FINAL REPORT

ENVIRONMENTAL ASSESSMENT GUIDE FOR PUBLIC HOUSING

Prepared for:

U.S. Department of Housing and Urban Development
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Prepared by:

Steven Winter Associates, Inc.
Norwalk, CT

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1.0 INTRODUCTION

This Environmental Assessment Guide is a tool to be used by public housing authorities to identify and rank environmental hazards that may endanger the health and safety of their residents.

The focus of this Guide is on environmental conditions on the grounds of public housing, near the property and in the surrounding neighborhood. Not included in the Guide are building-related issues addressed by other programs, such as lead-based paint and asbestos in individual dwelling units, radon or public safety.

This Guide, while referenced to American Society for Testing and Materials (ASTM) methods for performing environmental site assessments, is more general and broad in scope. It does not address economic liability issues; its purpose is to help public housing authorities to identify unique and potent environmental issues affecting their residents.

This Guide was designed for use by a wide range of public housing authorities. The nation=s 1.4 million public housing units are managed by 3,300 public housing authorities. Units and projects vary widely in age, density, location, design, construction and upkeep. Public housing authorities vary enormously from rural authorities with as few as six units to urban authorities with thousands of units and large, complex organizations. Currently, public housing authorities have multiple responsibilities, often with limited funding and increasing workloads.

Users of this Guide should find it easy to use and practical.

1.1 BACKGROUND

Much of our public housing was built before environmental laws and regulations went into effect. The oldest units were built in 1937. There is now a heightened public awareness of environmental issues, which requires us to take a new look at public housing. For the vast majority of public housing units, environmental health issues are not obvious or of high priority, ranking well below serious social concerns. However, there are currently three public housing projects on the CERCLA or Superfund list of hazardous waste sites. As a result, the need to investigate environmental hazards on public housing properties, as well as on adjacent properties and in the immediate neighborhood has been recognized. This tool is a first step in providing the mechanism to eliminate any serious environmental health hazards.

1.2 SCOPE

This guide is for your use, to help identify potent and unique environmental risks to your residents. You do not have to be a skilled environmental specialist by any measure to use this Guide. Use of the Guide=s decision tree will point out areas for which you may need a specialist.

This Guide addresses environmental hazards at three levels:

(1) **the site** - which includes the buildings and grounds within the property boundaries;

(2) **adjacent to the site** - which includes all of the properties directly abutting the site; and

(3) **the neighborhood** - which will vary in size depending upon the layout of the community. As a guide, the American Society for Testing and Materials (ASTM) sets as minimum distances for environmental records searches an area of one-half to one mile around the site. Typically, the neighborhood includes the schools which serve your residents, and local amenities such as neighborhood stores, churches, gas stations, etc.

1.3 TASKS

You will be asked, during the course of this Guide, to walk the property, ask questions, survey the neighborhood, and do research. The purpose is to identify obvious environmental hazards. Once you have finished identifying obvious environmental hazards, you will then complete a Adecision tree@ which will help you plan follow-up activities.

2.0 CONCERNS AND DEFINITIONS

Eighteen Atarget risk@ categories have been identified which may present environmental health hazards to public housing residents, whether these features are on the site, on adjacent properties, or in the neighborhood. The eighteen categories include:

Chemical Storage/Use
1 DRUMS/CHEMICAL CONTAINERS
2 WATER TREATMENT
3 TRANSFORMERS

Land-Based
4 WELLS: DRINKING WATER
5 FILL DIRT
6 UNAUTHORIZED DUMPING
7 STAINED SURFACES
8 JUNKYARDS
9 LANDFILLS
10 PITS, PONDS, LAGOONS

Fuel and Servicing
11 GAS STATIONS
12 STORAGE TANKS (UNDERGROUND AND ABOVEGROUND)
13 VEHICLE REPAIR SHOPS

Commercial
14 MANUFACTURING/INDUSTRIAL FACILITIES
15 WASTE RECYCLING
16 PHOTO DEVELOPING BUSINESSES
17 PRINT SHOPS
18 DRY CLEANERS

The concerns associated with the eighteen target risks, and how these risk categories are defined, follows.

Following the narrative, tables have been provided which you can use during your identification survey. Table 3-1 is to be used during the survey of the public housing property itself, showing you where and what to look for, who and what to ask during interviews, and which records may be of value in your records search. Table 3-2 is for use during the survey of the adjacent sites and the surrounding neighborhood. Possible hazards associated with chemical exposures are presented in Table 4-1.

After the identification phase is complete, you will develop an action plan, based on the use of the decision tree.

2.1 CHEMICAL STORAGE AND USE

2.1.1 Drums/Chemical Containers

Concern:

On-Site: Chemicals may or may not represent a concern, depending on where and how they are stored, handled and disposed. For example, if they are stored under the stairs in favorite hideaway spots for children, there may be reason for concern. Containers leak and curious children may choose to taste or intentionally inhale the contents, or create mixtures of poisonous pastes.

Sometimes, chemicals which are affected by heat are stored in boiler rooms or on the roof and spontaneously combust, or, chemicals freeze and expand (causing ruptures or bulges in the tops of drums) or change composition if left in unheated basements or outside the building. Or, chemicals are stored Aalphabetically@ or haphazardly in outdoor sheds or in maintenance rooms, without regard to the fact that one type of chemical may react with the chemical stored right next to it.

Chemical storage may obstruct access to important equipment like fire extinguishers, electrical control panels or emergency exits.

Sometimes, too much material has been purchased for the purpose at hand, and extra drums are forgotten and stored long past their expiration date, with deteriorating or missing labels. Drums with unknown contents are often kept because it is unclear what should be done, or, the cost of legal removal and disposal is prohibitive.

Corroded or damaged drums can leak their contents; creating puddles on paved surfaces. These leaking drums, when located in dirt floor basements or outdoors, will drain into the ground and may affect the quality of the drinking water or impact indoor air quality.

Besides storage, chemical handling and disposal practices may also present hazards to residents. For example, spent motor oil is often simply poured onto the ground or into the sewer. Nearly empty drums of Apoisonous@ chemicals are often rinsed out with a hose so that they can be used for other purposes, and contaminated rinse water is poured onto the ground, into sumps on the property, or down the sewer.

