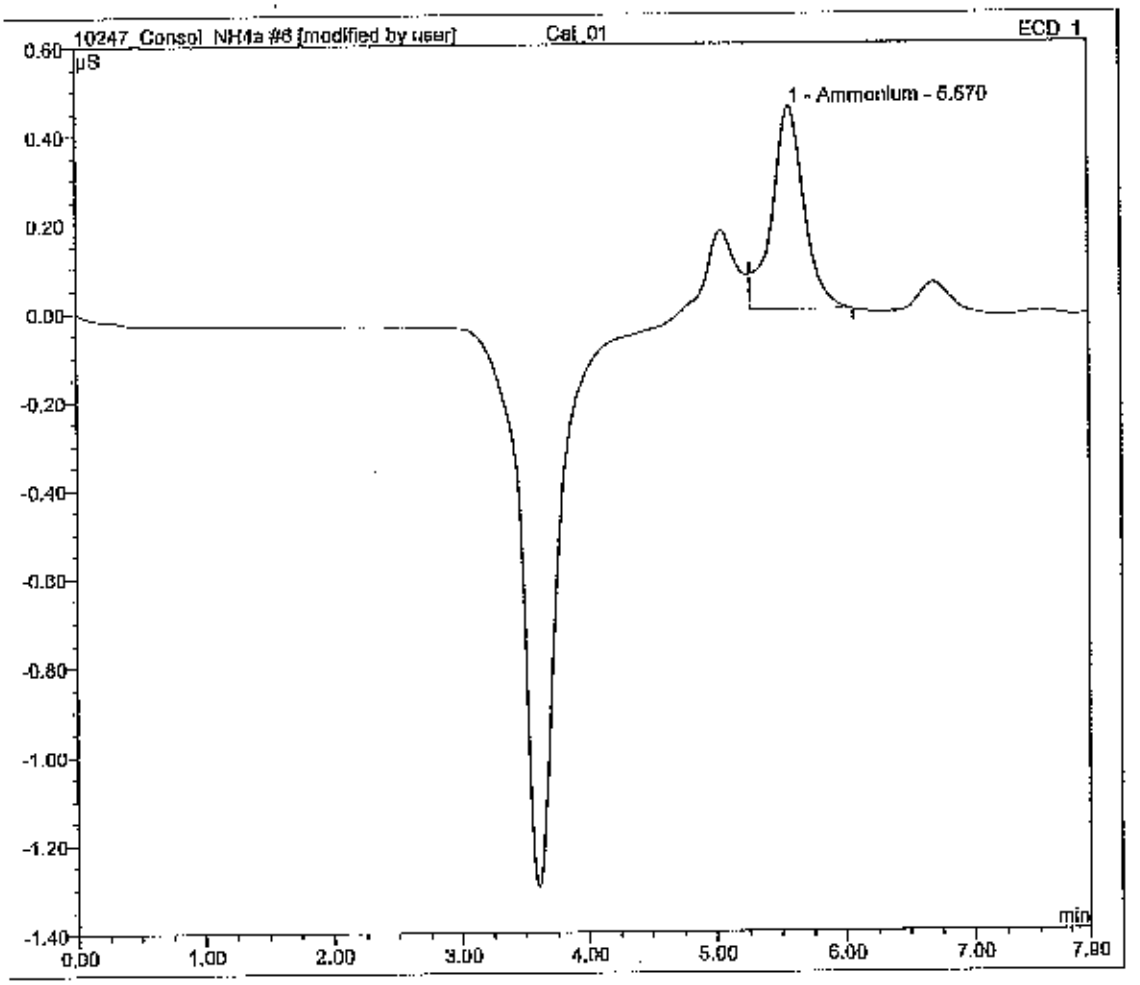
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.58	Ammonium	BMB*	2.501	6.003	n.a.
TOTAL:				2.50	6.00	0.00



Integration Report - ECD_1

Sample Name:	Cal_01	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	18.06.07 - 09:31	Run Time:	7.90

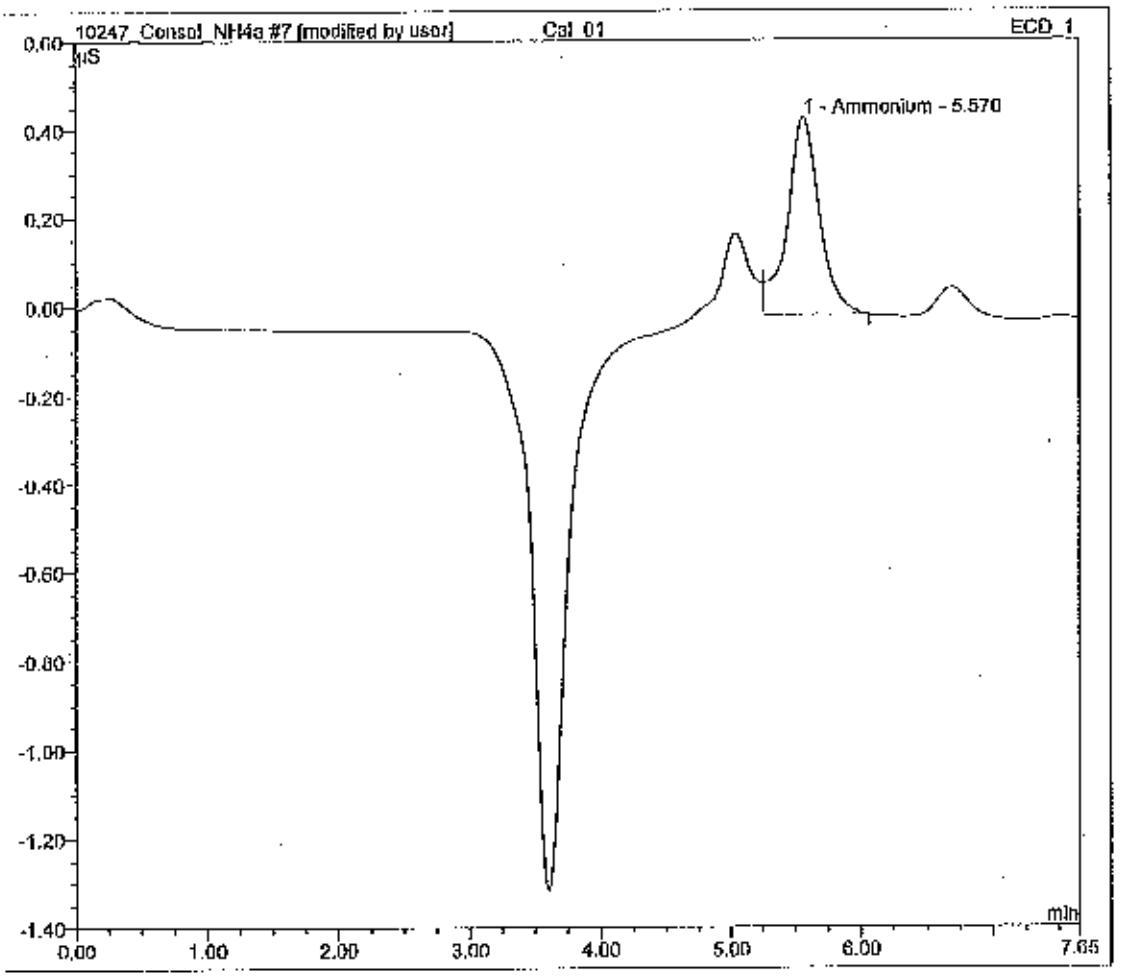
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS·min	Height ECD_1 µS	Amount ECD_1
1	5.57	Ammonium	MB*	0.130	0.456	n.a.
TOTAL:				0.13	0.46	0.00



Integration Report - ECD_1

Sample Name:	Cal_01	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	18.06.07 11:09:40	Run Time:	7.65

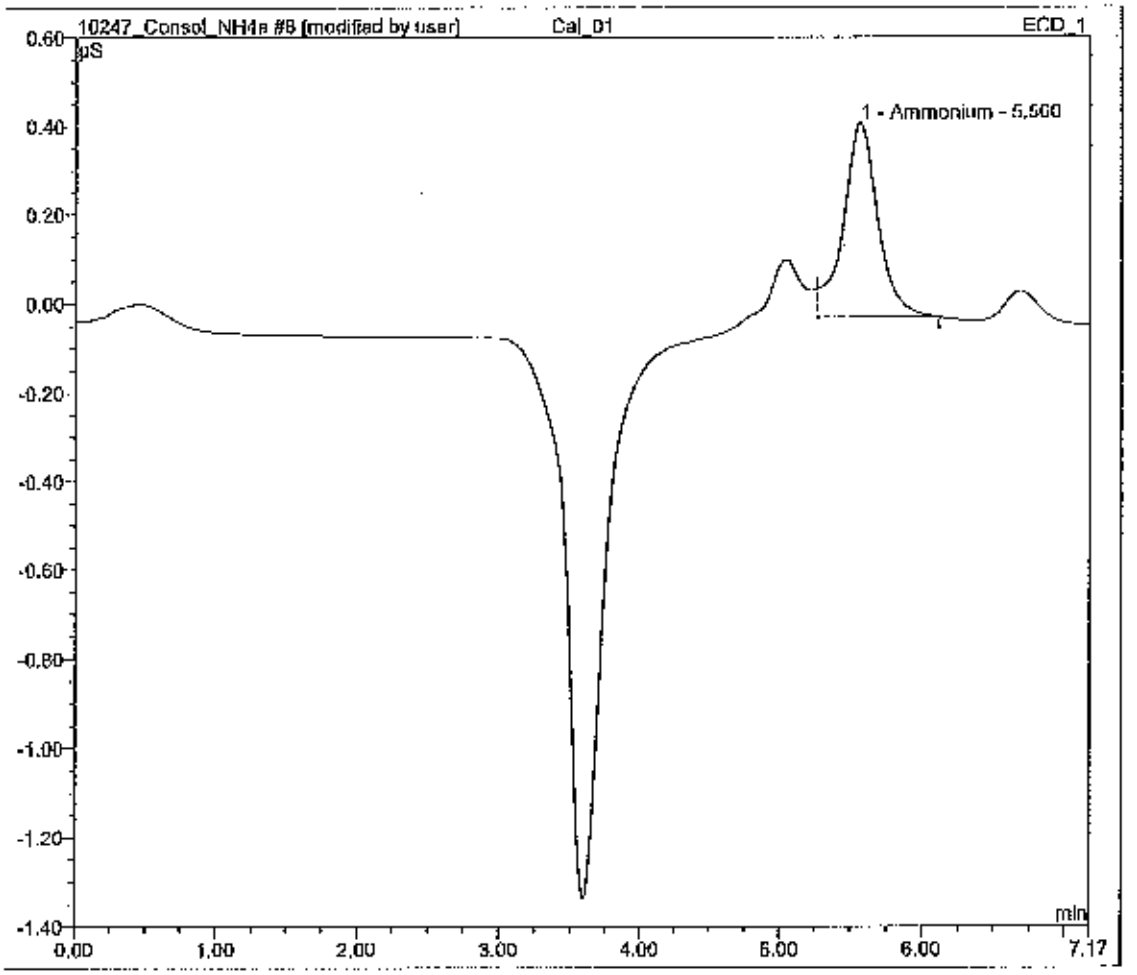
No. 1 ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.57	Ammonium	MB*	0.126	0.444	n.a.
		TOTAL:		0.13	0.44	0.00



Integration Report - ECD_1

Sample Name:	Cal_01	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	18.06.07 09:48	Run Time:	7.17

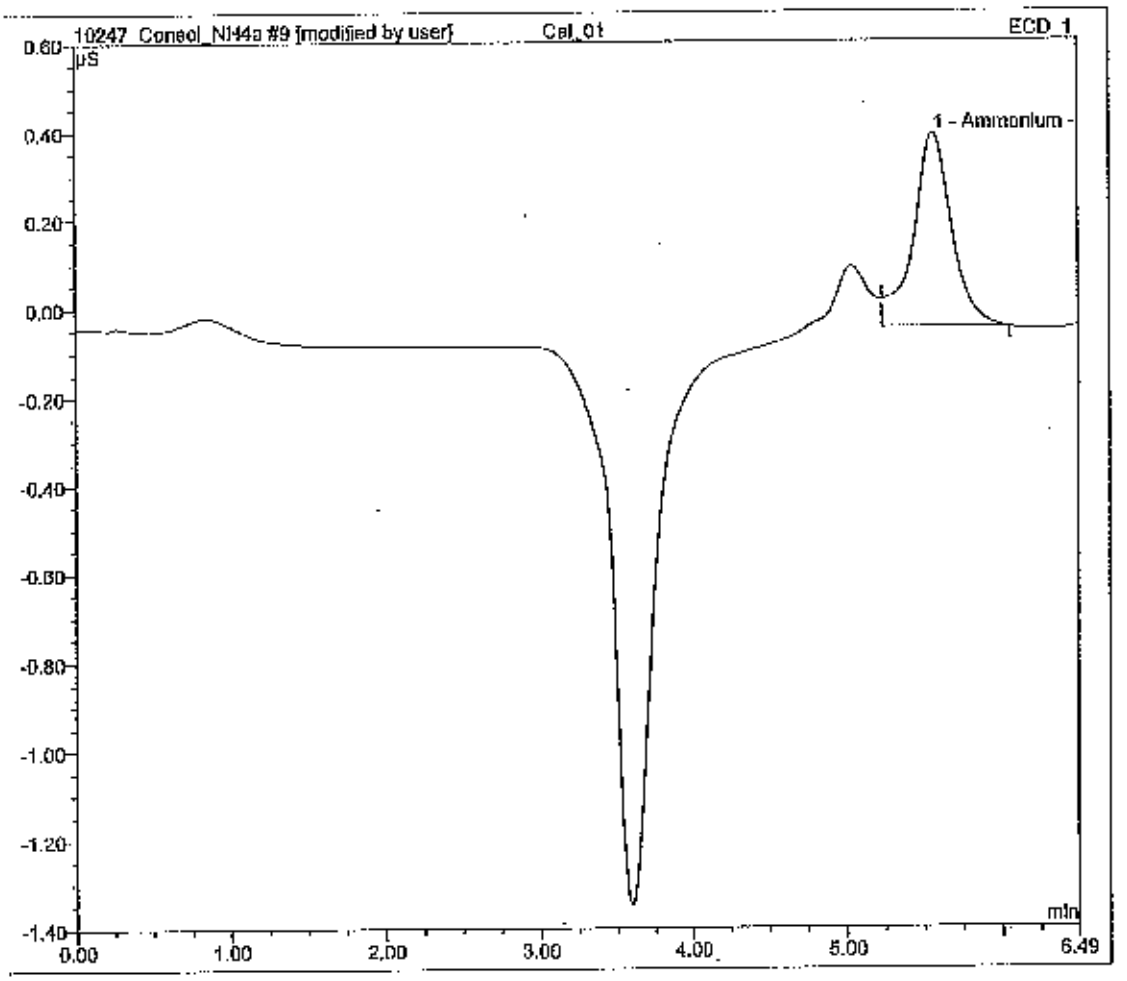
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.56	Ammonium	MB*	0.123	0.438	n.a.
		TOTAL:		0.12	0.44	0.00



Integration Report - ECD_1

Sample Name:	Cal_01	Inj.Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	18.06.07 09:50	RunTime:	6.49

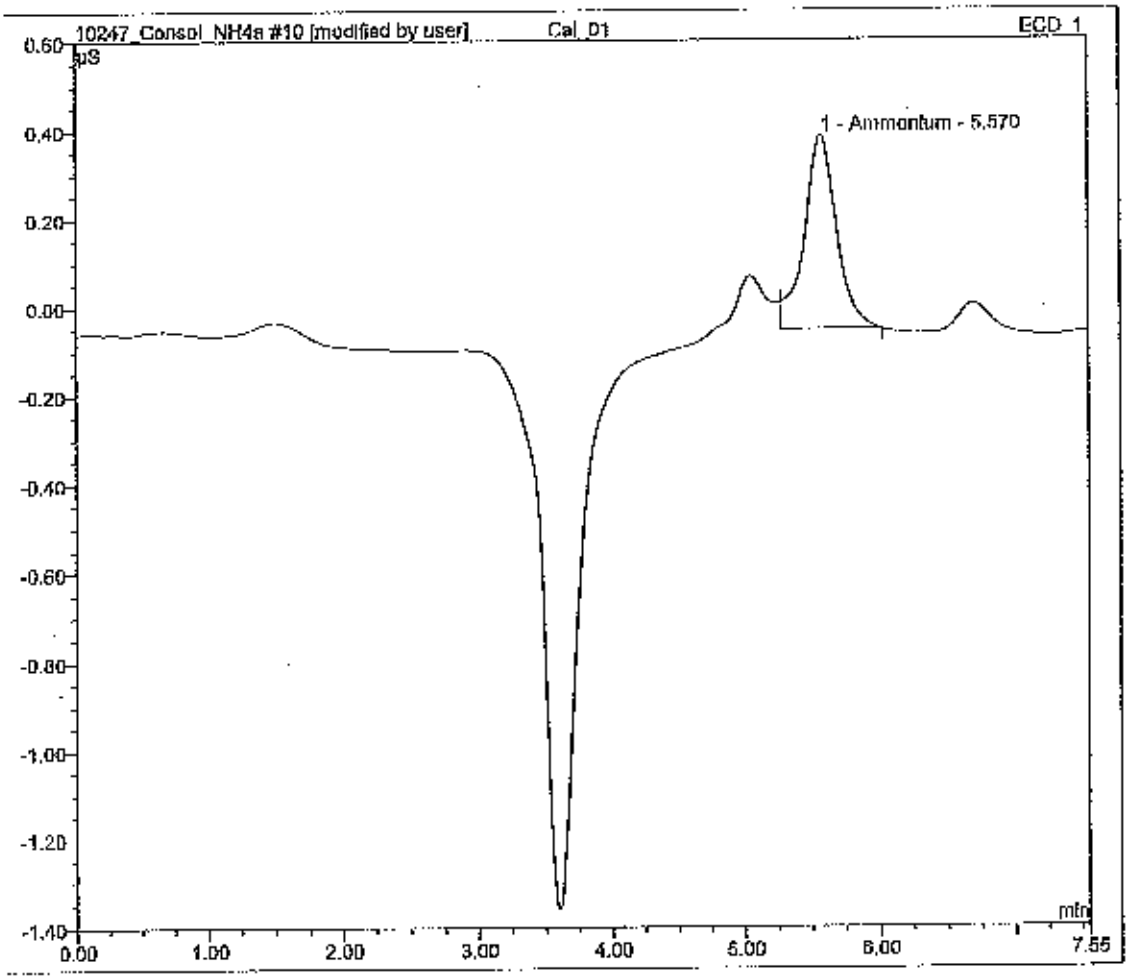
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.56	Ammonium	MB*	0.124	0.437	n.a.
		TOTAL:		0.12	0.44	0.00



Integration Report - ECD_1

Sample Name:	Cal_01	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	18.06.07 10:04	Run Time:	7.55

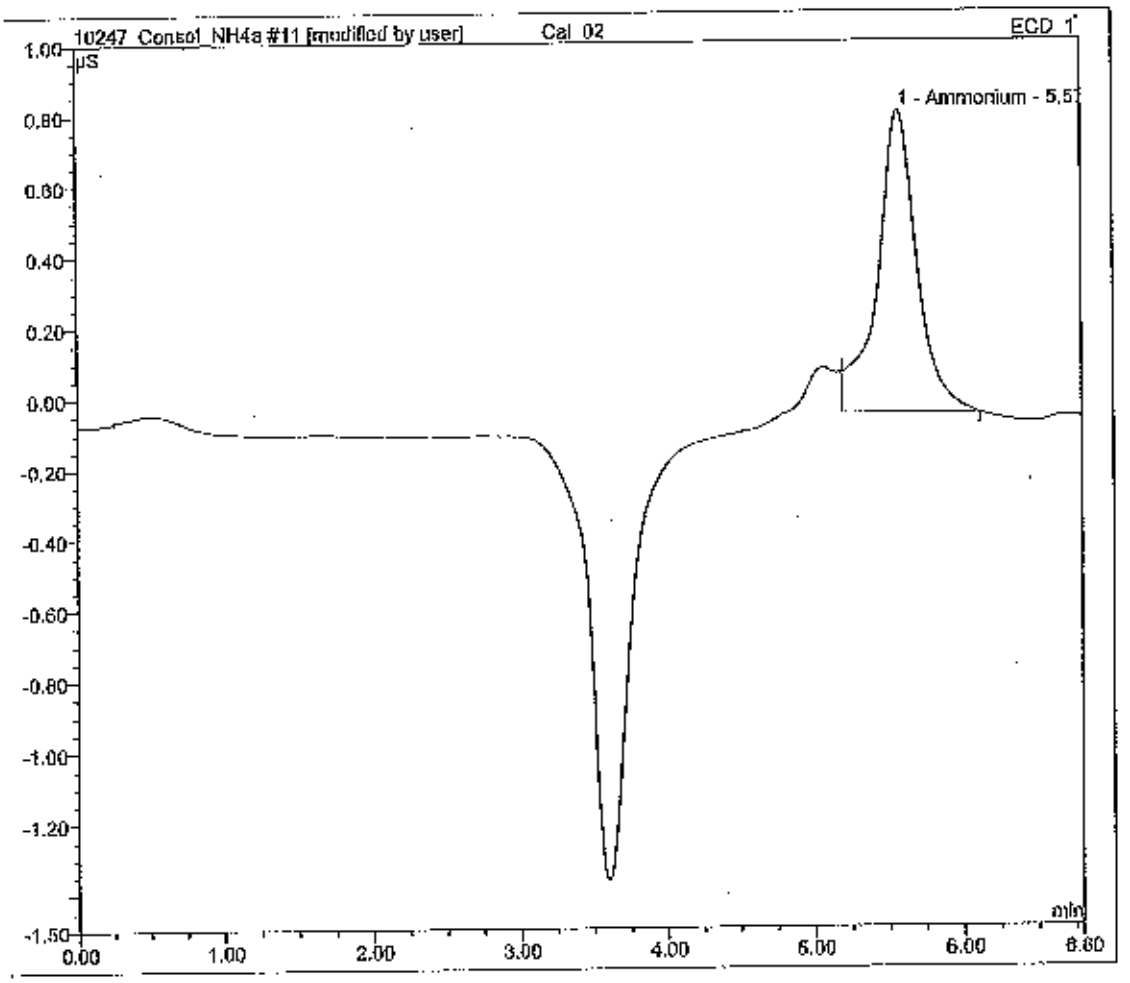
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.57	Ammonium	MB*	0.121	0.437	n.a.
		TOTAL:		0.12	0.44	0.00



Integration Report - ECD_1

Sample Name:	Cal_02	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	18.06.07 10:12	Run Time:	6.80

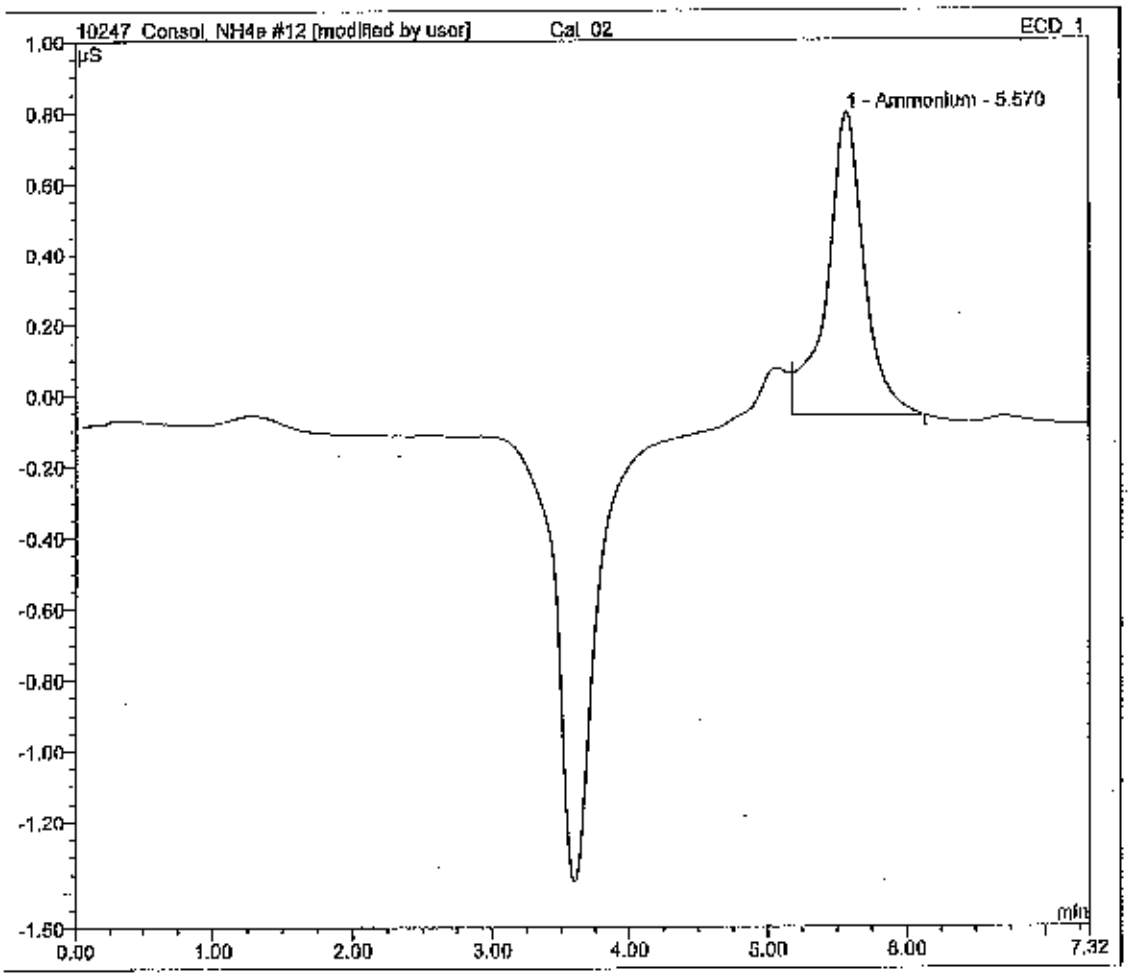
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.57	Ammonium	MB*	0.261	0.853	n.a.
TOTAL:				0.26	0.85	0.00



Integration Report - ECD_1

Sample Name:	Cal_02	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	18.06.07 10:20	Run Time:	7.32

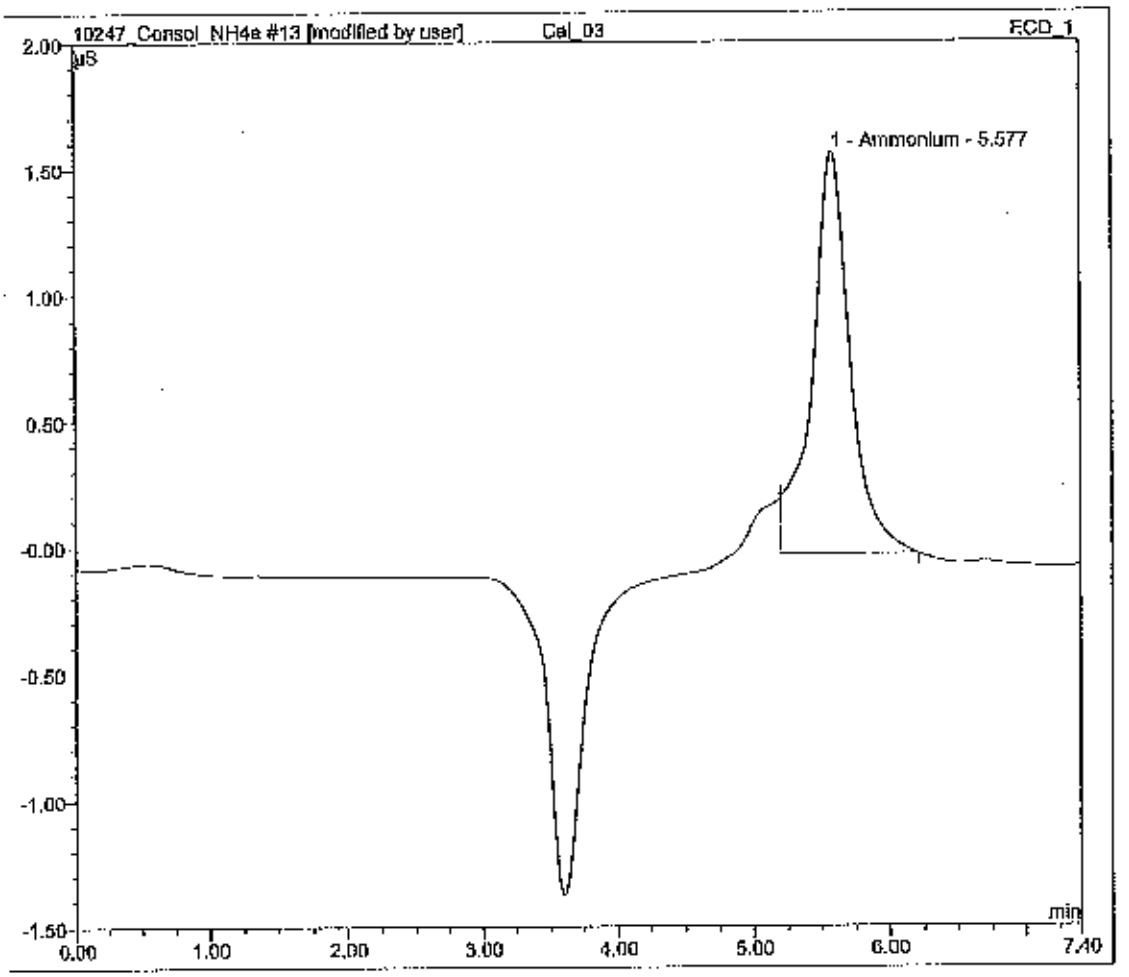
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.57	Ammonium	MB*	0.267	0.858	n.a.
		TOTAL:		0.27	0.86	0.00



Integration Report - ECD_1

Sample Name:	Cal_03	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	18.06.07 10:28	Run Time:	7.40

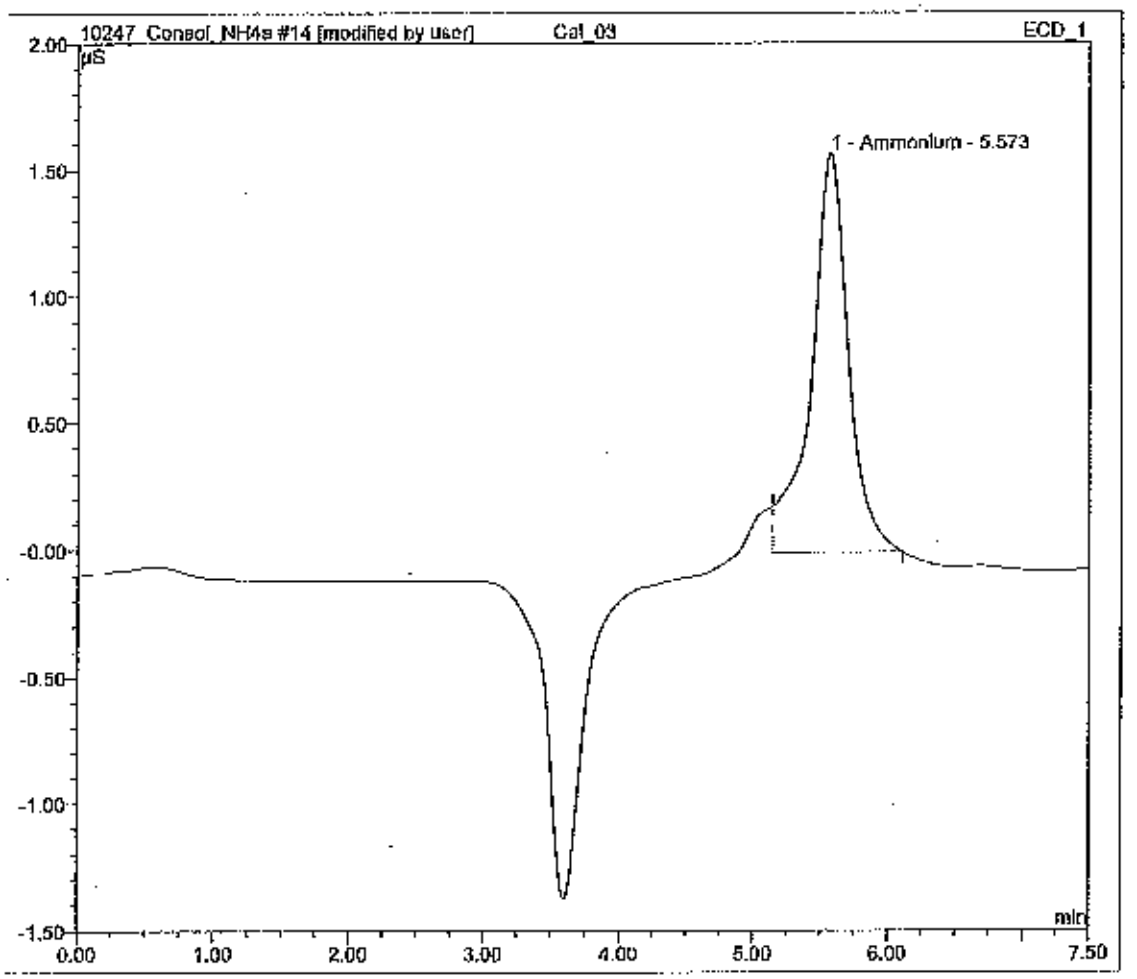
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.58	Ammonium	MB*	0.518	1.592	n.a.
		TOTAL:		0.52	1.59	0.00



Integration Report - ECD_1

Sample Name:	Cal_03	Inj. Vol.:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nuncz
Inj. Date/Time:	18.06.07 10:36	Run Time:	7.50

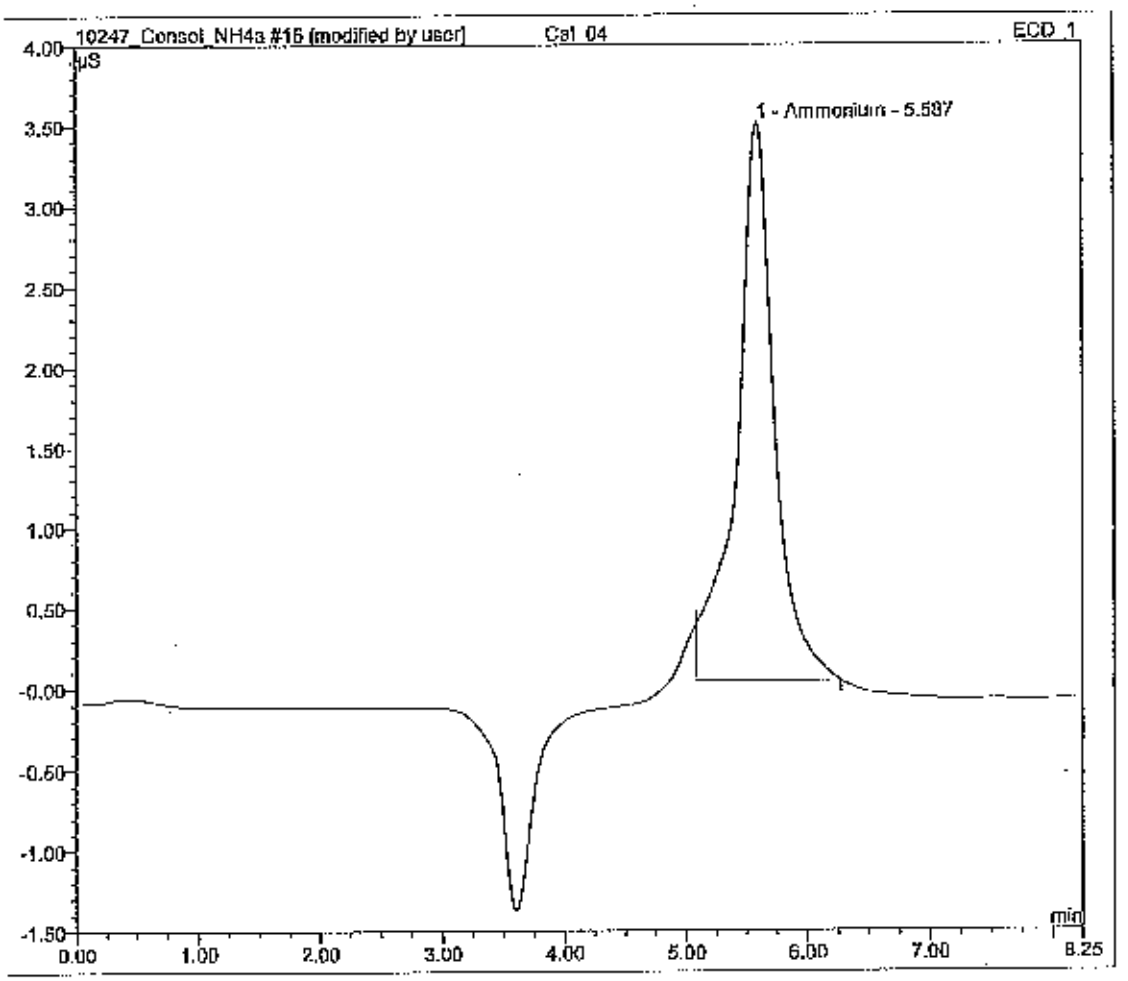
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.57	Ammonium	MB*	0.506	1.572	n.a.
		TOTAL:		0.51	1.57	0.00



Integration Report - ECD_1

Sample Name:	Cal 04	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	6/6/06 7:10:45	Run Time:	8.25

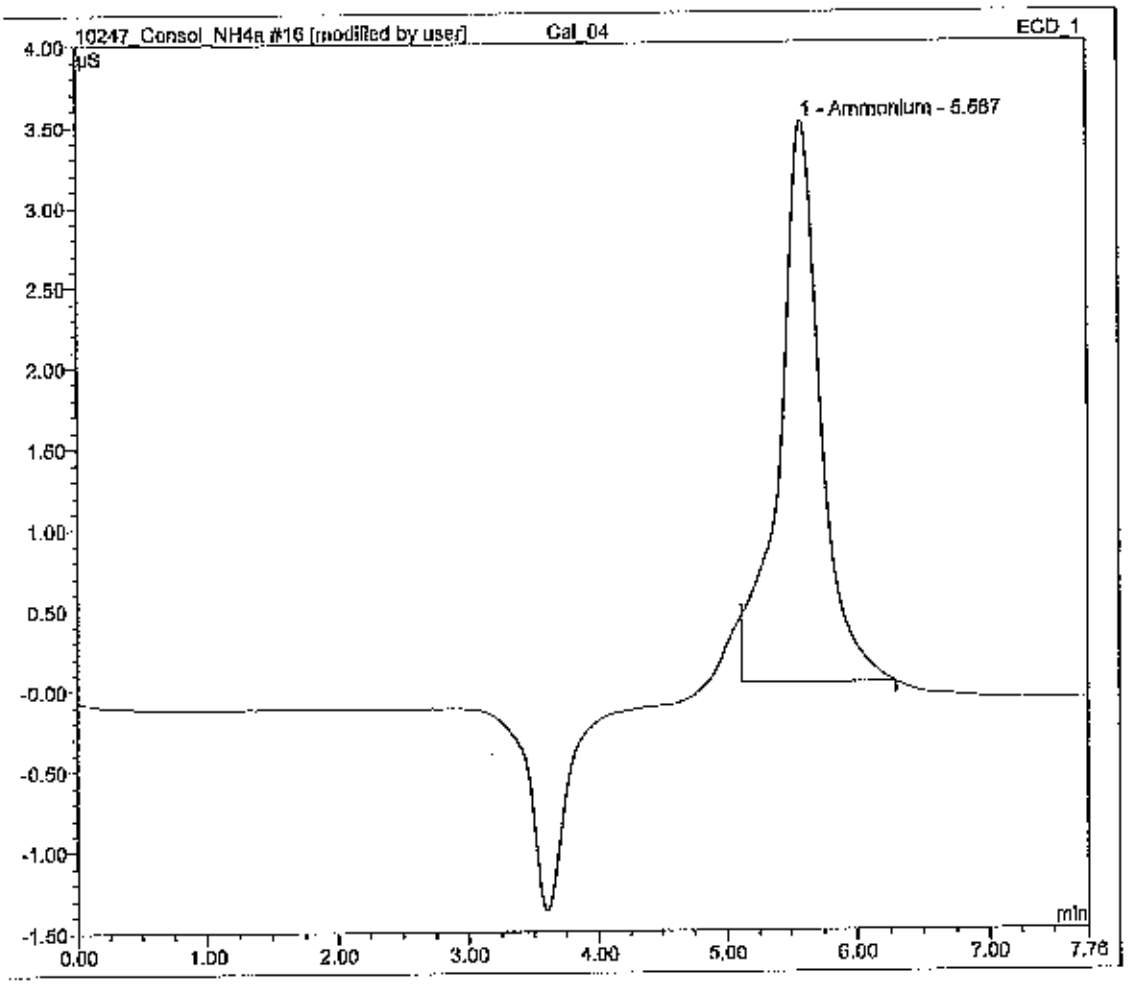
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.59	Ammonium	MB*	1.252	3.467	n.a.
		TOTAL:		1.25	3.47	0.00



