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June 11, 2019

Ms. Diane Czarnecki
Industrial Hygienist
Facilities Management Division
GSA Public Buildings Service – Heartland Region
2300 Main Street
Kansas City, Missouri 64108

**RE: Goodfellow Federal Center - Metals in Air Investigation
Building – #105
4300 Goodfellow Boulevard
St. Louis, Missouri 63120
OCCU-TEC Project No. 919083**

Dear Ms. Czarnecki:

Thank you for the opportunity to assist the General Services Administration (GSA) with the Resource Conservation and Recovery Act (RCRA) metals air sampling investigation of the above referenced buildings located at the Goodfellow Federal Center, in St. Louis, Missouri. OCCU-TEC understands that the purpose of the investigation was to provide sampling data regarding pre-existing conditions noted in investigation reports previously prepared for the facility. The following report summarizes the sample collection activities and the laboratory analytical results of the samples submitted.

On May 14, 2019, Missouri licensed air sampling professionals from OCCU-TEC conducted air sampling for the presence of seven of the RCRA metals including Silver, Arsenic, Barium, Cadmium, Chromium, Lead, and Selenium. Sampling was conducted on Building #105.

The proposed sampling scheme, the numbers of samples, sample distribution and general methodology was developed based on previous investigation methodology and in coordination with the GSA. Sample locations were determined by OCCU-TEC field personnel while on-site.

Resource Conservation and Recovery Act Metals Air Sampling

Air sampling for RCRA metals was collected on 37-millimeter (mm) cassettes with 0.8 micrometer (μm) mixed cellulose ester (MCE) filters using powered air sampling pumps in accordance with National Institute for Occupational Safety and Health (NIOSH) sampling methods. Samples were collected in a method sufficient to collect a minimum sample volume of 300 liters. Air samples were submitted under chain-of-custody to Scientific Analytical Institute, Inc. (SAI), for independent analysis of RCRA metals in accordance with NIOSH Method 7300. SAI is accredited by the American Industrial Hygiene Association (AIHA) utilizing the Industrial Hygiene Proficiency Analytical Testing (IHPAT) program. SAI's IHPAT Laboratory ID is 173190.

Results of the air sampling are summarized in the table below by identifying the range of results for Building #105 for each of the seven metals that were sampled. **Samples with a “<” sign indicate that the results were below the laboratory’s method reporting limit.**

Analysis	Lowest Concentration ($\mu\text{g}/\text{m}^3$)	Highest Concentration ($\mu\text{g}/\text{m}^3$)
Silver (Ag)	<0.64	<0.64
Arsenic (As)	<0.64	<0.64
Barium (Ba)	<0.097	<0.097
Cadmium (Cd)	<0.064	0.071
Total Chromium (Cr) *	<0.64	0.82
Lead (Pb)	<0.33	<0.33
Selenium (Se)	<0.64	<0.64

* The laboratory reported trace amounts of total chromium above the laboratory detection limit on many samples, including field blanks. According to the lab, low levels of Chromium can be found as a contaminant in varying levels on MCE filters for different manufacturers and lots.

Results of the air samples collected indicate that the air samples collected from Building #105 contained concentrations of RCRA metals below the laboratory’s method reporting limit and the OSHA Permissible Exposure Limit (PEL) with the exception of Cadmium and total Chromium. As previously noted, the elevated total Chromium results were likely due to contaminated MCE filter media. Sample location diagrams are included in Appendix A. Sample locations and the corresponding results are summarized in the laboratory analytical results that are included in Appendix B. The air sampling professional’s Missouri Lead license is included in Appendix C.

It should be noted that this air sampling investigation was only a screening of airborne RCRA metals and should not be interpreted or used to determine compliance or non-compliance with OSHA personnel monitoring regulations.

OCCU-TEC appreciates the opportunity to work with GSA on this project. If you have any questions concerning this report, or if we may be of any additional service, please feel free to contact us.

Sincerely,

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Justin Arnold, CIEC
Environmental Scientist



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Jeff Smith
Senior Project Manager (QA/QC)

Appendices:

- A: Sample Location Diagrams
- B: Laboratory Analytical Results and Chain of Custody Documentation
- C: Qualifications and Licenses

Appendix A

Sample Location Diagrams



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Figure 1: Air Sample Location Maps—1st Floor bldg. 105
Goodfellow Federal Center
4300 Goodfellow Boulevard
St. Louis, Missouri
Project Number: 919083

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Figure 2: AirSample Location Maps—2nd Floor bldg. 105

Goodfellow Federal Center
4300 Goodfellow Boulevard
St. Louis, Missouri
Project Number: 919083

Appendix B

Laboratory Analytical Results and Chain of Custody Documentation





Airborne Metals Concentration by Inductively-Coupled Plasma Analysis (ICP)

NIOSH Method 7303



Client:	Occu-Tec Inc. 2604 NE Industrial Drive, Suite 230 North Kansas City, MO 64117	Attn: Justin Arnold	Lab Order ID: 71913723	
			Date Received: 05/22/2019	
Project:	919083.001 GFC		Date Reported: 06/10/2019	
			Page: 1 of 14	

Sample ID	Description	Volume (L)	Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/m³)
Lab Sample ID	Lab Notes					
105-A01	LL E52	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	< 0.25	< 0.64
			Pb	0.13	< 0.13	< 0.33
71913723IPA_1			Se	0.25	< 0.25	< 0.64
105-A02	LL C48	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	0.31	0.79
			Pb	0.13	< 0.13	< 0.33
71913723IPA_2			Se	0.25	< 0.25	< 0.64

Melissa Ferrell

Analyst

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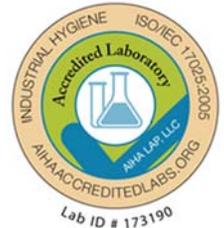
Lab Director

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Airborne Metals Concentration by Inductively-Coupled Plasma Analysis (ICP)

NIOSH Method 7303



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Project:	919083.001 GFC		Date Reported: 06/10/2019
			Page: 2 of 14

Sample ID	Description	Volume (L)	Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/m³)
Lab Sample ID	Lab Notes					
105-A03	LL E43	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	< 0.25	< 0.64
			Pb	0.13	< 0.13	< 0.33
71913723IPA_3			Se	0.25	< 0.25	< 0.64
105-A04	LL G40	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	0.28	0.71
			Pb	0.13	< 0.13	< 0.33
71913723IPA_4			Se	0.25	< 0.25	< 0.64

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Sample ID	Description	Volume (L)	Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/m ³)
Lab Sample ID	Lab Notes					
105-A05	LL D35	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	0.028	0.071
			Cr	0.25	0.25	0.64
			Pb	0.13	< 0.13	< 0.33
71913723IPA_5			Se	0.25	< 0.25	< 0.64
105-A06	LL B31	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	< 0.25	< 0.64
			Pb	0.13	< 0.13	< 0.33
71913723IPA_6			Se	0.25	< 0.25	< 0.64

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Sample ID	Description	Volume (L)	Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/m ³)
Lab Sample ID	Lab Notes					
105-A07	LL F31	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	< 0.25	< 0.64
			Pb	0.13	< 0.13	< 0.33
71913723IPA_7			Se	0.25	< 0.25	< 0.64
105-A08	LL H20	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	< 0.25	< 0.64
			Pb	0.13	< 0.13	< 0.33
71913723IPA_8			Se	0.25	< 0.25	< 0.64

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Sample ID	Description	Volume (L)	Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/m ³)
Lab Sample ID	Lab Notes					
105-A09	LL D15	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	0.30	0.77
			Pb	0.13	< 0.13	< 0.33
71913723IPA_9			Se	0.25	< 0.25	< 0.64
105-A10	LL H10	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	< 0.25	< 0.64
			Pb	0.13	< 0.13	< 0.33
71913723IPA_10			Se	0.25	< 0.25	< 0.64

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Project:	919083.001 GFC		Date Reported: 06/10/2019	
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Sample ID	Description	Volume (L)	Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/m ³)
Lab Sample ID	Lab Notes					
105-A11	LL A9	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	0.28	0.71
			Pb	0.13	< 0.13	< 0.33
71913723IPA_11			Se	0.25	< 0.25	< 0.64
105-A12	LL H5	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	< 0.25	< 0.64
			Pb	0.13	< 0.13	< 0.33
71913723IPA_12			Se	0.25	< 0.25	< 0.64

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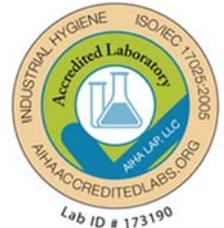
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Sample ID	Description	Volume (L)	Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/m ³)
Lab Sample ID	Lab Notes					
105-A13	LL G1	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	0.28	0.71
			Pb	0.13	< 0.13	< 0.33
71913723IPA_13			Se	0.25	< 0.25	< 0.64
105-A14	UL D4	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	< 0.25	< 0.64
			Pb	0.13	< 0.13	< 0.33
71913723IPA_14			Se	0.25	< 0.25	< 0.64

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			Page: 8 of 14	

Sample ID	Description	Volume (L)	Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/m ³)
Lab Sample ID	Lab Notes					
105-A15	UL B10	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	< 0.25	< 0.64
			Pb	0.13	< 0.13	< 0.33
71913723IPA_15			Se	0.25	< 0.25	< 0.64
105-A16	UL F16	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	0.026	0.066
			Cr	0.25	0.27	0.69
			Pb	0.13	< 0.13	< 0.33
71913723IPA_16			Se	0.25	< 0.25	< 0.64

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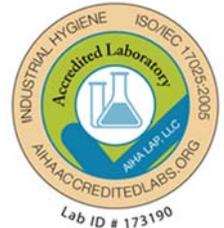
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Sample ID	Description	Volume (L)	Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/m ³)
Lab Sample ID	Lab Notes					
105-A17	UL H19	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	0.31	0.79
71913723IPA_17			Pb	0.13	< 0.13	< 0.33
			Se	0.25	< 0.25	< 0.64
105-A18	UL J27		Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
		Cd	0.025	< 0.025	< 0.064	
		Cr	0.25	< 0.25	< 0.64	
71913723IPA_18		Pb	0.13	< 0.13	< 0.33	
		Se	0.25	< 0.25	< 0.64	

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Sample ID	Description	Volume (L)	Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/m ³)
Lab Sample ID	Lab Notes					
105-A19	UL D28	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	< 0.25	< 0.64
			Pb	0.13	< 0.13	< 0.33
71913723IPA_19			Se	0.25	< 0.25	< 0.64
105-A20	UL C34	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	0.32	0.82
			Pb	0.13	< 0.13	< 0.33
71913723IPA_20			Se	0.25	< 0.25	< 0.64

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Sample ID	Description	Volume (L)	Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/m ³)
Lab Sample ID	Lab Notes					
105-A21	UL J39	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	0.27	0.69
			Pb	0.13	< 0.13	< 0.33
71913723IPA_21			Se	0.25	< 0.25	< 0.64
105-A22	UL G42	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	< 0.25	< 0.64
			Pb	0.13	< 0.13	< 0.33
71913723IPA_22			Se	0.25	< 0.25	< 0.64

Melissa Ferrell

Analyst

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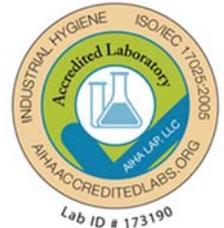
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Client:	Occu-Tec Inc. 2604 NE Industrial Drive, Suite 230 North Kansas City, MO 64117	Attn: Justin Arnold	Lab Order ID: 71913723	
			Date Received: 05/22/2019	
Project:	919083.001 GFC		Date Reported: 06/10/2019	
			Page: 12 of 14	

Sample ID	Description	Volume (L)	Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/m³)
Lab Sample ID	Lab Notes					
105-A23	UL F48	392	Ag	0.25	< 0.25	< 0.64
			As	0.25	< 0.25	< 0.64
			Ba	0.038	< 0.038	< 0.097
			Cd	0.025	< 0.025	< 0.064
			Cr	0.25	< 0.25	< 0.64
			Pb	0.13	< 0.13	< 0.33
71913723IPA_23			Se	0.25	< 0.25	< 0.64
105-A24	UL C49	283.2	Ag	0.25	< 0.25	< 0.88
			As	0.25	< 0.25	< 0.88
			Ba	0.038	< 0.038	< 0.13
			Cd	0.025	< 0.025	< 0.088
			Cr	0.25	< 0.25	< 0.88
			Pb	0.13	< 0.13	< 0.46
71913723IPA_24			Se	0.25	< 0.25	< 0.88

Melissa Ferrell

Analyst

(b) (6)

Lab Director

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Airborne Metals Concentration by Inductively-Coupled Plasma Analysis (ICP)

NIOSH Method 7303



Client:	Occu-Tec Inc. 2604 NE Industrial Drive, Suite 230 North Kansas City, MO 64117	Attn: Justin Arnold	Lab Order ID: 71913723
			Date Received: 05/22/2019
Project:	919083.001 GFC		Date Reported: 06/10/2019
			Page: 13 of 14

Sample ID	Description	Volume (L)	Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/m³)
Lab Sample ID	Lab Notes					
105-A25	FB	-	Ag	0.25	< 0.25	--
			As	0.25	< 0.25	--
			Ba	0.038	< 0.038	--
			Cd	0.025	< 0.025	--
			Cr	0.25	0.28	--
			Pb	0.13	< 0.13	--
71913723IPA_25			Se	0.25	< 0.25	--
105-A26	FB	-	Ag	0.25	< 0.25	--
			As	0.25	< 0.25	--
			Ba	0.038	< 0.038	--
			Cd	0.025	< 0.025	--
			Cr	0.25	0.26	--
			Pb	0.13	< 0.13	--
71913723IPA_26			Se	0.25	< 0.25	--

Melissa Ferrell

Analyst

(b) (6)

Lab Director

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Airborne Metals Concentration by Inductively-Coupled Plasma Analysis (ICP)

NIOSH Method 7303



Client:	Occu-Tec Inc. 2604 NE Industrial Drive, Suite 230 North Kansas City, MO 64117	Attn: Justin Arnold	Lab Order ID: 71913723
			Date Received: 05/22/2019
Project:	919083.001 GFC		Date Reported: 06/10/2019
			Page: 14 of 14

Sample ID	Description	Volume (L)	Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/m ³)
Lab Sample ID	Lab Notes					
105-A27	FB	-	Ag	0.25	< 0.25	--
			As	0.25	< 0.25	--
			Ba	0.038	< 0.038	--
			Cd	0.025	< 0.025	--
			Cr	0.25	< 0.25	--
71913723IPA_27			Pb	0.13	< 0.13	--
			Se	0.25	< 0.25	--

Melissa Ferrell

Analyst

(b) (6)

Lab Director

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Scientific Analytical Institute, Inc.
 4604 Dundas Dr. Greensboro, NC 27407
 Phone: 336.292.3888 Fax: 336.292.3313
 www.sailab.com lab@sailab.com

Lab Use Only 71913722
 Lab Order ID: _____
 Client Code: _____

Company Contact Information	
Company: OCCU-TEC Inc.	Contact: Justin Arnold
Address: 2604 NE Industrial Drive, Suite 230	Phone <input type="checkbox"/> : 816-810-3276
North Kansas City, MO 64117	Fax <input type="checkbox"/> : 816-994-3478
	Email :jarnold@occutec.com

Industrial Hygiene Test Types	
Silica as Alpha Quartz (XSZ)* <input type="checkbox"/>	With Respirable Dust (XDZ) <input type="checkbox"/>
Silica as Cristobalite (XSC)* <input type="checkbox"/>	With Respirable Dust (XDC) <input type="checkbox"/>
Silica as Tridymite (XST)* <input type="checkbox"/>	With Respirable Dust (XDT) <input type="checkbox"/>
Silica as Alpha Quartz, Cristobalite, Tridymite (XSA)* <input type="checkbox"/>	With Respirable Dust (XDA) <input type="checkbox"/>
Silica Bulk (XSI)* <input type="checkbox"/>	
Bulk Phase ID/Whole Rock (XUK) <input type="checkbox"/>	
Total Dust NIOSH Method 0500 (GTD) <input type="checkbox"/>	
Respirable Dust NIOSH Method 0600 (GRD) <input type="checkbox"/>	
PCM NIOSH 7400-A Rules (PCM) <input type="checkbox"/>	
B Rules (PCB) <input type="checkbox"/>	TWA (PTA) <input type="checkbox"/>
TEM NIOSH 7402 (Asbestos) (TNI) <input type="checkbox"/>	
Hexavalent Chromium (OSHA ID-215) (Note if from spray paint operations) <input type="checkbox"/>	
Metals (NIOSH 7300) (Specify Metals Under Comments) <input type="checkbox"/>	
Other 6010 C <input checked="" type="checkbox"/>	

* Modified NIOSH 7500/OSHA ID 142

Billing/Invoice Information	Turn Around Times [^]	
SAME <input checked="" type="checkbox"/>	90 Min. <input type="checkbox"/>	48 Hours <input type="checkbox"/>
Company:	3 Hours <input type="checkbox"/>	72 Hours <input type="checkbox"/>
Contact:	6 Hours <input type="checkbox"/>	96 Hours <input type="checkbox"/>
Address:	12 Hours <input type="checkbox"/>	120 Hours <input type="checkbox"/>
	24 Hours <input type="checkbox"/>	144 ⁺ Hours <input checked="" type="checkbox"/>
	[^] TATs not available for certain test types	
PO Number:		
Project Name/Number:	919083.001 GFC	

Sample ID #	Description/Location	Volume/Area	Comments
105-A-01	LL E52	392 L	Ag, As, Ba, Cd, Cr, Pb, Se
105-A-02	LL C48	392 L	Ag, As, Ba, Cd, Cr, Pb, Se
105-A-03	LL E43	392 L	Ag, As, Ba, Cd, Cr, Pb, Se
105-A-04	LL G40	392 L	Ag, As, Ba, Cd, Cr, Pb, Se
105-A-05	LL D35	392 L	Ag, As, Ba, Cd, Cr, Pb, Se
105-A-06	LL B31	392 L	Ag, As, Ba, Cd, Cr, Pb, Se
105-A-07	LL F31	392 L	Ag, As, Ba, Cd, Cr, Pb, Se
105-A-08	LL H20	392 L	Ag, As, Ba, Cd, Cr, Pb, Se
105-A-09	LL D15	392 L	Ag, As, Ba, Cd, Cr, Pb, Se
105-A-10	LL H10	392 L	Ag, As, Ba, Cd, Cr, Pb, Se
105-A-11	LL A9	392 L	Ag, As, Ba, Cd, Cr, Pb, Se
105-A-12	LL H5	392 L	Ag, As, Ba, Cd, Cr, Pb, Se
105-A-13	LL G1	392 L	Ag, As, Ba, Cd, Cr, Pb, Se

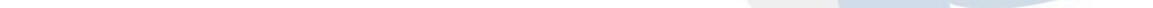
Total # of Samples _____

Relinquished by	Date/Time	Received by	Date/Time
(b) (6)	5/15/19 17:00	(b) (6)	5-22 10:30am

Accepted
 Rejected

Appendix C

Qualifications and Licenses



STATE OF MISSOURI
DEPARTMENT OF HEALTH AND SENIOR SERVICES

LEAD OCCUPATION LICENSE REGISTRATION

Issued to:

Justin E. Arnold

The person, firm or corporation whose name appears on this certificate has fulfilled the requirements for licensure as set forth in the Missouri Revised Statutes 701.300-701.338, as long as not suspended or revoked, and is hereby authorized to engage in the activity listed below.

Lead Risk Assessor
Category of License

Issuance Date: **6/11/2018**
Expiration Date: **6/11/2020**
License Number: **120611-300003622**

(b) (6)



Randall W. Williams, MD, FACOG
Director
Department of Health and Senior Services