FINAL

IOWA ARMY AMMUNITION PLANT SITE RECONNAISSANCE SURVEY FOR BUILDINGS L-37-1, L-37-2, L-37-3

ST. LOUIS, MISSOURI

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ACRONYMS AND ABBREVIATIONS

AEC	Atomic Energy Commission
ANSI	American National Standards Institute
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm	centimeters
DQO	data quality objective
DU	depleted uranium
EPA	Environmental Protection Agency
ft	feet
FUSRAP	Formerly Utilized Sites Remedial Action Program
HSA	Historical Site Assessment
IAAAP	Iowa Army Ammunition Plant
LAP	load, assemble, and pack
LO3	Load Out No. 3
m/sec	meters per second
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	minimum detectable activity
MDC	minimum detectable concentration
NRC	Nuclear Regulatory Commission
PPE	personal protective equipment
QA/QC	Quality Assurance/Quality Control
SAIC	Science Applications International Corporation
USACE	United States Army Corps of Engineers

1.0 INTRODUCTION

Science Applications International Corporation (SAIC) performed the Site Reconnaissance Survey for the St. Louis District United States Army Corps of Engineers (USACE) on February 11-13, 2003 to determine the radiological status of Yard L warehouse buildings L-37-1, L-37-2, and L-37-3 at the Iowa Army Ammunition Plant (IAAAP) in Burlington, Iowa (Figure 1). Based on available information, as described below, buildings within the scope of this survey had a low probability of radiological contamination:

- The buildings were only used to facilitate receipt and shipment of sealed radioactive material.
- The buildings were routinely surveyed for radiological contamination with no known spills or areas of elevated activity.
- The buildings are no longer used to receive or ship licensed radioactive material or for any other purpose with regard to licensed radioactive material.

The objective of the site reconnaissance survey was to collect sufficient radiological data in order to substantiate the known information discussed above. The data collected during the survey was used to determine the designation of the Yard L warehouse buildings (Figure 2) L 37-1, L-37-2, and L-37-3 (hereafter referred to as the warehouse buildings) as radiologically non-impacted or impacted using the guidance contained in NUREG-1575, *Multi-Agency Radiation Survey and Site Investigation Manual* (MARSSIM) (Environmental Protection Agency [EPA], 2000).

This report is being prepared to document the activities conducted during the site reconnaissance survey of the warehouse buildings to assist the USACE in substantiating the conclusions of past Historical Site Assessments (HSA), and to provide input to properly designate the radiological status of the warehouses. The survey was performed in accordance with NUREG-1575, *Multi-Agency Radiation Survey and Site Investigation Manual* (MARSSIM) (EPA, 2000) and the Site Reconnaissance Plan (USACE, 2002).

The site reconnaissance survey only addressed the warehouses listed above and only applies to the actual building interior and exterior structures. The survey did not include soils or land areas. The warehouse buildings represented a unique situation which was most effectively handled by the completion of a Site Reconnaissance Survey to classify the subject warehouses as "impacted" or "non-impacted" from previous Atomic Energy Commission (AEC) activities.

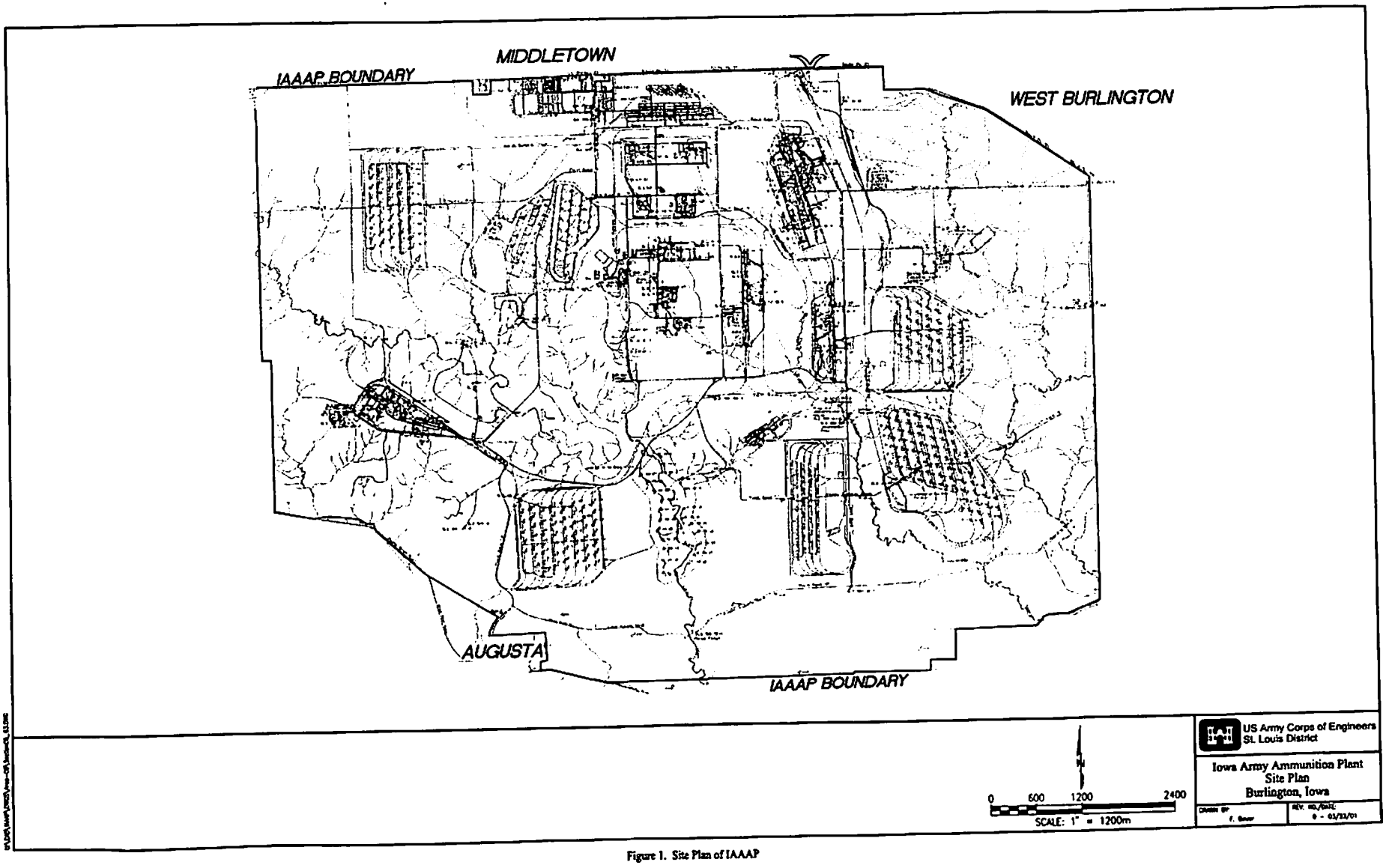

Figure 1. Site Plan of IAAAP

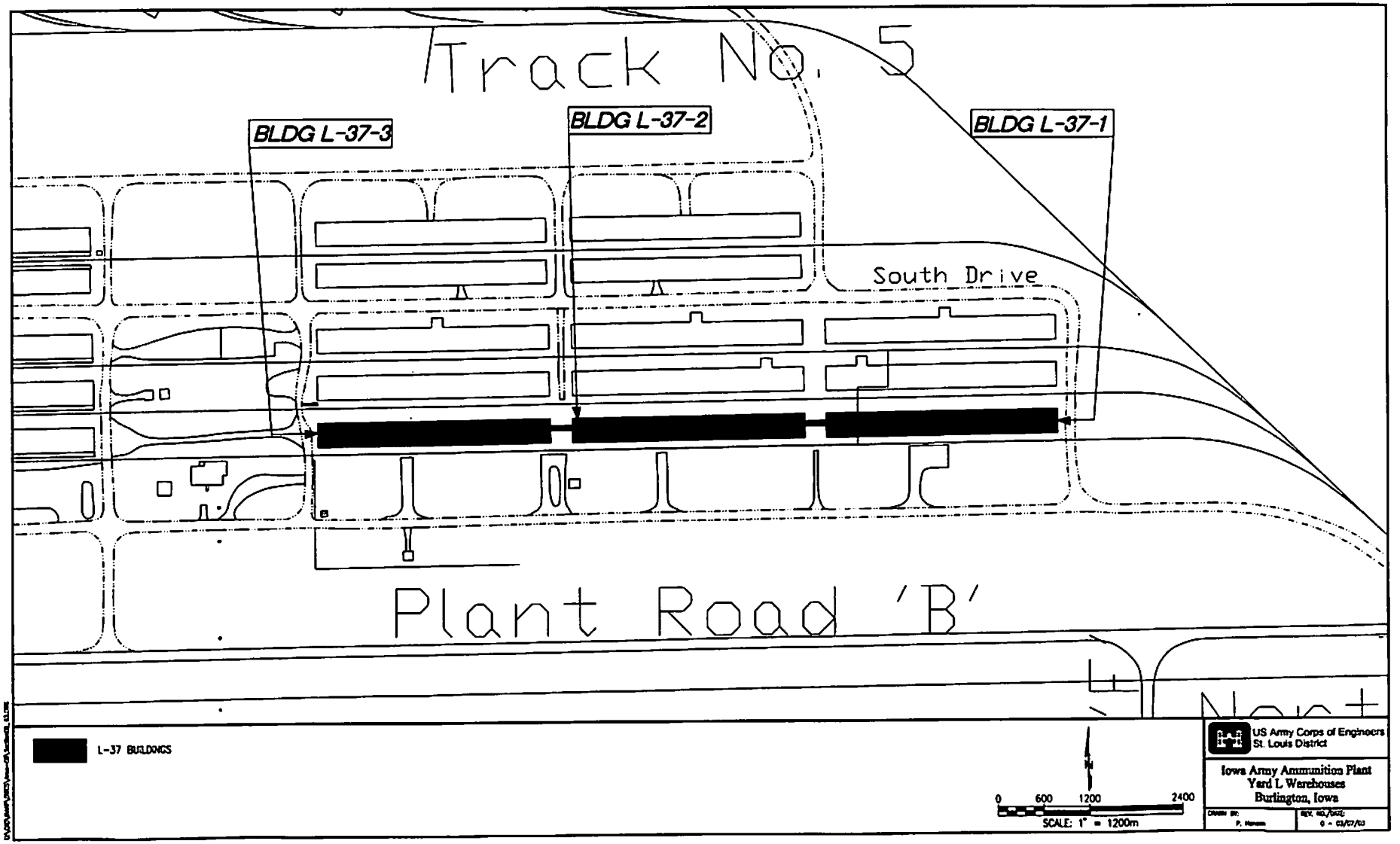

Figure 2. Yard L Warehouses

2.0 SITE DESCRIPTION / HISTORY

IAAAP is a government facility, owned by the United States Army and operated by a private contractor, American Ordnance, LLC. It is located in the southeastern part of Iowa, near the town of Middletown, approximately 10 miles west of the Mississippi River. The IAAAP is a secured facility covering 19,011 acres in a rural setting. Approximately 7,751 acres are leased for agricultural use, 7,500 acres are forested land, and the remaining area is used for administrative and industrial purposes. Figure 1 is a map of the IAAAP.

According to the *Remedial Investigation/Risk Assessment, Iowa Army Ammunition Plant, Middletown Iowa* (USACE, 1996), IAAAP was initially developed in 1941, and has undergone modernization and expansion since that time. Production of ammunition and explosives for World War II began at the facility in September 1941 and ended in August 1945. Production was resumed in 1949 and has continued to the present.

IAAAP is currently operated to load, assemble, and pack (LAP) ammunition items, including projectiles, mortar rounds, warheads, demolition charges, anti-tank mines, anti-personnel mines, and the components of these munitions, including primers, detonators, fuses, and boosters. The LAP operations use explosive material and lead-based initiating compounds. Only a few of the existing production lines are in operation.

IAAAP historical information indicates that the warehouse buildings were used by the AEC. A map prepared as part of an environmental agency evaluation of AEC activities, dated 1972, indicated that the warehouse buildings were used by AEC to provide Line 1 storage space for classified component part storage starting in 1960. This portion of Yard L has double security fencing. Prior to the reconnaissance survey insufficient data had been gathered to properly classify the Yard L warehouses in accordance with MARSSIM. A limited number of radiological surveys for removable radioactive contamination have been documented by the IAAAP private contractor for the three warehouses. All survey results indicated no removable radioactivity in excess of background.

3.0 SURVEY DESIGN

A radiological survey was conducted to determine the presence, if any, of radiological contamination. The design of this survey followed MARSSIM and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) protocols as they relate to a site reconnaissance survey plan. Radiological monitoring consisted of scanning for total beta surface activity and fixed point measurements for total alpha and beta surface activity using portable radiological survey equipment, and collection of smears for measurement of removable alpha and beta activity.

3.1 INSTRUMENT SELECTION

Survey instruments used for radiological measurements were:

1. selected based on the survey instrument's detection capability for the contaminants of concern;
2. calibrated in accordance with American National Standards Institute (ANSI) N323A, *Radiation Protection Instrumentation Test and Calibration – Portable Survey Instruments* (ANSI, 1997) for the spectrum of radiation energies expected at IAAAP; and
3. operated and maintained by qualified personnel, in accordance with SAIC's Health Physics Program procedures (e.g., physical inspection, background checks, response/operational checks, etc.).

Based on the data quality objectives listed in section 5.0, the following instrumentation was selected for use during this site reconnaissance survey:

- Ludlum Model 2360 ratemeter/scaler coupled with a Ludlum Model 43-89 (ZnS plastic scintillator) hand held probe for scanning and fixed point measurements.

- Ludlum Model 2929 scaler coupled with a Ludlum Model 43-10-1 smear counter to count smears for removable activity.

Radiological field instrumentation used for this site reconnaissance survey was calibrated in accordance with ANSI N323A, *Radiation Protection Instrumentation Test and Calibration – Portable Survey Instruments* (ANSI, 1997) within the past 12 months (or more frequently if recommended by the manufacturer). Daily QC checks were conducted on each instrument and operated in accordance with USACE approved SAIC Health Physics Procedures.

3.2 STATIC AND SCAN MINIMUM DETECTABLE CONCENTRATIONS (MDCS)

NUREG-1507, Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions (Nuclear Regulatory Commision [NRC], 1998), and NUREG-1575, Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) (EPA, 2000) provide methodology for calculation of minimum detectable concentrations (MDCs). The actual minimum detectable concentrations calculated for this survey are presented in Table 3-1.

Table 3-1 Minimum Detectable Concentrations (MDC)

Measurement Type	MDC dpm/100cm^2	Screening level (dpm/100 cm^2)
Alpha Fixed	68	600
Alpha Removable	21	60
Beta Fixed	240	6000
Beta Removable	84	600
Beta Scan	444	4800

3.3 SCREENING LEVELS

The established screening levels for total gross alpha and beta activity were selected from Table 1, Screening Levels for Clearance, ANSI/HPS N13.12-1999. The screening levels for gross alpha and beta removable activity have been set at 10% of the limit for total alpha and beta activity, respectively. Table 3-2 lists the screening levels used for this site reconnaissance survey:

Table 3-2 Selected Screening Levels

	Total Contamination dpm/100cm^2	Removable Contamination dpm/100cm^2	Investigation Level for Scanning dpm/100 cm^2
Gross alpha	600	60	N/A
Gross beta	6,000	600	4,800

4.0 SURVEY IMPLEMENTATION

The survey was implemented as outlined in Iowa Army Ammunition Plant Site Reconnaissance Survey Plan for Buildings L-37-1, L-37-2, L-37-3 by a qualified survey team. The survey team consisted of an experienced team leader, and two senior health physics technicians. The survey team was qualified in accordance with the St. Louis Health Physics Manual. A USACE Health Physicist provided technical oversight of the survey. All data was collected in accordance with the applicable SAIC St. Louis Health Physics Procedures and the St. Louis Formerly Utilized Site Remedial Action Program (FUSRAP) Sampling and Analysis Guide.

A surface efficiency (ε_s) of 0.5 (unitless) for beta and 0.25 for alpha, was originally planned to be used, based on recommendations found in NUREG-1507, Section 5.3.2. However, due to the large number of different media types and surfaces identified during the survey, it was determined that whole scale application of the above surface efficiencies would be inappropriate. The data from this survey has been calculated without regard to surface efficiencies.

A total of 267 removable alpha/beta contamination measurements were obtained on the various building media present in the warehouses. No removable alpha contamination above the MDC of 21 dpm/100cm^2 was identified. No removable beta contamination above 128 dpm/100cm^2 was identified with most of the measurements being less than the MDC of 84 dpm/100cm^2. The values used for this report are net values calculated by subtracting the instrument background.

A total of 462 total alpha/beta contamination measurements were obtained on the various building media present in the warehouses. There were no total alpha readings identified above the established screening level of 600 dpm/100cm^2. There were no total beta readings identified above the established screening level of 6000 dpm/100cm^2 with the maximum value obtained from the brick subdivision wall of 1684 dpm/100cm^2. The values used for this report are net values calculated by subtracting the instrument background or the media specific background.

The warehouses were uniform in shape and construction with slight deviations in warehouse L-37-3. Each warehouse was approximately 500 ft (ft) long by 50 wide. All of the warehouses consisted of a concrete floor, plywood walls to either approximately 8 ft or 4 ft with windows located above the plywood. Each warehouse contained a row of wooden columns mounted on square concrete footings running roughly down the centerline, was subdivided into three compartments and connected with the adjacent warehouse by enclosed walkways. The divider walls (2 in each warehouse) were constructed of brick. The end walls of each warehouse were constructed of wood. A large sliding fire door allowed entrance to each sub section and movement between the warehouses. Each warehouse had wooden support angle beams extending from the walls to the trusses. Various equipment doors were installed on the south side of each warehouse, with only L-37-3 having any of the original doors still present as stated by IAAAP site personnel. L-37-3 also contained a load out door (LO-3) on the east wall near the southeast corner. Fire main piping and old steam piping existed in each warehouse in the overhead. A loading dock was present on the southern exterior of each and ran the entire length of the warehouse. The warehouses were primarily empty or sparsely filled with various supplies.