Integration Report - ECD_1

Sample Name:	Cal_04	Inj. Vol:	1.0
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	18/06/07 10:54	Run Time:	7.76

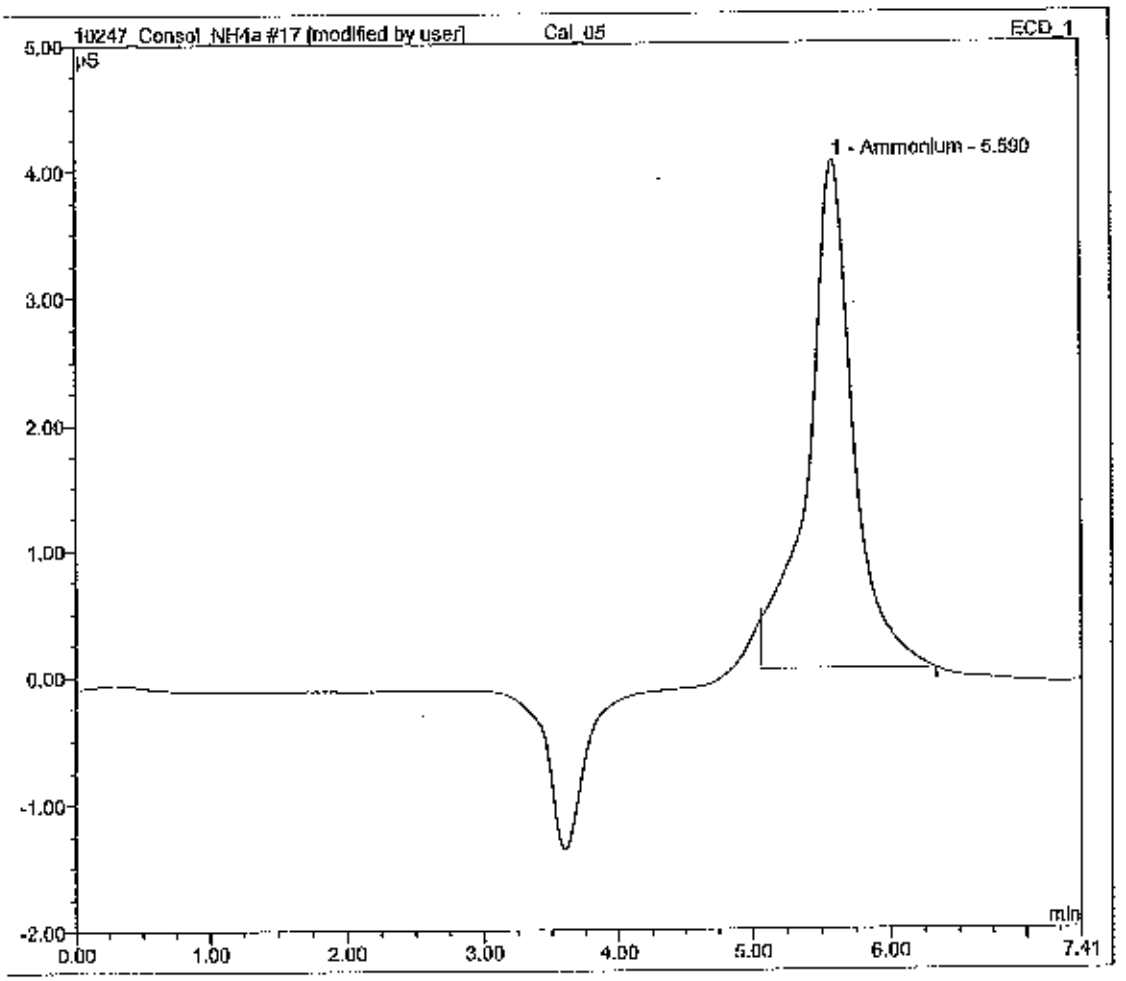
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.59	Ammonium	MB*	1.254	3.480	n.a.
TOTAL:				1.25	3.48	0.00



Integration Report - ECD_1

Sample Name:	Cal_05	Inj. Vol.:	1.0
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	18.06.07, 11:03	Run Time:	7.41

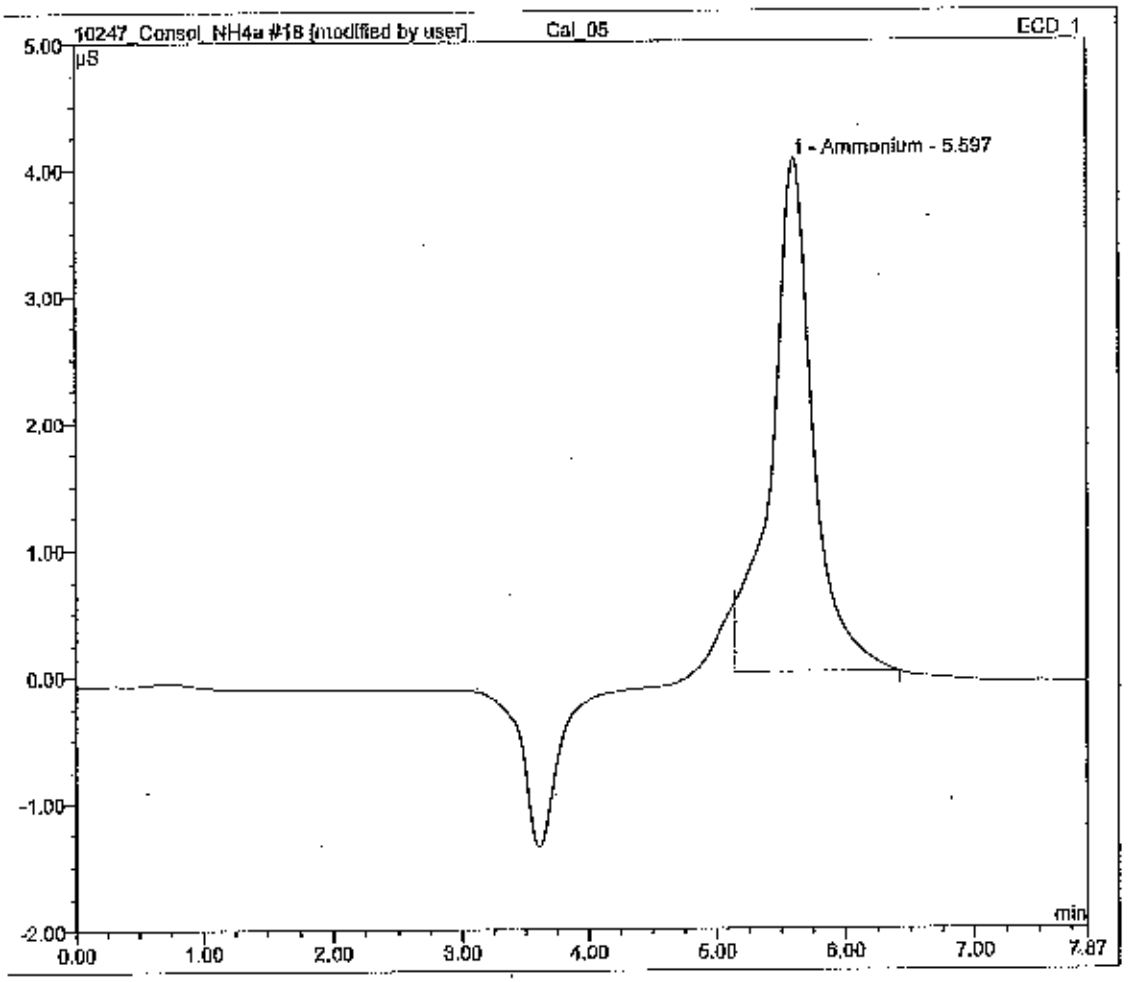
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.59	Ammonium	MB*	1.507	4.023	n.a.
		TOTAL:		1.51	4.02	0.00



Integration Report - ECD_1

Sample Name:	Cal_05	Inj Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Proofed:		Operator:	Daniel J.Nunoz
Inj Date/Time:	18.06.07 11:11	Run Time:	7.87

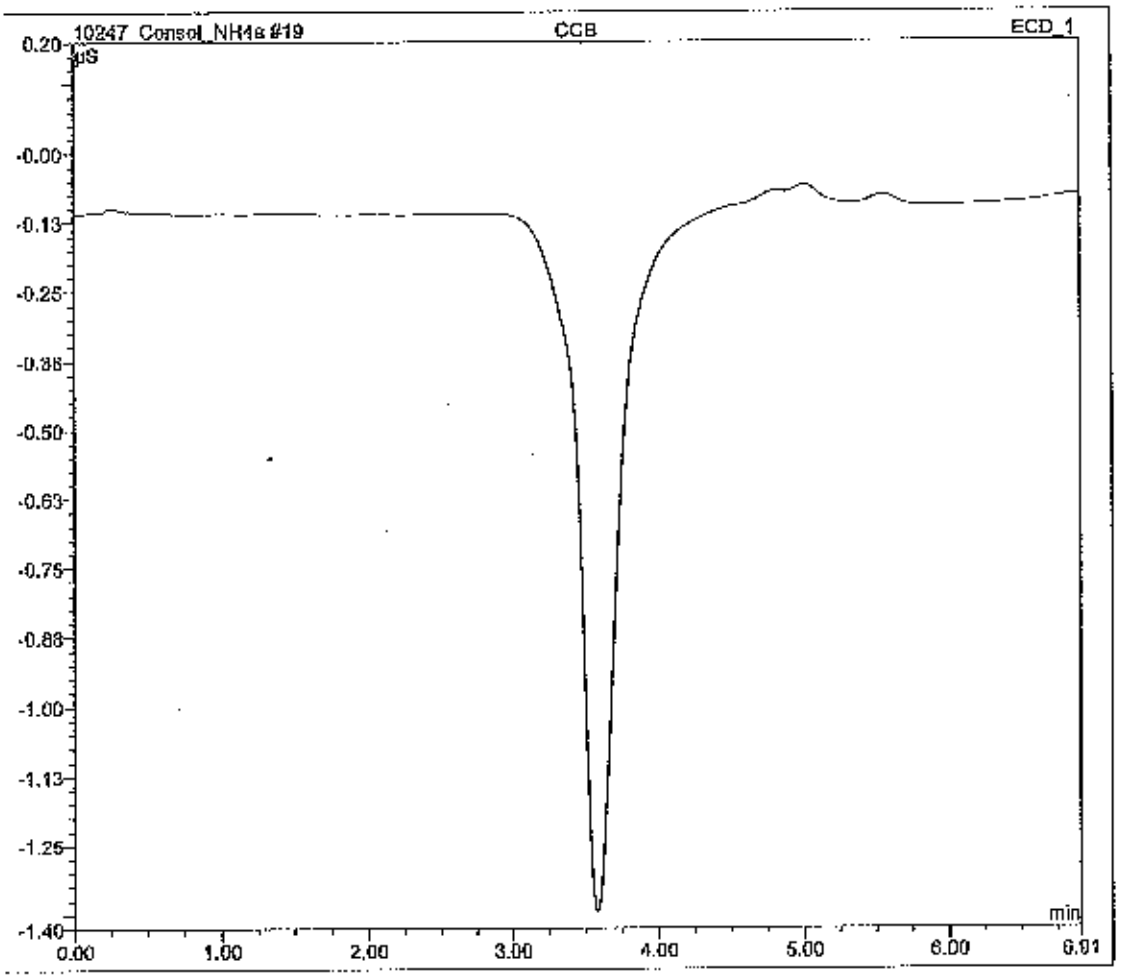
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.60	Ammonium	MB*	1.506	4.049	n.a.
TOTAL:				1.51	4.05	0.00



Integration Report - ECD_1

Sample Name:	CCB	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	18.06.07 11:20	Run Time:	6.01

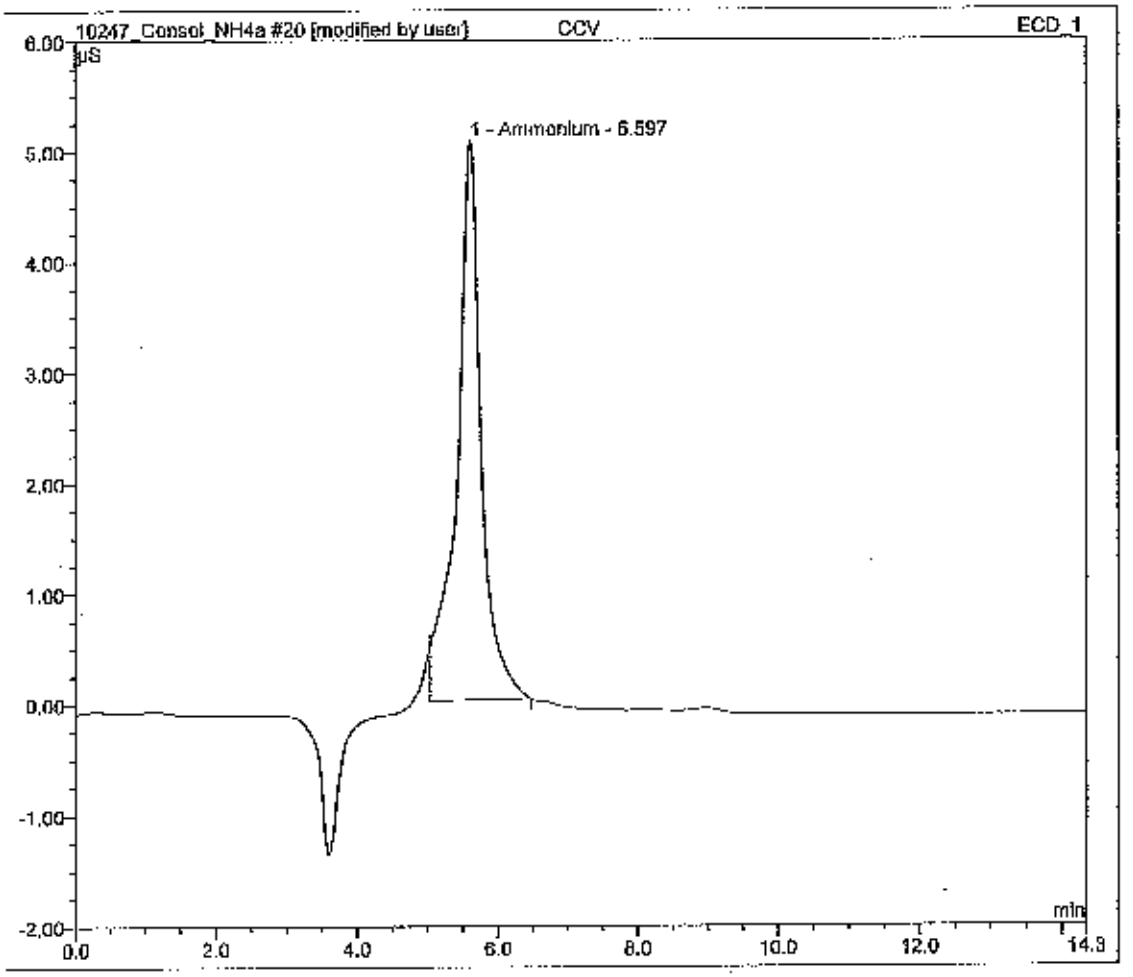
No ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
		TOTAL:		0.00	0.00	0.00



Integration Report - ECD_1

Sample Name:	CCV	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	18.06.07 11:26	Run Time:	14.34

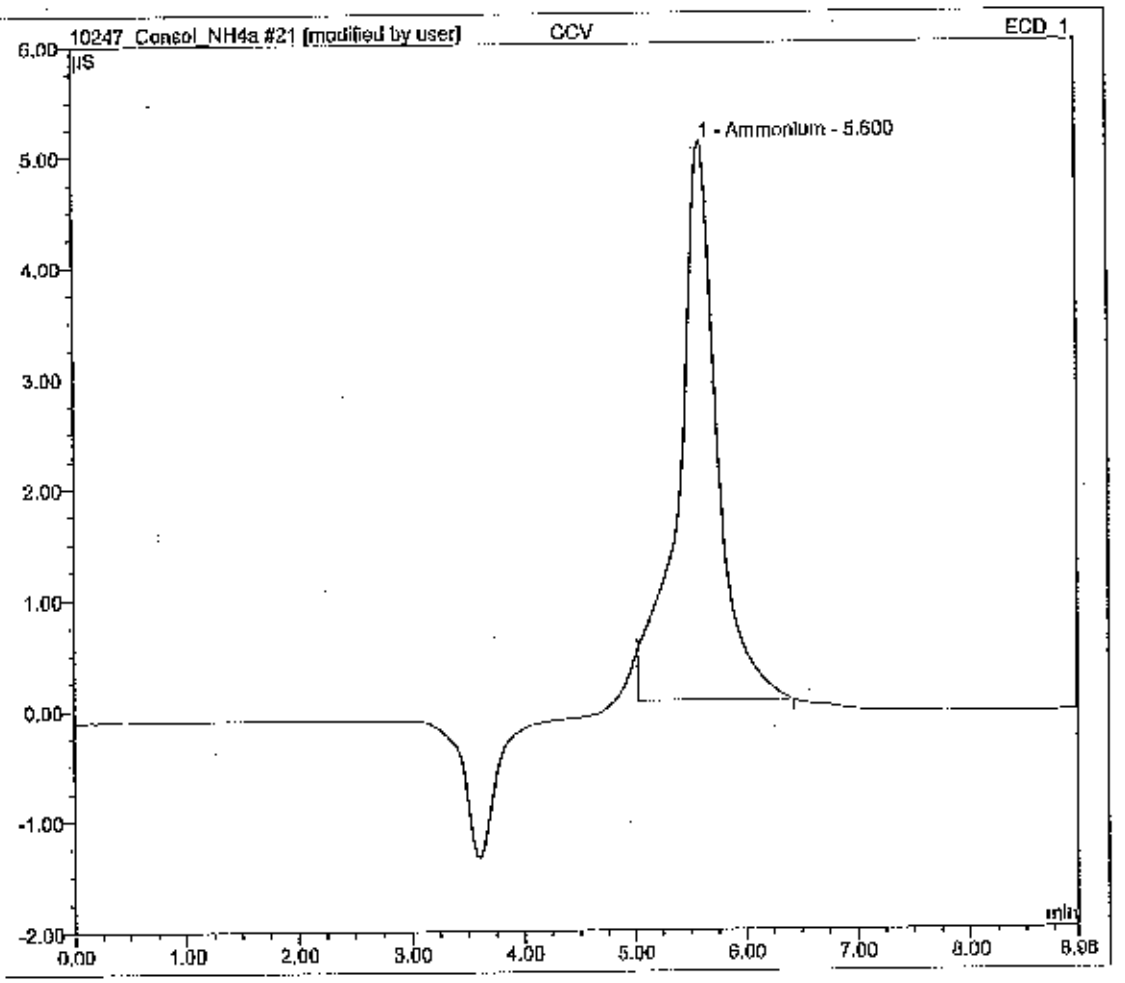
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.60	Ammonium	MB*	2.019	5.061	n.a.
		TOTAL:		2.02	5.06	0.00



Integration Report - ECD_1

Sample Name:	CCV	Inj. Vol.:	0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	18.06.07 11:43	Run Time:	8.96

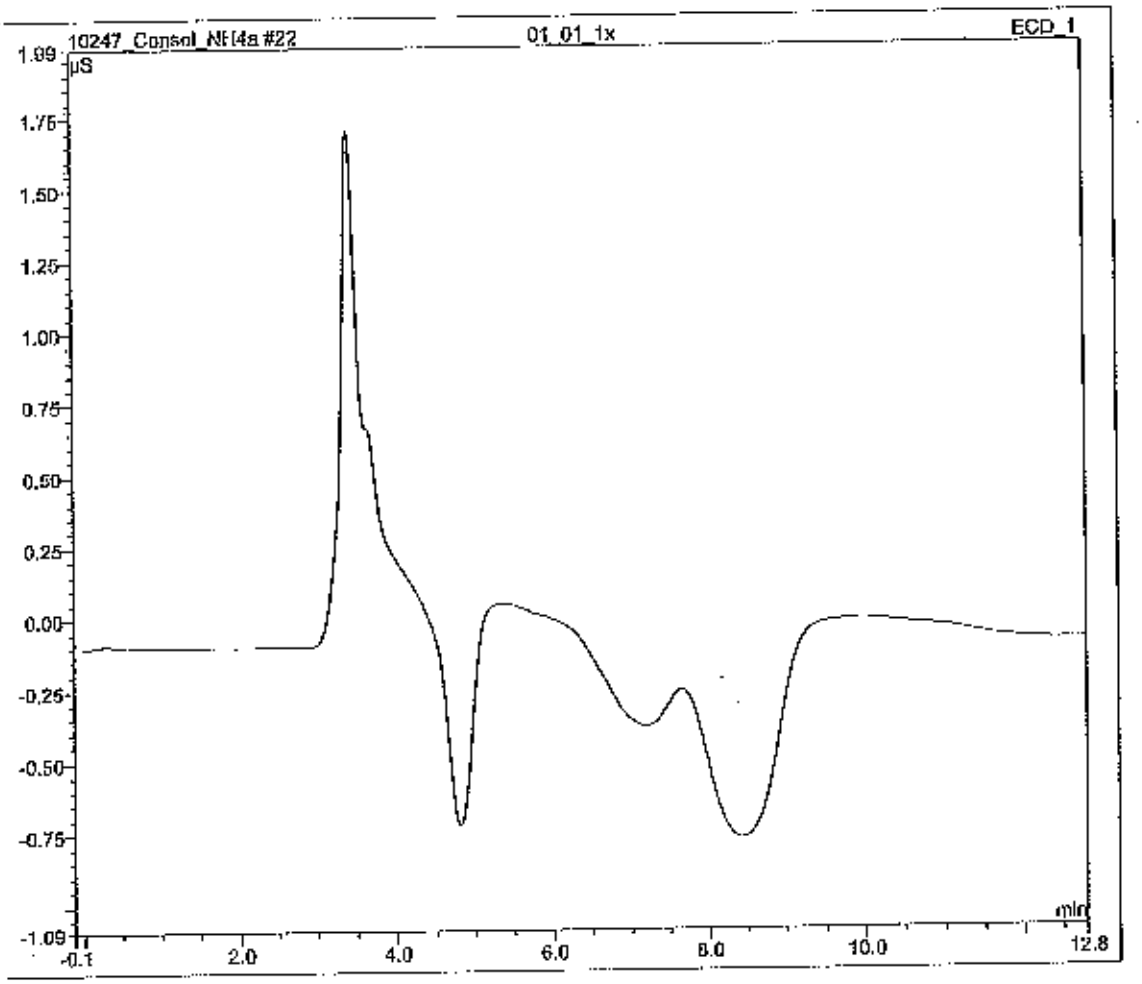
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.60	Ammonium	MB*	1.999	5.044	n.a.
TOTAL:				2.00	5.04	0.00



Integration Report - ECD_1

Sample Name:	01-01_1x	Inj. Vol:	1.0
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	18.06.07 11:53	Run Time:	73.95

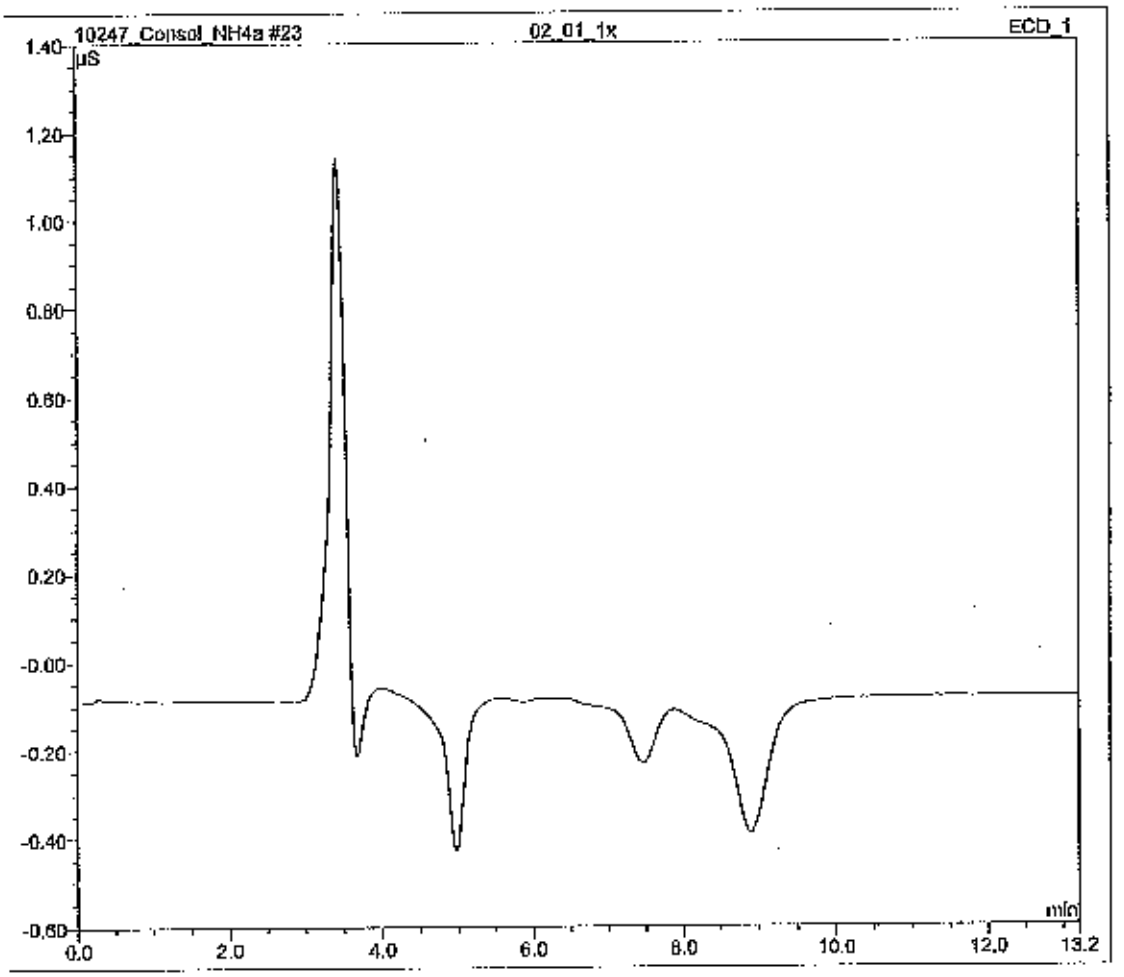
No. ECD_1	Time ECD_1 min	PeakName ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
TOTAL:				0.00	0.00	0.00



Integration Report - ECD_1

Sample Name:	02_01_1x	Inj Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj Date/Time:	18.06.07 13:09	Run Time:	13.20

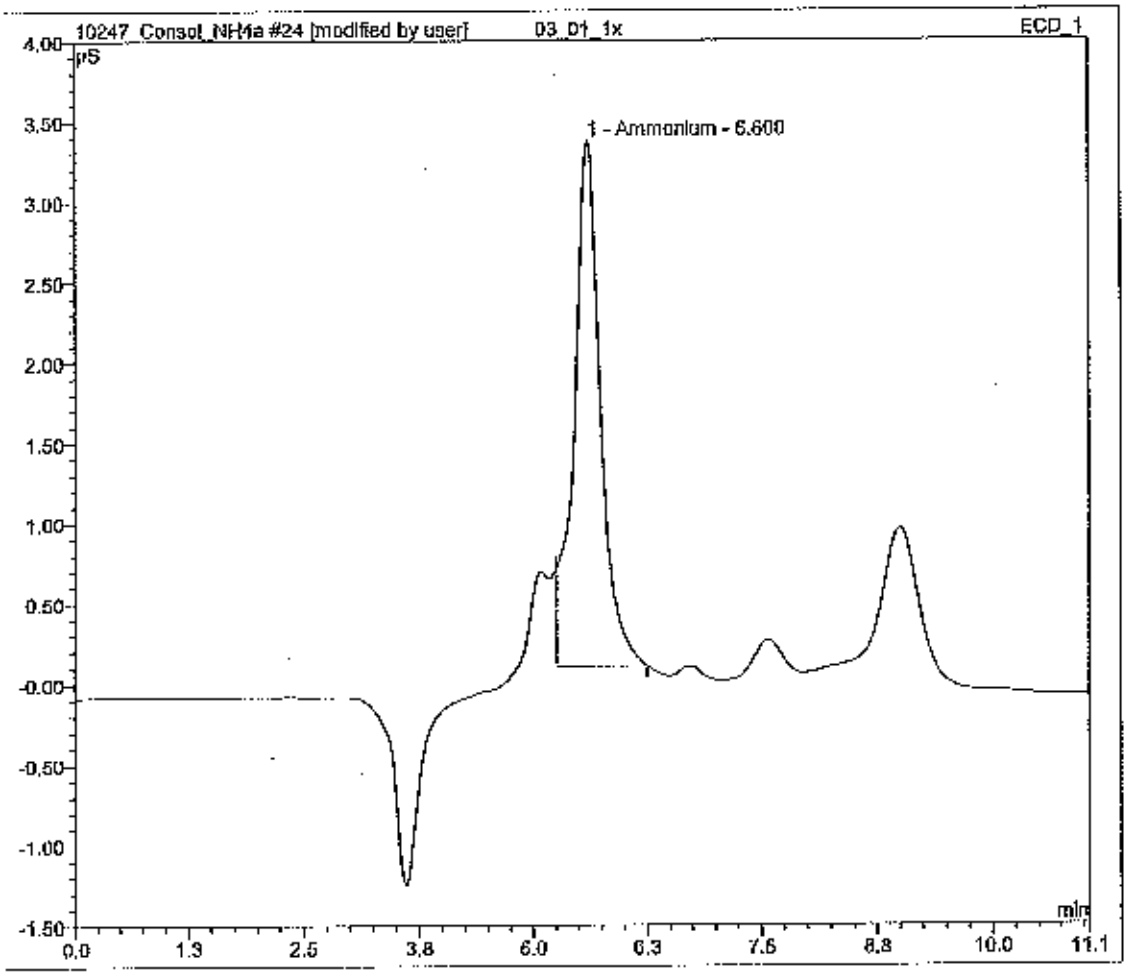
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
		TOTAL:		0.00	0.00	0.00



Integration Report - ECD_1

Sample Name:	03_01_1x	Inj. Vol.	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	18/06/07 13:25	Run Time:	11.08

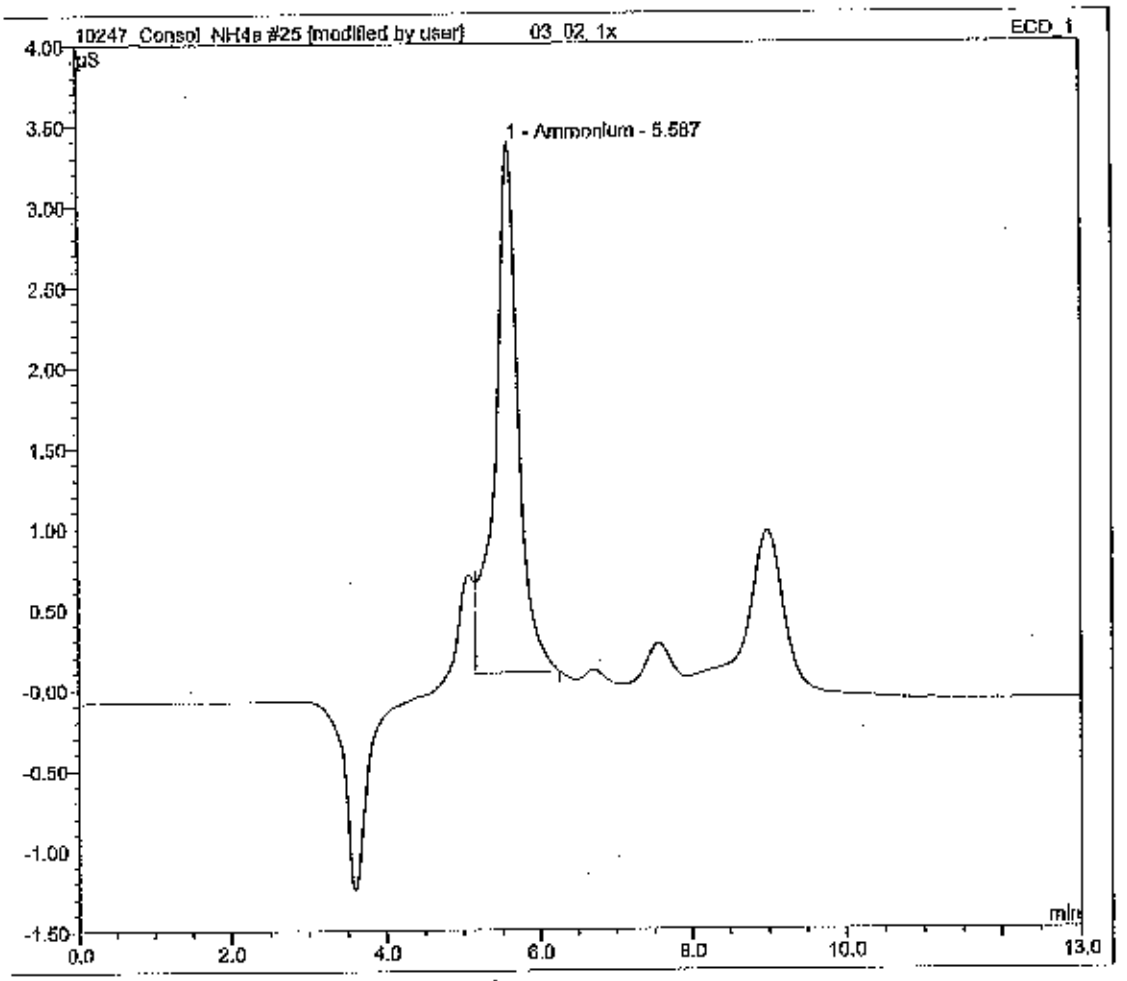
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.60	Ammonium	MB*	1.094	3.274	n.a.
		TOTAL:		1.09	3.27	0.00



Integration Report - ECD_1

Sample Name:	03_02_1x	Inj. Vol.:	1.0
Sample Type:	unknown	Dilution Factor:	10000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	18.06.07 13:37	Run Time:	13.03

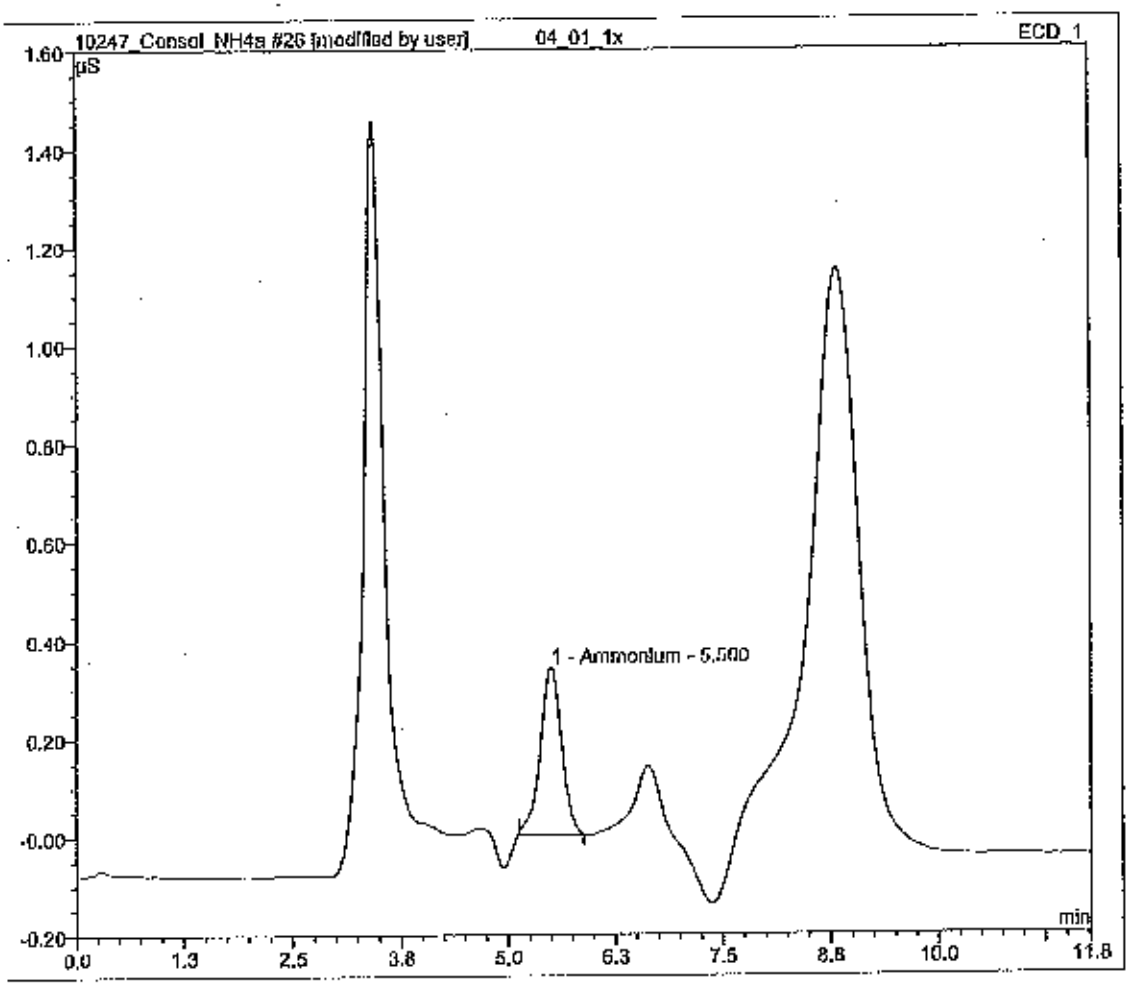
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.59	Ammonium	MB*	1.149	3.290	n.a.
TOTAL:				1.15	3.29	0.00



Integration Report - ECD_1

Sample Name:	04_01_1x	Inj. Vol:	1.0
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	18.06.07 13:51	Run Time:	1.78

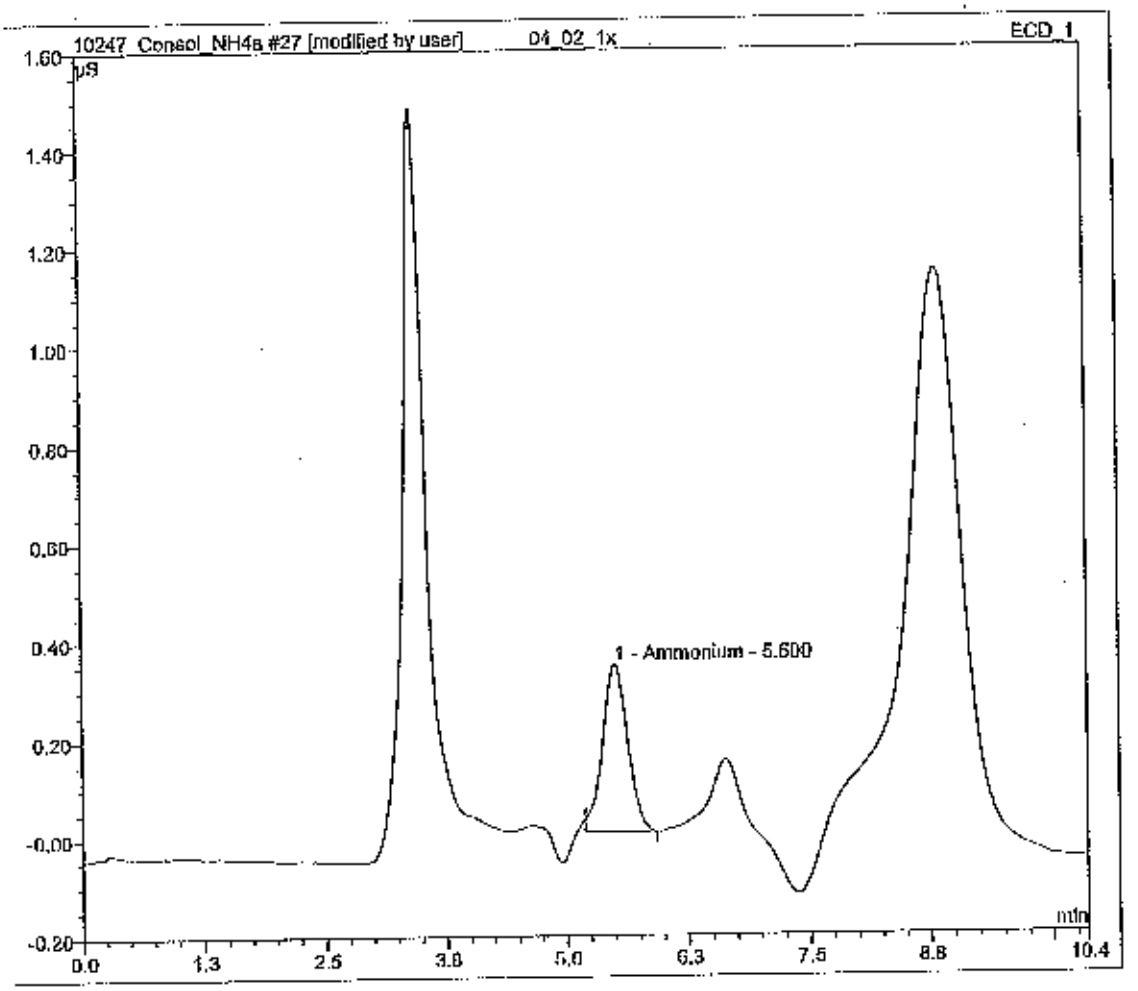
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.60	Ammonium	MB*	0.099	0.341	n.a.
TOTAL:				0.10	0.34	0.00