Generally, the larger the container, or the greater the amount of material stored, the greater the potential impact of a spill or leak. However, beware of chemicals that are labeled, AToxic@, AHighly Corrosive@ or APoison@ as a very small amount may cause a very severe reaction.

Adjacent to the Site: Chemical handling, storage and disposal practices at locations directly adjacent to the site may affect the health and safety of public housing residents. For example, fires resulting from improper chemical storage can spread to public housing. Vapors from improperly disposed chemicals may impact on the air quality of nearby buildings, including public housing.

Surrounding Neighborhood: In general, hazards to public housing residents will be limited to play areas in the neighborhood, including streams and wooded areas where drums may be discarded. Hazards may also be confronted by those who trespass into areas where chemicals are stored. Residents may be affected by chemical accidents and fires or explosions arising from chemical use, handling or storage at manufacturing facilities.

Definition:

On-Site: The most recognizable chemical container, reminiscent of AValley of the Drums@, is the 55-gallon steel drum. However, chemical containers come in all shapes and sizes. Property maintenance supplies are found in containers ranging typically from 1-lb. containers for dry powders to 5-gallon buckets and 55-gallon drums and compressed gas cylinders. These supplies include industrial strength cleaning products and drain cleaners, paints, solvents like turpentine, floor waxes and strippers, degreasers, boiler chemicals, fertilizers, pesticides, rodenticides, herbicides, pest control chemicals, gasoline, acetylene and oxygen for welding. The containers may be paper, cardboard, plastic, fiberboard or steel. Commonly, building maintenance supplies are stored in untrafficked areas such as maintenance shops, storage sheds or mechanical rooms.

Chemical supplies are also kept by building residents. While accidental poisoning by children may result from access to these materials within the apartments, this is not necessarily an environmental concern associated with the property as a whole.

Adjacent to the Site and Surrounding Neighborhood: Chemical containers that are likely to be observed on adjacent sites or in the surrounding neighborhoods are those that are stored outside. These may include portable propane tanks, compressed gas cylinders, and plastic and steel drums.

2.1.2 Water Treatment

Concern:

On-Site, Adjacent to the Site and in the Surrounding Neighborhood: Chemicals used to treat water in water and wastewater plants, and in swimming pools, can be toxic or highly corrosive in undiluted concentrations. Chlorine, a chemical of choice in disinfection, is considered an extremely hazardous chemical as it can form dense, asphyxiating clouds in the event of a release.

Treatment chemicals are used in small treatment plants. These types of plants have served residential developments throughout the United States for many years. Their purpose is to purify water for on-site use or to pre-treat sewage prior to discharge. The plants typically consist of a pump house and one or more concrete basins used for the addition and mixing of chemicals.

Also, treatment chemicals are also used in swimming pools where they are added to maintain clarity and retard the growth of microorganisms.

Children from public housing may gain access to chemical storage areas and contact these poisonous chemicals.

Definition:

Small water treatment plants (called "package plants" due to their widespread standard construction) are often in remote areas of residential developments and are usually fenced to prevent unauthorized access. They may be abandoned if municipal sewer and water has been supplied to the site since its original development. Active plants will have stored chemicals for use in the treatment process.

Conversely, swimming pools are often in centralized, easily accessible locations. Treatment chemicals are usually kept in a pump house or storage shed near the pool.

2.1.3 Transformers

Concern:

On-Site: Operating equipment including transformers, capacitors and even fluorescent light ballasts, may contain polychlorinated biphenyls (PCBs), even though the use of PCBs has been banned since 1979 because of toxicity. Leaks and spills of PCB-containing oil may be contacted by public housing residents. Additionally, there have been incidents involving transformer fires which generate toxic fumes containing dioxin.

Adjacent to the Site and in the Surrounding Neighborhood: In general, the hazard associated with off-site transformers will not be significant as these transformers are often in restricted or inaccessible areas. Transformer fires, however, may impact on the neighborhood as a whole.

Definition:

Electrical transformers are used to convert the higher voltage in electrical feed lines to lower voltage for residential power. There are two types of transformers, dry and radial. The radial type contains fluid to cool the equipment during operation. The fluid is generally a heavy oil which sometimes contains polychlorinated biphenyls (PCBs).

Transformers can be either pole-mounted (attached to a telephone pole), pad-mounted (set on a concrete foundation on the ground) or wall-mounted. Usually a residential complex will have many transformers. Transformers range in size from that of a small barrel to that of a small car. PCB-containing equipment is supposed to be labeled as such by the owner, usually the power company. However, labeling is often not in place because the company has not tested the fluids for PCBs. Sometimes equipment is labeled as non-PCB containing. Transformers often have a serial number to help the power company keep track of them.

2.2 LAND-BASED

2.2.1 Wells: Drinking Water

Concern:

On-Site: For some public housing, private wells are used, and the water is supplied to the tap without being treated first. The purity of untreated well water may be questionable, if it is affected by such activities as dumping, industrial discharges, or runoff (e.g., from fields containing pesticides). Well water may be a major health concern especially if significant environmental hazards exist. It may not be easy to recognize contamination in water, as it can be odorless, colorless and tasteless. The health effects of using contaminated groundwater on a daily basis may not be noticed immediately, but there may be gradual impacts over time.

Adjacent to the Site and in the Surrounding Neighborhood: The water used for drinking, washing and cooling in public housing can come from various sources. Usually, the district is served by public water supplies. The source could be a reservoir, a nearby lake or river, or public wells. If needed, public water supplies are typically treated to meet drinking water standards.

Definition:

Private water supply wells usually consist of cased boreholes extended into the ground to a water-bearing layer. Wells can be as shallow as a few feet or as deep as hundreds of feet. A pump is used to deliver the water to the surface where it is piped for use. Water in such wells can become tainted by chemicals which have leaked into the ground from other sources.

2.2.2 Fill Dirt

Concern:

On-Site: Fill dirt is often used in site preparation to level a site or to create berms. The origin and quality of this material is often unknown. It could be waste from an industrial operation, e.g., slag or incinerator ash. In some cases, it may be contaminated with waste oils (and PCBs), heavy metals, asbestos, or radioactive materials. The mere presence of fill dirt should not necessarily be cause for concern. It is only of concern if the source is unknown, there is reason to suspect that it may have come from an industrial source or contaminated area, and the residents can come in contact with it. Health impacts will depend upon the nature of the contamination, which can be determined by testing.

Adjacent to the Site and Surrounding Neighborhood: Fill dirt of unknown origin which is located near the property or in the surrounding neighborhood is of concern if it is in areas frequented by public housing residents, e.g., play areas.

Definition:

Fill dirt is soil, sand or other earth which has been obtained from other areas, and is used to fill holes or depressions, create mounds, or otherwise change the grade or elevation of the property. It is normally used during site development. Only recently have sites developers begun to question the origin of borrowed soil and whether it may be contaminated.

2.2.3 Unauthorized Dumping

Concern:

On-Site, Adjacent to the Site and in the Surrounding Neighborhood: Unauthorized dumping of chemical drums, waste oil, asbestos, etc. may pose a hazard to public housing residents if they have direct access to these areas, either on the public housing property or in unrestricted areas on adjacent sites or in the neighborhood. Hazardous vapors may be released from illegally disposed drums. Dumping usually occurs in vacant lots, woods, near streams, behind buildings, etc. These areas attract children.

Direct exposure to asbestos fibers, contact with hazardous chemicals or inhalation of vapors or contaminated dust pose potential health risks. Piles of debris, especially tires, can promote the presence of other physical dangers such as vermin, disease organisms and fire. To address these concerns, many large cities have hazardous response teams whose responsibilities include safe removal of illegally dumped hazardous materials.

Definition:

Unauthorized dumping can be easily recognized by scattered debris. Dumping can also occur in excavations which are then covered with dirt and vegetation. These "burial pits" may be recognizable only by evidence of disturbed soil and ground cover which is inconsistent with its surroundings.

Accumulations of paper trash, fast food containers, bottles and household garbage are indications of poor housekeeping, but these materials are not likely to be associated with significant environmental degradation.

2.2.4 Stained Surfaces

Concern:

On-Site: Stained surfaces may be an indicator that hazardous chemicals (e.g., from a leaking PCB transformer) have spilled, or, the contents of buried drums have saturated the ground to form surface discoloration. These stains are primarily of concern if detected on the public housing property where children could contact the contamination through accidental contact with (or eating of) soil.

Adjacent to the Site: Significant staining of soils at locations directly adjacent to the site may be

an indicator of contamination which would affect the health and safety of public housing residents, for example, vapors from saturated soil may impact on the air quality inside buildings, or, if the area is not secured, children can come in contact with contaminated soil.

Surrounding Neighborhood: In general, hazards to public housing residents will be limited to play areas in the neighborhood, including streams and wooded areas where leaks and spills may have saturated the soil.

Definition:

Stains are discolorations of the ground. Stains in undeveloped areas could indicate illegal dumping of hazardous liquids. Irregular stains on floors or walls, especially near drains, could indicate chemical disposal. Circular rust stains on floors often indicate past drum storage. Stains on equipment, especially electrical or hydraulic equipment, could indicate oil containing PCBs. Stained building components, such as ceilings and beams, may indicate structural problems, but are not environmental concerns. Insignificant staining includes grease and oil spots in parking lots.

2.2.5 Junkyards

Concern:

On-Site: Generally, junkyards are not located on public housing property. However, if the site once contained a junkyard, there may be residual contamination from such use, that could continue to affect the health of residents.

Adjacent to the Site and in the Surrounding Neighborhood: A junkyard adjacent to public housing may be a concern because hazardous fluids (e.g., gasoline, used oil, hydraulic fluids, antifreeze, brake fluids) from junked vehicles and equipment can leak into the ground. Over time, as more junk is discarded, fluids can accumulate, migrating into soil or water on surrounding properties.

Definition:

A junkyard is an area where wrecked and discarded mechanical equipment and vehicles are stored until they can be processed e.g., at a salvage yard. Junkyards are often located in vacant or abandoned areas.

2.2.6 Landfills

Concern:

On-Site: While public housing may not currently share property with a landfill, it may be sited on one which was closed down. There may be continuing impacts from landfill gases and hazardous liquids (leachates) on the property, particularly to children playing outdoors.

Adjacent to the Site and in the Surrounding Neighborhood: An old, unlined landfill near public housing may be a concern because of the possibility of leaking and runoff. Even domestic garbage can generate hazardous liquid ("leachate") since household waste can include paints, thinners, cleansers, used oil and antifreeze, car batteries, etc. The air quality in the neighborhood may be affected. If the property is not fenced, trespassing can lead to exposures to infectious wastes, needle sticks, puncture wounds (tetanus), asbestos and other exposures.

Definition:

A landfill may contain garbage, refuse and debris from domestic, industrial or hazardous waste sources. Landfills are typically operated by private companies or local governments/municipalities. In the past, landfills were sited in/on areas which needed to be filled, or in remote locations. Older landfills may not be recognizable (e.g., they may be overgrown).

For decades, many landfills were used for indiscriminate dumping with little or no control. More recently, landfills have become more regulated, including restrictions on items deposited, as well as on containment of the waste and liquids (leachate) generated by the landfill. However, landfills have only been vigorously regulated in this manner since the late 1980s.

2.2.7 Pits, Ponds, Lagoons

Concern:

On-Site: Pits, ponds and lagoons on public housing properties may be a concern as they may contain contaminated sludge, sediment or water from historic or current practices such as liquid waste disposal, machine cooling, sludge sedimentation or process water storage.

Adjacent to the Site and in the Surrounding Neighborhood: Any water body can be an attractive gathering place, especially for children. Stagnant water is a concern for obvious health reasons, and contaminants in water and soil may be hazardous to those swimming there.

Definition:

The terms "pits, ponds and lagoons" are used to describe small, unlined, manmade bodies of standing water. Typically there are no streams leading into or out of the waterbody, although there may be drainage through a ditch, depression or pipe. There may be dry periods when the feature is empty. Signs that contaminated liquids or sludge is present include discolored water, distressed vegetation, or obvious wastewater discharge.

2.3 FUEL AND SERVICING

2.3.1 Gas Stations

Concern:

On-Site: In general, public housing does not include commercial uses such as gas stations. However, if a gas station was previously located on the site, there may be continuing cause for concern (for example, there may be leaking tanks on the property).

Runoff of oil, gasoline and grease from gas stations may contaminate the ground at the public housing. Children playing outdoors may accidentally eat the contaminated soil. Gas stations may also contaminate private wells.

Adjacent to the Site and Surrounding Neighborhood: Gas stations use hazardous chemicals, e.g., gasoline, antifreeze, hydraulic fluids and motor oil, which, if not property stored, dispensed and handled, can pose a health threat to public housing residents. Fires and explosions may also occur.

Gas stations have large underground storage tanks which may leak and contaminate soil and water. The older the tank, the greater the potential for leaks. Problems may persist even after the gas station has been torn down. Generally, sites of closed gas stations are of greater concern than new ones, because there are new requirements designed to prevent active underground storage tanks from leaking and to encourage recycling of waste oils. Old, abandoned steel underground storage tanks may have rusted and leaked, and years of careless dumping of waste fluids (e.g., waste oil, gasoline, lubricants, antifreeze, etc.) may have taken place.

As of 1990, there were over 2 million legally registered underground storage tanks in the United States, with most located at gas stations. EPA estimates that 20 percent of these may leak. The number and condition of unregistered underground storage tanks is unknown.

Definition:

A gas station is a commercial business which sells gasoline and other petroleum products such as diesel fuel to its retail customers. Full service gas stations also perform vehicle repairs which generate hazardous wastes. In recent years, many gas stations have discontinued vehicle maintenance and instead have convenience stores.

2.3.2 Storage Tanks (Underground and Aboveground)

Concern:

On-Site: Leaking storage tanks may contaminate soil and water with their contents, such as liquid chemicals, fuels and wastes. Tanks which store compressed gases (such as propane) may release sufficient vapor to cause an explosion or fire. All aboveground storage tanks should be considered to pose fire hazards until proven otherwise.

Adjacent to the Site: Leaking tanks at locations directly adjacent to the site may affect the health and safety of public housing residents, for example, vapors from improperly disposed chemicals may impact on the air quality inside buildings.

Surrounding Neighborhood: In general, hazards to public housing residents will be limited to play areas in the neighborhood, including streams and wooded areas where leaking tanks may have tainted the soil and water. Residents may be affected by chemical accidents and fires or explosions arising from tanks storing large volumes of chemicals.

Definition:

A storage tank is a container, located above ground or underground, which is used to store a liquid or gaseous material until it can be used, or retrieved for disposal. Residual product can remain in the tank, which could leak and contaminate soil or water. Therefore, it is important to identify abandoned as well as active tanks. Tanks installed in recent years are more likely to have protective devices to prevent leaks or spills.

2.3.3 Vehicle Repair Shops

Concern:

On-Site: Generally, there are no commercial uses of public housing property. However, a vehicle repair shop may have been located on the property previously, and there may be contamination from discarded waste oils, etc.

Adjacent to the Site and in the Surrounding Neighborhood: The presence of vehicle repair activity near public housing is a concern because many of the products used and wastes generated are hazardous to human health. These include waste oils, hydraulic fluids, antifreeze, degreasers, paints, solvents and cleansers. Improper handling and/or disposal of these hazardous materials could result in contamination of soil and water.

The longer an auto repair business has been in operation, the greater the potential for mishandling and/or improper disposal of hazardous materials may have occurred.

Definition:

A vehicle repair shop is a business which performs repairs on automobiles and commercial vehicles such as taxis or transport trucks. They include franchise operations which are part of national chains, service shops in gas stations and independent garages. Also included in this definition are auxiliary businesses related to auto repair such as body repair shops and automobile paint shops.

2.4 COMMERCIAL

2.4.1 Manufacturing/Industrial Facilities

Concern:

On-Site: In general, public housing does not include other uses such as manufacturing/industrial facilities. However, if manufacturers or industries were previously located on the site, there may be continuing cause for concern (for example, there may be leaking tanks or areas on the property where wastes were discarded).

Adjacent to the Site and in the Surrounding Neighborhood: Manufacturing or industrial facilities located near public housing may impact on air quality in the neighborhood as a result of accidental chemical releases or routine emissions into the air.

Waste disposal practices (e.g., wastewater discharges, disposal of hazardous wastes on-site) may contaminate soil and water.

Even after a facility has shut down, the site may be contaminated, and those contaminants may impact on public housing.

Definition:

Examples of manufacturing/industrial facilities include paper mills, chemical plants, auto manufacturers, foundries, petroleum refineries and metal fabricators. Evidence of manufacturing/industrial activity includes smoke stacks, railroad spurs or truck traffic. Warehouses, repackaging plants and distribution facilities typically do not pose the same degree of hazard because their waste streams are limited.

2.4.2 Waste Recycling

Concern:

On-Site: There may be recycling stations in the public housing complex which become Adumping@ sites for unauthorized materials such as used car batteries, aerosol cans, paint cans, etc. These can attract children and create a potential hazard.

Adjacent to the Site and in the Surrounding Neighborhood: As the business of recycling becomes more popular, the number of waste recycling facilities is growing. The plants which recondition and treat these waste products and others (such as chemical containers) are similar to manufacturing facilities, in that they generate wastes, which, if improperly handled, can contaminate air, soil and water, and impact public housing.

Drop off stations which simply accumulate old newspapers, bottles, cans, plastics, etc. do not pose a similar concern, except to the extent that these stations become unauthorized storage areas for hazardous wastes (e.g., old car batteries which may contain acid electrolyte).

Definition:

Waste recycling facilities include processing centers which separate, recondition and refabricate materials from recycled waste. These facilities involve manufacturing and should be considered a subset of the manufacturing/industrial category.

2.4.3 Photo Developing Businesses

Concern:

On-Site: In general, public housing does not include commercial uses such as photo developing businesses. However, if such uses previously were located on the property, there may still be areas of the site which are problematic (for example, if photo processing chemicals were discarded on-site).

