

COMPREHENSIVE VALIDATION PACKAGE

ATL Applications

INVENTORY SHEET

WORK ORDER # 0909123B

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Completed by:

Anne Wilhoit

(Signature)

Anne Wilhoit/ Document Control

(Print Name & Title)

09/22/09

(Date)

WORK ORDER #: 0909123B

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	P.O. #	16512
FAX:	781-247-4305	PROJECT #	16512
DATE RECEIVED:	09/04/2009	CONTACT:	Ausha Scott
DATE COMPLETED:	09/18/2009		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>
17A	102490	ATL Applications
18A	102491	ATL Applications
19A	102567	ATL Applications
19AA	102567 Lab Duplicate	ATL Applications
20A	102568	ATL Applications
21A	102574	ATL Applications
22A	102575	ATL Applications
23A	102576	ATL Applications
24A	102416	ATL Applications
25A	102657	ATL Applications
25AA	102657 Lab Duplicate	ATL Applications
26A	102658	ATL Applications
27A	102659	ATL Applications
28A	102660	ATL Applications
29A	102661	ATL Applications
30A	102662	ATL Applications
31A	102103	ATL Applications

Continued on next page

**LABORATORY NARRATIVE
Hydrogen Sulfide by Radiello 170
Environmental Health & Engineering, Inc.
Workorder# 0909123B**

Sixteen Radiello 170 (H₂S) samples were received on September 04, 2009. The procedure involves adsorption of H₂S by zinc acetate to form zinc sulfide. The sulfide is then recovered by extraction with water and addition of ferric chloride in a strongly acidic solution to produce methylene blue. Methylene blue absorbance is then measured at 665 nm using a spectrophotometer. Results are reported in uG and uG/m³.

Sampling rate of 69 mL/min for H₂S 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 21600 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 # 59 for RAD 170 (Hydrogen Sulfide)

Spectrophotometer

Field Sample I.D.	Lab Sample I.D.	Collection Date	Analysis Date	Dilution Factor	Reporting Limit (ug)	Reporting Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
102490	0909123B-17A	9/1/2009	9/10/2009	1.00	0.80	0.58	1.4	1.0
102491	0909123B-18A	NA	9/10/2009	1.00	0.80	0.50	ND	ND
102567	0909123B-19A	9/2/2009	9/10/2009	1.00	0.80	0.58	1.3	0.98
102567 Duplicate	0909123B-19AA	9/2/2009	9/10/2009	1.00	0.80	0.58	1.3	0.97
102568	0909123B-20A	9/2/2009	9/10/2009	1.00	0.80	0.58	1.5	1.1
102574	0909123B-21A	9/2/2009	9/10/2009	1.00	0.80	0.58	1.6	1.2
102575	0909123B-22A	9/2/2009	9/10/2009	1.00	0.80	0.58	1.9	1.4
102576	0909123B-23A	9/2/2009	9/10/2009	1.00	0.80	0.58	1.6	1.1
102416	0909123B-24A	NA	9/10/2009	1.00	0.80	0.50	ND	ND
102657	0909123B-25A	9/2/2009	9/10/2009	1.00	0.80	0.63	2.0	1.6
102657 Duplicate	0909123B-25AA	9/2/2009	9/10/2009	1.00	0.80	0.63	2.0	1.6
102658	0909123B-26A	9/2/2009	9/10/2009	1.00	0.80	0.63	2.0	1.6
102659	0909123B-27A	9/2/2009	9/10/2009	1.00	0.80	0.63	1.3	1.0
102660	0909123B-28A	9/2/2009	9/10/2009	1.00	0.80	0.63	2.1	1.7
102661	0909123B-29A	9/2/2009	9/10/2009	1.00	0.80	0.63	2.1	1.7
102662	0909123B-30A	NA	9/10/2009	1.00	0.80	0.50	ND	ND
102103	0909123B-31A	9/3/2009	9/10/2009	1.00	0.80	0.50	ND	ND
102104	0909123B-32A	9/3/2009	9/10/2009	1.00	0.80	0.50	ND	ND
Method Blank	0909123B-33A	NA	9/10/2009	1.00	0.80	0.50	ND	ND
Method Blank	0909123B-33B	NA	9/10/2009	1.00	0.80	0.50	ND	ND
CCV	0909123B-34A	NA	9/10/2009	1.00	0.80	0.50	%Rec 108	

- COMMENTS: 1. NA=Not Applicable
 2. ND=Not Detected
 3. Exposure time of 21600 minutes was assumed for the QC samples.
 4. Background subtraction not performed.

