APPENDIX A

Guterl- 200-1f
11/17/81

D1-13

116

FBDU 409-31

60

Preliminary Engineering And Environmental Evaluation Of The Remedial Action Alternatives For The Former Simonds Saw And Steel Company Site Lockport, New York

Formerly Utilized MED/AEC Sites Remedial Action Program

11/81 → November 198

Final Report

Prepared Fo

Bechtel National, In

B

Ford, Bacon & Davis Utah Inc

Salt Lake City, Uta

TABLE 4-3

CINDER SAMPLE CONCENTRATIONS AT FORMER SIMONDS SITE
BASED ON 1980 FB&DU SURVEY
(INCLUDING BACKGROUND)

Location[a]	Depth of Sample (ft)[b]	^{238}U (pCi/g)	^{226}Ra (pCi/g)	^{232}Th (pCi/g)
GSS-1	0 - 1	219	0.22	8.1
GSS-1	1 - 2	10.7	1.12	2.4
GSS-2	0 - 1	226	0.38	6.4
GSS-2	1 - 2	2.8	1.68	2.1
GSS-3	0 - 1	826	<0.20	6.0
GSS-3	1 - 2	329	0.51	7.4
GSS-4	0 - 1	3.0	<0.20	12.6
GSS-4A	0 - 1	1,900	0.89	134
GSS-5	0 - 1	348	0.37	8.6
GSS-5	1 - 2	23.3	1.35	2.1
GSS-5	2 - 3	366	1.02	4.1
GSS-6	0 - 1	5.3	<0.20	1.9
GSS-6	1 - 2	0.7	1.09	2.2
GSS-6	2 - 3	0.7	<0.20	2.1

[a]See Figure 4-2.

[b]1 ft = 0.3048 m

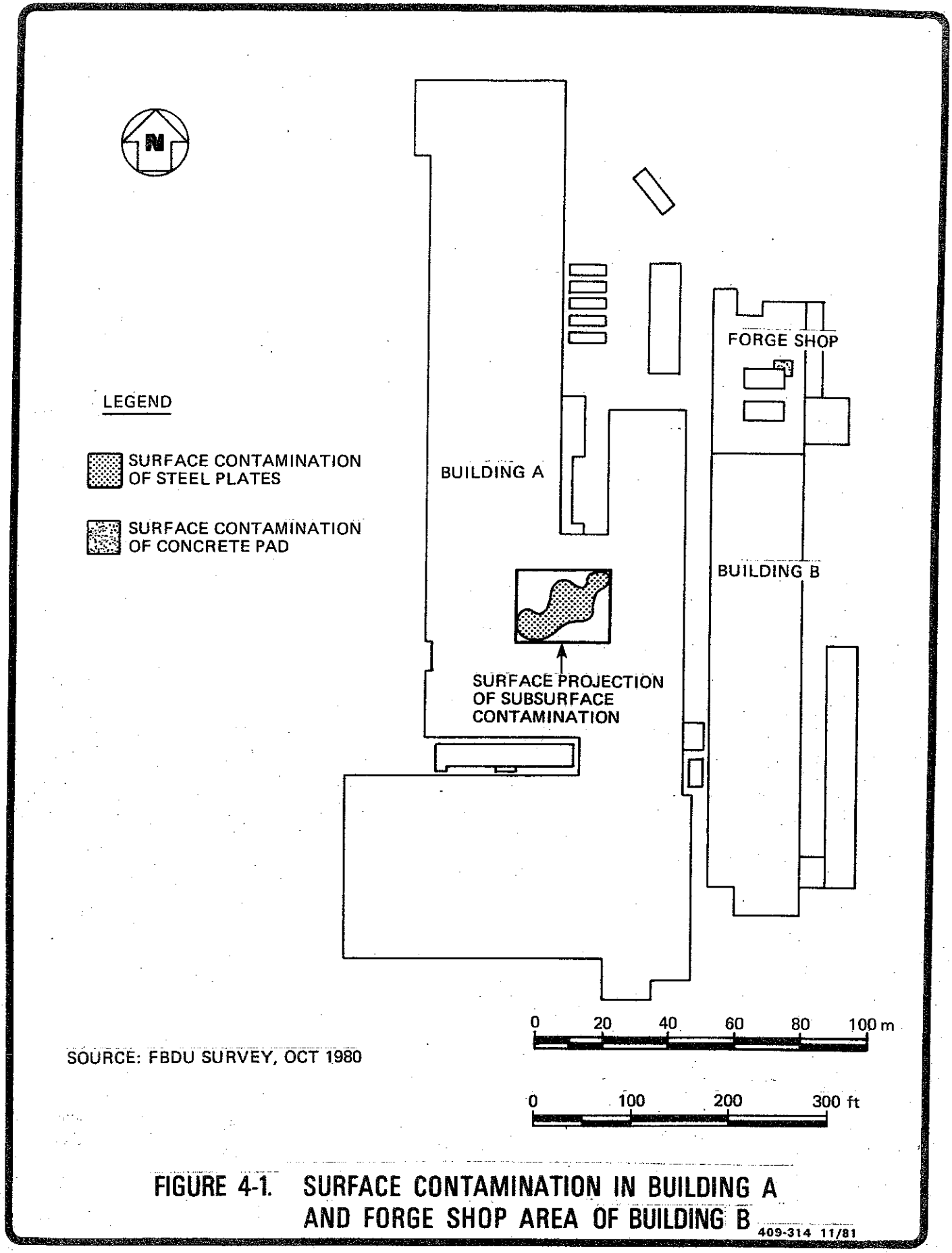


FIGURE 4-1. SURFACE CONTAMINATION IN BUILDING A AND FORGE SHOP AREA OF BUILDING B

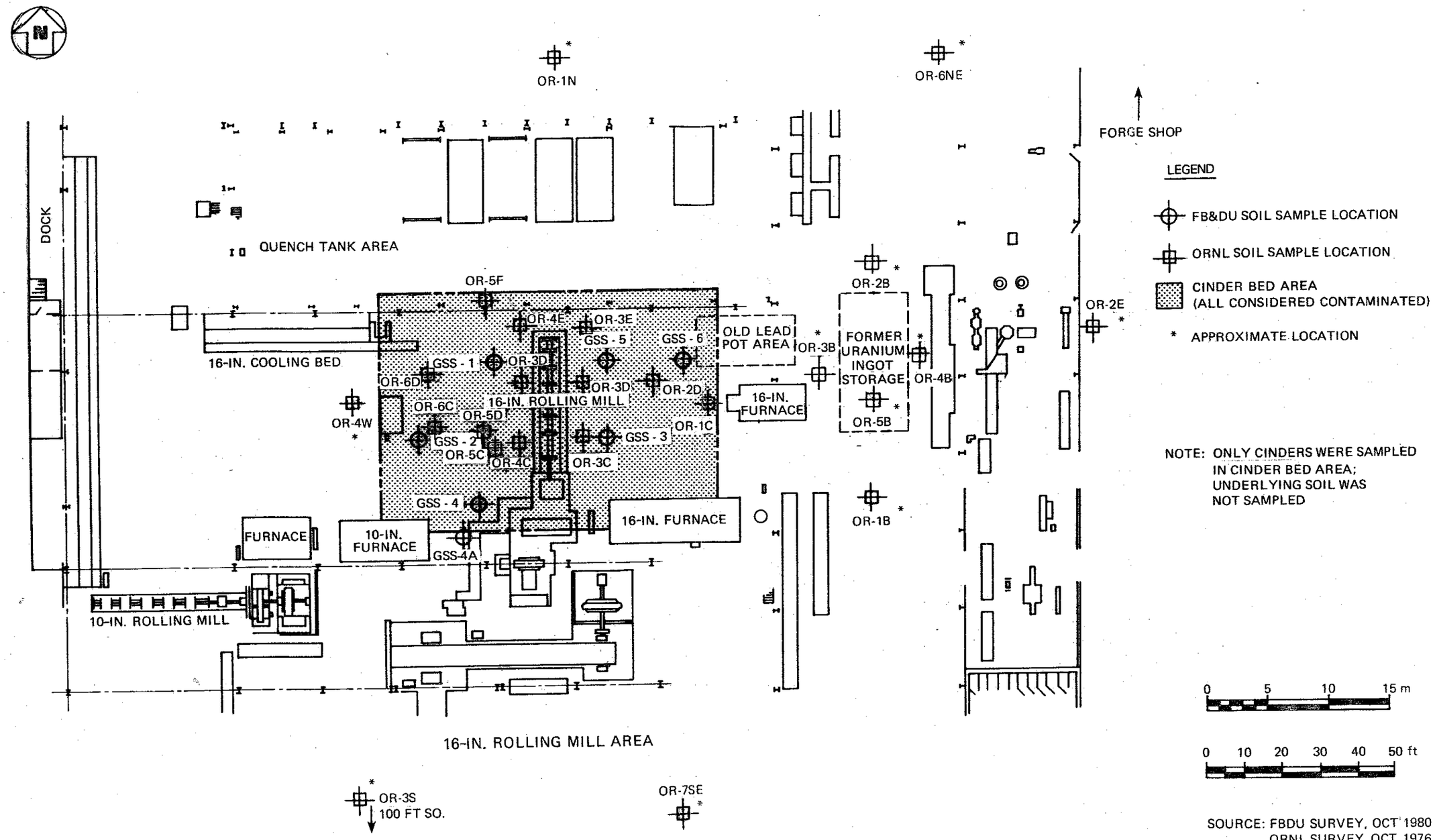
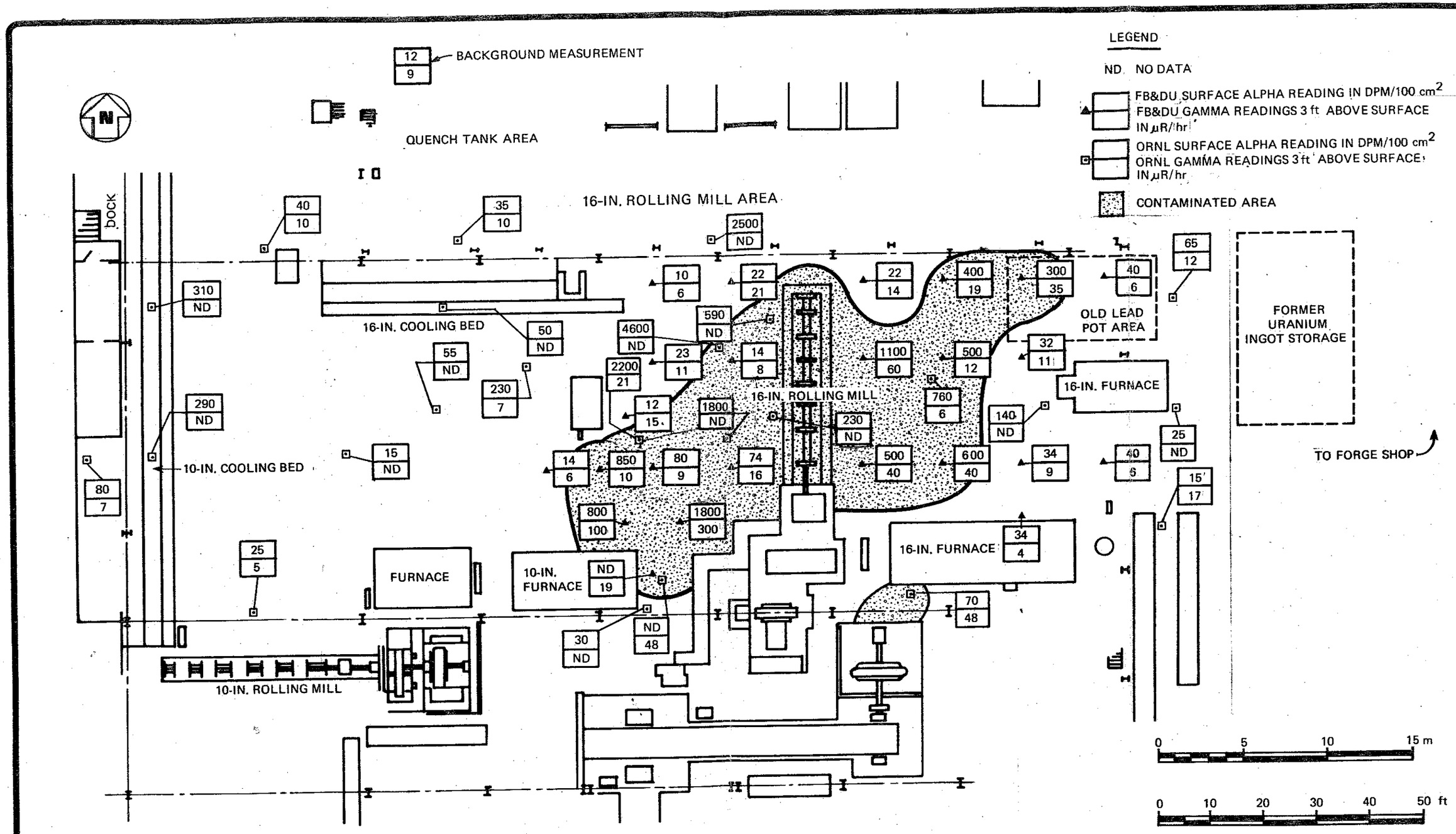


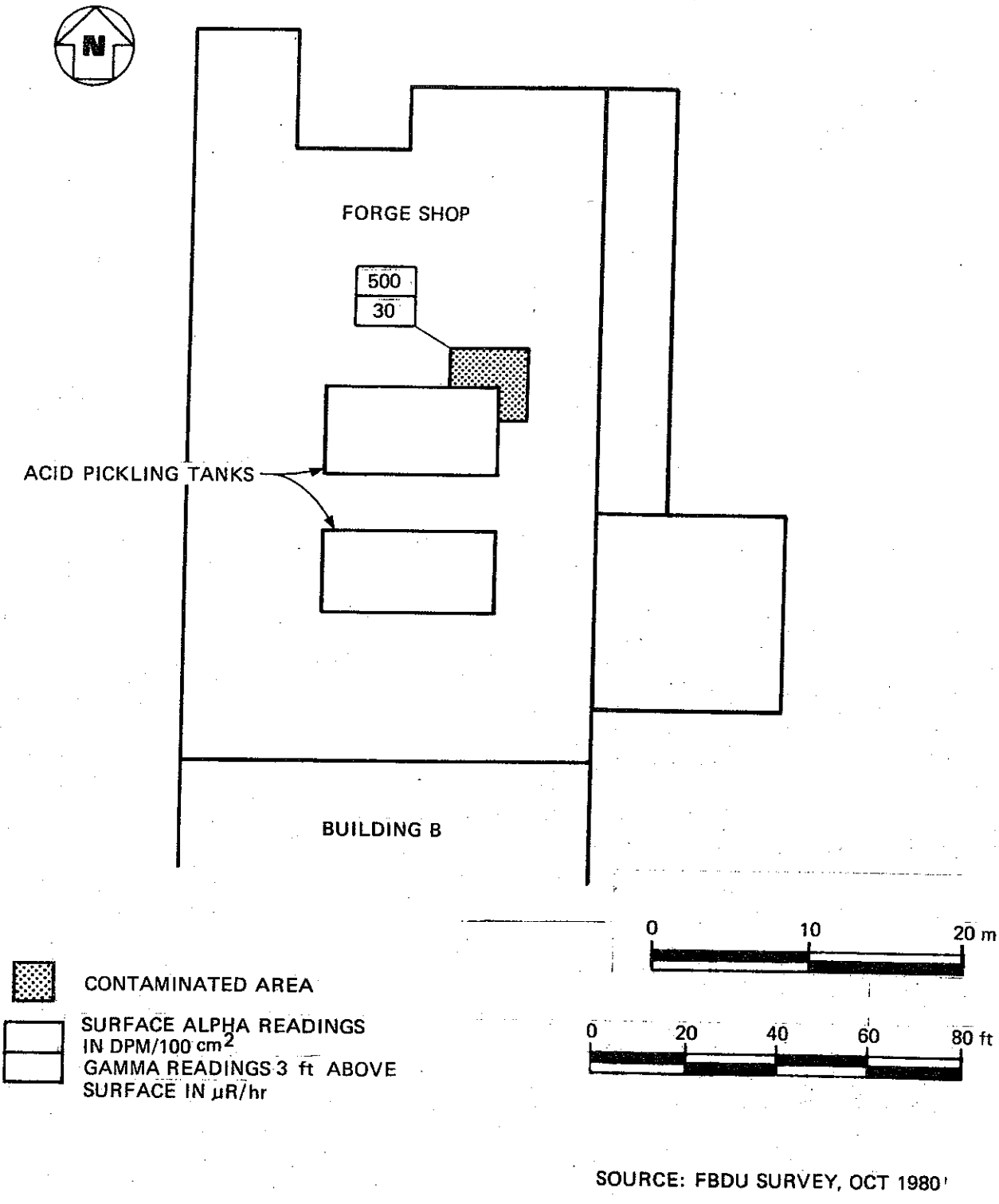
FIGURE 4-2. SOIL SAMPLE LOCATIONS IN BUILDING A



SOURCE: FBDU SURVEY, OCT 1980
ORNL SURVEY, OCT

409-314 11/81

FIGURE 4-3. LOCATION OF SURFACE CONTAMINATION IN BUILDING A



SOURCE: FBDU SURVEY, OCT 1980

FIGURE 4-4. LOCATION AND LEVEL OF SURFACE CONTAMINATION IN FORGE SHOP AREA OF BUILDING B

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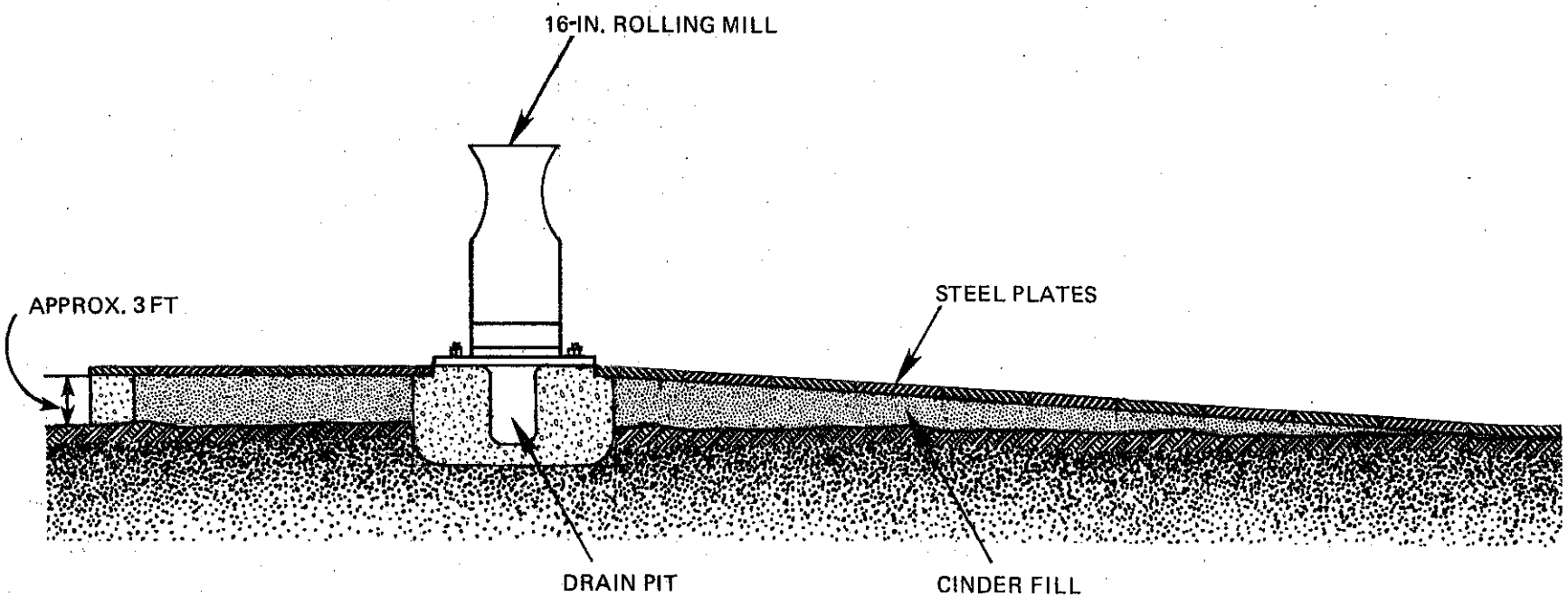

NOT TO SCALE

SOURCE:
FBDU SURVEY, OCT 1980

409-314 11/81

FIGURE 4-5. CROSS-SECTION OF 16-IN. ROLLING MILL AREA

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials
Bureau of Radiation & Hazardous Site Management
Radiation Section, Room 402
50 Wolf Road, Albany, New York 12233-7255
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FILE COPY

October 8, 1999

[redacted]
1500 Oliver Building
Pittsburgh, Pennsylvania 15222

[redacted]

The enclosed summary presents the data obtained during our radiation survey of the property north of the Allegheny Ludlum mill in Lockport, NY. It includes the walkover survey results and the gamma spectroscopy analysis of the soil samples collected from the site. The data are being supplied to you at this time so that they can be included in the discussions of how best to handle the uranium and thorium waste disposed of on this site.

Our results show that elevated uranium and thorium concentrations are found along the former rail spur at several locations up to about 600 feet north of the Allegheny Ludlum fence. It is likely that some of this material will need to be removed from the site before the property can be returned to unrestricted use. To that point, we strongly urge that no further disturbance of soil occur along the former spur until the appropriate clean up actions can be determined.

When the final report is completed we will send you a copy. If you have any questions about the data or its presentation, please contact us.

Most cordially,

[redacted]

cc: w/encl. - [redacted]

Radiation Survey - Guterl Special Steel Corporation
Data Summary - 1999 Survey

Introduction

During 1997, DEC conducted a survey of the property on the north side of the currently used Allegheny Ludlum facility in Lockport, NY. At that time, we also attempted to survey the area north of their fence along the rail spur that once served Guterl Special Steel Corporation (GSSC), but dense vegetation made it impossible to use our automated instrumentation. Preliminary investigations in the area suggested that some radioactive material was likely present. We recommended that a subsequent survey be conducted in this area.

In the Spring of 1999, vegetation was cleared from the area just north of the Allegheny Ludlum fence in preparation for survey work conducted by the Oak Ridge Institute for Science and Education (ORISE). When we visited the site we noticed that an area further north and along the former rail spur was being cleared and leveled to expand the area used for storage by Lombardi Overhead Doors. During June 1999, DEC conducted an USRADS radiation survey over these two areas. They are shown on a sketch of the region between the Allegheny Ludlum property and Park Avenue. (see Figure 1). They are identified as USRADS #1 and USRADS #2. Also shown on the sketch are four plots that were surveyed manually because it was impractical or impossible to conduct an USRADS survey on these plots.

USRADS Description

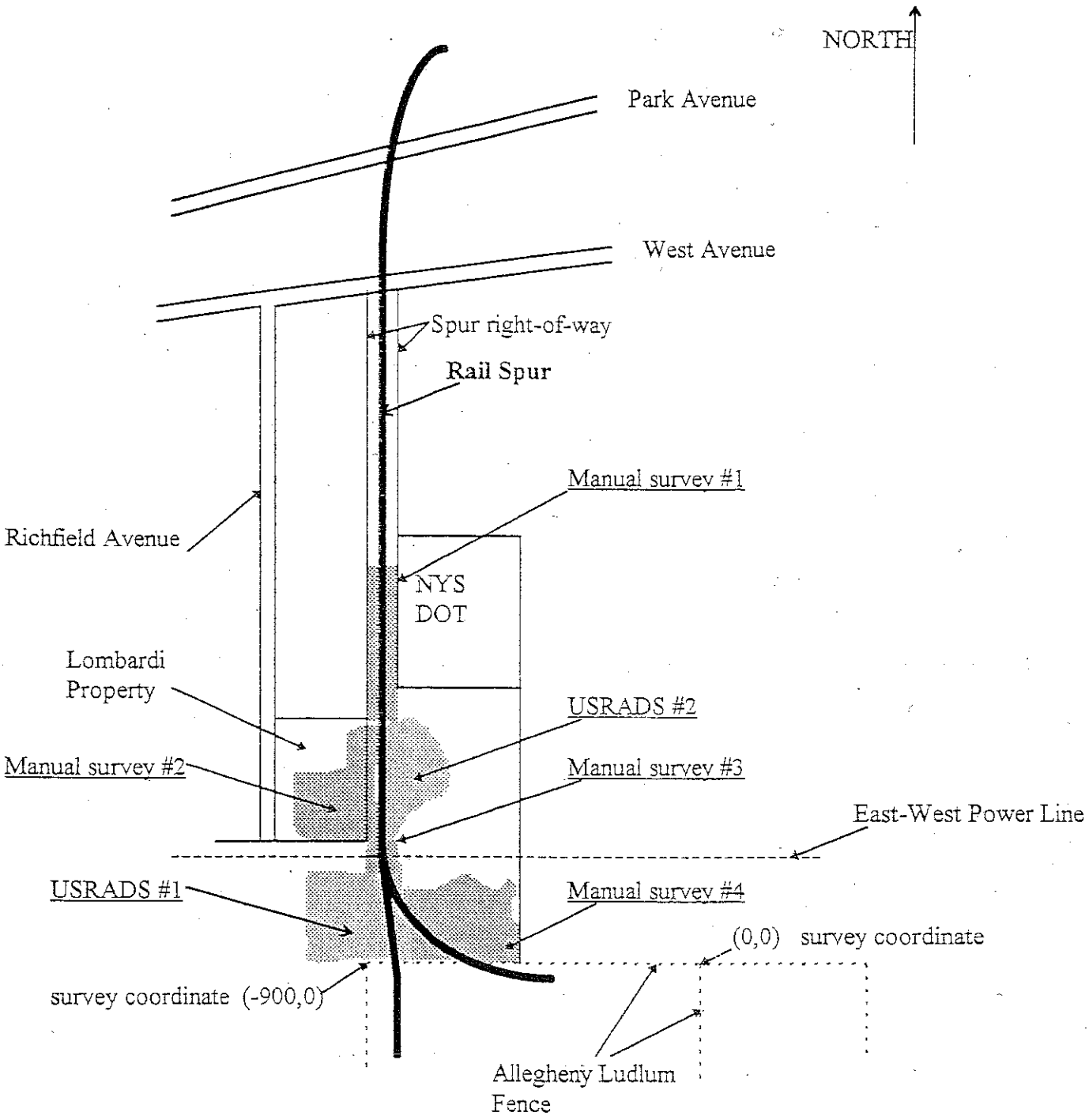
The radiation detection equipment used to survey the site consisted of: two Ludlum model 2221 meters fitted with two Ludlum model 44-10 2" x 2" sodium iodide (NaI) probes, and a Bicron μrem meter. The Ludlum meters measure count rate; they count the number of gammas entering the NaI detectors each second. The Bicron instrument simulates average exposure (measured in dose rate) to humans. The two NaI detectors were mounted at the end of a survey pole and were held within about three inches of the ground surface; the Bicron survey instrument was mounted one meter above the ground on the backpack. The use of two essentially identical NaI detectors, both of which gave the same information throughout both USRADS surveys, provided a highly reliable method of verifying the data quality.

The Ultrasonic Ranging And Data System (USRADS) incorporates standard gamma radiation survey instruments, listed above, into an integrated system. This system is capable of determining the coordinates of the location of the surveyor, and storing the location and the meter outputs once every second in the field computer. While the survey is in progress, these values can be viewed in real time. Except for obstacles which prevent the surveyor physical access to parts of a site, this system enables us to collect and store surface radiation survey data with a density approaching 100% coverage.

The heart of the system is a data pack mounted on a backpack that is carried by the surveyor and data processing software in the base computer. Standard survey meters are mounted on the backpack and their outputs are sent directly into the data pack. To determine the

Figure 1

Area between Allegheny Ludlum fence and Park Avenue (not to scale)
1999 survey areas



location of the surveyor, the system uses the difference in transmission speed between ultrasonic and radio frequency (rf) signals. At time zero, an rf and ultrasonic signal are generated at the backpack. The base computer receives the rf signal. Stationary receivers (SRs) are placed throughout the survey area. When each SR receives the ultrasonic signal, it sends an rf signal to the base computer. When this rf signal is received by the base computer, a stop signal is created for that particular SR. The time differences between the beginning of the cycle (rf signal at time = 0) and the arrival of the second rf signals at the base computer (one from each SR that "heard" the ultrasonic signal) determines the time-of -flight of the ultrasonic signal from the data pack to the individual SRs. The times-of-flight are converted to distances and then standard triangulation techniques are used to determine the location of the back pack within the survey area. This process is repeated once each second. The rf signal from the data pack to the base computer is encoded with the survey instrument data for the previous second. We verify that instrument readings as they appear on the instrument and in the field computer are the same. All this data is then displayed on the field computer screen as it is received, a dot appears on the screen showing the location of the surveyor, and the colors of the dots displayed indicate the relative ranges of recorded instrument values. This allows for real time evaluation of the data so that missed areas can be identified and properly measured while the survey is in progress.

Field Survey

Unless an obstacle prevented the surveyor access to part of the site, parallel survey paths approximately three feet apart were walked within each survey area. The operator would slowly swing the detectors one to two feet on either side of the line being walked. In some areas where the data display on the computer indicated a possible presence of contamination, the surveyor was directed by the computer operator to make additional passes over the area to better define where contaminants were present.

The area just north of the fence (USRADS #1) required minimal vegetation clearing to allow us to keep the detectors near the ground. The area north of the East-West power line (Figure 1) had been recently graded (USRADS #2) so no additional site preparation was needed. It was not possible to use the USRADS survey approach in other parts of the site along the spurs. Four manual surveys were conducted in these areas - meaning that DEC staff, using one of the NaI detectors followed the same surveying technique as described above. Locations were manually recorded where the count rates were above background.

Results - Manual Surveys

Manual survey #1 - a narrow strip of land (about 50 feet wide by about 425 feet long) along the former rail spur. Concrete and thick vegetation covered part of the area, but nearly 2/3 of the area could be surveyed. Result: above background readings were found only at the southern most part of the survey. It was on the back side of a mound of soil that was placed there during the leveling/filling work done behind the Lombardi property.
Manual survey #2 - most of the area behind and south of Lombardi Overhead Doors. Metal materials were stacked throughout the concrete covered area. Coverage of the area was about

25%. Result: no above background readings were observed. Note: thickness of concrete cover was reported to us as 4 inches up to 2 feet thick in places.
Manual survey #3 - a narrow strip of land (about 40 feet by about 60 feet) under the East-West power line. This area was out of communication range for the two USRADS surveys and it was bounded on the east and west side by dense vegetation. Although work was not in progress while we were there, rail ties were being removed from the area. Coverage was about 75%. Result: readings up to about 30,000 cpm at small spots located near what would have been the spur bed, but only background readings were observed in the vegetation off to the side of the spur line.
Manual survey #4 - wooded area just north of Allegheny Ludlum fence, about 300 feet by about 200 feet. This area started along the east side of USRADS Survey #1 and extended further east to the limit of the original GSSC property. Coverage was about 40%. No above background readings were found.

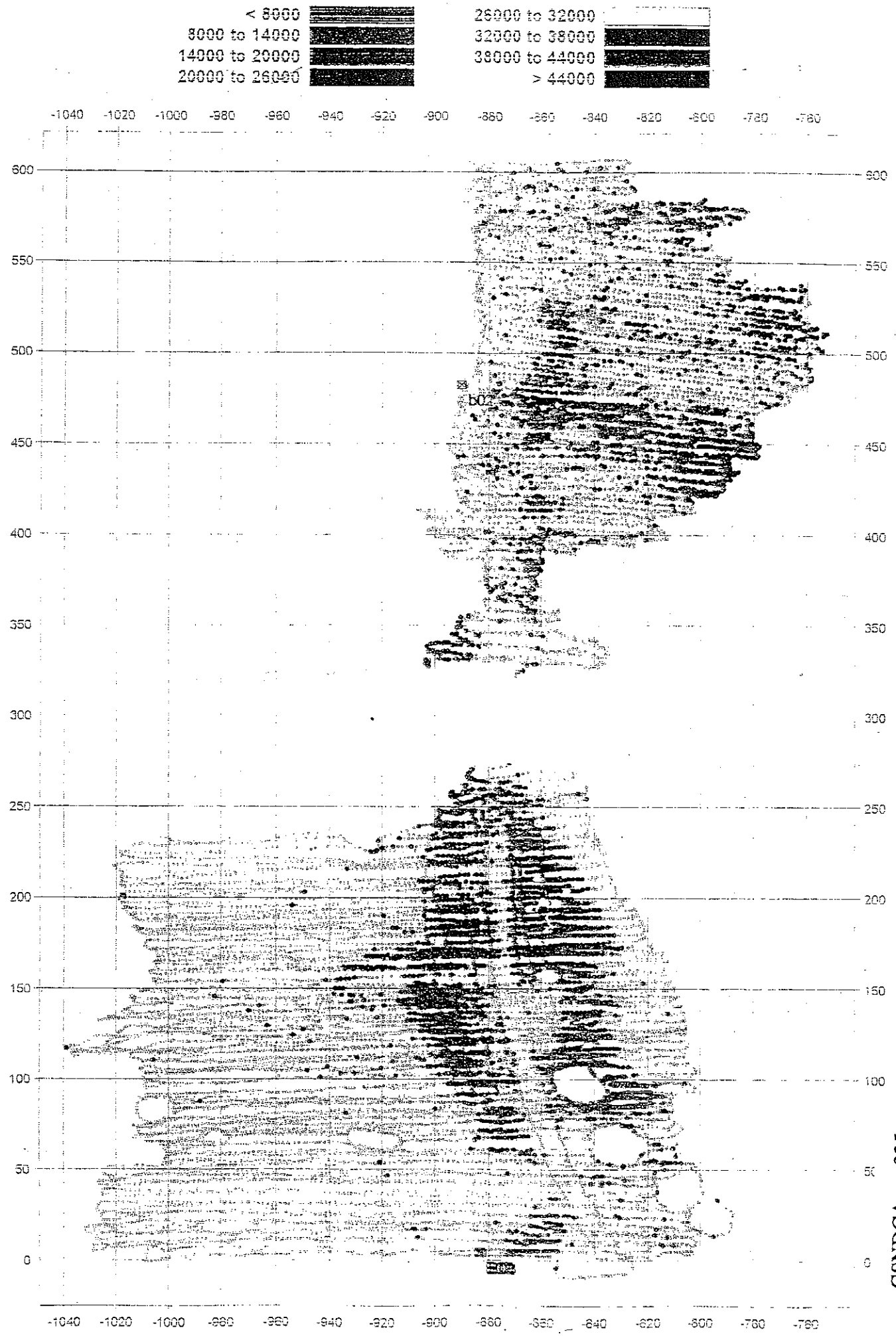
Results - USRADS Survey

The results of the radiation survey are shown in Figure 2. It is important to note that this is a surficial survey - the detectors can only "see" radiation that leaves the surface - gammas that are not absorbed in the soil.[1] Therefore, the measured intensity of radiation will not necessarily be proportional to the quantity of radioactive material in the soil. Uranium at the concentrations present on this site, but covered by a foot or more of soil, would not likely be detected in the presence of background count rates - the same would be true for thorium with a few more inches of cover. At some locations the radioactive material has been covered with a few inches of fill, in other areas the radioactive material is near or at the surface. The contamination is highly variable within the soil column, particularly where the disposed radioactive material has be spread. Evidence to date suggest that radioactive material is predominantly found in the top couple of feet of soil, so it is likely that this data will also provide a good indication of where contamination can be found.

