Compliance Test Report for the Main Baghouse Stack at the Arecibo Facility

Prepared for:
The Battery Recycling Company Inc.
Arecibo, Puerto Rico

Prepared by:
URS Corporation
Oak Ridge, Tennessee

URS

March 2010

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FOR THE MAIN BAGHOUSE STACK
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1093 Commerce Park Drive, Suite 100
Oak Ridge, Tennessee 37830

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For:
BATTERY RECYCLING COMPANY, INC.

CERTIFICATION SHEET

Having reviewed the test program described in this report, I hereby certify the data, information, and results in this report to be accurate and true according to the methods and procedures used.

URS Corporation

Michael Mowery
Source Testing Manager

PROFESSIONAL ENGINEERING CERTIFICATION

Having reviewed this report, I hereby certify the contents of this report to be accurate and complete.

JUAN COLÓN RIVERA
INGENIERO
LICENCIADO
PUERTO RICO

Juan Colón Rivera, PE

PE Certification Date: March 19, 2010

State of Certification: Puerto Rico

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List of Acronyms

BRC	Battery Recycling Company
CFR	Code of Federal Regulations
CO_2	Carbon Dioxide
dscfm	Dry Standard Cubic Feet per Minute
EQB	Puerto Rico Environmental Quality Board
USEPA	U.S. Environmental Protection Agency
MACT	Maximum Achievable Control Technology
NESHAPS	National Emission Standards for Hazardous Air Pollutants
O_2	Oxygen
QA	Quality Assurance
QC	Quality Control
scf	standard cubic foot
scm	standard cubic meter
URS	URS Corporation

1.0 Introduction

The Battery Recycling Company, Inc. (BRC) owns and operates a lead recycling facility in Arecibo, Puerto Rico. BRC's operations are subject to the compliance requirements established in 40 CFR Part 63, Subpart X (National Emission Standards for Hazardous Air Pollutants from Secondary Lead Smelting, "Secondary Lead Smelting MACT Standard"), the Subpart L, Standards of Performance for Secondary Lead Smelters and a construction permit issued by the Puerto Rico EQB. URS Corporation (URS) was contracted by BRC to conduct compliance particulate matter (PM) testing on their Main Baghouse stack, and face velocity measurements on the Lead and Slag Taps/Molds. The compliance testing was conducted on February 17, 2010.

The compliance testing allowed BRC to achieve four compliance objectives. The first two objectives were to determine if the Main Baghouse is in compliance with the 0.022 grains/dry standard cubic foot (gr/dscf) PM requirement, and the <20% opacity requirement, as set forth in the NESHAPS Standard Requirement 40 CFR 60.122(a). The third objective was to verify that the face velocity of the emission control hoods on the lead taps/molds and slag tap/molds were >300 feet per minute (fpm), as required in the MACT Standard 40 CFR 63.544. The fourth objective was to measure the Inorganic Lead emissions from the Main Baghouse to confirm compliance with the inorganic lead emission limit of .00087 grains of inorganic lead per dry standard cubic foot for the baghouse This test report presents the results of these test objectives along with the test data and description of the procedures used to collect the data.

Section 2.0 describes the methods and techniques that were used to conduct the compliance testing. Section 3.0 is a discussion of the compliance test results for the stack. Section 4.0 discusses the quality assurance (QA) and quality control (QC) procedures that were followed in the performance of the testing. Appendix A contains the compliance test calculation data for the stack. Appendix B contains the field data sheets. Appendix C contains the process data. Appendix D contains field equipment calibration data used in the compliance test. Appendix E contains the laboratory results.

2.0 Test Conditions and Technical Approach

The following sections describe the methods and techniques that were used to complete the compliance testing on the Main Baghouse stack.

2.1 Test Conditions and Schedule

On February 17, 2010 URS performed; three 1-hour test runs for particulate matter and inorganic lead, three 1-hour tests to determine Opacity on the main baghouse stack, and, face velocity measurements at the opening to the rotary furnace and to each kettle. Volumetric flow rate, molecular weight, and moisture were also determined on the main baghouse stack. The results of the tests will be used to confirm compliance with the emission limits and determine the facility's emissions.

2.2 Sample Locations

The stack sampling location was a baghouse exhaust stack 62.25 inches in diameter. Samples and velocity measurements were collected by accessing two test ports. The ports were located approximately 18 ft (3.47 diameters) downstream and 11 ft (2.12 diameters) upstream of the nearest duct transition or flow disturbance. Flow measurements were performed using a 24-point traverse using two ports (12 points per port). A pretest Cyclonic flow check was performed prior to the Method 5/12 sampling and did not show any cyclonic flow at any traverse point across the stack. Appendix B contains the reference method field data sheets for the stack sampling location.

2.3 Technical Approach

The methodologies that were utilized for data collection are presented and summarized in Table 2-1. The sampling procedures included in the technical approach were selected to accurately determine the properties and composition of the stack's gas stream. The selected methodologies

were consistent with those recommended and referenced in Title 40 of the Code of Federal Regulations Part 60 (40 CFR Part 60), Appendix A, and 40 CFR Part 63, Subpart X.

Table 2-1

Reference Method Test Procedures

Source	Pollutant	Reference Procedures for Performance Test
Main Baghouse Stack	Particulate Matter	EPA Title 40 CFR Part 60, Appendix A, Method 5, Determination of Particulate Matter Emissions from Stationary Sources
	Opacity	EPA Title 40 CFR Part 60, Appendix A, Method 9, Determination of Opacity Emissions from Stationary Sources
	Inorganic Lead	EPA Title 40 CFR Part 60, Appendix A, Methods 1 and 2, Determination of Stack Gas Volumetric Flow Rate
		EPA Title 40 CFR Part 60, Appendix A, Method 3A, Gas Analysis for Determination of Dry Molecular Weight
		EPA Title 40 CFR Part 60, Appendix A, Method 4, Determination of Moisture Content in Stack Gases
		EPA Title 40 CFR Part 60, Appendix A, Method 12, Determination of Inorganic Lead Emissions from Stationary Sources

The following are summary descriptions of the sampling methodologies that were followed to complete the sampling program.

2.3.1 EPA Methods 1 and 2, Determination of Stack Gas Volumetric Flow Rate

U.S. Environmental Protection Agency (EPA) Methods 1 and 2 were used to determine the stack gas volumetric flow rate at the sampling location. An integrated velocity traverse was conducted during each 1-hour PM test run for the Main Baghouse stack at each traverse point. An S-type pitot tube and an incline manometer were used to measure the velocity pressure. A calibrated type "K" thermocouple was used to measure the stack gas temperature at each traverse point. For each test run, the Pitot tube and thermocouple were positioned sequentially at each of the appropriate traverse points. Temperature and ΔP readings were observed and recorded. Utilizing the stack gas molecular weight and moisture content, the standard (Q_{std}) and actual volumetric flow rates were calculated in accordance with the formulas found in EPA Reference Method 2. The flow rate data has been included in Appendices A and B.

2.3.2 EPA Method 3A, Determination of Stack Gas Molecular Weight

In accordance with EPA Method 3, the stack gas O_2 and CO_2 concentrations were determined for the Main Baghouse stack gas. For each of the test runs, a stack gas grab sample was collected. The O_2 and CO_2 content of the stack gas were determined using a Fyrite analyzer. The resulting O_2 and CO_2 concentrations were used to calculate the molecular weight of the stack gas.

2.3.3 EPA Method 4, Determination of Stack Gas Moisture Content

The moisture content (%), B_{wo}, of the stack gas was determined for the Main Baghouse stack exhaust gases in accordance with EPA Method 4. An exhaust gas sample was drawn from the stack and passed through chilled glass impingers. The moisture content of the stack gas was determined for the compliance runs by measuring the weight gain of the chilled impingers over the length of the test run. The moisture determination was integrated into the Method 5 /12 sampling results.

2.3.4 EPA Method 5, Determination of Stack Gas Particulate Matter Emissions

The solid particulate matter testing was performed in accordance to EPA Method 5. Sampling was performed by extracting a sample of the stack exhaust gas stream through a stainless steel button-hook nozzle attached to a glass-lined, heat-traced, probe. The probe was attached to a heated glass filter holder containing a pre-weighed glass-fiber filter. The probe and filter heater box were maintained at a temperature of 248°F ± 25°F. After leaving the filter holder, the gas stream sample passed through a series of four glass impingers. The first impinger was a Smith-Greenburg filled with 100 ml of 0.1 N Nitric Acid. The second impinger was a modified Smith-Greenburg and filled with 100 ml of 0.1 N Nitric acid. The third impinger was a modified Smith-Greenburg and was initially empty. The fourth impinger was a modified Smith-Greenburg containing approximately 200 grams of indicating silica gel. The impingers were weighed prior to assembling the sampling train to permit gravimetric moisture determination. After exiting the impingers, the exhaust gas sample traveled through an umbilical cord to the control console and

was then exhausted to atmosphere. The control console contained the sample pump, dry gas meter, calibrated orifice meter, and heat controls for the probe and filter box.

At the conclusion of each test run, the sample train was recovered by washing the sample probe and nozzle three times with 0.1 N nitric acid into a sample container. The filter was removed from the filter holder and placed into a Petri dish and sealed for transport. The front half of the glass filter holder and connecting elbow were washed with 0.1 N nitric acid into the probe wash sample container. A sample of the 0.1 N nitric acid used in the sample recovery was collected and analyzed as a reagent blank. The impinger train was then disassembled and each impinger was weighed to determine the moisture gained during the sample run. After weighing the impingers,the first three impingers were emptied into a container. Each impinger and connecting glassware was rinsed with 0.1 N nitric acid and collected, this was added to the sample container for the specific sample container for each run, each separate container for each test run was then labeled. At the conclusion of sampling, all the samples were packaged and returned to the URS facility for subsequent analysis and shipment to the laboratory.

The particulate samples were analyzed by URS personnel. The analysis was performed by placing the filters into a desicator for a minimum of 24 hours. The filters were then weighed to a constant weight. The 0.1 N nitric acid probe rinses were transferred to pre-weighed cups and allowed to dry in a laboratory hood at ambient temperature. The sample cups were then transferred to a desicator and allowed to dry for a minimum of 24 hours. The cups were then weighed to a constant weight. The combined weights of the filter and probe wash were used to calculate the mass emission rate of solid particulates. After obtaining the final particulate weights, the cups were reconstituted with 0.1 N nitric acid and sent to the lab along with the filters and impinger solutions for determination of the inorganic lead concentrations. The data collected during the PM sampling is contained in Appendix B.

2.3.5 *EPA Method 12, Determination of Stack Gas Inorganic Lead Emissions*

The inorganic lead emission rate was determined in accordance with EPA Reference Method 12 for the Main Baghouse stack. A total of three test runs were performed. The Method 12 sampling was incorporated into the Method 5 sampling train by replacing the water in the impingers with 0.1 N nitric acid. An exhaust gas sample was isokinetically drawn from the stack through a stainless steel nozzle attached to a heated glass lined sampling probe. The exhaust gas sample was then passed through a heated glass-fiber filter and into a set of chilled glass impingers. The impingers were connected to the control console by means of an umbilical cord. The control console contained the sampling pump, sample rate controller, test temperature controls and sample rate dry gas meter. The data collected during the lead sampling is contained in Appendix B.

2.3.6 *EPA Method 9 Determination of Stack Gas Opacity Emissions*

The VE observer that performed the VE readings used the following procedures for visually determining the opacity of emissions.

Observer's Position

The VE observer stood at a distance of at least one stack height away and with the sun oriented within the required 140° arc behind his back. Consistent with maintaining the above requirement, the observer made his observations from a position such that his line of vision was approximately perpendicular to the plume direction.

Field Records

The observer recorded the name of the plant, emission location, facility type, observer's name and affiliation, and the date on a field data sheet. The time, estimated distance to the emission location, approximate wind direction, estimated wind speed, description of the sky condition (presence and

color of clouds), and plume background were recorded on the field data sheet at the time opacity readings were initiated and completed.

