

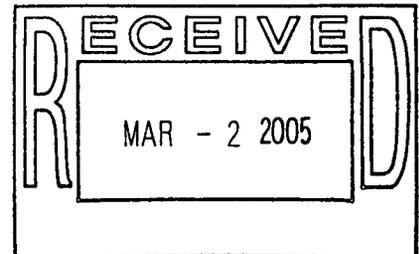
Rocky Flats Environmental Technology Site

**Building
776/777
1st Floor
In-Process/Final
Survey Report**

**Survey Unit:
776017**

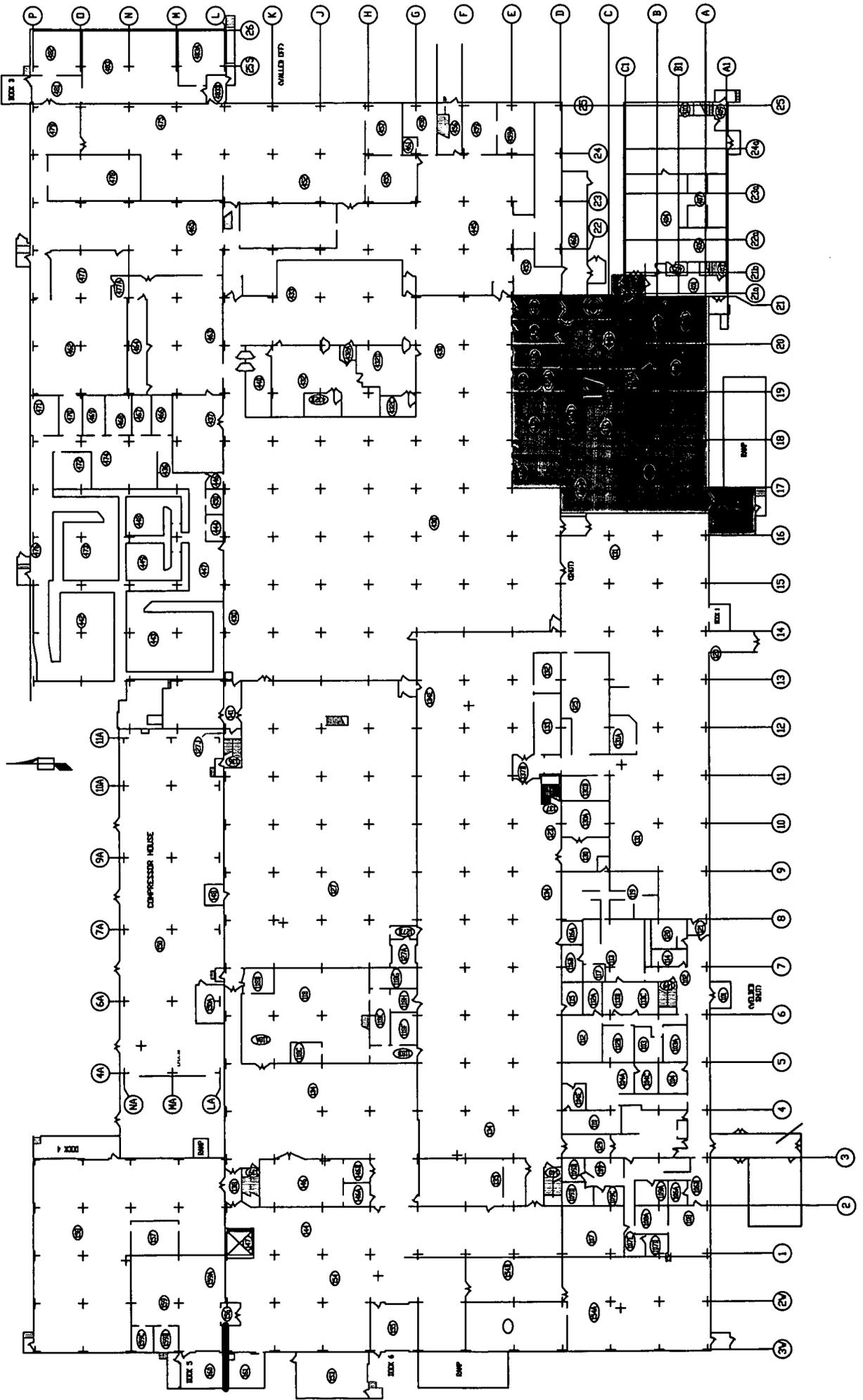
Copy

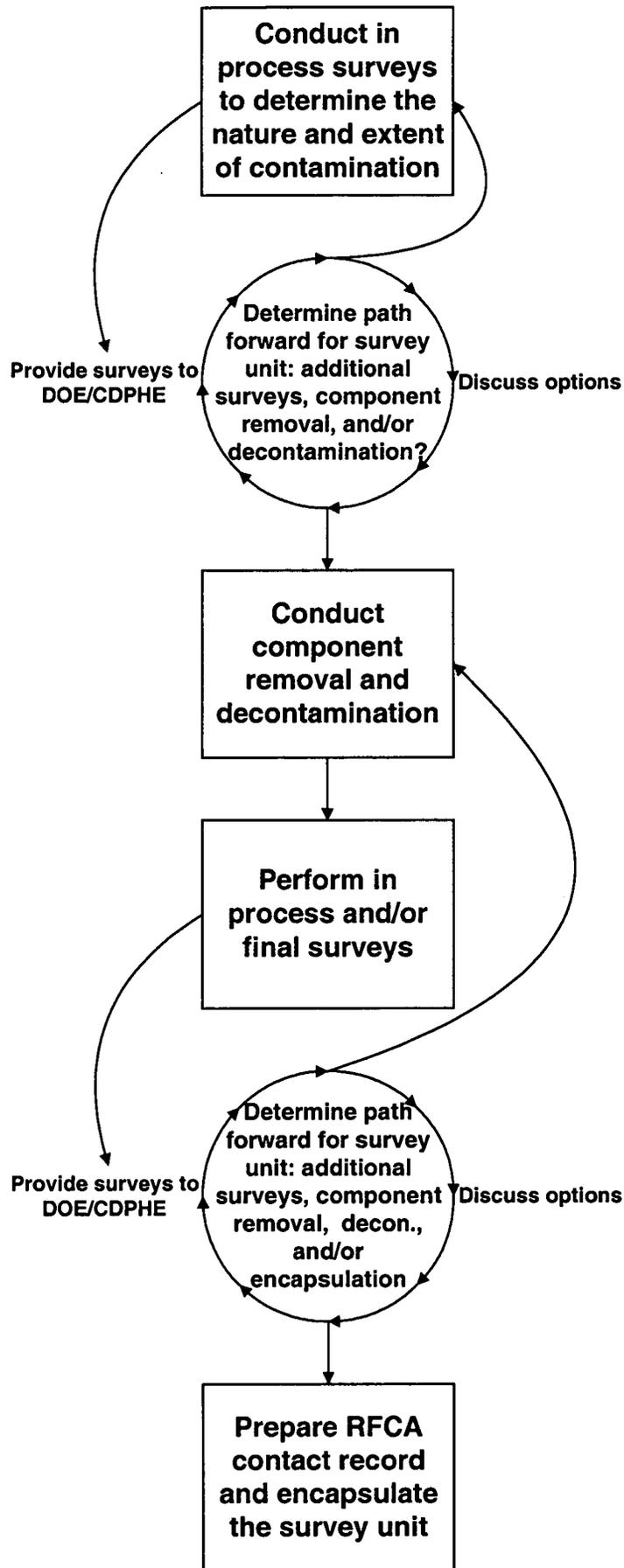
January 2005



ADMIN RECORD

B776/777 SURVEY UNIT 776017
1st FLOOR





In-Process Survey Instructions Rev. 1
Survey Unit 776017 (Floors Only)
1/27/05

Purpose:

This instruction provides guidance for collecting data needed to determine the contamination levels in Survey unit 776017. Work to be performed in accordance with "INS-535-Ludlum2350-1 with Sodium Iodide Detector" and RSP-7.01 and 7.02.

Equipment and materials:

- 1) A Bicron G-5 detector (G-5) attached to a Ludlum 2350-1.
- 2) Probe holder for the G-5.

Procedure:

- 1) Inspect instrument for obvious damage and perform battery check, as required.
- 2) Ensure the NaI instrument, G-5 is functioning by using Americium-241 source TS-912, counting the source for 60 seconds. The preferred source check location is near column C-9. Record readings from before and after survey (i.e., beginning and end of shift) on the daily response check sheet.
- 3) Obtain background measurements with NaI detectors in room 404 on the 1st floor of B-776 by placing the detector in holder, 30 cm from floor surface and perform background measurement.

Perform 60-second count for all background measurements. Record all results in the designated space on the data collection sheet (this may be the remarks section) and annotate as necessary to ensure proper background data is assigned.

