South Coast Air Quality Management District 21865 Copley Drive, Diamond Bar, CA 91765-4178 (909) 396-2000 · www.aqmd.gov

SOURCE TEST REPORT

13-306 and 13-307

CONDUCTED AT

Exide Technologies 2700 S. Indiana Street Vernon, CA 90058

SCREENING TESTS FOR MULTIPLE METAL AND SPECIATED ORGANIC EMISSIONS FROM THE HARD LEAD BAGHOUSE EXHAUST STACK

TESTED: LAB DATA RECEIVED: July 18, 2013 and August 8, 2013

'EIVED: August 28, 2013

ISSUED:

REPORTED BY:

Jason Aspell Air Quality Engineer II

October 17, 2013

REVIEWED BY:

Michael Garibay Supervising Air Quality Engineer

SOURCE TEST ENGINEERING BRANCH

MONITORING & ANALYSIS DIVISION

Cleaning the air that we breathe ... "

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Date(s): 7/18/13 and 8/8/13

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<u>SUMMARY</u>		
a. Firm	Exide Technologies	
b. Test Location	<u>2700 S. Indiana St.,</u>	Vernon, CA 90023
c. Unit Tested	Hard Lead Baghouse	e (Device ID C46)
d. Test Requested by		D. Env; Executive Officer
e. Reason for Test Request		netal and speciated organic
f. Dates of Test	<u>July 18, 2013 and A</u>	ugust 8, 2013
g. Source Test Performed by	R. Lem, C. Willough <u>E. Padilla, W. Stredy</u>	
h. Test Arrangements Made Through	Ed Mopas (Environr <u>Exide Technologies</u>	nental Manager) (323) 262-1101 x 259
i. Source Test Observed by		Taken By Michal Haynes 9) 396-2369
j. Company I.D. No	<u>124838</u>	
k. Permit No	<u>RECLAIM/Title V I</u>	Facility Permit
I. Application No	<u>501060</u>	

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EXECUTIVE SUMMARY

In March 2013, the South Coast Air Quality Management District (SCAQMD) approved the Health Risk Assessment for the Exide Technologies facility in Vernon that was submitted to meet the requirements of Assembly Bill (AB) 2588 and SCAQMD Rule 1402. In response to the high levels of toxic air contaminants (TAC) reported, modifications were made to equipment at the facility in an attempt to mitigate the toxic emissions. Specifically, an isolation door was installed on the feed chute of the Blast Furnace to keep the Blast Furnace closed during times when material is not being charged to the furnace. This was designed to direct emissions to the Afterburner and Neptune Scrubber control system, instead of routing the emissions to the Hard Lead Baghouse, which is not designed to properly control emissions from the Blast Furnace Feed Chute. Arsenic emissions from the Hard Lead Baghouse contributed approximately 90% of the facility's health risk. In addition, 1,3-butadiene emissions, a toxic organic compound, from the same exhaust stack contributed 4% of the facility's risk.

An early screening source test was performed on the Hard Lead Baghouse on July 18, 2013. An additional test that was conducted on August 8 is included in this report for informational purposes that will be included as a part of future compliance testing. Testing was done for multiple metals (including lead and arsenic) and speciated organic emissions while the facility's Blast Furnace, Reverbatory (Reverb) Furnace and Refining Kettles were in operation. At the time of the July 18 test, the facility was not capable of full-scale production. A full set of comprehensive, acceptable source tests will be conducted for permit requirements and Health Risk Assessment purposes once the facility resumes full operation.

Although these two tests were not comprehensive enough to be used directly for Health Risk Assessment purposes, they give an early indication of improvements. However, an adequate determination of the effectiveness of the isolation door cannot be made without additional source tests, which are being conducted. Source test observations have concluded that the fugitive emissions from the Blast and Reverb Furnaces are often controlled by more than just one air pollution control system, which were not included with this testing. The additional testing will include testing of multiple sources to get a better representation of the facility-wide health risk that reflects updated operating conditions at Exide Technologies.

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RESULTS

Table 1. Summary of Test Conditions

		Test No. 1	Test No. 2
Date		July 18, 2013	August 8, 2013
Time	HH:MM	12:00 - 14:15	11:10 - 13:45
Sampling time	min	120	120
Exhaust Flow Rate	acfm	106, 000*	106,000
	dscfm	93,000*	93,000
Charge Rate During Sampling ⁺			
Blast Furnace Reverb Furnace	ton/hr ton/hr	3.84 14.75	5.31 6.3
Percent of Permitted Limit During Sampling [#]			
Blast Furnace Reverb Furnace	% %	51.7 80.6	71.4 34.6
Overall Charge (Day and Night Shift)			
Blast Furnace Reverb Furnace	tons tons	116.6 342	113.5 263
Overall Percent of Permitted Limit (Day and Night Shift)			
Blast Furnace Reverb Furnace	% %	65.4 77.9	66.0 59.9
Kettle Arsenic Additions	lb	0	0
Time of Arsenic Addition	HH:MM	N/A	N/A

* Corrected exhaust rate to Test No. 2 exhaust rate. See Test Critique for details.

+ Charge rate based on material charged during test period.

Test period charge rate extrapolated to 24 hours divided by daily permit limit of equipment.

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	Test No. 1 7/18/13*	Test No. 2 8/8/13
	lb/hr	lb/hr
Lead	6.33 x 10 ⁻³	2.23 x 10 ⁻²
Arsenic	1.02 x 10 ⁻³	7.31 x 10 ⁻⁴
Cadmium	2.32 x 10 ⁻⁴	2.87 x 10 ⁻⁴
Manganese	1.22 x 10 ⁻⁴	3.03 x 10 ⁻⁴
Nickel	2.61 x 10 ⁻⁴	3.98 x 10 ⁻⁴
Chromium	9.10 x 10 ⁻⁵	1.75 x 10 ⁻⁴
Antimony	8.14 x 10 ⁻⁵	1.06 x 10 ⁻⁴
Selenium	4.31 x 10 ⁻⁵	4.68 x 10 ⁻⁵
Barium	3.91 x 10 ⁻³	7.99 x 10 ⁻⁴
Zinc	2.90 x 10 ⁻³	8.77 x 10 ⁻³
Tin**	1.64 x 10 ⁻³	1.22 x 10 ⁻³
Titanium	8.86 x 10 ⁻⁵	2.34 x 10 ⁻⁴
Copper	4.55 x 10 ⁻⁴	2.19 x 10 ⁻³
Cobalt	Non-detect	3.09 x 10 ⁻⁵
Iron	Non-detect	1.15 x 10 ⁻²

Table 2. Summary of Test Results for Metal Emissions from Hard Lead Baghouse

* Emission rates for Test No. 1 are based on the exhaust flow rate for Test No. 2. See Test Critique for details.

** Tin concentration of blank impingers was 60% of sampling train impinger concentration. Tin is present in the hydrogen peroxide impinger solution as a stabilizer.

Note: For comparison purposes, previously measured arsenic emissions from the October 2010 and May 2012 tests for this exhaust stack used for the HRA were 7.59 $\times 10^{-2}$ lb/hr and 2.12 x 10^{-2} lb/hr.

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Compound	ppb	lb/hr ⁺	Compound	ppb	lb/hr ⁺
1,3-butadiene	14.9	1.19 x 10 ⁻²	propane	116	7.55 x 10 ⁻²
benzene	40.9	4.71 x 10 ⁻²	isobutane	7.7	6.60 x 10 ⁻³
acrolein	0.9	7.45 x 10 ⁻⁴	1-butene	20.2	1.67 x 10 ⁻²
acetone	12.8	1.10 x 10 ⁻²	n-butane	8.2	7.03 x 10 ⁻³
methylene chloride	0.3	3.76 x 10 ⁻⁴	n-pentane	17.7	1.88 x 10 ⁻²
MEK	0.8	8.51 x 10 ⁻⁴	1-hexene	2.2	2.73 x 10 ⁻³
chloroform	0.1	1.76 x 10 ⁻⁴	n-hexane	0.7	8.90 x 10 ⁻⁴
toluene	8.9	1.21 x 10 ⁻²	n-heptane	0.6	8.87 x 10 ⁻⁴
ethylbenzene	2.2	3.45 x 10 ⁻³	n-octane	0.2	3.37 x 10 ⁻⁴
m+p xylenes	1.1	1.72 x 10 ⁻³	n-nonane	0.2	3.78 x 10 ⁻⁴
styrene	19.6	3.01 x 10 ⁻²	n-decane	0.1	2.10 x 10 ⁻⁴
o-xylene	0.5	7.83 x 10 ⁻⁴	n-undecane	0.2	4.61 x 10 ⁻⁴
isoprene	8.7	8.75 x 10 ⁻³	n-dodecane	0.1	2.51 x 10 ⁻⁴
acetylene and ethylene	301	1.20 x 10 ⁻¹	thiophene	12.4	1.54 x 10 ⁻²
ethane	449	1.99 x 10 ⁻¹	2,4-dimethyl-1- heptene	11.3	2.10 x 10 ⁻²
propylene	78.3	4.86 x 10 ⁻²	acetonitrile	14.4	8.72 x 10 ⁻³

Table 3. Summary of Test N	b. 1 Results for Speciated	d Organic Emissions from Hard I	Lead
Baghouse *			

* EPA Method TO-15 sample analysis for Test No. 2 was not available at of emissions calculation and will be reported as part of a subsequent report.

+ Emission rates for Test No. 1 are based flow rates from Test No. 2. See Test Critique for details.

Note: For comparison purposes, previously measured 1,3-butadiene emissions used for the HRA were 0.345 lb/hr and 0.150 lb/hr, respectively for March 2011 and June 2012 tests, for this exhaust stack.

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INTRODUCTION

On July 18, 2013, engineers from the SCAQMD conducted a source test for multiple metal and speciated organic emissions from the Hard Lead Baghouse exhaust stack at Exide Technologies in Vernon. A series of tests has been performed in response to high levels of toxic air contaminants (arsenic in particular) from the Hard Lead Baghouse that were detected during previous source tests used to determine the facility-wide health risk. These tests were performed as part of an early screening source test program that is being conducted to monitor emissions until Exide is able to perform another set of comprehensive acceptable source tests at full capacity that can be used for permit and Health Risk Assessment purposes.

EQUIPMENT AND PROCESS DESCRIPTION

Exide Technologies is a Cycle 1 RECLAIM facility for NOx and SOx, and is in the Title V permitting program. The facility operates a secondary lead smelting process to recover lead from recycled automotive batteries.

The facility receives lead-acid batteries from off-site collection facilities and breaks them down in the Raw Material Preparation System (RMPS) using a hammer mill. The components are then drained of acid and separated into metallic lead, polypropylene, rubber and plastic fractions. Emissions from this process are vented to a packed bed scrubber followed by a HEPA filter.

