FINAL STATUS SURVEY REPORT

DEFENSE NATIONAL STOCKPILE CENTER

NEW HAVEN DEPOT

NEW HAVEN, INDIANA

Prepared for:

U.S. ARMY JOINT MUNITIONS COMMAND

ROCK ISLAND, IL

On behalf of:

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APPROVALS

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DEFENSE NATIONAL STOCKPILE CENTER

NEW HAVEN, INDIANA

FINAL

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LIST OF ACRONYMS AND ABBREVIATIONS

CABRERA	Cabrera Services, Inc.
cm^2	square centimeter
cm/s	centimeters per second
CF	correction factor
CFR	Code of Federal Regulations
DCGL or $DCGL_W$	derived concentration guideline level
Depot	New Haven Depot
DLA	Defense Logistics Agency
DNSC	Defense National Stockpile Center
dpm/100 cm^2	disintegrations per minute per 100 square centimeters
DQA	data quality assessment
DQO	data quality objectives
ERS	Environment Radiation Safety
FSS	final status survey
GPS	global positioning system
GSA	General Services Administration
GWS	gamma walkover survey
H_a	alternate hypothesis
H_0	null hypothesis
HSA	historical site assessment
IL	Investigation level
m^2	square meters
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDC	minimum detectable concentration
NaI	sodium iodide
NIST	National Institute of Standards and Technology
NORM	naturally occurring radioactive material
NRC	U.S. Nuclear Regulatory Commission
Onsite Laboratory	onsite gamma spectroscopy laboratory
Pangea	Pangea Group
pCi/g	picocuries per gram
QA	quality assurance
RAM	radioactive material
RCOC	radiological contaminant of concern
REGe	reverse electrode germanium
S+	Sign test statistic
SU	survey unit
U.S.	United States
W_R	WRS test statistic
WRS	Wilcoxon Rank Sum
ZnS	zinc sulfide
^{228}Ac	actinium-228
^{214}Bi	bismuth-214
^{232}Th	thorium-232
^{235}U	uranium-235
^{238}U	uranium-238

1.0 INTRODUCTION

Cabrera Services, Inc. (CABRERA) has prepared this Final Status Survey (FSS) report for the Defense National Stockpile Center (DNSC) New Haven Depot (Depot) in New Haven, Indiana. The potential for residual radioactive contamination existed at the Depot since it stored commodities containing naturally occurring radioactive materials (NORM) at several locations within the site. The FSS activities reported in this document were performed in accordance with the *Final Status Survey Plan for the Defense National Stockpile Center, New Haven, Indiana* (CABRERA 2008a).

Inputs to the design of this FSS were obtained through performance of an historical site assessment (HSA) (CABRERA 2006), a characterization survey performed in October and November, 2006 (CABRERA 2007a), additional characterization surveys of outdoor areas and structures from July through September, 2007, and development of land area (soil) site specific derived concentration guideline levels (DCGLs) for the Depot (CABRERA 2008b). The characterization surveys were designed and implemented such that some or all of the data generated may be used as FSS data.

As a result of previous investigations and characterization, impacted land areas and structures at the Depot were identified, with survey units (SUs) assigned using the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) (NRC 2000) classification process determined based on known or potential levels of residual contamination present. A site layout drawing of the Depot, including notations of the impacted structures and land areas, is shown in Figure 1-1.

2.0 FACILITY AND SITE INFORMATION

2.1 Facility Location and Description

The Depot is located on 268 acres 3 miles east of New Haven, Indiana. It is currently owned by the General Services Administration (GSA), and was operated by the DNSC. A series of rail spurs extending off the Norfolk Southern rail line cross the site along the east-west axis, converging at the site's southwestern and southeastern corners. Vehicle access is provided from State Route 14 near the center of the site. A 6-foot high fence topped with three-strand barbed wire surrounds the site. A security officer controls access to the site.

Historically, the Depot's primary mission has been storage of metallurgical ores and materials necessary for manufacturing defense and/or strategic materials. Throughout the system of warehouses and outdoor areas at the Depot, the DNSC has stored columbium/tantalum ores and concentrates, tungsten ores and concentrates, zirconium ore, rare earth sodium sulfate, monazite, tungsten metal scrap, and bastnasite, all containing sufficient amounts of natural uranium and thorium to require licensing under NRC regulations. The DNSC stored these materials in accordance with NRC License STC-133. The materials were typically stored in outdoor piles (zirconium ore) and in wooden boxes or drums (thorium and uranium) in designated bays inside large warehouses.

Due to the large volume stored and the fact that it was stored in a paved but open storage yard, zirconium ore represents the greatest potential of radioactive contamination at the site. Zirconium ore (baddeleyite) is a natural zirconium oxide found in Brazil and Ceylon. The ore contains NORM in the form of uranium and thorium. The zirconium ore at the Depot was stored in two piles designated 111 and 111A in open Area 7A in the northwest corner of the Depot (see Figure 1-1). Approximately half of the zirconium ore in Pile 111 was shipped to the Depot in 1988 from the DNSC depots at Jeffersonville, Indiana and Columbus, Ohio. The contaminated soil at the base of the piles from the Jeffersonville and Columbus Depots comprised the contents of Pile 111A. Pile 111, which was 28 feet high, 296 feet long, and 60 feet wide, covering an area of approximately 1,650 square meters (m^2), contained 31,981,402 pounds of ore. Pile 111A was 28 feet high, 104 feet long, and 50 feet wide, covering an area of approximately 650 m^2. Together, Piles 111 and 111A covered a total surface area of 2,300 m^2.

In 1999, DNSC sampled the piles of zirconium ore to determine the percent abundance of thorium and uranium. The analysis showed that the percent abundance of thorium and uranium for the piles met the criteria established by the NRC to require licensing. Pile 111 contained 0.091% thorium and 0.204% uranium by weight. Pile 111A contained 0.081% thorium and less than 0.004% uranium by weight. Because of the abundance of thorium and uranium, the zirconium ore was controlled by the DNSC in accordance with NRC license number STC-133.

The zirconium ore was sold in October 2000 and was loaded directly into rail cars at the Area 7A storage location by a front-end loader. The rail cars were then moved to the rail scale where the amount of ore in the car was adjusted to maintain an acceptable weight. After achieving the maximum weight, the cars were moved to the shrink-wrapping Area where the tops were shrink-wrapped to preclude loss of the ore during offsite transit. During the loading process, it was possible that some of the ore was inadvertently deposited onto the ground surface. The areas potentially impacted during this process were the railway and roadways used for the transport of the ore, the rail scale area, and the building used for shrink-wrapping the rail cars.

The zirconium ore stored was clastic (pebble sized clasts and finer grained fragments) and thus, was not easily dispersible in the air. Spillage of the ore occurred from either the front-end loader or from the bottom of the rail cars. The paved road from open Area 7A to the rail scale, the rail scale, and the railroad tracks at the southern end of the Depot in front of Building 111, had the largest accumulations of discrete zirconium residue. Spillage in areas where the ore was handled (along other rail lines on the western side of the Depot) consisted of smaller discrete accumulations of ore.

In addition to the outdoor zirconium ore piles, other materials stored at the Depot contained licensable quantities of thorium and uranium and were packaged in either wooden boxes or drums. The boxes and drums were stacked in various bays throughout a series of six storage buildings (Warehouses 210 through 215) as well as other smaller buildings at the Depot. These warehouses are similar in construction and size. Each warehouse is 180 feet wide by 960 feet long, with wood, concrete, or concrete-block structural framing supporting wood roof decks, and a total floor space of approximately 16,054 m^2. The warehouses are subdivided into four equal 180-foot by 240-foot sections, with a floor space of approximately 4,013 m^2 per section. Each of

these sections is further divided into 79 storage bays which are equal in size (approximately 20 feet by 20 feet). Additional buildings where licensed radioactive material (RAM) was handled and/or stored, and considered impacted, include buildings 136, 141, 145 (currently only the footprint remains) and 146.

As discussed in the following sections, prior to performance of the FSS, all licensed RAM had been removed from the Depot, residual licensed RAM (ore) on roadways, rails and the ground surface was removed, and residual contamination in soil and on the surface of structure interiors was remediated.

2.2 Radiological Contaminants of Concern

Based on the composition of the metallurgical ores stored at the Depot, the radiological contaminants of concern (RCOC) are natural thorium and natural uranium. Since the ores containing these RCOCs were simply stored at the Depot and never processed, the radioactive decay products in both the natural thorium and natural uranium chains remain in secular equilibrium with the parent radionuclide, as they were in nature.

The parent radionuclides in the natural thorium and natural uranium decay chains, thorium-232 (^{232}Th) in the natural thorium decay chain, uranium-238 (^{238}U) and uranium-235 (^{235}U) in the natural uranium decay chain, emit alpha particles. The daughter products in both chains decay by emission of alpha or beta particles, some with accompanying emission of gamma rays. The decay schemes for both the natural thorium and natural uranium chains are very well documented, and this knowledge is used in the design of the FSS, as well as the selection of appropriate survey instruments and analysis methods.

2.3 Previous Radiological Studies

In 2002, Environment Radiation Safety Solutions (ERS) conducted a FSS of all impacted outdoor areas at the Depot, excluding open Area 7A where the zirconium ore was stored at the time. Based on the results of the survey, remediation efforts were conducted at each SU in 2002 by ERS.

For the efforts at the rail scale and in front of Warehouse 211, a backhoe was used for the removal of 33 cubic yards of debris. In the remaining affected areas, removal was performed by picking up the rocks by hand and placing the debris in buckets. All debris removed was placed

in open Area 7A. After completion of the remediation efforts, surveys were performed of all areas to demonstrate successful removal of the ore and to ensure residual radioactivity was consistent with background (ERS 2002).

The NRC evaluated the FSS conducted by ERS and concluded that additional information was needed to adequately demonstrate that the Depot areas surveyed met the requirements of 10 CFR 20.1402 for unrestricted release (NRC 2006).

Pangea Group (Pangea) conducted additional removal and remediation of the residual zirconium ore in open Area 7A in 2004 (Pangea 2005). After the ore and soils Piles 111 and 111A were loaded and transported offsite, as described in Section 1.1.1, Pangea removed at least the top 6 inches of soil and residual contamination from the entire 7A area, including the eastern access road and the railroad track bed to the south. After further contamination significantly above background was detected, soil was removed to a depth of 9 inches in the most contaminated areas in open Area 7A. Test pits that were dug in open Area 7A showed further contamination to a depth of 3 feet. Excavation was then discontinued per contract specifications

ERS performed a field audit of Pangea's remediation efforts on July 12 and 13, 2004 (ERS 2004). Elevated gamma results were found along the outside of the planned excavated area during the audit.

CABRERA conducted a Characterization Survey of the Depot, including area 7A, other outdoor areas, and several buildings with a history of RAM storage. Field activities were conducted from October 18, 2006 to November 21, 2006. The RCOCs in soil detected in excess of background were ^{232}Th and ^{238}U.

Gamma walkover surveys (GWS) results in area 7A found several elevated locations. Soil samples were collected throughout 7A and at these elevated gamma locations. Some elevated locations were found to have residual zirconium ore in the form of rocks. Once these rocks were removed, a soil sample was collected. In other elevated locations, no rocks could be identified and separated. Several soil samples were found to be in excess of the ^{232}Th and ^{238}U default NRC screening levels. During remediation efforts, additional bounding samples were collected

throughout area 7A and analyzed at the onsite gamma spectroscopy laboratory (Onsite Laboratory). These results helped to guide remediation efforts so FSS activities could commence.

GWS results in the area north of the rail scale concrete pad found a few elevated locations. Soil samples were collected in one biased locations and identified soil concentrations in excess of the ^{232}Th and ^{238}U default NRC screening levels. During remediation efforts, additional bounding samples were collected around the rail scale area and analyzed. These results helped to guide remediation efforts so FSS activities could commence.

Survey results for Warehouse 210 did not exceed direct or transferable radionuclide screening criteria in Sections 1, 3, and 4. Alpha scan surveys did identify several areas of elevated surface activity in Section 2. These locations were found in three bays (7, 8 and 19) and floor areas adjacent to bays 7 and 8 (designated 7E and 8E) in the northwest corner of this section of the building. Follow-up direct integrated alpha measurements indicated surface activity above NRC default screening criteria over a majority of the floor surfaces in 5 locations (bays 7, 8, 7E, 8E, and 19) and a localized area of surface activity above the $DCGL_w$ on the floor in bay 19. Remedial activities included removing the entire concrete slab floor area in bays 7 and 8, as well as the concrete slab in designated areas 7E and 8E. Surface decontamination was performed over an area of approximately 40 ft^2 in bay 19.

A GWS was performed on the soil in beneath the removed concrete slab. Two small locations of elevated gamma fluence were found, remediated and another GWS was performed. No locations were found above background levels.

GWS results in other outdoor areas were not significantly elevated above background activity. Survey results for the other Warehouses (Buildings 211, 212, 213, 214, and 215) and Buildings 124, 136, and 146 did not exceed direct or transferable radionuclide screening criteria. These data, which satisfy MARSSIM (NRC 2000) final status survey requirements, are presented in this FSS report.

3.0 FINAL STATUS SURVEY DESIGN

This FSS was planned and conducted for each SU associated with impacted outdoor soil areas, outdoor solid surfaces, i.e., pads, roadways, railroad tracks, and structures. The FSS is prepared in accordance with the guidance presented in MARSSIM and follow the data quality objective (DQO) process. This ensures all impacted SUs were surveyed with the necessary rigor that corresponds with the contamination potential. The DQO process includes the following seven steps:

Step 1: State the problem
Step 2: Identify the decisions
Step 3: Identify inputs to the decisions
Step 4: Define the study boundaries
Step 5: Develop a decision rule
Step 6: Specify the decisions
Step 7: Optimize the survey design

The following sections provide the design of the FSS including DCGLs, classification and SU designations, survey planning parameters, instrumentation, measurement and sampling procedures, and the data quality assessments (DQAs) that were implemented.

3.1 Derived Concentration Guideline Levels

Natural thorium and natural uranium and associated decay products have been identified through process knowledge and characterization survey results as the RCOCs. Implementation of this FSS was intended to obtain data necessary to demonstrate compliance with the DCGLs for both structural surfaces and outdoor areas. Therefore, individual sets of DCGLs were developed for application to site soils and structural surfaces. Specifically, when the DCGLs are applied to the FSS and data obtained indicates the DCGLs have been satisfied, the requirements in Title 10, Code of Federal Regulations (CFR), Part 20 (10 CFR 20.1402) for unrestricted release are achieved (NRC 2006). The rationale used in the development of each is provided below.

The DCGLs for radioactive contamination in soil used during the characterization and remediation phases of the project were based on the screening values in NUREG-1757,

Appendix B, Table B.2. However, for FSS compliance purposes, a set of site-specific DCGLs were developed for the Depot (CABRERA, 2008b) and approved by NRC in October 2008. The site-specific $DCGL_w$ for natural thorium (^{232}Th+C) and natural uranium (^{238}U+C) in soil used for the FSS are presented in Table 3-1.

TABLE 3-1: SOIL $DCGL_w$

RCOC	$DCGL_W$
Natural thorium (^{232}Th+C)	2.5 pCi/g[1]
Natural uranium (97.8% ^{238}U+C; 2.2% ^{235}U+C)	2.3 pCi/g[1]

[1] Applies to any of the radionuclides in the ^{232}Th or ^{238}U decay series individually.

In addition, FSS performance and the DQA for soil included the appropriate application of the unity rule using the following equation:

$$\left(\frac{Concentration_{U-nat}}{DCGL_{U-nat}}\right)+\left(\frac{Concentration_{Th-nat}}{DCGL_{Th-nat}}\right)<1$$

The natural thorium and natural uranium structure surface activity $DCGL_w$s are based on the surface activity screening values published in NUREG/CR-5512, Volume 3, Table 5.19 (P_{crit} = 0.90). The primary method of surface activity measurements for both total and removable activity was through use of alpha monitoring instrumentation. Therefore, the surface activity screening values have been calculated based on the total number of alphas emitted in each of the applicable radioactive decay chains, and for natural uranium, the percent contribution from the applicable decay chain, as shown in Table 3-2.

TABLE 3-2: SURFACE ACTIVITY $DCGL_w$

RCOC		NUREG/CR-5512 Screening Level[1]	Total Alphas per Decay	Alpha Based Screening Level[1]	RCOC Alpha $DCGL_w$[1]
Natural thorium (^{232}Th+C)		6.03	6	36.2	36.2
Natural uranium	97.8% ^{238}U+C	19.5	8	156.0	119.2
	2.2% ^{235}U+C	1.48	7	10.4	

[1] disintegrations per minute per 100 square centimeters (dpm/100 cm^2)

As indicated previously, various licensed RAMs were stored at the Depot. To determine the appropriate surface alpha activity $DCGL_w$ for each impacted outdoor surface and interior structure surface, the type of licensed RAM previously stored or present in the area was considered. In general, this licensed material was of 2 types: material predominated by natural uranium and material predominated by natural thorium. This RAM and the average natural uranium and natural thorium activity fractions are presented in Table 3-3.

TABLE 3-3: LICENSED MATERIAL RADIOACTIVITY FRACTIONS

Material	Natural Uranium Fraction	Natural Thorium Fraction
Columbium	0.94	0.06
Tantalum	0.95	0.05
Baddeleyite (zirconium ore)	0.91	0.09
Tungsten ore (Wolframite and Ferberite)	0.08[1]	0.92[1]
Monazite	0.11	0.89
Bastnasite	0.16	0.84

[1] Mixture based on the average fractions for Wolframite and Ferberite

The surface activity $DCGL_w$ for the mixtures of natural uranium and natural thorium in the material presented in Table 3-3 was then determined using the following formula:

$$\text{Mixture } DCGL_w = \frac{1}{\left(\frac{f_{U-nat}}{DCGL_{U-nat}}\right) + \left(\frac{f_{Th-nat}}{DCGL_{Th-nat}}\right)}$$

Where:

f = activity fraction from Table 3-3

DCGL = DCGL from Table 3-2

Applying the above formula to the natural uranium and natural thorium fractions in Table 3-3 results in the mixture $DCGL_w$ presented in Table 3-4.

TABLE 3-4: MATERIAL MIXTURE ALPHA $DCGL_W$

Material	Mixture Alpha $DCGL_w$ (dpm/100 cm^2)
Columbium	105
Tantalum	107
Baddeleyite (zirconium ore)	99
Tungsten ore (Wolframite and Ferberite)	38
Monazite	39
Bastnasite	41

To simplify the application of the mixture $DCGL_w$ for the various licensed RAM previously stored on outdoor surfaces and within structures, the values in Table 3-5 was applied during the FSS.

TABLE 3-5: FSS MATERIAL ALPHA $DCGL_W$

Material	Material Alpha $DCGL_w$ (dpm/100 cm^2)
Material predominated by natural uranium (columbium, tantalum and baddeleyite)	100
Material predominated by natural thorium (tungsten ore, monazite and bastnasite)	38

To apply the material alpha $DCGL_w$ in Table 3-5, the following logic is used:

- If the only material stored or used in an area or within a structure was predominated by natural uranium or natural thorium, the applicable Table 3-5 material alpha $DCGL_w$ was used.
- If two different materials were stored or used in an area or within a structure and one was predominated by natural uranium and the other natural thorium, the material is assumed equally distributed with 50% contribution from each. The resultant material alpha $DCGL_w$ in this instance is 55 disintegrations per minute per 100 square centimeters (dpm/100 cm^2).
- If more than two different materials were stored or used in an area or within a structure and the majority are predominated by natural uranium or natural thorium, the material alpha $DCGL_w$ for the predominant material was used.

Based on the above logic, the alpha $DCGL_w$ applicable to impacted outdoor surface areas and structure surfaces are presented in Table 3-6 and Table 3-7.

TABLE 3-6: OUTDOOR AREA ALPHA $DCGL_w$

Impacted Outdoor Areas	Alpha $DCGL_w$ (dpm/100 cm^2)
Rail Scale	100
Entry Road and Paved Road to Rail Scale	100
Railroad Tracks Used for Shrink-wrapping	100
Railroad Tracks Used for Storage or Transport	100

TABLE 3-7: STRUCTURE ALPHA $DCGL_w$

Building	Impacted Structure Area	Alpha $DCGL_w$ (dpm/100 cm^2)
124	All locations	100
129A	All locations	100
136	All locations	38
141	All locations	100
145 (Footprint)	All locations	100
146	All locations	100
210	Sections 1, 2 and 3: All locations	38
	Section 4: Bays 2-5, 8, 9, 12-14, 32-33, 35, 43, 45, 46, 48, 52-54, 56, 58, and 76 only	100
211	Sections 1 and 2: All locations	55
212	Section 1: Bays 11, 31, 37, 41, 51, 61, and 71	100
	Section 2: Bays 11, 12, and 21	100
213	Sections 1: All locations	38
	Section 2: Bays 12, 13, 15, and 16	38
	Section 3: Bays 11, 19, 21, and 29	100
	Section 4: Bays 1, 9, 11, 15, 21, 31, 38, 39, 41, 51, 59, 67, 69, 75, 78 & 79	100
214	Section 1, 2 and 3: All locations	38
	Section 4: Bays 41-43, 45, 51, 59, 61, 69, and 75-79	55
215	Section 1: Bays 2-4, 11, 12, 13, 22, 23, 25-29, 34-37, 41, 43, 44, 45, 62, and 73-75	38
	Section 2: Bays 36, 41, 42, 46, 52-54, 62, and 63 only	38

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Removable alpha contamination limits on outdoor solid surfaces and structure surfaces are 10% of the alpha $DCGL_w$ values in Table 3-6 and Table 3-7

3.2 Area Classification Based on Contamination Potential

Impacted areas at the Depot were subdivided into three categories based on contamination potential as either Class 1, 2 or 3 in accordance with MARSSIM. A description of each is provided below:

Class 1: Buildings or land areas that have a significant potential for radioactive contamination (based on site operating history) or known contamination (based on previous radiological surveys) that exceeds the $DCGL_w$.

Class 2: Buildings or land areas, often contiguous to Class 1 areas, that have a potential for radioactive contamination but at levels less than the $DCGL_w$.

Class 3: Buildings or land areas that are expected to contain little or no residual contamination based on site operating history or previous radiological surveys.

Furthermore, outdoor solid surfaces, land areas and buildings have been further subdivided into SUs, which provide the fundamental unit for demonstrating compliance with the applicable $DCGL_w$. SU size restrictions generally followed the recommendations in MARSSIM. As previously discussed, the investigation of upper walls and overhead surfaces for all Class 3 SUs within structures resulted in the conclusion these surfaces are non-impacted.

3.3 Identification of Survey Units

All impacted outdoor surfaces, land areas and buildings have been subdivided into Class, 1, 2 or 3 SUs. Each SU represents a portion of the site with similar contamination potential. The MARSSIM recommended SU sizes are provided in Table 3-8.

TABLE 3-8: MARSSIM RECOMMENDED FSS SURVEY UNIT SIZES

Class	Recommended Survey Area	
	Structures	**Land Areas**
1	Up to 100 m^2	Up to 2,000 m^2
2	100 to 1,000 m^2	2,000 to 10,000 m^2
3	No limit	No limit

3.3.1 Land Area Survey Units

During the characterization surveys, five Class 1 survey units (SU 1, SU 2, SU 3, SU 5 and SU 6) and one Class 2 survey unit (SU 4) were identified in Area 7A. The Class 2 survey unit (SU 4) was expanded to surround all Area 7A Class 1 survey units.

The remainder of the Area 7A entry road (eastern two thirds) and paved road to the rail scale (SU 7), rail scale (SU 8 and SU 9), outdoor shrink wrapping area (SU 10), south storage and transport area (SU 11) and west storage and transport area (SU 12) contain solid surfaces, i.e., pavement, or railroad tracks, as well as soil areas. During FSS activities, a GWS was performed on solid surfaces, as well as the land areas. Systematic soil samples were obtained and biased soil sampling performed based on the results of the GWS.

MARSSIM classifications for land (outdoor) area survey units are provided in Table 3-9. Survey unit size generally followed MARSSIM guidance which is provided in Table 3-8.

TABLE 3-9: LAND AREA SURVEY UNITS

Impacted Outdoor Areas	MARSSIM Classification	Survey Unit Number	Survey Unit Size (square meters)
Area 7A	1	1	1,949
		2	1,994
		3	2,026
		5	1,887
Western Third of Entry Road to Area 7A	1	6	1,435
Land Surrounding Area 7A	2	4	5,875
Eastern Two Thirds of Entry Road & Paved Road to Rail Scale (Land Area)	3	7	831
Eastern Two Thirds of Entry Road & Paved Road to Rail Scale (Paved Road)[1]	3	7A	3,423

Rail Scale Concrete Pad[1]	2	8	276
Rail Scale Surrounding Soil	1	9	241
Outdoor Shrink Wrap Area	3	10	3,979
Storage and Transport Area – South	3	11	2,723
Storage and Transport Area – West	3	12	2,814

[1] Survey unit size limitation and survey performance based on structure survey unit requirements.

3.3.2 Structure Survey Units

All structures at the Depot were initially designated as Class 3. However, completion of the characterization surveys resulted in the identification of other impacted structures, as well as generated data necessitating re-classification of portions of some structures.

During characterization surveys, a small structure associated with the rail scale was identified. Since the rail scale concrete slab was determined to be a Class 2 SU (concrete pad), the interior of the structure was added as a Class 2 SU. Because of the very small size of this structure, the floor and lower walls were combined into a single SU. Although it was highly unlikely surface contamination was present on the upper walls and ceiling of this structure, this area was conservatively added as a Class 3 SU, but only requiring surface alpha scans and biased direct alpha measurements.

The warehouse structures are large open areas consisting of numerous bays in several (4) sections. The layout in each of these warehouses is the same. There are 79 bays within each warehouse section, with each bay approximately 20 feet by 20 feet.

During performance of characterization surveys in Warehouse 210, Section 2, alpha scans of floor surfaces identified elevated activity in the northwest corner of this section (CABRERA 2007b). Further investigation concluded these locations were limited to three bays (7, 8 and 19) and floor areas adjacent to bays 7 and 8 (designated 7E and 8E). Follow-up direct integrated alpha measurements indicated surface activity above the $DCGL_w$ over a majority of the floor

surfaces in 4 locations (bays 7, 8, 7E and 8E) and a localized area of surface activity above the $DCGL_w$ on the floor in bay 19.

Remediation of the floor locations in Warehouse 210, Section 2 required complete concrete slab floor removal in bays 7, 8, 7E and 8E, and surface concrete removal in bay 19. The soil area remaining after the removal of the concrete slab in bays 7, 8, 7E and 8E was identified as a single Class 1 land area SU (SU 210-2-6). The concrete floor areas surrounding this area, which included the bay 19 floor area, and the lower walls adjacent to these bays in the northwest corner of section 2 were designated Class 1 structure SUs. Class 1 floor SUs include SU 210-2-1, SU 210-2-2 and SU 210-2-3. The Class 1 lower wall SU was designated SU 210-2-4. Upper walls and overhead surfaces in this area were identified as a single Class 2 SU, SU 210-2-5. Characterization surveys of the floor areas surrounding these Class 1 SUs did not identify elevated activity and, therefore, remained Class 3.

Based on the results of the structure characterization surveys performed in 2006 and 2007, the designation of SUs, MARSSIM classification, and applicable alpha surface activity $DCGL_w$ for each SU are provided in Table 3-10.

TABLE 3-10: SURFACE AND STRUCTURE SURVEY UNITS

Structure	Class	Survey Unit Description	Survey Unit Number	Alpha $DCGL_w$ (dpm/100 cm^2)	Survey Unit Size (square meters)
124	3	Floor	124-F	100	344
		Lower Wall	124-W	100	212
129A	2	Floor and Lower Wall[1]	129A-F	100	26
	3	Upper Wall and Ceiling[2]	129A-C	100	13
136	3	Floor	136-F	38	398
		Lower Wall	136-W	38	164
141	3	Floor and Lower Wall[3]	141-F	100	587
145	3	Floor[4]	145-F	100	323
146	3	Floor	146-F	100	338
		Lower Wall	146-W	100	270
210, Section 2, Bays 6, 9, 16, 17 & 18 (and floor area bounded by these bays)	1	Floor	210-2-1, 210-2-2 & 210-2-3	38	111, 74 & 111
		Lower Wall (north & west adjacent to bays)	210-2-4	38	78
210, Section 2, Bays 6, 9, 16, 17, 18 & 19	2	Upper Walls and Ceiling	210-2-5	38	602
210, Section 2, Bays 7, 8 & floor area between bays 7, 8 & 17, 18 (7E and 8E)	1	Floor[5]	210-2-6	N/A[5]	149
210, Section 1, Section 2 (all remaining bays), Section 3 & Section 4	3	Floor	210-F	Section 1, 2 & 3: 38 Section 4: 100	15,608
		Lower Wall	210-W	Section 1, 2 & 3: 38 Section 4: 100	1,795
211, Sections 1 & 2	3	Floor	211-F	55	8,027
		Lower Wall	211-W	55	936
212, Sections 1 & 2	3	Floor	212-F	100	8,027
		Lower Wall	212-W	100	936
213, Sections 1, 2, 3 & 4	3	Floor	213-F	Section 1 & 2: 38 Section 3 & 4: 100	16,054
		Lower Wall	213-W	Section 1 & 2: 38 Section 3 & 4: 100	1,873
214, Sections 1, 2, 3 & 4	3	Floor	214-F	38	16,054
		Lower Wall	214-W	38	1,873

215, Sections 1 and 2	3	Floor	215-F	38	8,027
		Lower Wall	215-W	38	635
215, Section 4	3	Floor	215-4-F	38	4,013
		Lower Wall	215-4-W	38	368

[1] Building 129A is a small structure associated with the rail scale (rail scale house). Floors and lower walls are combined as a single SU due to the small size of the structure.

[2] Building 129A upper walls and ceiling have very little possibility for contamination. A limited Class 3 survey consisting of alpha scans and biased direct measurements are required.

[3] Floor and lower walls are combined into a single SU due to building safety concerns. Survey performance limited to areas safely accessible.

[4] Building 145 is no longer present; only the former floor surface (concrete pad) remains.

[5] Following slab removal, this became a single Class 1 soil SU requiring 32 systematic surface soil samples, GWS and biased soil samples, as necessary. The applicable $DCGL_w$ are those presented in Table 3-1.

3.4 Background Reference Area and Materials

A background reference area was selected and sampled/measured for comparing soil sample data to the applicable $DCGL_w$ and in evaluation of FSS data in accordance with the planned non-parametric Wilcoxon Rank Sum (WRS) statistical test that was used for land area SUs. The background reference area selected shared similar geo-physical properties and has not been impacted by Depot operations. A total of 32 surface and 32 subsurface reference area background soil samples were collected and analyzed for comparison with SU soil data and performance of the statistical test. A summary of these results is provided in Table 3-11.

TABLE 3-11: REFERENCE AREA SOIL SAMPLE SUMMARY RESULTS[1]

Reference Area	Radionuclide	Mean	Standard Deviation (SD)
Surface Soil	U-238 (Bi-214)	1.23	0.15
	Th-232 (Ac-228)	1.09	0.18
Subsurface Soil	U-238 (Bi-214)	1.24	0.13
	Th-232 (Ac-228)	1.13	0.11
All Soil Samples	U-238 (Bi-214)	1.24	0.14
	Th-232 (Ac-228)	1.11	0.15

[1] All Results shown in pCi/g

As indicated in Table 3-11 the natural radionuclide concentrations and sample standard deviation are extremely similar for surface and subsurface soil. Therefore, the results from the surface and subsurface soil samples were combined into a single background data set (All Soil Samples) for determining SU net radioactivity concentrations and development of the RCOC investigation levels (ILs). More detail on the application of the IL is provided in Section 5.3.

Outdoor solid surface and structure SUs were evaluated using the non-parametric Sign test. Construction material-specific background measurements were obtained in areas of similar construction but without a history of RAM use. These construction material specific measurements were used to correct direct measurements for contribution due to background and natural radioactivity in these materials, prior to converting the data to units of dpm/100 cm^2 for comparison with the applicable $DCGL_w$.

Note: In some instances background measurements were not collected for structure surface materials. For these cases, the material specific background was assumed to be 0 dpm/100 cm^2 for conservatism.

3.5 Reference System

A reference coordinate system was utilized for FSS measurements and sampling locations. Direct measurements on structural surfaces were referenced to prominent building features or a grid system as implemented for the characterization surveys. Soil sample locations were referenced to global positioning system (GPS) coordinates obtained using hand-held GPS units.

3.6 Survey Design

Land area compliance with the $DCGL_w$ was demonstrated through the application of the WRS test for systematic soil sample results from each SU. Structural surfaces were assessed by collecting the required number of gross alpha surface activity measurements within each SU. The Sign test was used for demonstrating compliance with the surface activity $DCGL_w$. These two statistical tests, the WRS and Sign test, were performed to evaluate the SU mean concentration relative to the null hypothesis (H_0). Simply stated, H_0 assumes the residual contamination in the SU exceeds the release criterion. Provided the statistical test is satisfied at the desired confidence level, then H_0 is rejected and the alternate hypothesis (H_a), residual

contamination meets the release criterion, is accepted. The data needs for the statistical tests were determined through the processes in the following sections.

3.6.1 Number of Sample Locations for Survey Units and Reference Area

The following sections describe the bases for and derivation of the minimum required measurements and samples per SU.

(A) Estimation of Relative Shift

The relative shift describes the relationship of site residual radionuclide concentrations to the $DCGL_w$ and is calculated for each SU using the following equation:

$$\Delta/\sigma = \frac{DCGL_w - LBGR}{\sigma}$$

Where:

$DCGL_w$ = applicable value from Table 3-1, Table 3-6 or Table 3-7

LBGR = Lower Bound of the Gray Region; normally established as 50 percent of the applicable $DCGL_w$.

σ = an estimate of the standard deviation of the residual radioactivity or the actual standard deviation obtained from scoping or characterization surveys and/or sampling.

The DQOs were evaluated for each SU or survey area and the decision errors selected. The Type 1 error or probability of incorrectly rejecting H_0 when it is true of 0.05 was selected. The Type 2 error or probability of incorrectly accepting H_0 when it is false will be 0.05 or 0.10. Once these parameters are established and the relative shift determined, the number of data points required by the statistical test is obtained from MARSSIM Tables 5.3 (WRS test) or 5.5 (Sign test) or otherwise generated using COMPASS, Visual Sample Plan or MARSSIM Power software.

For land areas, the number of samples was determined using the results of characterization data from Area 7A and the soil $DCGL_w$ for natural uranium, which is the most restrictive soil $DCGL_w$. The LBGR was adjusted to achieve a relative shift of 1.6 while maintaining the Type 1 and Type 2 error of 0.05. This resulted in 16 samples for each survey unit. However, the minimum number of samples per survey unit has been doubled to assure sufficient survey unit

sample coverage and to account for the potential presence of smaller areas of elevated RCOC concentrations in soil. This results in 32 samples for each survey unit.

For structure SUs, the number of samples was determined using the results of characterization data and the applicable surface activity alpha $DCGL_w$ from Table 3-7. For each structure, the highest sample standard deviation for both floors and lower wall SUs was chosen for determination of the minimum number of FSS systematic direct alpha measurements per SU and the Type 1 and Type 2 error of 0.05 maintained. The LBGR was adjusted for each to achieve a relative shift greater than 1, but less than 3. This resulted in a minimum of 17 samples for each SU. Therefore, a minimum of 17 systematic direct alpha surface activity measurements was collected from each structure SU.

(B) Determining Measurement/Sampling Locations

Measurement and sampling locations were established in either a random-start/systematic fashion for Class 1 and Class 2 SUs or at randomly generated locations for Class 3 SUs. Random start/systematic locations followed the recommended guidance using a triangular measurement or sampling pattern to increase the probability of identifying small areas of residual activity. The spacing (L) between data points on a triangular pattern was determined by:

$$L = \sqrt{\frac{A}{0.866 \times N}}$$

Where:

L = square grid spacing for the SU

A = area of the SU

N = number of sample locations

And the spacing between rows is calculated as:

$$0.866 \text{ x } L$$

MARSSIM recommends the use of area factors to ensure that the survey/sampling design is sensitive enough to detect radioactivity that may be concentrated in a small area. The area factor represents the magnitude by which the concentration within the small area of elevated activity can exceed the $DCGL_w$ while maintaining compliance with the release criterion.

The scan sensitivity (i.e., the required scan minimum detectable concentration [MDC]) necessary to detect a small area of radioactivity at the limit determined by the area factor is calculated using Equation 5-3 of MARSSIM:

Scan MDC (required) = (DCGL) x (Area Factor)

Where:

MDC = minimum detectable concentration required to be achieved by the scan procedure

$DCGL_w$ = derived concentration guideline level

Area Factor = value from Table 5-1 for land areas

For this evaluation, scan MDCs were developed for the 2 inch by 2 inch (2x2) sodium iodide (NaI) and FIDLER (Field Instrument for Detection of Low Energy Radiation) NaI detectors (See Section 4.1).. For simplicity, only the 2x2 NaI detector is used in the EMC evaluation since it has a higher MDC for both natural thorium and natural uranium than the FILDER. Also, although soil may be contaminated with a mixture of natural thorium and natural uranium, only the natural uranium NaI detector MDC is used in this evaluation. Since the 2x2 NaI detector scan MDC for the mixture can be no lower than the natural thorium MDC nor can it be higher than the natural uranium MDC, the use of only the natural uranium MDC will result in a conservative decision regarding the adequacy of the scan surveys for detection of elevated areas of activity (please refer to FSSP for discussion of the gamma scan MDC).

For the Class 1 land SUs, the area factor is determined based on the discrete area represented by each sample location. This area is calculated as the total area of the SU in m^2 (2,000 m^2) divided by the number of proposed sample locations (32), or 62.5 m^2. Using Table 5-1 and interpolating between the natural uranium area factors for 50 and 100 m^2, the area factor is determined to be 2.5. Thus, the required scan MDC is calculated as the DCGL (2.3 pCi/g) times the area factor (2.5), or 5.8 pCi/g. A detailed discussion of the method for interpolation of area factors from Table 5-1 and Table 5-2 is presented in Section 5.3.

The actual 2x2 NaI detector scan MDC for natural uranium was 4.1 pCi/g. According to MARSSIM, if the actual scan MDC is greater than the required scan MDC, additional soil samples are required to ensure that the release criterion can be satisfied. Since the actual scan

MDC was less than the required scan MDC, it was concluded that the scan sensitivity was adequate and the proposed number of samples, 32, is sufficient to ensure the detection of small areas of elevated activity.

3.7 Integrated Survey Strategy

FSS data collected for structure surfaces consisted of alpha scans and direct measurements for alpha surface activity. Gamma scans were performed on outdoor solid surfaces, such as railroads, gravel and paved roads, in lieu of alpha scans. Smears samples, although not used in the final DQA, were collected from each direct alpha measurement location to measure removable alpha surface activity. FSS of open land areas consisted of gamma scans to identify locations of residual contamination and soil samples, analyzed for the RCOCs. Additional biased measurements and samples were obtained, as necessary, from locations where scans indicate the potential for residual contamination.

3.7.1 Surface Scans

Surface gamma scans were performed using NaI scintillation detectors over land areas and outdoor solid surfaces, such as railroad tracks, gravel and paved roads. Structure surface scans were performed using gas proportional detectors for alpha activity. Detectors were coupled to ratemeters or ratemeter-scalers with audible indicators. Characterization gamma scans for land areas and outdoor solid surfaces, and alpha scans for structure surfaces that do not require remediation were also intended as FSS data. Recommended surface scan coverages, as discussed in MARSSIM, are provided in Table 3-12.

TABLE 3-12: MARSSIM RECOMMENDED FSS SCAN COVERAGE

Class	Structures	Land Areas
1	100%	100%
2	10 to 100% floors and lower walls 10 to 50% upper walls and ceilings	10 to 100%
3	Judgmental	Judgmental

3.7.2 Soil Sampling and Surface Activity Measurements

FSS surface and subsurface soil samples were collected from Class 1 land area SUs and surface soil samples collected from Class 2 land areas SUs at pre-determined random-start/systematic locations. Additionally, biased samples were collected from locations where elevated direct gamma radiation was detected by surface scans. Following collection, soil samples were maintained under formal chain-of-custody procedures and then analyzed by gamma spectroscopy, with analytical results reported in units of pCi/g. In Class 1 land area SUs, 32 surface and 32 subsurface systematic soil samples were required, except Warehouse 210, Section 2, SU 210-2-6, which only required surface soil sampling. In Class 2 land area SUs 32 systematic surface soil samples were required. In Class 3 land area SUs 32 surface soil samples were required from random locations.

FSS direct measurements to quantify total alpha activity on structure surfaces were performed at pre-determined random-start/systematic or random locations as applicable. Additional biased measurements were performed within any areas of residual contamination identified by surface scans. Measurements were performed using gas proportional and scintillation detectors coupled to ratemeter-scalers. Surface activity data were converted to units of dpm/100 cm^2.

(A) Class 1 Land Area Survey Units

Class 1 land area SUs in Area 7A included the 4 contiguous SUs (SU 1, SU 2, SU 3, and SU 5) and the western third of the entry road (SU 6). A single Class 1 land area SU (SU 9) surrounds the concrete rail scale (SU 8). Following removal of the concrete floor slab in Warehouse 210, Section 2, the remaining exposed soil is a Class 1 SU (SU 210-2-6).

A minimum of 32 surface and 32 subsurface systematic soil samples were required in SU 1, SU 2, SU 3, SU 5 and SU 6. A minimum of 32 surface systematic soil samples were required in SU 210-2-6. A GWS was required over 100 percent of the accessible areas in each SU and additional biased were samples collected, as necessary.

(B) Class 2 Land Area Survey Units

A single Class 2 land area SU, SU 4, was established for the area surrounding the Class 1 SUs associated with Area 7A (SU 1, SU 2, SU 3, SU 5 and SU 6). A minimum of 32 surface

systematic soil samples were required in SU 4. A GWS was required over approximately 50 percent of this area. Additional biased sampling was required, as necessary, based on the GWS results.

(C) Class 3 Land Area Survey Units

Class 3 land area SUs include (1) the eastern two thirds of the entry road and paved road to the rail scale (SU 7), the outdoor shrink wrapping area (SU 10), the south storage and transport area (SU 11) and the west storage and transport area (SU 12). A minimum of 32 surface soil samples were required from random locations within each SU. For random soil sampling locations identified on solid surfaces, i.e., railroad track and paved road, the sampling location was moved to the nearest soil location adjacent to the road or track. For samples near railroad track, the sample location was moved, as necessary, outside the bounds of the track ballast. A GWS was required over a minimum of 10 percent of the Class 3 SUs.

(D) Class 1 Outdoor Solid Surface Survey Units

There were no Class 1 outdoor solid surface SUs.

(E) Class 2 Outdoor Solid Surface Survey Units

A single Class 2 outdoor solid surface SU was established for the concrete rail scale (SU 8). A minimum of 17 direct alpha measurements and smears for removable alpha surface activity were required at systematic measurement locations. An alpha scan was required over 50 to 100 percent of accessible surface area and additional biased direct alpha measurements were obtained. Biased direct alpha measurements were required, as necessary, based on the results of scans performed.

(F) Class 3 Outdoor Solid Surface Survey Units

A single Class 3 outdoor solid surface SU was identified for the paved portion of SU 7. SU 7 includes the eastern two thirds of the entry road to Area 7A and paved road to the rail scale. However, the only solid surface is the actual paved road. The entry road to Area 7A is packed soil. The paved portion (solid surface) of SU 7 is identified as SU 7A. A minimum of 17 direct alpha measurements and smears for removable alpha surface activity were required at random

measurement locations. A GWS was required over a minimum of 10 percent of the SU area. Biased direct alpha measurements were required, as necessary, based on the results of scans performed.

The applicable alpha surface activity $DCGL_w$ for all outdoor solid surfaces is 100 dpm/100 cm^2 as presented in Table 3-6.

(G) Class 1, 2 and 3 Structure Survey Units

Class 1 structure SUs included the re-classified portions of Warehouse 210, Section 2, identified as SU 210-2-1, SU 210-2-2 and SU 210-2-3, and the lower walls adjacent to these SUs, identified as SU 210-2-4. Class 2 structure SUs included the upper walls and ceiling associated with the Class 1 SUs in Warehouse 210, Section 2, which is designated SU 210-2-5, and the floor and lower walls of Building 129A, designated SU 129A-F. All other structures at the Depot are Class 3, with SUs identified in Table 3-10. An alpha scan was required over a minimum of 10 percent of each SU. A minimum of 17 direct alpha measurements were required in each SU, with the exception of SU 129A-C, which required a scan survey and biased direct alpha measurements only. Additionally, a smear was required at each direct alpha measurement location to assess removable alpha contamination. Biased direct alpha measurements were required, as necessary, based on the results of alpha scans performed.

(H) Other Sampling

Floor surfaces in portions of Warehouse 214 have been coated with an epoxy paint to encapsulate asbestos. Therefore, direct measurements for alpha activity in this SU (floor) were supplemented with additional sampling. In this SU, any licensed radioactivity previously present on the surface of the concrete floor is now contained by the epoxy paint. The potential surface radioactivity was assessed by removing the coating material using mechanical methods (hammer and chisel) over an area of approximately 260 square centimeters (cm^2) in each of the sample locations in Warehouse 214 (12 total sample locations from Sections 1, 2 and 3). Difficulties were encountered during sampling while attempting to remove only paint from the floor surface. Due to the epoxy paint cured hardness and surface adhesion much of the sample mass from each location was actually concrete. Since concrete contains naturally occurring radionuclides which

are the same as the Depot RCOC's, it was also necessary to obtain concrete samples from a non-impacted concrete floor surface in one of the warehouses. These samples were used to establish background concentrations in concrete to assure the analyses and data evaluation adequately reflected the potential surface activity present between the concrete floor surface and epoxy paint in Warehouse 214. The epoxy paint samples and background concrete samples were collected, composited and analyzed for the RCOCs. Following removal of the epoxy paint samples, a direct alpha surface activity measurement was performed to assess the residual activity remaining on the concrete surface.

4.0 INSTRUMENTATION AND CALIBRATION

Field and laboratory instrument calibrations were performed using National Institute of Standards and Technology (NIST) traceable radioactive standards (sources). Specific field and laboratory instrumentation are discussed in the following sections.

4.1 Field Instrumentation

The following survey instrumentation was used during the FSS.

4.1.1 Scanning Instrumentation

Alpha Scans

Alpha surface activity scans were performed with the Ludlum Model 43-37 gas proportional detector (physical area of 582 cm^2) coupled to a Ludlum Model 2360. The Ludlum Model 43-68 gas proportional detector (physical area of 126 cm^2) coupled to a Ludlum Model 2224 was not used for alpha surface activity scans because the slow scan speed delayed survey progress. The probability of observing one or more counts, scan speed in centimeters per second (cm/s) and pause times in seconds (s) for the detector and the three surface activity $DCGL_w$ values from Table 3-7 are provided in Table 4-1.

TABLE 4-1: ALPHA SCAN PARAMETERS

Detector	Probability	Scan Speed (cm/s)	Pause Time (s)
Surface Activity Alpha $DCGL_w$ = 38 dpm/100 cm^2			
43-37	0.79	4	4
Surface Activity Alpha $DCGL_w$ = 55 dpm/100 cm^2			
43-37	0.90	4	3
Surface Activity Alpha $DCGL_w$ = 100 dpm/100 cm^2			
43-37	0.99	4[1]	2

[1] Scan speed could be increased to 6 cm/s, with a probability of 0.93.

Gamma Scans

Gamma scans were initially performed in Class 1, Class 2 and Class 3 land area SUs with a 2x2 NaI detector coupled to a Ludlum Model 2221 or equivalent ratemeter. The 2x2 NaI detector

scan MDC for natural thorium is 1.6 pCi/g and the scan MDC for natural uranium is 4.1 pCi/g. However, for FSS it was determined that a detector with a more sensitive (lower) scan MDC was necessary as an added measure of conservatism. As a result, each Class 1, Class 2 and Class 3 land area SU was scanned using a FIDLER NaI detector, also coupled to a Ludlum Model 2221 or equivalent ratemeter. The FIDLER detector has a natural thorium scan MDC of 0.4 pCi/g and natural uranium scan MDC of 1.1 pCi/g. The scan MDC calculations for each detector are provided in the FSSP (CABRERA 2008a).

4.1.2 Direct Surface Activity Measurement Instrumentation

Direct measurements for surface alpha activity were performed on outdoor solid surfaces and structure surfaces using a Ludlum Model 43-37 gas proportional detector (physical area of 582 cm^2) and a Ludlum Model 43-68 gas proportional detector (physical area of 126 cm^2) or Ludlum Model 43-89 zinc sulfide scintillation detector (physical area of 125 cm^2), coupled to a Ludlum Model 2360 or Ludlum Model 2224 ratemeter. Direct measurement alpha MDC's for these instruments are:

- With a background and sample count time of 1 minute using the Ludlum Model 43-37, the alpha MDC is 18 dpm/100 cm^2.
- With a 10 minute background count time and 3 minute sample count time for the Ludlum Model 43-68, the alpha MDC is 15 dpm/100 cm^2.
- With a 10 minute background count time and 3 minute sample count time for the Ludlum Model 43-89, the alpha MDC is 25 dpm/100 cm^2.

Shorter background and sample count times with the Ludlum Model 43-68 were acceptable for areas with a surface alpha $DCGL_w$ greater than 38 dpm/100 cm^2. A 1 minute background and sample count time results in an alpha MDC of 37 dpm/100 cm^2, which is acceptable for surface areas with an alpha $DCGL_w$ of 55 dpm/100 cm^2 or 100 dpm/100 cm^2. Similarly, shorter background and sample count times with the Ludlum Model 43-89 were acceptable, but only for areas with an alpha $DCGL_w$ of 100 dpm/100 cm^2. A 1 minute background and sample count time with the Ludlum Model 43-89 results in an alpha MDC of 60 dpm/100 cm^2.

Note: When using a large area detector such as the Ludlum Model 43-37 gas proportional detector, direct measurement results from Class 1 SUs were not corrected for detector area. However, measurements with this detector in Class 2 and Class 3 structure SUs were corrected

for detector area. The primary concern with large area detectors is the possibility of masking (or averaging over an inappropriately large area) elevated activity associated with hot spots. However, since hot spots were not expected within Class 2 or Class 3 SUs, this was not a concern and detector area correction was acceptable.

4.2 On-Site Laboratory Instrumentation

FSS soil, remediation support soil samples and FSS smear samples were analyzed in accordance with CABRERA standard operating procedures. Soil samples were analyzed by gamma spectroscopy and results reported in units of pCi/g. Smear samples were analyzed using an alpha/beta scaler and alpha removable activity results reported in units of dpm/100 cm^2.

4.2.1 Smear Analysis Instrumentation

Smears for removable alpha activity on outdoor solid surfaces and structure surfaces were analyzed with a Ludlum Model 2929 scaler or a Tennelec Series 5 XLB Automatic Low Background Alpha/Beta Counting System. Both instruments are capable of simultaneous analysis of alpha and beta radioactivity on media such as smears. For the 2929, a 20 minute background count time and 5 minute sample count time results in an alpha MDC of 3 dpm/100 cm^2. For the Tennelec Counting System, a 20 minute background count time and 5 minute sample count time results in an alpha MDC of 1.3 dpm/100 cm^2.

4.2.2 Soil Sample Analysis

FSS soil samples and soil samples collected in support of remediation were analyzed using a Canberra reverse electrode germanium (REGe), n-type detector with 60 percent relative efficiency coupled to a Canberra Inspector-2000 multi-channel analyzer. The detector and samples were housed within a 2 inch thick stackable ring-style lead shield. The *a priori* MDC for ^{232}Th is approximately 0.1 pCi/g (based on the 0.911 MeV photopeak from actinium-228 [^{228}Ac]) and 0.2 pCi/g for ^{238}U (based on the 0.609 MeV photopeak from bismuth-214 [^{214}Bi]), with a 10 minute count time. Adjustments to count times were allowed with an analysis target MDC not greater than 50 percent of the soil $DCGL_w$; 2.5 pCi/g ^{232}Th and 2.3 pCi/g ^{238}U.

Following collection, soil samples were dried and placed in 1 liter plastic marinelli containers for analysis. The sample container lids were sealed with tape and the samples analyzed following a 21 day in-growth period to allow for the ^{238}U decay progeny to again reach equilibrium. However, it was determined during sample test counts that the 21-day in-growth period did not

reliably produce increased uranium daughter product concentrations to match what was theoretically expected. Since an equilibrium condition could not be proven for the field samples, an equilibrium correction factor (CF) for ^{238}U and ^{232}Th was generated to account for the radionuclide in-growth of the daughters to the immediate count results. To establish this decay CF, CABRERA personnel collected 18 FSS soil samples, dried and analyzed them immediately for ^{214}Bi and ^{228}Ac. The samples were then sealed, stored for 21 days, and re-analyzed using the same protocols. The mean difference between the results was a 1.3 CF for ^{214}Bi and 1.0 for ^{228}Ac. Once these CFs were established, FSS soil samples were collected, dried and analyzed immediately without the 21-day hold time. The analysis results for ^{214}Bi were multiplied by 1.3 to obtain the corrected FSS result. No adjustment to the ^{228}Ac results was required (CF = 1).

4.3 Off-Site Laboratory Analysis

A minimum of 5 percent of FSS soil samples were prepared and submitted to an off-site laboratory for analysis. The off-site laboratory assured procedures and analytical methods were employed to achieve a target MDC of 50 percent of the soil $DCGL_w$; 2.5 pCi/g ^{232}Th and 2.3 pCi/g ^{238}U.

In addition to independent verification of the adequacy of soil sample analyses performed on-site, the QC measurement results were also used to validate the adequacy of the ^{214}Bi and ^{228}Ac decay correction factors.

5.0 DETERMINING COMPLIANCE WITH DCGLS

As discussed in Section 3.1, both soil concentration and surface activity DCGLs have been developed for comparison with collected FSS data. These DCGLs apply to both the mean concentrations of each SU, i.e., $DCGL_{w,}$ as well as small areas of elevated contamination in excess of the IL, i.e., $DCGL_{EMC}$. Compliance demonstration with both requirements for each SU is discussed in the following sections.

5.1 Land Area Survey Units

Land area SUs were evaluated using the WRS test. The sum of the ratios (SOR) was determined from each SU systematic soil sample and background reference area soil sample result. The DCGL in this case was also established as 1. The reference area results were then adjusted by adding the DCGL to the calculated SOR. The results for both data sets were then ranked as follows:

1. Rank all SU and reference area measurements in order of increasing size from 1 to N, where N is the total number of pooled measurements.
2. If several measurements have the same value, assign them the average ranking of the group of tied measurements.
3. Sum the ranks of the adjusted reference area measurements; this value is the WRS test statistic (W_R).
4. Compare the value of W_R to the critical value in MARSSIM Table I.4 for the appropriate sample size and decision level. For 32 SU and 32 reference area samples, the critical value is 1162.

Prior to applying the test, if the difference between the largest SU result and the smallest reference area result is less than the $DCGL_w$, the SU will always pass the WRS test. No further evaluation is necessary as the SU will always pass the WRS test and the H_0 rejected. Otherwise, W_R must be calculated. If W_R is greater than the critical value, then H_0 is rejected and the SU meets the established criteria. If W_R is less than or equal to the critical value H_0 is not rejected and an investigation, remediation, reclassification, and/or re-survey should be performed as appropriate.

5.2 Outdoor Solid Surface/Structure Survey Units

Structure SUs, including outdoor solid surfaces, were evaluated using the Sign test. Individual activity values and the average activity were calculated. If all values from the random or random-start/systematic locations for a SU were less than the guideline ($DCGL_w$ for Class 1 and 2 SUs; 75 percent of the $DCGL_w$ for Class 3 SUs), the SU satisfied the criterion and no further evaluation was necessary.

If the average activity value was greater than the guideline, the survey did not satisfy the criterion and further investigation, possible reclassification, remediation, and/or re-survey was required. If the average activity value was less than the guideline, but some individual values were greater, data evaluation using the Sign test was performed, as follows:

1. List each of the SU measurements.
2. Subtract each measurement from the $DCGL_w$.
3. Discard all differences which are "0"; determine a revised sample size.
4. Count the number of positive differences; this value is the sign test statistic (S+).
5. Compare the value of S+ to the critical value in MARSSIM Table I.3 for the appropriate sample size and decision level.

If S+ is greater than the critical value, the H_0 is rejected and the SU meets the established criteria. If S+ is less than or equal to the critical value, the H_0 is not rejected, and the SU does not meet the established criteria; investigation, remediation, reclassification, and/or re-survey should be performed, as appropriate.

5.3 Elevated Measurement Comparison Criteria

Soil samples or direct measurement results that exceed the $DCGL_w$ must also be evaluated for compliance with the $DCGL_{EMC}$. The statistical tests for demonstrating compliance are such that some samples/measurements may exceed the $DCGL_w$, yet still reject the H_0. Therefore, both statistically based (systematic) and biased samples exceeding the $DCGL_w$ by a predetermined threshold (the 'investigation level' (IL) as defined in the FSSP for soil samples and the surface activity $DCGL_w$ for direct surface activity measurements) must be compared with a $DCGL_{EMC}$ that corresponds with the size of a given area of elevated activity, defined as the $DCGL_w$ times the "area factor."

Using all 64 reference area surface and subsurface background soil sample results obtained in 2007, the soil sample ILs were determined to be 4.05 pCi/g for ^{232}Th and 3.95 pCi/g for ^{238}U. Therefore, if the ^{232}Th or ^{238}U net soil concentrations (reported soil concentration minus the average soil background concentration) were greater than the applicable IL, or the SOR for both ^{232}Th or ^{238}U was greater than 1, investigation was required. Investigation may have included re-sampling, re-analysis of the sample or comparison of the sample result against the $DCGL_{EMC}$ for the affected area.

Area factors for land survey units, generated along with the site-specific DCGL's (CABRERA 2008b), are provided in Table 5-1. Default area factors for structures, obtained from MARSSIM Table 5.7, are provided in Table 5-2. To determine the appropriate $DCGL_{EMC}$, the area factor associated with the estimated area of elevated activity is obtained from Table 5-1 or Table 5-2. The $DCGL_{EMC}$ is then the RCOC $DCGL_w$ times the area factor.

As seen in Table 5-1 and Table 5-2, area factors are provided for select land and structure areas within a SU. Very rarely does an area of elevated activity correspond to one of these listed areas.

$$\frac{\ln(X) - \ln(\text{lower bound AF})}{\ln(\text{upper bound AF}) - \ln(\text{lower bound AF})} = \frac{\ln(\text{elevated area}) - \ln(\text{lower bound area})}{\ln(\text{upper bound area}) - \ln(\text{lower bound area})}$$

Therefore, interpolation of the table values is necessary. For a more precise determination of the area factor, the following formula is used:

Where:

X = area factor for the elevated area

ln = natural logarithm

AF = area factor

For example: A single soil sample in a Class 1 land area SU exceeds the IL for ^{238}U. The SU area is 2000 m^2. A total of 32 soil sample were obtained. Therefore, the area represented by the sample is 62.5 m^2. The following is obtained from Table 5-1:

Lower bound area = 50 m^2

Upper bound area = 100 m^2

Lower bound U-nat AF = 2.6

Upper bound U-nat AF = 2.3

Using this information, the equation becomes:

$$\frac{\ln(X) - \ln(2.6)}{\ln(2.3) - \ln(2.6)} = \frac{\ln(62.5) - \ln(50)}{\ln(100) - \ln(50)}$$

Solving for X, the area factor for the 62.5 m^2 elevated area is 2.5. In this example, the $DCGL_{EMC}$ for natural uranium is then 2.3 pCi/g times 2.5 or 5.8 pCi/g. Similarly, the natural thorium $DCGL_{EMC}$ for this same area is 2.5 pCi/g times 1.7 or 4.3 pCi/g.

TABLE 5-1: LAND SURVEY UNIT AREA FACTORS

Area (m^2)	**1**	**5**	**10**	**50**	**100**	**300**	**1,000**	**3,000**	**10,000**
Natural Thorium Area Factor	12.9	4.2	2.8	1.8	1.6	1.4	1.1	1.0	1.0
Natural Uranium Area Factor	19.9	6.5	4.3	2.6	2.3	1.8	1.1	1.0	1.0

TABLE 5-2: SURFACE AND STRUCTURE SURVEY UNIT AREA FACTORS

Area (m^2)	**1**	**4**	**9**	**16**	**25**	**36**
^{232}Th Area Factor	36.0	9.0	4.0	2.2	1.4	1.0
^{238}U Area Factor	35.7	9.0	4.0	2.2	1.4	1.0

When individual samples or measurements have elevated concentrations greater than an $DCGL_W$ or IL but less than the respective $DCGL_{EMC}$, the impact of multiple hot spots on the mean concentration in a SU must also be evaluated. This was performed using MARSSIM Equation 8-2.

6.0 RESULTS

A summary of the FSS results are presented below. Complete analytical data are provided in Appendix B.

6.1 Land Area Survey Units

6.1.1 Area 7A

Area 7A consists of Class 1 SUs 1, 2, 3, 5, and 6 which are surrounded by a single Class 2 survey unit, SU 4. Systematic soil sample summary results for SUs 1 through 6 are provided in Table 6-1. Biased soil sample summary results for SUs 1 through 6 are provided in Table 6-2.

TABLE 6-1: AREA 7A SYSTEMATIC SAMPLE SUMMARY RESULTS

^{232}Th Summary										
	Surface Soil (0-15 cm) Net Concentration					Subsurface Soil (16-30 cm) Net Concentrations				
Survey Unit	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)
1	-0.42	-0.40	0.38	-1.04	0.21	-0.42	-0.46	0.42	-1.07	0.34
2	-0.58	-0.74	0.40	-1.08	0.31	-0.54	-0.61	0.38	-1.12	0.16
3	-0.52	-0.71	0.40	-1.05	0.15	-0.46	-0.60	0.44	-1.09	0.41
4	-0.21	-0.08	0.44	-1.05	0.41	N/A	N/A	N/A	N/A	N/A
5	-0.53	-0.55	0.42	-1.25	0.30	-0.45	-0.41	0.38	-1.21	0.18
6	-0.21	-0.10	0.44	-1.31	0.37	-0.02	0.06	0.34	0.54	-1.10
^{238}U Summary										
	Surface Soil (0-15 cm) Net Concentration					Subsurface Soil (16-30 cm) Net Concentrations				
Survey Unit	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)
1	0.18	0.15	0.84	-1.18	2.03	-0.01	-0.12	0.69	-1.12	2.01
2	0.07	-0.01	0.73	-1.17	2.24	0.22	0.07	0.82	-0.98	2.20
3	-0.02	-0.05	0.52	-1.09	1.18	-0.10	-0.08	0.42	-0.91	0.57
4	0.05	0.04	0.38	-0.81	0.97	N/A	N/A	N/A	N/A	N/A
5	-0.01	-0.14	0.64	-0.85	1.87	-0.04	-0.01	0.45	-0.93	0.92

^{232}Th Summary										
	Surface Soil (0-15 cm) Net Concentration					Subsurface Soil (16-30 cm) Net Concentrations				
Survey Unit	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)
6	0.25	0.16	0.65	-1.05	2.60	0.22	0.22	0.31	-0.65	1.16

TABLE 6-2: AREA 7A BIASED SAMPLE SUMMARY RESULTS

^{232}Th Summary										
	Surface Soil (0-15 cm) Net Concentration					Subsurface Soil (16-30 cm) Net Concentrations				
Survey Unit	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)
1	-0.34	-0.34	0.22	-0.50	-0.19	0.00	0.00	0.04	-0.03	0.02
2[1]	0.10	N/A	N/A	0.10	0.10	-0.07	N/A	N/A	-0.07	-0.07
3[1]	-0.77	N/A	N/A	-0.77	-0.77	-0.78	N/A	N/A	-0.78	-0.78
4[1]	-0.52	N/A	N/A	-0.52	-0.52	N/A	N/A	N/A	N/A	N/A
5[1]	-0.74	N/A	N/A	-0.74	-0.74	-0.83	N/A	N/A	-0.83	-0.83
6[1]	-0.63	N/A	N/A	-0.63	-0.63	-0.58	N/A	N/A	-0.58	-0.58
^{238}U Summary										
	Surface Soil (0-15 cm) Net Concentration					Subsurface Soil (16-30 cm) Net Concentrations				
Survey Unit	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)
1	0.77	0.77	1.01	0.06	1.49	0.20	0.20	0.08	0.14	0.26
2[1]	0.24	N/A	N/A	0.24	0.24	0.25	N/A	N/A	0.25	0.25
3[1]	-0.08	N/A	N/A	-0.08	-0.08	-0.64	N/A	N/A	-0.64	-0.64
4[1]	-0.24	N/A	N/A	-0.24	-0.24	N/A	N/A	N/A	N/A	N/A
5[1]	-0.51	N/A	N/A	-0.51	-0.51	-0.37	N/A	N/A	-0.37	-0.37
6[1]	0.37	N/A	N/A	0.37	0.37	0.11	N/A	N/A	0.11	0.11

[1] Only one sample was collected.

Additional discussion of sampling results and statistical tests for each SU in Area 7A is provided in the following sections. Soil sample analytical data and the WRS test work sheet for each of the Area 7A SUs are provided in Appendix B.

Survey Unit 1

FSS activities in Area 7A SU 1 included a GWS and collection of 32 systematic surface and 32 systematic subsurface soil samples. SU 1 is 1,949 m^2 in area. Therefore, each systematic sample

represents an area of approximately 61 m^2. Additional biased soil sampling was performed based on the results of the GWS. The FSS GWS is provided in Figure 6-1. Systematic and biased sample locations are shown in Figure 6-2.

None of the FSS surface and subsurface soil sample net results exceeded the $DCGL_w$ or unity (1) when evaluating the RCOC net DCGL fraction SOR. The WRS test was performed for both sets of data. The sum of the reference area ranks for the surface soil sample data set was 1538. The sum of the reference area ranks for the subsurface soil sample data was 1549. Both results are greater than the critical level of 1162. Therefore, H_0 is rejected and the SU satisfies the release criteria.

Survey Unit 2

FSS activities in Area 7A SU 2 included a GWS and collection of 32 systematic surface and 32 systematic subsurface soil samples. SU 2 is 1,994 m^2 in area. Therefore, each systematic sample represents an area of approximately 62 m^2. Additional biased soil sampling was performed based on the results of the GWS. The FSS GWS is provided in Figure 6-1. Systematic and biased sample locations are shown in Figure 6-2.

A single FSS surface soil sample exceeded unity (1) when evaluating the RCOC net DCGL fraction SOR. This sample was collected at location 31 within the SU. All surrounding systematic sample results and the subsurface soil sample result were less than the $DCGL_w$. Therefore, the area of elevated activity is bounded horizontally by the maximum area between systematic samples (62 m^2) and vertically to a depth of 6 inches (15 centimeters).The WRS test was performed for both sets of data. The sum of the reference area ranks for the surface soil sample data set was 1529. The sum of the reference area ranks for the subsurface soil sample data was 1546. Both results are greater than the critical level of 1162. Therefore, H_0 is rejected.

However, the impact of the elevated area on the overall status of the SU must be assessed via a $DCGL_{EMC}$ evaluation. From Table 5-1 and the table interpolation equation in Section 5.3, the area factors for a 62 m^2 area are 2.5 for natural uranium and 1.7 for natural thorium, which results in $DCGL_{EMC}$ values of 5.8 pCi/g for natural uranium and 4.3 pCi/g for natural thorium. From MARSSIM Equation 8-2, the resulting fraction is 0.48, which is less than unity (indicating

the maximum SU dose constitutes 48% of the 25 mrem/year limit, or 12.0 mrem/year). Therefore, it is concluded this SU satisfies the release criteria.

Note: To address MARSSIM Equation 8-2, separate terms are included for natural uranium and natural thorium and summed.

Survey Unit 3

FSS activities in Area 7A SU 3 included a GWS and collection of 32 systematic surface and 32 systematic subsurface soil samples. SU 3 is 2,026 m^2 in area. Therefore, each systematic sample represents an area of approximately 63 m^2. Additional biased soil sampling was performed based on the results of the GWS. The FSS GWS is provided in Figure 6-1. Systematic and biased sample locations are shown in Figure 6-2.

None of the FSS surface and subsurface soil sample net results exceeded the $DCGL_w$ or unity (1) when evaluating the RCOC net DCGL fraction SOR. The WRS test was performed for both sets of data. The sum of the reference area ranks for the surface soil sample data set was 1552. The sum of the reference area ranks for the subsurface soil sample data was 1552. Both results are greater than the critical level of 1162. Therefore, H_0 is rejected and the SU satisfies the release criteria.

Survey Unit 4

FSS activities in Area 7A SU included a GWS and collection of 32 systematic surface soil samples. SU 4 is 5,875 m^2 in area. Therefore, each systematic sample represents an area of approximately 184 m^2. Additional biased soil sampling was performed based on the results of the GWS. The FSS GWS is provided in Figure 6-1. Systematic and biased sample locations are shown in Figure 6-2.

None of the FSS surface soil sample net results exceeded the $DCGL_w$ or unity (1) when evaluating the RCOC net DCGL fraction SOR. The WRS test was performed and the sum of the reference area ranks for the surface soil sample data set was 1552. This is greater than the critical level of 1162. Therefore, H_0 is rejected and the SU satisfies the release criteria.

Survey Unit 5

FSS activities in Area 7A SU 5 included a GWS and collection of 32 systematic surface and 32 systematic subsurface soil samples. SU 5 is 1,887 m^2 in area. Therefore, each systematic sample represents an area of approximately 59 m^2. Additional biased soil sampling was performed based on the results of the GWS. The FSS GWS is provided in Figure 6-1. Systematic and biased sample locations are shown in Figure 6-2.

None of the FSS surface and subsurface soil sample net results exceeded the $DCGL_w$ or unity (1) when evaluating the RCOC net DCGL fraction SOR. The WRS test was performed for both sets of data. The sum of the reference area ranks for the surface soil sample data set was 1552. The sum of the reference area ranks for the subsurface soil sample data was 1552. Both results are greater than the critical level of 1162. Therefore, H_0 is rejected and the SU satisfies the release criteria.

Survey Unit 6

FSS activities in Area 7A SU 6 included a GWS and collection of 32 systematic surface and 32 systematic subsurface soil samples. SU 6 is the western third of the entry road to Area 7A, which is 1,435 m^2 in area. Therefore, each systematic sample represents an area of approximately 45 m^2. Additional biased soil sampling was performed based on the results of the GWS. The FSS GWS is provided in Figure 6-1. Systematic and biased sample locations are shown in Figure 6-2.

A single FSS surface soil sample exceeded the natural uranium $DCGL_w$ and unity (1) when evaluating the RCOC net DCGL fraction SOR. This sample was collected at location 18 within the SU. All surrounding systematic sample results and the subsurface soil sample result were less than the $DCGL_w$. Therefore, the area of elevated activity is bounded horizontally by the maximum area between systematic samples (45 m^2) and vertically to a depth of 6 inches (15 centimeters). The WRS test was performed for both sets of data. The sum of the reference area ranks for the surface soil sample data set was 1525. The sum of the reference area ranks for the subsurface soil sample data was 1552. Both results are greater than the critical level of 1162. Therefore, H_0 is rejected.

However, the impact of the elevated area on the overall status of the SU must be assessed via a $DCGL_{EMC}$ evaluation. From Table 5-1 and the table interpolation equation in Section 5.3, the area factors for a 45 m^2 area are 2.7 for natural uranium and 1.9 for natural thorium, which results in $DCGL_{EMC}$ values of 6.2 pCi/g for natural uranium and 4.8 pCi/g for natural thorium. From MARSSIM Equation 8-2, the resulting fraction is 0.49, which is less than unity (indicating the maximum SU dose constitutes 49% of the 25 mrem/year limit, or 12.2 mrem/year). Therefore, it is concluded this SU satisfies the release criteria.

Note: To address MARSSIM Equation 8-2, separate terms are included for natural uranium and natural thorium and summed.

6.1.2 Eastern Two Thirds of the Entry Road to Area 7A and Paved Road to Rail Scale

Survey Unit 7

SU 7 is a MARSSIM Class 3 SU which consists of the eastern two thirds of the entry road to Area 7A and the paved road to the rail scale. The paved road to the rail scale occupies much of the area in this SU (identified as SU 7A), leaving only 831 m^2 of land area.

FSS activities in SU 7 included a GWS and collection of 32 surface soil samples from random locations. Since this area includes land and a paved roadway, this SU only addresses the land portion. The paved road is assigned a separate SU, SU 7A, which is addressed in the structure SU section. SU 7 is 831 m^2 in area. Additional biased soil sampling was performed based on the results of the GWS. The FSS GWS is provided in Figure 6-3. Random and biased sample locations are shown in Figure 6-4. Surface soil sample summary results for SU 7 are provided in Table 6-3. Biased soil sample summary results for SU 7 are provided in Table 6-4.

TABLE 6-3: SURVEY UNIT 7 RANDOM SAMPLE SUMMARY RESULTS

Surface Soil Net Concentrations										
	^{238}U Summary					^{232}Th Summary				
Survey Unit	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)
7	0.02	0.02	0.42	-0.70	1.08	-0.27	-0.30	0.30	-0.77	0.24

TABLE 6-4: SURVEY UNIT 7 BIASED SAMPLE SUMMARY RESULTS

Surface Soil Net Concentrations										
	^{238}U Summary					^{232}Th Summary				
Survey Unit	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)
7[1]	-0.18	N/A	N/A	-0.18	-0.18	-0.58	N/A	N/A	-0.58	-0.58

[1] Only one sample was collected.

Additional discussion of sampling results and statistical tests for SU 7 is provided in the following section. Soil sample analytical data and the WRS test work sheet for SU 7 are provided in Appendix B.

None of the FSS surface soil sample net results exceeded the $DCGL_w$ or unity (1) when evaluating the RCOC net DCGL fraction SOR. The WRS test was performed and the sum of the reference area ranks for the surface soil sample data set was 1552. This is greater than the critical level of 1162. Therefore, H_0 is rejected and the SU satisfies the release criteria.

6.1.3 Rail Scale

Survey Unit 9

SU 9 is a MARSSIM Class 1 SU which consists of the land area around the rail scale (concrete slab identified as SU 8). This land area occupies 241 m^2.

FSS activities in SU 9 included a GWS and collection of 32 systematic surface and 32 systematic subsurface soil samples. SU 9 is 241 m^2 in area. Therefore, each systematic sample represents an area of approximately 7.5 m^2. Additional biased soil sampling was performed based on the results of the GWS. The FSS GWS is provided in Figure 6-5. Systematic and biased sample locations are shown in Figure 6-6. Systematic soil sample summary results for SU 9 are provided in Table 6-5. Biased soil sample summary results for SU 9 are provided in Table 6-6.

TABLE 6-5: SURVEY UNIT 9 SYSTEMATIC SAMPLE SUMMARY RESULTS

^{232}Th Summary										
	Surface Soil (0-15 cm) Net Concentration					Subsurface Soil (16-30 cm) Net Concentrations				
Survey Unit	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)
9	-0.92	-0.92	0.15	-1.34	-0.63	-0.87	-0.90	0.19	-1.21	-0.21
^{238}U Summary										
	Surface Soil (0-15 cm) Net Concentration					Subsurface Soil (16-30 cm) Net Concentrations				
Survey Unit	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)
9	-0.49	-0.57	0.38	-1.12	0.83	-0.57	-0.67	0.32	-0.95	0.43

TABLE 6-6: SURVEY UNIT 9 BIASED SAMPLE SUMMARY RESULTS

^{232}Th Summary										
	Surface Soil (0-15 cm) Net Concentration					Subsurface Soil (16-30 cm) Net Concentrations				
Survey Unit	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)
9[1]	-0.48	N/A	N/A	-0.48	-0.48	0.17	N/A	N/A	0.17	0.17
^{238}U Summary										
	Surface Soil (0-15 cm) Net Concentration					Subsurface Soil (16-30 cm) Net Concentrations				
Survey Unit	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)
9[1]	0.07	N/A	N/A	0.07	0.07	0.21	N/A	N/A	0.21	0.21

[1] Only one sample was collected.

Additional discussion of sampling results and statistical tests for SU 9 is provided in the following section. Soil sample analytical data and the WRS test work sheet for SU 9 are provided in Appendix B.

None of the FSS surface and subsurface soil sample net results exceeded the $DCGL_w$ or unity (1) when evaluating the RCOC net DCGL fraction SOR. The WRS test was performed for both sets of data. The sum of the reference area ranks for the surface soil sample data set was 1552. The sum of the reference area ranks for the subsurface soil sample data was 1552. Both results are greater than the critical level of 1162. Therefore, H_0 is rejected and the SU satisfies the release criteria.

6.1.4 Outdoor Shrink Wrap Area

Survey Unit 10

SU 10 is a MARSSIM Class 3 SU which consists of the outdoor railcar shrink wrap area. This SU occupies an area of 3,979 m^2.

FSS activities in SU 10 included a GWS and collection of 32 surface soil samples at random locations. SU 10 is 3,979 m^2 in area. Additional biased soil sampling was performed based on the results of the GWS. The FSS GWS is provided in Figure 6-7. Random and biased sample locations are shown in Figure 6-8. Systematic soil sample summary results for SU 7 are provided in Table 6-7.

TABLE 6-7: SURVEY UNIT 10 RANDOM SAMPLE SUMMARY RESULTS

Surface Soil Net Concentrations										
	^{238}U Summary					^{232}Th Summary				
Survey Unit	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)
10	-0.39	-0.68	0.55	-0.99	0.53	-0.65	-0.89	0.45	-1.34	0.17

Additional discussion of sampling results and statistical tests for SU 10 is provided in the following section. Soil sample analytical data and the WRS test work sheet for SU 10 are provided in Appendix B.

None of the FSS surface soil sample net results exceeded the $DCGL_w$ or unity (1) when evaluating the RCOC net DCGL fraction SOR. The WRS test was performed and the sum of the reference area ranks for the surface soil sample data set was 1552. This is greater than the critical level of 1162. Therefore, H_0 is rejected and the SU satisfies the release criteria.

6.1.5 Storage and Transport Areas

Survey Unit 11

There are two impacted storage and transport areas, identified as storage and transport area – south, SU 11, and storage and transport area – west, SU 12. Both are MARSSIM Class 3 SUs. SU 11 occupies an area of 2,723 m^2.

FSS activities in SU 11 included a GWS and collection of 32 surface soil samples from random locations. SU 11 is 2,723 m^2 in area. Additional biased soil sampling was performed based on the results of the GWS. The FSS GWS is provided in Figure 6-9. Random and biased sample locations are shown in Figure 6-10.

TABLE 6-8: STORAGE AND TRANSPORT AREA RANDOM SAMPLE SUMMARY RESULTS

Surface Soil Net Concentrations										
	^{238}U Summary					^{232}Th Summary				
Survey Unit	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)
11	0.03	0.06	0.38	-0.78	0.78	-0.36	-0.30	0.32	-1.06	0.11
12	0.29	0.32	0.29	-0.42	0.84	-0.13	-0.10	0.22	-0.75	0.23

Additional discussion of sampling results and statistical tests for SU 11 is provided in the following section. Soil sample analytical data and the WRS test work sheet for SU 11 are provided in Appendix B.

None of the FSS surface soil sample net results exceeded the $DCGL_w$ or unity (1) when evaluating the RCOC net DCGL fraction SOR. The WRS test was performed and the sum of the reference area ranks for the surface soil sample data set was 1552. This is greater than the critical level of 1162. Therefore, H_0 is rejected and the SU satisfies the release criteria.

Survey Unit 12

The second impacted storage and transport area is identified as storage and transport area – west, SU 12. It is a MARSSIM Class 3 SU and occupies an area of 2,814 m^2.

FSS activities in SU 12 included a GWS and collection of 32 surface soil samples from random locations. SU 12 is 2,814 m2 in area. Additional biased soil sampling was performed based on the results of the GWS. The FSS GWS is provided in Figure 6-11. Random and biased sample locations are shown in Figure 6-12. Surface soil sample summary results for SU 11 are provided in Table 6-8.

Additional discussion of sampling results and statistical tests for SU 12 is provided in the following section. Soil sample analytical data and the WRS test work sheet for SU 12 are provided in Appendix B.

None of the FSS surface soil sample net results exceeded the $DCGL_w$ or unity (1) when evaluating the RCOC net DCGL fraction SOR. The WRS test was performed and the sum of the reference area ranks for the surface soil sample data set was 1552. This is greater than the critical level of 1259. Therefore, H_0 is rejected and the SU satisfies the release criteria.

6.1.6 Warehouse 210, Section 2

Survey Unit 210-2-6

Following remediation in Warehouse 210, Section 2 (concrete floor slab removal) the remaining soil area was identified as a MARSSIM Class 1 SU; SU 210-2-6. SU 210-2-6 occupies an area of 149 m^2.

FSS activities in SU 210-2-6 included a GWS and collection of 32 systematic surface soil samples. SU 210-2-6 is 149 m^2 in area. Therefore, each systematic sample represents an area of approximately 5 m^2. Additional biased soil sampling was performed based on the results of the GWS. The FSS GWS is provided in Figure 6-13. Systematic and biased sample locations are shown in Figure 6-14. Systematic soil sample summary results for SU 210-2-6 are provided in Table 6-9.

TABLE 6-9: SURVEY UNIT 210-2-6 SYSTEMATIC SAMPLE SUMMARY RESULTS

Surface Soil Net Concentrations										
	^{238}U Summary					^{232}Th Summary				
Survey Unit	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Median (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)
210-2-6	0.40	0.42	0.14	0.08	0.75	-0.48	-0.54	0.30	-0.70	1.09

Additional discussion of sampling results and statistical tests for SU 210-2-6 is provided in the following section. Soil sample analytical data and the WRS test work sheet for SU 210-2-6 are provided in Appendix B.

None of the FSS surface soil sample net results exceeded the $DCGL_w$ or unity (1) when evaluating the RCOC net DCGL fraction SOR. The WRS test was performed and the sum of the reference area ranks for the surface soil sample data set was 1552. This is greater than the critical level of 1162. Therefore, H_0 is rejected and the SU satisfies the release criteria.

6.2 Outdoor Solid Surface Survey Units

Outdoor solid surface SUs include the paved road portion of SU 7, identified as SU 7A, and the concrete rail scale, identified as SU 8. Both are MARSSIM Class 3. Prior to collection of direct surface activity and removable activity measurements a scan was performed over 50 to 100% of these surfaces. For the paved road, SU 7A, a GWS was performed. For the concrete rail scale, both a GWS and alpha scan of the entire accessible surface was performed. Based on the results of the scans, biased direct and removable surface alpha activity measurements were performed. A minimum of 17 direct and removable alpha activity measurements were required in each SU. The summary results for the systematic measurement locations in SU 8, random measurement locations in SU 7A and biased direct alpha measurements for both SUs are provided in Table 6-10. The summary results for direct and removable alpha activity measurements are provided in Table 6-11.

TABLE 6-10: SURVEY UNITS 7A AND 8 DIRECT ALPHA SURVEY SUMMARY

Direct Alpha Results Summary						
Survey Unit	**Class**	**Mean[1] (dpm/100 cm^2)**	**Median[1] (dpm/100 cm^2)**	**Standard Deviation (dpm/100 cm^2)**	**Minimum[1] (dpm/100 cm^2)**	**Maximum[1] (dpm/100 cm^2)**
7A	3	23.5	22.4	13.5	-9.0	58.3
8	2	18.7	19.8	6.7	7.9	31.7
Biased Direct Alpha Results Summary						
Survey Unit	**Class**	**Mean[1] (dpm/100 cm^2)**	**Median[1] (dpm/100 cm^2)**	**Standard Deviation (dpm/100 cm^2)**	**Minimum[1] (dpm/100 cm^2)**	**Maximum[1] (dpm/100 cm^2)**
7A	3	N/A	N/A	N/A	N/A	N/A
8	2	8.9	9.9	8.1	0.0	19.8

[1] Corrected for material specific background.

TABLE 6-11: SURVEY UNITS 7A AND 8 REMOVABLE ALPHA SURVEY SUMMARY

Removable Alpha Results Summary						
Survey Unit	**Class**	**Mean (dpm/100 cm^2)**	**Median (dpm/100 cm^2)**	**Standard Deviation (dpm/100 cm^2)**	**Minimum (dpm/100 cm^2)**	**Maximum (dpm/100 cm^2)**
7A	3	0.4	0.2	0.7	-0.1	2.0
8	2	0.5	0.0	1.5	0.0	5.7
Biased Removable Alpha Results Summary						
Survey Unit	**Class**	**Mean (dpm/100 cm^2)**	**Median (dpm/100 cm^2)**	**Standard Deviation (dpm/100 cm^2)**	**Minimum (dpm/100 cm^2)**	**Maximum (dpm/100 cm^2)**
7A	3	N/A	N/A	N/A	N/A	N/A
8	2	0.6	0.3	0.9	-0.4	3.1

Additional discussion of sampling results and statistical tests for SUs 7A and 8 are provided in the following sections. Sign test work sheets containing results of the systematic direct alpha measurements, removable surface activity measurement results, and biased direct and removable alpha activity measurements, if any, for each structure SU are provided in Appendix C.

6.2.1 Paved Road – Survey Unit 7A

SU 7A is the paved road to the rail scale, a solid surface associated with SU 7. Like SU 7, SU 7A is MARSSIM Class 3. The area of the paved road is 3,423 m^2. The surface alpha activity $DCGL_w$ for this SU is 100 dpm/100 cm^2. The removable alpha activity $DCGL_w$ is 10 dpm/100 cm^2 (10 percent of the surface activity $DCGL_w$). A GWS was performed over approximately 50 percent of the accessible paved road. Although a minimum of 17 direct alpha surface activity measurements and 17 removable surface activity samples were required in this SU, 20 measurements were performed. The GWS results are shown in Figure 6-3. Direct and removable surface alpha activity measurement locations area shown in Figure 6-4.

There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. No significant areas of elevated alpha activity were identified during the scan. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (10 dpm/100 cm^2).

Although not required, the Sign test was performed using the random direct measurement data collected from SU 7A. The result indicated the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and SU 7A meets the release criteria.

6.2.2 Rail Scale Concrete Pad – Survey Unit 8

SU 8 is the rail scale concrete pad, a solid surface associated with SU 9. SU 8 is MARSSIM Class 2. The area of the concrete pad is 276 m^2. The surface alpha activity $DCGL_w$ for this SU is 100 dpm/100 cm^2. The removable alpha activity $DCGL_w$ is 10 dpm/100 cm^2 (10 percent of the surface activity $DCGL_w$). A GWS and an alpha scan were performed over approximately 100 percent of the accessible concrete surface. A minimum of 17 direct alpha surface activity measurements and 17 removable surface activity samples were obtained systematically. The GWS results are shown in Figure 6-5. Direct and removable surface alpha activity measurement locations area shown in Figure 6-6.

There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (10 dpm/100 cm^2).

Although not required, the Sign test was performed using the systematic direct measurement data collected from SU 8. The result indicated the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and SU 8 meets the release criteria.

6.3 Structure Survey Units

FSS of structures included direct alpha surface activity measurements, removable alpha activity measurements at each of the direct measurement locations, alpha scans and biased measurements, if required, based on the results of the alpha scan.

Class 1 structure SUs include the re-classified portions of Warehouse 210, Section 2, identified as SU 210-2-1, SU 210-2-2 and SU 210-2-3, and the lower walls adjacent to these SUs, identified as SU 210-2-4. Class 2 structure SUs include the upper walls and ceiling associated with the Class 1 SUs in Warehouse 210, Section 2, designated SU 210-2-5, and the floor and lower walls of Building 129A, designated SU 129A-F. All other structure SUs at the Depot are Class 3.

In Class 1 and Class 2 SUs, alpha scans were performed over 100% of floor and lower walls (up to 2 meters). A total of 17 direct alpha measurements were collected in each SU, with the exception of SU 129A-C, which required a scan survey and biased direct alpha measurements only. Additionally, a smear was obtained at each direct alpha measurement location to assess removable alpha contamination. Biased direct alpha measurements were obtained, as necessary, based on the results of alpha scans performed in the SUs.

The summary results for systematic (and random from Class 3 SUs) direct alpha surface activity measurements in each of the structure SUs are provided in Table 6-12. Biased direct alpha measurement summary results are provided in Table 6-13. The summary results for systematic (and random from Class 3 SUs) removable alpha activity measurements are provided in Table 6-14 and the summary results for removable alpha activity measurements at biased sample locations are provided in Table 6-15.

TABLE 6-12: STRUCTURE SURVEY UNIT DIRECT ALPHA SURVEY SUMMARY

Building	Class	Survey Unit	Survey Unit Identification	Mean[1] (dpm/100 cm^2)	Median[1] (dpm/100 cm^2)	Standard Deviation (dpm/100 cm^2)	Minimum[1] (dpm/100 cm^2)	Maximum[1] (dpm/100 cm^2)
124	3	Floor	124-F	-18.5	-21.5	11.3	-35.0	0.9
		Lower Wall	124-W	-11.9	-16.1	7.3	-20.6	1.8
129A	2	Floor and Lower Wall	129A-F	-6.4	-7.1	9.7	-19.0	19.8
136	3	Floor	136-F	8.2	9.0	7.6	-10.0	19.0
		Lower Wall	136-W	-7.8	-8.2	3.9	-13.2	2.0
141	3	Floor and Lower Wall	141-F	-2.9	-1.0	5.8	-11.7	4.9
145	3	Floor	145-F	-7.8	-6.8	7.7	-18.5	4.9
146	3	Floor	146-F	6.3	4.5	11.3	-13.4	22.4
		Lower Wall	146-W	1.6	-4.5	11.9	-13.4	26.9
210, Section 2, Bays 6, 9, 16, 17 & 18 (and floor area bounded by these bays)	1	Floor	210-2-1	-29.4	-28.4	23.7	-68.2	17.0
		Floor	210-2-2	-14.0	-11.4	22.6	-51.1	39.8
		Floor	210-2-3	5.3	0.0	32.5	-39.8	68.2
		Lower Wall	210-2-4 (north & west adjacent to bays)	-14.4	-6.8	26.0	-69.3	17.0
210, Section 2, Bays 6, 9, 16, 17, 18 & 19	2	Upper Walls and Ceiling	210-2-5	-5.3	-5.1	4.6	-15.8	2.7
210, Section 1, Section 2 (all remaining bays),	3	Floor	210-F	1.2	1.0	3.9	-2.9	10.7
		Lower Wall	210-W	0.8	0.0	4.0	-7.8	6.8

Building	Class	Survey Unit	Survey Unit Identification	Mean[1] (dpm/100 cm^2)	Median[1] (dpm/100 cm^2)	Standard Deviation (dpm/100 cm^2)	Minimum[1] (dpm/100 cm^2)	Maximum[1] (dpm/100 cm^2)
Section 3 & Section 4								
211	3	Floor	211-F	-2.6	-2.9	4.9	-14.6	6.8
		Lower Wall	211-W	0.6	0.0	3.6	-6.1	6.8
212	3	Floor	212-F	-8.3	-8.1	11.6	-30.5	14.3
		Lower Wall	212-W	-2.4	-2.7	14.2	-25.1	24.2
213	3	Floor	213-F	-1.1	-2.0	2.5	-3.9	4.9
		Lower Wall	213-W	-1.8	-2.0	4.1	-8.8	6.8
214	3	Floor	214-F	-2.6	-2.4	8.7	-18.2	17.4
		Lower Wall	214-W	-1.0	-1.0	4.7	-11.0	7.0
215, Sections 1 and 2	3	Floor	215-F	-1.9	-2.0	3.8	-6.8	7.8
		Lower Wall	215-W	-0.6	-1.8	4.5	-8.6	9.0
215, Section 4	3	Floor	215-4-F	-2.0	-1.0	4.4	-9.8	6.8
		Lower Wall	215-4-W	-0.8	-0.8	2.3	-4.5	4.1

[1] Corrected for material specific background.

TABLE 6-13: STRUCTURE SURVEY UNIT BIASED DIRECT ALPHA SURVEY SUMMARY

Building	Class	Survey Unit	Survey Unit Identification	Mean[1] (dpm/100 cm^2)	Median[1] (dpm/100 cm^2)	Standard Deviation (dpm/100 cm^2)	Minimum[1] (dpm/100 cm^2)	Maximum[1] (dpm/100 cm^2)
124	3	Floor	124-F	-8.1	-5.8	16.8	-43.9	23.3
		Lower Wall	124-W	-17.0	-17.0	8.2	-26	-8.1
129A	2	Floor and Lower Wall	129A-F	N/A	N/A	N/A	N/A	N/A
136	3	Floor	136-F	N/A	N/A	N/A	N/A	N/A
		Lower Wall	136-W	N/A	N/A	N/A	N/A	N/A
141	3	Floor and Lower Wall[4]	141-F	N/A	N/A	N/A	N/A	N/A
145	3	Floor[5]	145-F	N/A	N/A	N/A	N/A	N/A
146	3	Floor	146-F	N/A	N/A	N/A	N/A	N/A
		Lower Wall	146-W	N/A	N/A	N/A	N/A	N/A
210, Section 2, Bays 6, 9, 16, 17 & 18 (and floor area bounded by these bays)	1	Floor	210-2-1	N/A	N/A	N/A	N/A	N/A
		Floor	210-2-2	N/A	N/A	N/A	N/A	N/A
		Floor	210-2-3	-9.3	-9.8	2.6	-11.7	-5.9
		Lower Wall	210-2-4 (north & west adjacent to bays)	N/A	N/A	N/A	N/A	N/A
210, Section 2, Bays 6, 9, 16, 17, 18 & 19	2	Upper Walls and Ceiling	210-2-5	N/A	N/A	N/A	N/A	N/A
210, Section 1,	3	Floor	210-F	13.1	5.9	26.1	-1.0	114.2

Building	Class	Survey Unit	Survey Unit Identification	Mean[1] (dpm/100 cm^2)	Median[1] (dpm/100 cm^2)	Standard Deviation (dpm/100 cm^2)	Minimum[1] (dpm/100 cm^2)	Maximum[1] (dpm/100 cm^2)
Section 2 (all remaining bays), Section 3 & Section 4		Lower Wall	210-W	3.7[2]	N/A	N/A	3.7	3.7
		Upper Walls and Ceiling	210-B	2.7	0.0	10.3	-14.1	28.2
211	3	Floor	211-F	-0.4	-0.5	3.8	-7.0	9.8
		Lower Wall	211-W	14.8	16.7	5.7	5.6	22.3
		Upper Walls and Ceiling	211-B	-5.0	-6.4	7.8	-12.8	12.8
212	3	Floor	212-F	-2.8	-3.2	4.6	-9.7	10.8
		Lower Wall	212-W	4.8	6.4	9.6	-8.5	21.3
		Upper Walls and Ceiling	212-B	-5.4	-8.5	6.3	-12.8	4.3
213	3	Floor	213-F	-4.6	-4.4	3.6	-12.2	8.6
		Lower Wall	213-W	9.0	11.1	8.7	-6.0	28.9
		Upper Walls and Ceiling	213-B	-6.5	-6.4	6.5	-17.0	4.3
214	3	Floor	214-F	0.0	0.0	1.6	-2.9	3.9
		Lower Wall	214-W	-0.7	-1.0	1.5	-2.0	1.0
		Upper Walls and Ceiling	214-B	2.4	2.3	14.9	-20.3	36.2
215, Sections 1 and 2	3	Floor	215-F	-4.4	-4.4	2.6	-12.2	3.4

Building	Class	Survey Unit	Survey Unit Identification	Mean[1] (dpm/100 cm^2)	Median[1] (dpm/100 cm^2)	Standard Deviation (dpm/100 cm^2)	Minimum[1] (dpm/100 cm^2)	Maximum[1] (dpm/100 cm^2)
		Lower Wall	215-W	0.9	1.1	3.0	-4.5	6.8
		Upper Walls and Ceiling	215-B	3.7	0.0	8.9	-11.1	22.3
215, Section 4	3	Floor	215-4-F	-1.6	-1.8	4.4	-8.3	8.5
		Lower Wall	215-4-W	2.6	1.1	9.2	-10.2	23.4
		Upper Walls and Ceiling	215-4-B	-1.2	0.0	6.7	-11.1	11.1

[1] Corrected for material specific background.

[2] Only one measurement was performed.

TABLE 6-14: STRUCTURE SURVEY UNIT REMOVABLE ALPHA SURVEY SUMMARY

Building	Class	Survey Unit	Survey Unit Identification	Mean (dpm/100 cm^2)	Median (dpm/100 cm^2)	Standard Deviation (dpm/100 cm^2)	Minimum (dpm/100 cm^2)	Maximum (dpm/100 cm^2)
124	3	Floor	124-F	0.5	0.4	0.8	-0.3	2.5
		Lower Wall	124-W	0.1	0.3	0.6	-0.4	1.0
129A	2	Floor and Lower Wall	129A-F	0.3	0.3	0.6	-0.8	1.3
136	3	Floor	136-F	-0.4	-0.6	0.5	-0.6	0.8
		Lower Wall	136-W	0.1	-0.6	0.9	-0.6	2.2
141	3	Floor and Lower Wall	141-F	0.1	0.3	0.7	-0.8	1.8
145	3	Floor[5]	145-F	-0.2	-0.3	0.5	-0.8	0.8
146	3	Floor	146-F	0.0	-0.4	0.8	-0.4	2.4
		Lower Wall	146-W	0.8	0.8	1.5	-0.6	3.6
210, Section 2, Bays 6, 9, 16, 17 & 18 (and floor area bounded by these bays)	1	Floor	210-2-1	0.7	0.6	0.8	0.0	2.9
		Floor	210-2-2	0.4	0.0	0.6	0.0	2.3
		Floor	210-2-3	0.4	0.0	0.5	0.0	1.1
		Lower Wall	210-2-4 (north & west adjacent to bays)	0.6	0.6	0.5	0.0	1.7
210, Section 2, Bays 6, 9, 16, 17, 18 & 19	2	Upper Walls and Ceiling	210-2-5	1.6	1.1	1.1	0.0	4.0
210, Section 1,	3	Floor	210-F	0.8	0.5	0.8	-0.5	2.0

Building	Class	Survey Unit	Survey Unit Identification	Mean (dpm/100 cm^2)	Median (dpm/100 cm^2)	Standard Deviation (dpm/100 cm^2)	Minimum (dpm/100 cm^2)	Maximum (dpm/100 cm^2)
Section 2 (all remaining bays), Section 3 & Section 4		Lower Wall	210-W	0.5	0.3	0.9	-0.5	2.5
211	3	Floor	211-F	0.3	0.6	0.4	-0.1	1.3
		Lower Wall	211-W	-0.4	-0.6	0.7	-0.6	2.2
212	3	Floor	212-F	0.1	0.1	0.6	-0.6	0.8
		Lower Wall	212-W	0.3	0.1	0.8	-0.6	2.2
213	3	Floor	213-F	0.1	-0.6	0.7	-0.6	1.5
		Lower Wall	213-W	0.8	0.8	0.8	-0.6	2.2
214	3	Floor	214-F	0.1	-0.1	0.6	-0.6	1.5
		Lower Wall	214-W	0.1	0.0	0.7	-0.8	2.0
215, Sections 1 and 2	3	Floor	215-F	0.4	-0.1	0.8	-0.1	2.6
		Lower Wall	215-W	0.2	0.1	0.7	-0.6	1.5
215, Section 4	3	Floor	215-4-F	0.1	-0.1	0.4	-0.1	1.3
		Lower Wall	215-4-W	0.6	0.3	0.8	-0.3	2.3

TABLE 6-15: STRUCTURE SURVEY UNIT BIASED REMOVABLE ALPHA SURVEY SUMMARY

Building	Class	Survey Unit	Survey Unit Identification	Mean (dpm/100 cm^2)	Median (dpm/100 cm^2)	Standard Deviation (dpm/100 cm^2)	Minimum (dpm/100 cm^2)	Maximum (dpm/100 cm^2)
124	3	Floor	124-F	0.2	0.3	0.5	-0.4	1.0
		Lower Wall	124-W	-0.2	-0.4	0.3	-0.4	0.3
129A	2	Floor and Lower Wall	129A-F	N/A	N/A	N/A	N/A	N/A
136	3	Floor	136-F	-0.1	-0.1	0.6	-0.6	0.8
		Lower Wall	136-W	N/A	N/A	N/A	N/A	N/A
141	3	Floor and Lower Wall	141-F	N/A	N/A	N/A	N/A	N/A
145	3	Floor	145-F	N/A	N/A	N/A	N/A	N/A
146	3	Floor	146-F	N/A	N/A	N/A	N/A	N/A
		Lower Wall	146-W	N/A	N/A	N/A	N/A	N/A
210, Section 2, Bays 6, 9, 16, 17 & 18 (and floor area bounded by these bays)	1	Floor	210-2-1	N/A	N/A	N/A	N/A	N/A
		Floor	210-2-2	N/A	N/A	N/A	N/A	N/A
		Floor	210-2-3	0.9	0.9	0.7	0.0	1.7
		Lower Wall	210-2-4 (north & west adjacent to bays)	N/A	N/A	N/A	N/A	N/A
210, Section 2, Bays 6, 9, 16, 17, 18 & 19	2	Upper Walls and Ceiling	210-2-5	1.0[1]	N/A	N/A	1.0	1.0
210, Section 1,	3	Floor	210-F	0.7	0.4	0.8	-0.3	2.7

Building	Class	Survey Unit	Survey Unit Identification	Mean (dpm/100 cm^2)	Median (dpm/100 cm^2)	Standard Deviation (dpm/100 cm^2)	Minimum (dpm/100 cm^2)	Maximum (dpm/100 cm^2)
Section 2 (all remaining bays), Section 3 & Section 4		Lower Wall	210-W	-0.3[1]	N/A	N/A	-0.3	-0.3
		Upper Walls and Ceiling	210-B	0.6	0.0	1.1	-0.8	3.3
211	3	Floor	211-F	0.9	0.8	1.4	-0.6	5.0
		Lower Wall	211-W	1.5	2.2	1.4	-0.6	2.9
		Upper Walls and Ceiling	211-B	0.6	0.1	1.4	-0.6	4.3
212	3	Floor	212-F	0.5	0.3	1.2	-0.6	3.6
		Lower Wall	212-W	0.3	0.1	1.0	-0.6	2.9
		Upper Walls and Ceiling	212-B	0.5	0.1	0.9	-0.6	2.9
213	3	Floor	213-F	0.6	0.6	0.9	-0.6	3.6
		Lower Wall	213-W	0.2	0.1	0.9	-0.6	2.2
		Upper Walls and Ceiling	213-B	0.5	0.1	1.1	-0.6	5.0
214	3	Floor	214-F	0.1	0.0	0.4	-0.5	1.0
		Lower Wall	214-W	-0.3	-0.1	0.3	-0.6	-0.1
		Upper Walls and Ceiling	214-B	0.5	0.4	0.8	-0.8	2.4
215, Sections 1 and 2	3	Floor	215-F	0.4	0.5	0.8	-0.6	2.2

Building	Class	Survey Unit	Survey Unit Identification	Mean (dpm/100 cm^2)	Median (dpm/100 cm^2)	Standard Deviation (dpm/100 cm^2)	Minimum (dpm/100 cm^2)	Maximum (dpm/100 cm^2)
		Lower Wall	215-W	0.4	0.1	1.0	-0.6	2.2
		Upper Walls and Ceiling	215-B	0.6	0.5	1.3	-0.6	5.0
215, Section 4	3	Floor	215-4-F	0.4	0.3	0.8	-0.4	2.4
		Lower Wall	215-4-W	0.3	-0.6	1.2	-0.6	2.9
		Upper Walls and Ceiling	215-4-B	0.5	0.8	0.9	-0.6	2.2

[1] Only one measurement was performed.

Additional discussion of the survey results for structure SUs is provided in the following section. Sign test work sheets containing results of the systematic or random direct alpha measurements, removable surface activity measurement results, and biased direct and removable alpha activity measurements, if any, for each structure SU are provided in Appendix C.

6.3.1 Building 124

The floor and lower walls (up to 2 meters) in Building 124 were surveyed as two Class 3 SUs. The floor SU was designated 124-F and the lower wall SU was designated 124-W. The surface alpha activity $DCGL_w$ for Building 124 is 100 dpm/100 cm^2. The removable alpha activity $DCGL_w$ for Building 124 is 10 dpm/100 cm^2 (10 percent of the surface activity $DCGL_w$). A surface alpha scan was performed over approximately 10 percent of accessible floor and lower wall surfaces. A total of 17 direct alpha surface activity measurements and 17 removable surface activity samples were obtained in both SUs at random locations. Direct and removable surface alpha activity measurement locations area shown in Figure 6-15.

There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. No significant areas of elevated alpha activity were identified in the scan results. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (10 dpm/100 cm^2).

Although not required, the Sign test was performed using the systematic data collected from each SU. In both cases, the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and both SUs in Building 124 meet the release criteria.

6.3.2 Building 129A

Building 129A is a very small structure associated with the rail scale. Since the rail scale concrete pad (SU 8) was designated MARSSIM Class 2, the floor and lower walls in Building 129A were also designated Class 2. However, due to the small size of this structure, the floor and lower walls were combined into a single SU; 129A-F. Although the possibility of surface contamination on the upper walls and ceiling of this structure was extremely low, these surfaces were designated as a single Class 3 SU; 129A-C. Direct and removable surface alpha activity measurement locations area shown in Figure 6-16.

The surface alpha activity $DCGL_w$ for Building 129A is 100 dpm/100 cm^2. The removable alpha activity $DCGL_w$ for Building 129A is 10 dpm/100 cm^2 (10 percent of the surface activity $DCGL_w$). Alpha scans were performed over 100% of floor, wall, and ceiling surfaces. A total of 17 direct alpha measurements and 17 removable surface activity samples were collected in SU 129A-F at random locations. SU 129A-C required a scan survey and biased direct alpha measurements only.

There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. No significant areas of elevated alpha activity were identified during the scan survey. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (10 dpm/100 cm^2).

Although not required, the Sign test was performed using the systematic data collected from SU 129A-F. The result indicated the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and the SU in Building 129A meets the release criteria.

6.3.3 Building 136

The floors and lower walls (up to 2 meters) were designated as two Class 3 SUs in Building 136. The floor SU was designated 136-F and the lower wall SU was designated 136-W. The surface alpha activity $DCGL_w$ for Building 136 is 100 dpm/100 cm^2. The removable alpha activity $DCGL_w$ for Building 136 is 10 dpm/100 cm^2 (10 percent of the surface activity $DCGL_w$). A surface alpha scan was performed over approximately 10 percent of accessible floor and lower wall surfaces. No significant areas of elevated alpha activity were identified during the scan. A total of 17 direct alpha surface activity measurements and 17 removable surface activity samples were obtained in both SUs at random locations. Direct and removable surface alpha activity measurement locations area shown in Figure 6-17.

There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (10 dpm/100 cm^2).

Although not required, the Sign test was performed using the systematic data collected from each SU. In both cases, the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and both SUs in Building 136 meet the release criteria.

6.3.4 Building 141

The floors and lower walls (up to 2 meters) were designated as a single Class 3 SU in Building 141; 141-F. The roof and walls of the eastern and western ends of the building were in different stages of collapse, so most survey activities were performed towards the center of the structure. The surface alpha activity $DCGL_w$ for Building 141 is 100 dpm/100 cm^2. The removable alpha activity $DCGL_w$ for Building 141 is 10 dpm/100 cm^2 (10 percent of the surface activity $DCGL_w$). A surface alpha scan was performed over approximately 10 percent of accessible floor and lower wall surfaces. No significant areas of elevated alpha activity were identified during the scan. A total of 17 direct alpha surface activity measurements and 17 removable surface activity samples were obtained in SU 141-F at random locations. Direct and removable surface alpha activity measurement locations area shown in Figure 6-18.

There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (10 dpm/100 cm^2).

Although not required, the Sign test was performed using the systematic data collected from SU 141-F. The result indicated the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and the SU in Building 141 meets the release criteria.

6.3.5 Building 145

Building 145 is no longer present; only the former floor surface (concrete pad) remains. The floor was designated as a single Class 3 SU; 145-F. The surface alpha activity $DCGL_w$ for Building 145 is 100 dpm/100 cm^2. The removable alpha activity $DCGL_w$ for Building 145 is 10 dpm/100 cm^2 (10 percent of the surface activity $DCGL_w$). A GWS was performed on the remaining floor surface. No significant areas of elevated gamma activity were identified during the scan. A total of 17 direct alpha surface activity measurements and 17 removable surface activity samples were obtained in both SUs at random locations. Direct and removable surface alpha activity measurement locations area shown in Figure 6-19.

There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (10 dpm/100 cm^2).

Although not required, the Sign test was performed using the systematic data collected from SU 145-F. The result indicated the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and the SU in Building 145 meets the release criteria.

6.3.6 Building 146

The floors and lower walls (up to 2 meters) were designated as two Class 3 SUs in Building 146. The floor SU was designated 146-F and the lower wall SU was designated 146-W. The surface alpha activity $DCGL_w$ for Building 146 is 100 dpm/100 cm^2. The removable alpha activity $DCGL_w$ for Building 146 is 10 dpm/100 cm^2 (10 percent of the surface activity $DCGL_w$). A surface alpha scan was performed over approximately 10 percent of accessible floor and lower wall surfaces. No significant areas of elevated alpha activity were identified during the scan. A total of 17 direct alpha surface activity measurements and 17 removable surface activity samples were obtained in both SUs at random locations. Direct and removable surface alpha activity measurement locations area shown in Figure 6-20.

There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (10 dpm/100 cm^2).

Although not required, the Sign test was performed using the systematic data collected from each SU. In both cases, the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and both SUs in Building 146 meet the release criteria.

6.3.7 Warehouse 210

All of Warehouse 210, Sections 1, 2, 3 and 4 were initially designated as two Class 3 SUs; 210-F (floor) and 210-W (lower walls). Following the initial alpha scan of floor surfaces, an area of elevated alpha surface activity was identified in the northwest corner of Section 2. As a result, remediation was performed and the remaining floors, lower walls, upper walls and ceiling in this northwest corner of Section 2 were re-classified and designated SUs 210-2-1, 210-2-2, 210-2-3, 210-2-4 and 210-2-5. The remaining portion of this Section, along with Sections 1, 3 and 4

made up the two Class 3 SUs; 210-F and 210-W. The surface alpha activity $DCGL_w$ for Warehouse 210 is 38 dpm/100 cm^2. The removable alpha activity $DCGL_w$ for Warehouse 210 is 4 dpm/100 cm^2 (10 percent of the surface activity $DCGL_w$).

An alpha scan was performed over approximately 20 percent of Class 3 SUs 210-F and 210-W. No additional areas of elevated alpha activity were identified during the scans. A total of 17 direct alpha surface activity measurements and 17 removable surface activity samples were obtained in both SUs at random locations. Direct and removable surface alpha activity measurement locations area shown in Figure 6-21.

There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (4 dpm/100 cm^2).

Although not required, the Sign test was performed using the systematic data collected from each SU. In both cases, the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and SUs 210-F and 210-W in Warehouse 210 meet the release criteria.

Survey Unit 210-2-1

The floor area in Warehouse 210, Section 2, covering bays 6, 16 and the floor space between these two bays is designated Class 1 SU 210-2-1. This SU has an area of 111 m^2. A 100 percent alpha scan was performed over this area, with 17 direct alpha surface activity measurements and 17 removable surface activity samples were obtained at systematic locations. Direct and removable surface alpha activity measurement locations area shown in Figure 6-22.

There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (4 dpm/100 cm^2).

Although not required, the Sign test was performed using the systematic data collected from SU 210-2-1. The result indicated the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and SU 210-2-1 meets the release criteria.

Survey Unit 210-2-2

The floor area in Warehouse 210, Section 2, covering bays 17 and 18 was designated Class 1 SU 210-2-2. This SU has an area of 74 m^2. A 100 percent alpha scan was performed over this area, with 17 direct alpha surface activity measurements and 17 removable surface activity samples were obtained at systematic locations. Direct and removable surface alpha activity measurement locations area shown in Figure 6-22.

One direct alpha surface activity measurement was greater than the surface activity $DCGL_w$. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (4 dpm/100 cm^2).

The result of the Sign test indicated the test statistic was greater than the critical value. Therefore, H_0 is rejected. However, it is necessary to determine the impact of the elevated area of alpha surface activity via a $DCGL_{EMC}$ evaluation. Since the SU is 74 m^2 and 17 direct alpha surface activity measurements were obtained, each sample represents an area of approximately 4 m^2. From Table 5-2 and the table interpolation equation in Section 5.3, the area factor for a 4 m^2 area is 8.3 for both ^{238}U and ^{232}Th, which results in a $DCGL_{EMC}$ value of 315 dpm/100 cm^2. From MARSSIM Equation 8-2, the DCGL SOR result is 0.13, which is less than unity (indicating the maximum survey unit dose constitutes 13% of the 25 mrem/year limit, or 3.3 mrem/year). Therefore, it is concluded that SU 210-2-2 satisfies the release criteria.

Survey Unit 210-2-3

The floor area in Warehouse 210, Section 2, covering bays 9, 19 and the floor space between these two bays is designated Class 1 SU 210-2-3. This SU has an area of 111 m^2. A 100 percent alpha scan was performed over this area. A total of 17 direct alpha surface activity measurements and 17 removable surface activity samples were obtained at systematic locations. Direct and removable surface alpha activity measurement locations area shown in Figure 6-22.

Four direct alpha surface activity measurements were greater than the surface activity $DCGL_w$. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (4 dpm/100 cm^2).

The Sign test was performed using the systematic data collected from SU 210-2-3. The result indicated the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected. The result of the Sign test indicated the test statistic was greater than the critical value. Therefore, H_0 is rejected. However, it is necessary to determine the impact of the elevated area of alpha surface activity via a $DCGL_{EMC}$ evaluation. Since the survey unit is 111 m^2 and 17 direct alpha surface activity measurements were obtained, each sample represents an area of approximately 7 m^2. From Table 5-2 and the table interpolation equation in Section 5.3, the area factor for a 4 m^2 area is 5.5 for both ^{238}U and ^{232}Th. The resulting $DCGL_{EMC}$ is therefore 209 dpm/100 cm^2. From MARSSIM Equation 8-2, the result is 1.0, which is unity indicating the maximum survey unit exposure is 25 mrem/year. Since the maximum dose must not exceed 25 mrem/year, it is concluded survey unit 210-2-3 meets the release criteria.

Survey Unit 210-2-4

The lower walls adjacent to the Class 1 floor SUs in Warehouse 210, Section 2, is designated Class 1 SU 210-2-4. This SU has an area of 78 m^2. A 100 percent alpha scan was performed over this area. A total of 17 direct alpha surface activity measurements and 17 removable surface activity samples were obtained at systematic locations. Direct and removable surface alpha activity measurement locations area shown in Figure 6-22.

There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (4 dpm/100 cm^2).

Although not required, the Sign test was performed using the systematic data collected from SU 210-2-4. The result indicated the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and SU 210-2-4 meets the release criteria.

Survey Unit 210-2-5

The upper walls above SU 210-2-4 and the ceiling in the northwest corner of Section 2 are designated Class 2 SU 210-2-5. This SU has a combined area of 602 m^2. A 100 percent alpha scan was performed over this area. A total of 17 direct alpha surface activity measurements and

17 removable surface activity samples were obtained at systematic locations. Direct and removable surface alpha activity measurement locations area shown in Figure 6-22.

There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (4 dpm/100 cm^2).

Although not required, the Sign test was performed using the systematic data collected from SU 210-2-5. The result indicated the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and SU 210-2-5 meets the release criteria.

6.3.8 Warehouse 211

The floors and lower walls (up to 2 meters) of the impacted Sections of Warehouse 211 (Sections 1 and 2) were designated as two Class 3 SUs. The floor SU was designated 211-F and the lower wall SU was designated 211-W. The surface alpha activity $DCGL_w$ for Warehouse 211 is 55 dpm/100 cm^2. The removable alpha activity $DCGL_w$ for Warehouse 211 is 6 dpm/100 cm^2 (10 percent of the surface activity $DCGL_w$). A surface alpha scan was performed over approximately 10 percent of accessible floor and lower wall surfaces. No significant areas of elevated alpha activity were identified during the scan. A total of 17 direct alpha surface activity measurements and 17 removable surface activity samples were obtained in both SUs at random locations. Direct and removable surface alpha activity measurement locations area shown in Figure 6-23.

There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (6 dpm/100 cm^2).

Although not required, the Sign test was performed using the systematic data collected from each SU. In both cases, the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and both SUs in Warehouse 211 meet the release criteria.

6.3.9 Warehouse 212

The floors and lower walls (up to 2 meters) of the impacted Sections of Warehouse 212 (Sections 1 and 2) were designated as two Class 3 SUs. The floor SU was designated 212-F and the lower wall SU was designated 212-W. The surface alpha activity $DCGL_w$ for Warehouse 212 is 100 dpm/100 cm^2. The removable alpha activity $DCGL_w$ for Warehouse 212 is 10 dpm/100 cm^2 (10

percent of the surface activity $DCGL_w$). A surface alpha scan was performed over approximately 10 percent of accessible floor and lower wall surfaces. No significant areas of elevated alpha activity were identified during the scan. A total of 17 direct alpha surface activity measurements and 17 removable surface activity samples were obtained in both SUs at random locations. Direct and removable surface alpha activity measurement locations area shown in Figure 6-24. There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (10 dpm/100 cm^2).

Although not required, the Sign test was performed using the systematic data collected from each SU. In both cases, the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and both SUs in Warehouse 212 meet the release criteria.

6.3.10 Warehouse 213

The floors and lower walls (up to 2 meters) of the impacted Sections of Warehouse 213 (Sections 1, 2, 3 and 4) were designated as two Class 3 SUs. The floor SU was designated 213-F and the lower wall SU was designated 213-W. The surface alpha activity $DCGL_w$ applied to the Warehouse 213 data is 38 dpm/100 cm^2 although a higher $DCGL_w$ is applicable to Sections 3 and 4. Use of the most restrictive $DCGL_w$ for all data obtained from these two SUs is a conservative measure. The removable alpha activity $DCGL_w$ for Warehouse 213 is 4 dpm/100 cm^2 (10 percent of the surface activity $DCGL_w$). A surface alpha scan was performed over approximately 10 percent of accessible floor and lower wall surfaces. No significant areas of elevated alpha activity were identified during the scan. A total of 17 direct alpha surface activity measurements and 17 removable surface activity samples were obtained in both SUs at random locations. Direct and removable surface alpha activity measurement locations area shown in Figure 6-25.

There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (4 dpm/100 cm^2).

Although not required, the Sign test was performed using the systematic data collected from each SU. In both cases, the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and both SUs in Warehouse 213 meet the release criteria.

6.3.11 Warehouse 214

The floors and lower walls (up to 2 meters) of the impacted Sections of Warehouse 214 (Sections 1, 2, 3 and 4) were designated as two Class 3 SUs. The floor SU was designated 214-F and the lower wall SU was designated 214-W. The surface alpha activity $DCGL_w$ for Warehouse 214 is 38 dpm/100 cm^2. The removable alpha activity $DCGL_w$ for Warehouse 214 is 4 dpm/100 cm^2 (10 percent of the surface activity $DCGL_w$). A surface alpha scan was performed over approximately 10 percent of accessible floor and lower wall surfaces. No significant areas of elevated alpha activity were identified during the scan.

An epoxy coating (paint) has been applied to the floor of Sections 1, 2, and 3 to encapsulate asbestos. Therefore, it is necessary to evaluate the potential surface activity between the concrete floor surface and the epoxy coating. The potential surface radioactivity was assessed by removing the coating material using mechanical methods (hammer and chisel) over an area of approximately 260 cm^2 in each of the sample locations in Section 1, 2 and 3 (12 total locations). Difficulties were encountered during sampling while attempting to remove only paint from the floor surface. Due to the epoxy paint cured hardness and surface adhesion much of the sample mass from each location was actually concrete. Since concrete contains naturally occurring radionuclides which are the same as the Depot RCOCs, it was also necessary to obtain concrete samples from a non-impacted concrete floor surface in one of the warehouses. These samples were used to establish background concentrations in concrete to assure the analyses and data evaluation adequately reflected the potential surface activity present between the concrete floor surface and epoxy paint in Warehouse 214. The epoxy paint samples and background concrete samples were collected, composited and analyzed for the RCOCs. Following removal of the epoxy paint samples, a direct alpha surface activity measurement was performed to assess the residual activity remaining on the concrete surface. A total of 17 direct alpha surface activity measurements and 17 removable surface activity samples were obtained in both SUs at random locations. Direct and removable surface alpha activity measurement locations area shown in Figure 6-26.

Evaluation of the epoxy paint samples removed from Sections 1, 2 and 3 indicate that the maximum alpha surface activity that could be present at each location is 28 dpm/100 cm^2. A worksheet providing the basis for this determination is provided with the SU data in Appendix C. There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (4 dpm/100 cm^2).

Although not required, the Sign test was performed using the systematic data collected from each SU. In both cases, the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and both SUs in Warehouse 214 meet the release criteria.

6.3.12 Warehouse 215

The floors and lower walls (up to 2 meters) of Sections 1 and 2 of Warehouse 215 are designated as two Class 3 SUs. The floor SU was designated 215-F and the lower wall SU was designated 215-W. The surface alpha activity $DCGL_w$ for Warehouse 215 is 38 dpm/100 cm^2. The removable alpha activity $DCGL_w$ for Warehouse 215 is 4 dpm/100 cm^2 (10 percent of the surface activity $DCGL_w$). A surface alpha scan was performed over approximately 10 percent of accessible floor and lower wall surfaces. No significant areas of elevated alpha activity were identified during the scan. A total of 17 direct alpha surface activity measurements and 17 removable surface activity samples were obtained in both SUs at random locations. Direct and removable surface alpha activity measurement locations area shown in Figure 6-27.

There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (10 dpm/100 cm^2).

Although not required, the Sign test was performed using the systematic data collected from each SU. In both cases, the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and SUs 215-F and 215-W meet the release criteria.

The floors and lower walls (up to 2 meters) of Section 4 of Warehouse 215 are designated as two Class 3 SUs. The floor SU was designated 215-4-F and the lower wall SU was designated 215-4-W. The surface alpha activity $DCGL_w$ for Warehouse 215, Section 4 is also 38 dpm/100 cm^2.

The removable alpha activity $DCGL_w$ is 4 dpm/100 cm^2 (10 percent of the surface activity $DCGL_w$). A surface alpha scan was performed over approximately 10 percent of accessible floor and lower wall surfaces. No significant areas of elevated alpha activity were identified during the scan. A total of 17 direct alpha surface activity measurements and 17 removable surface activity samples were obtained in both SUs at random locations. Direct and removable surface alpha activity measurement locations area shown in Figure 6-27.

There were no direct alpha surface activity measurements greater than the surface activity $DCGL_w$. None of the removable alpha activity measurements were greater than 10 percent of the $DCGL_w$ (10 dpm/100 cm^2).

Although not required, the Sign test was performed using the systematic data collected from each SU. In both cases, the Sign test statistic was greater than the critical value. Therefore, H_0 is rejected and SUs 215-4-F and 215-4-W meet the release criteria.

7.0 QUALITY ASSURANCE / QUALITY CONTROL

Overall quality assurance (QA) of FSS performance, data collection and evaluation, conclusions attained, and report generation was achieved through a combination of the following:

- Project management oversight and direction.
- Use of approved FSS plans and procedures.
- Audits/surveillances of FSS activities.
- Qualifications and training of FSS staff.
- Use of appropriate FSS instrumentation calibrated in accordance with industry standards using NIST-traceable radioactive sources and routinely tested to assure proper function.
- Data review and evaluation for adequacy in type, quality and quantity to satisfy FSS requirements for each SU.
- Independent review of calculations and results for accuracy.
- Independent verification of sample analyses results through use of an off-site laboratory to analyze a required percentage of FSS samples.

7.1 FSS Instrumentation

FSS instrumentation was selected and operated to meet the minimum requirements established in the FSS Plan. All instrumentation was calibrated in accordance with standard operating procedures or manufacturer's recommendations, using NIST-traceable radioactive sources. Calibration radionuclides and source geometries were chosen to represent actual FSS samples as closely as possible. Calibration and maintenance records are maintained for each instrument used to perform FSS measurements and analyses.

7.1.1 Onsite Laboratory Instrumentation

On-site laboratory capabilities included manual and automatic alpha/beta sample counters and a gamma spectroscopy system for analysis of volumetric soil samples. This instrumentation was set-up, calibrated, and operated to achieve the MDC requirements established in the FSS Plan, as well as routine quality control checks of instrument performance each day prior to use. Further discussion of this is provided in the following sections.

7.1.2 Gamma Spectroscopy Instrumentation

FSS soil samples were analyzed using a Canberra REGe, n-type detector with 60% relative efficiency coupled to a Canberra Inspector-2000 multi-channel analyzer. The detector and

samples were housed within a 2 inch thick stackable ring-style lead shield. The *a priori* MDC for ^{232}Th is approximately 0.1 pCi/g (based on the 0.911 MeV photopeak from ^{228}Ac) and 0.2 pCi/g for ^{238}U (based on the 0.609 MeV photopeak from ^{214}Bi), with a 10 minute count time. Adjustments to count times were allowed with an analysis target MDC not greater than 50 percent of the soil $DCGL_w$; 0.55 pCi/g ^{232}Th and 0.25 pCi/g ^{238}U.

The gamma spectroscopy system was calibrated with a NIST-traceable multi-line gamma marinelli standard prior to analyzing FSS samples. The marinelli standard used for the system efficiency calibration consists of the identical marinelli container used for sample analyses, with a density approximate to the average density of the FSS soil samples.

Daily QC activities were performed each day that sample analyses were performed to evaluate system performance against established gamma spectroscopy QC criteria. The QC criteria consisted of detector resolution calculation using measurement of Full Width at Half Maximum (FWHM), peak energy measurements (centroid), and decay corrected activity concentration measurements for the nuclides cadmium-109 (^{109}Cd) and cobalt-60 (^{60}Co). Daily QC results passed comparison criteria for each day that FSS sample analyses were performed. Reports and plots of each parameter are provided in Appendix D.

The average analysis MDC for all FSS soil samples was 0.15 pCi/g for ^{214}Bi and 0.32 pCi/g for ^{228}Ac

7.1.3 Manual and Automated Alpha/Beta Sample Counters

Smears for removable alpha activity on outdoor solid surfaces and structure surfaces were analyzed with a Ludlum Model 2929 scaler or a Tennelec Series 5 XLB Automatic Low Background Alpha/Beta Counting System. Both instruments are capable of simultaneous analysis of alpha and beta radioactivity on media such as smears. For the 2929, a 20 minute background count time and 5 minute sample count time results in an alpha MDC of 3 dpm/100 cm^2. For the Tennelec Counting System, a 20 minute background count time and 5 minute sample count time results in an alpha MDC of 1.3 dpm/100 cm^2.

Both instruments were calibrated with a NIST-traceable ^{230}Th alpha source. QC criteria were established for each instrument and daily performance checks performed prior to using the

instrument for analysis of FSS samples. QC criteria typically included the establishment of a source count rate mean using a radioactive source in a reproducible geometry, standard deviation and multiples of the standard deviation (2 and 3 times the standard deviation of the mean). QC performance checks included analysis of the check source in the same counting geometry and comparison of the result with the QC criteria. Typically, the daily performance QC checks fell within the mean plus 2 standard deviations which demonstrated acceptable performance. If a daily performance check fell outside the mean plus 2 standard deviations but within the mean plus 3 standard deviations the result was flagged as "questionable." This meant the next QC measurement would be reviewed to assure a trend in adverse performance was not occurring. None of the daily performance checks fell outside the mean plus 3 standard deviations.

With a 20 minute background count and 4 minute source count the average alpha MDC for the Ludlum Model 2929 for the days used for FSS sample analysis was 4.0 dpm/100 cm^2. With a 20 minute background count and 5 minute source count the average alpha MDC for the Ludlum Model 2929 for the days used for FSS sample analysis was 3.3 dpm/100 cm^2.

The typical alpha MDC for the Tennelec Series 5 XLB was 1.5 dpm/100 cm^2.

7.1.4 Field Instrumentation

Field instrumentation used for FSS performance included Ludlum Model 44-10 and FIDLER NaI detectors for GWS performance, Ludlum Model 43-37 and Ludlum Model 43-68 gas-proportional and Ludlum Model 43-89 zinc sulfide (ZnS) scintillation detectors, all coupled to an appropriate scaler/ratemeter. These instruments were used for performance of FSS alpha scans and/or direct surface alpha activity measurements. GPS were used in conjunction with the NaI detectors for performance of land SU GWS.

NaI detectors were calibrated using a NIST-traceable radioactive source (typically ^{137}Cs). Gas-proportional and ZnS scintillation detectors were calibrated using a NIST-traceable ^{230}Th source. Daily performance check (QC) criteria were established and performed in a manner similar to that discussed in Section 7.1.3 for the alpha/beta sample counters.

Field instrumentation was operated in accordance with the criteria established in Section 4.1, including scan speed and pause times for surface activity scanning instrumentation, and

background and measurement times for direct surface activity measurements. The average alpha surface activity MDCs for FSS direct measurements were as follows:

- Ludlum Model 43-37: 20 dpm/100 cm2 using a 1 minute background and sample count time
- Ludlum Model 43-89: 57 dpm/100 cm2 using a 1 minute background and sample count time
- Ludlum Model 43-68: 23 dpm/100 cm2 using a 1 minute background and sample count time
- Ludlum Model 43-68: 14 dpm/100 cm2 using a 10 minute background and 3 minute sample count time.

To assure proper operation of the GPS systems, a location of known coordinates was established at the beginning of FSS performance. Prior to use of the GPS systems each day, these coordinates were verified.

7.2 Off-Site Laboratory Independent Sample Analysis

The FSS Plan required an independent analysis of 5 percent of the FSS samples by an off-site laboratory. This was performed by TestAmerica, formerly Severn Trent Laboratory (STL). Off-site laboratory analysis was performed in a similar manner to the on-site laboratory, i.e., gamma spectroscopy. Instructions provided to the off-site laboratory required processing and analysis of FSS soil samples using standard gamma spectroscopy protocols necessary to achieve an analysis MDC not greater than 50 percent of the Depot soil DCGLw for ^{232}Th and ^{238}U. Detailed analysis of the comparison between on-site and off-site gamma spectroscopy results is provided in the Z-Score evaluation worksheets provided in Appendix D.

A total of 576 FSS surface and subsurface soil samples were obtained, all of which were analyzed by the on-site laboratory. Of this, 79 samples (approximately 14 percent) were also submitted to TestAmerica for independent (duplicate) analysis.

Duplicate measurements of radioactivity concentration were compared to the initial analytical results by determining a z-score and comparing it against the performance criteria as follows.

The z-score for each data set was calculated using the following equation:

$$\text{Z - score} = \frac{|\text{Sample - Duplicate}|}{\sqrt{\sigma^2_{\text{Sample}} + \sigma^2_{\text{Duplicate}}}}$$

Where:

Sample	=	First sample value (original),
Duplicate	=	Second sample value (duplicate),
σ_{Sample}	=	2σ counting uncertainty of the sample, and,
$\sigma_{\text{Duplicate}}$	=	2σ counting uncertainty of the duplicate.

The calculated z-score results was compared to a performance criteria of greater than -1.96 and less than 1.96. Calculated z-scores that fall within the performance criteria were considered acceptable, and values falling outside the performance criteria were evaluated for possible discrepancies in analytical precision, or for sources of disagreement with the following assumptions of the test:

- The sample measurement and duplicate or replicate measurement are of the same normally distributed population.
- The standard deviations, σ_{Sample} and $\sigma_{\text{Duplicate}}$, represent the true standard deviation of the measured population.

Of the 79 samples analyzed only 4 samples (5 percent) had a calculated z-score that fell outside the performance criteria when comparing the on-site decay corrected ^{214}Bi result to the off-site ^{214}Bi result. It should be noted that when the on-site decay corrected ^{214}Bi result was compared to the off-site ^{238}U result only 1 sample (1 percent) fell outside the performance criteria. This indicates slightly better agreement between the on-site decay corrected ^{214}Bi result and the off-site ^{238}U result. When comparing the on-site ^{228}Ac result with the off-site ^{228}Ac result, 8 samples (10 percent) had a z-score that fell outside the performance criteria. The average z-score for all 79 samples was 0.1 when comparing the two ^{214}Bi results; 0.2 when comparing the ^{214}Bi to ^{238}U; and, 0.3 when comparing the two ^{228}Ac results. Overall, the independent analysis results indicated good agreement with the on-site analyses.

Another purpose for the off-site FSS sample analysis was to verify the adequacy of the ^{214}Bi decay correction factor developed during the FSS. As discussed previously, the decay correction factor was developed to allow immediate analysis of FSS soil samples without the necessary 21-day hold to allow in-growth of the ^{238}U decay progeny (including ^{214}Bi). The decay correction factor developed and applied to the FSS soil sample ^{214}Bi analysis results was 1.3. Note: The ^{228}Ac decay correction factor was determined to be 1. To apply this factor, the ^{214}Bi analysis result was multiplied by 1.3 to obtain the corrected ^{214}Bi (^{238}U surrogate) for use in FSS data analysis and reporting. Since the off-site laboratory dried, sieved and held each of the samples for 21 days in a sealed container prior to analysis, these results are appropriate for validating the FSS developed decay correction factor. By comparing the off-site laboratory ^{214}Bi analysis result to the uncorrected on-site laboratory ^{214}Bi result another ratio could be developed (correction factor). When evaluating all 79 off-site analysis results, this ratio was calculated to be 1.3, the same as the on-site generated decay correction factor. Similarly, the ^{228}Ac ratio was determined to be 0.9 indicating a slight over reporting (conservative reporting) of ^{228}Ac (^{232}Th) concentrations in soil by the on-site laboratory.

One last function of the off-site FSS sample analysis was to validate ^{214}Bi as an appropriate surrogate radionuclide for quantifying ^{238}U in soil samples. The off-site laboratory analytical procedures required a sufficient count time to achieve a ^{234}Th target MDC of 0.5 pCi/g (actual average MDC was 0.3 pCi/g). Therefore, the off-site analysis results for ^{238}U were then compared to the on-site reported ^{238}U concentrations using ^{214}Bi (decay corrected) as the analysis surrogate. The calculated ratio using these radionuclides remained the same as previously determined using only ^{214}Bi, i.e., 1.3. Therefore, it is concluded that the on-site laboratory decay corrected ^{214}Bi and ^{228}Ac soil sample analysis results are appropriate for reporting ^{238}U and ^{232}Th concentrations in soil.

8.0 CONCLUSIONS

Final status surveys and sampling of impacted land areas and structures at the New Haven Depot have been completed in accordance with the requirements specified in the FSS Plan. All SUs have been properly classified, surveyed and sampled. The results were then used to verify the DQO's were achieved for each SU and the results support the design objective, unrestricted release of the Depot from NRC license STC-133.

As a result of the FSS at the Depot it is concluded that the applicable $DCGL_w$ has been achieved for both land area and structure SUs. This assures compliance with 10 CFR 20.1402 which states:

> *A site will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a TEDE to an average member of the critical group that does not exceed 25 mrem per year, including that from groundwater sources of drinking water, and that the residual radioactivity has been reduced to levels that are as low as reasonably achievable (ALARA). Determination of the levels which are ALARA must take into account the consideration of any detriments, such as deaths from transportation accidents, expected to potentially result from decontamination and waste disposal.*

As indicated, the Depot FSS and the contents of this report demonstrate compliance with the above requirement for unrestricted release of the Site.

9.0 REFERENCES

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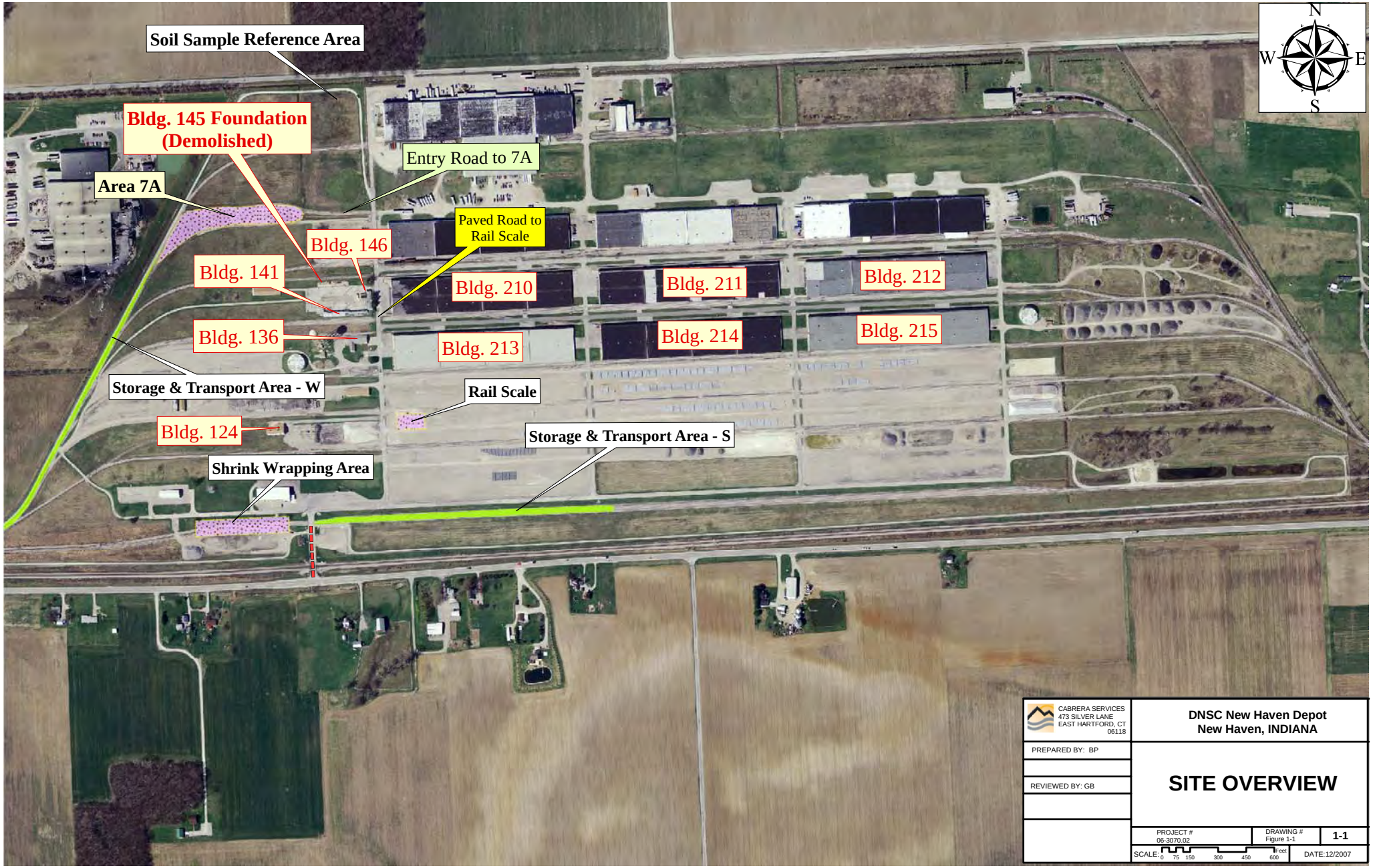
(NRC 2006) Title 10, Code of Federal Regulations, Part 20, Subpart E, January 2006.

(Pangea 2005) *Project Closure Report*, Pangea Group, February 2005.

APPENDIX A

FIGURES



CABRERA SERVICES
473 SILVER LANE
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06118

DNSC New Haven Depot
New Haven, INDIANA

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REVIEWED BY: GB

SITE OVERVIEW

PROJECT # 06-3070.02

DRAWING # Figure 1-1

1-1

SCALE: 0 75 150 300 450 600 Feet

DATE:12/2007

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SU 2
SU 4
SU 3
SU 6
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Class 1 SU
Class 2 SU
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CABRERA SERVICES
473 SILVER LANE
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New Haven, INDIANA
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REVIEWED BY: GB
AREA 7A CLASS 1
GAMMA WALKOVER SURVEY
PROJECT #
06-3070.02
DRAWING #
Figure 6-1
6-1
SCALE:
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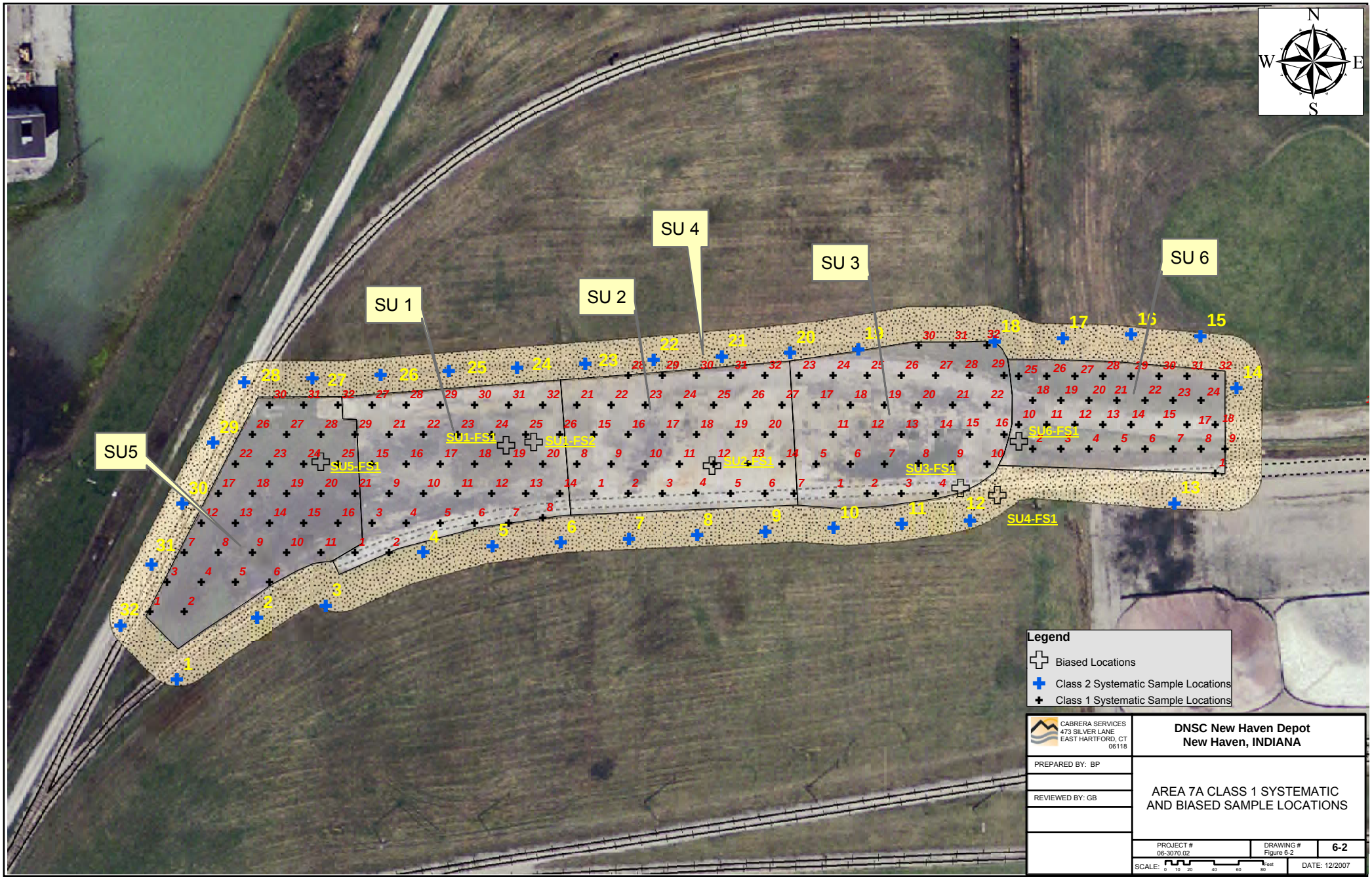
Feet
DATE: 12/2007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SU 3
SU 4
SU 6
SU5
SU1-FS1
SU1-FS2
SU2-FS1
SU3-FS1
SU4-FS1
SU5-FS1
SU6-FS1
Legend
Biased Locations
Class 2 Systematic Sample Locations
Class 1 Systematic Sample Locations
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PREPARED BY: BP
REVIEWED BY: GB
AREA 7A CLASS 1 SYSTEMATIC
AND BIASED SAMPLE LOCATIONS
PROJECT #
06-3070.02
DRAWING #
Figure 6-2
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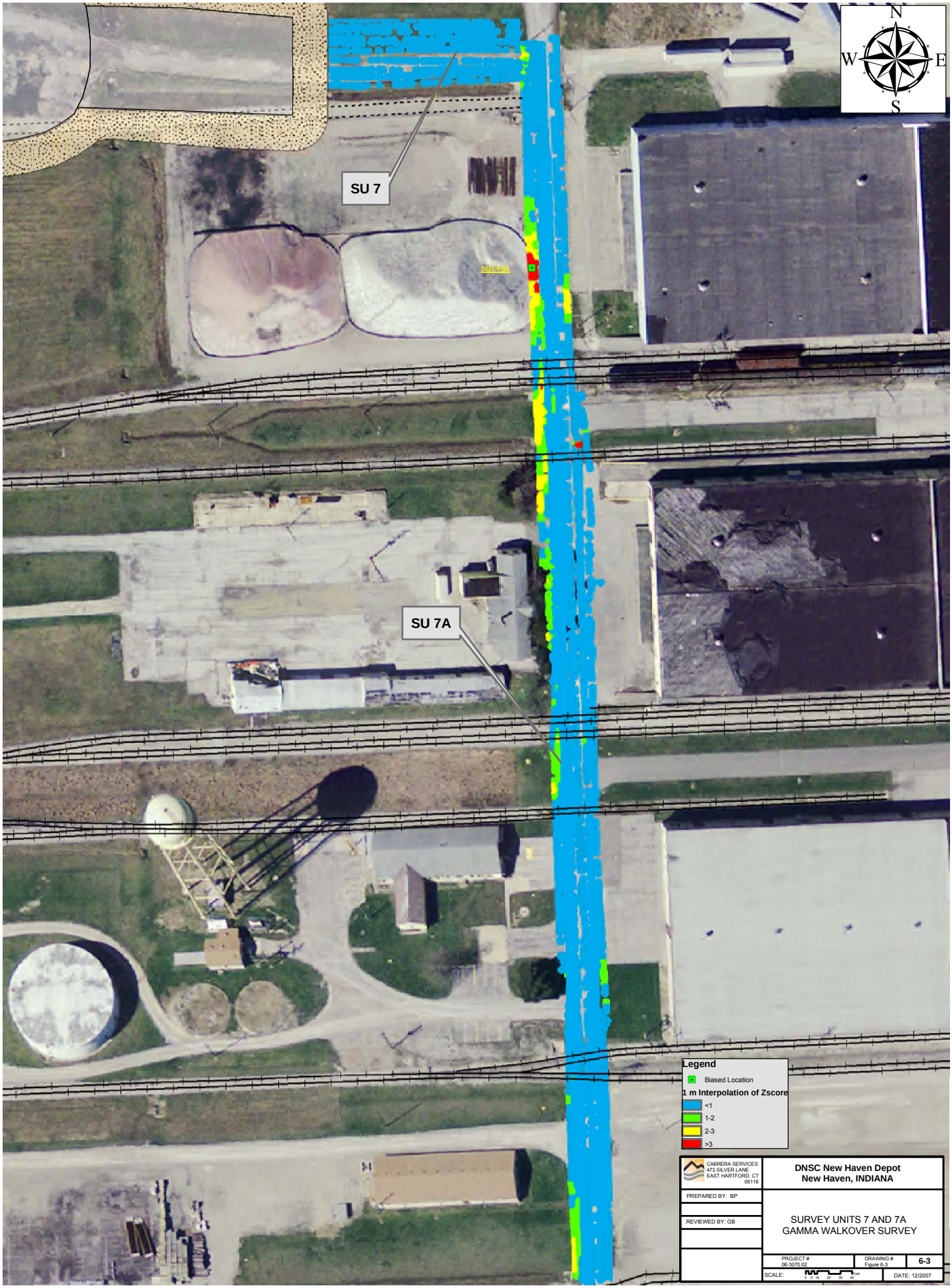
DATE: 12/2007



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SURVEY UNITS 7 AND 7A
GAMMA WALKOVER SURVEY

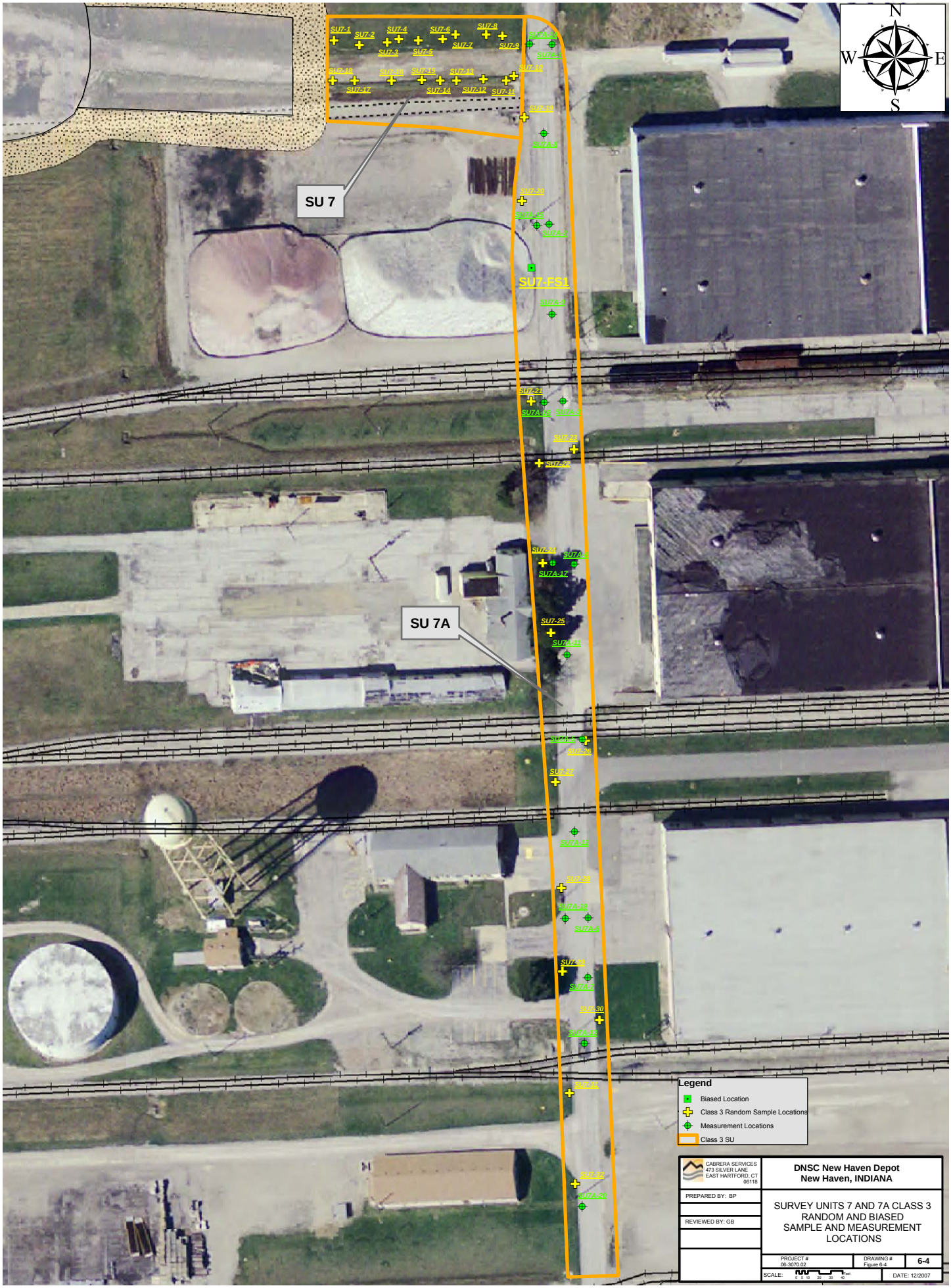
PROJECT # 06-3070.02

DRAWING # Figure 6-3

6-3

SCALE: 0 5 10 20 30 40 Feet

DATE: 12/2007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SU7-10
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SU7-12
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SU7A-21
SU7A-22
SU7A-23
SU7A-24
SU7-FS1
Legend
Biased Location
Class 3 Random Sample Locations
Measurement Locations
Class 3 SU
CABRERA SERVICES
473 SILVER LANE
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New Haven, INDIANA
PREPARED BY: BP
REVIEWED BY: GB
SURVEY UNITS 7 AND 7A CLASS 3
RANDOM AND BIASED
SAMPLE AND MEASUREMENT
LOCATIONS
PROJECT #
06-3070.02
DRAWING #
Figure 6-4
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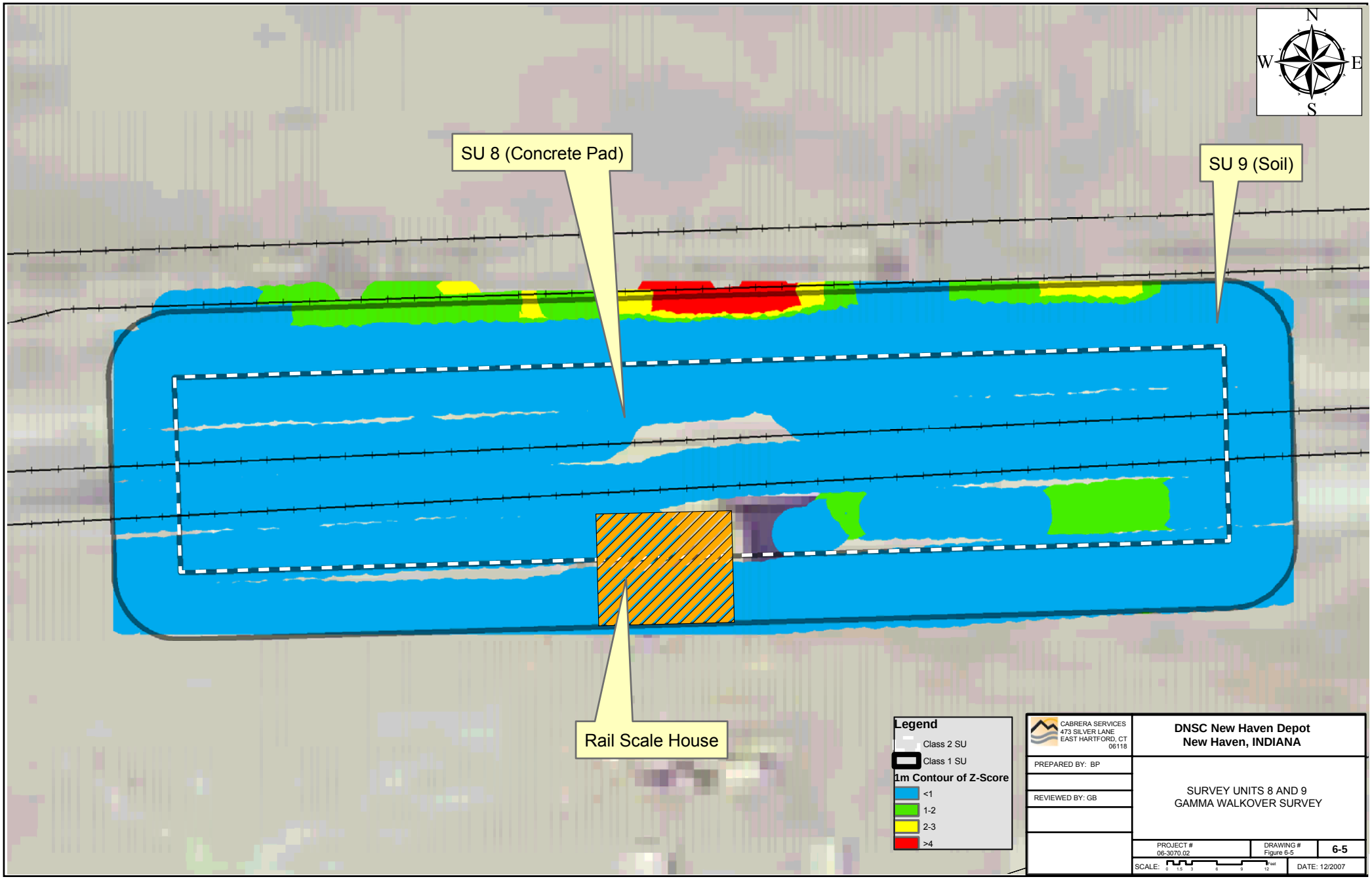
DATE: 12/2007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SU 8 (Concrete Pad)
SU 9 (Soil)
Rail Scale House
Legend
Class 2 SU
Class 1 SU
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CABRERA SERVICES
473 SILVER LANE
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SURVEY UNITS 8 AND 9
GAMMA WALKOVER SURVEY
PROJECT #
06-3070.02
DRAWING #
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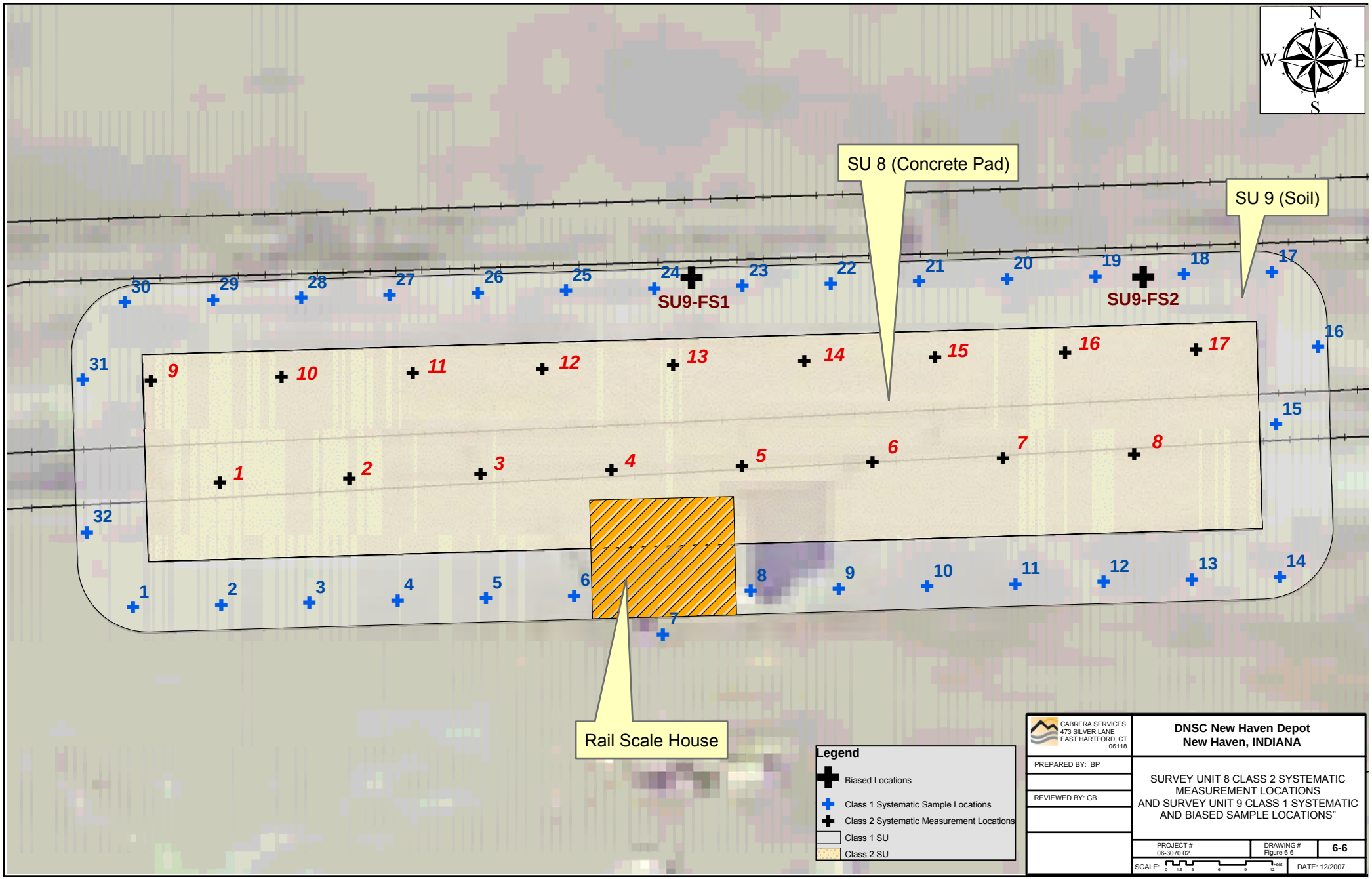
DATE: 12/2007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SU 8 (Concrete Pad)
SU 9 (Soil)
SU9-FS1
SU9-FS2
Rail Scale House
Legend
Biased Locations
Class 1 Systematic Sample Locations
Class 2 Systematic Measurement Locations
Class 1 SU
Class 2 SU
CABRERA SERVICES
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DNSC New Haven Depot
New Haven, INDIANA
PREPARED BY: BP
REVIEWED BY: GB
SURVEY UNIT 8 CLASS 2 SYSTEMATIC MEASUREMENT LOCATIONS AND SURVEY UNIT 9 CLASS 1 SYSTEMATIC AND BIASED SAMPLE LOCATIONS"
PROJECT # 06-3070.02
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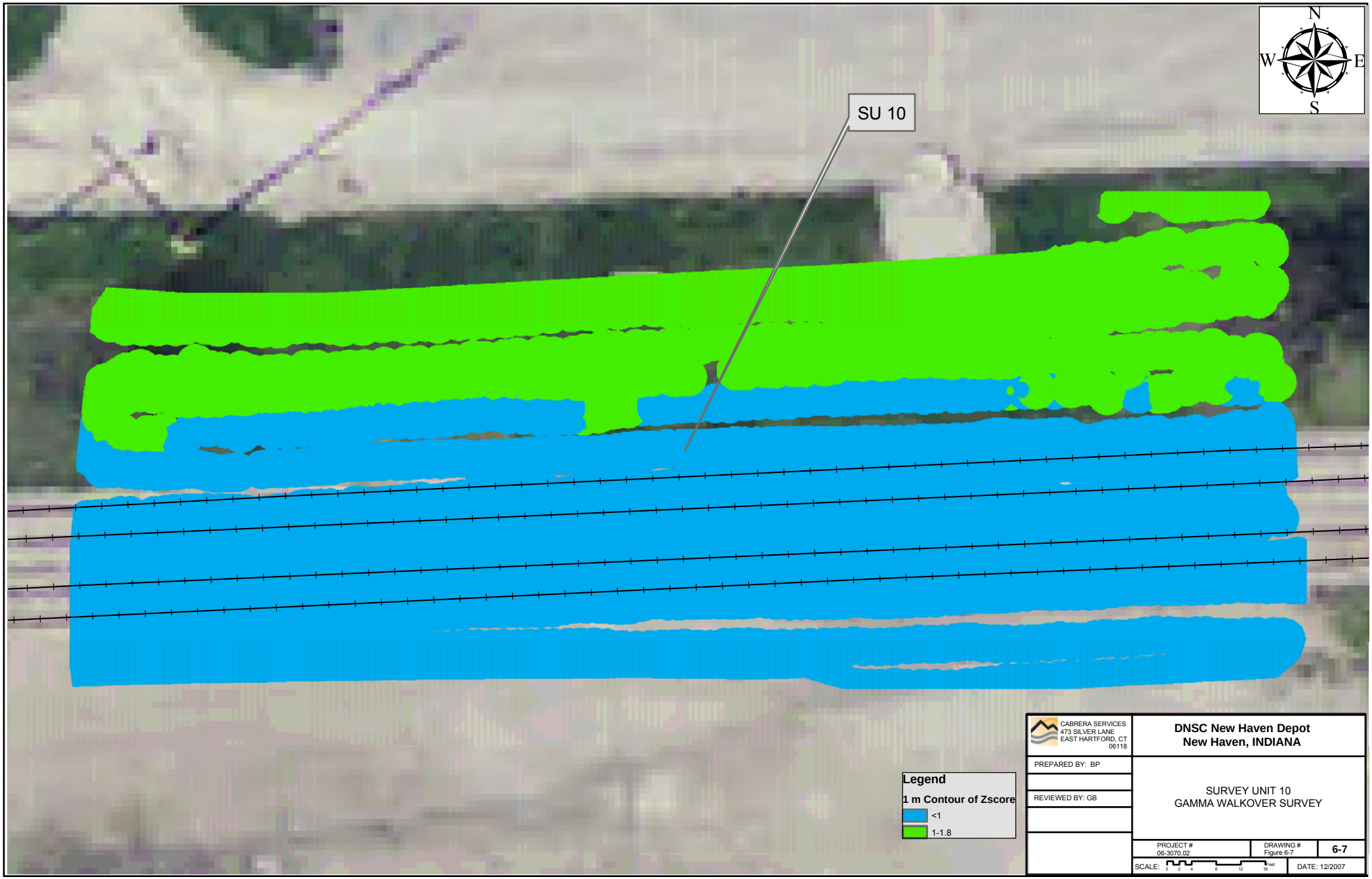

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SURVEY UNIT 10
GAMMA WALKOVER SURVEY

PROJECT #	DRAWING #	
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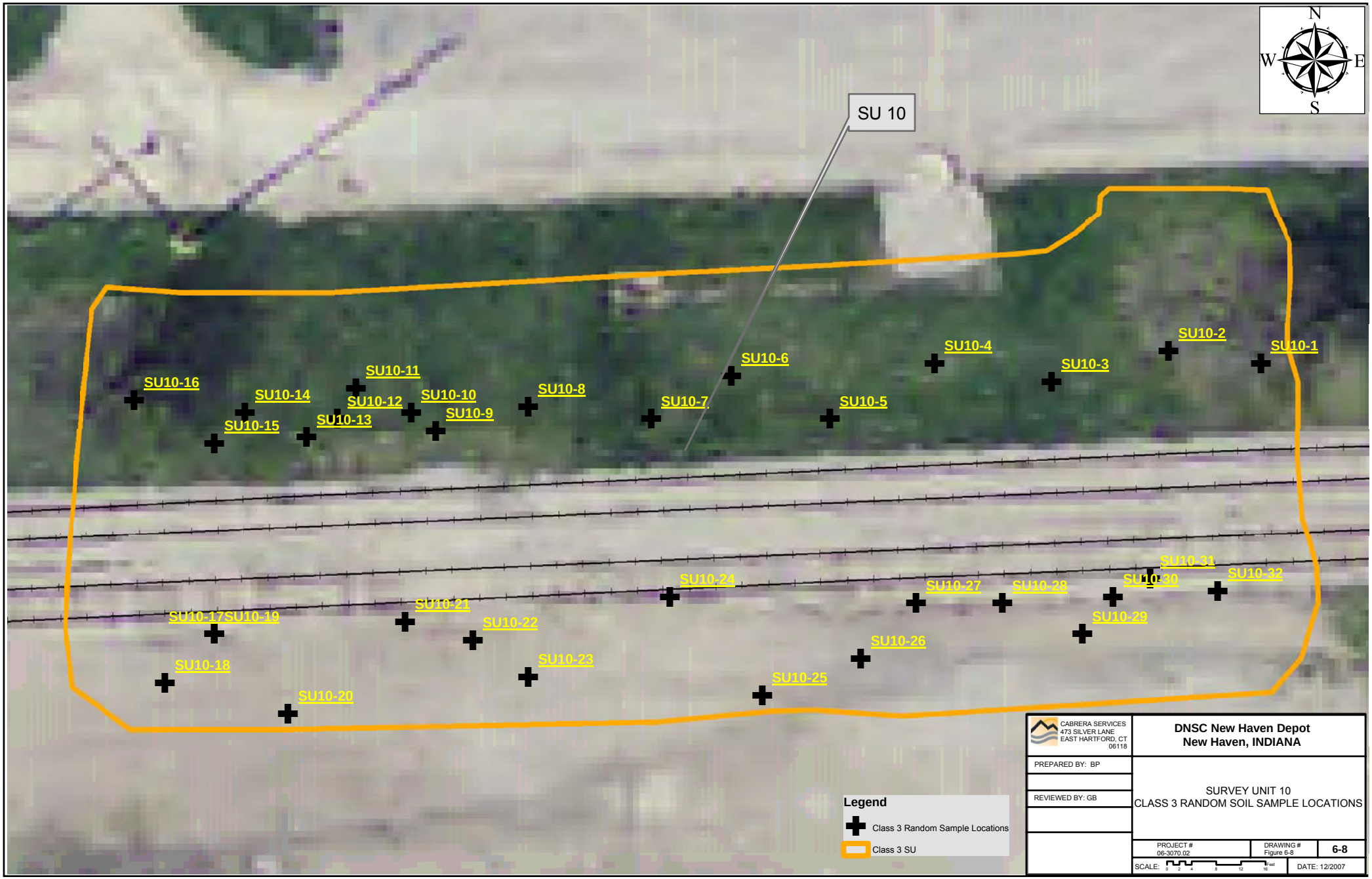
SCALE: 0 2 4 8 12 16 Feet

