

SITE QUALITY ASSURANCE PROJECT PLAN
OFF-SITE ASBESTOS SITE
HAMILTON AND LAWRENCE TOWNSHIPS, NEW JERSEY

APRIL 2006

SOIL SAMPLING

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The following elements are provided in the RST Generic Quality Assurance Project Plan (QAPP) and are included by reference:

QA REPORTS TO MANAGEMENT
PREVENTIVE MAINTENANCE PROCEDURES AND SCHEDULES
RECORDS MANAGEMENT SYSTEM
LOGBOOK PROGRAM
QUALITY-RELATED DOCUMENTS
INSPECTION/ACCEPTANCE REQUIREMENTS FOR SUPPLIES AND CONSUMABLES

LIST OF TABLES

TABLE 1: Quality Assurance Objectives
TABLE 2: Field Sampling Summary
TABLE 3: QA/QC Analysis And Objectives Summary

LIST OF ATTACHMENTS

ATTACHMENT A: Quality Assurance Project Plan for the Region II START Removal Support Team (RST) Contract; Approval Page. August 2000, revised February 2001.
ATTACHMENT B: Figure 1 - Site Location Map
ATTACHMENT C: EPA/ERT SOP #2012 - Soil Sampling

1.0 INTRODUCTION

Presented herein is the Site Quality Assurance Project Plan (QAPP) for the soil sampling to be conducted at the private residential properties and public recreation areas in Hamilton Township, Lawrence Township, and the City of Trenton, to determine if the asbestos contamination found at the former W.R. Grace/Zonolite Site, located in Hamilton Township, Mercer County, New Jersey has migrated off site. The site QAPP has been developed at the request of the EPA in accordance with the RST generic QAPP (August 2000, revised February 2001). A copy of the generic QAPP approval signature page is included in Attachment A.

This plan is based on information currently available and may be modified on site in light of field screening results and other acquired information. All deviations from the QAPP will be noted in the Sampling Trip Report.

2.0 PROJECT DESCRIPTION

The EPA is investigating the former W.R. Grace facility and adjacent parcels as part of a larger, nation-wide investigation that addresses potential asbestos contamination at vermiculite processing and handling facilities that received vermiculite ores from the W.R. Grace mine in Libby, Montana. Ores from that mine contain varying amounts of asbestos.

To assess whether air emissions from the former W.R. Grace vermiculite exfoliation plant have resulted in the deposition and accumulation of asbestos fibers unique to Libby, Montana, RST will be collecting surface soil samples (0-3") from 18 parks and from as many as 25 residential properties in Hamilton Township, Lawrence Township, and Trenton. Since the soil sampling is being conducted in areas where residential activities may disturb the soil, a site-specific action level of 0.25% has been generated to be more protective of human health. Science has indicated that concentrations of asbestos greater than 0.25% in soil can release asbestos fibers into the air when the soil is disturbed, resulting in air concentrations that are above the OSHA PEL of 0.1 f/cc.

The sampling locations at the public recreation areas are within a two mile radius from the site, and the residential properties are within a half mile from the site. The sampling locations were selected by the EPA based on historic climatic conditions, with input from officials from Hamilton Township, Lawrence Township, and the City of Trenton. Approximately five samples, which will be determined by the OSC in the field, will be collected at each of the locations.

3.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

The EPA On-Scene Coordinator (OSC), Kim Staiger, or a designee, will provide overall direction to the staff concerning project sampling needs, objectives, and schedule. The RST Site Project Manager (SPM), Dean Maser, will be the primary point of contact with the OSC. The SPM is responsible for the development and completion of the Sampling Quality

Assurance/Quality Control (QA/QC) Plan, project team organization, and supervision of all

project tasks, including reporting and deliverables. The Site QC Coordinator will be responsible for ensuring field adherence to the Sampling QA/QC Plan and recording of any deviations. The RST Quality Assurance Officer (QAO), Smita Sumbaly, will be the primary RST project team contact with the contracted analytical laboratory.

The following RST personnel will work on this project:

<u>Personnel</u>	<u>Responsibility</u>
Dean Maser	Site Project Manager, Site QA/QC, Health & Safety Coordinator, Sample Management, GPS
To Be Determined	Soil Sampling, Documentation
To Be Determined	Soil Sampling, Documentation
Smita Sumbaly	Laboratory Procurement, Coordination and Data Validation

The laboratory analyses of the samples will be conducted by a laboratory, which was audited by the EPA for use in the nationwide investigation of sites associated with the Libby, Montana, vermiculite mine:

<u>Lab Name/Location</u>	<u>Sample Type</u>	<u>Parameters</u>
EMSL 107 Haddon Avenue Westmont, NJ 08108	Soil	Asbestos - Polarized Light Microscopy (PLM) - Method CARB 435 with 1,000-point count for all samples (detection limit 0.1%)
EMSL 107 Haddon Avenue Westmont, NJ 08108	Soil	Asbestos - Transmission Electron Microscopy (TEM) - Method EPA 600/R-93/116, quantitative, with fiber identification and size classes (detection limit 0.25%).

Note: All samples will be analyzed for asbestos using the CARB 435 PLM Method. EPA and RST will review the PLM results and the EPA OSC will select up to 10% of the PLM samples for verification analyses by TEM, including fiber characterization (fiber type, aspect ratio, cut sizes, size distribution).

A laboratory turnaround time of two weeks for verbal, and three weeks for written results has been requested by the OSC.

4.0 DATA QUALITY OBJECTIVES, DATA USE OBJECTIVES, QA OBJECTIVES

In addition to the following, the Data Use Objectives and QA Objectives procedures will be in accordance with Sections A7, B2, B4, and B5 of the Region II RST QAPP.

EPA’s objectives for the proposed sampling event are to collect the data necessary to determine the extent of asbestos contamination and the percentage of asbestos fibers, if any, that are present in soils at the public recreation areas and residential lots. This objective will be achieved using PLM analysis. In addition, up to 10% of the samples analyzed by PLM will be characterized further by TEM analysis to determine fiber type, size, size distribution, and aspect (ratio of length to width). The collected data will then be used to determine whether the asbestos in the

soils pose a threat to human health and the environment. The data will also be used to determine if site conditions above meet the criteria for a removal action under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA).

4.1 Data Quality Objectives

The overall Data Quality Objective for the soil sampling event is to conduct a screening-level evaluation of the surficial soils within a two mile radius of the former Zonolite/W.R. Grace site to determine if asbestos concentrations greater than 0.25% have migrated beyond the site boundaries.

4.2 Data Use Objectives

The overall Quality Assurance (QA) objective for chemical measurement data associated with this sampling event is to provide analytical results that are legally defensible in a court of law. The QA program will incorporate Quality Control (QC) procedures for field sampling, chain of custody, laboratory analyses, and reporting to assure generation of sound analytical results.

The OSC has specified a level of QA-2 modified for the proposed surface and subsurface soil sampling for laboratory analysis. Details of this QA level are provided below.

4.3 QA Objectives

The following requirements apply to the respective QA Objectives and parameters identified.

The QA Protocols for a modified Level 2 QA differ from the standard QA Level 2 criteria in Matrix Spike/Matrix Spike Duplicate samples that (MS/MSD) are not included. The specific QA Level 2 modified protocols are applicable to all sample matrices and include:

1. Sample documentation in the form of field logbooks, appropriate field data sheets, and chain of custody records (chain of custody records are optional for field screening locations).
2. Calibration of all monitoring and/or field-portable analytical equipment prior to collection and analyses of samples with results and/or performance check procedures/methods summarized and documented in a field, personal, and/or instrument log notebook.
3. Field or laboratory determined method detection limits (MDLs) will be recorded along with corresponding analytical sample results, where appropriate.
4. Analytical holding times as determined from the time of sample collection through analysis. These will be documented in the field logbook or by the laboratory in the final data deliverable package.
5. Initial and continuous instrument calibration data.

6. QC blank results (rinsate, trip, method, preparation, instrument, etc.), as applicable.
7. Collection and analysis of blind field duplicate samples to provide a quantitative measure of the analytical precision and accuracy, as applicable.
8. Use of the following QC procedure for QC analyses and data validation:

 Definitive identification - confirm the identification of analytes on 100% of the “critical” samples, via an EPA-approved method; provide documentation such as gas chromatograms, mass spectra, etc.

The objective of this project/event applies to the following parameters:

TABLE 1: QUALITY ASSURANCE OBJECTIVES

QA Parameters	Matrix	Intended Use of Data	QA Objective
Asbestos by PLM Asbestos by TEM	Soil	Determine presence or absence of asbestos fibers and characterize the mineralogy of the asbestos fibers.	QA-2 modified

A Field Sampling Summary is attached in Table 2 and a QA/QC Analysis and Objectives Summary is attached in Table 3. Section 5.1, Sampling Design, provides information on analyses to be performed on the individual soil samples.

TABLE 2: FIELD SAMPLING SUMMARY

Analytical Parameters	Matrix	Container size/type	Preservation	Holding Time*	Subtotal Samples	Duplicate Samples	MS/MSD Samples	Total Field Samples
Asbestos by PLM	Soil	(1) 8-oz. glass jar	NR	180 days	200	10	NA	210
Asbestos by TEM	Soil	included in PLM volume	NR	180 days	20	1	NA	21

*: Holding time from date of sampling.