Following the RMPS, the metallic portion is fed to the furnaces for smelting. This consists of two different streams, the Reverb Furnace to process lead acid and battery scrap, and the Blast Furnace to process lead slag and scrap. The emissions from Reverb Feed Hopper are controlled by the MAC Baghouse. The Reverb Feed Hopper feeds the 8 MMBTU/hr natural gas-fired Rotary Kiln Dryer. The Kiln Dryer is used to drive off moisture and other contaminants prior to feeding the furnace, which is vented to a baghouse with Teflon-coated bags. The scrap is then fed to the 30 MMBTU/hr natural gas-fired Reverb Furnace. The lead is reduced in the furnace and slag is removed from the bottom to feed the Blast Furnace, while the crude lead is refined further in the soft lead process. The soft lead refined in this process is typically 99.9% pure lead. Emissions from the Reverb Furnace are quenched before entering the Reverb Baghouse, which is followed by the Venturi and Neptune scrubbers. The crude lead removed from the Reverb Furnace is fed into receiving kettles and then refined in four refining kettles. Emissions from this refining process are collected and controlled by the Soft Lead Baghouse. On the south side of the building, the slag from the Reverb Furnace is fed into the top of a 4 MMBTU/hr coke and natural gas-fired Blast Furnace. Lead removed from this process is further refined into hard lead. Emissions from the Blast Furnace are vented to a 10 MMBTU/hr natural gas-fired afterburner, the Blast Baghouse, and then manifolded with the exhaust from the Reverb Furnace to the Venturi and Neptune Scrubbers.

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The Blast Furnace feed chute, located on top of the Blast Furnace, was recently equipped with an isolation door in March/April 2013 for the purpose of addressing the high arsenic emissions from the Hard Lead Baghouse stack. When the furnace is not being charged, the door remains closed. The feed cart is loaded in the Blast Feed Room and is hoisted with cables to the top of the furnace. As the cart approaches the top of the furnace, it mechanically opens the isolation door and the contents of the cart are unloaded into the furnace. Dust created during the charging is collected by various ducts surrounding the door that vent the emissions to the Hard Lead Baghouse. As the Feed Cart begins its descent back down to the Feed Room, the door closes again. A schematic diagram of this process is located in Figure 1.

SAMPLING AND ANALYTICAL PROCEDURES

Source testing was conducted on the Hard Lead Baghouse exhaust stack at Exide Technologies (Figure 2). Testing consisted of single run sampling performed for multiple metals using California Air Resources Board (CARB) Method 436. Fixed gases testing, to determine the molecular weight of the stack gases pursuant to SCAQMD Method 10.1, and speciated organic emissions testing, following U.S. EPA Method TO-15, were both performed using integrated 6-liter summa canister samples.

Gas Flow Rate

The gas velocity was measured during the sampling run in accordance with SCAQMD Methods 1.1 and 2.1. This was done using an S type Pitot tube (permanently attached to the probe, with the impact opening of the Pitot tube even with the nozzle entry plane) with a differential pressure manometer, and a type "K" thermocouple (also permanently attached to the probe so that the tip of the sensor extended beyond the leading edge of the probe sheath, and touching no metal) with a digital potentiometer (Figure 3). The apparatus was leak checked both before and after use by introducing a pressure head of at least 80 percent of full scale and blocking the flow at the Pitot tip. An observation of the resulting non-diminishing pressure for at least 15 seconds at the manometer verified the absence of leaks in the system.

The access ports on the stack were greater than five diameters downstream and greater than four stack diameters upstream from any flow disturbances along the vertical exhaust stack. Velocity sampling was performed at 24 traverse points positioned across the ports along the stack diameter. Details regarding traverse point locations and locations of the access ports for the exhaust stack can be found in Figure 4 of this report.

The volumetric flow rate was calculated from the exhaust stack cross sectional area and average gas velocities. The absence of cyclonic flow conditions was verified during previous source tests. The flow rate was corrected to standard conditions by using the stack temperature and pressure along with the barometric pressure measured with a calibrated aneroid barometer. The

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flow rates were also corrected to dry conditions using the moisture content as determined by SCAQMD Method 4.1 weight gain from the multiple metals samples described in the following sections.

Multiple Metals Sampling and Analysis

Testing was conducted using CARB Method 436. Each sampling train consisted of a borosilcate probe and nozzle, which was used to draw the stack sample isokinetically from the source. The sample was then drawn through two impingers each filled with an aqueous solution of 5% nitric acid and 10% hydrogen peroxide, an empty impinger, a 2" Teflon-coated glass fiber filter, and an impinger bubbler filled with tared silica gel. Each sampling train was connected to a leak free vacuum pump, a dry gas meter, and a calibrated orifice. The impingers were contained in a dry ice bath to condense water vapor and other condensable matter present in the sample stream (Figures 5 and 6). The method option for two impingers containing an acidic potassium permanganate solution used solely to collect mercury vapor emissions was not used because previous testing did not indicate that mercury emissions were significant. A modification was made by moving the filter prior to the impinger containing the silica gel.

Based upon previous testing for metals on this equipment, it was determined that 120 minute sampling time would give analytical results above the detection limits for lead, arsenic and other metals.

The SCAQMD laboratory analyzed the metals in the samples by EPA Method 200.7. Particulates deposited in the filter, probe, nozzle and impingers were acid digested and analyzed by ICP/MS (Inductively Coupled Plasma Mass Spectrometry) by the SCAQMD laboratory. Moisture content was determined gravimetrically and volumetrically.

Speciated Organic Compounds Sampling and Analysis

Testing was conducted using U.S. EPA Method TO-15. The sample was collected continuously from the exhaust stack. The gas sampling apparatus consisted of a stainless steel probe, a Teflon line, and a specially prepared 6-liter summa canister. The equipment is similar to that decribed in Figure 7 used for Integrated Gas Sampling (SCAQMD Method 10.1) except no rotameter was used. Analysis involves using a high resolution gas chromatograph coupled with a mass spectrometer. Previous testing on similar sources using this method has shown it yields similar results obtained simultaneously with CARB Method 422.

Integrated Gas Sampling and Analysis

An integrated gas sample was collected continuously from the exhaust stack during each day of testing. The gas sampling apparatus consisted of a stainless steel probe, a Teflon line, and a 6-liter summa canister (Figure 7). The sample was collected at a rate of approximately 0.10 liters

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per minute controlled by a rotameter.

The samples were analyzed by the SCAQMD laboratory for carbon monoxide, carbon dioxide, and oxygen. The gases were separated by gas chromatography. The carbon dioxide was determined by a gas chromatograph with a nickel catalyzed methanizer and flame ionization detector (GC/Ni-FID). Carbon monoxide was combusted to carbon dioxide and analyzed by SCAQMD Method 25.1. Oxygen was analyzed by thermal conductivity.

TEST CRITIQUE

It should be noted that the test on July 8 was conducted only for screening purposes. There were sampling complications during the first screening test, but they did not adversely affect the final results of the testing program. Although the second test on August 8 was conducted as part of a more comprehensive compliance test program, it is included with this report to correct the complications with the July 8 test. These issues have been addressed and remedied for future testing, and are discussed in further detail in this section. The August 8 test will be reported in full on a subsequent date.

The testing was conducted on a pre-scheduled basis during normal working hours, to gather multiple metal and speciated organics emissions data to monitor emissions from the facility. Upon arrival to the facility on July 18, 2013 for the first test, SCAQMD Source Test staff was notified that the Reverb Furnace was down due to a leak from the launders. This would have had some effect on emissions to the Hard Lead Baghouse since fugitive emissions from the Kiln Dryer, which feeds the Reverb Furnace and was therefore not operating as well, are collected by the Hard Lead Baghouse. In addition, additional flow may be available from the Neptune/Venturi Scrubber to exhaust the Blast Furnace during the Reverb Furnace shut down, which could possibly result in less fugitive Blast Furnace emissions vented to the Hard Lead Baghouse. The Reverb Furnace was repaired and operational at least 30 minutes prior to sampling. Once sampling commenced, no process interruptions occurred. There were no operational delays for the second test on August 8, 2013.

During sampling on both days, fugitive emissions were seen exiting various processes. These fugitive emissions were collected by the Torit Cartridge/HEPA Filter system that provides control of the air within the building. The building containing the process equipment is required to be maintained under negative pressure and therefore all of the air exiting the building is collected by air pollution control equipment. Previous test reports have recommended the simultaneous testing of the Hard Lead and Soft Lead Baghouse stacks with the Venturi/Neptune stack, but if less than 100% collection efficiency is observed, then it might also be necessary to test the North and South Torit stacks as well, since they provide control of the general building ventilation.

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The measured velocity heads of the first screening test of the Hard Lead Baghouse was significantly less than previous tests conducted. It was later determined during the second test that the umbilical line for the Pitot tube had a blockage from moisture condensed in the line resulting in the low measurements. For the second test, a separate velocity traverse was performed. The velocity traverse agreed closely with past tests on this exhaust stack. To obtain a better representation for the first screening test, the exhaust rate was corrected to the exhaust rate measured during the second test. The resulting first test mass emissions after the correction are consistent with the second test.

As with previous tests since the installation of the isolation door, the feed rate for the Blast Furnace was less than 80% of the permitted limit. However, the Reverb Furnace was operated at 80.6% of its permitted limit for the first screening test, which would have satisfied the permit condition requirement for a Health Risk Assessment test.

No arsenic was scheduled to be added to the refining kettles during the source tests. Four of the kettles, which are vented to the Hard Lead baghouse, were in use during each of the tests.

Finalized fixed gases results or Test No. 2 TO-15 results were not yet available from the SCAQMD Laboratory, and will be reported in full in a subsequent source test report

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Exide Blast/Cupola Furnace

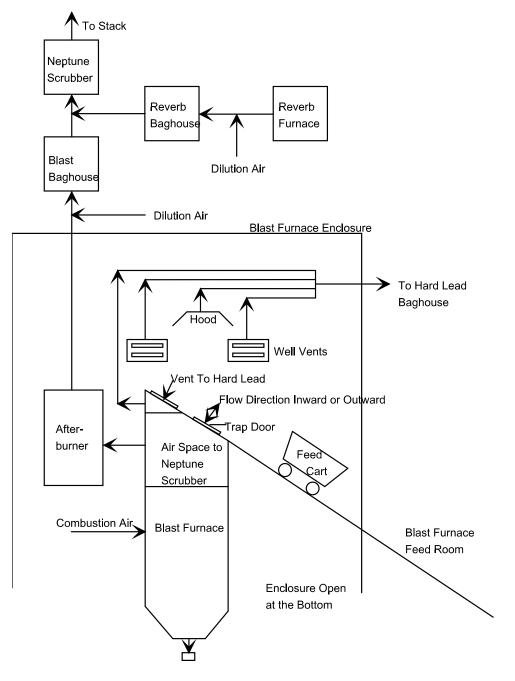


Figure 1: Blast Furnace Feed and Exhaust Schematic Diagram

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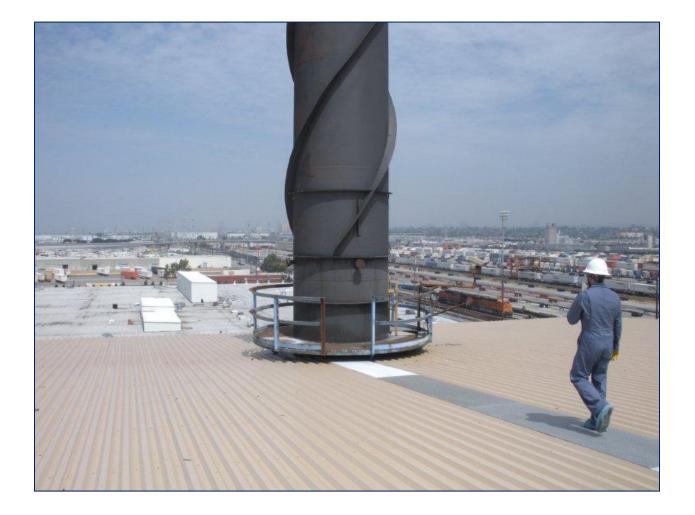