Integration Report - ECD_1

Sample Name:	04_02_1x	Inj Vol:	1.0
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj Date/Time:	18.06.07 14:04	Run Time:	10.35

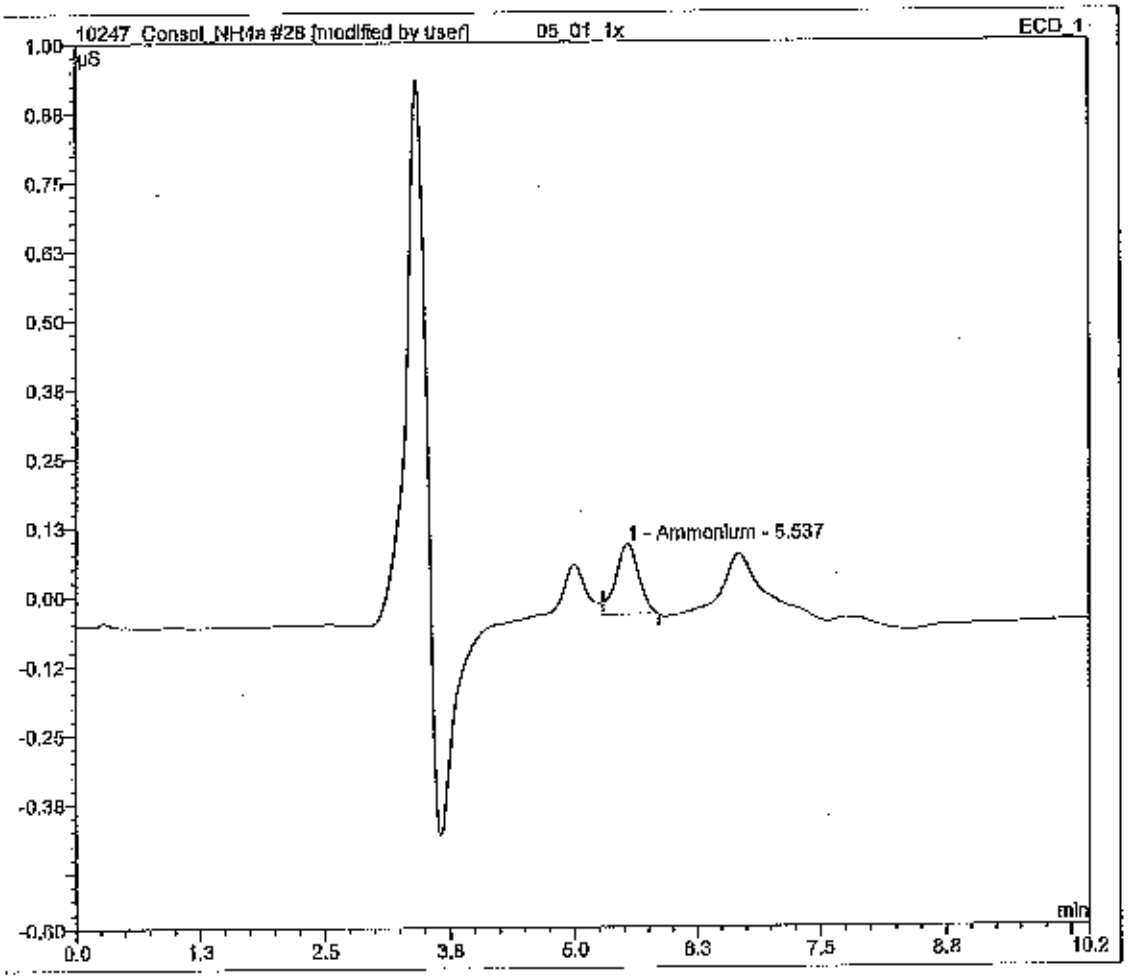
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.50	Ammonium	MB*	0.100	0.341	n.a.
TOTAL:				0.10	0.34	0.00



Integration Report - ECD_1

Sample Name:	05_01_1x	Inj. Vol.:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	18/06/07 14:11	Run Time:	10.19

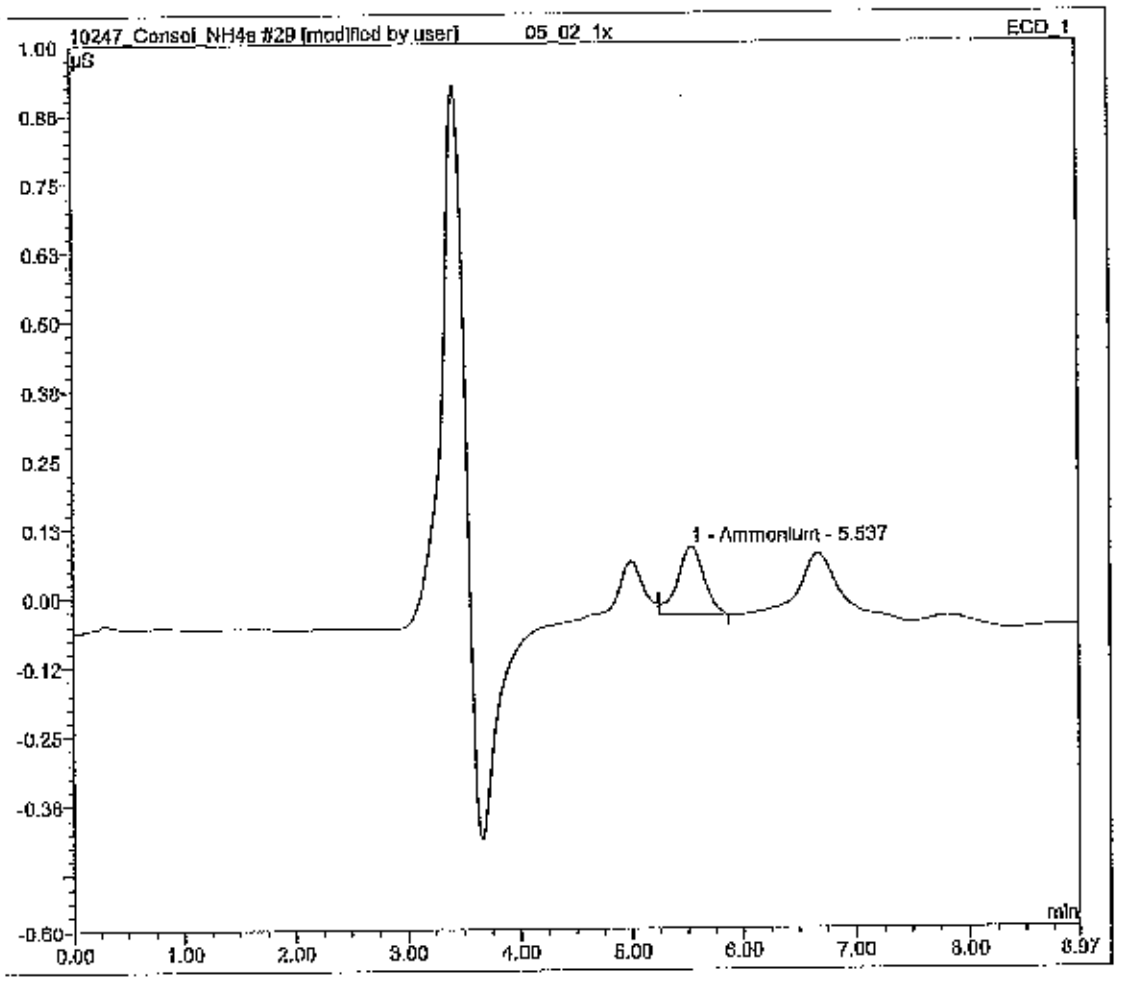
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS·min	Height ECD_1 µS	Amount ECD_1
1	5.54	Ammonium	MB*	0.034	0.127	n.e.
TOTAL:				0.03	0.13	0.00



Integration Report - ECD_1

Sample Name:	05202_1x	Inj. Vol:	5.0
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	18.06.07 14:26	Run Time:	8.97

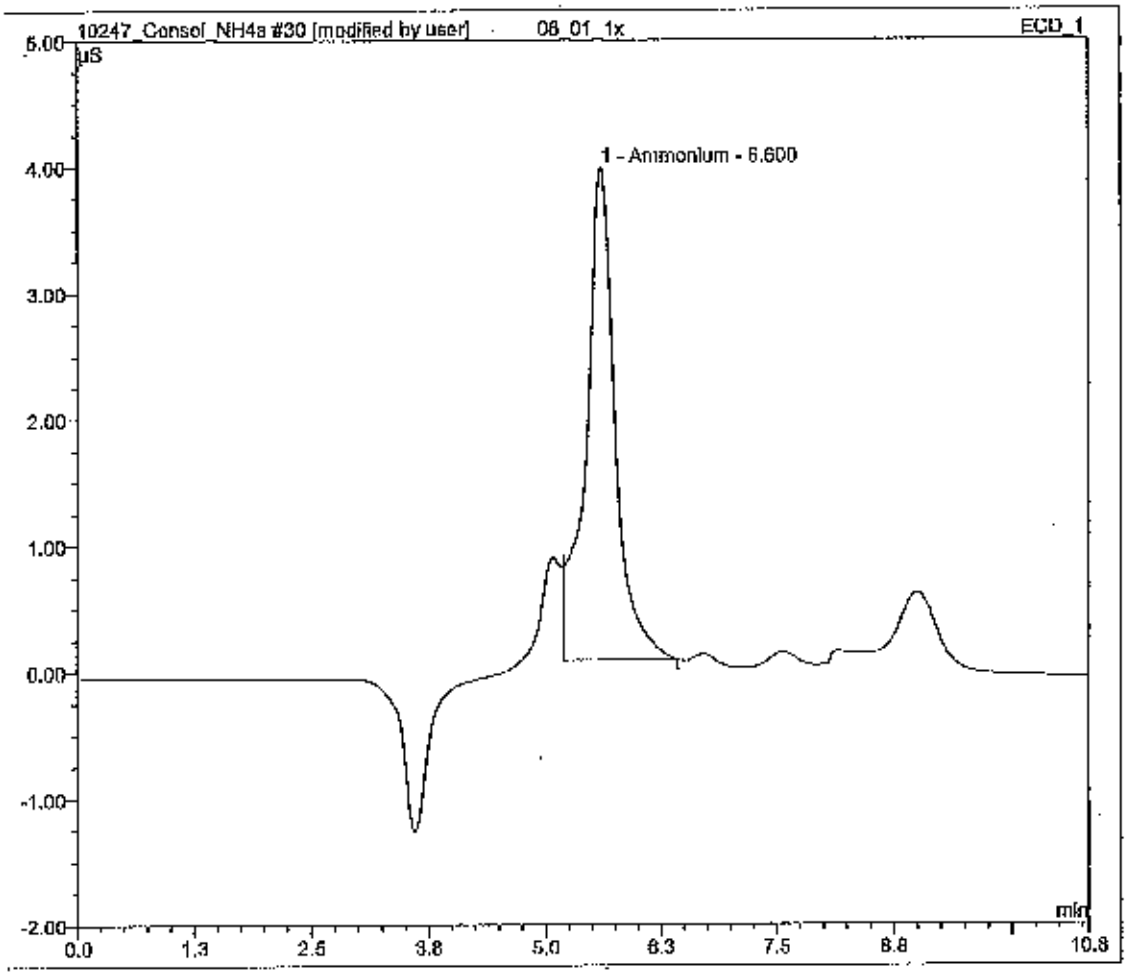
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.54	Ammonium	MB*	0.034	0.124	n.a.
		TOTAL:		0.03	0.12	0.00



Integration Report - ECD_1

Sample Name:	08_01_1x	Inj Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj Date/Time:	18.06.07 14:36	Run Time:	10.82

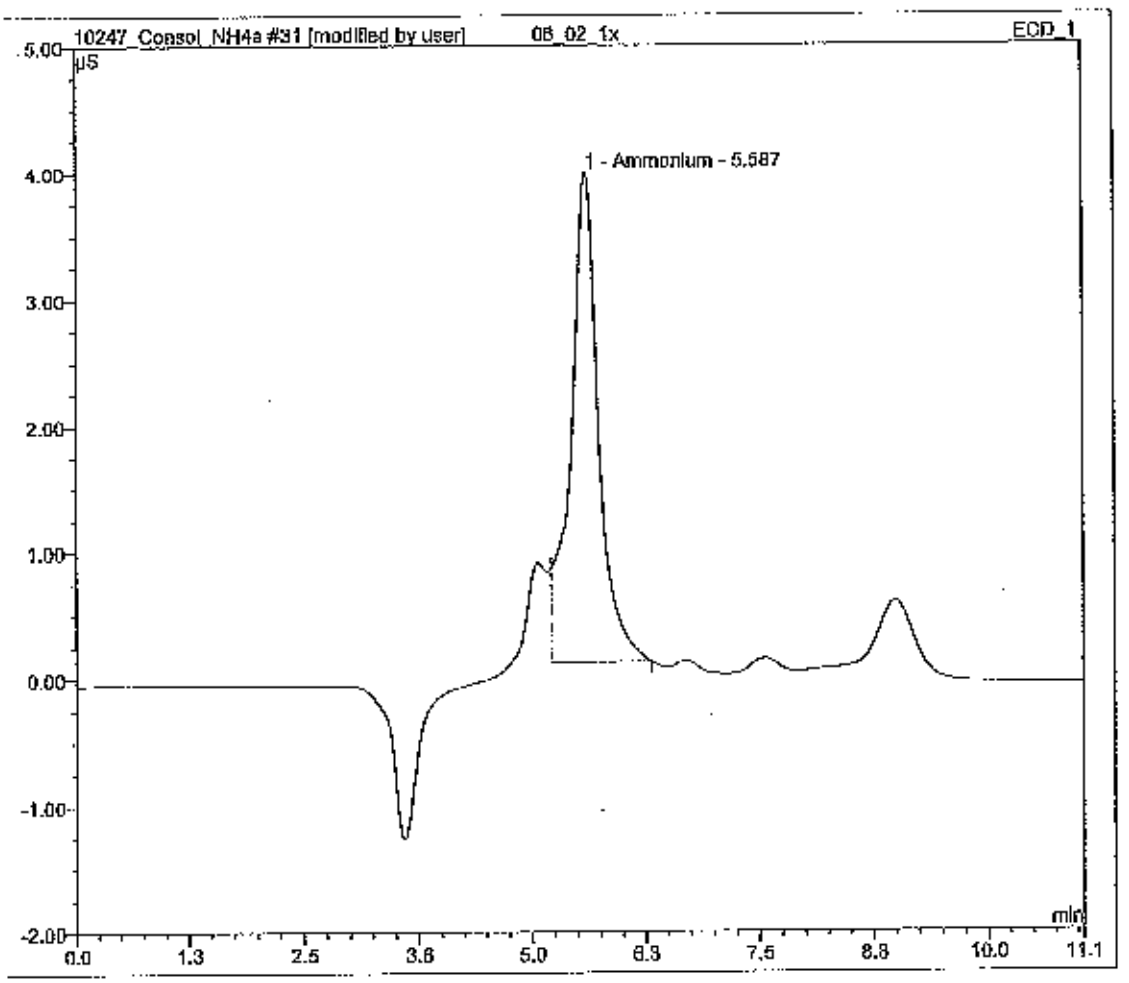
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.60	Ammonium	MB*	1.418	3.901	n.a.
		TOTAL:		1.42	3.90	0.00



Integration Report - ECD_1

Sample Name:	08_02_1x	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	18.06.07 14:48	Run Time:	11.08

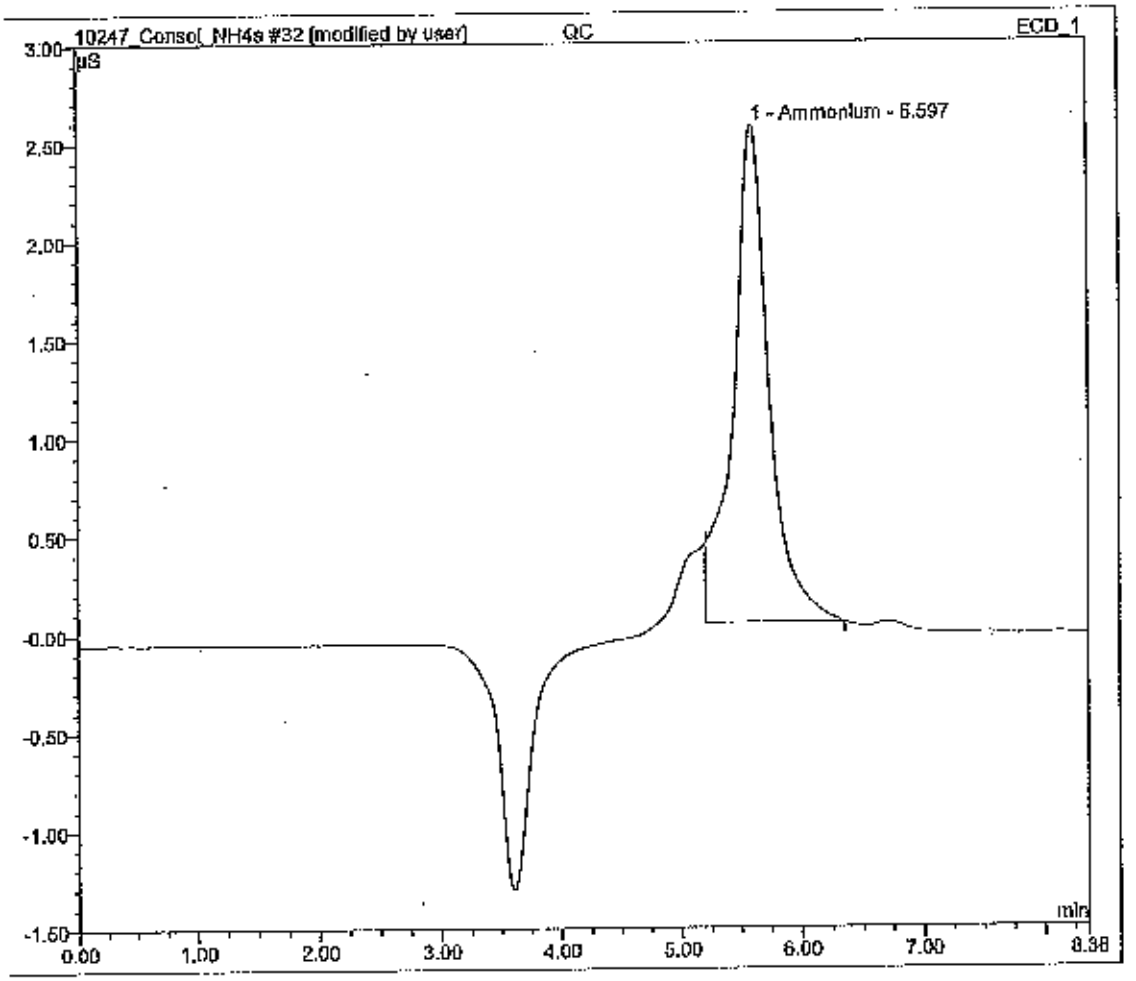
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.59	Ammonium	MB*	1.360	3.869	n.a.
TOTAL:				1.36	3.87	0.00



Integration Report - ECD_1

Sample Name:	QC	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J.Nunoz
Inj. Date/Time:	18/06/07 15:00	Run Time:	8.36

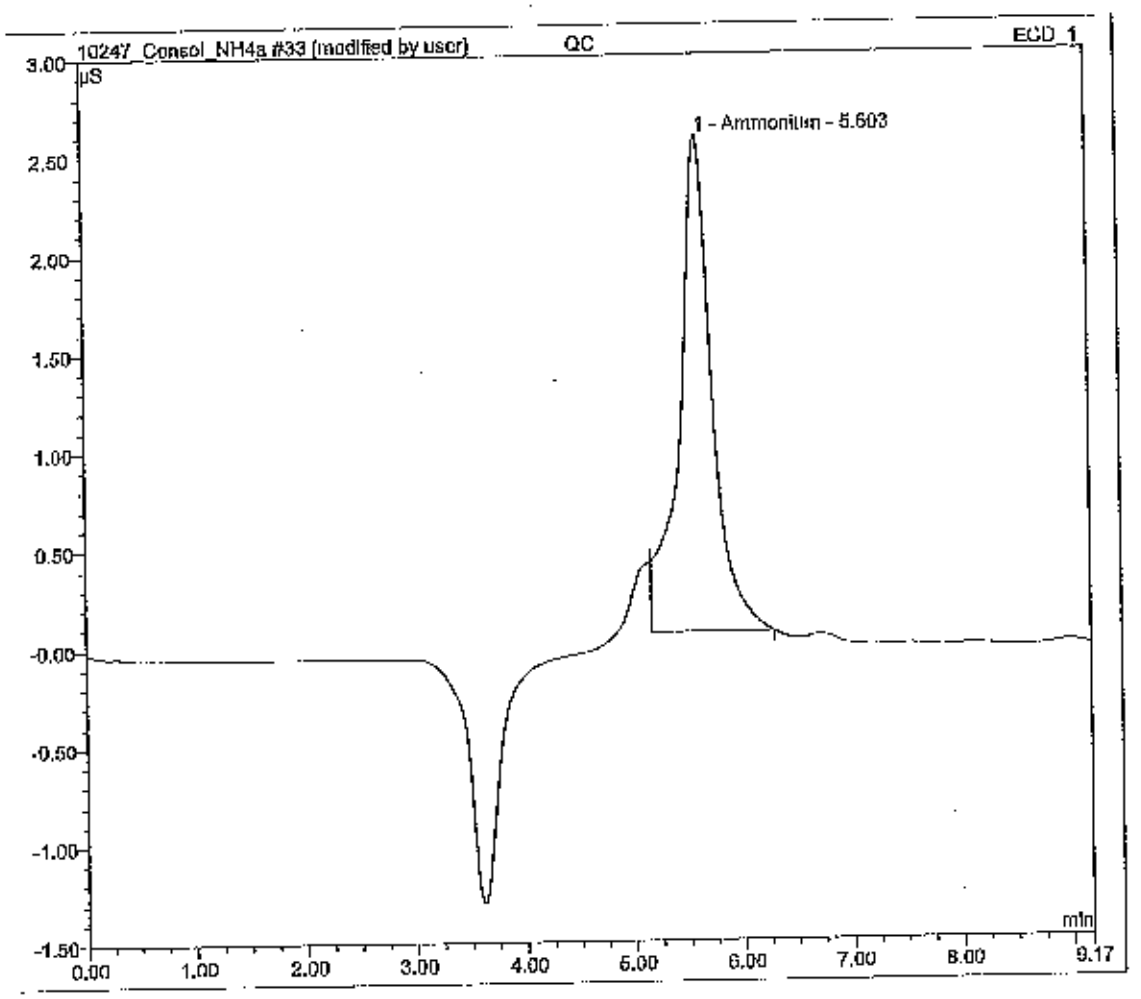
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.60	Ammonium	MB*	0.876	2.531	n.a.
TOTAL:				0.88	2.53	0.00



Integration Report - ECD_1

Sample Name:	QC	Inj Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Munoz
Inj Date/Time:	15:06:07 - 15:09:?	Run Time:	9.17

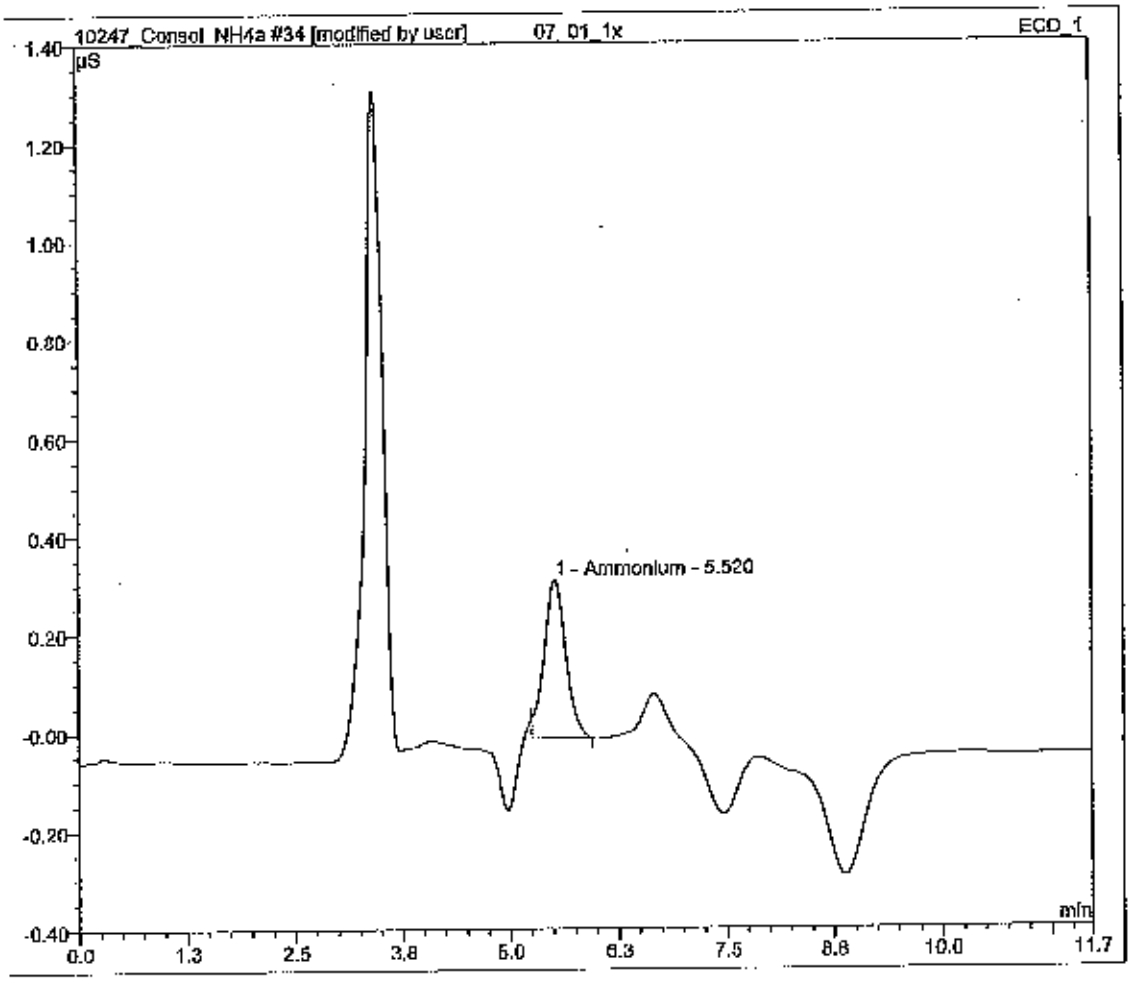
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.60	Ammonium	MB*	0.875	2.521	n.a.
TOTAL:				0.88	2.52	0.00



Integration Report - ECD_1

Sample Name:	07_01_1x	Inj. Vol:	10
Sample Type:	unknown	Dilution Factor:	10000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	18-08-07 15:49	Run Time:	11.71

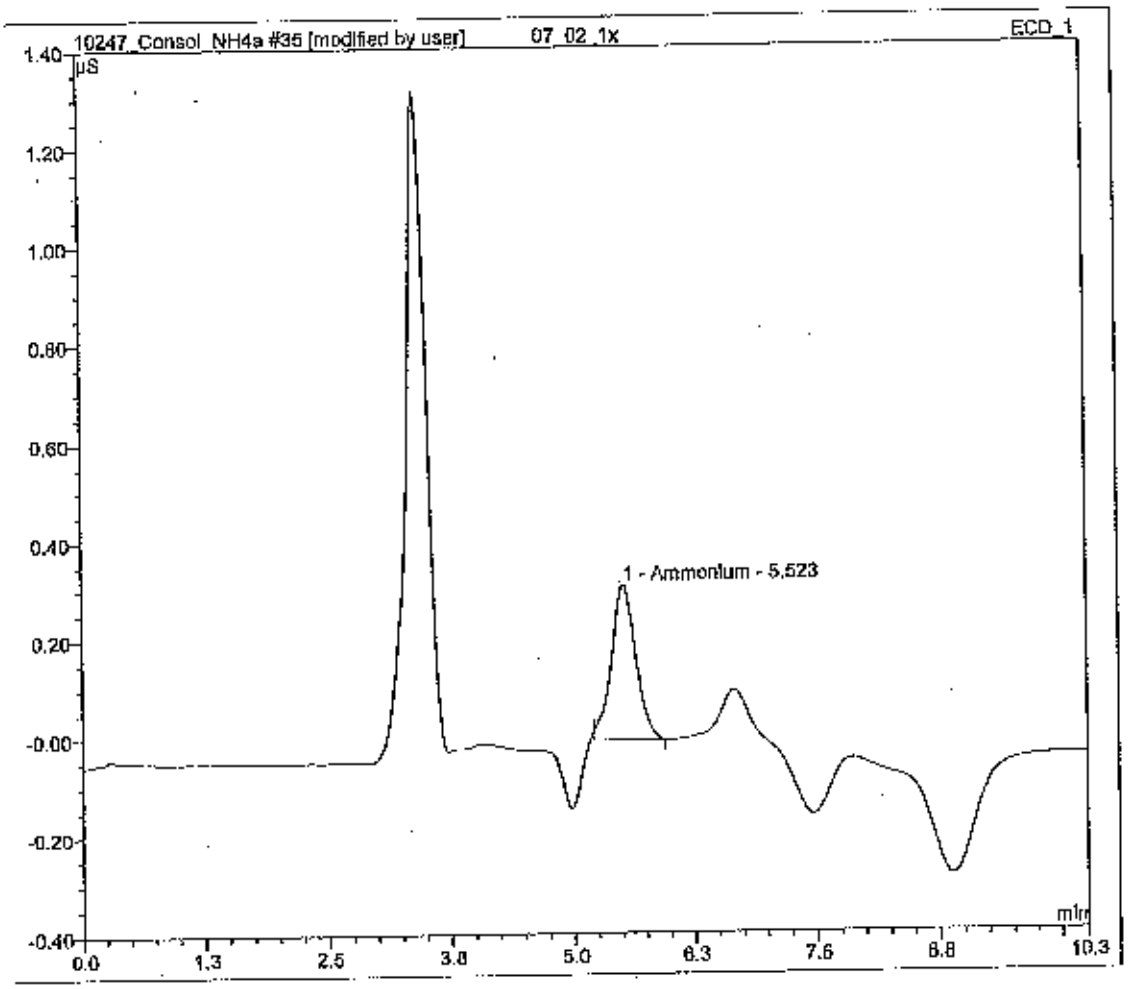
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.52	Ammonium	MB*	0.093	0.323	n.e.
TOTAL:				0.09	0.32	0.00



Integration Report - ECD_1

Sample Name:	07_02_1x	Inj. Vol.:	10.
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	18/06/07 15:32	Run Time:	10.27

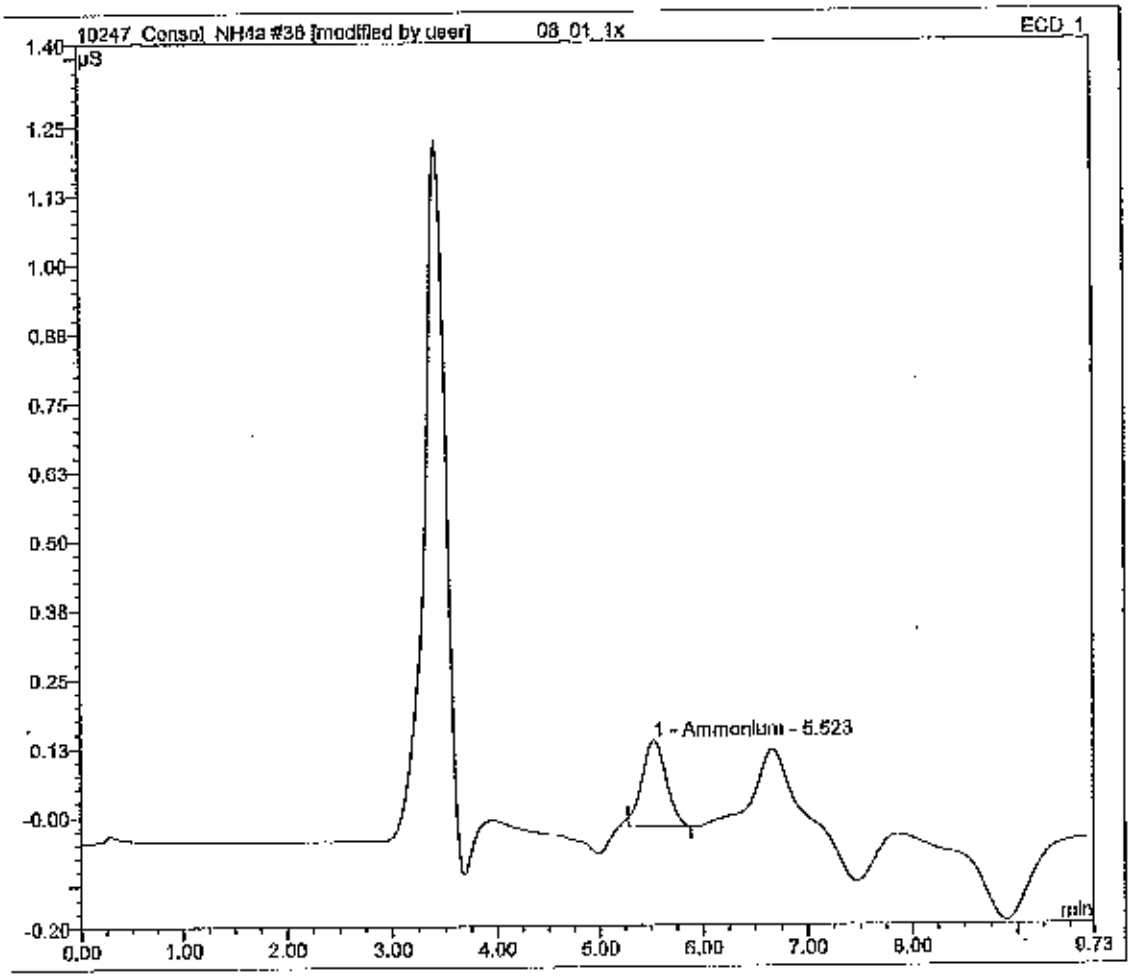
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.52	Ammonium	MB*	0.092	0.315	n.a.
TOTAL:				0.09	0.32	0.00



Integration Report - ECD_1

Sample Name:	08_01_1x	Inj Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj Date/Time:	18.06.07 15:45	Run Time:	9.73

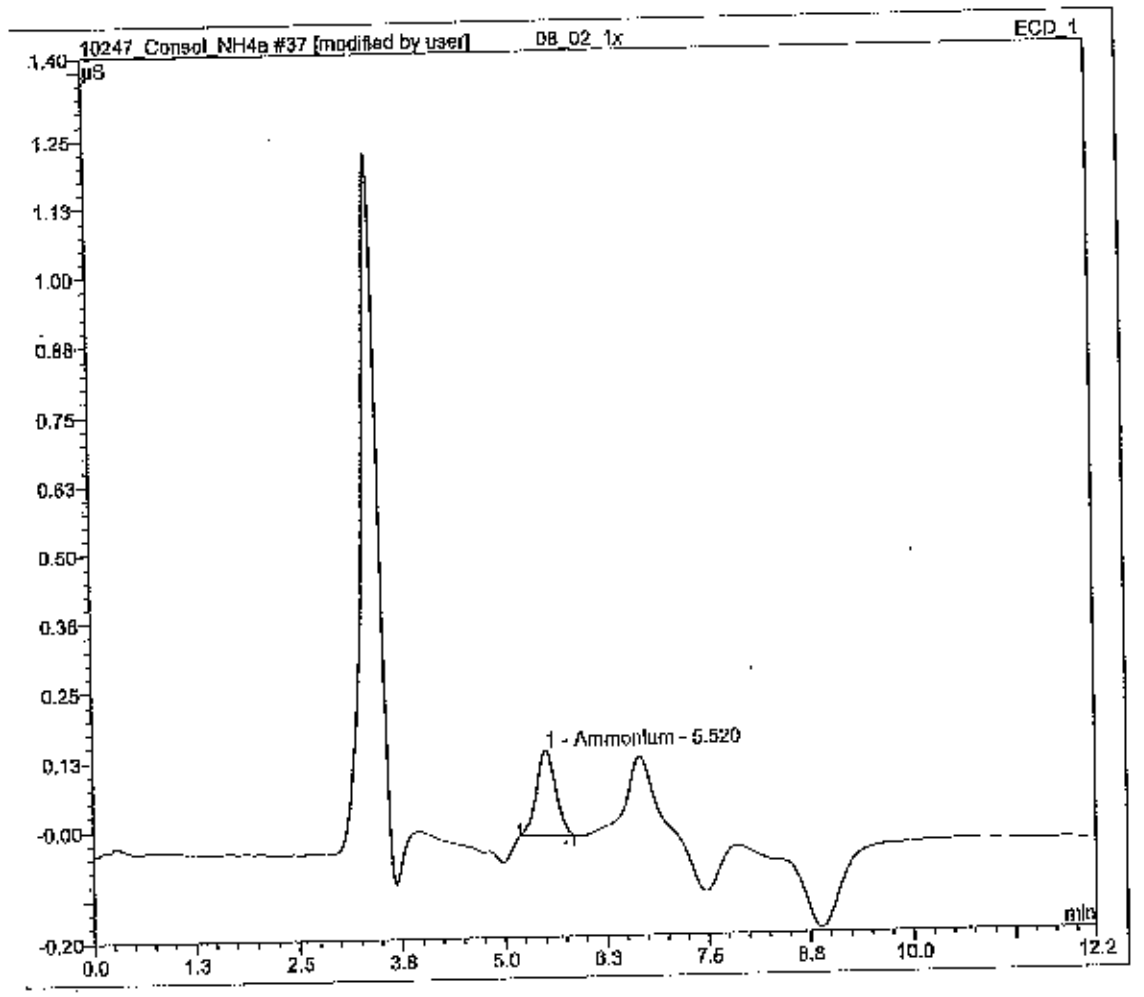
No ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.62	Ammonium	MB*	0.043	0.158	n.a.
		TOTAL:		0.04	0.16	0.00



Integration Report - ECD_1

Sample Name:	08_02_1x	Inj. Vol:	10
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	18.06.07 15:53	Run Time:	2.4

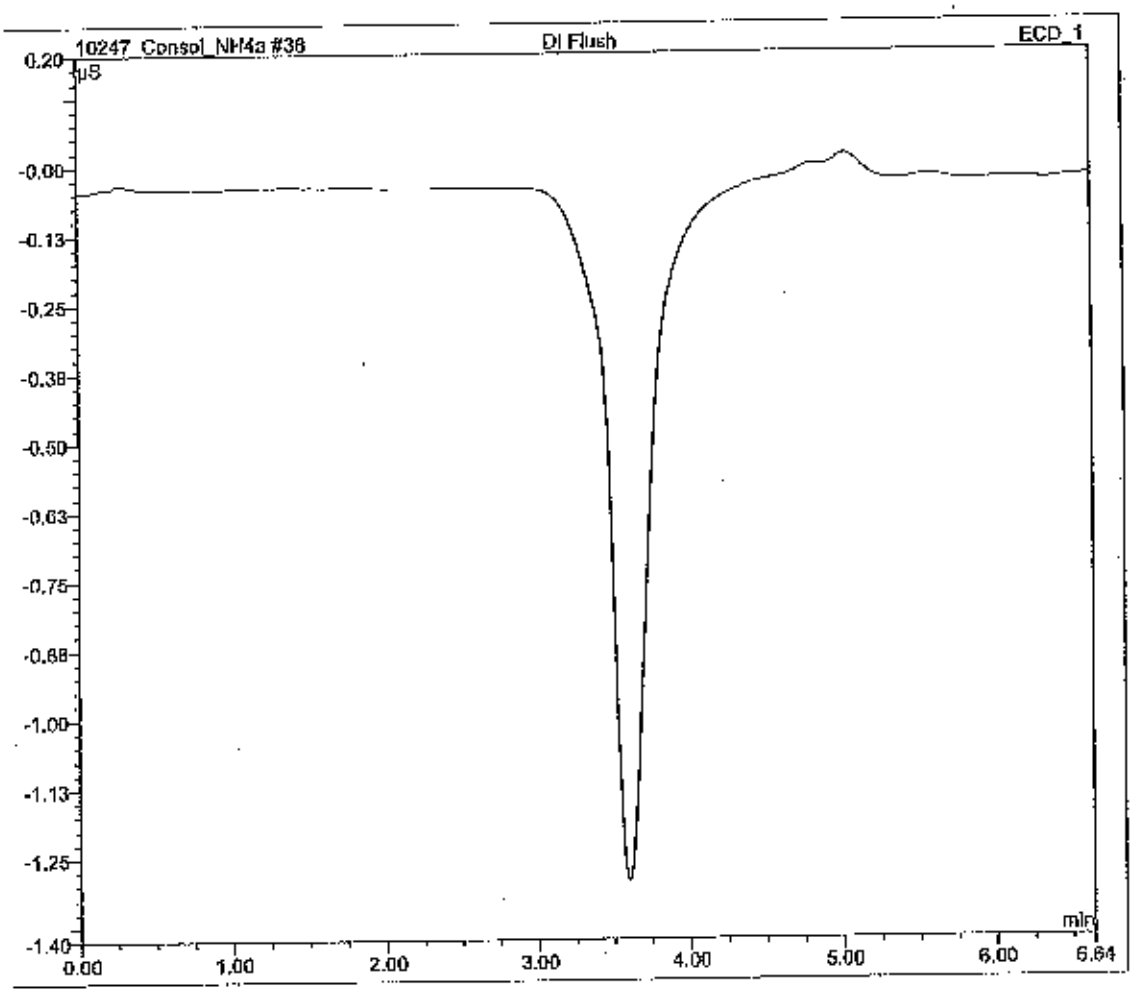
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.62	Ammonium	BMB*	0.041	0.153	n.a.
TOTAL:				0.04	0.15	0.00



