Rocky Flats Environmental Technology Site

Building 776/777 Area V Final Survey Report

Survey Units:
776043

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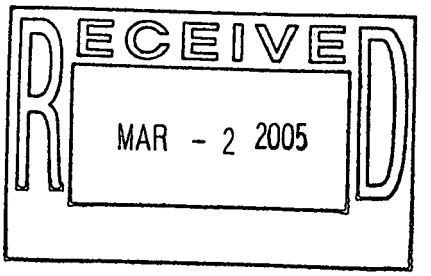
September 2004



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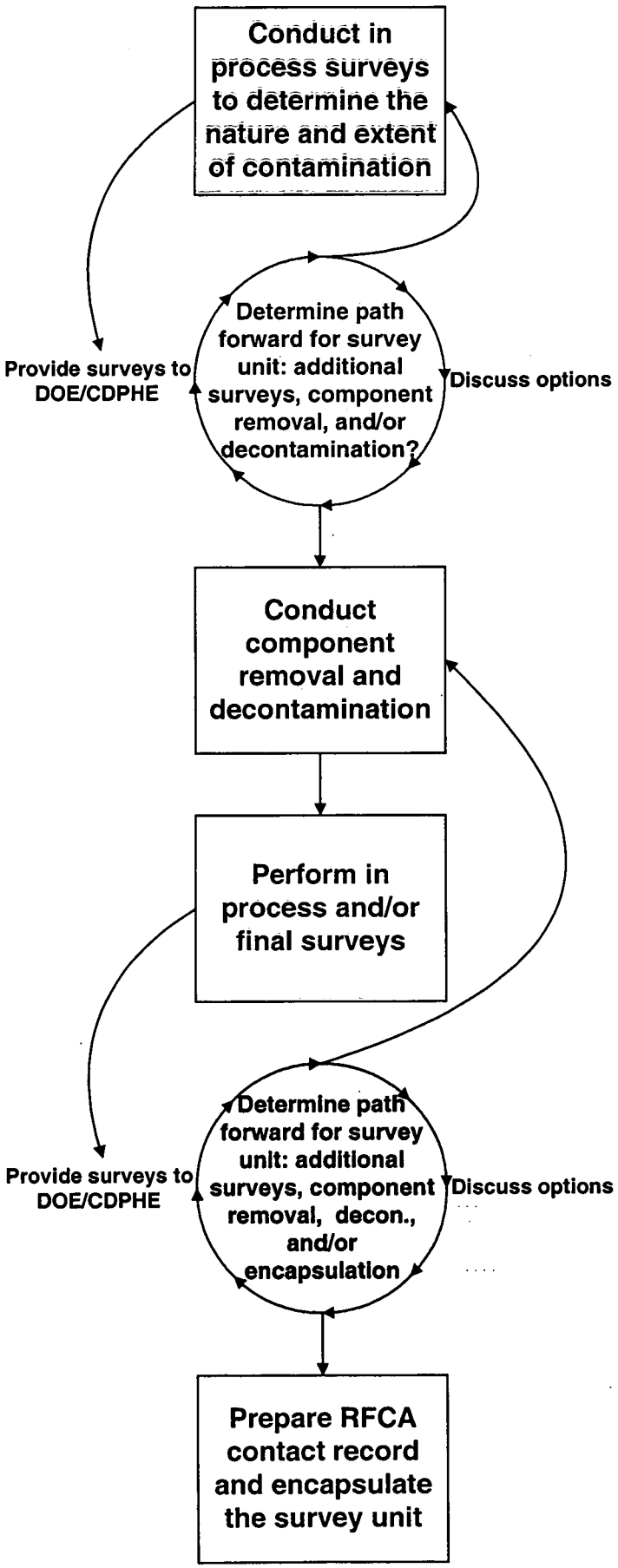
Conduct in process surveys to determine the nature and extent of contamination
Provide surveys to DOE/CDPHE
Determine path forward for survey unit: additional surveys, component removal, and/or decontamination?
Discuss options
Conduct component removal and decontamination
Perform in process and/or final surveys
Provide surveys to DOE/CDPHE
Determine path forward for survey unit: additional surveys, component removal, decon., and/or encapsulation
Discuss options
Prepare RFCA contact record and encapsulate the survey unit

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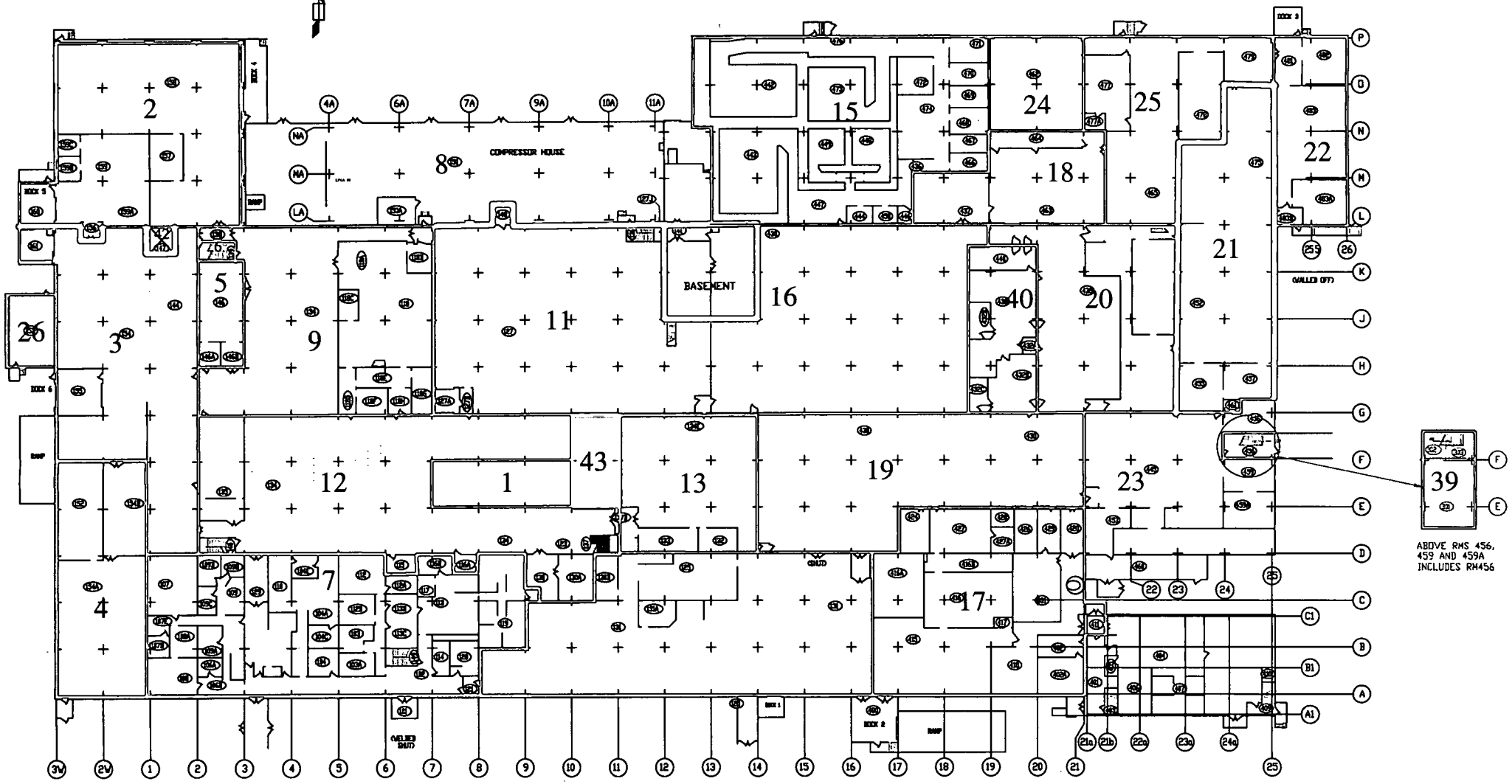
B776/777 SURVEY UNITS
1st FLOOR



Survey Instructions
Building 776 Area V
Survey Unit 776043

Purpose:

This instruction provides guidance for collecting gross gamma and removable contamination data to quantify the amount of residual contamination in Survey Unit 776043 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 Bicron 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 Bicron G-5 for floors or Ludlum 44-17 for walls at background location in room 119 near column C-9. 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 119 near column C-9. 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 119 near column C-9. 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 Bicron 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.

Table 776043-1: 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 in room 119 near column C-9	300 seconds
Floors and cement walls	Background measurement	Bicron G-5 or Ludlum 44-17	On contact with floor in room 119 near column C-9	300 seconds
Metal ceilings	Background measurement	Ludlum 44-17	Probe waist high, pointed toward ceiling with sheet metal plate on end in room 119 near column C-9	300 seconds

FINAL SURVEY REPORT
Survey Unit 776043

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 776043 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 encapsulated in preparation 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 776043 includes the Advanced Size Reduction Facility (ASRF) Manual Disassembly Area (MDA), and Transfer Area. The Remote Disassembly Area (RDA) and the Cutting Area of the ASRF are not within the scope of this survey unit.

The ASRF is located in Room 134 of B776. The ASRF was designed in the 1970s and built in the 1980s. It is a stainless steel lined structure built after the 1969 fire recovery effort. Thus, the fire had no impact on the surfaces of this area. The floor beneath this area would have the same process history and contamination potential as other floor surfaces in rooms 134 and 134E.

The MDA is a containment airlock for the ASRF. Packaged equipment to be size reduced was placed in the MDA, and had its outer packaging removed prior to being transferred to the ASRF. The Transfer Area contained a jib crane that picked up items from the MDA and placed them in the RDA.

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 119, near column C-9, 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.

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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.

3) Results

a) Floors

The existing surface of the floors in survey unit 776043 was found to have discrete hot spots. The highest level was found in grid 5. An investigation of this area was performed and a survey was taken for removable contamination. The result of this survey showed that the highest level of removable contamination was 138 dpm/100cm2. The hotspots in grid 5 cover less than three square feet and do not contribute a significant amount to the overall inventory of the survey unit. The small areas of fixed contamination will not increase risks during demolition sufficiently to warrant the increased risk to workers who would remove the contaminated metal by hand. The affected areas will be marked with orange paint to indicate special controls will be used in this area during demolition.

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 cm^2. These walls require no further remediation.

ii) Type II – Structural or non-structural wall with average contamination levels that range from >100,000 dpm/100cm^2 to <1,000,000 dpm/100cm^2. 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 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/100cm^2. Some of the type III walls are structural

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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.