DATE: 12/2007



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SURVEY UNIT 10
CLASS 3 RANDOM SOIL SAMPLE LOCATIONS

PROJECT # 06-3070.02

DRAWING # Figure 6-8

6-8

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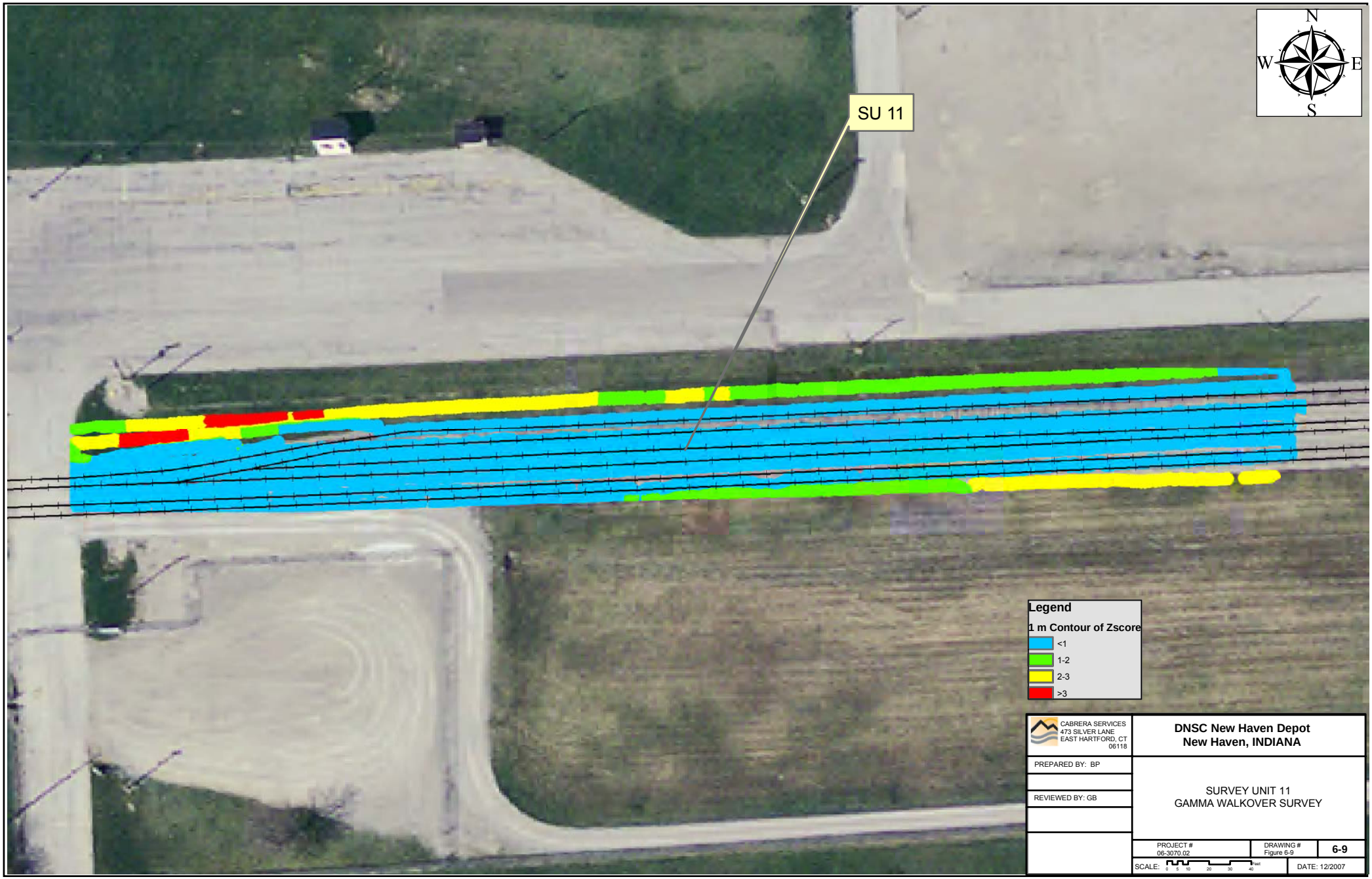
DATE: 12/2007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CABRERA SERVICES
473 SILVER LANE
EAST HARTFORD, CT
06118
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New Haven, INDIANA
PREPARED BY: BP
REVIEWED BY: GB
SURVEY UNIT 11
GAMMA WALKOVER SURVEY
PROJECT #
06-3070.02
DRAWING #
Figure 6-9
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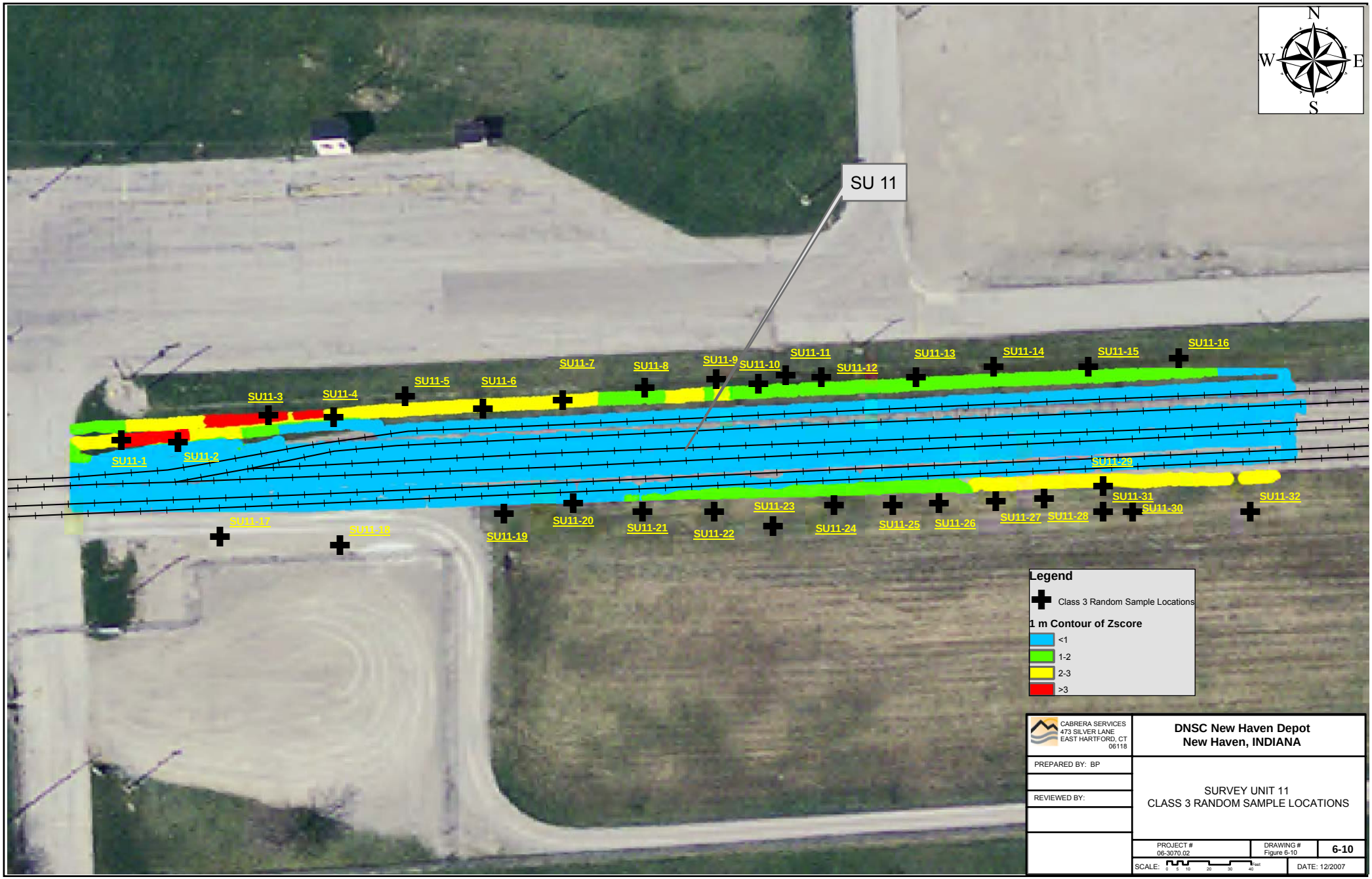
Feet
DATE: 12/2007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CABRERA SERVICES
473 SILVER LANE
EAST HARTFORD, CT
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New Haven, INDIANA
PREPARED BY: BP
REVIEWED BY:
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PROJECT #
06-3070.02
DRAWING #
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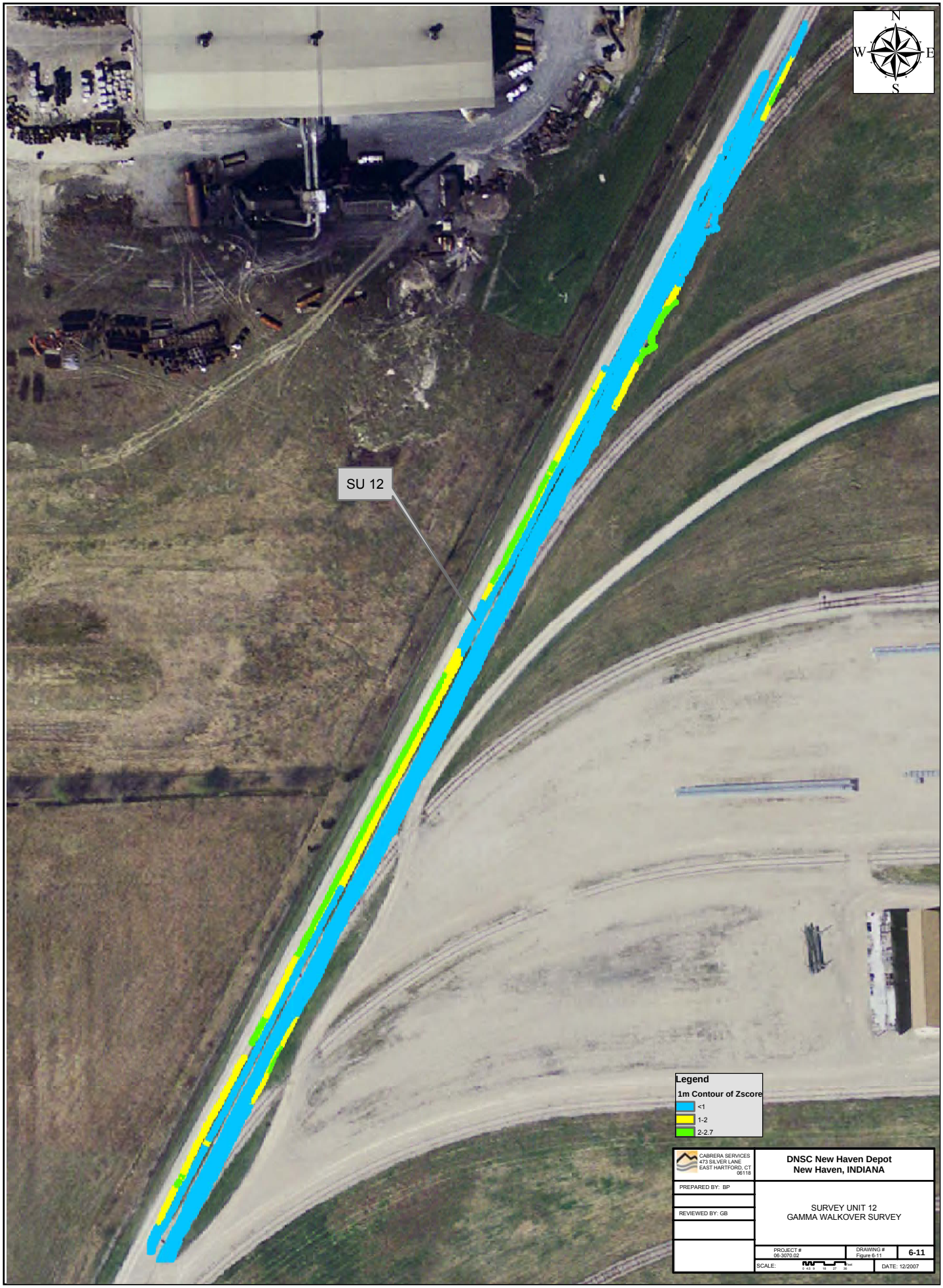
DATE: 12/2007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CABRERA SERVICES
473 SILVER LANE
EAST HARTFORD, CT
06118
DNSC New Haven Depot
New Haven, INDIANA
PREPARED BY: BP
REVIEWED BY: GB
SURVEY UNIT 12
GAMMA WALKOVER SURVEY
PROJECT #
06-3070.02
DRAWING #
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SCALE:
DATE: 12/2007

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SU12-5
SU12-31
SU12-4
SU12-3
SU12-2
SU12-32
SU12-1
Legend
Class 3 Random Sample Locations
Class 3 SU
CABRERA SERVICES
473 SILVER LANE
EAST HARTFORD, CT
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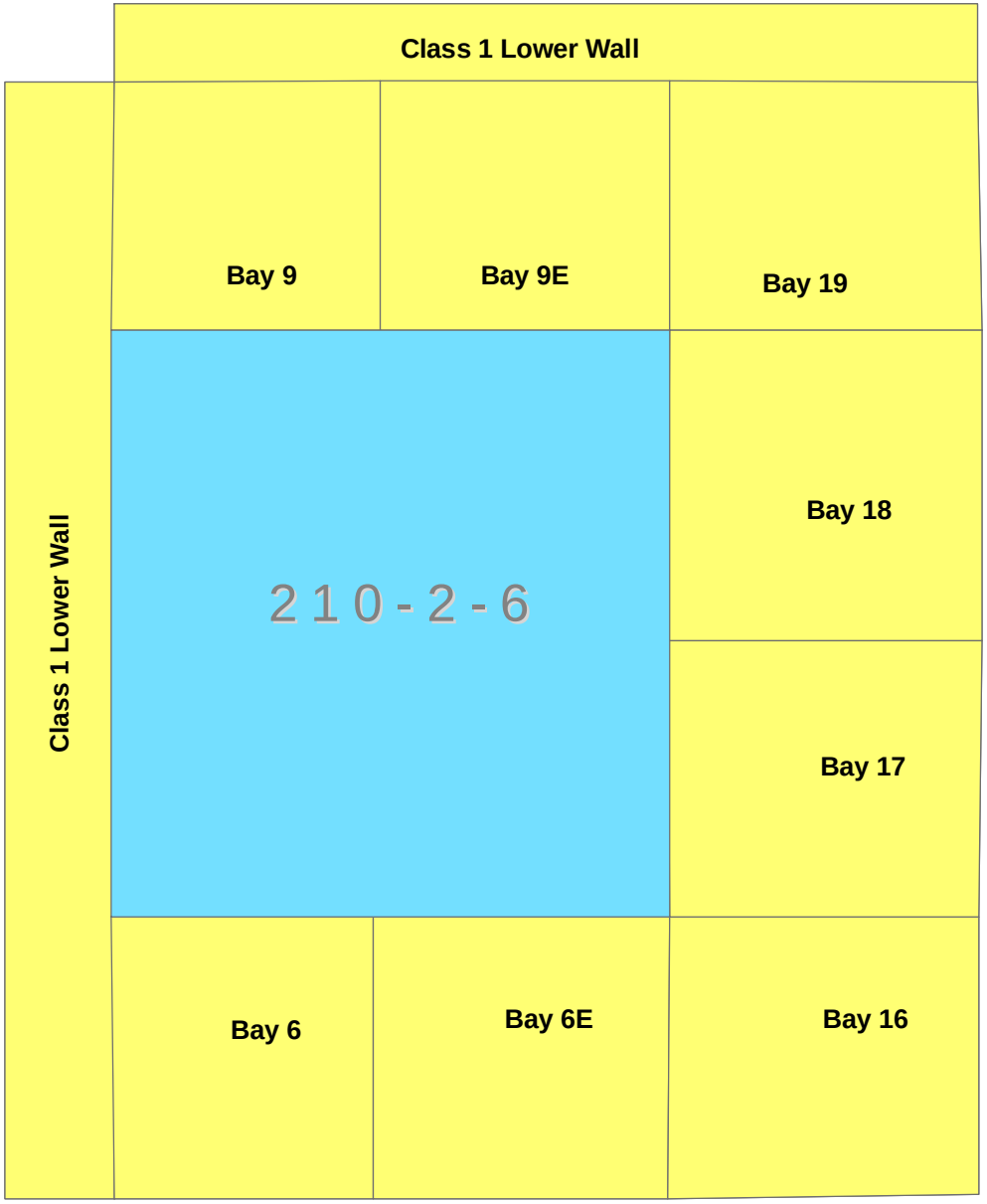
DNSC New Haven Depot
New Haven, INDIANA
PREPARED BY: BP
REVIEWED BY: GB
SURVEY UNIT 12
CLASS 3 RANDOM SAMPLE LOCATIONS
PROJECT # 06-3070.02
DRAWING # Figure 6-12
6-12
SCALE:
DATE: 12/2007



Legend

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EAST HARTFORD, CT
06118

DNSC New Haven Depot
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REVIEWED BY: GB

BUILDING 210 SECTION 2
SURVEY UNIT 210-2-6
GAMMA WALKOVER SURVEY

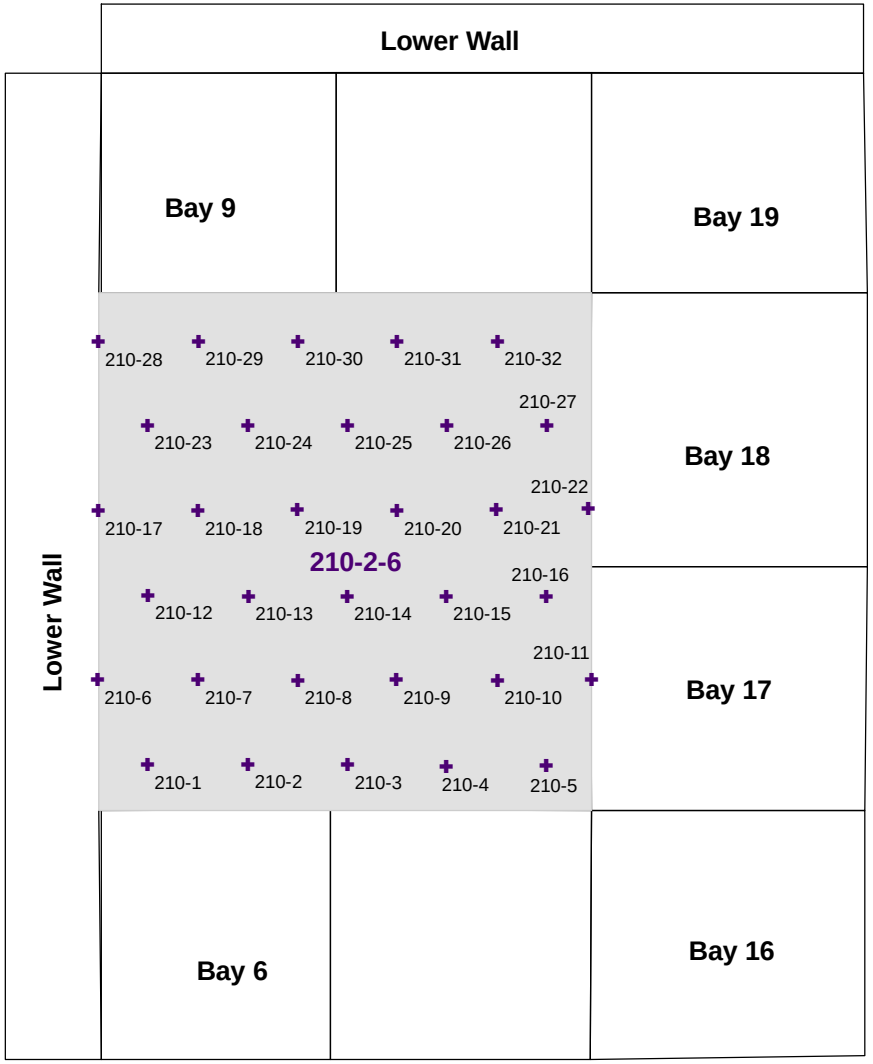
PROJECT # 06-3070.02

DRAWING # Figure 6-13

6-13

SCALE: 0 20 40 80 120 160 Feet

DATE: 01/2009



Legend

- Soil Sample Locations
- Survey Units 210-2-6

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EAST HARTFORD, CT
06118

DNSC New Haven Depot
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PREPARED BY: BP

REVIEWED BY: GB

BUILDING 210 SECTION 2
SURVEY UNIT 210-2-6
CLASS 1 SAMPLE LOCATIONS

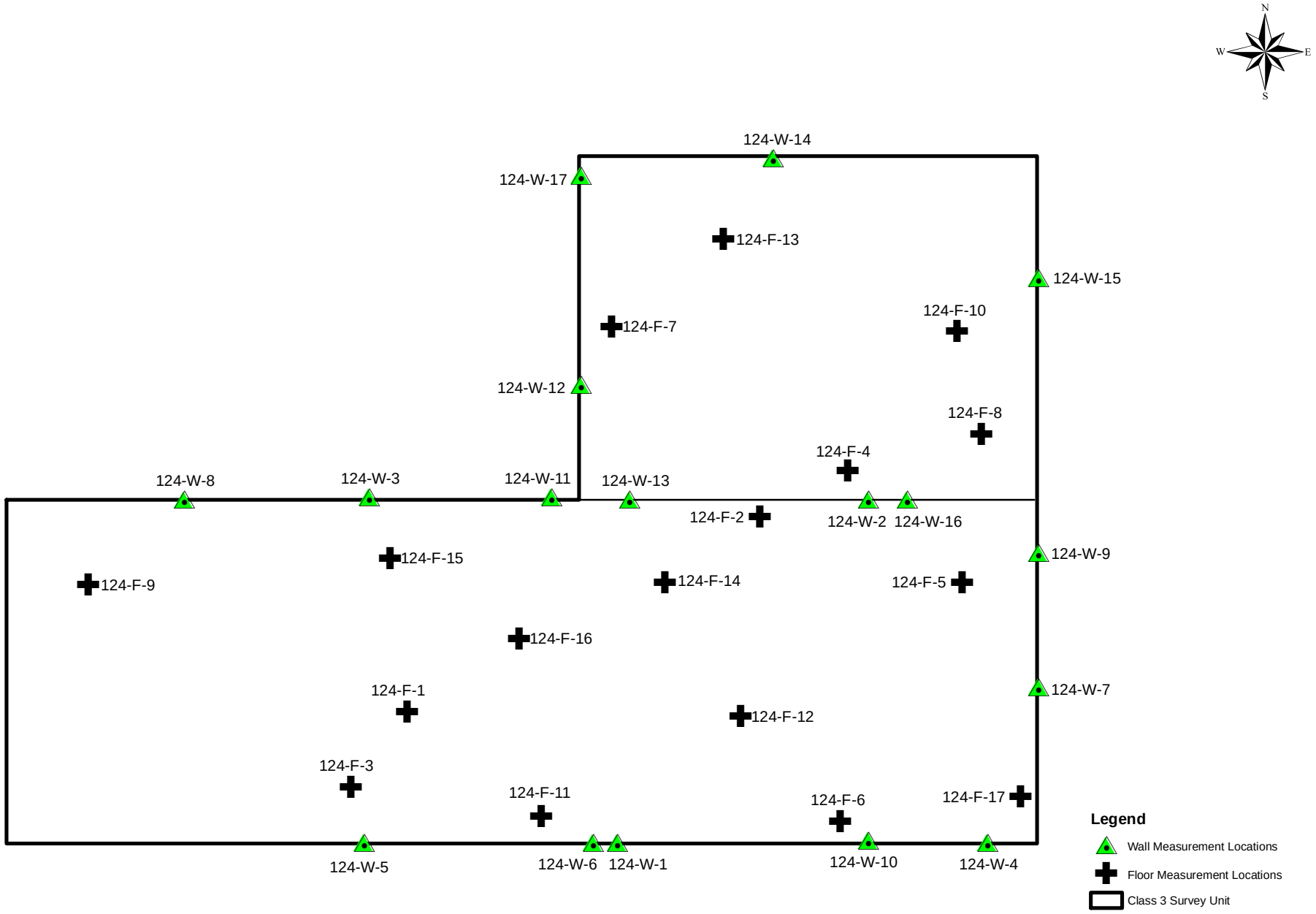
PROJECT # 06-3070.02

DRAWING # Figure 6-14

6-14

SCALE: 0 25 50 100 150 200 Feet

DATE: 01/2009



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BUILDING 124 CLASS 3
RANDOM MEASUREMENT LOCATIONS

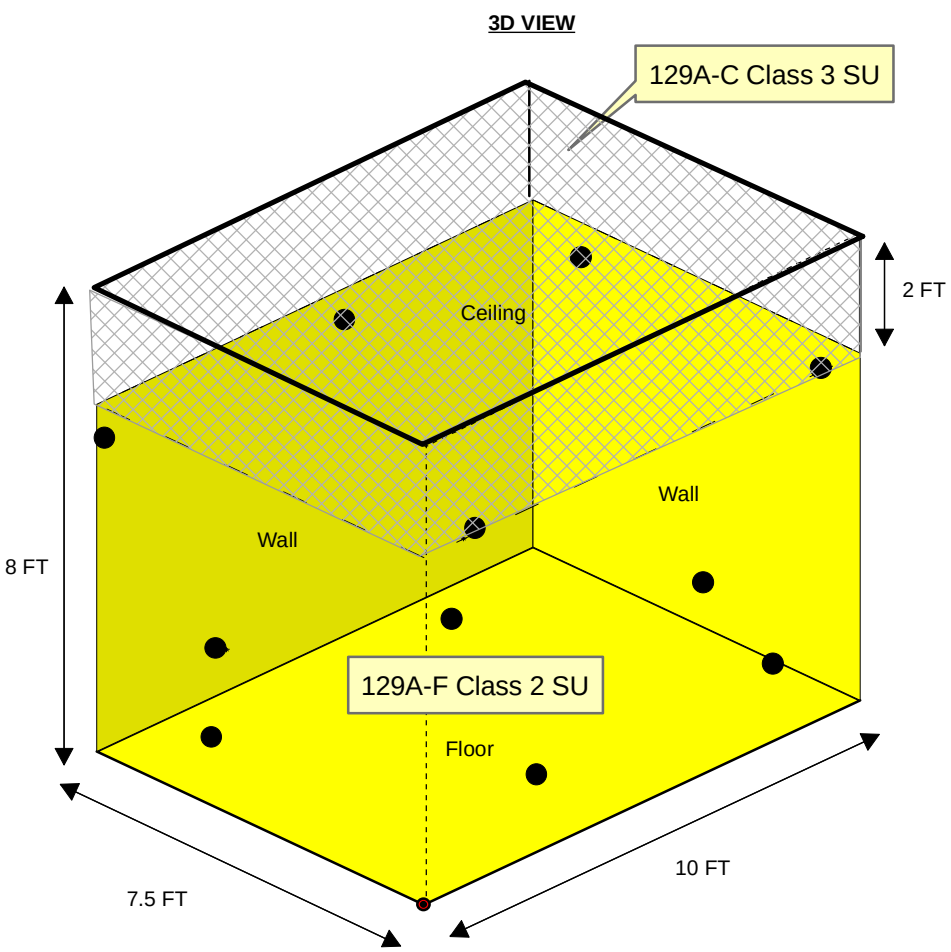
PROJECT # 06-3070.02

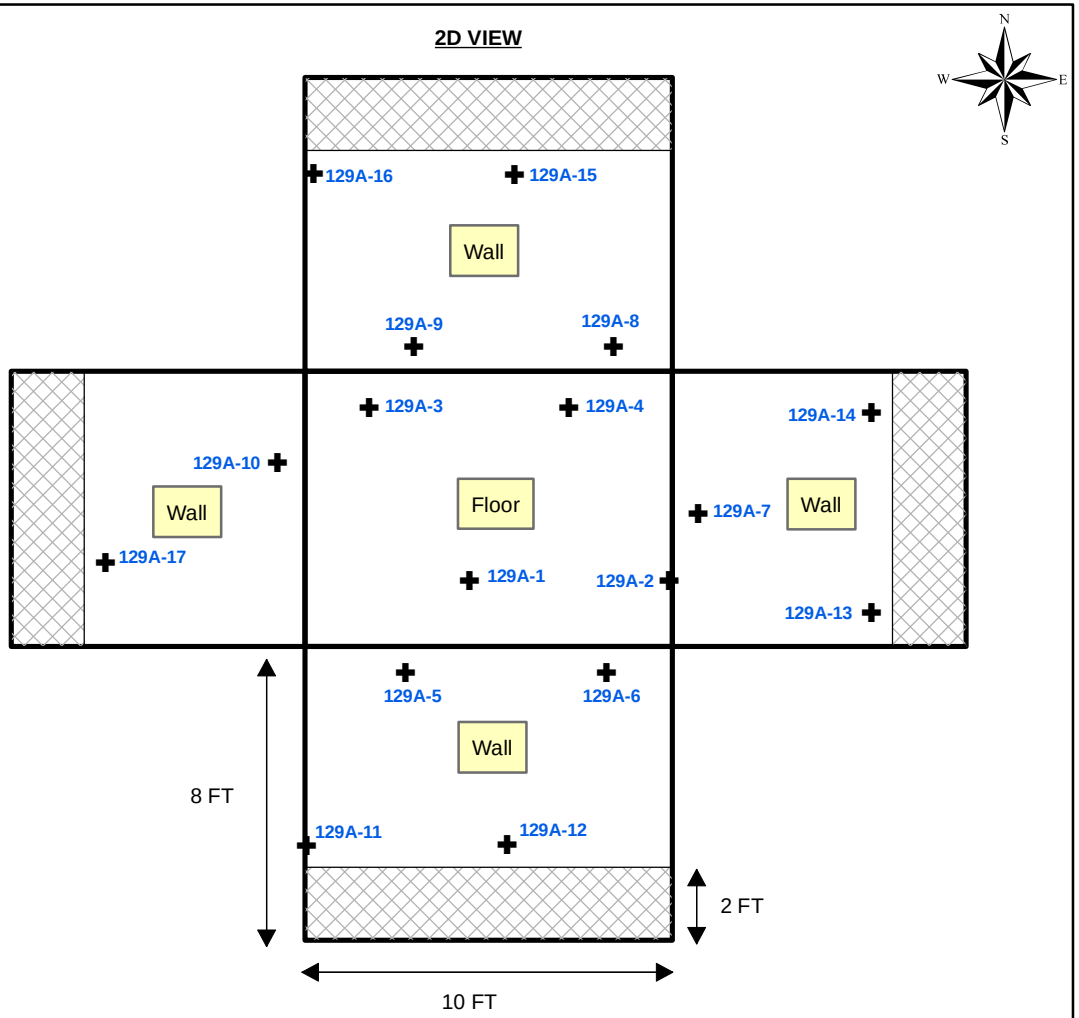
DRAWING # Figure 6-15

6-15

SCALE: 0 1.25 2.5 5 7.5 10 Feet

DATE: 01/2009





Legend (3D View)

- 129A-F Class 2 Survey Unit (Floors and Walls up to 6 ft)
- 129A-C Class 3 Survey Unit (Upper Walls and Ceiling)

Legend (2D View)

- 129A-F Class 2 Survey Unit (Floors and Walls up to 6 ft)
- 129A-C Class 3 Survey Unit (Upper Walls and Ceiling)

CABRERA SERVICES
473 SILVER LANE
EAST HARTFORD, CT
06118

DNSC New Haven Depot
New Haven, INDIANA

PREPARED BY: BP

REVIEWED BY: GB

BUILDING 129A
CLASS 2 SYSTEMATIC
MEASUREMENT LOCATIONS

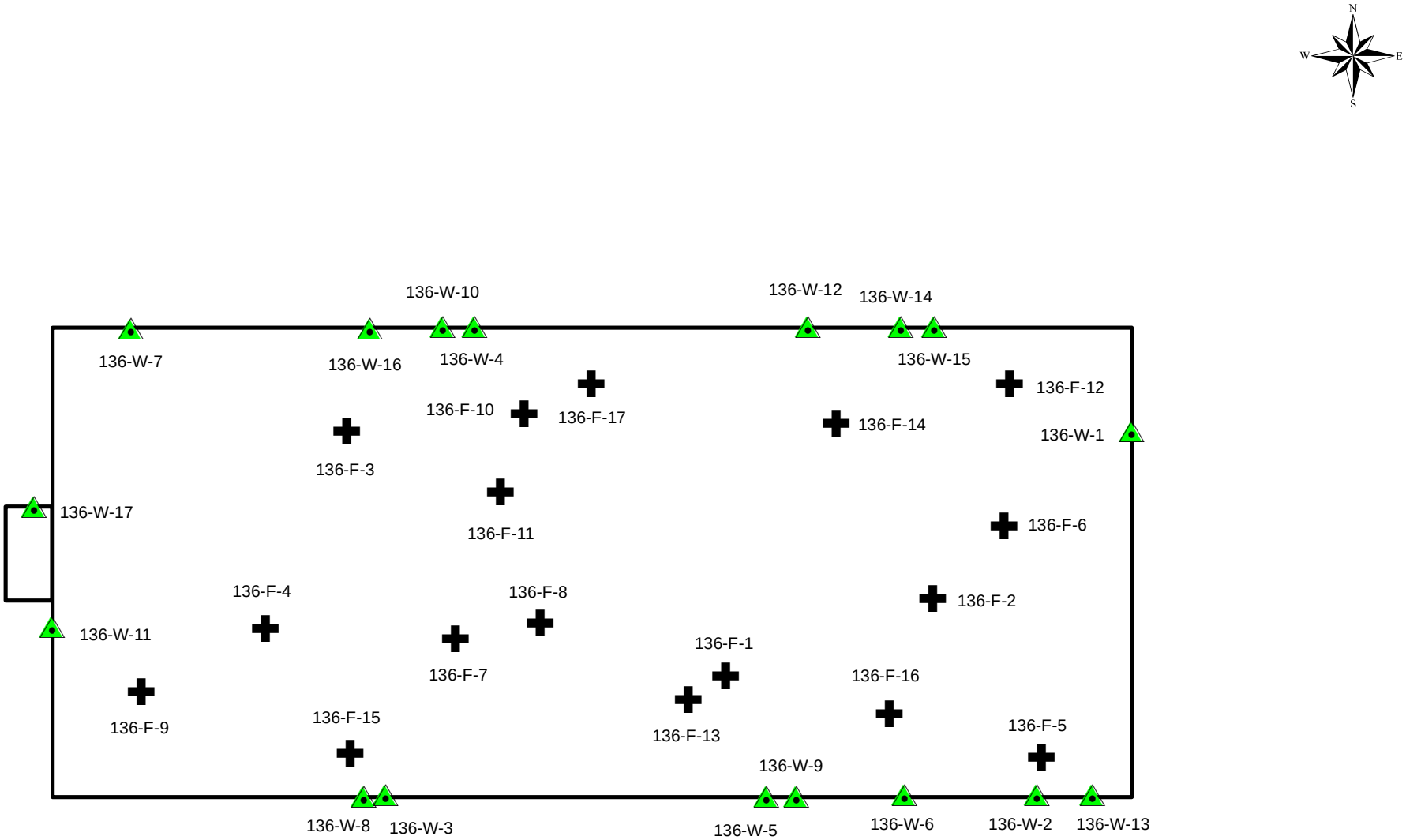
PROJECT # 06-3070.02

DRAWING # Figure 6-16

6-16

SCALE: 0 0.5 1 2 3 4 Feet

DATE: 01/2009



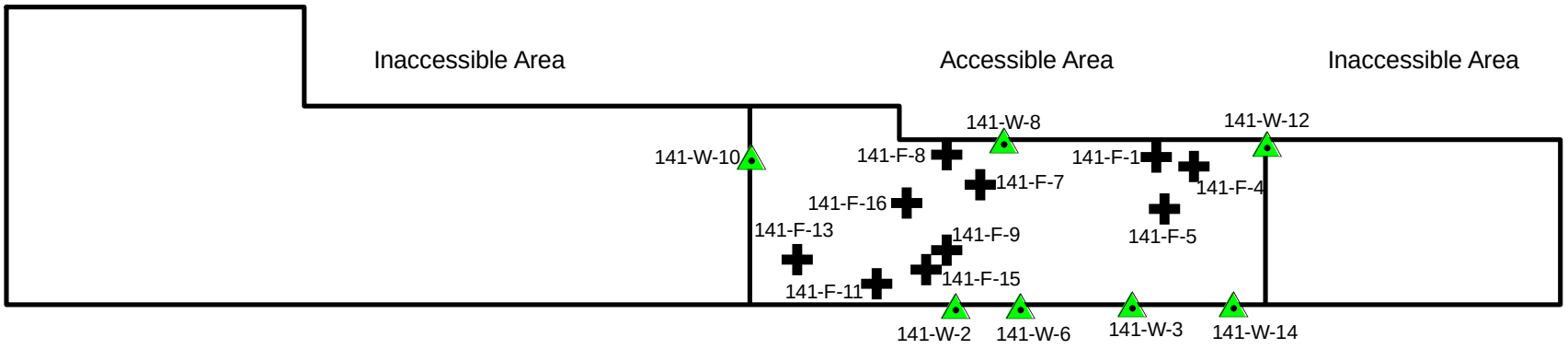
Legend

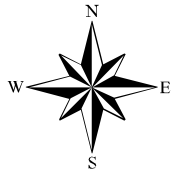
Wall Measurement Locations

Floor Measurement Locations

Class 3 Survey Unit

CABRERA SERVICES 473 SILVER LANE EAST HARTFORD, CT 06118	**DNSC New Haven Depot** **New Haven, INDIANA**
PREPARED BY: BP	BUILDING 136 CLASS 3 RANDOM MEASUREMENT LOCATIONS
REVIEWED BY: GB	
	PROJECT # 06-3070.02 / DRAWING # Figure 6-17 / **6-17**
	SCALE: 0 1.5 3 6 9 12 Feet / DATE: 01/2009





Legend

Wall Measurement Locations

Floor Measurement Locations

Class 3 Survey Unit

CABRERA SERVICES
473 SILVER LANE
EAST HARTFORD, CT
06118

DNSC New Haven Depot
New Haven, INDIANA

PREPARED BY: BP

REVIEWED BY: GB

BUILDING 141
CLASS 3 RANDOM
MEASUREMENT LOCATIONS

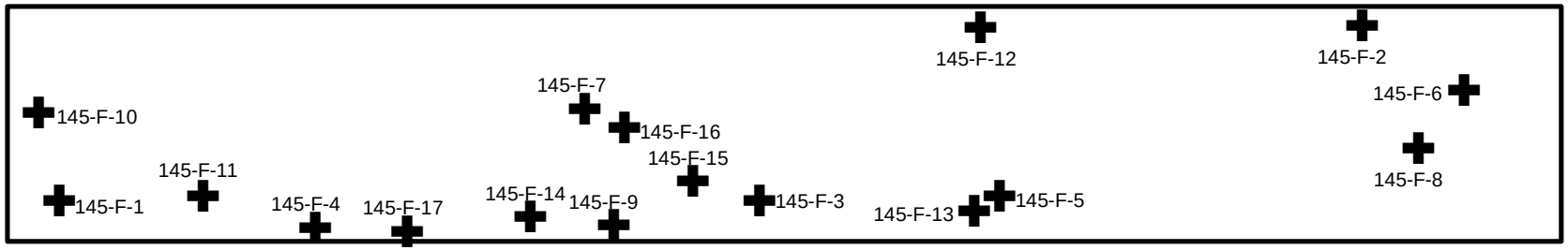
PROJECT # 06-3070.02

DRAWING # Figure 6-18

6-18

SCALE: 0 2.5 5 10 15 20 Feet

DATE: 01/2009



Legend

Floor Measurement Locations

Class 3 Survey Unit

CABRERA SERVICES 473 SILVER LANE EAST HARTFORD, CT 06118	**DNSC New Haven Depot** **New Haven, INDIANA**
PREPARED BY: BP	FORMER BUILDING 145 CLASS 3 RANDOM MEASUREMENT LOCATIONS
REVIEWED BY: GB	
	PROJECT # 06-3070.02 / DRAWING # Figure 6-19 / **6-19**
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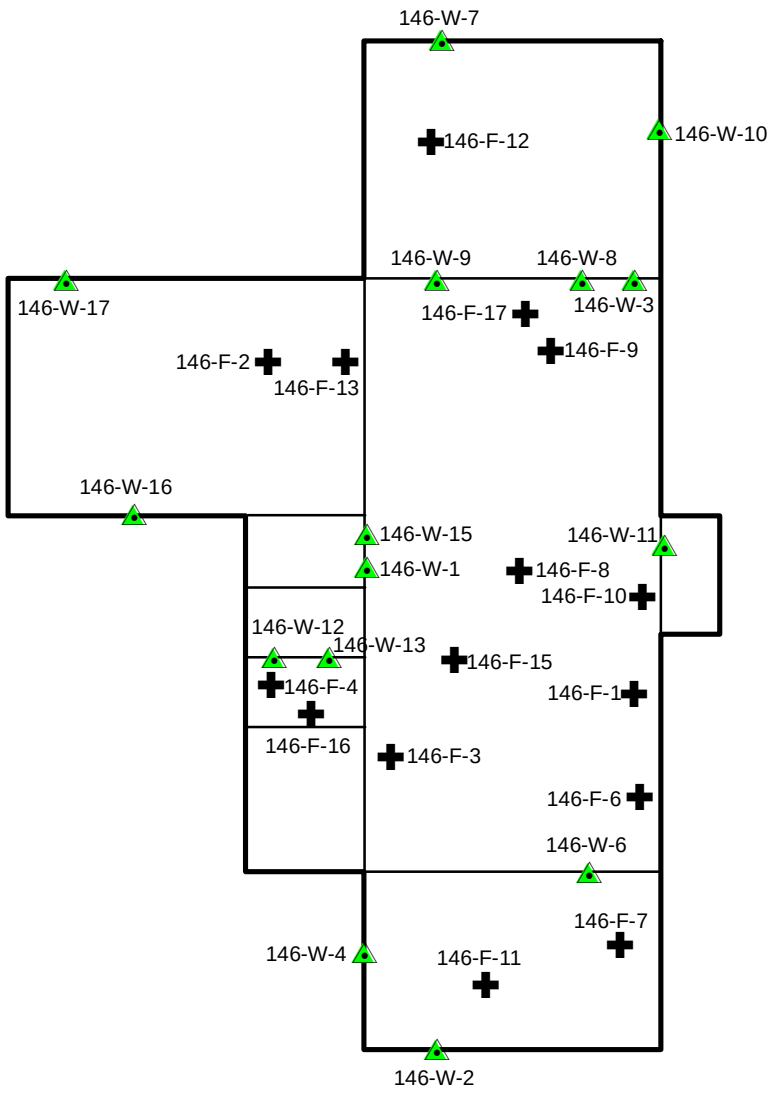
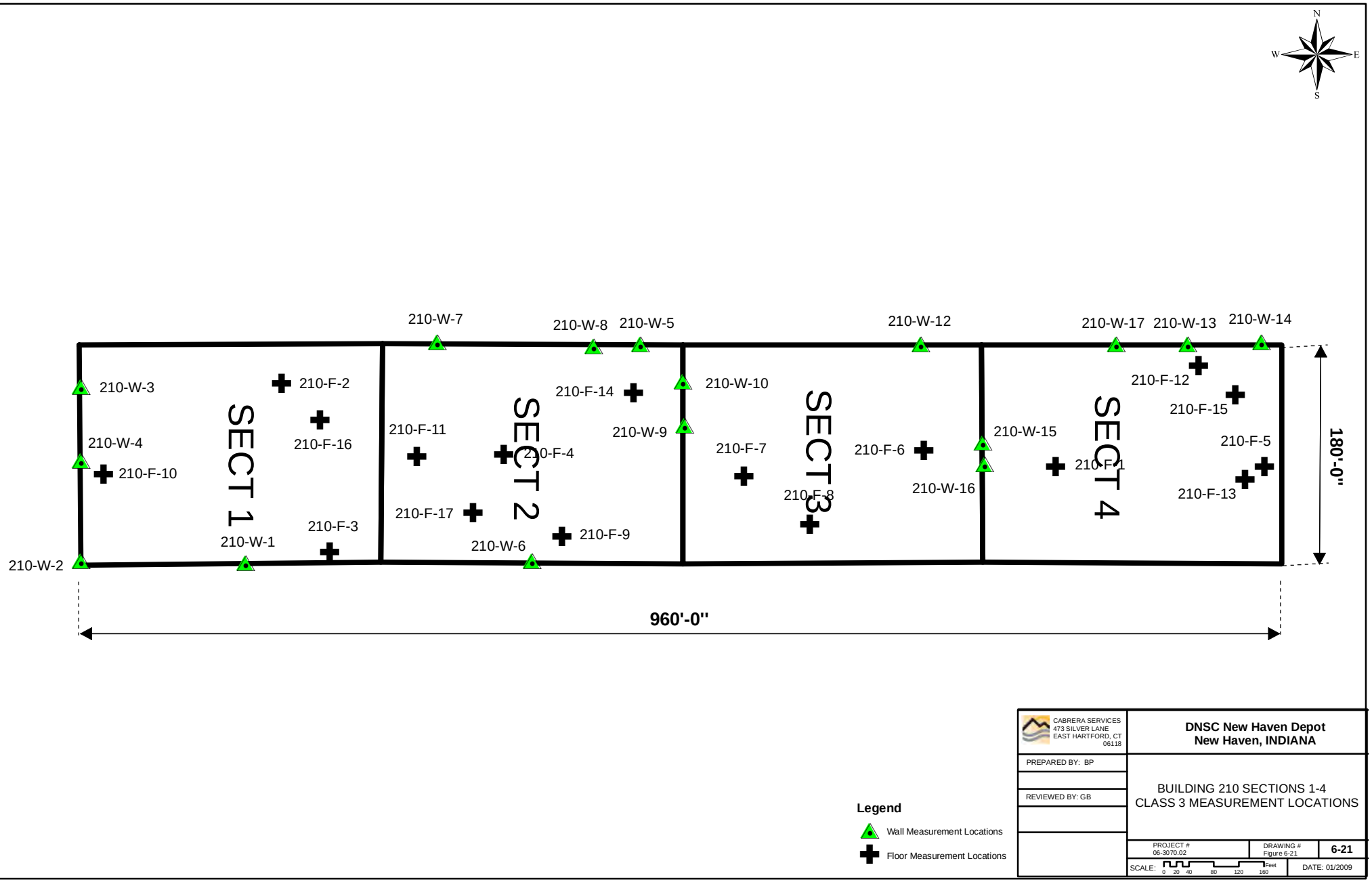


Legend

- Wall Measurement Locations
- Floor Measurement Locations
- Class 3 Survey Unit

CABRERA SERVICES 473 SILVER LANE EAST HARTFORD, CT 06118	**DNSC New Haven Depot** **New Haven, INDIANA**
PREPARED BY: BP	BUILDING 146 CLASS 3 RANDOM MEASUREMENT LOCATIONS
REVIEWED BY: GB	
	PROJECT # 06-3070.02 / DRAWING # Figure 6-20 / **6-20**
	SCALE: 0 2.5 5 10 Feet / DATE: 01/2009



CABRERA SERVICES
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06118

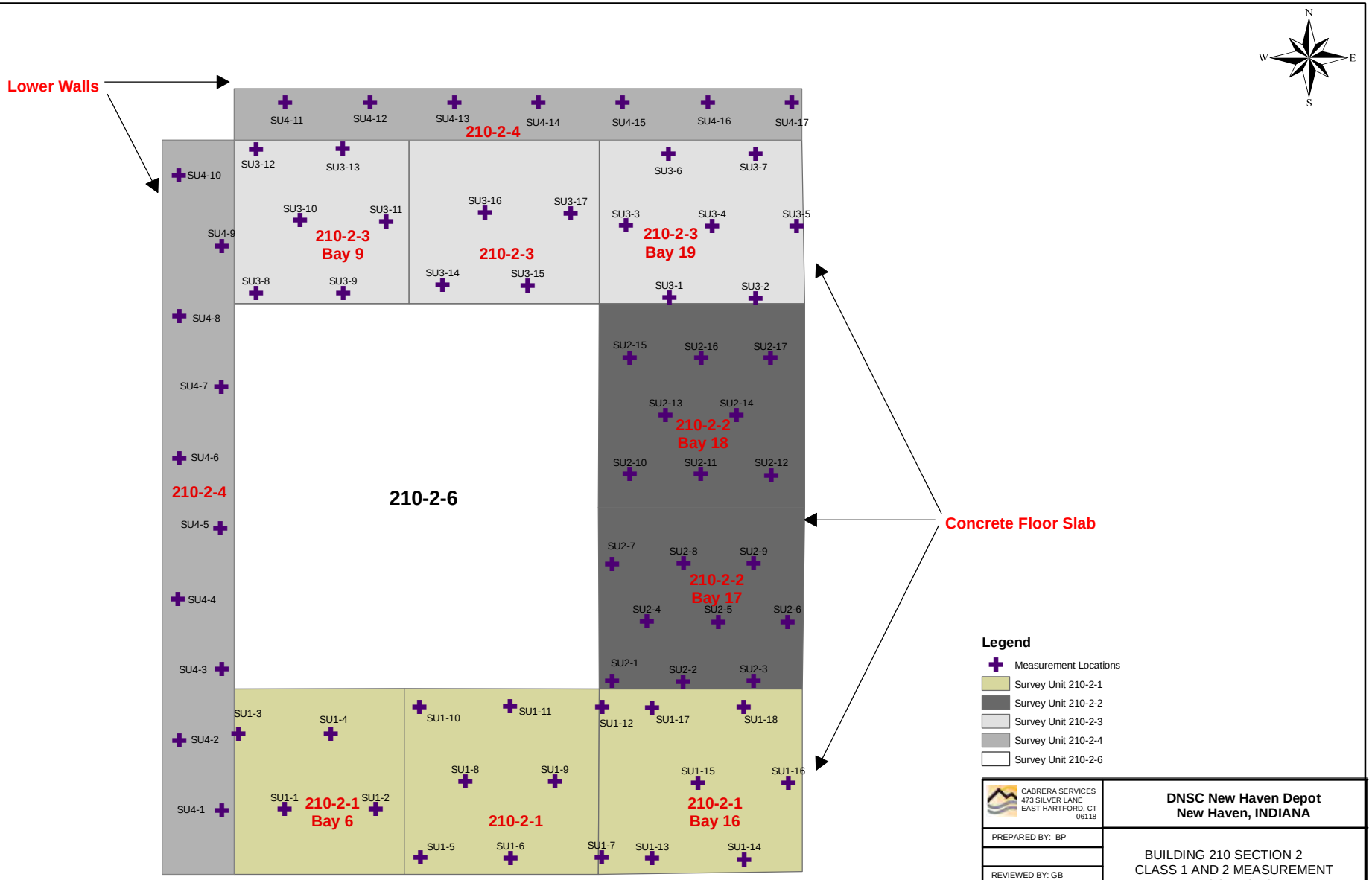
DNSC New Haven Depot
New Haven, INDIANA

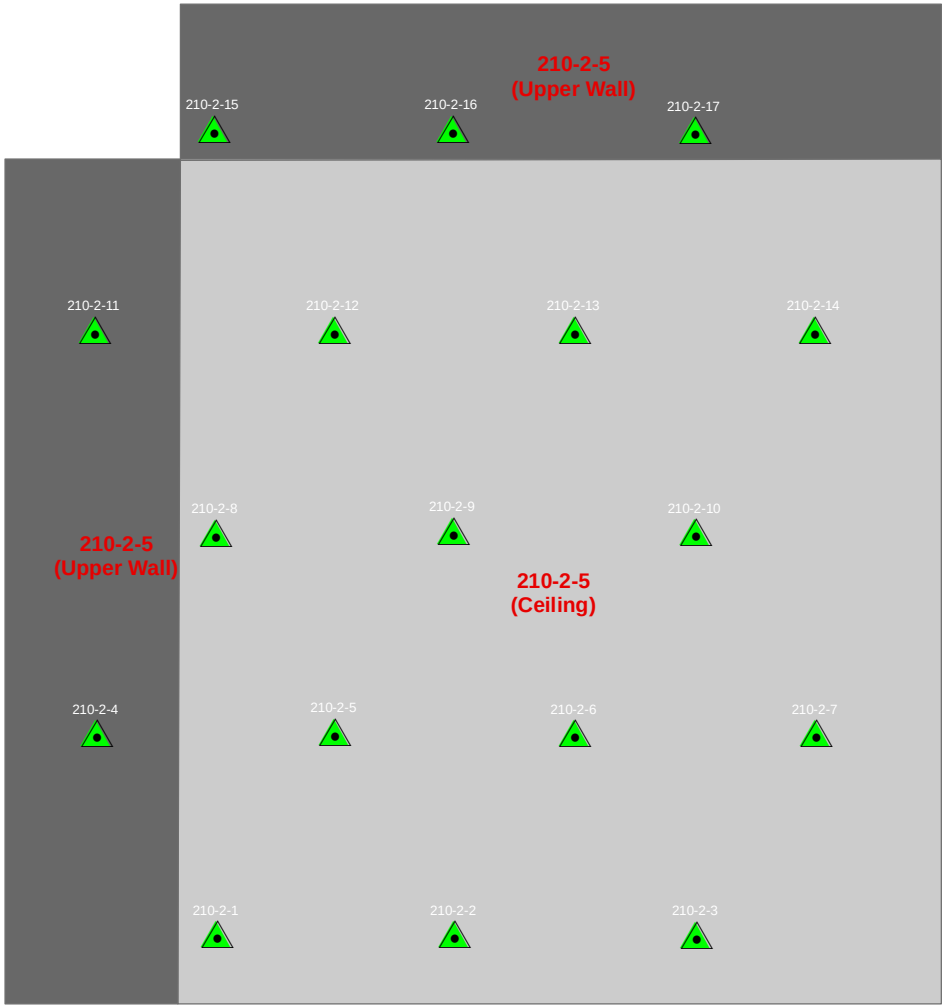
PREPARED BY: BP

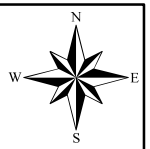
REVIEWED BY: GB

BUILDING 210 SECTIONS 1-4
CLASS 3 MEASUREMENT LOCATIONS

PROJECT #	DRAWING #	
06-3070.02	Figure 6-21	6-21
SCALE: 0 20 40 80 120 160 Feet		DATE: 01/2009


Lower Walls
Concrete Floor Slab
210-2-4
210-2-3
Bay 9
210-2-3
210-2-3
Bay 19
210-2-6
210-2-2
Bay 18
210-2-2
Bay 17
210-2-1
Bay 6
210-2-1
210-2-1
Bay 16
SU4-11
SU4-12
SU4-13
SU4-14
SU4-15
SU4-16
SU4-17
SU4-10
SU4-9
SU4-8
SU4-7
SU4-6
SU4-5
SU4-4
SU4-3
SU4-2
SU4-1
SU3-12
SU3-13
SU3-10
SU3-11
SU3-8
SU3-9
SU3-16
SU3-17
SU3-14
SU3-15
SU3-6
SU3-7
SU3-3
SU3-4
SU3-5
SU3-1
SU3-2
SU2-15
SU2-16
SU2-17
SU2-13
SU2-14
SU2-10
SU2-11
SU2-12
SU2-7
SU2-8
SU2-9
SU2-4
SU2-5
SU2-6
SU2-1
SU2-2
SU2-3
SU1-3
SU1-4
SU1-1
SU1-2
SU1-10
SU1-11
SU1-8
SU1-9
SU1-5
SU1-6
SU1-12
SU1-17
SU1-18
SU1-15
SU1-16
SU1-7
SU1-13
SU1-14
N
S
E
W
Legend
Measurement Locations
Survey Unit 210-2-1
Survey Unit 210-2-2
Survey Unit 210-2-3
Survey Unit 210-2-4
Survey Unit 210-2-6
CABRERA SERVICES
473 SILVER LANE
EAST HARTFORD, CT
06118
DNSC New Haven Depot
New Haven, INDIANA
PREPARED BY: BP
REVIEWED BY: GB
BUILDING 210 SECTION 2
CLASS 1 AND 2 MEASUREMENT
LOCATIONS
PROJECT #
06-3070.02
DRAWING #
Figure 6-22
6-22
SCALE:
0 15 30 60 90 120 Feet
DATE: 01/2009

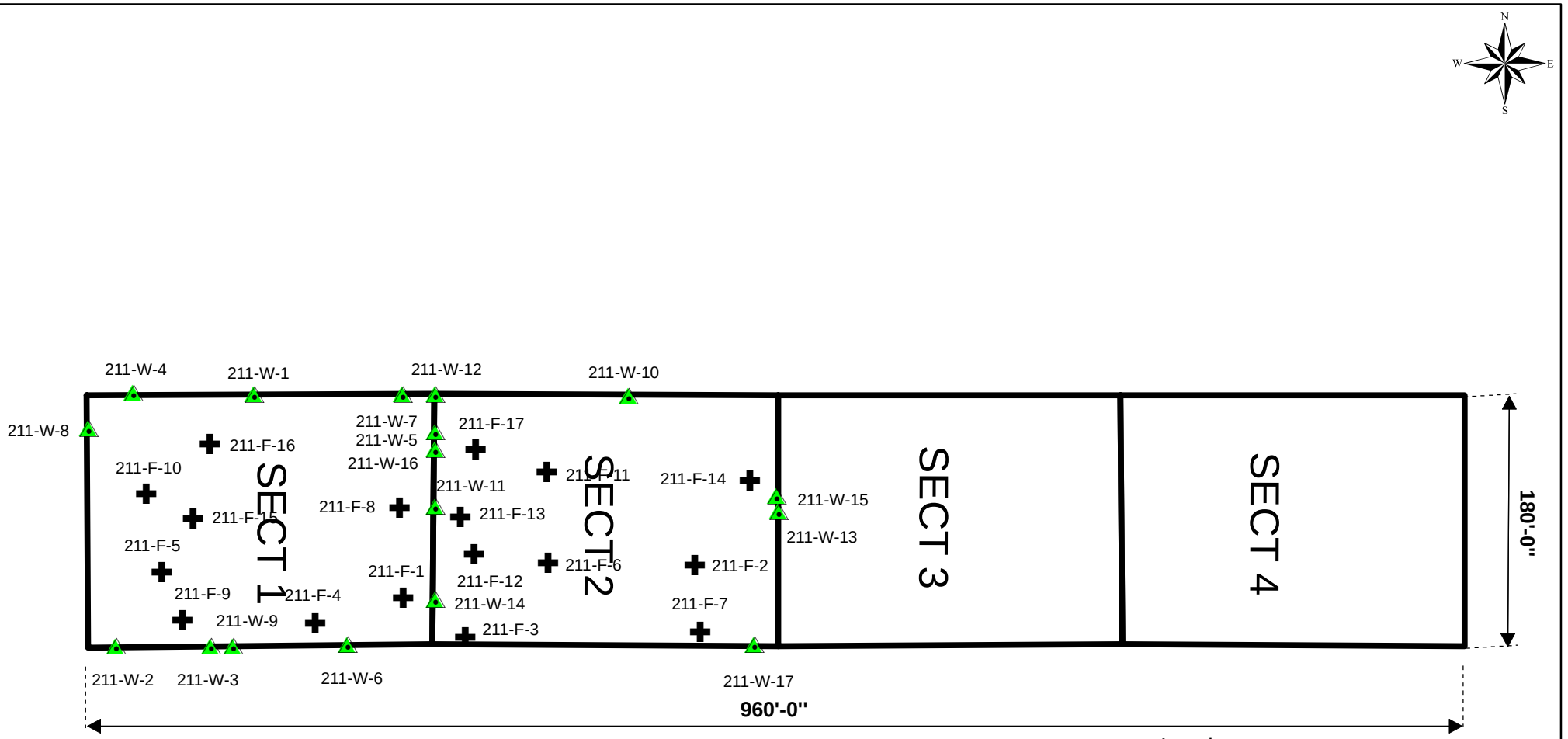




Legend

- Wall Measurement Locations
- Ceiling: 210-2-5
- Upper Walls: 210-2-5

CABRERA SERVICES 473 SILVER LANE EAST HARTFORD, CT 06118	**DNSC New Haven Depot** **New Haven, INDIANA**
PREPARED BY: BP	BUILDING 210 SECTION 2 CLASS 2 MEASUREMENT LOCATIONS, UPPER WALLS AND CEILING
REVIEWED BY: GB	
	PROJECT # 06-3070.02 / DRAWING # Figure 6-23 / **6-23**
	SCALE: 0 15 30 60 90 120 Feet / DATE: 01/2009



Legend

Wall Measurement Locations

Floor Measurement Locations

CABRERA SERVICES 473 SILVER LANE EAST HARTFORD, CT 06118	**DNSC New Haven Depot** **New Haven, INDIANA**
PREPARED BY: BP	BUILDING 211 SECTIONS 1 AND 2 CLASS 3 MEASUREMENT LOCATIONS
REVIEWED BY: GB	
	PROJECT # 06-3070.02 / DRAWING # Figure 6-24 / **6-24**
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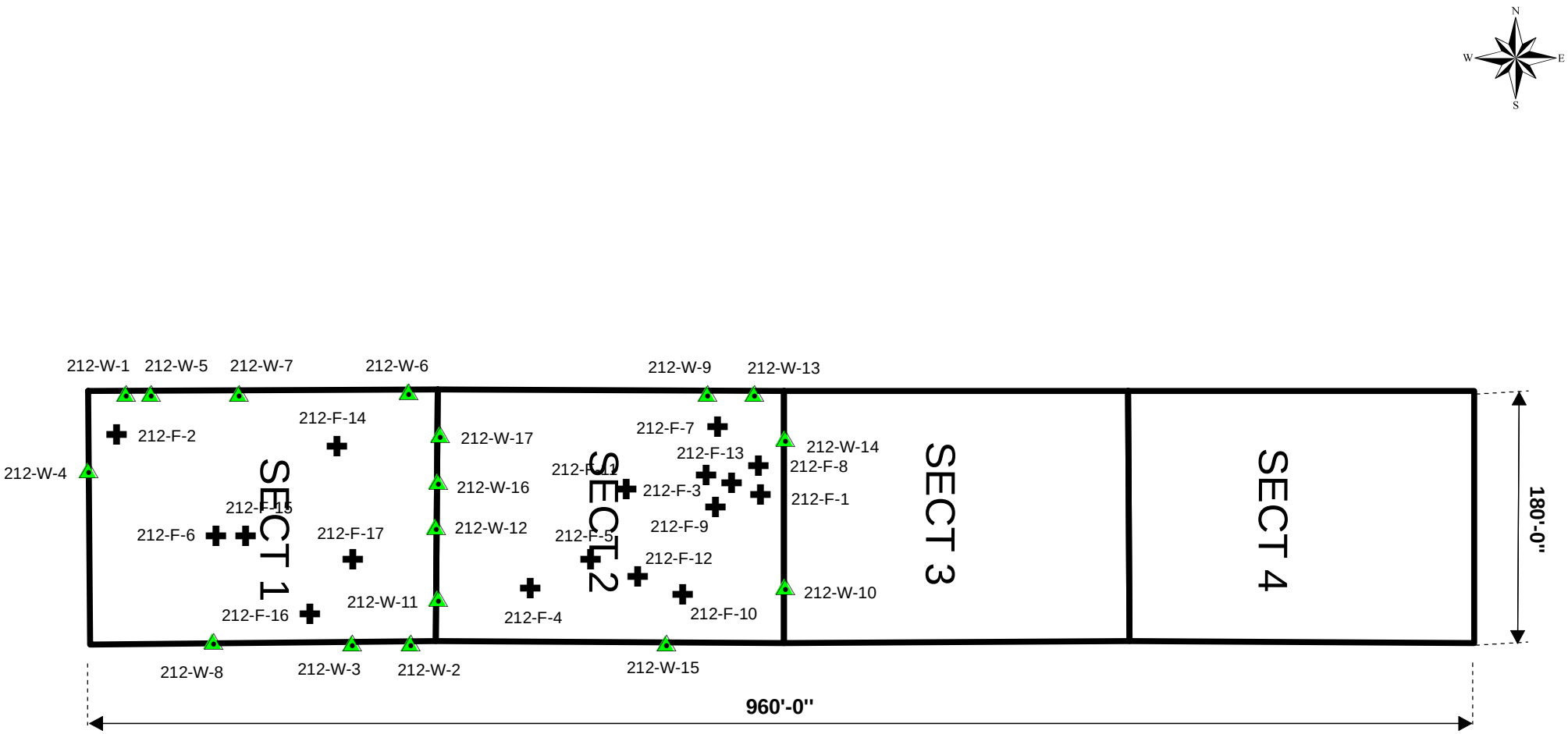
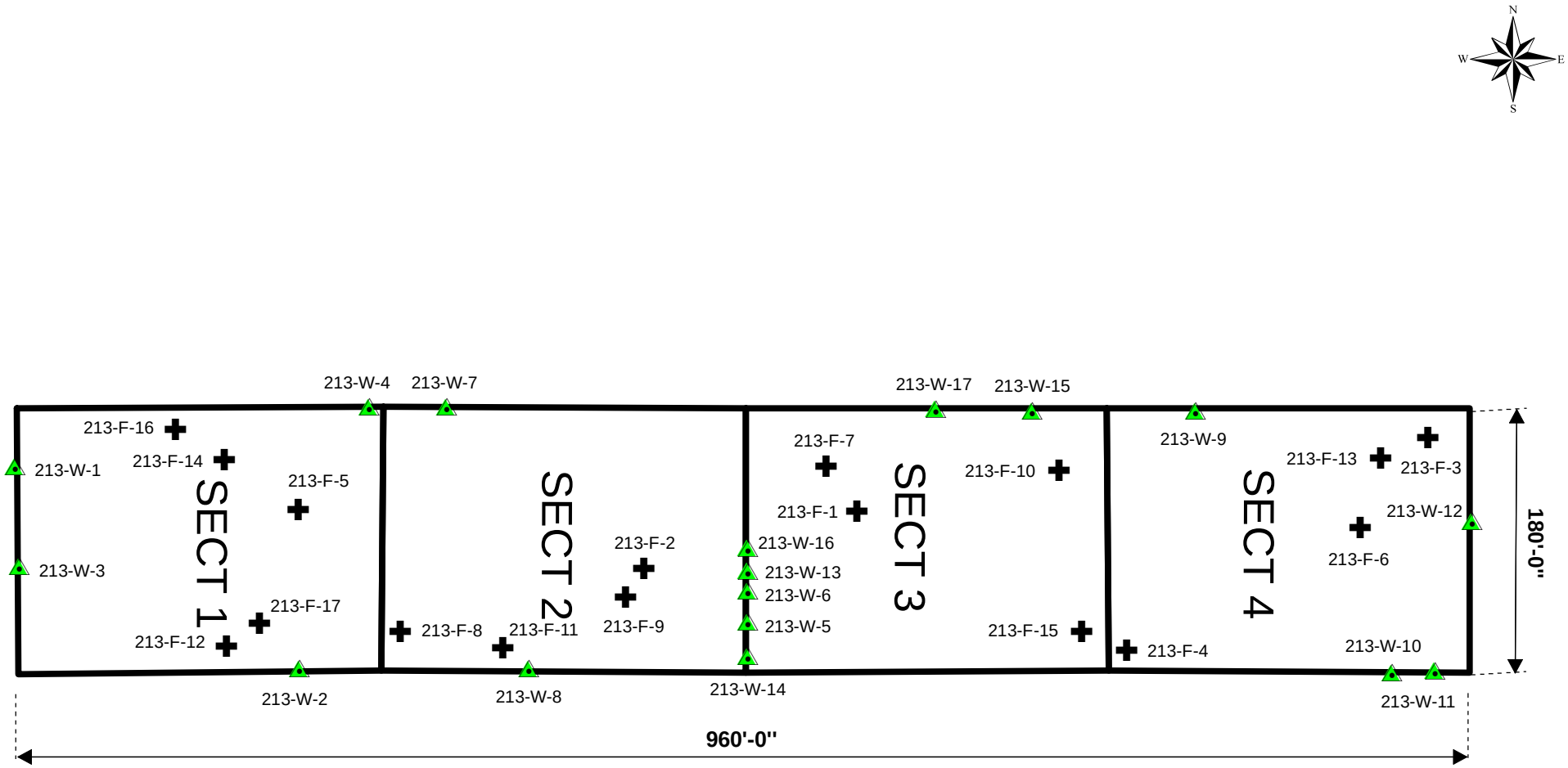


Legend

Wall Measurement Locations

Floor Measurement Locations

CABRERA SERVICES 473 SILVER LANE EAST HARTFORD, CT 06118	**DNSC New Haven Depot** **New Haven, INDIANA**
PREPARED BY: BP	BUILDING 212 SECTIONS 1 AND 2 CLASS 3 MEASUREMENT LOCATIONS
REVIEWED BY: GB	
	PROJECT # 06-3070.02 / DRAWING # Figure 6-25 / **6-25**
	SCALE: 0 20 40 80 120 160 Feet / DATE: 01/2009

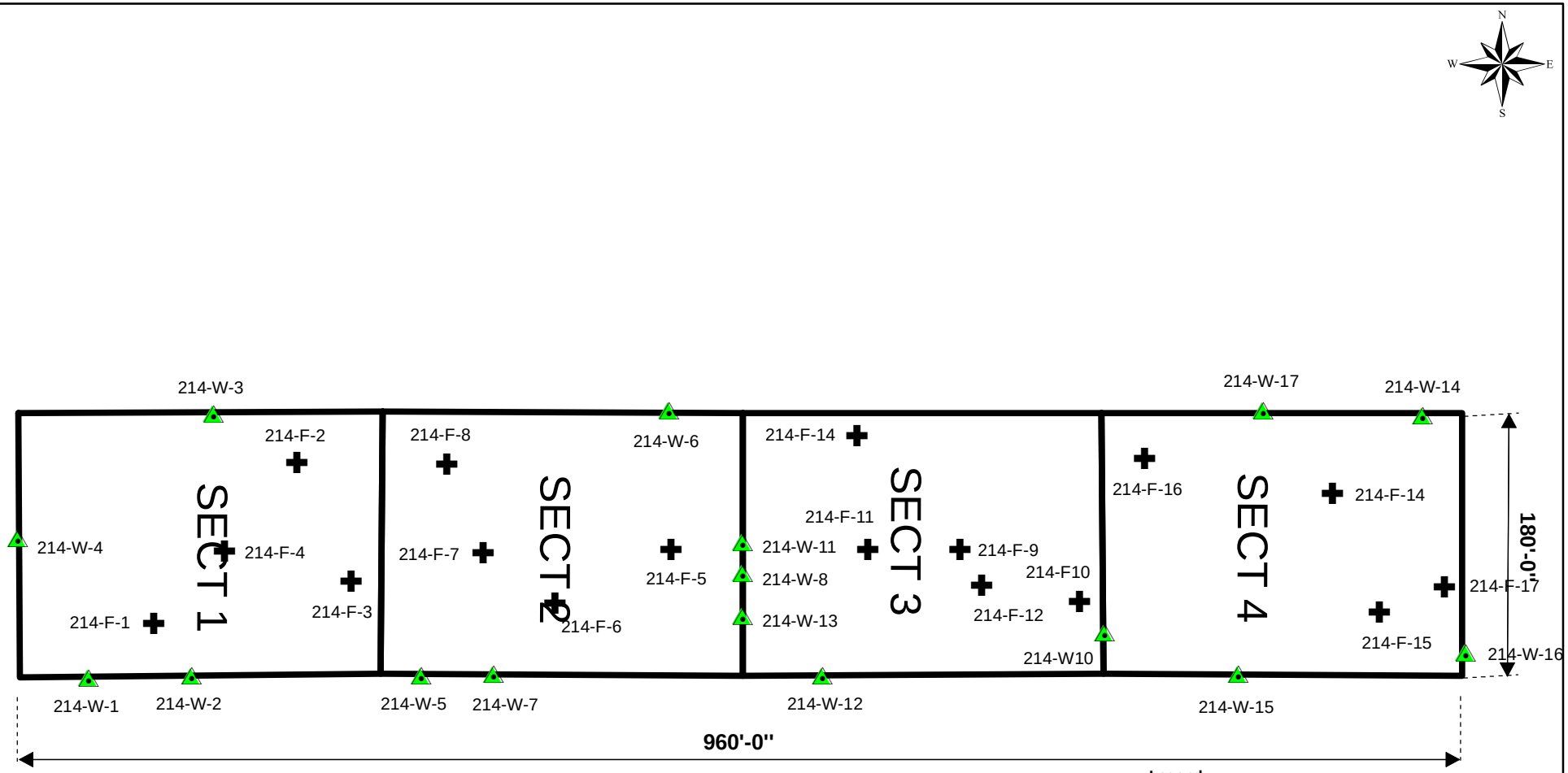


Legend

Wall Measurement Locations

Floor Measurement Locations

CABRERA SERVICES 473 SILVER LANE EAST HARTFORD, CT 06118	**DNSC New Haven Depot** **New Haven, INDIANA**
PREPARED BY: BP	BUILDING 213 SECTIONS 1-4 CLASS 3 MEASUREMENT LOCATIONS
REVIEWED BY: GB	
	PROJECT # 06-3070.02 / DRAWING # Figure 6-26 / **6-26**
	SCALE: 0 20 40 80 120 160 Feet / DATE: 01/2009

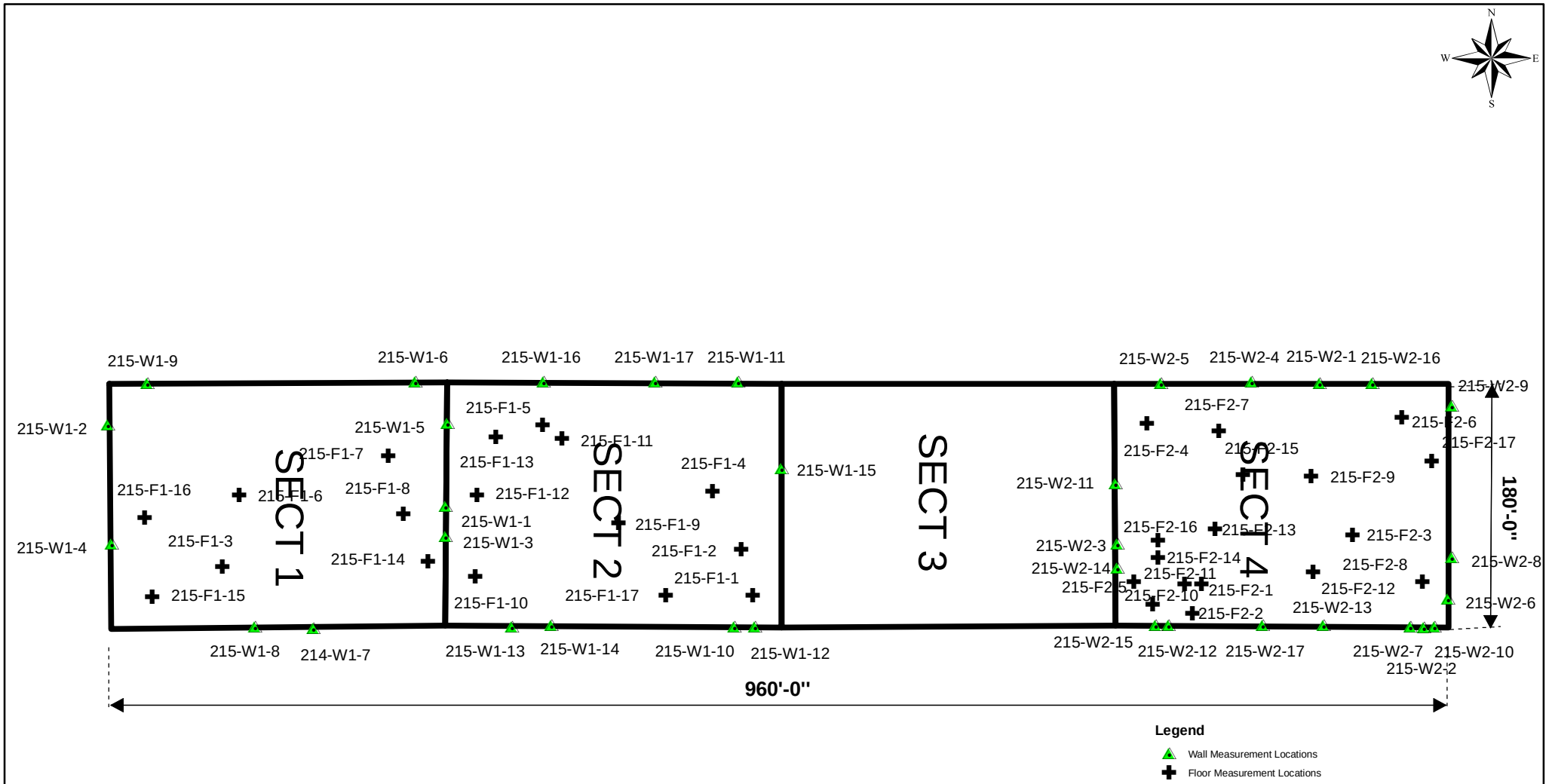


Legend

Wall Measurement Locations

Floor Measurement Locations

CABRERA SERVICES 473 SILVER LANE EAST HARTFORD, CT 06118	**DNSC New Haven Depot** **New Haven, INDIANA**
PREPARED BY: BP	BUILDING 214 SECTIONS 1-4 CLASS 3 MEASUREMENT LOCATIONS
REVIEWED BY: GB	
	PROJECT # 06-3070.02 / DRAWING # Figure 6-27 / **6-27**
	SCALE: 0 20 40 80 120 160 Feet / DATE: 01/2009



CABRERA SERVICES
473 SILVER LANE
EAST HARTFORD, CT
06118

DNSC New Haven Depot
New Haven, INDIANA

PREPARED BY: BP

REVIEWED BY: GB

BUILDING 215 SECTIONS 1,2 AND 4
CLASS 3 MEASUREMENT LOCATIONS

PROJECT #	DRAWING #	
06-3070.02	Figure 6-28	6-28

SCALE: 0 20 40 80 120 160 Feet

DATE: 01/2009

LIST OF FIGURES

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Figure 6-1: Area 7A Gamma Walkover Survey

Figure 6-2: Area 7A Class 1 and Class 2 Sample Locations

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Figure 6-5: Survey Units 8 and 9 Gamma Walkover Survey

Figure 6-6: Survey Unit 8 Class 2 Measurement Locations and Survey Unit 9 Class 1 Sample Locations

Figure 6-7: Survey Unit 10 Gamma Walkover Survey

Figure 6-8: Survey Unit 10 Class 3 Sample Locations

Figure 6-9: Survey Unit 11 Gamma Walkover Survey

Figure 6-10: Survey Unit 11 Class 3 Sample Locations

Figure 6-11: Survey Unit 12 Gamma Walkover Survey

Figure 6-12: Survey Unit 12 Class 3 Sample Locations

Figure 6-13: Survey Unit 210-2-6 Gamma Walkover Survey

Figure 6-14: Survey Unit 210-2-6 Class 1 Sample Locations

Figure 6-15: Building 124 Class 3 Measurement Locations

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Figure 6-18: Building 141 Class 3 Measurement Locations

Figure 6-19: Former Building 145 Class 3 Measurement Locations

Figure 6-20: Building 146 Class 3 Measurement Locations

Figure 6-21: Building 210 Class 3 Measurement Locations

Figure 6-22: Building 210 Class 1 and 2 Measurement Locations

Figure 6-23: Building 210 Class 2 Measurement Locations, Upper Walls and Ceiling

Figure 6-24: Building 211 Class 3 Measurement Locations

Figure 6-25: Building 212 Class 3 Measurement Locations

Figure 6-26: Building 213 Class 3 Measurement Locations

Figure 6-27: Building 214 Class 3 Measurement Locations

Figure 6-28: Building 215 Class 3 Measurement Locations

APPENDIX B

SOIL SAMPLE DATA AND WRS TEST AND ELEVATED MEASUREMENT CRITERIA WORKSHEETS

Background Reference Area Soil Sample Data

Surface Soil

	Analytical Results			WRS Sum of Ratios			
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U DCGL fraction	Th DCGL fraction	WRS SOR	Adjusted WRS SOR
REF 1 0-6	1.18	1.53	1.36	0.67	0.54	1.21	2.21
REF 2 0-6	0.94	1.22	1.37	0.53	0.55	1.08	2.08
REF 3 0-6	1.16	1.51	1.36	0.66	0.54	1.20	2.20
REF 4 0-6	0.93	1.21	1.12	0.53	0.45	0.97	1.97
REF 5 0-6	1.01	1.31	1.01	0.57	0.40	0.97	1.97
REF 6 0-6	1.02	1.33	1.10	0.58	0.44	1.02	2.02
REF 7 0-6	0.85	1.11	0.95	0.48	0.38	0.86	1.86
REF 8 0-6	0.80	1.04	0.96	0.45	0.38	0.84	1.84
REF 18 0-6	0.90	1.17	0.97	0.51	0.39	0.90	1.90
REF 19 0-6	0.77	1.00	0.88	0.44	0.35	0.79	1.79
REF 20 0-6	0.94	1.22	1.37	0.53	0.55	1.08	2.08
REF 21 0-6	0.84	1.09	0.87	0.47	0.35	0.82	1.82
REF 9 0-6	0.89	1.16	1.07	0.50	0.43	0.93	1.93
REF 10 0-6	0.85	1.11	1.03	0.48	0.41	0.89	1.89
REF 11 0-6	0.95	1.24	0.89	0.54	0.36	0.89	1.89
REF 12 0-6	0.97	1.26	1.20	0.55	0.48	1.03	2.03
REF 13 0-6	0.84	1.09	0.96	0.47	0.38	0.86	1.86
REF 14 0-6	0.86	1.12	0.81	0.49	0.32	0.81	1.81
REF 15 0-6	0.91	1.18	0.95	0.51	0.38	0.89	1.89
REF 16 0-6	0.80	1.04	0.88	0.45	0.35	0.80	1.80
REF 17 0-6	1.02	1.32	1.24	0.57	0.50	1.07	2.07
REF 22 0-6	1.00	1.30	1.35	0.57	0.54	1.11	2.11
REF 23 0-6	1.06	1.38	1.20	0.60	0.48	1.08	2.08
REF 24 0-6	1.02	1.33	1.38	0.58	0.55	1.13	2.13
REF 25 0-6	1.23	1.60	1.26	0.70	0.50	1.20	2.20
REF 26 0-6	1.03	1.34	1.11	0.58	0.44	1.03	2.03
REF 27 0-6	0.82	1.07	1.00	0.46	0.40	0.86	1.86
REF 28 0-6	1.05	1.37	1.33	0.59	0.53	1.13	2.13
REF 29 0-6	0.85	1.11	1.02	0.48	0.41	0.89	1.89
REF 30 0-6	0.81	1.05	0.96	0.46	0.38	0.84	1.84
REF 31 0-6	0.92	1.20	0.99	0.52	0.40	0.92	1.92
REF 32 0-6	1.03	1.34	1.05	0.58	0.42	1.00	2.00
	Mean	**1.23**	**1.09**				
	Standard Deviation	**0.15**	**0.18**				
	3 x SD	**0.45**	**0.53**				
	Mean + 3SD	**1.68**	**1.63**				
	Mean + 3SD + DCGL	**3.98**	**4.13**				

Background Reference Area Soil Sample Data

Subsurface Soil

	Analytical Results			WRS Sum of Ratios			
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U fraction	Th fraction	WRS SOR	Adjusted WRS SOR
REF 1 6-12	1.14	1.48	1.25	0.64	0.50	1.14	2.14
REF 2 6-12	1.07	1.39	1.18	0.60	0.47	1.08	2.08
REF 3 6-12	1.05	1.37	1.06	0.59	0.42	1.02	2.02
REF 4 6-12	0.93	1.21	1.10	0.53	0.44	0.97	1.97
REF 5 6-12	0.98	1.27	1.14	0.55	0.46	1.01	2.01
REF 6 6-12	0.94	1.22	1.20	0.53	0.48	1.01	2.01
REF 7 6-12	0.97	1.26	1.08	0.55	0.43	0.98	1.98
REF 8 6-12	0.96	1.25	1.05	0.54	0.42	0.96	1.96
REF 9 6-12	0.90	1.17	1.24	0.51	0.50	1.00	2.00
REF10 6-12	1.11	1.44	1.37	0.63	0.55	1.18	2.18
REF 11 6-12	0.89	1.15	1.09	0.50	0.44	0.94	1.94
REF 12 6-12	0.87	1.13	1.08	0.49	0.43	0.92	1.92
REF 13 6-12	0.95	1.24	0.97	0.54	0.39	0.93	1.93
REF 14 6-12	0.88	1.14	1.03	0.50	0.41	0.91	1.91
REF 15 6-12	0.79	1.03	1.01	0.45	0.40	0.85	1.85
REF 16 6-12	0.73	0.95	1.13	0.41	0.45	0.87	1.87
REF 17 6-12	0.98	1.27	1.20	0.55	0.48	1.03	2.03
REF 18 6-12	0.96	1.25	1.13	0.54	0.45	0.99	1.99
REF 19 6-12	0.97	1.26	0.84	0.55	0.34	0.89	1.89
REF 20 6-12	0.79	1.03	1.19	0.45	0.48	0.92	1.92
REF 22 6-12	1.00	1.30	1.17	0.57	0.47	1.03	2.03
REF 21 6-12	0.88	1.14	0.87	0.50	0.35	0.85	1.85
REF 23 6-12	0.90	1.17	1.17	0.51	0.47	0.98	1.98
REF 24 6-12	1.10	1.43	1.16	0.62	0.46	1.09	2.09
REF 25 6-12	0.98	1.27	1.29	0.55	0.52	1.07	2.07
REF 26 6-12	0.98	1.27	1.11	0.55	0.44	1.00	2.00
REF 27 6-12	1.12	1.46	1.30	0.63	0.52	1.15	2.15
REF 28 6-12	0.91	1.18	1.15	0.51	0.46	0.97	1.97
REF 29 6-12	1.04	1.35	1.16	0.59	0.46	1.05	2.05
REF 30 6-12	0.85	1.11	1.05	0.48	0.42	0.90	1.90
REF 31 6-12	0.95	1.24	1.10	0.54	0.44	0.98	1.98
REF 32 6-12	1.01	1.32	1.14	0.57	0.46	1.03	2.03
	Mean	**1.24**	**1.13**				
	Standard Deviation	**0.13**	**0.11**				
	3 x SD	**0.38**	**0.34**				
	Mean + 3SD	**1.62**	**1.46**				
	Mean + 3SD + DCGL	**3.92**	**3.96**				

Summary Statistics - All Reference Area Soil Samples (Surface and Subsurface)

Mean	**1.24**	**1.11**	Bkg. values used for surface and subsurface soil samples.
Standard Deviation	**0.14**	**0.15**	
3 x SD	**0.41**	**0.44**	
Mean + 3SD	**1.65**	**1.55**	
Mean + 3SD + DCGL	**3.95**	**4.05**	IL values used for surface and subsurface soil samples.
Max	**1.60**	**1.38**	
Min	**0.95**	**0.81**	

IL = Investigation Level

Survey Unit 1

Area 7A Systematic Soil Sample Data

MARSSIM Class 1

Surface Soil Samples

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U fraction	Th fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
SU1 1 S SS	0.04	0.06	0.07	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	-1.18	-1.04	0.02	0.03	0.05
SU1 2 S SS	0.83	1.08	0.89	0.00	0.00	0.00	0.00	0.00	0.27	0.22	0.49	-0.16	-0.22	0.47	0.36	0.83
SU1 3 S SS	0.57	0.74	0.24	0.00	0.00	0.00	0.00	0.00	0.19	0.06	0.25	-0.49	-0.87	0.32	0.10	0.42
SU1 4 S SS	0.47	0.61	0.12	0.00	0.00	0.00	0.00	0.00	0.15	0.03	0.18	-0.62	-0.99	0.27	0.05	0.31
SU1 5 S SS	0.07	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.04	-1.15	-1.03	0.04	0.03	0.07
SU1 6 S SS	0.64	0.83	0.85	0.00	0.00	0.00	0.00	0.00	0.21	0.21	0.42	-0.40	-0.26	0.36	0.34	0.70
SU1 7 S SS	0.93	1.21	0.92	0.00	0.00	0.00	0.00	0.00	0.31	0.23	0.53	-0.03	-0.19	0.53	0.37	0.89
SU1 8 S SS	1.03	1.34	1.18	0.10	0.07	0.04	0.03	0.07	0.34	0.29	0.63	0.10	0.07	0.58	0.47	1.05
SU1 9 S SS	0.69	0.90	0.54	0.00	0.00	0.00	0.00	0.00	0.23	0.13	0.36	-0.34	-0.57	0.39	0.22	0.61
SU1 10 S SS	1.18	1.53	1.13	0.30	0.02	0.13	0.01	0.14	0.39	0.28	0.67	0.30	0.02	0.67	0.45	1.12
SU1 11 S SS	1.49	1.94	0.70	0.70	0.00	0.30	0.00	0.30	0.49	0.17	0.66	0.70	-0.41	0.84	0.28	1.12
SU1 12 S SS	1.24	1.61	0.59	0.38	0.00	0.16	0.00	0.16	0.41	0.15	0.55	0.38	-0.52	0.70	0.24	0.94
SU1 13 S SS	0.41	0.54	0.36	0.00	0.00	0.00	0.00	0.00	0.14	0.09	0.23	-0.70	-0.75	0.23	0.14	0.38
SU1 14 S SS	0.48	0.62	0.26	0.00	0.00	0.00	0.00	0.00	0.16	0.06	0.22	-0.61	-0.85	0.27	0.10	0.37
SU1 15 S SS	1.19	1.55	0.65	0.31	0.00	0.14	0.00	0.14	0.39	0.16	0.55	0.31	-0.46	0.67	0.26	0.93
SU1 16 S SS	2.51	3.26	0.89	2.03	0.00	0.88	0.00	0.88	0.83	0.22	1.05	2.03	-0.22	1.42	0.36	1.77
SU1 17 S SS	0.54	0.70	0.30	0.00	0.00	0.00	0.00	0.00	0.18	0.07	0.25	-0.53	-0.81	0.31	0.12	0.42
SU1 18 S SS	1.78	2.31	0.79	1.08	0.00	0.47	0.00	0.47	0.59	0.19	0.78	1.08	-0.32	1.01	0.32	1.32
SU1 19 S SS	2.18	2.83	1.18	1.60	0.07	0.69	0.03	0.72	0.72	0.29	1.01	1.60	0.07	1.23	0.47	1.70
SU1 20 S SS	1.11	1.44	0.45	0.20	0.00	0.09	0.00	0.09	0.36	0.11	0.47	0.20	-0.66	0.63	0.18	0.80
SU1 21 S SS	1.88	2.44	1.03	1.21	0.00	0.53	0.00	0.53	0.62	0.25	0.87	1.21	-0.08	1.06	0.41	1.47
SU1 22 S SS	1.50	1.95	1.08	0.71	0.00	0.31	0.00	0.31	0.49	0.27	0.76	0.71	-0.03	0.85	0.43	1.28
SU1 23 S SS	1.24	1.61	0.98	0.38	0.00	0.16	0.00	0.16	0.41	0.24	0.65	0.38	-0.13	0.70	0.39	1.09
SU1 24 S SS	1.45	1.89	1.32	0.65	0.21	0.28	0.08	0.37	0.48	0.33	0.80	0.65	0.21	0.82	0.53	1.35
SU1 25 S SS	1.86	2.42	0.72	1.18	0.00	0.51	0.00	0.51	0.61	0.18	0.79	1.18	-0.39	1.05	0.29	1.34
SU1 26 S SS	1.51	1.96	1.23	0.73	0.12	0.32	0.05	0.36	0.50	0.30	0.80	0.73	0.12	0.85	0.49	1.35
SU1 27 S SS	0.79	1.03	0.49	0.00	0.00	0.00	0.00	0.00	0.26	0.12	0.38	-0.21	-0.62	0.45	0.20	0.64
SU1 28 S SS	0.61	0.79	0.47	0.00	0.00	0.00	0.00	0.00	0.20	0.12	0.32	-0.44	-0.64	0.34	0.19	0.53
SU1 29 S SS	0.54	0.70	0.46	0.00	0.00	0.00	0.00	0.00	0.18	0.11	0.29	-0.53	-0.65	0.31	0.18	0.49
SU1 30 S SS	0.40	0.52	0.12	0.00	0.00	0.00	0.00	0.00	0.13	0.03	0.16	-0.72	-0.99	0.22	0.05	0.27
SU1 31 S SS	1.19	1.55	0.77	0.31	0.00	0.14	0.00	0.14	0.39	0.19	0.58	0.31	-0.34	0.67	0.31	0.98
SU1 32 S SS	2.49	3.24	1.24	2.00	0.13	0.87	0.05	0.92	0.82	0.31	1.13	2.00	0.13	1.41	0.50	1.90
Mean		**1.42**	**0.69**									**0.18**	**-0.42**			**0.89**
Median		**1.39**	**0.71**									**0.15**	**-0.40**			**0.91**
Standard Dev.		**0.84**	**0.38**									**0.84**	**0.38**			**0.49**
Max		**3.26**	**1.32**									**2.03**	**0.21**			**1.90**
Min		**0.06**	**0.07**									**-1.18**	**-1.04**			**0.05**

Survey Unit 1

Area 7A Systematic Soil Sample Data

MARSSIM Class 1

Subsurface Soil Samples

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U fraction	Th fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
SU1 1 S SB	0.12	0.15	0.04	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.05	-1.09	-1.07	0.07	0.02	0.08
SU1 2 S SB	1.02	1.33	1.19	0.09	0.08	0.04	0.03	0.07	0.34	0.29	0.63	0.09	0.08	0.58	0.48	1.05
SU1 3 S SB	0.26	0.34	0.18	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.13	-0.89	-0.93	0.15	0.07	0.22
SU1 4 S SB	0.29	0.37	0.19	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.14	-0.86	-0.92	0.16	0.07	0.24
SU1 5 S SB	0.09	0.12	0.13	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.06	-1.12	-0.98	0.05	0.05	0.10
SU1 6 S SB	0.78	1.01	0.85	0.00	0.00	0.00	0.00	0.00	0.26	0.21	0.47	-0.22	-0.26	0.44	0.34	0.78
SU1 7 S SB	0.82	1.07	0.97	0.00	0.00	0.00	0.00	0.00	0.27	0.24	0.51	-0.16	-0.14	0.47	0.39	0.85
SU1 8 S SB	1.20	1.56	1.33	0.32	0.22	0.14	0.09	0.23	0.39	0.33	0.72	0.32	0.22	0.68	0.53	1.21
SU1 9 S SB	0.76	0.99	0.30	0.00	0.00	0.00	0.00	0.00	0.25	0.07	0.32	-0.25	-0.81	0.43	0.12	0.55
SU1 10 S SB	1.38	1.79	1.06	0.56	0.00	0.24	0.00	0.24	0.45	0.26	0.72	0.56	-0.05	0.78	0.42	1.20
SU1 11 S SB	1.49	1.94	0.70	0.70	0.00	0.30	0.00	0.30	0.49	0.17	0.66	0.70	-0.41	0.84	0.28	1.12
SU1 12 S SB	1.11	1.44	0.86	0.21	0.00	0.09	0.00	0.09	0.37	0.21	0.58	0.21	-0.25	0.63	0.34	0.97
SU1 13 S SB	0.40	0.53	0.20	0.00	0.00	0.00	0.00	0.00	0.13	0.05	0.18	-0.71	-0.90	0.23	0.08	0.31
SU1 14 S SB	0.28	0.37	0.18	0.00	0.00	0.00	0.00	0.00	0.09	0.04	0.14	-0.87	-0.93	0.16	0.07	0.23
SU1 15 S SB	0.89	1.16	0.94	0.00	0.00	0.00	0.00	0.00	0.29	0.23	0.53	-0.08	-0.16	0.50	0.38	0.88
SU1 16 S SB	0.51	0.66	0.27	0.00	0.00	0.00	0.00	0.00	0.17	0.07	0.23	-0.57	-0.84	0.29	0.11	0.40
SU1 17 S SB	0.54	0.70	0.29	0.00	0.00	0.00	0.00	0.00	0.18	0.07	0.25	-0.53	-0.82	0.31	0.12	0.42
SU1 18 S SB	1.66	2.16	0.86	0.92	0.00	0.40	0.00	0.40	0.55	0.21	0.76	0.92	-0.25	0.94	0.34	1.28
SU1 19 S SB	1.35	1.76	1.07	0.52	0.00	0.23	0.00	0.23	0.45	0.26	0.71	0.52	-0.04	0.76	0.43	1.19
SU1 20 S SB	0.85	1.11	0.52	0.00	0.00	0.00	0.00	0.00	0.28	0.13	0.41	-0.13	-0.59	0.48	0.21	0.69
SU1 21 S SB	1.20	1.56	0.75	0.32	0.00	0.14	0.00	0.14	0.39	0.18	0.58	0.32	-0.36	0.68	0.30	0.98
SU1 22 S SB	1.48	1.92	1.45	0.69	0.34	0.30	0.14	0.44	0.49	0.36	0.84	0.69	0.34	0.84	0.58	1.42
SU1 23 S SB	0.69	0.90	0.59	0.00	0.00	0.00	0.00	0.00	0.23	0.15	0.37	-0.34	-0.52	0.39	0.24	0.63
SU1 24 S SB	1.55	2.02	1.36	0.78	0.25	0.34	0.10	0.44	0.51	0.34	0.85	0.78	0.25	0.88	0.54	1.42
SU1 25 S SB	1.45	1.89	0.93	0.65	0.00	0.28	0.00	0.28	0.48	0.23	0.71	0.65	-0.18	0.82	0.37	1.19
SU1 26 S SB	0.86	1.12	0.58	0.00	0.00	0.00	0.00	0.00	0.28	0.14	0.43	-0.12	-0.53	0.49	0.23	0.72
SU1 27 S SB	1.46	1.90	1.31	0.66	0.20	0.29	0.08	0.37	0.48	0.32	0.80	0.66	0.20	0.83	0.52	1.35
SU1 28 S SB	0.68	0.88	0.53	0.00	0.00	0.00	0.00	0.00	0.22	0.13	0.35	-0.35	-0.58	0.38	0.21	0.60
SU1 29 S SB	0.75	0.98	0.34	0.00	0.00	0.00	0.00	0.00	0.25	0.08	0.33	-0.26	-0.77	0.42	0.14	0.56
SU1 30 S SB	0.54	0.70	0.25	0.00	0.00	0.00	0.00	0.00	0.18	0.06	0.24	-0.53	-0.86	0.31	0.10	0.41
SU1 31 S SB	1.18	1.53	0.60	0.30	0.00	0.13	0.00	0.13	0.39	0.15	0.54	0.30	-0.51	0.67	0.24	0.91
SU1 32 S SB	2.50	3.25	1.16	2.01	0.05	0.88	0.02	0.90	0.82	0.29	1.11	2.01	0.05	1.41	0.46	1.88
	Mean	**1.22**	**0.69**									**-0.01**	**-0.42**			**0.81**
	Median	**1.11**	**0.65**									**-0.12**	**-0.46**			**0.82**
	Standard Dev.	**0.69**	**0.42**									**0.69**	**0.42**			**0.45**
	Max	**3.25**	**1.45**									**2.01**	**0.34**			**1.88**
	Min	**0.12**	**0.04**									**-1.12**	**-1.07**			**0.08**

Soil Bkg.	1.24	pCi/g	U-238 (Bi-214)
	1.11	pCi/g	Th-232 (Ac-228)
Soil IL	3.95	pCi/g	U-238 (Bi-214)
	4.05	pCi/g	Th-232 (Ac-228)

IL = Investigation Level

WRS Test Results

Survey Unit 1

Area 7A Systematic Soil Samples

MARRSIM Class 1

Survey Unit 1 - Surface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	1.21	R	2.21	64	*64*
2	1.08	R	2.08	57.5	*57.5*
3	1.20	R	2.20	63	*63*
4	0.97	R	1.97	49	*49*
5	0.97	R	1.97	50	*50*
6	1.02	R	2.02	52	*52*
7	0.86	R	1.86	39	*39*
8	0.84	R	1.84	36	*36*
9	0.90	R	1.90	45	*45*
10	0.79	R	1.79	32	*32*
11	1.08	R	2.08	57.5	*57.5*
12	0.82	R	1.82	35	*35*
13	0.93	R	1.93	48	*48*
14	0.89	R	1.89	43	*43*
15	0.89	R	1.89	42	*42*
16	1.03	R	2.03	54	*54*
17	0.86	R	1.86	38	*38*
18	0.81	R	1.81	34	*34*
19	0.89	R	1.89	44	*44*
20	0.80	R	1.80	33	*33*
21	1.07	R	2.07	55	*55*
22	1.11	R	2.11	59	*59*
23	1.08	R	2.08	56	*56*
24	1.13	R	2.13	61	*61*
25	1.20	R	2.20	62	*62*
26	1.03	R	2.03	53	*53*
27	0.86	R	1.86	40	*40*
28	1.13	R	2.13	60	*60*
29	0.89	R	1.89	41	*41*
30	0.84	R	1.84	37	*37*
31	0.92	R	1.92	47	*47*
32	1.00	R	2.00	51	*51*

Survey Unit 1 - Subsurface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	1.14	R	2.14	62	*62*
2	1.08	R	2.08	60	*60*
3	1.02	R	2.02	54	*54*
4	0.97	R	1.97	44	*44*
5	1.01	R	2.01	52	*52*
6	1.01	R	2.01	53	*53*
7	0.98	R	1.98	48	*48*
8	0.96	R	1.96	43	*43*
9	1.00	R	2.00	51	*51*
10	1.18	R	2.18	64	*64*
11	0.94	R	1.94	42	*42*
12	0.92	R	1.92	40	*40*
13	0.93	R	1.93	41	*41*
14	0.91	R	1.91	38	*38*
15	0.85	R	1.85	33	*33*
16	0.87	R	1.87	34	*34*
17	1.03	R	2.03	57	*57*
18	0.99	R	1.99	49	*49*
19	0.89	R	1.89	36	*36*
20	0.92	R	1.92	39	*39*
21	1.03	R	2.03	56	*56*
22	0.85	R	1.85	32	*32*
23	0.98	R	1.98	46	*46*
24	1.09	R	2.09	61	*61*
25	1.07	R	2.07	59	*59*
26	1.00	R	2.00	50	*50*
27	1.15	R	2.15	63	*63*
28	0.97	R	1.97	45	*45*
29	1.05	R	2.05	58	*58*
30	0.90	R	1.90	37	*37*
31	0.98	R	1.98	47	*47*
32	1.03	R	2.03	55	*55*

WRS Test Results

Survey Unit 1

Area 7A Systematic Soil Samples

MARRSIM Class 1

Survey Unit 1 - Surface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	0.05	S	0.05	*1*	
2	0.83	S	0.83	*15*	
3	0.42	S	0.42	*7*	
4	0.31	S	0.31	*4*	
5	0.07	S	0.07	*2*	
6	0.70	S	0.70	*13*	
7	0.89	S	0.89	*16*	
8	1.05	S	1.05	*20*	
9	0.61	S	0.61	*11*	
10	1.12	S	1.12	*22*	
11	1.12	S	1.12	*23*	
12	0.94	S	0.94	*18*	
13	0.38	S	0.38	*6*	
14	0.37	S	0.37	*5*	
15	0.93	S	0.93	*17*	
16	1.77	S	1.77	*31*	
17	0.42	S	0.42	*8*	
18	1.32	S	1.32	*25*	
19	1.70	S	1.70	*30*	
20	0.80	S	0.80	*14*	
21	1.47	S	1.47	*29*	
22	1.28	S	1.28	*24*	
23	1.09	S	1.09	*21*	
24	1.35	S	1.35	*28*	
25	1.34	S	1.34	*26*	
26	1.35	S	1.35	*27*	
27	0.64	S	0.64	*12*	
28	0.53	S	0.53	*10*	
29	0.49	S	0.49	*9*	
30	0.27	S	0.27	*3*	
31	0.98	S	0.98	*19*	
32	1.90	S	1.90	*46*	
			Sum	542	**1538**

Survey Unit 1 - Subsurface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	0.08	S	0.08	*1*	
2	1.05	S	1.05	*22*	
3	0.22	S	0.22	*3*	
4	0.24	S	0.24	*5*	
5	0.10	S	0.10	*2*	
6	0.78	S	0.78	*16*	
7	0.85	S	0.85	*17*	
8	1.21	S	1.21	*27*	
9	0.55	S	0.55	*10*	
10	1.20	S	1.20	*26*	
11	1.12	S	1.12	*23*	
12	0.97	S	0.97	*20*	
13	0.31	S	0.31	*6*	
14	0.23	S	0.23	*4*	
15	0.88	S	0.88	*18*	
16	0.40	S	0.40	*7*	
17	0.42	S	0.42	*9*	
18	1.28	S	1.28	*28*	
19	1.19	S	1.19	*25*	
20	0.69	S	0.69	*14*	
21	0.98	S	0.98	*21*	
22	1.42	S	1.42	*30*	
23	0.63	S	0.63	*13*	
24	1.42	S	1.42	*31*	
25	1.19	S	1.19	*24*	
26	0.72	S	0.72	*15*	
27	1.35	S	1.35	*29*	
28	0.60	S	0.60	*12*	
29	0.56	S	0.56	*11*	
30	0.41	S	0.41	*8*	
31	0.91	S	0.91	*19*	
32	1.88	S	1.88	*35*	
			Sum	531	**1549**

Critical Value (NUREG-1505, Table A.4 Equation) = **1162**

Reference area ranks greater than critical value?	**Yes**
Null hypotheses accepted or rejected?	**Rejected**
Does survey unit meet release criterion?	***Yes***

Reference area ranks greater than critical value?	**Yes**
Null hypotheses accepted or rejected?	**Rejected**
Survey unit meet release criterion?	***Yes***

Survey Unit 2

Area 7A Systematic Soil Sample Data

MARSSIM Class 1

Surface Soil Samples

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U fraction	Th fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
SU2 1 S SS	0.80	1.04	0.85	0.00	0.00	0.00	0.00	0.00	0.26	0.21	0.47	-0.20	-0.26	0.45	0.34	0.79
SU2 2 S SS	0.32	0.42	0.34	0.00	0.00	0.00	0.00	0.00	0.11	0.08	0.19	-0.82	-0.77	0.18	0.13	0.32
SU2 3 S SS	1.06	1.38	1.24	0.14	0.13	0.06	0.05	0.11	0.35	0.31	0.65	0.14	0.13	0.60	0.50	1.10
SU2 4 S SS	1.14	1.48	0.80	0.25	0.00	0.11	0.00	0.11	0.38	0.20	0.57	0.25	-0.31	0.64	0.32	0.96
SU2 5 S SS	1.00	1.30	1.01	0.06	0.00	0.03	0.00	0.03	0.33	0.25	0.58	0.06	-0.10	0.57	0.40	0.97
SU2 6 S SS	0.92	1.20	0.10	0.00	0.00	0.00	0.00	0.00	0.30	0.02	0.33	-0.04	-1.01	0.52	0.04	0.56
SU2 7 S SS	1.71	2.22	0.72	0.99	0.00	0.43	0.00	0.43	0.56	0.18	0.74	0.99	-0.39	0.97	0.29	1.25
SU2 8 S SS	0.96	1.25	1.13	0.01	0.02	0.01	0.01	0.01	0.32	0.28	0.59	0.01	0.02	0.54	0.45	0.99
SU2 9 S SS	0.67	0.87	0.12	0.00	0.00	0.00	0.00	0.00	0.22	0.03	0.25	-0.36	-0.99	0.38	0.05	0.43
SU2 10 S SS	0.53	0.69	0.19	0.00	0.00	0.00	0.00	0.00	0.17	0.05	0.22	-0.55	-0.92	0.30	0.08	0.38
SU2 11 S SS	0.05	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.03	-1.17	-1.05	0.03	0.02	0.05
SU2 12 S SS	0.33	0.43	0.12	0.00	0.00	0.00	0.00	0.00	0.11	0.03	0.14	-0.80	-0.99	0.19	0.05	0.24
SU2 13 S SS	0.29	0.38	0.03	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.10	-0.85	-1.08	0.17	0.01	0.18
SU2 14 S SS	0.60	0.78	0.21	0.00	0.00	0.00	0.00	0.00	0.20	0.05	0.25	-0.46	-0.90	0.34	0.08	0.42
SU2 15 S SS	0.72	0.94	0.32	0.00	0.00	0.00	0.00	0.00	0.24	0.08	0.31	-0.30	-0.79	0.41	0.13	0.53
SU2 16 S SS	2.08	2.70	1.05	1.47	0.00	0.64	0.00	0.64	0.68	0.26	0.94	1.47	-0.06	1.18	0.42	1.60
SU2 17 S SS	1.02	1.33	0.95	0.09	0.00	0.04	0.00	0.04	0.34	0.23	0.57	0.09	-0.16	0.58	0.38	0.96
SU2 18 S SS	1.02	1.33	0.37	0.09	0.00	0.04	0.00	0.04	0.34	0.09	0.43	0.09	-0.74	0.58	0.15	0.72
SU2 19 S SS	0.83	1.08	0.13	0.00	0.00	0.00	0.00	0.00	0.27	0.03	0.30	-0.16	-0.98	0.47	0.05	0.52
SU2 20 S SS	0.86	1.12	0.15	0.00	0.00	0.00	0.00	0.00	0.28	0.04	0.32	-0.12	-0.96	0.49	0.06	0.55
SU2 21 S SS	1.40	1.82	1.00	0.58	0.00	0.25	0.00	0.25	0.46	0.25	0.71	0.58	-0.11	0.79	0.40	1.19
SU2 22 S SS	2.21	2.87	0.53	1.64	0.00	0.71	0.00	0.71	0.73	0.13	0.86	1.64	-0.58	1.25	0.21	1.46
SU2 23 S SS	0.85	1.11	0.24	0.00	0.00	0.00	0.00	0.00	0.28	0.06	0.34	-0.13	-0.87	0.48	0.10	0.58
SU2 24 S SS	0.98	1.27	0.19	0.04	0.00	0.02	0.00	0.02	0.32	0.05	0.37	0.04	-0.92	0.55	0.08	0.63
SU2 25 S SS	1.49	1.94	0.41	0.70	0.00	0.30	0.00	0.30	0.49	0.10	0.59	0.70	-0.70	0.84	0.16	1.00
SU2 26 S SS	1.11	1.44	0.53	0.21	0.00	0.09	0.00	0.09	0.37	0.13	0.50	0.21	-0.58	0.63	0.21	0.84
SU2 27 S SS	0.66	0.86	0.38	0.00	0.00	0.00	0.00	0.00	0.22	0.09	0.31	-0.38	-0.73	0.37	0.15	0.52
SU2 28 S SS	0.65	0.85	0.29	0.00	0.00	0.00	0.00	0.00	0.21	0.07	0.29	-0.39	-0.82	0.37	0.12	0.48
SU2 29 S SS	0.75	0.98	0.28	0.00	0.00	0.00	0.00	0.00	0.25	0.07	0.32	-0.26	-0.83	0.42	0.11	0.54
SU2 30 S SS	1.31	1.70	0.76	0.47	0.00	0.20	0.00	0.20	0.43	0.19	0.62	0.47	-0.35	0.74	0.30	1.04
SU2 31 S SS	2.67	3.47	1.42	2.24	0.31	0.97	0.12	**1.10**	0.88	0.35	1.23	2.24	0.31	1.51	0.57	2.08
SU2 32 S SS	1.27	1.65	1.02	0.42	0.00	0.18	0.00	0.18	0.42	0.25	0.67	0.42	-0.09	0.72	0.41	1.13
	Mean	**1.31**	**0.53**									**0.07**	**-0.58**			**0.78**
	Median	**1.22**	**0.37**									**-0.01**	**-0.74**			**0.68**
	Standard Dev.	**0.73**	**0.40**									**0.73**	**0.40**			**0.44**
	Max	**3.47**	**1.42**									**2.24**	**0.31**			**2.08**
	Min	**0.06**	**0.03**									**-1.17**	**-1.08**			**0.05**

Survey Unit 2

Area 7A Systematic Soil Sample Data

MARSSIM Class 1

Subsurface Soil Samples

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U fraction	Th fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
SU2 1 S SB	1.00	1.30	1.09	0.06	0.00	0.03	0.00	0.03	0.33	0.27	0.60	0.06	-0.02	0.57	0.44	1.00
SU2 2 S SB	0.75	0.98	0.90	0.00	0.00	0.00	0.00	0.00	0.25	0.22	0.47	-0.26	-0.21	0.42	0.36	0.78
SU2 3 S SB	1.03	1.33	1.16	0.10	0.05	0.04	0.02	0.06	0.34	0.29	0.62	0.10	0.05	0.58	0.46	1.04
SU2 4 S SB	1.01	1.31	0.91	0.08	0.00	0.03	0.00	0.03	0.33	0.22	0.56	0.08	-0.20	0.57	0.36	0.93
SU2 5 S SB	0.83	1.08	1.04	0.00	0.00	0.00	0.00	0.00	0.27	0.26	0.53	-0.16	-0.07	0.47	0.42	0.89
SU2 6 S SB	2.13	2.77	0.23	1.54	0.00	0.67	0.00	0.67	0.70	0.06	0.76	1.54	-0.88	1.21	0.09	1.30
SU2 7 S SB	1.12	1.46	1.03	0.22	0.00	0.10	0.00	0.10	0.37	0.25	0.62	0.22	-0.08	0.63	0.41	1.05
SU2 8 S SB	2.36	3.07	0.60	1.83	0.00	0.80	0.00	0.80	0.78	0.15	0.92	1.83	-0.51	1.33	0.24	1.57
SU2 9 S SB	0.69	0.90	0.02	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.23	-0.34	-1.09	0.39	0.01	0.40
SU2 10 S SB	0.41	0.53	0.24	0.00	0.00	0.00	0.00	0.00	0.13	0.06	0.19	-0.70	-0.87	0.23	0.10	0.33
SU2 11 S SB	0.20	0.26	-0.01	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.06	-0.98	-1.12	0.11	0.00	0.11
SU2 12 S SB	0.32	0.42	0.17	0.00	0.00	0.00	0.00	0.00	0.11	0.04	0.15	-0.82	-0.94	0.18	0.07	0.25
SU2 13 S SB	0.22	0.29	0.08	0.00	0.00	0.00	0.00	0.00	0.07	0.02	0.09	-0.94	-1.03	0.13	0.03	0.16
SU2 14 S SB	0.32	0.42	0.17	0.00	0.00	0.00	0.00	0.00	0.11	0.04	0.15	-0.82	-0.94	0.18	0.07	0.25
SU2 15 S SB	0.69	0.89	0.36	0.00	0.00	0.00	0.00	0.00	0.23	0.09	0.32	-0.34	-0.74	0.39	0.15	0.53
SU2 16 S SB	1.71	2.22	0.82	0.99	0.00	0.43	0.00	0.43	0.56	0.20	0.77	0.99	-0.29	0.97	0.33	1.29
SU2 17 S SB	0.97	1.26	1.10	0.03	0.00	0.01	0.00	0.01	0.32	0.27	0.59	0.03	-0.01	0.55	0.44	0.99
SU2 18 S SB	1.06	1.38	0.46	0.14	0.00	0.06	0.00	0.06	0.35	0.11	0.46	0.14	-0.65	0.60	0.18	0.78
SU2 19 S SB	1.37	1.78	0.19	0.55	0.00	0.24	0.00	0.24	0.45	0.05	0.50	0.55	-0.92	0.77	0.08	0.85
SU2 20 S SB	2.45	3.19	0.53	1.95	0.00	0.85	0.00	0.85	0.81	0.13	0.94	1.95	-0.58	1.38	0.21	1.60
SU2 21 S SB	1.41	1.83	0.84	0.60	0.00	0.26	0.00	0.26	0.46	0.21	0.67	0.60	-0.27	0.80	0.34	1.13
SU2 22 S SB	0.84	1.09	0.36	0.00	0.00	0.00	0.00	0.00	0.28	0.09	0.37	-0.14	-0.75	0.47	0.14	0.62
SU2 23 S SB	1.07	1.39	0.65	0.16	0.00	0.07	0.00	0.07	0.35	0.16	0.51	0.16	-0.46	0.60	0.26	0.86
SU2 24 S SB	1.48	1.92	0.40	0.69	0.00	0.30	0.00	0.30	0.49	0.10	0.59	0.69	-0.71	0.84	0.16	1.00
SU2 25 S SB	0.78	1.01	0.36	0.00	0.00	0.00	0.00	0.00	0.26	0.09	0.35	-0.22	-0.75	0.44	0.14	0.58
SU2 26 S SB	1.18	1.53	0.62	0.30	0.00	0.13	0.00	0.13	0.39	0.15	0.54	0.30	-0.49	0.67	0.25	0.91
SU2 27 S SB	0.98	1.27	0.38	0.04	0.00	0.02	0.00	0.02	0.32	0.09	0.42	0.04	-0.73	0.55	0.15	0.71
SU2 28 S SB	0.79	1.03	0.48	0.00	0.00	0.00	0.00	0.00	0.26	0.12	0.38	-0.21	-0.63	0.45	0.19	0.64
SU2 29 S SB	0.93	1.21	0.14	0.00	0.00	0.00	0.00	0.00	0.31	0.04	0.34	-0.03	-0.97	0.53	0.06	0.58
SU2 30 S SB	1.52	1.98	0.64	0.74	0.00	0.32	0.00	0.32	0.50	0.16	0.66	0.74	-0.47	0.86	0.26	1.12
SU2 31 S SB	2.64	3.43	1.05	2.20	0.00	0.95	0.00	0.95	0.87	0.26	1.13	2.20	-0.06	1.49	0.42	1.91
SU2 32 S SB	1.68	2.18	1.27	0.95	0.16	0.41	0.06	0.48	0.55	0.31	0.87	0.95	0.16	0.95	0.51	1.46
	Mean	**1.46**	**0.57**									**0.22**	**-0.54**			**0.86**
	Median	**1.31**	**0.50**									**0.07**	**-0.61**			**0.87**
	Standard Dev.	**0.82**	**0.38**									**0.82**	**0.38**			**0.44**
	Max	**3.43**	**1.27**									**2.20**	**0.16**			**1.91**
	Min	**0.26**	**-0.01**									**-0.98**	**-1.12**			**0.11**

Soil Bkg.	1.24	pCi/g	U-238 (Bi-214)
	1.11	pCi/g	Th-232 (Ac-228)
Soil IL	3.95	pCi/g	U-238 (Bi-214)
	4.05	pCi/g	Th-232 (Ac-228)

IL = Investigation Level

WRS Test Results

Survey Unit 2

Area 7A Systematic Soil Samples

MARRSIM Class 1

Survey Unit 2 - Surface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	1.21	R	2.21	64	*64*
2	1.08	R	2.08	57.5	*57.5*
3	1.20	R	2.20	63	*63*
4	0.97	R	1.97	48	*48*
5	0.97	R	1.97	49	*49*
6	1.02	R	2.02	51	*51*
7	0.86	R	1.86	39	*39*
8	0.84	R	1.84	36	*36*
9	0.90	R	1.90	45	*45*
10	0.79	R	1.79	32	*32*
11	1.08	R	2.08	57.5	*57.5*
12	0.82	R	1.82	35	*35*
13	0.93	R	1.93	47	*47*
14	0.89	R	1.89	43	*43*
15	0.89	R	1.89	42	*42*
16	1.03	R	2.03	53	*53*
17	0.86	R	1.86	38	*38*
18	0.81	R	1.81	34	*34*
19	0.89	R	1.89	44	*44*
20	0.80	R	1.80	33	*33*
21	1.07	R	2.07	54	*54*
22	1.11	R	2.11	59	*59*
23	1.08	R	2.08	56	*56*
24	1.13	R	2.13	61	*61*
25	1.20	R	2.20	62	*62*
26	1.03	R	2.03	52	*52*
27	0.86	R	1.86	40	*40*
28	1.13	R	2.13	60	*60*
29	0.89	R	1.89	41	*41*
30	0.84	R	1.84	37	*37*
31	0.92	R	1.92	46	*46*
32	1.00	R	2.00	50	*50*

Survey Unit 2 - Subsurface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	1.14	R	2.14	62	*62*
2	1.08	R	2.08	60	*60*
3	1.02	R	2.02	54	*54*
4	0.97	R	1.97	44	*44*
5	1.01	R	2.01	52	*52*
6	1.01	R	2.01	53	*53*
7	0.98	R	1.98	48	*48*
8	0.96	R	1.96	43	*43*
9	1.00	R	2.00	51	*51*
10	1.18	R	2.18	64	*64*
11	0.94	R	1.94	42	*42*
12	0.92	R	1.92	40	*40*
13	0.93	R	1.93	41	*41*
14	0.91	R	1.91	37	*37*
15	0.85	R	1.85	33	*33*
16	0.87	R	1.87	34	*34*
17	1.03	R	2.03	57	*57*
18	0.99	R	1.99	49	*49*
19	0.89	R	1.89	35	*35*
20	0.92	R	1.92	39	*39*
21	1.03	R	2.03	56	*56*
22	0.85	R	1.85	32	*32*
23	0.98	R	1.98	46	*46*
24	1.09	R	2.09	61	*61*
25	1.07	R	2.07	59	*59*
26	1.00	R	2.00	50	*50*
27	1.15	R	2.15	63	*63*
28	0.97	R	1.97	45	*45*
29	1.05	R	2.05	58	*58*
30	0.90	R	1.90	36	*36*
31	0.98	R	1.98	47	*47*
32	1.03	R	2.03	55	*55*

WRS Test Results

Survey Unit 2

Area 7A Systematic Soil Samples

MARRSIM Class 1

Survey Unit 2 - Surface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	0.79	S	0.79	*18*	
2	0.32	S	0.32	*4*	
3	1.10	S	1.10	*26*	
4	0.96	S	0.96	*21*	
5	0.97	S	0.97	*22*	
6	0.56	S	0.56	*14*	
7	1.25	S	1.25	*29*	
8	0.99	S	0.99	*23*	
9	0.43	S	0.43	*7*	
10	0.38	S	0.38	*5*	
11	0.05	S	0.05	*1*	
12	0.24	S	0.24	*3*	
13	0.18	S	0.18	*2*	
14	0.42	S	0.42	*6*	
15	0.53	S	0.53	*11*	
16	1.60	S	1.60	*31*	
17	0.96	S	0.96	*20*	
18	0.72	S	0.72	*17*	
19	0.52	S	0.52	*9*	
20	0.55	S	0.55	*13*	
21	1.19	S	1.19	*28*	
22	1.46	S	1.46	*30*	
23	0.58	S	0.58	*15*	
24	0.63	S	0.63	*16*	
25	1.00	S	1.00	*24*	
26	0.84	S	0.84	*19*	
27	0.52	S	0.52	*10*	
28	0.48	S	0.48	*8*	
29	0.54	S	0.54	*12*	
30	1.04	S	1.04	*25*	
31	2.08	S	2.08	*55*	
32	1.13	S	1.13	*27*	
			Sum	551	**1529**

Survey Unit 2 - Subsurface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	1.00	S	1.00	*22*	
2	0.78	S	0.78	*14*	
3	1.04	S	1.04	*23*	
4	0.93	S	0.93	*19*	
5	0.89	S	0.89	*17*	
6	1.30	S	1.30	*28*	
7	1.05	S	1.05	*24*	
8	1.57	S	1.57	*30*	
9	0.40	S	0.40	*6*	
10	0.33	S	0.33	*5*	
11	0.11	S	0.11	*1*	
12	0.25	S	0.25	*3*	
13	0.16	S	0.16	*2*	
14	0.25	S	0.25	*4*	
15	0.53	S	0.53	*7*	
16	1.29	S	1.29	*27*	
17	0.99	S	0.99	*20*	
18	0.78	S	0.78	*13*	
19	0.85	S	0.85	*15*	
20	1.60	S	1.60	*31*	
21	1.13	S	1.13	*26*	
22	0.62	S	0.62	*10*	
23	0.86	S	0.86	*16*	
24	1.00	S	1.00	*21*	
25	0.58	S	0.58	*9*	
26	0.91	S	0.91	*18*	
27	0.71	S	0.71	*12*	
28	0.64	S	0.64	*11*	
29	0.58	S	0.58	*8*	
30	1.12	S	1.12	*25*	
31	1.91	S	1.91	*38*	
32	1.46	S	1.46	*29*	
			Sum	534	**1546**

Critical Value (NUREG-1505, Table A.4 Equation) = **1162**

Reference area ranks greater than critical value?	**Yes**	Reference area ranks greater than critical value?	**Yes**
Null hypotheses accepted or rejected?	**Rejected**	Null hypotheses accepted or rejected?	**Rejected**
Does survey unit meet release criterion?	***Yes***	Survey unit meet release criterion?	***Yes***

Survey Unit 2 $DCGL_{EMC}$ Evaluation

Survey Unit 2 General Information		
Survey unit area	1994	m^2
Number of samples per survey unit	32	
Area represented by a single sample	62.3	m^2
Uranium and Thorium Area Factors		
Natural uranium area factor	2.5	unitless
Natural thorium area factor	1.7	unitless
Uranium and Thorium Site-Specific $DCGL_w$		
Natural uranium $DCGL_w$	2.3	pCi/g
Natural thorium $DCGL_w$	2.5	pCi/g
Uranium and Thorium $DCGL_{EMC}$		
Natural uranium $DCGL_{EMC}$	5.8	pCi/g
Natural thorium $DCGL_{EMC}$	4.3	pCi/g
$DCGL_{EMC}$ Evaluation		
Number of locations with $DCGL_w$ fraction SOR > 1	1	
Sample identification	SU2 31 S SS	
Sample uranium net concentration	2.24	pCi/g
Sample thorium net concentration	0.31	pCi/g
Survey Unit 2 Average Concentrations (net)		
Uranium net concentration	0.07	pCi/g
Thorium net concentration	-0.58	pCi/g
Sample location uranium $DCGL_{EMC}$ fraction	0.377	
Sample location thorium $DCGL_{EMC}$ fraction	0.073	
Survey unit uranium $DCGL_w$ fraction	0.030	
Survey unit thorium $DCGL_w$ fraction	0.000	
Total	**0.481**	
Annual exposure limit	25	mrem per year
Survey unit exposure total	**12.0**	mrem per year

Survey Unit 3

Area 7A Systematic Soil Sample Data

MARSSIM Class 1

Surface Soil Samples

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U fraction	Th fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
SU3 1 S SS	1.04	1.35	1.11	0.12	0.00	0.05	0.00	0.05	0.34	0.27	0.62	0.12	0.00	0.59	0.44	1.03
SU3 2 S SS	0.93	1.21	1.21	0.00	0.10	0.00	0.04	0.04	0.31	0.30	0.60	-0.03	0.10	0.53	0.48	1.01
SU3 3 S SS	0.90	1.17	1.10	0.00	0.00	0.00	0.00	0.00	0.30	0.27	0.57	-0.07	-0.01	0.51	0.44	0.95
SU3 4 S SS	0.94	1.22	1.09	0.00	0.00	0.00	0.00	0.00	0.31	0.27	0.58	-0.01	-0.02	0.53	0.44	0.97
SU3 5 S SS	0.11	0.15	0.15	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.07	-1.09	-0.96	0.06	0.06	0.12
SU3 6 S SS	0.19	0.25	0.18	0.00	0.00	0.00	0.00	0.00	0.06	0.05	0.11	-0.99	-0.93	0.11	0.07	0.18
SU3 7 S SS	0.54	0.70	0.14	0.00	0.00	0.00	0.00	0.00	0.18	0.03	0.21	-0.53	-0.97	0.31	0.06	0.36
SU3 8 S SS	1.33	1.73	0.37	0.49	0.00	0.21	0.00	0.21	0.44	0.09	0.53	0.49	-0.74	0.75	0.15	0.90
SU3 9 S SS	0.78	1.01	0.40	0.00	0.00	0.00	0.00	0.00	0.26	0.10	0.35	-0.23	-0.71	0.44	0.16	0.60
SU3 10 S SS	0.81	1.05	0.38	0.00	0.00	0.00	0.00	0.00	0.27	0.09	0.36	-0.19	-0.73	0.46	0.15	0.61
SU3 11 S SS	1.14	1.48	0.32	0.25	0.00	0.11	0.00	0.11	0.38	0.08	0.45	0.25	-0.79	0.64	0.13	0.77
SU3 12 S SS	0.82	1.07	0.18	0.00	0.00	0.00	0.00	0.00	0.27	0.04	0.31	-0.17	-0.93	0.46	0.07	0.53
SU3 13 S SS	0.50	0.65	0.28	0.00	0.00	0.00	0.00	0.00	0.16	0.07	0.23	-0.59	-0.83	0.28	0.11	0.39
SU3 14 S SS	0.45	0.58	0.31	0.00	0.00	0.00	0.00	0.00	0.15	0.08	0.22	-0.65	-0.80	0.25	0.12	0.38
SU3 15 S SS	0.99	1.29	0.39	0.05	0.00	0.02	0.00	0.02	0.33	0.10	0.42	0.05	-0.72	0.56	0.16	0.72
SU3 16 S SS	1.26	1.64	1.12	0.40	0.01	0.17	0.00	0.18	0.41	0.28	0.69	0.40	0.01	0.71	0.45	1.16
SU3 17 S SS	0.66	0.86	0.31	0.00	0.00	0.00	0.00	0.00	0.22	0.08	0.29	-0.38	-0.80	0.37	0.12	0.50
SU3 18 S SS	0.62	0.81	0.39	0.00	0.00	0.00	0.00	0.00	0.20	0.10	0.30	-0.43	-0.72	0.35	0.16	0.51
SU3 19 S SS	1.54	2.00	0.94	0.77	0.00	0.33	0.00	0.33	0.51	0.23	0.74	0.77	-0.17	0.87	0.38	1.25
SU3 20 S SS	0.71	0.92	0.37	0.00	0.00	0.00	0.00	0.00	0.23	0.09	0.32	-0.31	-0.74	0.40	0.15	0.55
SU3 21 S SS	0.85	1.11	0.10	0.00	0.00	0.00	0.00	0.00	0.28	0.02	0.30	-0.13	-1.01	0.48	0.04	0.52
SU3 22 S SS	1.18	1.53	0.20	0.30	0.00	0.13	0.00	0.13	0.39	0.05	0.44	0.30	-0.91	0.67	0.08	0.75
SU3 23 S SS	1.24	1.61	0.97	0.38	0.00	0.16	0.00	0.16	0.41	0.24	0.65	0.38	-0.14	0.70	0.39	1.09
SU3 24 S SS	1.86	2.42	0.48	1.18	0.00	0.51	0.00	0.51	0.61	0.12	0.73	1.18	-0.63	1.05	0.19	1.24
SU3 25 S SS	0.89	1.16	0.63	0.00	0.00	0.00	0.00	0.00	0.29	0.16	0.45	-0.08	-0.48	0.50	0.25	0.76
SU3 26 S SS	0.92	1.20	0.51	0.00	0.00	0.00	0.00	0.00	0.30	0.13	0.43	-0.04	-0.60	0.52	0.20	0.72
SU3 27 S SS	0.87	1.13	0.50	0.00	0.00	0.00	0.00	0.00	0.29	0.12	0.41	-0.11	-0.61	0.49	0.20	0.69
SU3 28 S SS	0.44	0.57	0.06	0.00	0.00	0.00	0.00	0.00	0.14	0.01	0.16	-0.67	-1.05	0.25	0.02	0.27
SU3 29 S SS	1.22	1.59	1.25	0.35	0.14	0.15	0.06	0.21	0.40	0.31	0.71	0.35	0.14	0.69	0.50	1.19
SU3 30 S SS	1.22	1.59	0.94	0.35	0.00	0.15	0.00	0.15	0.40	0.23	0.63	0.35	-0.17	0.69	0.38	1.07
SU3 31 S SS	1.57	2.04	1.26	0.81	0.15	0.35	0.06	0.41	0.52	0.31	0.83	0.81	0.15	0.89	0.50	1.39
SU3 32 S SS	1.47	1.91	1.09	0.68	0.00	0.29	0.00	0.29	0.48	0.27	0.75	0.68	-0.02	0.83	0.44	1.27
	Mean	**1.22**	**0.58**									**-0.02**	**-0.52**			**0.76**
	Median	**1.18**	**0.40**									**-0.05**	**-0.71**			**0.74**
	Standard Dev.	**0.52**	**0.40**									**0.52**	**0.40**			**0.34**
	Max	**2.42**	**1.26**									**1.18**	**0.15**			**1.39**
	Min	**0.15**	**0.06**									**-1.09**	**-1.05**			**0.12**

Survey Unit 3

Area 7A Systematic Soil Sample Data

MARSSIM Class 1

Subsurface Soil Samples

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U fraction	Th fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
SU3 1 S SB	0.98	1.27	1.12	0.04	0.01	0.02	0.00	0.02	0.32	0.28	0.60	0.04	0.01	0.55	0.45	1.00
SU3 2 S SB	0.90	1.17	1.25	0.00	0.14	0.00	0.06	0.06	0.30	0.31	0.60	-0.07	0.14	0.51	0.50	1.01
SU3 3 S SB	0.74	0.96	1.20	0.00	0.09	0.00	0.04	0.04	0.24	0.30	0.54	-0.27	0.09	0.42	0.48	0.90
SU3 4 S SB	1.11	1.44	1.17	0.21	0.06	0.09	0.02	0.11	0.37	0.29	0.65	0.21	0.06	0.63	0.47	1.10
SU3 5 S SB	0.25	0.33	0.02	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.09	-0.91	-1.09	0.14	0.01	0.15
SU3 6 S SB	0.30	0.39	0.49	0.00	0.00	0.00	0.00	0.00	0.10	0.12	0.22	-0.85	-0.62	0.17	0.20	0.37
SU3 7 S SB	0.66	0.86	0.50	0.00	0.00	0.00	0.00	0.00	0.22	0.12	0.34	-0.38	-0.61	0.37	0.20	0.57
SU3 8 S SB	0.70	0.91	0.10	0.00	0.00	0.00	0.00	0.00	0.23	0.03	0.26	-0.33	-1.01	0.40	0.04	0.44
SU3 9 S SB	0.70	0.90	0.02	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.23	-0.33	-1.09	0.39	0.01	0.40
SU3 10 S SB	0.88	1.14	0.42	0.00	0.00	0.00	0.00	0.00	0.29	0.10	0.39	-0.09	-0.69	0.50	0.17	0.66
SU3 11 S SB	0.48	0.62	0.33	0.00	0.00	0.00	0.00	0.00	0.16	0.08	0.24	-0.61	-0.78	0.27	0.13	0.40
SU3 12 S SB	0.41	0.53	0.25	0.00	0.00	0.00	0.00	0.00	0.13	0.06	0.19	-0.71	-0.86	0.23	0.10	0.33
SU3 13 S SB	0.47	0.61	0.12	0.00	0.00	0.00	0.00	0.00	0.15	0.03	0.18	-0.62	-0.99	0.27	0.05	0.31
SU3 14 S SB	0.41	0.53	0.17	0.00	0.00	0.00	0.00	0.00	0.13	0.04	0.18	-0.70	-0.94	0.23	0.07	0.30
SU3 15 S SB	0.85	1.11	0.50	0.00	0.00	0.00	0.00	0.00	0.28	0.12	0.40	-0.13	-0.61	0.48	0.20	0.68
SU3 16 S SB	1.09	1.42	0.62	0.18	0.00	0.08	0.00	0.08	0.36	0.15	0.51	0.18	-0.49	0.62	0.25	0.86
SU3 17 S SB	0.76	0.99	0.33	0.00	0.00	0.00	0.00	0.00	0.25	0.08	0.33	-0.25	-0.78	0.43	0.13	0.56
SU3 18 S SB	1.25	1.63	0.46	0.39	0.00	0.17	0.00	0.17	0.41	0.11	0.52	0.39	-0.65	0.71	0.18	0.89
SU3 19 S SB	1.13	1.47	0.70	0.23	0.00	0.10	0.00	0.10	0.37	0.17	0.55	0.23	-0.41	0.64	0.28	0.92
SU3 20 S SB	1.17	1.52	0.93	0.29	0.00	0.12	0.00	0.12	0.39	0.23	0.61	0.29	-0.18	0.66	0.37	1.03
SU3 21 S SB	0.66	0.86	0.51	0.00	0.00	0.00	0.00	0.00	0.22	0.13	0.34	-0.38	-0.60	0.37	0.20	0.58
SU3 22 S SB	1.39	1.81	0.53	0.57	0.00	0.25	0.00	0.25	0.46	0.13	0.59	0.57	-0.58	0.79	0.21	1.00
SU3 23 S SB	1.17	1.52	1.14	0.29	0.03	0.12	0.01	0.14	0.39	0.28	0.67	0.29	0.03	0.66	0.46	1.12
SU3 24 S SB	0.81	1.05	0.36	0.00	0.00	0.00	0.00	0.00	0.27	0.09	0.36	-0.18	-0.75	0.46	0.14	0.60
SU3 25 S SB	0.94	1.22	0.55	0.00	0.00	0.00	0.00	0.00	0.31	0.14	0.45	-0.01	-0.56	0.53	0.22	0.75
SU3 26 S SB	1.38	1.79	1.27	0.56	0.16	0.24	0.06	0.31	0.45	0.31	0.77	0.56	0.16	0.78	0.51	1.29
SU3 27 S SB	0.93	1.20	0.29	0.00	0.00	0.00	0.00	0.00	0.31	0.07	0.38	-0.03	-0.82	0.52	0.12	0.64
SU3 28 S SB	0.62	0.81	0.40	0.00	0.00	0.00	0.00	0.00	0.20	0.10	0.30	-0.43	-0.71	0.35	0.16	0.51
SU3 29 S SB	1.22	1.59	1.12	0.35	0.01	0.15	0.00	0.16	0.40	0.28	0.68	0.35	0.01	0.69	0.45	1.14
SU3 30 S SB	1.15	1.50	1.52	0.26	0.41	0.11	0.16	0.28	0.38	0.37	0.75	0.26	0.41	0.65	0.61	1.26
SU3 31 S SB	1.21	1.57	1.09	0.34	0.00	0.15	0.00	0.15	0.40	0.27	0.67	0.34	-0.02	0.68	0.44	1.12
SU3 32 S SB	1.20	1.56	1.33	0.32	0.22	0.14	0.09	0.23	0.39	0.33	0.72	0.32	0.22	0.68	0.53	1.21
	Mean	**1.13**	**0.65**									**-0.10**	**-0.46**			**0.75**
	Median	**1.16**	**0.51**									**-0.08**	**-0.60**			**0.72**
	Standard Dev.	**0.42**	**0.44**									**0.42**	**0.44**			**0.32**
	Max	**1.81**	**1.52**									**0.57**	**0.41**			**1.29**
	Min	**0.33**	**0.02**									**-0.91**	**-1.09**			**0.15**

Soil Bkg.	1.24	pCi/g	U-238 (Bi-214)
	1.11	pCi/g	Th-232 (Ac-228)
Soil IL	3.95	pCi/g	U-238 (Bi-214)
	4.05	pCi/g	Th-232 (Ac-228)

IL = Investigation Level

WRS Test Results

Survey Unit 3

Area 7A Systematic Soil Samples

MARRSIM Class 1

Survey Unit 3 - Surface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	1.21	R	2.21	64	*64*
2	1.08	R	2.08	57.5	*57.5*
3	1.20	R	2.20	63	*63*
4	0.97	R	1.97	49	*49*
5	0.97	R	1.97	50	*50*
6	1.02	R	2.02	52	*52*
7	0.86	R	1.86	40	*40*
8	0.84	R	1.84	37	*37*
9	0.90	R	1.90	46	*46*
10	0.79	R	1.79	33	*33*
11	1.08	R	2.08	57.5	*57.5*
12	0.82	R	1.82	36	*36*
13	0.93	R	1.93	48	*48*
14	0.89	R	1.89	44	*44*
15	0.89	R	1.89	43	*43*
16	1.03	R	2.03	54	*54*
17	0.86	R	1.86	39	*39*
18	0.81	R	1.81	35	*35*
19	0.89	R	1.89	45	*45*
20	0.80	R	1.80	34	*34*
21	1.07	R	2.07	55	*55*
22	1.11	R	2.11	59	*59*
23	1.08	R	2.08	56	*56*
24	1.13	R	2.13	61	*61*
25	1.20	R	2.20	62	*62*
26	1.03	R	2.03	53	*53*
27	0.86	R	1.86	41	*41*
28	1.13	R	2.13	60	*60*
29	0.89	R	1.89	42	*42*
30	0.84	R	1.84	38	*38*
31	0.92	R	1.92	47	*47*
32	1.00	R	2.00	51	*51*

Survey Unit 3 - Subsurface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	1.14	R	2.14	62	*62*
2	1.08	R	2.08	60	*60*
3	1.02	R	2.02	54	*54*
4	0.97	R	1.97	44	*44*
5	1.01	R	2.01	52	*52*
6	1.01	R	2.01	53	*53*
7	0.98	R	1.98	48	*48*
8	0.96	R	1.96	43	*43*
9	1.00	R	2.00	51	*51*
10	1.18	R	2.18	64	*64*
11	0.94	R	1.94	42	*42*
12	0.92	R	1.92	40	*40*
13	0.93	R	1.93	41	*41*
14	0.91	R	1.91	38	*38*
15	0.85	R	1.85	34	*34*
16	0.87	R	1.87	35	*35*
17	1.03	R	2.03	57	*57*
18	0.99	R	1.99	49	*49*
19	0.89	R	1.89	36	*36*
20	0.92	R	1.92	39	*39*
21	1.03	R	2.03	56	*56*
22	0.85	R	1.85	33	*33*
23	0.98	R	1.98	46	*46*
24	1.09	R	2.09	61	*61*
25	1.07	R	2.07	59	*59*
26	1.00	R	2.00	50	*50*
27	1.15	R	2.15	63	*63*
28	0.97	R	1.97	45	*45*
29	1.05	R	2.05	58	*58*
30	0.90	R	1.90	37	*37*
31	0.98	R	1.98	47	*47*
32	1.03	R	2.03	55	*55*

WRS Test Results

Survey Unit 3

Area 7A Systematic Soil Samples

MARRSIM Class 1

Survey Unit 3 - Surface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	1.03	S	1.03	*25*	
2	1.01	S	1.01	*24*	
3	0.95	S	0.95	*22*	
4	0.97	S	0.97	*23*	
5	0.12	S	0.12	*1*	
6	0.18	S	0.18	*3*	
7	0.36	S	0.36	*5*	
8	0.90	S	0.90	*21*	
9	0.60	S	0.60	*13*	
10	0.61	S	0.61	*14*	
11	0.77	S	0.77	*20*	
12	0.53	S	0.53	*11*	
13	0.39	S	0.39	*7*	
14	0.38	S	0.38	*6*	
15	0.72	S	0.72	*16*	
16	1.16	S	1.16	*28*	
17	0.50	S	0.50	*8*	
18	0.51	S	0.51	*9*	
19	1.25	S	1.25	*31*	
20	0.55	S	0.55	*12*	
21	0.52	S	0.52	*10*	
22	0.75	S	0.75	*18*	
23	1.09	S	1.09	*27*	
24	1.24	S	1.24	*30*	
25	0.76	S	0.76	*19*	
26	0.72	S	0.72	*17*	
27	0.69	S	0.69	*15*	
28	0.27	S	0.27	*4*	
29	1.19	S	1.19	*29*	
30	1.07	S	1.07	*26*	
31	1.39	S	1.39	*32*	
32	1.27	S	0.14	*2*	
			Sum	528	**1552**

Survey Unit 3 - Subsurface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	1.00	S	1.00	*23*	
2	1.01	S	1.01	*24*	
3	0.90	S	0.90	*20*	
4	1.10	S	1.10	*26*	
5	0.15	S	0.15	*1*	
6	0.37	S	0.37	*5*	
7	0.57	S	0.57	*11*	
8	0.44	S	0.44	*8*	
9	0.40	S	0.40	*6*	
10	0.66	S	0.66	*15*	
11	0.40	S	0.40	*7*	
12	0.33	S	0.33	*4*	
13	0.31	S	0.31	*3*	
14	0.30	S	0.30	*2*	
15	0.68	S	0.68	*16*	
16	0.86	S	0.86	*18*	
17	0.56	S	0.56	*10*	
18	0.89	S	0.89	*19*	
19	0.92	S	0.92	*21*	
20	1.03	S	1.03	*25*	
21	0.58	S	0.58	*12*	
22	1.00	S	1.00	*22*	
23	1.12	S	1.12	*27*	
24	0.60	S	0.60	*13*	
25	0.75	S	0.75	*17*	
26	1.29	S	1.29	*32*	
27	0.64	S	0.64	*14*	
28	0.51	S	0.51	*9*	
29	1.14	S	1.14	*29*	
30	1.26	S	1.26	*31*	
31	1.12	S	1.12	*28*	
32	1.21	S	1.21	*30*	
			Sum	528	**1552**

Critical Value (NUREG-1505, Table A.4 Equation) = **1162**

Reference area ranks greater than critical value?	**Yes**	Reference area ranks greater than critical value?	**Yes**
Null hypotheses accepted or rejected?	**Rejected**	Null hypotheses accepted or rejected?	**Rejected**
Does survey unit meet release criterion?	***Yes***	Survey unit meet release criterion?	***Yes***

Survey Unit 4

Area 7A Systematic Soil Sample Data

MARSSIM Class 2

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U fraction	Th fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
SU4 1 S SS	1.15	1.50	1.02	0.26	0.00	0.11	0.00	0.11	0.38	0.25	0.63	0.26	-0.09	0.65	0.41	1.06
SU4 2 S SS	1.21	1.57	1.34	0.33	0.23	0.15	0.09	0.24	0.40	0.33	0.73	0.33	0.23	0.68	0.54	1.22
SU4 3 S SS	0.98	1.27	1.04	0.04	0.00	0.02	0.00	0.02	0.32	0.26	0.58	0.04	-0.07	0.55	0.42	0.97
SU4 4 S SS	0.99	1.29	0.61	0.05	0.00	0.02	0.00	0.02	0.33	0.15	0.48	0.05	-0.50	0.56	0.24	0.80
SU4 5 S SS	1.10	1.43	1.14	0.19	0.03	0.08	0.01	0.10	0.36	0.28	0.64	0.19	0.03	0.62	0.46	1.08
SU4 6 S SS	0.96	1.25	1.01	0.01	0.00	0.01	0.00	0.01	0.32	0.25	0.56	0.01	-0.10	0.54	0.40	0.95
SU4 7 S SS	1.00	1.30	0.93	0.06	0.00	0.03	0.00	0.03	0.33	0.23	0.56	0.06	-0.18	0.57	0.37	0.94
SU4 8 S SS	1.32	1.72	1.22	0.48	0.11	0.21	0.04	0.25	0.43	0.30	0.74	0.48	0.11	0.75	0.49	1.23
SU4 9 S SS	0.97	1.26	1.34	0.03	0.23	0.01	0.09	0.10	0.32	0.33	0.65	0.03	0.23	0.55	0.54	1.08
SU4 10 S SS	0.93	1.21	1.09	0.00	0.00	0.00	0.00	0.00	0.31	0.27	0.57	-0.03	-0.02	0.53	0.44	0.96
SU4 11 S SS	1.17	1.52	1.17	0.29	0.06	0.12	0.02	0.15	0.39	0.29	0.67	0.29	0.06	0.66	0.47	1.13
SU4 12 S SS	1.13	1.47	1.52	0.23	0.41	0.10	0.16	0.27	0.37	0.37	0.75	0.23	0.41	0.64	0.61	1.25
SU4 13 S SS	0.33	0.43	0.06	0.00	0.00	0.00	0.00	0.00	0.11	0.01	0.12	-0.81	-1.05	0.19	0.02	0.21
SU4 14 S SS	0.94	1.22	1.13	0.00	0.02	0.00	0.01	0.01	0.31	0.28	0.59	-0.01	0.02	0.53	0.45	0.98
SU4 15 S SS	0.97	1.26	1.05	0.03	0.00	0.01	0.00	0.01	0.32	0.26	0.58	0.03	-0.06	0.55	0.42	0.97
SU4 16 S SS	0.94	1.22	1.16	0.00	0.05	0.00	0.02	0.02	0.31	0.29	0.60	-0.01	0.05	0.53	0.46	1.00
SU4 17 S SS	0.88	1.14	0.98	0.00	0.00	0.00	0.00	0.00	0.29	0.24	0.53	-0.09	-0.13	0.50	0.39	0.89
SU4 18 S SS	0.99	1.29	0.93	0.05	0.00	0.02	0.00	0.02	0.33	0.23	0.56	0.05	-0.18	0.56	0.37	0.93
SU4 19 S SS	1.19	1.55	0.95	0.31	0.00	0.14	0.00	0.14	0.39	0.23	0.63	0.31	-0.16	0.67	0.38	1.05
SU4 20 S SS	0.95	1.24	1.10	0.00	0.00	0.00	0.00	0.00	0.31	0.27	0.58	0.00	-0.01	0.54	0.44	0.98
SU4 21 S SS	1.17	1.52	0.88	0.29	0.00	0.13	0.00	0.13	0.39	0.22	0.60	0.29	-0.23	0.66	0.35	1.02
SU4 22 S SS	0.95	1.24	0.78	0.00	0.00	0.00	0.00	0.00	0.31	0.19	0.51	0.00	-0.33	0.54	0.31	0.85
SU4 23 S SS	1.02	1.33	0.43	0.09	0.00	0.04	0.00	0.04	0.34	0.11	0.44	0.09	-0.68	0.58	0.17	0.75
SU4 24 S SS	1.18	1.53	1.10	0.30	0.00	0.13	0.00	0.13	0.39	0.27	0.66	0.30	-0.01	0.67	0.44	1.11
SU4 25 S SS	1.70	2.21	1.34	0.97	0.23	0.42	0.09	0.52	0.56	0.33	0.89	0.97	0.23	0.96	0.54	1.50
SU4 26 S SS	1.45	1.89	1.47	0.65	0.36	0.28	0.14	0.43	0.48	0.36	0.84	0.65	0.36	0.82	0.59	1.41
SU4 27 S SS	1.34	1.74	1.23	0.51	0.12	0.22	0.05	0.27	0.44	0.30	0.74	0.51	0.12	0.76	0.49	1.25
SU4 28 S SS	0.40	0.52	0.12	0.00	0.00	0.00	0.00	0.00	0.13	0.03	0.16	-0.71	-0.99	0.23	0.05	0.28
SU4 29 S SS	0.79	1.03	0.21	0.00	0.00	0.00	0.00	0.00	0.26	0.05	0.31	-0.21	-0.90	0.45	0.08	0.53
SU4 30 S SS	0.47	0.61	0.07	0.00	0.00	0.00	0.00	0.00	0.15	0.02	0.17	-0.62	-1.04	0.27	0.03	0.29
SU4 31 S SS	0.58	0.75	0.10	0.00	0.00	0.00	0.00	0.00	0.19	0.03	0.22	-0.48	-1.01	0.33	0.04	0.37
SU4 32 S SS	0.59	0.77	0.17	0.00	0.00	0.00	0.00	0.00	0.19	0.04	0.24	-0.47	-0.93	0.33	0.07	0.40
	Mean	**1.29**	**0.90**									**0.05**	**-0.21**			**0.92**
	Median	**1.28**	**1.03**									**0.04**	**-0.08**			**0.97**
	Standard Dev.	**0.38**	**0.44**									**0.38**	**0.44**			**0.32**
	Max	**2.21**	**1.52**									**0.97**	**0.41**			**1.50**
	Min	**0.43**	**0.06**									**-0.81**	**-1.05**			**0.21**

Soil Bkg.	1.24	pCi/g	U-238 (Bi-214)
	1.11	pCi/g	Th-232 (Ac-228)
Soil IL	3.95	pCi/g	U-238 (Bi-214)
	4.05	pCi/g	Th-232 (Ac-228)

IL = Investigation Level

WRS Test Results

Survey Unit 4

Area 7A Systematic Soil Samples

MARSSIM Class 2

Survey Unit 4 - Surface Soil - Weighted Th and U					
	Data	**Area**	**Adjusted Data**	**Ranks**	**RA Ranks**
1	1.21	R	2.21	64	*64*
2	1.08	R	2.08	57.5	*57.5*
3	1.20	R	2.20	63	*63*
4	0.97	R	1.97	49	*49*
5	0.97	R	1.97	50	*50*
6	1.02	R	2.02	52	*52*
7	0.86	R	1.86	40	*40*
8	0.84	R	1.84	37	*37*
9	0.90	R	1.90	46	*46*
10	0.79	R	1.79	33	*33*
11	1.08	R	2.08	57.5	*57.5*
12	0.82	R	1.82	36	*36*
13	0.93	R	1.93	48	*48*
14	0.89	R	1.89	44	*44*
15	0.89	R	1.89	43	*43*
16	1.03	R	2.03	54	*54*
17	0.86	R	1.86	39	*39*
18	0.81	R	1.81	35	*35*
19	0.89	R	1.89	45	*45*
20	0.80	R	1.80	34	*34*
21	1.07	R	2.07	55	*55*
22	1.11	R	2.11	59	*59*
23	1.08	R	2.08	56	*56*
24	1.13	R	2.13	61	*61*
25	1.20	R	2.20	62	*62*
26	1.03	R	2.03	53	*53*
27	0.86	R	1.86	41	*41*
28	1.13	R	2.13	60	*60*
29	0.89	R	1.89	42	*42*
30	0.84	R	1.84	38	*38*
31	0.92	R	1.92	47	*47*
32	1.00	R	2.00	51	*51*

WRS Test Results

Survey Unit 4

Area 7A Systematic Soil Samples

MARSSIM Class 2

Survey Unit 4 - Surface Soil - Weighted Th and U					
	Data	**Area**	**Adjusted Data**	**Ranks**	**RA Ranks**
1	1.06	S	1.06	*22*	
2	1.22	S	1.22	*27*	
3	0.97	S	0.97	*16*	
4	0.80	S	0.80	*8*	
5	1.08	S	1.08	*23*	
6	0.95	S	0.95	*13*	
7	0.94	S	0.94	*12*	
8	1.23	S	1.23	*28*	
9	1.08	S	1.08	*24*	
10	0.96	S	0.96	*14*	
11	1.13	S	1.13	*26*	
12	1.25	S	1.25	*29*	
13	0.21	S	0.21	*1*	
14	0.98	S	0.98	*18*	
15	0.97	S	0.97	*15*	
16	1.00	S	1.00	*19*	
17	0.89	S	0.89	*10*	
18	0.93	S	0.93	*11*	
19	1.05	S	1.05	*21*	
20	0.98	S	0.98	*17*	
21	1.02	S	1.02	*20*	
22	0.85	S	0.85	*9*	
23	0.75	S	0.75	*7*	
24	1.11	S	1.11	*25*	
25	1.50	S	1.50	*32*	
26	1.41	S	1.41	*31*	
27	1.25	S	1.25	*30*	
28	0.28	S	0.28	*2*	
29	0.53	S	0.53	*6*	
30	0.29	S	0.29	*3*	
31	0.37	S	0.37	*4*	
32	0.40	S	0.40	*5*	
			Sum	528	**1552**

Critical Value (NUREG-1505, Table A.4 Equation) = **1162**

Reference area ranks greater than critical value?	**Yes**
Null hypotheses accepted or rejected?	**Rejected**
Does survey unit meet release criterion?	***Yes***

Survey Unit 5

Area 7A Systematic Soil Sample Data

MARSSIM Class 1

Surface Soil Samples

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U fraction	Th fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
SU5 1 S SS	1.73	2.25	1.26	1.01	0.15	0.44	0.06	0.50	0.57	0.31	0.88	1.01	0.15	0.98	0.50	1.48
SU5 2 S SS	0.48	0.62	0.15	0.00	0.00	0.00	0.00	0.00	0.16	0.04	0.19	-0.62	-0.96	0.27	0.06	0.33
SU5 3 S SS	1.29	1.68	0.72	0.44	0.00	0.19	0.00	0.19	0.42	0.18	0.60	0.44	-0.39	0.73	0.29	1.02
SU5 4 S SS	0.63	0.82	-0.03	0.00	0.00	0.00	0.00	0.00	0.21	-0.01	0.20	-0.41	-1.14	0.36	-0.01	0.36
SU5 5 S SS	0.59	0.77	0.44	0.00	0.00	0.00	0.00	0.00	0.19	0.11	0.30	-0.47	-0.67	0.33	0.18	0.51
SU5 7 S SS	1.27	1.65	0.86	0.42	0.00	0.18	0.00	0.18	0.42	0.21	0.63	0.42	-0.25	0.72	0.34	1.06
SU5 6 S SS	0.56	0.73	0.14	0.00	0.00	0.00	0.00	0.00	0.18	0.04	0.22	-0.51	-0.97	0.32	0.06	0.37
SU5 8 S SS	0.30	0.39	-0.14	0.00	0.00	0.00	0.00	0.00	0.10	-0.03	0.06	-0.85	-1.25	0.17	-0.06	0.11
SU5 9 S SS	1.16	1.51	1.31	0.27	0.20	0.12	0.08	0.20	0.38	0.32	0.71	0.27	0.20	0.66	0.52	1.18
SU5 10 S SS	1.01	1.31	0.17	0.08	0.00	0.03	0.00	0.03	0.33	0.04	0.37	0.08	-0.94	0.57	0.07	0.64
SU5 11 S SS	0.34	0.45	0.21	0.00	0.00	0.00	0.00	0.00	0.11	0.05	0.16	-0.79	-0.90	0.19	0.08	0.28
SU5 12 S SS	1.24	1.61	1.09	0.38	0.00	0.16	0.00	0.16	0.41	0.27	0.68	0.38	-0.02	0.70	0.44	1.14
SU5 13 S SS	0.32	0.41	0.66	0.00	0.00	0.00	0.00	0.00	0.11	0.16	0.27	-0.82	-0.45	0.18	0.26	0.44
SU5 14 S SS	0.83	1.08	0.48	0.00	0.00	0.00	0.00	0.00	0.27	0.12	0.39	-0.16	-0.63	0.47	0.19	0.66
SU5 15 S SS	2.08	2.70	0.65	1.47	0.00	0.64	0.00	0.64	0.68	0.16	0.85	1.47	-0.46	1.18	0.26	1.44
SU5 16 S SS	0.57	0.74	0.18	0.00	0.00	0.00	0.00	0.00	0.19	0.04	0.23	-0.49	-0.93	0.32	0.07	0.39
SU5 17 S SS	1.17	1.52	1.17	0.29	0.06	0.12	0.02	0.15	0.39	0.29	0.67	0.29	0.06	0.66	0.47	1.13
SU5 18 S SS	0.83	1.08	0.44	0.00	0.00	0.00	0.00	0.00	0.27	0.11	0.38	-0.16	-0.67	0.47	0.18	0.65
SU5 19 S SS	0.65	0.85	0.25	0.00	0.00	0.00	0.00	0.00	0.21	0.06	0.28	-0.39	-0.86	0.37	0.10	0.47
SU5 20 S SS	0.55	0.72	0.56	0.00	0.00	0.00	0.00	0.00	0.18	0.14	0.32	-0.52	-0.55	0.31	0.22	0.54
SU5 21 S SS	2.39	3.11	0.79	1.87	0.00	0.81	0.00	0.81	0.79	0.20	0.98	1.87	-0.32	1.35	0.32	1.67
SU5 22 S SS	0.86	1.12	0.56	0.00	0.00	0.00	0.00	0.00	0.28	0.14	0.42	-0.12	-0.55	0.49	0.22	0.71
SU5 23 S SS	0.49	0.64	0.36	0.00	0.00	0.00	0.00	0.00	0.16	0.09	0.25	-0.60	-0.75	0.28	0.15	0.42
SU5 24 S SS	1.02	1.33	0.86	0.09	0.00	0.04	0.00	0.04	0.34	0.21	0.55	0.09	-0.25	0.58	0.34	0.92
SU5 25 S SS	1.15	1.50	0.64	0.26	0.00	0.11	0.00	0.11	0.38	0.16	0.54	0.26	-0.47	0.65	0.26	0.91
SU5 26 S SS	1.43	1.86	1.41	0.62	0.30	0.27	0.12	0.39	0.47	0.35	0.82	0.62	0.30	0.81	0.56	1.37
SU5 27 S SS	1.05	1.36	0.79	0.13	0.00	0.06	0.00	0.06	0.35	0.19	0.54	0.13	-0.32	0.59	0.32	0.91
SU5 28 S SS	0.68	0.88	0.21	0.00	0.00	0.00	0.00	0.00	0.22	0.05	0.28	-0.35	-0.90	0.38	0.08	0.47
SU5 29 S SS	0.66	0.86	0.67	0.00	0.00	0.00	0.00	0.00	0.22	0.17	0.38	-0.38	-0.44	0.37	0.27	0.64
SU5 30 S SS	1.23	1.60	0.20	0.36	0.00	0.16	0.00	0.16	0.40	0.05	0.46	0.36	-0.90	0.70	0.08	0.78
SU5 31 S SS	0.45	0.59	0.13	0.00	0.00	0.00	0.00	0.00	0.15	0.03	0.18	-0.65	-0.98	0.25	0.05	0.31
SU5 32 S SS	1.06	1.38	1.21	0.14	0.10	0.06	0.04	0.10	0.35	0.30	0.65	0.14	0.10	0.60	0.48	1.08
	Mean	**1.22**	**0.58**									**-0.01**	**-0.53**			**0.76**
	Median	**1.10**	**0.56**									**-0.14**	**-0.55**			**0.65**
	Standard Dev.	**0.64**	**0.42**									**0.64**	**0.42**			**0.40**
	Max	**3.11**	**1.41**									**1.87**	**0.30**			**1.67**
	Min	**0.39**	**-0.14**									**-0.85**	**-1.25**			**0.11**

Survey Unit 5

Area 7A Systematic Soil Sample Data

MARSSIM Class 1

Subsurface Soil Samples

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U fraction	Th fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
SU5 1 S SB	1.52	1.98	1.24	0.74	0.13	0.32	0.05	0.37	0.50	0.31	0.81	0.74	0.13	0.86	0.50	1.36
SU5 2 S SB	0.80	1.03	-0.10	0.00	0.00	0.00	0.00	0.00	0.26	-0.03	0.24	-0.20	-1.21	0.45	-0.04	0.45
SU5 3 S SB	1.66	2.16	1.15	0.92	0.04	0.40	0.02	0.42	0.55	0.28	0.83	0.92	0.04	0.94	0.46	1.40
SU5 4 S SB	1.12	1.46	0.77	0.22	0.00	0.10	0.00	0.10	0.37	0.19	0.56	0.22	-0.34	0.63	0.31	0.94
SU5 5 S SB	1.14	1.48	0.72	0.25	0.00	0.11	0.00	0.11	0.38	0.18	0.55	0.25	-0.39	0.64	0.29	0.93
SU5 6 S SB	0.23	0.30	0.31	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.15	-0.93	-0.80	0.13	0.12	0.26
SU5 7 S SB	1.24	1.61	1.06	0.38	0.00	0.16	0.00	0.16	0.41	0.26	0.67	0.38	-0.05	0.70	0.42	1.12
SU5 8 S SB	1.18	1.53	0.89	0.30	0.00	0.13	0.00	0.13	0.39	0.22	0.61	0.30	-0.22	0.67	0.36	1.02
SU5 9 S SB	1.07	1.39	1.29	0.16	0.18	0.07	0.07	0.14	0.35	0.32	0.67	0.16	0.18	0.60	0.52	1.12
SU5 10 S SB	0.54	0.70	0.28	0.00	0.00	0.00	0.00	0.00	0.18	0.07	0.25	-0.53	-0.83	0.31	0.11	0.42
SU5 11 S SB	0.33	0.43	0.20	0.00	0.00	0.00	0.00	0.00	0.11	0.05	0.16	-0.80	-0.91	0.19	0.08	0.27
SU5 12 S SB	1.11	1.44	1.04	0.21	0.00	0.09	0.00	0.09	0.37	0.26	0.62	0.21	-0.07	0.63	0.42	1.04
SU5 13 S SB	0.76	0.99	0.87	0.00	0.00	0.00	0.00	0.00	0.25	0.22	0.47	-0.25	-0.24	0.43	0.35	0.78
SU5 14 S SB	0.90	1.17	0.32	0.00	0.00	0.00	0.00	0.00	0.30	0.08	0.38	-0.07	-0.79	0.51	0.13	0.64
SU5 15 S SB	0.90	1.17	0.11	0.00	0.00	0.00	0.00	0.00	0.30	0.03	0.32	-0.07	-1.00	0.51	0.04	0.55
SU5 16 S SB	0.56	0.73	0.51	0.00	0.00	0.00	0.00	0.00	0.18	0.13	0.31	-0.51	-0.60	0.32	0.21	0.52
SU5 17 S SB	1.21	1.57	1.24	0.34	0.13	0.15	0.05	0.20	0.40	0.31	0.70	0.34	0.13	0.68	0.50	1.18
SU5 18 S SB	1.21	1.57	0.65	0.34	0.00	0.15	0.00	0.15	0.40	0.16	0.56	0.34	-0.46	0.68	0.26	0.94
SU5 19 S SB	0.42	0.55	0.50	0.00	0.00	0.00	0.00	0.00	0.14	0.12	0.26	-0.68	-0.61	0.24	0.20	0.44
SU5 20 S SB	0.58	0.75	0.17	0.00	0.00	0.00	0.00	0.00	0.19	0.04	0.23	-0.48	-0.94	0.33	0.07	0.40
SU5 21 S SB	0.63	0.82	0.81	0.00	0.00	0.00	0.00	0.00	0.21	0.20	0.41	-0.42	-0.30	0.36	0.32	0.68
SU5 22 S SB	0.54	0.70	0.28	0.00	0.00	0.00	0.00	0.00	0.18	0.07	0.25	-0.54	-0.83	0.30	0.11	0.41
SU5 23 S SB	1.29	1.68	0.57	0.44	0.00	0.19	0.00	0.19	0.42	0.14	0.57	0.44	-0.54	0.73	0.23	0.96
SU5 24 S SB	0.99	1.29	0.77	0.05	0.00	0.02	0.00	0.02	0.33	0.19	0.52	0.05	-0.34	0.56	0.31	0.87
SU5 25 S SB	1.06	1.38	0.67	0.14	0.00	0.06	0.00	0.06	0.35	0.17	0.51	0.14	-0.44	0.60	0.27	0.87
SU5 26 S SB	1.32	1.72	1.02	0.48	0.00	0.21	0.00	0.21	0.43	0.25	0.69	0.48	-0.09	0.75	0.41	1.15
SU5 27 S SB	0.94	1.22	0.83	0.00	0.00	0.00	0.00	0.00	0.31	0.20	0.51	-0.01	-0.28	0.53	0.33	0.86
SU5 28 S SB	0.66	0.86	0.54	0.00	0.00	0.00	0.00	0.00	0.22	0.13	0.35	-0.38	-0.57	0.37	0.22	0.59
SU5 29 S SB	0.45	0.59	0.23	0.00	0.00	0.00	0.00	0.00	0.15	0.06	0.21	-0.65	-0.88	0.25	0.09	0.35
SU5 30 S SB	0.95	1.24	0.12	0.00	0.00	0.00	0.00	0.00	0.31	0.03	0.34	0.00	-0.99	0.54	0.05	0.59
SU5 31 S SB	0.90	1.17	0.91	0.00	0.00	0.00	0.00	0.00	0.30	0.22	0.52	-0.07	-0.20	0.51	0.36	0.87
SU5 32 S SB	1.14	1.48	0.99	0.25	0.00	0.11	0.00	0.11	0.38	0.24	0.62	0.25	-0.12	0.64	0.40	1.04
	Mean	**1.19**	**0.66**									**-0.04**	**-0.45**			**0.78**
	Median	**1.23**	**0.70**									**-0.01**	**-0.41**			**0.87**
	Standard Dev.	**0.45**	**0.38**									**0.45**	**0.38**			**0.32**
	Max	**2.16**	**1.29**									**0.92**	**0.18**			**1.40**
	Min	**0.30**	**-0.10**									**-0.93**	**-1.21**			**0.26**

Soil Bkg.	1.24	pCi/g	U-238 (Bi-214)
	1.11	pCi/g	Th-232 (Ac-228)
Soil IL	3.95	pCi/g	U-238 (Bi-214)
	4.05	pCi/g	Th-232 (Ac-228)

IL = Investigation Level

WRS Test Results

Survey Unit 5

Area 7A Systematic Soil Samples

MARRSIM Class 1

Survey Unit 5 - Surface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	1.21	R	2.21	64	*64*
2	1.08	R	2.08	57.5	*57.5*
3	1.20	R	2.20	63	*63*
4	0.97	R	1.97	49	*49*
5	0.97	R	1.97	50	*50*
6	1.02	R	2.02	52	*52*
7	0.86	R	1.86	40	*40*
8	0.84	R	1.84	37	*37*
9	0.90	R	1.90	46	*46*
10	0.79	R	1.79	33	*33*
11	1.08	R	2.08	57.5	*57.5*
12	0.82	R	1.82	36	*36*
13	0.93	R	1.93	48	*48*
14	0.89	R	1.89	44	*44*
15	0.89	R	1.89	43	*43*
16	1.03	R	2.03	54	*54*
17	0.86	R	1.86	39	*39*
18	0.81	R	1.81	35	*35*
19	0.89	R	1.89	45	*45*
20	0.80	R	1.80	34	*34*
21	1.07	R	2.07	55	*55*
22	1.11	R	2.11	59	*59*
23	1.08	R	2.08	56	*56*
24	1.13	R	2.13	61	*61*
25	1.20	R	2.20	62	*62*
26	1.03	R	2.03	53	*53*
27	0.86	R	1.86	41	*41*
28	1.13	R	2.13	60	*60*
29	0.89	R	1.89	42	*42*
30	0.84	R	1.84	38	*38*
31	0.92	R	1.92	47	*47*
32	1.00	R	2.00	51	*51*

Survey Unit 5 - Subsurface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	1.14	R	2.14	62	*62*
2	1.08	R	2.08	60	*60*
3	1.02	R	2.02	54	*54*
4	0.97	R	1.97	44	*44*
5	1.01	R	2.01	52	*52*
6	1.01	R	2.01	53	*53*
7	0.98	R	1.98	48	*48*
8	0.96	R	1.96	43	*43*
9	1.00	R	2.00	51	*51*
10	1.18	R	2.18	64	*64*
11	0.94	R	1.94	42	*42*
12	0.92	R	1.92	40	*40*
13	0.93	R	1.93	41	*41*
14	0.91	R	1.91	38	*38*
15	0.85	R	1.85	34	*34*
16	0.87	R	1.87	35	*35*
17	1.03	R	2.03	57	*57*
18	0.99	R	1.99	49	*49*
19	0.89	R	1.89	36	*36*
20	0.92	R	1.92	39	*39*
21	1.03	R	2.03	56	*56*
22	0.85	R	1.85	33	*33*
23	0.98	R	1.98	46	*46*
24	1.09	R	2.09	61	*61*
25	1.07	R	2.07	59	*59*
26	1.00	R	2.00	50	*50*
27	1.15	R	2.15	63	*63*
28	0.97	R	1.97	45	*45*
29	1.05	R	2.05	58	*58*
30	0.90	R	1.90	37	*37*
31	0.98	R	1.98	47	*47*
32	1.03	R	2.03	55	*55*

WRS Test Results

Survey Unit 5

Area 7A Systematic Soil Samples

MARRSIM Class 1

Survey Unit 5 - Surface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	1.48	S	1.48	*31*	
2	0.33	S	0.33	*4*	
3	1.02	S	1.02	*23*	
4	0.36	S	0.36	*5*	
5	0.51	S	0.51	*12*	
6	1.06	S	1.06	*24*	
7	0.37	S	0.37	*6*	
8	0.11	S	0.11	*1*	
9	1.18	S	1.18	*28*	
10	0.64	S	0.64	*14*	
11	0.28	S	0.28	*2*	
12	1.14	S	1.14	*27*	
13	0.44	S	0.44	*9*	
14	0.66	S	0.66	*17*	
15	1.44	S	1.44	*30*	
16	0.39	S	0.39	*7*	
17	1.13	S	1.13	*26*	
18	0.65	S	0.65	*16*	
19	0.47	S	0.47	*10*	
20	0.54	S	0.54	*13*	
21	1.67	S	1.67	*32*	
22	0.71	S	0.71	*18*	
23	0.42	S	0.42	*8*	
24	0.92	S	0.92	*22*	
25	0.91	S	0.91	*20*	
26	1.37	S	1.37	*29*	
27	0.91	S	0.91	*21*	
28	0.47	S	0.47	*11*	
29	0.64	S	0.64	*15*	
30	0.78	S	0.78	*19*	
31	0.31	S	0.31	*3*	
32	1.08	S	1.08	*25*	
			Sum	528	**1552**

Survey Unit 5 - Subsurface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	1.36	S	1.36	*31*	
2	0.45	S	0.45	*8*	
3	1.40	S	1.40	*32*	
4	0.94	S	0.94	*21*	
5	0.93	S	0.93	*20*	
6	0.26	S	0.26	*1*	
7	1.12	S	1.12	*28*	
8	1.02	S	1.02	*24*	
9	1.12	S	1.12	*27*	
10	0.42	S	0.42	*6*	
11	0.27	S	0.27	*2*	
12	1.04	S	1.04	*26*	
13	0.78	S	0.78	*15*	
14	0.64	S	0.64	*13*	
15	0.55	S	0.55	*10*	
16	0.52	S	0.52	*9*	
17	1.18	S	1.18	*30*	
18	0.94	S	0.94	*22*	
19	0.44	S	0.44	*7*	
20	0.40	S	0.40	*4*	
21	0.68	S	0.68	*14*	
22	0.41	S	0.41	*5*	
23	0.96	S	0.96	*23*	
24	0.87	S	0.87	*18*	
25	0.87	S	0.87	*17*	
26	1.15	S	1.15	*29*	
27	0.86	S	0.86	*16*	
28	0.59	S	0.59	*12*	
29	0.35	S	0.35	*3*	
30	0.59	S	0.59	*11*	
31	0.87	S	0.87	*19*	
32	1.04	S	1.04	*25*	
			Sum	528	**1552**

Critical Value (NUREG-1505, Table A.4 Equation) = **1162**

Reference area ranks greater than critical value?	**Yes**
Null hypotheses accepted or rejected?	**Rejected**
Does survey unit meet release criterion?	***Yes***

Reference area ranks greater than critical value?	**Yes**
Null hypotheses accepted or rejected?	**Rejected**
Survey unit meet release criterion?	***Yes***

Survey Unit 6

Area 7A Western Third of Entry Road Systematic Soil Sample Data

MARSSIM Class 1

Surface Soil Samples

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U fraction	Th fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
SU6 1 S SS	0.34	0.45	0.06	0.00	0.00	0.00	0.00	0.00	0.11	0.01	0.13	-0.79	-1.05	0.19	0.02	0.22
SU6 2 S SS	2.33	3.03	0.81	1.79	0.00	0.78	0.00	0.78	0.77	0.20	0.97	1.79	-0.30	1.32	0.33	1.64
SU6 3 S SS	1.22	1.59	1.00	0.35	0.00	0.15	0.00	0.15	0.40	0.25	0.65	0.35	-0.11	0.69	0.40	1.09
SU6 4 S SS	1.30	1.69	1.13	0.45	0.02	0.20	0.01	0.21	0.43	0.28	0.71	0.45	0.02	0.73	0.45	1.19
SU6 5 S SS	1.13	1.47	1.48	0.23	0.37	0.10	0.15	0.25	0.37	0.37	0.74	0.23	0.37	0.64	0.59	1.23
SU6 6 S SS	0.15	0.19	-0.20	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	-1.05	-1.31	0.08	-0.08	0.00
SU6 7 S SS	1.07	1.39	1.38	0.16	0.27	0.07	0.11	0.18	0.35	0.34	0.69	0.16	0.27	0.60	0.55	1.16
SU6 8 S SS	0.94	1.22	1.08	0.00	0.00	0.00	0.00	0.00	0.31	0.27	0.58	-0.01	-0.03	0.53	0.43	0.96
SU6 9 S SS	1.00	1.29	1.13	0.06	0.02	0.03	0.01	0.03	0.33	0.28	0.61	0.06	0.02	0.56	0.45	1.01
SU6 10 S SS	0.90	1.17	0.07	0.00	0.00	0.00	0.00	0.00	0.30	0.02	0.31	-0.07	-1.04	0.51	0.03	0.54
SU6 11 S SS	1.36	1.77	0.85	0.53	0.00	0.23	0.00	0.23	0.45	0.21	0.66	0.53	-0.26	0.77	0.34	1.11
SU6 12 S SS	1.10	1.43	0.81	0.19	0.00	0.08	0.00	0.08	0.36	0.20	0.56	0.19	-0.30	0.62	0.32	0.95
SU6 13 S SS	0.88	1.14	0.74	0.00	0.00	0.00	0.00	0.00	0.29	0.18	0.47	-0.09	-0.37	0.50	0.30	0.79
SU6 14 S SS	0.89	1.16	0.78	0.00	0.00	0.00	0.00	0.00	0.29	0.19	0.49	-0.08	-0.33	0.50	0.31	0.82
SU6 15 S SS	0.94	1.22	0.61	0.00	0.00	0.00	0.00	0.00	0.31	0.15	0.46	-0.01	-0.50	0.53	0.24	0.78
SU6 16 S SS	1.04	1.35	1.02	0.12	0.00	0.05	0.00	0.05	0.34	0.25	0.59	0.12	-0.09	0.59	0.41	1.00
SU6 17 S SS	0.68	0.88	0.20	0.00	0.00	0.00	0.00	0.00	0.22	0.05	0.27	-0.35	-0.91	0.38	0.08	0.46
SU6 18 S SS	2.95	3.84	1.12	2.60	0.01	1.13	0.00	**1.13**	0.97	0.28	1.25	2.60	0.01	1.67	0.45	2.12
SU6 19 S SS	0.78	1.01	0.53	0.00	0.00	0.00	0.00	0.00	0.26	0.13	0.39	-0.22	-0.58	0.44	0.21	0.65
SU6 20 S SS	0.97	1.26	0.48	0.03	0.00	0.01	0.00	0.01	0.32	0.12	0.44	0.03	-0.63	0.55	0.19	0.74
SU6 21 S SS	1.39	1.81	1.00	0.57	0.00	0.25	0.00	0.25	0.46	0.25	0.70	0.57	-0.11	0.79	0.40	1.19
SU6 22 S SS	1.02	1.33	0.83	0.09	0.00	0.04	0.00	0.04	0.34	0.20	0.54	0.09	-0.28	0.58	0.33	0.91
SU6 23 S SS	1.20	1.56	1.42	0.32	0.31	0.14	0.12	0.26	0.39	0.35	0.74	0.32	0.31	0.68	0.57	1.24
SU6 24 S SS	1.30	1.69	1.44	0.45	0.33	0.20	0.13	0.33	0.43	0.36	0.78	0.45	0.33	0.73	0.58	1.31
SU6 25 S SS	1.71	2.22	1.10	0.99	0.00	0.43	0.00	0.43	0.56	0.27	0.83	0.99	-0.01	0.97	0.44	1.41
SU6 26 S SS	1.46	1.90	0.37	0.66	0.00	0.29	0.00	0.29	0.48	0.09	0.57	0.66	-0.74	0.83	0.15	0.97
SU6 27 S SS	1.07	1.39	1.28	0.16	0.17	0.07	0.07	0.14	0.35	0.32	0.67	0.16	0.17	0.60	0.51	1.12
SU6 28 S SS	1.25	1.63	1.37	0.39	0.26	0.17	0.10	0.27	0.41	0.34	0.75	0.39	0.26	0.71	0.55	1.25
SU6 29 S SS	1.03	1.34	1.09	0.10	0.00	0.04	0.00	0.04	0.34	0.27	0.61	0.10	-0.02	0.58	0.44	1.02
SU6 30 S SS	1.10	1.43	1.19	0.19	0.08	0.08	0.03	0.12	0.36	0.29	0.66	0.19	0.08	0.62	0.48	1.10
SU6 31 S SS	0.99	1.28	1.32	0.05	0.21	0.02	0.08	0.11	0.33	0.33	0.65	0.05	0.21	0.56	0.53	1.09
SU6 32 S SS	1.16	1.51	1.30	0.27	0.19	0.12	0.08	0.20	0.38	0.32	0.70	0.27	0.19	0.66	0.52	1.18
	Mean	**1.49**	**0.90**									**0.25**	**-0.21**			**1.01**
	Median	**1.39**	**1.01**									**0.16**	**-0.10**			**1.05**
	Standard Dev.	**0.65**	**0.44**									**0.65**	**0.44**			**0.39**
	Max	**3.84**	**1.48**									**2.60**	**0.37**			**2.12**
	Min	**0.19**	**-0.20**									**-1.05**	**-1.31**			**0.00**

Survey Unit 6

Area 7A Western Third of Entry Road Systematic Soil Sample Data

MARSSIM Class 1

Subsurface Soil Samples

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U fraction	Th fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
SU6 1 S SB	0.45	0.58	0.01	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.15	-0.65	-1.10	0.25	0.00	0.26
SU6 2 S SB	1.32	1.72	0.90	0.48	0.00	0.21	0.00	0.21	0.43	0.22	0.66	0.48	-0.21	0.75	0.36	1.11
SU6 3 S SB	1.24	1.61	1.28	0.38	0.17	0.16	0.07	0.23	0.41	0.32	0.72	0.38	0.17	0.70	0.51	1.21
SU6 4 S SB	1.10	1.43	1.22	0.19	0.11	0.08	0.05	0.13	0.36	0.30	0.66	0.19	0.11	0.62	0.49	1.11
SU6 5 S SB	1.04	1.35	1.23	0.12	0.12	0.05	0.05	0.10	0.34	0.30	0.65	0.12	0.12	0.59	0.49	1.08
SU6 6 S SB	1.17	1.52	1.12	0.29	0.01	0.12	0.00	0.13	0.39	0.28	0.66	0.29	0.01	0.66	0.45	1.11
SU6 7 S SB	1.20	1.56	1.28	0.32	0.17	0.14	0.07	0.21	0.39	0.32	0.71	0.32	0.17	0.68	0.51	1.19
SU6 8 S SB	1.11	1.44	1.39	0.21	0.28	0.09	0.11	0.20	0.37	0.34	0.71	0.21	0.28	0.63	0.56	1.18
SU6 9 S SB	1.11	1.44	0.95	0.21	0.00	0.09	0.00	0.09	0.37	0.23	0.60	0.21	-0.16	0.63	0.38	1.01
SU6 10 S SB	0.91	1.18	0.41	0.00	0.00	0.00	0.00	0.00	0.30	0.10	0.40	-0.05	-0.70	0.51	0.16	0.68
SU6 11 S SB	0.94	1.22	1.18	0.00	0.07	0.00	0.03	0.03	0.31	0.29	0.60	-0.01	0.07	0.53	0.47	1.00
SU6 12 S SB	0.95	1.24	1.08	0.00	0.00	0.00	0.00	0.00	0.31	0.27	0.58	0.00	-0.03	0.54	0.43	0.97
SU6 13 S SB	0.90	1.17	1.02	0.00	0.00	0.00	0.00	0.00	0.30	0.25	0.55	-0.07	-0.09	0.51	0.41	0.91
SU6 14 S SB	0.99	1.29	0.83	0.05	0.00	0.02	0.00	0.02	0.33	0.20	0.53	0.05	-0.28	0.56	0.33	0.89
SU6 15 S SB	1.17	1.52	0.77	0.29	0.00	0.12	0.00	0.12	0.39	0.19	0.57	0.29	-0.34	0.66	0.31	0.97
SU6 16 S SB	1.12	1.46	1.16	0.22	0.05	0.10	0.02	0.12	0.37	0.29	0.65	0.22	0.05	0.63	0.46	1.10
SU6 17 S SB	0.84	1.09	0.51	0.00	0.00	0.00	0.00	0.00	0.28	0.12	0.40	-0.14	-0.60	0.47	0.20	0.68
SU6 18 S SB	1.84	2.39	1.07	1.16	0.00	0.50	0.00	0.50	0.61	0.26	0.87	1.16	-0.04	1.04	0.43	1.47
SU6 19 S SB	1.15	1.50	0.88	0.26	0.00	0.11	0.00	0.11	0.38	0.22	0.60	0.26	-0.23	0.65	0.35	1.00
SU6 20 S SB	1.11	1.44	1.01	0.21	0.00	0.09	0.00	0.09	0.37	0.25	0.61	0.21	-0.10	0.63	0.40	1.03
SU6 21 S SB	0.89	1.16	0.87	0.00	0.00	0.00	0.00	0.00	0.29	0.21	0.51	-0.08	-0.24	0.50	0.35	0.85
SU6 22 S SB	1.00	1.30	1.32	0.06	0.21	0.03	0.08	0.11	0.33	0.33	0.65	0.06	0.21	0.57	0.53	1.09
SU6 23 S SB	1.38	1.79	1.32	0.56	0.21	0.24	0.08	0.33	0.45	0.33	0.78	0.56	0.21	0.78	0.53	1.31
SU6 24 S SB	1.54	2.00	1.65	0.77	0.54	0.33	0.21	0.55	0.51	0.41	0.91	0.77	0.54	0.87	0.66	1.53
SU6 25 S SB	1.21	1.57	1.32	0.34	0.21	0.15	0.08	0.23	0.40	0.33	0.72	0.34	0.21	0.68	0.53	1.21
SU6 26 S SB	1.45	1.89	1.28	0.65	0.17	0.28	0.07	0.35	0.48	0.32	0.79	0.65	0.17	0.82	0.51	1.33
SU6 27 S SB	1.21	1.57	1.17	0.34	0.06	0.15	0.02	0.17	0.40	0.29	0.69	0.34	0.06	0.68	0.47	1.15
SU6 28 S SB	1.12	1.46	1.42	0.22	0.31	0.10	0.12	0.22	0.37	0.35	0.72	0.22	0.31	0.63	0.57	1.20
SU6 29 S SB	1.14	1.48	1.53	0.25	0.42	0.11	0.17	0.28	0.38	0.38	0.75	0.25	0.42	0.64	0.61	1.26
SU6 30 S SB	1.03	1.34	1.34	0.10	0.23	0.04	0.09	0.14	0.34	0.33	0.67	0.10	0.23	0.58	0.54	1.12
SU6 31 S SB	1.15	1.50	1.42	0.26	0.31	0.11	0.12	0.24	0.38	0.35	0.73	0.26	0.31	0.65	0.57	1.22
SU6 32 S SB	1.17	1.52	1.08	0.29	0.00	0.12	0.00	0.12	0.39	0.27	0.65	0.29	-0.03	0.66	0.43	1.09
	Mean	**1.46**	**1.09**									**0.22**	**-0.02**			**1.07**
	Median	**1.46**	**1.17**									**0.22**	**0.06**			**1.10**
	Standard Dev.	**0.31**	**0.34**									**0.31**	**0.34**			**0.24**
	Max	**2.39**	**1.65**									**1.16**	**0.54**			**1.53**
	Min	**0.58**	**0.01**									**-0.65**	**-1.10**			**0.26**

Soil Bkg.	1.24	pCi/g	U-238 (Bi-214)
	1.11	pCi/g	Th-232 (Ac-228)
Soil IL	3.95	pCi/g	U-238 (Bi-214)
	4.05	pCi/g	Th-232 (Ac-228)

IL = Investigation Level

WRS Test Results

Survey Unit 6

Area 7A Western Third of Entry Road Systematic Soil Samples

MARRSIM Class 1

Survey Unit 6 - Surface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	1.21	R	2.21	64	*64*
2	1.08	R	2.08	56.5	*56.5*
3	1.20	R	2.20	63	*63*
4	0.97	R	1.97	48	*48*
5	0.97	R	1.97	49	*49*
6	1.02	R	2.02	51	*51*
7	0.86	R	1.86	39	*39*
8	0.84	R	1.84	36	*36*
9	0.90	R	1.90	45	*45*
10	0.79	R	1.79	32	*32*
11	1.08	R	2.08	56.5	*56.5*
12	0.82	R	1.82	35	*35*
13	0.93	R	1.93	47	*47*
14	0.89	R	1.89	43	*43*
15	0.89	R	1.89	42	*42*
16	1.03	R	2.03	53	*53*
17	0.86	R	1.86	38	*38*
18	0.81	R	1.81	34	*34*
19	0.89	R	1.89	44	*44*
20	0.80	R	1.80	33	*33*
21	1.07	R	2.07	54	*54*
22	1.11	R	2.11	58	*58*
23	1.08	R	2.08	55	*55*
24	1.13	R	2.13	61	*61*
25	1.20	R	2.20	62	*62*
26	1.03	R	2.03	52	*52*
27	0.86	R	1.86	40	*40*
28	1.13	R	2.13	60	*60*
29	0.89	R	1.89	41	*41*
30	0.84	R	1.84	37	*37*
31	0.92	R	1.92	46	*46*
32	1.00	R	2.00	50	*50*

Survey Unit 6 - Suburface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	1.14	R	2.14	62	*62*
2	1.08	R	2.08	60	*60*
3	1.02	R	2.02	54	*54*
4	0.97	R	1.97	44	*44*
5	1.01	R	2.01	52	*52*
6	1.01	R	2.01	53	*53*
7	0.98	R	1.98	48	*48*
8	0.96	R	1.96	43	*43*
9	1.00	R	2.00	51	*51*
10	1.18	R	2.18	64	*64*
11	0.94	R	1.94	42	*42*
12	0.92	R	1.92	40	*40*
13	0.93	R	1.93	41	*41*
14	0.91	R	1.91	38	*38*
15	0.85	R	1.85	34	*34*
16	0.87	R	1.87	35	*35*
17	1.03	R	2.03	57	*57*
18	0.99	R	1.99	49	*49*
19	0.89	R	1.89	36	*36*
20	0.92	R	1.92	39	*39*
21	1.03	R	2.03	56	*56*
22	0.85	R	1.85	33	*33*
23	0.98	R	1.98	46	*46*
24	1.09	R	2.09	61	*61*
25	1.07	R	2.07	59	*59*
26	1.00	R	2.00	50	*50*
27	1.15	R	2.15	63	*63*
28	0.97	R	1.97	45	*45*
29	1.05	R	2.05	58	*58*
30	0.90	R	1.90	37	*37*
31	0.98	R	1.98	47	*47*
32	1.03	R	2.03	55	*55*

WRS Test Results

Survey Unit 6

Area 7A Western Third of Entry Road Systematic Soil Samples

MARRSIM Class 1

Survey Unit 6 - Surface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	0.22	S	0.22	*2*	
2	1.64	S	1.64	*31*	
3	1.09	S	1.09	*18*	
4	1.19	S	1.19	*25*	
5	1.23	S	1.23	*26*	
6	0.00	S	0.00	*1*	
7	1.16	S	1.16	*22*	
8	0.96	S	0.96	*12*	
9	1.01	S	1.01	*15*	
10	0.54	S	0.54	*4*	
11	1.11	S	1.11	*20*	
12	0.95	S	0.95	*11*	
13	0.79	S	0.79	*8*	
14	0.82	S	0.82	*9*	
15	0.78	S	0.78	*7*	
16	1.00	S	1.00	*14*	
17	0.46	S	0.46	*3*	
18	2.12	S	2.12	*59*	
19	0.65	S	0.65	*5*	
20	0.74	S	0.74	*6*	
21	1.19	S	1.19	*24*	
22	0.91	S	0.91	*10*	
23	1.24	S	1.24	*27*	
24	1.31	S	1.31	*29*	
25	1.41	S	1.41	*30*	
26	0.97	S	0.97	*13*	
27	1.12	S	1.12	*21*	
28	1.25	S	1.25	*28*	
29	1.02	S	1.02	*16*	
30	1.10	S	1.10	*19*	
31	1.09	S	1.09	*17*	
32	1.18	S	1.18	*23*	
			Sum	555	**1525**

Survey Unit 6 - Suburface Soil - Weighted Th and U

	Data	Area	Adjusted Data	Ranks	RA Ranks
1	0.26	S	0.26	*1*	
2	1.11	S	1.11	*17*	
3	1.21	S	1.21	*26*	
4	1.11	S	1.11	*19*	
5	1.08	S	1.08	*13*	
6	1.11	S	1.11	*18*	
7	1.19	S	1.19	*23*	
8	1.18	S	1.18	*22*	
9	1.01	S	1.01	*11*	
10	0.68	S	0.68	*3*	
11	1.00	S	1.00	*10*	
12	0.97	S	0.97	*8*	
13	0.91	S	0.91	*6*	
14	0.89	S	0.89	*5*	
15	0.97	S	0.97	*7*	
16	1.10	S	1.10	*16*	
17	0.68	S	0.68	*2*	
18	1.47	S	1.47	*31*	
19	1.00	S	1.00	*9*	
20	1.03	S	1.03	*12*	
21	0.85	S	0.85	*4*	
22	1.09	S	1.09	*14*	
23	1.31	S	1.31	*29*	
24	1.53	S	1.53	*32*	
25	1.21	S	1.21	*25*	
26	1.33	S	1.33	*30*	
27	1.15	S	1.15	*21*	
28	1.20	S	1.20	*24*	
29	1.26	S	1.26	*28*	
30	1.12	S	1.12	*20*	
31	1.22	S	1.22	*27*	
32	1.09	S	1.09	*15*	
			Sum	528	**1552**

Critical Value (NUREG-1505, Table A.4 Equation) = **1162**

Reference area ranks greater than critical value?	**Yes**
Null hypotheses accepted or rejected?	**Rejected**
Does survey unit meet release criterion?	***Yes***

Reference area ranks greater than critical value?	**Yes**
Null hypotheses accepted or rejected?	**Rejected**
Survey unit meet release criterion?	***Yes***

Survey Unit 6 $DCGL_{EMC}$ Evaluation

Survey Unit 6 General Information		
Survey unit area	1435	m^2
Number of samples per survey unit	32	
Area represented by a single sample	44.8	m^2
Uranium and Thorium Area Factors		
Natural uranium area factor	2.7	unitless
Natural thorium area factor	1.9	unitless
Uranium and Thorium Site-Specific $DCGL_w$		
Natural uranium $DCGL_w$	2.3	pCi/g
Natural thorium $DCGL_w$	2.5	pCi/g
Uranium and Thorium $DCGL_{EMC}$		
Natural uranium $DCGL_{EMC}$	6.2	pCi/g
Natural thorium $DCGL_{EMC}$	4.8	pCi/g
$DCGL_{EMC}$ Evaluation		
Number of locations with $DCGL_w$ fraction SOR > 1	1	
Sample identification	SU6 18 S SS	
Sample uranium net concentration	2.60	pCi/g
Sample thorium net concentration	0.01	pCi/g
Survey Unit 2 Average Concentrations (net)		
Uranium net concentration	0.25	pCi/g
Thorium net concentration	-0.21	pCi/g
Sample location uranium $DCGL_{EMC}$ fraction	0.378	
Sample location thorium $DCGL_{EMC}$ fraction	0.002	
Survey unit uranium $DCGL_w$ fraction	0.109	
Survey unit thorium $DCGL_w$ fraction	0.000	
Total	**0.489**	
Annual exposure limit	25	mrem per year
Survey unit 6 exposure total	**12.2**	mrem per year

Survey Unit 7

Eastern 2/3 of Area 7A Entry Road and Paved Road to Rail Scale Systematic Soil Sample Data

MARSSIM Class 3

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U fraction	Th fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
SU7 1 S SS	0.96	1.25	1.10	0.01	0.00	0.01	0.00	0.01	0.32	0.27	0.59	0.01	-0.01	0.54	0.44	0.98
SU7 2 S SS	1.30	1.69	1.16	0.45	0.05	0.20	0.02	0.22	0.43	0.29	0.71	0.45	0.05	0.73	0.46	1.20
SU7 3 S SS	1.13	1.47	1.28	0.23	0.17	0.10	0.07	0.17	0.37	0.32	0.69	0.23	0.17	0.64	0.51	1.15
SU7 4 S SS	1.09	1.42	1.09	0.18	0.00	0.08	0.00	0.08	0.36	0.27	0.63	0.18	-0.02	0.62	0.44	1.05
SU7 5 S SS	1.01	1.31	1.00	0.08	0.00	0.03	0.00	0.03	0.33	0.25	0.58	0.08	-0.11	0.57	0.40	0.97
SU7 6 S SS	0.91	1.18	0.71	0.00	0.00	0.00	0.00	0.00	0.30	0.18	0.47	-0.05	-0.40	0.51	0.28	0.80
SU7 7 S SS	0.73	0.95	0.59	0.00	0.00	0.00	0.00	0.00	0.24	0.15	0.39	-0.29	-0.52	0.41	0.24	0.65
SU7 8 S SS	1.22	1.59	0.64	0.35	0.00	0.15	0.00	0.15	0.40	0.16	0.56	0.35	-0.47	0.69	0.26	0.95
SU7 9 S SS	0.99	1.29	0.95	0.05	0.00	0.02	0.00	0.02	0.33	0.23	0.56	0.05	-0.16	0.56	0.38	0.94
SU7 10 S SS	0.95	1.24	0.75	0.00	0.00	0.00	0.00	0.00	0.31	0.18	0.50	0.00	-0.36	0.54	0.30	0.84
SU7 11 S SS	0.99	1.29	1.30	0.05	0.19	0.02	0.08	0.10	0.33	0.32	0.65	0.05	0.19	0.56	0.52	1.08
SU7 12 S SS	1.21	1.57	1.22	0.34	0.11	0.15	0.04	0.19	0.40	0.30	0.70	0.34	0.11	0.68	0.49	1.17
SU7 13 S SS	1.67	2.17	1.35	0.94	0.24	0.41	0.10	0.50	0.55	0.33	0.88	0.94	0.24	0.94	0.54	1.48
SU7 14 S SS	1.78	2.31	1.17	1.08	0.06	0.47	0.02	0.49	0.59	0.29	0.87	1.08	0.06	1.01	0.47	1.47
SU7 15 S SS	1.31	1.70	1.05	0.47	0.00	0.20	0.00	0.20	0.43	0.26	0.69	0.47	-0.06	0.74	0.42	1.16
SU7 16 S SS	1.20	1.56	0.82	0.32	0.00	0.14	0.00	0.14	0.39	0.20	0.60	0.32	-0.29	0.68	0.33	1.01
SU7 17 S SS	1.15	1.50	0.71	0.26	0.00	0.11	0.00	0.11	0.38	0.18	0.55	0.26	-0.40	0.65	0.28	0.93
SU7 18 S SS	0.79	1.02	0.47	0.00	0.00	0.00	0.00	0.00	0.26	0.12	0.38	-0.21	-0.64	0.45	0.19	0.63
SU7 19 S SS	0.41	0.53	0.33	0.00	0.00	0.00	0.00	0.00	0.13	0.08	0.22	-0.70	-0.77	0.23	0.13	0.36
SU7 20 S SS	0.74	0.96	0.51	0.00	0.00	0.00	0.00	0.00	0.24	0.13	0.37	-0.27	-0.60	0.42	0.20	0.62
SU7 21 S SS	0.97	1.26	1.09	0.03	0.00	0.01	0.00	0.01	0.32	0.27	0.59	0.03	-0.02	0.55	0.44	0.98
SU7 22 S SS	1.32	1.72	1.29	0.48	0.18	0.21	0.07	0.28	0.43	0.32	0.75	0.48	0.18	0.75	0.52	1.26
SU7 23 S SS	0.51	0.66	0.51	0.00	0.00	0.00	0.00	0.00	0.17	0.13	0.29	-0.57	-0.60	0.29	0.20	0.49
SU7 24 S SS	1.12	1.46	0.80	0.22	0.00	0.10	0.00	0.10	0.37	0.20	0.57	0.22	-0.31	0.63	0.32	0.95
SU7 25 S SS	0.92	1.20	0.86	0.00	0.00	0.00	0.00	0.00	0.30	0.21	0.51	-0.04	-0.25	0.52	0.34	0.86
SU7 26 S SS	0.65	0.85	0.48	0.00	0.00	0.00	0.00	0.00	0.21	0.12	0.33	-0.39	-0.63	0.37	0.19	0.56
SU7 27 S SS	0.67	0.87	0.66	0.00	0.00	0.00	0.00	0.00	0.22	0.16	0.38	-0.37	-0.45	0.38	0.26	0.64
SU7 28 S SS	0.64	0.83	0.59	0.00	0.00	0.00	0.00	0.00	0.21	0.15	0.36	-0.40	-0.52	0.36	0.24	0.60
SU7 29 S SS	0.63	0.82	0.58	0.00	0.00	0.00	0.00	0.00	0.21	0.14	0.35	-0.42	-0.53	0.36	0.23	0.59
SU7 30 S SS	0.53	0.69	0.54	0.00	0.00	0.00	0.00	0.00	0.17	0.13	0.31	-0.55	-0.57	0.30	0.22	0.52
SU7 31 S SS	0.60	0.78	0.81	0.00	0.00	0.00	0.00	0.00	0.20	0.20	0.40	-0.46	-0.30	0.34	0.32	0.66
SU7 32 S SS	0.73	0.94	0.59	0.00	0.00	0.00	0.00	0.00	0.24	0.15	0.38	-0.29	-0.52	0.41	0.24	0.65
	Mean	**1.25**	**0.84**									**0.02**	**-0.27**			**0.88**
	Median	**1.25**	**0.81**									**0.02**	**-0.30**			**0.94**
	Standard Dev.	**0.42**	**0.30**									**0.42**	**0.30**			**0.28**
	Max	**2.31**	**1.35**									**1.08**	**0.24**			**1.48**
	Min	**0.53**	**0.33**									**-0.70**	**-0.77**			**0.36**

Soil Bkg.	1.24	pCi/g	U-238 (Bi-214)
	1.11	pCi/g	Th-232 (Ac-228)
Soil IL	3.95	pCi/g	U-238 (Bi-214)
	4.05	pCi/g	Th-232 (Ac-228)

IL = Investigation Level

WRS Test Results

Survey Unit 7

Eastern 2/3 of Area 7A Entry Road and Paved Road to Rail Scale Systematic Soil Samples

MARRSIM Class 3

Survey Unit 7 - Surface Soil - Wtd Th and U					
	Data	**Area**	**Adjusted Data**	**Ranks**	**RA Ranks**
1	1.21	R	2.21	64	*64*
2	1.08	R	2.08	57.5	*57.5*
3	1.20	R	2.20	63	*63*
4	0.97	R	1.97	49	*49*
5	0.97	R	1.97	50	*50*
6	1.02	R	2.02	52	*52*
7	0.86	R	1.86	40	*40*
8	0.84	R	1.84	37	*37*
9	0.90	R	1.90	46	*46*
10	0.79	R	1.79	33	*33*
11	1.08	R	2.08	57.5	*57.5*
12	0.82	R	1.82	36	*36*
13	0.93	R	1.93	48	*48*
14	0.89	R	1.89	44	*44*
15	0.89	R	1.89	43	*43*
16	1.03	R	2.03	54	*54*
17	0.86	R	1.86	39	*39*
18	0.81	R	1.81	35	*35*
19	0.89	R	1.89	45	*45*
20	0.80	R	1.80	34	*34*
21	1.07	R	2.07	55	*55*
22	1.11	R	2.11	59	*59*
23	1.08	R	2.08	56	*56*
24	1.13	R	2.13	61	*61*
25	1.20	R	2.20	62	*62*
26	1.03	R	2.03	53	*53*
27	0.86	R	1.86	41	*41*
28	1.13	R	2.13	60	*60*
29	0.89	R	1.89	42	*42*
30	0.84	R	1.84	38	*38*
31	0.92	R	1.92	47	*47*
32	1.00	R	2.00	51	*51*

WRS Test Results

Survey Unit 7

Eastern 2/3 of Area 7A Entry Road and Paved Road to Rail Scale Systematic Soil Samples

MARRSIM Class 3

Survey Unit 7 - Surface Soil - Wtd Th and U					
	Data	**Area**	**Adjusted Data**	**Ranks**	**RA Ranks**
1	0.98	S	0.98	*21*	
2	1.20	S	1.20	*29*	
3	1.15	S	1.15	*26*	
4	1.05	S	1.05	*24*	
5	0.97	S	0.97	*20*	
6	0.80	S	0.80	*13*	
7	0.65	S	0.65	*11*	
8	0.95	S	0.95	*18*	
9	0.94	S	0.94	*17*	
10	0.84	S	0.84	*14*	
11	1.08	S	1.08	*25*	
12	1.17	S	1.17	*28*	
13	1.48	S	1.48	*32*	
14	1.47	S	1.47	*31*	
15	1.16	S	1.16	*27*	
16	1.01	S	1.01	*23*	
17	0.93	S	0.93	*16*	
18	0.63	S	0.63	*8*	
19	0.36	S	0.36	*1*	
20	0.62	S	0.62	*7*	
21	0.98	S	0.98	*22*	
22	1.26	S	1.26	*30*	
23	0.49	S	0.49	*2*	
24	0.95	S	0.95	*19*	
25	0.86	S	0.86	*15*	
26	0.56	S	0.56	*4*	
27	0.64	S	0.64	*9*	
28	0.60	S	0.60	*6*	
29	0.59	S	0.59	*5*	
30	0.52	S	0.52	*3*	
31	0.66	S	0.66	*12*	
32	0.65	S	0.65	*10*	
			Sum	528	**1552**

Critical Value (NUREG-1505, Table A.4 Equation) = **1162**

Reference area ranks greater than critical value?	**Yes**
Null hypotheses accepted or rejected?	**Rejected**
Does survey unit meet release criterion?	***Yes***

Survey Unit 9

Rail Scale Systematic Soil Sample Data

MARSSIM Class 1

Surface Soil Samples

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U fraction	Th fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
RS SS 1	0.40	0.52	0.23	0.00	0.00	0.00	0.00	0.00	0.13	0.06	0.19	-0.72	-0.88	0.22	0.09	0.32
RS SS 2	0.36	0.47	0.36	0.00	0.00	0.00	0.00	0.00	0.12	0.09	0.21	-0.76	-0.75	0.20	0.14	0.35
RS SS 3	0.46	0.60	-0.05	0.00	0.00	0.00	0.00	0.00	0.15	-0.01	0.14	-0.63	-1.16	0.26	-0.02	0.26
RS SS 4	0.44	0.57	0.04	0.00	0.00	0.00	0.00	0.00	0.14	0.01	0.15	-0.66	-1.07	0.25	0.02	0.26
RS SS 5	0.66	0.86	0.34	0.00	0.00	0.00	0.00	0.00	0.22	0.08	0.30	-0.38	-0.77	0.37	0.14	0.51
RS SS 6	0.41	0.53	0.14	0.00	0.00	0.00	0.00	0.00	0.13	0.03	0.17	-0.70	-0.97	0.23	0.06	0.29
RS SS 7	0.55	0.72	-0.07	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.18	-0.52	-1.18	0.31	-0.03	0.31
RS SS 8	0.43	0.56	0.09	0.00	0.00	0.00	0.00	0.00	0.14	0.02	0.16	-0.68	-1.02	0.24	0.04	0.28
RS SS 9	0.39	0.51	0.28	0.00	0.00	0.00	0.00	0.00	0.13	0.07	0.20	-0.73	-0.83	0.22	0.11	0.33
RS SS 10	0.83	1.08	0.18	0.00	0.00	0.00	0.00	0.00	0.27	0.04	0.32	-0.16	-0.93	0.47	0.07	0.54
RS SS 11	0.60	0.77	0.03	0.00	0.00	0.00	0.00	0.00	0.20	0.01	0.20	-0.46	-1.08	0.34	0.01	0.35
RS SS 12	0.89	1.16	0.08	0.00	0.00	0.00	0.00	0.00	0.29	0.02	0.31	-0.08	-1.03	0.50	0.03	0.54
RS SS 13	0.57	0.74	0.16	0.00	0.00	0.00	0.00	0.00	0.19	0.04	0.23	-0.50	-0.94	0.32	0.07	0.39
RS SS 14	0.56	0.73	0.30	0.00	0.00	0.00	0.00	0.00	0.18	0.07	0.26	-0.51	-0.81	0.32	0.12	0.44
RS SS 15	0.91	1.19	0.11	0.00	0.00	0.00	0.00	0.00	0.30	0.03	0.33	-0.05	-1.00	0.52	0.04	0.56
RS SS 16	0.33	0.43	0.33	0.00	0.00	0.00	0.00	0.00	0.11	0.08	0.19	-0.81	-0.78	0.19	0.13	0.32
RS SS 17	0.50	0.66	0.18	0.00	0.00	0.00	0.00	0.00	0.17	0.04	0.21	-0.58	-0.93	0.28	0.07	0.36
RS SS 18	1.28	1.66	0.46	0.43	0.00	0.19	0.00	0.19	0.42	0.11	0.53	0.43	-0.65	0.72	0.18	0.91
RS SS 19	1.59	2.07	0.48	0.83	0.00	0.36	0.00	0.36	0.52	0.12	0.64	0.83	-0.63	0.90	0.19	1.09
RS SS 20	0.58	0.75	0.33	0.00	0.00	0.00	0.00	0.00	0.19	0.08	0.27	-0.48	-0.78	0.33	0.13	0.46
RS SS 21	0.39	0.51	0.26	0.00	0.00	0.00	0.00	0.00	0.13	0.06	0.19	-0.73	-0.85	0.22	0.10	0.32
RS SS 22	0.73	0.95	0.12	0.00	0.00	0.00	0.00	0.00	0.24	0.03	0.27	-0.29	-0.99	0.41	0.05	0.46
RS SS 23	0.26	0.34	-0.23	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09	-0.90	-1.34	0.15	-0.09	0.15
RS SS 24	0.09	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.04	-1.12	-1.07	0.05	0.02	0.06
RS SS 25	0.41	0.53	0.20	0.00	0.00	0.00	0.00	0.00	0.13	0.05	0.18	-0.71	-0.91	0.23	0.08	0.31
RS SS 26	0.42	0.55	0.18	0.00	0.00	0.00	0.00	0.00	0.14	0.04	0.18	-0.69	-0.93	0.24	0.07	0.31
RS SS 27	0.58	0.75	0.27	0.00	0.00	0.00	0.00	0.00	0.19	0.07	0.26	-0.48	-0.84	0.33	0.11	0.44
RS SS 28	0.60	0.78	0.26	0.00	0.00	0.00	0.00	0.00	0.20	0.06	0.26	-0.46	-0.85	0.34	0.11	0.44
RS SS 29	0.51	0.67	0.17	0.00	0.00	0.00	0.00	0.00	0.17	0.04	0.21	-0.57	-0.94	0.29	0.07	0.36
RS SS 30	0.79	1.03	0.28	0.00	0.00	0.00	0.00	0.00	0.26	0.07	0.33	-0.21	-0.83	0.45	0.11	0.56
RS SS 31	0.39	0.51	0.37	0.00	0.00	0.00	0.00	0.00	0.13	0.09	0.22	-0.73	-0.74	0.22	0.15	0.37
RS SS 32	0.37	0.48	0.22	0.00	0.00	0.00	0.00	0.00	0.12	0.05	0.18	-0.75	-0.89	0.21	0.09	0.30
	Mean	**0.74**	**0.19**									**-0.49**	**-0.92**			**0.40**
	Median	**0.66**	**0.19**									**-0.57**	**-0.92**			**0.35**
	Standard Dev.	**0.38**	**0.15**									**0.38**	**0.15**			**0.19**
	Max	**2.07**	**0.48**									**0.83**	**-0.63**			**1.09**
	Min	**0.11**	**-0.23**									**-1.12**	**-1.34**			**0.06**

Survey Unit 9

Rail Scale Systematic Soil Sample Data

MARSSIM Class 1

Subsurface Soil Samples

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U fraction	Th fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
RS SB 1	0.22	0.28	0.19	0.00	0.00	0.00	0.00	0.00	0.07	0.05	0.12	-0.95	-0.92	0.12	0.08	0.20
RS SB 2	0.37	0.49	0.10	0.00	0.00	0.00	0.00	0.00	0.12	0.02	0.15	-0.75	-1.01	0.21	0.04	0.25
RS SB 3	0.43	0.55	0.37	0.00	0.00	0.00	0.00	0.00	0.14	0.09	0.23	-0.68	-0.74	0.24	0.15	0.39
RS SB 4	0.35	0.46	0.04	0.00	0.00	0.00	0.00	0.00	0.12	0.01	0.13	-0.78	-1.07	0.20	0.02	0.22
RS SB 5	0.46	0.60	0.11	0.00	0.00	0.00	0.00	0.00	0.15	0.03	0.18	-0.64	-1.00	0.26	0.04	0.30
RS SB 6	0.39	0.51	0.32	0.00	0.00	0.00	0.00	0.00	0.13	0.08	0.21	-0.73	-0.79	0.22	0.13	0.35
RS SB 7	0.39	0.51	0.22	0.00	0.00	0.00	0.00	0.00	0.13	0.05	0.18	-0.73	-0.89	0.22	0.09	0.31
RS SB 8	0.39	0.51	0.02	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.13	-0.72	-1.09	0.22	0.01	0.23
RS SB 9	0.39	0.51	0.12	0.00	0.00	0.00	0.00	0.00	0.13	0.03	0.16	-0.73	-0.99	0.22	0.05	0.27
RS SB 10	0.69	0.90	-0.10	0.00	0.00	0.00	0.00	0.00	0.23	-0.03	0.20	-0.34	-1.21	0.39	-0.04	0.39
RS SB 11	0.53	0.69	0.19	0.00	0.00	0.00	0.00	0.00	0.18	0.05	0.22	-0.54	-0.92	0.30	0.08	0.38
RS SB 12	0.48	0.62	0.04	0.00	0.00	0.00	0.00	0.00	0.16	0.01	0.17	-0.61	-1.07	0.27	0.02	0.29
RS SB 13	0.44	0.58	0.10	0.00	0.00	0.00	0.00	0.00	0.15	0.02	0.17	-0.66	-1.01	0.25	0.04	0.29
RS SB 14	0.38	0.50	0.27	0.00	0.00	0.00	0.00	0.00	0.13	0.07	0.19	-0.74	-0.84	0.22	0.11	0.32
RS SB 15	0.41	0.54	0.18	0.00	0.00	0.00	0.00	0.00	0.14	0.04	0.18	-0.70	-0.93	0.23	0.07	0.31
RS SB 16	0.34	0.44	0.23	0.00	0.00	0.00	0.00	0.00	0.11	0.06	0.17	-0.79	-0.88	0.19	0.09	0.29
RS SB 17	1.08	1.40	0.47	0.17	0.00	0.07	0.00	0.07	0.35	0.11	0.47	0.17	-0.64	0.61	0.19	0.80
RS SB 18	1.22	1.59	0.90	0.35	0.00	0.15	0.00	0.15	0.40	0.22	0.62	0.35	-0.21	0.69	0.36	1.05
RS SB 19	1.28	1.66	0.48	0.43	0.00	0.19	0.00	0.19	0.42	0.12	0.54	0.43	-0.63	0.72	0.19	0.92
RS SB 20	0.53	0.69	0.39	0.00	0.00	0.00	0.00	0.00	0.17	0.10	0.27	-0.55	-0.72	0.30	0.16	0.46
RS SB 21	0.46	0.59	0.26	0.00	0.00	0.00	0.00	0.00	0.15	0.07	0.22	-0.64	-0.85	0.26	0.11	0.36
RS SB 22	0.63	0.82	0.21	0.00	0.00	0.00	0.00	0.00	0.21	0.05	0.26	-0.42	-0.90	0.36	0.08	0.44
RS SB 23	0.72	0.94	0.17	0.00	0.00	0.00	0.00	0.00	0.24	0.04	0.28	-0.30	-0.94	0.41	0.07	0.48
RS SB 24	0.37	0.48	0.12	0.00	0.00	0.00	0.00	0.00	0.12	0.03	0.15	-0.75	-0.99	0.21	0.05	0.26
RS SB 25	0.36	0.47	0.31	0.00	0.00	0.00	0.00	0.00	0.12	0.08	0.20	-0.77	-0.80	0.20	0.12	0.33
RS SB 26	0.38	0.50	0.32	0.00	0.00	0.00	0.00	0.00	0.13	0.08	0.20	-0.74	-0.79	0.22	0.13	0.34
RS SB 27	0.50	0.65	0.30	0.00	0.00	0.00	0.00	0.00	0.16	0.07	0.24	-0.59	-0.81	0.28	0.12	0.40
RS SB 28	0.50	0.65	0.04	0.00	0.00	0.00	0.00	0.00	0.16	0.01	0.17	-0.59	-1.07	0.28	0.02	0.30
RS SB 29	0.62	0.81	0.39	0.00	0.00	0.00	0.00	0.00	0.20	0.10	0.30	-0.43	-0.72	0.35	0.16	0.51
RS SB 30	0.45	0.59	0.62	0.00	0.00	0.00	0.00	0.00	0.15	0.15	0.30	-0.65	-0.49	0.25	0.25	0.50
RS SB 31	0.32	0.41	0.20	0.00	0.00	0.00	0.00	0.00	0.10	0.05	0.15	-0.82	-0.91	0.18	0.08	0.26
RS SB 32	0.32	0.42	0.17	0.00	0.00	0.00	0.00	0.00	0.11	0.04	0.15	-0.81	-0.94	0.18	0.07	0.25
	Mean	**0.67**	**0.24**									**-0.57**	**-0.87**			**0.39**
	Median	**0.56**	**0.20**									**-0.67**	**-0.90**			**0.33**
	Standard Dev.	**0.32**	**0.19**									**0.32**	**0.19**			**0.19**
	Max	**1.66**	**0.90**									**0.43**	**-0.21**			**1.05**
	Min	**0.28**	**-0.10**									**-0.95**	**-1.21**			**0.20**

Soil Bkg.	1.24	pCi/g	U-238 (Bi-214)
	1.11	pCi/g	Th-232 (Ac-228)
Soil IL	3.95	pCi/g	U-238 (Bi-214)
	4.05	pCi/g	Th-232 (Ac-228)

IL = Investigation Level

WRS Test Results

Survey Unit 9

Rail Scale Systematic Soil Samples

MARRSIM Class 1

Survey Unit 9 - Surface Soil - Weighted Th and U					
	Data	**Area**	**Adjusted Data**	**Ranks**	**RA Ranks**
1	1.21	R	2.21	64	*64*
2	1.08	R	2.08	57.5	*57.5*
3	1.20	R	2.20	63	*63*
4	0.97	R	1.97	49	*49*
5	0.97	R	1.97	50	*50*
6	1.02	R	2.02	52	*52*
7	0.86	R	1.86	40	*40*
8	0.84	R	1.84	37	*37*
9	0.90	R	1.90	46	*46*
10	0.79	R	1.79	33	*33*
11	1.08	R	2.08	57.5	*57.5*
12	0.82	R	1.82	36	*36*
13	0.93	R	1.93	48	*48*
14	0.89	R	1.89	44	*44*
15	0.89	R	1.89	43	*43*
16	1.03	R	2.03	54	*54*
17	0.86	R	1.86	39	*39*
18	0.81	R	1.81	35	*35*
19	0.89	R	1.89	45	*45*
20	0.80	R	1.80	34	*34*
21	1.07	R	2.07	55	*55*
22	1.11	R	2.11	59	*59*
23	1.08	R	2.08	56	*56*
24	1.13	R	2.13	61	*61*
25	1.20	R	2.20	62	*62*
26	1.03	R	2.03	53	*53*
27	0.86	R	1.86	41	*41*
28	1.13	R	2.13	60	*60*
29	0.89	R	1.89	42	*42*
30	0.84	R	1.84	38	*38*
31	0.92	R	1.92	47	*47*
32	1.00	R	2.00	51	*51*

Survey Unit 9 - Surface Soil - Weighted Th and U					
	Data	**Area**	**Adjusted Data**	**Ranks**	**RA Ranks**
1	1.14	R	2.14	62	*62*
2	1.08	R	2.08	60	*60*
3	1.02	R	2.02	54	*54*
4	0.97	R	1.97	44	*44*
5	1.01	R	2.01	52	*52*
6	1.01	R	2.01	53	*53*
7	0.98	R	1.98	48	*48*
8	0.96	R	1.96	43	*43*
9	1.00	R	2.00	51	*51*
10	1.18	R	2.18	64	*64*
11	0.94	R	1.94	42	*42*
12	0.92	R	1.92	40	*40*
13	0.93	R	1.93	41	*41*
14	0.91	R	1.91	38	*38*
15	0.85	R	1.85	34	*34*
16	0.87	R	1.87	35	*35*
17	1.03	R	2.03	57	*57*
18	0.99	R	1.99	49	*49*
19	0.89	R	1.89	36	*36*
20	0.92	R	1.92	39	*39*
21	1.03	R	2.03	56	*56*
22	0.85	R	1.85	33	*33*
23	0.98	R	1.98	46	*46*
24	1.09	R	2.09	61	*61*
25	1.07	R	2.07	59	*59*
26	1.00	R	2.00	50	*50*
27	1.15	R	2.15	63	*63*
28	0.97	R	1.97	45	*45*
29	1.05	R	2.05	58	*58*
30	0.90	R	1.90	37	*37*
31	0.98	R	1.98	47	*47*
32	1.03	R	2.03	55	*55*

WRS Test Results

Survey Unit 9

Rail Scale Systematic Soil Samples

MARRSIM Class 1

Survey Unit 9 - Surface Soil - Weighted Th and U					
	Data	**Area**	**Adjusted Data**	**Ranks**	**RA Ranks**
1	0.32	S	0.32	*11*	
2	0.35	S	0.35	*16*	
3	0.26	S	0.26	*3*	
4	0.26	S	0.26	*4*	
5	0.51	S	0.51	*26*	
6	0.29	S	0.29	*6*	
7	0.31	S	0.31	*9*	
8	0.28	S	0.28	*5*	
9	0.33	S	0.33	*14*	
10	0.54	S	0.54	*28*	
11	0.35	S	0.35	*15*	
12	0.54	S	0.54	*27*	
13	0.39	S	0.39	*20*	
14	0.44	S	0.44	*22*	
15	0.56	S	0.56	*29*	
16	0.32	S	0.32	*12*	
17	0.36	S	0.36	*17*	
18	0.91	S	0.91	*31*	
19	1.09	S	1.09	*32*	
20	0.46	S	0.46	*24*	
21	0.32	S	0.32	*13*	
22	0.46	S	0.46	*25*	
23	0.15	S	0.15	*2*	
24	0.06	S	0.06	*1*	
25	0.31	S	0.31	*10*	
26	0.31	S	0.31	*8*	
27	0.44	S	0.44	*21*	
28	0.44	S	0.44	*23*	
29	0.36	S	0.36	*18*	
30	0.56	S	0.56	*30*	
31	0.37	S	0.37	*19*	
32	0.30	S	0.30	*7*	
			Sum	528	**1552**

Survey Unit 9 - Surface Soil - Weighted Th and U					
	Data	**Area**	**Adjusted Data**	**Ranks**	**RA Ranks**
1	0.20	S	*0.20*	1	
2	0.25	S	*0.25*	4	
3	0.39	S	*0.39*	22	
4	0.22	S	*0.22*	2	
5	0.30	S	*0.30*	13	
6	0.35	S	*0.35*	19	
7	0.31	S	*0.31*	15	
8	0.23	S	*0.23*	3	
9	0.27	S	*0.27*	8	
10	0.39	S	*0.39*	23	
11	0.38	S	*0.38*	21	
12	0.29	S	*0.29*	10	
13	0.29	S	*0.29*	11	
14	0.32	S	*0.32*	16	
15	0.31	S	*0.31*	14	
16	0.29	S	*0.29*	9	
17	0.80	S	*0.80*	30	
18	1.05	S	*1.05*	32	
19	0.92	S	*0.92*	31	
20	0.46	S	*0.46*	26	
21	0.36	S	*0.36*	20	
22	0.44	S	*0.44*	25	
23	0.48	S	*0.48*	27	
24	0.26	S	*0.26*	6	
25	0.33	S	*0.33*	17	
26	0.34	S	*0.34*	18	
27	0.40	S	*0.40*	24	
28	0.30	S	*0.30*	12	
29	0.51	S	*0.51*	29	
30	0.50	S	*0.50*	28	
31	0.26	S	*0.26*	7	
32	0.25	S	*0.25*	5	
			Sum	528	**1552**

Critical Value (NUREG-1505, Table A.4 Equation) = **1162**

Reference area ranks greater than critical value?	**Yes**	Reference area ranks greater than critical value?	**Yes**
Null hypotheses accepted or rejected?	**Rejected**	Null hypotheses accepted or rejected?	**Rejected**
Does survey unit meet release criterion?	***Yes***	Survey unit meet release criterion?	***Yes***

Survey Unit 10

Outdoor Shrinkwrap Area Systematic Soil Sample Data

MARSSIM Class 3

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U fraction	Th fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
SU SW 1 SS	1.36	1.77	0.97	0.53	0.00	0.23	0.00	0.23	0.45	0.24	0.69	0.53	-0.14	0.77	0.39	1.16
SU SW 2 SS	1.02	1.33	1.28	0.09	0.17	0.04	0.07	0.11	0.34	0.32	0.65	0.09	0.17	0.58	0.51	1.09
SU SW 3 SS	1.12	1.46	1.06	0.22	0.00	0.10	0.00	0.10	0.37	0.26	0.63	0.22	-0.05	0.63	0.42	1.06
SU SW 4 SS	0.93	1.21	1.09	0.00	0.00	0.00	0.00	0.00	0.31	0.27	0.57	-0.03	-0.02	0.53	0.44	0.96
SU SW 5 SS	0.86	1.12	0.87	0.00	0.00	0.00	0.00	0.00	0.28	0.21	0.50	-0.12	-0.24	0.49	0.35	0.83
SU SW 6 SS	1.00	1.30	0.92	0.06	0.00	0.03	0.00	0.03	0.33	0.23	0.56	0.06	-0.19	0.57	0.37	0.93
SU SW 7 SS	1.12	1.46	0.83	0.22	0.00	0.10	0.00	0.10	0.37	0.20	0.57	0.22	-0.28	0.63	0.33	0.97
SU SW 8 SS	1.28	1.66	0.66	0.43	0.00	0.19	0.00	0.19	0.42	0.16	0.58	0.43	-0.45	0.72	0.26	0.99
SU SW 9 SS	0.21	0.27	0.22	0.00	0.00	0.00	0.00	0.00	0.07	0.05	0.12	-0.96	-0.89	0.12	0.09	0.21
SU SW 10 SS	0.83	1.08	0.43	0.00	0.00	0.00	0.00	0.00	0.27	0.11	0.38	-0.16	-0.68	0.47	0.17	0.64
SU SW 11 SS	1.27	1.65	1.05	0.42	0.00	0.18	0.00	0.18	0.42	0.26	0.68	0.42	-0.06	0.72	0.42	1.14
SU SW 12 SS	0.54	0.70	0.10	0.00	0.00	0.00	0.00	0.00	0.18	0.02	0.20	-0.53	-1.01	0.31	0.04	0.35
SU SW 13 SS	1.03	1.34	0.95	0.10	0.00	0.04	0.00	0.04	0.34	0.23	0.57	0.10	-0.16	0.58	0.38	0.96
SU SW 14 SS	1.20	1.56	0.95	0.32	0.00	0.14	0.00	0.14	0.39	0.23	0.63	0.32	-0.16	0.68	0.38	1.06
SU SW 15 SS	1.19	1.55	0.91	0.31	0.00	0.14	0.00	0.14	0.39	0.22	0.62	0.31	-0.20	0.67	0.36	1.04
SU SW 16 SS	1.14	1.48	1.03	0.25	0.00	0.11	0.00	0.11	0.38	0.25	0.63	0.25	-0.08	0.64	0.41	1.06
SU SW 17 SS	0.29	0.38	0.08	0.00	0.00	0.00	0.00	0.00	0.10	0.02	0.12	-0.86	-1.03	0.16	0.03	0.20
SU SW 18 SS	0.30	0.39	0.11	0.00	0.00	0.00	0.00	0.00	0.10	0.03	0.13	-0.85	-1.00	0.17	0.04	0.21
SU SW 19 SS	0.22	0.29	-0.03	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07	-0.95	-1.14	0.12	-0.01	0.12
SU SW 20 SS	0.35	0.46	-0.05	0.00	0.00	0.00	0.00	0.00	0.12	-0.01	0.10	-0.78	-1.16	0.20	-0.02	0.20
SU SW 21 SS	0.34	0.44	0.11	0.00	0.00	0.00	0.00	0.00	0.11	0.03	0.14	-0.79	-1.00	0.19	0.04	0.24
SU SW 22 SS	0.47	0.61	0.48	0.00	0.00	0.00	0.00	0.00	0.15	0.12	0.27	-0.62	-0.63	0.27	0.19	0.46
SU SW 23 SS	0.26	0.34	-0.01	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.08	-0.90	-1.12	0.15	0.00	0.14
SU SW 24 SS	0.25	0.33	0.14	0.00	0.00	0.00	0.00	0.00	0.08	0.03	0.12	-0.91	-0.97	0.14	0.06	0.20
SU SW 25 SS	0.23	0.30	0.16	0.00	0.00	0.00	0.00	0.00	0.08	0.04	0.12	-0.94	-0.95	0.13	0.06	0.19
SU SW 26 SS	0.23	0.30	0.09	0.00	0.00	0.00	0.00	0.00	0.08	0.02	0.10	-0.94	-1.02	0.13	0.04	0.17
SU SW 27 SS	0.39	0.51	0.19	0.00	0.00	0.00	0.00	0.00	0.13	0.05	0.18	-0.73	-0.92	0.22	0.08	0.30
SU SW 28 SS	0.23	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.08	-0.94	-1.11	0.13	0.00	0.13
SU SW 29 SS	0.24	0.31	0.12	0.00	0.00	0.00	0.00	0.00	0.08	0.03	0.11	-0.92	-0.99	0.14	0.05	0.18
SU SW 30 SS	0.27	0.35	0.12	0.00	0.00	0.00	0.00	0.00	0.09	0.03	0.12	-0.88	-0.99	0.15	0.05	0.20
SU SW 31 SS	0.36	0.47	-0.23	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.12	-0.77	-1.34	0.20	-0.09	0.20
SU SW 32 SS	0.19	0.25	0.21	0.00	0.00	0.00	0.00	0.00	0.06	0.05	0.11	-0.99	-0.90	0.11	0.08	0.19
	Mean	**0.84**	**0.46**									**-0.39**	**-0.65**			**0.55**
	Median	**0.56**	**0.22**									**-0.68**	**-0.89**			**0.32**
	Standard Dev.	**0.55**	**0.45**									**0.55**	**0.45**			**0.40**
	Max	**1.77**	**1.28**									**0.53**	**0.17**			**1.16**
	Min	**0.25**	**-0.23**									**-0.99**	**-1.34**			**0.12**

Soil Bkg.	1.24	pCi/g	U-238 (Bi-214)
	1.11	pCi/g	Th-232 (Ac-228)
Soil IL	3.95	pCi/g	U-238 (Bi-214)
	4.05	pCi/g	Th-232 (Ac-228)

IL = Investigation Level

WRS Test Results

Survey Unit 10

Outdoor Shrinkwrap Area Systematic Soil Samples

MARSSIM Class 3

Survey Unit 10 - Surface Soil - Wtd Th and U					
	Data	**Area**	**Adjusted Data**	**Ranks**	**RA Ranks**
1	1.21	R	2.21	64	*64*
2	1.08	R	2.08	57.5	*57.5*
3	1.20	R	2.20	63	*63*
4	0.97	R	1.97	49	*49*
5	0.97	R	1.97	50	*50*
6	1.02	R	2.02	52	*52*
7	0.86	R	1.86	40	*40*
8	0.84	R	1.84	37	*37*
9	0.90	R	1.90	46	*46*
10	0.79	R	1.79	33	*33*
11	1.08	R	2.08	57.5	*57.5*
12	0.82	R	1.82	36	*36*
13	0.93	R	1.93	48	*48*
14	0.89	R	1.89	44	*44*
15	0.89	R	1.89	43	*43*
16	1.03	R	2.03	54	*54*
17	0.86	R	1.86	39	*39*
18	0.81	R	1.81	35	*35*
19	0.89	R	1.89	45	*45*
20	0.80	R	1.80	34	*34*
21	1.07	R	2.07	55	*55*
22	1.11	R	2.11	59	*59*
23	1.08	R	2.08	56	*56*
24	1.13	R	2.13	61	*61*
25	1.20	R	2.20	62	*62*
26	1.03	R	2.03	53	*53*
27	0.86	R	1.86	41	*41*
28	1.13	R	2.13	60	*60*
29	0.89	R	1.89	42	*42*
30	0.84	R	1.84	38	*38*
31	0.92	R	1.92	47	*47*
32	1.00	R	2.00	51	*51*

WRS Test Results

Survey Unit 10

Outdoor Shrinkwrap Area Systematic Soil Samples

MARSSIM Class 3

Survey Unit 10 - Surface Soil - Wtd Th and U					
	Data	**Area**	**Adjusted Data**	**Ranks**	**RA Ranks**
1	1.16	S	1.16	*32*	
2	1.09	S	1.09	*30*	
3	1.06	S	1.06	*28*	
4	0.96	S	0.96	*22*	
5	0.83	S	0.83	*20*	
6	0.93	S	0.93	*21*	
7	0.97	S	0.97	*24*	
8	0.99	S	0.99	*25*	
9	0.21	S	0.21	*13*	
10	0.64	S	0.64	*19*	
11	1.14	S	1.14	*31*	
12	0.35	S	0.35	*17*	
13	0.96	S	0.96	*23*	
14	1.06	S	1.06	*29*	
15	1.04	S	1.04	*26*	
16	1.06	S	1.06	*27*	
17	0.20	S	0.20	*8*	
18	0.21	S	0.21	*14*	
19	0.12	S	0.12	*1*	
20	0.20	S	0.20	*10*	
21	0.24	S	0.24	*15*	
22	0.46	S	0.46	*18*	
23	0.14	S	0.14	*3*	
24	0.20	S	0.20	*9*	
25	0.19	S	0.19	*7*	
26	0.17	S	0.17	*4*	
27	0.30	S	0.30	*16*	
28	0.13	S	0.13	*2*	
29	0.18	S	0.18	*5*	
30	0.20	S	0.20	*11*	
31	0.20	S	0.20	*12*	
32	0.19	S	0.19	*6*	
			Sum	528	**1552**

Critical Value (NUREG-1505, Table A.4 Equation) = **1162**

Reference area ranks greater than critical value?	**Yes**
Null hypotheses accepted or rejected?	**Rejected**
Does survey unit meet release criterion?	***Yes***

Survey Unit 11

Storage and Transport Area South Systematic Soil Sample Data

MARSSIM Class 3

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U fraction	Th fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
SU ST S 1 SS	0.85	1.11	0.81	0.00	0.00	0.00	0.00	0.00	0.28	0.20	0.48	-0.13	-0.30	0.48	0.32	0.80
SU ST S 2 SS	0.93	1.21	0.90	0.00	0.00	0.00	0.00	0.00	0.31	0.22	0.53	-0.03	-0.21	0.53	0.36	0.89
SU ST S 3 SS	0.91	1.18	0.85	0.00	0.00	0.00	0.00	0.00	0.30	0.21	0.51	-0.05	-0.26	0.51	0.34	0.85
SU ST S 4 SS	0.84	1.09	0.76	0.00	0.00	0.00	0.00	0.00	0.28	0.19	0.46	-0.14	-0.35	0.47	0.30	0.78
SU ST S 5 SS	1.00	1.30	0.96	0.06	0.00	0.03	0.00	0.03	0.33	0.24	0.57	0.06	-0.15	0.57	0.38	0.95
SU ST S 6 SS	0.87	1.13	0.79	0.00	0.00	0.00	0.00	0.00	0.29	0.19	0.48	-0.10	-0.32	0.49	0.32	0.81
SU ST S 7 SS	0.91	1.18	0.66	0.00	0.00	0.00	0.00	0.00	0.30	0.16	0.46	-0.05	-0.45	0.51	0.26	0.78
SU ST S 8 SS	1.17	1.52	1.12	0.29	0.01	0.12	0.00	0.13	0.39	0.28	0.66	0.29	0.01	0.66	0.45	1.11
SU ST S 9 SS	1.03	1.34	0.81	0.10	0.00	0.04	0.00	0.04	0.34	0.20	0.54	0.10	-0.30	0.58	0.32	0.91
SU ST S 10 SS	1.05	1.37	1.15	0.13	0.04	0.06	0.02	0.07	0.35	0.28	0.63	0.13	0.04	0.59	0.46	1.05
SU ST S 11 SS	1.11	1.44	1.12	0.21	0.01	0.09	0.00	0.09	0.37	0.28	0.64	0.21	0.01	0.63	0.45	1.08
SU ST S 12 SS	1.08	1.40	1.10	0.17	0.00	0.07	0.00	0.07	0.36	0.27	0.63	0.17	-0.01	0.61	0.44	1.05
SU ST S 13 SS	1.01	1.31	0.96	0.08	0.00	0.03	0.00	0.03	0.33	0.24	0.57	0.08	-0.15	0.57	0.38	0.95
SU ST S 14 SS	1.11	1.44	1.13	0.21	0.02	0.09	0.01	0.10	0.37	0.28	0.64	0.21	0.02	0.63	0.45	1.08
SU ST S 15 SS	1.00	1.30	1.22	0.06	0.11	0.03	0.04	0.07	0.33	0.30	0.63	0.06	0.11	0.57	0.49	1.05
SU ST S 16 SS	0.79	1.03	0.70	0.00	0.00	0.00	0.00	0.00	0.26	0.17	0.43	-0.21	-0.41	0.45	0.28	0.73
SU ST S 17 SS	0.41	0.53	0.23	0.00	0.00	0.00	0.00	0.00	0.13	0.06	0.19	-0.70	-0.88	0.23	0.09	0.32
SU ST S 18 SS	0.35	0.46	0.11	0.00	0.00	0.00	0.00	0.00	0.12	0.03	0.14	-0.78	-1.00	0.20	0.04	0.24
SU ST S 19 SS	1.15	1.50	0.59	0.26	0.00	0.11	0.00	0.11	0.38	0.15	0.52	0.26	-0.52	0.65	0.24	0.89
SU ST S 20 SS	1.25	1.63	0.44	0.39	0.00	0.17	0.00	0.17	0.41	0.11	0.52	0.39	-0.67	0.71	0.18	0.88
SU ST S 21 SS	1.38	1.79	1.00	0.56	0.00	0.24	0.00	0.24	0.45	0.25	0.70	0.56	-0.11	0.78	0.40	1.18
SU ST S 22 SS	0.76	0.99	0.31	0.00	0.00	0.00	0.00	0.00	0.25	0.08	0.33	-0.24	-0.80	0.43	0.12	0.56
SU ST S 23 SS	0.54	0.70	0.12	0.00	0.00	0.00	0.00	0.00	0.18	0.03	0.21	-0.53	-0.99	0.31	0.05	0.35
SU ST S 24 SS	0.41	0.53	0.05	0.00	0.00	0.00	0.00	0.00	0.14	0.01	0.15	-0.70	-1.06	0.23	0.02	0.25
SU ST S 25 SS	0.71	0.92	0.43	0.00	0.00	0.00	0.00	0.00	0.23	0.11	0.34	-0.31	-0.68	0.40	0.17	0.57
SU ST S 26 SS	0.95	1.24	0.67	0.00	0.00	0.00	0.00	0.00	0.31	0.17	0.48	0.00	-0.44	0.54	0.27	0.80
SU ST S 27 SS	1.48	1.92	1.03	0.69	0.00	0.30	0.00	0.30	0.49	0.25	0.74	0.69	-0.08	0.84	0.41	1.25
SU ST S 28 SS	1.55	2.02	0.81	0.78	0.00	0.34	0.00	0.34	0.51	0.20	0.71	0.78	-0.30	0.88	0.32	1.20
SU ST S 29 SS	0.93	1.21	0.74	0.00	0.00	0.00	0.00	0.00	0.31	0.18	0.49	-0.03	-0.37	0.53	0.30	0.82
SU ST S 30 SS	1.13	1.47	0.71	0.23	0.00	0.10	0.00	0.10	0.37	0.18	0.55	0.23	-0.40	0.64	0.28	0.92
SU ST S 31 SS	1.13	1.47	0.89	0.23	0.00	0.10	0.00	0.10	0.37	0.22	0.59	0.23	-0.22	0.64	0.36	0.99
SU ST S 32 SS	1.46	1.90	0.93	0.66	0.00	0.29	0.00	0.29	0.48	0.23	0.71	0.66	-0.18	0.83	0.37	1.20
	Mean	**1.27**	**0.75**									**0.03**	**-0.36**			**0.85**
	Median	**1.30**	**0.81**									**0.06**	**-0.30**			**0.89**
	Standard Dev.	**0.38**	**0.32**									**0.38**	**0.32**			**0.27**
	Max	**2.02**	**1.22**									**0.78**	**0.11**			**1.25**
	Min	**0.46**	**0.05**									**-0.78**	**-1.06**			**0.24**

Soil Bkg.	1.24	pCi/g	U-238 (Bi-214)
	1.11	pCi/g	Th-232 (Ac-228)
Soil IL	3.95	pCi/g	U-238 (Bi-214)
	4.05	pCi/g	Th-232 (Ac-228)

IL = Investigation Level

WRS Test Results

Survey Unit 11

Storage and Transport Area South Systematic Soil Samples

MARSSIM Class 3

Survey Unit 11 - Surface Soil - Weighted Th and U					
	Data	**Area**	**Adjusted Data**	**Ranks**	**RA Ranks**
1	1.21	R	2.21	64	*64*
2	1.08	R	2.08	57.5	*57.5*
3	1.20	R	2.20	63	*63*
4	0.97	R	1.97	49	*49*
5	0.97	R	1.97	50	*50*
6	1.02	R	2.02	52	*52*
7	0.86	R	1.86	40	*40*
8	0.84	R	1.84	37	*37*
9	0.90	R	1.90	46	*46*
10	0.79	R	1.79	33	*33*
11	1.08	R	2.08	57.5	*57.5*
12	0.82	R	1.82	36	*36*
13	0.93	R	1.93	48	*48*
14	0.89	R	1.89	44	*44*
15	0.89	R	1.89	43	*43*
16	1.03	R	2.03	54	*54*
17	0.86	R	1.86	39	*39*
18	0.81	R	1.81	35	*35*
19	0.89	R	1.89	45	*45*
20	0.80	R	1.80	34	*34*
21	1.07	R	2.07	55	*55*
22	1.11	R	2.11	59	*59*
23	1.08	R	2.08	56	*56*
24	1.13	R	2.13	61	*61*
25	1.20	R	2.20	62	*62*
26	1.03	R	2.03	53	*53*
27	0.86	R	1.86	41	*41*
28	1.13	R	2.13	60	*60*
29	0.89	R	1.89	42	*42*
30	0.84	R	1.84	38	*38*
31	0.92	R	1.92	47	*47*
32	1.00	R	2.00	51	*51*

WRS Test Results

Survey Unit 11

Storage and Transport Area South Systematic Soil Samples

MARSSIM Class 3

Survey Unit 11 - Surface Soil - Weighted Th and U					
	Data	**Area**	**Adjusted Data**	**Ranks**	**RA Ranks**
1	0.80	S	0.80	*10*	
2	0.89	S	0.89	*16*	
3	0.85	S	0.85	*14*	
4	0.78	S	0.78	*9*	
5	0.95	S	0.95	*20*	
6	0.81	S	0.81	*12*	
7	0.78	S	0.78	*8*	
8	1.11	S	1.11	*28*	
9	0.91	S	0.91	*18*	
10	1.05	S	1.05	*25*	
11	1.08	S	1.08	*26*	
12	1.05	S	1.05	*23*	
13	0.95	S	0.95	*21*	
14	1.08	S	1.08	*27*	
15	1.05	S	1.05	*24*	
16	0.73	S	0.73	*7*	
17	0.32	S	0.32	*3*	
18	0.24	S	0.24	*1*	
19	0.89	S	0.89	*17*	
20	0.88	S	0.88	*15*	
21	1.18	S	1.18	*29*	
22	0.56	S	0.56	*5*	
23	0.35	S	0.35	*4*	
24	0.25	S	0.25	*2*	
25	0.57	S	0.57	*6*	
26	0.80	S	0.80	*11*	
27	1.25	S	1.25	*32*	
28	1.20	S	1.20	*31*	
29	0.82	S	0.82	*13*	
30	0.92	S	0.92	*19*	
31	0.99	S	0.99	*22*	
32	1.20	S	1.20	*30*	
			Sum	528	**1552**

Critical Value (NUREG-1505, Table A.4 Equation) = **1162**

Reference area ranks greater than critical value?	**Yes**
Null hypotheses accepted or rejected?	**Rejected**
Does survey unit meet release criterion?	***Yes***

Survey Unit 12

Storage and Transport Area West Systematic Soil Sample Data

MARSSIM Class 3

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U fraction	Th fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
SU ST N 1 SS	0.95	1.24	0.80	0.00	0.00	0.00	0.00	0.00	0.31	0.20	0.51	0.00	-0.31	0.54	0.32	0.86
SU ST N 2 SS	1.29	1.68	0.99	0.44	0.00	0.19	0.00	0.19	0.42	0.24	0.67	0.44	-0.12	0.73	0.40	1.13
SU ST N 3 SS	1.02	1.33	1.06	0.09	0.00	0.04	0.00	0.04	0.34	0.26	0.60	0.09	-0.05	0.58	0.42	1.00
SU ST N 4 SS	1.48	1.92	0.95	0.69	0.00	0.30	0.00	0.30	0.49	0.23	0.72	0.69	-0.16	0.84	0.38	1.22
SU ST N 5 SS	1.43	1.86	0.90	0.62	0.00	0.27	0.00	0.27	0.47	0.22	0.69	0.62	-0.21	0.81	0.36	1.17
SU ST N 6 SS	1.09	1.42	1.08	0.18	0.00	0.08	0.00	0.08	0.36	0.27	0.63	0.18	-0.03	0.62	0.43	1.05
SU ST N 7 SS	0.78	1.01	0.51	0.00	0.00	0.00	0.00	0.00	0.26	0.13	0.38	-0.22	-0.60	0.44	0.20	0.64
SU ST N 8 SS	1.14	1.48	0.78	0.25	0.00	0.11	0.00	0.11	0.38	0.19	0.57	0.25	-0.33	0.64	0.31	0.96
SU ST N 9 SS	1.17	1.52	1.12	0.29	0.01	0.12	0.00	0.13	0.39	0.28	0.66	0.29	0.01	0.66	0.45	1.11
SU ST N 10 SS	1.16	1.51	1.20	0.27	0.09	0.12	0.04	0.15	0.38	0.30	0.68	0.27	0.09	0.66	0.48	1.14
SU ST N 11 SS	1.23	1.60	1.24	0.36	0.13	0.16	0.05	0.21	0.40	0.31	0.71	0.36	0.13	0.70	0.50	1.19
SU ST N 12 SS	1.25	1.63	0.99	0.39	0.00	0.17	0.00	0.17	0.41	0.24	0.66	0.39	-0.12	0.71	0.40	1.10
SU ST N 13 SS	1.44	1.87	1.16	0.64	0.05	0.28	0.02	0.30	0.47	0.29	0.76	0.64	0.05	0.81	0.46	1.28
SU ST N 14 SS	1.13	1.47	1.07	0.23	0.00	0.10	0.00	0.10	0.37	0.26	0.64	0.23	-0.04	0.64	0.43	1.07
SU ST N 15 SS	1.19	1.55	1.14	0.31	0.03	0.14	0.01	0.15	0.39	0.28	0.67	0.31	0.03	0.67	0.46	1.13
SU ST N 16 SS	0.85	1.11	0.64	0.00	0.00	0.00	0.00	0.00	0.28	0.16	0.44	-0.13	-0.47	0.48	0.26	0.74
SU ST N 17 SS	1.36	1.77	0.91	0.53	0.00	0.23	0.00	0.23	0.45	0.22	0.67	0.53	-0.20	0.77	0.36	1.13
SU ST N 18 SS	1.25	1.63	0.78	0.39	0.00	0.17	0.00	0.17	0.41	0.19	0.60	0.39	-0.33	0.71	0.31	1.02
SU ST N 19 SS	1.40	1.82	1.09	0.58	0.00	0.25	0.00	0.25	0.46	0.27	0.73	0.58	-0.02	0.79	0.44	1.23
SU ST N 20 SS	1.60	2.08	1.02	0.84	0.00	0.37	0.00	0.37	0.53	0.25	0.78	0.84	-0.09	0.90	0.41	1.31
SU ST N 21 SS	1.20	1.56	1.09	0.33	0.00	0.14	0.00	0.14	0.40	0.27	0.66	0.33	-0.02	0.68	0.44	1.12
SU ST N 22 SS	1.42	1.85	1.18	0.61	0.07	0.27	0.03	0.29	0.47	0.29	0.76	0.61	0.07	0.80	0.47	1.27
SU ST N 23 SS	0.93	1.21	1.34	0.00	0.23	0.00	0.09	0.09	0.31	0.33	0.64	-0.03	0.23	0.53	0.54	1.06
SU ST N 24 SS	0.63	0.82	0.36	0.00	0.00	0.00	0.00	0.00	0.21	0.09	0.30	-0.42	-0.75	0.36	0.14	0.50
SU ST N 25 SS	0.68	0.88	0.64	0.00	0.00	0.00	0.00	0.00	0.22	0.16	0.38	-0.35	-0.47	0.38	0.25	0.64
SU ST N 26 SS	1.25	1.63	0.89	0.39	0.00	0.17	0.00	0.17	0.41	0.22	0.63	0.39	-0.22	0.71	0.36	1.06
SU ST N 27 SS	1.23	1.60	1.11	0.36	0.00	0.16	0.00	0.16	0.41	0.27	0.68	0.36	0.00	0.70	0.44	1.14
SU ST N 28 SS	1.12	1.46	1.22	0.22	0.11	0.10	0.04	0.14	0.37	0.30	0.67	0.22	0.11	0.63	0.49	1.12
SU ST N 29 SS	1.16	1.51	0.95	0.27	0.00	0.12	0.00	0.12	0.38	0.23	0.62	0.27	-0.16	0.66	0.38	1.04
SU ST N 30 SS	1.18	1.53	0.90	0.30	0.00	0.13	0.00	0.13	0.39	0.22	0.61	0.30	-0.21	0.67	0.36	1.03
SU ST N 31 SS	1.38	1.79	1.21	0.56	0.10	0.24	0.04	0.28	0.45	0.30	0.75	0.56	0.10	0.78	0.48	1.26
SU ST N 32 SS	1.26	1.64	0.90	0.40	0.00	0.17	0.00	0.17	0.41	0.22	0.64	0.40	-0.21	0.71	0.36	1.07
	Mean	**1.53**	**0.98**									**0.29**	**-0.13**			**1.06**
	Median	**1.56**	**1.01**									**0.32**	**-0.10**			**1.11**
	Standard Dev.	**0.29**	**0.22**									**0.29**	**0.22**			**0.19**
	Max	**2.08**	**1.34**									**0.84**	**0.23**			**1.31**
	Min	**0.82**	**0.36**									**-0.42**	**-0.75**			**0.50**

Soil Bkg.	1.24	pCi/g	U-238 (Bi-214)
	1.11	pCi/g	Th-232 (Ac-228)
Soil IL	3.95	pCi/g	U-238 (Bi-214)
	4.05	pCi/g	Th-232 (Ac-228)

IL = Investigation Level

WRS Test Results

Survey Unit 12

Storage and Transport Area West Systematic Soil Samples

MARSSIM Class 3

Survey Unit 12 - Surface Soil - Weighted Th and U					
	Data	**Area**	**Adjusted Data**	**Ranks**	**RA Ranks**
1	1.21	R	2.21	64	*64*
2	1.08	R	2.08	57.5	*57.5*
3	1.20	R	2.20	63	*63*
4	0.97	R	1.97	49	*49*
5	0.97	R	1.97	50	*50*
6	1.02	R	2.02	52	*52*
7	0.86	R	1.86	40	*40*
8	0.84	R	1.84	37	*37*
9	0.90	R	1.90	46	*46*
10	0.79	R	1.79	33	*33*
11	1.08	R	2.08	57.5	*57.5*
12	0.82	R	1.82	36	*36*
13	0.93	R	1.93	48	*48*
14	0.89	R	1.89	44	*44*
15	0.89	R	1.89	43	*43*
16	1.03	R	2.03	54	*54*
17	0.86	R	1.86	39	*39*
18	0.81	R	1.81	35	*35*
19	0.89	R	1.89	45	*45*
20	0.80	R	1.80	34	*34*
21	1.07	R	2.07	55	*55*
22	1.11	R	2.11	59	*59*
23	1.08	R	2.08	56	*56*
24	1.13	R	2.13	61	*61*
25	1.20	R	2.20	62	*62*
26	1.03	R	2.03	53	*53*
27	0.86	R	1.86	41	*41*
28	1.13	R	2.13	60	*60*
29	0.89	R	1.89	42	*42*
30	0.84	R	1.84	38	*38*
31	0.92	R	1.92	47	*47*
32	1.00	R	2.00	51	*51*

WRS Test Results

Survey Unit 12

Storage and Transport Area West Systematic Soil Samples

MARSSIM Class 3

Survey Unit 12 - Surface Soil - Weighted Th and U					
	Data	**Area**	**Adjusted Data**	**Ranks**	**RA Ranks**
1	0.86	S	0.86	*5*	
2	1.13	S	1.13	*20*	
3	1.00	S	1.00	*7*	
4	1.22	S	1.22	*27*	
5	1.17	S	1.17	*25*	
6	1.05	S	1.05	*11*	
7	0.64	S	0.64	*3*	
8	0.96	S	0.96	*6*	
9	1.11	S	1.11	*17*	
10	1.14	S	1.14	*23*	
11	1.19	S	1.19	*26*	
12	1.10	S	1.10	*16*	
13	1.28	S	1.28	*31*	
14	1.07	S	1.07	*14*	
15	1.13	S	1.13	*21*	
16	0.74	S	0.74	*4*	
17	1.13	S	1.13	*22*	
18	1.02	S	1.02	*8*	
19	1.23	S	1.23	*28*	
20	1.31	S	1.31	*32*	
21	1.12	S	1.12	*18*	
22	1.27	S	1.27	*30*	
23	1.06	S	1.06	*12*	
24	0.50	S	0.50	*1*	
25	0.64	S	0.64	*2*	
26	1.06	S	1.06	*13*	
27	1.14	S	1.14	*24*	
28	1.12	S	1.12	*19*	
29	1.04	S	1.04	*10*	
30	1.03	S	1.03	*9*	
31	1.26	S	1.26	*29*	
32	1.07	S	1.07	*15*	
			Sum	528	**1552**

Critical Value (NUREG-1505, Table A.4 Equation) = **1162**

Reference area ranks greater than critical value?	**Yes**
Null hypotheses accepted or rejected?	**Rejected**
Does survey unit meet release criterion?	***Yes***