Integration Report - ECD_1

Sample Name:	DI Flush	Inj. Vol:	10
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	6/8/07 16:07	Run Time:	6.64

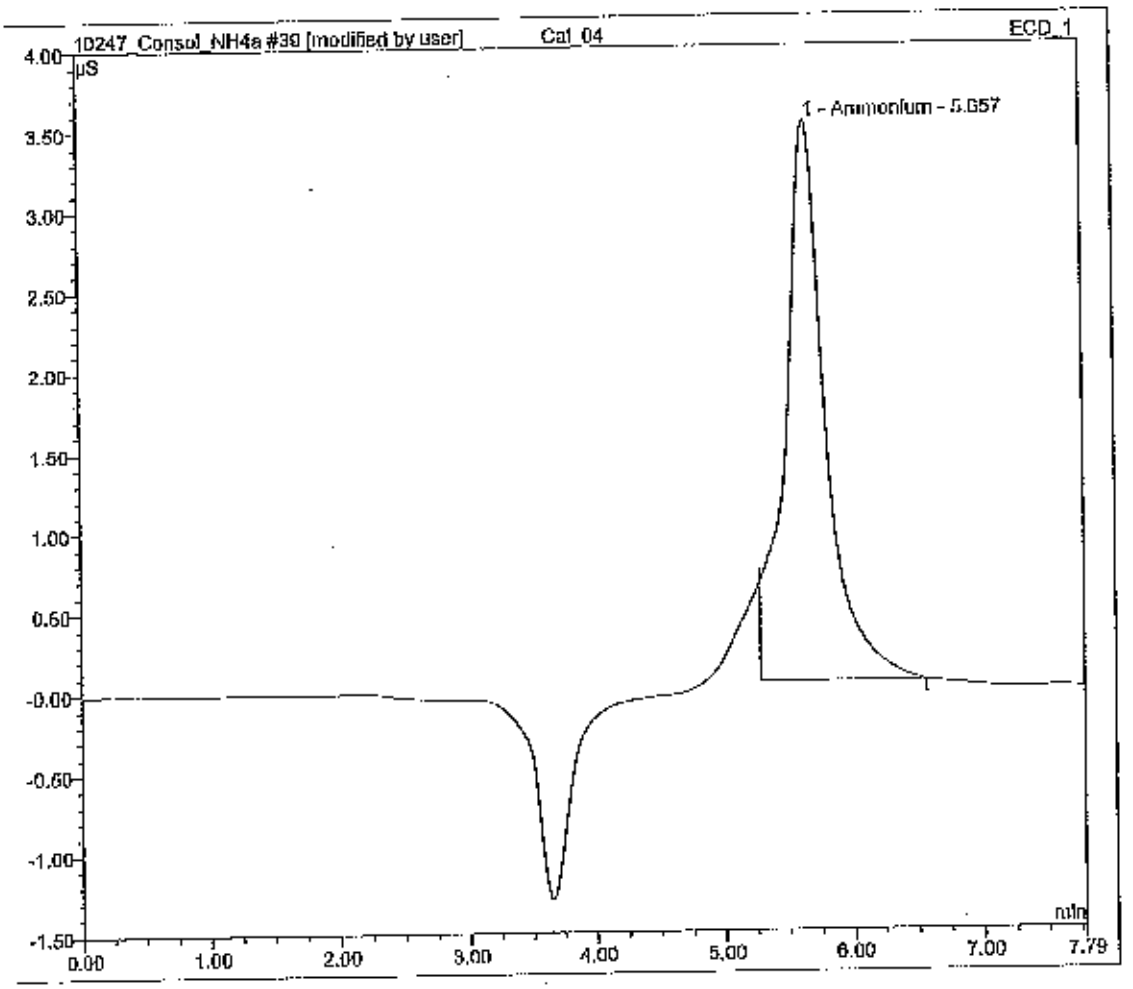
No.	Time ECD_1	Peak Name ECD_1	Type ECD_1	Area ECD_1	Height ECD_1	Amount ECD_1
	min			µS*min	µS	
		TOTAL:		0.00	0.00	0.00



Integration Report - ECD_1

Sample Name:	Cal_04	Inj. Vol:	10
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	18.06.07 16:13	Run Time:	7.79

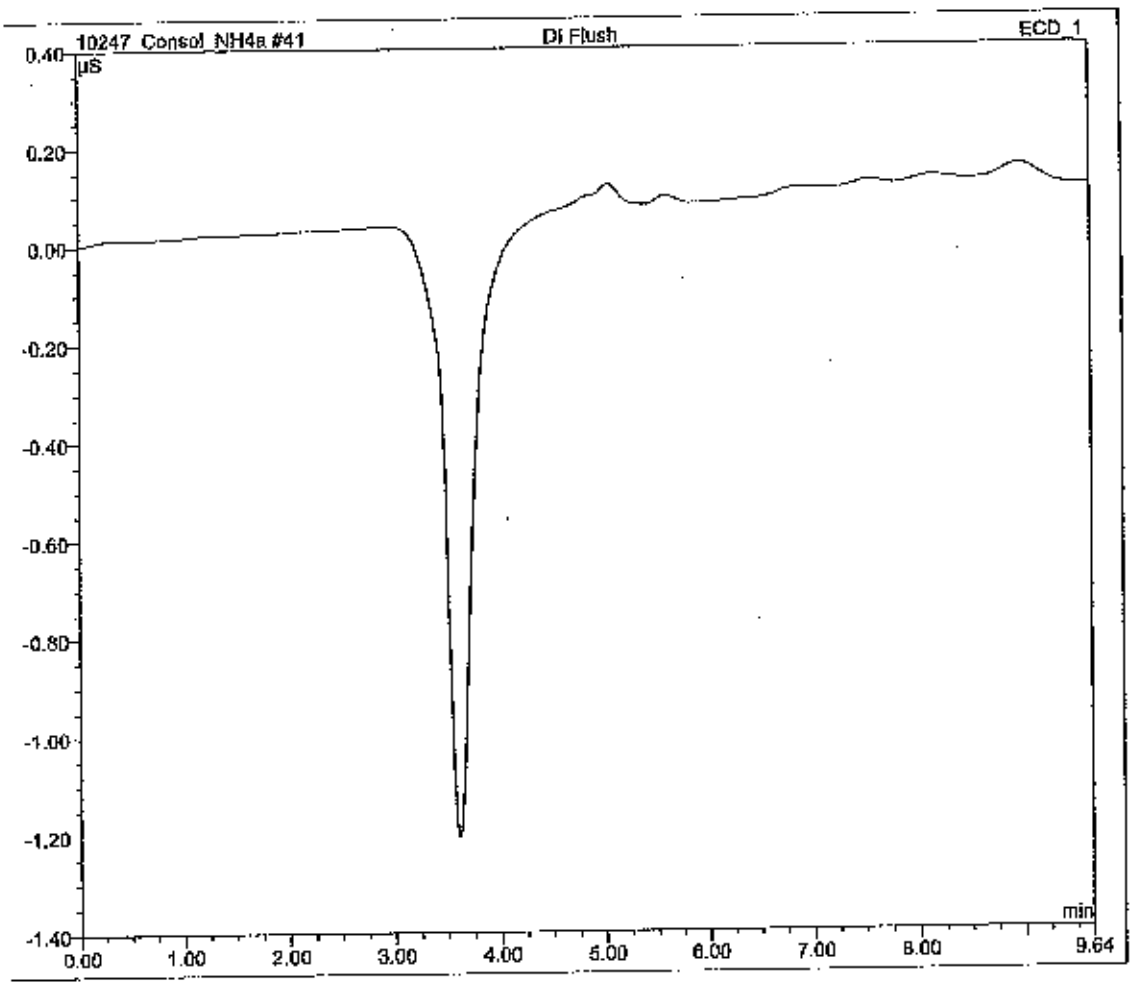
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.66	Ammonium	MB*	1.254	3.484	n.a.
TOTAL:				1.25	3.48	0.00



Integration Report - ECD_1

Sample Name:	DI Flush	Inj. Vol:	1.0
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	19:06:07 08:27	Run Time:	9.64

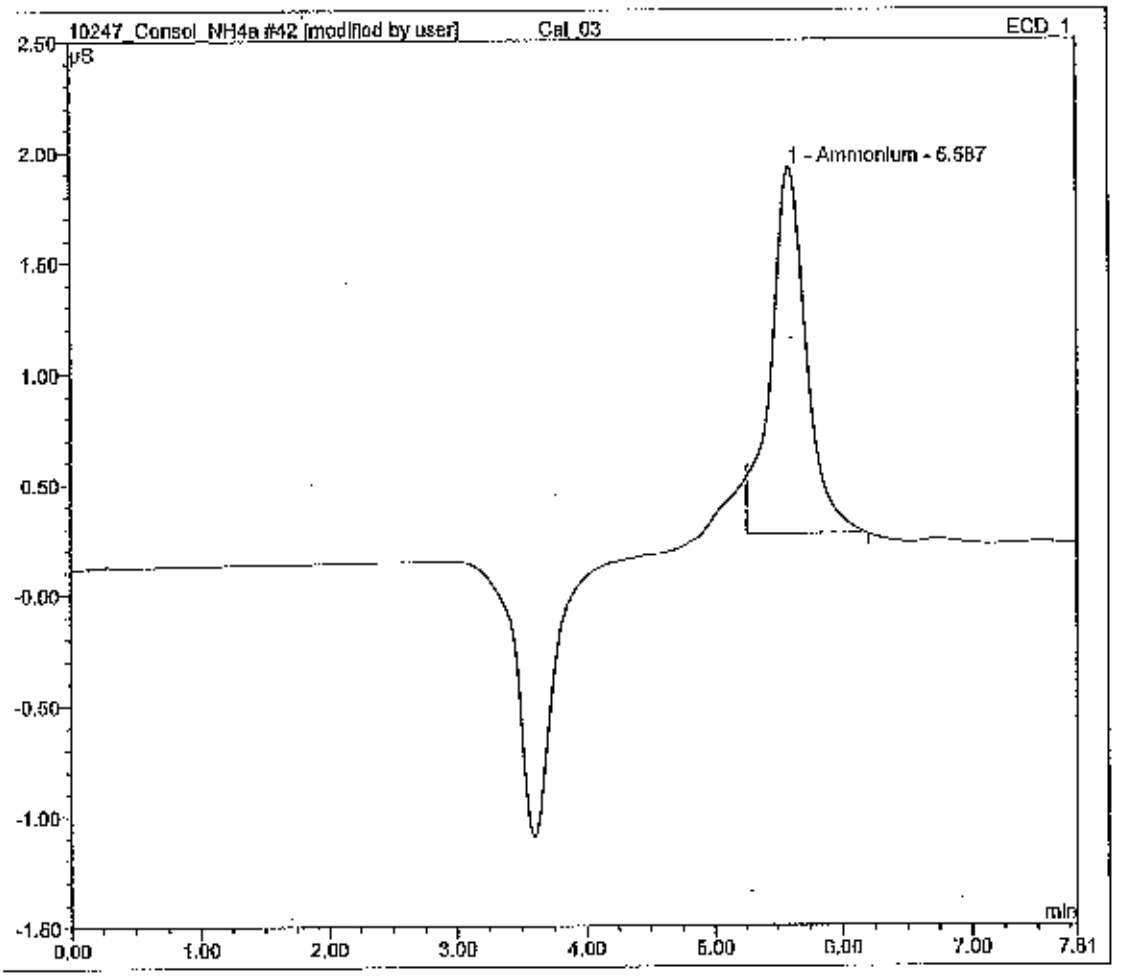
No. ECD_1	Time ECD_1 (min)	Peak Name ECD_1	Type ECD_1	Area ECD_1 (µS*min)	Height ECD_1 (µS)	Amount ECD_1
		TOTAL:		0.00	0.00	0.00



Integration Report - ECD_1

Sample Name:	Cal -03	Inj. Vol:	0
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	19/06/07 08:38	Run Time:	7.81

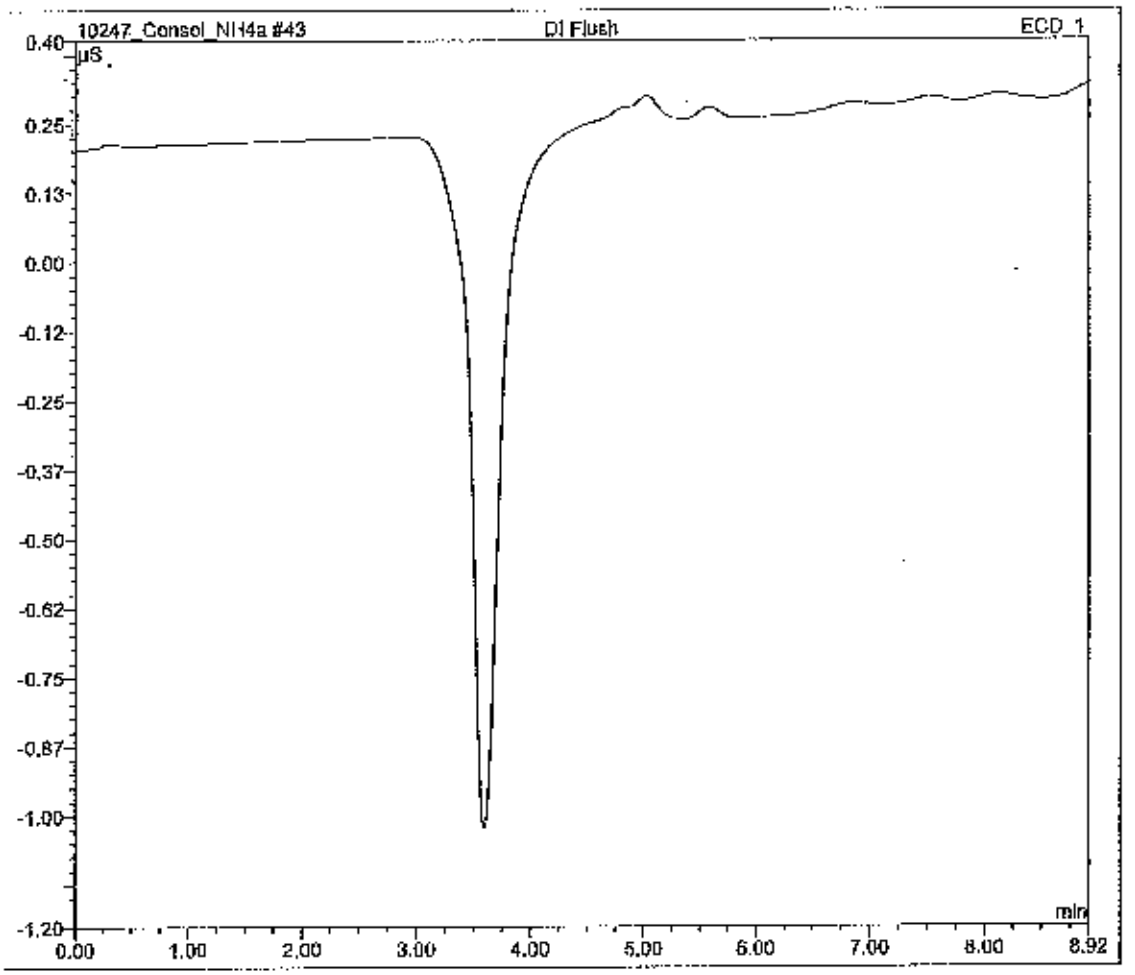
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.59	Ammonium	MB*	0.523	1.659	n.a.
		TOTAL:		0.52	1.66	0.00



Integration Report - ECD_1

Sample Name:	DI Flush	Inj. Vol.:	1.0
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	19:06:07 08/48	Run Time:	8.92

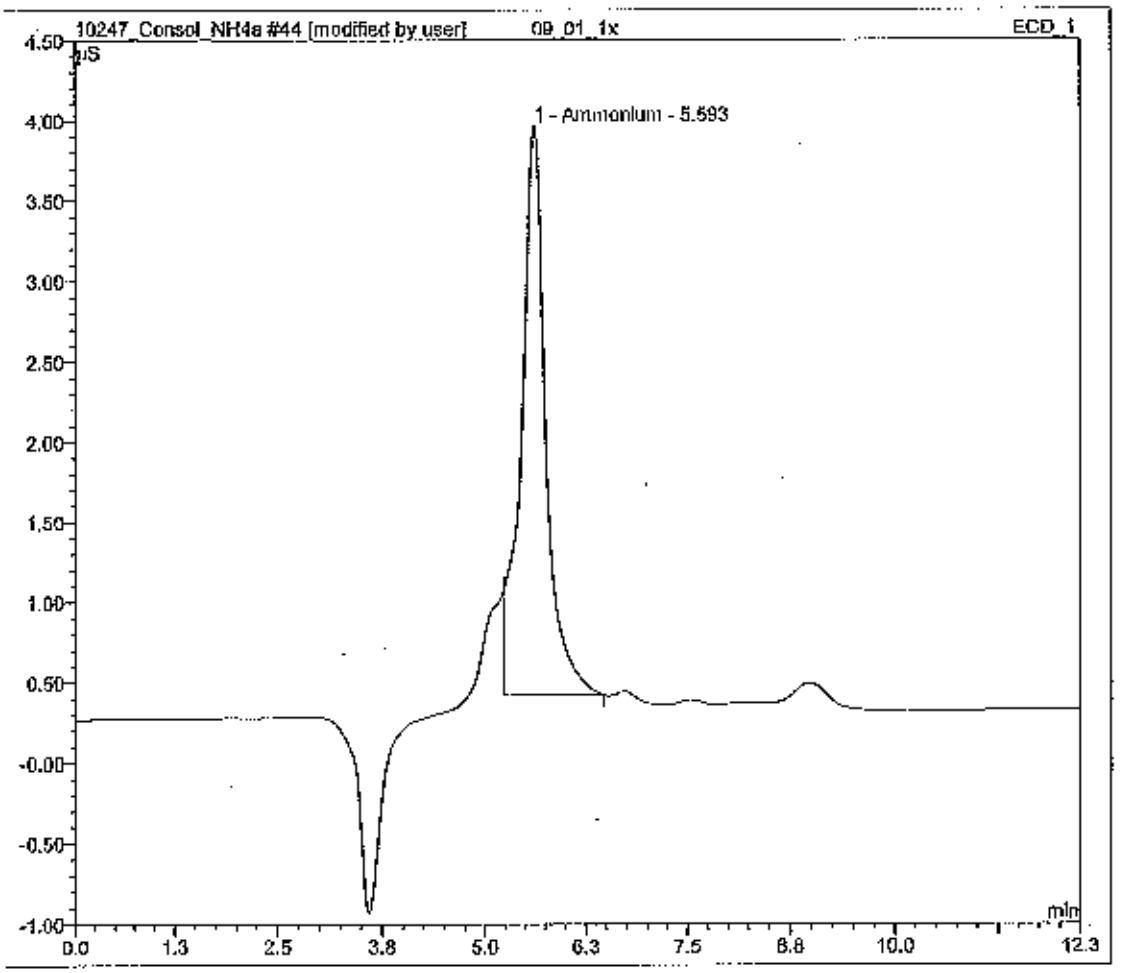
No.	Time	Peak Name	Type	Area	Height	Amount
ECD_1	ECD_1 min	ECD_1	ECD_1	ECD_1 µS*min	ECD_1 µS	ECD_1
		TOTAL:		0.00	0.00	0.00



Integration Report - ECD_1

Sample Name:	09_01_1x	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	19.06.07 08:58	Run Time:	12.25

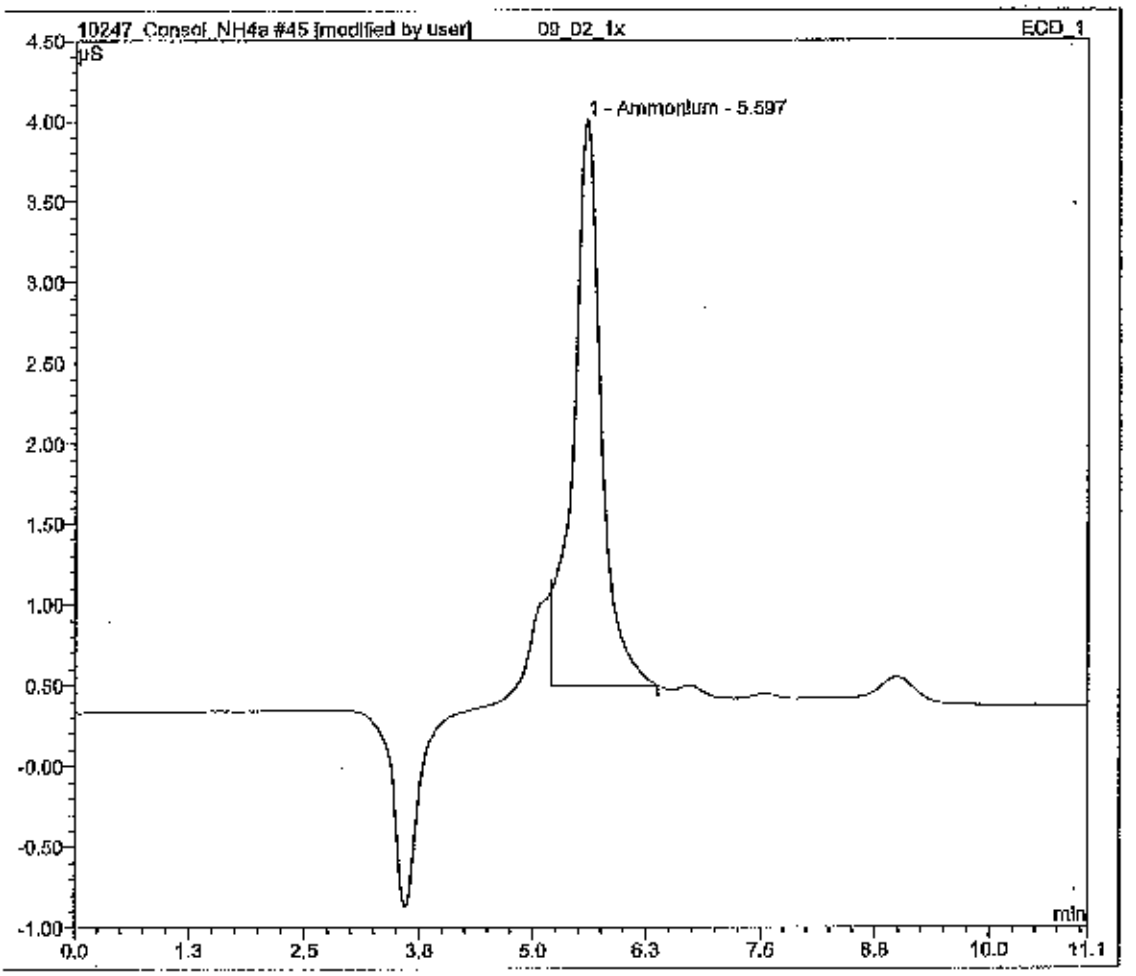
No.: ECD_1	Time: ECD_1 min	Peak Name: ECD_1	Type: ECD_1	Area: ECD_1 µS*min	Height: ECD_1 µS	Amount: ECD_1
1	6.59	Ammonium	MB*	1.254	3.546	n.a.
TOTAL:				1.25	3.55	0.00



Integration Report - ECD_1

Sample Name:	09_02_1x	Inj. Vol:	0.100
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	10.06.07 09:11	Run Time:	11.07

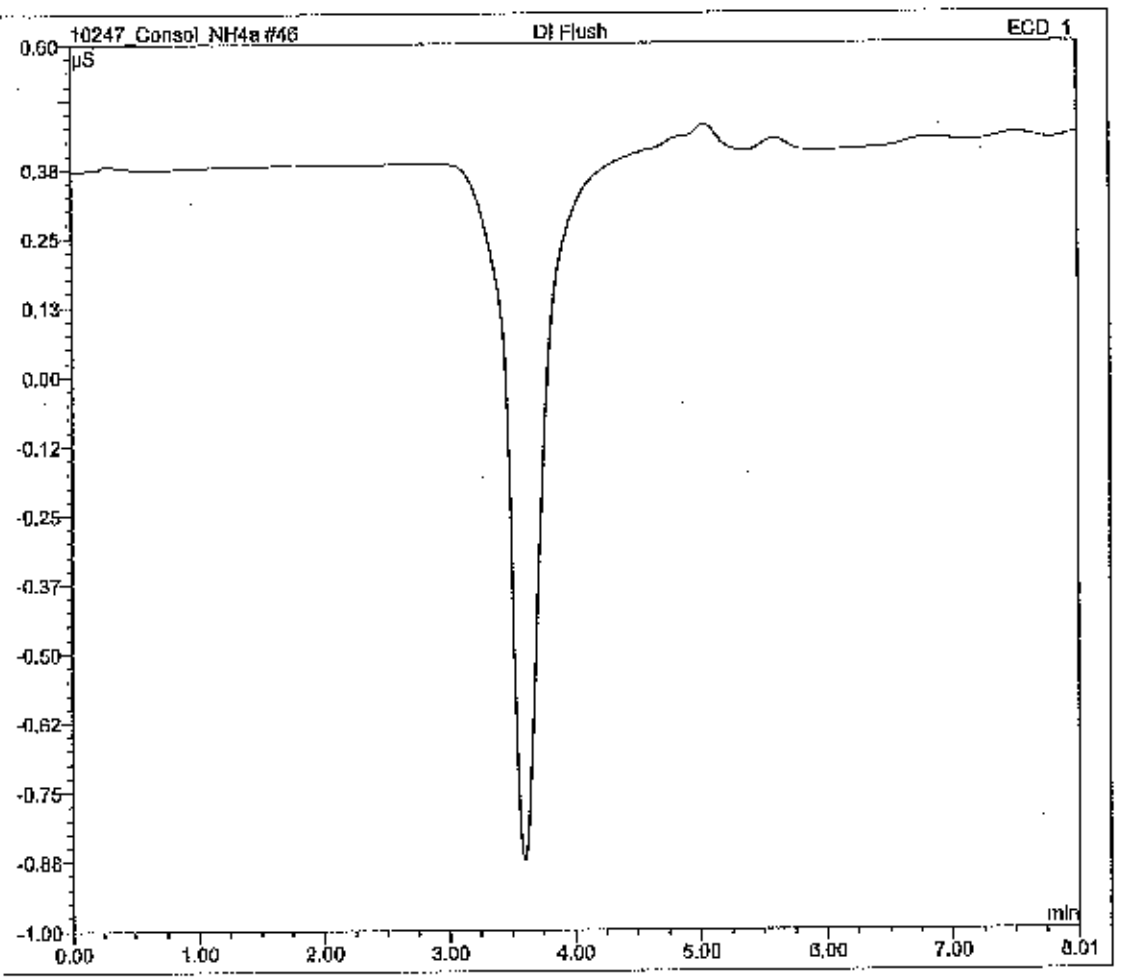
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.60	Ammonium	MB*	1.262	3.515	n.a.
		TOTAL:		1.25	3.51	0.00



Integration Report - ECD_1

Sample Name:	DI Flush	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	19:06:07 09:22	Run Time:	8.01

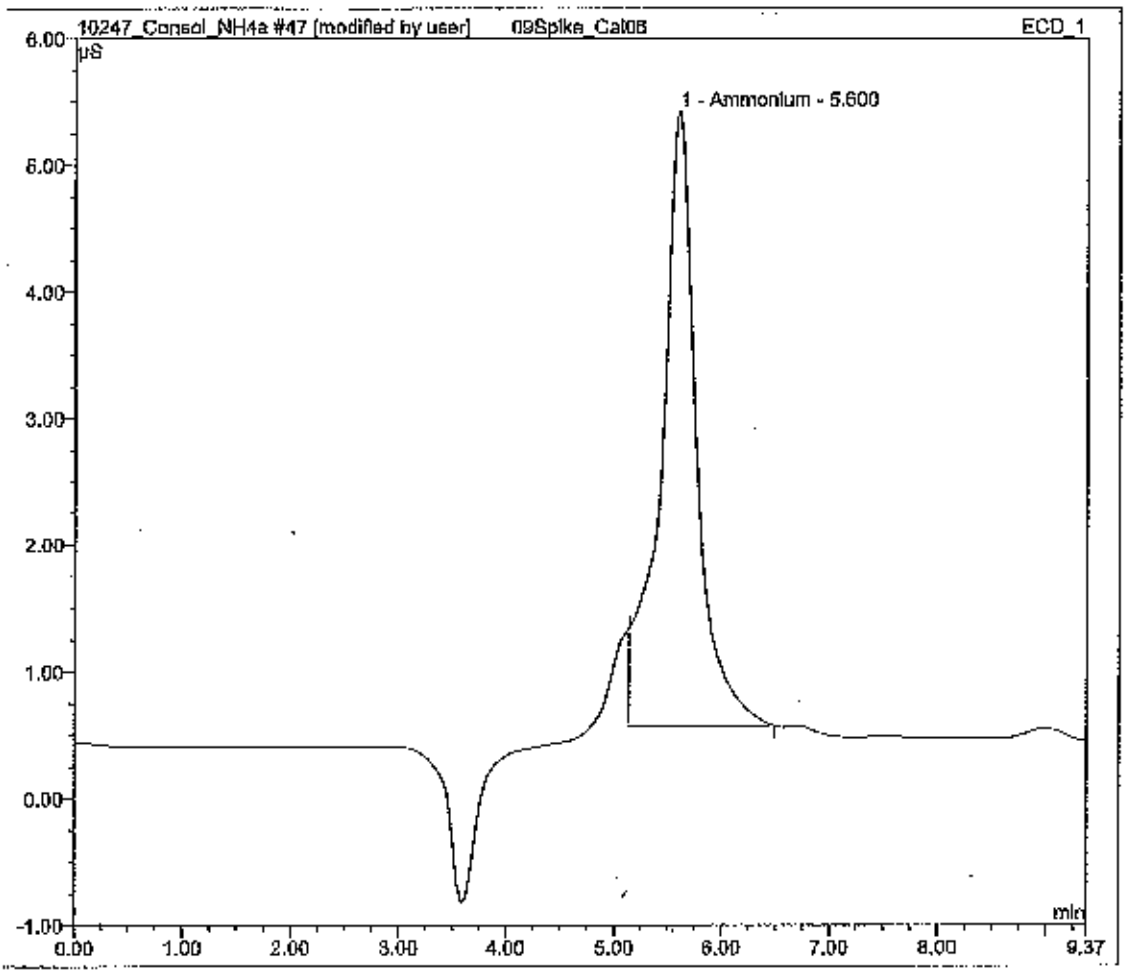
No.	Time	Peak Name	Type	Area	Height	Amount
ECD_1	ECD_1 min	ECD_1	ECD_1	ECD_1 µS*min	ECD_1 µS	ECD_1
	TOTAL:			0.00	0.00	0.00



Integration Report - ECD_1

Sample Name:	09Spike_Cal06	Inj. Vol:	10
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J.Nuñez
Inj. Date/Time:	16.06.07 09:31	Run Time:	9.37

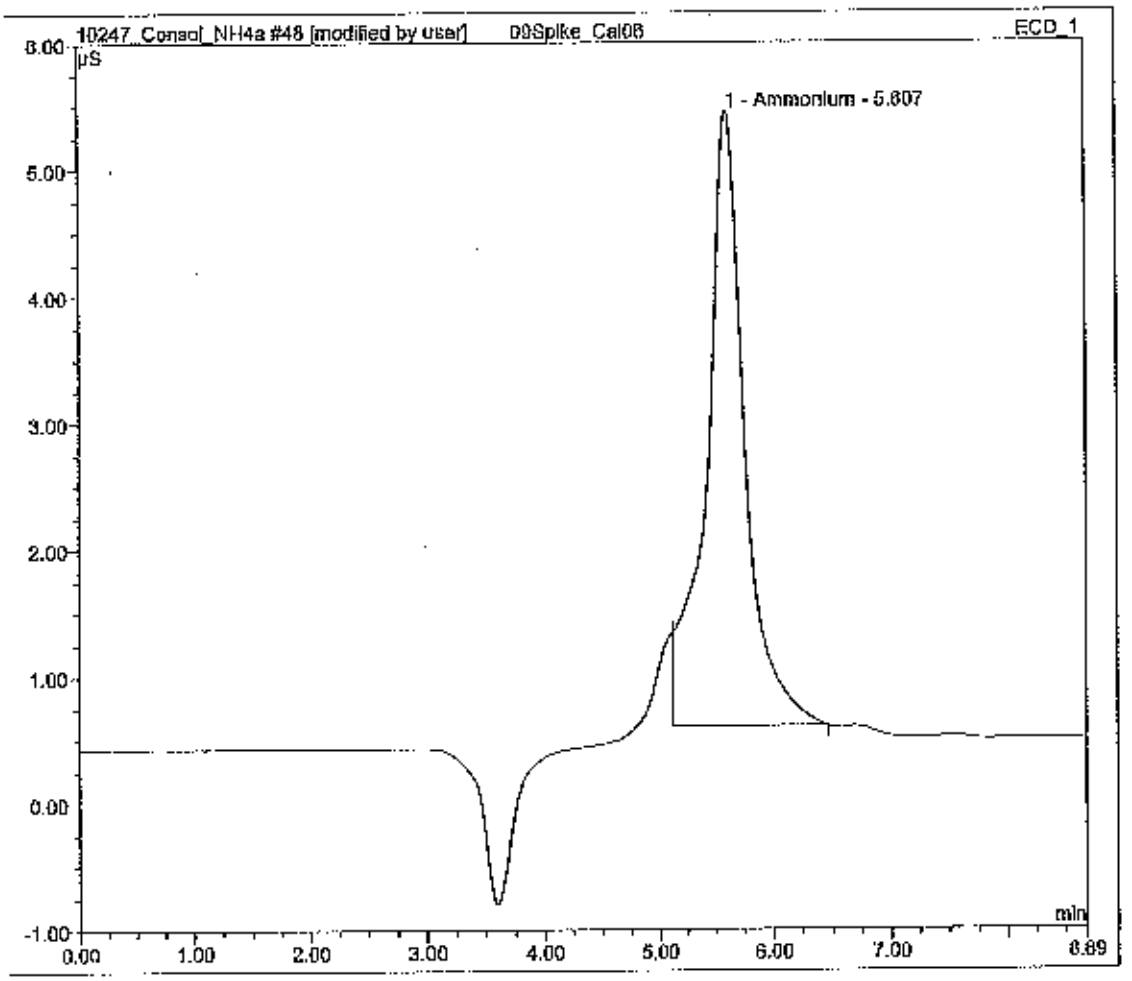
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.60	Ammonium	MB*	1.868	4.857	n.a.
TOTAL:				1.87	4.86	0.00



Integration Report - ECD_1

Sample Name:	09Spike_Cal06	Inj Vol:	1.0
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	19/06/07 09:42	Run Time:	8.69

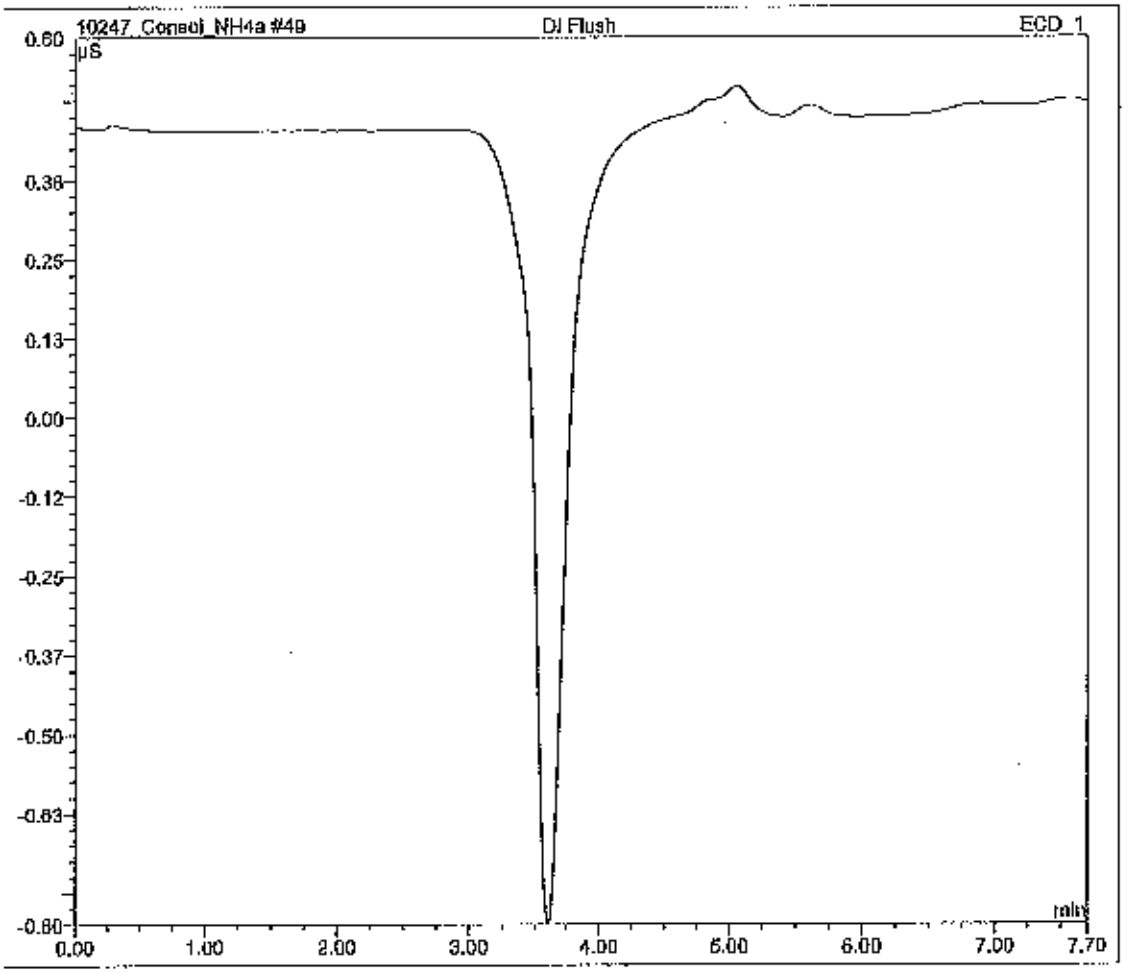
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.61	Ammonium	MB*	1.876	4.847	n.a.
TOTAL:				1.88	4.85	0.00



Integration Report - ECD_1

Sample Name:	DI Flush	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	6/19/2007 09:51	Run Time:	7.70

