

**COMPREHENSIVE VALIDATION PACKAGE**

ATL Applications

INVENTORY SHEET

WORK ORDER # 0910022A

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Completed by:

*Kara McKiernan*

(Signature)

Kara McKiernan/ Document Control

(Print Name & Title)

10/21/09

(Date)

**WORK ORDER #: 0910022A**

Work Order Summary

|                        |  |                  |   |
|------------------------|--|------------------|---|
| <b>CLIENT:</b>         | Mr. Taeko Minegishi<br>Environmental Health & Engineering,<br>Inc.<br>117 Fourth Avenue<br>Needham, MA 02494 | <b>BILL TO:</b>  | Accounts Payable<br>Environmental Health & Engineering,<br>Inc.<br>117 Fourth Avenue<br>Needham, MA 02494 |
| <b>PHONE:</b>          | 800-825-5343   | <b>P.O. #</b>    | 16512   |
| <b>FAX:</b>            | 781-247-4305   | <b>PROJECT #</b> | 16512   |
| <b>DATE RECEIVED:</b>  | 10/01/2009   | <b>CONTACT:</b>  | Ausha Scott   |
| <b>DATE COMPLETED:</b> | 10/20/2009   |                  |   |

| <u>FRACTION #</u> | <u>NAME</u>          | <u>TEST</u>      |
|-------------------|----------------------|------------------|
| 01A               | 101849               | ATL Applications |
| 01AA              | 101849 Lab Duplicate | ATL Applications |
| 02A               | 101850               | ATL Applications |
| 02AA              | 101850 Lab Duplicate | ATL Applications |
| 03A               | 101851               | ATL Applications |
| 04A               | 101852               | ATL Applications |
| 05A               | 101853               | ATL Applications |
| 06A               | 101854               | ATL Applications |
| 07A               | 101855               | ATL Applications |
| 08A               | 101880               | ATL Applications |
| 09A               | 101882               | ATL Applications |
| 10A               | 101883               | ATL Applications |
| 11A               | 101884               | ATL Applications |
| 12A               | 101885               | ATL Applications |
| 13A               | 101881               | ATL Applications |
| 14A               | 101789               | ATL Applications |
| 15A               | 101790               | ATL Applications |
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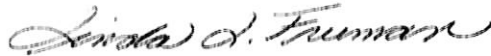
**WORK ORDER #: 0910022A**

Work Order Summary

|                        |  |                  |   |
|------------------------|--|------------------|---|
| <b>CLIENT:</b>         | Mr. Taeko Minegishi<br>Environmental Health & Engineering,<br>Inc.<br>117 Fourth Avenue<br>Needham, MA 02494 | <b>BILL TO:</b>  | Accounts Payable<br>Environmental Health & Engineering,<br>Inc.<br>117 Fourth Avenue<br>Needham, MA 02494 |
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| <b>FAX:</b>            | 781-247-4305   | <b>PROJECT #</b> | 16512   |
| <b>DATE RECEIVED:</b>  | 10/01/2009   | <b>CONTACT:</b>  | Ausha Scott   |
| <b>DATE COMPLETED:</b> | 10/20/2009   |                  |   |

| <u>FRACTION #</u> | <u>NAME</u> | <u>TEST</u>      |
|-------------------|-------------|------------------|
| 17A               | Lab Blank   | ATL Applications |
| 17B               | Lab Blank   | ATL Applications |
| 18A               | CCV         | ATL Applications |

CERTIFIED BY:



Laboratory Director

DATE: 10/20/09

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE  
Nitrogen Dioxide by Radiello 166  
Environmental Health & Engineering, Inc.  
Workorder# 0910022A**

Sixteen Radiello 166 (NO<sub>2</sub>) samples were received on October 01, 2009. The procedure involves extraction of nitrite from reaction of NO<sub>2</sub> with triethanolamine. Absorbance of nitrite is then measured at 537 nm using a spectrophotometer. Results are reported in uG and uG/m<sup>3</sup>.

Sampling rate of 141 mL/min was provided by the manufacturer.

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

Results were calculated based on 25 deg C without temperature correction. The actual exposure time was used to calculate sample concentrations and reporting limits.

An exposure time of 20160 minutes was used for the QC samples.

All media used for the sampling were supplied by the client. Blank subtraction was not performed on the sample results since the media used for Method Blanks may be from a different lot than the media used for the samples.

The field blank, sample 101881 has reportable level of Nitrogen Dioxide present.

**Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit.

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the detection limit.

M - Reported value may be biased due to apparent matrix interferences.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

## **Sample Results and Raw Data**

# AIR TOXICS LTD.

## ATL Application # 61 for RAD 166 (Nitrogen Dioxide)

Spectrophotometer

| Field                | Lab           | Collection | Analysis  | Dilution | Reporting Limit | Reporting Limit | Amount      | Amount  |
|----------------------|---------------|------------|-----------|----------|-----------------|-----------------|-------------|---------|
| Sample I.D.          | Sample I.D.   | Date       | Date      | Factor   | (ug)            | (ug/m3)         | (ug)        | (ug/m3) |
| 101849               | 0910022A-01A  | 9/30/2009  | 10/6/2009 | 1.00     | 0.32            | 0.22            | 1.6         | 1.1     |
| 101849 Lab Duplicate | 0910022A-01AA | 9/30/2009  | 10/6/2009 | 1.00     | 0.32            | 0.22            | 1.6         | 1.0     |
| 101850               | 0910022A-02A  | 9/30/2009  | 10/6/2009 | 1.00     | 0.32            | 0.22            | 2.6         | 1.7     |
| 101850 Lab Duplicate | 0910022A-02AA | 9/30/2009  | 10/6/2009 | 1.00     | 0.32            | 0.22            | 2.6         | 1.8     |
| 101851               | 0910022A-03A  | 9/30/2009  | 10/6/2009 | 1.00     | 0.32            | 0.22            | 2.2         | 1.5     |
| 101852               | 0910022A-04A  | 9/30/2009  | 10/6/2009 | 1.00     | 0.32            | 0.22            | 2.2         | 1.4     |
| 11853                | 0910022A-05A  | 9/30/2009  | 10/6/2009 | 1.00     | 0.32            | 0.22            | 1.7         | 1.1     |
| 101854               | 0910022A-06A  | NA         | 10/6/2009 | 1.00     | 0.32            | 0.22            | ND          | ND      |
| 101855               | 0910022A-07A  | NA         | 10/6/2009 | 1.00     | 0.32            | 0.22            | ND          | ND      |
| 101880               | 0910022A-08A  | 9/30/2009  | 10/6/2009 | 1.00     | 0.32            | 0.22            | 3.7         | 2.4     |
| 101882               | 0910022A-09A  | 9/30/2009  | 10/6/2009 | 1.00     | 0.32            | 0.22            | 2.3         | 1.5     |
| 101883               | 0910022A-10A  | 9/30/2009  | 10/6/2009 | 1.00     | 0.32            | 0.22            | 2.2         | 1.5     |
| 101884               | 0910022A-11A  | 9/30/2009  | 10/6/2009 | 1.00     | 0.32            | 0.22            | 2.9         | 1.9     |
| 101885               | 0910022A-12A  | 9/30/2009  | 10/6/2009 | 1.00     | 0.32            | 0.22            | ND          | ND      |
| 101881               | 0910022A-13A  | NA         | 10/6/2009 | 1.00     | 0.32            | 0.22            | 3.8         | 2.5     |
| 101789               | 0910022A-14A  | 9/29/2009  | 10/6/2009 | 1.00     | 0.32            | 0.22            | 1.5         | 1.0     |
| 101790               | 0910022A-15A  | 9/29/2009  | 10/6/2009 | 1.00     | 0.32            | 0.22            | 2.2         | 1.5     |
| 101791               | 0910022A-16A  | 9/29/2009  | 10/6/2009 | 1.00     | 0.32            | 0.22            | 2.4         | 1.6     |
| Method Blank         | 0910022A-17A  | NA         | 10/6/2009 | 1.00     | 0.32            | 0.22            | ND          | ND      |
| Method Blank         | 0910022A-17B  | NA         | 10/6/2009 | 1.00     | 0.32            | 0.22            | ND          | ND      |
| CCV                  | 0910022A-18A  | NA         | 10/6/2009 | 1.00     | 0.32            | 0.22            | %Rec<br>100 |         |