No indication or evidence of old, pre-1970 packages or boxes was found. The west subsection of L-37-3 had been further subdivided into office, storage facilities, and water closets.

Radiological measurements were obtained on the interior floors, interior walls, fire main, steam piping, exterior loading dock horizontal surface, exterior loading dock vertical face, metal on the loading docks, metal on Load Out No. 3 (LO3), wood and concrete on LO3, and various horizontal surfaces within the warehouses. If a measurement was less than the minimum detectable activity (MDA) of a given instrument the actual instrument MDA was used in statistical evaluations or a value of zero was used if the measurement was less than the applicable reference area mean activity level.

4.1 INTERIOR FLOORS

The concrete floors presented a fairly smooth uniform surface for surveying. The concrete appeared to have limited large cracks or visible crumbling. A total of 143 total and removable alpha/beta measurements were taken on the concrete floors throughout the warehouses. Each subdivision of each warehouse was further divided using the existing concrete expansion joints. A location was randomly selected within each subdivided area and a fixed and removable alpha/beta measurement was obtained. Additionally, any suspect areas, based on surveyor's experience, was scanned and investigated. Expansion joints that had a build up of dirt and debris, high traffic areas, visible stains, corners, and areas of excessive dirt/dust buildup were scanned. Table 4-1 presents a summary of the survey results obtained on the interior concrete floors. Actual survey data is contained within Appendix A.

Table 4-1 Interior Concrete Floor Survey Data Summary

	Removable alpha dpm/100 cm^2	Removable beta dpm/100 cm^2	Total alpha dpm/100 cm^2	Total beta dpm/100 cm^2
Min	21	84	51	215
Max	21	128	145	876
Mean	21	85	56	498
Std Dev	0	5	15	118
Median	21	84	51	516
Number	143	143	143	143

The following should be noted in regard to the data presented in Table 4-1:

- all removable alpha values are below the MDA;
- 94% of the removable beta values are below the MDA and all values are below the removable beta screening level;
- 77% of the total alpha values are below the MDA and all values are below the total alpha screening level;
- and the total alpha and beta means are <10% of their respective screening levels.

4.2 INTERIOR WALLS

The walls of the warehouses consisted of a 6-12 inch concrete ledge, a 4-8 foot plywood lower section, with insulation covered windows or metal mesh covered windows, and brick

subdivision walls. It was determined that in order to properly investigate the walls and determine the extent of radiological impact, if any, each specific media would be surveyed and evaluated independently. The walls were surveyed for removable and total alpha/beta contamination, compared to the screening levels as a whole, and then separated by media type and re-evaluated as independent surveys. A total of 103 removable and total alpha/beta measurements were obtained from the various walls within the warehouses. Table 4-2 presents the statistical summary of all the wall data. The actual survey data is presented in Appendix A.

Table 4-2 Warehouse Interior Wall Data Summary

	Removable alpha dpm/100 cm^2	Removable beta dpm/100 cm^2	Total alpha dpm/100 cm^2	Total beta dpm/100 cm^2
Min	21	84	49	202
Max	21	84	118	1684
Mean	21	84	53	489
Std Dev	0	0	11	453
Median	21	84	49	215
Number	103	103	103	103

The following should be noted in regard to the data presented in Table 4-2:

- all removable alpha values are below the MDA;
- all of the removable beta values are below the MDA;
- 79% of the total alpha values are below the MDA and all values are below the total alpha screening level;
- and 49% of the total beta values are below the MDA and all of the values are below the total beta screening level.

4.2.1 Interior Walls Plywood

The interior walls of the warehouse consisted of plywood for approximately the bottom 8 ft on the north side and approximately the bottom 4 ft on the south, east, and west sides of each warehouse. The plywood was relatively clean and contained limited to no stains. The plywood surface was smooth and had little evidence of weathering or deterioration. A total of 55 removable and total alpha/beta radiological measurements were taken on the plywood walls. The measurement locations were randomly selected per surveyor discretion. The plywood walls in the warehouse L-37-1 and L-37-2 were not painted. The plywood walls in L-37-3 were painted a light green. Careful attention was given to comparison of the painted plywood to the unpainted surfaces. Almost all measurements taken on all plywood (painted and unpainted) were below the MDC of the given instrument. Due to the lack of stains, visible dirt/dust and actual radiological measurement indication limited scanning was performed on the walls. The beta scanning investigation of the walls concentrated on horizontal surfaces that existed on the walls such as window ledges, breaker boxes and utility switches. Table 4-3 presents the comparison between

the painted and unpainted wood. Table 4-4 presents the summary of the entire plywood wall data set. The actual survey data is presented in Appendix A.

Table 4-3 Painted vs. Unpainted Data Summary

	Painted Plywood	Unpainted Plywood	Painted Plywood	Unpainted Plywood
	Total alpha Dpm/100 cm^2	Total alpha Dpm/100 cm^2	Total beta Dpm/100 cm^2	Total beta Dpm/100 cm^2
Min	49	49	202	202
Max	64	75	215	329
Mean	50	51	206	221
Std Dev	3	6	6	32
Median	49	49	202	202
Number	27	28	27	28

Table 4-4 All Plywood Survey Data Summary

	Removable alpha dpm/100 cm^2	Removable beta dpm/100 cm^2	Total alpha dpm/100 cm^2	Total beta dpm/100 cm^2
Min	21	84	49	202
Max	21	84	75	329
Mean	21	84	51	213
Std Dev	0	0	5	24
Median	21	84	49	202
Number	55	55	55	55

4.2.2 Interior Walls Insulation

The walls of warehouse L-37-1 and L-37-2 above the plywood bottoms were constructed of insulation covered windows. The condition of the insulation ranged from good to poor. The insulation contained many rips, tears, and holes. Warehouse L-37-3 contained no insulation on windows. Only 6 removable and total alpha/beta radiological measurements were taken on the insulation. It was deemed that the radiological contamination potential of the insulation was less than the lower plywood walls and concrete floors so more attention was given to surveying the floors and lower walls. The measurement locations were randomly selected per surveyor discretion. Table 4-5 presents the summary of the data collected on the wall insulation. The actual survey data is presented in Appendix A.

Table 4-5 Wall Insulation Data Summary

	Removable alpha dpm/100 cm^2	Removable beta dpm/100 cm^2	Total alpha dpm/100 cm^2	Total beta dpm/100 cm^2
Min	21	84	49	234
Max	21	84	75	580
Mean	21	84	53	322
Std Dev	0	0	11	129
Median	21	84	49	271
Number	6	6	6	6

4.2.3 Interior Walls Brick

Each warehouse was subdivided into three sections by two brick walls. There were a total of 6 brick walls in the warehouses. The brick was a typical rough brick surface with mortar between each brick. The bricks in each wall were various colors ranging from light yellow to dark red. There were obvious black stains of undetermined origin present on many of the bricks. A total of 22 removable and total alpha/beta radiological measurements were obtained. The measurement locations were randomly selected per surveyor discretion. The beta scanning investigation of the walls concentrated on the visible stains, corners, and horizontal surfaces that existed on the walls such as window ledges, breaker boxes and utility switches.

It was noted during the survey that the brick appeared to exhibit a higher than average total beta background count rate. Therefore similar brick walls in adjacent warehouses were located and surveyed to determine if the increase count rate was due to the natural brick material. A total of 4 Yard L warehouses were investigated prior to finding a brick wall of similar physical appearance. Two brick walls, one in warehouse L-37-9 and one in warehouse L-37-13 were surveyed for total alpha/beta contamination. Table 4-6 presents the summary of the actual L-37-1, L-37-2, and L-37-3 brick survey data. Table 4-7 presents the summary of the data collected on the brick walls in L-37-9 and L-37-13. The actual survey data is presented in Appendix A.

Table 4-6 Warehouse L-37-1, 2, & 3 Brick Survey Data Summary

	Removable alpha dpm/100 cm^2	Removable beta dpm/100 cm^2	Total alpha dpm/100 cm^2	Total beta dpm/100 cm^2
Min	21	84	49	268
Max	21	84	102	1684
Mean	21	84	55	1257
Std Dev	0	0	13	319
Median	21	84	49	1316
Number	22	22	22	22

Table 4-7 Warehouse L-37-9 and L-37-13 Brick Survey Data Summary

	Total alpha dpm/100 cm^2	Total beta dpm/100 cm^2
Min	51	980
Max	51	1493
Mean	51	1205
Std Dev	0	121
Median	51	1169
Number	21	21

4.2.4 Interior Walls Concrete Footings

The walls of the warehouses consisted a 6-12 inch footings on all walls with the exception of the brick subdivision walls and L-37-3 office walls. The concrete presented a fairly smooth uniform surface for surveying. The concrete appeared to have limited large cracks or visible crumbling. Fifteen (15) total and removable alpha/beta measurements were taken on the concrete footings throughout the warehouses. Any suspect areas, based on surveyor's experience, were scanned and investigated. Expansion joints that had a build up of dirt and debris, visible stains, corners, and areas of excessive dirt/dust buildup were scanned. Table 4-8 presents a summary of the survey results obtained on the concrete interior walls. Actual survey data is contained within Appendix A.

Table 4-8 Concrete Wall Survey Data Summary

	Removable alpha dpm/100 cm^2	Removable beta dpm/100 cm^2	Total alpha dpm/100 cm^2	Total beta dpm/100 cm^2
Min	21	84	49	202
Max	21	84	75	797
Mean	21	84	57	457
Std Dev	0	0	10	182
Median	21	84	53	457
Number	15	15	15	15

4.3 FIRE MAIN/STEAM PIPING/HORIZONTAL SURFACES

As stated in the plan, limited effort was to be expended in investigation of the overhead surfaces, unless conditions warranted. Scanning and fixed point surveys were taken on the fire main piping, the steam piping, sprinkler piping and the overhead light fixtures. It did not appear that 30 years of accumulated dust was present on the top side of these components. Additional survey data was obtained on top of the coolers, offices within L-37-3, angle support beams, and other horizontal surfaces safely accessible with the tools available at the time of the survey. No removable contamination above the MDC was detected on any of these components and the total readings were a fraction of the established screening level. The actual survey data is presented in Appendix A.

Table 4-11 Warehouse L-37-1, 2, and 3 Loading Dock Metal Data Summary

	Total alpha dpm/100 cm^2	Total beta dpm/100 cm^2
Min	0	0
Max	421	272
Mean	147	55
Std Dev	150	103
Median	125	0
Number	10	10

Table 4-12 Warehouse L-37-4 Loading Dock Metal Data Summary

	Total alpha dpm/100 cm^2	Total beta dpm/100 cm^2
Min	134	431
Max	486	1053
Mean	344	910
Std Dev	99	181
Median	350	968
Number	13	13

4.4.3 Load Out No. 3 (LO3)

LO3 is unique to warehouse L-37-3. LO3 is a small (approximately 6 ft wide) cargo door located on the east end of L-37-3 in the southeast corner with an attached cargo lip. The lip of this door is constructed of asphalt, wood, and a metal plate/angle iron. This cargo door may have been present during AEC operations and was targeted for radiological scanning. The scanning quickly established elevated counts on the metal when compared to the surrounding materials at LO3. The metal on LO3 had similar counts to the other metal present on the loading docks, however, the thickness and design of this particular metal appeared different. Table 4-13 presents the summary of the actual LO3 metal survey data. Table 4-14 presents the summary of the remaining media data collected on the LO3 platform. The actual survey data is presented in Appendix A.

Table 4-13 LO3 Metal Data Summary

	Total alpha dpm/100 cm^2	Total beta dpm/100 cm^2
Min	129	240
Max	567	1011
Mean	336	527
Std Dev	129	271
Median	348	534
Number	18	18

Table 4-14 LO 3 Remaining Data Summary

	Total alpha dpm/100 cm^2	Total beta dpm/100 cm^2
Min	68	240
Max	118	485
Mean	74	307
Std Dev	16	103
Median	68	240
Number	21	21

5.0 DATA QUALITY OBJECTIVES

The specific data quality objectives (DQO) established for the site reconnaissance survey, method of accomplishment, and additional information applicable to the survey are presented in Table 5-1.

Table 5-1 DQOs

DQO	Method of Accomplishment	Comments
Quality Assurance/Quality Control (QA/QC) duplicate removable contamination measurements will be collected at a frequency of at least 1 in 20.	Two hundred sixty-seven removable alpha/beta measurements were obtained with 14 QA/QC measurements taken.	A QA/QC measurement was obtained at a frequency of 1 in 19.
Quality Assurance/Quality Control (QA/QC) duplicate alpha fixed point measurements will be collected at a frequency of at least 1 in 20	Four hundred sixty-two total alpha/beta measurements were obtained with 24 QA/QC duplicate measurements taken.	A QA/QC measurement was obtained at a frequency of 1 in 19.
Quality Assurance/Quality Control (QA/QC) duplicate beta fixed point measurements will be collected at a frequency of at least 1 in 20.	Four hundred sixty-two total alpha/beta measurements were obtained with 24 QA/QC duplicate measurements taken.	A QA/QC measurement was obtained at a frequency of 1 in 19.
Radiological field instruments used for site reconnaissance surveys will be quality control checked at the beginning of each survey day to determine acceptance and usability of data collected. The established acceptance criteria will be instrument background within ±3 standard deviations of the mean site background and source checks within ±20% of the known value.	Actual instrument efficiencies and background values were compared to the values used during modeling. All values were not ±20%.	Daily QC checks are documented within SAIC health physics program and are a retained portion of the Radiation Protection Program.
To validate scan, total, and removable minimum detectable concentration (MDC)/minimum detectable activity (MDA) values, the actual radiological instruments used will have site specific background and efficiency values ±20% of the values used in modeling. If instrument background and efficiency values fall outside this range, new site specific MDC/MDAs will be calculated.	Instrument background values were used vice site specific background values. The instrument background values obtained on site were compared to the actual value used in calculating the MDC. Actual instrument efficiency was compared to instrument efficiency used in original MDC calculation.	All MDC/MDAs were recalculated with instrument specific variables and the results are shown in Table 5-1.

Table 5-1 DQO (Cont'd)

DQO	Method of Accomplishment	Comments
Target MDA of 50% of the screening level for all survey instrumentation.	The actual MDA/MDC of all survey instruments were compared to the established screening levels.	Removable alpha contamination MDC was 21 dpm/100 cm^2 or 35% of the established screening level. Removable beta contamination MDC was 84 dpm/100 cm^2 or 14% of the established screening level. The highest total alpha contamination MDC used during this survey was 68 dpm/100 cm^2 or 34% of the established screening level. The highest total beta contamination MDC was 240 dpm/100 cm^2 or 4% for total fixed point measurements. The highest beta scanning MDC was 444 dpm/100 cm^2 or 9% of the established screening level for beta scanning.
A minimum of seventy-five fixed point and removable measurements will be performed in each of the three warehouses. The measurements will be distributed across the various types of media present in the warehouses.	The survey of each warehouse was subdivided using the existing subdivision brick walls into three sections. Each section was divided into the floors and the walls. An attempt was made to perform at least 10 random and 5 biased measurements on the floor and at least 10 random measurements on the walls in each section, for a total of at least 25 measurements in each section, resulting in 75 measurements in each warehouse with an additional 5 measurements taken on the associated loading dock.	44 floor, 31 wall and 5 loading dock measurements were obtained in L-37-1 for a total of 80 measurements. An additional 63 total alpha/beta measurements were obtained on the associated loading dock. 48 floor, 32 wall and 5 loading dock measurements were obtained in L-37-2 for a total of 85 measurements. An additional 74 total alpha/beta measurements were obtained on the associated loading dock. 45 floor, 34 wall and 5 loading dock measurements were obtained in L-37-2 for a total of 84 measurements. An additional 46 total alpha/beta measurements were obtained on the associated loading dock, not including the measurements obtained on Load Out #3.
	The measurements on the wall concentrated on gathering information on the various types of media present. A walkthrough survey of all the warehouses targeted media type not represented in the final data set and collected data to represent all media.	Interior concrete, unpainted plywood, painted plywood, insulation, brick, steam piping, fire main piping, sprinkler piping, door ledges, window ledges, overhead lights, office roofs, and wooden beams were the surveyed media types.

6.0 SAMPLE AND WASTE DISPOSITION

There was a limited amount of waste generated as a result of this survey. The waste generated consisted of personal protective equipment (PPE) (surgeon and cotton gloves) and swipes. The PPE was surveyed for unrestricted release and placed in "clean" trash for disposal. No radioactive waste was generated during the Site Reconnaissance Survey.

7.0 CONCLUSION

A significant amount of data was collected during this survey event. Data is generally below screening levels without considering the natural occurring radioactive material known to be present. The survey confirmed the absence of detectable removable contamination present in or on the warehouse surfaces. The total alpha and beta readings did identify fluctuating radioactivity levels for the various types of media surveyed, specifically the subdivision brick, the loading dock concrete, the loading dock metal, and LO3 metal. The fluctuation in measurements necessitated collection of reference area measurements. Using the reference area measurements all net total alpha and beta measurements were below the established screening level.

Based on the available historical information and the data obtained during this reconnaissance survey the interiors of the warehouses are not radiologically impacted. Data for the warehouse loading docks exhibited a wide fluctuation in count rate. Independent of reference area variability, sufficient data was obtained to confirm that radiation levels are below unrestricted release criteria (ANSI/HPS N13.12-1999) and no single measurement exceeded the screening level for alpha or beta contamination. In addition, although no formal MARSSIM Final Status Survey Plan currently exists for this site, sufficient data was collected to be consistent with a requirements of a MARSSIM Class 3 survey. The results of this survey and historical information indicate that the warehouses can be released for unrestricted use free of radiological restrictions.

8.0 REFERENCES

10 CFR 20, 1995. U.S. Nuclear Regulatory Commission. "Standards for Protection Against Radiation".

American National Standards Institute (ANSI), 1997. *Radiation Protection Instrumentation Test And Calibration – Portable Survey Instruments*, N323A, New York.

Argonne National Laboratory, 2002. *RESRAD-BUILD software, Version 3.21.*

Environmental Protection Agency (EPA), 2000. EPA 402-R-97-016, *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)*, Revision 1, August.

Nuclear Regulatory Commission (NRC). 1998. *Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions.* NUREG/CR-1507, Final, NRC, Washington, D.C.