Adjacent to the Site and in the Surrounding Neighborhood: Photo developing businesses use hazardous processing chemicals (including silver nitrate), and improper handling and/or disposal of those materials may result in impacts on air quality, or in contamination of soil or water. Many newer photo processing operations use self-contained processing units which minimize the use and handling of hazardous chemicals, with no off-site impacts.

Definition:

A photo developing business is typically a commercial operation which processes film for private customers and/or businesses on-site. These businesses should not be confused with distribution/collection locations where film is simply dropped off for processing at another location.

Even after a photo processing business has gone out of business, contaminated soil or water could remain, which may impact nearby properties.

2.4.4 Print Shops

Concern:

On-Site: In general, public housing does not include commercial operations such as print shops. However, past commercial use of the property may be related to ongoing exposures of public housing residents, for example, from solvents in building sumps.

Adjacent to the Site and in the Surrounding Neighborhood: Print shops use hazardous chemicals including inks, paints, solvents and cleansers. Improper handling and/or disposal of those materials can result in soil and water contamination off-site.

Definition:

A print shop is a commercial business which prints newspapers, magazines, cards, stationery, signs, and similar products.

2.4.5 Dry Cleaners

Concern:

On-Site: In general, public housing does not include commercial operations such as dry cleaners. However, past commercial use of the property may be related to ongoing exposures of public housing residents, for example, from solvents in building sumps.

Adjacent to the Site and Surrounding Neighborhood: Businesses near public housing may use hazardous chemicals or generate hazardous wastes. One common example is the neighborhood dry cleaners. If dry cleaning chemicals are improperly handled or disposed, they can contaminate the air, soil or water in the surrounding area. Current operations can affect air quality inside public housing units, if the ventilation intakes are located near exhausts from the dry cleaners.

Past operation of such facilities may be of concern due to waste solvents remaining in the ground. There have been cases where dry cleaning solvents such as perchloroethylene have been discharged (legally) into neighborhood sewers which were in disrepair. As a result of the effects of a rising and falling water table around the old sewer lines, the solvents migrated through the soil and reached the foundations of buildings in the neighborhood. Vapors passed through cracks in foundations into buildings (into, for example, a day care center in a basement), affecting those living inside.

Exposure can also result from contact with spent solvents or used filters, from drinking contaminated water, or from breathing emissions from exhaust vents.

Definition:

A dry cleaners is a business operation which cleans clothes using special chemical solvents, in contrast to a laundry which cleans clothes using detergents in water. Dry cleaners are generally located near residential areas where their customer base resides. Not to be confused with these operations are so-called Adry cleaners@ which serve only as collection/distribution points for dry cleaning performed at another location.

3.0 METHODOLOGY AND RESOURCES

Based on your understanding of the eighteen Atarget risk@ categories, and why they are a concern to your residents, you should be ready to begin your investigation, interviews and records review. Tables 3-1 and 3-2 can be used as roadmaps in this processes. Table 3-1 is for use on the public housing property. Table 3-2 is for use for the adjacent sites and surrounding neighborhood. With these tools, you should gain an understanding of the environmental hazards that may endanger the health and safety of your residents. It will be important to take good notes so that, when your investigation is complete, you can review your findings and begin to rank the hazards that you have uncovered.

Perhaps the most difficult task during the investigation is the records review. Research can be time-consuming, and you may have to be selective based on the amount of time you have available. Some of the more valuable references, which are cited in Tables 3-1 and 3-2, include the following:

1. ***Fire insurance maps****, such as those provided by Sanborn, which indicate uses of properties at different times. These maps are often available at local libraries, historical societies, private resellers, or the map company which produced them.*

2. ***Tax records*** *are generally kept by the local government, and they include records of past ownership, appraisals, maps, sketches, photos and other information.*

3. ***City directories*** *that show ownership, occupancy and/or use of sites by reference to street addresses. Often available at libraries of local governments, colleges or universities, or historical societies.*

4. ***Data record searches,*** *which are conducted by commercial services and are useful compilations of federal and state information regarding properties in the neighborhood which are listed hazardous waste sites, have underground storage tanks, have solid waste facilities, etc.*

5. ***Highway and street maps*** *which may be used to record findings during neighborhood surveys and can be obtained from gas stations or stationery stores.*

6. ***Fire department records*** *which may include records of spills of extremely hazardous substances beyond a facility's property boundaries, as well as records of fires and explosions in the neighborhood.*

7. ***Health department records*** *which may include studies on environmental health-related incidents in the neighborhood.*

8. ***Building department records*** *are files indicating permission of the local government for construction, alteration or demolition on the property. These can be searched at the building department of the local government.*

9. ***Published lists of environmental violators and permitted facilities*** *which can be*

obtained from local libraries.

10. ***Aerial photographs*** *of the property and its surroundings are typically taken from an airplane or helicopter from altitudes which depict site development and activities. Historic aerial photographs can be very helpful in answering questions regarding waste disposal practices. Aerial photographs can often be obtained from government agencies.*

11. ***Material safety data sheets*** *are provided by the manufacturer or distributor of chemical products. They describe the identity, hazards and safe handling and storage procedures for the product. They can be obtained from the manufacturer or supplier of the product, often by fax, upon request.*

12. ***U.S. Geological Survey maps*** *show topography, and can be obtained from the U.S. Geological Survey or local bookstores or public libraries.*

During the course of your investigation, you may discover chemically-related leaks and spills. In the next section, summaries of the possible effects of exposures to these environmental hazards are provided.