The measurements of count rates are shown in Figure 2. Each printed dot is one measurement, the color indicates the appropriate count rate range shown at the top of the figure.[2] The color break points have been chosen for convenience to aid in visualizing different relative radiation intensities. Background count rates are generally less than 8000 cpm and some of the areas with count rates perhaps twice this value may be the result of radioactive material naturally occurring in the fire brick that has been disposed of throughout the site.

Two areas with maximum count rates greater than 100,000 cpm were observed. Their "y" coordinates on Figure 2 were at about 185 feet and at about 475 feet.[3] These areas are consistent with the disposal of radioactive waste along the rail spurs that served the steel mill. Some of the

[1] Observed dose rates are reduced by about an order of magnitude for each 6-8 inches of soil cover.
[2] While count rate measurements plotted in the figure look like point measurements, they are actually averages over a couple of square feet of area. This averaging is a caused by the movement of the detector across the site during the survey and the time responses of the detectors. The effect on the reported values will be greatest where the spatial gradients in count rate are the greatest.
[3] The coordinate system used for this survey was the same as the one established for the USRADS survey done in 1997. The units are in feet. The (0,0) point is at the intersection of two fences along the north boundary of the Allegheny Ludlum property.



GSNDCA 335

USRADS Survey Results (counts per minute) Figure 2

elevated areas have recognizable fire brick at or near the surface which will contribute to the measured radiation, but most of the colored areas are believed to result from uranium and thorium disposal.

Survey #1 is presented in the lower part of Figure 2. The area is bounded by the Allegheny Ludlum fence on the south, a crest in the landfill on the west, a vegetation covered mound on the north (except along the spur line, where the surface has been recently disturbed), and by a second spur line curving off to the east. One important feature of this survey is the location of the former spur line. Since some ties are still present, we were able to walk along its edges - they are defined by the parallel curved lines about 10 feet apart running north to south through Survey #1. The open spaces in the survey are locations where large trees are growing - low hanging branches prevented the operator carrying the backpack from access. Elevated readings are present on both sides of the spur - the highest count rates are found in one area about 350 ft^2 (y coordinate = 185 feet ±).

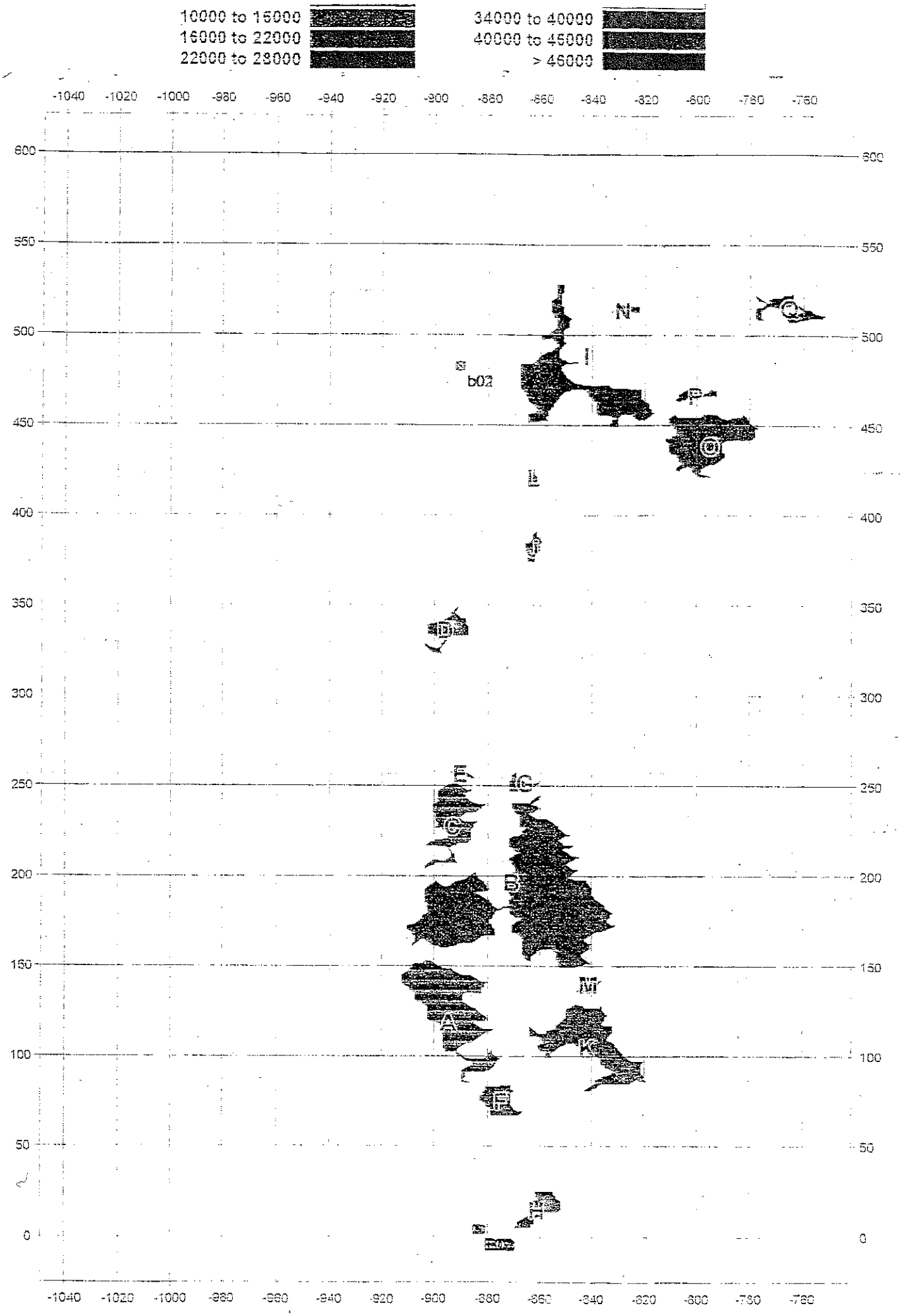
Survey #2 is presented in the upper part of Figure 2. The area is bounded by a concrete paved storage area belonging to Lombardi Overhead Doors on the west, the extent of the leveled area on the north and east, and the limit of communication within the SR array on the south. While no evidence of a rail spur remains, its location is along a north-south line extending north from Survey #1. We could identify the spur line again in Manual Survey #1. All elevated readings were found on the east side of the spur line (including information from Manual Survey #2) except for a small area under a concrete pad (y coordinate ≈ 330 feet). The highest readings were found in a small area (about 400 ft^2) at y = 475 feet ±. This area had the highest readings in the survey - approximately 1 million cpm on contact with the surface (2"x2" NaI detector). The maximum dose rate observed during the survey (Bicron instrument) was 41 urem/hr. This means that one does not receive a significant dose by spending small amounts of time in the area, such as by walking across it, but long term exposures should be avoided. Also, no further excavation should occur in the area at this time.

A useful feature in the software allows identification of areas of elevated readings that are isolated from other such areas. The software selects groups of points displaying elevated readings and averages the values for all the points within an area. These areas of averaged elevated readings (see Figure 3) can act as guides to the approximate size and shape of areas that may need removal.

It will be necessary to identify which of these areas are contaminated with significant concentrations of thorium and uranium. Fire brick is a confounding factor in some of the areas. Likely candidates to be considered for partial or total removal would be Areas B, C, I, K, O, and P which make up about 5-6 thousand square feet of surface. A preliminary characterization of radionuclide concentrations in some of these areas is given later in this summary.

Interpretation of gamma spectrometry data:

Radioactive material found consisted of small pieces of thorium metal, soil-like matrix containing mixtures of uranium and thorium, one location of identifiable small flakes containing uranium and



Areas With Elevated Count Rates

Figure 3

thorium, slag, and fire brick. The waste contains separated uranium. This means that the rest of the uranium and actinium decay chains are essentially missing. This would not be true for the uranium in fire brick. The thorium was likely separated when it was disposed of; however, sufficient time has elapsed for the thorium decay chain to be re-established.

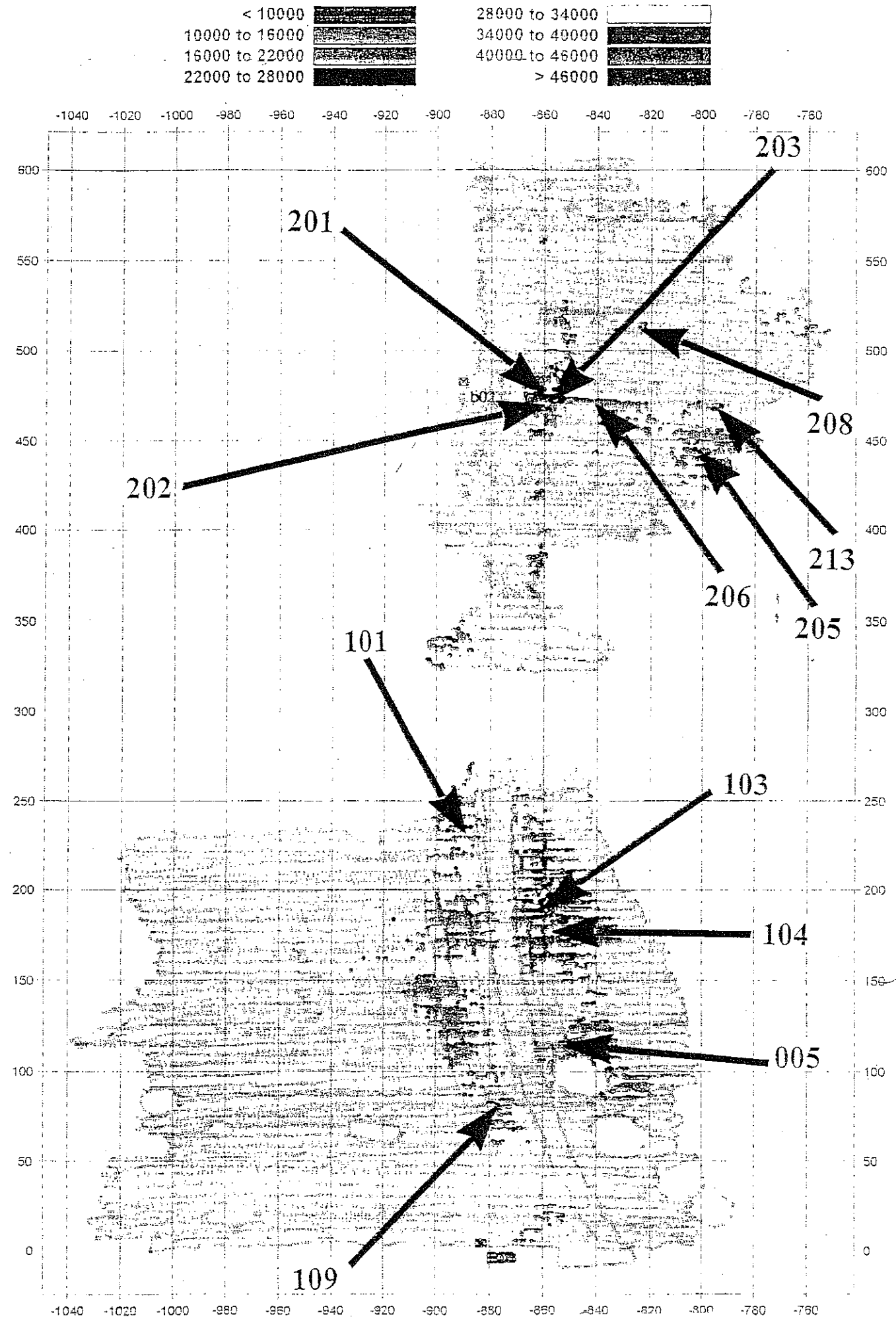
The results of our concentration measurements are shown in the following table and the locations where the samples were taken are presented in Figure 4.

The highest concentrations of uranium and thorium found during this survey was just to the east of the former rail spur in the vicinity of x approximately equal to -860, y approximately equal to 475. This location is east of property owned by Lombardi Overhead Doors. At the point where sample 201 (see Figure 4) was taken, the on contact surface count rate was about 1 million counts per minute (NaI detector). The concentration of U-238 equaled 30,286 pCi/g and the thorium concentration equaled 321 pCi/g in the surface sample (0"-6"). Elevated concentrations were found down to two feet (as deep as we sampled). For comparison, soil background concentrations of both U-238 and Th-232 are approximately 1 pCi/g, although slag and fire brick have been disposed of throughout the site, and their concentrations of U-238 and Th-232 are usually at least an of order magnitude greater than background.

Special note should be made about the area with y grid coordinate between 300 feet and 600 feet. The area had been recently graded (Spring 1999). Low areas to the east of the spur were filled, in part, with soil from near the former rail spur. The depth of disturbed soil above original grade varies, but we expect about two feet to be typical. Some of the radioactive material disposed along the spur (area where samples 201, 202, 203 were taken) has been moved to the east during the grading process - consider the areas where samples 205,206 and 213 were obtained. Contamination was spread into an approximate area $-840 > x > -780$ and $475 > y > 425$) and it is mostly near the surface. In one of the samples, where the contamination was spread (at sample location 213), the uranium equaled 8240 pCi/g and thorium equaled 116 pCi/g in the top 2.5 inches of soil. This data suggests that about 1000 square feet of area has been contaminated by the grading.

Survey #1 (y coordinate < 250 feet) contains relatively more brick and slag. In this survey we located pieces of thorium metal (near sample 104) and a vein of uranium and thorium containing flake-like material (sample 103).

We strongly caution against any further disturbance of soils in this area. The costs for cleanup and possibly liability for these costs could be affected.



Soil Sample Locations

Figure 4

Summary of gamma spectrometry data

samples obtained along the former rail spur north of Allegheny Ludlum fence

Notes: column 1 - sample location identification in **bold** and (depth interval for each sample in inches)
column 2 - counts per minute taken at the surface before excavation and at the bottom of the hole after each sample taken. Detector = 2x2 NaI
column 3 through 6 - concentration of listed radionuclide. If no entry, gamma peak not observed. If marked present, a small peak observed but not quantified.

Sample ID	cpm	U238 (pCi/g)	Thorium chain (pCi/g)	U235 (pCi/g)	K40 (pCi/g)
201					
	995,088				
(0-6")		30286 ± 1249	321 ± 6	825 ± 67	
	1,199,058				
(6-12")		2973 ± 122	11.8 ± 0.3	127 ± 10	14.4 ± 0.8
	545,266				
(12-18")		2428 ± 103	14.5 ± 0.3	104 ± 8	13.2 ± 1.1
	252,450				
(18-24")		401 ± 17	0.73 ± 0.02	17.8 ± 1.4	12.6 ± 0.7
	91,164				
202					
	751,068				
(0-6")		12008 ± 549	322 ± 7	685 ± 156	
	405,938				
(6-12")		1584 ± 71	7.0 ± 0.2	71 ± 6	14.7 ± 1.4
	258,876				
(12-18")		602 ± 31	1.7 ± 0.1	28 ± 2	12.6 ± 1.3
	155,434				
203					
	126,663				
(0-5")		760 ± 32	20.4 ± 0.4	32 ± 3	11.3 ± 0.7
	279,222				
(5-8.5")		3770 ± 160	113 ± 2	142 ± 12	16.6 ± 1.5
	307,002				
(8.5-11.5")		3422 ± 148	60.0 ± 1.3	131 ± 10	14.7 ± 1.5
	298,841				
(11.5-17")		841 ± 40	3.5 ± 0.2	35 ± 3	14.0 ± 1.4
	189,570				
(17-23")		378 ± 21	1.0 ± 0.1	15.9 ± 1.3	12.4 ± 1.2
	109,412				

Sample ID	cpm	U238 (pCi/g)	Thorium chain (pCi/g)	U235 (pCi/g)	K40 (pCi/g)
205					
	47,880				
(0-5")		240 ± 10	9.9 ± 0.2	10.4 ± 0.9	9.4 ± 0.6
	164,199				
(5-10")		1799 ± 81	47.6 ± 1.1	73 ± 6	12.2 ± 1.3
	147,388				
(10-17.5")		186 ± 13	6.5 ± 0.1	7.8 ± 0.1	8.8 ± 1.0
	59,218				
206					
	38,323				
(0-3")		456 ± 24	7.3 ± 0.3	19.5 ± 1.6	8.0 ± 0.9
	20,283				
(3-7")		81 ± 7	1.4 ± 0.1	3.2 ± 0.3	5.3 ± 0.7
	16,045				
208					
	19,549				
(0-6)		present	5.5 ± 0.2	0.32 ± 0.05	6.4 ± 0.8
	32,651				
(6-12")			5.2 ± 0.2	present	12.2 ± 1.2
	35,270				
(12-18")			1.1 ± 0.1	present	9.2 ± 1.0
	20,382				
213					
	242,024				
(0-2.5")		8240 ± 344	116 ± 2	316 ± 24	16.5 ± 1.5
	no data				
(2.5-5.5")		290 ± 18	3.43 ± 0.14	12.3 ± 1.0	9.5 ± 1.1
	36,090				
(5.5-12")		no sample			
	21,569				

Sample ID	cpm	U238 (pCi/g)	Thorium chain (pCi/g)	U235 (pCi/g)	K40 (pCi/g)
101					
	49335				
(0-6")		40 ± 6	15.2 ± 0.4	2.3 ± 0.2	3.7 ± 0.1
	56,208				
(6-12")		17 ± 4	7.1 ± 0.2	0.7 ± 0.1	3.4 ± 0.6
	71,437				
(12-18")		13 ± 4	14.7 ± 0.4	0.7 ± 0.1	4.0 ± 0.6
	92,032				
(18-?)		13 ± 4	15.7 ± 0.4	present	2.9 ± 0.5
	no data				
103					
	≈220,000				
(3-8") vein		163 ± 10	241 ± 4	4 ± 1	
104					
	106,123				
(0-4")		20 ± 5	18.5 ± 0.4	0.9 ± 0.1	6.7 ± 0.8
	36,356				
(4-7")		17 ± 8	18.5 ± 4	0.7 ± 0.2	
	39,019				
(7-11")		12 ± 3	8.2 ± 0.2	0.6 ± 0.1	5.8 ± 0.6
	37569				
109					
	19,250				
(0-2.5")		6 ± 2	2.27 ± 0.05	0.39 ± 0.05	3.0 ± 0.5
	28,000				
(2.5-5")		6.1 ± 2.5	5.9 ± 0.2	0.34 ± 0.06	3.9 ± 0.6
	37,532				
(5-9")		14 ± 4	6.4 ± 0.2	0.8 ± 0.1	6.3 ± 0.8
	73,153				
(9-16")		42 ± 5	8.6 ± 0.2	2.1 ± 0.2	5.0 ± 0.7
slag (no corrections)		17	55	1.2	5.5
	93,788				
(16-22")		12 ± 4	13.1 ± 0.3	0.8 ± 0.1	5.3 ± 0.7
	75,458				

Sample ID	cpm	U238 (pCi/g)	Thorium chain (pCi/g)	U235 (pCi/g)	K40 (pCi/g)
005					
	≈40,000				
(0-2")		11 ± 4	16.2 ± 0.4	1.0 ± 0.4	2.4 ± 0.5
	42,470				
(2-6")		11 ± 4	27.3 ± 0.6	1.1 ± 0.7	4.0 ± 0.6
	41,399				
(6-9")		213 ± 13	2.1 ±0.1	8.7 ± 0.9	1.1 ± 0.3
	39,953				
(9-12")		15 ± 5	20.1 ± 0.5	present	3.8 ± 0.7
	35,916				
(12-15")		15 ± 5	13.5 ± 0.3	present	2.7 ± 0.6
	32,896				

Note:
Counting times for most samples was 1 hour. Selected samples were counted for 2 or 20 hours. The longest count times were capable of detecting trace concentrations of Cs137 and/or Be7 if the sample contained surface soils. No other radionuclides were detected.

10/26/00 Guterl 209-id 115

(1)

Department of Environmental Conservation

Division of Environmental Remediation

Immediate Investigative Work Assignment Report

Guterl Excised Area, City of Lockport, Niagara County

October 2000

New York State Department of Environmental Conservation
Region 9
270 Michigan Avenue
Buffalo, New York 14203-2999

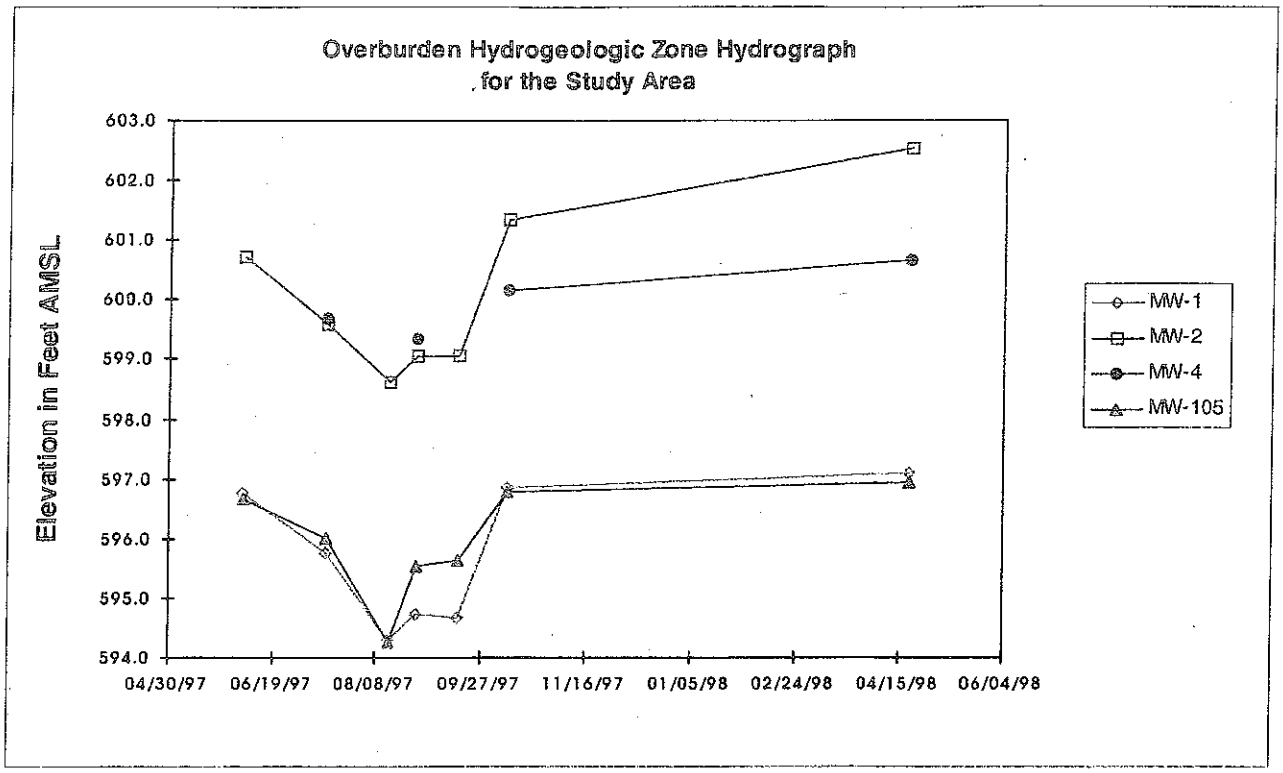


Figure VI-1. Study Area hydrograph for the overburden hydrogeologic zone.

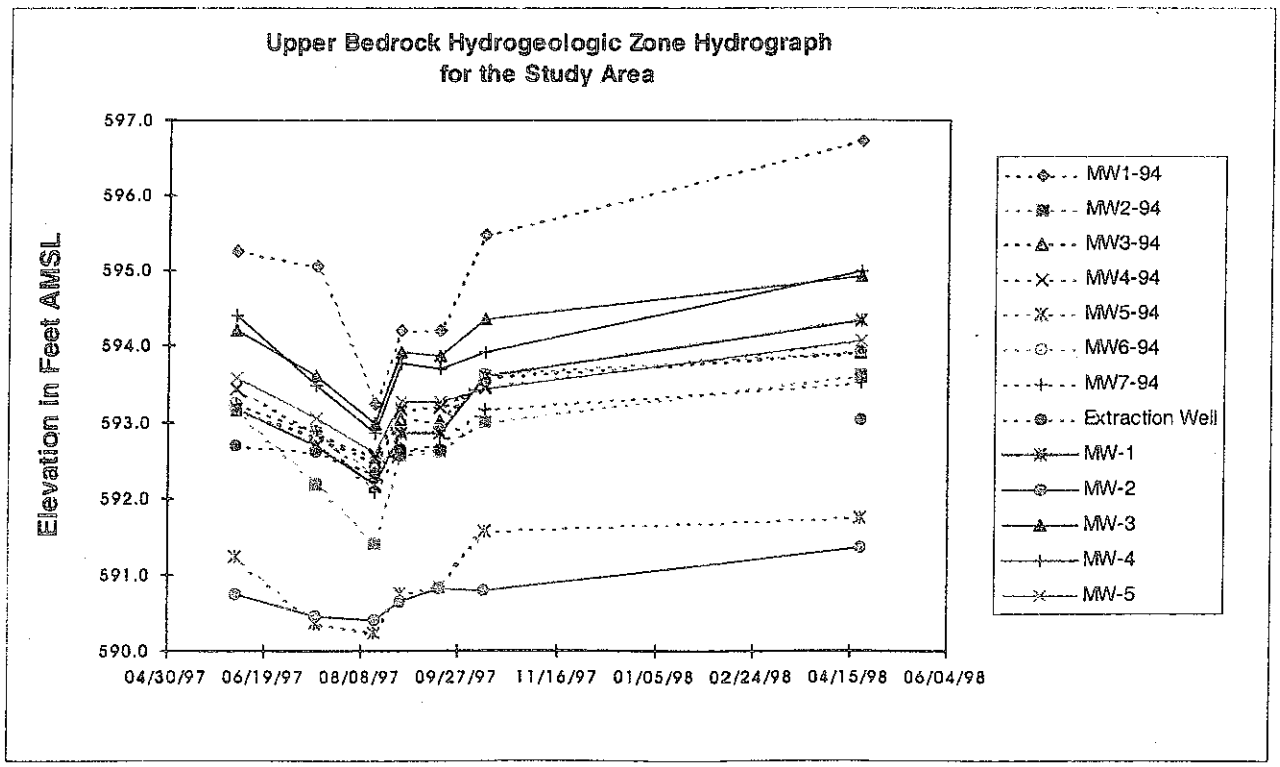
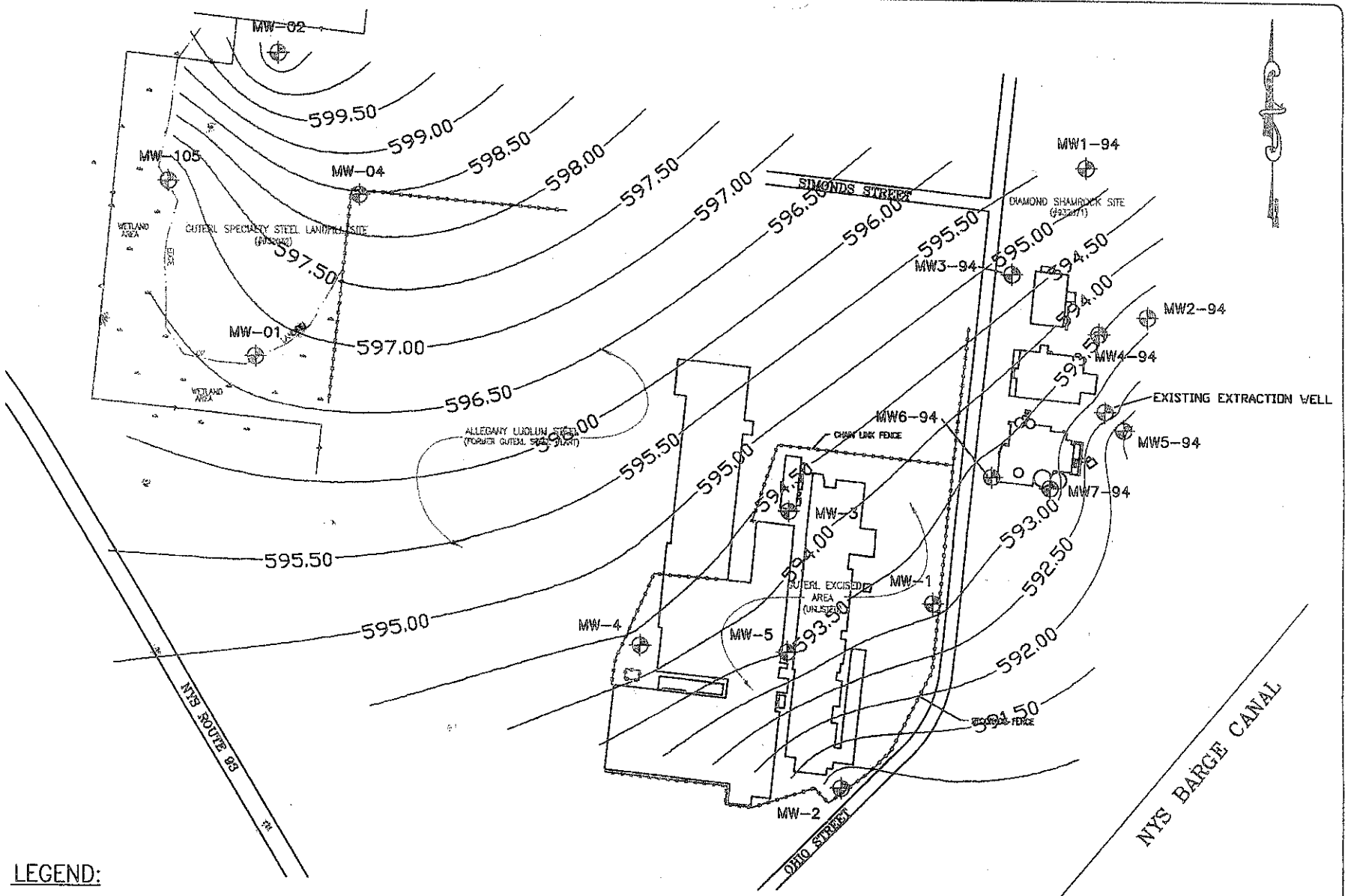


Figure VI-2. Study Area hydrograph for the upper bedrock hydrogeologic zone.



LEGEND:

◈ MONITORING WELL

Note: Contour does not include data from Well MW3-94.

SCALE IN FEET

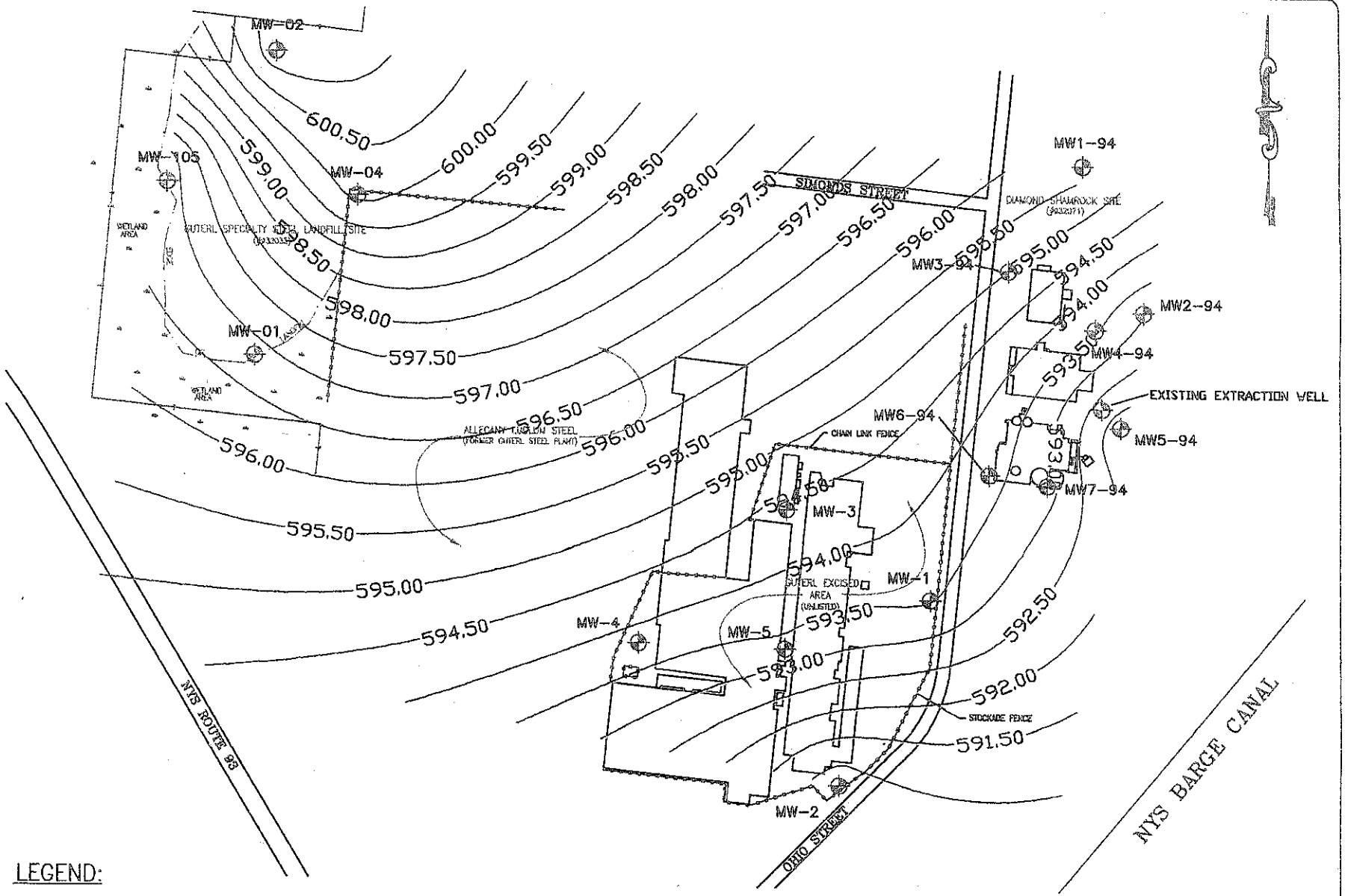
0 200 400 800

GROUNDWATER CONTOURS
JUNE 4, 1997

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 09/13/00 DRAWING: Gut-Figs.dwg

GUTERL EXCISED AREA FIGURE VI-3



LEGEND:

⊕ MONITORING WELL

Note: Contour does not include data from Well MW3-94.