Hydrogen Sulfide Radiello Calculation Worksheet

Workorder #: 09091238

Sampling Rate (mg/pph/min) 0.096 Typically 0.096 for H2S

Sampling T (deg C) 25 Typically 25

Volume (ml) 10.5 Typically 10.5 for H2S

Date of Analysis: 9/30/2009

Corrected Q 0.096 Takes into account temp

Q Includes conversion from Sulfide to H2S

Conc (ug) x 1000 Q x Duration

dbpx mw 24.45

LabSampleID	Client	Date of Collection	Abs	Duration (min)	DF	Conc (ug/ml) of sulfide	Conc (ug) of sulfide	Conc (ug) of H2S	Conc (ppb) of H2S	Conc (ug/m3) of H2S
17A	102490	9/12/2009	0.148	18720	1.00	0.128234197	1.346459067	1.433932895	0.749	1.044
18A	102491	NA	0.0723	21600	1.00	-0.000306982	-0.003223309	-0.003425532	-0.002	-0.002
19A	102567	9/22/2009	0.1340	18720	1.00	0.120007561	1.260079395	1.349133955	0.701	0.977
19AA	102567 Duplicate	9/22/2009	0.139	18720	1.00	0.118979232	1.249281936	1.327653908	0.695	0.969
20A	102568	9/22/2009	0.153	18720	1.00	0.133375844	1.400446362	1.488807232	0.779	1.086
21A	102574	9/22/2009	0.167	18720	1.00	0.147772456	1.551610788	1.646855375	0.863	1.204
22A	102575	9/22/2009	0.186	18720	1.00	0.167310715	1.75676251	1.866977856	0.978	1.363
23A	102576	9/22/2009	0.159	18720	1.00	0.139545821	1.465231116	1.557156436	0.815	1.137
24A	102416	NA	0.073	21600	1.00	-0.000306982	-0.003223309	-0.003425532	-0.002	-0.002
25A	102657	9/22/2009	0.197	18720	1.00	0.178622339	1.875534559	1.993201398	1.131	1.576
25AA	102657 Duplicate	9/22/2009	0.197	18720	1.00	0.178622339	1.875534559	1.993201398	1.131	1.576
26A	102658	9/22/2009	0.199	18720	1.00	0.180678998	1.897129477	2.016511433	1.144	1.594
27A	102659	9/22/2009	0.138	18720	1.00	0.117950903	1.238484477	1.31618442	0.747	1.041
28A	102660	9/22/2009	0.210	18720	1.00	0.191990622	2.015901526	2.142374674	1.215	1.694
29A	102661	9/22/2009	0.210	18720	1.00	0.191990622	2.015901526	2.142374674	1.215	1.694
30A	102662	NA	0.073	21600	1.00	-0.000306982	-0.003223309	-0.003425532	-0.002	-0.002
31A	102703	9/3/2009	0.080	21600	1.00	0.058307796	0.612231854	0.65064191	0.295	0.412
32A	102704	9/3/2009	0.059	21600	1.00	0.058307796	0.612231854	0.65064191	0.295	0.412
33A	Method Blank	NA	0.021	21600	1.00	-0.023958559	-0.251564866	-0.267347483	#DIV/0!	#DIV/0!
33B	Method Blank	NA	0.022	21600	1.00	-0.023958559	-0.251564866	-0.267347483	#DIV/0!	#DIV/0!
34A	CCV	NA	0.623	21600	1.00	-0.002363641	-0.024818227	-0.026375267	-0.012	-0.017
						0.616690676	6.475252097	6.881494917	3.123	4.353

QC Duration 21600

CCV Spike Amt 0.572

QC Results and Raw Data

Spectrophotometer Logbook

@Air Toxics Ltd.

Log Book #: 1873

Work Order: 0909123B

Method: Rad 170

Date: 9/10/09

Wavelength: 665 nm

Analyst: M. Skidmore

Prep. Notes:

Standard ID	Concentration	ABS
1858-36 E	0.074 0.076 ^{ng/mL}	0.074 0.074 ^{ng/mL}
D	0.143 ^{ng/mL}	0.151 0.151 ^{ng/mL}
C	0.286 ^{ng/mL}	0.316 0.286 ^{ng/mL}
B	0.572 ^{ng/mL}	0.613 0.572 ^{ng/mL}
A	1.145 ^{ng/mL}	1.119 1.145 ^{ng/mL}

MJS 9/10/09
 $r = 0.9968$
 $m = 0.9744$
 $b = 0.0257$
 4/9/16/09

Fraction	Dilution	ABS	Sample ID	Sample Volume
17A	1.00	0.148	102490	10.5 mL
18A		0.023	102491	
19A		0.140	102567	
20A		0.153	102568	
21A		0.167	102574	
22A		0.186	102575	
23A		0.159	102576	
24A		0.023	102416	
25A		0.197	102657	
26A		0.199	102658	
27A		0.138	102659	
28A		0.210	102660	
29A		0.210	102661	
30A		0.023	102662	
31A		0.080	102103	
32A		0.059	102104	
B/K		0.021	N/A	
B/K		0.022		
CCV/LCS		0.139		
19AA		0.139	102567	
25AA		0.197	102657	

MJS 9/11/09

Notes: CCV/LCS @ 0.572 ng/mL
Spiked cartridge: 0.141 (1.0 mL of 1000 ppm)

Signed: [Signature] Date: 9/11/09

Standard ID: 1858-36
Project: Calibration Solution Rad 170
Analyst: M. Skidmore
Preparation Date: 9/10/09
Expiration Date: 9/10/09

Solvent: D.I. H₂O
Solvent Lot #: N/A

Procedure/Comments:

Solution A: 2 mL of Code Rad 171 (1476-984, exp 8/6/2010 ERIB) with 98 mL DI water = 1.145 µg/mL

Solution B: 2.5 mL of Solution A with 2.5 mL DI water = 0.572 µg/mL

Solution C: 1.25 mL of Solution A with 3.75 mL DI water = 0.286 µg/mL

Solution D: 0.625 mL of Solution A with 4.375 mL DI water = 0.143 µg/mL

Solution E: 0.375 mL of Solution A with 5.625 mL DI water = 0.076 µg/mL

MSS
9/10/09

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 #: 0909123B
of pages (Including Cover): 4

9/22/2009

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

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

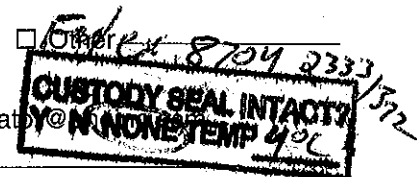
The cost of this analysis will be covered by EH&E Purchase Order # 16512

For EH & E Data Coordinator - URGENT DATA

SAMPLE ID	SAMPLE TYPE	ANALYTICAL METHOD/NUMBER	START	OTHER: Time/Date/Vol.
17A	AIR PASSIVE	H ₂ S ANALYSIS	8/19/09	9/1/09
18A				φ
19A			8/20/09	9/2/09
20A				
1A thru				
22A				
23A				
24A				φ
25A			8/21/09	9/2/09
26A				
27A				
28A				
29A				
30A				φ
31A			8/20/09	9/3/09
32A				

Special instructions:

- Standard turn around time
- Fax results 781-247-4305
- RETURN SAMPLES
- Additional report recipient mfgalac@ehenc.com
- Rush by _____ date/time
- Electronic transfer - datacoordinator@ehenc.com



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

Relinquished by: [Signature] of Environmental Health & Engineering, Inc. Date: 9/3/09
 Received by: [Signature] of (company name) Arc Date: 9/4/09
 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 0909123B

Client	Phone	Date Promised: 09/16/09 11:59 pm
Mr. Taeko Minegishi	800-825-5343	Date Completed: 9/18/09
Environmental Health & Engineering, Inc.		Date Received: 9/4/09
117 Fourth Avenue	Fax	PO#: 16512
Needham, MA 02494	781-247-4305	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>
17A	102490	ATL Applications	9/1/2009	\$50.00
18A	102491	ATL Applications	NA	\$50.00
19A	102567	ATL Applications	9/2/2009	\$50.00
19AA	102567 Lab Duplicate	ATL Applications	9/2/2009	\$0.00
20A	102568	ATL Applications	9/2/2009	\$50.00
21A	102574	ATL Applications	9/2/2009	\$50.00
22A	102575	ATL Applications	9/2/2009	\$50.00
23A	102576	ATL Applications	9/2/2009	\$50.00
24A	102416	ATL Applications	NA	\$50.00
25A	102657	ATL Applications	9/2/2009	\$50.00
25AA	102657 Lab Duplicate	ATL Applications	9/2/2009	\$0.00
26A	102658	ATL Applications	9/2/2009	\$50.00
27A	102659	ATL Applications	9/2/2009	\$50.00
28A	102660	ATL Applications	9/2/2009	\$50.00
29A	102661	ATL Applications	9/2/2009	\$50.00
30A	102662	ATL Applications	NA	\$50.00
31A	102103	ATL Applications	9/3/2009	\$50.00
32A	102104	ATL Applications	9/3/2009	\$50.00
33A	Method Blank	ATL Applications	NA	\$0.00
33B	Method 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 #59 H2S-Radiello 170

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: 09/16/09 11:59 pm
Mr. Taeko Minegishi	800-825-5343	Date Completed: 9/18/09
Environmental Health & Engineering, Inc.	Fax	Date Received: 9/4/09
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>
34A	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 #59 H2S-Radiello 170

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

Other Records



Method : ATL Application #59 H2S-Radiello 170

CAS Number	Compound	Rpt. Limit (ug)
7783-06-4	Hydrogen Sulfide	1.2

DATA REVIEW CHECKLIST) Work Order #:

0909123B

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)
Samples pressurized w/ appropriate gas (N2 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:

dup- 19A, 25A

M/Q:

A1/A2 (Analytical Review/Date) R/T (Reporting Review/Date) M (Management Review/Date) Q (QA Review/Date)
A1: R: 4/9/16/09 M: 9/18/09
A2: T: