Rose Environmental

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July 14, 2023

Bob Bliss, CIH
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GSA Public Building Services
GSA, PBS, Northwest/Arctic Region 10
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Subject: Air and Surface Sampling for Lead, Portland 911 Federal Building, Portland, Oregon

Dear Mr. Bliss,

Rose Environmental is pleased to provide our report for the lead air and surface sampling we conducted on June 21, 2023 at the Portland 911 Federal Building located at 4911 Northeast11th Avenue in Portland, Oregon.

If you have any questions concerning this evaluation, please contact us at (206) 679-0699. Rose Environmental looks forward to continued work with the General Services Administration.

Respectfully,

Wayne Sehman
Project Manager/Industrial Hygienist
Rose Environmental LLC

Reviewed by,

Martin Rose, CIH, CSP
Principal/Senior Consultant
Rose Environmental LLC

Attachments: *Executive Summary and Report*
Floor Map Diagrams of Air and Wipe Sample Locations
Photographic Contact Sheet
BV Laboratory Report C3l6401

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Executive Summary

On June 21, 2023, Rose Environmental collected air and surface (wipe) samples throughout the Portland 911 Federal Building to determine whether detectable amounts of lead were present. According to GSA, recent renovation activity included removal of lead-containing coatings on seismic steel and concrete within the building's core.

Area air sampling was conducted in mechanical areas, construction areas, childcare facilities, offices, and common areas, from the Basement level (B1) to the 8th Floor. Rose Environmental also collected surface wipe samples of settled dust from horizontal floor, windowsill, and desktop surfaces to determine the extent of lead deposition, if any. Samples were analyzed at an AIHA-accredited laboratory in accordance with NIOSH Method 9100, NIOSH Method 7303, and OSHA Method ID125G.

Results

All 20 of the area air sampling results were below the limit of detection, which ranged from less than (<) <0.77 to <1.1 micrograms per cubic meter of air ($\mu g/m^3$). As such, none of the air concentrations approached or exceeded the federal Occupational Safety and Health Administration (OSHA) 8-hour Time-Weighted Average (TWA) Permissible Exposure Level (PEL) of 50 $\mu g/m^3$ nor the Action Level of 30 $\mu g/m^3$.

For lead surface concentrations, current EPA Clearance Levels include 10 micrograms per square foot (10 $\mu g/ft^2$) for floors and 100 $\mu g/ft^2$ for windowsills.

Results of wipe analysis revealed no detectable surface lead concentrations on Level 4, and none of the sample results exceeded EPA Clearance Levels on Level 1 (including the daycare area), Level 3, Level 6, and Level 7. Level 5 and Level 8 had only one sample which exceeded the applicable EPA Clearance Level, while Level 2 and the Basement Level exceeded Clearance Levels twice and four-times respectively.

Detectable lead on Floors 2, 5, 6, and 8 appear to be a result of dispersal via the "stack effect" at the dumbwaiter shaft.

Discussion

Although OSHA requires (1) workplace surfaces to be maintained as free as practicable of lead and (2) directs employers to cleanup floors and other surfaces where lead may accumulate, it has not promulgated required surface clearance concentrations. Instead, OSHA's intent was for employers to keep surfaces clean enough so that airborne lead exposures are minimized. As the results from our study shows, airborne lead exposures within the 911 Federal Building are non-detectable.

The air sampling results also demonstrate that lead contamination has not been dispersed or distributed throughout the building via the HVAC system (where detected on upper floors, it likely moved up the building via the dumbwaiter shaft).

Regarding lead wipe results, surface contamination criteria for lead are currently based on EPA requirements for residential settings that are protective of very young children; as such, application of these standards to commercial and other non-child-occupied facilities can be impractical for a reasonably-exposed adult worker or occupant.

In a 2003 *Interpretation Letter*, OSHA stated that the Agency would not expect "working surfaces or floors in change rooms, storage facilities, and lunchroom/eating facilities to be any cleaner than the 200 $\mu g/ft^2$". Recent research risk assessments have also been conducted to calculate lead health risk from surfaces to adult workers in commercial buildings: in a peer-reviewed manuscript, Lange (*Indoor+Built Environment 2001)* suggested that a final clearance level of ~1,000 $\mu g/ft^2$ would not increase lead exposure in adults. Similarly in a 2007 Society for Risk Analysis presentation (*SRA 2007 Annual Meeting)*, Magee calculated that a surface concentration $\leq$1,000 $\mu g/ft^2$ would be protective to fetuses of a pregnant female worker. Using these more applicable adult-focused clearance levels, none of the surface samples collected throughout the 911 Federal Building would have been considered elevated, and no cleanup or response would have been recommended.

Importantly, it is understood that (daycare-attending) children do not access the Basement or other floors, and would not be expected to contact surfaces in these other building spaces.

Cleaning

Cleaning practices should include careful damp wiping and HEPA-vacuuming (no dry sweeping or compressed air blow-down) by suitably-trained personnel. Such cleaning should follow a written work plan which outlines means and methods to protect workers and building occupants from exposures to lead during cleaning, and which minimize the dispersal of particulate into adjacent spaces.

INTRODUCTION

On June 21, 2023, Rose Environmental collected air and surfaces samples for lead during normal business operations and renovation operations at the Portland 911 Federal Building located at 911 NE 11th Avenue in Portland, Oregon. The purpose of the inspection was to determine lead surface and air concentrations following recent lead coating abatement on seismic steel and concrete walls.

BACKGROUND

The Portland 911 Federal Building is an 8-floor, 300,000 square-foot, steel-framed structure originally constructed in 1953. According to General Services Administration (GSA), ongoing renovations to the building this year included the removal of lead-containing coatings associated with seismic steel and concrete within the building's core area.

METHODS

Lead Air Sampling

Area air samples were collected during typical workday and renovation operations from the Basement level (B1) through the 8th Floor. Sampling was conducted in mechanical areas, construction areas, childcare facilities, offices, and common areas.

Samples were collected onto 37-mm mixed cellulose ester (MCE) filters of 0.8 pore size using low-flow sampling pumps operated at a flow rate of approximately 2 liters per minute. Sampling chains was placed on tripods or affixed to horizontal surfaces 3.5- to 5-feet above floor level, and were pre and post-calibrated using a calibrated rotameter.

The samples were submitted to Bureau Veritas located in Detroit, Michigan for inductively-coupled plasma atomic absorption spectroscopy for lead by NIOSH Method 7303 Modified.

Results

All 20 of the lead area air samples were below the limit of detection, which ranged from less (<) 0.77 to <1.1 micrograms per cubic meter of air ($\mu g/m^3$). As such, all measured airborne lead concentrations were below the federal Occupational Safety and Health Administration (OSHA) 8-hour Time-Weighted Average (TWA) Permissible Exposure Level (PEL) of 50 $\mu g/m^3$ and Action Level of 30 $\mu g/m^3$.

Lead Air Sampling Results – 911 Federal Building
Survey Date: June 21, 2023

Floor	Description	Sample Number	Time (min)	Lead ($\mu g/m^3$)
B1	East Garage	003	8:05 – 16:12 (487)	<1.1
B1	West Corridor	004	8:08 – 16:15 (487)	<1.0
1	Toddler 2	001	7:43 – 16:04 (501)	<0.93
1	Infants	002	7:58 – 16:06 (488)	<0.77
2	Open Construction Area, West	011	9:06 – 16:41 (455)	<0.83
2	Open Construction Area, East	012	9:17 – 16:41 (444)	<0.83
2	Adjacent to Dumbwaiter	019	10:52 – 16:47 (355)	<0.84
3	East Open Office Area	013	9:21 – 16:48 (447)	<0.85
3	Adjacent to Dumbwaiter	014	9:31 – 16:50 (439)	<0.85
4	East Core Area	015	9:36 – 16:56 (490)	<0.85
5	West Open Office Area	016	9:48 – 17:07 (439)	<0.88
5	East Open Office Area	017	10:06 – 17:02 (416)	<0.90
6	East Common Area	009	8:43 – 16:32 (469)	<0.89
6	Adjacent to Dumbwaiter	010	8:46 – 16:34 (468)	<0.91
7	Adjacent to Dumbwaiter	020	10:56 – 17:08 (372)	<0.82
7	West Open Office Area	007	8:31 – 16:29 (478)	<0.91

Lead Air Sampling Results – 911 Federal Building, continued
Survey Date: June 21, 2023

Floor	Description	Sample Number	Time (min)	Lead ($\mu g/m^3$)
7	East Open Office Area	008	8:35 – 16:26 (471)	<0.96
8	Adjacent to Dumbwaiter	018	10:36 – 16:56 (380)	<1.1
8	East Open Office Area	005	8:20 – 16:20 (480)	<1.1
8	West Open Office Area	006	8:24 – 16:24 (480)	<1.1
OSHA 8-hr TWA Action Level:				**30**
OSHA 8-hr Permissible Exposure Level:				**50**

Note: $\mu g/m^3$ (micrograms of lead per cubic meter of air)

Surface Wipe Sampling

Rose Environmental also conducted surface wipe sampling of settled particulate (dust) on building horizontal surfaces (e.g., floors, windowsills, desktops) to determine the contribution, if any, of historic lead-containing coatings to lead deposition around occupied spaces.

Wipe samples were collected using Ghost Wipes™ sampling media collected over an approximate one square foot area. Samples were collected aseptically using nitrile gloves (changed between samples) in accordance with NIOSH Method 9100 and analyzed at Bureau Veritas Laboratories using OSHA ID 125G Modified Test Method.

Results

Results of analysis (BV Lab Reports C3l6401) for surfaces wipes collected on July 21, 2023 revealed removable surface lead concentrations ranging from below the limit of detection (<5.0 micrograms per square foot [$\mu g/ft^2$]) to 900 $\mu g/ft^2$.

Results of wipe analysis revealed no detectable surface lead concentrations on Level 4, and none of the sample results exceeded EPA Clearance Levels on Level 1 (including the daycare area), Level 3, Level 6, and Level 7. Level 5 and Level 8 had only one sample which exceeded the applicable EPA Clearance Level, while Level 2 and the Basement Level exceeded Clearance Levels twice and four-times respectively. Detectable lead on Floors 2, 5, 6, and 8 appear to be a result of dispersal via the "stack effect" at the dumbwaiter shaft.

Lead Surface Wipe Sampling Results Floor B1 Basement
July 21, 2023

Sample ID	Sample Location/ Description	Surface Lead (µg/ft^2)
1001	SW Mechanical Room, On top of Electrical Panel	22
1002	**Northwest Hallway, Floor**	**25**
1003	**Room BW 27, Floor**	**900**
1004	Room BE 15, Top of Panel	31
1005	**Northeast Sump Pump Room, Floor**	**78**
1006	**Southeast Sump Garage, Floor**	**120**
1007	Motor Pool Office, Countertop	<5.0
1008	Open Construction Meeting Area, Tabletop	18
	EPA Clearance Level for Floors:	**10**
	EPA Clearance Level for Windowsills:	**100**

Lead Surface Wipe Sampling Results Floor 1
July 21, 2023

Sample ID	Sample Location/ Description	Surface Lead (µg/ft^2)
1009	Southeast Toddler Classroom Play Area, Windowsill	<5.0
1010	Northeast Toddler Classroom, Floor	<5.0
1011	Northwest Toddler Classroom, Tabletop	<5.0
1012	Toddler Foyer, Windowsill	8.4
1013	Infants, Floor	<5.0
1014	Wobbler Room, Floor	<5.0
1015	Joyful Kitchen, Storage Shelf	21
1016	East Entry, Tabletop	<5.0
	EPA Clearance Level for Floors:	**10**
	EPA Clearance Level for Windowsills:	**100**

Lead Surface Wipe Sampling Results Floor 2
July 21, 2023

Sample ID	Sample Location/ Description	Surface Lead (µg/ft^2)
1017	Congressman's Open Office Area, Desk	6.0
1018	Congressman's Side Office, Windowsill	<5.0
1019	Congressman's Kitchenette, Countertop	<5.0
1020	**North Center Office, Windowsill**	**170**
1021	West Open Office Area, Windowsill	41
1022	**Dumbwaiter Sill**	**480**
1023	West Open Office Area, Windowsill	22
1024	Large Southwest Office, Windowsill	27
	EPA Clearance Level for Floors:	**10**
	EPA Clearance Level for Windowsills:	**100**

Lead Surface Wipe Sampling Results Floor 3
July 21, 2023

Sample ID	Sample Location/ Description	Surface Lead (µg/ft^2)
1025	West Open Office Area, Cabinet top	<5.0
1026	Work Area 3W39, Desktop	<5.0
1027	Work Area 3W85, Desktop	12
1028	Work Area 3W76, Windowsill	5.7
1029	Adjacent to Dumbwaiter, Desktop	<5.0
1030	Center East Office, Desktop	<5.0
1031	East Office Area, North Windowsill	5.7
1032	Work Area 3E84, Desktop	<5.0
	EPA Clearance Level for Floors:	**10**
	EPA Clearance Level for Windowsills:	**100**

Lead Surface Wipe Sampling Results Floor 4
July 21, 2023

Sample ID	Sample Location/ Description	Surface Lead (µg/ft^2)
1033	East Open Office Area, Desktop	<5.0
1034	East Open Office Area, Desktop	<5.0
1035	East Open Office Area, Desktop	<5.0
1036	Office Adjacent to Dumbwaiter, Windowsill	<5.0
1037	West Open Office Area, Windowsill	<5.0
1038	West Open Office Area, Desktop	<5.0
	EPA Clearance Level for Floors:	**10**
	EPA Clearance Level for Windowsills:	**100**

Lead Surface Wipe Sampling Results Floor 5
July 21, 2023

Sample ID	Sample Location/ Description	Surface Lead (µg/ft^2)
1039	Work Area 5W94, Windowsill	<5.0
1040	Work Area 5W38, Desktop	<5.0
1041	Work Area 5W84, Windowsill	<5.0
1042	**Adjacent to Dumbwaiter, Desktop**	**780**
1043	East Central Office Area, Desktop	<5.0
1044	Work Area 5E23, Windowsill	<5.0
	EPA Clearance Level for Floors:	**10**
	EPA Clearance Level for Windowsills:	**100**

Lead Surface Wipe Sampling Results Floor 6
July 21, 2023

Sample ID	Sample Location/ Description	Surface Lead (µg/ft^2)
1045	Office 674, Desktop	<5.0
1046	Office 674, Windowsill	<5.0
1047	Dumbwaiter Sill	<5.0
1048	**Office 638, Windowsill**	**150**
1049	East Entry Handrail	<5.0
	EPA Clearance Level for Floors:	**10**
	EPA Clearance Level for Windowsills:	**100**

Lead Surface Wipe Sampling Results Floor 7
July 21, 2023

Sample ID	Sample Location/ Description	Surface Lead (µg/ft^2)
1050	Dumbwaiter Sill	73
1051	Adjacent to Dumbwaiter, Desktop	8.0
1052	East Stairwell, Floor	6.0
1053	West Stairwell, Floor	<5.0
	EPA Clearance Level for Floors:	**10**
	EPA Clearance Level for Windowsills:	**100**

Lead Surface Wipe Sampling Results Floor 8
July 21, 2023

Sample ID	Sample Location/ Description	Surface Lead (µg/ft^2)
1054	East Stairwell, Floor	<5.0
1055	**Dumbwaiter Sill**	**110**
1056	West Stairwell Floor	<5.0
	EPA Clearance Level for Floors:	**10**
	EPA Clearance Level for Windowsills:	**100**

CONCLUSIONS AND RECOMMENDATIONS

Air Sampling

Air sampling results failed to demonstrate detectable ambient airborne lead concentrations over the PEL or Action Level (above which respiratory protection and other measures to reduce exposure would be required). As such, current trace levels of lead in the dust, combined with typical construction work activities, are not resulting in suspended airborne lead particulate concentrations above laboratory detection limits.

Surface Sampling

Surface wipe sampling for lead ranged from below the limit of detection to above the EPA clearance levels for lead dust on floors and window assemblies. Where warranted, cleaning practices should include careful damp wiping and HEPA-vacuuming (no dry sweeping or compressed air blow-down) by suitably trained personnel. Such cleaning should follow a written work plan which outlines means and methods to protect workers and building occupants from exposures to lead during cleaning, and which minimize the dispersal of particulate into adjacent spaces.