SCALE IN FEET

0 200 400 600

GROUNDWATER CONTOURS
OCTOBER 10, 1997

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 09/13/00 | DRAWING: Gut-Figs.dwg

GUTERL EXCISED AREA

FIGURE VI-4

RADIOLOGICAL SURVEY OF THE GUTERL SPECIALTY STEEL CORPORATION LOCKPORT, NEW YORK

Prepared by

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Radiological Safety, Assessments, and Training
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Prepared for the

United States Bankruptcy Court for the
Western District of Pennsylvania

FINAL REPORT

DECEMBER 1999

This report is based on work performed under a contract with the U.S. Department of Energy.

TABLE 1

SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 1
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
North Room				
Metal Floor Plate	9	-15	1	2
East Wall	10	-540	0	-2
Center Room				
Metal Floor Plate	11	97	0	-2
North Wall	12	-38	0	-6
Melting Equip.	13	390	0	2
Metal Floor Plate	14	35	0	-3
South Room				
Pit - Lower Ledge	15	32	0	3
East Wall	16	1,700	1	-2
East Work Room				
Concrete Floor		-240	0	-4
West Work Room				
Countertop	18	7,700	5	7
Lower Shelf	19	11,000	0	7
Concrete Floor at Drain	--[b]	35,000	--	--
Concrete Floor below Shelf	--	100,000	--	--
Wipe Rag	--	340,000	--	--

[a]Refer to Figure 11.

[b]No smear sample collected.

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

TABLE 2

**SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 2
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK**

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
North Section				
Door Facing	21A	24,000	3	-1
Workbench	22A	12,000	1	-1
Near Workbench	23A	-88	0	3
Concrete Floor	24A	-140	0	2
North Wall at 0.5 m	25A	-160	1	-4
Concrete Floor	26A	-410	0	-1
Vat	27A	-270	0	-2
Concrete Floor	28A	-280	1	-1
West Wall at 1.0 m	29A	-190	0	2
Concrete Floor at Track	30A	-360	0	-2
Concrete Floor	31A	-150	1	-2
Tank	32A	-79	0	-1
Concrete Floor	33A	-360	1	-5
Fan	34A	-190	3	3
East Wall at 1.0 m	35A	-190	0	-1
Concrete Floor	36A	-240	0	-1
East Wall at 1.5 m	37A	-65	0	-1
Concrete Floor	38A	-280	0	-3
South Wall at 1.5 m	39A	-97	0	-4
Stair	40A	160	1	-1
Concrete Floor	41A	210	0	-2
Lift Platform	42A	510	0	4
I-beam at 8 m	1B	-29	1	1
On shed	2B	410	0	5
Platform at 8 m	3B	-88	0	7
Lift Frame at 5 m	4B	150	0	1
Crane at 8 m	5B	-380	3	-1

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999**

[a]Refer to Figures 12 and 13.

[b]No sample collected (smear or soil). Contamination was beneath concrete. Vitkus Rad Survey Tablesmsg6-1.xls

TABLE 2 (Continued)

SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 2
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
Center Section				
Roofing Debris	43A	1,800	1	-1
Concrete Floor	44A	-26	0	-3
North Wall at 0.5 m	45A	-240	0	2
Concrete Floor	46A	-560	0	1
West Wall at 1.0 m	47A	360	0	1
Concrete Floor	48A	-320	0	-4
Equipment	49A	210	0	-3
East Wall at 1.0 m	50A	-270	0	-3
Metal Floor Plate	51A	-94	0	1
Concrete Floor	--b	1,800	--	--
Locker	52A	18,000	5	3
Concrete Floor	--b	11,000	--	--
Equipment	53A	-41	1	-2
East Wall at 1.0 m	54A	130	0	3
Concrete Floor	55A	-300	0	16
Concrete Floor	56A	7,300	1	2
Concrete Floor	57A	4,400	0	2
Shelving	58A	150	1	1
Concrete Floor	59A	-170	3	-3
East Wall at 1.0 m	60A	-160	0	3
Equipment	61A	230	1	-2
Metal Floor Plate at Track	62A	3,900	0	2
Pit Wall	63A	-270	0	-3
East Wall at 0.5 m	64A	-310	1	-4
Metal Floor Plate	65A	340	3	-2
West Wall at 1.0 m	66A	-130	0	2
Stairs	67A	230	3	3
Concrete Floor	68A	-200	0	-4

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999**

[a]Refer to Figures 12 and 13.

[b]No sample collected (smear or soil). Contamination was beneath concrete. Vitkus Rad Survey Tablesmsg6-1.xls

TABLE 2 (Continued)

SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 2
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
North End at 6m	6B	-320	1	1
I-beam at 8m	7B	240	0	2
East Wall Light at 6 m	8B	650	0	1
I-beam at 5 m	9B	1,200	0	-3
Crane Operator Bench at 7 m	10B	59	1	2
West Wall at 4 m	1 lB	1,100	0	-1
West Platform at 6m	12B	29	0	-1
Light Fixture	13B	500	0	-1
South Section				
Furnace	69A	97	0	1
Concrete Floor	70A	-350	0	2
Countertop	71A	6	0	-2
West Wall at 1.0 m	72A	-50	0	-1
Exhaust Hood at 2.5 m	73A	-9	1	3
Concrete Floor	74A	-410	3	3
Concrete Floor	75A	-380	0	-3
Pedestal	76A	-390	0	-1
Steps to Vat	77A	-120	0	3
Wood Floor	78A	260	0	-l
Door Facing at 1.5 m	79A	-300	0	18
Concrete Floor	80A	-490	0	4
Concrete Floor	81A	-530	0	3

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999**

[a]Refer to Figures 12 and 13.

[b]No sample collected (smear or soil). Contamination was beneath concrete. Vitkus Rad Survey Tablesmsg6-1.xls

TABLE 3

SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 3
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
North Section				
Stairs	20	300	0	2
Concrete Floor at Track Intersect	21	-530	1	2
Concrete Floor	22	-420	1	-2
Incinerator Ledge	23	460	5	-1
Concrete Floor	24	310	1	1
25	25	2,700	0	2
Concrete Floor	26	-550	1	-2
I-Beam at 1.5 m	27	660	3	2
Roller	28	4,500	5	2
Concrete Floor Near Track	29	8,300	3	10
Electric Wire Casing	30	2,700	0	3
Roller Stack Pedestal	31	9,600	3	9
Concrete Floor	32	10,000	3	6
Concrete Floor	33	13,000	13	12
Equipment Room	34	270	1	-2
Equipment Room	35	-510	1	-2
Roller Stack Pedestal	36	6,900	3	2
Roller	37	2,800	7	3
Stairs Near Bldg. 6 Opening	38	3,600	7	5
Concrete Floor Near Bldg. 6	39	6,500	14	16
Concrete Floor Near Bldg. 6	40	640	1	4
Center Throughway Near Track	41	67,000	0	-1
Bathroom Floor	42	650	0	3
Top of Furnace at 4 m	19B	790	1	-1
North Wall at 7m	20B	2,400	1	-3
Light at 6 m	21B	3,400	0	-3
Overhang at 4 m	22B	2,200	0	3
Furnace I-beam at 4 m	23B	3100	3	1
Top of Electric Box at 4 m	24B	3700	1	7

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a]Refer to Figures 14 and 15.

[b]No smear sample collected.

TABLE 3 (Continued)

SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 3
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
Truss above Furnace at 4 m	25B	56,000	9	4
Window Ledge at 8 m	26B	25,000	3	2
South Section				
I-beam Pedestal	43	5,400	53	10
Trench Cover	44	2,600	3	1
Cabinet Top	45	5,000	11	17
Trench Cover	46	660	9	2
Exterior Wall of Cafeteria at 1.5 m	47	630	3	-2
Concrete Floor	48	-28	0	7
West Wall at 1.5 m	49	-1,300	0	-3
Concrete Floor	50	470	0	-1
Concrete Floor	51	1,500	7	3
North End of Trench	52	-57	0	-3
Equipment Pedestal	53	-620	1	-4
South End of Trench	54	16,000	14	16
Roller Cap	55	340,000	130	195
South End of Trench	56	160,000	185	248
Concrete Floor Near Trench	57	12,000	3	6
Concrete Floor at Track	58	-550	0	1
Concrete Floor at Track Intersect	59	-620	0	3
Window Ledge at 8 m	27B	8,300	9	1
Top of Room at 3 m	28B	4,000	3	-3
Crane Rail I-beam at 8 m	29B	21,000	3	4
I-beam at 5 m	30B	5,200	0	1
I-beam at 7 m	31B	12,000	0	3
I-beam at 5 m	32B	10,000	1	-1
Crane Stand at 5 m	33B	6,100	1	-1
Sidewalk at Cafeteria	15E[b]	5,700	--	--
Sidewalk at Cafeteria	16E[b]	4,400	--	--
Sidewalk at Cafeteria	17E[b]	3,800	--	--

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a]Refer to Figures 14 and 15.

[b]No smear sample collected.

TABLE 4

**SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDINGS 4 AND 9
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK**

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
Brick Floor	82A	490	1	4
Equipment Pedestal	83A	550	0	-4
Concrete Floor	84A	-56	1	-2
South Wall at 0.25 m	85A	59	7	-1
Roller Furnace	86A	500	0	2
Brick Floor	87A	310	3	3
Concrete Floor	88A	44	0	4
Press	89A	-110	3	-4
South Wall at 1 m	90A	-220	0	7
Concrete Floor	91A	-260	3	5
Concrete Floor	92A	-330	1	-3
Loading Dock	93A	280	3	4
Concrete Floor	94A	-450	0	-3
Stairs	95A	-240	3	-5
Furnace	96A	130	1	4
Concrete Floor	97A	-210	0	-3
Brick Floor	98A	16,000	24	32
Brick Floor	99A	5,200	11	12
Brick Floor	100A	13,000	14	20
Roller Furnace	43B	210	1	3
Brick Floor	44B	11,000	26	110
Brick Floor	--[b]	23,000	--	--
Brick Floor	45B	190	0	1
Platform	46B	1,500	0	-4
Furnace	47B	3,300	3	2
Brick Floor	48B	390	1	2
Concrete Floor	49B	47	0	-4
Misc. Equipment	50B	1,300	1	1

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a]Refer to Figures 16 and 17.

[b]No smear sample collected.

TABLE 4 (Continued)

**SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDINGS 4 AND 9
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK**

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
North Wall at 1.5 m	51B	230	0	-2
Pit	52B	-440	1	-1
I-beam at 1.5 m	53B	110	3	-3
Brick Floor	54B	5,300	9	9
Air Duct	55B	210	3	14
Concrete Floor	56B	-85	0	-1
Furnace Hood at 4 m	34B	6,300	0	1
Crane Rail I-beam at 7 m	35B	88	5	2
Roof Truss at 10 m	36B	5,000	0	2
Light at 7m	37B	650	3	-2
Roof Truss at 10 m	38B	9,800	7	-1
Roof Truss at 10 m	39B	180	3	-2
Roof Truss at 10 m	40B	1,700	1	-4
Crane Rail I-beam at 7 m	41B	740	0	-2
Light at 7 m	42B	2,300	1	-1

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a]Refer to Figures 16 and 17.

[b]No smear sample collected.

TABLE 5

SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 6
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
South Wall at 1 m	7	-24	1	-2
South Wall at 1 m	8	100	1	1
Metal Floor Plate	50C	30,000	1	-1
Metal Floor Plate	51C	810	3	5
Concrete Floor	52C	-330	1	4
Concrete Floor	53C	4,200	0	2
Brick Floor	54C	0	1	2
Brick Floor	55C	780	0	15
Brick Floor	62C	-480	0	2
Concrete Floor	65C	1,000	0	2
Metal Floor Plate	66C	680	0	4
Brick Floor	67C	320	0	3
Metal Floor Plate	68C	1,200	0	2
Brick Floor	69C	1,200	1	-2
Brick Floor	70C	440	1	-2
Brick Floor	71C	740	0	-1
Brick Floor	72C	1,600	1	-3
Metal Floor Plate	73C	350	1	-1
Metal Floor Plate	74C	970	0	4
Metal Floor Plate	75C	450	0	1
Metal Floor Plate	80C	1,900	7	3
Concrete Floor	81C	1,900	1	9
Concrete Floor	82C	2,200	0	-3
Concrete Floor	83C	2,400	7	4
Metal Floor Plate	85C	420	5	-2
Metal Floor Plate	86C	920	1	1
Brick Floor	87C	1800	1	2
Concrete Floor	88C	1500	0	-1
Brick Floor	89C	860	1	4
Concrete Floor	90C	250	0	-1

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a]Refer to Figure 18.

TABLE 6

**SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 8
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK**

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
West Wall	1	10,000	7	9
Saw Horse	--[b]	62,000	--	--
West Wall	2	8,000	11	10
I-beam at 4 m	3	64,000	3	2
Electric Box at 5 m	4	39,000	20	19
I-beam at 3 m	5	29,000	13	46
Furnace Support at 3 m	6	30,000	27	35
Equipment, 10" Rolling Mill - Side	60	8,800	1	1
Equipment, 10" Rolling Mill - Base	61	4,600	0	7
Equipment, 10" Rolling Mill - Side	62	10,000	1	-2
Equipment, 10" Rolling Mill - Side	63	3,000	1	-1
Concrete Floor	64	5,500	5	-2
Equipment, 10" Cooling Bed	65	510	1	2
Concrete Floor	66	960	1	2
Equipment, 10" Cooling Bed	67	1,400	1	4
Equipment, 10" Cooling Bed	68	660	0	-2
Concrete Floor	69	4,200	3	-3
Concrete Floor	70	6,000	0	-1
Equipment, 10" Cooling Bed	71	740	1	4
Equipment, 10" Cooling Bed	72	980	1	-1
Brick Floor	73	2,000	0	-1
Concrete Floor	74	5,300	3	7
Brick Floor	75	54,000	54	40
Concrete Floor	76	1,500	7	8
Equipment, 16" Cooling Bed	77	850	0	6
Metal Floor Plate	78	5,600	0	2
Metal Floor Plate	79	870	1	21
Metal Floor Plate	80	1,600	5	5
Metal Floor Plate	81	890	1	1
Metal Floor Plate	82	3,000	1	-2
Equipment, 16" Cooling Bed, Roller	85	1,200	1	-4

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a]Refer to Figure 19.

[b]No smear sample collected.

TABLE 6 (Continued)

SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 8
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
Concrete Floor	86	2,400	3	7
Concrete Floor	87	4,800	3	4
Equipment, 16" Cooling Bed, Tray	88	5,600	3	4
Metal Floor Plate	89	6,300	1	6
Metal Floor Plate	90	7,600	3	10
Metal Floor Plate	91	5,800	3	6
Furnace Interior	92	2,500	0	-3
Conveyor	93	14,000	3	16
Furnace - Top	94	4,200	3	1
Furnace - Side	95	690	1	-1
Conveyor	96	16,000	5	12
Conveyor	97	260	3	7
Stair to 16” Cooling Bed	98	1,300	0	-2
Metal Floor Plate	99	19,000	22	17
Metal Floor Plate	100	22,000	20	23
Equipment, 16” Cooling Bed, Tray	1C	16,000	7	9
Concrete Floor	2C	5,900	11	10
Concrete Floor	3C	1,700	3	2
Equipment, 16” Cooling Bed, Tray	4C	16,000	20	19
Motor	SC	29,000	13	46
Metal Floor Plate	6C	13,000	27	35
Furnace - Top	7C	19,000	5	9
Metal Floor Plate	8C	2,900	1	-2
Furnace - Top	9C	18,000	9	6
Concrete Floor	10C	35,000	74	120
Metal Floor Plate	1lC	38,000	14	16
Equipment, 16” Cooling Bed	l2C	20,000	18	9
Concrete Floor	13C	3,300	7	2
Concrete Floor	14C	7,300	7	4
Equipment, 16” Cooling Bed	15C	18,000	22	17
Metal Floor Plate	16C	24,000	37	33
Metal Floor Plate	17C	23,000	13	25
Metal Floor Plate	18C	26,000	22	17

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a]Refer to Figure 19.

[b]No smear sample collected.

TABLE 6 (Continued)

SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 8
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
Motor Mount	19C	33,000	22	23
Motor	20C	24,000	26	31
Equipment, 16” Rolling Mill	21C	10,000	7	5
Equipment, 16” Rolling Mill	22C	40,000	24	15
Equipment, 16” Rolling Mill	23C	36,000	18	27
Wood Platform - Step	24C	14,000	9	8
Metal Basin	25C	7,000	16	18
Lip of Platform	26C	20,000	7	10
Wood Platform	27C	25,000	27	15
Metal Floor Plate	28C	20,000	14	19
Grating	29C	26,000	14	20
Gear Shaft	30C	13,000	5	2
Furnace-Top	31C	13,000	14	16
Metal Floor Plate	32C	5,200	1	-2
Concrete Floor	33C	4,800	11	9
Concrete Floor	34C	5,600	7	2
Metal Floor Plate	35C	20,000	5	11
Furnace	36C	1,400	0	2
Wood Platform	37C	15,000	13	37
Wood Platform	38C	3,300	3	1
Wood Shelf	39C	21,000	5	7
Concrete Floor	40C	6,600	5	6
Bench	41C	11,000	5	11
Furnace Door	42C	5,900	3	5
Concrete Floor	43C	12,000	5	8
Press	44C	12,000	0	-2
Metal Floor Plate	45C	17	0	1
Metal Floor Plate	46C	110	1	-2
Rolling Mill	47C	870	0	1
Rolling Mill	48C	2,300	0	-3
Metal Floor Plate	49C	450	0	1
Metal Floor Plate	56C	990	0	5
Wood Platform	57C	8,100	7	11

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a]Refer to Figure 19.

[b]No smear sample collected.

TABLE 6 (Continued)

SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 8
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
Wood Platform	58C	16,000	13	18
Wood Platform	59C	14,000	22	20
Concrete Footer	60C	13,000	37	95
Wood Platform	61C	7,000	7	5
Metal Floor Plate	63C	5,700	5	4
Wood Platform	64C	7,400	26	19
Concrete Floor	76C	3,600	0	1
Concrete Floor	77C	6,600	0	4
Concrete Floor	78C	12,000	5	3
Concrete Floor	79C	1,300	3	20
Concrete Floor	84C	6,700	1	1
Concrete Floor	91C	550	5	2
Concrete Floor	92C	860	0	-4
Concrete Floor	93C	3,100	0	1
Concrete Floor	94C	3,800	3	6
Concrete Floor	95C	6,100	9	8
Concrete Floor	96C	5,100	5	6
Metal Floor Plate	97C	2,500	0	3
Vat	98C	16,000	1	3
Concrete Floor	99C	15,000	5	11
I-beam at 1 m	100C	12,000	1	-2
Brick Floor	1E[b]	200	--	--
Brick Floor	2E[b]	500	--	--
Concrete Floor at Track	3E[b]	840	--	--
Concrete Floor	4E[b]	430	--	--
Concrete Floor at Track	5E[b]	860	--	--
Metal Floor Plate	6E[b]	2,300	--	--
Metal Floor Plate	7E[b]	1,600	--	--
Concrete Floor	8E[b]	6,700	--	--
Frame for Tank	9E[b]	5,000	--	--
Metal Floor Plate	10E[b]	2,000	--	--

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a]Refer to Figure 19.

[b]No smear sample collected.

TABLE 6 (Continued)

SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 8
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
Concrete Floor	11E[b]	3,800	--	--
Metal Floor Plate	12E[b]	2,300	--	--
Metal Floor Plate	13E[b]	2,300	--	--
Metal Floor Plate	14E[b]	430	--	--
North Wall	15E[b]	16,000	--	--

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a]Refer to Figure 19.
[b]No smear sample collected.

TABLE 7

**SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 24, NORTH SECTION
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK**

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
Concrete Floor	57B	-240	1	-1
Concrete Floor	58B	-230	0	-2
Concrete Floor	59B	-370	3	4
Concrete Floor	60B	-390	0	-2
Concrete Floor	61B	-360	1	-1
Concrete Floor	62B	-390	3	2
I-beam at 1.5 m	63B	-240	0	1
Concrete Floor	64B	-390	0	1
Concrete Floor	65B	-240	1	1
Ledge	668	120	0	-2
Concrete Floor	67B	-300	0	1
Concrete Floor	68B	-290	0	2
Concrete Floor	69B	-200	0	1
Concrete Floor	708	-260	0	6
Concrete Floor	71B	-90	0	1
Concrete Floor	72B	-240	1	1
Concrete Floor	738	-240	0	-3

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a]Refer to Figure 20.

TABLE 8

**SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 24, SOUTH SECTION
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK**

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
Concrete Floor	74B	-210	0	-2
Concrete Floor	75B	-140	1	-3
Concrete Floor	76B	-190	0	1
Concrete Floor	77B	-270	3	3
Concrete Floor at Expansion Joint	78B	-320	0	2
Concrete Floor	79B	-160	0	14
East Wall at 1.5 m	80B	-610	0	7
Trench Cover	81B	170	1	1
Concrete Floor	82B	-200	0	-1
Concrete Floor	83B	-190	0	3
Concrete Floor	84B	-220	0	-2
Concrete Floor	85B	-40	3	3
Concrete Floor	86B	-100	3	5
Concrete Floor at Expansion Joint	87B	-100	5	2
Electric Box	88B	150	1	11
Concrete Floor	89B	200	0	-1
Concrete Floor	90B	-130	3	14
Concrete Floor	91B	19,000	27	20
Concrete Floor	92B	230	0	7
Concrete Floor	93B	4,300	0	1
Concrete Floor	94B	100	3	5
Concrete Floor	1D	190	0	-3
Concrete Floor	2D	130	1	1
Concrete Floor	3D	1,100	5	-2
Rail Track	4D	4,200	1	2
Concrete Floor	SD	-510	5	4
Concrete Floor	6D	-650	1	1

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a]Refer to Figures 21 through 24.

TABLE 8 (Continued)

SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 24, SOUTH SECTION
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
Concrete Floor	7D	250	5	4
Concrete Floor	8D	350	7	2
Concrete Floor	9D	-60	1	1
Pit	10D	4,100	1	15
Concrete Floor	11D	360	0	3
Concrete Floor	12D	750	0	1
Concrete Floor	13D	20,000	3	4
Concrete Floor	14D	6,600	1	5
Concrete Floor	15D	12,000	3	8
Concrete Floor	I 6D	40,000	5	-1
Concrete Floor	17D	99,000	65	80
Concrete Floor	18D	36,000	3	5
Concrete Floor	19D	12,000	1	1
Concrete Floor	20D	19,000	5	1
Concrete Floor	21D	18,000	9	31
Concrete Floor	22D	11,000	1	6
Concrete Floor	23D	8,500	0	-1
Concrete Floor	24D	-140	0	4
Concrete Floor	25D	-20	1	4
Concrete Floor	26D	18,000	5	-2
Concrete Floor	27D	13,000	3	-5
Concrete Floor	28D	1,200	1	-4
Concrete Floor	29D	830	0	3
Concrete Floor	30D	23,000	0	4
Concrete Floor	31D	21,000	3	2
Concrete Floor	32D	19,000	1	2
Concrete Floor	33D	14,000	0	1

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a]Refer to Figures 21 through 24.

TABLE 8 (Continued)

SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 24, SOUTH SECTION
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
Concrete Floor	34D	11,000	0	1
Concrete Floor	35D	610	3	2
Concrete Floor	36D	870	3	4
Concrete Floor	37D	7,700	1	-1
Concrete Floor	38D	15,000	22	7
Concrete Floor	39D	5,900	0	-1
Concrete Floor	40D	8,800	1	6
Concrete Floor	41D	10,000	0	4
Concrete Floor	42D	6,600	0	-5
Concrete Floor	43D	6,700	1	-1
Concrete Floor	44D	2,500	0	-1
Concrete Floor	45D	31,000	13	10
Concrete Floor	46D	3,500	1	5
Concrete Floor	47D	6,600	1	2
Concrete Floor	48D	24,000	0	1
Concrete Floor	49D	26,000	0	-3
Concrete Floor	SOD	26,000	0	3
Concrete Floor	51D	31,000	1	-2
Concrete Floor	52D	14,000	1	-3
Concrete Floor	53D	10,000	3	8
Concrete Floor	54D	1,400	1	-3
I-beam (above 2 m)	56D	8,100	3	2
I-beam (above 2 m)	57D	12,000	26	21
Roll-Up Door (above 2 m)	58D	150	1	3
I-beam (above 2 m)	59D	14,000	5	3
Electric Box (above 2 m)	60D	66,000	16	22
I-beam, Top of Kiln (above 2 m)	61D	2,600	0	3

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a]Refer to Figures 21 through 24.

TABLE 8 (Continued)

SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 24, SOUTH SECTION
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
I-beam 1W at 1.5 m	62D	60	0	-2
I-beam 2W at 2 m	63D	2,800	5	4
I-beam 4W at 2 m	64D	15,000	7	11
I-beam SW at 2 m	65D	8,800	7	7
I-beam 6W at 2 m	66D	15,000	13	14
I-beam 7W at 1.5 m	67D	7,100	3	1
I-beam 9W at 1.5 m	68D	13,000	11	3
I-beam 12W at 1.5 m	69D	9,800	1	5
I-beam 13W at 1.5 m	70D	7,300	9	14
I-beam 7E at 1.5 m	71D	6,000	0	2
I-beam 2E at 1.2 m	72D	20,000	1	9
I-beam lE at 1.5 m	73D	6,900	1	3

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a]Refer to Figures 21 through 24.

TABLE 9

SUMMARY OF SURFACE ACTIVITY LEVELS
FOR BUILDING 35
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location Description[a]	Location #	Total Activity (dpm/100 cm^2)	Removable Activity (dpm/100 cm^2)	
			Alpha	Beta
Concrete Floor	1A	-210	3	-1
Concrete Floor	2A	-270	1	-2
Concrete Floor	3A	-200	0	-4
Floor Drain	4A	85	0	3
Concrete Floor	5A	-290	0	2
Floor Drain	6A	120	0	-1
Concrete Floor	7A	-380	0	-2
Concrete Floor	8A	-260	0	-3
Misc. Equipment	9A	-26	0	-3
Concrete Floor	10A	-260	1	-3
I-beam at 1.5 m	11A	-250	0	-1
West Wall at 1 m	12A	-760	0	-4
West Wall at 1 m	13A	-640	0	-2
Workbench	14A	100	0	-2
South Wall at 1.5 m	15A	-44	0	2
South Wall at 1 m	16A	-160	1	-1
East Wall at 1 m	17A	-270	1	1
I-beam at 1.5 m	18A	-230	0	-1
East Wall at 0.5 m	19A	-230	0	-4
East Wall at 1 m	20A	-720	0	4
North Wall at 4 m	14B	-59	0	-5
Crane Rail I-beam at 5 m	15B	180	1	2
Crane Center at 6 m	16B	-59	0	2
Crane Rail at 5m	17B	290	1	-5
Roof Truss at 7 m	18B	650	0	-4

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a]Refer to Figures 25 and 26.

TABLE 10

SUMMARY OF EXPOSURE RATES
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location	Number of Measurements	Exposure Rate Range (mR/h at 1 meter)
Interior		
Building 1	5	6 to 12
Building 2	17	5 to 12
Building 3	20	5 to 11
Building 4/9	5	5 to 10
Building 6	7	5 to 12
Building 8	8	6 to 50
Building 24, South Section	5	5 to 9
Building 35	5	5 to 8
Exterior		
Excised Property	131	3 to 50
All Remaining Property	129	3 to 25

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

TABLE 11

RADIONUCLIDE CONCENTRATIONS IN SEDIMENT SAMPLES GUTERL SPECIALTY STEEL CORPORATION LOCKPORT, NEW YORK

Location	Sample ID[a]	Radionuclide Concentration (pCi/g wet weight)				
		Sample Quantity (g)	Ra-226	Th-232	U-235	U-238
Building 3	3	1290	<0.1	<0.1	0.2 ± 0.1[b]	3.8 ± 0.1
Building 3	4	341	0.2 ± 0.1	<0.1	1.3 ± 0.4	29.9 ± 12.5
Building 3	5	1545	0.1 ± 0.1	0.5 ± 0.1	0.3 ± 0.1	7.8 ± 1.9
Building 8	6	1272	0.2 ± 0.1	1.2 ± 0.2	3.6 ± 0.4	96.8 ± 7.6
Building 8	7	875	0.1 ± 0.1	0.7 ± 0.1	3.9 ± 0.4	90.2 ± 7.3
Oil/Water Separator	8	1296	0.2 ± 0.1	0.2 ± 0.1	0.3 ± 0.1	9.6 ± 2.2

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 28 and 31.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

TABLE 12

RADIONUCLIDE CONCENTRATIONS IN SOIL
INTERIOR LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
		Ra-226	Th-232	U-235	U-238
Building 2					
343	781	1.0 ± 0.2	1.0 ± 0.3[b]	<0.3	<10 (2.8 ± 1.2)[c]
344	907	0.7 ± 0.2	0.7 ± 0.2	<0.3	<6.6 (<1.3)
345	749	1.1 ± 0.2	1.1 ± 0.3	0.6 ± 0.3	12.0 ± 5.2
346	816	1.3 ± 0.4	<1.0	0.2 ± 0.4	<16 (5.3 ± 1.7)
347	896	0.8 ± 0.2	1.0 ± 0.2	<0.3	<6.8 (6.8 ± 1.1)
348	790	0.8 ± 0.2	<0.4	0.2 ± 0.2	<9.2 (3.3 ± 0.9)
349	993	0.7 ± 0.1	0.7 ± 0.2	<0.2	<5.4 (1.8 ± 0.6)
350	1,001	0.4 ± 0.1	<0.6	<0.4	<8.9 (1.1 ± 0.8)
351	798	0.8 ± 0.3	0.8 ± 0.3	0.4 ± 0.3	< 16 (6.1 ± 1.3)
352	797	0.5 ± 0.1	1.0 ± 0.3	0.4 ± 0.3	11.6 ± 5.8
353	774	0.4 ± 0.1	2.3 ± 0.4	4.4 ± 0.6	113 ± 15
354	716	0.8 ± 0.2	<0.6	1.9 ± 0.5	56 ± 12
526 Subfloor	*[d]	<480	119,000 ± 11,000	<1300	<18,000
527 Subfloor	*[d]	<350	14,200 ± 1600	<900	15,000
553	927	8.4 ± 0.7	1.9 ± 0.3	0.9 ± 0.3	13.4 ± 4.1
Building 3					
355	1,179	0.2 ± 0.1	<.3	0.2 ± 0.2	3.5 ± 3.0
356	775	<0.2	<0.2	<0.2	<5.9 (1.7 ± 0.8)
357	905	0.7± 0.1	1.1 ± 0.2	0.6 ± 0.3	17.6 ± 4.8
358	1,035	<0.3	1.3 ± 0.3	4.0± 0.7	98 ± 17
359	776	0.5 ± 0.1	0.6 ± 0.2	0.5 ± 0.2	<11 (5.2 ± 1.3)
360	957	<0.2	<0.5	14.1 ± 1.4	374 ± 30
361	902	<0.2	<0.3	0.8 ± 0.3	22.9 ± 5.8
362	879	1.1 ± 0.2	0.8 ± 0.4	0.5±0.3	16.4 ± 8.4
363	930	<0.2	1.0 ± 0.3	1.4 ± 0.5	43.6 ± 9.3
364	957	<0.2	1.0 ± 0.3	1.3 ± 0.5	33.6 ± 9.2
365	821	0.9 ± 0.2	1.0 ± 0.2	2.7 ± 0.4	58.1 ± 9.4

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 27 through 32.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the

[d] Semi-quantitative data, results are total activity. Sample collected was piece of a slag-like material.

TABLE 12 (Continued)

RADIONUCLIDE CONCENTRATIONS IN SOIL
INTERIOR LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
		Ra-226	Th-232	U-235	U-238
Building 3 (Continued)					
366	715	0.7± 0.2	2.3 ± 0.5	2.1 ± 0.5	63 ± 14
367	724	0.7 ± 0.2	0.8 ± 0.2	0.2 ± 0.2	<9.3 (3.4 ± 1.4)
368	883	0.4 ± 0.1	<0.4	<0.2	<6.0 (<1.0)
369	1,019	0.3 ± 0.1	0.6 ± 0.1	0.4 ± 0.2	14.7 ± 3.7
370	879	<0.4	<0.4	10.3 ± 1.2	264 ± 27
371	1,014	<0.3	<0.5	33.6 ± 2.7	850 ± 53
372	1,083	<0.2	<0.3	12.3 ± 1.1	338 ± 24
373	985	<0.2	<0.3	2.6 ± 0.5	64 ± 12
374	695	<0.3	<0.4	18.7 ± 1.9	444 ± 39
375	818	<0.8	<1.1	60.4 ± 5.1	6,020 ± 290
376	938	<3.0	<3.4	796 ± 53	41,600 ± 1900
550	1,184	<0.3	<0.3	64.6 ± 4.3	1595 ± 76
551	1,002	0.7 ± 0.1	0.6 ± 0.1	0.2 ± 0.1	5.4 ± 2.1
552 Subfloor (0 to 4 cm)	999	<0.3	78.5 ± 7.3	1.9 ± 0.6	90 ± 11
549 Subfloor (4 to 25 cm)	775	0.7 ± 0.1	27.0 ± 2.5	<0.4	<6.6 (3.7 ± 1.3)
Building 4					
528 (Residue)	505	0.3 ± 0.1	0.4 ± 0.2	4.4 ± 0.5	274 ± 19
529 Subfloor Soil	707	0.6 ± 0.1	0.6 ± 0.1	<0.1	<3.0 (1.8 ± 0.4)
530 (Residue)	490	0.6 ± 0.1	0.4 ± 0.2	6.8 ± 0.7	140.2 ± 13.4)
531 Subfloor Soil	883	0.4 ± 0.1	0.4 ± 0.1	<0.1	<4.1 (1.9 ± 0.6)
Building 6					
1	768	<0.5	58.2 ± 5.7	<1.6	50 ± 30
5	705	<0.2	<0.4	0.8 ± 0.3	24.2 ± 7.8
475	806	0.5 ± 0.1	<0.4	<0.2	<9.1 (1.2 ± 0.9)

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 27 through 32.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the

[d] Semi-quantitative data, results are total activity. Sample collected was piece of a slag-like material.

TABLE 12 (Continued)

RADIONUCLIDE CONCENTRATIONS IN SOIL
INTERIOR LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
		Ra-226	Th-232	U-235	U-238
Building 6 (Continued)					
476	1,151	<0.5	68.7 ± 6.6	7.8 ± 1.6	297 ± 32
477	920	0.5 ± 0.1	<0.4	<0.3	<8.1 (1.7 ± 11)
478	724	<0.4	<0.6	<.04	< 12 (<2.1)
479	693	<0.2	0.4 ± 0.2	<0.3	<9.5 (3.9 ± 1.4)
480	687	0.5 ± 0.1	0.7 ± 0.2	<0.3	<8.1 (4.8 ± 1.4)
481	664	<0.3	1.1 ± 0.3	1.8 ± 0.6	39 ± 10
482	613	0.7 ± 0.2	1.4 ± 0.4	0.7 ± 0.4	17 ± 11
483	896	0.2 ± 0.1	0.6 ± 0.2	0.2 ± 0.1	6.6 ± 3.9
484	737	<0.3	8.7 ± 1.1	10.9 ± 1.3	272 ± 29
486	804	0.4 ± 0.2	0.7 ± 0.3	<0.4	<11 (1.5 ± 1.5)
487	735	0.6 ± 0.1	<0.4	<0.3	<10 (1.1 ± 0.8)
488	488	0.6 ± 0.2	0.9 ± 0.4	<0.4	<12 (1.6 ± 1.4)
489	788	<0.2	2.1 ± 0.4	0.8 ± 0.3	26.5 ± 7.8
490	771	<0.3	0.6 ± 0.3	<0.4	<12.7 (<1.7)
491	1,030	<0.2	0.6 ± 0.2	0.7 ± 0.3	13.4 ± 6.1
493	742	0.6 ± 0.2	0.5 ± 0.2	<0.3	<8.5 (1.4 ± 1.0)
494	637	0.5 ± 0.1	1.7 ± 0.4	2.2 ± 0.5	61 ± 12
495	674	<0.4	36.7 ± 3.6	1.2 ± 0.9	54 ± 14
Building 8					
2	829	<2.2	<2.8	213 ± 15	25,200 ± 1200
3	1,120	<0.7	213 ± 20	84.4 ± 6.1	2,520 ± 130
4	633	<2.1	<2.3	238 ± 17	9,300 ± 460
435	1,135	<0.1	<0.1	0.6 ± 0.2	17.7 ± 4.8
436	808	0.5 ± 0.1	0.6 ± 0.2	<0.2	<5.6 (0.8 ± 0.8)
437	1,215	<0.2	2.0 ± 0.4	5.1 ± 0.8	151 ± 17
438	846	<0.2	1.0 ± 0.3	4.5 ± 0.7	132 ± 11
439	939	<0.2	<0.4	1.7 ± 0.4	41.1 ± 8.6

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 27 through 32.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the

[d] Semi-quantitative data, results are total activity. Sample collected was piece of a slag-like material.

TABLE 12 (Continued)

RADIONUCLIDE CONCENTRATIONS IN SOIL
INTERIOR LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
		Ra-226	Th-232	U-235	U-238
Building 8 (Continued)					
440	924	<.02	<0.3	9.2 ± 0.9	251 ± 21
441	841	0.5 ± 0.2	<0.6	0.5 ± 0.3	13.0 ± 7.1
442	953	<0.2	0.4 ± 0.2	1.3 ± 0.4	35.0 ± 7.7
443	735	<0.2	0.8 ± 0.2	0.5 ± 0.2	12.8 ± 4.9
444	1,018	<0.5	2.5 ± 0.6	142.6 ± 9.5	4,200 ± 200
445	1,141	<0.7	5.4 ± 0.9	78.5 ± 5.5	2,470 ± 130
446	1,139	<1.1	<1.7	275±18	10,250 ± 480
447 (0 to 15 cm)	1,100	<1.2	<1.4	187± 13	9,720 ± 450
539 (15 to 30 cm)	1,130	<0.1	0.7 ± 0.1	25.2 ± 1.7	660 ± 31
448 (0 to 15 cm)	652	0.7 ± 0.3	2.8 ± 0.6	26.2 ± 2.1	722 ± 47
538 (15 to 20 cm)	692	1.0 ± 0.3	1.1± 0.2	18.0 ± 1.4	430 ± 26
450	725	<0.3	<0.5	17.6 ± 1.7	471 ± 38
451 (0 to 15 cm)	1,105	<1.4	9.2 ± 1.8	348 ± 23	14,680 ± 680
536 (15 to 30 cm)	367	1.3 ± 0.2	1.3 ± 0.3	10.4 ± 0.9	238 ± 19
537 (30 to 45 cm)	404	1.6 ± 0.2	1.7 ± 0.3	1.8 ± 0.3	36.9 ± 7.4
452	1,136	<0.6	30.3 ± 3.0	128.5 ± 8.6	4,970 ± 230
453	1,025	<0.8	3.5 ± 0.8	103.7 ± 7.2	3,270 ± 170
454	1,087	<0.1	<0.1	0.6 ± 0.2	29.6 ± 6.6
455	865	<0.2	<0.3	2.1 ± 0.5	57 ± 12
456	1,049	<0.2	1.4 ± 0.3	36.5 ± 2.7	1,028 ± 56
457	1,142	<0.7	<1.0	0.9 ± 0.3	26.5 ± 7.1
458 (0 to 15 cm)	1,196	-3.00000	-1.00000	164± 11	5,400 ± 260

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 27 through 32.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the

[d] Semi-quantitative data, results are total activity. Sample collected was piece of a slag-like material.

TABLE 12 (Continued)

RADIONUCLIDE CONCENTRATIONS IN SOIL
INTERIOR LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
		Ra-226	Th-232	U-235	U-238
Building 8 (Continued)					
532 (15 to 30 cm)	522	1.3 ± 0.2	1.5 ± 0.2	4.3 ± 0.4	84.8 ± 7.8
533 (30 to 45 cm)	597	0.8 ± 0.1	1.0 ± 0.2	1.6 ± 0.3	37.2 ± 6.1
459	582	<0.3	1.2 ± 0.4	7.4 ± 1.0	194 ± 24
460	1,137	<0.7	<0.9	280 ± 18	9,350 ± 430
461	1,232	<0.5	<0.7	39.4 ± 3.1	1,144 ± 67
462	1,107	<0.3	1.3 ± 0.5	26.6 ± 2.2	692 ± 45
463	726	<0.6	<0.8	158 ± 11	3,980 ± 200
464	884	<0.7	<0.8	156 ± 10	5,990 ± 280
465	992	<0.2	0.8 ± 0.2	0.6 ± 0.4	21.3 ± 7.8
466	995	<0.3	10.3 ± 1.2	2.6 ± 0.7	49 ± 16
467	676	<0.4	12.0 ± 1.5	38.8 ± 3.2	1,133 ± 71
468	872	0.8 ± 0.2	4.4 ± 0.6	4.2 ± 0.6	116 ± 15
469	826	<0.6	7.4 ± 1.0	14.9 ± 1.7	736 ± 53
470	1,154	<0.3	20.7 ± 2.1	10.5 ± 1.4	332 ± 31
471	830	<0.3	5.2 ± 0.8	15.2 ± 1.4	486 ± 37
472	1,016	<2.0	442 ± 41	7.2 ± 3.0	158 ± 53
473	758	0.4 ± 0.1	0.5 ± 0.2	0.2 ± 0.2	<5.9 (2.0 ± 0.9)
474	802	<0.3	0.9 ± 0.3	<0.5	<15 (4.4 ± 1.6)
485	751	0.5 ± 0.1	<0.4	0.5 ± 0.3	12.5 ± 5.6
492	616	<0.6	15.1 ± 1.9	25.6 ± 2.5	730 ± 58
497	1,034	<0.5	7.6 ± 1.1	27.5 ± 2.4	763 ± 53
498	827	0.2 ± 0.1	<0.4	1.2 ± 0.3	32.1 ± 6.2
534 (0 to 15 cm)	886	<0.2	1.3 ± 0.4	128.8 ± 8.4	3260 ± 150
535 (15 to 30 cm)	469	1.0 ± 0.3	<0.5	13.8 ± 1.2	313 ± 22

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 27 through 32.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the

[d] Semi-quantitative data, results are total activity. Sample collected was piece of a slag-like material.

TABLE 12 (Continued)

RADIONUCLIDE CONCENTRATIONS IN SOIL
INTERIOR LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Location	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
		Ra-226	Th-232	U-235	U-238
Building 8 (Continued)					
540 (0 to 15 cm)	855	0.7 ± 0.4	1.9 ± 0.6	221 ± 15	5610 ± 260
541 (15 to 30cm)	526	1.5 ± 0.4	1.4 ± 0.3	1.8 ± 0.3	38.2 ± 7.4
542 (30 to 45 cm)	603	1.0 ± 0.1	1.2 ± 0.2	1.2 ± 0.3	23.5 ± 5.7
Building 24					
543 (25 to 30 cm)	676	0.7 ± 0.1	0.9 ± 0.2	1.5 ± 0.2	37.4 ± 4.9
544 (30 to 45 cm)	546	1.2 ± 0.3	1.2 ± 0.3	0.5 ± 0.2	14.9 ± 6.6
545 (15 to 30cm)	567	1.1 ± 0.1	1.2 ± 0.2	0.2 ± 0.2	8.4 ± 3.6
546 (10 to 15 cm)	418	1.7 ± 0.2	1.7 ± 0.3	1.2 ± 0.3	24.9 ± 4.8
547 (15 to 30cm)	436	1.4 ± 0.3	1.3 ± 0.3	<0.4	<7.3 (3.4 ± 0.9)
548 (30 to 45 cm)	537	1.0 ± 0.1	1.2 ± 0.2	0.3 ± 0.2	<6.2 (4.8 ± 1.0)

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 27 through 32.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the Th-234 (63 keV) result was included in parenthesis.

[d] Semi-quantitative data, results are total activity. Sample collected was piece of a slag-like material.

TABLE 13

RADIONUCLIDE CONCENTRATIONS IN SURFACE SOIL
EXTERIOR SYSTEMATIC LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Grid Coordinates[a]	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
		Ra-226	Th-232	U-235	U-238
0N, 0E	987	<0.2	0.5 ± 0.2[b]	<0.3	<8.3 (4.3 + 1.1)[c]
5N, 125E	921	0.2 ± 0.1	<0.5	<0.3	<7.1(1.6 ± 0.9)
5N, 145E	900	0.2 ± 0.1	<0.2	<0.2	<4.8 (0.4 ± 0.6)
15N, 155E	907	<0.3	<0.4	<0.4	<8.0 (1.6 ± 1.0)
15N, 165E	825	0.8 ± 0.2	1.0± 0.3	<0.4	<6.0 (2.1 ± 1.3)
20N, 122E	728	<0.1	<0.3	<0.2	<4.6 (0.5 ± 0.7)
25N, 175E	759	0.8 ± 0.2	0.7 ± 0.3	<0.3	<7.7 (1.4 ± 1.2)
35N, 155E	850	0.3 ± 0.1	0.3 ± 0.1	<0.2	<6.0 (2.8 ± 0.8)
35N, 175E	1164	0.1±0.1	<0.2	<0.1	<2.4 (<0.5)
35N, 185E	867	<0.2	<0.3	<0.2	<6.2 (0.6 ± 0.7)
40N, 0E	939	<0.1	<0.1	<0.1	<2.4 (<0.5)
40N, 122E	1141	<0.1	<0.3	0.2 ± 0.2	<5.5 (1.3 ± 0.5)
45N, 185E	775	0.6± 0.1	<0.4	<0.2	<8.6 (3.1 ± 1.1)
45N. 195E	939	0.4±0.1	<0.4	<0.3	<7.8 (1.3 ± 1.0)
55N, 155E	790	0.6 ± 0.1	1.2 ± 0.3	0.6 ± 0.3	<9.2 (6.4 ± 1.6)
55N, 175E	880	0.5 ± 0.1	<0.3	0.2 ± 0.2	<5.0 (2.2 ± 0.8)
55N, 185E	936	0.6 ± 0.1	0.6± 0.2	<0.2	<4.4 (2.0 ± 0.7)
55N, 195E	792	0.7 ± 0.1	0.9 ± 0.2	<0.2	<5.9 (1.8 ± 1.0)
60N, 124E	877	0.4± 0.1	<0.4	0.5±0.4	6.5 ±4.0
65N, 5E	1214	<0.1	0.2 ± 0.1	<0.2	<5.8 (1.2 ± 0.7)
65N, 25E	856	0.2 ± 0.1	0.4 ± 0.1	0.2 ± 0.2	6.4 ± 2.6
65N, 185E	796	0.7 ± 0.2	0.8 ± 0.2	<0.3	<9.3 (3.4 ± 1.2)
65N, 195E	1077	0.4 ± 0.1	0.5 ± 0.2	<0.2	4.3 ± 3.1
70N, 45E	789	0.5 ± 0.2	1.3 ± 0.3	1.1 ± 0.4	24.8 ± 9.6
75N. 15E	1230	0.2± 0.1	0.4± 0.1	0.4±0.2	9.2± 3.8
75N, 155E	831	<0.3	1.0 ± 0.3	0.7 ± 0.4	9.2 ± 6.9
75N, 175E	1086	0.6 ± 0.1	<0.3	<0.2	<4.5 (1.8 ± 0.5)

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 33 through 34.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the Th-234 (63 keV) result was included in parenthesis.

TABLE 13 (Continued)

RADIONUCLIDE CONCENTRATIONS IN SURFACE SOIL
EXTERIOR SYSTEMATIC LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Grid Coordinates[a]	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
		Ra-226	Th-232	U-235	U-238
75N, 185E	843	1.3 ± 0.3	1.4 ± 0.3	<0.6	<13.0 (2.5 ± 1.0)
75N, 195E	850	0.9 ± 0.2	0.9 ± 0.2	<0.3	<6.5 (2.8 ± 1.0)
75N, 205E	667	0.8 ± 0.2	1.2 ± 0.3	<0.4	17.4 ± 9.4
80N, 0E	736	0.6 ± 0.2	0.8 ± 0.3	<0.5	<15 (2.0 ± 0.8)
85N, 5E	1253	0.3 ± 0.1	0.5 ± 0.1	<0.2	<4.8 (1.7 ± 0.6)
85N, 185E	737	0.5 ± 0.1	0.9 ± 0.2	<0.2	6.4 ± 3.4
85N, 195E	1147	0.5 ± 0.1	0.6 ± 0.2	<0.3	<7.9 (1.6 ± 0.9)
85N, 205E	684	0.5 ± 0.2	0.5 ± 0.2	<0.4	<9.6 (1.9 ± 0.9)
95N, 15E	1552	<0.1	<0.1	0.2 ± 0.1	10.2 ± 3.0
95N, 155E	744	0.5 ± 0.2	0.9 ± 0.3	<0.5	<15 (2.6 ± 1.1)
95N, 175E	544	1.0 ± 0.2	<0.6	<0.3	5.2 ± 5.1
95N, 185F	679	1.1 ± 0.2	1.4 ± 0.3	0.3 ± 0.3	12.0 ± 6.1
95N, 195F	901	0.2 ± 0.1	<0.3	<0.2	<4.2 (0.5 ± 0.8)
95N, 205E	967	0.6 ± 0.1	0.9 ± 0.2	0.4 ± 0.2	6.7 ± 4.2
105N, 165F	544	0.9 ± 0.2	<0.7	<0.5	<11 (7.2 ± 1.8)
105N, 195E	835	<0.1	<0.2	<0.1	<2.9 (<0.7)
105N, 205E	958	0.5 ± 0.1	0.7 ± 0.2	<0.3	<7.4 (2.0 ± 0.8)
115N, 15E	936	<0.2	<0.4	<0.3	<9.9 (<1.5)
115N, 155E	878	0.5 ± 0.1	0.4 ± 0.2	<0.4	<12 (<1.5)
115N, 175E	1162	0.4 ± 0.1	0.4 ± 0.1	0.2 ± 0.1	2.8 ± 2.3
115N, 185E	946	0.4 ± 0.1	0.6 ± 0.2	0.5 ± 0.2	14.0 ± 4.7
115N, 195E	702	1.0 ± 0.2	0.6 ± 0.3	0.9 ± 0.3	19.8±7.0
115N, 205E	873	<0.2	0.5 ± 0.2	<0.3	<8.6 (1.6 ± 1.0)
120N, 0E	580	<0.1	0.2 ± 0.1	<0.2	<4.8 (0.9 ± 0.7)
125N, 25E	259	<0.3	<0.6	0.9 ± 0.6	28 ± 13
125N, 165E	866	0.5 ± 0.2	<0.7	<0.5	<11 (1.8 ± 1.1)
125N. 185E	548	0.9 ± 0.2	0.7 ± 0.3	<0.4	<9.9 (2.4 ± 1.4)

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 33 through 34.
[b] Uncertainties are total propagated uncertainties at the 95% confidence level.
[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the Th-234 (63 keV) result was included in parenthesis.

TABLE 13 (Continued)

RADIONUCLIDE CONCENTRATIONS IN SURFACE SOIL
EXTERIOR SYSTEMATIC LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Grid Coordinates[a]	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
		Ra-226	Th-232	U-235	U-238
125N, 195E	611	3.0 ± 0.7	1.2 ± 0.4	0.6 ± 0.5	<18 (7.2 ± 1.9)
125N, 205E	893	0.4 ± 0.1	0.5 ± 0.2	<0.4	<7.6 (1.9 ± 0.9)
128N, 115E	837	0.4± 0.1	0.6 ± 0.2	0.2 ± 0.2	8.0 ± 4.7
135N, 155E	730	1.1 ± 0.2	1.2 ± 0.3	<0.3	<11 (1.9 ± 1.2)
135N, 175E	1153	0.3 ± 0.1	<0.5	0.9 ± 0.3	21.1 ± 6.3
135N, 185E	524	<0.3	<0.4	<0.3	<8.7 (0.4 ± 1.0)
135N, 195E	643	<0.3	0.8 ± 0.3	<0.3	<7.0 (1.5 ± 1.2)
135N, 205E	919	0.6 ± 0.1	<0.3	0.3 ± 0.2	4.4 ± 2.6
140N, 20E	568	<0.1	<0.2	<0.1	<3.0 (0.6 ± 0.5)
145N, 165E	596	0.7 ± 0.1	1.1 ± 0.3	0.7 ± 0.3	<9.7 (7.1 ± 1.4)
145N, 185E	639	1.0 ± 0.2	0.9 ± 0.3	<0.3	<6.9 (<1.2)
145N, 195E	712	0.6 ± 0.1	<0.3	<0.3	<6.8 (1.4 ± 1.0)
145N, 205E	522	2.1 ± 0.3	1.5 ± 0.4	<0.5	<11 (3.7 ± 1.7)
150N, 112E	891	<0.2	0.4 ± 0.2	1.2 ± 0.4	34.6 ± 7.7
155N, 155E	808	0.4 ± 0.1	0.5 ± 0.2	<0.2	<5.4 (1.7 ± 0.6)
155N, 175E	1164	0.2 ± 0.1	<0.4	<0.3	5.5 ± 3.9
155N, 185E	985	<0.1	<0.2	<0.2	<4.6 (0.1 ± 0.4)
155N, 195E	659	<0.2	0.9 ± 0.2	<0.3	<7.9 (2.3 ± 1.0)
155N, 205E	638	1.1 ± 0.2	1.0 ± 0.3	<0.3	<8.8 (1.8 ± 1.3)
160N, 0E	508	0.3 ± 0.1	0.6 ± 0.2	<0.2	<4.6 (1.4 ± 0.8)
160N, 82E	814	0.5 ± 0.1	1.3 ± 0.3	0.8 ± 0.3	14.6 ± 6.3
165N, 165E	521	0.5 ± 0.2	<0.5	0.8 ± 0.4	20.7 ± 9.1
165N, 185E	851	0.2 ± 0.1	<0.3	<0.2	<4.0 (1.2 ± 0.8)
165N, 195E	697	0.7 ± 0.2	<0.7	0.3 ± 0.4	<15 (8.7 ± 1.8)
165N, 205E	857	0.7 ± 0.2	1.1 ± 0.3	<0.3	<8.4 (2.5 ± 1.3)
170N, 118E	1059	0.2 ± 0.1	0.5 ± 0.1	<0.2	<5.4(2.8 ± 0.7)
175N, 175E	1535	<0.1	<0.2	<0.2	<4.4 (0.4 ± 0.3)

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 33 through 34.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the Th-234 (63 keV) result was included in parenthesis.

TABLE 13 (Continued)

RADIONUCLIDE CONCENTRATIONS IN SURFACE SOIL
EXTERIOR SYSTEMATIC LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Grid Coordinates[a]	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
		Ra-226	Th-232	U-235	U-238
175N, 185e	697	0.3 ± 0.2	0.7 ± 0.2	<0.4	<9.8 (1.0 ± 0.9)
175N. 195E	907	0.6 ± 0.2	0.8 ± 0.2	0.7 ± 0.5	18.5 ± 7.8
175N, 205E	1051	0.6 ± 0.1	0.6 ±0.2	0.2 ± 0.2	<6.9 (1.2 ± 0.9)
178N, 95E	959	0.4 ± 0.1	0.5 ± 0.2	<0.2	0.7 ± 0.6
180N, 20E	1071	0.2 ± 0.1	<0.3	<0.2	<6.1 (0.8 ± 0.7)
180N, 80E	754	0.5 ± 0.2	<0.7	0.5 ± 0.3	3.6 ± 1.1
185N, 165E	501	<0.3	0.8 ± 0.3	0.7 ± 0.4	13 ± 11
185N, 185E	1204	0.3 ± 0.1	0.5 ± 0.1	<0.2	3.6 ± 2.6
185N, 195E	891	0.6 ± 0.1	<0.7	<0.4	<12 (2.3 ± 1.4)
185N, 205E	702	1.0 ± 0.3	1.2 ± 0.3	<0.5	<15 (2.8±1.9)
190N, 122E	819	0.4±0.1	0.8 ± 0.2	0.4 ± 0.3	15.3 ± 7.5
195N, 75E	663	0.3 ± 0.1	0.5 ± 0.2	<0.2	2.4 ± 1.0
195N, 95E	1023	0.4± 0.1	0.6 ± 0.2	<0.2	3.1 ± 1.0
195N, 175E	1356	0.2 ± 0.1	0.4 ± 0.1	<0.2	<5.5 (1.3 ± 0.5)
195N, 185E	1349	0.2 ± 0.1	<0.3	<0.2	<5.1 (0.9 ± 0.5)
195N, 195E	926	0.4 ± 0.1	<0.2	<0.2	<4.1 (0.7 ± 0.6)
195N, 205E	1164	0.3 ± 0.1	0.4 ± 0.1	<0.2	<3.9 (0.9 ± 0.5)
200N, 0E	816	0.6 ± 0.1	0.8 ± 0.3	<0.3	<9.3 (2.8 ± 1.2)
205N, 165E	558	0.5 ± 0.2	0.7 ± 0.3	<0.5	< 13 (2.0 ± 0.9)
205N, 185E	1435	0.2 ± 0.1	<0.2	<0.1	<2.9 (<0.4)
205N. 195E	710	0.4 ± 0.1	0.5 ± 0.2	<0.3	<8.5 (2.1 ± 1.3)
205N,205E	1497	<0.1	0.2 ± 0.1	<0.1	<4.2 (0.4 ± 0.4)
210N, 118E	929	<0.2	0.4 ± 0.2	<0.3	1.3 ± 0.6
215N, 75E	702	0.5 ± 0.1	0.7 ± 0.2	<0.3	1.4 ± 0.9
215N, 95E	730	<0.2	0.4 ± 0.2	<0.2	1.2 ± 0.9
215N, 135E	897	0.2 ± 0.1	0.4± 0.2	<0.2	1.5 ± 0.8
215N, 155E	787	0.6 ± 0.1	0.8 ± 0.2	<0.2	<6.2 (1.2 ± 0.7)

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 33 through 34.
[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the Th-234 (63 keV) result was included in parenthesis.

TABLE 13 (Continued)

RADIONUCLIDE CONCENTRATIONS IN SURFACE SOIL
EXTERIOR SYSTEMATIC LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Grid Coordinates[a]	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
		Ra-226	Th-232	U-235	U-238
215N, 175E	1414	0.2± 0.1	0.4 ± 0.1	<0.1	<3.5 (0.6 ± 0.3)
215N, 185E	1509	<0.1	0.2 ± 0.1	<0.1	<2.8 (0.4 ± 0.3)
215N, 195E	1035	<0.1	<0.2	<0.2	<5.7 (0.8 ± 0.6)
215N,205E	401	0.7 ± 0.2	<0.7	<0.5	<11 (2.7±1.2)
220N, 20E	770	0.7 ± 0.2	0.8 ± 0.3	<0.5	<9.9 (1.4 ± 1.2)
240N, 80E	750	0.6 ± 0.2	0.7 ± 0.2	<0.4	<12 (<1.9)
240N, 160E	627	<0.2	<0.4	<0.2	<6.2 (<1.0)
240N, 200E	832	0.7 ± 0.2	0.7 ± 0.2	<0.3	<7.1 (1.2 ± 0.9)
241N, 0E	954	0.4 ± 0.1	0.4 ± 0.1	<0.2	<6.3 (<0.9)
260N, 20E	681	0.6 ± 0.2	0.9 ± 0.2	<0.3	<5.8 (0.7 ± 0.9)
260N, 140E	1222	0.4 ± 0.1	1.0 ± 0.2	0.4 ± 0.2	5.4 ± 3.0
260N, 180E	940	0.4 ± 0.1	0.5 ± 0.2	<0.4	<7.8 (2.2 ± 0.8)
280N, 80E	1187	0.5 ± 0.1	0.5 ± 0.2	0.2 ± 0.2	<7.0 (2.0 ± 0.7)
280N, 120E	1090	0.6 ± 0.1	0.6 ± 0.2	0.2 ± 0.2	<6.9 (2.4 ± 0.8)
280N, 160E	1115	0.2± 0.1	<0.2	<0.2	<5.6 (0.8±0.7)
280N, 200E	785	0.6 ± 0.1	<0.4	<0.2	<5.4 (<0.9)
300N, 20E	778	<0.2	0.7 ± 0.2	<0.3	<7.4 (1.9 ± 1.1)
300N, 60E	964	0.4 ± 0.1	<0.5	<0.4	<5.3 (1.5 ± 0.8)
300N, 100E	834	0.7 ± 0.1	1.1 ± 0.3	2.6 ± 0.5	51 ± 11
300N, 140E	1108	0.3 ± 0.1	0.8 ± 0.2	0.5 ± 0.3	13.2 ± 4.6
300N, 180E	610	0.8 ± 0.2	1.0 ± 0.4	<0.4	<7.6 (2.4 ± 1.6)
320N, 40E	732	0.6 ± 0.1	0.6 ± 0.2	0.3 ± 0.2	11.5 ± 4.2
320N, 80E	1174	0.5 ± 0.1	0.6 ± 0.2	0.3 ± 0.2	4.6 ± 3.9
320N, 120E	1003	<0.2	0.4 ± 0.1	0.2 ± 0.2	7.8 ± 4.6
320N, 160E	792	0.7 ± 0.1	<0.4	<0.3	<6.4 (2.4 ± 1.1)
320N, 200E	732	0.6 ± 0.2	<0.7	<0.5	< 11 (2.2 ± 1.3)
340N, 20E	517	<0.3	1.0 ± 0.3	<0.4	<12 (5.1 ± 1.7)

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 33 through 34.
[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the Th-234 (63 keV) result was included in parenthesis.

TABLE 13 (Continued)

RADIONUCLIDE CONCENTRATIONS IN SURFACE SOIL
EXTERIOR SYSTEMATIC LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Grid Coordinates[a]	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
		Ra-226	Th-232	U-235	U-238
340N, 60E	988	<0.2	0.5 ± 0.2	<0.3	<7.8 (1.4 ± 0.7)
340N, 100E	686	0.5 ± 0.2	<0.8	1.4 ± 0.5	36.2 ± 9.6
340N, 140E	766	0.5 ± 0.1	0.9 ± 0.2	0.3 ± 0.2	<7.7 (3.4 ± 1.1)
340N, 180E	821	<0.2	<0.3	<0.2	<4.2 (0.9 ± 0.7)
359N, 0E	686	0.5 ± 0.1	0.8 ± 0.3	<0.3	<9.6 (0.8 ± 1.0)
359N, 40E	852	<0.3	<0.5	<0.3	<12 (1.8 ± 0.8)
359N, 80E	755	0.4 ± 0.1	0.7 ± 0.2	<0.3	<8.0 (1.2 ± 0.9)
359N, 120E	728	0.6 ± 0.1	0.9 ± 0.2	<0.3	<6.6 (1.8 ± 0.9)
359N, 160E	785	1.4 ± 0.4	1.4 ± 0.4	<0.6	<14 (2.1 ± 1.3)
359N, 200E	839	0.6 ± 0.1	0.9 ± 0.2	<0.3	<8.2 (2.0 ± 1.3)
240N, 280W	649	0.5 ± 0.1	0.5 ± 0.1	0.1 ± 0.1	5.2 ± 1.8
260N, 20W	1040	0.4 ± 0.1	0.7 ± 0.2	<0.2	<4.4 (1.2 ± 0.6)
260N, 100W	775	0.5 ± 0.2	0.7 ± 0.2	<0.3	<10 (1.1 ± 1.2)
260N, 140W	911	0.5±0.1	<0.4	<0.3	<11 (0.8 ± 0.8)
260N, 180W	1027	<0.1	0.2 ± 0.1	<0.2	<3.9 (1.6 ± 0.7)
260N, 260W	750	0.6 ± 0.1	0.5 ± 0.1	0.9 ± 0.2	18.2 ± 2.9
260N, 300W	658	0.8 ± 0.2	0.5 ± 0.1	0.2 ± 0.2	<4.9
262N, 60W	925	0.4 ± 0.1	0.6 ± 0.2	<0.2	<6.6 (<1.1)
280N, 0W	939	0.6 ± 0.2	0.9 ± 0.3	0.3 ± 0.3	<13 (3.3 ± 1.2)
280N, 40W	742	0.5 ± 0.1	0.7 ± 0.3	<0.3	<9.3 (2.5 ± 1.2)
280N, 80W	795	0.9 ± 0.2	1.2 ± 0.3	0.5 ± 0.3	<9.0 (5.9 ± 1.5)
280N, 160W	776	<0.2	<0.5	<0.3	<7.3 (0.9 ± 1.0)
280N, 200W	800	<0.1	<0.3	<0.2	<5.8 (< 0.9)
280N, 240W	613	0.5 ± 0.1	0.8 ± 0.1	0.3 ± 0.1	5.0 ± 2.1
280N, 280W	723	0.4 ± 0.1	0.4 ± 0.1	0.2 ± 0.1	<4.9
280N, 338W	490	0.6 ± 0.1	0.7 ± 0.2	0.2 ± 0.2	5.1 ± 2.4
283N, 120W	992	0.2± 0.1	<0.2	<0.2	<4.9 (2.1 ± 0.7)

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 33 through 34.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the Th-234 (63 keV) result was included in parenthesis.