Observations

Opacity observations were made at the exit of the baghouse stack. The observer did not look continuously at the stack exit but instead observed the stack exit momentarily at 15-second intervals.

Recording Observations

Opacity observations were recorded to the nearest 5 percent at 15-second intervals on the observational record sheet. A minimum of 240 observations were recorded. Each test period took 60 minutes to complete. Each momentary observation recorded was deemed to be representative of the average opacity of emissions for a 15-second period.

Data Reduction

Opacity was determined as an average of 240 consecutive observations recorded at 15-second intervals. For each set of 240 observations, the average was calculated by summing the opacity of the 240 observations and dividing this sum by 240. The average opacity was recorded on the observational record sheet.

2.3.7 *Determination of Hood Face Velocities using a Propeller Anemometer*

The face velocities at the hood opening to the rotary furnace and at the opening to each kettle operating during the testing period were measured using a propeller anemometer. The face velocities were measured with the doors open in a manner comparable to normal operating conditions. The measurements were conducted at multiple points around the door openings. The face velocity values listed in the result table consist of the average number observed during each check of the respective source. The results are listed in Table 2-2.

Table 2-2

Source	Face Velocity	Comments
Kettle # 1 Trough	370 ft/min	
Kettle # 2	514 ft/min	
Kettle # 3	359 ft/min	
Kettle # 4	360 ft/min	
Kettle # 5	385 ft/min	
Furnace	500 ft/min	Tested using multiple door open configurations. This is the average face velocity during the observations.
Blower	374 ft/min	

3.0 Performance Testing Emission Results

The following is a brief summary and discussion of the Main Baghouse stack compliance testing results.

The compliance test results for the Particulate Matter runs are summarized in Table 3-1. The BRC's Main Baghouse stack test results indicate that the source complies with the Particulate Matter performance standard of 0.022 grains/dscf as stated in the Subpart L, Standards of Performance for Secondary Lead Smelters. The average particulate matter emission rate, for the compliance test was 0.00242 grains/dscf. The results for the compliance tests for Visible Emissions averaged 0.035% showing compliance with the less than 20% standard in the NSPS for Lead Smelters. The results for the Inorganic Lead runs averaged 0.000024 grains/dscf this shows compliance with the inorganic lead emission limit of .00087 grains of inorganic lead per dry standard cubic foot as stated in the Secondary Lead Smelting MACT Standard.

Table 3-1

Parameters	Run # 1	Run # 2	Run # 3	Average
Sample Date	2/17/2010	2/17/2010	2/17/2010	
Run Times	0900-1003	1020-1123	1143-1245	
Sample Time	60	60	60	60
Vol. Sampled @ STP (ft3)	36.605	36.082	36.951	36.546
Moisture Content (% Vol.)	3.63	3.79	4.30	3.91
O2 (%)	20.9	20.9	20.9	20.9
CO2 (%)	0.0	0.0	0.0	0.0
Stack Gas Temperature (°F)	173.0	177.5	175.9	175.5
Gas Flow Rate (DSCFM)	42,279	41,310	42,241	41,944
Percent Isokinetic	96.3	97.1	97.3	96.9
Particulate Matter Conc. (Grains/DSCF)	0.00396	0.00205	0.00125	0.00242
Particulate Matter Mass Rate (pounds/hr)	1.436	0.727	0.454	0.872
Inorganic Lead Conc. (Grains/DSCF)	0.000025	0.000011	0.000035	0.000024
Inorganic Lead Mass Rate (pounds/hr)	0.0092	0.0038	0.0127	0.0086

The dry gas meter/critical orifice sets were calibrated at predetermined nominal volume flow settings. For each of these flow rates, an accuracy ratio factor to the calibration standard (Y_i) was computed for the individual dry gas meters. A successful calibration for a particular dry gas meter would be achieved if each value of Y_i was within 2 percent of the average value of Y_i ($Y_i = Y \pm 0.02Y$).

In order to establish calibration for the critical orifice, a calibration coefficient ($\Delta H@_I$) was calculated for each flow rate. This coefficient is the orifice pressure differential (in inches H_2O) at a distinct orifice manometer setting that gives a flow of 0.75 ft^3/min of air at standard conditions. The desired tolerance for this coefficient is ±0.2 of the average value of the four values of $\Delta H@_I$ ($\Delta H@ \pm 0.2$). If any of the pre-test calibration coefficients for a particular meter violates the acceptance criteria, the meter in question would be adjusted and recalibrated. A copy of the control box calibrations are provided in Appendix D.

4.2 Thermocouples and Thermocouple Readouts

All thermocouples used during the stack sampling tests were calibrated to ensure accurate temperature measurements. All of the sensors utilized were type "K" thermocouples, which have a working range of approximately -300 °F to approximately 2500 °F. These sensors were used in the measurement of stack gas temperature, probe sheath temperature, filter box temperature, and impinger temperature. The thermocouples were calibrated against an NITS traceable mercury-in-glass thermometer at predetermined temperatures. In order to obtain the calibration data from each sensor, a single, recently calibrated thermocouple readout was used.

The thermocouple readouts used during the testing were calibrated using a thermocouple simulator. This calibration apparatus generates a voltage signal that mimics the signal an ideal "K" type thermocouple would exhibit at a particular temperature. The signal can be changed via a slide switch. The readouts were calibrated at ten different points from 200 °F through 2000 °F, at increments of 200 °F. A copy of the thermocouple and readout calibrations are provided in Appendix D.

4.3 Barometer

The field barometer used during the test was a digital type barometer. This barometer was calibrated by comparing it to a standard mercury column barometer and adjusting it if any deviation existed between it and the standard. This exercise was performed both before and after the testing activities.

4.4 Analytical Balance

The balance used in the field to measure impinger weights was checked with calibration weights prior to use.

The analytical balance used to weigh the particulate samples was calibrated with certified weights prior to weighing the test samples.

4.5 Pitot Tubes

The S-type pitot tube used for the isokinetic sampling train was calibrated in a wind tunnel against a standard pitot, which is considered a reference source. The basis for the calibration is described in 40 CFR, Part 60, Appendix A, Method 2. A copy of the pitot calibration is provided in Appendix D.

Appendix A

Method 5 / 12
Particulate Matter
&
Inorganic Lead
Calculations

Summary Of Results

	Main Stack			
Parameters	Run # 1	Run # 2	Run # 3	Average
Sample Date	2/17/2010	2/17/2010	2/17/2010	
Run Times	0900-1003	1020-1123	1143-1245	
Sample Time	60	60	60	60
Vol. Sampled @ STP (ft3)	36.605	36.082	36.951	36.546
Moisture Content (% Vol.)	3.63	3.79	4.30	3.91
O2 (%)	20.9	20.9	20.9	20.9
CO2 (%)	0.0	0.0	0.0	0.0
Stack Gas Temperature (°F)	173.0	177.5	175.9	175.5
Stack Velocity (ft/min.)	2,495	2,459	2,521	2,492
Gas Flow Rate (ACFM)	52,725	51,972	53,289	52,662
Gas Flow Rate (DSCFM)	42,279	41,310	42,241	41,944
Percent Isokinetic	96.3	97.1	97.3	96.9
Particulate Conc. (grains/dscf)	0.00396	0.00205	0.00125	0.00242
Particulate Mass Rate (pounds/hr)	1.436	0.727	0.454	0.872
Particulate Mass Rate (tons/year)	6.29	3.18	1.99	3.820
Lead Concentration (grains/dscf)	0.000025	0.000011	0.000035	0.000024
Lead Mass rate (pounds/ hr)	0.0092	0.0038	0.0127	0.0086
Lead Mass rate (tons/year)	0.04	0.02	0.06	0.037

STACK TEST CALCULATIONS

Project:	BRC	Barom. Psr.:	29.9		Calculated
Project No:	39400538	Static Psr.:	-0.72	Ps:	29.847
Source:	Main Stack	Delta H @:	1.7093	As:	21.135
Run No.:	1	Gamma:	0.9331	An:	0.000317
Date:	2/17/2010	Pitot Coef.:	0.826		
Sample Volume:	40.895	Stack Dia.:	62.25 ,in.		
Sample Time:	60	Nozzle Dia.:	0.241 ,in.		
O2 Conc.:	20.9	H2O Gain:	29.3 ,ml		
CO2 Conc.:	0	Part. Weight:	0.0094 ,g		

TRAVERSE POINT NUMBER	VELOCITY DELTA P Actual	Sq. Root	DELTA H	DRY GAS METER TEMPERATURE	STACK TEMP.
1	0.65	0.806226	1.800	88	174
2	0.75	0.866025	2.050	88	176
3	0.80	0.894427	2.200	88	176
4	0.82	0.905539	2.250	89	176
5	0.85	0.921954	2.350	90	175
6	0.82	0.905539	2.250	90	174
7	0.75	0.866025	2.050	90	173
8	0.42	0.648074	1.150	92	173
9	0.42	0.648074	1.150	92	175
10	0.30	0.547723	0.825	92	174
11	0.32	0.565685	0.875	92	173
12	0.32	0.565685	0.875	92	173
13	0.30	0.547723	0.825	92	169
14	0.25	0.5	0.680	92	171
15	0.38	0.616441	1.050	92	171
16	0.45	0.67082	1.220	92	171
17	0.50	0.707107	1.350	93	172
18	0.55	0.74162	1.500	93	173
19	0.45	0.67082	1.220	93	173
20	0.38	0.616441	1.050	93	173
21	0.38	0.616441	1.050	94	173
22	0.32	0.565685	0.875	94	172
23	0.25	0.5	0.680	94	172
24	0.25	0.5	0.680	94	170
AVERAGE	0.4866667	0.683087	1.3335417	91.625	173

Project: BRC
Project No: 39400538
Source: Main Stack
Run No.: 1

Stack Sampling Calculations

Volume of Water Collected

Vwstd = (VI0)(0.04707)

Vwstd = 1.38 cubic feet

Volume of Gas Metered, Standard Conditions

Vmstd = ((17.64) (Vm)(Pb + DeltaH/13.6)(gamma))/Tm

Vmstd = 36.605 cubic feet

Moisture Content

Bwo = Vwstd/(Vmstd + Vwstd)

Bwo = 0.04

Molecular Weight of the Dry Gas Stream

Md = (.44)(%CO2) + (.32)(%O2) + (.28)(%CO +%N2)

Md = 28.8

Molecular Weight of Stack Gas

Ms = (Md(1-Bwo) + 18(bwo)

Ms = 28.4

Velocity of Stack Gas

Vs = 174 Cp (DeltaP sq.rt.)((Ts+459.6) X 29.92 X 28.96/Ps/Ms)^.5

Vs = 2,494.7 ft/min

Total Flow of Stack Gas

Qa = As X Vs

Qa = 52,725.45 ACFM

Qs = Qa X 528/Ts X Ps/29.92

Qs = 43,872.30 SCFM

Qstd = Qs(1 - Bwo)

Qstd = 42,279.38 DSCFM

Vsstd = Qstd/As

Vsstd = 2000.43 ft/min

Percent Isokinetic

Is = Vmstd/(An X Time X Vsstd)

Is = 0.96

Particulate Concentration

Cs = (15.43)(Mn)/Vmstd

Cs = 0.0040

Particulate Mass Rate

Pmr = (Mn)(Qstd)(60)/(Vmstd)(453.6)

Pmr = 1.44

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TEST LAB DATA SHEET

PROJECT:	Battery Recycling Co.	PROJECT NO.:	39400538
SOURCE:	Main Stack	TEST DATE:	2/17/2010
TRAIN I.D.	R1	TEST NO.:	1
COLLECTED BY:	TG, TB	CHKD BY:	TG

CONDENSATION

IMPINGER NO.	INITIAL VOL.,ml/g	FINAL VOL., ml/g	NET GAIN, ml/g
1	702.1	710.4	8.3
2	689.1	698	8.9
3	607.6	610.8	3.2
4	924.5	933.4	8.9
5			0
6			0
7			0
TOTAL	2923.3	2952.6	29.3

