

**COMPREHENSIVE VALIDATION PACKAGE**

ATL Applications

INVENTORY SHEET

WORK ORDER # 0909122B

	Page Nos.	
	From	To
1. Work Order Cover Page & Laboratory Narrative & Table	1	3
2. Sample Results and Raw Data (Organized By Sample)	4	7
a. ATL Sample Results Form		
b. Target Compound Raw Data		
-Internal Standard Area and Retention Time Summary (If Applicable)		
-Surrogate Recovery Summary (If Applicable)		
-Chromatogram(s) and Ion Profiles (If Applicable)		
3. QC Results and Raw Data		
a. Method Blank (Results + Raw Data)	-	-
b. Surrogate Recovery Summary Form (If Applicable)	-	-
c. Internal Standard Summary Form (If Applicable)	-	-
d. Duplicate Results Summary Sheet	-	-
e. Matrix Spike/Matrix Spike Duplicate (Results + Raw Data)	-	-
f. Initial Calibration Data (Summary Sheet + Raw Data)	-	-
g. MDL Study (If Applicable)	-	-
h. Continuing Calibration Verification Data	-	-
i. Second Source LCS (Summary + Raw Data)	-	-
j. Extraction Logs	-	-
k. Instrument Run Logs/Software Verification	8	10
l. GC/MS Tune (Results + Raw Data)	-	-
4. Shipping/Receiving Documents:		
a. Login Receipt Summary Sheet	11	12
b. Chain-of-Custody Records	13	13
c. Sample Log-In Sheet	14	15
d. Misc. Shipping/Receiving Records (list individual records)		
<u>Sample Receipt Discrepancy Report</u>	-	-
5. Other Records (describe or list)		
a. <u>Manual Spectral Defense</u>	-	-
b. <u>Manual Intergrations</u>	-	-
c. <u>Manual Calculations</u>	-	-
d. <u>Canister Dilution Factors</u>	-	-
e. <u>Laboratory Corrective Action Request</u>	-	-
f. <u>CAS Number Reference</u>	16	17
g. <u>Variance Table</u>	-	-
h. <u>Canister Certification</u>	-	-
i. <u>Data Review Check Sheet</u>	18	18

Completed by:

*Kara McKiernan*

(Signature)

Kara McKiernan/ Document Control

(Print Name & Title)

09/21/09

(Date)

**WORK ORDER #: 0909122B**

Work Order Summary

<b>CLIENT:</b>	Mr. Taeko Minegishi Environmental Health & Engineering, Inc. 117 Fourth Avenue Needham, MA 02494	<b>BILL TO:</b>	Accounts Payable Environmental Health & Engineering, Inc. 117 Fourth Avenue 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>	09/04/2009	<b>CONTACT:</b>	Ausha Scott
<b>DATE COMPLETED:</b>	09/18/2009		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>
17A	102407	ATL Applications
18A	102408	ATL Applications
19A	102561	ATL Applications
20A	102562	ATL Applications
21A	102563	ATL Applications
21AA	102563 Lab Duplicate	ATL Applications
22A	102564	ATL Applications
23A	102565	ATL Applications
24A	102566	ATL Applications
25A	102663	ATL Applications
26A	102664	ATL Applications
27A	102665	ATL Applications
27AA	102665 Lab Duplicate	ATL Applications
28A	102666	ATL Applications
29A	102667	ATL Applications
30A	102668	ATL Applications
31A	102115	ATL Applications

Continued on next page

**WORK ORDER #: 0909122B**

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:** 09/04/2009  
**DATE COMPLETED:** 09/18/2009

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

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>
32A	102116	ATL Applications
33A	Method Blank	ATL Applications
33B	Method Blank	ATL Applications
33C	Method Blank	ATL Applications
34A	CCV	ATL Applications

CERTIFIED BY:



Laboratory Director

DATE: 09/18/09

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# 0909122B**

Sixteen Radiello 172 (Ozone) samples were received on September 04, 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 2160 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**

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# 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 ID.	Sample ID.	Date	Date					
102407	0909122B-17A	9/1/2009	9/4/2009	1.00	0.64	1.4	ND	ND
102408	0909122B-18A	NA	9/4/2009	1.00	0.64	1.3	ND	ND
102561	0909122B-19A	9/2/2009	9/4/2009	1.00	0.64	1.4	ND	ND
102562	0909122B-20A	9/2/2009	9/4/2009	1.00	0.64	1.4	ND	ND
102563	0909122B-21A	9/2/2009	9/4/2009	1.00	0.64	1.4	12	26
102563 Duplicate	0909122B-21AA	9/2/2009	9/4/2009	1.00	0.64	1.4	12	26
102564	0909122B-22A	9/2/2009	9/4/2009	1.00	0.6	1.4	ND	ND
102565	0909122B-23A	9/2/2009	9/4/2009	1.00	0.64	1.4	ND	ND
102566	0909122B-24A	NA	9/4/2009	1.00	0.64	1.3	ND	ND
102663	0909122B-25A	9/2/2009	9/4/2009	1.00	0.64	1.5	ND	ND
102664	0909122B-26A	9/2/2009	9/4/2009	1.00	0.64	1.5	ND	ND
102665	0909122B-27A	9/2/2009	9/4/2009	1.00	0.64	1.5	10	25
102665 Duplicate	0909122B-27AA	9/2/2009	9/4/2009	1.00	0.64	1.5	10	25
102666	0909122B-28A	9/2/2009	9/4/2009	1.00	0.64	1.5	ND	ND
102667	0909122B-29A	9/2/2009	9/4/2009	1.00	0.64	1.5	ND	ND
102668	0909122B-30A	NA	9/4/2009	1.00	0.64	1.3	ND	ND
102115	0909122B-31A	9/3/2009	9/4/2009	1.00	0.64	1.3	ND	ND
102116	0909122B-32A	9/3/2009	9/4/2009	1.00	0.64	1.3	ND	ND
Method Blank	0909122B-33A	NA	9/4/2009	1.00	0.64	1.3	ND	ND
Method Blank	0909122B-33B	NA	9/4/2009	1.00	0.64	1.3	ND	ND
Method Blank	0909122B-33C	NA	9/4/2009	1.00	0.64	1.3	ND	ND
CCV	0909122B-34A	NA	9/4/2009	1.00	0.64	1.3	%Rec 101	

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 #: **09091228**

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: 9/4/2009

(Abs-Y-int)xDF

Slope

Conc (ug) x 1000000

Q x Duration

Low PointxDF

LabSampleID	Corrected Q	Client	Ozone taking into account Temp	Abs	Duration (min)	DF	Ozone Conc (ug)	Conc (ug/m3)	RL(ug)
17A	102407	102408	9/1/2009	0.042	18720	1.00	0.152986662	0.332	0.638
18A	102408	102561	NA	0.040	20160	1.00	0.135445705	0.273	0.638
19A	102561	102562	9/2/2009	0.051	18720	1.00	0.231920967	0.504	0.638
20A	102562	102563	9/2/2009	0.053	18720	1.00	0.249461924	0.542	0.638
21A	102563	102563	9/2/2009	1.378	18720	1.00	11.87034579	25.776	0.638
21AA	102563 Duplicate	102564	9/2/2009	1.378	18720	1.00	11.87034579	25.776	0.638
22A	102564	102565	9/2/2009	0.044	18720	1.00	0.170527619	0.370	0.638
23A	102565	102566	9/2/2009	0.045	18720	1.00	0.179298097	0.389	0.638
24A	102566	102563	NA	0.056	20160	1.00	0.275773359	0.556	0.638
25A	102563	102564	9/2/2009	0.068	17280	1.00	0.3810191	0.896	0.638
26A	102564	102565	9/2/2009	0.062	17280	1.00	0.32839623	0.773	0.638
27A	102565	102565 Duplicate	9/2/2009	1.221	17280	1.00	10.49338069	24.685	0.638
27AA	102565 Duplicate	102566	9/2/2009	1.220	17280	1.00	10.48461021	24.665	0.638
28A	102566	102567	9/2/2009	0.045	17280	1.00	0.179298097	0.422	0.638
29A	102567	102568	9/2/2009	0.052	17280	1.00	0.240691446	0.566	0.638
30A	102568	102115	NA	0.032	20160	1.00	0.065281878	0.132	0.638
31A	102115	102116	9/3/2009	0.040	20160	1.00	0.135445705	0.273	0.638
32A	102116		9/3/2009	0.025	20160	1.00	0.003888529	0.008	0.638
33A	Method Blank	NA	NA	0.028	20160	1.00	-0.215373431	#DIV/0!	0.638
33B	Method Blank	NA	NA	0.026	20160	1.00	0.030199964	0.061	0.638
33C	Method Blank	NA	NA	0.024	20160	1.00	0.012659008	0.026	0.638
34A	CCV	NA	NA	0.761	20160	1.00	-0.004881949	-0.010	0.638
							6.458960626	13.024	0.638

QC Duration 20160 CCV Spike Amt 6.384



## **QC Results and Raw Data**

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# Spectrophotometer Logbook

@Air Toxics Ltd.

Log Book #: 1873

Work Order: 0909122B

Method: Red 172

Date: 9/4/09

Wavelength: 430 nm

Analyst: A. Toyama

Prep. Notes:

Standard ID	Concentration	ABS
1858-30-57	5.7 <sup>ug</sup> /mL	0.092
↓ -11.4	11.4 ↓	0.166
↓ -22.8	22.8 ↓	0.317
↓ -57	57 ↓	0.768
↓ -114	114 ↓	1.473

$r = 0.9997$   
 $m = 0.1140$   
 $b = 0.024557$

Fraction	Dilution	ABS	Sample ID	Sample Volume
17A	1.00	0.042	102407	5.0 mL
18A		0.040	408	
19A		0.051	561	
20A		0.053	562	
21A		1.378	563	
21AA		1.378	563	
22A		0.044	564	
23A		0.045	565	
24A		0.056	566	
25A		0.068	663	
26A		0.062	664	
27A		1.221	665	
27AA		1.220	665	
28A		0.045	666	
29A		0.052	667	
30A		0.032	668	
31A		0.040	115	
32A		0.025	↓ 116	
Blk		0.028	NA 117 <sup>9/10/09</sup>	
Blk		0.026	↓	
Blk		0.024	↓	
CCV/LCS	↓	0.761	↓	↓

Notes: Blank Cartridges Lot # 09146  
CCV/LCS @ 57 <sup>ug</sup>/mL

# Spectrophotometer Standard Preparation Log

@Air Toxics Ltd. Log Book #: 1858

Standard ID: 1858-30  
Project: Rad 172 Calibration Solution  
Analyst: A. Toyama  
Preparation Date: 9/4/09  
Expiration Date: 9/4/09

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

Procedure/Comments: Dissolve 20  $\mu$ l of 4-Pyridine-carboxaldehyde, 97% (1476-1103, Located F224) in 200 ml DI H<sub>2</sub>O. From this solution prepare dilutions at 1:2, 1:5, 1:10 and 1:20. Stock solution = 114  $\mu$ g/ml

1:2) 250  $\mu$ l Pyridine solution with 250  $\mu$ l of DI H<sub>2</sub>O = 57  $\mu$ g/ml

1:5) 100  $\mu$ l of Pyridine solution with 400  $\mu$ l of DI H<sub>2</sub>O = 22.8  $\mu$ g/ml

1:10) 100  $\mu$ l of Pyridine solution with 900  $\mu$ l of DI H<sub>2</sub>O = 11.4  $\mu$ g/ml

1:20) 250  $\mu$ l of Pyridine 1:10 solution with 250  $\mu$ l DI H<sub>2</sub>O = 5.7  $\mu$ g/ml  
(then remove 250  $\mu$ l of 1:10 solution to yield final volume of 500  $\mu$ l)

Then add 4.5 ml of MBTH solution to each level to yield a final volume of 5 ml, stir and let stand for 1 hour (cover with parafilm). Then read absorbance at 430 nm.

