

COMPREHENSIVE VALIDATION PACKAGE

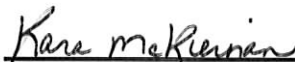
ATL Applications

INVENTORY SHEET

WORK ORDER # 0909547B

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Completed by:



(Signature)

Kara McKiernan/ Document Control

(Print Name & Title)

10/15/09

(Date)

WORK ORDER #: 0909547B

Work Order Summary

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

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

PHONE: 800-825-5343
FAX: 781-247-4305
DATE RECEIVED: 09/25/2009
DATE COMPLETED: 10/14/2009

P.O. # 16512
PROJECT # 16512
CONTACT: Ausha Scott

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>
32A	Lab Blank	ATL Applications
32B	Lab Blank	ATL Applications
33A	CCV	ATL Applications

CERTIFIED BY:

Linda J. Freeman

Laboratory Director

DATE: 10/14/09

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

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

LABORATORY NARRATIVE
Ozone by Radiello 172
Environmental Health & Engineering, Inc.
Workorder# 0909547B

Sixteen Radiello 172 (Ozone) samples were received on September 25, 2009. The procedure involves reaction of 4-pyridylaldehyde with 3-methyl-2-benzothiazolinone hydrazone to yield the corresponding azide. The absorbance is then measured at 430 nm using a spectrophotometer. Results are reported in uG and uG/m3.

Sampling rate of 24.6 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.

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 # 62 for RAD 172 (Ozone)

Spectrophotometer

Field	Lab	Collection Date	Analysis Date	Dilution Factor	Reporting Limit (ug)	Reporting Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Sample I.D.	Sample I.D.	Date	Date					
106673	0909547B-16A	9/21/2009	9/28/2009	1.00	0.64	1.4	ND	ND
106674	0909547B-17A	NA	9/28/2009	1.00	0.64	1.3	ND	ND
106693	0909547B-18A	9/21/2009	9/28/2009	1.00	0.64	1.4	ND	ND
106694	0909547B-19A	9/21/2009	9/28/2009	1.00	0.64	1.4	ND	ND
106695	0909547B-20A	9/21/2009	9/28/2009	1.00	0.64	1.4	11	23
106695 Lab Duplicate	0909547B-20AA	9/21/2009	9/28/2009	1.00	0.64	1.4	11	23
106696	0909547B-21A	9/21/2009	9/28/2009	1.00	0.6	1.4	ND	ND
106697	0909547B-22A	9/21/2009	9/28/2009	1.00	0.64	1.4	ND	ND
106698	0909547B-23A	NA	9/28/2009	1.00	0.64	1.3	ND	ND
106722	0909547B-24A	9/21/2009	9/28/2009	1.00	0.64	1.4	ND	ND
106723	0909547B-25A	9/21/2009	9/28/2009	1.00	0.64	1.4	ND	ND
106724	0909547B-26A	9/21/2009	9/28/2009	2.00	1.3	2.8	14	31
106724 Lab Duplicate	0909547B-26AA	9/21/2009	9/28/2009	2.00	1.3	2.8	14	30
106725	0909547B-27A	9/21/2009	9/28/2009	1.00	0.64	1.4	ND	ND
106726	0909547B-28A	9/21/2009	9/28/2009	1.00	0.64	1.4	ND	ND
106727	0909547B-29A	NA	9/28/2009	1.00	0.64	1.3	ND	ND
106751	0909547B-30A	9/22/2009	9/28/2009	1.00	0.64	1.3	ND	ND
106752	0909547B-31A	9/22/2009	9/28/2009	1.00	0.64	1.3	ND	ND
Method Blank	0909547B-32A	NA	9/28/2009	1.00	0.64	1.3	ND	ND
Method Blank	0909547B-32B	NA	9/28/2009	1.00	0.64	1.3	ND	ND
CCV	0909547B-33A	NA	9/28/2009	1.00	0.64	1.3	%Rec 97	

- 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.