COMMENTS: 1. NA=Not Applicable

2. ND=Not Detected

3. Exposure time of 20160 minutes was assumed for the QC samples.

4. Background subtraction not performed.

Dioxide Radiello Calculation Worksheet

Workorder #: 0910022A

1000ng/1ug

Sampling Rate (ng/(ppb\*min)) 0.141 Typically 0.96 for NO2

Sampling T (deg C) 25 Typically 25

Volume (ml) 5 Typically 5 for NO2

Date of Analysis: 10/6/2009

(Abs-Y-int)xDF  
Slope

Conc(ug)x5 (ml)  
0.5ml

Conc (ug) x 1000  
Q x Duration

ppbx nmw  
24.45

| Corrected Q | 0.141                | es into account temp |       |                |      |                               |                                  |            |              |  |  |  |  |  |  |  |  |  |  |
|-------------|----------------------|----------------------|-------|----------------|------|-------------------------------|----------------------------------|------------|--------------|--|--|--|--|--|--|--|--|--|--|
| LabSampleID | Client               | Date of Collection   | Abs   | Duration (min) | DF   | Conc (ug) (for 0.5ml Aliquot) | Conc (ug) in full 5 ml of sample | Conc (ppb) | Conc (ug/m3) |  |  |  |  |  |  |  |  |  |  |
| 01A         | 101849               | 9/30/2009            | 0.057 | 20160          | 1.00 | 0.163076257                   | 1.630762568                      | 0.574      | 1.079        |  |  |  |  |  |  |  |  |  |  |
| 01AA        | 101849 Lab Duplicate | 9/30/2009            | 0.056 | 20160          | 1.00 | 0.158463229                   | 1.584632291                      | 0.557      | 1.049        |  |  |  |  |  |  |  |  |  |  |
| 02A         | 101850               | 9/30/2009            | 0.077 | 20160          | 1.00 | 0.255336811                   | 2.553368108                      | 0.898      | 1.690        |  |  |  |  |  |  |  |  |  |  |
| 02AA        | 101850 Lab Duplicate | 9/30/2009            | 0.079 | 20160          | 1.00 | 0.264562866                   | 2.645628662                      | 0.931      | 1.751        |  |  |  |  |  |  |  |  |  |  |
| 03A         | 101851               | 9/30/2009            | 0.070 | 20160          | 1.00 | 0.223045617                   | 2.230456169                      | 0.785      | 1.476        |  |  |  |  |  |  |  |  |  |  |
| 04A         | 101852               | 9/30/2009            | 0.069 | 20160          | 1.00 | 0.218432589                   | 2.184325892                      | 0.768      | 1.446        |  |  |  |  |  |  |  |  |  |  |
| 05A         | 11853                | 9/30/2009            | 0.059 | 20160          | 1.00 | 0.172302312                   | 1.723023122                      | 0.606      | 1.140        |  |  |  |  |  |  |  |  |  |  |
| 06A         | 101854               | NA                   | 0.016 | 20160          | 1.00 | -0.026057879                  | -0.260578787                     | -0.092     | -0.172       |  |  |  |  |  |  |  |  |  |  |
| 07A         | 101855               | NA                   | 0.012 | 20160          | 1.00 | -0.044509989                  | -0.445099895                     | -0.157     | -0.295       |  |  |  |  |  |  |  |  |  |  |
| 08A         | 101880               | 9/30/2009            | 0.102 | 20160          | 1.00 | 0.370662503                   | 3.706625032                      | 1.304      | 2.453        |  |  |  |  |  |  |  |  |  |  |
| 09A         | 101882               | 9/30/2009            | 0.071 | 20160          | 1.00 | 0.227658645                   | 2.276586446                      | 0.801      | 1.507        |  |  |  |  |  |  |  |  |  |  |
| 10A         | 101883               | 9/30/2009            | 0.070 | 20160          | 1.00 | 0.223045617                   | 2.230456169                      | 0.785      | 1.476        |  |  |  |  |  |  |  |  |  |  |
| 11A         | 101884               | 9/30/2009            | 0.084 | 20160          | 1.00 | 0.287628005                   | 2.876280046                      | 1.012      | 1.904        |  |  |  |  |  |  |  |  |  |  |
| 12A         | 101885               | 9/30/2009            | 0.014 | 20160          | 1.00 | -0.035283934                  | -0.352839341                     | -0.124     | -0.234       |  |  |  |  |  |  |  |  |  |  |
| 13A         | 101881               | NA                   | 0.105 | 20160          | 1.00 | 0.384501586                   | 3.845015863                      | 1.353      | 2.545        |  |  |  |  |  |  |  |  |  |  |
| 14A         | 101789               | 9/29/2009            | 0.055 | 20160          | 1.00 | 0.153850201                   | 1.538502014                      | 0.541      | 1.018        |  |  |  |  |  |  |  |  |  |  |
| 15A         | 101790               | 9/29/2009            | 0.070 | 20160          | 1.00 | 0.223045617                   | 2.230456169                      | 0.785      | 1.476        |  |  |  |  |  |  |  |  |  |  |
| 16A         | 101791               | 9/29/2009            | 0.073 | 20160          | 1.00 | 0.2368847                     | 2.368847                         | 0.833      | 1.568        |  |  |  |  |  |  |  |  |  |  |
| 17A         | Method Blank         | NA                   | 0.010 | 20160          | 1.00 | -0.099866322                  | -0.998663218                     | #DNV/0!    | #DNV/0!      |  |  |  |  |  |  |  |  |  |  |
| 17B         | Method Blank         | NA                   | 0.011 | 20160          | 1.00 | -0.099866322                  | -0.998663218                     | #DNV/0!    | #DNV/0!      |  |  |  |  |  |  |  |  |  |  |
| 18A         | CCV                  | NA                   | 0.163 | 20160          | 1.00 | -0.099866322                  | -0.998663218                     | #DNV/0!    | #DNV/0!      |  |  |  |  |  |  |  |  |  |  |
|             |                      |                      |       |                |      | -0.053736045                  | -0.537360449                     | -0.189     | -0.356       |  |  |  |  |  |  |  |  |  |  |
|             |                      |                      |       |                |      | -0.049123017                  | -0.491230172                     | -0.173     | -0.325       |  |  |  |  |  |  |  |  |  |  |
|             |                      |                      |       |                |      | 0.652057193                   | 6.520571926                      | 2.294      | 4.316        |  |  |  |  |  |  |  |  |  |  |

