Work Plan For

LEAD-BASED PAINT RISK ASSESSMENT/INSPECTION SELECTED HOUSING AT GRIFFISS AIR FORCE BASE, NEW YORK

Contract: F41624-00-D-8024 DELIVERY Order: 0072

PREPARED FOR:

AFCEE

HQ AFCEE/ERB
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FEBRUARY 2002

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Prepared for:

Air Force Center for Environmental Excellence

Brooks Air Force Base, Texas

Prepared By:

PARSONS

Liverpool, New York

REVIEWED AND APPROVED BY:

Project Manager: _____ _____
Date

Technical Manager: _____ _____
Date

FEBRUARY 2002

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LIST OF ACRONYMS

AFBCA	Air Force Base Conversion Agency
AFCEE	Air Force Center for Environmental Excellence
AMSL	Above mean sea level
ANSI	American National Standards Institute
BLL	Blood Lead Levels
BRAC	Base Realignment and Closure
CAR	Corrective Action Request
CBC	Complete Blood Count
CFR	Code of Federal Regulations
COC	Chain of Custody
COR	Contracting Officer Representative
CQP	Construction Quality Plan
°C	Degrees Celsius
°F	Degrees Fahrenheit
DoD	Department of Defense
DOT	Department of Transportation
DT	Data Tracker
EPA	Environmental Protection Agency
FVC	Forced Vital Capacity
$FEV_{1.0}$	Forced Expiratory Volume in second
FSP	Field Sampling Plan
FT	Field Sampling Team
GAFB	Griffiss Air Force Base
GLDC	Griffiss Local Development Corporation
HASP	Health and Safety Plan
HEPA	High Efficiency Particulate Air

HSO	Health and Safety Officer
HUD	Housing and Urban Development
IDLH	Immediately Dangerous to Life and Health
LBP	Lead-Based Paint
KeV	Kilo electron volts
mg/cm^2	Milligrams per square centimeter
mg/kg	Milligrams per kilogram
mm	Millimeter
MOT	Materials of Trade
MS	Matrix Spike
MSD	Matrix Spike Duplicate
MSDS	Material Safety Data Sheet
NYSDEC	New York State Department of Environmental Conservation
OSHA	Occupational Safety and Health Administration
PM	Project Manager
PCS	Performance Characteristic Sheet
POC	Point of Contact
ppm	Parts per million
PPV	Public/Private Ventures
QA	Quality Assurance
QA/PMP	Quality Assurance/Program Management Plan
QAO	Quality Assurance Officer
QPP	Quality Program Plan
QA/QC	Quality Assurance/Quality Control
QC	Quality Control
SAP	Sampling and Analysis Plan
SDG	Sample Delivery Group
SHSO	Site Health and Safety Officer

T&M	Time and Material
TO	Task Order
TD	Technical Director
TSCA	Toxic Substances Control Act
µg/dl	Micrograms per deciliter
$\mu g/ft^2$	Micrograms per square foot
XRF	X-Ray Fluorescence

SECTION 1

INTRODUCTION

Parsons has been contracted by the Air Force Center for Environmental Excellence (AFCEE) to conduct a lead-based paint (LBP) risk assessment and inspection of selected facilities in the Woodhaven Housing Area at Griffiss Air Force Base (GAFB), Rome, New York. The LBP risk assessment and inspection will be conducted to facilitate transfer of the housing areas to the Griffiss Local Development Corporation (GLDC), a not-for-profit corporation created to re-develop excess property at the former GAFB.

This work plan was prepared to present the procedures for conducting of risk assessment and inspection. The project sampling and analysis plan (SAP) is included as Appendix A and the project Health and Safety Plan (HASP) is included in Appendix B. Appendix C presents copies of LBP certificates. Two teams of two members each will conduct the inspections and risk assessments. Suspect painted surfaces will be sampled using X-ray Fluorescence (XRF) instruments. Paint chips, dust, and soil samples will be submitted for laboratory analysis as appropriate. The XRF and laboratory results will be evaluated and presented in a report. A laboratory audit will be conducted with a focus on project specific requirements. Soil contamination in exceedance of Housing and Urban Development (HUD) and/or Title X criteria will be removed for offsite disposal.

1.1 PROJECT BACKGROUND

The former GAFB is located in Oneida County, New York, and approximately two miles northeast of the city of Rome in central New York State (Figure 1.1). The base property covers approximately 3,540 acres and is situated in the relatively broad valley of the Mohawk River, at an average elevation of 504 feet above mean sea level (AMSL).

GAFB was established in 1942 as a Strategic Air Command bomber support installation. The 416th Bombardment Wing was the host unit at GAFB. The 416th Bombardment Wing's mission was maintenance and implementation of effective air refueling operations, while providing long-range bombardment capability on a global scale. GAFB was realigned as part of a nationwide Base Realignment and Closure (BRAC) in October 1995, and much of its mission has since been transferred to other locations.

The Woodhaven Housing Area, a former military housing subdivision located just outside the main base gates (Figure 1.2), was made vacant as part of the closure process. The housing area is comprised of 270 residential units located within 143 buildings (50 single-family homes, 76 duplexes (152 units) and 17 fourplexes (68 units)) located on about 70 acres. The Woodhaven Housing Area was built by the Air Force in the 1950's to house military officers and enlisted personnel and their families stationed at the base. Since these residential units were constructed prior to 1978, inspection, risk assessment, and abatement for LBP hazards is required prior to the transfer of these housing areas to the GLDC under Section 1013 of Title X (42 U.S.C

4822). The required LBP evaluation will be conducted in accordance with the Air Force Base Conversion Agency (AFBCA) guidance "Operating Procedures for the Management of Lead-Based Paint at Air Force Base Realignment and Closure Installations" (May 2001), and applicable HUD, Environmental Protection Agency (EPA) and Department of Defense (DoD) requirements.

1.2 PROJECT OBJECTIVES

The objective of the LBP risk assessment and inspection is to support LBP disclosure requirements during the conveyance of target housing and residential real property. The intent of the investigation will be to identify, assess and document the presence of LBP and/or LBP hazards within the Woodhaven buildings, surrounding soil, and children's play areas. Both the LBP inspection and risk assessment are required to be performed prior to transfer, with the risk assessment conducted no more than 12 months prior to transfer.

The LBP inspection is used to establish the presence or absence of lead-based paint on interior and exterior surfaces. The risk assessment is conducted to assess whether painted surfaces, dusts, and soils represent LBP hazards and to identify options for hazard abatement. The objectives of this project are as follows:

- To identify the existence and location of LBP or document that no LBP has been identified.
- To identify the existence, nature, severity, source, and location of LBP hazards or document that no such hazards have been identified.
- To present various options for controlling lead hazards in the event that hazards are found.
- To remove LBP-impacted soils that present a potential health risk in accordance with HUD and Title X guidance.

1.3 BACKGROUND ON LEAD-BASED PAINT

1.3.1 Common Uses of Lead

Sources of lead in our environment include LBP, lead in water, lead-contaminated soil, and consumer products. The Consumer Products Safety Act restricted the amount of lead in paints manufactured after February 27, 1978 for sale directly to consumers and in paints to be used in residences, schools, hospitals, parks, playgrounds, public buildings and other areas where consumers have direct access to painted surfaces (non-industrial facilities). Federal law does not prohibit lead paints used in industrial facilities.

Certain types of paint applied before 1980 are more likely than others to contain lead. These are oil-based paints used in industrial facilities, on steel structures (water towers, pipelines, etc) and in yellow airfield and roadway pavement markings. They have excellent sealing (stain resistance) and anticorrosion properties and are very durable and resistant to ultraviolet light in sunlight. They were also applied to kitchens, bathrooms, and interior and exterior wood trim in residences. Latex paint for architectural use, which normally does not contain lead, became

popular after 1960, and nearly all paint applied after 1980 to the interior and exterior of houses and non-industrial buildings was latex paint. Use of latex paint was also reinforced by the Consumer Product Safety Act. However, because of its desirable properties and the lack of federal regulation, LBP continued to be used in industrial facilities, on steel structures and for pavement markings. Additionally, due to complex wording of the Consumer Product Safety Act, LBP may also be found in non-industrial facilities, primarily in primers on ferrous metal surfaces.

High levels of lead in soil around building foundations typically results from deteriorating exterior LBP on the buildings. The fallout of lead emissions from the combustion of leaded automobile gasoline, LBP, and industrial sources also contributes to lead levels in soil. In some areas, high levels of lead in soil result from factory and smelter emissions or deteriorating LBP on steel structures. Bare soil that is contaminated with lead poses a hazard to children who play in it. Lead in soil may also be tracked into a home, increasing interior leaded dust levels. In more rural areas, where many military installations are located, lead-tainted soil is found near facilities where deteriorated exterior paint has leached into the soil from rain. Very high levels of lead in soil have been found around steel structures such as bridges, water towers, and firing ranges.

Flaking and peeling paint represents an obvious exposure concern in homes, day care centers, schools, and playgrounds. Less obvious, but equally dangerous, is lead-containing dust generated during renovation, demolition, sanding, and stripping of painted surfaces. Lead-containing dust can also be generated when surface abrasion occurs during routine activities such as opening and shutting doors and windows.

Lead-containing pipes and other plumbing fixtures in many municipalities leach enough lead to be an exposure source. Even new brass fixtures, which have been allowed to contain up to 8 percent lead, can leach enough lead to cause the water to exceed the EPA drinking water standards.

Lead can be found in a wide variety of materials other than construction materials, such as welding and soldering materials and base metals, batteries, pavement and airfield paints, and solid-film lubricants. Firing ranges also present a significant potential exposure for lead, especially during backstop clean-outs or removal.

1.3.2 Health Effects of Lead

The toxic effects of lead on human beings have been known for many years. Acute overexposure to lead can kill in a matter of days. Chronic overexposure to lead in adults may result in severe damage to the blood-forming organs, and the nervous, urinary, and reproductive systems. The frequency and severity of medical symptoms increases with the concentration of lead in the blood. Many adults with Blood Lead Levels (BLLs) of 80 micrograms per deciliter (µg/dl) or greater have symptoms or signs of acute lead poisoning, although in some individuals, symptoms may be so mild that they are overlooked. Common symptoms of acute lead poisoning include: loss of appetite, nausea, vomiting, stomach cramps, constipation, difficulty in sleeping, fatigue, moodiness, headache, joint or muscular aches, anemia and decreased sexual drive. Long after exposure has ceased, physiological events such as illness or pregnancy may release stored

lead from bones and produce health effects such as impaired hemoglobin synthesis, alteration in the central and peripheral nervous systems, hypertension, effects on male and female reproductive systems, and damage to the developing fetus. These health effects may occur at BLLs below 50 μg/dl. Blood lead levels of workers, both male and female, who intend to have children, should be maintained below 30 μg/dl.

Lead poisoning is primarily found in young children. It results from the inhalation or ingestion of LBP or lead-contaminated dust, soil, dirt, water, air, etc. Unlike certain essential elements, such as zinc, lead provides no physiological purpose. Once ingested or inhaled, it passes to the blood and bone marrow. Ingestion of paint chips or dust containing lead can cause adverse health effects in children and adults. Lead compounds in paint applied to facilities can be a source of hazardous exposure to lead for military and civilian employees, their families, and contractors performing work in facilities. Children are at greater risk of lead poisoning due to their lower body weight, developing nervous system, and greater tendency to ingest paint chips/dust.

1.4 REGULATORY PERSPECTIVE

Procedures used to address LBP are principally represented by requirements contained in Title X. Title X is the Residential Lead-Based Paint Hazard Reduction Act, a portion of the Housing and Community Development Act of 1992 (42 U.S.C. 4851). Title X amends the Lead-Based Paint Poisoning Prevention Act and the Toxic Substances Control Act (TSCA) (42 U.S.C. 2681). For purposes of this report, "Title X" includes the implementing regulations under TSCA Section 403 and HUD Section 1012/1013. For federally-owned residential real property subject to disposition, Section 1013 of Title X (42 U.S.C. 4822) requires:

- The inspection, risk assessment, and abatement of lead-based paint hazards in target housing constructed prior to 1960.
- The inspection and risk assessment for target housing constructed between 1960 and 1978.

The regulation implementing Section 1013 of Title X, 24 Code of Federal Regulations (CFR) 35, was issued as a final rule on 15 September 1999 (64 FR 50140). Subparts of the regulation applicable to federally owned facilities are Subparts A, B, C, and R, and include the following requirements:

- Lead-based paint inspections and risk assessments must be performed for all target housing prior to sale/transfer.
- Risk assessments must be performed within 12 months of the date of transfer, and any abatement required must be conducted no later than 12 months after the completion of the risk assessment.
- The responsibility for abatement may be assumed by the transferee through the transfer agreement.
- Interim hazard standards for painted components, dusts, and soils are established for use until proposed regulations implementing TSCA Section 403 become effective.

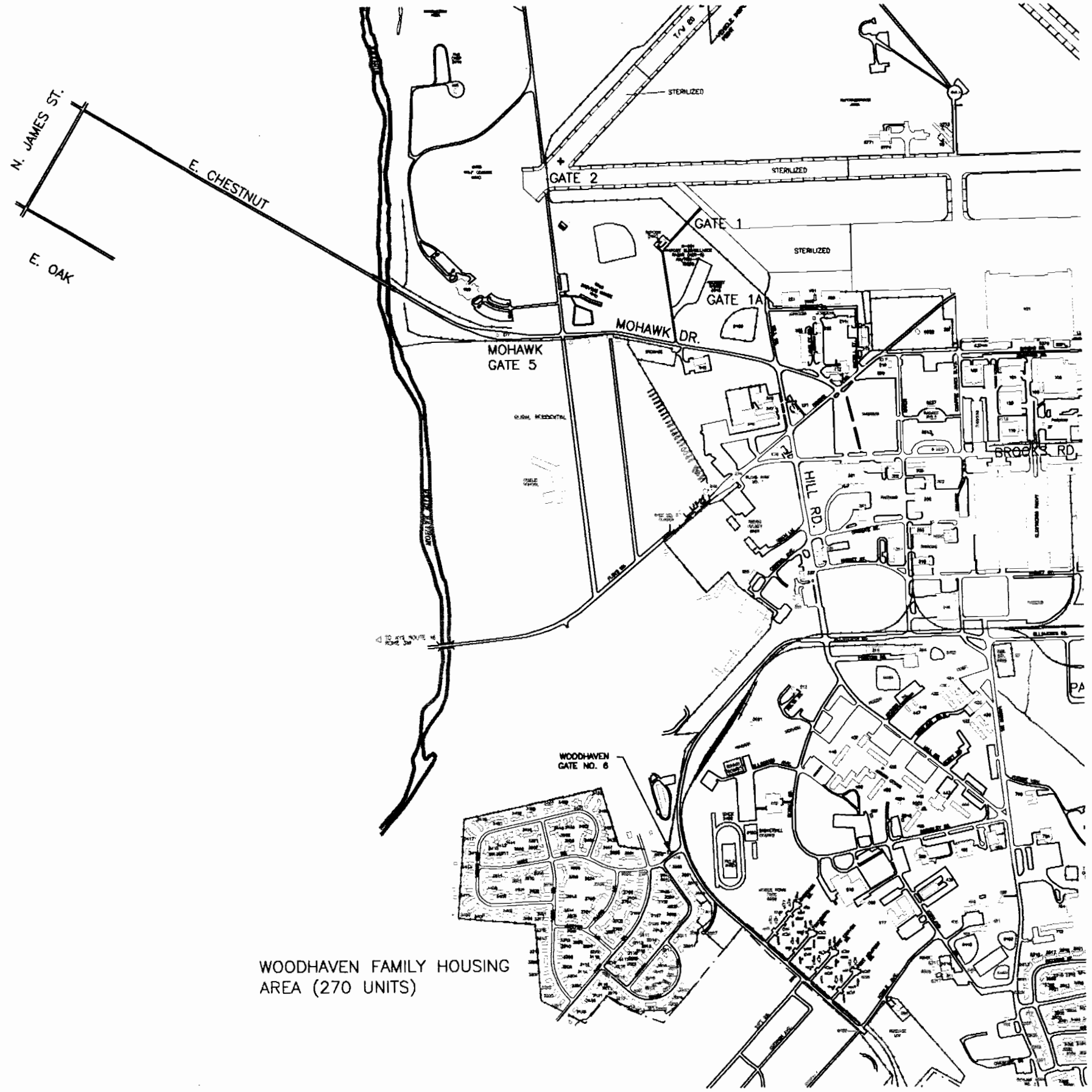
In addition, DoD requirements exceed both the current Title X regulations and the proposed 403 rule. These requirements represent DoD's commitment to exceed what is strictly required by law to ensure that actions taken are protective of children as established by the 1999 DoD "Lead-Based Paint Policy for Disposal of Residential Real Property." DoD policy requirements include:

- Soil-lead hazards surrounding target housing constructed between 1960 and 1978 will be abated. The purchaser may be required to perform the soil abatement as part of the transfer agreement.
- Potential soil-lead hazards (bare soils with lead concentrations between 400-2000 parts per million (ppm) (excluding children's play areas), will be evaluated for the need for abatement, interim controls or no action; the level of action will be determined by the lead-based paint risk assessment.
- Child-occupied facilities (day care centers, preschools, and kindergarten classrooms visited regularly by children under six years of age) located on residential real property that will be reused as child-occupied facilities following transfer will be evaluated for lead-based paint hazards. Hazards identified will be abated by the transferee prior to use as a child-occupied facility.
- Target housing that will be demolished and redeveloped as residential real property following transfer will be evaluated by the transferee for soil-lead hazards after demolition of the existing target housing units. Abatement of any soil-lead hazards will be conducted by the transferee prior to occupancy of any newly constructed dwellings.

These requirements expand the application of Title X requirements to include child-occupied facilities providing an added measure of protection for children. The DoD requirements also extends Title X abatement requirements to soil-lead hazards surrounding housing constructed between 1960 and 1978, ensuring that all soil-lead hazards are abated regardless of the age of the housing.

The AFBCA requirements for the evaluation, abatement, management, notice, and disclosure of LBP and LBP hazards when leasing or selling target housing, residential property, and child-occupied facilities is described in the May 2001 "Operating Procedures For the Management of Lead-Based Paint at Air Force Base Realignment and Closure Installations."

This revised document incorporates elements of the final HUD Title X Section 1013 and 1018 regulatory program, and the final Section 402 and 403 regulatory programs. These procedures update and supersede the 1996 Interim Operating Procedures which describe the procedures applicable to the transfer, sale, and lease of Air Force BRAC residential property, target housing, and child-occupied facilities for all transactions occurring before September 15, 2000. The revised procedures apply to all transactions occurring on or after September 15, 2000.



1000 500 0 1000 2000

SCALE: 1"=1000'

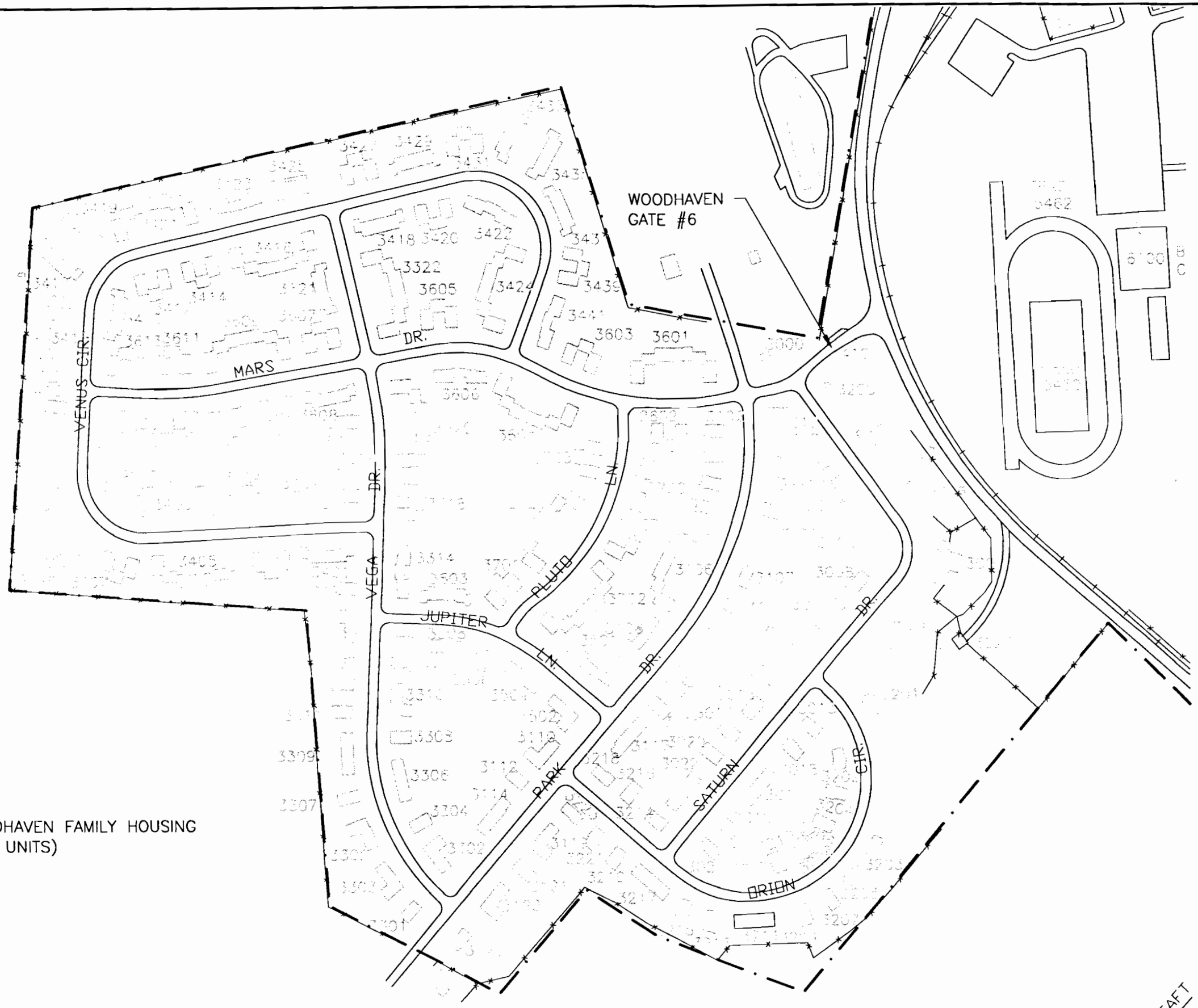
FIGURE 1.1

GRIFFISS AIR FORCE BASE
ROME, NEW YORK

SITE LOCATION MAP
FOR WOODHAVEN HOUSING AREA

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

No XREFs
P:\741316\CAD\316C002.dwg, 01/17/02 at 10:00, SEH, 1=1



WOODHAVEN FAMILY HOUSING
(270 UNITS)

250 0 250 500

SCALE: 1"=250'

FIGURE 1.2

GRIFFISS AIR FORCE BASE
ROME, NEW YORK

WOODHAVEN HOUSING AREA

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

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SECTION 2

SUMMARY OF PREVIOUS LEAD-BASED PAINT INSPECTIONS/ RISK ASSESSMENTS

In December 1992, Jack Eisenbach Engineering, P.C. completed inspections for LBP on interior building surfaces within the Woodhaven Housing Area at the former GAFB. Of the units investigated, 82 percent showed no LBP (Jack Eisenbach Engineering, P.C., 1993).

In January 1994, the Galson Corporation completed a more detailed inspection and assessment survey at the former GAFB. Prior to starting the survey, housing units were divided into seven categories based on common construction and painting histories (Table 2.1). Representative units within each of these building groups were selected for inspection and assessment in accordance with HUD guidance current at the time. Of the units inspected, 93 percent contained some LBP.

Sixteen MFH units were selected for XRF sampling in the Woodhaven area. LBP was found to exceed HUD's abatement action level on the following components at least once:

- Wood cabinet doors.
- Sheetrock ceilings.
- Metal and wood interior doors, door frames, and door jambs.
- Metal and wood exterior doors (outside).
- Exterior wood door frames.
- Wood thresholds.
- Exterior wood soffits and trim.
- Wood shelves and supports.
- Concrete, sheetrock, and wood walls.
- Wood window frames.

There were no positive results found for wood baseboards, closet doors, wood ceilings, exterior wood doors (inside), exterior foundations, wood facade, concrete floors, or stair components (Galson, 1995).

Although positive results from these two previous studies are valid, the negative results are invalid since the HUD requirements were changed in 1999. Based on the new HUD requirements, an insufficient number of units were assessed under each building group. In addition, the requirements for application of results in determining what is LBP-containing and what is not LBP-containing have changed. Under the 1999 HUD Guidance, a single positive

finding for a building component required that the same component in the other units within the same building group that were not inspected, be assumed to be LBP-containing.

Table 2.1: Lead-Based Paint Reporting Groups for the Woodhaven Housing Area.

Building-Type Identifier	Building Groups
WA	4 BD 1 Story
WB	4 BD Split Level Single/Duplex
WC	3 BD Split Level Single/Duplex
WD	4 BD Split Level Single/Duplex
WE	3 BD 2 Story Single/Duplex
WF	4 BD 1 Story Quad
WG	3 BD 1 Story Duplex/Quad

SECTION 3

LEAD-BASED PAINT INSPECTION/RISK ASSESSMENT

3.1 PROJECT MANAGEMENT ORGANIZATION

A team of appropriately trained and qualified professionals from Parsons will manage this project. Each member of the team has been assigned various duties related to the project. The key project team management members are briefly described below in terms of their project responsibilities.