NA: Not applicable.

NR: Not required.

TABLE 3: QA/QC ANALYSIS AND OBJECTIVES SUMMARY

Analytical Parameter	Matrix	Analytical Method Reference	QA/QC Quantitation Limits	QA Objective
Asbestos - PLM	Soil	CARB (California Air Resources Board) 435	0.1%	QA-2 modified*
Asbestos -TEM	Soil	EPA 600/R-93/116	0.25%	QA-2 modified*

* includes field duplicate samples but no Matrix Spike/Matrix Spike Duplicate samples

5.0 APPROACH AND SAMPLING PROCEDURES

In addition to the following, the Approach and Sampling Procedures will be conducted in accordance with Sections B1 and B4 of the Region II RST QAPP.

The following sampling-related activities will be conducted by RST during soil sampling at the Off-Site Asbestos site:

1. Collection and description of surface soil samples ,(0-3");
2. Documentation of soil sample locations with GPS and/or site specific drawings;
3. Sample management with Scribe[®] software.

5.1 Sampling Design

An atmospheric modeling exercise was conducted by EPA/Environmental Response Team (ERT) Response, Engineering, and Analytical Contract (REAC) to determine the aerial extent of airborne emissions from the three stacks associated with the former plant. Based upon the model exercise, and the prevalence of a northwest to southwest wind, it was determined that the primary depositional areas would be located northeast to southeast of the site in a 45 to 135 degree arc, mostly within a half mile radius. To be conservative, the sampling has been extended to include sampling points in the public recreation areas located up to two miles from the former plant. The additional samples will ensure that an extremely high percentage of the areas that would receive possible areal deposition have been included in the current sampling event.

Five samples will be collected at each of the 18 public recreation areas and the private residential lots. The individual sampling locations will be randomly biased to areas of the property that have not been regraded or disturbed, and where wind-blown debris has a tendency to collect. The individual sampling locations at the residential lots will be determined in the field by the EPA based upon observations and interviews with residents and property owners, and will be representative of the locale sampled. The individual sampling locations at each of the public recreational areas will be biased to areas that can be accurately documented as undisturbed. Historical photographs and interviews will be utilized to determine locations within the public recreation areas that have not been regraded. If the photographs and interviews do not contain enough information to make the determination, soil samples will be collected in areas near immovable structures and large vegetation that would make regrading in these areas difficult.

Surface soil samples will be collected from 0 to 3 inches below the surface. Prior to sample collection, all vegetation, foliage and other non-soil material will be removed from the sampling location.

5.2 Schedule of Activities

Start Date	Activity	End Date
April 3, 2006	Surface Soil Sampling Sample Location Documentation	April 20, 2006

5.3 Sampling Equipment

Surface soil samples will be collected utilizing disposable plastic scoops and transferred directly into plastic bags for homogenization. After homogenization, the soil will be transferred into glass jars for shipment to the laboratory. If required, a decontaminated stainless steel scoop or cleaned shovel will be used to remove grass or other vegetation from the sampling location before the collection of the soil. The stainless steel scoop or shovel will be scrubbed with detergent water and rinsed with potable water between locations.

5.4 Sample Identification System

Each sample collected by RST will be identified using a unique code consisting of a project identifier, an abbreviation for the individual park or residence, and the number of the individual sample at each of the public recreation areas or residential lots (1 through 5). The project code for the Off-Site Asbestos site is 'OSA'. The following abbreviations will be used for the public recreation areas and residential lots:

<u>Parks:</u>	<u>Abbreviation:</u>	<u>Municipality:</u>
Amherst Park	AMP	Hamilton Township
Assunpink Park - George Page Park	APG	Trenton
Assunpink Park - Hetzel Field	APH	Trenton
Bromley Park	BP	Hamilton Township
Brook Lane Field	BLF	Hamilton Township
Colonial Lake Park	CLP	Lawrence Township
Connecticut Park	CP	Hamilton Township
Darcy Street Park	DSP	Hamilton Township
Eastern Park	EP	Lawrence Township
Farmingdale Park	FP	Hamilton Township
George Dick Field	GDF	Hamilton Township

Grounds for Sculpture	GS	Hamilton Township
Hammett Park	HP	Lawrence Township
Kuser Park	KP	Hamilton Township
Municipal Bldg. Athletic Fields	MBF	Hamilton Township
Thomas Jeff Mem. Park	TJP	Hamilton Township
Turtle Back Park	TBP	Lawrence Township
Van Horn Park	VHP	Hamilton Township
Whitehead Park	WP	Hamilton Township

Residential Lot

Abbreviation:

Municipality:

***Confidential – Residential addresses to be released upon receipt of signed consent forms.**

The complete sample identifier OSA-MBF-5 would identify the fifth sample collected at the Municipal Building Athletic fields.

Field duplicate samples will be identified using the project code, followed by the abbreviation for the park or residence, and the number 6. The original and duplicate numbers will be cross-referenced in the site log book and the sampling trip report for the project.

5.5 Standard Operating Procedures (SOPs)

5.5.1 Sample Documentation

All sample documents will be completed legibly, in ink. Any corrections or revisions will be made by lining through the incorrect entry and by initialing the error.

FIELD LOGBOOK

The field logbook is essentially a descriptive notebook detailing site activities and observations so that an accurate account of field procedures can be reconstructed in the writer's absence. All entries will be dated and signed by the individuals making the entries, and should include (at a minimum) the following:

1. Site name and project number
2. Name(s) of personnel on site
3. Dates and times of all entries (military time preferred)

4. Descriptions of all site activities, site entry and exit times
5. Noteworthy events and discussions
6. Weather conditions
7. Site observations
8. Sample and sample location identification and description*
9. Subcontractor information and names of on-site personnel
10. Date and time of sample collections, along with chain of custody information
11. Record of photographs
12. Site sketches

* - The description of the sample location will be noted in such a manner as to allow the reader to reproduce the location in the field at a later date.

SAMPLE LABELS

Sample labels will clearly identify the particular sample, and should include the following:

1. Site/project number.
2. Sample identification number.
3. Sample collection date and time.
4. Designation of sample (grab or composite).
5. Sample preservation.
6. Analytical parameters.
7. Name of sampler.

Sample labels will be written in indelible ink and securely affixed to the sample container. All sample labels will be covered with clear tape to assure that all information remains legible. Tie-on labels can be used if properly secured.

CUSTODY SEALS

Custody seals demonstrate that a sample container has not been tampered with, or opened. The individual in possession of the sample(s) will sign and date the seal, affixing it in such a manner that the container cannot be opened without breaking the seal. The name of this individual, along with a description of the sample packaging, will be noted in the field logbook.

5.5.2 Sampling SOPs

The following Sampling SOPs will be used for this project:

Surface and Subsurface Soil Sampling

Surface and subsurface soil sampling activities will be conducted in accordance with guidelines outlined in EPA/ERT Soil Sampling SOP # 2012 (Attachment C).

5.5.3 Sampling Equipment Decontamination

If the use of non-disposable stainless steel scoops or a shovel is required for the removal of grass or other vegetation at a sampling location, adhering soil will be scraped off the implement at the sampling location to the greatest practical extent, followed by decontamination of sampling equipment conducted as follows:

- 1) Alconox detergent and potable water scrub,
- 2) Potable water rinse, and
- 3) Wrap or cover exposed ends of sampling equipment with aluminum foil (shiny side out) for transport and handling, unless used again immediately after decontamination.

5.5.4 Sample Handling and Shipment

Soil will be collected using disposable plastic scoops and transferred directly into plastic bags. The soil will be homogenized in the bags and then placed into a glass jar for transport to the laboratory. Pre-printed labels will be applied to the jar; sampling location, date and time will be entered with permanent marker. Samples will be delivered to the laboratory by RST or be picked up on site by a laboratory courier.

5.6 Sample Containers

All sample containers will meet the QA/QC specifications in OSWER Directive 9240.0-05A, "Specifications and Guidance for Contaminant Free Sample Containers".

5.7 Disposal of PPE and Decontamination Liquids

RST will collect all used PPE and disposable sampling equipment and remove any adhering soil to the greatest extent practicable, if required. The used PPE and disposable sampling equipment will then be bagged, taped, and secured in locked vehicles. Subsequently, the material will be disposed of in appropriate trash receptacles as municipal trash.

6.0 SAMPLE CUSTODY

In addition to the following, the Sample Custody procedure will be conducted in accordance with Section B3 of the Region II RST QAPP.

A chain of custody record will be maintained from the time the sample is taken to its final deposition. Every transfer of custody must be noted and signed for, and a copy of this record kept by each individual who has signed. When samples (or groups of samples) are not under direct control of the individual responsible for them, they must be stored in a locked container sealed with a custody seal. Specific information regarding custody of the samples projected to be collected on the weekend will be noted in the field logbook.

The chain of custody record should include (at minimum) the following:

1. Sample identification number
2. Sample information
3. Sample location
4. Sample date
5. Name(s) and signature(s) of sampler(s)
6. Signature(s) of any individual(s) with custody of samples

A separate chain of custody form must accompany each shipping container for each daily shipment. The chain of custody form must address all samples in that cooler, but not address samples in any other shipping container. This practice maintains the chain of custody for all samples in case of mis-shipment.

7.0 FIELD INSTRUMENT CALIBRATION AND PREVENTIVE MAINTENANCE

In addition to the following, the Field Instrument and Preventative Maintenance procedure will be conducted in accordance with Section B6 of the Region II RST QAPP.

The sampling team is responsible for assuring that a calibration/maintenance log will be brought into the field and maintained for each measuring device. Each log will include at a minimum, where applicable:

- name of device and/or instrument calibrated
- device/instrument serial and/or ID number
- frequency of calibration
- date of calibration
- results of calibration
- name of person performing the calibration
- identification of the calibrant

Equipment to be used each day will be calibrated prior to the commencement of daily activities.

8.0 ANALYTICAL METHODS

Analytical methods to be utilized in the analyses of samples collected during this sampling event are detailed in Table 3.

9.0 DATA REDUCTION, VALIDATION, AND REPORTING

In addition to the following, the Data Reduction, Validation, and Reporting procedure will be conducted in accordance with Sections D1, D2, and D3 of the Region II RST QAPP.

9.1 Deliverables

The RST SPM, Dean Maser, will maintain contact with the OSC, Kim Staiger, to keep her informed about the technical and financial progress of this project. This communication will commence with the issuance of the work assignment and project scoping meeting. Activities

under this project will be reported in status and trip reports and other deliverables (e.g., analytical reports, final reports) described herein. Activities will also be summarized in appropriate format for inclusion in monthly and annual reports.

The following deliverables will be provided under this project:

TRIP REPORT

A trip report will be prepared to provide a detailed accounting of what occurred during each sampling mobilization. The trip report will be prepared within one week of the last day of each sampling mobilization. Information will be provided on time of major events, dates, personnel on site (including affiliations), chain of custody documentation, sampling tracking table, and other pertinent information.

MAPS/FIGURES

Maps depicting site layout, contaminant source areas, and sample locations will be included in the trip report, as appropriate.

ANALYTICAL REPORT

An analytical report will be prepared for samples analyzed under this plan. Information regarding the analytical methods or procedures employed, sample results, QA/QC results, chain-of-custody documentation, laboratory correspondence, and raw data will be provided within this deliverable.

DATA REVIEW

A review of the data generated under this plan will be undertaken. The assessment of data acceptability or usability will be provided separately, or as part of the analytical report.

9.2 Data Validation

Data generated under this QAPP will be evaluated according to criteria contained in the Removal Program Data Validation Procedures that accompany OSWER Directive number 9360.4-1 and in accordance with applicable EPA Region II guidelines.

Laboratory analytical results will be assessed by the data reviewer for compliance with required precision, accuracy, completeness, representativeness, and sensitivity.

10.0 FIELD QUALITY CONTROL CHECKS AND FREQUENCY

This section details the QA/QC requirements for field activities performed during the sampling effort. In addition to the following, the Field Quality Control Checks and Frequency procedure will be conducted in accordance with Section B7 of the Region II RST QAPP.

General QA/QC procedures for a QA-Level 2 sampling event require the collection of one field

duplicate and one matrix spike/matrix spike duplicate sample for each matrix at a ratio of 1 per 20 samples. Field duplicate samples provide an indication of analytical variability and analytical error and will not be identified to the laboratory. However, since spiking of samples for asbestos analysis is not feasible, extra volume for matrix spike sample analysis will not be provided to the laboratory.

11.0 SYSTEM AUDIT

In addition to the following, the System Audit procedure will be conducted in accordance with Section C1 of the Region II RST QAPP.

The Field QA/QC Officer will observe sampling operations and review subsequent analytical results to ensure compliance with the QA/QC requirements of the project/sampling event.

12.0 CORRECTIVE ACTION

In addition to the following, the Corrective Action procedure will be conducted in accordance with Section C1 of the Region II RST QAPP.

All provisions will be taken in the field and laboratory to ensure that any problems that may develop will be dealt with as quickly as possible to ensure the continuity of the project/sampling events. Any deviations from this sampling plan will be noted in the final report.

ATTACHMENT A

**GENERIC RST QUALITY ASSURANCE PROJECT PLAN
APPROVAL PAGE**

ATTACHMENT B

FIGURE 1: SITE LOCATION MAP

ATTACHMENT C

EPA/ERT SOP # 2012 - SOIL SAMPLING