QC Duration 20160  
 CCV Spike Amt ug per 0.5 ml 0.65

1000ng/1ug

Low Point:DF

RL(ug) x 1000  
Q x Duration

RL(ug) x 1000  
Q x Duration

ppbx mw  
24.45

Calibration Data

Calibration Date  
10/6/2009 Linear Regression

0.5 ml  
Aliquot of Cal  
STD

RL(ug) for 0.5  
ml aliquot

RL (ug) in full 5 ml of  
sample

RL (ug/m<sup>3</sup>)

Result (ug)

Result (ug/m<sup>3</sup>)

%Rec

ug/ml of  
NO2

ug of NO2

absorbance

Slope  
Y-int  
R2

0.216777367  
0.021648758  
0.998634774

|       |       |         |         |             |             |      |       |        |       |  |
|-------|-------|---------|---------|-------------|-------------|------|-------|--------|-------|--|
| 0.033 | 0.325 | 0.1     | 0.215   | 1.630762568 | 1.079344449 |      | 0     | 0      | 0     |  |
| 0.033 | 0.325 | 0.1     | 0.215   | 1.584632291 | 1.048812439 |      | 0.065 | 0.0325 | 0.017 |  |
| 0.033 | 0.325 | 0.1     | 0.215   | 2.553368108 | 1.68998464  |      | 0.325 | 0.1625 | 0.049 |  |
| 0.033 | 0.325 | 0.1     | 0.215   | 2.645628662 | 1.751048659 |      | 1.3   | 0.65   | 0.163 |  |
| 0.033 | 0.325 | 0.1     | 0.215   | 2.230456169 | 1.476260573 |      | 6.5   | 3.25   | 0.764 |  |
| 0.033 | 0.325 | 0.1     | 0.215   | 2.184325892 | 1.445728563 |      | 13    | 6.5    | 1.412 |  |
| 0.033 | 0.325 | 0.1     | 0.215   | 1.723073122 | 1.140408468 |      |       |        |       |  |
| 0.033 | 0.325 | 0.1     | 0.215   | ND          | ND          |      |       |        |       |  |
| 0.033 | 0.325 | 0.1     | 0.215   | 3.706625032 | 2.453284879 |      |       |        |       |  |
| 0.033 | 0.325 | 0.1     | 0.215   | 2.276586446 | 1.506792583 |      |       |        |       |  |
| 0.033 | 0.325 | 0.1     | 0.215   | 2.230456169 | 1.476260573 |      |       |        |       |  |
| 0.033 | 0.325 | 0.1     | 0.215   | 2.876280046 | 1.903708707 |      |       |        |       |  |
| 0.033 | 0.325 | 0.1     | 0.215   | ND          | ND          |      |       |        |       |  |
| 0.033 | 0.325 | 0.1     | 0.215   | 3.845015863 | 2.544880908 |      |       |        |       |  |
| 0.033 | 0.325 | 0.1     | 0.215   | 1.538502014 | 1.018280429 |      |       |        |       |  |
| 0.033 | 0.325 | 0.1     | 0.215   | 2.230456169 | 1.476260573 |      |       |        |       |  |
| 0.033 | 0.325 | 0.1     | 0.215   | 2.368847    | 1.567856602 |      |       |        |       |  |
| 0.033 | 0.325 | #DNV/0! | #DNV/0! | ND          | #DNV/0!     |      |       |        |       |  |
| 0.033 | 0.325 | #DNV/0! | #DNV/0! | ND          | #DNV/0!     |      |       |        |       |  |
| 0.033 | 0.325 | #DNV/0! | #DNV/0! | ND          | #DNV/0!     |      |       |        |       |  |
| 0.033 | 0.325 | #DNV/0! | #DNV/0! | ND          | #DNV/0!     |      |       |        |       |  |
| 0.033 | 0.325 | 0.1     | 0.215   | ND          | ND          | %Rec |       |        |       |  |
| 0.033 | 0.325 | 0.1     | 0.215   | 6.520571926 | 4.315737463 | 100  |       |        |       |  |



## **QC Results and Raw Data**

Work Order: 0910022ADate: 10/6/09Method: Rad 166Analyst: M. SKI DmoreWavelength: 537 nm

| Standard ID         | Concentration | ABS   |
|---------------------|---------------|-------|
| Level 1 1858-80 - E | 0.065 µg/mL   | 0.017 |
| Level 2 - D         | 0.325 µg/mL   | 0.049 |
| Level 3 - C         | 1.3 µg/mL     | 0.163 |
| Level 4 - B         | 6.5 µg/mL     | 0.764 |
| Level 5 - A         | 13 µg/mL      | 1.412 |
| ICV 1858-82         | 1.3 µg/mL     | 0.173 |

r = 0.9986

m = 0.2168

b = 0.0216

ICV % Recovery = 107

| Fraction | Dilution | ABS   | Sample ID | Sample Volume | Comments   |
|----------|----------|-------|-----------|---------------|------------|
| 01A      | 1.00     | 0.057 | 101849    | 5.0 mL        |            |
| 01AA     |          | 0.056 | 101849    |               |            |
| 02A      |          | 0.077 | 101850    |               |            |
| 02AA     |          | 0.079 | 101850    |               |            |
| 03A      |          | 0.070 | 101851    |               |            |
| 04A      |          | 0.069 | 101852    |               |            |
| 05A      |          | 0.059 | 101853    |               |            |
| 06A      |          | 0.016 | 101854    |               |            |
| 07A      |          | 0.012 | 101855    |               |            |
| 08A      |          | 0.102 | 101880    |               |            |
| 09A      |          | 0.071 | 101882    |               |            |
| 10A      |          | 0.070 | 101883    |               |            |
| 11A      |          | 0.084 | 101884    |               |            |
| 12A      |          | 0.014 | 101885    |               |            |
| 13A      |          | 0.105 | 101881    |               |            |
| 14A      |          | 0.055 | 101789    |               |            |
| 15A      |          | 0.070 | 101790    |               |            |
| 16A      |          | 0.073 | 101791    |               |            |
| B1K      |          | 0.010 | N/A       |               | Lot: 09133 |
| B1K      |          | 0.011 |           |               | ↓          |
| LCS      |          | 0.159 |           |               |            |
| CCV      | ↓        | 0.163 | ↓         | ↓             |            |

Procedure:


