



Soil and Land Use Technology, Inc.

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May 9, 2019

Department of General Services
Office of Safety and Health, Facilities Division
2000 14th Street NW, 5th Floor
Washington, DC 20009

Subject: Lead Screening Survey-Playground and Synthetic Grass Soccer Field
Janney Elementary School
4130 Albemarle Street NW
Washington, DC 20016

On May 2, 2019, a Soil and Land Use Technology, Inc. (SaLUT) Industrial Hygienist conducted a lead screening survey on a poured in place (PIP) rubber surface of the playground and synthetic grass soccer field at Janney Elementary School, a property maintained by the Department of General Services (DGS), located at 4130 Albemarle Street NW, Washington, DC 20016. The survey was conducted in response to results documented within *Report on lead in pour in place (PIP) rubber playground at Janney Elementary School* produced by the Ecology Center; dated May 2, 2019 and recently shared with the Department. The intent of this survey is to:

- Screen for lead within the surfacing material by using X-Ray Fluorescence (XRF) Spectrum Analyzer (Serial Number 18594), SW-846 3050B/7000B: Flame Atomic Absorption Spectrophotometry, and Inductively Coupled Plasma - Mass Spectrometry (ICP-MS).
- Determine if any lead present within the samples is within the surfacing material or on the surface.

Background

Modern synthetic turf products are typically composed of three layers – fiber material used to simulate grass blades, infill material for cushioning and stability, and backing material. A common material used for infill is granulated crumb rubber from recycled tires, though non-recycled material may be utilized as well. PIP describes a unitary system that consists of a combination of rubber crumb, chips, or rubber buffing, or all three, with a polymer binder in specific percentages determined by the manufacturer/installer that is mixed proximate to the playground and poured in one or more layers on a prepared base to provide a smooth and seamless surface.

Janney Elementary School was modernized in 2011. The subject playground was constructed in conjunction with that modernization based on a review of aerials around that timeframe. The playground is located south of the school, adjacent to a synthetic turf soccer field and paved parking area. During the site visit and sampling event the playground surfacing PIP had signs of degradation, with small pieces of rubber detached.

According to the aforementioned report provided from the Ecology Center, samples were collected (assumed surface debris) at the subject playground and tested for lead using an HD XRF and of those with the highest readings two were submitted for Inductively Coupled Plasma – Mass Spectrometry (ICP-MS) analysis. Reported HD XRF readings of the previous sampling event concluded 76% (26 of 34 samples) as non-detect to low lead concentrations with an average concentration for lead of 4 parts per million or 0.0004% composition. Of the eight elevated samples the average was concluded at 9,119 ppm or 0.91%. ICP-MS testing in comparison to the HD XRF readings determined the highest lead concentration sample of 59,096 ppm with the HD XRF was 7,079 ppm with the ICP-MS method. A sample determined at 3,612 ppm with the HD XRF was reported as 6,514 ppm with the ICP-MS method. The provided report illustrated heterogeneity within the material.

Methodology

Lead Screening Evaluation

The lead screening evaluation conducted by SaLUT included a visual assessment, direct readings performed using an XRF, and a collection of bulk samples for lead in the concerned areas. The bulk samples were delivered to EMSL Analytical, Inc. of Cinnaminson, New Jersey for analysis. Bulk samples were analyzed by SW-846 3050B/7000B: Flame Atomic Absorption Spectrophotometry and ICP-MS. The sample chain-of-custody and laboratory reports are attached.

X-Ray Fluorescence Spectrum Analyzer

The testing for lead content was performed using an X-Ray Fluorescence (XRF) Spectrum Analyzer (Serial Number 18594). The XRF detects lead in the field by reading fluorescence emanating from a surface when exposed to small amounts of radiation. XRF readings are in milligrams per square centimeter (mg/cm^2), a mass per area unit. This methodology is considered for screening purposes only and should be followed by laboratory analysis.

Prior to commencement of XRF analysis, three calibration readings were collected using field standards with known lead concentrations. The composition of the surfacing components (e.g., rubber, synthetic, etc.) was determined and logged into the XRF analyzer. The RMD LPA1 automatically performed substrate correction to ensure that the substrate composition did not provide false readings. At the completion of XRFs analysis,

three additional calibration readings of standards with known lead concentrations were collected to ensure that the device was still accurate. The XRF generated a report detailing the materials sampled, the locations, the substrate, and the lead content.

The screening included 12 XRF readings, including six calibration checks to ensure that the instrument is within acceptable calibration perimeters. Additional readings were unable to be obtained based on the use of the playground that day and subsequent weather. Attachment B illustrates the locations of the screenings.

SW-846 Test Method 3050B/7000B: Flame Atomic Absorption Spectrophotometry

The technique generally is limited to metals in solution. Solids, slurries, and suspended material must be subjected to a solubilization process before analysis. This process may vary because of the metals to be determined and the nature of the sample being analyzed. In direct-aspiration atomic absorption spectrophotometry, a sample is aspirated and atomized in a flame. A light beam from a hollow cathode lamp or an electrodeless discharge lamp is directed through the flame into a monochromator, and onto a detector that measures the amount of absorbed light. Absorption depends upon the presence of free unexcited ground-state atoms in the flame. Because the wavelength of the light beam is characteristic of only the metal being determined, the light energy absorbed by the flame is a measure of the concentration of that metal in the sample. This principle is the basis of atomic absorption spectrophotometry.