Ozone Radiello Calculation Worksheet

Workorder #: **09095478**
 Sampling Rate (mL/min): 24.6 Typically 24.6 for Ozone
 Sampling T (deg C): 25 Typically 25
 Volume (mL): 5 Typically 5 for Ozone
 Date of Analysis: 9/28/2009

(Abs-Y-int)/DF
Slope

Conc (ug) x 1000000
Q x Duration

Low Point/DF

LabSampleID	Client	Corrected Q	Ozone taking into account Temp	Abs	Duration (min)	DF	Ozone Conc (ug)	Conc (ug/m ³)	RL(ug)
16A	106673	24.6	9/21/2009	0.033	18720	1.00	0.251097325	0.545	0.638
17A	106674		NA	0.037	20160	1.00	0.286457504	0.578	0.638
18A	106693		9/21/2009	0.042	18720	1.00	0.330657728	0.718	0.638
19A	106694		9/21/2009	0.033	18720	1.00	0.251097325	0.545	0.638
20A	106695		9/21/2009	1.207	18720	1.00	10.62930994	23.082	0.638
20AA	106695 Lab Duplicate		9/21/2009	1.211	18720	1.00	10.66467011	23.158	0.638
21A	106696		9/21/2009	0.048	18720	1.00	0.383697997	0.833	0.638
22A	106697		9/21/2009	0.055	18720	1.00	0.445578311	0.968	0.638
23A	106698		NA	0.015	20160	1.00	0.091976518	0.185	0.638
24A	106722		9/21/2009	0.036	18720	1.00	0.277617459	0.603	0.638
25A	106723		9/21/2009	0.044	18720	1.00	0.348337818	0.756	0.638
26A	106724		9/21/2009	0.804	18720	2.00	14.13354375	30.691	1.277
26AA	106724 Lab Duplicate		9/21/2009	0.798	18720	2.00	14.02746321	30.461	1.277
27A	106725		9/21/2009	0.045	18720	1.00	0.357177862	0.776	0.638
28A	106726		9/21/2009	0.058	18720	1.00	0.472098445	1.025	0.638
29A	106727		NA	0.021	20160	1.00	0.145016787	0.292	0.638
30A	106751		9/22/2009	0.042	20160	1.00	0.330657728	0.667	0.638
31A	106752		9/22/2009	0.033	20160	1.00	0.251097325	0.506	0.638
32A	Method Blank		NA	0.017	20160	1.00	-0.040624154	#DV/0!	0.638
32B	Method Blank		NA	0.019	20160	1.00	-0.040624154	#DV/0!	0.638
33A	Method Blank		NA	0.286	20160	1.00	-0.040624154	#DV/0!	0.638
	CCV		NA				2.487628662	5.016	0.638

QC Duration 20160
 CCV Spike Amt 2.5536

QC Results and Raw Data

Work Order: 0909547BDate: 9/28/09Method: Rad 172Analyst: M. SkidmoreWavelength: 430 nm

Standard ID	Concentration	ABS
	(concentration of 4-PA)	
Level 1 1858-55 - E	5.7 mg/mL	0.073
Level 2 - D	11.4 mg/mL	0.152
Level 3 - C	22.8 mg/mL	0.292
Level 4 - B	57 mg/mL	0.731
Level 5 - A	114 mg/mL	1.447
ICV 1858-57	22.8 mg/mL	0.273

r = 0.9999

m = 0.1131

b = 0.004595

ICV % Recovery = 93%

Fraction	Dilution	ABS	Sample ID	Sample Volume	Comments
16A	1.00	0.033	106673	5.0 mL	
17A		0.037	106674		
18A		0.042	106693		
19A		0.033	106694		
20A		1.207	106695		
20AA		1.211	106695		
21A		0.048	106696		
22A		0.055	106697		
23A		0.015	106698		
24A		0.036	106722		
25A	↓	0.044	106723		
26A	2.00	0.1045 0.804	106724		
26AA	↓	0.798	106724		
27A	1.00	0.045	106725		
28A		0.058	106726		
29A		0.021	106727		
30A		0.042	106751		
31A		0.033	106752		
Blk		0.017	N/A		
Blk		0.019			
US		0.263			
CCV	↓	0.286			