Figure 2: Hard Lead Baghouse Exhaust Stack

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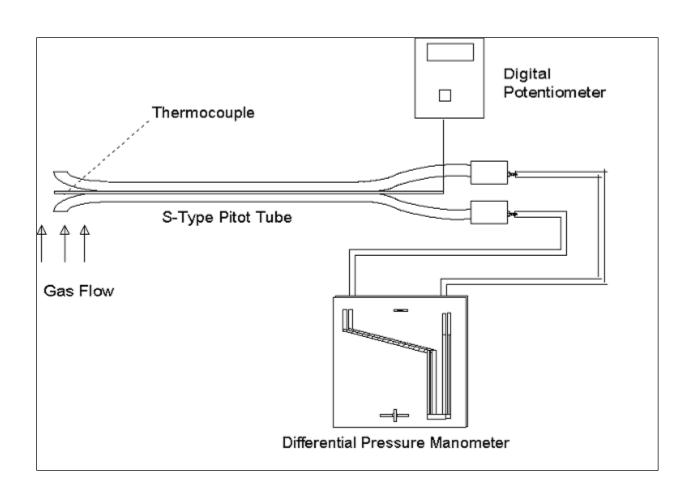
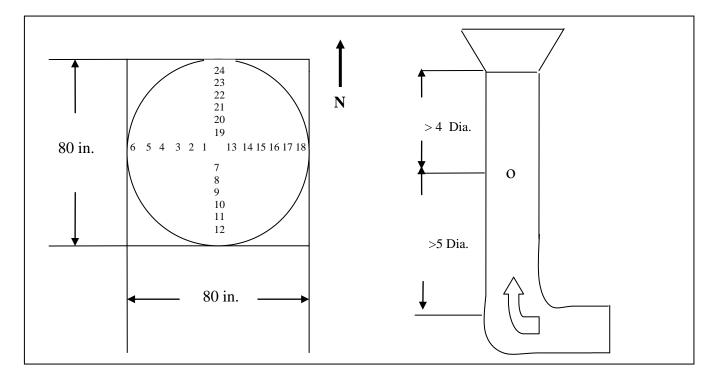


Figure 3: SCAQMD Methods 1.1 and 2.1

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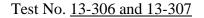
Date(s): 7/18/13 and 8/8/13



Stack Orientation: Vertical, Circular

Traverse Point Number	Distance from inner stack wall (in.)
1, 7, 13, 19	28.45
2, 8, 14, 20	20.00
3, 9, 15, 21	14.18
4, 10, 16, 22	9.45
5, 11, 17, 23	5.36
6, 12, 18, 24	1.70

Figure 4: Hard Lead Baghouse Stack Diagram and Sampling Locations



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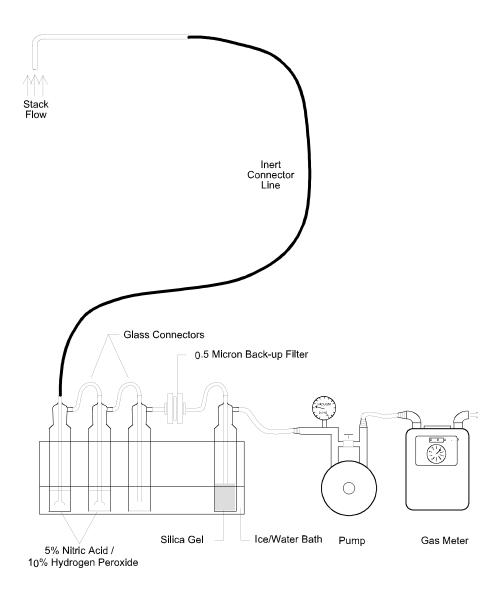


Figure 5: CARB Method 436 Sampling Train Diagram (modified by moving filter before the fourth impinger)

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Figure 6: CARB Method 436 Field Sampling Train and Probe

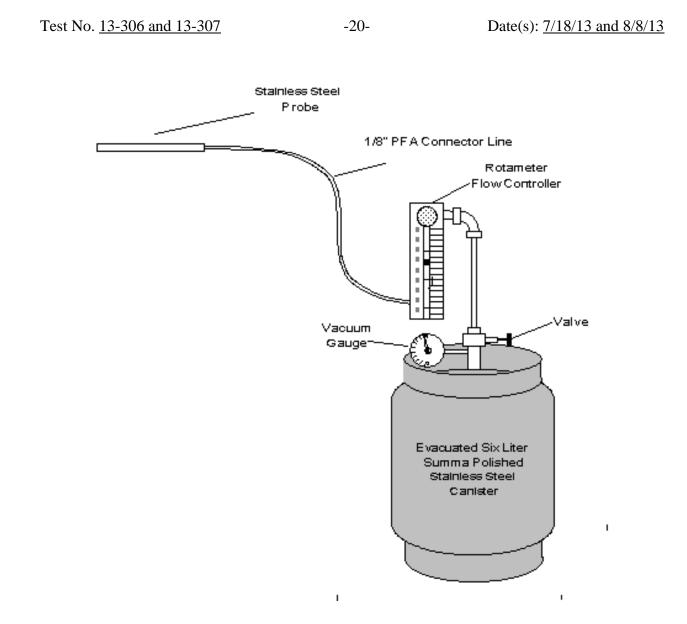


Figure 7: SCAQMD Method 10.1

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CALCULATIONS

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 21865 Copley Dr. Diamond Bar, California 91765-4182

		Test Date: 7/18/13						
		SOL	JRCE TEST	CALCULATI	ONS			
Sampling Location:	Exide Tech	Hard Lead	d Baghouse	Exhaust				
Sample Train:	20					Input by	: J. Aspell	
SUMMARY								
A. Average Traverse Velo								
B. Gas Meter Temperatur								deg F
C. Gas Meter Correction								
D. Average Orifice Pressu								"H20
E. Nozzle Diameter							0.2230	inch
F1. Stack Diameter or Dir	onsion #1	80	inch	M Ditot Co	rroction Ea	ctor	0.84	
F2. Stack Dim #2 (blank if								min
G. Stack Cross Sect. Are						a		
H. Average Stack Temp						ion		
I. Barometric Pressure		29.80	0			1		mg
J. Gas Meter Pressure (I-		29.85	0			ensed		•
K. Static Pressure		-0.05				ed		
L. Total Stack Pressure (I		29.80						
T. Corrected Gas Volume		× E20//40					51.370	doof
I. Corrected Gas volume	[(3 x 3/29.92)	x 520/(40	0+D) X C				31.370	usci
PERCENT MOISTURE/G	AS DENSITY							
J. Percent Water Vapor i	n Gas Sample	e ((4.64 x F	R)/((0.0464 x	(R) + T))			1.59	%
V. Average Molecular W	eight (Wet):							
Component	Vo	I. Fract.	x Moist.	Fract.	x N	lolecular Wt.	=	Wt./Mole
Water	0.016		1.000		18	- /	0.29	
Carbon Dioxide		Dry Basis	0.984		44		0.03	
Carbon Monoxide		Dry Basis	0.984		28		0.00	
Oxygen		Dry Basis	0.984			.0 ,	6.58	
Nitrogen & Inerts	0.790 L	Dry Basis	0.984		28	.2 ,	21.93	
						,		
						Sum	28.83	
						Sum	28.83	
FLOW RATE						Sum	28.83	
	on Factor (28 s	95/V)^.5						
W. Gas Density Correction							1.00	
W. Gas Density Correction X. Velocity Pressure Corr	ection Factor	(29.92/L)^	.5				1.00 1.00	fps
FLOW RATE W. Gas Density Correction X. Velocity Pressure Corr Y. Corrected Velocity (A Z. Flow Rate* (Y × G × 61	ection Factor x M x W x X)*	(29.92/L)^	.5				1.00 1.00 50.61	
W. Gas Density Correction X. Velocity Pressure Corr Y. Corrected Velocity (A Z. Flow Rate* (Y x G x 60	ection Factor x M x W x X)* 0)	(29.92/L)^	.5				1.00 1.00 50.61 106008	cfm
W. Gas Density Correction X. Velocity Pressure Corr Y. Corrected Velocity (A Z. Flow Rate* (Y × G × 6 AA. Flow Rate (Standard)	ection Factor x M x W x X)*) {Z x (L/29.92	(29.92/L)^ 2) x [520/(4	.5 160+H)]}				1.00 1.00 50.61 106008 94549	cfm scfm
W. Gas Density Correction X. Velocity Pressure Corr Y. Corrected Velocity (A Z. Flow Rate* (Y x G x 60 AA. Flow Rate (Standard) BB. Dry Flow Rate* (AA x	ection Factor x M x W x X)*) {Z x (L/29.92 (U/100))	(29.92/L)^ 2) x [520/(4	.5 160+H)]}				1.00 1.00 50.61 106008 94549	cfm scfm
W. Gas Density Correctit X. Velocity Pressure Corr Y. Corrected Velocity (A Z. Flow Rate* (Y x G x 6 AA. Flow Rate (Standard) BB. Dry Flow Rate* (AA x SAMPLE CONCENTRATI	ection Factor x M x W x X)*) { {Z x (L/29.9; (U/100)) ON/EMISSIO	(29.92/L)^ 2) x [520/(4 N RATE	.5 460+H)]}				1.00 1.00 50.61 106008 94549 93029	cfm scfm dscfm
W. Gas Density Correctit X. Velocity Pressure Corr Y. Corrected Velocity (A Z. Flow Rate* (Y x G x 6 AA. Flow Rate (Standard) BB. Dry Flow Rate* (AA x SAMPLE CONCENTRATI	ection Factor x M x W x X)*) { {Z x (L/29.9; (U/100)) ON/EMISSIO	(29.92/L)^ 2) x [520/(4 N RATE	.5 460+H)]}				1.00 1.00 50.61 106008 94549 93029	cfm scfm dscfm
W. Gas Density Correctit X. Velocity Pressure Corr Y. Corrected Velocity (A Z. Flow Rate* (Y x G x 6 AA. Flow Rate (Standard) BB. Dry Flow Rate* (AA x SAMPLE CONCENTRATI	ection Factor x M x W x X)*) { {Z x (L/29.9; (U/100)) ON/EMISSIO	(29.92/L)^ 2) x [520/(4 N RATE	.5 460+H)]}				1.00 1.00 50.61 106008 94549 93029	cfm scfm dscfm
W. Gas Density Correction X. Velocity Pressure Corr Y. Corrected Velocity (A Z. Flow Rate* (Y x G x 60 AA. Flow Rate (Standard) BB. Dry Flow Rate* (AA x	ection Factor x M x W x X)*)) { (Z x (L/29.9) (U/100)) ON/EMISSIOI Rate* [(G x T x	(29.92/L)^ 2) x [520/(4 N RATE 3 100)/(N x	.5 460+H)]} O x BB)]				1.00 1.00 50.61 106008 94549 93029 59.2	cfm scfm dscfm
W. Gas Density Correction X. Velocity Pressure Corr Y. Corrected Velocity (A Z. Flow Rate* (Y x G x 6 AA. Flow Rate (Standard) BB. Dry Flow Rate* (AA x SAMPLE CONCENTRATI GG. Isokinetic Sampling F Net Sample (mg) Sample Conc. (gr/dscf)	ection Factor x M x W x X)*)) (Z x (L/29.9; (U/100)) ON/EMISSIOI Rate* [(G x T x Arsenic 0.00425 (1 1.28E-06 2	(29.92/L)^ 2) x [520/(4 x RATE 100)/(N x <u>Cadmium</u> 0.00097 2.91E-07	.5 160+H)]} O x BB)] Chromium	Lead 0.02644 7.94E-06	Mangane 0.00051 1.53E-07	se Nickel 0.00109 3.27E-07	1.00 1.00 50.61 106008 94549 93029 59.2 Antimony	cfm scfm dscfm
W. Gas Density Correctic X. Velocity Pressure Corr Y. Corrected Velocity (A Z. Flow Rate* (Y x G x 6/ AA. Flow Rate* (Y x G x 6/ BB. Dry Flow Rate* (AA x SAMPLE CONCENTRATI GG. Isokinetic Sampling F Net Sample (mg) Sample Conc. (gr/dscf) Mass Emission (lb/hr)	ection Factor x M x W x X)*)) (Z x (L/29.9; (U/100)) ON/EMISSIOI Rate* [(G x T x Arsenic 0.00425 (1 1.28E-06 2	(29.92/L)^ 2) x [520/(4 N RATE 3 100)/(N x Cadmium 0.00097	.5 460+H)]} O x BB)] Chromium 0.00038	Lead 0.02644	Mangane 0.00051	se Nickel 0.00109 3.27E-07	1.00 50.61 106008 94549 93029 59.2 Antimony 0.00034	cfm scfm dscfm
W. Gas Density Correction X. Velocity Pressure Corr Y. Corrected Velocity (A Z. Flow Rate* (Y x G x 6 AA. Flow Rate (Standard) BB. Dry Flow Rate* (AA x SAMPLE CONCENTRATI GG. Isokinetic Sampling F Net Sample (mg) Sample Conc. (gr/dscf)	ection Factor x M x W x X)*)) { (Z x (L/29.92 (U/100)) ON/EMISSIOI Rate* [(G x T x) Arsenic 0.00425 1.28E-06 1.28E-06 2	(29.92/L)^ 2) x [520/(4 x RATE 100)/(N x <u>Cadmium</u> 0.00097 2.91E-07	.5 460+H)]} O x BB)] Chromium 0.00038 1.14E-07	Lead 0.02644 7.94E-06	Mangane 0.00051 1.53E-07	se Nickel 0.00109 3.27E-07 2.61E-04	1.00 1.00 50.61 106008 94549 93029 59.2 Antimony 0.00034 1.02E-07	cfm scfm dscfm