PARTICULATE

SAMPLE I.D. NO.	INITIAL WT., g	FINIAL WT., g	NET WT., g
PROBE WASH	12.7959	12.8048	0.0089
REAGENT BLANK	12.7934	12.7936	0.0002
CORRECTED PROBE WASH *			0.0087
FILTER # 1	0.2667	0.2674	0.0007
FILTER # 2			0
FILTER # 3			0
IMPINGERS			0

* subtract reagent blank from probe wash

TOTAL PARTICULATE COLLECTED

PARTICULATE COLLECTED (excluding Impinger catch)	0.0094
PARTICULATE COLLECTED (including Impinger catch)	

QA PROBE WASH (as required)

SAMPLE I.D. NO.	INITIAL WT., g	FINIAL WT., g	NET WT., g

COMMENTS:

STACK TEST CALCULATIONS

Project:	BRC	Barom. Psr.:	29.9			Calculated
Project No:	39400538	Static Psr.:	-0.72		Ps:	29.847
Source:	Main Stack	Delta H @:	1.7093		As:	21.135
Run No.:	2	Gamma:	0.9331		An:	0.000317
Date:	2/17/2010	Pitot Coef.:	0.826			
Sample Volume:	40.62	Stack Dia.:	62.25	,in.		
Sample Time:	60	Nozzle Dia.:	0.241	,in.		
O2 Conc.:	20.9	H2O Gain:	30.2	,ml		
CO2 Conc.:	0	Part. Weight:	0.0048	,g		

TRAVERSE POINT NUMBER	VELOCITY DELTA P Actual	Sq. Root	DELTA H	DRY GAS METER TEMPERATURE	STACK TEMP.
1	0.28	0.52915	0.760	93	177
2	0.38	0.616441	1.050	93	176
3	0.40	0.632456	1.100	94	176
4	0.45	0.67082	1.220	94	176
5	0.50	0.707107	1.370	94	177
6	0.60	0.774597	1.650	94	178
7	0.50	0.707107	1.370	94	179
8	0.40	0.632456	1.100	95	179
9	0.32	0.565685	0.875	95	179
10	0.25	0.5	0.675	95	178
11	0.20	0.447214	0.550	96	175
12	0.32	0.565685	0.875	96	177
13	0.50	0.707107	1.370	95	166
14	0.75	0.866025	2.050	96	179
15	0.80	0.894427	2.200	96	180
16	0.80	0.894427	2.200	97	180
17	0.80	0.894427	2.200	97	180
18	0.70	0.83666	1.900	97	180
19	0.50	0.707107	1.370	98	180
20	0.45	0.67082	1.220	98	180
21	0.38	0.616441	1.050	98	179
22	0.32	0.565685	0.875	98	178
23	0.30	0.547723	0.825	98	177
24	0.30	0.547723	0.825	98	175
AVERAGE	0.4666667	0.67072	1.2783333	95.79166667	177.5417

Project: BRC
Project No: 39400538
Source: Main Stack
Run No.: 2

Stack Sampling Calculations

Volume of Water Collected

Vwstd = (VI0)(0.04707)

Vwstd = 1.42 cubic feet

Volume of Gas Metered, Standard Conditions

Vmstd = ((17.64) (Vm)(Pb + DeltaH/13.6)(gamma))/Tm

Vmstd = 36.082 cubic feet

Moisture Content

Bwo = Vwstd/(Vmstd + Vwstd)

Bwo = 0.04

Molecular Weight of the Dry Gas Stream

Md = (.44)(%CO2) + (.32)(%O2) + (.28)(%CO +%N2)

Md = 28.8

Molecular Weight of Stack Gas

Ms = (Md(1-Bwo) + 18(bwo)

Ms = 28.4

Velocity of Stack Gas

Vs = 174 Cp (DeltaP sq.rt.)((Ts+459.6) X 29.92 X 28.96/Ps/Ms)^.5

Vs = 2,459.0 ft/min

Total Flow of Stack Gas

Qa = As X Vs

Qa = 51,972.25 ACFM

Qs = Qa X 528/Ts X Ps/29.92

Qs = 42,937.51 SCFM

Qstd = Qs(1 - Bwo)

Qstd = 41,310.02 DSCFM

Vsstd = Qstd/As

Vsstd = 1954.56 ft/min

Percent Isokinetic

Is = Vmstd/(An X Time X Vsstd)

Is = 0.97

Particulate Concentration

Cs = (15.43)(Mn)/Vmstd

Cs = 0.0021

Particulate Mass Rate

Pmr = (Mn)(Qstd)(60)/(Vmstd)(453.6)

Pmr = 0.73

URS

TEST LAB DATA SHEET

PROJECT:	Battery Recycling Co.	PROJECT NO.:	39400538
SOURCE:	Main Stack	TEST DATE:	2/17/2010
TRAIN I.D.	R2	TEST NO.:	2
COLLECTED BY:	TG, TB	CHKD BY:	TG

CONDENSATION

IMPINGER NO.	INITIAL VOL.,ml/g	FINAL VOL., ml/g	NET GAIN, ml/g
1	734.9	748.7	13.8
2	741.2	747.6	6.4
3	603.2	605.2	2
4	935.2	943.2	8
5			0
6			0
7			0
TOTAL	3014.5	3044.7	30.2

PARTICULATE

SAMPLE I.D. NO.	INITIAL WT., g	FINIAL WT., g	NET WT., g
PROBE WASH	12.6183	12.6222	0.0039
REAGENT BLANK	12.7934	12.7936	0.0002
CORRECTED PROBE WASH *			0.0037
FILTER # 1	0.2587	0.2598	0.0011
FILTER # 2			0
FILTER # 3			0
IMPINGERS			0

* subtract reagent blank from probe wash

TOTAL PARTICULATE COLLECTED

PARTICULATE COLLECTED (excluding impinger catch)	0.0048
PARTICULATE COLLECTED (including impinger catch)	

QA PROBE WASH (as required)

SAMPLE I.D. NO.	INITIAL WT., g	FINIAL WT., g	NET WT., g

COMMENTS:

STACK TEST CALCULATIONS

Project:	BRC	Barom. Psr.:	29.9		Calculated	
Project No:	39400538	Static Psr.:	-0.72	Ps:	29.847	
Source:	Main Stack	Delta H @:	1.7093	As:	21.135	
Run No.:	3	Gamma:	0.9331	An:	0.000317	
Date:	2/17/2010	Pitot Coef.:	0.826			
Sample Volume:	41.685	Stack Dia.:	62.25	,in.		
Sample Time:	60	Nozzle Dia.:	0.241	,in.		
O2 Conc.:	20.9	H2O Gain:	35.3	,ml		
CO2 Conc.:	0	Part. Weight:	0.003	,g		

TRAVERSE POINT NUMBER	VELOCITY DELTA P Actual	Sq. Root	DELTA H	DRY GAS METER TEMPERATURE	STACK TEMP.
1	0.70	0.83666	1.900	94	179
2	0.75	0.866025	2.050	95	178
3	0.80	0.894427	2.200	95	178
4	0.90	0.948683	2.450	95	177
5	0.85	0.921954	2.350	96	180
6	0.85	0.921954	2.350	97	177
7	0.55	0.74162	1.500	97	176
8	0.45	0.67082	1.220	97	184
9	0.42	0.648074	1.150	98	181
10	0.30	0.547723	0.825	98	178
11	0.30	0.547723	0.825	98	183
12	0.25	0.5	0.675	97	178
13	0.35	0.591608	0.950	97	175
14	0.30	0.547723	0.825	97	180
15	0.40	0.632456	1.100	97	177
16	0.45	0.67082	1.220	97	176
17	0.52	0.72111	1.410	98	174
18	0.60	0.774597	1.650	98	173
19	0.50	0.707107	1.350	98	172
20	0.40	0.632456	1.100	98	171
21	0.35	0.591608	0.950	98	169
22	0.30	0.547723	0.825	98	169
23	0.30	0.547723	0.825	98	168
24	0.25	0.5	0.675	98	168
AVERAGE	0.4933333	0.687941	1.3489583	97.04166667	175.875

Project: BRC
Project No: 39400538
Source: Main Stack
Run No.: 3

Stack Sampling Calculations

Volume of Water Collected

Vwstd = (VI0)(0.04707)

Vwstd = 1.66 cubic feet

Volume of Gas Metered, Standard Conditions

Vmstd = ((17.64) (Vm)(Pb + DeltaH/13.6)(gamma))/Tm

Vmstd = 36.951 cubic feet

Moisture Content

Bwo = Vwstd/(Vmstd + Vwstd)

Bwo = 0.04

Molecular Weight of the Dry Gas Stream

Md = (.44)(%CO2) + (.32)(%O2) + (.28)(%CO +%N2)

Md = 28.8

Molecular Weight of Stack Gas

Ms = (Md(1-Bwo) + 18(bwo)

Ms = 28.4

Velocity of Stack Gas

Vs = 174 Cp (DeltaP sq.rt.)((Ts+459.6) X 29.92 X 28.96/Ps/Ms)^.5

Vs = 2,521.3 ft/min

Total Flow of Stack Gas

Qa = As X Vs

Qa = 53,289.00 ACFM

Qs = Qa X 528/Ts X Ps/29.92

Qs = 44,140.75 SCFM

Qstd = Qs(1 - Bwo)

Qstd = 42,241.30 DSCFM

Vsstd = Qstd/As

Vsstd = 1998.63 ft/min

Percent Isokinetic

Is = Vmstd/(An X Time X Vsstd)

Is = 0.97

Particulate Concentration

Cs = (15.43)(Mn)/Vmstd

Cs = 0.0013

Particulate Mass Rate

Pmr = (Mn)(Qstd)(60)/(Vmstd)(453.6)

Pmr = 0.45

URS

TEST LAB DATA SHEET

PROJECT:	Battery Recycling Co.	PROJECT NO.:	39400538
SOURCE:	Main Stack	TEST DATE:	2/17/2010
TRAIN I.D.	R3	TEST NO.:	3
COLLECTED BY:	TG, TB	CHKD BY:	TG

CONDENSATION

IMPINGER NO.	INITIAL VOL.,ml/g	FINAL VOL., ml/g	NET GAIN, ml/g
1	699.7	715.4	15.7
2	680.3	689.2	8.9
3	606.5	608.9	2.4
4	918.8	927.1	8.3
5			0
6			0
7			0
TOTAL	2905.3	2940.6	35.3

PARTICULATE

SAMPLE I.D. NO.	INITIAL WT., g	FINIAL WT., g	NET WT., g
PROBE WASH	12.4931	12.4954	0.0023
REAGENT BLANK	12.7934	12.7936	0.0002
CORRECTED PROBE WASH *			0.0021
FILTER # 1	0.2689	0.2698	0.0009
FILTER # 2			0
FILTER # 3			0
IMPINGERS			0

* subtract reagent blank from probe wash

TOTAL PARTICULATE COLLECTED

PARTICULATE COLLECTED (excluding impinger catch)	0.0030
PARTICULATE COLLECTED (including impinger catch)	

QA PROBE WASH (as required)

SAMPLE I.D. NO.	INITIAL WT., g	FINIAL WT., g	NET WT., g

COMMENTS:

Project: Battery Recycling Company
Project No.: 39400538
Date: February 17, 2010

Lead Mass Emission Calculations

INPUT PARAMETERS

Lead	Total ug	grams/sample	Vmstd	Qstd	Mass Rate (lbs/hr)	Lead Concentration (grains/dscf)
Run 1	60.1	0.0000601	36.605	42,996	0.0093376	0.0000253
Run 2	25	0.0000250	36.082	42,010	0.0038502	0.0000107
Run 3	83.9	0.0000839	36.951	42,957	0.0129017	0.0000350
			Average		0.0065224	0.0000178
			Compliance Limit			0.000870
					Tons/year	0.0285680

Lead Mass Rate (lb/hr)

Mmr= (Mn)(Qstd)(60)/(Vmstd)(453.6)

Mn= grams/sample
Qstd= stack gas flow rate (dscfm)
Vmstd= volume of air sample (@ stp)