NaI data from survey unit 776043 walls are summarized in Table 1. Source term from walls is summarized in Table 2. Source term is calculated using the conversions:

$$\frac{1\ uCi}{m^2} = \frac{22{,}200\ dpm}{100\ cm^2}$$

$$\frac{\text{Average dpm/100 cm}^2}{\text{22,200 dpm/100 cm}^2} \times \frac{1\ uCi}{m^2} \times \text{Total Area (m}^2\text{)} = \text{Source Term (uCi)}$$

Table 1
B776/777 Survey Unit 43, Area V Wall Summary

Wall	Section	Structural	Initial Characterization		
			Type 1	Type 2	Type 3
776043-1	A	X			
776043-2	A	X			
776043-3	A	X			
776043-4	A	X			
776043-5	A	X			
776043-6	A	X			
776043-7	A	X			
776043-8	A	X			
776043-9	A	X			
	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				

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Table 2
B776/777 Survey Unit 43, Area V Wall Source Term

Wall Designation	Wall Type	Area (ft^2)	Area (m^2)	Average dpm/100cm^2	Total Activity (UCi)	Comments
776043-1A	I	190.1	17.7	3,589	2.9	Structural
776043-2A	I	190.1	17.7	52,519	41.8	Structural
776043-3A	I	290.0	26.9	19,463	23.6	Structural
776043-4A	I	107.0	9.9	70,130	31.4	Structural
776043-5A	I	315.0	29.3	2,801	3.7	Structural
776043-6A	I	190.1	17.7	12,141	9.7	Structural
776043-7A	I	315.0	29.3	3,671	4.8	Structural
776043-8A	I	315.0	29.3	19,076	25.1	Structural
776043-9A	I	257.0	23.9	3,458	3.7	Structural
Totals		**2169.4**	**201.5**	**20,761**	**146.7**	

The walls required no remediation. There has been no change in inventory from the In-Process survey.

c) Ceilings

Preliminary surveys have detected no contamination above the instrument MDA on the ceilings. Inaccessible areas of the ceiling are discussed in the section below.

4) Inaccessible Areas

a) Floors

The metal floors of this survey unit are assumed to be placed over a previously contaminated surface. Contamination levels on the original surface are expected to be the same as contamination levels found in unit 776012 prior to shaving.

From the "In-Process Survey Report for 776012" Section 5, the average contamination value for the floors surrounding 776043 is 5,341,313 dpm/100cm^2. This equates to 240.6 $\mu Ci/m^2$. There is 74 square meters of floor area in 776043, therefore there is a potential inaccessible inventory of **17,804 µCi** under the steel floor of the survey unit.

b) Walls

There have been no inaccessible areas identified on the walls.

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c) Ceilings

There are no inaccessible areas of the ceiling with higher contamination levels than the accessible areas.

5) Average contamination for survey

Table 3:
PDS Final Results

	Final Results
776043 Source Term Inaccessible Areas (μCi) (Under steel and grout)	17,804.0
776043 Source Term Accessible Areas (μCi)	483.1
776043 Total Source Term (μCi)	18,287.1
$ASCV_u$ (dpm/100cm^2) Excluding contamination under steel and grout.	26,287
$ASCV_u$ (μCi/m^2) Excluding contamination under the steel and grout.	1.2
$ASCV_u$ (dpm/100cm^2)	995,034
$ASCV_u$ (μCi/m^2)	44.82

Table 3 Notes:

a) Inaccessible areas source term from Page 5 of the 776043 In- Process Survey Report.

b) Accessible area source term is calculated from the PDS survey statistics using the following equation:
(26,287 dpm/100cm^2)(408m^2) / (22,200 dpm/100cm^2 / μCi/m^2) = 483.1μCi
Where:
26,287dpm/100cm^2 = PDS average contamination
1 μCi/m^2 = 22,200 dpm/100cm^2
Survey Unit Surface Area = 408 m^2

c) Total Source Term equals Inaccessible Area plus Accessible Area Source Term.
Total Source Term = (17,804.0 + 483.1) μCi = 18,287.1 μCi

d) Average Surface Contamination for the Survey Unit ($ASCV_u$) in dpm/100cm^2 equals:
$ASCV_u$ = (18,287.1 μCi)(22,200 dpm/100cm^2 / μCi/m2) / (408m^2) = 995,034 dpm/100cm^2

Final Survey for Survey Unit 776043

776043
Survey Summary

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Total Surface Activity Measurements

30	30	
Number Required	Number Obtained	
MIN	5,524	dpm/100 cm^2
MAX	177,159	dpm/100 cm^2
Average	26,287	dpm/100 cm^2
STD DEV	42,921	dpm/100 cm^2

Total Surface Area	408	m^2
Inaccessible Areas	17804.0	µCi, Alpha
Accessible Surfaces	483.1	µCi, Alpha

Total Inventory	18287.1	µCi, Alpha
$ASCV_u$ (Excluding subsurface contamination)	26,287	dpm/100cm^2
$ASCV_u$ (Excluding subsurface contamination)	1.2	µCi per m^2
$ASCV_u$	995,034	dpm/100cm^2
$ASCV_u$	44.82	µCi per m^2

Sample Location Number	NaI Activity Measurements				
	Measurement Used	Comment	Surface	Coating	(dpm/100 cm^2)
1	Sodium Iodide	N/A	Wall	Thin/No Paint	5,768
2	Sodium Iodide	N/A	Wall	Thin/No Paint	5,768
3	Sodium Iodide	N/A	Wall	Thin/No Paint	5,768
4	Sodium Iodide	N/A	Wall	Thin/No Paint	5,768
5	Sodium Iodide	N/A	Wall	Thin/No Paint	5,768
6	Sodium Iodide	N/A	Floor	Thin/No Paint	7,276
7	Sodium Iodide	N/A	Floor	Thin/No Paint	7,276
8	Sodium Iodide	N/A	Wall	Thin/No Paint	74,400
9	Sodium Iodide	N/A	Wall	Thin/No Paint	49,600
10	Sodium Iodide	N/A	Floor	Thin/No Paint	177,159
11	Sodium Iodide	N/A	Floor	Thin/No Paint	7,276
12	Sodium Iodide	N/A	Floor	Thin/No Paint	7,530
13	Sodium Iodide	N/A	Wall	Thin/No Paint	7,530
14	Sodium Iodide	N/A	Ceiling	Thin/No Paint	31,551
15	Sodium Iodide	N/A	Ceiling	Thin/No Paint	17,980
16	Sodium Iodide	N/A	Ceiling	Thin/No Paint	10,324
17	Sodium Iodide	N/A	Ceiling	Thin/No Paint	15,196
18	Sodium Iodide	N/A	Wall	Thin/No Paint	7,530
19	Sodium Iodide	N/A	Wall	Thin/No Paint	7,530
20	Sodium Iodide	N/A	Wall	Thin/No Paint	38,413
21	Sodium Iodide	N/A	Wall	Thin/No Paint	5,768
22	Sodium Iodide	N/A	Wall	Thin/No Paint	5,768
23	Sodium Iodide	N/A	Floor	Thin/No Paint	158,031
24	Sodium Iodide	N/A	Floor	Thin/No Paint	7,276
25	Sodium Iodide	N/A	Floor	Thin/No Paint	7,276
26	Sodium Iodide	N/A	Wall	Thin/No Paint	74,400
27	Sodium Iodide	N/A	Wall	Thin/No Paint	5,768
28	Sodium Iodide	N/A	Wall	Thin/No Paint	5,768
29	Sodium Iodide	N/A	Ceiling	Thin/No Paint	5,524
30	Sodium Iodide	N/A	Ceiling	Thin/No Paint	17,632
				MIN	**5,524**
				MAX	**177,159**
				AVERAGE	**26,287**
				SD	**42,921**

776043
NaI Survey Summary

Data and Sodium Iodide Instrument Information

Survey Area:	V	Survey Unit:	776043	Survey Date(s):	09/26/04

Instrument Specifications

Instrument #	1	
Meter Model:	Ludlum 2350-1	N/A
Meter Serial #:	203449	N/A
Detector Model:	Ludlum 44-117	N/A
Detector #:	212340	N/A
Detector Size (cm^2):	17.8	N/A
Calibration Due Date:	12/3/04	N/A
Count Time (min)	5	N/A
Contact Efficiency	8.70%	N/A

Background (Gross)

Instrument #	1	2
Gamma (Ceilings)	N/A	N/A
Gamma (Floors)	N/A	N/A
Gamma (Metal Walls)	555	N/A
Gamma (Other Walls)	N/A	N/A

Background (cpm)

Instrument #	1	2
Gamma (Ceilings)	N/A	N/A
Gamma (Floors)	N/A	N/A
Gamma (Block Walls)	111	N/A
Gamma (Metal Walls)	N/A	N/A

Efficiencies (cpm/dpm)

Instrument #	1	2
Thin/No Paint	0.086	N/A
Epoxy	0.070	N/A
Other	0.083	N/A

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: Contamination is assumed to be in a thin layer of fixative on outer surface of wall

Coatings	Thickness (Inches)
Thin/No Paint	0.007
Epoxy	0.250
Other	0.06

Total Activity Estimates Using Sodium Iodide Instruments

Survey Area:	V	Survey Unit:	776043	Survey Date(s):	09/26/04

Sample Location #	RCT ID #	Instrument #	Gross Counts	Critical Level (dpm/100cm2)	Total Alpha (dpm/100cm2)
1	3	1	170	5,768	5,768
2	3	1	176	5,768	5,768
3	3	1	178	5,768	5,768
4	3	1	194	5,768	5,768
5	3	1	150	5,768	5,768
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	3	1	920	5,768	38,413
21	3	1	519	5,768	5,768
22	3	1	149	5,768	5,768
23	N/A	N/A	N/A	N/A	N/A
24	N/A	N/A	N/A	N/A	N/A
25	N/A	N/A	N/A	N/A	N/A
26	N/A	N/A	N/A	N/A	N/A
27	3	1	268	5,768	5,768
28	3	1	192	5,768	5,768
29	N/A	N/A	N/A	N/A	N/A
30	N/A	N/A	N/A	N/A	N/A

Estimate Data and Sodium Iodide Instrument Information

Survey Area:	V	Survey Unit:	776043	Survey Date(s):	09/26/04

Instrument Specifications

Instrument #	1	2
Meter Model:	Ludlum 2350-1	Ludlum 2350-1
Meter Serial #:	192614	193696
Detector Model:	Ludlum 44-17	Bicron G-5
Detector #:	209090	15157
Detector Size (cm^2):	17.8	17.8
Calibration Due Date:	10/20/04	3/2/05
Count Time (min)	5	5
Contact Efficiency	8.24%	7.90%

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. Contamination assumed to be under thin layer of fixative on all surfaces

Background (Gross)

Instrument #	1	2
Gamma (Ceilings)	N/A	419
Gamma (Floors)	791	N/A
Gamma (Walls)	847	

Background (cpm)

Instrument #	1	2
Gamma (Ceilings)	N/A	83.8
Gamma (Floors)	158.2	N/A
Gamma (Walls)	169.4	N/A

Efficiencies (cpm/dpm)

Instrument #	1	2
Thin/No Paint	0.082	0.078
Epoxy	0.078	0.075
Other	N/A	N/A

Coatings	Thickness (inches)
Thin/No Paint	0.008
Epoxy	0.060
Other	N/A

Total Activity Using Sodium Iodide Instruments (Cont'd)

Survey Area:	V	Survey Unit:	776043	Survey Date(s):	09/26/04

Sample Location #	RCT ID #	Instrument #	Gross Counts	Critical Level (dpm/100cm2)	Total Alpha (dpm/100cm2)
1	3	3	N/A	N/A	N/A
2	3	3	N/A	N/A	N/A
3	3	3	N/A	N/A	N/A
4	3	3	N/A	N/A	N/A
5	3	3	N/A	N/A	N/A
6	1	1	252	7,276	7,276
7	1	1	207	7,276	7,276
8	1	1	1,516	7,530	74,400
9	1	1	1,293	7,530	49,600
10	1	1	2,384	7,276	177,159
11	1	1	272	7,276	7,276
12	1	1	865	7,530	7,530
13	1	1	720	7,530	7,530
14	2	2	691	5,524	31,551
15	2	2	574	5,524	17,980
16	2	2	508	5,524	10,324
17	2	2	550	5,524	15,196
18	1	1	720	7,530	7,530
19	1	1	532	7,530	7,530
20	3	3	N/A	N/A	N/A
21	3	3	N/A	N/A	N/A
22	3	3	N/A	N/A	N/A
23	1	1	2,212	7,276	158,031
24	1	1	414	7,276	7,276
25	1	1	810	7,276	7,276
26	1	1	1,516	7,530	74,400
27	3	3	N/A	N/A	N/A
28	3	3	N/A	N/A	N/A
29	2	2	453	5,524	5,524
30	2	2	571	5,524	17,632

Total Surface Activity

Survey Area:		V	Survey Unit:		776043			
Meter Model:		NE Electra w/ DP6 Probe					Dates Counted:	9/26/04
Instrument #:		4066	4673	n/a	n/a	n/a	A priori MDA:	94
Cal. Due Date:		11/5/04	11/3/04	n/a	n/a	n/a	Avg. Local Bkgd	5.3
Efficiency (c/d):		0.222	0.217	n/a	n/a	n/a	Avg. Efficiency	0.220
Sample Location #	RCT ID #	Inst. #	Instrument (cpm)		Local Bkgd (cpm)		(dpm/100 cm^2)	
1	2	4673	2.0		1.0		4.6	
2	2	4673	10.0		2.0		36.9	
3	2	4673	5.0		7.0		-9.2	
4	2	4673	3.0		2.0		4.6	
5	2	4673	8.0		1.0		32.3	
6	1	2397	12.3		5.0		32.9	
7	1	2397	26.0		2.0		109.1	
8	2	4673	6.0		4.0		9.1	
9	1	2397	6.0		2.0		18.2	
10	1	2397	60.0		2.0		263.6	
11	1	2397	11.3		4.0		33.2	
12	1	2397	6.0		1.0		22.7	
13	1	2397	2.0		2.0		0.0	
14	2	4673	2.0		7.0		-22.7	
15	2	4673	6.0		1.0		22.7	
16	2	4673	2.0		2.0		0.0	
17	2	4673	4.0		4.0		0.0	
18	1	2397	1.0		2.0		-4.5	
19	1	2397	4.0		3.0		4.5	
20	1	2397	2.0		3.0		-4.5	
21	1	2397	3.0		2.0		4.5	
22	1	2397	0.0		4.0		-18.2	
23	1	2397	623.0		5.0		2809.1	
24	2	4673	105.0		6.0		450.0	
25	2	4673	80.0		4.0		345.5	
26	1	2397	3.0		12.0		-40.9	
27	2	4673	4.0		8.0		-18.2	
28	1	2397	3.0		5.0		-9.1	
29	2	4673	1.0		3.0		-9.1	
30	2	4673	3.0		9.0		-27.3	
						MIN	-40.9	
						MAX	2809.1	
						MEAN	134.7	
						SD	517.3	

Removable Activity

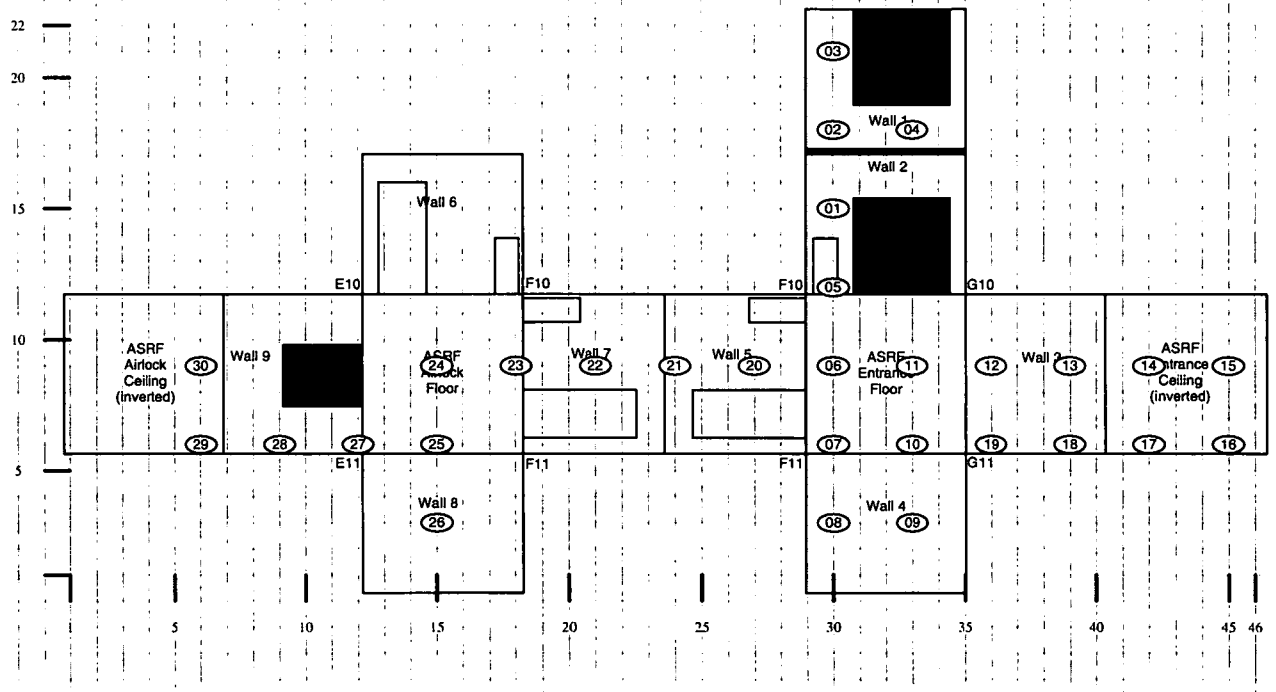
Survey Area:		V	Survey Unit:		776043
Dates Counted:	9/26/04				
A priori MDA:	16				
Efficiency (c/d)	0.333				
Smear Location Number	Smear Results				
	RCT ID #	Serial Number	Gross (cpm)	Bkg.	(dpm/100 cm^2)
1	1	1398	1.0	0.3	2.1
2	1	1398	3.0	0.3	8.1
3	1	1398	9.0	0.3	26.1
4	1	1398	0.0	0.3	-0.9
5	1	1398	4.0	0.3	11.1
6	1	1398	10.0	0.3	29.1
7	1	1398	2.0	0.3	5.1
8	1	1398	3.0	0.3	8.1
9	1	1398	10.0	0.3	29.1
10	1	1398	19.0	0.3	56.2
11	1	1398	16.0	0.3	47.1
12	1	1398	1.0	0.3	2.1
13	1	1398	0.0	0.3	-0.9
14	1	1398	1.0	0.3	2.1
15	1	1398	0.0	0.3	-0.9
16	1	1398	0.0	0.3	-0.9
17	1	1398	5.0	0.3	14.1
18	1	1398	1.0	0.3	2.1
19	1	1398	1.0	0.3	2.1
20	1	1398	0.0	0.3	-0.9
21	1	1398	0.0	0.3	-0.9
22	1	1398	6.0	0.3	17.1
23	1	1398	4.0	0.3	11.1
24	1	1398	4.0	0.3	11.1
25	1	1398	0.0	0.3	-0.9
26	1	1398	1.0	0.3	2.1
27	1	1398	1.0	0.3	2.1
28	1	1398	1.0	0.3	2.1
29	1	1398	0.0	0.3	-0.9
30	1	1398	0.0	0.3	-0.9
				MIN	-0.9
				MAX	**56.2**
				MEAN	**9.4**
				SD	14.6

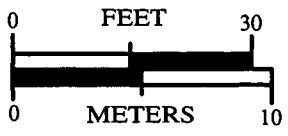
RADIOLOGICAL CLOSEOUT SURVEY FOR THE 776 CLUSTER

Survey Area: V **Survey Unit:** 776043 **Classification:** NA
Building: 776
Survey Unit Description: First floor (ASRF MDA)

Total Floor Area: 74 sq. m **Total Area:** 408 sq. m **Grid Size:** 3 x 3 sq.m

SURVEY UNIT 776043 - MAP 1 OF 1

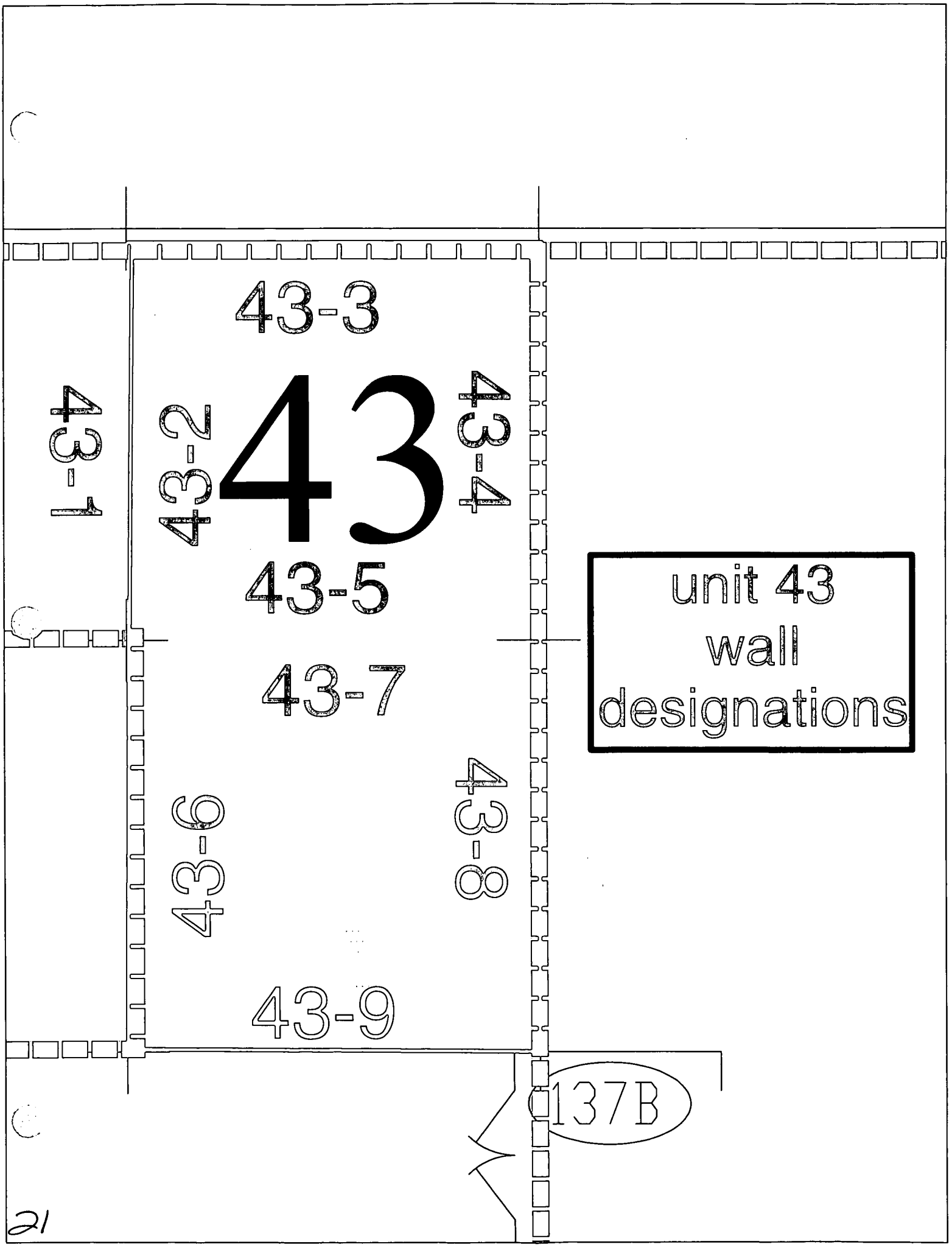


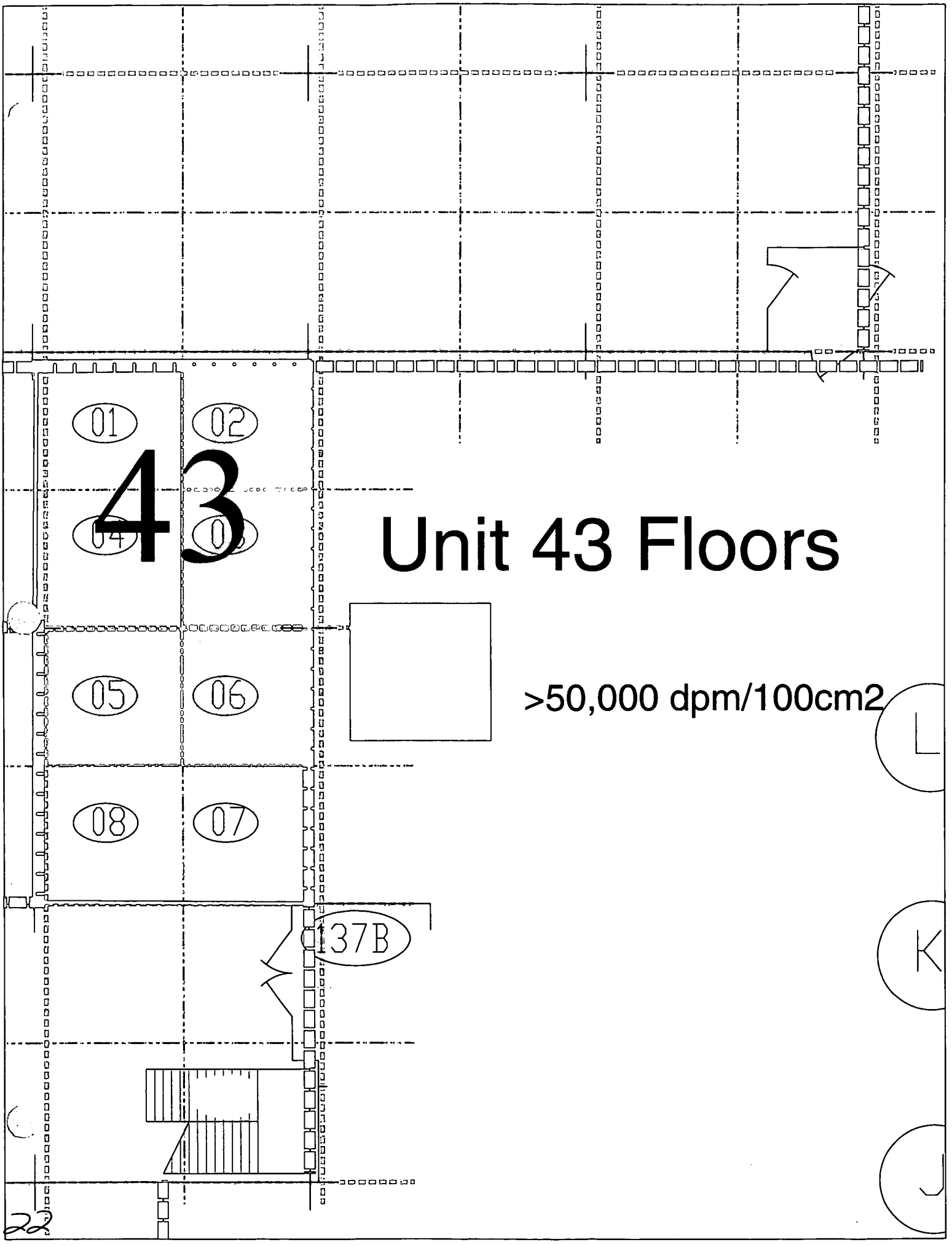


N

SURVEY MAP LEGEND
- Smear & TSC Location
- Smear, TSC & Sample Location
- Open/Inaccessible Area
- Area in Another Location
- Wall section designator

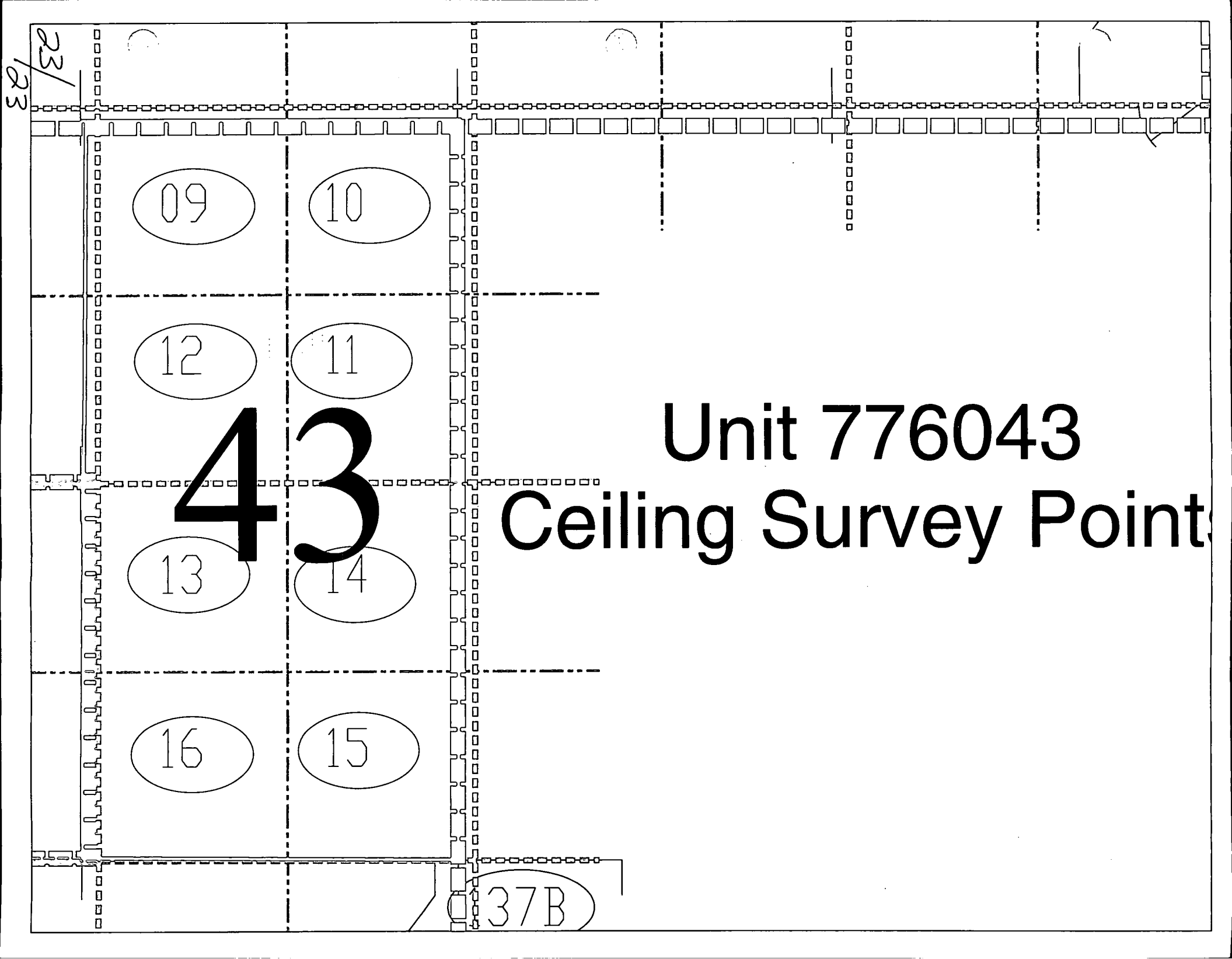
20


43-3
43-1
43-2
43
43-4
43-5
43-7
43-6
43-8
43-9
137B
unit 43
wall
designations



Unit 43 Floors

>50,000 dpm/100cm2



Unit 776043
Ceiling Survey Point