Ennoolon conor (ug/ucor)	0.00212	0.01000	0.001.000	0.011010	0.0000201	0.021210	0.0000.0
Emission Conc. (ug/dscm)	2.920845	0.66664	0.261158	18.17109	0.3505014	0.749111	0.233668
							_
	Barium	Zinc	Selenium	Tin	Titanium	Copper	
Net Sample (mg)	0.01634	0.0121	0.00018	0.00683	0.00037	0.0019	1
Sample Conc. (gr/dscf)	4.91E-06	3.63E-06	5.41E-08	2.05E-06	1.11E-07	5.71E-07	1
Mass Emission (lb/hr)	3.91E-03	2.90E-03	4.31E-05	1.64E-03	8.86E-05	4.55E-04	1

 Initiation Conc. (ug/dscf)
 0.318034
 0.23509
 0.007203
 0.132936
 0.0072015
 0.036801

 Emission Conc. (ug/dscm)
 11.22979
 8.315816
 0.123706
 4.693969
 0.2542853
 1.305789

 * Due to pitot tube blockage, velocity and flow rates were corrected to levels of second screening test to obtain a

more representative emission rate.

Test No. <u>13-306 and 13-307</u>

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Date(s): 7/18/13 and 8/8/13

RUN NO. 1										
	Velocity		Calculated		Gas	Gas	Average		Orifice	
Traverse	Head #1	Temp.	Velocity	Traverse	Meter Tem	Meter Tem	Gas Meter	Traverse	Pressure	
Point #	("H ₂ O)	(°F)	(fps)	Point #	In (°F)	Out (°F)	Temp (°F)	Point #	(" H ₂ O)	
1	0.07	111	18.33	1	87	85	86.00	1	0.199	
2	0.01	119	6.98	2	87	86	86.50	2	0.025	
3	0.05	119	15.60	3	86	86	86.00	3	0.125	
4	0.12	119	24.17	4	90	87	88.50	4	0.302	
5	0.08	117	19.70	5	90	88	89.00	5	0.203	
6	0.10	108	21.86	6	90	89	89.50	6	0.257	
7	0.25	120	34.92	7	91	90	90.50	7	0.632	
8	0.30	121	38.29	8	91	90	90.50	8	0.757	
9	0.32	124	39.64	9	92	90	91.00	9	0.806	
10	0.32	123	39.61	10	94	91	92.50	10	0.81	
11	0.35	123	41.43	11	95	92	93.50	11	0.89	
12	0.30	123	38.35	12	96	93	94.50	12	0.765	
13	0.36	123	42.01	13	92	92	92.00	13	0.912	
14	0.38	123	43.16	14	93	92	92.50	14	0.964	
15	0.35	124	41.46	15	94	93	93.50	15	0.89	
16	0.28	124	37.08	16	94	93	93.50	16	0.712	
17	0.30	125	38.42	17	95	94	94.50	17	0.764	
18	0.32	123	39.61	18	95	94	94.50	18	0.818	
19	0.42	125	45.46	19	92	91	91.50	19	1.06	
20	0.40	124	44.32	20	92	91	91.50	20	1.01	
21	0.41	125	44.91	21	92	91	91.50	21	1.03	
22	0.35	125	41.50	22	94	92	93.00	22	0.887	
23	0.31	126	39.09	23	95	92	93.50	23	0.785	
24	0.45	124	47.01	24	95	93	94.00	24	1.146	
	emperature		121.583	Averag	e Velocity	(fps) -	35.12			
Avg Gas N	leter Temp	erature (°F	91.3958	Average C	rifice Press	s. ("H ₂ O) -	0.70			

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Date(s): 7/18/13 and 8/8/13

CALCULATIONS

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 21865 E. Copley Dr. Diamond Bar, California 91765-4182

Test No.	Test Date: 8/8/13							
			JRCE TEST (
Sampling Location: Sample Train:	J. Aspell							
SUMMARY								
A. Average Traverse Velo	city						. 32.54	fps
Gas Meter Temperatur	re (Use 60 c	leg.F for Tei	mp Comp. M	eters)			83.1875	deg F
C. Gas Meter Correction	Factor						1.0085	
 Average Orifice Pressu 	Jre						. 0.65	"H20
. Nozzle Diameter							. 0.1700	inch
1. Stack Diameter or Dir	mension #1	80	inch	M. Pitot Co	rrection Fact	or	. 0.84	
2. Stack Dim #2 (blank i	f circular)		inch	N. Sampling	g Time		. 120	min
6. Stack Cross Sect. Are					-Sect. Area.			
I. Average Stack Temp				P. Net Sam	ple Collection	n	. 0	mg
Barometric Pressure		30.01	"HgA	Q. Net Solid	d Collection		. 0	mg
. Gas Meter Pressure (I-	+(D/13.6))	30.06	"HgA	R. Water V	apor Conden	sed	. 16	ml
C. Static Pressure		-0.60	"H20	S. Gas Volu	ume Metered	l	46.847	dcf
. Total Stack Pressure (I	+(K/13.6))	29.97	"HgA					
Corrected Gas Volume	[(S x J/29.9	92) x 520/(40	60+B) x C				45.436	dscf
PERCENT MOISTURE/G	AS DENSIT	Y						
. Percent Water Vapor			P)///0.0464 5	(P) + T))			1.61	9/
			10/((0.04047				1.01	70
 Average Molecular W 	eight (Wet):							
Component		ol. Fract.		Fract.		ecular Wt.	=	Wt./Mo
Vater	0.016		1.000		18.0	,	0.29	
Carbon Dioxide	0.000	Dry Basis	0.984		44.0	,	0.01	
arbon Monoxide	0.000	Dry Basis	0.984		28.0	,	0.00	
Dxygen	0.208	Dry Basis	0.984		32.0	,	6.55	
litrogen & Inerts	0.792	Dry Basis	0.984		28.2	,	21.97	
						, Sum	28.82	
LOW RATE V. Gas Density Correction C. Velocity Pressure Cor C. Corrected Velocity* (A E. Flow Rate* (Y x G x 6 A. Flow Rate (Standard) B. Dry Flow Rate* (AA x Values taken from veloc	rection Fact x x M x W x 0) * {Z x (L/29 x (U/100))	or (29.92/L) X) .92) x [520/(^.5 (460+H)]}				. 1.00 . 50.61 . 106008 . 94549 . 93029	cfm
SAMPLE CONCENTRATI	ON/EMISSI							-
lot Somple (ma)	Arsenic	Cadmium			Manganese		Antimony	-
let Sample (mg)	0.0027	0.00106	0.000646	0.0823	0.00112	0.00147	0.00039	-
ample Conc. (gr/dscf)	9.17E-07	3.60E-07	2.19E-07	2.79E-05	3.80E-07	4.99E-07	1.32E-07	-
Ass Emission (lb/hr)	7.31E-04	2.87E-04		2.23E-02	3.03E-04	3.98E-04	1.06E-04	-
mission Conc. (ug/dscf) mission Conc.(ug/dscm)	0.059415	0.023326	0.014216	1.811051 63.94821	0.024646 0.870255	0.032348	0.008582	1
	Barium	Zinc	Selenium	Tin	Titanium	Copper	Cobalt	Iron
let Sample (mg)	0.00295	0.0324	0.000173		0.000863		0.000114	0.0425
ample Conc. (gr/dscf)	1.00E-06	1.10E-05		1.53E-06	2.93E-07	2.75E-06	3.87E-08	1.44E-
lass Emission (lb/hr)	7.99E-04	8.77E-03	4.68E-05	1.22E-03	2.34E-04	2.19E-03	3.09E-05	1.15E-
mission Conc. (ug/dscf)		0.712978	0.003807	0.099245	0.018991	0.178222	0.002509	0.9361
Emission Conc.(ua/dscm)	2.29219	25.17524	0.134423	3.504331	0.670563	6.293032	0.08858	33.054

 Emission Conc.(ug/dscm)
 2.29219
 25.17524
 0.134423
 3.504331
 0.670563
 6.293032
 0.08858
 33.05415

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Date(s): 7/18/13 and 8/8/13

CALCULATIONS

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 21865 E. Copley Dr. Diamond Bar, California 91765-4182