Survey Unit 210-2-6

Warehouse 210, Section 2, Soil Survey Unit - Systematic Surface Soil Sample Data

MARSSIM Class 1

	Analytical Results			Sum of Ratios					IL Sum of Ratios			Net Results		WRS Sum of Ratios		
Sample ID	Bi-214 Result (pCi/g)	Bi-214 Result (pCi/g) with 1.3 correction factor	Ac-228 Result (pCi/g)	U-net	Th-net	U DCGL fraction	Th DCGL fraction	SOR	U IL fraction	Th IL fraction	IL SOR	U-net	Th-net	U fraction	Th fraction	WRS SOR
210 2 SS 1	1.16	1.51	0.57	0.27	0.00	0.12	0.00	0.12	0.07	0.00	0.07	0.27	-0.54	0.66	0.23	0.88
210 2 SS 2	1.24	1.61	0.50	0.38	0.00	0.16	0.00	0.16	0.10	0.00	0.10	0.38	-0.61	0.70	0.20	0.90
210 2 SS 3	1.27	1.65	0.61	0.42	0.00	0.18	0.00	0.18	0.11	0.00	0.11	0.42	-0.50	0.72	0.24	0.96
210 2 SS 4	1.14	1.48	0.50	0.25	0.00	0.11	0.00	0.11	0.06	0.00	0.06	0.25	-0.61	0.64	0.20	0.84
210 2 SS 5	1.11	1.44	0.53	0.21	0.00	0.09	0.00	0.09	0.05	0.00	0.05	0.21	-0.58	0.63	0.21	0.84
210 2 SS 6	1.29	1.68	0.56	0.44	0.00	0.19	0.00	0.19	0.11	0.00	0.11	0.44	-0.55	0.73	0.22	0.95
210 2 SS 7	1.29	1.68	0.77	0.44	0.00	0.19	0.00	0.19	0.11	0.00	0.11	0.44	-0.34	0.73	0.31	1.04
210 2 SS 8	1.37	1.78	0.47	0.55	0.00	0.24	0.00	0.24	0.14	0.00	0.14	0.55	-0.64	0.77	0.19	0.96
210 2 SS 9	1.34	1.74	0.62	0.51	0.00	0.22	0.00	0.22	0.13	0.00	0.13	0.51	-0.49	0.76	0.25	1.01
210 2 SS 10	1.17	1.52	0.64	0.29	0.00	0.12	0.00	0.12	0.07	0.00	0.07	0.29	-0.47	0.66	0.26	0.92
210 2 SS 11	1.16	1.51	0.64	0.27	0.00	0.12	0.00	0.12	0.07	0.00	0.07	0.27	-0.47	0.66	0.26	0.91
210 2 SS 12	1.19	1.55	0.55	0.31	0.00	0.14	0.00	0.14	0.08	0.00	0.08	0.31	-0.56	0.67	0.22	0.89
210 2 SS 13	1.33	1.73	0.57	0.49	0.00	0.21	0.00	0.21	0.12	0.00	0.12	0.49	-0.54	0.75	0.23	0.98
210 2 SS 14	1.14	1.48	0.55	0.25	0.00	0.11	0.00	0.11	0.06	0.00	0.06	0.25	-0.56	0.64	0.22	0.86
210 2 SS 15	1.01	1.31	0.41	0.08	0.00	0.03	0.00	0.03	0.02	0.00	0.02	0.08	-0.70	0.57	0.16	0.73
210 2 SS 16	1.29	1.68	0.56	0.44	0.00	0.19	0.00	0.19	0.11	0.00	0.11	0.44	-0.55	0.73	0.22	0.95
210 2 SS 17	1.46	1.90	2.20	0.66	1.09	0.29	0.44	0.72	0.17	0.27	0.44	0.66	1.09	0.83	0.88	1.71
210 2 SS 18	1.13	1.47	0.45	0.23	0.00	0.10	0.00	0.10	0.06	0.00	0.06	0.23	-0.66	0.64	0.18	0.82
210 2 SS 19	1.27	1.65	0.66	0.42	0.00	0.18	0.00	0.18	0.11	0.00	0.11	0.42	-0.45	0.72	0.26	0.98
210 2 SS 20	1.22	1.59	0.60	0.35	0.00	0.15	0.00	0.15	0.09	0.00	0.09	0.35	-0.51	0.69	0.24	0.93
210 2 SS 21	1.33	1.73	0.64	0.49	0.00	0.21	0.00	0.21	0.12	0.00	0.12	0.49	-0.47	0.75	0.26	1.01
210 2 SS 22	1.24	1.61	0.54	0.38	0.00	0.16	0.00	0.16	0.10	0.00	0.10	0.38	-0.57	0.70	0.22	0.92
210 2 SS 23	1.15	1.50	0.56	0.26	0.00	0.11	0.00	0.11	0.07	0.00	0.07	0.26	-0.55	0.65	0.22	0.87
210 2 SS 24	1.33	1.73	0.63	0.49	0.00	0.21	0.00	0.21	0.12	0.00	0.12	0.49	-0.48	0.75	0.25	1.00
210 2 SS 25	1.24	1.61	0.57	0.38	0.00	0.16	0.00	0.16	0.10	0.00	0.10	0.38	-0.54	0.70	0.23	0.93
210 2 SS 26	1.28	1.66	0.49	0.43	0.00	0.19	0.00	0.19	0.11	0.00	0.11	0.43	-0.62	0.72	0.20	0.92
210 2 SS 27	1.53	1.99	0.68	0.75	0.00	0.33	0.00	0.33	0.19	0.00	0.19	0.75	-0.43	0.86	0.27	1.14
210 2 SS 28	1.39	1.81	0.50	0.57	0.00	0.25	0.00	0.25	0.14	0.00	0.14	0.57	-0.61	0.79	0.20	0.99
210 2 SS 29	1.18	1.53	0.85	0.30	0.00	0.13	0.00	0.13	0.08	0.00	0.08	0.30	-0.26	0.67	0.34	1.01
210 2 SS 30	1.31	1.70	0.61	0.47	0.00	0.20	0.00	0.20	0.12	0.00	0.12	0.47	-0.50	0.74	0.24	0.98
210 2 SS 31	1.43	1.86	0.61	0.62	0.00	0.27	0.00	0.27	0.16	0.00	0.16	0.62	-0.50	0.81	0.24	1.05
210 2 SS 32	1.31	1.70	0.57	0.47	0.00	0.20	0.00	0.20	0.12	0.00	0.12	0.47	-0.54	0.74	0.23	0.97
	Mean	**1.64**	**0.63**									**0.40**	**-0.48**			**0.96**
	Median	**1.65**	**0.57**									**0.42**	**-0.54**			**0.95**
	Standard Dev.	**0.14**	**0.30**									**0.14**	**0.30**			**0.16**
	Max	**1.99**	**2.20**									**0.75**	**1.09**			**1.71**
	Min	**1.31**	**0.41**									**0.08**	**-0.70**			**0.73**

Soil Bkg.	1.24	pCi/g	U-238 (Bi-214)
	1.11	pCi/g	Th-232 (Ac-228)
Soil IL	3.95	pCi/g	U-238 (Bi-214)
	4.05	pCi/g	Th-232 (Ac-228)

IL = Investigation Level

WRS Test Results

Survey Unit 210-2-6

Warehouse 210, Section 2, Soil Survey Unit - Systematic Surface Soil

MARSSIM Class 1

Survey Unit 210-2-6 Surface Soil - Weighted Th and U					
	Data	**Area**	**Adjusted Data**	**Ranks**	**RA Ranks**
1	1.21	R	2.21	64	*64*
2	1.08	R	2.08	57.5	*57.5*
3	1.20	R	2.20	63	*63*
4	0.97	R	1.97	49	*49*
5	0.97	R	1.97	50	*50*
6	1.02	R	2.02	52	*52*
7	0.86	R	1.86	40	*40*
8	0.84	R	1.84	37	*37*
9	0.90	R	1.90	46	*46*
10	0.79	R	1.79	33	*33*
11	1.08	R	2.08	57.5	*57.5*
12	0.82	R	1.82	36	*36*
13	0.93	R	1.93	48	*48*
14	0.89	R	1.89	44	*44*
15	0.89	R	1.89	43	*43*
16	1.03	R	2.03	54	*54*
17	0.86	R	1.86	39	*39*
18	0.81	R	1.81	35	*35*
19	0.89	R	1.89	45	*45*
20	0.80	R	1.80	34	*34*
21	1.07	R	2.07	55	*55*
22	1.11	R	2.11	59	*59*
23	1.08	R	2.08	56	*56*
24	1.13	R	2.13	61	*61*
25	1.20	R	2.20	62	*62*
26	1.03	R	2.03	53	*53*
27	0.86	R	1.86	41	*41*
28	1.13	R	2.13	60	*60*
29	0.89	R	1.89	42	*42*
30	0.84	R	1.84	38	*38*
31	0.92	R	1.92	47	*47*
32	1.00	R	2.00	51	*51*

WRS Test Results

Survey Unit 210-2-6

Warehouse 210, Section 2, Soil Survey Unit - Systematic Surface Soil

MARSSIM Class 1

Survey Unit 210-2-6 Surface Soil - Weighted Th and U					
	Data	**Area**	**Adjusted Data**	**Ranks**	**RA Ranks**
1	0.88	S	0.88	*7*	
2	0.90	S	0.90	*9*	
3	0.96	S	0.96	*18*	
4	0.84	S	0.84	*4*	
5	0.84	S	0.84	*3*	
6	0.95	S	0.95	*16.5*	
7	1.04	S	1.04	*29*	
8	0.96	S	0.96	*19*	
9	1.01	S	1.01	*26*	
10	0.92	S	0.92	*12*	
11	0.91	S	0.91	*10*	
12	0.89	S	0.89	*8*	
13	0.98	S	0.98	*21*	
14	0.86	S	0.86	*5*	
15	0.73	S	0.73	*1*	
16	0.95	S	0.95	*16.5*	
17	1.71	S	1.71	*32*	
18	0.82	S	0.82	*2*	
19	0.98	S	0.98	*22*	
20	0.93	S	0.93	*15*	
21	1.01	S	1.01	*28*	
22	0.92	S	0.92	*11*	
23	0.87	S	0.87	*6*	
24	1.00	S	1.00	*25*	
25	0.93	S	0.93	*14*	
26	0.92	S	0.92	*13*	
27	1.14	S	1.14	*31*	
28	0.99	S	0.99	*24*	
29	1.01	S	1.01	*27*	
30	0.98	S	0.98	*23*	
31	1.05	S	1.05	*30*	
32	0.97	S	0.97	*20*	
			Sum	528	**1552**

Critical Value (NUREG-1505, Table A.4 Equation) = **1162**

Reference area ranks greater than critical value?	**Yes**
Null hypotheses accepted or rejected?	**Rejected**
Does survey unit meet release criterion?	***Yes***

APPENDIX C

STRUCTURE DIRECT AND REMOVABLE ALPHA SURFACE ACTIVITY MEASUREMENT DATA AND SIGN TEST WORKSHEETS

New Haven Depot Final Status Survey
Structure Sign Test Results

Survey Unit 124-F

Survey Date:	11/14/2006
Building:	124
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	100

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	0.179	125
8	2224/43-68	116257	PR122018	0.187	126
9	2224/43-68	183048	PR161781	0.143	126
10	2360/43-37	184938	PR178371	0.133	582
11	2221/43-37	86286	PR178371	0.159	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
124-F-1	R	7	F	W	5	7.6	-2.6	-11.7	1
124-F-2	R	7	F	BC	8	10.8	-2.8	-12.5	1
124-F-3	R	7	F	BC	6	10.8	-4.8	-21.5	1
124-F-4	R	7	F	BC	9	10.8	-1.8	-8.1	1
124-F-5	R	7	F	BC	5	10.8	-5.8	-26.0	1
124-F-6	R	7	F	BC	8	10.8	-2.8	-12.5	1
124-F-7	R	7	F	BC	3	10.8	-7.8	-35.0	1
124-F-8	R	7	F	BC	3	10.8	-7.8	-35.0	1
124-F-9	R	7	F	BC	9	10.8	-1.8	-8.1	1
124-F-10	R	7	F	BC	6	10.8	-4.8	-21.5	1
124-F-11	R	7	F	BC	10	10.8	-0.8	-3.6	1
124-F-12	R	7	F	W	1	7.6	-6.6	-29.6	1
124-F-13	R	7	F	BC	5	10.8	-5.8	-26.0	1
124-F-14	R	7	F	BC	11	10.8	0.2	0.9	1
124-F-15	R	7	F	BC	9	10.8	-1.8	-8.1	1
124-F-16	R	7	F	BC	4	10.8	-6.8	-30.5	1
124-F-17	R	7	F	BC	5	10.8	-5.8	-26.0	1

Mean	**-18.5**	
Median	**-21.5**	
Minimum	**-35.0**	
Maximum	**0.9**	
Std Dev (1s)	**11.3**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 124-W

Structure Sign Test Results

Survey Date:	11/14/2006
Building:	124
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	100

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Lower Wall

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
124-W-1	R	7	W	W	4	7.6	-3.6	-16.1	1
124-W-2	R	7	W	W	4	7.6	-3.6	-16.1	1
124-W-3	R	7	W	W	7	7.6	-0.6	-2.7	1
124-W-4	R	7	W	W	4	7.6	-3.6	-16.1	1
124-W-5	R	7	W	W	5	7.6	-2.6	-11.7	1
124-W-6	R	7	W	W	3	7.6	-4.6	-20.6	1
124-W-7	R	7	W	W	3	7.6	-4.6	-20.6	1
124-W-8	R	7	W	W	4	7.6	-3.6	-16.1	1
124-W-9	R	7	W	W	6	7.6	-1.6	-7.2	1
124-W-10	R	7	W	W	8	7.6	0.4	1.8	1
124-W-11	R	7	W	W	5	7.6	-2.6	-11.7	1
124-W-12	R	7	W	W	3	7.6	-4.6	-20.6	1
124-W-13	R	7	W	W	8	7.6	0.4	1.8	1
124-W-14	R	7	W	W	4	7.6	-3.6	-16.1	1
124-W-15	R	7	W	W	6	7.6	-1.6	-7.2	1
124-W-16	R	7	W	W	4	7.6	-3.6	-16.1	1
124-W-17	R	7	W	W	6	7.6	-1.6	-7.2	1

Mean	**-11.9**	
Median	**-16.1**	
Minimum	**-20.6**	
Maximum	**1.8**	
Std Dev (1s)	**7.3**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Structure Sign Test Results

Survey Date:	6/28~29/2007
Building:	129A
MARSSIM Class:	2
SU DCGL$_w$ (dpm/100cm^2):	100

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min):	3.0
Daily BKGD Count Time (min):	10.0

SU Description: Floor, Wall

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
129A-1	S	5	F	CP	5	0.0	5.0	19.8	1
129A-2	S	5	F	L	2	3.4	-1.4	-5.6	1
129A-3	S	5	F	L	3	3.4	-0.4	-1.6	1
129A-4	S	5	F	L	2	3.4	-1.4	-5.6	1
129A-5	S	5	W4	DW	7	5.8	1.2	4.8	1
129A-6	S	5	W4	DW	4	5.8	-1.8	-7.1	1
129A-7	S	5	W3	DW	1	5.8	-4.8	-19.0	1
129A-8	S	5	W2	DW	5	5.8	-0.8	-3.2	1
129A-9	S	5	W2	DW	6	5.8	0.2	0.8	1
129A-10	S	5	W1	DW	1	5.8	-4.8	-19.0	1
129A-11	S	5	W4	DW	3	5.8	-2.8	-11.1	1
129A-12	S	5	W4	DW	2	5.8	-3.8	-15.1	1
129A-13	S	5	W3	DW	3	5.8	-2.8	-11.1	1
129A-14	S	5	W3	DW	4	5.8	-1.8	-7.1	1
129A-15	S	5	W2	DW	5	5.8	-0.8	-3.2	1
129A-16	S	5	W2	DW	4	5.8	-1.8	-7.1	1
129A-17	S	5	W1	DW	1	5.8	-4.8	-19.0	1

Mean	**-6.4**	
Median	**-7.1**	
Minimum	**-19.0**	
Maximum	**19.8**	
Std Dev (1s)	**9.7**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha

2 Sample Type: S = Systematic R = Random B = Biased

3 F = Floor W = Wall C = Ceiling B = Beam

4 Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)

5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 136-F

Structure Sign Test Results

Survey Date:	6/19/2007
Building:	136
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min):	1.0
Daily BKGD Count Time (min):	1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
136-F-1	R	3	F	L	5	0.0	5.0	5.0	1
136-F-2	R	3	F	L	18	0.0	18.0	18.0	1
136-F-3	R	3	F	L	2	0.0	2.0	2.0	1
136-F-4	R	3	F	L	9	0.0	9.0	9.0	1
136-F-5	R	3	F	W	13	15.2	-2.2	-2.2	1
136-F-6	R	3	F	L	9	0.0	9.0	9.0	1
136-F-7	R	3	F	L	7	0.0	7.0	7.0	1
136-F-8	R	3	F	L	6	0.0	6.0	6.0	1
136-F-9	R	3	F	L	11	0.0	11.0	11.0	1
136-F-10	R	3	F	L	19	0.0	19.0	19.0	1
136-F-11	R	3	F	C	11	21.0	-10.0	-10.0	1
136-F-12	R	3	F	L	15	0.0	15.0	15.0	1
136-F-13	R	3	F	L	4	0.0	4.0	4.0	1
136-F-14	R	3	F	L	14	0.0	14.0	14.0	1
136-F-15	R	3	F	L	13	0.0	13.0	13.0	1
136-F-16	R	3	F	L	4	0.0	4.0	4.0	1
136-F-17	R	3	F	L	16	0.0	16.0	16.0	1

Mean	**8.2**	
Median	**9.0**	
Minimum	**-10.0**	
Maximum	**19.0**	
Std Dev (1s)	**7.6**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1. Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2. Sample Type: S = Systematic R = Random B = Biased
3. F = Floor W = Wall C = Ceiling B = Beam
4. Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5. Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6. MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 136-W

Structure Sign Test Results

Survey Date:	6/19/2007
Building:	136
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Wall

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
136-W-1	R	3	W	DW	6	15.8	-9.8	-9.8	1
136-W-2	R	3	W	L	2	0.0	2.0	2.0	1
136-W-3	R	3	W	DW	6	15.8	-9.8	-9.8	1
136-W-4	R	3	W	DW	8	15.8	-7.8	-7.8	1
136-W-5	R	3	W	DW	5	15.8	-10.8	-10.8	1
136-W-6	R	3	W	DW	5	15.8	-10.8	-10.8	1
136-W-7	R	3	W	W	11	15.2	-4.2	-4.2	1
136-W-8	R	3	W	W	5	15.2	-10.2	-10.2	1
136-W-9	R	3	W	W	2	15.2	-13.2	-13.2	1
136-W-10	R	3	W	DW	13	15.8	-2.8	-2.8	1
136-W-11	R	3	W	DW	8	15.8	-7.8	-7.8	1
136-W-12	R	3	W	DW	9	15.8	-6.8	-6.8	1
136-W-13	R	3	W	W	8	15.2	-7.2	-7.2	1
136-W-14	R	3	W	DW	3	15.8	-12.8	-12.8	1
136-W-15	R	3	W	DW	7	15.8	-8.8	-8.8	1
136-W-16	R	3	W	DW	12	15.8	-3.8	-3.8	1
136-W-17	R	3	W	W	7	15.2	-8.2	-8.2	1

Mean	**-7.8**	
Median	**-8.2**	
Minimum	**-13.2**	
Maximum	**2.0**	
Std Dev (1s)	**3.9**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1. Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2. Sample Type: S = Systematic R = Random B = Biased
3. F = Floor W = Wall C = Ceiling B = Beam
4. Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5. Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6. MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 141-F

Structure Sign Test Results

Survey Date:	6/25/2007
Building:	141
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	100

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min):	1.0
Daily BKGD Count Time (min):	1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
141-1	R	4	C	W	14	12.0	2.0	2.0	1
141-2	R	4	W4	W	12	12.0	0.0	0.0	1
141-3	R	4	W4	W	17	12.0	5.0	4.9	1
141-4	R	4	F	C	12	19.0	-7.0	-6.8	1
141-5	R	4	F	C	19	19.0	-11.0	-10.7	1
141-6	R	4	W4	W	8	12.0	2.0	2.0	1
141-7	R	4	F	C	14	19.0	-1.0	-1.0	1
141-8	R	4	W2	W	17	12.0	-1.0	-1.0	1
141-9	R	4	F	C	18	19.0	-2.0	-2.0	1
141-10	R	4	W1	W	11	12.0	4.0	3.9	1
141-11	R	4	F	C	17	19.0	-8.0	-7.8	1
141-12	R	4	W3	W	16	12.0	5.0	4.9	1
141-13	R	4	F	C	11	19.0	-5.0	-4.9	1
141-14	R	4	W4	W	17	12.0	-1.0	-1.0	1
141-15	R	4	F	C	14	19.0	-9.0	-8.8	1
141-16	R	4	C	W	11	12.0	-12.0	-11.7	1
141-17	R	4	C	W	10	12.0	-12.0	-11.7	1

Mean	**-2.9**	
Median	**-1.0**	
Minimum	**-11.7**	
Maximum	**4.9**	
Std Dev (1s)	**5.8**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha

2 Sample Type: S = Systematic R = Random B = Biased

3 F = Floor W = Wall C = Ceiling B = Beam

4 Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)

5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 145-F

Structure Sign Test Results

Survey Date:	6/27/2007
Building:	145
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	100

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0

SU Description: Floor-Concrete Slab

Daily BKGD Count Time (min): 1.0

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
145-1	R	4	F	C	0	19.0	-19.0	-18.5	1
145-2	R	4	F	C	22	19.0	3.0	2.9	1
145-3	R	4	F	C	9	19.0	-10.0	-9.8	1
145-4	R	4	F	C	4	19.0	-15.0	-14.6	1
145-5	R	4	F	C	20	19.0	1.0	1.0	1
145-6	R	4	F	C	24	19.0	5.0	4.9	1
145-7	R	4	F	C	3	19.0	-16.0	-15.6	1
145-8	R	4	F	C	16	19.0	-3.0	-2.9	1
145-9	R	4	F	C	12	19.0	-7.0	-6.8	1
145-10	R	4	F	C	1	19.0	-18.0	-17.6	1
145-11	R	4	F	C	1	19.0	-18.0	-17.6	1
145-12	R	4	F	C	21	19.0	2.0	2.0	1
145-13	R	4	F	C	13	19.0	-6.0	-5.9	1
145-14	R	4	F	C	11	19.0	-8.0	-7.8	1
145-15	R	4	F	C	13	19.0	-6.0	-5.9	1
145-16	R	4	F	C	14	19.0	-5.0	-4.9	1
145-17	R	4	F	C	4	19.0	-15.0	-14.6	1

Mean	**-7.8**	
Median	**-6.8**	
Minimum	**-18.5**	
Maximum	**4.9**	
Std Dev (1s)	**7.7**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha

2 Sample Type: S = Systematic R = Random B = Biased

3 F = Floor W = Wall C = Ceiling B = Beam

4 Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)

5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 146-F

Structure Sign Test Results

Survey Date:	11/15/2006
Building:	146
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	100

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
146-F-1	R	7	F	L	5	4.0	1.0	4.5	1
146-F-2	R	7	F	L	1	4.0	-3.0	-13.4	1
146-F-3	R	7	F	L	8	4.0	4.0	17.9	1
146-F-4	R	7	F	L	9	4.0	5.0	22.4	1
146-F-5	R	7	F	L	2	4.0	-2.0	-9.0	1
146-F-6	R	7	F	L	6	4.0	2.0	9.0	1
146-F-7	R	7	F	L	3	4.0	-1.0	-4.5	1
146-F-8	R	7	F	L	5	4.0	1.0	4.5	1
146-F-9	R	7	F	L	9	4.0	5.0	22.4	1
146-F-10	R	7	F	L	3	4.0	-1.0	-4.5	1
146-F-11	R	7	F	L	9	4.0	5.0	22.4	1
146-F-12	R	7	F	L	7	4.0	3.0	13.4	1
146-F-13	R	7	F	L	5	4.0	1.0	4.5	1
146-F-14	R	7	F	L	7	4.0	3.0	13.4	1
146-F-15	R	7	F	L	4	4.0	0.0	0.0	1
146-F-16	R	7	F	L	6	4.0	2.0	9.0	1
146-F-17	R	7	F	L	3	4.0	-1.0	-4.5	1

Mean	**6.3**	
Median	**4.5**	
Minimum	**-13.4**	
Maximum	**22.4**	
Std Dev (1s)	**11.3**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 146-W

Structure Sign Test Results

Survey Date:	11/15/2006
Building:	146
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	100

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Lower Wall

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
146-W-1	R	7	W	DW	7	6.0	1.0	4.5	1
146-W-2	R	7	W	DW	11	6.0	5.0	22.4	1
146-W-3	R	7	W	DW	7	6.0	1.0	4.5	1
146-W-4	R	7	W	DW	4	6.0	-2.0	-9.0	1
146-W-5	R	7	W	DW	4	6.0	-2.0	-9.0	1
146-W-6	R	7	W	DW	8	6.0	2.0	9.0	1
146-W-7	R	7	W	DW	3	6.0	-3.0	-13.4	1
146-W-8	R	7	W	DW	4	6.0	-2.0	-9.0	1
146-W-9	R	7	W	DW	5	6.0	-1.0	-4.5	1
146-W-10	R	7	W	DW	5	6.0	-1.0	-4.5	1
146-W-11	R	7	W	DW	10	6.0	4.0	17.9	1
146-W-12	R	7	W	DW	7	6.0	1.0	4.5	1
146-W-13	R	7	W	DW	4	6.0	-2.0	-9.0	1
146-W-14	R	7	W	DW	5	6.0	-1.0	-4.5	1
146-W-15	R	7	W	DW	7	6.0	1.0	4.5	1
146-W-16	R	7	W	DW	5	6.0	-1.0	-4.5	1
146-W-17	R	7	W	DW	12	6.0	6.0	26.9	1

Mean	**1.6**	
Median	**-4.5**	
Minimum	**-13.4**	
Maximum	**26.9**	
Std Dev (1s)	**11.9**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 210-2-1

Structure Sign Test Results

Survey Date:	9/11/2007
Building:	210-2
MARSSIM Class:	1
SU $DCGL_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
210-2-SU1-F-1	S	4	F	C	8	19.0	-11.0	-62.5	1
210-2-SU1-F-2	S	4	F	C	12	19.0	-7.0	-39.8	1
210-2-SU1-F-3	S	4	F	C	11	19.0	-8.0	-45.5	1
210-2-SU1-F-4	S	4	F	C	11	19.0	-8.0	-45.5	1
210-2-SU1-F-5	S	4	F	C	17	19.0	-2.0	-11.4	1
210-2-SU1-F-6	S	4	F	C	12	19.0	-7.0	-39.8	1
210-2-SU1-F-7	S	4	F	C	22	19.0	3.0	17.0	1
210-2-SU1-F-8	S	4	F	C	13	19.0	-6.0	-34.1	1
210-2-SU1-F-9	S	4	F	C	14	19.0	-5.0	-28.4	1
210-2-SU1-F-10	S	4	F	C	21	19.0	2.0	11.4	1
210-2-SU1-F-11	S	4	F	C	15	19.0	-4.0	-22.7	1
210-2-SU1-F-12	S	4	F	C	9	19.0	-10.0	-56.8	1
210-2-SU1-F-13	S	4	F	C	14	19.0	-5.0	-28.4	1
210-2-SU1-F-14	S	4	F	C	15	19.0	-4.0	-22.7	1
210-2-SU1-F-15	S	4	F	C	17	19.0	-2.0	-11.4	1
210-2-SU1-F-16	S	4	F	C	17	19.0	-2.0	-11.4	1
210-2-SU1-F-17	S	4	F	C	7	19.0	-12.0	-68.2	1

Mean	**-29.4**	
Median	**-28.4**	
Minimum	**-68.2**	
Maximum	**17.0**	
Std Dev (1s)	**23.7**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 210-2-2

Structure Sign Test Results

Survey Date:	9/11/2007
Building:	210-2
MARSSIM Class:	1
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
210-2-SU2-F-1	S	4	F	C	18	19.0	-1.0	-5.7	1
210-2-SU2-F-2	S	4	F	C	16	19.0	-3.0	-17.0	1
210-2-SU2-F-3	S	4	F	C	18	19.0	-1.0	-5.7	1
210-2-SU2-F-4	S	4	F	C	17	19.0	-2.0	-11.4	1
210-2-SU2-F-5	S	4	F	C	11	19.0	-8.0	-45.5	1
210-2-SU2-F-6	S	4	F	C	12	19.0	-7.0	-39.8	1
210-2-SU2-F-7	S	4	F	C	17	19.0	-2.0	-11.4	1
210-2-SU2-F-8	S	4	F	C	15	19.0	-4.0	-22.7	1
210-2-SU2-F-9	S	4	F	C	13	19.0	-6.0	-34.1	1
210-2-SU2-F-10	S	4	F	C	21	19.0	2.0	11.4	1
210-2-SU2-F-11	S	4	F	C	18	19.0	-1.0	-5.7	1
210-2-SU2-F-12	S	4	F	C	19	19.0	0.0	0.0	1
210-2-SU2-F-13	S	4	F	C	19	19.0	0.0	0.0	1
210-2-SU2-F-14	S	4	F	C	18	19.0	-1.0	-5.7	1
210-2-SU2-F-15	S	4	F	C	13	19.0	-6.0	-34.1	1
210-2-SU2-F-16	S	4	F	C	10	19.0	-9.0	-51.1	1
210-2-SU2-F-17	S	4	F	C	26	19.0	7.0	39.8	-1

Mean	**-14.0**	
Median	**-11.4**	
Minimum	**-51.1**	
Maximum	**39.8**	
Std Dev (1s)	**22.6**	
MARSSIM Sign Test Required?		**YES**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**16**
Sign Test Critical Value n =	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 210-2-3

Structure Sign Test Results

Survey Date:	9/12/2007
Building:	210-2
MARSSIM Class:	1
SU $DCGL_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
210-2-SU3-F-1	S	4	F	C	28	19.0	9.0	51.1	-1
210-2-SU3-F-2	S	4	F	C	19	19.0	0.0	0.0	1
210-2-SU3-F-3	S	4	F	C	23	19.0	4.0	22.7	1
210-2-SU3-F-4	S	4	F	C	20	19.0	1.0	5.7	1
210-2-SU3-F-5	S	5	F	C	9	7.6	1.4	5.6	1
210-2-SU3-F-6	S	4	F	C	15	19.0	-4.0	-22.7	1
210-2-SU3-F-7	S	4	F	C	23	19.0	4.0	22.7	1
210-2-SU3-F-8	S	4	F	C	12	19.0	-7.0	-39.8	1
210-2-SU3-F-9	S	4	F	C	15	19.0	-4.0	-22.7	1
210-2-SU3-F-10	S	4	F	C	15	19.0	-4.0	-22.7	1
210-2-SU3-F-11	S	4	F	C	26	19.0	7.0	39.8	-1
210-2-SU3-F-12	S	4	F	C	19	19.0	0.0	0.0	1
210-2-SU3-F-13	S	4	F	C	28	19.0	9.0	51.1	-1
210-2-SU3-F-14	S	4	F	C	14	19.0	-5.0	-28.4	1
210-2-SU3-F-15	S	4	F	C	14	19.0	-5.0	-28.4	1
210-2-SU3-F-16	S	4	F	C	31	19.0	12.0	68.2	-1
210-2-SU3-F-17	S	4	F	C	17	19.0	-2.0	-11.4	1

Mean	**5.3**	
Median	**0.0**	
Minimum	**-39.8**	
Maximum	**68.2**	
Std Dev (1s)	**32.5**	
MARSSIM Sign Test Required?		**YES**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**13**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 210-2-4

Structure Sign Test Results

Survey Date:	9/12/2007
Building:	210-2
MARSSIM Class:	1
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Wall

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
210-2-SU4-W-1	S	4	W	B	17	21.2	-4.2	-23.9	1
210-2-SU4-W-2	S	4	W	B	10	21.2	-11.2	-63.6	1
210-2-SU4-W-3	S	4	W	B	20	21.2	-1.2	-6.8	1
210-2-SU4-W-4	S	4	W	B	15	21.2	-6.2	-35.2	1
210-2-SU4-W-5	S	4	W	B	9	21.2	-12.2	-69.3	1
210-2-SU4-W-6	S	4	W	B	22	21.2	0.8	4.5	1
210-2-SU4-W-7	S	4	W	B	13	21.2	-8.2	-46.6	1
210-2-SU4-W-8	S	4	W	B	20	21.2	-1.2	-6.8	1
210-2-SU4-W-9	S	4	W	MD	11	13.6	-2.6	-14.8	1
210-2-SU4-W-10	S	4	W	MD	14	13.6	0.4	2.3	1
210-2-SU4-W-11	S	4	W	CB	14	16.8	-2.8	-15.9	1
210-2-SU4-W-12	S	4	W	W	12	12.0	0.0	0.0	1
210-2-SU4-W-13	S	4	W	W	9	12.0	-3.0	-17.0	1
210-2-SU4-W-14	S	4	W	MD	16	13.6	2.4	13.6	1
210-2-SU4-W-15	S	4	W	W	13	12.0	1.0	5.7	1
210-2-SU4-W-16	S	4	W	W	15	12.0	3.0	17.0	1
210-2-SU4-W-17	S	4	W	W	14	12.0	2.0	11.4	1

Mean	**-14.4**	
Median	**-6.8**	
Minimum	**-69.3**	
Maximum	**17.0**	
Std Dev (1s)	**26.0**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 210-2-5

Structure Sign Test Results

Survey Date:	9/17/2007
Building:	210-2
MARSSIM Class:	2
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Upper Walls and Ceiling

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
210-2-SU5-C-1	S	4	C	DW	11	14.2	-3.2	-3.1	1
210-2-SU5-C-2	S	4	C	DW	5	14.2	-9.2	-9.0	1
210-2-SU5-C-3	S	4	C	DW	9	14.2	-5.2	-5.1	1
210-2-SU5-C-4	S	4	C	B	5	21.2	-16.2	-15.8	1
210-2-SU5-C-5	S	4	C	DW	2	14.2	-12.2	-11.9	1
210-2-SU5-C-6	S	4	C	DW	8	14.2	-6.2	-6.1	1
210-2-SU5-C-7	S	4	C	DW	10	14.2	-4.2	-4.1	1
210-2-SU5-C-8	S	4	C	DW	13	14.2	-1.2	-1.2	1
210-2-SU5-C-9	S	4	C	DW	9	14.2	-5.2	-5.1	1
210-2-SU5-C-10	S	4	C	DW	9	14.2	-5.2	-5.1	1
210-2-SU5-C-11	S	4	C	B	10	21.2	-11.2	-10.9	1
210-2-SU5-C-12	S	4	C	DW	17	14.2	2.8	2.7	1
210-2-SU5-C-13	S	4	C	DW	13	14.2	-1.2	-1.2	1
210-2-SU5-C-14	S	4	C	DW	11	14.2	-3.2	-3.1	1
210-2-SU5-C-15	S	4	C	CB	9	16.8	-7.8	-7.6	1
210-2-SU5-C-16	S	4	C	W	10	12.0	-2.0	-2.0	1
210-2-SU5-C-17	S	4	C	W	10	12.0	-2.0	-2.0	1

Mean	**-5.3**	
Median	**-5.1**	
Minimum	**-15.8**	
Maximum	**2.7**	
Std Dev (1s)	**4.6**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 210-F

Structure Sign Test Results

Survey Date:	6/20/2007
Building:	210
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
210-F-1	R	4	F	C	16	19.0	-3.0	-2.9	1
210-F-2	R	4	F	C	21	19.0	2.0	2.0	1
210-F-3	R	4	F	C	20	19.0	1.0	1.0	1
210-F-4	R	4	F	C	25	19.0	6.0	5.9	1
210-F-5	R	4	F	C	18	19.0	-1.0	-1.0	1
210-F-6	R	4	F	C	24	19.0	5.0	4.9	1
210-F-7	R	4	F	C	21	19.0	2.0	2.0	1
210-F-8	R	4	F	C	26	19.0	7.0	6.8	1
210-F-9	R	4	F	C	21	19.0	2.0	2.0	1
210-F-10	R	4	F	C	16	19.0	-3.0	-2.9	1
210-F-11	R	4	F	C	30	19.0	11.0	10.7	1
210-F-12	R	4	F	C	18	19.0	-1.0	-1.0	1
210-F-13	R	4	F	C	16	19.0	-3.0	-2.9	1
210-F-14	R	4	F	C	20	19.0	1.0	1.0	1
210-F-15	R	4	F	C	16	19.0	-3.0	-2.9	1
210-F-16	R	4	F	C	19	19.0	0.0	0.0	1
210-F-17	R	4	F	C	17	19.0	-2.0	-2.0	1

Mean	**1.2**	
Median	**1.0**	
Minimum	**-2.9**	
Maximum	**10.7**	
Std Dev (1s)	**3.9**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1. Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2. Sample Type: S = Systematic R = Random B = Biased
3. F = Floor W = Wall C = Ceiling B = Beam
4. Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5. Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6. MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 210-W

Structure Sign Test Results

Survey Date:	6/11/2007
Building:	210
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Wall

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
210-W-1	R	4	W	W	19	12.0	7.0	6.8	1
210-W-2	R	4	W	W	11	12.0	-1.0	-1.0	1
210-W-3	R	4	W	W	15	12.0	3.0	2.9	1
210-W-4	R	4	W	W	12	12.0	0.0	0.0	1
210-W-5	R	4	W	W	18	12.0	6.0	5.9	1
210-W-6	R	4	W	W	10	12.0	-2.0	-2.0	1
210-W-7	R	4	W	W	4	12.0	-8.0	-7.8	1
210-W-8	R	4	W	W	9	12.0	-3.0	-2.9	1
210-W-9	R	4	W	W	18	12.0	6.0	5.9	1
210-W-10	R	4	W	W	17	12.0	5.0	4.9	1
210-W-11	R	4	W	W	16	12.0	4.0	3.9	1
210-W-12	R	4	W	W	12	12.0	0.0	0.0	1
210-W-13	R	4	W	W	9	12.0	-3.0	-2.9	1
210-W-14	R	4	W	W	8	12.0	-4.0	-3.9	1
210-W-15	R	4	W	W	14	12.0	2.0	2.0	1
210-W-16	R	4	W	W	14	12.0	2.0	2.0	1
210-W-17	R	4	W	W	12	12.0	0.0	0.0	1

Mean	**0.8**	
Median	**0.0**	
Minimum	**-7.8**	
Maximum	**6.8**	
Std Dev (1s)	**4.0**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 211-F

Structure Sign Test Results

Survey Date:	6/11/2007
Building:	211
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	55

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
211-F-1	R	4	F	C	19	19.0	0.0	0.0	1
211-F-2	R	4	F	C	16	19.0	-3.0	-2.9	1
211-F-3	R	4	F	C	26	19.0	7.0	6.8	1
211-F-4	R	4	F	C	4	19.0	-15.0	-14.6	1
211-F-5	R	4	F	C	16	19.0	-3.0	-2.9	1
211-F-6	R	4	F	C	16	19.0	-3.0	-2.9	1
211-F-7	R	4	F	C	22	19.0	3.0	2.9	1
211-F-8	R	4	F	C	14	19.0	-5.0	-4.9	1
211-F-9	R	4	F	C	18	19.0	-1.0	-1.0	1
211-F-10	R	4	F	C	10	19.0	-9.0	-8.8	1
211-F-11	R	4	F	C	15	19.0	-4.0	-3.9	1
211-F-12	R	4	F	C	15	19.0	-4.0	-3.9	1
211-F-13	R	4	F	C	20	19.0	1.0	1.0	1
211-F-14	R	4	F	C	14	19.0	-5.0	-4.9	1
211-F-15	R	4	F	C	12	19.0	-7.0	-6.8	1
211-F-16	R	4	F	C	19	19.0	0.0	0.0	1
211-F-17	R	4	F	C	21	19.0	2.0	2.0	1

Mean	**-2.6**	
Median	**-2.9**	
Minimum	**-14.6**	
Maximum	**6.8**	
Std Dev (1s)	**4.9**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1. Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2. Sample Type: S = Systematic R = Random B = Biased
3. F = Floor W = Wall C = Ceiling B = Beam
4. Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5. Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6. MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 211-W

Structure Sign Test Results

Survey Date:	6/11/2007
Building:	211
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	55

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Wall

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
211-W-1	R	4	W	W	8	12.0	-4.0	-3.9	1
211-W-2	R	4	W	W	12	12.0	0.0	0.0	1
211-W-3	R	4	W	W	11	12.0	-1.0	-1.0	1
211-W-4	R	4	W	W	14	12.0	2.0	2.0	1
211-W-5	R	4	W	W	16	12.0	4.0	3.9	1
211-W-6	R	4	W	W	14	12.0	2.0	2.0	1
211-W-7	R	4	W	W	12	12.0	0.0	0.0	1
211-W-8	R	4	W	W	11	12.0	-1.0	-1.0	1
211-W-9	R	4	W	W	10	12.0	-2.0	-2.0	1
211-W-10	R	4	W	W	19	12.0	7.0	6.8	1
211-W-11	R	4	W	W	15	12.0	3.0	2.9	1
211-W-12	R	4	W	MD	20	13.6	6.4	6.2	1
211-W-13	R	4	W	B	15	21.2	-6.2	-6.1	1
211-W-14	R	4	W	W	17	12.0	5.0	4.9	1
211-W-15	R	4	W	B	19	21.2	-2.2	-2.1	1
211-W-16	R	4	W	B	19	21.2	-2.2	-2.1	1
211-W-17	R	4	W	W	11	12.0	-1.0	-1.0	1

Mean	**0.6**	
Median	**0.0**	
Minimum	**-6.1**	
Maximum	**6.8**	
Std Dev (1s)	**3.6**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1. Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2. Sample Type: S = Systematic R = Random B = Biased
3. F = Floor W = Wall C = Ceiling B = Beam
4. Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5. Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6. MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 212-F

Structure Sign Test Results

Survey Date:	10/31/2006
Building:	212
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	100

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
212-F-1	R	7	F	BC	7	10.8	-3.8	-17.0	1
212-F-2	R	7	F	BC	10	10.8	-0.8	-3.6	1
212-F-3	R	7	F	BC	6	10.8	-4.8	-21.5	1
212-F-4	R	7	F	BC	4	10.8	-6.8	-30.5	1
212-F-5	R	7	F	BC	14	10.8	3.2	14.3	1
212-F-6	R	7	F	BC	12	10.8	1.2	5.4	1
212-F-7	R	7	F	BC	10	10.8	-0.8	-3.6	1
212-F-8	R	7	F	BC	6	10.8	-4.8	-21.5	1
212-F-9	R	7	F	BC	10	10.8	-0.8	-3.6	1
212-F-10	R	7	F	BC	11	10.8	0.2	0.9	1
212-F-11	R	7	F	BC	9	10.8	-1.8	-8.1	1
212-F-12	R	7	F	BC	8	10.8	-2.8	-12.5	1
212-F-13	R	7	F	BC	8	10.8	-2.8	-12.5	1
212-F-14	R	7	F	BC	6	10.8	-4.8	-21.5	1
212-F-15	R	7	F	BC	11	10.8	0.2	0.9	1
212-F-16	R	7	F	BC	9	10.8	-1.8	-8.1	1
212-F-17	R	7	F	BC	11	10.8	0.2	0.9	1

Mean	**-8.3**		
Median	**-8.1**		
Minimum	**-30.5**		
Maximum	**14.3**		
Std Dev (1s)	**11.6**		
MARSSIM Sign Test Required?			**NO**
MARSSIM SIGN TEST EVALUATION			
Sum of Positive Signs			**17**
Sign Test Critical Value n=		**17**	**12**
Null Hypothesis Evaluation			***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 212-W

Survey Date:	11/13/2006
Building:	212
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	100

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Lower Wall

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
212-W-1	R	7	W	W	2	7.6	-5.6	-25.1	1
212-W-2	R	7	W	W	7	7.6	-0.6	-2.7	1
212-W-3	R	7	W	W	9	7.6	1.4	6.3	1
212-W-4	R	7	W	W	3	7.6	-4.6	-20.6	1
212-W-5	R	7	W	W	9	7.6	1.4	6.3	1
212-W-6	R	7	W	W	3	7.6	-4.6	-20.6	1
212-W-7	R	7	W	W	12	7.6	4.4	19.7	1
212-W-8	R	7	W	W	6	7.6	-1.6	-7.2	1
212-W-9	R	7	W	W	4	7.6	-3.6	-16.1	1
212-W-10	R	7	W	W	10	7.6	2.4	10.8	1
212-W-11	R	7	W	W	13	7.6	5.4	24.2	1
212-W-12	R	7	W	W	8	7.6	0.4	1.8	1
212-W-13	R	7	W	W	6	7.6	-1.6	-7.2	1
212-W-14	R	7	W	W	7	7.6	-0.6	-2.7	1
212-W-15	R	7	W	W	5	7.6	-2.6	-11.7	1
212-W-16	R	7	W	W	10	7.6	2.4	10.8	1
212-W-17	R	7	W	W	6	7.6	-1.6	-7.2	1

Mean	**-2.4**	
Median	**-2.7**	
Minimum	**-25.1**	
Maximum	**24.2**	
Std Dev (1s)	**14.2**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 213-F

Structure Sign Test Results

Survey Date:	6/11/2007
Building:	213
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
213-F-1	R	4	F	C	20	19.0	1.0	1.0	1
213-F-2	R	4	F	C	15	19.0	-4.0	-3.9	1
213-F-3	R	4	F	C	17	19.0	-2.0	-2.0	1
213-F-4	R	4	F	C	17	19.0	-2.0	-2.0	1
213-F-5	R	4	F	C	16	19.0	-3.0	-2.9	1
213-F-6	R	4	F	C	16	19.0	-3.0	-2.9	1
213-F-7	R	4	F	C	16	19.0	-3.0	-2.9	1
213-F-8	R	4	F	C	17	19.0	-2.0	-2.0	1
213-F-9	R	4	F	C	22	19.0	3.0	2.9	1
213-F-10	R	4	F	C	16	19.0	-3.0	-2.9	1
213-F-11	R	4	F	C	20	19.0	1.0	1.0	1
213-F-12	R	4	F	C	18	19.0	-1.0	-1.0	1
213-F-13	R	4	F	C	16	19.0	-3.0	-2.9	1
213-F-14	R	4	F	C	24	19.0	5.0	4.9	1
213-F-15	R	4	F	C	15	19.0	-4.0	-3.9	1
213-F-16	R	4	F	C	20	19.0	1.0	1.0	1
213-F-17	R	4	F	C	18	19.0	-1.0	-1.0	1

Mean	**-1.1**	
Median	**-2.0**	
Minimum	**-3.9**	
Maximum	**4.9**	
Std Dev (1s)	**2.5**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1. Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2. Sample Type: S = Systematic R = Random B = Biased
3. F = Floor W = Wall C = Ceiling B = Beam
4. Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5. Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6. MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 213-W

Structure Sign Test Results

Survey Date:	6/11/2007
Building:	213
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Wall

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
213-W-1	R	4	W	C	15	19.0	-4.0	-3.9	1
213-W-2	R	4	W	C	16	19.0	-3.0	-2.9	1
213-W-3	R	4	W	C	19	19.0	0.0	0.0	1
213-W-4	R	4	W	C	17	19.0	-2.0	-2.0	1
213-W-5	R	4	W	C	16	19.0	-3.0	-2.9	1
213-W-6	R	4	W	C	19	19.0	0.0	0.0	1
213-W-7	R	4	W	C	18	19.0	-1.0	-1.0	1
213-W-8	R	4	W	C	20	19.0	1.0	1.0	1
213-W-9	R	4	W	C	19	19.0	0.0	0.0	1
213-W-10	R	4	W	C	13	19.0	-6.0	-5.9	1
213-W-11	R	4	W	C	22	19.0	3.0	2.9	1
213-W-12	R	4	W	C	26	19.0	7.0	6.8	1
213-W-13	R	4	W	C	13	19.0	-6.0	-5.9	1
213-W-14	R	4	W	C	11	19.0	-8.0	-7.8	1
213-W-15	R	4	W	C	10	19.0	-9.0	-8.8	1
213-W-16	R	4	W	C	22	19.0	3.0	2.9	1
213-W-17	R	4	W	C	15	19.0	-4.0	-3.9	1

Mean	**-1.8**	
Median	**-2.0**	
Minimum	**-8.8**	
Maximum	**6.8**	
Std Dev (1s)	**4.1**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 214-F

Structure Sign Test Results

Survey Date:	6/13/2007
Building:	214
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min):	3.0	1.0
Daily BKGD Count Time (min):	10.0	1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
214-F-1	R	5	F	C	6	7.6	-1.6	-6.3	1
214-F-2	R	5	F	C	3	7.6	-4.6	-18.2	1
214-F-3	R	5	F	C	4	7.6	-3.6	-14.3	1
214-F-4	R	5	F	C	12	7.6	4.4	17.4	1
214-F-5	R	5	F	C	8	7.6	0.4	1.6	1
214-F-6	R	5	F	C	4	7.6	-3.6	-14.3	1
214-F-7	R	5	F	C	9	7.6	1.4	5.6	1
214-F-8	R	5	F	C	6	7.6	-1.6	-6.3	1
214-F-9	R	5	F	C	7	7.6	-0.6	-2.4	1
214-F-10	R	5	F	C	8	7.6	0.4	1.6	1
214-F-11	R	5	F	C	7	7.6	-0.6	-2.4	1
214-F-12	R	5	F	C	5	7.6	-2.6	-10.3	1
214-F-13	R	4	F	C	21	19.0	2.0	2.0	1
214-F-14	R	4	F	C	19	19.0	0.0	0.0	1
214-F-15	R	4	F	C	23	19.0	4.0	3.9	1
214-F-16	R	4	F	C	15	19.0	-4.0	-3.9	1
214-F-17	R	4	F	C	21	19.0	2.0	2.0	1

Mean	**-2.6**	
Median	**-2.4**	
Minimum	**-18.2**	
Maximum	**17.4**	
Std Dev (1s)	**8.7**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha

2 Sample Type: S = Systematic R = Random B = Biased

3 F = Floor W = Wall C = Ceiling B = Beam

4 Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)

5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 214-W

Structure Sign Test Results

Survey Date:	6/13/2007
Building:	214
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Wall

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
214-W-1	R	3	W	C	20	21.0	-1.0	-1.0	1
214-W-2	R	3	W	C	13	21.0	-8.0	-8.0	1
214-W-3	R	3	W	C	18	21.0	-3.0	-3.0	1
214-W-4	R	3	W	C	10	21.0	-11.0	-11.0	1
214-W-5	R	3	W	C	21	21.0	0.0	0.0	1
214-W-6	R	3	W	C	17	21.0	-4.0	-4.0	1
214-W-7	R	3	W	C	28	21.0	7.0	7.0	1
214-W-8	R	3	W	C	22	21.0	1.0	1.0	1
214-W-9	R	3	W	C	16	21.0	-5.0	-5.0	1
214-W-10	R	3	W	C	20	21.0	-1.0	-1.0	1
214-W-11	R	3	W	C	19	21.0	-2.0	-2.0	1
214-W-12	R	3	W	C	21	21.0	0.0	0.0	1
214-W-13	R	3	W	C	21	21.0	0.0	0.0	1
214-W-14	R	4	W	C	23	19.0	4.0	3.9	1
214-W-15	R	4	W	C	23	19.0	4.0	3.9	1
214-W-16	R	4	W	C	16	19.0	-3.0	-2.9	1
214-W-17	R	4	W	C	25	19.0	6.0	5.9	1

Mean	**-1.0**	
Median	**-1.0**	
Minimum	**-11.0**	
Maximum	**7.0**	
Std Dev (1s)	**4.7**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 215-F

Structure Sign Test Results

Survey Date:	6/12/2007
Building:	215
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor - S1 and S2

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
215-F1-1	R	4	F	C	12	19.0	-7.0	-6.8	1
215-F1-2	R	4	F	C	15	19.0	-4.0	-3.9	1
215-F1-3	R	4	F	C	18	19.0	-1.0	-1.0	1
215-F1-4	R	4	F	C	17	19.0	-2.0	-2.0	1
215-F1-5	R	4	F	C	21	19.0	2.0	2.0	1
215-F1-6	R	4	F	C	17	19.0	-2.0	-2.0	1
215-F1-7	R	4	F	C	12	19.0	-7.0	-6.8	1
215-F1-8	R	4	F	C	14	19.0	-5.0	-4.9	1
215-F1-9	R	4	F	C	14	19.0	-5.0	-4.9	1
215-F1-10	R	4	F	C	18	19.0	-1.0	-1.0	1
215-F1-11	R	4	F	C	19	19.0	0.0	0.0	1
215-F1-12	R	4	F	C	17	19.0	-2.0	-2.0	1
215-F1-13	R	4	F	C	21	19.0	2.0	2.0	1
215-F1-14	R	4	F	C	14	19.0	-5.0	-4.9	1
215-F1-15	R	4	F	C	14	19.0	-5.0	-4.9	1
215-F1-16	R	4	F	C	27	19.0	8.0	7.8	1
215-F1-17	R	4	F	C	20	19.0	1.0	1.0	1

Mean	**-1.9**	
Median	**-2.0**	
Minimum	**-6.8**	
Maximum	**7.8**	
Std Dev (1s)	**3.8**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1. Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2. Sample Type: S = Systematic R = Random B = Biased
3. F = Floor W = Wall C = Ceiling B = Beam
4. Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5. Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6. MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 215-4-F

Structure Sign Test Results

Survey Date:	6/12/2007
Building:	215
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor - S4

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
215-F2-1	R	4	F	C	10	19.0	-9.0	-8.8	1
215-F2-2	R	4	F	C	20	19.0	1.0	1.0	1
215-F2-3	R	4	F	C	15	19.0	-4.0	-3.9	1
215-F2-4	R	4	F	C	20	19.0	1.0	1.0	1
215-F2-5	R	4	F	C	9	19.0	-10.0	-9.8	1
215-F2-6	R	4	F	C	18	19.0	-1.0	-1.0	1
215-F2-7	R	4	F	C	14	19.0	-5.0	-4.9	1
215-F2-8	R	4	F	C	26	19.0	7.0	6.8	1
215-F2-9	R	4	F	C	15	19.0	-4.0	-3.9	1
215-F2-10	R	4	F	C	17	19.0	-2.0	-2.0	1
215-F2-11	R	4	F	C	18	19.0	-1.0	-1.0	1
215-F2-12	R	4	F	C	15	19.0	-4.0	-3.9	1
215-F2-13	R	4	F	C	18	19.0	-1.0	-1.0	1
215-F2-14	R	4	F	C	11	19.0	-8.0	-7.8	1
215-F2-15	R	4	F	C	20	19.0	1.0	1.0	1
215-F2-16	R	4	F	C	23	19.0	4.0	3.9	1
215-F2-17	R	4	F	C	19	19.0	0.0	0.0	1

Mean	**-2.0**	
Median	**-1.0**	
Minimum	**-9.8**	
Maximum	**6.8**	
Std Dev (1s)	**4.4**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1. Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2. Sample Type: S = Systematic R = Random B = Biased
3. F = Floor W = Wall C = Ceiling B = Beam
4. Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5. Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6. MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 215-W

Structure Sign Test Results

Survey Date:	6/12/2007
Building:	215
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Wall - S1 and S2

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
215-W1-1	R	4	W	CB	18	16.8	1.2	1.2	1
215-W1-2	R	4	W	CB	14	16.8	-2.8	-2.7	1
215-W1-3	R	4	W	CB	13	16.8	-3.8	-3.7	1
215-W1-4	R	4	W	CB	8	16.8	-8.8	-8.6	1
215-W1-5	R	4	W	CB	12	16.8	-4.8	-4.7	1
215-W1-6	R	4	W	CB	15	16.8	-1.8	-1.8	1
215-W1-7	R	4	W	MD	10	13.6	-3.6	-3.5	1
215-W1-8	R	4	W	CB	15	16.8	-1.8	-1.8	1
215-W1-9	R	4	W	CB	18	16.8	1.2	1.2	1
215-W1-10	R	4	W	MD	12	13.6	-1.6	-1.6	1
215-W1-11	R	4	W	CB	21	16.8	4.2	4.1	1
215-W1-12	R	4	W	MD	20	13.6	6.4	6.2	1
215-W1-13	R	4	W	CB	14	16.8	-2.8	-2.7	1
215-W1-14	R	4	W	CB	15	16.8	-1.8	-1.8	1
215-W1-15	R	4	W	CB	13	16.8	-3.8	-3.7	1
215-W1-16	R	4	W	CB	22	16.8	5.2	5.1	1
215-W1-17	R	4	W	CB	26	16.8	9.2	9.0	1

Mean	**-0.6**	
Median	**-1.8**	
Minimum	**-8.6**	
Maximum	**9.0**	
Std Dev (1s)	**4.5**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1. Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2. Sample Type: S = Systematic R = Random B = Biased
3. F = Floor W = Wall C = Ceiling B = Beam
4. Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5. Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6. MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 215-4-W

Structure Sign Test Results

Survey Date:	6/12/2007
Building:	215
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Wall - S4

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
215-W1-1	R	4	W	CB	15	16.8	-1.8	-1.8	1
215-W1-2	R	4	W	CB	16	16.8	-0.8	-0.8	1
215-W1-3	R	4	W	CB	17	16.8	0.2	0.2	1
215-W1-4	R	4	W	CB	16	16.8	-0.8	-0.8	1
215-W1-5	R	4	W	CB	16	16.8	-0.8	-0.8	1
215-W1-6	R	4	W	CB	19	16.8	2.2	2.1	1
215-W1-7	R	4	W	CB	13	16.8	-3.8	-3.7	1
215-W1-8	R	4	W	CB	21	16.8	4.2	4.1	1
215-W1-9	R	4	W	CB	15	16.8	-1.8	-1.8	1
215-W1-10	R	4	W	CB	19	16.8	2.2	2.1	1
215-W1-11	R	4	W	CB	15	16.8	-1.8	-1.8	1
215-W1-12	R	4	W	CB	15	16.8	-1.8	-1.8	1
215-W1-13	R	4	W	CB	18	16.8	1.2	1.2	1
215-W1-14	R	4	W	CB	13	16.8	-3.8	-3.7	1
215-W1-15	R	4	W	CB	17	16.8	0.2	0.2	1
215-W1-16	R	4	W	MD	9	13.6	-4.6	-4.5	1
215-W1-17	R	4	W	CB	14	16.8	-2.8	-2.7	1

Mean	**-0.8**	
Median	**-0.8**	
Minimum	**-4.5**	
Maximum	**4.1**	
Std Dev (1s)	**2.3**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n=	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1. Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2. Sample Type: S = Systematic R = Random B = Biased
3. F = Floor W = Wall C = Ceiling B = Beam
4. Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5. Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6. MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Survey Unit 7A

Survey Date:	11/1/2006
Building:	Paved Road
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	100

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Concrete Pad

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
Paved Road #1	R	7	F	N/A	7	4.0	3.0	13.4	1
Paved Road #2	R	7	F	N/A	7	4.0	3.0	13.4	1
Paved Road #3	R	7	F	N/A	11	4.0	7.0	31.4	1
Paved Road #4	R	7	F	N/A	8	4.0	4.0	17.9	1
Paved Road #5	R	7	F	N/A	9	4.0	5.0	22.4	1
Paved Road #6	R	7	F	N/A	10	4.0	6.0	26.9	1
Paved Road #7	R	7	F	N/A	9	4.0	5.0	22.4	1
Paved Road #8	R	7	F	N/A	8	4.0	4.0	17.9	1
Paved Road #9	R	7	F	N/A	2	4.0	-2.0	-9.0	1
Paved Road #10	R	7	F	N/A	11	4.0	7.0	31.4	1
Paved Road #11	R	7	F	N/A	7	4.0	3.0	13.4	1
Paved Road #12	R	7	F	N/A	11	4.0	7.0	31.4	1
Paved Road #13	R	7	F	N/A	17	4.0	13.0	58.3	1
Paved Road #14	R	7	F	N/A	10	4.0	6.0	26.9	1
Paved Road #15	R	7	F	N/A	9	4.0	5.0	22.4	1
Paved Road #16	R	7	F	N/A	6	4.0	2.0	9.0	1
Paved Road #17	R	7	F	N/A	11	4.0	7.0	31.4	1
Paved Road #18	R	7	F	N/A	8	4.0	4.0	17.9	1
Paved Road #19	R	7	F	N/A	12	4.0	8.0	35.9	1
Paved Road #20	R	7	F	N/A	12	4.0	8.0	35.9	1

Mean	**23.5**		
Median	**22.4**		
Minimum	**-9.0**		
Maximum	**58.3**		
Std Dev (1s)	**13.5**		
MARSSIM Sign Test Required?			**NO**
MARSSIM SIGN TEST EVALUATION			
Sum of Positive Signs			**20**
Sign Test Critical Value n=		**20**	**14**
Null Hypothesis Evaluation			***Rejected***

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other), N/A (not collected)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6 MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Rail Scale - Survey Unit 8

Survey Date:	8/10/2007
Building:	Rail Scale
MARSSIM Class:	2
SU $DCGL_w$ (dpm/100cm^2):	100

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Concrete Pad

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
RS1	R	5	F	C	3	0.0	3.0	11.9	1
RS2	R	5	F	C	2	0.0	2.0	7.9	1
RS3	R	5	F	C	2	0.0	2.0	7.9	1
RS4	R	5	F	C	4	0.0	4.0	15.9	1
RS5	R	5	F	C	3	0.0	3.0	11.9	1
RS6	R	5	F	C	5	0.0	5.0	19.8	1
RS7	R	5	F	C	6	0.0	6.0	23.8	1
RS8	R	5	F	C	8	0.0	8.0	31.7	1
RS9	R	5	F	C	4	0.0	4.0	15.9	1
RS10	R	5	F	C	4	0.0	4.0	15.9	1
RS11	R	5	F	C	5	0.0	5.0	19.8	1
RS12	R	5	F	C	7	0.0	7.0	27.8	1
RS13	R	5	F	C	5	0.0	5.0	19.8	1
RS14	R	5	F	C	7	0.0	7.0	27.8	1
RS15	R	5	F	C	5	0.0	5.0	19.8	1
RS16	R	5	F	C	5	0.0	5.0	19.8	1
RS17	R	5	F	C	5	0.0	5.0	19.8	1

Mean	**18.7**	
Median	**19.8**	
Minimum	**7.9**	
Maximum	**31.7**	
Std Dev (1s)	**6.7**	
MARSSIM Sign Test Required?		**NO**
MARSSIM SIGN TEST EVALUATION		
Sum of Positive Signs		**17**
Sign Test Critical Value n =	**17**	**12**
Null Hypothesis Evaluation		***Rejected***

NOTES:

1. Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2. Sample Type: S = Systematic R = Random B = Biased
3. F = Floor W = Wall C = Ceiling B = Beam
4. Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5. Average of background readings collected in unimpacted areas for each building surface encountered during FSS
6. MARSSIM Sign Test parameter. If Result > DCGLw, Sign = -1, otherwise 1.

Measured Background Count Rates for Various Surfaces

All values reported in counts per minute (cpm)

Instrument / Probe	Red Brick (RB)	Cinder Block (CB)	Concrete (C)	Wood (W)	Drywall (DW)	Asphalt (A)
Ludlum 2360 / 43-37	32	24	21	19	15	12
184938 / PR178371	32	24	21	12	16	18
(Instrument #3)	32	24	21	18	13	11
	32	24	21	11	19	12
	32	24	21	16	16	15
Mean	**32.0**	**24.0**	**21.0**	**15.2**	**15.8**	**13.6**
Minimum	32.0	24.0	21.0	11.0	13.0	11.0
Maximum	32.0	24.0	21.0	19.0	19.0	18.0
Std Dev (cpm, 1s)	0.0	0.0	0.0	3.6	2.2	2.9

Background Summary

Material	Bkg. Avg. cpm
RB	32.0
CB	24.0
C	21.0
W	15.2
DW	15.8
A	13.6

Measured Background Count Rates for Various Surfaces

All values reported in counts per minute (cpm)

Instrument / Probe	Cinder Block (CB)	Concrete (C)	Wood (W)	Drywall (DW)	Asphalt (A)	Brick (B)	Metal Door (MD)
Ludlum 2360 / 43-37	11	11	12	18	18	17	13
193675 / PR216984	19	14	17	10	29	24	12
(Instrument #4)	21	19	8	13	28	30	18
	18	22	14	15	16	17	7
	15	20	9	15	28	18	18
		19					
		21					
		26					
Mean	**16.8**	**19.00**	**12.0**	**14.2**	**23.8**	**21.2**	**13.6**
Minimum	11.0	11.00	8.0	10.0	16.0	17.0	7.0
Maximum	21.0	26.00	17.0	18.0	29.0	30.0	18.0
Std Dev (cpm, 1s)	3.9	4.7	3.7	2.9	6.3	5.7	4.6

Background Summary

Material	Bkg. Avg. cpm
CB	16.8
C	19.0
W	12.0
DW	14.2
A	23.8
B	21.2
MD	13.6

Measured Background Count Rates for Various Surfaces

All values reported in counts per minute (cpm)

Instrument / Probe	Concrete (C)	Drywall (DW)	Linoleum (L)	Wood (W)
Ludlum 2224 / 43-68	12	5	6	1
183048 / PR161781	7	9	1	3
(Instrument #5)	5	4	2	1
	7	7	4	3
	7	4	4	7
Mean	**7.6**	**5.8**	**3.4**	**3.0**
Minimum	5.0	4.0	1.0	1.0
Maximum	12.0	9.0	6.0	7.0
Std Dev (cpm, 1s)	2.6	2.2	1.9	2.4

Background Summary

Material	Bkg. Avg. cpm
C	7.6
DW	5.8
L	3.4
W	3.0

Measured Background Count Rates for Various Surfaces

All values reported in counts per minute (cpm)

Instrument / Probe	Metal (M)	Bare Concrete (BC)	Wood (W)	Bare cinder block (BCB)	Linoleum(L)	Painted Concrete (PC)
Ludlum 2224-1 / 43-89	3	11	5	10	4	5
162420 / PR171381	5	13	3	8	4	5
(Instrument #7)	8	10	5	5	4	5
	5	8	10	6	4	5
	7	12	15	6	4	5
Mean	**5.6**	**10.8**	**7.6**	**7.0**	**4.0**	**5.0**
Minimum	3.0	8.0	3.0	5.0	4.0	5.0
Maximum	8.0	13.0	15.0	10.0	4.0	5.0
Std Dev (cpm, 1s)	1.9	1.9	4.9	2.0	0.0	0.0

Background Summary

Material	Bkg. Avg. cpm
M	5.6
BC	10.8
W	7.6
BCB	7.0
L	4.0
PC	5.0

Measured Background Count Rates for Various Surfaces

All values reported in counts per minute (cpm)

Instrument / Probe	Metal (M)	Bare Concrete (BC)	Wood (W)	Bare cinder block (BCB)	Red Brick (RB)	Fiber Board (FB)
Ludlum 2224 / 43-68	2	1	4	6	3	3
116257 / PR122018	2	6	5	2	1	3
(Instrument #8)	2	1	3	1	1	2
	0	6	4	5	3	3
	2	2	4	3	3	3
	3					
	5					
	8					
	6					
	2					
Mean	**3.2**	**3.2**	**4.0**	**3.4**	**2.2**	**2.8**
Minimum	0.0	1.0	3.0	1.0	1.0	2.0
Maximum	8.0	6.0	5.0	6.0	3.0	3.0
Std Dev (cpm, 1s)	2.4	2.6	0.7	2.1	1.1	0.4

Background Summary

Material	Bkg. Avg. cpm
M	3.2

Measured Background Count Rates for Various Surfaces

All values reported in counts per minute (cpm)

Instrument / Probe	Metal (M)	Bare Concrete (BC)	Wood (W)	Bare cinder block (BCB)	Red Brick (RB)	Dry Wall (DW)
Ludlum 2224 / 43-68	1	2	1	3	3	6
183048 / PR161781	1	3	2	2	4	3
(Instrument #9)	2	7	5	1	2	3
	1	2	2	1	1	4
	1	2	0	2	4	5
	3					
	5					
	8					
	6					
	2					
Mean	**3.0**	**3.2**	**2.0**	**1.8**	**2.8**	**4.2**
Minimum	1.0	2.0	0.0	1.0	1.0	3.0
Maximum	8.0	7.0	5.0	3.0	4.0	6.0
Std Dev (cpm, 1s)	2.5	2.2	1.9	0.8	1.3	1.3

Background Summary

Material	Bkg. Avg. cpm
M	3.0
BC	3.2

Measured Background Count Rates for Various Surfaces

All values reported in counts per minute (cpm)

Instrument / Probe	Bare Concrete (BC)
Ludlum 2360 / 43-37	7
184938 / PR178371	12
(Instrument #10)	14
	8
	11
Mean	**10.4**
Minimum	7.0
Maximum	14.0
Std Dev (cpm, 1s)	2.9

Background Summary

Material	Bkg. Avg. cpm
BC	10.4

Measured Background Count Rates for Various Surfaces

All values reported in counts per minute (cpm)

Instrument / Probe	Bare Concrete (BC)
Ludlum 2221 / 43-37	22
86286 / PR178371	13
(Instrument #11)	11
	23
	16
Mean	**17.0**
Minimum	11.0
Maximum	23.0
Std Dev (cpm, 1s)	5.3

Background Summary

Material	Bkg. Avg. cpm
BC	17.0

New Haven Depot Final Status Survey Structure Biased Measurement Results

Survey Unit 124-F

Survey Date:	11/2/2006
Building:	124
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	100

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	0.179	125
8	2224/43-68	116257	PR122018	0.187	126
9	2224/43-68	183048	PR161781	0.143	126
10	2360/43-37	184938	PR178371	0.133	582
11	2221/43-37	86286	PR178371	0.159	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
Shrinkwrapping Area Inside #1	B	7	F	BC	12	10.8	1.2	5.4	N/A
Shrinkwrapping Area Inside #2	B	7	F	BC	16	10.8	5.2	23.3	N/A
Shrinkwrapping Area Inside #3	B	7	F	BC	8	10.8	-2.8	-12.5	N/A
Shrinkwrapping Area Inside #4	B	7	F	BC	11	10.8	0.2	0.9	N/A
Shrinkwrapping Area Inside #5	B	7	F	BC	6	10.8	-4.8	-21.5	N/A
Shrinkwrapping Area Inside #6	B	7	F	BC	9	10.8	-1.8	-8.1	N/A
Shrinkwrapping Area Inside #7	B	7	F	BC	10	10.8	-0.8	-3.6	N/A
Shrinkwrapping Area Inside #8	B	7	F	BC	6	10.8	-4.8	-21.5	N/A
Shrinkwrapping Area Inside #9	B	7	F	BC	5	10.8	-5.8	-26.0	N/A
Shrinkwrapping Area Inside #10	B	7	F	BC	11	10.8	0.2	0.9	N/A
Shrinkwrapping Area Inside #11	B	7	F	BC	8	10.8	-2.8	-12.5	N/A
Shrinkwrapping Area Inside #12	B	7	F	BC	12	10.8	1.2	5.4	N/A
Shrinkwrapping Area Inside #13	B	7	F	BC	1	10.8	-9.8	-43.9	N/A
Shrinkwrapping Area Inside #14	B	7	F	BC	12	10.8	1.2	5.4	N/A
Shrinkwrapping Area Inside #15	B	7	W	BC	6	10.8	-4.8	-21.5	N/A
Shrinkwrapping Area Inside #16	B	7	W	BC	8	10.8	-2.8	-12.5	N/A
Shrinkwrapping Area Inside #17	B	7	W	BC	5	10.8	-5.8	-26.0	N/A
Shrinkwrapping Area Inside #18	B	7	W	BC	9	10.8	-1.8	-8.1	N/A
Shrinkwrapping Area Inside #19	B	7	F	BC	12	10.8	1.2	5.4	N/A
Shrinkwrapping Area Inside #20	B	7	F	BC	5	10.8	-5.8	-26.0	N/A

Mean	**-9.9**	
Median	**-10.3**	
Minimum	**-43.9**	
Maximum	**23.3**	
Std Dev (1s)	**15.7**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha

2 Sample Type: S = Systematic R = Random B = Biased

3 F = Floor W = Wall C = Ceiling B = Beam

4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)

5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 210-2-3-B

Survey Date:	9/12/2007
Building:	210-2
MARSSIM Class:	1
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
210-F-2-19-1	B	4	F	C	9	21.0	-12.0	-11.7	N/A
210-F-2-19-2	B	4	F	C	15	21.0	-6.0	-5.9	N/A
210-F-2-19-3	B	4	F	C	12	21.0	-9.0	-8.8	N/A
210-F-2-19-4	B	4	F	C	10	21.0	-11.0	-10.7	N/A
							Mean	**-9.3**	
							Median	**-9.8**	
							Minimum	**-11.7**	
							Maximum	**-5.9**	
							Std Dev (1s)	**2.6**	
							MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha

2 Sample Type: S = Systematic R = Random B = Biased

3 F = Floor W = Wall C = Ceiling B = Beam

4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)

5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 210-F

Structure Sign Test Biased Results

Survey Date:	6/12/2007
Building:	210
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
210-F-4-18	B	3	F	C	20	21.0	-1.0	-1.0	N/A
210-F-4-19	B	3	F	C	25	21.0	4.0	3.9	N/A
210-F-4-20	B	3	F	C	22	21.0	1.0	1.0	N/A
210-F-4-21	B	3	F	C	27	21.0	6.0	5.9	N/A
210-F-4-22	B	3	F	C	29	21.0	8.0	7.8	N/A
210-F-4-23	B	3	F	C	27	21.0	6.0	5.9	N/A
210-F-4-24	B	3	F	C	29	21.0	8.0	7.8	N/A
210-F-4-25	B	3	F	C	24	21.0	3.0	2.9	N/A
210-F-4-26	B	3	F	C	26	21.0	5.0	4.9	N/A
210-F-4-27	B	3	F	C	27	21.0	6.0	5.9	N/A
210-F-4-28	B	3	F	C	30	21.0	9.0	8.8	N/A
210-F-3-29	B	3	F	C	25	21.0	4.0	3.9	N/A
210-F-3-31	B	3	F	C	29	21.0	8.0	7.8	N/A
210-F-3-32	B	3	F	C	28	21.0	7.0	6.8	N/A
210-F-3-33	B	3	F	C	28	21.0	7.0	6.8	N/A
210-F-3-34	B	3	F	C	27	21.0	6.0	5.9	N/A
210-F-3-35	B	3	F	C	25	21.0	4.0	3.9	N/A
210-F-3-37	B	3	F	C	24	21.0	3.0	2.9	N/A
210-F-3-38	B	3	F	C	27	21.0	6.0	5.9	N/A
210-F-3-39	B	3	F	C	24	21.0	3.0	2.9	N/A
210-F-3-40	B	3	F	C	26	21.0	5.0	4.9	N/A
210-F-3-41	B	3	F	C	24	21.0	3.0	2.9	N/A
210-F-2-42	B	3	F	C	30	21.0	9.0	8.8	N/A
210-F-2-43	B	3	F	C	25	21.0	4.0	3.9	N/A
210-F-2-44	B	3	F	C	26	21.0	5.0	4.9	N/A
210-F-2-45	B	3	F	C	28	21.0	7.0	6.8	N/A
210-F-2-46	B	3	F	C	36	21.0	15.0	14.6	N/A
210-F-2-47 (Bay 9E)	B	3	F	C	57	22.0	35.0	34.2	N/A
210-F-2-48 (Bay 9E)	B	3	F	C	124	23.0	101.0	98.6	N/A
210-F-2-49 (Bay 9E)	B	4	F	C	136	19.0	117.0	114.2	N/A

Mean	**13.1**	
Median	**5.9**	
Minimum	**-1.0**	
Maximum	**114.2**	
Std Dev (1s)	**26.1**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1. Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2. Sample Type: S = Systematic R = Random B = Biased
3. F = Floor W = Wall C = Ceiling B = Beam
4. Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)
5. Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 210-W

Survey Date:	6/19/2007
Building:	210
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	38

SU Description: Lower Wall

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min):	1.0
Daily BKGD Count Time (min):	1.0

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
210-W-4-30	B	4	W	RB	25	21.2	3.8	3.7	N/A

Mean	**3.7**	
Median	**3.7**	
Minimum	**3.7**	
Maximum	**3.7**	
Std Dev (1s)	**N/A**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha

2 Sample Type: S = Systematic R = Random B = Biased

3 F = Floor W = Wall C = Ceiling B = Beam

4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)

5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 210-Overhead Beams

Structure Sign Test Biased Results

Survey Date:	6/19/2007
Building:	210
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Beam

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
210-B-4-59	B	4	B	W	12	12.0	0.0	0.0	N/A
210-B-4-60	B	4	B	W	17	12.0	5.0	14.1	N/A
210-B-4-61	B	4	B	W	15	12.0	3.0	8.5	N/A
210-B-4-62	B	4	B	W	10	12.0	-2.0	-5.6	N/A
210-B-4-63	B	4	B	W	9	12.0	-3.0	-8.5	N/A
210-B-4-64	B	4	B	W	22	12.0	10.0	28.2	N/A
210-B-4-65	B	4	B	W	12	12.0	0.0	0.0	N/A
210-B-4-66	B	4	B	W	12	12.0	0.0	0.0	N/A
210-B-4-67	B	4	B	W	15	12.0	3.0	8.5	N/A
210-B-3-68	B	4	B	W	11	12.0	-1.0	-2.8	N/A
210-B-3-69	B	4	B	W	19	12.0	7.0	19.8	N/A
210-B-3-70	B	4	B	W	11	12.0	-1.0	-2.8	N/A
210-B-3-71	B	4	B	W	16	12.0	4.0	11.3	N/A
210-B-3-72	B	4	B	W	15	12.0	3.0	8.5	N/A
210-B-3-73	B	4	B	W	11	12.0	-1.0	-2.8	N/A
210-B-3-74	B	4	B	W	15	12.0	3.0	8.5	N/A
210-B-3-75	B	4	B	W	8	12.0	-4.0	-11.3	N/A
210-B-3-76	B	4	B	W	15	12.0	3.0	8.5	N/A
210-B-2-77	B	4	B	W	10	12.0	-2.0	-5.6	N/A
210-B-2-78	B	4	B	W	11	12.0	-1.0	-2.8	N/A
210-B-2-79	B	4	B	W	18	12.0	6.0	16.9	N/A
210-B-2-80	B	4	B	W	9	12.0	-3.0	-8.5	N/A
210-B-2-81	B	4	B	W	7	12.0	-5.0	-14.1	N/A
210-B-2-82	B	4	B	W	13	12.0	1.0	2.8	N/A
210-B-2-83	B	4	B	W	11	12.0	-1.0	-2.8	N/A

Mean	**2.7**	
Median	**0.0**	
Minimum	**-14.1**	
Maximum	**28.2**	
Std Dev (1s)	**10.3**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 211-F

Survey Date:	11/8/2006
Building:	211
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	55

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
211F-1-14-1	B	10	F	BC	13	10.4	2.6	3.4	N/A
211F-1-14-2	B	10	F	BC	11	10.4	0.6	0.8	N/A
211F-1-11-3	B	10	F	BC	9	10.4	-1.4	-1.8	N/A
211F-1-18-4	B	10	F	BC	9	10.4	-1.4	-1.8	N/A
211F-1-18-5	B	10	F	BC	18	10.4	7.6	9.8	N/A
211F-1-18-6	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
211F-1-36-1	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
211F-1-36-2	B	10	F	BC	10	10.4	-0.4	-0.5	N/A
211F-1-36-3	B	10	F	BC	9	10.4	-1.4	-1.8	N/A
211F-1-36-4	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
211F-1-36-5	B	10	F	BC	10	10.4	-0.4	-0.5	N/A
211F-1-33-6	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
211F-1-33-7	B	10	F	BC	10	10.4	-0.4	-0.5	N/A
211F-1-54-8	B	10	F	BC	10	10.4	-0.4	-0.5	N/A
211F-1-54-9	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
211F-1-54-10	B	10	F	BC	10	10.4	-0.4	-0.5	N/A
211F-1-57-11	B	10	F	BC	10	10.4	-0.4	-0.5	N/A
211F-1-76-1	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
211F-1-76-2	B	10	F	BC	11	10.4	0.6	0.8	N/A
211F-1-76-3	B	10	F	BC	9	10.4	-1.4	-1.8	N/A
211F-1-64-4	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
211F-1-64-5	B	10	F	BC	9	10.4	-1.4	-1.8	N/A
211F-1-71-6	B	10	F	BC	5	10.4	-5.4	-7.0	N/A
211F-1-71-7	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
211F-2-2-1	B	10	F	BC	13	10.4	2.6	3.4	N/A
211F-2-2-2	B	10	F	BC	9	10.4	-1.4	-1.8	N/A
211F-2-2-3	B	10	F	BC	10	10.4	-0.4	-0.5	N/A
211F-2-8-4	B	10	F	BC	12	10.4	1.6	2.1	N/A
211F-2-8-5	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
211F-2-17-6	B	10	F	BC	12	10.4	1.6	2.1	N/A
211F-2-17-7	B	10	F	BC	6	10.4	-4.4	-5.7	N/A
211F-2-13-8	B	10	F	BC	15	10.4	4.6	5.9	N/A
211F-2-13-9	B	10	F	BC	10	10.4	-0.4	-0.5	N/A

Survey Unit 211-F

Survey Date:	11/8/2006
Building:	211
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	55

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
211F-2-34-1	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
211F-2-34-2	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
211F-2-34-3	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
211F-2-34-4	B	10	F	BC	14	10.4	3.6	4.7	N/A
211F-2-36-5	B	10	F	BC	16	10.4	5.6	7.2	N/A
211F-2-51-6	B	10	F	BC	10	10.4	-0.4	-0.5	N/A
211F-2-51-7	B	10	F	BC	17	10.4	6.6	8.5	N/A
211F-2-5 9-8	B	10	F	BC	14	10.4	3.6	4.7	N/A
211F-2-77-1	B	10	F	BC	10	10.4	-0.4	-0.5	N/A
211F-2-74-2	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
211F-2-74-3	B	10	F	BC	14	10.4	3.6	4.7	N/A

Mean	**-0.4**	
Median	**-0.5**	
Minimum	**-7.0**	
Maximum	**9.8**	
Std Dev (1s)	**3.8**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 211-W

Survey Date:	11/8/2006
Building:	211
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	55

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min):	1.0
Daily BKGD Count Time (min):	1.0

SU Description: Lower Wall

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
211W-1-19-1	B	9	W	W	4	2.0	2.0	11.1	N/A
211W-2-61-1	B	9	W	W	5	2.0	3.0	16.7	N/A
211W-2-61-2	B	9	W	W	3	2.0	1.0	5.6	N/A
211W-2-69-3	B	9	W	W	5	2.0	3.0	16.7	N/A
211W-2-69-4	B	9	W	W	6	2.0	4.0	22.3	N/A
211W-2-19-5	B	9	W	W	5	2.0	3.0	16.7	N/A

Mean	**14.8**	
Median	**16.7**	
Minimum	**5.6**	
Maximum	**22.3**	
Std Dev (1s)	**5.7**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha

2 Sample Type: S = Systematic R = Random B = Biased

3 F = Floor W = Wall C = Ceiling B = Beam

4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)

5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 211-Overhead Beams

Survey Date:	11/13/2006
Building:	211
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	55

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Beam Section 1 & 2

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
211B-1-13-1	B	8	B	W	3	4.0	-1.0	-4.3	N/A
211B-1-18-2	B	8	B	W	1	4.0	-3.0	-12.8	N/A
211B-1-19-3	B	8	B	W	4	4.0	0.0	0.0	N/A
211B-1-21-4	B	8	B	W	7	4.0	3.0	12.8	N/A
211B-1-24-5	B	8	B	W	1	4.0	-3.0	-12.8	N/A
211B-1-29-6	B	8	B	W	2	4.0	-2.0	-8.5	N/A
211B-1-52-7	B	8	B	W	1	4.0	-3.0	-12.8	N/A
211B-1-56-8	B	8	B	W	4	4.0	0.0	0.0	N/A
211B-1-58-9	B	8	B	W	1	4.0	-3.0	-12.8	N/A
211B-2-2-1	B	8	B	W	2	4.0	-2.0	-8.5	N/A
211B-2-5-2	B	8	B	W	1	4.0	-3.0	-12.8	N/A
211B-2-8-3	B	8	B	W	1	4.0	-3.0	-12.8	N/A
211B-2-33-4	B	8	B	W	2	4.0	-2.0	-8.5	N/A
211B-2-37-5	B	8	B	W	5	4.0	1.0	4.3	N/A
211B-2-39-6	B	8	B	W	3	4.0	-1.0	-4.3	N/A
211B-2-61-7	B	8	B	W	5	4.0	1.0	4.3	N/A
211B-2-64-8	B	8	B	W	5	4.0	1.0	4.3	N/A
211B-2-66-9	B	8	B	W	3	4.0	-1.0	-4.3	N/A

Mean	**-5.0**	
Median	**-6.4**	
Minimum	**-12.8**	
Maximum	**12.8**	
Std Dev (1s)	**7.8**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 212-F

Survey Date:	11/14/2006
Building:	212
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	100

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
212F-1-11-1	B	11	F	BC	10	17.0	-7.0	-7.6	N/A
212F-1-11-2	B	11	F	BC	19	17.0	2.0	2.2	N/A
212F-1-11-3	B	11	F	BC	19	17.0	2.0	2.2	N/A
212F-1-31-4	B	11	F	BC	16	17.0	-1.0	-1.1	N/A
212F-1-31-5	B	11	F	BC	16	17.0	-1.0	-1.1	N/A
212F-1-31-6	B	11	F	BC	11	17.0	-6.0	-6.5	N/A
212F-1-41-7	B	11	F	BC	13	17.0	-4.0	-4.3	N/A
212F-1-41-8	B	11	F	BC	14	17.0	-3.0	-3.2	N/A
212F-1-41-9	B	11	F	BC	17	17.0	0.0	0.0	N/A
212F-1-41-10	B	11	F	BC	13	17.0	-4.0	-4.3	N/A
212F-1-71-1	B	11	F	BC	15	17.0	-2.0	-2.2	N/A
212F-1-37-2	B	11	F	BC	13	17.0	-4.0	-4.3	N/A
212F-1-37-3	B	11	F	BC	14	17.0	-3.0	-3.2	N/A
212F-1-44-1	B	11	F	BC	11	17.0	-6.0	-6.5	N/A
212F-2-11-1	B	11	F	BC	8	17.0	-9.0	-9.7	N/A
212F-2-12-2	B	11	F	BC	9	17.0	-8.0	-8.6	N/A
212F-2-12-3	B	11	F	BC	10	17.0	-7.0	-7.6	N/A
212F-2-45-1	B	11	F	BC	9	17.0	-8.0	-8.6	N/A
212F-2-44-2	B	11	F	BC	16	17.0	-1.0	-1.1	N/A
212F-2-2-1	B	11	F	BC	18	17.0	1.0	1.1	N/A
212F-2-2-2	B	11	F	BC	14	17.0	-3.0	-3.2	N/A
212F-2-58-3	B	11	F	BC	19	17.0	2.0	2.2	N/A
212F-2-68-4	B	11	F	BC	27	17.0	10.0	10.8	N/A
212F-2-68-5	B	11	F	BC	18	17.0	1.0	1.1	N/A
212F-2-68-6	B	11	F	BC	12	17.0	-5.0	-5.4	N/A

Mean	**-2.8**	
Median	**-3.2**	
Minimum	**-9.7**	
Maximum	**10.8**	
Std Dev (1s)	**4.6**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 212-W

Survey Date:	11/8/2006
Building:	212
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	100

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Lower Wall

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
212W-1-3W-1	B	8	W	W	3	4.0	-1.0	-4.3	N/A
212W-2-11S-1	B	8	W	W	2	4.0	-2.0	-8.5	N/A
212W-2-11S-2	B	8	W	W	4	4.0	0.0	0.0	N/A
212W-2-11S-3	B	8	W	W	7	4.0	3.0	12.8	N/A
212W-2-21S-4	B	8	W	W	2	4.0	-2.0	-8.5	N/A
212W-2-19N-5	B	8	W	W	6	4.0	2.0	8.5	N/A
212W-2-19N-6	B	8	W	W	7	4.0	3.0	12.8	N/A
212W-2-19N-7	B	8	W	W	6	4.0	2.0	8.5	N/A
212W-2-9-8	B	8	W	W	9	4.0	5.0	21.3	N/A
212W-2-9-9	B	8	W	W	8	4.0	4.0	17.0	N/A
212W-1-61S-1	B	8	W	W	2	4.0	-2.0	-8.5	N/A
212W-1-61S-2	B	8	W	W	5	4.0	1.0	4.3	N/A
212W-1-61S-3	B	8	W	W	6	4.0	2.0	8.5	N/A
212W-1-31-4	B	8	W	W	5	4.0	1.0	4.3	N/A
212W-1-31-5	B	8	W	W	7	4.0	3.0	12.8	N/A
212W-1-11-6	B	8	W	W	3	4.0	-1.0	-4.3	N/A

Mean	**4.8**	
Median	**6.4**	
Minimum	**-8.5**	
Maximum	**21.3**	
Std Dev (1s)	**9.6**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 212-Overhead Beams

Survey Date:	11/13/2006
Building:	212
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	100

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Beam Section 1 & 2

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
212B-1-4-1	B	8	B	W	3	4.0	-1.0	-4.3	N/A
212B-1-6-2	B	8	B	W	1	4.0	-3.0	-12.8	N/A
212B-1-8-3	B	8	B	W	2	4.0	-2.0	-8.5	N/A
212B-1-32-4	B	8	B	W	1	4.0	-3.0	-12.8	N/A
212B-1-34-5	B	8	B	W	4	4.0	0.0	0.0	N/A
212B-1-39-6	B	8	B	W	2	4.0	-2.0	-8.5	N/A
212B-1-63-7	B	8	B	W	3	4.0	-1.0	-4.3	N/A
212B-1-65-8	B	8	B	W	5	4.0	1.0	4.3	N/A
212B-1-67-9	B	8	B	W	5	4.0	1.0	4.3	N/A
212B-2-12-1	B	8	B	W	2	4.0	-2.0	-8.5	N/A
212B-2-15-2	B	8	B	W	1	4.0	-3.0	-12.8	N/A
212B-2-17-3	B	8	B	W	1	4.0	-3.0	-12.8	N/A
212B-2-41-4	B	8	B	W	3	4.0	-1.0	-4.3	N/A
212B-2-44-5	B	8	B	W	5	4.0	1.0	4.3	N/A
212B-2-48-6	B	8	B	W	2	4.0	-2.0	-8.5	N/A
212B-2-72-7	B	8	B	W	5	4.0	1.0	4.3	N/A
212B-2-76-8	B	8	B	W	2	4.0	-2.0	-8.5	N/A
212B-2-78-9	B	8	B	W	2	4.0	-2.0	-8.5	N/A

Mean	**-5.4**	
Median	**-8.5**	
Minimum	**-12.8**	
Maximum	**4.3**	
Std Dev (1s)	**6.3**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha

2 Sample Type: S = Systematic R = Random B = Biased

3 F = Floor W = Wall C = Ceiling B = Beam

4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)

5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 213-F

Survey Date:	11/15/2006
Building:	213
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
213F-4-59-1	B	10	F	BC	5	10.4	-5.4	-7.0	N/A
213F-4-59-2	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
213F-4-67-3	B	10	F	BC	3	10.4	-7.4	-9.6	N/A
213F-4-67-4	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
213F-4-67-5	B	10	F	BC	9	10.4	-1.4	-1.8	N/A
213F-4-51-6	B	10	F	BC	3	10.4	-7.4	-9.6	N/A
213F-4-15-1	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
213F-4-15-2	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
213F-4-9-3	B	10	F	BC	10	10.4	-0.4	-0.5	N/A
213F-4-9-4	B	10	F	BC	5	10.4	-5.4	-7.0	N/A
213F-4-9-5	B	10	F	BC	11	10.4	0.6	0.8	N/A
213F-4-11-6	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
213F-4-79-1	B	10	F	BC	1	10.4	-9.4	-12.2	N/A
213F-4-78-2	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
213F-4-78-3	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
213F-4-75-4	B	10	F	BC	5	10.4	-5.4	-7.0	N/A
213F-4-75-5	B	10	F	BC	4	10.4	-6.4	-8.3	N/A
213F-4-69-6	B	10	F	BC	6	10.4	-4.4	-5.7	N/A
213F-4-69-7	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
213F-4-69-8	B	10	F	BC	6	10.4	-4.4	-5.7	N/A
213F-4-39-1	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
213F-4-39-2	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
213F-4-39-3	B	10	F	BC	6	10.4	-4.4	-5.7	N/A
213F-4-39-4	B	10	F	BC	4	10.4	-6.4	-8.3	N/A
213F-4-38-5	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
213F-4-38-6	B	10	F	BC	6	10.4	-4.4	-5.7	N/A
213F-4-31-7	B	10	F	BC	3	10.4	-7.4	-9.6	N/A
213F-4-21-8	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
213F-4-21-9	B	10	F	BC	6	10.4	-4.4	-5.7	N/A
213F-2-15-1	B	11	F	BC	15	17.0	-2.0	-2.2	N/A

Survey Unit 213-F

Survey Date:	11/15/2006
Building:	213
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
213F-2-13-2	B	11	F	BC	16	17.0	-1.0	-1.1	N/A
213F-2-12-3	B	11	F	BC	23	17.0	6.0	6.5	N/A
213F-2-14-4	B	11	F	BC	17	17.0	0.0	0.0	N/A
213F-2-13-5	B	11	F	BC	10	17.0	-7.0	-7.6	N/A
213F-2-14-6	B	11	F	BC	14	17.0	-3.0	-3.2	N/A
213F-2-12-7	B	11	F	BC	16	17.0	-1.0	-1.1	N/A
213F-2-14-8	B	11	F	BC	13	17.0	-4.0	-4.3	N/A
213F-2-37-1	B	11	F	BC	7	17.0	-10.0	-10.8	N/A
213F-2-37-2	B	11	F	BC	9	17.0	-8.0	-8.6	N/A
213F-2-47-3	B	11	F	BC	10	17.0	-7.0	-7.6	N/A
213F-2-37-4	B	11	F	BC	7	17.0	-10.0	-10.8	N/A
213F-2-79-5	B	11	F	BC	11	17.0	-6.0	-6.5	N/A
213F-2-64-1	B	11	F	BC	16	17.0	-1.0	-1.1	N/A
213F-2-64-2	B	11	F	BC	13	17.0	-4.0	-4.3	N/A
213F-2-52-3	B	11	F	BC	14	17.0	-3.0	-3.2	N/A
213F-2-52-4	B	11	F	BC	11	17.0	-6.0	-6.5	N/A
213F-2-8-5	B	11	F	BC	13	17.0	-4.0	-4.3	N/A
213F-2-8-6	B	11	F	BC	8	17.0	-9.0	-9.7	N/A
213F-1-76-1	B	11	F	BC	16	17.0	-1.0	-1.1	N/A
213F-1-62-2	B	11	F	BC	8	17.0	-9.0	-9.7	N/A
213F-1-54-3	B	11	F	BC	15	17.0	-2.0	-2.2	N/A
213F-1-55-1	B	11	F	BC	10	17.0	-7.0	-7.6	N/A
213F-1-56-2	B	11	F	BC	15	17.0	-2.0	-2.2	N/A
213F-1-55-3	B	11	F	BC	11	17.0	-6.0	-6.5	N/A
213F-1-55-4	B	11	F	BC	12	17.0	-5.0	-5.4	N/A
213F-1-55-5	B	11	F	BC	13	17.0	-4.0	-4.3	N/A
213F-1-56-6	B	11	F	BC	15	17.0	-2.0	-2.2	N/A
213F-1-55-7	B	11	F	BC	16	17.0	-1.0	-1.1	N/A
213F-1-58-8	B	11	F	BC	10	17.0	-7.0	-7.6	N/A
213F-1-28-9	B	11	F	BC	14	17.0	-3.0	-3.2	N/A
213F-1-18-10	B	11	F	BC	13	17.0	-4.0	-4.3	N/A

Survey Unit 213-F

Survey Date:	11/15/2006
Building:	213
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
213F-1-13-1	B	11	F	BC	11	17.0	-6.0	-6.5	N/A
213F-1-14-2	B	11	F	BC	16	17.0	-1.0	-1.1	N/A
213F-1-15-3	B	11	F	BC	14	17.0	-3.0	-3.2	N/A
213F-1-15-4	B	11	F	BC	13	17.0	-4.0	-4.3	N/A
213F-1-14-5	B	11	F	BC	15	17.0	-2.0	-2.2	N/A
213F-1-14-6	B	11	F	BC	7	17.0	-10.0	-10.8	N/A
213F-1-14-7	B	11	F	BC	14	17.0	-3.0	-3.2	N/A
213F-1-15-8	B	11	F	BC	15	17.0	-2.0	-2.2	N/A
213F-1-14-9	B	11	F	BC	25	17.0	8.0	8.6	N/A
213F-1-13-10	B	11	F	BC	12	17.0	-5.0	-5.4	N/A

Mean	**-4.6**	
Median	**-4.4**	
Minimum	**-12.2**	
Maximum	**8.6**	
Std Dev (1s)	**3.6**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 213-W

Survey Date:	11/8/2006
Building:	213
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Lower Wall

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
213W-1-21S-1	B	8	W	BCB	4	3.4	0.6	2.6	N/A
213W-1-21S-2	B	8	W	BCB	4	3.4	0.6	2.6	N/A
213W-1-31S-3	B	8	W	BCB	5	3.4	1.6	6.8	N/A
213W-1-31S-4	B	8	W	BCB	2	3.4	-1.4	-6.0	N/A
213W-1-31S-5	B	8	W	BCB	5	3.4	1.6	6.8	N/A
213W-1-59N-6	B	8	W	BCB	6	3.4	2.6	11.1	N/A
213W-1-4W-1	B	8	W	BCB	4	3.4	0.6	2.6	N/A
213W-4-69-1	B	9	W	BCB	4	1.8	2.2	12.2	N/A
213W-4-69-2	B	9	W	BCB	4	1.8	2.2	12.2	N/A
213W-4-69-3	B	9	W	BCB	2	1.8	0.2	1.1	N/A
213W-4-69-4	B	9	W	BCB	1	1.8	-0.8	-4.5	N/A
213W-4-69-5	B	9	W	BCB	2	1.8	0.2	1.1	N/A
213W-4-69-6	B	9	W	BCB	7	1.8	5.2	28.9	N/A
213W-4-69-7	B	9	W	BCB	1	1.8	-0.8	-4.5	N/A
213W-4-29-8	B	9	W	BCB	3	1.8	1.2	6.7	N/A
213W-4-29-9	B	9	W	BCB	4	1.8	2.2	12.2	N/A
213W-4-29-10	B	9	W	BCB	4	1.8	2.2	12.2	N/A
213W-4-29-11	B	9	W	BCB	4	1.8	2.2	12.2	N/A
213W-4-29-12	B	9	W	BCB	3	1.8	1.2	6.7	N/A
213W-4-6W-13	B	9	W	BCB	4	1.8	2.2	12.2	N/A
213W-4-6W-14	B	9	W	BCB	5	1.8	3.2	17.8	N/A
213W-4-6W-15	B	9	W	BCB	7	1.8	5.2	28.9	N/A
213W-2-9N-1	B	9	W	BCB	4	1.8	2.2	12.2	N/A
213W-2-29N-2	B	9	W	BCB	6	1.8	4.2	23.4	N/A
213W-2-29N-3	B	9	W	BCB	3	1.8	1.2	6.7	N/A
213W-2-29N-4	B	9	W	BCB	3	1.8	1.2	6.7	N/A
213W-2-29N-5	B	9	W	BCB	4	1.8	2.2	12.2	N/A
213W-2-31S-6	B	9	W	BCB	5	1.8	3.2	17.8	N/A
213W-2-31S-7	B	9	W	BCB	1	1.8	-0.8	-4.5	N/A
213W-2-31S-8	B	9	W	BCB	6	1.8	4.2	23.4	N/A
213W-2-31S-9	B	9	W	BCB	1	1.8	-0.8	-4.5	N/A
213W-2-31S-10	B	9	W	BCB	4	1.8	2.2	12.2	N/A
213W-2-31S-11	B	9	W	BCB	4	1.8	2.2	12.2	N/A
213W-2-21S-12	B	9	W	BCB	4	1.8	2.2	12.2	N/A
213W-2-21S-13	B	9	W	BCB	1	1.8	-0.8	-4.5	N/A

Survey Unit 213-W

Survey Date:	11/8/2006
Building:	213
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Lower Wall

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
213W-3-9-1	B	9	W	BCB	4	1.8	2.2	12.2	N/A
213W-3-9-2	B	9	W	BCB	3	1.8	1.2	6.7	N/A
213W-3-9-3	B	9	W	BCB	4	1.8	2.2	12.2	N/A
213W-3-59-4	B	9	W	BCB	3	1.8	1.2	6.7	N/A
213W-3-59-5	B	9	W	BCB	5	1.8	3.2	17.8	N/A
213W-3-51-6	B	9	W	BCB	3	1.8	1.2	6.7	N/A

Mean	**9.0**	
Median	**11.1**	
Minimum	**-6.0**	
Maximum	**28.9**	
Std Dev (1s)	**8.7**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 213-Overhead Beams

Survey Date:	11/13/2006
Building:	213
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Beam

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
213B-1-11-1	B	8	B	W	0	4.0	-4.0	-17.0	N/A
213B-1-16-2	B	8	B	W	5	4.0	1.0	4.3	N/A
213B-1-19-3	B	8	B	W	2	4.0	-2.0	-8.5	N/A
213B-1-34-4	B	8	B	W	1	4.0	-3.0	-12.8	N/A
213B-1-36-5	B	8	B	W	2	4.0	-2.0	-8.5	N/A
213B-1-38-6	B	8	B	W	2	4.0	-2.0	-8.5	N/A
213B-1-51-7	B	8	B	W	4	4.0	0.0	0.0	N/A
213B-1-54-8	B	8	B	W	2	4.0	-2.0	-8.5	N/A
213B-1-59-9	B	8	B	W	4	4.0	0.0	0.0	N/A
213B-2-13-1	B	8	B	W	3	4.0	-1.0	-4.3	N/A
213B-2-16-2	B	8	B	W	4	4.0	0.0	0.0	N/A
213B-2-18-3	B	8	B	W	3	4.0	-1.0	-4.3	N/A
213B-2-53-4	B	8	B	W	5	4.0	1.0	4.3	N/A
213B-2-55-5	B	8	B	W	0	4.0	-4.0	-17.0	N/A
213B-2-57-6	B	8	B	W	0	4.0	-4.0	-17.0	N/A
213B-2-72-7	B	8	B	W	1	4.0	-3.0	-12.8	N/A
213B-2-74-8	B	8	B	W	4	4.0	0.0	0.0	N/A
213B-2-78-9	B	8	B	W	4	4.0	0.0	0.0	N/A
213B-3-2-1	B	8	B	W	4	4.0	0.0	0.0	N/A
213B-3-4-2	B	8	B	W	3	4.0	-1.0	-4.3	N/A
213B-3-7-3	B	8	B	W	0	4.0	-4.0	-17.0	N/A
213B-3-31-4	B	8	B	W	1	4.0	-3.0	-12.8	N/A
213B-3-34-5	B	8	B	W	2	4.0	-2.0	-8.5	N/A
213B-3-38-6	B	8	B	W	3	4.0	-1.0	-4.3	N/A
213B-3-62-7	B	8	B	W	4	4.0	0.0	0.0	N/A
213B-3-66-8	B	8	B	W	2	4.0	-2.0	-8.5	N/A
213B-3-69-9	B	8	B	W	1	4.0	-3.0	-12.8	N/A
213B-4-22-1	B	8	B	W	0	4.0	-4.0	-17.0	N/A
213B-4-24-2	B	8	B	W	2	4.0	-2.0	-8.5	N/A
213B-4-26-3	B	8	B	W	3	4.0	-1.0	-4.3	N/A
213B-4-43-4	B	8	B	W	4	4.0	0.0	0.0	N/A
213B-4-45-5	B	8	B	W	1	4.0	-3.0	-12.8	N/A
213B-4-47-6	B	8	B	W	4	4.0	0.0	0.0	N/A
213B-4-75-7	B	8	B	W	2	4.0	-2.0	-8.5	N/A
213B-4-76-8	B	8	B	W	3	4.0	-1.0	-4.3	N/A

Survey Unit 213-Overhead Beams

Survey Date:	11/13/2006
Building:	213
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Beam

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
213B-4-77-9	B	8	B	W	4	4.0	0.0	0.0	N/A

Mean	**-6.5**
Median	**-6.4**
Minimum	**-17.0**
Maximum	**4.3**
Std Dev (1s)	**6.5**
MARSSIM Sign Test Required?	**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 214-F

Survey Date:	6/13/2007
Building:	214
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
214-F-2-18	B	3	F	C	22	21.0	1.0	1.0	N/A
214-F-2-19	B	3	F	C	20	21.0	-1.0	-1.0	N/A
214-F-2-20	B	3	F	C	20	21.0	-1.0	-1.0	N/A
214-F-2-21	B	3	F	C	20	21.0	-1.0	-1.0	N/A
214-F-2-22	B	3	F	C	19	21.0	-2.0	-2.0	N/A
214-F-2-23	B	3	F	C	19	21.0	-2.0	-2.0	N/A
214-F-2-24	B	3	F	C	21	21.0	0.0	0.0	N/A
214-F-2-25	B	3	F	C	18	21.0	-3.0	-2.9	N/A
214-F-2-26	B	3	F	C	24	21.0	3.0	2.9	N/A
214-F-2-27	B	3	F	C	20	21.0	-1.0	-1.0	N/A
214-F-2-28	B	3	F	C	21	21.0	0.0	0.0	N/A
214-F-2-29	B	3	F	C	21	21.0	0.0	0.0	N/A
214-F-2-30	B	3	F	C	19	21.0	-2.0	-2.0	N/A
214-F-2-31	B	3	F	C	25	21.0	4.0	3.9	N/A
214-F-2-32	B	3	F	C	22	21.0	1.0	1.0	N/A
214-F-2-33	B	3	F	C	22	21.0	1.0	1.0	N/A
214-F-2-34	B	3	F	C	23	21.0	2.0	2.0	N/A
214-F-2-35	B	3	F	C	20	21.0	-1.0	-1.0	N/A
214-F-2-36	B	3	F	C	22	21.0	1.0	1.0	N/A
214-F-2-37	B	3	F	C	23	21.0	2.0	2.0	N/A
214-F-2-38	B	3	F	C	22	21.0	1.0	1.0	N/A
214-F-2-39	B	3	F	C	20	21.0	-1.0	-1.0	N/A
214-F-2-40	B	3	F	C	22	21.0	1.0	1.0	N/A
214-F-2-41	B	3	F	C	20	21.0	-1.0	-1.0	N/A
214-F-2-42	B	3	F	C	20	21.0	-1.0	-1.0	N/A
214-F-2-43	B	3	F	C	23	21.0	2.0	2.0	N/A
214-F-2-44	B	3	F	C	22	21.0	1.0	1.0	N/A
214-F-3-45	B	3	F	C	21	21.0	0.0	0.0	N/A
214-F-3-46	B	3	F	C	20	21.0	-1.0	-1.0	N/A
214-F-3-47	B	3	F	C	20	21.0	-1.0	-1.0	N/A
214-F-3-48	B	3	F	C	20	21.0	-1.0	-1.0	N/A

Mean	**0.0**	
Median	**0.0**	
Minimum	**-2.9**	
Maximum	**3.9**	
Std Dev (1s)	**1.6**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 214-W

Survey Date:	6/13/2007
Building:	214
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min):	1.0
Daily BKGD Count Time (min):	1.0

SU Description: Lower Wall

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
214-W-1-49	B	3	W	CB	23	24.0	-1.0	-1.0	N/A
214-W-1-50	B	3	W	CB	25	24.0	1.0	1.0	N/A
214-W-1-51	B	3	W	CB	22	24.0	-2.0	-2.0	N/A

Mean	**-0.7**	
Median	**-1.0**	
Minimum	**-2.0**	
Maximum	**1.0**	
Std Dev (1s)	**1.5**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha

2 Sample Type: S = Systematic R = Random B = Biased

3 F = Floor W = Wall C = Ceiling B = Beam

4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)

5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 214-Overhead Beams

Structure Sign Test Biased Results

Survey Date:	6/12/2007
Building:	214
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Beam

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
214-B-2-52	B	3	W	W	8	15.2	-7.2	-20.3	N/A
214-B-2-53	B	3	W	W	12	15.2	-3.2	-9.0	N/A
214-B-2-54	B	3	W	W	19	15.2	3.8	10.7	N/A
214-B-2-55	B	3	W	W	11	15.2	-4.2	-11.9	N/A
214-B-2-56	B	3	W	W	13	15.2	-2.2	-6.2	N/A
214-B-2-57	B	3	W	W	28	15.2	12.8	36.2	N/A
214-B-2-58	B	3	W	W	18	15.2	2.8	7.9	N/A
214-B-2-59	B	3	W	W	17	15.2	1.8	5.1	N/A
214-B-2-60	B	3	W	W	16	15.2	0.8	2.3	N/A
214-B-3-61	B	3	W	W	10	15.2	-5.2	-14.7	N/A
214-B-3-62	B	3	W	W	10	15.2	-5.2	-14.7	N/A
214-B-3-63	B	3	W	W	20	15.2	4.8	13.6	N/A
214-B-3-64	B	3	W	W	16	15.2	0.8	2.3	N/A
214-B-3-65	B	3	W	W	18	15.2	2.8	7.9	N/A
214-B-3-66	B	3	W	W	12	15.2	-3.2	-9.0	N/A
214-B-3-67	B	3	W	W	20	15.2	4.8	13.6	N/A
214-B-3-68	B	3	W	W	16	15.2	0.8	2.3	N/A
214-B-3-69	B	3	W	W	10	15.2	-5.2	-14.7	N/A
214-B-4-70	B	3	W	W	8	15.2	-7.2	-20.3	N/A
214-B-4-71	B	3	W	W	20	15.2	4.8	13.6	N/A
214-B-4-72	B	3	W	W	12	15.2	-3.2	-9.0	N/A
214-B-4-73	B	3	W	W	13	15.2	-2.2	-6.2	N/A
214-B-4-74	B	3	W	W	18	15.2	2.8	7.9	N/A
214-B-4-75	B	3	W	W	25	15.2	9.8	27.7	N/A
214-B-4-76	B	3	W	W	17	15.2	1.8	5.1	N/A
214-B-4-77	B	3	W	W	22	15.2	6.8	19.2	N/A
214-B-4-78	B	3	W	W	24	15.2	8.8	24.9	N/A

Mean	**2.4**	
Median	**2.3**	
Minimum	**-20.3**	
Maximum	**36.2**	
Std Dev (1s)	**14.9**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 215-F and 215-4-F

Survey Date:	11/13/2006
Building:	215
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
215F-1-1-1	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
215F-1-1-2	B	10	F	BC	9	10.4	-1.4	-1.8	N/A
215F-1-11-3	B	10	F	BC	5	10.4	-5.4	-7.0	N/A
215F-1-11-4	B	10	F	BC	6	10.4	-4.4	-5.7	N/A
215F-1-11-5	B	10	F	BC	6	10.4	-4.4	-5.7	N/A
215F-1-34-6	B	10	F	BC	10	10.4	-0.4	-0.5	N/A
215F-1-34-7	B	10	F	BC	9	10.4	-1.4	-1.8	N/A
215F-1-34-8	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
215F-1-34-9	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
215F-1-45-10	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
215F-1-45-11	B	10	F	BC	5	10.4	-5.4	-7.0	N/A
215F-1-48-1	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
215F-1-59-2	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
215F-1-59-3	B	10	F	BC	9	10.4	-1.4	-1.8	N/A
215F-1-59-4	B	10	F	BC	5	10.4	-5.4	-7.0	N/A
215F-1-28-5	B	10	F	BC	9	10.4	-1.4	-1.8	N/A
215F-1-28-6	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
215F-1-28-7	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
215F-1-28-8	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
215F-1-76-1	B	10	F	BC	6	10.4	-4.4	-5.7	N/A
215F-1-76-2	B	10	F	BC	5	10.4	-5.4	-7.0	N/A
215F-1-76-3	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
215F-1-76-4	B	10	F	BC	5	10.4	-5.4	-7.0	N/A
215F-1-76-5	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
215F-1-73-6	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
215F-1-73-7	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
215F-2-1-1	B	10	F	BC	5	10.4	-5.4	-7.0	N/A
215F-2-1-2	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
215F-2-5-3	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
215F-2-5-4	B	10	F	BC	6	10.4	-4.4	-5.7	N/A

Survey Unit 215-F and 215-4-F

Survey Date:	11/13/2006
Building:	215
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
215F-2-5-5	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
215F-2-9-6	B	10	F	BC	5	10.4	-5.4	-7.0	N/A
215F-2-9-7	B	10	F	BC	4	10.4	-6.4	-8.3	N/A
215F-2-13-8	B	10	F	BC	5	10.4	-5.4	-7.0	N/A
215F-2-13-9	B	10	F	BC	5	10.4	-5.4	-7.0	N/A
215F-2-17-1	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
215F-2-17-2	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
215F-2-17-3	B	10	F	BC	6	10.4	-4.4	-5.7	N/A
215F-2-17-4	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
215F-2-38-5	B	10	F	BC	10	10.4	-0.4	-0.5	N/A
215F-2-38-6	B	10	F	BC	9	10.4	-1.4	-1.8	N/A
215F-2-38-7	B	10	F	BC	5	10.4	-5.4	-7.0	N/A
215F-2-38-8	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
215F-2-34-9	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
215F-2-41-10	B	10	F	BC	9	10.4	-1.4	-1.8	N/A
215F-2-52-1	B	10	F	BC	9	10.4	-1.4	-1.8	N/A
215F-2-52-2	B	10	F	BC	10	10.4	-0.4	-0.5	N/A
215F-2-52-3	B	10	F	BC	1	10.4	-9.4	-12.2	N/A
215F-2-52-4	B	10	F	BC	6	10.4	-4.4	-5.7	N/A
215F-2-54-5	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
215F-2-54-6	B	10	F	BC	10	10.4	-0.4	-0.5	N/A
215F-2-54-7	B	10	F	BC	13	10.4	2.6	3.4	N/A
215F-2-54-8	B	10	F	BC	5	10.4	-5.4	-7.0	N/A
215F-2-54-9	B	10	F	BC	6	10.4	-4.4	-5.7	N/A
215F-2-63-10	B	10	F	BC	4	10.4	-6.4	-8.3	N/A
215F-2-63-11	B	10	F	BC	5	10.4	-5.4	-7.0	N/A
215F-4-19-1	B	10	F	BC	13	10.4	2.6	3.4	N/A
215F-4-15-2	B	10	F	BC	17	10.4	6.6	8.5	N/A
215F-4-15-3	B	10	F	BC	4	10.4	-6.4	-8.3	N/A
215F-4-15-4	B	10	F	BC	6	10.4	-4.4	-5.7	N/A
215F-4-29-5	B	10	F	BC	5	10.4	-5.4	-7.0	N/A
215F-4-29-6	B	10	F	BC	10	10.4	-0.4	-0.5	N/A
215F-4-29-7	B	10	F	BC	10	10.4	-0.4	-0.5	N/A
215F-4-51-8	B	10	F	BC	13	10.4	2.6	3.4	N/A
215F-4-53-1	B	10	F	BC	5	10.4	-5.4	-7.0	N/A

Survey Unit 215-F and 215-4-F

Survey Date:	11/13/2006
Building:	215
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Floor

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
215F-4-53-2	B	10	F	BC	11	10.4	0.6	0.8	N/A
215F-4-53-3	B	10	F	BC	13	10.4	2.6	3.4	N/A
215F-4-61-4	B	10	F	BC	6	10.4	-4.4	-5.7	N/A
215F-4-61-5	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
215F-4-65-6	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
215F-4-65-7	B	10	F	BC	10	10.4	-0.4	-0.5	N/A
215F-4-65-8	B	10	F	BC	11	10.4	0.6	0.8	N/A
215F-4-65-9	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
215F-4-79-1	B	10	F	BC	8	10.4	-2.4	-3.1	N/A
215F-4-79-2	B	10	F	BC	6	10.4	-4.4	-5.7	N/A
215F-4-75-3	B	10	F	BC	9	10.4	-1.4	-1.8	N/A
215F-4-75-4	B	10	F	BC	15	10.4	4.6	5.9	N/A
215F-4-71-5	B	10	F	BC	7	10.4	-3.4	-4.4	N/A
215F-4-71-6	B	10	F	BC	9	10.4	-1.4	-1.8	N/A

Mean	**-3.6**	
Median	**-4.4**	
Minimum	**-12.2**	
Maximum	**8.5**	
Std Dev (1s)	**3.4**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha

2 Sample Type: S = Systematic R = Random B = Biased

3 F = Floor W = Wall C = Ceiling B = Beam

4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)

5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 215-W and 215-4-W

Survey Date:	11/7/2006
Building:	215
MARSSIM Class:	3
SU DCGL$_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Lower Wall

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
215W-1-19N-1	B	8	W	BCB	5	3.4	1.6	6.8	N/A
215W-2-79N-2	B	8	W	BCB	4	3.4	0.6	2.6	N/A
215W-2-69N-3	B	8	W	BCB	4	3.4	0.6	2.6	N/A
215W-4-29N-1	B	8	W	BCB	4	3.4	0.6	2.6	N/A
215W-4-29N-2	B	8	W	BCB	3	3.4	-0.4	-1.7	N/A
215W-4-29N-3	B	8	W	BCB	5	3.4	1.6	6.8	N/A
215W-4-29N-4	B	8	W	BCB	3	3.4	-0.4	-1.7	N/A
215W-4-79N-5	B	8	W	BCB	6	3.4	2.6	11.1	N/A
215W-4-79N-6	B	8	W	BCB	5	3.4	1.6	6.8	N/A
215W-4-71S-7	B	8	W	BCB	2	3.4	-1.4	-6.0	N/A
215W-4-71S-8	B	8	W	BCB	1	3.4	-2.4	-10.2	N/A
215W-4-71S-9	B	8	W	BCB	2	3.4	-1.4	-6.0	N/A
215W-4-71S-10	B	8	W	BCB	2	3.4	-1.4	-6.0	N/A
215W-4-71E-9	B	9	W	BCB	3	1.8	1.2	6.7	N/A
215W-4-71E-10	B	9	W	BCB	1	1.8	-0.8	-4.5	N/A
215W-4-71E-11	B	9	W	BCB	2	1.8	0.2	1.1	N/A
215W-4-71E-12	B	9	W	BCB	5	1.8	3.2	17.8	N/A
215W-4-71E-13	B	9	W	BCB	2	1.8	0.2	1.1	N/A
215W-4-71E-14	B	9	W	BCB	6	1.8	4.2	23.4	N/A
215W-2-1-1	B	9	W	BCB	2	1.8	0.2	1.1	N/A
215W-2-1-2	B	9	W	BCB	2	1.8	0.2	1.1	N/A
215W-2-1-3	B	9	W	BCB	2	1.8	0.2	1.1	N/A
215W-2-41-4	B	9	W	BCB	2	1.8	0.2	1.1	N/A
215W-2-41-5	B	9	W	BCB	2	1.8	0.2	1.1	N/A
215W-2-41-6	B	9	W	BCB	2	1.8	0.2	1.1	N/A
215W-2-41-7	B	9	W	BCB	1	1.8	-0.8	-4.5	N/A
215W-2-41-8	B	9	W	BCB	1	1.8	-0.8	-4.5	N/A
215W-2-41-9	B	9	W	BCB	2	1.8	0.2	1.1	N/A

Mean	**1.9**	
Median	**1.1**	
Minimum	**-10.2**	
Maximum	**23.4**	
Std Dev (1s)	**7.1**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Survey Unit 215 and 215-4 - Overhead Beams

Survey Date:	11/9/2006
Building:	215
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Beam

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
215B-1-1-1	B	9	B	W	4	2.0	2.0	11.1	N/A
215B-1-5-2	B	9	B	W	2	2.0	0.0	0.0	N/A
215B-1-9-3	B	9	B	W	5	2.0	3.0	16.7	N/A
215B-1-12-4	B	9	B	W	2	2.0	0.0	0.0	N/A
215B-1-15-5	B	9	B	W	2	2.0	0.0	0.0	N/A
215B-1-18-6	B	9	B	W	2	2.0	0.0	0.0	N/A
215B-1-52-7	B	9	B	W	6	2.0	4.0	22.3	N/A
215B-1-54-8	B	9	B	W	5	2.0	3.0	16.7	N/A
215B-1-50-9	B	9	B	W	2	2.0	0.0	0.0	N/A
215B-2-2-1	B	9	B	W	1	2.0	-1.0	-5.6	N/A
215B-2-5-2	B	9	B	W	3	2.0	1.0	5.6	N/A
215B-2-8-3	B	9	B	W	2	2.0	0.0	0.0	N/A
215B-2-13-4	B	9	B	W	1	2.0	-1.0	-5.6	N/A
215B-2-16-5	B	9	B	W	3	2.0	1.0	5.6	N/A
215B-2-18-6	B	9	B	W	3	2.0	1.0	5.6	N/A
215B-2-52-7	B	9	B	W	4	2.0	2.0	11.1	N/A
215B-2-55-8	B	9	B	W	2	2.0	0.0	0.0	N/A
215B-2-59-9	B	9	B	W	1	2.0	-1.0	-5.6	N/A
215B-3-2-1	B	9	B	W	2	2.0	0.0	0.0	N/A
215B-3-5-2	B	9	B	W	4	2.0	2.0	11.1	N/A
215B-3-9-3	B	9	B	W	2	2.0	0.0	0.0	N/A
215B-3-58-4	B	9	B	W	3	2.0	1.0	5.6	N/A
215B-3-55-5	B	9	B	W	0	2.0	-2.0	-11.1	N/A
215B-3-52-6	B	9	B	W	2	2.0	0.0	0.0	N/A
215B-3-72-7	B	9	B	W	6	2.0	4.0	22.3	N/A

Survey Unit 215 and 215-4 - Overhead Beams

Survey Date:	11/9/2006
Building:	215
MARSSIM Class:	3
SU $DCGL_w$ (dpm/100cm^2):	38

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
7	2224-1/43-89	162420	PR171381	17.85%	125
8	2224/43-68	116257	PR122018	18.65%	126
9	2224/43-68	183048	PR161781	14.27%	126
10	2360/43-37	184938	PR178371	13.29%	582
11	2221/43-37	86286	PR178371	15.92%	582

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Beam

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter
215B-3-75-8	B	9	B	W	0	2.0	-2.0	-11.1	N/A
215B-3-77-9	B	9	B	W	3	2.0	1.0	5.6	N/A
215B-4-31-1	B	9	B	W	3	2.0	1.0	5.6	N/A
215B-4-35-2	B	9	B	W	1	2.0	-1.0	-5.6	N/A
215B-4-37-3	B	9	B	W	4	2.0	2.0	11.1	N/A
215B-4-52-4	B	9	B	W	1	2.0	-1.0	-5.6	N/A
215B-4-54-5	B	9	B	W	1	2.0	-1.0	-5.6	N/A
215B-4-58-6	B	9	B	W	2	2.0	0.0	0.0	N/A
215B-4-62-7	B	9	B	W	0	2.0	-2.0	-11.1	N/A
215B-4-64-8	B	9	B	W	2	2.0	0.0	0.0	N/A
215B-4-67-9	B	9	B	W	2	2.0	0.0	0.0	N/A

Mean	**2.5**	
Median	**0.0**	
Minimum	**-11.1**	
Maximum	**22.3**	
Std Dev (1s)	**8.6**	
MARSSIM Sign Test Required?		**NO**

NOTES:

1. Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2. Sample Type: S = Systematic R = Random B = Biased
3. F = Floor W = Wall C = Ceiling B = Beam
4. Surface Materials: BC (Bare Concrete), PC (Painted Concrete), BCB (Bare Cinder Block), BCFT (Bare Ceramic Floor Tile), W (Wood), FB (Fiber Board), RB (Red Brick), M (Metal), O (Other)
5. Average of background readings collected in unimpacted areas for each building surface encountered during FSS

Rail Scale - Survey Unit 8 - Biased Measurements

Survey Date:	8/10/2007
Building:	Rail Scale
MARSSIM Class:	2
SU $DCGL_w$ (dpm/100cm^2):	100

Instrument Number	Instrument/Probe Models	Instrument S/N	Probe S/N	Alpha Efficiency[1]	Probe Active Area (cm^2)
1	2229/43-10-1	163827	PR171322	0.395	100
2	2229/43-10-1	102001	PR103276	0.354	100
3	2360/43-37	184938	PR178371	0.172	582
4	2360/43-37	193675	PR216984	0.176	582
5	2224/43-68	183048	PR161781	0.200	126

Static Count Time (min): 1.0
Daily BKGD Count Time (min): 1.0

SU Description: Concrete Pad

Sample ID	Sample Type[2]	Instrument Number	Sample Location[3]	Surface Material[4]	Alpha Counts (gross cpm)	Material Specific Background[5] (cpm)	Net Fixed-Point Result (net cpm)	Alpha Residual Surface Activity (dpm/100cm^2)	Alpha Sign Test Parameter[6]
FS01	B	5	F	C	0	0.0	0.0	0.0	1
FS02	B	5	F	C	2	0.0	2.0	7.9	1
FS03	B	5	F	C	0	0.0	0.0	0.0	1
FS04	B	5	F	C	4	0.0	4.0	15.9	1
FS05	B	5	F	C	0	0.0	0.0	0.0	1
FS06	B	5	F	C	5	0.0	5.0	19.8	1
FS07	B	5	F	C	3	0.0	3.0	11.9	1
FS08	B	5	F	C	4	0.0	4.0	15.9	1
							Mean	**8.9**	
							Median	**9.9**	
							Minimum	**0.0**	
							Maximum	**19.8**	
							Std Dev (1s)	**8.1**	
							MARSSIM Sign Test Required?		**NO**

NOTES:

1 Instrument Efficiency = Instrument static 4-pi efficiency for Alpha
2 Sample Type: S = Systematic R = Random B = Biased
3 F = Floor W = Wall C = Ceiling B = Beam
4 Surface Materials: C (Concrete), CB (Cinder Block), W (Wood), B (Brick), MD (Metal Door), CP (Carpet), DW (Drywall), L (Linoleum), O (Other)
5 Average of background readings collected in unimpacted areas for each building surface encountered during FSS

New Haven Depot Final Status Survey
Structure Removable Activity Results

Structure Removable Activity Results

Building 124, Class 3

Instrument and Survey Information - 2007 Survey

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

Removable Limit alpha dpm/100 cm^2
10

Instrument and Survey Information - 2006 Survey

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

Survey Unit 124-F

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	124-F-1	11/16/2006	2	1049	3	220	0.1	52.5	0.75	55	1.8	9
2	124-F-2	11/16/2006	2	1049	4	201	0.1	52.5	1.00	50	2.5	-8
3	124-F-3	11/16/2006	2	1049	1	188	0.1	52.5	0.25	47	0.4	-19
4	124-F-4	11/16/2006	2	1049	0	214	0.1	52.5	0.00	54	-0.3	4
5	124-F-5	11/16/2006	2	1049	2	170	0.1	52.5	0.50	43	1.1	-35
6	124-F-6	11/16/2006	2	1049	0	203	0.1	52.5	0.00	51	-0.3	-6
7	124-F-7	11/16/2006	2	1049	0	201	0.1	52.5	0.00	50	-0.3	-8
8	124-F-8	11/16/2006	2	1049	0	216	0.1	52.5	0.00	54	-0.3	5
9	124-F-9	11/16/2006	2	1049	1	213	0.1	52.5	0.25	53	0.4	3
10	124-F-10	11/16/2006	2	1049	1	208	0.1	52.5	0.25	52	0.4	-2
11	124-F-11	11/16/2006	2	1049	2	179	0.1	52.5	0.50	45	1.1	-27
12	124-F-12	11/16/2006	2	1049	0	223	0.1	52.5	0.00	56	-0.3	12
13	124-F-13	11/16/2006	2	1049	1	198	0.1	52.5	0.25	50	0.4	-10
14	124-F-14	11/16/2006	2	1049	1	199	0.1	52.5	0.25	50	0.4	-9
15	124-F-15	11/16/2006	2	1049	0	231	0.1	52.5	0.00	58	-0.3	19
16	124-F-16	11/16/2006	2	1049	1	204	0.1	52.5	0.25	51	0.4	-5
17	124-F-17	11/16/2006	2	1049	1	203	0.1	52.5	0.25	51	0.4	-6
										Mean	0.5	-4.9
										Median	0.4	-6.0
										SD	0.8	13.5
										Minimum	-0.3	-34.9
										Maximum	2.5	18.6

Survey Unit 124-W

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	124-W-1	11/17/2006	3	1026	0	173	0.2	51.3	0.00	43	-0.4	-28
2	124-W-2	11/17/2006	3	1026	2	214	0.2	51.3	0.50	54	1.0	8
3	124-W-3	11/17/2006	3	1026	0	196	0.2	51.3	0.00	49	-0.4	-8
4	124-W-4	11/17/2006	3	1026	0	187	0.2	51.3	0.00	47	-0.4	-16
5	124-W-5	11/17/2006	3	1026	2	197	0.2	51.3	0.50	49	1.0	-7
6	124-W-6	11/17/2006	3	1026	0	180	0.2	51.3	0.00	45	-0.4	-22
7	124-W-7	11/17/2006	3	1026	0	251	0.2	51.3	0.00	63	-0.4	40
8	124-W-8	11/17/2006	3	1026	1	189	0.2	51.3	0.25	47	0.3	-14
9	124-W-9	11/17/2006	3	1026	2	174	0.2	51.3	0.50	44	1.0	-27
10	124-W-10	11/17/2006	3	1026	0	202	0.2	51.3	0.00	51	-0.4	-3
11	124-W-11	11/17/2006	3	1026	1	191	0.2	51.3	0.25	48	0.3	-12
12	124-W-12	11/17/2006	3	1026	1	183	0.2	51.3	0.25	46	0.3	-19
13	124-W-13	11/17/2006	3	1026	1	209	0.2	51.3	0.25	52	0.3	3
14	124-W-14	11/17/2006	3	1026	2	226	0.2	51.3	0.50	57	1.0	18
15	124-W-15	11/17/2006	3	1026	0	198	0.2	51.3	0.00	50	-0.4	-6
16	124-W-16	11/17/2006	3	1026	1	207	0.2	51.3	0.25	52	0.3	2
17	124-W-17	11/17/2006	3	1026	0	176	0.2	51.3	0.00	44	-0.4	-26
										Mean	0.1	-7.0
										Median	0.3	-8.1
										SD	0.6	17.8
										Minimum	-0.4	-28.3
										Maximum	1.0	40.2

Structure Removable Activity Results **Building 129A, Class 2 (Floors and Lower Walls)**

Instrument and Survey Information - 2007 Survey

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

Removable Limit alpha dpm/100 cm^2
10

Instrument and Survey Information - 2006 Survey

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

Survey Unit 129A-F

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	129A-1	6/27/2007	6	983	2	267	0.3	49.2	0.40	53	0.3	14
2	129A-2	6/27/2007	6	983	4	198	0.3	49.2	0.80	40	1.3	-32
3	129A-3	6/27/2007	6	983	2	245	0.3	49.2	0.40	49	0.3	-1
4	129A-4	6/27/2007	6	983	3	235	0.3	49.2	0.60	47	0.8	-7
5	129A-5	6/27/2007	6	983	1	259	0.3	49.2	0.20	52	-0.3	9
6	129A-6	6/27/2007	6	983	3	234	0.3	49.2	0.60	47	0.8	-8
7	129A-7	6/27/2007	6	983	4	225	0.3	49.2	0.80	45	1.3	-14
8	129A-8	6/27/2007	6	983	4	212	0.3	49.2	0.80	42	1.3	-23
9	129A-9	6/27/2007	6	983	0	216	0.3	49.2	0.00	43	-0.8	-20
10	129A-10	6/27/2007	6	983	2	235	0.3	49.2	0.40	47	0.3	-7
11	129A-11	6/27/2007	6	983	0	235	0.3	49.2	0.00	47	-0.8	-7
12	129A-12	6/27/2007	6	983	2	227	0.3	49.2	0.40	45	0.3	-13
13	129A-13	6/27/2007	6	983	1	252	0.3	49.2	0.20	50	-0.3	4
14	129A-14	6/27/2007	6	983	2	234	0.3	49.2	0.40	47	0.3	-8
15	129A-15	6/27/2007	6	983	1	248	0.3	49.2	0.20	50	-0.3	2
16	129A-16	6/27/2007	6	983	1	248	0.3	49.2	0.20	50	-0.3	2
17	129A-17	6/27/2007	6	983	2	240	0.3	49.2	0.40	48	0.3	-4
										Mean	0.3	-6.7
										Median	0.3	-7.3
										SD	0.6	11.7
										Minimum	-0.8	-32.4
										Maximum	1.3	14.4

Building 136, Class 3

Instrument and Survey Information - 2007 Survey

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3947	0.2947	5.0	20.0

Removable Limit alpha dpm/100 cm^2
4

Instrument and Survey Information - 2006 Survey

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3588	0.2849	4.0	20.0

Survey Unit 136-F

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	136-F-1	11/20/2006	4	1042	0	220	0.2	52.1	0.00	55	-0.6	10
2	136-F-2	11/20/2006	4	1042	0	214	0.2	52.1	0.00	54	-0.6	5
3	136-F-3	11/20/2006	4	1042	1	188	0.2	52.1	0.25	47	0.1	-18
4	136-F-4	11/20/2006	4	1042	0	196	0.2	52.1	0.00	49	-0.6	-11
5	136-F-5	11/20/2006	4	1042	2	192	0.2	52.1	0.50	48	0.8	-14
6	136-F-6	11/20/2006	4	1042	0	214	0.2	52.1	0.00	54	-0.6	5
7	136-F-7	11/20/2006	4	1042	0	182	0.2	52.1	0.00	46	-0.6	-23
8	136-F-8	11/20/2006	4	1042	2	218	0.2	52.1	0.50	55	0.8	8
9	136-F-9	11/20/2006	4	1042	0	188	0.2	52.1	0.00	47	-0.6	-18
10	136-F-10	11/20/2006	4	1042	0	194	0.2	52.1	0.00	49	-0.6	-13
11	136-F-11	11/20/2006	4	1042	0	190	0.2	52.1	0.00	48	-0.6	-16
12	136-F-12	11/20/2006	4	1042	0	180	0.2	52.1	0.00	45	-0.6	-25
13	136-F-13	11/20/2006	4	1042	0	200	0.2	52.1	0.00	50	-0.6	-7
14	136-F-14	11/20/2006	4	1042	0	210	0.2	52.1	0.00	53	-0.6	1
15	136-F-15	11/20/2006	4	1042	0	148	0.2	52.1	0.00	37	-0.6	-53
16	136-F-16	11/20/2006	4	1042	0	186	0.2	52.1	0.00	47	-0.6	-20
17	136-F-17	11/20/2006	4	1042	0	188	0.2	52.1	0.00	47	-0.6	-18
										Mean	-0.4	-12.1
										Median	-0.6	-14.4
										SD	0.5	15.5
										Minimum	-0.6	-53.0
										Maximum	0.8	10.2

Survey Unit 136-W

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	136-W-1	11/20/2006	4	1042	0	234	0.2	52.1	0.00	59	-0.6	22
2	136-W-2	11/20/2006	4	1042	4	206	0.2	52.1	1.00	52	2.2	-2
3	136-W-3	11/20/2006	4	1042	0	210	0.2	52.1	0.00	53	-0.6	1
4	136-W-4	11/20/2006	4	1042	2	200	0.2	52.1	0.50	50	0.8	-7
5	136-W-5	11/20/2006	4	1042	0	204	0.2	52.1	0.00	51	-0.6	-4
6	136-W-6	11/20/2006	4	1042	0	196	0.2	52.1	0.00	49	-0.6	-11
7	136-W-7	11/20/2006	4	1042	0	196	0.2	52.1	0.00	49	-0.6	-11
8	136-W-8	11/20/2006	4	1042	1	174	0.2	52.1	0.25	44	0.1	-30
9	136-W-9	11/20/2006	4	1042	2	226	0.2	52.1	0.50	57	0.8	15
10	136-W-10	11/20/2006	4	1042	2	196	0.2	52.1	0.50	49	0.8	-11
11	136-W-11	11/20/2006	4	1042	0	188	0.2	52.1	0.00	47	-0.6	-18
12	136-W-12	11/20/2006	4	1042	0	206	0.2	52.1	0.00	52	-0.6	-2
13	136-W-13	11/20/2006	4	1042	2	190	0.2	52.1	0.50	48	0.8	-16
14	136-W-14	11/20/2006	4	1042	0	200	0.2	52.1	0.00	50	-0.6	-7
15	136-W-15	11/20/2006	4	1042	0	176	0.2	52.1	0.00	44	-0.6	-28
16	136-W-16	11/20/2006	4	1042	2	182	0.2	52.1	0.50	46	0.8	-23
17	136-W-17	11/20/2006	4	1042	2	226	0.2	52.1	0.50	57	0.8	15
										Mean	0.1	-6.9
										Median	-0.6	-7.4
										SD	0.9	14.8
										Minimum	-0.6	-30.2
										Maximum	2.2	22.5

Building 141, Class 3

Instrument and Survey Information - 2007 Survey

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

Removable Limit alpha dpm/100 cm^2
10

Instrument and Survey Information - 2006 Survey

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

Survey Unit 141-F

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	141-1	6/26/2007	6	983	0	206	0.3	49.2	0.00	41	-0.8	-27
2	141-2	6/26/2007	6	983	0	206	0.3	49.2	0.00	41	-0.8	-27
3	141-3	6/26/2007	6	983	0	241	0.3	49.2	0.00	48	-0.8	-3
4	141-4	6/26/2007	6	983	2	245	0.3	49.2	0.40	49	0.3	-1
5	141-5	6/26/2007	6	983	0	234	0.3	49.2	0.00	47	-0.8	-8
6	141-6	6/26/2007	6	983	2	221	0.3	49.2	0.40	44	0.3	-17
7	141-7	6/26/2007	6	983	2	218	0.3	49.2	0.40	44	0.3	-19
8	141-8	6/26/2007	6	983	2	217	0.3	49.2	0.40	43	0.3	-20
9	141-9	6/26/2007	6	983	3	239	0.3	49.2	0.60	48	0.8	-5
10	141-10	6/26/2007	6	983	1	256	0.3	49.2	0.20	51	-0.3	7
11	141-11	6/26/2007	6	983	1	233	0.3	49.2	0.20	47	-0.3	-9
12	141-12	6/26/2007	6	983	3	232	0.3	49.2	0.60	46	0.8	-9
13	141-13	6/26/2007	6	983	5	232	0.3	49.2	1.00	46	1.8	-9
14	141-14	6/26/2007	6	983	1	232	0.3	49.2	0.20	46	-0.3	-9
15	141-15	6/26/2007	6	983	2	213	0.3	49.2	0.40	43	0.3	-22
16	141-16	6/26/2007	6	983	3	243	0.3	49.2	0.60	49	0.8	-2
17	141-17	6/26/2007	6	983	2	205	0.3	49.2	0.40	41	0.3	-28
										Mean	0.1	-12.2
										Median	0.3	-9.3
										SD	0.7	10.3
										Minimum	-0.8	-27.7
										Maximum	1.8	7.0

Building 145, Class 3

Instrument and Survey Information - 2007 Survey

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

Removable Limit alpha dpm/100 cm^2
10

Instrument and Survey Information - 2006 Survey

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

Survey Unit 145-F

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	145-10	6/27/2007	6	983	1	219	0.3	49.2	0.20	44	-0.3	-18
2	145-6	6/27/2007	6	983	2	232	0.3	49.2	0.40	46	0.3	-9
3	145-2	6/27/2007	6	983	3	220	0.3	49.2	0.60	44	0.8	-17
4	145-14	6/27/2007	6	983	1	238	0.3	49.2	0.20	48	-0.3	-5
5	145-8	6/27/2007	6	983	2	242	0.3	49.2	0.40	48	0.3	-3
6	145-17	6/27/2007	6	983	0	232	0.3	49.2	0.00	46	-0.8	-9
7	145-7	6/27/2007	6	983	2	244	0.3	49.2	0.40	49	0.3	-1
8	145-9	6/27/2007	6	983	0	214	0.3	49.2	0.00	43	-0.8	-22
9	145-16	6/27/2007	6	983	3	244	0.3	49.2	0.60	49	0.8	-1
10	145-15	6/27/2007	6	983	0	244	0.3	49.2	0.00	49	-0.8	-1
11	145-1	6/27/2007	6	983	1	245	0.3	49.2	0.20	49	-0.3	-1
12	145-3	6/27/2007	6	983	1	212	0.3	49.2	0.20	42	-0.3	-23
13	145-13	6/27/2007	6	983	1	237	0.3	49.2	0.20	47	-0.3	-6
14	145-11	6/27/2007	6	983	0	228	0.3	49.2	0.00	46	-0.8	-12
15	145-4	6/27/2007	6	983	1	233	0.3	49.2	0.20	47	-0.3	-9
16	145-5	6/27/2007	6	983	1	255	0.3	49.2	0.20	51	-0.3	6
17	145-12	6/27/2007	6	983	1	262	0.3	49.2	0.20	52	-0.3	11
										Mean	-0.2	-7.1
										Median	-0.3	-5.9
										SD	0.5	9.4
										Minimum	-0.8	-22.9
										Maximum	0.8	11.0

Building 146, Class 3

Instrument and Survey Information - 2007 Survey

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

Removable Limit alpha dpm/100 cm^2
10

Instrument and Survey Information - 2006 Survey

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

Survey Unit 146-F

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	146-F-1	11/17/2006	3	1026	2	180	0.2	51.3	0.50	45	1.0	-22
2	146-F-2	11/17/2006	3	1026	0	164	0.2	51.3	0.00	41	-0.4	-36
3	146-F-3	11/17/2006	3	1026	4	168	0.2	51.3	1.00	42	2.4	-33
4	146-F-4	11/17/2006	3	1026	1	184	0.2	51.3	0.25	46	0.3	-19
5	146-F-5	11/17/2006	3	1026	2	167	0.2	51.3	0.50	42	1.0	-34
6	146-F-6	11/17/2006	3	1026	0	178	0.2	51.3	0.00	45	-0.4	-24
7	146-F-7	11/17/2006	3	1026	0	197	0.2	51.3	0.00	49	-0.4	-7
8	146-F-8	11/17/2006	3	1026	1	181	0.2	51.3	0.25	45	0.3	-21
9	146-F-9	11/17/2006	3	1026	0	192	0.2	51.3	0.00	48	-0.4	-12
10	146-F-10	11/17/2006	3	1026	0	180	0.2	51.3	0.00	45	-0.4	-22
11	146-F-11	11/17/2006	3	1026	0	181	0.2	51.3	0.00	45	-0.4	-21
12	146-F-12	11/17/2006	3	1026	0	142	0.2	51.3	0.00	36	-0.4	-55
13	146-F-13	11/17/2006	3	1026	0	181	0.2	51.3	0.00	45	-0.4	-21
14	146-F-14	11/17/2006	3	1026	0	204	0.2	51.3	0.00	51	-0.4	-1
15	146-F-15	11/17/2006	3	1026	0	218	0.2	51.3	0.00	55	-0.4	11
16	146-F-16	11/17/2006	3	1026	0	184	0.2	51.3	0.00	46	-0.4	-19
17	146-F-17	11/17/2006	3	1026	0	193	0.2	51.3	0.00	48	-0.4	-11
										Mean	0.0	-20.4
										Median	-0.4	-21.2
										SD	0.8	14.9
										Minimum	-0.4	-55.5
										Maximum	2.4	11.2

Survey Unit 146-W

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
773	146-W-1	11/21/2006	4	934	0	208	0.2	46.7	0.00	52	-0.6	19
774	146-W-2	11/21/2006	4	934	4	200	0.2	46.7	1.00	50	2.2	12
775	146-W-3	11/21/2006	4	934	3	205	0.2	46.7	0.75	51	1.5	16
776	146-W-4	11/21/2006	4	934	6	175	0.2	46.7	1.50	44	3.6	-10
777	146-W-5	11/21/2006	4	934	6	194	0.2	46.7	1.50	49	3.6	6
778	146-W-6	11/21/2006	4	934	2	197	0.2	46.7	0.50	49	0.8	9
779	146-W-7	11/21/2006	4	934	0	206	0.2	46.7	0.00	52	-0.6	17
780	146-W-8	11/21/2006	4	934	0	216	0.2	46.7	0.00	54	-0.6	26
781	146-W-9	11/21/2006	4	934	2	170	0.2	46.7	0.50	43	0.8	-15
782	146-W-10	11/21/2006	4	934	0	190	0.2	46.7	0.00	48	-0.6	3
783	146-W-11	11/21/2006	4	934	2	167	0.2	46.7	0.50	42	0.8	-17
784	146-W-12	11/21/2006	4	934	4	232	0.2	46.7	1.00	58	2.2	40
785	146-W-13	11/21/2006	4	934	0	196	0.2	46.7	0.00	49	-0.6	8
786	146-W-14	11/21/2006	4	934	0	199	0.2	46.7	0.00	50	-0.6	11
787	146-W-15	11/21/2006	4	934	1	160	0.2	46.7	0.25	40	0.1	-24
788	146-W-16	11/21/2006	4	934	2	191	0.2	46.7	0.50	48	0.8	4
789	146-W-17	11/21/2006	4	934	0	202	0.2	46.7	0.00	51	-0.6	13
										Mean	0.8	6.8
										Median	0.8	9.0
										SD	1.5	16.1
										Minimum	-0.6	-23.5
										Maximum	3.6	39.7

Warehouse 210, Sections 1, 2, 3 and 4, Class 3

Instrument and Survey Information - 2007 Survey

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3947	0.2947	5.0	20.0

Removable Limit alpha dpm/100 cm^2
4

Instrument and Survey Information - 2006 Survey

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3588	0.2849	4.0	20.0

Survey Unit 210-F

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	210-F-1	6/5/2007	4	921	5	247	0.2	46.1	1.00	49	2.0	11
2	210-F-2	6/18/2007	2	942	3	250	0.1	47.1	0.60	50	1.3	10
3	210-F-3	6/18/2007	2	942	1	231	0.1	47.1	0.20	46	0.3	-3
4	210-F-4	6/5/2007	4	921	1	240	0.2	46.1	0.20	48	0.0	7
5	210-F-5	6/5/2007	4	921	2	207	0.2	46.1	0.40	41	0.5	-16
6	210-F-6	6/5/2007	4	921	0	231	0.2	46.1	0.00	46	-0.5	1
7	210-F-7	6/5/2007	4	921	4	249	0.2	46.1	0.80	50	1.5	13
8	210-F-8	6/5/2007	4	921	5	234	0.2	46.1	1.00	47	2.0	3
9	210-F-9	6/5/2007	4	921	4	223	0.2	46.1	0.80	45	1.5	-5
10	210-F-10	6/18/2007	2	942	2	226	0.1	47.1	0.40	45	0.8	-6
11	210-F-11	6/5/2007	4	921	1	254	0.2	46.1	0.20	51	0.0	16
12	210-F-12	6/5/2007	4	921	2	221	0.2	46.1	0.40	44	0.5	-6
13	210-F-13	6/5/2007	4	921	4	248	0.2	46.1	0.80	50	1.5	12
14	210-F-14	6/5/2007	4	921	4	242	0.2	46.1	0.80	48	1.5	8
15	210-F-15	6/5/2007	4	921	0	214	0.2	46.1	0.00	43	-0.5	-11
16	210-F-16	6/18/2007	2	942	1	231	0.1	47.1	0.20	46	0.3	-3
17	210-F-17	6/5/2007	4	921	2	222	0.2	46.1	0.40	44	0.5	-6
										Mean	0.8	1.4
										Median	0.5	0.5
										SD	0.8	9.4
										Minimum	-0.5	-15.8
										Maximum	2.0	16.1

Survey Unit 210-W

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	210-W-1	6/18/2007	2	942	0	225	0.1	47.1	0.00	45	-0.3	-7
2	210-W-2	6/18/2007	2	942	0	253	0.1	47.1	0.00	51	-0.3	12
3	210-W-3	6/18/2007	2	942	1	221	0.1	47.1	0.20	44	0.3	-10
4	210-W-4	6/18/2007	2	942	2	237	0.1	47.1	0.40	47	0.8	1
5	210-W-5	6/5/2007	4	921	2	215	0.2	46.1	0.40	43	0.5	-10
6	210-W-6	6/5/2007	4	921	6	272	0.2	46.1	1.20	54	2.5	28
7	210-W-7	6/5/2007	4	921	1	241	0.2	46.1	0.20	48	0.0	7
8	210-W-8	6/5/2007	4	921	2	243	0.2	46.1	0.40	49	0.5	9
9	210-W-9	6/5/2007	4	921	1	240	0.2	46.1	0.20	48	0.0	7
10	210-W-10	6/5/2007	4	921	0	216	0.2	46.1	0.00	43	-0.5	-10
11	210-W-11	6/5/2007	4	921	5	252	0.2	46.1	1.00	50	2.0	15
12	210-W-12	6/5/2007	4	921	0	231	0.2	46.1	0.00	46	-0.5	1
13	210-W-13	6/5/2007	4	921	2	236	0.2	46.1	0.40	47	0.5	4
14	210-W-14	6/5/2007	4	921	2	243	0.2	46.1	0.40	49	0.5	9
15	210-W-15	6/5/2007	4	921	1	208	0.2	46.1	0.20	42	0.0	-15
16	210-W-16	6/5/2007	4	921	1	242	0.2	46.1	0.20	48	0.0	8
17	210-W-17	6/5/2007	4	921	5	246	0.2	46.1	1.00	49	2.0	11
										Mean	0.5	3.4
										Median	0.3	6.6
										SD	0.9	11.1
										Minimum	-0.5	-15.1
										Maximum	2.5	28.3

Warehouse 210, Section 2, Class 1 and 2

2007 Survey Results

Tennelec Alpha/Beta Counter	
alpha eff.	beta eff.
0.35	0.40

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha MDC:	1.6	dpm/100 cm^2
beta MDC:	1.4	dpm/100 cm^2

Removable Limit alpha dpm/100 cm^2
4

Survey Unit 210-2-1, Class 1

	ID	Date	Sample (dpm/100 cm^2) alpha	beta
1	210-2-1	9/11/2007	0.0	3.5
2	210-2-1	9/11/2007	0.6	3.9
3	210-2-1	9/11/2007	1.1	1.3
4	210-2-1	9/11/2007	0.6	1.4
5	210-2-1	9/11/2007	1.1	4.3
6	210-2-1	9/11/2007	0.6	2.9
7	210-2-1	9/11/2007	1.7	2.7
8	210-2-1	9/11/2007	0.0	5.5
9	210-2-1	9/11/2007	0.0	3.5
10	210-2-1	9/11/2007	2.9	5.4
11	210-2-1	9/11/2007	1.1	3.3
12	210-2-1	9/11/2007	1.1	3.3
13	210-2-1	9/11/2007	0.0	4.0
14	210-2-1	9/11/2007	0.0	0.5
15	210-2-1	9/11/2007	0.6	5.4
16	210-2-1	9/11/2007	0.0	7.5
17	210-2-1	9/11/2007	0.6	4.4
18	210-2-1	9/11/2007	0.0	4.5
		Mean	0.7	3.7
		Median	0.6	3.7
		SD	0.8	1.7
		Minimum	0.0	0.5
		Maximum	2.9	7.5

Survey Unit 210-2-2, Class 1

ID	Date	Sample (dpm/100 cm^2) alpha	beta
210-2-2	9/12/2007	1.1	5.8
210-2-2	9/12/2007	0.0	6.5
210-2-2	9/12/2007	0.0	4.0
210-2-2	9/12/2007	2.3	2.0
210-2-2	9/12/2007	0.0	2.0
210-2-2	9/12/2007	0.6	2.4
210-2-2	9/12/2007	0.6	3.4
210-2-2	9/12/2007	0.0	3.5
210-2-2	9/12/2007	0.0	2.5
210-2-2	9/12/2007	0.0	2.0
210-2-2	9/12/2007	0.6	3.9
210-2-2	9/12/2007	0.0	8.0
210-2-2	9/12/2007	0.6	3.4
210-2-2	9/12/2007	0.0	1.5
210-2-2	9/12/2007	0.6	1.4
210-2-2	9/12/2007	0.6	2.9
210-2-2	9/12/2007	0.0	1.0
	Mean	0.4	3.3
	Median	0.0	2.9
	SD	0.6	1.9
	Minimum	0.0	1.0
	Maximum	2.3	8.0

Survey Unit 210-2-3, Class 1

ID	Date	Sample (dpm/100 cm^2) alpha	beta
210-2-3	9/12/2007	0.0	2.0
210-2-3	9/12/2007	0.6	3.9
210-2-3	9/12/2007	0.6	1.9
210-2-3	9/12/2007	0.0	0.5
210-2-3	9/12/2007	1.1	4.3
210-2-3	9/12/2007	1.1	2.3
210-2-3	9/12/2007	0.6	5.4
210-2-3	9/12/2007	0.0	1.5
210-2-3	9/12/2007	0.0	3.0
210-2-3	9/12/2007	0.0	0.5
210-2-3	9/12/2007	1.1	2.8
210-2-3	9/12/2007	1.1	2.8
210-2-3	9/12/2007	0.0	0.5
210-2-3	9/12/2007	0.6	2.4
210-2-3	9/12/2007	0.0	6.0
210-2-3	9/12/2007	0.0	2.0
210-2-3	9/12/2007	0.0	3.0
	Mean	0.4	2.6
	Median	0.0	2.4
	SD	0.5	1.6
	Minimum	0.0	0.5
	Maximum	1.1	6.0

Survey Unit 210-2-4, Class 1

	ID	Date	Sample (dpm/100 cm^2) alpha	beta
1	210-2-4	9/12/2007	0.6	0.4
2	210-2-4	9/12/2007	0.0	4.5
3	210-2-4	9/12/2007	0.6	0.9
4	210-2-4	9/12/2007	1.7	4.7
5	210-2-4	9/12/2007	0.0	2.5
6	210-2-4	9/12/2007	0.6	0.9
7	210-2-4	9/12/2007	1.1	1.3
8	210-2-4	9/12/2007	0.0	1.0
9	210-2-4	9/12/2007	0.6	1.4
10	210-2-4	9/12/2007	0.0	1.5
11	210-2-4	9/12/2007	0.0	2.5
12	210-2-4	9/12/2007	0.6	1.4
13	210-2-4	9/12/2007	0.6	2.4
14	210-2-4	9/12/2007	0.6	4.9
15	210-2-4	9/12/2007	1.7	5.2
16	210-2-4	9/12/2007	0.6	5.9
17	210-2-4	9/12/2007	0.6	5.9
		Mean	0.6	2.8
		Median	0.6	2.4
		SD	0.5	1.9
		Minimum	0.0	0.4
		Maximum	1.7	5.9

Survey Unit 210-2-5, Class 2

ID	Date	Sample (dpm/100 cm^2) alpha	beta
210-2-5	9/17/2007	1.7	6.7
210-2-5	9/17/2007	1.1	3.8
210-2-5	9/17/2007	0.6	1.9
210-2-5	9/17/2007	1.7	1.7
210-2-5	9/17/2007	3.4	4.8
210-2-5	9/17/2007	0.6	1.9
210-2-5	9/17/2007	1.1	5.3
210-2-5	9/17/2007	2.3	2.0
210-2-5	9/17/2007	3.4	3.3
210-2-5	9/17/2007	1.1	2.8
210-2-5	9/17/2007	0.0	4.0
210-2-5	9/17/2007	1.1	2.3
210-2-5	9/17/2007	1.1	2.8
210-2-5	9/17/2007	1.7	3.2
210-2-5	9/17/2007	0.6	4.4
210-2-5	9/17/2007	4.0	5.7
210-2-5	9/17/2007	2.3	9.1
	Mean	1.6	3.8
	Median	1.1	3.3
	SD	1.1	2.0
	Minimum	0.0	1.7
	Maximum	4.0	9.1

Warehouse 211, Sections 1 and 2, Class 3

Instrument and Survey Information - 2007 Survey

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

Removable Limit alpha dpm/100 cm^2
6

Instrument and Survey Information - 2006 Survey

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

Survey Unit 211-F

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	211-F-1	11/9/2006	1	998	1	192	0.1	49.9	0.25	48	0.6	-7
2	211-F-2	11/9/2006	1	998	1	205	0.1	49.9	0.25	51	0.6	5
3	211-F-3	11/9/2006	1	998	2	189	0.1	49.9	0.50	47	1.3	-9
4	211-F-4	11/9/2006	1	998	1	207	0.1	49.9	0.25	52	0.6	6
5	211-F-5	11/9/2006	1	998	1	209	0.1	49.9	0.25	52	0.6	8
6	211-F-6	11/9/2006	1	998	0	207	0.1	49.9	0.00	52	-0.1	6
7	211-F-7	11/9/2006	1	998	1	188	0.1	49.9	0.25	47	0.6	-10
8	211-F-8	11/9/2006	1	998	0	193	0.1	49.9	0.00	48	-0.1	-6
9	211-F-9	11/9/2006	1	998	0	180	0.1	49.9	0.00	45	-0.1	-17
10	211-F-10	11/9/2006	1	998	1	198	0.1	49.9	0.25	50	0.6	-1
11	211-F-11	11/9/2006	1	998	0	190	0.1	49.9	0.00	48	-0.1	-8
12	211-F-12	11/9/2006	1	998	1	198	0.1	49.9	0.25	50	0.6	-1
13	211-F-13	11/9/2006	1	998	0	182	0.1	49.9	0.00	46	-0.1	-15
14	211-F-14	11/9/2006	1	998	1	215	0.1	49.9	0.25	54	0.6	14
15	211-F-15	11/9/2006	1	998	1	213	0.1	49.9	0.25	53	0.6	12
16	211-F-16	11/9/2006	1	998	0	185	0.1	49.9	0.00	46	-0.1	-13
17	211-F-17	11/9/2006	1	998	0	219	0.1	49.9	0.00	55	-0.1	17
										Mean	0.3	-1.2
										Median	0.6	-1.4
										SD	0.4	10.6
										Minimum	-0.1	-17.2
										Maximum	1.3	17.0

Survey Unit 211-W

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	211-W-1	11/20/2006	4	1042	0	202	0.2	52.1	0.00	51	-0.6	-6
2	211-W-2	11/20/2006	4	1042	0	238	0.2	52.1	0.00	60	-0.6	26
3	211-W-3	11/20/2006	4	1042	0	225	0.2	52.1	0.00	56	-0.6	15
4	211-W-4	11/20/2006	4	1042	4	214	0.2	52.1	1.00	54	2.2	5
5	211-W-5	11/20/2006	4	1042	0	228	0.2	52.1	0.00	57	-0.6	17
6	211-W-6	11/20/2006	4	1042	0	194	0.2	52.1	0.00	49	-0.6	-13
7	211-W-7	11/20/2006	4	1042	0	200	0.2	52.1	0.00	50	-0.6	-7
8	211-W-8	11/20/2006	4	1042	0	204	0.2	52.1	0.00	51	-0.6	-4
9	211-W-9	11/20/2006	4	1042	0	212	0.2	52.1	0.00	53	-0.6	3
10	211-W-10	11/20/2006	4	1042	0	220	0.2	52.1	0.00	55	-0.6	10
11	211-W-11	11/20/2006	4	1042	0	188	0.2	52.1	0.00	47	-0.6	-18
12	211-W-12	11/20/2006	4	1042	0	184	0.2	52.1	0.00	46	-0.6	-21
13	211-W-13	11/20/2006	4	1042	0	218	0.2	52.1	0.00	55	-0.6	8
14	211-W-14	11/20/2006	4	1042	0	192	0.2	52.1	0.00	48	-0.6	-14
15	211-W-15	11/20/2006	4	1042	0	192	0.2	52.1	0.00	48	-0.6	-14
16	211-W-16	11/20/2006	4	1042	0	226	0.2	52.1	0.00	57	-0.6	15
17	211-W-17	11/20/2006	4	1042	0	190	0.2	52.1	0.00	48	-0.6	-16
										Mean	-0.4	-0.8
										Median	-0.6	-3.9
										SD	0.7	14.4
										Minimum	-0.6	-21.4
										Maximum	2.2	26.0

Warehouse 212, Sections 1 and 2, Class 3

Instrument and Survey Information - 2007 Survey

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3947	0.2947	5.0	20.0

Removable Limit alpha dpm/100 cm^2
10

Instrument and Survey Information - 2006 Survey

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3588	0.2849	4.0	20.0

Survey Unit 212-F

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	212-F-1	11/13/2006	4	982	1	198	0.2	49.1	0.25	50	0.1	1
2	212-F-2	11/13/2006	4	982	2	201	0.2	49.1	0.50	50	0.8	4
3	212-F-3	11/13/2006	4	982	1	190	0.2	49.1	0.25	48	0.1	-6
4	212-F-4	11/13/2006	4	982	0	193	0.2	49.1	0.00	48	-0.6	-3
5	212-F-5	11/13/2006	4	982	0	191	0.2	49.1	0.00	48	-0.6	-5
6	212-F-6	11/13/2006	4	982	1	189	0.2	49.1	0.25	47	0.1	-6
7	212-F-7	11/13/2006	4	982	1	199	0.2	49.1	0.25	50	0.1	2
8	212-F-8	11/13/2006	4	982	2	191	0.2	49.1	0.50	48	0.8	-5
9	212-F-9	11/13/2006	4	982	0	208	0.2	49.1	0.00	52	-0.6	10
10	212-F-10	11/13/2006	4	982	2	192	0.2	49.1	0.50	48	0.8	-4
11	212-F-11	11/13/2006	4	982	0	199	0.2	49.1	0.00	50	-0.6	2
12	212-F-12	11/13/2006	4	982	2	215	0.2	49.1	0.50	54	0.8	16
13	212-F-13	11/13/2006	4	982	0	199	0.2	49.1	0.00	50	-0.6	2
14	212-F-14	11/13/2006	4	982	2	206	0.2	49.1	0.50	52	0.8	8
15	212-F-15	11/13/2006	4	982	0	196	0.2	49.1	0.00	49	-0.6	0
16	212-F-16	11/13/2006	4	982	0	183	0.2	49.1	0.00	46	-0.6	-12
17	212-F-17	11/13/2006	4	982	1	204	0.2	49.1	0.25	51	0.1	7
										Mean	0.1	0.8
										Median	0.1	1.4
										SD	0.6	7.0
										Minimum	-0.6	-11.8
										Maximum	0.8	16.3

Survey Unit 212-W

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	212-W-1	11/14/2006	4	924	0	197	0.2	46.2	0.00	49	-0.6	11
2	212-W-2	11/14/2006	4	924	1	186	0.2	46.2	0.25	47	0.1	1
3	212-W-3	11/14/2006	4	924	2	200	0.2	46.2	0.50	50	0.8	13
4	212-W-4	11/14/2006	4	924	2	205	0.2	46.2	0.50	51	0.8	18
5	212-W-5	11/14/2006	4	924	2	202	0.2	46.2	0.50	51	0.8	15
6	212-W-6	11/14/2006	4	924	4	193	0.2	46.2	1.00	48	2.2	7
7	212-W-7	11/14/2006	4	924	0	158	0.2	46.2	0.00	40	-0.6	-24
8	212-W-8	11/14/2006	4	924	1	218	0.2	46.2	0.25	55	0.1	29
9	212-W-9	11/14/2006	4	924	0	197	0.2	46.2	0.00	49	-0.6	11
10	212-W-10	11/14/2006	4	924	1	224	0.2	46.2	0.25	56	0.1	34
11	212-W-11	11/14/2006	4	924	3	241	0.2	46.2	0.75	60	1.5	49
12	212-W-12	11/14/2006	4	924	0	189	0.2	46.2	0.00	47	-0.6	4
13	212-W-13	11/14/2006	4	924	1	207	0.2	46.2	0.25	52	0.1	19
14	212-W-14	11/14/2006	4	924	0	198	0.2	46.2	0.00	50	-0.6	12
15	212-W-15	11/14/2006	4	924	2	203	0.2	46.2	0.50	51	0.8	16
16	212-W-16	11/14/2006	4	924	2	228	0.2	46.2	0.50	57	0.8	38
17	212-W-17	11/14/2006	4	924	1	195	0.2	46.2	0.25	49	0.1	9
										Mean	0.3	15.5
										Median	0.1	13.3
										SD	0.8	16.3
										Minimum	-0.6	-23.5
										Maximum	2.2	49.3

Warehouse 213, Sections 1, 2, 3 and 4, Class 3

Instrument and Survey Information - 2007 Survey

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

Removable Limit alpha dpm/100 cm^2
4

Instrument and Survey Information - 2006 Survey

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

Survey Unit 213-F

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	213-F-1	11/13/2006	4	982	0	165	0.2	49.1	0.00	41	-0.6	-28
2	213-F-2	11/13/2006	4	982	1	189	0.2	49.1	0.25	47	0.1	-6
3	213-F-3	11/13/2006	4	982	0	186	0.2	49.1	0.00	47	-0.6	-9
4	213-F-4	11/13/2006	4	982	0	203	0.2	49.1	0.00	51	-0.6	6
5	213-F-5	11/13/2006	4	982	2	186	0.2	49.1	0.50	47	0.8	-9
6	213-F-6	11/13/2006	4	982	2	209	0.2	49.1	0.50	52	0.8	11
7	213-F-7	11/13/2006	4	982	3	221	0.2	49.1	0.75	55	1.5	22
8	213-F-8	11/13/2006	4	982	0	192	0.2	49.1	0.00	48	-0.6	-4
9	213-F-9	11/13/2006	4	982	0	172	0.2	49.1	0.00	43	-0.6	-21
10	213-F-10	11/13/2006	4	982	2	222	0.2	49.1	0.50	56	0.8	22
11	213-F-11	11/13/2006	4	982	2	194	0.2	49.1	0.50	49	0.8	-2
12	213-F-12	11/13/2006	4	982	0	192	0.2	49.1	0.00	48	-0.6	-4
13	213-F-13	11/13/2006	4	982	0	222	0.2	49.1	0.00	56	-0.6	22
14	213-F-14	11/13/2006	4	982	0	167	0.2	49.1	0.00	42	-0.6	-26
15	213-F-15	11/13/2006	4	982	2	201	0.2	49.1	0.50	50	0.8	4
16	213-F-16	11/13/2006	4	982	0	191	0.2	49.1	0.00	48	-0.6	-5
17	213-F-17	11/13/2006	4	982	1	201	0.2	49.1	0.25	50	0.1	4
										Mean	0.1	-1.3
										Median	-0.6	-3.9
										SD	0.7	15.4
										Minimum	-0.6	-27.6
										Maximum	1.5	22.5

Survey Unit 213-W

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	213-W-1	11/21/2006	4	934	2	175	0.2	46.7	0.50	44	0.8	-10
2	213-W-2	11/21/2006	4	934	3	198	0.2	46.7	0.75	50	1.5	10
3	213-W-3	11/21/2006	4	934	1	183	0.2	46.7	0.25	46	0.1	-3
4	213-W-4	11/21/2006	4	934	1	203	0.2	46.7	0.25	51	0.1	14
5	213-W-5	11/21/2006	4	934	0	187	0.2	46.7	0.00	47	-0.6	0
6	213-W-6	11/21/2006	4	934	2	184	0.2	46.7	0.50	46	0.8	-2
7	213-W-7	11/21/2006	4	934	3	217	0.2	46.7	0.75	54	1.5	27
8	213-W-8	11/21/2006	4	934	4	203	0.2	46.7	1.00	51	2.2	14
9	213-W-9	11/21/2006	4	934	1	204	0.2	46.7	0.25	51	0.1	15
10	213-W-10	11/21/2006	4	934	2	170	0.2	46.7	0.50	43	0.8	-15
11	213-W-11	11/21/2006	4	934	0	219	0.2	46.7	0.00	55	-0.6	28
12	213-W-12	11/21/2006	4	934	2	181	0.2	46.7	0.50	45	0.8	-5
13	213-W-13	11/21/2006	4	934	3	194	0.2	46.7	0.75	49	1.5	6
14	213-W-14	11/21/2006	4	934	1	191	0.2	46.7	0.25	48	0.1	4
15	213-W-15	11/21/2006	4	934	2	200	0.2	46.7	0.50	50	0.8	12
16	213-W-16	11/21/2006	4	934	2	195	0.2	46.7	0.50	49	0.8	7
17	213-W-17	11/21/2006	4	934	3	213	0.2	46.7	0.75	53	1.5	23
										Mean	0.8	7.3
										Median	0.8	7.2
										SD	0.8	12.4
										Minimum	-0.6	-14.7
										Maximum	2.2	28.3

Structure Removable Activity Results **Warehouse 214, Sections 1, 2, 3 and 4, Class 3**

Instrument and Survey Information - 2007 Survey

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3947	0.2947	5.0	20.0

Removable Limit alpha dpm/100 cm^2
4

Instrument and Survey Information - 2006 Survey

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3588	0.2849	4.0	20.0

Survey Unit 214-F

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	214-F-1	6/6/2007	4	908	4	250	0.2	45.4	0.80	50	1.5	16
2	214-F-2	6/6/2007	4	908	2	226	0.2	45.4	0.40	45	0.5	-1
3	214-F-3	6/6/2007	4	908	2	241	0.2	45.4	0.40	48	0.5	10
4	214-F-4	6/6/2007	4	908	1	237	0.2	45.4	0.20	47	0.0	7
5	214-F-5	6/19/2007	5	951	1	241	0.3	47.6	0.20	48	-0.1	2
6	214-F-6	6/19/2007	5	951	4	232	0.3	47.6	0.80	46	1.4	-4
7	214-F-7	6/19/2007	5	951	2	210	0.3	47.6	0.40	42	0.4	-19
8	214-F-8	6/19/2007	5	951	1	253	0.3	47.6	0.20	51	-0.1	10
9	214-F-9	6/19/2007	5	951	1	248	0.3	47.6	0.20	50	-0.1	7
10	214-F-10	6/19/2007	5	951	1	229	0.3	47.6	0.20	46	-0.1	-6
11	214-F-11	6/19/2007	5	951	0	272	0.3	47.6	0.00	54	-0.6	23
12	214-F-12	6/19/2007	5	951	0	244	0.3	47.6	0.00	49	-0.6	4
13	214-F-13	6/19/2007	5	951	1	254	0.3	47.6	0.20	51	-0.1	11
14	214-F-14	6/27/2007	6	983	1	266	0.3	49.2	0.20	53	-0.3	14
15	214-F-15	6/27/2007	6	983	1	214	0.3	49.2	0.20	43	-0.3	-22
16	214-F-16	6/27/2007	6	983	2	216	0.3	49.2	0.40	43	0.3	-20
17	214-F-17	6/27/2007	6	983	2	214	0.3	49.2	0.40	43	0.3	-22
										Mean	0.1	0.6
										Median	-0.1	4.2
										SD	0.6	14.0
										Minimum	-0.6	-21.5
										Maximum	1.5	23.2