- 4) Floors should be scanned. Use the appropriate detector and scan over each grid on the floors. Scan over the entire surface of each floor grid by holding the detector within 6" of the surface. Scan rate should be about 1 foot per second. Listen for change in count rate. Locate the point that has the highest reading in the area and take the measurement at that point (sample location). If no elevated reading is detected during the initial scan, then use professional judgement to select sample location most likely to be contaminated in the grid and take the measurement at that point.
- 5) Obtain 60-second NaI measurements at 30 cm placing the detector in the holder and centering the detector over the sample location. Record all data using the grid number as the sample location number, as appropriate.
- 6) For all NaI measurements, mark area where detector was placed for each reading by circumscribing the area where the measurement was taken.
- 7) Note any items or conditions that may have affected any measurement in the "remarks" section of the data collection sheet.

In-Process Survey Instructions

Survey Unit 776017 (Walls/Ceilings)

Purpose:

This instruction provides guidance for collecting data needed to determine the contamination levels in Survey unit 776017. Work to be performed in accordance with "INS-535-Ludlum2350-1 with Sodium Iodide Detector" and RSP-7.01 and 7.02.

Equipment and materials:

- 1) A Ludlum 44-17 detector (44-17) attached to a Ludlum 2350-1.
- 2) Probe holders for the G-5 and the 44-17 with tin side shield (side shield optional for the G-5).
- 3) Electra with attached DP-6, calibrated and daily response checked.
- 4) Access to a SAC-4 that has daily performance checks completed.

Procedure:

- 1) Inspect instruments for obvious damage and perform battery checks, as required.
- 2) Ensure the NaI instruments (44-17) are functioning by using Americium-241 source TS-912, counting the source for 60 seconds. Record readings from before and after survey (i.e., beginning and end of shift) on the daily response check sheet.
- 3) Obtain background measurements with NaI detectors in B777, room 404. For ceilings take background measurement as specified below.
 - ✓ For cement walls, place the detector (44-17) in holder, 30 cm from floor and perform background measurement.
 - ✓ For block walls, place the detector (44-17) in holder, 30 cm from wall and perform background measurement.
 - ✓ For ceilings, hold probe at waist level and point 44-17 towards ceiling. Place thin metal sheet over end of detector. Ensure that tin back shield covers back of probe, and perform background measurement.

Perform 60-second count for all background measurements. Record all results in the designated space on the data collection sheet (this may be the remarks section).

- 4) Ceilings should be scanned. Use the appropriate detector and scan over as much of each grid on the ceiling as possible. Scan over the surface of each grid by holding the detector within 6 inches of the surface. Scan rate should be about 1 foot per second. Listen for change in count rate. Locate the point that has the highest reading in the area and take the measurement at that point (sample location). If no elevated reading is detected during the initial scan, then use professional judgement to select sample location most likely to be contaminated in the grid and take the measurement at that point.

5

5) Obtain NaI measurements.

- ✓ For top of walls take one 30 second contact reading with each block in the top layer.
- ✓ For walls, take a 30-second NaI measurement at 30 cm placing the detector (44-17) in the holder and centering the detector over the sample location. Take 30-second contact readings near wall penetrations (i.e., doorways). Walls shall be surveyed by taking one measurement every 3 feet on center. No scanning is required.
- ✓ For ceilings, take a 60-second NaI measurement at 30 cm placing the 44-17 holder and centering the detector over the sample location. Ensure there is a tin back-shield on the detector.

Record all data using the grid number as the sample location number, as appropriate (i.e., specific assigned numbers for ceilings). Use assigned wall and section numbers for walls.

- 6) For all NaI measurements, mark area where detector was placed for each reading by circumscribing the area where the measurement was taken.
- 7) Note any items or conditions that may have affected any measurement in the "remarks" section of the data collection sheet.

Table 776017-1: Survey Requirements (Walls/Ceiling)

	Surface	Type of Survey	Detector	Placement	Scan Rate / Count Time
Background	Block Walls	Background measurement	Ludlum 44-17	30 cm of wall in room 404.	60 seconds
	Cement Walls	Background measurement	Ludlum 44-17, as appropriate.	30 cm of floor in room 404.	60seconds
	Metal ceilings	Background measurement	Ludlum 44-17	Room 404 with thin metal sheet covering end of probe (held waist high, pointing toward ceiling).	60 seconds
Scan	Floor	N/A	N/A	N/A	N/A
	Walls	N/A	N/A	N/A	N/A
	Ceiling	Total Alpha Activity	Ludlum 44-17	✓ Scan Within 6" until elevated reading is found	~ 1 foot per second
NaI Measurements	Floor	N/A	N/A	N/A	N/A
	Walls	Total Alpha Activity	Ludlum 44-17	30 cm. On contact to investigate elevated readings.	30 seconds
	Ceiling	Total Alpha Activity	Ludlum 44-17	30 cm	60 seconds
TSA / RSA	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A

7

Area IV (Survey Unit 776017) Follow-up Survey Instructions Floors

Survey/ Sampling Instructions

Purpose:

To collect gross gamma data to determine the effectiveness of decontamination efforts on the floors of Area IV, Survey Unit 776017. Work is to be performed in accordance with "INS-535-Ludlum2350-1 with Sodium Iodide Detector"

Equipment and materials:

- 1) A Ludlum 44-17 Attached to a Ludlum 2350-1 set to collect 1-minute counts that will be displayed on its LCD window.
- 2) A Bicon G-5 Attached to a Ludlum 2350-1 set to collect 1-minute counts that will be displayed on its LCD window.
- 3) HILTI PD 28 Laser range finder or Measuring tape that is at least 10 feet long.
- 4) 2 Probe holders, one for the G-5 and one for the 44-17 with tin collimator.

Procedure:

- 1) RCT, ensure the instrument is functioning by using Americium source TS-912. Obtain one 60 second count at the beginning and end of each workday.
- 2) RCT, inspect instrument for obvious damage and perform a battery check on the instrument.
- 3) RCT, obtain a 60-second unit specific background measurement in B777, room 404 at 30-cm and on contact with the floor.
- 4) In the highlighted grids (#'s 1, 12, 16, 17 and 54) on the attached sheet take 60-second readings at 30-cm as near as possible to the original survey location. In the highlighted grids (#'s 60, 61, 62 and 63) on the attached sheet take 5 60-second contact readings in an "X" pattern within the grid. If survey location is above a contaminated crack or seam make a comment in the remarks section of the data sheet. Do not take readings directly over a hole in the floor.
- 5) Document results on Sodium Iodide Data collection Sheets. Write "2nd survey" in the remarks section at the bottom of the data sheet.

Summary of Survey Instructions

Table -1				
Location	Type of Survey	Probe	Placement	Count time
Listed on attached spread sheet	Total Alpha	G-5 (preferred) or 44-17	30 cm above previous sample location (#'s 1, 12, 16, 17 and 54) on contact (#'s 60, 61, 62 and 63).	60 seconds

Final Survey Instructions

Building 776 1st Floor
Survey Unit 776017

Purpose:

This instruction provides guidance for collecting gross gamma and removable contamination data to quantify the amount of residual contamination in Survey Unit 776017 prior to demolition. NaI measurements are performed in accordance with "INS-535-Ludlum2350-1 with Sodium Iodide Detector".

Equipment and materials:

1. A Ludlum 44-17 attached to a Ludlum 2350-1 set to collect five-minute counts that will be displayed on its LCD window.
2. A Bicon G-5 attached to a Ludlum 2350-1 set to collect five-minute counts that will be displayed on its LCD window.
3. One Electra with attached DP-6, calibrated and daily response checked.
4. Two probe holders, one for the G-5 and one for the 44-17 with tin shielding.
5. Calibrated and daily response checked SAC-4.
6. Measuring tape or laser range finder.

Note: The NE Electra with DP-6 probe and the Eberline SAC-4 shall be used in accordance with RSP- 7.01 and 7.02

Procedure:

1. Inspect instrument for obvious damage and ensure battery voltage is equal to or greater than 4.6 volts. If battery voltage is less than 4.6 volts change the batteries.
2. Complete daily performance checks for Sodium Iodide detectors to ensure the instrument is functioning properly by using Americium-241 source TS-912. Record results on Sodium Iodide Data Sheet.
3. For floor and concrete wall background measurements, perform a 300-second background count with a Bicon G-5 for floors or Ludlum 44-17 for walls at background location in room 404. Record background counts next to "Bkg Floor" or "Bkg Concrete Wall" in background column of attached "Sodium Iodide Data Collection" sheets as needed.
4. For block wall background measurements, perform a 300-second background count with a Ludlum 44-17 at background location in room 404. Record background counts next to "Bkg Block Wall" in background column of attached Sodium Iodide data collection sheets as needed.
5. For ceiling background measurements, perform a 300-second background count with a Ludlum 44-17 at background location in room 404. Hold the probe waist high, pointed toward ceiling using a sheet metal plate in front of the detector (take background measurement in this configuration). Record background counts next to "Bkg Metal Ceiling" in background column of attached Sodium Iodide data collection sheets as needed.
6. Mark the sample locations on the surfaces to be measured. Take all measurements on contact with the marked surface using tin side shields on the Bicon G-5 and tin side and back shields on the Ludlum 44-17. All Sodium Iodide readings shall have 300 second count times.
7. Collect sodium Iodide, total surface activity and removable surface activity measurements at all locations marked on the attached map.
8. Record the NaI and NE Electra measurements on the attached sheet. Note any items or conditions that may have affected the measurement in the "remarks" section.
9. Count swipes for 60 seconds with a SAC-4, record result on attached sheet for removable contamination.

