COMBINED PRELIMINARY ASSESSMENT/SITE INSPECTION REPORT

DAYTON WAREHOUSE
CITY OF DAYTON
MONTGOMERY COUNTY, OHIO

USACE CONTRACT NO. DACW49-01-D-0001
DELIVERY ORDER NO. 0006

REVISION 3
SEPTEMBER 2005

DEPARTMENT OF THE ARMY

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FOR THE
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Prepared For:

U. S. ARMY CORPS OF ENGINEERS
BUFFALO DISTRICT
1776 NIAGARA STREET
BUFFALO, NEW YORK

Prepared By:

URS GROUP, INC.
77 GOODELL STREET
BUFFALO, NEW YORK 14203

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ACRONYMS AND SYMBOLS

AEC	Atomic Energy Commission
B	Background
bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COC	Constituent of Concern
cm^2	Square Centimeters
cpm	Counts per Minute
dpm	Disintegrations per Minute
DOE	Department of Energy
FUSRAP	Formerly Utilized Sites Remedial Action Program
kg	Kilogram
M	Sample Activity
MD	Matrix Duplicate
MED	Manhattan Engineer District
mg/kg	Milligrams per kilogram
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NaI	Sodium Iodide
NOAA	National Oceanic and Atmospheric Administration
NRC	Nuclear Regulatory Commission
ODNR	Ohio Department of Natural Resources
OEPA	Ohio Environmental Protection Agency
PA	Preliminary Assessment
Pb-210	Lead-210
Po-210	Polonium-210
pCi/g	PicoCuries per gram
PRG	Preliminary Remediation Goal
PRS	Potential Release Site

ACRONYMS AND SYMBOLS (Continued)

QA	Quality Assurance
QC	Quality Control
QCSR	Quality Control Summary Report
Ra-226	Radium-226
S	Screening Level Activity
SAIC	Science Application International Corporation
SAP	Sampling and Analysis Plan
SI	Site Inspection
µR/hr	MicroRoentgens per hour
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USEPA	United States Environmental Protection Agency

EXECUTIVE SUMMARY

This report presents a summary of the Preliminary Assessment/Site Inspection (PA/SI) of the Dayton Warehouse, located at 601 East Third Street in downtown Dayton, Ohio. Historical records indicated that the Dayton Warehouse was used in the 1940s for research and development activities that supported the Nation's early atomic energy program. This document is presented in two parts. Part I summarizes the results of the PA, for which readily available historical information about the site was reviewed to establish the need for and scope of the subsequent SI. Part II summarizes the results of the SI.

The PA/SI was performed to eliminate from further consideration any identified releases that pose no significant threat to public health or the environment, to determine if a removal action is needed, and to collect data to better characterize identified releases for an effective and rapid initiation of a Remedial Investigation and Feasibility, if necessary.

In 1942, the United States Army Corps of Engineers' (USACE) Manhattan Engineer District (MED) was given the assignment for managing research and development of the first atomic weapons. This activity occurred at many sites throughout the United States, one of which was the Dayton Warehouse.

Monsanto Chemical Company was tasked by the USACE's MED with responsibility for developing radioactive polonium-210 (Po-210), which was necessary for building the atomic bomb. Monsanto's subsequent research, development, and production activities occurred at several sites in Dayton, and became known locally as the Dayton Project (Gilbert 1969). The Dayton Warehouse was one of those sites.

For about three years, between 1946 and 1949, a portion of the Dayton Warehouse was used for MED-related activities. Based on available historical information, Monsanto did not produce Po-210 at the Dayton Warehouse, and only used the fourth, fifth, and sixth floors for the Dayton Project. Initially used to store surplus equipment for the project, a laboratory was later built on the fifth floor. Warehouse operations reportedly involved only trace amounts of Po-210 from analyses done on environmental samples, personnel bioassay samples, and biological studies on the effects of Po-210 on animals.

Warehouse operations were transferred to the Mound Laboratory in Miamisburg, Ohio in 1948/1949. The Warehouse facility was then decontaminated and returned to the building's manager for rental to other clients. In August 1997, the United States Air Force's (USAF's) Radiation Protection Branch found that the exposure rates around the exterior of the Warehouse were at background levels.

In January 2000, the United States Department of Energy (DOE) determined that the Dayton Warehouse was eligible for inclusion into the Formerly Utilized Sites Remedial Action Program (FUSRAP). Under a March 1999 Memorandum of Understanding between the USACE and the DOE, once DOE has made this determination, responsibility for action was to be transferred to the USACE. Under FUSRAP, the USACE's authority is limited by Congress to address only potential contamination associated with MED activities during the early atomic energy program. The constituents of concern at the Warehouse are radium-226 (Ra-226), lead-210 (Pb-210), and beryllium.

The PA concluded based on a review of limited historical information, that there is no immediate threat to human health and the environment related to MED activities at the Warehouse. However, because there are no known interior sampling data, the decision was made to proceed with the SI under FUSRAP.

The SI involved a systematic assessment of potential fixed and removable residual contamination from the Dayton Project on all six floors, the basement, and the loading area at the north end of the building. The constituents of concern were Ra-226, Pb-210, and beryllium. In general order of occurrence, the primary steps in investigation of the Warehouse involved:

- Floor scans of eleven survey grids on each floor
- Static counts at the center of each survey grid
- Swipe samples collected at survey grids exceeding screening levels and analyzed for the constituents of concern
- Swipe samples collected in each survey grid and field counted
- Swipe samples at the center of three unbiased survey grids on each floor for beryllium analysis in the laboratory
- Three soil samples from the loading area

Alpha and beta count rates from the floor scans of the 10-foot by 10-foot survey grids on each floor were all less than the screening levels. Static counts of alpha and beta emissions in each survey grid were all less than screening levels except for two locations on the sixth floor next to the exterior brick wall. Beta emissions slightly higher than the screening levels are thought to be a result of naturally occurring radiation from the brick. Ra-226 and Pb-210 were not detected in swipe samples collected from these two locations and beryllium was found at concentrations less than its screening level.

Swipe samples collected and counted in the field only exceeded the beta screening level in two samples from the first floor, which was not used for MED-related activities. Concentrations of beryllium in the twenty-one unbiased swipe samples were all less than the beryllium screening level.

Analytical results for Ra-226 and beryllium from the three loading area soil samples were all less than screening levels and results for Pb-210 were less than screening levels in two of the samples. The slight exceedance of the Pb-210 in the third sample may be the result of dust accumulation over time from atmospheric decay of radon.

Based on the findings of this PA/SI, the USACE concludes that there is no evidence of an unpermitted release or a substantial threat of a release of the constituents of concern into the environment associated with the Nation's early atomic energy program that may present an imminent and substantial danger to the public health or welfare at the site, and no further action is required under FUSRAP.

PART I

PRELIMINARY ASSESSMENT

1.0 INTRODUCTION

This report describes the results of a combined preliminary assessment and site inspection (PA/SI) performed at the Dayton Warehouse site, located at 601 East Third Street, in downtown Dayton, Ohio (Figure 1-1). Historical records indicate that the Dayton Warehouse was used in the 1940's for research and development activities that supported the Nation's early atomic energy program.

In 1942, President Roosevelt approved developing the atomic bomb and the Army assigned the program to the U.S. Army Corps of Engineers' (USACE) Manhattan Engineer District (MED). The task of the MED was to manage developing the technology and production facilities for the first atomic weapons. In January 1947, after the end of World War II, Congress transferred responsibility for the program from the MED to a new civilian agency, the Atomic Energy Commission (AEC).

In 1974, the AEC established the Formerly Utilized Sites Remedial Action Program (FUSRAP) to identify, investigate, and remediate or control sites used during the early atomic energy program. Congress abolished the AEC in 1975 and it's programs were incorporated into the Energy Research and Development Administration which was then merged into the Department of Energy (DOE) in 1977. In 1997, the Energy and Water Development and Appropriations Act of 1998, Public Law 105-62, transferred the FUSRAP to USACE.

In January 2000, the DOE determined that the Dayton Warehouse was eligible for inclusion into the FUSRAP (DOE 2000). Under a March 1999 Memorandum of Understanding between the USACE and the DOE, once DOE has made this determination, responsibility for action was to be transferred to the USACE. Under FUSRAP, the USACE's authority is limited by Congress to address only contamination associated with MED/AEC activities during the early atomic energy program.

The purpose of the PA/SI at a potential FUSRAP site is to determine if there is an unpermitted release or threat of release, as those terms are defined in Section 101(22) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), of an AEC-related hazardous substance at the site that may present an imminent and substantial danger

to the public health or the environment. If the PA/SI determines that there is a release or threat of release, other than one that is federally permitted or addressed by a legally enforceable license, permit, regulation, or order issued pursuant to the Atomic Energy Act of 1954 or other Federal Statute, and it may present an imminent and substantial danger to the public health or the environment, CERCLA authorizes a response action. If such circumstances are found, and other relevant criteria for site designation in ER 200-1-4 are met (USACE 2003a), the PA/SI will recommend further action to address the release or threat of release.

This report is presented in two parts, Part I summarizes the findings of the PA, for which readily available historical information about the site was reviewed to establish the need for and scope of the subsequent SI. Part II summarizes the results and conclusions of the SI.

2.0 SITE DESCRIPTION

2.1 Site Location and Description

The Dayton Warehouse (Figure 1-2) is located at 601 East Third Street, at the intersection of East Third and Sears Streets, in an industrial area of Dayton (latitude 39 degrees, 45 minutes, 35.3 seconds; longitude 84 degrees, 10 minutes, 48.2 seconds). A plan of the first floor is shown in Figure 1-3 and building photographs are provided in Appendix A.

Montgomery County's climate is typical of the continental interior. Summers are moderately warm and humid, and winters are cold (ODNR 1995). The National Oceanic and Atmospheric Administration precipitation data for the 30-year period from 1961 to 1990 averaged 38.8 inches per year at Dayton. May is typically the wettest month and January the driest (ODNR 1995). All of Montgomery County is within the Ohio River drainage basin. The Great Miami River and its tributaries drain the majority of the county. Tributaries of the Little Miami River drain the southeast corner of the county (ODNR 1995).

2.2 Dayton Warehouse Site

The Warehouse, a dark red brick and concrete building, has six floors plus a basement. It measures approximately 50 feet wide, 160 feet long, and 80 feet tall (USACE 2000a). There is a single stairwell in the southeast corner of the building, and two freight elevators on the building's east side. The basement extends out underneath the sidewalk along Sears Street. At the north end of the Warehouse there is a covered loading area and beyond it to the north, there is a large paved parking area.

The Warehouse is currently vacant and in a state of disrepair. Most of the windows are boarded up as are most of the entrances. Debris and salvaged material occupy a large part of the first floor, but the remaining floors and the basement are empty. The stairwell steps have heavy accumulations of pigeon carcasses, feathers, and excrement.

2.3 Operational History and Waste Characteristics

In 1942, Monsanto Chemical Company was tasked by the USACE's MED with responsibility for developing radioactive polonium-210 (Po-210), which was necessary for building the atomic bomb. Monsanto's subsequent research, development, and production activities occurred at several sites in Dayton, and became known as the Dayton Project (Gilbert 1969). The Dayton Warehouse was one of those sites.

In May 1945, Monsanto rented the Warehouse from General Electric Supply Corporation, and commenced operations there in 1946 (USAF 1997, Hochwalt and Haring 1947). Reportedly, only the fourth, fifth, and sixth floors were used by Monsanto (Hochwalt and Haring 1947). The Warehouse was initially rented to receive and store surplus equipment associated with the Dayton Project. It was subsequently decided to build a laboratory on the fifth floor in an area where background contamination was considered unlikely. The sixth floor was used for repair and storage of electrical equipment, and the fourth floor was used as office space (Hochwalt and Haring 1947).

Warehouse operations involved trace quantities of Po-210 from the analyses of environmental monitoring samples, bioassay samples from project personnel, and preliminary biological studies on the effect of polonium on laboratory animals. These activities were conducted at the Warehouse, rather than at the other Dayton production facilities, because a very low background of polonium was necessary to prevent contamination of the samples being processed (DOE 1993). Samples, waste materials, and plated copper discs from the polonium analyses were reportedly discarded into the general Warehouse wastes because the amount and concentrations of polonium were so small.

Warehouse operations, including equipment, were transferred to the Mound Laboratory, in Miamisburg, Ohio in 1948. The facility was then decontaminated and returned to the building manger for rental to other clients (DOE 1986). The final release survey, which is normally done after decontamination, could not be located (USACE 2000a). The Warehouse was most recently used to store electrical equipment, but it is currently vacant (USACE 2000a).

2.4 Previous Investigations

In 2000, USACE performed an initial search of historical information on Warehouse operations and found that there was little information available (USACE 2000a). There were no records of samples having been collected from either inside or outside the building. In August 1997, the U.S. Department of the Air Force (USAF), in cooperation with the Ohio Environmental Protection Agency (OEPA) and the Ohio Department of Health (ODH), conducted a radiological scooping survey of the building exterior. Exposure rate measurements were taken using sodium iodide scintillation meters along parallel lines five feet apart around the exterior of the building. The measurements ranged from 5 to 10 micro-Roentgens per hour (μR/hr). A measurement taken across the street from the building was 10 μR/hr; and one taken in the red brick driveway behind the facility was 14 μR/hr. On the basis of these measurements, The USAF Radiation Safety Branch concluded that the exposure rates around the Warehouse exterior were at background levels (USAF 1997). There are no known available radiological scoping data or sampling data from within the interior of the building.

2.5 Potential Constituents of Concern

The FUSRAP eligibility letter included the Warehouse and another site in Dayton called Dayton Unit I. The following constituents of concern (COCs) were identified in the letter: industrial chemicals (metals, beryllium, solvents, fuel oil, acids, bases, etc), Po-210, radium-226 (Ra-226), and trace radioactivity in polonium sources.

As discussed in Section 2.3, the Warehouse was not a production facility and was only used as a laboratory involving trace quantities of polonium. Therefore, except for beryllium, the industrial chemicals listed in the DOE eligibility letter have not been included as Warehouse COCs. Because Po-210 has a short half-life (138 days), there could not be any MED-related Po-210 at the site that is not in equilibrium with its longer-lived parents such as Pb-210 (half-life of 22 years). Ra-226 is a long-lived isotope (half-life of 1600 years) preceding Po-210 in the decay chain and is included as a COC because in one processing technique, Monsanto recovered Po-210 from lead dioxide wastes generated by the Port Hope Radium Refinery in Ontario, Canada (USACE, 2000b). Therefore, the Warehouse COCs are limited to Ra-226, Pb-210 (a radiological parent of the shorter-lived Po-210), and beryllium.

During the Manhattan Project in the 1940s, beryllium was an essential component in the design of nuclear weapons (Maloney, n.d.). Some of the first atomic weapons used a sphere of plutonium surrounding a mixture of polonium and beryllium to release neutrons and create the chain reaction (Manhattan Project, n.d.). Unfortunately, workers exposed to beryllium dust developed chronic beryllium disease, an irreversible and currently incurable lung disease. Although beryllium is included in the DOE eligibility letter, Warehouse operations reportedly only involved trace amounts of Po-210 in a laboratory research setting, so it is unlikely that beryllium was actually present at the Warehouse.

2.6 Soil Exposure and Air Pathways

The site is located in a commercial/industrial area of downtown Dayton. The immediate area surrounding the Warehouse is paved, with adjacent features including concrete sidewalks and asphalt roadways; i.e., Sears Street and East Third Street. At the rear of the building there is a covered loading area integral to the building that is not paved (See photographs in Appendix A).

There has been no known soil sampling within the former loading area. The soils in the loading area could have been exposed to spills or leaks during loading or unloading at the Warehouse. It is unlikely; however, that a release would have occurred to the loading area soils from MED activities that took place within the building.

Potential exposure to the constituents of concern in the loading area soils could occur via direct contact, ingestion, and inhalation if the loading area soils are disturbed. Potential soil and air targets are the workers and visitors to this commercial/industrial area. Other potential targets are the future construction worker renovating the building, as well as future occupants. Currently unoccupied, the future planned use for the Warehouse is unknown.

2.7 Groundwater Pathway

2.7.1 Hydrogeologic Setting

Dayton and Montgomery County are located in the Southern Ohio Till Plain section of the Central Lowland physiographic province (Brockman 1998). Physiographic provinces are

regions of similar physical features such as geology, topography, and climate. Several times during the Ice Age as much as two-thirds of Ohio, including Montgomery County was covered by glacial ice. The line of farthest advance extends diagonally across the state from approximately Negley in northeast Ohio to Ripley in southwest Ohio. The Southern Ohio Till Plain is covered with uneven, varying deposits of glacial till, lacustrine deposits, and outwash (Angle et. al. 2000). Limestone and shale underlie the unconsolidated deposits.

The City of Dayton itself is situated above the Great Miami Buried Aquifer. This ancient river valley system, filled with permeable sand and gravel deposits, was designated as a sole source aquifer in 1988 (Source Water Protection, n.d.). Nearly one fourth of all the groundwater used in Ohio is withdrawn from wells completed in this aquifer (Alley, et. al 1999).

There have been no boring investigations at the Warehouse, and, therefore site-specific subsurface conditions, including the depth to groundwater, are unknown. Shallow subsurface soils at the site likely consist of outwash deposits from flooding of the Great Miami and Mad Rivers, which intersect about one-half mile northwest of the Warehouse (Figure 1-1). These deposits could include clayey silt with sand, fine to medium sand with gravel, and silty clay with sand. Shallow groundwater probably flows toward the Mad River to the north or towards the Great Miami River to the west.

2.7.2 Groundwater Pathways

Heavily dependent on groundwater for municipal and industrial water needs, there are three well fields supplying water to Dayton (Well Field Protection Program n.d.). Two municipal well fields, the Miami and Miami North, are located about three and five miles, respectively, north of the Warehouse site (See map in Appendix B). A third well field, the Mad River Well Field, is about four miles to the northeast of the site. These well fields pump groundwater from the Great Miami Buried Aquifer to serve 400,000 people in the Dayton metropolitan area (Source Water Protection, n.d.). The wells in these three fields are from fifty to more than 200 feet deep (Well Fields, n.d.). Most of the recharge to the aquifer comes from the Great Miami and Mad Rivers.

2.7.3 Groundwater Pathway Conclusions

Potential exposure targets to MED-related COCs that may have been released to groundwater at the Warehouse are the residential and commercial users of drinking water in Dayton. Groundwater beneath the site would flow downgradient toward the Great Miami River and the Mad River, discharging to the rivers downstream of the municipal well fields north and northeast of the Warehouse. Regionally, groundwater entering the two rivers from the site would continue southward and eventually discharge into the Ohio River. Locally, the Warehouse site falls outside of the three wellhead protection areas designated for the Dayton municipal well fields (Appendix B), which means that the site is outside of the area of contribution for recharge to the wells. Therefore, the groundwater pathway is incomplete because the site is located downstream of and beyond the recharge areas of the Dayton municipal well fields.

2.8 Surface Water Pathway

The annual average precipitation for the Dayton area is 39 inches (ODNR 1995). The immediate area surrounding the Warehouse consists of paved sidewalks and roadways. There are storm sewer inlets on Sears Street and East Third Street (See Appendix A, Photo 1), that may eventually discharge to either the Great Miami River or the Mad River.

Precipitation that comes into contact with the building roof, the outside of the building, and the surrounding sidewalks likely enters the municipal storm sewer system. No known MED-related activities occurred on the roof, and there is no reason to believe that the building exterior was contaminated. Furthermore, the 1997 USAF radiological scoping survey concluded that exposure rates around the Warehouse exterior were at background levels (USAF 1997). Therefore, the surface water pathway is probably incomplete.

2.9 Building Exposure Pathways

According to historical records, only the fourth, fifth, and sixth floors were used for MED-related activities involving low levels of polonium. After operations at the Warehouse transferred to the Mound facility in the late 1940s, the building was reported decontaminated and returned to other commercial uses (DOE 1986). In 1997, exposure rates around the building

exterior were found to be at background levels; however, there are no known monitoring or sampling results from the interior of the Warehouse, so the potential for exposure to MED-related COCs that may remain on surfaces inside the building is unknown. The building is currently unoccupied, so there are no immediate potential exposure targets. Future workers and occupants could be exposed to potentially contaminated interior surfaces.

3.0 CONCLUSION

Based on available historical information, Po-210 was not produced at the Dayton Warehouse. In fact, only trace quantities of polonium were present in the radioactive material used in laboratory activities such that the waste materials could be disposed of with general Warehouse trash (DOE 1993). Po-210 was never produced at the site and if handled at all, only on a research and development scale. The interior of the building was reportedly decontaminated when MED-activities ceased and exposure rates around the building's exterior are at background levels.

The conclusion of this preliminary assessment of the Dayton Warehouse, based on review of existing limited historical information, is that there is no immediate threat to human health and the environment related to MED-activities at the site. However, because there are no known interior sampling data, USACE did proceed to the next phase of the CERCLA process, the site inspection, under FUSRAP. The scope and results of the site inspection are described in Part II.

PART II

SITE INSPECTION

1.0 INTRODUCTION

The PA, described in Part I, concluded that there was no immediate threat to human health or the environment from former MED-related activities in the 1940s at the site. It was, however, decided to proceed with the SI of the Warehouse because of the lack of historical sampling data from the building's interior.

According to the *National Oil and Hazardous Substances Pollution Contingency Plan* (USEPA 1990), the SI is performed to eliminate from further consideration any identified releases that pose no significant threat to the public health or the environment, to determine if a removal action is needed, and to collect data to better characterize identified releases for an effective and rapid initiation of a remedial investigation and feasibility study, if necessary.

The scope of the SI was based on the *Combined Preliminary Assessment/Site Inspection Sampling and Analysis Plan* (USACE 2003b). SI activities at the Warehouse included:

- A radiological scoping survey of all six floors, the basement, and the loading area;
- Collecting radiological and beryllium swipe samples from the building interior,
- Radiological surveys of fieldstone and other objects stored on the first floor,
- Collecting soil samples from the loading area, and
- Sample analysis and comparison of results to project screening levels.

Onsite activities began 23 March 2004 and were completed 29 March 2004, followed by offsite laboratory analysis of soil and swipe samples by General Engineering Laboratory, located in Charleston, South Carolina. Field activities are described in Section 2 and the results are summarized in Section 3.

2.0 FIELD INVESTIGATION

2.1 Radiological Scoping Survey

The radiological scoping survey was performed to measure levels of gross alpha (which would detect Ra-226) or beta (which would detect Pb-210) radioactivity on the Warehouse floors, and in the surface soil of the loading area on the north side of the building. In accordance with the *Sampling and Analysis Plan*, the survey was done to meet the intent of a MARSSIM Class 3 survey (USEPA, et. al., 2000). Survey locations on each floor and in the loading area are shown on Figures 2-1 through 2-8. Field instrumentation used is listed in Table 2-1, and photographs of field activities are provided in Appendix A. Daily field activities during the field program are summarized in the *Field Quality Control Report* included as Appendix C.

2.1.1 Screening Levels and Background

This section discusses screening levels and background for the radiological scoping survey of the building. Screening levels and background for soil samples are discussed in Section 3.

Screening Levels. According to the U.S. Nuclear Regulatory Commission (NRC), a site is acceptable for unrestricted use if residual radioactivity above background levels could potentially result in an individual exposure of less than 25 mrem per year (NRC, 2003). Using this criterion, in NUREG/CR-5512, NRC provides screening levels for assessing unrestricted release of decommissioned buildings having residual radioactivity on interior surfaces. The screening levels for surface contamination above background, which are used for this investigation, are as follows (NRC, 1999):

- Ra-226 1,010 dpm/100 cm^2 (alpha emitter)
- Pb-210 494 dpm/100cm^2 (beta emitter)

As discussed in Section 3, these values are used for comparison to field measurements (floor scans and static counts). For comparison to swipe sample results, one tenth of these values are used which is consistent with the model used by NRC.

Inhalation of beryllium dust or particles, another constituent of concern at the Warehouse, can cause two conditions, one known as "chronic beryllium disease" (CBD), and another called beryllium sensitization. CBD is a chronic and sometimes fatal lung disorder, and beryllium sensitization causes highly allergic reactions to the presence of beryllium in the body. The DOE has established the level of removable beryllium at 0.2 $\mu g/100cm^2$ for items to be released to the public (DOE, 1999). This value is used for comparison to swipe samples taken at the Warehouse and analyzed in the laboratory for beryllium.

Background. According to the *Sampling and Analysis Plan*, a building of similar age and construction as the Warehouse was to have been selected as an initial background reference area, while allowing that a clean area within the Warehouse could be identified and used instead. It was not possible to gain access to another building of similar age and composition as the Warehouse, so daily background radiation readings for the scoping survey were taken on the second floor (SU-2) at Survey Grid 71. Based on historical information, the second floor was not used for MED-related activities.

There is a potential for naturally occurring radon decay products, including Pb-210, to settle out in dust particles on horizontal surfaces. To assess the potential effect on background readings, additional swipe samples were taken as follows:

- Five swipe samples from survey grid 71 on the second floor, the background location selected as not impacted by MED-related activities

- Five swipe samples from the undisturbed dusty floor in the basement, also not impacted by MED activities and possibly having the highest levels of radon decay products

- A single blank swipe counted as a detector background blank

Each of these swipes was counted for five minutes using a Ludlum Model 2929 dual alpha/beta scaler. The results, shown in Table 2-2, indicate that there is no significant difference between swipes taken in the basement and on the second floor, the location selected for background radiation readings.

2.1.2 Building Interior

Each floor in the building was considered an individual survey unit (SU), ranging in size from about 6,500 square feet to 7,500 square feet. Prior to starting the investigation in the field, the plan of each floor was divided into 10-foot by 10-foot numbered survey grids, and then eight "unbiased" survey grids per floor were selected using a random number generator. If the pre-selected unbiased survey grids could not be readily accessed because of obstructions, adjacent accessible areas were surveyed instead. In the field, three additional "biased" survey grids were selected on each floor based on the likelihood of contamination accumulating in these areas.

Figure 2-9 is a generalized flow chart showing the steps in the radiological scoping survey process. First, the eight randomly selected survey grids on each floor were located using a tape measure, marked with spray paint, and cleared of rubble and debris, if possible. Then, the three biased survey grids were similarly located. Prior to radiological measurements, the survey locations were brushed to remove surface dust.

Each survey grid was initially scanned using a Ludlum Model 239-1F floor monitor with a Model 43-37 gas-proportional detector linked to a Model 2360 alpha/beta data logger, all mounted on a wheeled cart (See photo 16, Appendix A). The cart was pushed at a rate of about 4 centimeters per second along lines set at nominal one-foot intervals. The data logger was set for a ten-minute timed count, and during this interval the entire grid was surveyed. As scanning occurred, the operator audibly and visually monitored the alpha and beta count rates. Separate monitoring is possible because the two different count rates are audibly discernable by sound frequency. The Model 2360 data logger has a meter that displays the count rates, which allows the operator to monitor both visual meter and audible signals to identify and mark locations with significantly increased count rates for either alpha or beta radiation. The rate at which the floor monitor was moved allowed for a minimum detectable concentration (MDC) for alpha of 32 dpm/100cm^2 and an MDC for beta of 400 dpm/100cm^2. Both MDCs are less than the respective project screening levels for Ra-226 and Pb-210, 1,010 dpm/100cm^2 (alpha), and 494 dpm/100cm^2 (beta), respectively (USACE, 2003b).

Following the floor scan, the *Sampling and Analysis Plan* called for timed, static measurements to be made in each survey grid at the location of the highest floor scan reading (see

Figure 2-9). Because the operator did not note any floor scan readings that were elevated relative to all the others, the static counts were performed at the center of the survey grids. A Ludlum Model 43-68 gas proportional detector coupled to a Model 2360 alpha/beta data logger was used for the static counts (See photo 18, Appendix A). Each static count was made for five minutes, which allows for an MDC of 5 dpm/100 cm^2 for Ra-226 and 56 dpm/100cm^2 for Pb-210 (USACE, 2003b). Prior to the count, the measurement location was brushed to remove surface dust, and the outline of the detector was drawn to facilitate swipe sampling, which was done after the static count (See Section 2.3).

The first floor, SU-1, had many immovable objects that prevented the complete scanning of some of the selected survey grids using the floor monitor. Consequently, six of the original eight randomly selected, unbiased survey grids were shifted in the field to adjacent grids because of the debris (see Figure 1, Appendix C).

As shown on Figure 2-1, the biased and unbiased survey grids on the first floor were generally located in the center and along the east side of the building. Five additional survey grids were selected in the field along the west side (9, 22, 30, 40, and 49) for more complete coverage. Because of obstructions, only static measurements were made in these locations.

Radiation surveys also were conducted on the first floor in areas where fieldstone and other objects were stored. Alpha, beta, and gamma radiation surveys were done using three instruments: a Ludlum Model 12 Ratemeter with Model 43-5 (alpha) and 44-9 (beta) probes, respectively, and a Model 19 MicroR Meter (gamma). No elevated readings were noted.

2.1.3 Loading Area

At the north end of the building there is a covered loading area (photograph 3, Appendix A). The ground surface is somewhat irregular and unpaved. The entire loading area was to have been scanned with the Model 239-lF floor monitor, but numerous sharp objects (broken glass, brick fragments, etc) would have potentially compromised the integrity of the Mylar® window of the detector. Therefore, the smaller Ludlum 2360 data logger and the Model 43-68 gas proportional detector were used instead.

The loading area was divided into 75 squares measuring about three feet by three feet (See Figure 2-2). Each square was scanned for one minute, except for squares 30, 31, 40, 41, 46, and 50, which could not be scanned because of obstructions. The square size was selected as the largest size that could easily be scanned by the operator kneeling and/or squatting on the ground (see photograph 31, Appendix A).

The objective of the loading dock survey was to select the location of three surface soil samples required by the *Sampling and Analysis Plan.* The three samples, taken from zero to six inches at the locations of the highest beta radiation counts (Figure 2-2), were sent off site for laboratory analysis of Ra-226, Pb-210, and beryllium.

2.2 Swipe Samples

In each of the survey grids for which static counts were made, swipe samples were also collected. A 100 square centimeter template was used during the sampling process to ensure proper coverage (see photograph 19, Appendix A). The swipes were field counted for alpha and beta radiation using a Ludlum Model 2929 dual alpha/beta scaler.

As shown in Figure 2-9, if the static counts of alpha and beta radiation exceeded the screening levels, three swipe samples were to be taken, counted in the field for alpha and beta, and then sent to the laboratory for analysis of Ra-226, Pb-210, and beryllium. If the static counts did not exceed the screening levels, then a single swipe was to be collected and counted only in the field for alpha and beta radiation.

Static counts exceeded the screening levels at only two locations, survey grids 10 and 21 on the sixth floor. Consequently, only swipe samples from these two locations were sent to the laboratory for analyses. All of the remaining swipe samples were only field counted.

As required by the *Sampling and Analysis Plan*, at each of three randomly selected, unbiased survey grids on each floor, an additional swipe sample was collected. These samples were sent to the laboratory for beryllium analysis. One additional beryllium swipe sample also was collected as required on the sixth floor at survey grid 21 because the static counts exceeded

the radiological screening levels at this location. At survey grid 10, the beryllium swipe sample had already been collected as one of the unbiased samples.

2.3 Deviations From Sampling And Analysis Plan

The following represent deviations from the approved *Sampling and Analysis Plan* (USACE, 2003b):

- Daily background radiation readings were taken on the second floor of the Warehouse at survey grid 71 because access to a building of similar age and construction was not available.

- Background swipe samples for Pb-210, Ra-226, and beryllium were eliminated after discussion with the Ohio Environmental Protection Agency.

- Randomly selected, unbiased survey grids on the first floor were moved to adjacent grids because of obstructions.

- The irregular surface and sharp objects on the ground surface of the loading area prevented use of the Ludlum Model 239-lF floor monitor. The Ludlum 43-68 gas proportional detector and the Model 2360 data logger were used instead.

3.0 RESULTS

3.1 Radiological Scoping Survey

On each floor, eleven survey grids were established measuring 10 feet by 10 feet. Eight unbiased survey grids were randomly selected per floor before field work began and three additional biased grids were selected in the field. Each was surveyed first using the Ludlum Model 239-lF floor monitor and then a static count was done at the center of each survey grid. The survey locations are shown on Figures 2-1 and 2-3 through 2-8. Table 3-1 is a summary of the floor scans and static counts.

3.1.1 Floor Scans

Total alpha and beta emissions were counted for 10 minutes and recorded. To compare the resulting count rates in counts per minute (cpm) to their respective screening levels, it was first necessary to transform the screening level units from disintegrations per minute to counts per minute using the following formula (DOE, et. al., 2002):

$$cpm = dpm \times E \times A_p/100 \qquad (3\text{-}1)$$

where: cpm = counts per minute
dpm = disintegrations per minute
= 1,010 dpm for Ra-226 (alpha)
= 494 dpm for Pb-210 (beta)
E = probe efficiency in counts per disintegration
A_p = active probe area = 582 cm^2

The probe or detector efficiency was determined daily using calibrated alpha and beta sources (See Appendix C). The area correction is necessary because the active area of the detector is greater than the 100 square centimeters used for the screening levels.

Since the screening levels are the permissible radiation levels above background, and background is measured each day, daily screening criteria were computed as:

$$cpm = dpm \times E \times A_p/100 + B \qquad (3\text{-}2)$$

where: B = Daily background in cpm

Daily background readings using the Ludlum 239-lF floor monitor were taken on the second floor at survey grid 71. The daily screening criteria listed in Table 3-1 were determined as part of the daily instrument source check (See Appendix C).

The alpha and beta floor scan count rates all were below their respective daily screening criterion, and therefore also less than the alpha and beta screening levels listed in Section 2.1.1; i.e., 1010 dpm/100 cm^2 (alpha) and 494 dpm/100 cm^2 (beta).

3.1.2 Static Counts

Total alpha and beta emissions were counted for five minutes and recorded. Daily screening criteria, listed in Table 3-1, were computed using equation 3-2 for the Ludlum Model 43-68 gas proportional detector using an active probe area of 126 square centimeters. As with the floor scan, daily background readings were measured with the 43-68 on the second floor at survey grid 71.

All of the static counts for alpha emissions were below the daily screening criterion. Only two static counts were slightly above the criterion for beta emissions. The exceedances occurred on the sixth floor at survey grids 10 and 21. In accordance with the *Sampling and Analysis Plan*, swipe samples from these two locations were sent to the laboratory for analysis. As shown in Table 3-2, Ra-226, and Pb-210 were not detected in the swipe sample laboratory results. Beryllium was detected at low levels, but at less than the 0.2 μg/100cm^2 screening level.

The two survey grids in which the exceedances occurred were for beta instrument readings located along the west wall of the Warehouse, which is made of brick. To assess whether or not the brick could be contributing to the static counts at the center of the survey grids, static counts were also made of the brick at each location, as well as a background location outside (See Table 3-3).

Static count rates for beta emissions at the center of survey grids 10 and 21 were 414 and 422 cpm, respectively. The corresponding static count rates from the adjacent brick were somewhat higher at 524 and 516 cpm. Consequently, beta emissions from the brick could be contributing to the count rates at the center of the survey grid, causing a slight exceedance of the daily criterion. The static count beta emissions from the interior brick were not significantly different from the exterior background location, so the beta emissions from the brick are most likely naturally occurring.

Swipe samples also were taken of the brick adjacent to survey grids 10 and 21, as well as at the background location outside (See Table 3-4). The alpha and beta readings from these three samples were very similar and did not exceed screening levels.

3.1.3 Swipe Samples

Table 3-4 is a summary of data from swipe samples that were collected after the static counts were performed. A Ludlum Model 2929 dual alpha/beta scaler was used to count the swipe samples in the field.

The screening levels for removable radioactivity were taken as one tenth of the corresponding screening levels for fixed residual radioactivity listed in Section 2.1.1 as follows:

- Ra-226 101 dpm/100cm^2 (alpha)
- Pb-210 49.4 dpm/100 cm^2 (beta)

For comparison with the swipe sample results, these screening levels were converted to the "daily criteria" listed in Table 3-4 as follows:

$$cpm = (dpm \times E) + B \qquad (3\text{-}3)$$

where: cpm = counts per minute
dpm = disintegrations per minute
E = probe efficiency in counts per disintegration
B = Daily background reading in cpm

An average daily efficiency was used in the calculations (See Appendix C) and the daily background reading was taken in the field van where the field counts were made.

All of the alpha readings and all but two of the beta readings from the swipe samples were less than the daily screening criteria. In two swipe samples taken from the first floor, beta levels were slightly higher than the daily screening criterion as shown below:

Survey Grid	Beta Swipe (cpm)	Daily Criterion (cpm)
70	46.4	44.9
22	47.8	44.9

These two beta measurements were slightly higher than the daily criterion, but that day (28 March), there was a very low background reading of 37.4 cpm. On the other days in the field, the background readings were higher, which raised the daily screening criterion. Except for this low reading, the background for beta ranged from about 44 to 49 cpm, and averaged about 46 cpm (see Table 3-4). Using the average background count rate, the daily screening criterion for beta would be about 54 cpm, well above the two swipe sample measurements. Also, static counts from survey grids 22 and 70 (Table 3-1) were well below the corresponding daily screening criterion (221 cpm and 347 cpm, respectively compared to 412 cpm). Considering the counting uncertainty in both the background and sample measurements (approximately 3 cpm for each measurement), these two sample results are not considered to represent residual contamination.

3.2 Beryllium Swipe Samples

Per the *Sampling and Analysis Plan*, swipe samples were collected from the center of three randomly selected, unbiased survey grids on each floor. Twenty-one samples were collected and sent off site for laboratory analysis of removable beryllium.

Beryllium concentrations found in these samples are shown in Table 3-5. In two of the samples, no beryllium was detected. In the remaining samples, only low levels were detected and all were below the 0.2 μg/100 cm^2 screening level.

3.3 Loading Area

As discussed in Section 2.1.3, the loading area at the north end of the Warehouse was divided into 3-foot by 3-foot squares. Each accessible square was scanned for one minute using the Ludlum 43-68 gas proportional detector coupled to a Model 2360 data logger. Field data are shown in Table 3-6.

Three surface samples were taken adjacent to the locations of the highest recorded beta emissions. These samples were sent to the laboratory to analyze for Ra-226, Pb-210, and beryllium. Table 3-7 is a summary of the analytical results compared to background and screening levels discussed below.

3.3.1 Soil Background

The background levels shown in Table 3-7 are based on two previous studies in the region rather than site-specific sampling. The two previous studies looked at background soil concentrations at the Mound Plant in Miamisburg, Ohio (DOE, 1994) and at the Fernald Plant in Fernald, Ohio (DOE, 2001). The background concentrations shown in Table 3-7 are the lower of the values from the two studies.

3.3.2 Soil Screening Levels

The screening levels for Ra-226 and Pb-210 are based on allowable residential values given in NUREG/CR-5512 (NRC, 1999). The values, which are for residual radioactivity above background and correspond to a 25 mrem/year dose, using the conservative pathways model, are as follows:

- Ra-226 0.694 pCi/g
- Pb-210 0.846 pCi/g

The screening levels shown in Table 3-7 are these values plus the background values discussed previously.

For beryllium in soils, the screening level was taken from USEPA Region IX Preliminary Remediation Goals for residential soils (USEPA, n.d.).

3.3.3 Results

Sample results for beryllium and Ra-226 were all less than the screening levels. One sample, SS-03, had a Pb-210 activity slightly elevated above the screening level.

The slightly elevated Pb-210 activity could be due to naturally occurring events unrelated to MED-activities at the site. A study of farm fields in Erie and Huron Counties, Ohio concluded that Pb-210 continuously accumulates on the ground surface from particulate fallout caused by the atmospheric decay of radon gas released from soils containing the naturally occurring uranium decay chain (Matisoff, et. al., 2002). Pb-210 is also produced in-situ by the portion of the radon gas that does not escape to the atmosphere.

4.0 SUMMARY

For about three years, between 1946 and 1949, the Monsanto Chemical Company used a portion of the Dayton Warehouse during early development of the first atomic weapons. The work was part of the USACE's Manhattan Engineer District (MED) research, development, and production of polonium-210 (Po-210), which occurred at several sites in Dayton and became known locally as the Dayton Project.

Based on available historical information, Monsanto did not produce Po-210 at the Dayton Warehouse, and only used the fourth, fifth, and sixth floors for the Dayton project. Initially used to store surplus equipment for the project, a laboratory was later built on the fifth floor. Warehouse operations reportedly involved only trace amounts of Po-210 from analyses done on environmental samples, personnel bioassay samples, and biological studies on the effects of Po-210 on animals. Warehouse operations were transferred to the Mound Laboratory in Miamisburg, Ohio in 1948 - 1949. The facility was then decontaminated and returned to the building's manager for rental to other clients (DOE, 1986). In August 1997, the USAF's Radiation Protection Branch found that the exposure rates around the exterior of the Warehouse were at background levels.

The SI involved a systematic assessment of potential fixed and removable residual contamination from the Dayton Project on all six floors, the basement, and the loading area at the north end of the building. The constituents of concern were Ra-226, Pb-210, and beryllium. In general order of occurrence, the primary steps in investigation of the Warehouse involved:

- Floor scans of eleven survey grids on each floor
- Static counts at the center of each survey grid
- Swipe samples collected at survey grids exceeding screening levels and analyzed for the constituents of concern
- Swipe samples collected in each survey grid and field counted
- Swipe samples at the center of three unbiased survey grids on each floor for beryllium analysis in the laboratory
- Three soil samples from the loading area

Alpha and beta count rates from the floor scans of the 10-foot by 10-foot survey grids on each floor were all less than the screening levels. Static counts of alpha and beta emissions in each survey grid were all less than screening levels except for two locations on the sixth floor next to the exterior brick wall. Beta emissions slightly higher than the screening levels are thought to be a result of naturally occurring radiation from the brick. Ra-226 and Pb-210 were not detected in swipe samples collected from these two locations and beryllium was found at concentrations less than its screening level.

Swipe samples collected and counted in the field only exceeded the beta screening level in two samples from the first floor, which was not used for MED-related activities. Concentrations of beryllium in the twenty-one unbiased swipe samples were all less than the beryllium screening level.

Analytical results for Ra-226 and beryllium from the three loading area soil samples were all less than screening levels and results for Pb-210 were less than screening levels in two of the samples. The slight exceedance of the Pb-210 in the third sample may be the result of dust accumulation over time from atmospheric decay of radon.

Based on the findings of this PA/SI, the USACE concludes that there is no evidence of an unpermitted release or a substantial threat of a release of the constituents of concern into the environment associated with the Nation's early atomic energy program that may present an imminent and substantial danger to the public health or welfare and the site, and no further action is required under FUSRAP.

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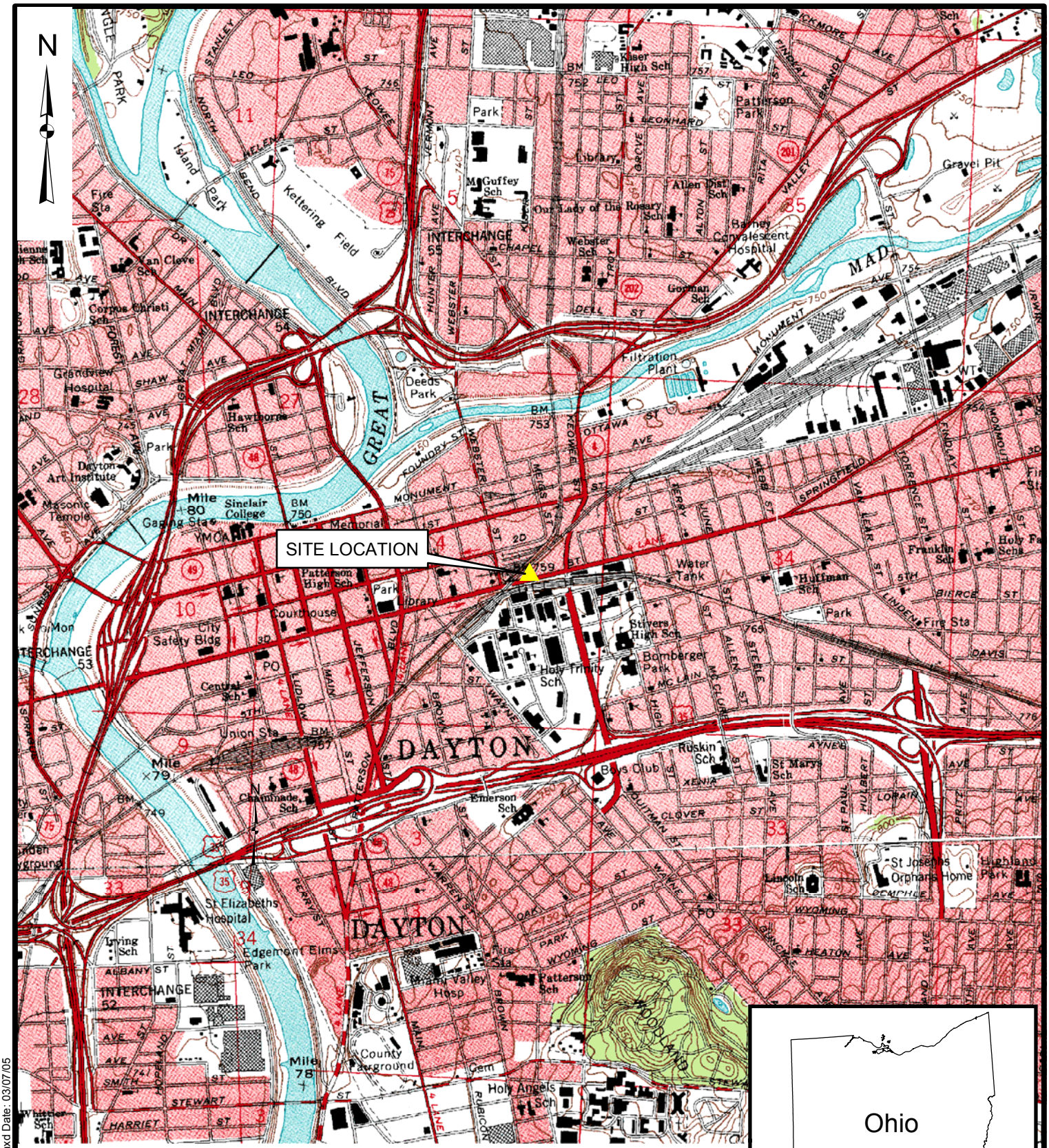
FIGURES



Source: 7.5" x 7.5" USGS Quads
Dayton North, OH - 1981
Dayton South, OH - 1981

2,400 1,200 0 2,400 Feet

QUADRATIC LOCATION

URS

DAYTON WAREHOUSE
SITE LOCATION

FIGURE 1-1

N:\11171425.00000\GIS\ArcMap\sitelocation.mxd Date: 03/07/05

URS

DAYTON WAREHOUSE
SITE LOCATION - DETAIL

FIGURE 1-2

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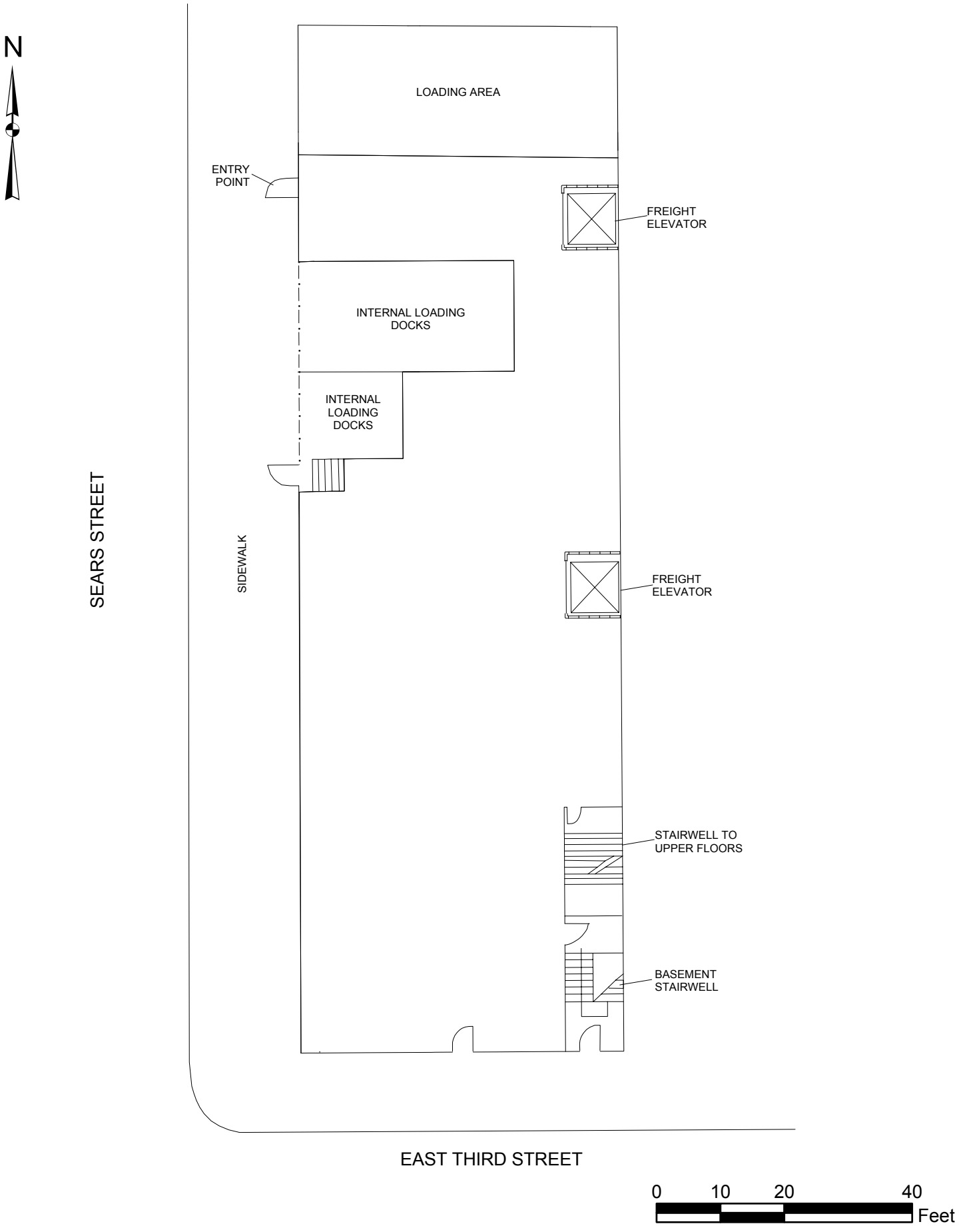
3/7/2005



URS

DAYTON WAREHOUSE
FIRST FLOOR PLAN

FIGURE 1-3

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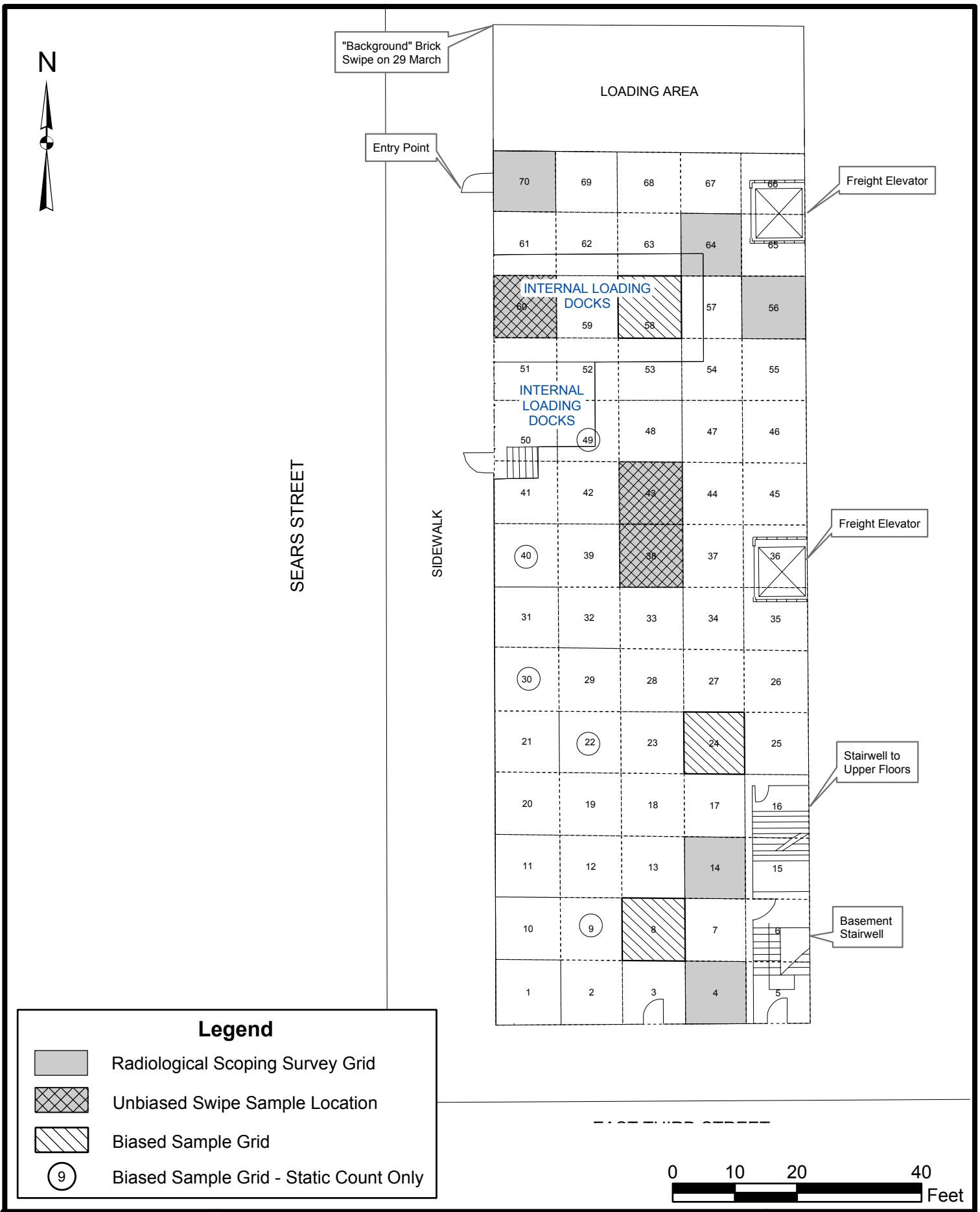

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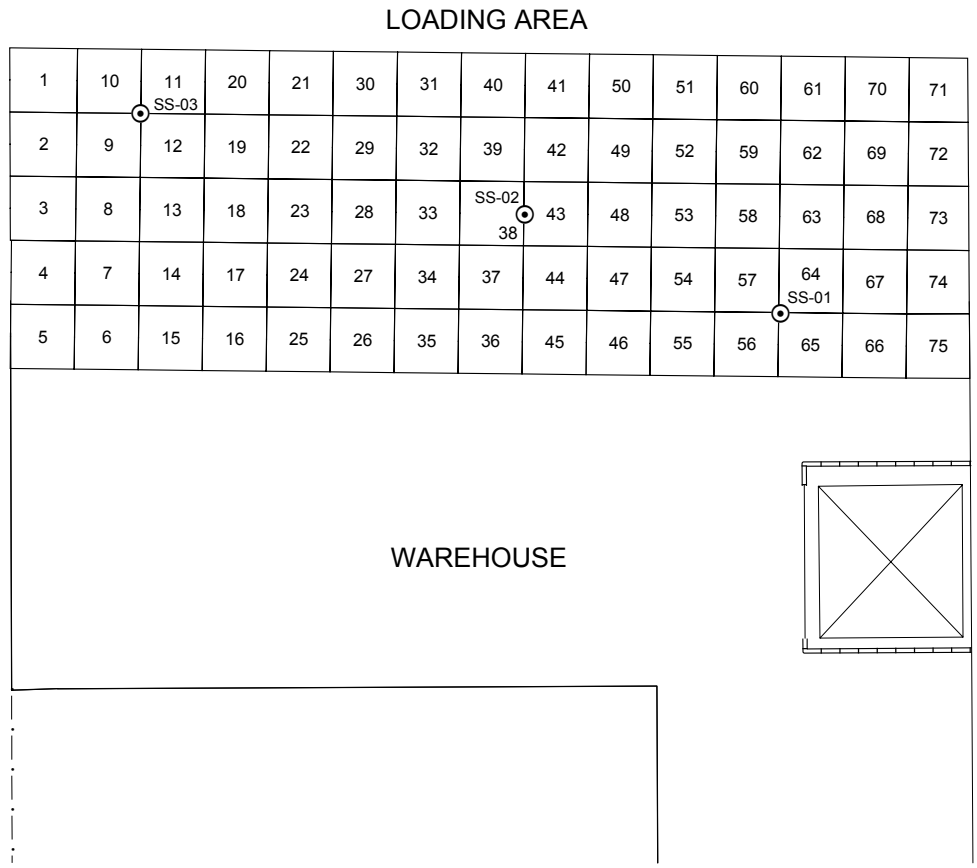
DAYTON WAREHOUSE
SAMPLE LOCATION PLAN - FIRST FLOOR

FIGURE 2-1



Legend

⊙ Surface Soil Sample

▭ Radiological Scoping Survey Grid

NOTE: Grids 30, 31, 40, 41, 46 and 50 were not counted due to obstructions.

0 5 10 20 Feet

URS

DAYTON WAREHOUSE
SAMPLE LOCATION PLAN - LOADING AREA

FIGURE 2-2

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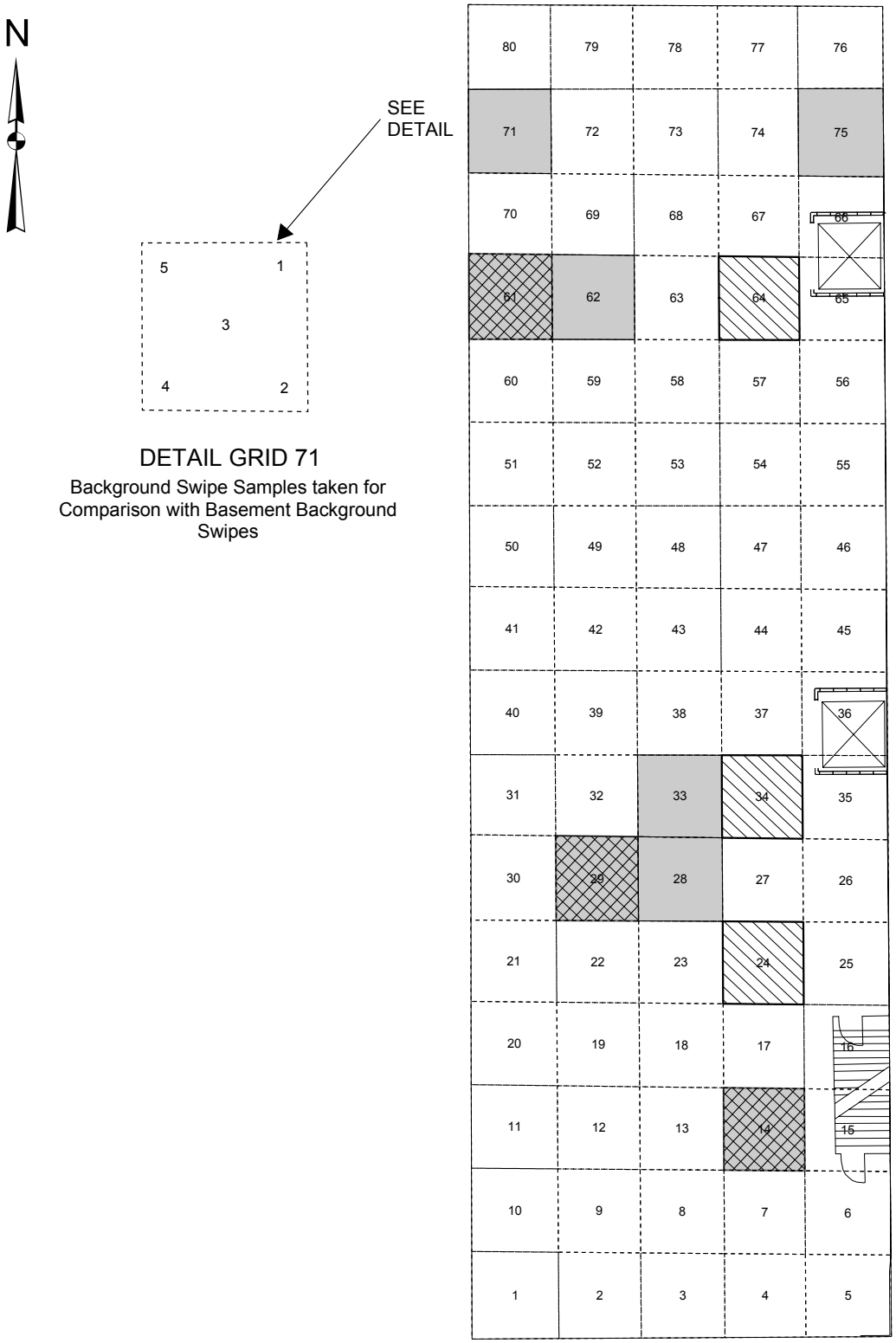

Legend

- Radiological Scoping Survey Grid
- Unbiased Swipe Sample Location
- Biased Sample Grid

0 10 20 40 Feet

URS

DAYTON WAREHOUSE
SAMPLE LOCATION PLAN - SECOND FLOOR

FIGURE 2-3

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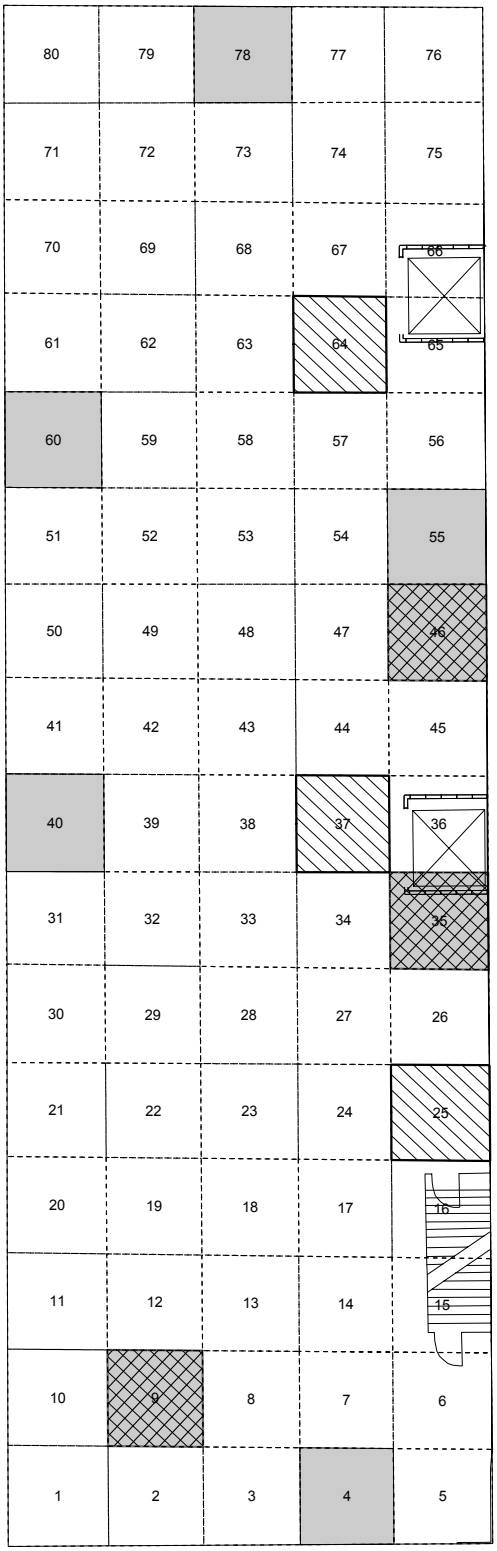

Legend

- Radiological Scoping Survey Grid (FSP Designated)
- Unbiased Swipe Sample Location (FSP Designated)
- Biased Sample Grid (Field Designated)

0 10 20 40 Feet

URS

DAYTON WAREHOUSE
SAMPLE LOCATION PLAN - THIRD FLOOR

FIGURE 2-4

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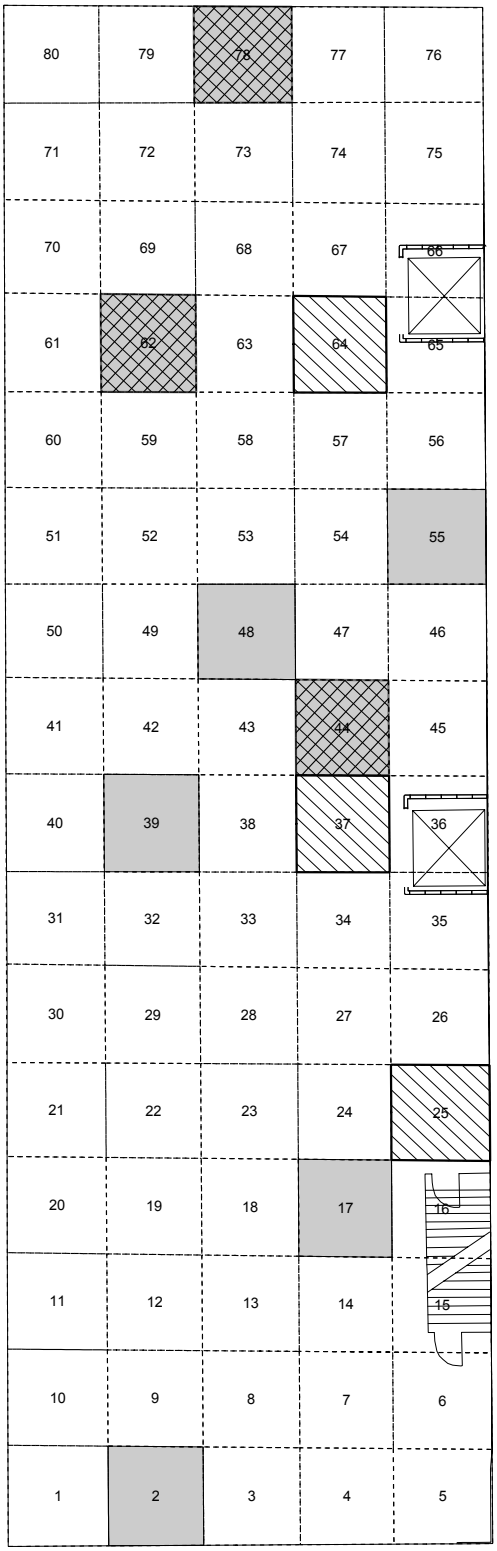

Legend

- Radiological Scoping Survey Grid
- Unbiased Swipe Sample Location
- Biased Sample Grid

0 10 20 40 Feet

URS

DAYTON WAREHOUSE
SAMPLE LOCATION PLAN - FOURTH FLOOR

FIGURE 2-5

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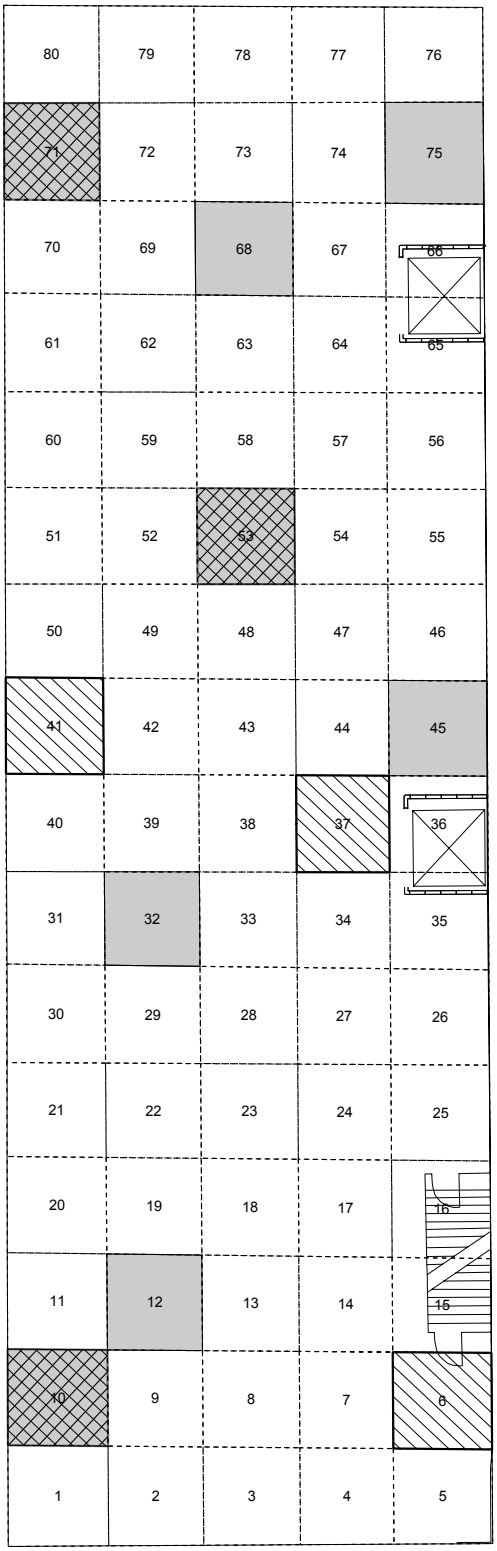

Legend

- Radiological Scoping Survey Grid
- Unbiased Swipe Sample Location
- Biased Sample Grid

0 10 20 40 Feet

URS

DAYTON WAREHOUSE
SAMPLE LOCATION PLAN - FIFTH FLOOR

FIGURE 2-6

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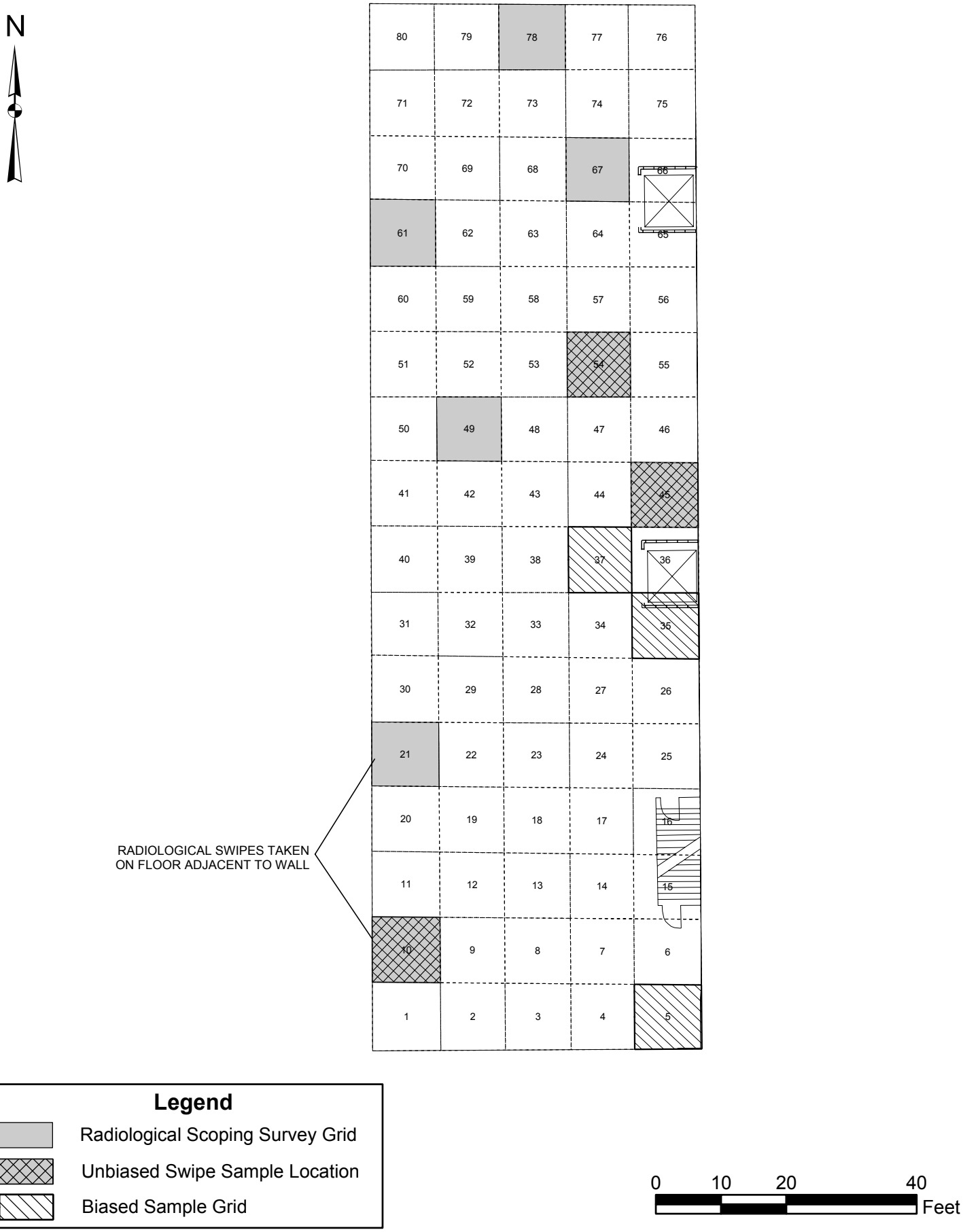
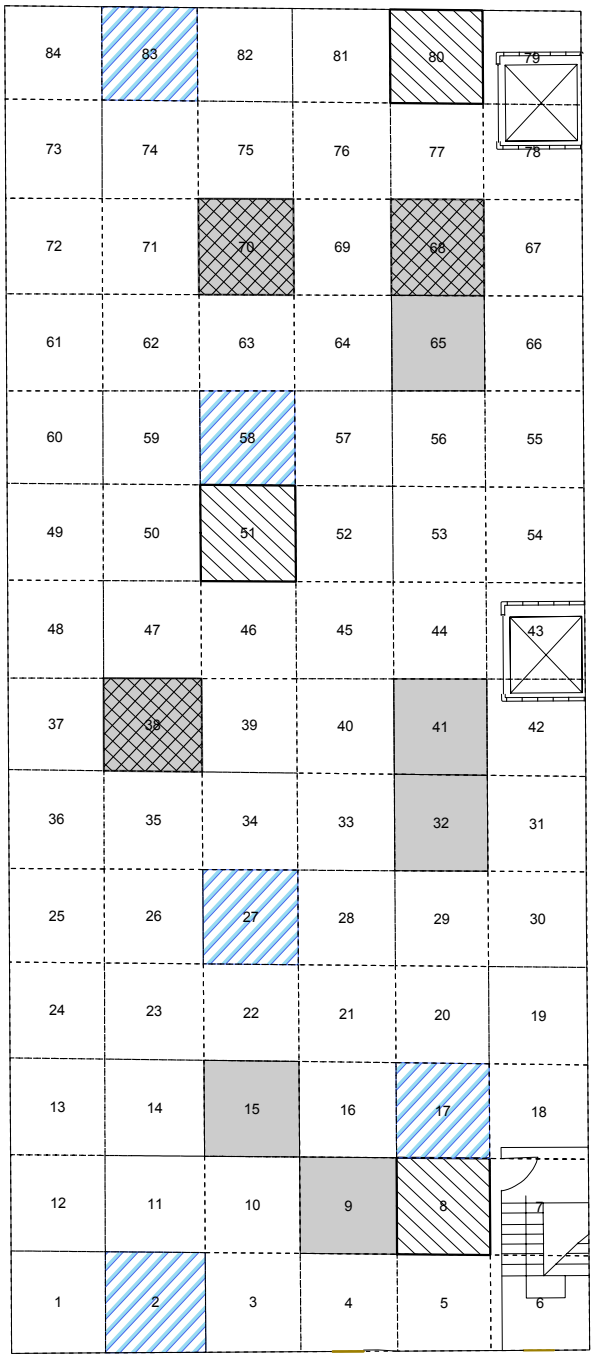


URS

DAYTON WAREHOUSE
SAMPLE LOCATION PLAN - SIXTH FLOOR

FIGURE 2-7

N:\11171425.00000\GIS\ArcMap\figure2-7_sixfl.mxd Date: 03/07/05 9:14:26 AM



Legend

- Radiological Scoping Survey Grid
- Unbiased Swipe Sample Location
- Biased Sample Grid
- Background Swipe Sample Grid

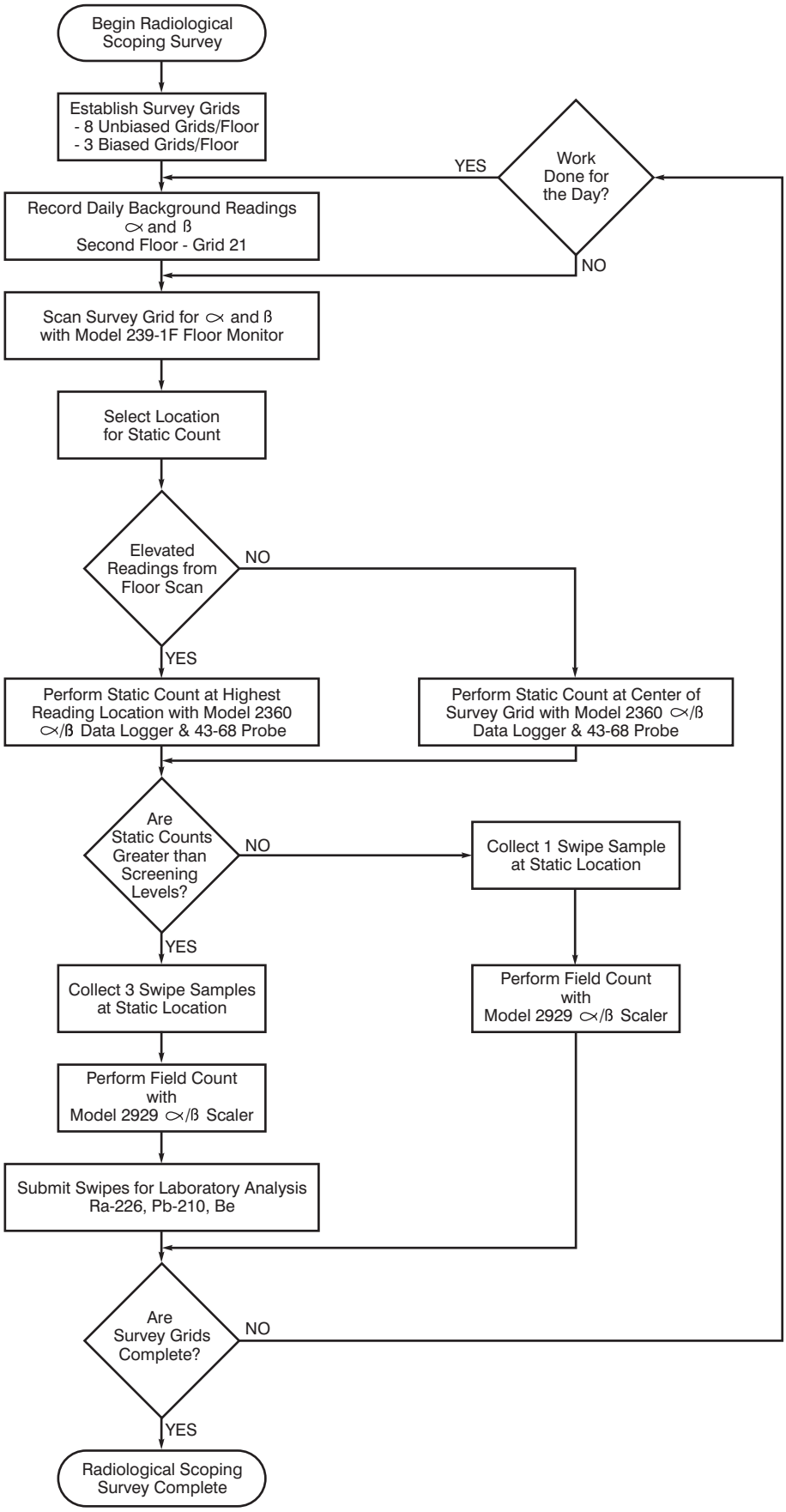
0 10 20 40 Feet

URS

DAYTON WAREHOUSE
SAMPLE LOCATION PLAN - BASEMENT

FIGURE 2-8

N:\11171425.00000\GIS\ArcMap\figure2-8_basement.mxd Date: 03/07/05 9:17:09 AM



URS

DAYTON WAREHOUSE
RADIOLOGICAL SCOPING SURVEY
FLOW CHART

FIGURE 2-9

AG18595-11171425-071704-GCM

TABLES

TABLE 2-1
FIELD MONITORING EQUIPMENT
DAYTON WAREHOUSE

INSTRUMENT [1]	USE
Model 239-1F Floor Monitor with Model 43-37 Gas Proportional Detector linked to a Model 2360 Alpha/Beta Data Logger	Floor monitoring of sampling grids for alpha and beta during radiological scoping survey
Model 2360 Alpha/Beta Data Logger with Model 43-68 Gas Proportional Detector	Direct static measurements of alpha/beta at selected points within the sampling grids
Model 2929 Alpha/Beta Scaler with Model 43-10-1 Alpha/Beta Sample Counter	Direct measurement of swipe samples for alpha and beta in the field
Model 12 Ratemeter with Model 44-9 Pancake G-M Detector	Equipment and personnel monitoring (frisking) for alpha, beta, and gamma
Model 12 Ratemeter with Model 43-5 Alpha Scintillator	Equipment and personnel monitoring (frisking)
Model 19 MicroR Meter with 1" x 1" sodium iodide scintillator	Low level gamma monitoring during field activities

Notes:

1. All instrumentation manufactured by Ludlum Measurements, Inc.

TABLE 2-2
SWIPE SAMPLE BACKGROUND COMPARISON
DAYTON WAREHOUSE

Survey Unit	Survey Grid	Swipe Sample	Gross Counts (1)			Gross Counts per Minute		Net Counts per Minute (2)	
			Alpha	Beta	Count Time (min)	Alpha	Beta	Alpha	Beta
NA	NA	Blank	1	201	5	0.2	40.2	-	-
Basement	17	104	0	201	5	0.0	40.2	0	0
	22	105	1	218	5	0.2	43.6	0	3.4
	27	106	0	221	5	0.0	44.2	0	4
	58	107	3	213	5	0.6	42.6	0.4	2.4
	83	108	1	206	5	0.2	41.2	0	1
Second Floor	71	109	2	221	5	0.4	44.2	0.2	4
		110	1	230	5	0.2	46.0	0	5.8
		111	2	231	5	0.4	46.2	0.2	6
		112	3	197	5	0.6	39.4	0.4	0
		113	2	230	5	0.4	46.0	0.2	5.8

Notes:

1. Counted with Ludlum Model 2929 Alpha/Beta Scaler.
2. Counts per minute greater than the blank sample value.

   If swipe sample count less than the blank, the net count is shown as zero.

TABLE 3-1
FLOOR MONITOR SCANS AND STATIC COUNTS
DAYTON WAREHOUSE

Survey Unit	Survey Grid	Type	Date Surveyed	Floor Monitor Scan Readings (1)								Static Counts (2)							
				Gross counts		Count Time (min)	Counts per Minute		Daily Criteria (3) (CPM)		Below Criteria	Gross counts		Count Time (min)	Counts per Minute		Daily Criteria (3) (CPM)		Below Criteria
				Alpha	Beta		Alpha	Beta	Alpha	Beta		Alpha	Beta		Alpha	Beta	Alpha	Beta	
Basement	68	U	3/27/2004	77	10006	10	8	1001	742	1616	Yes	19	1508	5	4	302	295	421	Yes
	65	U		94	10080	10	9	1008	742	1616	Yes	25	1498	5	5	300	295	421	Yes
	70	U		98	10199	10	10	1020	742	1616	Yes	16	1462	5	3	292	295	421	Yes
	41	U		117	10325	10	12	1033	742	1616	Yes	25	1499	5	5	300	295	421	Yes
	32	U		119	10446	10	12	1045	742	1616	Yes	33	1588	5	7	318	295	421	Yes
	15	U		93	10774	10	9	1077	742	1616	Yes	17	1561	5	3	312	295	421	Yes
	9	U		117	10679	10	12	1068	742	1616	Yes	17	1607	5	3	321	295	421	Yes
	38	U		116	10464	10	12	1046	742	1616	Yes	24	1546	5	5	309	295	421	Yes
	51	B		145	10795	10	15	1080	742	1616	Yes	13	1536	5	3	307	295	421	Yes
	80	B		123	10512	10	12	1051	742	1616	Yes	24	1640	5	5	328	295	421	Yes
	8	B		127	10776	10	13	1078	742	1616	Yes	20	1529	5	4	306	295	421	Yes
1	56	U	3/27/2004	57	10515	10	6	1052	742	1616	Yes	26	1446	5	5	289	295	421	Yes
	60	U		50	10540	10	5	1054	742	1616	Yes	23	1561	5	5	312	295	421	Yes
	70	U		74	11791	10	7	1179	742	1616	Yes	24	1733	5	5	347	295	421	Yes
	24	B		75	10753	10	8	1075	742	1616	Yes	21	1563	5	4	313	295	421	Yes
	14	U		69	8066	10	7	807	742	1616	Yes	17	1099	5	3	220	295	421	Yes
	4	U		63	7985	10	6	799	742	1616	Yes	17	1140	5	3	228	295	421	Yes
	38	U		77	10644	10	8	1064	742	1616	Yes	17	1505	5	3	301	295	421	Yes
	43	U	3/28/2004	37	7808	10	4	781	865	1603	Yes	18	1126	5	4	225	287	412	Yes
	58	B		75	10254	10	8	1025	865	1603	Yes	25	1437	5	5	287	287	412	Yes
	8	B		45	8267	10	5	827	865	1603	Yes	18	1195	5	4	239	287	412	Yes
	64	U		73	10682	10	7	1068	865	1603	Yes	16	1497	5	3	299	287	412	Yes
	9	B		Additional static counts only								14	1274	5	3	255	287	412	Yes
	22	B										6	1107	5	1	221	287	412	Yes
	30	B										11	1115	5	2	223	287	412	Yes
	40	B										10	1213	5	2	243	287	412	Yes
	49	B										27	1320	5	5	264	287	412	Yes

TABLE 3-1
FLOOR MONITOR SCANS AND STATIC COUNTS
DAYTON WAREHOUSE

Survey Unit	Survey Grid	Type	Date Surveyed	Floor Monitor Scan Readings (1)								Static Counts (2)							
				Gross counts		Count Time (min)	Counts per Minute		Daily Criteria (3) (CPM)		Below Criteria	Gross counts		Count Time (min)	Counts per Minute		Daily Criteria (3) (CPM)		Below Criteria
				Alpha	Beta		Alpha	Beta	Alpha	Beta		Alpha	Beta		Alpha	Beta	Alpha	Beta	
2	75	U	3/24/2004	50	11375	10	5	1138	594	1492	Yes	23	1693	5	5	339	287	443	Yes
	71	U		43	11032	10	4	1103	594	1492	Yes	30	1709	5	6	342	287	443	Yes
	61	U		47	11125	10	5	1113	594	1492	Yes	28	1776	5	6	355	287	443	Yes
	62	U		58	10258	10	6	1026	594	1492	Yes	30	1660	5	6	332	287	443	Yes
	28	U		54	9573	10	5	957	594	1492	Yes	27	1500	5	5	300	287	443	Yes
	33	U		45	9532	10	5	953	594	1492	Yes	23	1453	5	5	291	287	443	Yes
	29	U		49	9894	10	5	989	594	1492	Yes	25	1537	5	5	307	287	443	Yes
	14	U		40	8304	10	4	830	594	1492	Yes	19	1315	5	4	263	287	443	Yes
	64	B		63	10132	10	6	1013	594	1492	Yes	39	1606	5	8	321	287	443	Yes
	34	B		53	9853	10	5	985	594	1492	Yes	32	1620	5	6	324	287	443	Yes
	24	B		58	10114	10	6	1011	594	1492	Yes	21	1416	5	4	283	287	443	Yes
3	78	U	3/24/2004	65	12026	10	7	1203	594	1492	Yes	33	1779	5	7	356	287	443	Yes
	60	U		62	11220	10	6	1122	594	1492	Yes	30	1802	5	6	360	287	443	Yes
	55	U		65	11358	10	7	1136	594	1492	Yes	34	1689	5	7	338	287	443	Yes
	64	B		66	10781	10	7	1078	594	1492	Yes	22	1556	5	4	311	287	443	Yes
	46	U		45	11746	10	5	1175	594	1492	Yes	31	1709	5	6	342	287	443	Yes
	37	B		59	10955	10	6	1096	594	1492	Yes	37	1568	5	7	314	287	443	Yes
	35	U		71	11392	10	7	1139	594	1492	Yes	35	1709	5	7	342	287	443	Yes
	25	B		85	11315	10	9	1132	594	1492	Yes	46	1636	5	9	327	287	443	Yes
	4	U		92	12260	10	9	1226	594	1492	Yes	36	1708	5	7	342	287	443	Yes
	9	U		65	11859	10	7	1186	594	1492	Yes	34	1771	5	7	354	287	443	Yes
	40	U		68	11469	10	7	1147	594	1492	Yes	31	1633	5	6	327	287	443	Yes
4	78	U	3/25/2004	62	12240	10	6	1224	846	1676	Yes	33	1716	5	7	343	287	407	Yes
	62	U		78	11037	10	8	1104	846	1676	Yes	20	1591	5	4	318	287	407	Yes
	55	U		65	12034	10	7	1203	846	1676	Yes	35	1808	5	7	362	287	407	Yes
	48	U		48	10560	10	5	1056	846	1676	Yes	21	1518	5	4	304	287	407	Yes
	44	U		71	11062	10	7	1106	846	1676	Yes	26	1635	5	5	327	287	407	Yes
	39	U		59	11252	10	6	1125	846	1676	Yes	27	1655	5	5	331	287	407	Yes
	37	B		60	10903	10	6	1090	846	1676	Yes	26	1644	5	5	329	287	407	Yes
	25	B		55	11221	10	6	1122	846	1676	Yes	33	1822	5	7	364	287	407	Yes
	17	U		52	11212	10	5	1121	846	1676	Yes	31	1708	5	6	342	287	407	Yes
	2	U		69	12475	10	7	1248	846	1676	Yes	42	1823	5	8	365	287	407	Yes
	64	B		63	10749	10	6	1075	846	1676	Yes	28	1521	5	6	304	287	407	Yes

TABLE 3-1
FLOOR MONITOR SCANS AND STATIC COUNTS
DAYTON WAREHOUSE

Survey Unit	Survey Grid	Type	Date Surveyed	Floor Monitor Scan Readings (1)								Static Counts (2)							
				Gross counts		Count Time (min)	Counts per Minute		Daily Criteria (3) (CPM)		Below Criteria	Gross counts		Count Time (min)	Counts per Minute		Daily Criteria (3) (CPM)		Below Criteria
				Alpha	Beta		Alpha	Beta	Alpha	Beta		Alpha	Beta		Alpha	Beta	Alpha	Beta	
5	75	U	3/25/2004	60	12836	10	6	1284	846	1676	Yes	35	1796	5	7	359	287	407	Yes
	71	U		70	13150	10	7	1315	846	1676	Yes	44	1863	5	9	373	287	407	Yes
	68	U		82	11843	10	8	1184	846	1676	Yes	39	1815	5	8	363	287	407	Yes
	53	U		67	11943	10	7	1194	846	1676	Yes	18	1639	5	4	328	287	407	Yes
	45	U		69	12297	10	7	1230	846	1676	Yes	33	1750	5	7	350	287	407	Yes
	32	U		56	11491	10	6	1149	846	1676	Yes	22	1730	5	4	346	287	407	Yes
	12	U		61	11053	10	6	1105	846	1676	Yes	26	1512	5	5	302	287	407	Yes
	10	U		65	12662	10	7	1266	846	1676	Yes	26	1794	5	5	359	287	407	Yes
	6	B		106	12590	10	11	1259	846	1676	Yes	32	1827	5	6	365	287	407	Yes
	37	B		81	11836	10	8	1184	846	1676	Yes	26	1692	5	5	338	287	407	Yes
	41	B		86	11396	10	9	1140	846	1676	Yes	24	1738	5	5	348	287	407	Yes
6	78	U	3/26/2004	102	13225	10	10	1323	897	1462	Yes	38	1794	5	8	359	311	408	Yes
	67	U		67	12340	10	7	1234	897	1462	Yes	26	1799	5	5	360	311	408	Yes
	61	U		86	12833	10	9	1283	897	1462	Yes	31	1819	5	6	364	311	408	Yes
	54	U		98	12533	10	10	1253	897	1462	Yes	33	1772	5	7	354	311	408	Yes
	49	U		96	12461	10	10	1246	897	1462	Yes	22	1756	5	4	351	311	408	Yes
	45	U		113	12749	10	11	1275	897	1462	Yes	38	1773	5	8	355	311	408	Yes
	37	B		98	12320	10	10	1232	897	1462	Yes	24	1687	5	5	337	311	408	Yes
	35	B		93	12172	10	9	1217	897	1462	Yes	19	1675	5	4	335	311	408	Yes
	21	U		142	13987	10	14	1399	897	1462	Yes	35	2110	5	7	422	311	408	No
	10	U		138	13626	10	14	1363	897	1462	Yes	47	2070	5	9	414	311	408	No
	5	B		125	14005	10	13	1401	897	1462	Yes	40	1897	5	8	379	311	408	Yes
2	71	BKG	3/24/2004	43	11032	10	4	1103	594	1492	Yes	30	1709	5	6	342	287	443	Yes
			3/25/2004	58	11313	10	6	1131	846	1676	Yes	33	1612	5	7	322	287	407	Yes
			3/26/2004	74	11879	10	7	1188	897	1462	Yes	38	1629	5	8	326	311	408	Yes
			3/27/2004	61	11977	10	6	1198	742	1616	Yes	21	1687	5	4	337	295	421	Yes
			3/28/2004	82	11993	10	8	1199	865	1603	Yes	15	1654	5	3	331	287	412	Yes

Notes:

1. Ludlum Model 339-1F Floor Monitor with Model 43-37 Gas Proportional Detector linked to a Model 2360 Data Logger
2. Ludlum Model 2360 Data Logger with Model 43-68 Gas Proportional Detector
3. See Table of Daily Source Checks of Gas Probes - Appendix C, Table 2

N/A = Logged by hand; no associated electronic log number.
U = Unbiased, randomly selected grid
B = Biased grid selected by health physicist in the field
BKG = Daily Background

TABLE 3-2
SUMMARY OF LABORATORY ANALYSES
RADIOLOGICAL AND BERYLLIUM SWIPE SAMPLES
SIXTH FLOOR

Date	Survey Grid	Sample Number	Beryllium (µg/100cm^2)	Ra-226 (dpm/100cm^2)	Pb-210 (dpm/100cm^2)
3/26/2004	10	58	0.005 B		
3/29/2004		117		6.56 U	
		118			11.8 U
3/29/2004	21	114	0.004 B		
		115			12.1 U
		116		7.87 U	

B = Reading less than Contract Required Detection Limit but greater than Instrument Detection Limit.

U = Not detected above the reported minimum detected activity.

Blank cell = Not analyzed. Each swipe sample was analyzed for only one parameter.