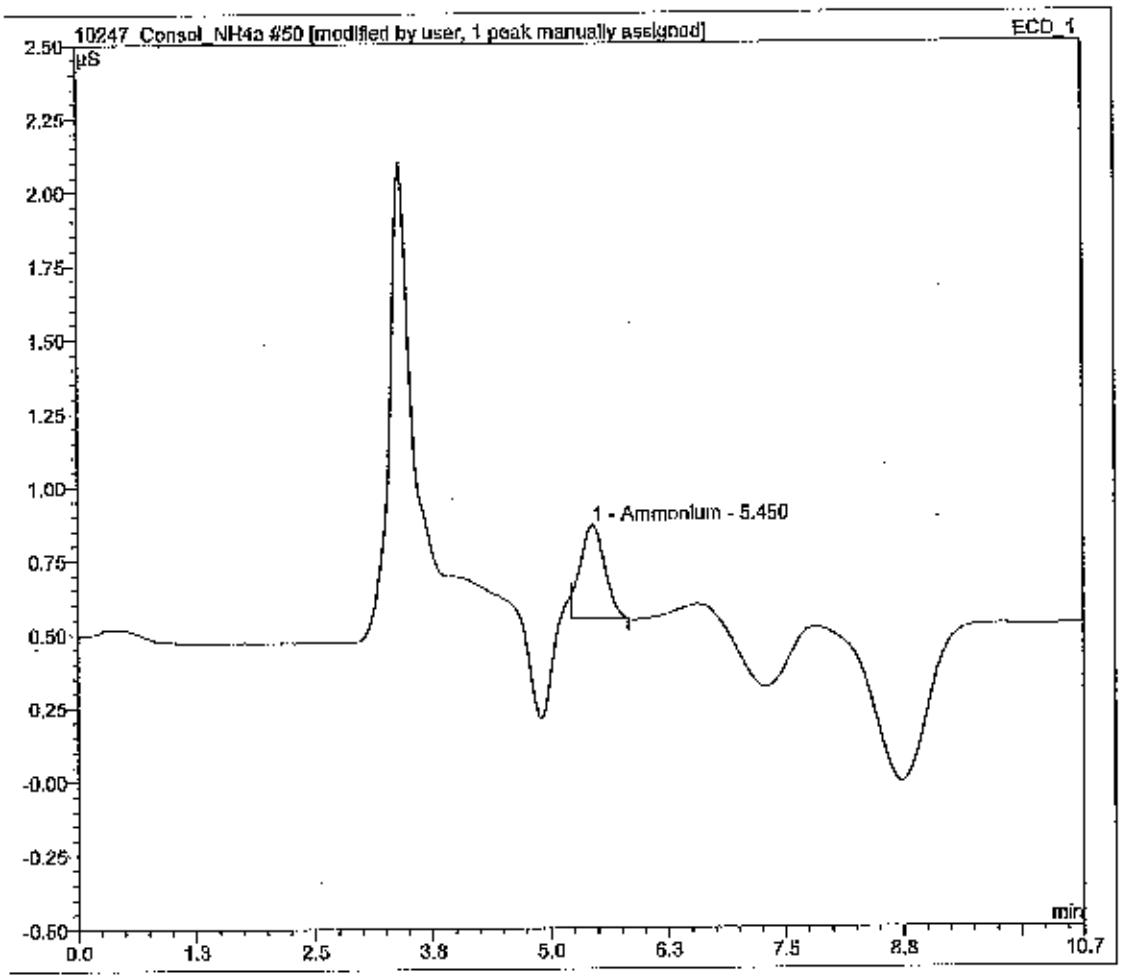
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
		TOTAL:		0.00	0.00	0.00



Integration Report - ECD_1

Sample Name:	10-01-1x	Inj Vol:	10
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J.Nunez
Inj. Date/Time:	19:06:07 - 10:00	Run Time:	10.66

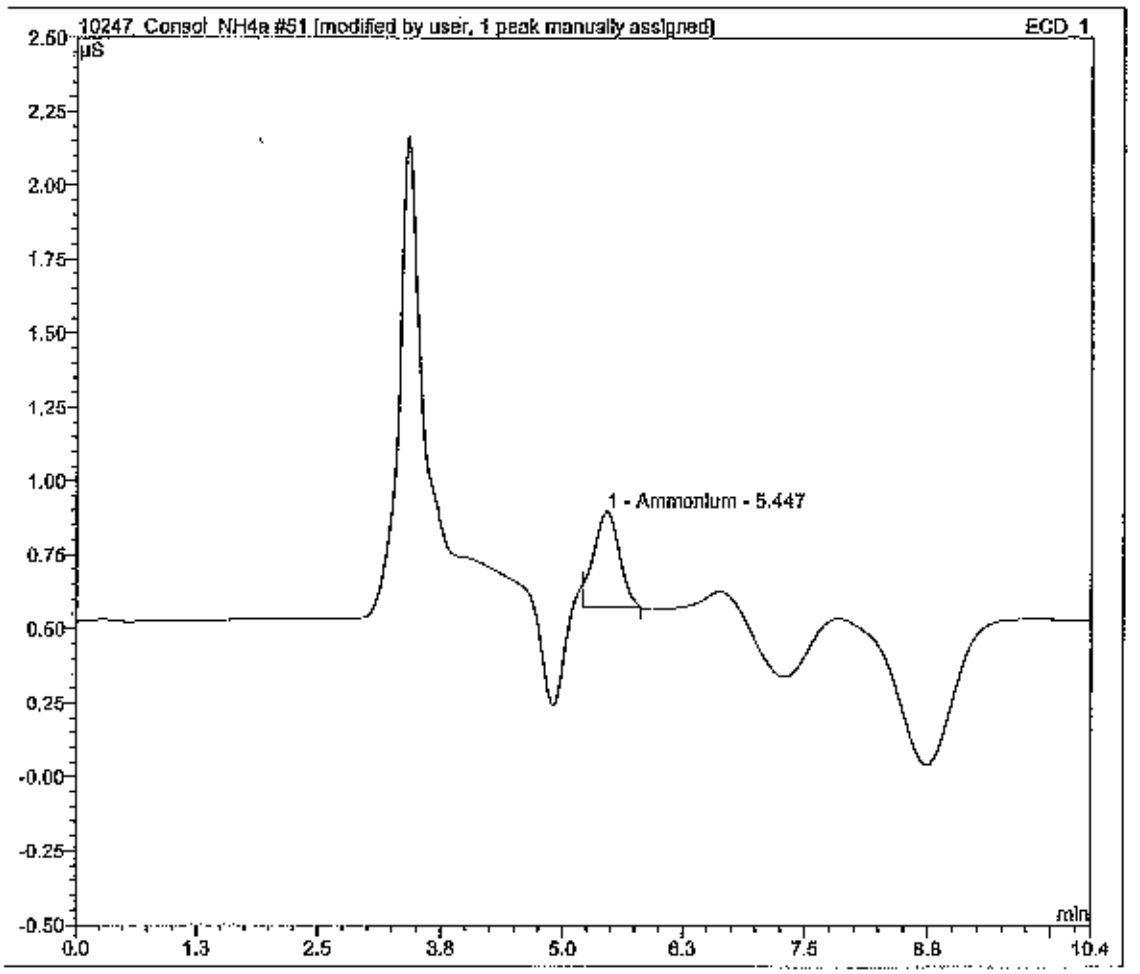
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.45	Ammonium	MB*^	0.095	0.319	n.a.
TOTAL:				0.10	0.32	0.00



Integration Report - ECD_1

Sample Name:	10_02_1x	Inj Vol:	1.0
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj Date/Time:	19:06:07 10:11	Run Time:	10.41

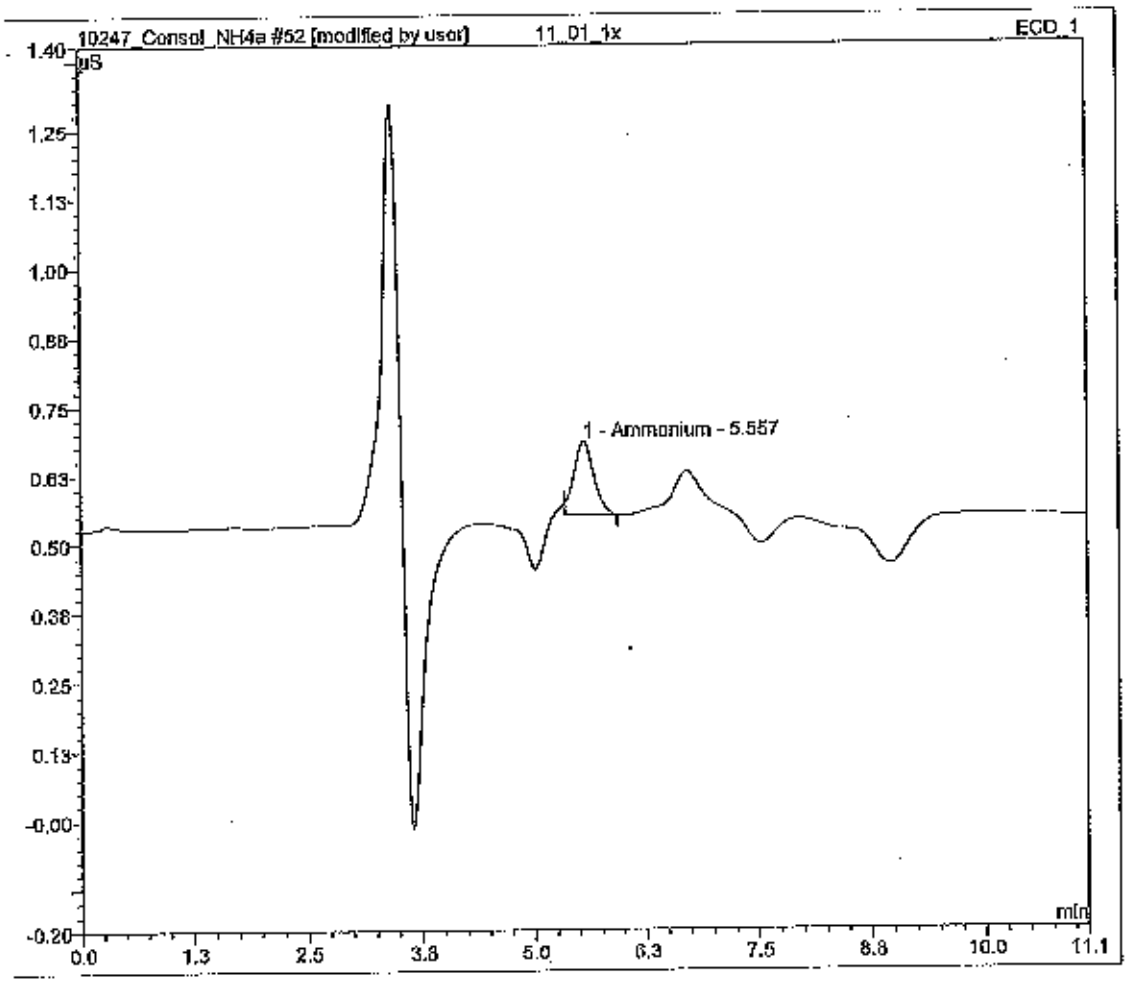
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.45	Ammonium	MB**	0.100	0.323	n.a.
		TOTAL:		0.10	0.32	0.00



Integration Report - ECD_1

Sample Name:	11_01_1x	Inj. Vol.:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	19.06.07 10:23	Run Time:	11.13

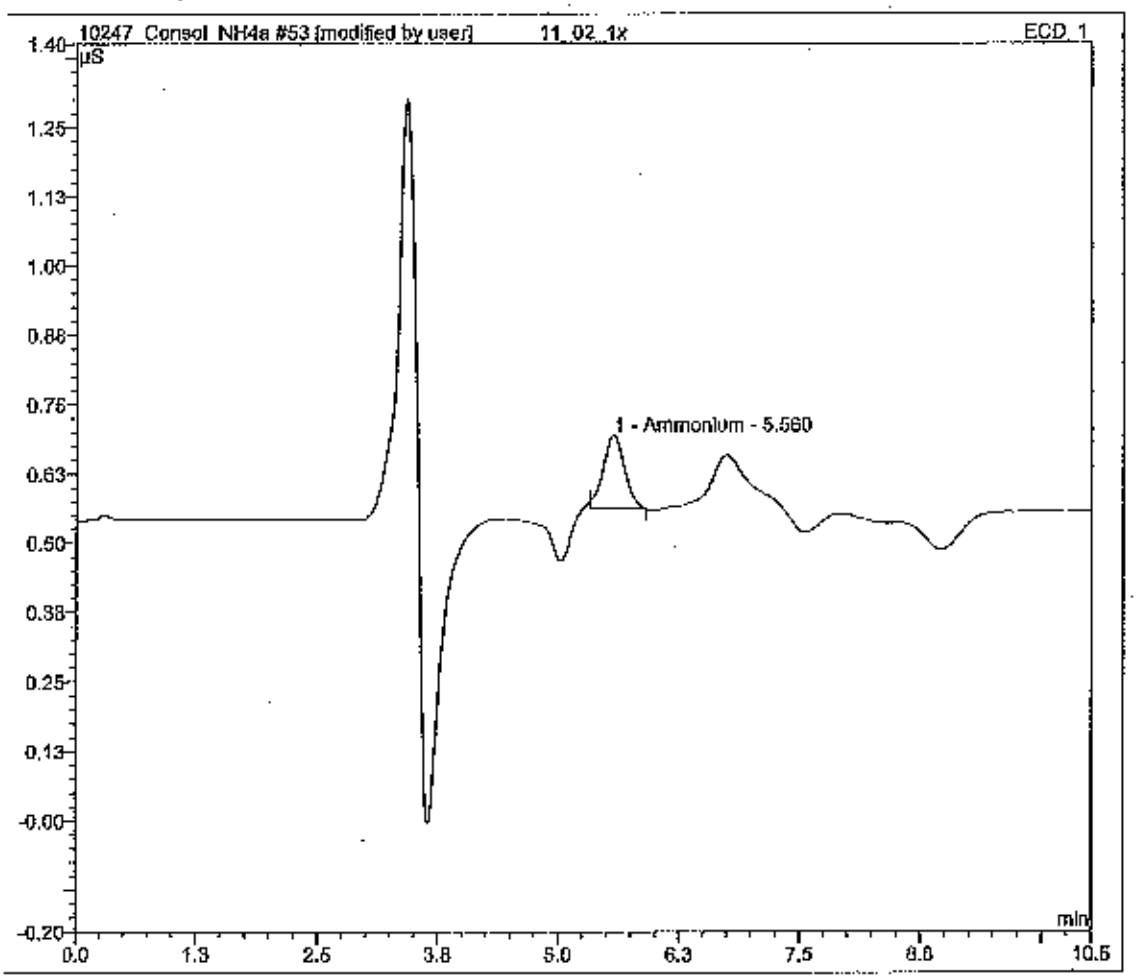
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.56	Ammonium	MB*	0.035	0.134	n.a.
TOTAL:				0.03	0.13	0.00



Integration Report - ECD_1

Sample Name:	11_02_1x	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj.Date/Time:	10/06/07 10:36	Run Time:	10.51

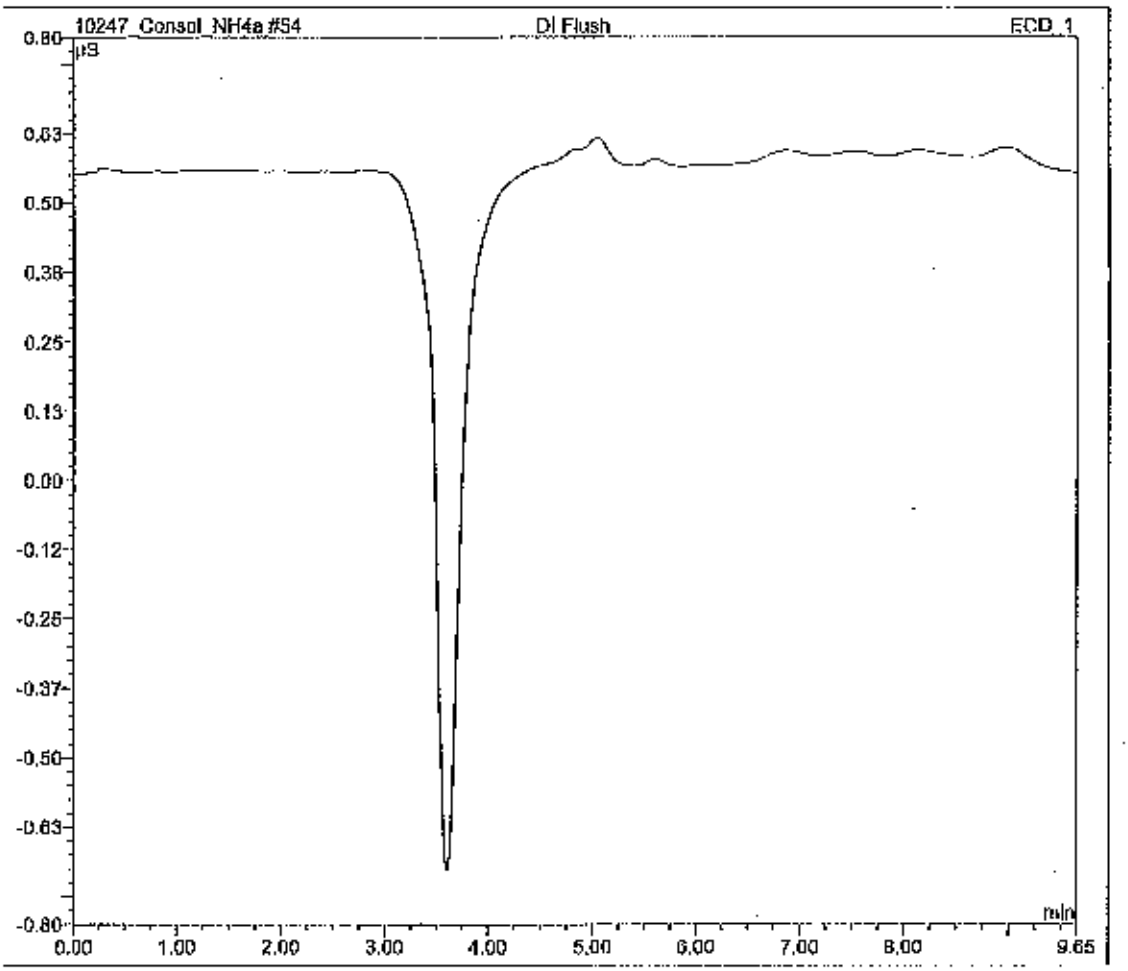
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.56	Ammonium	MB*	0.034	0.133	n.a.
		TOTAL:		0.03	0.13	0.00



Integration Report - ECD_1

Sample Name:	DI Flush	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Dantor J. Nunez
Inj. Date/Time:	19.06.07 10:46	Run Time:	9.65

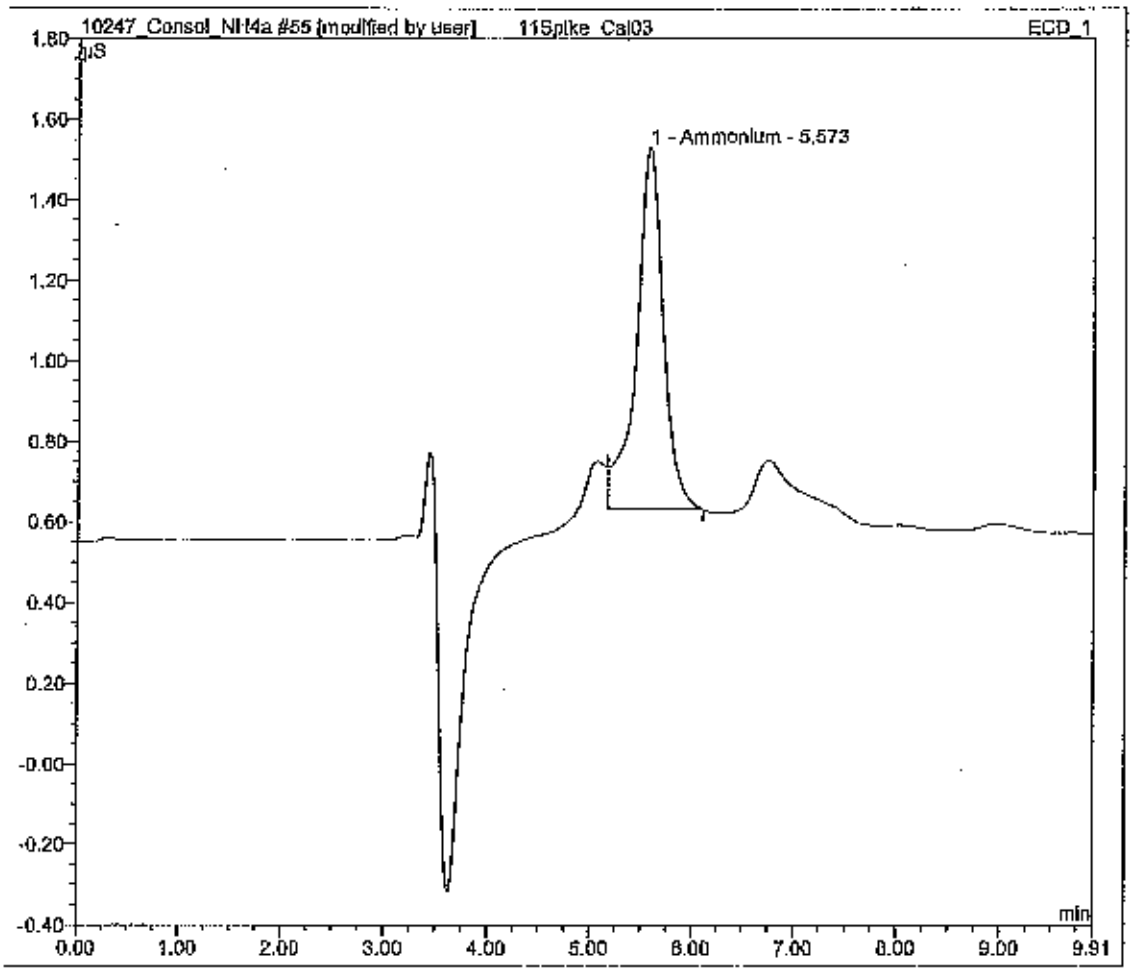
No ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
		TOTAL:		0.00	0.00	0.00



Integration Report - ECD_1

Sample Name:	11Spike_Cal03	Inj Vol:	1.0
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	19/06/07 10:57	Run Time:	9.91

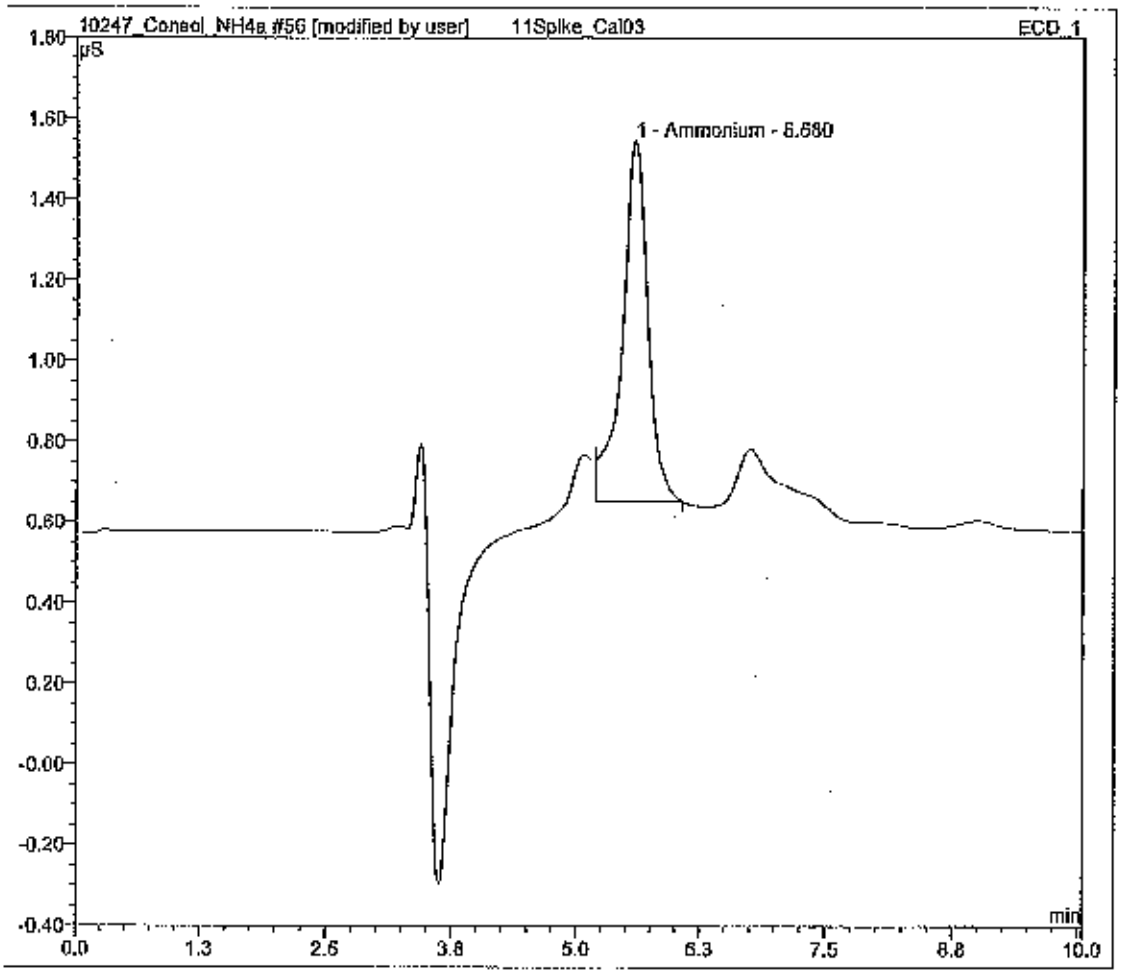
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.57	Ammonium	MB*	0.275	0.900	n.a.
		TOTAL:		0.27	0.90	0.00



Integration Report - ECD_1

Sample Name:	11Spike_Cal03	Inj Vol:	1.0
Sample Type:	unknown	Dilution Factor:	10000
Program:		Operator:	Daniel J Nunez
Inj DateTime:	19.06.07 11:07	Run Time:	10.00

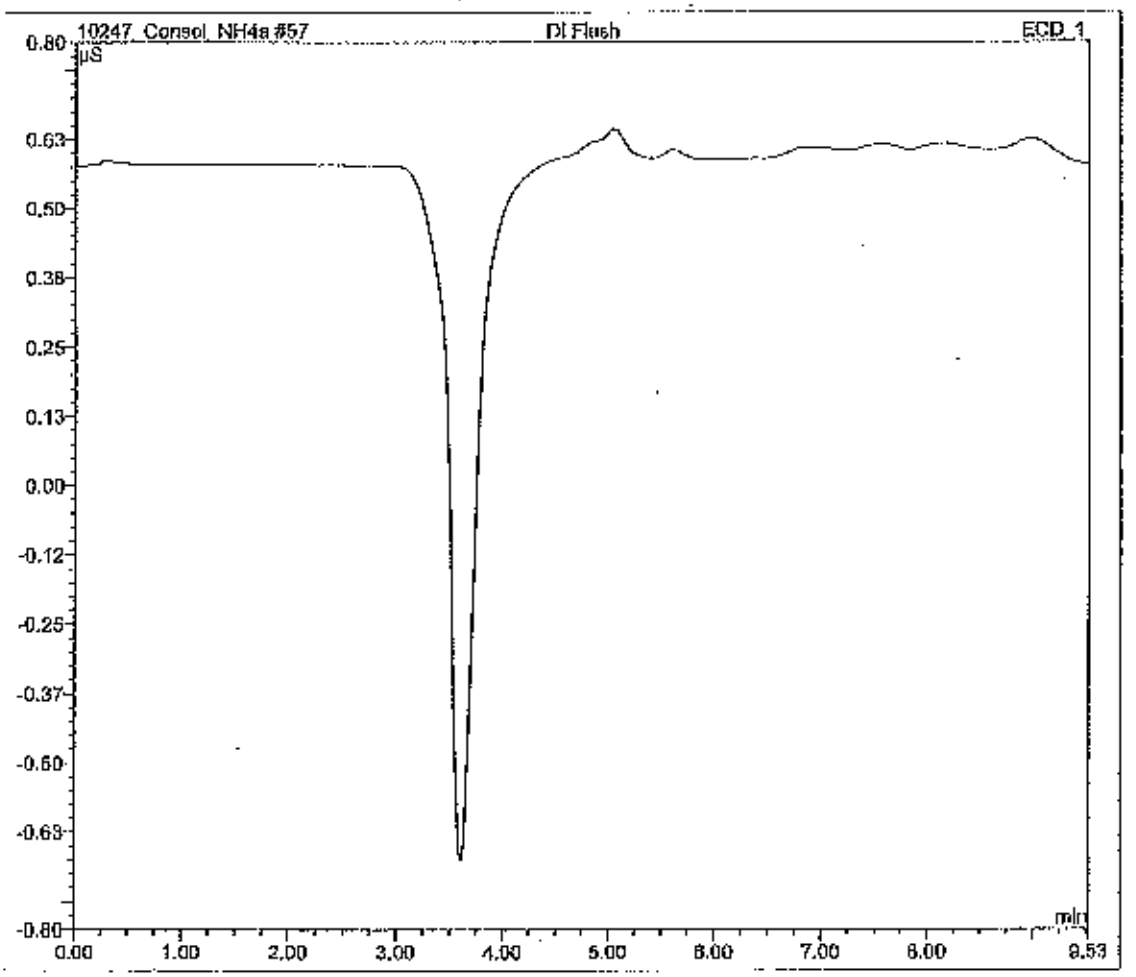
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.58	Ammonium	MB*	0.270	0.896	n.a.
		TOTAL:		0.27	0.90	0.00



Integration Report - ECD_1

Sample Name:	DI Flush	Inj. Vol:	1.0
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	19/06/07 11:19:	Run Time:	9.53

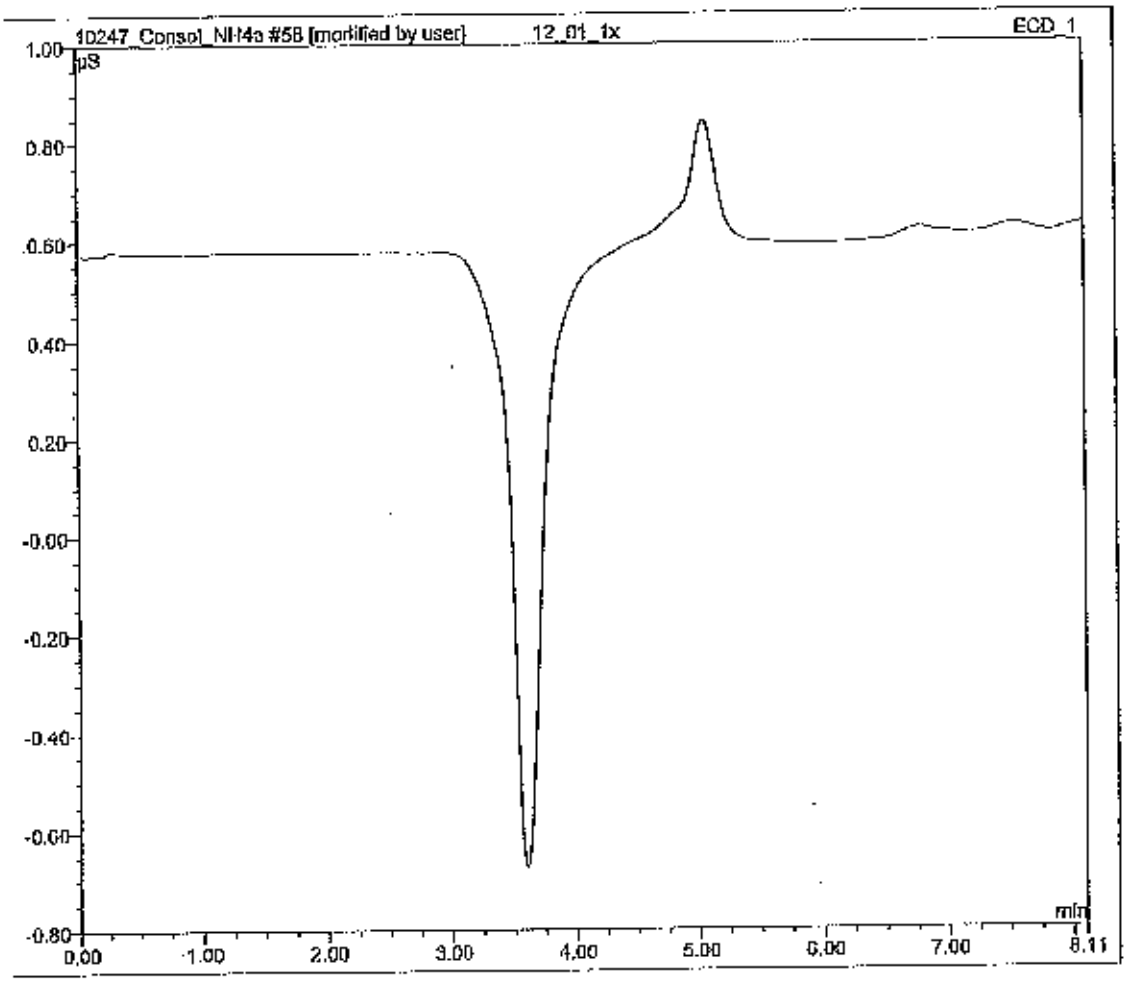
No.	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
		TOTAL:		0.00	0.00	0.00



Integration Report - ECD_1

Sample Name:	12_01_1x	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel N. Nunez
Inj. Date/Time:	19.06.07 11:29	Run Time:	8.11

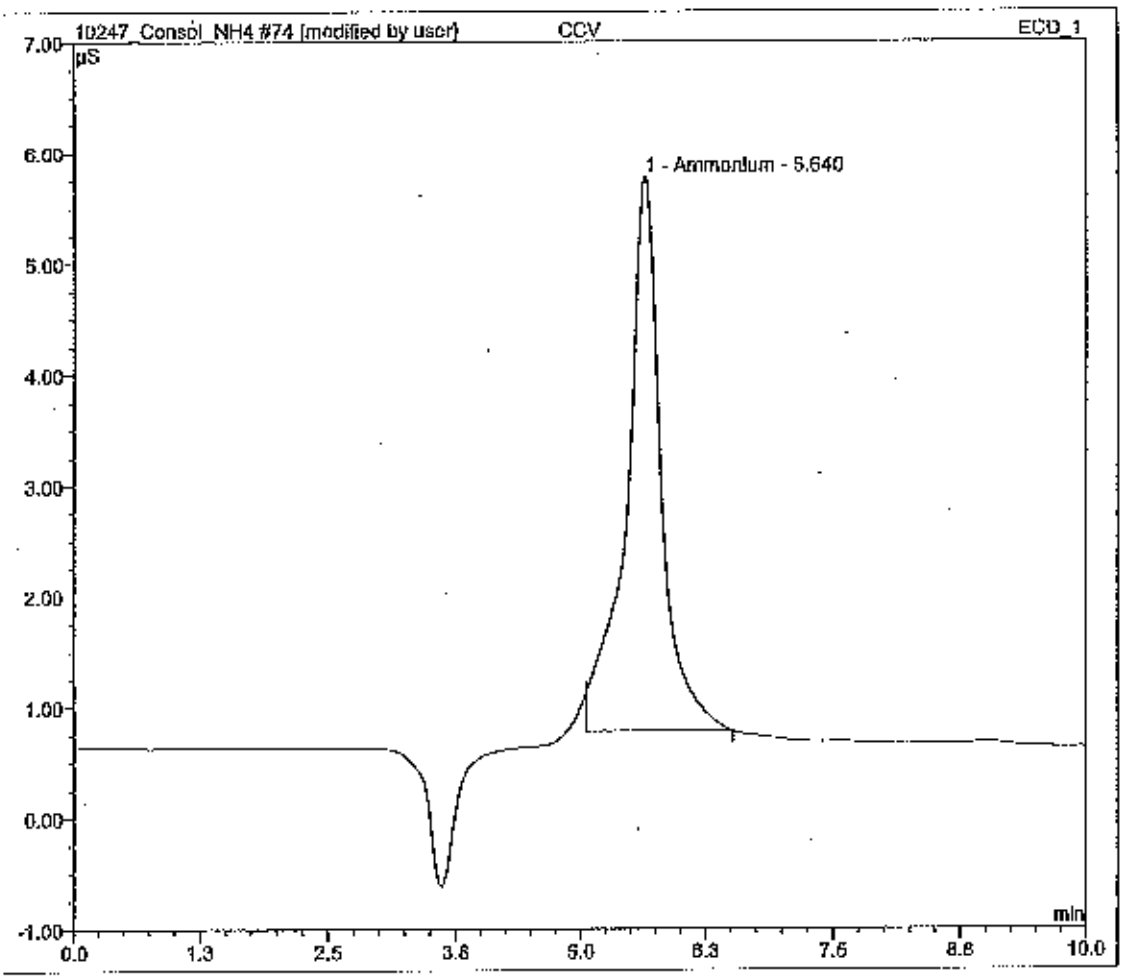
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
		TOTAL:		0.00	0.00	0.00



Integration Report - ECD_1

Sample Name:	CCV	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Plotted:		Operator:	Daniel J. Nunez
Inj. Date/Time:	18:06:07 - 15:33	Run Time:	10.00

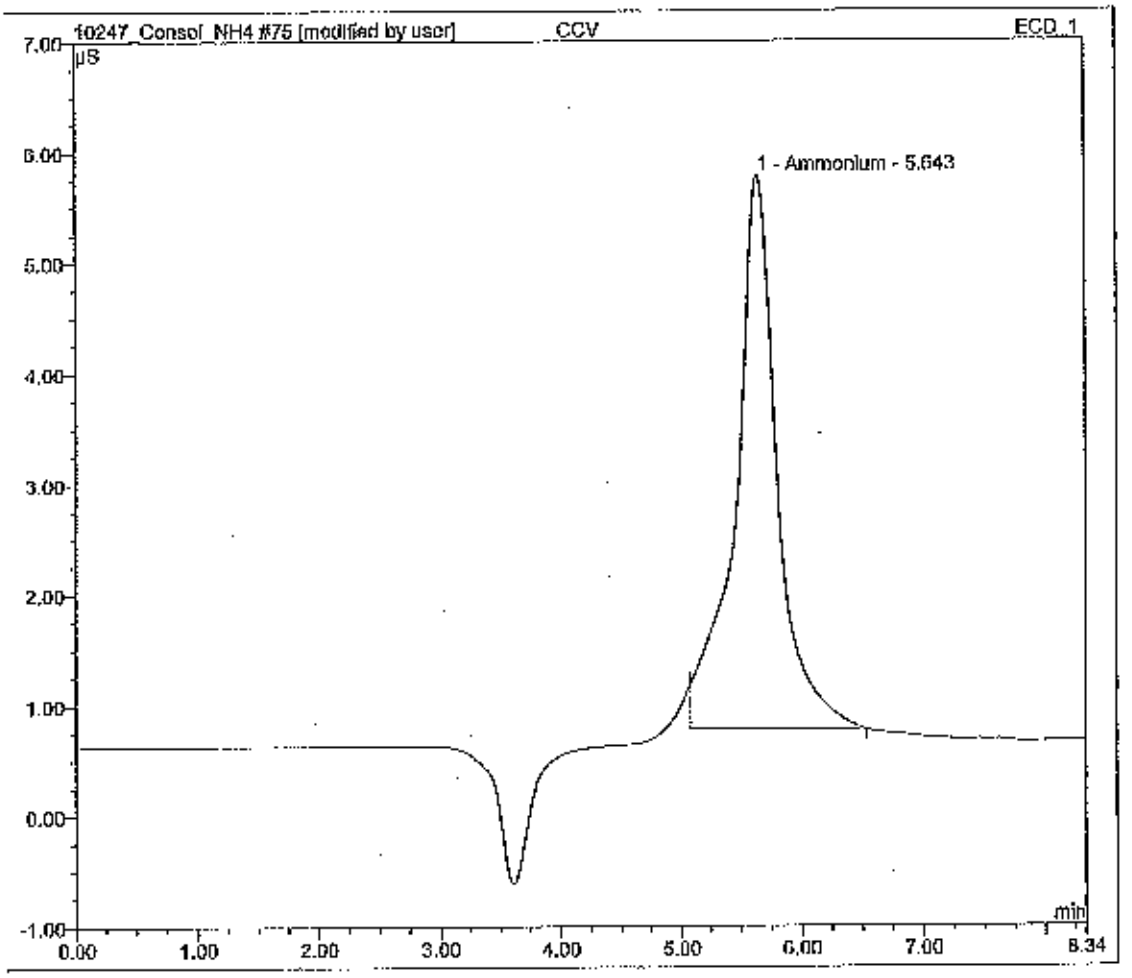
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.64	Ammonium	MB*	1.998	5.008	n.a.
		TOTAL:		2.00	5.01	0.00



Integration Report - ECD_1

Sample Name:	CCV	Inj Vol:	1.0
Sample Type:	unknown	Dilution Fact(s):	1.0000
Program:		Operator:	Daniel J Nunez
Inj Date/Time:	19:08:07 - 16:44	Run Time:	8.34