TABLE 3-1

SITE TARGET RISKS:
METHODOLOGY AND RESOURCES

Target Risks	Site Inspection (Where and What to Look for)	Interviews (Who and What to Ask)	Records Review[a]											
			1	2	3	4	5	6	7	8	9	10	11	12
Drums/ Chemical Containers	Check for chemical containers in storage rooms, basement, utility chases, fallout shelter, outside sheds, garage, etc. Note their condition. Are there any leaks? Check warning labels. Are chemicals labeled AKeep Fire Away@ kept out of hot areas? Are compressed gas cylinders secured to a wall or could they tip over?	Ask building maintenance if any damaged or discarded chemical containers are kept on site. Ask them to show you where. Note the types of chemicals in these containers. Ask to see Material Safety Data Sheets (MSDSs) for them. Check and note hazard warnings in MSDSs.	T										T	
Dry Cleaners	(Not Applicable for Site)	If a dry cleaners had been located on the site, ask the local health department whether they know of any incidents associated with the dry cleaners and obtain details.	T		T	T					T		T	
Fill Dirt	Check slope of land on site and in general area. Would the builder have had to Afill in@ parts of the property to level it for the buildings?	Ask longtime residents about the condition of the site before the buildings were constructed. Ask builder or general contractor if fill was used, and where it came from. Review construction or site development drawings with them, if available.	T	T		T				T		T		T
Gas Stations	If your interviews indicate that there had been a gas station on the property, check for signs of tanks left in place (for example, are there vent pipes, fill pipes where trucks would have delivered fuel, or access ways to a fill pipe protruding from the ground? Or is there any asphalt or concrete patching	Ask longtime residents whether there was ever a gas station on the property, where it was located and whether the tanks were removed.	T		T	T					T			

	that would indicate a tank removal?)													
Junkyards	Check for abandoned equipment, cars, etc. on the property. Is any liquid leaking into the soil from these?	Ask longtime residents whether there was ever a junkyard on the property, where it was located, who brought material there, what types of materials were brought in, who was responsible.	T	T	T	T		T	T		T	T		
Landfills	Check for evidence of dumping on the property. What types of materials are there? Is it construction debris (e.g., concrete), or are there objects which could be hazardous to children or could leak into the ground?	Ask longtime residents whether there was ever a landfill on the property, where it was located, who brought material there, what types of materials were brought in, who was responsible.	T	T	T	T		T	T		T	T		T
Manufacturing/ Industrial Facilities	If your interviews indicate that there had been a manufacturing or industrial operation on the property, check for evidence of drains, sumps, tanks, or other equipment that may have been left behind.	Ask local sources like the historical society, the fire department or the chamber of commerce, if there were manufacturing or industrial operations on this site. Ask what types of operations were there and what may have been left behind (including what may have been dumped on the property).	T	T	T	T	T			T	T	T		
Photo Developing Business	(Not Applicable for Site)	If a photo developing business had been located on the site, ask the local health department whether they know of any incidents associated with the business and obtain details.	T		T						T			
Pits, Ponds, Lagoons	Check for depressions or ponds on the property. Is it possible that this area was dug out by someone to bury waste, or for some other purpose that may have contaminated the property (e.g., is it a sludge lagoon ?).	Ask building maintenance about the source of the pit, pond or lagoon. If needed, contact the County Soil and Water Conservation Service or the regional office of the U.S. Army Corps of Engineers.	T			T			T			T		T
Print Shops	(Not Applicable for Site)	If print shop had been located on the site, ask the local health department whether they know of any incidents associated with the business and obtain details.	T		T						T		T	
Stained Surfaces	Walk the site and look for stains on pavement and on soil. Check flooring, drains and walls in buildings. Look at	Ask building maintenance about the stains and what caused them. Ask if spills were hosed down and whether	T										T	

	the area around the stain and try to determine what caused it. Is stain emitting a foul odor? Is there drainage from the stain to a sump? Is the pavement cracked near the stain? Could a leak or spill have saturated the soil beneath the pavement?	rinsewater may have accumulated in building sumps.													
Storage Tanks (Underground and Aboveground)	Does the housing project have fuel tanks, either above or below the ground? Walk the site after interviewing building maintenance to check for tanks. Check for fill ports (where deliveries were made) and vent pipes (leading from the top of the tank).	Ask building maintenance about the location and types of storage tanks on the property. Ask if they have discovered any old tanks (for example, if they have seen fill ports or vent pipes) and ask to see where these are located.	**T**			**T**		**T**		**T**	**T**	**T**		
Transformers	Does the housing project have any transformers? Check whether they are labeled to indicate whether they contain PCBs or not. Check the condition (signs of damage, leakage or fire) of the transformer and note any stains on the transformer or ground. Record the transformer serial number.	Ask building maintenance who owns the equipment, usually either the property owner or the power company. Ask about the types of transformers on the property (dry or radial) and the history of accidents. Contact the local power company to check whether they own the equipment and if so, ask about previous test results and PCB content. Ask the power company whether it is their policy to assume responsibility for accidental releases. Request all available records from the company for the transformers. Report any apparent damage or leakage to the power company for immediate action.				**T**		**T**						
Unauthorized Dumping	Walk the site and look for signs of dumping. Look for tire tracks or a beaten path. Put yourself in the shoes of whoever was dumping. Where would you leave bulky or heavy garbage? Probably as close to a road or path as possible. Look closely at the material and make a list. Check for any buried debris - the ground may be mounded and the ground cover may be	Ask building maintenance about any dumping on-site, ask them to show you where, and ask how long the material has been there, types and amounts.	**T**			**T**		**T**	**T**		**T**	**T**			**T**

	different than the surrounding area.													
Vehicle Repair Shops	Are repairs performed by residents? Check for spills and leaks.	Ask long-term residents whether a vehicle repair shop was located on the property, and if so, are there likely to be any areas on the property where they disposed of waste oils or other materials? Ask them to point out the location.	**T**		**T**	**T**					**T**			
Waste Recycling	Check the condition of the on-site recycling storage area. Are materials placed there that do not belong (e.g., car batteries, etc.)? What is their condition?	Ask building maintenance what they do with materials that are not supposed to be recycled.											**T**	
Water Treatment	Is there a water treatment plant or swimming pool on the property? If so, how are chemicals being stored, used and dispensed? See approach for Drums/Chemical Containers.	Ask building maintenance about chemical storage. See approach for Drums/Chemical Containers.											**T**	
Wells: Drinking Water	Does the housing project get its water from wells on the property?	Ask building maintenance whether drinking water is provided by local wells. Ask if there have been reports of contaminated water in the area.				**T**			**T**					

[a] RECORDS:

1 Fire Insurance Maps, such as Sanborn Maps (old and current)
2 Tax Records
3 City Directories (old and current; listing businesses by their addresses)
4 Data Record Searches (e.g., provided by EDR, Vista or ERIIS)
5 Highway and Street maps
6 Fire Department records
7 Health Department records
8 Building Department records
9 Published Lists of Environmental Violators and Permitted Facilities
10 Aerial Photographs (old and current)
11 Material Safety Data Sheets
12 Topographic Maps (U.S. Geological Survey) (old and current)

3-2

T RISKS ADJACENT TO THE SITE AND IN THE SURROUNDING NEIGHBORHOOD:
DDOLOGY AND RESOURCES

Risks	Site Inspection (Where and What to Look for)	Interviews (Who and What to Ask)	Records Review[a]											
			1	2	3	4	5	6	7	8	9	10	11	12
al Containers	Check for chemical containers on properties next to the site and also in the surrounding neighborhood, especially in play areas, fields, creeks or streams where children can go. Note their condition: are there any signs of bulging, rupture, rust, deterioration? Are there any leaks? If there was a leak, would it run onto the public housing property? Try to identify the types of chemicals being stored. Does storage in these areas appear to be increasing? How might this affect the public housing site? Is the chemical storage nearby? Is it upwind?	For properties next to the site, ask the owner about the nature of the chemicals which are stored on their property and the reason they are being stored outside. Ask about future plans. For properties next to the site and in the surrounding neighborhood, check with the local health and fire departments about any chemical storage incidents.	T										T	
aners	Locate dry cleaners within the surrounding neighborhood.	If it is not known whether they are a drop-off/pickup point for dry cleaning performed at another location, ask. Ask local health department whether they know of any incidents associated with the dry cleaners and obtain details.	T		T	T					T		T	
	Check unpaved areas adjacent to the site and in the surrounding neighborhood where public housing residents may go, particularly playgrounds and vacant lots where children play.	If there are recreational areas in the neighborhood where fill dirt or sand was used, speak with the local health department about where this material was taken from and whether it had been chemically tested. If so, ask for the results of the testing and any conclusions made regarding the suitability of the fill	T	T		T				T		T		T

		dirt.													
ions	Check for gas stations (gas dispenser pumps or islands) on properties adjacent to the site as well as in the surrounding neighborhood. Are vehicle repairs done there? What is the condition of the station? Is the pavement cracked? Are there signs that oil or grease may have been spilled and ended up in the soil underneath the pavement? Check for oil from hydraulic lifts (may contain PCBs). Check for signs of closed gas stations.	Ask the gas station manager what they do with waste fluids (waste oil, gas, lubricants, antifreeze). Ask whether the tanks have been tightness-tested. Ask when they were installed and what type they are. Ask them whether there were any other stations in the area that have closed down, when, and where they were located. Check with the fire department about the status of active and closed gas stations in the area, for example, at closed stations, were there any reports of leaks? Have the gas tanks been removed or abandoned in place?	T		T	T					T				
ds	Check for abandoned equipment, cars, etc. on properties adjacent to the site as well as in the surrounding neighborhood. What type of security is in place to prevent trespassing? Is this a place which would draw children or teenagers from public housing? Is any liquid leaking into the soil from the junk? If people from the public housing did have access to the junkyard, would they harm themselves?	For properties next to the site, ask the owner about the nature of the materials which are stored on their property, their condition, and how fires and spills are prevented. Ask about future plans. For properties next to the site and in the surrounding neighborhood, check with the local health and fire departments about any fires or other incidents arising from the property.	T	T	T	T		T	T		T	T		
s	Check for evidence of dumping on property adjacent to the site and in the surrounding neighborhood. What type of security is in place? Is it a place which would draw children or teenagers from public housing? What types of materials are there? Is it construction debris (e.g., concrete), or are there objects which could be hazardous to children or could leak into the ground and affect the public housing property?	Ask the landfill owner or operator about the construction of the landfill, for example, does the landfill have a liner? For properties adjacent to the site, ask longtime residents whether there was ever a landfill there, where it was located, who brought material there, what types of materials were brought in, who was responsible.	T	T	T	T		T	T		T	T		T
cturing/ al	Look for manufacturing and industrial plants on property adjacent to the site	Ask local sources like the chamber of commerce what types of manufacturing												

s	and in the surrounding neighborhood. Check names for clues as to the types of operations they are. Check whether exhaust ducts are located near the public housing property. If your interviews indicate that there had been a manufacturing or industrial operation on the adjacent sites, check for evidence of drains, sumps, tanks, or other equipment that may have been left behind.	or industrial operations are and have been located on adjacent sites and in the surrounding neighborhood. Ask the local health department whether they know of any incidents associated with these plants and obtain details.	T	T	T	T	T			T	T	T		
eveloping s	Survey the properties next to the site and in the surrounding neighborhood to see if there are photo developing businesses. Check whether exhaust vents are located near the public housing property.	Ask photo developing staff if photo services are done there or whether film is developed at another location. Ask how they dispose of their chemical wastes.	T		T						T				
nds, Lagoons	Check for depressions or ponds on properties adjacent to the site. Is it possible that this area was dug out by someone to bury waste, or for some other purpose that may have contaminated the property (e.g., is it a sludge lagoon ?). What might be the effect on the public housing site? Are there pits, ponds or lagoons in the surrounding neighborhood that may attract children or teenagers from public housing?	Ask property owner about the source of the pit, pond or lagoon. If needed, contact the County Soil and Water Conservation Service or the regional office of the U.S. Army Corps of Engineers.	T			T		T				T			T
ops	Survey the properties next to the site and in the surrounding neighborhood to see if there are print shops. Check whether exhaust vents are located near the public housing property.	Ask print shop staff about chemical handling and disposal practices. Ask the local health department whether there have been incidents associated with the operation of the print shop.	T		T						T		T		
Surfaces	Check the properties surrounding the site for heavy staining, particularly in play areas and fields where children go. Is there a possibility that there may be leaks onto the public housing property which are associated with	Ask the adjacent property owner about the stains and what caused them.	T										T		