Lead Mass Rate (Tons/year)

mass rate (Tons/year) = mass rate(lbs/hr) * 24(hrs) * 365(days) / 2000(lbs/ton)

Visible Emissions
Opacity

Visible Emission Observation Form

Company Name	VE Observer	Observation Date	Start Time	End Time
Battery Recycling Company	Thomas Brado	2/17/2010	9:02	10:02

Location	City	State	Zip
Main Stack	Arecibo	Puerto Rico	00612

Process Equipment	Operating Mode
Process Ventilation	Normal

Control Equipment	Operating Mode
Baghouse	Normal

Describe Emission Point

Steel Stack Circular

Height of Emission Point	Height Relative to Observer
80 ft	Start 80 ft End 80 ft

Distance to Emission Point	Direction to Emission Point
Start 100 ft End 100 ft	Start NNW End NNW

Vertical Angle to Observation Point	Direction to Observation Point
40° End 40°	Start SSE End SSE

Describe Emissions

Start	End
Dust	Dust

Emission Color	If Water Droplet Plume (Shaded)
Start light tan End light tan	No condensation present

Point In The Plume At Which Opacity Was Determined	
Start Stack exit	End Stack exit

Describe Plume Background

Start	End
Sky	Sky

Background Color	Sky Condition
Start Blue End Blue	Start Clear End Clear

Wind Speed (mph)	Wind Direction (from)
Start 5-10 End 0	Start W End none

Ambient Temp	Wet Blub Temp	RH Percent
Start 85° End 90°	n/a	n/a

Interval	0	15	30	45	Interval	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	5	0	47	5	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	5	5	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	5	0	0

Test Results:

Maximum 6 Minute Rolling Avg:	0.417	%	Minimum Opacity:	0.0	%
Average Opacity:	0.104	%	# of Readings >20%:	0	
Maximum Opacity:	5.0	%	Number of Readings:	240	

Visible Emission Observation Form

Company Name	VE Observer	Observation Date	Start Time	End Time
attery Recycling Company	Thomas Brado	2/17/2010	10:20	11:20

Location	City	State	Zip
Main Stack	Arecibo	Puerto Rico	00612

Process Equipment	Operating Mode
Process Ventilation	Normal

Control Equipment	Operating Mode
Baghouse	Normal

Describe Emission Point

Steel Stack Circular

Height of Emission Point	Height Relative to Observer
80 ft	Start 80 ft End 80 ft
Distance to Emission Point	**Direction to Emission Point**
Start 100 ft End 100 ft	Start NNW End NNW
Vertical Angle to Observation Point	**Direction to Observation Point**
Start 40° End 40°	Start SSE End SSE

Describe Emissions

Start	End
Dust	None Observed

Emission Color	If Water Droplet Plume (Shaded)
Start Light tan End n/a	No condensation present

Point In The Plume At Which Opacity Was Determined

Start	End
Stack exit	Stack exit

Describe Plume Background

Start	End
Sky	Sky

Background Color	Sky Condition
Start Blue End Blue	Start Clear End Clear
Wind Speed (mph)	**Wind Direction (from)**
Start 0-5 End 5-10	Start W End SW

Ambient Temp	Wet Bulb Temp	RH Percent
Start 90° End 90°	n/a	n/a

Interval	0	15	30	45	Interval	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

Test Results:

Maximum 6 Minute Rolling Avg:	0.000	%	Minimum Opacity:	0.0	%
Average Opacity:	0.000	%	# of Readings >20%:	0	
Maximum Opacity:	0.0	%	Number of Readings:	240	

Visible Emission Observation Form

Company Name	VE Observer	Observation Date	Start Time	End Time
(ıttery Recycling Company	Thomas Brado	2/17/2010	11:44	12:44

Location: Main Stack

City	State	Zip
Arecibo	Puerto Rico	00612

Process Equipment: Process Ventilation — **Operating Mode**: Normal

Control Equipment: Baghouse — **Operating Mode**: Normal

Describe Emission Point: Steel Stack Circular

Height of Emission Point	Height Relative to Observer
80 ft	Start 80 ft End 80 ft
Distance to Emission Point	**Direction to Emission Point**
Start 100 ft End 100 ft	Start NNW End NNW
Vertical Angle to Observation Point	**Direction to Observation Point**
Start 40° End 40°	Start SSE End SSE

Describe Emissions

Start: None — End: None Observed

Emission Color	If Water Droplet Plume (Shaded)
Start none End none	No condensation present

Point In The Plume At Which Opacity Was Determined: Start: Stack exit — End: Stack exit

Describe Plume Background

Start: Sky — End: Sky

Background Color	Sky Condition
Start Blue End Blue	Start Clear End Clear
Wind Speed (mph)	**Wind Direction (from)**
Start 0-5 End 0-5	Start SW End SW

Ambient Temp	Wet Bulb Temp	RH Percent
Start 90° End 90°	n/a	n/a

Interval	0	15	30	45	Interval	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

Test Results:

Maximum 6 Minute Rolling Avg:	0.000	%	Minimum Opacity:	0.0	%
Average Opacity:	0.000	%	# of Readings >20%:	0	
(Maximum Opacity:	0.0	%	Number of Readings:	240	

Appendix B

Method 5 / 12
Particulate Matter
&
Inorganic Lead
Field Data Sheets

URS

STACK TEST DATA SHEET

Project:	Battery Recycling Co.	Barom. Psr.:	29.9
Project No:	39400538.00001	Static Psr.:	-0.72
Source:	Main Stack	Delta H @:	1.7093
Run No.:	R1	Gamma:	0.9331
Date:	2-17-10	Pitot Coef.:	0.84
Filter No.:	GF-135	Stack Dia.:	62.5'
Meter Box I.D.:	V	Stack Area:	
Sample Box No.:	R1	Port Length:	3.5"
Probe Heater Setting:	250	Port Dia.:	4.0"
Personnel:	TG, TB	Probe Liner:	Glass

Schematic of Stack

TRAVERSE POINT NUMBER	SAMPLING TIME Clock	SAMPLING TIME Sample	VELOCITY DELTA P Actual	DELTA H	GAS SAMPLE VOLUME	DRY GAS METER TEMP.	PROBE TEMP.	FILTER BOX TEMP.	STACK TEMP.	LAST IMPINGER TEMP.	TRAIN VACUUM
1	09:00	0.0	0.65	1.8	191.150	88	240	250	174	65	2.0
2		2.5	0.75	2.05	193.10	88	250	260	176	61	2.0
3		5.0	0.80	2.2	195.20	88	250	250	176	58	2.0
4		7.5	0.82	2.25	197.40	89	250	252	176	58	2.5
5		10.0	0.85	2.35	199.80	90	250	248	175	58	3.0
6		12.5	0.82	2.25	202.20	90	250	248	174	61	2.5
7		15.0	0.75	2.05	204.70	90	249	247	173	64	2.5
8		17.5	0.42	1.15	206.80	92	251	245	173	62	1.0
9		20.0	0.42	1.15	208.70	92	251	246	175	57	1.0
10		22.5	0.30	0.825	210.20	92	250	246	174	54	1.0
11		25.0	0.32	0.875	211.30	92	251	250	173	52	1.0
12		27.5	0.32	0.875	212.70	92	250	248	173	51	1.0
	09:30	30.0	—	—	213.965	—	—	—	—	—	—
1	09:33		0.30	0.825	213.965	92	251	260	169	54	1.0
2		32.5	0.25	0.68	215.40	92	250	250	171	50	1.0
3		35.0	0.38	1.05	216.90	92	250	250	171	49	1.0
4		37.5	0.45	1.22	218.40	92	250	255	171	48	1.0
5		40.0	0.50	1.35	219.80	93	250	250	172	47	1.0
6		42.5	0.55	1.5	221.80	93	251	246	173	46	1.0
7		45.0	0.45	1.22	223.60	93	251	246	173	47	1.0
8		47.5	0.38	1.05	225.60	93	251	245	173	48	1.0
9		50.0	0.38	1.05	226.90	94	251	249	173	50	1.0
10		52.5	0.32	0.875	228.20	94	250	245	172	50	1.0
11		55.0	0.25	0.68	229.80	94	250	247	172	50	1.0
12		57.5	0.25	0.68	230.70	94	250	248	170	50	1.0
	10:03	60.0			232.045						
AVERAGE											

LEAK CHECKS	
Pitot impact:	good
Pitot static:	good
Train Initial:	0.0 @ 14" Hg
Train Final:	0.0 @ 5" Hg

NOZZLE MEASUREMENT	
I.D. No.:	0.241
1	0.241
2	0.242
3	0.241
Avg.	0.241

STACK GAS ANALYSIS	CO2	O2	CO
1	0.0	20.9	—
2	0.0	20.9	—
3	0.0	20.9	—
Avg.			

NOTES: AQS-6-003 probe

Operator Signature: [signature]

URS

TEST LAB DATA SHEET

PROJECT:	Battery Recycling Co.	PROJECT NO.:	39400538
SOURCE:	Main Stack	TEST DATE:	02/17/10
TRAIN I.D.	R1	TEST NO.:	R1
COLLECTED BY:	TG, BJ	CHKD BY:	TG

CONDENSATION

IMPINGER NO.	INITIAL VOL.,ml/g	FINAL VOL., ml/g	NET GAIN, ml/g
1	702.1	710.4	8.3
2	689.1	698.0	8.9
3	607.6	610.8	3.2
4	924.5	933.4	8.9
5			
6			
7			
TOTAL			29.3

PARTICULATE

SAMPLE I.D. NO.	INITIAL WT., g	FINIAL WT., g	NET WT., g
PROBE WASH	12.7959	12.8048	0.0089
REAGENT BLANK	12.7934	12.7936	0.0002
CORRECTED PROBE WASH *			0.0087
FILTER # 1	0.2667	0.2674	0.0007
FILTER # 2			
IMPINGERS			

* subtract reagent blank from probe wash

TOTAL PARTICULATED COLLECTED

PARTICULATE COLLECTED (excluding impinger catch)	
PARTICULATE COLLECTED (including impinger catch)	

QA PROBE WASH (as required)

SAMPLE I.D. NO.	INITIAL WT., g	FINIAL WT., g	NET WT., g

COMMENTS:

URS

STACK TEST DATA SHEET

Project:	Battery Recycling Co.	Barom. Psr.:	29.9
Project No:	39460539	Static Psr.:	-0.72
Source:	Main Stack	Delta H @:	1.7093
Run No.:	R2	Gamma:	0.9331
Date:	2/17/10	Pitot Coef.:	0.84
Filter No.:	GF-156	Stack Dia.:	62.5'
Meter Box I.D.:	V	Stack Area:	
Sample Box No.:		Port Length:	3.6"
Probe Heater Setting:	250	Port Dia.:	4.0"
Personnel:	TG, TB	Probe Liner:	Glass

Schematic of Stack

TRAVERSE POINT NUMBER	SAMPLING TIME Clock	SAMPLING TIME Sample	VELOCITY DELTA P Actual	DELTA H	GAS SAMPLE VOLUME	DRY GAS METER TEMP.	PROBE TEMP.	FILTER BOX TEMP.	STACK TEMP.	LAST IMPINGER TEMP.	TRAIN VACUUM
1	10:20	0.0	0.28	0.76	232.200	93	251	240	177	67	1.0
2		2.5	0.38	1.05	233.60	93	251	243	176	67	1.0
3		5.0	0.40	1.1	235.30	94	251	245	176	63	1.0
4		7.5	0.45	1.22	236.70	94	249	247	176	59	1.0
5		10.0	0.50	1.37	238.50	94	250	249	177	55	1.0
6		12.5	0.60	1.65	239.90	94	249	246	178	54	2.0
7		15.0	0.50	1.37	242.20	94	251	249	179	54	1.5
8		17.5	0.40	1.1	243.80	95	252	249	179	55	1.0
9		20.0	0.32	0.875	245.60	95	250	243	179	56	1.0
10		22.5	0.25	0.675	246.90	95	251	245	178	57	1.0
11		25.0	0.20	0.55	248.30	96	251	244	175	58	1.0
12		27.5	0.32	0.875	249.40	96	248	242	177	57	1.0
	10:50	30.0	—	—	250.555	—	—	—	—	—	—
1	10:53	—	0.50	1.37	250.555	95	251	247	166	58	1.0
2		32.5	0.75	2.05	252.60	96	250	248	179	54	3.0
3		35.0	0.80	2.2	254.60	96	250	248	180	53	3.0
4		37.5	0.80	2.2	256.90	97	251	247	180	53	3.0
5		40.0	0.80	2.2	259.00	97	251	246	180	53	3.0
6		42.5	0.70	1.9	261.60	97	251	247	180	54	2.5
7		45.0	0.50	1.37	263.70	98	250	244	180	55	2.0
8		47.5	0.45	1.22	265.70	98	251	244	180	55	2.0
9		50.0	0.38	1.05	267.40	98	250	245	179	56	1.0
10		52.5	0.32	0.875	269.60	98	251	241	178	56	1.0
11		55.0	0.30	0.825	270.30	98	251	244	177	55	1.0
12		57.5	0.30	0.825	271.50	98	251	247	175	55	1.0
	11:23	60.0			272.820						
AVERAGE											

LEAK CHECKS	
Pitot impact:	good
Pitot static:	good
Train Initial:	0.0 @ 10" Hg
Train Final:	0.0 @ 5" Hg

NOZZLE MEASUREMENT	
I.D. No.:	0.241
1	0.241
2	0.242
3	0.241
Avg.	0.241

STACK GAS ANALYSIS			
	CO2	O2	CO
1	0.0	20.9	—
2	0.0	20.9	—
3	0.0	20.9	—
Avg.			

NOTES: AGS-6-003 probe

Operator Signature: Todd Gregg

URS

TEST LAB DATA SHEET

PROJECT:	Battery Recycling Co.	PROJECT NO.:	39400538
SOURCE:	Main Stack	TEST DATE:	02/17/10
TRAIN I.D.	R2	TEST NO.:	R2
COLLECTED BY:	TG, BJ	CHKD BY:	TG

CONDENSATION

IMPINGER NO.	INITIAL VOL.,ml/g	FINAL VOL., ml/g	NET GAIN, ml/g
1	734.9	748.7	13.8
2	741.2	747.6	6.4
3	603.2	~~608.4~~ 605.2	2.0
4	935.2	943.2	8.0
5			
6			
7			
TOTAL			

PARTICULATE

SAMPLE I.D. NO.	INITIAL WT., g	FINIAL WT., g	NET WT., g
PROBE WASH	12.5183	12.5222	0.0039
REAGENT BLANK	12.7934	12.7936	0.0002
CORRECTED PROBE WASH *			0.0037
FILTER # 1	0.2587	0.2598	0.0011
FILTER # 2			
IMPINGERS			

* subtract reagent blank from probe wash

TOTAL PARTICULATED COLLECTED

PARTICULATE COLLECTED (excluding impinger catch)
PARTICULATE COLLECTED (including impinger catch)

QA PROBE WASH (as required)

SAMPLE I.D. NO.	INITIAL WT., g	FINIAL WT., g	NET WT., g

COMMENTS:

URS

STACK TEST DATA SHEET

Project:	Battery Recycling Co.	Barom. Psr.:	29.9
Project No:	39400538	Static Psr.:	-0.72
Source:	Main Stack	Delta H @:	1.7093
Run No.:	R3	Gamma:	0.9331
Date:	02/17/10	Pitot Coef.:	0.84
Filter No.:	GF-136	Stack Dia.:	62.6'
Meter Box I.D.:	V	Stack Area:	
Sample Box No.:		Port Length:	3.5"
Probe Heater Setting:	250	Port Dia.:	4.0"
Personnel:	TG, TB, BS	Probe Liner:	Glass

Schematic of Stack

TRAVERSE POINT NUMBER	SAMPLING TIME Clock	SAMPLING TIME Sample	VELOCITY DELTA P Actual	DELTA H	GAS SAMPLE VOLUME	DRY GAS METER TEMP.	PROBE TEMP.	FILTER BOX TEMP.	STACK TEMP.	LAST IMPINGER TEMP.	TRAIN VACUUM
1	11:43	0.0	~~0.80~~ 0.70	1.9	273.350	94	248	246	179	67	1.0
2		2.5	0.75	2.05	275.30	95	249	243	178	59	2.0
3		5.0	0.80	2.2	277.70	95	250	242	178	56	3.0
4		7.5	0.90	2.45	279.80	95	249	245	177	53	3.5
5		10.0	0.85	2.35	282.60	96	250	245	180	51	3.5
6		12.5	0.85	2.35	284.80	97	250	243	177	51	3.5
7		15.0	0.55	1.5	287.30	97	251	245	176	50	2.0
8		17.5	0.45	1.22	289.10	97	250	246	184	50	1.0
9		20.0	0.42	1.15	291.00	98	250	242	181	51	1.0
10		22.5	0.30	0.825	292.60	98	251	245	178	52	1.0
11		25.0	0.30	0.825	293.80	98	251	245	183	53	1.0
12		27.5	0.25	0.675	295.20	97	250	245	178	52	1.0
	12:13	30.0	—	—	—	—	—	—	—	—	—
1	12:15	—	0.35	0.95	296.300	97	250	244	175	58	1.0
2		32.5	0.30	0.825	297.90	97	250	241	180	54	1.0
3		35.0	0.40	1.1	299.30	97	252	246	177	55	1.0
4		37.5	0.45	1.22	300.80	97	248	245	176	56	1.5
5		40.0	0.52	1.41	302.80	98	251	250	174	56	1.5
6		42.5	0.60	1.65	304.50	98	252	247	173	55	2.0
7		45.0	0.50	1.35	306.50	98	250	244	172	55	2.0
8		47.5	0.40	1.1	308.30	98	249	242	171	55	1.0
9		50.0	0.35	0.95	309.60	98	249	243	169	56	1.0
10		52.5	0.30	0.825	311.10	98	251	245	169	58	1.0
11		55.0	0.30	0.825	312.30	98	249	246	168	59	1.0
12		57.5	0.25	0.675	313.80	98	248	244	168	69	1.0
	12:45	60.0			315.035						
AVERAGE											

LEAK CHECKS	
Pitot Impact:	Good
Pitot static:	Good
Train Initial:	0.0 @ 10" Hg
Train Final:	0.0 @ 5" Hg

NOZZLE MEASUREMENT	
I.D. No.:	0.241
1	0.241
2	0.242
3	0.241
Avg.	0.241

STACK GAS ANALYSIS	CO2	O2	CO
1	0.0	20.9	
2	0.0	20.9	
3	0.0	20.9	
Avg.			

NOTES: AQS-G-003 probe

Operator Signature: Todd Dapp

URS

TEST LAB DATA SHEET

PROJECT:	Battery Recycling Co.	PROJECT NO.:	39400538
SOURCE:	Main Stack	TEST DATE:	02/17/10
TRAIN I.D.	R3	TEST NO.:	R3
COLLECTED BY:	TG, BS	CHKD BY:	TG

CONDENSATION

IMPINGER NO.	INITIAL VOL.,ml/g	FINAL VOL., ml/g	NET GAIN, ml/g
1	699.7	715.4	15.7
2	680.3	689.2	8.9
3	606.5	608.9	2.4
4	918.8	927.1	8.3
5			
6			
7			
TOTAL			35.3

PARTICULATE

SAMPLE I.D. NO.	INITIAL WT., g	FINIAL WT., g	NET WT., g
PROBE WASH	12.4931	12.4954	0.0023
REAGENT BLANK	12.7934	12.7936	0.0002
CORRECTED PROBE WASH *			0.0021
FILTER # 1	0.2689	0.2698	0.0009
FILTER # 2			
IMPINGERS			

* subtract reagent blank from probe wash

TOTAL PARTICULATED COLLECTED

PARTICULATE COLLECTED (excluding impinger catch)
PARTICULATE COLLECTED (including impinger catch)

QA PROBE WASH (as required)

SAMPLE I.D. NO.	INITIAL WT., g	FINIAL WT., g	NET WT., g

COMMENTS:

Visible Emissions
Opacity

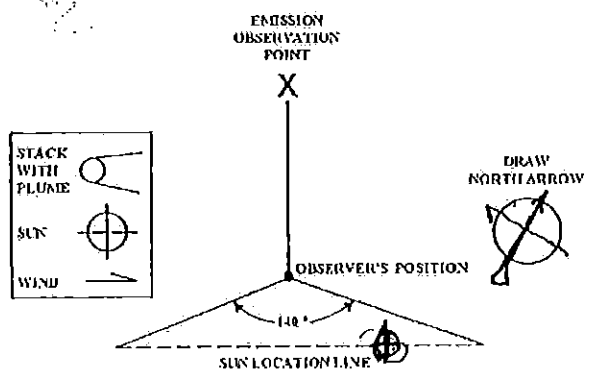
VISIBLE EMISSION OBSERVATION FORM

Company Name	Battery Recycling
Location	main Baghouse Stack
City	Arecibo
State	PRd
Zip	
Process Equipment	Process Ventilation
Operating Mode	Normal
Control Equipment	Baghouse
Operating Mode	Normal
Describe Emission Point	Steel Stack circular
Height of Emission Point	80'
Height Relative to Observer	Start 80' End 80'
Distance to Emission Point	Start 100' End 100'
Direction to Emission Point	Start NNW End NNW
Vertical Angle to Observation Pt.	Start 40° End 40°
Direction to Observation Point	Start SSE End SSE
Describe Emissions	Start dust End dust
Emission Color	Start light tan End light tan
If Water Droplet Plume (Circle)	Attached Detached (N/A)
Point In The Plume At Which Opacity Was Determined	Start 6' End 6'
Describe Plume Background	Start Sky End Sky
Background Color	Start Blue End Blue
Sky Condition	Start Clear End Clear
Wind Speed	Start 5-10 End Ø
Wind Direction	Start W End Ø none
Ambient Temp	Start 85° End 90°
Wet Bulb Temp	N/A
RH Percent	N/A

Observation Date	Start Time	End Time
2/17/10	0902	1002

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	5	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	5	5	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

SOURCE LAYOUT SKETCH



Observer's Name (Print)	Thomas Brado
Observer's Signature	[signature]
Date	2/17/10
Organization	URS Corp
Certified by	Earl Koontz Associates
Date	10/13/09

Additional Information

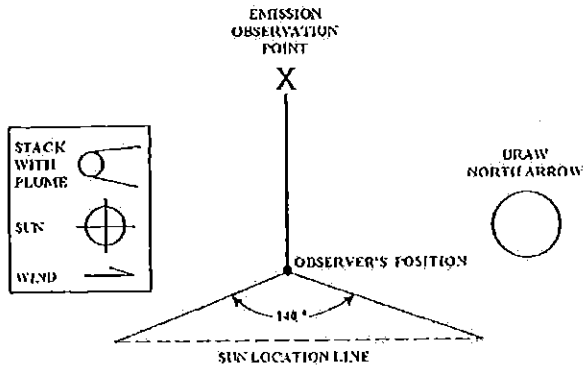
Continue on ~~reverse side~~

VISIBLE EMISSION OBSERVATION FORM

Pg 2 of 2

Company Name: Battery Recycling		
Location		
City: Arecibo	State: PR	Zip
Process Equipment: Process Ventilation		Operating Mode: Normal
Control Equipment: Baghouse		Operating Mode: Normal
Describe Emission Point		
Height of Emission Point	Height Relative to Observer: Start / End	
Distance to Emission Point: Start / End	Direction to Emission Point: Start / End	
Vertical Angle to Observation Pt.: Start / End	Direction to Observation Point: Start / End	
Describe Emissions: Start / End		
Emission Color: Start / End	If Water Droplet Plume (Circle): Attached Detached N/A	
Point In The Plume At Which Opacity Was Determined: Start / End		
Describe Plume Background: Start / End		
Background Color: Start / End	Sky Condition: Start / End	
Wind Speed: Start / End	Wind Direction: Start / End	
Ambient Temp: Start / End	Wet Bulb Temp	RH Percent

SOURCE LAYOUT SKETCH



Additional Information

Observation Date	Start Time	End Time
2/17/10	0902	1002

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	5	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	5	0	0	

Observer's Name (Print): Thomas Brado	
Observer's Signature: [signature]	Date: 2/17/10
Organization: URS Corp	
Certified by: Carl Koontz Assoc.	Date: 10/13/09

Continue on ~~reverse side~~

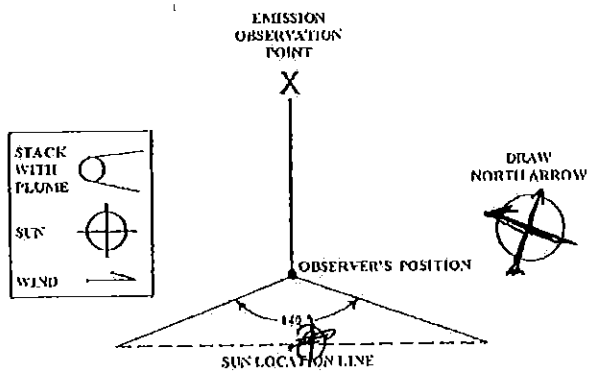
VISIBLE EMISSION OBSERVATION FORM

Company Name	Battery Recycling
Location	
City	Arecibo
State	PR
Zip	
Process Equipment	Process Ventilation
Operating Mode	Normal
Control Equipment	Baghouse
Operating Mode	Normal
Describe Emission Point	Steel Stack Circular
Height of Emission Point	80'
Height Relative to Observer	Start 80' End 80'
Distance to Emission Point	Start 100' End 100'
Direction to Emission Point	Start NNW End NNW
Vertical Angle to Observation Pt.	Start 40° End 40°
Direction to Observation Point	Start SSE End SSE
Describe Emissions	Start Dust End ~~Dust~~ N/A None observed
Emission Color	Start Light Tan End N/A
If Water Droplet Plume (Circle)	Attached Detached (N/A)
Point In The Plume At Which Opacity Was Determined	Start 6' End 6'
Describe Plume Background	Start Sky End Sky
Background Color	Start Blue End Blue
Sky Condition	Start Clear End Clear
Wind Speed	Start 0-5 End 5-10
Wind Direction	Start W End SW
Ambient Temp	Start 90° End 90°
Wet Bulb Temp	N/A
RH Percent	N/A

Observation Date	Start Time	End Time
2/17/10	1020	1120

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

SOURCE LAYOUT SKETCH



Observer's Name (Print)	Thomas Brado
Observer's Signature	Date 2/17/10
Organization	URS Corp
Certified by	Carl Koontz Assoc. Date 10/13/09

Additional Information

Continue on reverse side

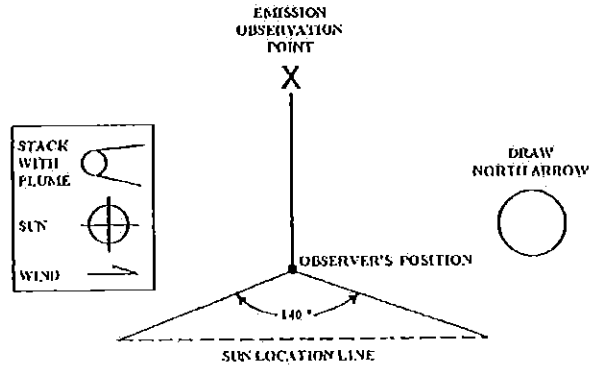
VISIBLE EMISSION OBSERVATION FORM

Company Name	Battery Recycling
Location	
City	Arecibo
State	PR
Zip	
Process Equipment	Process Ventilation
Operating Mode	Normal
Control Equipment	Baghouse
Operating Mode	Normal
Describe Emission Point	
Height of Emission Point	
Height Relative to Observer	Start End
Distance to Emission Point	Start End
Direction to Emission Point	Start End
Vertical Angle to Observation Pt.	Start End
Direction to Observation Point	Start End
Describe Emissions	Start End
Emission Color	Start End
If Water Droplet Plume (Circle)	Attached Detached N/A
Point In The Plume At Which Opacity Was Determined	Start End
Describe Plume Background	Start End
Background Color	Start End
Sky Condition	Start End
Wind Speed	Start End
Wind Direction	Start End
Ambient Temp	Start End
Wet Bulb Temp	
RH Percent	

Observation Date	Start Time	End Time
2/17/10	1020	1120

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

SOURCE LAYOUT SKETCH



Observer's Name (Print)	Thomas Brado
Observer's Signature	JB
Date	2/17/10
Organization	UPS Corp
Certified by	Carl Koontz Associates
Date	10/13/09

Additional Information

Continue on reverse side

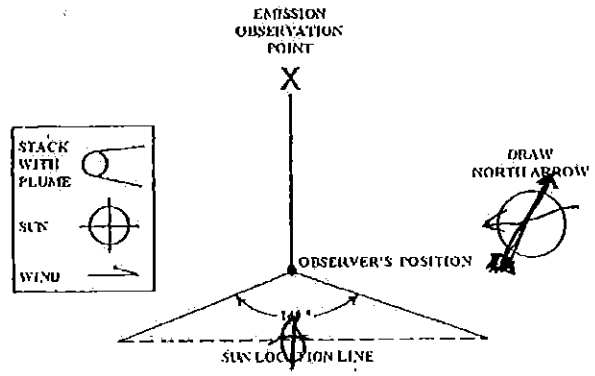
VISIBLE EMISSION OBSERVATION FORM

Company Name	Battery Recycling
Location	
City	Arecibo
State	PR
Zip	
Process Equipment	Process Ventilation
Operating Mode	Normal
Control Equipment	Baghouse
Operating Mode	Normal
Describe Emission Point	Steel Stack - Circular
Height of Emission Point	80'
Height Relative to Observer	Start 80' End 80'
Distance to Emission Point	Start 100' End 100'
Direction to Emission Point	Start NNW End NNW
Vertical Angle to Observation Pt.	Start 40° End 40°
Direction to Observation Point	Start SSE End SSE
Describe Emissions	Start None End None observed
Emission Color	Start None End None
If Water Droplet Plume (Circle)	Attached Detached (N/A)
Point In The Plume At Which Opacity Was Determined	Start 6' End 6'
Describe Plume Background	Start Sky End Sky
Background Color	Start Blue End
Sky Condition	Start Clear End Clear
Wind Speed	Start 0-5 End 0-5
Wind Direction	Start SW End SW
Ambient Temp	Start 90° End 90°
Wet Bulb Temp	N/A
RH Percent	N/A

Observation Date	Start Time	End Time
2/17/10	1144	1244

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

SOURCE LAYOUT SKETCH



Additional Information

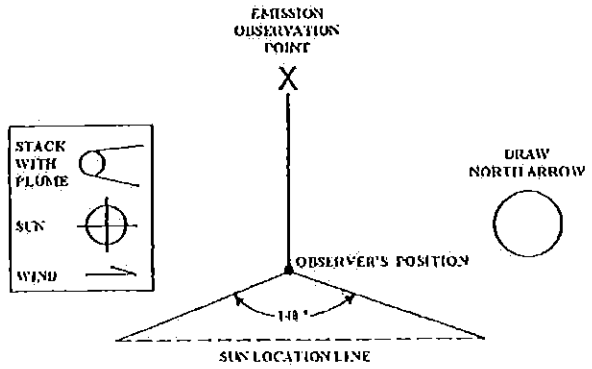
Observer's Name (Print)	Thomas Brodo
Observer's Signature	[signature]
Date	2/17/10
Organization	URS Corp
Certified by	Carl Kountz Associates
Date	10/13/09

Continue on ~~reverse side~~

VISIBLE EMISSION OBSERVATION FORM

Company Name	Battery Recycling
Location	
City	Arecibo
State	PR
Zip	
Process Equipment	Process Ventilation
Operating Mode	Normal
Control Equipment	Baghouse
Operating Mode	Normal
Describe Emission Point	Steel Stack - Circular
Height of Emission Point	
Height Relative to Observer	Start / End
Distance to Emission Point	Start / End
Direction to Emission Point	Start / End
Vertical Angle to Observation Pt.	Start / End
Direction to Observation Point	Start / End
Describe Emissions	Start / End
Emission Color	Start / End
If Water Droplet Plume (Circle)	Attached / Detached / N/A
Point In The Plume At Which Opacity Was Determined	Start / End
Describe Plume Background	Start / End
Background Color	Start / End
Sky Condition	Start / End
Wind Speed	Start / End
Wind Direction	Start / End
Ambient Temp	Start / End
Wet Bulb Temp	
RH Percent	

SOURCE LAYOUT SKETCH



Additional Information

Observation Date	Start Time	End Time
2/17/10	1144	1244

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print)	Thomas Brado
Observer's Signature	[signature]
Date	2/17/10
Organization	URS Corp
Certified by	Carl Kooltz Assoc.
Date	10/13/09

Continue on ~~reverse side~~

URS

CALC. NO. _____

CALCULATION SHEET

SIGNATURE [illegible] DATE 2/17/10 CHECKED _____ DATE _____

PROJECT Battery Recycling Co JOB NO. _____

SUBJECT Face Velocities SHEET 1 OF 1 SHEETS

13:30 start

K1	370	ft/min
K2	514	ft/min
K3	359	ft/min
K4	360	ft/min
K5	385	ft/min

Furnace 500-570 ft/min

Blower 374 ft/min

14:05 finished

Omega

Appendix C

CARGA DE OXIDO

02/27/10	#94		Turno D 10-6

MATERIAL PARA CARGA

Materia Prima	Peso Patrón	Peso	Total
Oxido	36,000		35,800
Polvo del Filtro	2		2
Plomo	8,000		8,065
			43,865
		Peso de Carga:	

Componentes	Peso Patrón	Peso (L)	Ass.	Flujo de aceite	
Hierro	2,870	1,268+1100+1300		Flama baja SP.	
Carbón	2,870	3,825		Real	
Soda	3,592	3,592		Flama media SP	
				Real	
				Flama alta SP	
				Real	

DATOS CARGA ANTERIOR

Escoria 2 conos y 16" Pb bolla #2	Tiempo	Hacer Corrección	
	6hrs 50min	Si	No

ACOMPAÑAMIENTO DE CARGA

	Programado		Realizado		Turno	Potencia MBTU	Tiempo Patrón	Tiempo Real
1er Cargamento Flama Baja	7:00	7:20	7:00	7:20	c	carga	:20 Min	
Fundir Flama Media	7:20	7:20	7:20	8:20			1 Hr.	
2do Cargamento Flama Baja	7:20	7:40	8:20	8:50	c	carga	:20 Min	
Fundir Flama Media	8:40	9:40	8:50	9:50			1 Hr	
3er Cargamento Flama Baja	9:40	10:00	9:50	10:10	c	carga	:20 Min	
Fundir Flama Alta	10:00	12:15	10:10	11:30	c	descarga	2:15 Hr.	
Descargar	12:15	1:00	11:30	1:50	c	descarga	:45 Min	
			TIEMPO TOTAL	6hrs 50min			6:00 Hr.	

Conos Escoria 2 un Grande: ✓	Peq:	Peso Total de Conos de Pb:	
Conos de Pb: 2 un bolla #2 + 15" Pb bolla #1		Rendimiento:	

Abertura Flama Baja	50%	Abertura Damper (Flama Media)	50%	Presión de Aire Del Quemador	50%

Color De Humo ( ) Negra (Falta de Hierro) ( ) Blanca (Falta de Carbón) (✓) Normal
* Liquidez De Escoria (✓) Liquida ( ) Espesa ( ) Gruesa
* Escoria En El Horno (✓) Si Cantidad 7" ( ) No
* Ladrillo (✓) Limpio ( ) Sucio

Limpieza del cajon de plomo	Sucio	Limpio ✓	Nombre:
Limpieza de la canal	Sucio	Limpio ✓	Nombre:
Limpieza boca del horno	Sucio	Limpio ✓	Nombre:

ANORMALIAS O DEFECTOS

Causa	Hora de Parada	Hora Restaurado	Duración	Responsable
N/A	N/A	N/A	N/A	N/A

Firma Supervisor A: [signature] Hora: 10-6 Fecha: 2/27/10

Firma Supervisor B: [signature] Hora: 6-2 Fecha: 27/feb/10

Firma Supervisor C: Hora: Fecha:

Firma Producción: Hora: Fecha:

LOS CONOS DE ESCORIA DEBE LLENARSE HASTA 3/4 DE LA CANTIDAD.

SEGÚN LA MEDIDA

OBSERVACIONES

N/A

Firma del Supervisor de produccion: [signature]

Firma del Supervisor de calidad: [signature]

PRD-F-03-A

Appendix D

URS

DRY GAS METER CALIBRATION SPREADSHEET

CONTROL BOX ID:	V	CALIBRATED BY:	R. Raymond
CALIBRATION STANDARD:	Secondary	AMBIENT TEMPERATURE (F):	69
CALIBRATION STANDARD ID:	361815	AMBIENT PRESSURE (in Hg):	29.87
DATE CALIBRATED:	11/17/2009	Secondary Standard Correction Factor	0.9944

GAS VOLUME

Setting (delta H)	Gas Volume Metered (ft3)	Gas Volume Corrected (ft3) Vw	Gas Volume DGM (ft3) Vd
0.5	5	4.972	5.287
1.0	5	4.972	5.295
2.0	10	9.944	10.639
3.0	11	10.938	11.821
4.0	10	9.944	11.079

TEMPERATURE

Calibrator Temperature (F) Tw	Average DGM (F) Td
69.0	70.0
69.0	72.0
69.0	75.0
70.0	77.0
70.0	80.0

CALCULATIONS

Time (min)	Gamma (Y)	Delta H@
12.38	0.9464	1.7370
8.40	0.9420	1.6277
12.25	0.9406	1.6849
11.00	0.9307	1.6842
9.01	0.9056	1.8129
	Avg Y	Avg Delta H@
	0.9331	1.7093
	0.9131	1.5093
Tolerances	0.9531	1.9093

Y - Rate of Accuracy of Wet Test Meter Tolerance = +/- 0.02

Delta H@ - Orifice Pressure Differential that Yields 0.75 CFM

Is Unit Within Calibration Tolerances? YES

Calibrator: _____ Date: 11-17-09

Approved by: _____ Date: 11-18-09

URS

DRY GAS METER CALIBRATION SPREADSHEET

CONTROL BOX ID:	V	CALIBRATED BY:	R. Raymond
CALIBRATION STANDARD:	Secondary	AMBIENT TEMPERATURE (F):	72
CALIBRATION STANDARD ID:	361815	AMBIENT PRESSURE (In Hg):	30.14
DATE CALIBRATED:	2/20/2010	Secondary Standard Correction Factor	0.9944

GAS VOLUME

Setting (delta H)	Gas Volume Metered (ft3) Secondary Standard	Gas Volume Corrected (ft3) Vw	Gas Volume DGM (ft3) Control Console Vd
0.5	5	4.972	5.450
1.0	5	4.972	5.455
2.0	10	9.944	10.803
3.0	10	9.944	10.707
4.0	10	9.944	10.700

TEMPERATURE

Calibrator Temperature (F) Tw	Average DGM (F) Td
71.0	71.0
70.0	71.0
73.0	75.0
73.0	77.0
71.0	79.0

CALCULATIONS

Time (min)	Gamma (Y)	Delta H@
13.06	0.9112	1.9326
9.04	0.9110	1.8393
12.30	0.9195	1.7090
10.02	0.9289	1.0948
8.48	0.9335	1.6005
	Avg Y	Avg Delta H@
	0.9208	1.7552
	0.9008	1.5552
Tolerances	0.9408	1.9552

Y = Ratio of reading of wet test meter to dry test meter; tolerance for individual values +/- 0.02 from average.

Delta H @ = Orifice pressure differential that equales to 0.75 cfm of air @ 68 degrees F and 29.92 inches of mercury, in.H2O; tolerance for individual values +/- 0.20 from average.

Is Unit Within Calibration Tolerances? YES

Calibrator: Robert Raymond Date: 2/20/2010

Approved by: [signature] Date: 2/20/10

THERMOCOUPLE READOUT CALIBRATION DATA FORM
(FOR K-TYPE THERMOCOUPLES)

Control Box / Thermocouple Readout Number: V

Calibrated By: R. Raymond

Ambient Temperature: 75 °F

Date: 2/20/2010

Omega Engineering Calibrator Model No. 22 TC

Serial #'s 222

Primary Standards Directly Traceable to: National Institute of Standards and Technology (NIST)

Reference[a] Source Temperature, (°F)	Test Thermometer Temperature, (°F)	Temperature Difference, %
0	-3	0.65
200	197	0.45
400	393	0.81
600	596	0.38
1000	997	0.21
1200	1195	0.30

Are all the Thermocouple Readout calibration points within calibration standard of <= to 1.5 %? Yes

$$\frac{(\text{Ref. Temp., oF} + 460) - (\text{Test Therm. Temp., oF} + 460)}{\text{Ref. Temp., oF} + 460} * 100 <= 1.5\ \%$$

Calibrator Signature: Robert Raymond Date: 2/20/2010

Approval Signature: Michael Mooney Date: 2/20/10

Pitot Tube Calibration Data Sheet Calculation Printout

Pitot Tube Identification Number: 6-003 **Date:** 3/11/2010

Calibrated by: T.Brado

"A" Side Calibration

Run No.	ΔP_{std}	ΔP_s	$C_{p(s)}$	Absolute Deviation
1	1.52	2.25	0.814	0.0088
2	1.53	2.20	0.826	0.0031
3	1.54	2.20	0.828	0.0058

Average $C_{p(s)}$ (Side A) **0.823** **0.0059**

"B" Side Calibration

Run No.	ΔP_{std}	ΔP_s	$C_{p(s)}$	Absolute Deviation
1	1.38	1.95	0.833	0.0025
2	1.38	1.95	0.833	0.0025
3	1.39	2.00	0.825	0.0050

Average $C_{p(s)}$ (Side B) **0.830** **0.0033**

Average $C_{p(s)}$ Difference **0.0078**

Average $C_{p(s)}$ $(C_{p(s)}(A)+C_{p(s)}(B))/2$ **0.826**

Acceptance Criteria

Average Deviation (Side A) : Must be ≤ 0.01 **PASS**

Average Deviation (Side B) : Must be ≤ 0.01 **PASS**

Average $C_{p(s)}$ Difference : Must be ≤ 0.01 **PASS**

Calibrator: Thomas Brado Date: 3/11/2010

Supervisor: Michael Mong Date: 3/11/2010

URS

Stack Temperature Sensor Calibration Spreadsheet
Primary Standard: NIST Traceable Thermometer
Enclosures Denote Input Data

Thermocouple ID:	AQS 6 003	Calibrated By:	R. Raymond
Calibration Standard:	PRIMARY	Thermocouple Readout Number	CL3512
Calibration Standard ID:	15059408	Thermocouple Readout Correlation:	1.00000
Date Calibrated:	1/13/2010	Ambient Temperature (F):	67

Reference Point Number	Source (Specify) See Note 1	Reference Thermometer Temperature F	Reference Thermometer Temperature C
1	Ice Bath	20.2	-6.6
2	Ambient	65.7	18.7
3	Hot Sand	442.0	227.8

Thermocouple Potentiometer Temperature F	Corrected Potentiometer Temperature F	Corrected Potentiometer Temperature C	Temperature % Difference See Note 2
20.0	20.0	-6.7	0.0
66.3	66.3	19.1	0.1
445.0	445.0	229.4	0.3

Does thermocouple Meet Specifications?

YES at 20 F
YES at 66.3 F
YES at 445 F

Calibrator Signature: R. Raymond

Note 1 - Type of calibration system used
Note 2 - [(ref temp, C + 273) - (test thermometer temp, C + 273)]100 < 1.5%
ref temp, C + 273

URS TYPE S PITOT TUBE INSPECTION DATA FORM

Pitot tube assembly level? x yes ____ no

Pitot tube openings damaged? ____ yes (explain below) x no

a_1 = 0 ° (<10°), a_2 = 0 ° (<10°) z = A sin γ = 0.000 (in.); (<0.125 in.)

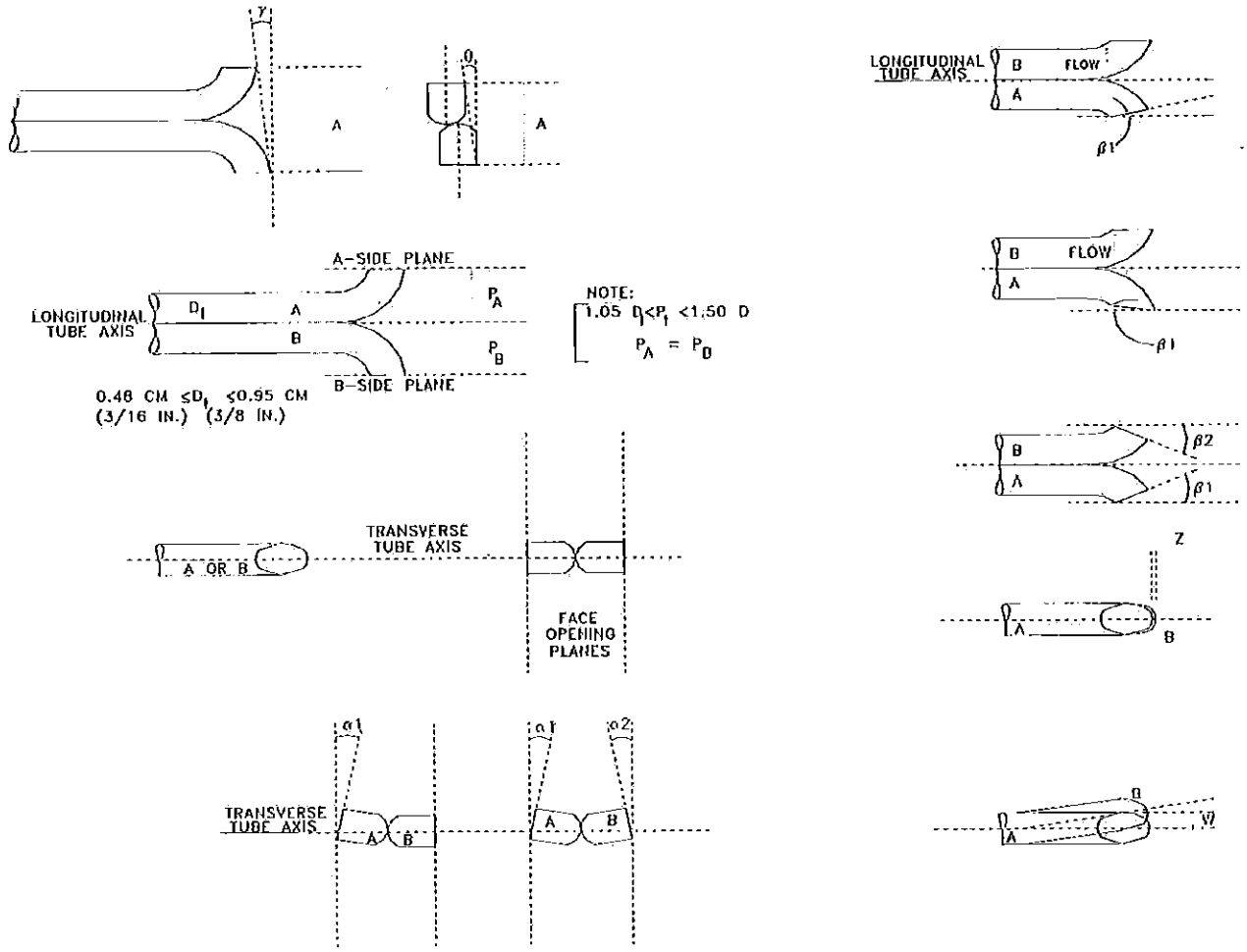
b_1 = 0 ° (<5°), b_2 = 0 ° (<5°) w = A sin θ = 0.000 (in.); (<0.03125 in.)

