



May 1, 2019

Delmar J. Boice, Jr., FMA, RPA
Senior Building Manager
General Services Administration / Public Buildings Service
Building 107; Room 104
4300 Goodfellow Blvd.
St. Louis, MO 63132-1542

**RE: Goodfellow Federal Center – Bldg. # 105 Drinking Water Sequential Sampling
Project # 919059**

Dear Mr. Boice:

Thank you for the opportunity to provide the General Services Administration (GSA) with the above referenced sampling services. The following is our report.

INTRODUCTION

As requested, OCCU-TEC conducted follow-up drinking water testing for the presence of lead and copper at Building #105 of the Goodfellow Federal Center located at 4300 Goodfellow Blvd. in St. Louis, Missouri. Sampling was completed in response to the ongoing environmental condition assessment at the Goodfellow Federal Center.

Drinking water sampling was conducted to determine the current levels of lead and copper in representative sources throughout the complex. A previous sampling event from February of 2019 had indicated elevated levels of lead at two (2) locations within the 2nd Floor lab space of Building #105. Upon verbal receipt of the laboratory results, the GSA – St. Louis West Field Office immediately removed the faucets from service and scheduled replacement. The retesting of the water sources took place on April 18, 2019, after the source replacement and was conducted by Mr. Kevin Heriford of OCCU-TEC.

METHODOLOGY

The sampling methodology used during this investigation was developed in general accordance with the United States Environmental Protection Agency's (EPA) "Quick Guide to Drinking Water Sample Collection – Second Edition" developed by the EPA Region 8 in September 2016.

Samples were collected as first draw samples in accordance with the Lead and Copper Rule. First draw samples represent 'worst case' conditions with water that has been stationary within the plumbing systems for a minimum of six hours. The samples were collected in individually labeled 1000 milliliter (mL) plastic bottles capped with Teflon septa lined screw caps. The samples were then placed in a cooler for safe transport. Each sample was acidified at the laboratory as needed.

Drinking water sampling for the presence of lead and copper was conducted at two (2) distinct locations within Building #105. A total of eight (8) samples were obtained. After samples were collected, OCCU-TEC filled a separate sample cup with approximately 2 inches of water. OCCU-TEC placed an Oakton model PHTester30 pH meter into the sample cup. After readings stabilized, OCCU-TEC recorded the readings for pH (the acidity or basicity of an aqueous solution) and the temperature (in degrees Celsius) on site specific sample logs.

In order to investigate previously known elevated drinking water sampling locations, four sequential samples were collected from the two sources using the following methodology:

- First Sample: [REDACTED] approximately 250 mL a [REDACTED]
- Second Sample: Approximately 750 mL directly after the first sample.
- Third sample: Approximately 250 mL after the water turns cold or other indication the water is from the service line and not the fixture.
- Fourth Sample: Approximately 250 mL after the water has been running for approximately 3 minutes.

Sequential draws can indicate lead and copper within the tap itself, the service line, valves, or the water main. Drinking water samples were submitted to Eurofins-Eaton Analytical in South Bend, Indiana for analyses of lead and copper. Eurofins-Eaton Analytical is certified by the State of Missouri Department of Natural Resources (MDNR) as an approved drinking water laboratory. Eurofins-Eaton Analytical's Missouri Certification number is 880.

The drinking water samples were collected using media supplied by Eurofins-Eaton Analytical. Lead and Copper samples were analyzed in accordance with EPA Method 200.8.

RESULTS AND DISCUSSION

The results for the subject testing are summarized in the tables below.

Samples with a “<” sign indicate that the results were below the reportable limit.

Water Sample Summary

Analysis	Lowest Concentration	Highest Concentration	ACTION LEVEL*
Lead	<0.001 mg/L	0.0022 mg/L	0.015 mg/L
Copper	0.0046 mg/L	0.150 mg/L	1.3 mg/L

*As per EPA Lead and Copper Rule (40 CFR Part 141 Subpart I)

A summary table of all sampling results by location is included in Appendix A. The complete laboratory report for the drinking water sampling from Eurofins-Eaton Analytical is attached in Appendix B.

LEAD

The follow-up sequential sampling indicated no elevated levels of lead at either new water source.

COPPER

The follow-up sequential sampling indicated no elevated levels of copper at either new water source.

PH

Normal pH levels for drinking water are between 6.0 and 8.5. Water with a pH <6.5 is considered acidic, soft, and corrosive. Acidic water may contain metal ions, may cause premature damage to metal piping, and increases the likelihood of leaching. Water with a pH >8.5 is considered alkaline or basic and can indicate that the water is hard. Hard water does not pose a health risk but can cause aesthetic problems. These problems include an alkali taste, the formation of scale deposits, and difficulty in getting soaps and detergents to lather.

Recorded pH levels in Building #105 ranged from 9.26 to 9.31 indicating the drinking water is slightly alkaline.

LIMITATIONS

The scope of this assessment was limited in nature. OCCU-TEC collected samples from a select number of drinking water sources in an effort to provide a general overview of the drinking water quality at the site. Sample locations do not encompass every drinking water source at the Site. Additionally, samples were only analyzed for a select number of potential contaminants likely to affect the drinking water quality at the site. OCCU-TEC is not responsible for potential contaminants not identified in this report.

This report was prepared for the sole use of GSA. Reliance by any party other than GSA is expressly forbidden without OCCU-TEC's written permission. Any parties relying on the report, with OCCU-TEC's written permission, are bound by the terms and conditions outlined in the original proposal as if said proposal was prepared for them.

OCCU-TEC appreciates the opportunity to work with the General Services Administration on this project. Please contact us if you have any questions regarding this report or if we may be of any additional service.

Sincerely,

(b) (6)

Jeff T. Smith
Senior Project Manager

(b) (6)

Kevin Heriford
Operations Manager Environmental (QA/QC)

ATTACHMENTS

Appendix A, Results Summary by Location
Appendix B Water Sample Laboratory Report

Appendix A
Results Summary by Location

Goodfellow Federal Center - Building 105

Sample Number	Location	Water Source	Temperature	pH	Analyte	Result	Units	Above/Below	AL
GFC-105-21.1	Upper Level @ E-47 - north wall-left (1st draw)	Sink	22.8	9.31	Copper	0.1500	mg/L	Below AL	1.3
					Lead	0.0019	mg/L	Below AL	0.015
GFC-105-21.2	Upper Level @ E-47 - north wall-left (2nd draw)				Copper	0.0071	mg/L	Below AL	1.3
					Lead	< 0.0010	mg/L	Below AL	0.015
GFC-105-21.3	Upper Level @ E-47 - north wall-left (3rd draw)				Copper	0.0059	mg/L	Below AL	1.3
					Lead	< 0.0010	mg/L	Below AL	0.015
GFC-105-21.4	Upper Level @ E-47 - north wall-left (4th draw)				Copper	0.0064	mg/L	Below AL	1.3
					Lead	< 0.0010	mg/L	Below AL	0.015
GFC-105-31.1	Upper Level @ F-50 - south wall-right (1st draw)	Sink	19.9	9.26	Copper	0.1200	mg/L	Below AL	1.3
					Lead	0.0022	mg/L	Below AL	0.015
GFC-105-31.2	Upper Level @ F-50 - south wall-right (2nd draw)				Copper	0.0089	mg/L	Below AL	1.3
					Lead	< 0.0010	mg/L	Below AL	0.015
GFC-105-31.3	Upper Level @ F-50 - south wall-right (3rd draw)				Copper	0.0072	mg/L	Below AL	1.3
					Lead	< 0.0010	mg/L	Below AL	0.015
GFC-105-31.4	Upper Level @ F-50 - south wall-right (4th draw)				Copper	0.0046	mg/L	Below AL	1.3
					Lead	< 0.0010	mg/L	Below AL	0.015

Highlight indicates results at or above the Action Level (AL)

Appendix B
Water Sample Laboratory Report

LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at (800) 332-4345 or (574) 233-4777.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon (Primary AB)*	4074
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-18-12
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

NELAC NARRATIVE PAGE

Client: OCCU-TEC Inc.

Report #: 449841NP

Eurofins Eaton Analytical, LLC is a NELAP accredited laboratory. All reported results meet the requirements of the NELAC standards, unless otherwise noted.

EEA contact person: Kelly Blackburn

NELAP requires complete reporting of deviations from method requirements, regardless of the suspected impact on the data. Quality control failures not reported within the report summary are noted here.

There were no quality control failures.

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(b) (6)	ASM	04/29/2019
Authorized Signature	Title	Date

110 South Hill Street
 South Bend, IN 46617
 Tel: (574) 233-4777
 Fax: (574) 233-8207
 1 800 332 4345

Laboratory Report

Client: OCCU-TEC Inc.
 Attn: Kevin Heriford
 2604 NE Industrial Drive
 Suite 230
 North Kansas City, MO 64117

Report: 449841
 Priority: Standard Written
 Status: Final
 PWS ID: Not Supplied
 Lab ID#: E-10233
 Program Code: PE

Sample Information					
EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
4269212	GFC-105-31.1	200.8	04/18/19 06:11	Client	04/23/19 09:30
4269213	GFC-105-31.2	200.8	04/18/19 06:11	Client	04/23/19 09:30
4269214	GFC-105-31.3	200.8	04/18/19 06:11	Client	04/23/19 09:30
4269215	GFC-105-31.4	200.8	04/18/19 06:11	Client	04/23/19 09:30
4269216	GFC-105-21.1	200.8	04/18/19 06:20	Client	04/23/19 09:30
4269217	GFC-105-21.2	200.8	04/18/19 06:20	Client	04/23/19 09:30
4269218	GFC-105-21.3	200.8	04/18/19 06:20	Client	04/23/19 09:30
4269219	GFC-105-21.4	200.8	04/18/19 06:20	Client	04/23/19 09:30

Report Summary

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Kelly Blackburn at (574) 233-4777.

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(b) (6)

ASM

04/29/2019

Authorized Signature

Title

Date

Client Name: OCCU-TEC Inc.

Report #: 449841

Sampling Point: GFC-105-31.1

PWS ID: Not Supplied

Lead and Copper									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed	EEA ID #
7440-50-8	Copper	200.8	1300 !	1.0	120	ug/L	---	04/25/19 18:10	4269212
7439-92-1	Lead	200.8	15 !	1.0	2.2	ug/L	---	04/25/19 18:10	4269212

Sampling Point: GFC-105-31.2

PWS ID: Not Supplied

Lead and Copper									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed	EEA ID #
7440-50-8	Copper	200.8	1300 !	1.0	8.9	ug/L	---	04/25/19 18:12	4269213
7439-92-1	Lead	200.8	15 !	1.0	< 1.0	ug/L	---	04/25/19 18:12	4269213

Sampling Point: GFC-105-31.3

PWS ID: Not Supplied

Lead and Copper									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed	EEA ID #
7440-50-8	Copper	200.8	1300 !	1.0	7.2	ug/L	---	04/25/19 18:14	4269214
7439-92-1	Lead	200.8	15 !	1.0	< 1.0	ug/L	---	04/25/19 18:14	4269214

Sampling Point: GFC-105-31.4

PWS ID: Not Supplied

Lead and Copper									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed	EEA ID #
7440-50-8	Copper	200.8	1300 !	1.0	4.6	ug/L	---	04/25/19 18:16	4269215
7439-92-1	Lead	200.8	15 !	1.0	< 1.0	ug/L	---	04/25/19 18:16	4269215

Sampling Point: GFC-105-21.1

PWS ID: Not Supplied

Lead and Copper									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed	EEA ID #
7440-50-8	Copper	200.8	1300 !	1.0	150	ug/L	---	04/25/19 18:23	4269216
7439-92-1	Lead	200.8	15 !	1.0	1.9	ug/L	---	04/25/19 18:23	4269216

Sampling Point: GFC-105-21.2

PWS ID: Not Supplied

Lead and Copper									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed	EEA ID #
7440-50-8	Copper	200.8	1300 !	1.0	7.1	ug/L	---	04/25/19 18:25	4269217
7439-92-1	Lead	200.8	15 !	1.0	< 1.0	ug/L	---	04/25/19 18:25	4269217

Sampling Point: GFC-105-21.3

PWS ID: Not Supplied

Lead and Copper									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed	EEA ID #
7440-50-8	Copper	200.8	1300 !	1.0	5.9	ug/L	---	04/25/19 18:27	4269218
7439-92-1	Lead	200.8	15 !	1.0	< 1.0	ug/L	---	04/25/19 18:27	4269218

Sampling Point: GFC-105-21.4

PWS ID: Not Supplied

Lead and Copper									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed	EEA ID #
7440-50-8	Copper	200.8	1300 !	1.0	6.4	ug/L	---	04/25/19 18:29	4269219
7439-92-1	Lead	200.8	15 !	1.0	< 1.0	ug/L	---	04/25/19 18:29	4269219

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

