

Letter Health Consultation

IRONBOUND ATHLETIC FIELD B

NEWARK, ESSEX COUNTY, NEW JERSEY

EPA FACILITY ID: NJD986610848

FEBRUARY 11, 2008

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

You May Contact ATSDR TOLL FREE at
1-800-CDC-INFO

or

Visit our Home Page at: <http://www.atsdr.cdc.gov>

LETTER HEALTH CONSULTATION

IRONBOUND ATHLETIC FIELD B

NEWARK, ESSEX COUNTY, NEW JERSEY

EPA FACILITY ID: NJD986610848

Prepared By:

New Jersey Department of Health and Senior Services
Consumer and Environmental Health Services
under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry



State of New Jersey

DEPARTMENT OF HEALTH AND SENIOR SERVICES

CONSUMER AND ENVIRONMENTAL HEALTH SERVICES

PO BOX 369

TRENTON, N.J. 08625-0369

JON S. CORZINE
Governor

www.nj.gov/health

HEATHER HOWARD, J.D.
Commissioner

January 16, 2008

Mr. Nicholas Magriples
On-Scene Coordinator, Removal Action Branch
U.S. Environmental Protection Agency, Region 2
2890 Woodbridge Avenue
Edison, New Jersey 08837-3679

Dear Mr. Magriples:

This Letter Health Consultation (LHC) has been completed for the Ironbound Athletic Field B located along Saint Charles Avenue in Newark, Essex County, New Jersey. This LHC provides discussion of public health implications, conclusions, and recommendations concerning potential exposures to area residents from lead contamination detected at the Ironbound Athletic Field B owned by the City of Newark.

Statement of Issues

In response to a United States Environmental Protection Agency (USEPA) Region 2 request the New Jersey Department of Health and Senior Services (NJDHSS), through a cooperative agreement with the federal Agency for Toxic Substances and Disease Registry (ATSDR), has evaluated potential health risks posed by lead contamination detected at the Ironbound Athletic Field B. As part of this evaluation, the NJDHSS has reviewed data provided by the USEPA for surface dust and turf fiber samples to prepare this LHC.

Background

In July 2007, a Letter of Technical Assistance (LTA) was prepared in response to a USEPA Region 2 request that the NJDHSS evaluate potential health risks posed by contaminants detected at the Tidewater Baling site located at 26 Saint Charles Avenue in Newark, Essex County, New Jersey. Recommendations within the LTA included evaluating if lead contamination is present at the adjacent Ironbound Athletic Field B. As part of this evaluation, the NJDHSS agreed to the USEPA's additional request to collect samples from the Ironbound Athletic Field B.

In August 2007, the NJDHSS collected dust samples on the synthetic surface of the Ironbound Athletic Field B which confirmed the presence of lead contamination in the dust on the surface of the athletic field and in the turf fibers. Based on this data, the USEPA conducted further sampling on November 1, 2007 which confirmed the lead contamination on the field surface originates primarily from the synthetic field turf.

This city-owned field is used by area residents for various recreational activities. During three separate site visits conducted by ATSDR and NJDHSS in 2007, representatives from these agencies observed a small group of young children (estimated age range 3 to 6 years), under adult supervision, playing on the field surface and making hand contact with both the synthetic field and exposed soil surfaces (located at the field perimeter). On October 31, 2007, the City of Newark closed the Ironbound Athletic Field B for public use by recommendation of the ATSDR and NJDHSS.

Environmental Contamination

Surface Dust

August 16, 2007 Sampling Event

On August 16, 2007, six dust samples were collected by NJDHSS on the synthetic surface of the Ironbound Athletic Field B. Samples were collected using micro-vacuum sampling methodology by ASTM method D7144-05a. Samples were analyzed for lead by Method SW846-6010 and total nuisance dust by NIOSH Method 0500 by EMSL Analytical in Westmont, Camden County, New Jersey (see Appendix A). Analytical results are summarized as follows:

Sample Location – Ironbound Athletic Field B	Number of Samples	Average and Range of Total Dust Loading (grams/ft²)	Average and Range of Lead Loading (µg/ft²)^(a)	Average and Range of Lead Concentration (mg/kg)^(b)
Northern Half of Field	6	0.014 (0.0055 – 0.037)	49 (15 – 110)	3,742 (2,551 – 5,648)

(a) µg/ft² - micrograms per square feet based on one square foot sampling area.

(b) Calculated as follows:
$$\Sigma \frac{C_1}{W_1} + \frac{C_2}{W_2} + \dots + \frac{C_n}{W_n}$$

where, mg/kg = milligrams of contaminant per kilogram of sample, which is equal to microgram of contaminant per gram of soil sample

C = lead loading in surface dust (µg/ft²);

W = total dust loading (grams/ft²).

n = number of samples

November 1, 2007 Sampling Event

On November 1, 2007, five dust samples were collected by the USEPA on the synthetic surface of the Ironbound Athletic Field B. Samples were collected using high-volume vacuum sampling technique (USEPA's Standard Operating Procedure 2040). Samples were analyzed for lead using USEPA's Standard Operating Procedure 1811 by the USEPA's subcontracted laboratory in Edison, Middlesex County, New Jersey (see Appendix B). Analytical results are summarized as follows:

Sample Location – Ironbound Athletic Field B	Number of Samples	Average and Range of Dust Loading (grams/ft ²) ^(a)	Average and Range of Lead Loading (µg/ft ²) ^(b)	Average and Range of Lead Concentration (mg/kg) ^(c)
5 Locations Throughout Field Area	5	0.231 (0.025 – 0.860)	133 (28 – 198)	1,280 (230 – 2,290)

(a) Resultant dust portion after passing through 100-mesh (150 µm mean diameter) sieve

(b) µg/ft² - Based on 169 square feet sampling area (Note: Sample area for one of the five samples was 84.5 square feet).

Calculated as follows:
$$\frac{\sum (C_1W_1) + (C_2W_2) + \dots (C_5W_5)}{n}$$

where, µg/ft² = micrograms of contaminant per square foot of sample area,

C = lead concentration in surface dust as milligrams of contaminant per kilogram of sample (mg/kg);

W = dust loading (grams/ft²) for dust fraction passed through 100-mesh.

n = number of samples

(c) Average of USEPA’s November 1, 2007 sample results (See Appendix B)

The USEPA has set a health-based benchmark for lead in interior dust at 25 µg/ft² per the World Trade Center Indoor Environment Assessment study (EPA 2003). This screening value is derived using the Integrated Exposure Uptake Biokinetic (IEUBK) model and is considered to be protective of human health, particularly children. The U.S. Department of Housing and Urban Development (HUD) uses a screening value of 40 µg/ft² for lead in interior dust. Based on a comparison to EPA’s health-based benchmarks listed in the World Trade Center Indoor Environmental Assessment study and the U.S. HUD screening value, the average lead loading in surface dust samples collected during the August 16, 2007 (49 µg/ft²) and November 1, 2007 (133 µg/ft²) sampling events exceeded the above comparison values.

The mean lead concentrations in surface dust collected during the August 16, 2007 (3,742 mg/kg) and November 1, 2007 (1,280 mg/kg) sampling events exceeded the USEPA Residential Soil Guidance Value of 400 mg/kg in soil. The Residential Soil Guidance Value is used as the comparison value as the field was observed during site visits to be used by children less than 7 years old.

Visual inspection of the collected dust for both sampling events revealed the presence of a significant amount of synthetic turf particulates along with other dust components. It is believed the fragments of synthetic material are present due to the physical breakdown of the turf material through use and weathering. Based on this observation, bulk samples of synthetic turf fibers were collected for both sampling events.

Bulk Synthetic Turf

August 16, 2007 and November 1, 2007 Sampling Events

Analysis of the turf fibers for lead was performed for the August and November 2007 sampling events. Prior to analysis the samples were rinsed several times to remove any dust adhering or entrapped in the fibers. Sample results are as follows:

Sample Media	Sample Date	Number of Samples	Average and Range of Lead Concentrations (mg/kg)
Synthetic Turf Fiber – Ironbound Athletic Field B	08/16/2007	1	3,500 ^(a)
	11/01/2007	5	4,840 ^(b) (4,580 – 4,950)

- (a) Repeat analysis of a second portion of the synthetic fiber sample confirmed the initial lead result. Sample rinsed several times with hot tap water then once with distilled water prior to analysis.
- (b) Samples rinsed five times with deionized water prior to analysis.

In addition to the dust samples, five (5) bulk samples of the two rubberized mats underlying the artificial turf were collected and analyzed for lead. Analytical results from these samples indicate lead was detected at concentrations ranging from non-detect to 25.10 mg/kg. Based on these results, the underlying mat layers do not contain lead at concentrations exceeding the USEPA Residential Soil Guidance Value of 400 mg/kg in soil; therefore, this material is not considered to create a lead exposure concern.

Based on review of the analytical results, the lead concentrations in surface dust appear to originate from the synthetic turf fibers. As such, the turf fibers and the resultant dust created through use and weathering of the field surface is considered to create a lead exposure concern.

Soil

November 1, 2007 Sampling Event

Nineteen soil samples were collected from the exposed soil areas along the perimeter of the artificial turf and within the ballfield diamond area. The samples were analyzed for lead and polychlorinated biphenyls (PCBs) by USEPA’s Standard Operating Procedure 1801 by the USEPA’s subcontracted laboratory in Edison, Middlesex County, New Jersey (see Appendix B). The results indicate lead concentrations in soil ranged from 4.1 to 29.7 mg/kg, below the USEPA Residential Soil Guidance Value of 400 mg/kg in soil. PCBs were detected in two samples; the highest concentration at 0.041 mg/kg was below the USEPA Region 3 Risk-Based Concentration of 0.32 mg/kg for residential soil. Therefore, lead and PCBs are not considered contaminants of concern for exposed soil areas at the Ironbound Athletic Field B.

Air

Air monitoring data for the Ironbound Athletic Field B is not available. However, an upper bound lead concentration in airborne dust may be calculated using the mean of the average lead concentrations detected in surface dust (1,280 and 3,742 mg/kg) on the field at 2,511 mg/kg. It is also assumed that all dust created by recreational use of the field would contain lead at the average concentration detected in surface dust. To estimate the upper bound ambient concentration associated with dust particles, a dust loading factor of 2×10^{-7} kg of dust per cubic meter of air (kg/m^3) was used (ATSDR 2003). This dust loading factor is two to three orders of magnitude greater than the default value for wind erosion of residential soils ($7.6 \times 10^{-10} \text{ kg}/\text{m}^3$)

and is considered conservative. The ambient air lead concentration, in microgram per cubic meter ($\mu\text{g}/\text{m}^3$), is given by:

$$C_{lead, air} = C_{lead, surface dust} \times MLF \times CF$$

Where $C_{lead, surface dust}$ = average concentration of lead in surface dust in mg/kg,
MLF = dust mass loading factor in kg/m^3 and
CF = conversion factor (1,000 $\mu\text{g}/\text{mg}$)

Using the mean of average lead concentrations in surface dust (2,511 mg/kg), the ambient air lead concentration on the field surface from dust may be estimated as $0.50 \mu\text{g}/\text{m}^3$. This estimated lead concentration in ambient air is further evaluated in this report regarding the potential health risk to the exposed population using the recreational field.