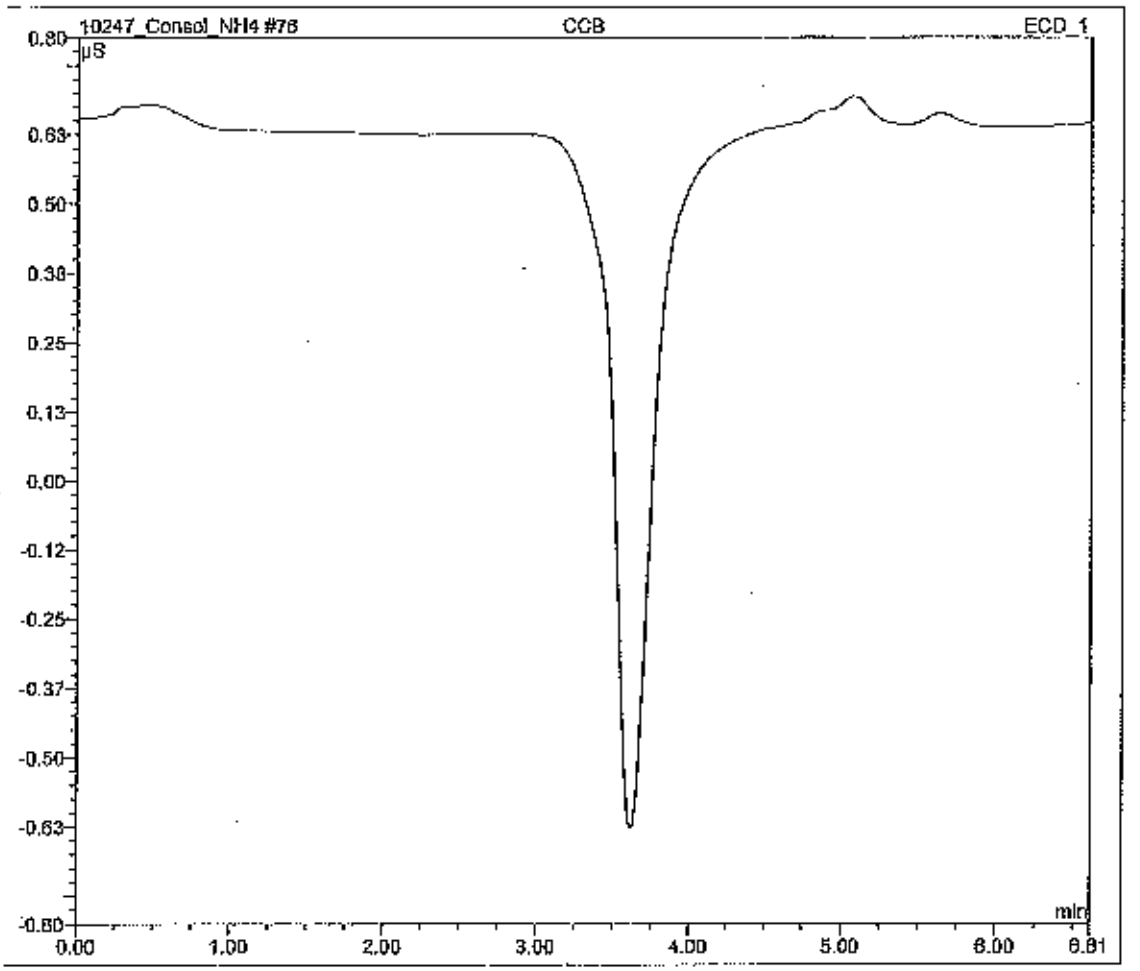
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.64	Ammonium	MB*	1.993	5.008	n.e.
		TOTAL:		1.99	5.01	0.00



Integration Report - ECD_1

Sample Name:	CCB	Inj. Vol:	10
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	19:06:07 15:52	Run Time:	6.51

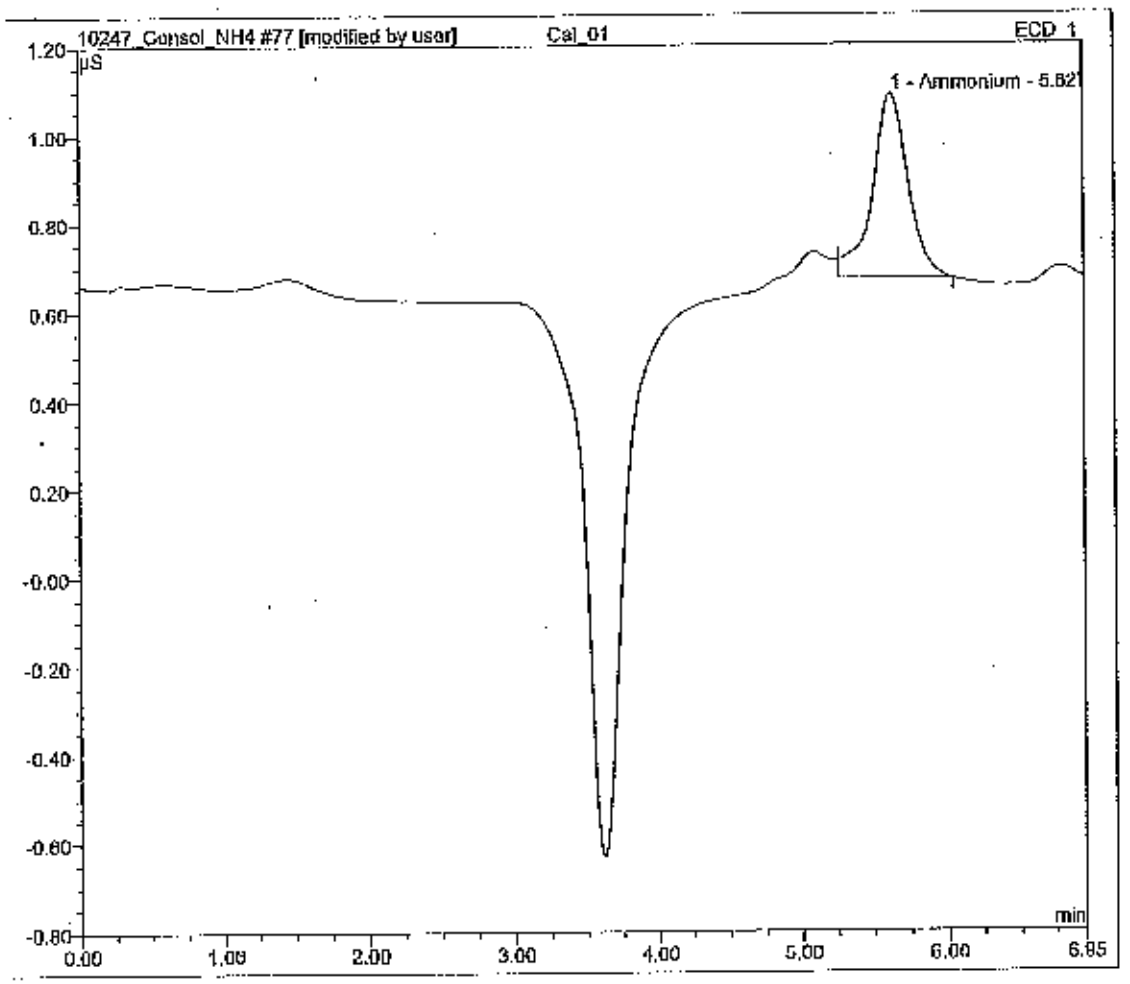
No.	Time	Peak Name	Type	Area	Height	Amount
ECD_1	ECD_1 min	ECD_1	ECD_1	ECD_1 µS·min	ECD_1 µS	ECD_1
		TOTAL:		0.00	0.00	0.00



Integration Report - ECD_1

Sample Name:	Cal_01	Inj. Vol.:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	10.06.07 16:00	Run Time:	6.95

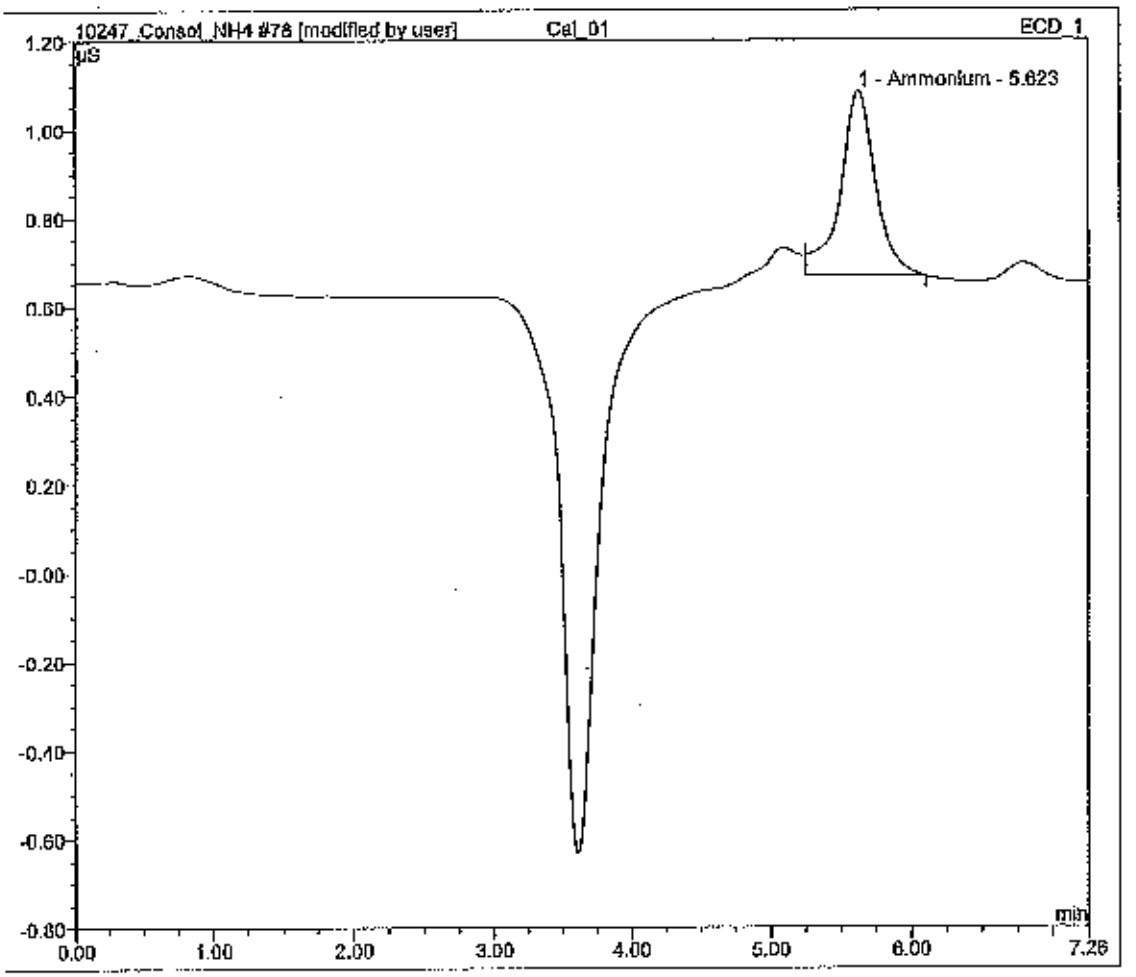
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1 n.a.
1	5.63	Ammonium	MB*	0.117	0.416	n.a.
		TOTAL:		0.12	0.42	0.00



Integration Report - ECD_1

Sample Name:	Cal_01	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	10000
Program:		Operator:	Daniel J.Nunez
Inj. Date/Time:	19/06/07 15:08	Run Time:	7.26

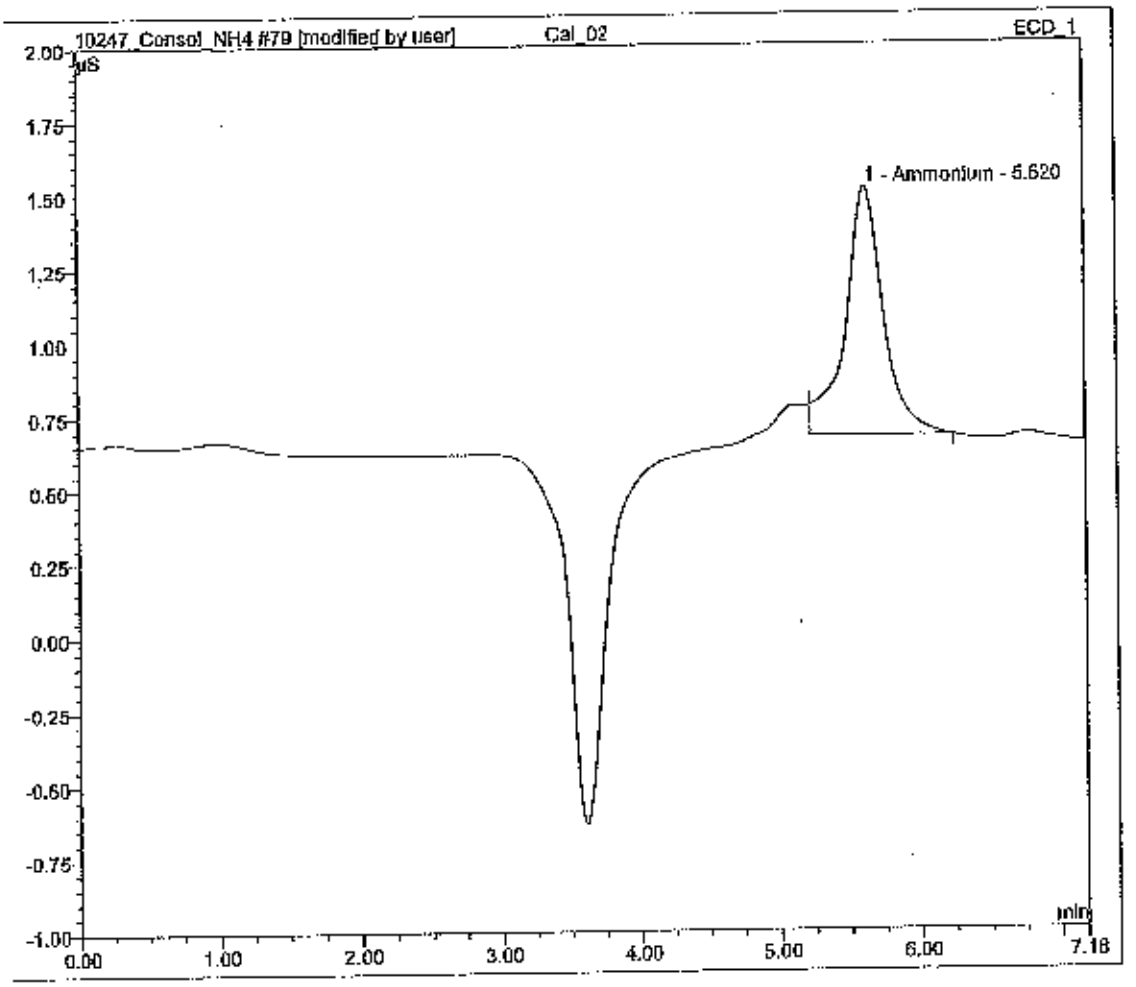
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.62	Ammonium	MB*	0.122	0.418	n.a.
TOTAL:				0.12	0.42	0.00



Integration Report - ECD_1

Sample Name:	Cal_02	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	10000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	19.06.07 18:16	Run Time:	7.18

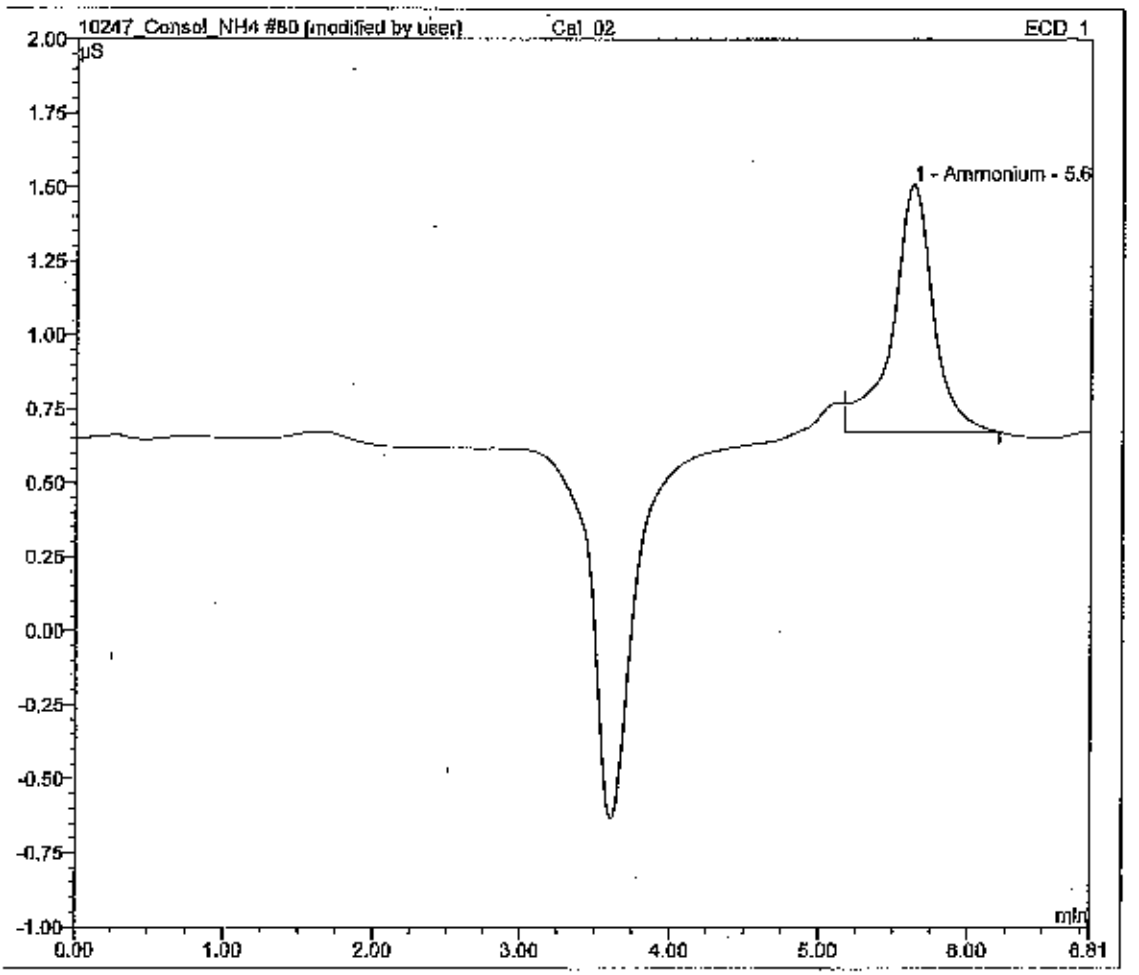
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.62	Ammonium	MB*	0.265	0.841	n.a.
TOTAL:				0.27	0.84	0.00



Integration Report - ECD_1

Sample Name:	Cal_02	Inj Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
ID Date / Time:	10/06/07 16:24	Run Time:	6.81

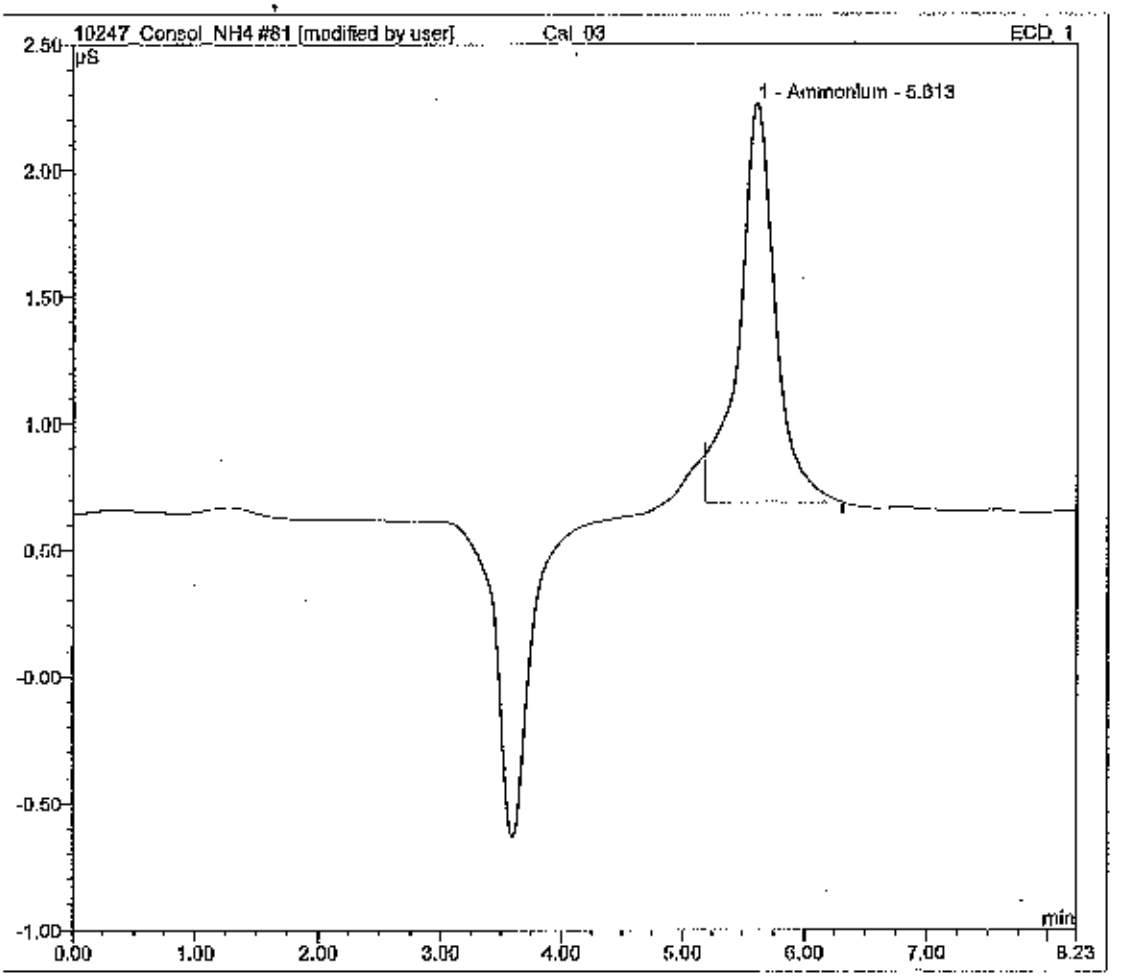
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.62	Ammonium	MB*	0.268	0.838	n.a.
TOTAL:				0.27	0.84	0.00



Integration Report - ECD_1

Sample Name:	Cal-03	Inj Vol:	1.0
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj Date/Time:	19/06/07 16:31	Run Time:	8.23

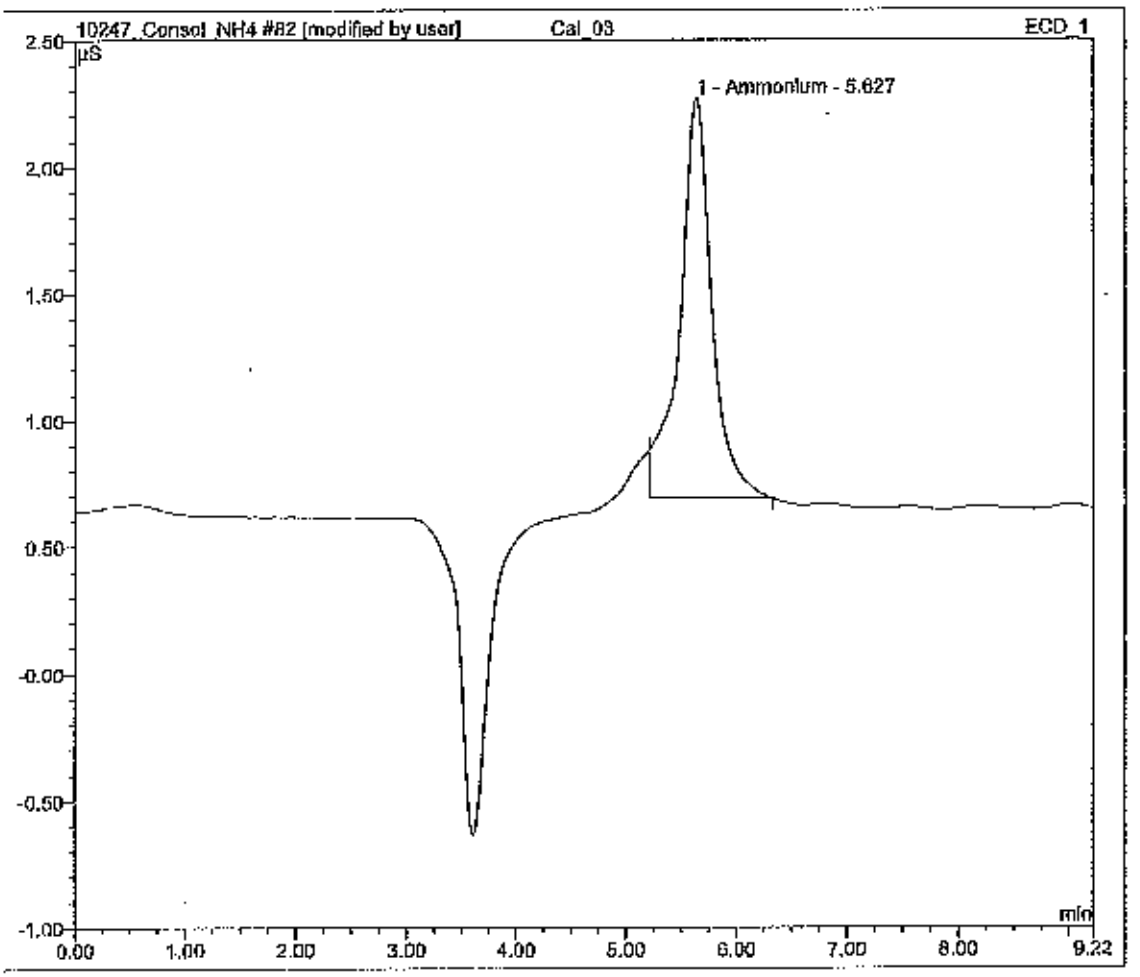
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.61	Ammonium	MB*	0.534	1.579	n.a.
		TOTAL:		0.53	1.58	0.00



Integration Report - ECD_1

Sample Name:	Cal_03*	Inj. Vol:	1.0
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	10/06/07 16:40	Run Time:	9.22

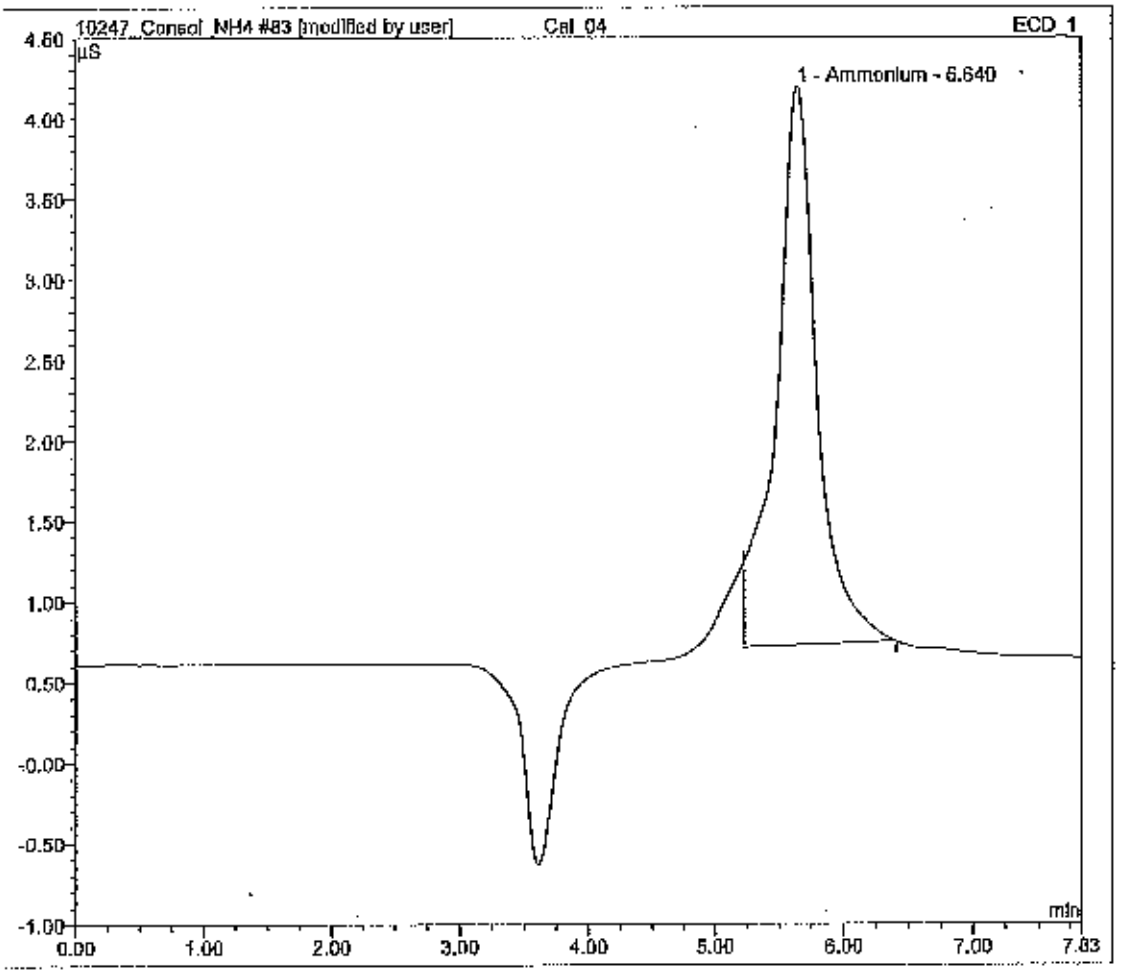
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.63	Ammonium	MB*	0.534	1.561	n.a.
		TOTAL:		0.53	1.56	0.00



Integration Report - ECD_1

Sample Name:	Cal_04	Inj Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj Date/Time:	19:06:07 - 16:50	Run Time:	7.83

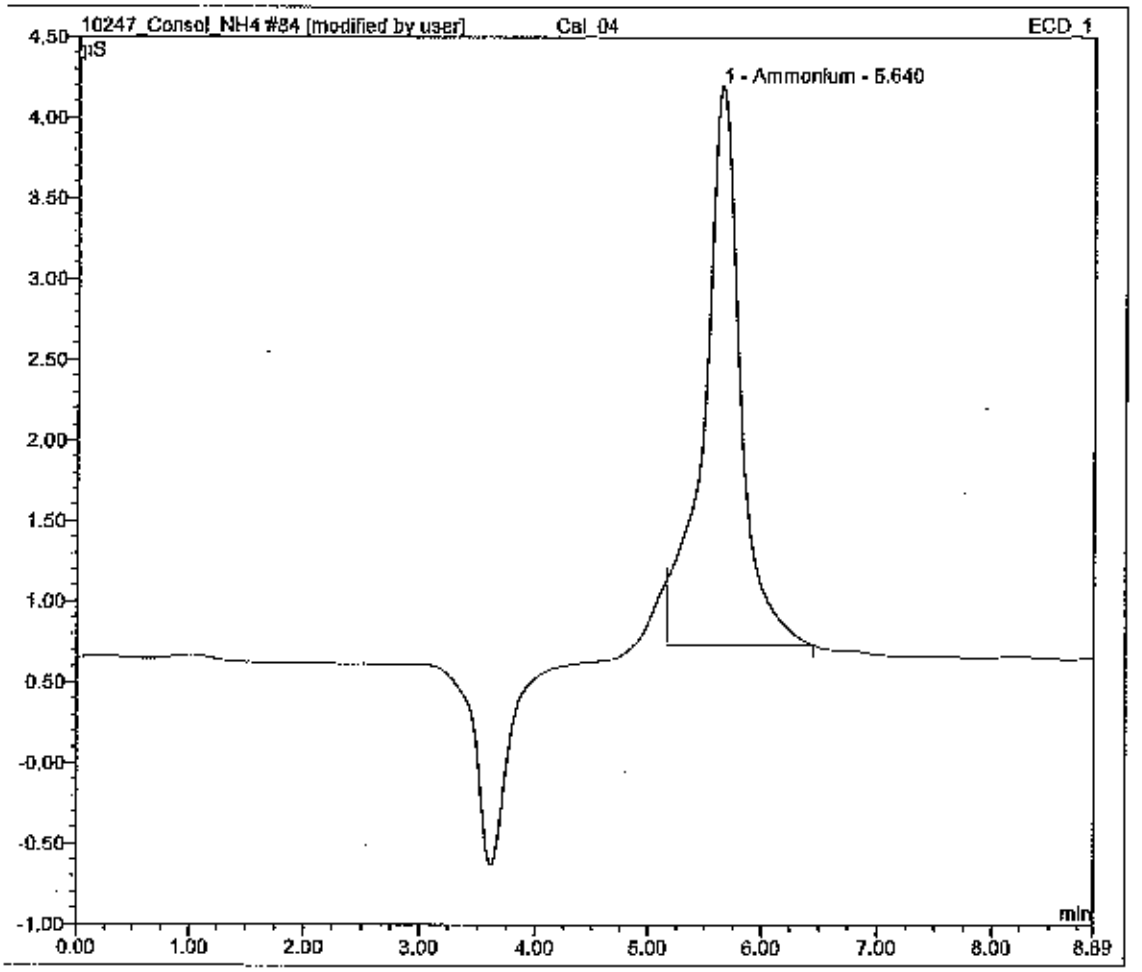
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.64	Ammonium	MB*	1.258	3.468	n.a.
		TOTAL:		1.26	3.47	0.00



Integration Report - ECD_1

Sample Name:	Cal_04	Inj Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj Date/Time:	19.06.07 16:58	Run Time:	8.89

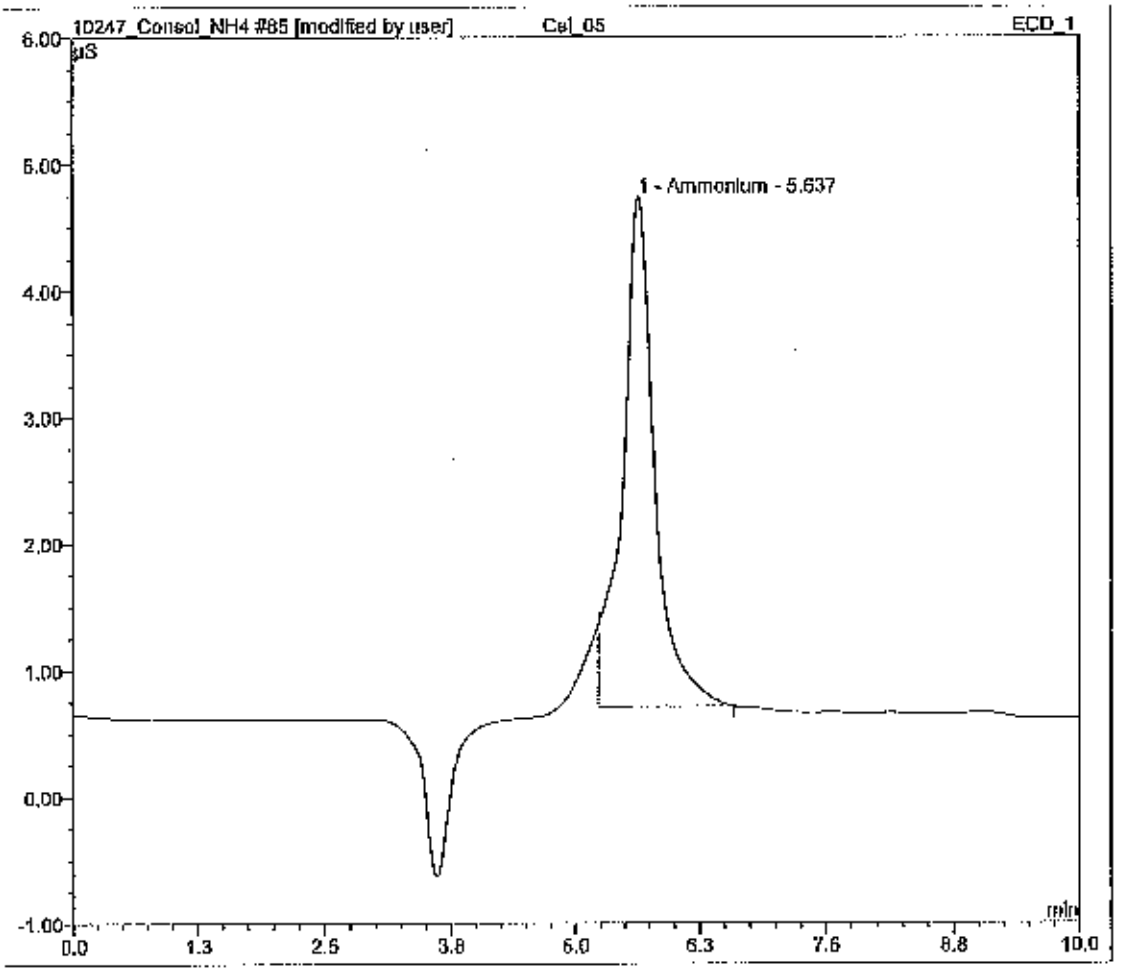
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.64	Ammonium	MB*	1.283	3.463	n.a.
		TOTAL:		1.28	3.46	0.00



Integration Report - ECD_1

Sample Name:	Cal_05	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	19.06.07 17:07	Run Time:	10.01

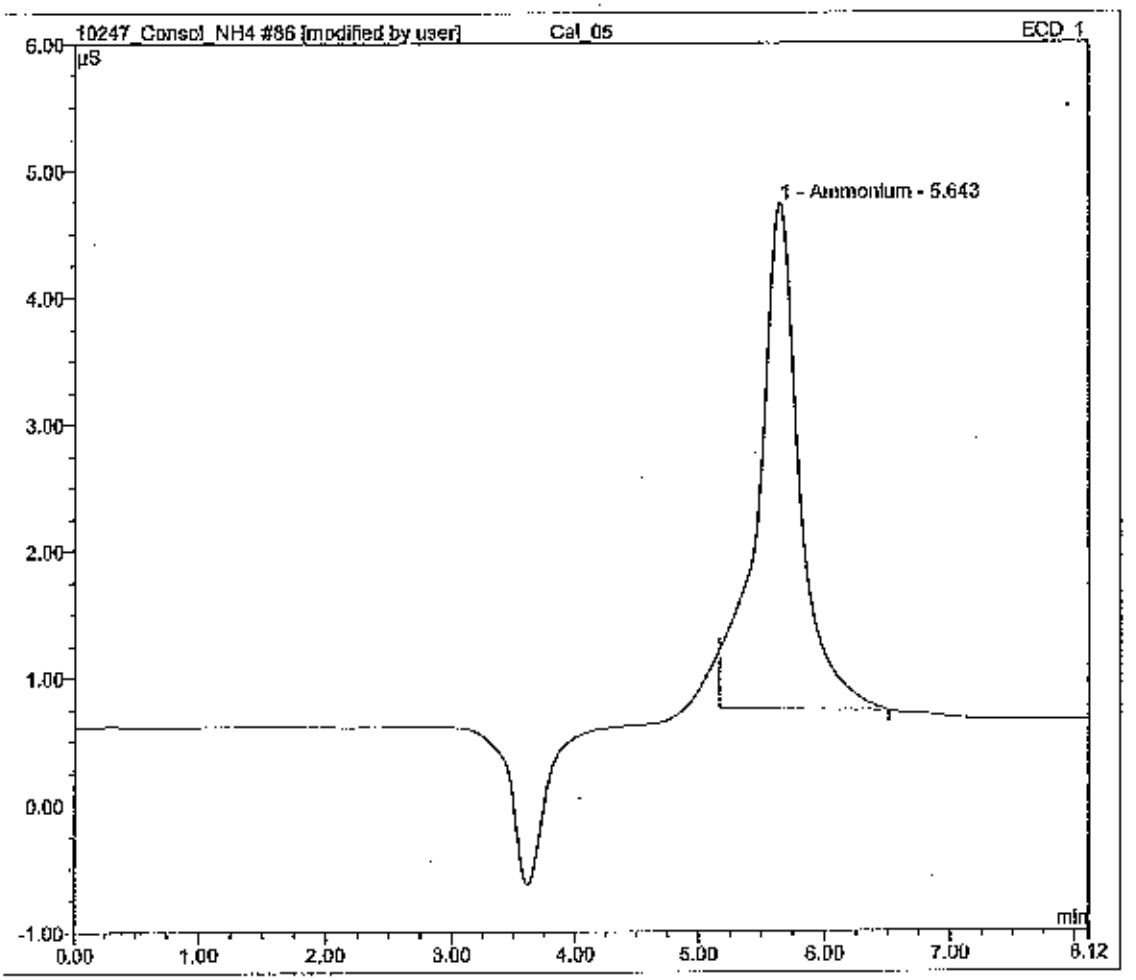
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.64	Ammonium	MB*	1.506	4.027	n.a.
		TOTAL:		1.51	4.03	0.00



Integration Report - ECD_1

Sample Name:	Cal_05	Inj. Vol:	10
Sample Type:	Unknown	Dilution Factor:	1.0000
Plot(#):		Operator:	Daniel J Nunez
Inj. Date/Time:	19:06:07 - 17:18	Run Time:	6.12

