



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

December 08, 2009

Jessica Vickers  
Tetra Tech EM Inc.  
1955 Evergreen Blvd.  
Bldg 200 Suite 300  
Duluth, GA 30096

TEL: (678) 775-3104  
FAX: (678) 775-3138

RE: Powder Springs Plating

Order No.: 0912341

Dear Jessica Vickers:

Analytical Environmental Services, Inc. received 1 sample on 12/4/2009 1:20:00 PM for the analyses presented in the following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/09-06/30/10.
- AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/11.

These results relate only to the items tested. This report may only be reproduced in full and contains 11 total pages (including cover letter).

If you have any questions regarding these test results, please feel free to call.

Sincerely,

Blair Stout  
Project Manager



# ANALYTICAL ENVIRONMENTAL SERVICES, INC

3785 Presidential Parkway, Atlanta GA 30340-3704

TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

## CHAIN OF CUSTODY

Work Order: 0912341

Date: 12-4-09

Page 1 of 1

COMPANY: Tetra Tech Emme		ADDRESS: 1955 Evergreen Blvd Bldg 200 - Ste 300 Duluth, GA 30096		FAX: (678) 775-3158		SIGNATURE: <i>Brin S. Coft</i>		No # of Containers	
PHONE: (678) 775-3158		SAMPLED BY: <i>Brin Coft</i>		FAX: (678) 775-3158		SIGNATURE: <i>Brin S. Coft</i>		Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.	
#	SAMPLE ID	DATE	TIME	Grab	Composite	Matrix	ANALYSIS REQUESTED		
1	W-01	12-4-09	1015	X		SW	RCRA Metals	Hexavalent Chromium	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
RELINQUISHED BY: <i>Brin S. Coft</i>		DATE/TIME: 12-4-09 / 1320		RECEIVED BY: 1: <i>Brin S. Coft</i>		DATE/TIME: 12-4-09 / 1320		PROJECT INFORMATION	
2: <i>Brin S. Coft</i>		3: <i>M. J. W.</i>		PROJECT NAME: Powder Springs Plating		PROJECT #: TTEMZ-05-001-0112		SITE ADDRESS: Austell, GA	
3: <i>Brin S. Coft</i>		SHIPMENT METHOD: OUT / / VIA: IN / / VIA: CLIENT FedEx UPS MAIL COURIER GREYHOUND OTHER		SEND REPORT TO: Jessica Vickers		INVOICE TO: (IF DIFFERENT FROM ABOVE) Same as above		QUOTE #: PO#:	
SPECIAL INSTRUCTIONS/COMMENTS: <i>Sample is un-preserved &amp; proceeds without ice</i>		SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.		SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.		MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify) WW = Waste Water		PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None	
STATE PROGRAM (if any):		E-mail? Y / N:		Fax? Y / N:		DATA PACKAGE: I II III IV		Turnaround Time Request: Standard 5 Business Days 2 Business Day Rush Next Business Day Rush Same Day Rush (auth req.) Other	
Total # of Containers		RECEIPT		Total # of Containers		RECEIPT		Total # of Containers	

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Tetra Tech

Work Order Number 0912341

Checklist completed by Erolif 12/4/9  
Signature Date

Carrier name: FedEx ☐ UPS ☐ Courier ☐ Client ☒ US Mail ☐ Other ☐

Shipping container/cooler in good condition? Yes ☒ No ☐ Not Present ☐

Custody seals intact on shipping container/cooler? Yes ☐ No ☐ Not Present ☒

Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒

Container/Temp Blank temperature in compliance? ( $4^{\circ}\text{C} \pm 2$ )\* Yes ☐ No ☒

Cooler #1 Amibia Cooler #2 ☐ Cooler #3 ☐ Cooler #4 ☐ Cooler #5 ☐ Cooler #6 ☐

Chain of custody present? Yes ☒ No ☐

Chain of custody signed when relinquished and received? Yes ☒ No ☐

Chain of custody agrees with sample labels? Yes ☒ No ☐

Samples in proper container/bottle? Yes ☒ No ☐

Sample containers intact? Yes ☒ No ☐

Sufficient sample volume for indicated test? Yes ☒ No ☐

All samples received within holding time? Yes ☒ No ☐

Was TAT marked on the COC? Yes ☒ No ☐

Proceed with Standard TAT as per project history? Yes ☐ No ☐ Not Applicable ☒

Water - VOA vials have zero headspace? No VOA vials submitted ☒ Yes ☐ No ☐

Water - pH acceptable upon receipt? Yes ☐ No ☒ Not Applicable ☐

Sample Condition: Good ☒ Other(Explain) Adjusted? EA Checked by EA

(For diffusive samples or AIHA lead) Is a known blank included? Yes ☐ No ☒

See Case Narrative for resolution of the Non-Conformance.

\* Samples do not have to comply with the given range for certain parameters.

\\Quality Assurance\Checklists Procedures Sign-Off Templates\Checklists\Sample Receipt Checklists\Sample\_Cooler\_Receipt\_Checklist

# pH Adjustment Sheet

\* Number of Pellets when adding NaOH

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**CLIENT:** Tetra Tech EM Inc.  
**Project:** Powder Springs Plating  
**Lab Order:** 0912341

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**CASE NARRATIVE**

**Sample Receiving Nonconformance:**

Samples were received at ambient temperature, outside of the required temperature range of 0-6°C. No ice was present. The lab proceeded per comments on the Chain of Custody to proceed without ice.

**Hexavalent Chromium Analysis by Method SM4500-Cr B:**

Sample 0912341-001 was analyzed within the 24 hour holding time resulting in a hexavalent chromium value greater than the total chromium value. The total chromium result was confirmed therefore requiring reanalysis of the hexavalent chromium sample outside the 24 hour holding time. The hexavalent chromium data is reported with an H qualifier since reanalysis was required outside the holding time of 24 hours. Per Jessica Vickers on 12/10/09 H-flagged data was reported.

**Analytical Environmental Services, Inc.**

Date: 10-Dec-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0912341  
**Project:** Powder Springs Plating  
**Lab ID:** 0912341-001

**Client Sample ID:** W-01  
**Collection Date:** 12/4/2009 10:15:00 AM

**Matrix:** SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL SW6010C</b>					(SW3010A)			Analyst: TAA
Arsenic	0.0226	J	0.0044	0.0500	mg/L	122241	1	12/7/2009 10:58:51 AM
Barium	0.0215		0.0016	0.0200	mg/L	122241	1	12/7/2009 10:58:51 AM
Cadmium	BRL		0.0003	0.0050	mg/L	122241	1	12/7/2009 10:58:51 AM
Chromium	19.2		0.0006	0.0100	mg/L	122241	1	12/7/2009 10:58:51 AM
Lead	0.0160		0.0022	0.0100	mg/L	122241	1	12/7/2009 10:58:51 AM
Selenium	BRL		0.0094	0.0200	mg/L	122241	1	12/7/2009 10:58:51 AM
Silver	BRL		0.0003	0.0100	mg/L	122241	1	12/7/2009 10:58:51 AM
<b>HEXAVALENT CHROMIUM SW7196</b>								Analyst: AZS
Chromium, Hexavalent	18.8	H	0.595	2.50	mg/L	250	12/9/2009 1:00:00 PM	
<b>MERCURY, TOTAL SW7470A</b>					(SW7470)			Analyst: MAW
Mercury	0.00013	J	0.00004	0.00020	mg/L	122249	1	12/7/2009 4:53:32 PM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL

Lab Order: 0912341

Client: Tetra Tech EM Inc.

Project: Powder Springs Plating

## DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
0912341-001A	W-01	12/4/2009 10:15:00 AM	Surface Water	TOTAL MERCURY		12/7/2009	12/7/2009
				TOTAL METALS BY ICP		12/5/2009	12/7/2009
				Hexavalent Chromium			12/4/2009
0912341-001B				Hexavalent Chromium			12/9/2009

CLIENT: Tetra Tech EM Inc.

Work Order: 0912341

Project: Powder Springs Plating

## ANALYTICAL QC SUMMARY REPORT

TestCode: METALS, TOTAL SW6010C

Sample ID: MB-122241	SampType: MBLK	Batch ID: 122241	Units: mg/L	Prep Date: 12/5/2009	RunNo: 161198						
Client ID:	TestCode: METALS, TOTAL	SW6010C		Analysis Date: 12/7/2009	SeqNo: 3333710						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	BRL	0.0500	0	0	0	0	0	0	0	0	
Barium	BRL	0.0200	0	0	0	0	0	0	0	0	
Cadmium	BRL	0.00500	0	0	0	0	0	0	0	0	
Chromium	0.00103	0.0100	0	0	0	0	0	0	0	0	J
Lead	BRL	0.0100	0	0	0	0	0	0	0	0	
Selenium	BRL	0.0200	0	0	0	0	0	0	0	0	
Silver	BRL	0.0100	0	0	0	0	0	0	0	0	

Sample ID: LCS-122241	SampType: LCS	Batch ID: 122241	Units: mg/L	Prep Date: 12/5/2009	RunNo: 161198						
Client ID:	TestCode: METALS, TOTAL	SW6010C		Analysis Date: 12/7/2009	SeqNo: 3333706						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	1.054	0.0500	1	0	105	85	115	0	0	0	
Barium	1.034	0.0200	1	0	103	85	115	0	0	0	
Cadmium	1.033	0.00500	1	0	103	85	115	0	0	0	
Chromium	1.028	0.0100	1	0.00103	103	85	115	0	0	0	
Lead	1.035	0.0100	1	0	103	85	115	0	0	0	
Selenium	1.051	0.0200	1	0	105	85	115	0	0	0	
Silver	0.103	0.0100	0.1	0	103	85	115	0	0	0	

Sample ID: 0912341-001AMS	SampType: MS	Batch ID: 122241	Units: mg/L	Prep Date: 12/5/2009	RunNo: 161198						
Client ID: W-01	TestCode: METALS, TOTAL	SW6010C		Analysis Date: 12/7/2009	SeqNo: 3333717						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	1.073	0.0500	1	0.02261	105	75	125	0	0	0	
Barium	1.045	0.0200	1	0.02153	102	75	125	0	0	0	

## Qualifiers:

<	Less than Result value	>	Greater than Result value	B	Analyte detected in the associated Method Blank
BRL	Below Reporting Limit	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		



CLIENT: Tetra Tech EM Inc.  
 Work Order: 0912341  
 Project: Powder Springs Plating

# ANALYTICAL QC SUMMARY REPORT

TestCode: METALS, TOTAL SW6010C

Sample ID: 0912341-001AMS		SampType: MS	Batch ID: 122241		Units: mg/L		Prep Date: 12/5/2009		RunNo: 161198		
Client ID: W-01		TestCode: METALS, TOTAL	SW6010C				Analysis Date: 12/7/2009		SeqNo: 3333717		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	1.036	0.00500	1	0	104	75	125	0	0		
Chromium	19.06	0.0100	1	19.19	-13.4	75	125	0	0		S
Lead	1.039	0.0100	1	0.01605	102	75	125	0	0		
Selenium	1.043	0.0200	1	0	104	75	125	0	0		
Silver	0.1049	0.0100	0.1	0	105	75	125	0	0		

Sample ID: 0912341-001AMSD		SampType: MSD		Batch ID: 122241		Units: mg/L		Prep Date: 12/5/2009		RunNo: 161198	
Client ID: W-01		TestCode: METALS, TOTAL		SW6010C				Analysis Date: 12/7/2009		SeqNo: 3333721	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.062	0.0500	1	0.02261	104	75	125	1.073	1.04	20	
Barium	1.045	0.0200	1	0.02153	102	75	125	1.045	0.0348	20	
Cadmium	1.029	0.00500	1	0	103	75	125	1.036	0.660	20	
Chromium	19.17	0.0100	1	19.19	-2.22	75	125	19.06	0.583	20	S
Lead	1.026	0.0100	1	0.01605	101	75	125	1.039	1.18	20	
Selenium	1.032	0.0200	1	0	103	75	125	1.043	1.11	20	
Silver	0.1035	0.0100	0.1	0	104	75	125	0.1049	1.29	20	

**Qualifiers:**

<	Less than Result value	>	Greater than Result value	B	Analyte detected in the associated Method Blank
BRL	Below Reporting Limit	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0912341  
 Project: Powder Springs Plating

# ANALYTICAL QC SUMMARY REPORT

TestCode: Hexavalent Chromium SW7196

Sample ID: MB-R161520	SampType: MBLK	Batch ID: R161520	Units: mg/L	Prep Date:	RunNo: 161520
Client ID:	TestCode: Hexavalent Chromium	SW7196		Analysis Date: 12/9/2009	SeqNo: 3340157
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium, Hexavalent	BRL	0.0100			

Sample ID: LCS-R161520	SampType: LCS	Batch ID: R161520	Units: mg/L	Prep Date:	RunNo: 161520
Client ID:	TestCode: Hexavalent Chromium	SW7196		Analysis Date: 12/9/2009	SeqNo: 3340158
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium, Hexavalent	0.523	0.0100	0.5	105 90 110	0 0

Sample ID: 0912341-001BMS	SampType: MS	Batch ID: R161520	Units: mg/L	Prep Date:	RunNo: 161520
Client ID: W-01	TestCode: Hexavalent Chromium	SW7196		Analysis Date: 12/9/2009	SeqNo: 3340161
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium, Hexavalent	156.8	2.50	125	110 85 115	0 0

Sample ID: 0912341-001BMSD	SampType: MSD	Batch ID: R161520	Units: mg/L	Prep Date:	RunNo: 161520
Client ID: W-01	TestCode: Hexavalent Chromium	SW7196		Analysis Date: 12/9/2009	SeqNo: 3340164
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium, Hexavalent	160.5	2.50	125	113 85 115	156.8 2.36 20

Sample ID: 0912341-001BDUP	SampType: DUP	Batch ID: R161520	Units: mg/L	Prep Date:	RunNo: 161520
Client ID: W-01	TestCode: Hexavalent Chromium	SW7196		Analysis Date: 12/9/2009	SeqNo: 3340167
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium, Hexavalent	19.75	2.50	0	0 0 0	18.75 5.19 20

Qualifiers:	<	Less than Result value	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	BRL	Below Reporting Limit	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0912341  
 Project: Powder Springs Plating

# ANALYTICAL QC SUMMARY REPORT

TestCode: Mercury, Total SW7470A

Sample ID: MB-122249	SampType: MBLK	Batch ID: 122249	Units: mg/L	Prep Date: 12/7/2009	RunNo: 161260
Client ID:	TestCode: Mercury, Total	SW7470A		Analysis Date: 12/7/2009	SeqNo: 3334480
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	BRL	0.000200	0	0	0 0 0 0

Sample ID: LCS-122249	SampType: LCS	Batch ID: 122249	Units: mg/L	Prep Date: 12/7/2009	RunNo: 161260
Client ID:	TestCode: Mercury, Total	SW7470A		Analysis Date: 12/7/2009	SeqNo: 3334482
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.005697	0.000200	0.005	0	114 85 115 0 0

Sample ID: 0912215-006AMS	SampType: MS	Batch ID: 122249	Units: mg/L	Prep Date: 12/7/2009	RunNo: 161260
Client ID:	TestCode: Mercury, Total	SW7470A		Analysis Date: 12/7/2009	SeqNo: 3334485
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.004276	0.000200	0.005	0.001484	55.8 70 130 0 0

Sample ID: 0912215-006AMSD	SampType: MSD	Batch ID: 122249	Units: mg/L	Prep Date: 12/7/2009	RunNo: 161260
Client ID:	TestCode: Mercury, Total	SW7470A		Analysis Date: 12/7/2009	SeqNo: 3334487
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.003608	0.000200	0.005	0.001484	42.5 70 130 0.004276 16.9 20

Qualifiers:	<	Less than Result value	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	BRL	Below Reporting Limit	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		