γ = 0 °, θ = 0 °, A = 0.979 (in.) P_A = 0.47 (in.), P_B = 0.47 (in.), D_t = 0.932 (in.)

Comments: _____

Does the calibration meet Method 2 construction requirements for use at 0.84 coefficient? **Yes**

Pitot Tube No.: AQS 6 003 Date: 1/13/2010 Name: R. Raymond



CARL KOONTZ ASSOCIATES

of Nashville, Tennessee

This is to acknowledge that

THOMAS BRADO

successfully participated in Visible Emissions training on OCT 13 2009

and is qualified to evaluate Visible Emissions for a period of six (6) months from the date of certification.

Carl Koontz

Instructor

URS

Spinning Vane Calibration Data Sheet Calculation

Pitot Tube Identification Number: Spinning Vane **Date:** 2/12/2010

Calibrated by: T Gregg

Clockwise Calibration				
Run No.	Standard Pitot (ft/min)	Spinning Vane (ft/min)	$C_{p(s)}$	Absolute Deviation
1	4815	4762	0.995	0.0031
2	4795	4785	0.991	0.0014
3	4795	4788	0.991	0.0017
	Average $C_{p(s)}$		0.992	0.0021

Counter Clockwise Calibration				
Run No.	Standard Pitot (ft/min)	Spinning Vane (ft/min)	$C_{p(s)}$	Absolute Deviation
1	4810	4760	0.995	0.0018
2	4790	4743	0.995	0.0015
3	4775	4774	0.990	0.0033
	Average $C_{p(s)}$		0.993	0.0022

Average $C_{p(s)}$ Difference	0.0010
Average $C_{p(s)}$ $(C_{p(s)}(CW)+C_{p(s)}(CCW))/2$	0.993

Acceptance Criteria

Average Deviation (CW) : Must be $\leq$ 0.01	PASS
Average Deviation (CCW) : Must be $\leq$ 0.01	PASS
Average $C_{p(s)}$ Difference : Must be $\leq$ 0.01	PASS

Calibrator: Todd Gregg Date: 2/12/2010

Supervisor: Michael Mowery Date: 2/12/2010

Appendix E

SAMPLE SUMMARY

H0C020407

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
LV665	001	AQS-1889 RUN 1	02/17/10	
LV666	002	AQS-1890 RUN 2	02/17/10	
LV667	003	AQS-1891 RUN 3	02/17/10	
LV668	004	AQS-1892 RUN BLANK	02/17/10	
LV669	005	AQS-1893 EQB AUDIT	02/17/10	
LV67A	006	AQS-1894 EQB AUDIT	02/17/10	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

URS Corporation

Client Sample ID: AQS-1889 RUN 1

TOTAL Metals

Lot-Sample #...: H0C020407-001 Matrix.....: AIR
Date Sampled...: 02/17/10 Date Received..: 02/26/10

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0061075						
Lead	60.1 J	1.0	ug	CFR60A 12	03/02-03/05/10	LV6651AA
		Dilution Factor: 1		MDL.....: 0.35		

NOTE(S):

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

URS Corporation

Client Sample ID: AQS-1890 RUN 2

TOTAL Metals

Lot-Sample #...: H0C020407-002 Matrix.....: AIR
Date Sampled...: 02/17/10 Date Received..: 02/26/10

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0061075						
Lead	25.0 J	1.0	ug	CFR60A 12	03/02-03/05/10	LV6661AA
		Dilution Factor: 1		MDL.....: 0.35		

NOTE(S):

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

URS Corporation

Client Sample ID: AQS-1891 RUN 3

TOTAL Metals

Lot-Sample #...: H0C020407-003 Matrix.....: AIR
Date Sampled...: 02/17/10 Date Received..: 02/26/10

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0061075						
Lead	83.9 J	1.0	ug	CFR60A 12	03/02-03/05/10	LV6671AA
		Dilution Factor: 1		MDL.....: 0.35		

NOTE(S):

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

URS Corporation

Client Sample ID: AQS-1892 RUN BLANK

TOTAL Metals

Lot-Sample #...: H0C020407-004 Matrix.....: AIR
Date Sampled...: 02/17/10 Date Received..: 02/26/10

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0061075						
Lead	0.83 B,J	1.0	ug	CFR60A 12	03/02-03/05/10	LV6681AA
		Dilution Factor: 1		MDL.....: 0.35		

NOTE(S):

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

URS Corporation

Client Sample ID: AQS-1893 EQB AUDIT

TOTAL Metals

Lot-Sample #...: H0C020407-005 Matrix.....: AIR
Date Sampled...: 02/17/10 Date Received..: 02/26/10

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0061075						
Lead	214 J	1.0	ug	CFR60A 12	03/02-03/05/10	LV6691AA
		Dilution Factor: 1		MDL.....: 0.35		

NOTE(S):

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

URS Corporation

Client Sample ID: AQS-1894 EQB AUDIT

TOTAL Metals

Lot-Sample #...: H0C020407-006 Matrix.....: AIR
Date Sampled...: 02/17/10 Date Received..: 02/26/10

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0061075						
Lead	0.56 B,J	1.0	ug	CFR60A 12	03/02-03/05/10	LV67A1AA
		Dilution Factor: 1		MDL.....: 0.35		

NOTE(S):

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: H0C020407 Matrix.....: AIR

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: H0C020000-075 Prep Batch #...: 0061075						
Lead	0.38 B	1.0	ug	CFR60A 12	03/02-03/05/10	LV67F1AA
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: H0C020407 Matrix.....: AIR

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP-BATCH #
Lead	103	(80 - 120)			CFR60A 12	03/02-03/05/10	0061075
	103	(80 - 120)	0.69	(0-20)	CFR60A 12	03/02-03/05/10	0061075

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Lot-Sample #...: H0C020407 Matrix.....: AIR

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Lead	10.0	10.3	ug	103		CFR60A 12	03/02-03/05/10	0061075
	10.0	10.3	ug	103	0.69	CFR60A 12	03/02-03/05/10	0061075

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

HOC0204/07 - 005
- 006

Method 12 Compliance Audit Material
(Lead Spiked Filter)

REPORTING FORM: To be completed by laboratory

Request Number/Sample Number: M12-4418-01/Fil-0142 Date Issued: 02/15/10

Auditee:

Company: TestAmerica Laboratories, Inc.

Address: 5815 MIDDLEBROOK PIKE, KNOXVILLE, TN 37921

Attention of: Kevin S. Woodcock Phone: (865) 291-3000

Requestor:

Agency: Puerto Rico Environmental Quality Board

Address: 1308 Ponce De Leon Avenue, Suite 234

Attention of: Rio Piedras, PR 00926 Phone: 787-767-8181 x3293

Project Name: The Battery Recycling Company

Audit Results (Results in µg)

Compound	Result	Blank Filter Result
Lead	214	0.56

KSW
3-9-10

INSTRUCTIONS FOR PREPARATION AND ANALYSIS OF METHOD 12 LEAD AUDIT FILTER

Note: The audit sample you have received is a filter containing a known amount of lead. This sample corresponds to Sample Container No. 1 of Method 12.

1) Prepare the entire filter for digestion as described in Section 11.2.1 of Method 12. Add an additional 30 mL of 50% HNO_3. The filter is to be processed by itself. Be sure to digest the entire filter. (Note: Because this audit sample consists only of a filter, there is no Container No. 2 as discussed in the final sentence of Section 11.2.3.1 of Method 12.) See page 2 of 2, Instructions for Method 12 Lead Audit Solution (Container No. 4) preparation and analysis.

2) Digest the filter as described in Section 11.2.3.2 of Method 12.

3) After filtering and diluting the digested filter sample as described in Section 11.2.3.2, analyze the sample as described in Section 11.4.1 of Method 12.

4) Calculate the total µg of lead, $m_{\mu g}$, in the filter sample using the following equation.

$$m_{\mu g} = C_m V_f$$

where

$m_{\mu g}$	=	Total weight of lead on the filter (µg)
C_m	=	Concentration of lead in the sample (µg/mL)
V_f	=	Volume of diluted sample (250 mL, Section 11.2.3.3 of Method 12)

5) Record the results on the **Reporting Form** in units of total µg of lead.

6) Report the Method 12 filter audit results recorded on the **Reporting Form** to the designated agent.

Analyst, Please Note:
In addition to the spiked lead filter, you have been provided with a blank filter that has been treated identically to the audit filter (except for the lead spike). The background result from the blank filter is to be used for quality assurance documentation purposes only and not to adjust the spiked filter results. You are asked to report the blank filter lead result (µg) on the Reporting Form along with the spiked filter result.

URS

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference COC No.: _____

Project Name: Battery Recycling Co.
Project Number: 39400538
URS Sample Team: T. Gregg

Sample Shipment Date: February 26, 2010
Laboratory Destination: Test America
Laboratory Contact: Kevin woodcock
Project Contact/Phone: 865-291-3082
Carrier Waybill No.: n/a

Bill To: URS Corporation
1093 Commerce Park Drive
Suite 100
Oak Ridge, Tenn
37830

Report To: Todd Gregg
URS Corporation
865-220-8101

Sample Number	Sample Type	Date Collected	# of Containers	Sample Matrix	Requested Testing Program	Special Instructions
AQS-1889	Run # 1	02/17/10	1	Impinger Catch	USEPA Method 12 Inorganic Lead	
AQS-1889	Run # 1	02/17/10	1	filter	USEPA Method 12 Inorganic Lead	
AQS-1889	Run # 1	02/17/10	1	Probe Rinse	USEPA Method 12 Inorganic Lead	
AQS-1890	Run # 2	02/17/10	1	Impinger Catch	USEPA Method 12 Inorganic Lead	
AQS-1890	Run # 2	02/17/10	1	filter	USEPA Method 12 Inorganic Lead	
AQS-1890	Run # 2	02/17/10	1	Probe Rinse	USEPA Method 12 Inorganic Lead	

TURNAROUND TIME REQUIRED Normal: X Rush: _____

POSSIBLE HAZARD IDENTIFICATION:
Nonhazard: X
Highly Toxic: _____
Flammable: _____
Radiological: _____

Level of QC Required: I. X
II. _____

SAMPLE DISPOSAL: Return to Client: _____ Disposal By Lab X

1. Relinquished by: Signature/Affiliation: [signature]	Date: 2/26/10 Time: 3:44	1. Received by: Signature/Affiliation: [signature]	Date: 2/26/10 Time: 15:45
2. Relinquished by Signature/Affiliation:	Date: Time:	2. Received by Signature/Affiliation:	Date: Time:
3. Relinquished by Signature/Affiliation:	Date: Time:	3. Received by Signature/Affiliation:	Date: Time:

Comments:

URS

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference COC No.: 0

Project Name: Battery Recycling Co.
Project Number: 39400538

Sample Shipment Date: February 26, 2010
Laboratory Destination: Test America

Sample Number	Sample Type	Date Collected	# of Containers	Sample Matrix	Requested Testing Program	Special Instructions
AQS-1891	Run # 3	02/17/10	1	Impinger Catch	USEPA Method 12 Inorganic Lead	
AQS-1891	Run # 3	02/17/10	1	filter	USEPA Method 12 Inorganic Lead	
AQS-1891	Run # 3	02/17/10	1	Probe Rinse	USEPA Method 12 Inorganic Lead	
AQS-1892	Blank	02/17/10	1	Solution Blank	USEPA Method 12 Inorganic Lead	
AQS-1892	Blank	02/17/10	1	Filter Blank	USEPA Method 12 Inorganic Lead	
AQS-1893	EQB Audit	02/17/10	1	Audit Filter	USEPA Method 12 Inorganic Lead	
AQS-1894	EQB Audit	02/17/10	1	Audit Filter Blank	USEPA Method 12 Inorganic Lead	