TABLE 3-3
STATIC COUNTS OF BRICK
DAYTON WAREHOUSE

Survey Unit	Grid Unit	Type	Instrument Readings [1]					Date
			Gross counts		Count Time	Counts per Minute		
			Alpha	Beta	(min)	Alpha	Beta	
6	10	B-W	58	2621	5	12	524	3/29/2004
6	21	B-W	55	2578	5	11	516	3/29/2004
Outside		BKD-W	109	2513	5	22	503	3/29/2004

Notes:

1. Model 2360 Data Logger with 43-68 gas proportional detector

B-W = Biased Wall Location Inside Building

BKG-W = Special Wall Background Scan

TABLE 3-4
SWIPE SAMPLE DATA
COUNTED WITH LUDLUM MODEL 2929
DAYTON WAREHOUSE

Date Collected	Survey Unit	Survey Grid	Swipe ID	Gross Counts			Gross Counts per Minute		Daily Criteria (4) (cpm)		Below Criteria	
				Alpha	Beta	Count Time (min)	Alpha	Beta	Alpha	Beta	Yes	No
3/24/2004	NA	NA	Background (3/24/04) (1)	1	245	5	0.2	49.0				
	2	14	DW-SU2-SW01-GR14	1	235	5	0.2	47.0	33.8	56.5	•	
		28	DW-SU2-SW03-GR28	1	217	5	0.2	43.4	33.8	56.5	•	
		29	DW-SU2-SW04-GR29	1	202	5	0.2	40.4	33.8	56.5	•	
		24	DW-SU2-SW05-GR24	1	213	5	0.2	42.6	33.8	56.5	•	
		34	DW-SU2-SW06-GR34	2	186	5	0.4	37.2	33.8	56.5	•	
		64	DW-SU2-SW07-GR64	3	215	5	0.6	43.0	33.8	56.5	•	
		71	DW-SU2-SW08-GR71	1	210	5	0.2	42.0	33.8	56.5	•	
		75	DW-SU2-SW09-GR75	6	204	5	1.2	40.8	33.8	56.5	•	
		61	DW-SU2-SW11-GR61	0	214	5	0.0	42.8	33.8	56.5	•	
		62	DW-SU2-SW12-GR62	3	227	5	0.6	45.4	33.8	56.5	•	
		33	DW-SU2-SW13-GR33	1	256	5	0.2	51.2	33.8	56.5	•	
3/24/2004	NA	NA	Background (3/25/04) (1)	3	221	5	0.6	44.2				
	3	4	DW-SU3-SW15-GR04	3	241	5	0.6	48.2	34.2	51.7	•	
		9	DW-SU3-SW16-GR09	2	209	5	0.4	41.8	34.2	51.7	•	
		35	DW-SU3-SW18-GR35	0	198	5	0.0	39.6	34.2	51.7	•	
		40	DW-SU3-SW20-GR40	1	211	5	0.2	42.2	34.2	51.7	•	
		46	DW-SU3-SW21-GR46	3	235	5	0.6	47.0	34.2	51.7	•	
		55	DW-SU3-SW23-GR55	5	205	5	1.0	41.0	34.2	51.7	•	
		60	DW-SU3-SW24-GR60	2	183	5	0.4	36.6	34.2	51.7	•	
		78	DW-SU3-SW25-GR78	2	205	5	0.4	41.0	34.2	51.7	•	
		64	DW-SU3-SW26-GR64	2	213	5	0.4	42.6	34.2	51.7	•	
		37	DW-SU3-SW27-GR37	4	212	5	0.8	42.4	34.2	51.7	•	
		25	DW-SU3-SW28-GR25	3	203	5	0.6	40.6	34.2	51.7	•	

TABLE 3-4
SWIPE SAMPLE DATA
COUNTED WITH LUDLUM MODEL 2929
DAYTON WAREHOUSE

Date Collected	Survey Unit	Survey Grid	Swipe ID	Gross Counts			Gross Counts per Minute		Daily Criteria (4) (cpm)		Below Criteria	
				Alpha	Beta	Count Time (min)	Alpha	Beta	Alpha	Beta	Yes	No
3/25/2004	NA	NA	Background (3/25/04) (1)	3	221	5	0.6	44.2				
	4	78	DW-SU4-SW30-GR78	2	211	5	0.4	42.2	34.2	51.7	•	
		62	DW-SU4-SW32-GR62	1	187	5	0.2	37.4	34.2	51.7	•	
		55	DW-SU4-SW33-GR55	1	213	5	0.2	42.6	34.2	51.7	•	
		48	DW-SU4-SW34-GR48	1	196	5	0.2	39.2	34.2	51.7	•	
		44	DW-SU4-SW36-GR44	1	208	5	0.2	41.6	34.2	51.7	•	
		39	DW-SU4-SW37-GR39	2	183	5	0.4	36.6	34.2	51.7	•	
		17	DW-SU4-SW38-GR17	1	225	5	0.2	45.0	34.2	51.7	•	
		2	DW-SU4-SW39-GR02	2	208	5	0.4	41.6	34.2	51.7	•	
		37	DW-SU4-SW40-GR37	0	211	5	0.0	42.2	34.2	51.7	•	
		64	DW-SU4-SW41-GR64	1	237	5	0.2	47.4	34.2	51.7	•	
		10	DW-SU4-SW42-GR10	1	211	5	0.2	42.2	34.2	51.7	•	
3/25/2004	NA	NA	Background (3/26/04) (1)	2	236	5	0.4	47.2				
	5	10	DW-SU5-SW43-GR10	1	198	5	0.2	39.6	34.0	54.7	•	
		12	DW-SU5-SW45-GR12	2	173	5	0.4	34.6	34.0	54.7	•	
		32	DW-SU5-SW46-GR32	1	212	5	0.2	42.4	34.0	54.7	•	
		45	DW-SU5-SW47-GR45	0	234	5	0.0	46.8	34.0	54.7	•	
		53	DW-SU5-SW48-GR53	1	250	5	0.2	50.0	34.0	54.7	•	
		68	DW-SU5-SW50-GR68	0	212	5	0.0	42.4	34.0	54.7	•	
		71	DW-SU5-SW51-GR71	0	214	5	0.0	42.8	34.0	54.7	•	
		75	DW-SU5-SW53-GR75	6	227	5	1.2	45.4	34.0	54.7	•	
		41	DW-SU5-SW54-GR41	0	191	5	0.0	38.2	34.0	54.7	•	
		37	DW-SU5-SW55-GR37	2	212	5	0.4	42.4	34.0	54.7	•	
		6	DW-SU5-SW56-GR06	0	244	5	0.0	48.8	34.0	54.7	•	

TABLE 3-4
SWIPE SAMPLE DATA
COUNTED WITH LUDLUM MODEL 2929
DAYTON WAREHOUSE

Date Collected	Survey Unit	Survey Grid	Swipe ID	Gross Counts			Gross Counts per Minute		Daily Criteria (4) (cpm)		Below Criteria	
				Alpha	Beta	Count Time (min)	Alpha	Beta	Alpha	Beta	Yes	No
3/26/2004	NA	NA	Background (3/26/04) (1)	2	236	5	0.4	47.2				
	6	10	DW-SU6-SW57-GR10	1	184	5	0.2	36.8	34.0	54.7	•	
		21	DW-SU6-SW59-GR21	0	194	5	0.0	38.8	34.0	54.7	•	
		45	DW-SU6-SW60-GR45	0	225	5	0.0	45.0	34.0	54.7	•	
		49	DW-SU6-SW62-GR49	1	191	5	0.2	38.2	34.0	54.7	•	
		54	DW-SU6-SW63-GR54	0	220	5	0.0	44.0	34.0	54.7	•	
		61	DW-SU6-SW65-GR61	0	198	5	0.0	39.6	34.0	54.7	•	
		67	DW-SU6-SW66-GR67	2	201	5	0.4	40.2	34.0	54.7	•	
		78	DW-SU6-SW67-GR78	2	251	5	0.4	50.2	34.0	54.7	•	
		5	DW-SU6-SW68-GR05	2	199	5	0.4	39.8	34.0	54.7	•	
		35	DW-SU6-SW69-GR35	2	214	5	0.4	42.8	34.0	54.7	•	
		37	DW-SU6-SW70-GR37	1	200	5	0.2	40.0	34.0	54.7	•	
3/27/2004	NA	NA	Background (3/27/04) (1)	1	222	5	0.2	44.4				
	B	9	DW-SU-B-SW71-GR09	1	200	5	0.2	40.0	33.8	51.9	•	
		15	DW-SU-B-SW72-GR15	2	212	5	0.4	42.4	33.8	51.9	•	
		41	DW-SU-B-SW73-GR41	0	202	5	0.0	40.4	33.8	51.9	•	
		38	DW-SU-B-SW75-GR38	3	204	5	0.6	40.8	33.8	51.9	•	
		65	DW-SU-B-SW76-GR65	0	190	5	0.0	38.0	33.8	51.9	•	
		68	DW-SU-B-SW77-GR68	4	188	5	0.8	37.6	33.8	51.9	•	
		70	DW-SU-B-SW79-GR70	0	176	5	0.0	35.2	33.8	51.9	•	
		32	DW-SU-B-SW81-GR32	2	198	5	0.4	39.6	33.8	51.9	•	
		80	DW-SU-B-SW82-GR80	1	195	5	0.2	39.0	33.8	51.9	•	
		8	DW-SU-B-SW83-GR08	0	181	5	0.0	36.2	33.8	51.9	•	
		51	DW-SU-B-SW84-GR51	1	200	5	0.2	40.0	33.8	51.9	•	

TABLE 3-4
SWIPE SAMPLE DATA
COUNTED WITH LUDLUM MODEL 2929
DAYTON WAREHOUSE

Date Collected	Survey Unit	Survey Grid	Swipe ID	Gross Counts			Gross Counts per Minute		Daily Criteria [4] (cpm)		Below Criteria	
				Alpha	Beta	Count Time (min)	Alpha	Beta	Alpha	Beta	Yes	No
3/28/2004	NA	NA	Background (3/28/04) [1]	1	187	5	0.2	37.4				
	1	4	DW-SU1-SW85-GR04	0	195	5	0.0	39.0	33.8	44.9	•	
		14	DW-SU1-SW86-GR14	1	185	5	0.2	37.0	33.8	44.9	•	
		38	DW-SU1-SW87-GR38	0	195	5	0.0	39.0	33.8	44.9	•	
		43	DW-SU1-SW89-GR43	1	208	5	0.2	41.6	33.8	44.9	•	
		64	DW-SU1-SW91-GR64	0	194	5	0.0	38.8	33.8	44.9	•	
		60	DW-SU1-SW92-GR60	2	206	5	0.4	41.2	33.8	44.9	•	
		70	DW-SU1-SW94-GR70	1	232	5	0.2	46.4	33.8	44.9		•
		56	DW-SU1-SW95-GR56	2	216	5	0.4	43.2	33.8	44.9	•	
		24	DW-SU1-SW96-GR24	1	175	5	0.2	35.0	33.8	44.9	•	
		8	DW-SU1-SW97-GR08	1	198	5	0.2	39.6	33.8	44.9	•	
		58	DW-SU1-SW98-GR58	0	207	5	0.0	41.4	33.8	44.9	•	
		40	DW-SU1-SW99-GR40	0	211	5	0.0	42.2	33.8	44.9	•	
		49	DW-SU1-SW100-GR49	0	211	5	0.0	42.2	33.8	44.9	•	
		30	DW-SU1-SW101-GR30	0	203	5	0.0	40.6	33.8	44.9	•	
		22	DW-SU1-SW102-GR22	1	239	5	0.2	47.8	33.8	44.9		•
		9	DW-SU1-SW103-GR09	1	206	5	0.2	41.2	33.8	44.9	•	
3/29/2004	NA	NA	Background (3/29/04) [1]	0	230	5	0.0	46.0				
	6 [2]	21	DW-SU6-SW119-Wall21	3	235	5	0.6	47.0	33.6	53.5	•	
		10	DW-SU6-SW120-Wall10	3	216	5	0.6	43.2	33.6	53.5	•	
	NA [2]	Outside	DW-SUXX-SW121-GRXX	1	222	5	0.2	44.4	33.6	53.5	•	

TABLE 3-4
SWIPE SAMPLE DATA
COUNTED WITH LUDLUM MODEL 2929
DAYTON WAREHOUSE

Date Collected	Survey Unit	Survey Grid	Swipe ID	Gross Counts			Gross Counts per Minute		Daily Criteria [4] (cpm)		Below Criteria	
				Alpha	Beta	Count Time (min)	Alpha	Beta	Alpha	Beta	Yes	No
3/26/2004	NA	NA	Background (3/26/04) [1]	2	236	5	0.4	47.2				
	NA	NA	Blank (3/26/04)	1	201	5	0.2	40.2	34.0	54.7	•	
	B [3]	17	DW-SU-B-SW104-GR17	0	201	5	0.0	40.2	34.0	54.7	•	
		22	DW-SU-B-SW105-GR02	1	218	5	0.2	43.6	34.0	54.7	•	
		27	DW-SU-B-SW106-GR27	0	221	5	0.0	44.2	34.0	54.7	•	
		58	DW-SU-B-SW107-GR58	3	213	5	0.6	42.6	34.0	54.7	•	
		83	DW-SU-B-SW108-GR83	1	206	5	0.2	41.2	34.0	54.7	•	
	2 [3]	71	DW-SU2-SW109-GR71	2	221	5	0.4	44.2	34.0	54.7	•	
			DW-SU2-SW110-GR71	1	230	5	0.2	46.0	34.0	54.7	•	
			DW-SU2-SW111-GR71	2	231	5	0.4	46.2	34.0	54.7	•	
			DW-SU2-SW112-GR71	3	197	5	0.6	39.4	34.0	54.7	•	
			DW-SU2-SW113-GR71	2	230	5	0.4	46.0	34.0	54.7	•	

Notes:
1. Background reading in field van on date swipe sample counted.
2. Additional swipe samples collected on brick wall.
3. Additional swipe samples collected for background analysis.
4. CPM = (Screening Level x Efficiency) + Background

Screening level = 1010dpm/100cm^2 x 0.1 (α); 494 dpm/100cm^2 x 0.1 (β)

Efficiency: Taken from Daily Source Checks in Appendix C. See below:

	Alpha	Beta
Average Efficiency (cnts/dis):	0.333	0.153

TABLE 3-5
SUMMARY OF LABORATORY ANALYSES
BERYLLIUM SWIPE SAMPLES (1)
DAYTON WAREHOUSE

Date	Survey Unit	Survey Grid	Sample Number	Concentration (µg/100cm^2)	Average Concentration (µg/100cm^2)
28-Mar-04	1	38	88	0.004 B	0.011
		43	90	0.003 U	
		60	93	0.008 B	
24-Mar-04	2	14	02	0.006 B	
		29	14	0.014 B	
		61	10	0.02 B	
24-Mar-04	3	9	17	0.025 B	
		35	19	0.007 B	
		46	22	0.016 B	
25-Mar-04	4	44	35	0.003 B	0.007
		62	31	0.003 B	
		78	29	0.005 B	
25-Mar-04	5	10	44	0.007 B	
		53	49	0.015 B	
		71	52	0.005 B	
26-Mar-04	6	10	58	0.005 B	
		45	61	0.003 U	
		54	64	0.011 B	
27-Mar-04	B	38	74	0.007 B	
		68	78	0.014 B	
		70	80	0.007 B	

B = Reading less than Contract Required Detection Limit but greater than Instrument Detection Limit (IDL).
U = Not detected above the reported IDL.

0.25 Concentration greater than screening level - 0.2 µg/100cm^2

NOTES:
1. Per Sampling and Analysis Plan, 3 randomly selected, unbiased survey grids per floor.

TABLE 3-6
LOADING AREA SURFACE SCANS
DAYTON WAREHOUSE

Survey Grid	Scan Readings (1)					Date
	Gross counts		Count Time	Counts per Minute		
	Alpha	Beta	(min)	Alpha	Beta	
1	8	360	1	8	360	3/26/2004
2	9	383	1	9	383	3/26/2004
3	6	403	1	6	403	3/26/2004
4	3	378	1	3	378	3/26/2004
5	11	274	1	11	274	3/26/2004
6	3	308	1	3	308	3/26/2004
7	4	385	1	4	385	3/26/2004
8	2	389	1	2	389	3/26/2004
9	3	401	1	3	401	3/26/2004
10	2	383	1	2	383	3/26/2004
11	4	391	1	4	391	3/26/2004
12	2	388	1	2	388	3/26/2004
13	1	428	1	1	428	3/26/2004
14	4	386	1	4	386	3/26/2004
15	4	313	1	4	313	3/26/2004
16	3	350	1	3	350	3/26/2004
17	3	386	1	3	386	3/26/2004
18	2	443	1	2	443	3/26/2004
19	3	360	1	3	360	3/26/2004
20	7	389	1	7	389	3/26/2004
21	3	356	1	3	356	3/26/2004
22	5	371	1	5	371	3/26/2004
23	3	398	1	3	398	3/26/2004
24	3	376	1	3	376	3/26/2004
25	3	385	1	3	385	3/26/2004
26	6	361	1	6	361	3/26/2004
27	4	358	1	4	358	3/26/2004
28	5	402	1	5	402	3/26/2004
29	1	380	1	1	380	3/26/2004
30	Pile of Rocks - no reading					
31	Pile of Rocks - no reading					
32	3	367	1	3	367	3/26/2004
33	0	401	1	0	401	3/26/2004
34	2	386	1	2	386	3/26/2004
35	6	330	1	6	330	3/26/2004
36	1	370	1	1	370	3/26/2004
37	5	415	1	5	415	3/26/2004
38	6	364	1	6	364	3/26/2004

TABLE 3-6
LOADING AREA SURFACE SCANS
DAYTON WAREHOUSE

Survey Grid	Scan Readings (1)					Date
	Gross counts		Count Time	Counts per Minute		
	Alpha	Beta	(min)	Alpha	Beta	
39	2	366	1	2	366	3/26/2004
40	Pile of Rocks - no reading					
41	Pile of Rocks - no reading					
42	1	370	1	1	370	3/26/2004
43	6	457	1	6	457	3/26/2004
44	4	439	1	4	439	3/26/2004
45	2	327	1	2	327	3/26/2004
46	Portapotty - no reading					
47	2	429	1	2	429	3/26/2004
48	2	415	1	2	415	3/26/2004
49	3	329	1	3	329	3/26/2004
50	Pile of Rocks - no reading					
51	2	332	1	2	332	3/26/2004
52	4	356	1	4	356	3/26/2004
53	6	450	1	6	450	3/26/2004
54	5	423	1	5	423	3/26/2004
55	2	338	1	2	338	3/26/2004
56	4	386	1	4	386	3/26/2004
57	3	421	1	3	421	3/26/2004
58	2	365	1	2	365	3/26/2004
59	2	330	1	2	330	3/26/2004
60	3	404	1	3	404	3/26/2004
61	2	350	1	2	358	3/26/2004
62	0	346	1	0	346	3/26/2004
63	5	393	1	5	393	3/26/2004
64	3	464	1	3	464	3/26/2004
65	6	473	1	6	473	3/26/2004
66	4	364	1	4	364	3/28/2004
67	3	399	1	3	399	3/28/2004
68	4	333	1	4	333	3/28/2004
69	2	356	1	2	356	3/28/2004
70	5	306	1	5	306	3/28/2004
71	3	339	1	3	339	3/28/2004
72	1	350	1	1	350	3/28/2004
73	0	320	1	0	320	3/28/2004
74	3	354	1	3	354	3/28/2004
75	1	391	1	1	391	3/28/2004

Notes:
1. Ludlum Model 2360 Data Logger with Model 43-68 Gas Proportional Detector

TABLE 3-6
LOADING AREA SURFACE SCANS
DAYTON WAREHOUSE

← N

3 339	1 350	0 320	3 354	1 391
5 306	2 356	4 333	3 399	4 364
2 358	0 346	5 393	3 464	6 473
3 404	2 330	2 365	3 421	4 386
2 332	4 356	6 450	5 423	2 338
NR	3 329	2 415	2 429	NR
NR	1 370	6 457	4 439	2 327
NR	2 366	6 364	5 415	1 370
NR	3 367	0 401	2 386	6 330
NR	1 380	5 402	4 358	6 361
6 361	4 358	5 402	1 380	3 356
7 389	3 360	2 443	3 386	3 350
4 391	2 368	1 428	4 386	4 313
2 283	3 401	2 389	4 385	3 308
8 360	9 383	6 403	3 378	11 274

Loading Dock

⊗ Soil Sample Locations

3 378

Alpha - counts per minute
Beta - counts per minute

TABLE 3-7
LOADING AREA SURFACE SOIL SAMPLES
ANALYTICAL RESULTS COMPARED TO SCREENING LEVELS
DAYTON WAREHOUSE

Parameter	Units	Background	Screening Level	Sample Number		
				SS-01	SS-02	SS-03
Lead-10	pCi/g	1.56	2.41	ND	2.38	2.88
Radium-226	pCi/g	1.56	2.25	1.33	1.72	1.7
Beryllium	mg/kg	1.30	150	0.673	0.725	0.834

Activity/Concentration exceeds background.

2.88 Activity/Concentration exceeds screening level

ND = Not detected

APPENDIX A

SITE PHOTOGRAPHS

PHOTOGRAPHIC LOG
DAYTON WAREHOUSE

Photo No.	Description
1	Dayton Warehouse looking northeast
2	Dayton Warehouse looking southeast
3	Loading area from Sears Street sidewalk looking east
4	Rear of Dayton Warehouse looking south
5	Debris inside entry point on first floor (door at grid 70 along Sears Street)
6	Debris on first floor looking west from grid 24
7	Pallets of stone on first floor, looking west from grid 34
8	Pallets of stone and other debris looking northwest from grid 43 on first floor
9	Pigeon debris on stairway to second floor
10	Second floor from north wall looking south
11	Third floor from northwest corner looking southeast
12	Fourth floor from northwest corner looking southeast
13	Fifth floor from southwest corner looking northeast
14	Sixth floor from northwest corner looking southeast
15	Basement grid 32 looking north
16	Ludlum Model 239-1F Floor Monitor with "P-10" gas cylinder, and Model 43-37 Gas-Proportional Detector linked to a Model 2360 Alpha/Beta Data Logger
17	Brushing away dust at static count location
18	Static count using Ludlum 2360 Alpha/Beta Data Logger with Model 43-68 Gas-Proportional Detector
19	Swipe sample template at fourth floor survey grid 78

PHOTOGRAPHIC LOG
DAYTON WAREHOUSE

Photo No.	Description
20	Floor scanning first floor survey grid 64 looking east
21	Additional static reading and swipe sample at first floor survey grid 22
22	Additional static count of first floor survey grid 30
23	Additional static count of first floor survey grid 40
24	Pallets of stone on west side of first floor
25	Static count and μR/hr readings of brick on 29 March at sixth floor survey grid 10
26	Collecting swipe of brick on 29 March at sixth floor survey grid 10, looking northwest
27	Collecting swipe sample for Ra-226 and Pb-210 on 29 March at sixth floor survey grid 10, looking northwest
28	Static count and μR/hr reading of brick on 29 March at sixth floor survey grid 21
29	Collecting swipe sample of brick for field count on 29 March at sixth floor survey grid 21, looking southwest
30	Collecting swipe sample for lab analysis on 29 March at sixth floor survey grid 21. Ludlum Model 19 MicroR gamma survey meter in foreground
31	Performing radiological scoping survey of loading area
32	Collecting loading area surface soil sample SS-01
33	Additional static count at first floor survey grid 9
34	First floor survey grid 49

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

Photo 1 - Dayton Warehouse looking northeast.

Photo 2 - Dayton Warehouse looking southeast.

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

Photo 3 - Loading area from Sears Street sidewalk looking east.

Photo 4 - Rear of Dayton Warehouse looking south.

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

Photo 5 - Debris inside entry point on first floor (door at grid 70 along Sears Street).

Photo 6 - Debris on first floor, looking west.

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

Photo 7 - Pallets of stone on first floor, looking west from grid 34.

Photo 8 - Pallets of stone and other debris looking north west from grid 43 on first floor.

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

Photo 9 - Pigeon debris on stairway to second floor.

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

Photo 10 - Second floor from north wall looking south.

Photo 11 - Third floor from northwest corner looking southeast.

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

Photo 12 -Fourth floor from northwest corner looking southeast.

Photo 13 - Fifth floor from southwest building corner looking northeast.

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

Photo 14 - Sixth floor from northwest corner looking southeast.

Photo 15 - Basement grid 32 looking north.

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

Photo 16 - Ludlum Model 239-1F Floor Monitor with “P-10” gas cylinder (1), and Model 43-37 Gas Proportional Detector (2) linked to Model 2360 Alpha/Beta Data Logger (3).

Photo 17 - Brushing away dust at static count location.

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

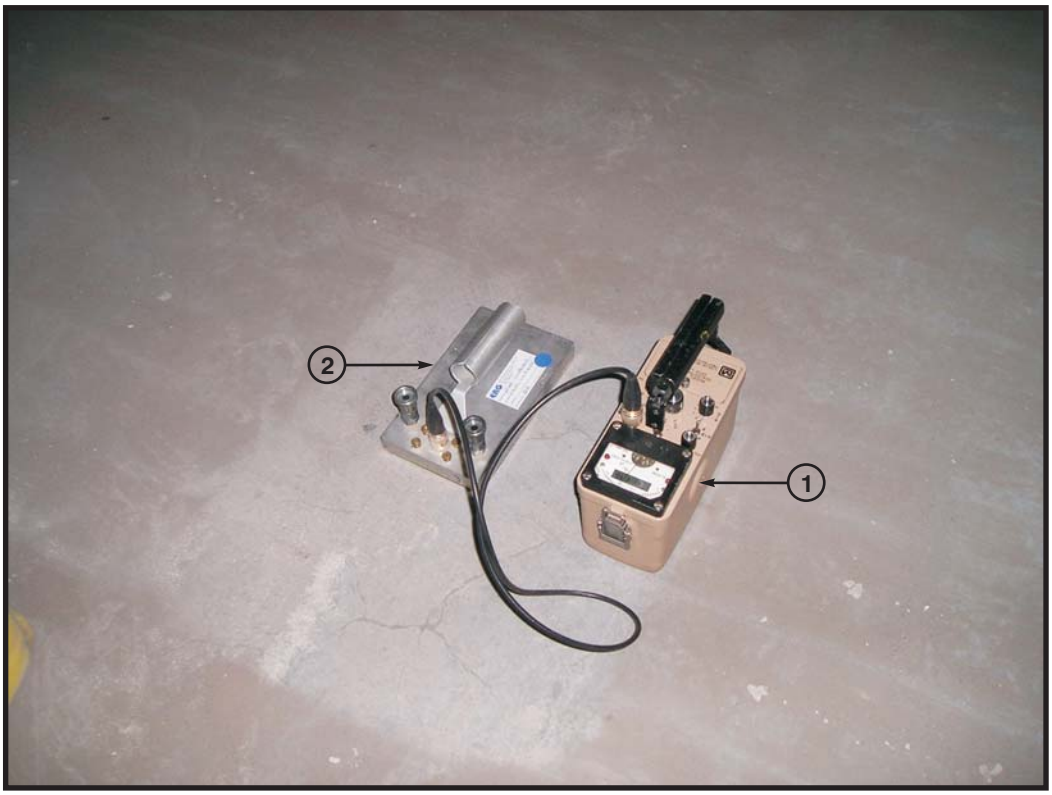


Photo 18 - Static count using Ludlum Model 2360 Alpha/Beta Data Logger (1) with Model 43-68 Gas-Proportional Detector (2).

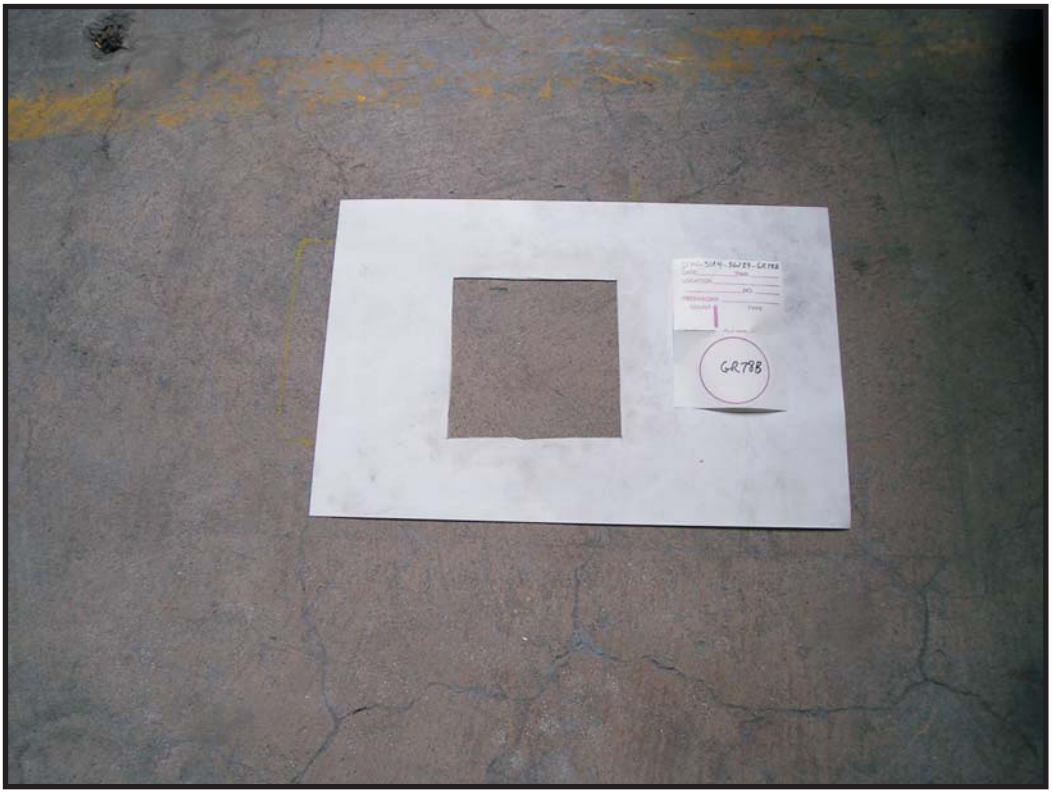


Photo 19 - Swipe sample template at fourth floor survey grid 78.

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

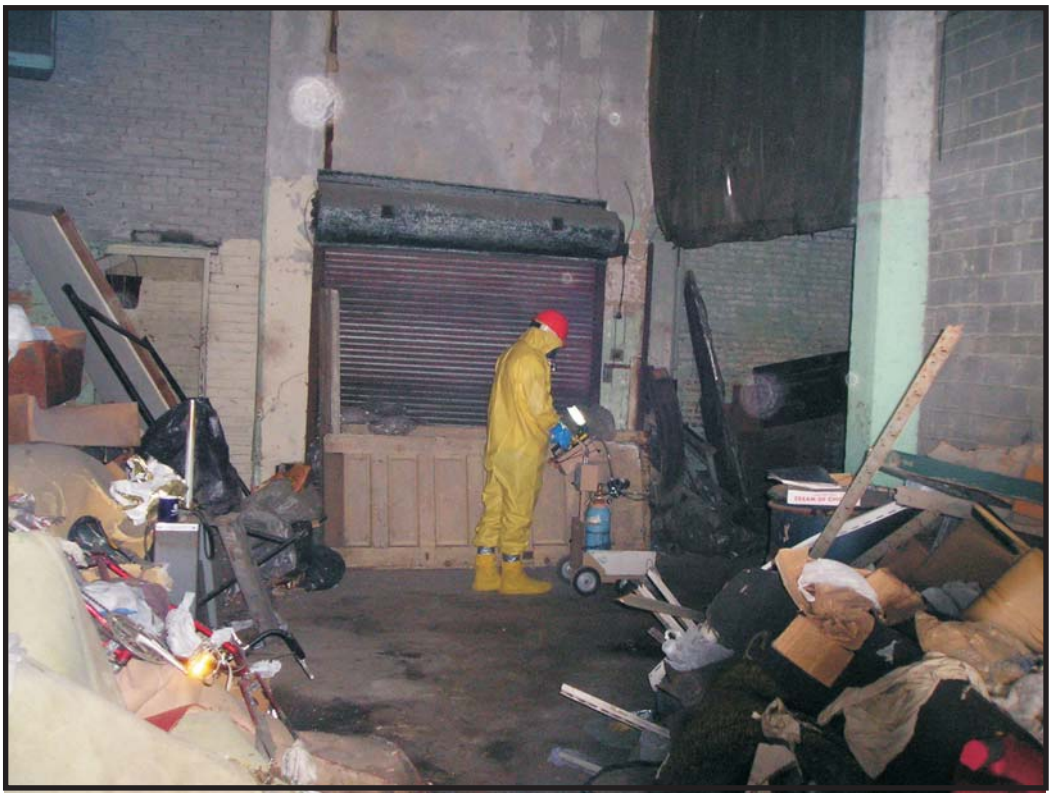


Photo 20 - Floor scan of first floor survey grid 64 looking east.

Photo 21 - Additional static reading and swipe sample at first floor survey grid 22.

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

Photo 22 - Additional static count of first floor survey grid 30.

Photo 23 - Additional static count of first floor survey grid 40.

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

Photo 24 - Pallets of stone on west side of first floor.

Photo 25 - Static count and μR/hr readings of brick on 29 March at sixth floor survey grid 10.

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

Photo 26 - Collecting swipe of brick on 29 March at sixth floor survey grid 10, looking northwest.

Photo 27 - Collecting swipe sample for Ra-226 and Pb-210 lab analysis on 29 March at sixth floor survey grid 10, looking northwest.

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

Photo 28 - Static count and μR/hr readings of brick on 29 March at sixth floor survey grid 21.

Photo 29 - Collecting swipe sample of brick for field count on 29 March at sixth floor survey grid 21, looking southwest.

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

Photo 30 - Collecting swipe sample for lab analysis on 29 March at sixth floor survey grid 21. Ludlum Model 19 MicroR gamma survey meter in foreground.