Technical Director (TD) – Mr. David G. Johnson, P.E., D.E.E., will serve as the technical director for the project. He will provide technical advice, review and oversight for all aspects of the project to ensure that the project's technical requirements are met or exceeded.

Program Manager – Mr. Jack Sullivan Jr., P.E., will function as the Parsons Program Manager. Mr. Sullivan be responsible for contract administration, and will serve as primary client interface on programmatic issues.

Project Manager (PM) – Mr. Thomas H. Abrams will perform the duties of Project Manager. Mr. Abrams will coordinate all activities to meet the requirements of the task order scope of work and will ensure technical review of all deliverables. In addition, Mr. Abrams will be responsible for coordinating with the GAFB Point of Contact (POC) and the AFCEE Contracting Officer's Representative (COR).

Health and Safety Officer (HSO) – Mr. Dale R. Dolph, will be the site HSO. Mr. Dolph will advise the Project Manager on all aspects of health and safety on site. He has authority to stop work if any operation threatens worker or public health or safety.

3.2 POINTS OF CONTACT

The following are the points of contact for the project.

Captain Stephen Novak
(AFCEE COR)
AFCEE/EQT
3207 North Road
Brooks AFB, TX
78235-5363
(P) 210-536-6375
(F) 210-536-4254
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Parsons
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AFBCA/DA Environmental Section
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Rome, New York 13441-4105
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(F) 315-330-4062
(E) mmcdermott@afbda1.hq.af.mil

3.3 PROJECT PROCEDURES

3.3.1 Project Controls

Project procedures that will be used to control project deliverables, services, and activities include the following documents.

- Parsons Quality Assurance/Project Management Plan (QA/PMP).
- Parsons Resource and Information Systems Manager (PRISM) Cost Reporting System. PRISM is a project control and project management system designed to track and report costs associated with a project. It monitors budgeted, forecasted, and actual man-hours, and material commitment costs at cost code/cost type levels.

3.3.2 Form Of Contract

This project has been contracted to Parsons as a Time and Material Delivery Order from the HSW/PKVAB under the terms and conditions of Contract F41624-00-D-8024, Delivery Order No. 0072 and proposal dated December 12, 2001. Parsons will prepare invoices on a monthly basis.

3.3.3 Notifications to Client

Change in Contract Cost: Whenever Parsons has reason to believe that the total cost of work for a time and material (T&M) Task Order (TO) issued under this contract will be substantially greater or less than the previously estimated cost of the work, the project manager will notify the program manager and provide a revised estimate to complete the effort. The program manager will notify the COR in writing.

Cost Expenditure Notification: The project manager will prepare a notification letter to the contracting officer when the overall expenditures for a T&M task order are expected to hit 85 percent within the next 30 days. The letter should provide a statement regarding funds sufficient to complete the task order. There are no exceptions to this notification. This letter will be prepared for the program manager's signature and release.

Notification regarding change in professional staff: Advance notification to the COR will be conducted prior to making any changes in professional staff once a TO begins. The project manager will notify the program manager who will prepare and submit the notification letter.

Notification that comments are due on a report or other deliverable: Notification in writing will be made to the COR by the project manager if comments are not received from the government by the established due date. Failure to continue the project while awaiting comments will likely cause a situation requiring project extension. The program manager will be informed when such notifications must be made.

Notification that the project must be extended (excusable delay): The project manager will prepare documentation for submittal to the contracting officer stating there is an "excusable delay" and request an extension. Notification will be submitted to the COR by the program office.

Notice of schedule change. When the project manager and the COR agree that a schedule change that is within the framework of the SOW is required, the project manager will prepare a letter to the COR indicating concurrence on said change. The letter will be signed by the program manager. This applies only to changes that do not require contract modification.

3.3.4 Correspondence

All shipments (deliverables) under this contract shall be marked as indicated below. This includes Parsons' generated letters and memos. The subject block assists the reader in understanding the purpose of the document and enables accurate filing of the information. The subject block shall be as follows:

Contract F41624-00-D-8024

Task Order No.: 072

Project Title: Griffiss LBP Inspection/Assessment

Item Number: _____

CDRL* Sequence No.: _____

Purpose of Correspondence: _____

3.4 QUALITY MANAGEMENT

Parsons' quality assurance policy requires that every project have and implement a QA/PMP. Project activities will be performed in accordance with quality assurance/quality control (QA/QC) procedures that support this plan and ensure that the project will conform to the client's requirements. The goal of this plan is to ensure that the requirements of the project are clearly understood by the project team and met the first time, thereby preventing costly rework. The QA/PMP will be updated, as necessary, throughout the project.

3.4.1 Review

Technical and/or peer review of client deliverables will be performed prior to submittal of documents. Client deliverables that will be reviewed include all technical reports, studies, assessments, work plans, sampling and analysis plans, health and safety plans, drawings, specifications, calculations, and procurement/subcontract technical documents.

The TD and other technical management reviewers will verify that the correct technical approach is utilized and that work products are responsive to the project statement of work and regulatory requirements. Technical reviewers shall verify the adequacy of reference material used, technical procedures and approaches applied, drawing accuracy, and calculations made by authors. Authors will meet with technical/peer reviewers at an early stage in the project to ensure that they have an adequate understanding of the project prior to conducting the review.

For small documents (e.g. letters and small bound reports), at least one technically-qualified person will review the document for technical and non-technical aspects. For larger documents (e.g. large bound reports), several technically-qualified people will review the technical aspects of the document. In addition, a separate, non-technical reviewer will check the document, as appropriate. The project manager shall ensure that the appropriate level of document review is conducted.

3.4.2 Document Control and Records

Upon completion of technical/peer and non-technical reviews, reviewer comments shall be incorporated into the document as necessary. A Document Review Form will be signed by all reviewers and placed into the project files to document that the review was conducted. If reviewers provide comments directly on draft versions of the document, the draft versions shall be maintained in the project file until the final version has been approved. When the final version of the document has been approved, the draft versions shall be discarded. Records and documents shall be legible, identifiable, and retrievable. They shall also be protected against damage, deterioration, or loss.

3.4.3 Audits

Audits will be performed, as required, by the QAO and/or his representative, to ensure that project activities and client deliverables are being performed and reviewed in accordance with

project procedures and this QA/PMP. Audit reports will also document any deviation(s) from the plan and corrective actions performed. Results of audits will be filed in the project files.

3.5 SUBCONTRACTOR MANAGEMENT

The project manager will control and manage subcontractors in accordance with office procurement procedures. Office procedures include full integration of subcontractors into Parsons delivery order teams, clear and concise statements of work to be performed, designation of subcontractor personnel accountable for the work and clear identification of work products, delivery schedules and periodic reports. Subcontractors will be used for the following activities to support this project:

Activity	Subcontractor	Task Leader
Analytical	EMSL Analytical Laboratories Inc.	Tom Abrams
Removal of Lead Contaminated Soils	A.A.C. Contracting, Inc.	Tom Abrams
Lead-Based Paint Field Support	EMTEQUE	Tom Abrams

SECTION 4

INVESTIGATION PROCEDURES

This work plan includes a SAP (Appendix A) and a HASP (Appendix B). A brief overview of the project approach is presented below. The May 2001 DoD/EPA Field Guide will be used as a resource on the technical details of the evaluation, inspection, risk assessment, and abatement standards of Title X. This guide provides a useful summary of the standards and procedures contained in HUD's Title X 1013 regulations that mandate identification, assessment, and abatement of LBP hazards.

This section is broken down into five sections. The first three sections outline the units to be sampled, and briefly describe the inspection and assessment approaches. The last two sections provide additional information regarding site security and site preparation necessary to perform the stated work.

4.1 UNITS TO BE INSPECTED/ASSESSED

The Woodhaven Housing Area is comprised of 270 housing units located at the Woodhaven Housing Complex. Based on the survey conducted by Galson Corporation in 1993-1994 (Galson, 1995), the housing units were subdivided into seven groups based on similarities among building units (Table 2.1). Similar dwellings, as defined in the U.S. HUD guidelines, are dwellings of similar construction, built at the same time, and possessing a common maintenance, management, and painting history. Similar dwellings do not need to be in the same housing development or building or have the same number of rooms.

The scope of this work plan states that 160 of these residential units (constructed in 1959) will be inspected to determine the presence of LBP. In addition, 71 of these inspected units will undergo a risk assessment (Table 4.1). (The required number of units to be tested is determined in accordance with Table 7.3 in Chapter 7 of the HUD Guidelines.) The actual housing units to be inspected/assessed within each housing group have been selected randomly using the random number function in Microsoft Excel (Table 4.2).

Table 4.1 Number of Units to be Inspected/Assessed.

Unit Type	Total Number	To Be Inspected	To Be Assessed
WA	2	2	2
WB	19	19	10
WC	21	20	10
WD	37	29	10
WE	28	22	10
WF	24	20	10
QG	139	48	19
	270	160	71

4.2 INSPECTION APPROACH

An LBP inspection shall be conducted on selected units (Table 4.2) in the Woodhaven Housing Area using a portable X-ray Fluorescence (Niton XL-309 Spectrum Analyzers) analyzer to determine the presence of LBP.

The inspections will be conducted by two two-person teams equipped with one XRF unit each. The inspectors will be New York State EPA-certified LBP inspectors provided under subcontract to Emteque Corp. Both operators will be trained by NITON Corporation on the proper operating techniques and will have been issued certificates prior to their use. Field data will be downloaded and printed on a daily basis.

Representative XRF readings will be taken from each suspect component type. Sample data (i.e., room number, component type, component location/side, and component substrate) will be entered into the NITON XL. Following the entry of the above information, a measurement will be taken.

A re-inspection will be conducted on 5 percent (two units) of the units inspected for Quality Control (QC). The re-inspections will be conducted on units based on random selection. The re-inspection will not be conducted by the inspector that performed the initial inspection, but will be performed using the XRF unit that was used for the initial inspection. No paint samples will be collected as part of the inspection effort. Only those component types with 100 percent of the results as negative will be assumed to be non-LBP containing. (A detailed description of the XRF unit is provided for in Section 3.1 of the attached SAP.)

4.3 RISK ASSESSMENT APPROACH

Risk assessment and sampling will be conducted on selected housing units and will consist of a visual inspection in addition to the collection of multiple dust, paint chip and soil samples within these units (Table 4.2).

4.3.1 Visual Assessment

Field teams (three two-person teams consisting of one certified risk assessor and one support person) will conduct a complete walk-through of selected units with a focus on assessment of:

- Deteriorated painted surfaces;
- Areas of visible dust accumulation;
- Painted surfaces that are impact points or subject to friction;
- Painted surfaces on which a child may have chewed; and
- Areas of bare soil.

The assessed locations will be rated as either "intact," "fair," or "poor" based on the total area of deteriorated paint on each building component (as described in the SAP). The general condition of the building and the friction and impact surfaces will also be noted and common areas accessible to children will be evaluated.

4.3.2 Dust Sampling

Three to four composite dust wipe samples will be collected from the following locations within each of the assessed units:

- Bare floors.
- Interior windowsills.
- Window troughs.
- Floors with wall-to-wall carpeting (if present).

Composite samples will be collected from no more than four sub sample locations in accordance with HUD guidance. Rooms targeted include: apparent play areas (TV, living, or dining room), the kitchen, and the bedrooms of the youngest two children over six months of age (if no occupancy information is available, the smallest bedrooms will be targeted). Where appropriate, up to two additional dust wipe samples will be collected from common areas associated with the units and will be collected as follows:

- One from entry area floor surface.
- One from the floor of the first-story landing of the hallway, stairway, or hallway window.
- Additional wipe samples will be collected as deemed appropriate to assess basement areas and finished third floor areas.

4.3.3 Paint Chip Sampling

In accordance with HUD guidelines, paint samples will be collected only from surfaces with deteriorated paint, and only if LBP content cannot be adequately determined from the XRF results. The sample locations will be selected based on observations made during the visual assessment.

4.3.4 Soil Sampling

One to three composite soil samples will be collected from the following locations at each unit:

- Principal play area.
- Bare soil in front or back yard and/or at the foundation drip line.

Samples from the play areas or the yard will be collected from 3 to 10 locations at equal distances from each other in an "X" fashion. Samples from the foundation drip line will be collected from 3 to 10 locations two to three feet apart.

4.3.5 Additional Sampling

Quality assurance/quality control sampling will be limited to analysis of field blanks (unused wipes) for dust samples at a rate of one for every 50 samples, and one duplicate sample

for every 20 soil and paint chip samples. Equipment blanks will also be collected from the wipe templates and the soil scoop.

4.4 HAZARD EVALUATION APPROACH

Hazard evaluations and development of associated abatement recommendations for building groups where all of the units are physically assessed will be conducted based on actual observations and analytical findings. Lead-based paint hazard criteria, as defined by 24 CFR 35, Subpart R and DoD policy, for all three sources (painted surfaces [including accessible, friction, and impact surfaces], dusts, and soils) are summarized below. The criteria apply to target housing and child-occupied facilities.

4.4.1 Deteriorated Painted Surfaces

Painted surfaces must meet two conditions to be considered a LBP hazard: the paint film must contain LBP and the surface must be deteriorated. Intact surfaces containing lead-based paint are not considered LBP hazards and thus do not require abatement. Lead-based painted surfaces with deteriorated paint, regardless of the extent of the deterioration, must be abated.

4.4.2 Chewable (Accessible), Friction, and Impact Surfaces

Accessible, friction, and impact surfaces are a special class of painted surfaces with slightly different hazard assessment criteria as described below.

- A **friction surface** is an interior or exterior surface that is subject to abrasion or friction, including certain window, floor, and stair surfaces. Friction surfaces are considered a LBP hazard if all of the following three criteria are satisfied: the surface contains LBP, there is a dust lead hazard present on the nearest horizontal surface underneath the friction surface, and the surface is abraded. Lead-based paint hazards identified on friction surfaces must be abated.
- An **impact surface** is an interior or exterior surface that is subject to damage by repeated impacts from related building components, for example, certain parts of doorframes. An impact surface is a lead-based paint hazard if there is lead-based paint present, paint on the impact surface is deteriorated or damaged, and the damaged paint is caused by impact with a related building component. Lead-based paint hazards identified on impact surfaces must be abated.
- A **chewable** or **accessible surface** is an interior or exterior surface painted with LBP that is accessible to a young child to mouth or chew. An accessible surface is an LBP hazard if the painted surface contains lead and shows evidence of teeth marks. If an accessible surface is a LBP hazard, only the component bearing that surface should be abated. If no teeth marks are evident, the surface is considered to be intact and is not a LBP hazard.

4.4.3 Dusts

Lead-based paint hazard criteria for dusts or dust-lead hazards are defined for carpeted and uncarpeted floors and interior windowsills on the basis of either single surface or composite dust samples. If the floor and window sill composite or single surface dust wipe sample

concentrations from any given room or common area exceeds 40 ug/ft^2 on uncarpeted and carpeted floors or 250 ug/ft^2 on interior window sills, dusts in that room or common area represent a lead-based paint hazard, and the source of the dust should be identified and controlled. Although window troughs are addressed by the HUD guidance, the associated criterion of 800 ug/ft^2 is for abatement clearance only.

4.4.4 Soils

A soil-lead hazard is a concentration of lead in soil greater than or equal to 400 mg/kg in bare soils in children's play areas, or greater than or equal to 2,000 mg/kg in bare soil areas greater than 9 square feet based on a yard-wide arithmetic mean of composite samples. DoD requirements include identification of potential soil-lead hazards. DoD defines a potential soil-lead hazard as concentrations of lead in bare soil areas greater than 9 square feet surrounding a dwelling unit that are greater than or equal to 400 mg/kg and less than 2,000 mg/kg.

4.4.5 Quality Assurance/Quality Control (QA/QC)

QA/QC samples will consist of duplicate samples, field blanks, and equipment blanks.

4.4.6 Abatement Recommendation Criterion

Hazard evaluation and development of associated abatement recommendations for building groups where random selection strategy is used will be conducted as follows:

- **Dust**: If the dust level for a component in any of the physically-assessed units equals or exceeds the dust criteria then a hazard will be said to exist for all the units within the group unless data for a particular unit show otherwise.
- **Paint**: If a deteriorated paint surface is identified as LBP for a particular component within any of the units physically assessed then a hazard will be said to exist for this component for all the units within the group unless data for a particular unit show otherwise.
- **Soil:** If soils exceed the HUD criteria (400 mg/kg for playgrounds and apparent potential play areas and 1,200 mg/kg for all other bare soil areas greater than 9 square feet in area) then a hazard will be said to exist for similar conditions for all the buildings within the group unless data for a particular building show otherwise. Potential hazards will be identified for drip line results below the 2,000 mg/kg threshold for non-play area bare soils, but above the 400 mg/kg threshold for play area soils.

Analytical results will be compared to existing HUD guidance values. The 800 ug/ft^2 value used for evaluating the window trough findings is for abatement clearance only. The value is merely included as an indicator of potential risk. Corresponding recommendations for cleaning of the window troughs are optional, and would not be required under the DoD guidance.

4.5 SCHEDULE

Figure 4.1 presents the anticipated project schedule and will be updated regularly as the work progresses. This schedule does not include removal of lead-contaminated soils since the amount, if any, required for removal can not be determined until soil sample results are available.

4.6 SITE SECURITY PLAN

Site security will be conducted in accordance with Chapter 8 of the HUD guidelines. Selected buildings for which risk assessment and inspection will occur are currently unoccupied and shall remain unoccupied through project completion. Only qualified, trained personnel will be granted authorization to enter the housing units within the Woodhaven housing area. Entry will be denied until cleaning and clearance have been completed. At the end of each workday the buildings will be inspected to insure that all windows and doors are shut tight and locked and that all lights have been turned off. The site will be left in a safe/secure condition during periods of inactivity.

4.7 SITE PREPARATION PLAN

Site preparation work should be conducted in accordance with Chapter 8 of the HUD guidelines including consideration of all possible worksite preparation levels both internally and externally. The lowest levels of worksite preparation are primarily designed for interim control activities, and the highest levels are designed for the dustiest abatement methods. In addition, necessary window treatments or replacements thereof should be conducted prior to any work associated with a lead hazard site and the selected unit should be inspected by a certified lead hazard control supervisor to ensure that the dwelling is structurally sound. Any structural deficiencies should be repaired at the beginning of the lead hazard control. A high efficiency particulate air (HEPA) vacuum system should be used to remove any paint chips on the floors of the dwellings before any plastic is laid down to prevent the paint chips from being ground into dust by the worker's feet. Additional containment measures should be selected so as to prevent the release of leaded dust and to maintain concentrations of leaded dust outside the containment area to below clearance levels.

PROJECT SCHEDULE FOR GRIFFISS AFB LBP INSPECTION/RISK ASSESSMENT

ID	Task Name	Duration	Start	Finish
1	Award Notice	0 days	Fri 12/21/01	Fri 12/21/01
2	Kickoff Meeting/Data Collection	1 day	Tue 1/8/02	Tue 1/8/02
3	Kickoff Meeting Minutes	10 days	Wed 1/9/02	Tue 1/22/02
4	Draft WP, HASP, & SAP	20 days	Mon 12/24/01	Fri 1/18/02
5	Draft WP, HASP, & SAP Review	10 days	Mon 1/21/02	Fri 2/1/02
6	Final WP, HASP, & SAP	5 days	Mon 2/4/02	Fri 2/8/02
7	Inspection/Risk Assess.	35 days	Mon 2/11/02	Fri 3/29/02
8	Laboratory Audit	2 days	Tue 4/16/02	Wed 4/17/02
9	Laborator Audit Report	10 days	Mon 4/22/02	Fri 5/3/02
10	Draft Inspection/Risk Assess. Report	45 days	Mon 3/11/02	Fri 5/10/02
11	Draft Inspection/Risk Assess. Report Review	20 days	Mon 5/13/02	Fri 6/7/02
12	Final Inspection/Risk Assess. Report	18 days	Mon 6/10/02	Wed 7/3/02

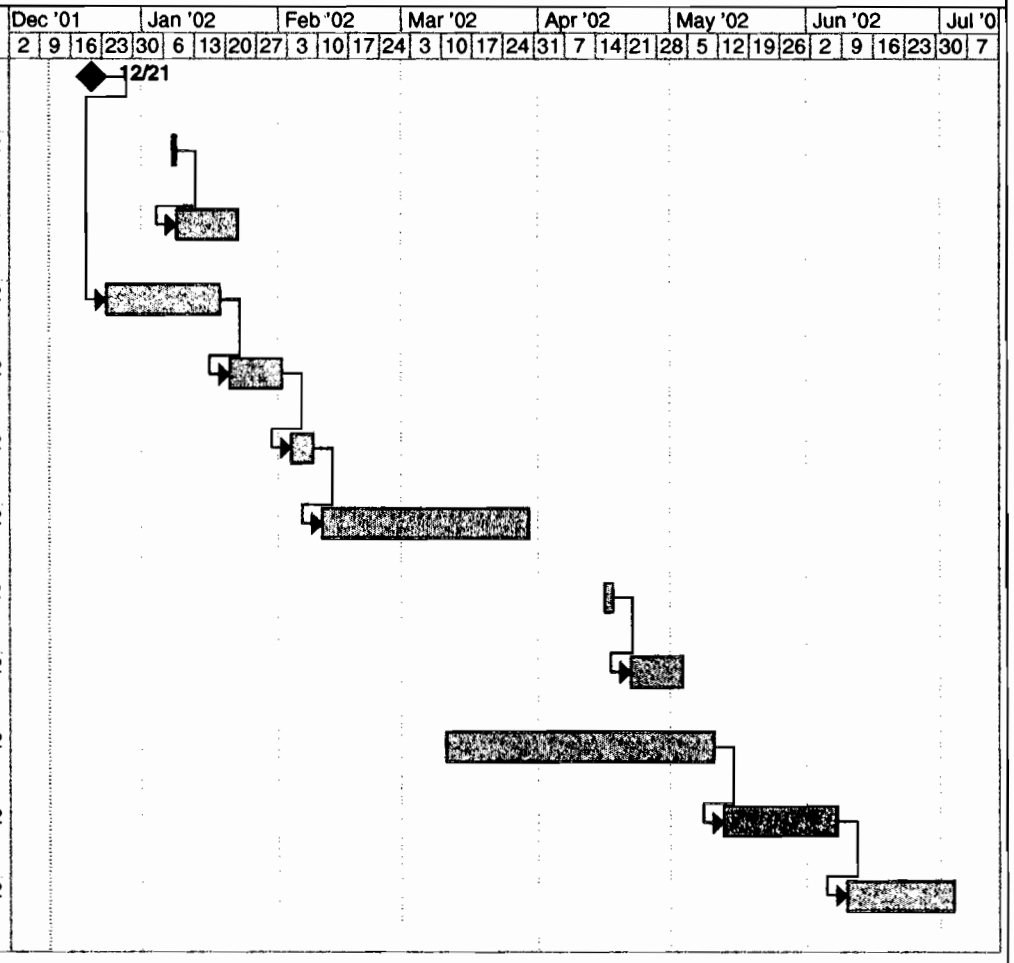

Table 4.2 Summary of Units to Be Inspected and Assessed

WA: Four Bedroom, One Story **Total Units** 2

Building Number	Address	Year Built	Unit Insp. (Y/N)	Unit Assess. (Y/N)
3007	3007 Saturn Drive	1959	Y	Y
3009	3009 Saturn Drive	1959	Y	Y

Total Inspected	2	**Total Assessed**	2

WB: Split Level Single/Duplex **Total Units** 19

Building Number	Address	Year Built	Unit Insp. (Y/N)	Unit Assess. (Y/N)
3005A	3005A Saturn Drive	1959	Y	Y
3005B	3005B Saturn Drive	1959	Y	Y
3006	3006 Saturn Drive	1959	Y	Y
3008A	3008A Saturn Drive	1959	Y	Y
3008B	3008B Saturn Drive	1959	Y	Y
3011	3011 Saturn Drive	1959	Y	Y
3014	3014 Saturn Drive	1959	Y	Y
3015	3015 Saturn Drive	1959	Y	Y
3016	3016 Saturn Drive	1959	Y	N
3018	3018 Saturn Drive	1959	Y	N
3019	3019 Saturn Drive	1959	Y	Y
3020	3020 Saturn Drive	1959	Y	Y
3201	3201 Orion Circle	1959	Y	N
3206	3206 Orion Circle	1959	Y	N
3208	3208 Orion Circle	1959	Y	N
3209	3209 Orion Circle	1959	Y	N
3213	3213 Orion Circle	1959	Y	N
3214	3214 Orion Circle	1959	Y	N
3219	3219 Orion Circle	1959	Y	N

Total Inspected	19	**Total Assessed**	10

WC: Three Bedroom Split Level Single/Duplex **Total Units** 21

Building Number	Address	Year Built	Unit Insp. (Y/N)	Unit Assess. (Y/N)
3003	3003 Saturn Drive	1959	Y	Y
3004A	3004A Saturn Drive	1959	Y	N
3004B	3004B Saturn Drive	1959	Y	Y
3010	3010 Saturn Drive	1959	Y	Y
3012	3012 Saturn Drive	1959	Y	Y
3013	3013 Saturn Drive	1959	Y	Y
3017B	3017B Saturn Drive	1959	Y	Y
3021	3021 Saturn Drive	1959	Y	Y

