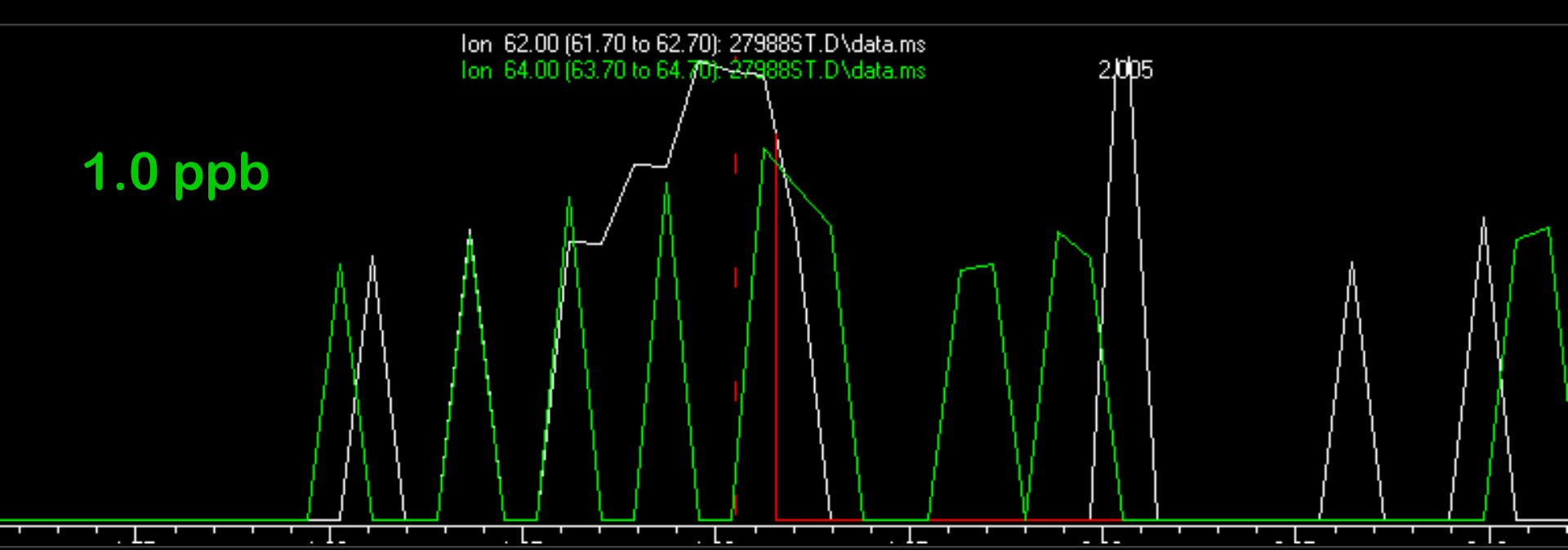
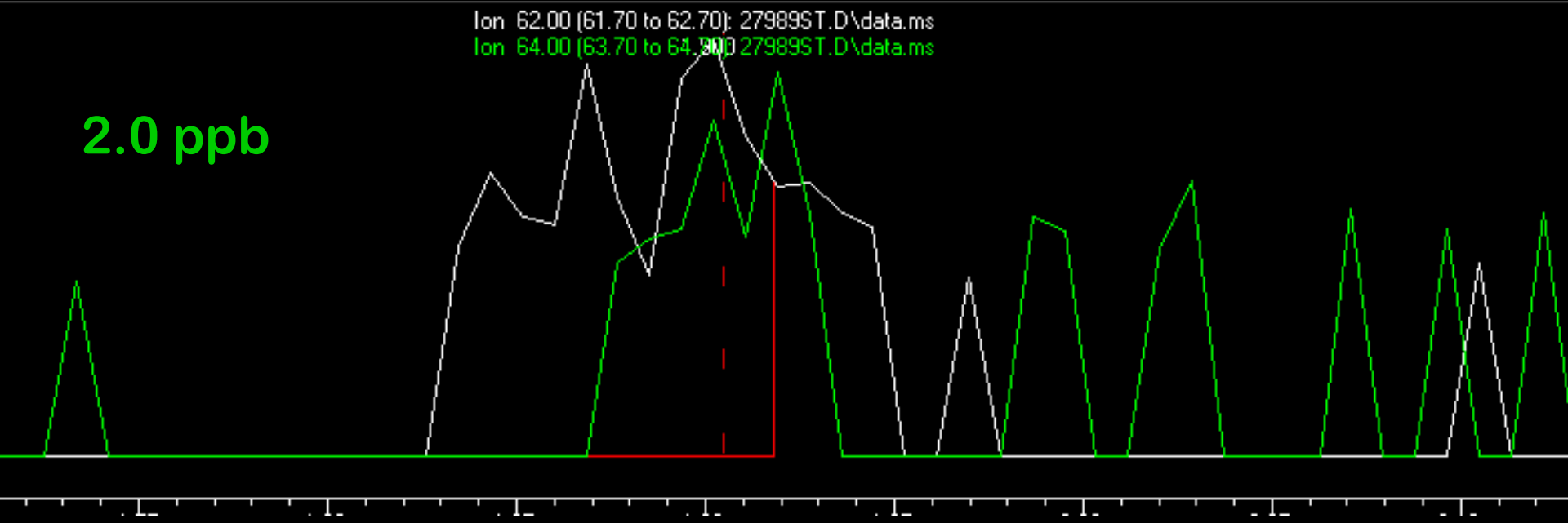