Test No. 2		Test Date: <mark>8/8/13</mark>									
	SC	URCE TEST	CALCULATIO	ONS							
Sampling Location:	Exide Hard Lead Bagh √A				Input by:						
SUMMARY A. Average Traverse Veloc	sity					60.28	fps				
B. Gas Meter Temperature						83.1875	deg F				
C. Gas Meter Correction F											
D. Average Orifice Pressur						0.65					
E. Nozzle Diameter						0.1700	Inch				
F1. Stack Diameter or Dim	ension #1 8) inch	M. Pitot Cor	rection Facto	or	0.84					
F2. Stack Dim #2 (blank if	circular)	inch	N. Sampling	Time		120	min				
G. Stack Cross Sect. Area			O. Nozzle X	-Sect. Area		0.00016	ft				
H. Average Stack Temp		deg F		ole Collection			mg				
I. Barometric Pressure		I "HgA		Collection			mg				
J. Gas Meter Pressure (I+ K. Static Pressure		6 "HgA) "H₂0		apor Condens me Metered		16 46.847					
L. Total Stack Pressure (I+		7 "HgA	0. 003 100			40.047					
	. ,,	-									
T. Corrected Gas Volume	[(S x J/29.92) x 520/(4	460+B) x C				45.436	dscf				
PERCENT MOISTURE/GA	S DENSITY										
U. Percent Water Vapor ir	n Gas Sample ((4.64 x	(R)/((0.0464	x R) + T))			1.61	%				
V. Average Molecular We	ight (Wet):	,									
Component	Vol. Fract.	x Moist.	Fract.	x Mole	ecular Wt.	=	Wt./Mole				
Water Carbon Dioxide	0.016	1.000		18.0 44.0	,	0.29					
Carbon Monoxide	0.000 Dry Basis 0.000 Dry Basis	0.984 0.984		28.0	,	0.01 0.00					
Oxygen	0.208 Dry Basis	0.984		32.0	,	6.55					
Nitrogen & Inerts	0.792 Dry Basis	0.984		28.2	,	21.97					
-	-				,						
					Sum	28.82					
FLOW RATE											
W. Gas Density Correction	n Factor (28 95/\/\^ 5					1.00					
X. Velocity Pressure Corre						1.00					
Y. Corrected Velocity (A x						50.71	fps				
Z. Flow Rate (Y x G x 60)						106213	cfm				
AA. Flow Rate (Standard)	{Z x (L/29.92) x [520/	(460+H)]}				94732					
BB. Dry Flow Rate (AA x (U/100))					93209	dscfm				
SAMPLE CONCENTRATIO	ON/EMISSION RATE										
CC. Sample Concentration	[0 01543 x (P/T)]					0.00000	ar/dscf				
DD. Sample Concentration		(Molecular	Wt.)]		٢	#DIV/0!	ppm				
EE. Sample Emission Rate	. ,					0.000					
FF. Solid Emission Rate [(.						0.000					
GG. Isokinetic Sampling Ra	ate [(G x T x 100)/(N	x O x BB)]				90.0	%				

Test No. <u>13-306 and 13-307</u>

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Date(s): 7/18/13 and 8/8/13

Run No. 1											
	Velocity		Calculated		Gas	Gas	Average		Orifice		
Traverse	Head #1	Temp.	Velocity	Traverse	Meter Temp	Aeter Tem	Gas Meter	Traverse	Pressure		
Point #	("H ₂ O)	(°F)	(fps)	Point #	In (°F)	Out (°F)	Temp (°F)	Point #	(" H ₂ O)		
1	0.03	114	12.03	1	79	78	78.50	1	0.07		
2	0.02	115	9.83	2	78	80	79.00	2	0.04		
3	0.02	117	9.85	3	80	79	79.50	3	0.04		
4	0.02	115	9.83	4	81	78	79.50	4	0.04		
5	0.11	117	23.10	5	81	79	80.00	5	0.24		
6	0.10	117	22.03	6	81	79	80.00	6	0.22		
7	0.05	116	15.56	7	82	80	81.00	7	0.11		
8	0.09	121	20.97	8	82	80	81.00	8	0.2		
9	0.12	119	24.17	9	83	81	82.00	9	0.26		
10	0.08	119	19.74	10	83	81	82.00	10	0.18		
11	0.11	119	23.14	11	84	81	82.50	11	0.24		
12	0.07	119	18.46	12	85	82	83.50	12	0.15		
13	0.14	118	26.09	13	85	83	84.00	13	0.31		
14	0.16	118	27.89	14	85	83	84.00	14	0.35		
15	0.14	119	26.11	15	86	83	84.50	15	0.31		
16	0.14	122	26.18	16	86	84	85.00	16	0.31		
17	0.80	120	62.47	17	86	85	85.50	17	1.78		
18	0.70	120	58.43	18	86	84	85.00	18	1.55		
19	0.57	121	52.77	19	84	84	84.00	19	1.26		
20	0.83	121	63.68	20	86	84	85.00	20	1.84		
21	0.80	122	62.58	21	89	85	87.00	21	1.78		
22	0.72	121	59.31	22	90	85	87.50	22	1.61		
23	0.64	121	55.92	23	90	86	88.00	23	1.43		
24	0.53	121	50.89	24	91	86	88.50	24	1.19		
Average T	emperature	e (°F) -	118.833	Averad	e Velocity	(fps) -	32.54				
	leter Temp				rifice Press		0.65				

Test No. <u>13-306 and 13-307</u>

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Date(s): 7/18/13 and 8/8/13

Velocity Tr	raverse										
	Velocity		Calculated		Gas	Gas	Average		Orifice		
Traverse	Head #1	Temp.	Velocity	Traverse	Meter Tem	Meter Tem	Gas Meter	Traverse	Pressure		
Point #	("H ₂ O)	(°F)	(fps)	Point #	In (°F)	Out (°F)	Temp (°F)	Point #	(" H ₂ O)		
1	0.78	125	61.95	1				1			
2	0.74	125	60.34	2				2			
3	0.77	125	61.55	3				3			
4	0.76	125	61.15	4				4			
5	0.80	125	62.74	5				5			
6	0.84	125	64.29	6				6			
7	0.83	124	63.85	7				7			
8	0.87	124	65.37	8				8			
9	0.86	123	64.94	9				9			
10	0.82	122	63.35	10				10			
11	0.70	123	58.58	11				11			
12	0.49	122	48.97	12				12			
13	0.82	124	63.46	13				13			
14	0.84	124	64.23	14				14			
15	0.84	124	64.23	15				15			
16	0.90	125	66.54	16				16			
17	0.85	124	64.61	17				17			
18	0.78	125	61.95	18				18			
19	0.78	124	61.89	19				19			
20	0.73	124	59.88	20				20			
21	0.67	124	57.36	21				21			
22	0.65	124	56.50	22				22			
23	0.58	123	53.33	23				23			
24	0.26	121	35.64	24				24			
Average T	emperature	e (°F) -	123.917	Averad	ge Velocity	(fps) -	60.28				-
	leter Temp				rifice Press		#DIV/0!				1
				<u> </u>		/					

Test No. 13-306 and 13-307

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Date(s): 7/18/13 and 8/8/13

EPA Met	hod TO-15 Cal	culations	
Measured Flowrate*	93209	dscfm	
Compound	Conc. (ppb)	MW	lb/hr
1,3 butadiene	14.9	54.09	1.19E-02
benzene	40.9	78.11	4.71E-02
acrolein	0.9	56.06	7.45E-04
acetone	12.8	58.08	1.10E-02
methylene chloride	0.3	84.93	3.76E-04
MEK	0.8	72.11	8.51E-04
chloroform	0.1	119.38	1.76E-04
toluene	8.9	92.13	1.21E-02
ethylbenzene	2.2	106.16	3.45E-03
m+p xylenes	1.1	106.17	1.72E-03
styrene	19.6	104.14	3.01E-02
o-xylene	0.5	106.17	7.83E-04
isoprene	8.7	68.12	8.75E-03
Acetylene+ethylene	301	27.045	1.20E-01
ethane	449	30.07	1.99E-01
propylene	78.3	42.08	4.86E-02
propane	116	44.1	7.55E-02
isobutane	7.7	58.12	6.60E-03
1-butene	20.2	56.11	1.67E-02
n-butane	8.2	58.12	7.03E-03
n-pentane	17.7	72.15	1.88E-02
1-hexene	2.2	84.16	2.73E-03
n-hexane	0.7	86.18	8.90E-04
n-heptane	0.6	100.21	8.87E-04
n-octane	0.2	114.23	3.37E-04
n-nonane	0.2	128.2	3.78E-04
n-decane	0.1	142.29	2.10E-04
n-undecane	0.2	156.31	4.61E-04
n-dodecane	0.1	170.33	2.51E-04
thiophene	12.4	84.14	1.54E-02
2,4 dimethyl-1-heptene	11.3	126.24	2.10E-02
acetonitrile	14.4	41.05	8.72E-03
lb/hr = (ppbv/1000)* (Q*	:60)*MW/379/	(1000000	
* Corrected to Screening			

Test No. <u>13-306 and 13-307</u>

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Date(s): 7/18/13 and 8/8/13

APPENDICES

Test No. <u>13-306 and 13-307</u>

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Date(s): 7/18/13 and 8/8/13

APPENDIX A

Field Data

Test No. <u>13-306 and 13-307</u>

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South Coast Air Quality Management District

Date(s): 7/18/13 and 8/8/13

Ť	est No.	<u>/3-306</u> Location:	Com	pany:	Exig)e	6		D	ate:	7~/§	8-13	3
Sa	ampling	Location:	И	Ard 1	lend b	Francist	JACI	<	5	ample I	rain:	20	
	7	Ob a du				Source	Dec	ta st-Test L	ook Ch	ook:			
PI	re-lest l	Leak Check: cfm @ <u>0.002</u> cfm @ Leak Check:		"Ha	vac		Filt	st-rest t er	eak one	stm.@	,	"Ha v	ac
P1	ner. 	6 /41 cfm @	15	- "Ho	vac		Pro	be (<u> </u>	efm @	215- 1	"Ha v	ac
Pi Di	itot Tube	Leak Check	Pase	7 Fail	1 100		Pite	ot Tube	Leak Ch	ieck:	Pass / Fa	ail	
F		Ecak oncos.	0_200										
Time	Sample	Gas Meter	Sta	ck	(Calculated		Probe	Filter	imp.	Meter Te	arnp.	Vacuum
1	Point #	Reading (dcf)		Temp. °F		Sampling Rate	Orifice ∆P	Temp.	Temp.	Temp.			'Hg
	-	Start: 120,025	("H ₂ O)		(fps)	(cfm)	(*H ₂ O)	°F	٩°	°F		Qut	
1200	W-1	721,500		111	19.72	0,24	0.199			50		85	/
111-0	4	122,600	0.01	119	6197	0,08	6.025			55	87	86	1
	3	723315	0.05	119	15.60	0119	01/25			49	86	86	1
	4	124,280	0.12	119	24,17	0.29	0:302			53	90	87	/
	5	725,275	0.08	117	19,70	0:24	0,203			49	90	88	lan
	6	726,990	0.10	108	21.86	0,27	0.257		1. J. S. S.	50	90	89	
						2.0						0	
12:32	5-7	729,055	0.25	120	24.92	0.42	0.632	<u> </u>	1.1	54		90	/
	8	731,640	0130	121	58129	0,46	01757			155		90	2
	9	734,270	0:32	124	39.69	0,48	01806			48		20	6
	10	736,9010	0.32	123	39,61	0,48	01870			49		9/	2
1.1.1.1	11	739,500	0,35	123			0,890			50		92	2
	12	741,778	0,30.	123	28,35	0146	0,765			47		93	王
			. 21	120	12 -1	0.01	0.912				27	調	2
1310	E13		0.36	123	42.01	0151				55	92 0	92 92	2-
11 A.	14	747.330	0.28	122	4116	0.52	0.890		·		94	93	2_
	15	752,535	0.30	127	22 18	0.50	0.7/2			50			2
	16	759,535	0,30	107	38,42	0145	0.764			45	95	93 94	Z-
	17	754.690	0,20	123	39,61	040	0.818			47	95	94	2
	10	131.216	0150	ras	111.61	0170	010			1		~	
13:45	19N	760.145	1.42	125	4546	0,55	1.06			58	92	91	2_
12.13	20	763,025	0,40	124	44.32	0.53	1.01			57	92	91	2
	21	765,000)	0.41	125	44.91	0,54	1.03			58	92 1	91	2
	22	768,720	0.35	125	41.49	0.49	0.887			55	74	92	2-
	23	771,210	0,31	126	32.05	0.47	1785			60		92	S.
	24	774,162	0,45	124	47.01	05-7	1.146			55		93	25
(Net Vo	ol. Uncorr.)	1	Avg.					53	YOI		\$0)	
K-Fac	tor: <u>0</u>	5639_	Stack	Moistu	ire:/	<i>vio</i> 0	anister#	#. <u>540</u>	49	Star	t: <u>30</u>	. "	Hg vac
		ter: 0.22				F	ecorded	By:	iv.	.s,			
Baron	netric Pr	essure: ରା	9.80		" HgA	P	itot Fact	or:	0.8	4			
Static	Pressur	e in Stack:	+10	0.05	- *	H ₂ O			24			7	
_						-	*		1	$ \uparrow $	$ \rightarrow $	1	
Inclusion	od Mana	Calibration I	THE R P P P P P P P P P P P P P P P P P P	(Cal:	N/A	1		6	18	N	T diam.		1
	ed Mano ehelic N			(Cal:	1417	{	80"	de l	1213	1	↓ ,	1	
	Fube No			-	6-21-13	(. w	N.	L Л	4	↓ ♦	Sta	
	tiometer				6-21-13	í l	+	M	12		diam.	Din	nensions
	nocouple		-	(Cal:	7-2-13	i L			J				
	Neter No			(Cal: (5-61-13	5		← 9	¢" →		J) L	<u> </u>	ן ר
	Corr. Fa		100			·							L.
	ling Pro			rosilicate	V Quartz		Stac	k: Hori	zontal	ertical	Rectan	igular (Circular
Janip	÷	evision 01/09								\sim			\smile
2	K	evision 01/09											