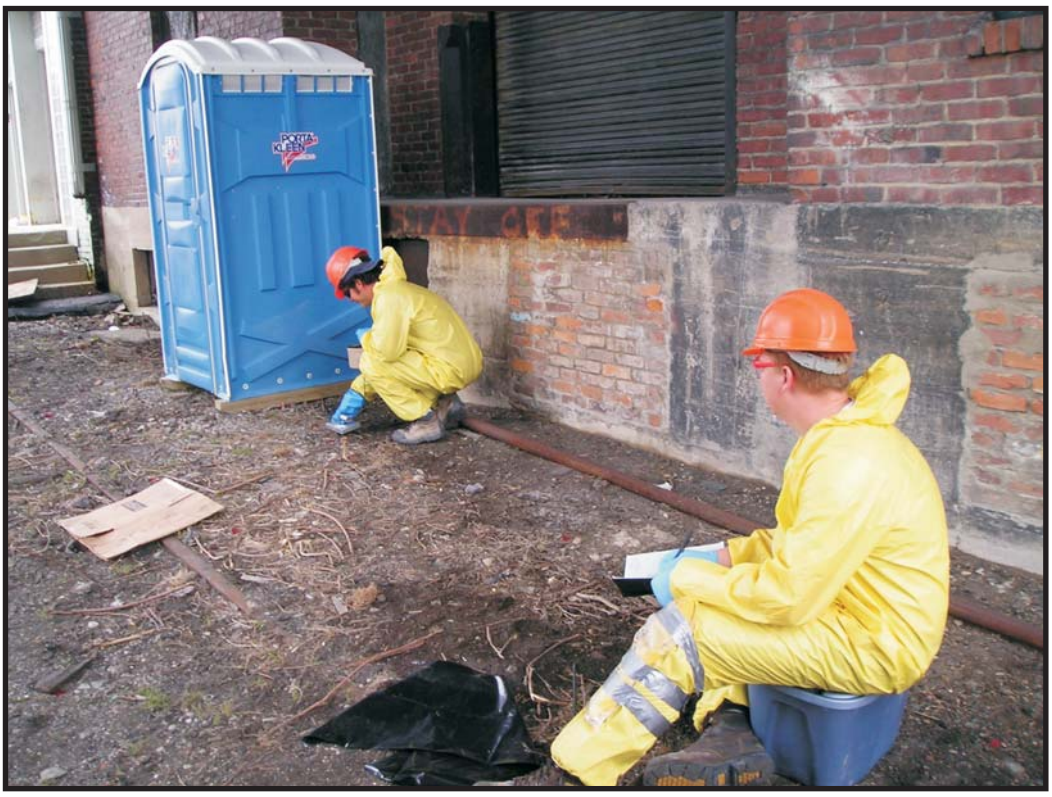


Photo 31 - Performing radiological scoping survey of loading area using Ludlum Model 2360 Alpha/Beta Data Logger with Model 43-68 Gas Proportional Detector.

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

Photo 32 - Collecting loading area surface soil sample SS-01.

DAYTON WAREHOUSE
Preliminary Assessment/Site Inspection

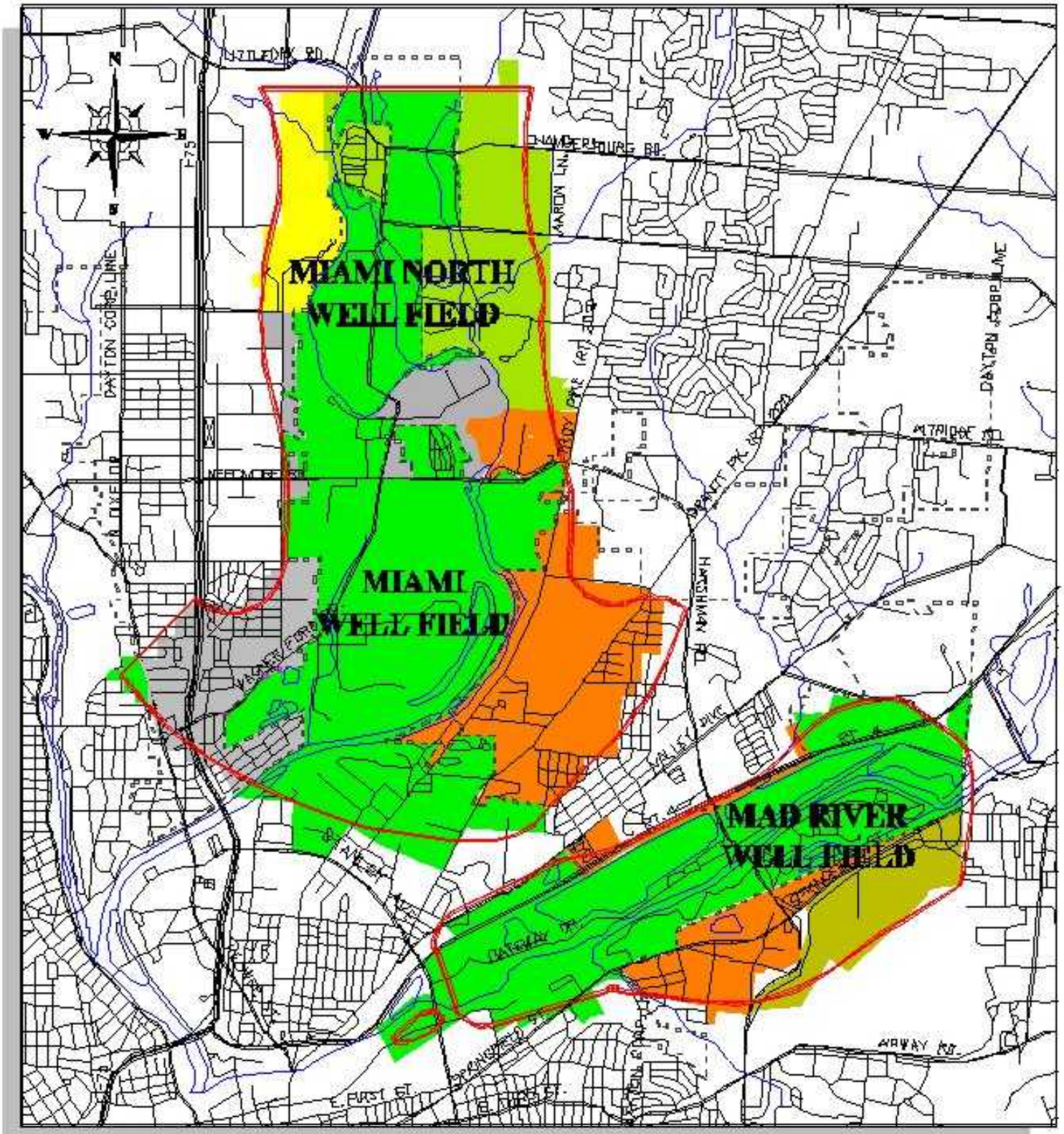
Photo 33 - Additional static count at first floor survey grid 9.

Photo 34 - First floor survey grid 49.

APPENDIX B

DAYTON WELL FIELDS

Reference: Well Field Protection Program, n.d.



DESIGNATED WELL FIELD PROTECTION AREA

- DAYTON
- VANDALIA
- WRIGHT PATTERSON AFB
- HARRISON TWP.
- HUBER HEIGHTS
- RIVERSIDE
- CAPTURE AREA BOUNDARY

APPENDIX C

FIELD QUALITY CONTROL REPORT

FIELD QUALITY CONTROL REPORT
COMBINED PRELIMINARY ASSESSMENT/SITE INSPECTION
DAYTON WAREHOUSE

A summary of field activities from 23 through 29 March 2004, when the site inspection was performed, is provided below. The following additional field information is attached:

- Figures showing sampling grids on each floor
- Daily Field Quality Control Reports
- Copy of pages from field supervisor's log book
- Copy of pages from field crew's log book

Monitoring equipment used during the program is shown in Table 1. Tables 2 and 3 are data for the daily source checks of the Ludlum 43-37 and 43-68 gas proportional detectors and the Ludlum 2929 Alpha/Beta scaler, respectively. On 24 and 25 March, the data logger did not record the Th-230 (β) source check reading for the 43-68 detector and the actual readings were not noted in the field log. The operation of the data logger was corrected on subsequent days.

In general, the following activities were performed on each floor unless otherwise noted in the daily activities description:

- Eight randomly selected grid locations identified in the FSP were marked out with spray paint and cleared of debris. Radiological scoping surveys were performed on all eight sample grids; beryllium samples were collected from three grids per the FSP.

- Three additional biased grid locations were selected on each floor, marked out with spray paint and cleared of debris. Locations were selected primarily based on possible high traffic patterns, or the likelihood for accumulation of radiological contamination.

- Each sample grid was scanned with the Ludlum 239-1F floor monitor. The Ludlum 2360 Alpha/Beta Data Logger was set to record a 10-minute timed count and the entire grid was scanned during this time period. The airflow rates on the detector were periodically checked to verify proper function of the instrument.

- After performing the floor monitoring, a five-minute static measurement was performed at each grid using the Ludlum 2360 Alpha/Beta Data Logger paired with a Ludlum 43-68 gas-proportional detector. The static measurement was performed in the area of the sample grid where floor monitor's audible and ratemeter readings were the highest or at the center of the grid based on the absence of elevated radiological measurements. Prior to the static scan, the area was brushed clear of dust. The area of the static scan was outlined to aid in the location of the subsequent swipe samples.

- Swipe samples were collected from each sample grid location, in the same area were the static measurement was made. Additionally, beryllium swipe samples were collected from the three random grid locations on each floor identified in the FSP. At locations where multiple swipes were required, they were performed adjacent to each other.

- The swipe samples collected from each grid were counted for five minutes in the field using the Ludlum-2929/43-10-1 radiological instrument.

A summary of each day's activities follows:

22 March – URS traveled to Dayton, OH and contacted Denver Williams, the City of Dayton's representative, and received permission to enter building. URS was notified that Steve Bousquet (USACE-Buffalo District Health Physicist) would arrive on site 23 March. The Warehouse was not entered.

23 March – URS arrived on site, met with Steve Bousquet, and conducted a safety meeting for personnel working on the site. The radiation survey equipment was checked against a radioactive source and background readings were established in a parking area north of, and adjacent to the Warehouse. URS and USACE personnel accessed the site, and established a safe walkway through the building. A hasp with a lock was installed on the door for day-to-day securing of the Warehouse. Later in the day, OEPA representative William Lohner visited the site for a short period. In the afternoon, sampling grids were established on the second floor, Survey Unit (SU) 2. No radiological survey measurements were performed in the building. Low counts were noted on the two gas proportional instruments, so the vendor was notified who advised that the instrument high voltage should be increased because of altitude differences between Albuquerque, NM and Dayton, OH.

24 March – Conducted safety briefing and completed daily source checks. Completed scoping survey of the second and third floors (SU-2 and SU-3). URS and USACE discussed where to establish a background area for the building, and agreed upon SU-2, Grid 71. Each day thereafter, background measurements consisting of a 10-minute scan with the floor monitor and a static scan were made at this location. Scott Davidson performed a walkthrough radiation survey of the first floor with the Ludlum Model 19 MicroR Meter (gamma) and random direct measurements on the brick/stone objects stored on the first floor using a Ludlum Model 12 with the 43-5 alpha probe. No elevated levels were identified on the brick and stone objects.

25 March – Conducted a safety briefing and performed QC on radiological instrumentation. Took background measurements in SU-2, Grid 71. Completed scoping survey of the fourth and fifth floors (SU-4 and SU-5). A gamma walkover was performed in the loading dock area using a Ludlum Model 19 MicroR meter (gamma). Readings were slightly higher near the brick walls than in other areas. Brick in the nearby road surface was used as a comparison and found similar.

A radiological survey of the brick and stone items on the first floor of the warehouse was conducted with the Ludlum Model 12 with a 44-9 pancake survey meter (beta-gamma). No elevated readings were found.

26 March – Conducted a safety briefing and performed QC on radiological instrumentation. Took background measurements in SU-2, Grid 71 and completed the scoping survey of the sixth floor (SU-6). The three biased grid locations on the sixth floor were selected based on possible traffic patterns (Grid-37), an electrical power supply strip on the wall indicating a possible former work station (Grid-35), and evidence of a possible former lab hood or shelving location on the wall (Grid-05).

Received direction from USACE to perform five swipes in the reference background survey area (SU-2, Grid 71) and in five random locations of the basement (SU-B). These ten swipes and a blank swipe were field counted in the Ludlum 2929. None of the samples were elevated.

A sampling grid of approximately 3-foot by 3-foot squares was established in the loading dock area at the rear of the Warehouse. Each grid square was scanned for one-minute with the Ludlum 2360 Alpha/Beta Data Logger paired with a Ludlum 43-68 gas proportional detector. Three surface soil samples (0-0.5' depth) were collected from areas exhibiting slightly higher than background readings. Split samples were provided to USACE.

During scanning of the loading dock area, the Ludlum 43-68 detector mylar was punctured and the remaining survey was postponed until all other areas in the building were completed. The mylar screen was replaced with a new one.

27 March – Conducted a safety briefing and performed QC on radiological instrumentation. Took background measurements in SU-2, Grid 71. A flame-ionizing detector was used to check for accumulated methane in the basement and the area was found clear. Completed the scoping survey and sampling of the basement (SU-B) and began the survey on the first floor (SU-1). The three biased grid locations in the basement were selected based on possible traffic patterns (Grid-08), a storage room (Grid-51), and a floor drain (Grid-80).

Approximately half of the first floor, SU-1, was surveyed and considerable effort was expended to clear areas of debris to accommodate the pre-selected grid locations in the FSP or immediately adjacent areas. Several areas were inaccessible and other locations were selected with concurrence from the onsite USACE representative, Mark Graham.

28 March – Conducted a safety briefing and performed QC on radiological instrumentation. Took background measurements in SU-2, Grid 71, and completed the scoping survey and sampling of the first floor (SU-1). Several of the randomly selected grid locations identified in the FSP were inaccessible and other locations were selected with concurrence from the onsite USACE representative, Mark Graham. The three biased grid locations also were selected based on accessibility.

Due to the amount of debris (pallets of stone and brick, etc.) on the west side of the first floor and the relocation of several pre-selected random locations, USACE suggested that additional static counts and swipe samples should be collected. Five areas were selected, static scans performed, and swipe samples were collected and counted.

Completed the scanning of the remaining portions of the loading area using the Ludlum 2360 with the Ludlum 43-68 detector. Upon completion of this work, the Team left the site to perform data quality control (QC) and review the objectives of the FSP.

During QC of the data downloaded from the radiation detection equipment, two locations on the sixth floor, SU-6 Grids 10 and 21, were identified that statistically exceeded the (beta) criteria for Pb-210, i.e., 494 dpm/100cm^2. It was decided that these two locations would therefore receive additional survey effort as discussed in the FSP.

29 March – URS conducted a safety briefing, performed QC on radiological instrumentation, and took background measurements in SU-2, Grid 71. In addition, a gamma radiation level was obtained using a Ludlum Model 19 MicroR meter in the reference area background location. URS completed the survey of SU 6 using the Ludlum 2360 Data Logger and 43-68 gas proportional detector. Two radiological swipes and one beryllium swipe were collected in SU 6, Grid 21, and two radiological swipes in SU 6, Grid 10 (the Be swipe was already taken in this grid previously).

In addition, gamma radiation levels were taken using the Ludlum Model 19 MicroR meter at the center of SU-6 and where the original static measurements had been made using the Ludlum 43-68 in Grids 10 and 21. The gamma radiation level by the brick wall near where the initial static/swipe measurements in Grids 10 and 21 were made was approximately 14 microR/hour compared to approximately 10 to 11 microR/hour in the center of the SU; similar radiation levels were noted at the background area in SU-2, Grid 71. This higher radiation level was noted to be similar to what was recorded by the brick wall in the Loading Dock area. External gamma radiation from the brick is sufficient to have caused the statistically elevated reading.

Since this was the last entry to the Warehouse, swipe samples and static counts were taken on the brick wall approximately 3 feet above the floor sample locations and on the brick wall outside of the facility for comparison. The direct static measurements and swipes from the surface of the inside brick wall did not exceed the corresponding value obtained on the brick wall outside the building.

URS contacted the representative of the City of Dayton to advise that the work was completed and advised the representative (with the request of USACE and concurrence of the URS Project Manager) that there were four propane tanks at the entrance that should be removed for fire safety reasons. Upon completion of the work, the site was secured. USACE left at approximately 0900 and URS left approximately 0930.

TABLE 1
FIELD MONITORING EQUIPMENT
DAYTON WAREHOUSE

INSTRUMENT [1]	USE
Model 239-1F Floor Monitor with Model 43-37 Gas Proportional Detector linked to a Model 2360 Alpha/Beta Data Logger	Floor monitoring of sampling grids for alpha and beta during radiological scoping survey
Model 2360 Alpha/Beta Data Logger with Model 43-68 Gas Proportional Detector	Direct static measurements of alpha/beta at selected points within the sampling grids
Model 2929 Alpha/Beta Scaler with Model 43-10-1 Alpha/Beta Sample Counter	Direct measurement of swipe samples for alpha and beta in the field
Model 12 Ratemeter with Model 44-9 Pancake G-M Detector	Equipment and personnel monitoring (frisking) for alpha, beta, and gamma
Model 12 Ratemeter with Model 43-5 Alpha Scintillator	Equipment and personnel monitoring (frisking)
Model 19 MicroR Meter with 1" x 1" sodium iodide scintillator	Low level gamma monitoring during field activities

Notes:

1. All instrumentation manufactured by Ludlum Measurements, Inc.

TABLE 2
DAILY SOURCE CHECK OF GAS PROBES
DAYTON WAREHOUSE

Date	Data Logger	Serial No.	Detector	Serial No.	Calibration Due	Battery Check	Source (1)		Detector Response (2) (cpm)		Background (3) (cpm)		Efficiency (4) (cnts/disint)		Background (5) (cpm)		Daily Criteria (6) (cpm)	
							Name	dpm	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta
3/24/2004	2360	184933	43-37	117138	3/12/2005	√	Tc-99	7740	9	2068	0	1020		0.1354		1103		1492
							Th-230	19500	1956	2155	0	1020	0.1003		4		594	
3/24/2004	2360	177166	43-68	148119	3/12/2005	√	Tc-99	7740	3	1505	0	249		0.1623		342		443
							Th-230	19500	NR	NR	0	249	NC		6		287 (7)	
3/25/2004	2360	184933	43-37	117138	3/12/2005	√	Tc-99	7740	7	1996	2	530		0.1894		1131		1676
							Th-230	19500	2788	1973	2	530	0.1429		6		846	
3/25/2004	2360	177166	43-68	148119	3/12/2005	√	Tc-99	7740	29	1295	3	239		0.1364		322		407
							Th-230	19500	NR	NR	3	239	NC		7		287 (7)	
3/26/2004	2360	184933	43-37	117138	3/12/2005	√	Tc-99	7740	10	1697	4	960		0.0952		1188		1462
							Th-230	19500	2955	2102	4	960	0.1513		7		897	
3/26/2004	2360	177166	43-68	148119	3/12/2005	√	Tc-99	7740	35	1248	4	228		0.1318		326		408
							Th-230	19500	4654	1225	4	228	0.2385		8		311	
3/27/2004	2360	184933	43-37	117138	3/12/2005	√	Tc-99	7740	2	1978	2	852		0.1455		1198		1616
							Th-230	19500	2444	1776	2	852	0.1252		6		742	
3/27/2004	2360	177166	43-68	148119	3/12/2005	√	Tc-99	7740	26	1305	4	261		0.1349		337		421
							Th-230	19500	4461	1181	4	261	0.2286		4		295	
3/28/2004	2360	184933	43-37	117138	3/12/2005	√	Tc-99	7740	7	2038	6	951		0.1404		1199		1603
							Th-230	19500	2848	2077	6	951	0.1457		8		865	
3/28/2004	2360	177166	43-68	148119	3/12/2005	√	Tc-99	7740	39	1275	0	262		0.1309		331		412
							Th-230	19500	4346	1195	0	262	0.2229		3		287	
3/29/2004 (8)	2360	177166	43-68	148119	3/12/2005	√	Tc-99	7740	613	1140	7	231		0.1174		503		576
							Th-230	19500	4838	1033	7	231	0.2477		22		337	

DAILY SOURCE CHECK OF GAS PROBES
DAYTON WAREHOUSE

Notes:

1. Tc-99 is a beta souce; Th-230 is an alpha source.
2. 1 minute counts
3. Background reading (1 minute count) in field van during source check.
4. Efficiency = (Detector Response - Background)/ Source DPM
5. Second floor, survey grid 71
6. Model 43-37: Daily Criteria = (Screening Level x Efficiency x A_p/100) + Background

   Model 43-68: Daily Criteria = (Screening Level x Efficiency x A_p/100) + Background

   Screening levels are: A_p = Probe area

   1010 dpm/100cm2 for Ra-226 (Alpha) 582 cm^2 for the Model 43-37

   494 dpm/100cm2 for Pb-210 (Beta) 126 cm^2 for the Model 43-68
7. Assumed equal to value on 3/28/04.
8. Background reading taken on brick wall outside Warehouse.

NR = No Reading
NC = Not calculated
DPM = Disintegrations per minute
CPM = Counts per minute

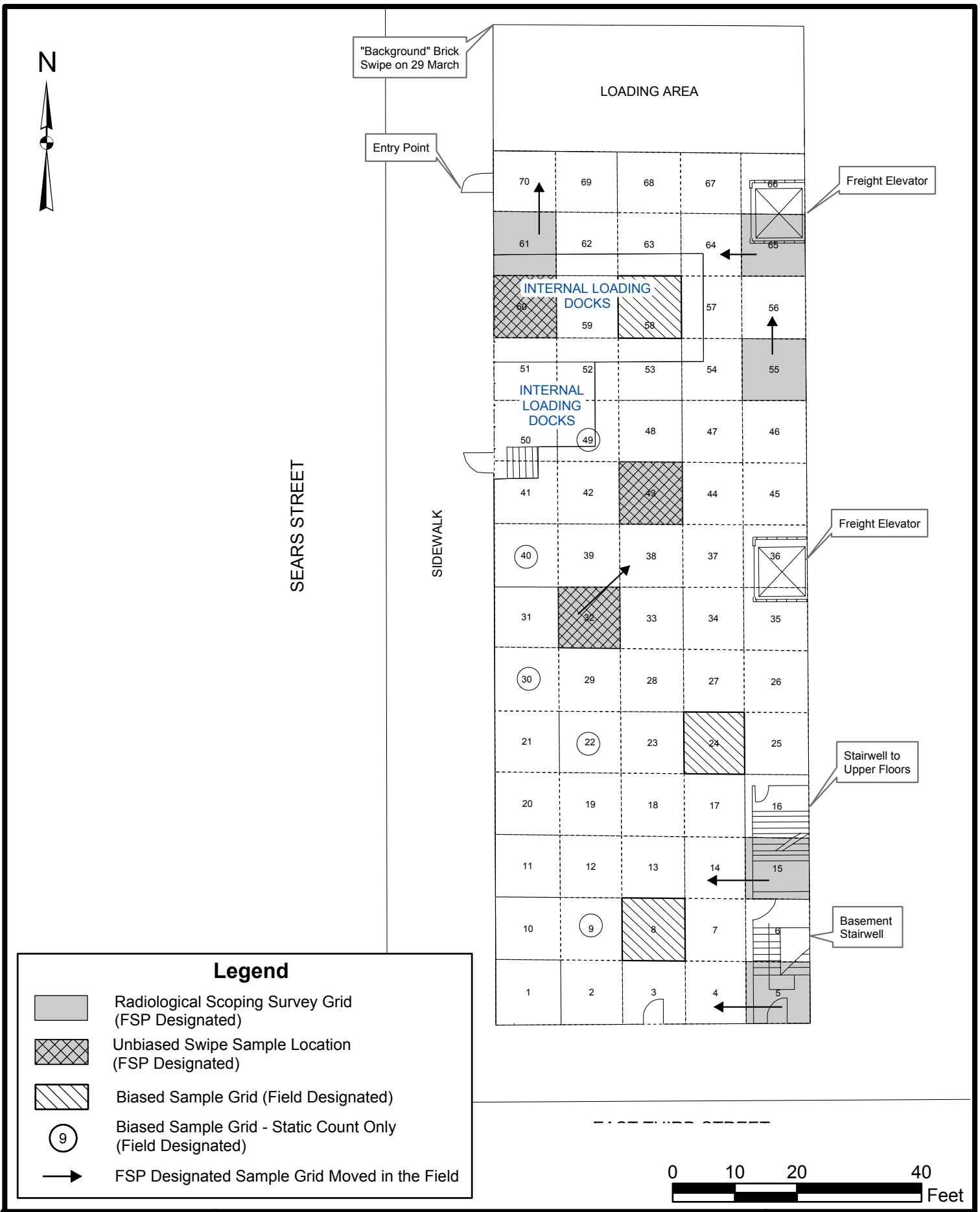
TABLE 3
Daily Souce Check for L-2929 Swipe Counter

Date	Background (1)					Detector Response					Source (2)		Efficiency (3) (cnts/disint)	
	Gross Counts			Counts Per Minute		Gross Counts			Counts Per Minute					
	Count Time (min)	alpha	beta	alpha	beta	Count Time (min)	alpha	beta	alpha	beta	Name	DPM	alpha	beta
3/24/2004	5.0	1	245	0	49.0	0.5	3211	285	6422	570	Th230	19500	0.3293	
	5.0	1	245	0	49.0	0.5	0	544	0	1088	Tc99	7740		0.1342
	5.0	0	230	0	46.0	0.5	3355	241	6710	482	Th230	19500	0.3441	
	5.0	0	230	0	46.0	0.5	0	618	0	1236	Tc99	7740		0.1537
3/25/2004	5.0	3	221	0.6	44.2	0.5	3196	240	6392	480	Th230	19500	0.3278	
	5.0	3	221	0.6	44.2	0.5	1	629	2	1258	Tc99	7740		0.1568
	5.0	4	209	0.8	41.8	0.5	3101	227	6202	454	Th230	19500	0.3180	
	5.0	4	209	0.8	41.8	0.5	2	616	4	1232	Tc99	7740		0.1538
3/26/2004	5.0	2	236	0.4	47.2	0.5	3142	216	6284	432	Th230	19500	0.3222	
	5.0	2	236	0.4	47.2	0.5	0	635	0	1270	Tc99	7740		0.1580
3/27/2004	5.0	1	223	0.2	44.6	0.5	3298	318	6596	636	Th230	19500	0.3382	
	5.0	1	223	0.2	44.6	0.5	0	635	0	1270	Tc99	7740		0.1583
3/28/2004	5.0	1	187	0.2	37.4	0.5	3418	278	6836	556	Th230	19500	0.3506	
	5.0	1	187	0.2	37.4	0.5	0	610	0	1220	Tc99	7740		0.1528
3/29/2004	5.0	0	230	0	46.0	1.0	6474	601	6474	601	Th230	19500	0.3320	
	5.0	0	230	0	46.0	1.0	0	1213	0	1213	Tc99	7740		0.1508
												Average	**0.3328**	
														0.1525

Notes:
1. Background reading in field van during source check.
2. Th-230 is the alpha source; Tc-99 is the beta source.
3. Efficiency = (Detector Response cpm - Background cpm)/Source dpm

DPM = disintegrations per minute
min = minute
cnts/disint = counts per disintegration

SAMPLING GRID LOCATIONS

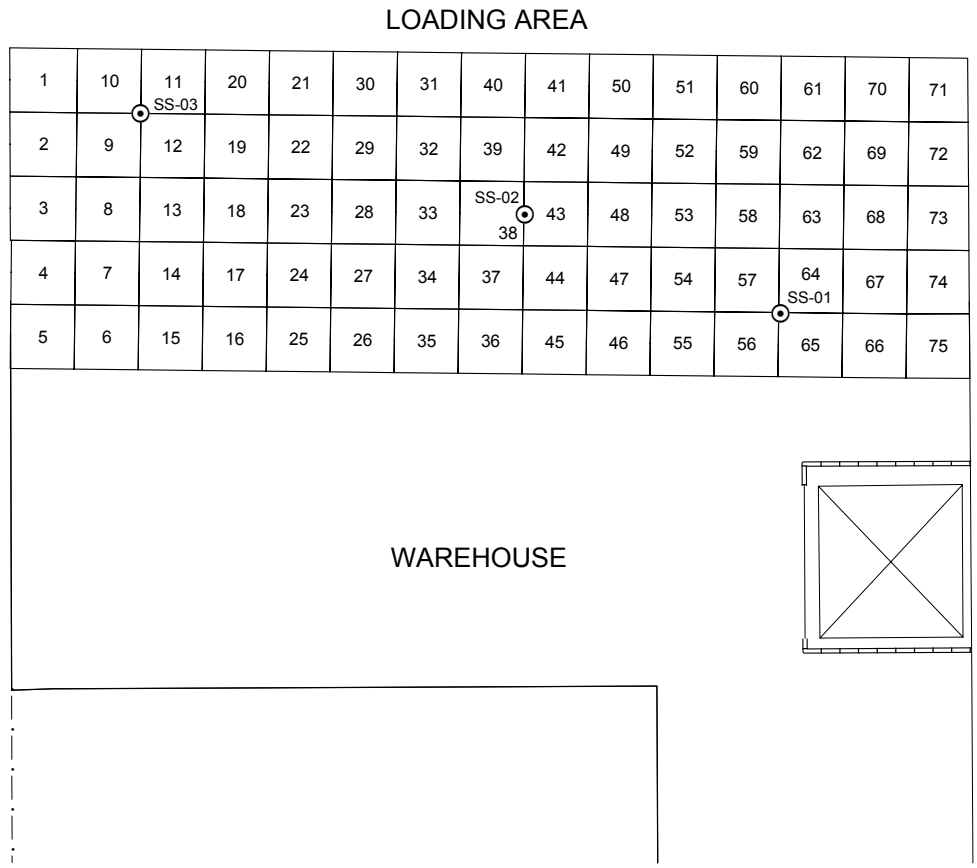


URS

DAYTON WAREHOUSE
SAMPLE LOCATION PLAN - FIRST FLOOR

FIGURE 1

N:\11171425.00000\GIS\ArcMap\firstfloor.mxd Date: 03/07/05 9:10:27 AM



Legend

⊙ Surface Soil Sample

▭ Radiological Scoping Survey Grid

NOTE: Grids 30, 31, 40, 41, 46 and 50 were not counted due to obstructions.

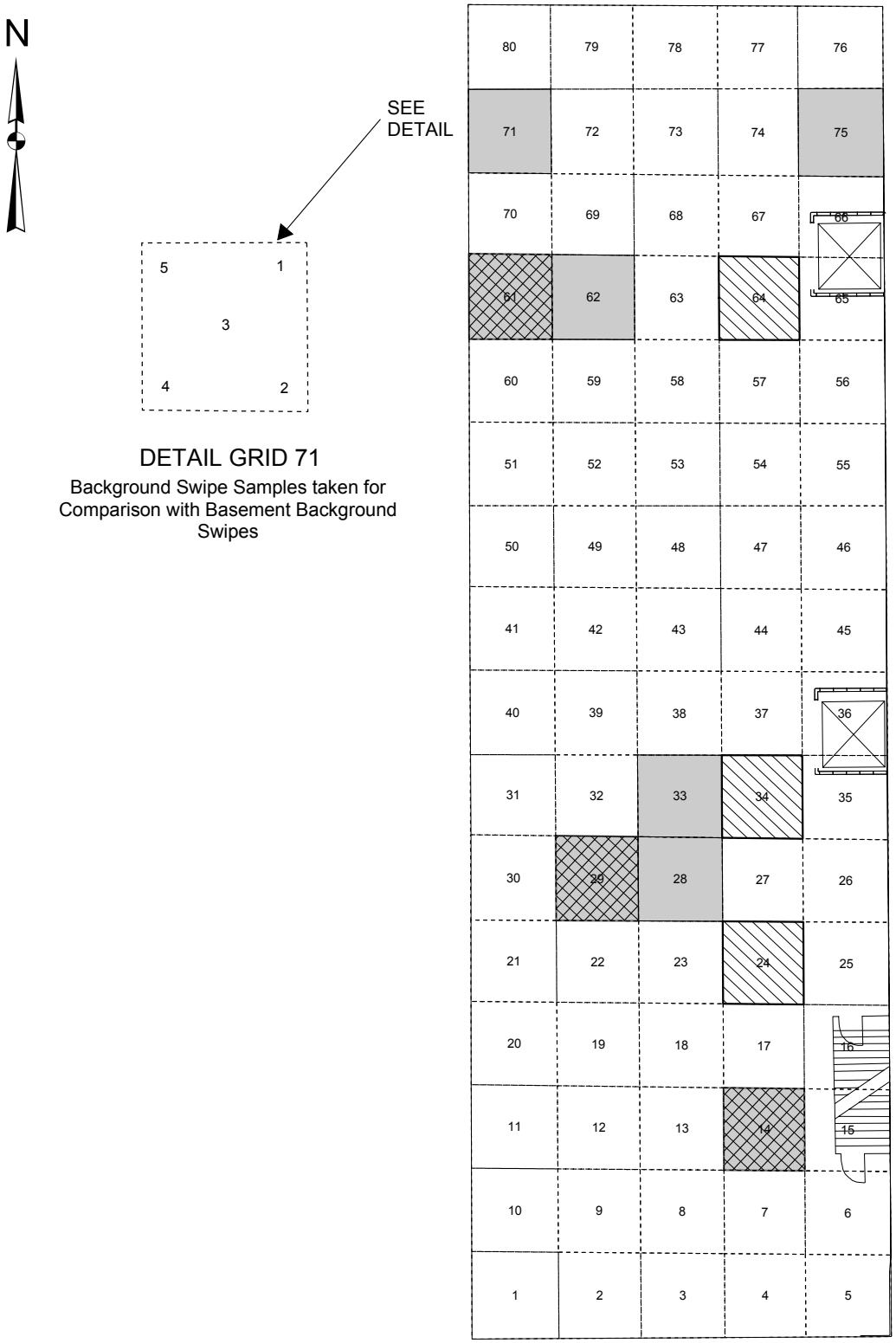
0 5 10 20 Feet

URS

DAYTON WAREHOUSE
SAMPLE LOCATION PLAN - LOADING AREA

FIGURE 2

N:\11171425.00000\GIS\ArcMap\loadingarea.mxd Date: 03/07/05 3:04:36 PM



Legend

- Radiological Scoping Survey Grid (FSP Designated)
- Unbiased Swipe Sample Location (FSP Designated)
- Biased Sample Grid (Field Designated)

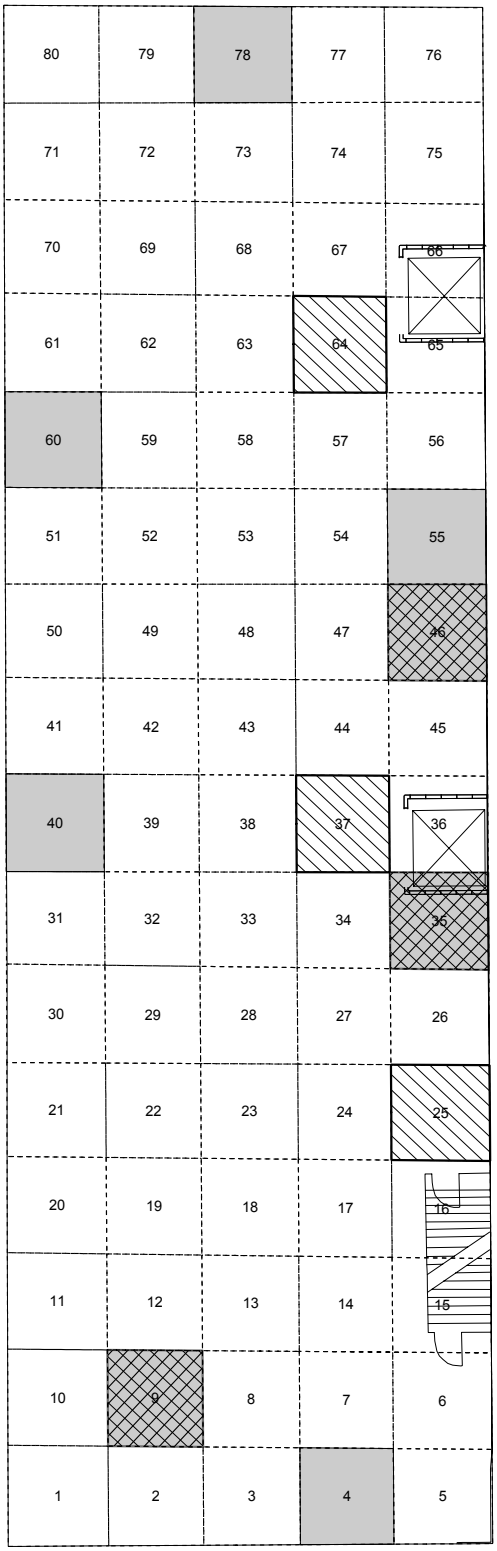
0 10 20 40 Feet

URS

DAYTON WAREHOUSE
SAMPLE LOCATION PLAN - SECOND FLOOR

FIGURE 3

N:\11171425.00000\GIS\ArcMap\secondfloor.mxd Date: 03/07/05 11:26:59 AM



Legend

- Radiological Scoping Survey Grid (FSP Designated)
- Unbiased Swipe Sample Location (FSP Designated)
- Biased Sample Grid (Field Designated)

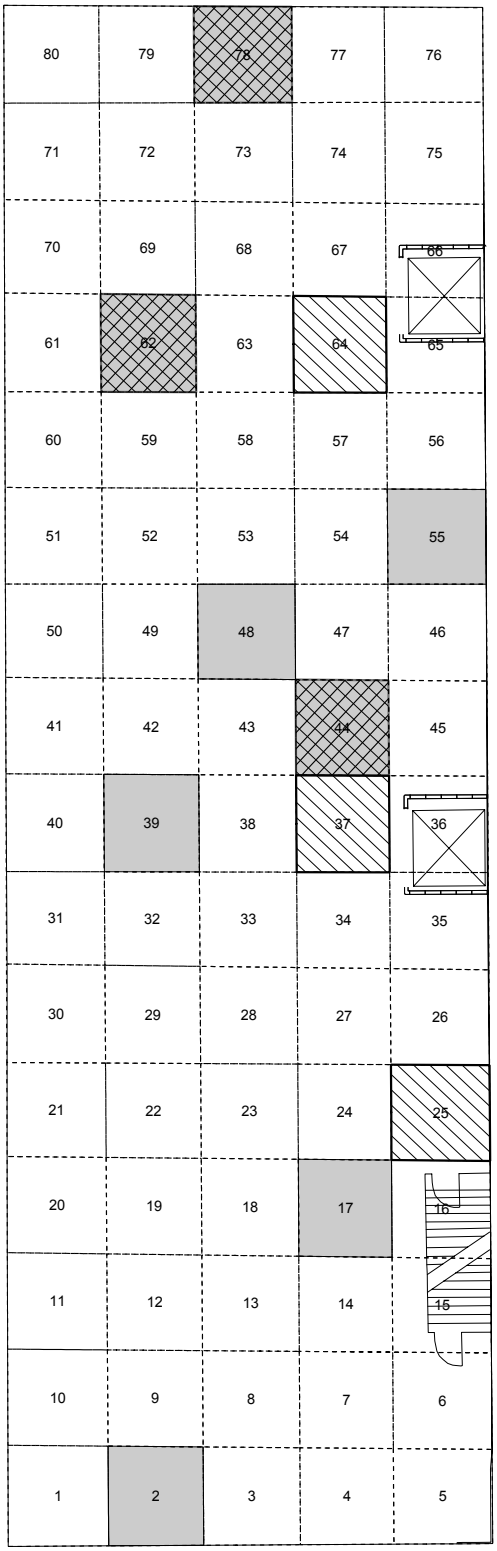
0 10 20 40 Feet

URS

DAYTON WAREHOUSE
SAMPLE LOCATION PLAN - THIRD FLOOR

FIGURE 4

N:\11171425.00000\GIS\ArcMap\thirdfloor.mxd Date: 03/07/05 11:41:27 AM



Legend

- Radiological Scoping Survey Grid (FSP Designated)
- Unbiased Swipe Sample Location (FSP Designated)
- Biased Sample Grid (Field Designated)

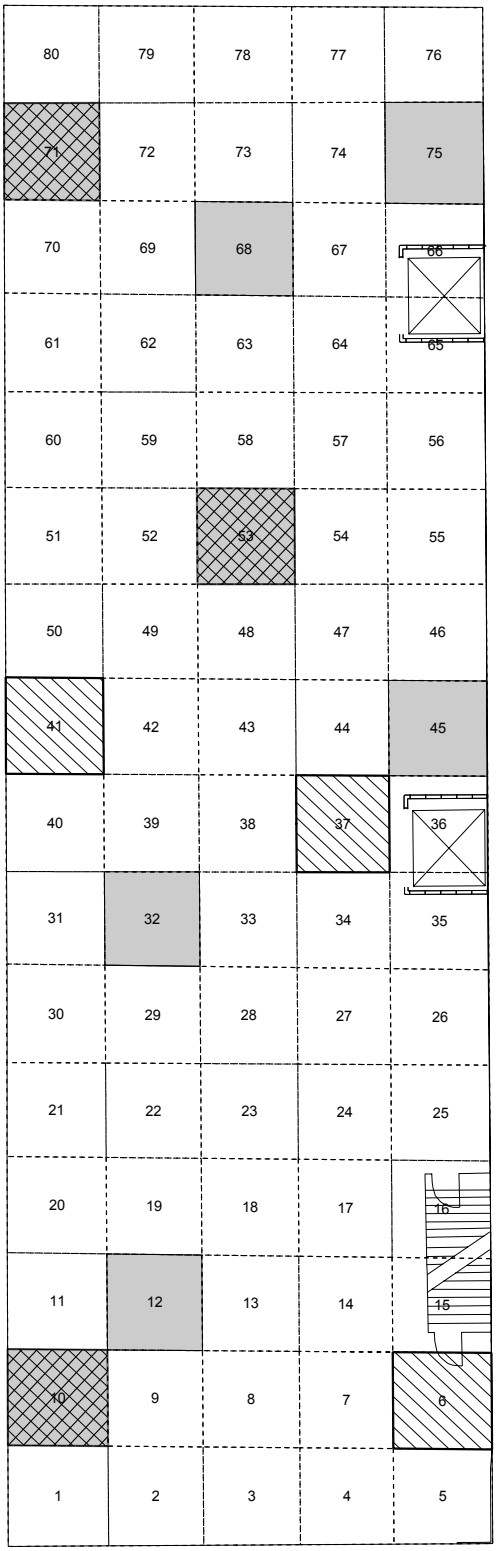
0 10 20 40 Feet

URS

DAYTON WAREHOUSE
SAMPLE LOCATION PLAN - FOURTH FLOOR

FIGURE 5

N:\11171425.00000\GIS\ArcMap\fourthloor.mxd Date: 03/07/05 11:42:58 AM



Legend

- Radiological Scoping Survey Grid (FSP Designated)
- Unbiased Swipe Sample Location (FSP Designated)
- Biased Sample Grid (Field Designated)

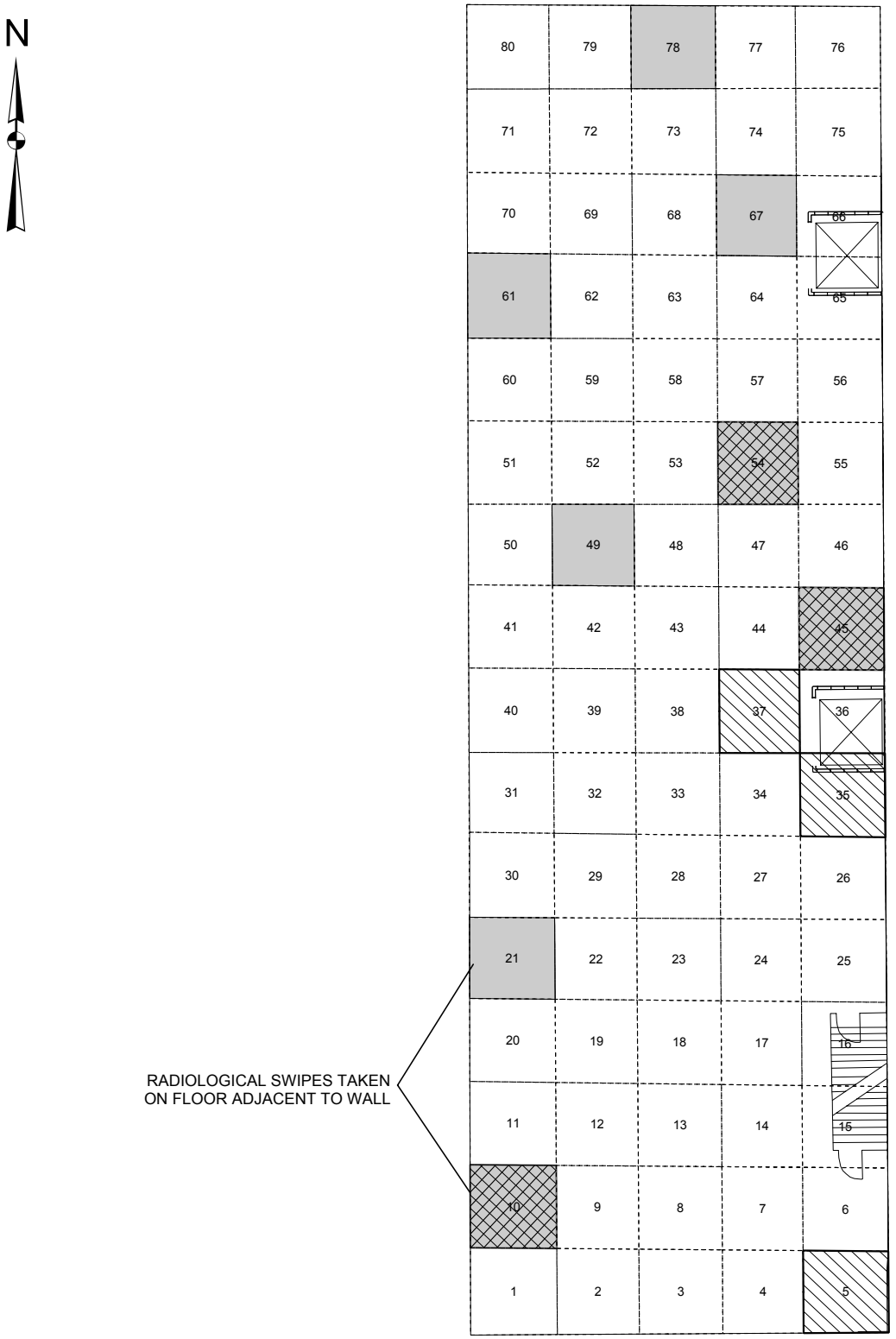
0 10 20 40 Feet

URS

DAYTON WAREHOUSE
SAMPLE LOCATION PLAN - FIFTH FLOOR

FIGURE 6

N:\11171425.00000\GIS\ArcMap\FIFTHloor.mxd Date: 03/07/05 11:44:20 AM



Legend

- Radiological Scoping Survey Grid (FSP Designated)
- Unbiased Swipe Sample Location (FSP Designated)
- Biased Sample Grid (Field Designated)

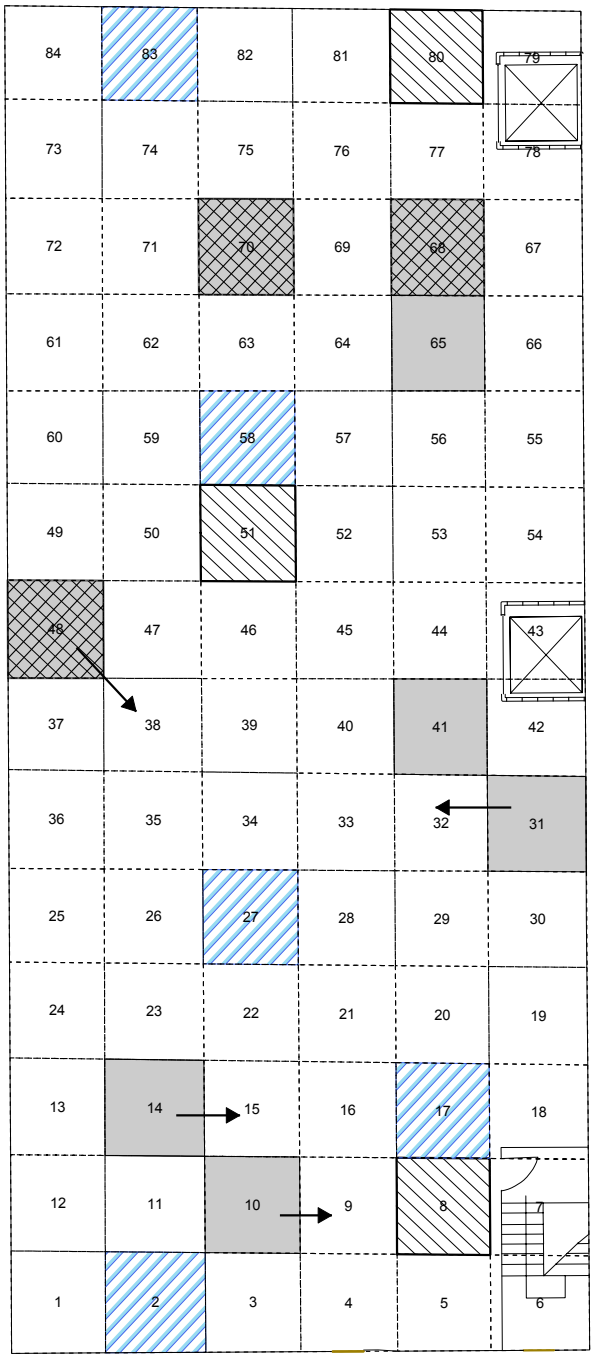
0 10 20 40 Feet

URS

DAYTON WAREHOUSE
SAMPLE LOCATION PLAN - SIXTH FLOOR

FIGURE 7

N:\11171425.00000\GIS\ArcMap\sixthloor.mxd Date: 03/07/05 11:45:56 AM



Legend

- Radiological Scoping Survey Grid (FSP Designated)
- Unbiased Swipe Sample Location (FSP Designated)
- Biased Sample Grid (Field Designated)
- Background Swipe Sample Grid (Field Designated)
- FSP Designated Sample Grid Moved in the Field

0 10 20 40 Feet

URS

DAYTON WAREHOUSE
SAMPLE LOCATION PLAN - BASEMENT

FIGURE 8

N:\11171425.00000\GIS\ArcMap\basement.mxd Date: 03/07/05

DAILY FIELD QUALITY CONTROL REPORTS

URS

282 Delaware Avenue
Buffalo, New York 14202
(716)856-5636

DATE 3/22/2004

DAY	S	M	T	W	TH	F	S
		X					

WEATHER	Bright Sun	Clear	Overcast	Rain	Snow
		X			
TEMP	To 32	32-50	50-70	70-85	85 up
		X			
WIND	Still	Moder	High	Report No.	
		X		1	
HUMIDITY	Dry	Moder	Humid		
	X				

PROJECT MANAGER Don Hunt
PROJECT Dayton UHSE
JOB No.
CONTRACT No.

SUB-CONTRACTORS ON SITE:

None

EQUIPMENT ON SITE:

2 Vans, RAD'L EQUIP,

WORK PERFORMED (INCLUDING SAMPLING):

TRAVEL IN BY ALL URS FROM PGH, SLC, BUF
INST CHECKS

SHEET 1 OF 2

DAILY QUALITY CONTROL REPORT

URSF-003/1 OF 2/DQCREP

PROJECT DAYTON WHSE

JOB No.

REPORT No. 1

DATE 3/22/2004

QUALITY CONTROL ACTIVITIES (INCLUDING FIELD CALIBRATIONS):

NONE

HEALTH AND SAFETY LEVELS AND ACTIVITIES:

DISCUSSION W/ FIELD TEAM NO FIELD WORK

PROBLEMS ENCOUNTERED/CORRECTION ACTION TAKEN:

NONE

SPECIAL NOTES:

NONE

TOMORROW'S EXPECTATIONS:

WHSE ENTRY. CLEAN PASSAGE OF SLIP TRIP HAZ AND BEGIN FIELD INST CHECKOUT - BEGIN TO GET BKGDS. RECEIVE PORTA POTTY AND P-10

BY [signature] TITLE SSHO/RSO

BSDAVIDSON

URSF-003/2 OF 2/DQCREP

p. 2 of 2

URS

282 Delaware Avenue
Buffalo, New York 14202
(716)856-5636

DATE 3/23/2004

DAY	S	M	T	W	TH	F	S
			X				

WEATHER	Bright Sun	Clear	Overcast	Rain	Snow
	X				
TEMP	To 32	32-50	50-70	70-85	85 up
		X			
WIND	Still	Moder	High	Report No.	
		X		2	
HUMIDITY	Dry	Moder	Humid		
	X				

PROJECT MANAGER Don Hunt
PROJECT DAYTON WHSE
JOB No.
CONTRACT No.

SUB-CONTRACTORS ON SITE:

NONE

EQUIPMENT ON SITE:

RAD'L INST: L-2 w/44-9; (2) L-12 w 44-9 and 43-5; 2 L-2360 w/43-68 and Floor Mon; M-19

WORK PERFORMED (INCLUDING SAMPLING):

PERF RESP FIT TEST ON JEFF DAY
RECEIVED Porta Potty + P-10
Purchased few small tools
Cleaned debris + made safe passage through
Began obtaining Bd. Bkgd in L-239 (Floor Mon)
Conducted general inspection and assessed area for biased measurements

SHEET 1 OF 2

DAILY QUALITY CONTROL REPORT

URSF-003/1 OF 2/DQCREP

PROJECT Dayton WHSE

JOB No.

REPORT No. 2

DATE 3/23/04

QUALITY CONTROL ACTIVITIES (INCLUDING FIELD CALIBRATIONS):

Began obtaining building background counts

HEALTH AND SAFETY LEVELS AND ACTIVITIES:

Level D (outside) Level C inside

PROBLEMS ENCOUNTERED/CORRECTION ACTION TAKEN:

Unexpected low counts on floor monitor due to altitude difference between Albuquerque + Dayton corrected with increase HV to Detector

SPECIAL NOTES:

Discussion to USACE on separate vs. combined α + β counting.

TOMORROW'S EXPECTATIONS:

Establish grids in all areas. Establish BKGDS AND BEGIN DATA ACQUISITION

BY [signature] TITLE SSHO/RSO

URSF-003/2 OF 2/DQCREP

URS

282 Delaware Avenue
Buffalo, New York 14202
(716)856-5636

DATE 3/24/2004

DAY	S	M	T	W	TH	F	S
				X			

WEATHER	Bright Sun	Clear	Overcast	Rain	Snow
			X	X	

TEMP	To 32	32-50	50-70	70-85	85 up
		X			

WIND	Still	Moder	High	Report No.
		X		3

HUMIDITY	Dry	Moder	Humid
		X	

PROJECT MANAGER Don Hunt
PROJECT Dayton Warehouse
JOB No.
CONTRACT No.

SUB-CONTRACTORS ON SITE:

None

EQUIPMENT ON SITE:

RAD'L INST.

WORK PERFORMED (INCLUDING SAMPLING):

Performed Background Determination on Floors 2+3 of Warehouse. Cleaned areas and gridded out.
Performed Scan with Floor Monitor and Static Measurements in designated and selected grids.
Obtained 3 Be swipes in each designated location on Floors 2+3. Obtained 11 radiological measurements of removable contamination by swiping locations and counting swipes in radiation detection equipment.
Began systematic survey of fieldstones on first floor

SHEET 1 OF 2

DAILY QUALITY CONTROL REPORT

PROJECT DAYTON WAREHOUSE

JOB No.

REPORT No. 3

DATE 3/24/2004

QUALITY CONTROL ACTIVITIES (INCLUDING FIELD CALIBRATIONS):

Performed Field QC on radiation survey equipment.
Typical - Batt check, Background and source response.

HEALTH AND SAFETY LEVELS AND ACTIVITIES:

Level D - outside
Level C - Inside

PROBLEMS ENCOUNTERED/CORRECTION ACTION TAKEN:

Adjusted HV on L-2360/43-68 for altitude compensation

SPECIAL NOTES:

TOMORROW'S EXPECTATIONS:

Grid, scan, static count + swipes of FL 3+4+5
Count swipes from FL 3. Perform soil sampling by high bay at Loading Dock, Continue survey of fieldstone on 1st Floor.

BY [signature] TITLE SSHO/RSO

B.S. DAVIDSON

URSF-003/2 OF 2/DQCREP

URS

282 Delaware Avenue
Buffalo, New York 14202
(716)856-5636

DATE 3/25/2004

DAY	S	M	T	W	TH	F	S
					X		

WEATHER	Bright Sun	Clear	Overcast	Rain	Snow
		X			
TEMP	To 32	32-50	50-70	70-85	85 up
			X		
WIND	Still	Moder	High	Report No.	
		X		4	
HUMIDITY	Dry	Moder	Humid		
	X				

PROJECT MANAGER Don Hunt
PROJECT Dayton Warehouse
JOB No. 11173509
CONTRACT No. DACW49-01-D-0001

SUB-CONTRACTORS ON SITE:

NONE

EQUIPMENT ON SITE:

RADIOLOGICAL EQUIPMENT

WORK PERFORMED (INCLUDING SAMPLING):

TWO FLOORS OF WAREHOUSE GRIDDED, SCANNED W/ FLOOR MONITOR - STATIC COUNTS TAKEN IN DESIGNATED LOCATIONS AND SWIPE SAMPLES FOR BE AND RAD OBTAINED PER FSP. SURVEYS CONTINUING ON STORES ON FIRST FLOOR AND INITIATED IN LOADING DOCK AREA.

SHEET 1 OF 2

DAILY QUALITY CONTROL REPORT

PROJECT DAYTON WAREHOUSE
JOB No. 11173SDS.

REPORT No. 4
DATE MARCH 25, 2004

QUALITY CONTROL ACTIVITIES (INCLUDING FIELD CALIBRATIONS):

ROUTINE RAD'L EQUIPMENT QC (BATT, INSPECTION) AND SOURCE CHECKS WITH TH-230, TC-99, CS-137 AND BKGD

HEALTH AND SAFETY LEVELS AND ACTIVITIES:

LEVEL D OUTSIDE
LEVEL C INSIDE

PROBLEMS ENCOUNTERED/CORRECTION ACTION TAKEN:

SOME CABLE NOISE NOTED W/ L-2 / 43-5

SPECIAL NOTES:

NONE

TOMORROW'S EXPECTATIONS:

COUNT SWIPES FROM SU-5; COMPLETE SU-6 AND START SU (B) OR (1); CONTINUE SCANNING OF FLAGSTONE + BRICK IN SU1 AND L SCAN IN LOADING DOCK GRID + SCAN LOADING DOCK AND TAKE 0-6" SAMPLES AS PER PLAN

BY David TITLE SSHO/RSO

URSF-003/2 OF 2/DQCREP

URS

282 Delaware Avenue
Buffalo, New York 14202
(716)856-5636

DATE 3/29/2004

DAY	S	M	T	W	TH	F	S
						X	

WEATHER	Bright Sun	Clear	Overcast	Rain	Snow
			X		
TEMP	To 32	32-50	50-70	70-85	85 up
			X		
WIND	Still	Moder	High	Report No.	
		X			
HUMIDITY	Dry	Moder	Humid	5	
		X			

PROJECT MANAGER DON HUNT
PROJECT DAYTON WAREHOUSE
JOB No. 41173509
CONTRACT No. DACW47-01-D-0001

SUB-CONTRACTORS ON SITE:

NONE

EQUIPMENT ON SITE:

RADIOLOGICAL EQUIPMENT (Floor Monitor, 100cm² GP 43-68, hand-held, etc)

WORK PERFORMED (INCLUDING SAMPLING):

Floor 6 (SU6) Gridded, scanned, static counts taken and swipes performed.
Additional 5 swipes in SU2, QR71 and Basement taken and compared (direction from USACE).
Gridded and scanned Loading Dock Area. Three SS taken and sent to lab for analysis. Approx 85% of LD Area completed.

SHEET 1 OF 2

DAILY QUALITY CONTROL REPORT

URSF-003/1 OF 2/DQCREP

PROJECT DAYTON WAREHOUSE

JOB No.

REPORT No. 5

DATE 3/26/2004

QUALITY CONTROL ACTIVITIES (INCLUDING FIELD CALIBRATIONS):

Routine Field Source Checks of Floormonitor and 43-68; Source checks on 2929

HEALTH AND SAFETY LEVELS AND ACTIVITIES:

Level C inside
Level D outside

PROBLEMS ENCOUNTERED/CORRECTION ACTION TAKEN:

Several Punctures of the 43-68 Mylar occurred. Performed change of mylar at Hotel. This prevented completion of Loading Dock Area Scan which will be completed after SU1 and Basement

SPECIAL NOTES:

TOMORROW'S EXPECTATIONS:

Grid and Scan Basement and SU1

BY [signature] TITLE SSHO

URSF-005/2 OF 2/DQCREP

URS

282 Delaware Avenue
Buffalo, New York 14202
(716)856-5636

DATE 3/27/2004

DAY	S	M	T	W	TH	F	S
							X

WEATHER	Bright Sun	Clear	Overcast	Rain	Snow
		X	X		
TEMP	To 32	32-50	50-70	70-85	85 up
			X		
WIND	Still	Moder	High	Report No.	
		X			
HUMIDITY	Dry	Moder	Humid	6	
		X			

PROJECT MANAGER Don Hunt
PROJECT Dayton Warehouse
JOB No. 11173509
CONTRACT No. DACW49-01-D-0001

SUB-CONTRACTORS ON SITE:

NONE

EQUIPMENT ON SITE:

RADIOLOGICAL EQUIPMENT, FID

WORK PERFORMED (INCLUDING SAMPLING):

Completed Basement Scanning, Static Counts + Swipes; Initiated SU-1 and completed ~60% (Seven areas)
OBTAINED RAD + Be Smears from SU-B and counted same day

SHEET 1 OF 2

DAILY QUALITY CONTROL REPORT

URSF-003/1 OF 2/DQCREP

PROJECT 11173509 DAYTON WAREHOUSE

JOB No.

REPORT No. 6

DATE 3/27/2004

QUALITY CONTROL ACTIVITIES (INCLUDING FIELD CALIBRATIONS):

Routine QC on instruments including FID
Background determination SU2 GR77

HEALTH AND SAFETY LEVELS AND ACTIVITIES:

Level C Inside Level D outside

PROBLEMS ENCOUNTERED/CORRECTION ACTION TAKEN:

Many pre-selected Grids on SU 7 had to be changed to reflect conditions. Discussed w/USACE and PM

SPECIAL NOTES:

None

TOMORROW'S EXPECTATIONS:

Complete SU1 and Loading Dock (from Day 5)
Perform QC on Data, Prepare COC for samples, Prepare for mob-out

BY [illegible] TITLE SSHO

URSF-003/2 OF 2/DQCREP

URS

282 Delaware Avenue
Buffalo, New York 14202
(716)856-5636

DATE 3/28/2004

DAY	S	M	T	W	TH	F	S
	X						

WEATHER	Bright Sun	Clear	Overcast	Rain	Snow
		X			

TEMP	To 32	32-50	50-70	70-85	85 up
			X		

WIND	Still	Moder	High	Report No.
	X			7

HUMIDITY	Dry	Moder	Humid
	X		

PROJECT MANAGER DON HUNT
PROJECT DAYTON WAREHOUSE
JOB No. 1113509
CONTRACT No. DACW49-01-D-0001

SUB-CONTRACTORS ON SITE:

NONE

EQUIPMENT ON SITE:

RADIOLOGICAL EQUIPMENT

WORK PERFORMED (INCLUDING SAMPLING):

Complete Grid, scan, static + swipe on SU-1
Four locations remaining completed. Ten areas by loading dock were scanned to complete the survey of that area. All swipes ~~of the~~ obtained (19) were counted. The 19 included 11 that were close approximation of the areas originally selected plus 3-co-located Be swipes (14) and "Additional Biased" (AB) swipes for a total of 19 this day. Photo log and QC will be performed offsite.

SHEET 1 OF 2

DAILY QUALITY CONTROL REPORT

URSF-003/1 OF 2/DQCREP

PROJECT DAYTON WAREHOUSE **REPORT No.** 7
JOB No. 11173509 **DATE** 3/28/2004

QUALITY CONTROL ACTIVITIES (INCLUDING FIELD CALIBRATIONS):

DAILY QC ON RAD'L INSTR.

HEALTH AND SAFETY LEVELS AND ACTIVITIES:

Level C inside
Level D outside

PROBLEMS ENCOUNTERED/CORRECTION ACTION TAKEN:

One numbering error was identified by Tom Urban during peer review of swipes. DW-SUB-SW83-GR51 changed to DW-SUB-SW84-GR51. Corresponding location (GR51) changed in field note book from DW-SUB-SW81-GR51 to DW-SUB-SW84-GR51.
One additional sample was changed from SW83 to SW84 (the SW83 was recorded twice. Static and "additional biased" were renumbered to reflect changes as well.

SPECIAL NOTES:

Two static locations were identified that exceeded the Pb-210 criteria SU6 GR 10 and 21 so additional Be and radiol swipes will be taken tomorrow.

TOMORROW'S EXPECTATIONS:

~~Re-Mob~~ Enter and ~~opt~~ obtain swipes at SU6 GR 10 + 21 to reflect the plan requirements. Rad/Bu readings will be taken at SU2 GR71 and SU6. Static and swipes will be taken on brick inside wall at SU6-GR10 to 21 and on outside wall at street level.

BY [signature] **TITLE** SSHO

URSF-003/2 OF 2/DQCREP

URS

282 Delaware Avenue
Buffalo, New York 14202
(716) 856-5636

DATE 3/29/2004

DAY	S	M	T	W	TH	F	S

WEATHER	Bright Sun	Clear	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70	70-85	85 up
WIND	Still	Moder	High	Report No.	
HUMIDITY	Dry	Moder	Humid	8	

PROJECT MANAGER Don Hunt
PROJECT Dayton Warehouse
JOB No. 11173409
CONTRACT No. DACY9W-01-D-0007

SUB-CONTRACTORS ON SITE:

None

EQUIPMENT ON SITE:

μR meter and L-2360 w/ 43-68, L-2929

WORK PERFORMED (INCLUDING SAMPLING):

Entry by URS and USACE to perform background gamma radiation level at DW-SU2-GR71 gamma radiation level @ DW-SU6-GR10 and DW-SU6-GR21 Radiological (Ra-226 and Pb-210) swipes at DW-SU6GR10 and DW-SU6-GR21 as well as Be for DW-SU6-GR21 The brick walls were static counted at 1m above these locations and on an outside brick wall surface. Swipes taken as well in these three locations
P-10 gas returned. Porta-Potty scheduled for pickup tomorrow
Building secured

SHEET____ OF____

DAILY QUALITY CONTROL REPORT

PROJECT Dayton Warehouse **REPORT No.** 8

JOB No. 11173509 **DATE** 3/29/2004

QUALITY CONTROL ACTIVITIES (INCLUDING FIELD CALIBRATIONS):

QC on L-2429 and L-2360 with 43-68 probe and M-19 pit meter

HEALTH AND SAFETY LEVELS AND ACTIVITIES:

level C inside bldg
level D outside

PROBLEMS ENCOUNTERED/CORRECTION ACTION TAKEN:

none

SPECIAL NOTES:

TOMORROW'S EXPECTATIONS:

Review data and forward to PM. Return equipment and begin writing sections of report.

BY B David **TITLE** SSHO

URSF-003/2 OF 2/DQCREP

FIELD SUPERVISOR'S LOG BOOK PAGES

LABORATORY NOTEBOOK

Notebook No.: 1

Assigned to: DAVIDSON

Date: 22 MARCH 2004

Use Nalge Cat. No.
6301-1000
to reorder.

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Printed on recycled paper

PRINTED WITH SOY INK

PROJECT Dayton WAREHOUSE SITE INV

Notebook No. 1

Continued From Page

- TRAVEL TO DAYTON OH - WAREHOUSE 3/22/2004
- MEET AT WAREHOUSE APPROX 1400
- CONTACTED CITY REP AND RECEIVE PERMISSION TO ENTER
- ARRANGE FOR ACCESS TO NEANSY BD. TO PERFORM BKGD CHECKS
- EQUIPMENT CHECKS PERFORMED
- RECEIVED CALL FROM USACE RE: ARRIVAL ONSITE BONSQUET 1100 ON 23 MARCH 2004 END DP
- PERSONNEL DAVIDSON, DAY, MURPHY, URBAN
- WEATHER CLEAR COLD LEVEL D NO EQ IN USE / NO SURVEY OR SAMPLING

NFF
BSDAVIDSON

Continued on Page

Read and Understood By

Signed | Date | Signed | Date

3/23/2004
ONSITE AT 0700
PERFORM SAFETY BRIEFING AND
RECEIVE PORTA POTTY. CALL TO WEILER (P-10)
P/U TBD. INITIAL ENTRY DAY, MURPHY, URBAN
LEVEL C AT 0840 TO SECURE CLEAR
TRAVEL PATH INTO ANGAS. RECEIVED
UPS PACKAGE + PICKED UP P-10

PERFORM SOURCE CHECKS ON
SURVEY INST.
L-2 w/44-5 018109 BKG 20 TC 800
L-12 w/44-5 125264 BKG 20 TC 700
L-12 w/43-1 105723 BKG
NOTE LIGHT SENSITIVITY FOR L-12/43-5
PERSONNEL - UPS DAVIDSON, DAY, MURPHY, URBAN
USACE - ROUSQUET
OEPA VISITOR BILL LOHNER
WEATHER CLEAR COLD AM/COOL PM
TWO ENTRIES, SECOND IN PM TO GRID
F-2 AND INITIATE BKGD.
USED M-19 (SOURCE CHECK 120 μR/h w G-132)
AND L-239-1 (FLOOR MONITOR)
NOTE LOW COUNT ON L-239-1 - CALLED ERG
NEED TO INCREASE HV DUE TO ALTITUDE
NO SAMPLES TAKEN. MURPHY TOOK PICTURES OUTSIDE.

NFE

Continued on Page

Read and Understood By

Signed Date Signed Date

~~3/23/2004~~ 3/24/2004
ONSITE AT 0715
PERFORM SAFETY BRIEFING AND ~~SAFETY BRIEF~~
SOURCE CHECK 239-1 Sr90 2126-96 Th-230 19,500 DPM
5-1746 2360 1819 cdd 3-12-05 α: 1956 β: 2155 (#21)
~~Co-137~~ Tc-99 (#22) 7740 dpm 6-15-89 α: 9 β: 2068
cdd M-19 182652 BKG 1.2 mR/h w. Co-137 5125-03 5.46 μR
12-22-04 2.00 μR/h w 1076/89 Co-137 So.
Tc-99 L-12 w/44-9 cdd 3-12-05 PR112210/125264 BKG 40/600
L-2 w/44-9 cdd 8-27-04 018109 BKG 20/300
Th-230 L-12 w/43-5 cdd 105723 3/15/05 BKG 2/2200
L-2360 w/43-68 177166 cdd 3/12/05 - will need new HV Adj. as other
Personnel onsite: URS Davidson, Murphy, Day, Urban; USACE Bousquet
Expecting media today USACE will speak to them. Weather is cloudy some rain + mild cool. No apparent wind @ ground level though some intermittent breeze.

Discussion w/ USACE + team re α, β, α + β counting in scan mode - The α + β mode display will be dominated by β. α is audibly distinguishable from beta. So you can do both concurrently. To perform BKG - a timed count in a 100 ft² area will establish BKG. This will be reported as sequence # in 2360 α, β. This will be downloaded to computer. USACE OK with that.

Also need to perform survey of fieldstones -
2360/43-68 HV Adjusted to BKGD - 0/249 Tc-99 on 3/1505
Label on 2360 is loose (blue)
Setup L-2929 w/ 43-10-1 to perform field and
5' BKG 1/245 0.5' Source 3211/285 E = 2 * 3211/19500
0.5' down 0/544 E = 2 * 544/
~~SAMPLES FROM 2ND FLOOR TAKEN BY BS DAVIDSON~~
~~@ Approx 1100 - 1200~~
Contact @ 1400 on 83 MANDOOY
DW-SU2-SW03-GR28 1/217 5' count α/β
DW-SU2-SW05-GR24 1/213 5' count α/β
DW-SU2-SW01-GR14 1/235 5' count α/β

Continued on Page

Read and Understood By

Signed Date Signed Date

~~3/23/2004~~	DW-SU2-SW04-GR29	1/202	5'	Count α/β
3/24/2004	DW-SU2-SW-11-GR61	0/214	5'	Count α/β
	DW-SU2-SW6-GR34	2/186	5'	Count α/β
	DW-SU2-SW-13-GR33	1/256	5'	Count α/β
	DW-SU2-SW-09-GR75	6/204	5'	Count α/β
	DW-SU2-SW08-GR71	1/210	5'	Count α/β
	DW-SU2-SW12-GR62	3/227	5'	Count α/β
	DW-SU2-SW07-GR64	3/215	5'	Count α/β
	BKG 0/230 5' α/β			
	0.5 m Th 230 3355/241	α/β		
	0.5 m Tc 99 0/618	α/β		

Purpose of sample activity to assess ratio of removable to total contamination of rad also Be sample were taken per FSP.
Weather conditions - overcast in AM Mixed sun in PM WINDY. ALL SAMPLES WERE SURFACE SWIPES
11 RAD AND 3 Be sample taken per FSP.
Anal. Be is per plan
NO preservation used
Field measurements + calibration - Checks were conducted on Floor monitor to determine operability. Area chosen was at center of grids because no elevated act. noted.
No conditions noted to impact on sample
No observations / remarks. Some locations pre-selected were split into two halves by a wall. Samples will be sent to GEL by FEDEX on completion of all Be smears.

~~SAMPLE~~ - PHOTOGRAPHS:
LATE ENTRY:
1 T. URBAN + J. DAY ENTRY
2 PILES OF DEBRIS
3 BD EXTERIOR FACING SOUTH
4 BD EXTERIOR FACING SOUTH EAST
5 BD EXTERIOR FACING NORTHEAST
6 REAR LOADING DOCK AREA FACING EAST

Continued on Page

Read and Understood By

Signed Date Signed Date

PROJECT DAYTON WHSE

SAMPLE PHOTOGRAPHS

7 TEMPLATE @ GRID 61, 2ND FL.
8 S DAVIDSON COLLECTING SAMPLE @ GRID 61
9 TEMPLATE @ GRID 29, 2ND FL
10 TEMPLATE @ GRID 14, 2ND FL
13 J. DAY USING FLOOR MONITOR @ GRID 08, 3rd FL
14 TEMPLATE @ GRID 46, 3rd FL
15 J. DAY COLLECTING SMEAR @ GRID 46, 3rd FL
16 TEMPLATE @ GRID 35, 3rd FL
17 TEMPLATE @ GRID 09, 3rd FL

OTHER PHOTOGRAPHS:

11 PIDGEON NEST/EGGS IN SINK 3rd FL
12 PIDGEON NEST/DEBRIS IN TOILET, 3rd FL

NFR

Continued on Page

Read and Understood By

Signed _____ Date _____ Signed _____ Date _____

PROJECT DAYTON WRSE

Notebook No. 1

Continued From Page —

AOS 0700 3/25/2004
Source Checks on INST.

Jeff D.

DATE	Meter	Serial	Detector	Serial	Cal Due	Batt (✓)	Response	Source (cpm)	Bkg
3/25	2360	184933	43-37	117138	3/12/05	OK	Tc99	~~2788~~ 1996 ~~1943~~ /D	53 0/3
3/25	"	"	"	"	"	"	Th230	2788	2 α
3/25	12	125264	44-9	112210	3/12/05	OK	Tc99	900	40
3/25	2	40811	HP-260		8/27/04	OK	Tc99	900	50
3/25	12	105723	43-5	145047	3/15/05	OK	Th230	2000	20
3/25	19	182652	N/A	N/A	12/22/04	OK	Cs137 μg	1000 R/hr	7 R/hr

(ERG)	(URS-DOE West 1669)	(ERG)
230Th	Tc-99	Cs137 (Nist)
19500 dpm	7740 dpm	5.46 μCi
5-17-96	6-15-89	8-7-03
2/26-96	#1077/89	# 5/25-03
DNS-11		

								Source	BKG	
3/25	2360/43-68	177166	/ 148119	3/12/05	OK	Tc99	29/1295	3/239	2/13

PERFORMED THE SAFETY BRIEFING AND TODAY'S GOALS
PERSONNEL ONSITE URS - DAVIDSON, DAY, MURPHY, URBAN
USACE - BOUSQUET
WEATHER CLEAR COOL, SOME BREEZE
INITIAL ENTRY TO GRID, TAKE BKG. AND BEGIN SCANS ON F4 AND F5
DAVIDSON PERFORMS QC ON 2929

BKG (α/β)	5' COUNT	3/221
Th-230	0.5' COUNT	3196/240
Tc-99	0.5' COUNT	1/629
DW-SU3-SW26-GR64		2/213 2/18
DW-SU3-SW27-GR37		~~2/185~~ 4/212
DW-SU3-SW28-GR25		3/203
DW-SU3-SW15-GR04		3/241
DW-SU3-SW16-GR09		2/209
DW-SU3-SW19-GR35		0/198
DW-SU3-SW20-GR40		1/211
DW-SU3-SW-21-GR46		3/235

Continued on Page 7

Read and Understood By

Signed Date Signed Date

DW-SU3-SW23-GR55 5/205
DW-SU3-SW24-GR60 2/183
DW-SU3-SW25-GR78 2/205
BKG LOCATION DW-SU2-GR71
NOTE DISCUSSION W/ PM AND RT CHEMIST RE
USE OF GLASS JARS FOR BE AND RAD SWIPES (FILTERS)
PER CHEMIST OK TO USE ZIP LOCK BAGS

SU4 Samples:

DW-SU4-SW42-GR64	1/211	2/5	BKG 4/209
SW39-GR2	2/208		0.5 min Th-230 3/01/227
SW41-GR37	1/237		0.5 min Tc-99 2/616
SW40-GR25	0/211		
SW38-GR17	1/225		
SW37-GR39	2/182		
SW36-GR44	1/208		
SW34-GR48	1/196		
SW33-GR56	1/213		
SW32-GR62	1/187		
SW30-GR78	2/214		

Gamma Walkover in Loading Dock Area w/ M-19 182652 cdd 22 DEC 04
1330 G/A 12μR/hr except in area w/ stone ~ 8μR/hr to 16μR/hr on
MRS. surface of brick at ~8' el. 16μR < 2x Brick BKGD @ 12μR/hr
Outside BKG over Brick 12-13μR/hr no brick 6-7μR/hr

Beta Scan in Loading Dock Area w/ L-12/44-9 - RDF of
all accessible locations including Loading Dock Wall About to ground
no elevated areas detected BKG 30 dpm

Beta scan in FLOOR 1 of WAREHOUSE ON BACK AND
STORE ITEMS USING L-12/44-9 no elevated areas identified

Gave copies of QAR to USACE (Steve Bousquet)

Field Team completed FLOOR 5 of WAREHOUSE No
elevated areas found.

Continued on Page 8

Read and Understood By

Signed Date Signed Date

PROJECT DAYTON WAREHOUSE

Notebook No. 1

Continued From Page 7

Received fourteen supers from Field Team. These will be counted 26 MARCH 2004.
PHOTO LOG WILL BE ENTERED 26 MARCH AS CAMERA WAS LEFT ONSITE. SAMPLE PHOTOGRAPHS IN

NFE

3/25/2004

Continued on Page

Read and Understood By

Signed | Date | Signed | Date

3-26-2004

AOS 0700 #79 timed 1 min α/β source check w Th-230
2955/2102
#80 BKGD
4/960
#81 Tc-99
10/1697
#27
4/228
#28 4654/1225 Th-230
#29 35/1248 Tc-99

Floor Monitor

43-68

L-2429 5' BKGD 2/236
0.5' Th230 3/42/216
0.5' Tc 99 0/635

DW-SU5-SW53-GR75 6/227
DW-SU5-SW51-GR71 0/214
DW-SU5-SW50-GR68 0/212
DW-SU5-SW47-GR45 0/234
DW-SU5-SW46-GR32 1/212
DW-SU5-SW45-GR12 2/173
DW-SU5-SW43-GR10 1/198
DW-SU5-SW56-GR06 0/244
DW-SU5-SW55-GR37 2/212
DW-SU5-SW48-GR53 1/250
DW-SU5-SW54-GR41 0/191

PERSONNEL ONSITE UNS: DAVIDSON, DAY, MURPHY, URBAN
USACE: BOUSQUET + GRAHAM

RECEIVED DIRECTION FROM USACE @ 1000
TAKE 5 WIPES IN SU2 GR71 COUNT 5' α/β
TAKE 5 WIPES IN BASEMENT (NOTE WHERE) COUNT LIKEWISE
COUNT ONE BLANK BY 1500 —

Continued on Page 10

Read and Understood By

Signed Date Signed Date

BLANK	1/201	5' Count	α/β	0.2	40.2			
SU-2 GR71-1	2/221			0.4	44.2	0.2	4.0	
SU2-GR71-2	1/230			0.2	46.0	0.0	6.0	
SU2-GR71-3	2/231			0.4	46.1	0.2	5.9	
SU2-GR71-4	3/197			0.6	39.4	0.4	-0.8	
SU2-GR71-5	2/230			0.4	46.0	0.2	5.8	
SUB -	1	0/201		0.0	40.2	-0.2	0.0	
SUB	2	1/218		0.2	43.6	0.0	3.4	
SUB	3	0/221		0.0	44.2	-0.2	4.0	
SUB	4	3/213		0.6	42.6	0.4	2.4	
SUB	5	1/206		0.2	41.2	0.0	1.0	

0.5 mm α eff 3142/19500 .161 .32
β eff 635/7740 .082 .16 highest α 0.4 cpm/.32 1.25
β 6.0 cpm/.16 = 36.5

α 1.25 dpm/100 cm²
β 36.5 dpm/100 cm²

DW-SU6-SW67-GR78 2/251
DW-SU6-SW66-GR67 2/201
DW-SU6-SW65-GR61 0/198
DW-SU6-SW63-GR54 0/220
DW-SU6-SW62-~~GR49~~ 1/191 GR49 (T.U. 3/28)
DW-SU6-SW60-GR45 0/225
DW-SU6-SW59-GR21 0/194
DW-SU6-SW69-GR35 2/210
DW-SU6-SW70-GR37 1/200
DW-SU6-SW68-GR05 2/199
DW-SU6-SW57-GR10 1/184

LOADING DOCK — J. DAY AND T. URBAN PERFORM 100% SCAN OF AREA O/S ROLL-UP DOOR ON N. SIDE. THREE SS TAKEN BY R. MURPHY. DETAILS OF SURVEY IN OTHER FIELD LOG BOOK

NFE

Continued on Page

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Daily Source Check

Date	Mtr	Serial #	Detector	Serial #	Cal Due	Batt ✓	Source	Reponse α/β	Bkg α/β
3-27	2360	184933	43-37	117138	3/12/05	✓	Tc99	2/1978	2/852
3-27	"	"	"	"	"	"	Th230	2444/1776	"
3-27	2360	177166	43-68	148119	3/12/05	✓	Tc99	26/1305	4/261
3-27	"	"	"	"	"	"	Th230	4461/1181	"

AOS 0700 URS DAVIDSON, DAY, MURPHY, URBAN
USACE GRAHAM

POC's on instruments as above. Also MURPHY PERFORMS FC ON FID FOR BASEMENT ENTRY. TEAM TO GRID, SCAN, STATIC + SWIPE SUB + SU1
PERFORMED BKGD IN SU2 GR71
~~1-2909 BKGD~~ 5
1-2925 BKGD 1/223 5'
Th-230 329 8/318 0.15'
Tc-99 ~~635/10 TS~~ 0/635

PURPOSE OF TODAY'S ACTIVITY TO COMPLETE SU-2
TO ASSESS RADIOLOGICAL POTENTIAL OF WAREHOUSE

FID USED TO ASSESS SEWER/METHANE GAS IN BASEMENT
NO CONCERNS REPORTED FOXBORO TVR-1000 CAL NEXT USE

DW SU-B-SW 83-GR08	0/181
DW-SU-B-SW 82-GR 80	1/195
~~DW-SU-B-SW 81-GR51~~	1/200
DW-SU-B-SW 81-GR09	1/200
DW-SU-B-SW 72-GR15	2/212
DW-SU-B-SW 79-GR70	0/176
DW-SU-B-SW 75-GR38	3/204
DW-SU-B-SW 81-GR32	2/198
DW-SU-B-SW 73-GR41	0/202
DW-SU-B-SW 76-GR65	0/190
DW-SU-B-SW 77-GR68	4/188

NOTE LOC. CHANGES

⇒ DW-SU-B-SW ~~82~~ 84 - GR51

T.O. 3/26/04

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PROJECT DAYTON WAREHOUSE

Notebook No.

Continued From Page 11

BOUGHT HYDRAULIC FLUID TO ATTEMPT REPAIR OF FLOOR PALLET JACK BUT JACK DID NOT WORK.
ADVISED DON HUNT THAT ACCESSIBLE AREAS DID NOT CORRESPOND TO RANDOMLY SELECTED AREAS
COMPLETED 60% OF FIRST FLOOR. LOCATIONS SELECTED BASED ON ACCESSIBILITY - LARGE STONES AND CLAY ROOF TILES WERE ALONG WEST SIDE OF BUILDING - NOT REMOVABLE
9 H AREAS CLEANED AND 2 PROTECTED TO BE CLEANED FOR SCANNING IN CENTER + EAST SIDE OF BUILDING AND SIDE AND REAR LOADING DOCKS - WILL TAKE STATIC READINGS IF NOT ABLE TO DO COMPLETE 100% AREAS

NFE
RS

Continued on Page

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3/28/04 AQS 0650

Daily Source Check

Date	Meter	Serial #	Detector	Serial #	Cal due	Bat ✓	Source	Response α/β	Bkg α/β
3/28/04	2360	184933	43-37	117138	3/12/05	✓	Tc99	7/2089	6/951
3/28/04	2360	"	"	"	"	"	Th230	2848/2077	"
3/28/04	2360	177166	43-68	148119	3/12/05	✓	Tc99	39/1275	0/262
3/28/04	2360	"	"	"	"	"	Th230	4846/1195	"

PERSONNEL ONSITE MS DAVIDSON, DAY, MURPHY, URBAN, WALK GRAHAM

PERFORMED QC ON INST. AND INITIATED ENTRY TO SU1

DAY PERFORMED BKGD ON SU2 GR71

DAVIDSON TOOK SWIPES IN SEVEN GR LOCATIONS TO FINE UP THESE AREAS FOR REMAINING CLEANING, SCANNING AND STATIC COUNTS + SWIPES

C-2929 OPEN 50 min 1/187

Th-230 α 0.5 min 3418/278

Tc-99 β 0.5 min 0/610

SWIPE COUNTING

DW-SU1-SW94-GR70 1/232

DW-SU1-SW95-GR52 2/216

DW-SU1-SW92-GR60 2/206

DW-SU1-SW87-GR38 0/198

DW-SU1-SW96-GR24 1/175 (BIASED #1)

DW-SU1-SW86-GR14 1/185

DW-SU1-SW85-~~GR5~~ 4 0/195 NOTIFIED BY MURPHY THAT

DW-SU1-SW97-GR08 1/198 ACTUALLY GR5 IS GR4 0900

DW-SU1-SW98-GR58 0/207

DW-SU1-SW89-GR43 1/208

DW-SU1-SW91-GR64 0/194

PREPARE 5 ADDITIONAL BIASED SWIPES FOR SU1

GRIDS APPROX.

DW-SU1-SW99-~~AB1-64~~ GR40 0/211 (AB1) SW99

DW-SU1-SW100-GR 44 (AB2) 0/211 SW100

DW-SU1-SW101-GR 30 (AB3) 0/203 SW101

DW-SU1-SW102-GR 22 (AB4) 1/239 SW102

DW-SU1-SW103-GR 09 (AB5) 1/206 SW103

Charged on 3/29 F.O.

Continued on Page

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0930 I-DAY REPORTS ALL SCANS COMPLETE JW/
PERFORMING STATIC/SWIPES IN 5 ADD'L RANDOM
AREAS TO BE DETERMINED BY UNS/USACE
APPROX LOCATIONS RECORDED IN 2ND LOGBOOK
1010 TEAM EXITS DW
DISCUSSED STATUS W/PM AND GOT OK TO PUT
CAUTION TAPE UP ALONG TRAVEL PATH
- WILL NEED TO ASSIGN PROPER SAMPLE NOS.
TO TWO - 5 SAMPLE SETS IN BUILDING AND SUB
DW CLOSED 1200
NFE [signature] 3/28/2004

Monday 3/29/04

Last Minute Swipes and µR readings will be taken.

Date	Meter Serial	Probe Serial	Cal Due	Bgd	Source	Response	Bkg
3/29	19	182652	N/A	N/A	12/22/04	✓	CS137	1100 µR/hr	8 µR/hr
3/29	23600	177166	43-68	148119	3/12/05	✓	TC99	6B/1140	7/231
	"	"	"	"	"	"	Th230	4838/1033	7/231

Outside Brick Wall 5min STATIC 37/964 d/B 12 µR/hr 2min @ 109/2513 - 5min Log #161 43-68 probe Model 12 } Reading near Blue graffiti wall.

Smear Taken DW-SWXX-SW121-GRXX

0700 Arrived on site. Had safety Briefing and discussed what will take place in Building.
0745 Made entry in Building wearing Level C. (Scott Dawson, Mark G., Tom U., Rob M.) Performing swipes, STATIC Readings, and µR/hr Readings. Readings will be taken on SW2-10, SW2-21, and SW2-71.

							Source	Response		Bkg	
3/29	2929	137620	43-10-1	203054	✓		TC99	0/1243	1min	0/230	5min
	"	"	"	"			Th230	6474/601		0/230	

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3-29-2004

		α	β	
DW-SUXX-SW121-GRXX	outside Brick	1	222	5min
DW-SU6-SW119-Wall21	Brick wall	3	235	5min
DW-SU6-SW120-Wall10	" "	3	216	5min

During the entry the microR readings were taken at SU2-GR31 (approx 11μR/hr) and at the two locations which exceeded the criteria (14μR/hr)

Swipes for offsite analysis were taken by DAVIDSON AND were given to MURPHY FOR INCLUSION WITH OTHER (ANOTHER BC) SAMPLES. SEE COC for DETAILS.

PHOTOS WERE TAKEN DURING PERFORMANCE OF THE SURVEY INCLUDING SWIPES. THESE ARE RECORDED IN PHOTO LOG.

FOLLOWING THE EGRESS FROM DW THE CITY (WILLIAMS @ 937-333-3916) WAS ADVISED THAT WE WERE DONE AND THAT FOUR (4) PROPANE CYLINDERS WERE PLACED ADJACENT TO THE NW ENTRANCE FOR REMOVAL.

PORTA KLEEN NOTIFIED TO REMOVE PORTA POTTY.

P-10 CYLINDER USED IN SURVEY CHANGED TO CAPACITY AND LEASED P-10 CYLINDER RETURNED TO WEILER WELDING.

ALL MATERIALS REMOVED BY UNS

WACE LEFT APROX 0900
UNS LEAVES APPROX 0930

AFE
3/29/2004

Continued on Page

Read and Understood By

Signed	Date	Signed	Date
	3/29/2004		

FIELD CREW'S LOG BOOK PAGES

LABORATORY NOTEBOOK

Notebook No.: 2

Assigned to: MURPHY

Date: 3/24/04

Use Nalge Cat. No.

6301-1000
to reorder.

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Rev. 1993

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3/2-1/04

Dayton Warehouse
floor 2

	Floor Monitor (43-37)	Static Readings (43-68)
Sq. 75	data - 27 α - 50 β - 11375	data - NA α - 23 β - 1693
Sq. 71	data - 28 α - 43 β - 11032	data - NA α - 30 β - 1709
Sq. 61	data - 29 α - 47 β - 11125	data - NA α - 28 β - 1776
Sq. 62	data - 30 α - 58 β - 10258	data - NA α - 30 β - 1660
Sq 28	data 31 α 54 β 9573	data - NA α - 27 β - 1500
Sq. 33	data - 32 α - 45 β - 9532	data - NA α - 23 β - 1453
Sq. - 29 (both) (2-five minute counts Room divided)	data - 33 α - 30 β - 4815	data - N/A α - 25 β - 1537

Continued on Page

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Signed Date Signed Date

PROJECT

Notebook No.

Continued From Page

	Floor Monitor (43-37)	Static Reading (4368)
Sq 29 North (5-minute count) Room divided	data - 34 α - 19 β - 5079	data - N/A α - N/A β - N/A
Sq. 14	data - 35 α - 40 β - 8304	data - N/A α - 19 β - 1315
Sq. 64	data - 36 α - 63 β - 10132	data - N/A α - 39 β = 1606
Sq 34	data - 37 α - 53 β - 9853	data - N/A α - 32 β - 1620
~~Sq~~ Sq 24	data - 38 α - 58 β - 10114	data N/A α - 21 β - 1346

3RD FLOOR

	Floor Monitor	Static Readings
Sq. 78	data 39 α - 65 β - 12026	data - N/A α - 33 β - 1779
Sq 60	data 40 α - 62 β - 11220	data - N/A α - 30 β - 1802

Continued on Page

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Signed Date Signed Date

~~3/24/04 - Dayton Warehouse~~

~~Model 4368 - Static Readings Floor #2~~

~~Sq 75 data -~~
~~α -~~
~~β -~~

NOT USED

R. Murphy

Continued on Page

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3RD FLOOR (cont.)

Location	FLOOR MONITOR (43-37)	STATIC READINGS (43-68)
Sq-55	Data - 41 α - 65 β - 11358	Data - N/A α - ~~30~~ RM 34 β - ~~1802~~ RM 1689
Sq-64	Data - 42 α - 66 β - 10781	Data - N/A α - 22 β - 1556
Sq 46	Data - 43 α - 45 β - 11746	Data - N/A α - 31 β - 1709
Sq 37	Data - 44 α - 59 β - 10955	Data - N/A α - 37 β - 1568
Sq 35	Data - 45 α - 71 β - 11392	α 55 β - 1709
Sq. 25	data - 46 α - 85 β - 11315	α - 46 β - 1636
Sq-04	data - 47 α - 92 β - ~~12352~~ T.U. 12260	α - 36 β - 1708

Continued on Page

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Signed | Date | Signed | Date

3rd Floor cont

Location	Floor monitor (43-37)	Static readings (43-68)
Sq. 09	Data - 48 α - 65 β - 11859	α - 34 β - 1771
Sq. 40	Data - 49 α - 68 β - 11469	α - 31 β - 1633

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PROJECT

Notebook No.

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3/25/04 DAYTON WAREHOUSE - FLOOR 4

LOCATION	FLOOR MONITOR (43-37)	STATIC READINGS (43-68)
BACKGROUND LOCATION (FLOOR #2)		
Sq 71	Data - 5 ~~4~~3 α - 58 β - ~~1612~~ 11313 (Rm)	Data - 3 α - 33 β - 1612
Sq 78	Data - 54 α - 62 β - 12240	Data - 5 α - 33 β - 1716
Sq. 62	Data - 55 α - 78 β - 11037	Data - 6 α - 20 β - 1591
Sq 55	Data - 56 α - 65 β - 12034	Data - 7 α 35 β - 1808
Sq 48	Data - 57 α - 48 β - 10560	Data - 8 α - 21 β - 1518
Sq. 44	Data - 58 α - 71 β - 11062	Data - 9 α - 26 β - 1635
Sq 39	Data - 59 α - 59 β - 11252	Data - 10 α - 27 β - 1655

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Dayton Warehouse Floor 4 Con't

Location	Floor Monitor (43-37)	static readings (43-68)
Sq. 37	Data - 60 α - 60 β - 10903	Data - 11 α - 26 β - 1644
Sq. 25	Data - 61 α - 55 β - 11221	Data - 12 α - 33 β - 1822
Sq. 17	Data - 62 α - 52 β - 11212	Data - 13 α - 31 β - 1708
Sq. 02	Data - 63 α - 69 β - 12475	Data - 14 α - 42 β - 1823
Sq. 64	Data - 64 α - 63 β - 10749	Data - 15 α - 28 β - 1521

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3/25 Dayton Warehouse 5th Floor

Location	Floor Monitor (43-37)	Static Readings (43-68)
Sq 75	Data - 65 α - 60 β - 12836	Data - 16 α - 35 β - 1796
Sq 71	Data - 66 α - 70 β - 13150	Data - 17 α - 44 β - 1863
Sq 68	Data - 67 α - 82 β - 11843	Data 18 α 39 β 1815
Sq. 53	data - 68 α - 67 β - 11943	Data 19 α 18 β 1639
Sq. 45	data - 69 α - 69 β - 12297	DATA 20 α - 33 β - 1750
Sq. 32	data - 70 α - 56 β - 11491	DATA - 21 α - 22 β - 1730
Sq. 12	data - 71 α - 61 β - 11053	DATA - 22 α - 26 β - 1512

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3/25 Dayton Warehouse 5th Floor

LOCATION	Floor Monitor (43-37)	Static Readings (43-68)
Sq 10	data - 72 α - 65 β - 12682	data - 23 α - 26 β - 1794
Sq - 6	data - 73 α - 106 β - 12590	data - 24 α - 32 β - 1826
Sq - 37	data - 74 α - 81 β - 11836	data - 25 α - 26 β - 1692
Sq 41	data - ~~74~~ 51 α - 86 ~~β - 11316~~ β - 11396	data - 26 α - 24 β - ~~1738~~ 1738

Continued on Page

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Signed Date Signed Date

3/26/04 DAYTON WAREHOUSE

BKgd	floor monitor (43-37)	static reading (43-68)
floor 2		
Sq. 71	data - 82	data - 31
5 min reading	α - 38	α - 38
	β - 5990	β - 1629
5 min reading	data - 83	
	α - 36	
	β - 5889	

FLOOR 6

Location	floor monitor (43-37)	static reading (43-68)
Sq. 78	data - 84 α - 102 β - 13225	data - 33 α - 38 β - 1794
Sq. 67	data - 85 α - 67 β - 12340	Data 34 α - 26 β - 1799
Sq. 61	data - 86 α - 86 β - 12833	data - 35 α - 31 β - 1819
Sq. 54	data - 87 α - 98 β - 12533	data - 36 α - 33 β - 1772
Sq. 49	data - 88 α - 96 β - 12461	data - 37 α - 22 β - 1756

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3/26/04 DAYTON WAREHOUSE

	Flex Monitor (43-37)	Static Reading (43-68)
Sq. 45	data - 89 α - 113 β - 12749	data - 38 α - 38 β - 1773
Sq ~~35~~ 37	data - 90 α - 98 β - 12320	data - 39 α - 24 β - 1687
Sq 35	data - 91 α - 93 β - 12172	data - 40 α - 19 β - 1675
Sq 21	data - 92 α - 142 β - 13987	data - 41 α - 35 β - 2110
Sq 10	data - 93 α - 138 β - 13626	data - 42 α - 47 β - 2070
Sq 05	data - 94 α - 125 β - 14005	data - 43 α - 40 β - 1897

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Notebook No.

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Dayton Warehouse Loading Dock

3/28/04

149	3	150	1	151	0
	339		350		380
148	5		2	146	4
	306		356		333
100	2	101	0	102	5
	358		346		393
99	3	103	2	105	2
	404		330		365
98	2	97	4	96	6
	332		356		450
		91	3	92	2
			329		415
		90	1	89	6
			370		45
		83	2	84	6
			366		364
		82	3	81	0
			367		401
		75	1	76	5
			380		406
74	3	73	5	72	3
	356		371		398
α 65	7	66	3	67	2
β	389		360		443
α 64	4	63	2	61	1
β	391		388		428
α 52	2	53	3	55	2
β	383		401		389
α 49	8	48	9	47	11
β	360		383		403

152	3	153	1		
	354		391		
145	3	144	4		
	399		364		
107	3	108	6		
	464		473		
104	3	106	4		
	421		386		
95	5	94	338/2		
	423				
93	2	104			
	429				
88	4	87	2		
	439		327		
85	5	86	1		
	415		370		
80	2	79	6		
	380		330		
77	4	78	6		
	358		361		
71	3	70	3		
	376		385		
68	3	69	3		
	386		350		
59	4	58	4		
	396		313		
56	4	57	3		
	385		308		
46	3	45	11		
	378		274		

3/29/04

← Pile of Rocks

Bridge Deck

N 3'

Sears St.

3' each grid = 3'x3'

N = data log #

Continued on Page

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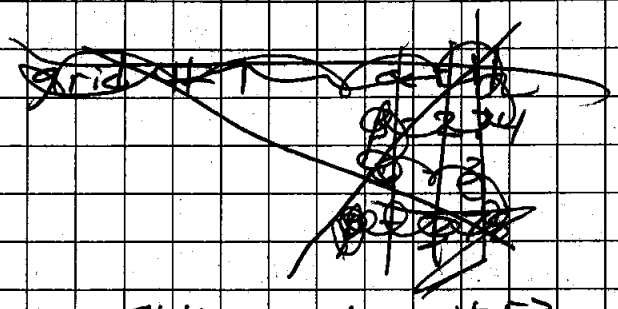
Signed | Date | Signed | Date

Dayton Warehouse loading dock - all 1 min Counts (43-68)

Background - 1 min Counts (44-Data)
β - 223
α - 1



Static reading #53
⊛ β - 436
α - 5

⊛ reading #60
β - 409
α - 4

⊛ reading #62
β - 421
α - 7

~~⊛ Zero~~

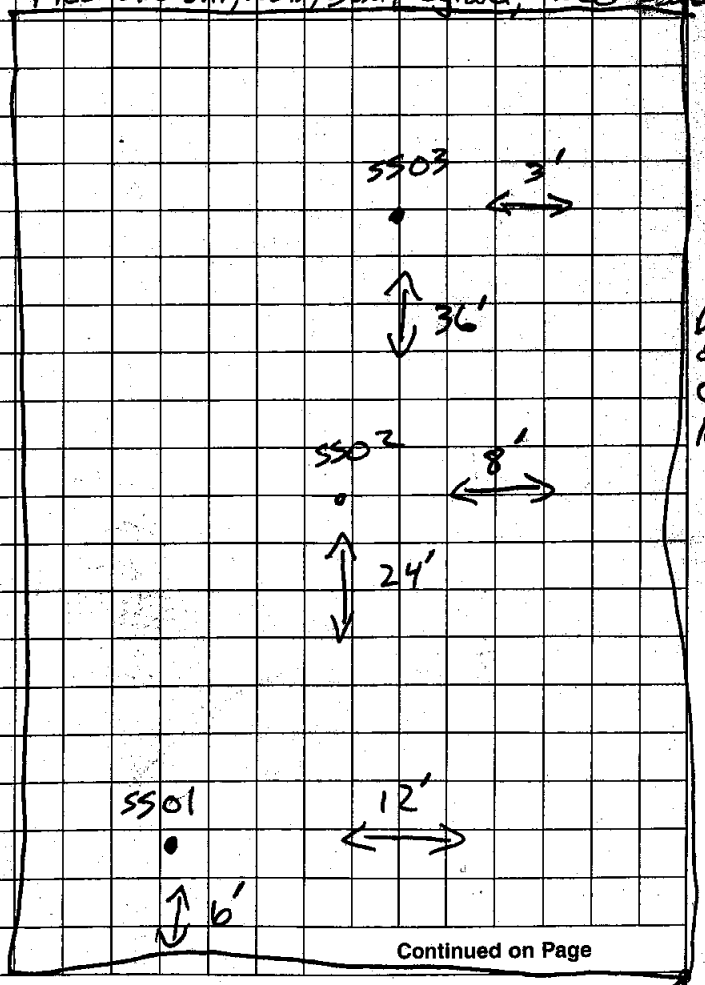
90% of loading dock scanned, then probe damage occurred.

Soil Sample Locations

SS01
SS02
SS03

all measurements from NW corner of building

Soil @ all three locations consists of FILL: Black silt, moist, some fine gravel, trace of sand



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Sears St.

Building corner

Signed | Date | Signed | Date

3/27/04 Dayton Warehouse

Background	Floor Monitor (43-37)	Static Reading (43-6
Floor 2	Data - 98	Data - 112
grid sq. 71	α - 18	α - 21
	β - 11977	β - 1687

Basement

Location	Floor Monitor (43-37)	Static Reading (43-6
Sq. 68	Data - 99 α - 77 β - 10006	Data - 113 α - 19 β - 1508
Sq. 65	Data - 100 α - 94 β - 10080	Data - 114 α - 25 β - 1498
Sq. 70	Data - 102 α - 98 β - 10199	Data - 115 α - 16 β - 1462
Sq. 41	Data - 103 α - 117 β - 10325	Data - 116 α - 25 β - 1499
Sq. 32	Data - 104 α - 119 β - 10446	Data - 117 α - 33 β - 1588
Sq. ~~14~~ 15	Data - 105 α - 93 β - 10774	Data - 118 α - 17 β - ~~1[illegible]~~ 1561

~~Continued on Page~~

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Signed Date Signed Date

Dayton Warehouse Basement (Con't)

Location	Floor Monitor (43-37)	Static Reading (43-68)
Sq. ~~10~~ 9	Data - 106 α - 117 β - 10679	Data - 119 α - 17 β - 1607
Sq. 38	Data - 107 α - 116 β - 10464	Data - 120 α - 24 β - 1546
Sq. 51	Data - 108 α - 145 β - 10795	Data - 121 α - 13 β - 1536
Sq. 80	Data - 109 α - 123 β - 10512	Data - 122 α - 24 β - 1640
Sq. 8	Data - 116 α - 127 β - 10776	Data - 123 α - 20 β - 1529

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Dayton warehouse 1st Floor

Location	Floor Monitor (43-37)	Static Reading (43-68)
Sq. 56	Data - 111 α - 57 β - 10515	Data - 124 α - 26 β - 1446
Sq. 60	Data - 112 α - 50 β - 10540	Data - 125 α - 23 β - 1561
Sq 70	Data - 113 α - 74 β 11791	Data 126 α 24 β 1733
Sq 24	Data 114 α 75 β 10753	Data 127 α 21 β 1563
Sq 14 tile medium	Data 115 α 69 β 8066	Data 128 α 17 β 1099
Sq 5 ID 4 tile medium	Data 116 α 63 β 7985	Data 129 α 17 β 1210
Sq 38	Data 117 α 77 β 10644	Data 130 α - 17 β - 150

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	Floor Monitor	STATIC
Sq 43	Data - 122	Data 134
	α - 37	α - 18
wood medium	β - 7808	β - 1126
Sq 58	Data 123	Data - 135
	α - 75	α - ~~1480~~ 25
	β - 10254	β - 1437
Sq 8	Data 124	Data 137
	α - 45	α - 18
tile medium	β - 8267	β - 1195
Sq 64	Data - 126	Data - 139
	α - 73	α - 16
	β - 10082	β - 1497

BKgd
Floor 2 grid 71
static reading { Data - 136, α - 15, β - 1654 }

Floor monitor
Data - 125
α - 82
β - 11993

5 Additional static Readings along West side of 1st Floor

swipe#	Sq	ALPHA	BETA	DATA POINT	
2	49	27	1320	138	Loading Dock #2 inside by Dock
1	40	~~160~~ 10	~~1497~~ 1213	143	Tile SW corner
3	30	11	1115	~~140~~ 140	Tile SE corner
4	22	6	1107	~~141~~ 141	Tile NE corner
5	9	14	1274	142	Tile SW Corner

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3-29-2004

Dayton warehouse

Survey Unit	Grid unit	Reading / Activity		
2	71	10-11	μR/hr	@ waist level
		14	μR/hr	@ wall
6	10	14	μR/hr	(ON Floor by wall)
6	21	14	μR/hr	(ON Floor 3' wall)
		ALPHA/BETA		(10-11 μR/hr @ East edge of Grid)
6	10	58/2621	5 min	Counts Data log 159
6	21	55/2578	5 min	Counts 160

Bkgd. static reading (43-68)
5 min Floor 2 GRID 71
Data - 158
α - 32
β - 1738

Survey Unit	GRID UNIT	READING / ACTIVITY		
		α	β	
XX (Outside Brick - above Blueman graffiti)	XX	109	2513	Data log #161 5 minute ct
		12	μR/hr	

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APPENDIX D

QUALITY CONTROL SUMMARY REPORT

APPENDIX D
QUALITY CONTROL SUMMARY REPORT
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ATTACHMENTS

Attachment A Validation Summary Tables

ACRONYMS AND SYMBOLS

Be	beryllium
%C	percent completeness
cm^2	square centimeters
%D	percent difference or drift
DOE	Department of Energy
dpm	disintegrations per minute
DQCR	Daily Quality Control Reports
DW	Dayton Warehouse
FSP	Field Sampling Plan
GEL	General Engineering Laboratories, LLC
IDL	instrument detection limit
kg	kilograms
L_c	critical level
µg	micrograms
MDA	minimum detectable activity
mg	milligrams
MS/MSD	matrix spike/matrix spike duplicate
PARCC	precision, accuracy, representativeness, comparability, completeness
pCi	picocurie
QA	quality assurance
QC	quality control
QCSR	Quality Control Summary Report
QL	quantitation limit
PA/SI	Preliminary Assessment/Site Inspection
SAIC	Science Applications International Corporation
SAP	Sampling and Analysis Plan
URS	URS Corporation
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency

1.0 PROJECT DESCRIPTION

This Quality Control Summary Report (QCSR) is prepared in accordance with the project approved *Sampling and Analysis Plan (SAP)* (URS, 2003). Data reviewed in this QCSR are for swipe samples collected between 24 and 29 March, 2004 and soil samples collected on 26 March, 2004 at the Dayton Warehouse located in Dayton, Ohio. General Engineering Laboratories (GEL), located in Charleston, SC, analyzed all samples.

Table D-1 provides a summary of samples collected at the Dayton Warehouse site. The sample analyses were performed in accordance with United States Environmental Protection Agency (USEPA) *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, SW-846, Final Update III, June 1997; USEPA *Prescribed Procedures for Measurement of Radioactivity in Drinking Water, EPA-600/4-80-032,*August 1980; and U.S. Department of Energy (DOE) *Determination of Lead-210 in Water Using Extraction Chromatography*. The samples were analyzed for beryllium by USEPA SW846 Method 6020, (inductively coupled plasma – mass spectrometry), for lead-210 by DOE Method RP280 (beta spectrometry), and for radium-226 by USEPA Method 903.1 Modified (alpha spectrometry).

TABLE D-1
SAMPLE IDENTIFICATION SUMMARY
DAYTON WAREHOUSE

Field Sample ID	Sample Date	Lab Sample ID	Sample Matrix	Total Beryllium	Lead-210	Radium-226	Comments
DW-SU2-SW02-GR14B	3/24/2004	109956001	Swipe	X	--	--	Unbiased survey grids sampled at center for beryllium only; 3 survey grids per floor
DW-SU2-SW10-GR61B		109956002		X	--	--	
DW-SU2-SW14-GR29B		109956003		X	--	--	
DW-SU3-SW17-GR09B		109956004		X	--	--	
DW-SU3-SW19-GR35B		109956005		X	--	--	
DW-SU3-SW22-GR46B		109956006		X	--	--	
DW-SU4-SW29-GR78B	3/25/2004	109956007		X	--	--	
DW-SU4-SW31-GR62B		109956008		X	--	--	
DW-SU4-SW35-GR44B		109956009		X	--	--	
DW-SU5-SW44-GR10B		109956010		X	--	--	
DW-SU5-SW49-GR53B		109956011		X	--	--	
DW-SU5-SW52-GR71B		109956012		X	--	--	
DW-SU6-SW58-GR10B	3/26/2004	109956013		X	--	--	
DW-SU6-SW61-GR45B		109956014		X	--	--	
DW-SU6-SW64-GR54B		109956015		X	--	--	
DW-SU-B-SW-74-GR38B	3/27/2004	109955001		X	--	--	
DW-SU-B-SW78-GR68B		109955002		X	--	--	
DW-SU-B-SW80-GR70B		109955003		X	--	--	
DW-SU1-SW88-GR38B	3/28/2004	109955004		X	--	--	
DW-SU1-SW90-GR43B		109955005		X	--	--	
DW-SU1-SW93-GR60B		109955006		X	--	--	
DW-SU6-SW114-GR21	3/29/2004	109955007		X	--	--	--
DW-MB1-SW122		109955008		X	--	--	Matrix Blank
DW-MB4-SW-125		109955009		X	--	--	Matrix Blank
DW-SU6-SW115-GR21		109983001		--	X	--	--
DW-SU6-SW118-GR10		109983002		--	X	--	--
DW-MB3-SW124		109983003		--	X	--	Matrix Blank
DW-MB6-SW127		109983004		--	X	--	Matrix Blank
DW-SU6-SW116-GR21		109983005		--	--	X	--
DW-SU6-SW117-GR10		109983006		--	--	X	--
DW-MB2-SW123		109983007		--	--	X	Matrix Blank
DW-MB5-SW126		109983008		--	--	X	Matrix Blank
DW-SULA-SS-01	3/26/2004	109787001	Soil	X	X	X	--
DW-SULA-SS-02		109787002		X	X	X	MS/MSD
DW-SULA-SS-03		109787003		X	X	X	--

NOTES:

X - Analysis requested
-- - Not a requested parameter, no comment
DW - Dayton Warehouse
SU2 - Survey Unit/Floor
SU-B - Survey Unit-Basement
SULA - Survey Unit Loading Area
SS - Surface Soil
SW - Swipe
GR61B - Grid Number/Beryllium
MB - Matrix Blank
MS/MSD - Matrix Spike/Matrix Spike Duplicate

2.0 SCOPE OF THE QUALITY CONTROL SUMMARY REPORT

This QCSR is a report outlining quality control (QC) practices employed, including any analytical deviations and corrective actions taken. The validated analytical data and definitions of validation qualifiers are presented in Attachment A. A discussion of the reliability of the data is presented in Section 7.0.

3.0 SAMPLING PROCEDURES (PLANNED VS. IMPLEMENTED)

Samples were collected in a manner consistent with the project approved *SAP* (URS, 2003). Daily Quality Control Reports (DQCRs), which document field activities and any problems encountered, are presented in Appendix C of the *Preliminary Assessment/Site Inspection Report*.

It should be noted that only four radiological swipe samples were collected, two each for lead-210 and radium-226, which was much less than originally anticipated (i.e., 11 survey grids per floor and 7 floors with potentially two swipes per grid). Based on the *SAP* sampling protocol, swipe samples for radiological analysis were only to be taken at those locations at which the static counts exceeded screening levels. This only occurred at two locations on the sixth floor at survey grids 10 and 21.

4.0 ANALYTICAL PROCEDURES

All sample analyses were performed in accordance with the project approved SAP (URS, 2003), except for the analytical deviations presented in Section 5.0. In accordance with the project SAP, the data were reviewed/validated by a URS Project Chemist following the guidelines established by: USEPA's *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, February 1994 and Science Applications International Corporation's (SAIC) *Laboratory Data Validation Guidelines for Evaluating Radionuclide Analyses, Document No. 143.20020404.001, Revision 07*, April 2002.

All samples were reviewed independently (i.e., separately from the laboratory) for evaluation of data completeness, verification of chain-of-custody forms for correctness, review of holding time criteria, and assessment of QC blanks for contamination. Additionally, a higher level of review (i.e., data validation) was performed on 10% of the environmental and QC samples collected during this investigation. The data validation included verification of instrument calibration, assessment of laboratory precision and accuracy based upon duplicates and spike results, adherence to method specifications, and assessment of matrix interference.

5.0 ANALYTICAL DEVIATIONS

An analytical deviation is an activity not conducted in accordance with approved SAP (URS, 2003) or procedures (e.g., analytical methods). Analytical deviations were encountered during analysis of these samples and are summarized in Table D-2. Table D-2 identifies the sample ID, fractions, analytical deviation encountered, and how the data were qualified as a result of the data validation. Only sample and QC results for which deviations occurred and required data to be qualified are discussed in this section and summarized in Table D-2.

Beryllium. The serial dilution analysis of soil sample DW-SULA-SS-02 exhibited a high percent difference (%D) (i.e., >10%D) for beryllium. In accordance with USEPA *National Functional Guidelines*, the results for beryllium in the associated samples were qualified estimated (J), as summarized in Table D-2.

Radiochemistry. Any radionuclide detected in a sample that is also less than the corresponding sample-specific critical level (Lc) value, which represents the minimum activity that can be considered as statistically different from the blank results (i.e., uncertainty * 1.65 or 95% probability), was qualified as non-detect (U), in accordance with SAIC Laboratory Data Validation Guidelines. Any such samples are summarized in Table D-2.

Any radionuclide detected in a sample that is also detected in any method/field QC blank, was qualified estimated (J) if the concentration detected in the sample was less than 5 times the QC blank concentration. Concentrations up to 5.75 dpm/filter for swipe samples and 0.570 pCi/g for soil samples of lead-210 were detected in the QC blanks. Sample qualification was based on a comparison with the QC blank having the highest concentration of a contaminant, per project-specific requirements. In accordance with SAIC *Laboratory Data Validation Guidelines*, one lead-210 sample was qualified as estimated (J) at the level of contamination, as summarized in Table D-2.

No other analytical deviations were encountered and no additional data qualification was necessary.

TABLE D-2
SUMMARY OF QUALIFIED DATA
DAYTON WAREHOUSE

Sample ID	Fraction	Analytical Deviation	Qualification
DW-SULA-SS-01, DW-SULA-SS-02, DW-SULA-SS-03	Beryllium	Serial dilution %D of Be >10% and sample concentration >50X MDL	Qualify detects "J".
DW-SULA-SS-02	Beta	Lead-210 contamination in QC blank	Qualify "J" at quantified value.
DM-DM2-SW123	Alpha	Radium-226 result less than Lc value	Qualify "U" at quantified value.

Notes:

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

6.0 DATA PRESENTATION

Attachment A contains validated analytical results for all samples. All soil sample results are reported on a dry-weight basis. The swipe sample results were reported by the laboratory in disintegrations per minute (dpm)/filter, which is equivalent to dpm/100 square centimeters (cm^2), as reported in Attachment A.

7.0 QA/QC ACTIVITIES/DATA RELIABILITY

Quality assurance/quality control (QA/QC) activities for the field and laboratory were performed in accordance with the approved SAP (URS, 2003). The reliability of data is determined during the data validation process through the use of QC elements assessing precision, accuracy, representativeness, completeness and comparability (PARCC) in accordance with method requirements. USEPA has established guidelines for the measurement of data reliability (or validity). Data not meeting USEPA standards were considered conditionally usable or unusable; hence, the analytical results were qualified accordingly. Validation procedures utilized are identified in Section 4.0.

Completeness is defined as the number of measurements that are judged to be usable compared to the total number of measurements planned.

The percent completeness goal of 100% was met for all fractions. The percent completeness is calculated by summing the number of analytes for all samples by fraction.

$$\text{Percent Completeness (\%C)} = (X_v - X_n)/N \times 100\%$$

X_v - Number of valid measurements expected

X_n - Number of invalid (rejected) measurements

N - Number of valid measurements expected to be obtained

The overall percent completeness for the samples reviewed in this QCSR was 100%.

8.0 CONCLUSIONS/RECOMMENDATIONS

The analytical data discussed in this report was equivalent to the project-specific completeness criteria of 100%. The sample detection limits have been met for the sample locations investigated. Minor QC blank contamination existed at the laboratory, but had minimal impact on the data. All sample analyses were found to be compliant with the validation criteria, except where noted in Section 5.0. All other data are usable as reported.

ATTACHMENT A

VALIDATION SUMMARY TABLES

DEFINITION OF VALIDATION QUALIFIERS

The following are definitions of the validation qualifiers assigned to results during the data review process.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit; i.e., the instrument detection limit (IDL) for metals (Be) or the minimum detectable activity (MDA) for radiological parameters (Ra-226 and Pb-210).

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ - The analyte was not detected above the reported sample quantitation limit (IDL or MDA). However, the reported quantitation limit is approximate and may or may not represent the actual limit of detection necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

B - For metals - the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the IDL.

NA - Not Analyzed/Applicable

ATTACHMENT A
TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
DAYTON WAREHOUSE

Location ID		SS-01	SS-02	SS-03
Sample ID		DW-SULA-SS-01	DW-SULA-SS-02	DW-SULA-SS-03
Matrix		Soil	Soil	Soil
Depth Interval (ft)		-	-	-
Date Sampled		03/26/04	03/26/04	03/26/04
Parameter	Units			
Metals				
Beryllium	mg/kg	0.673 J	0.725 J	0.834 J
Radionuclides				
Lead-210	pCi/g	0.955 U	2.38 J ± 5.69E-01	2.88 ± 6.20E-01
Radium-226	pCi/g	1.33 ± 6.03E-01	1.72 ± 5.38E-01	1.70 ± 6.37E-01

Flags assigned during chemistry validation are shown.

Made By: PF 06/03/04
Checked By: GEK 6/3/04

Detection Limits shown are MDA

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Printed 06/03/04 9:36:21 AM
[MATRIX] = 'SO'

ATTACHMENT A
TABLE 2
SWIPE SAMPLE ANALYTICAL RESULTS
DAYTON WAREHOUSE

Location ID		SU1-GR38	SU1-GR43	SU1-GR60	SU2-GR14	SU2-GR29
Sample ID		DW-SU1-SW88-GR38B	DW-SU1-SW90-GR43B	DW-SU1-SW93-GR60B	DW-SU2-SW02-GR14B	DW-SU2-SW14-GR29B
Matrix		Swipe	Swipe	Swipe	Swipe	Swipe
Depth Interval (ft)		-	-	-	-	-
Date Sampled		03/28/04	03/28/04	03/28/04	03/24/04	03/24/04
Parameter	Units					
Metals						
Beryllium	µg/100cm²	0.004 B	0.003 U	0.008 B	0.006 B	0.014 B
Radionuclides						
Lead-210	dpm/filter	NA	NA	NA	NA	NA
Radium-226	dpm/filter	NA	NA	NA	NA	NA

Flags assigned during chemistry validation are shown.

Made By: PF 6/2/04
Checked By: GEK 6/2/04

Detection Limits shown are MDA

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[MATRIX] = 'SW'

ATTACHMENT A
TABLE 2
SWIPE SAMPLE ANALYTICAL RESULTS
DAYTON WAREHOUSE

Location ID		SU2-GR61	SU3-GR09	SU3-GR35	SU3-GR46	SU4-GR44
Sample ID		DW-SU2-SW10-GR61B	DW-SU3-SW17-GR09B	DW-SU3-SW19-GR35B	DW-SU3-SW22-GR46B	DW-SU4-SW35-GR44B
Matrix		Swipe	Swipe	Swipe	Swipe	Swipe
Depth Interval (ft)		-	-	-	-	-
Date Sampled		03/24/04	03/24/04	03/24/04	03/24/04	03/25/04
Parameter	Units					
Metals						
Beryllium	µg/100cm²	0.02 B	0.025 B	0.007 B	0.016 B	0.003 B
Radionuclides						
Lead-210	dpm/filter	NA	NA	NA	NA	NA
Radium-226	dpm/filter	NA	NA	NA	NA	NA

Flags assigned during chemistry validation are shown.

Made By: PF 6/2/04
Checked By: GZN 6/2/04

Detection Limits shown are MDA

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[MATRIX] = 'SW'

ATTACHMENT A
TABLE 2
SWIPE SAMPLE ANALYTICAL RESULTS
DAYTON WAREHOUSE

Location ID		SU4-GR62	SU4-GR78	SU5-GR10	SU5-GR53	SU5-GR71
Sample ID		DW-SU4-SW31-GR62B	DW-SU4-SW29-GR78B	DW-SU5-SW44-GR10B	DW-SU5-SW49-GR53B	DW-SU5-SW52-GR71B
Matrix		Swipe	Swipe	Swipe	Swipe	Swipe
Depth Interval (ft)		-	-	-	-	-
Date Sampled		03/25/04	03/25/04	03/25/04	03/25/04	03/25/04
Parameter	Units					
Metals						
Beryllium	µg/100cm²	0.003 B	0.005 B	0.007 B	0.015 B	0.005 B
Radionuclides						
Lead-210	dpm/filter	NA	NA	NA	NA	NA
Radium-226	dpm/filter	NA	NA	NA	NA	NA

Flags assigned during chemistry validation are shown.

Made By: PF 6/2/04
Checked By: GOL 6/2/04

Detection Limits shown are MDA

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[MATRIX] = 'SW'

ATTACHMENT A
TABLE 2
SWIPE SAMPLE ANALYTICAL RESULTS
DAYTON WAREHOUSE

Location ID		SU6-GR10	SU6-GR10	SU6-GR10	SU6-GR21	SU6-GR21
Sample ID		DW-SU6-SW58-GR10B	DW-SU6-SW117-GR10	DW-SU6-SW118-GR10	DW-SU6-SW114-GR21	DW-SU6-SW115-GR21
Matrix		Swipe	Swipe	Swipe	Swipe	Swipe
Depth Interval (ft)		-	-	-	-	-
Date Sampled		03/26/04	03/29/04	03/29/04	03/29/04	03/29/04
Parameter	Units					
Metals						
Beryllium	µg/100cm²	0.005 B	NA	NA	0.004 B	NA
Radionuclides						
Lead-210	dpm/filter	NA	NA	11.8 U	NA	12.1 U
Radium-226	dpm/filter	NA	6.56 U	NA	NA	NA

Flags assigned during chemistry validation are shown.

Made By: PF 6/2/04
Checked By: GEK 6/2/04

Detection Limits shown are MDA

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[MATRIX] = 'SW'

ATTACHMENT A
TABLE 2
SWIPE SAMPLE ANALYTICAL RESULTS
DAYTON WAREHOUSE

Location ID		SU6-GR21	SU6-GR45	SU6-GR54	SUB-GR38	SUB-GR68
Sample ID		DW-SU6-SW116-GR21	DW-SU6-SW61-GR45B	DW-SU6-SW64-GR54B	DW-SU-B-SW74-GR38B	DW-SU-B-SW78-GR68B
Matrix		Swipe	Swipe	Swipe	Swipe	Swipe
Depth Interval (ft)		-	-	-	-	-
Date Sampled		03/29/04	03/26/04	03/26/04	03/27/04	03/27/04
Parameter	Units					
Metals						
Beryllium	µg/100cm²	NA	0.003 U	0.011 B	0.007 B	0.014 B
Radionuclides						
Lead-210	dpm/filter	NA	NA	NA	NA	NA
Radium-226	dpm/filter	7.87 U	NA	NA	NA	NA

Flags assigned during chemistry validation are shown.

Made By: PF 6/2/04
Checked By: GAL 6/2/04

Detection Limits shown are MDA

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[MATRIX] = 'SW'

ATTACHMENT A
TABLE 2
SWIPE SAMPLE ANALYTICAL RESULTS
DAYTON WAREHOUSE

Location ID		SUB-GR70
Sample ID		DW-SU-B-SW80-GR70B
Matrix		Swipe
Depth Interval (ft)		-
Date Sampled		03/27/04
Parameter	Units	
Metals		
Beryllium	µg/100cm²	0.007 B
Radionuclides		
Lead-210	dpm/filter	NA
Radium-226	dpm/filter	NA

Flags assigned during chemistry validation are shown.

Made By: PF 6/2/04
Checked By: GSR 6/2/04

Detection Limits shown are MDA

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[MATRIX] = 'SW'

ATTACHMENT A
TABLE 3
SWIPE FIELD QC SAMPLE ANALYTICAL RESULTS
DAYTON WAREHOUSE

Location ID		FIELDQC	FIELDQC	FIELDQC	FIELDQC	FIELDQC
Sample ID		DW-MB1-SW122	DW-MB2-SW123	DW-MB3-SW124	DW-MB4-SW125	DW-MB5-SW126
Matrix		Swipe	Swipe	Swipe	Swipe	Swipe
Depth Interval (ft)		-	-	-	-	-
Date Sampled		03/29/04	03/29/04	03/29/04	03/29/04	03/29/04
Parameter	Units	Media Blank	Media Blank	Media Blank	Media Blank	Media Blank
Metals						
Beryllium	µg/100cm²	0.003 U	NA	NA	0.003 U	NA
Radionuclides						
Lead-210	dpm/filter	NA	NA	10.8 U	NA	NA
Radium-226	dpm/filter	NA	6.02 U	NA	NA	5.28 U

Flags assigned during chemistry validation are shown.

Made By: PF 06/03/04
Checked By: GDL 6/3/04

Detection Limits shown are MDA

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[MATRIX] = 'SQ'

ATTACHMENT A
TABLE 3
SWIPE FIELD QC SAMPLE ANALYTICAL RESULTS
DAYTON WAREHOUSE

Location ID		FIELDQC
Sample ID		DW-MB6-SW127
Matrix		Swipe
Depth Interval (ft)		-
Date Sampled		03/29/04
Parameter	Units	Media Blank
Metals		
Beryllium	µg/100cm²	NA
Radionuclides		
Lead-210	dpm/filter	11.2 U
Radium-226	dpm/filter	NA

Flags assigned during chemistry validation are shown.

Made By: PF 06/03/04
Checked By: GDL 6/3/04

Detection Limits shown are MDA

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Printed: 06/03/04 9:37:34 AM
[MATRIX] = 'SQ'