	these stains?													
Tanks round and round)	Do the properties surrounding the site have fuel tanks, either above or below the ground? Make note of fuel deliveries, and types of fuel.	Ask adjacent property owners about the condition of storage tanks on their properties. Ask if they have had tightness or leak tests and what the results have shown. Ask whether they have discovered any old tanks (for example, if they have seen fill ports or vent pipes) and know their condition.	T			T		T		T	T	T		
rmers	Check for pole-mounted transformers in block surrounding public housing.	Contact the local power company to check whether publicly-accessible equipment in the block surrounding public housing contains PCBs. Request all available records from the company for the transformers. Report any apparent damage or leakage to the power company for immediate action.				T		T						
orized g	Check for signs of dumping on properties around the site, and in the surrounding neighborhood. Look for tire tracks or a beaten path into remote areas. Check whether there is any construction material which could release asbestos (e.g., pipe insulation). Is this area fenced in? Could public housing residents trespass in this area?	Ask the property owner about their plans regarding dumping on-site, ask them to show you where, and ask how long the material has been there, types and amounts.	T			T		T	T		T	T		T
Repair Shops	Is there a vehicle repair shop on properties around the site? Check for spills and leaks. Check for oil around hydraulic lifts (may contain PCBs). Is there a possibility that there may be leaks onto the public housing property?	Ask repair shop owner how they dispose of waste oils or other materials.	T		T	T					T			
ecycling	Check the surrounding neighborhood for waste recycling stations. What is the condition of the station? Check whether exhaust vents are near the public housing property.	Ask recycling station owner whether the site is a dropoff facility or a processing plant. Ask how hazardous wastes are disposed of.											T	
reatment	Check for water treatment plants or	Ask the owner about storage precautions												

	swimming pools next to the site or in the surrounding property. Where are treatment chemicals stored? Could public housing residents trespass in chemical storage areas?	for extremely hazardous chemicals such as chlorine.											T		
Drinking Water	If your property uses water supply wells for its source of drinking water, see what the property surrounding the wells is being used for.	Check with the local water authority to find out the source of the water supply and whether it is treated. Ask them to provide, in writing, any test results compared to water quality standards and what the results indicate. Ask if there have been reports of contaminated water in the area. Ask the local health department whether there have been incidents associated with local water quality and what type of action is planned.				T			T						

[a] RECORDS:

1 Sanborn Maps (old and current)
2 Tax Records
3 City Directories (old and current; listing businesses by their addresses)
4 Data Record Searches (e.g., provided by EDR, Vista or ERIIS)
5 Highway and Street Maps
6 Fire Department records
7 Health Department records
8 Building Department records
9 Published Lists of Environmental Violators and Permitted Facilities
10 Aerial Photographs (old and current)
11 Material Safety Data Sheets
12 Topographic Maps (U.S. Geological Survey) (old and current)

4.0 HAZARDOUS CHEMICAL EXPOSURES

During your investigation of the eighteen Atarget risk@ categories, you may encounter chemicals and other related materials which may or may not present a hazard to public housing residents. Table 4-1 provides a summary of the possible effects of exposure to common environmental hazards.

TABLE 4-1

POSSIBLE EFFECTS OF EXPOSURE TO ENVIRONMENTAL HAZARDS

Product	Possible Hazards
Acids, including muriatic (hydrochloric), nitric, phosphoric, sulfuric	Acute lung damage, marked irritation - eye, nose, throat, skin.
Aerosols	When sprayed, contents are broken into particles small enough to be inhaled. Cans may explode or burn.
Asbestos, including building materials, pipe insulation, fireproofing	Fibers. Cumulative lung damage, cancer.
Auto: Antifreeze	Very poisonous. Has sweet taste - attractive to children and pets.
Auto: Batteries	Contain strong acid. Very corrosive. Danger to eyes and skin.
Auto: Degreasers	Corrosive. Poisonous. Eye and skin irritant.
Auto: Motor oil and transmission fluid (may contain lubricant additives, detergents, heavy metals (lead, zinc, phosphorus, barium, vanadium)).	Poisonous. Skin and eye irritant. Liver and kidney damage.
Caustics, including potassium hydroxide	Marked irritation - eye, nose, throat, lungs, skin.
Chlorine	Lung injury, marked irritation of eye, nose, throat, bronchi.
Compressed Gases, including acetylene, air, hydrogen, nitrogen, oxygen	Some are flammable and explosive (acetylene, hydrogen). Asphyxiant (acetylene, hydrogen, nitrogen). Cylinder can rupture and explode like a torpedo if valve stem breaks or is sheared off (full cylinder is pressurized at 2,200 pounds per square inch).
Diesel Fuel	Flammable. Mild irritation, narcosis.
Fiberglass Insulation	Moderate irritation - nose, throat, skin
Gasoline	Flammable. Central nervous system effects. Headaches, dizziness. Mild irritation - eye, nose and throat.
Glues	Flammable. Headaches, dizziness, narcosis.
Lead-based paint on construction debris like window frames. Lead from radiator repair shop. Leaded gasoline.	Long term effects of lead in a child include learning disabilities, decreased growth, hyperactivity and brain damage. Tetraethyl lead in gasoline may cause liver, central nervous system

	and kidney damage.
Liquified Petroleum Gas (LPG)	Explosive. Asphyxiant. Narcosis.
Paint (Oil-based) and Varnishes	Flammable. Eye and skin irritant. Narcosis.
Paint Strippers, Thinners and other Solvents	Many are flammable. Eye and skin irritant. Headaches, dizziness, narcosis. Moderately to very poisonous.
Perchloroethylene, used as dry cleaning solvent	Flammable. Liver and central nervous system damage, narcosis, suspect carcinogen.
Pesticides, Herbicides, Fungicides, Slug Bait, Rodent Poison, Wood Preservatives, Synthetic Fertilizers	All are dangerous. Can cause central nervous system damage, kidney and liver damage, birth defects, internal bleeding, eye injury. Some are readily absorbed through the skin.
Polychlorinated biphenyls (PCBs)	Suspect carcinogen. Causes chloracne, cumulative liver damage.
Propane	Explosive. Central nervous system effects.
Silver Nitrate (used in photo processing)	Poisonous.
Turpentine	Flammable. Moderate irritation - eye, nose, throat, bronchi, lungs, skin. Kidney damage.