



NEW YORK CITY DEPARTMENT OF HEALTH
LEAD POISONING PREVENTION PROGRAM
253 BROADWAY (12TH FLOOR) - BOX CN58
NEW YORK, NY 10007

DOH

FAX TRANSMITTAL SHEET

From: The Desk of Jessica Leighton, PhD.

Fax No: (212) 676-6326

Tel No: (212) 676-6323/6324

SUBJECT: _____

COMMENTS: _____

DATE: 3/26/02

TO: Mike Silsenan

NAME OF AGENCY: _____

FAX NO: (718) 595 - 4544 TEL. NO: () PII

No. Of Pages (including transmittal sheet): 27

1-25-02

Dear Jessica

As promised, attached is the cover letter and data for our testing of the "marginal street playground" - it is so good to have it open again!

Tessa



Occupational Health, Safety &
Environmental Consultants

Mr. Vincent McGowan
Assistant Director
Battery Park City Parks Conservancy
2 South End Avenue
New York, New York 10280

January 9, 2002

Re: Bulk Soil and Surface Wipe Sampling Results – West Thames Park – Battery Park City
Colden Project No.: 02100

Dear Mr. McGowan:

Colden Corporation (Colden) is pleased to present this report of our findings from recent bulk soil and surface wipe sampling performed at the West Thames Park located in Battery Park City, New York, New York. Our findings are presented below.

Background

Colden was retained by the Battery Park City Parks Conservancy (BPCPC) to perform bulk soil and surface wipe sampling at the West Thames Park located on the eastern side of the Battery Park City neighborhood. This park, as was the majority of the Battery Park City neighborhood, was covered in large quantities of dust and debris after the collapse of the World Trade Center Towers on September 11, 2001.

The sampling was performed subsequent to the removal of over one foot of sand from the play structure area, surface cleaning of dust and debris from the general park grounds and planters, and numerous power washings of the park. Colden's site visit was performed on January 4, 2002. Samples were collected by Hobart R. Van Deusen of Colden Corporation. Mr. Van Deusen is certified by the United States Environmental Protection Agency (USEPA) as a Certified Inspector for Lead-Based Paint (Cert. #NY-06-092004-477, Exp. 9/7/04) as well as by the New York State Department of Labor (NYSDOL) as an Asbestos Inspector (Cert. #AH-90-17608, Exp. 7/02) and the New York City Department of Environmental Protection (NYCDEP) as an Asbestos Investigator (Cert. #85718, Exp. 7/30/03).

Purpose

The purpose of the sampling was to characterize the conditions of the soil and hard surfaces at the park that the residents and in particular children may come in contact with in using the park. BPCPC is planning on reopening the park to the public upon the receipt of satisfactory sample results indicating the lack of hazardous conditions for those who maintain and use the park on a daily basis. BPCPC intends to replace the sand removed from underneath the play structure with clean sand prior to the opening of the park.

Robert Morris Building • 100 North 17th Street, 9th Floor • Philadelphia, PA 19103
Tel 215 496 9237 • Fax 215 496 9280 • Toll Free 800 386 5550 • www.colden.com

Colden collected four composite bulk soil samples from the planters and the areas underneath the play structure in the park as well as a total eight surface wipe samples from various contact areas in the park.

The composite bulk soil samples were collected from five sub locations at each sample location, combined in one sample container and mixed thoroughly to create each composite sample.

The bulk composite soil sample locations are as follows:

1. Raised Planter – North End of Park
2. Raised Planter – South End of Park
3. Play Structure – East Side
4. Play Structure – West Side

The wipe samples were collected at four locations with two side-by-side samples collected at each location. This side-by-side sampling was necessary due to the two distinct analytical methods required for the wipe samples. The surface wipe sample locations are as follows:

1. Stainless Steel Water fountain – North End of Park
2. Yellow Plastic Slide on Play Structure (at base of slide)
3. Metal Slide on Play Structure (at base of slide)
4. Concrete Footing Pad for Play Structure – North End of Play Structure

Sample Analysis

The soil samples were analyzed for the presence of asbestos fibers utilizing Polarized Light Microscopy (PLM) analysis. In addition, these soil samples were analyzed for the presence eight elemental metals known as the RCRA metals. (Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium and Silver). This was performed using Inductively Coupled Plasma (ICP) analytical methods.

The surface wipe samples were analyzed for Arsenic, Cadmium, Chromium and Lead in one sample set and Mercury in a separate sample set.

The asbestos samples were analyzed by Scientific Laboratories, Inc. (Sci Lab) of New York, New York. Sci Lab's New York laboratory is certified under the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP #11480) for the analysis of asbestos bulk samples.

The metals sample analysis was performed by Sci Lab's, Boston, Massachusetts laboratory. Sci Lab's Boston laboratory is certified under the NYSDOH ELAP program (ELAP #10982) for environmental sample analysis.

Findings

Bulk Soil Samples (ASBESTOS)

(USEPA) considers a material to be asbestos-containing if it contains one percent or greater (1%) asbestos by weight.

No asbestos fibers were detected in all four composite bulk soil samples. See Attachment A for Asbestos Analytical Results.

Bulk Soil Samples (METALS)

Of the eight elemental metals analyzed in the four composite bulk samples, only lead and arsenic have a regulatory limit for soil contamination. The limit for lead is set by the USEPA at 400 parts per million (ppm) in areas where children will likely have contact with contaminated soil. A play area is considered a lead hazard by the USEPA if the samples meet or exceed 400 ppm. Other soil areas not likely to be contacted by children have a USEPA regulatory limit of 1,200 ppm.

The average of the four composite bulk soil samples for lead was 23.45 ug/Kg (or ppm). No lead hazard was found to be present in these samples.

Arsenic in soil is regulated by the USEPA at a limit of 20 ppm.

The average concentration of Arsenic in the four samples was 2.8 ppm. No arsenic hazard was found to be present in the samples.

The other six elemental metals analyzed do not have specific regulatory limits for soil contamination by any federal, state or city agency. However guidelines have been set by federal and state agencies as recommended soil cleanup objectives. In particular, the New York State Department of Environmental Conservation (NYSDEC) has recommended soil cleanup objectives for heavy metals as outlined in Technical and Administrative Guideline Memorandum #4046 (TAGM #4046), dated January 24, 1994. See Table 4 attached to this report for a list of heavy metals, background levels of these heavy metals found in the Eastern United States and the recommended soil cleanup objective.

Although the West Thames Park was not a state mandated cleanup site, for the purpose of this report, Colden has chosen to use these recommended objectives for the West Thames Park as

they are the most current and state specific guidelines available. As listed in Table 1 below, all results for soils are less than the state mandated cleanup objectives as listed in Table 4 attached to this report.

In addition, Colden has compared all sample results to the background levels of these heavy metals found in the Eastern United States for additional comparison.

Below is a table summarizing our findings by each contaminant (metal):

Table 1: Results of Metals in Soils Samples and Guideline Standards

Contaminant (Metal):	Range of Analytical Results of (4) Bulk Soil Samples (ppm ¹):	Eastern USA Background Levels (ppm):	Recommended Soil Cleanup Objective (ppm):	US EPA (ppm)
Arsenic	2.67 - 3.01	3 - 12	7.5 or SB ²	20
Barium	21.60 - 30.13	15 - 600	300 or SB	N/A
Cadmium	ND - 0.45	0.1 - 1.0	1.0 or SB	N/A
Chromium	7.19 - 17.04	1.5 - 40	10 or SB	N/A
Lead	15.92 - 35.44	See Footnote ³	SB	400 for play areas
Mercury	ND	0.001 - 0.2	0.1	N/A
Selenium	ND	0.1 - 3.9	2.0 or SB	N/A
Silver	0.33 - 0.79	N/A ⁴	SB	N/A

1 - For the purpose of clarity, all results are presented in parts per million (ppm). Laboratory results were reported in $\mu\text{g/Kg}$, which is equal to ppm on a one-to-one ratio.

2 - New York State Background Level (SB)

3 - Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4 - 61 ppm. Average background levels in metropolitan or suburban areas or near highways are much higher and typically range from 200-500 ppm.

4 - Even though silver is not associated with adverse health effects, the EPA establishes exposure limits for many materials based on various endpoints of concern. To our knowledge, silver is the only chemical or substance which has an RfD that is not based on an adverse health effect, but rather on a cosmetic effect (argyria). While an RfD for silver still exists, in 1991 the EPA deleted the maximum contaminant level, or MCL for silver in drinking water (an enforceable value) and replaced it with a secondary maximum contaminant level (SMCL) goal (non-enforceable) of 0.1 ppm that is twice the previous level, an action that was driven by the recognized low toxicity associated with silver. (The Silver Council)

ND = None Detected

N/A = Not Available

Colden has determined that the concentrations of the eight elemental metals analyzed in the composite bulk soil samples collected from the West Thames Park are within general background levels for the Eastern United States as well as below the NYSDEC's recommended soil cleanup objectives and USEPA limits for Arsenic and Lead soil contamination.

Surface Wipe Samples (METALS)

Of the five elemental metals analyzed in the eight surface wipe samples, only Lead has a regulatory limit for surface contamination. The limit for Lead is set by the New York City Department of Health (NYCDOH) and the USEPA at 40 micrograms per square foot (ug/sq.ft.) on floor surfaces, 250 ug/sq.ft. on window sills and 400 ug/sq.ft. on window wells as a clearance criterion for lead-based paint abatement activities. The clearance criteria is compared to the average of all surface wipe samples collected from each separate surface type.

Colden has chosen the floor surfaces clearance criteria for Lead (40 ug/sq.ft.) as a criterion for determining the extent of Lead contamination at the West Thames Park, as it is the most stringent regulatory limit currently available.

The average of the four surface wipes for Lead was 26.925 ug/sq.ft. This average is well below the NYCDOH and USEPA limit.

Arsenic was found to be ND or "None Detected" in three of four surface wipe samples. Arsenic was detected in the fourth wipe sample collected on the concrete footing pad under the play structure (36.0 ug/sq.ft.). Arsenic is commonly used as a preservative for pressure treated wood used in play structures, which may be the source of the arsenic that was detected. The wooden structure is coated with a sealant, which according to a study presented by the Connecticut Agricultural Experiment Station reduces arsenic availability from play structures by 90 to 95%. Colden does not believe the presence of Arsenic on the concrete footing pad is of concern, as it will be covered with over a foot of new sand prior to the reopening of the park.

Results of all four surface wipe samples for Cadmium were ND or "None Detected".

Chromium was detected in all four surface wipes. The results ranged from 6.89 to 35.5 ug/sq.ft. While there are no current federal, state or local standards for Chromium surface contamination, the presence of Chromium would be expected in the samples based on the metal and plastic substrates they were collected from. Chromium is a common element used in metal manufacturing and pigments. It is also a component of wood preservatives along with arsenic. The Chromium concentrations found can be attributed to the playground products themselves as opposed to external the World Trade Center collapse.

Results of all four surface wipe samples for Mercury were ND or "None Detected".

Below is a table summarizing our findings by each contaminant (metal):

Table 2: Results of Metals in Wipe Samples and Guideline Standards

Contaminant (Metal):	Range of Analytical Results of (4) Wipe Samples (ug/sq.ft.):	Regulatory Limit (ug/sq.ft.):
Arsenic	ND - 36.0	N/A
Cadmium	ND	N/A
Chromium	6.89 - 35.5	N/A
Lead ¹	19.8 - 42.3 (Avg. 26.925)	40 ¹
Mercury ²	ND	N/A

1 - The limit for Lead is set by the New York City Department of Health (NYCDOH) and the USEPA at 40 micrograms per square foot (ug/sq.ft.) on floor surfaces as a clearance criterion for lead-based paint abatement activities. The clearance criteria is compared to the average of all surface wipe samples collected from each separate surface type.

2 - Four separate surface wipe samples were collected for Mercury. Samples were collected side-by-side at the same locations of the other surface wipe samples.

ND = None Detected

N/A = Not Available

Mr. Vincent McGowan

BPCPC

January 14, 2001

Page 7 of 7

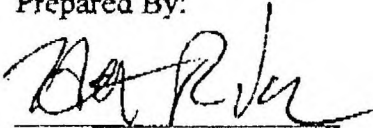
Recommendations

Colden recommends that BPCPC continue its regularly scheduled cleaning/power washing of all surfaces in the West Thames Park that children and adults may come in contact with as has been done in the past. This will help prevent the accumulation of dust on play surfaces and etc. that people using the park may come in contact with.

We trust the information in this report helps alleviate any concerns you may have had over the conditions at the West Thames Park at the time of sampling. Thank you for the opportunity to provide our services to your firm. Please call us at (215) 496-9237 should you have any questions or concerns regarding this report.

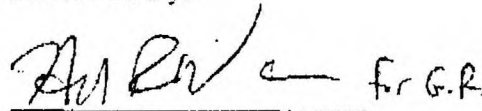
Sincerely,
Colden Corporation

Prepared By:



Hobart R. Van Deusen
Industrial Hygienist

Reviewed By:

 fr G.R.

Greg W. Richey, CIH, CSP
Senior Project Manager

HRVD:hrvd
Attachments

12 54 00 PM

Attachment A

Asbestos Analytical Results



FULL SERVICE ENVIRONMENTAL LABORATORIES

SCIENTIFIC LABORATORIES, INC.

117 EAST 30TH STREET

NEW YORK, NY 10016

TEL: (212) 679-8500 • FAX: (212) 679-9392

PLM Bulk Asbestos Report

Colden Corporation
Attn: David DeLalia
Robert Morris Building
100 North 17th St. 9th Fl.
Philadelphia, PA 19103

Date Received 01/04/2002 SciLab Job No. 202011202
Date Examined 01/04/2002 P.O. # 02100
Page 1 of 2
RE: 02100; Battery Park City Parks Conservancy; West Thomas
Park

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
010202-S-1	202011202-01	No	NAD

Location: North End-Raised Planter

Description: Brown, Homogeneous, Soil (Composite)

Asbestos Types:

Other Material: Cellulose 5. %, Fibrous glass Trace. Synthetic fibers Trace.
Non-fibrous 95. %

010202-S-2	202011202-02	No	NAD
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Location: South End-Raised Planter

Description: Brown, Homogeneous, Soil (Composite)

Asbestos Types:

Other Material: Cellulose 3. %, Fibrous glass Trace. Synthetic fibers Trace.
Non-fibrous 97. %

010202-S-3	202011202-03	No	NAD
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Location: Play Structure-East Side

Description: Tan, Homogeneous, Soil (Composite)

Asbestos Types:

Other Material: Cellulose 2. %, Fibrous glass Trace. Non-fibrous 98. %

010202-S-4	202011202-04	No	NAD
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Location: Play Structure-West Side

Description: Tan, Homogeneous, Soil (Composite)

Asbestos Types:

Other Material: Cellulose 2. %, Fibrous glass Trace. Non-fibrous 98. %



FULL SERVICE ENVIRONMENTAL LABORATORIES

SCIENTIFIC LABORATORIES, INC.

117 EAST 90TH STREET

NEW YORK, NY 10016

TEL: (212) 679-9800 • FAX: (212) 679-9392

PLM Bulk Asbestos Report

Colden Corporation
Attn: David DeLalla
Robert Morris Building
100 North 17th St. 9th Fl.
Philadelphia, PA 19103

Date Received 01/04/2002 SciLab Job No. 202011202
Date Examined 01/04/2002 P.O. # 02100
Page 2 of 2
RE: 02100; Battery Park City Parks Conservancy; West Thomas
Park

Reporting Notes:

Analyzed by: John Koubiadis

*NAD/NSD = no asbestos detected; NA = not analyzed; NA/PS = not analyzed / positive stop; PLM Bulk Asbestos Analysis by EPA 500/M4-82-020 per 40 CFR 763 (NVLAP Lab #200546-0) and ELAP PLM Analysis Protocol 198.1 for New York samples (NYSDOH ELAP Lab # 11450); Note: PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. TEM is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos-containing in New York State (also see EPA Advisory for floor tile, FR 59, 146, 38970, 9/1/94). National Institute of Standards and Technology Accreditation requirements mandate that this report must not be reproduced except in full without the approval of the laboratory. This PLM report relates ONLY to the items tested. AIHA# 102643, VT Cert# AL016035

Reviewed By:



Customer:

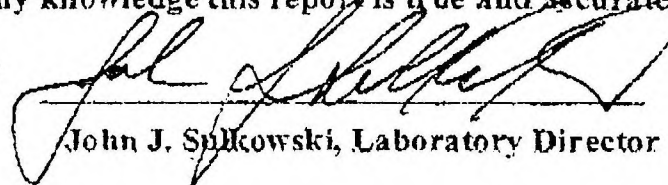
Colden Corporation

Workorder No.

0201-00011

To the best of my knowledge this report is true and accurate.

Authorized By:


John J. Sulkowski, Laboratory Director

Certifications:

MA: MA069

NY: 1098

CT: PH0119

RI: A45

CA: 205

ME: MA06

NJ: 59744

Page: 3 of 3

COLDEN CORPORATIONOccupational Health, Safety &
Environmental Consultants170 Longdean Road
Fairfield, CT 06430-6551
(203) 319-0089

✓ 02011202

0201-012
Re 1/4/02

Lead Bulk Sample Data Sheet / C.O.C. (SOIL)

Colden Corporation Project No: #021003
Project Name: West Thames Park
Date of Sample Collection: Jan. 2, 2002

Client: Battery Park City Parks Conservancy

Samples Collected By: Hobart R. Van Deusen

Sample I.D.:	Sample Location:	Material:	Laboratory Analysis Requested:
			RCCRA METALS / PCBs / Asbestos Paint Chip / Flame AA by P
#010202-S-1	North End - Raised Planter	Bulk Soil (Composite)	" "
#010202-S-2	South End - Raised Planter	" "	" "
#010202-S-3	Play structure - East Side	" "	" "
#010202-S-4	Play structure - West Side	" "	" "

Comments:

* ALL Samples are Composite Samples W/S collection points
for each sample.Send Invoice to: Colden 100 N. 17th St., 9th FL., Philadelphia, PA 19103

Fax Results to: Rye Van Deusen at (208) 692-6051

Fax Results to: Greg Richey at (215) 432-9011

Laboratory Name: SG-LAB - Boston

SAMPLE TAT:

24 HOURS

Questions? CALL: 215-496-9211

Samples Relinquished to Lab by:

Hobart R. Van Deusen

Date: 1-2-02

(Print Name)

(Signature)

Samples Received at Lab by:

MARK PORTA

Date: 1/3/02

(Print Name)

(Signature)

A. Ramos

1/4/02 1015



Eight School Street
Weymouth, MA 02189
781-337-9334

Laboratory Report

Customer: Colden Corporation
100 N. 17TH ST.
9TH FL.
Philadelphia, PA 19103

Report Date 1/4/02

Workorder No. 0201-00012

Attention: Mr. Rye Van Deusen

Subject: WEST THAMES PARK: SOILS

Sample: 001 #010202-S-1: NORTH END-RAISED PLANTER
Date: 1/2/02
Matrix: SOIL

Parameter	Method	Results	Units	PQL	Analyst	Analysis Date	Qual
RCRA 8 Metals							
Arsenic	6010B, SW-846	2.65	mg/Kg	0.495	TDJ	01/04/02	
Barium	6010B, SW-846	21.60	mg/Kg	2.97	TDJ	01/04/02	
Cadmium	6010B, SW-846	0.45	mg/Kg	0.297	TDJ	01/04/02	
Chromium	6010B, SW-846	17.04	mg/Kg	0.495	TDJ	01/04/02	
Lead	6010B, SW-846	15.92	mg/Kg	0.495	TDJ	01/04/02	
Mercury	SW-846; 7471	ND	mg/Kg	0.1000	CMC	01/04/02	
Selenium	6010B, SW-846	ND	mg/Kg	1.98	TDJ	01/04/02	
Silver	6010B, SW-846	0.79	mg/Kg	0.297	TDJ	01/04/02	
PCBs EPA 8082							
PCB-1016	EPA 8082	ND	ug/Kg	102	MB	01/03/02	
PCB-1221	EPA 8082	ND	ug/Kg	102	MB	01/03/02	
PCB-1232	EPA 8082	ND	ug/Kg	102	MB	01/03/02	
PCB-1242	EPA 8082	ND	ug/Kg	203	MB	01/03/02	
PCB-1248	EPA 8082	ND	ug/Kg	102	MB	01/03/02	
PCB-1254	EPA 8082	ND	ug/Kg	102	MB	01/03/02	
PCB-1260	EPA 8082	ND	ug/Kg	102	MB	01/03/02	
PCB-1262	EPA 8082	ND	ug/Kg	102	MB	01/03/02	
PCB-1268	EPA 8082	ND	ug/Kg	102	MB	01/03/02	
TOMX (SURROGATE)		67.7	%		MB	01/03/02	
DCB (SURROGATE)		67.3	%		MB	01/03/02	
Percent Solids		92.7	%		DMR	01/04/02	

Sample: 002 #010202-S-2: SOUTH END-RAISED PLANTER
Date: 1/2/02
Matrix: SOIL

Certifications: MA: MA059 NY: 10982 CT: PH0119 RI: A45 CA: 2050 ME: MA069 NJ: 59744

Page: 1 of 4

Bulk Soil Sample Analytical Results (Metals)



Customer:

Colden Corporation

Workorder No. 0201-00012

Sample: 002 #010202-S-2: SOUTH END-RAISED PLANTER
(Continued)

Parameter	Method	Results	Units	PQL	Analyst	Analysis Date	Qual
RCRA 8 Metals							
Arsenic	6010B, SW-846	2.84	mg/Kg	0.526	TDJ	01/04/02	
Barium	6010B, SW-846	30.13	mg/Kg	3.15	TDJ	01/04/02	
Cadmium	6010B, SW-846	0.45	mg/Kg	0.315	TDJ	01/04/02	
Chromium	6010B, SW-846	13.10	mg/Kg	0.526	TDJ	01/04/02	
Lead	6010B, SW-846	15.41	mg/Kg	0.526	TDJ	01/04/02	
Mercury	SW-846; 7471	ND	mg/Kg	0.1000	CMC	01/04/02	
Selenium	6010B, SW-846	ND	mg/Kg	2.10	TDJ	01/04/02	
Silver	6010B, SW-846	0.43	mg/Kg	0.315	TDJ	01/04/02	
PCBs EPA 8082					MB	01/03/02	
PCB-1016	EPA 8082	ND	ug/Kg	110	MB	01/03/02	
PCB-1221	EPA 8082	ND	ug/Kg	110	MB	01/03/02	
PCB-1232	EPA 8082	ND	ug/Kg	110	MB	01/03/02	
PCB-1242	EPA 8082	ND	ug/Kg	219	MB	01/03/02	
PCB-1248	EPA 8082	ND	ug/Kg	110	MB	01/03/02	
PCB-1254	EPA 8082	ND	ug/Kg	110	MB	01/03/02	
PCB-1260	EPA 8082	ND	ug/Kg	110	MB	01/03/02	
PCB-1262	EPA 8082	ND	ug/Kg	110	MB	01/03/02	
PCB-1268	EPA 8082	ND	ug/Kg	110	MB	01/03/02	
TCMX (SURROGATE)		108	%		MB	01/03/02	
DCB (SURROGATE)		90.4	%		MB	01/03/02	
Percent Solids		88.9	%		DMR	01/04/02	

Sample: 003 #010202-S-3: PLAY STRUCTURE-EAST SIDE
Date: 1/2/02
Matrix: SOIL

Parameter	Method	Results	Units	PQL	Analyst	Analysis Date	Qual
RCRA 8 Metals							
Arsenic	6010B, SW-846	2.67	mg/Kg	0.531	TDJ	01/04/02	
Barium	6010B, SW-846	24.29	mg/Kg	3.19	TDJ	01/04/02	
Cadmium	6010B, SW-846	ND	mg/Kg	0.319	TDJ	01/04/02	
Chromium	6010B, SW-846	7.19	mg/Kg	0.531	TDJ	01/04/02	
Lead	6010B, SW-846	24.03	mg/Kg	0.531	TDJ	01/04/02	
Mercury	SW-846; 7471	ND	mg/Kg	0.1000	CMC	01/04/02	

Certifications: MA: MA069 NY: 10982 CT: PH0119 RI: A45 CA: 2050 ME: MA069 NJ: 59744

Page: 2 of 4



Customer:

Colden Corporation

Workorder No. 0201-00012

Sample: 003 #010202-S-3: PLAY STRUCTURE-EAST SIDE
(Continued)

Parameter	Method	Results	Units	PQL	Analyst	Analysis Date	Qual
Selenium	6010B, SW-846	ND	mg/Kg	2.13	TDJ	01/04/02	
Silver	6010B, SW-846	0.33	mg/Kg	0.319	TDJ	01/04/02	
PCBs EPA 8082					MB	01/03/02	
PCB-1016	EPA 8082	ND	ug/Kg	106	MB	01/03/02	
PCB-1221	EPA 8082	ND	ug/Kg	106	MB	01/03/02	
PCB-1232	EPA 8082	ND	ug/Kg	106	MB	01/03/02	
PCB-1242	EPA 8082	ND	ug/Kg	212	MB	01/03/02	
PCB-1248	EPA 8082	ND	ug/Kg	106	MB	01/03/02	
PCB-1254	EPA 8082	ND	ug/Kg	106	MB	01/03/02	
PCB-1260	EPA 8082	ND	ug/Kg	106	MB	01/03/02	
PCB-1262	EPA 8082	ND	ug/Kg	106	MB	01/03/02	
PCB-1268	EPA 8082	ND	ug/Kg	106	MB	01/03/02	
TCMX (SURROGATE)		90.4	%		MB	01/03/02	
DCB (SURROGATE)		88.2	%		MB	01/03/02	
Percent Solids		94.1	%		DMR	01/04/02	

Sample: 004 #010202-S-4: PLAY STRUCTURE-WEST SIDE
Date: 1/2/02
Matrix: SOIL

Parameter	Method	Results	Units	PQL	Analyst	Analysis Date	Qual
RCRA 8 Metals							
Arsenic	6010B, SW-846	3.01	mg/Kg	0.525	TDJ	01/04/02	
Barium	6010B, SW-846	28.21	mg/Kg	3.15	TDJ	01/04/02	
Cadmium	6010B, SW-846	0.40	mg/Kg	0.315	TDJ	01/04/02	
Chromium	6010B, SW-846	7.94	mg/Kg	0.525	TDJ	01/04/02	
Lead	6010B, SW-846	35.44	mg/Kg	0.525	TDJ	01/04/02	
Mercury	SW-846; 7471	ND	mg/Kg	0.1000	CMC	01/04/02	
Selenium	6010B, SW-846	ND	mg/Kg	2.10	TDJ	01/04/02	
Silver	6010B, SW-846	0.35	mg/Kg	0.315	TDJ	01/04/02	
PCBs EPA 8082					MB	01/03/02	
PCB-1016	EPA 8082	ND	ug/Kg	105	MB	01/03/02	
PCB-1221	EPA 8082	ND	ug/Kg	105	MB	01/03/02	
PCB-1232	EPA 8082	ND	ug/Kg	105	MB	01/03/02	
PCB-1242	EPA 8082	ND	ug/Kg	210	MB	01/03/02	

Certifications: MA: MA069 NY:10982 CT: PH0119 RI:A45 CA:2050 ME:MA069 NJ: 59744

Page: 3 of 4



Customer: Colden Corporation

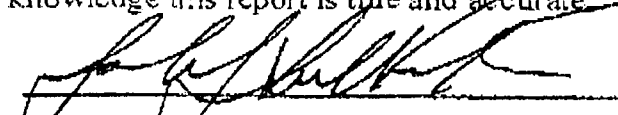
Workorder No. 0201-00012

Sample: 004 #010202-S-4: PLAY STRUCTURE-WEST SIDE
(Continued)

Parameter	Method	Results	Units	PQL	Analyst	Analysis Date	Qual
PCB-1248	EPA 8082	ND	ug/Kg	105	MB	01/03/02	
PCB-1254	EPA 8082	ND	ug/Kg	105	MB	01/03/02	
PCB-1260	EPA 8082	ND	ug/Kg	105	MB	01/03/02	
PCB-1262	EPA 8082	ND	ug/Kg	105	MB	01/03/02	
PCB-1268	EPA 8082	ND	ug/Kg	105	MB	01/03/02	
TCMX (SURROGATE)		91.3	%		MB	01/03/02	
DCB (SURROGATE)		85.8	%		MB	01/03/02	
Percent Solids		94.3	%		DMR	01/04/02	

To the best of my knowledge this report is true and accurate

Authorized By:


John J. Sulkowski, Laboratory Director

Certifications: MA: MA069 NY:10982 CT: PH0119 RI:A45 CA:2050 ME:MA069 NJ: 59744

Page: 4 of 4



Occupational Health, Safety &
Environmental Consultants

170 Longden Road
Fairfield, CT 06430-6551
(203) 319-0089

Lead Bulk Sample Data Sheet / C.O.C.

0201-012
me 1/4/02

(SOIL)

Colden Corporation Project No: #02100

Client: Battery Park City Parks Conservancy

Project Name: West Thames Park

Date of Sample Collection: Jan. 2, 2002

Samples Collected By: Hobart R. Van Deusen

Sample I.D.:	Sample Location:	Material:	Laboratory Analysis Requested:
			ROCK Metals / PCB / Asbestos Print Chip - Phase AA by 1
1 #010202-S-1	North End - Raised Planter	Bulk Soil (Composite)	" "
2 #010202-S-2	South End - Raised Planter	" "	" "
3 #010202-S-3	Play structure - East Side	" "	" "
4 #010202-S-4	Play structure - West Side	" "	" "

Comments:

* All Samples are Composite Samples w/ 5 collection points for each sample.

Send Invoice to: Colden 100 N. 17th St., 9th FL., Philadelphia, PA 19103

Fax Results to: Rye Van Deusen at (203) 692-6051

AND Fax Results to: Greg Richey at (215) 438-9011

Laboratory Name: SCI-LAB - Boston SAMPLE TAT: 24 Hours

Questions? CALL: 215-496-9280
(203) 545-7528

Samples Relinquished to Lab by: Hobart R. Van Deusen

Date: 1-2-02

(Print Name)

(Signature)

Samples Received at Lab by: MARK PORTA

Date: 1/3/02

(Print Name)

(Signature)



FULL SERVICE ENVIRONMENTAL LABORATORIES

Laboratory Report

**Eight School Street
Weymouth, MA 02189
781-337-9334**

Customer Colden Corporation
100 N. 17TH ST.
9TH FL.
Philadelphia, PA 19103

Report Date 1/4/02
Workorder No 0201-00011

Attention: Mr. Rye Van Deusen
Subject: WEST THAMES PARK: METALS WIPES

Sample: 001 010202-W-1: STAINLESS STEEL WATER FOUNTAIN-NORTH END OF PARK
Date: 1/2/02
Matrix: WIPE

Parameter	Method	Results	Units	PQL	Analyst	Analysis Dat	Qual
Lead, Wipe	6010B, SW-846	23.5	ug/sq. ft	4.50	TDJ	01/04/02	
Chromium, Wipe	6010B, SW-846	16.5	ug/sq. ft	4.50	TDJ	01/04/02	
Cadmium, Wipe	6010B, SW-846	ND	ug/sq. ft	2.25	TDJ	01/04/02	
Arsenic, Wipe	6010B, SW-846	ND	ug/sq. ft	4.50	TDJ	01/04/02	

Sample: 002 010202-W-2: YELLOW PLASTIC SLIDE ON PLAY STRUCTURE-AT BASE
Date: 1/2/02
Matrix: WIPE

Parameter	Method	Results	Units	PQL	Analyst	Analysis Dat	Qual
Lead, Wipe	6010B, SW-846	22.1	ug/sq. ft	4.50	TDJ	01/04/02	
Chromium, Wipe	6010B, SW-846	6.89	ug/sq. ft	4.50	TDJ	01/04/02	
Cadmium, Wipe	6010B, SW-846	ND	ug/sq. ft	2.25	TDJ	01/04/02	
Arsenic, Wipe	6010B, SW-846	ND	ug/sq. ft	4.50	TDJ	01/04/02	

Sample: 003 010202-W-3: METAL SLIDE ON PLAY STRUCTURE-AT BASE
Date: 1/2/02
Matrix: WIPE

Parameter	Method	Results	Units	PQL	Analyst	Analysis Dat	Qual
Lead, Wipe	6010B, SW-846	19.8	ug/sq. ft	4.50	TDJ	01/04/02	
Chromium, Wipe	6010B, SW-846	14.1	ug/sq. ft	4.50	TDJ	01/04/02	
Cadmium, Wipe	6010B, SW-846	ND	ug/sq. ft	2.25	TDJ	01/04/02	
Arsenic, Wipe	6010B, SW-846	ND	ug/sq. ft	4.50	TDJ	01/04/02	

Certifications: MA: MA069 NY:1098 CT: PH0119 RI:A45 CA:205 ME:MA06 NJ: 59744

Page: 1 of 3

P.21

MAR-26-2002 09:42



Laboratory Report

**Eight School Street
Weymouth, MA 02189
781-337-9334**

Customer: Colden Corporation
100 N. 17TH ST.
9TH FL.
Philadelphia, PA 19103

Report Date: 1/4/02
Workorder No: 0201-00011

Attention: Mr. Rye Van Deusen

Subject: WEST THAMES PARK: METALS WIPES

Sample: 601 010202-W-1: STAINLESS STEEL WATER FOUNTAIN-NORTH END OF PARK
Date: 1/2/02
Matrix: WIPE

Parameter	Method	Results	Units	PQL	Analyst	Analysis Date	Qual
Lead, Wipe	6010B, SW-846	23.5	ug/sq. ft	4.50	TDJ	01/04/02	
Chromium, Wipe	6010B, SW-846	16.5	ug/sq. ft	4.50	TDJ	01/04/02	
Cadmium, Wipe	6010B, SW-846	ND	ug/sq. ft	2.25	TDJ	01/04/02	
Arsenic, Wipe	6010B, SW-846	ND	ug/sq. ft	4.50	TDJ	01/04/02	

Sample: 602 010202-W-2: YELLOW PLASTIC SLIDE ON PLAY STRUCTURE-AT BASE
Date: 1/2/02
Matrix: WIPE

Parameter	Method	Results	Units	PQL	Analyst	Analysis Date	Qual
Lead, Wipe	6010B, SW-846	22.1	ug/sq. ft	4.50	TDJ	01/04/02	
Chromium, Wipe	6010B, SW-846	6.89	ug/sq. ft	4.50	TDJ	01/04/02	
Cadmium, Wipe	6010B, SW-846	ND	ug/sq. ft	2.25	TDJ	01/04/02	
Arsenic, Wipe	6010B, SW-846	ND	ug/sq. ft	4.50	TDJ	01/04/02	

Sample: 603 010202-W-3: METAL SLIDE ON PLAY STRUCTURE-AT BASE
Date: 1/2/02
Matrix: WIPE

Parameter	Method	Results	Units	PQL	Analyst	Analysis Date	Qual
Lead, Wipe	6010B, SW-846	19.8	ug/sq. ft	4.50	TDJ	01/04/02	
Chromium, Wipe	6010B, SW-846	14.1	ug/sq. ft	4.50	TDJ	01/04/02	
Cadmium, Wipe	6010B, SW-846	ND	ug/sq. ft	2.25	TDJ	01/04/02	
Arsenic, Wipe	6010B, SW-846	ND	ug/sq. ft	4.50	TDJ	01/04/02	

Certifications: MA: MA069 NY: 1098 CT: PH0119 RI: A45 CA: 205 ME: MA06 NJ: 59744

Page: 1 of 3



Customer: Colden Corporation

Workorder No. 0201-00011

Sample: 004 010202-W-4: CONCRETE FOOTING PAD FOR PLAY STRUCTURE-NORTH END OF STRUCTURE
 Date: 1/2/02
 Matrix: WIPE

Parameter	Method	Results	Units	POL	Analyst	Analysis Date	Qual
Lead, Wipe	6010B, SW-846	42.3	ug/sq. ft	4.11	TDJ	01/04/02	
Chromium, Wipe	6010B, SW-846	35.5	ug/sq. ft	4.11	TDJ	01/04/02	
Cadmium, Wipe	6010B, SW-846	ND	ug/sq. ft	2.06	TDJ	01/04/02	
Arsenic, Wipe	6010B, SW-846	36.0	ug/sq. ft	4.11	TDJ	01/04/02	

Sample: 005 010202-W-1-Hg: STAINLESS STEEL WATER FOUNTAIN-NORTH END OF PARK
 Date: 1/2/02
 Matrix: WIPE

Parameter	Method	Results	Units	POL	Analyst	Analysis Date	Qual
Mercury	7471, SW-846	ND	ug/sq. ft	0.180	CMC	01/04/02	

Sample: 006 010202-W-2-Hg: YELLOW PLASTIC SLIDE ON PLAY STRUCTURE-AT BASE
 Date: 1/2/02
 Matrix: WIPE

Parameter	Method	Results	Units	POL	Analyst	Analysis Date	Qual
Mercury	7471, SW-846	ND	ug/sq. ft	0.180	CMC	01/04/02	

Sample: 007 010202-W-3-Hg: METAL SLIDE ON PLAY STRUCTURE-AT BASE
 Date: 1/2/02
 Matrix: WIPE

Parameter	Method	Results	Units	POL	Analyst	Analysis Date	Qual
Mercury	7471, SW-846	ND	ug/sq. ft	0.180	CMC	01/04/02	

Sample: 008 010202-W-4-Hg: CONCRETE FOOTING PAD FOR PLAY STRUCTURE-NORTHEND OF STRUCTURE
 Date: 1/2/02
 Matrix: WIPE

Parameter	Method	Results	Units	POL	Analyst	Analysis Date	Qual
Mercury	7471, SW-846	ND	ug/sq. ft	0.165	CMC	01/04/02	

Certifications: MA: MA069 NY: 1098 CT: PH0119 RI: A45 CA: 205 ME: MA06 NJ: 59744

Page: 2 of 3



Occupational Health, Safety &
Environmental Consultants

170 Longden Road
Fairfield, CT 06430-6551
(203) 319-0059

0201-011

Due 1/4/02

Lead Wipe Sample Data Sheet / C.O.C.

Colden Corporation Project No: 02100
Project Name: West Thames Park
Date of Sample Collection: Jan. 2, 2002

Client: Battery Park City Parks Conservancy
Samples Collected By: Hobart R. Van Deusen

Sample I.D.:	Sample Location:	Area Sampled (inch ²):	Laboratory Analysis Requested:
			Lead Wipe - Pinne AA SW846-7420
#010202-W-1	Stainless Steel Water fountain - North End of Park	16	- See Note -
#010202-W-2	Yellow Plastic slide on Play Structure - at Base	16	" "
#010202-W-3	Stainless Metal slide on Play Structure - at Base	16	" "
#010202-W-4	Concrete footing pad for play Structure - North End of Structure	17.5	" "
#010202-W-1 - HG	Stainless Steel Water fountain - North End of Park	16	Mercury (Hg)
#010202-W-2 - HG	Yellow Plastic slide on Play Structure - at Base	16	" "
#010202-W-3 - HG	Metal slide on Play Structure - at Base	16	" "
#010202-W-4 - HG	Concrete footing pad for play Structure - North End of Structure	17.5	" "

Comments:

Note - Analyze for the following metals: Lead/Chromium/Cadmium/Arsenic

Send Invoice to: Colden 100 N. 17th St., 9th FL., Philadelphia, PA 19103

Fax Results to: Rye Van Deusen at (208) 692-6051

(AND)

Fax Results to: Greg Richer at (855) 446-9280

Laboratory Name: Sci-Lab - Boston SAMPLE TAT: 24 Hours

Questions? CALL: 215-496-9237

Samples Relinquished to Lab by: Hobart R. Van Deusen

Date: 1-2-02

(Print Name)

(Signature)

Samples Received at Lab by: MARK PORTA

Date: 1/3/02

(Print Name)

(Signature)

APPENDIX A of TAGM #4046

TABLE 4
Recommended soil cleanup objectives (mg/kg or ppm)
Heavy Metals

Shortcut to TAGM 4046 Tables for [VOCs](#) | [SVOCs](#) | [Pesticides](#) / [PCBs](#)

Contaminants	Protect Water Quality (ppm)	Eastern USA Background (ppm)	* CRDL (mg/kg or ppm)	***** Rec. Soil Cleanup Objective (ppm)
Aluminum	N/A	33,000	2.0	SB
Antimony	N/A	N/A	0.6	SB
Arsenic	N/A	3-12 **	0.1	7.5 or SB
Barium	N/A	15-600	2.0	300 or SB
Beryllium	N/A	0-1.75	0.05	0.16 (HEAST) or SB
Cadmium	N/A	0.1-1	0.05	1 or SB
Calcium	N/A	130 - 35,000 ***	50.0	SB
Chromium	N/A	1.5 - 40 **	0.1	10 or SB
Cobalt	N/A	2.5 - 60 **	0.5	30 or SB
Copper	N/A	1 - 50	0.25	25 or SB
Cyanide	N/A	N/A	0.1	***
Iron	N/A	2,000 - 550,000	1.0	2,000 or SB
Lead	N/A	****	0.03	SB ****
Magnesium	N/A	100 - 5,000	50.0	SB
Manganese	N/A	50 - 5,000	0.15	SB
Mercury	N/A	0.001 - 0.2	0.002	0.1
Nickel	N/A	0.5 -25	0.4	13 or SB

<http://www.dec.state.ny.us/website/der/tagms/prtg4046e.html>

1/14/02

TABLE 4

TABLE 4

TABLE 4

Potassium	N/A	8,500 - 43,000 **	50.0	SB
Selenium	N/A	0.1 - 3.9	0.05	2 or SB
Silver	N/A	N/A	0.1	SB
Sodium	N/A	6,000 - 8,000	50.0	SB
Thallium	N/A	N/A	0.1	SB
Vanadium	N/A	1-300	0.5	150 or SB
Zinc	N/A	9-50	0.2	20 or SB

Note: Some forms of metal salts such as Aluminum Phosphide, Calcium Cyanide, Potassium Cyanide, Copper cyanide, Silver cyanide, Sodium cyanide, Zinc phosphide, Thallium salts, Vanadium pentoxide and Chromium (VI) compounds are more toxic in nature. Please refer to the USEPA HEASTs database to find cleanup objectives if such metals are present in soil.

SB is site background

N/A is not available

- * CRDL is contract required detection limit which is approx. 10 times the CRDL for water.
- ** New York State background
- *** Some forms of Cyanide are complex and very stable while other forms are pH dependent and hence are very unstable. Site-specific form(s) of Cyanide should be taken into consideration when establishing soil cleanup objective.
- **** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or suburban areas or near highways are much higher and typically range from 200-500 ppm.
- ***** Recommended soil cleanup objectives are average background concentrations as reported in a 1984 survey of reference material by E. Carol McGovern, NYSDEC.