1  $\mu$ g of 4-pyridylaldehyde = 0.224  $\mu$ g of ozone

9/4/09

AT

## **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 #: 0909122B  
# of pages (Including Cover): 4

9/21/2009

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	OTHER:Time/Date/Vol.
102407	AIR/POSITIVE	OZONE ANALYSIS	8/19/09 9/1/09
102408			ϕ
102561			8/20/09 9/2/09
102562			
102563			
102564			
102565			
102566			
102663			8/21/09 9/2/09
102664			
102665			
102666			
102667			
102668			
102115			8/20/09 9/3/09
102116			

**Special Instructions:**

- Standard turn around time
- Fax results 781-247-4305
- RETURN SAMPLES
- Additional report recipient mfrugala@eh&e.com
- Rush by \_\_\_\_\_ date/time
- Electronic transfer - data coordinator 909122

Other: 23731322  
**CUSTODY SEAL INTACT?**  
Y/N NONE/TEMP

**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) AtL 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 0909122B**

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

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

**Date Promised:** 09/16/09 11:59 pm  
**Date Completed:** 9/18/09  
**Date Received:** 9/4/09  
**PO#:** 16512  
**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	102407	ATL Applications	9/1/2009	\$50.00
18A	102408	ATL Applications	NA	\$50.00
19A	102561	ATL Applications	9/2/2009	\$50.00
20A	102562	ATL Applications	9/2/2009	\$50.00
21A	102563	ATL Applications	9/2/2009	\$50.00
21AA	102563 Lab Duplicate	ATL Applications	9/2/2009	\$0.00
22A	102564	ATL Applications	9/2/2009	\$50.00
23A	102565	ATL Applications	9/2/2009	\$50.00
24A	102566	ATL Applications	NA	\$50.00
25A	102663	ATL Applications	9/2/2009	\$50.00
26A	102664	ATL Applications	9/2/2009	\$50.00
27A	102665	ATL Applications	9/2/2009	\$50.00
27AA	102665 Lab Duplicate	ATL Applications	9/2/2009	\$0.00
28A	102666	ATL Applications	9/2/2009	\$50.00
29A	102667	ATL Applications	9/2/2009	\$50.00
30A	102668	ATL Applications	NA	\$50.00
31A	102115	ATL Applications	9/3/2009	\$50.00
32A	102116	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 #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**

<b>Client</b>	<b>Phone</b>	<b>Date Promised:</b> 09/16/09 11:59 pm
Mr. Taeko Minegishi	800-825-5343	<b>Date Completed:</b> 9/18/09
Environmental Health & Engineering, Inc.	<b>Fax</b>	<b>Date Received:</b> 9/4/09
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> \$ 880.00
		<b>Logged By:</b> MG

<u>Fraction</u>	<u>Sample #</u>	<u>Analysis</u>	<u>Collected</u>	<u>Amount\$</u>
33C	Method Blank	ATL Applications	NA	\$0.00
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 #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**

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Method : ATL Application #62 Ozone-Radiello 172

<b>CAS Number</b>	<b>Compound</b>	<b>Rpt. Limit (ug)</b>
10028-15-6	Ozone	1.0

DATA REVIEW CHECKLIST

Work Order #:

0909122B

- A<sub>1</sub>  A<sub>2</sub>  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 (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

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- 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. # 21A, 27A  
by 9/16/09

M/O:

A <sub>1</sub> / (Analytical Review/Date)	A <sub>2</sub> / (Analytical Review/Date)	R/T (Reporting Review/Date)	M (Management Review/Date)	Q (QA Review/Date)
A <sub>1</sub> :		R: 9/16/09	M: 9/17 & 1/18/09	
A <sub>2</sub> :		T:		