



United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

May 24, 2011

Tom Hatzopoulos - Mail Code OSRR02-2
US EPA New England R1

Project Number: 11050024

Project: Former Bendix Property - Greenfield, MA

Analysis: Metals by XRF

Analyst: Janet Paquin

JP 5/24/11

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-INGXRF0.

Samples were screened using a PANanaltical Epsilon 5 energy dispersive x-ray fluorescence (XRF) spectrometer. The spectrometer is a high resolution energy dispersive x-ray fluorescence spectrometer. It uses both direct and secondary targets to qualitatively and quantitatively analyze elements.

Date Samples Received by the Laboratory: 05/20/2011

Data were reviewed in accordance with the internal verification procedures described in the EPA New England OEME Chemistry QA Plan.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Report may contain multiple sections and each section will be numbered independently.

If you have any questions please call me at 617-918-8340 .

Sincerely,

 5/31/11

Daniel N. Boudreau
Chemistry Team Leader

Qualifiers:

RL	Reporting limit
ND	Not Detected above reporting limit
NA	Not Applicable
NC	Not calculated since analyte concentration is ND
J	Estimated result. The result is estimated because a double layer of prolene film was used in the XRF sample cup to keep the sample from leaking. The instrument software only corrects for a single layer of film. Therefore, the results may be affected.
J1	Estimated value due to MS recovery outside acceptance criteria
J3	Estimated value due to RPD result outside acceptance criteria
J4	Estimated value due to certified reference material result outside acceptance criteria
RPD	Relative Percent Difference

A solid standard reference material containing selenium was not available.

All samples were run as received.

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

Former Bendix Property - Greenfield, MA

Metals by XRF

Client Sample ID: 0710-0005

Lab Sample ID: AB17806

Date of Collection: 5/20/2011

Matrix Solid

Date of Analysis: 5/22/11

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-38-2	Arsenic	ND	10	
7440-39-3	Barium	ND	50	
7440-43-9	Cadmium	ND	10	
7440-47-3	Chromium	ND	40	
7439-92-1	Lead	ND	5	
7439-97-6	Mercury	ND	20	
7782-49-2	Selenium	ND	10	
7440-22-4	Silver	ND	10	

Comments:

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

Former Bendix Property - Greenfield, MA

Metals by XRF

Client Sample ID: 0710-0006

Lab Sample ID: AB17807

Date of Collection: 5/20/2011

Matrix Solid

Date of Analysis: 5/22/11

<u>CAS Number</u>	<u>Compound</u>	<u>Concentration mg/Kg</u>	<u>RL mg/Kg</u>	<u>Qualifier</u>
7440-38-2	Arsenic	ND	10	
7440-39-3	Barium	ND	50	
7440-43-9	Cadmium	ND	10	
7440-47-3	Chromium	340	40	
7439-92-1	Lead	13	5	
7439-97-6	Mercury	ND	20	
7782-49-2	Selenium	ND	10	
7440-22-4	Silver	ND	10	

Comments:

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

Former Bendix Property - Greenfield, MA

Metals by XRF

Client Sample ID: 0710-0007

Lab Sample ID: AB17808

Date of Collection: 5/20/2011

Matrix Solid

Date of Analysis: 5/22/11

<u>CAS Number</u>	<u>Compound</u>	<u>Concentration mg/Kg</u>	<u>RL mg/Kg</u>	<u>Qualifier</u>
7440-38-2	Arsenic	ND	10	
7440-39-3	Barium	ND	50	
7440-43-9	Cadmium	ND	10	
7440-47-3	Chromium	590	40	
7439-92-1	Lead	ND	5	
7439-97-6	Mercury	ND	20	
7782-49-2	Selenium	ND	10	
7440-22-4	Silver	ND	10	

Comments:

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

Former Bendix Property - Greenfield, MA

Metals by XRF

Client Sample ID: 0710-0008

Lab Sample ID: AB17809

Date of Collection: 5/20/2011

Matrix Solid

Date of Analysis: 5/22/11

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-38-2	Arsenic	ND	10	
7440-39-3	Barium	ND	50	
7440-43-9	Cadmium	ND	10	
7440-47-3	Chromium	620	40	
7439-92-1	Lead	6	5	
7439-97-6	Mercury	ND	20	
7782-49-2	Selenium	ND	10	
7440-22-4	Silver	ND	10	

Comments:

US ENVIRONMENTAL PROTECTION AGENCY
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Former Bendix Property - Greenfield, MA

Metals by XRF

Client Sample ID: 0710-0009

Lab Sample ID: AB17810

Date of Collection: 5/20/2011

Matrix Solid

Date of Analysis: 5/22/11

<u>CAS Number</u>	<u>Compound</u>	<u>Concentration mg/Kg</u>	<u>RL mg/Kg</u>	<u>Qualifier</u>
7440-38-2	Arsenic	ND	10	
7440-39-3	Barium	ND	50	
7440-43-9	Cadmium	ND	10	
7440-47-3	Chromium	540	40	
7439-92-1	Lead	ND	5	
7439-97-6	Mercury	ND	20	
7782-49-2	Selenium	ND	10	
7440-22-4	Silver	ND	10	

Comments:

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Former Bendix Property - Greenfield, MA

Metals by XRF

Client Sample ID: 0710-0010

Lab Sample ID: AB17811

Date of Collection: 5/20/2011

Matrix Solid

Date of Analysis: 5/22/11

<u>CAS Number</u>	<u>Compound</u>	<u>Concentration mg/Kg</u>	<u>RL mg/Kg</u>	<u>Qualifier</u>
7440-38-2	Arsenic	ND	10	
7440-39-3	Barium	ND	50	
7440-43-9	Cadmium	ND	10	
7440-47-3	Chromium	600	40	
7439-92-1	Lead	ND	5	
7439-97-6	Mercury	ND	20	
7782-49-2	Selenium	ND	10	
7440-22-4	Silver	ND	10	

Comments:

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Former Bendix Property - Greenfield, MA

Metals by XRF

Client Sample ID: 0710-0011

Lab Sample ID: AB17812

Date of Collection: 5/20/2011

Matrix Solid

Date of Analysis: 5/22/11

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-38-2	Arsenic	ND	10	
7440-39-3	Barium	ND	50	
7440-43-9	Cadmium	ND	10	
7440-47-3	Chromium	490	40	
7439-92-1	Lead	ND	5	
7439-97-6	Mercury	ND	20	
7782-49-2	Selenium	ND	10	
7440-22-4	Silver	ND	10	

Comments:

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Former Bendix Property - Greenfield, MA

Metals by XRF

Client Sample ID: 0710-0012

Lab Sample ID: AB17813

Date of Collection: 5/20/2011

Matrix Solid

Date of Analysis: 5/22/11

<u>CAS Number</u>	<u>Compound</u>	<u>Concentration mg/Kg</u>	<u>RL mg/Kg</u>	<u>Qualifier</u>
7440-38-2	Arsenic	ND	10	
7440-39-3	Barium	ND	50	
7440-43-9	Cadmium	ND	10	
7440-47-3	Chromium	600	40	
7439-92-1	Lead	ND	5	
7439-97-6	Mercury	ND	20	
7782-49-2	Selenium	ND	10	
7440-22-4	Silver	ND	10	

Comments:

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Former Bendix Property - Greenfield, MA

Metals by XRF

Client Sample ID: 0710-0013

Lab Sample ID: AB17814

Date of Collection: 5/20/2011

Matrix Solid

Date of Analysis: 5/22/11

<u>CAS Number</u>	<u>Compound</u>	<u>Concentration mg/Kg</u>	<u>RL mg/Kg</u>	<u>Qualifier</u>
7440-38-2	Arsenic	ND	10	
7440-39-3	Barium	ND	50	
7440-43-9	Cadmium	ND	10	
7440-47-3	Chromium	530	40	
7439-92-1	Lead	ND	5	
7439-97-6	Mercury	ND	20	
7782-49-2	Selenium	ND	10	
7440-22-4	Silver	ND	10	

Comments:

US ENVIRONMENTAL PROTECTION AGENCY
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Former Bendix Property - Greenfield, MA

Metals by XRF

Client Sample ID: 0710-0014

Lab Sample ID: AB17815

Date of Collection: 5/20/2011

Matrix Solid

Date of Analysis: 5/22/11

<u>CAS Number</u>	<u>Compound</u>	<u>Concentration mg/Kg</u>	<u>RL mg/Kg</u>	<u>Qualifier</u>
7440-38-2	Arsenic	ND	10	
7440-39-3	Barium	ND	50	
7440-43-9	Cadmium	ND	10	
7440-47-3	Chromium	640	40	
7439-92-1	Lead	ND	5	
7439-97-6	Mercury	ND	20	
7782-49-2	Selenium	ND	10	
7440-22-4	Silver	ND	10	

Comments:

US ENVIRONMENTAL PROTECTION AGENCY
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Former Bendix Property - Greenfield, MA

Metals by XRF

Client Sample ID: 0710-0015

Lab Sample ID: AB17816

Date of Collection: 5/20/2011

Matrix Solid

Date of Analysis: 5/22/11

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-38-2	Arsenic	ND	10	
7440-39-3	Barium	ND	50	
7440-43-9	Cadmium	ND	10	
7440-47-3	Chromium	600	40	
7439-92-1	Lead	ND	5	
7439-97-6	Mercury	ND	20	
7782-49-2	Selenium	ND	10	
7440-22-4	Silver	ND	10	

Comments:

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

Laboratory Duplicate Results

COMPOUND	SAMPLE RESULT mg/Kg	SAMPLE DUPLICATE RESULT mg/Kg	PRECISION RPD %	QC LIMITS
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Sample ID: AB17806

Arsenic	ND	ND	NC	35
Barium	ND	ND	NC	35
Cadmium	ND	ND	NC	35
Chromium	ND	ND	NC	35
Lead	ND	ND	NC	35
Mercury	ND	ND	NC	35
Selenium	ND	ND	NC	35
Silver	ND	ND	NC	35

US ENVIRONMENTAL PROTECTION AGENCY
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XRF QC REPORT

Former Bendix Property - Greenfield, MA

Standard Reference Material 2709

COMPOUND	MEASURED CONCENTRATION mg/Kg	CERTIFIED VALUE mg/Kg	QC LIMITS mg/Kg
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Run Date: 05/22/2011

Arsenic	19	18	13 - 23
Barium	820	970	680 - 1260
Chromium	110	130	91 - 170
Lead	20	19	13 - 25

Comments:

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

XRF QC REPORT

Former Bendix Property - Greenfield, MA

Standard Reference Material 2710

COMPOUND	MEASURED CONCENTRATION mg/Kg	CERTIFIED VALUE mg/Kg	QC LIMITS mg/Kg
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Run Date: 05/23/2011

Arsenic	620	630	440 - 820
Barium	910	710	497 - 920
Cadmium	21	22	15 - 29
Lead	5240	5530	3870 - 7190
Mercury	38	33	23 - 43
Silver	38	35	25 - 46

Comments:

W: 105024

CHAIN OF CUSTODY RECORD

Bendix Property- Greenfield, MA

Contact Name: OSC Tom Hatzopoulos

Contact Phone: 617-312-4712

No: 1-052011-091318-0005

Lab: OEME

[illegible]

Special Instructions:	SAMPLES TRANSFERRED FROM
	CHAIN OF CUSTODY #

[illegible]