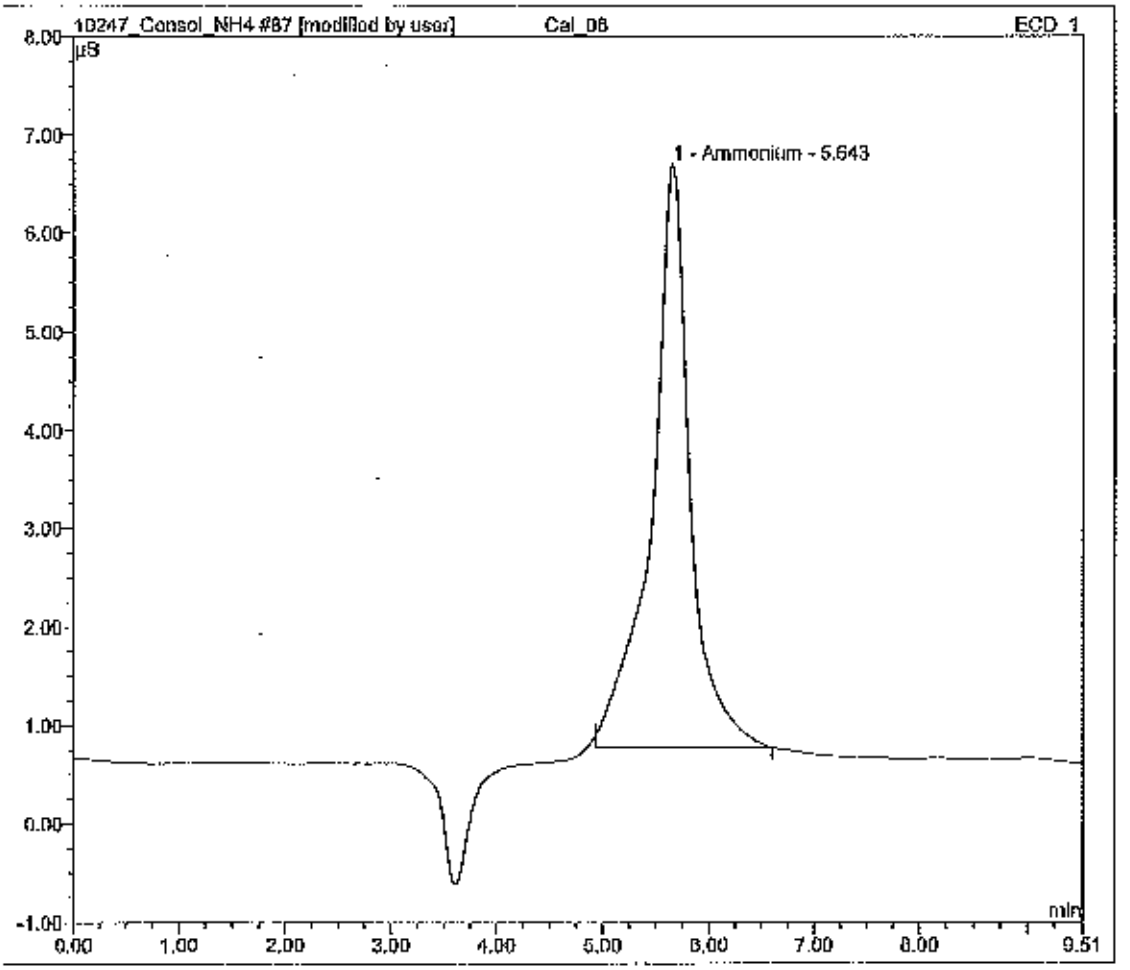
No. ECD_1	Time ECD_1 min	PeakName ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.64	Ammonium	MB*	1.505	3.992	n.e.
TOTAL:				1.51	3.99	0.00



Integration Report - ECD_1

Sample Name:	Cal_08	Inj. Vol:	1.0
Sample Type:	Unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J.Nunez
Inj. Date/Time:	19.06.07 17:27	Run Time:	9.51

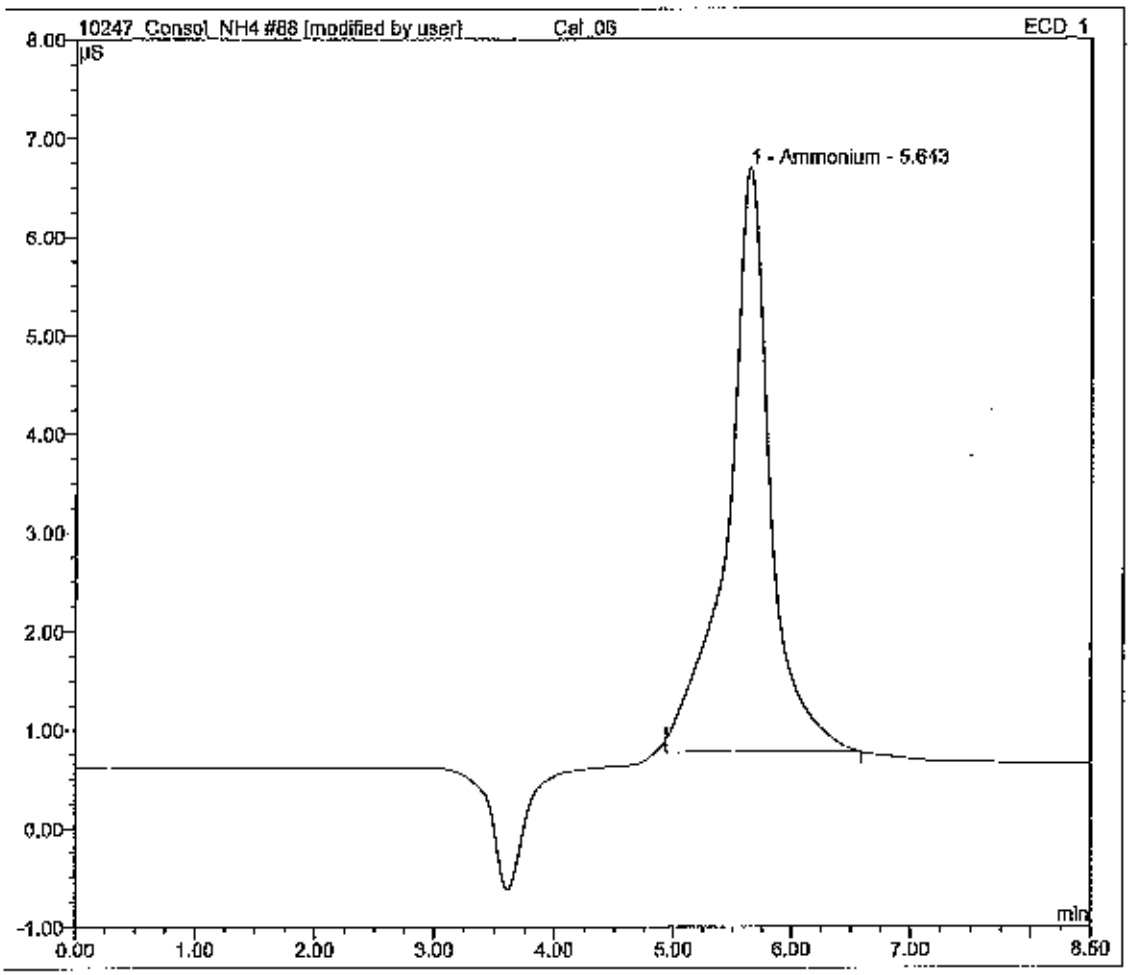
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.64	Ammonium	MB*	2.479	5.930	n.a.
		TOTAL:		2.48	5.93	0.00



Integration Report - ECD_1

Sample Name:	Cal .06	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J. Nunez
Inj. Date/Time:	19:06.07 17:37	Run Time:	8.50

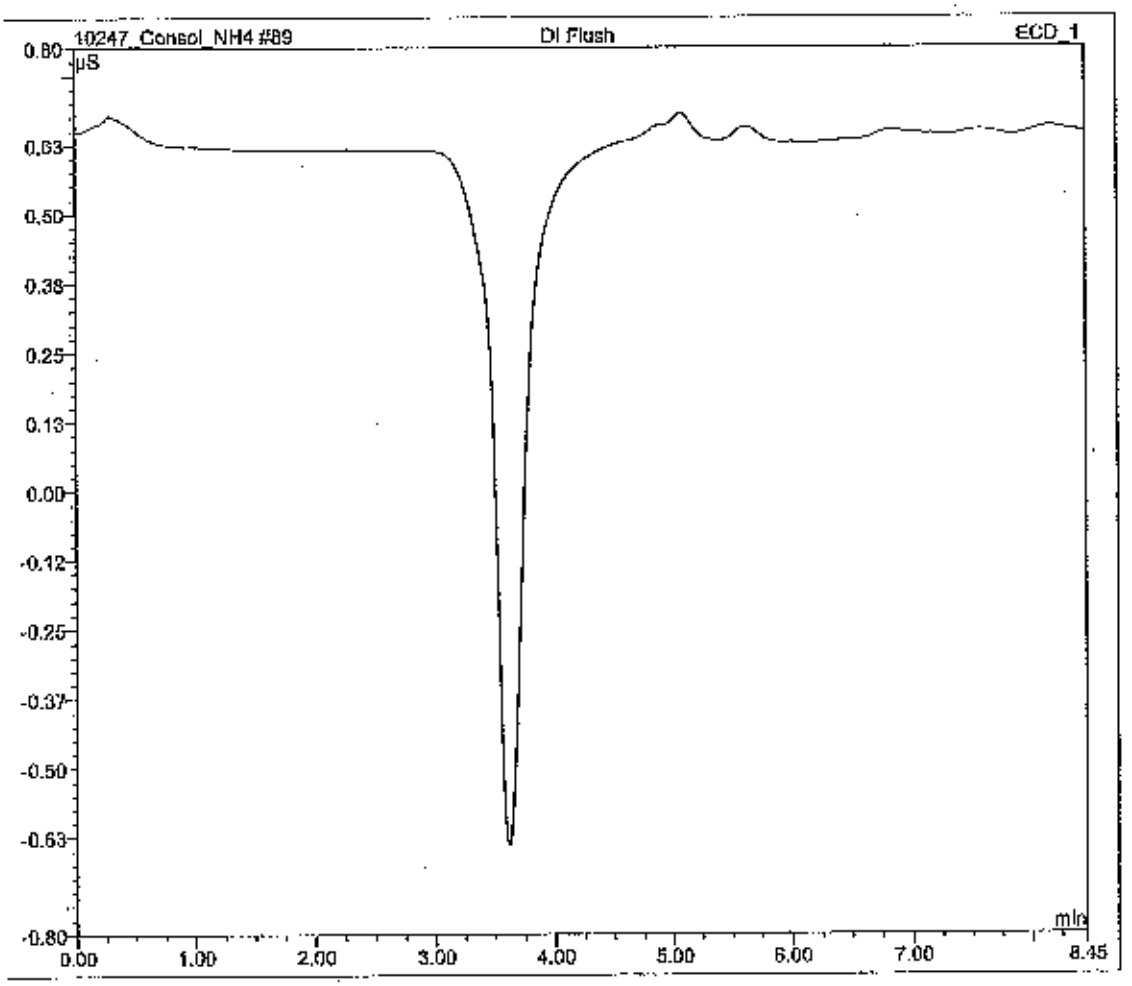
No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
1	5.64	Ammonium	MB*	2.470	6.923	n.a.
		TOTAL:		2.47	6.92	0.00



Integration Report - ECD_1

Sample Name:	DI Flush	Inj. Vol:	1.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:		Operator:	Daniel J Nunez
Inj. Date/Time:	19.06.07 17:46	Run Time:	8.45

No. ECD_1	Time ECD_1 min	Peak Name ECD_1	Type ECD_1	Area ECD_1 µS*min	Height ECD_1 µS	Amount ECD_1
		TOTAL:		0.00	0.00	0.00



Stock Solution Standard Mixing Recipe (Cations)

Order of Elution	1	2	3	4	5	6
Analyte	**Lithium**	**Sodium**	**Ammonium**	**Potassium**	**Magnesium**	**Calcium**
Analyte Weight (g/g-mole)	6.94	22.99	18.05	39.1	24.31	40.08
Solid Formula	LiCl	NaCl	NH_4Cl	KCl	$MgCl_2 \cdot 6H_2O$	$CaCl_2 \cdot 2H_2O$
Number of ions/Formula	1	1	1	1	1	1
Formula Weight (g/g-mole)	42.39	58.44	53.49	74.55	203.3	147.02
% Analyte in Solid	16.37%	39.34%	33.74%	52.45%	11.96%	27.26%
			0.3374			
Recomended Analyte Concentration (mg/l)	500	1,200	5,000	3,000	5,000	7,000

Amount of Solid Required to Achieve the Above Stock Solution Concentration in The Listed Volumetric Flask:

500 ml	1.5270	1.5252	7.4086	2.8600	20.9070	12.8386

Enter Size of Flask	500 ml					
Enter Amount of Solid Used						
Actual Concentration (mg/l)			5027.14			

Concentration in the Five Cal Flasks

Stock (1 liter Flask) Solution Concentrations
10 ml Original Solution Used 50.2714

FlaskSize	AliquotStock		
500	5	0.5027	1
250	5	1.0054	2
250	10	2.0109	3
200	20	5.0271	4
250	30	6.0326	5
250	40	8.0434	CCV
200	40	10.0543	6

Lab Project #	28132
Clean Air Project #	10247
Internal Dept #	68
Customer	Consol Energy
Plant/Facility	Greenridge Power Plant
Chain-of-Custody	Yes
Date Started	6/13/2007
Date Finished	
Analyst	Daniel Nunez

Contact Name	Eric Doak
PhoneNumbe	
Fax Number	
Email Addres	edoak@cleanair.com
MailingAddress	
PO Number	
Client Note	

CleanAir ENGINEERING

In 20 Jun 2007

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
1	2	3	4	5	6	7

	Analysis #1	Analysis #2	Analysis #3	Analysis #4	Analysis #5	Analysis #6
Date Ordered	6/2/2007					
Date Received	6/13/2007					
Date Due						
First Sample No	-01					
Last Sample No.	-12					
Sample Type	Imp C&R					
Method	Ctm-027					
Analysis Details	Ammonium by Ion Chromatography					
Container	Plastic Jar					
Sample Condition	OK					
Comments	Sample -06 leaked during shipping. COC not signed					

CHAIN OF CUSTODY FORM

CLIENT Consol Energy
PLANT Greenidge Power Plant
PROJECT MANAGER Eric Doak
PROJECT NO. 10247
DEPT. 68

CAE LAB NO.	RUN NO.	TEST LOCATION	DATE	SAMPLE MATRIX	NO. OF CONTAINERS	ORIGINAL		NH3 - IC Analysis			ADDITIONAL INFORMATION
	1	Unit 4 - Air Heater Inlet	5/31/2007	Front Half Rinse	1	208		x			
	1	Unit 4 - Air Heater Inlet	5/31/2007	Imp 1 Catch & Rinse	1	195		x			
	1	Unit 4 - Air Heater Inlet	5/31/2007	Imp 2 & 3 Catch & Rinse	1	280		x			
	2	Unit 4 - Air Heater Inlet	6/1/2007	Front Half Rinse	1	153		x			
	2	Unit 4 - Air Heater Inlet	6/1/2007	Imp 1 Catch & Rinse	1	211		x			
	2	Unit 4 - Air Heater Inlet	6/1/2007	Imp 2 & 3 Catch & Rinse	1	210		x			
			6/1/2007								
	3	Unit C - Inlet	6/1/2007	Front Half Rinse	1	192		x			
	3	Unit C - Inlet	6/1/2007	Imp 1 Catch & Rinse	1	195		x			
	3	Unit C - Inlet	6/1/2007	Imp 2 & 3 Catch & Rinse	1	265		x			
					1						
	NA	Field Blank	6/1/2007	Entire Train	1	431		x			
	NA	Final Rinse	6/1/2007	Final Rinse	1			x			Need Volume
	NA	Reagent Blank	6/1/2007	0.1 N H2SO4	1			x			Need Volume

Sample leaked during shipping

Relinquished by:(Signature)	Date/Time	Received by:(Signature)	Date/Time	Relinquished by:(Signature)	Date/Time
Courier:	Date/Time	Relinquished by:(Signature)	Date/Time	Rec'd for Analysis by:	Date/Time

6/5/07 1500

Special Handling Instructions

Forwarding Lab: Clean Air - Palatine
Attn: D. Rhoades

PO Number: 68-10247

This form was completed by:
Eric Doak

Signature: *Eric Doak* Date: 2-Jun

CleanAir ENGINEERING
1601 Parkway View Drive
Pittsburgh, PA 15205
(412) 787-9130 ph
(412) 787-9138 fax

DS CDC Pittsburgh
EXCI RO-6/3/05

APPENDIX B
Field Data Sheets

AES GREENIDGE UNIT 4 GUARANTEE TESTING

NH3 Summary

May 31-June 1, 2007

Location			ECO	AHI	ECO	AHI	ECO	AHI
Date			05/31/07	05/31/07	06/01/07	06/01/07	06/01/07	06/01/07
Start Time			1804	1804	1018	1020	1205	1205
Stop Time			1916	1910	1104	1108	1250	1252
Test Number			NH3-1	NH3-1	NH3-2	NH3-2	NH3-3	NH3-3
MEASURED TEST VARIABLES								
Y factor of Dry Gas Meter	-		0.983	0.970	0.983	0.970	0.983	0.970
Gas Volume	-	ft^3	43.18	34.16	33.62	26.83	34.02	26.75
delta H of Dry Gas Meter	-	" H_20	1.0	1.0	1.5	1.5	1.5	1.5
Meter Temperature	-	° F	106.7	104.6	95.2	97.1	100.4	102.3
C Factor of Pitot Tube	-							
Nozzle Diameter	-	inches	0.194	0.181	0.194	0.181	0.194	0.181
Area of Nozzle	-	ft^2	0.00021	0.00018	0.00021	0.00018	0.00021	0.00018
Area of Stack	-	ft^2						
H_2O Weight	-	gm	97.4	63.2	53.3	59.4	55.5	58.5
Sample Time	-	minutes	60	60	40	40	40	40
Barometric Pressure	-	" Hg	29.44	29.44	29.47	29.47	29.44	29.44
Static Pressure	-	" H_20						
% Oxygen	-		3.5	4.1	4.7	4.5	5.3	4.4
% Carbon Dioxide	-							
% N_2 + CO	-							
Stack Temp (Dry Bulb)	-	° F	666.9	636.8	660.5	NA	668.9	NA
Stack Temp (Wet Bulb)	-	° F						
"S" Sample (rms vel head)	-	" H_20						
Ammonia as NH4, from IC	-	mg	60.32	> 1.53	50.89	2.33	41.41	2.22
Ammonia as NH4, from ISE	-	mg	54.71	> 1.50	48.04	2.01	38.36	1.80
CALCULATED TEST VARIABLES								
Sample Volume	-	dscf	38.99	30.55	31.06	24.37	31.11	24.05
Absolute Stack Pressure	-	" Hg						
Absolute Stack Temperature	-	° R	1127	1097	1121	NA	1129	NA
H_2O - % by Volume	-	vapor						
H_2O - % by Volume	-	w/ droplets	10.5	8.9	7.5	10.3	7.8	10.3
Water Volume	-	std ft^3	4.59	2.98	2.51	2.80	2.61	2.76
Dry Molecular Weight	-	lb/lb-mole						
Wet Molecular Weight	-	lb/lb-mole						
% Excess Air	-							
Mole Fraction of Dry Gas	-		0.895	0.911	0.925	0.897	0.922	0.897
Mole Fraction of Wet Gas	-		0.105	0.089	0.075	0.103	0.078	0.103
Ammonia, IC Results								
NH3, ppmvd as sampled	-		72.81	> 2.36	77.11	4.50	62.65	4.34
NH3, ppmvd @ 3% O2	-		74.90	> 2.51	85.20	4.91	71.89	4.71
Ammonia, ISE Results								
NH3, ppmvd as sampled	-		66.04	> 2.31	72.79	3.88	58.04	3.52
NH3, ppmvd @ 3% O2	-		67.93	> 2.46	80.43	4.24	66.60	3.82

Note: For Test Number NH3-1 at the air heater inlet, a portion of the line rinse was lost during sample recovery. Hence, the actual amount of NH3 present in the flue gas was likely greater than the amount determined from the recovered sample, as indicated in the spreadsheet.

EPA CTM 027 AMMONIA SAMPLING FIELD DATA SHEET

TEST ID	AHI-1	METER BOX	N-1	CAL. DATA: delta H	1.894	Comments:			
PLANT	GREENIDGE	PITOT TUBE DESC	NA	Y	0.970				
LOCATION	AIR HEATER INLET	PROBE LENGTH [ft]	~~10~~ 4	C(p)	NA				
DATE	5/30/07	NOZZLE ID [inch]	0.181	FILTER BOX SETTING	NA				
OPERATOR(S)	BG & DC	%H_2O (Assumed)	8	PROBE HTR SETTING	325				
AMBIENT TEMP [°F]	101	FILTER ID	901007	DUCT X-SECTION	circ ?	rect ?	other:		
BAR. PRESS. [" Hg]	29.44	K FACTOR	NA	DUCT DIMENSIONS		DUCT AREA			

TRAVERSE POINT [port-inch]	CLOCK TIME (24-hr)	SAMPLE TIME [minute]	STATIC PRES [" H_2O]	PITOT HEAD [" H_2O]	METER DIFF PRESSURE [" H_2O]	METER VACUUM [" Hg]	METER READING [ft³]	METER TEMP [oF] inlet	METER TEMP [oF] outlet	STACK TEMP [°F]	PROBE TEMP [°F]	FILTER ~~BOX~~ LINE TEMP [°F]	LAST IMP TEMP [°F]	METER EXHAUST O_2 [% vol]	METER EXHAUST CO_2 [% vol]
	~~1804~~	0					~~920.392~~ 921.203								
WEST	1809	5	NA	NA	1.0	3	924.915	102	101	633	301	255	68	4.7	
	1814	10			1.0	4	926.820	103	101	635	323	254	68	4.4	
	1819	15			1.0	4.3	929.673	104	101	635	322	254	67	4.5	
	1824	20			1.0	5.0	932.520	105	102	634	323	254	67	4.4	
	1829	25			1.0	5.2	935.355	107	102	634	323	254	67	4.5	
	1834	30			1.0	5.8	938.218	108	102	634	323	255	67	4.9	
							-.242	~~1144~~		3805				27.4	
EAST	1840						938.460								
	1845	35			1.0	6.0	941.458	108	103	635	323	248	66	3.7	
	1850	40			1.0	6.3	944.259	109	103	635	323	247	60	3.6	
	1855	45			1.0	7.0	947.072	109	103	640	325	243	58	3.6	
	1900	50			1.0	8.0	949.902	110	103	642	325	242	58	3.5	
	1905	55			1.0	8.0	952.711	109	103	642	325	242	58	3.5	
	1910	60	↓	↓	1.0	8.0	955.602	109	103	642	325	242	58	3.5	
AVERAGE							34.157		104.6	636.8				4.07	

Sample Train Pre Test 0.004 ft³ @ 10 in. Hg
Leak Checks: Post Test 0.000 ft³ @ 13 in. Hg

Pitot Tube PreTest ✓ @ ~~6~~ in. H_2O
Leak Checks: Post Test _____ @ _____ in. H_2O

CONSOLENERGY.

EPA CTM 027 AMMONIA SAMPLING FIELD DATA SHEET

Page ____ of ____

TEST ID	AHI - Run 2	METER BOX	N-1	CAL. DATA: delta H	1.894	Comments:			
PLANT	GREENIDGE	PITOT TUBE DESC	—	Y	0.970				
LOCATION	AIR HEATER INLET	PROBE LENGTH [ft]	3	C(p)	—				
DATE	6/1/07	NOZZLE ID [inch]	3/16 B	FILTER BOX SETTING	NA				
OPERATOR(S)	BG & DC	%H_2O (Assumed)	8	PROBE HTR SETTING	325				
AMBIENT TEMP [°F]	87	FILTER ID	1055	DUCT X-SECTION	circ ?	rect ?	other:		
BAR. PRESS. [" Hg]	29.47	K FACTOR	NA	DUCT DIMENSIONS		DUCT AREA			

TRAVERSE POINT [port-inch]	CLOCK TIME (24-hr)	SAMPLE TIME [minute]	STATIC PRES [" H_2O]	PITOT HEAD [" H_2O]	METER DIFF PRESSURE [" H_2O]	METER VACUUM [" Hg]	METER READING [ft^3]	METER TEMP [oF] inlet	METER TEMP [oF] outlet	STACK TEMP [°F]	PROBE TEMP [°F]	~~FILTER BOX~~ LINE TEMP [°F]	LAST IMP TEMP [°F]	METER EXHAUST O_2 [% vol]	METER EXHAUST CO_2 [% vol]
	1020	0					956.002								
EAST	1025	5	NA	NA	1.5	6	959.724	96	91	~~517~~	325	241	60	3.4	
	1030	10			1.5	6	962.854	97	91		325	239	61	3.3	
	1035	15			1.5	6	966.023	100	92		325	239	62	3.4	
	1040	20			1.5	8	969.300	102	93		325	240	61	3.3	
PORT CHANGE		~~25~~					969.514	-.214	DGM						
		~~30~~													
	1048						969.525	-.311	DGM		326	240	60	~~5.6~~	
WEST	1053	~~25~~ 35			1.5	8.5	973.176	102	94		325	243	59	5.9	
	1058	~~30~~ 40			1.5	10	976.463	103	95		325	244	60	5.6	
	1103	~~35~~ 45			1.5	10	979.884	103	95		325	244	61	5.4	
	1108	~~40~~ 50			1.5	11.5	983.190	104	95		325	245	62	5.7	
		~~55~~													
		~~60~~	↓	↓											
AVERAGE					1.5		26.327		97.06					4.5	

Sample Train Pre Test 0.002 ft^3 @ 13 in. Hg
Leak Checks: Post Test 0.003 ft^3 @ 15 in. Hg

Pitot Tube PreTest — @ — in. H_2O
Leak Checks: Post Test — @ — in. H_2O

CONSOL ENERGY

EPA CTM 027 AMMONIA SAMPLING FIELD DATA SHEET

Page _____ of _____

TEST ID	AHI - Run 3	METER BOX	N-1	CAL. DATA: delta H	1.894	Comments:			
PLANT	GREENIDGE	PITOT TUBE DESC	NA	Y	0.970				
LOCATION	AIR HEATER INLET	PROBE LENGTH [ft]	3	C(p)	—				
DATE	6/1/2007	NOZZLE ID [inch]	3/16 B	FILTER BOX SETTING	NA				
OPERATOR(S)	BG & DC	%H_2O (Assumed)	8	PROBE HTR SETTING	325				
AMBIENT TEMP [°F]	90	FILTER ID	1056	DUCT X-SECTION	circ ?	rect ?	other:		
BAR. PRESS. [" Hg]	29.44	K FACTOR	NA	DUCT DIMENSIONS		DUCT AREA			

LINE TEMP

TRAVERSE POINT [port-inch]	CLOCK TIME (24-hr)	SAMPLE TIME [minute]	STATIC PRES [" H_2O]	PITOT HEAD [" H_2O]	METER DIFF PRESSURE [" H_2O]	METER VACUUM [" Hg]	METER READING [ft^3]	METER TEMP [oF] inlet	METER TEMP [oF] outlet	STACK TEMP [°F]	PROBE TEMP [°F]	~~FILTER BOX~~ [°F]	LAST IMP TEMP [°F]	METER EXHAUST O_2 [% vol]	METER EXHAUST CO_2 [% vol]
	1205	0					986.520								
WEST	1210	5	NA	NA	1.5	8	989.913	103	98		325	231	67	5.6	
	1215	10			1.5	8.5	993.287	104	98		325	233	63	5.5	
	1220	15			1.5	9.5	996.654	107	99		324	241	64	5.4	
	1225	20			1.5	10	999.956	107	99		325	239	65	5.4	
		~~25~~													
		~~30~~													
	1232						1000.320								
EAST	1237	~~25~~ 35			1.5	11	1003.708	104	99		326	242	66	3.8	
	1242	~~30~~ 40			1.5	11	1007.038	105	99		325	241	61	3.3	
	1247	~~35~~ 45			1.5	13	1010.382	107	99		325	241	62	3.2	
	1252	~~40~~ 50			1.5	15	1013.632	108	100		325	242	63	3.1	
		~~55~~													
		~~60~~	↓	↓											
AVERAGE					1.5		26.748		102.3					4.4	

Sample Train Pre Test 0.008 ft^3 @ 15 in. Hg
Leak Checks: Post Test 0.007 ft^3 @ 19 in. Hg

Pitot Tube PreTest ____ @ ____ in. H_2O
Leak Checks: Post Test ____ @ ____ in. H_2O

CONSOLENERGY

EPA CTM 027 AMMONIA SAMPLING FIELD DATA SHEET

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TEST ID	E0-1	METER BOX	N-4	CAL. DATA: delta H	1.790	Comments:	leak check was completed after port W-3 no leaks were found		
PLANT	GREENIDGE	PITOT TUBE DESC	E-3	Y	0.983				
LOCATION	ECONOMIZER OUTLET	PROBE LENGTH [ft]	10	C(p)	0.840				
DATE	5-3[illegible]-07	NOZZLE ID [inch]	3/16 C -0.194	FILTER BOX SETTING	NA				
OPERATOR(S)	RPD BPS	%H_2O (Assumed)	8	PROBE HTR SETTING	325				
AMBIENT TEMP [°F]	84°F	FILTER ID	1052	DUCT X-SECTION	circ ?	rect ?	other:		
BAR. PRESS. [" Hg]	29.44	K FACTOR		DUCT DIMENSIONS		DUCT AREA			

TRAVERSE POINT [port-inch]	CLOCK TIME (24-hr)	SAMPLE TIME [minute]	STATIC PRES [" H_2O]	PITOT HEAD [" H_2O]	METER DIFF PRESSURE [" H_2O]	METER VACUUM [" Hg]	METER READING [ft^3]	METER TEMP [oF] inlet	METER TEMP [oF] outlet	STACK TEMP [°F]	PROBE TEMP [°F]	FILTER BOX [°F]	LAST IMP TEMP [°F]	METER EXHAUST O_2 [% vol]	METER EXHAUST CO_2 [% vol]
		0					828.005								
	1804	5	-5.1		1.0	4		108	107	657	315	210	65		
	W-1	10			1.0	5	836.18	108	107	663	322	213	60	2.6	17.3
		15			1.0	6	839.62	109	107	664	322	216	60		
							~~839.62~~								
							840.00	-38							
		20	-5.3		1.0	7	843.49	108	106	676	319	219	61		
	W-3	25			1.0	7	847.31	108	105	652	322	225	60	7.8	12.4
		30			1.0	7	850.60	108	105	677	322	227	60		
							851.023								
		35	-5.0		1.0	8	854.38	107	105	723	321	228	65	3.6	17.5
	E-1	40			1.0	9	857.85	108	105	724	324	230	61	2.5	17.4
		45			1.0	9	861.300	108	105	730	316	231	61		
							861.300								
		50	-5.2		1.0	10	864.88	108	104	704	314	235	63	2.7	17.3
	E-2	55			1.0	11	868.35	108	104	702	323	236	61	3.1	16.9
	1916	60			1.0	11	871.563	108	104	701	318	236	61	3.0	17.0
AVERAGE							43.178		106.67	666.92				3.52	16.53

Sample Train Pre Test 0 ft^3 @ 12 in. Hg
Leak Checks: Post Test 0 ft^3 @ 6 in. Hg

Pitot Tube PreTest 0 @ 18 in. H_2O
Leak Checks: Post Test 0 @ 6 in. H_2O

CONSOL ENERGY

EPA CTM 027 AMMONIA SAMPLING FIELD DATA SHEET

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TEST ID	Econ - 2	METER BOX	N-4	CAL. DATA: delta H	1.790	Comments:			
PLANT	GREENIDGE	PITOT TUBE DESC	E-3	Y	.993				
LOCATION	ECONOMIZER OUTLET	PROBE LENGTH [ft]	10ft	C(p)					
DATE	6-1-07	NOZZLE ID [inch]	3/16 C	FILTER BOX SETTING	NA				
OPERATOR(S)	RED TSPS	%H_2O (Assumed)	8	PROBE HTR SETTING	325				
AMBIENT TEMP [°F]	94°F	FILTER ID	1053	DUCT X-SECTION	circ ?	rect ?	other:		
BAR. PRESS. [" Hg]	29.47	K FACTOR		DUCT DIMENSIONS		DUCT AREA			

TRAVERSE POINT [port-inch]	CLOCK TIME (24-hr)	SAMPLE TIME [minute]	STATIC PRES [" H_2O]	PITOT HEAD [" H_2O]	METER DIFF PRESSURE [" H_2O]	METER VACUUM [" Hg]	METER READING [ft^3]	METER TEMP [oF] inlet	METER TEMP [oF] outlet	STACK TEMP [°F]	PROBE TEMP [°F]	FILTER BOX [°F]	LAST IMP TEMP [°F]	METER EXHAUST O_2 [% vol]	METER EXHAUST CO_2 [% vol]
	1018	0					872.503								
		5	-5.4		1.5	4	876.63	93	93	731	321	258	67		
	E-1	10			1.5	5	880.764	94	93	737	318	269	51	3.9	16.1
		~~15~~													
							880.76								
	E-3	15 ~~20~~	-5.5		1.5	6	884.99	95	93	605	322	273	53	3.6	16.4
		20 ~~25~~			1.5	6	889.132	96	93	606	320	275	56	3.3	16.7
		~~30~~						leak check done no leaks							
							889.400								
	W-1	25 ~~35~~	-5.7		1.5	8	893.54	98	93	678	321	267	61	4.2	15.7
		30 ~~40~~			1.5	10	897.763	98	93	681	320	266	56	4.1	15.9
		~~45~~													
							897.763								
	W-3	35 ~~50~~	-5.6		1.5	11	902.04	100	95	~~740~~ 623	321	268	58	9.4	10.9
		40 ~~55~~			1.5	12	906.391	101	95	~~756~~ 623	323	268	61	8.9	11.6
		~~60~~													
	1104														
AVERAGE			-5.55		1.5		33.62	75.2		660.5				4.7	

Sample Train Pre Test 0 ft³ @ 15 in. Hg
Leak Checks: Post Test 0 ft³ @ 6 in. Hg

Pitot Tube PreTest 0 @ 15 in. H_2O
Leak Checks: Post Test 0 @ 6 in. H_2O

CONSOL ENERGY

EPA CTM 027 AMMONIA SAMPLING FIELD DATA SHEET

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TEST ID	Econ-3	METER BOX	N-4	CAL. DATA: delta H	1.790	Comments:			
PLANT	GREENIDGE	PITOT TUBE DESC	E-3	Y	0.983				
LOCATION	ECONOMIZER OUTLET	PROBE LENGTH [ft]	10 ft	C(p)					
DATE	6-1-07	NOZZLE ID [inch]	3/16 C	FILTER BOX SETTING	NA				
OPERATOR(S)	RPD BPS	%H_2O (Assumed)	8	PROBE HTR SETTING	325				
AMBIENT TEMP [°F]	94°	FILTER ID	1054	DUCT X-SECTION	circ ?	rect ?	other:		
BAR. PRESS. [" Hg]	29.44	K FACTOR		DUCT DIMENSIONS		DUCT AREA			

TRAVERSE POINT [port-inch]	CLOCK TIME (24-hr)	SAMPLE TIME [minute]	STATIC PRES [" H_2O]	PITOT HEAD [" H_2O]	METER DIFF PRESSURE [" H_2O]	METER VACUUM [" Hg]	METER READING [ft^3]	METER TEMP [oF] inlet	METER TEMP [oF] outlet	STACK TEMP [°F]	PROBE TEMP [°F]	FILTER BOX [°F]	LAST IMP TEMP [°F]	METER EXHAUST O_2 [% vol]	METER EXHAUST CO_2 [% vol]
	1205	0					907.000								
		5	-5.3		1.5	5	911.25	99	98	~~320~~ 678	~~201~~ 320	201	66	4.8	15.3
	W-1	10			1.5	6	915.434	99	98	683	321	209	55	4.3	15.8
		~~15~~													
							915.434								
		15 ~~20~~	-5.7		1.5	7	919.66	101	98	643	322	216	57	9.8	10.5
	W-3	20 ~~25~~			1.5	8	~~924.092~~ 923.98	103	98	644	321	219	56	9.6	10.7
		~~30~~					leak check was done			No leaks found					
							924.300								
		25 ~~35~~	-5.4		1.5	9	928.54	103	98	736	318	224	65	3.7	16.3
	E-1	30 ~~40~~			1.5	10	932.764	104	99	743	318	226	63	3.5	16.4
		~~45~~													
							932.764								
		35 ~~50~~	-5.6		1.5	12	937.27	105	99	612	315	227	65	3.7	16.3
	E-3	40 ~~55~~			1.5	13	941.521	105	100	612	319	228	66	3.0	17.0
		~~60~~													
	1250														
AVERAGE			-5.5		1.5		34.201	100.4		668.9				5.3	

Sample Train Pre Test 0 ft³ @ 12 in. Hg
Leak Checks: Post Test 0 ft³ @ 6 in. Hg

Pitot Tube PreTest 0 @ 19 in. H_2O
Leak Checks: Post Test 0 @ 6 in. H_2O

CONSOL ENERGY

AES GREENIDGE UNIT 4 GUARANTEE TESTING

NH3 Summary - Air Heater Inlet

June 20-21, 2007

Location		East Duct	West Duct	East Duct	West Duct	East Duct	West Duct	East Duct	West Duct	East Duct	West Duct
Date		06/20/07	06/20/07	06/20/07	06/20/07	06/20/07	06/20/07	06/21/07	06/21/07	06/21/07	06/21/07
Start Time		935	935	1756	1755	2007	2002	1109	1110	1517	1517
Stop Time		1015	1035	1836	1835	2047	2042	1149	1150	1557	1557
Test Number		NH3-1	NH3-1	NH3-2	NH3-2	NH3-3	NH3-3	NH3-4	NH3-4	NH3-5	NH3-5
MEASURED TEST VARIABLES											
Y factor of Dry Gas Meter	-	0.970	0.983	0.970	0.983	0.970	0.983	0.970	0.983	0.970	0.983
Gas Volume	- ft^3	26.266	41.540	27.051	33.120	26.707	33.240	26.971	33.380	27.128	34.000
delta H of Dry Gas Meter	- " H_20	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Meter Temperature	- ° F	89.9	77.2	89.1	77.6	92.7	77.2	92.7	76.3	95.9	85.4
C Factor of Pitot Tube	-										
Nozzle Diameter	- inches	0.194	0.181	0.194	0.181	0.194	0.181	0.194	0.181	0.194	0.181
Area of Nozzle	- ft^2	0.00021	0.00018	0.00021	0.00018	0.00021	0.00018	0.00021	0.00018	0.00021	0.00018
Area of Stack	- ft^2										
H_2O Weight	- gm	49.3	53.5	54.5	51.2	55.5	58.5	49.8	46.4	48.9	52.4
Sample Time	- minutes	40	50	40	40	40	40	40	40	40	40
Barometric Pressure	- " Hg	29.41	29.41	29.44	29.44	29.44	29.44	29.30	29.30	29.21	29.21
Static Pressure	- " H_20										
% Oxygen	-	4.1	7.3	3.9	5.4	3.9	6.1	4.1	6.5	4.9	6.3
% Carbon Dioxide	-										
% N_2 + CO	-										
Stack Temp (Dry Bulb)	- ° F										
Stack Temp (Wet Bulb)	- ° F										
"S" Sample (rms vel head)	- " H_20										
Ammonia as NH4	- mg	1.62	4.95	1.94	1.69	0.81	1.72	0.62	1.61	0.72	1.89
CALCULATED TEST VARIABLES											
Sample Volume	- dscf	24.13	39.58	24.91	31.57	24.43	31.71	24.56	31.74	24.48	31.69
Absolute Stack Pressure	- " Hg										
Absolute Stack Temperature	- ° R										
H_2O - % by Volume	- vapor										
H_2O - % by Volume	- w/ droplets	8.8	6.0	9.3	7.1	9.7	8.0	8.7	6.4	8.6	7.2
Water Volume	- std ft^3	2.32	2.52	2.57	2.41	2.61	2.76	2.35	2.19	2.30	2.47
Dry Molecular Weight	- lb/lb-mole										
Wet Molecular Weight	- lb/lb-mole										
% Excess Air	-										
Mole Fraction of Dry Gas	-	0.912	0.940	0.907	0.929	0.903	0.920	0.913	0.936	0.914	0.928
Mole Fraction of Wet Gas	-	0.088	0.060	0.093	0.071	0.097	0.080	0.087	0.064	0.086	0.072
AMMONIA											
NH3, ppmvd as sampled	-	3.16	5.89	3.67	2.52	1.56	2.55	1.19	2.39	1.38	2.81
NH3, ppmvd @ 3% O2	-	3.37	7.75	3.86	2.91	1.64	3.09	1.27	2.97	1.55	3.44
AVERAGE NH3, ppmvd @ 3% O2	-	5.56		3.38		2.37		2.12		2.49	

EPA CTM 027 AMMONIA SAMPLING FIELD DATA SHEET

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TEST ID	Run 1 - East	METER BOX	1	CAL. DATA: delta H	1.894	Comments:			
PLANT	GREENIDGE	PITOT TUBE DESC	—	Y	0.970				
LOCATION	AIR HEATER INLET	PROBE LENGTH [ft]	3	C(p)	—				
DATE	6/20/07	NOZZLE ID [inch]	3/16"	FILTER BOX SETTING	NA				
OPERATOR(S)	BWG	%H_2O (Assumed)	8	PROBE HTR SETTING	325				
AMBIENT TEMP [°F]	84	FILTER ID		DUCT X-SECTION	circ ?	rect ?	other:		
BAR. PRESS. [" Hg]	29.41	K FACTOR	NA	DUCT DIMENSIONS		DUCT AREA			