  
Signed

10/17/09
  
Date

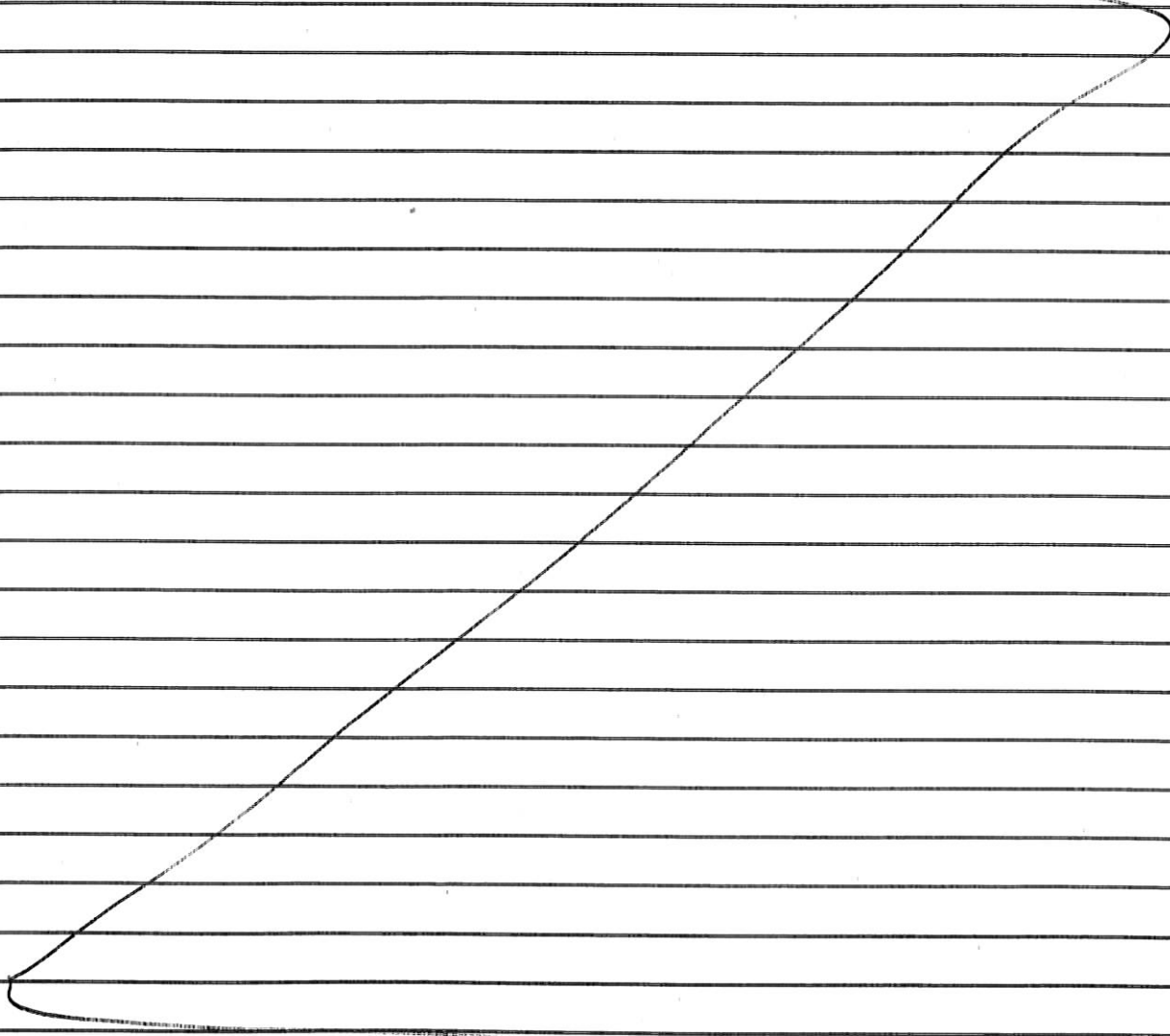
Spectrophotometer Standard Preparation Log

@Air Toxics Ltd. Log Book #: 1858

Standard ID: 1858-39  
Project: NEDA Solution Rad 166  
Analyst: M. Skidmore  
Preparation Date: 9/18/09  
Expiration Date: until when solution turns brown  
9/18/09

Solvent: DI H<sub>2</sub>O  
Solvent Lot #: N/A

Procedure/Comments: Dissolve 250 mg of N-(1-Naphthyl)ethylenediamine dihydrochloride, 98% (1476-1105, located ERIA) in 250 mL DI H<sub>2</sub>O.



MJS  
9/18/09

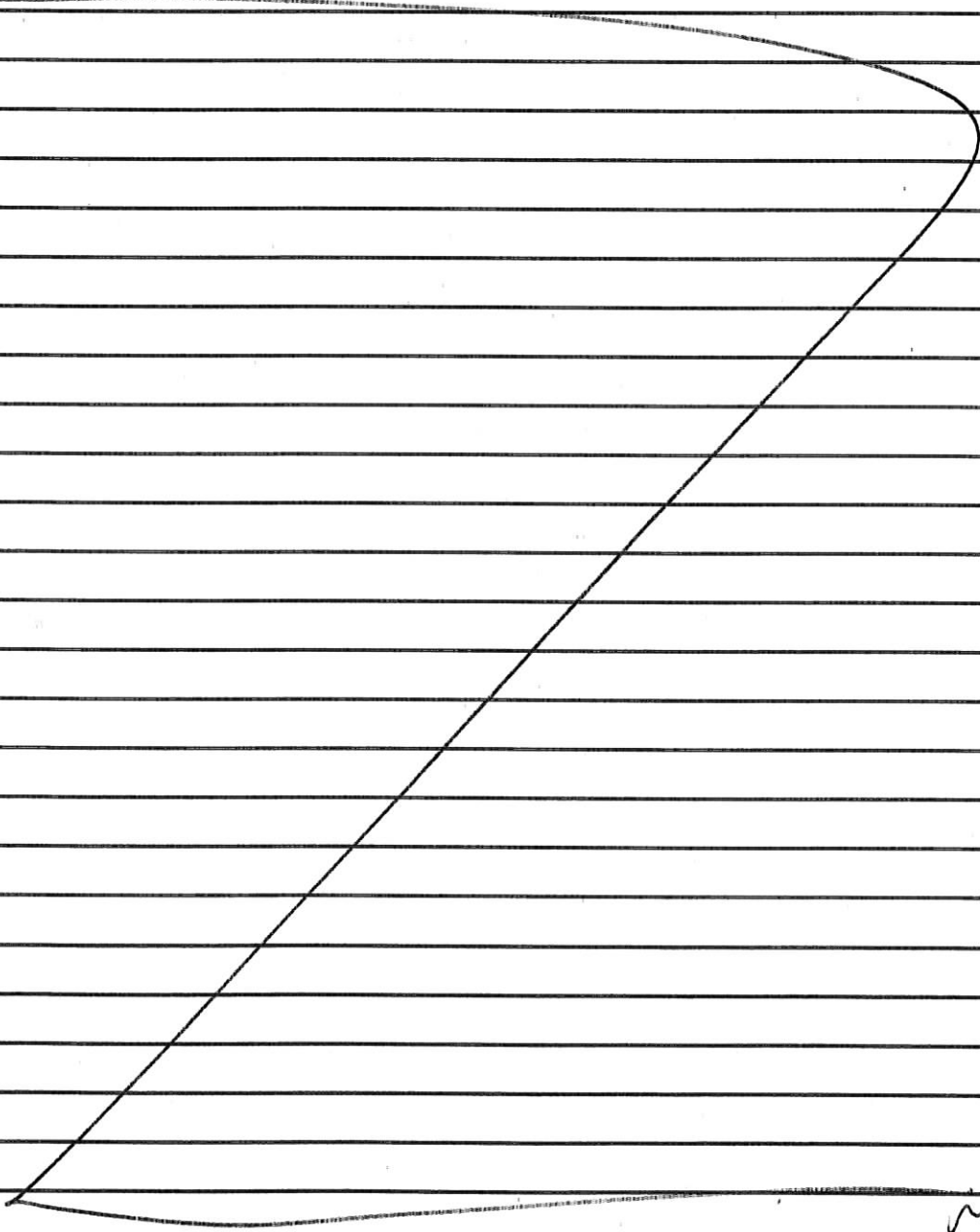
Spectrophotometer Standard Preparation Log

