



**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

**M E M O R A N D U M**

**DATE:** February 7, 2020  
**TO:** Mike Morris  
**FROM:** Mike Garibay   
**SUBJECT:** Evaluation of Source Test Report:  
(Requested by Bill Welch, September 13, 2019)

*FACILITY ID NO.* NA *APPLICATION NO.:* NA  
*COMPANY:* Metal Melting Facility A (PAR 1407.1),   
*EQUIPMENT:* Electric Induction Furnace  
Baghouse w/ HEPA

*TEST LOCATION:* 

*TEST DATE:* May 21 - 23, 2019

**REFERENCE: R19290** (STE Source Test File)

Source Test Engineering has completed the evaluation of the subject source test report and has concluded that it is:

**CONDITIONALLY ACCEPTABLE**

Compliance with applicable Rules and/or Permit Conditions, as well as compliance limits, as presented in the source test report, may not have been acceptably demonstrated, and/or the accuracy of some of the reported gaseous emissions and/or flows may not have been confidently confirmed, and their use regarding emission calculations may be subject to certain restrictions. Refer to the attached evaluation for a complete discussion concerning these restrictions and compliance determination.

The attached evaluation has not been forwarded to the facility or the source testing firm. It is the responsibility of the requestor to review the attached evaluation and forward it to the parties involved, if you concur with our findings. If there are any questions, please contact Brian Speaks at Ext. 3212.

MG:BW:GBS  
Attachment  
cc: Bill Welch  
Uyen Uyen Vo

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**  
**SCIENCE & TECHNOLOGY ADVANCEMENT \* SOURCE TEST ENGINEERING BRANCH**  
**SOURCE TEST REPORT EVALUATION**

**ST ID:** **R19290**

**FACILITY ID NO.** NA *A/N:* NA  
**COMPANY:** Metal Melting Facility A (PAR 1407.1), [REDACTED]  
**EQUIPMENT:** Electric Induction Furnace  
Baghouse w/ HEPA

**LOCATION:** [REDACTED]

**REQUESTED BY:** Bill Welch (Memo Dated September 13, 2019)  
**TYPE OF TEST:** PERFORMANCE/COMPLIANCE REPORT  
**DOCUMENT DATE:** September 4, 2019

**REASON FOR TEST:** (TESTING SUBJECT TO THE FOLLOWING RULE, PERMIT, OR SPECIFIED CONDITIONS):  
PAR 1407.1

**REQUESTED EVAL:** Cr, Cr<sup>+6</sup>, As, Cd, Ni, PM  
**TEST DATE:** May 21 - 23, 2019  
**TEST FIRM:** Almega Environmental

**STE EVALUATOR:** Brian Speaks EXT: 3212 **REVIEW DATE:** February 7, 2020

**OVERVIEW OF EVALUATION:**

<b>OVERALL CONFIDENCE IN REPORTED TEST RESULTS:</b>	<input type="checkbox"/> ACCEPTABLE	<input checked="" type="checkbox"/> <b>CONDITIONALLY ACCEPTABLE</b>	<input type="checkbox"/> UNACCEPTABLE
<b>RESTRICTIONS FOR USE OF REPORTED RESULTS:</b>	<ul style="list-style-type: none"><li>• Cr, Cr<sup>+6</sup>, As, Cd, Ni emissions, as reported, should <u>not</u> be used for compliance determination and/or emission calculations, without the adjustments specified in the next section of this evaluation.</li><li>• Results understate true emissions due to fugitive emissions. Emissions are therefore assured to be at least as high as those reported.</li><li>• Testing was performed for Rule making informational purposes. Testing was not conducted to establish compliance with any existing permit conditions.</li></ul>		
<b>COMPLIANCE DETERMINATION:</b>			

(REFER TO NEXT SECTION FOR COMPLETE DISCUSSION OF TEST RESULTS AND CORRECTED EMISSION INFORMATION, IF APPLICABLE)

**SOURCE TEST REPORT EVALUATION****DETAILED REVIEW**

This source test report has been reviewed by the Source Test Engineering Branch staff. The following specifically explains the restrictions concerning the treatment of the reported source test information:

- Completeness of Report
- Representativeness of Data & Process
- Rule/Permit Fulfillment
- Sampling & Analytical Methods
- Quality Assurance
- Calculations

**REPRESENTATIVENESS OF DATA & PROCESS**

- The results show that there are significant and measureable quantities of **Cr<sup>+6</sup>** and **Ni** at both the uncontrolled furnace exhaust and combined inlet sampling locations. These levels were reduced significantly by the baghouse and HEPA control system, with the **Cr<sup>+6</sup>** being reduced to the detection limit at the HEPA outlet.
- The baghouse and HEPA control system demonstrated a control efficiency > 97.4% for **Cr<sup>+6</sup>**. A higher control efficiency would likely be demonstrated with a lower detection limit or an increase in sample duration/volume. The **Cr<sup>+6</sup>** produced was largely from the uncontrolled furnace while processing material with high chromium content.
- A sample of the baghouse catch which was collected and analyzed showed appreciable concentrations of **Cr<sup>+6</sup>**, **Ni**, **As**, **Cd** and **Pb**. Proper housekeeping related to baghouse catch is recommended based on these results.
- A sample of the slag which was collected and analyzed showed significant concentrations of **Cr<sup>+6</sup>** and **Ni**. Additional housekeeping measures may need to be taken regarding slag, as slag is currently stored outside in a roll off dumpster.
- Reported **Cr**, **Cr<sup>+6</sup>**, **As**, and **Cd** concentrations at one or more locations fell below the detection limit of the analytical method, and they were calculated upward to the detection. This occurred for **Cr<sup>+6</sup>** at the HEPA outlet and for **As** and **Cd** at each test location.
- HEPA Outlet **Ni** emissions for runs 2 and 3 and average **Ni** emissions were over reported. The laboratory method reporting limit (MRL) values for the each run were used for non-detects instead of three times the field blank value as presented in the test report. Outlet **Ni** emissions have been recalculated.
- **Cr** emissions for the HEPA outlet of CARB Method 436 Run 1 are greater than the inlet emissions. HEPA outlet emissions were less than the combined inlet emissions in each run of the CARB Method 425 testing. CARB Method 425 results should therefore be considered for total **Cr** emissions, as Method 425 has a lower detection limit.
- Calculated **PM** control efficiency was notably low at 69.5%, however based on the laboratory results it should be noted that there was a significant amount of condensed organics in the outlet location (25% of total outlet PM). Organics likely passed through

**SOURCE TEST REPORT EVALUATION**

the baghouse and HEPA in the vapor phase before condensing in the impingers at the outlet location.