Discussion

The method for assessing whether a health hazard exists to a community is to determine whether there is a completed exposure pathway from a contaminant source to a receptor population and whether exposures to contaminants are high enough to be of health concern. Analytical results for samples collected in August and November 2007 were evaluated for potential public health exposure implications.

Completed Pathways

Based on observations made by the NJDHSS during site visits conducted in March, August and October 2007, there is a completed exposure pathway to area residents, including children, via incidental ingestion and possibly inhalation of lead contaminated dust present on the synthetic turf of the Ironbound Athletic Field B. Incidental ingestion of lead contaminated dust would occur via hand-to-mouth activity after making hand contact with the surface of this field. Inhalation exposure is potentially present if lead contaminated dust is disturbed and becomes airborne through recreational activity occurring on the field. The synthetic surface of this recreational field has been in use since its installation in approximately 1999.

Public Health Implications

Environmental exposure to lead has long been recognized as a public health problem, and children less than six years of age are particularly vulnerable to the toxic effects of lead. Exposure to lead in soil and dusts has been shown to increase lead levels in children. Lead toxicity can cause decreased learning and memory, lowered Intelligence Quotient (IQ), speech and hearing impairment, fatigue, and lethargy. Maternal blood lead can cross the placenta and put the fetus at risk of low birth weight or premature birth. Health effects associated with lead exposure, particularly changes in children's neurobehavioral development, may occur at blood lead levels so low as to be essentially without a threshold.

Children in the City of Newark are potentially exposed to lead from other sources, particularly deteriorated lead-based paint in and around residences, and lead in soils near roadways from the use of leaded gasoline. Among New Jersey cities, Newark has one of the higher proportions of children with elevated blood lead levels (NJDHSS, 2006).

Non-Cancer Health Effects

Lead. The Ironbound Athletic Field B is used for recreational purposes. Lead exposures associated with the intermittent recreational use of this field was evaluated using the USEPA's integrated exposure uptake biokinetic (IEUBK) model (USEPA 1994b). The IEUBK model estimates a plausible distribution of blood lead levels centered on the geometric mean blood lead levels from available exposure information. Blood lead levels are indicators of exposure, and are also the most widely used index of internal lead body burdens associated with potential health effects. The model also calculates the probability (or P₁₀) that children's blood lead levels will exceed a level of concern. Health effects of concern have been determined to be associated with childhood blood lead levels at 10 micrograms of lead per deciliter of blood (or µg/dL) or more (USEPA 1986; CDC 1991). In using the IEUBK model, the USEPA recommends that the lead concentration in soil not result in a 5% probability of exceeding a blood lead concentration of 10 µg/dL (USEPA 1994c).

A low flow vacuum sample methodology was used during the August 16, 2007 sampling event to collect the dust portion likely to adhere to a hand surface upon contact with the surface of the field. A high vacuum collection methodology over a large surface area was used during the November 1, 2007 sampling event which shows the total dust available on the turf surface. The surface of the artificial field is considered similar to low pile carpeting; however, the availability of both surface dust through direct hand contact and airborne dust through surface disturbance are unknown. Therefore, one half of the mean of average lead levels in dust ($\frac{1}{2} \times 2,511$ mg/kg) and in ambient air ($\frac{1}{2} \times 0.50$ µg/m³) were used as available values to calculate expected children's blood lead levels due to incidental ingestion and inhalation. Further assumptions for the recreational exposure scenario for children aged 12 to 84 months are as follows:

1. Children were exposed to surface and airborne dust containing lead each time the field was used for recreational purposes. The visit frequency was five days per week over six months of the year.
2. Model default values were used for all other variables (USEPA 2002b) including residential soil and dust.

The predicted geometric mean blood lead levels and the probability of blood lead levels exceeding 10 µg/dL (P₁₀) for children are shown in the following table:

Exposure Scenario		
Age ^d (months)	Five Site Visits Per Week ^a	
	Blood Lead Level ^b (µg/dL)	P ₁₀ (%) ^c
12 - 24	11.08	59
24 - 36	10.43	54
36 - 48	10.04	50
48 - 60	8.39	35
60 - 72	7.13	24
72 - 84	6.34	17

^aweighted dust lead concentration (1,256 mg/kg x 5/7) = 897 mg/kg (USEPA 2003a);
^bGeometric mean lead levels in blood; ^cprobability of blood lead level > 10 µg/dL; ^dthe exposure pathway is mainly surface dust and airborne dust

For the incidental lead ingestion exposure scenario, the model predicted that the geometric mean blood lead levels for children ages 12 - 48 months were above the level of concern (10 µg/dL); the probabilities of blood lead levels exceeding 10 µg/dL for children ages 12 - 84 months exceeded 5 percent. Therefore, potential for adverse health effects associated with lead exposures at the Ironbound Recreational Field B are possible.

It is important to note that the IEUBK model should not be used for exposure periods of less than three months, or in which a higher exposure occurs less than once per week or varies irregularly.

Conclusions

Based on review of lead loading and concentration data observed in dust samples from the Ironbound Athletic Field B and the potential for exposure to area residents, mainly children under 7 years old, the recreational use of the athletic field represents a **Public Health Hazard**. The results indicate that the source of the lead contamination in surface dust originates from the synthetic turf fibers. Additional investigation would be needed to determine the bioavailability of the lead within the synthetic turf dust on the field surface to more accurately evaluate potential exposures and health risks from contact with this material.

Recommendations

On October 31, 2007, by recommendation of the ATSDR and NJDHSS, the City of Newark closed the Ironbound Athletic Field B to area residents to prevent potential exposure to lead (see Appendix C). The ATSDR and NJDHSS continue with this recommendation until measures are taken to reduce or eliminate the lead dust exposure hazard on the field surface where it no longer creates a hazard to public health.

Public Health Action Plan

The purpose of a Public Health Action Plan is to ensure that this LHC not only identifies public health hazards, but also provides a plan of action designed to mitigate and prevent adverse human health effects resulting from exposure to hazardous substances in the environment. Included is a commitment on the part of the ATSDR and the NJDHSS to follow up on this plan to ensure that it is implemented. The public health actions to be implemented by the ATSDR and NJDHSS are as follows:

Public Health Actions Taken

1. The ATSDR and NJDHSS reviewed information and relevant data to evaluate the potential health implications of exposures to lead detected in surface dust at the Ironbound Athletic Field B.
2. The NJDHSS had informed the City of Newark, Department of Health and Human Services via facsimile on October 30, 2007 of the findings of the NJDHSS sampling event (see Appendix C). Based on this correspondence and through follow-up discussion, the City of Newark closed the Ironbound Athletic Field B on October 31, 2007 until measures are taken by the City of Newark to remediate lead dust concentrations on the field to eliminate the exposure hazard.


3. The ATSDR and NJDHSS met with representatives of the USEPA and the New Jersey Department of Environmental Protection (NJDEP) on November 30, 2007 to review and discuss the USEPA's November 1, 2007 sampling results and conclusions. The USEPA forwarded this sampling data to the City of Newark, Department of Health and Human Services via e-mail on December 4, 2007.
4. The NJDHSS contacted the U.S. Consumer Products Safety Commission (CPSC) on December 19, 2007 to inform them of the findings described in this LHC and concerns over the potential prevalence of lead in other synthetic turf products available through vendors and manufacturers.

Public Health Actions Planned

1. This LHC will be provided to USEPA, NJDEP, and the Newark Department of Health and Human Services. NJDHSS will also make this LHC available to area residents upon request.
2. NJDHSS and ATSDR will cooperate with efforts by the City of Newark to conduct community outreach regarding closure of the Ironbound Athletic Field B.
3. NJDHSS and ATSDR are planning to participate in a public meeting tentatively scheduled to be held in February 2008 as requested by the Ironbound Community Corporation, a Newark community-based advocacy group.
4. Following December 2007 discussions with the CPSC, the NJDHSS is planning to test additional synthetic turf installations in New Jersey and consumer-oriented synthetic turf products available for purchase. The purpose of the testing is to better understand the scope of lead in synthetic turf products, to communicate the findings to other governmental agencies (including the CPSC), and to inform future policy decisions regarding lead exposure from artificial turf.
5. If lead bioavailability data for the synthetic turf dust from the Ironbound Athletic Field B becomes available in the future, NJDHSS will review the data and re-evaluate the potential exposures and health risks. This re-evaluation will include recommendations to the City of Newark to prevent further exposures and to protect public health.

Please contact me at 609-588-7497, Glenn.Pulliam@doh.state.nj.us or alternately, Ms. Leah Graziano, Associate Regional Representative, ATSDR Region II at 732-906-6932, Escobar.Leah@epamail.epa.gov.

Yours truly,



Glenn Pulliam
Occupational Health Consultant,
Health Assessment and Consultation Unit
Hazardous Site Health Evaluation Program

c: Gregory Ulirsch, Technical Project Officer, ATSDR
Arthur Block, Senior Regional Representative, ATSDR Region II
Leah Graziano, Associate Regional Representative, ATSDR Region II
Jerald Fagliano, MPH, PhD, Program Manager, NJDHSS
Gary Centifonti, Research Scientist 1, NJDHSS
Edward Putnam, Assistant Director, NJDEP
Zaid Braswell, Newark Recreational Services, City of Newark
Marsha McGowan, Department of Health and Human Services, City of Newark

References

[ASTM] American Society for Testing and Materials International. 2005. Standard Practice for Collection of Surface Dust by Micro-vacuum Sampling for Subsequent Metals Determination – ASTM D7144-05a. West Conshohocken, PA.

[ATSDR] Agency for Toxic Substances and Disease Registry. 2003. Health Consultation for Milltown Reservoir Operable Unit (a/k/a Milltown Reservoir Sediments) Milltown, Missoula County, Montana. August 19, 2003.

[CDC] Centers for Disease Control. 1991. Preventing lead poisoning in young children. U.S. Department of Health and Human Services, October.

[NJDHSS] New Jersey Department of Health and Senior Services, 2006. Childhood Lead Poisoning in New Jersey, Annual Report Fiscal Year 2005. Trenton, NJ.

[USEPA] United States Environmental Protection Agency 1986. Air Quality Criteria for Lead. Environmental Criteria and Assessment Office, Office of Research and Development, Research Triangle Park, N.C. EPA 600/8-83-028 a-f, June 1986.

[USEPA] United States Environmental Protection Agency 1994b. Guidance Manual for the IEUBK Model for Lead in Children. Office of Solid Waste and Emergency Response. OSWER Directive #9285.7-15-1. February 1994.

[USEPA] United States Environmental Protection Agency 1994c. Memorandum: OSWER Directive: Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. OSWER Directive #9355.4-12. August 1994.

[USEPA] US Environmental Protection Agency. 2003. World Trade Center Indoor Environment Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks. Prepared by the Contaminants of Potential Concern (COPC) Committee of the World Trade Center Indoor Air Task Force Working Group. New York, NY. May 2003.

[USEPA] United States Environmental Protection Agency. Ironbound Athletic Field, Newark, New Jersey Analytical Report. November 2007.

Appendix A

**Ironbound Athletic Field B Sample Results –
August 16, 2007**

EMSL Rep: Scott Ross 800/220-3675 x1298 DATE: 8/16/07
 Company Name: NJ Dept. of Health & Senior Svcs. EMSL-Bill to: NJDHSS Epi/Com Disease Cont
 Street: Consumer & Environmental Svcs. Street: Financial Services
 P.O. Box 369 Box #: P.O. Box 360
 City/State: Trenton, NJ Zip: 08625-0369 City/State: Trenton, NJ Zip: 08625
 Results to: Donald Gerber Fax #: (609) 588-7618
 Telephone #: (609) 631-6749 email:
 Project: Ironbound Athletic Field, Newark Purchase: 6639315 (7/07-6/08)
 Name/Number: Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater <i>Vacuum Sample</i> <i>* Analyze for</i>	SW846-7420	Flame Atomic Absorption	0.4 mg/l water 50 mg/kg (ppm) soil	
Lead Soil + <i>Total Dust</i> <i>and Lead</i>	or SW846-6010 *	ICP	0.1 mg/l water 10 mg/kg (ppm) soil	5 days
Lead in Air*** <i>WIDE</i> <i>60103</i>	NIOSH 7082	Flame Atomic Absorption	5 ug/filter	
	or NIOSH 7300	ICP	3.0 ug/filter	
Lead in Wipe <input type="checkbox"/> -ASTM <input type="checkbox"/> -non ASTM	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	
	or SW846-6010	ICP	0.1 mg/l (ppm)	
Lead in Air****	NIOSH 7105	Graphite Furnace Atomic Absorption	0.03 ug/filter	
Lead Wastewater	SW846-7421	Graphite Furnace Atomic Absorption	0.003 mg/l (ppm) water	
Lead Soil +			0.3 mg/kg (ppm) soil	
Lead in Drinking Water (check state Certification Requirements)	EPA 239.2	Graphite Furnace Atomic Absorption	0.003 mg/l (ppm)	
Total Dust *	NIOSH 0500-0600 *	Gravimetric Reduction	0.0001g	5 days

TAT (Turnaround) - 3 Hr, 6hr, 24 hr, 2 Days, 3 Days, 4 Days, 5 Days, 6-10 Days
 *, **, ***, ****, +, ++ Please Refer to Price Quote
 * if no box is checked, non-ASTM is assumed
 SAMPLE DATE 8/16/07 PER CASSETTES*

SAMPLE #	(Turf) LOCATION	Air volume, L Area, in ²	LAB #
① 603-07-VE-Pb-01	West Side, Next to P. Lot	17.8 L, 144 in ²	
② 603-07-VE-Pb-02	Mid Field, Ref. Wall	17.8 L, 144 in ²	
③ 603-07-VE-Pb-03	Grasside, Ref. Wall	17.8 L, 144 in ²	
④ 603-07-VE-Pb-04	East 1/3, 85 Ft. in from R. Wall	17.8 L, 144 in ²	
⑤ 603-07-VE-Pb-05	West 1/3, 85 Ft. in from R. Wall	17.8 L, 144 in ²	
⑥ 603-07-VE-Pb-06	Center Field, 150 Ft. in from R. Wall	14.2 L, 144 in ²	

Relinquished By: (Person) Donald Gerber Date: 8/17/07
 Received at EMSL By: [Signature] Date: 8/17/07
 Received at EMSL By: MR. COOR [Signature] Date: 8/21/07

Note: Please duplicate this form and use additional sheets if necessary.



EMSL Analytical

3 Cooper St., Westmont, NJ 08108

Phone: (856) 858-4800 Fax: (856) 858-4571 Email: jsmith@emsl.com



Attn: **Donald Gerber**
N.J. Department of Health & Senior Svcs.
Consumer & Environmental Svcs.
P.O. Box 369
Trenton, NJ 08625-0369

Customer ID: NJDH50B
Customer PO: 6639315
Received: 08/21/07 2:36 PM
EMSL Order: 010703781

Fax: (609) 588-7618 Phone: (609) 631-6749

EMSL Proj: Ironbound Athletic Field, Newark

Report Date: 8/28/2007

<i>Client Sample Description</i>		<i>Collected:</i>		<i>Lab ID:</i>			
603-07-VE-Pb-01 Westside, Next to Parking Lot		8/16/2007		0001			
<i>Test</i>	<i>Method</i>	<i>Parameter</i>	<i>Concentration</i>	<i>Units</i>	<i>RL</i>	<i>Analysis Date/Time</i>	<i>Analyst</i>
C-Metals by ICP	6010B	Lead	31	µg/ft ²	0.50	8/25/2007 05:55 AM	rferrer
<i>Client Sample Description</i>		<i>Collected:</i>		<i>Lab ID:</i>			
603-07-VE-Pb-02 Midfield, Ret. Wall		8/16/2007		0002			
<i>Test</i>	<i>Method</i>	<i>Parameter</i>	<i>Concentration</i>	<i>Units</i>	<i>RL</i>	<i>Analysis Date/Time</i>	<i>Analyst</i>
C-Metals by ICP	6010B	Lead	26	µg/ft ²	0.50	8/25/2007 06:03 AM	rferrer
<i>Client Sample Description</i>		<i>Collected:</i>		<i>Lab ID:</i>			
603-07-VE-Pb-03 Eastside, Ret. Wall		8/16/2007		0003			
<i>Test</i>	<i>Method</i>	<i>Parameter</i>	<i>Concentration</i>	<i>Units</i>	<i>RL</i>	<i>Analysis Date/Time</i>	<i>Analyst</i>
C-Metals by ICP	6010B	Lead	46	µg/ft ²	0.50	8/25/2007 06:11 AM	rferrer
<i>Client Sample Description</i>		<i>Collected:</i>		<i>Lab ID:</i>			
603-07-VE-Pb-04 East 1/3, 85ft. in from R. Wall		8/16/2007		0004			
<i>Test</i>	<i>Method</i>	<i>Parameter</i>	<i>Concentration</i>	<i>Units</i>	<i>RL</i>	<i>Analysis Date/Time</i>	<i>Analyst</i>
C-Metals by ICP	6010B	Lead	15	µg/ft ²	0.50	8/25/2007 06:19 AM	rferrer
<i>Client Sample Description</i>		<i>Collected:</i>		<i>Lab ID:</i>			
603-07-VE-Pb-05 West 1/3, 85ft. in from R. Wall		8/16/2007		0005			
<i>Test</i>	<i>Method</i>	<i>Parameter</i>	<i>Concentration</i>	<i>Units</i>	<i>RL</i>	<i>Analysis Date/Time</i>	<i>Analyst</i>
C-Metals by ICP	6010B	Lead	110	µg/ft ²	0.50	8/28/2007 05:25 AM	skauffman
<i>Client Sample Description</i>		<i>Collected:</i>		<i>Lab ID:</i>			
603-07-VE-Pb-06 Center Field, 150ft. in from R. Wall		8/16/2007		0006			
<i>Test</i>	<i>Method</i>	<i>Parameter</i>	<i>Concentration</i>	<i>Units</i>	<i>RL</i>	<i>Analysis Date/Time</i>	<i>Analyst</i>
C-Metals by ICP	6010B	Lead	66	µg/ft ²	0.50	8/28/2007 05:33 AM	skauffman



EMSL Analytical

3 Cooper St., Westmont, NJ 08108

Phone: (856) 858-4800 Fax: (856) 858-4571 Email: jsmith@emsl.com



Attn: **Donald Gerber**
N.J. Department of Health & Senior Svcs.
Consumer & Environmental Svcs.
P.O. Box 369
Trenton, NJ 08625-0369

Fax: (609) 588-7618 Phone: (609) 631-6749

Customer ID: NJDH50B
Customer PO: 6639315
Received: 08/21/07 2:36 PM
EMSL Order: 010703781

EMSL Proj: Ironbound Athletic Field, Newark

Report Date: 8/28/2007

Client Sample Description 603-07-VE-Pb-Bk
Blank *Collected:* 8/16/2007 *Lab ID:* 0007

<i>Test</i>	<i>Method</i>	<i>Parameter</i>	<i>Concentration</i>	<i>Units</i>	<i>RL</i>	<i>Analysis Date/Time</i>	<i>Analyst</i>
C-Metals by ICP	6010B	Lead	<0.50	µg/wipe	0.50	8/28/2007 05:42 AM	skauffman

Order ID:040720218

Attn: Donald Gerber
N.J. Department of Health & Senior Svs.
Financial Services P.O. Box 360
Trenton, NJ 08625-0360
Fax: 609-588-7618
Project: IRON BOUND ATHLETIC FIELD, NEWARK
Report Date: 8/21/07

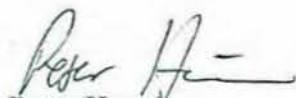
Customer ID: NJDH50
Customer PO: 6639315
Date Received: 8/17/07 800 PM
EMSL Order: 040720218
EMSL Project ID:
Date Weighed(final): 8/20/07


**Total Nuisance Dust Analysis of Microvac Samples
Performed by NIOSH Method 0500, Issue 2, 8/15/94 (Modified)**

Sample ID	Identification	Area Sampled (cm ²)	Sample Weight (mg)	Concentration (mg/cm ²)	Analytical Sensitivity (mg/cm ²)
603-07-VE-PB-01 040720218-0001	WEST SIDE, NEXT TO P. LOT	929.03	5.488	0.00591	0.00005
603-07-VE-PB-02 040720218-0002	MIDFIELD, RET. WALL	929.03	6.724	0.00724	0.00005
603-07-VE-PB-03 040720218-0003	EAST SIDE, RET. WALL	929.03	10.921	0.01176	0.00005
603-07-VE-PB-04 040720218-0004	EAST 1/3, 85 FT. IN FROM R. WALL	929.03	5.879	0.00633	0.00005
603-07-VE-PB-05 040720218-0005	WEST 1/3, 85 FT. IN FROM R. WALL	929.03	37.447	0.04031	0.00005
603-07-VE-PB-06 040720218-0006	CENTER FIELD, 150 FT. IN FROM R. WALL	929.03	20.384	0.02194	0.00005
603-07-VE-PB-BK 040720218-0007	BLANK	0	<0.050	N/A	N/A