Procedure:


Signed

10/5/09
Date

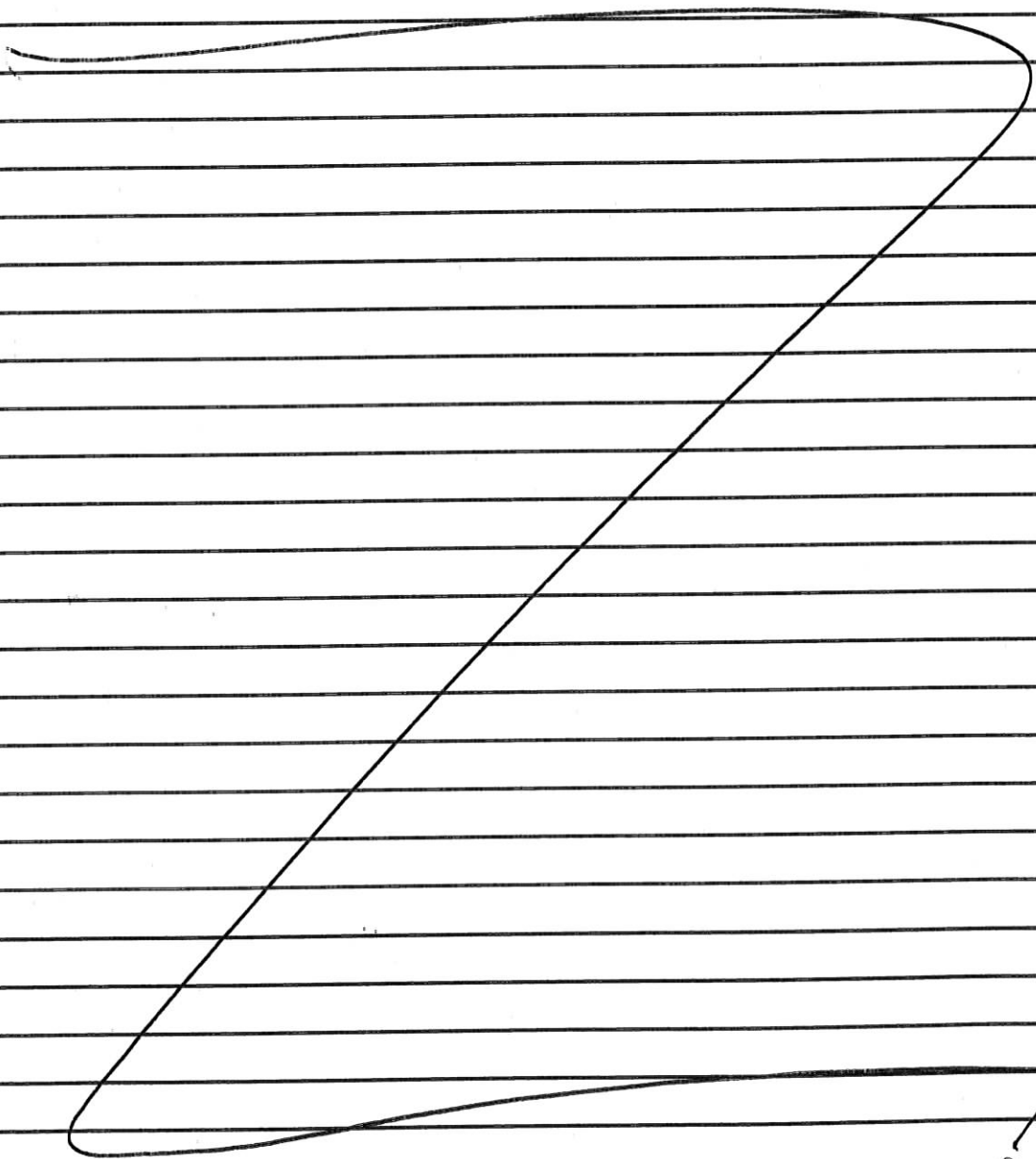
Spectrophotometer Standard Preparation Log