Building Number	Address	Year Built	Unit Insp. (Y/N)	Unit Assess. (Y/N)
3022A	3022A Saturn Drive	1959	Y	N
3022B	3022B Saturn Drive	1959	N	N
3202	3202 Orion Circle	1959	Y	Y
3203	3203 Orion Circle	1959	Y	N
3204	3204 Orion Circle	1959	Y	N
3205	3205 Orion Circle	1959	Y	N
3207	3207 Orion Circle	1959	Y	N
3210	3210 Orion Circle	1959	Y	N
3211A	3211A Orion Circle	1959	Y	Y
3212	3212 Orion Circle	1959	Y	N
3215	3215 Orion Circle	1959	Y	N
3221	3221 Orion Circle	1959	Y	Y

Total Inspected	**20**	**Total Assessed**	**10**

WD: Four Bedroom Split Level Single/Duplex **Total Units** 37

Building Number	Address	Year Built	Unit Insp. (Y/N)	Unit Assess. (Y/N)
3101B	3101B Park Drive	1959	N	N
3103A	3103A Park Drive	1959	Y	Y
3105	3105 Park Drive	1959	Y	N
3109	3109 Park Drive	1959	Y	N
3110B	3110B Park Drive	1959	N	N
3111B	3111B Park Drive	1959	Y	N
3112	3112 Park Drive	1959	Y	N
3113A	3113A Park Drive	1959	N	N
3114A	3114A Park Drive	1959	Y	N
3114B	3114B Park Drive	1959	Y	Y
3115	3115 Park Drive	1959	Y	N
3117A	3117A Park Drive	1959	N	N
3117B	3117B Park Drive	1959	Y	N
3119A	3119A Park Drive	1959	N	N
3121	3121 Park Drive	1959	Y	N
3123A	3123A Park Drive	1959	Y	N
3216	3216 Orion Circle	1959	Y	N
3217A	3217A Orion Circle	1959	N	N
3217B	3217B Orion Circle	1959	Y	N
3301	3301 Vega Drive	1959	Y	N
3302B	3302B Vega Drive	1959	Y	N
3303B	3303B Vega Drive	1959	Y	N
3304	3304 Vega Drive	1959	N	N
3305A	3305A Vega Drive	1959	Y	Y
3306A	3306A Vega Drive	1959	N	N
3306B	3306B Vega Drive	1959	Y	Y
3307	3307 Vega Drive	1959	Y	Y
3308	3308 Vega Drive	1959	Y	Y
3310A	3310A Vega Drive	1959	Y	N
3311	3311 Vega Drive	1959	Y	N
3312B	3312B Vega Drive	1959	Y	N
3313B	3313B Vega Drive	1959	Y	N

Building Number	Address	Year Built	Unit Insp. (Y/N)	Unit Assess. (Y/N)
3315A	3315A Vega Drive	1959	Y	Y
3317	3317 Vega Drive	1959	Y	Y
3502B	3502 Jupiter Lane	1959	Y	N
3506	3506 Jupiter Lane	1959	Y	Y
3508B	3508B Jupiter Lane	1959	Y	Y

Total Inspected	**29**	**Total Assessed**	**10**

WE: Three Bedroom Two Story Single/Duplex **Total Units** **28**

Building Number	Address	Year Built	Unit Insp. (Y/N)	Unit Assess. (Y/N)
3001	3001 Saturn Drive	1959	Y	N
3002	3002 Saturn Drive	1959	Y	Y
3101A	3101A Park Drive	1959	Y	N
3103B	3103B Park Drive	1959	Y	Y
3107	3107 Park Drive	1959	Y	N
3110A	3110A Park Drive	1959	N	N
3111A	3111A Park Drive	1959	Y	N
3113B	3113B Park Drive	1959	Y	N
3119B	3119B Park Drive	1959	N	N
3123B	3123B Park Drive	1959	Y	Y
3211B	3211B Orion Circle	1959	Y	N
3218	3218 Orion Circle	1959	Y	N
3223	3223 Orion Circle	1959	Y	N
3302A	3302A Vega Drive	1959	Y	N
3303A	3303A Vega Drive	1959	N	N
3305B	3305B Vega Drive	1959	Y	N
3309A	3309A Vega Drive	1959	Y	Y
3309B	3309B Vega Drive	1959	N	N
3310B	3310B Vega Drive	1959	N	N
3312A	3312A Vega Drive	1959	Y	Y
3313A	3313A Vega Drive	1959	Y	Y
3315B	3315B Vega Drive	1959	Y	Y
3502A	3502A Jupiter Lane	1959	Y	Y
3503A	3503A Jupiter Lane	1959	Y	Y
3503B	3503B Jupiter Lane	1959	Y	N
3504A	3504A Jupiter Lane	1959	Y	N
3504B	3504B Jupiter Lane	1959	N	N
3508A	3508A Jupiter Lane	1959	Y	Y

Total Inspected	**22**	**Total Assessed**	**10**

WF: Four Bedroom One Story Quad **Total Units** **24**

Building Number	Address	Year Built	Unit Insp. (Y/N)	Unit Assess. (Y/N)
3319A	3319A Vega Drive	1959	Y	Y
3319D	3319D Vega Drive	1959	Y	Y
3320A	3320A Vega Drive	1959	Y	N
3320D	3320D Vega Drive	1959	Y	N

Building Number	Address	Year Built	Unit Insp. (Y/N)	Unit Assess. (Y/N)
3322A	3322A Vega Drive	1959	N	N
3322D	3322D Vega Drive	1959	Y	Y
3406A	3406A Venus Circle	1959	N	N
3406D	3406D Venus Circle	1959	Y	Y
3413A	3413A Venus Circle	1959	Y	N
3413B	3413B Venus Circle	1959	Y	Y
3413D	3413D Venus Circle	1959	Y	Y
3421D	3421D Venus Circle	1959	N	N
3424A	3424A Venus Circle	1959	N	N
3424D	3424D Venus Circle	1959	Y	Y
3601A	3601A Mars Drive	1959	Y	N
3601D	3601D Mars Drive	1959	Y	N
3604A	3604A Mars Drive	1959	Y	N
3604D	3604D Mars Drive	1959	Y	N
3609A	3609A Mars Drive	1959	Y	Y
3609D	3609D Mars Drive	1959	Y	Y
3614A	3614A Mars Drive	1959	Y	N
3614D	3614D Mars Drive	1959	Y	Y
3703A	3703A Pluto Lane	1959	Y	N
3703D	3703D Pluto Lane	1959	Y	N

Total Inspected	**20**	**Total Assessed**	**10**

WG: Three Bedroom One Story Duplex/ Quad **Total Units** **139**

Building Number	Address	Year Built	Unit Insp. (Y/N)	Unit Assess. (Y/N)
3102A	3102A Park Drive	1959	Y	N
3102B	3102B Park Drive	1959	N	N
3104A	3104A Park Drive	1959	Y	N
3104B	3104B Park Drive	1959	N	N
3106A	3106A Park Drive	1959	N	N
3106B	3106B Park Drive	1959	Y	N
3106C	3106C Park Drive	1959	Y	N
3106D	3106D Park Drive	1959	N	N
3108A	3108A Park Drive	1959	Y	Y
3108B	3108B Park Drive	1959	Y	Y
3314B	3314B Vega Drive	1959	N	N
3318A	3318A Vega Drive	1959	Y	N
3318B	3318B Vega Drive	1959	N	N
3319B	3319B Vega Drive	1959	Y	Y
3319C	3319C Vega Drive	1959	N	N
3320B	3320B Vega Drive	1959	Y	Y
3320C	3320C Vega Drive	1959	Y	N
3321A	3321A Vega Drive	1959	Y	N
3321B	3321B Vega Drive	1959	Y	Y
3322B	3322B Vega Drive	1959	N	N
3322C	3322C Vega Drive	1959	N	N
3401A	3401A Venus Circle	1959	N	N

Building Number	Address	Year Built	Unit Insp. (Y/N)	Unit Assess. (Y/N)
3401B	3401B Venus Circle	1959	N	N
3402A	3402A Venus Circle	1959	N	N
3402B	3402B Venus Circle	1959	N	N
3403A	3403A Venus Circle	1959	N	N
3403B	3403B Venus Circle	1959	N	N
3404A	3404A Venus Circle	1959	Y	N
3404B	3404B Venus Circle	1959	Y	Y
3405A	3405A Venus Circle	1959	Y	N
3405B	3405B Venus Circle	1959	N	N
3405C	3405C Venus Circle	1959	Y	Y
3405D	3405D Venus Circle	1959	Y	Y
3406B	3406B Venus Circle	1959	N	N
3406C	3406C Venus Circle	1959	N	N
3407A	3407A Venus Circle	1959	Y	Y
3407B	3407B Venus Circle	1959	Y	Y
3408A	3408A Venus Circle	1959	N	N
3408B	3408B Venus Circle	1959	Y	N
3409A	3409A Venus Circle	1959	Y	N
3410A	3410A Venus Circle	1959	N	N
3410B	3410B Venus Circle	1959	Y	N
3411A	3411A Venus Circle	1959	N	N
3411B	3411B Venus Circle	1959	Y	Y
3412A	3412A Venus Circle	1959	N	N
3412B	3412B Venus Circle	1959	N	N
3413C	3413C Venus Circle	1959	Y	Y
3414A	3414A Venus Circle	1959	N	N
3414B	3414B Venus Circle	1959	N	N
3415A	3415A Venus Circle	1959	Y	Y
3415B	3415B Venus Circle	1959	N	N
3415C	3415C Venus Circle	1959	Y	Y
3416A	3416A Venus Circle	1959	N	N
3416B	3416B Venus Circle	1959	N	N
3416C	3416C Venus Circle	1959	N	N
3417A	3417A Venus Circle	1959	N	N
3417B	3417B Venus Circle	1959	N	N
3418A	3418A Venus Circle	1959	N	N
3418B	3418B Venus Circle	1959	Y	N
3419A	3419A Venus Circle	1959	Y	N
3419B	3419B Venus Circle	1959	N	N
3420A	3420A Venus Circle	1959	Y	N
3420B	3420B Venus Circle	1959	Y	N
3421A	3421A Venus Circle	1959	N	N
3421B	3421B Venus Circle	1959	N	N
3421C	3421C Venus Circle	1959	N	N
3422A	3422A Venus Circle	1959	N	N
3422B	3422B Venus Circle	1959	Y	N
3423A	3423A Venus Circle	1959	N	N
3424B	3424B Venus Circle	1959	N	N
3424C	3424C Venus Circle	1959	N	N

Building Number	Address	Year Built	Unit Insp. (Y/N)	Unit Assess. (Y/N)
3425A	3425A Venus Circle	1959	N	N
3425B	3425B Venus Circle	1959	N	N
3427A	3427A Venus Circle	1959	N	N
3427B	3427B Venus Circle	1959	Y	Y
3429A	3429A Venus Circle	1959	N	N
3429B	3429B Venus Circle	1959	Y	N
3431A	3431A Venus Circle	1959	N	N
3431B	3431B Venus Circle	1959	N	N
3433A	3433A Venus Circle	1959	N	N
3433B	3433B Venus Circle	1959	N	N
3435A	3435A Venus Circle	1959	N	N
3435B	3435B Venus Circle	1959	Y	N
3437A	3437A Venus Circle	1959	Y	N
3437B	3437B Venus Circle	1959	Y	Y
3439A	3439A Venus Circle	1959	N	N
3439B	3439B Venus Circle	1959	Y	N
3441A	3441A Venus Circle	1959	N	N
3441B	3441B Venus Circle	1959	N	N
3501A	3501A Jupiter Lane	1959	N	N
3501B	3501B Jupiter Lane	1959	N	N
3601B	3601B Mars Drive	1959	N	N
3601C	3601C Mars Drive	1959	N	N
3602A	3602A Mars Drive	1959	N	N
3602B	3602B Mars Drive	1959	N	N
3603A	3603A Mars Drive	1959	N	N
3603B	3603B Mars Drive	1959	Y	N
3604B	3604B Mars Drive	1959	Y	N
3604C	3604C Mars Drive	1959	N	N
3605A	3605A Mars Drive	1959	Y	N
3605B	3605B Mars Drive	1959	N	N
3606A	3606A Mars Drive	1959	Y	Y
3606B	3606B Mars Drive	1959	N	N
3607A	3607A Mars Drive	1959	N	N
3607B	3607B Mars Drive	1959	N	N
3608A	3608A Mars Drive	1959	N	N
3608B	3608B Mars Drive	1959	Y	N
3609B	3609B Mars Drive	1959	N	N
3609C	3609C Mars Drive	1959	N	N
3610A	3610A Mars Drive	1959	N	N
3610B	3610B Mars Drive	1959	N	N
3611A	3611A Mars Drive	1959	N	N
3611B	3611B Mars Drive	1959	N	N
3612A	3612A Mars Drive	1959	Y	N
3612B	3612B Mars Drive	1959	N	N
3613A	3613A Mars Drive	1959	Y	N
3613B	3613B Mars Drive	1959	N	N
3614B	3614B Mars Drive	1959	N	N
3614C	3614C Mars Drive	1959	N	N
3701A	3701A Pluto Lane	1959	N	N
3701B	3701B Pluto Lane	1959	N	N
3702A	3702A Pluto Lane	1959	N	N

Building Number	Address	Year Built	Unit Insp. (Y/N)	Unit Assess. (Y/N)
3702B	3702B Pluto Lane	1959	**Y**	**Y**
3702C	3702C Pluto Lane	1959	N	N
3702D	3702D Pluto Lane	1959	**Y**	N
3703B	3703B Pluto Lane	1959	N	N
3703C	3703C Pluto Lane	1959	N	N
3704A	3704A Pluto Lane	1959	N	N
3704B	3704B Pluto Lane	1959	**Y**	N
3705A	3705A Pluto Lane	1959	N	N
3705B	3705B Pluto Lane	1959	N	N
3706A	3706A Pluto Lane	1959	N	N
3706B	3706B Pluto Lane	1959	N	N

Total Inspected	**48**	**Total Assessed**	**19**

Note: There are six units in Group WG and one unit in Group WC that are not listed in this table pending confirmation of building characteristics.

SECTION 5

ABATEMENT RECOMMENDATIONS

5.1 HAZARD ABATEMENT RECOMMENDATIONS

5.1.1 Regulatory Requirements

Federal/DoD requirements for abatement include LBP hazards within child-occupied facilities, soil-lead hazards surrounding housing, and soil-lead hazards remaining after target housing has been demolished and redeveloped for residential use [1]. The abatement must be conducted within 12 months after completion of the risk assessment. DoD prefers that abatement be made a condition of transfer, in which case the services must ensure that the transferee carries out the abatement prior to occupancy or sale. DoD policy also allows for interim controls, no action, or abatement to be used to address potential soil-lead hazards (concentrations of lead in bare soil between 400 and 2000 ppm (excluding children's play areas)), depending on the presence and likelihood of exposure to children.

After LBP control and hazard abatement measures have been completed, affected structures must undergo a clearance examination and certification to ensure that all abatement activities have been conducted properly. Clearance examinations and certification will usually be performed by the transferee since most control and hazard abatement activities will be carried out following transfer. In such cases, requirements for control, abatement, and clearance activities must be included in the contract for sale or transfer agreement. Occupancy by the transferee is prohibited until all LBP hazards are abated. Responsibility for any long-term monitoring, periodic inspection, and reevaluation of the control measures and abatement required to be performed after transfer should be made a condition of sale/transfer.

Recommendations for units not physically assessed (i.e., building groups where random selection of units was conducted) are based on findings for units physically assessed within the corresponding building groups. Conditions and findings for assessed units are assumed to exist in all units that were not assessed within a group and recommendations will be made accordingly. Additional sampling/assessment can be conducted in units not assessed to ascertain whether assumed hazards actually exist in these units.

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1 The term "abatement" under the applicable federal/DoD regulations refers to removal of either the building component or the paint itself or the near-permanent enclosure of LBP hazards. Near-permanent is defined as a method capable of lasting 20 years under typical conditions (i.e., spot repair of damaged areas or painting over the "hazardous" component would not be acceptable). Encapsulation is considered an acceptable means of abatement, provided that conditions, procedures, and precautions exist/are followed as presented in Chapter 13 of the HUD guidance. The term "interim controls" under the applicable federal/DoD regulations is defined as "...a set of measures designed to reduce temporarily human exposure or likely exposure to LBP hazards, including specialized cleaning, repairs, maintenance, painting, temporary containment, ongoing monitoring of LBP hazards or potential hazards and the establishment and operation of management and resident education programs."

5.1.2 Deteriorated Paint Abatement

Recommendations for abatement of deteriorated paint surfaces will primarily consist of component replacement, with the possibility of several recommendations for enclosure where appropriate. Although encapsulation is a viable alternative, use of this abatement method would require assessment of the encapsulating material and surface/substrate to be abated to ensure that the twenty-year life requirement is met. Replacement and enclosure abatement activities should be conducted in accordance with Chapter 12 of the HUD guidelines.

5.1.3 Dust Abatement

Recommendations for abatement of dust primarily will consist of cleaning. Cleaning activities should be conducted in accordance with Chapter 11 of the HUD guidance, including use of a HEPA vacuum for initial cleaning and final cleaning with a cleaning agent suitable for leaded dust.

5.1.4 Soil Abatement

Recommendations for soil abatement will likely include follow-up soil sampling, soil removal (pending results of follow-up soil sampling), and mulching of bare soils. Follow-up soil sampling (if deemed necessary) will be performed as follows:

1. Collect grab soil samples from bare soil areas to confirm the soil exceedance, as well as to delineate the extent of required abatement, if any.
2. Collect grab soil samples from bare soil areas at buildings not assessed as part of the random selection process to confirm whether exceedances exist at these locations. Soil removal, if required, should be conducted in accordance with Chapter 12 of the HUD guidelines and mulching should be conducting in accordance with Chapter 11.

5.2 DISCLOSURE REQUIREMENTS

Several disclosure requirements must be satisfied before a property containing LBP or LBP hazards can be transferred. The services must provide the purchaser/transferee with a lead hazard information pamphlet approved by EPA for this purpose. The EPA-approved pamphlet currently is "Protect Your Family from Lead in Your Home" (EPA 747-K-94-001). In addition, the services must disclose to the transferee the presence of any known LBP and/or LBP hazards and provide any available lead hazard evaluation reports. Transferees then have 10 days to conduct a risk assessment or an inspection to identify the presence of lead-based paint and/or LBP hazards, before becoming obligated under the contract. If both parties concur, the requirement may be shortened, extended, or waived. The following information must be provided in an attachment to the contract for sale/transfer agreement (40 CFR §745.113 and 24 CFR § 35.13):

- A "Lead Warning Statement" describing the possibility that the property may present a risk of childhood lead poisoning (Title X specifies the exact wording of this statement).
- A statement signed by the transferee that the transferee has read and understood the lead hazard information pamphlet and acknowledges that he or she had a 10-day opportunity before transfer to conduct a risk assessment or a paint inspection.

- A list of any records or reports available to the services pertaining to LBP and/or LBP hazards in the housing that have been provided to the transferee. If no such records or reports are available, the service will indicate this in the attachment to the contract for sale/transfer agreement.
- A statement by transferee acknowledging the receipt of available reports and records.
- A statement by the transferee that he or she has had an opportunity to conduct a risk assessment or inspection or waived the opportunity.
- The signatures of the service representative and the transferee certifying the accuracy of their statements, to the best of their knowledge, along with the dates of the signatures.

For transfers carried out by property transfer agents (such as GSA), 24 CFR 35, Subpart A requires services to disclose to the agent the presence of any known lead-based paint and/or lead-based paint hazards in the target housing being transferred and the existence of any available records or reports pertaining to LBP and/or LBP hazards. In the attachment to the contract or transfer agreement, services are also required to include a statement that the agent has informed the services of their obligations under 42 U.S.C. 4852d, that the agent is aware of his/her duty to ensure compliance with the requirements of 24 CFR 35, Subpart A, and the signatures of the service representative, agents, and the transferee certifying the accuracy of their statements.

Additional information on disclosure requirements, including an EPA lead hazard information pamphlet, can be obtained from the National Lead Information Center (1-800-424- LEAD).

SECTION 6

REFERENCES

40 Code of Federal Regulations 745.227.

Department of the Air Force Base Conversion Agency, Operating Procedures for the Management of Lead-based Paint at Air Force Base Realignment and Closure Installations (May 2001).

Eisenbach, (1993). Lead-Based Paint Inspection Report for Griffiss and Hancock Air Force Base Housing. James Eisenbach Engineering, P.C., (January 1993).

Galson, (1995). Final Report for Griffiss Air Force Base Lead-Based Paint Identification Survey, prepared for United States Air Force under contract F33615-89-D-4001, Delivery Order 0036. Galson Corporation, (June 1995).

HUD, 1997. Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, (June 1997).

U.S. Department of Defense (DoD) and U.S. Environmental Protection Agency (EPA), Lead-Based Paint Guidelines for Disposal of Department of Defense Residential Real Property: A Field Guide (Interim Final – December 1999).

U.S. Department of Housing and Urban Development (HUD), *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* (September 1997).

APPENDIX A

SAMPLE AND ANALYSIS PLAN

Sampling and Analysis Plan

LEAD-BASED PAINT RISK ASSESSMENT/INSPECTION SELECTED HOUSING AT GRIFFISS AIR FORCE BASE, NEW YORK

Contract: F41624-00-D-8024, Delivery Order: 0072

Prepared for:

Air Force Center for Environmental Excellence

Brooks Air Force Base, Texas

Prepared By:

PARSONS

Liverpool, New York

FEBRUARY 2002

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SECTION 1

INTRODUCTION

1.1 PURPOSE

The purpose of the Sampling and Analysis Plan (SAP) is to describe in detail the sampling and data gathering methods and procedures to be used during the Risk Assessment/Inspection at Griffiss Air Force Base (GAFB). Compliance with these documents ensures that data will be collected, reviewed, and analyzed in a consistent manner. Any exception or deviation from this plan shall be done so through a variance and submitted as an addendum to the SAP. Variances shall be identified by chapter, subtitle, paragraph, page, and line with appropriate justification for any changes. If any additional analytical methods are required that are not included in the SAP they must be included in the addendum to the SAP with associated quality control requirements. The AFCEE team Chief for the project must approve all variances prior to their inclusion with the SAP.

1.2 SAMPLING OBJECTIVES

The main objective of the field sampling activities is to generate data necessary to:

- Confirm the existence and location of lead-based paint (LBP) within the Woodhaven Housing Area.
- Confirm the existence, location, nature and severity of LBP hazards.

SECTION 2

SAMPLING EQUIPMENT AND PROCEDURES FOR FIELD EQUIPMENT DECONTAMINATION, WASTE MANAGEMENT, AND EQUIPMENT CALIBRATION

2.1 FIELD EQUIPMENT CHECKLIST

A general list of equipment necessary for field measurement and sample collection includes:

- Appropriate sample containers.
- Chain-of-Custody (COC) seals and record forms.
- Field sampling and inspection record forms.
- Log book and indelible ink markers.
- Camera and film for use in documenting sampling procedures and sample locations.
- Disposable gloves.
- Shipping labels and forms.
- Putty knife.
- Polyethylene centrifuge tubes.
- Strapping tape, clear plastic tape, duct tape.
- Sample shipping containers.
- Plastic wipe sample templates.
- Resealable plastic bags.
- Portable field instrument: XRF.
- Wet wipes.
- Health and safety equipment.

2.2 SAMPLING EQUIPMENT DECONTAMINATION

Sample equipment decontamination will be conducted using the same wipes as used for collection of dust samples. The sampling equipment will be thoroughly wiped with a new wipe after collection of each sample. Decontaminated equipment will not be placed directly on the ground surface. In order to minimize the time spent in the field and reduce the opportunity for cross-contamination, the sampling team will have sufficient clean equipment available to complete a sampling round without excessive delays.

2.3 FIELD INSTRUMENT CALIBRATION

Field sampling instruments that require calibration prior to operation will be calibrated daily in accordance with the manufacturer's instructions and will be documented in the project field book and instrument calibration log. Instrument operating manuals will be maintained on-site by the field team.

2.4 MAINTENANCE PROCEDURES

2.4.1 Non-Routine Maintenance Procedures

Field equipment will be inspected prior to initiation of fieldwork to determine whether or not it is operational. If it is not operational, it will be serviced or replaced. Batteries will be fully charged or fresh, as applicable.

2.4.2 Routine Maintenance Procedures and Schedules

Field equipment requiring preventive maintenance will be serviced in accordance with written procedures based on the manufacturer's instructions or recommendations. Maintenance will be performed in accordance with the schedule specified by the manufacturer, to minimize the downtime of the measurement system. Maintenance work will be performed by qualified personnel.

2.4.3 Maintenance Records

Equipment maintenance logs will be maintained to document maintenance activities and schedules. All maintenance logs will be traceable to a specific piece of equipment. These records may be audited by the QAO to verify compliance.

