

COMPREHENSIVE VALIDATION PACKAGE

ATL Applications

INVENTORY SHEET

WORK ORDER # 0909127B

	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	14
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>	15	16
g. <u>Variance Table</u>	-	-
h. <u>Canister Certification</u>	-	-
i. <u>Data Review Check Sheet</u>	17	17

Completed by:

Kara McKiernan

(Signature)

Kara McKiernan/ Document Control

(Print Name & Title)

09/22/09

(Date)

WORK ORDER #: 0909127B

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	102496	ATL Applications
18A	102402	ATL Applications
19A	102555	ATL Applications
20A	102556	ATL Applications
21A	102557	ATL Applications
22A	102558	ATL Applications
23A	102559	ATL Applications
24A	102560	ATL Applications
25A	102675	ATL Applications
26A	102676	ATL Applications
26AA	102676 Lab Duplicate	ATL Applications
27A	102677	ATL Applications
28A	102678	ATL Applications
29A	102679	ATL Applications
29AA	102679 Lab Duplicate	ATL Applications
30A	102680	ATL Applications
31A	102109	ATL Applications

Continued on next page

WORK ORDER #: 0909127B

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

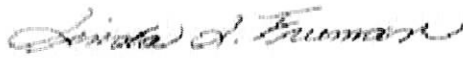
P.O. # 16512

PROJECT # 16512

CONTACT: Ausha Scott

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>
32A	102110	ATL Applications
33A	Method Blank	ATL Applications
33B	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
Nitrogen Dioxide by Radiello 166
Environmental Health & Engineering, Inc.
Workorder# 0909127B**

Twenty Radiello 166 (NO₂) samples were received on August 21, 2009. The procedure involves extraction of nitrite from reaction of NO₂ with triethanolamine. Absorbance of nitrite is then measured at 537 nm using a spectrophotometer. Results are reported in uG and uG/m³.

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.

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	Reporting	Amount	Amount
Sample I.D.	Sample I.D.	Date	Date	Factor	Limit (ug)	Limit (ug/m3)	(ug)	(ug/m3)
102496	0909127B-17A	9/1/2009	9/8/2009	1.00	0.32	0.23	1.4	1.0
102402	0909127B-18A	NA	9/8/2009	1.00	0.32	0.22	ND	ND
102555	0909127B-19A	9/2/2009	9/8/2009	1.00	0.32	0.23	0.65	0.46
102556	0909127B-20A	9/2/2009	9/8/2009	1.00	0.32	0.23	0.65	0.46
102557	0909127B-21A	9/2/2009	9/8/2009	1.00	0.32	0.23	3.6	2.6
102558	0909127B-22A	9/2/2009	9/8/2009	1.00	0.32	0.23	0.65	0.46
102559	0909127B-23A	9/2/2009	9/8/2009	1.00	0.32	0.23	0.43	0.31
102560	0909127B-24A	NA	9/8/2009	1.00	0.32	0.22	ND	ND
102675	0909127B-25A	9/2/2009	9/8/2009	1.00	0.32	0.25	2.4	1.8
102676	0909127B-26A	9/2/2009	9/8/2009	1.00	0.32	0.25	4.2	3.3
102676 Lab Duplicate	0909127B-26AA	9/2/2009	9/8/2009	1.00	0.32	0.25	4.0	3.1
102677	0909127B-27A	9/2/2009	9/8/2009	1.00	0.32	0.25	2.7	2.1
102678	0909127B-28A	9/2/2009	9/8/2009	1.00	0.32	0.25	0.94	0.73
102679	0909127B-29A	9/2/2009	9/8/2009	1.00	0.32	0.25	3.4	2.6
102679 Lab Duplicate	0909127B-29AA	9/2/2009	9/8/2009	1.00	0.32	0.25	3.4	2.6
102680	0909127B-30A	NA	9/8/2009	1.00	0.32	0.22	ND	ND
102109	0909127B-31A	9/3/2009	9/8/2009	1.00	0.32	0.22	0.54	0.36
102110	0909127B-32A	9/3/2009	9/8/2009	1.00	0.32	0.22	0.72	0.48
Method Blank	0909127B-33A	NA	9/8/2009	1.00	0.32	0.22	ND	ND
Method Blank	0909127B-33B	NA	9/8/2009	1.00	0.32	0.22	ND	ND
CCV	0909127B-34A	NA	9/8/2009	1.00	0.32	0.22	%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.