@Air Toxics Ltd. Log Book #: 1858

Standard ID: 1858-54
Project: Rad 172 MBTH Solution
Analyst: M. Skidmore
Preparation Date: 2/28/0 ^{MS 9/28/09}
Expiration Date: 9/28/09

Solvent: D.I. H₂O
Solvent Lot #: N/A

Procedure/Comments: Dissolve 2.5 g of 3-methyl-2-benzothiazolinone
hydrazone hydrochloride hydrate, (97% (1476-1106, located in ERIA)
into 500 mL DI H₂O and add 2.5 mL of concentrated
sulfuric acid



MS
9/28/09

Spectrophotometer Standard Preparation Log

@Air Toxics Ltd. Log Book #: 1858

Standard ID: 1858-55
Project: Rad 172 Calibration Solution
Analyst: M. Skidmore
Preparation Date: 9/28/09
Expiration Date: 9/28/09

Solvent: DI H₂O
Solvent Lot #: N/A

Procedure/Comments:

Dissolve 20 µl of 4-Pyridine-carboxaldehyde, 97% (1476-1103, located F22H) in 200mL D.I. H₂O. From this solution prepare dilutions at 1:2, 1:5, 1:10, 1:20. Stock Solution = 114 µg/mL.

1:2) 250 µl Pyridine solution with 250 µl of D.I. H₂O = 57 µg/mL.

1:5) 100 µl Pyridine solution with 400 µl of D.I. H₂O = 22.8 µg/mL.

1:10) 100 µl Pyridine solution with 900 µl of D.I. H₂O = 11.4 µg/mL

1:20) 250 µl Pyridine 1:10 solution with 250 µl of D.I. H₂O = 5.7 µg/mL
(Then remove 250 µl of 1:10 solution to yield a final volume of 0.5 mL)

Then add 4.5 mL of MBTH solution to each level, stir and let stand for 1 hour (cover with parafilm). Then read absorbance at 430 nm.

Note: 1 µg of 4-pyridylaldehyde = 0.224 µg of ozone.

MJS 9/28/09

MJS
9/28/09

Spectrophotometer Standard Preparation Log

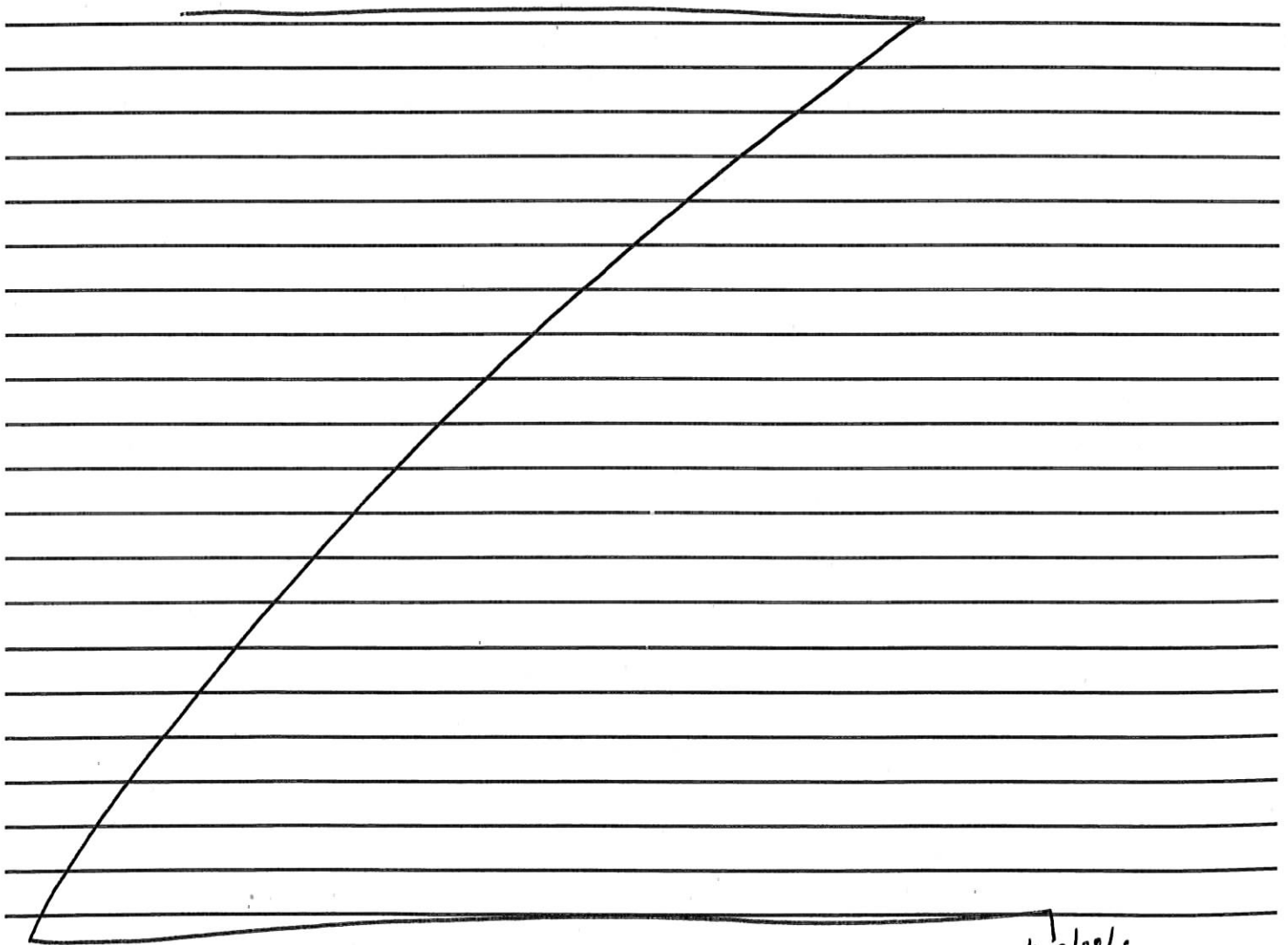
@Air Toxics Ltd. Log Book #: 1858

Standard ID: 1858-57
Project: ICV RAD 172
Analyst: [Signature]
Preparation Date: 9/28/09
Expiration Date: 9/28/09

Solvent: DI H2O
Solvent Lot #: NA

Procedure/Comments:

- Dissolve 20 µl of 4-Pyridine-carboxaldehyde, 97% (1476-1103, located F22H) in 200mL D.I. H₂O. Stock Solution = 114 µg/mL. From this solution prepare a dilution at:
- 1:5) 100 µl Pyridine solution with 400 µl of D.I. H₂O = 22.8 µg/mL.
- Then add 4.5 mL of MBTH solution to each level, stir and let stand for 1 hour (cover with parafilm). Then read absorbance at 430 nm.
- Note: 1 µg of 4-pyridylaldehyde = 0.224 µg of ozone.



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 #: 0909547B
of pages (Including Cover): 4

10/15/2009

Thank you for selecting Air Toxics Ltd. We have received your samples and have found no 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.

FROM: Environmental Health and Engineering, Inc.
117 Fourth Avenue
Needham, MA 02494-2725 **0909547**

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

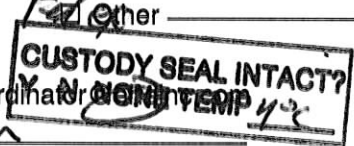
The cost of this analysis will be covered by EH&E Purchase Order # 16512

For EH & E Data Coordinator - URGENT DATA

SAMPLE ID	SAMPLE TYPE	ANALYTICAL METHOD/NUMBER	START	OTHER: Time/Date/Vol. STOP	
16A 106673	AIR/PASSIVE	OZONE ANALYSIS	9/8/09	9/21/09	
17A 106674	↓	↓	↓	φ	
18A 106693			9/8/09	9/21/09	
19A 106694			↓	↓	↓
20A 106695					
21A 106696			↓	↓	↓
22A 106697					
23A 106698					
24A 106722			9/8/09	9/21/09	
25A 106723			↓	↓	↓
26A 106724					
27A 106725			↓	↓	↓
28A 106726					
29A 106727					
30A 106751			9/8/09	9/22/09	
31A 106752	↓	↓	↓		

Special Instructions:

- Standard turn around time
- Fax results 781-247-4305
- RETURN SAMPLES
- Additional report recipient mfrugala@ehinc.com
- Rush by _____ date/time
- Electronic transfer - data coordinator 0909547
- Other _____



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

Relinquished by: [Signature] of Environmental Health & Engineering, Inc. Date: 9/24/09
 Received by: [Signature] of (company name) ATI Date: 9/25/09
 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 0909547B

Client	Phone	Date Promised: 10/06/09 11:59 pm
Mr. Taeko Minegishi	800-825-5343	Date Completed: 10/14/09
Environmental Health & Engineering, Inc.	Fax	Date Received: 9/25/09
117 Fourth Avenue	781-247-4305	PO#: 16512
Needham, MA 02494		Project#: 16512
Sales Rep: TL		Total \$: \$ 880.00
		Logged By: MG

<u>Fraction</u>	<u>Sample #</u>	<u>Analysis</u>	<u>Collected</u>	<u>Amount\$</u>
16A	106673	ATL Applications	9/21/2009	\$50.00
17A	106674	ATL Applications	NA	\$50.00
18A	106693	ATL Applications	9/21/2009	\$50.00
19A	106694	ATL Applications	9/21/2009	\$50.00
20A	106695	ATL Applications	9/21/2009	\$50.00
20AA	106695 Lab Duplicate	ATL Applications	9/21/2009	\$0.00
21A	106696	ATL Applications	9/21/2009	\$50.00
22A	106697	ATL Applications	9/21/2009	\$50.00
23A	106698	ATL Applications	NA	\$50.00
24A	106722	ATL Applications	9/21/2009	\$50.00
25A	106723	ATL Applications	9/21/2009	\$50.00
26A	106724	ATL Applications	9/21/2009	\$50.00
26AA	106724 Lab Duplicate	ATL Applications	9/21/2009	\$0.00
27A	106725	ATL Applications	9/21/2009	\$50.00
28A	106726	ATL Applications	9/21/2009	\$50.00
29A	106727	ATL Applications	NA	\$50.00
30A	106751	ATL Applications	9/22/2009	\$50.00
31A	106752	ATL Applications	9/22/2009	\$50.00
32A	Lab Blank	ATL Applications	NA	\$0.00
32B	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 #62 Ozone-Radiello 172

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

SAMPLE RECEIPT SUMMARY Continued

Client	Phone	Date Promised: 10/06/09 11:59 pm
Mr. Taeko Minegishi	800-825-5343	Date Completed: 10/14/09
Environmental Health & Engineering, Inc.	Fax	Date Received: 9/25/09
117 Fourth Avenue	781-247-4305	PO#: 16512
Needham, MA 02494		Project#: 16512
Sales Rep: TL		Total \$: \$ 880.00
		Logged By: MG

<u>Fraction</u>	<u>Sample #</u>	<u>Analysis</u>	<u>Collected</u>	<u>Amount\$</u>
33A	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 #62 Ozone-Radiello 172

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

Other Records



Method : ATL Application #62 Ozone-Radiello 172

CAS Number	Compound	Rpt. Limit (ug)
10028-15-6	Ozone	1.0

DATA REVIEW CHECKLIST

Work Order #:

0909547B

A1 A2 R T M Q

- 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) 9/22/09
Samples pressurized w/ appropriate gas (N2 or He)
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:

M/Q:

A1/A2 (Analytical Review/Date) R/T (Reporting Review/Date) M (Management Review/Date) Q (QA Review/Date)
A1: R: M: Q:
A2: T: