Hazardous Materials Survey Report

Recreational Building Demolition Project
Green Hill School
375 SW 11th St
Chehalis, Washington

Prepared for:
Dept. of Social and Health Services
and State of Washington
Department of Enterprise Services
PO Box 41012
Olympia, WA 98504-1012

December 24, 2018
PBS Project No. 40535.387

PBS
2517 EASTLAKE AVENUE EAST
SUITE 100
SEATTLE, WA 98102
206.233.9639 MAIN
866.727.0140 FAX
PBSUSA.COM

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1 INTRODUCTION

1.1 Project Background

PBS Engineering and Environmental, Inc. (PBS) performed a hazardous materials survey of the Recreational Building at Green Hill School in Chehalis, Washington in conjunction with the planned demolition of the structure. The intent of this investigation is to ensure compliance with applicable regulatory requirements that a "good faith inspection" for ACMs be performed prior to demolition activities.

All accessible areas associated with the project were inspected for the presence of asbestos-containing materials (ACMs), lead-containing paint (LCP), PCB-containing light ballasts, mercury-containing fluorescent lamps, and metal in mortar.

1.2 Building Descriptions

The Recreational Building is a single-story masonry block building on a concrete slab. Interior finishes consist of the following: Vinyl tile or concrete flooring. The walls are typically masonry block and the ceilings are gypsum wallboard or open to the tongue and groove roof. The exterior is comprised of masonry or brick. The windows are aluminum-framed. The roof consists of both flat and pitched sections, all covered by a Thermoplastic olefin (TPO) type membrane cap.

There is a crawlspace below the building. Insulation on plumbing in this space appears to be newer fiberglass.

1.3 Survey Process

Accessible areas included in the project scope were inspected by AHERA Certified Building Inspectors Mike Smith (Cert. No. IR-18-61554B Exp. 03/8/2019) Cel Alvarez (Cert. No. 165223 Exp. 01/24/2019) on September 21, 2018. PBS endeavored to inspect all accessible areas of the scope of work. Inaccessible areas consist of those requiring selective demolition, fall protection, or confined space entry protocols in order to gain access.

When observed, suspect materials were sampled. All samples were assigned a unique identification number and transmitted for analysis to Seattle Asbestos Test (NVLAP #201057-0) under chain-of-custody protocols. Samples were analyzed according to EPA Method 600R-93/116 using Polarized Light Microscopy (PLM), which has a reliable limit of quantification of 1% asbestos by volume. Information regarding the type and location of sampled materials can be found on the attached PLM Sample Inventory.

Suspect ACMs may exist in inaccessible areas. PBS endeavored to determine the presence and estimate the condition of suspect materials in all inaccessible areas included in the scope of work.

2 FINDINGS

2.1 Asbestos-Containing Materials (ACMs)

The following materials were determined to contain greater than 1% asbestos (per Federal and State regulations) and are ACMs. Room numbers are based on those shown on As-Built drawings:

- **9" Light Brown Vinyl Tile** – (mastic Non-ACM) Lobby of Restroom SE of Gym, Rm 108 – 111, Rm 114, Rm 116, & Rm 117 (approx. 3,100 SF);
- **Texture on Gypsum Wallboard Ceilings** – Rm's 102 – 105, 112, 114 – 119, 120, & 122 – 126 (approx. 2,200 SF);
- **Exterior Caulking at Steel Beam to Brick Intersections** – South Elevation (approx. 400 LF)
- **Black Undercoating on Steel Sink** – Weight Room Kitchen, 1 EA;
- **Door Frame Sealant** (door frame to rough opening) – South Elevation (approx. 60 LF)

- **Window Glazing Putty –** South Entry Door (approx. 90 LF)
- **Interior Caulking on Window Sill –** Rm's 110, 111, & 112 (approx. 250 LF)
- **Interior Window Frame Caulk** (between frame and rough opening) – Rm's 110, 111, 112, and North side of the Weight room (approx. 300 LF)
- **Exterior Window Frame Caulk** (between frame and rough opening) – Rm's 110, 111, & 112 (approx. 400 LF);
- **Stage Light Wiring (assumed) –** Backstage, 16 lights with approx. 5 LF wiring per light (80 LF total);
- **Built-up roofing (assumed)** – Below Membrane Cap (approx. 21,000 SF). Not sampled due to insurance and warranty issues.
- **Buried conduits and piping** – assume 200 LF.

NON-ACMs: The following materials sampled and found not to contain detectable concentrations of asbestos. Room numbers are based on those shown on As-built drawings:

- Red Cementitous flooring and curbing – Locker Room, associated Restroom, and Pool Room;
- Asphaltic Tar – Beneath hardwood Gym floor;
- Ceramic Tile, Grout, Mastic, and Grout Bed – Shower, Restrooms, And Pool Room;
- Gray Sealant on Ducts – Throughout;
- Black Floor Tile Mastic – Throughout;
- 12" Beige Vinyl Floor Tile – South Corridor, Weight Room, and Kitchen off Weight Room;
- All Cove Base Mastic - Throughout;
- Interior Black Sealant on Brick Wall Crack - Server Room;
- White Undercoating on Steel Sink - Weight Room Kitchen;
- Residual Vertical Expansion Joint - Southwest Exterior.

PBS did not impact the walls of bottom of the pool. At the time of PBS' investigation the pool was filled with pool water. The cementitious walls and floor of the pool should be sampled (suspect plaster or other finish coat) when the water is lowered or removed, and damage to the side walls or floor is not a concern.

For a complete listing of representative bulk sampling and associated laboratory analysis, refer to the Attachments. For locations and quantities see hazardous materials drawings associated with the demolition project.

2.2 Lead-Containing Components

Ten (10) representative painted coatings were sampled for lead content. The samples were assigned unique identification numbers and transmitted to EMSL Laboratories, Inc. (AIHA IH #167337) in Seattle, Washington under chain-of-custody protocols for analysis using Flame Atomic Absorption.

Seven (7) of the ten samples were determined to contain detectable concentrations of lead ranging from 0.066% to .0580%. painted surfaces determined to contain lead include interior and exterior walls and mechanical and plumbing components.

For a complete listing of representative paint chip sampling and associated laboratory analysis, refer to the Attachments. For locations and quantities see hazardous materials drawings associated with the demolition project.

2.3 Mercury-Containing Components

All fluorescent light tubes and high intensity discharge (HID) lamps are presumed to contain mercury. PBS counted the number of fluorescent tubes that will be impacted by the project for the purposes of mercury vapor recovery prior to demolition activities. Approximately 675 four-foot fluorescent light tubes were identified during PBS's survey. PBS also identified approximately 7 HID fixtures (with presumed mercury-containing bulbs) in the pool room and 8 HID fixtures (with presumed mercury-containing bulbs) on the building exterior

2.4 PCB-Containing Components

PBS inspected representative fluorescent light fixture ballasts that are to be removed to facilitate the planned demolition. Light fixture ballasts inspected were found to be electronic and not magnetic. Magnetic ballasts are presumed to be PCB-containing regardless of labeling. PBS recommends all light ballasts be inspected prior to disposal. Ballasts associated with 15 interior and exterior HID light fixtures should be presumed to be PCB-containing. Magnetic ballasts should properly be removed, stored, transported and disposed of in accordance with Washington Administrative Code (WAC) 173-303 Dangerous Waste Regulations and 40 CFR Part 761 Subpart D.

Suspect PCBs in Putty: Two (2) bulk caulking samples were collected and delivered for analysis. Laboratory analysis revealed the exterior window frame putty on the brick portions to contain approximately 1.3 ppm PCB's (below state regulated levels of 50 ppm).

For a complete listing of representative caulking sampling and associated laboratory analysis, refer to the Attachments. For locations and quantities see hazardous materials drawings associated with the demolition project.

2.5 RCRA 8 Metals

PBS collected two (2) samples of mortar from the exterior walls of the building for RCRA 8 metals analysis. The samples were assigned unique identification numbers and transmitted to NVL Laboratories, Inc. (AIHA IH #101861) under chain-of-custody protocols for RCRA 8 metals analysis. See attached sample inventory, laboratory data, and chain of custody documentation for sample locations and results.

- Detectable concentrations of RCRA 8 metals in sample # RCRA-01 were not present in the brick mortar with the exception of Barium; which was identified at a concentration of 41.0 ppm.
- Detectable concentrations of RCRA 8 metals in sample # RCRA-02 were identified as 41.0 ppm Barium and 16.0 ppm Lead in the masonry block mortar.

The presence of regulated metals in building components requires construction work to be performed in compliance with State and Federal regulations. Employers of personnel impacting these materials are required to perform a negative exposure assessment, provide proper training, respiratory protection and medical surveillance as outlined in WAC 296-155 and elsewhere. Individual landfill requirements may restrict acceptance of materials with these regulated metals.

Samples of building components representative of the waste stream for Toxicity Characteristic Leaching Procedure (TCLP) as described in 40 CFR 261, Appendix II were not collected during this survey and should be collected as part of demolition efforts.

For a complete listing of representative masonry sampling and associated laboratory analysis, refer to the Attachments. For locations and quantities see hazardous materials drawings associated with the demolition project.

2.6 Silica Containing Materials

Certain building materials, including but not limited to fireproofing, concrete panels, wall blocks, ceiling tiles, wallboard, mortar, and plaster, may contain silica. PBS performed visual observations for silica-containing materials. Based on the field observations and the scope of work, the following materials are assumed to contain silica:

- Cement masonry unit (CMU) walls and concrete walls and floor slab.
- Ceramic tiles and plaster finish coat.
- All structures with concrete and masonry brick mortar which includes concrete sidewalks and pathways of the site.

3 RECOMMENDATIONS

3.1 ACMs

PBS recommends that all exposed and concealed ACM to be impacted by the demolition be removed prior to construction activities. A qualified Washington State licensed asbestos abatement contractor should be employed to remove all such ACM according to applicable local, state and federal regulations.

The possibility exist that suspect ACM may be present in equipment, wall and ceiling cavities, and in select areas included in the scope of demolition. These may include, but are not limited to waterproofing membrane, internal gaskets, caulking and sealants of HVAC equipment, buried or below slab pipework, and construction adhesives and wall mastics. In the event that suspect ACM is uncovered during construction, contractors should stop work immediately and inform the owner promptly for confirmation testing. All untested materials should be presumed asbestos-containing or tested for asbestos content prior to impact.

While not observed, additional suspect-ACM may be present in concealed spaces, which are discussed above. Caution should be exercised during selective demolition to prevent impact of suspect-ACMs. All suspect ACMs should be presumed asbestos-containing until properly sampled and analyzed.

Assumed ACMs: These assumed materials and associated quantities are listed in the interest of notification and environmental safety and summarized in this report to notify about potential ACMs that may be impacted or uncovered by the project and site-work. It is not meant to provide or use as scope of remediation. Any assumed materials will be sampled to determine asbestos content and appropriate responses to environmental health, worker safety and disposal requirements per federal and state rules.

3.2 Lead-Containing Components

Painted coatings may exist in inaccessible areas of the work area or in secondary coatings. Any previously unidentified painted coatings should be considered lead containing until sampled and proven otherwise. All waste shall be handled in accordance with WAC 173-303.

Impact of painted surfaces with detectable concentrations of lead requires construction activities to be performed according to Washington Labor and Industries regulations for Lead in Construction (WAC 296-62-155). Workers impacting LCP should be provided the proper personal protective equipment and use proper work methods to limit occupational and environmental exposure to lead until an initial exposure assessment has been conducted.

3.3 Mercury-Containing Components

Fluorescent lamps are known to contain mercury and mercury vapors. All fluorescent lamps at this site are presumed to be mercury-containing. PBS recommends that all fluorescent lamps be carefully handled and recycled/disposed of in accordance with the contract documents and applicable regulations during demolition activities. Breakage of lamps should be avoided to prevent potential exposures to mercury. Washington Department of Safety and Health requires specific training, handling, engineering controls and disposal practices when performing this work. All waste shall be handled in accordance with WAC 173-303.

3.4 PCB-Containing Components

PBS recommends all light ballasts be inspected prior to disposal. Magnetic ballasts should be presumed to contain PCBs and properly removed, stored, transported and disposed of in accordance with Washington Administrative Code (WAC) 173-303 Dangerous Waste Regulations and 40 CFR Part 761 Subpart D. Electronic ballasts do not contain PCB's and can be disposed of as general debris in compliance with applicable codes and endpoint facility requirements.

Washington State requires the proper handling (i.e. trained personal, personnel protection, environmental protection, containerization, air monitoring, housekeeping, etc.) of all PCB-containing materials regardless of concentration. Workers impacting these building materials should be provided proper personal protective equipment and use proper work methods and engineering controls to limit occupational and environmental exposure to PCBs until an initial exposure assessment has been conducted.

Bulk PCBs: EPA regulates and prohibits the use of all materials that contain greater than 50 ppm PCBs. EPA ruled in 2012 that paints, sealants, mastics, caulking and their associated substrates with greater than 50 ppm PCBs can be treated as a "PCB bulk product waste" and go to permitted municipal solid waste landfill (with no manifest required) as long as the PCB-containing product is not removed from the substrate during demolition. Even if the product (i.e. paint) falls off during demolition, the paint debris is still part of the "bulk product" waste stream. Additionally, individual waste receiving facilities have different requirements regarding PCB wastes.

Representative suspect caulking was tested throughout the campus buildings for PCB content by PBS Industrial Hygiene Technicians Mike Smith and Cel Alvarez on, September 21, 2018. The samples were assigned unique identification numbers and delivered to Fremont Analytical for analysis by EPA Method 8082. Suspect materials were sampled and analyzed to determine PCB content.

The PCB Sample Inventory in the attachments lists suspect materials that were sampled and analyzed along with chain-of-custody forms and laboratory data sheets.

3.5 RCRA 8 Metals

Barium is present in the brick mortar, Barium and Lead are present in the concrete masonry block mortar. Activities impacting these materials require compliance with the State of Washington Department of Labor and Industries Airborne Contaminants Regulation (WAC-296-841). Workers impacting these materials should

be provided the proper personal protective equipment and use proper work methods to limit occupational and environmental exposure to barium and lead.

3.6 Silica-Containing Materials

Suspect silica-containing materials are present in the building. Construction activities including, but not limited to, chipping, sawing and jack hammering require control of potentially airborne silica dust. Impact of these building materials with detectable concentrations of silica should be performed according to Washington Labor and Industries regulations for Silica in Construction (WAC 296-840 and 296-841 - Airborne Contaminants).

Workers impacting these building materials should be Silica trained, provided the proper personal protective equipment and use proper work methods and engineering controls to limit occupational and environmental exposure to silica until an initial exposure assessment has been conducted.

3.7 Limitations

Suspect materials may exist in inaccessible areas at the project site, such as in buried utilities, interior of adjacent buildings and in interstitial spaces. PBS endeavors to determine the presence and estimate the condition of suspect materials in all accessible areas included in the scope of work. In the event suspect materials are uncovered during construction, contractor should contact immediately the School and PBS for associated asbestos or other regulated hazardous materials confirmation testing.

Report prepared by:

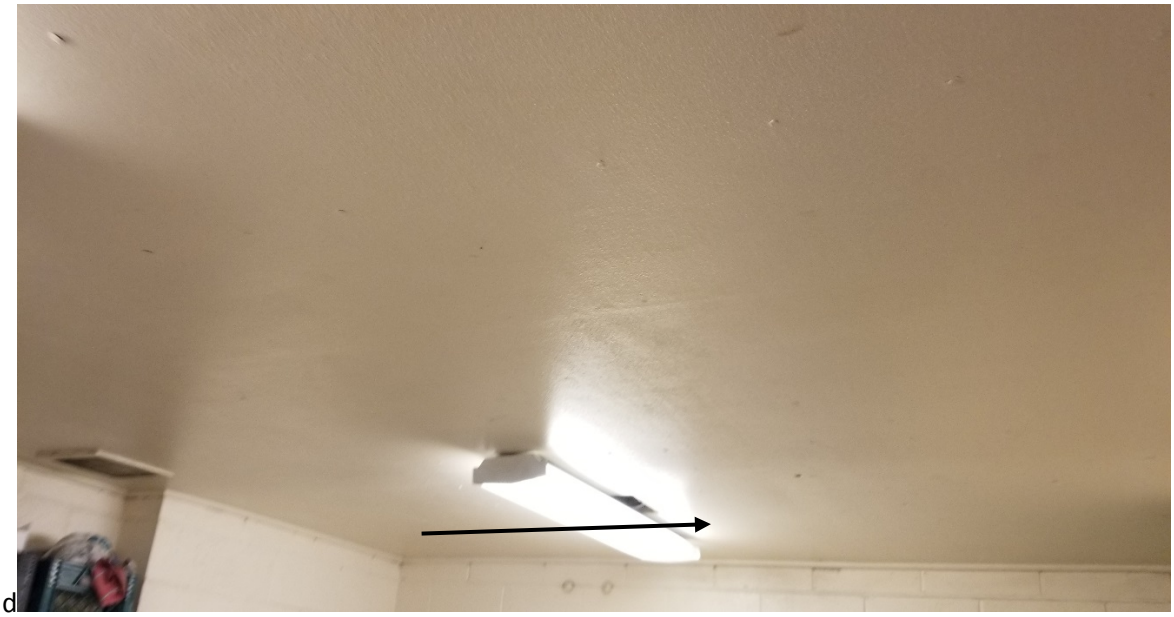
Michael Smith
AHERA Building Inspector
Cert. # 1626375, Exp. 4/19/2018

Report reviewed by:

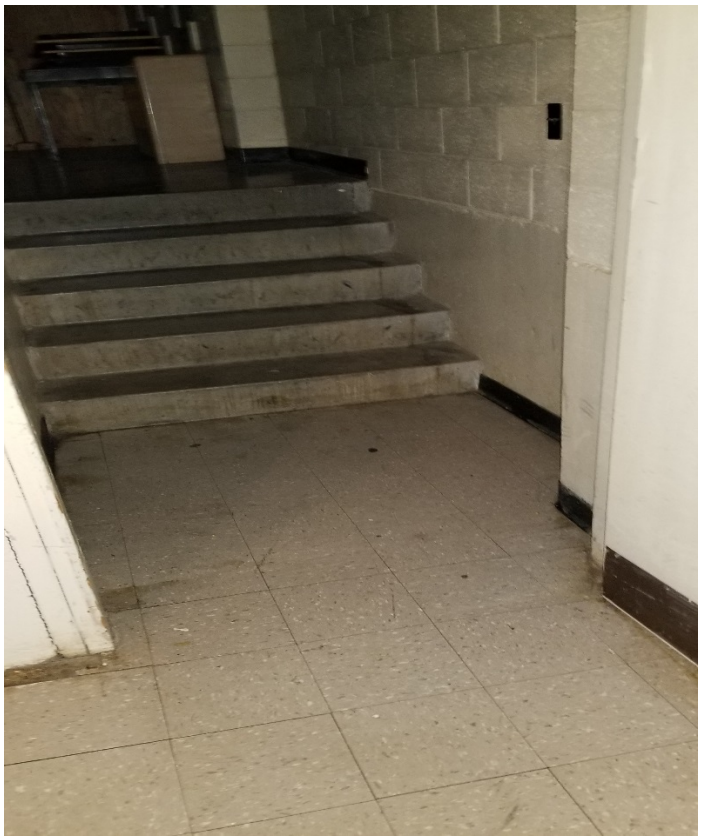
Willem Mager
Project Mgr., AHERA Building Inspector
Cert. #165414, exp. 2/07/2019

APPENDIX A

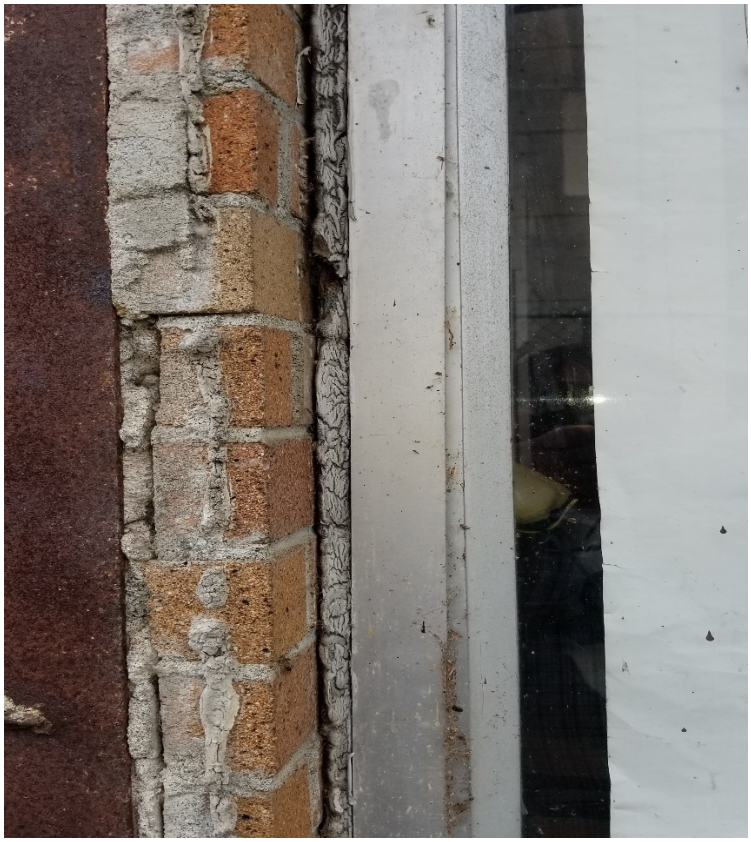
Photo Documentation
PLM Bulk Sampling Information
PLM Bulk Sample Inventory
PLM Bulk Sample Laboratory Data Sheets
PLM Bulk Sample Chain of Custody Documentation



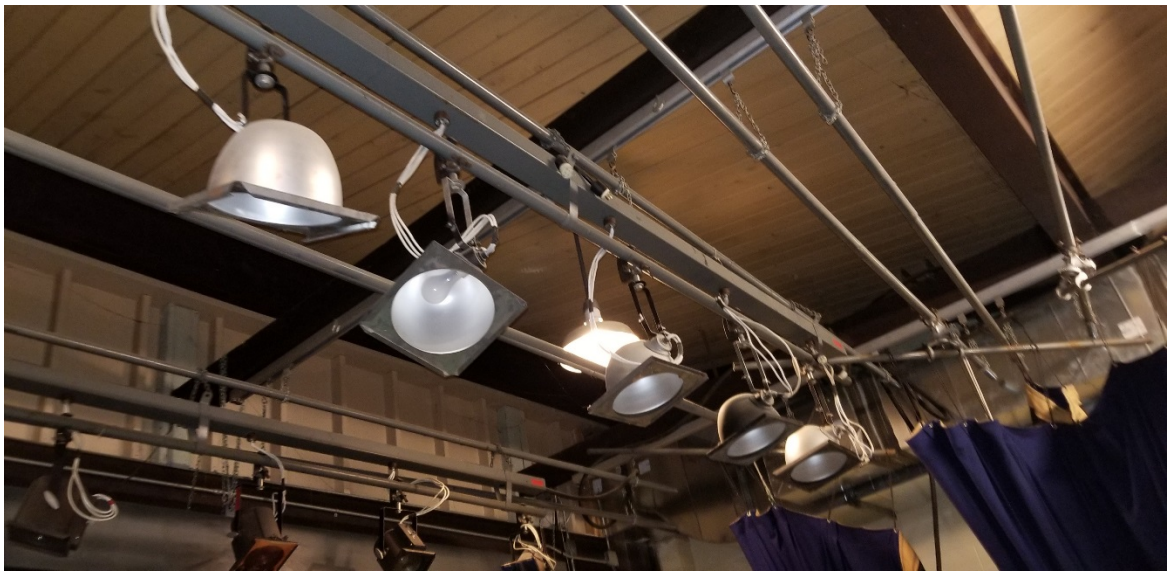
Typical ACM skim coat on GWB ceiling. Rm's 102 – 105, 112, 114 – 119, 120, & 122 – 126



Typical 9" Light Brown vinyl tile. The mastic is non-ACM. Lobby of Restroom SE off Gym, Rm 108 – 111, Rm 114, Rm 116, & Rm 117



Exterior ACM window frame caulk. Northeast corner of building at Rec. Manager's Office



Presumed ACM white insulation on stage light wiring.

PLM ASBESTOS SAMPLE INVENTORY

PBS Sample #	Material Type	Sample Location	Lab Description	Lab Result	Lab
40535.387 -1	Red, Cementitious Flooring	At the S locker room door way	Layer 1: Red brittle material with paint and sand	NAD	SAT
40535.387 -2	Red, Cementitious Cove Base	At the S locker room door way	Layer 1: Red brittle material with paint and sand	NAD	SAT
40535.387 -3	Red, Cementitious Flooring	Pool room at drain	Layer 1: Red brittle material with paint and sand	NAD	SAT
40535.387 -4	Red, Cementitious Flooring	At the pool entrance door	Layer 1: Red brittle material with paint and sand	NAD	SAT
40535.387 -5	Asphaltic tar	Below wood gym floor	Layer 1: Black asphaltic material Layer 2: Gray sandy/brittle material	NAD NAD	SAT
40535.387 -6	Fiberglass Reinforced Wall Panels and Clear Mastic	Northeast corner of locker room	Layer 1: White brittle/rigid material Layer 2: Clear mastic	NAD NAD	SAT
40535.387 -7	Gray Sealant on Metal Duct	Mech. room above pool	Layer 1: Silver foil Layer 2: Gray soft/elastic material	NAD NAD	SAT
40535.387 -8	Gray Sealant on metal Duct	On HVAC 2nd floor east of gym	Layer 1: Gray soft/elastic material	NAD	SAT
40535.387 -9	9" Light Brown Vinyl Floor Tile and Black Mastic	Restroom lobby off gym	Layer 1: Light brown tile Layer 2: Black mastic	3% Chrysotile NAD	SAT
40535.387 -10	9" Light Brown Vinyl Floor Tile and Black Mastic	Linen room floor	Layer 1: Light brown tile Layer 2: Black mastic Layer 3: Gray sandy/brittle material	3% Chrysotile NAD NAD	SAT
40535.387 -11	9" Light Brown Vinyl Floor Tile and Black Mastic	Northeast corner of auditorium	Layer 1: Light brown tile Layer 2: Black mastic	3% Chrysotile NAD	SAT

PLM ASBESTOS SAMPLE INVENTORY

PBS Sample #	Material Type	Sample Location	Lab Description	Lab Result	Lab
40535.387 -12	12" Beige Vinyl Floor Tile and Tan Mastic	East hallway at southeast building entrance	Layer 1: Beige tile	NAD	SAT
			Layer 2: Tan mastic	NAD	
40535.387 -13	Poured Black Flooring with Black Specks	Shower floor, rec. teacher office	Layer 1: Gray/black brittle material with paint	NAD	SAT
40535.387 -14	Red Grout on 4" Red Quarry Tile	Perimeter of pool	Layer 1: Red/gray sandy/brittle material	NAD	SAT
40535.387 -15	Grout on 8" Brown Ceramic Tile	Perimeter of pool	Layer 1: Red/gray sandy/brittle material	NAD	SAT
40535.387 -16	1" Ceramic Tile Mastic and Grout	Shower floor off gym	Layer 1: Gray sandy/brittle material	NAD	SAT
			Layer 2: Trace tan mastic	NAD	
40535.387 -17	4" Ceramic Tile Grout-Bed	Wall of shower by gym	Layer 1: White brittle material	NAD	SAT
			Layer 2: Trace gray Sandy/brittle material	NAD	
40535.387 -18	Brick Mortar	Southeast exterior corner of building	Layer 1: Tan sandy/brittle material	NAD	SAT
			Layer 2: Gray sandy/brittle material	NAD	
40535.387 -19	Concrete Masonry Unit Mortar	In sink chase by gym	Layer 1: Gray sandy/brittle material	NAD	SAT
40535.387 -20	Concrete Masonry Unit Mortar	2nd floor east of gym	Layer 1: Gray sandy/brittle material	NAD	SAT
40535.387 -21	Skim Coat on Gypsum Wallboard	Locker room shower ceiling	Layer 1: Trace off-white powdery material with paint	NAD	SAT
			Layer 2: White chalky material with paper	NAD	
40535.387 -22	Skim Coat on Gypsum Wallboard	Locker room bathroom ceiling	Layer 1: Trace tan powdery material with paint	2% Chrysotile	SAT
			Layer 2: White chalky material with paper	NAD	
40535.387 -23	Skim Coat on Gypsum Wallboard	Locker room hall by shower	Layer 1: Trace tan powdery material with paint	2% Chrysotile	SAT
			Layer 2: White chalky material with paper	NAD	
			Layer 3: Trace black woven fibrous material	NAD	

PLM ASBESTOS SAMPLE INVENTORY

PBS Sample #	Material Type	Sample Location	Lab Description	Lab Result	Lab
40535.387 -24	Skim Coat on Gypsum Wallboard	Linen storage room	Layer 1: Trace tan powdery material with paint	2% Chrysotile	SAT
			Layer 2: White chalky material with paper	NAD	
40535.387 -25	Tan brown cove base mastic	East hall at southeast entrance	Layer 1: Gray rubbery material	NAD	SAT
			Layer 2: Brown/tan mastic	NAD	SAT
40535.387 -26	Mastic on Angled Gym Cove Base	Gym at east entry	Layer 1: Tan mastic	NAD	SAT
40535.387 -27	Yellow Mastic on Black 90-degree Cove Base	Perimeter of gym at east entry	Layer 1: Black rubbery material	NAD	SAT
			Layer 2: Brown/yellow mastic	NAD	
40535.387 -28	Sample not Submitted	Sample not submitted	Sample not submitted	N/A	
40535.387 -29	Black Sealant on Concrete Masonry Unit	Back wall of server room	Layer 1: Black asphaltic material	NAD	SAT
40535.387 -30	White Caulking	South perimeter of pool	Layer 1: White soft/elastic material	NAD	SAT
40535.387 -31	Gray Caulking	Southeast exterior at metal column/brick intersection	Layer 1: Gray soft material	3% Chrysotile	SAT
40535.387 -32	White Undercoat on Steel Sink	Weight room kitchen	Layer 1: White soft/loose material	NAD	SAT
40535.387 -33	Black Undercoat on Steel Sink	Weight room kitchen	Layer 1: Black soft/loose material	5% Chrysotile	SAT
40535.387 -34	Brown Caulking	Server room door frame	Layer 1: White soft elastic material with brown paint	NAD	SAT
40535.387 -35	Door Frame Sealant	At southeast entrance doors	Layer 1: Beige brittle material with paint	2% Chrysotile	SAT
40535.387 -36	Caulking on Window Sill	Interior - rec manager's office	Layer 1: Brown soft material	4% Chrysotile	SAT

PLM ASBESTOS SAMPLE INVENTORY

PBS Sample #	Material Type	Sample Location	Lab Description	Lab Result	Lab
40535.387 -37	Window Glazing Putty	At southeast entry	Layer 1: Beige brittle material with paint	2% Chrysotile	SAT
40535.387 -38	Window frame caulking	Weight room, west window	Layer 1: Tan soft material	2% Chrysotile	SAT
40535.387 -39	Window Frame Caulking	Rec. supervisor's office metal to corner masonry unit	Layer 1: Gray soft material	3% Chrysotile	SAT
40535.387 -40	Exterior Window Frame Caulk	Northeast corner of building at rec. manager's office	Layer 1: Gray soft material	4% Chrysotile	SAT
40535.387 -41	Black Sealant	Southeast exterior corner of building on brick	Layer 1: Black asphaltic material with fibrous material	NAD	SAT
40535.387 -42	Residual Expansion Joint	Southeast exterior of building demolished wall	Layer 1: Black asphaltic material with paint	NAD	SAT

PBS 20181280P

LABORATORY CHAIN OF CUSTODY

Project: Green Hill School, Rec Building **Project #:** 40535.387

Analysis requested: PLM **Date:** 9/21/18

Relinq'd by/Signature: Mike Smith **Date/Time:** 9/24/18

Received by/Signature: **Date/Time:** 9/24/18 17:05

E-mail results to:

- ☐ Brian Stanford
- X Willem Mager
- ☐ Mark Hiley
- ☐ Tim Ogden
- ☐ Prudy Stoudt-McRae
- X Cel Alvarez
- ☐ Janet Murphy
- ☐ Gregg Middaugh
- ☐ Martin Estira
- ☐ Chuck Greeb
- X Mike Smith
- ☐ Ferman Fletcher
- ☐ Melissa Mearns

TURN AROUND TIME:

- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- X 48 Hours
- ☐ 3-5 Days
- ☐ Other

SAMPLE DATA FORM

Sample #	Material	Location	Lab
40535.387-01	Red, Cementitious Flooring	At the S locker room door way	SAT
40535.387-02	Red, Cementitious Covebase	At the S locker room door way	SAT
40535.387-03	Red, Cementitious Flooring	Pool room at drain	SAT
40535.387-04	Red, Cementitious Covebase	At the pool entrance door	SAT
40535.387-05	Asphaltic Tar	Below wood gym floor	SAT
40535.387-06	FRP & Clear Mastic	NE corner of locker room	SAT
40535.387-07	Gray Sealant on Metal Duct	Mech Rm above pool	SAT
40535.387-08	Gray Sealant on Metal Duct	On HVAC 2nd Fl, E of gym	SAT
40535.387-09	9" Lt. Brown VFT & Black Mastic	Restroom lobby off gym	SAT
40535.387-10	9" Lt. Brown VFT & Black Mastic	Linen Rm floor	SAT
40535.387-11	9" Lt. Brown VFT & Black Mastic	NE corner of Auditorium	SAT
40535.387-12	12" Beige VFT & Tan Mastic	E hallway at SE building entrance	SAT
40535.387-13	Poured Black Flooring with Black Specks	Shower floor, Rec. teacher office	SAT
40535.387-14	Red Grout on 4" Red Quarry Tile	Perimeter of pool	SAT
40535.387-15	Grout on 8" Brown Ceramic Tile	Perimeter of pool	SAT
40535.387-16	1" Ceramic Tile Mastic and Grout	Shower floor off of gym	SAT
40535.387-17	4" Ceramic Tile Grout-Bed	Wall of shower by gym	SAT
40535.387-18	Brick Mortar	SE exterior corner of building	SAT
40535.387-19	CMU Mortar	In sink chase by gym	SAT

20181209

LABORATORY CHAIN OF CUSTODY

Project: Green Hill School, Rec Building **Project #:** 40535.387

Analysis requested: PLM **Date:** 9/21/18

Relinq'd by/Signature: Mike Smith **Date/Time:** 9/24/18

Received by/Signature: **Date/Time:** 9/24/18 . 17:00

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- ☐ Gregg Middaugh
- ☐ Martin Estira
- ☐ Chuck Greeb
- X Mike Smith
- ☐ Ferman Fletcher
- ☐ Melissa Mearns

TURN AROUND TIME:

- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- X 48 Hours
- ☐ 3-5 Days
- ☐ Other

SAMPLE DATA FORM

Sample #	Material	Location	Lab
40535.387-20	CMU Mortar	2nd Fl. E of gym	SAT
40535.387-21	Skim Coat on GWB	Locker Rm shower ceiling	SAT
40535.387-22	Skim Coat on GWB	Locker Rm bathroom ceiling	SAT
40535.387-23	Skim Coat on GWB	Locker Rm hall by shower	SAT
40535.387-24	Skim Coat on GWB	Linen storage Rm	SAT
40535.387-25	Tan and Brown Covebase Mastic	E hall at SE entrance	SAT
40535.387-27	Yellow Mastic on Black 90-degree Covebase	Perimeter of gym at E entry	SAT
40535.387-28	4" Black Covebase and Brown Mastic	Linen Rm perimeter	SAT
40535.387-29	Black Sealant on CMU Wall	Back wall of server room	SAT
40535.387-30	White Caulking	S perimeter of pool	SAT
40535.387-31	Gray Caulking	SE exterior at metal column/brick intersection	SAT
40535.387-32	White Undercoat on Steel Sink	Weight Rm Kitchen	SAT
40535.387-33	Black Undercoat on Steel Sink	Weight Rm Kitchen	SAT
40535.387-34	Brown Caulking	Server Rm door frame	SAT
40535.387-35	Door Frame Sealant	At SE entrance Doors	SAT
40535.387-36	Caulking on Window Sill	Interior – Rec Manager's office	SAT
40535.387-37	Window Glazing Putty	At SE entry	SAT
40535.387-38	Window Frame Caulking	Weight Rm, W window	SAT
40535.387-39	Window Frame Caulking	Rec. Supervisor's Office Metal to CMU	SAT

PBS

218258P

LABORATORY CHAIN OF CUSTODY

Project: Green Hill School, Rec Building **Project #:** 40535.387

Analysis requested: PLM **Date:** 9/21/18

Relinq'd by/Signature: Mike Smith **Date/Time:** 9/24/18

Received by/Signature: **Date/Time:** 9/24 10:17 am

E-mail results to:

- ☐ Brian Stanford
- X Willem Mager
- ☐ Mark Hiley
- ☐ Tim Ogden
- ☐ Prudy Stoudt-McRae
- X Cel Alvarez
- ☐ Janet Murphy
- ☐ Gregg Middaugh
- ☐ Martin Estira
- ☐ Chuck Greeb
- X Mike Smith
- ☐ Ferman Fletcher
- ☐ Melissa Mearns

TURN AROUND TIME:

- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- X 48 Hours
- ☐ 3-5 Days
- ☐ Other_____

SAMPLE DATA FORM

Sample #	Material	Location	Lab
40535.387-40	Exterior Window Frame Caulk	NE corner of bldg. at Rec. Manager's office	SAT
40535.387-41	Black Sealant	SE exterior corner of building on brick	SAT
40535.387-42	Residual Expansion Joint	SE exterior of building at demolished wall	SAT

SEATTLE ASBESTOS TEST

Seattle Laboratory: 4500 9th Ave. NE, Suite 300, Seattle, WA 98105, Tel: 206.633.1111, Fax: 206.633.4747, NVLAP Lab Code: 201057-0

ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.:	Michael Smith, Cel Alvarez, Willem Mager	**Client:**	PBS Engineering and Environmental, Seattle	**Address:**	2517 Eastlake Ave. E., Suite 100, Seattle, WA 98102
Job#:	40535.387	**Batch#:**	201812809	**Date Received:**	9/24/2018
Samples Rec'd:	42	**Date Analyzed:**	9/26/2018	**Samples Analyzed:**	41
Project Loc.:	Green Hill School, Rec Building				

Analyzed by: Cassie Huang

Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
1	40535.387-01	1	Red brittle material with paint and sand		**None detected**	Filler, Binder, Paint, Sand	2	Cellulose
2	40535.387-02	1	Red brittle material with paint and sand		**None detected**	Filler, Binder, Paint, Sand	4	Cellulose
3	40535.387-03	1	Red brittle material with paint and sand		**None detected**	Filler, Binder, Paint, Sand	3	Cellulose
4	40535.387-04	1	Red brittle material with paint and sand		**None detected**	Filler, Binder, Paint, Sand	2	Cellulose
5	40535.387-05	1	Black asphaltic material		**None detected**	Asphalt/binder	5	Cellulose
		2	Gray sandy/brittle material		**None detected**	Sand, Filler, Binder	3	Cellulose
6	40535.387-06	1	White brittle/rigid material		**None detected**	Filler, Binder, Fine particles	65	Glass fibers
		2	Clear mastic		**None detected**	Mastic/binder	2	Cellulose
7	40535.387-07	1	Silver foil		**None detected**	Foil/binder		None detected
		2	Gray soft/elastic material		**None detected**	Binder, Filler	4	Cellulose
8	40535.387-08	1	Gray soft/elastic material		**None detected**	Binder, Filler	3	Cellulose
9	40535.387-09	1	Light brown tile	3	**Chrysotile**	Vinyl/binder, Mineral grains	2	Cellulose
		2	Black mastic		**None detected**	Mastic/binder	4	Cellulose
10	40535.387-10	1	Light brown tile	3	**Chrysotile**	Vinyl/binder, Mineral grains	3	Cellulose
		2	Black mastic		**None detected**	Mastic/binder	5	Cellulose
		3	Gray sandy/brittle material		**None detected**	Sand, Filler, Binder	3	Cellulose
11	40535.387-11	1	Light brown tile	3	**Chrysotile**	Vinyl/binder, Mineral grains	2	Cellulose
		2	Black mastic		**None detected**	Mastic/binder	4	Cellulose
12	40535.387-12	1	Beige tile		**None detected**	Vinyl/binder, Mineral grains	2	Cellulose
		2	Tan mastic		**None detected**	Mastic/binder	3	Cellulose
13	40535.387-13	1	Gray/black brittle material with paint		**None detected**	Filler, Binder, Paint	2	Cellulose
14	40535.387-14	1	Red/gray sandy/brittle material		**None detected**	Sand, Filler, Binder	4	Cellulose

SEATTLE ASBESTOS TEST

Seattle Laboratory: 4500 9th Ave. NE, Suite 300, Seattle, WA 98105, Tel: 206.633.1111, Fax: 206.633.4747, NVLAP Lab Code: 201057-0

ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Michael Smith, Cel Alvarez, Willem Mager
Client: PBS Engineering and Environmental, Seattle
Address: 2517 Eastlake Ave. E., Suite 100, Seattle, WA 98102
Job#: 40535.387
Batch#: 201812809
Date Received: 9/24/2018
Samples Rec'd: 42
Date Analyzed: 9/26/2018
Samples Analyzed: 41
Project Loc.: Green Hill School, Rec Building

Analyzed by: Cassie Huang
Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
15	40535.387-15	1	Red/gray sandy/brittle material		None detected	Sand, Filler, Binder	3	Cellulose
16	40535.387-16	1	Gray sandy/brittle material		None detected	Sand, Filler, Binder	3	Cellulose
		2	Trace tan mastic		None detected	Mastic/binder	2	Cellulose
17	40535.387-17	1	White brittle material		None detected	Filler, Binder	2	Cellulose
		2	Trace gray sandy/brittle material		None detected	Sand, Filler, Binder	3	Cellulose
18	40535.387-18	1	Tan sandy/brittle material		None detected	Sand, Filler, Binder	4	Cellulose
		2	Gray sandy/brittle material		None detected	Sand, Filler, Binder	3	Cellulose
19	40535.387-19	1	Gray sandy/brittle material		None detected	Sand, Filler, Binder	2	Cellulose
20	40535.387-20	1	Gray sandy/brittle material with paint		None detected	Sand, Filler, Binder, Paint	3	Cellulose
21	40535.387-21	1	Trace off-white powdery material with paint		None detected	Binder/filler, Paint	5	Cellulose
		2	White chalky material with paper		None detected	Binder/filler, Gypsum/binder	25	Cellulose
22	40535.387-22	1	Trace tan powdery material with paint	2	Chrysotile	Binder/filler, Paint	3	Cellulose
		2	White chalky material with paper		None detected	Binder/filler, Gypsum/binder	22	Cellulose
23	40535.387-23	1	Trace tan powdery material with paint	2	Chrysotile	Binder/filler, Paint	4	Cellulose
		2	White chalky material with paper		None detected	Binder/filler, Gypsum/binder	26	Cellulose
		3	Trace black woven fibrous material		None detected	Filler, Binder	85	Synthetic fibers
24	40535.387-24	1	Trace tan powdery material with paint	2	Chrysotile	Binder/filler, Paint	3	Cellulose
		2	White chalky material with paper		None detected	Binder/filler, Gypsum/binder	23	Cellulose
25	40535.387-25	1	Gray rubbery material		None detected	Rubber/binder	2	Cellulose
		2	Brown/tan mastic		None detected	Mastic/binder	3	Cellulose
26	40535.387-26	1	Tan mastic		None detected	Mastic/binder	4	Cellulose
27	40535.387-27	1	Black rubbery material		None detected	Rubber/binder	2	Cellulose

SEATTLE ASBESTOS TEST

Seattle Laboratory: 4500 9th Ave. NE, Suite 300, Seattle, WA 98105, Tel: 206.633.1111, Fax: 206.633.4747, NVLAP Lab Code: 201057-0

ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Michael Smith, Cel Alvarez, Willem Mager
Client: PBS Engineering and Environmental, Seattle
Address: 2517 Eastlake Ave. E., Suite 100, Seattle, WA 98102
Job#: 40535.387
Batch#: 201812809
Date Received: 9/24/2018
Samples Rec'd: 42
Date Analyzed: 9/26/2018
Samples Analyzed: 41
Project Loc.: Green Hill School, Rec Building

Analyzed by: Cassie Huang
Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
		2	Brown/yellow mastic		**None detected**	Mastic/binder	2	Cellulose
28	40535.387-28		Sample not submitted					
29	40535.387-29	1	Black asphaltic material		**None detected**	Asphalt/binder	6	Cellulose
30	40535.387-30	1	White soft/elastic material		**None detected**	Binder, Filler	2	Cellulose
31	40535.387-31	1	Gray soft material	3	**Chrysotile**	Filler, Binder	3	Cellulose
32	40535.387-32	1	White soft/loose material		**None detected**	Filler, Fine particles	5	Cellulose
33	40535.387-33	1	Black soft/loose material	5	**Chrysotile**	Filler, Fine particles	6	Cellulose
34	40535.387-34	1	White soft/elastic material with brown paint		**None detected**	Binder, Filler, Paint	4	Cellulose
35	40535.387-35	1	Beige brittle material with paint	2	**Chrysotile**	Filler, Binder, Paint	2	Cellulose
36	40535.387-36	1	Brown soft material	4	**Chrysotile**	Filler, Binder	3	Cellulose
37	40535.387-37	1	Beige brittle material with paint	2	**Chrysotile**	Filler, Binder, Paint	4	Cellulose
38	40535.387-38	1	Tan soft material	2	**Chrysotile**	Filler, Binder	5	Cellulose
39	40535.387-39	1	Gray soft material	3	**Chrysotile**	Filler, Binder	3	Cellulose
40	40535.387-40	1	Gray soft material	4	**Chrysotile**	Filler, Binder	3	Cellulose
41	40535.387-41	1	Black asphaltic material with fibrous material		**None detected**	Asphalt/binder, Filler	30	Cellulose
42	40535.387-42	1	Black asphaltic material with paint		**None detected**	Asphalt/binder, Paint	3	Cellulose

APPENDIX B

AA Lead Paint Chip Sampling Information

AA Lead Paint Chip Sample Inventory
AA Lead Paint Chip Laboratory Data Sheets
AA Lead Paint Chip Chain of Custody Documentation

AA LEAD PAINT CHIP SAMPLE INVENTORY

PBS Sample #	Paint Color / Component or Substrate	Sample Location	Results (mg/kg)	Results (%)	Lab
40535.387 -Pb01	Green/Metal Door Frame	At the southeast entrance	< 54	< 0.0054	NVL
40535.387 -Pb02	Gray/Concrete/Floor	Hallway near pool	< 50	< 0.0050	NVL
40535.387 -Pb03	Beige/Concrete Masonry Unit/Wall	East hallway, southeast corner	< 53	< 0.0053	NVL
40535.387 -Pb04	White/Concrete Masonry Unit/Wall	Hallway near projector room	660	0.066	NVL
40535.387 -Pb05	Beige/Concrete Masonry Unit/Wall	Southwest wall backstage	1200	0.12	NVL
40535.387 -Pb06	Green/Metal Door Frame	Northeast mop room	750	0.075	NVL
40535.387 -Pb07	Lt. Green/Metal/Pipe	Mech room above pool	5800	0.58	NVL
40535.387 -Pb08	Lt. Brown/Concrete Masonry Unit/Wall	2nd floor, east of gym	1700	0.17	NVL
40535.387 -Pb09	Gray/Concrete/Wall	Exterior south wall	760	0.076	NVL
40535.387 -Pb10	Beige/Concrete Masonry Unit/Wall	Exterior south wall	300	0.030	NVL

mg/kg = Milligrams per kilogram
< = Less than the Limit of Detection

September 25, 2018

Michael Smith
PBS Environmental (Seattle)
2517 Eastlake Ave E, Suite 100
Seattle, WA 98102

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1818790.00

Dear Mr. Smith,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Lab Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
WWW.AIHAACCREDITEDLABS.ORG
LAB # 101861

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: PBS Environmental (Seattle)
Address: 2517 Eastlake Ave E, Suite 100
Seattle, WA 98102

Attention: Mr. Michael Smith
Project Location: Green Hill School, Rec Building

Batch #: 1818790.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 40535.387
Date Received: 9/25/2018
Samples Received: 10
Samples Analyzed: 10

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18095661	40535.387-Pb01	0.1856	54	< 54	<0.0054
18095662	40535.387-Pb02	0.1987	50	< 50	<0.0050
18095663	40535.387-Pb03	0.1890	53	< 53	<0.0053
18095664	40535.387-Pb04	0.2018	50	660	0.066
18095665	40535.387-Pb05	0.1978	51	1200	0.12
18095666	40535.387-Pb06	0.1888	53	750	0.075
18095667	40535.387-Pb07	0.1936	52	5800	0.58
18095668	40535.387-Pb08	0.1864	54	1700	0.17
18095669	40535.387-Pb09	0.1871	53	760	0.076
18095670	40535.387-Pb10	0.2090	48	300	0.030

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel
Date Analyzed: 09/25/2018
Date Issued: 09/25/2018

Shalini Patel, Lab Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
RL = Reporting Limit
'<' = Below the reporting Limit
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 2018-0925-6

NVL Laboratories, Inc.
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p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company PBS Environmental (Seattle)
Address 2517 Eastlake Ave E, Suite 100
Seattle, WA 98102
Project Manager Mr. Michael Smith
Phone (206) 233-9639
Office: (800) 628-9639

NVL Batch Number **1818790.00**
TAT 2 Days **AH** No
Rush TAT
Due Date 9/27/2018 **Time** 9:25 AM
Email mike.smith@pbsusa.com
Fax (866) 727-0140

Project Name/Number: 40535.387 **Project Location:** Green Hill School, Rec Building

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 10 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18095661	40535.387-Pb01		A
2	18095662	40535.387-Pb02		A
3	18095663	40535.387-Pb03		A
4	18095664	40535.387-Pb04		A
5	18095665	40535.387-Pb05		A
6	18095666	40535.387-Pb06		A
7	18095667	40535.387-Pb07		A
8	18095668	40535.387-Pb08		A
9	18095669	40535.387-Pb09		A
10	18095670	40535.387-Pb10		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Courier				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Emily Schubert		NVL	9/25/18	925
Analyzed by	Yasuyuki Hida		NVL	9/25/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 9/25/2018
Time: 10:59 AM
Entered By: Shaina Mitchell

PBS

LABORATORY CHA 1818790

Project: Green Hill School, Rec Building **Project #:** 40535.387

Analysis requested: Pb in Paint **Date:** 9/21/18

Relinq'd by/Signature: Mike Smith **Date/Time:** 9/24/18

Received by/Signature: NVL **Date/Time:** 9/25/18 925 COURIER

E-mail results to:

- ☐ Brian Stanford
- X Willem Mager
- ☐ Mark Hiley
- ☐ Tim Ogden
- ☐ Prudy Stoudt-McRae
- X Cel Alvarez
- ☐ Janet Murphy
- ☐ Gregg Middaugh
- ☐ Martin Estira
- ☐ Chuck Greeb
- X Mike Smith
- ☐ Ferman Fletcher
- ☐ Melissa Mearns

TURN AROUND TIME:

- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- X 48 Hours
- ☐ 3-5 Days
- ☐ Other

SAMPLE DATA FORM

Sample #	Material	Location	Lab
40535.387-Pb01	Green/Metal Door Frame	At the SE entrance	NVL
40535.387-Pb02	Gray/Concrete/Floor	Hallway near pool	NVL
40535.387-Pb03	Beige/CMU/Wall	E hallway, SE corner	NVL
40535.387-Pb04	White/CMU/Wall	Hallway near Projector Room	NVL
40535.387-Pb05	Beige/CMU/Wall	SW wall backstage	NVL
40535.387-Pb06	Green/Metal Door Frame	NE mop room	NVL
40535.387-Pb07	Lt. Green/Metal/Pipe	Mech rm above pool	NVL
40535.387-Pb08	Lt Brown/CMU/Wall	2nd Floor, E of Gym	NVL
40535.387-Pb09	Gray/Concrete/Wall	Exterior S wall	NVL
40535.387-Pb10	Beige/CMU/Wall	Exterior S wall	NVL

APPENDIX C

PCB Sampling Information

PCB Sample Inventory

PCB Laboratory Data Sheets

PCB Chain of Custody Documentation

PCB SAMPLE INVENTORY

PBS Sample #	Material	Sample Location	Analyte	Lab Results (mg/kg)	Lab
40535.387 -PCB01	Brown caulking	Server Room Door Frame	Aroclor 1016	<1.6	NVL
			Aroclor 1221	<1.6	
			Aroclor 1232	<1.6	
			Aroclor 1242	<1.6	
			Aroclor 1248	<1.6	
			Aroclor 1254	<1.6	
			Aroclor 1260	<1.6	
			Total PCBs	**<1.6**	
40535.387 -PCB02	Window Frame Putty	Exterior NE at Rec. Mgr's Office	Aroclor 1016	<0.93	NVL
			Aroclor 1221	<0.93	
			Aroclor 1232	<0.93	
			Aroclor 1242	<0.93	
			Aroclor 1248	<0.93	
			Aroclor 1254	1.3000	
			Aroclor 1260	<0.93	
			Total PCBs	**1.3000**	

mg/kg = Milligrams per kilogram
< = Less than the Limit of Detection

September 28, 2018

Mr. Michael Smith

PBS Environmental
2517 Eastlake Avenue E, Suite 100
Seattle, WA 98102

Re: **NVL Batch 1818794.00**

Project Name/Number: 40535.387

Project location: Green Hill School, Rec Building

Dear Mr. Smith,

Enclosed please find test results for samples submitted to our laboratory for analysis. Preparation and analysis of these samples were conducted in accordance with published industry standards and methods specified on the attached analytical report.

The content of this package consists of the following:

-Case Narrative & Definition of Data Qualifiers
-Analytical Test Results
-Applicable QC Summary
-Client Chain-of-Custody (CoC)
-NVL Receiving Record

The report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client will be discarded after two weeks.

Thank you for using our laboratory services. If you need further assistance, please contact us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Nick Ly, Technical Director

Enclosure: Sample Results

Case Narrative:

The following summarizes samples received on date as shown on the accompanied Chain of custody by NVL Laboratories, Inc. from PBS Environmental for Project Number: 40535.387. Samples were logged in for PCB analysis per client request using both customer sample ID's and laboratory assigned ID's as listed on the Chain-of-Custody (CoC). All samples as received were processed and analyzed within specified turnaround time without any abnormalities and deviations that may affect the analytical results. All quality control requirements were acceptable unless stated otherwise. The conditions of all samples were acceptable at time of receipt and all samples submitted with this batch were analyzed unless stated otherwise on the CoC.

Test Results are reported based on dry weight in micrograms per kilograms (mg/kg) for PCB samples as shown on the analytical reports.

NVL Laboratories, Inc.
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p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Definition Appendix

Terms

% Rec	Percent recovery.
<	Below Reporting Limit(RL) or Limit of Quantitation(LoQ) of the instrument.
B	Blank contamination. The recorded results is associated with a contaminated blank.
DF	Dilution Factor
J	The reported concentration is an estimated value because something may be present in the sample that interfered with the analysis.
J1	The reported concentration is an estimated value because the laboratory control sample (LCS) is out of control limits.
J2	The reported concentration is an estimated value because the percent recovery for matrix spike is out of control limits.
J3	The reported concentration is an estimated value because the relative percent difference(RPD) for duplicate analysis is out of control limits.
J4	Percent recovery is outside of established control limits.
LCS	Laboratory Control Sample.
LFS	Laboratory Fortified Spike
Limits	The upper and lower control limits for spike recoveries.
LN	Quality control sample is outside of control limits. This analyte was not detected in the sample.
LOQ	Limit of quantitation(same as RL)
mg/kg	Milligrams per kilogram.
ND	Analyte not detected or below the reporting limit of the instrument or methodology

NVL Laboratories, Inc.
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p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Definition Appendix

Terms

PPM	Parts per Million.
QC Batch Group	Quality Control Batch Group. The entity that links analytical results and supporting quality control results.
R	The data are not reliable due to possible contamination or loss of material during preparation or analysis. Re-sampling and reanalysis are necessary for verification.
RL	Reporting Limit. The minimum concentration that can be quantified under routine operating conditions.
RPD	Relative Percent Difference. The relative difference between duplicate results(matrix spike, blank spike, or samples duplicate) expressed as a percentage.
RPD Limit	The maximum RPD allowed for a set of duplicate measurements(see RPD).
SMI	Surrogate has matrix interference.
Spike Conc.	The measured concentration, in sample basis units, of a spiked sample.
SURR-ND	Surrogate was not detected due to matrix interference or dilution.
ug/m3	Micrograms per cubic meter.
ug/mL	Micrograms per milliliter
mg/Kg	milligram per kilogram

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

ANALYSIS REPORT

Polychlorinated Biphenyls by Gas Chromatography

Client	**PBS Environmental**	Samples Received*	**2**
SDG Number	**1818794.00**	Analyzed By	**Aaron Brown**
Date Reported	**09/28/2018**	Samples Analyzed*	**2**
Project Number	**40535.387**	Analysis Method	**8082A**
Location	**Green Hill School, Rec Building**	Preparation Method	**3546PR (PCB)**

* for this test only

Sample Number	**40535.387-PCB-01**	Received	09/25/2018
Lab Sample ID	18095696	Matrix	Material
Initial Sample Size	1.2783 gm	Units of Result	mg/Kg, as received

Analyte	RL	Final Result	Analysis Date
Aroclor-1016	1.6	< 1.6	09/26/2018
Aroclor-1221	1.6	< 1.6	09/26/2018
Aroclor-1232	1.6	< 1.6	09/26/2018
Aroclor-1242	1.6	< 1.6	09/26/2018
Aroclor-1248	1.6	< 1.6	09/26/2018
Aroclor-1254	1.6	< 1.6	09/26/2018
Aroclor-1260	1.6	< 1.6	09/26/2018
PCBs, Total	**1.6**	**<1.6**	

Comments: Reporting limit raised due to small sample size

Sample Number	**40535.387-PCB-02**	Received	09/25/2018
Lab Sample ID	18095697	Matrix	Material
Initial Sample Size	2.154 gm	Units of Result	mg/Kg, as received

Analyte	RL	Final Result	Analysis Date
Aroclor-1016	0.93	< 0.93	09/26/2018
Aroclor-1221	0.93	< 0.93	09/26/2018
Aroclor-1232	0.93	< 0.93	09/26/2018
Aroclor-1242	0.93	< 0.93	09/26/2018
Aroclor-1248	0.93	< 0.93	09/26/2018
Aroclor-1254	0.93	1.3	09/26/2018
Aroclor-1260	0.93	< 0.93	09/26/2018
PCBs, Total	**0.93**	**1.3**	

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Quality Control Results

Project Number:	**40535.387**	**SDG Number:**	**1818794**
		Project Manager:	**Michael Smith**
QC Batch(es):	**Q814**	Analysis Method:	**8082A**
QC Batch Method:	3546PR (PCB)	Analysis Description:	Polychlorinated Biphenyls by Gas Chromatography
Preparation Date:	09/26/2018		

Blank: MBLK-1818794

Analyte	Blank Result	Units	DF	RL	Control Limit	Qualifiers
Aroclor-1016	ND	mg/Kg	1	1.0	1	
Aroclor-1221	ND	mg/Kg	1	1.0	1	
Aroclor-1232	ND	mg/Kg	1	1.0	1	
Aroclor-1242	ND	mg/Kg	1	1.0	1	
Aroclor-1248	ND	mg/Kg	1	1.0	1	
Aroclor-1254	ND	mg/Kg	1	1.0	1	
Aroclor-1260	ND	mg/Kg	1	1.0	1	
PCBs, Total	ND	mg/Kg	1	1.0	1	
Surrogates:				% Rec		
Tetrachloro-m-xylene			1	55	40-140	
Decachlorobiphenyl			1	49	40-140	

Lab Control Sample: LCS-1254-1818794

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	% Rec Limits	Qualifiers
Aroclor-1254	19.3	mg/Kg	1	20.0	97	40-140	
Surrogates:							
Tetrachloro-m-xylene			1		88	40-140	
Decachlorobiphenyl			1		65	40-140	

Lab Control Sample: LCS-1016-1260-1818794
Lab Control Sample Duplicate: LCS Dup-1016-1260-1818794

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	Limits	RPD	RPD Limit	Qualifiers
Aroclor-1016	17.7	mg/Kg	1	20.0	89	40-140			
	17.4			20.0	87	40-140	2	50	
Aroclor-1260	19.5	mg/Kg	1	20.0	97	40-140			
	19			20.0	95	40-140	3	50	
Surrogates:									
Tetrachloro-m-xylene			1		91	40-140			
					85	40-140			
Decachlorobiphenyl			1		65	40-140			
					59	40-140			

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Surrogate Recovery Summary Report

Client PBS Environmental **SDG Number** 1818794

Project 40535.387

Customer Sample ID	Lab Sample ID	Analyte	Recovery	Limits
40535.387-PCB-01	18095696	Decachlorobiphenyl	66%	40-140
40535.387-PCB-01	18095696	Tetrachloro-m-xylene	92%	40-140
40535.387-PCB-02	18095697	Decachlorobiphenyl	74%	40-140
40535.387-PCB-02	18095697	Tetrachloro-m-xylene	98%	40-140
LCS Dup-1016-1260-1818794	LCS Dup-1016-1260-1818794	Decachlorobiphenyl	59%	40-140
LCS Dup-1016-1260-1818794	LCS Dup-1016-1260-1818794	Tetrachloro-m-xylene	85%	40-140
LCS-1016-1260-1818794	LCS-1016-1260-1818794	Decachlorobiphenyl	65%	40-140
LCS-1016-1260-1818794	LCS-1016-1260-1818794	Tetrachloro-m-xylene	91%	40-140
LCS-1254-1818794	LCS-1254-1818794	Decachlorobiphenyl	65%	40-140
LCS-1254-1818794	LCS-1254-1818794	Tetrachloro-m-xylene	88%	40-140
MBLK-1818794	MBLK-1818794	Decachlorobiphenyl	49%	40-140
MBLK-1818794	MBLK-1818794	Tetrachloro-m-xylene	55%	40-140

* Recovery outside limits

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

SDG No: **1818794** Contract:

Determination: **8082 PCB Aroclors <Material>**

Run	Sample	Source	Analyzed	Analyte	True	Found	Unit	% Rec	Limits
R000807	CCV1-1016-1260	PCB_2017-1-2	09/26/2018	Aroclor-1016	5	5	ug/mL	100	80-120
		PCB_2017-1-2	09/26/2018	Aroclor-1260	5	5	ug/mL	100	80-120
	CCV1-1254	PCB_2017-1-3	09/26/2018	Aroclor-1254	5	5	ug/mL	100	80-120
	ICV 1016-1254-1260	PCB_2017-1-4	09/26/2018	Aroclor-1016	5	5.44	ug/mL	109	85-115
		PCB_2017-1-4	09/26/2018	Aroclor-1254	5	5.288	ug/mL	106	85-115
		PCB_2017-1-4	09/26/2018	Aroclor-1260	5	5.539	ug/mL	111	85-115
	CCV2-1016-1260	PCB_2017-1-2	09/26/2018	Aroclor-1016	5	5.685	ug/mL	114	80-120
		PCB_2017-1-2	09/26/2018	Aroclor-1260	5	5.989	ug/mL	120	80-120
	CCV2-1254	PCB_2017-1-3	09/26/2018	Aroclor-1254	5	5.952	ug/mL	119	80-120

% Rec = Percent recovery

* = Percent recovery not within control limits

ORGANICS LABORATORY SERVICES

NVL LABS

Company	PBS Environmental (Seattle)	**NVL Batch Number**	**1818794.00**
Address	2517 Eastlake Ave E, Suite 100 Seattle, WA 98102	**TAT**	5 Days **AH** No
		Rush TAT	
Project Manager	Mr. Michael Smith	**Due Date**	10/2/2018 **Time** 9:25 AM
Phone	(206) 233-9639	**Email**	mike.smith@pbsusa.com
Office:	(800) 628-9639	**Fax**	(866) 727-0140

Project Name/Number: 40535.387 **Project Location:** Green Hill School, Rec Building

Subcategory Quantitative analysis

Item Code ORG-02 **Method** 8082 PCB Aroclors <Paint>

Total Number of Samples 2 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18095696	40535.387-PCB-01		A
2	18095697	40535.387-PCB-02		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Courier				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Emily Schubert		NVL	9/25/18	925
Analyzed by	Anna Brown		NVL	9/26/18	16:00
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Entered By: Shaina Mitchell Date: 9/25/2018 Time: 11:08 AM 1 of 1

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PBS

LABORATORY 1818794

Project: Green Hill School, Rec Building **Project #:** 40535.387

Analysis requested: PCB (8082) **Date:** 9/21/18

Relinq'd by/Signature: Mike Smith **Date/Time:** 9/24/18

Received by/Signature: Emilie S NVL **Date/Time:** 9/25/18 925 COURIER

E-mail results to:

- ☐ Brian Stanford
- X Willem Mager
- ☐ Mark Hiley
- ☐ Tim Ogden
- ☐ Prudy Stoudt-McRae
- X Cel Alvarez
- ☐ Janet Murphy
- ☐ Gregg Middaugh
- ☐ Martin Estira
- ☐ Chuck Greeb
- X Mike Smith
- ☐ Ferman Fletcher
- ☐ Melissa Mearns

Analyzed by Aaron Brown NVL 9/26/18 16:00

TURN AROUND TIME:

- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- ☐ 48 Hours
- ☐ 3-5 Days
- X Other **5 DAY**

SAMPLE DATA FORM

Sample #	Material	Location	Lab
40535.387-PCB-01	Brown Caulking	Server Room door frame	NVL
40535.387-PCB-02	Window Frame Putty	Exterior NE at Rec. Mgr's office	NVL

APPENDIX D

RCRA 8 Metals Sampling Information

RCRA 8 Metals Sample Inventory
RCRA 8 Metals Data Sheets
RCRA 8 Metals Custody Documentation

RCRA-8 METALS SAMPLE INVENTORY

PBS Sample #	Material	Sample Location	Analyte	Lab Result (mg/kg)	PPM	Lab
404535-387 -RCRA-01	Brick mortar	SE exterior corner of the building	Arsenic (As)	<13.0	<13.0	NVL
			Barium (Ba)	41.0	41	
			Cadmium (Cd)	<13.0	<13.0	
			Chromium (Cr)	<13.0	<13.0	
			Mercury (Hg)	<7.0	<7.0	
			Lead (Pb)	<13.0	<13.0	
			Selenium (Se)	<13.0	<13.0	
			Silver (Ag)	<13.0	<13.0	
404535-387 -RCRA-02	CMU mortar	Sink chase by Gym restroom	Arsenic (As)	<12.0	<12.0	NVL
			Barium (Ba)	41.0	41.0	
			Cadmium (Cd)	<12.0	<12.0	
			Chromium (Cr)	<12.0	<12.0	
			Mercury (Hg)	<0.6	<0.6	
			Lead (Pb)	16.0	16.0	
			Selenium (Se)	<12.0	<12.0	
			Silver (Ag)	<12.0	<12.0	

mg/kg = Milligrams per kilogram
< = Less than the Limit of Detection

September 27, 2018

Michael Smith
PBS Environmental (Seattle)
2517 Eastlake Ave E, Suite 100
Seattle, WA 98102

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1818792.00

Dear Mr. Smith,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Nick Ly, Technical Director

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
WWW.AIHAACCREDITEDLABS.ORG
LAB # 101861

NVL Laboratories, Inc.
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p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Metals

Client: PBS Environmental (Seattle)
Address: 2517 Eastlake Ave E, Suite 100
Seattle, WA 98102

Attention: **Mr. Michael Smith**
Project Location: Green Hill School, Rec Building

Batch #: 1818792.00
Matrix: Bulk
Method: EPA 3051/6010C/7471B
Client Project #: 40535.387
Date Received: 9/25/2018
Samples Received: 2
Samples Analyzed: 2

Lab ID	Client Sample #	Elements	Sample wt (g)	RL mg / kg	Results in mg / kg	Results in ppm
18095694	40535.387-RCRA-01	Silver (Ag)	0.3076	13.0	< 13.0	< 13.0
		Arsenic (As)	0.3076	13.0	< 13.0	< 13.0
		Barium (Ba)	0.3076	13.0	41.0	41.0
		Cadmium (Cd)	0.3076	13.0	< 13.0	< 13.0
		Chromium (Cr)	0.3076	13.0	< 13.0	< 13.0
		Mercury (Hg)	0.3076	0.7	< 0.7	< 0.7
		Lead (Pb)	0.3076	13.0	< 13.0	< 13.0
		Selenium (Se)	0.3076	13.0	< 13.0	< 13.0
18095695	40535.387-RCRA-02	Silver (Ag)	0.3217	12.0	< 12.0	< 12.0
		Arsenic (As)	0.3217	12.0	< 12.0	< 12.0
		Barium (Ba)	0.3217	12.0	41.0	41.0
		Cadmium (Cd)	0.3217	12.0	< 12.0	< 12.0
		Chromium (Cr)	0.3217	12.0	< 12.0	< 12.0
		Mercury (Hg)	0.3217	0.6	< 0.6	< 0.6
		Lead (Pb)	0.3217	12.0	16.0	16.0
		Selenium (Se)	0.3217	12.0	< 12.0	< 12.0

Sampled by: Client
Analyzed by: Shalini Patel
Reviewed by: Nick Ly
Date Analyzed: 09/26/2018
Date Issued: 09/27/2018

Nick Ly, Technical Director

mg/ kg = Milligrams per kilogram
ppm = Parts per million
RL = Reporting Limit
'<' = Below the reporting Limit
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 2018-0926-01

NVL Laboratories, Inc.
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p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

METAL LABORATORY SERVICES

Company PBS Environmental (Seattle)
Address 2517 Eastlake Ave E, Suite 100
Seattle, WA 98102
Project Manager Mr. Michael Smith
Phone (206) 233-9639
Office: (800) 628-9639

NVL Batch Number **1818792.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 10/2/2018 **Time** 9:25 AM
Email mike.smith@pbsusa.com
Fax (866) 727-0140

Project Name/Number: 40535.387 **Project Location:** Green Hill School, Rec Building

Subcategory Inductively Coupled Plasma (ICP) - Group Tests
Item Code ICP-G2 EPA 6010/7471B (RCRA 8) <paint>

Total Number of Samples 2 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18095694	40535.387-RCRA-01		A
2	18095695	40535.387-RCRA-02		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Courier				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Emily Schubert		NVL	9/25/18	925
Analyzed by	Shalini Patel		NVL	9/26/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 9/25/2018
Time: 11:04 AM
Entered By: Shaina Mitchell

PBS

LABORATORY CI 1818792

Project: Green Hill School, Rec Building **Project #:** 40535.387

Analysis requested: RCRA 8 Metals **Date:** 9/21/18

Relinq'd by/Signature: Mike Smith **Date/Time:** 9/24/18

Received by/Signature: NVL **Date/Time:** 9/25/18 925 COURIER

E-mail results to:

- ☐ Brian Stanford
- X Willem Mager
- ☐ Mark Hiley
- ☐ Tim Ogden
- ☐ Prudy Stoudt-McRae
- X Cel Alvarez
- ☐ Janet Murphy
- ☐ Gregg Middaugh
- ☐ Martin Estira
- ☐ Chuck Greeb
- X Mike Smith
- ☐ Ferman Fletcher
- ☐ Melissa Mearns

TURN AROUND TIME:

- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- ☐ 48 Hours
- ☐ 3-5 Days
- X Other 5 DAY

SAMPLE DATA FORM

Sample #	Material	Location	Lab
40535.387-RCRA-01	Brick Mortar	SE exterior corner of the building	NVL
40535.387-RCRA-02	CMU Mortar	Sink chase by Gym Restroom	NVL

APPENDIX E

Certifications

THIS IS TO CERTIFY THAT

MIKE SMITH

HAS SUCCESSFULLY COMPLETED THE TRAINING COURSE

for

ASBESTOS INSPECTOR REFRESHER

In accordance with TSCA Title II, Part 763, Subpart E, Appendix C of 40 CFR

Course Date: 03/08/2018

Course Location: Portland, OR

Certificate: IR-18-6154B

PBS

4-Hour Online Inspector Refresher Training

Expiration Date: 03/08/2019

For verification of the authenticity of this certificate contact:
PBS Environmental
4412 SW Corbett Avenue
Portland, OR 97239
(503) 248-1939

Gregory M. Baker

Greg Baker, Instructor

Certificate of Completion

This is to certify that

Cel A. Alvarez

has satisfactorily completed
4 hours of refresher training as an

AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

165223
Certificate Number

ARGUS PACIFIC
TRAINING • CONSULTING
A Terracon COMPANY

Jan 24, 2018 Expires in 1 year.
Date(s) of Training

Exam Score: N/A
If appropriate:

Instructor

ARGUS PACIFIC, INC / 1900 WEST NICKERSON ST, SUITE 315 / SEATTLE, WASHINGTON 98119 / 206.285.3373 / ARGUSPACIFIC.COM

Certificate of Completion

This is to certify that

Willem A. Mager

has satisfactorily completed
4 hours of refresher training as an

AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

165414
Certificate Number

ARGUS PACIFIC
TRAINING • CONSULTING
A Terracon COMPANY

Feb 7, 2018 Expires in 1 year.
Date(s) of Training

Exam Score: N.A
If appropriate:

Instructor

ARGUS PACIFIC, INC / 1900 WEST NICKERSON ST, SUITE 315 / SEATTLE, WASHINGTON 98119 / 206.285.3373 / ARGUSPACIFIC.COM