Inductively Coupled Plasma - Mass Spectrometry (ICP-MS)

ICP-MS is an elemental analysis technology capable of detecting most of the periodic table of elements at milligram to nanogram levels per liter. The Inductively Coupled Plasma (ICP) is an ionization source that fully decomposes a sample into its constituent elements and transforms those elements into ions. It is typically composed of argon gas, and energy is "coupled" to it using an induction coil to form the plasma. Compared to atomic absorption spectroscopy, ICP-MS has greater speed, precision, and sensitivity.

Bulk Sampling Procedures for SW 846 3050B/7000B: Flame Atomic Absorption Spectrophotometry and Inductively Coupled Plasma - Mass Spectrometry (ICP-MS) Analysis

1. The materials were sampled (Sample #1 to #6) by cutting 3 - 1" samples side by side from one complete PIP and Synthetic Turf layer sample. Sample #7 was collected as surface composite sample from the playground. Sample #8 was collected as surface crumb rubber debris from the playground and parking area next to the back entrance. All samples were collected in a fashion not to create a trip hazard.

2. Two of the samples (#1 and #4) were washed with regular outdoor detergent and water.
3. Two of the samples (#2 and #5) were washed by Tri Sodium Phosphate (TSP)-SAVOGRAN.
4. The samples #3, #6, #7, and #8 were not washed at all.
5. All samples were properly isolated and protected from contamination. Sterile gloves were used for each sample collection and cleaning.
6. The sample was labeled and recorded on a sample collection form and laboratory chain of custody form.
7. Samples were delivered to a laboratory for analysis.

By comparing these results for side by side samples the intent was to provide any evidence of either lead contamination of the exterior of the rubber or if there is lead within the rubber. Lead on the exterior is of more importance than lead contained within the rubber for ingestion exposure. Potentially, if the lead is on the exterior, it can be cleaned and removed. If lead is contained within the rubber itself, it may not be as harmful to children when used at playgrounds. While extensive research has been done to evaluate the health hazards of recycled rubber's use at playgrounds, further research may be prudent to understand the complete risk and fully address communities concerns.

Observations

Table 1 below summarize the main observations from the lead screening survey performed at the Playground adjacent to the synthetic soccer field which was visited on May 2, 2019.

Table 1-Observations

Location	Summary of Observations 5-2-2019 10am to 3pm
Playground adjacent to the synthetic soccer field	Poured-in-Place (PIP) field surface; Visible crumb rubber pieces on playground surface; Approximately 10-20 kids were there during the assessment; Behaviors of interest were not recorded during the assessment.
Synthetic soccer field	Synthetic grass field surface; No visible signs of rubber pieces on playground surface; Approximately 10-20 kids were there during the assessment; Behaviors of interest were not recorded during the assessment.
Open parking space area next to the back entrance	Visible crumb rubber pieces comparable to those of the playground surface;

Results of the X-Ray Fluorescence Spectrum Analyzer

The screening included 12 XRF readings, including six calibration checks to ensure that the instrument is within acceptable calibration perimeters. Results of the direct readings are tabulated below:

Table 2. XRF results

XRF Reading Number	Component	Substrate	Condition	Color	Location	Results	Lead (Mg/Cm²)
1	Calibrate					Negative	0.9
2	Calibrate					Positive	1.1
3	Calibrate					Positive	1.0
4	Poured in Place	Rubber	Fair	Black/Green	Playground next to soccer field	Negative	0.0
5	Poured in Place	Rubber	Fair	Black/Green	Playground next to soccer field	Negative	0.0
6	Poured in Place	Rubber	Fair	Black/Green	Playground next to soccer field	Negative	0.0
7	Soccer Field Surface	Synthetic Grass	Good	Green	Soccer Field	Negative	0.0
8	Soccer Field Surface	Synthetic Grass	Good	Green	Soccer Field	Negative	0.0
9	Soccer Field Surface	Synthetic Grass	Good	Green	Soccer Field	Negative	0.0
10	Calibrate					Positive	1.1
11	Calibrate					Positive	1.2
12	Calibrate					Positive	1.0

Results of the Bulk Samples - By using Analysis Method SW 846 3050B/7000B: Flame Atomic Absorption Spectrophotometry

Laboratory analysis of the bulk samples collected on May 2, 2019 indicate all the sample lead concentrations were less than 40 ppm (particles per million). Table 3 depicts a summary of results. Laboratory analysis follows this report (see Attachment A).

Table 3: Results of the Bulk Samples; May 2, 2019

Sample Number	Location/Sample Description	Results	Units
1	Poured in place crumb rubber surface-washed with detergent	<40	PPM
2	Poured in place crumb rubber surface-washed with TSP	<40	PPM
3	Poured in place crumb rubber surface- unwashed	<40	PPM
4	Synthetic grass soccer field-washed with detergent	<40	PPM
5	Synthetic grass soccer field- washed with TSP	<40	PPM
6	Synthetic grass soccer field- unwashed	<40	PPM
7	Unwashed surface composite sample-Playground area	<40	PPM
8	Unwashed surface rubber debris- Playground/Parking areas	<40	PPM

PPM-parts per million or milligram per kilogram (mg/Kg)

Results of the Bulk Samples - By using Analysis Method Inductively Coupled Plasma - Mass Spectrometry (ICP-MS)

Laboratory analysis of the bulk samples collected on May 2, 2019 indicate all the sample lead concentrations were less than 40 ppm (particles per million) with only three detectable limits not exceeding 15ppm. Table 4 depicts a summary of results. Laboratory analysis follows this report (see Attachment A).

Table 4: Results of the Bulk Samples; May 2, 2019

Sample Number	Location/Sample Description	Results	Units
1	Poured in place crumb rubber turf-washed with detergent	2.6	mg/Kg (PPM)
2	Poured in place crumb rubber turf-washed with TSP	2.6	mg/Kg (PPM)
3	Poured in place crumb rubber turf-unwashed	15.0	mg/Kg (PPM)
4	Synthetic grass soccer field-washed with detergent	ND	mg/Kg (PPM)
5	Synthetic grass soccer field-washed with TSP	ND	mg/Kg (PPM)
6	Synthetic grass soccer field-unwashed	ND	mg/Kg (PPM)
7	Unwashed surface composite sample-Playground area	ND	mg/Kg (PPM)
8	Unwashed surface rubber debris-Playground/Parking areas	ND	mg/Kg (PPM)

ND-indicates that the analyte was not detected at the reporting limit

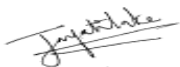
Findings and Conclusions

On May 2, 2019, a total of six XRF readings were taken in the Playground PIP and adjacent synthetic field by using a X-Ray Fluorescence (XRF) Spectrum Analyzer (Serial Number 18594). All the surfaces were negative for the presence of lead. Furthermore, Laboratory analysis of the bulk samples taken on May 2, 2019, Flame AA results indicated the lead concentration of all the samples were less than 40 ppm. Based on the results of the ICP-MS method performed with this screening three samples were of detectable limits, all below 15ppm. Risk of exposure from lead is associated with ingestion or inhalation, ingestion in this instance. Life spans for PIP surfacing are understood to be from 8 to 15 years based on use, sunlight, maintenance, and composition. This particular playground surface is approaching eight years from installation and shows signs of degradation (material pieces separated on the surface). Intact surfacing material does not present a lead hazard risk.

Below is applicable regulatory standards:

- Environmental Protection Agency- <400 ppm in bare residential soil in play areas (40 CFR Part 745).
- Environmental Protection Agency- <0.5% by weight or 5,000ppm as the determination of lead-based paint (40 CFR Part 745).
- Consumer Product Safety Commission- <90ppm for toys, furniture, and appliances (16 CFR Part 1303).

Sincerely,



Chaminda Jayatilake, PE, CIH, CSP, CHMM
Certified Industrial Hygienist
Soil and Land Use Technology Inc. (SaLUT)

Attachments

- Attachment A - Bulk Sample Analytical Results and Chain-of-Custody Forms
- Attachment B - XRF and Bulk Sampling Locations
- Attachment C - Care and Maintenance Information - Poured-in- place surfacing for playgrounds
- Attachment D - Photographs

References and Resources

United States Environmental Protection Agency (December 2016). *Federal Research Action Plan on Recycled Tire Crumb Used on Playing Fields and Playgrounds*. Retrieved from https://www.epa.gov/sites/production/files/2016-12/documents/federal_research_action_plan_on_recycled_tire_crumb_used_on_playing_fields_and_playgrounds_status_report.pdf

Environmental & Human Health, Inc. (2007). *Artificial Turf*. Retrieved from https://ntp.niehs.nih.gov/ntp/about_ntp/bsc/2017/june/publiccomm/stephanattach4_20170628_508.pdf

ThermoFisher Scientific. *Inductively Coupled Plasma Mass Spectrometry (ICP-MS)*. Retrieved from <https://www.thermofisher.com/us/en/home/industrial/mass-spectrometry/inductively-coupled-plasma-mass-spectrometry-icp-ms.html>

Sports Surface Specialties. *Maintenance Guide for Poured in Place Resilient Rubber Surfacing*. Retrieved from http://www.sportsurface.net/files/1614/8770/6002/PIP_Maintenance_Guide.pdf

Attachment A

Bulk Sample Analytical Results and Chain-of-Custody Forms

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (856) 303-2500 / (856) 786-5974

<http://www.EMSL.com>cinnaminsonleadlab@emsl.com

EMSL Order: 201904436

CustomerID: SALU50

CustomerPO:

ProjectID:

Attn: **Chaminda Jayatilake**
SaLUT
1818 New York Avenue, NE
Suite 218A
Washington, DC 20002

Phone: (301) 595-3783
Fax: (301) 595-3787
Received: 05/03/19 3:00 PM
Collected: 5/2/2019

Project: **18-097 Janney ES****Test Report: Lead by Flame AAS (SW 846 3050B/7000B)***

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Weight</i>	<i>Lead Concentration</i>
1	201904436-0001	5/2/2019	5/4/2019	0.5179 g	<40 ppm
Site: Pour in place crumb rubber turf - washed with detergent					
2	201904436-0002	5/2/2019	5/4/2019	0.5173 g	<40 ppm
Site: Pour in place crumb rubber turf - washed with TSP					
3	201904436-0003	5/2/2019	5/4/2019	0.5357 g	<40 ppm
Site: Pour in place crumb rubber turf - unwashed					
4	201904436-0004	5/2/2019	5/4/2019	0.5378 g	<40 ppm
Site: Synthetic Grass Soccer Field - washed with detergent					
5	201904436-0005	5/2/2019	5/4/2019	0.5125 g	<40 ppm
Site: Synthetic Grass Soccer Field - washed with TSP					
6	201904436-0006	5/2/2019	5/4/2019	0.5086 g	<40 ppm
Site: Synthetic Grass Soccer Field - unwashed					
7	201904436-0007	5/2/2019	5/4/2019	0.5357 g	<40 ppm
Site: Unwashed surface composite sample - playground area					
8	201904436-0008	5/2/2019	5/4/2019	0.5110 g	<40 ppm
Site: Unwashed surface rubber debris - playground / parking area					

Phillip Worby, Lead Laboratory Manager
or other approved signatory

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NELAP Certifications: NJ 03036, NY 10872, PA 68-00367, AIHA-LAP, LLC ELLAP 100194, A2LA 2845.01

Initial report from 05/04/2019 13:52:39



Lead (Pb) Chain of Custody

EMSL Order ID (Lab Use Only):

PHONE: ()
FAX: ()

201904436

Company: SalUT Inc		EMSL-Bill to: ☒ Same ☐ Different If Bill to is Different note instructions in Comments**	
Street: 1818 New York Ave Suite 231		Third Party Billing requires written authorization from third party	
City: Washington	State/Province: DC	Zip/Postal Code:	Country:
Report To (Name): Chaminda Jayatilake		Telephone #:	
Email Address: ijayatilake@salutinc.com		Fax #:	Purchase Order:
Project Name/Number: 18-097 Janney ES		Please Provide Results: ☐ Fax ☐ Email	
U.S. State Samples Taken: DC		CT Samples: ☐ Commercial/Taxable ☐ Residential/Tax Exempt	
Turnaround Time (TAT) Options* - Please Check			
☒ 3 Hour	☐ 6 Hour	☒ 24 Hour	☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week
*Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide			
Matrix	Method	Instrument	Reporting Limit
Chips ☐ % by wt. ☐ mg/cm ² ☒ ppm (mg/kg)	SW846-7000B	Flame Atomic Absorption	0.01%
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter
	NIOSH 7300M/NIOSH 7303	ICP-OES	0.5 µg/filter
Wipe* ☐ ASTM ☐ non ASTM ☐	SW846-7000B	Flame Atomic Absorption	10 µg/wipe
*if no box checked, non-ASTM Wipe assumed	SW846-6010B or C	ICP-OES	1.0 µg/wipe
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)
	SW846-1311/SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)
SPLP	SW846-1312/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)
	SW846-1312/SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)
TTLC	22 CCR App. II, 7000B/7420	Flame Atomic Absorption	40 mg/kg (ppm)
	22 CCR App. II, SW846-6010B or C	ICP-OES	2 mg/kg (ppm)
STLC	22 CCR App. II, 7000B/7420	Flame Atomic Absorption	0.4 mg/L (ppm)
	22 CCR App. II, SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)
	SW846-6010B or C	ICP-OES	2 mg/kg (ppm)
Wastewater Unpreserved ☐	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)
Preserved with HNO ₃ pH < 2 ☐	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)
	EPA 200.7	ICP-OES	0.020 mg/L (ppm)
Drinking Water Unpreserved ☐	EPA 200.8	ICP-MS	0.001 mg/L (ppm)
Preserved with HNO ₃ pH < 2 ☐	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)
	EPA 200.5	ICP-OES	0.003 mg/L (ppm)
TSP/SPM Filter	40 CFR Part 50	ICP-OES	12 µg/filter
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter
Other:			
Name of Sampler: Chaminda Jayatilake		Signature of Sampler: <i>[Signature]</i>	
Sample #	Location	Volume/Area	Date/Time Sampled
	See Page 2 of 2		
Client Sample #s	Total # of Samples:		
Relinquished (Client): <i>[Signature]</i>	Date: 5/3/2019	Time:	
Received (Lab): <i>[Signature]</i>	Date: 5/3/19	Time: 3pm	
Comments: Dissolve Rubber prior to testing Please use two checked methods for each sample- 24 hour TAT			

* SAMPLES SPLIT

Analysis via ICP, lead, 3 days and
via flame, lead, 24hrs test (samples may not dissolve) per
Sheryl notified client 5/3/19, C.D.