TRAVERSE POINT [port-inch]	CLOCK TIME (24-hr)	SAMPLE TIME [minute]	STATIC PRES [" H_2O]	PITOT HEAD [" H_2O]	METER DIFF PRESSURE [" H_2O]	METER VACUUM [" Hg]	METER READING [ft^3]	METER TEMP [oF] inlet	METER TEMP [oF] outlet	STACK TEMP [°F]	PROBE TEMP [°F]	~~FILTER~~ LINE BOX [°F]	LAST IMP TEMP [°F]	METER EXHAUST O_2 [% vol]	METER EXHAUST CO_2 [% vol]
	0935	0					15.106								
EAST	0940	5	NA	NA	1.5	5	18.493	86	84	NA	326	252	57	4.1	
	0945	10			1.5	6.2	21.790	90	85	NA	323	252	50	4.0	
	0950	15			1.5	6.6	25.025	92	86	NA	324	253	52	4.1	
	0955	20			1.5	7.5	28.217	94	87	NA	324	253	55	4.2	
	1000	25			1.5	8.5	31.414	95	87	NA	325	251	54	4.0	
	1005	30			1.5	10	34.802	96	87	NA	325	251	54	4.2	
	1010	35			1.5	11	38.613	96	88	NA	325	252	54	4.2	
	1015	40			1.5	13	41.372	97	88	NA	325	252	54	3.9	
		~~25~~													
		~~40~~													
		~~45~~													
		~~50~~													
		~~55~~													
		~~60~~													
AVERAGE					1.5	8.5	26.266		89.9		324.6	252	53.8	4.1	

Sample Train Leak Checks: Pre Test 0.004 ft^3 @ 12 in. Hg; Post Test 0.005 ft^3 @ 13 in. Hg

Pitot Tube Leak Checks: PreTest — @ — in. H_2O; Post Test — @ — in. H_2O

CONSOL ENERGY

EPA CTM 027 AMMONIA SAMPLING FIELD DATA SHEET

Page ____ of ____

TEST ID	TEST # 1	METER BOX	2-4	CAL. DATA: delta H	1.790	Comments:			
PLANT	GREENIDGE	PITOT TUBE DESC	NA	Y	0.983				
LOCATION	AIR HEATER INLET ~~ECONOMIZER OUTLET~~ WEST	PROBE LENGTH [ft]	3 1/2'	C(p)					
DATE	6-19-07 6-20-07	NOZZLE ID [inch]		FILTER BOX SETTING	NA				
OPERATOR(S)	BPS	%H_2O (Assumed)	8	PROBE HTR SETTING	325				
AMBIENT TEMP [°F]	~850	FILTER ID	1058	DUCT X-SECTION	circ ?	rect ?	other:		
BAR. PRESS. [" Hg]	29.41	K FACTOR	NA	DUCT DIMENSIONS		DUCT AREA			

1.5 943.60 (6) (7) (2) LINE (5) (4)

TRAVERSE POINT [port-inch]	CLOCK TIME (24-hr)	SAMPLE TIME [minute]	STATIC PRES [" H_2O]	PITOT HEAD [" H_2O]	METER DIFF PRESSURE [" H_2O]	METER VACUUM [" Hg]	METER READING [ft^3]	METER TEMP [oF] inlet	METER TEMP [oF] outlet	STACK TEMP [°F]	PROBE TEMP [°F]	~~FILTER BOX~~ [°F]	LAST IMP TEMP [°F]	METER EXHAUST O_2 [% vol]	METER EXHAUST CO_2 [% vol]
	0935	0					~~942.10~~								
		5	NA	NA	~~1.5~~	5	946.78	77	72	NA	340	224	57	—	—
		10	|	|	1.5	5	950.92	78	72	|	340	227	57	9.0	—
		15	|	|	|	6	452.50 L.C.	78	74	|	321	230	60	5.6	—
			|	|	|	→	956.80			*	H16H O2 - CHANGED FITTING				
			|	|	|	|					AT 10 min. L.C."		O	K"
		20	|	|	1.5	7	960.91	80	74	|	322	232	61	5.7	—
		25	|	|	|	8	965.03	81	75	|	322	234	63	6.6	—
		30	|	|	|	8	969.15	81	75	|	322	234	64	6.8	—
			|	|	|	|				|	|	|	|	|
			|	|	|	|				|	|	|	|	|
		35	|	|	1.5	9	973.28	81	75	|	322	235	65	7.0	—
		40	|	|	|	9.5	977.41	81	75	|	322	235	66	7.8	—
		45	|	|	|	9.5	981.56	81	76	|	322	235	67	8.3	—
			|	|	|	|				|	|	|	|	|
			|	|	|	|				|	|	|	|	|
	1035	50	|	|	1.5	10	985.72	81	76	|	323	235	67	8.8	—
		55	|	|	|	|				|	|	|	|	|
		60	|	|	|	|				|	|	|	|	|
			|	|	|	|				|	|	|	|	|
			|	|	|	|				|	|	|	|	|
AVERAGE					1.5	7.7	41.54		77.2		325.6	232.1	62.7	7.3	

Sample Train Pre Test 0.15 ft^3 @ 10 in. Hg − (0.000 ft^3/min)(50 min)

Leak Checks: Post Test 0.060 ft^3 @ 10 in. Hg = 38.54 ft^3 ← leak correction

Pitot Tube PreTest ___ @ ___ in. H_2O

Leak Checks: Post Test ___ @ ___ in. H_2O

CONSOL ENERGY

EPA CTM 027 AMMONIA SAMPLING FIELD DATA SHEET

TEST ID	Run 2 - East	METER BOX	2	CAL. DATA: delta H	1.894	Comments:			
PLANT	GREENIDGE	PITOT TUBE DESC	NA	Y	0.970				
LOCATION	AIR HEATER INLET	PROBE LENGTH [ft]	3	C(p)	—				
DATE	6/20/07	NOZZLE ID [inch]	3/16 E	FILTER BOX SETTING	NA				
OPERATOR(S)	BWG	$\%H_2O$ (Assumed)	8	PROBE HTR SETTING	325				
AMBIENT TEMP [°F]	86	FILTER ID		DUCT X-SECTION	circ ?	rect ?	other:		
BAR. PRESS. [" Hg]	29.41	K FACTOR	NA	DUCT DIMENSIONS		DUCT AREA			

TRAVERSE POINT [port-inch]	CLOCK TIME (24-hr)	SAMPLE TIME [minute]	STATIC PRES [" H_2O]	PITOT HEAD [" H_2O]	METER DIFF PRESSURE [" H_2O]	METER VACUUM [" Hg]	METER READING [ft^3]	METER TEMP [oF] inlet	METER TEMP [oF] outlet	STACK TEMP [°F]	PROBE TEMP [°F]	~~FILTER~~ BOX [°F]	LAST IMP TEMP [°F]	METER EXHAUST O_2 [% vol]	METER EXHAUST CO_2 [% vol]
	1756	0					42.203								
	1801	5	NA	NA	1.5	5	45.624	87	86	NA	325	223	64	4.0	
	1806	10	↓	↓	1.5	6	48.975	89	86	NA	325	224	58	4.0	
	1811	15			1.5	7	52.338	89	86	↓	325	225	59	3.9	
	1816	20			1.5	8	55.716	91	86		325	225	59	3.9	
	1821	25			1.5	8	59.224	91	87		325	226	60	3.9	
	1826	30			1.5	9	—	94	87		325	226	60	3.8	
	1831	35			1.5	10	65.763	95	87		325	227	60	3.9	
	1836	40	↓	↓	1.5	12	69.254	96	88	↓	325	227	62	4.0	
		~~55~~													
		~~40~~													
		~~45~~													
		~~50~~													
		~~55~~													
		~~60~~													
AVERAGE					1.5	8.1	27.051	89.1		NA	325	225.4	60.3	3.9	

Sample Train Pre Test 0.001 ft^3 @ 15 in. Hg
Leak Checks: Post Test 0.001 ft^3 @ 18 in. Hg

Pitot Tube PreTest — @ — in. H_2O
Leak Checks: Post Test — @ — in. H_2O

CONSOLENERGY

EPA CTM 027 AMMONIA SAMPLING FIELD DATA SHEET

TEST ID	TEST #2	METER BOX	2-4	CAL. DATA: delta H	1.790	Comments:			
PLANT	GREENIDGE	PITOT TUBE DESC	2A	Y	0.983				
LOCATION	~~ECONOMIZER OUTLET~~	A.H. PROBE LENGTH [ft]	3 1/2'	C(p)					
DATE	6-20-07	INLET NOZZLE ID [inch]		FILTER BOX SETTING	NA				
OPERATOR(S)	B.P.S.	WEST %H_2O (Assumed)	8	PROBE HTR SETTING	325				
AMBIENT TEMP [°F]	~86.0	FILTER ID		DUCT X-SECTION	circ ?	rect ?	other:		
BAR. PRESS. [" Hg]	29.41	K FACTOR	2A	DUCT DIMENSIONS		DUCT AREA			

(6) (7) (2) SIDE (5) (4)

TRAVERSE POINT [port-inch]	CLOCK TIME (24-hr)	SAMPLE TIME [minute]	STATIC PRES [" H_2O]	PITOT HEAD [" H_2O]	METER DIFF PRESSURE [" H_2O]	METER VACUUM [" Hg]	METER READING [ft^3]	METER TEMP [oF] inlet	METER TEMP [oF] outlet	STACK TEMP [°F]	PROBE TEMP [°F]	~~FILTER BOX~~ [°F]	LAST IMP TEMP [°F]	METER EXHAUST O_2 [% vol]	METER EXHAUST CO_2 [% vol]
		0					987.50								
	1755	5	2A	2A	1.5	6	991.70	77	76	2A	324	216	69	—	—
		10			1	7	995.84	77	76		323	220	67	5.4	—
		15				8	999.96	78	76		325	225	67	5.3	—
		20			1.5	9	004.06	79	76		330	226	68	—	—
		25			1	10	008.20	80	76		333	227	68	5.3	—
		30				11	012.34	80	76		332	228	66	5.4	—
		35			1.5	12	016.48	80	77		334	228	66	5.4	—
	1835	40			1	13	020.62	81	77		334	229	66	5.4	—
		45													
		50													
		55													
		60													
AVERAGE					1.5	9.5	33.12		77.6		329.4	224.9	67.1	5.4	

Sample Train Pre Test 0.15 ft^3 @ 15 in. Hg
Leak Checks: Post Test 0.15 ft^3 @ 15 in. Hg

Pitot Tube PreTest — @ — in. H_2O
Leak Checks: Post Test — @ — in. H_2O

CONSOLENERGY

EPA CTM 027 AMMONIA SAMPLING FIELD DATA SHEET

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TEST ID	TEST 3 - EAST
PLANT	GREENIDGE
LOCATION	AIR HEATER INLET
DATE	6/20/07
OPERATOR(S)	BWC
AMBIENT TEMP [°F]	87
BAR. PRESS. [" Hg]	29.44

METER BOX	1
PITOT TUBE DESC	
PROBE LENGTH [ft]	3
NOZZLE ID [inch]	3/16
%H_2O (Assumed)	8
FILTER ID	
K FACTOR	

CAL. DATA: delta H	1.894		
Y	0.970		
C(p)	—		
FILTER BOX SETTING	NA		
PROBE HTR SETTING	325		
DUCT X-SECTION	circ ?	rect ?	other:
DUCT DIMENSIONS		DUCT AREA	LINE

Comments: _____

TRAVERSE POINT [port-inch]	CLOCK TIME (24-hr)	SAMPLE TIME [minute]	STATIC PRES [" H_2O]	PITOT HEAD [" H_2O]	METER DIFF PRESSURE [" H_2O]	METER VACUUM [" Hg]	METER READING [ft^3]	METER TEMP [oF] inlet	METER TEMP [oF] outlet	STACK TEMP [°F]	PROBE TEMP [°F]	~~FILTER~~ BOX [°F]	LAST IMP TEMP [°F]	METER EXHAUST O_2 [% vol]	METER EXHAUST CO_2 [% vol]
	2007	0					69.775								
	2012	5	NA	NA	1.5	5	73.282	89	87	NA	326	183	57	3.8	
	2017	10	↓	↓	1.5	6	77.729	95	88	↓	325	190	59	4.0	
	2022	15			1.5	8	79.774	97	89		325	198	60	3.9	
	2027	20			1.5	8	83.291	98	89		325	202	60	3.9	
	2032	25			1.5	9	86.748	98	89		325	218	63	3.9	
	2037	30			1.5	9	89.952	93	89		325	217	64	4.0	
	2042	35			1.5	10	93.236	98	90		325	186	67	3.9	
	2047	40	↓	↓	1.5	12	96.782	99	90	↓	325	181	67	4.0	
		~~45~~													
		~~40~~													
		~~45~~													
		~~50~~													
		~~55~~													
		~~60~~													
AVERAGE					1.5	8.4	26.707		92.7		325.1	196.9	62.1	3.9	

Sample Train Pre Test 0.000 ft^3 @ 1.5 in. Hg

Leak Checks: Post Test 0.018 ft^3 @ 17 in. Hg

Pitot Tube PreTest — @ — in. H_2O

Leak Checks: Post Test — @ — in. H_2O

CONSOLENERGY

EPA CTM 027 AMMONIA SAMPLING FIELD DATA SHEET

Page _____ of _____

TEST ID	TEST # 3	METER BOX	2-4	CAL. DATA: delta H	1.790	Comments:			
PLANT	GREENIDGE	PITOT TUBE DESC	2A	Y	0.983				
LOCATION	~~ECONOMIZER OUTLET~~ A.H. INLET WEST	PROBE LENGTH [ft]	3 1/2'	C(p)					
DATE	6-20-07	NOZZLE ID [inch]		FILTER BOX SETTING	NA				
OPERATOR(S)	BPS	%H_2O (Assumed)	8	PROBE HTR SETTING	325				
AMBIENT TEMP [°F]	~850	FILTER ID	1062	DUCT X-SECTION	circ ?	rect ?	other:		
BAR. PRESS. [" Hg]	29.44	K FACTOR	2A	DUCT DIMENSIONS		DUCT AREA			

TRAVERSE POINT [port-inch]	CLOCK TIME (24-hr)	SAMPLE TIME [minute]	STATIC PRES [" H_2O]	PITOT HEAD [" H_2O]	METER DIFF PRESSURE [" H_2O]	METER VACUUM [" Hg]	METER READING [ft^3]	METER TEMP [oF] (6) inlet	METER TEMP [oF] (7) outlet	STACK TEMP [°F]	PROBE TEMP [°F] (2)	~~FILTER BOX~~ [°F] LINES (5)	LAST IMP TEMP [°F] (4)	METER EXHAUST O_2 [% vol]	METER EXHAUST CO_2 [% vol]
	2002	0					021.20								
		5	2A	2A	1.5	5	025.40	76	75	2A	327	210	60	—	—
		10	"	"	"	6	029.47	77	75	"	324	217	57	5.4	—
		15	"	"	"	7	033.63	78	75	"	322	224	60	5.6	—
		20	"	"	1.5	7.5	037.79	79	76	"	322	227	60	—	—
		25	"	"	"	8	041.93	80	76	"	322	229	61	6.0	—
		30	"	"	"	9	046.09	80	76	"	323	230	62	6.3	—
		35	"	"	1.5	11	050.24	80	76	"	322	230	62	6.5	—
	2042	40	"	"	"	11	054.44	80	76	"	324	231	62	6.6	—
		45	"	"						"					
		50	"	"						"					
		55	"	"						"					
		60	"	"						"					
AVERAGE					1.5	8.1	33.24		77.2		323.3	224.8	60.5	6.1	

Sample Train Leak Checks: Pre Test 0.15 ft^3 @ 1.5 in. Hg; Post Test 0.15 ft^3 @ 1.1 in. Hg

Pitot Tube Leak Checks: PreTest — @ — in. H_2O; Post Test — @ — in. H_2O

CONSOL ENERGY

EPA CTM 027 AMMONIA SAMPLING FIELD DATA SHEET

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TEST ID	Run 4 - EAST	METER BOX	1	CAL. DATA: delta H	1.894	Comments:			
PLANT	GREENIDGE	PITOT TUBE DESC	NA	Y	0.970				
LOCATION	AIR HEATER INLET	PROBE LENGTH [ft]	3'	C(p)					
DATE	6/21/07	NOZZLE ID [inch]	3/16 E	FILTER BOX SETTING	NA				
OPERATOR(S)	BW/E	%H_2O (Assumed)	8	PROBE HTR SETTING	325				
AMBIENT TEMP [°F]	92	FILTER ID		DUCT X-SECTION	circ ?	rect ?	other:		
BAR. PRESS. [" Hg]	29.30	K FACTOR		DUCT DIMENSIONS		DUCT AREA			

TRAVERSE POINT [port-inch]	CLOCK TIME (24-hr)	SAMPLE TIME [minute]	STATIC PRES [" H_2O]	PITOT HEAD [" H_2O]	METER DIFF PRESSURE [" H_2O]	METER VACUUM [" Hg]	METER READING [ft^3]	METER TEMP [oF] inlet	METER TEMP [oF] outlet	STACK TEMP [°F]	PROBE TEMP [°F]	FILTER BOX [°F]	LAST IMP TEMP [°F]	METER EXHAUST O_2 [% vol]	METER EXHAUST CO_2 [% vol]
	1109	0					97.244								
	1114	5	NA	NA	1.5	5.5	100.683	94	90	NA	329	238	61	3.9	
	1119	10	"	"	1.5	6	104.216	92	86	"	329	237	57	4.1	
	1124	15	"	"	1.5	7	107.330	95	87	"	330	238	59	4.0	
	1129	20	"	"	1.5	7.5	110.697	97	88	"	329	239	62	3.9	
	1134	25	"	"	1.5	8.5	114.095	97	88	"	328	241	64	4.1	
	1139	30	"	"	1.5	9.5	117.458	99	89	"	324	244	66	4.1	
	1144	35	"	"	1.5	10	120.856	100	90	"	324	245	65	4.2	
	1149	40	↓	↓	1.5	12	124.215	100	91	↓	326	246	62	4.3	
		~~35~~													
		~~40~~													
		~~45~~													
		~~50~~													
		~~55~~													
		~~60~~													
AVERAGE					1.5	8.3	26.971		92.7		327.4	241.0	62.0	4.1	

Sample Train Pre Test 0.002 ft^3 @ 15 in. Hg
Leak Checks: Post Test 0.016 ft^3 @ 17 in. Hg

Pitot Tube PreTest ___ @ ___ in. H_2O
Leak Checks: Post Test ___ @ ___ in. H_2O

CONSOL ENERGY

EPA CTM 027 AMMONIA SAMPLING FIELD DATA SHEET

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TEST ID	TEST #4	METER BOX	N-4	CAL. DATA: delta H	1.790	Comments:			
PLANT	GREENIDGE	PITOT TUBE DESC	NA	Y	0.983				
LOCATION	~~ECONOMIZER OUTLET~~ A.H. INLET WEST	PROBE LENGTH [ft]	3 1/2 '	C(p)					
DATE	6-21-07	NOZZLE ID [inch]		FILTER BOX SETTING	NA				
OPERATOR(S)	BPS	%H_2O (Assumed)	8	PROBE HTR SETTING	325				
AMBIENT TEMP [°F]	~ 830	FILTER ID	1065	DUCT X-SECTION	circ ?	rect ?	other:		
BAR. PRESS. [" Hg]	29.32	K FACTOR	NA	DUCT DIMENSIONS		DUCT AREA			

TRAVERSE POINT [port-inch]	CLOCK TIME (24-hr)	SAMPLE TIME [minute]	STATIC PRES [" H_2O]	PITOT HEAD [" H_2O]	METER DIFF PRESSURE [" H_2O]	METER VACUUM [" Hg]	METER READING [ft^3]	METER TEMP [oF] (6) inlet	METER TEMP [oF] (7) outlet	STACK TEMP [°F]	PROBE TEMP [°F] (2)	~~FILTER BOX~~ [°F] LINE (5)	LAST IMP TEMP [°F] (4)	METER EXHAUST O_2 [% vol]	METER EXHAUST CO_2 [% vol]
	1110	0					055.20								
		5	NA	NA	1.5	6	059.39	74	72	NA	324	215	56	—	—
		10			1	7	063.54	75	72		322	219	56	6.0	—
		15				8	067.68	77	73		323	223	57	6.0	—
		20			1.5	9	071.88	79	74		323	226	59	6.1	—
		25			1	10	076.03	80	74		323	227	60	6.4	—
		30			1	11	080.23	81	75		323	229	60	6.5	—
		35			1.5	11	084.40	81	75		323	229	61	7.4	—
	1150	40			1	12	088.58	82	76		324	229	62	7.4	—
		45													
		50													
		55													
		60													
AVERAGE					1.5	9.3	33.38		76.3		323.1	224.6	58.9	6.5	

Sample Train Leak Checks: Pre Test OK ft^3 @ 15 in. Hg; Post Test OK ft^3 @ 12 in. Hg

Pitot Tube Leak Checks: PreTest — @ — in. H_2O; Post Test — @ — in. H_2O

CONSOL ENERGY

EPA CTM 027 AMMONIA SAMPLING FIELD DATA SHEET

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TEST ID	EAST RUN 5	METER BOX	1	CAL. DATA: delta H	1.894	Comments:			
PLANT	GREENIDGE	PITOT TUBE DESC	NA	Y	0.970				
LOCATION	AIR HEATER INLET	PROBE LENGTH [ft]	3	C(p)					
DATE	6/21/07	NOZZLE ID [inch]	316C	FILTER BOX SETTING	NA				
OPERATOR(S)	RWG	%H_2O (Assumed)	8	PROBE HTR SETTING	325				
AMBIENT TEMP [°F]	92	FILTER ID		DUCT X-SECTION	circ ?	rect ?	other:		
BAR. PRESS. [" Hg]	29.21	K FACTOR		DUCT DIMENSIONS		DUCT AREA			

TRAVERSE POINT [port-inch]	CLOCK TIME (24-hr)	SAMPLE TIME [minute]	STATIC PRES [" H_2O]	PITOT HEAD [" H_2O]	METER DIFF PRESSURE [" H_2O]	METER VACUUM [" Hg]	METER READING [ft^3]	METER TEMP [oF] inlet	METER TEMP [oF] outlet	STACK TEMP [°F]	PROBE TEMP [°F]	~~FILTER~~ LINE BOX [°F]	LAST IMP TEMP [°F]	METER EXHAUST O_2 [% vol]	METER EXHAUST CO_2 [% vol]
	1517	0					124.600								
EAST	1522	5	NA	NA	1.5	5	129.146	91	91	NA	333	244	52		
	1527	10			1.5	5	131.438	95	92		327	240	51		
	1532	15			1.5	6	134.778	96	92		335	239	51	4.9	
	1537	20			1.5	6	138.174	98	93		329	240	51	4.8	
	1542	25			1.5	8	141.632	101	94		329	241	52	4.8	
	1547	30			1.5	8	144.037	102	94		329	241	53	4.8	
	1552	35			1.5	9	148.384	103	95		324	242	54	4.9	
	1557	40	↓	↓	1.5	10	151.728	102	95	↓	325	243	55	4.9	
		~~35~~													
		~~40~~													
		~~45~~													
		~~50~~													
		~~55~~													
		~~60~~													
AVERAGE					1.5		27.128	95.9						4.9	

Sample Train Pre Test 0.001 ft^3 @ 12 in. Hg
Leak Checks: Post Test 0.001 ft^3 @ 16 in. Hg

Pitot Tube PreTest ____ @ ____ in. H_2O
Leak Checks: Post Test ____ @ ____ in. H_2O

CONSOL ENERGY

EPA CTM 027 AMMONIA SAMPLING FIELD DATA SHEET

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TEST ID	TEST #5
PLANT	GREENIDGE
LOCATION	~~ECONOMIZER OUTLET~~
DATE	6-21-07
OPERATOR(S)	RPS
AMBIENT TEMP [°F]	~90
BAR. PRESS. [" Hg]	29.21

METER BOX	2-4
PITOT TUBE DESC	2A
A.H. PROBE LENGTH [ft]	3 1/2
INLET NOZZLE ID [inch]	
WEST %H_2O (Assumed)	8
FILTER ID	1050
K FACTOR	2A

CAL. DATA: delta H	1.790	Comments:	
Y	0.983		
C(p)			
FILTER BOX SETTING	NA		
PROBE HTR SETTING	325		
DUCT X-SECTION	circ ?	rect ?	other:
DUCT DIMENSIONS		DUCT AREA	

(6) (7) (2) LINE (5) (4)

TRAVERSE POINT [port-inch]	CLOCK TIME (24-hr)	SAMPLE TIME [minute]	STATIC PRES [" H_2O]	PITOT HEAD [" H_2O]	METER DIFF PRESSURE [" H_2O]	METER VACUUM [" Hg]	METER READING [ft^3]	METER TEMP [oF] inlet	METER TEMP [oF] outlet	STACK TEMP [°F]	PROBE TEMP [°F]	~~FILTER BOX~~ [°F]	LAST IMP TEMP [°F]	METER EXHAUST O_2 [% vol]	METER EXHAUST CO_2 [% vol]
	1516	0					089.50								
		5	2A	2A	1.5	6	093.78	84	83	2A	334	254	59	—	—
		10			1	6.5	098.03	84	83		334	257	56	5.8	—
		15				7	102.28	86	83		334	260	59	5.7	—
		20			1.5	8	106.52	87	84		335	261	62	—	—
		25			1	9	110.73	89	84		335	263	63	6.6	—
		30				9.5	114.97	89	84		335	263	63	6.7	—
		35			1.5	10	119.26	89	84		336	264	63	6.6	—
	1556	40			1	11	123.50	89	84		336	264	64	6.6	—
		45													
		50													
		55													
		60													
AVERAGE					1.5		34.00		85.4					6.3	

Sample Train Pre Test 0K ft^3 @ 15 in. Hg

Leak Checks: Post Test 0K ft^3 @ 12 in. Hg

Pitot Tube PreTest — @ — in. H_2O

Leak Checks: Post Test — @ — in. H_2O

CONSOL ENERGY

APPENDIX C
Laboratory Analyses

CONSOL ENERGY

CONSOL Project #: 1621-085
General Description: Ion Selective Electrode Results for CTM-027 Samples from AES Greenidge Unit 4, 5/31/07-6/1/07
Date Reported: 6/1/2007

Sample No.	Location	Test No.	Sample	Volume, ml	NH3 Conc., mg/L as N	Total NH3, mg as NH4+	
1	Air Htr In	1	Probe	85	3.93	0.43	
2	Air Htr In	1	Line	71	7.21	0.66	*Portion of sample lost during recovery
3	Air Htr In	1	Imp #1	220	0.625	0.18	
4	Air Htr In	1	Imp #2	220	0.538	0.15	
5	Air Htr In	1	Imp #3	120	0.541	0.08	1.50
6	Econ Out	1	Probe/Line	130	34.1	5.70	
7	Econ Out	1	Imp #1	220	151	42.71	
8	Econ Out	1	Imp #2	220	21.9	6.19	
9	Econ Out	1	Imp #3	120	0.7	0.11	54.71
10	Air Htr In	2	Probe	124	0.149	0.02	
11	Air Htr In	2	Line	134	10.5	1.81	
12	Air Htr In	2	Imp #1	220	0.529	0.15	
13	Air Htr In	2	Imp #2	220	0.095	0.03	
14	Air Htr In	2	Imp #3	120	0.02	0.00	2.01
15	Econ Out	2	Probe/Line	129	50.1	8.31	
16	Econ Out	2	Imp #1	220	131	37.05	
17	Econ Out	2	Imp #2	220	9.41	2.66	
18	Econ Out	2	Imp #3	120	0.075	0.01	48.04
19	Air Htr In	3	Probe	139	0.076	0.01	
20	Air Htr In	3	Line	120	9.37	1.45	
21	Air Htr In	3	Imp #1	220	0.948	0.27	
22	Air Htr In	3	Imp #2	220	0.225	0.06	
23	Air Htr In	3	Imp #3	120	0.052	0.01	1.80
24	Air Htr In	3	Probe Blank	91	0.052	0.01	
25	Air Htr In	3	Line Blank	76	0.02	0.00	
26	Econ Out	3	Probe/Line	140	19.9	3.58	
27	Econ Out	3	Imp #1	220	113	31.96	
28	Econ Out	3	Imp #2	220	9.88	2.79	
29	Econ Out	3	Imp #3	120	0.126	0.02	38.36
30	Zeno Blank			125	0.067	0.01	
31	0.1N H2SO4 Blank			125	0.065	0.01	
32	Blank Train		Imp #1	150	0.19	0.04	
33	Blank Train		Imp #2	150	0.134	0.03	
34	Blank Train		Imp #3	100	0.03	0.00	

CONSOL ENERGY

CONSOL Project #: 1621-085
General Description: Ion Chromatography Results for CTM-027 Samples from AES Greenidge Unit 4, 5/31/07-6/1/07
Date Reported: 6/6/2007

ANALNUM	DESCR	SAMPLE	NH3 as N	NH3 as NH4		NH3 as NH4	
			mg/L	mg/L	volume (L)	mg	
20072968	AIR HTR IN TEST 1 PROBE	1	4.92	6.34	0.085	0.54	
20072969	AIR HTR IN TEST 1 LINE	2	7.33	9.44	0.071	0.67	* Portion of sample lost during recovery
20072970	AIR HTR IN TEST 1 IMP #1	3	0.98	1.26	0.220	0.28	
20072971	AIR HTR IN TEST 1 IMP #2	4	0.11	0.14	0.220	0.03	
20072972	AIR HTR IN TEST 1 IMP #3	5	< 0.10	< 0.13	0.120	< 0.02	1.53
20072973	ECON OUT TEST 1 PROBE/LINE	6	38.24	49.25	0.130	6.40	
20072974	ECON OUT TEST 1 IMP #1	7	172.34	221.94	0.220	48.83	
20072975	ECON OUT TEST 1 IMP #2	8	17.63	22.70	0.220	4.99	
20072976	ECON OUT TEST 1 IMP #3	9	0.61	0.79	0.120	0.09	60.32
20072977	AIR HTR IN TEST 2 PROBE	10	0.36	0.46	0.124	0.06	
20072978	AIR HTR IN TEST 2 LINE	11	9.94	12.80	0.134	1.72	
20072979	AIR HTR IN TEST 2 IMP #1	12	1.86	2.40	0.220	0.53	
20072980	AIR HTR IN TEST 2 IMP #2	13	< 0.10	< 0.13	0.220	< 0.03	
20072981	AIR HTR IN TEST 2 IMP #3	14	< 0.10	< 0.13	0.120	< 0.02	2.33
20072982	ECON OUT TEST 2 PROBE/LINE	15	50.82	65.45	0.129	8.44	
20072983	ECON OUT TEST 2 IMP #1	16	139.91	180.18	0.220	39.64	
20072984	ECON OUT TEST 2 IMP #2	17	9.77	12.58	0.220	2.77	
20072985	ECON OUT TEST 2 IMP #3	18	0.24	0.31	0.120	0.04	50.89
20072986	AIR HTR IN TEST 3 PROBE	19	0.43	0.55	0.139	0.08	
20072987	AIR HTR IN TEST 3 LINE	20	9.4	12.11	0.120	1.45	
20072988	AIR HTR IN TEST 3 IMP #1	21	2.16	2.78	0.220	0.61	
20072989	AIR HTR IN TEST 3 IMP #2	22	0.25	0.32	0.220	0.07	
20072990	AIR HTR IN TEST 3 IMP #3	23	< 0.10	< 0.13	0.120	< 0.02	2.22
20072991	AIR HTR IN TEST 3 PROBE BLANK	24	< 0.10	< 0.13	0.091	< 0.01	
20072992	AIR HTR IN TEST 3 LINE BLANK	25	< 0.10	< 0.13	0.076	< 0.01	
20072993	ECON OUTTEST 3 PROBE/LINE	26	24.74	31.86	0.140	4.46	
20072994	ECON OUT TEST 3 IMP #1	27	120.05	154.60	0.220	34.01	
20072995	ECON OUT TEST 3 IMP #2	28	10.13	13.05	0.220	2.87	
20072996	ECON OUT TEST 3 IMP #3	29	0.45	0.58	0.120	0.07	41.41
20072997	ZENO BLANK	30	< 0.10	< 0.13	0.125	< 0.02	
20072998	0.1N H2SO4 BLANK	31	< 0.10	< 0.13	0.125	< 0.02	
20072999	BLANK TRAIN IMP #1	32	< 0.10	< 0.13	0.150	< 0.01	
20073000	BLANK TRAIN IMP #2	33	< 0.10	< 0.13	0.150	< 0.02	
20073001	BLANK TRAIN IMP #3	34	< 0.10	< 0.13	0.100	< 0.01	

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CONSOL Project #: 1621-085
General Description: Ion Selective Electrode Results for CTM-027 Samples from AES Greenidge Unit 4, 6/20/07-6/21/07
Date Reported: 6/21/2007

Sample No.	Location	Test No.	Sample	Volume, ml	NH3 Conc., mg/L as N	Total NH_3, mg as NH4+	
1	East Duct	1	Imp #1	240	1.98	0.61	
2	East Duct	1	Imp #2	120	0.333	0.05	
3	East Duct	1	Imp #3	100	0.062	0.01	
4	East Duct	1	Probe	125	0.27	0.04	
5	East Duct	1	Line	125	5.66	0.91	1.62
6	West Duct	1	Imp #1	220	6.48	1.83	
7	West Duct	1	Imp #2	220	0.531	0.15	
8	West Duct	1	Imp #3	130	0.036	0.01	
9	West Duct	1	Probe	132	0.96	0.16	
10	West Duct	1	Line	128	17	2.80	4.95
11	East Duct	1	Line Blank	134	0.132	0.02	
12	East Duct	1	Probe Blank	130	0.012	0.00	
13	West Duct	1	Probe Blank	132	0.012	0.00	
14	West Duct	1	Line Blank	138	0.477	0.08	
15			Zeno Blank	100	0.012	0.00	
16			0.1 N H2SO4 Blank	100	0.011	0.00	
17	East Duct	2	Imp #1	220	1.85	0.52	
18	East Duct	2	Imp #2	220	0.404	0.11	
19	East Duct	2	Imp #3	100	0.023	0.00	
20	East Duct	2	Probe	125	0.355	0.06	
21	East Duct	2	Line	136	7.09	1.24	1.94
22	West Duct	2	Imp #1	220	4.31	1.22	
23	West Duct	2	Imp #2	220	0.371	0.10	
24	West Duct	2	Imp #3	100	0.026	0.00	
25	West Duct	2	Probe	130	0.091	0.02	
26	West Duct	2	Line	132	2.07	0.35	1.69
27	East Duct	3	Imp #1	220	0.5	0.14	
28	East Duct	3	Imp #2	220	0.13	0.04	
29	East Duct	3	Imp #3	100	0.068	0.01	
30	East Duct	3	Probe	108	0.08	0.01	
31	East Duct	3	Line	126	3.77	0.61	0.81
32	West Duct	3	Imp #1	220	3.61	1.02	
33	West Duct	3	Imp #2	220	0.339	0.10	
34	West Duct	3	Imp #3	100	0.047	0.01	
35	West Duct	3	Probe	140	0.621	0.11	
36	West Duct	3	Line	138	2.75	0.49	1.72
37			Impinger Recovery Blank	200	0.031	0.01	
38	East Duct	4	Imp #1	220	0.646	0.18	
39	East Duct	4	Imp #2	220	0.138	0.04	
40	East Duct	4	Imp #3	100	0.025	0.00	
41	East Duct	4	Probe	133	0.174	0.03	
42	East Duct	4	Line	129	2.22	0.37	0.62
43	West Duct	4	Imp #1	220	2.99	0.85	
44	West Duct	4	Imp #2	220	0.813	0.23	
45	West Duct	4	Imp #3	100	0.032	0.00	
46	West Duct	4	Probe	136	0.731	0.13	
47	West Duct	4	Line	132	2.37	0.40	1.61
48	West Duct	5	Imp #1	220	4.48	1.27	
49	West Duct	5	Imp #2	220	0.701	0.20	
50	West Duct	5	Imp #3	100	0.037	0.00	
51	West Duct	5	Probe	134	0.286	0.05	
52	West Duct	5	Line	127	2.27	0.37	1.89
53	East Duct	5	Imp #1	220	0.881	0.25	
54	East Duct	5	Imp #2	220	0.207	0.06	
55	East Duct	5	Imp #3	100	0.023	0.00	
56	East Duct	5	Probe	120	0.156	0.02	
57	East Duct	5	Line	122	2.44	0.38	0.72

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Sample Description.: GREENIDGE COAL 6/1/07 10:30
Sample No.: NH3-1
Date Received: 06/04/2007
Date Completed: 06/08/2007

Analytical No.: 20073004
Project No.: 1621 - 085 - 000
Submitted By: BWG/JEL/DPC

Proximate (Dry)	Wt%
Ash	8.07
Volatile Matter	37.90
Fixed Carbon	54.03
BTU/lb	13811
MAF BTU/lb	15023

Ultimate (Dry)%	
Carbon	76.12
Hydrogen	4.59
Nitrogen	1.40
Chlorine	0.0798
Sulfur, Total	2.67
Ash	8.07
Oxygen (DIFF)	7.07

Major Ash Elem. % (Ignited)	
SiO2	44.52
Al2O3	22.04
TiO2	0.94
Fe2O3	18.23
CaO	4.92
MgO	0.93
Na2O	0.95
K2O	1.66
P2O5	0.27
SO3	5.27
Undetermined	0.27

Total Moisture	5.56

Sulfur Forms (Dry)	
Pyritic Sulfur	
Sulfate	
Organic	
Sulfur, Total	2.67

Ash Fusion Reducing Temp (F)
Initial
Softening
Hemispherical.
Fluid

Ash Fusion Oxidizing
Initial
Softening
Hemispherical.
Fluid

Misc.	
Analysis	Value

HGI/FSI
HGI
FSI

Trace Elements (ppm (Dry)
Hg
F
As
Ba
Be
Cd
Co
Cr
Cu
Li
Mn
Mo
Ni
Pb
Sb
Se
Sn
Th
Tl
U
V
Zn

Seive Analysis

SIZE	WT %

As Determined Moisture 1.525 %

These values have been reviewed and are approved for transmission.

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Sample Description.: GREENIDGE COAL 6/1/07 14:00
Sample No.: NH3-2
Date Received: 06/04/2007
Date Completed: 06/08/2007

Analytical No.: 20073005
Project No.: 1621 - 085 - 000
Submitted By: BWG/JEL/DPC

Proximate (Dry)	Wt%
Ash	8.03
Volatile Matter	37.70
Fixed Carbon	54.27
BTU/lb	13815
MAF BTU/lb	15021

Ultimate (Dry)%	
Carbon	76.67
Hydrogen	4.56
Nitrogen	1.40
Chlorine	0.0809
Sulfur, Total	2.82
Ash	8.03
Oxygen (DIFF)	6.44

Major Ash Elem., % (Ignited)	
SiO2	44.50
Al2O3	21.56
TiO2	0.94
Fe2O3	19.56
CaO	5.07
MgO	0.94
Na2O	0.92
K2O	1.65
P2O5	0.32
SO3	5.37
Undetermined	-0.83

Total Moisture 5.57

Sulfur Forms (Dry)	
Pyritic Sulfur	
Sulfate	
Organic	
Sulfur, Total	2.82

Ash Fusion Reducing Temp (F)	
Initial	
Softening	
Hemispherical	
Fluid	

Ash Fusion Oxidizing	
Initial	
Softening	
Hemispherical	
Fluid	

Misc.	
Analysis	Value

HGI/FSI
HGI
FSI

Trace Elements (ppm) (Dry)
Hg
F
As
Ba
Be
Cd
Co
Cr
Cu
Li
Mn
Mo
Ni
Pb
Sb
Se
Sn
Th
Tl
U
V
Zn

Seive Analysis	
SIZE	WT %

As Determined Moisture 1.515 %

These values have been reviewed and are approved for transmission.

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Sample Description.: GREENIDGE COAL 6/20/07
Sample No.: NH3-1
Date Received: 06/26/2007
Date Completed: 08/29/2007

Analytical No.: 20073422
Project No.: 1621 - 085 - 000
Submitted By: J. LOCKE/D. CONNELL

Proximate (Dry)	Wt%
Ash	8.57
Volatile Matter	36.92
Fixed Carbon	54.51
BTU/lb	13851
MAF BTU/lb	15149

Ultimate (Dry)%	
Carbon	71.16
Hydrogen	5.43
Nitrogen	1.27
Chlorine	0.0932
Sulfur, Total	2.50
Ash	8.57
Oxygen (DIFF)	10.98

Major Ash Elem. % (Ignited)	
SiO2	47.71
Al2O3	23.32
TiO2	1.04
Fe2O3	15.98
CaO	4.04
MgO	0.97
Na2O	1.04
K2O	1.86
P2O5	0.48
SO3	4.07
Undetermined	-0.51

Total Moisture 4.28

Sulfur Forms (Dry)	
Pyritic Sulfur	
Sulfate	
Organic	
Sulfur, Total	2.50

Ash Fusion Reducing Temp (F)
Initial
Softening
Hemispherical
Fluid

Ash Fusion Oxidizing
Initial
Softening
Hemispherical
Fluid

Misc.	
Analysis	Value

HGI/FSI
HGI
FSI

Trace Elements (ppm (Dry)
Hg
F
As
Ba
Be
Cd
Co
Cr
Cu
Li
Mn
Mo
Ni
Pb
Sb
Se
Sn
Th
Tl
U
V
Zn

Seive Analysis

SIZE	WT %

As Determined Moisture 1.315 %

These values have been reviewed and are approved for transmission.