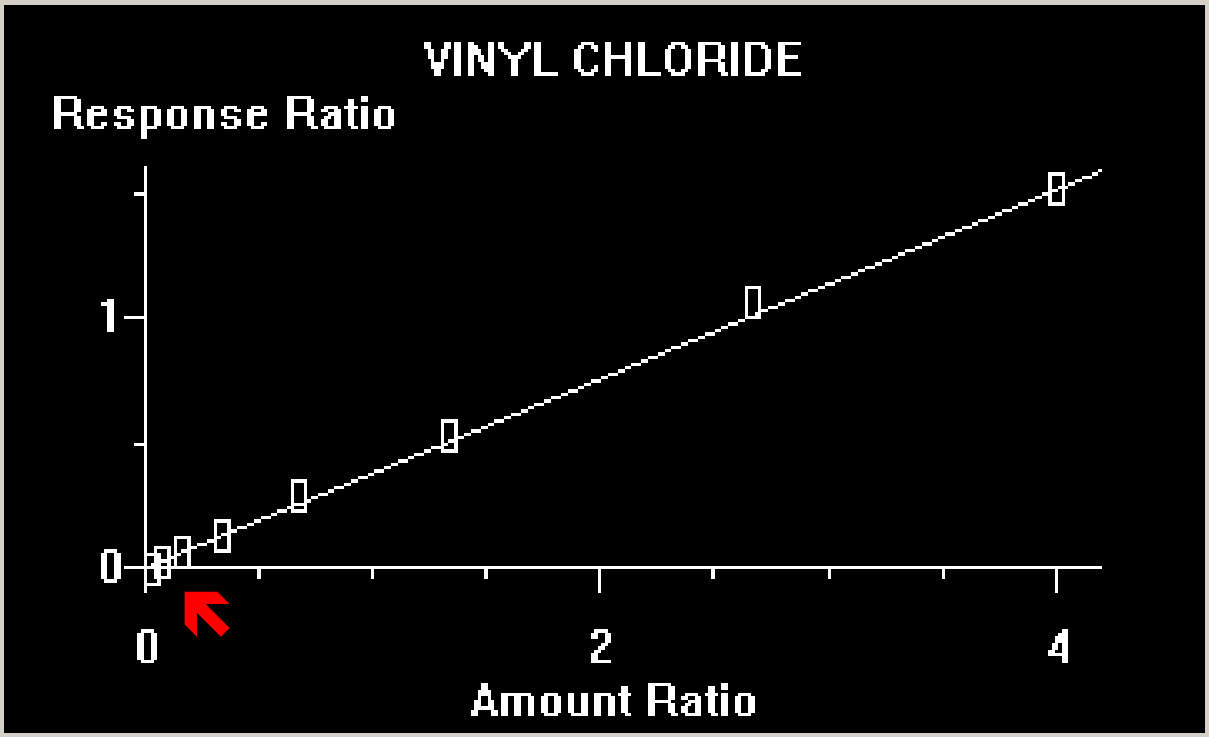
Inappropriate Extension of the Calibration Curve