- Emissions were not measured in the mobile hood which follows the crucible for the metal pour. This process only represents a few minutes within each hour. Because this process stream ties in to the baghouse inlet downstream of the combined inlet test location any emissions resulting from this location has the potential for biasing the baghouse control efficiency high, by a very minor amount.
- The electric induction furnace lid lifts up and out of place so the furnace may be charged with raw material by overhead crane. Capture velocity was measured on furnace #7 before the unit was turned on with the lid in 2 positions. The first position was with an opening of roughly 2 inches; velocities ranged from 1360 – 1995 fpm in this position. The second position was when the lid opening was roughly 5 inches; velocities ranged from 511 – 600 fpm in this position.
- Smoke testing was conducted once the unit was operational and up to temperature. Qualitative capture was demonstrated with the lid in the positions described above.
- The furnace lid is removed during normal operations for multiple purposes including: charging with raw material, and de-slagging the furnace. During these periods it was noted that all emissions are not completely captured. There is an overhead hood which is above the crucible which follows the crucible to the mold, but visible emissions were seen as escaping primarily during the charging, de-slagging and pouring operations (lid in place). Based on observations over the course of testing on day one it was observed that capture is lost approximately 30% of the time (see notes included in file for details). This means that emissions reported during testing may be understated.
- The purpose of this testing was to quantify uncontrolled emissions. Total capture is not currently required by any rules for these types of operations. Even though capture was lost periodically during testing this does not affect the usefulness of results, as emissions are at least as high (most likely higher based on fugitives) as those reported during testing and may therefore be used for rulemaking purposes.
- Samples were collected from the raw material used to charge the furnace, a test coupon from the molten material, baghouse catch, and the process slag. Results for these samples are included in the calculations section.
- The facility sample test coupon was analyzed by portable XRF, this is a qualitative screening test which indicates the elements present in a given sample. These results should not be used for quantitative purposes as this particular instrument is not optimized/setup to specifically deal with physical metal alloys.
- Page 7 of test report appears to have mislabeled the A and B dimensions, based on South Coast AQMD pre-test verifications it was confirmed that sample locations met the minimum upstream and downstream flow disturbance criteria.
- Based on safety concerns from the rooftop side HEPA outlet, the number of sampling points were adjusted. Sample duration was adjusted for these points as well. Due to the symmetrical design of the baghouse outlet on both the roof side and the parking lot side it is not anticipated that this would have any significant effect on results.

**SOURCE TEST REPORT EVALUATION****RULE/PERMIT FULFILLMENT**

Testing must satisfy the following Rule/Permit requirements:

- PAR 1407.1

All required testing has been performed and is properly formatted, except where noted in this evaluation.

**SAMPLING & ANALYTICAL METHODS / RESULTS**

- All testing and analyses were performed according to approved SCAQMD methods and procedures.

**QUALITY ASSURANCE**

- All reported testing results were well supported and documented with respect to raw data, calibrations, calculations, and lab analyses.

**CALCULATIONS**

- See next page for calculations.

## SOURCE TEST REPORT EVALUATION

## Test Results Summary

	Units	Uncontrolled Furnace	Combined Inlet	HEPA Outlet	Control Efficiency
<b>CARB Method 425 Concentration</b>					
Total Cr (3 Run Avg)	ug/dscm	78.24	4.65	< 0.78	-
Cr <sup>+6</sup> (3 Run Avg)	ug/dscm	9.91	0.91	< 0.02	-
<b>CARB Method 425 Mass Emissions</b>					
Total Cr (3 Run Avg)	lb/hr	7.72E-04	6.42E-04	< 1.43E-04	NR
Cr <sup>+6</sup> (3 Run Avg)	lb/hr	9.73E-05	1.25E-04	< 3.82E-06	> 97.4 *
<b>CARB Method 425 Mass Emissions</b>					
Total Cr (3 Run Avg)	mg/hr	350.19	291.43	< 64.74	NR
Cr <sup>+6</sup> (3 Run Avg)	mg/hr	44.13	56.55	< 1.73	> 97.4 *

\* Run 2 omitted from control efficiency calculation; low inlet loading and ND at outlet appears to bias efficiency low

NR - Not Reported

<b>CARB Method 436 Concentration</b>					
Arsenic (3 Run Avg)	ug/dscm	< 0.64	< 0.41	< 0.38	-
Cadmium (3 Run Avg)	ug/dscm	< 0.42	< 0.42	< 0.38	-
Total Cr (3 Run Avg)	ug/dscm	119.73	12.51	5.15	-
Nickel (3 Run Avg)	ug/dscm	24.87	9.70	0.90	-
<b>CARB Method 436 Mass Emissions</b>					
Arsenic (3 Run Avg)	lb/hr	< 6.30E-06	< 5.49E-05	< 6.87E-05	NR
Cadmium (3 Run Avg)	lb/hr	< 4.16E-06	< 5.68E-05	< 6.87E-05	NR
Total Cr (3 Run Avg)	lb/hr	1.17E-03	1.69E-03	9.20E-04	92.0 **
Nickel (3 Run Avg)	lb/hr	2.42E-04	1.32E-03	1.62E-04	87.7
<b>CARB Method 436 Mass Emissions</b>					
Arsenic (3 Run Avg)	mg/hr	< 2.86	< 24.89	< 31.14	NR
Cadmium (3 Run Avg)	mg/hr	< 1.89	< 25.78	< 31.14	NR
Total Cr (3 Run Avg)	mg/hr	529.80	767.94	417.16	92 **
Nickel (3 Run Avg)	mg/hr	109.74	596.76	73.40	87.7

\*\* Run 1 omitted from control efficiency calculation; outlet was greater than inlet indicating an issue with Total Cr analysis

NR - Not Reported

<b>Method 5.1 PM Results</b>					
PM Concentration	gr/dscf	9.16E-03	2.49E-03	5.72E-04	-
PM Mass Emissions	lb/hr	0.21	0.77	0.24	69.5
PM Mass Emissions	mg/hr	93324	349569	106845	69.5

<b>SOURCE TEST REPORT EVALUATION</b>
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### Laboratory Analysis

Laboratory Results Summary						
	Cr <sup>+6</sup>	Cr	Ni	As	Cd	Pb
Sample Description	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Baghouse Catch	0.41	830	1900	4.9	15	620
Slag from SS Melt	3.7	15000	8200	< 1.0	< 0.5	< 1.0
Raw Material used to charge furnace <sup>1</sup>	N/T*	550	1700	5.8	16	610

Metals by EPA 6000/7000 Series Methods

<sup>1</sup> Based on results it appears that sample was not fully digested prior to analysis, slag results prepared by same Method (EPA Method 3050B) may also be biased low.

	Cr <sup>+6</sup>	Cr	Ni	As	Cd	Pb
Sample Description	%	%	%	%	%	%
Molten Test Coupon (Rough Side)	N/T	22.08	14.9	< 0.006	< 0.017	0.02
Molten Test Coupon (Smooth Side)	N/T	45.62	27.8	< 0.010	< 0.016	0.01

Metals by S1 Titan Handheld XRF

N/T = not tested

**SOURCE TEST REPORT EVALUATION**

**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  
Source Testing Manager  
Source Test Engineering

Laboratory No. 1914211-01  
Requested By Brian Speaks  
Rule No. R1407.1  
ST No. NA  
Report Created 06/07/2019

Sampling Location



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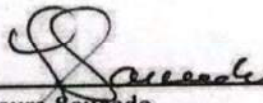
**ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS, AND RESULTS**

Hexavalent Chromium by IC  
Metals (Non-Aqueous) by EPA 6000/7000 Series Methods

See attached results and sample information.

Note: The samples were analyzed by a contract laboratory - Weck Laboratories, Inc.

Reviewed By:

  
\_\_\_\_\_  
Laura Saucedo  
Principal A.Q. Chemist  
Laboratory Services

Date Reviewed: 06/11/2019

Approved By:

  
\_\_\_\_\_  
Aaron Katzenstein, Ph.D.  
Senior Manager  
Laboratory Services  
(909) 396-2219

Date Approved: 6/12/2019



## SOURCE TEST REPORT EVALUATION



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

**MONITORING AND ANALYSIS**  
**REPORT OF LABORATORY ANALYSIS**

(Page 2 of 2)

**Laboratory No.** 1914211-01  
**Sample Description** Plastic Jar - Baghouse catch from a metal melting facility  
**Sample Date 05/22/2019** **Received Date 05/22/2019** **Analyzed Date 05/29/2019**

**Hexavalent Chromium by IC**

Analyte, Unit	Result	Dilution Factor	MDL	MRL
Chromium 6+, mg/kg	0.41	1	0.13	0.40

**Laboratory No.** 1914211-01  
**Sample Description** Plastic Jar - Baghouse catch from a metal melting facility  
**Sample Date 05/22/2019** **Received Date 05/22/2019** **Analyzed Date 06/05/2019**

**Metals (Non-Aqueous) by EPA 6000/7000 Series Methods**

Analyte, Unit	Result	Dilution Factor	MDL	MRL
Arsenic, Total, mg/kg	4.9	1	0.33	1.0
Cadmium, Total, mg/kg	15	1	0.040	0.50
Chromium, Total, mg/kg	830	1	0.39	1.0
Lead, Total, mg/kg	620	1	0.15	1.0
Nickel, Total, mg/kg	1,900	1	0.056	2.0

## SOURCE TEST REPORT EVALUATION

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT  
SAMPLE ANALYSIS REQUEST
 DISTRICT INFORMATION  
 INVOICE SOURCE  
 LABORATORY NO. 1914211

TO: \_\_\_\_\_ OTHER:

SOURCE NAME: \_\_\_\_\_ I.D. No. \_\_\_\_\_

Source Address: \_\_\_\_\_ City: \_\_\_\_\_

Mailing Address: \_\_\_\_\_ Same as Above \_\_\_\_\_ City: \_\_\_\_\_ Zip: \_\_\_\_\_

Contact Person: Brian Speaks Title: AQ Engineer II Tel: (909)396-3212

Analysis Requested by: Brian Speaks Date: 5/22/19

Approved by: [Signature] Office: S&TA Budget #: 44657

REASON REQUESTED: Court/Hearing Board  Permit Pending  Hazardous/Toxic Spill

Suspected Violation Rule(s) Rule 1407.1 Other

Sample Collected by: Brian Speaks Date: 5/22/19 Time: 08:35

Baghouse catch from a metal melting facility.

Analysis Requested: Hexavalent Chromium and Metals (Arsenic, Cadmium, Lead, Nickel, Total Chromium)

Relinquished by	Received by	Firm/Agency	Date	Time
<u>Brian Speaks</u>	<u>ILIANA GARCIA</u>	<u>SQAQMD Lab</u>	<u>05.22.19</u>	<u>02:10 pm</u>

Remarks: Please send report to: Mike Garibay, Uyen Uyen Vo, Brian Speaks, Louis Fan

Special Notes:

**SOURCE TEST REPORT EVALUATION**

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT  
SAMPLE ANALYSIS REQUEST**

DISTRICT INFORMATION  
 INVOICE SOURCE  
LABORATORY NO. 1914211

TO: \_\_\_\_\_ OTHER:  \_\_\_\_\_

SOURCE NAME: SCAQMD I.D. No. \_\_\_\_\_

Source Address: 21865 Copley Drive City: Diamond Bar

Mailing Address: \_\_\_\_\_ City: \_\_\_\_\_ Zip: 91765

Contact Person: Monna Trinh Title: Senior Chemist Tel: 909-396-2245

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Analysis Requested by: Monna Trinh Date: 5/23/2019

Approved by: \_\_\_\_\_ Office: \_\_\_\_\_ Budget #: \_\_\_\_\_

REASON REQUESTED: Court/Hearing Board  Permit Pending  Hazardous/Toxic Spill

Suspected Violation Rule(s) \_\_\_\_\_ Other  \_\_\_\_\_

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Sample Collected by: Brian Speaks/Louis Fan Date: 5/22/2019 Time: 08:35

1914211-01: Baghouse catch from a metal melting facility

Analysis Requested:  
Hexavalent chromium, Metals (Arsenic, Cadmium, Total Chromium, Lead, Nickel)

12.8<sup>0V</sup>

Relinquished by	Received by	Firm/Agency	Date	Time
<i>MT</i>	<i>[Signature]</i>	WEEK LABS	5/27/19	09:55

Remarks: Please send report to: Monna Trinh ([ntrinh@aqmd.gov](mailto:ntrinh@aqmd.gov)), Laura Saucedo ([lsaucedo@aqmd.gov](mailto:lsaucedo@aqmd.gov))

Special Notes:

**SOURCE TEST REPORT EVALUATION**



**Certificate of Analysis**  
FINAL REPORT

Work Orders: 9E23012

Project: 1914211

Attn: Na Mon Trinh

Client: South Coast Air Quality Management Dist.  
21865 East Copley Drive  
Diamond Bar, CA 91765

Report Date: 6/07/2019  
Received Date: 5/23/2019  
Turnaround Time: Normal  
Phones: 909-396-2245  
Fax: (909) 396-2099  
P.O. #: 2019000018  
Billing Code:

Dear Na Mon Trinh,

Enclosed are the results of analyses for samples received 5/23/19 with the Chain-of-Custody document. The samples were received in good condition, at 12.8 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

**Sample Results**

Sample: 1914211-01  
9E23012-01 (Solid)

Sampled: 05/22/19 8:35 by Brian Speaks/Louis Fan

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 60108	Batch ID: W9E1287	Instr: ICP03	Prepared: 05/23/19 12:56	Analyst: mnt		
Arsenic, Total	4.9	1.0	mg/kg	1	06/05/19 17:35	
Cadmium, Total	16	0.50	mg/kg	1	06/05/19 17:35	
Chromium, Total	830	1.0	mg/kg	1	06/05/19 17:35	
Lead, Total	620	1.0	mg/kg	1	06/05/19 17:35	
Nickel, Total	1900	2.0	mg/kg	1	06/05/19 17:35	
Method: EPA 7199	Batch ID: W9E1079	Instr: LC13	Prepared: 05/24/19 11:45	Analyst: jna		
Chromium 6+	0.41	0.40	mg/kg	1	05/29/19 13:00	

SOURCE TEST REPORT EVALUATION



WECK LABORATORIES, INC.

Quality Control Results

Certificate of Analysis  
FINAL REPORT

Hexavalent Chromium by IC

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W9E1079 - EPA 3060A										
Blank (W9E1079-BLK1)				Prepared: 05/24/19 Analyzed: 05/29/19						
Chromium 6+	ND	0.40	mg/kg							
LCS (W9E1079-B51)				Prepared: 05/24/19 Analyzed: 05/29/19						
Chromium 6+	3.90	0.40	mg/kg	4.00		90	40-125			
Duplicate (W9E1079-DUP1)				Prepared: 05/24/19 Analyzed: 05/29/19						
Chromium 6+	ND	0.40	mg/kg			ND			20	
Duplicate (W9E1079-DUP2)				Prepared: 05/24/19 Analyzed: 05/29/19						
Chromium 6+	0.407	0.40	mg/kg			0.408		0.4	20	
Duplicate (W9E1079-DUP3)				Prepared: 05/24/19 Analyzed: 05/29/19						
Chromium 6+	3.85	0.40	mg/kg			3.73		2	20	
Matrix Spike (W9E1079-MS1)				Prepared: 05/24/19 Analyzed: 05/29/19						
Chromium 6+	0.821	0.40	mg/kg	4.00	0.408	10	50-137			MS-05
Matrix Spike Dup (W9E1079-MSD1)				Prepared: 05/24/19 Analyzed: 05/29/19						
Chromium 6+	0.810	0.40	mg/kg	4.00	0.408	10	50-137	1	30	MS-05

Metals (Non-Aqueous) by EPA 6000/7000 Series Methods

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W9E1287 - EPA 3060B										
Blank (W9E1287-BLK1)				Prepared: 05/23/19 Analyzed: 06/05/19						
Arsenic, Total	ND	1.0	mg/kg							
Cadmium, Total	ND	0.50	mg/kg							
Chromium, Total	ND	1.0	mg/kg							
Lead, Total	ND	1.0	mg/kg							
Nickel, Total	ND	2.0	mg/kg							
LCS (W9E1287-B51)				Prepared: 05/23/19 Analyzed: 06/05/19						
Arsenic, Total	44.8	1.0	mg/kg	50.0		90	80-120			
Cadmium, Total	47.6	0.50	mg/kg	50.0		95	80-120			
Chromium, Total	49.3	1.0	mg/kg	50.0		98	80-120			
Lead, Total	49.4	1.0	mg/kg	50.0		99	80-120			
Nickel, Total	51.4	2.0	mg/kg	50.0		103	80-120			
Matrix Spike (W9E1287-MS1)				Prepared: 05/23/19 Analyzed: 06/05/19						
Arsenic, Total	51.2	1.0	mg/kg	50.1	3.67	95	75-125			
Cadmium, Total	45.4	0.50	mg/kg	50.1	0.490	90	75-125			
Chromium, Total	48.0	1.0	mg/kg	50.1	ND	98	75-125			
Lead, Total	48.7	1.0	mg/kg	50.1	3.48	90	75-125			
Nickel, Total	52.1	2.0	mg/kg	50.1	4.38	95	75-125			
Matrix Spike Dup (W9E1287-MSD1)				Prepared: 05/23/19 Analyzed: 06/05/19						
Arsenic, Total	46.5	1.0	mg/kg	49.7	3.67	90	75-125	5	20	
Cadmium, Total	43.0	0.50	mg/kg	49.7	0.490	86	75-125	5	20	
Chromium, Total	50.8	1.0	mg/kg	49.7	ND	102	75-125	6	20	
Lead, Total	46.1	1.0	mg/kg	49.7	3.48	86	75-125	6	20	
Nickel, Total	51.8	2.0	mg/kg	49.7	4.38	96	75-125	0.5	20	

## SOURCE TEST REPORT EVALUATION



WECK LABORATORIES, INC.

## Certificate of Analysis

FINAL REPORT

## Notes and Definitions

Item	Definition
MS-05	The spike recovery and/or RPD were outside acceptance limits for the MS and/or MSD due to possible matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
% Rec	Percent Recovery
Dil	Dilution
dry	Sample results reported on a dry weight basis
MDA	Minimum Detectable Activity
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
NR	Not Reportable
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internet standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Reviewed by:

Regina Giancola  
Project Manager



EPA-UCMR #CA00211 • HW-DOH # • ISO 17025 #L2457.01 • LACSD #10143 • NELAP-CA #04229CA • NELAP-OR #4047 •  
NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

## SOURCE TEST REPORT EVALUATION



WECK LABORATORIES, INC.

Certificate of Analysis  
FINAL REPORT

## Notes and Definitions

Item	Definition
MS-05	The spike recovery and/or RPD were outside acceptance limits for the MS and/or MSD due to possible matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
% Rec	Percent Recovery
Dil	Dilution
dry	Sample results reported on a dry weight basis
MDA	Minimum Detectable Activity
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
NR	Not Reportable
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest Internal standard. If the library search produces no matches at, or above 95%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Reviewed by:

Regina Giancola  
Project Manager



EPA-UCMR #CA00211 • HW-DOH # • ISO 17025 #L2457.01 • LACSD #10143 • NELAP-CA #04229CA • NELAP-OR #4047 •  
NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

*This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.*

## SOURCE TEST REPORT EVALUATION



**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  
Source Testing Manager  
Source Test Engineering

**Laboratory No.** 1914129-01 to -02

**Requested By** Brian Speaks

**Rule No.** R1407.1

**ST No.** NA

**Report Created** 06/07/2019

**Sampling Location**



---

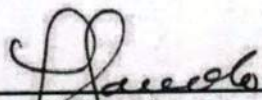
**ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS, AND RESULTS**

**Hexavalent Chromium by IC**  
**Metals (Non-Aqueous) by EPA 6000/7000 Series Methods**

See attached results and sample information.

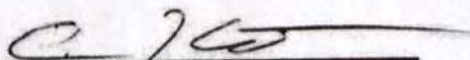
**Note:** The samples were analyzed by a contract laboratory - Weck Laboratories, Inc.

**Reviewed By:**

  
\_\_\_\_\_  
Laura Saucedo  
Principal A.Q. Chemist  
Laboratory Services

**Date Reviewed:** 06/11/19

**Approved By:**

  
\_\_\_\_\_  
Aaron Katzenstein, Ph.D.  
Senior Manager  
Laboratory Services  
(909) 396-2219

**Date Approved:** 6/12/2019



## SOURCE TEST REPORT EVALUATION



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

**MONITORING AND ANALYSIS**  
**REPORT OF LABORATORY ANALYSIS**

(Page 2 of 2)

**Laboratory No.** 1914129-01  
**Sample Description** Plastic Jar - Slag from SS metal at a metal melting facility  
**Sample Date 05/21/2019** **Received Date 05/21/2019** **Analyzed Date 05/29/2019**

**Hexavalent Chromium by IC**

Analyte, Unit	Result	Dilution Factor	MDL	MRL
Chromium 6+, mg/kg	3.7	1	0.13	0.40

**Laboratory No.** 1914129-01  
**Sample Description** Plastic Jar - Slag from SS metal at a metal melting facility  
**Sample Date 05/21/2019** **Received Date 05/21/2019** **Analyzed Date 06/05/2019**

**Metals (Non-Aqueous) by EPA 6000/7000 Series Methods**

Analyte, Unit	Result	Dilution Factor	MDL	MRL
Arsenic, Total, mg/kg	ND	1	0.33	1.0
Cadmium, Total, mg/kg	ND	1	0.040	0.50
Chromium, Total, mg/kg	15,000	100	39	100
Lead, Total, mg/kg	ND	1	0.15	1.0
Nickel, Total, mg/kg	8,200	100	5.6	200

**Laboratory No.** 1914129-02  
**Sample Description** Plastic Jar - 316SS Raw material used to charge electric induction furnace  
**Sample Date 05/21/2019** **Received Date 05/21/2019** **Analyzed Date 05/29/2019**

**Metals (Non-Aqueous) by EPA 6000/7000 Series Methods**

Analyte, Unit	Result	Dilution Factor	MDL	MRL
Arsenic, Total, mg/kg	5.8	1	0.66	2.0
Cadmium, Total, mg/kg	16	1	0.040	0.50
Chromium, Total, mg/kg	550	1	0.78	2.0
Lead, Total, mg/kg	610	1	0.30	2.0
Nickel, Total, mg/kg	1,700	1	0.11	4.0

**SOURCE TEST REPORT EVALUATION**

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT  
SAMPLE ANALYSIS REQUEST**

DISTRICT INFORMATION  
 INVOICE SOURCE  
LABORATORY NO. 1914129

TO: \_\_\_\_\_ OTHER:  \_\_\_\_\_

SOURCE NAME: \_\_\_\_\_ I.D. No. \_\_\_\_\_

Source Address: \_\_\_\_\_ City: \_\_\_\_\_

Mailing Address: \_\_\_\_\_ Same as Above \_\_\_\_\_ City: \_\_\_\_\_ Zip: \_\_\_\_\_

Contact Person: Brian Speaks Title: AQ Engineer II Tel: (909)396-3212

---

Analysis Requested by: Brian Speaks Date: 5/21/19

Approved by: [Signature] Office: S&TA Budget #: 44657

REASON REQUESTED: Court/Hearing Board  Permit Pending  Hazardous/Toxic Spill

Suspected Violation Rule(s) Rule 1407.1 Other

---

Sample Collected by: Brian Speaks/Louis Fan Date: 5/21/19 Time: 12:01 - 12:14

01: Slag from SS melt at a metal melting facility

02: 316SS Raw material used to charge electric induction furnace

03: 316SS Molten material test coupon from electric induction furnace

Analysis Requested: Metals (Arsenic, Cadmium, Lead, Nickel, Total Chromium)

Relinquished by	Received by	Firm/Agency	Date	Time
<u>[Signature]</u>	<u>JIANA GARCIA</u>	<u>SCAQMD Lab</u>	<u>05.21.2019</u>	<u>17:17</u>

Remarks: Please send report to: Mike Garibay, Uyen Uyen Vo, Brian Speaks, Louis Fan

Special Notes:

## SOURCE TEST REPORT EVALUATION

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT  
SAMPLE ANALYSIS REQUEST
 DISTRICT INFORMATION  
 INVOICE SOURCE  
 LABORATORY NO. 1914129

TO:	OTHER: <input type="checkbox"/>	_____		
SOURCE NAME:	<u>SCAQMD</u>	I.D. No.	_____	
Source Address:	<u>21865 Copley Drive</u>	City:	<u>Diamond Bar</u>	
Mailing Address:	_____	City:	_____	Zip: <u>91765</u>
Contact Person:	<u>Monna Trinh</u>	Title:	<u>Senior Chemist</u>	Tel: <u>909-396-2245</u>
Analysis Requested by:	<u>Monna Trinh</u>	Date:	<u>5/23/2019</u>	
Approved by:	_____	Office:	_____	Budget #:
REASON REQUESTED:	Court/Hearing Board <input type="checkbox"/>	Permit Pending <input type="checkbox"/>	Hazardous/Toxic Spill <input type="checkbox"/>	
Suspected Violation	Rule(s)	Other	_____	
		<input type="checkbox"/>		
Sample Collected by:	<u>Brian Speaks/Louis Fan</u>	Date:	<u>5/21/2019</u>	Time: <u>12:01-12:14</u>
1914129-01: Slag from SS melt at a metal melting facility				
1914129-02: 316SS Raw material used to charge electric induction furnace				
Analysis Requested:				
1914129-01: Hexavalent chromium, Metals (Arsenic, Cadmium, Total Chromium, Lead, Nickel)				
1914129-02: Metals (Arsenic, Cadmium, Total Chromium, Lead, Nickel)				
9.8%				
Relinquished by	Received by	Firm/Agency	Date	Time
<u>MT</u>	<u>[Signature]</u>	<u>week labs</u>	<u>5/23/19</u>	<u>0915</u>
Remarks: Please send report to: Monna Trinh ( <a href="mailto:ntrinh@aqmd.gov">ntrinh@aqmd.gov</a> ), Laura Saucedo ( <a href="mailto:lsaucedo@aqmd.gov">lsaucedo@aqmd.gov</a> )				

Special Notes:

**SOURCE TEST REPORT EVALUATION**



**Certificate of Analysis**  
FINAL REPORT

Work Orders: 9E23013

Project: 1914129

Attn: Na Mon Trinh  
Client: South Coast Air Quality Management Dist.  
21885 East Copley Drive  
Diamond Bar, CA 91785

Report Date: 6/07/2019  
Received Date: 5/23/2019  
Turnaround Time: Normal  
Phones: 909-396-2245  
Fax: (909) 396-2099  
P.O. #: 2019000018  
Billing Code:

Dear Na Mon Trinh,

Enclosed are the results of analyses for samples received 5/23/19 with the Chain-of-Custody document. The samples were received in good condition, at 9.8 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

**Sample Results**

Sample: 1914129-01 (Solid) Sampled: 05/21/19 12:01 by Brian Speaks/Louis Fan

Analyte	Result	MRL	Units	DB	Analysed	Qualifier
Method: EPA 6010B	Batch ID: W9E1267	Instr: ICP03	Prepared: 05/23/19 12:56	Analyst: mtt		
Arsenic, Total	ND	1.0	mg/kg	1	08/05/19 17:41	
Cadmium, Total	ND	0.50	mg/kg	1	08/05/19 17:41	
Chromium, Total	16000	100	mg/kg	100	08/05/19 18:08	
Lead, Total	ND	1.0	mg/kg	1	08/05/19 17:41	
Nickel, Total	8260	200	mg/kg	100	08/05/19 18:08	
Method: EPA 7199	Batch ID: W9E1079	Instr: LC13	Prepared: 05/24/19 11:45	Analyst: jna		
Chromium 6+	3.7	0.40	mg/kg	1	05/29/19 13:23	

Sample: 1914129-02 (Solid) Sampled: 05/21/19 12:01 by Brian Speaks/Louis Fan

Analyte	Result	MRL	Units	DB	Analysed	Qualifier
Method: EPA 6010B	Batch ID: W9E1285	Instr: ICP03	Prepared: 05/23/19 12:51	Analyst: mtt		
Arsenic, Total	5.8	2.0	mg/kg	1	05/29/19 15:57	M-02
Cadmium, Total	16	0.50	mg/kg	1	05/29/19 15:57	M-02
Chromium, Total	680	2.0	mg/kg	1	05/29/19 15:57	M-02
Lead, Total	610	2.0	mg/kg	1	05/29/19 15:57	M-02
Nickel, Total	1700	4.0	mg/kg	1	05/29/19 15:57	M-02

**SOURCE TEST REPORT EVALUATION**



WECK LABORATORIES, INC.

**Certificate of Analysis**  
FINAL REPORT

**Quality Control Results**

Hexavalent Chromium by IC

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	Limit	RPD	Limit	Qualifier
Batch: W9E1079 - EPA 3060A										
Prepared: 05/24/19 Analyzed: 05/29/19										
Blank (W9E1079-BLK1) Chromium 6+	ND	0.40	mg/kg							
LCS (W9E1079-BST) Chromium 6+	3.80	0.40	mg/kg	4.00		90	48-125			
Prepared: 05/24/19 Analyzed: 05/29/19										
Duplicate (W9E1079-DUP1) Chromium 6+	Source: 9E20074-01 ND	0.40	mg/kg		ND				20	
Prepared: 05/24/19 Analyzed: 05/29/19										
Duplicate (W9E1079-DUP2) Chromium 6+	Source: 9E23012-01 0.407	0.40	mg/kg		0.408			0.4	20	
Prepared: 05/24/19 Analyzed: 05/29/19										
Duplicate (W9E1079-DUP3) Chromium 6+	Source: 9E23013-01 3.85	0.40	mg/kg		3.73			2	20	
Prepared: 05/24/19 Analyzed: 05/29/19										
Matrix Spike (W9E1079-MS1) Chromium 6+	Source: 9E23012-01 0.821	0.40	mg/kg	4.00	0.408	10	50-137			MS-05
Prepared: 05/24/19 Analyzed: 05/29/19										
Matrix Spike Dup (W9E1079-MSD1) Chromium 6+	Source: 9E23012-01 0.810	0.40	mg/kg	4.00	0.408	10	50-137	1	30	MS-05

Metals (Non-Aqueous) by EPA 6000/7000 Series Methods

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	Limit	RPD	Limit	Qualifier
Batch: W9E1285 - EPA 3050B										
Prepared: 05/23/19 Analyzed: 05/29/19										
Blank (W9E1285-BLK1)	ND									
Arsenic, Total	ND	1.0	mg/kg							
Cadmium, Total	ND	0.50	mg/kg							
Chromium, Total	ND	1.0	mg/kg							
Lead, Total	ND	1.0	mg/kg							
Nickel, Total	ND	2.0	mg/kg							
Prepared: 05/23/19 Analyzed: 05/29/19										
LCS (W9E1285-BST)										
Arsenic, Total	51.2	1.0	mg/kg	50.0		102	80-120			
Cadmium, Total	49.7	0.50	mg/kg	50.0		99	80-120			
Chromium, Total	50.9	1.0	mg/kg	50.0		102	80-120			
Lead, Total	50.6	1.0	mg/kg	50.0		101	80-120			
Nickel, Total	52.5	2.0	mg/kg	50.0		105	80-120			
Prepared: 05/23/19 Analyzed: 05/29/19										
Matrix Spike (W9E1285-MS1)	Source: 9E21057-01									
Arsenic, Total	72.9	10	mg/kg	49.9	29.9	86	75-125			
Cadmium, Total	64.9	5.0	mg/kg	49.9	4.99	120	75-125			
Chromium, Total	7330	200	mg/kg	49.9	14000	NR	75-125			MS-02
Lead, Total	105	10	mg/kg	49.9	54.8	101	75-125			
Nickel, Total	8480	400	mg/kg	49.9	15000	NR	75-125			MS-02
Prepared: 05/23/19 Analyzed: 05/29/19										
Matrix Spike Dup (W9E1285-MSD1)	Source: 9E21057-01									
Arsenic, Total	73.5	10	mg/kg	49.6	29.9	98	75-125	0.6	20	
Cadmium, Total	58.6	5.0	mg/kg	49.6	4.99	106	75-125	10	20	
Chromium, Total	8290	200	mg/kg	49.6	14000	NR	75-125	15	20	MS-02
Lead, Total	125	10	mg/kg	49.6	54.8	141	75-125	17	20	MS-02
Nickel, Total	8040	400	mg/kg	49.6	15000	NR	75-125	5	20	MS-02

Batch: W9E1287 - EPA 3050B

9E23013

**SOURCE TEST REPORT EVALUATION**



**Certificate of Analysis**  
FINAL REPORT

**Quality Control Results**

(Continued)

Metals (Non-Aqueous) by EPA 6000/7000 Series Methods (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	UREC Limits	RPD	Limit	Qualifier
<b>Batch: W9E1287 - EPA 3050B (Continued)</b>										
Blank (W9E1287-BLKT)				Prepared: 05/23/19 Analyzed: 06/05/19						
Arsenic, Total	ND	1.0	mg/kg							
Cadmium, Total	ND	0.50	mg/kg							
Chromium, Total	ND	1.0	mg/kg							
Lead, Total	ND	1.0	mg/kg							
Nickel, Total	ND	2.0	mg/kg							
LCS (W9E1287-B51)				Prepared: 05/23/19 Analyzed: 06/05/19						
Arsenic, Total	44.8	1.0	mg/kg	50.0		90	80-120			
Cadmium, Total	47.6	0.50	mg/kg	50.0		96	80-120			
Chromium, Total	49.3	1.0	mg/kg	50.0		99	80-120			
Lead, Total	49.4	1.0	mg/kg	50.0		99	80-120			
Nickel, Total	51.4	2.0	mg/kg	50.0		103	80-120			
Matrix Spike (W9E1287-MS1)				Source: 9E21116-02 Prepared: 05/23/19 Analyzed: 06/05/19						
Arsenic, Total	51.2	1.0	mg/kg	50.1	3.67	96	75-125			
Cadmium, Total	46.4	0.50	mg/kg	50.1	0.490	90	75-125			
Chromium, Total	48.0	1.0	mg/kg	50.1	ND	98	75-125			
Lead, Total	48.7	1.0	mg/kg	50.1	3.48	90	75-125			
Nickel, Total	52.1	2.0	mg/kg	50.1	4.36	95	75-125			
Matrix Spike Dup (W9E1287-MSD1)				Source: 9E21116-02 Prepared: 05/23/19 Analyzed: 06/05/19						
Arsenic, Total	48.5	1.0	mg/kg	49.7	3.67	90	75-125	5	20	
Cadmium, Total	43.0	0.50	mg/kg	49.7	0.490	86	75-125	5	20	
Chromium, Total	50.8	1.0	mg/kg	49.7	ND	102	75-125	6	20	
Lead, Total	46.1	1.0	mg/kg	49.7	3.48	86	75-125	5	20	
Nickel, Total	51.8	2.0	mg/kg	49.7	4.36	96	75-125	0.5	20	

## SOURCE TEST REPORT EVALUATION



WECK LABORATORIES, INC.

# Certificate of Analysis

## FINAL REPORT

### Notes and Definitions

Item	Definition
M-02	Due to the nature of matrix interferences, sample was diluted prior to preparation. The MDL and MRL were raised due to the dilution.
MS-02	The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
MS-05	The spike recovery and/or RPD were outside acceptance limits for the MS and/or MSD due to possible matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
% Rec	Percent Recovery
Dil	Dilution
dry	Sample results reported on a dry weight basis
MDA	Minimum Detectable Activity
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
NR	Not Reportable
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Reviewed by:

Regina Giancola  
Project Manager



EPA-LICMR #CA00211 • HW-DOH # • ISO 17025 #L2457.01 • LACSD #10143 • NELAP-CA #04229CA • NELAP-OR #4047 •  
NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #98LA1006

*This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.*

**SOURCE TEST REPORT EVALUATION**

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

**MONITORING & ANALYSIS**  
**REPORT OF LABORATORY ANALYSIS**

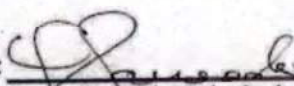
Page 1 of 2

<b>TO</b>	Brian Speaks Sr. AQ Engineer	<b>LABORATORY NO.</b>	<u>1914129</u>
		<b>DATE RECEIVED</b>	<u>05/21/19</u>
<b>SAMPLES DESCRIBED AS</b>	316SS molten material	<b>FACILITY ID.</b>	<u>[REDACTED]</u>
		<b>REQUESTED BY</b>	<u>Brian Speaks</u>
<b>SAMPLING LOCATION</b>	<u>[REDACTED]</u>	<b>RULE NO.</b>	<u>1407.1</u>
		<b>REPORT GENERATED</b>	<u>8/28/2019</u>

---

**ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS, AND RESULTS**  
Metals determined by S1 Titan Handheld XRF Unit #3 (S/N 800N3625)

Results on next page

Reviewed By:   
Laura Saucedo, Principal A.Q. Chemist  
Laboratory Services

Date Reviewed: 08/28/2019

Approved By:   
Aaron Katzenstein, Ph.D., Senior Manager  
Laboratory Services  
(909) 396-2219

Date Approved: 8/28/2019



**SOURCE TEST REPORT EVALUATION**

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

**MONITORING & ANALYSIS  
REPORT OF LABORATORY ANALYSIS  
Page 2 of 2**

**Metals Analysis Results**

Lab ID: 1914129-03

Sample Description:

316SS Molten material test coupon from electric induction furnace

Sample Date: 5/21/2019

Analysis Date 8/16/2019

Analyte	Side 1 (Rough)		Side 2 (Smooth)	
	Results (%)	LOD (%)	Results (%)	LOD (%)
Cr	22.08	0.03	45.62	0.06
Ni	14.9	0.2	27.8	0.4
As	<LOD	0.006	<LOD	0.010
Cd	<LOD	0.017	<LOD	0.016
Pb	0.020	0.008	0.010	0.002

Note: 1st measurement of sample taken on side with rough surface, 2nd measurement taken on smooth side of sample

## SOURCE TEST REPORT EVALUATION

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT  
SAMPLE ANALYSIS REQUEST
 DISTRICT INFORMATION  
 INVOICE SOURCE  
 LABORATORY NO: 1914129

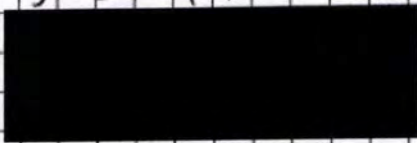
TO:	OTHER: <input type="checkbox"/>			
SOURCE NAME:	[REDACTED]	I.D. No.	[REDACTED]	
Source Address:	[REDACTED]	City:	[REDACTED]	
Mailing Address:	Same as Above	City:	Zip:	
Contact Person:	Brian Speaks	Title:	AQ Engineer II	Tel: (909)396-3212
Analysis Requested by:	Brian Speaks	Date:	5/21/19	
Approved by:	<i>[Signature]</i>	Office:	S&TA	Budget #: 44657
REASON REQUESTED:	Court/Hearing Board <input type="checkbox"/>	Permit Pending <input type="checkbox"/>	Hazardous/Toxic Spill <input type="checkbox"/>	
	Suspected Violation	Rule(s)	Rule 1407.1	Other <input type="checkbox"/>
Sample Collected by:	Brian Speaks/Louis Fan	Date:	5/21/19	Time: 12:01 - 12:14
01:	Slag from SS melt at a metal melting facility			
02:	316SS Raw material used to charge electric induction furnace			
03:	316SS Molten material test coupon from electric induction furnace			
Analysis Requested:	Metals (Arsenic, Cadmium, Lead, Nickel, Total Chromium)			
Relinquished by	Received by	Firm/Agency	Date	Time
<i>[Signature]</i>	Tiana Garcia	SCAQMD Lab	05-21-2019	17:17
Remarks:	Please send report to: Mike Garibay, Uyen Uyen Vo, Brian Speaks, Louis Fan			

Special Notes:

## SOURCE TEST REPORT EVALUATION

## Process Notes

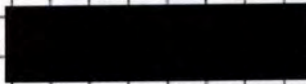
5-21-19



VELOCITIES w/ CONTROL RUNNING  
 & FURNACE OFF

1360 fpm  
 1643 fpm  
 2 inch 1995 fpm  
 1937 fpm  
 511  
 5 inch 600  
 560

5-22-19



FURNACE # 7

~ 9:02 START CHARGE w/ LARGE SCRAP METL  
 ~ 9:12 MATERIAL MELTED ENOUGH TO PLACE LID  
 BACK IN CLOSED POSITION (100% CAPTURE)

\* SMALL SCRAP MELTS QUICKER & ABLE TO CLOSE LID  
 IN LESS TIME (SHAVINGS)

TEMP  
 ~ 3069°

~ 9:45 ADDS FEW COFFEE CANS OF PERLITE AND BEGINS  
 TO DE-SLAG METAL, LID OPEN ~ 8" DURING THIS  
 OPERATION, CLOSES AFTER A MINUTE OR SO  
 & REMOVES SLAG. REPEATS PROCESS A FEW  
 TIMES COMPLETE BY ~ 9:50, TOTAL TIME  
 w/ 8" OPENING ~ 2-3 MINUTES

9:53 START POUR - HAS HOOD ABOVE  
 - POUR INTO CASTING TAKES ~ 1 MINUTE

10:00 ADD MORE PERLITE - BEGIN TO DE-SLAG  
 LESS THAN 1 MINUTE @ 8" OPEN

10:06 ANOTHER POUR FROM FURNACE

## SOURCE TEST REPORT EVALUATION

10:07 ADD MATERIAL TO FURNACE, SMALLER FEED STOCK - LID BACK IN NORMAL POSITION @ 10:11, CHARGE MATERIAL FILLS FURNACE BETTER THIS WAY

\* AFTER CASTING REMOVED FROM MOLD, MOLD COATED WITH A WHITE PLASTER/CERMIC LOOKING MAT'L ON THE INSIDE, SPRAYED W/ AN AIR/LIQUID COMBO SPRAYER, SOME TYPE OF REFRACTORY.

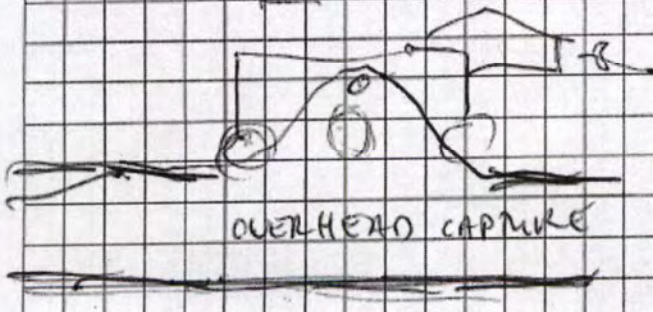
10:20 - DE-SLAG ~ 1 min

\* PREVIOUSLY USED MOLD IS BRUSHED INTERNALLY BEFORE BEING SPRAYED W/ NEW REFRACTORY MATERIAL.

10:21 POUR FROM FURNACE TO LADLE

10:21 CHARGE W/ SMALL MATERIAL CLOSED @ 10:24 (LID SEEMS TO CLOSE BY ITSELF A BIT IF LEFT ALONE)

- Mold heated to 600-700 after refractory application, this drives off the moisture.
- spray nozzle manifold on outside of mold sprays water on outside of casting.



\* Slag stored outside uncovered in a roll off dumpster.

\* Facility had an outdoor evaporator for oil/water cutting fluid mixture.