Final Survey Instructions
 Building 776 1st Floor
 Survey Unit 776017

Survey Requirements				
Surface	Type of Survey	Probe	Placement	Count Time
Floor	Total Alpha Activity	Bicron G-5	On contact	300 seconds
All Surfaces	Total Alpha Activity	Electra with DP-6	On contact	60 seconds
Block walls	Total Alpha Activity	Bicron G-5 or Ludlum 44-17	On contact	300 seconds
All Surfaces	Removable Alpha	SAC-4	Swipe in placed in tray	60 seconds
Ceiling	Total Alpha Activity	Ludlum 44-17	On Contact	300 seconds
Block Walls	Background measurement	Bicron G-5 or Ludlum 44-17	On contact with wall at location in room 404.	300 seconds
Floors and cement walls	Background measurement	Bicron G-5 or Ludlum 44-17	On contact with floor in room 404.	300 seconds
Metal ceilings	Background measurement	Ludlum 44-17	Probe waist high, pointed toward ceiling with sheet metal plate on end in room 404.	300 seconds

FINAL SURVEY REPORT

Survey Unit 776017

1) Introduction and Scope

A pre-demolition radiological survey (PDS) is performed prior to building demolition to define the radiological conditions of a facility. A PDS survey for survey unit 776017 has been completed in accordance with guidelines outlined in the "Radiological Pre-Demolition Survey Plan Building 776/777". Based on the results it is recommended that no further remediation is needed, and that the survey unit may be prepared for demolition. Isolation controls shall be put in place to prevent recontamination of the area. This report has been prepared in accordance with sections 3 and 8 of the "Radiological Pre-Demolition Survey Plan Building 776/777".

Survey Unit 776017 was comprised of several rooms. These rooms were numbered as 402, 402A, 411, 415, 416, 416A, 416B, 418, 420, 424, 426, 427, 427A, 428, 429, 431 and 480.

2) PDS Methods and Techniques

The PDS survey results determine the Average Surface Contamination Value (ASCV_u) and source term for the survey unit. These parameters are used to determine whether the building may be demolished within the limits outlined in the "Radiological Pre-Demolition Survey Plan Building 776/777".

To obtain a statistically powerful number of data points, a minimum of 30 survey points were selected per survey unit. A random start, systematic grid method was used to identify the survey point locations. Three types of surveys are performed at each survey point as follows:

- a) Painted surfaces are evaluated for potential contamination under coatings using sodium iodide (NaI) gamma detectors attached to a single channel analyzer windowed for the 59 keV gamma-ray (Am^{241}). The standard background reference in room 404, building 777, was used. Since these gamma measurements quantify contamination at depth as well as the surface, this survey data is used to estimate contamination levels on all surfaces of the survey unit.
- b) Direct alpha surface contamination measurements are performed using a NE Electra survey instrument with attached DP-6 probe. This data may be compared to the NaI survey data to show the fraction of contamination that is directly on the surface verses imbedded in the material matrix.
- c) Removable surface alpha contamination surveys were performed by swiping the survey point with a 47mm filter paper then counting the filter paper on a SAC-4 alpha counter. This data may be used to gauge the effectiveness of encapsulation following the PDS.

To conservatively determine the final Average Surface Contamination Value (ASCV_u) for the survey unit, the source term associated with inaccessible areas of the survey unit (as described in section 4 of this report) is added to the source term calculated by the PDS survey.

FINAL SURVEY REPORT

Survey Unit 776017

3) ALARA Post Remediation Surveys

In addition to the PDS used to determine the Average Surface Contamination Value (ASC_V) and source term for the survey unit, surveys were taken to determine the effectiveness of remediation efforts.

Remediation is performed to demonstrate a reasonable best effort is made to maintain releases to the environment and doses to the workers ALARA. Remediation may include decontamination, or removal of parts of the structure such as block wall removal.

a) Floors

The floors in survey unit 776017 were affected by the 1969 fire cleanup and have significant levels of contamination. 12 of the 75 floor survey points in unit 776017 had contamination levels above 100,000 dpm/100 cm². These 12 survey grids were investigated and in some cases remediated.

Remediation efforts reduced the average contamination levels on the floor of survey unit 776017 from 82,827 dpm/100 cm² to 35,741 dpm/100 cm². This reduction in contamination resulted in a decontamination factor (DF) of 2.32, or a reduction of 56.85%.

**Table 1:
Floor Remediation Results**

	Pre-Remediation (In-process)	Post-Remediation (Follow-up)
Maximum (dpm/100cm²)	1,542,808	98,508
Average (dpm/100cm²)	82,827	35,741

b) Walls

“High density” NaI surveys were performed on walls in Area III to develop a risk based classification of walls. Additionally, a series of holes were made in the hollow block to provide internal contamination levels. The general trend of contamination levels showed the highest levels at the top and the lowest levels at the bottom. This data along with the identification of load-bearing walls provided the basis for classification of building 776 area V walls into three categories:

- i) Type I – Structural or non-structural wall with average contamination levels ranging from < MDA to approximately 100,000 dpm/100 cm². These walls require no further remediation.
- ii) Type II – Structural or non-structural wall with average contamination levels that range from >100,000 dpm/100cm² to <1,000,000 dpm/100cm². Some of the type II walls are structural and it has been determined by Engineering that removal is not allowed. For non-structural type II walls partial removal was performed to eliminate the inaccessible area at the top of wall. This will allow additional engineering

FINAL SURVEY REPORT

Survey Unit 776017

controls to be applied to minimize the risk of a localized airborne event during demolition.

- iii) Type III - Structural or non-structural wall with average contamination levels that exceed $>1,000,000$ dpm/100cm². Some of the type III walls are structural and it has been determined by Engineering that no remediation is allowed. Additional mitigating techniques will be utilized to minimize the potential of a localized airborne event during demolition. For non-structural type III walls partial removal was performed to eliminate the inaccessible area at the top of wall. This will allow additional engineering controls to be applied to minimize the risk of a localized airborne event during demolition.

Eleven wall sections were characterized with elevated levels of contamination during the in-process survey. Contact measurements were collected during the follow-up survey to negate the effects of considerable shine from the surrounding areas. The wall follow-up survey resulted in a more accurate depiction of source term yielding a decontamination factor (DF) of 1.01, or an overall decrease of 9.07%.

Table 2
B776/777 Survey Unit 17, Area IV Wall Summary

Wall	Section	Area (m ²)	Comments	Initial Characterization			Follow-up Characterization			Total Activity (uCi)
				Type I	Type II	Type III	Type I	Type II	Type III	
776017-1	A	21.5		15,085			15,085			14.61
776017-1	B	12.4		47,993			47,993			26.81
776017-2	A	21.5		12,112			12,112			11.73
776017-2	B	3.3		10,733			10,733			1.60
776017-3	A	21.5		5,358			5,358			5.19
776017-3	B	6.5		4,339			4,339			1.27
776017-4	A	6.7		5,408			5,408			1.63
776017-4	B	20.8		20,226			20,226			18.95
776017-4	C	9.8		46,562			46,562			20.55
776017-5	A	21.5		31,432			31,432			30.49
776017-5	B	9.1		17,253			17,253			7.07
776017-6	A	8.4		7,534			7,534			2.87
776017-7	A	5.4		14,549			14,549			3.54
776017-8	A	6.7		10,972			10,972			3.31
776017-9	A	4.8		23,676			23,676			5.12
776017-10	A	21.5		43,676			43,676			18.09
776017-10	B	1.2		25,434			25,434			1.38
77601711	A	21.5		18,730			18,730			18.20
776017-11	B	6.2		16,207			16,207			4.53
776017-12	A	7.6		29,742			29,742			10.18
776017-13	A	21.5		29,913			29,913			28.97
776017-13	B	16.0		6,895			6,895			4.97
776017-14	A	20.1		23,936			23,936			21.72