Science Applications International Corporation (SAIC), 2001, Revision 1. St. Louis Health Physics Procedures Manual.

SAIC, 1999a. *FUSRAP St. Louis, Laboratory Quality Assurance Manual and Laboratory Procedures Manual.*

SAIC, 1999b. *St. Louis Environmental Compliance and Health and Safety (EC&HS) Procedures Manual.*

USACE, 2000a. *Site Safety and Health Plan (SSHP) for Site Activities at the St. Louis Airport Site at St. Louis, Missouri.* January.

USACE, 2000b. *Sampling and Analysis Guide for the St. Louis Sites.* Final, October.

USACE, 1996. *Remedial Investigation/Risk Assessment, Iowa Army Ammunition Plant, Middletown Iowa.* May, Draft Final.

APPENDIX A

IAAAP RECONNASAINCE SURVEY DATA

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-1 Floors**	HSWP: S-03-012.0	Page 1 of 5
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/11/03	TIME: 1700

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
√ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
√ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
___ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
___ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
1	1-1-1 Concrete Floor	2	2	< 21	73	30	< 84	3	3	< 51	329	146	446
2	1-1-2 Concrete Floor	0	0	< 21	68	25	< 84	6	6	< 51	306	123	376
3	1-1-3 Concrete Floor	0	0	< 21	81	38	85	12	12	66	354	171	522
4	1-1-4 Concrete Floor	3	3	< 21	64	21	< 84	14	14	77	326	143	437
5	1-1-5 Concrete Floor	1	1	< 21	84	41	92	2	2	< 51	358	175	534
6	1-1-6 Concrete Floor	0	0	< 21	79	36	< 84	8	8	< 51	324	141	431
7	1-1-7 Concrete Floor	1	1	< 21	79	36	< 84	8	8	< 51	366	183	559
8	1-1-8 Concrete Floor	2	2	< 21	83	40	90	10	10	54	366	183	559

REMARKS: Survey Location example name # 1-2-3. The number "1" represents the warehouse in which the survey was performed. The number "2" stands for the section (east to west) of the warehouse that was surveyed. The number "3" indicates this is the third smear taken. Footer is the concrete support for vertical beams attached to the floors. MDA for 43-89 D (#164691) is 51 $dpm/100cm^2$ alpha and 215 $dpm/100cm^2$ beta. MDA for 43-10-1 (#166716) is 21 $dpm/100cm^2$ alpha and 84 $dpm/100cm^2$ beta.

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-1 Floors**

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
9	1-2-9 Concrete Floor	0	0	< 21	83	40	90	4	4	< 51	392	209	638
10	1-2-10 Concrete Floor	2	2	< 21	56	13	< 84	10	10	54	420	237	724
11	1-2-11 Concrete Floor	0	0	< 21	79	36	< 84	8	8	< 51	334	151	461
12	1-2-12 Concrete Floor	1	1	< 21	74	31	< 84	8	8	< 51	372	189	577
13	1-2-13 Concrete Floor	0	0	< 21	79	36	< 84	6	6	< 51	360	177	540
14	1-2-14 Concrete Floor	1	1	< 21	70	27	< 84	4	4	< 51	394	211	644
15	1-2-15 Concrete Floor	0	0	< 21	93	50	112	6	6	< 51	392	209	638
16	1-2-16 Concrete Floor	1	1	< 21	69	26	< 84	6	6	< 51	372	189	577
17	1-2-17 Concrete Floor	1	1	< 21	81	38	85	10	10	54	394	211	644
18	1-2-18 Concrete Floor	0	0	< 21	65	22	< 84	4	4	< 51	386	203	620
19	1-3-19 Concrete Floor	0	0	< 21	69	26	< 84	8	8	< 51	372	189	577
20	1-3-20 Concrete Floor	0	0	< 21	77	34	< 84	6	6	< 51	346	163	498
20 QA/QC	1-3-20 Concrete Floor	0	0	< 21	51	8	< 84	6	6	< 51	364	181	553
21	1-3-21 Concrete Floor	2	2	< 21	80	37	< 84	14	14	77	376	193	589
22	1-3-22 Concrete Floor	1	1	< 21	60	17	< 84	8	8	< 51	376	193	589
23	1-3-23 Concrete Floor	1	1	< 21	73	30	< 84	14	14	77	400	217	663

REMARKS:

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-1 Floors**

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
24	1-3-24 Concrete Floor	2	2	< 21	70	27	< 84	12	12	66	412	229	699
25	1-3-25 Concrete Footer	0	0	< 21	60	17	< 84	24	24	134	338	155	473
26	1-3-26 Concrete Floor	1	1	< 21	79	36	< 84	8	8	< 51	390	207	632
27	1-3-27 Concrete Floor	0	0	< 21	72	29	< 84	20	20	111	390	207	632
28	1-3-28 Connecting Hall Floor	0	0	< 21	78	35	< 84	10	10	54	356	173	528
29	1-3-29 Connecting Hall Floor	0	0	< 21	59	16	< 84	14	14	77	390	207	632
30	1-3-30 Connecting Hall Floor	1	1	< 21	70	27	< 84	8	8	< 51	380	197	602
31	1-1-31 Concrete seam	0	0	< 21	42	0	< 84	14	14	77	408	225	687
32	1-1-32 Concrete seam	0	0	< 21	36	0	< 84	8	8	< 51	282	99	302
33	1-1-33 Concrete seam	0	0	< 21	30	0	< 84	12	12	66	354	171	522
34	1-2-34 Concrete footer	0	0	< 21	40	0	< 84	12	12	66	364	181	553
35	1-2-35 Concrete floor,soiled area	1	1	< 21	38	0	< 84	12	12	66	348	165	504
36	1-2-36 Concrete seam	0	0	< 21	74	31	< 84	4	4	< 51	288	105	321
37	1-2-37 Concrete floor	0	0	< 21	46	3	< 84	8	8	< 51	372	189	577
38	1-1-38 Concrete floor stain	2	2	< 21	42	0	< 84	10	10	54	470	287	876
39	1-1-39 Concrete seam	0	0	< 21	46	3	< 84	8	8	< 51	372	189	577

REMARKS:

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-1 Floors** | Page 4 of 5

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
40	1-3-40 Concrete seam	2	2	< 21	52	9	< 84	12	12	66	340	157	479
41	1-3-41 Concrete seam	0	0	< 21	54	11	< 84	20	20	111	406	223	681
41 QA/QC	1-3-41 Concrete seam	0	0	< 21	52	9	< 84	16	16	89	424	241	736
42	1-3-42 Concrete seam	2	2	< 21	34	0	< 84	26	26	145	374	191	583
43	1-3-43 Concrete floor crack	0	0	< 21	66	23	< 84	14	14	77	392	209	638
44	1-3-44 Concrete floor crack	4	4	< 21	60	17	< 84	8	8	< 51	390	207	632

REMARKS:

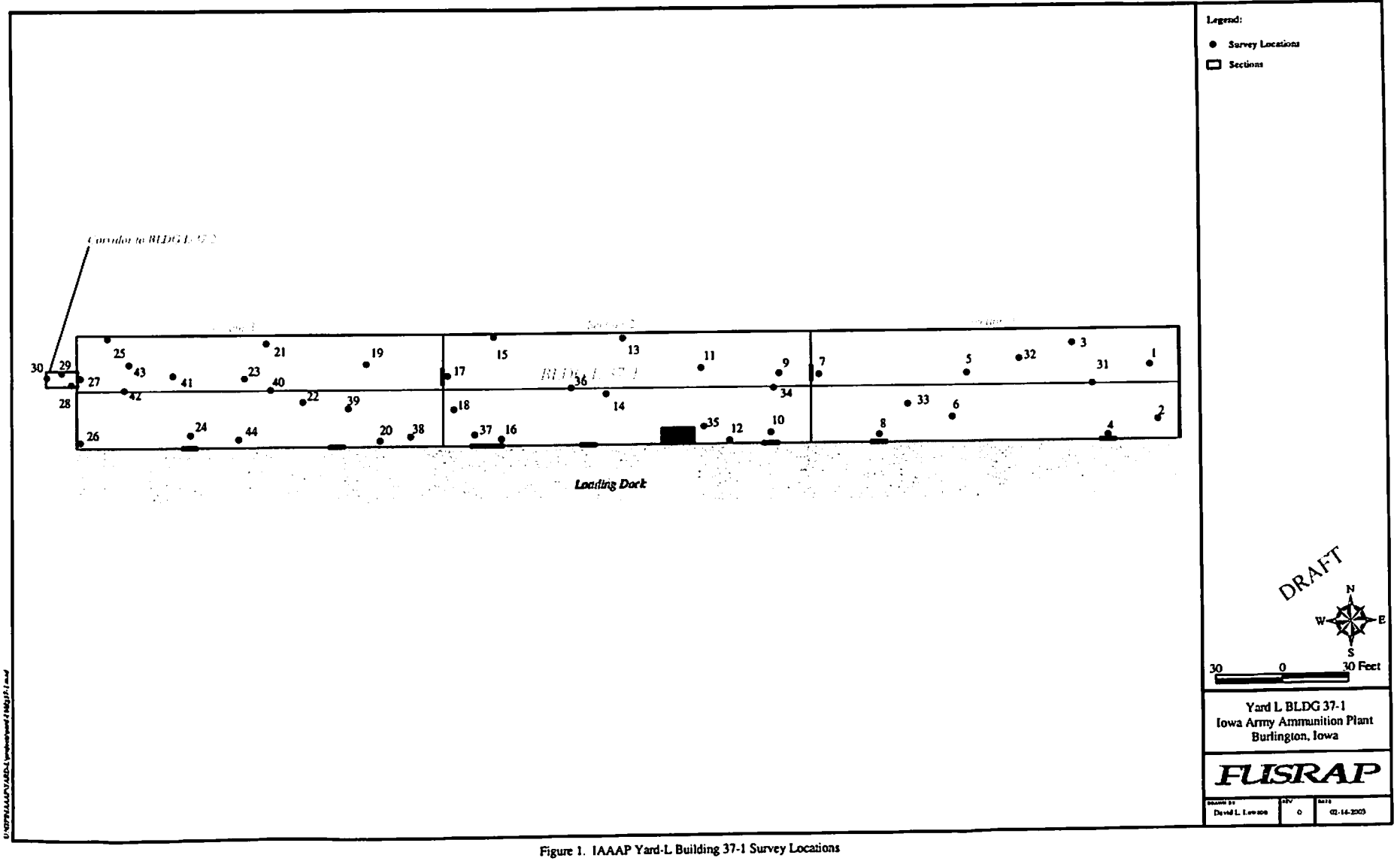

Figure 1. IAAAP Yard-L Building 37-1 Survey Locations

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-1 Walls**	HSWP: S-03-012.0	Page 1 of 4
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/11/03	TIME: 1700

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
√ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
___ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
√ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
___ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	$dpm/100cm^2$ α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	$dpm/100cm^2$ βγ Removable	Gross CPM α Total	Net CPM α Total	$dpm/100cm^2$ α Total	Gross CPM βγ Total	Net CPM βγ Total	$dpm/100cm^2$ βγ Total
1	1-1-1 A-corner concrete step	0	0	< 21	66	23	< 84	12	12	64	396	202	563
2	1-1-2 B-C plywood	2	2	< 21	50	7	< 84	14	14	75	274	80	223
3	1-1-3 E-F north wall plywood	0	0	< 21	52	9	< 84	4	4	< 49	206	12	< 202
4	1-1-4 H-I north wall plywood	2	2	< 21	46	3	< 84	8	8	< 49	220	26	< 202
5	1-1-5 K-L north wall concrete footing	0	0	< 21	38	0	< 84	10	10	53	314	120	334
6	1-1-6 brick wall	4	4	< 21	48	5	< 84	4	4	< 49	684	490	1366
7	1-1-7 O-P south wood behind insulation	0	0	< 21	56	13	< 84	22	22	118	642	448	1249
8	1-1-8 L-M north insulation crack	0	0	< 21	46	3	< 84	6	6	< 49	402	208	580

REMARKS: Survey Location example name # 1-2-3. The number "1" represents the warehouse in which the survey was performed. The number "2" stands for the section (east to west) of the warehouse that was surveyed. The number "3" indicates this is the third smear taken. Capital letters (e.g., A, B-C, E-F, etc.) correspond to markings on vertical beams down the centerline of the warehouses. Remarks continued on page 2. MDA for 43-89 E (#168036) is 49 $dpm/100cm^2$ alpha and 202 $dpm/100cm^2$ beta. MDA for 43-10-1 (#166716) is 21 $dpm/100cm^2$ alpha and 84 $dpm/100cm^2$ beta.

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-1 Walls**

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
9	1-1-9 north wall concrete footer	2	2	< 21	46	3	< 84	12	12	64	406	212	591
10	1-1-10 A- south wall	0	0	< 21	48	5	< 84	8	8	< 49	398	204	569
11	1-2-1 brick	0	0	< 21	58	15	< 84	4	4	< 49	640	446	1243
12	1-2-2 C-D north wall	2	2	< 21	32	0	< 84	4	4	< 49	282	88	245
13	1-2-3 F-G north concrete footing	4	4	< 21	52	9	< 84	8	8	< 49	244	50	< 202
14	1-2-4 N-O north wall plywood	4	4	< 21	38	0	< 84	8	8	< 49	242	48	< 202
15	1-2-5 P-Q ventilation support angle iron	0	0	< 21	46	3	< 84	2	2	< 49	266	72	< 202
16	1-2-6 south wall plywood	0	0	< 21	48	5	< 84	2	2	< 49	244	50	< 202
17	1-2-7 north wall brick	0	0	< 21	54	11	< 84	4	4	< 49	720	526	1466
18	1-2-8 D-E south wall	0	0	< 21	76	33	< 84	6	6	< 49	246	52	< 202
19	1-2-9 A-B south insulation	2	2	< 21	66	23	< 84	4	4	< 49	304	110	307
20	1-2-10 east face of brick wall	2	2	< 21	52	9	< 84	8	8	< 49	668	474	1321
21	1-3-1 east face of brick wall	2	2	< 21	40	0	< 84	6	6	< 49	636	442	1232
22	1-3-2 A-B south wall plywood	0	0	< 21	40	0	< 84	0	0	< 49	220	26	< 202
23	1-3-3 D-E south concrete footer	0	0	< 21	34	0	< 84	6	6	< 49	342	148	413
23 QA/QC	1-3-3QC D-E south concrete footer	0	0	< 21	48	5	< 84	4	4	< 49	328	134	374

REMARKS:

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-1 Walls**

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
24	1-3-4 G-H north wall	0	0	< 21	38	0	< 84	4	4	< 49	234	40	< 202
25	1-3-5 O-P south wall plywood	0	0	< 21	48	5	< 84	6	6	< 49	248	54	< 202
26	1-3-6 west wall plywood	0	0	< 21	44	1	< 84	4	4	< 49	232	38	< 202
27	1-3-7 west fire main	0	0	< 21	38	0	< 84	6	6	< 49	304	110	307
28	1-3-8 west wall insulation	0	0	< 21	60	17	< 84	2	2	< 49	278	84	234
29	1-3-9 G-H south wooden wall	0	0	< 21	42	0	< 84	4	4	< 49	244	50	< 202
30	1-3-10 east wall brick	0	0	< 21	48	5	< 84	2	2	< 49	646	452	1260
31	1-3-11 column B-C wood	0	0	< 21	46	3	< 84	4	4	< 49	242	48	< 202

REMARKS:

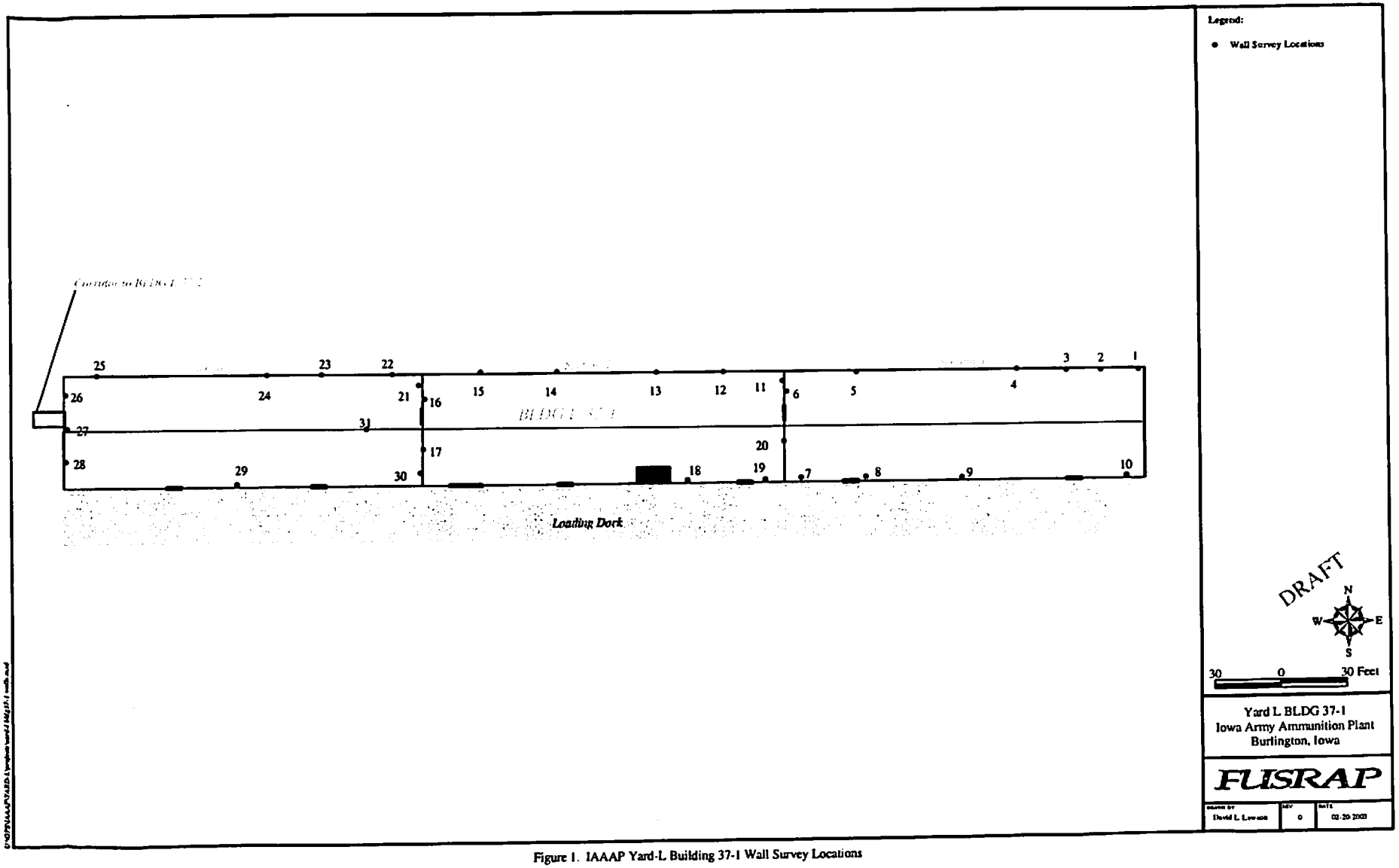

Figure 1. IAAAP Yard-L Building 37-1 Wall Survey Locations

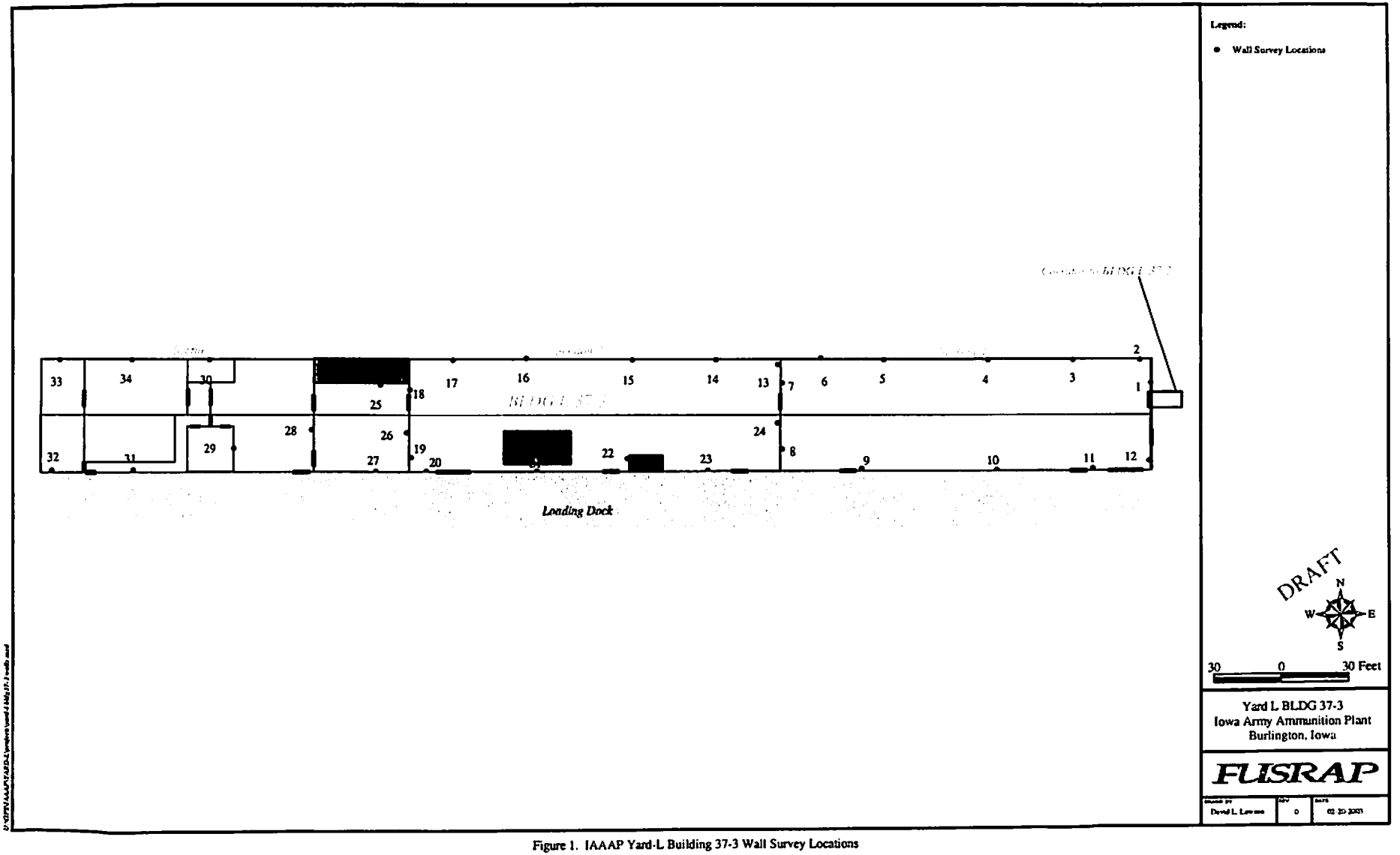

Figure 1. IAAAP Yard-L Building 37-3 Wall Survey Locations

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-3 Overhead**	HSWP: S-03-012.0	Page 1 of 2
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/12/03	TIME: 1700

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
√ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
√ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
___ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
___ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	$dpm/100cm^2$ α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	$dpm/100cm^2$ βγ Removable	Gross CPM α Total	Net CPM α Total	$dpm/100cm^2$ α Total	Gross CPM βγ Total	Net CPM βγ Total	$dpm/100cm^2$ βγ Total
1	top of asbestos room	2	2	< 21	26	0	< 84	4	4	< 51	262	79	241
2	sprinkler pipe	0	0	< 21	44	1	< 84	6	6	< 51	198	15	< 215
3	overhead light	2	2	< 21	56	13	< 84	10	10	54	348	165	504
4	wooden beam	4	4	< 21	64	21	< 84	18	18	100	184	1	< 215
5	sprinkler pipe	2	2	< 21	40	-3	< 84	14	14	77	300	117	357
6	sprinkler pipe	0	0	< 21	48	5	< 84	14	14	77	402	219	669
7	door ledge	2	2	< 21	46	3	< 84	18	18	100	216	33	< 215
8	office roof	0	0	< 21	50	7	< 84	12	12	66	298	115	351

REMARKS: MDA for 43-89 D (#164691) is 51 $dpm/100cm^2$ alpha and 215 $dpm/100cm^2$ beta. MDA for 43-10-1 (#166716) is 21 $dpm/100cm^2$ alpha and 84 $dpm/100cm^2$ beta.

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-3 Overhead**

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
9	fire main pipe	0	0	< 21	48	5	< 84	14	14	77	250	67	< 215
10	steam pipe	0	0	< 21	58	15	< 84	2	2	< 51	262	79	241
11	window ledge	0	0	< 21	62	19	< 84	10	10	54	238	55	< 215
12	wood beam	0	0	< 21	42	0	< 84	12	12	66	278	95	290
13	steam pipe	0	0	< 21	30	0	< 84	10	10	54	282	99	302
14	sprinkler	0	0	< 21	40	0	< 84	14	14	77	276	93	284

REMARKS:

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-3 Loading Dock Direct Frisk**	HSWP: S-03-012.0	Page 1 of 3
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/13/03	TIME: 0930

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
___ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
√ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
___ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
___ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
___ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
1	rust stain	N/A	N/A	N/A	N/A	N/A	N/A	78	77	415	432	207	591
2	dock	N/A	N/A	N/A	N/A	N/A	N/A	16	15	80	306	81	231
3	dock	N/A	N/A	N/A	N/A	N/A	N/A	20	19	102	384	159	454
4	dirt from dried puddle of water	N/A	N/A	N/A	N/A	N/A	N/A	6	5	< 61	338	113	323
5	crack	N/A	N/A	N/A	N/A	N/A	N/A	16	15	80	386	161	460
6	newer patch of concrete, rust stain from rebar	N/A	N/A	N/A	N/A	N/A	N/A	32	31	166	320	95	271
7	6" away from sample #6 above, no rust stain	N/A	N/A	N/A	N/A	N/A	N/A	10	9	< 61	346	121	346
8	painted concrete around downspout	N/A	N/A	N/A	N/A	N/A	N/A	50	49	264	512	287	820
9	metallic paint drips	N/A	N/A	N/A	N/A	N/A	N/A	32	31	166	408	183	523
10	concrete w/ yellow faded paint (next to conduit)	N/A	N/A	N/A	N/A	N/A	N/A	54	53	285	528	303	866
11	dock	N/A	N/A	N/A	N/A	N/A	N/A	38	37	199	380	155	443
11 QA/QC	dock	N/A	N/A	N/A	N/A	N/A	N/A	36	35	188	364	139	397

REMARKS: MDA for 43-89 C (#164333) is 61 $dpm/100cm^2$ alpha and 221 $dpm/100cm^2$ beta. All survey locations were on concrete surfaces.

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-3 Loading Dock Direct Frisk**

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
12	dirt from dried puddle of water	N/A	N/A	N/A	N/A	N/A	N/A	14	13	69	308	83	237
13	dock	N/A	N/A	N/A	N/A	N/A	N/A	28	27	145	362	137	391
14	rust stain	N/A	N/A	N/A	N/A	N/A	N/A	40	39	210	348	123	351
15	in front of truck door #6, newer concrete surface	N/A	N/A	N/A	N/A	N/A	N/A	12	11	< 61	310	85	243
16	exposed area of older concrete under newer surface	N/A	N/A	N/A	N/A	N/A	N/A	18	17	91	390	165	471
17	dark soiled concrete	N/A	N/A	N/A	N/A	N/A	N/A	22	21	112	342	117	334
18	newer patch of concrete, different from sample #15	N/A	N/A	N/A	N/A	N/A	N/A	20	19	102	322	97	277
19	in front of door #4, stained from black rubber	N/A	N/A	N/A	N/A	N/A	N/A	40	39	210	518	293	837
20	dock	N/A	N/A	N/A	N/A	N/A	N/A	16	15	80	324	99	283
21	dock	N/A	N/A	N/A	N/A	N/A	N/A	18	17	91	348	123	351
22	dock	N/A	N/A	N/A	N/A	N/A	N/A	6	5	< 61	340	115	329
23	dock	N/A	N/A	N/A	N/A	N/A	N/A	12	11	< 61	370	145	414
24	beginning of newer concrete dock	N/A	N/A	N/A	N/A	N/A	N/A	20	19	102	272	47	< 221
25	newer concrete dock	N/A	N/A	N/A	N/A	N/A	N/A	2	1	< 61	334	109	311
26	newer concrete dock	N/A	N/A	N/A	N/A	N/A	N/A	20	19	102	282	57	< 221
27	newer concrete dock	N/A	N/A	N/A	N/A	N/A	N/A	24	23	123	354	129	369
28	newer concrete dock, dark stain	N/A	N/A	N/A	N/A	N/A	N/A	22	21	112	306	81	231
29	newer concrete dock	N/A	N/A	N/A	N/A	N/A	N/A	10	9	< 61	268	43	< 221
29 QA/QC	newer concrete dock	N/A	N/A	N/A	N/A	N/A	N/A	12	11	< 61	284	59	< 221
30	newer concrete dock	N/A	N/A	N/A	N/A	N/A	N/A	20	19	102	342	117	334
31	newer concrete dock	N/A	N/A	N/A	N/A	N/A	N/A	26	25	134	324	99	283
32	newer concrete dock, dark stain	N/A	N/A	N/A	N/A	N/A	N/A	22	21	112	306	81	231
33	newer concrete dock	N/A	N/A	N/A	N/A	N/A	N/A	24	23	123	314	89	254
34	newer concrete dock	N/A	N/A	N/A	N/A	N/A	N/A	18	17	91	286	61	< 221
35	newer concrete dock	N/A	N/A	N/A	N/A	N/A	N/A	26	25	134	356	131	374
36	newer concrete dock	N/A	N/A	N/A	N/A	N/A	N/A	20	19	102	286	61	< 221

REMARKS:

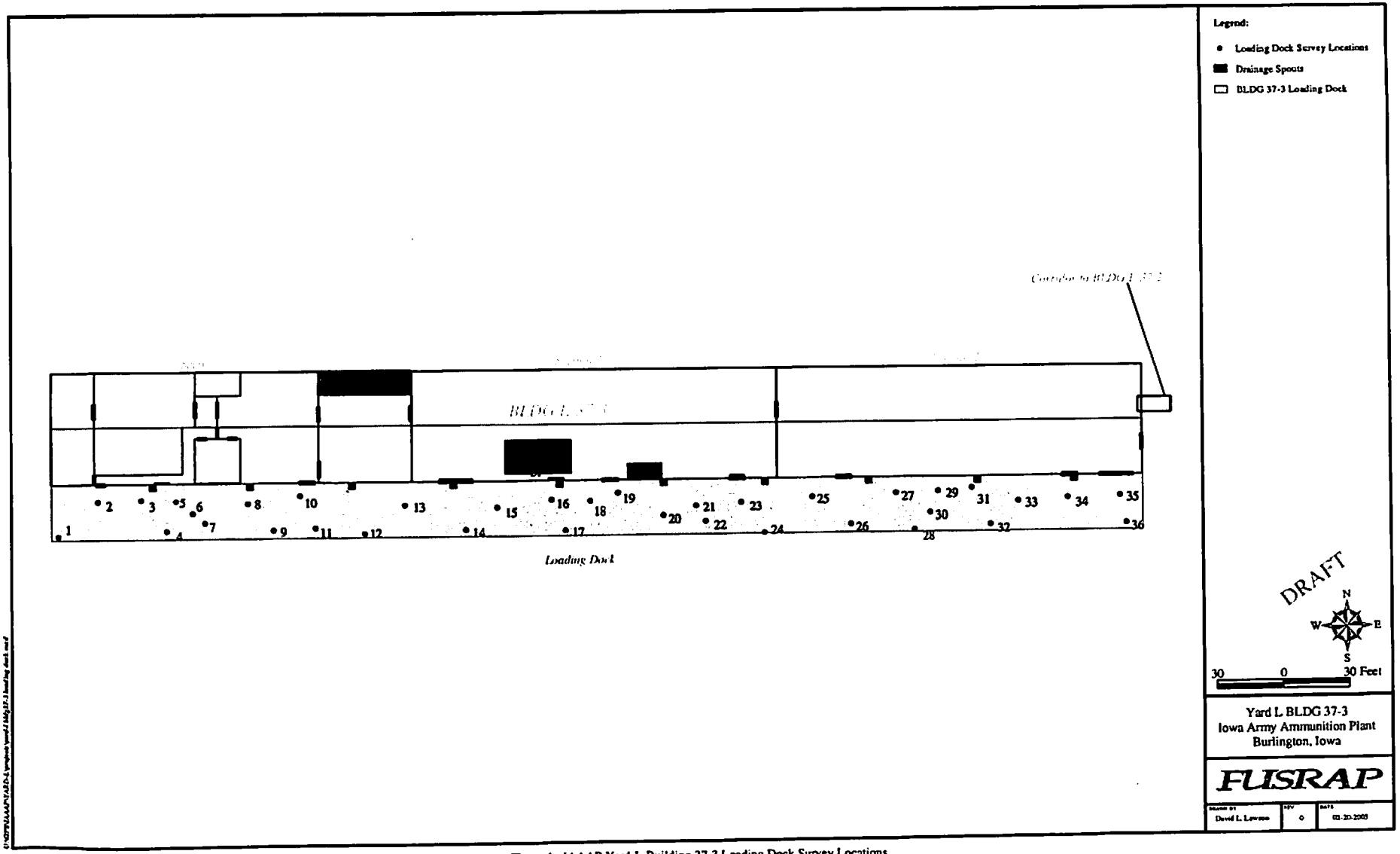

Figure 1. IAAP Yard-L Building 37-3 Loading Dock Survey Locations

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **Warehouse L-37-3 Loading Dock Face and Underside Direct Frisk**	HSWP: S-03-012.0	Page 1 of 1
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/13/03	TIME: 1030

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
___ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
___ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
___ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
√ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: (dpm/100cm²) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
1	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	28	27	153	300	69	< 240
2	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	42	41	233	316	85	260
3	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	26	25	141	380	149	455
4	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	28	27	153	394	163	498
5	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	52	51	291	404	173	528
6	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	2	1	< 68	354	123	376
7	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	6	5	< 68	300	69	< 240
8	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	4	3	< 68	412	181	553
9	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	6	5	< 68	380	149	455
10	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	6	5	< 68	344	113	345

REMARKS: MDA for 43-89 P (#168053) is 68 dpm/100cm² alpha and 240 dpm/100cm² beta. Survey locations were spaced evenly along the entire length of the dock. All survey locations were on concrete surfaces. Underside and vertical face measurements were taken at the same locations in pairs: #1/6, 2/7, 3/8, 4/9, and 5/10.

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **Warehouse L-37-3 Loading Dock LO3 Metal Angle Iron Cap**	HSWP: S-03-012.0	Page 1 of 2
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/12/03	TIME: 1700

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
___ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
___ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
___ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
√ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	$dpm/100cm^2$ α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	$dpm/100cm^2$ βγ Removable	Gross CPM α Total	Net CPM α Total	$dpm/100cm^2$ α Total	Gross CPM βγ Total	Net CPM βγ Total	$dpm/100cm^2$ βγ Total
1	loading dock metal cap top	N/A	N/A	N/A	N/A	N/A	N/A	68	67	383	430	199	608
2	loading dock metal cap top	N/A	N/A	N/A	N/A	N/A	N/A	62	61	348	486	255	779
3	loading dock metal cap top	N/A	N/A	N/A	N/A	N/A	N/A	100	99	567	422	191	583
4	loading dock metal cap top	N/A	N/A	N/A	N/A	N/A	N/A	92	91	521	524	293	895
5	loading dock metal cap top	N/A	N/A	N/A	N/A	N/A	N/A	80	79	452	562	331	1011
6	loading dock metal cap top	N/A	N/A	N/A	N/A	N/A	N/A	88	87	498	504	273	834
7	loading dock metal cap top	N/A	N/A	N/A	N/A	N/A	N/A	64	63	360	464	233	711
8	loading dock metal cap top	N/A	N/A	N/A	N/A	N/A	N/A	68	67	383	470	239	730

REMARKS: MDA for 43-89 P (#168053) is 68 $dpm/100cm^2$ alpha and 240 $dpm/100cm^2$ beta.

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **Warehouse L-37-3 Loading Dock LO3 Metal Angle Iron Cap**

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
9	loading dock metal cap top	N/A	N/A	N/A	N/A	N/A	N/A	62	61	348	304	73	< 240
10	loading dock metal cap top	N/A	N/A	N/A	N/A	N/A	N/A	60	59	337	256	25	< 240
11	loading dock metal cap top	N/A	N/A	N/A	N/A	N/A	N/A	52	51	291	486	255	779
12	loading dock metal cap side	N/A	N/A	N/A	N/A	N/A	N/A	38	37	210	320	89	272
13	loading dock metal cap side	N/A	N/A	N/A	N/A	N/A	N/A	76	75	429	320	89	272
14	loading dock metal cap side	N/A	N/A	N/A	N/A	N/A	N/A	44	43	245	390	159	485
15	loading dock metal cap side	N/A	N/A	N/A	N/A	N/A	N/A	32	31	176	330	99	302
16	loading dock metal cap side	N/A	N/A	N/A	N/A	N/A	N/A	30	29	164	310	79	241
17	loading dock metal cap side	N/A	N/A	N/A	N/A	N/A	N/A	24	23	129	300	69	< 240
18	loading dock metal cap side	N/A	N/A	N/A	N/A	N/A	N/A	36	35	199	320	89	272

REMARKS:

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **Warehouse L-37-1, L-37-2, L-37-3 Loading Docks**	HSWP: S-03-012.0	Page 1 of 3
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/12/03	TIME: 1700

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
√ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
___ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
√ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
___ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	$dpm/100cm^2$ α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	$dpm/100cm^2$ βγ Removable	Gross CPM α Total	Net CPM α Total	$dpm/100cm^2$ α Total	Gross CPM βγ Total	Net CPM βγ Total	$dpm/100cm^2$ βγ Total
1	Warehouse L-37-1 concrete loading dock	0	0	< 21	30	-13	< 84	32	32	173	446	252	702
2	Warehouse L-37-1 concrete loading dock	4	4	< 21	32	-11	< 84	32	32	173	524	330	920
3	Warehouse L-37-1 concrete loading dock	0	0	< 21	42	-1	< 84	14	14	75	430	236	658
4	Warehouse L-37-1 concrete loading dock	0	0	< 21	52	9	< 84	46	46	250	448	254	708
5	Warehouse L-37-1 concrete loading dock	2	2	< 21	48	5	< 84	22	22	118	360	166	463
6	Warehouse L-37-2 concrete loading dock	0	0	< 21	40	-3	< 84	34	34	184	472	278	775
7	Warehouse L-37-2 concrete loading dock	2	2	< 21	48	5	< 84	58	58	316	474	280	780
8	Warehouse L-37-2 concrete loading dock	0	0	< 21	60	17	< 84	36	36	195	486	292	814

REMARKS: MDA for 43-89 E (#168036) is 49 $dpm/100cm^2$ alpha and 202 $dpm/100cm^2$ beta. MDA for 43-10-1 (#166716) is 21 $dpm/100cm^2$ alpha and 84 $dpm/100cm^2$ beta.

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **Warehouse L-37-1, L-37-2, L-37-3 Loading Docks**

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
8 QA/QC	Warehouse L-37-2 concrete loading dock QA/QC	0	0	< 21	58	15	< 84	34	34	184	492	298	831
9	Warehouse L-37-2 concrete loading dock	0	0	< 21	66	23	< 84	26	26	140	500	306	853
10	Warehouse L-37-2 concrete loading dock	2	2	< 21	42	-1	< 84	40	40	217	564	370	1031
11	Warehouse L-37-3 concrete loading dock	2	2	< 21	62	19	< 84	106	106	579	586	392	1093
12	Warehouse L-37-3 concrete loading dock	0	0	< 21	54	11	< 84	50	50	272	492	298	831
13	Warehouse L-37-3 concrete loading dock	0	0	< 21	48	5	< 84	86	86	469	642	448	1249
14	Warehouse L-37-3 concrete loading dock	0	0	< 21	68	25	< 84	56	56	305	562	368	1026
15	Warehouse L-37-3 concrete loading dock	0	0	< 21	42	-1	< 84	28	28	151	392	198	552

REMARKS:

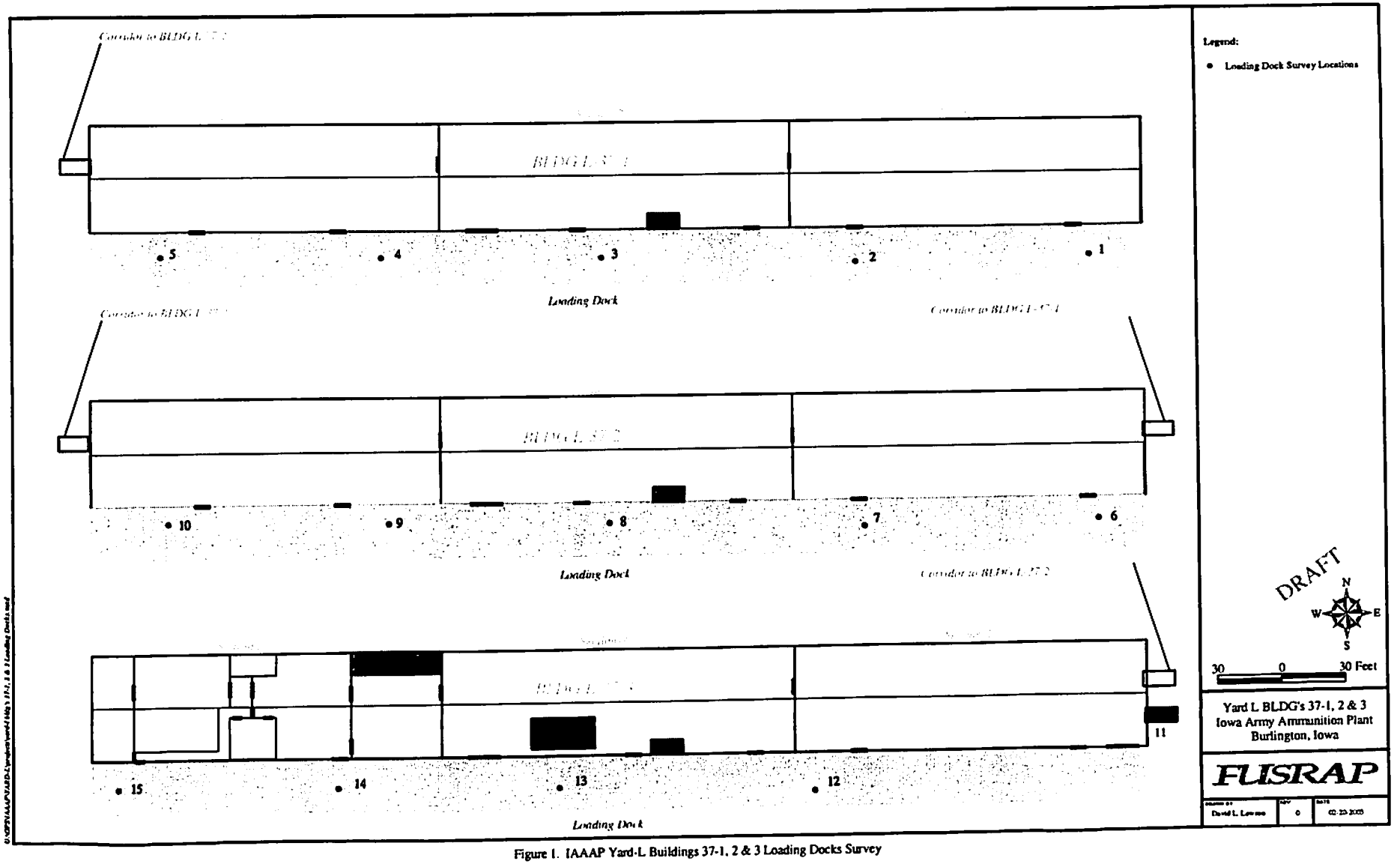

Figure 1. IAAAP Yard-L Buildings 37-1, 2 & 3 Loading Docks Survey

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-3 Loading Dock Direct Frisk LO3**	HSWP: S-03-012.0	Page 1 of 2
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/13/03	TIME: 1000

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
___ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
___ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
___ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
√ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	$dpm/100cm^2$ α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	$dpm/100cm^2$ βγ Removable	Gross CPM α Total	Net CPM α Total	$dpm/100cm^2$ α Total	Gross CPM βγ Total	Net CPM βγ Total	$dpm/100cm^2$ βγ Total
1	asphalt	N/A	N/A	N/A	N/A	N/A	N/A	12	11	< 68	390	159	485
2	asphalt	N/A	N/A	N/A	N/A	N/A	N/A	12	11	< 68	382	151	461
3	asphalt	N/A	N/A	N/A	N/A	N/A	N/A	22	21	118	346	115	351
4	asphalt	N/A	N/A	N/A	N/A	N/A	N/A	12	11	< 68	382	151	461
5	horizontal wood surface	N/A	N/A	N/A	N/A	N/A	N/A	8	7	< 68	282	51	< 240
6	horizontal wood surface	N/A	N/A	N/A	N/A	N/A	N/A	8	7	< 68	242	11	< 240
7	horizontal wood surface	N/A	N/A	N/A	N/A	N/A	N/A	18	17	95	300	69	< 240
8	horizontal wood surface	N/A	N/A	N/A	N/A	N/A	N/A	10	9	< 68	252	21	< 240

REMARKS: MDA for 43-89 P (#168053) is 68 $dpm/100cm^2$ alpha and 240 $dpm/100cm^2$ beta.

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-3 Loading Dock Direct Frisk LO3**

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
9	vertical wood surface	N/A	N/A	N/A	N/A	N/A	N/A	4	3	< 68	200	0	< 240
10	vertical wood surface	N/A	N/A	N/A	N/A	N/A	N/A	2	1	< 68	198	0	< 240
11	vertical wood surface	N/A	N/A	N/A	N/A	N/A	N/A	6	5	< 68	194	0	< 240
12	vertical wood surface	N/A	N/A	N/A	N/A	N/A	N/A	4	3	< 68	182	0	< 240

REMARKS:

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse Loading Dock Direct Frisk Concrete Reference**	HSWP: S-03-012.0	Page 1 of 1
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/13/03	TIME: 1000

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number:		Cal. Due Date:		Background: (CPM)		Efficiency (%)	
		meter	detector	meter	detector	Alpha (α)	Beta (βγ)	Alpha (α)	Beta (βγ)
___ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
___ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
___ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
√ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	$dpm/100cm^2$ α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	$dpm/100cm^2$ βγ Removable	Gross CPM α Total	Net CPM α Total	$dpm/100cm^2$ α Total	Gross CPM βγ Total	Net CPM βγ Total	$dpm/100cm^2$ βγ Total
1	concrete reference area	N/A	N/A	N/A	N/A	N/A	N/A	22	21	118	346	115	351
2	concrete reference area	N/A	N/A	N/A	N/A	N/A	N/A	36	35	199	472	241	736
3	concrete reference area	N/A	N/A	N/A	N/A	N/A	N/A	26	25	141	364	133	406
4	concrete reference area	N/A	N/A	N/A	N/A	N/A	N/A	18	17	95	380	149	455
5	concrete reference area	N/A	N/A	N/A	N/A	N/A	N/A	18	17	95	338	107	327
6	concrete reference area	N/A	N/A	N/A	N/A	N/A	N/A	24	23	129	332	101	308
7	concrete reference area	N/A	N/A	N/A	N/A	N/A	N/A	20	19	106	388	157	479
8	concrete reference area	N/A	N/A	N/A	N/A	N/A	N/A	18	17	95	400	169	516
9	concrete reference area	N/A	N/A	N/A	N/A	N/A	N/A	30	29	164	418	187	571
10	concrete reference area	N/A	N/A	N/A	N/A	N/A	N/A	16	15	83	310	79	241
11	concrete reference area	N/A	N/A	N/A	N/A	N/A	N/A	18	17	95	318	87	266
12	concrete reference area	N/A	N/A	N/A	N/A	N/A	N/A	18	17	95	286	55	< 240

REMARKS: MDA for 43-89 P (#168053) is 68 $dpm/100cm^2$ alpha and 240 $dpm/100cm^2$ beta.

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-13 Brick Wall Reference Area**	HSWP: S-03-012.0	Page 1 of 1
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/12/03	TIME: 1530

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
___ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
√ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
___ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
___ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	$dpm/100cm^2$ α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	$dpm/100cm^2$ βγ Removable	Gross CPM α Total	Net CPM α Total	$dpm/100cm^2$ α Total	Gross CPM βγ Total	Net CPM βγ Total	$dpm/100cm^2$ βγ Total
1	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	2	2	< 51	530	347	1060
2	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	4	4	< 51	566	383	1169
3	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	0	0	< 51	556	373	1139
4	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	6	6	< 51	552	369	1127
5	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	0	0	< 51	610	427	1304
6	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	0	0	< 51	562	379	1157
7	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	2	2	< 51	554	371	1133
8	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	4	4	< 51	546	363	1108
9	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	0	0	< 51	562	379	1157
10	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	2	2	< 51	588	405	1237
11	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	0	0	< 51	606	423	1292

REMARKS: MDA for 43-89 D (#164691) is 51 $dpm/100cm^2$ alpha and 215 $dpm/100cm^2$ beta.
This is the east brick firewall inside the warehouse. Warehouse L-13 is located two buildings north of L-1.

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-9 Brick Wall Reference Area**	HSWP: S-03-012.0	Page 1 of 1
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/12/03	TIME: 1500

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
___ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
√ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
___ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
___ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	$dpm/100cm^2$ α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	$dpm/100cm^2$ βγ Removable	Gross CPM α Total	Net CPM α Total	$dpm/100cm^2$ α Total	Gross CPM βγ Total	Net CPM βγ Total	$dpm/100cm^2$ βγ Total
1	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	4	4	< 51	558	375	1145
2	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	4	4	< 51	634	451	1377
3	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	2	2	< 51	552	369	1127
4	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	8	8	< 51	638	455	1389
5	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	4	4	< 51	672	489	1493
6	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	2	2	< 51	570	387	1182
7	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	8	8	< 51	582	399	1218
8	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	8	8	< 51	504	321	980
9	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	2	2	< 51	574	391	1194
10	brick wall reference area	N/A	N/A	N/A	N/A	N/A	N/A	2	2	< 51	616	433	1322

REMARKS: MDA for 43-89 D (#164691) is 51 $dpm/100cm^2$ alpha and 215 $dpm/100cm^2$ beta.
This is the west brick firewall inside the warehouse. Warehouse L-9 is located north of L-3.

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **Warehouse Loading Dock Direct Frisk L-4 Metal Reference**	HSWP: S-03-012.0	Page 1 of 1
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/12/03	TIME: 1400

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
___ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
√ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
___ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
___ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	$dpm/100cm^2$ α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	$dpm/100cm^2$ βγ Removable	Gross CPM α Total	Net CPM α Total	$dpm/100cm^2$ α Total	Gross CPM βγ Total	Net CPM βγ Total	$dpm/100cm^2$ βγ Total
1	loading dock metal reference area	N/A	N/A	N/A	N/A	N/A	N/A	58	58	327	480	297	907
2	loading dock metal reference area	N/A	N/A	N/A	N/A	N/A	N/A	30	30	168	400	217	663
3	loading dock metal reference area	N/A	N/A	N/A	N/A	N/A	N/A	24	24	134	324	141	431
4	loading dock metal reference area	N/A	N/A	N/A	N/A	N/A	N/A	82	82	463	524	341	1041
5	loading dock metal reference area	N/A	N/A	N/A	N/A	N/A	N/A	86	86	486	528	345	1053
6	loading dock metal reference area	N/A	N/A	N/A	N/A	N/A	N/A	70	70	395	500	317	968
7	loading dock metal reference area	N/A	N/A	N/A	N/A	N/A	N/A	62	62	350	448	265	809
8	loading dock metal reference area	N/A	N/A	N/A	N/A	N/A	N/A	62	62	350	510	327	998
9	loading dock metal reference area	N/A	N/A	N/A	N/A	N/A	N/A	60	60	338	518	335	1023
10	loading dock metal reference area	N/A	N/A	N/A	N/A	N/A	N/A	66	66	372	484	301	919
11	loading dock metal reference area	N/A	N/A	N/A	N/A	N/A	N/A	72	72	406	518	335	1023
12	loading dock metal reference area	N/A	N/A	N/A	N/A	N/A	N/A	58	58	327	492	309	944
13	loading dock metal reference area	N/A	N/A	N/A	N/A	N/A	N/A	62	62	350	526	343	1047

REMARKS: MDA for 43-89 D (#164691) is 51 $dpm/100cm^2$ alpha and 215 $dpm/100cm^2$ beta.

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-1 Loading Dock Direct Frisk**	HSWP: S-03-012.0	Page 1 of 3
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/13/03	TIME: 1000

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
___ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
___ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
___ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
√ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	$dpm/100cm^2$ α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	$dpm/100cm^2$ βγ Removable	Gross CPM α Total	Net CPM α Total	$dpm/100cm^2$ α Total	Gross CPM βγ Total	Net CPM βγ Total	$dpm/100cm^2$ βγ Total
1	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	28	27	153	408	177	540
2	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	16	15	83	314	83	253
3	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	24	23	129	360	129	394
4	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	58	57	325	400	169	516
5	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	24	23	129	392	161	492
6	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	34	33	187	342	111	339
7	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	26	25	141	324	93	284
8	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	22	21	118	410	179	547

REMARKS: MDA for 43-89 P (#168053) is 68 $dpm/100cm^2$ alpha and 240 $dpm/100cm^2$ beta.

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-1 Loading Dock Direct Frisk**

Contamination Limits: (dpm/100cm²) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
9	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	14	13	72	296	65	< 240
10	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	18	17	95	320	89	272
11	concrete loading dock (reddish stains)	N/A	N/A	N/A	N/A	N/A	N/A	32	31	176	418	187	571
12	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	30	29	164	402	171	522
13	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	26	25	141	332	101	308
13 QA/QC	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	24	23	129	330	99	302
14	concrete loading dock (reddish stains)	N/A	N/A	N/A	N/A	N/A	N/A	34	33	187	404	173	528
15	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	22	21	118	390	159	485
16	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	22	21	118	440	209	638
17	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	28	27	153	430	199	608
18	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	16	15	83	390	159	485
19	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	24	23	129	396	165	504
20	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	34	33	187	468	237	724
21	concrete loading dock (reddish stains)	N/A	N/A	N/A	N/A	N/A	N/A	30	29	164	394	163	498
22	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	24	23	129	400	169	516
23	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	42	41	233	382	151	461
24	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	36	35	199	390	159	485
25	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	40	39	222	440	209	638
26	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	22	21	118	396	165	504
27	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	36	35	199	420	189	577
28	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	38	37	210	572	341	1041
29	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	14	13	72	404	173	528
29 QA/QC	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	16	15	83	386	155	473
30	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	12	11	< 68	362	131	400
31	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	28	27	153	400	169	516
32	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	30	29	164	446	215	656
33	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	14	13	72	364	133	406

REMARKS:

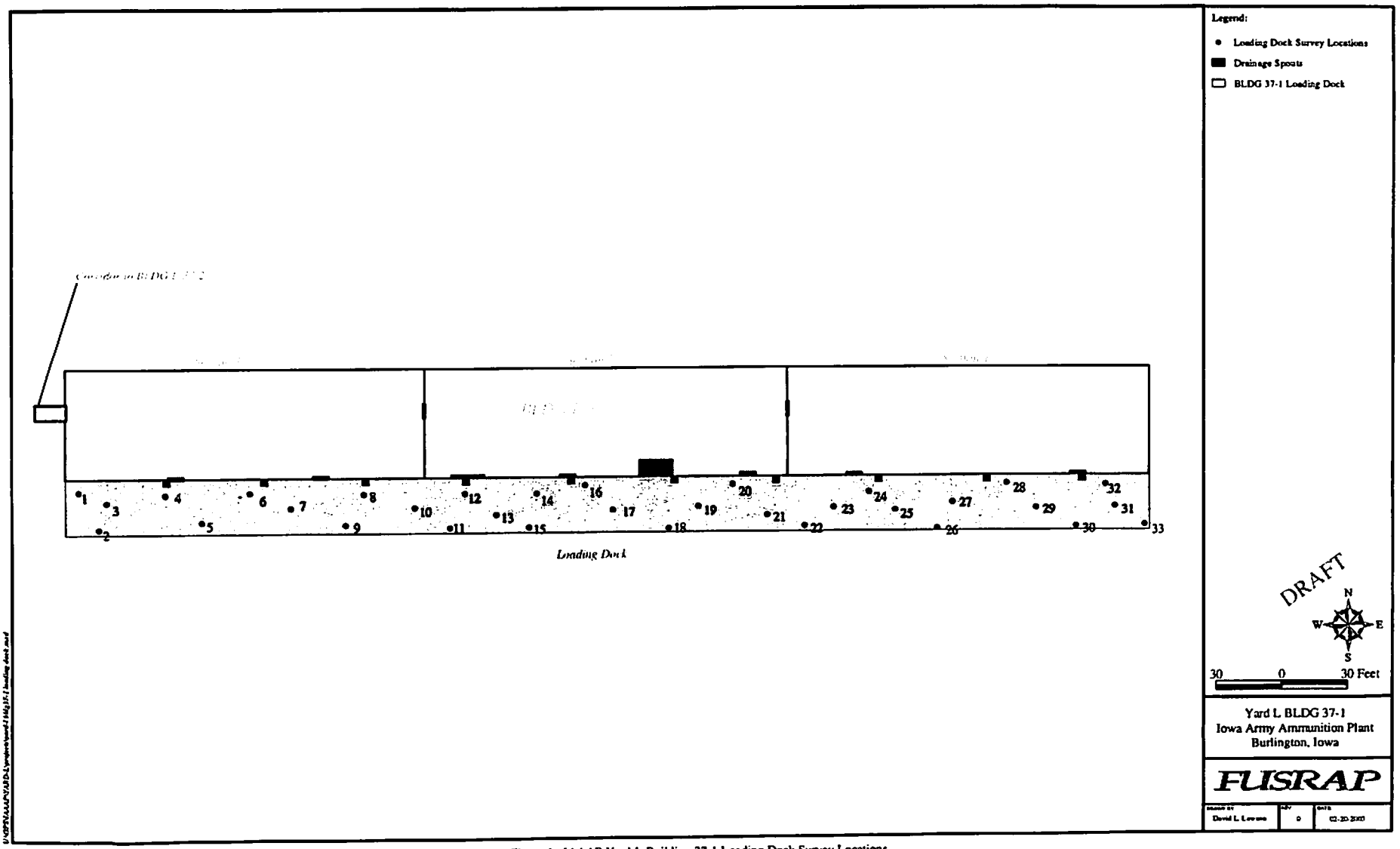

Figure 1. IAAAP Yard-L Building 37-1 Loading Dock Survey Locations

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **Warehouse L-37-1 Loading Dock Face and Underside Direct Frisk**	HSWP: S-03-012.0	Page 1 of 2
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/13/03	TIME: 1000

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
___ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
___ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
√ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
___ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	$dpm/100cm^2$ α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	$dpm/100cm^2$ βγ Removable	Gross CPM α Total	Net CPM α Total	$dpm/100cm^2$ α Total	Gross CPM βγ Total	Net CPM βγ Total	$dpm/100cm^2$ βγ Total
1	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	40	40	217	496	302	842
2	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	8	8	< 49	312	118	329
3	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	24	24	129	482	288	803
4	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	38	38	206	520	326	909
5	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	48	48	261	522	328	914
6	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	60	60	327	456	262	730
7	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	22	22	118	320	126	351
8	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	30	30	162	338	144	401
9	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	74	74	403	380	186	518
10	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	14	14	75	378	184	513

REMARKS: MDA for 43-89 E (#168036) is 49 $dpm/100cm^2$ alpha and 202 $dpm/100cm^2$ beta. Survey locations were spaced evenly along the entire length of the dock. Underside survey locations and metal cap were paired with the concrete vertical face locations (e.g., 1/11/21, 2/12/22. 3/13/23, etc.)

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **Warehouse L-37-1 Loading Dock Face and Underside Direct Frisk**

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
11	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	8	8	< 49	402	208	580
12	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	14	14	75	704	510	1422
13	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	10	10	53	444	250	697
14	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	14	14	75	380	186	518
15	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	8	8	< 49	490	296	825
16	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	10	10	53	392	198	552
17	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	4	4	< 49	400	206	574
18	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	12	12	64	356	162	452
19	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	4	4	< 49	340	146	407
20	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	8	8	< 49	382	188	524
21	vertical face of dock's metal cap (angle iron)	N/A	N/A	N/A	N/A	N/A	N/A	110	110	601	540	346	964
22	vertical face of dock's metal cap (angle iron)	N/A	N/A	N/A	N/A	N/A	N/A	76	76	414	414	220	613
23	vertical face of dock's metal cap (angle iron)	N/A	N/A	N/A	N/A	N/A	N/A	70	70	381	400	206	574
24	vertical face of dock's metal cap (angle iron)	N/A	N/A	N/A	N/A	N/A	N/A	40	40	217	466	272	758
25	vertical face of dock's metal cap (angle iron)	N/A	N/A	N/A	N/A	N/A	N/A	96	96	524	498	304	847
26	vertical face of dock's metal cap (angle iron)	N/A	N/A	N/A	N/A	N/A	N/A	16	16	85	348	154	429
27	vertical face of dock's metal cap (angle iron)	N/A	N/A	N/A	N/A	N/A	N/A	52	52	283	394	200	557
28	vertical face of dock's metal cap (angle iron)	N/A	N/A	N/A	N/A	N/A	N/A	96	96	524	472	278	775
29	vertical face of dock's metal cap (angle iron)	N/A	N/A	N/A	N/A	N/A	N/A	140	140	765	618	424	1182
30	vertical face of dock's metal cap (angle iron)	N/A	N/A	N/A	N/A	N/A	N/A	122	122	666	600	406	1132

REMARKS:

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-2 Floors**	HSWP: S-03-012.0	Page 1 of 5
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/12/03	TIME: 1445

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
√ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
√ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
___ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
___ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α **60** Removable βγ **600** Total α **600** Total βγ **6000**

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	$dpm/100cm^2$ α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	$dpm/100cm^2$ βγ Removable	Gross CPM α Total	Net CPM α Total	$dpm/100cm^2$ α Total	Gross CPM βγ Total	Net CPM βγ Total	$dpm/100cm^2$ βγ Total
1	2-1-1 Concrete Floor	1	1	< 21	62	19	< 84	4	4	< 51	312	129	394
2	2-1-2 Concrete Floor	1	1	< 21	74	31	< 84	8	8	< 51	348	165	504
3	2-1-3 Concrete Floor crack	0	0	< 21	64	21	< 84	2	2	< 51	352	169	516
4	2-1-4 Concrete Floor	0	0	< 21	66	23	< 84	8	8	< 51	312	129	394
5	2-1-5 Concrete Floor	0	0	< 21	72	29	< 84	2	2	< 51	356	173	528
6	2-1-6 Concrete Floor stain	2	2	< 21	71	28	< 84	6	6	< 51	314	131	400
7	2-1-7 Concrete footer	2	2	< 21	67	24	< 84	4	4	< 51	388	205	626
8	2-1-8 Concrete Floor crack	1	1	< 21	78	35	< 84	4	4	< 51	370	187	571

REMARKS: Survey Location example name # 1-2-3. The number "1" represents the warehouse in which the survey was performed. The number "2" stands for the section (east to west) of the warehouse that was surveyed. The number "3" indicates this is the third smear taken. Footer is the concrete support for vertical beams attached to the floors. MDA for 43-89 D (#164691) is 51 $dpm/100cm^2$ alpha and 215 $dpm/100cm^2$ beta. MDA for 43-10-1 (#166716) is 21 $dpm/100cm^2$ alpha and 84 $dpm/100cm^2$ beta.

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-2 Floors**

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
9	2-2-9 Concrete Floor	2	2	< 21	74	31	< 84	0	0	< 51	362	179	547
10	2-2-10 Concrete Floor	1	1	< 21	77	34	< 84	2	2	< 51	354	171	522
10 QA/QC	2-2-10 Concrete Floor	2	2	< 21	59	16	< 84	N/A	N/A	N/A	N/A	N/A	N/A
11	2-2-11 Concrete Floor	1	1	< 21	71	28	< 84	2	2	< 51	304	121	369
12	2-2-12 Concrete Floor	0	0	< 21	84	41	92	6	6	< 51	316	133	406
13	2-2-13 Concrete Floor seam	0	0	< 21	84	41	92	6	6	< 51	312	129	394
14	2-2-14 Concrete Floor stain	1	1	< 21	61	18	< 84	4	4	< 51	374	191	583
14 QA/QC	2-2-14 Concrete Floor stain	N/A	N/A	N/A	N/A	N/A	N/A	4	4	< 51	364	181	553
15	2-2-15 Concrete Floor crack	1	1	< 21	66	23	< 84	8	8	< 51	358	175	534
16	2-2-16 Concrete Floor	0	0	< 21	76	33	< 84	4	4	< 51	344	161	492
17	2-2-17 Concrete Floor	2	2	< 21	71	28	< 84	14	14	77	354	171	522
18	2-2-18 Concrete Floor	1	1	< 21	79	36	< 84	6	6	< 51	356	173	528
19	2-2-19 Concrete footer	0	0	< 21	100	57	128	4	4	< 51	348	165	504
20	2-2-20 Concrete Floor	0	0	< 21	72	29	< 84	2	2	< 51	388	205	626
21	2-3-21 Concrete Floor crack	0	0	< 21	48	5	< 84	6	6	< 51	378	195	595
22	2-3-22 Concrete Floor	0	0	< 21	44	1	< 84	8	8	< 51	376	193	589
23	2-3-23 Concrete Floor seam	0	0	< 21	68	25	< 84	6	6	< 51	350	167	510
24	2-3-24 Concrete footer	0	0	< 21	40	0	< 84	4	4	< 51	320	137	523

REMARKS:

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-2 Floors**

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
25	2-3-25 Concrete Floor	0	0	< 21	58	15	< 84	8	8	< 51	340	157	479
26	2-3-26 Concrete Floor	0	0	< 21	48	5	< 84	6	6	< 51	350	167	510
27	2-3-27 Concrete footer	0	0	< 21	42	0	< 84	8	8	< 51	376	193	589
28	2-3-28 Concrete Floor	0	0	< 21	48	5	< 84	4	4	< 51	400	217	663
29	2-3-29 Concrete Floor	0	0	< 21	46	3	< 84	2	2	< 51	290	107	327
29 QA/QC	2-3-29 Concrete Floor	N/A	N/A	N/A	N/A	N/A	N/A	2	2	< 51	298	115	351
30	2-3-30 Concrete Floor	4	4	< 21	52	9	< 84	2	2	< 51	298	115	351
30 QA/QC	2-3-30 Concrete Floor	0	0	< 21	38	0	< 84	N/A	N/A	N/A	N/A	N/A	N/A
31	2-1-31 Concrete Floor seam	0	0	< 21	50	7	< 84	18	18	100	406	223	681
32	2-1-32 Concrete Floor seam	2	2	< 21	40	0	< 84	10	10	54	306	123	376
33	2-1-33 Concrete footer	0	0	< 21	46	3	< 84	12	12	66	310	127	388
34	2-1-34 Concrete Floor seam	2	2	< 21	56	13	< 84	4	4	< 51	346	163	498
35	2-1-35 Concrete Floor seam	0	0	< 21	36	0	< 84	4	4	< 51	294	111	339
36	2-1-36 Concrete Floor seam	2	2	< 21	52	9	< 84	6	6	< 51	358	175	534
37	2-2-37 Concrete Floor seam	0	0	< 21	46	3	< 84	2	2	< 51	332	149	455
38	2-2-38 Concrete Floor seam	0	0	< 21	56	13	< 84	8	8	< 51	322	139	424
39	2-2-39 Concrete Floor seam	2	2	< 21	64	21	< 84	14	14	77	332	149	455
40	2-2-40 Concrete Floor seam	0	0	< 21	50	7	< 84	2	2	< 51	346	163	498

REMARKS:

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-2 Floors**

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
41	2-2-41 Concrete Floor seam	0	0	< 21	50	7	< 84	8	8	< 51	372	189	577
42	2-3-42 Concrete Floor seam	0	0	< 21	30	0	< 84	8	8	< 51	302	119	363
43	2-3-43 Concrete Floor seam	2	2	< 21	42	0	< 84	4	4	< 51	328	145	443
44	2-3-44 Concrete Floor seam	2	2	< 21	38	0	< 84	6	6	< 51	340	157	479
45	2-3-45 Concrete Floor seam	0	0	< 21	40	0	< 84	2	2	< 51	312	129	394
46	2-3-46 Concrete Floor seam	2	2	< 21	62	19	< 84	8	8	< 51	342	159	485
47	2-3-47 Concrete Floor seam	0	0	< 21	48	5	< 84	0	0	< 51	294	111	339
48	2-3-48 Concrete Floor seam	4	4	< 21	40	0	< 84	4	4	< 51	344	161	492

REMARKS:

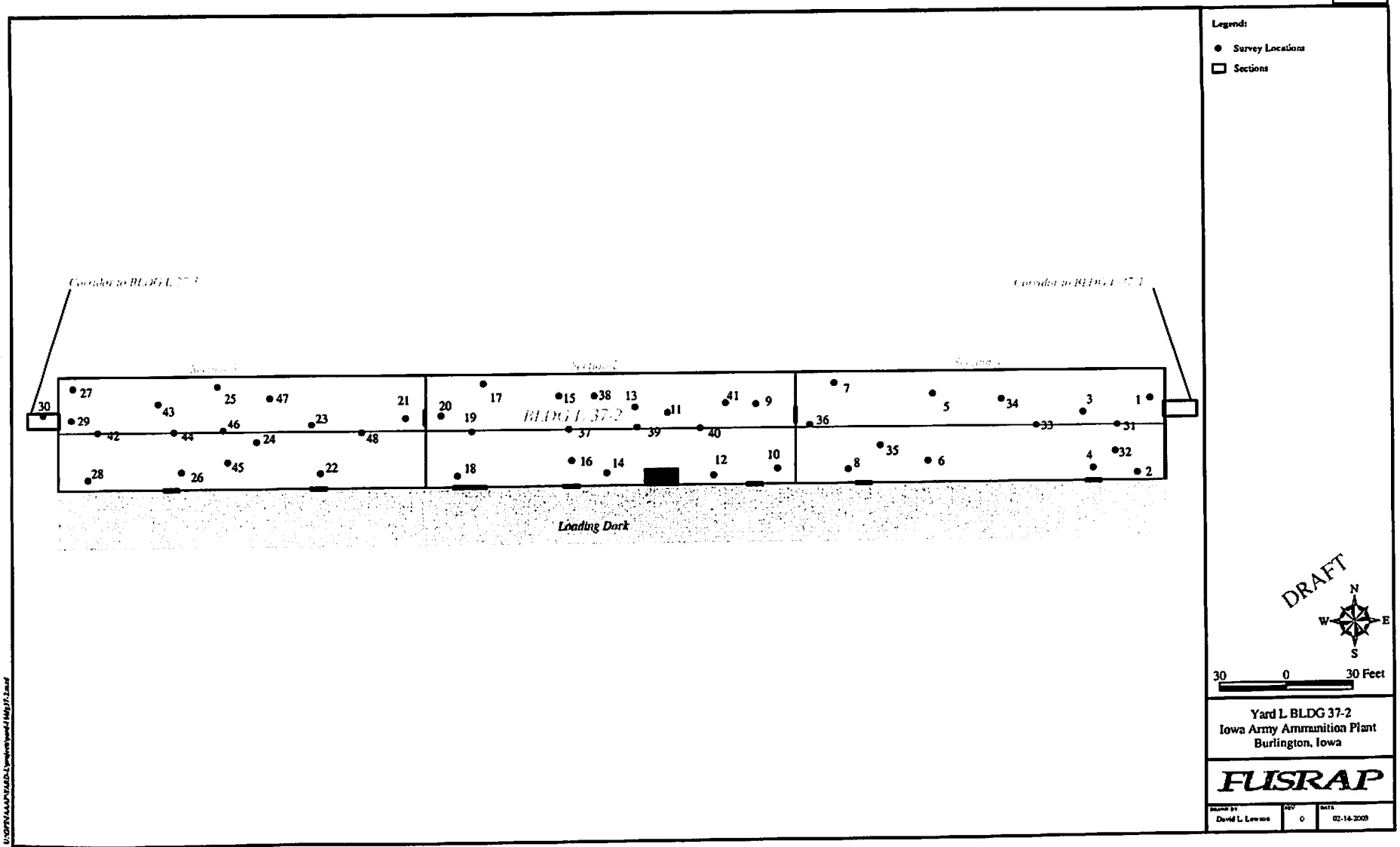

Figure 2. IAAAP Yard-L Building 37-2 Survey Locations

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-2 Walls**	HSWP: S-03-012.0	Page 1 of 4
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/12/03	TIME: 1400

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
√ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
___ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
√ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
___ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α **60** Removable βγ **600** Total α **600** Total βγ **6000**

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	$dpm/100cm^2$ α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	$dpm/100cm^2$ βγ Removable	Gross CPM α Total	Net CPM α Total	$dpm/100cm^2$ α Total	Gross CPM βγ Total	Net CPM βγ Total	$dpm/100cm^2$ βγ Total
1	2-1-1 east wall plywood	0	0	< 21	42	-1	< 84	10	10	53	248	54	< 202
2	2-1-2 north wall A-B concrete footing	0	0	< 21	60	17	< 84	14	14	75	414	220	613
3	2-1-3 D-E north wall plywood	0	0	< 21	64	21	< 84	6	6	< 49	244	50	< 202
4	2-1-4 G-H north wall concrete footing	0	0	< 21	44	1	< 84	6	6	< 49	232	38	< 202
5	2-1-5 north wall J-K plywood	4	4	< 21	62	19	< 84	6	6	< 49	280	86	240
6	2-1-6 N-O north plywood wall	0	0	< 21	62	19	< 84	12	12	64	242	48	< 202
7	2-1-7 N-O north concrete footer	0	0	< 21	46	3	< 84	6	6	< 49	480	286	797
8	2-1-8 west brick wall	2	2	< 21	52	9	< 84	12	12	64	750	556	1550

REMARKS: Survey Location example name # 1-2-3. The number "1" represents the warehouse in which the survey was performed. The number "2" stands for the section (east to west) of the warehouse that was surveyed. The number "3" indicates this is the third smear taken. Capital letters (e.g., A, B-C, E-F, etc.) correspond to markings on vertical beams down the centerline of the warehouses. Remarks continued on page 2. MDA for 43-89 E (#168036) is 49 $dpm/100cm^2$ alpha and 202 $dpm/100cm^2$ beta. MDA for 43-10-1 (#166716) is 21 $dpm/100cm^2$ alpha and 84 $dpm/100cm^2$ beta.

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-2 Walls**

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
9	2-1-9 west brick wall	0	0	< 21	40	-3	< 84	14	14	75	688	494	1377
10	2-1-10 K-L south wall insulation	0	0	< 21	52	9	< 84	14	14	75	290	96	268
11	2-1-11 C-D south wall concrete footing	0	0	< 21	58	15	< 84	14	14	75	436	242	675
12	2-1-12 west brick wall	0	0	< 21	38	-5	< 84	6	6	< 49	290	96	268
13	2-2-13 east wall brick	0	0	< 21	42	-1	< 84	6	6	< 49	710	516	1438
14	2-2-14 C-D north concrete wall	0	0	< 21	38	-5	< 84	5	5	< 49	264	70	< 202
15	2-2-15 E-F north concrete wall	0	0	< 21	42	-1	< 84	4	4	< 49	372	178	496
16	2-2-16 G-H north plywood wall	2	2	< 21	60	17	< 84	8	8	< 49	222	28	< 202
17	2-2-17 I-5 north wall plywood wall	0	0	< 21	54	11	< 84	4	4	< 49	204	10	< 202
17 QA/QC	2-2-17QC I-5 north wall plywood wall	0	0	< 21	48	5	< 84	6	6	< 49	244	50	< 202
18	2-2-18 P-Q north wall concrete footing	0	0	< 21	52	9	< 84	12	12	64	404	210	585
19	2-2-19 west brick wall	0	0	< 21	34	-9	< 84	14	14	75	798	604	1684
20	2-2-20 west brick wall	0	0	< 21	50	7	< 84	10	10	53	736	542	1511
20 QA/QC	2-2-20QC west brick wall	0	0	< 21	54	11	< 84	8	8	< 49	738	544	1516
21	2-2-21 J-K south plywood wall	2	2	< 21	48	5	< 84	8	8	< 49	290	96	268
22	2-2-22 D-E south wall insulation	4	4	< 21	24	-19	< 84	4	4	< 49	290	96	268

REMARKS:

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-2 Walls** | Page 3 of 4

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
23	2-2-23 B-C south wall plywood	0	0	< 21	50	7	< 84	6	6	< 49	288	94	262
24	2-3-24 east brick wall	2	2	< 21	54	11	< 84	19	19	102	642	448	1249
25	2-3-25 plywood wall	2	2	< 21	38	-5	< 84	4	4	< 49	288	94	262
26	2-3-26 plywood wall	0	0	< 21	42	-1	< 84	2	2	< 49	266	72	< 202
27	2-3-27 M-N wall concrete footer	2	2	< 21	40	-3	< 84	10	10	53	358	164	457
28	2-3-28 west plywood wall	2	2	< 21	42	-1	< 84	12	12	64	286	92	256
29	2-3-29 O-P south wall concrete footer	0	0	< 21	66	23	< 84	12	12	64	322	128	357
30	2-3-30 south wall L-M plywood	2	2	< 21	44	1	< 84	8	8	< 49	312	118	329
31	2-3-31 A-B south wall insulation	0	0	< 21	28	-15	< 84	4	4	< 49	292	98	273
32	2-3-32 C-D south wall plywood	0	0	< 21	40	-3	< 84	4	4	< 49	286	92	256

REMARKS:

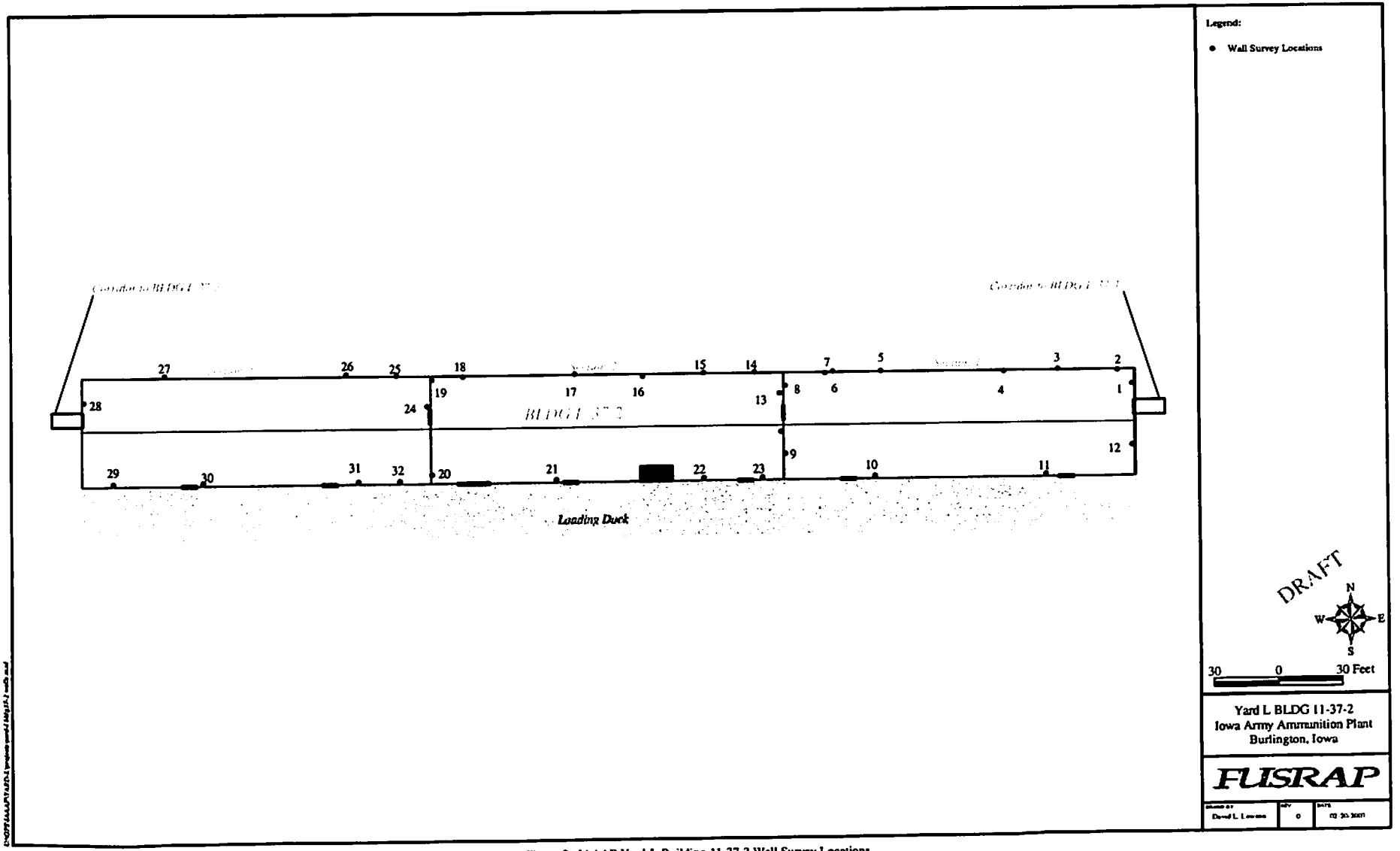

Figure 2. IAAAP Yard-L Building 11-37-2 Wall Survey Locations

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-2 Loading Dock Direct Frisk**	HSWP: S-03-012.0	Page 1 of 3
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/13/03	TIME: 0900

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
___ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
___ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
___ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
√ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
1	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	20	19	106	440	209	638
2	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	34	33	187	416	185	565
3	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	26	25	141	392	161	492
4	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	12	11	< 68	360	129	394
5	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	20	19	106	364	133	406
6	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	20	19	106	286	55	< 240
6 QA/QC	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	18	17	95	300	69	< 240
7	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	10	9	< 68	396	165	504
8	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	26	25	141	346	115	351
9	concrete loading dock (reddish stains)	N/A	N/A	N/A	N/A	N/A	N/A	38	37	210	384	153	467
10	concrete loading dock (reddish stains)	N/A	N/A	N/A	N/A	N/A	N/A	48	47	268	474	243	742
11	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	26	25	141	342	111	339

REMARKS: MDA for 43-89 P (#168053) is 68 $dpm/100cm^2$ alpha and 240 $dpm/100cm^2$ beta.

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-2 Loading Dock Direct Frisk**

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
12	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	14	13	72	356	125	382
13	concrete loading dock (reddish stains)	N/A	N/A	N/A	N/A	N/A	N/A	38	37	210	438	207	632
14	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	24	23	129	380	149	455
15	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	2	1	< 68	362	131	400
16	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	30	29	164	410	179	547
17	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	14	13	72	328	97	296
17 QA/QC	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	12	11	< 68	308	77	235
18	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	12	11	< 68	360	129	394
19	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	14	13	72	338	107	327
20	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	14	13	72	398	167	510
21	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	22	21	118	302	71	< 240
22	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	48	47	268	388	157	479
23	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	20	19	106	434	203	620
24	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	18	17	95	430	199	608
25	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	22	21	118	422	191	583
26	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	14	13	72	418	187	571
27	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	50	49	279	450	219	669
28	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	40	39	222	470	239	730
29	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	28	27	153	400	169	516
29 QA/QC	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	26	25	141	396	165	504
30	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	20	19	106	318	87	266
31	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	32	31	176	430	199	608
32	concrete loading dock (reddish stains)	N/A	N/A	N/A	N/A	N/A	N/A	50	49	279	446	215	656
33	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	50	49	279	416	185	565
34	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	24	23	129	398	167	510
35	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	28	27	153	418	187	571
36	concrete loading dock	N/A	N/A	N/A	N/A	N/A	N/A	30	29	164	396	165	504

REMARKS:

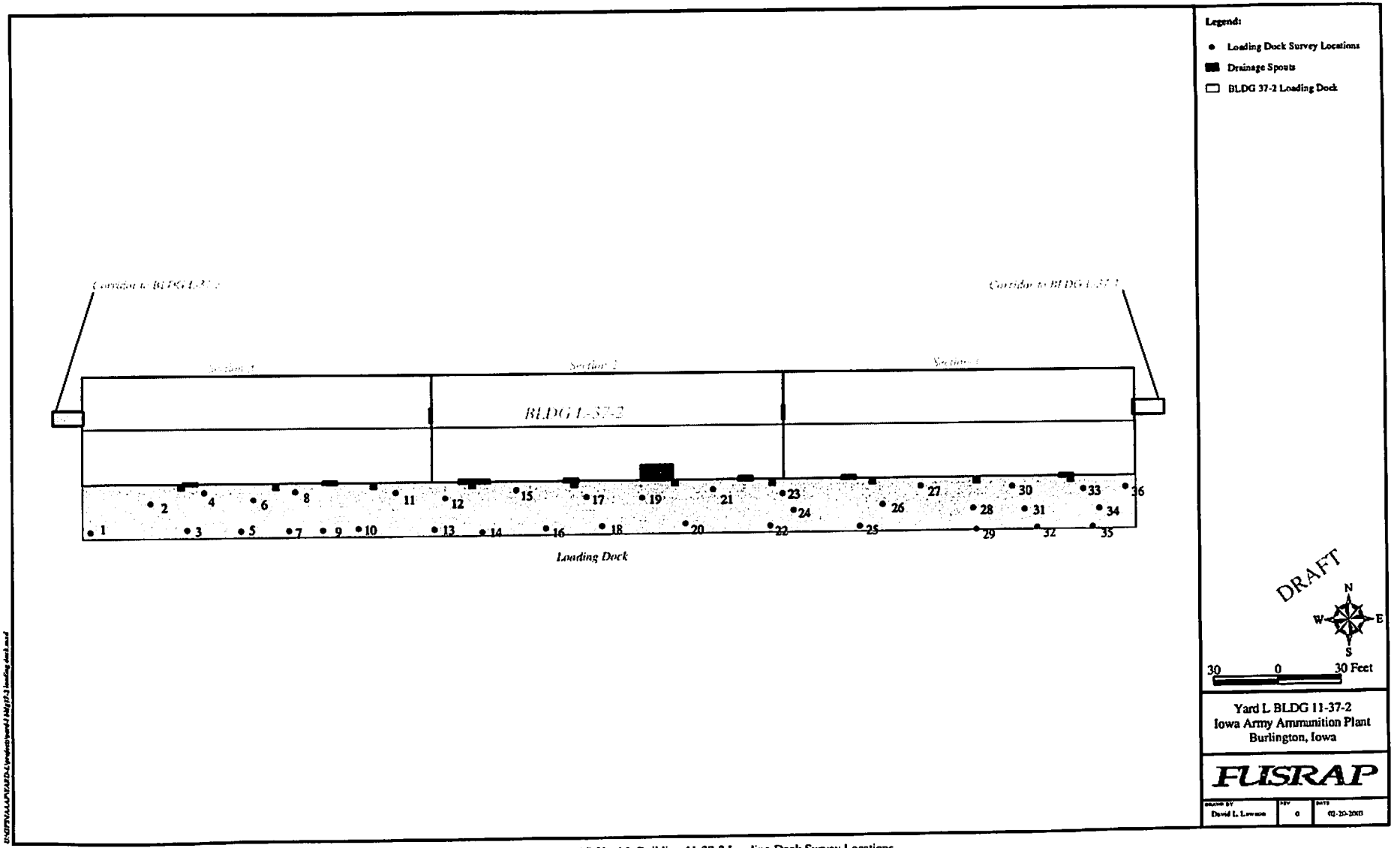

Figure 2. IAAAP Yard-L Building 11-37-2 Loading Dock Survey Locations

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **Warehouse L-37-2 Loading Dock Face and Underside Direct Frisk**	HSWP: S-03-012.0	Page 1 of 2
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/13/03	TIME: 1000

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
___ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
√ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
___ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
___ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
___ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	$dpm/100cm^2$ α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	$dpm/100cm^2$ βγ Removable	Gross CPM α Total	Net CPM α Total	$dpm/100cm^2$ α Total	Gross CPM βγ Total	Net CPM βγ Total	$dpm/100cm^2$ βγ Total
1	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	28	27	145	340	115	329
2	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	32	31	166	280	55	< 221
3	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	18	17	91	280	55	< 221
4	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	32	31	166	328	103	294
5	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	16	15	80	274	49	< 221
6	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	42	41	221	410	185	529
7	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	36	35	188	406	181	517
8	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	34	33	177	524	299	854
9	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	68	67	361	382	157	449
10	concrete dock vertical face	N/A	N/A	N/A	N/A	N/A	N/A	26	25	134	408	183	523

REMARKS: MDA for 43-89 C (#164333) is 61 $dpm/100cm^2$ alpha and 221 $dpm/100cm^2$ beta. All survey locations were on concrete surfaces. Survey locations were spaced evenly along the entire length of the dock. Underside survey locations were paired with the vertical face locations (e.g., 1/11, 2/12. 3/13, etc.)

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-2 Loading Dock Face and Underside Direct Frisk**

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
11	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	12	11	< 61	292	67	< 221
12	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	10	9	< 61	348	123	351
13	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	8	7	< 61	280	55	< 221
14	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	18	17	91	300	75	< 221
15	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	14	13	69	324	99	283
16	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	16	15	80	320	95	271
17	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	0	0	< 61	376	151	431
18	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	24	23	123	384	159	454
19	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	10	9	< 61	342	117	334
20	concrete dock underside	N/A	N/A	N/A	N/A	N/A	N/A	14	13	69	306	81	231

REMARKS:

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-3 Floors**	HSWP: S-03-012.0	Page 1 of 5
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/12/03	TIME: 1700

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
√ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
√ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
___ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
___ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	$dpm/100cm^2$ α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	$dpm/100cm^2$ βγ Removable	Gross CPM α Total	Net CPM α Total	$dpm/100cm^2$ α Total	Gross CPM βγ Total	Net CPM βγ Total	$dpm/100cm^2$ βγ Total
1	3-1-1 concrete floor crack	0	0	< 21	50	7	< 84	10	10	54	358	175	534
2	3-1-2 concrete floor	0	0	< 21	56	13	< 84	4	4	< 51	338	155	473
3	3-1-3 concrete footer	0	0	< 21	54	11	< 84	8	8	< 51	338	155	473
4	3-1-4 concrete floor	0	0	< 21	62	19	< 84	14	14	77	354	171	522
5	3-1-5 concrete footer	0	0	< 21	52	9	< 84	4	4	< 51	354	171	522
6	3-1-6 concrete floor seam	2	2	< 21	46	3	< 84	6	6	< 51	318	135	412
7	3-1-7 concrete floor	2	2	< 21	60	17	< 84	4	4	< 51	318	135	412
8	3-1-8 concrete floor	0	0	< 21	58	15	< 84	2	2	< 51	326	143	437

REMARKS: Survey Location example name # 1-2-3. The number "1" represents the warehouse in which the survey was performed. The number "2" stands for the section (east to west) of the warehouse that was surveyed. The number "3" indicates this is the third smear taken. Footer is the concrete support for vertical beams attached to the floors. MDA for 43-89 D (#164691) is 51 $dpm/100cm^2$ alpha and 215 $dpm/100cm^2$ beta. MDA for 43-10-1 (#166716) is 21 $dpm/100cm^2$ alpha and 84 $dpm/100cm^2$ beta.

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-3 Floors** | Page 2 of 5

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
9	3-1-9 concrete floor seam	0	0	< 21	22	0	< 84	6	6	< 51	328	145	443
9 QA/QC	3-1-9 concrete floor seam	4	4	< 21	32	0	< 84	6	6	< 51	328	145	443
10	3-1-10 concrete floor	2	2	< 21	40	0	< 84	10	10	54	394	211	644
11	3-1-11 concrete floor	4	4	< 21	34	0	< 84	4	4	< 51	358	175	534
12	3-1-12 concrete floor	4	4	< 21	50	7	< 84	8	8	< 51	396	213	650
13	3-1-13 concrete floor	2	2	< 21	48	5	< 84	6	6	< 51	350	167	510
14	3-1-14 concrete footer	2	2	< 21	46	3	< 84	6	6	< 51	372	189	577
15	3-1-15 concrete floor	0	0	< 21	34	0	< 84	0	0	< 51	368	185	565
16	3-2-16 concrete floor	2	2	< 21	38	0	< 84	8	8	< 51	360	177	540
17	3-2-17 concrete floor seam	4	4	< 21	46	3	< 84	2	2	< 51	328	145	443
18	3-2-18 concrete floor	0	0	< 21	38	0	< 84	6	6	< 51	358	175	534
19	3-2-19 concrete floor footer	2	2	< 21	52	9	< 84	0	0	< 51	356	173	528
20	3-2-20 concrete floor crack	0	0	< 21	42	0	< 84	2	2	< 51	322	139	424
21	3-2-21 concrete floor seam	0	0	< 21	34	0	< 84	6	6	< 51	296	113	345
22	3-2-22 concrete floor	4	4	< 21	56	13	< 84	8	8	< 51	314	131	400
23	3-2-23 concrete floor crack	0	0	< 21	60	17	< 84	6	6	< 51	316	133	406

REMARKS:

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-3 Floors** | Page 3 of 5

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
24	3-2-24 concrete floor seam	0	0	< 21	30	0	< 84	6	6	< 51	308	125	382
25	3-2-25 concrete footer	0	0	< 21	48	5	< 84	12	12	66	334	151	461
26	3-2-26 concrete floor	0	0	< 21	48	5	< 84	6	6	< 51	366	183	559
27	3-2-27 concrete floor	6	6	< 21	54	11	< 84	4	4	< 51	342	159	485
28	3-2-28 concrete floor	2	2	< 21	44	1	< 84	4	4	< 51	358	175	534
28 QA/QC	3-2-28 concrete floor	0	0	< 21	42	0	< 84	4	4	< 51	408	225	687
29	3-2-29 concrete floor crack	0	0	< 21	44	1	< 84	6	6	< 51	386	203	620
30	3-2-30 concrete floor	4	4	< 21	44	1	< 84	6	6	< 51	354	171	522
31	3-3-31 concrete floor	0	0	< 21	50	7	< 84	4	4	< 51	278	95	290
32	3-3-32 concrete floor	0	0	< 21	40	0	< 84	6	6	< 51	304	121	369
33	3-3-33 concrete floor seam	0	0	< 21	32	0	< 84	10	10	54	322	139	424
34	3-3-34 concrete floor crack	0	0	< 21	62	19	< 84	6	6	< 51	308	125	382
35	3-3-35 concrete floor seam	0	0	< 21	42	0	< 84	4	4	< 51	356	173	528
36	3-3-36 concrete floor	2	2	< 21	56	13	< 84	6	6	< 51	278	95	290
37	3-3-37 concrete floor	0	0	< 21	38	0	< 84	2	2	< 51	246	63	< 215
38	3-3-38 concrete footer	6	6	< 21	38	0	< 84	8	8	< 51	238	55	< 215

REMARKS:

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-3 Floors** | Page 4 of 5

Contamination Limits: (dpm/100cm²)		Removable α 60			Removable βγ 600			Total α 600			Total βγ 6000		
Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
39	3-3-39 floor drain for A/C unit	2	2	< 21	44	1	< 84	4	4	< 51	326	143	437
40	1-3-40 concrete seam	0	0	< 21	72	29	< 84	2	2	< 51	232	49	< 215
41	1-3-41 concrete seam	0	0	< 21	50	7	< 84	4	4	< 51	272	89	272
42	1-3-42 concrete floor stain	0	0	< 21	54	11	< 84	6	6	< 51	278	95	290
43	1-3-43 concrete floor crack	2	2	< 21	60	17	< 84	4	4	< 51	280	97	296
44	1-3-44 concrete floor crack	4	4	< 21	34	0	< 84	8	8	< 51	278	95	290
44 QA/QC	1-3-44 concrete floor crack	0	0	< 21	40	0	< 84	8	8	< 51	284	101	308
45	1-3-45 concrete floor	2	2	< 21	48	5	< 84	12	12	66	302	119	363

REMARKS:

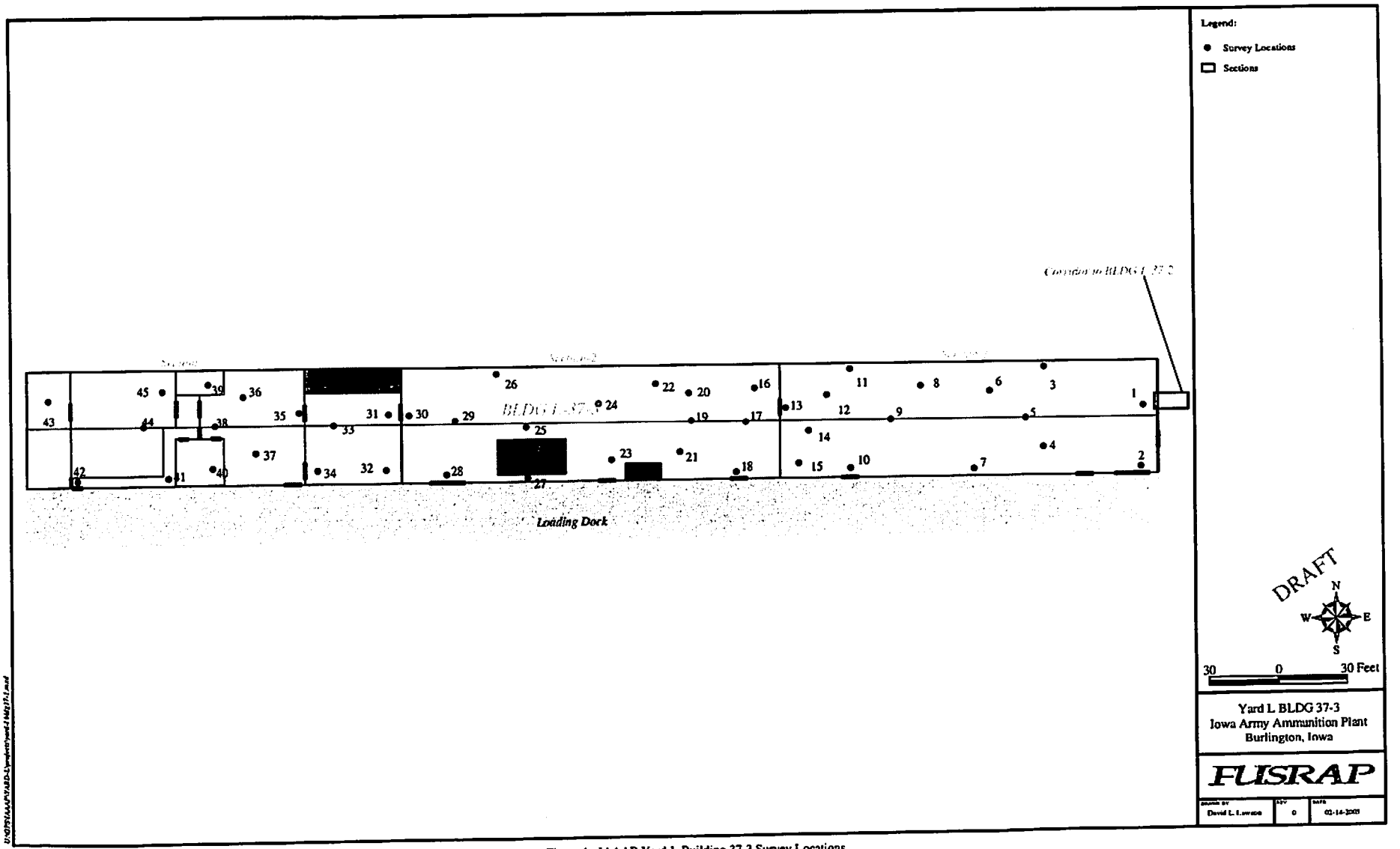

Figure 1. IAAAP Yard-L Building 37-3 Survey Locations

SAIC RADIOLOGICAL SURVEY REPORT
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-3 Walls**	HSWP: S-03-012.0	Page 1 of 4
PURPOSE OF SURVEY: Site Reconnaissance	DATE: 02/12/03	TIME: 1700

Instrument Type(s): (√ if used)	Detector Area (cm^2)	Serial Number: meter	Serial Number: detector	Cal. Due Date: meter	Cal. Due Date: detector	Background: (CPM) Alpha (α)	Background: (CPM) Beta (βγ)	Efficiency (%) Alpha (α)	Efficiency (%) Beta (βγ)
√ Ludlum 2929/43-10-1	N/A	166716	170380	02/21/2003	02/21/2003	0.1	43	36.0	44.5
___ Ludlum 2360/43-89 C	125	164333	168664	12/02/2003	12/02/2003	1.2	225	14.8	28.0
√ Ludlum 2360/43-89 D	125	164691	173337	03/13/2003	03/13/2003	0.4	183	14.1	26.2
√ Ludlum 2360/43-89 E	125	168036	173336	03/13/2003	03/13/2003	0.4	194	14.6	28.7
___ Ludlum 2360/43-89 P	125	168053	181264	9/12/2003	9/12/2003	1.5	231	13.9	26.2
___ Ludlum Micro R	N/A	163263	163263	01/19/2004	01/19/2004	N/A	N/A	N/A	N/A

Contamination Limits: ($dpm/100cm^2$) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	$dpm/100cm^2$ α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	$dpm/100cm^2$ βγ Removable	Gross CPM α Total	Net CPM α Total	$dpm/100cm^2$ α Total	Gross CPM βγ Total	Net CPM βγ Total	$dpm/100cm^2$ βγ Total
1	3-1-1 east plywood wall	2	2	< 21	58	15	< 84	4	4	< 49	220	26	< 202
2	3-1-2 east painted plywood	0	0	< 21	28	0	< 84	4	4	< 49	212	18	< 202
3	3-1-3 C-D north wall painted plywood	0	0	< 21	44	1	< 84	6	6	< 49	154	0	< 202
3 QA/QC	3-1-3QC north wall painted plywood	0	0	< 21	48	5	< 84	8	8	< 49	146	0	< 202
4	3-1-4 H-I north wall painted plywood	0	0	< 21	50	7	< 84	6	6	< 49	210	16	< 202
5	3-1-5 K-L north wall painted plywood	0	0	< 21	52	9	< 84	8	8	< 49	200	6	< 202
6	3-1-6 M-N north wall painted plywood	0	0	< 21	54	11	< 84	10	10	53	260	66	< 202
7	3-1-7 west brick wall	0	0	< 21	52	9	< 84	8	8	< 49	724	530	1477

REMARKS: Survey Location example name # 1-2-3. The number "1" represents the warehouse in which the survey was performed. The number "2" stands for the section (east to west) of the warehouse that was surveyed. The number "3" indicates this is the third smear taken. Capital letters (e.g., A, B-C, E-F, etc.) correspond to markings on vertical beams down the centerline of the warehouses. Remarks continued on page 2. MDA for 43-89 D (#164691) is 51 $dpm/100cm^2$ alpha and 215 $dpm/100cm^2$ beta. MDA for 43-89 E (#168036) is 49 $dpm/100cm^2$ alpha and 202 $dpm/100cm^2$ beta. MDA for 43-10-1 (#166716) is 21 $dpm/100cm^2$ alpha and 84 $dpm/100cm^2$ beta. For samples ***1-24***, Ludlum 43-89 E (#168036) was used and for samples ***24-34***, Ludlum 43-89 D (#164691) was used for the total measurements.

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-3 Walls** | Page 2 of 4

Contamination Limits: (dpm/100cm²) | Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
8	3-1-8 west brick wall	2	2	< 21	62	19	< 84	6	6	< 49	614	420	1171
9	3-1-9 L-M south wall painted plywood	0	0	< 21	62	19	< 84	2	2	< 49	234	40	< 202
10	3-1-10 G-H south wall painted plywood	2	2	< 21	42	0	< 84	8	8	< 49	238	44	< 202
11	3-1-11 C-D south wall painted plywood	0	0	< 21	46	3	< 84	4	4	< 49	228	34	< 202
12	3-1-12 east painted plywood	0	0	< 21	34	0	< 84	4	4	< 49	212	18	< 202
13	3-2-13 east brick wall	0	0	< 21	42	0	< 84	4	4	< 49	608	414	1154
14	3-2-14 wall C-D painted plywood	0	0	< 21	38	0	< 84	12	12	64	222	28	< 202
15	3-2-15 wall painted plywood G-H	2	2	< 21	38	0	< 84	8	8	< 49	136	0	< 202
16	3-2-16 wall painted plywood L-M	4	4	< 21	56	13	< 84	4	4	< 49	270	76	212
17	3-2-17 wall painted plywood N-O	0	0	< 21	58	15	< 84	4	4	< 49	234	40	< 202
17 QA/QC	3-2-17QC wall painted plywood N-O	0	0	< 21	32	0	< 84	6	6	< 49	242	48	< 202
18	3-2-18 west brick wall	0	0	< 21	52	9	< 84	4	4	< 49	664	470	1310
19	3-2-19 west brick wall	2	2	< 21	42	0	< 84	0	0	< 49	610	416	1160
20	3-2-20 wall painted plywood Q-R	0	0	< 21	56	13	< 84	2	2	< 49	268	74	206
21	3-2-21 wall painted plywood J-K	2	2	< 21	56	13	< 84	6	6	< 49	216	22	< 202
22	3-2-22 wall cooler G-H	2	2	< 21	62	19	< 84	4	4	< 49	210	16	< 202

REMARKS:

SAIC RADIOLOGICAL SURVEY REPORT (Supplement)
IAAAP YARD L WAREHOUSES

SURVEY LOCATION: **IAAAP Warehouse L-37-3 Walls**

Contamination Limits: (dpm/100cm²) Removable α 60 | Removable βγ 600 | Total α 600 | Total βγ 6000

Sample No.	Description/ Location	Gross CPM α Removable	Net CPM α Removable	dpm/100cm² α Removable	Gross CPM βγ Removable	Net CPM βγ Removable	dpm/100cm² βγ Removable	Gross CPM α Total	Net CPM α Total	dpm/100cm² α Total	Gross CPM βγ Total	Net CPM βγ Total	dpm/100cm² βγ Total
23	3-2-23 wall C-D painted plywood	2	2	< 21	26	0	< 84	8	8	< 49	228	34	< 202
24	3-2-24 east brick wall	0	0	< 21	54	11	< 84	6	6	< 49	686	492	1371
25	3-3-1 wood	0	0	< 21	50	7	< 84	0	0	< 51	226	43	< 215
26	3-3-2 brick	0	0	< 21	52	9	< 84	4	4	< 51	500	317	968
27	3-3-3 wood	0	0	< 21	52	9	< 84	8	8	< 51	226	43	< 215
28	3-3-4 wood	0	0	< 21	48	5	< 84	0	0	< 51	220	37	< 215
29	3-3-5 wood	0	0	< 21	36	0	< 84	2	2	< 51	176	0	< 215
30	3-3-6 air conditioning/boiler equipment	4	4	< 21	54	11	< 84	2	2	< 51	216	33	< 215
31	3-3-7 wood	4	4	< 21	40	0	< 84	6	6	< 51	198	15	< 215
32	3-3-8 air conditioning window unit	2	2	< 21	52	9	< 84	6	6	< 51	250	67	< 215
33	3-3-9 acoustic wall tile	0	0	< 21	56	13	< 84	10	10	54	194	11	< 215
34	3-3-10 wood	0	0	< 21	32	0	< 84	4	4	< 51	208	25	< 215
34 QA/QC	3-3-10QC wood	0	0	< 21	54	11	< 84	6	6	< 51	182	0	< 215

REMARKS: