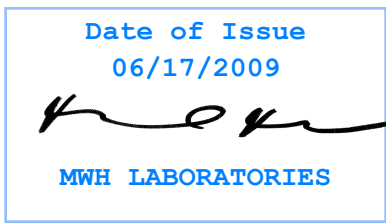


750 Royal Oak Dr., Suite 100  
Monrovia, California, 91016-3629  
Tel: 626 386 1100  
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1 800 566 LABS (1 800 566 5227)

## Laboratory Report

for

City of Phoenix  
Public Works Department  
3060 South 27th Avenue  
Phoenix, AZ 85009-6810  
Attention: Hillary Hartline  
Fax: (602) 534-9872



Report#: 307541  
Project: SR85  
Group: SR85-2009

TDF: Thomas.D.French  
Project Manager

Laboratory certifies that the test results meet all **NELAC** requirements unless noted in the Comments section or the Case Narrative. Following the cover page are Hits Reports, Comments, QC Summary, QC Report and Regulatory Forms. This report shall not be reproduced except in full, without the written approval of the laboratory.

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750 Royal Oaks Drive Suite 100, Monrovia, Ca 91016  
 Phone 626-386-1100/Fax: 626-386-1101

**Acknowledgement of Samples Received**

**City of Phoenix**

Public Works Department  
 3060 South 27th Avenue  
 Phoenix, AZ 85009-6810  
 Attn: Hillary Hartline  
 Phone: (602) 534 6655

Customer Code: PHOENIX-LF  
 Group #: 307541  
 Project #: SR85  
 Sample Group: SR85-2009  
 Project Manager: Thomas.D.French  
 Phone: 480-778-1558

The following samples were received from you on **June 04, 2009**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using MWH Laboratories.

Sample #	Sample Id	Matrix	Sample Date
200906050219	85AA-209	Water	04-Jun-2009 08:48
	Barium Total ICAP/MS		

**Test Description**



**MWH**

**LABORATORIES**

750 Royal Oaks, Suite 100  
Monrovia, California 91016  
Phone: (626) 386-1100  
(800) 566-5227  
Fax: (626) 386-1101

# CHAIN OF CUSTODY RECORD

MWH LABS USE ONLY:

LOGIN COMMENTS:

SAMPLE TEMP RECEIVED AT:

Scottsdale 5.6 °C (Compliance: 4 +/- 2°C)

RECEIVED FROM CLIENT: REFRIGERATED ON ICE

Monrovia 2 °C (Compliance: 4 +/- 2°C)

CONDITION OF ICE: FROZEN  PARTIALLY FROZEN THAWED

SAMPLES CHECKED AGAINST COC BY: JS

SAMPLES LOGGED IN BY: JS

SAMPLES REC'D DAY OF COLLECTION  (check for yes)

307541

TO BE COMPLETED BY SAMPLER:

COMPANY, UTILITY or PROJECT:

City of Phoenix

MWH LABS CLIENT CODE:

PHOENIX LF

SAMPLER PRINTED NAME AND SIGNATURE:

H. HARTLINE / [Signature]

(check for yes)

COMPLIANCE SAMPLES

- Requires state forms

Type of samples (circle one): ROUTINE SPECIAL CONFIRMATION

SEE ATTACHED BOTTLE ORDER FOR ANALYSES

LIST ANALYSES REQUIRED BELOW (enter number of bottles sent for each test for each sample)

(check for yes)

NON-COMPLIANCE SAMPLES

REGULATION INVOLVED:

(eg. SDWA, Phase V, NPDES, FDA,...)

(check for yes), OR

TAT requested: rush by adv notice only

STD \_\_\_ 1 week \_\_\_ 3 day \_\_\_ 2 day \_\_\_ 1 day \_\_\_

SAMPLE DATE

STATION # or LOCATION

\* MATRIX

GRAB

COMP

Barium

SR-85 LF

NOTE: ONLY ONE RESULT REQUIRED. TWO BOTTLES FILLED TO PROVIDE ADEQUATE SAMPLES FOR QUANTITY FOR SAMPLES.

SAMPLER COMMENTS

RUSH

\* MATRIX TYPES:

RSW = Raw Surface Water

RGW = Raw Ground Water

CFW = Chlor(am)inated Finished Water

FW = Other Finished Water

CWW = Chlorinated Waste Water

WW = Other Waste Water

BW = Bottled Water

SW = Storm Water

SO = Soil

SL = Sludge

SIGNATURE

PRINT NAME

COMPANY/TITLE

DATE

TIME

RELINQUISHED BY: <u>[Signature]</u>	<u>HILARY R. HARTLINE</u>	<u>CITY OF PHOENIX</u>	<u>6-14-09</u>	<u>11:41</u>
RECEIVED BY: <u>[Signature]</u>	<u>H. Pardo</u>	<u>etc</u>	<u>6-4-09</u>	<u>11:41</u>
RELINQUISHED BY: <u>[Signature]</u>	<u>[Signature]</u>	<u>etc</u>	<u>6-4-09</u>	<u>12:17</u>
RECEIVED BY: <u>[Signature]</u>	<u>[Signature]</u>	<u>etc</u>	<u>6-4-09</u>	<u>12:17</u>
RELINQUISHED BY: <u>[Signature]</u>	<u>[Signature]</u>	<u>etc</u>	<u>6-5-09</u>	<u>18:00</u>
RECEIVED BY: <u>[Signature]</u>	<u>JOE Sanchez</u>	<u>MWH</u>	<u>6-16-09</u>	<u>10:00</u>

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City of Phoenix  
Hillary Hartline  
Public Works Department  
3060 South 27th Avenue  
Phoenix, AZ 85009-6810

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**Laboratory**  
**Hits Report: 307541**

**City of Phoenix**  
 Hillary Hartline  
 Public Works Department  
 3060 South 27th Avenue  
 Phoenix, AZ 85009-6810

Samples Received on:  
 06/04/2009

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL
06/12/2009 01:12	Barium Total ICAP/MS	<b>200906050219</b> <b><u>85AA-209</u></b>	82	2000	ug/L	2



A Division of MWH Americas, Inc.

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**Laboratory Data**  
**Report: 307541**

**City of Phoenix**  
Hillary Hartline  
Public Works Department  
3060 South 27th Avenue  
Phoenix, AZ 85009-6810

Samples Received on:  
06/04/2009

Prepared	Analyzed	QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
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**85AA-209 (200906050219)**

**Sampled on 06/04/2009 08:48**

**EPA 200.8 - ICPMS Metals**

06/12/2009	01:12	513429	(EPA 200.8)	Barium Total ICAP/MS	82	ug/L	2	1
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City of Phoenix

---

**QC Ref # 513429 - ICPMS Metals**

200906050219

85AA-209

**Analysis Date: 06/12/2009**

Analyzed by: DYH

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 Monrovia, California, 91016-3629  
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**Laboratory**  
**QC Report: 307541**

City of Phoenix

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
<b>QC Ref# 513429 - ICPMS Metals by EPA 200.8</b>					<b>Analysis Date: 06/11/2009</b>				
LCS1	Aluminum Total ICAP/MS		200	202	ug/L	101	(85-115)		
LCS2	Aluminum Total ICAP/MS		200	202	ug/L	101	(85-115)	20	0.0
MBLK	Aluminum Total ICAP/MS			<20	ug/L				
MRL_CHK	Aluminum Total ICAP/MS		20	22.3	ug/L	112	(50-150)		
MS_200906080298	Aluminum Total ICAP/MS		200	192	ug/L	96	(70-130)		
MS2_200906150276	Aluminum Total ICAP/MS		200	203	ug/L	101	(70-130)		
MSD_200906080298	Aluminum Total ICAP/MS		200	203	ug/L	102	(70-130)	20	5.8
MSD2_200906150276	Aluminum Total ICAP/MS		200	201	ug/L	100	(70-130)	20	1
LCS1	Antimony Total ICAP/MS		50	49.9	ug/L	100	(85-115)		
LCS2	Antimony Total ICAP/MS		50	50.4	ug/L	101	(85-115)	20	1
MBLK	Antimony Total ICAP/MS			<1	ug/L				
MRL_CHK	Antimony Total ICAP/MS		1.0	1.07	ug/L	107	(50-150)		
MS_200906080298	Antimony Total ICAP/MS		50	49.0	ug/L	98	(70-130)		
MS2_200906150276	Antimony Total ICAP/MS		50	50.7	ug/L	101	(70-130)		
MSD_200906080298	Antimony Total ICAP/MS		50	52.0	ug/L	104	(70-130)	20	6.0
MSD2_200906150276	Antimony Total ICAP/MS		50	48.9	ug/L	98	(70-130)	20	3.2
LCS1	Arsenic Total ICAP/MS		20	18.8	ug/L	94	(85-115)		
LCS2	Arsenic Total ICAP/MS		20	18.9	ug/L	95	(85-115)	20	0.53
MBLK	Arsenic Total ICAP/MS			<1	ug/L				
MRL_CHK	Arsenic Total ICAP/MS		1.0	0.997	ug/L	100	(50-150)		
MS_200906080298	Arsenic Total ICAP/MS		20	18.9	ug/L	95	(70-130)		
MS2_200906150276	Arsenic Total ICAP/MS		20	20.4	ug/L	102	(70-130)		
MSD_200906080298	Arsenic Total ICAP/MS		20	19.9	ug/L	100	(70-130)	20	5.3
MSD2_200906150276	Arsenic Total ICAP/MS		20	19.7	ug/L	98	(70-130)	20	3.6
LCS1	Barium Total ICAP/MS		100	98.5	ug/L	99	(85-115)		
LCS2	Barium Total ICAP/MS		100	99.3	ug/L	99	(85-115)	20	0.71
MBLK	Barium Total ICAP/MS			<2	ug/L				
MRL_CHK	Barium Total ICAP/MS		2.0	2.09	ug/L	105	(50-150)		
MS_200906080298	Barium Total ICAP/MS		100	92.6	ug/L	93	(70-130)		
MS2_200906150276	Barium Total ICAP/MS		100	99.7	ug/L	100	(70-130)		
MSD_200906080298	Barium Total ICAP/MS		100	99.1	ug/L	99	(70-130)	20	6.8
MSD2_200906150276	Barium Total ICAP/MS		100	95.2	ug/L	95	(70-130)	20	4.6
LCS1	Beryllium Total ICAP/MS		5.0	4.59	ug/L	92	(85-115)		
LCS2	Beryllium Total ICAP/MS		5.0	4.63	ug/L	93	(85-115)	20	0.87
MBLK	Beryllium Total ICAP/MS			<1	ug/L				
MRL_CHK	Beryllium Total ICAP/MS		1.0	0.973	ug/L	97	(50-150)		
MS_200906080298	Beryllium Total ICAP/MS		5.0	4.6	ug/L	92	(70-130)		
MS2_200906150276	Beryllium Total ICAP/MS		5.0	4.83	ug/L	97	(70-130)		

Spike recovery is already corrected for native results.  
 Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.  
 Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.  
 (S) Indicates surrogate compound.  
 (I) Indicates internal standard compound.  
 RPD not calculated for LCS2 when different a concentration than LCS1 is used  
 RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level)



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**Laboratory**  
**QC Report: 307541**

 City of Phoenix  
 (continued)

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MSD_200906080298	Beryllium Total ICAP/MS		5.0	4.81	ug/L	96	(70-130)	20	4.5
MSD2_200906150276	Beryllium Total ICAP/MS		5.0	4.64	ug/L	93	(70-130)	20	4.0
LCS1	Cadmium Total ICAP/MS		20	20.0	ug/L	100	(85-115)		
LCS2	Cadmium Total ICAP/MS		20	20.0	ug/L	100	(85-115)	20	0.0
MBLK	Cadmium Total ICAP/MS			<0.5	ug/L				
MRL_CHK	Cadmium Total ICAP/MS		0.5	0.522	ug/L	104	(50-150)		
MS_200906080298	Cadmium Total ICAP/MS		20	18.5	ug/L	93	(70-130)		
MS2_200906150276	Cadmium Total ICAP/MS		20	21.3	ug/L	107	(70-130)		
MSD_200906080298	Cadmium Total ICAP/MS		20	19.5	ug/L	98	(70-130)	20	5.5
MSD2_200906150276	Cadmium Total ICAP/MS		20	20.6	ug/L	103	(70-130)	20	3.8
LCS1	Chromium Total ICAP/MS		100	98.0	ug/L	98	(85-115)		
LCS2	Chromium Total ICAP/MS		100	97.8	ug/L	98	(85-115)	20	0.10
MBLK	Chromium Total ICAP/MS			<1	ug/L				
MRL_CHK	Chromium Total ICAP/MS		1.0	1.01	ug/L	102	(50-150)		
MS_200906080298	Chromium Total ICAP/MS		100	89.7	ug/L	90	(70-130)		
MS2_200906150276	Chromium Total ICAP/MS		100	97.2	ug/L	97	(70-130)		
MSD_200906080298	Chromium Total ICAP/MS		100	95.0	ug/L	95	(70-130)	20	5.7
MSD2_200906150276	Chromium Total ICAP/MS		100	93.2	ug/L	93	(70-130)	20	4.2
LCS1	Copper Total ICAP/MS		100	97.5	ug/L	98	(85-115)		
LCS2	Copper Total ICAP/MS		100	98.6	ug/L	99	(85-115)	20	1.1
MBLK	Copper Total ICAP/MS			<2	ug/L				
MRL_CHK	Copper Total ICAP/MS		2.0	2.25	ug/L	112	(50-150)		
MS_200906080298	Copper Total ICAP/MS		100	86.6	ug/L	87	(70-130)		
MS2_200906150276	Copper Total ICAP/MS	ND	100	99.0	ug/L	99	(70-130)		
MSD_200906080298	Copper Total ICAP/MS		100	90.6	ug/L	91	(70-130)	20	4.5
MSD2_200906150276	Copper Total ICAP/MS	ND	100	95.1	ug/L	95	(70-130)	20	4.0
LCS1	Lead Total ICAP/MS		20	21.3	ug/L	106	(85-115)		
LCS2	Lead Total ICAP/MS		20	21.1	ug/L	106	(85-115)	20	0.94
MBLK	Lead Total ICAP/MS			<0.5	ug/L				
MRL_CHK	Lead Total ICAP/MS		0.5	0.611	ug/L	122	(50-150)		
MS_200906080298	Lead Total ICAP/MS		20	19.0	ug/L	95	(70-130)		
MS2_200906150276	Lead Total ICAP/MS		20	21.3	ug/L	107	(70-130)		
MSD_200906080298	Lead Total ICAP/MS		20	20.1	ug/L	100	(70-130)	20	5.2
MSD2_200906150276	Lead Total ICAP/MS		20	20.7	ug/L	104	(70-130)	20	2.8
LCS1	Manganese Total ICAP/MS		50	51.9	ug/L	104	(85-115)		
LCS2	Manganese Total ICAP/MS		50	51.6	ug/L	103	(85-115)	20	0.58
MBLK	Manganese Total ICAP/MS			<2	ug/L				
MRL_CHK	Manganese Total ICAP/MS		2.0	2.11	ug/L	106	(50-150)		
MS_200906080298	Manganese Total ICAP/MS		50	47.3	ug/L	95	(70-130)		

Spike recovery is already corrected for native results.

 Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.

Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates

are advisory only, unless otherwise specified in the method.

(S) Indicates surrogate compound.

9/11

(I) Indicates internal standard compound.

RPD not calculated for LCS2 when different a concentration than LCS1 is used

RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level)

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**Laboratory**  
**QC Report: 307541**

 City of Phoenix  
 (continued)

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MS2_200906150276	Manganese Total ICAP/MS		50	51.5	ug/L	103	(70-130)		
MSD_200906080298	Manganese Total ICAP/MS		50	49.8	ug/L	100	(70-130)	20	5.2
MSD2_200906150276	Manganese Total ICAP/MS		50	49.6	ug/L	99	(70-130)	20	3.7
LCS1	Nickel Total ICAP/MS		50	49.5	ug/L	99	(85-115)		
LCS2	Nickel Total ICAP/MS		50	49.9	ug/L	100	(85-115)	20	0.81
MBLK	Nickel Total ICAP/MS			<5	ug/L				
MRL_CHK	Nickel Total ICAP/MS		5.0	5.27	ug/L	105	(50-150)		
MS_200906080298	Nickel Total ICAP/MS		50	44.1	ug/L	88	(70-130)		
MS2_200906150276	Nickel Total ICAP/MS		50	49.5	ug/L	99	(70-130)		
MSD_200906080298	Nickel Total ICAP/MS		50	46.2	ug/L	92	(70-130)	20	4.5
MSD2_200906150276	Nickel Total ICAP/MS		50	48.0	ug/L	96	(70-130)	20	3.3
LCS1	Selenium Total ICAP/MS		20	20.0	ug/L	100	(85-115)		
LCS2	Selenium Total ICAP/MS		20	20.1	ug/L	101	(85-115)	20	0.50
MBLK	Selenium Total ICAP/MS			<5	ug/L				
MRL_CHK	Selenium Total ICAP/MS		5.0	5.2	ug/L	104	(50-150)		
MS_200906080298	Selenium Total ICAP/MS		20	21.2	ug/L	106	(70-130)		
MS2_200906150276	Selenium Total ICAP/MS		20	25.0	ug/L	125	(70-130)		
MSD_200906080298	Selenium Total ICAP/MS		20	22.6	ug/L	113	(70-130)	20	6.4
MSD2_200906150276	Selenium Total ICAP/MS		20	24.2	ug/L	121	(70-130)	20	3.3
LCS1	Silver Total ICAP/MS		50	52.4	ug/L	105	(85-115)		
LCS2	Silver Total ICAP/MS		50	52.1	ug/L	104	(85-115)	20	0.57
MBLK	Silver Total ICAP/MS			<0.5	ug/L				
MRL_CHK	Silver Total ICAP/MS		0.5	0.523	ug/L	105	(50-150)		
MS2_200906150276	Silver Total ICAP/MS		50	52.6	ug/L	105	(70-130)		
MSD2_200906150276	Silver Total ICAP/MS		50	50.6	ug/L	101	(70-130)	20	3.9
LCS1	Thallium Total ICAP/MS		20	21.1	ug/L	106	(85-115)		
LCS2	Thallium Total ICAP/MS		20	21.1	ug/L	105	(85-115)	20	0.0
MBLK	Thallium Total ICAP/MS			<1	ug/L				
MRL_CHK	Thallium Total ICAP/MS		1.0	1.12	ug/L	112	(50-150)		
MS_200906080298	Thallium Total ICAP/MS		20	17.9	ug/L	90	(70-130)		
MS2_200906150276	Thallium Total ICAP/MS		20	21.3	ug/L	107	(70-130)		
MSD_200906080298	Thallium Total ICAP/MS		20	19.2	ug/L	96	(70-130)	20	7.0
MSD2_200906150276	Thallium Total ICAP/MS		20	20.7	ug/L	103	(70-130)	20	3.8
LCS1	Zinc Total ICAP/MS		100	96.4	ug/L	96	(85-115)		
LCS2	Zinc Total ICAP/MS		100	96.7	ug/L	97	(85-115)	20	0.31
MBLK	Zinc Total ICAP/MS			<20	ug/L				
MRL_CHK	Zinc Total ICAP/MS		20	21.8	ug/L	109	(50-150)		
MS_200906080298	Zinc Total ICAP/MS		100	94.2	ug/L	94	(70-130)		
MS2_200906150276	Zinc T total ICAP/MS		100	114	ug/L	114	(70-130)		

Spike recovery is already corrected for native results.

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Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates

are advisory only, unless otherwise specified in the method.

(S) Indicates surrogate compound.

10/11

(I) Indicates internal standard compound.

RPD not calculated for LCS2 when different a concentration than LCS1 is used

RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level)

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**Laboratory**  
**QC Report: 307541**

City of Phoenix  
(continued)

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MSD_200906080298	Zinc Total ICAP/MS		100	99.5	ug/L	100	(70-130)	20	5.5
MSD2_200906150276	Zinc Total ICAP/MS		100	111	ug/L	111	(70-130)	20	2.7

Spike recovery is already corrected for native results.

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.

Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates

are advisory only, unless otherwise specified in the method.

(S) Indicates surrogate compound.

11/11

(I) Indicates internal standard compound.

RPD not calculated for LCS2 when different a concentration than LCS1 is used

RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level)