Vinyl Chloride

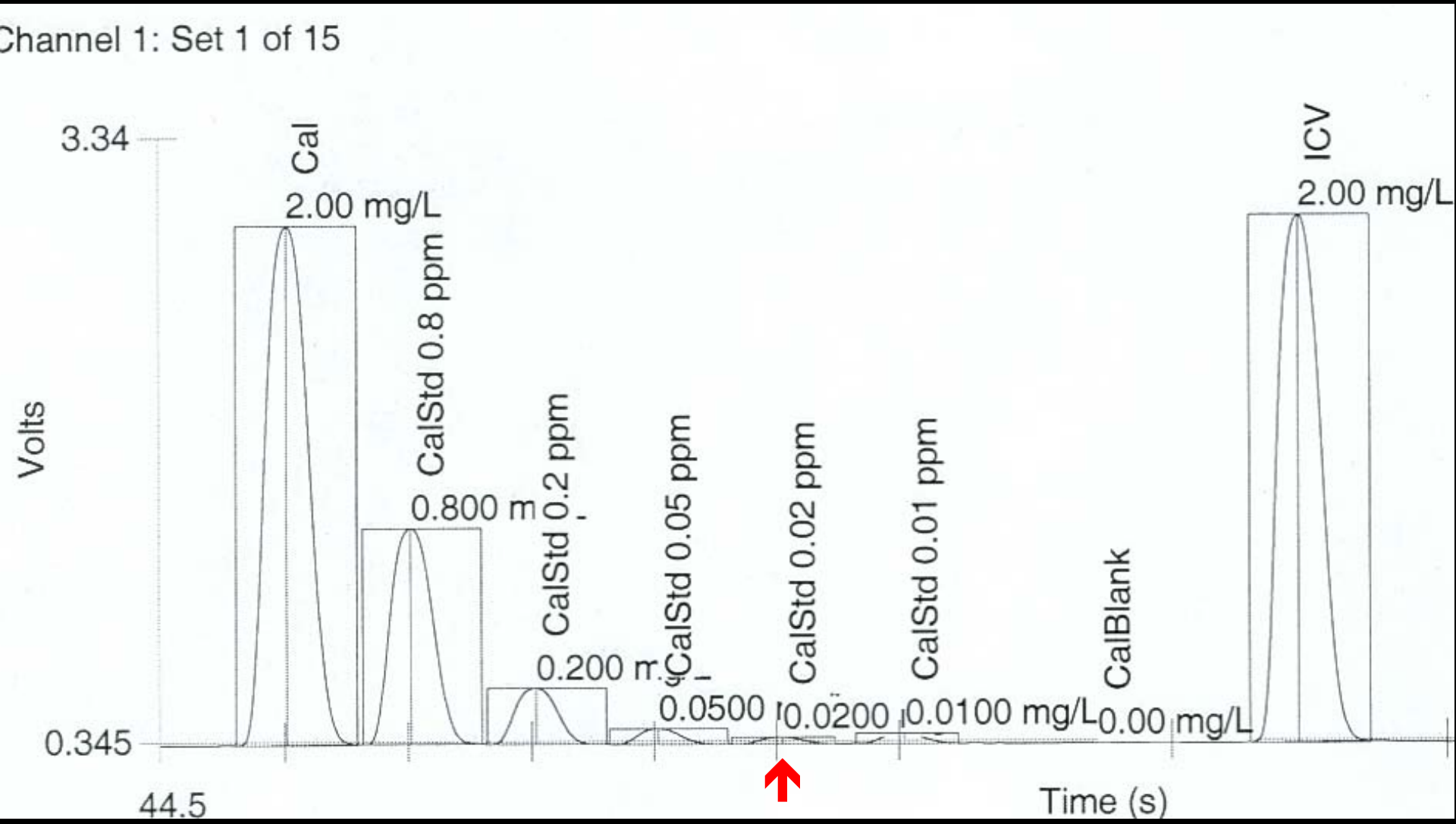
Plot Calibration Curve



Amount Ratio	Response Ratio
0.16666667	0.07245136
0.33333333	0.13192604
0.66666667	0.28936094
1.33333333	0.53355459
2.66666667	1.06111838
0.06666667	0.02567686
0.03333333	0.00601798

Resp Ratio = 3.76e-001 * Amt