SECTION 3

SAMPLING EQUIPMENT AND PROCEDURES FOR FIELD MEASUREMENTS AND MONITORING

3.1 LEAD-BASED PAINT INSPECTION

3.1.1 Sampling Equipment

LBP sampling will be conducted during all field activities with an X-ray Fluorescence (XRF) portable unit (Niton XL-300-series Spectrum Analyzer). The XL uses a 10 milicurie Cadmium ^{109} source, which has a half-life of 15 months and measures both the "L" (L-alpha at 10.55 KeV and L-beta at 12.61 KeV) and "K" X-ray (K-alpha at 75.5 KeV and K-beta at about 85 KeV) lead lines. During measurement, the instrument analyzes both the L and K shell results. When the device is 95% confident (based on HUD PCS) of the results in either the L or K shell it returns either a "Positive" or "Negative" reading for the presence of lead.

The L X-rays are:

- Used to determine levels of lead in the paint;
- Independent of the substrate;
- Displayed on the screen separately;
- No read-through;
- Fast, highly accurate, and precise at low levels; and
- Able to penetrate 0.5 millimeter (mm) of paint.

The K X-rays are:

- Used to resolve ambiguities; and
- Provide measurements for painted surfaces with numerous layers of paint.

The detection range of the L X-rays is from 0. 1 to 5.0 mg/ cm^2. Greater concentrations of L X-rays are shown as > 5 mg/ cm^2. The K X-ray detection range is from 0.1 to 100 mg/cm^2.

3.1.2 Sampling Procedures

The following sampling procedures will be employed:

- The NITON XL automatically calibrates each time the device is turned on. The calibration is accomplished by sampling the tungsten shield protecting the measuring window and adjusting its sampling results to match the known

response of the tungsten. This calibration will be conducted every 4 hours or whenever the unit is turned off (whichever occurs first).

- All calibration data will be recorded in field notebooks and on calibration log sheets to be maintained on-site.
- The XL will be used to monitor painted building components within the Woodhaven Housing Area.
- A distance of at least ten feet will be maintained whenever two XRF units are used in the same area so as to avoid possible interference effects of one XRF unit on the other.
- A battery check will be completed at the beginning and end of each working day, and the battery will be checked for proper voltage.
- Laboratory verification by AAS analysis due to inconclusive XRF results will be conducted as necessary.
- XRF measurements will be performed in accordance with the instructions stated in the manufacturer's manual.

SECTION 4

SAMPLING EQUIPMENT AND PROCEDURES FOR FIELD SAMPLE COLLECTION

4.1 INTRODUCTION

Procedures for obtaining LBP samples from various building components and conducting the risk assessment are described in this section in accordance with Chapter 5 of the HUD guidelines. Sample handling procedures are described in Section 5 of this plan.

4.2 DOCUMENTATION AND FORMS

Four forms need to be completed for each building unit as follows:

1. Building Condition Form (Form 4.1);
2. Condition of Painted Surfaces (Form 4.2);
3. Field Sampling Form for Dust (Form 4.3); and
4. Unit Completion Checklist (Form 4.4).

Additional documentation shall be done in field logbooks. Photographs will be taken for documentation of representative building/unit exteriors and interiors, as well as general hazard types.

4.3 REPORTING

The front of each inspection report shall contain a diagrammatic floor plan laid out according to standard practices to describe where the lead paint is located so that all parties involved have a clear understanding as to what surfaces contain lead (NITON, 1994). The plan shall include the position(s) of common areas, halls, stairs, additional rooms etc. All rooms shall be designated by number rather than by function, except where the function is permanent, such as kitchens and bathrooms. The painted surfaces tested shall be identified by room number and side –**A, B, C, D** (**A** refers to the side of the unit where the unit gets its street address from). On corresponding field data sheets, painted surfaces shall be identified as wall, ceiling, baseboard, door, doorframe, window frame, windowsill, and stair baseboard. The general procedures for sample identification are described in Section 5.1.

4.4 VISUAL ASSESSMENT

The visual assessment is conducted to locate potential LBP materials and hazards, as well as to evaluate the magnitude of the hazard. The visual assessment will be used to identify deteriorating painted surfaces, areas of visible dust accumulation, areas of bare soil, painted surfaces that are impact points or subject to friction, and painted surfaces on which a child may have chewed. Information from the assessment will be used to determine where environmental samples will be collected and the assessment will be used to determine building conditions.

The general condition of the selected building shall be evaluated and noted on the Building Condition Form (Form 4.1). Painted surfaces shall be identified as being *intact*, *fair*, or *poor* (Form 4.2; Figure 4.1) based on the type of building component sampled and the total area of deteriorated paint on that surface (Form 4.2) in addition to identifying the suspected cause of the deterioration (Figure 4.2) (friction, impact, moisture). Painted surfaces with visible teeth marks shall be noted on Form 4.2.

Figure 4.1: Categories of Paint Film Quality

	Total Area of Deteriorated Paint on Each Component		
Type of Building Component [1]	**Intact**	**Fair [2]**	**Poor[3]**
Exterior components with large surface areas	Entire surface area is intact.	Less than or equal to 10 square feet.	More than 10 square feet.
Interior components with large surface areas (i.e., walls ceilings, floors, doors).	Entire surface area is intact.	Less than or equal to 2 square feet.	More than 2 square feet.
Interior and exterior components with small surface areas (i.e., window sills, baseboards, soffits, trim).	Entire surface area is intact.	Less than or equal to 10 percent of the total surface area of the component.	More than 10 percent of the total surface area of the component.

1. Building component in this table refers to each individual component or side of building, not the combined surface area of all similar components in a room (e.g., a wall with 1 square foot of deteriorated paint is in "fair" condition, even if the other three walls in a room are intact).
2. Surfaces in "fair" condition should be repaired and/or monitored, but are not considered to be "lead-based paint hazards" as defined in Title X.
3. Surfaces in "poor" condition are considered to be "lead-based paint hazards" as defined in Title X and should be addressed through abatement or interim controls.

Figure 4.2 Paint Deterioration and Suspected Cause

Type of Deterioration	Cause
Surface Deterioration	Chalking, Mildew, worn paint due to friction or impaction
Bulk Deterioration	Checking, cracking and flaking or alligatoring
Layered Deterioration	Blistering, scaling or flaking, or peeling from surface
Chewed Surfaces	Surfaces with visible teeth marks

4.5 LEAD INSPECTION SAMPLING

Lead inspection shall be performed using a portable XRF (Niton XL-309 Spectrum Analyzers) analyzer to determine the presence of LBP following the random selection of the military family housing. Each subject room/area to be sampled shall be identified and a

"representative" measurement shall be taken from selected components starting in the **A-D** corner and moving around the room in a clockwise direction. The NITON XL has a barcode system for identification and labeling purposes and will be used in accordance with the operation manual. Each bar code contains information regarding the room number, component type, component location/side, and component substrate within selected building units. Following the entry of the above information, a measurement using the NITON XL shall be taken.

4.6 RISK ASSESSMENT SAMPLING

A complete risk assessment includes collection of dust, paint chip and soil samples from various locations within a building unit. Testing locations will be selected so as to avoid:

- Edges of walls or other large surfaces.
- Electrical outlets, switches or wiring (testing will be at least 12" from electrical components to avoid possible interference).
- Plumbing, conduit if suspected of being present in wall.
- Patched areas of walls or ceilings.

Dust sampling must <u>always</u> be performed before paint chip sampling in order to minimize the prospect of cross-sample contamination. Paint chip sampling is a destructive method that may release a small quantity of lead-containing dust. It is used when paint on deteriorated or irregular surfaces must be tested, and as confirmation for inconclusive XRF results. All sampling is conducted in accordance with Chapter 5 of the HUD guidelines.

4.6.1 Dust Sampling

Composite dust samples (5 to 6) will be collected from the housing unit and adjacent common areas within the following sub locations:

<u>Housing Units:</u>

- Floor (use 1' x 1' template).
- Wall-to-wall carpeting, if present (use 1' x 1' template).
- Interior windowsill (use 2" x 8" template).
- Window trough (use 2" x 8" template or measure area sampled within trough).

<u>Common Areas:</u>

- Entry area floor – one sample.
- Floor of 1st-story landing of hallway or stairway <u>OR</u> window in hallway or stairway – one sample.

Each composite sample should be from ≤ 4 sub sample locations with one wipe per sub sample location. The following rooms are recommended for sampling: play area (apparent living room), kitchen, and children's bedrooms (if unit consists of only two bedrooms, collect wipe

samples from smallest bedroom; if unit consists of more than two bedrooms, collect samples from two smallest bedrooms). Only sub samples from the same type of component (trim, window, floor) shall be composited. **Example**: Go through unit collecting floor wipe samples from target rooms as noted above and composite as one sample. Sample locations within target rooms should be based on visual observations (i.e., in vicinity of deteriorated paint or floor areas under impact/friction locations). **Note:** If windows have been replaced with vinyl replacement windows (including track systems), then the potential friction hazard has been effectively eliminated. Therefore, interior windowsill and window trough samples are not necessary. Site-specific procedures are as follows (see Attachment 1 for Additional Dust Sampling Guidance):

1. Decontaminate the templates between composite sample sets.

2. Complete Form 4.3 and COC (matrix identifier is WP). Note sample locations on floor plan.

3. Collect one blank wipe sample per day. Matrix identifier on COC is BL. Note Lot number of wipes on COC.

4. Collect one composite decontamination (matrix identifier WB) sample per day by taking a wipe sample of the templates after standard decontamination.

4.6.2 Paint Chip Sampling

Paint chip samples will be collected from representative surfaces with deteriorated paint in housing units and common areas (as identified during visual assessment). Paint samples from intact friction and impact surfaces are not necessary since dust samples will be collected to address hazards from these locations. Site-specific procedures are as follows (see Attachment 2 Additional Paint Chip Sampling Guidance):

1. Complete COC (matrix identifier is PC). Note sample locations on floor plan.

2. Collect one duplicate sample for every twenty samples. Matrix identifier on COC is DP. Make sure to note corresponding sample in comment section of COC.

4.6.3 Soil Sampling

Two to three composite soil samples consisting of 3 to 10 sub samples shall be collected from locations at equal distances apart from each other within the following areas:

- Principal play areas or yard associated with the unit.

- Bare soil with area greater than 9 ft^2 (if present) in front or back yard *or* soil along foundation drip line (if no bare soil with area >9 ft^2 present). If bare soil is present, samples from both the yard and the foundation drip line can be collected and composited.

Samples for each area above shall be collected in the following manner:

- Play area: along an "X".

- Drip line: 2 to 6 feet apart along the drip line.

Each composite shall be numbered with the letter of the side of the house (**A, B, C, D**) and the distance from the wall or fence the sample was taken from. Samples collected along the foundation drip line shall be collected even if exterior siding/trim has been covered by vinyl or aluminum to assess potential past soil impacts. In addition, any paint chips present in the soil should be included in the soil sample. Site-specific procedures are as follows (see Attachment 3 for Additional Soil Sampling Guidance):

1. Complete COC (matrix identifier is SS). Note sample locations on floor plan/site sketch.

2. Collect one duplicate sample for every twenty samples. Matrix identifier on COC is DP. Make sure to note corresponding sample in comment section of COC.

3. Collect one decontamination sample for every twenty samples by taking a wipe sample of the sampling tool after standard decontamination.

4. Collect soils using the "scoop" method, including use of stainless steel spoons and mixing bowls. Samples should be collected to a depth of approximately one inch below the ground surface.

4.7 FIELD QUALITY CONTROL SAMPLES

4.7.1 Equipment Blank

Equipment blanks (i.e., rinse blanks) are used to assess the effectiveness of equipment decontamination procedures. The frequency of collection for equipment blanks shall be one for every set of 20 field samples. Equipment blanks shall be collected using a wipe immediately after the equipment has been decontaminated. The blank shall be analyzed for all laboratory analyses requested for the environmental samples collected at the site.

4.7.2 Field Duplicates

A field duplicate sample is a second sample collected at the same location as the original sample. Duplicate samples are collected simultaneously or in immediate succession, using identical recovery techniques, and treated in an identical manner during storage, transportation, and analysis. The sample containers are assigned an identification number in the field such that they cannot be identified (blind duplicate) as duplicate samples by laboratory personnel performing the analysis. Specific locations are designated for collection of field duplicate samples prior to the beginning of sample collection. Duplicate sample results are used to assess precision of the sample collection process. The frequency of collection for field duplicates shall be one for every set of 20 field samples.

4.7.3 Field Blanks

Analysis of field blank samples determines if the sample media is contaminated. Blank samples will be collected by removing a wipe from the wipe packaging with a new glove, shaking the wipe open, refolding as it occurs during the actual sample procedure, and then

inserting it into the centrifuge tube without touching any surfaces or other objects. One blank wipe sample will be collected for every 50 field samples. The wipe lot number will be recorded.

4.7.4 Spiked Samples

Samples spiked with a known amount of leaded dust will be inserted into the sample stream randomly. Analysis of spiked samples will determine if there is adequate quality control of the digestion process at the laboratory. The spiked samples will be provided by the laboratory. However, the samples will be submitted "blind" for analysis.

FORM 4.1- BUILDING CONDITION FORM

Date:		Name of Recorder	
Building/Unit No.		Name of Risk Assessor	
Briefly Describe Building Interior			
Briefly Describe Building Exterior			

Condition	Yes	No	Comment/Notes
Roof missing parts of surfaces (tiles, boards, shakes, etc.).			
Roof has holes or large cracks.			
Gutters or downspouts broken.			
Chimney masonry cracked, bricks loose or missing, obviously out of plumb.			
Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) of painting.			
Exterior siding has missing boards or shingles.			
Water stains on interior walls or ceilings.			
Plaster walls or ceilings deteriorated.			
Two or more windows or doors broken, missing, or boarded up.			
Porch or steps have major elements broken, missing, or boarded up.			
Foundation has major cracks, missing material, structure leans, or visibly unsound.			

Ref.	Additional Notes/Comments

FORM 4.2- CONDITION OF PAINTED SURFACES

Date:		Name of Recorder			
Building/Unit No.		Name of Risk Assessor			
Building Component	**Paint Condition (intact, fair, poor, or not present)**	**Deterioration due to friction**	**Deterioration due to moisture**	**Painted component with teeth marks**	**Abatement recommendations**
Exterior siding					
Exterior trim					
Exterior windows					
Exterior doors					
Railings					
Porch floors					

Building Component	Paint Condition (intact, fair, poor, or not present)	Deterioration due to friction	Deterioration due to moisture	Painted component with teeth marks	Abatement recommendations
Other porch surfaces					
Interior doors					
Ceilings					
Walls					
Interior windows					
Interior floors					
Interior trim					

Building Component	Paint Condition (intact, fair, poor, or not present)	Deterioration due to friction	Deterioration due to moisture	Painted component with teeth marks	Abatement recommendations
Stairways					
Radiators/radiator covers					
Kitchen cabinets					
Bathroom cabinets					

Note: If the overall condition of a component is similar throughout a unit, that condition shall be recorded. If a component in a couple of locations is in poor condition, but the overall condition is good or fair, the specific sites of the badly deteriorated paint shall be noted. The specific locations of any component with bite marks shall be recorded.

Ref.	Additional Notes/Comments

FORM 4.3 FIELD SAMPLING FORM FOR DUST

Date:			Name of Recorder			
Building/Unit No.			Name of Risk Assessor			
Sample No.	Rooms Sampled	Sample Location	Dimension of sampled area (inches x inches)	Total surface area sampled (ft^2)	Type of surface sampled	Is surface smooth and cleanable?
			x		Smooth floor	
			x			
			x			
			x			
			x		Carpeted floors	
			x			
			x			
			x			
			x		Interior windowsills	
			x			
			x			
			x			

Sample No.	Rooms Sampled	Sample Location	Dimension of sampled area (inches x inches)	Total surface area sampled (ft^2)	Type of surface sampled	Is surface smooth and cleanable?
			x		Window troughs	
			x			
			x			
			x			
			x		Common area entry floor	
			x			
			x			
			x			
			x		Common area hallway/stairway floor or window	
			x			
			x			
			x			

Ref.	Additional Notes/Comments

FORM 4.4 - UNIT COMPLETION CHECKLIST

Date:		Name Recorder
Building/Unit No.		Name of Risk Assessor

	ITEM
	A visual assessment and sampling have been completed for the unit (i.e., dust, paint chip, and soil samples have been collected in accordance with the project protocol).
	Field forms have been checked for completeness and clarity, and have been returned to the unit file.
	Samples are sealed and placed in a single ziploc bag with COC.
	Necessary QC samples have been collected and documented (i.e., one per day for wipe blanks and, for template and soil sampling equipment decontamination (wipes), and one soil and paint chip duplicate for every twenty samples).
	Debris from sampling/inspection has been cleaned up.
	Sample locations have been noted on floor plans/field sketches.
	Sampling equipment has been decontaminated for next unit.
	Lights have been turned off and the doors and windows have been locked.
	Were any unit-associated play areas or "bare soil" areas identified?
	Were any "chewed" components identified?
	Were samples collected from chewed components?
	Note any potential issues of concern or follow-up issues below.

SECTION 5

SAMPLE HANDLING AND ANALYSIS

5.1 SAMPLE DESIGNATION

Each sample will be given a unique alphanumeric identifier in accordance with the classification system shown in Table 5.1. Duplicate samples will be assigned identifiers that do not allow the laboratory to distinguish them as duplicates. Each sample container will be labeled prior to packing for shipment. The sample identifier, site name, date and time of sampling, and analytical parameters will be written on the label in waterproof ink and recorded in the field book.

Although a standard identification system is not required by the HUD Guidelines the following procedures will be used to properly identify sample locations and components within selected building units:

1. Outside description of the structure:
    a. Letter the outsides of the building unit starting with the letter **A**. (**A** is the street side of the unit.)
    b. Starting at the **A** side, the rest are lettered consecutively (B, C, D) going clockwise around the house (assuming you were looking down on the house from above). Separate entries shall be made for the house exterior, porches, and garage for the exterior inspection.
2. Inside description of the structure:
    a. Room names.
        i. Floors of the unit are numbered as to what floor of the building they are on.
        ii. Unique rooms including the kitchen, pantry, bathroom, halls, and staircases are labeled as such on the inspection report.
        iii. Additional rooms, not stated above, shall be numbered starting with the number **1** in the **A-D** corner of the unit and moving clockwise around the unit (assuming you were looking down on the house from above). If the same unit has more than one floor, the numbering is continued on the other floor, starting in the **A-D** corner and proceeding clockwise.
    b. Interior room sides names:
        i. Label the street address side of each room as **a**.

ii. Other sides are lettered consecutively (**b, c, d**) moving clockwise around the unit (assuming you were looking down on the room from above).

c. Building components:

i. Group building components together based upon:

1. Similar component type (i.e. baseboard) and substrate (i.e. wood) regardless of room use (i.e. bathroom, kitchen , bedroom).

2. Components defined as part of a construction assembly (i.e. door, window).

3. Interior or exterior location of the component (i.e. window stool, exterior windowsill).

ii. Identify by room number and side allocation (for example: the radiator in Room 1, Side B; three windows in a room are differentiated by side allocation or if on the same wall by numbering the windows from left to right).

5.2 CHAIN OF CUSTODY

A COC record (Figure 5.1) will accompany the sample containers during selection and preparation at the laboratory, during shipment to the field, and during return shipment to the laboratory. The COC will identify each sample container and the analytical parameters for each, and will list the field personnel that collected the samples, the project name and number, the name of the analytical laboratory that will receive the samples, and the method of sample shipment. If samples are split and sent to different laboratories, a copy of the COC record will be sent with each sample shipment.

Method

- The COC will be completed by field personnel as samples are collected and packed for shipment.
- Erroneous markings will be crossed-out with a single line and initialed by the author.
- The blind duplicate will not indicate sample location.
- After the samples have been collected and sample information has been listed on the COC form, the method of shipment, and the shipper air bill number will be entered on the COC.
- Finally, a member of the sampling team will write his/her signature, the date, and time on the first RELINQUISHED BY space. Duplicate copies of each COC must be completed.

- One copy of the COC will be retained by sampling personnel. The other copy and the original will be sealed in a plastic bag and taped inside the lid of the shipping cooler.
- After the shipping container is closed, custody seals provided by the laboratory will be affixed to the latch and across the front and back of the cooler lid, and signed by the person relinquishing the samples to the shipper.
- The seal will be covered with clear tape, and the cooler lid will be secured by wrapping with packing tape.
- Then the cooler will be relinquished to the shipper, typically an overnight carrier.
- The COC seal must be broken to open the container. Breakage of the seals before receipt at the laboratory may indicate tampering. If tampering is apparent, the laboratory will contact the Parsons Project Manager, and the samples will not be analyzed.

5.3 SAMPLE DOCUMENTATION

The field team leader will retain a copy of the COC, and, in addition, the field team leader will ensure that the following information about each sample is recorded in the field book and/or the appropriate field forms:

- Sample identifier;
- Identification of sampled media (e.g., soil);
- Sample location with respect to known reference point;
- Physical description of sample location;
- Date and time of collection;
- Sample collection method;
- Number of sample containers;
- Analytical parameters; and
- Shipping information:
  - Dates and method of sample shipments,
  - COC Record numbers, and
  - Sample recipient (e.g., laboratory name).

5.4 LABORATORY ANALYSIS

1. Laboratory analysis of field samples will be conducted in accordance with HUD Guidance as presented in Attachment 4.

FORM 5.1 CHAIN OF CUSTODY RECORD

CLIENT:	PROJECT NO.	PROJECT MGR:	Send results to:
Griffiss AFB	*741316*	*Tom Abrams*	PARSONS 290 Elwood Davis Road-Suite 312 Liverpool, NY 13088 Telephone: (315) 451-9560 Fax: (315) 451-9570
PROJECT NAME: *LBP Risk Asses.*	NOTES - (Reference QAPP and/or analytical protocols to be used): ***1. 5 Day Turnaround.*** ***2. Sample prep. And analyis in accordance with HUD "Guidelines for the Evaluation and Conrol of Lead-based Paint Hazards in Housing".***		Lab Submitted to: EMSL 208 Stonehenge Lane Carle Place, NY 11514
SAMPLERS:			

FIELD SAMPLE ID	LOCATION DESCRIPTION						DATE	ANALYSES			COMMENTS
Sample No.	Building No.	Unit Letter	Matrix	Room No.	Surface Designation			Grab (G) or Composite (C)	*Flame Atomic Absorption*		**Describe sample location(s), components, and any other pertinent information including substrate**

Relinquished by: (Signature)	Date:	Shipped via:	Received by:(Signature)	Date:
Relinquished by: (Signature)	Date:	Shipped via:	Received by:(Signature)	Date:
Relinquished by: (Signature)	Date:	Shipped via:	Received by:(Signature)	Date:

Field Sample ID: Team 1 start with 1000, Team 2 start with 2000 and work consecutively.

Room No.: As designated on field marked floor plans.

Unit Letter: Use letter designation for units in multi-unit buildings.

Matrix: WP = wipe sample, PC = paint chip, SS = surface soil, RB = rinse blank

Surface Design.: "A" = front wall surface, "B" = next wall in clock-wise direction, etc., "E" = ceiling, and "F" = floor

QA/QC Guidance

Duplicate Samples: Collect one for every 20 samples.
Start with 700 series and use last two digits of corresponding sample.(e.g., Team 1 collects dup for sample 1123, dup would be have field ID of 1723).

Blank Sample: Collect one for every 50 samples.
Start with 800 series and number consecutively starting with 1 (e.g., Team 1 collects first blank, sample would be identified as 1801).

Spiked Sample: One spiked sample is "inserted" into the sample line-up for every 50 dust wipe sample.
Start with 900 series and number consecutively starting with 1. Laboratory sample identification only will be put in COC comment section..

Rinse Blank: Collect one rinse blank (done by wiping down equipment with fresh wipe after decontamination) for every 20 samples.
Number as normal sample, but identify as RB under Matrix.

SECTION 6

SAMPLING QA AUDITS

6.1 SAMPLING QA AUDITS

Sampling quality assurance (QA) audits will be conducted to verify that field work is conducted in accordance with the procedures specified in this document. The QA audits will be performed by the field technician.

Sampling QA audits will include, but will not be limited by, review of the following items:

- Decontamination procedures;
- Sampling procedures;
- Sampling container cleanliness, size, and material;
- Sample identification (labels and COC);
- Sample handling, and shipping;
- Sample tracking;
- Maintenance and calibration of sampling equipment; and
- Corrective action.

The audits will be conducted on a daily basis.

The Project Manager will be responsible for ensuring that all required corrective actions identified during an audit are acted upon promptly and satisfactorily. The QAO or a qualified designee will verify and document that satisfactory corrective action has been taken.

6.2 RECORD MAINTENANCE

A project file will be established to retain the documents and records generated during the project. Field records will be stored in the project file when not in use. At the conclusion of the work assignment the project file will be archived.

Field records that must be retained in the project files include:

- Field books and Forms;
- COC forms;
- Site photographs; and
- QA audit reports.

Equipment calibration and maintenance records will be retained by a designated Parsons' equipment manager for at least as long as the project files are retained (at least 3 years).

6.3 LABORATORY AUDIT

One post-work laboratory audit will be performed with a focus on project-specific requirements. The audit will consist of a one-day site visit to the laboratory and include a review of laboratory procedures (i.e., sample receipt, analysis, documentation, QA/QC, and sample retainage) applicable to this project. A letter Audit Report will be submitted summarizing the audit findings.

ATTACHMENT 1

WIPE SAMPLE PROCEDURES

Appendix 13.1: Wipe Sampling for Settled Lead-Contaminated Dust

Wipe samples for settled leaded dust can be collected from floors (both carpeted and uncarpeted), interior and sash/sill contact areas, and other reasonably smooth surfaces. Wherever possible, hard surfaces should be sampled. Wipe media should be sufficiently durable so that it is not easily torn, but can be easily digested in the laboratory. Recovery rates of between 80-120% of the true value should be obtained for all media used for wipe sampling. Blank media should contain no more than 25 µg/wipe (the detection limit using Flame Atomic Absorption). Additional standards for wipe sampling can be found by consulting ASTM ES 30-94.

1. Wipe Sampling Materials and Supplies

a. Type of disposable wipe: Any wipe material that meets the following criteria may be used:

(i) Contains low background lead levels (less than 5 µg/wipe)
(ii) Is a single thickness
(iii) Is durable and does not tear easily (do not use Whatman™ filters)
(iv) Does not contain aloe
(v) Can be digested in the laboratory
(vi) Has been shown to yield 80-120% recovery rates from samples spiked with leaded dust (not lead in solution)
(vii) Must remain moist during the wipe sampling process (wipes containing alcohol may be used as long as they do not dry out)

Examples of acceptable wipe media include: "Little Ones Baby Wash Cloths™," "Little Ones Baby Wipes Natural Formula™," or "Little Ones Baby Wipes Lightly Scented™," available at K-Mart Stores. This product is also available under the brand names "Pure and Gentle Baby Wipes™" and "Fame Baby Wipes™." Individually-packaged "Wash'n Dri Wipes" are also acceptable. "Wet Wipes," which are available at Walgreens and other stores, may also be used. Other brands are also acceptable if equivalence in both lead contamination (analysis of blanks) and laboratory digestion recoveries (analysis of wipes spiked with known amounts of leaded dust, not lead in solution) can be established. The wipes listed above have proven to be sufficiently durable under field use and to have acceptable recovery rates. Do not use "Little Ones Diaper Wipes," also available at K-Mart stores, or any other brand of wipes for which recovery data have not been established. Do not use wipes that contain aloe. Wipes that contain alcohol may be used as long as they do not dry out during the wipe process.

b. Non-sterilized non-powdered disposable gloves. Disposable gloves are required to prevent cross-sample contamination from hands.

c. Non-sterilized polyethylene centrifuge tubes (50 ml size) or equivalent hard-shell container that can be rinsed quantitatively in the laboratory.

d. Dust sample collection forms contained in these Guidelines

e. Camera & Film to document exact locations (Optional)

f. Template Options

i. Masking tape. Masking tape is used on-site to define the area to be wiped. Masking tape is required when wiping window sills and window wells in order to avoid contact with window jambs and channel edges. Masking tape on floors is used to outline the exact area to be wiped.

ii. Hard, smooth, reusable templates made of laminated paper, metal, or plastic. Note: Periodic wipe samples should be taken from the templates to determine if the template is contaminated. Disposable templates are also permitted so long as they are not used for more than a single surface. Templates must be larger than 0.1 ft^2, but smaller than 2 ft^2. Templates for floors are typically 1 ft^2. Templates are usually not used for windows due to the variability in size and shape (use masking tape instead).

g. Container labels or permanent marker.

h. Trash bag or other receptacle (do not use pockets or trash containers at the residence).

i. Rack, bag, or box to carry tubes (optional)

j. Measuring tape

k. Disposable shoe coverings (optional)

2. Single Surface Wipe Sampling Procedure

a. Outline Wipe Area:

Floors: Identify the area to be wiped. Do not walk on or touch the surface to be sampled (the wipe area). Apply adhesive tape to perimeter of the wipe area to form a square or rectangle of about one square foot. No measurement is required at this time. The tape should be positioned in a straight line and corners should be nominally perpendicular. When putting down any template, do not touch the interior wipe area.

Window sills and other rectangular surfaces: Identify the area to be wiped. Do not touch the wipe area. Apply two strips of adhesive tape across the sill to define a

wipe area at least 0.1 square foot in size (approx. 4 inches x 4 inches).

When using tape, do not cross the boundary tape or floor markings, but be sure to wipe the entire sampling area. It is permissible to touch the tape with the wipe, but not the surface beyond the tape.

b. Preliminary inspection of the disposable wipes:

Inspect the wipes to determine if they are moist. If they have dried out, do not use them. When using a container that dispenses wipes through a "pop-up" lid, the first wipe in the dispenser at the beginning of the day should be thrown away. The first wipe may be contaminated by the lid and is likely to have dried to some extent. Rotate the container before starting to ensure liquid inside the container contacts the wipes.

c. Preparation of centrifuge tubes:

Examine the centrifuge tubes and make sure that the tubes match the tubes containing the blind spiked wipe samples. Partially unscrew the cap on the centrifuge tube to be sure that it can be opened. Do not use plastic baggies to transport or temporarily hold wipe samples. The laboratory cannot measure lead left on the interior surface of the baggie.

d. Gloves

Don a disposable glove on one hand; use a new glove for each sample collected. If two hands are necessary to handle the sample, use two new gloves, one for each hand. It is not necessary to wipe the gloved hand before sampling. Use a new glove for each sample collected.

e. Initial placement of wipe:

Place the wipe at one corner of the surface to be wiped with wipe fully opened and flat on the surface.

f. First wipe pass - (side-to-side):

With the fingers together, grasp the wipe between the thumb and the palm. Press down firmly, but not excessively with both the palm and fingers (do not use the heel of the hand). Do not touch the surface with the thumb. If the wipe area is a square, proceed to wipe side-to-side with as many "S"-like motions as are necessary to completely cover the entire wipe area. (See step h for non- square areas.) Exerting excessive pressure on the wipe will cause it to curl. Exerting too little pressure will result in poor collection of dust. Do not use only the fingertips to hold down the wipe, because there will not be complete contact with the surface and some dust may be missed. Attempt to remove all visible dust from the wipe area.

g. Second wipe pass - (top-to-bottom):

Fold the wipe in half with the contaminated side facing inward. (The wipe can be straightened out by laying it on the wipe area, contaminated side up, and folding it over.) Once folded, place in the top corner of the wipe area and press down firmly with the palm and fingers. Repeat wiping the area with "S"-like motions, but on the second pass, move in a top-to-bottom direction. Attempt to remove all visible dust. Do not touch the contaminated side of the wipe with the hand or fingers. Do not shake the wipe in an attempt to straighten it out, since dust may be lost during shaking.

h. Rectangular areas (e.g. window sills):

If the surface is a rectangle (such as a window sill), two side-to-side passes must be made over half of this surface, the second pass with the wipe folded so that the contaminated side faces inward. For a window sill, do not attempt to wipe the irregular edges presented by the contour of the window channel. Avoid touching other portions of the window with the wipe. If there are paint chips or gross debris in the window sill, attempt to include as much of it as possible on the wipe. If all of the material cannot be picked up with one wipe, field personnel may use a second wipe at their discretion and insert it in the same container. Consult with the analytical laboratory to determine if they can perform analysis of two wipes as a single sample. When performing single-surface sampling, do not use more than two single surface wipes for each container. If heavily dust-laden, a smaller area should be wiped. It is not necessary to wipe the entire window well but do not wipe less than 0.10 ft^2 (approx 4" x 4").

i. Packaging the Wipe:

After wiping, fold the wipe with the contaminated side facing inward again, and insert aseptically (without touching anything else) into the centrifuge tube or other hard-shelled container. If gross debris is present, such as paint chips in a window well, make every attempt to include as much of the debris as possible in the wipe.

j. Labelling the Centrifuge tube:

Seal the tube and label with the appropriate identifier. Record the laboratory submittal sample number on the field sampling form (see Chapters 5 and 14).

k. Area Measurement:

After sampling, measure the surface area wiped to the nearest eighth of an inch using a tape measure or a ruler. The size of the area wiped must be at least 0.10 ft^2 in order to obtain an adequate limit of quantitation (25 µg/wipe is the typical detection limit with flame AA; 25 µg/0.10 square feet = 250 $µg/ft^2$, which is half of the HUD clearance criterion for interior window sills). No more than 2 square feet should be

wiped with the same wipe or else the wipe may fall apart. Record specific measurements for each area wiped on the field sampling form.

l. Form Completion

Fill out the appropriate field sampling forms (see Form 5.4 or Form 14.2 in these Guidelines) completely. Collect and maintain any field notes regarding type of wipe used, lot number, collection protocol, etc.

m. Trash Disposal:

After sampling, remove the masking tape and throw it away in a trash bag. Remove the glove; put all contaminated gloves and sampling debris used for the sampling period into a trash bag. Remove the trash bag when leaving the dwelling. Do not throw away gloves or wipes inside the dwelling unit where they could be accessible to young children, resulting in a suffocation hazard.

Repeat steps a. through m. for additional samples in the same dwelling unit.

3. Composite Wipe Sampling

Whenever composite sampling is contemplated, consult with the analytical laboratory to determine if the laboratory is capable of analyzing composite samples. When conducting composite wipe sampling, the procedure stated above should be used with the following modifications:

When outlining the wipe areas (step a), set up all of the areas to be wiped before sampling. The size of these areas should be roughly equivalent, so that one room is not over-sampled.

After preparing the centrifuge tube, put on the glove(s) and complete the wiping procedures for all subsamples (steps e-i). A separate wipe must be used for each area sampled. After wiping each area, carefully insert the wipe sample into the same centrifuge tube (no more than 4 wipes per tube).

Once all subsamples are in the tube, label the tube. Record a separate measurement for each area that is subsampled on the field collection form (see Form 5.4a or Form 14.2a for a sample form). Finally, complete trash disposal (step m), making sure that no masking tape is left behind.

Risk assessors and inspector technicians do not have to remove their gloves between subsample wipes for the same composite sample as long as their gloved hands do not touch an area outside of the wipe areas. If a glove is contaminated, the glove should be immediately replaced with a clean glove.

In addition to these procedural modifications, the following rules for compositing should be observed:

- Separate composite samples are required from carpeted and hard surfaces (*e.g.*, a single

composite sample should not be collected from both carpeted and bare floors).

- Separate composite samples are required from each different component sampled (*e.g.*, a composite sample should not be collected from both floors and window sills).

- Separate composite samples are required for each dwelling

4. Blank Preparation

After sampling the final dwelling unit of the day, but before decontamination, field blank samples should be obtained. Analysis of the field blank samples determines if the sample media is contaminated. Each field blank should be labeled with a unique identifier similar to the others so that the laboratory does not know which sample is the blank (i.e., the laboratory should be "blind" to the blank sample).

Blank wipes are collected by removing a wipe from the container with a new glove, shaking the wipe open, refolding as it occurs during the actual sampling procedure, and then inserting it into the centrifuge tube without touching any surface or other object. One blank wipe is collected for each dwelling unit sampled or, if more than one dwelling unit is sampled per day, one blank for every 50 field samples, whichever is less. Also, collect one blank for every lot used. Record the lot number.

5. Inspector Decontamination:

After sampling, wash hands thoroughly with plenty of soap and water before getting into car. A bathroom in the dwelling unit may be used for this purpose, with the owner's or resident's permission. If there is no running water in the dwelling unit, use wet wipes to clean the hands. During sampling, inspectors must not eat, drink, smoke, or otherwise cause hand to mouth contact.

6. Spike Sample Submission

Samples spiked with a known amount of leaded dust should be inserted into the sample stream randomly by the person conducting field sampling to determine if there is adequate quality control of the digestion process at the laboratory. Dust-spiked wipe samples should be submitted blindly to the laboratory by the individual performing field sampling at the rate of no less than one for every fifty field samples. Any laboratory can spike wipe samples using the procedure in Appendix 14.3. The laboratory performing the analysis of the field samples can also prepare the spike sample as long as the person performing the field sampling makes the spike sample indistinguishable from the field samples. The person conducting the field sampling should take the spike sample prepared in the laboratory and relabel the container with an identifier similar to the other field samples. The spike sample wipe should not be put into another container. Spike samples should be made using the same lot as that used in the field.

A dust-spiked sample is defined as a wipe or filter containing a known weight of lead-based paint dust, measured to the nearest 0.1 µg of leaded dust. A dust-spiked sample is prepared in a laboratory with the amount of lead-based dust present being between 50 - 1000 µg. For wipe

samples, labs should use NIST Standard Lead Paint Dust (Standard 1578) or an equivalent secondary standard. See Appendix 14.3 for further details.

7. Field Qualifications of Dust Sampling Technicians

All individuals performing dust sampling should have state-certified training. Where possible, field experience in environmental sampling is preferable.

8. Quality Assurance/Quality Control

Blind analysis of spiked samples must fall within 80% - 120% of the true value. If the laboratory fails to obtain readings within the QA/QC error limits:

a. Two more spikes should be sent immediately to the lab for analysis.

b. If the two additional spike samples fail, the sample batch should be considered invalid. A full review of laboratory procedures may be necessary. Additional samples may need to be collected from the dwelling units from locations near the locations previously sampled.

If more than 50 µg/wipe is detected in a blank sample, the samples should be collected again since the media is contaminated. Blank correction of wipe samples is not recommended.

9. Other Information

See Chapter 5 and Chapter 14 for additional information on dust wipe sampling. Also see "Residential Sampling for Lead: Protocols for Leaded Dust and Soil Sampling" from EPA and ASTM ES 30-94 for further information.

ATTACHMENT 2

PAINT SAMPLE PROCEDURES

Appendix 13.2
Paint Chip Sampling

Dust sampling must always be done **before** paint chip sampling in order to minimize the prospect of cross-sample contamination. Paint chip sampling is a destructive method that may release a small quantity of lead dust. Although paint chip samples are to be collected from inconspicuous areas, the occupant must always be notified that paint chip sampling may be necessary.

1. Paint Chip Sampling Tools and Materials

a. Sharp stainless steel paint scraper (such as Proprep™ Scraper, $7.50, 1-800-255-4535) available at many paint stores.

b. Disposable wipes for cleaning paint scraper.

c. Non-sterilized non-powdered disposable gloves.

d. Hard-shelled containers (such as non-sterilized 50-ml polypropylene centrifuge tubes) that can be rinsed quantitatively for paint chip samples if results are to be reported in mg/cm^2. Ziplock baggies can be used only if results are to be reported in µg/g or percent by weight.

e. Collection device (clean creased piece of paper or cleanable tray).

f. Field sampling and laboratory submittal forms.

g. Tape measure or ruler (if results are reported in mg/cm^2).

h. Ladder.

i. Plastic trash bags.

j. Flashlight.

k. Adhesive tape.

l. Heat Gun or other heat source operating below 1100°F to soften the paint before removal.

2. Containment

a. Method One: Plastic Sheeting Underneath Sampling Area

A clean sheet of plastic measuring four feet by four feet should be placed under the area to be sampled to capture any paint chips that are not captured by the collection device or creased piece of paper. Any visible paint chips falling to the plastic should be included in the sample. Dispose of the plastic after each sample is collected by placing the sheeting in a trash bag. Do not throw away the plastic at the dwelling. Wet wipes may be used to clean the area.

b. Method Two: "Glovebag" Approach

If further containment is deemed necessary, a "glovebag" approach may be used. A durable sheet of plastic is loosely taped to the surface to be sampled, with a paint scraper, collection device, and shipment container housed inside the plastic. There should be enough "play" in the plastic to permit a scraping motion without dislodging the tape holding the plastic to the surface. Large plastic baggies can be used in lieu of the sheet of plastic if paint chips are to be shipped to the lab in plastic baggies. Properly conducted, this method completely seals the surface during the actual scraping operation. A four by four foot sheet of plastic is still required under the glove bag to capture any debris that falls to the ground during the glove bag removal. The tape should be slowly removed from the surface to avoid lifting any additional paint off of the surface.

3. Paint Sample Collection

The paint chip sample need not be more than 2-4 square inches in size (consult with the laboratory for the optimum size). Persons collecting paint chips should wear new disposable gloves for each sample.

The most common paint sampling method is to scrape paint directly off the substrate. The goal is to remove all layers of paint equally, but none of the substrate. A heat gun should be used to soften the paint before removal to reduce the chances of including substrate with the sample and to help prevent sample loss. Including substrate in the sample will dilute the lead content if results are reported in µg/g or weight percent. Hold the heat gun no closer than six inches from the surface. Do not scorch the paint. Discontinue heating as soon as softening or blistering is observed.

Use a razor-sharp scraper to remove paint from the substrate. Paint samples collected in this fashion are usually reported in µg/g or % lead only. The sample may be placed in a baggie for shipment to the laboratory.

If the area sampled is measured exactly, and all the paint within that area can be removed and collected, it is possible to also report the results in mg/cm^2. All of the sample must be placed in a hard-shelled container for shipment to the laboratory. The hard-shelled container is used since the laboratory will analyze the entire sample submitted. The exact dimensions of the area sampled must be recorded on the field sampling form. For mg/cm^2, including a small amount of substrate in the sample is permitted.

4. Composite Paint Chip Sample Collection

Paint chip samples may be composited by collecting individual subsamples from different surfaces. If results are reported in mg/cm^2, each subsample should be exactly the same size in surface area. If results are reported in weight percent or µg/g, each subsample should have about the same weight (weighing is done in a laboratory). The result is then compared to the standard for lead-based paint divided by the number of sub-samples (the composite standard). If the result is above this number, one or more of the samples may be above the standard. Each sub-sample should be reanalyzed individually in this case. If the result is below this number, none of the sub-samples can contain lead above the standard. No more than 5 subsamples should be included in the same sample container or ziplock baggie. If both single-surface and composite samples

are collected side-by-side, the individual samples can be submitted for analysis without returning to the dwelling if the composite result is above the composite standard. If the laboratory does not analyze the entire composite sample, it must use a validated homogenizing technique to ensure that all sub-samples are completely mixed together.

5. Cleanup and Repair

a. All settled dust generated must be cleaned up using wet wipes.

b. The surface can be resealed with new paint if necessary. If desired, apply spackling and/or new paint to repair the area where paint was removed.

c. Personnel conducting paint sampling should avoid hand-to-mouth contact (specifically, smoking, eating, drinking, and applying cosmetics) and should wash their hands with running water immediately after sampling. The inspector should ask to use the resident's bathroom for this purpose. Wet wipes may be used if no running water is available or if the bathroom is not available.

6. Laboratory Submittal

The samples should be submitted to a laboratory recognized by the EPA National Lead Laboratory Accreditation Program. Appropriate sample submittal forms should be used. The field sample number should appear on the field sampling form, the laboratory submittal form, and the container label. The name of the laboratory, the date the samples were sent to the lab, and all personnel handling the sample from the time of collection to the time of arrival at the laboratory should be recorded on a chain of custody form, if appropriate.

See Appendix 14 for the laboratory analytical procedures to be used.

7. Qualifications of Paint Sampling Technicians

All individuals performing paint sampling should be certified. Where possible, field experience in environmental sampling is preferable.

8. Other Information

See ASTM ES 28-94 and ES 37-94 for additional information

ATTACHMENT 3

SOIL SAMPLE PROCEDURES

Appendix 13.3: Soil Sampling Protocol For Housing

A. Collection Technique General Description

Bare soil samples are typically collected with a coring device or a scooping technique. The device may be used in either of two ways. Most coring devices come equipped with a "T" handle which can be attached to the top of the coring tool or probe. This allows the operator to push the tool into the ground. The coring tool can be twisted with the "T" handle as it is pushed into the ground in order to allow the cutting edge of the soil probe to cut through roots and packed earth. In softer soils, a disposable new plastic syringe at least ½ inch diameter can be used for each composite sample

The other method for using the coring tool is to attach a hammer device to the top of the coring tool. To utilize the coring tool in this manner, the hammer device is first attached to the top of the coring tool and the tip of the probe is placed on the ground where the sample is to be collected. The hammer is then raised and allowed to fall while it is guided by the operator's hands. The hammer attachment may be the most appropriate tool when the nature of the soils is hard and compacted. Otherwise the "T" handle is easier to use.

The soil samples are collected by driving or pushing the coring tool into the ground, usually about ½ inch deep. The tool is then moved gently from side to side to loosen a plug of soil. The tool is then pulled from the ground and the soil sample is pushed so that the upper part of the soil plug lies between one inch marks made on the coring device. The top one half inch of the soil sample is then cut from the core with a stainless steel knife or cutting tool provided for that purpose. This top one half inch section of the soil core is then transferred to a sample container. All sub-samples are collected in this manner. The collection of subsamples from the sampling line is referred to as a "composite" sample.

After collecting a composite sample, the soil probe should be decontaminated or discarded if disposable core liners are used. This process consists of wiping the end of the probe with wet wipes until no more visible dirt is removed from the probe. Similar cores are then collected from the bottom inch of the six-inch core.

B. Materials and Supplies

1. Core sampling device: Standard soil coring device. Other similar core sampling devices may be used, such as disposable plastic syringes with the end cut off. The plunger is used to remove the soil from the syringe body.

2. Disposable wipes.

3. Non-sterilized 5" x 8" plastic ziplock baggies: Unless baggies are 4 mil industrial strength, they must be double bagged

4. Non-sterilized non-powdered disposable gloves: For example, Action Scientific (800-678-1033) No. A-105

5. Floor Plan & Property Sketch

6. Soil Sample Collection Form

7. Laboratory submittal form

8. Pre-printed labels or permanent ink pen

9. Trash bag or other receptacle (do not use pockets or trash containers at the residence)

C. Bare Soil Sampling Procedures

1. Soil sampling is not recommended when the ground is frozen.

2. The location of soil samples should be recorded on the exterior site plan sketch.

3. Perimeter Sampling Locations: One composite soil sample should be collected so that at least 5 and no more than 10 different aliquots of surface soil are collected from the building perimeter. The aliquots should be collected from all sides of the building where bare soil is present. Each spot should be at least 2 feet distant from each other and 2 feet away from the foundation, unless the bare soil is closer than 2 feet.

4. Play Area Sampling Locations: A second composite sample should consist of at least 5 and no more than 10 aliquots collected along an X-shaped grid in the child's principle play area. Each spot should be at least 1 foot distant from each other. The soil where the aliquots are collected must be bare.

5. The core sampling device should be used to deliver the top ½ inch of soil from each spot to the baggie. No special effort should be made to collect visible paint chips. If paint chips are present, they should not be avoided and should be included in the sample. When sampling play areas, the inspector should make an effort to avoid including grass, twigs, stones, and other gross debris in the sample.

6. When all aliquots of the composite sample have been placed in the baggie, the baggie should be ziplocked. If the baggie is not 4 mil industrial weight, the sample should be double bagged. A label with the sample number should be affixed to the baggie. The number should be recorded on the soil plat form showing the approximate location of each sample and the soil collection field data form.

7. The core sampler should be cleaned with a disposable wipe after each composite sample is collected. If a disposable core sampler is used, it can be used for all sub-samples, but not new composite samples unless it is cleaned thoroughly.

D. Laboratory Submittal

1. Submittal Form Preparation

   The sample numbers on the sample container must be the same as those on the field sampling form and must also be used on the laboratory submittal form. Confirm that all samples recorded on are in fact present on the laboratory submittal form.

   Chain of custody requirements should be followed if applicable.

E. Laboratory Analytical Procedure

1. Laboratories analyzing soil samples must participate in the Environmental Lead Laboratory Proficiency Testing Program or equivalent and be an EPA-NLLAP Accredited Laboratory.

2. Soil samples are received, logged in, opened and placed on drying plates, dried, and mixed thoroughly.

3. Sample sieving: Samples are to be sieved once with a number 10 sieve with a mesh size of 2 millimeters. Visible paint chips are disaggregated by forcing the paint chips and other large particles through the sieve by a rubbing motion. Sieving is always done under a laboratory hood.

4. Samples are oven dried to a constant weight and analyzed by EPA Method SW-846 or equivalent.

F. See ASTM ES 29-94 for further information.

ATTACHMENT 4

LABORATORY ANALYSIS

Appendix 14.1: Laboratory Analytical Procedures

Methods used for analysis of samples for lead should be the methods used by the EPA Recognized Laboratory to analyze Environmental Lead Proficiency Analytical Testing (ELPAT) Program samples. ELPAT samples are distributed by the American Industrial Hygiene Association (703-849-8888). These methods are part of the laboratory accreditation process, and are standard operating procedures for analysis of samples.

Further information is available from the EPA Document Residential Sampling for Lead: Protocols for Lead Dust and Soil Sampling. Also see ASTM ES 36-94, ASTM ES 37-94, and ES 35-94

The following are methods which can potentially be used to analyze some types of lead samples. None of the methods listed below have been developed to analyze paint chips specifically. It is the laboratory's responsibility to demonstrate the use of any specific technique or reference materials of the same matrix and mass range of the samples being submitted for analysis. Only laboratories accredited through EPA's National Lead Laboratory Accreditation program should be used.