Dioxide Radiallo Calculation Worksheet

Workorder #: 09091278

1000ng/ug

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: 9/8/2009

(Abs-Y-int)/Slope

Conc(ug)S (ml) 0.5ml

Conc (ug) x 1000 Q x Duration

Dpbx mmw 24.45

Corrected Q 0.141

± into account temp

Lab/SampleID	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)
17A	102496	9/1/2009	0.052	18720	1.00	0.141460241	1.414602412	0.536	1.008
18A	102402	NA	0.010	20160	1.00	-0.010993264	-0.109932645	-0.039	-0.073
19A	102555	9/2/2009	0.031	18720	1.00	0.065233488	0.652334883	0.247	0.465
20A	102556	9/2/2009	0.031	18720	1.00	0.065233488	0.652334883	0.247	0.465
21A	102557	9/2/2009	0.113	18720	1.00	0.362880809	3.628808089	1.375	2.587
22A	102558	9/2/2009	0.031	18720	1.00	0.065233488	0.652334883	0.247	0.465
23A	102559	9/2/2009	0.025	18720	1.00	0.043454416	0.434544161	0.165	0.310
24A	102560	NA	0.0080	20160	1.00	-0.018252955	-0.182529552	-0.064	-0.121
25A	102675	9/2/2009	0.078	17280	1.00	0.235836221	2.358362208	0.968	1.821
26A	102676	9/2/2009	0.130	17280	1.00	0.42458818	4.245881802	1.743	3.279
26AAA	102676 Duplicate	9/2/2009	0.124	17280	1.00	0.402809108	4.02809108	1.653	3.110
27A	102677	9/2/2009	0.088	17280	1.00	0.272134675	2.721346746	1.117	2.101
28A	102678	9/2/2009	0.039	17280	1.00	0.094272251	0.942722513	0.387	0.728
29A	102679	9/2/2009	0.107	17280	1.00	0.341101737	3.411017366	1.400	2.634
29AAA	102679 Duplicate	9/2/2009	0.107	17280	1.00	0.341101737	3.411017366	1.400	2.634
30A	102880	NA	0.011	20160	1.00	-0.007363419	-0.073634191	-0.026	-0.049
31A	102109	9/3/2009	0.028	20160	1.00	0.054343952	0.543439522	0.191	0.360
32A	102110	9/3/2009	0.033	20160	1.00	0.072493179	0.724931791	0.255	0.480
33A	Method Blank	NA	0.010	20160	1.00	-0.047291718	-0.472917182	#DIV/0!	#DIV/0!
33B	Method Blank	NA	0.014	20160	1.00	-0.047291718	-0.472917182	#DIV/0!	#DIV/0!
34A	CCV	NA	0.917	20160	1.00	3.281276488	32.81276488	11.543	21.718

QC Duration 20160

CCV Spike Amt ug per 0.5 ml 3.25

1000ng/ug

Low PointKDF RL(ug) x 1000
0.5ml Q x Duration

RL(ug)S (ml)
0.5ml

Calibration Data

Calibration Date
9/8/2009 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 (ppb)	RL (ug/m ³)	Result (ug)	Result (ug/m ³)	%Rec	ug/ml of NO2	ug of NO2	absorbance	Slope
0.033	0.325	0.1	0.232	1.414602412	1.008296838		0	0	0	0.275493829
0.033	0.325	0.1	0.215	ND	ND		0.065	0.0325	0.019	0.013028577
0.033	0.325	0.1	0.232	0.652334883	0.464969659		0.325	0.1625	0.056	0.999945669
0.033	0.325	0.1	0.232	0.652334883	0.464969659		1.3	0.65	0.192	
0.033	0.325	0.1	0.232	3.628808089	2.586532931		6.5	3.25	0.918	
0.033	0.325	0.1	0.232	0.652334883	0.464969659		13	6.5	1.799	
0.033	0.325	0.1	0.215	0.434544161	0.309733322					
0.033	0.325	0.1	0.215	ND	ND					
0.033	0.325	0.1	0.251	2.358362208	1.821069934					
0.033	0.325	0.1	0.251	4.245881802	3.278566654					
0.033	0.325	0.1	0.251	4.02809108	3.110393956					
0.033	0.325	0.1	0.251	2.721346746	2.101357765					
0.033	0.325	0.1	0.251	0.942722513	0.727947395					
0.033	0.325	0.1	0.251	3.411017366	2.633904644					
0.033	0.325	0.1	0.251	3.411017366	2.633904644					
0.033	0.325	0.1	0.215	ND	ND					
0.033	0.325	0.1	0.215	0.543439522	0.359683527					
0.033	0.325	0.1	0.215	0.724931791	0.479806883					
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					
0.033	0.325	0.1	0.215	ND	ND					
0.033	0.325	0.1	0.215	32.81276488	21.71761623	%Rec				101

QC Results and Raw Data

Spectrophotometer Logbook

@Air Toxics Ltd.

Log Book #: 1873

Work Order: 0909127B

Method: Rad 166

Date: 9/8/09

Wavelength: 537 nm

Analyst: Mike Skidmore

Prep. Notes:

Standard ID	Concentration	ABS	
1858-34-0.065	0.065 $\mu\text{g/mL}$	0.019	$r = 0.9999$ $m = 0.2755$ $b = 0.01303$
-0.325	0.325	0.056	
-1.3	1.3	0.192	
-6.5	6.5	0.918	
-13	13	1.799	

Fraction	Dilution	ABS	Sample ID	Sample Volume
17A	1.00	0.052	102496	5.0 mL
18A		0.010	102402	
19A		0.031	102555	
20A		0.031	102556	
21A		0.113	102557	
22A		0.031	102558	
23A		0.025	102559	
24A		0.008	102560	
25A		0.078	102675	
26A		0.120	102676	
26AA		0.124	102676	
27A		0.088	102677	
28A		0.039	102678	
29A		0.107	102679	
29AA		0.107	102679	
30A		0.011	102680	
31A		0.028	102109	
32A		0.033	102110	
B1K		0.010	N/A	
B1K		0.014		
CCV/LCS		0.917		

Notes: CCV/LCS @ 6.5 $\mu\text{g/mL}$
Blank Cartridges: Lot # 09150

Date: 9/10/09

Revised 05/07

Spectrophotometer Standard Preparation Log

@Air Toxics Ltd. Log Book #: 1858

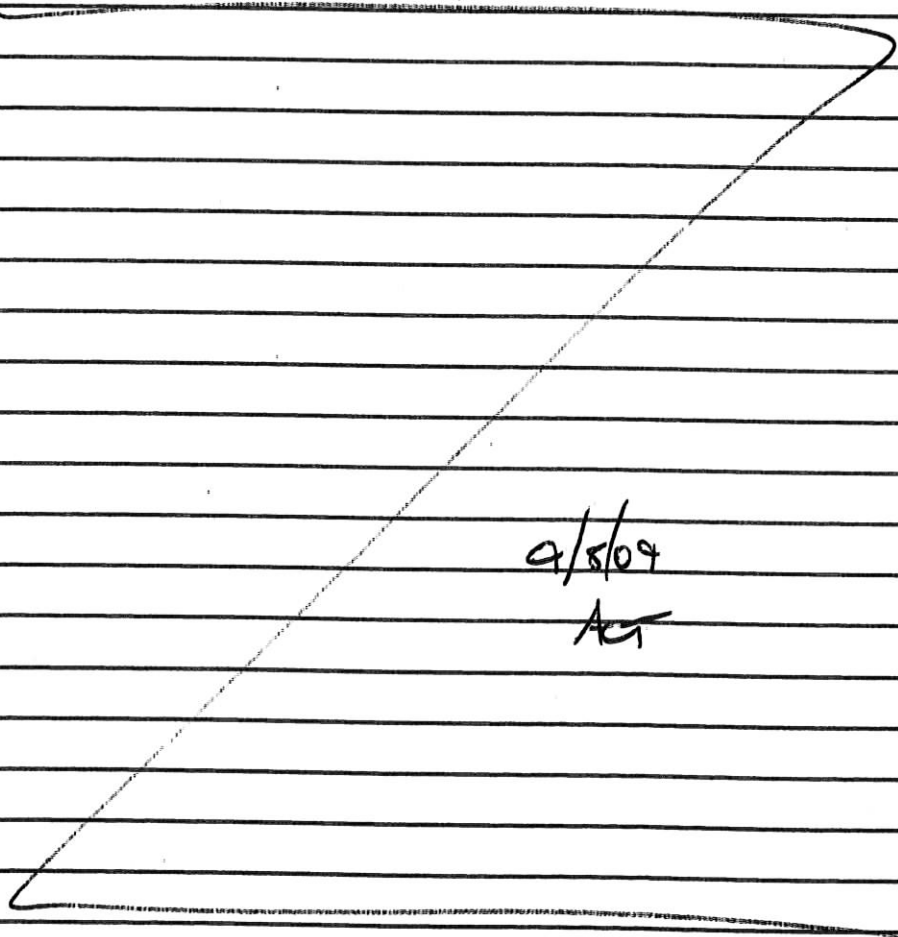
Standard ID: 1858-34
Project: Calibration Solution Rad 166
Analyst: A. Toyama
Preparation Date: 9/8/09
Expiration Date: 9/8/09

Solvent: DI H₂O
Solvent Lot #: NA

Procedure/Comments: Dissolve 5mg Sodium Nitrite, 97% (Located ER2D) in 250 ml DI H₂O to yield 13 mg/L or 13 µg/mL From this solution, dilute to make:

6.5 µg/mL (315:630) 1.3 µg/mL (130:650) 0.325 µg/mL (150:600) and 0.065 µg/mL (100:500) - all in 1 ml from conc. just made.

To each of these calibration levels, transfer 0.5 ml to vial and add 5ml of Sulphanilamide, cap tightly, stir and wait 5 minutes. Then add 1 ml of NEDA solution, stir and wait 10 minutes. Measure absorbance at 537 nm.



9/8/09
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 #: 0909127B
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

0909127

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

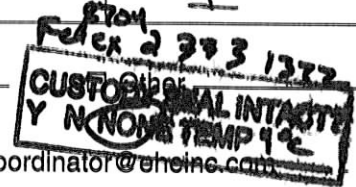
The cost of this analysis will be covered by EH&E Purchase Order # 16512

For EH & E Data Coordinator - URGENT DATA

SAMPLE ID	SAMPLE TYPE	ANALYTICAL METHOD/NUMBER	START	OTHER: Time/Date/Vol.
7A 102496	AIR/PASSIVE	SO ₂ , NO ₂ , HF ANALYSIS	8/19/09	9/1/09
102497			1	6
A 102555			8/20/09	9/2/09
10A 102556				
1A 102557				
2A 102558				
3A 102559				
4A 102560				6
5A 102675			8/21/09	9/2/09
6A 102676				
7A 102677				
8A 102678				
9A 102679				
10A 102680				6
11A 102109			8/20/09	9/3/09
12A 102110				

Special Instructions:

- Standard turn around time
- Fax results 781-247-4305
- RETURN SAMPLES
- Additional report recipient mfragala@eh&e.com
- Rush by _____ date/time
- Electronic transfer - datacoordinator@eh&e.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) AM 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 0909127B

Client	Phone	Date Promised: 09/16/09 11:59 pm
Mr. Taeko Minegishi	800-825-5343	Date Completed:
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 \$: \$ 720.00
		Logged By: HD

<u>Fraction</u>	<u>Sample #</u>	<u>Analysis</u>	<u>Collected</u>	<u>Amount\$</u>
17A	102496	ATL Applications	9/1/2009	\$40.00
18A	102402	ATL Applications	NA	\$40.00
19A	102555	ATL Applications	9/2/2009	\$40.00
20A	102556	ATL Applications	9/2/2009	\$40.00
21A	102557	ATL Applications	9/2/2009	\$40.00
22A	102558	ATL Applications	9/2/2009	\$40.00
23A	102559	ATL Applications	9/2/2009	\$40.00
24A	102560	ATL Applications	NA	\$40.00
25A	102675	ATL Applications	9/2/2009	\$40.00
26A	102676	ATL Applications	9/2/2009	\$40.00
27A	102677	ATL Applications	9/2/2009	\$40.00
28A	102678	ATL Applications	9/2/2009	\$40.00
29A	102679	ATL Applications	9/2/2009	\$40.00
30A	102680	ATL Applications	NA	\$40.00
31A	102109	ATL Applications	9/3/2009	\$40.00
32A	102110	ATL Applications	9/3/2009	\$40.00
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

Other Records



Method : ATL Application #61 NO2-Radiello 166

CAS Number	Compound	Rpt. Limit (ug)
10102-44-0	Nitrogen Dioxide	1.0

DATA REVIEW CHECKLIST

Work Order #:

0909127 B

- 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: 26A, 29A

M/Q:

A ₁ /A ₂ (Analytical Review/Date)	R/T (Reporting Review/Date)	M (Management Review/Date)	Q (QA Review/Date)
A ₁ : _____	R: 4/9/16/09	M: 2/9/18/09	_____
A ₂ : _____	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.