RF Rel Std Dev = 21.7% Curve Fit: Avg RF


Channel 1: Set 1 of 15
3.34
0.345
Volts
Cal
2.00 mg/L
CalStd 0.8 ppm
0.800 m
CalStd 0.2 ppm
0.200 m
CalStd 0.05 ppm
0.0500
CalStd 0.02 ppm
0.0200
CalStd 0.01 ppm
0.0100 mg/L
CalBlank
0.00 mg/L
ICV
2.00 mg/L
44.5
Time (s)

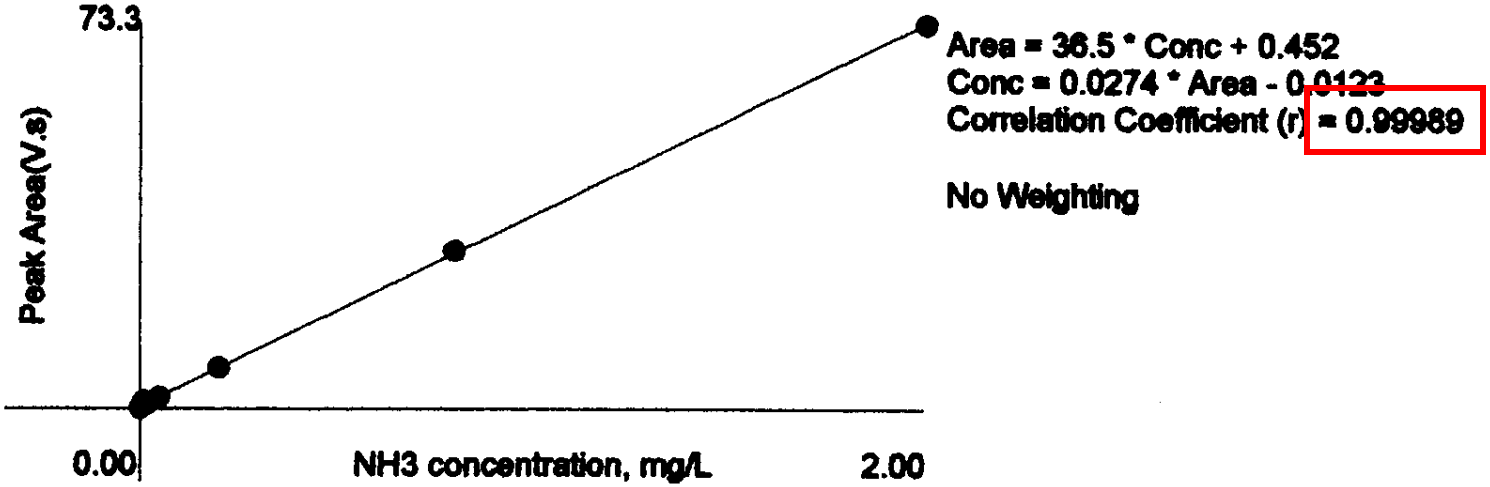
Author [redacted]

Date : 7/14/2004

Table 1: NH3

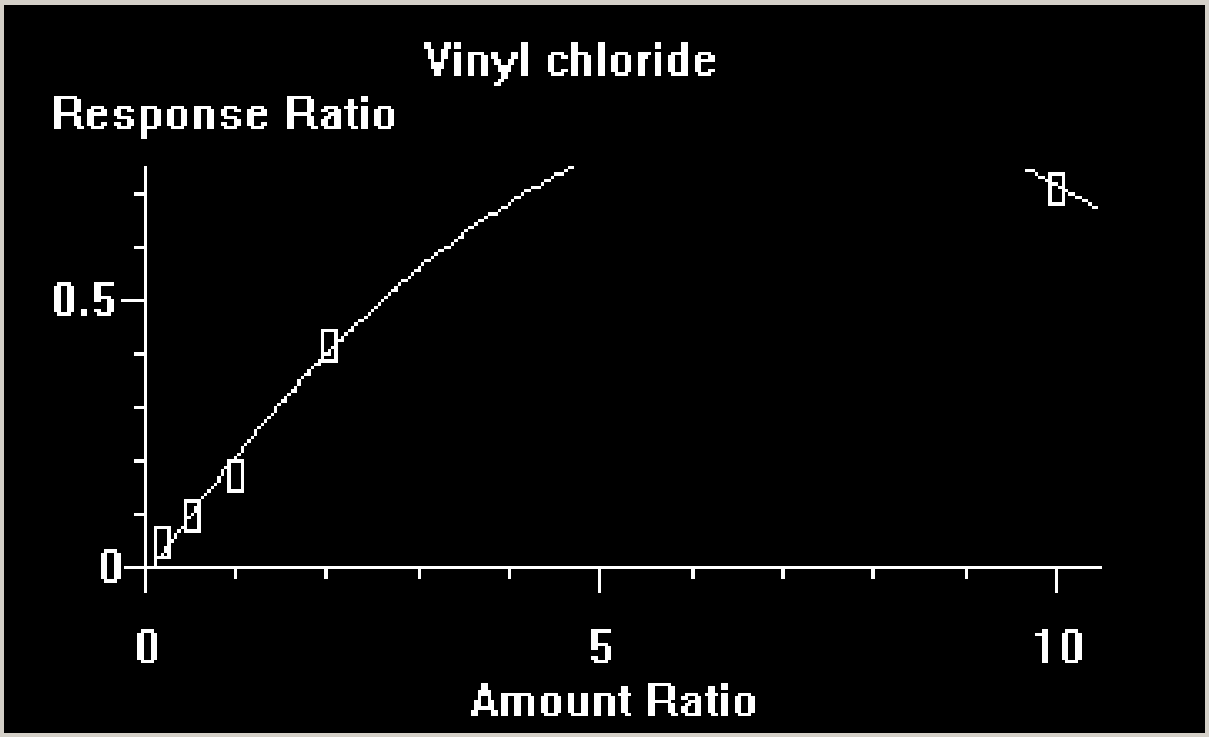
	Conc. (mg/L)	Rep	Peak Area (Volt-s)	Peak Height (Volts)	% Residual	Detection Date	Detection Time
1	2.00	1	73.3	2.57	0.3	7/14/2004	10:52:30 AM
2	0.800	1	30.2	1.07	-1.9	7/14/2004	10:53:44 AM
3	0.200	1	7.73	0.274	0.4	7/14/2004	10:54:58 AM
4	0.0500	1	2.08	0.0728	8.6	7/14/2004	10:56:11 AM
5	0.0200	1	0.925	0.0319	21.8	7/14/2004	10:57:23 AM
6	0.0100	1	1.41	0.0504	-72.7	7/14/2004	10:58:36 AM
7	0.00	1	1.84e-4	6.03e-4		7/14/2004	10:59:49 AM

Figure 1: NH3



Ammonia

Plot Calibration Curve



Amount Ratio	Response Ratio
0.20000000	0.04841793
0.50000000	0.09951501
1.00000000	0.17524637
2.00000000	0.41744770
10.00000000	0.71263882