FINAL SURVEY REPORT
Survey Unit 776017

Wall	Section	Area (m ²)	Comments	Initial Characterization			Follow-up Characterization			Total Activity (uCi)
				Type I	Type II	Type III	Type I	Type II	Type III	
776017-15	A	22.3		12,883			12,883			12.94
776017-15	B	6.3		29,216			29,216			8.29
776017-16	D	10.9		44,146			44,146			21.68
776017-18	A	2.2		15,880			15,880			1.57
776017-20	A	1.9		18,021			18,021			1.54
776017-22	A	1.9		7,570			7,570			0.65
776017-23	A	21.5		32,175			32,175			31.16
776017-23	B	9.0		43,996			43,996			19.05
776017-24	A	19.7		64,074			64,074			56.86
776017-24	B	7.9		33,896			33,896			12.06
776017-25	A	18.1		21,481			21,481			17.52
776017-25	B	9.0		26,652			26,652			10.80
776017-26	A	21.9		30,949			30,949			30.53
776017-27	A	31.9		45,238			45,238			65.03
776017-28	A	33.0			116,919			116,919		173.80
776017-28	B	10.0		63,107			63,107			29.33
776017-29	A	20.4		53,803			53,803			51.28
776017-30	A	25.4		42,991			42,991			49.19
776017-30	B	7.7		39,123			39,123			13.57
776017-31	A	9.6		57,792			57,792			24.98
776017-32	A	11.9		73,422			73,422			39.36
776017-33	A	17.9		83,873			83,873			67.63
776017-34	A	11.9		60,154			60,154			32.24
776017-35	A	31.9			115,499		39,471			56.72
776017-36	A	15.4			110,858		92,165			63.93
776017-37	A	31.9		53,155			53,155			76.38
776017-38	A	9.4		55,041			55,041			23.31
776017-39	A	31.9		60,779			60,779			87.34
776017-40	A	18.1		89,545			89,545			73.01
776017-41	A	31.9		49,159			49,159			70.64
776017-42	A	14.2		45,781			45,781			29.28
776017-43	A	20.9		19,124			19,124			18.00
776017-43	B	2.2		43,074			43,074			4.47
776017-44	A	10.1		58,861			58,861			26.78
776017-46	A	12.0		56,892			56,892			30.75
776017-46	B	12.6		27,062			27,062			15.36
776017-47	A	12.5		3,996			3,996			2.25
776017-47	B	9.5		3,996			3,996			1.71
776017-48	A	21.5		64,275			64,275			62.25
776017-48	B	3.0		17,352			17,352			2.34
776017-49	A	20.2			103,952		66,963			62.75
776017-50	A	7.9			112,816		76,209			27.12
776017-51	A	31.9		24,632			24,632			35.39

14.

FINAL SURVEY REPORT

Survey Unit 776017

Wall	Section	Area (m ²)	Comments	Initial Characterization			Follow-up Characterization			Total Activity (uCi)
				Type I	Type II	Type III	Type I	Type II	Type III	
776017-52	A	16.6		96,412			96,412			72.09
776017-53	A	10.5			103,190		42,538			20.12
776017-54	A	13.4			136,298		61,553			37.15
776017-55	A	13.1		92,350			92,350			54.49
776017-56	A	12.4			117,782		57,212			31.96
776017-57	A	31.9		78,136			78,136			112.28
776017-58	A	12.1			105,690			105,690		57.61
776017-59	A	29.2			103,662			103,662		136.35
776017-60	A	11.9		80,873			80,873			48.71
776017-61	A	3.7		48,380			48,380			8.11
776017-63	A	3.7		18,623			18,623			3.12
776017-64	A	4.1		33,785			33,785			6.27
776017-65	A	10.4		4,393			4,393			2.05
776017-66	A	21.6		4,393			4,393			4.28
776017-67	A	8.4		4,393			4,393			1.66
776017-68	A	19.5		14,129			14,129			12.38
776017-69	A	15.4		80,919			80,919			56.28
776017-70	A	18.5			119,452			119,452		99.76
776017-71	A	15.4		66,790			66,790			46.45
776017-72	A	20.7		89,910			89,910			83.88
		Total Area		Average dpm/100 cm²			Average dpm/100 cm²			Total uCi
		1269.4		46,452			42,239			2,698.61
Type 1: <100,000 dpm/100 cm ²										
Type 2: >100,000 dpm/100 cm ² to <1,000,000 dpm/100 cm ²										
Type 3: >1,000,000 dpm/100 cm ²										

c) Ceilings

The In-Process NaI survey of the ceilings identified one survey grid exceeding 100,000 dpm/100cm². Remediation efforts reduced the average contamination levels on the ceiling of survey unit 776017 from 18,619 dpm/100 cm² to 16,586 dpm/100 cm². This reduction in contamination resulted in a decontamination factor (DF) of 1.12, or a reduction of 10.92%.

**Table 3:
Ceiling Remediation Results**

	Pre-Remediation (In-process)	Post-Remediation
Maximum (dpm/100cm²)	120,628	65,502
Average (dpm/100cm²)	18,619	16,586

FINAL SURVEY REPORT

Survey Unit 776017

4) Inaccessible Areas

a) Floors

The final PDS survey is representative of all floor surfaces in survey unit 776017.

b) Walls

The final PDS survey is representative of all wall surfaces in survey unit 776017.

c) Ceilings

The final PDS survey is representative of all ceiling surfaces in survey unit 776017.

5) PDS Survey Results Summary

The values for the accessible areas and inaccessible areas were summed and divided by the total area for the survey unit to calculate the "Average Surface Contamination Value" ($ASCV_u$) and source term for the survey unit. The results are summarized in Table 4 below:

**Table 4:
PDS Final Results**

	Final Results
776017 Source Term Inaccessible Areas (μCi)	0.0
776017 Source Term Accessible Areas (μCi)	2,099
776017 Total Source Term (μCi)	2,099
Survey Unit Area (m^2)	2,586
$ASCV_u$ ($\mu\text{Ci}/\text{m}^2$)	0.81
$ASCV_u$ ($\text{dpm}/100\text{cm}^2$)	18,019

Attachment 1

Standard Method for Calculating the ASCV for Each Survey Unit

Prerequisites:

1. Final survey map for the survey unit
2. PDS survey results
3. Survey information used to estimate activities in inaccessible areas;
4. Survey information for any structural members or elevated regions not represented by the PDS survey.

Conversions:

1 square meter (m^2) = $100 \times 100 \text{ cm}^2$

1 microcurie (μCi) = $2.22 \times 10^6 \text{ dpm}$

1 ($\mu\text{Ci}/m^2$) = $22,200 \text{ dpm}/100\text{cm}^2$ evenly distributed over one square meter.

12 inches = 1 foot = 0.305 meters

Calculations:

Accessible Area Inventory

1. Calculate the average surface contamination for the applicable survey unit from a minimum of 30 sodium iodide measurements obtained by the PDS survey.
2. Average the total surface contamination activity present.
3. Convert the average surface contamination value from step 2 from " $\text{dpm}/100\text{cm}^2$ " to " $\mu\text{Ci}/m^2$ "

Example:

$$22,200 \text{ dpm}/100\text{cm}^2 \times (100 \times 100 \text{ cm}^2/m^2) \times (1\mu\text{Ci}/2.22 \times 10^6 \text{ dpm}) = 1 \mu\text{Ci}/m^2$$

4. Obtain surface area of survey unit from title box of final survey map. This is reported in square meters.
5. Calculate inventory for accessible areas

The surface area from a survey unit map title box is 1,000 square meters and the average contamination level from the 30 PDS points is $22,200 \text{ dpm}/100\text{cm}^2$.

Example:

$$1,000 \text{ m}^2 \times 22,200 \text{ dpm}/100\text{cm}^2 \times (100 \times 100 \text{ cm}^2/m^2) \times (1\mu\text{Ci}/2.22 \times 10^6 \text{ dpm}) = 1,000 \mu\text{Ci}$$

Inaccessible Area Inventory

1. Document methods used to estimate contamination levels and potential inventory in seams, cracks or other surfaces in the final survey report. Provide an estimated remaining inventory for each item/area in the report.

Example:

There are 20 feet of seams contaminated to an average level of $2,220,000 \text{ dpm}/100 \text{ cm}^2$. Each seam has two sides. The total inventory can be estimated assuming the contamination levels measured at the top of the seam extend down each side of the seam. The depth of the seam can be determined from design drawings or from direct observation as the seam is chipped away. If a seam is determined to be 4 inches deep, then the inventory of the seam can be calculated as follows:

The contaminated area of the seam is:

$$(20 \text{ feet} \times .305 \text{ m/ft}) \times (0.3 \text{ feet} \times 0.305 \text{ m/ft}) = .61 \text{ m}^2 \times 2 \text{ sides} = 1.22 \text{ m}^2$$

Therefore the inventory in the seam in μCi is:

$$1.22 \text{ m}^2 \times (2,220,000 \text{ dpm}/100 \text{ cm}^2) \times (10,000 \text{ cm}^2/m^2) \times \mu\text{Ci}/2.22 \times 10^6 \text{ dpm} = 122 \mu\text{Ci}$$

Attachment 1

Calculating the ASCV

1. Sum the inventories from the inaccessible areas with the inventory for the accessible area to obtain a total inventory for the survey unit.

Total Inventory = Accessible Inventory + Inaccessible inventory + Inventory items (areas not represented by other inventories listed i.e. Stairs, columns, etc)

Example: 1000 μCi = accessible inventory

122 μCi = inaccessible inventory

100 μCi = inaccessible contamination in the columns and contamination on the stairs

1000 + 122 + 100 = 1222 μCi

2. Divide the total inventory for the survey unit by the accessible area of the survey unit obtained from the final survey map.

Example: 1222 μCi = total inventory

1000 m^2 = total surface area of the survey unit

1222 $\mu\text{Ci}/1,000 \text{ m}^2 = 1.22 \mu\text{Ci} / \text{m}^2$

1.22 $\mu\text{Ci} / \text{m}^2 * (1\text{m}^2 / (100*100 \text{ cm}^2)) * (2.22\text{E}6 \text{ dpm}/\mu\text{Ci}) = 27084 \text{ dpm} / 100\text{cm}^2$

776017 Followup Survey Results

Location #	Column letter	Column Number	North	East	Surface	dpm/100 cm ² pre remediation	dpm/100 cm ² post remediation
17-1	D	17	16	4	FLOOR	1,542,808	13,666
17-2	D	17	14	11	FLOOR	94,526	94,526
17-3	D	18	15	4	FLOOR	11,673	11,673
17-4	D	18	15	18	FLOOR	11,673	11,673
17-5	D	19	17	5	FLOOR	72,938	72,938
17-6	D	19	14	11	FLOOR	70,008	70,008
17-7	D	20	5	1	FLOOR	113,180	12,665
17-8	D	20	13	11	FLOOR	116,114	41,358
17-9	D	20	4	11	FLOOR	117,162	66,891
17-10	D	20	5	1	FLOOR	113,180	60,178
17-11	D	19	1	19	FLOOR	116,324	42,796
17-12	D	19	9	6	FLOOR	551,793	80,078
17-13	D	18	8	17	FLOOR	11,673	11,673
17-14	D	18	5	5	FLOOR	11,673	11,673
17-15	D	17	3	12	FLOOR	83,418	83,418
17-16	D	17	8	3	FLOOR	98,508	98,508
17-17	C	16	12	11	FLOOR	79,645	79,645
17-18	C	17	11	1	FLOOR	23,562	23,562
17-19	C	17	18	17	FLOOR	22,945	22,945
17-20	C	18	17	3	FLOOR	22,945	22,945
17-21	C	18	16	18	FLOOR	24,313	24,313
17-22	C	19	19	5	FLOOR	53,656	53,656
17-23	C	19	19	15	FLOOR	84,046	84,046
17-24	C	20	18	9	FLOOR	83,837	83,837
17-25	C	20	17	19	FLOOR	55,123	55,123
17-26	C	20	6	12	FLOOR	45,901	45,901
17-27	C	20	3	8	FLOOR	47,787	47,787
17-28	C	19	1	13	FLOOR	33,744	33,744
17-29	C	19	5	5	FLOOR	22,945	22,945
17-30	C	18	2	5	FLOOR	22,945	22,945
17-31	C	18	8	4	FLOOR	22,945	22,945
17-32	C	17	3	15	FLOOR	22,945	22,945
17-33	C	17	6	2	FLOOR	23,562	23,562
17-34	C	16	6	14	FLOOR	23,562	23,562
17-35	B	16	19	12	FLOOR	23,562	23,562
17-36	B	17	15	8	FLOOR	23,562	23,562
17-37	B	17	12	14	FLOOR	22,945	22,945
17-38	B	18	15	3	FLOOR	22,945	22,945
17-39	B	18	18	16	FLOOR	22,945	22,945

776017 Followup Survey Results

17-40	B	19	17	2	FLOOR	22,945	22,945
17-41	B	19	16	11	FLOOR	30,181	30,181
17-42	B	20	12	9	FLOOR	83,208	83,208
17-43	B	20	19	18	FLOOR	34,583	34,583
17-44	B	20	5	15	FLOOR	22,945	22,945
17-45	B	20	6	7	FLOOR	22,945	22,945
17-46	B	19	8	16	FLOOR	22,945	22,945
17-47	B	19	4	4	FLOOR	22,945	22,945
17-48	B	18	8	13	FLOOR	22,945	22,945
17-49	B	18	3	6	FLOOR	22,945	22,945
17-50	B	17	4	15	FLOOR	22,945	22,945
17-51	B	17	1	8	FLOOR	34,792	34,792
17-52	A	17	2	18	FLOOR	22,945	22,945
17-53	A	16	16	20	FLOOR	22,945	22,945
17-54	A	17	20	8	FLOOR	406,399	82,595
17-55	A	17	18	19	FLOOR	22,945	22,945
17-56	A	18	17	5	FLOOR	22,945	22,945
17-57	A	18	17	19	FLOOR	22,945	22,945
17-58	A	19	18	6	FLOOR	22,945	22,945
17-59	A	19	18	12	FLOOR	22,945	22,945
17-60	A	20	15	8	FLOOR	254,235	27,931
17-61	A	20	11	19	FLOOR	244,175	14,061
17-62	A	20	2	19	FLOOR	228,875	35,603
17-63	A	20	4	1	FLOOR	248,786	43,755
17-64	A	19	6	13	FLOOR	22,945	22,945
17-65	A	19	5	3	FLOOR	22,945	22,945
17-66	A	18	6	17	FLOOR	22,945	22,945
17-67	A	18	4	4	FLOOR	22,945	22,945
17-68	A	17	2	17	FLOOR	22,945	22,945
17-69	A	17	1	6	FLOOR	22,945	22,945
17-70	A	16	8	18	FLOOR	22,945	22,945
17-146	B	21	6	11	FLOOR	46,529	46,529
17-147	A1	16	13	10	FLOOR	22,945	22,945
17-148	A1	16	12	14	FLOOR	57,638	57,638
17-149	A1	16	7	18	FLOOR	22,945	22,945
17-150	A1	16	3	4	FLOOR	22,945	22,945
17-71	D	17	17	5	CEILING	14,931	14,931
17-72	D	17	13	17	CEILING	14,931	14,931
17-73	D	18	15	6	CEILING	14,931	14,931
17-74	D	18	13	11	CEILING	14,931	14,931
17-75	D	19	16	7	CEILING	44,310	44,310
17-76	D	19	19	16	CEILING	14,931	14,931

776017 Followup Survey Results

17-77	D	20	12	1	CEILING	14,931	14,931
17-78	D	20	14	15	CEILING	14,931	14,931
17-79	D	20	6	16	CEILING	14,931	14,931
17-80	D	20	4	4	CEILING	14,931	14,931
17-81	D	19	4	15	CEILING	14,931	14,931
17-82	D	19	6	4	CEILING	14,931	14,931
17-83	D	18	4	12	CEILING	14,931	14,931
17-84	D	18	5	5	CEILING	14,931	14,931
17-85	D	17	4	18	CEILING	14,931	14,931
17-86	D	17	5	4	CEILING	14,931	14,931
17-87	C	16	15	11	CEILING	65,502	65,502
17-88	C	17	16	9	CEILING	14,931	14,931
17-89	C	17	15	14	CEILING	14,470	14,470
17-90	C	18	18	8	CEILING	14,470	14,470
17-91	C	18	16	16	CEILING	14,470	14,470
17-92	C	19	19	5	CEILING	14,470	14,470
17-93	C	19	19	14	CEILING	14,470	14,470
17-94	C	20	19	1	CEILING	14,470	14,470
17-95	C	20	18	14	CEILING	14,470	14,470
17-96	C	20	17	15	CEILING	14,470	14,470
17-97	C	20	5	4	CEILING	14,470	14,470
17-98	C	19	9	17	CEILING	14,470	14,470
17-99	C	19	4	1	CEILING	14,470	14,470
17-100	C	18	7	16	CEILING	14,470	14,470
17-101	C	18	5	7	CEILING	14,470	14,470
17-102	C	17	2	18	CEILING	14,470	14,470
17-103	C	17	4	9	CEILING	14,931	14,931
17-104	C	16	6	13	CEILING	47,521	47,521
17-105	B	16	17	13	CEILING	14,931	14,931
17-106	B	17	17	6	CEILING	14,931	14,931
17-107	B	17	15	15	CEILING	14,470	14,470
17-108	B	18	15	4	CEILING	14,470	14,470
17-109	B	18	17	17	CEILING	14,470	14,470
17-110	B	19	19	7	CEILING	14,470	14,470
17-111	B	19	7	19	CEILING	14,470	14,470
17-112	B	20	2	5	CEILING	14,470	14,470
17-113	B	20	7	14	CEILING	14,470	14,470
17-114	B	20	8	14	CEILING	14,931	14,931
17-115	B	20	7	4	CEILING	14,931	14,931
17-116	B	19	8	17	CEILING	14,931	14,931
17-117	B	19	3	5	CEILING	14,470	14,470
17-118	B	18	5	12	CEILING	14,470	14,470

776017 Followup Survey Results

17-119	B	18	5	9	CEILING	14,470	14,470
17-120	B	17	1	16	CEILING	14,470	14,470
17-121	B	17	8	7	CEILING	14,470	14,470
17-122	B	16	7	14	CEILING	14,931	14,931
17-123	A	16	17	14	CEILING	14,470	14,470
17-124	A	17	17	7	CEILING	14,470	14,470
17-125	A	17	17	18	CEILING	14,470	14,470
17-126	A	18	17	17	CEILING	14,470	14,470
17-127	A	18	16	16	CEILING	14,470	14,470
17-128	A	19	17	5	CEILING	14,470	14,470
17-129	A	19	17	19	CEILING	14,470	14,470
17-130	A	20	19	6	CEILING	14,470	14,470
17-131	A	20	19	12	CEILING	14,470	14,470
17-132	A	20	4	9	CEILING	120,628	24,894
17-133	A	20	7	17	CEILING	81,667	24,894
17-134	A	19	2	19	CEILING	14,985	14,985
17-135	A	19	3	4	CEILING	14,470	14,470
17-136	A	18	5	18	CEILING	14,470	14,470
17-137	A	18	3	2	CEILING	14,470	14,470
17-138	A	17	1	16	CEILING	14,470	14,470
17-139	A	17	2	5	CEILING	14,470	14,470
17-140	A	16	4	15	CEILING	14,470	14,470
17-141	A	16	17	6	CEILING	14,470	14,470
17-142	A	16	17	16	CEILING	14,470	14,470
17-143	A	16	9	18	CEILING	26,223	26,223
17-144	A	16	3	5	CEILING	14,470	14,470
17-145	B	21	14	8	CEILING	15,516	15,516

Total Surface Activity

Survey Area:		IV	Survey Unit:		776017			
Meter Model:		NE Electra w/ DP6 Probe				Date:	1/25,26/2005	
		1	2	3				
Instrument #:		4069	2330	N/A	N/A	A priori MDA:		94
Cal. Due Date:		7/1/05	7/19/05	N/A	N/A	Avg. Local Bkgd		11.6
Efficiency (c/d):		21.90%	21.30%	N/A	N/A	Avg. Efficiency		0.216
Sample Location #	RCT ID #	Inst. #	Local Bkgd (cpm)	Gross (cpm)	(dpm/100 cm ²)			
1	1	1	3.0	10.0	32.4			
2	1	1	7.0	20.0	60.2			
3	1	1	10.0	8.0	-9.3			
4	1	1	7.0	9.0	9.3			
5	1	1	3.0	8.0	23.1			
6	1	1	1.0	15.3	66.2			
7	3	2	0.0	28.0	129.6			
8	1	1	1.0	12.0	50.9			
9	1	1	3.0	15.0	55.6			
10	1	1	7.0	6.0	-4.6			
11	3	2	0.0	37.0	171.3			
12	1	1	9.0	10.0	4.6			
13	2	1	3.0	10.0	32.4			
14	2	1	1.0	2.0	4.6			
15	1	1	5.0	6.0	4.6			
16	3	2	3.0	8.0	23.1			
17	3	2	0.0	5.0	23.1			
18	2	1	7.0	16.0	41.7			
19	3	2	2.0	8.0	27.8			
20	3	2	1.0	12.0	50.9			
21	2	1	9.0	8.0	-4.6			
22	2	1	5.0	5.0	0.0			
23	2	1	3.0	5.0	9.3			
24	2	1	1.0	10.0	41.7			
25	2	1	4.0	5.0	4.6			
26	2	1	3.0	14.0	50.9			
27	1	1	7.0	15.0	37.0			
28	1	1	2.0	33.0	143.5			
29	2	1	3.0	5.0	9.3			
30	2	1	3.0	3.0	0.0			
					MIN	-9.3		
					MAX	171.3		
					MEAN	36.3		
					SD	43.9		

Removable Activity

Survey Area:		IV	Survey Unit:		776017
Dates Counted:	1/25,26/2005				
A priori MDA:	16				
Efficiency (c/d)	0.333				
Smear Location Number	Smear Results				
	RCT ID #	Serial Number	Gross (cpm)	Bkg.	(dpm/100 cm ²)
1	1	837	0.0	0.3	-0.9
2	2	837	2.0	0.3	5.1
3	2	1479	1.0	0.6	1.2
4	2	1479	1.0	0.6	1.2
5	2	1051	3.0	0.5	7.5
6	1	1411	1.0	0.4	1.8
7	1	837	3.0	0.0	9.0
8	2	837	0.0	0.3	-0.9
9	1	1051	1.0	0.5	1.5
10	2	1479	0.0	0.6	-1.8
11	1	837	1.0	0.0	3.0
12	1	1051	1.0	0.5	1.5
13	1	837	0.0	0.3	-0.9
14	1	1479	1.0	0.6	1.2
15	1	837	0.0	0.3	-0.9
16	1	837	4.0	0.0	12.0
17	1	837	2.0	0.0	6.0
18	1	1479	0.0	0.6	-1.8
19	1	837	5.0	0.0	15.0
20	1	837	1.0	0.0	3.0
21	1	837	0.0	0.3	-0.9
22	1	1051	0.0	0.5	-1.5
23	1	1479	0.0	0.6	-1.8
24	1	837	0.0	0.3	-0.9
25	1	1051	1.0	0.5	1.5
26	1	1479	0.0	0.6	-1.8
27	2	1051	0.0	0.5	-1.5
28	2	837	2.0	0.3	5.1
29	1	837	3.0	0.3	8.1
30	1	1051	0.0	0.5	-1.5
				MIN	-1.8
				MAX	15.0
				MEAN	2.2
				SD	4.4

Sodium Iodide Instrument Information

Survey Area:	IV	Survey Unit:	776017	Survey Date(s):	1/25,26/05
--------------	----	--------------	--------	-----------------	------------

Instrument Specifications

Instrument #	1	2
Meter Model:	Ludlum 2350-1	Ludlum 2350-1
Meter Serial #:	203457	201199
Detector Model:	Bicron G-5	Ludlum 44-17
Detector #:	B940T	199764
Detector Size (cm ²):	125	17.8
Calibration Due Date:	6/8/05	6/9/05
Count Time (min)	5	5
Contact Efficiency	5.60%	9.20%

Ratio Used

Pu to Am - 241	8.1
----------------	-----

Comments

In cases where the critical level is greater than the calculated dpm/100cm², the critical level will be used for statistical analysis.

Count Times for backgrounds and samples are equal.

Attenuation Factors: Based on observation of Walls and Ceilings. Epoxy on Floor determined by chip sampling.

Background (Gross)

Instrument #	1	2
Gamma (Ceilings)	N/A	537
Gamma (Floors)	13796	N/A
Gamma (Walls)	N/A	999

Background (cpm)

Instrument #	1	2
Gamma (Ceilings)	N/A	107.4
Gamma (Floors)	2759.2	N/A
Gamma (Walls)	N/A	199.8

Efficiencies (cpm/dpm)

Instrument #	1	2
Thin/No Paint	0.055	0.091
Epoxy	0.045	0.074
Other	0.053	0.087

Coatings

Coatings	Thickness (inches)
Thin/No Paint	0.015
Epoxy	0.250
Other	0.06

Total Activity Estimates Using Sodium Iodide Instruments

Survey Area:	IV	Survey Unit:	776017	Survey Date(s):	1/25,26/05
--------------	----	--------------	--------	-----------------	------------

Sample Location #	RCT ID #	Instrument #	Gross Counts	Critical Level (dpm/100cm2)	Total Alpha (dpm/100cm2)
1	1	2	1171	7,368	17,235
2	1	2	1664	7,368	66,637
3	1	2	1344	7,368	34,571
4	2	2	1365	7,368	36,675
5	2	2	1403	7,368	40,483
6	N/A	N/A	N/A	CHECK DATA	N/A
7	1	1	11135	6,406	6,406
8	2	2	1235	7,368	23,649
9	2	2	1516	7,368	51,807
10	2	2	1260	7,368	26,154
11	1	1	11276	6,406	6,406
12	1	2	1229	7,368	23,047
13	1	2	1224	7,368	22,546
14	1	2	387	5,402	5,402
15	1	2	495	7,368	7,368
16	1	1	12254	6,406	6,406
17	1	1	10099	6,406	6,406
18	2	2	914	7,368	7,368
19	1	1	10168	6,406	6,406
20	1	1	13353	6,406	6,406
21	2	2	1103	7,368	10,421
22	2	2	1005	7,368	7,368
23	2	2	1224	7,368	22,546
24	N/A	N/A	N/A	CHECK DATA	N/A
25	1	2	1123	7,368	12,426
26	1	2	1102	7,368	10,321
27	1	2	379	5,402	5,402
28	1	2	399	5,402	5,402
29	2	2	374	5,402	5,402
30	2	2	327	5,402	5,402

Sodium Iodide Instrument Information

Survey Area:	IV	Survey Unit:	776017	Survey Date(s):	1/25,26/05
--------------	----	--------------	--------	-----------------	------------

Instrument Specifications

Instrument #	1	2
Meter Model:	Ludlum 2350-1	Ludlum 2350-1
Meter Serial #:	201199	201199
Detector Model:	Ludlum 44-17	Ludlum 44-17
Detector #:	199764	199764
Detector Size (cm ²):	17.8	17.8
Calibration Due Date:	6/9/05	6/9/05
Count Time (min)	5	5
Contact Efficiency	9.20%	9.20%

Ratio Used

Pu to Am - 241	8.1
----------------	-----

Comments

In cases where the critical level is greater than the calculated dpm/100cm², the critical level will be used for statistical analysis.

Count Times for backgrounds and samples are equal.

Attenuation Factors: Based on observation of Walls and Ceilings. Epoxy on Floor determined by chip sampling.

Background (Gross)

Instrument #	1	2
Gamma (Ceilings)	N/A	N/A
Gamma (Floors)	N/A	N/A
Gamma (Walls)	1461	981

Background (cpm)

Instrument #	1	2
Gamma (Ceilings)	N/A	N/A
Gamma (Floors)	N/A	N/A
Gamma (Walls)	292.2	196.2

Efficiencies (cpm/dpm)

Instrument #	1	2
Thin/No Paint	0.091	0.091
Epoxy	0.074	0.074
Other	0.087	0.087

Coatings

Coatings	Thickness (inches)
Thin/No Paint	0.015
Epoxy	0.250
Other	0.06

Total Activity Estimates Using Sodium Iodide Instruments

Survey Area:	IV	Survey Unit:	776017	Survey Date(s):	1/25,26/05
--------------	----	--------------	--------	-----------------	------------

Sample Location #	RCT ID #	Instrument #	Gross Counts	Critical Level (dpm/100cm ²)	Total Alpha (dpm/100cm ²)
1	N/A	N/A	N/A	CHECK DATA	0
2	N/A	N/A	N/A	CHECK DATA	0
3	N/A	N/A	N/A	CHECK DATA	0
4	N/A	N/A	N/A	CHECK DATA	0
5	N/A	N/A	N/A	CHECK DATA	0
6	1	2	1436	7,301	45,594
7	N/A	N/A	N/A	CHECK DATA	0
8	N/A	N/A	N/A	CHECK DATA	0
9	N/A	N/A	N/A	CHECK DATA	0
10	N/A	N/A	N/A	CHECK DATA	0
11	N/A	N/A	N/A	CHECK DATA	0
12	N/A	N/A	N/A	CHECK DATA	0
13	N/A	N/A	N/A	CHECK DATA	0
14	N/A	N/A	N/A	CHECK DATA	0
15	N/A	N/A	N/A	CHECK DATA	0
16	N/A	N/A	N/A	CHECK DATA	0
17	N/A	N/A	N/A	CHECK DATA	0
18	N/A	N/A	N/A	CHECK DATA	0
19	N/A	N/A	N/A	CHECK DATA	0
20	N/A	N/A	N/A	CHECK DATA	0
21	N/A	N/A	N/A	CHECK DATA	0
22	N/A	N/A	N/A	CHECK DATA	0
23	N/A	N/A	N/A	CHECK DATA	0
24	2	1	1,337	8,910	8,910
25	N/A	N/A	N/A	CHECK DATA	0
26	N/A	N/A	N/A	CHECK DATA	0
27	N/A	N/A	N/A	CHECK DATA	0
28	N/A	N/A	N/A	CHECK DATA	0
29	N/A	N/A	N/A	CHECK DATA	0
30	N/A	N/A	N/A	CHECK DATA	0

Survey Unit 776017 Summary

Total Activity Measurements

30	30
Number Required	Number Obtained

MIN	5402	dpm/100 cm ²
MAX	66637	dpm/100 cm ²
Average	18019	dpm/100 cm ²
STD DEV	16330	dpm/100 cm ²

*Average Contamination Value for Accessible Areas Only

Inaccessible Areas 0.0 uCi, Alpha

Total Surface Area 2586 m²
Accessible Inventory = 2099.0 uCi, Alpha

Total Inventory 2099.0 uCi, Alpha

ASCV _u =	0.81 uCi/m ²
ASCV _u =	18,019 dpm/100 cm ²

Survey Unit 776017

Sample Location Number	Measurement Used	Comment	Surface	Coating	(dpm/100 cm ²)
1	Sodium Iodide	N/A	Wall	Thin/No Paint	17,235
2	Sodium Iodide	N/A	Wall	Thin/No Paint	66,637
3	Sodium Iodide	N/A	Wall	Thin/No Paint	34,571
4	Sodium Iodide	N/A	Wall	Thin/No Paint	36,675
5	Sodium Iodide	N/A	Wall	Thin/No Paint	40,483
6	Sodium Iodide	N/A	Wall	Thin/No Paint	45,594
7	Sodium Iodide	N/A	Floor	Thin/No Paint	6,406
8	Sodium Iodide	N/A	Wall	Thin/No Paint	23,649
9	Sodium Iodide	N/A	Wall	Thin/No Paint	51,807
10	Sodium Iodide	N/A	Wall	Thin/No Paint	26,154
11	Sodium Iodide	N/A	Floor	Thin/No Paint	6,406
12	Sodium Iodide	N/A	Wall	Thin/No Paint	23,047
13	Sodium Iodide	N/A	Wall	Thin/No Paint	22,546
14	Sodium Iodide	N/A	Ceiling	Thin/No Paint	5,402
15	Sodium Iodide	N/A	Wall	Thin/No Paint	7,368
16	Sodium Iodide	N/A	Floor	Thin/No Paint	6,406
17	Sodium Iodide	N/A	Floor	Thin/No Paint	6,406
18	Sodium Iodide	N/A	Wall	Thin/No Paint	7,368
19	Sodium Iodide	N/A	Floor	Thin/No Paint	6,406
20	Sodium Iodide	N/A	Floor	Thin/No Paint	6,406
21	Sodium Iodide	N/A	Wall	Thin/No Paint	10,421
22	Sodium Iodide	N/A	Wall	Thin/No Paint	7,368
23	Sodium Iodide	N/A	Wall	Thin/No Paint	22,546
24	Sodium Iodide	N/A	Wall	Thin/No Paint	8,910
25	Sodium Iodide	N/A	Wall	Thin/No Paint	12,426
26	Sodium Iodide	N/A	Wall	Thin/No Paint	10,321
27	Sodium Iodide	N/A	Ceiling	Thin/No Paint	5,402
28	Sodium Iodide	N/A	Ceiling	Thin/No Paint	5,402
29	Sodium Iodide	N/A	Ceiling	Thin/No Paint	5,402
30	Sodium Iodide	N/A	Ceiling	Thin/No Paint	5,402
				MIN	5402.0
				MAX	66637.0
				AVERAGE	18019.1
				SD	16330.4



776017
Ceiling
Survey Grids

RAMP

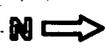
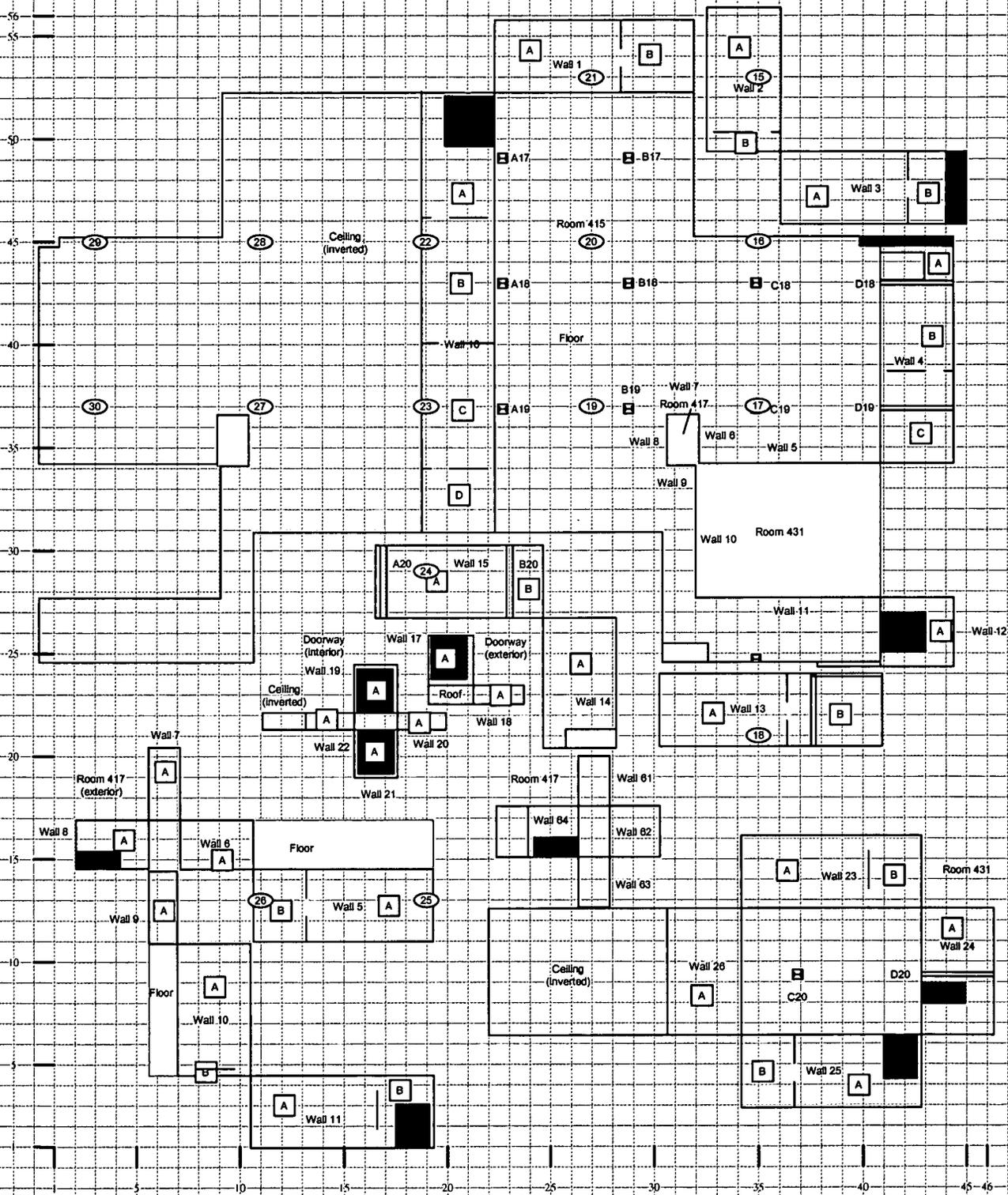
DOCK 2

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 776 CLUSTER

Survey Area: IV Survey Unit: 776017 Classification: NA
 Building: 776
 Survey Unit Description: First floor- 415-431

Total Floor Area: 640 sq. m Total Area: 2586 sq. m Random Start Grid Size: 8 x 8 sq. m

SURVEY UNIT 776017 - MAP 1 OF 3



SURVEY MAP LEGEND	
⊙	Smear & TSC Location
⬠	Smear, TSC & Sample Location
■	Open/Inaccessible Area
□	Area in Another Location

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 776 CLUSTER

Survey Area: IV

Survey Unit: 776017

Classification: NA

Building: 776

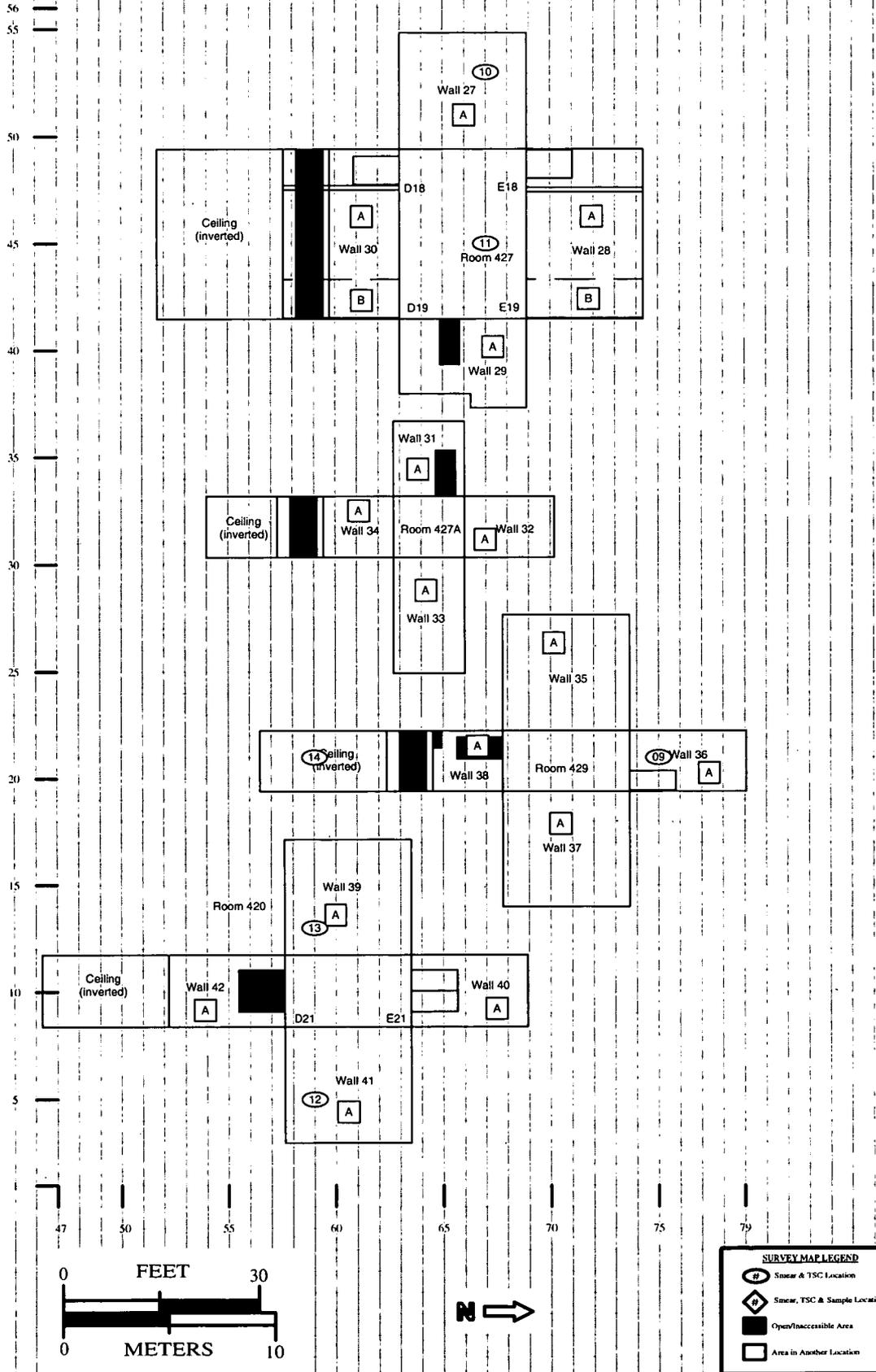
Survey Unit Description: First floor- Rooms 415-431

Total Floor Area: 640 sq. m

Total Area: 2586 sq. m

Random Start Grid Size: 8 x 8 sq. m

SURVEY UNIT 776017 - MAP 2 OF 3



RADIOLOGICAL CLOSEOUT SURVEY FOR THE 776 CLUSTER

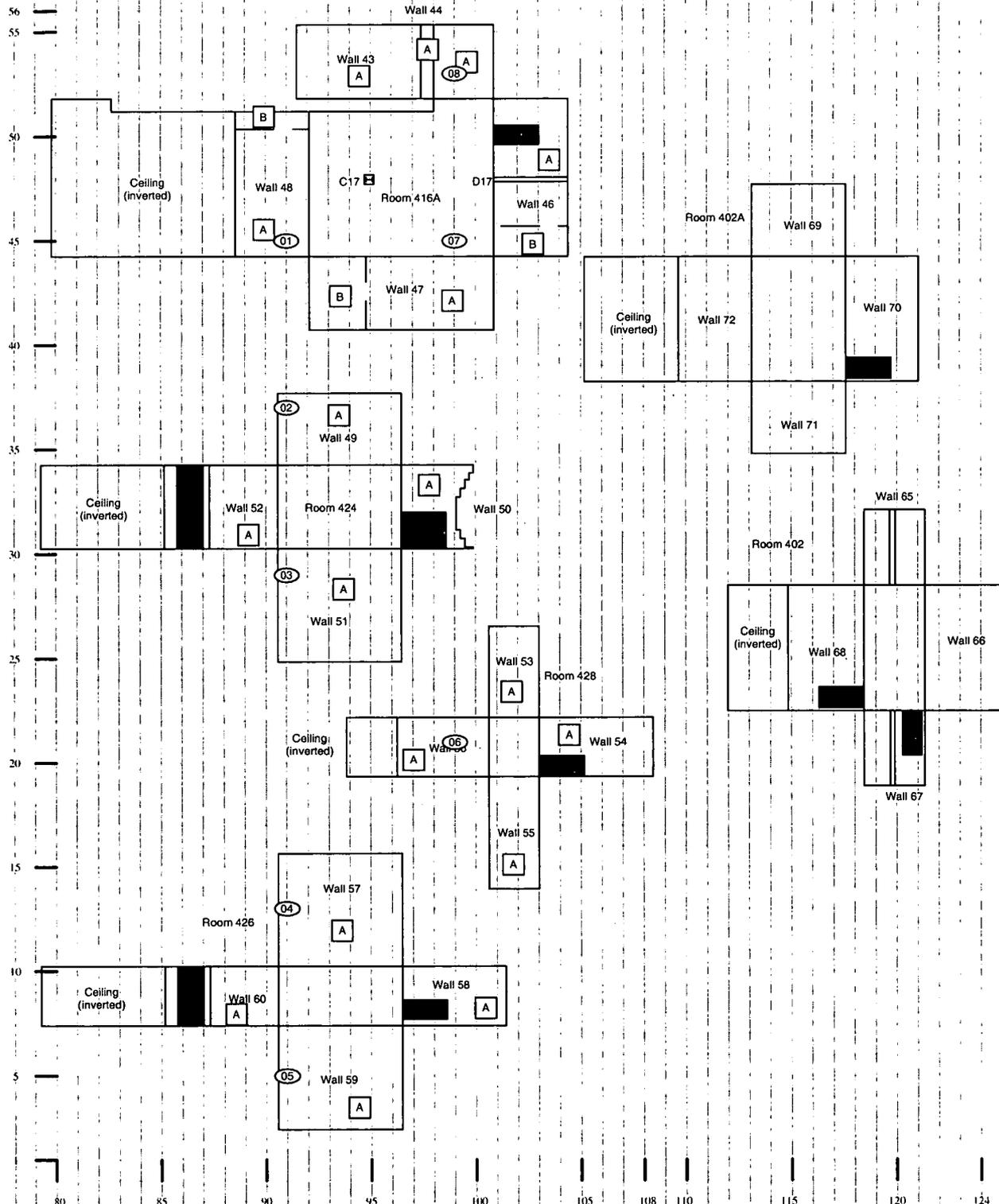
Survey Area: IV Survey Unit: 776017 Classification: NA

Building: 776

Survey Unit Description: First floor- Rooms 415-431

Total Floor Area: 640 sq. m Total Area: 2586 sq. m Random Start Grid Size: 8 x 8 sq. m

SURVEY UNIT 776017 - MAP 3 OF 3



SURVEY MAP LEGEND

- 07 Search & TSC Location
- Search, TSC & Sample Location
- Open/Inaccessible Area
- Area in Another Location

36/36