

**REMOVAL PROGRAM  
PRELIMINARY ASSESSMENT/  
SITE INVESTIGATION REPORT  
FOR THE  
W. R. GRACE SITE  
CAMBRIDGE, MASSACHUSETTS  
22 AUGUST 2000 AND 6 AND 7 SEPTEMBER 2000**

Prepared For:

U.S. Environmental Protection Agency  
Region I  
Emergency Planning and Response Branch  
1 Congress Street, Suite 1100  
Boston, MA 02114-2023

CONTRACT NO. 68-W-00-097

TDD NO. 00-07-0037

PCS NO. 1228

DC NO. R-1238

Submitted By:

Roy F. Weston, Inc. (WESTON®)  
Region I  
Superfund Technical Assessment and Response Team 2000 (START)  
37 Upton Drive  
Wilmington, MA 01887

February 2001

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I. Preliminary Assessment/Site Investigation Forms



REMOVAL PRELIMINARY ASSESSMENT

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Source of Information

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Verbal:

Report: Haley & Aldrich, Inc. reports entitled: *Final Asbestos Sampling Plan, W.R. Grace & Co.-Conn., Cambridge, Massachusetts*, November 1998; *Report on Evaluation for Asbestos in Soil, W.R. Grace & Co.-Conn*, April 1999; Environmental Health & Engineering, Inc. reports entitled: *Public Health Risk Evaluation for W.R. Grace Site in Cambridge, Massachusetts, (EH&E 95.415)*, 20 March 1996; *Final Report, City of Cambridge Environmental Site Assessment, Subsurface Conditions at Russell Field*, 9 October 1998; and *Phase I Site Assessment Report and Tier Classification, RTN: 3-17087, Russell Field Park, Off Rindge Avenue, Cambridge, Massachusetts*, 23 July 1993.

Other: file materials were provided by MA DEP, the City of Cambridge, and the Alewife Study Group.

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Potentially-Responsible Parties

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**Owner:** W.R. Grace & Co. (WRG) **Phone:** (617) 498-4350  
**Address:** 62 Whittemore Avenue  
Cambridge, Massachusetts 02140

**Owner:** City of Cambridge (COC) **Phone:** (617) 349-4628  
**Address:** 57 Inman Street  
Cambridge, Massachusetts 02139

**Owner:** New Boston Fund (NBF) **Phone:** (617) 723-7760  
**Address:**

**Owner:** Massachusetts Bay Transit Authority (MBTA)  
**Address:** **Phone:** (617) 222-3126

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Site Access

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**Authorizing Person, (WRG):** John R. Wardzel, Vice President,  
Engineering and Manufacturing Support, Grace Performance  
Chemicals, W.R. Grace & Co. - Conn.; Vice President, Alewife  
Land Corporation

**Date:** 13 July 2000  Obtained  Verbal  
**Phone:** (617) 498-4983  Not Obtained  Written

## REMOVAL PRELIMINARY ASSESSMENT

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### Site Access (Concluded)

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**Authorizing Person, (COC):** Robert W. Healy, City Manager  
**Date:** 10 August 2000                     **Obtained**                     **Verbal**  
**Phone:** (617) 349-4300                     **Not Obtained**                     **Written**

**Authorizing Person, (NBF):** Jerome L. Rappaport, Jr., President, New  
Boston Fund, Inc.  
**Date:** 13 August 2000                     **Obtained**                     **Verbal**  
**Phone:** (617) 227-7345                     **Not Obtained**                     **Written**

**Authorizing Person, (MBTA):** Michael J. Brennan, Director of Real  
Estate  
**Date:** 11 July 2000                     **Obtained**                     **Verbal**  
**Phone:** (617) 222-3255                     **Not Obtained**                     **Written**

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### Physical Site Characterization

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**Background Information:** The W.R. Grace Site (the site) is approximately 40 acres and is divided into portions owned by four different owners, including W.R. Grace, the New Boston Fund, the City of Cambridge, and the Massachusetts Bay Transit Authority. The W.R. Grace portion of the site has been in use as industrial or commercial property since the 1800s. Prior owners of the W.R. Grace portion include clay mining companies, the Boston & Maine Railroad, Dix Lumber Company, the Smith Brickyard Company, the City of Cambridge, an ice cream manufacturing facility, and the Dewey & Almy Chemical Company (Dewey & Almy). Dewey & Almy was founded in 1919 for the manufacture of rubber products. In 1954, Dewey & Almy merged with W.R. Grace & Co. to become the Dewey & Almy Chemical Division of W.R. Grace & Co. According to Haley & Aldrich (H&A) reports, in the early 1930s it is believed that asbestos was stored and used in two on-site buildings as part of a brake lining development program. Asbestos-related activities also occurred on site in the late 1960s and early 1970s when a "small-scale" laboratory analysis and research program was conducted on asbestos-containing fireproofing materials. The above-referenced buildings were constructed in 1929 and used for warehousing, experimental process development, and the manufacture of solvent-based jar sealing compound, air-entraining agents for concrete, a silicone masonry sealant, and a dispersant. One of the products manufactured on site was naphthalene sulfonate, which is a compound used to facilitate the dispersion of rubber in water. During the period of naphthalene sulfonate manufacture, on-site lagoons were used as settling ponds and as sources of cooling water. From 1946 to

## REMOVAL PRELIMINARY ASSESSMENT

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### Physical Site Characterization (Concluded)

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1961, one of the buildings housed chemical tank churns, and from 1979 to 1984, this building was used for various chemical manufacturing processes. It is reported that acetone was used on site as a raw material by W.R. Grace. Hazardous substances known to exist in on-site soils include asbestos, naphthalene, and polycyclic aromatic hydrocarbons (PAHs). Reported asbestos concentrations ranged up to 12 percent in subsurface soils. Demolition of on-site buildings after 1954 may have also introduced asbestos into site soils.

During construction of the MBTA Alewife Red Line Station in the 1980s, soil excavated from the W.R. Grace portion of the property for construction of the subway tunnel was staged on what is now Russell Field Park, raising the possibility that contamination from the W.R. Grace property could have been spread to the City's property. The MBTA was required to restore Russell Field Park after removing the excavated material. In compliance with this requirement, up to 3 feet (ft) of topsoil was spread over Russell Field Park by MBTA.

**Description of Substances Possibly Present, Known or Alleged:** Previous investigations of the property indicated the presence of asbestos, naphthalene, and PAHs in on-site soils and naphthalene and acetone in groundwater.

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### Existing Analytical Data

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( ) **Real-Time Monitoring Data:**

(X) **Sampling Data:** Results of Polarized Light Microscopy (PLM) analysis of 590 surface and subsurface soil samples collected at and adjacent to the W.R. Grace property indicated the presence of asbestos at trace or percentage levels in 5.8% of the samples. Concentrations of asbestos in soil ranged up to 12%. Other compounds reportedly detected in on-site soils include naphthalene, formaldehyde, fluorene, and several petroleum-based compounds, but available records do not indicate the analytical method(s) used or the concentrations detected. Analytical results of groundwater samples collected from on-site monitoring wells indicated the presence of naphthalene and acetone, but available records do not indicate the analytical method used or the concentrations detected.

REMOVAL PRELIMINARY ASSESSMENT

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Potential Threat

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Description of potential hazards to environment and/or population that may be met by the site under 40 CFR 300.415 [b] [2].

- i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants.
- iv. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.
- v. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.
- vii. The availability of other appropriate federal or state response mechanisms to respond to the release.
- viii. Other situations or factors that may pose threats to public health or welfare or the environment.

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Prior Response Activities

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PRP                       STATE                       FEDERAL                       OTHER

**Brief Description:** Several site investigations have taken place at the site since 1993. Reports generated by these investigations are cited in the Source of Information section of this report.

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Priority for Site Investigation

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High                       Medium                       Low                       None

**Comments:**

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Report Generation

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**Originator:** Michael Argue                      **Date:** 8 February 2001  
**Affiliation:** Roy F. Weston, Inc. (START)                      **Phone:** (978) 657-5400  
**TDD No.:** 00-07-0037                      **PCS No.:** 1228

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EPA REGION I  
REMOVAL SITE INVESTIGATION

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Inspection Information

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**Site Name:** W.R. Grace **Address:** 62 Whittemore Avenue  
**Town:** Cambridge **County:** Middlesex **State:** Massachusetts  
**Date of Inspection [On-Site Reconnaissance (◆)]:** 22 August 2000  
**Time of Inspection:** 0630-1645 hours  
**Weather Conditions:** Sunny/70°-80°F  
**Date of Inspection [On-Site Sampling (◇)]:** 6 September 2000  
**Time of Inspection:** 0700-1835 hours  
**Weather Conditions:** Sunny/60°-70°F  
**Date of Inspection [On-Site Sampling (◇)]:** 7 September 2000  
**Time of Inspection:** 0600-1410 hours  
**Weather Conditions:** Sunny/65°-75°F  
**Site Status at Time of Inspection:** (X) ACTIVE ( ) INACTIVE  
**Comments:** The area under investigation included parcels owned by W.R. Grace & Co., the City of Cambridge (Russell Field Park), the New Boston Fund, Inc. (One Alewife Center), and the Massachusetts Bay Transit Authority (Alewife Red Line Headhouse).

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Agencies/Personnel Performing Inspection

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	<u>Names</u>	<u>Program</u>
(X) EPA:	Mary Ellen Stanton◆◆  Jim Murphy◆◆	U.S. Environmental Protection Agency (EPA), Emergency Planning and Response Branch (EPRB), On-Scene Coordinator (OSC). EPA Community Involvement Coordinator (CIC)
(X) EPA Contractor:	Michael Argue◆◆ Daniel Muzrall◆ Tiffany Gurney◇ Gretchen Franzheim◇ Patrick Boska◆	Roy F. Weston, Inc., Superfund Technical Assessment and Response Team (START).
(X) State:	Jack Miano◆	Massachusetts Department of Environmental Protection (MA DEP)

REMOVAL SITE INVESTIGATION

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**Agencies/Personnel Performing Inspection (Concluded)**

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	<u>Names</u>	<u>Program</u>
(X) Other:	Beth Timm◆	Agency for Toxic Substances and Disease Registry (ATSDR)
	John Bolduc◆◆	Cambridge Community Development Department
	Jeff Roelofs◆	Anderson and Kriegir
	Cindee Campisano◆	Environmental Health & Engineering, Inc.
	Jim Faneuf◆	New Boston Fund, Inc.
	Tony Anelauskas◆◆	
	John Wolf◆	Sverdrop Civil, Inc.
	Amy Church◆◆	Haley & Aldrich (H&A)
	Wesley Stimpson◆	
	Bill Beck◆	
	Jennifer Mullen◆	
	David Croce◆	W.R. Grace & Co.
	Tom Barry◆	
	Mario Favorito◆	

- ◆ - Denotes personnel present for on-site reconnaissance.
- ◆ - Denotes personnel present for on-site sampling event.

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**Physical Site Characteristics**

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<u>Parameter</u>	<u>Quantities/Extent</u>
( ) Cylinders:	
( ) Drums:	
(X) Lagoons:	Waste disposal lagoons were used at the property during the period of on-site naphthalene sulfonate production, which lasted for an unknown length of time. Material within the lagoons was reportedly removed by the MBTA during construction of the Alewife Station from 1982 to 1983.
(X) Tanks:	(X) Above: Numerous aboveground storage tanks (ASTs) historically existed at the W.R. Grace portion of the property, but have since been removed from within the fenced areas.

## REMOVAL SITE INVESTIGATION

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### Physical Site Characteristics (Concluded)

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Parameter	Quantities/Extent
(X) Tanks:	(X) Below: Numerous underground storage tanks (USTs) historically existed at the W.R. Grace portion of the property, but none are known to exist within the area of the investigation.
(X) Asbestos:	Samples collected from on-site surface and subsurface soils in May and December 1998 indicated the presence of asbestos at concentrations ranging up to 12 percent in subsurface soils, as determined by Polarized Light Microscopy (PLM) analysis.
( ) Piles:	
(X) Stained Soil:	Stained soil was noted in the bioremediation beds.
( ) Sheens:	
(X) Stressed Vegetation:	Stressed vegetation was noted in the bioremediation beds, and throughout the W.R. Grace portion of the site.
( ) Landfill:	
(X) Population in Vicinity:	The site is located in a densely populated section of Cambridge. Numerous residences exist within 200 yards of the site.
(X) Wells:	( ) Drinking: (X) Monitoring: Several monitoring wells exist at the W.R. Grace portion of the site.
( ) Other:	

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### Physical Site Observations

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The 27-acre W.R. Grace (Grace) portion of the site consists of several multiple-story buildings, landscaped areas, and paved parking areas which cover an unknown area on the northern end of the site. The remainder of the Grace portion of the site, which is surrounded by locked, 6-foot (ft) high, chain-link fencing, consists of areas of overgrown vegetation, asphalt pavement, public-access walkways, and Jerry's Pond on the southern end of the property. The former Lehigh Metals (Lehigh) property, now owned by W.R. Grace, is located directly west of Jerry's Pond. A wetland now exists in the foundation hole of the former Lehigh building. Several monitoring wells are located throughout the Grace property, and two bioremediation beds are located approximately 100 ft west of bleachers adjacent to the Russell Field Park football field.

The One Alewife Center portion of the site, located along Whittemore Avenue at the northern end of the site, consists of a multiple-story brick office building, landscaped areas, and a paved parking area.

## REMOVAL SITE INVESTIGATION

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### Physical Site Observations (Concluded)

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The Massachusetts Bay Transit Authority (MBTA) portion of the site consists of the Alewife Red Line Station Headhouse, which provides access to the Red Line subway, areas of concrete and asphalt pavement, landscaped areas, and public walkways.

The Russell Field Park portion of the site consists of two baseball fields, a football field and bleachers, a soccer field, a running track, public walkways, an asphalt parking area, and areas of open lawn. The sports fields are surrounded by 4-ft high, chain-link fences.

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### Field Sampling and Analysis

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Matrix	Analytical	Field Instrumentation			
	Parameter	CGI/O <sub>2</sub>	RAD	PID	FID
Background Readings:	LEL=0.0/O <sub>2</sub> =21.1	≤15μR/hr	0.0	0.0	0.0
Air:	LEL=0.0/O <sub>2</sub> =21.1	≤15μR/hr	0.0	0.0	0.0
Soil:	LEL=0.0/O <sub>2</sub> =21.1	≤15μR/hr	0.0	0.0	0.0
Other:					

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### Field Quality Control Procedures

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(X) SOP Followed

( ) Deviation From SOP

Comments: Sampling was conducted in accordance with the START document entitled, *Sampling Quality Assurance/Quality Control Plan for the W.R. Grace Preliminary Assessment/Site Investigation, Cambridge, Massachusetts*, which was prepared for the site.

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### Description of Sampling Conducted

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Fifty-two grab surface soil samples and three suspected asbestos-containing material (SACM) samples were collected by START and EPA personnel throughout the site. Samples collected from the Grace portion of the site were labeled WRG-01 through WRG-38 and SACM-01 through SACM-03. Samples collected from the One Alewife Center portion of the property were labeled OAC-01 through OAC-05. Samples collected from City of Cambridge property, including Russell Field Park, were labeled COC-01 through COC-05, and samples collected from the MBTA portion of the site were labeled MBTA-01 through MBTA-03. All samples were analyzed at the EPA New England Regional Laboratory (NERL) for asbestos content by polarized light microscopy (PLM). Upon receipt of the PLM results, EPA selected 28

## REMOVAL SITE INVESTIGATION

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### Description of Sampling Conducted (Concluded)

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samples to be analyzed at a private laboratory for asbestos content by transmission electron microscopy (TEM). During sampling activities, START and EPA personnel wore personal air-monitoring pumps with cartridges that were analyzed for asbestos at a private laboratory by phase contrast microscopy (PCM). Upon receipt of the PCM results, START selected one cartridge to be analyzed at the same laboratory by TEM. Five samples collected from the bioremediation beds were analyzed at a private laboratory for semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and total petroleum hydrocarbons (TPHs).

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### Analyses

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Analytical Parameter	Media	Laboratory
<input type="checkbox"/> VOC	<input checked="" type="checkbox"/> AIR	<input checked="" type="checkbox"/> NERL
<input checked="" type="checkbox"/> PCB	<input type="checkbox"/> WATER	<input type="checkbox"/> CLP
<input type="checkbox"/> PESTICIDE	<input checked="" type="checkbox"/> SOIL	<input checked="" type="checkbox"/> PRIVATE
<input type="checkbox"/> METALS	<input type="checkbox"/> SOURCE	<input type="checkbox"/> SAS
<input type="checkbox"/> CYANIDE	<input type="checkbox"/> SEDIMENT	<input type="checkbox"/> SOW
<input checked="" type="checkbox"/> SVOC		
<input type="checkbox"/> TOXICITY		
<input type="checkbox"/> DIOXIN		
<input checked="" type="checkbox"/> ASBESTOS		
<input checked="" type="checkbox"/> OTHER - TPH		

Analytical results: [see Appendix D]

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### Receptors

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#### Comments

Drinking Water       Private:  
 Municipal:  
 Groundwater:

**Unrestricted Access:** Access to the Russell Field Park and MBTA portions of the site is unrestricted. Access to the One Alewife Center portion of the site is unrestricted, except for the interior of the office building, to which access is limited. Access to the Grace portion of the site is unrestricted along the public-access walkways and in the paved parking and landscaped areas surrounding the Grace buildings. Access to the Grace buildings is limited, as is access to the fenced portions of the Grace property.

## REMOVAL SITE INVESTIGATION

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### Receptors (Concluded)

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#### Comments

**Population in Proximity:** The site is located in a densely populated section of Cambridge, with numerous residences located within 200 yards. Hundreds of people use Russell Field Park and public access walkways throughout the site each day.

**Sensitive Ecosystem:**

**Other:**

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### Additional Procedures for Site Determination

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**Biological Evaluation**

**ATSDR - Health Consultation**  
to be performed.

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### Site Determination

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Depending on further information, criteria that may be met by the site include 40 CFR 300.415 [b] [2], parts:

- i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants.
- iv. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.
- v. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.
- vii. The availability of other appropriate federal or state response mechanisms to respond to the release.
- viii. Other situations or factors that may pose threats to public health or welfare or the environment.

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### Report Generation

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**Originator:** Michael Argue

**Date:** 8 February 2001

**Affiliation:** Roy F. Weston, Inc. (START)

**Phone:** (978) 657-5400

**TDD No.:** 00-07-0037

**PCS No.:** 1228

## II. Narrative Chronology

## Narrative Chronology

### Introduction

On 22 August 2000 and 6 and 7 September 2000, Roy F. Weston, Inc., (WESTON®) Superfund Technical Assessment and Response Team (START) members Michael Argue, Daniel Muzrall, Tiffany Gurney, Gretchen Franzheim, and Patrick Boska conducted Removal Program Preliminary Assessment/Site Investigation (PA/SI) activities at the W.R. Grace Site (the site), located at 62 Whittemore Avenue, Cambridge, Middlesex County, Massachusetts [see Appendix A - Site Location Map (Figure 1)]. Geographic coordinates of the site are Latitude 42° 23' 47" North and Longitude 71° 08' 23" West, as measured from the center of the property. The purpose of conducting the PA/SI was to determine the presence and extent of suspected asbestos contamination in on-site surface soils.

### Site Description

The site is divided into four properties, including the W.R. Grace & Co. Construction Division Headquarters, One Alewife Center, Russell Field Park, and the Alewife Red Line Head House [see Appendix B - Site and Sampling Location Diagram (Figure 2)]. These parcels are owned by W.R. Grace & Co. (Grace), the New Boston Fund, the City of Cambridge (the City), and the Massachusetts Bay Transit Authority (MBTA), respectively. The Grace headquarters property is an irregularly shaped 27-acre parcel that borders Whittemore Avenue and One Alewife Center to the north, Russell Field Park to the east and south, Rindge Avenue to the south, surrounds the MBTA Alewife T Red Line Head House, and is bounded by Alewife Brook Parkway to the west. The northern end of the Grace property contains two large, multiple-story, brick and concrete buildings that have a combined footprint of approximately 175,000-square-feet (ft<sup>2</sup>), along with landscaped areas, and an asphalt-paved parking area. The remainder of the Grace property consists of open, grassy areas and areas of overgrown vegetation surrounded by 8-foot (ft), chain-link fencing, public-access walkways, and Jerry's Pond, which is located on the southern end of the parcel. Two bioremediation beds are located on the Grace property within a fenced area between the Alewife Red Line Head House and Russell Field Park. One Alewife Center is bordered to the east and south by the Grace property, to the west by the Grace property and a private residence, and to the north by Whittemore Avenue. This parcel contains a large, multiple-story, brick and concrete office building surrounded by landscaped areas. The MBTA parcel is bordered to the north, east and south by the Grace property, and to the west by Alewife Brook Parkway. This parcel contains the Alewife Red Line Head House, which is surrounded by brick and concrete public access walkways. Russell Field Park is bordered to the north and west by the Grace property, to the south by Rindge Avenue and a Metropolitan District Commission (MDC) swimming pool, and to the east by Clifton Street residences. The park consists of two baseball fields, a football field, a soccer field, a running track, public access walkways, and landscaped areas.

### Site History

The W.R. Grace portion of the site has been in use as industrial or commercial property since the 1800's. Prior owners of the W.R. Grace portion of the property include clay mining companies, the Boston & Maine Railroad, Dix Lumber Company, the Smith Brickyard Company, the City of Cambridge, an ice cream manufacturing facility, and the Dewey & Almy Chemical Company (Dewey & Almy). According to a Haley & Aldrich (H&A) report prepared for W.R. Grace, Dewey



& Almy was founded in 1919 for the manufacture of rubber products. In 1954, Dewey & Almy merged with W.R. Grace & Co., to become the Dewey & Almy Chemical Division of W.R. Grace & Co. It is believed that asbestos was handled in two on-site buildings in the early 1930s as part of a brake lining development program. Asbestos-related activities also occurred on site in the late 1960s and early 1970s when a "small-scale" laboratory analysis and research program was conducted for asbestos-containing fireproofing materials. The above referenced buildings were constructed in 1929 and used for warehousing, experimental process development, and the manufacture of solvent-based jar sealing compound, air-entraining agents for concrete, a silicone masonry sealant, and a dispersant. One of the major products manufactured on site was naphthalene sulfonate, which is a compound used to facilitate the dispersion of rubber in water. During the period of naphthalene sulfonate manufacture, on-site lagoons were used as settling ponds and as sources of cooling water. From 1946 to 1961, one of the buildings housed chemical tank churns, and from 1979 to 1984, the building was used for various chemical manufacturing processes. It is reported that acetone was used on site as a raw material by W.R. Grace. Hazardous substances identified in on-site soils during previous investigations of the Grace property include asbestos, naphthalene, and polycyclic aromatic hydrocarbons (PAHs). Reported asbestos concentrations ranged up to 12 percent in subsurface soils.

An H&A diagram of the Grace property entitled *Site Conditions During Dewey & Almy Operations - Storage Areas* - depicts several areas in which various chemical compounds were stored in aboveground storage tanks (ASTs) and underground storage tanks (USTs). According to the diagram, these chemical compounds included: acetone, toluene, methanol, "white oil", latex, zinc chloride, ammonia, rosin, propane, diesel fuel, gasoline, light oil, heavy fuel oil, calcium lignosulfate, soap, fatty acid, muriatic acid, alcohol, vinyl acetate, nitrogen, sodium hydroxide, potassium hydroxide, sulphuric acid, naphthalene, and formaldehyde. The H&A diagram also indicates that a tank farm located on the property contained ASTs that held, at various times, styrene, butadiene, methyl acetate, dibutyl maleate, isobutyl ether, and hexylene glycol.

During construction of the MBTA Alewife T Red Line Station in the 1980s, soil excavated from the W.R. Grace portion of the property for construction of the tunnel was staged on what is now Russell Field Park, raising the possibility that contamination from the W.R. Grace property could have been spread to the City's property. The MBTA was required to restore the field as a condition of its use; top soil has been spread over Russell Field Park to depths ranging up to 3 ft.

### **Site Activities**

The PA/SI consisted of an on-site reconnaissance, which was conducted on 22 August 2000, and a 2 day sampling event which took place on 6 and 7 September 2000. On 22 August 2000, START members Argue and Muzrall met U.S. Environmental Protection Agency (EPA) On-Scene Coordinator (OSC) Mary Ellen Stanton, EPA Community Involvement Coordinator (CIC) Jim Murphy, and Agency for Toxic Substances and Disease Registry (ATSDR) representative Beth Timm at the site. START personnel calibrated the air-monitoring equipment, including a combustible gas indicator/oxygen meter (CGI/O<sub>2</sub>), a photoionization detector (PID), a flame ionization detector (FID), and a radiation meter (MicroR) to establish ambient conditions at the site. Ambient conditions were recorded as follows: LEL = 0.0 %; O<sub>2</sub> = 21.3 %; PID = 0.0 units; FID = 0.0 units; MicroR =  $\leq 15$   $\mu$ R/hr. The on-site reconnaissance was conducted in Level D personal protective equipment (PPE), in accordance with the site Health and Safety Plan (HASP). The HASP

has been prepared as a separate document, entitled: *Removal Program Site Health and Safety Plan for the W.R. Grace Site Preliminary Assessment/Site Investigation, Cambridge, Massachusetts.*

OSC Stanton circulated a sign-in sheet and met with New Boston Fund (NBF) representatives Anthony Anelauskas and Jim Faneuf about the on-site activities scheduled for the day. Upon completing her meeting with the NBF representatives, OSC Stanton led a walkthrough of the One Alewife Center (OAC) property and selected five sampling locations along the perimeter of the OAC office building. START member Muzrall recorded the sample stations on the START Global Positioning System (GPS) equipment. Throughout the reconnaissance, START member Muzrall used the GPS equipment to record all of the sample stations that were selected by OSC Stanton. All parties departed the OAC property and re-convened at Russell Field Park.

At Russell Field Park, EPA, START, and ATSDR met with City of Cambridge representative John Bolduc and attorney Jeff Roelofs regarding EPA's planned sampling event. All parties conducted a walkthrough of the park, and OSC Stanton selected five sampling locations, two of which were located within the diamonds of the park's two baseball fields, as requested by ATSDR. All parties then returned to the Russell Field Park parking lot for a meeting with Sverdrop Civil, Inc. representative John Wolf, and Massachusetts Department of Environmental Protection (MA DEP) representative Jack Miano.

Mr. Wolf inquired about the objective of the proposed sampling, and OSC Stanton stated that EPA and START will be collecting soil samples to determine whether an immediate risk to human health exists at the site. Mr. Wolf inquired if there was a specific analytical result that determines risk, and OSC Stanton replied that there is no specific benchmark, but that a number of factors are considered in making that determination.

Mr. Bolduc and Mr. Roelofs departed the site, and Mr. Wolf asked what the alternatives for remediation would be if asbestos was found at the site. OSC Stanton stated that the two most likely alternatives would be excavation or capping of the site.

START, EPA, and ATSDR personnel met in Russell Field Park with representatives of Grace and their consultant, H&A. The Grace representatives included Tom Barry, David Croce and Mario Favorito. The H&A representatives included Amy Church, Wesley Stimpson, and Bill Beck. All parties walked the perimeter of the Grace buildings, and inspected a small brick building on the north side of Whittemore Avenue known as the former ice cream manufacturing building. The building is currently used by Grace for materials storage and concrete mold manufacture. The interior and the exterior of the building were examined. No exposed soil was observed around the perimeter of the building, and no storage of hazardous materials was observed within the building.

All parties proceeded to the fenced areas of the Grace property for a walkthrough lead by H&A representative Church. During this portion of the walk through, OSC Stanton selected approximately 20 soil locations to be sampled for asbestos. Points of interest noted by EPA, START, and ATSDR included two bioremediation beds used by H&A to remediate site-derived soils that were contaminated by naphthalene and other petroleum products. OSC Stanton noted a petroleum odor within one of the bioremediation beds. East of the bioremediation beds, START observed several fragments of suspected asbestos-containing material (SACM) on the ground surface. MA DEP

observed at least three different types of SACM in this area. START observed SACM that appeared to be non-friable on the ground surface in at least two other locations, including a work area directly south of the southernmost Grace building, and in a fenced area south of the work area. While inside one of the Grace buildings, ATSDR observed a pallet of Zonolite<sup>®</sup> attic insulation, which is a Grace vermiculite product suspected to be asbestos-containing.

### **Sampling Activities**

On 6 September 2000, START members Argue and Gurney arrived at Russell Field Park, met OSC Stanton, established a sampling support zone, and calibrated the air-monitoring equipment. H&A representatives Church and Jennifer Mullen arrived at the site to observe sampling activities and collect split samples. All parties commenced flagging the locations to be sampled. Sampling locations were selected in areas where asbestos had been detected in previous surveys; in areas with SACM on the ground surface; and in areas where sampling had not been conducted previously. START members Franzheim and Boska arrived at Russell Field Park and met START, EPA, and H&A personnel already on site. Site Leader (SL) Argue activated personal air monitors to be worn by OSC Stanton and START member Boska, and conducted a tailgate safety meeting.

START members Gurney, Franzheim, and Boska donned Level C PPE, and commenced sampling activities while OSC Stanton and SL Argue flagged additional sample locations. Soil sampling activities were conducted in accordance with the site sampling quality assurance/quality control (QA/QC) plan, entitled: *Removal Program Sampling Quality Assurance/Quality Control Plan for the W.R. Grace Site Preliminary Assessment/Site Investigation, Cambridge, Massachusetts*. All samples were collected as grabs from 0- to 3-inches below ground surface (bgs). Samples were collected using dedicated sampling equipment and analyzed at the EPA New England Regional Laboratory (NERL) for asbestos content by polarized light microscopy (PLM). Extra volume was collected at each sampling station as a portion of the samples would be selected for analysis by transmission electron microscopy (TEM) at a private laboratory, pending PLM results. Additional aliquots of samples WRG-24 through WRG-28, which were collected from the bioremediation beds, were sent to a private laboratory for semivolatile organic compound (SVOC), polychlorinated biphenyl (PCB), and total petroleum hydrocarbon (TPH) analyses. Splits of all samples collected on the Grace property and in Russell Field Park were relinquished upon collection to the H&A and City of Cambridge representatives. Cartridges from the personal air monitors were analyzed by phase contrast microscopy (PCM) at a private laboratory and then held by the laboratory for TEM analysis, pending PCM results. Chain-of-Custody (COC) records for the sampling event are located in Appendix C (see Appendix C - Chain-of-Custody Records). Analytical results are located in Appendix D (see Appendix D - Analytical Data).

Prior to departing site for the day, START member Gurney photodocumented locations that had already been sampled and recording sample positions with the GPS equipment. The photodocumentation log has been prepared as a separate document, entitled *Removal Program Photodocumentation Log for the W. R. Grace Site Preliminary Assessment/Site Investigation (PA/SI), Cambridge, Massachusetts*. START personnel concluded sampling activities for the day, and SL Argue completed COC documentation.

On 7 September 2000, START members Argue, Gurney, Franzheim, and Boska met OSC Stanton and CIC Murphy at One Alewife Center, calibrated the air-monitoring instruments, and established a sampling support zone. SL Argue conducted a tailgate safety meeting, instructed START personnel on proper sampling techniques, and activated personal air monitors to be worn by OSC Stanton and START member Boska. All personnel donned Level C PPE and commenced sampling activities at the One Alewife Center property. At sample locations OAC-01 through OAC-04, SL Argue removed circular sections of sod from the ground surface and placed them on plastic sheeting. After the samples had been collected, SL Argue completed COC documentation, photodocumented each sample location, and returned the sod to its original position while START member Gurney recorded the sample locations with the GPS equipment. All parties then departed the One Alewife Center property and reconvened at Russell Field Park.

At Russell Field Park, START personnel and OSC Stanton met City of Cambridge representative Bolduc and the City's consultant, Environmental Health and Engineering representative Cindee Campisano, who were on site to observe sampling activities and collect split samples collected at the park. START personnel donned Level C PPE, collected the samples, labeled COC-01 through COC-05, and relinquished splits to the City of Cambridge representative and consultant. SL Argue completed COC documentation and photodocumented sample stations while START member Gurney recorded sample locations with the GPS equipment.

Upon completion of sampling activities at Russell Field Park, START personnel, OSC Stanton, and CIC Murphy met with H&A representatives Church and Mullen, who were on site to collect splits of the remaining Grace property samples. All parties proceeded to the Grace property where START members Gurney, Franzheim, and Boska donned Level C PPE and collected the remaining samples. SL Argue completed COC documentation and photodocumented sample stations. Upon completion of sample collection, START member Gurney recorded sample locations with the GPS equipment, and START members Franzheim and Boska placed chain-of-custody seals on the sample containers. START members Argue and Franzheim accompanied OSC Stanton to the area of the former Lehigh Metals factory to observe suspected non-friable asbestos containing material (ACM) near sample locations WRG-34 and WRG-36. START members Gurney, Franzheim, and Boska departed the site. SL Argue remained on site to photodocument site conditions before departing.

### **Post-sampling Activities**

Upon receipt of PLM analytical results from NERL, OSC Stanton selected 28 samples to be analyzed at a private laboratory by TEM. OSC Stanton requested that all laboratories bidding on the TEM analytical contract submit their Analytical Standard Operating Procedure (SOP) for review. Based on the SOPs received, a laboratory was awarded the contract, and the 28 samples were shipped for analysis. Upon commencement of analytical activities, the laboratory experienced difficulties preparing the sample matrix for analysis, and contacted the START office concerning this problem. During the course of the communications that followed, it was revealed that the laboratory technicians were not following the SOP that had been sent to START for review by EPA. START placed a stop-work order on the analysis and requested that the samples be returned to the START office. The samples were returned to the START office and delivered to NERL for storage. These samples were not analyzed. Upon further review of the remaining SOPs, another laboratory was selected, and additional aliquots of the original sample material were shipped for analysis.

Upon review of the PCM analytical results for the personal air monitor cartridges, one sample was selected for analysis by TEM because analytical results indicated the presence of 0.068 fibers per cubic centimeter (cc), which is slightly above the WESTON<sup>®</sup> action level for airborne asbestos fibers (0.05 fibers/cc). TEM analysis detected no asbestos fibers in the sample.

Upon receipt of SVOC, PCB, TPH, PCM, and personal air monitor cartridge TEM analytical results, a Tier I data validation was completed. Upon receipt of the soil TEM analytical results, a Tier II data validation was performed.

The sample results were not flagged as “rejected” during the data validation process, and thus are acceptable for use.

**TABLE 1**

**Sample Descriptions**

Station No., EPA Sample No., DAS No.*	Sample Type and Matrix	Grab or Composite	Sample Depth (Inches)	Color	Sample Description	Comments
WRG-01 96714	Soil	Grab	0-3	Dark Brown	Fine-Medium Loam	Berm in Zone 1
WRG-02 96715	Soil	Grab	0-3	Light- Medium Brown	Medium- Coarse Sandy Gravel	NA
WRG-03 96716	Soil	Grab	0-3	Light Brown	Medium- Coarse Sandy Gravel	NA
WRG-04 96717	Soil	Grab	0-3	Light Brown	Medium- Coarse Sandy Gravel	NA
WRG-05 96718 D03277	Soil	Grab	0-3	Light Brown	Medium- Coarse Sandy Gravel	NA
WRG-06 96719 D03279	Soil	Grab	0-3	Light Brown	Medium- Coarse Sandy Gravel	NA
WRG-07 96720 D03280	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-08 96721	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-09 96722 D03281	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-10 96723	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-11 96724 D03278	Soil	Grab	0-3	Light Brown	Fine-Coarse Sandy Gravel	Mound in Zone 4
WRG-12 96725 D03275	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-13 96726	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA

**TABLE 1**

**Sample Descriptions (Continued)**

Station No., EPA Sample No., DAS No.*	Sample Type and Matrix	Grab or Composite	Sample Depth (Inches)	Color	Sample Description	Comments
WRG-14 96727 D03274	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-15 96728 D03273	Soil	Grab	0-3	Medium Brown	Medium- Coarse Sandy Gravel	NA
WRG-16 96729 D03276	Soil	Grab	0-3	Medium Brown	Medium- Coarse Sandy Gravel	NA
WRG-17 96730 D03293	Soil	Grab	0-3	Medium Brown	Medium- Coarse Sandy Gravel	Duplicate of WRG-16
WRG-18 96731 D03295	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-19 96732 D03298	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-20 96733	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-21 96734 D03288	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-22 96735 D03290	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-23 96736 D03300	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-24 96737 D03297 D02388	Soil	Grab	0-3	Light- Medium Brown	Fine-Medium Sand with Gravel	Bio- remediation Bed
WRG-25 96738 D03289 D02389	Soil	Grab	0-3	Light- Medium Brown	Fine-Medium Sand with Gravel	Bio- remediation Bed

**TABLE 1**

**Sample Descriptions (Continued)**

Station No., EPA Sample No., DAS No.*	Sample Type and Matrix	Grab or Composite	Sample Depth (Inches)	Color	Sample Description	Comments
WRG-26 96739 D03296 D02390	Soil	Grab	0-3	Light Tannish Brown	Fine-Medium Sand with Gravel	Bio- remediation Bed
WRG-27 96740 D02391	Soil	Grab	0-3	Light Brown	Fine-Medium Sand with Gravel	Bio- remediation Bed
WRG-28 96741 D02392	Soil	Grab	0-3	Light- Medium Brown	Fine-Medium Sand with Gravel	Bio- remediation Bed - MS/MSD
WRG-29 96742 D03299	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-30 96743 D03292	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-31 96744 D03285	Soil	Grab	0-3	Medium Brown	Fine-Medium Sand	NA
WRG-32 96745 D03291	Soil	Grab	0-3	Medium Brown	Fine-Medium Sand	NA
WRG-33 96746	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-34 96747 D03283	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-35 96748	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-36 96749 D03294	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	NA
WRG-37 96750	Soil	Grab	0-3	Medium Brown	Fine-Medium Sand	NA
WRG-38 96251	Soil	Grab	0-3	Medium Brown	Fine-Medium Sand	NA



**TABLE 1**

**Sample Descriptions (Continued)**

Station No., EPA Sample No., DAS No.*	Sample Type and Matrix	Grab or Composite	Sample Depth (Inches)	Color	Sample Description	Comments
WRG-39 96252 D03287	Soil	Grab	0-3	Medium Brown	Fine-Coarse Sandy Gravel	Duplicate of WRG-19
SACM-01 96256	Bulk Asbestos	Grab	0-3	White	Non-Friable Compressed ACM	NA
SACM-02 96257	Bulk Asbestos	Grab	0-3	White	Non-Friable Compressed ACM	NA
SACM-03 96258	Bulk Asbestos	Grab	0-3	White	Non-Friable Compressed ACM	NA
MBTA-01 96253	Soil	Grab	0-3	Dark Brown	Fine-Medium Loam	NA
MBTA-02 96254 D03282	Soil	Grab	0-3	Dark Brown	Fine-Medium Loam	NA
MBTA-03 96255	Soil	Grab	0-3	Dark Brown	Fine-Medium Loam	Duplicate of MBTA-01
COC-01 96259	Soil	Grab	0-3	Dark Brown	Fine-Medium Loam	Lettuce Patch
COC-02 96260	Soil	Grab	0-3	Light- Medium Brown	Medium- Coarse Sandy Gravel	NA
COC-03 96261	Soil	Grab	0-3	Light- Medium Brown	Medium- Coarse Sandy Gravel	NA
COC-04 96262	Soil	Grab	0-3	Light Brown	Fine-Medium Sand	Northern Baseball Field - Second Base
COC-05 96263	Soil	Grab	0-3	Light Brown	Fine-Medium Sand	Southern Baseball Field - Pitcher's Mound

**TABLE 1**

**Sample Descriptions (Concluded)**

Station No., EPA Sample No., DAS No.*	Sample Type and Matrix	Grab or Composite	Sample Depth (Inches)	Color	Sample Description	Comments
OAC-01 96264	Soil	Grab	0-3	Dark Brown	Fine-Medium Loam	NA
OAC-02 96265	Soil	Grab	0-3	Dark Brown	Fine-Medium Loam	NA
OAC-03 96266	Soil	Grab	0-3	Dark Brown	Fine-Medium Loam	NA
OAC-04 96267 D03284	Soil	Grab	0-3	Dark Brown	Fine-Medium Loam	NA
OAC-05 96268	Soil	Grab	0-3	Dark Brown	Fine-Medium Loam	Sample Location Overlain by Bark Mulch
PAM-01 D02393	Air	Grab	0-3	NA	Personal Air Sample	NA
PAM-02 D02394	Air	Grab	0-3	NA	Personal Air Sample	NA
PAM-03 D02395	Air	Grab	0-3	NA	Personal Air Sample	NA
PAM-04 D02396	Air	Grab	0-3	NA	Personal Air Sample	Analyzed by PCM and TEM

\* - Soil samples with one DAS number were analyzed for asbestos content by PLM and TEM. Soil samples with two DAS numbers were analyzed for asbestos content by PLM and TEM, and for SVOCs, PCBs, and TPHs. Air samples were analyzed by PCM (exceptions noted in Comments field).

DAS - Delivery of Analytical Services

No. - Number

WRG - W.R. Grace

MS/MSD - Matrix Spike/Matrix Spike Duplicate

SACM - Suspected Asbestos-Containing Material

ACM - Asbestos-Containing Material

MBTA - Massachusetts Bay Transit Authority

COC - City of Cambridge

OAC - One Alewife Center

PAM - Personal Air Monitor

TEM - Transmission Electron Microscopy

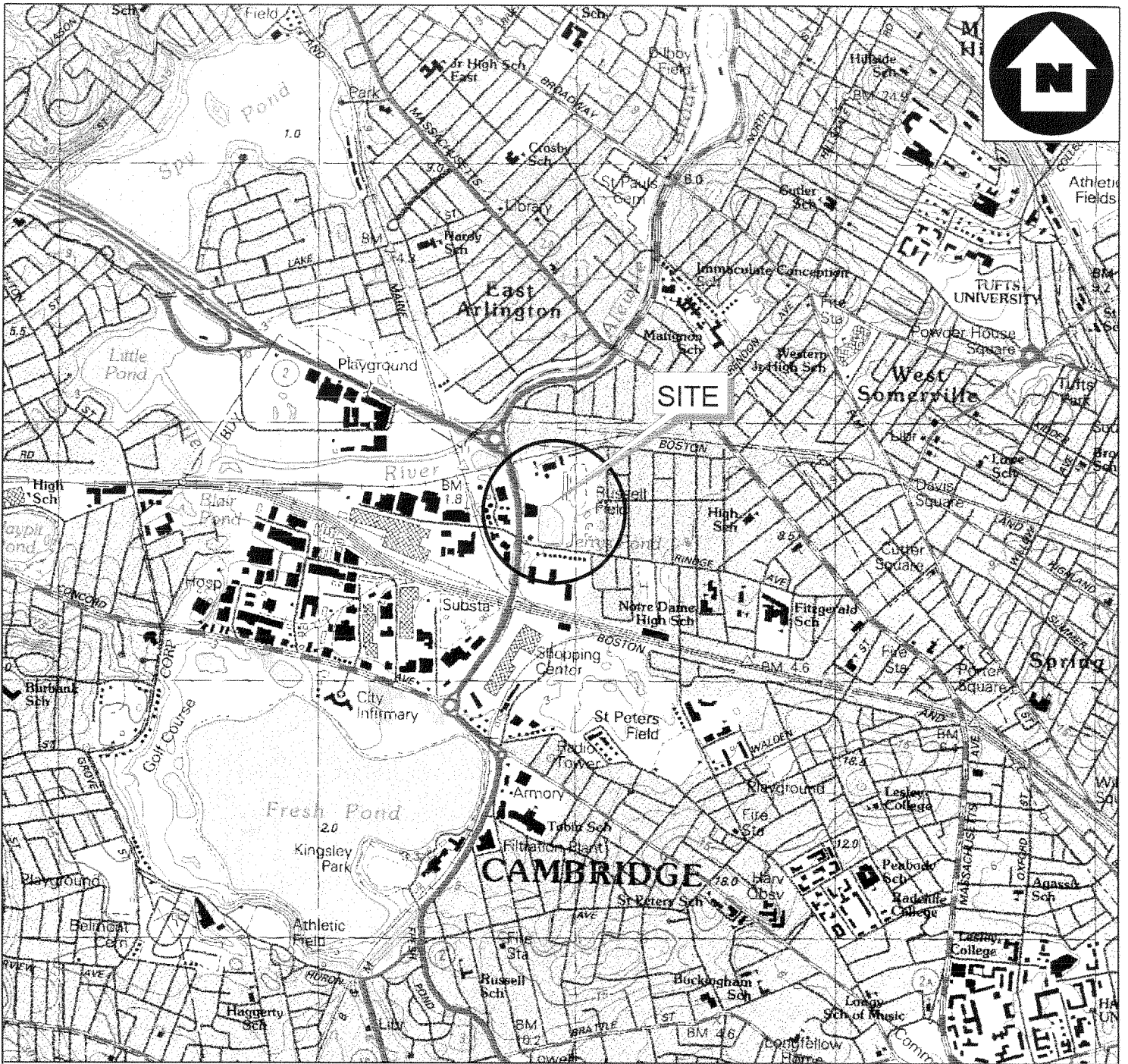
PCM - Phase Contrast Microscopy

NA - Not Applicable

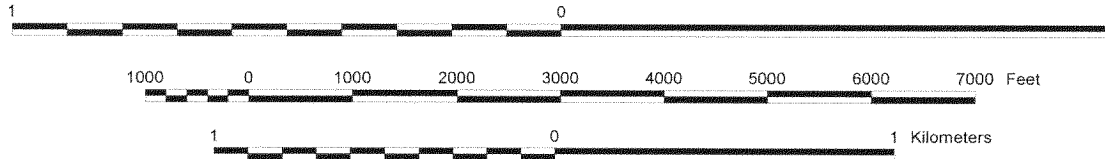
### III. Appendices

APPENDIX A

Site Location Map (Figure 1)



BASE MAP IS A PORTION OF THE FOLLOWING 7.5 X 15' U.S.G.S. QUADRANGLE(S):  
 BOSTON NORTH, MASSACHUSETTS. 1929 REVISED 1985.



**SITE LOCATION MAP**

**W. R. GRACE SITE  
 62 WHITTEMORE AVENUE  
 CAMBRIDGE, MASSACHUSETTS**

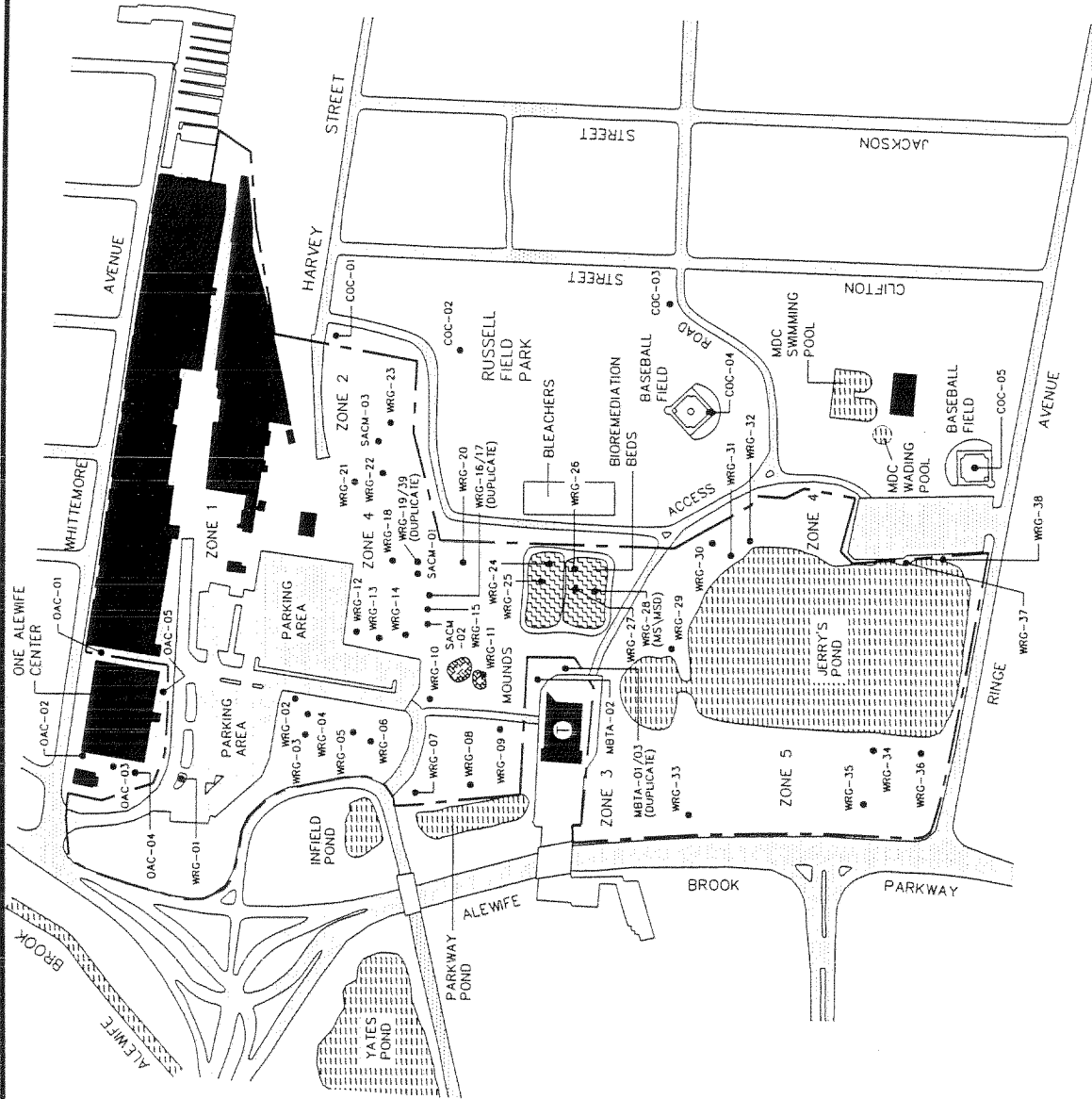


REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

TDD #	DRAWN BY:	DATE:
00-07-0037	P. SCHOUTEN	17 JAN 01
FILE NAME:	FIGURE 1	
E:\ARC_APRS\START2\WRGRACE.APR		

APPENDIX B

Site and Sample Location Diagram (Figure 2)



SOURCE: HALEY & ALDRICH  
 ZONES AND TARGETED SAMPLING AREAS  
 NOVEMBER 1998  
 CITY OF CAMBRIDGE TAX ASSESSOR'S MAPS  
 NOT TO SCALE

**SITE AND SAMPLE  
 LOCATION DIAGRAM**  
 W.R. GRACE & COMPANY  
 62 WHITTEMORE AVENUE  
 CAMBRIDGE, MASSACHUSETTS

- LEGEND**
- PAVED AREA
  - SURFACE WATER
  - BUILDING
  - APPROX. W.R. GRACE PROPERTY LINE
  - PUBLIC TRANSPORTATION STATION
  - SOIL SAMPLE LOCATION

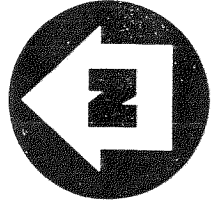
**WESTON**<sup>®</sup>  
 MANAGERS DESIGNERS/CONSULTANTS

REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

TDD #	DRAWN BY:	DATE
00-07-0037	W. SHAW	8/28/00

FILE NAME: R:\00070037\FIG2.DWG

FIGURE 2



APPENDIX C

Chain-of-Custody Records





CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		STATION LOCATION	NO. OF CONTAINERS	REMARKS
00090015		Grace				
SAMPLERS: (Signature)						
Gracie Franheim <i>Gracie Franheim</i>						
Wilfrid Turner <i>Wilfrid Turner</i>						
STA. NO.	DATE	TIME	COMP	GP	NO. OF CONTAINERS	REMARKS
WRG-01	9/7/00	0715	X	X	2	Asbestos - PLM Note: analyze 4-oz containers only. fld 4-oz containers for OSC Stanton HHA received split sample
WRG-02	9/7/00	1125	X	X	2	96714
WRG-03	9/7/00	1110	X	X	2	96715
WRG-04	9/7/00	1116	X	X	2	96716
WRG-05	9/7/00	1101	X	X	2	96717
WRG-06	9/7/00	1103	X	X	2	96718
WRG-07	9/6/00	1628	X	X	2	96719
WRG-08	9/6/00	1640	X	X	2	96720
WRG-09	9/6/00	1648	X	X	2	96721
WRG-10	9/6/00	1358	X	X	2	96722
WRG-11	9/6/00	1413	X	X	2	96723
WRG-12	9/6/00	1438	X	X	2	96724
WRG-13	9/6/00	1430	X	X	2	96725
WRG-14	9/6/00	1413	X	X	2	96726
WRG-15	9/6/00	1401	X	X	2	96727
WRG-15	9/6/00	1401	X	X	2	96728
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Date / Time
<i>Michael Deque</i>		9/8/00 1558				
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Date / Time
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time
				<i>ESAT</i>		09/08/00 15:58
Relinquished by: (Signature)				Remarks		results to OSC Stanton



CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	NO. OF CON-TAINERS		STATION LOCATION		REMARKS	
STA. NO.	DATE	TIME	COMP	GRAB			
0090015	Grace						
SAMPLERS: (Signature) Gretchen Fraunheim Affinity Energy							
WR6-16	9/6/00	1400	X	X	100' ft SW of SW corner Zone 2	2	96729 yes
WR6-17	9/6/00	1400	X	X	100' ft SW of SW corner Zone 2	2	96730 yes
WR6-18	9/6/00	1232	X	X	Zone 4 - 80' NW of SW corner Zone 2	2	96731 yes
WR6-19	9/6/00	1204	X	X	30' NW of SW corner of Zone 2	2	96732 yes
WR6-20	9/6/00	1155	X	X	80' SW of SW corner of Zone 2	2	96733 yes
WR6-21	9/7/00	1130	X	X	Zone 2 - 200' NW of bend in S fence	2	96734 yes
WR6-22	9/7/00	1135	X	X	Zone 2 - 100' NW of bend in S fence	2	96735 yes
WR6-23	9/7/00	1140	X	X	Zone 2 - 20' NE of bend in southern fence	2	96736 yes
WR6-24	9/6/00	1154	X	X	Northern bio bed, middle of east side	2	96737 yes
WR6-25	9/6/00	1201	X	X	Northern bio bed, center of east half	2	96737 AM 96738 yes
WR6-26	9/6/00	1150	X	X	Southern bio bed, middle of east side	2	96739 yes
WR6-27	9/6/00	1208	X	X	Southern bio bed, middle of north side	2	96740 yes
WR6-28	9/6/00	1220	X	X	Southern bio bed, middle of south side	2	96741 yes
WR6-29	9/6/00	1031	X	X	Zone 4 - 40' N of Jerry Pond, 40' E birds head	2	96742 yes
WR6-30	9/6/00	1028	X	X	Zone 4 - NE corner of Jerry's Pond	2	96743 yes
Relinquished by: (Signature) Michael Ogden		Date / Time	9/6/00 1558	Received by: (Signature)	Date / Time	Received by: (Signature)	
Relinquished by: (Signature)		Date / Time		Received by: (Signature)	Date / Time	Received by: (Signature)	
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature) [Signature]	Date / Time	Date / Time 15:58	
		Date / Time	09/03/00	Remarks	results to OSC Stanton		