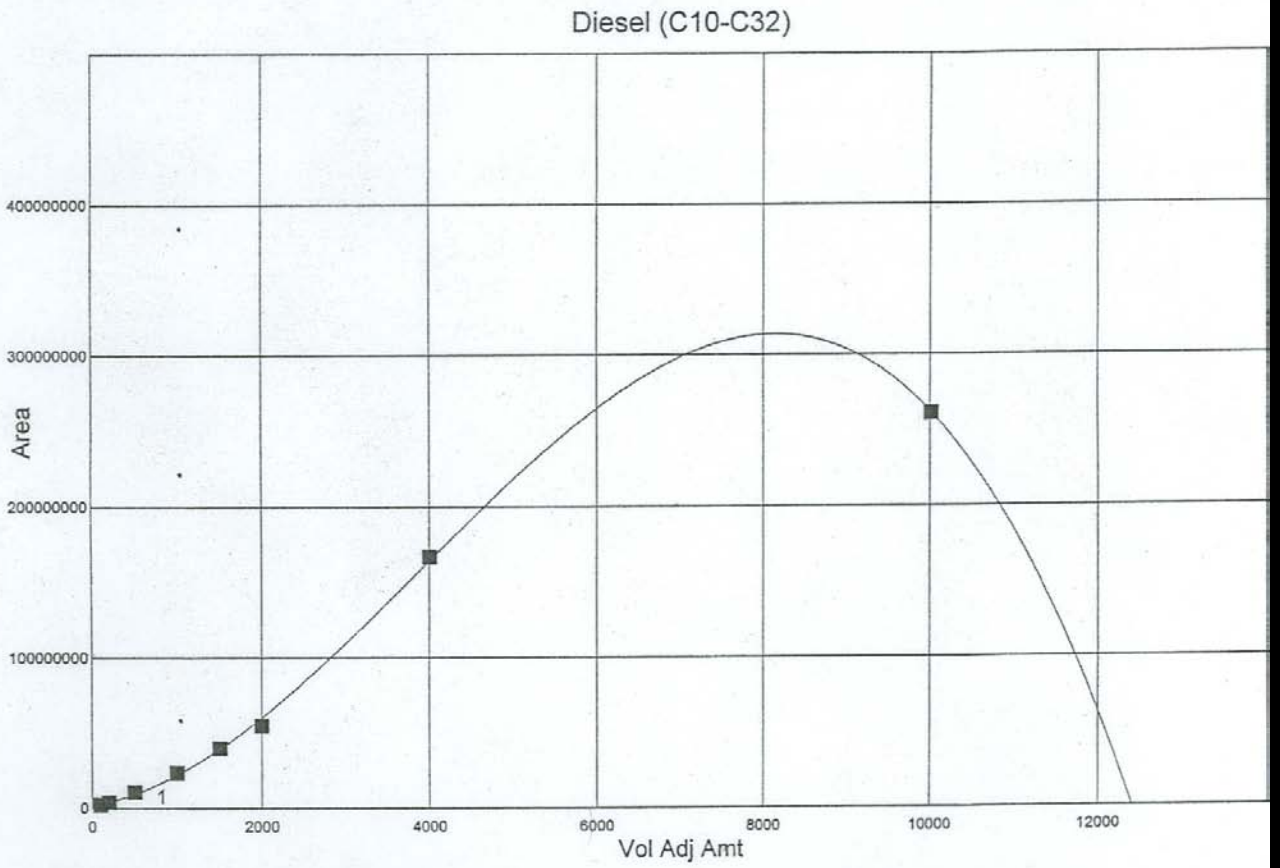
R = -1.70e-002 A*A + 2.43e-001 A - 1.70e-002

Coef of Det (r^2) = 0.994 Curve Fit: Quadratic

Fit Analysis Output For Method File: "U:\TC4_METH\VV8264AZ.MTH"
Component Name: "Diesel (C10-C32)"
Date: 9/20/04 Time: 05:09 PM