Notes:

1. Discernable field blanks submitted with sample set.
2. Results are not field blank corrected


Peter Harrison
Lab Technician


Stephen Siegel, CIH- Lab Manager
Or other approved signatory

AIHA Accredited - Laboratory ID #100194

Interdepartmental Analysis COC

For EMSL Internal Use Only

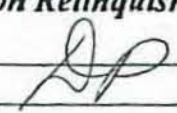
010703781

SECONDARY LAB CLIENT CODE: + _____ Inter Dept Analysis
(either +04INTDEP or +32INTDEP)

CLIENT NAME NT DEPT of Hk DATE 8/21

PRIMARY LAB ORDER # 040720218

2007 JUN 21 PM 2:35
 WESTMONT, ILL
 EMSL

1. PRIMARY LAB	<i>Print Name of Person Relinquishing Samples</i>
<i>Samples Received By: (Check one)</i>	
Asbestos Lab <input checked="" type="checkbox"/>	
Chemistry Lab <input type="checkbox"/>	
Lead Lab <input type="checkbox"/>	
Microbiology Lab <input type="checkbox"/>	
Materials Science Lab <input type="checkbox"/>	
Industrial Hygiene Lab <input type="checkbox"/>	
BRANCH LAB <input type="checkbox"/>	
2. SECONDARY LAB	<i>Print Name of Person Receiving Samples</i>
<i>Samples Relinquished to: (Check one)</i>	
Asbestos Lab <input type="checkbox"/>	
Chemistry Lab <input checked="" type="checkbox"/>	
Lead Lab <input type="checkbox"/>	
Microbiology Lab <input type="checkbox"/>	
Materials Science Lab <input type="checkbox"/>	
Industrial Hygiene Lab <input type="checkbox"/>	
BRANCH LAB <input type="checkbox"/>	
Copy of Client COC ATTACHED <input checked="" type="checkbox"/>	<i>Quoted Price for Secondary Lab \$</i>
SECONDARY LAB to contact the client Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
INSTRUCTIONS TO SECONDARY LAB (Check all that apply)	
1. Login Samples as per instructions (use +04INTDEP as Bill To, and Client ID if needed)	
2. Use Primary lab person as contact under the Bill To ID	
3. Under PO field, enter PRIMARY LAB Order # , noted above	
4. Under PROJECT field, enter CLIENT's PROJECT from client's COC (if attached)	
5. Perform the analysis requested on COC per client's instructions <input checked="" type="checkbox"/>	
6. Perform analysis as per description below: <input checked="" type="checkbox"/>	
INSTRUCTIONS TO SECONDARY LAB - REPORTING & BILLING	
1. Create Report and Internal Invoice	
2. REPORT RESULTS TO CLIENT – Follow Instructions on Client's Chain of Custody <input checked="" type="checkbox"/>	
3. DO NOT MAIL report or invoice, but return to Primary Lab <input checked="" type="checkbox"/>	
PRIMARY LAB (RECEIVES SAMPLES ORIGINALLY) WILL BE RESPONSIBLE FOR DISBURSING REPORT AND INVOICE TOGETHER WITH ORIGINAL ORDER.	



New Jersey Department of Health and Senior Services

040720218

IEQ Surface Wipe/Dust Sampling Form

Building/Facility: Tranbound Athletic Field
 Address: 26 St. Charles St
 City: Newark
 Project or Activity: Hazardous Site Health Evaluation Program Project (Glenn Pulley) - Lead
 Location - Floor: Athletic Field Room(s): _____
 Final Clearance Testing: _____ (✓)

DHSS Site Number: _____
 Sample Collection Date: 8/16/07
 Sampled By: Gary C. Dan G. Gleason
 Screening Evaluation Testing: _____ (✓)

Notes: Concrete Wall ~ 5 ft high - North Boundary
(WE-Pb-05 ~ 3 ft high wall)

Sample No.	Analysis For	Sample Area	Surface Type	Sample Description	Media Type	Dimensions of Sample Area (in.)	Area Wiped (Sq. Ft)	Results
603-07-VE-Pb-01	Pb	West side North Plot	Astro Turf	SN 17356	.8µm 37µm MCE Filter	12" x 12"	1.00	
603-07-VE-Pb-02	Pb	Midfield Ret. Wall	Astro Turf	SN 17339	.8µm 37µm MCE Filter	12" x 12"	1.00	
603-07-VE-Pb-03	Pb	East side Ret. Wall	Astro Turf	SN 17350	.8µm 37µm MCE Filter	12" x 12"	1.00	
603-07-VE-Pb-04	Pb	East 1/3 85ft in R.W.	Astro Turf	SN 17335	.8µm 37µm MCE Filter	12" x 12"	1.00	
603-07-VE-Pb-05	Pb	West 1/3 85ft in R.W.	Astro Turf	SN 17341	.8µm 37µm MCE Filter	12" x 12"	1.00	
603-07-VE-Pb-06	Pb	Center Field 150ft in R.W.	Astro Turf	SN 17324	.8µm 37µm MCE Filter	12" x 12"	1.00	
603-07-VE-Pb-PK	Pb	Blank	-	SN 12330	.8µm 37µm MCE Filter	-	-	
603-07-WE-Pb-01	Pb	West side 90' front lot	Concrete Wall - 5ft H.	1257	Ghost Wipe	6" x 24"	1.00	
603-07-WE-Pb-02	Pb	180' front lot	Concrete Wall	1100	Ghost Wipe	6" x 24"	1.00	
603-07-WE-Pb-03	Pb	Center Field	Concrete Wall	1104	Ghost Wipe	6" x 24"	1.00	
603-07-WE-Pb-04	Pb	360' front lot	Concrete Wall	1108	Ghost Wipe	6" x 24"	1.00	
603-07-WE-Pb-05	Pb	450' front lot	Concrete Wall - 3ft	1111	Ghost Wipe	6" x 24"	1.00	
603-07-WE-Pb-PK	Pb	Blank	-	-	Ghost Wipe	-	-	
603-07-SE-Pb-01	Pb	Midfield Ret. Wall	Soil	1115	-	-	-	

Comments: Cloudy, Humid
Flight Path - Newark Airport

2007 AUG 7 PM 4

WEST JORD, N.J.



State of New Jersey
DEPARTMENT OF HEALTH
CN 360
TRENTON, N.J. 08625-0360

Vacuum Samples

* Match Weight Cassettes
1.8µm 37mm MCE
Lot No. 13929

Sampling Data Sheet

Site ID: Trenton Athletics
Date: 8/16/07
Page: 1 of 1

Rotameter: 048780

Lin. Reg. Equation: $y = 0.1318(x) + (-1.5107)$ Corr. Coeff.: 0.9967

EMSL - Pump No. 034

Sample description/location	Sample number	Rotameter reading		Flow rate, lpm		Time		Duration, min.	Air volume, liters
		Start	Stop	Start	Stop	Start	Stop		
Westside - Next to parking lot Astro Turf - Ret. Wall SN 17356	603-07-VE-P6-01	25	25	1.78	1.78	11:12	11:22	10.0	17.8
Midfield - Ret. Wall SN 17339	603-07-VE-P6-02	25	25	1.78	1.78	11:30	11:40	10.0	17.8
Eastride - Ret. Wall SN 17350	603-07-VE-P6-03	25	25	1.78	1.78	11:47	11:57	10.0	17.8
East 1/3 ~85 ft in from Ret. W. SN 17335	603-07-VE-P6-04	25	25	1.78	1.78	12:06	12:16	10.0	17.8
West 1/3 ~85 ft in from Ret. W. SN 17341	603-07-VE-P6-05	25	25	1.78	1.78	12:23	12:33	10.0	17.8
Center Field ~150 ft in from Ret. W. SN 17324	603-07-VE-P6-06	25	25	1.78	1.78	12:40	12:48	8.0	14.2
Blank SN 17330	603-07-VE-P6-BK	-	-	-	-	-:-	-:-	-	-
						:	:		
						:	:		
						:	:		

0402200218

2007 AUG 17 PM 5:01

EMSL ANALYTICAL, INC. 3 Cooper Street • Westmont, NJ 08108

010703951
Lead Chain of Custody

EMSL Rep: Scott Ross 800/220-3675 x1298 DATE: 8/16/07
 Company Name: NJ Dept. of Health & Senior Svcs. EMSL-Bill to: NJDHSS Epi/Com Disease Cont
 Street: Consumer & Environmental Svcs. Street: Financial Services
P.O. Box 369 Box #: P.O. Box 360
 City/State: Trenton, NJ Zip: 08625-0369 City/State: Trenton, NJ Zip: 08625
 Results to: Donald Gerber Fax #: (609) 588-7618
 Telephone #: (609) 631-6749 email: _____
 Project Ironbound Athletic Field, Newark Purchase 6639315 (7/07-6/08)
 Name/Number: _____ Order #: _____

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water 50 mg/kg (ppm) soil	
Lead Soil + (Astro Turf)	or SW846-6010	ICP	0.1 mg/l water 10 mg/kg (ppm) soil	5 days
Lead in Air***	NIOSH 7082	Flame Atomic Absorption	5 ug/filter	
	or NIOSH 7300	ICP	3.0 ug/filter	
Lead in Wipe ^ <input type="checkbox"/> -ASTM <input type="checkbox"/> -non ASTM	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	
	or SW846-6010	ICP	0.1 mg/l (ppm)	
Lead in Air ****	NIOSH 7105	Graphite Furnace Atomic Absorption	0.03 ug/filter	
Lead Wastewater	SW846-7421	Graphite Furnace Atomic Absorption	0.003 mg/l (ppm) water	
Lead Soil +			0.3 mg/kg (ppm) soil	
Lead in Drinking Water (check state Certification Requirements)	EPA 239.2	Graphite Furnace Atomic Absorption	0.003 mg/l (ppm)	
Total Dust	NIOSH 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) – 3 Hr, 6hr, 24 hr, 2 Days, 3 Days, 4 Days, 5 Days, 6-10 Days

*, **, ***, ****, +, ++ Please Refer to Price Quote.

^ if no box is checked, non-ASTM is assumed

SAMPLE #	LOCATION	Air volume, L Area, in ²	LAB #
① 603-07-SE-P6-02	Astro-Turf, Center field	(rinsed)	
*SAMPLE DATE			
8/16/07 PER			
SAMPLE #			

Relinquished By; (Person) Donald Gerber Date: 8/30/07
 Received at EMSL By: Bill White Date: 8/30/07
 Received at EMSL By: Chiribbas Date: 8/30/07

Note: Please duplicate this form and use additional sheets if necessary.

EMSL Analytical

<http://www.emsl.com>

CONSUMER AND
ENVIRONMENTAL HEALTH
SERVICES

2007 SEP -7 PM 3:16

3 Cooper St.
Westmont, NJ 08108
Phone: (856) 858-4800
Fax: 8568584571

EMSL

Attn: **Donald Gerber**
N.J. Department of Health & Senior Svcs.
Consumer & Environmental Svcs.
P.O. Box 369
Trenton, NJ 08625-0369

Phone (609) 631-6749
Fax: (609) 588-7618

8/28/2007

The following report covers the analysis performed on samples submitted to EMSL Analytical on 8/21/2007. The results are tabulated on the attached data pages for the following client designated project:

Project ID: Ironbound Athletic Field, Newark

The reference number for these samples is EMSL Order #010703781. Please use this reference when calling about these samples.

If you have any questions, please do not hesitate to contact me at (856) 858-4800.

Reviewed and Approved By:


Laboratory Director or other
approved signatory
NJ-NELAP Accredited:04653



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

**EMSL Analytical**

3 Cooper St., Westmont, NJ 08108

Phone: (856) 858-4800 Fax: (856) 858-4571 Email: jsmith@emsl.com



Attn: **Donald Gerber**
N.J. Department of Health & Senior Svcs.
Consumer & Environmental Svcs.
P.O. Box 369
Trenton, NJ 08625-0369

Fax: (609) 588-7618 Phone: (609) 631-6749

Customer ID: NJDH50B
 Customer PO: 6639315
 Received: 08/30/07 2:45 PM
 EMSL Order: 010703951

EMSL Proj: Ironbound Athletic Field, Newark

Report Date: 9/4/2007

Client Sample Description 603-07-SE-Pb-02
 Astro-Turf, Center Field

Collected: 8/16/2007

Lab ID: 0001

<i>Test</i>	<i>Method</i>	<i>Parameter</i>	<i>Concentration</i>	<i>Units</i>	<i>RL</i>	<i>Analysis Date/Time</i>	<i>Analyst</i>
C-Metals by ICP	6010B	Lead	3500	mg/Kg	2.5	9/1/2007 05:35 AM	skauffman

EMSL Analytical

<http://www.emsl.com>

CONSUMER AND
ENVIRONMENTAL HEALTH
SERVICES

3 Cooper St.
Westmont, NJ 08108
Phone: (856) 858-4800
Fax: 8568584571

EMSL

2007 SEP 11 PM 3:47

Attn: Donald Gerber
N.J. Department of Health & Senior Svcs.
Consumer & Environmental Svcs.
P.O. Box 369
Trenton, NJ 08625-0369

9/4/2007

Phone (609) 631-6749
Fax: (609) 588-7618

The following report covers the analysis performed on samples submitted to EMSL Analytical on 8/30/2007. The results are tabulated on the attached data pages for the following client designated project:

Project ID: Ironbound Athletic Field, Newark

The reference number for these samples is EMSL Order #010703951. Please use this reference when calling about these samples.

If you have any questions, please do not hesitate to contact me at (856) 858-4800.

Reviewed and Approved By:


Laboratory Director or other
approved signatory
NJ-NELAP Accredited:04653



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

Appendix B

**Ironbound Athletic Field B Sample Results –
November 01, 2007**

ANALYTICAL REPORT

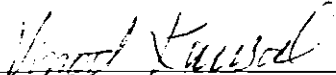
Prepared by
LOCKHEED MARTIN, Inc.

Ironbound Athletic Field Artificial Turf Investigation
Newark New Jersey

November 2007

EPA Work Assignment No. 0-292
LOCKHEED MARTIN Work Order EAC00292
EPA Contract No. EP-C-04-032

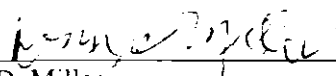
Submitted to
R. Singhvi
EPA-ERT

 11/26/07

V. Karsal Date
Analytical Section Leader

 11/26/07

D. Killeen Date
Quality Assurance Officer

 11/26/07

D. Miller Date
Program Manager

Analysis by:
REAC

Prepared by:
Y. Mehra

Reviewed by:
J. Soroka

Table of Contents

Topic

Introduction
Case Narrative
Summary of Abbreviations

Section I

Results of the Analysis for PCBs in Soil	Table 1.1
Results of the Analysis for Lead in Dust	Table 1.2
Results of the Analysis for Lead in Soil	Table 1.3
Results of the Analysis for Lead in Mat and Residue	Table 1.4
Results of the Analysis for Lead in Turf and Fibers	Table 1.5

Section II

Results of the MS/MSD Analysis for PCBs in Soil	Table 2.1
Results of the MS/MSD Analysis for Lead in Dust	Table 2.2
Results of the MS/MSD Analysis for Lead in Soil	Table 2.3
Results of the MS/MSD Analysis for Lead in Mat	Table 2.4
Results of the MS/MSD Analysis for Lead in Residue	Table 2.5
Results of the MS/MSD Analysis for Lead in Turf	Table 2.6
Results of the MS/MSD Analysis for Lead in Turf Fibers	Table 2.7
Results of the LCS Analysis for PCBs in Soil	Table 2.8
Results of the LCS Analysis for Lead in Dust	Table 2.9
Results of the LCS Analysis for Lead in Soil	Table 2.10
Results of the LCS/LCSD Analysis for Lead in Turf and Fibers	Table 2.11
Results of the Duplicate Analysis for Lead in Turf and Fibers	Table 2.12

Section III

Chains of Custody

Appendices

Appendix A Data for PCBs in Soil	S 331
Appendix B Data for Lead in Dust	S 322
Appendix C Data for Lead in Soil	S 319
Appendix D Data for Lead in Mat and Residue	S 336
Appendix E Data for Lead in Turf and Fibers	S 341
Appendix F Data for PCBs in Soil	S 343

Appendices will be furnished on request

Introduction

REAC, in response to WA#-292, provided analytical support for environmental samples collected from the Ironbound Athletic Field Artificial Turf Investigation in Newark, NJ as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and QA/QC results.

The samples were treated with procedures consistent with those specified in REAC SOP #1008.

COC #	Number of Samples	Sampling Date	Date Received	Matrix	Analysis/ Method	Laboratory	Data Package
292-11/02/07-0002	19	11/01/07	11/05/07	Soil	PCB/REAC SOP 1801	REAC	S 331
	19				Lead/REAC SOP 1811		S 319
292-11/06/07-0004	5	11/01/07	11/06/07	Dust			S 322
292-11/02/07-0003	2			Residue			S 336
	10			Mat			S 341
	5			Turf			
40591	2		11/14/07	Soil	PCB/REAC SOP 1801	REAC	S 343

¹ REAC is NELAP certified for PCB and lead analyses.

Case Narrative

The laboratory reported the data to three significant figures. Any other representation of the data is the responsibility of the user. All data validation flags have been inserted into the results tables. At the request of the WAM, samples were analyzed for lead only.

PCBs in Soil Package S 331

The data package was examined and found to be acceptable.

Lead in Soil Package S 319

Lead was below the % recovery (%R) criterion for the MS of sample 42666. Lead is qualified estimated low (J-) for samples 42665 thru 42668 and 42685 thru 42688.

Lead in Dust Package S 322

The data package was examined and found to be acceptable.

Lead in Mat and Residue Package S 336

Lead was above the % R criterion for the MS/MSD of sample 42684. Lead is qualified estimated high

(J+) for samples 42680 and 42684.

Lead in Turf Package S 341

At the request of the Work Assignment Manager, the turf samples were washed with distilled water four times to remove any dirt or debris, air dried for 24 hours and dried in an oven at 50 degrees C for 10 hours prior to sample digestion. The samples identified as "Turf" were prepared using the entire sample including the turf fibers and the backing. The samples identified as "Fiber" were prepared using only fibers from each sample.

The data package was examined and found to be acceptable.

PCB in Soil Package S 343

Sample 1923 is a composite of samples 42680 and 42684 from chain of custody record #2920110207-0003.

Samples 1923 and 42660 exceeded the 14 day holding time criterion for PCB extraction. The WAM requested analysis for PCBs from these samples despite the holding time. The results in these samples are qualified estimated (J).

Summary of Abbreviations

BFB	Bromofluorobenzene						
C	Centigrade						
CLP	Contract Laboratory Program						
COC	Chain of Custody						
conc	concentration						
cont	continued						
CRDL	Contract Required Detection Limit						
CRQL	Contract Required Quantitation Limit						
D	(Surrogate Table) value is from a diluted sample and was not calculated						
Dioxin	denotes Polychlorinated dibenzo-p-dioxins (PCDD) and Polychlorinated dibenzofurans (PCDF)						
DFTPP	Decafluorotriphenylphosphine						
EMPC	Estimated maximum possible concentration						
GC/MS	Gas Chromatography/ Mass Spectrometry						
IS	Internal Standard						
LCS	Laboratory Control Sample						
LCSD	Laboratory Control Sample Duplicate						
MS (BS)	Matrix Spike (Blank Spike)						
MSD (BSD)	Matrix Spike Duplicate (Blank Spike Duplicate)						
MW	Molecular Weight						
NA	Not Applicable or Not Available						
NC	Not Calculated						
NR	Not Requested						
NS	Not Spiked						
% D	Percent Difference						
% REC	Percent Recovery						
SOP	Standard Operating Procedure						
ppbv	parts per billion volume						
ppm	parts per million						
pptv	parts per trillion volume						
PQL	Practical Quantitation Limit						
QA/QC	Quality Assurance/Quality Control						
QL	Quantitation Limit						
REAC	Response Engineering and Analytical Contract						
RL	Reporting Limit						
RPD	Relative Percent Difference						
RSD	Relative Standard Deviation						
SIM	Selected Ion Monitoring						
Sur	Surrogate						
TIC	Tentatively Identified Compound						
TCLP	Toxic Characteristics Leaching Procedure						
VOC	Volatile Organic Compounds						
*	Value exceeds the acceptable QC limits.						
m ³	cubic meter	g	gram	kg	kilogram	L	liter
µg	microgram	µL	microliter	mg	milligram	ml	milliliter
ng	nanogram	pg	picogram				

Data Validation Flags

J	Value or Reporting limit is estimated
J+	Value is estimated high (Metals only)
J-	Value is estimated low (Metals only)
R	Value is unusable
U	Not detected
UJ	Not detected and reporting limit estimated

Rev. 11.20.06

Table 1.1 Results of the Analysis for PCBs in Soil
 WA# 0-292 Ironbound Athletic Field Artificial Turf Investigation
 Results Based on Dry Weight

Method REAC SOP 1801

Page 1 of 3

Sample Number	SBLK110507		42669		42665		42673		42672	
Location	-		2TB		6P		2PM		1PM	
Percent Solids	100		95		96		91		92	
Analyte	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg
Aroclor 1016	U	41.7	U	43.9	U	43.4	U	45.8	U	45.3
Aroclor 1221	U	83.3	U	87.7	U	86.8	U	91.6	U	90.6
Aroclor 1232	U	41.7	U	43.9	U	43.4	U	45.8	U	45.3
Aroclor 1242	U	41.7	U	43.9	U	43.4	U	45.8	U	45.3
Aroclor 1248	U	41.7	U	43.9	U	43.4	U	45.8	U	45.3
Aroclor 1254	U	41.7	U	43.9	U	43.4	U	45.8	U	45.3
Aroclor 1260	U	41.7	U	43.9	40.6	43.4	U	45.8	U	45.3
Aroclor 1268	U	41.7	U	43.9	U	43.4	U	45.8	U	45.3

Table 1.1 (cont) Results of the Analysis for PCBs in Soil
 WA# 0-292 Ironbound Athletic Field Artificial Turf Investigation
 Results Based on Dry Weight

Method REAC SOP 1801

Sample Number	42671		42670		42674		42668		42667	
Location	1TB		2TBD		1HP		2D		1D	
Percent Solids	94		94		90		97		98	
Analyte	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg
Aroclor 1016	U	44.3	U	44.3	U	46.3	U	43.0	U	42.5
Aroclor 1221	U	88.7	U	88.7	U	92.6	U	85.9	U	85.0
Aroclor 1232	U	44.3	U	44.3	U	46.3	U	43.0	U	42.5
Aroclor 1242	U	44.3	U	44.3	U	46.3	U	43.0	U	42.5
Aroclor 1248	U	44.3	U	44.3	U	46.3	U	43.0	U	42.5
Aroclor 1254	U	44.3	U	44.3	U	46.3	U	43.0	U	42.5
Aroclor 1260	U	44.3	U	44.3	U	46.3	U	43.0	U	42.5
Aroclor 1268	U	44.3	U	44.3	U	46.3	U	43.0	U	42.5

Table 1.1 (cont) Results of the Analysis for PCBs in Soil
 WA# 0-292 Ironbound Athletic Field Artificial Turf Investigation
 Results Based on Dry Weight

Method REAC SOP 1801

Page 2 of 3

Sample Number	42666		42678		42688		42687		42686	
Location	7P		1SB		5P		4P		4D	
Percent Solids	94		89		95		95		96	
Analyte	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg
Aroclor 1016	U	44.3	U	46.8	U	43.9	U	43.9	U	43.4
Aroclor 1221	U	88.7	U	93.6	U	87.7	U	87.7	U	86.8
Aroclor 1232	U	44.3	U	46.8	U	43.9	U	43.9	U	43.4
Aroclor 1242	U	44.3	U	46.8	U	43.9	U	43.9	U	43.4
Aroclor 1248	U	44.3	U	46.8	U	43.9	U	43.9	U	43.4
Aroclor 1254	U	44.3	U	46.8	U	43.9	U	43.9	U	43.4
Aroclor 1260	26.6	J 44.3	U	46.8	U	43.9	U	43.9	U	43.4
Aroclor 1268	U	44.3	U	46.8	U	43.9	U	43.9	U	43.4

Table 1.1 (cont) Results of the Analysis for PCBs in Soil
 WA# 0-292 Ironbound Athletic Field Artificial Turf Investigation
 Results Based on Dry Weight

Method REAC SOP 1801

Sample Number	42685		42679		42677		42676		42675	
Location	3D		2SB		2FB		1FB		2HP	
Percent Solids	98		87		94		94		90	
Analyte	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg
Aroclor 1016	U	42.5	U	47.9	U	44.3	U	44.3	U	46.3
Aroclor 1221	U	85.0	U	95.8	U	88.7	U	88.7	U	92.6
Aroclor 1232	U	42.5	U	47.9	U	44.3	U	44.3	U	46.3
Aroclor 1242	U	42.5	U	47.9	U	44.3	U	44.3	U	46.3
Aroclor 1248	U	42.5	U	47.9	U	44.3	U	44.3	U	46.3
Aroclor 1254	U	42.5	U	47.9	U	44.3	U	44.3	U	46.3
Aroclor 1260	U	42.5	U	47.9	U	44.3	U	44.3	U	46.3
Aroclor 1268	U	42.5	U	47.9	U	44.3	U	44.3	U	46.3

Table 1.1 (cont) Results of the Analysis for PCBs in Soil
 WA# 0-292 Ironbound Athletic Field Artificial Turf Investigation

Method REAC SOP 1801

Page 3 of 3

Sample Number	SBLK111607	42660	1923*
Location	-	21-T	-
Percent Solids	100	100	100

Analyte	SBLK111607		42660		1923*	
	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg	Result. µg/kg	RL µg/kg
Aroclor 1016	U	41.7	23.1 J	41.7	26.4 J	41.7
Aroclor 1221	U	83.3	U J	83.3	U J	83.3
Aroclor 1232	U	41.7	U J	41.7	U J	41.7
Aroclor 1242	U	41.7	U J	41.7	U J	41.7
Aroclor 1248	U	41.7	U J	41.7	U J	41.7
Aroclor 1254	U	41.7	U J	41.7	U J	41.7
Aroclor 1260	U	41.7	22.4 J	41.7	59.0 J	41.7
Aroclor 1268	U	41.7	U J	41.7	U J	41.7

* Sample 1923 is a composite of samples 42680 and 42684.

Table 1.2 Results of the Analysis for Lead in Dust
 WA # 0-292 Ironbound Athletic Field Artificial Turf Investigation
 Results Are Based on Sample As Received

Method REAC SOP 1811

Page 1 of 1

Sample No.	Location	Lead	
		Result mg/kg	RL mg/kg
Method Blank-11/06/07	Lab	U	1.00
42657	17-T	1410	1.25
42658	19-T	1130	1.11
42659	16-T	2290	1.00
42660	21-T	230	1.00
42661	7-T	1340	1.00

Table 1.3 Results of the Analysis for Lead in Soil
 WA # 0-292 Ironbound Athletic Field Artificial Turf Investigation
 Results Are Based on Dry Weight

Method REAC SOP 1811

Page 1 of 1

Analyte	Lead				
	Sample No.	Location	% Solids	Result mg/kg	RL mg/kg
Method Blank-11/05/07	Lab	NA		U	1.00
42669	2TB	95		4.18	0.966
42665	6P	96		22.3 J-	0.947
42673	2PM	91		5.38	0.999
42672	1PM	92		5.24	1.03
42671	1TB	94		8.22	0.976
42670	2TBD	94		4.10	0.967
42674	1HP	90		6.58	0.966
42668	2D	97		12.0 J-	0.982
42667	1D	98		14.0 J-	0.972
42666	7P	94		29.7 J-	0.994
42678	1SB	89		6.06	1.02
42688	5P	95		7.34 J-	0.957
42687	4P	95		9.80 J-	0.966
42686	4D	96		15.3 J-	0.974
42685	3D	98		8.87 J-	0.972
42679	2SB	87		10.5	1.03
42677	2FB	94		6.13	0.976
42676	1FB	94		13.0	0.967
42675	2HP	90		6.68	0.975

Table 1.4 Results of the Analysis for Lead in Mat and Residue
 WA # 0-292 Ironbound Athletic Field Artificial Turf Investigation
 Results Based on Sample As Received

Method REAC SOP 1811

Page 1 of 1

Sample No.	Location	Matrix Type	Lead	
			Result mg/kg	RL mg/kg
Method Blank 111207	Lab	NA	U	1.00
42699	7TB	Mat 1	3.55	3.45
42693	16TB	Mat 1	16.3	3.33
42693dup	16TB	Mat 1	14.8	3.33
42690	17TC	Mat 1	7.06	3.57
42682	19TB	Mat 1	5.97	3.03
42696	21TB	Mat 1	14.2	3.13
42700	7TC	Mat 2	25.1	3.33
42694	16TC	Mat 2	5.09	3.45
42691	17TD	Mat 2	U	3.13
42681	19TC	Mat 2	4.51	3.03
42697	21TC	Mat 2	4.76	3.23
42684	17TA	Residue	196 J+	2.00
42680	19TD	Residue	270 J+	1.64

Table 1.5 Results of the Analysis for Lead in Turf and Fibers
 WA # 0-292 Ironbound Athletic Field Artificial Turf Investigation
 Results Based on Sample As Received

Method REAC SOP 1811

Page 1 of 1

Analyte	Location	Turf-Whole piece Lead		Turf (Fibers only) Lead	
		Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg
Method Blank	Lab	U	1.00	U	1.00
42683	19TA	3940	4.00	4850	5.56
42689	17TB	3990	3.33	4580	3.85
42692	16TA	4020	4.35	4950	5.56
42695	21TA	3960	4.55	4900	5.88
42698	7TA	3730	3.45	4920	5.26

Table 2.1 Results of the MS/MSD Analysis for PCBs in Soil
 WA#0-292 Ironbound Athletic Field Artificial Turf Investigation
 Results Are Based on Dry Weight

Sample ID: 42672

Analyte	Sample Conc µg/kg	MS/MSD		MS % Recovery	MSD Conc µg/kg	MSD % Recovery	RPD
		Spike Added µg/kg	MS Conc µg/kg				
Aroclor 1016	U	181	138	76	131	72	5
Aroclor 1260	U	181	204	113	208	115	2

Sample ID: 42666

Analyte	Sample Conc µg/kg	MS/MSD		MS % Recovery	MSD Conc µg/kg	MSD % Recovery	RPD
		Spike Added µg/kg	MS Conc µg/kg				
Aroclor 1016	U	177	180	102	222	125	21
Aroclor 1260	26.6	177	256	129	228	114	12

Table 2.2 Results of the MS/MSD Analysis for Lead in Dust
 WA#0-292 Ironbound Athletic Field Artificial Turf Investigation
 Results Are Based on Sample As Received

Sample No. 42660

Analyte	Sample Result mg/kg	MS/MSD Spike Added mg/kg	MS Result mg/kg	MS % Recovery	MSD Result mg/kg	MSD % Recovery	RPD	Recommended QC Limits	
								% Recovery	RPD
Lead	230	40.0	285	NC	281	NC	NC	75-125	20

Table 2.3 Results of the MS/MSD Analysis for Lead in Soil
 WA#0-292 Ironbound Athletic Field Artificial Turf Investigation
 Results Are Based on Dry Weight

Sample No. 42672

Analyte	Sample Result mg/kg	MS/MSD Spike Added mg/kg	MS Result mg/kg	MS % Recovery	MSD Result mg/kg	MSD % Recovery	RPD	Recommended QC Limits	
								% Recovery	RPD
Lead	5.24	41.4	45.3	97	45.5	97	0	75-125	20

Sample No. 42666

Analyte	Sample Result mg/kg	MS/MSD Spike Added mg/kg	MS Result mg/kg	MS % Recovery	MSD Result mg/kg	MSD % Recovery	RPD	Recommended QC Limits	
								% Recovery	RPD
Lead	29.7	39.8	59.2	74 *	61.2	79	3	75-125	20

Table 2.4 Results of the MS/MSD Analysis for Lead in Mat
 WA#0-292 Ironbound Athletic Field Artificial Turf Investigation
 Results Based on Sample As Received

Sample No. 42694

Analyte	Sample Result mg/kg	MS Spike Added mg/kg	MS Result mg/kg	MS % Recovery	MSD Spike Added mg/kg	MSD Result mg/kg	MSD % Recovery	RPD	Recommended QC Limits	
									% Recovery	RPD
Lead	5.09	138	137	96	133	136	98	1	75-125	20

Table 2.5 Results of the MS/MSD Analysis for Lead in Residue
 WA # 0-292 Ironbound Athletic Field Artificial Turf Investigation
 Results Based on Sample As Received

Sample No. 42684

Analyte	Sample Result mg/kg	MS/MSD Spike Added mg/kg	MS Result mg/kg	MS % Recovery	MSD Result mg/kg	MSD % Recovery	RPD	Recommended QC Limits	
								%Rec	RPD
Lead	196	80.0	312	145 *	306	138 *	2	75-125	20

Table 2.6 Results of the MS/MSD Analysis for Lead in Turf
 WA# 0-292 Ironbound Athletic Field Artificial Turf Investigation
 Results Based on Sample As Received

Sample No. 42695 (Turf whole piece)

Analyte	Sample Result mg/kg	MS Spike Added mg/kg	MS Result mg/kg	MS % Recovery	MSD Spike Added mg/kg	MSD Result mg/kg	MSD % Recovery	RPD	Recommended QC Limits	
									% Recovery	RPD
Lead	3960	160	4020	NC	148	3780	NC	6	75-125	20

Table 2.7 Results of the MS/MSD Analysis for Lead in Turf Fibers
 WA# 0-292 Ironbound Athletic Field Artificial Turf Investigation
 Results Based on Sample As Received

Sample No. 42695(Fibers)

Page 1 of 1

Analyte	Sample Result mg/kg	MS/MSD Spike Added mg/kg	MS Result mg/kg	MS % Recovery	MSD Result mg/kg	MSD % Recovery	RPD	Recommended QC Limits % Recovery	RPD
Lead	4900	200	5110	NC	5250	NC	3	75-125	20

Table 2.8 Results of the LCS Analysis for PCBs in Soil
 WA# 0-292 Ironbound Athletic Field Artificial Turf Investigation

LCS standard: SLCS-PS60
 Date Analyzed: 11/6/07

Analyte	LCS Spike Added µg/kg	LCS Conc µg/kg	LCS % Recovery	Advisory QC Limits % Recovery
Aroclor 1016	167	159	95	70-130
Aroclor 1260	167	188	113	70-130

LCS standard: LCS/LCSD111608
 Date Analyzed: 11/17/07

Analyte	LCS Spike Added µg/kg	LCS Conc µg/kg	LCS % Recovery	LCSD Conc µg/kg	LCSD % Recovery	RPD	Advisory QC Limits	
							RPD	% Recovery
Aroclor 1016	167	129	77	137	82	6	20	70-130
Aroclor 1260	167	159	95	172	103	8	20	70-130

Table 2.9 Results of the LCS Analysis for Lead in Dust
WA# 0-292 Ironbound Athletic Field Artificial Turf Investigation

LCS Standard: ERA Lot No. D056-540-11/06/07

Date Analyzed: 11/6/2007

Analyte	Conc. Recovered mg/kg	Certified Value mg/kg	PALs mg/kg	% Recovery
Lead	69.3	72.2	59.1 - 85.4	96

PAL - Performance Acceptance Limits

Table 2.10 Results of the LCS Analysis for Lead in Soil
 WA# 0-292 Ironbound Athletic Field Artificial Turf Investigation

LCS Standard: ERA Lot No. D056-540-11/05/07
 Date Analyzed: 11/5/2007

Analyte	Conc. Recovered mg/kg	Certified Value mg/kg	PALs mg/kg	% Recovery
Lead	67.7	72.2	59.1 - 85.4	94

PAL - Performance Acceptance Limits

LCS Standard: ERA Lot No. D056-540-11/13/07
 Date Analyzed: 11/13/2007

Analyte	Conc. Recovered mg/kg	Certified Value mg/kg	PALs mg/kg	% Recovery
Lead	64.1	72.2	59.1 - 85.4	89

PAL - Performance Acceptance Limits

Table 2.11 Results of the LCS/LCSD Analysis for Lead in Turf and Fibers
 WA# 0-292 Ironbound Athletic Field Artificial Turf Investigation

LCS Standard: ERA Lot No. D056-540-111407
 Date Analyzed: 11/15/2007

Analyte	Certified Value mg/kg	LCS Conc mg/kg	LCS % Recovery	LCSD Conc mg/kg	LCSD % Recovery	RPD	QC Limit RPD	PALs mg/kg
Lead	72.2	69.1	96	67.6	94	2	20	59.1-85.4

Table 2.12 Results of the Duplicate Analysis for Lead in Turf and Fibers
 WA# 0-292 Ironbound Athletic Field Artificial Turf Investigation
 Results Based on Sample As Received

Sample 42689

Section	Initial Analysis mg/kg	Duplicate Analysis mg/kg	RPD	QC Limits RPD
Whole Turf piece	3990	3860	3	20
Fibers only	4580	4330	6	20

EP-C-04-032

0292-DAR-11260707

CHAIN OF CUSTODY RECORD

Site #: 292

Contact Name: D Killeen

Contact Phone: X4245

No: 292-11/02/07-0002

Lab #	Sample #	Location	Matrix	Collected	Numb Cont	Container	Preservative	Analyses	MS/MSD
15365	42669	2TB	Soil	11/1/2007	1	8 oz cwm	4 degrees C	Lead (Pb)	N
15366	42665	6P	Soil	11/1/2007	1	8 oz cwm	4 degrees C	PCBs	N
15367	42673	2PM	Soil	11/1/2007	1	8 oz cwm	4 degrees C	Lead (Pb)	N
15368	42672	1PM	Soil	11/1/2007	2	8 oz cwm	4 degrees C	PCBs	Y
↓	42672	1PM	Soil	11/1/2007	2	8 oz cwm	4 degrees C	Lead (Pb)	Y
15369	42671	1TB	Soil	11/1/2007	1	8 oz cwm	4 degrees C	PCBs	N
↓	42671	1TB	Soil	11/1/2007	1	8 oz cwm	4 degrees C	Lead (Pb)	N
15370	42670	2TBD	Soil	11/1/2007	1	8 oz cwm	4 degrees C	Lead (Pb)	N
15371	42674	1HP	Soil	11/1/2007	1	8 oz cwm	4 degrees C	PCBs	N
15365	42669	2TB	Soil	11/1/2007	1	8 oz cwm	4 degrees C	PCBs	N
15371	42674	1HP	Soil	11/1/2007	1	8 oz cwm	4 degrees C	Lead (Pb)	N
15372	42668	2D	Soil	11/1/2007	1	8 oz cwm	4 degrees C	PCBs	N
↓	42668	2D	Soil	11/1/2007	1	8 oz cwm	4 degrees C	Lead (Pb)	N
15373	42667	1D	Soil	11/1/2007	1	8 oz cwm	4 degrees C	PCBs	N
↓	42667	1D	Soil	11/1/2007	1	8 oz cwm	4 degrees C	Lead (Pb)	N
15374	42666	7P	Soil	11/1/2007	2	8 oz cwm	4 degrees C	PCBs	Y
↓	42666	7P	Soil	11/1/2007	2	8 oz cwm	4 degrees C	Lead (Pb)	Y
15366	42665	6P	Soil	11/1/2007	1	8 oz cwm	4 degrees C	Lead (Pb)	N
15370	42670	2TBD	Soil	11/1/2007	1	8 oz cwm	4 degrees C	PCBs	N

023

Special Instructions: Pb prelims due in 2-3 days, PCB prelims in 5 days

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
all Analysis ETX, HPL, MS, etc. no organics	D Killeen	11/5/07	Jimmy Martin	11/5/07	8:00	10/Analysis Metals PCB	D Killeen	11/5/07	J. P. [unclear]	11/05/07	8:45 AM
	J. P. [unclear]	11/05/07	Jimmy Martin	11/5/07	10:10	All Analysis's	Jimmy Martin	11/5/07	[unclear]	11/05/07	11:30 AM

Samples received 40C in 11/5/07

EP-C-04-032

CHAIN OF CUSTODY RECORD

Site #: 292

Contact Name: D Killeen

Contact Phone: X4245

No: 292-11/02/07-0002

0292-DAR-11260707

Lab #	Sample #	Location	Matrix	Collected	Numb Cont	Container	Preservative	Analyses	MS/MSD
15375	42678	1SB	Soil	11/1/2007	1	8 oz cwm	4 degrees C	Lead (Pb)	N
15376	42688	5P	Soil	11/1/2007	1	8 oz cwm	4 degrees C	PCBs	N
15377	42687	4P	Soil	11/1/2007	1	8 oz cwm	4 degrees C	PCBs	N
↓	42687	4P	Soil	11/1/2007	1	8 oz cwm	4 degrees C	Lead (Pb)	N
15378	42686	4D	Soil	11/1/2007	1	8 oz cwm	4 degrees C	PCBs	N
↓	42686	4D	Soil	11/1/2007	1	8 oz cwm	4 degrees C	Lead (Pb)	N
15379	42685	3D	Soil	11/1/2007	1	8 oz cwm	4 degrees C	PCBs	N
↓	42685	3D	Soil	11/1/2007	1	8 oz cwm	4 degrees C	Lead (Pb)	N
15367	42673	2PM	Soil	11/1/2007	1	8 oz cwm	4 degrees C	PCBs	N
15380	42679	2SB	Soil	11/1/2007	1	8 oz cwm	4 degrees C	Lead (Pb)	N
15376	42688	5P	Soil	11/1/2007	1	8 oz cwm	4 degrees C	PCBs	N
15375	42678	1SB	Soil	11/1/2007	1	8 oz cwm	4 degrees C	Lead (Pb)	N
024 15381	42677	2FB	Soil	11/1/2007	1	8 oz cwm	4 degrees C	PCBs	N
↓	42677	2FB	Soil	11/1/2007	1	8 oz cwm	4 degrees C	Lead (Pb)	N
15382	42676	1FB	Soil	11/1/2007	1	8 oz cwm	4 degrees C	PCBs	N
↓	42676	1FB	Soil	11/1/2007	1	8 oz cwm	4 degrees C	Lead (Pb)	N
15383	42675	2HP	Soil	11/1/2007	1	8 oz cwm	4 degrees C	PCBs	N
↓	42675	2HP	Soil	11/1/2007	1	8 oz cwm	4 degrees C	Lead (Pb)	N
15380	42679	2SB	Soil	11/1/2007	1	8 oz cwm	4 degrees C	PCBs	N

Special Instructions: Pb prelims due in 2-3 days, PCB prelims in 5 days

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Received	Relinquished By	Date	Received by	Date	Time
All / Analysis All / Metals All / PCB Analysis	[Signature]	11/5/07	[Signature]	11/5/07	8:00	Metals All / Analysis PCB All / Analysis	40C JM 11/5/07 [Signature]	11/5/07	[Signature]	11/05/07	8:45 AM
		11/5/07	[Signature]	11/5/07	10:10			[Signature]	11/5/07	11:30 AM	

EP-C-04-032

CHAIN OF CUSTODY RECORD

Site #: 292

Contact Name: Deborah Killeen

Contact Phone: 732-321-4245

No: 292-11/02/07-0003

Lab: REAC

Lab Phone: 732-321-4252

0292-DAR-11260707

025

Lab #	Sample #	Location	Matrix	Collected	Numb Cont	Container	Preservative	Analyses	MS/MSD
15419	42680	19TD	Residue	11/1/2007	1	8 oz cwm	None	Lead (Pb)	N
15420	42681	19TC	Mat 2	11/1/2007	1	Ziploc Bag	None	Lead (Pb)	N
15421	42682	19TB	Mat 1	11/1/2007	1	Ziploc Bag	None	Lead (Pb)	N
15422	42683	19TA	Turf	11/1/2007	1	Ziploc Bag	None	Lead (Pb)	N
15423	42684	17TA	Residue	11/1/2007	1	8 oz cwm	None	Lead (Pb)	N
15424	42689	17TB	Turf	11/1/2007	1	Ziploc Bag	None	Lead (Pb)	N
15425	42690	17TC	Mat 1	11/1/2007	1	Ziploc Bag	None	Lead (Pb)	N
15426	42691	17TD	Mat 2	11/1/2007	1	Ziploc Bag	None	Lead (Pb)	N
15427	42692	16TA	Turf	11/1/2007	1	Ziploc Bag	None	Lead (Pb)	N
15428	42693	16TB	Mat 1	11/1/2007	1	Ziploc Bag	None	Lead (Pb)	N
15429	42694	16TC	Residue	11/1/2007	1	8 oz cwm Ziploc Bag	None	Lead (Pb)	N
15430	42695	21TA	Turf	11/1/2007	1	Ziploc Bag	None	Lead (Pb)	N
15431	42696	21TB	Mat 1	11/1/2007	1	Ziploc Bag	None	Lead (Pb)	N
15432	42697	21TC	Mat 2	11/1/2007	1	Ziploc Bag	None	Lead (Pb)	N
15433	42698	7TA	Turf	11/1/2007	1	Ziploc Bag	None	Lead (Pb)	N
15434	42699	7TB	Mat 1	11/1/2007	1	Ziploc Bag	None	Lead (Pb)	N
15435	42700	7TC	Mat 2	11/1/2007	1	Ziploc bag	None	Lead (Pb)	N

Matd

11/6/07

Special Instructions: Prep samples as discussed during teleconference with ERT WAM.

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
All Analysis	[Signature]	11/6/07	[Signature]	11/6/07	8:10	All Analysis	[Signature]	11/8/07	[Signature]	11/8/07	8:00
All Storage	[Signature]	11/15/07	[Signature]	11/15/07	9:30						

EP-C-04-032

CHAIN OF CUSTODY RECORD

No: 292-11/06/07-0004

Site #: 292

Contact Name: Deborah Killeen

Lab: REAC

Contact Phone: 732-321-4245

Lab Phone: 732-321-4252

0292-DAR-11260707

Lab #	Sample #	Location	Matrix	Collected	Numb Cont	Container	Preservative	Analyses	MS/MSD
15414	42657	17-T	Dust	11/1/2007	1	8 oz cwm	None	Lead (Pb)	N
15415	42658	19-T	Dust	11/1/2007	1	8 oz cwm	None	Lead (Pb)	N
15416	42659	16-T	Dust	11/1/2007	1	8 oz cwm	None	Lead (Pb)	N
15417	42660	21-T	Dust	11/1/2007	1	8 oz cwm	None	Lead (Pb)	Y
15418	42661	7-T	Dust	11/1/2007	1	8 oz cwm	None	Lead (Pb)	N

026

file 11/6/07

Special Instructions: Use sample 21-T for the MS/MSD

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

QC 80. 11/6/07

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
<i>All Analysis</i>	<i>Deborah Killeen</i>	<i>11/6/07</i>	<i>Zhang</i>	<i>11/6/07</i>	<i>8:10</i>	<i>All Analysis</i>	<i>Zhang</i>	<i>11/6/07</i>	<i>ATD</i>	<i>11/6/07</i>	<i>8:30</i>

CHAIN OF CUSTODY RECORD

732) 321-4200
PA CONTRAC: -C-04-032

Project Name: _____
Project Number: EAC029
LM Contact: Vinod Kousal Phone: 732-321-4252
Deborah Killeen (Task Leader) 732-321-4245

No: 40591
Sheet 01 of 01 (Do not copy)
(for addnl. samples use new form)

Sample Identification

Analyses Requested

REAC#	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	PCBs
5417	42660	21-T	S	11/11/07	1	8oz Jar / None	✓
5407	1923 *	N/A	↓	↓	↓	↓ ↓	✓
<i>11/11/07</i>							
<i>11/11/07</i>							

0292-DAB (11/11/07)
027

Matrix:

Special Instructions:

- A- Air
- AT- Animal Tissue
- L- Drum Liquids
- LS- Drum Solids
- IW- Groundwater
- O- Oil
- R- Product
- T- Plant Tissue
- PW- Potable Water
- S- Soil
- SD- Sediment
- SL- Sludge
- SW- Surface Water
- TX- TCLP Extract
- W- Water
- X- Other

* Sample is a composite of samples 15419 and 15423 on COC# 292-110207-0003. 15g of each sample was homogenized to make a 30g composite sample.

** Reac #'s are not chronological

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #:
15417 → COC# 292-110407-0004
COC# 292-110207-0003

Item/Reason	Relinquished by	Date	Received by	Date	Time	Item/Reason	Relinquished by	Date	Received by	Date	Time
11/Analysis	<i>[Signature]</i>	11/14/07	<i>[Signature]</i>	11/14/07	6:10						

Appendix C

Letter to Newark Department of Health and Human Services

Dated October 29, 2007

Sent via fax and mail October 30, 2007



State of New Jersey

DEPARTMENT OF HEALTH AND SENIOR SERVICES
CONSUMER AND ENVIRONMENTAL HEALTH SERVICES
PO BOX 369
TRENTON, N.J. 08625-0369

www.nj.gov/health

JON S. CORZINE
Governor

FRED M. JACOBS, M.D., J.D.
Commissioner

October 29, 2007

Marsha McGowan, M.P.H., M.A.
Health Officer
Newark Department of Health
110 William Street
Newark, NJ 07102-1316

Dear Ms. McGowan:

The New Jersey Department of Health and Senior Services (NJDHSS) is recommending that the City of Newark temporarily restrict access of residents to the Ironbound Athletic Field (St. Charles Avenue and Rome St., Newark) until further notice. This recommendation is based on lead in dust on the field that may be harmful to children.

The US Environmental Protection Agency (USEPA) requested that the Agency for Toxic Substances and Disease Registry (ATSDR) and the NJDHSS evaluate the Tidewater Baling property on St. Charles Avenue for its potential health risk. As part of that investigation, the NJDHSS collected samples from the playing field at the adjacent Ironbound Athletic Field. Samples included both dust and the synthetic fibers that make up the surface of the playing field. The laboratory found lead in both the dust and the fibers at concentrations that are higher than amounts that are allowed in residential and non-residential surface soil. Specifically, lead in six dust samples from the field was found at an average of approximately 3,740 milligrams of lead per kilogram of dust (mg/kg). The New Jersey Department of Environmental Protection Residential Direct Contact Soil Cleanup Criteria is 400 mg/kg; the Non-Residential Direct Contact Soil Cleanup Criteria is 600 mg/kg.

It appears that some of the lead that was measured in the samples may have come from the synthetic fibers themselves. The NJDHSS is uncertain at this time if children's bodies can absorb the lead from the fibers as readily as they absorb lead from soil or paint dust. We are, however, certain that there is lead in the dust, and that children who play on the field are likely to swallow the dust through normal play activities. Until the USEPA completes additional testing of the synthetic fibers, dust, and soil in the field area, the NJDHSS recommends that the Ironbound Athletic Field be closed until further notice.

For further information on this, please contact Glenn Pulliam or Sharon Kubiak at the NJDHSS at (609) 584-5367.

Sincerely,



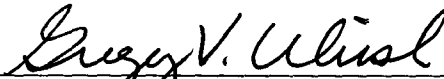
James A. Brownlee, M.P.H.

Director, Consumer and Environmental Health Services

- C: Z. Braswell, Newark Recreational Services
- N. Magriples, USEPA
- A. Block, ATSDR
- L. Graziano, ATSDR
- G. Ulirsch, ATSDR
- J. Fagliano, NJDHSS
- G. Pulliam, NJDHSS
- S. Kubiak, NJDHSS

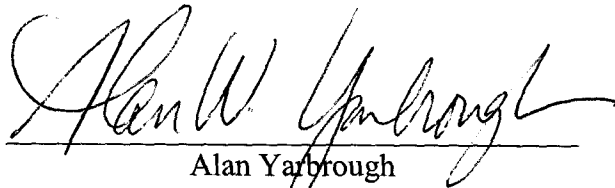
CERTIFICATION

The health consultation for the Ironbound Athletic Field, Newark, Essex, County, New Jersey was prepared by the New Jersey Department of Health and Senior Services under a cooperative agreement with the Agency for Toxic Substances and Disease Registry. It is in accordance with approved methodology and procedures existing at the time the health assessment were initiated. Editorial review was completed by the cooperative agreement partner.



Gregory V. Ulirsch, MS, PhD
Technical Project Officer, CAT, CAPEB, DHAC
Agency for Toxic Substances and Disease Registry

The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this health consultation and concurs with its findings.



Alan Yarbrough
Team Leader, CAT, CAPEB, DHAC
Agency for Toxic Substances and Disease Registry