1. Standard Operating Procedures for Lead in Paint by Hotplate- or Microwave-Based Acid Digestions and Atomic Absorption or Inductively Coupled Plasma Emission Spectrometry, September 1991, NTIS Publication PB92-114172 (EPA 600/8-91/231)

2. NIOSH Methods 7082 and 7300 (NIOSH Manual of Analytical Methods, Third Edition, 1984, Revised 8/15/90, DHHS SN-917-011-00000-1)

3. EPA Methods 200.7, 200.8, 200.9 and 239.2 (Methods for the Chemical Analysis of Water and Wastes, March 1983, NTIS Publication PB84-128677 and Methods for the Determination of Metals in Environmental Samples, June 1991, NTIS Publication 91-231498)

4. EPA Methods 6010, 6020, 7420 and 7421 (Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA SW-846, Third Edition, revised November 1986, EPA Publications PB88-239223 and PB89-148076)

5. Standard Method 3500-Pb (Standard Methods for the Examination of Water and Wastewater, 17th Edition, 1989, APHA/AWWA/WPCF/American Public Health Association)

6. ASTM Methods D3335 and D3618 (Annual Book of ASTM Standards, American Society of Testing and Materials, Philadelphia, PA published annually)

7. EPA Reference Method for the Determination of Lead in Suspended Particulate Matter Collected from Ambient Air (40 CFR Part 50, Appendix G)

8. EPA Method 3015, Microwave Assisted Acid Digestion of Aqueous Samples and Extracts

9. EPA Method 3051, Microwave Assisted Digestion of Sediments, Sludges, Soils, and Oils

10. EPA Method 3050, Acid Digestion of Sediments, Sludges, and Soils

The EPA Office of Pollution Prevention and Toxics has established and oversees the National Lead Laboratory Accreditation Program.

The EPA recognizes a laboratory accrediting organization for the National Lead Laboratory Accreditation Program based on the requirements and conditions set forth in a memorandum of understanding on collaboration between the organization and the National Lead Laboratory Accreditation Program. Laboratories accredited by the organization for the National Lead Laboratory Accreditation Program are recognized by EPA as capable of analyzing lead in dry paint, dust, or soil samples during the period of their accreditation.

A list of recognized laboratories is available from:

1. EPA Lead Hotline: 1-800-424-LEAD

2. National Institute for Occupational Safety and Health (NIOSH)
   1-800-35-NIOSH

Lists of recognized laboratories are also available from the accrediting organizations. Organizations currently offering recognized laboratory accreditation programs are:

- American Association for Laboratory Accreditation (A2LA)
  656 Quince Orchard Road #300
  Gaithersburg, MD 20878
  (301) 670-1377

- American Industrial Hygiene Association (AIHA)
  2700 Prosperity Ave., Suite 250
  Fairfax, VA 22031
  (703) 849-8888

Additional organizations may be added at a later date.

All NLLAP accredited laboratories must participate successfully in the Environmental Lead Proficiency Analytical Testing (ELPAT) program, administered by the American Industrial Hygiene Association under a cooperative research and development agreement with the National Institute for Occupational Safety and Health.

Appendix 14.2: Procedure for the Digestion of Wipe Samples Using Diaper Wipes

Note: Other digestion methods may also produce suitable recovery rates (80%-120% of the "true value" for spiked wipe samples using a known amount of leaded dust).

I. Digestion of Single Surface Samples

Remove and unfold the wipe from the shipment container. Cut the wipe into small pieces and place in a 125 ml Phillips beaker. Quantitatively rinse the shipment container into the Phillips beaker. Cover the wipe with 10 ml of distilled water. Add 2 ml of concentrated HNO_3 and 2 ml of HCl. Gently heat for 20-30 minutes under reflux. Cool and transfer both the liquid and the bulk material left to a 50 ml volumetric flask. If there is too much bulk material left over, rinse with distilled water and squeeze with a glass rod. Add distilled water to make up to final volume. Prior to analysis by AA or ICP, an aliquot is filtered through ashless filter paper, then centrifuged at 9K rpm for 20 minutes. The supernatant liquid is drawn off and analyzed by AA, ICP, or other equivalent method.

II. Digestion of Composite Wipe Samples

The following method can be used to analyze composite dust wipe samples for lead when no more than four single surface samples are combined into a single surface composite sample (i.e., each sample container holds no more than four wipes).

The four wipe samples from each container are cut into smaller pieces and placed into a 250 ml Phillips beaker. Following the addition of 40 mL water, 8 mL concentrated HNO_3, and 8 mL concentrated HCl, the entire sample is refluxed at approximately 100°C for 50 minutes. Upon cooling, the contents in the flask are transferred quantitatively into a 100 mL volumetric flask and brought up to volume using distilled water. To ensure quantitative transfer, the wipes should be squeezed using a glass rod. Prior to analysis, an anliquot is filtered through ashless filter paper, then centrifuged at 9k rpm for 20 minutes. The supernatant liquid is drawn off and analyzed by AA, ICP, or other equivalent method.

Appendix 14.3: Procedure for the Preparation of Field Spiked Wipe Samples

There is currently no analytical grade wipe media suitable for wipe sampling in residences. A variety of commercial media are being used instead (see Appendix 13.1). Because laboratory accreditation programs do not currently provide spiked wipe samples using wipe sampling media commonly used in the field, it is necessary to prepare spiked wipe samples using the specific brand of wet wipes that will actually be used in order to determine if the laboratory digestion procedure is capable of achieving recovery rates between 80 - 120% for the specific brand of diaper wipe used in the field. Some reports indicate that recovery rates can be as low as 40% using certain types of wipes.

These field spiked samples are in addition to those the laboratory prepares for its own internal QA/QC program. The samples are not actually prepared in the field, but are manufactured under laboratory conditions. They are then relabelled in the field and inserted into the sample stream in a random and blind fashion. The spikes should be prepared using the same lot as that used in the field, since recoveries can vary by lot. The lot should be analyzed before use to ensure that there is not background contamination.

The following procedure may be used to prepare spiked wipe samples.

1. Obtain a Standard Reference Material containing a certified concentration of lead, such as NIST Standard 1579a (Powdered Lead-Based Paint) or Standard 1648 (Urban Particulate), or a traceable secondary standard with a known amount of lead.

2. Weigh out between 50 - 500 µg of lead (not total dust) to the nearest microgram.

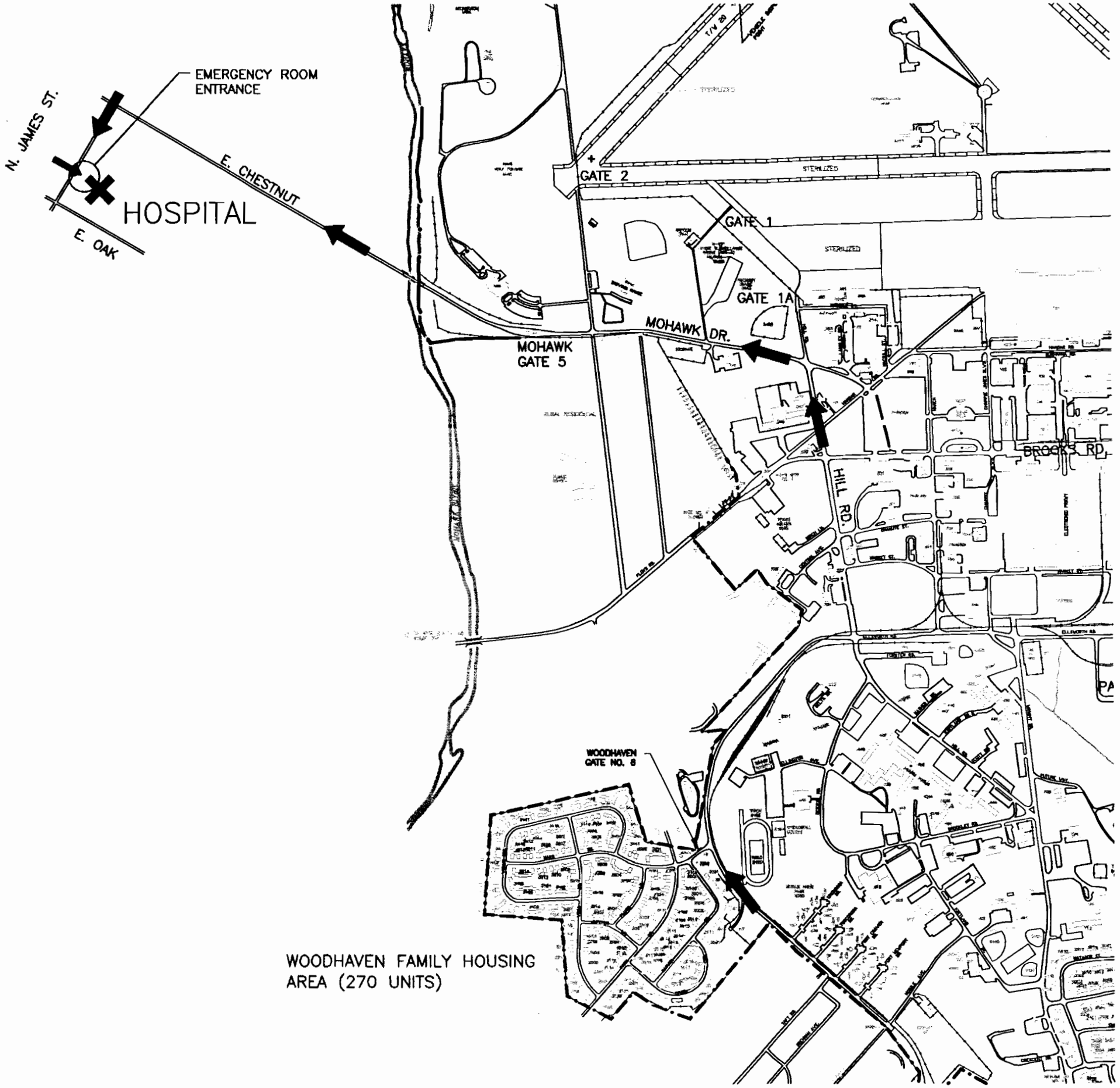
3. Don a new disposable glove to handle each new wipe sample.

4. If tared weighing boats are used, quantitatively transfer all of the material from the boat to the wipe by wiping the boat thoroughly.

5. If glassine paper is used, be certain that the dust transfer was complete.

6. Do not let the wipe touch any other surface. Fold the wipe with the spiked side inward and carefully insert it into a non-sterilized 50 ml centrifuge tube or other hard-shelled container that is identical to the containers that will hold the field samples. The containers holding the spiked samples should be indistinguishable from those holding the field samples so that the analysis can be performed blindly. This means the same container or tube should be used to hold field samples and wipe samples.

7. Have the spiked sample inserted into the sample stream randomly, with at least one spiked sample for each 50 field samples analyzed and one blank for each sample batch.



1000 500 0 1000 2000

SCALE: 1"=1000'

FIGURE 1

GRIFFISS AIR FORCE BASE
ROME, NEW YORK

ROUTE TO HOSPITAL MAP
FOR WOODHAVEN HOUSING AREA

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

No XREFs
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APPENDIX B

HEALTH AND SAFETY PLAN

LEAD-BASED PAINT RISK ASSESSMENT/INSPECTION SELECTED HOUSING AT GRIFFISS AIR FORCE BASE, NEW YORK

Contract: F41624-00-D-8024, Delivery Order: 0072

Prepared for:

Air Force Center for Environmental Excellence

Brooks Air Force Base, Texas

Prepared By:

PARSONS

Liverpool, New York

FEBRUARY 2002

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HEALTH AND SAFETY PLAN SUMMARY

EMERGENCY CONTACTS

Emergency contacts are listed on Table 1.

EMERGENCY PROCEDURES

Emergency procedures are described in Section 6.

SITE SPECIFIC HAZARDS AND TRAINING

Site Specific Hazards are described in Section 2.

The Site Safety Officer will be responsible for providing site-specific training to all personnel that work at the site. This training will cover the following topics:

- Names of personnel responsible for site safety and health.
- Safety, health, and other hazards at the site.
- Proper use of personal protective equipment (PPE).
- Work practices by which the employee can minimize risk from hazards.
- Acute effects of compounds at the site.
- Decontamination procedures.

Personnel will be required to sign and date the Site-Specific Training Form provided in Attachment 1 prior to working on-site.

GENERAL HEALTH AND SAFETY REQUIREMENTS

Personnel will be required to sign and date the Plan Acceptance Form provided in Attachment 1 prior to working on-site. Standard Safe Work Practices are also presented in Attachment 1.

Personnel Protective Equipment

Level D protection will be worn for initial entry on-site and for all activities except as noted in Section 3. Level D protection will consist of:

- Standard work clothes
- Steel-toe safety boots
- Safety glasses or goggles must be worn when splash hazard is present
- Latex inner gloves must be worn during all sampling activities
- Hard hat (must be worn during all sampling activities)

Level C protection, unless otherwise specified in Section 3, will consist of Level D equipment and the following additional equipment:

- Full-face air-purifying respirator
- P-100 HEPA cartridges
- Tyvek coveralls
- Latex, PVC or nitrile gloves

Level B protection is not anticipated:

Air Monitoring

Air monitoring is not anticipated for this project since the potential for exposure to airborne lead dust particles is anticipated to be minimal. A majority of the field effort will consist of visual inspection and non-intrusive sampling with an XRF unit.

A summary of the action levels and restrictions is presented in Table 2.

TABLE 1

EMERGENCY CONTACTS
GRIFFISS AFB

In the event of any situation or unplanned occurrence requiring assistance, the appropriate contact(s) shall be made from the list below. For emergency situations, contact shall first be made with the field team leader (or designee) who will notify emergency personnel who will then contact the appropriate response teams. This emergency contacts list must be in an easily accessible location at the site.

Emergency Contacts	**Phone Number**
(OSHA – Syracuse office)	(315) 451-0808
Contingency Contacts	
Nearest phone located on site	TBD
Police	911
Fire Department (Rome Fire Department)	(315) 339-7733
Fire Department (Rome Fire Department: Non Emergency)	(315)-339-7784
State Police (Marcy, NY)	(315)-736-0122
Rome Police Department (Rome, NY)	(315)-337-3311
Sheriff (Oneida County)	(315) 337-3360
UFPO (NYS One call system)	(800) 962-7962
Poison Control Center: (Syracuse)	(800) 252-5655
Parsons Contract Physician: **Qualisys**	(800) 874-4676
Pollution Toxic Chemical Oil **Spills**:	(800) 424-8802
Medical Emergency	
Ambulance Service:	911
Fire	911
Hospital Name:	Rome Memorial
Hospital Phone Number:	(315) 338-7000
Hospital Address:	1500 North James St., Rome, NY 13440
Map to Hospital:	Figure 1
Travel Time From Site:	~10 minutes

TABLE 1 (CONTUNIED)

EMERGENCY CONTACTS
GRIFFISS AFB

Route to Hospital

1. Exit left out of the Woodhaven Housing Area at Woodhaven Gate No. 6.
2. Proceed northeast towards Hill Road.
3. Turn left onto Hill Road.
4. Proceed north until intersection with Mohawk Drive.
5. Trun left onto Mohawk Drive and proceed northwest exiting the base at Mohawk Gate NO.5.
6. Cross over Mohawk River and Black River Blvd. (Rt. 46) and proceed northwest on E. Chestnut Street.
7. Turn left on N. James Street.
8. Turn left at Emergency Room Entrance. Hospital is at the corner of North James Street and East Oak Street.

Parsons Contacts

Project Manager: Tom Abrams (Syracuse)	(315) 451-9560
Office Health & Safety Rep.: Dale Dolph (Syracuse)	(315) 451-9560

Griffiss AFB, NY Contacts

Mark Rabe	(315) 330-2275

TABLE 2

SUMMARY OF ACTION LEVELS AND RESTRICTIONS

Readings	Action Level or Restriction
Lead in air exposure values	
0-0.03 mg/m^3	D
0.03 – 0.5 mg/m^3	C
> 0.5 mg/m^3	Full Face Upgrade

Air monitoring results, if collected, will be posted as soon as they are available. In most cases, air monitoring results will be available at the end of the next working day.

SECTION 1

INTRODUCTION

1.1 PURPOSE AND POLICY

The purpose of this Health and Safety Plan (HASP) is to establish personnel protection standards and mandatory safety practices and procedures. This plan assigns responsibilities, establishes standard operating procedures, and provides for contingencies that may arise while operations are being conducted at the Griffiss AFB (GAFB) Lead Risk Assessment/Inspection Site.

The provisions of the plan are mandatory for all on-site personnel. Any supplemental plans used by subcontractors shall conform to this plan as a minimum. All personnel who engage in project activities must be familiar with this plan, comply with its requirements, and sign the Plan Acceptance Form (Attachment 1), prior to working on the site. The Plan Acceptance Form must be submitted to the Parsons Health and Safety Officer (HSO).

1.2 SITE DESCRIPTION

The former GAFB is located in Oneida County, New York, and approximately two miles northeast of the city of Rome in central New York State. The risk assessment will take place in multiple unoccupied housing units located within the Woodhaven Housing Area. The buildings do not have power and lighting, so working hours will start at 7 am and continue until dusk, expected to occur before 6 pm.

1.3 SCOPE OF WORK

Parsons has been contracted by the Air Force Center for Environmental Excellence (AFCEE) to perform Risk Assessment/Inspections for units located in the Woodhaven Housing Area at the former GAFB. The scope-of-work for Parsons' employees will be to conduct an investigation, which will include the following activities:

1. Confirm the existence and location of lead-based paint (LBP) within the Woodhaven Housing Area.
2. Confirm the existence, location, nature and severity of LBP hazards.

The sampling for lead-contaminated dust, paint, soil, and other surfaces will be conducted by EPA-certified lead risk assessors, with assistance from a non-certified helper.

1.4 PROJECT TEAM ORGANIZATION

Table 1.1 describes the responsibilities of all on-site personnel associated with this project. The names of principal personnel associated with this project are: The names of principal on-site personnel associated with this project are delineated below:

Project Manager:	Tom Abrams
Site Supervisor:	Dale Dolph
Parsons H&S Officer:	Dale Dolph

All Parsons' personnel have been appropriately trained in first aid and lead abatement safety procedures, including the operating and fitting of personal protective equipment, and are experienced with the field operations planned for this site.

TABLE 1.1
ON-SITE PERSONNEL
AND RESPONSIBILITIES

PROJECT MANAGER - Assumes total control over site activities. Reports to upper-level management. Has authority to direct response operations.

Responsibilities:

- Prepares and organizes the background review of the situation, the Work Plan, the Site HASP, and the field team.
- Obtains permission for site access and coordinates activities with appropriate officials.
- Ensures that the Work Plan is completed and on schedule.
- Briefs the field team on their specific assignments.
- Coordinates with the site HSO to ensure that health and safety requirements are met.
- Prepares the final report and support files on the response activities.
- Serves as the liaison with public officials.

SITE SAFETY OFFICER - Advises the Project Manager on all aspects of health and safety on site. Stops work if any operation threatens worker or public health or safety.

Responsibilities:

- Ensures that necessary Health and Safety Equipment is available on-site. Ensures that all equipment is functional.
- Periodically inspects protective clothing and equipment.
- Ensures that protective clothing and equipment are properly stored and maintained.
- Controls entry and exit at the Access Control Points.
- Coordinates health and safety program activities with the Office Health and Safety representative.
- Confirms each team member's suitability for work based on a physician's recommendation.
- Monitors the work parties for signs of stress, such as cold exposure, heat stress, and fatigue.
- Implements the HASP.

TABLE 1.1 - CONTINUED
ON-SITE PERSONNEL
AND RESPONSIBILITIES

Site Safety Officer Responsibilities (continued)

- Conducts periodic inspections to determine if the Site HASP is being followed.
- Enforces the "buddy" system.
- Knows emergency procedures, evacuation routes, and the telephone numbers of the ambulance, local hospital, poison control center, fire department, and police department.
- Notifies, when necessary, local public emergency officials.
- Coordinates emergency medical care.
- Sets up decontamination lines and the decontamination solutions appropriate for the type of chemical contamination on the site.
- Controls the decontamination of all equipment, personnel, and samples from the contaminated areas.
- Assures proper disposal of contaminated clothing and materials.
- Ensures that all required equipment is available.
- Advises medical personnel of potential exposures and consequences.
- Notifies emergency response personnel by telephone or radio in the event of an emergency.

FIELD TEAM LEADER - Advises the Project Manager on all aspects of health and safety on site. Stops work if any operation threatens worker or public health or safety. Is directly responsible for the field team and the safety of site operations.

Responsibilities:

- Manages field operations.
- Executes the Work Plan and schedule.
- Enforces safety procedures.
- Coordinates with the Site HSO in determining the personal protection level.
- Enforces site control.
- Documents field activities and sample collection.
- Serves as a liaison with public officials.

WORK TEAM - Inspectors, samplers. The work party must consist of at least two people.

Responsibilities:

- Safely completes the on-site tasks required to fulfill the Work Plan.
- Complies with Site HASP.
- Notifies Site HSO or supervisor of suspected unsafe conditions.

SECTION 2

RISK ANALYSIS

2.1 CHEMICAL HAZARDS

Potential contaminants that may be encountered while conducting field tasks at the GAFB include dust originating from lead paint. Shall the scope of work change, the action limits established for this HASP shall be re-evaluated. Some relevant properties of lead are shown in Table 2.1.

A material safety data sheet (MSDS) has been included for specific hazards of lead dust (Attachment 2). Other MSDSs will be obtained as required prior to work commencing at the site.

This project entails the sampling of exterior soils, floors, walls, and ceilings of 160 housing units. These units potentially contain lead dust and lead contaminated paint.

2.2 BIOLOGICAL HAZARDS

No biological hazards are expected at the site.

2.3 PHYSICAL HAZARDS

2.3.1 Building Safety

Presently there is no power or heat in any of the buildings that are scheduled to be inspected. Preliminary inspections of some of the buildings indicate that they are for the most part structurally sound. A number of the buildings that are scheduled for inspection have been vandalized and contain broken glass both inside and outside the premises.

Prior to beginning inspection activities at each building, the inspection team shall perform a walk through to evaluate any unsafe conditions that may exist. Inspection teams will have flashlights and will exercise caution when performing inspections in dimly lit areas. Gas service to the houses has been shut off so explosion hazards are not believed to exist.

2.3.2 Heat Stress

The use of Level C protective equipment, or greater, may create heat stress. Monitoring of personnel wearing personal protective clothing shall commence when the ambient temperature is 70°F or above. Table 2.2 presents the suggested frequency for such monitoring. Table 2.3 presents the apparent temperature for a given humidity and ambient temperature (readings in shade) and indicates when the risk for heat related illness is likely. To use this table, the ambient temperature and relative humidity must be obtained (a regional weather report shall suffice). Heat stress monitoring shall be by the Site HSO, who shall be able to recognize symptoms related to heat

TABLE 2.1 - HEALTH HAZARD QUALITIES OF HAZARDOUS SUBSTANCES OF CONCERN

Compound	PEL [1] (ppm)	TLV [2] (ppm)	IDLH [3] (ppm)	Odor Threshold [4] (ppm)	Ionization Potential [5] (eV)	Physical Description	Health Effects	Symptoms
Lead	(0.05 mg/m^3) [6] (29 CFR 1910.1025) [8]	0.05 mg/m^3	100 mg/m^3	NA [7]	NA	Heavy, ductile, bluish-gray soft metal Mutagen, experimental teratogen, and suspected carcinogen.	Facial pallor, anorexia, malnutrition, gastritis, colic, gingival lead line, anemia, and kidney disease.	Exhaustion, insomnia, facial pallor, low-weight, constipation, abdominal pain, wrist and ankle paralysis, joint pains, tremors, and low blood pressure.

1. PEL = Permissible Exposure Limit. OSHA enforced average air concentration to which a worker may be exposed for an 8-hour workday without harm. Expressed as parts per million (ppm) unless noted otherwise. PELs are published in the *NIOSH Pocket Guide to Chemical Hazards*, 1994. Some states (such as California) may have more restrictive PELs. Check state regulations.
2. TLV = Threshold Limit Value - Time-Weighted Average. Average air concentration (same definition as PEL, above) recommended by the American Conference of Governmental Industrial Hygienists (ACGIH), *1999-2000 Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.*
3. IDLH = Immediately Dangerous to Life or Health. Air concentration at which an unprotected worker can escape without debilitating injury or health effects. Expressed as ppm unless noted otherwise. IDLH values are published in the *NIOSH Pocket Guide to Chemical Hazards*, 1994.
4. When a range is given, use the highest concentration.
5. Ionization Potential, measured in electron volts (eV), used to determine if field air monitoring equipment can detect substance. Values are published in the *NIOSH Pocket Guide to Chemical Hazards*, June 1994.
6. mg/m^3 = milligrams per cubic meter.
7. NA = Not available.
8. Refer to expanded rules for this compound.

TABLE 2.2

SUGGESTED FREQUENCY OF PHYSIOLOGICAL MONITORING FOR FIT AND ACCLIMATED WORKERS[A]

Adjusted Temperature[b]	Normal Work Ensemble[c]	Impermeable Ensemble
90°F or above (32.2°C) or above	After each 45 min. of work	After each 15 min. of work
87.5°F (30.8°-32.2°C)	After each 60 min. of work	After each 30 min. of work
82.5°-87.5°F (28.1°-30.8°C)	After each 90 min. of work	After each 60 min. of work
77.5°-82.5°F (25.3°-28.1°C)	After each 120 min. of work	After each 90 min. of work
72.5°-77.5°F (22.5°-25.3°C)	After each 150 min. of work	After each 120 min. of work

a. For work levels of 250 kilocalories/hour.

b. Calculate the adjusted air temperature (ta adj) by using this equation: ta adj ^{o}F = ta ^{o}F + (13 x % sunshine). Measure air temperature (ta) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to produce a shadow. (100 percent sunshine = no cloud cover and a sharp, distinct shadow; 0 percent sunshine = no shadows.)

c. A normal work ensemble consists of cotton coveralls or other cotton clothing with long sleeves and pants

Table 2-3 - HEAT INDEX

	ENVIRONMENTAL TEMPERATURE (Fahrenheit)										
	70	**75**	**80**	**85**	**90**	**95**	**100**	**105**	**110**	**115**	**120**
RELATIVE HUMIDITY	**APPARENT TEMPERATURE***										
0%	64	69	73	78	83	87	91	95	99	103	107
10%	65	70	75	80	85	90	95	100	105	111	116
20%	66	72	77	82	87	93	99	105	112	120	130
30%	67	73	78	84	90	96	104	113	123	135	148
40%	68	74	79	86	93	101	110	123	137	151	
50%	69	75	81	88	96	107	120	135	150		
60%	70	76	82	90	100	114	132	149			
70%	70	77	85	93	106	124	144				
80%	71	78	86	97	113	136					
90%	71	79	88	102	122						
100%	72	80	91	108							

*Combined Index of Heat and Humidity...what it "feels like" to the body
Source: National Oceanic and Atmospheric Administration

How to use Heat Index:
1. Across top locate Environmental Temperature
2. Down left side locate Relative Humidity
3. Follow across and down to find Apparent Temperature
4. Determine Heat Stress Risk on chart at right

Note: Exposure to full sunshine can increase Heat Index values by up to 15 degrees F.

Apparent Temperature	**Heat Stress Risk with Physical Activity and/or Prolonged Exposure**
90-105	Heat Cramps or Heat Exhaustion Possible
105-130	Heat Cramps or Heat Exhaustion Likely, Heat Stroke Possible
>130	Heatstroke Highly Likely

stress. Monitoring frequency shall increase as ambient temperature increases or as slow recovery rates are observed.

2.3.2.1 Symptoms

To monitor the workers, the Site HSO shall be familiar with the following heat-related disorders and their symptoms:

- **Prickly Heat** (Heat rash): Painful, itchy red rash. Occurs during sweating, on skin covered by clothing.
- **Heat Cramps:** Painful spasm of arm, leg or abdominal muscles, during or after work.
- **Heat Exhaustion:** Headache, nausea, dizziness. Cool, clammy, moist skin. Heavy sweating. Weak, fast pulse. Shallow respiration, normal temperature.
- **Heat Fatigue:** Weariness, irritability, loss of skill for fine or precision work. Decreased ability to concentrate. No loss of temperature control.
- **Heat Syncope** (Heat Collapse): Fainting while standing in a hot environment.
- **Heat Stroke:** Headache, nausea, weakness, hot dry skin, fever, rapid strong pulse, rapid deep respirations, loss of consciousness, convulsions, coma. **This is a life threatening condition.**

Do not permit a worker to wear a semi-permeable or impermeable garment when they are showing signs or symptoms of heat-related illness.

2.3.2.2 Parameters to Monitor

To monitor the worker, the Site HSO shall measure:

- **Heart rate:** Count the radial pulse during a 30-second period as early as possible in the rest period.
  - If the heart rate exceeds 100 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third and keep the rest period the same.
  - If the heart rate still exceeds 100 beats per minute at the next rest period, shorten the following work cycle by one-third. A worker cannot return to work after a rest period until their heart rate is below 100 beats per minute.
- **Oral temperature:** Use a clinical thermometer (3 minutes under the tongue) or similar device to measure the oral temperature at the end of the work period (before drinking).
  - If oral temperature exceeds 99.6°F (37.6°C), shorten the next work cycle by one-third without changing the rest period. A worker cannot return to work after a rest period until their oral temperature is below 99.6°F.

- If oral temperature still exceeds 99.6°F (37.6°C) at the beginning of the next rest period, shorten the following cycle by one-third.
- Do not permit a worker to wear a semi-permeable or impermeable garment when oral temperature exceeds 100.6°F (38.1°C).

2.3.2.3 Prevention

Proper training and preventative measures will aid in averting loss of worker productivity and serious illness. Heat stress prevention is particularly important because once a person suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat related illness. To avoid heat stress the following steps shall be taken:

- Adjust work schedules.
  - Modify work/rest schedules according to monitoring requirements
  - Mandate work slowdowns as needed.
  - Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided.
- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must approximately equal the amount of water lost in sweat, i.e., eight fluid ounces (0.23 liters) of water must be ingested for approximately every eight ounces (0.23 kg) of weight lost. The normal thirst mechanism is not sensitive enough to ensure that enough water will be drunk to replace lost sweat. When heavy sweating occurs, encourage the worker to drink more. The following strategies may be useful:
  - Maintain water temperature 50° to 60°F (10° to 16.6°C).
  - Provide small disposal cups that hold about four ounces (0.1 liter).
  - Have workers drink 16 ounces (0.5 liters) of fluid (preferably water or dilute drinks) before beginning work.
  - Urge workers to drink a cup or two every 15 to 20 minutes, or at each monitoring break. A total of 1 to 1.6 gallons (4 to 6 liters) of fluid per day are recommended, but more may be necessary to maintain body weight.
- Train workers to recognize the symptoms of heat related illness.

2.3.3 Cold-Related Illness

If work on this project begins in the winter months, thermal injury due to cold exposure can become a problem for field personnel. Systemic cold exposure is referred to as hypothermia. Local cold exposure is generally called frostbite.

Hypothermia - Hypothermia is defined as a decrease in the patient core temperature below 96°F. The body temperature is normally maintained by a combination of central (brain and spinal cord) and peripheral (skin and muscle) activity. Interference with any of these mechanisms can result in hypothermia, even in the absence of what normally is considered a "cold" ambient temperature. Symptoms of hypothermia include: shivering, apathy, listlessness, sleepiness, and unconsciousness.

Frostbite - Frostbite is both a general and medical term given to areas of local cold injury. Unlike systemic hypothermia, frostbite rarely occurs unless the ambient temperatures are less than freezing and usually less than 20°F. Symptoms of frostbite are: a sudden blanching or whitening of the skin; the skin has a waxy or white appearance and is firm to the touch; tissues are cold, pale, and solid.

Prevention of Cold-Related Illness - To prevent cold-related illness:

- Educate workers to recognize the symptoms of frostbite and hypothermia.
- Identify and limit known risk factors.
- Assure the availability of enclosed, heated environment on or adjacent to the site.
- Assure the availability of dry changes of clothing.
- Assure the availability of warm drinks.
- Start (oral) temperature recording at the job site:
    - At the Field Team Leader's discretion when suspicion is based on changes in a worker's performance or mental status.
    - At a worker's request.
    - As a screening measure, two times per shift, under unusually hazardous conditions (e.g., wind-chill less than 20°F, or wind-chill less than 30°F with precipitation).
    - As a screening measure whenever any one worker on the site develops hypothermia.

Any person developing moderate hypothermia (a core temperature of 92°F) cannot return to work for 48 hours.

2.4 RADIATION HAZARDS

The only sufficient radiation hazard encountered in this project would be related to the radioactivity of the XRF. XRF analyzers use a radioactive isotope (Cadmium 109) to stimulate fluorescence of lead atoms in paint. The radioactive source is shielded to minimize the operator's exposure to radiation and to ensure that the XRF radiation detectors are not completely saturated with source radiation. When XRF analyzers are

properly used, the amount of radiation exposure is negligible. However, the following practices shall be employed to ensure safe and responsible use of portable XRF analyzers:

- No one should operate and XRF analyzer unless they have received thorough training, including training in radiological safety principles, emergency procedures and regulation of XRF devices. A minimum of eight hours of radiation safety procedures and instrument operation shall be required.

- Under no circumstances should the instrument be positioned in such a way that the operator exposes eyes or gonads to direct radiation from the instrument.

- The instrument must be in the operator's possession at all times, either in direct sight or in an area designated secure by the state radiological safety officer. The operator is responsible for the security of the radioactive source.

- Although the amount of radiation exposure from the instrument is very low, it should always be kept as low as possible. Operator exposure to radiation can be reduced by minimizing the distance from it when it is not in use.

- Pregnant women or women of childbearing age who use the XRF analyzer should be aware that improper handling of the instrument can result in radiation exposure which may harm a developing fetus.

- Each XRF analyzer must be labeled with an emergency phone number for the appropriate hazardous material agency in the state. In the unlikely event that the analyzer is smashed or the source becomes dislodged and falls out of the instrument, it should not be picked up. The hazardous material agency must be contacted immediately to respond. The emergency team dispatched will determine the extent of the hazard and contain the source.

2.5 TASK HAZARD ANALYSIS

This project, at a minimum, will require all personnel to wear standard Level D health and safety protection, using action level guidance for the respiratory/personal protective upgrades. The housing units at this site are subject to vandalism, which may result in broken glass or other physical obstructions. Hard hats, safety glasses, disposable latex gloves and sturdy leather steel toe work boots are required at all times to prevent associated injuries. Respirator use is not anticipated.

Expected activities that will have associated hazards include the handling of lead contaminated equipment and inhalation or ingestion of lead-containing dust generated during sampling of painted surfaces due to lack of appropriate PPE. If surfaces must be cut, sawed, sanded, or otherwise abraded in a manner which generates dust, personnel involved shall don air purifying half-face respirators equipped with N-100, R-100, or P-

100 HEPA filter cartridges prior to the start of work. Corporate respiratory protection requirements as outlined in the Parsons' Policy Manual shall be followed.

Other hazards include danger from using ladders, impact from falling objects, potential injury from demolition and cutting tools used to remove sound boards, wall boards, or other equipment. Hazards can be prevented by handling sampling equipment properly and inspecting ladders and other equipment to ensure that they are in proper working order and all guards are in place.

2.6 EMERGENCY SIGNALS AND COMMUNICATION

In an emergency crucial information must be conveyed quickly and accurately. The site HSO must be able to be able to communicate information such as evacuation orders even through the noise and confusion. To do this internal emergency signals must be developed and communicated to workers. Emergency signals must:

- Be different from ordinary signals.
- Be brief and exact.
- Be limited in number so that they are easily remembered.

Examples include: one long blast on compressed air horn means evacuate area; two short blasts indicates all clear. Any set of signals may be used to convey these messages as long as all personnel understand their meaning and signal can be perceived above ambient noise levels.

2.7 HOUSEKEEPING

Proper housekeeping practices must be maintained during all phases of construction. As a minimum:

- Debris shall be kept clear from work areas, passageways and stairs, in and around building areas or structures.
- Combustible materials shall be removed at regular intervals during the course of construction.
- Containers must be provided for the collection and separation of waste, trash, and refuse.
- Containers used to store oils, flammables, or hazardous substances (e.g., acids, caustics, harmful dust, etc.) must be covered.
- Access to fire extinguishers, first aid kits, or other safety items shall not be blocked.

Foremen and supervisors are responsible for maintaining good housekeeping practices in their work area. The Site HSO will verify through workplace inspections that proper housekeeping practices are maintained.

SECTION 3

PERSONNEL PROTECTION AND MONITORING

3.1 MEDICAL SURVEILLANCE

Parsons will use the services of a licensed occupational health physician who is familiar with the hazards associated with the project to provide the medical examinations and surveillance specified herein.

Personnel involved in this operation have undergone medical surveillance prior to employment at Parsons, and thereafter at 12 month intervals. Drug and alcohol screening is performed as a pre-employment screening and then re-tested only with good cause. The 12 month medical examination includes a complete medical and work history and a standard occupational physical, examination of all major organ systems, complete blood count with differential (CBC), and a SMAC/23 blood chemistry screen which includes calcium, phosphorous, glucose, uric acid, BUN, creatinine, albumin, SGPT, SGOT, LDH, globulin, A/G ratio, alkaline phosphatase, total protein, total bilirubin, triglyceride, cholesterol, and a creatinine/BUN ratio. Additionally a pulmonary function test will be performed by trained personnel to record Forced Vital Capacity (FVC) and Forced Expiratory Volume in second ($FEV_{1.0}$). An audiogram and visual acuity measurement, including color perception, is provided. The medical exam is performed under the direction of a licensed Occupational Health Physician. A medical certification as to the fitness or unfitness for employment on hazardous waste projects, or any restrictions on his/her utilization that may be indicated, is provided by the physician. This evaluation will be repeated as indicated by substandard performance or evidence of particular stress that is evident by injury or time loss illness on the part of any worker.

3.2 SITE-SPECIFIC TRAINING

The Site HSO will be responsible for developing a site specific occupational hazard training program and providing training to all Parsons personnel that are to work at the site. This training will consist of the following topics:

- Names of personnel responsible for site safety and health.
- Safety, health, and other hazards at the site.
- Proper use of personal protective equipment.
- Work practices by which the employee can minimize risk from hazards. This may include a specific review of heavy equipment safety, safety during inclement weather, changes in common escape rendezvous point, site security measures, or other site-specific issues that need to be addressed before work begins.
- Safe use of engineering controls and equipment on the site.

- Acute effects of compounds at the site.
- Decontamination procedures.

Upon completion of site-specific training, workers will sign the Site-Specific-Training Form provided in Attachment 1.

3.3 PERSONAL PROTECTIVE EQUIPMENT AND ACTION LEVELS

The required level of personal protective equipment (PPE) shall be determined based on lead-containing dust concentrations measured with a personal sampling pump. Output readings for total dust in the breathing zone correspond to predetermined action levels or restrictions (Table 3.1). Readings will be taken only if deemed appropriate for the purposes of avoiding the inhalation of lead dust or determining the extent of dust generated during sampling. (This type of sampling is not anticipated for the scope of work planned.)

TABLE 3.1

SUMMARY OF ACTION LEVELS AND RESTRICTIONS.

Monitoring Instrument	Readings	Action Level or Restriction
Personal Sampling Pump	0-0.03 mg/m^3	Level C
	0.03 – 0.5 mg/m^3	Full Face APR -Level C
	>0.5 mg/m^3	Level B or **Retreat**

3.3.1 Conditions for Level D

Level D protection will be worn for initial entry on-site and initially for all activities. Level D protection will consist of:

- Standard Work Clothes.
- Safety boots with steel-toes.
- Latex gloves (must be worn during all sampling activities).
- Hard hat (must be worn during overhead activities requiring work at ceiling level or where there is an overhead hazard such as pipelines, tight spaces).
- Safety glasses with side shields.

3.3.2 Conditions for Level C

Not anticipated for the scope of work detailed above.

3.3.3 Conditions for Level B (retreat)

Not anticipated for the scope of work detailed above.

3.3.4 OSHA Requirements for Personal Protective Equipment

All personal protective equipment used during the course of this field investigation must meet the following OSHA standards:

Type of Protection	Regulation	Source
Eye and Face	29 CFR 1910.133 29 CFR 1926.102	ANSI Z87.1-1968
Respiratory	29 CFR 1910.134 29 CFR 1926.103	ANSI Z88.1-1980
Head	29 CFR 1910.135 29 CFR 1926.100	ANSI Z89.1-1969
Foot	29 CFR 1910.136 29 CFR 1926.96	ANSI Z41.1-1967

ANSI = American National Standards Institute

Both the respirator and cartridges specified for use in Level C protection must be fit-tested prior to use in accordance with OSHA regulations (29 CFR 1910.1025; 29 CFR 1910.134).

Air purifying respirators cannot be worn under the following conditions:

- Oxygen deficiency
- IDLH concentrations
- High relative humidity
- If contaminant levels exceed designated use concentrations.

SECTION 4

WORK ZONES AND DECONTAMINATION

4.1 SITE WORK ZONES

In general, work zones under this project will be limited to the individual housing buildings. Non-certified team members will stand 5 to 10 feet away from the certified team member during sampling activities.

4.1.1 Exclusion Zone

Not used.

4.1.2 Decontamination Zone

Not used.

4.1.3 Support Zone

Not used.

4.2 DECONTAMINATION

4.2.1 Decontamination of Personnel

Decontamination will not be necessary if only Level D protection is used. However, disposable gloves used during sampling activities shall be removed and bagged; personnel shall be encouraged to remove clothing and shower as soon as is practicable at the end of the day. All clothing shall be machine-washed. All personnel will wash hands and face prior to eating and before and after using the restroom.

Decontamination will be necessary if Level C protection is used. The following OSHA-specified procedures include steps necessary for complete decontamination prior to entry into the support zone, and steps necessary if a worker only needs to change a respirator or respirator canister.

The Site HSO can modify the twelve-station decontamination process, dependent upon the extent of contamination.

Station 1 - Segregated Equipment Drop

Deposit equipment used on the site (tools, sampling devices and containers, monitoring instruments, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners. Each will be contaminated to a different degree. Segregation at the drop reduces the probability of cross-contamination.

Station 2 - Suit, Safety Boots, and Outer Glove Wash

Thoroughly wash chemically resistant suit, safety boots and outer-gloves. Scrub with long-handle, soft-bristle scrub brush and copious amounts of Alconox/water solution. Necessary equipment includes:

- Wash tub (30 gallon or large enough for person to stand in)
- Alconox/water solution
- Long-handle soft-bristle scrub brushes

Station 3 - Suit, Safety Boots, and Outer Glove Rinse

Rinse off Alconox/water solution using copious amounts of water. Repeat as many times as necessary. Necessary equipment includes:

- Wash tub (30 gallon or large enough for person to stand in)
- Spray unit
- Water
- Long-handle, soft-bristle scrub brushes

Station 4 - Outer Gloves Removal

Remove the outer gloves and deposit in individually marked plastic bags. Necessary equipment includes:

- Plastic bag

Station 5 - Canister, Air Tank, or Mask Change

If a worker leaves the exclusion zone to change a canister, mask or air tank, this is the last step in the decontamination procedures. The worker's canisters or tank are exchanged, new outer glove donned, and joints taped. Worker returns to duty. Otherwise the worker proceeds to Station 6. Necessary equipment includes:

- Canisters, air tanks, or mask
- Tape
- Gloves

Station 6 - Removal of Chemically Resistant Suit

With assistance of helper, remove suit. Deposit in container with plastic liner. Necessary equipment includes:

- Container with plastic liner

Station 7 - Inner-Glove Wash

Wash inner gloves with Alconox/water solution that will not harm skin. Repeat as many times as necessary. Necessary equipment includes:

- Alconox/water solution
- Wash tub
- Long-handle, soft-bristle brushes

Station 8 - Inner-Glove Rinse

Rinse inner-gloves with water. Repeat as many times as necessary. Necessary equipment includes:

- Water
- Wash tub

Station 9 - Respirator Removal

Remove face-piece. Avoid touching face. Wash respirator in clean, sanitized solution, allow to dry and deposit face-piece in plastic bag. Store in clean area. Necessary equipment includes:

- Plastic bags
- Sanitizing solution
- Cotton

Station 10 - Inner-Glove Removal

Remove inner gloves and deposit in container with plastic liner. Necessary equipment includes:

- Container with plastic liner

Station 11 - Field Wash

Wash hands and face. Necessary equipment includes:

- Water
- Soap
- Tables
- Wash basins or buckets
- Clean towels

Station 12 - Redress

If re-entering Exclusion Zone put on clean field clothes (e.g., Tyvek, gloves, etc.). Necessary equipment includes:

- Table
- Clothing

4.2.2 Decontamination of Field Equipment

Field Equipment decontamination procedures are described in the project Field Sampling Plan.

4.3 SAMPLE COLLECTION AND DECONTAMINATION PROCEDURES

Sample collection and decontamination shall be performed in the following manner:

1. The inspector shall ensure that the area to be sampled is vacated of all unauthorized personnel and shall take necessary precautions to ensure that persons do not unknowingly enter the area being sampled.
2. The inspector shall don appropriate protective equipment.
3. Plastic sheeting shall be placed below the area to be sampled to facilitate cleanup after sampling.
4. The suspected lead containing paint shall be misted, prior to and during sampling, with amended water from a spray bottle to prevent lead dust from becoming airborne during sampling.
5. The sample shall be placed into a container and labeled accordingly.
6. The sampled area shall be patched using caulking, tape, and/or spray paint, and labeled with the corresponding sample number.
7. The sample collection equipment and outer surface of the sample container will be decontaminated by wet wiping.

SECTION 5

SAMPLE SHIPMENT

5.1 ENVIRONMENTAL SAMPLES

Samples collected in this study will be classified as environmental samples. In general, environmental samples are not expected to be grossly contaminated with high levels of hazardous materials.

5.1.1 Sample Identification

Sample containers must have a completed sample identification tag and the outside container must be marked in accordance with the project SAP.

5.1.2 Sample Packaging

LBP samples will be packaged and shipped in accordance with the project SAP.

5.1.3 Sample Container Marking/Labeling

Sample containers must have a completed sample identification label and the outside container must be marked "Environmental Sample". The appropriate side of the container must be marked "This End Up" and arrows shall be drawn accordingly. No Department of Transportation (DOT) marking/labeling is required.

5.1.4 Shipping Papers

No DOT shipping papers are required, but laboratory or Parsons chain of custody forms must be signed prior to releasing the package to the carrier.

5.1.5 Transportation

There are no DOT restrictions on mode of transportation.

5.2 HAZARDOUS SAMPLES

Not used.

SECTION 6

ACCIDENT PREVENTION AND CONTINGENCY PLAN

6.1 ACCIDENT PREVENTION

6.1.1 Site-Specific Training

All field personnel will receive health and safety training prior to the initiation of any site activities. The site-specific training form provided in Attachment A must be signed, dated, and returned to the Parsons HSO. On a day-to-day basis, individual personnel shall be constantly alert for indicators of potentially hazardous situations and for signs and symptoms in themselves and others that warn of hazardous conditions and exposures. Rapid recognition of dangerous situations can avert an emergency. Before daily work assignments, regular meetings shall be held. Discussion shall include:

- Tasks to be performed.
- Time constraints (e.g., rest breaks, cartridge changes).
- Hazards that may be encountered, including their effects, how to recognize symptoms or monitor them, concentration limits, or other danger signals.
- Emergency procedures.

6.2 CONTINGENCY PLAN

6.2.1 Emergency Procedures

In the event that an emergency develops on site, the procedures delineated herein are to be immediately followed. Emergency conditions are considered to exist if:

- Any member of the field crew is involved in an accident or experiences any adverse effects or symptoms of exposure while on site.
- A condition is discovered that suggests the existence of a situation more hazardous than anticipated.

General emergency procedures, and specific procedures for personal injury, chemical exposure and radiation exposure, are described below.

6.2.2 Chemical Exposure

If a member of the field crew demonstrates symptoms of chemical exposure the procedures outlined below shall be followed:

- Another team member (buddy) shall remove the individual from the immediate area of contamination. The buddy shall communicate to the Field Team Leader (via voice and hand signals) of the chemical exposure. The Field Team Leader shall contact the appropriate emergency response agency;

- Precautions shall be taken to avoid exposure of other individuals to the chemical;
- If the chemical is on the individual's clothing, the chemical shall be neutralized or removed if it is safe to do so;
- If the chemical has contacted the skin, the skin shall be washed with copious amounts of water;
- In case of eye contact, an emergency eye wash shall be used. Eyes shall be washed for at least 15 minutes; and
- All chemical exposure incidents must be reported in writing to the Office Health and Safety Representative. The Site HSO or Field Team Leader is responsible for completing the accident report.

6.2.3 Personal Injury

In case of personal injury at the site, the following procedures shall be followed:

- Another team member (buddy) shall signal the Field Team Leader that an injury has occurred.
- A field team member trained in first aid can administer treatment to an injured worker.
- The victim shall then be transported to the nearest hospital or medical center. If necessary, an ambulance shall be called to transport the victim.
- For less severe cases, the individual can be taken to the site field office for treatment using a first-aid kit.
- The Field Team Leader or Site HSO is responsible for making certain that an Accident Report Form (Attachment 1) is completed. This form is to be submitted to the Office Health and Safety Representative. Follow-up action shall be taken to correct the situation that caused the accident.

6.2.4 Evacuation Procedures

- The Field Team Leader will initiate evacuation procedures by signaling to leave the site.
- All personnel in the work area shall evacuate the area and meet in the common designated area.
- All personnel suspected to be in or near the contract work area shall be accounted for and the whereabouts or missing persons determined immediately.
- Further instruction will then be given by the Field Team Leader.

- Signal the evacuation procedure previously outlined and implement the entire procedure;
- Isolate the area;
- Stay upwind of any fire;
- Keep the area surrounding the problem source clear after the incident occurs;
- Complete accident report for and distribute to appropriate personnel.

6.2.6 Communication

Field team members will use the buddy system while performing field activities. Buddies will pre-arrange hand signals for communication. The following hand signals are suggested:

- **Hand gripping throat**: out of air, cannot breathe.
- **Grip partner's wrist or place both arms straight up overhead**: Leave area immediately, no debate.
- **Place both arms overhead in form of an "X"**: Need assistance.
- **Thumbs up**: OK, I am all right; or I understand.
- **Thumbs down**: No or negative.

ATTACHMENT 1

FORMS FOR HEALTH AND SAFETY-RELATED ACTIVITIES

Note: The OSHA Job Safety and Health Protection Poster must be posted prominently during field activities. The following page is an example of the poster to be used in the field. The actual poster must be an 11-inch by 17-inch size version of this page. The OSHA 200 Log of injuries and illnesses is maintained in the home office of each Parsons employee.

You Have a Right to a Safe and Healthful Workplace.

IT'S THE LAW!

- You have the right to notify your employer or OSHA about workplace hazards. You may ask OSHA to keep your name confidential.
- You have the right to request an OSHA inspection if you believe that there are unsafe and unhealthful conditions in your workplace. You or your representative may participate in the inspection.
- You can file a complaint with OSHA within 30 days of discrimination by your employer for making safety and health complaints or for exercising your rights under the *OSH Act*.
- You have a right to see OSHA citations issued to your employer. Your employer must post the citations at or near the place of the alleged violation.
- Your employer must correct workplace hazards by the date indicated on the citation and must certify that these hazards have been reduced or eliminated.
- You have the right to copies of your medical records or records of your exposure to toxic and harmful substances or conditions.
- Your employer must post this notice in your workplace.

The *Occupational Safety and Health Act of 1970 (OSH Act)*, P.L. 91-596, assures safe and healthful working conditions for working men and women throughout the Nation. The Occupational Safety and Health Administration, in the U.S. Department of Labor, has the primary responsibility for administering the *OSH Act*. The rights listed here may vary depending on the particular circumstances. To file a complaint, report an emergency, or seek OSHA advice, assistance, or products, call 1-800-321-OSHA or your nearest OSHA office: • Atlanta (404) 562-2300 • Boston (617) 565-9860 • Chicago (312) 353-2220 • Dallas (214) 767-4731 • Denver (303) 844-1600 • Kansas City (816) 426-5861 • New York (212) 337-2378 • Philadelphia (215) 861-4900 • San Francisco (415) 975-4310 • Seattle (206) 553-5930. Teletypewriter (TTY) number is 1-877-889-5627. To file a complaint online or obtain more information on OSHA federal and state programs, visit OSHA's website at www.osha.gov. If your workplace is in a state operating under an OSHA-approved plan, your employer must post the required state equivalent of this poster.

1-800-321-OSHA

www.osha.gov

U.S. Department of Labor • Occupational Safety and Health Administration • OSHA 3165

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SITE-SPECIFIC HEALTH AND SAFETY TRAINING

(For All Parsons and subcontract employees on site)

I hereby confirm that site-specific health and safety training has been conducted by the site HSO which included:

- Names of personnel responsible for site safety and health
- Safety, health, and other hazards at the site
- Proper use of personal protective equipment
- Work practices by which the employee can minimize risk from hazards
- Safe use of engineering controls and equipment on the site
- Acute effects of compounds at the site
- Decontamination procedures

For the following project:

(Project Title)	(Project Number)

Name (print)	Signature	Date

Place in project Health and Safety File as soon as possible

PROJECT HEALTH AND SAFETY PLAN

AND WORK PLAN ACCEPTANCE FORM

(For Parsons employees only)

I have read and agree to abide by the contents of the Work Plan and Health and Safety Plan for the following project:

_____	_____
(Project Title)	(Project Number)

Furthermore, I have read and am familiar with the work plan or proposal, which describes the field work to be conducted and the procedures to be utilized in the conduct of this work.

Name (print)	Signature	Date
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
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_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Place in project Health and Safety File as soon as possible

Project Name:_____

INJURED OR ILL EMPLOYEE

1. Name _____ Social Security #_____
   (First) (Middle) (Last)
2. Home Address _____
   (No. and Street) (City or Town) (State and Zip)
3. Age _____ 4. Sex: Male ( ) Female ( )
5. Occupation _____
   (Specific job title, not the specific activity employee was performing at time of injury)
6. Department _____
   (Enter name of department in which injured person is employed, even though they may have been temporarily working in another department at the time of injury)

EMPLOYER

7. Name _____
8. Mailing Address _____
   (No. and Street) (City or Town) (State and Zip)
9. Location (if different from mailing address):_____

_____

THE ACCIDENT OR EXPOSURE TO OCCUPATIONAL ILLNESS

10. Place of accident or exposure _____
    (No. and Street) (City or Town) (State and Zip)
11. Was place of accident or exposure on employer's premises? _(Yes/No)
12. What was the employee doing when injured?_____

_____
(Be specific - was employee using tools or equipment or handling material?)

_____

13. How did the accident occur? _____
    (Describe fully the events that resulted in the injury or

_____
occupational illness. Tell what happened and how. Name objects and substances involved.

_____
Give details on all factors that led to accident. Use separate sheet if needed)

14. Time of accident: _____
15. Date of injury or initial diagnosis of occupational illness _____
    (Date)

16. WITNESS TO ACCIDENT

(Name)	(Affiliation)	(Phone No.)
(Name)	(Affiliation)	(Phone No.)
(Name)	(Affiliation)	(Phone No.)

OCCUPATIONAL INJURY OR OCCUPATIONAL ILLNESS

17. Describe the injury or illness in detail; indicate part of body affected.

18. Name the object or substance which directly injured the employee. (For example, object that struck employee; the vapor or poison inhaled or swallowed; the chemical or radiation that irritated the skin; or in cases of strains, hernias, etc., the object the employee was lifting, pulling, etc.)

19. Did the accident result in employee fatality? _____ (Yes or No)
20. Number of lost workdays ____/restricted workdays _____ resulting from injury or illness?

OTHER

21. Did you see a physician for treatment? _____ (Yes or No) _____ (Date)
22. Name and address of physician _____

(No. and Street) (City or Town) (State and Zip)

23. If hospitalized, name and address of hospital _____

(No. and Street) (City or Town) (State and Zip)

Date of report _____ Prepared by _____

Official position _____

STANDARD SAFE WORK PRACTICES

1) Eating, drinking, chewing tobacco, smoking and carrying matches or lighters is prohibited in a contaminated or potentially contaminated area or where the possibility for the transfer of contamination exists.

2) Avoid contact with potentially contaminated substances. Do not walk through puddles, pools, mud, etc. Avoid, whenever possible, kneeling on the ground, leaning or sitting on equipment or ground. Do not place monitoring equipment on potentially contaminated surfaces (i.e., ground, etc.).

3) All field crew members shall make use of their senses to alert them to potentially dangerous situations in which they shall not become involved; i.e., presence of strong and irritating or nauseating odors.

4) Field crew members shall be familiar with the physical characteristics of investigations, including:
   - Wind direction
   - Accessibility to associates, equipment, vehicles
   - Communication
   - Hot zone (areas of known or suspected contamination)
   - Site access
   - Nearest water sources

5) All wastes generated during activities on-site shall be disposed of as directed by the project manager or his on-site representative.

6) Protective equipment as specified in the section on personnel protection will be utilized by workers during the initial site reconnaissance, and other activities.

7) Employees shall follow procedures to avoid at-risk behaviors that could result in an incident.

ATTACHMENT 2

MATERIAL SAFETY DATA SHEETS

OSHA Regulations (Standards - 29 CFR)
Substance data sheet for occupational exposure to lead - 1910.1025 App A

OSHA Regulations (Standards - 29 CFR) - Table of Contents

- **Standard Number:** 1910.1025 App A
- **Standard Title:** Substance data sheet for occupational exposure to lead
- **SubPart Number:** Z
- **SubPart Title:** Toxic and Hazardous Substances

I. SUBSTANCE IDENTIFICATION

A. Substance: Pure lead (Pb) is a heavy metal at room temperature and pressure and is a basic chemical element. It can combine with various other substances to form numerous lead compounds.

B. Compounds Covered by the Standard: The word "lead" when used in this standard means elemental lead, all inorganic lead compounds and a class of organic lead compounds called lead soaps. This standard does not apply to other organic lead compounds.

C. Uses: Exposure to lead occurs in at least 120 different occupations, including primary and secondary lead smelting, lead storage battery manufacturing, lead pigment manufacturing and use, solder manufacturing and use, shipbuilding and ship repairing, auto manufacturing, and printing.

D. Permissible Exposure: The Permissible Exposure Limit (PEL) set by the standard is 50 micrograms of lead per cubic meter of air (50 ug/m(3)), averaged over an 8-hour workday.

E. Action Level: The standard establishes an action level of 30 micrograms per cubic meter of air (30 ug/m(3)), time weighted average, based on an 8-hour work-day. The action level initiates several requirements of the standard, such as exposure monitoring, medical surveillance, and training and education.

II. HEALTH HAZARD DATA

A. Ways in which lead enters your body. When absorbed into your body in certain doses lead is a toxic substance. The object of the lead standard is to prevent absorption of harmful quantities of lead. The standard is intended to protect you not only from the immediate toxic effects of lead, but also from the serious toxic effects that may not become apparent until years of exposure have passed.

Lead can be absorbed into your body by inhalation (breathing) and ingestion (eating). Lead (except for certain organic lead compounds not covered by the standard, such as tetraethyl lead) is not absorbed through your skin. When lead is scattered in the air as a dust, fume or mist it can be inhaled and absorbed through you lungs and upper respiratory tract. Inhalation of airborne lead is generally the most important source of occupational lead absorption. You can also absorb lead through your digestive system if lead gets into your mouth and is swallowed. If you handle food, cigarettes, chewing

tobacco, or make-up which have lead on them or handle them with hands contaminated with lead, this will contribute to ingestion.

A significant portion of the lead that you inhale or ingest gets into your blood stream. Once in your blood stream, lead is circulated throughout your body and stored in various organs and body tissues. Some of this lead is quickly filtered out of your body and excreted, but some remains in the blood and other tissues. As exposure to lead continues, the amount stored in your body will increase if you are absorbing more lead than your body is excreting. Even though you may not be aware of any immediate symptoms of disease, this lead stored in your tissues can be slowly causing irreversible damage, first to individual cells, then to your organs and whole body systems.

B. Effects of overexposure to lead - (1) Short term (acute) overexposure. Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. Taken in large enough doses, lead can kill you in a matter of days. A condition affecting the brain called acute encephalopathy may arise which develops quickly to seizures, coma, and death from cardiorespiratory arrest. A short term dose of lead can lead to acute encephalopathy. Short term occupational exposures of this magnitude are highly unusual, but not impossible. Similar forms of encephalopathy may, however, arise from extended, chronic exposure to lower doses of lead. There is no sharp dividing line between rapidly developing acute effects of lead, and chronic effects which take longer to acquire. Lead adversely affects numerous body systems, and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years.

(2) Long-term (chronic) overexposure. Chronic overexposure to lead may result in severe damage to your blood-forming, nervous, urinary and reproductive systems. Some common symptoms of chronic overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, hyperactivity and colic. In lead colic there may be severe abdominal pain.

Damage to the central nervous system in general and the brain (encephalopathy) in particular is one of the most severe forms of lead poisoning. The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. It may arise suddenly with the onset of seizures, followed by coma, and death. There is a tendency for muscular weakness to develop at the same time. This weakness may progress to paralysis often observed as a characteristic "wrist drop" or "foot drop" and is a manifestation of a disease to the nervous system called peripheral neuropathy.

Chronic overexposure to lead also results in kidney disease with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Routine laboratory tests reveal the presence of this kidney disease only after about two-thirds of kidney function is lost. When overt symptoms of urinary dysfunction arise, it is often too late to correct or prevent worsening conditions, and progression to kidney dialysis or death is possible.

Chronic overexposure to lead impairs the reproductive systems of both men and women. Overexposure to lead may result in decreased sex drive, impotence and sterility in men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. Lead exposure also may result in decreased fertility, and abnormal menstrual cycles in women. The course of pregnancy may be adversely affected by exposure to lead since lead crosses the placental barrier and poses risks to developing fetuses. Children born of parents either one of whom were exposed to excess lead levels are more likely to have birth defects, mental retardation, behavioral disorders or die during the first year of childhood.

Overexposure to lead also disrupts the blood-forming system resulting in decreased

hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor and fatigability as a result of decreased oxygen carrying capacity in the blood.

(3) Health protection goals of the standard. Prevention of adverse health effects for most workers from exposure to lead throughout a working lifetime requires that worker blood lead (PbB) levels be maintained at or below forty micrograms per one hundred grams of whole blood (40 ug/100g). The blood lead levels of workers (both male and female workers) who intend to have children should be maintained below 30 ug/100g to minimize adverse reproductive health effects to the parents and to the developing fetus.

The measurement of your blood lead level is the most useful indicator of the amount of lead being absorbed by your body. Blood lead levels (PbB) are most often reported in units of milligrams (mg) or micrograms (ug) of lead (1 mg=1000 ug) per 100 grams (100g), 100 milliters (100 ml) or deciliter (dl) of blood. These three units are essentially the same. Sometime PbB's are expressed in the form of mg% or ug%. This is a shorthand notation for 100g, 100 ml, or dl.

PbB measurements show the amount of lead circulating in your blood stream, but do not give any information about the amount of lead stored in your various tissues. PbB measurements merely show current absorption of lead, not the effect that lead is having on your body or the effects that past lead exposure may have already caused. Past research into lead-related diseases, however, has focused heavily on associations between PbBs and various diseases. As a result, your PbB is an important indicator of the likelihood that you will gradually acquire a lead-related health impairment or disease.

Once your blood lead level climbs above 40 ug/100g, your risk of disease increases. There is a wide variability of individual response to lead, thus it is difficult to say that a particular PbB in a given person will cause a particular effect. Studies have associated fatal encephalopathy with PbBs as low as 150 ug/100g. Other studies have shown other forms of diseases in some workers with PbBs well below 80 ug/100g. Your PbB is a crucial indicator of the risks to your health, but one other factor is also extremely important. This factor is the length of time you have had elevated PbBs. The longer you have an elevated PbB, the greater the risk that large quantities of lead are being gradually stored in your organs and tissues (body burden). The greater your overall body burden, the greater the chances of substantial permanent damage.

The best way to prevent all forms of lead-related impairments and diseases-both short term and long term- is to maintain your PbB below 40 ug/100g. The provisions of the standard are designed with this end in mind. Your employer has prime responsibility to assure that the provisions of the standard are complied with both by the company and by individual workers. You as a worker, however, also have a responsibility to assist your employer in complying with the standard. You can play a key role in protecting your own health by learning about the lead hazards and their control, learning what the standard requires, following the standard where it governs your own actions, and seeing that your employer complies with provisions governing his actions.

(4) Reporting signs and symptoms of health problems. You should immediately notify your employer if you develop signs or symptoms associated with lead poisoning or if you desire medical advice concerning the effects of current or past exposure to lead on your ability to have a healthy child. You should also notify your employer if you have difficulty breathing during a respirator fit test or while wearing a respirator. In each of these cases your employer must make available to you appropriate medical examinations or consultations. These must be provided at no cost to you and at a reasonable time and place.

The standard contains a procedure whereby you can obtain a second opinion by a physician of your choice if the employer selected the initial physician.

[56 FR 24686, May 31, 1991]

APPENDIX C

CERTIFICATIONS

United States Environmental Protection Agency

This is to certify that:

Parsons Engineering Science, Inc.

290 Elwood Davis Rd.
Liverpool, NY 13088

has fulfilled the requirements of the Toxic Substances Contol Act (TSCA) Section 402(a)(1), and has received certification as a firm, pursuant to 40 CFR Part 745.226 to conduct lead-based paint activities:

Jurisdiction: State of New York excluding Indian Tribes

This certification is valid for three (3) years from the date of issuance and expires April 24, 2004

Certification # NY-02-042004-128 Issued on: April 25, 2001

Kenneth S. Stoller, P.E., QEP, DEE, Chief
Pesticides & Toxic Substances Branch

Trade-Winds Environmental Restoration, Inc.

Edward J. Ashton

SOCIAL SECURITY NUMBER 085-68-9503
residing at 7907 Morgan Road, Liverpool, NY 13090
has attended and successfully completed an EPA approved

LEAD INSPECTOR INITIAL

Certificate Number: LI-231

training course, presented in accordance with EPA regulations found at 40 CFR 745.225, by
By Trade-Winds Environmental Restoration, Inc.
at 100 Sweeneydale Avenue, Bay Shore, NY 11706 (631) 435-8900
at the Greece Town Hall at 1 Vince Tofany Blvd., Rochester, New York 14616

COURSE DATE:	January 28-30, 2002
INTERIM CERTIFICATION EXPIRATION DATE:	July 29, 2002
EXAMINATION DATE:	January 30, 2002

William A. Loch
Training Manager

Trade-Winds Environmental Restoration, Inc.

Edward J. Ashton

SOCIAL SECURITY NUMBER 085-68-9503
residing at 7907 Morgan Road, Liverpool, NY 13090
has attended and successfully completed an EPA approved

LEAD RISK ASSESSOR INITIAL

Certificate Number: LRA-231

training course, presented in accordance with EPA regulations found at 40 CFR 745.225, by
By Trade-Winds Environmental Restoration, Inc.
at 100 Sweeneydale Avenue, Bay Shore, NY 11706 (631) 435-8900
at the Greece Town Hall at 1 Vince Tofany Blvd., Rochester, New York 14616

COURSE DATE:	January 31-February 1, 2002
INTERIM CERTIFICATION EXPIRATION DATE:	July 30, 2002
EXAMINATION DATE:	February 1, 2002

William A. Loch
Training Manager

NITON

CORPORATION

Certificate of Achievement

Mary Beth Gannon

Emteque Corporation

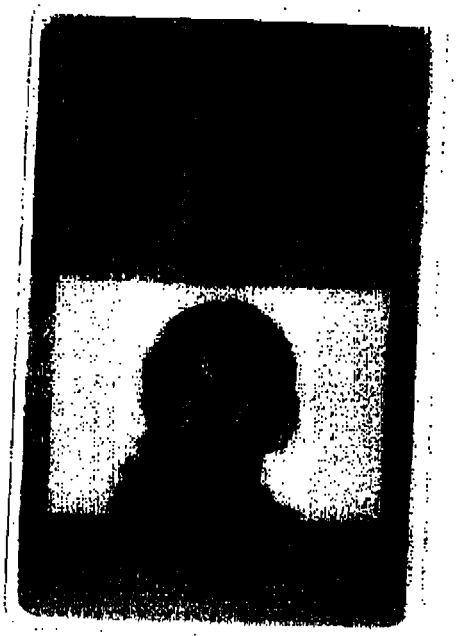
has successfully completed the Manufacturer's Training Course for the
NITON Spectrum Analyzer *and is now certified*
in radiation safety and monitoring, measurement technology,
and machine maintenance of the **NITON XRF Spectrum Analyzer.**
(CIH's - The ABIH awards 1 CM point, approval #5827)

A0042544400
Certificate Number

05/03/00 Hempstead
Date & Site of Course

Victoria Grzybinski
Training Coordinator

Kenneth P. Stark
Director of Training



Certification No.	NY-03-032004-396
Date of Birth 10/6/1956	Expiration Date 3/13/2004
Address 83-53 264th St. Floral Park, NY 11004	
Badge Holder's Name Mary Beth Gannon	
Badge Holder's Signature	

If found, drop in any mailbox.
Postmaster: Please return to:
National Lead Service Center
8601 Georgia Avenue, Suite 503
Silver Spring, MD 20910
or call 1-800-424-LEAD

[redacted]

NITON

CORPORATION

Certificate of Achievement

Juan Salcedo

Emteque Corporation

has successfully completed the Manufacturer's Training Course for the **NITON Spectrum Analyzer** *and is now certified in radiation safety and monitoring, measurement technology, and machine maintenance of the* **NITON XRF Spectrum Analyzer.**

(CIH's - The ABIH awards 1 CM point, approval #5827)

99042360588
Certificate Number

02/16/99 Bay Shore, LI
Date & Site of Course

Victoria Grzybinski
Training Coordinator

Director of Training

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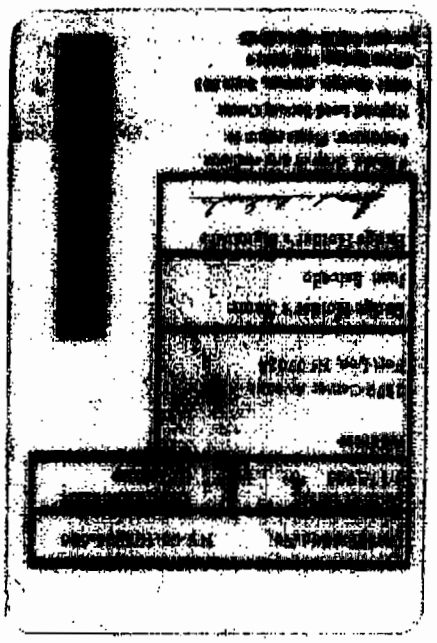

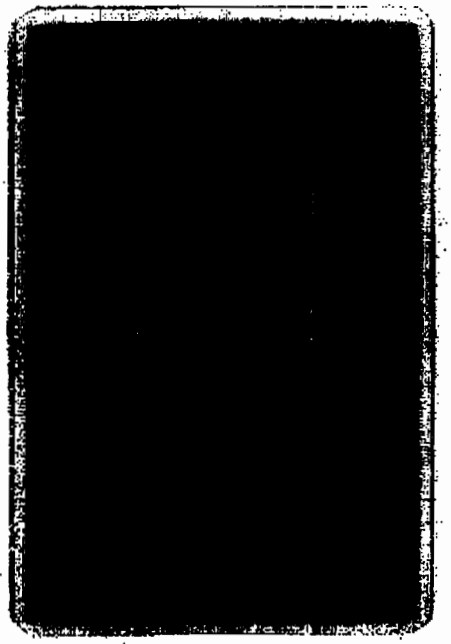

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NITON

CORPORATION

Certificate of Achievement

Michael Porter

JLC Environmental Consultants Inc.

has successfully completed the Manufacturer's Training Course for the
NITON Spectrum Analyzer *and is now certified*
in radiation safety and monitoring, measurement technology,
and machine maintenance of the **NITON XRF Spectrum Analyzer.**
(CIH's - The ABIH awards 1 CM point, approval #5827)

A0021542981
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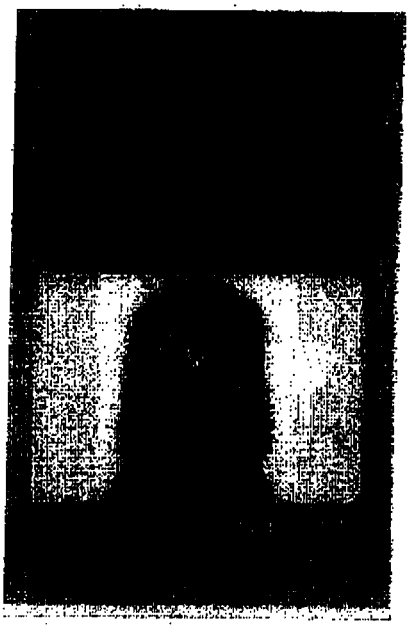
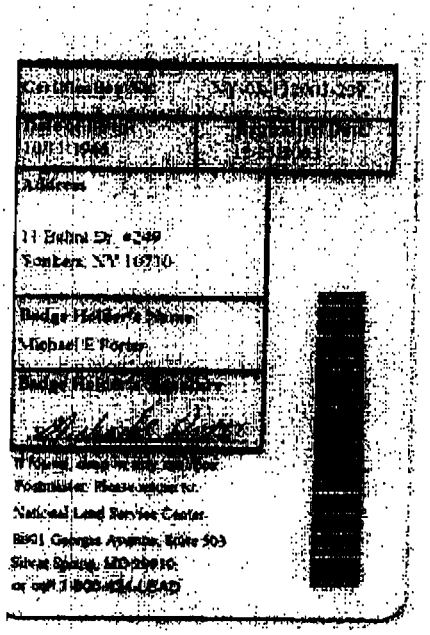
02/16/00 Ft. Lee
Date & Site of Course

Victoria Grzybicki
Training Coordinator

Director of Training




Michael E Porter
National Land Service Center

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NITON®

CORPORATION

Certificate of Achievement

David Rimberg

Emteque Corporation

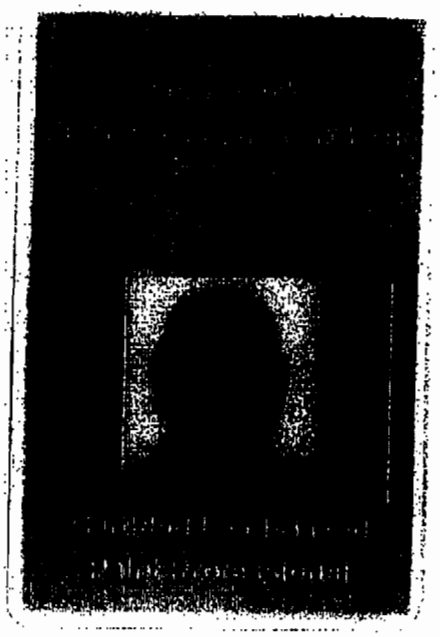
has successfully completed the Manufacturer's Training Course for the
NITON Spectrum Analyzer *and is now certified*
in radiation safety and monitoring, measurement technology,
and machine maintenance of the **NITON XRF Spectrum Analyzer.**
(CIH's - The ABIH awards 1 CM point, approval #5827)

99110236380
Certificate Number

11/03/99 Ft. Lee, NJ
Date & Site of Course

Victoria Grzybicki
Training Coordinator

Director of Training



Certification No.	NY-03-052004-925
Date of Birth 4/6/1942	Expiration Date 5/30/2004
Address 49 September Circle, Shawnee on Delaware, PA 18356	
Badge Holder's Name David B Rimberg	
Badge Holder's Signature	

If found, drop in any mailbox.
Postmaster: Please return to:
National Lead Service Center
8991 Georgia Avenue, Suite 303
Silver Spring, MD 20910
or call 1-800-424-LEAD