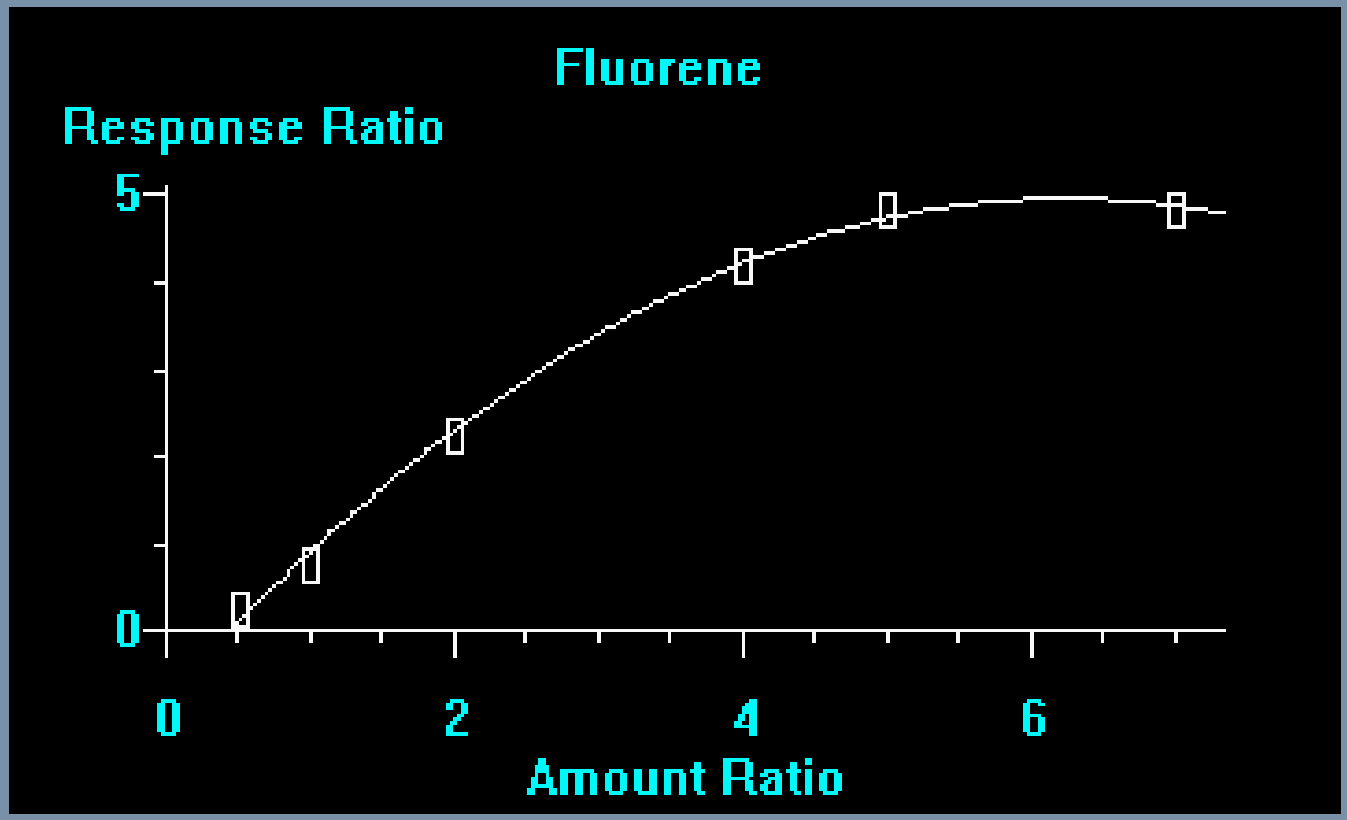
Curve Parameters:

Curve #1 : 3rd Order
Weighting Factor = 1/x r^2 = 0.998512
Calibration Curve = (1698900.[illegible])X + (11.758973)x^2 + (-0.001015)x^3



Level Name	Observed X-Value	Calculated X-Value	Delta	%Diff.	Observed Y-Value	Calculated Y-Value	Delta	%Diff.
1A	100.000000	69.909424	30.090576	43.042	2446575.399	2803256.101	-356680.702	-12.724
2A	200.000000	220.375448	-20.375448	-9.246	4435944.339	4136702.605	299241.734	7.234
3A	500.000000	557.351398	-57.351398	-10.290	10681423.673	9450695.924	1230727.749	13.023
4A	1000.000000	1041.640195	-41.640195	-3.998	23599731.947	22320861.453	1278870.494	5.729
5A	1500.000000	1514.954661	-14.954661	-0.987	40122718.575	39548279.981	574438.594	1.452
6A	2000.000000	1879.319171	120.680829	6.422	55057438.444	60371834.783	-5314396.339	-8.803
7A	4000.000000	4045.364217	-45.364217	-1.121	166909959.655	164405082.231	2504877.424	1.524
8A	10000.000000	10003.650984	-3.650984	-0.036	261334918.116	261551997.072	-217078.956	-0.083

Plot Calibration Curve



Amount Ratio	Response Ratio
0.50000000	0.25562297
1.00000000	0.77431682
2.00000000	2.23854158

R = -1.48e-001 A*A + 1.84e+000 A - 7.79e-001

Curve Fit: Quadratic

OK

Print

Slide Courtesy of

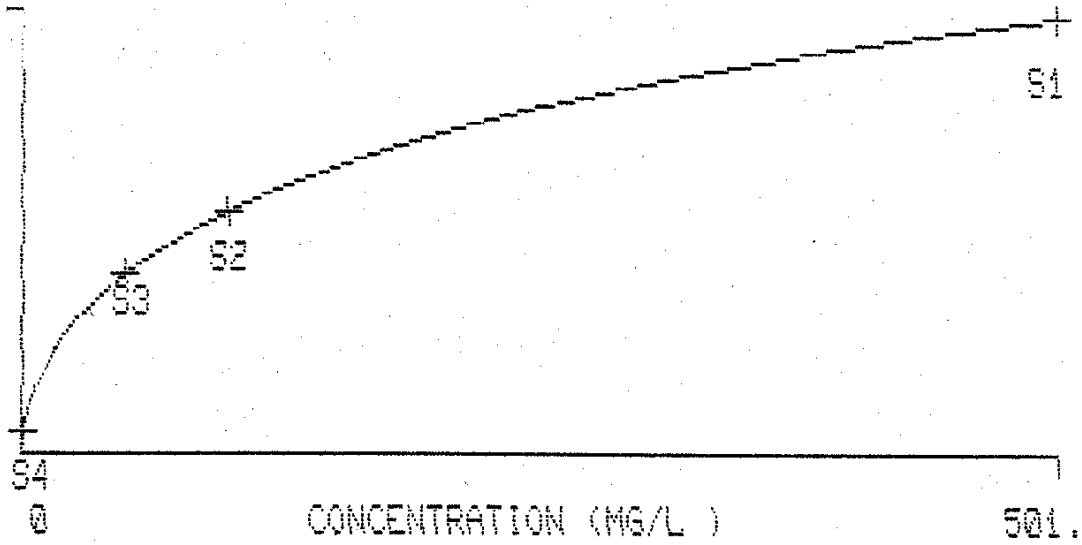
Analytical Excellence, Inc.

DISPLAY CALIBRATION MODE - FLAME

ELEMENT: NA

PRINTER: ON
BG CORR: OFF
UNITS : MG/L

REPL. 0 OF 4



1.0

READY

AUTO

Corr.Coef.: 1.000
Slope:

C2H2: 2.5 L/MIN Oxidant: 8.0 L/MIN Flame: C2H2-AIR

The relatively wide spacing of the upper standards in a geometric series could mask the situation where the detector is reaching saturation and the instrument responses are leveling off somewhere between the last two standards. Therefore, it may be preferable to use a partial arithmetic series, where the concentrations of the upper standards differ by a constant amount, not a constant factor.

Ref: SW-846, Method 8000C, Section 11.4.1.3