TABLE 13 (Continued)

RADIONUCLIDE CONCENTRATIONS IN SURFACE SOIL
EXTERIOR SYSTEMATIC LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Grid Coordinates[a]	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
		Ra-226	Th-232	U-235	U-238
300N,20W	738	0.7 ± 0.2	<0.8	<0.5	<13 (2.8 ± 1.2)
300N, 60W	648	0.4 ± 0.1	0.5 ± 0.2	<0.2	<5.6 (1.5 ± 0.8)
300N, 100W	891	0.4 ± 0.1	<0.4	0.5 ± 0.3	8.6 ± 3.8
300N, 140W	1058	0.6 ± 0.1	0.9 ± 0.3	1.3 ± 0.4	32.3 ± 7.6
300N, 180W	1003	<0.1	<0.2	<0.2	<5.8 (<0.7)
300N, 220W	877	0.3 ± 0.1	0.4 ± 0.1	0.2 ± 0.1	4.5 ± 2.4
300N, 260W	767	0.4 ± 0.1	0.5 ± 0.1	0.2 ± 0.1	4.9 ± 2.0
300N, 300W	618	0.3 ± 0.1	0.6 ± 0.1	0.1 ± 0.1	<5.1 (1.6 ± 0.5)
320N, 0W	796	0.4 ± 0.1	0.5 ± 0.2	<0.2	<6.0 (1.8 ± 1.1)
320N, 40W	633	0.5 ± 0.1	<0.4	<0.3	<7.7 (2.3 ± 0.9)
320N, 80W	814	0.6 ± 0.2	<0.7	<0.4	<10 (2.2 ± 1.0)
320N, 120W	815	0.3 ± 0.1	<0.2	0.3 ± 0.2	<4.0 (1.3 ± 0.7)
320N, 160W	999	0.5 ± 0.1	0.7 ± 0.2	0.3 ± 0.2	< 12 (3.3 ± 1.2)
320N, 200W	767	0.5 ± 0.1	0.6 ± 0.2	<0.3	<8.6 (2.6 ± 1.2)
320N, 240W	700	0.5 ± 0.1	0.5 ± 0.1	0.2 ± 0.2	6.9 ± 2.9
320N, 280W	723	0.6 ± 0.1	0.8 ± 0.1	0.3 ± 0.1	6.5 ± 2.3
320N, 320W	644	0.6 ± 0.1	0.5 ± 0.1	<0.2	2.0 ± 2.7
340N, 20W	758	0.5 ± 0.1	<0.5	<0.3	<11 (5.0 ± 1.4)
340N, 60W	697	0.6 ± 0.1	0.8 ± 0.2	<0.4	<11 (4.4 ± 1.3)
340N, 100W	929	0.4 ± 0.1	0.5 ± 0.3	0.3 ± 0.2	7.4 ± 4.5
340N. 140W	964	0.8 ± 0.2	<0.5	<0.4	<12 (<1.6)
340N, 180W	981	0.4 ± 0.1	0.3 ± 0.1	<0.2	<5.7 (2.6 ± 0.8)
340N, 220W	567	0.4 ± 0.1	0.6 ± 0.1	0.6 ± 0.2	13.5 ± 3.2
340N, 260W	742	0.5 ± 0.1	0.5 ± 0.1	0.4 ± 0.1	10.2 ± 2.8
340N. 300W	698	0.7 ± 0.2	0.8 ± 0.2	0.3 ± 0.2	5.2 ± 2.9
357N, 120W	781	1.5 ± 0.4	<0.7	<0.5	<11(1.9 ± 1.1)
359N, 40W	632	0.7 ± 0.2	0.8 ± 0.3	0.3 ± 0.2	<9.7 (4.8 ± 1.5)

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 33 through 34.
[b] Uncertainties are total propagated uncertainties at the 95% confidence level.
[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the

TABLE 13 (Continued)

RADIONUCLIDE CONCENTRATIONS IN SURFACE SOIL
EXTERIOR SYSTEMATIC LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Grid Coordinates[a]	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
		Ra-226	Th-232	U-235	U-238
359N, 80W	702	0.6 ± 0.1	0.8 ± 0.2	<0.3	<6.3 (2.5 ± 1.1)
359N, 160W	750	0.8 ± 0.2	0.7 ± 0.3	<0.3	<8.3 (<1.5)
359N, 200W	737	0.7 ± 0.2	0.8 ± 0.2	<0.3	<8.5 (2.6 ± 1.3)
360N, 240W	967	0.6 ± 0.1	0.6 ± 0.2	0.8 ± 0.3	12.4±8.0
360N, 280W	827	0.6 ± 0.2	0.4 ± 0.3	<0.4	<11 (2.4 ± 1.0)
360N, 320W	736	0.6 ± 0.1	0.5 ± 0.1	0.2 ± 0.1	1.9 ± 1.4
380N, 140W	683	0.6 ± 0.2	0.8 ± 0.4	<0.3	<8.9 (1.0 ± 1.1)
380N, 180W	714	0.6 ± 0.1	0.9 ± 0.3	<0.3	<8.2 (1.8 ± 1.3)
380N, 220W	842	0.4 ± 0.1	0.7 ± 0.2	1.0 ± 0.3	22.6 ± 6.9
380N, 260W	784	0.6 ± 0.1	0.7 ± 0.2	<0.2	<6.0 (3.1 ± 0.9)
380N, 300W	800	0.5 ± 0.1	0.6 ± 0.1	0.2 ± 0.1	3.6 ± 1.9
400N, 120W	579	0.7 ± 0.1	0.8 ± 0.3	<0.3	<8.3 (1.0 ± 0.9)
400N, 160W	755	<0.3	0.7 ± 0.2	<0.3	<8.2 (1.0 ± 0.9)
400N, 200W	1014	0.4 ± 0.1	<0.4	0.3 ± 0.2	7.3 ± 3.3
400N, 240W	861	0.7 ± 0.1	<0.6	0.3 ± 0.3	<9.9 (3.2 ± 1.2)
400N, 280W	775	0.5 ± 0.2	<0.5	<0.4	<10 (2.3 ± 1.3)
400N, 320W	723	0.5 ± 0.1	0.6 ± 0.1	<0.1	<3.9
420N. 140W	596	0.8 ± 0.3	0.9 ± 0.3	<0.5	<12 (<2.3)
420N, 180W	583	0.5 ± 0.2	<0.6	<0.4	<13 (2.8 ± 1.7)
420N, 220W	864	0.4 ± 0.1	0.5 ± 0.2	0.2 ± 0.2	9.1 ± 6.7
420N, 260W	879	0.5 ± 0.1	0.6 ± 0.2	0.4 ± 0.2	<15.5 ± 4.9
420N, 300W	707	0.6 ± 0.1	0.5 ± 0.1	0.1 ± 0.1	2.8 ± 2.4
420N, 340W	536	0.9 ± 0.2	0.6 ± 0.2	0.2 ± 0.2	<5.5 (1.1 ± 0.6)
440N, 320W	653	0.5 ± 0.1	0.5 ± 0.1	0.2 ± 0.1	<3.5

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 33 through 34.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the Th-234 (63 keV) result was included in parenthesis.

TABLE 14

RADIONUCLIDE CONCENTRATIONS IN SOIL
EXTERIOR LOCATIONS OF ELEVATED ACTIVITY
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Grid Coordinates[a]	Depth (cm)	Sample Quantity	Radionuclide Concentration (pCi/g)			
			Ra-226	Th-232	U-235	U-238
62N, 58E	0-15	688	<0.4	<0.9	5.9 ± 0.9[b]	108.5 ± 5.8
70N,124E	0-15	1040	<0.3	<0.4	33.3 ± 2.5	912 ± 51
70N, 124E	15-30	928	<0.9	<1.2	137.1 ± 9.4	3,640 ± 190
79N,26E	0-15	682	0.7±0.2	3.8 ± 0.7	2.0 ± 0.7	48 ± 19
82N, 26E	0-15	663	1.0± 0.3	39.5 ± 3.8	6.8 ± 1.3	238
83N, 26E	15-30	461	<2.8	307 ± 30	6.6 ± 6.1	320 ± 150
85N, 124E	0-15	1082	<0.5	95.1 ± 8.9	2.4 ± 1.2	185 ± 25
85N, 124E	15-30	924	<0.3	17.9 ± 1.8	3.3 ± 0.7	138 ± 18
89N, 10E	0-15	834	<0.2	7.8 ± 1.0	0.6 ± 0.4	23.4 ± 9.2
90N, 24E	0-15	843	<0.3	6.1 ± 0.8	3.5 ± 0.7	86 ± 15
90N, 24E	15-30	651	0.5 ± 0.2	1.3 ± 0.4	1.5 ± 0.6	45 ± 10
94N, 26E	0-15	795	<0.3	19.6 ± 2.1	3.0 ± 0.9	91 ± 17
94N, 26E	15-30	699	0.7 ± 0.1	<0.6	<0.3	<9.1(1.6 ± 1.5)[c]
101N, 188E	0-15	934	4.3 ± 0.6	2.3±0.7	<0.9	17±16
105N, 116E	0-15	911	<0.5	4.3 ± 0.8	35.3 ± 3.0	2,660 ± 140
105N, 116E	15-30	774	<0.5	1.4 ± 0.4	11.1 ± 1.4	736 ± 57
105N, 186E	0-15	941	1.3 ± 0.2	0.8 ± 0.3	<0.5	<10 (2.2 ± 1.2)
106N, 184E	0-15	875	0.3 ± 0.1	<0.3	0.8 ± 0.3	16.8 ± 6.2
106N, 184E	15-30	876	0.9 ± 0.3	39.1 ± 3.8	1.9 ± 0.8	59 ± 19
106N, 185E	0-15	412	<6.9	<8.7	341 ± 32	44,400 ± 2,200
111N,199E	0-15	608	<1.1	<1.5	433 ± 29	13,020 ± 600
116N,18E	0-15	1152	<0.2	1.7 ± 0.4	11.0 ± 13	266 ± 25
134N, 80E	0-15	846	<0.3	<0.6	13.2 ± 1.4	329 ± 30
135N, 75E	0-15	683	<1.7	<2.1	299 ± 20	8,770 ± 430
135N, 75E	15-30	563	<0.6	<0.9	109.5 ± 7.6	2,750 ± 140
168N, 26E	0-15	161	<5.3	<5.4	1,079 ± 76	54,800 ± 2,700
201N, 185E	0-15	1159	0.4±0.2	11.6 ± 1.2	10.9 ± 1.1	279 ± 21
272N, 108E	0-15	887	<3.7	<4.3	293 ± 23	23,500 ± 1,100

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 33.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the Th-234 (63 keV) result was included in parenthesis.

TABLE 14 (Continued)

RADIONUCLIDE CONCENTRATIONS IN SOIL
EXTERIOR LOCATIONS OF ELEVATED ACTIVITY
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Grid Coordinates[a]	Depth (cm)	Sample Quantity	Radionuclide Concentration (pCi/g)			
			Ra-226	Th-232	U-235	U-238
276N, 119E	0-15	809	<0.3	33.5 ± 3.3	11.4 ± 1.5	343 ± 29
276N, 119E	15-30	825	0.4 ± 0.2	83 ± 1.0	8.1 ± 0.9	218 ± 19
278N, 145W	0-15	737	0.7 ± 0.2	1.9 ± 0.3	3.1 ± 0.5	84 ± 11
285N, 115E	0-15	870	0.5 ± 0.1	1.2 ± 0.3	1.8 ± 0.4	35.3 ± 7.9
289N, 144W	15-30	720	<0.6	<0.9	118.0 ± 8.1	3,050 ± 160
289N, 144W	0-15	1032	<1.5	<2.0	246 ± 18	6,970 ± 370
296N, 88E	0-15	1006	<0.7	13.0 ± 2.2	48.1 ± 4.7	1,196 ± 98
296N, 88E	15-30	736	<0.4	8.6 ± 1.1	17.6 ± 1.8	397 ± 38
297N, 126W	0-15	1237	<0.1	0.4 ± 0.1	1.0 ± 0.3	23.1 ± 5.8
297N, 126W	15-30	1175	<0.7	<1.0	61.7 ± 5.4	1,860 ± 120
306N, 139W	0-15	936	<0.4	1.1 ± 0.5	16.9 ± 1.8	615 ± 43
306N, 139W	15-30	858	1.1 ± 0.2	1.1 ± 0.3	9.3 ± 1.0	241 ± 21
306N, 94E	0-15	654	0.6 ± 0.3	4.9 ± 0.9	15.5 ± 1.7	397 ± 38
306N, 94E	15-30	707	<0.4	5.4 ± 0.8	19.8 ± 1.8	465 ± 40
326N, 205W	0-15	614	0.4 ± 0.2	5.5 ± 0.9	0.9 ± 0.5	17.8 ± 9.5
345N, 208W	0-15	883	0.4 ± 0.1	<0.3	8.2 ± 0.7	182 ± 13
379N, 199W	0-15	779	1.1 ± 0.3	8.7 ± 0.9	0.5 ± 0.3	6.5 ± 4.9
379N, 199W	15-30	685	1.5 ± 0.2	21.8 ± 2.1	0.3 ± 0.4	12.8 ± 6.1
395N, 204W	0-15	781	1.4 ± 0.2	11.0 ± 1.1	0.7 ± 0.2	17.0 ± 4.0
405N, 215W	0-15	817	21.0 ± 1.8	1.2 ± 0.3	0.3 ± 0.3	<8.6 (5.2 ± 1.5)

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 33 through 34.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the Th-234 (63 keV) result was included in parenthesis.

TABLE 15

RADIONUCLIDE CONCENTRATIONS IN SOIL
EXTERIOR BOREHOLE LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Grid Coordinates[a]	Depth (cm)	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
			Ra-226	Th-232	U-235	U-238
107N, 184E	0-15	904	<0.2	<0.3	0.2 ± 0.2[b]	3.8 ± 4.7
107N, 184E	15-60	438	0.6 ± 0.1	1.0 ± 0.3	1.6 ± 0.4	35.9 ± 8.5
107N, 184E	60-120	309	1.2 ± 0.3	<0.9	<0.7	10.4 ± 8.4
168N, 24E	0-15	931	<0.1	<0.3	<0.2	<6.9 (0.9 ± 0.7)
168N, 24E	15-60	166	0.5 ± 0.1	<0.4	<0.3	<7.4 (1.5 ± 0.8)
168N, 24E	60-120	646	0.6 ± 0.2	0.8 ± 0.3	<0.4	<9.0 (3.2 ± 0.7)
200N, 184E	0-15	967	0.3 ± 0.2	11.5 ± 1.2	10.4 ± 1.1	225 ± 21
200N, 184E	15-60	681	0.9 ± 0.3	2.9 ± 0.6	2.4 ± 0.6	30 ± 12
200N, 184E	60-120	382	1.0 ± 0.2	1.2 ± 0.4	0.3 ± 0.3	<11 (5.7 ± 0.8)
224N, 160E	0-15	1076	1.0 ± 0.1	1.3 ± 0.2	<0.2	<5.8 (2.0 ± 0.5)
224N, 160E	15-60	193	2.1 ± 0.3	2.6 ± 0.4	<0.4	<9.2 (3.3 ± 0.5)
224N, 160E	60-120	817	1.2 ± 0.2	1.2 ± 0.3	<0.3	<9.4 (1.5 ± 0.7)
224N, 160E	120-180	169	1.0 ± 0.2	<0.6	<0.3	<9.5 (1.7 ± 0.6)
275N, 146E	0-15	816	0.8 ± 0.3	1.9 ± 0.4	1.4 ± 0.6	83 ± 15
275N, 146E	15-60	418	1.1 ± 0.2	1.4 ± 0.4	0.8 ± 0.3	33 ± 12
275N, 146E	60-120	148	0.6 ± 0.2	1.0 ± 0.3	0.3 ± 0.4	9.0 ± 8.7
277N, 84E	0-15	1328	<0.1	0.3 ± 0.1	0.2 ± 0.1	<5.1(0.7 ± 0.4)
277N, 84E	15-60	932	0.4 ± 0.1	0.5 ± 0.1	<0.2	<5.9 (1.5 ± 0.5)
277N, 84E	60-120	536	0.4 ± 0.1	0.5 ± 0.2	<0.2	<5.3 (2.1 ± 0.4)
289N, 87E	0-15	717	<0.7	23.0 ± 2.6	34.7 ± 3.1	828 ± 62
289N, 87E	15-60	440	<0.3	6.0 ± 0.8	10.3 ± 1.2	268 ± 26
290N, 76E	0-15	783	0.8 ± 0.1	0.8 ± 0.2	0.2 ± 0.3	8.5 ± 4.7
290N, 76E	15-60	403	0.7 ± 0.1	<0.4	<0.3	<8.1 (3.7 ± 0.6)
290N, 76E	60-120	194	0.2 ± 0.1	<0.3	<0.3	<7.4 (1.1 ± 0.5)
290N, 98E	0-15	924	0.5 ± 0.1	0.6 ± 0.3	1.1 ± 0.4	32 ± 11
290N,98E	15-60	419	<0.3	1.2 ± 0.3	1.7 ± 0.5	24 ±12
290N, 98E	60-120	142	0.7 ± 0.2	1.2 ± 0.3	1.1 ± 0.3	25 ± 12
291N, 120E	0-15	1039	<0.2	<0.4	<0.4	<11 (4.3 ± 0.7)
291N, 120E	15-60	160	0.5 ± 0.2	<0.6	0.6 ± 0.3	12 ± 10
291N, 120E	60-120	449	0.7 ± 0.2	<0.6	<0.4	< 11 (2.4 ± 0.6)
291N, 154E	0-15	490	0.4 ± 0.1	3.4 ± 0.5	0.3 ± 0.3	9.1 ± 6.3
291N, 154E	15-60	361	1.0 ± 0.2	7.2 ± 0.9	<0.5	<11 (8.7± 1.1)

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 33 and 34.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the Th-234 (63 keV) result was included in parenthesis.

TABLE 15 (Continued)

RADIONUCLIDE CONCENTRATIONS IN SOIL
EXTERIOR BOREHOLE LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Grid Coordinates[a]	Depth (cm)	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
			Ra-226	Th-232	U-235	U-238
291N, 154E	60-120	452	0.7 ± 0.1	1.2 ± 0.3	<0.3	<9.4 (1.4 ± 0.6)
291N, 154E	120-180	201	0.2±0.1	<0.5	<0.4	-<9.4 (0.7± 0.5)
303N, 112E	0-15	762	0.8 ± 0.1	1.2 ± 0.3	0.8 ± 0.3	18.9 ± 6.0
303N, 112E	15-60	381	1.0 ± 0.2	1.7 ± 0.4	1.1 ± 0.4	12.5 ± 8.5
303N, 112E	60-120	177	0.9 ± 0.2	1.3 ± 0.4	<0.4	<14 (6.0 ± 0.8)
304N,118E	0-15	873	<0.7	<1.1	105.7 ± 7.6	3110 ± 160
304N, 126E	0-15	804	<0.2	1.3 ± 0.3	3.6 ± 0.6	79 ± 13
304N, 126E	15-60	376	0.6 ± 0.2	1.9 ± 0.4	2.6 ± 0.4	79 ± 13
304N, 126E	60-120	132	<0.4	<0.8	0.8 ± 0.5	79 ± 13
310N, 84E	0-15	819	0.6 ± 0.2	1.0 ± 0.3	0.9 ± 0.4	14.6 ± 8.7
310N, 84E	15-60	694	0.7 ± 0.2	0.7 ± 0.3	<0.3	<11 (5.4 ± 1.0)
310N, 84E	60-120	799	0.6 ± 0.2	<0.6	<0.4	<11 (1.9 ± 0.9)
310N, 118E	0-15	936	<0.2	1.0 ± 03	1.0 ± 0.4	30.2 ± 8.4
310N, 118E	15-60	849	0.8 ± 0.1	1.1 ± 0.3	0.4 ± 0.4	14.8 ± 5.3
310N, 118E	60-120	423	0.6 ± 0.1	0.6 ± 0.2	0.5 ± 0.3	11.2 ± 6.4
311N, 13E	0-15	713	0.9 ± 0.2	2.7 ± 0.4	0.3 ± 0.4	<9.3 (5.8 ± 1.9)
311N, 13E	15-60	363	0.8 ± 0.2	0.5 ± 0.3	0.2 ± 0.3	<9.4 (3.8 ± 1.3)
311N, 13E	60-120	778	0.4 ± 0.1	0.7 ± 0.2	<0.3	<7.4 (0.5 ± 0.7)
311N, 13E	0-15	896	0.5 ± 0.1	4.7 ± 0.2	11.2 ± 0.4	288.4 ± 9.7
312N, 65E	15-60	579	0.5 ± 0.1	1.2 ± 0.3	1.5 ± 0.3	37.2 ± 8.5
312N, 65E	60-120	928	0.3 ± 0	0.4 ± 0.1	<0.2	<4.7 (1.4 ± 0.3)
313N, 64E	0-15	955	0.4 ± 0.3	6.7 ± 0.7	16.4 ± 1.2	397 ± 29
313N, 64E	15-60	525	0.5 ± 0.2	2.0 ± 0.3	3.3 ± 0.4	89 ± 15
313N, 64E	60-120	178	<0.2	2.3 ± 0.5	5.6 ± 0.6	159 ± 18
272N, 79W	0-15	888	<0.3	<0.5	14.6 ± 1.3	428 ± 29
272N, 79W	15-60	668	<0.3	0.8 ± 0.3	18.0 ± 1.6	471 ± 34
272N, 79W	60-120	454	0.4 ± 0.1	<0.3	3.4 ± 0.5	85 ± 10
272N, 79W	120-180	805	<0.3	<0.5	1.3 ± 0.4	23 ± 10
282N, 87W	0-15	1194	<0.2	<0.4	12.2 ± 1.2	343 ± 26
282N, 87W	15-60	678	1.0 ± 0.2	0.8 ± 0.3	4.6 ± 0.7	118 ± 14
282N, 87W	60-120	452	0.6 ± 0.2	<0.6	1.2 ± 0.3	34.7 ± 8.2

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York*****. T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 33 and 34.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the Th-234 (63 keV) result was included in parenthesis.

TABLE 15 (Continued)

RADIONUCLIDE CONCENTRATIONS IN SOIL
EXTERIOR BOREHOLE LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Grid Coordinates[a]	Depth (cm)	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
			Ra-226	Th-232	U-235	U-238
282N, 87W	120-180	511	0.5 ± 0.1	<0.4	0.3 ± 0.2	11.9 ± 5.4
282N, 165W	0-15	817	0.3 ± 0.1	0.4 ± 0.1	<0.2	<4.4 (1.5 ± 0.8)
282N, 165W	15-60	343	0.6 ± 0.1	0.9 ± 0.3	0.9 ± 0.3	21.0 ± 8.8
282N, 165W	60-120	156	1.2±0.2	1.2 ± 0.4	0.9 ± 0.3	22 ± 10
284N, 147W	0-15	837	<0.2	0.7 ± 0.2	0.9 ± 0.3	15.6 ± 6.9
284N, 147W	15-60	391	<0.2	0.7 ± 0.3	0.4 ± 0.3	7.7 ± 5.6
284N, 147W	60-120	725	0.6 ± 0.1	0.7 ± 0.2	<0.2	5.0 ± 4.4
284N, 147W	120-180	173	<0.2	0.4 ± 0.2	0.5 ± 0.2	10.7 ± 7.6
290N, 126W	0-15	977	0.5 ± 0.1	0.5 ± 0.2	0.6 ± 0.3	20.3 ± 6.7
290N, 126W	15-60	176	0.5 ± 0.2	<0.5	2.6 ± 0.5	73 ± 12
290N, 126W	60-120	390	1.4 ± 0.2	1.5 ± 0.3	0.4 ± 0.3	15.1 ± 7.2
290N, 126W	120-180	166	0.7 ± 0.2	0.9 ± 0.3	0.6 ± 0.3	< 14 (12.8 ± 1.6)
299N, 43W	0-15	1136	0.5 ± 0.1	0.7 ± 0.2	1.9 ± 0.4	28.0 ± 1.8
299N, 43W	15-60	566	<0.5	<0.7	93.1 ± 6.6	2,830 ± 140
299N, 43W	60-120	641	<0.1	0.8 ± 0.2	2.2 ± 0.3	50.2 ± 8.1
299N, 43W	120-180	836	0.5 ± 0.1	<0.4	2.7 ± 0.4	64 ± 12
299N,43W	180-210	298	<0.3	0.6 ± 0.4	17.7 ± 1.6	415 ± 33
304N, 80W	0-15	750	0.7±0.4	19.5 ± 2.1	<1.0	<13 (<3.6)
304N, 80W	15-60	319	0.6 ± 0.2	2.5 ± 0.6	<0.4	< 11 (3.0 ± 1.4)
304N, 80W	60-120	338	1.5 ± 0.3	1.5 ± 0.4	0.4 ± 0.4	12.8 ± 8.6
304N, 80W	120-180	467	0.8 ± 0.2	1.0 ± 0.3	0.5 ± 0.3	9.0 ± 7.5
304N, 158W	0-15	841	<0.3	<0.5	17.1 ± 1.6	425 ± 35
304N, 158W	15-60	572	<1.0	<1.3	525 ± 35	17,780 ± 810
304N, 158W	60-120	478	<0.8	<1.1	262 ± 18	6,970 ± 330
304N, 158W	120-180	535	<0.3	<0.4	4.6 ± 0.7	121 ± 17
304N, 158W	0-15	758	0.5 ± 0.2	0.8 ± 0.3	<0.4	< 15 (2.4 ± 1.3)
319N, 145W	15-60	813	<0.3	0.8 ± 0.2	8.2 ± 1.0	223 ± 23
31914, 145W	60-120	191	1.2 ± 0.3	<0.8	31.3 ± 2.6	819 ± 56
319N, 145W	120-180	390	<0.3	1.0 ± 0.3	0.5 ± 0.2	11.3 ± 7.4
325N, 177W	0-15	1272	<0.4	<0.5	63.8 ± 2.0	1,843 ± 49
325N, 177W	15-60	249	0.2 ± 0.1	0.7 ± 0.3	1.1 ± 0.4	31.7 ± 8.9
325N, 177W	60-120	198	0.4 ± 0.1	0.7 ± 0.1	1.1 ± 0.2	35.1 ± 4.1
342N, 121W	0-15	587	1.3 ± 0.2	1.7 ± 0.4	<0.4	<14 (3.6 ± 1.8)

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 33 and 34.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the Th-234 (63 keV) result was included in parenthesis.

TABLE 15 (Continued)

RADIONUCLIDE CONCENTRATIONS IN SOIL
EXTERIOR BOREHOLE LOCATIONS
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Grid Coordinates[a]	Depth (cm)	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
			Ra-226	Th-232	U-235	U-238
342N, 121W	15-60	137	<0.5	<1.0	<0.7	<21 (5.3 ± 1.7)
342N, 121W	60-120	794	0.7 ± 0.2	1.1 ± 0.3	<0.5	<14 (1.2 ± 1.1)
358N, 19W	0-15	732	<0.4	<0.5	6.0 ± 0.9	142 ± 24
358N, 19W	15-60	459	0.6 ± 0.1	0.9 ± 0.1	5.2 ± 0.3	136.3 ± 6.5
358N, 19W	60-120	768	0.6 ± 0.1	0.8 ± 0.3	2.3 ± 0.5	48 ± 13
358N, 19W	120-180	277	0.5 ± 0.2	0.6 ± 0.3	1.0 ± 0.4	31 ± 13
362N, 197W	0-15	960	0.7± 0.2	2.0 ± 0.3	0.6 ± 0.4	8.0 ± 7.4
362N, 197W	15-60	174	1.1 ± 0.2	3.2 ± 0.5	1.3 ± 0.4	19 ± 16
362N, 197W	60-120	79[d]	<0.5	3.2 ± 1.2	<0.8	<35 (5.7 ± 2.5)
362N, 197W	120-180	192	1.0 ± 0.2	5.5 ± 0.8	0.9 ± 0.5	27 ± 12
402N, 186W	0-15	833	0.7 ± 0.3	17.1 ± 1.8	<0.9	18 ± 10
402N, 186W	15-60	175	<0.4	15.8 ± 1.8	<0.8	<17 (15.2 ± 1.8)
402N, 186W	60-120	523	0.8 ± 0.2	3.1 ± 0.5	0.3 ± 0.3	<11 (6.2 ± 0.9)
402N, 186W	120-180	159	1.2 ± 0.3	6.8 ± 0.9	<0.6	9.8 ± 7.6
410N,189W	0-15	435	<2.0	371 ± 35	<5.4	<75 (20 ± 10)
410N, 189W	15-60	423	0.7 ± 0.3	13.1 ± 1.5	<0.7	<14 (5.5 ± 2.7)
410N, 189W	60-120	488	0.8 ± 0.3	17.4 ± 1.9	<1.2	<19 (1.7 ± 2.8)
410N, 189W	120-180	876	0.9 ± 0.2	3.9 ± 0.6	<0.5	<8.6 (2.5 ± 1.7)
412N, 191W	0-15	667	0.9 ± 0.2	2.9 ± 0.4	<0.4	<8.4 (6.5 ± 1.9)
412N, 191W	15-60	467	1.8 ± 0.2	5.1 ± 0.6	0.5 ± 0.3	10.7 ± 4.9
412N, 191W	60-120	475	1.2 ± 0.2	1.9 ± 0.4	<0.5	<12 (3.1 ± 1.4)
412N, 191W	120-180	510	0.9 ± 0.1	1.3 ± 0.3	<0.3	<7.5 (0.9 ± 0.9)

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York*****. T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figures 33 and 34.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

which case the Th-234 (63 keV) result was included in parenthesis.

[d] Sample had insufficient volume for an appropriate geometry. Values are semi-quantitative.

TABLE 16

RADIONUCLIDE CONCENTRATIONS IN SOIL
EXTERIOR CLASS 3 AREA
GUTERL SPECIALTY STEEL CORPORATION
LOCKPORT, NEW YORK

Sample ID[a]	Sample Quantity (g)	Radionuclide Concentration (pCi/g)			
		Ra-226	Th-232	U-235	U-238
253	675	0.7 ± 0.1[b]	<0.4	<0.3	<5.6 (0.4 ± 0.7)[c]
254	951	0.5 ± 0.1	0.6 ± 0.2	<0.2	<4.6 (<0.9)
255	844	0.2 ± 0.1	<0.4	<0.3	<7.5 (<1.1)
256	831	0.5 ± 0.1	<0.4	<0.2	<7.9 (<1.0)
257	663	<0.2	0.9 ± 0.2	<0.3	<5.8 (1.9 ± 1.0)
258	929	0.6 ± 0.1	0.4 ± 0.2	<0.3	<5.8 (1.7±1.1)
259	1039	0.3 ± 0.1	<0.3	<0.2	<6.5 (<0.9)
260	1004	0.5 ± 0.1	<0.3	<0.2	<5.9 (1.1 ± 0.8)
261	964	2.1 ± 0.2	0.9 ± 0.2	<0.3	<6.9(1.4 ± 0.9)
262	961	0.7 ± 0.1	0.5 ± 0.2	<0.2	<4.8 (0.7± 0.5)
263	595	1.5 ± 0.2	0.9 ± 0.2	<0.3	4.6 ± 4.1
264	993	5.3 ± 0.5	1.9 ± 0.5	<0.8	<15 (5.7 ± 2.1)
265	567	0.8 ± 0.1	0.5 ± 0.2	<0.2	<4.9 (0.9 ± 0.8)
266	864	0.5 ± 0.1	0.6 ± 0.2	<0.3	<7.5 (1.6 ± 0.7)
267	1225	<0.1	<0.2	<0.1	<3.7 (<0.6)
268	843	<0.3	<0.4	<0.3	<8.8 (1.4 ± 0.9)
269	547	0.8 ± 0.2	<1.0	<0.6	<13 (1.6 ± 2.0)
270	939	9.7 ± 0.9	2.2 ± 0.6	<0.7	<15 (8.8 ± 2.4)

Source: ***Radiological Survey of the Guterl Specialty Steel Corporation, Lockport, New York.*** **T.J. Vitkus, Oak Ridge Institute for Science and Education, December 1999 (ORISE 99-1699).**

[a] Refer to Figure 35.

[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

[c] Pa-234m (1001 keV) peak was used to determine activity except where values were less than the MDC in which case the Th-234 (63 keV) result was included in parenthesis.

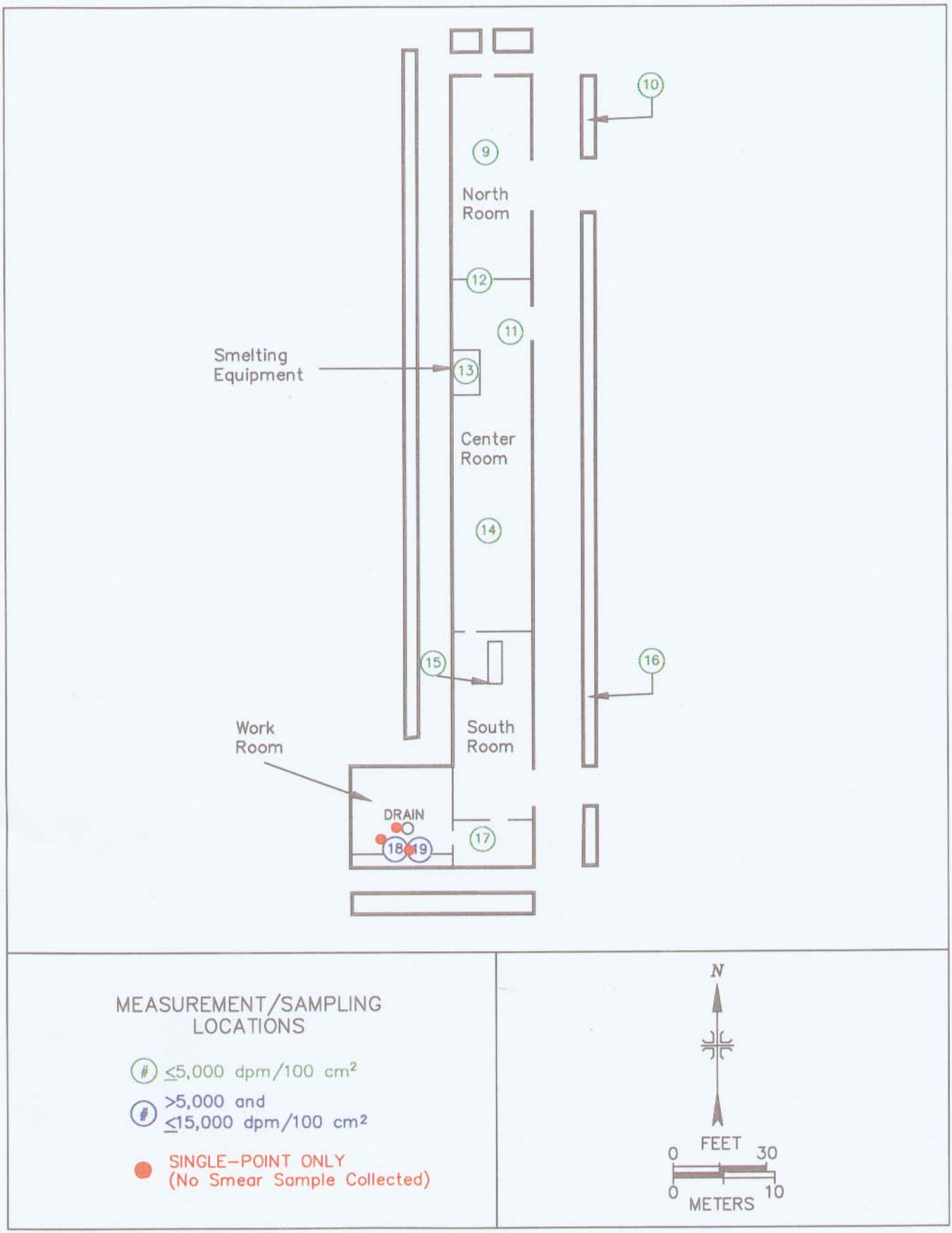


FIGURE 11: Building 1, Floors, Lower Walls, and Equipment – Direct Measurement and Sampling Locations

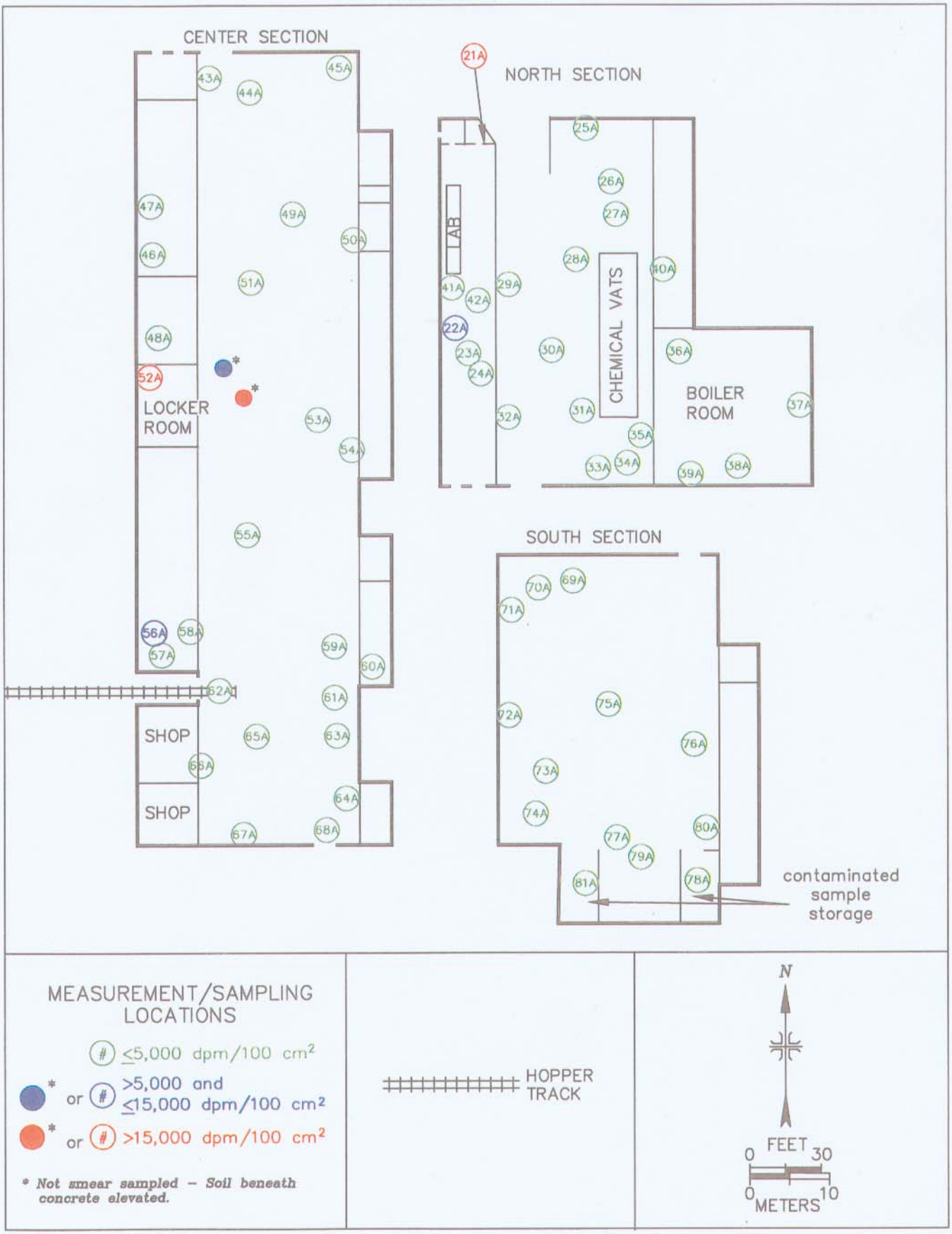


FIGURE 12: Building 2, Floor, Lower Walls, and Equipment – Direct Measurement and Sampling Locations

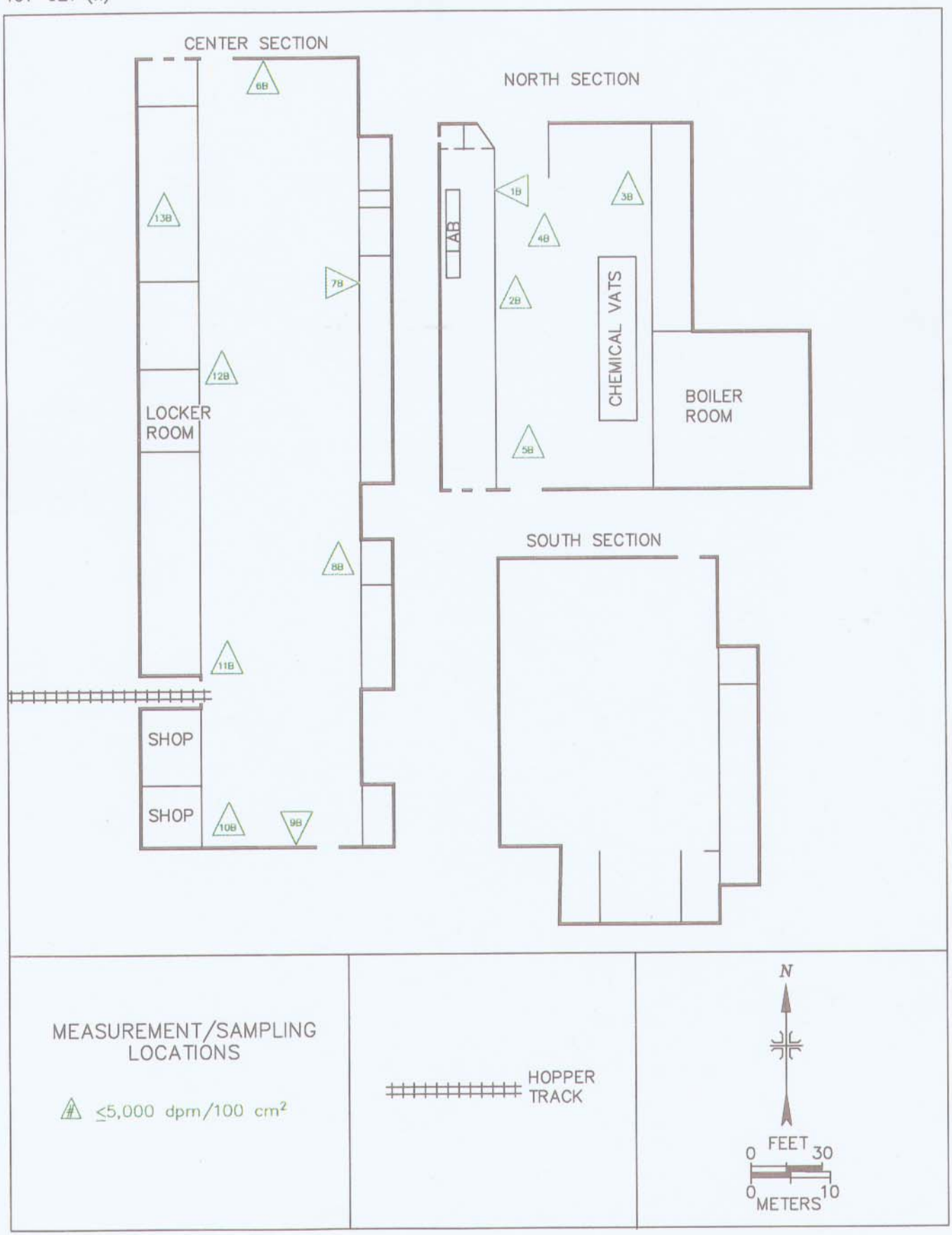


FIGURE 13: Building 2, Upper Surfaces – Direct Measurement and Sampling Locations

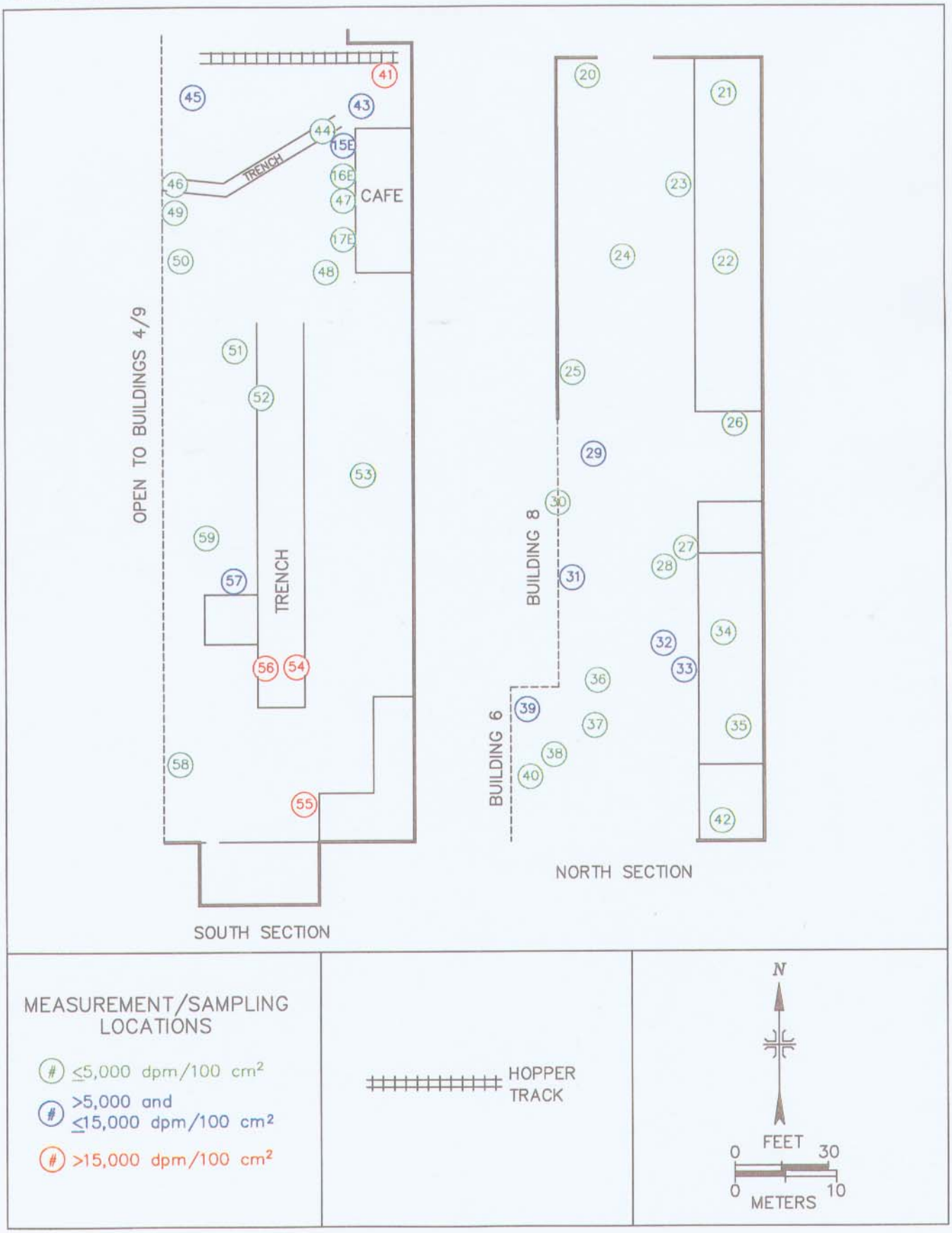


FIGURE 14: Building 3, Floors, Lower Walls, and Equipment – Direct Measurement and Sampling Locations

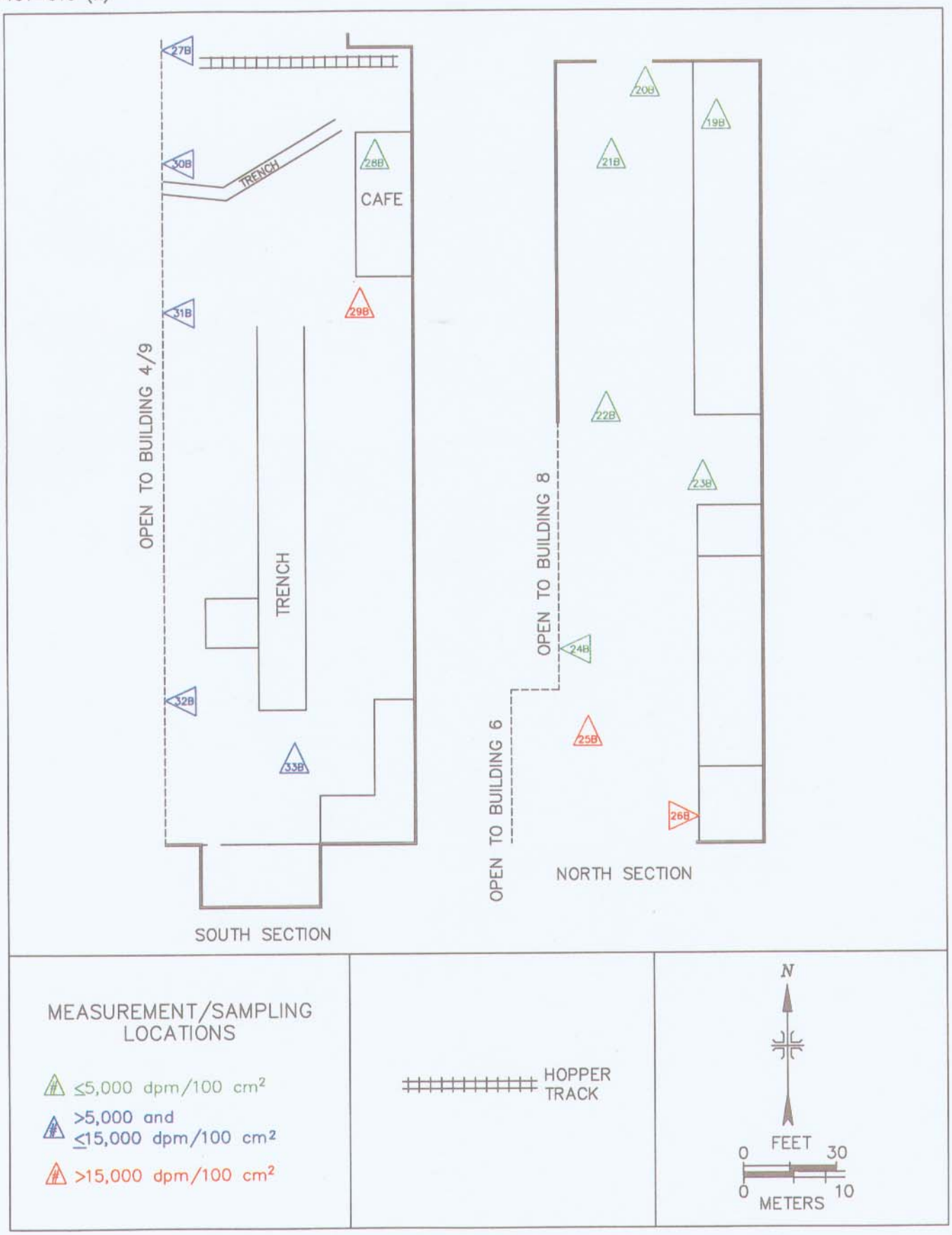


FIGURE 15: Building 3, Upper Surfaces – Direct Measurement and Sampling Locations

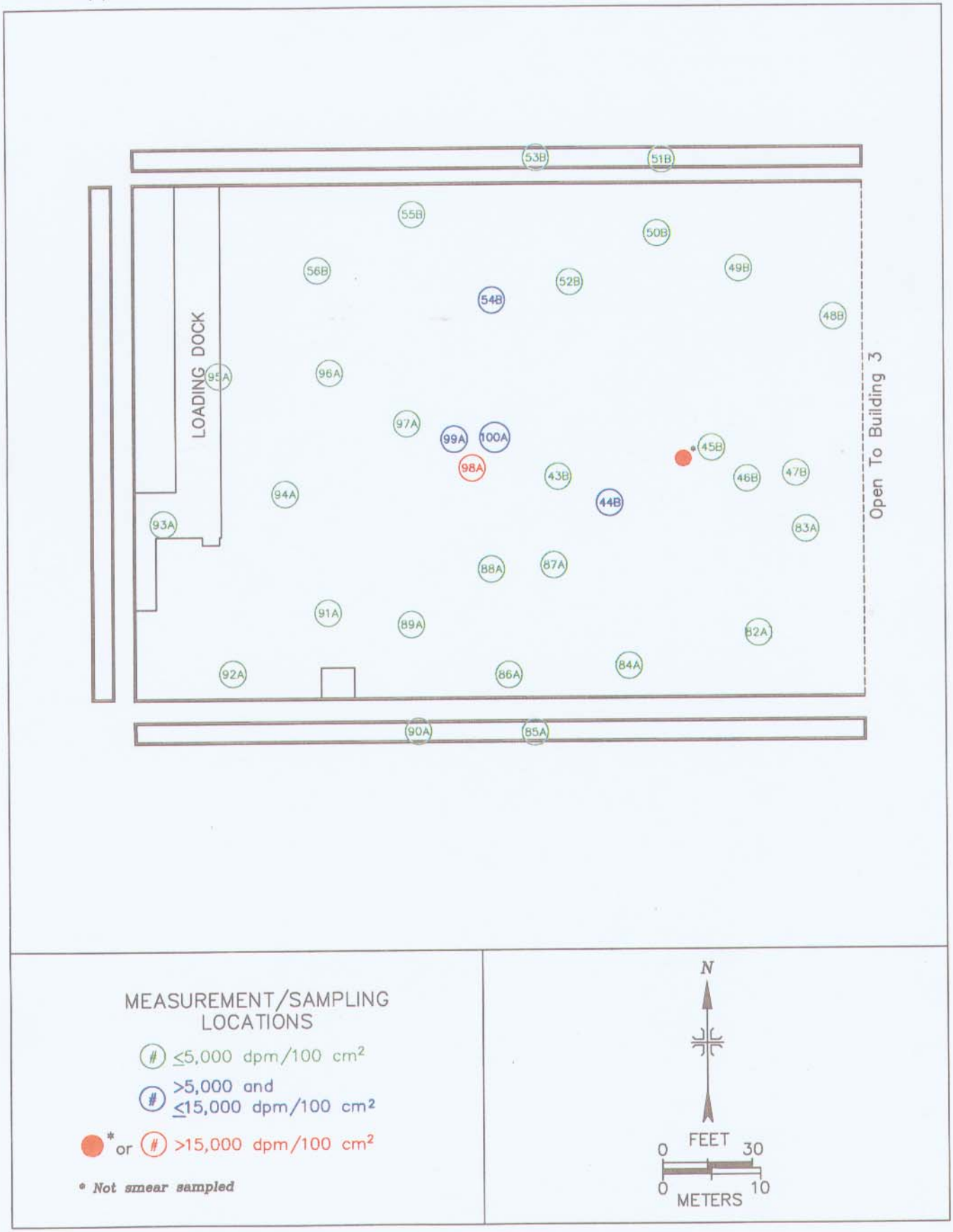


FIGURE 16: Building 4 and 9, Floors, Lower Walls, and Equipment – Direct Measurement and Sampling Locations

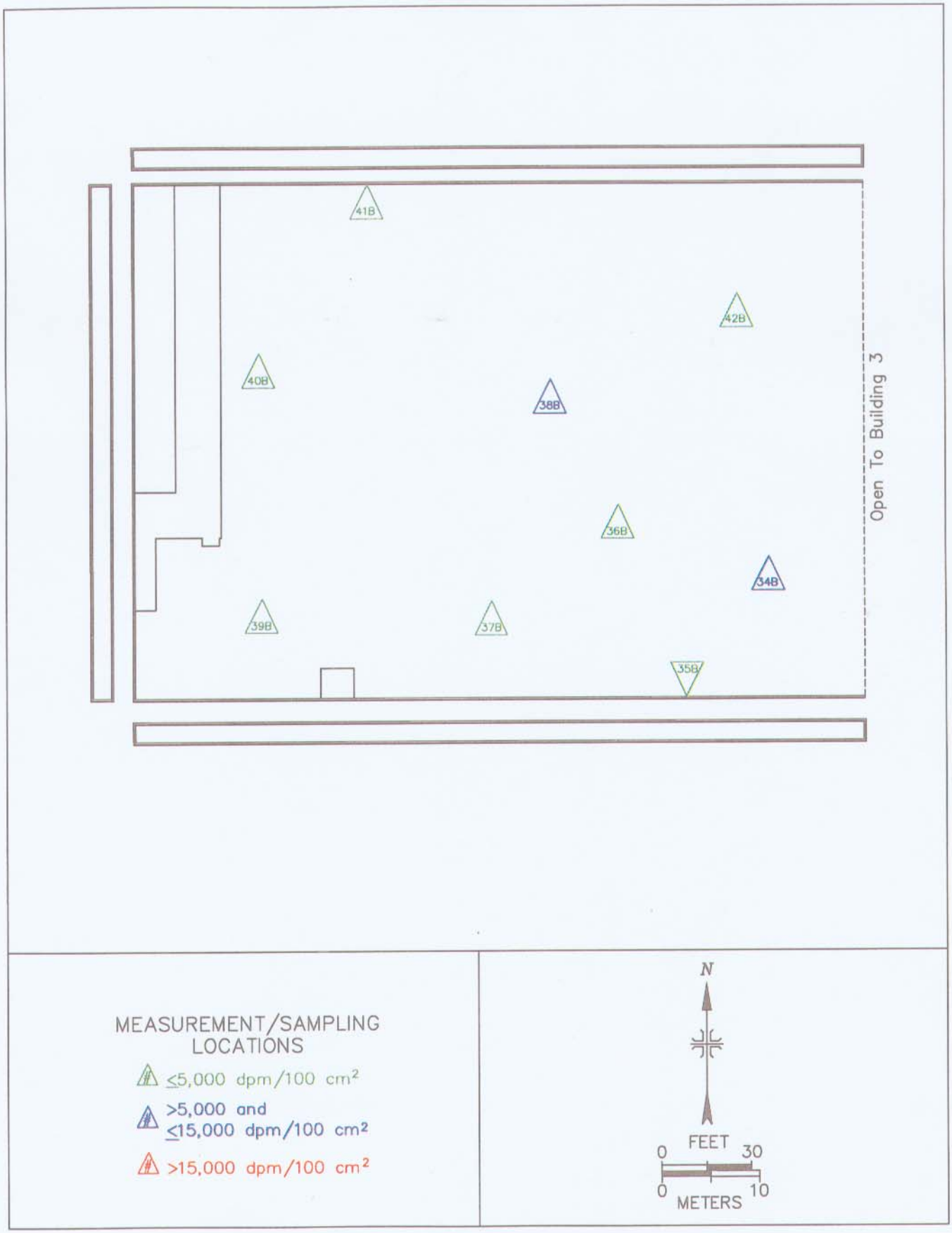


FIGURE 17: Building 4 and 9, Upper Surfaces – Direct Measurement and Sampling Locations

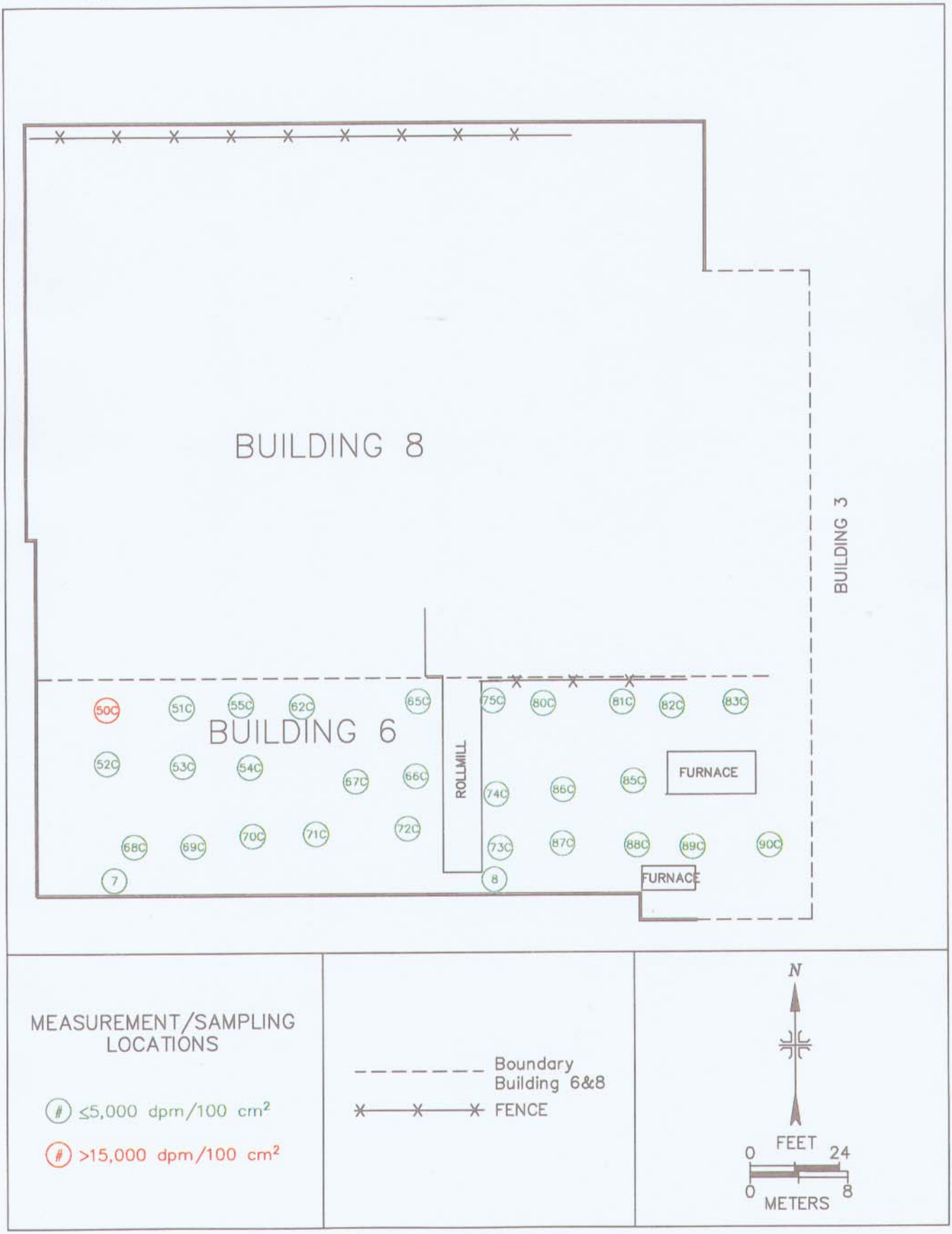


FIGURE 18: Building 6, Floors, Lower Walls, and Equipment – Direct Measurement and Sampling Locations

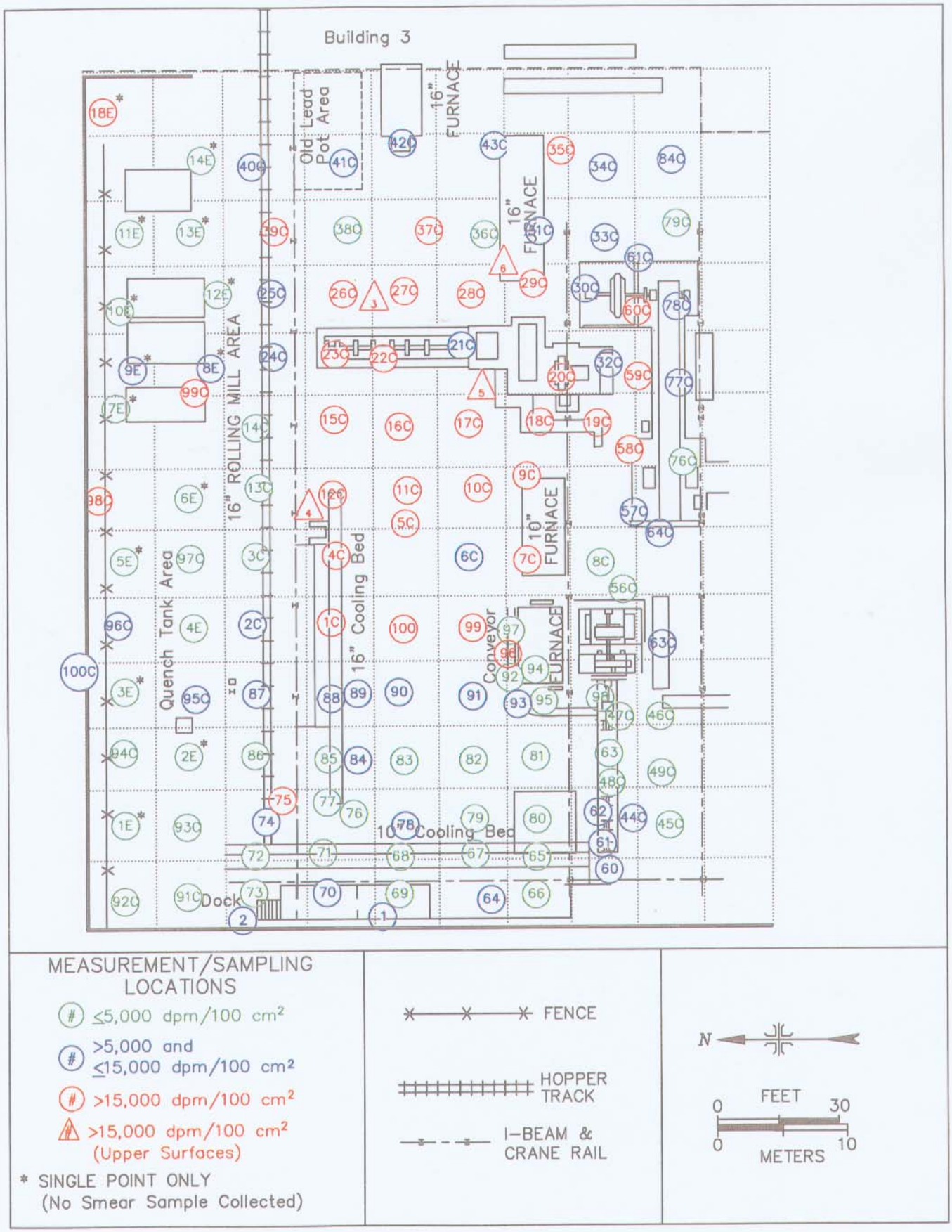


FIGURE 19: Building 8, Floors, Lower Walls, and Equipment – Direct Measurement and Sampling Locations

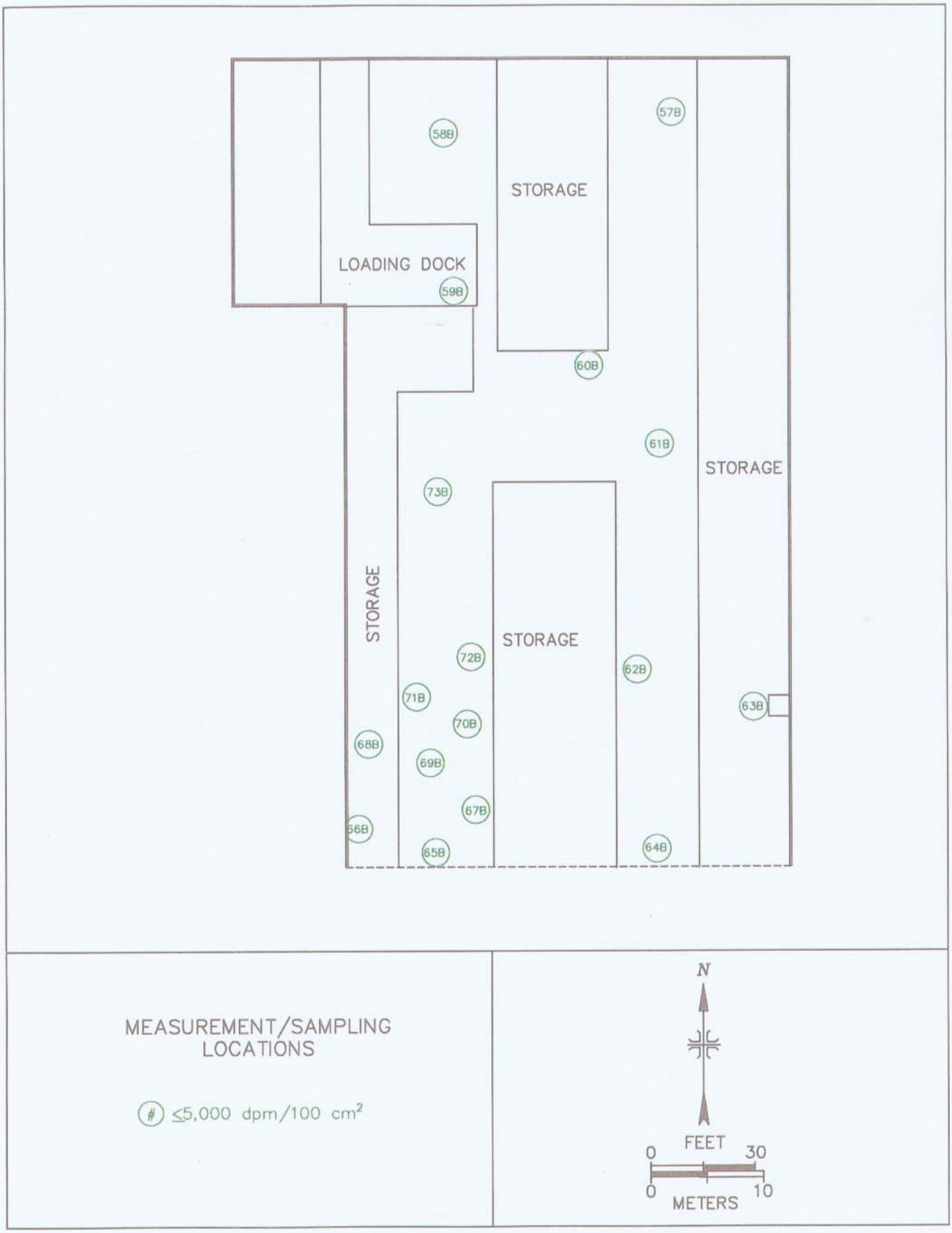


FIGURE 20: Building 24, North Area, Floor, Lower Walls, and Equipment – Direct Measurement and Sampling Locations

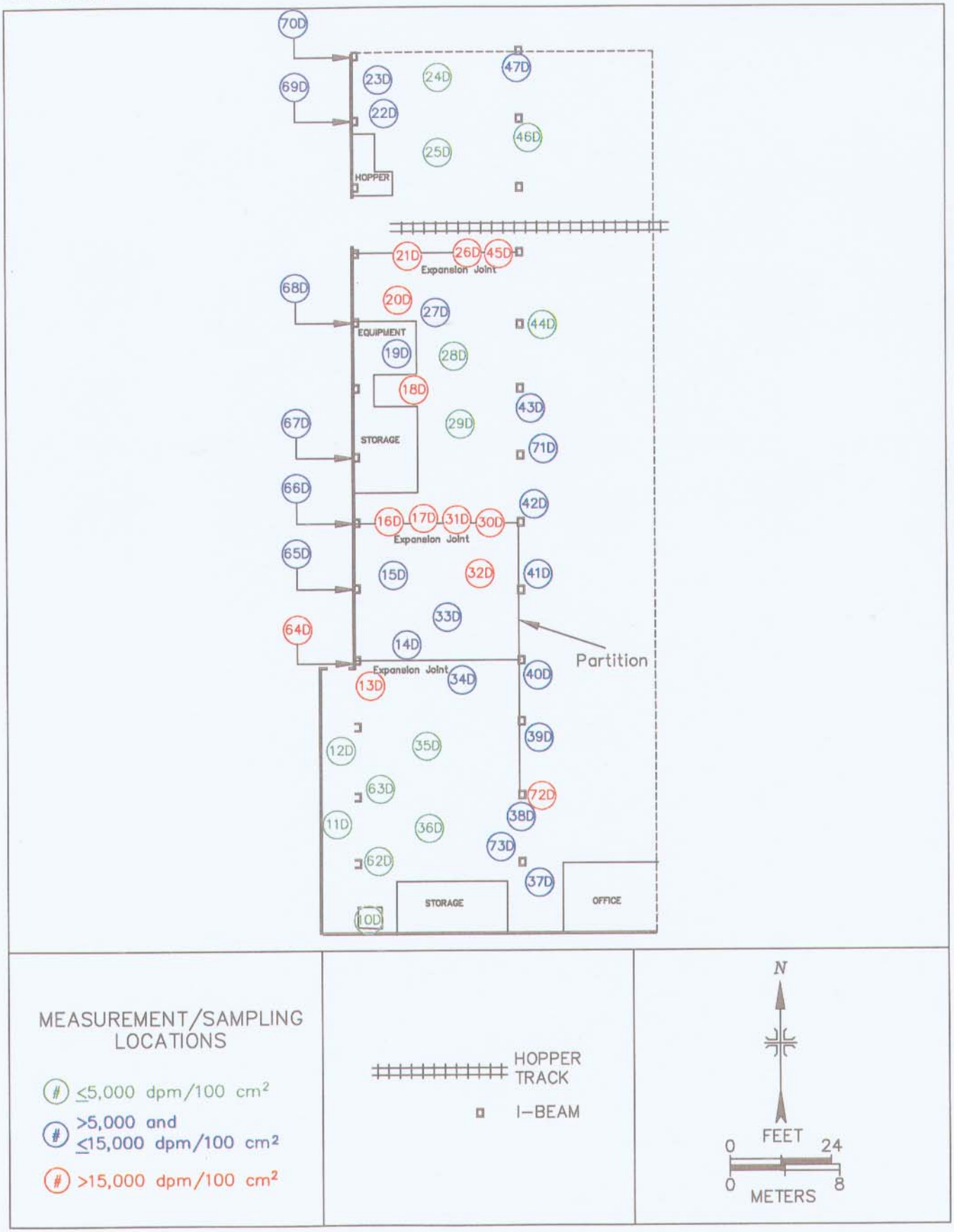


FIGURE 21: Building 24, Southwest Area, Floors, Lower Walls, and Equipment – Direct Measurement and Sampling Locations

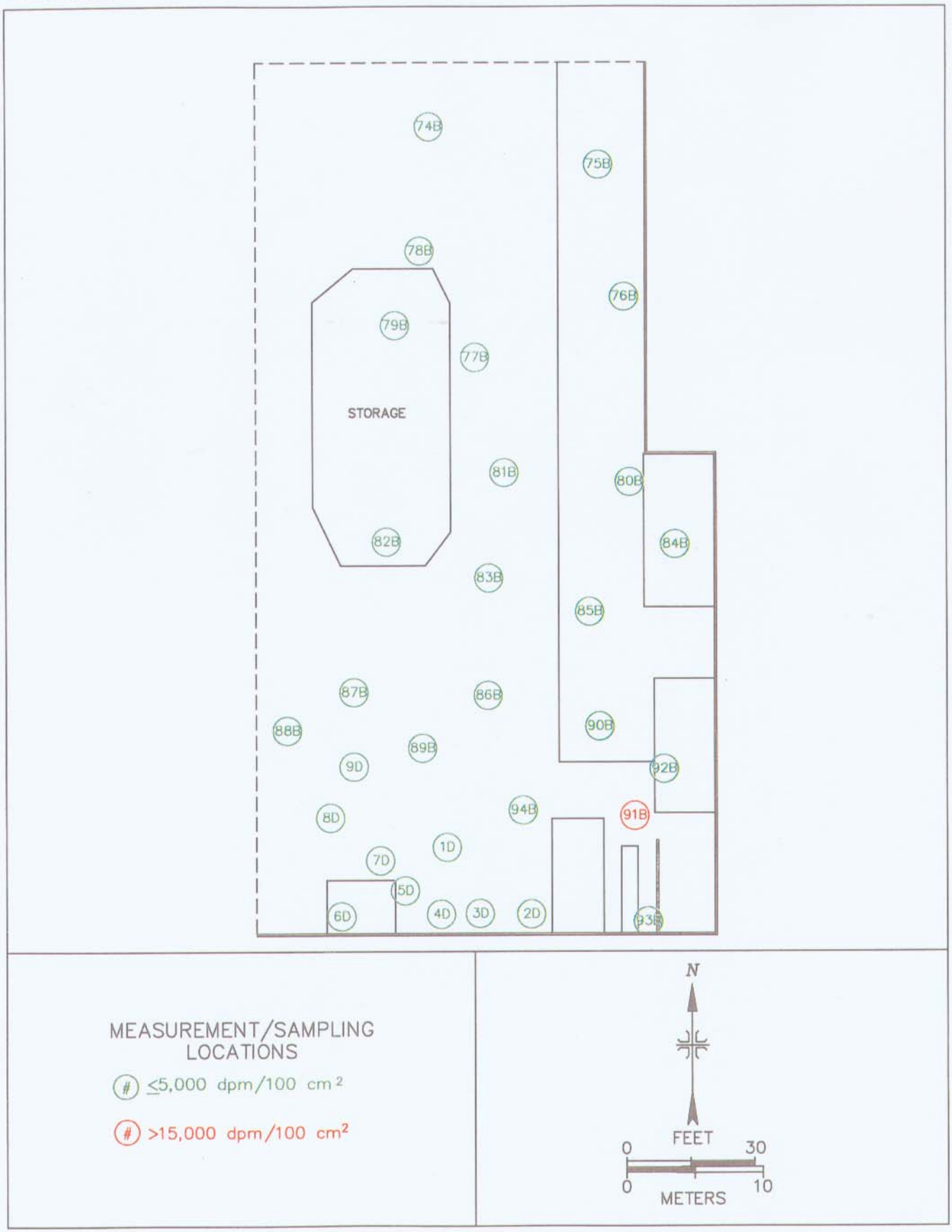


FIGURE 22: Building 24, Southeast Area, Floors, Lower Walls, and Equipment – Direct Measurement and Sampling Locations

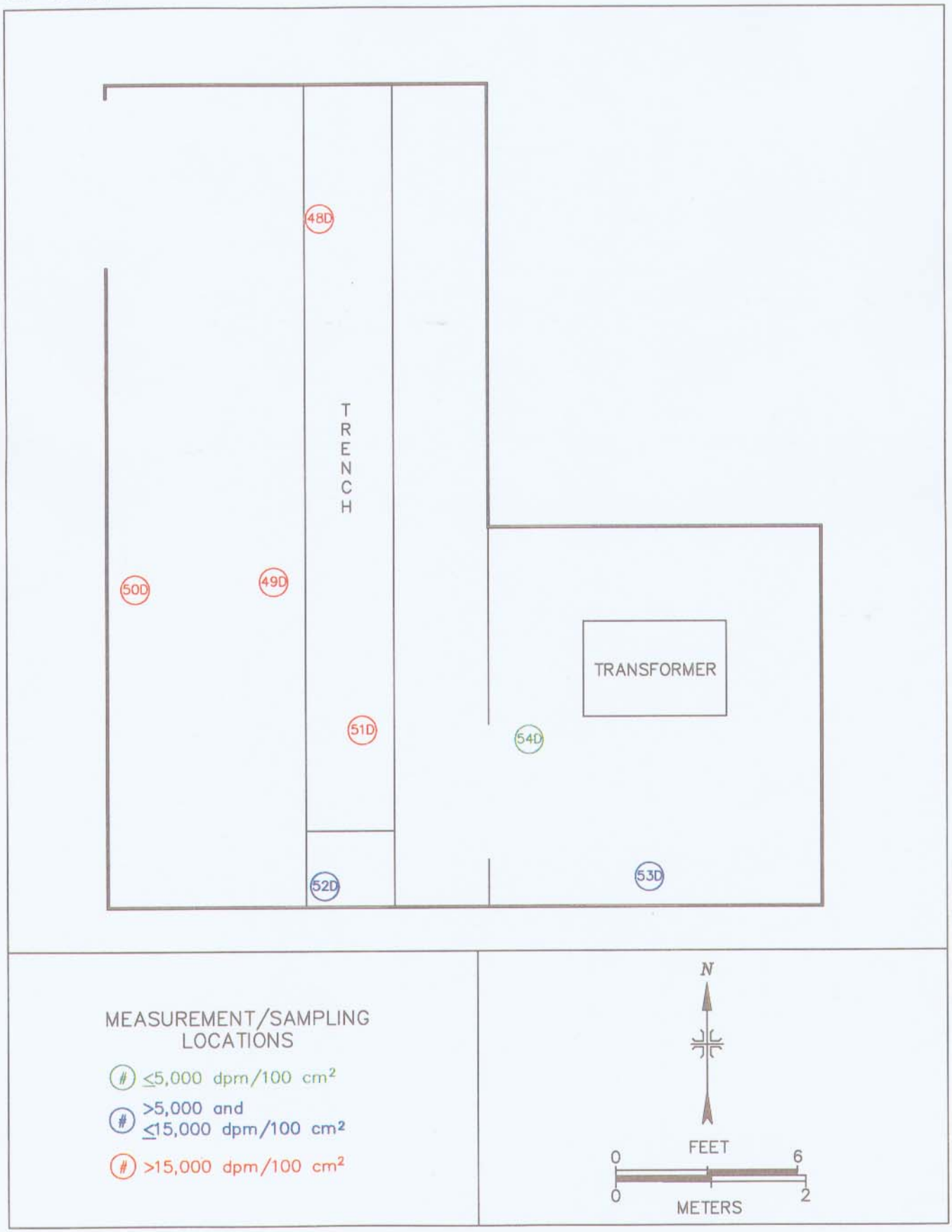


FIGURE 23: Building 24, Southeast Storage Room, Floors, Lower Walls, and Equipment – Direct Measurement and Sampling Locations

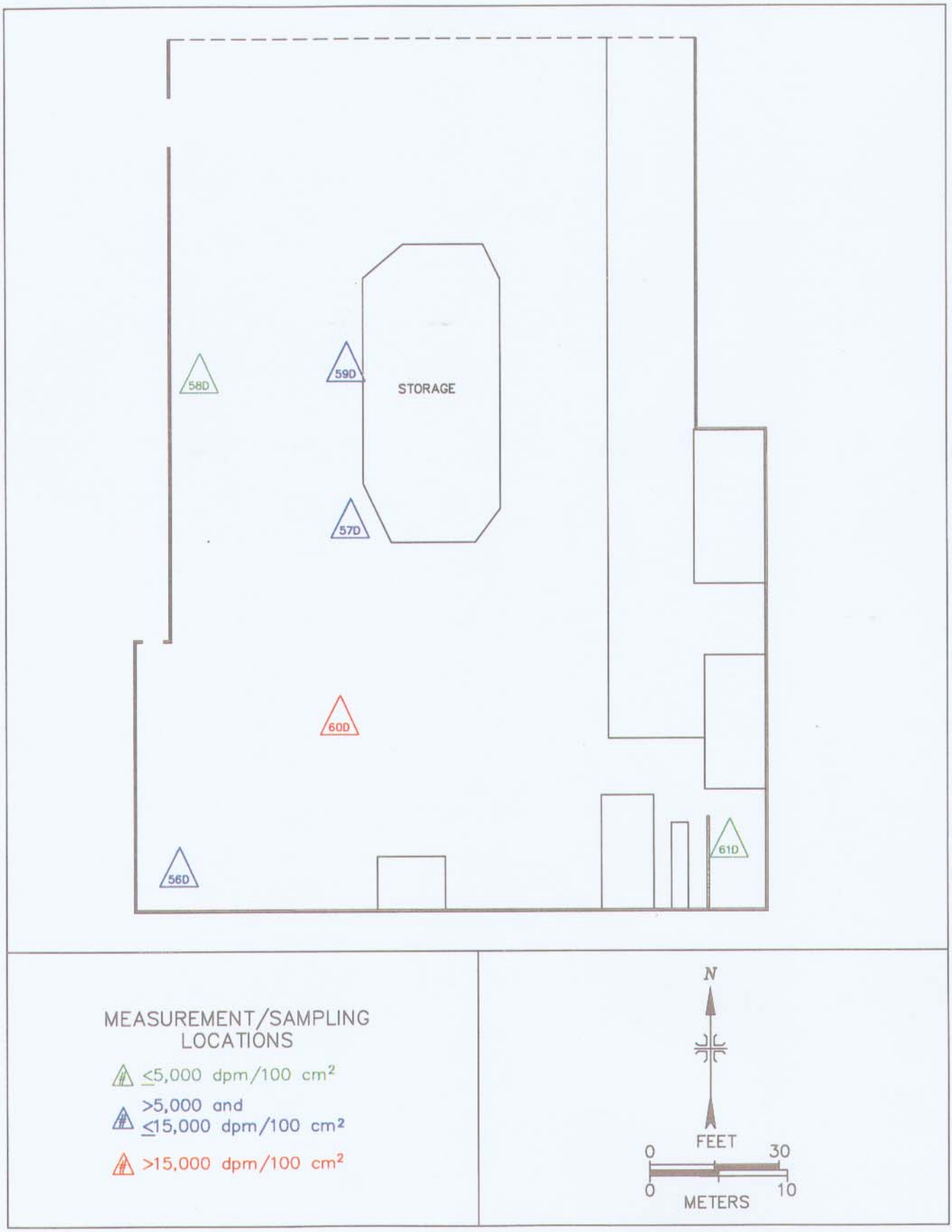


FIGURE 24: Building 24, Upper Surfaces – Direct Measurement and Sampling Locations

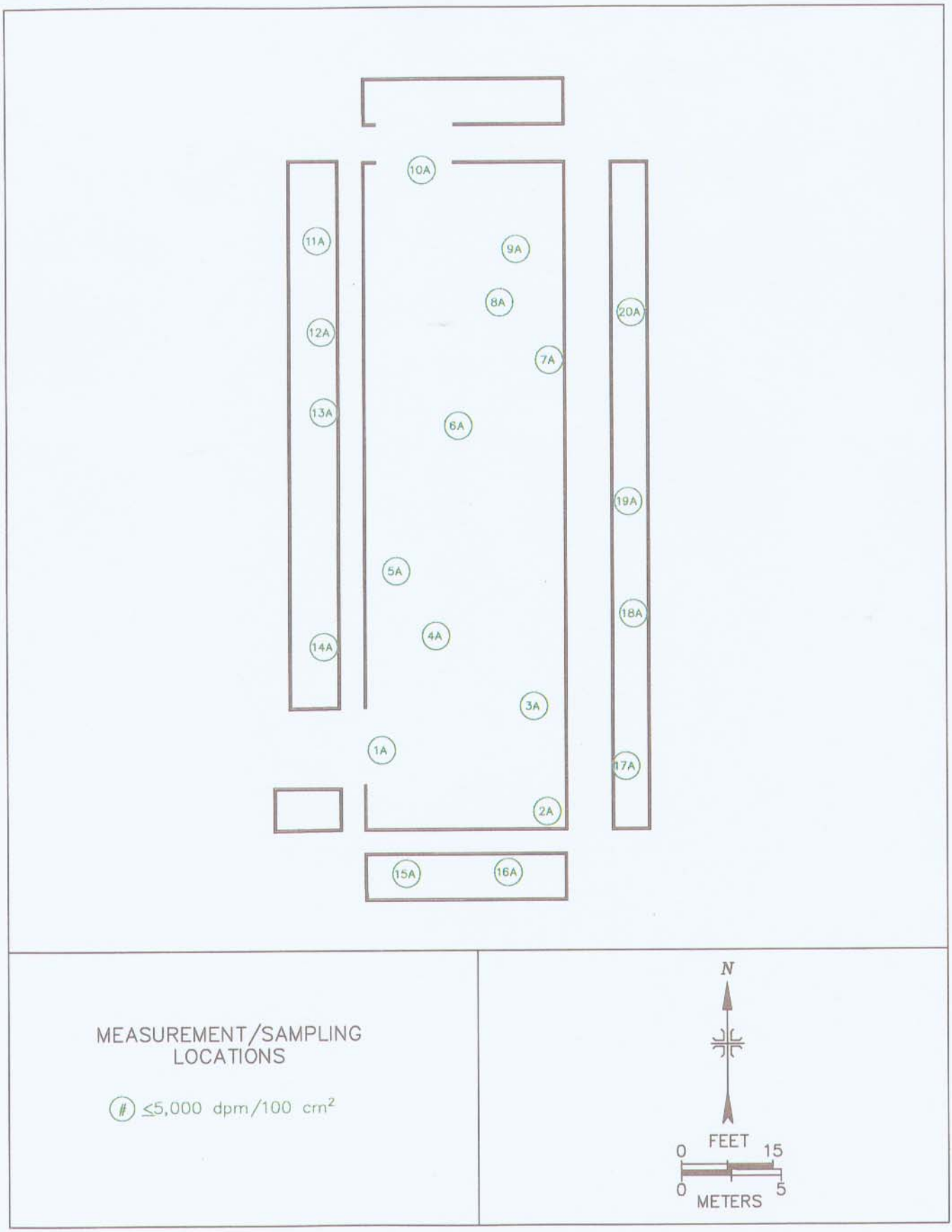


FIGURE 25: Building 35, Floor, Lower Walls, and Equipment – Direct Measurement and Sampling Locations

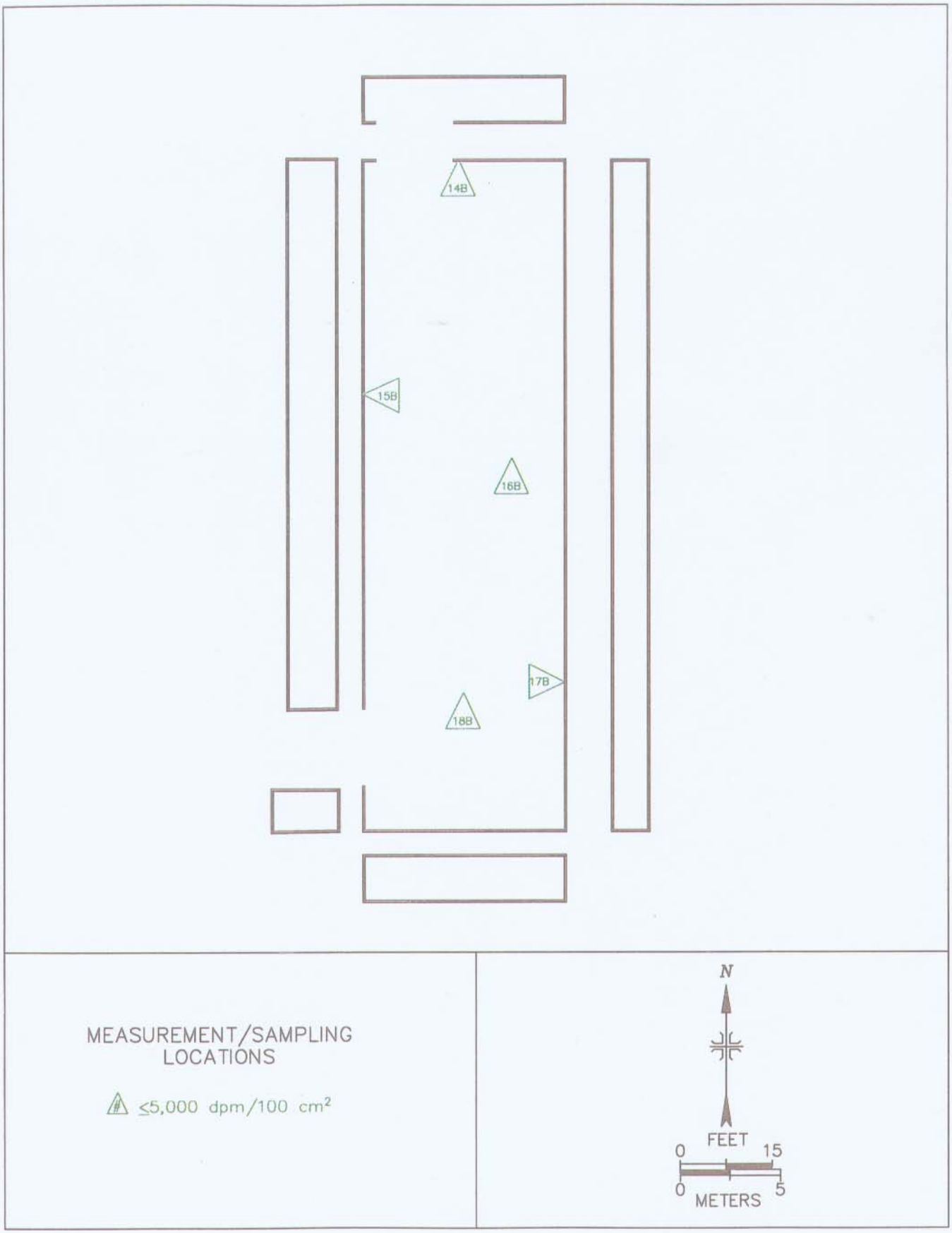


FIGURE 26: Building 35, Upper Surfaces – Direct Measurement and Sampling Locations

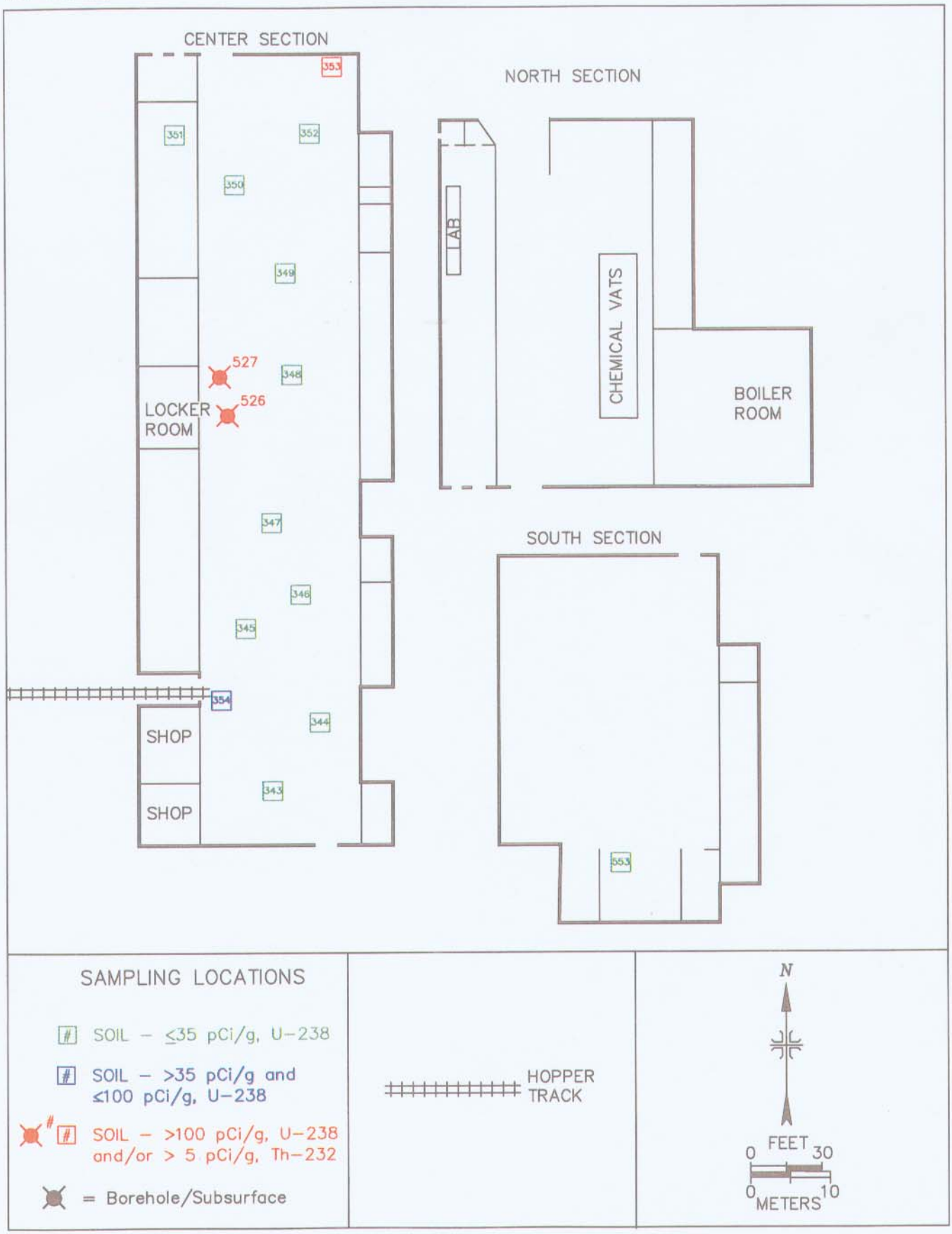


FIGURE 27: Building 2 – Sampling Locations

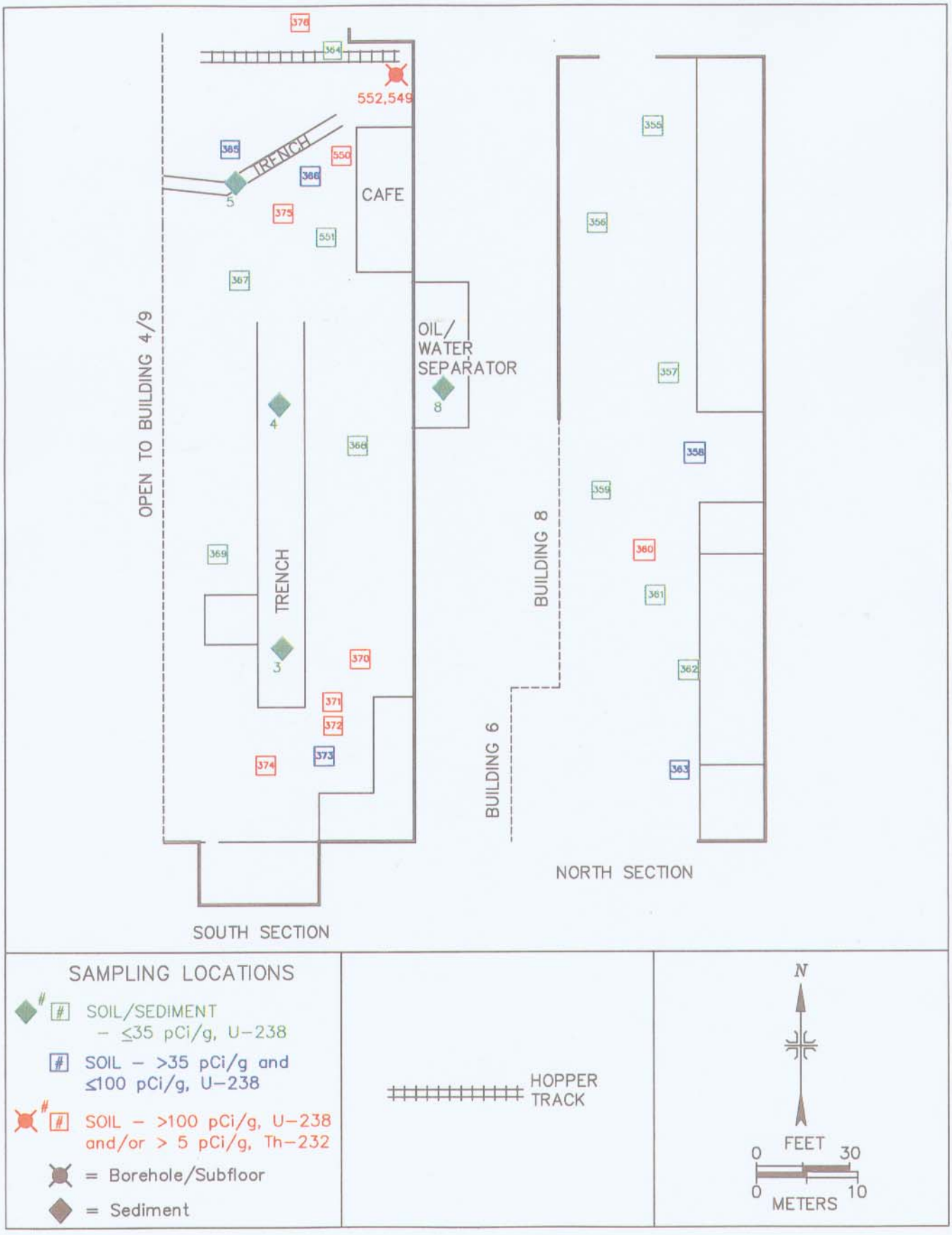


FIGURE 28: Building 3 – Sampling Locations

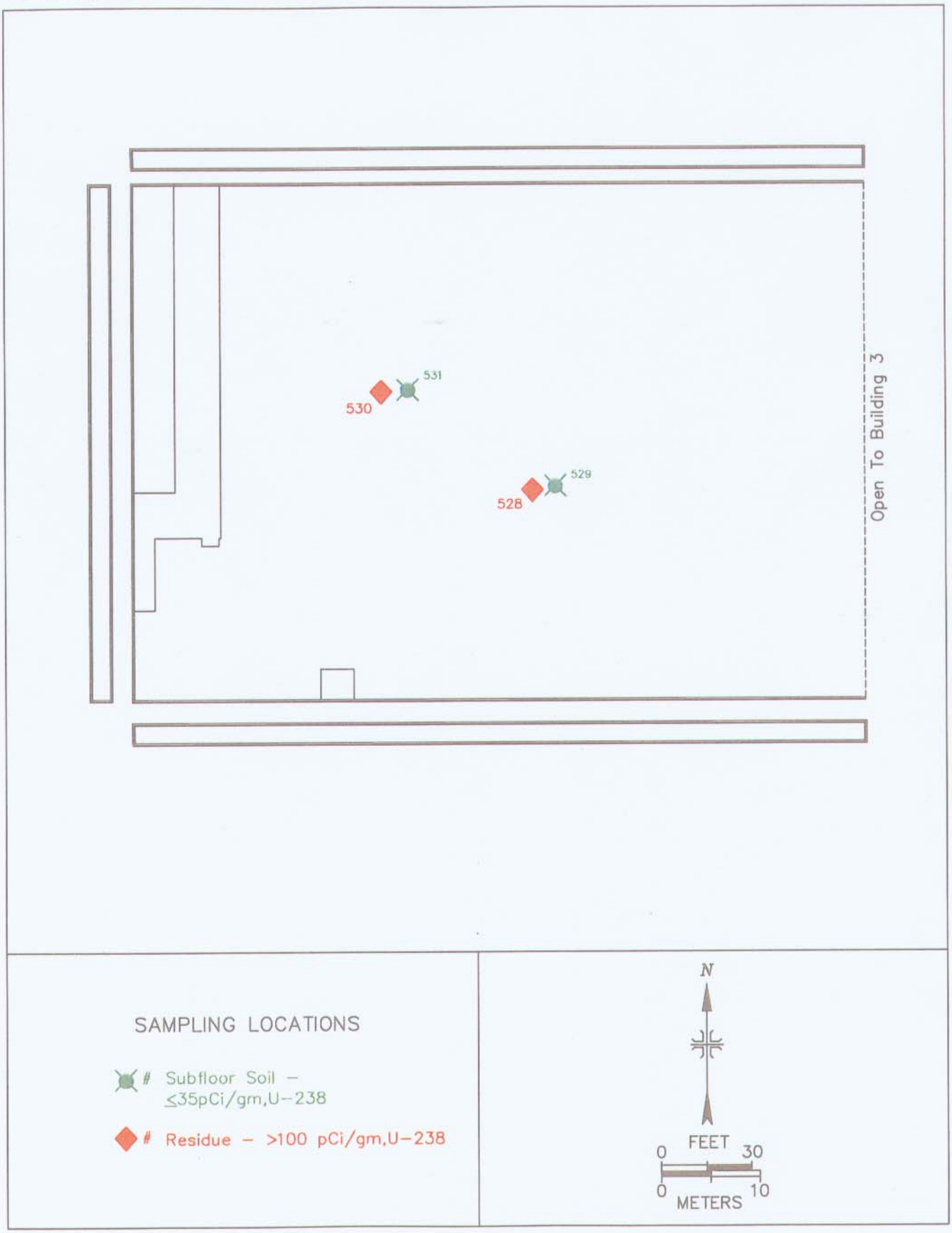


FIGURE 29: Building 4 and 9 – Sampling Locations

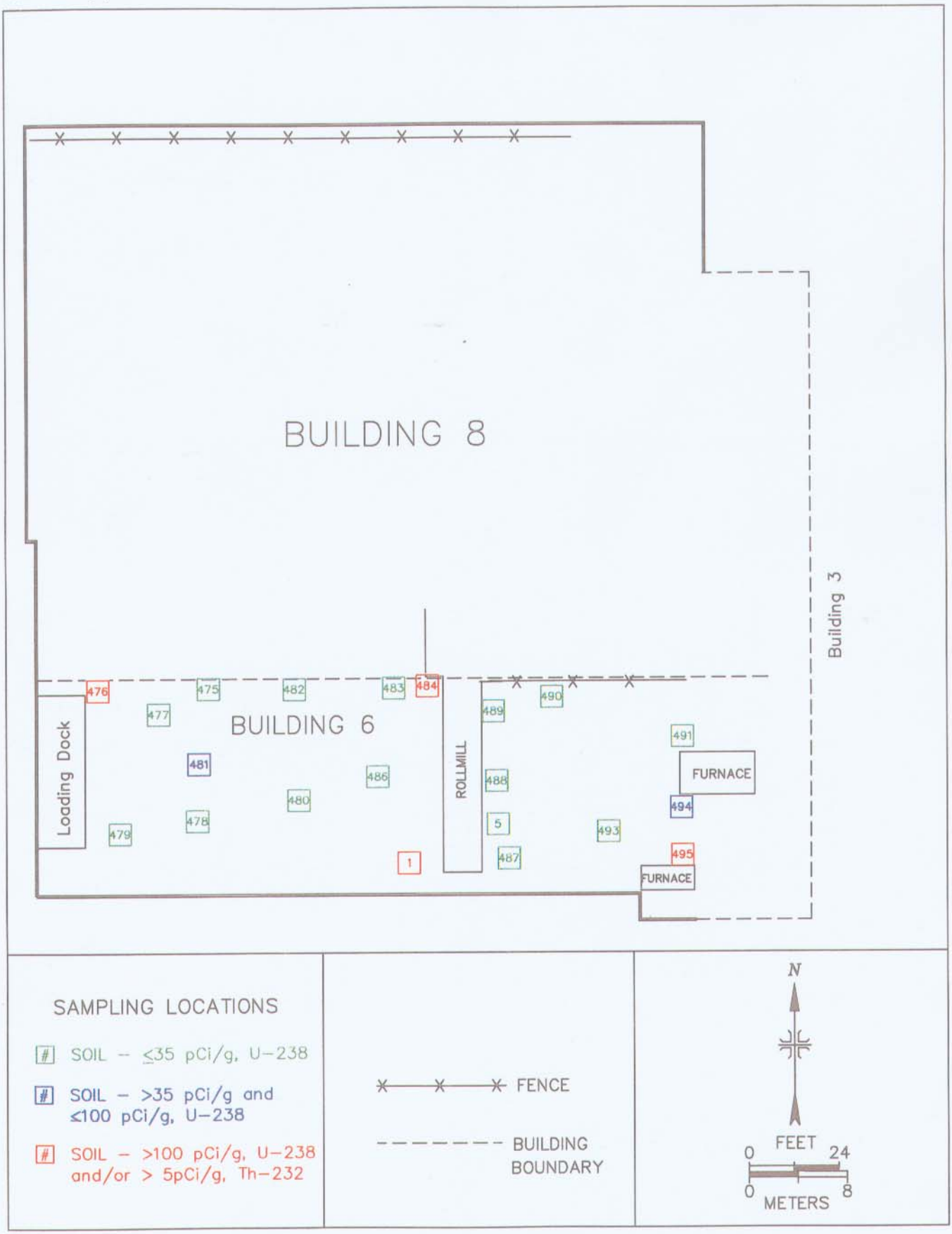


FIGURE 30: Building 6 – Sampling Locations

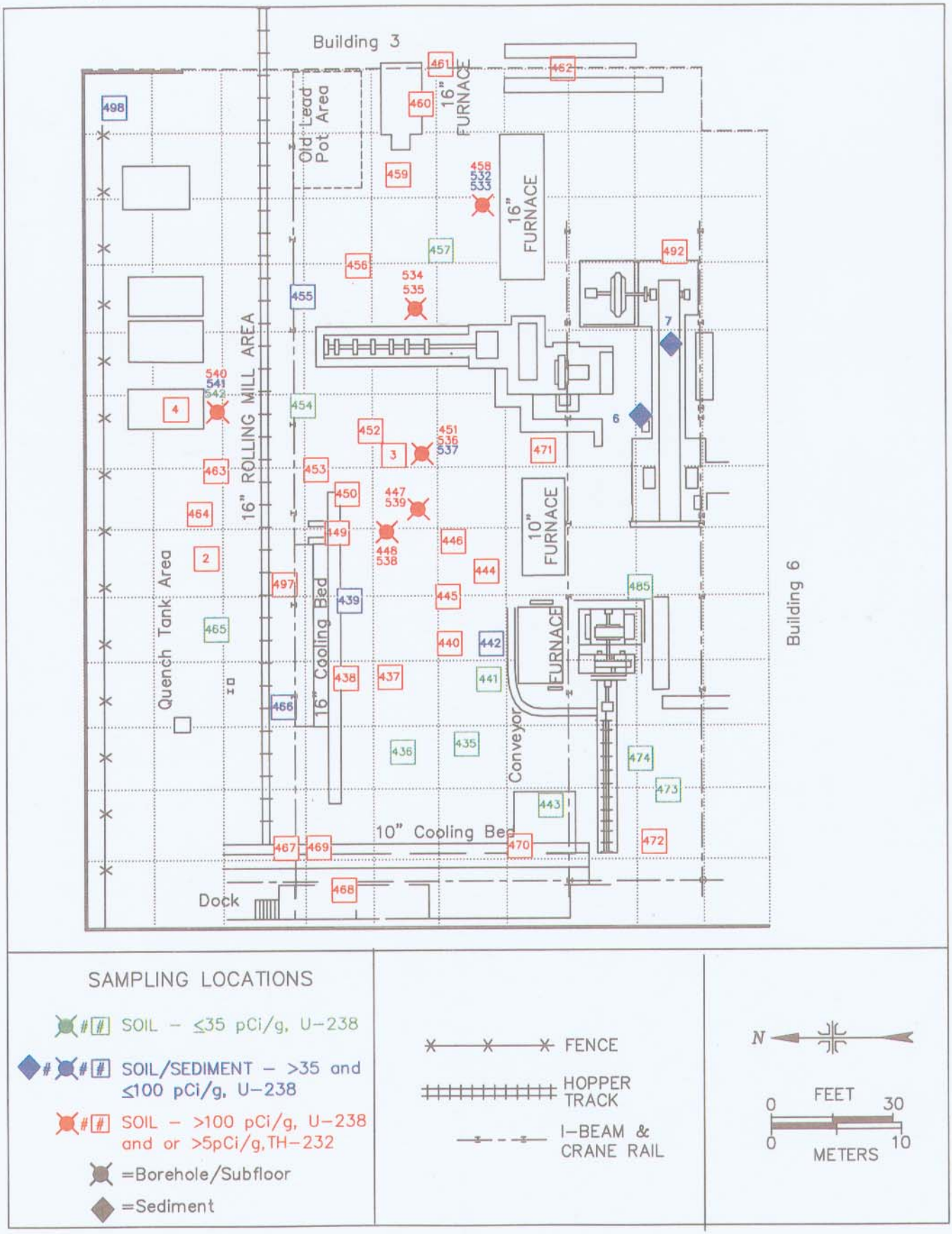


FIGURE 31: Building 8 - Sampling Locations

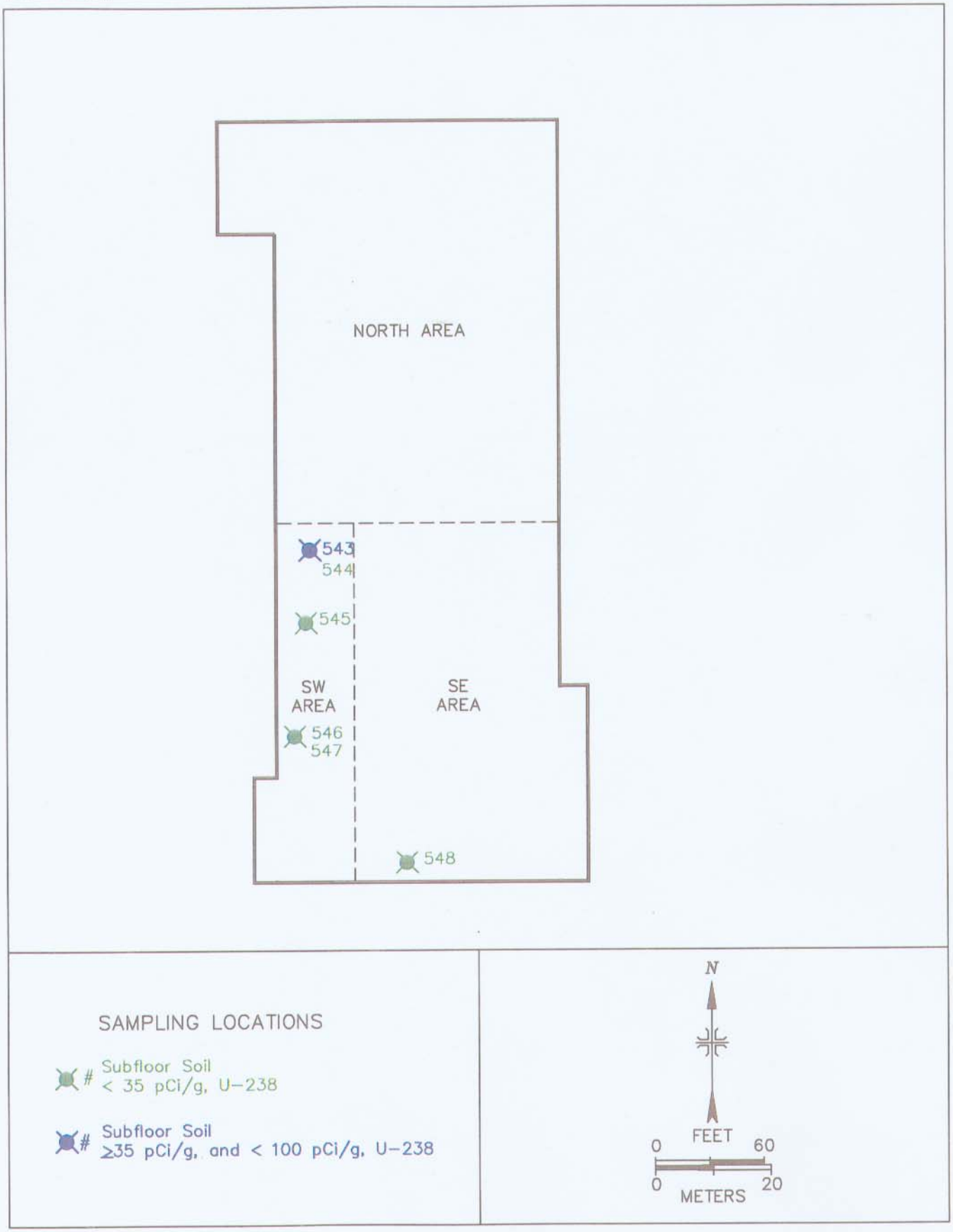


FIGURE 32: Building 24 – Sampling Locations

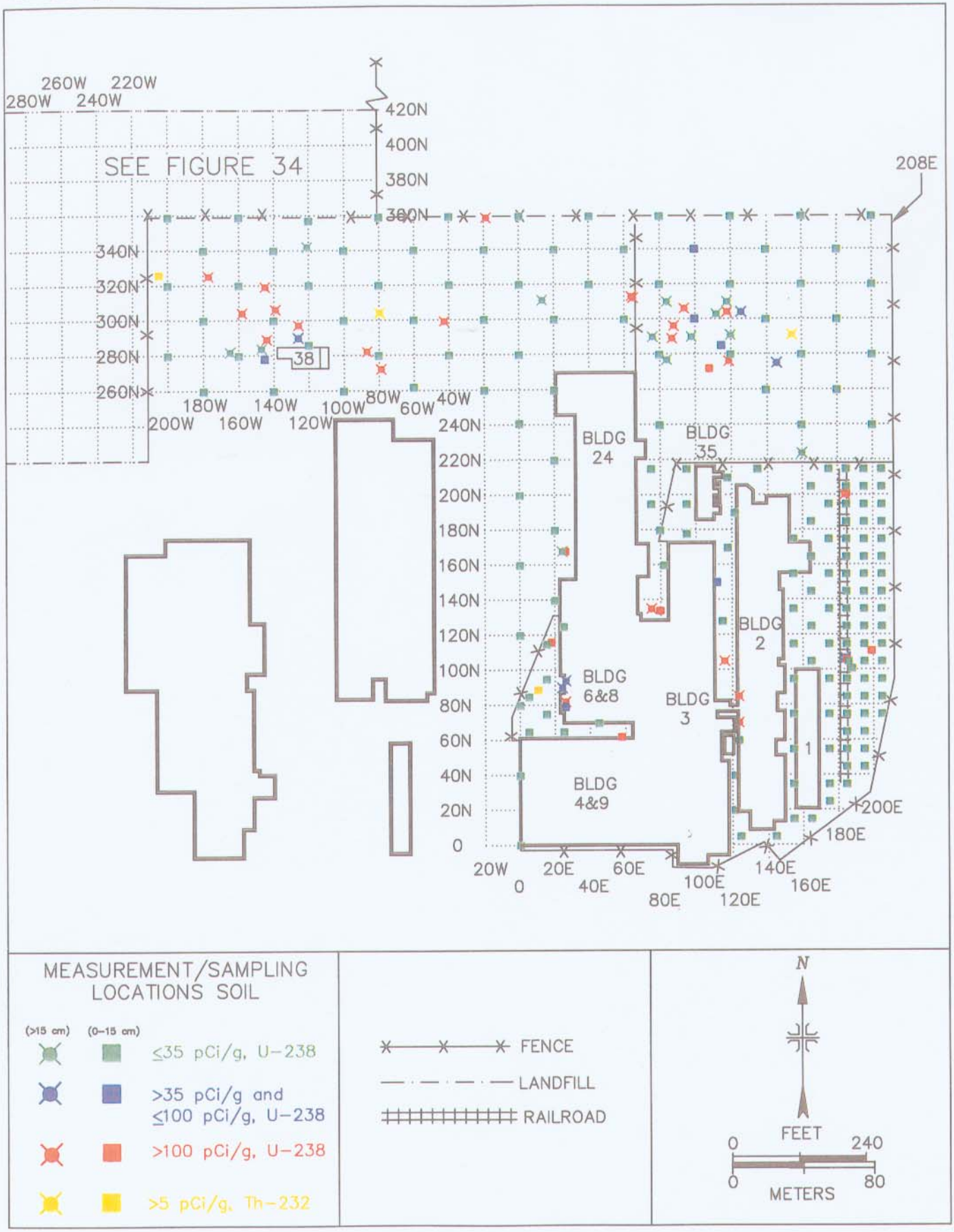
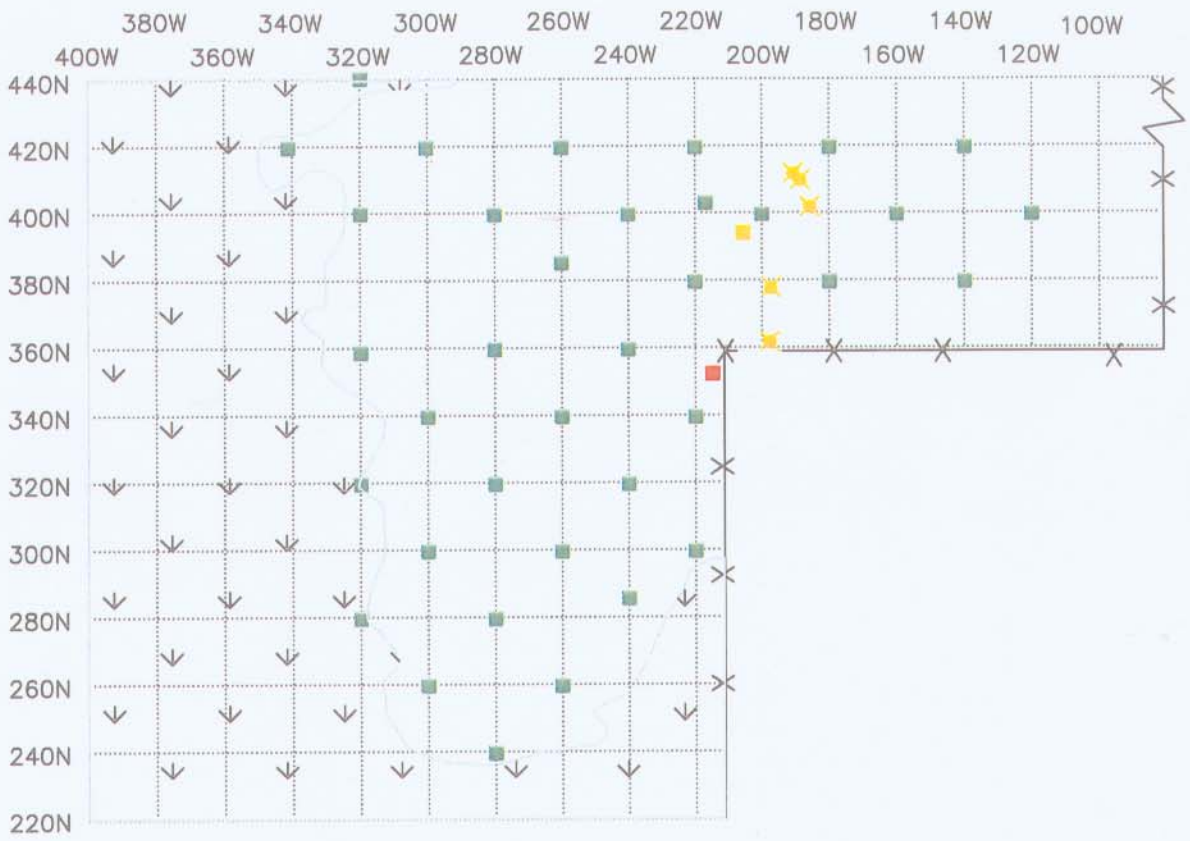


FIGURE 33: Guterl Specialty Steel Corporation – Class 1 and 2 Areas Measurement and Sampling Locations



MEASUREMENT/SAMPLING LOCATIONS SOIL

(>15 cm) (0–15 cm)

≤35 pCi/g, U–238

>100 pCi/g, U–238

>5 pCi/g, Th–232

FENCE

Marsh Inaccessible

N

FEET 0 120

METERS 0 40

FIGURE 34: Landfill Area – Measurement and Sampling Locations

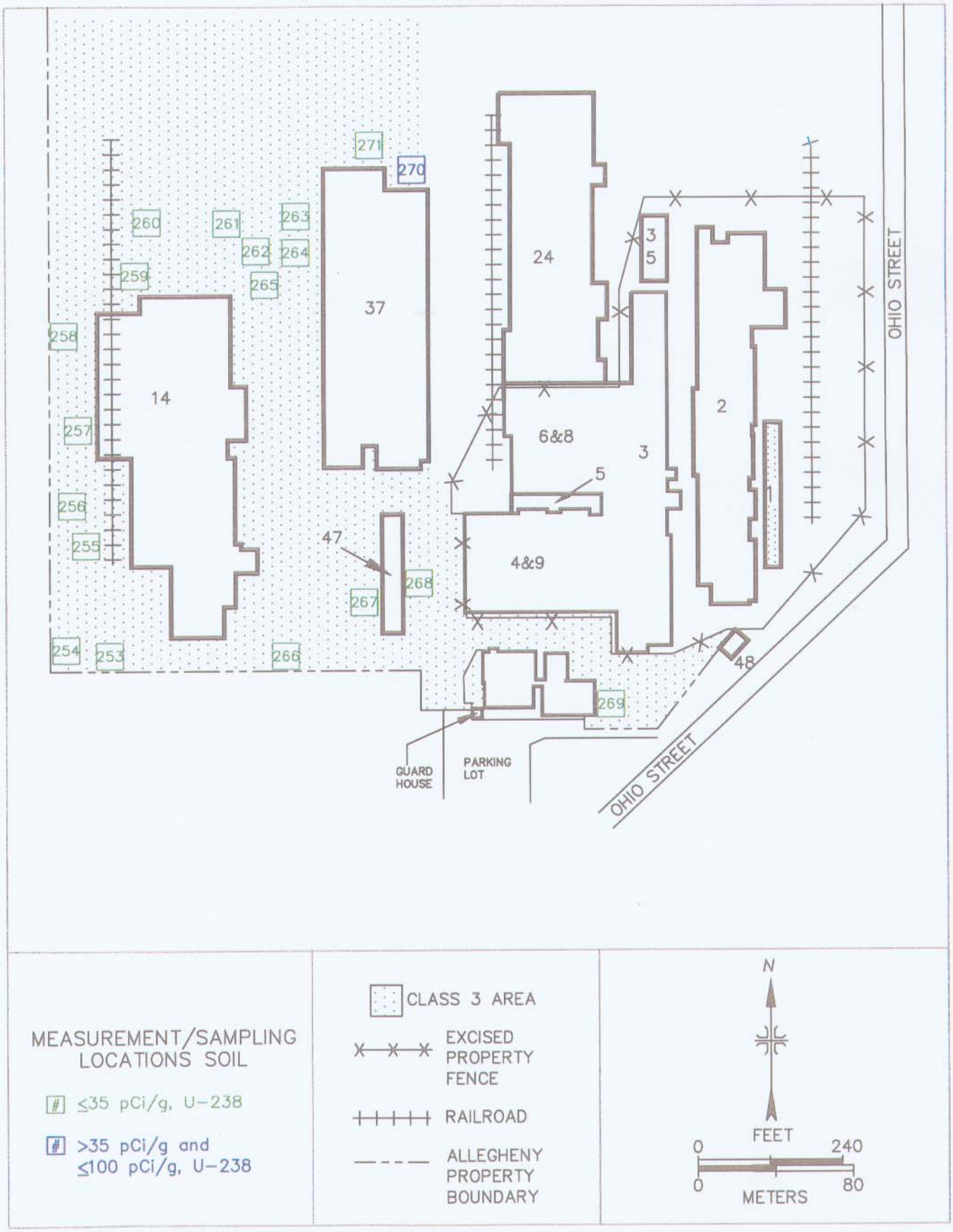


FIGURE 35: Exterior Class 3 Area – Sampling Locations

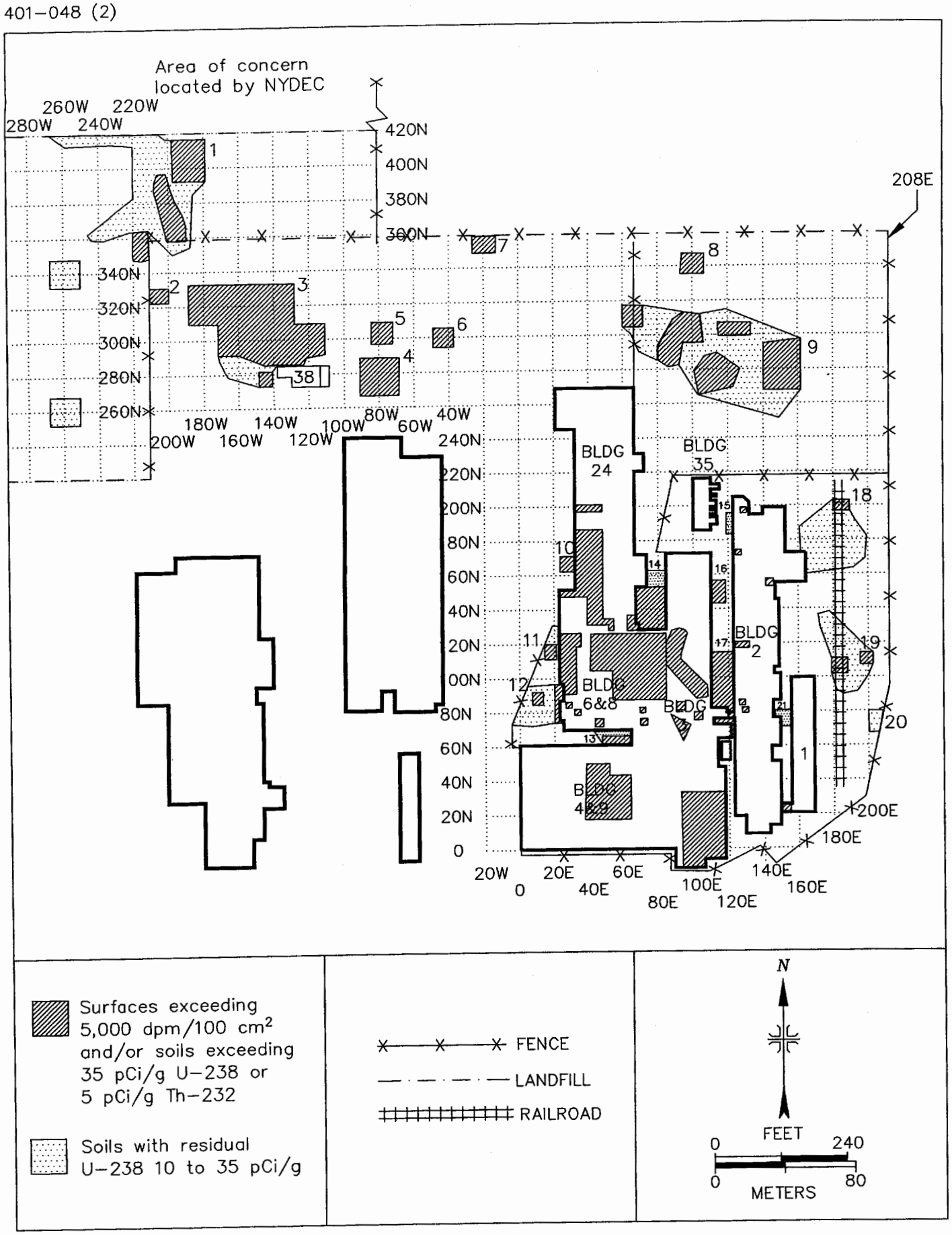


FIGURE 36: Guterl Specialty Steel Corporation – Impacted Areas

624

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FINAL REPORT

RADIOLOGICAL SURVEY OF THE FORMER SIMONDS SAW AND STEEL COMPANY, LOCKPORT, NEW YORK

[redacted]

Work performed
by the
Health and Safety Research Division
Oak Ridge National Laboratory
Oak Ridge, Tennessee 37830

September 1978

for the
DEPARTMENT OF ENERGY
as part of the
Formerly Utilized Sites
Remedial Action Program

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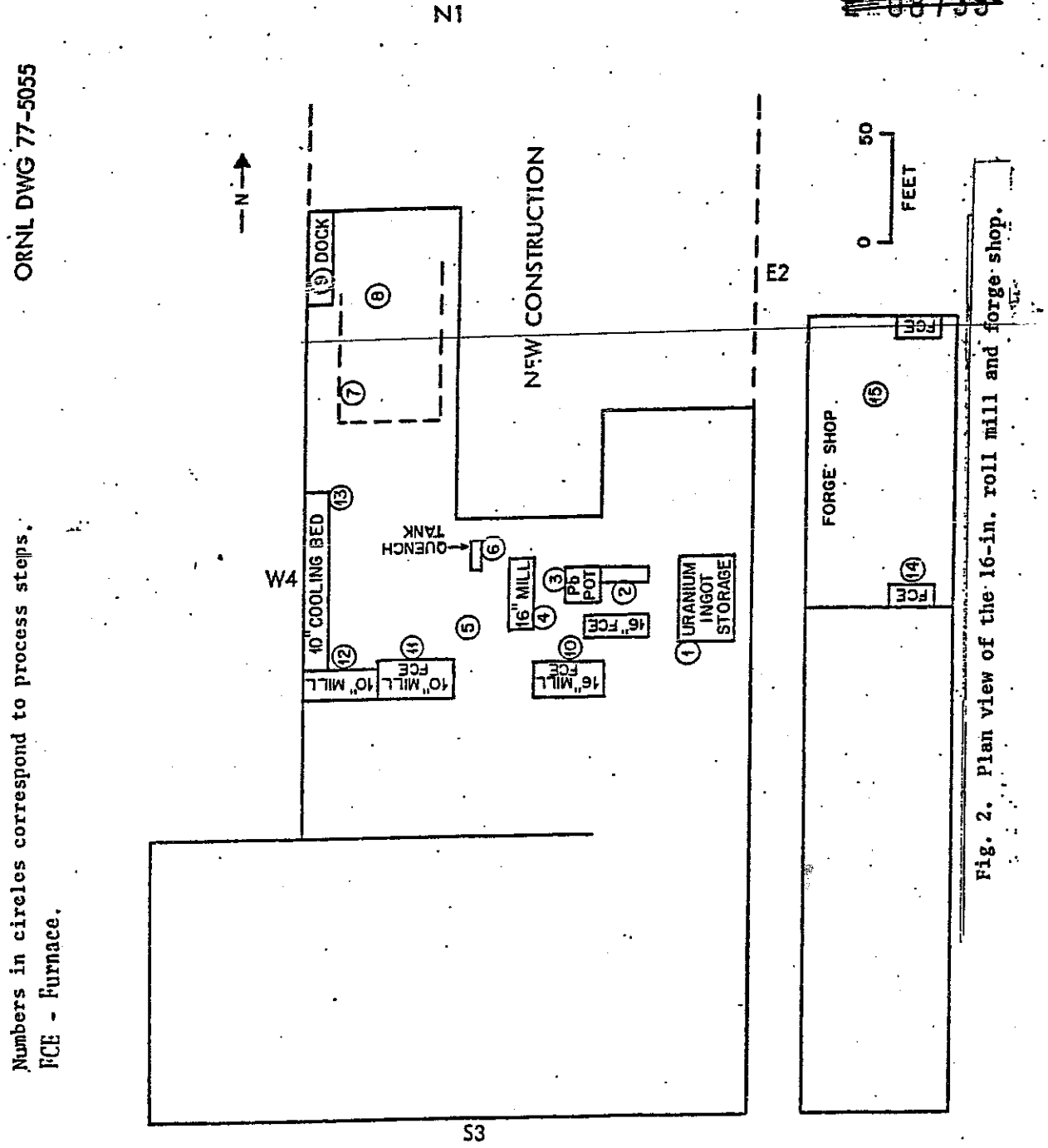

Fig. 2. Plan view of the 16-in. roll mill and forge shop.

ORNL DWG 77-5055

Figure 2 – Plan view of the 16-inch roll mill and forge shop.

ORNL DWG 77-5060 624

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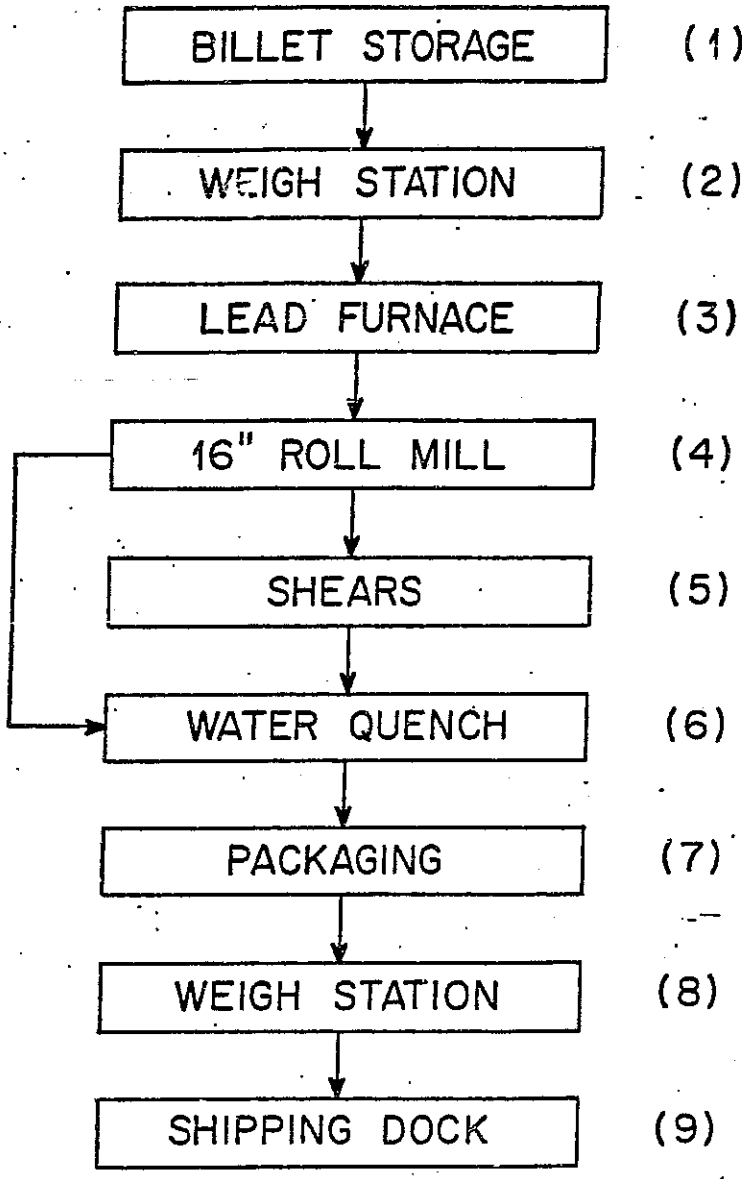

URANIUM FLOW CHART

Fig. 3. Flow chart describing path of uranium during operations at Simonds.

ORNL DWG 77-5060

Figure 3 – Flow chard describing path of uranium during operations at Simonds.