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Date(s): 7/18/13 and 8/8/13

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT TCA TEST DATA SHEET

Date: 7/17/13 Test No.: 13-906		Page No.:
Test No.:	6.1	Recorded by: 20
Company/Sampling Location	E Libe	
Basic and Control Equipmen	: Hand Co	ad by hause
SAMPLE A Tank # <u>54/04</u> 9Trap # <i>N//</i>	Control #/	SAMPLE B Tank # <u>£-340</u> / Trap # <u>/(/)</u> Control # <u>/_</u>
Pre-Test Leak Check:	Gauge <u>- 70</u> Δ P	Pre-Test Leak Check: Gauge 370
Post-Test Leak Check:	Gauge	Post-Test Leak Check: Gauge
Barometric Pressure	_"HgA	Static Pressure*HgA (±*H2O)
TIME VACUUM FLOW ("Hg) (cc/min)	COMMENTS	TIME VACUUM FLOW COMMENTS
0 -20-30		("Hg) (cc/min)
5 25		5 25
10 18		10 19
15 10		15 12
20 3		20 8
25 1		25 2
I		

TCA SAMPLING INTERVAL TABLE (Δ P)

lin - or	50	200	(60)	(500)	30)0	1000	1200	1900	1600
S SOME	2.65	2.90	Constant of the second second						
20	2.20	2.45	2.70	n margara gargar La se la Taña a se la		MM (Marine, 1-5)			Activity of the
	1.90	2.15	2.30	2.70		and the second			
50	1.65	1.85	2.00	2.40	2.85				Contract designed
35	1.40	1.60	1.80	2.10	2.50	2.85	Contractor Port of St		
-40	1.20	1.40	1.60	1.90	2,25	2.50	2.95		Kraine india and
Section Section 201	1.05	1.25	1.40	1.70	2.00	2.25	2.60	3.00	a second and a second
	0.95	1.15	1.25	1.50	1.85	2.05	2.40	2.70	
	0,85	1.05	1.15	1.35	1.65	1.85	2.15	2.45	2.80
50	0.80	0.95	1.05	1.25	1.55	1.70	2.00	2.30	2.55
	0.70	0.85	0.95	1.15	1.40	1.60	1.90	2.15	2.40
70	0.65	0.80	0.90	1.05	1.30	1.50	1.75	2.00	2.25
19	0.60	0.75	0.80	1.00	1.25	1.40	1.65	1.90	2.15
	0.55	0.65	0.75	0.90	1.15	1.30	1.55	1.80	2.05
	0.50	0.60	0.70	0.85	1.10	1.25	1.50	1.75	1.95
1	0.50	0.55	0.65	0.80	1.05	1.25	1.50	1.65	1.90

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Date(s): 7/18/13 and 8/8/13

Pre-Te: Filter: Probe:	Reading 774 775. 775. 775. 775. 775. 775. 775. 775. 775. 775. 775. 775. 775. 775. 777. 778. 783. 783. 784. 783. 794. 794. 794. 794. 794. 794. 794. 794. 794. 794. 794. 794. 794. 794. 794. 797. 802. 803. 807.	eck: fm @ heck: eter ((dcf)) ggg gg gg gg ggg gg gg gg gg gg gg	15	"Hg "Hg /Fail <i>ck</i> <i>Temp</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i> <i>117</i>	Traverse vac vac vac vac vac vac vac vac vac vac	Calculated Sampling Rate (cfm) 0.14 0.11 .17 .27 .28 .28 .28 .28 .23 .27 .21 .30 .37 .30 .37 .30 0.30	Pos Filto Pro Pito	st-Test l er: bbe:		cfm @ _ cfm @ _	8 Pass / In 79 78 80 8/ 8/ 8/ 8/ 8/ 8/ 82 82 82 82 82 82 82 82 82 82 82 82 82	Temp.	VaC
Filter: Probe: Probe: Probe: Point # 10 # # # # # # # # # # # # #	Gas M 0.00 ibe Leak C ibe Leak C 1 772. 775. 775. 775. 775. 775. 775. 775. 778. 778. 778. 778. 778. 778. 778. 778. 778. 778. 778. 778. 778. 779. 779. 779. 779. 779. 779. 79. 79. 79. 79. 79. 79. 79. 79. 79. 79. 79. 79. 79. 79. 803. 807.	fm @ heck: eter (dcf) 194 35 91 74 73 74 73 74 74 74 74 74 74 74 74 74 74	15 Pass Sta Velocity Head (140) .02 .02 .02 .02 .02 .02 .02 .02 .02 .02	"Hg / Fail / Fail ck Temp. ** //4/ //5 1/7 //4/ 1/8 1/7 //4/ 1/8 1/7 1/7 //4/ 1/8 1/7 1/7 //4 1/7 1/7 //4 1/8 1/8 1/8 1/8 1/8 1/8 1/8 1/8	Vac Velocity (fps) 12.03 9.83 9.83 23.1 22.0 15.54 20.97 24.17 19.74 19.74 18.46 23.14 18.46 24.10 24.10 24.10 24.10 24.10 24.10 24.10 24.10	Sampling Rate (cfm) 0.14 0.11 .27 .27 .27 .28 .28 .28 .28 .22 .28 .22 .22 .20 .30 .37 .30 .37 .30 0.30	Filt Pro Pite 0rfice 	er: bbe: ot Tube Probe Temp.	Leak Ch Filter Temp.	cfm @ cfm @ leck: Temp. °F 5.0 4.0 5.3 5.4	Pass / Meter 1n 79 78 80 8/ 8/ 8/ 8/ 82 83 84 85 86 86	"Hg v Fail Temp. F Out 7 g 8 g 7 g 7 g 7 g 8 g 7 g 8	Vacuu *Hg <br </th
Poin # # # # # # # # # # # # # # # # # # #	Reading 774 775. 775. 775. 775. 775. 775. 775. 775. 775. 775. 775. 775. 775. 775. 777. 778. 783. 783. 784. 783. 794. 794. 794. 794. 794. 794. 794. 794. 794. 794. 794. 794. 794. 794. 794. 797. 802. 803. 807.	(dcf) 194 194 194 194 194 194 194 194	Velocity Head (1400) .03 .02 .04 .03 .02 .03 .02 .03 .02 .03 .02 .03 .02 .03 .02 .03 .02 .03 .02 .03 .02 .03 .02 .03 .02 .03 .02 .03 .02 .03 .03 .02 .03 .03 .03 .03 .02 .03 .03 .03 .03 .03 .03 .03 .03 .03 .03	Temp + //4/ //5 117 1/7 1/7 1/7 1/7 1/4 117 117 117 117 117 117 117 11	Velocity (fps) 12.03 9.83 9.83 23.1 22.0 15.54 24.17 19.74 19.74 18.4/2 24.10 24.10 24.10 24.10 24.10 24.10	Sampling Rate (cfm) 0.14 0.11 .27 .27 .27 .28 .28 .28 .28 .22 .28 .22 .22 .20 .30 .37 .30 .37 .30 0.30	Ontice DP (Ho) 107 04 04 04 04 04 04 04 04 04 04	Temp.	Temp.	Temp. °F 50 49 53 54	In 79 78 80 81 82 82 82 82 84 82 83 84 85 86	Out 78 79 79 79 79 79 79 79 79 20 80 81 80 81 83 83 83 83 83 83 83	<
+5 W 1 +5 W 1 +5 W 1 5 G 1 2 3 4 5 G 1 2 3 4 5 G 1 2 3 4 5 G 1 2 3 4 5 G 1 2 3 4 5 6 1 2 3 4 5 6 1 2 3 4 5 6 1 2 3 4 5 6 5 1 2 3 4 5 6 5 1 2 3 4 5 6 5 1 2 3 4 5 6 5 1 2 3 4 5 6 5 1 2 3 4 5 5 6 5 1 2 3 4 5 5 6 5 1 2 3 4 5 5 6 5 1 2 3 4 5 5 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	775. 775. 775. 778 779 781 781 781 781 784 784 784 784 784 784 784 794 794 794 794 794 795 794 794 795 794 795 794 795 794 795 796 796 797 797 796 797 797 797 797 797	35 81 81 81 81 81 81 81 81 81 81 81 81 81	(140) ,03 ,02 ,02 ,02 ,02 ,02 ,02 ,02 ,02	1117 117 117 117 117 117 117 117 117 11	12.03 9.83 9.83 9.83 23.1 22.0 122.0 12.54 24.17 19.74 18.46 23.14 18.46 24.10	(ctm) 0.14 0.11 .17 .23 .28 .28 .28 .28 .28 .28 .28 .28 .28 .28	(140) ,07 ,04 ,04 ,24 ,24 ,24 ,24 ,24 ,24 ,24 ,2			50 49 53 54	79 78 80 81 81 82 84 93 84 93 84 95 84 85 85	78 89 79 79 79 80 91 80 91 80 91 80 81 83 83 83 83 83	<
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Date(s): 7/18/13 and 8/8/13

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Revision 01/09

Test No. <u>13-306 and 13-307</u>

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Date(s): 7/18/13 and 8/8/13

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Revision: April 20, 2011

Test No. <u>13-306 and 13-307</u>

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Date(s): 7/18/13 and 8/8/13

APPENDIX B

Process Data

Appendix B has been removed from this file because it may contain proprietary information.

Test No. <u>13-306 and 13-307</u>

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Date(s): 7/18/13 and 8/8/13

APPENDIX C

Calibration Records

Appendix C has been removed from this file because it may contain proprietary information.

Test No. <u>13-306 and 13-307</u>

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Date(s): 7/18/13 and 8/8/13

APPENDIX D

District Laboratory Data

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Date(s): 7/18/13 and 8/8/13

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 21865 Copley Dr., Diamond Bar, CA 91765-4182

MONITORING AND ANALYSIS REPORT OF LABORATORY ANALYSIS (Page 1 of 2)

TO: Mike Garibay, Supervisor Source Test Engineering

LABORATORY NO. 1320008-03 to -08

SAMPLE DESCRIBED AS:

Solutions and filters from three CARB Method 436 (Excl. mercury) source test trains; Trains, #7, #13 and #20 (See details on page 2)

SAMPLE SOURCE:

Exide Technologies 2700 S. Indiana St. Vernon, CA 90058

REFERENCE NO. ICP-MS-YS-5-49

SUBMITTED ON: 7/19/2013

REQUESTED BY: Jason Aspell

SOURCE TEST NO.: 13-306

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS

Analytical Method

Analysis of Metals by Inductively Coupled Plasma - Mass Spectrometry

Aliquots of solutions from impingers, housing, tubing, probe and blank were treated with nitric acid prior to analysis. Filters samples were digested in a microwave oven using 1:1 Ultrapure Nitric Acid. Analysis for metals was performed in accordance with AQMD Method #0005, (Standard Operating Procedure for the Analysis of Metals in Filters by Inductively Coupled Plasma - Mass Spectrometer).

Results:

See attachment.

Date Approved: 8/16/13

Approved By: Kera

Rudy Eden, Sr. Manager Laboratory & Source Test Engineering

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Exide Technologies: 2700 S. Indiana St., Vernon, CA 90058

(Page 2 of 2)

Fest # 13-306)
(Source
Technologies
Exide '
performed at
for source test
results 1
analysis
Metal

	Train #7 impinger and	Train #20 impinger and	Train #20 tubing and		Filter from Train	Filter from Train
	housing	housing	probe	Blank	#7	#20
	1320008-03	1320008-04	1320008-05	1320008-06	1320008-07	1320008-08
Element	ng/mL	JmL/gn	ng/mL	ng/mL	μg/filter	µg/filter
Antimony	<0.18	0.44	0.85	<0.18	0.01	<0.01
Arsenic	0.06	7.37	6.96	<0.60	<0.02	0.02
Barium	1.16	37.1	<0.60	0.91	1.09	1.67
Beryllium	<0.06	<0.06	<0.06	<0.05	<0.02	<0.02
Cadmium	0.39	1.86	1.25	0.16	<0.03	<0.03
Chromium	<0.60	0.76	<0.60	<0.60	0.06	0.08
Cobalt	0.08	<0.60	<0.60	<0.60	<0.02	<0.02
Copper	6.89	3.25	3.08	<0.60	<0.02	0.03
Lead	12.7	37.7	60.7	1.07	0.06	0.12
Manganese	0.35	0.83	0.57	<0.12	0.05	0.07
Nickel	0.39	0.85	3.89	0.08	0.02	0.03
Selenium	<0.24	0.47	<0.24	<0.24	<0.02	<0.02
Thallium	<0.60	<0.60	<0.60	<0.60	<0.02	<0.02
Tin	9.78	16.3	0.76	44.3	<0.02	0.22
Titanium	0.75	0.92	<0.60	<0.60	<0.02	<0.02
Vanadium	<0.60	<0.60	<0.60	<0.60	<0.02	<0.02
Zinc	30.5	21.4	7.66	1.51	1.79	2.18

Test No. <u>13-306 and 13-307</u>

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Date(s): 7/18/13 and 8/8/13

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 21865 Copley Drive, Diamond Bar, California 91765

Test No. <u>13-306 and 13-307</u>

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Date(s): 7/18/13 and 8/8/13

Company Exide Technologies	Source Test No. 13-306
Address 2700 S. Indiana St.	Request Date June 26, 2013
Basic Equipment Blast Furnace, Refining Kettles	Control Device Hard Lead Baghouse
Analysis/Equipment Requested By Mohsen Nazemi	Date Equipment Needed July 5, 2013 (AM)
For Compliance, Rule(s) 1402, 1420, 1420.1	
Other (specify)	
	JIPMENT REQUEST
Prep Reference	Prep Laboratory No. 1317614
Dry los Needed	
Quantity and Description	1.D. Nos.
3 CARB Method 436 Trains (excl. mercury)	Tzoins Nos: 7, 13, 20
2 – 6L Canisters (Fixed Gases) 2 EPA Method TO-15 Canister	54049 54775
2 EPA Method TO-15 Canister	F3401, F 3718 30 7/2/13
	2-
2 glass probes, teflon sample line and 2 sets of 3	T.
teflon connectors for washing.	Reference: Blue Book No41
	Pages : 30, 31
SAMPLE EQUIPMENT ANALYSIS REQUEST	
Source Test No. 13-366	Analysis Laboratory No. 1320008
Sample Description	Analysis Requested TRALNS
54049	Firen GASES
E 3401	TO-15
TRAIN 20, PRODO 60 SWARES LINE ACOUNCORS	MULTIPLE METRIS
TEAN 7	MULT METAL (BLANK)
TEALU 13, CANE \$718; CAN: 54775	NOT USED
LEBIC 15, CENEDIO, CAN 27/15	NOT USED
	NT OLD IN OF CUSTORY
SAMPLE EQUIPME	INT CHAIN OF CUSTODY
Sample Equipment # From A To	For (S/T, Analysis, Cleanup, Not Used) Date Time
E hour TO (Hall	Restrin 07/17/13 13:25
TT KAN THINKO	August 7/19/13 616
	111111111111111111111111111111111111111

Revisioe: January 2012

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Date(s): 7/18/13 and 8/8/13

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 21865 Copley Dr., Diamond Bar, CA 91765-4182

MONITORING & ANALYSIS REPORT OF LABORATORY ANALYSIS

TO:	Mike Garibay, Supervising AQ Engineer Source Testing	LABORATORY NO:	1320007-01
	Source result	REFERENCE NO:	MSF-7-39
SAM	PLE DESCRIPTION:	DATE SAMPLED:	07/17/13
	Hard lead baghouse Canister #E3401	DATE RECEIVED:	07/19/13
SAM	PLE LOCATION:	DATE ANALYZED:	08/09/13
	Paids Technologies	ANALYZED BY:	Yadira De Haro-Hammock
	Exide Technologies 2700 S. Indiana St. Vernon, CA 90057	REQUESTED BY:	Jason Aspell

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS

Qualitative Analysis and Quantitation of Toxic Organics by Gas Chromatography(GC) -Mass Spectrometry(MS) and Flame Ionization Detection(FID)

Note: See attached results.

Date Approved: 8/20/13

Approved By:

Rudy Eden, Sr. Manager Laboratory Services Branch (909) 396-2391

C:\Users\sbarbosa\Documents\Exide\LN 1320007 Exide.xlsx

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Date(s): 7/18/13 and 8/8/13

LAB NO: 1320007-01 Location: Exide Technologies

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS Qualitative Analysis and Quantitation of Toxic Organics by Gas Chromatography Mass Spectrometry(MS) and Flame Ionization Detection(FID)

Sample Date Canister	
Total NMOC, ppbc	3210
Compound	Conc. (ppb)
ethanol	N.D.
vinyl chloride	N.D.
1,3-butadiene	14.9
2-propenal (Acrolein)	0.9
acetone	12.8
methylene chloride	0.3
methyl tert butyl ether	N.D.
2-butanone (MEK)	0.8
chloroform	0.1
1,2-dichloroethane	<0.1
benzene	40.9
carbon tetrachloride	N.D.
1,2-dichloropropane	N.D.
trichloroethylene	<0.1
toluene	8.9
1,2-dibromoethane	N.D.
tetrachloroethylene	< 0.1
ethylbenzene	2,2
m+p-xylenes	1.1
Styrene	19.6
o-xylene	0.5
1,4-dichlorobenzene	N.D.
1,2-dichlorobenzene	N.D.
isoprene	8.7

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Date(s): 7/18/13 and 8/8/13

LAB NO: 1320007-01 Location: Exide Technologies

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS

Qualitative Analysis and Quantitation of Toxic Organics by Gas Chromatography Mass Spectrometry(MS) and Flame Ionization Detection(FID)

Sample Date Canister	07/17/13 E3401
Total NMOC, ppbc	3210
Compound	Conc. (ppb)
acetylene+ethylene	301
ethane	449
propylene	78.3
propane	116
isobutane	7.7
1-butene	20.2
n-butane	8.2
n-pentane	17.7
1-hexene	2.2
n-hexane	0.7
n-heptane	0.6
n-octane	0.2
n-nonane	0.2
n-decane	0.1
n-undecane	0.2
n-dodecane	0.1

Additional Compound (Concentrations estimated within ± 50%)

thiophene	12.4
2,4-dimethyl-1-heptene	11.3
acetonitrile	14.4

NMOC = Non-Methane Organic Compounds N.D. = Not Detected

Test No. <u>13-306 and 13-307</u>

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Date(s): 7/18/13 and 8/8/13

EST FOR EQUIPMENT/ANALYSIS
Source Test No. 13-306
Request Date June 26, 2013
Control Device Hard Lead Baghouse
Date Equipment Needed July 9, 2013 (AM)
OUIPMENT RÉQUEST
Prep Laboratory No.
I.D. Nos.
Trains Nos: 7, 13, 20
54049,54775
E3401, E3718 36 7/2/13
Reference: Blue Brok Not 1 Pages: 30,31
payer: 30,31
Analysis Laboratory No. 13200
Analysis Requested
Fixen GASES
TO-15
MULTIPLE METRIS
MULT MOTAL (BLANK)
Not Use)
MENT CHAIN OF CUSTODY

		~	For (S/T, Analysis,		
Sample Equipment #	From	A TOOL	For (S/T, Anatysis, Cleanup, Not Used)	Date	Time
I	bang The	Cho/ca	Festing	07/17/13	13:25
10	1 () Hall	1 Hilling	ANALYSS	7/19/13	816
	109		1 -		-
	<i>F</i>				

Revision: January 2012

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Date(s): 7/18/13 and 8/8/13

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 21865 Copley Dr., Diamond Bar, CA 91765-4182

MONITORING & ANALYSIS REPORT OF LABORATORY ANALYSIS

то	Mike Garibay, Supervising AQ Engineer Source Test Engineering	LABORATORY NO.	1320008
		ST NO	13-306
SAM	PLE(S) DESCRIBED AS Two CARB 436 Trains	DATE RECEIVED	7/19/2013
		PROJECT/ RULE	1401, 1420, 1420.1
SAM	PLING LOCATION Exide Technologies	REQUESTED BY	Jason Aspell
	2700 S Indiana St Vernon CA 90023	DATE ANALYZED	7/19/2013

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS

Moisture and multiple metals by CARB 436.⁽¹⁾

MOISTURE	TRAIN 20	TRAIN 7
Moisture gain, g	17.9	<1
Silica gel%	60	<1
Notes	~ 6.5' probe, 12'	No probe or tubing
	Teflon, no moisture	submitted. Clear
	visible. Clear	colorless liquid.
	colorless liquid.	
RECOVERY VOLUME	s	
Probe, mL	187.3	NA (2)
Impinger, mL	396.6	377.0
Filter, mL	NA ⁽³⁾	NA ⁽³⁾

NOTE (1) Additional significant figures provided for calculation purposes.

(2) Probe and tubing not supplied

(3) Filter recovered without liquid. See ICP MS preparation for volume.

Date Approved:

<u> \$/23/13</u>

Approved By: /

Rudy Eden, Senior Manager Laboratory Services (909) 396-2391

Test No. <u>13-306 and 13-307</u>

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Date(s): 7/18/13 and 8/8/13

TRAIN 20					_	TRAIN 7 (FIELD BLANK)	D BLANK)				
MOISTURE GAIN	NIN					MOISTURE GAIN	NIN NIN				
IMP	PREPD AS	TARE	FINAL	Net, g	Total	IMP	PREPD AS	TARE	FINAL	Net, g	Total
1	Not present					1	Not present				
2	100 mL	663.8	670.5	6.7		2	100 mL	667.7	667.6	-0.1	
e	100 mL	644.9	645.9	1		Э	100 mL	635.6	635.5	-0.1	
4	MT	447.1	448.7	1.6		4	MT	561	561	0	
5	Si02	722.6	731.2	8.6	17.9	5	SiO2	693.9	693.9	0	-0.2
NOTES	~ 6.5' probe, 12' Teflon, no moisture visible. Clear colorless	llon, no mo	isture visible	e. Clear color	less	NOTES:	Nop	probe or tub	ing submitte	No probe or tubing submitted. Clear colorless	rless
-	liquid.				_		liquid.	ld.			
RECOVERY DATA	ATA	TARE	FINAL NE	FINAL NET GRAMS		RECOVERY DATA	τA	TARE	FINAL NET GRAMS	GRAMS	
Container 1 FILTER	SILTER	0.2011	0.201	-0.0001		Container 1	FILTER	0.2081	0.208	-0.0001	
Container 2 PROBE&TUBE	PROBE&TUBE	36.5	223.8	187.3		Container 2	NONE	0	0	0	
Container 3 I	Container 3 IMP&FLTRHOLDR	66.5	463.1	396.6	_	Container 3	IMPNGR	67.2	444.2	377.0	

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Test No. <u>13-306 and 13-307</u>

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Date(s): 7/18/13 and 8/8/13

	ST FOR EQUIPMENT/ANALYSIS
Company Exide Technologies	Source Test No. 13-306
Address 2700 S. Indiana St	Request Date June 26, 2013
Basic Equipment Blast Furnace, Refining Kettles	Control Device Hard Lead Baghouse
Analysis/Equipment Requested By Mohson Nazemi	Date Equipment Needed July 2013 (AM)
For Compliance, Rule(s) 1402, 1420, 1420.1	
Other (specify)	
SAMPLE EQ	QUIPMENT REQUEST
Prep Reference	Prep Laboratory No.
Dry loe Needed 🛛 🖂	
Quantity and Description	LD. Nos.
3 CARB Method 436 Trains (excl. mercury)	Trains Nov. 7. 13 20
2 - 6L Canisters (Fixed Gases)	54049 54775
2 EPA Method TO-15 Canister	E3401, E 3718 98 7/2/13
2 glass probes, teflon sample line and 2 sets of 3	
teflon connectors for washing.	Reference: Blue Book No41
tenon connectors to maximg.	Paker: 30. 31
	1.9
SAMPLE EQUIPMENT ANALYSIS REQUEST	
Source Test No. / 3-366	Analysis Laboratory No. 132-0608
Sample Description	Analysis Requested TRALLS
54049	Firen GASES
E3401	TO:15
TEAIN 20 PRONO 60 SAMPLE LINE ACOUNCEDES	MULTIPLE METALS
7. 7	MULTIPLE METALS MULT MOTAL (BLANK)
[241-13, CANE \$718, CAL. 54775	
12AL - 15, CANE \$718, CAN. 54775	No T USEI)
•	
	* IN THE * AND ****
SAMPLE EQUIPM	IENT CHAIN OF CUSTODY
A	For (S/T, Analysis,
Sample Equipment # From A Tog	Cleanup, Not Used) Date Time
I for The first	Nesting 07/17/13 13:25
TI () hall of all all all all all all all all all al	4 ANALYSS 7/19/13 816
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Revision January 2012

Test No. 13-306 and 13-307

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Date(s): 7/18/13 and 8/8/13

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 21865 Copley Dr., Diamond Bar, CA 91765-4182

MONITORING AND ANALYSIS REPORT OF LABORATORY ANALYSIS

(Page 1 of 2)

TO: Mike Garibay, Supervising A.Q. Engineer LABORATORY NO. 1322105-02 to - 08 Monitoring/Source Testing Science & Technology Advancement REFERENCE NO. ICPMS-YS-5-57 SAMPLES DESCRIBED AS: SUBMITTED ON: 7/30/2013 Solutions and filters from CARB Method 436 (Excl. mercury) performed at Exide REQUESTED BY: Mike Garibay Technologies. Samples consist of solutions and filters from source test trains # 10 & #15. (See details on page 2) SAMPLE SOURCE:

Exide Technologies 2700 Indiana St. Vernon, CA 90058

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS

Analysis of Metal by Inductively Coupled Plasma - Mass Spectrometry

Aliquots of solutions from impingers, housing, tubing, probe and blank were treated with nitric acid prior to analysis. Filters samples were digested in a microwave oven using 1:1 Ultrapure Nitric Acid. Analysis for metals was performed in accordance with AQMD Method #0005, (Standard Operating Procedure for the Analysis of Metals in Filters by Inductively Coupled Plasma - Mass Spectrometer).

Results:

Results for solutions are given in ppb (ng/ml). Concentrations of metals on filters are given in ng/filter. Where results were found to be below the Method Reporting Limit (MRL), a < MRL value in ppb is reported. For example, if the MRL for a compound is 0.5 ppb and a sample was found to be not detected for that compound, the reported value is <0.5 ppb. Please see next page for full results.

Date Approved: 8/28/13

Approved By

Rudy Eden, Sr. Manager Laboratory & Source Test Engineering

Work Order #1322105 Source Test #13-307 Exide Technologies

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Date(s): 7/18/13 and 8/8/13

(Page 2 of 2)

Lab. ID	1322105-02	1322105-03	1322105-04	1322105-05	1322105-06	1322105-07	1322105-08
	Blank Reagent 5%HNO3 + 10% H2O2	Container #2 Train #10 Probe + Line	Container #3 Train #10 Impinger + Front of filter housing	Container #3 Blank Train #15 Impinger + Front of filter housing	Container #2 Blank Train #15 Tubing + Probe	Train#10 Container#1	Train #15 Filter Blank
Element	ng/mL	ng/mL	ng/mL	ng/mL	ng/mL	ng/filter	ng/filter
Antimony	<0.18	0.59	0.78	<0.18	<0.18	10	8
Arsenic	<0.06	2.63	6.26	0.12	0.19	20	<2
Barium	< 0.06	0.82	2.25	1.53	< 0.06	2,000	1,320
Beryllium	<0.06	< 0.06	<0.06	<0.06	< 0.06	<2	<2
Cadmium	0.48	0.91	2.52	0.76	< 0.12	<3	<3
Chromium	< 0.60	< 0.60	1.51	< 0.60	<0.60	90	70
Cobalt	<0.06	< 0.06	0.31	0.13	< 0.06	<2	5
Copper	1.03	23.1	12.5	15.8	2.69	40	70
Iron	< 0.06	51.4	93.1	23.9	4.66	560	640
Lead	0.19	52	202	19.2	3.19	120	40
Manganese	<0,120	1.06	2.31	0.91	0.14	110	60
Nickel	0.128	4.19	2.22	1.12	0.80	30	20
Selenium	< 0.240	< 0.24	0.47	< 0.24	<0.24	<6	<6
Thallium	< 0.60	< 0.60	< 0.60	< 0.60	<0.60	<20	<20
Tin*	51.5	0.63	11.5	10.6	<0.60	180	<20
Titanium	<0.60	1.09	1.9	1.37	<0.60	<20	<20
Vanadium	< 0.60	<0.60	<0.60	<0.60	<0.60	<20	<20
Zinc	4.31	48.5	61.1	24.3	8.57	2,620	2.110

*Tin can be used as a stabilizer in H202 by the manufacturer.

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Date(s): 7/18/13 and 8/8/13

		COAST AIR QUALITY 21865 Copley Dr., Diamo	Y MANAGEMENT DISTR ond Bar, CA 91765-4182	UCT
		MONITORING REPORT OF LABOR		
то		pervising AQ Engineer	LABORATORY NO.	1322105
	Source Test Engi	neering	ST NO	13-307
SAN	APLE(S) DESCRI	BED AS	DATE RECEIVED	8/9/2013
	Two CARB 436			1401, 1407, 1420,
	The critics iso		PROJECT/ RULE	1420.1
SAN	MPLING LOCATI	ON	REQUESTED BY	Jason Aspell
	Exide Technolog 2700 S Indiana S		DATE ANALYZED	8/9/2013
	Vernon CA 9002	-		· · ·
	ANALYTICAL W	ORK PERFORMED, M Moisture and multiple r	ETHOD OF ANALYSIS / netals by CARB 436. ⁽¹⁾	AND RESULTS
мо	ISTURE	TRAIN 10	TRAIN 15	;
Moi	isture gain, g	16	<}	
	ca gel%	50-55	<1	
Not		Probe #9, ~ 12'	Blank probe	
		Teflon, no moisture	submitted. C	lear

NOTE (1) Additional significant figures provided for calculation purposes. (2) Filter recovered without liquid. See ICP MS preparation for volume.

or deposit visible. Clear colorless

iquid.

149.6

368.3

NA (2)

Date Approved: 8/23/1."

RECOVERY VOLUMES

Probe, mL

Filter, mL

Impinger, mL

Approved By:

colorless liquid in

impingers.

105.9

277.8

NA (2)

Rudy Etten, Senior Manager Laboratory Services (909) 396-2391

	Total					0	iquid in					
	Net, g		-0.1	0	0	0.1	ear colorless li		FINAL NET GRAMS	-0.0004	105.9	277.8
	FINAL		654.8	641.2	520.1	713	omitted. Cl	ι	FINAL N	0.2104	142.5	332.6
	TARE		654.9	641.2	520.1	712.9	Blank probe submitted. Clear colorless liquid in	impingers.	TARE	0.2108	36.6	54.8
LD BLANK) NN	PREPD AS	Not present	100 mL	100 mL	MT	SI02	18	, <u>c</u>	ATA	FILTER	PROBE	IMPNGR
TRAIN 15 (FIELD BLANK) MOISTURE GAIN	IMP						NOTES:		RECOVERY DATA	Container 1	Container 2	Container 3
	-		2	ŝ	4	n	z		8	õ	0	0
	_		5	<u></u>	4	16.0 5			<u>~</u>	0	0	
	Net, g Total I	<u></u>	4.4	0.5	1.7	9.4 16.0 5				-0.0007 C	149.6 C	368.3
	Total	, -	626.1 4.4 2	_	561.5 1.7 4			-	FINAL NET GRAMS			
	Net, g Total	<u></u>	621.7 626.1 4.4 2	_		9.4			FINAL NET GRAMS	0.1973 -0.0007	149.6	424.4 368.3
TRAIN 10 MOISTURE GAIN	FINAL Net, g Total	Not present 1	621.7	691.8 692.3	559.8 561.5	733.3 9.4	Probe #9, ~ 12' Teflon, no moisture or deposit visible. Clear	colorless liquid.	FINAL NET GRAMS	R 0.198 0.1973 -0.0007	176.0 149.6	424.4 368.3

8'23'13

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 21865 Copley Drive, Diamond Bar, California 91765

Test No. <u>13-306 and 13-307</u>

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Date(s): 7/18/13 and 8/8/13