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		NO. OF CONTAINERS	STATION LOCATION	REMARKS
00090015		Grace				
SAMPLERS: (Signature) <i>Jeffrey Sturhee</i>						
STA. NO.	DATE	TIME	COMP	CRAB		
WR6-31	9/6/00	1017	X	X	Zone 4-by NE side of Jerry's Pond	96744 yes
WR6-32	9/6/00	1014	X	X	Zone 4-by NE side of Jerry's Pond	96745 yes
WR6-33	9/6/00	1528	X	X	SW corner of former Lehigh foundation	96746 yes
WR6-34	9/6/00	1518	X	X	Zone 5-40' N of WRG-36	96747 <sup>MM</sup> yes
WR6-35	9/6/00	1529	X	X	Zone 5-80' N of Ridge, 20' E AB Ridge	96748 <sup>MM</sup> 96747 yes
WR6-36	9/6/00	1512	X	X	SW corner Zone 5-30' N of Ridge	96749 <sup>MM</sup> 96748 yes
WR6-37	9/6/00	0928	X	X	east side Jerry's Pond (North)	96749 yes
WR6-38	9/6/00	0940	X	X	east side Jerry's Pond (South)	96250 yes
WR6-39	9/6/00	1204	X	X	Zone 4-30' NW of NW field fence corner	96251 yes
SACM-01	9/6/00	1603	X	X	1/2 way bfn. eastern extents Zones 1+2	96252 yes
SACM-02	9/6/00	1607	X	X	Zone 4-30' NW of NW field fence corner	96256 yes
SACM-03	9/7/00	1215	X	X	Zone 2	96257 yes
MBTA-01	9/6/00	1501	X	X	drainage swale east Alewife Inn driveway	96258 yes
MBTA-02	9/6/00	1508	X	X	drainage swale corner NE Alewife Inn driveway	96253 yes
Relinquished by: (Signature) <i>Michael Lopez</i> Date / Time 9/8/00 1558 Received by: (Signature) Date / Time						
Relinquished by: (Signature) Date / Time Received by: (Signature) Date / Time						
Relinquished by: (Signature) Date / Time Received for Laboratory by: (Signature) Date / Time						
					Remarks results to OSC Stanton	



CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		STATION LOCATION		NO. OF CONTAINERS	REMARKS
PROJ. NO.	PROJECT NAME	STATION LOCATION	STATION LOCATION	NO. OF CONTAINERS	REMARKS		
00090015	Grace						
SAMPLERS: (Signature) <i>Jeffery Burnett</i>							
STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION		
MBIA-03	9/6/00	1501		X	drainage swale east Alewife headhouse	2	
COC-01	9/7/00	0735 0735 0735		X	left side patch next to Harvey	2	
COC-02	9/7/00	0950		X	sooth of fence gate on path east of soccer field	2	
COC-03	9/7/00	0945		X	north side of path from RFP to Clifton	2	
COC-04	9/7/00	0940		X	2nd base of ballfield by soccer field	2	
COC-05	9/7/00	0935		X	pitchers mound of ballfield by Ringbe	2	
OAC-01	9/7/00	0645		X	northeast corner of 1 Alewife	2	
OAC-02	9/7/00	0653		X	northwest corner of 1 Alewife	2	
OAC-03	9/7/00	0710		X	west side (middle) of 1 Alewife	2	
OAC-04	9/7/00	0648		X	southwest corner of 1 Alewife	2	
OAC-05	9/7/00	0700		X	40' east of south 1 Alewife entrance	2	
Relinquished by: (Signature) <i>Michael Chiquar</i> Date / Time 9/8/00 1558 Received by: (Signature) _____ Date / Time _____							
Relinquished by: (Signature) _____ Date / Time _____ Received by: (Signature) _____ Date / Time _____							
Relinquished by: (Signature) _____ Date / Time _____ Received for Laboratory by: (Signature) <i>[Signature]</i> Date / Time 09/03/00 15:58 Remarks results to OSC Stanton							



CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		NO. OF CONTAINERS		REMARKS	NERL #
STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION		
<p>W. R. Grace, Cambridge, MA</p> <p>SAMPLERS: (Signature) <i>Gratton-Franchein</i></p>							
WRG-07	9/6/00	1628		X	Zone 4, NE of Parking Pond	Surface Soil (0-3")	96720
WRG-08	9/6/00	1640		X	Zone 4, N of Parking Pond		96721
WRG-09	9/6/00	1648		X	Zone 4, south of path		96722
WRG-10	9/6/00	1358		X	adjacent southern extent Zone 1		96723
WRG-11	9/6/00	1413		X	mound in Zone 4		96724
WRG-12	9/6/00	1438		X	north end of Zone 4		96725
WRG-13	9/6/00	1430		X	north end of Zone 4		96726
WRG-14	9/6/00	1413		X	120' NNW of SW Corner Zone 2		96727
WRG-15	9/6/00	1401		X	110' W of SW Corner Zone 2		96728
WRG-16	9/6/00	1400		X	100' W of SW corner Zone 2		96729
WRG-17	9/6/00	1400		X	100' W of SW corner Zone 2		96730
WRG-18	9/6/00	1232		X	Zone 4 - 86' NNW of SW Corner		96731
WRG-19	9/6/00	1204		X	30' NNW of SW Corner of Zone 2		96732
WRG-20	9/6/00	1155		X	80' SW of SW corner of Zone 2		96733
WRG-24	9/6/00	1154		X	north in bio bed, middle of east side		96737
Relinquished by: (Signature)		Date / Time	Received by: (Signature)	Relinquished by: (Signature)		Date / Time	Received by: (Signature)
<i>Gratton-Franchein</i>		9/6/00 5:40 PM	<i>Exp. B. Church</i>				
Relinquished by: (Signature)		Date / Time	Received by: (Signature)	Relinquished by: (Signature)		Date / Time	Received by: (Signature)
Relinquished by: (Signature)		Date / Time	Received for Laboratory by: (Signature)	Date / Time		Remarks: Samples were collected in Ziploc baggies provided by Haley & Aldrich and were split samples collected as part of an asbestos investigation.	
						1-8393	



CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		NO. OF CONTAINERS		REMARKS	NERL #
STA. NO.	DATE	TIME	STATION LOCATION	COMP	REC		
W.R. Grace, Cambridge, MA		Asbestos		Page 2 of 3			
SAMPLERS: (Signature) <i>Robert Franzen</i>							
WRG-25	9/6/00	12:01	center of northern biobed, east half	X		Surface soil (0-3")	96738
WRG-26	9/6/00	11:50	southern biobed, middle of east side	X			96739
WRG-27	9/6/00	12:08	southern biobed, middle of north side	X			96740
WRG-28	9/6/00	12:20	southern biobed, middle of south side	X			96741
WRG-29	9/6/00	10:31	Zone 4 - 40' N of Jerry's Pond, backhead 40' east	X			96742
WRG-30	9/6/00	10:28	Zone 4 - NE corner of Jerry's Pond	X			96743
WRG-31	9/6/00	10:17	Zone 4 - by NE side of Jerry's Pond	X			96744
WRG-32	9/6/00	10:14	Zone 4 - by NE side of Jerry's Pond	X			96745
WRG-33	9/6/00	15:28	SW Corner of former high frdn	X			96746
WRG-34	9/6/00	15:18	Zone 5 - 40' N of WRG-36	X			96747
WRG-35	9/6/00	15:29	Zone 5 - 80' N of bridge, 30' E PENY AB	X			96748
WRG-36	9/6/00	15:12	SW corner Zone 5 - 30' N of bridge	X			96749
WRG-37	9/6/00	09:28	east side of Jerry's Pond (north)	X			967350
WRG-38	9/6/00	09:40	east side of Jerry's Pond (south)	X			96251
WRG-37	9/6/00	12:04	Zone 4 - 30' NW of NW field fence corner	X			96252
Relinquished by: (Signature) <i>Robert Franzen</i>		Date / Time	Received by: (Signature) <i>Robert Franzen</i>	Relinquished by: (Signature)		Date / Time	Received by: (Signature)
Relinquished by: (Signature)		Date / Time	Received by: (Signature)	Relinquished by: (Signature)		Date / Time	Received by: (Signature)
Relinquished by: (Signature)		Date / Time	Received for Laboratory by: (Signature)	Date / Time		Remarks: Samples were collected in Ziploc bags provided by Terry & Alrich and were split samples created as part of an asbestos investigation.	



PROJ. NO. [ ] PROJECT NAME W.R. Grace, Cambridge, MA

SAMPLERS: (Signature) *Gretel Franke*

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	REMARKS	NERL #
SACM-01	9/6/00	1603		X	1/2 way between stern extents Zones 1+2	1	Asbestos ✓ surface	96256
SACM-02	9/6/00	1607		X	Zone 4 - 30' NW of NW field fence corner	1 <sup>≠</sup>		96257

Relinquished by: (Signature) <i>Gretel Franke</i>	Date / Time 9/6/00	Received by: (Signature) <i>Suppl. B....</i>	Date / Time 5:40 PM
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time
Remarks: Samples were collected in Ziploc bags provided by Huley + Aldrich and were split. Samples collected as part of an asbestos investigation.			



CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		NO. OF CON-TAINERS	REMARKS	MERL #
STATION LOCATION	DATE	TIME	COM			
W.R. Stone, Cambridge, MA Samplers: (Signature) <i>Gracie Franchini</i>						
WRG-01	9/7/00	0715	X	X	berm in Zone 1	96714
WRG-02	9/7/00	1125	X	X	Zone 4, West of Zone 1	96715
WRG-03	9/7/00	1110	X	X	Zone 4, West of Zone 1	96716
WRG-04	9/7/00	1116	X	X	Zone 4, West of Zone 1	96717
WRG-05	9/7/00	1101	X	X	Zone 4, West of Zone 1	96718
WRG-06	9/7/00	1103	X	X	Zone 4, West of Zone 1	96719
WRG-23	9/7/00	1140	X	X	Zone 2 - 20' NE of bent entrance in south	96736
SACM-03	9/7/00	1215	X	X	Zone 2	96258
<i>Asbestos</i>						
Relinquished by: (Signature) _____ Date / Time _____ Received by: (Signature) _____ Date / Time _____						
Relinquished by: (Signature) <i>Gracie Franchini</i> 9/7/00 17:30 Received by: (Signature) <i>Angela Bland</i>						
Relinquished by: (Signature) _____ Date / Time _____ Received by: (Signature) _____ Date / Time _____						
Relinquished by: (Signature) _____ Date / Time _____ Received for Laboratory by: (Signature) _____ Date / Time _____						
Remarks: Samples were collected in Ziploc baggies provided by Haley Aldrich and were split samples collected as part of an asbestos investigation.						







REGION 1

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		NO. OF CONTAINERS		STATION LOCATION		SVC / PCB / TPH - 1664 *		REMARKS	
STA. NO.	DATE	TIME	COMP.	GRAB							
DAS Case 0370 F		Pat Bosker		2		D02388		X		sent to: Severn Trent Laboratories 2417 Bend Street University Park, IL 080466	
Michael Dejean		Tiffany Gurney		2		D02389		X		sent by: Roy F. Weston, Inc. 37 Upton Drive Wilmington, MA 01887	
WRG-24	9/6/00	1154		X	96737 <sup>AM</sup>		D02388	X			
WRG-25	9/6/00	1201		X	96738 <sup>AM</sup>		D02389	X			
WRG-26	9/6/00	1150		X	96739 <sup>AM</sup>		D02390	X			
WRG-27	9/6/00	1208		X	96740 <sup>AM</sup>		D02391	X			
WRG-28	9/6/00	1220		X	96741 <sup>AM</sup>		D02392	X			(MS/MSD)
											* please note: for TPH analysis, use EPA 1664 with silica gel clean up
											turn around = 7-day verbal 14-day hard copy
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Date / Time		Relinquished by: (Signature)		Date / Time	
Michael Dejean		9/7/00 1830		Fed Ex Airbill No. 823567922131							
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Date / Time		Relinquished by: (Signature)		Date / Time	
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time		Relinquished by: (Signature)		Date / Time	
										Remarks send results to Gretchen Frazzheim	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

EPA Cooler No: EPA/SPK

1-10129

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		NO. OF CONTAINERS	ASBESTOS - PCM*	REMARKS	
PAs Case 0371F		Michael Aguel					
STA. NO.	DATE	TIME	STATION LOCATION	NO. OF CONTAINERS	ASBESTOS - PCM*	REMARKS	
PAM-01	9/6/00	1811	personal air monitor		X		
PAM-02	9/6/00	1815	personal air monitor		X		
PAM-03	9/7/00	1307	personal air monitor		X		
PAM-04	9/7/00	1313	personal air monitor		X		
LB-01	9/7/00		lot blank		X		
* use NIOSH 7400 for PCM analysis.							
Note: TEM analysis may be requested (NIOSH 7402) by START after receipt of PCM verbal data (3-day verbal for TEM)							
1-day verbal, 14-day hard copy for PCM							
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Date / Time	
Michael Aguel		9/12/00 1810					
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Date / Time	
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time	
		↑				Remarks send results to Gretchen Franzheim	



SCM TO ITEMS LABS  
W/IMST BELIEVE DR  
PACIFIC COAST  
SCM TO ITEMS LABS  
W/IMST BELIEVE DR  
PACIFIC COAST

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		NO. OF CONTAINERS	REMARKS
0008015		TAS CASE NO. 0372F			
SAMPLERS: (Signature)					
STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION
0008015	1/16/79	11:01	X	X	D03273
0008015	1/16/79	11:03	X	X	D03274
0008015	1/16/79	11:08	X	X	D03275
0008015	1/16/79	11:10	X	X	D03276
0008015	1/16/79	11:01	X	X	D03277
0008015	1/16/79	11:03	X	X	D03278
0008015	1/16/79	11:03	X	X	D03279
0008015	1/16/79	11:08	X	X	D03280
0008015	1/16/79	11:08	X	X	D03282
0008015	1/16/79	11:13	X	X	D03281
0008015	1/16/79	11:13	X	X	D03283
0008015	1/16/79	11:13	X	X	D03284
0008015	1/16/79	11:17	X	X	D03285
0008015	1/16/79	11:20	X	X	D03286
0008015	1/16/79	11:24	X	X	D03287
Relinquished by: (Signature)			Received by: (Signature)		Date / Time
[Signature]			[Signature]		1/16/79
Relinquished by: (Signature)			Received by: (Signature)		Date / Time
[Signature]			[Signature]		1/16/79
Relinquished by: (Signature)			Received for Laboratory by: (Signature)		Date / Time
[Signature]			[Signature]		1/16/79

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files



SENT TO: CMS LABS  
BY WEST ARIZONA REGION  
EASAP/ELM/1/1/01

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		NO. OF CON-TAINERS		REMARKS	
00010095		DPS CASE NO. 0372F		1		TURNAROUND TIME 41 DAYS	
SAMPLERS: (Signature)		STATION LOCATION		EPA		21 DAY HAND OFF	
STA. NO.	DATE	TIME	COMP.	GRAB	NO.	OF	REMARKS
00010095	9/10/00	1:30	X	X	96734	1	*QUINQUAGINTA ANNO
00010095	9/10/00	1:35	X	X	96735	1	OF SOLV. SIGNATURE
00010095	9/10/00	1:40	X	X	96738	1	ASSAYS USING
00010095	9/10/00	1:45	X	X	96745	1	90 DAYS ASSAYS USING
00010095	9/10/00	1:50	X	X	96743	1	MEASUREMENT
00010095	9/10/00	1:55	X	X	96730	1	
00010095	9/10/00	2:00	X	X	96749	1	
00010095	9/10/00	2:05	X	X	96731	1	
00010095	9/10/00	2:10	X	X	96739	1	
00010095	9/10/00	2:15	X	X	96737	1	
00010095	9/10/00	2:20	X	X	96738	1	
00010095	9/10/00	2:25	X	X	96742	1	
00010095	9/10/00	2:30	X	X	96736	1	CHUNKS
Relinquished by: (Signature)		Date / Time	Received by: (Signature)	Date / Time	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
A. K. ...		10/10/00 17:20	...	10/10/00 17:20	...	...	...
Relinquished by: (Signature)		Date / Time	Received by: (Signature)	Date / Time	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
...		...	...	...	...	...	...
Relinquished by: (Signature)		Date / Time	Received for Laboratory by: (Signature)	Date / Time	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
...		...	...	...	...	...	...

APPENDIX D

Asbestos, SVOC, PCB, and TPH Analytical Data

## Asbestos Bulk Sample Analysis

PN: 00090015  
 Analyst: Dan Boudreau

FOR: Mary Ellen Stanton  
 OSC - EPA Region I

Analytical Method: PLM with Dispersion Staining  
 All quantities are Estimated Volume Percent

Date: 09/12/2000

Laboratory ID No.	96714	96715	96716	96717	96718
Sample ID No.	WRG-01	WRG-02	WRG-03	WRG-04	WRG-05
Address or Building	W.R. Grace Inc.	W.R. Grace Inc.	W.R. Grace Inc.	W.R. Grace Inc.	W.R. Grace Inc.
Location	Beam in Zone I	Zone 4, West of Zone I	Zone 4, West of Zone I	Zone 4, West of Zone I	Zone 4, West of Zone I
Sample Appearance	Fine, light brown sandy soil	Dark, fine soil with small roots and sticks	Dry, fine soil small rocks and roots	Dry, fine soil, small rocks and roots	Dark, fine soil, pieces of brick
Asbestos Present (Type and Percent)	Chrysotile: None Amosite: Found Crocidolite: Other:	Chrysotile: None Amosite: Found Crocidolite: Other:	Chrysotile: None Amosite: Found Crocidolite: Other:	Chrysotile: None Amosite: Found Crocidolite: Other:	Chrysotile: None Amosite: Found Crocidolite: Other:
Other Fibrous Material Present (Type and Percent)	Cellulose: 2% Mineral Wool: Other:	Cellulose: 5% Mineral Wool: Other:	Cellulose: 10% Mineral Wool: Other:	Cellulose: 10% Mineral Wool: Other:	Cellulose: Mineral Wool: none Other:
Non-Fibrous Material Present	sand	sand	sand	sand	sand, pebbles, bits of brick
Percent Total Asbestos Present in Sample	0%	0%	0%	0%	0%
Remarks	cellulose is roots	cellulose is roots	cellulose is roots	cellulose is roots	

### Asbestos Bulk Sample Analysis

PN: 00090015  
 Analyst: Dan Boudreau

FOR: Maty Ellen Stanton  
 OSC - EPA Region I

Analytical Method: PLM with Dispersion Staining  
 All quantities are Estimated Volume Percent

Laboratory ID No.	96721	96720	96721	96722	96723
Sample ID No.	WRG - 06	WRG-07	WRG - 08	WRG-09	WRG-10
Address or Building	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace
Location	Zone 4, West of Zone I	Zone 4, NE of Parkway Pond	Zone 4, N of Parkway Pond	Zone 4, South of path	Adjacent southern extent Zone I
Sample Appearance	Dark, fine soil small roots, bits of brick	Dry, fine sandy soil, small roots	Dark, fine soil small roots and rocks	Fine sandy soil small roots and rocks	Dark, fine soil, roots, sticks, small stones
Asbestos Present (Type and Percent)	Chrysotile: None Found Amosite: Found Crocidolite: Other:	Chrysotile: None Found Amosite: Found Crocidolite: Other:	Chrysotile: None Found Amosite: Found Crocidolite: Other:	Chrysotile: None Found Amosite: Found Crocidolite: Other:	Chrysotile: None Found Amosite: Found Crocidolite: Other:
Other Fibrous Material Present (Type and Percent)	Cellulose: 5% Mineral Wool: Other:	Cellulose: 2% Mineral Wool: Other:	Cellulose: 10% Mineral Wool: Other:	Cellulose: 1% Mineral Wool: Other:	Cellulose: 5% Mineral Wool: Other:
Non-Fibrous Material Present	Sand, bits or brick	Sand, bits of brick	Sand	Sand, pebbles	Sand, pebbles
Percent Total Asbestos Present in Sample	0	0	0	0	0
Remarks	Roots	Roots	Moss and roots	Roots	Roots



### Asbestos Bulk Sample Analysis

PN: 00090015  
 Analyst: Dan Boudreau

FOR: Mary Ellen Stanton  
 OSC - EPA Region I

Analytical Method: PLM with Dispersion Staining  
 All quantities are Estimated Volume Percent

Laboratory ID No.	96724	96725	96726	96727	96728
Sample ID No.	WRG-11	WRG-12	WRG-13	WRG-14	WRG15
Address or Building	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace
Location	Mound in Zone 4	North end of zone 4	North end of Zone 4	120' WNW of SW corner, Zone 2	110' W of SW corner Zone 2
Sample Appearance	Fine, sandy soil	Fine, dark soil small rocks and roots	Fine dark soil small roots	Fine dark soil small roots	Fine dark soil-soil rootsk bits of brick
Asbestos Present (Type and Percent)	Chrysotile: Trace Amosite: Crocidolite: Other:	Chrysotile: ND Amosite: Crocidolite: Other:	Chrysotile: ND Amosite: Crocidolite: Other:	Chrysotile: Trace Amosite: Crocidolite: Other:	Chrysotile: Trace Amosite: Crocidolite: Other:
Other Fibrous Material Present (Type and Percent)	Cellulose: 10% Mineral Wool: Other:	Cellulose: 50% Mineral Wool: Other:	Cellulose: 50% Mineral Wool: Other:	Cellulose: 25% Mineral Wool: Other:	Cellulose: 25% Mineral Wool: Other:
Non-Fibrous Material Present	Sand and pebbles	Sand and pebbles	Sand and pebbles	Sand and pebbles	Sand and pebbles
Percent Total Asbestos Present in Sample	<1% Trace	0	0	<1% Trace	<1% Trace
Remarks	2 fiber bundles	Cellulose is roots	Roots and grass	Roots and grass; 1 bundle	Roots and grass

### Asbestos Bulk Sample Analysis

PN: 00090015  
Analyst: Dan Boudreau

FOR: Mary Ellen Stanton  
OSC - EPA Region I

Analytical Method: PLM with Dispersion Staining  
All quantities are Estimated Volume Percent

Laboratory ID No.	96729	96730	96731	96732	96733
Sample ID No.	WRG-16	WRG-17	WRG-18	WRG-19	WRG-20
Address or Building	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace
Location	100' W of SW corner, Zone 2	100' W of SW corner, Zone 2	Zone 4 -80' NNW of SW corner, Zone 2	30' NW of SW corner, Zone 2	80' SW of SW corner, Zone 2
Sample Appearance	Fine dark soil, fiber bundles visible small rock-sticks	Fine dark soil, small rock, roots, piece of cardboard	Dark, loamy soil, small rocks	Fine, sandy soil, small rocks, roots	Dark, fine soil, many roots
Asbestos Present (Type and Percent)	Chrysotile: Trace Amosite: Crocidolite: Other:	Chrysotile: Trace Amosite: Crocidolite: Other:	Chrysotile: Trace Amosite: Crocidolite: Other:	Chrysotile: ND Amosite: Crocidolite: Other:	Chrysotile: ND Amosite: Crocidolite: Other:
Other Fibrous Material Present (Type and Percent)	Cellulose: 50% Mineral Wool: Other:	Cellulose: 50% Mineral Wool: Other:	Cellulose: 50% Mineral Wool: Other:	Cellulose: 50% Mineral Wool: Other:	Cellulose: 75% Mineral Wool: Other:
Non-Fibrous Material Present	Sand, pebbles, brick	Sand, pebbles	Sand, pebbles	Sand, pebbles	Coarse sand
Percent Total Asbestos Present in Sample	<1% Trace 1 bundle	<1%; Trace	<1%; Trace	0	0
Remarks	1 bundle found	2 bundles	3 bundles	many small roots	

## Asbestos Bulk Sample Analysis

**FOR:** Mary Ellen Stanton  
OSC - EPA Region I

PN: 00090015

**Analyst:** Dan Boudreau

Analytical Method: PLM with Dispersion Staining  
All quantities are Estimated Volume Percent

Laboratory ID No.	96734	96735	96736	96737	96738
Sample ID No.	WRG-21	WRG-22	WRG-23	WRG-24	WRG25
Address or Burldin	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace
Location	Zone 2 - 200' NW of Land in S fence	Zone 2 - 100' WNW of land in S fence	Zone 2 - 20' NE of land in southern fence	Northern Bio Bed, Middle of East side	Northern Bio Bed, center fo East half
Sample Appearance	Fine, dry soil, roots, small rocks	Sandy soil, small rocks	Fine sandy soil, several large pieces of concrete/plaster	Fine sandy soil, small roots	Fine sandy soil, small root, rocks
Asbestos Present (Type and Percent)	Chrysotile: ND Amosite: ND Crocidolite: Other:	Chrysotile: ND Amosite: Crocidolite: Other:	Chrysotile: Trace Amosite: Crocidolite: Other:	Chrysotile: Trace Amosite: Crocidolite: Other:	Chrysotile: Trace Amosite: Crocidolite: Other:
Other Fibrous Material Present (Type and Percent)	Cellulose: 10% Mineral Wool: Other:	Cellulose: 2% Mineral Wool: Other:	Cellulose: 5% Mineral Wool: Other:	Cellulose: 2% Mineral Wool: Other:	Cellulose: 10% Mineral Wool: Other:
Non-Fibrous Material Present	Sand, rocks, bits of brick	Sand, small rocks	Sand, several pieces of moss	Sand	Sand and small rocks
Percent Total Asbestos Present in Sample	0	0	<1%, Trace	<1% Trace	<1% Trace
Remarks			2 bundles	1 bundle	1 bundle

### Asbestos Bulk Sample Analysis

PN: 00090015  
 Analyst: Dan Boudreau

FOR: Mary Ellen Stanton  
 OSC - EPA Region I

Analytical Method: PLM with Dispersion Staining  
 All quantities are Estimated Volume Percent

Laboratory ID No	96739	96740	96741	96742	96743
Sample ID No	WRG-26	WRG-27	WRG-28	WRG-29	WRG-30
Address or Building	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace
Location	Southern Bio Bed, middle of East side	Southern Bio Bed, middle of North side	Southern Bio Bed, middle of South side	Zone 4, 40' N of Jerry Pond, 40' E of Birds' head	Zone 4 - NE corner of Jerry's Pond
Sample Appearance	Fine sandy soil	Dark, fine soil, small roots, rocks	Dark fine soil, small roots	Fine dark soil, small root	Fine, gray soil, small roots
Asbestos Present (Type and Percent)	Chrysotile: Trace Amosite: ND Crocidolite: ND Other: ND	Chrysotile: ND Amosite: ND Crocidolite: ND Other: ND	Chrysotile: ND Amosite: ND Crocidolite: ND Other: ND	Chrysotile: ND Amosite: ND Crocidolite: ND Other: ND	Chrysotile: ND Amosite: ND Crocidolite: ND Other: ND
Other Fibrous Material Present (Type and Percent)	Cellulose: 5% Mineral Wool: ND Other: ND	Cellulose: 5% Mineral Wool: ND Other: ND	Cellulose: 2% Mineral Wool: ND Other: ND	Cellulose: 10% Mineral Wool: ND Other: ND	Cellulose: 10% Mineral Wool: ND Other: ND
Non-Fibrous Material Present	Sand	Sand, pebbles	Sand, small rocks	Sand	Sand, small rocks
Percent Total Asbestos Present in Sample	<1% Trace	0	0	0	0
Remarks	1 bundle		Roots		

# Asbestos Bulk Sample Analysis

PN: 00090015  
 Analyst: Dan Boudreau

FOR: Mary Ellen Stanton  
 OSC - EPA Region I

Analytical Method: PLM with Dispersion Staining  
 All quantities are Estimated Volume Percent

Laboratory ID No.	96744	96745	96746	96747	96748
Sample ID No.	WRG-31	WRG-32	WRG-33	WRG-34	WRG-35
Address or Building	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace
Location	Zone 4 by NE side of Jerry's Pond	Zone 4 by NE side of Jerry's Pond	SW corner of farmer Lehigh foundation	Zone 5, - 40' N of WRG-36	Zone 5 - 80' N of Rindge 20' E AB Parkway
Sample Appearance	Dark, fine, peaty soil	Dark, fine, peaty soil	Fine, dark soil, small roots	Sandy soil, small rocks and roots	Dry, fine, sandy soil, several rocks, roots
Asbestos Present (Type and Percent)	Chrysotile: ND Amosite: ND Crocidolite: ND Other: ND	Chrysotile: ND Amosite: ND Crocidolite: ND Other: ND	Chrysotile: ND Amosite: ND Crocidolite: ND Other: ND	Chrysotile: ND Amosite: ND Crocidolite: ND Other: ND	Chrysotile: ND Amosite: ND Crocidolite: ND Other: ND
Other Fibrous Material Present (Type and Percent)	Cellulose: 10% Mineral Wool: ND Other: ND	Cellulose: 10% Mineral Wool: ND Other: ND	Cellulose: 5% Mineral Wool: ND Other: ND	Cellulose: 25% Mineral Wool: ND Other: ND	Cellulose: 1% Mineral Wool: ND Other: ND
Non-Fibrous Material Present	Sand, fine soil	Sand, fine soil	Sand, small rocks, dark fine soil	Sand, roots, pebbles	Sand
Percent Total Asbestos Present in Sample	0	0	0	0	0
Remarks					

## Asbestos Bulk Sample Analysis

PN: 00090015  
 Analyst: Dan Boudreau

FOR: Mary Ellen Stanton  
 OSC - EPA Region I

Analytical Method: PLM with Dispersion Staining  
 All quantities are Estimated Volume Percent

Laboratory ID No	96749	96250	96251	96252	96256
Sample ID No	WRG-36	WRG-37	WRG-38	WRG-39	WRG-01
Address or Building	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace
Location	SW corner Zone 5, 30' N of Rindge	East side of Jerry's Pond (North)	East side of Jerry's Pond (South)	Zone 4 - 30' NW of NW field fence corner	½ way btm. Eastern extents Zone 1 and 2
Sample Appearance	Dry fine sandy soil, small rocks, roots	Dark, fine soil, small pieces	Moist, dark, sandy soil, many roots, grass	Fine, sandy soil, small rocks	Piece of concrete like material, brown/gray with fibers visible
Asbestos Present (Type and Percent)	Chrysotile: ND Amosite: ND Crocidolite: ND Other: ND	Chrysotile: ND Amosite: ND Crocidolite: ND Other: ND	Chrysotile: ND Amosite: ND Crocidolite: ND Other: ND	Chrysotile: ND Amosite: ND Crocidolite: ND Other: ND	Chrysotile: 15% Amosite: ND Crocidolite: ND Other: ND
Other Fibrous Material Present (Type and Percent)	Cellulose: 5% Mineral Wool: ND Other: ND	Cellulose: 1% Mineral Wool: ND Other: ND	Cellulose: 25% Mineral Wool: ND Other: ND	Cellulose: 3% Mineral Wool: ND Other: ND	Cellulose: None Mineral Wool: ND Other: ND
Non-Fibrous Material Present	Sand, bits of brick	Fine dark soil	Sand, pebbles	Sand, pebbles	Sand, pebbles
Percent Total Asbestos Present in Sample	0	0	0	0	15%
Remarks					

### Asbestos Bulk Sample Analysis

**FOR:** Mary Ellen Stanton  
 OSC - EPA Region I  
 PN: 00090015  
**Analyst:** Dan Boudreau  
 Analytical Method: PLM with Dispersion Staining  
 All quantities are Estimated Volume Percent

Laboratory ID No	96257	96258	96253	96254	96255
Sample ID No	SACM - 02	SACM - 03	MBTA - 01	MBTA - 02	MBTA - 03
Address or Building	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace
Location	Zone 4 - 30' NW of field fence corner	Zone 2	Drainage swale East Alewife Headhouse	Drainage swale corner NE Alewife Headhouse	Drainage swale East Alewife Head house
Sample Appearance	Concrete board with fiber bundles visible	Large pieces of material similar to SACM-1 and 2	Fine dark loam, small roots	Fine dark soil	Moist, dark soil, small roots
Asbestos Present (Type and Percent)	Chrysotile: 15% Amosite: Crocidolite: Other:	Chrysotile: 15% Amosite: Crocidolite: Other:	Chrysotile: ND Amosite: Crocidolite: Other:	Chrysotile: ND Amosite: Crocidolite: Other:	Chrysotile: ND Amosite: Crocidolite: Other:
Other Fibrous Material Present (Type and Percent)	Cellulose: Mineral Wool: Other:	Cellulose: Mineral Wool: Other:	Cellulose: 50% Mineral Wool: Other:	Cellulose: 10% Mineral Wool: Other:	Cellulose: 25% Mineral Wool: Other:
Non-Fibrous Material Present	Sand, pebbles	Sand, pebbles	Sand, pebbles	Sand, pebbles	Sand
Percent Total Asbestos Present in Sample	15%	15%	0	0	0
Remarks			Sewage odor		Sewage odor

### Asbestos Bulk Sample Analysis

PN: 00090015  
Analyst: Dan Boudreau

FOR: Mary Ellen Stanton  
OSC - EPA Region I

Analytical Method: PLM with Dispersion Staining  
All quantities are Estimated Volume Percent

Laboratory ID No.	96259	96261	96262	96263
Sample ID No.	COC - 01	COC - 03	COC - 04	COC - 05
Address or Building	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace
Location	Lettuce patch next to Harvery	N side of path from RFP to Clinton	2 <sup>nd</sup> base of ball field by soccer field	Pitchers mound of ballfield by Rindge
Sample Appearance	Fine dark soil, small roots	Fine, dark gray soil	Sand	Sand
Asbestos Present (Type and Percent)	Chrysotile: ND Amosite: Crocidolite: Other:	Chrysotile: ND Amosite: Crocidolite: Other:	Chrysotile: ND Amosite: Crocidolite: Other:	Chrysotile: ND Amosite: Crocidolite: Other:
Other Fibrous Material Present (Type and Percent)	Cellulose: 10% Mineral Wool: Other:	Cellulose: 10% Mineral Wool: Other:	Cellulose: None Mineral Wool: Other:	Cellulose: None Mineral Wool: Other:
Non-Fibrous Material Present	Sand	Sand, pebbles	Sand	Sand
Percent Total Asbestos Present in Sample	0	0	0	0
Remarks				



### Asbestos Bulk Sample Analysis

PN: 00090015  
 Analyst: Dan Boudreau

FOR: Mary Ellen Stanton  
 OSC - EPA Region I

Analytical Method: PLM with Dispersion Staining  
 All quantities are Estimated Volume Percent

Laboratory ID No.	96264	96265	96266	96267	96268
Sample ID No.	OAC - 01	OAC - 02	OAC - 03	OAC - 04	OAC - 05
Address or Buildin	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace	W.R. Grace
Location	Northeast corner of I Alewife	Northwest corner of I Alewife	Westside(middle) of Alewife	Southwest corner of I Alewife	40' East of South I Alewife Entrance
Sample Appearance	Fine dark soil, small roots	Fine dark soil, small roots	Fine sandy soil, small rocks, roots	Sandy soil, root, small rocks	Dark, sandy soil, small rocks, roots
Asbestos Present (Type and Percent)	Chrysotile: ND Amosite: Crocidolite: Other:	Chrysotile: ND Amosite: Crocidolite: Other:	Chrysotile: ND Amosite: Crocidolite: Other:	Chrysotile: ND Amosite: Crocidolite: Other:	Chrysotile: ND Amosite: Crocidolite: Other:
Other Fibrous Material Present (Type and Percent)	Cellulose: 2% Mineral Wool: Other:	Cellulose: 2% Mineral Wool: Other:	Cellulose: 2% Mineral Wool: Other:	Cellulose: 5% Mineral Wool: Other:	Cellulose: 5% Mineral Wool: Other:
Non-Fibrous Material Present	Sand, small pebbles	Sand, pebbles	Coarse sand	Sand, pebbles	Sand, pebbles
Percent Total Asbestos Present in Sample	0	0	0	0	0
Remarks					

### Asbestos Bulk Sample Analysis

PN: 000900015  
 Analyst: Dan Boudreau

FOR: Mary Ellen Stanton  
 OSC - EPA Region 1

Analytical Method: PLM with Dispersion Staining  
 All quantities are Estimated Volume Percent

Laboratory ID No	Blank 9/12	Blank 9/13	Blank 9/14	BTT Blank 9/15
Sample ID No.	RTI	RTI #16	RTI #16	RTI #16
Address or Building				
Location				
Sample Appearance	Pink fibreglass	Pink fibreglass	Pink fibreglass	Pink fibreglass
Asbestos Present (Type and Percent)	Chrysotile: Amosite: Crocidolite: 0 Other:	Chrysotile: Amosite: Crocidolite: 0 Other:	Chrysotile: Amosite: Crocidolite: 0 Other:	Chrysotile: Amosite: Crocidolite: 0 Other:
Other Fibrous Material Present (Type and Percent)	Cellulose: Mineral Wool: 100% Other:	Cellulose: Mineral Wool: 100% Other:	Cellulose: Mineral Wool: 100% Other:	Cellulose: Mineral Wool: Other:
Non-Fibrous Material Present				
Percent Total Asbestos Present in Sample	0	0	0	0
Remarks	1.605 Isotropic	1.55 Isotropic	1.68 Isotropic	1.55 Isotropic

SITE: W. R. GRACE  
CASE: 0372F SDG: D03273\_J  
LABORATORY: EMS LABORATORIES

TABLE 1  
ASBESTOS SOIL ANALYSIS  
% By Weight

SAMPLE NUMBER: D03273 D03274 D03275 D03276 D03277 D03278 D03279 D03280  
SAMPLE LOCATION: WRG-15 WRG-14 WRG-12 WRG-16 WRG-05 WRG-11 WRG-06 WRG-07  
LABORATORY NUMBER: 68485-73 68485-74 68485-75 68485-76 68485-77 68485-78 68485-79 68485-80

ASBESTOS FIBER TYPE	DETECTION LIMIT	0.0002%	0.0030%	0.0030%	0.0040%	0.0200%	0.0020%	0.0020%	0.0020%	0.0020%	0.0020%	0.0030%	0.0030%	0.0030%
CHRYSOTILE	0.0002%	--	--	--	--	--	--	--	--	--	--	--	--	--
AMPHIBOLE	0.0002%	--	--	--	--	--	--	--	--	--	--	--	--	--
AMOSITE	0.0002%	--	--	--	--	--	--	--	--	--	--	--	--	--
ANTHOPHYLLITE	0.0002%	--	--	--	--	--	--	--	--	--	--	--	--	--
TREMOLITE	0.0002%	--	--	--	--	--	--	--	--	--	--	--	--	--
ACTINOLITE	0.0002%	--	--	--	--	--	--	--	--	--	--	--	--	--
CROCIDOLITE	0.0002%	--	--	--	--	--	--	--	--	--	--	--	--	--

NOTE: -- = NOT DETECTED.

SITE: W. R. GRACE  
CASE: 0372F SDG: D03273\_J  
LABORATORY: EMS LABORATORIES

TABLE 1  
ASBESTOS SOIL ANALYSIS  
% By Weight

SAMPLE NUMBER:	D03281	D03282	D03283	D03284	D03285	D03286	D03287	D03288
SAMPLE LOCATION:	WRG-09	MBTA-02	WRG-34	OAC-04	WRG-31	COC-01	WRG-39	WRG-21
LABORATORY NUMBER:	68485-81	68485-82	68485-83	68485-84	68485-85	68485-86	68485-87	68485-88

ASBESTOS FIBER TYPE	DETECTION LIMIT	0.0002%	0.0006%	0.0006%	0.0006%	0.0006%	0.0006%	0.0002%	0.0007%	0.0010%	0.0040%	0.0007%
CHRYSOTILE	0.0002%											
AMPHIBOLE												
AMOSITE	0.0002%	--	--									
ANTHOPHYLLITE	0.0002%	--	--									
TREMOLITE	0.0002%	--		0.0004%								
ACTINOLITE	0.0002%	--	--									
CROCIDOLITE	0.0002%	--	--									

NOTE: -- = NOT DETECTED.

SITE: W. R. GRACE  
CASE: 0372F SDG: D03273\_I  
LABORATORY: EMS LABORATORIES

TABLE 1  
ASBESTOS SOIL ANALYSIS  
% By Weight

SAMPLE NUMBER: D03289 WRG-25 68485-89 0.0050%  
SAMPLE LOCATION: D03290 WRG-22 68485-90 0.0003%  
LABORATORY NUMBER: D03291 WRG-32 68485-91 0.0003%  
D03292 WRG-30 68485-92 0.0004%  
D03293 WRG-17 68485-93 0.0050%  
D03294 WRG-36 68485-94 --  
D03295 WRG-18 68485-95 0.0030%  
D03296 WRG-26 68485-96 0.0020%

ASBESTOS FIBER TYPE	DETECTION LIMIT	0.0002%	0.0003%	0.0003%	0.0003%	0.0003%	0.0004%	0.0050%	--	0.0030%	0.0020%
CHRYSOPILE	0.0002%										
AMPHIBOLE	0.0002%										
AMOSITE	0.0002%	--	--	--	--	--	--	--	--	--	--
ANTHOPHYLLITE	0.0002%	--	--	--	--	--	--	--	--	--	--
TREMOLITE	0.0002%	--	--	--	--	--	--	--	--	--	--
ACTINOLITE	0.0002%	--	--	--	--	--	--	--	--	--	--
CROCIDOLITE	0.0002%	--	--	--	--	--	--	--	--	--	--

NOTE: -- = NOT DETECTED.

SITE: W. R. GRACE  
CASE: 0372F SDG: D03273.J  
LABORATORY: EMS LABORATORIES

TABLE 1  
ASBESTOS SOIL ANALYSIS  
% By Weight

SAMPLE NUMBER: D03297 D03298 D03299 D03300  
SAMPLE LOCATION: WRG-24 WRG-19 WRG-29 WRG-23  
LABORATORY NUMBER: 68485-97 68485-98 68485-99 68485-00

ASBESTOS FIBER TYPE	DETECTION LIMIT	0.0020%	0.0060%	0.0005%	0.0070%
CHRYSTOLE	0.0002%	--	--	--	--
AMPHIBOLE					
AMOSITE	0.0002%	--	--	--	--
ANTHOPHYLLITE	0.0002%	--	--	--	--
TREMOLITE	0.0002%	--	--	--	--
ACTINOLITE	0.0002%	--	--	--	--
CROCIDOLITE	0.0002%	--	--	--	--

NOTE: -- = NOT DETECTED.

SITE: W. R. GRACE  
CASE: 0370F SDG: D02388  
LABORATORY: STL - CHICAGO

TABLE 1  
TOTAL RECOVERABLE PETROLEUM HYDROCARBON ANALYSES  
mg/kg

TIER I - NON-VALIDATED RESULTS

SAMPLE NUMBER: D02388 D02389 D02390 D02391 D02392  
SAMPLE LOCATION: WRG-24 WRG-25 WRG-26 WRG-27 WRG-28  
LABORATORY NUMBER: 9A09G561-001 9A09G561-002 9A09G561-003 9A09G561-004 9A09G561-005

CRQL

PETROLEUM HYDROCARBONS	500	1200	1230	1500	1650	2040
Dilution Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Sampled:	09/06/00	09/06/00	09/06/00	09/06/00	09/06/00	09/06/00
Date Extracted:	09/14/00	09/14/00	09/14/00	09/14/00	09/14/00	09/14/00
Date Analyzed:	09/14/00	09/14/00	09/14/00	09/14/00	09/14/00	09/14/00
% Moisture:	8	9	9	9	11	15

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS.

SITE: W. R. GRACE  
CASE: 0370F SDG: D02388  
LABORATORY: STL - CHICAGO

TABLE 2  
SEMIVOLATILE SOIL ANALYSIS  
µg/kg  
TIER I - NON-VALIDATED RESULTS

COMPOUND	CRQL	D02388	D02389	D02390	D02391	D02392
		WRG-24	WRG-25	WRG-26	WRG-27	WRG-28
LABORATORY NUMBER:		9A09G561-001	9A09G561-002	9A09G561-003	9A09G561-004	9A09G561-005
Benzaldehyde	330	360 U	360 U	360 U	370 U	390 U
Phenol	330	360 U	360 U	360 U	370 U	390 U
bis(2-Chloroethyl)Ether	330	360 U	360 U	360 U	370 U	390 U
2-Chlorophenol	330	360 U	360 U	360 U	370 U	390 U
2-Methylphenol	330	360 U	360 U	360 U	370 U	390 U
2,2'-oxybis(1-Chloropropane)	330	360 U	360 U	360 U	370 U	390 U
Acetophenone	330	360 U	360 U	360 U	370 U	390 U
4-Methylphenol	330	360 U	360 U	360 U	370 U	390 U
N-Nitroso-di-n-propylamine	330	360 U	360 U	360 U	370 U	390 U
Hexachloroethane	330	360 U	360 U	360 U	370 U	390 U
Nitrobenzene	330	360 U	360 U	360 U	370 U	390 U
Isophorone	330	360 U	360 U	360 U	370 U	390 U
2-Nitrophenol	330	360 U	360 U	360 U	370 U	390 U
2,4-Dimethylphenol	330	360 U	360 U	360 U	370 U	390 U
bis(2-Chloroethoxy)methane	330	360 U	360 U	360 U	370 U	390 U
2,4-Dichlorophenol	330	360 U	360 U	360 U	370 U	390 U
Naphthalene	330	*11000	1000	*7800	*14000	*24000
4-Chloroaniline	330	360 U	360 U	360 U	370 U	390 U
Hexachlorobutadiene	330	360 U	360 U	360 U	370 U	390 U
Caprolactam	330	360 U	360 U	360 U	370 U	390 U
4-Chloro-3-methylphenol	330	360 U	360 U	360 U	370 U	390 U
2-Methylnaphthalene	330	920	58 J	240 J	400	730
Hexachlorocyclopentadiene	330	360 U	360 U	360 U	370 U	390 U
2,4,6-Trichlorophenol	330	360 U	360 U	360 U	370 U	390 U
2,4,5-Trichlorophenol	830	900 U	910 U	910 U	920 U	980 U
1,1-Biphenyl	330	360 U	360 U	360 U	370 U	390 U
2-Chloronaphthalene	330	360 U	360 U	360 U	370 U	390 U
2-Nitroaniline	830	900 U	910 U	910 U	920 U	980 U
Dimethylphthalate	330	360 U	360 U	360 U	370 U	390 U
2,6-Dinitrotoluene	330	360 U	360 U	360 U	61 J	390 U
Acenaphthylene	330	360 U	360 U	360 U	370 U	390 U
3-Nitroaniline	830	900 U	910 U	910 U	920 U	980 U
Acenaphthene	330	360 U	86 J	360 U	120 J	390 U
2,4-Dinitrophenol	830	900 U	910 U	910 U	920 U	980 U
4-Nitrophenol	830	900 U	910 U	910 U	920 U	980 U
Dibenzofuran	330	360 U	360 U	360 U	85 J	390 U
2,4-Dinitrotoluene	330	360 U	360 U	360 U	370 U	390 U
Diethylphthalate	330	360 U	360 U	360 U	370 U	390 U
Fluorene	330	360 U	80 J	360 U	140 J	390 U
4-Chlorophenyl-phenylether	330	360 U	360 U	360 U	370 U	390 U
4-Nitroaniline	830	900 U	910 U	910 U	920 U	980 U
4,6-Dinitro-2-methylphenol	830	900 U	910 U	910 U	920 U	980 U
N-Nitrosodiphenylamine (1)	330	360 U	360 U	360 U	370 U	390 U
4-Bromophenyl-phenylether	330	360 U	360 U	360 U	370 U	390 U
Hexachlorobenzene	330	360 U	360 U	360 U	370 U	390 U
Atrazine	330	360 U	360 U	360 U	370 U	390 U
Pentachlorophenol	830	900 U	910 U	910 U	920 U	980 U
Phenanthrene	330	300 J	880	420	1200	330 J
Anthracene	330	68 J	250 J	99 J	320 J	150 J
Carbazole	330	360 U	83 J	360 U	83 J	390 U
Di-n-butylphthalate	330	360 U	360 U	360 U	370 U	390 U
Fluoranthene	330	660	1500	980	1100	600
Pyrene	330	630	1500	940	1800	590
Butylbenzylphthalate	330	360 U	360 U	360 U	370 U	390 U
3,3'-Dichlorobenzidine	330	360 U	360 U	360 U	370 U	390 U
Benzo(a)anthracene	330	330 J	770	520	990	360 J
Chrysene	330	500	840	690	1400	510
bis(2-Ethylhexyl)phthalate	330	380	120 J	770	650	710
Di-n-octylphthalate	330	360 U	360 U	360 U	370 U	390 U
Benzo(b)fluoranthene	330	530	870	640	1500	2400
Benzo(k)fluoranthene	330	520	940	820	2000	2600
Benzo(a)pyrene	330	380	920	570	1500	810
Indeno(1,2,3-cd)pyrene	330	260 J	470	290 J	180 J	120 J
Dibenzo(a,h)anthracene	330	140 J	230 J	150 J	42 J	120 J
Benzo(g,h,i)perylene	330	290 J	560	290 J	300 J	210 J
DILUTION FACTOR:		1.0/5.0*	1.0	1.0/5.0*	1.0/5.0*	1.0/10*
DATE SAMPLED:		09/06/00	09/06/00	09/06/00	09/06/00	09/06/00
DATE EXTRACTED:		09/12/00	09/12/00	09/12/00	09/12/00	09/12/00
DATE ANALYZED:		09/13/00	09/13/00	09/13/00	09/13/00	09/13/00
% MOISTURE:		8	9	9	11	15

\*-Result reported from diluted analysis.

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS.



SITE: W. R. GRACE  
CASE: 0370F SDG: D02388  
LABORATORY: STL - CHICAGO

TABLE 3  
SEMIVOLATILE SOIL ANALYSIS  
µg/kg

SAMPLE NUMBER:  
SAMPLE LOCATION:  
LABORATORY NUMBER:

9

COMPOUND	CRQL
Benzaldehyde	330
Phenol	330
bis(2-Chloroethyl)Ether	330
2-Chlorophenol	330
2-Methylphenol	330
2,2'-oxybis(1-Chloropropane)	330
Acetophenone	330
4-Methylphenol	330
N-Nitroso-di-n-propylamine	330
Hexachloroethane	330
Nitrobenzene	330
Isophorone	330
2-Nitrophenol	330
2,4-Dimethylphenol	330
bis(2-Chloroethoxy)methane	330
2,4-Dichlorophenol	330
Naphthalene	330
4-Chloroaniline	330
Hexachlorobutadiene	330
Caprolactam	330
4-Chloro-3-methylphenol	330
2-Methylnaphthalene	330
Hexachlorocyclopentadiene	330
2,4,6-Trichlorophenol	330
2,4,5-Trichlorophenol	830
1,1-Biphenyl	330
2-Chloronaphthalene	330
2-Nitroaniline	830
Dimethylphthalate	330
2,6-Dinitrotoluene	330
Acenaphthylene	330
3-Nitroaniline	830
Acenaphthene	330
2,4-Dinitrophenol	830
4-Nitrophenol	830
Dibenzofuran	330
2,4-Dinitrotoluene	330
Diethylphthalate	330
Fluorene	330
4-Chlorophenyl-phenylether	330
4-Nitroaniline	830
4,6-Dinitro-2-methylphenol	830
N-Nitrosodiphenylamine (1)	330
4-Bromophenyl-phenylether	330
Hexachlorobenzene	330
Atrazine	330
Pentachlorophenol	830
Phenanthrene	330
Anthracene	330
Carbazole	330
Di-n-butylphthalate	330
Fluoranthene	330
Pyrene	330
Butylbenzylphthalate	330
3,3'-Dichlorobenzidine	330
Benzo(a)anthracene	330
Chrysene	330
bis(2-Ethylhexyl)phthalate	330
Di-n-octylphthalate	330
Benzo(b)fluoranthene	330
Benzo(k)fluoranthene	330
Benzo(a)pyrene	330
Indeno(1,2,3-cd)pyrene	330
Dibenzo(a,h)anthracene	330
Benzo(g,h,i)perylene	330

DILUTION FACTOR:  
DATE SAMPLED:  
DATE EXTRACTED:  
DATE ANALYZED:  
% MOISTURE:

\*-Result reported from diluted analysis.

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS

SITE: W. R. GRACE  
CASE: 0370F SDG: D02388  
LABORATORY: STL - CHICAGO

TABLE 3  
PESTICIDE/POLYCHLORINATED BIPHENYL SOIL ANALYSIS  
µg/kg

TIER 1 - NON-VALIDATED RESULTS

SAMPLE NUMBER: D02388 D02389 D02390 D02391 D02392  
SAMPLE LOCATION: WRG-24 WRG-25 WRG-26 WRG-27 WRG-28  
LABORATORY NUMBER: 9A09G561-001 9A09G561-002 9A09G561-003 9A09G561-004 9A09G561-005

COMPOUND	CRQL	33	67	33	33	33	33	33	33
Aroclor-1016		36 U	72 U	36 U	36 U	36 U	36 U	36 U	39 U
Aroclor-1221		72 U	72 U	72 U	72 U	72 U	74 U	74 U	79 U
Aroclor-1232		36 U	36 U	36 U	36 U	36 U	37 U	37 U	39 U
Aroclor-1242		36 U	36 U	36 U	36 U	36 U	37 U	37 U	39 U
Aroclor-1248		36 U	36 U	36 U	36 U	36 U	37 U	37 U	39 U
Aroclor-1254		46	51	260	260	260	100	100	150
Aroclor-1260		36 U	36 U	36 U	36 U	36 U	37 U	37 U	39 U

DILUTION FACTOR: 1.00 1.00 1.00 1.00 1.00  
DATE SAMPLED: 09/06/00 09/06/00 09/06/00 09/06/00 09/06/00  
DATE EXTRACTED: 09/12/00 09/12/00 09/12/00 09/12/00 09/12/00  
DATE ANALYZED: 09/12/00 09/12/00 09/12/00 09/12/00 09/12/00  
% MOISTURE: 8 9 9 11 15

NOTE: RESULTS ARE REPORTED ON A DRY WEIGHT BASIS.