@Air Toxics Ltd. Log Book #: 1858

Standard ID: 1858-79  
Project: Sulfanilamide Solution Rad 166  
Analyst: M. Skidmore  
Preparation Date: 10/6/09  
Expiration Date: 10/6/09

Solvent: HCl/H2O  
Solvent Lot #: HCl: 49198

Procedure/Comments: Dissolve 5.0 g of Sulfanilamide, 99%  
(1476-1104) (located in PERIA) in 50 mL of  
concentrated HCl and dilute to 500 mL with  
D.I. H2O.



*[Signature]* 10/6/09

MJS  
10/6/09  
10/7/09

# Spectrophotometer Standard Preparation Log

@Air Toxics Ltd. Log Book #: 1858

Standard ID: 1858-80  
Project: Calibration Solutions Rad 166  
Analyst: M. Skidmore  
Preparation Date: 10/6/09  
Expiration Date: 10/6/09

Solvent: D.I. H<sub>2</sub>O  
Solvent Lot #: N/A

Procedure/Comments: \_\_\_\_\_

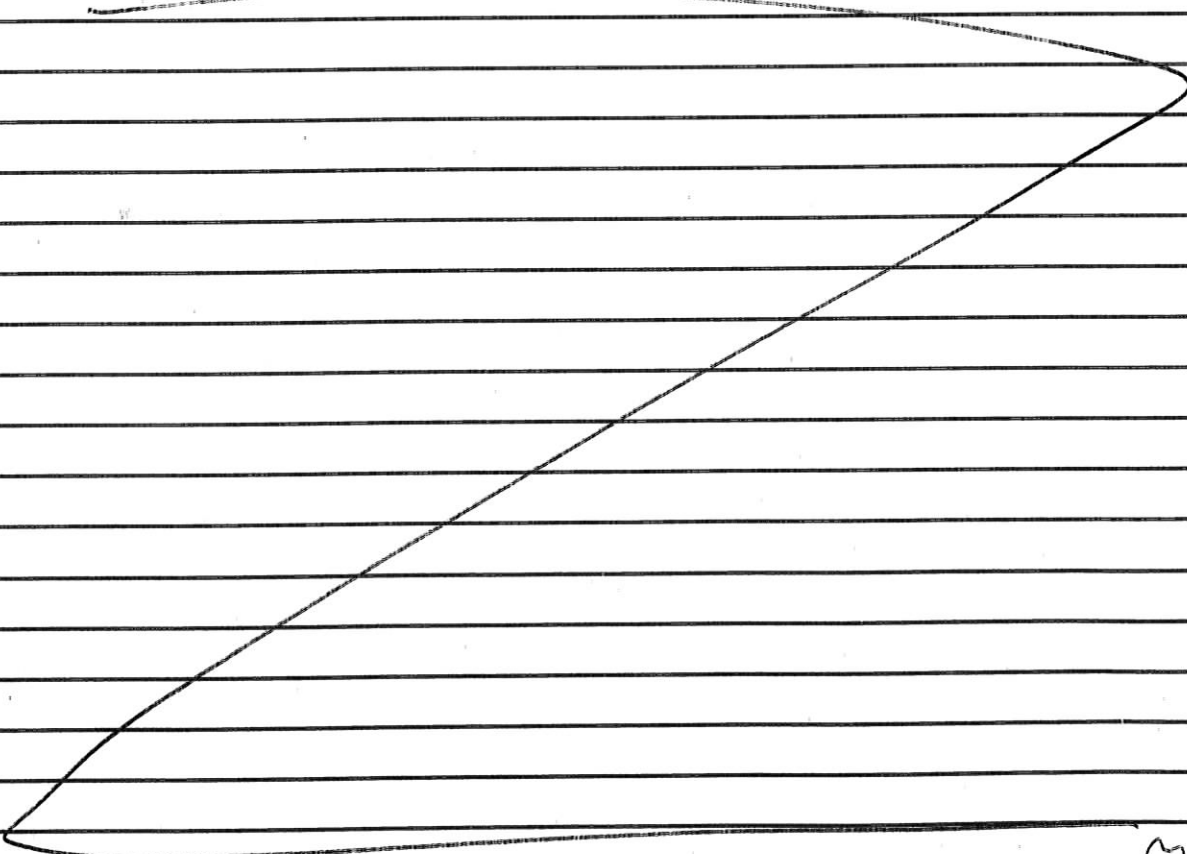
Dissolve 5 mg of Sodium Nitrate, 97% (located in ER2D) in 250 mL of D.I. H<sub>2</sub>O to yield 13 µg/mL or 13 mg/L. From this solution, dilute to make:

|           |           |             |             |
|-----------|-----------|-------------|-------------|
| 6.5 µg/mL | 1.3 µg/mL | 0.325 µg/mL | 0.065 µg/mL |
| (315:630) | (130:650) | (150:600)   | (100:500)   |

Each of these uses serial dilution from the previous solution.

To each of these calibration levels, add 5 mL of sulfanilamide solution, cap tightly, stir and wait 5 minutes. Then add 1 mL of NEDA solution, stir and wait 10 minutes. Measure the absorbance at 537 nm.

*MJS*  
*10/06/09*



*MJS*  
10/6/09

Reviewed

*MJS*  
10/6/09  
10/7/09

# Spectrophotometer Standard Preparation Log

@Air Toxics Ltd. Log Book #: 1858

Standard ID: 1858-82

Solvent: D.I. H<sub>2</sub>O

Project: ICV Rad 166

Solvent Lot #: NA

Analyst: ly

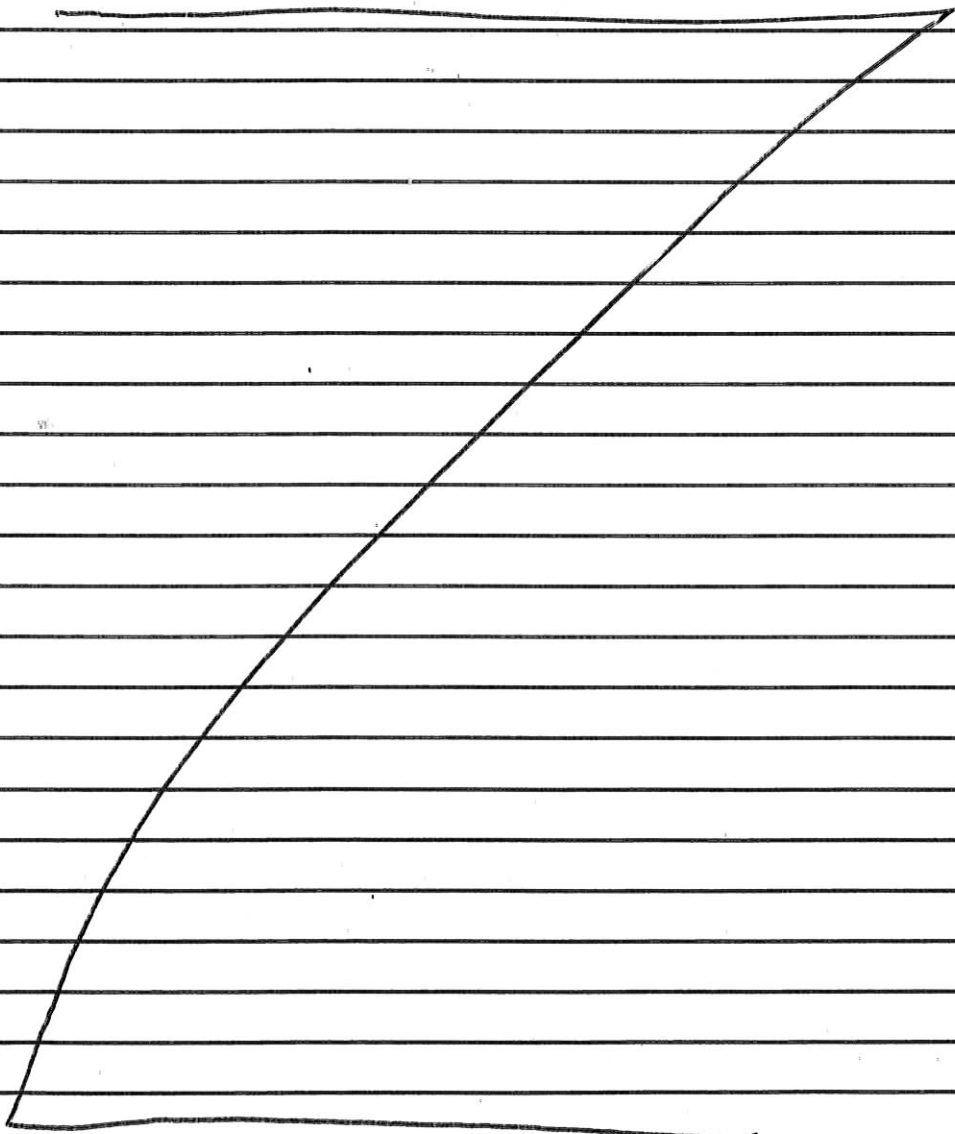
Preparation Date: 10/6/09

Expiration Date: 10/6/09

Procedure/Comments: \_\_\_\_\_

Dissolve 5 mg of Sodium Nitrate, 97% (located in ER2D) in 250 mL of D.I. H<sub>2</sub>O to yield 13 µg/mL or 13 mg/L. 100 µL of this solution was diluted with D.I. H<sub>2</sub>O to a volume of 1.0 mL. 0.5 mL of this solution was added to a cuvette. 5 mL of sulfanilamide solution was added to the cuvette. The solution was parafilmmed and stirred and allowed to stand for 5 minutes. 1.0 mL of NEDA solution was then added and was stirred and allowed to sit for 10 minutes. The absorbance was then read at 537 nm.

M 537/6/09



[Signature]  
Signed

10/6/09  
Date

[Signature]  
Reviewed

10/7/09  
Date

10/6/09  
Rev. 8/97

## **Shipping/ Receiving Documents**

**180 Blue Ravine Road, Suite B  
Folsom, CA 95630**

**Phone (916) 985-1000 FAX (916) 985-1020  
Hours 8:00 A.M. to 6:00 P.M. Pacific**

COMPANY: Environmental Health & Engineering, Inc.  
ATTENTION: Mr. Taeko Minegishi  
FAX #: 781-247-4305  
FROM: Sample Receiving  
Workorder #: 0910022A  
# of pages (Including Cover): 4

10/21/2009

Thank you for selecting Air Toxics Ltd. We have received your samples and have found discrepancies. In order to expedite analysis and reporting, please review the attached information for accuracy. Corrections can be faxed to **Ausha Scott at 916-985-1020.** ATL will proceed with the analysis as specified on the Chain of Custody and Sample Login page.

In accordance with your company's contract, this account is required to have a PO that is fully executed by both parties which also covers the cost of the workorder before any data can be released. Please ensure that you have given all appropriate information to our Project Manager so that there will be no delay in reporting of the data you are requesting.

*Your prompt response is appreciated.*



FROM: Environmental Health and Engineering, Inc.  
117 Fourth Avenue  
Needham, MA 02494-2725

0910022

TO: Air Toxics

Please send invoices to ATTN: Accounts Payable  
Please send reports to ATTN: Data Coordinator

In all correspondence regarding this matter, please refer to EH&E Project # 16512

The cost of this analysis will be covered by EH&E Purchase Order # 16512

For EH & E Data Coordinator - URGENT DATA

| SAMPLE ID  | SAMPLE TYPE | ANALYTICAL METHOD/NUMBER                      | Start   | OTHER: Time/Date/Vol. | Stop |
|------------|-------------|---|---------|-----------------------|------|
| 01A 101849 | Air/Passive | NO <sub>2</sub> SO <sub>2</sub> HF Analysis's | 9/16/09 | 9/30/09               |      |
| 02A 101850 |             |   |         |                       |      |
| 03A 101851 |             |   |         |                       |      |
| 04A 101852 |             |   |         |                       |      |
| 05A 101853 |             |   |         |                       |      |
| 06A 101854 |             |   |         |                       |      |
| 07A 101855 |             |   |         |                       |      |
| 08A 101880 |             |   | 9/16/09 | 9/30/09               |      |
| 09A 101882 |             |   |         |                       |      |
| 10A 101883 |             |   |         |                       |      |
| 11A 101884 |             |   |         |                       |      |
| 12A 101885 |             |   |         |                       |      |
| 13A 101881 |             |   |         |                       |      |
| 14A 101789 |             |   | 9/15/09 | 9/29/09               |      |
| 15A 101790 |             |   |         |                       |      |
| 16A 101791 |             |   |         |                       |      |

**Special Instructions:**

- Standard turn around time
- Fax results 781-247-4305
- RETURN SAMPLES
- Additional report recipient M.Fragata@eh&e.com
- Rush by \_\_\_\_\_ date/time
- Electronic transfer datacoordinator@eh&e.com

*Fedex*  
CUSTOMER SEAL INTACT?  
Y N NONE  
TEMP 5.6°C

**Each signatory please return one copy of this form to the above address**

Relinquished by: [Signature] of Environmental Health & Engineering, Inc. Date: 9/30/09  
 Received by: [Signature] of (company name) AH1 Date: 10/1/09  
 Relinquished by: \_\_\_\_\_ of (company name) \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ of (company name) \_\_\_\_\_ Date: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ of (company name) \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ of (company name) \_\_\_\_\_ Date: \_\_\_\_\_  
 Lab Data  
 Received by: \_\_\_\_\_ of Environmental Health & Engineering, Inc. Date: \_\_\_\_\_

**SAMPLE RECEIPT SUMMARY**

**WORKORDER 0910022A**

**Client**  
 Mr. Taeko Minegishi  
 Environmental Health &  
 Engineering, Inc.  
 117 Fourth Avenue  
 Needham, MA 02494

**Phone**  
 800-825-5343  
**Fax**  
 781-247-4305

**Date Promised:** 10/12/09 11:59 pm  
**Date Completed:** 10/20/09  
**Date Received:** 10/1/09  
**PO#:** 16512  
**Project#:** 16512

**Sales Rep:** TL

**Total \$:** \$ 720.00  
**Logged By:** MW

| <u>Fraction</u> | <u>Sample #</u>      | <u>Analysis</u>  | <u>Collected</u> | <u>Amount\$</u> |
|-----------------|----------------------|------------------|------------------|-----------------|
| 01A             | 101849               | ATL Applications | 9/30/2009        | \$40.00         |
| 01AA            | 101849 Lab Duplicate | ATL Applications | 9/30/2009        | \$0.00          |
| 02A             | 101850               | ATL Applications | 9/30/2009        | \$40.00         |
| 02AA            | 101850 Lab Duplicate | ATL Applications | 9/30/2009        | \$0.00          |
| 03A             | 101851               | ATL Applications | 9/30/2009        | \$40.00         |
| 04A             | 101852               | ATL Applications | 9/30/2009        | \$40.00         |
| 05A             | 101853               | ATL Applications | 9/30/2009        | \$40.00         |
| 06A             | 101854               | ATL Applications | NA               | \$40.00         |
| 07A             | 101855               | ATL Applications | NA               | \$40.00         |
| 08A             | 101880               | ATL Applications | 9/30/2009        | \$40.00         |
| 09A             | 101882               | ATL Applications | 9/30/2009        | \$40.00         |
| 10A             | 101883               | ATL Applications | 9/30/2009        | \$40.00         |
| 11A             | 101884               | ATL Applications | 9/30/2009        | \$40.00         |
| 12A             | 101885               | ATL Applications | 9/30/2009        | \$40.00         |
| 13A             | 101881               | ATL Applications | NA               | \$40.00         |
| 14A             | 101789               | ATL Applications | 9/29/2009        | \$40.00         |
| 15A             | 101790               | ATL Applications | 9/29/2009        | \$40.00         |
| 16A             | 101791               | ATL Applications | 9/29/2009        | \$40.00         |
| 17A             | Lab Blank            | ATL Applications | NA               | \$0.00          |
| 17B             | Lab Blank            | ATL Applications | NA               | \$0.00          |

**Note:** Samples received after 3 P.M. PST are considered to be received on the following work day.  
 Atlas Project Name/Profile#: CPSC Indoor Air Monitoring/13297

**BILL TO:** Accounts Payable  
 Environmental Health & Engineering, Inc.  
 117 Fourth Avenue  
 Needham, MA 02494

Analysis Code: Other GC

**TERMS:**

Reporting Method: ATL Application #61 NO2-Radiello 166

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**SAMPLE RECEIPT SUMMARY Continued**

|  |              |   |
|--|--------------|---|
| <b>Client</b>                            | <b>Phone</b> | <b>Date Promised:</b> 10/12/09 11:59 pm |
| Mr. Taeko Minegishi                      | 800-825-5343 | <b>Date Completed:</b> 10/20/09         |
| Environmental Health & Engineering, Inc. | <b>Fax</b>   | <b>Date Received:</b> 10/1/09           |
| 117 Fourth Avenue                        | 781-247-4305 | <b>PO#:</b> 16512                       |
| Needham, MA 02494                        |              | <b>Project#:</b> 16512                  |
| <b>Sales Rep:</b> TL                     |              | <b>Total \$:</b> \$ 720.00              |
|  |              | <b>Logged By:</b> MW                    |

| <u>Fraction</u>                        | <u>Sample #</u> | <u>Analysis</u>  | <u>Collected</u> | <u>Amount\$</u> |
|--|-----------------|------------------|------------------|-----------------|
| 18A                                    | CCV             | ATL Applications | NA               | \$0.00          |
| Misc. Charges eCVP (16) @ \$5.00 each. |                 |                  |                  | \$80.00         |

**Note:** Samples received after 3 P.M. PST are considered to be received on the following work day.  
Atlas Project Name/Profile#: CPSC Indoor Air Monitoring/13297

**BILL TO:** Accounts Payable  
Environmental Health & Engineering, Inc.  
117 Fourth Avenue  
Needham, MA 02494

Analysis Code: Other GC

**TERMS:**

Reporting Method: ATL Application #61 NO2-Radiello 166

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

# Sample Discrepancy Report

## Identification

Initiated By: MJS Project ID: 13297 PM: AS Date: 10/13/2009 Discrepancy Type:  1.  2.  3.

Workorder(s) affected: 0910022A Sample(s) affected: 13A

## 1. Sample Receipt Discrepancies

### Narration Not Required:

- 1.1.  Sample container (cartridge/tube/VOA vial) was received broken, however sample was intact.
- 1.2.  No brass cap on canister.
- 1.3.  Date of Collection noted on first sample, but no arrow down to indicate all samples.

### Notify Lab for further determination:

- 1.4.  Tedlar bag received with minimal volume.

Initials: \_\_\_\_\_ Date: \_\_\_\_\_

### Narration Required in Lab Narrative and Sample Confirmation:

- 1.5.  COC was not filled out in ink.
- 1.6.  COC Improperly relinquished / received.
- 1.7.  Sample tags / can numbers do not match the COC.
- 1.8.  Sample date  error /  missing on COC but noted on sample tag (check one).
- 1.9.  Custody Seal on the outside of the container was  broken /  improperly placed (check one).
- 1.10.  ID-none on the sample Tag/Blank
- 1.11.  Other (describe below).

Describe the Discrepancy: \_\_\_\_\_

## 2. Sample Receipt/Screening Discrepancies requiring PM notification

Document on Cover Page of Sample Receipt Confirmation and in Receiving Notes of Lab Narrative

### If Section II. is filled out PM must be notified within 24 hrs of Initiation

- 2.1.  COC was not received with samples.
- 2.2.  Analysis method(s) is  not specified /  incorrectly specified (check one) on the COC.
- 2.3.  Incorrect sampling media / container for analysis requested.
- 2.4.  Number of samples on the COC does not match the number of samples that were received.
- 2.5.  Samples were received expired.
- 2.6.  Sampling date (time for sulfur) is not documented for  some /  any samples (check one).
- 2.7.  Sample received with amount of H<sub>2</sub>O in the Tedlar Bag.
- 2.8.  Sample cannot be analyzed. Container was  received broken /  leaking /  flat /  defective.
- 2.9.  Tedlar bag / canister received emitting a strong odor; Sample  can /  cannot (check one) be analyzed.
- 2.10.  Tedlar Bag for Sulfur analysis has metal fitting.
- 2.11.  Environmental Supply Company valves
- 2.12.  Sorbent samples-sampling volume was not provided
- 2.13.  Flow controller used – canister samples received at ambient or under pressure.
- 2.14.  Canister was at ambient pressure at time of pressurization and (check all that apply):
  - Canister failed leak check on two manifolds,
  - Canister valve was open,
  - Brass nut was loose/not present.
  - Sample can be analyzed
  - Cannot be analyzed
- 2.15.  Canister sample received with a vacuum difference >5.0"Hg between the receipt vac. And the final vac. reported on the COC, indicating loss of vacuum.
- 2.16.  Canister sample received at >15"Hg (not identified as a Trip/Field Blank).
- 2.17.  Canister Trip Blank received at low vacuum (< 25"Hg).
- 2.18.  Sorbent Sample received outside method required temperature of 2°C to 6°C;  Ice /  blue ice (check one) was present. A temp. Blank  was /  was not present (check one).
- 2.19.  Other (describe below)

Initials: \_\_\_\_\_ Date: \_\_\_\_\_ Notify Receiving:  Notify PM:

Describe the Discrepancy: \_\_\_\_\_

**3. Lab Discrepancies requiring Team Leader/PM notification**

*Document in Analytical Notes of Lab Narrative*

**If Section III. is filled out PM must be notified within 24 hrs of Initiation**

- 3.1.  Tedlar Bag found to be leaking at the time of analysis; sample  can /  cannot (check one) be analyzed.
- 3.2.  Tedlar Bag found to be flat/low volume; sample cannot be analyzed.
- 3.3.  Sulfur samples received with insufficient time to analyze prior to expiration.
- 3.4.  Canister found to be leaking at the time of analysis.
- 3.5.  VOST tube saturated; bag dilution necessary.
- 3.6.  Sample loss due to instrument malfunction / broken glassware.
- 3.7.  Low/high surrogate recoveries noted in QC/sample(s) for extractable samples.
- 3.8.  Reporting Limit was raised.
- 3.9.  Post weight > Pre weight in field/lab Blank for PM10/TSP samples.
- 3.10.  Other (describe below).

Initials: MJS Date: 10/13/2009 Notify Receiving:  Notify PM:

Team Lead Initials: \_\_\_\_\_ Date: \_\_\_\_\_

Describe the Discrepancy: Analyte detected above the reporting limit in the client's trip blank.

How Does this Affect Client: \_\_\_\_\_

**Project Manager Use Only**

**Project Manager Notification**

Section 2 Complete  Section 3 Complete

**Action:**

It is not necessary to notify the client. Narrate the discrepancy in Receiving Notes/Analytical Notes of Lab Narrative.

PM Initials: AS Date: 10/13/2009

Client notification required. See attached client contact / email, or comments below:

**Client Notification:**

PM Initials: \_\_\_\_\_ Person notified: \_\_\_\_\_ Date: \_\_\_\_\_

Waiting for Client Reply

Comments: Narrate and proceed.

Notify Lab Name: \_\_\_\_\_ Date: \_\_\_\_\_ Notify Receiving:

Additional notifications attached.

**Additional Comments:**

## **Other Records**



---

Method : ATL Application #61 NO2-Radiello 166

| <b>CAS Number</b> | <b>Compound</b>  | <b>Rpt. Limit (ug)</b> |
|-------------------|------------------|------------------------|
| 10102-44-0        | Nitrogen Dioxide | 1.0                    |

DATA REVIEW CHECKLIST

Work Order #:

0910022A

- Analysis/Reporting vs. Project Profile/SOP requirements checked (i.e. 100% Dups, J-Flag to MDL, etc)
- The final report has the correct reporting list, special units, and header info.
- Lab Narrative is correct (proper method & description/Receiving & Analytical notes correct)
- Sample Discrepancy Report (SDR) is completed

---

- Corrective Action issued - # \_\_\_\_\_
- Unusual circumstances have been documented in the notes section below

LUMEN validation report present and initialed

CIRCLE (YES / NO)

- Lab Blank, CCV, LCS and DUP met QC criteria
  - Hold time is met for all samples
  - Appropriate data qualifier flags are applied
  - Manual integrations for samples and QC are properly documented
  - Samples analyzed within the project or method specific clock
  - Retention times have been verified
  - Appropriate ICAL(s) included
  - At least one result per sample is verified against the target quant sheets/raw data
- Dilution factor correctly calculated (sample load volume, syringe and bag dilutions, can pressurization(s))
  - Correct amount of sample analyzed (i.e. sample not over-diluted)
  - Spectra verified - documentation of spectral defense included (Section 5A of eCVP pkg)
  - TICs resemble reference spectra
  - TICs between duplicate samples are consistent
  - Checked samples for trends (i.e. Influent vs. Effluent, Field Dups, Field/Trip Blank, etc.)
  - Data for multiple analyses of sample(s) has been evaluated for comparability of results
  - Special units for all samples in the final report are correctly calculated
  - Manually entered results checked (i.e. TPH/NMOC)
  - Chain of Custody verified for any special comments (i.e. different compounds/RLs, action levels)
  - Chain of Custody scanned correctly
  - Verify sample id's vs. chain of custody
  - Date MDL(s) performed per instrument(s) 9/21/09
  - Samples pressurized w/ appropriate gas (N<sub>2</sub> or He)  Other (i.e. Tedlar bag, cartridge, sorbent)
  - Final pressure consistent with canister size (6L vs. 1L)
  - Verify receipt pressures
  - Verify canister ID #'s
  - Final invoice amount correct (adjusted for TAT, Penalties, Re-issue Charges etc.)
  - MDL date(s) present for all instruments utilized
  - Client LUMEN report reviewed for accuracy and completeness

Notes: (to include: noting samples with QA/QC problems, Blanks with positive hits, narratives, etc.)

A/R: BA - field blank, detectable hit

M/Q:

| A <sub>1</sub> /A <sub>2</sub><br>(Analytical Review/Date) | R/T<br>(Reporting Review/Date) | M<br>(Management Review/Date) | Q<br>(QA Review/Date) |
|--|--------------------------------|-------------------------------|-----------------------|
| A <sub>1</sub> : _____                                     | R: _____                       | M: _____                      | _____                 |
| A <sub>2</sub> : _____                                     | T: _____                       | _____                         | _____                 |

Note (1): Please check all the appropriate boxes. Indicate "NA" for any statement that does not apply.

Rev. 02/20/09

Note (2): Management reviewer and reporting reviewer must be separate individuals.