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

EMSL ORDER ID (Lab Use Only):

FAX: ()

2019 04436

①

(2)

(3)

4

5

6

⑦

⑧

[illegible]

Comments/Special Instructions:



EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Phone: (856) 303-2500 Fax: (856) 858-4571 Email: EnvChemistry2@emsl.com

Attn:

Chaminda Jayatilake
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1818 New York Avenue, NE
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5/9/2019

Phone: (301) 595-3783

Fax: (301) 595-3787

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 5/6/2019. The results are tabulated on the attached data pages for the following client designated project:

18-097 Janney ES

The reference number for these samples is EMSL Order #011905281. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 303-2500.

Approved By:

Phillip Worby, Environmental Chemistry
Laboratory Director



The test results contained within this report meet the requirements of NELAP and/or the specific certification program that is applicable, unless otherwise noted.

NELAP Certifications: NJ 03036, NY 10872, PA 68-00367, CA ELAP 1877

The samples associated with this report were received in good condition unless otherwise noted. This report relates only to those items tested as received by the laboratory. The QC data associated with the sample results meet the recovery and precision requirements established by the NELAP, unless specifically indicated. All results for soil samples are reported on a dry weight basis, unless otherwise noted. This report may not be reproduced except in full and without written approval by EMSL Analytical, Inc.

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

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EMSL Order: 011905281

CustomerID: SALU50

CustomerPO:

ProjectID:

Attn: **Chaminda Jayatilake**
SalUT
1818 New York Avenue, NE
Suite 218A
Washington, DC 20002

Phone: (301) 595-3783
 Fax: (301) 595-3787
 Received: 05/06/19 9:00 AM

Project: 18-097 Janney ES

Analytical Results

Client Sample Description #1
 Pour In Place Crumb Rubber Turf-Washed
 with Detergent
Collected: 5/2/2019 2:00:00 PM
Lab ID: 011905281-0001

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
METALS								
3050B/6010D	Lead	2.6		2.4 mg/Kg	5/7/2019	JS	5/7/2019	DM

Client Sample Description #2
 Pour In Place Crumb Rubber Turf-Washed
 with TSP
Collected: 5/2/2019 2:00:00 PM
Lab ID: 011905281-0002

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
METALS								
3050B/6010D	Lead	2.6		2.4 mg/Kg	5/7/2019	JS	5/7/2019	DM

Client Sample Description #3
 Pour in Place Crumb Rubber Turf-
 Unwashed
Collected: 5/2/2019 2:00:00 PM
Lab ID: 011905281-0003

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
METALS								
3050B/6010D	Lead	15		2.4 mg/Kg	5/7/2019	JS	5/7/2019	DM

Client Sample Description #4
 Synthetic Grass Soccer Field-Washed with
 detergent
Collected: 5/2/2019 2:00:00 PM
Lab ID: 011905281-0004

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
METALS								
3050B/6010D	Lead	ND		2.5 mg/Kg	5/7/2019	JS	5/7/2019	DM

Client Sample Description #5
 Synthetic Grass Soccer Field- Washed with
 TSP
Collected: 5/2/2019 2:00:00 PM
Lab ID: 011905281-0005

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
METALS								
3050B/6010D	Lead	ND		2.1 mg/Kg	5/7/2019	JS	5/7/2019	DM

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (856) 303-2500 / (856) 858-4571

<http://www.EMSL.com>EnvChemistry2@emsl.com

EMSL Order: 011905281
CustomerID: SALU50
CustomerPO:
ProjectID:

Attn: **Chaminda Jayatilake**
SaLUT
1818 New York Avenue, NE
Suite 218A
Washington, DC 20002

Phone: (301) 595-3783
Fax: (301) 595-3787
Received: 05/06/19 9:00 AM

Project: 18-097 Janney ES

Analytical Results

Client Sample Description #6
synthetic Grass Soccer Field-Unwashed
Collected: 5/2/2019 2:00:00 PM
Lab ID: 011905281-0006

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
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METALS

3050B/6010D	Lead	ND		2.4 mg/Kg	5/7/2019	JS	5/7/2019	DM
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Client Sample Description #7
Unwashed Surface Composite Sample-
Playground area
Collected: 5/2/2019 2:00:00 PM
Lab ID: 011905281-0007

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
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METALS

3050B/6010D	Lead	ND		2.4 mg/Kg	5/7/2019	JS	5/7/2019	DM
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Client Sample Description #8
Unwashed Surface Rubber Debris-
Playground/Parking Area
Collected: 5/2/2019 2:00:00 PM
Lab ID: 011905281-0008

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
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METALS

3050B/6010D	Lead	ND		2.3 mg/Kg	5/7/2019	JS	5/7/2019	DM
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Definitions:

MDL - method detection limit

J - Result was below the reporting limit, but at or above the MDL

ND - indicates that the analyte was not detected at the reporting limit

RL - Reporting Limit (Analytical)

D - Dilution



Lead (Pb) Chain of Custody

EMSL Order ID (Lab Use Only):

PHONE: ()

FAX: ()

011905281

Company: SalUT Inc		EMSL-Bill to: ☒ Same ☐ Different If Bill to is Different note instructions in Comments**	
Street: 1818 New York Ave Suite 231		Third Party Billing requires written authorization from third party	
City: Washington	State/Province: DC	Zip/Postal Code:	Country:
Report To (Name): Chaminda Jayatilake		Telephone #:	
Email Address: ijayatilake@salutinc.com		Fax #:	Purchase Order:
Project Name/Number: 18-097 Janney ES		Please Provide Results: ☐ Fax ☐ Email	
U.S. State Samples Taken: DC		CT Samples: ☐ Commercial/Taxable ☐ Residential/Tax Exempt	
Turnaround Time (TAT) Options* - Please Check			
☒ 3 Hour ☐ 6 Hour ☒ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week			
*Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide			
Matrix	Method	Instrument	Reporting Limit
Chips ☐ % by wt. ☐ mg/cm ² ☒ ppm (mg/kg)	SW846-7000B	Flame Atomic Absorption	0.01%
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter
	NIOSH 7300M/NIOSH 7303	ICP-OES	0.5 µg/filter
Wipe* ☐ ASTM non ASTM ☐	SW846-7000B	Flame Atomic Absorption	10 µg/wipe
*If no box checked, non-ASTM Wipe assumed	SW846-6010B or C	ICP-OES	1.0 µg/wipe
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)
	SW846-1311/SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)
SPLP	SW846-1312/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)
	SW846-1312/SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)
TTLC	22 CCR App. II, 7000B/7420	Flame Atomic Absorption	40 mg/kg (ppm)
	22 CCR App. II, SW846-6010B or C	ICP-OES	2 mg/kg (ppm)
STLC	22 CCR App. II, 7000B/7420	Flame Atomic Absorption	0.4 mg/L (ppm)
	22 CCR App. II, SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)
	SW846-6010B or C	ICP-OES	2 mg/kg (ppm)
Wastewater Unpreserved ☐	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)
Preserved with HNO ₃ pH < 2 ☐	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)
	EPA 200.7	ICP-OES	0.020 mg/L (ppm)
Drinking Water Unpreserved ☐	EPA 200.8	ICP-MS	0.001 mg/L (ppm)
Preserved with HNO ₃ pH < 2 ☐	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)
	EPA 200.5	ICP-OES	0.003 mg/L (ppm)
TSP/SPM Filter	40 CFR Part 50	ICP-OES	12 µg/filter
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter
Other:			
Name of Sampler: Chaminda Jayatilake		Signature of Sampler: <i>[Signature]</i>	
Sample #	Location	Volume/Area	Date/Time Sampled
	See Page 2 of 2		
Client Sample #s	Total # of Samples:		
Relinquished (Client):	Date: 5/3/2019	Time:	
Received (Lab):	Date: 5/3/19	Time: 3pm	
Comments:	Dissolve Rubber prior to testing Please use two checked methods for each sample- 24 hour TAT		

*SAMPLES SPLIT - CCL-25 Lead (Pb) - R6-715-2017

Analysis via ICP, lead, 3 days and
via flame lead, 24 hrs test (samples may not dissolve) per
Sheryl/Notified client 5/3/19, C.O.



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

LEAD (Pb) CHAIN OF CUSTODY
EMSL ORDER ID *(Lab Use Only):*

PHONE: ()

FAX: ()

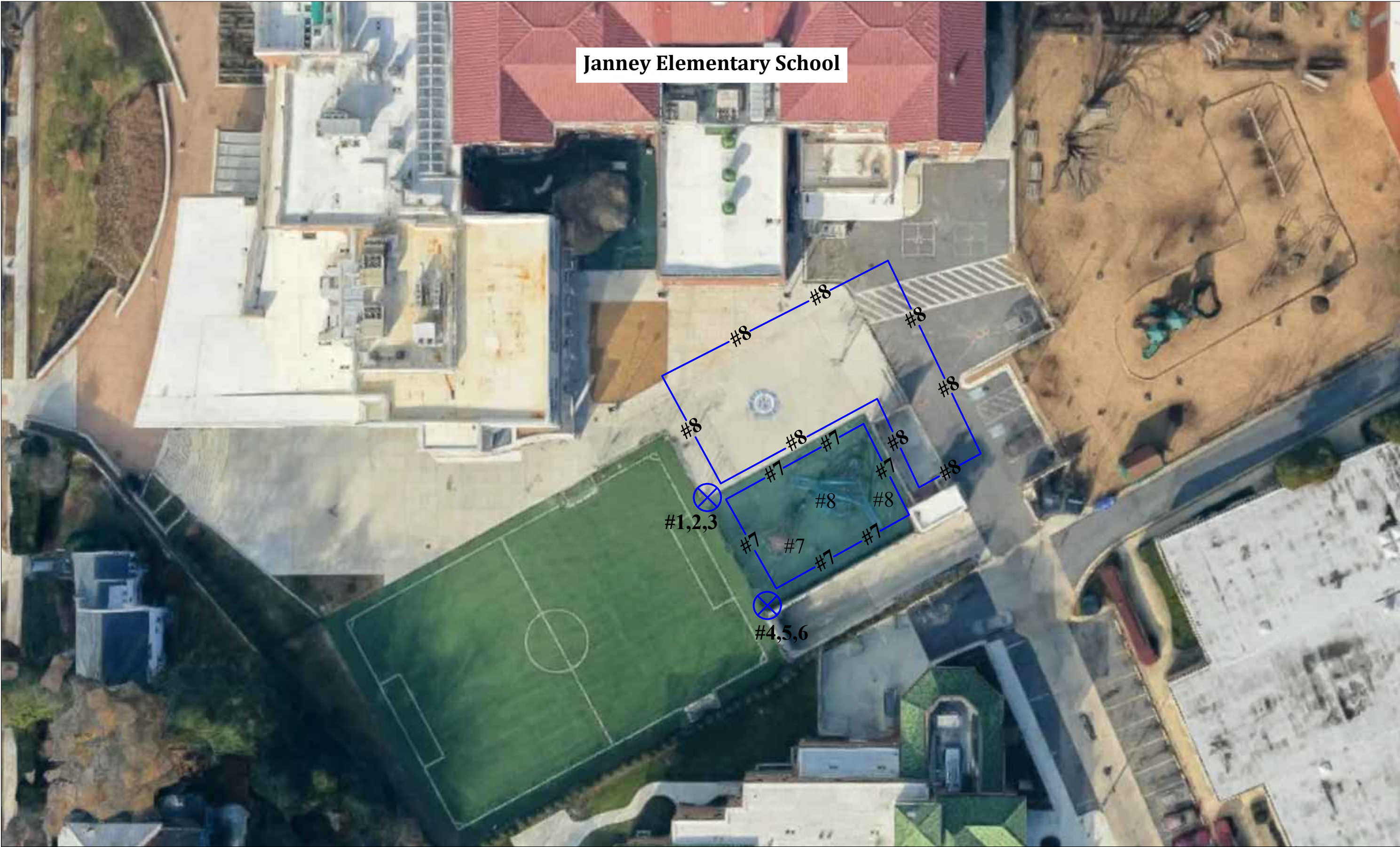
011905281

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

[illegible]

Attachment B

XRF and Bulk Sampling Locations



Janney Elementary School



Soil and Land Use Technology, Inc.
1818 New York Ave, NE, Suite 231
Washington, DC 20002
(301) 595-3783

Janney Elementary School
4130 Albemarle St NW
Washington, DC 20016

Lead Screening Sample
Locations for
Laboratory Analysis

LEGEND

-  = Bulk Sample Locations
-  = Composite Sample #7
-  = Composite Sample #8





Janney Elementary School



Soil and Land Use Technology, Inc.
1818 New York Ave, NE, Suite 231
Washington, DC 20002
(301) 595-3783

Janney Elementary School
4130 Albemarle St NW
Washington, DC 20016

Exterior XRF Lead Survey

LEGEND
⊗ = XRF Sample
Locations



Attachment C

Care and Maintenance Information – Poured-in-Place Surfacing for Playgrounds



Maintenance Guide for Poured in Place Resilient Rubber Surfacing

Because poured-in-place surfacing has many positive inherent features if installed correctly at the proper critical depth for the play equipment, it is important to keep it as near to installation quality as possible. These positive features may include proper, continuous impact attenuation; a level, accessible, firm, stable, and slip-resistant surface; proper porosity or drainage provisions; attractive surface color combinations, patterns and designs; and long-term durability.

The presence of foreign objects and deposits can quickly diminish these qualities. These include a wide range of items, from sand, dirt, and stones to leaves, tree sap, chewing gum, bird droppings, urine, blood, scuff marks, tar, and common park maintenance products such as gasoline or grease. The longer these items are left on the surfacing, the more damage they cause, so prompt maintenance is important.

Principal key to effective poured-in-place surface maintenance: Keep Loose Debris Off -

Loose debris such as sand, dirt, and small stones on top of unitary surfacing can reproduce slip hazards. In addition, fine particles can accumulate in porous openings and clog important drainage features of some surfaces, as can matting materials such as leaf litter. These particles can also be abrasive; they accelerate wear and shorten surface life. It is recommended that a regular periodic removal of this loose debris be done. It is best to vacuum porous surfaces to clear the permeable openings as well as removing top litter, but blowing can also be an effective means of achieving this. Dry sweeping or scrubbing will remove the loose litter, but can force more fine particles into porous openings of some surfaces. This should be done at least every two-three weeks, but may be necessary more often if local conditions warrant.

A basic routine maintenance equipment and supply kit for poured-in-place surfaces -

Maintenance divisions with several playgrounds that have unitary surfaces may find it useful to establish a standard routine maintenance kit for these areas. Here is a recommended list of equipment and supplies for such a kit:

- Lawn vacuum or blower for porous surfaces or soft-bristle push broom for non-porous surfaces
- Disposable rags
- Disposable gloves
- 2 cleaning and rinsing buckets
- 2 small reusable pump spray containers (for vinegar and hydrogen peroxide)
- Aerosol spray cleaner (Formula 409™ has been highly recommended)
- Orange oil cleaner
- Liquid detergent
- Powder cleaning compound (Borax™ has been highly recommended)
- STPP (Sodium Tripolyphosphate)
- White Vinegar (5% acid; available at grocery stores)
- Hydrogen Peroxide (3% solution; available at drug stores)
- Paste or powder cleanser (Goop™ and Bon Ami™ have been highly recommended)

It is important that the maintenance division obtains the MSDS for each of these chemical products from the manufacturer, includes them in all chemical in-service training, and has them on file for future reference. The quantities of these cleaning products will depend upon the amount of unitary surfacing to be maintained.

Use the right cleaner for problem deposits -

Elbow grease is always useful, but it helps to use the right cleaner to remove problem deposits or spills on unitary surfacing. Briefly, here's what is recommended for the following problems on unitary surfacing:

Bird droppings or other excrement — Do not attempt to loosen any dry excrement that is stuck to the surfacing; this could cause disease-causing fungus in the deposition to become airborne. Wear disposable gloves. Remove any loose excrement. Scrub deposits with dampened Bon Ami™, Borax™ or STPP and then wash with a Borax™ or STPP solution. Soak up residue with disposable rags. Disinfect by spraying on hydrogen peroxide and let stand for at least two minutes, then spraying again with vinegar and let stand for at least two minutes. (Do not mix these together; spray separately for best results.) Soak up residue with disposable rags. Double rinse with clean water.

Blood — Wear disposable gloves. Remove and disinfect by spraying on hydrogen peroxide and let stand for at least two minutes, then spraying again with vinegar and let stand for an additional two minutes. Soak up residue with disposable rags. Double rinse with clean water.

Chewing gum — Apply dry ice (regular ice isn't as effective) to freeze the gum and chip it from the surface and remove it.

Gasoline — Wash with a detergent and water. Soak up with disposable rags. Double rinse with clean water.

Grass stains — Apply orange oil cleaner. Work in and soak up with disposable rags. Double rinse with clean water.

Moss / Algae / Mildew / Mold — Saturate with hydrogen peroxide and let stand for at least five minutes. Repeat using vinegar. Soak up with disposable rags. Double rinse with clean water.

Scuff marks — Scrub with dampened Bon Ami™, Borax™, or STPP. Double rinse with clean water.

Soda or juice — Saturate with Formula 407™. Work in and soak up with disposable rags. Then wash with a liquid detergent, Borax™ or STPP solution. Double rinse with clean water.

Tar / crayon / lipstick / tree sap / motor oil / grease — Apply one or more of the following: orange oil cleaner, Goop™, or Formula 407™. Work in and soak up with disposable rags. Then scrub with dampened Bon Ami™, Borax™ or STPP. Double rinse with clean water.

Urine / vomit / nasal discharge — Wear disposable gloves. Wash with a Borax™ or STPP solution. Soak up residue with disposable rags. Disinfect by spraying on hydrogen peroxide and let stand for at least two minutes, then spraying again with vinegar and let stand for an additional two minutes. (Do not mix these together; spray separately for best results.) Soak up residue with disposable rags. Double rinse with clean water.

Avoid harmful solvents and cleaning products -

The following are effective cleaning agents but they are not recommended on most unitary safety surfaces. They may be detrimental to the surfacing because, over time, they could break down the polyurethane binding component and may lead to de-plasticization of the EPDM rubber. Most are not environmentally friendly. Some also change the appearance of the cleaned area compared to the rest of the surface, or make the surface very slippery: Acetate, Ammonia, Benzene, Carbon tetrachloride, Chlorine bleach, Glycerin, Lighter fluid, Mineral spirits, Naphtha, Petroleum distillates, Turpentine, WD40, Petroleum Jelly

Maintenance for Snow and Ice Conditions -

To remove ice or snow, Calcium Chloride is an acceptable solution. Please follow the manufacturer's instructions for proper use.

The information provided here is condensed from *Maintaining Safe Play*, the course manual of the new NPSI Playground Maintenance Service Program. Course availability, locations, and schedules will be posted later this fall on the NRPA website www.nrpa.org under "Education/training".

Attachment D

Photographs



5/2/19
2:35 pm



Janney Elementary School

4130 Albemarle St NW

Present condition-Adjacent to the synthetic grass soccer field

5/2/19
2:50 pm



Janney Elementary School

4130 Albemarle St NW

Present condition-Synthetic grass soccer field and playground



5/2/19
2:30 pm



Janney Elementary School

4130 Albemarle St NW

Present condition-Adjacent to the synthetic grass soccer field

5/2/19
2:45 pm



Janney Elementary School

4130 Albemarle St NW

Present Condition-Playground and synthetic grass soccer field

5/2/19
3:00 pm



Janney Elementary School

4130 Albemarle St NW

Sampling location of pour in place playground surface and synthetic turf

5/2/19
2:55 pm



Janney Elementary School

4130 Albemarle St NW

Synthetic grass soccer field condition