Survey Unit 214-W

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	214-W-1	6/6/2007	4	908	2	225	0.2	45.4	0.40	45	0.5	-1
2	214-W-2	6/6/2007	4	908	1	218	0.2	45.4	0.20	44	0.0	-6
3	214-W-3	6/6/2007	4	908	1	220	0.2	45.4	0.20	44	0.0	-5
4	214-W-4	6/6/2007	4	908	0	234	0.2	45.4	0.00	47	-0.5	5
5	214-W-5	6/6/2007	4	908	1	264	0.2	45.4	0.20	53	0.0	25
6	214-W-6	6/6/2007	4	908	1	234	0.2	45.4	0.20	47	0.0	5
7	214-W-7	6/6/2007	4	908	1	237	0.2	45.4	0.20	47	0.0	7
8	214-W-8	6/6/2007	4	908	0	247	0.2	45.4	0.00	49	-0.5	14
9	214-W-9	6/6/2007	4	908	2	236	0.2	45.4	0.40	47	0.5	6
10	214-W-10	6/6/2007	4	908	1	226	0.2	45.4	0.20	45	0.0	-1
11	214-W-11	6/6/2007	4	908	0	260	0.2	45.4	0.00	52	-0.5	22
12	214-W-12	6/6/2007	4	908	5	242	0.2	45.4	1.00	48	2.0	10
13	214-W-13	6/6/2007	4	908	1	220	0.2	45.4	0.20	44	0.0	-5
14	214-W-14	6/26/2007	6	983	0	215	0.3	49.2	0.00	43	-0.8	-21
15	214-W-15	6/26/2007	6	983	3	241	0.3	49.2	0.60	48	0.8	-3
16	214-W-16	6/26/2007	6	983	2	250	0.3	49.2	0.40	50	0.3	3
17	214-W-17	6/26/2007	6	983	3	238	0.3	49.2	0.60	48	0.8	-5
										Mean	0.1	2.9
										Median	0.0	2.9
										SD	0.7	11.1
										Minimum	-0.8	-20.9
										Maximum	2.0	25.1

Warehouse 215, Sections 1 and 2, Class 3

Instrument and Survey Information - 2007 Survey

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3947	0.2947	5.0	20.0

Removable Limit alpha dpm/100 cm^2
4

Instrument and Survey Information - 2006 Survey

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3588	0.2849	4.0	20.0

Survey Unit 215-F

ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
		alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
215-F-1	11/8/2006	1	1021	0	166	0.1	51.1	0.00	42	-0.1	-34
215-F-2	11/8/2006	1	1021	0	174	0.1	51.1	0.00	44	-0.1	-27
215-F-3	11/8/2006	1	1021	3	204	0.1	51.1	0.75	51	2.0	0
215-F-4	11/9/2006	1	998	4	216	0.1	49.9	1.00	54	2.6	14
215-F-5	11/9/2006	1	998	1	258	0.1	49.9	0.25	65	0.6	51
215-F-6	11/9/2006	1	998	0	203	0.1	49.9	0.00	51	-0.1	3
215-F-7	11/9/2006	1	998	1	195	0.1	49.9	0.25	49	0.6	-4
215-F-8	11/9/2006	1	998	0	212	0.1	49.9	0.00	53	-0.1	11
215-F-9	11/9/2006	1	998	1	185	0.1	49.9	0.25	46	0.6	-13
215-F-10	11/9/2006	1	998	0	178	0.1	49.9	0.00	45	-0.1	-19
215-F-11	11/9/2006	1	998	1	182	0.1	49.9	0.25	46	0.6	-15
215-F-12	11/9/2006	1	998	0	197	0.1	49.9	0.00	49	-0.1	-2
215-F-13	11/9/2006	1	998	0	196	0.1	49.9	0.00	49	-0.1	-3
215-F-14	11/9/2006	1	998	1	188	0.1	49.9	0.25	47	0.6	-10
215-F-15	11/9/2006	1	998	0	192	0.1	49.9	0.00	48	-0.1	-7
215-F-16	11/9/2006	1	998	0	192	0.1	49.9	0.00	48	-0.1	-7
215-F-17	11/9/2006	1	998	2	213	0.1	49.9	0.50	53	1.3	12
									Mean	0.4	-2.9
									Median	-0.1	-4.0
									SD	0.8	19.0
									Minimum	-0.1	-33.5
									Maximum	2.6	51.2

Survey Unit 215-W

ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
		alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
215-W-1	11/14/2006	4	924	0	195	0.2	46.2	0.00	49	-0.6	9
215-W-2	11/14/2006	4	924	0	198	0.2	46.2	0.00	50	-0.6	12
215-W-3	11/14/2006	4	924	2	225	0.2	46.2	0.50	56	0.8	35
215-W-4	11/14/2006	4	924	0	214	0.2	46.2	0.00	54	-0.6	26
215-W-5	11/14/2006	4	924	0	170	0.2	46.2	0.00	43	-0.6	-13
215-W-6	11/14/2006	4	924	0	177	0.2	46.2	0.00	44	-0.6	-7
215-W-7	11/14/2006	4	924	0	212	0.2	46.2	0.00	53	-0.6	24
215-W-8	11/14/2006	4	924	1	193	0.2	46.2	0.25	48	0.1	7
215-W-9	11/14/2006	4	924	2	259	0.2	46.2	0.50	65	0.8	65
215-W-10	11/14/2006	4	924	2	179	0.2	46.2	0.50	45	0.8	-5
215-W-11	11/14/2006	4	924	2	177	0.2	46.2	0.50	44	0.8	-7
215-W-12	11/14/2006	4	924	1	216	0.2	46.2	0.25	54	0.1	27
215-W-13	11/14/2006	4	924	2	199	0.2	46.2	0.50	50	0.8	12
215-W-14	11/14/2006	4	924	1	229	0.2	46.2	0.25	57	0.1	39
215-W-15	11/14/2006	4	924	2	162	0.2	46.2	0.50	41	0.8	-20
215-W-16	11/14/2006	4	924	0	203	0.2	46.2	0.00	51	-0.6	16
215-W-17	11/14/2006	4	924	3	153	0.2	46.2	0.75	38	1.5	-28
									Mean	0.2	11.3
									Median	0.1	11.6
									SD	0.7	23.6
									Minimum	-0.6	-27.9
									Maximum	1.5	65.1

Warehouse 215, Section 4, Class 3

Instrument and Survey Information - 2007 Survey

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3947	0.2947	5.0	20.0

Removable Limit alpha dpm/100 cm^2
4

Instrument and Survey Information - 2006 Survey

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3588	0.2849	4.0	20.0

Survey Unit 215-4-F

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	215-4-F-1	11/9/2006	1	998	0	197	0.1	49.9	0.00	49	-0.1	-2
2	215-4-F-2	11/9/2006	1	998	2	213	0.1	49.9	0.50	53	1.3	12
3	215-4-F-3	11/9/2006	1	998	0	191	0.1	49.9	0.00	48	-0.1	-8
4	215-4-F-4	11/9/2006	1	998	0	207	0.1	49.9	0.00	52	-0.1	6
5	215-4-F-5	11/9/2006	1	998	0	224	0.1	49.9	0.00	56	-0.1	21
6	215-4-F-6	11/9/2006	1	998	1	164	0.1	49.9	0.25	41	0.6	-31
7	215-4-F-7	11/9/2006	1	998	0	175	0.1	49.9	0.00	44	-0.1	-22
8	215-4-F-8	11/9/2006	1	998	0	204	0.1	49.9	0.00	51	-0.1	4
9	215-4-F-9	11/9/2006	1	998	1	204	0.1	49.9	0.25	51	0.6	4
10	215-4-F-10	11/9/2006	1	998	1	233	0.1	49.9	0.25	58	0.6	29
11	215-4-F-11	11/9/2006	1	998	0	195	0.1	49.9	0.00	49	-0.1	-4
12	215-4-F-12	11/9/2006	1	998	1	178	0.1	49.9	0.25	45	0.6	-19
13	215-4-F-13	11/9/2006	1	998	0	201	0.1	49.9	0.00	50	-0.1	1
14	215-4-F-14	11/9/2006	1	998	1	195	0.1	49.9	0.25	49	0.6	-4
15	215-4-F-15	11/9/2006	1	998	0	178	0.1	49.9	0.00	45	-0.1	-19
16	215-4-F-16	11/9/2006	1	998	0	184	0.1	49.9	0.00	46	-0.1	-14
17	215-4-F-17	11/9/2006	1	998	0	179	0.1	49.9	0.00	45	-0.1	-18
										Mean	0.1	-3.7
										Median	-0.1	-4.0
										SD	0.4	15.9
										Minimum	-0.1	-31.2
										Maximum	1.3	29.3

Survey Unit 215-4-W

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	215-W-4-1	6/18/2007	2	942	0	224	0.1	47.1	0.00	45	-0.3	-8
2	215-W-4-2	6/18/2007	2	942	3	240	0.1	47.1	0.60	48	1.3	3
3	215-W-4-3	6/18/2007	2	942	1	241	0.1	47.1	0.20	48	0.3	4
4	215-W-4-4	6/18/2007	2	942	4	247	0.1	47.1	0.80	49	1.8	8
5	215-W-4-5	6/18/2007	2	942	3	278	0.1	47.1	0.60	56	1.3	29
6	215-W-4-6	6/18/2007	2	942	3	236	0.1	47.1	0.60	47	1.3	0
7	215-W-4-7	6/18/2007	2	942	1	225	0.1	47.1	0.20	45	0.3	-7
8	215-W-4-8	6/18/2007	2	942	0	226	0.1	47.1	0.00	45	-0.3	-6
9	215-W-4-9	6/18/2007	2	942	1	257	0.1	47.1	0.20	51	0.3	15
10	215-W-4-10	6/18/2007	2	942	0	232	0.1	47.1	0.00	46	-0.3	-2
11	215-W-4-11	6/18/2007	2	942	0	224	0.1	47.1	0.00	45	-0.3	-8
12	215-W-4-12	6/18/2007	2	942	5	300	0.1	47.1	1.00	60	2.3	44
13	215-W-4-13	6/18/2007	2	942	2	248	0.1	47.1	0.40	50	0.8	8
14	215-W-4-14	6/18/2007	2	942	1	270	0.1	47.1	0.20	54	0.3	23
15	215-W-4-15	6/18/2007	2	942	1	255	0.1	47.1	0.20	51	0.3	13
16	215-W-4-16	6/18/2007	2	942	1	261	0.1	47.1	0.20	52	0.3	17
17	215-W-4-17	6/18/2007	2	942	4	224	0.1	47.1	0.80	45	1.8	-8
										Mean	0.6	7.4
										Median	0.3	3.7
										SD	0.8	14.8
										Minimum	-0.3	-7.8
										Maximum	2.3	43.8

Paved Road to Rail Scale - Survey Unit 7A, Class 3

Instrument and Survey Information - 2007 Survey

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

Removable Limit alpha dpm/100 cm^2
10

Instrument and Survey Information - 2006 Survey

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

Survey Unit 7A

	ID	Date	Background Counts		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	Paved Road #1	11/8/2006	1	1021	0	203	0.1	51.1	0.00	51	-0.1	-1
2	Paved Road #2	11/8/2006	1	1021	0	213	0.1	51.1	0.00	53	-0.1	8
3	Paved Road #3	11/8/2006	1	1021	1	198	0.1	51.1	0.25	50	0.6	-5
4	Paved Road #4	11/8/2006	1	1021	0	176	0.1	51.1	0.00	44	-0.1	-25
5	Paved Road #5	11/8/2006	1	1021	0	189	0.1	51.1	0.00	47	-0.1	-13
6	Paved Road #6	11/8/2006	1	1021	3	208	0.1	51.1	0.75	52	2.0	3
7	Paved Road #7	11/8/2006	1	1021	0	225	0.1	51.1	0.00	56	-0.1	18
8	Paved Road #8	11/8/2006	1	1021	1	189	0.1	51.1	0.25	47	0.6	-13
9	Paved Road #9	11/8/2006	1	1021	0	214	0.1	51.1	0.00	54	-0.1	9
10	Paved Road #10	11/8/2006	1	1021	0	176	0.1	51.1	0.00	44	-0.1	-25
11	Paved Road #11	11/8/2006	1	1021	2	218	0.1	51.1	0.50	55	1.3	12
12	Paved Road #12	11/8/2006	1	1021	0	175	0.1	51.1	0.00	44	-0.1	-26
13	Paved Road #13	11/8/2006	1	1021	1	202	0.1	51.1	0.25	51	0.6	-2
14	Paved Road #14	11/8/2006	1	1021	0	195	0.1	51.1	0.00	49	-0.1	-8
15	Paved Road #15	11/8/2006	1	1021	1	197	0.1	51.1	0.25	49	0.6	-6
16	Paved Road #16	11/8/2006	1	1021	0	205	0.1	51.1	0.00	51	-0.1	1
17	Paved Road #17	11/8/2006	1	1021	2	197	0.1	51.1	0.50	49	1.3	-6
18	Paved Road #18	11/8/2006	1	1021	2	198	0.1	51.1	0.50	50	1.3	-5
19	Paved Road #19	11/8/2006	1	1021	1	197	0.1	51.1	0.25	49	0.6	-6
20	Paved Road #20	11/8/2006	1	1021	2	191	0.1	51.1	0.50	48	1.3	-12
										Mean	0.4	-5.2
										Median	0.2	-5.9
										SD	0.7	11.9
										Minimum	-0.1	-25.6
										Maximum	2.0	18.3

Rail Scale - Survey Unit 8, Class 2

2007 Survey Results

Tennelec Alpha/Beta Counter	
alpha eff.	beta eff.
0.35	0.40

Sample Count Time (min)	Background Count Time (min)
1.0	20.0

alpha MDC:	7.7	dpm/100 cm^2
beta MDC:	6.8	dpm/100 cm^2

Removable Limit alpha dpm/100 cm^2
10

	ID	Date	Sample (dpm/100 cm^2) alpha	beta
1	RS1	8/10/2007	0.0	8
2	RS2	8/10/2007	0.0	13
3	RS3	8/10/2007	0.0	8
4	RS4	8/10/2007	0.0	3
5	RS5	8/10/2007	0.0	8
6	RS6	8/10/2007	0.0	8
7	RS7	8/10/2007	0.0	3
8	RS8	8/10/2007	2.8	2
9	RS9	8/10/2007	0.0	5
10	RS10	8/10/2007	0.0	3
11	RS11	8/10/2007	0.0	3
12	RS12	8/10/2007	0.0	5
13	RS13	8/10/2007	5.7	6
14	RS14	8/10/2007	0.0	5
15	RS15	8/10/2007	0.0	5
16	RS16	8/10/2007	0.0	3
17	RS17	8/10/2007	0.0	8
		Mean	0.5	5.4
		Median	0.0	5.0
		SD	1.5	2.8
		Minimum	0.0	2.0
		Maximum	5.7	12.6

New Haven Depot Final Status Survey Structure Biased Removable Activity Results

Survey Unit 124F and 124W

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Morning Daily Count

	ID	Date	Background Total Counts*		Sample Total Counts		Background (cpm)		Sample Counts (cpm)		Sample (dpm/100 cm^2)	
			a	b	a	b	a	b	a	b	a	b
1	Shrinkwrapping Area Inside #1	10/31/2006	3	978	1	176	0.2	48.9	0.25	44	0.3	-17
2	Shrinkwrapping Area Inside #2	10/31/2006	3	978	0	209	0.2	48.9	0.00	52	-0.4	12
3	Shrinkwrapping Area Inside #3	10/31/2006	3	978	2	192	0.2	48.9	0.50	48	1.0	-3
4	Shrinkwrapping Area Inside #4	10/31/2006	3	978	1	214	0.2	48.9	0.25	54	0.3	16
5	Shrinkwrapping Area Inside #5	11/7/2006	3	1002	0	207	0.2	50.1	0.00	52	-0.4	6
6	Shrinkwrapping Area Inside #6	11/7/2006	3	1002	1	210	0.2	50.1	0.25	53	0.3	8
7	Shrinkwrapping Area Inside #7	11/7/2006	3	1002	2	202	0.2	50.1	0.50	51	1.0	1
8	Shrinkwrapping Area Inside #8	11/7/2006	3	1002	1	225	0.2	50.1	0.25	56	0.3	22
9	Shrinkwrapping Area Inside #9	11/7/2006	3	1002	1	215	0.2	50.1	0.25	54	0.3	13
10	Shrinkwrapping Area Inside #10	11/7/2006	3	1002	0	196	0.2	50.1	0.00	49	-0.4	-4
11	Shrinkwrapping Area Inside #11	11/7/2006	3	1002	1	207	0.2	50.1	0.25	52	0.3	6
12	Shrinkwrapping Area Inside #12	11/7/2006	3	1002	1	197	0.2	50.1	0.25	49	0.3	-3
13	Shrinkwrapping Area Inside #13	11/7/2006	3	1002	2	202	0.2	50.1	0.50	51	1.0	1
14	Shrinkwrapping Area Inside #14	11/7/2006	3	1002	0	191	0.2	50.1	0.00	48	-0.4	-8
15	Shrinkwrapping Area Inside #15	11/7/2006	3	1002	0	203	0.2	50.1	0.00	51	-0.4	2
16	Shrinkwrapping Area Inside #16	11/7/2006	3	1002	1	214	0.2	50.1	0.25	54	0.3	12
17	Shrinkwrapping Area Inside #17	11/7/2006	3	1002	0	200	0.2	50.1	0.00	50	-0.4	0
18	Shrinkwrapping Area Inside #18	11/7/2006	3	1002	0	195	0.2	50.1	0.00	49	-0.4	-5
19	Shrinkwrapping Area Inside #19	11/7/2006	3	1002	0	211	0.2	50.1	0.00	53	-0.4	9
20	Shrinkwrapping Area Inside #20	11/7/2006	3	1002	1	200	0.2	50.1	0.25	50	0.3	0
										Mean	0.1	3.4
										Median	0.3	1.8
										SD	0.5	9.2
										Minimum	-0.4	-17.2
										Maximum	1.0	21.6
1	124-F-2-bias from Char	6/19/2007	5	951	2	245	0.3	47.6	0.40	49	0.4	5

Survey Unit 136-F

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	136-F-6	6/18/2007	2	942	2	230	0.1	47.1	0.40	46	0.8	-4
2	136-F-2	6/19/2007	5	951	0	236	0.3	47.6	0.00	47	-0.6	-1
3	136-F-10	6/19/2007	5	951	2	230	0.3	47.6	0.40	46	0.4	-5
4	136-F-12	6/19/2007	5	951	1	262	0.3	47.6	0.20	52	-0.1	16
5	136-F-14	6/19/2007	5	951	1	248	0.3	47.6	0.20	50	-0.1	7
6	136-F-17	6/19/2007	5	951	0	236	0.3	47.6	0.00	47	-0.6	-1
										Mean	-0.1	2.0
										Median	-0.1	-1.2
										SD	0.6	8.2
										Minimum	-0.6	-5.3
										Maximum	0.8	16.5

Biased Removable Activity Results

Warehouse 210, Sections 1, 2, 3 and 4, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	210-F-3-31	6/18/2007	2	942	1	263	0.1	47.1	0.20	53	0.3	19
2	210-F-3-32	6/18/2007	2	942	5	242	0.1	47.1	1.00	48	2.3	4
3	210-F-3-33	6/18/2007	2	942	4	232	0.1	47.1	0.80	46	1.8	-2
4	210-F-3-34	6/18/2007	2	942	3	256	0.1	47.1	0.60	51	1.3	14
5	210-F-3-35	6/19/2007	5	951	3	235	0.3	47.6	0.60	47	0.9	-2
6	210-F-3-36	6/19/2007	5	951	6	243	0.3	47.6	1.20	49	2.4	4
7	210-F-3-37	6/19/2007	5	951	2	228	0.3	47.6	0.40	46	0.4	-7
8	210-F-3-38	6/19/2007	5	951	1	242	0.3	47.6	0.20	48	-0.1	3
9	210-F-3-39	6/19/2007	5	951	1	223	0.3	47.6	0.20	45	-0.1	-10
10	210-F-3-40	6/19/2007	5	951	4	246	0.3	47.6	0.80	49	1.4	6
11	210-F-3-41	6/19/2007	5	951	3	227	0.3	47.6	0.60	45	0.9	-7
12	210-F-3-42	6/19/2007	5	951	1	255	0.3	47.6	0.20	51	-0.1	12
13	210-F-3-43	6/19/2007	5	951	4	241	0.3	47.6	0.80	48	1.4	2
14	210-F-3-44	6/19/2007	5	951	3	255	0.3	47.6	0.60	51	0.9	12
15	210-F-3-45	6/19/2007	5	951	2	237	0.3	47.6	0.40	47	0.4	-1
1	210-F-4-18	6/18/2007	2	942	1	251	0.1	47.1	0.20	50	0.3	11
2	210-F-4-19	6/18/2007	2	942	1	233	0.1	47.1	0.20	47	0.3	-2
3	210-F-4-20	6/18/2007	2	942	1	237	0.1	47.1	0.20	47	0.3	1
4	210-F-4-21	6/18/2007	2	942	1	234	0.1	47.1	0.20	47	0.3	-1
5	210-F-4-22	6/18/2007	2	942	1	236	0.1	47.1	0.20	47	0.3	0
6	210-F-4-23	6/18/2007	2	942	1	241	0.1	47.1	0.20	48	0.3	4
7	210-F-4-24	6/18/2007	2	942	1	246	0.1	47.1	0.20	49	0.3	7
8	210-F-4-25	6/18/2007	2	942	3	223	0.1	47.1	0.60	45	1.3	-8
9	210-F-4-26	6/18/2007	2	942	2	237	0.1	47.1	0.40	47	0.8	1
10	210-F-4-27	6/18/2007	2	942	0	237	0.1	47.1	0.00	47	-0.3	1
11	210-F-4-28	6/18/2007	2	942	1	263	0.1	47.1	0.20	53	0.3	19
12	210-F-3-29	6/18/2007	2	942	2	223	0.1	47.1	0.40	45	0.8	-8
13	210-F-2-46	6/20/2007	3	941	1	217	0.2	47.1	0.20	43	0.1	-12
14	210-F-2-47	6/20/2007	3	941	6	228	0.2	47.1	1.20	46	2.7	-5
15	210-F-2-48	6/21/2007	3	1037	2	248	0.2	51.9	0.40	50	0.6	-8
										Mean	0.7	1.5
										Median	0.4	1.0
										SD	0.8	8.2
										Minimum	-0.3	-12.4
										Maximum	2.7	18.7

Warehouse 210, Sections 1, 2, 3 and 4, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	210-W-3-30	6/18/2007	2	942	0	229	0.1	47.1	0.00	46	-0.3	-4
										Mean	-0.3	-4.4
										Median	-0.3	-4.4
										SD	N/A	N/A
										Minimum	-0.3	-4.4
										Maximum	-0.3	-4.4
1	210-B-1-S56+66	6/22/2007	4	997	1	211	0.2	49.9	0.20	42	0.0	-26
2	210-B-1-S8	6/22/2007	4	997	3	248	0.2	49.9	0.60	50	1.0	-1
3	210-B-1-S71	6/22/2007	4	997	1	245	0.2	49.9	0.20	49	0.0	-3
4	210-B-2-S12	6/22/2007	4	997	1	245	0.2	49.9	0.20	49	0.0	-3
5	210-B-1-S25	6/22/2007	4	997	0	247	0.2	49.9	0.00	49	-0.5	-2
6	210-B-1-S42	6/22/2007	4	997	2	248	0.2	49.9	0.40	50	0.5	-1
7	210-B-1-S17	6/22/2007	4	997	2	238	0.2	49.9	0.40	48	0.5	-8
8	210-B-2-S9	6/22/2007	4	997	1	232	0.2	49.9	0.20	46	0.0	-12
9	210-B-1-S69	6/22/2007	4	997	1	220	0.2	49.9	0.20	44	0.0	-20
10	210-B-1-S33	6/22/2007	4	997	1	220	0.2	49.9	0.20	44	0.0	-20
11	210-B-1-S54	6/22/2007	4	997	1	231	0.2	49.9	0.20	46	0.0	-12
12	210-B-4-S25	6/22/2007	4	997	0	251	0.2	49.9	0.00	50	-0.5	1
13	210-B-4-S59+69	6/22/2007	4	997	1	216	0.2	49.9	0.20	43	0.0	-23
14	210-B-4-S56+66	6/25/2007	6	1030	3	230	0.3	51.5	0.60	46	0.8	-19
15	210-B-2-S71	6/27/2007	6	983	0	252	0.3	49.2	0.00	50	-0.8	4
16	210-B-2-S64	6/27/2007	6	983	5	236	0.3	49.2	1.00	47	1.8	-7
17	210-B-2-S58	6/27/2007	6	983	5	237	0.3	49.2	1.00	47	1.8	-6
18	210-B-2-S46	6/27/2007	6	983	4	239	0.3	49.2	0.80	48	1.3	-5
19	210-B-2-S57+67	6/27/2007	6	983	8	237	0.3	49.2	1.60	47	3.3	-6
20	210-B-2-S33	6/27/2007	6	983	2	218	0.3	49.2	0.40	44	0.3	-19
21	210-B-2-S25	6/27/2007	6	983	7	226	0.3	49.2	1.40	45	2.8	-13
										Mean	0.6	-9.4
										Median	0.0	-6.6
										SD	1.1	8.7
										Minimum	-0.8	-26.0
										Maximum	3.3	4.2

Survey Unit 210-2-3-B

2007 Survey Results

Tennelec Alpha/Beta Counter	
alpha eff.	beta eff.
0.35	0.40

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha MDC:	1.6	dpm/100 cm^2
beta MDC:	1.4	dpm/100 cm^2

Removable Limit alpha dpm/100 cm^2
4

Survey Unit 210-2-3, Class 1			
ID	**Date**	**Sample (dpm/100 cm^2)**	
		alpha	**beta**
210-2-3-B-1	9/14/2007	0.6	2.4
210-2-3-B-2	9/14/2007	1.7	4.2
210-2-3-B-3	9/14/2007	0.0	3.0
210-2-3-B-4	9/14/2007	1.1	2.8
	Mean	0.9	3.1
	Median	0.9	2.9
	SD	0.7	0.8
	Minimum	0.0	2.4
	Maximum	1.7	4.2

Biased Removable Activity Results

Warehouse 211, Sections 1 and 2, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	211F-1-64-5	11/16/2006	2	1049	2	172	0.1	52.5	0.50	43	1.1	-33
2	211F-1-14-1	11/16/2006	2	1049	2	202	0.1	52.5	0.50	51	1.1	-7
3	211F-1-18-4	11/16/2006	2	1049	0	172	0.1	52.5	0.00	43	-0.3	-33
4	211F-1-11-3	11/16/2006	2	1049	0	224	0.1	52.5	0.00	56	-0.3	12
5	211F-1-64-4	11/16/2006	2	1049	0	214	0.1	52.5	0.00	54	-0.3	4
6	211F-1--76-3	11/16/2006	2	1049	0	180	0.1	52.5	0.00	45	-0.3	-26
7	211F-1-76-1	11/16/2006	2	1049	0	200	0.1	52.5	0.00	50	-0.3	-9
8	211F-1-36-3	11/16/2006	2	1049	0	184	0.1	52.5	0.00	46	-0.3	-23
9	211F-1-36-4	11/16/2006	2	1049	2	157	0.1	52.5	0.50	39	1.1	-46
10	211F-1-54-9	11/16/2006	2	1049	0	198	0.1	52.5	0.00	50	-0.3	-10
11	211F-1-18-6	11/16/2006	2	1049	0	214	0.1	52.5	0.00	54	-0.3	4
12	211F-1--57-11	11/16/2006	2	1049	0	200	0.1	52.5	0.00	50	-0.3	-9
13	211F-1-14-2	11/16/2006	2	1049	4	212	0.1	52.5	1.00	53	2.5	2
14	211F-1-33-6	11/16/2006	2	1049	2	202	0.1	52.5	0.50	51	1.1	-7
15	211F-1-76-2	11/16/2006	2	1049	2	216	0.1	52.5	0.50	54	1.1	5
16	211F-1-18-5	11/16/2006	2	1049	4	235	0.1	52.5	1.00	59	2.5	22
17	211F-1-71-6	11/16/2006	2	1049	0	251	0.1	52.5	0.00	63	-0.3	36
18	211F-1-71-7	11/16/2006	2	1049	0	195	0.1	52.5	0.00	49	-0.3	-13
19	211F-1-36-5	11/16/2006	2	1049	2	188	0.1	52.5	0.50	47	1.1	-19
20	211F-1-33-7	11/16/2006	2	1049	6	216	0.1	52.5	1.50	54	3.9	5
21	211F-1-54-8	11/16/2006	2	1049	2	183	0.1	52.5	0.50	46	1.1	-24
22	211F-1-54-10	11/16/2006	2	1049	0	218	0.1	52.5	0.00	55	-0.3	7
23	211F-1-36-2	11/16/2006	2	1049	0	228	0.1	52.5	0.00	57	-0.3	16
24	211F-1-36-1	11/16/2006	2	1049	0	204	0.1	52.5	0.00	51	-0.3	-5
1	211F-2-2-1	11/21/2006	4	934	4	209	0.2	46.7	1.00	52	2.2	19
2	211F-2-2-2	11/21/2006	4	934	2	190	0.2	46.7	0.50	48	0.8	3
3	211F-2-2-3	11/21/2006	4	934	0	144	0.2	46.7	0.00	36	-0.6	-38
4	211F-2-8-4	11/21/2006	4	934	8	213	0.2	46.7	2.00	53	5.0	23
5	211F-2-8-5	11/21/2006	4	934	2	175	0.2	46.7	0.50	44	0.8	-10
6	211F-2-17-6	11/21/2006	4	934	4	170	0.2	46.7	1.00	43	2.2	-15
7	211F-2-17-7	11/21/2006	4	934	0	203	0.2	46.7	0.00	51	-0.6	14
8	211F-2-13-8	11/21/2006	4	934	2	189	0.2	46.7	0.50	47	0.8	2
9	211F-2-13-9	11/21/2006	4	934	0	231	0.2	46.7	0.00	58	-0.6	39
10	211F-2-34-1	11/21/2006	4	934	4	187	0.2	46.7	1.00	47	2.2	0
11	211F-2-34-2	11/21/2006	4	934	4	198	0.2	46.7	1.00	50	2.2	10
12	211F-2-34-3	11/21/2006	4	934	4	204	0.2	46.7	1.00	51	2.2	15

Warehouse 211, Sections 1 and 2, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
13	211F-2-34-4	11/21/2006	4	934	2	186	0.2	46.7	0.50	47	0.8	-1
14	211F-2-36-5	11/21/2006	4	934	0	211	0.2	46.7	0.00	53	-0.6	21
15	211F-2-51-6	11/21/2006	4	934	3	208	0.2	46.7	0.75	52	1.5	19
16	211F-2-51-7	11/21/2006	4	934	0	182	0.2	46.7	0.00	46	-0.6	-4
17	211F-2-59-8	11/21/2006	4	934	6	188	0.2	46.7	1.50	47	3.6	1
18	211F-2-77-1	11/21/2006	4	934	2	201	0.2	46.7	0.50	50	0.8	12
19	211F-2-74-2	11/21/2006	4	934	6	186	0.2	46.7	1.50	47	3.6	-1
20	211F-2-74-3	11/21/2006	4	934	2	227	0.2	46.7	0.50	57	0.8	35
										Mean	0.9	-0.1
										Median	0.8	1.5
										SD	1.4	19.4
										Minimum	-0.6	-46.3
										Maximum	5.0	38.8
7	211W-2-61-1	11/15/2006	4	1000	0	158	0.2	50.0	0.00	40	-0.6	-37
8	211W-2-61-2	11/15/2006	4	1000	5	188	0.2	50.0	1.25	47	2.9	-11
9	211W-2-69-3	11/15/2006	4	1000	4	226	0.2	50.0	1.00	57	2.2	23
10	211W-2-69-4	11/15/2006	4	1000	2	183	0.2	50.0	0.50	46	0.8	-15
11	211W-2-19-5	11/15/2006	4	1000	4	231	0.2	50.0	1.00	58	2.2	27
										Mean	1.5	-2.5
										Median	2.2	-10.5
										SD	1.4	27.0
										Minimum	-0.6	-36.9
										Maximum	2.9	27.2
1	211B-1-13-1	11/14/2006	4	924	2	185	0.2	46.2	0.50	46	0.8	0
2	211B-1-18-2	11/14/2006	4	924	7	221	0.2	46.2	1.75	55	4.3	32
3	211B-1-19-3	11/14/2006	4	924	2	221	0.2	46.2	0.50	55	0.8	32
4	211B-1-21-4	11/14/2006	4	924	4	115	0.2	46.2	1.00	29	2.2	-61
5	211B-1-24-5	11/14/2006	4	924	1	190	0.2	46.2	0.25	48	0.1	5
6	211B-1-29-6	11/14/2006	4	924	1	207	0.2	46.2	0.25	52	0.1	19
7	211B-1-52-7	11/14/2006	4	924	0	199	0.2	46.2	0.00	50	-0.6	12
8	211B-1-56-8	11/14/2006	4	924	1	203	0.2	46.2	0.25	51	0.1	16
9	211B-1-58-9	11/14/2006	4	924	0	187	0.2	46.2	0.00	47	-0.6	2
10	211B-2-2-1	11/14/2006	4	924	1	205	0.2	46.2	0.25	51	0.1	18
11	211B-2-5-2	11/14/2006	4	924	0	179	0.2	46.2	0.00	45	-0.6	-5
12	211B-2-8-3	11/14/2006	4	924	5	190	0.2	46.2	1.25	48	2.9	5

Warehouse 211, Sections 1 and 2, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
13	211B-2-33-4	11/14/2006	4	924	2	204	0.2	46.2	0.50	51	0.8	17
14	211B-2-37-5	11/14/2006	4	924	0	213	0.2	46.2	0.00	53	-0.6	25
15	211B-2-39-6	11/14/2006	4	924	0	146	0.2	46.2	0.00	37	-0.6	-34
16	211B-2-61-7	11/14/2006	4	924	0	188	0.2	46.2	0.00	47	-0.6	3
17	211B-2-64-8	11/14/2006	4	924	2	180	0.2	46.2	0.50	45	0.8	-4
18	211B-2-66-9	11/14/2006	4	924	3	203	0.2	46.2	0.75	51	1.5	16
										Mean	0.6	5.3
										Median	0.1	8.5
										SD	1.4	22.7
										Minimum	-0.6	-61.2
										Maximum	4.3	31.8

Warehouse 212, Sections 1 and 2, Class 3

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3947	0.2947	5.0	20.0

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3588	0.2849	4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	212F-1-11-1	11/17/2006	3	1026	0	199	0.2	51.3	0.00	50	-0.4	-5
2	212F-1-11-2	11/17/2006	3	1026	1	189	0.2	51.3	0.25	47	0.3	-14
3	212F-1-11-3	11/17/2006	3	1026	2	180	0.2	51.3	0.50	45	1.0	-22
4	212F-1-31-4	11/17/2006	3	1026	4	210	0.2	51.3	1.00	53	2.4	4
5	212F-1-31-5	11/17/2006	3	1026	2	173	0.2	51.3	0.50	43	1.0	-28
6	212F-1-31-6	11/17/2006	3	1026	2	213	0.2	51.3	0.50	53	1.0	7
7	212F-1-41-7	11/17/2006	3	1026	5	174	0.2	51.3	1.25	44	3.1	-27
8	212F-1-41-8	11/17/2006	3	1026	4	188	0.2	51.3	1.00	47	2.4	-15
9	212F-1-41-9	11/17/2006	3	1026	0	206	0.2	51.3	0.00	52	-0.4	1
10	212F-1-41-10	11/17/2006	3	1026	2	236	0.2	51.3	0.50	59	1.0	27
11	212F-1-71-1	11/17/2006	3	1026	0	160	0.2	51.3	0.00	40	-0.4	-40
12	212F-1-37-2	11/17/2006	3	1026	0	186	0.2	51.3	0.00	47	-0.4	-17
13	212F-1-37-3	11/17/2006	3	1026	0	193	0.2	51.3	0.00	48	-0.4	-11
14	212F-1-44-1	11/17/2006	3	1026	1	195	0.2	51.3	0.25	49	0.3	-9
15	212F-2-11-1	11/17/2006	3	1026	1	176	0.2	51.3	0.25	44	0.3	-26
16	212F-2-12-2	11/17/2006	3	1026	0	210	0.2	51.3	0.00	53	-0.4	4
17	212F-2-12-3	11/17/2006	3	1026	1	187	0.2	51.3	0.25	47	0.3	-16
18	212F-2-45-1	11/17/2006	3	1026	1	180	0.2	51.3	0.25	45	0.3	-22
19	212F-2-44-2	11/17/2006	3	1026	2	213	0.2	51.3	0.50	53	1.0	7
20	212F-2-11-1	11/20/2006	4	1042	4	188	0.2	52.1	1.00	47	2.2	-18
21	212F-2-12-2	11/20/2006	4	1042	0	188	0.2	52.1	0.00	47	-0.6	-18
22	212F-2-12-3	11/20/2006	4	1042	2	226	0.2	52.1	0.50	57	0.8	15
23	212F-2-2-2	11/20/2006	4	1042	6	196	0.2	52.1	1.50	49	3.6	-11
24	212F-2-68-5	11/20/2006	4	1042	0	212	0.2	52.1	0.00	53	-0.6	3
25	212F-2-68-4	11/20/2006	4	1042	0	206	0.2	52.1	0.00	52	-0.6	-2
26	212F-2-58-3	11/20/2006	4	1042	0	248	0.2	52.1	0.00	62	-0.6	35
27	212F-2-68-6	11/20/2006	4	1042	0	206	0.2	52.1	0.00	52	-0.6	-2
28	212F-2-44-2	11/20/2006	4	1042	0	226	0.2	52.1	0.00	57	-0.6	15

Warehouse 212, Sections 1 and 2, Class 3

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3947	0.2947	5.0	20.0

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3588	0.2849	4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
29	212F-2-45-1	11/20/2006	4	1042	2	206	0.2	52.1	0.50	52	0.8	-2
30	212F-2-2-1	11/20/2006	4	1042	0	188	0.2	52.1	0.00	47	-0.6	-18
31	212F-1-44-1	11/20/2006	4	1042	0	204	0.2	52.1	0.00	51	-0.6	-4
										Mean	0.5	-6.7
										Median	0.3	-9.0
										SD	1.2	16.5
										Minimum	-0.6	-39.7
										Maximum	3.6	34.7
28	212W-1-3W-1	11/15/2006	4	1000	2	193	0.2	50.0	0.50	48	0.8	-6
29	212W-1-61S-1	11/15/2006	4	1000	0	187	0.2	50.0	0.00	47	-0.6	-11
30	212W-1-61S-2	11/15/2006	4	1000	0	173	0.2	50.0	0.00	43	-0.6	-24
31	212W-1-61S-3	11/15/2006	4	1000	2	177	0.2	50.0	0.50	44	0.8	-20
32	212W-1-11-6	11/15/2006	4	1000	0	166	0.2	50.0	0.00	42	-0.6	-30
33	212W-2-11S-1	11/15/2006	4	1000	2	208	0.2	50.0	0.50	52	0.8	7
34	212W-2-11S-2	11/15/2006	4	1000	1	198	0.2	50.0	0.25	50	0.1	-2
35	212W-2-11S-3	11/15/2006	4	1000	0	219	0.2	50.0	0.00	55	-0.6	17
36	212W-2-21S-4	11/15/2006	4	1000	2	203	0.2	50.0	0.50	51	0.8	3
37	212W-2-19N-5	11/15/2006	4	1000	5	215	0.2	50.0	1.25	54	2.9	13
38	212W-2-19N-6	11/15/2006	4	1000	2	241	0.2	50.0	0.50	60	0.8	36
39	212W-2-19N-7	11/15/2006	4	1000	0	194	0.2	50.0	0.00	49	-0.6	-5
40	212W-2-9-8	11/15/2006	4	1000	0	201	0.2	50.0	0.00	50	-0.6	1
41	212W-2-9-9	11/15/2006	4	1000	1	219	0.2	50.0	0.25	55	0.1	17
										Mean	0.3	-0.4
										Median	0.1	-0.4
										SD	1.0	17.8
										Minimum	-0.6	-29.8
										Maximum	2.9	36.0

Warehouse 212, Sections 1 and 2, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	212B-1-4-1	11/13/2006	4	982	2	198	0.2	49.1	0.50	50	0.8	1
2	212B-1-6-2	11/13/2006	4	982	0	185	0.2	49.1	0.00	46	-0.6	-10
3	212B-1-8-3	11/13/2006	4	982	1	189	0.2	49.1	0.25	47	0.1	-6
4	212B-1-32-4	11/13/2006	4	982	1	193	0.2	49.1	0.25	48	0.1	-3
5	212B-1-34-5	11/13/2006	4	982	0	190	0.2	49.1	0.00	48	-0.6	-6
6	212B-1-39-6	11/13/2006	4	982	2	183	0.2	49.1	0.50	46	0.8	-12
7	212B-1-63-7	11/13/2006	4	982	5	212	0.2	49.1	1.25	53	2.9	14
8	212B-1-65-8	11/13/2006	4	982	1	184	0.2	49.1	0.25	46	0.1	-11
9	212B-1-67-9	11/13/2006	4	982	1	180	0.2	49.1	0.25	45	0.1	-14
10	212B-2-12-1	11/13/2006	4	982	1	165	0.2	49.1	0.25	41	0.1	-28
11	212B-2-15-2	11/13/2006	4	982	2	221	0.2	49.1	0.50	55	0.8	22
12	212B-2-17-3	11/13/2006	4	982	2	281	0.2	49.1	0.50	70	0.8	74
13	212B-2-41-4	11/13/2006	4	982	1	184	0.2	49.1	0.25	46	0.1	-11
14	212B-2-44-5	11/13/2006	4	982	4	198	0.2	49.1	1.00	50	2.2	1
15	212B-2-48-6	11/13/2006	4	982	1	182	0.2	49.1	0.25	46	0.1	-13
16	212B-2-72-7	11/13/2006	4	982	0	198	0.2	49.1	0.00	50	-0.6	1
17	212B-2-76-8	11/13/2006	4	982	2	198	0.2	49.1	0.50	50	0.8	1
18	212B-2-78-9	11/13/2006	4	982	1	180	0.2	49.1	0.25	45	0.1	-14
										Mean	0.5	-0.7
										Median	0.1	-6.1
										SD	0.9	21.8
										Minimum	-0.6	-27.6
										Maximum	2.9	74.2

Warehouse 213, Sections 1, 2, 3 and 4, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	213F-1-55-1	11/16/2006	2	1049	0	188	0.1	52.5	0.00	47	-0.3	-19
2	213F-1-56-2	11/16/2006	2	1049	0	203	0.1	52.5	0.00	51	-0.3	-6
3	213F-1-55-3	11/16/2006	2	1049	0	211	0.1	52.5	0.00	53	-0.3	1
4	213F-1-55-4	11/16/2006	2	1049	1	192	0.1	52.5	0.25	48	0.4	-16
5	213F-1-55-5	11/16/2006	2	1049	2	180	0.1	52.5	0.50	45	1.1	-26
6	213F-1-56-6	11/16/2006	2	1049	1	197	0.1	52.5	0.25	49	0.4	-11
7	213F-1-55-7	11/16/2006	2	1049	2	173	0.1	52.5	0.50	43	1.1	-32
8	213F-1-56-8	11/16/2006	2	1049	0	183	0.1	52.5	0.00	46	-0.3	-24
9	213F-1-28-9	11/16/2006	2	1049	1	217	0.1	52.5	0.25	54	0.4	6
10	213F-1-18-10	11/16/2006	2	1049	0	178	0.1	52.5	0.00	45	-0.3	-28
11	213F-1-76-1	11/16/2006	2	1049	1	135	0.1	52.5	0.25	34	0.4	-66
12	213F-1-62-2	11/16/2006	2	1049	2	208	0.1	52.5	0.50	52	1.1	-2
13	213F-1-54-3	11/16/2006	2	1049	3	205	0.1	52.5	0.75	51	1.8	-4
14	213F-1-13-1	11/16/2006	2	1049	0	224	0.1	52.5	0.00	56	-0.3	12
15	213F-1-14-2	11/16/2006	2	1049	4	161	0.1	52.5	1.00	40	2.5	-43
16	213F-1-13-3	11/16/2006	2	1049	2	172	0.1	52.5	0.50	43	1.1	-33
17	213F-1-15-4	11/16/2006	2	1049	0	231	0.1	52.5	0.00	58	-0.3	19
18	213F-1-14-5	11/16/2006	2	1049	0	209	0.1	52.5	0.00	52	-0.3	-1
19	213F-1-14-6	11/16/2006	2	1049	1	196	0.1	52.5	0.25	49	0.4	-12
20	213F-1-14-7	11/16/2006	2	1049	4	206	0.1	52.5	1.00	52	2.5	-3
21	213F-1-15-8	11/16/2006	2	1049	0	199	0.1	52.5	0.00	50	-0.3	-9
22	213F-1-14-9	11/16/2006	2	1049	1	203	0.1	52.5	0.25	51	0.4	-6
23	213F-1-13-10	11/16/2006	2	1049	0	220	0.1	52.5	0.00	55	-0.3	9
24	213F-2-15-1	11/16/2006	2	1049	0	188	0.1	52.5	0.00	47	-0.3	-19
25	213F-2-32-1	11/16/2006	2	1049	1	213	0.1	52.5	0.25	53	0.4	3
26	213F-2-37-2	11/16/2006	2	1049	4	231	0.1	52.5	1.00	58	2.5	19
27	213F-2-47-3	11/16/2006	2	1049	0	195	0.1	52.5	0.00	49	-0.3	-13
28	213F-2-37-4	11/16/2006	2	1049	0	184	0.1	52.5	0.00	46	-0.3	-23

Warehouse 213, Sections 1, 2, 3 and 4, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
29	213F-2-79-5	11/16/2006	2	1049	1	197	0.1	52.5	0.25	49	0.4	-11
30	213F-2-64-1	11/17/2006	3	1026	2	155	0.2	51.3	0.50	39	1.0	-44
31	213F-2-64-2	11/17/2006	3	1026	2	198	0.2	51.3	0.50	50	1.0	-6
32	213F-2-52-3	11/17/2006	3	1026	0	218	0.2	51.3	0.00	55	-0.4	11
33	213F-2-52-4	11/17/2006	3	1026	0	207	0.2	51.3	0.00	52	-0.4	2
34	213F-2-8-5	11/17/2006	3	1026	0	204	0.2	51.3	0.00	51	-0.4	-1
35	213F-2-8-6	11/17/2006	3	1026	0	192	0.2	51.3	0.00	48	-0.4	-12
36	213F-2-13-2	11/17/2006	3	1026	2	228	0.2	51.3	0.50	57	1.0	20
37	213F-2-12-3	11/17/2006	3	1026	0	221	0.2	51.3	0.00	55	-0.4	14
38	213F-2-14-4	11/17/2006	3	1026	1	232	0.2	51.3	0.25	58	0.3	24
39	213F-2-13-5	11/17/2006	3	1026	2	194	0.2	51.3	0.50	49	1.0	-10
40	213F-2-15-6	11/17/2006	3	1026	0	224	0.2	51.3	0.00	56	-0.4	16
41	213F-2-12-7	11/17/2006	3	1026	0	200	0.2	51.3	0.00	50	-0.4	-5
42	213F-2-14-8	11/17/2006	3	1026	0	165	0.2	51.3	0.00	41	-0.4	-35
43	213F-4-29-12	11/20/2006	4	1042	0	206	0.2	52.1	0.00	52	-0.6	-2
44	213F-4-69-5	11/20/2006	4	1042	0	189	0.2	52.1	0.00	47	-0.6	-17
45	213F-4-29-10	11/20/2006	4	1042	1	173	0.2	52.1	0.25	43	0.1	-31
46	213F-4-69-7	11/20/2006	4	1042	2	190	0.2	52.1	0.50	48	0.8	-16
47	213F-4-69-4	11/20/2006	4	1042	3	207	0.2	52.1	0.75	52	1.5	-1
48	213F-4-69-3	11/20/2006	4	1042	2	228	0.2	52.1	0.50	57	0.8	17
49	213F-4-69-6	11/20/2006	4	1042	4	160	0.2	52.1	1.00	40	2.2	-42
50	213F-4-69-2	11/20/2006	4	1042	2	177	0.2	52.1	0.50	44	0.8	-28
51	213F-4-69-1	11/20/2006	4	1042	1	197	0.2	52.1	0.25	49	0.1	-10
52	213F-4-69-8	11/20/2006	4	1042	1	174	0.2	52.1	0.25	44	0.1	-30
53	213F-4-29-11	11/20/2006	4	1042	3	205	0.2	52.1	0.75	51	1.5	-3
54	213F-4-6-13	11/20/2006	4	1042	4	180	0.2	52.1	1.00	45	2.2	-25
55	213F-4-6-14	11/20/2006	4	1042	2	185	0.2	52.1	0.50	46	0.8	-21
56	213F-4-6-15	11/20/2006	4	1042	2	200	0.2	52.1	0.50	50	0.8	-7

Warehouse 213, Sections 1, 2, 3 and 4, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
57	213F-4-29-9	11/20/2006	4	1042	0	163	0.2	52.1	0.00	41	-0.6	-40
58	213F-4-15-1	11/21/2006	4	934	2	250	0.2	46.7	0.50	63	0.8	55
59	213F-4-15-2	11/21/2006	4	934	0	161	0.2	46.7	0.00	40	-0.6	-23
60	213F-4-9-3	11/21/2006	4	934	1	190	0.2	46.7	0.25	48	0.1	3
61	213F-4-9-4	11/21/2006	4	934	3	162	0.2	46.7	0.75	41	1.5	-22
62	213F-4-9-5	11/21/2006	4	934	2	164	0.2	46.7	0.50	41	0.8	-20
63	213F-4-11-6	11/21/2006	4	934	4	226	0.2	46.7	1.00	57	2.2	34
64	213F-4-79-1	11/21/2006	4	934	2	165	0.2	46.7	0.50	41	0.8	-19
65	213F-4-78-2	11/21/2006	4	934	0	218	0.2	46.7	0.00	55	-0.6	27
66	213F-4-78-3	11/21/2006	4	934	2	220	0.2	46.7	0.50	55	0.8	29
67	213F-4-75-4	11/21/2006	4	934	2	231	0.2	46.7	0.50	58	0.8	39
68	213F-4-75-5	11/21/2006	4	934	0	205	0.2	46.7	0.00	51	-0.6	16
69	213F-4-69-6	11/21/2006	4	934	3	195	0.2	46.7	0.75	49	1.5	7
70	213F-4-69-7	11/21/2006	4	934	2	235	0.2	46.7	0.50	59	0.8	42
71	213F-4-69-8	11/21/2006	4	934	3	196	0.2	46.7	0.75	49	1.5	8
72	213F-4-39-1	11/21/2006	4	934	2	188	0.2	46.7	0.50	47	0.8	1
73	213F-4-39-2	11/21/2006	4	934	2	222	0.2	46.7	0.50	56	0.8	31
74	213F-4-39-3	11/21/2006	4	934	0	185	0.2	46.7	0.00	46	-0.6	-2
75	213F-4-39-4	11/21/2006	4	934	6	194	0.2	46.7	1.50	49	3.6	6
76	213F-4-38-5	11/21/2006	4	934	2	207	0.2	46.7	0.50	52	0.8	18
77	213F-4-38-6	11/21/2006	4	934	4	183	0.2	46.7	1.00	46	2.2	-3
78	213F-4-31-7	11/21/2006	4	934	2	240	0.2	46.7	0.50	60	0.8	47
79	213F-4-21-8	11/21/2006	4	934	2	182	0.2	46.7	0.50	46	0.8	-4
80	213F-4-21-9	11/21/2006	4	934	3	229	0.2	46.7	0.75	57	1.5	37
81	213F-4-59-1	11/21/2006	4	934	0	208	0.2	46.7	0.00	52	-0.6	19
82	213F-4-59-2	11/21/2006	4	934	2	186	0.2	46.7	0.50	47	0.8	-1
83	213F-4-67-3	11/21/2006	4	934	2	160	0.2	46.7	0.50	40	0.8	-24
84	213F-4-67-4	11/21/2006	4	934	2	187	0.2	46.7	0.50	47	0.8	0

Warehouse 213, Sections 1, 2, 3 and 4, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
85	213F-4-67-5	11/21/2006	4	934	0	167	0.2	46.7	0.00	42	-0.6	-17
86	213F-4-51-6	11/21/2006	4	934	2	210	0.2	46.7	0.50	53	0.8	20
										Mean	0.6	-3.7
										Median	0.6	-3.8
										SD	0.9	22.6
										Minimum	-0.6	-65.6
										Maximum	3.6	55.5
1	213W-3-9-1	11/15/2006	4	1000	1	190	0.2	50.0	0.25	48	0.1	-9
2	213W-3-9-2	11/15/2006	4	1000	0	203	0.2	50.0	0.00	51	-0.6	3
3	213W-3-9-3	11/15/2006	4	1000	0	181	0.2	50.0	0.00	45	-0.6	-17
4	213W-3-59-4	11/15/2006	4	1000	4	193	0.2	50.0	1.00	48	2.2	-6
5	213W-3-59-5	11/15/2006	4	1000	0	173	0.2	50.0	0.00	43	-0.6	-24
6	213W-3-51-6	11/15/2006	4	1000	1	182	0.2	50.0	0.25	46	0.1	-16
7	213W-2-9N-1	11/14/2006	4	924	3	206	0.2	46.2	0.75	52	1.5	19
8	213W-2-29N-2	11/14/2006	4	924	0	221	0.2	46.2	0.00	55	-0.6	32
9	213W-2-29N-3	11/14/2006	4	924	1	167	0.2	46.2	0.25	42	0.1	-16
10	213W-2-29N-4	11/14/2006	4	924	2	183	0.2	46.2	0.50	46	0.8	-2
11	213W-2-29N-5	11/14/2006	4	924	2	193	0.2	46.2	0.50	48	0.8	7
12	213W-2-31S-6	11/14/2006	4	924	0	173	0.2	46.2	0.00	43	-0.6	-10
13	213W-2-31S-7	11/14/2006	4	924	0	200	0.2	46.2	0.00	50	-0.6	13
14	213W-2-31S-8	11/14/2006	4	924	1	209	0.2	46.2	0.25	52	0.1	21
15	213W-2-31S-9	11/14/2006	4	924	0	170	0.2	46.2	0.00	43	-0.6	-13
16	213W-2-31S-10	11/14/2006	4	924	2	175	0.2	46.2	0.50	44	0.8	-9
17	213W-2-31S-11	11/14/2006	4	924	2	213	0.2	46.2	0.50	53	0.8	25
18	213W-2-21S-12	11/14/2006	4	924	3	205	0.2	46.2	0.75	51	1.5	18
19	213W-2-21S-13	11/14/2006	4	924	1	215	0.2	46.2	0.25	54	0.1	27
20	212W-1-3W-1	11/14/2006	4	924	0	198	0.2	46.2	0.00	50	-0.6	12
21	213W-1-21S-1	11/15/2006	4	1000	0	157	0.2	50.0	0.00	39	-0.6	-38

Warehouse 213, Sections 1, 2, 3 and 4, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
22	213W-1-21S-2	11/15/2006	4	1000	2	193	0.2	50.0	0.50	48	0.8	-6
23	213W-1-31S-3	11/15/2006	4	1000	0	201	0.2	50.0	0.00	50	-0.6	1
24	213W-1-31S-4	11/15/2006	4	1000	3	194	0.2	50.0	0.75	49	1.5	-5
25	213W-1-31S-5	11/15/2006	4	1000	0	189	0.2	50.0	0.00	47	-0.6	-10
26	213W-1-59N-6	11/15/2006	4	1000	0	197	0.2	50.0	0.00	49	-0.6	-3
27	213W-1-4W-1	11/15/2006	4	1000	0	199	0.2	50.0	0.00	50	-0.6	-1
										Mean	0.2	-0.2
										Median	0.1	-2.6
										SD	0.9	16.6
										Minimum	-0.6	-37.7
										Maximum	2.2	31.8
1	213B-1-11-1	11/14/2006	4	924	1	191	0.2	46.2	0.25	48	0.1	5
2	213B-1-16-2	11/14/2006	4	924	1	174	0.2	46.2	0.25	44	0.1	-9
3	213B-1-19-3	11/14/2006	4	924	2	222	0.2	46.2	0.50	56	0.8	33
4	213B-1-34-4	11/14/2006	4	924	2	229	0.2	46.2	0.50	57	0.8	39
5	213B-1-36-5	11/14/2006	4	924	0	198	0.2	46.2	0.00	50	-0.6	12
6	213B-1-38-6	11/14/2006	4	924	0	196	0.2	46.2	0.00	49	-0.6	10
7	213B-1-51-7	11/14/2006	4	924	0	146	0.2	46.2	0.00	37	-0.6	-34
8	213B-1-54-8	11/14/2006	4	924	3	209	0.2	46.2	0.75	52	1.5	21
9	213B-1-59-9	11/14/2006	4	924	1	191	0.2	46.2	0.25	48	0.1	5
10	213B-2-13-1	11/14/2006	4	924	2	197	0.2	46.2	0.50	49	0.8	11
11	213B-2-16-2	11/14/2006	4	924	1	217	0.2	46.2	0.25	54	0.1	28
12	213B-2-18-3	11/14/2006	4	924	8	175	0.2	46.2	2.00	44	5.0	-9
13	213B-2-53-4	11/14/2006	4	924	2	189	0.2	46.2	0.50	47	0.8	4
14	213B-2-55-5	11/14/2006	4	924	0	189	0.2	46.2	0.00	47	-0.6	4
15	213B-2-57-6	11/14/2006	4	924	2	201	0.2	46.2	0.50	50	0.8	14
16	213B-2-72-7	11/14/2006	4	924	1	189	0.2	46.2	0.25	47	0.1	4
17	213B-2-74-8	11/14/2006	4	924	2	227	0.2	46.2	0.50	57	0.8	37

Warehouse 213, Sections 1, 2, 3 and 4, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
18	213B-2-78-9	11/14/2006	4	924	1	170	0.2	46.2	0.25	43	0.1	-13
19	213B-3-2-1	11/14/2006	4	924	3	188	0.2	46.2	0.75	47	1.5	3
20	213B-3-4-2	11/14/2006	4	924	0	238	0.2	46.2	0.00	60	-0.6	47
21	213B-3-7-3	11/14/2006	4	924	3	199	0.2	46.2	0.75	50	1.5	12
22	213B-3-31-4	11/14/2006	4	924	0	219	0.2	46.2	0.00	55	-0.6	30
23	213B-3-34-5	11/14/2006	4	924	1	197	0.2	46.2	0.25	49	0.1	11
24	213B-3-38-6	11/14/2006	4	924	1	222	0.2	46.2	0.25	56	0.1	33
25	213B-3-62-7	11/14/2006	4	924	2	169	0.2	46.2	0.50	42	0.8	-14
26	213B-3-66-8	11/14/2006	4	924	3	217	0.2	46.2	0.75	54	1.5	28
27	213B-3-69-9	11/14/2006	4	924	1	193	0.2	46.2	0.25	48	0.1	7
28	213B-4-22-1	11/14/2006	4	924	3	182	0.2	46.2	0.75	46	1.5	-2
29	213B-4-24-2	11/14/2006	4	924	0	182	0.2	46.2	0.00	46	-0.6	-2
30	213B-4-26-3	11/14/2006	4	924	0	169	0.2	46.2	0.00	42	-0.6	-14
31	213B-4-43-4	11/14/2006	4	924	2	183	0.2	46.2	0.50	46	0.8	-2
32	213B-4-45-5	11/14/2006	4	924	0	218	0.2	46.2	0.00	55	-0.6	29
33	213B-4-47-6	11/14/2006	4	924	0	172	0.2	46.2	0.00	43	-0.6	-11
34	213B-4-75-7	11/14/2006	4	924	2	216	0.2	46.2	0.50	54	0.8	27
35	213B-4-76-8	11/14/2006	4	924	2	181	0.2	46.2	0.50	45	0.8	-3
36	213B-4-77-9	11/14/2006	4	924	4	204	0.2	46.2	1.00	51	2.2	17
										Mean	0.5	9.9
										Median	0.1	8.5
										SD	1.1	18.1
										Minimum	-0.6	-34.0
										Maximum	5.0	46.7

Warehouse 214, Sections 1, 2, 3 and 4, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	214-F-2-18	6/7/2007	4	976	2	246	0.2	48.8	0.40	49	0.5	1
2	214-F-2-19	6/7/2007	4	976	1	254	0.2	48.8	0.20	51	0.0	7
3	214-F-2-20	6/7/2007	4	976	1	265	0.2	48.8	0.20	53	0.0	14
4	214-F-2-21	6/7/2007	4	976	1	231	0.2	48.8	0.20	46	0.0	-9
5	214-F-2-22	6/7/2007	4	976	0	219	0.2	48.8	0.00	44	-0.5	-17
6	214-F-2-23	6/7/2007	4	976	2	284	0.2	48.8	0.40	57	0.5	27
7	214-F-2-24	6/7/2007	4	976	2	260	0.2	48.8	0.40	52	0.5	11
8	214-F-2-25	6/7/2007	4	976	1	258	0.2	48.8	0.20	52	0.0	10
9	214-F-2-26	6/7/2007	4	976	0	230	0.2	48.8	0.00	46	-0.5	-10
10	214-F-2-27	6/7/2007	4	976	2	248	0.2	48.8	0.40	50	0.5	3
11	214-F-2-28	6/7/2007	4	976	3	211	0.2	48.8	0.60	42	1.0	-22
12	214-F-2-29	6/7/2007	4	976	1	216	0.2	48.8	0.20	43	0.0	-19
13	214-F-2-30	6/7/2007	4	976	2	247	0.2	48.8	0.40	49	0.5	2
14	214-F-2-31	6/7/2007	4	976	2	231	0.2	48.8	0.40	46	0.5	-9
15	214-F-2-32	6/7/2007	4	976	1	244	0.2	48.8	0.20	49	0.0	0
16	214-F-2-33	6/7/2007	4	976	0	244	0.2	48.8	0.00	49	-0.5	0
17	214-F-2-34	6/8/2007	5	960	1	237	0.3	48.0	0.20	47	-0.1	-2
18	214-F-2-35	6/8/2007	5	960	1	247	0.3	48.0	0.20	49	-0.1	5
19	214-F-2-36	6/8/2007	5	960	1	267	0.3	48.0	0.20	53	-0.1	18
20	214-F-2-37	6/8/2007	5	960	1	251	0.3	48.0	0.20	50	-0.1	7
21	214-F-2-38	6/8/2007	5	960	2	248	0.3	48.0	0.40	50	0.4	5
22	214-F-2-39	6/8/2007	5	960	1	242	0.3	48.0	0.20	48	-0.1	1
23	214-F-2-40	6/8/2007	5	960	1	239	0.3	48.0	0.20	48	-0.1	-1
24	214-F-2-41	6/8/2007	5	960	2	252	0.3	48.0	0.40	50	0.4	8
25	214-F-2-42	6/8/2007	5	960	1	220	0.3	48.0	0.20	44	-0.1	-14
26	214-F-3-43	6/8/2007	5	960	2	256	0.3	48.0	0.40	51	0.4	11
27	214-F-3-44	6/8/2007	5	960	2	250	0.3	48.0	0.40	50	0.4	7
28	214-F-3-45	6/8/2007	5	960	3	232	0.3	48.0	0.60	46	0.9	-5

Warehouse 214, Sections 1, 2, 3 and 4, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
29	214-F-3-46	6/8/2007	5	960	1	244	0.3	48.0	0.20	49	-0.1	3
										Mean	0.1	1.1
										Median	0.0	2.0
										SD	0.4	11.1
										Minimum	-0.5	-22.4
										Maximum	1.0	27.1
1	214-W-1-47	6/8/2007	5	960	1	213	0.3	48.0	0.20	43	-0.1	-18
2	214-W-1-48	6/8/2007	5	960	0	231	0.3	48.0	0.00	46	-0.6	-6
3	214-W-1-49	6/8/2007	5	960	1	226	0.3	48.0	0.20	45	-0.1	-10
										Mean	-0.3	-11.3
										Median	-0.1	-9.5
										SD	0.3	6.3
										Minimum	-0.6	-18.3
										Maximum	-0.1	-6.1
1	214-B-2-50	6/8/2007	5	960	2	232	0.3	48.0	0.40	46	0.4	-5
2	214-B-2-51	6/8/2007	5	960	1	244	0.3	48.0	0.20	49	-0.1	3
3	214-B-2-52	6/8/2007	5	960	6	226	0.3	48.0	1.20	45	2.4	-10
4	214-B-2-53	6/8/2007	5	960	0	237	0.3	48.0	0.00	47	-0.6	-2
5	214-B-2-54	6/8/2007	5	960	4	240	0.3	48.0	0.80	48	1.4	0
6	214-B-2-55	6/8/2007	5	960	0	229	0.3	48.0	0.00	46	-0.6	-7
7	214-B-2-56	6/8/2007	5	960	4	250	0.3	48.0	0.80	50	1.4	7
8	214-B-2-57	6/8/2007	5	960	5	228	0.3	48.0	1.00	46	1.9	-8
9	214-B-2-58	6/8/2007	5	960	2	226	0.3	48.0	0.40	45	0.4	-10
10	214-B-3-59	6/8/2007	5	960	3	248	0.3	48.0	0.60	50	0.9	5
11	214-B-3-60	6/8/2007	5	960	1	243	0.3	48.0	0.20	49	-0.1	2
12	214-B-3-61	6/8/2007	5	960	2	258	0.3	48.0	0.40	52	0.4	12
13	214-B-3-62	6/8/2007	5	960	3	256	0.3	48.0	0.60	51	0.9	11
14	214-B-3-63	6/8/2007	5	960	1	204	0.3	48.0	0.20	41	-0.1	-24

Warehouse 214, Sections 1, 2, 3 and 4, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
15	214-B-3-64	6/8/2007	5	960	3	258	0.3	48.0	0.60	52	0.9	12
16	214-B-3-65	6/8/2007	5	960	2	229	0.3	48.0	0.40	46	0.4	-7
17	214-B-3-66	6/8/2007	5	960	6	249	0.3	48.0	1.20	50	2.4	6
18	214-B-3-67	6/8/2007	5	960	1	238	0.3	48.0	0.20	48	-0.1	-1
1	214-B-4-S33	6/25/2007	6	1030	1	227	0.3	51.5	0.20	45	-0.3	-21
2	214-B-4-S66	6/25/2007	6	1030	3	251	0.3	51.5	0.60	50	0.8	-4
3	214-B-4-S74	6/25/2007	6	1030	2	251	0.3	51.5	0.40	50	0.3	-4
4	214-B-4-S52	6/25/2007	6	1030	2	261	0.3	51.5	0.40	52	0.3	2
5	214-B-4-S58	6/25/2007	6	1030	2	300	0.3	51.5	0.40	60	0.3	29
6	214-B-4-S4	6/25/2007	6	1030	1	238	0.3	51.5	0.20	48	-0.3	-13
7	214-B-4-S3	6/25/2007	6	1030	3	255	0.3	51.5	0.60	51	0.8	-2
8	214-B-4-S74	6/25/2007	6	1030	3	233	0.3	51.5	0.60	47	0.8	-17
9	214-B-4-S39	6/25/2007	6	1030	2	202	0.3	51.5	0.40	40	0.3	-38
10	214-B-3-S17	6/26/2007	6	983	3	236	0.3	49.2	0.60	47	0.8	-7
11	214-B-3-S29	6/26/2007	6	983	1	247	0.3	49.2	0.20	49	-0.3	1
12	214-B-3-S64	6/26/2007	6	983	0	261	0.3	49.2	0.00	52	-0.8	10
13	214-B-3-S43	6/26/2007	6	983	6	250	0.3	49.2	1.20	50	2.3	3
14	214-B-3-S5	6/26/2007	6	983	0	231	0.3	49.2	0.00	46	-0.8	-10
15	214-B-3-S72	6/26/2007	6	983	0	241	0.3	49.2	0.00	48	-0.8	-3
16	214-B-3-S56	6/26/2007	6	983	2	221	0.3	49.2	0.40	44	0.3	-17
17	214-B-3-S58+68	6/26/2007	6	983	1	230	0.3	49.2	0.20	46	-0.3	-11
18	214-B-3-S51	6/26/2007	6	983	4	231	0.3	49.2	0.80	46	1.3	-10
19	214-B-4-S14	6/26/2007	6	983	4	232	0.3	49.2	0.80	46	1.3	-9
20	214-B-4-S27	6/26/2007	6	983	2	248	0.3	49.2	0.40	50	0.3	2
21	214-B-4-S75	6/27/2007	6	983	1	243	0.3	49.2	0.20	49	-0.3	-2
22	214-B-4-S41	6/27/2007	6	983	2	238	0.3	49.2	0.40	48	0.3	-5
23	214-B-1-S58	6/22/2007	4	997	3	248	0.2	49.9	0.60	50	1.0	-1
24	214-B-1-S65	6/22/2007	4	997	2	223	0.2	49.9	0.40	45	0.5	-18

Warehouse 214, Sections 1, 2, 3 and 4, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
25	214-B-1-S19	6/22/2007	4	997	2	223	0.2	49.9	0.40	45	0.5	-18
26	214-B-1-S7	6/22/2007	4	997	3	241	0.2	49.9	0.60	48	1.0	-6
27	214-B-1-S16+26	6/22/2007	4	997	2	221	0.2	49.9	0.40	44	0.5	-19
28	214-B-1-S22	6/22/2007	4	997	2	264	0.2	49.9	0.40	53	0.5	10
29	214-B-1-S31	6/22/2007	4	997	0	253	0.2	49.9	0.00	51	-0.5	3
30	214-B-1-S73	6/22/2007	4	997	1	215	0.2	49.9	0.20	43	0.0	-23
31	214-B-1-S44	6/22/2007	4	997	1	258	0.2	49.9	0.20	52	0.0	6
32	214-B-4-S19	6/25/2007	6	1030	4	270	0.3	51.5	0.80	54	1.3	8
33	214-B-4-S2	6/25/2007	6	1030	2	264	0.3	51.5	0.40	53	0.3	4
										Mean	0.5	-3.8
										Median	0.4	-3.2
										SD	0.8	11.5
										Minimum	-0.8	-37.7
										Maximum	2.4	28.8

Warehouse 215, Sections 1 and 2, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	215F-1-48-1	11/15/2006	4	1000	1	217	0.2	50.0	0.25	54	0.1	15
2	215F-1-59-2	11/15/2006	4	1000	0	215	0.2	50.0	0.00	54	-0.6	13
3	215F-1-59-3	11/15/2006	4	1000	0	193	0.2	50.0	0.00	48	-0.6	-6
4	215F-1-59-4	11/15/2006	4	1000	2	194	0.2	50.0	0.50	49	0.8	-5
5	215F-1-28-5	11/15/2006	4	1000	0	202	0.2	50.0	0.00	51	-0.6	2
6	215F-1-28-6	11/15/2006	4	1000	0	214	0.2	50.0	0.00	54	-0.6	12
7	215F-1-28-7	11/15/2006	4	1000	2	202	0.2	50.0	0.50	51	0.8	2
8	215F-1-28-8	11/15/2006	4	1000	3	183	0.2	50.0	0.75	46	1.5	-15
9	215F-1-1-1	11/15/2006	4	1000	2	177	0.2	50.0	0.50	44	0.8	-20
10	215F-1-1-2	11/15/2006	4	1000	1	170	0.2	50.0	0.25	43	0.1	-26
11	215F-1-11-3	11/15/2006	4	1000	0	218	0.2	50.0	0.00	55	-0.6	16
12	215F-1-11-4	11/15/2006	4	1000	1	118	0.2	50.0	0.25	30	0.1	-72
13	215F-1-11-5	11/15/2006	4	1000	2	184	0.2	50.0	0.50	46	0.8	-14
14	215F-1-34-6	11/15/2006	4	1000	4	190	0.2	50.0	1.00	48	2.2	-9
15	215F-1-34-7	11/15/2006	4	1000	0	190	0.2	50.0	0.00	48	-0.6	-9
16	215F-1-34-8	11/15/2006	4	1000	0	205	0.2	50.0	0.00	51	-0.6	4
17	215F-1-34-9	11/15/2006	4	1000	0	182	0.2	50.0	0.00	46	-0.6	-16
18	215F-1-45-10	11/15/2006	4	1000	2	213	0.2	50.0	0.50	53	0.8	11
19	215F-1-45-11	11/15/2006	4	1000	2	205	0.2	50.0	0.50	51	0.8	4
20	215F-1-76-1	11/15/2006	4	1000	2	165	0.2	50.0	0.50	41	0.8	-31
21	215F-1-76-2	11/15/2006	4	1000	0	194	0.2	50.0	0.00	49	-0.6	-5
22	215F-1-76-3	11/15/2006	4	1000	2	196	0.2	50.0	0.50	49	0.8	-4
23	215F-1-76-4	11/15/2006	4	1000	0	157	0.2	50.0	0.00	39	-0.6	-38
24	215F-1-76-5	11/15/2006	4	1000	1	206	0.2	50.0	0.25	52	0.1	5
25	215F-1-73-6	11/15/2006	4	1000	4	213	0.2	50.0	1.00	53	2.2	11
26	215F-1-73-7	11/15/2006	4	1000	2	195	0.2	50.0	0.50	49	0.8	-4
27	215F-2-17-1	11/15/2006	4	1000	2	203	0.2	50.0	0.50	51	0.8	3

Warehouse 215, Sections 1 and 2, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
28	215F-2-17-2	11/15/2006	4	1000	2	198	0.2	50.0	0.50	50	0.8	-2
29	215F-2-17-3	11/15/2006	4	1000	2	194	0.2	50.0	0.50	49	0.8	-5
30	215F-2-17-4	11/15/2006	4	1000	2	183	0.2	50.0	0.50	46	0.8	-15
31	215F-2-38-5	11/15/2006	4	1000	1	191	0.2	50.0	0.25	48	0.1	-8
32	215F-2-38-6	11/15/2006	4	1000	4	230	0.2	50.0	1.00	58	2.2	26
33	215F-2-38-7	11/15/2006	4	1000	2	205	0.2	50.0	0.50	51	0.8	4
34	215F-2-38-8	11/15/2006	4	1000	2	198	0.2	50.0	0.50	50	0.8	-2
35	215F-2-34-9	11/15/2006	4	1000	2	175	0.2	50.0	0.50	44	0.8	-22
36	215F-2-41-10	11/15/2006	4	1000	2	209	0.2	50.0	0.50	52	0.8	8
37	215F-2-52-1	11/15/2006	4	1000	0	203	0.2	50.0	0.00	51	-0.6	3
38	215F-2-52-2	11/15/2006	4	1000	0	202	0.2	50.0	0.00	51	-0.6	2
39	215F-2-52-3	11/15/2006	4	1000	2	185	0.2	50.0	0.50	46	0.8	-13
40	215F-2-52-4	11/15/2006	4	1000	2	224	0.2	50.0	0.50	56	0.8	21
41	215F-2-54-5	11/15/2006	4	1000	0	208	0.2	50.0	0.00	52	-0.6	7
42	215F-2-54-6	11/15/2006	4	1000	0	215	0.2	50.0	0.00	54	-0.6	13
43	215F-2-54-7	11/15/2006	4	1000	2	182	0.2	50.0	0.50	46	0.8	-16
44	215F-2-54-8	11/15/2006	4	1000	1	184	0.2	50.0	0.25	46	0.1	-14
45	215F-2-54-9	11/15/2006	4	1000	0	193	0.2	50.0	0.00	48	-0.6	-6
46	215F-2-63-10	11/15/2006	4	1000	0	208	0.2	50.0	0.00	52	-0.6	7
47	215F-2-63-11	11/15/2006	4	1000	2	234	0.2	50.0	0.50	59	0.8	30
48	215F-2-1-1	11/15/2006	4	1000	2	225	0.2	50.0	0.50	56	0.8	22
49	215F-2-1-2	11/15/2006	4	1000	0	198	0.2	50.0	0.00	50	-0.6	-2
50	215F-2-5-3	11/15/2006	4	1000	1	224	0.2	50.0	0.25	56	0.1	21
51	215F-2-5-4	11/15/2006	4	1000	3	207	0.2	50.0	0.75	52	1.5	6
52	215F-2-5-5	11/15/2006	4	1000	0	176	0.2	50.0	0.00	44	-0.6	-21
53	215F-2-9-6	11/15/2006	4	1000	0	185	0.2	50.0	0.00	46	-0.6	-13
54	215F-2-9-7	11/15/2006	4	1000	3	229	0.2	50.0	0.75	57	1.5	25

Warehouse 215, Sections 1 and 2, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
55	215F-2-13-8	11/15/2006	4	1000	0	197	0.2	50.0	0.00	49	-0.6	-3
56	215F-2-13-9	11/15/2006	4	1000	1	187	0.2	50.0	0.25	47	0.1	-11
										Mean	0.4	-2.4
										Median	0.5	-1.8
										SD	0.8	17.4
										Minimum	-0.6	-72.0
										Maximum	2.2	29.8
1	215W-2-1-1	11/14/2006	4	924	3	201	0.2	46.2	0.75	50	1.5	14
2	215W-2-1-2	11/14/2006	4	924	1	204	0.2	46.2	0.25	51	0.1	17
3	215W-2-1-3	11/14/2006	4	924	4	203	0.2	46.2	1.00	51	2.2	16
4	215W-2-41-4	11/14/2006	4	924	2	183	0.2	46.2	0.50	46	0.8	-2
5	215W-2-41-5	11/14/2006	4	924	0	206	0.2	46.2	0.00	52	-0.6	19
6	215W-2-41-6	11/14/2006	4	924	3	183	0.2	46.2	0.75	46	1.5	-2
7	215W-2-41-7	11/14/2006	4	924	1	205	0.2	46.2	0.25	51	0.1	18
8	215W-2-41-8	11/14/2006	4	924	0	199	0.2	46.2	0.00	50	-0.6	12
9	215W-2-41-9	11/14/2006	4	924	0	198	0.2	46.2	0.00	50	-0.6	12
10	215W-2-1-1	11/15/2006	4	1000	2	166	0.2	50.0	0.50	42	0.8	-30
1	215W-1-19N-1	11/15/2006	4	1000	0	193	0.2	50.0	0.00	48	-0.6	-6
2	215W-2-79N-2	11/15/2006	4	1000	0	168	0.2	50.0	0.00	42	-0.6	-28
3	215W-2-69-3	11/15/2006	4	1000	1	177	0.2	50.0	0.25	44	0.1	-20
										Mean	0.4	1.5
										Median	0.1	11.6
										SD	1.0	17.8
										Minimum	-0.6	-29.8
										Maximum	2.2	18.6
1	215B-3-2-1	11/13/2006	4	982	0	202	0.2	49.1	0.00	51	-0.6	5
2	215B-2-2-1	11/13/2006	4	982	1	174	0.2	49.1	0.25	44	0.1	-20
3	215B-2-5-2	11/13/2006	4	982	0	181	0.2	49.1	0.00	45	-0.6	-14

Warehouse 215, Sections 1 and 2, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
4	215B-3-75-8	11/13/2006	4	982	4	176	0.2	49.1	1.00	44	2.2	-18
5	215B-2-13-4	11/13/2006	4	982	0	182	0.2	49.1	0.00	46	-0.6	-13
6	215B-2-18-6	11/13/2006	4	982	0	193	0.2	49.1	0.00	48	-0.6	-3
7	215B-3-72-7	11/13/2006	4	982	2	180	0.2	49.1	0.50	45	0.8	-14
8	215B-1-54-8	11/13/2006	4	982	1	212	0.2	49.1	0.25	53	0.1	14
9	215B-2-8-3	11/13/2006	4	982	0	190	0.2	49.1	0.00	48	-0.6	-6
10	215B-1-15-3	11/13/2006	4	982	2	193	0.2	49.1	0.50	48	0.8	-3
11	215B-1-9-3	11/13/2006	4	982	8	198	0.2	49.1	2.00	50	5.0	1
12	215B-1-18-6	11/13/2006	4	982	3	181	0.2	49.1	0.75	45	1.5	-14
13	215B-2-52-7	11/13/2006	4	982	3	198	0.2	49.1	0.75	50	1.5	1
14	215B-3-52-6	11/13/2006	4	982	0	200	0.2	49.1	0.00	50	-0.6	3
15	215B-1-1-1	11/13/2006	4	982	2	176	0.2	49.1	0.50	44	0.8	-18
16	215B-1-52-7	11/13/2006	4	982	2	179	0.2	49.1	0.50	45	0.8	-15
17	215B-3-55-5	11/13/2006	4	982	5	194	0.2	49.1	1.25	49	2.9	-2
18	215B-1-50-9	11/13/2006	4	982	2	187	0.2	49.1	0.50	47	0.8	-8
19	215B-3-58-4	11/13/2006	4	982	0	216	0.2	49.1	0.00	54	-0.6	17
21	215B-3-77-9	11/13/2006	4	982	1	186	0.2	49.1	0.25	47	0.1	-9
22	215B-3-9-3	11/13/2006	4	982	0	204	0.2	49.1	0.00	51	-0.6	7
23	215B-3-5-2	11/13/2006	4	982	2	170	0.2	49.1	0.50	43	0.8	-23
27	215B-2-16-5	11/13/2006	4	982	1	200	0.2	49.1	0.25	50	0.1	3
28	215B-2-55-8	11/13/2006	4	982	2	196	0.2	49.1	0.50	49	0.8	0
32	215B-2-59-9	11/13/2006	4	982	0	220	0.2	49.1	0.00	55	-0.6	21
35	215B-1-5-2	11/13/2006	4	982	3	192	0.2	49.1	0.75	48	1.5	-4
										Mean	0.6	-4.3
										Median	0.5	-3.4
										SD	1.3	11.5
										Minimum	-0.6	-23.2
										Maximum	5.0	20.7

Biased Removable Activity Results

Survey Unit 215 Section 4 Class 3

Instrument and Survey Information - 2007 Survey

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

$DCGL_w$ = 38 dpm/100 cm^2

Instrument and Survey Information - 2006 Survey

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

Biased Samples

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	215F-4-53-1	11/17/2006	3	1026	1	204	0.2	51.3	0.25	51	0.3	-1
2	215F-4-53-2	11/17/2006	3	1026	0	218	0.2	51.3	0.00	55	-0.4	11
3	215F-4-53-3	11/17/2006	3	1026	1	150	0.2	51.3	0.25	38	0.3	-48
4	215F-4-61-4	11/17/2006	3	1026	0	224	0.2	51.3	0.00	56	-0.4	16
5	215F-4-61-5	11/17/2006	3	1026	0	168	0.2	51.3	0.00	42	-0.4	-33
6	215F-4-65-6	11/17/2006	3	1026	4	198	0.2	51.3	1.00	50	2.4	-6
7	215F-4-65-7	11/17/2006	3	1026	2	204	0.2	51.3	0.50	51	1.0	-1
8	215F-4-65-8	11/17/2006	3	1026	1	197	0.2	51.3	0.25	49	0.3	-7
9	215F-4-65-9	11/17/2006	3	1026	0	203	0.2	51.3	0.00	51	-0.4	-2
10	215F-4-19-1	11/17/2006	3	1026	2	156	0.2	51.3	0.50	39	1.0	-43
11	215F-4-15-2	11/17/2006	3	1026	0	198	0.2	51.3	0.00	50	-0.4	-6
12	215F-4-15-3	11/17/2006	3	1026	1	216	0.2	51.3	0.25	54	0.3	9
13	215F-4-15-4	11/17/2006	3	1026	0	169	0.2	51.3	0.00	42	-0.4	-32
14	215F-4-29-5	11/17/2006	3	1026	0	146	0.2	51.3	0.00	37	-0.4	-52
15	215F-4-29-6	11/17/2006	3	1026	0	180	0.2	51.3	0.00	45	-0.4	-22
16	215F-4-29-7	11/17/2006	3	1026	2	210	0.2	51.3	0.50	53	1.0	4
17	215F-4-51-8	11/17/2006	3	1026	1	200	0.2	51.3	0.25	50	0.3	-5
18	215F-4-79-1	11/17/2006	3	1026	2	231	0.2	51.3	0.50	58	1.0	23
19	215F-4-79-2	11/17/2006	3	1026	2	199	0.2	51.3	0.50	50	1.0	-5
20	215F-4-79-3	11/17/2006	3	1026	4	182	0.2	51.3	1.00	46	2.4	-20
21	215F-4-75-4	11/17/2006	3	1026	2	185	0.2	51.3	0.50	46	1.0	-18
22	215F-4-71-5	11/17/2006	3	1026	1	185	0.2	51.3	0.25	46	0.3	-18
23	215F-4-71-6	11/17/2006	3	1026	1	201	0.2	51.3	0.25	50	0.3	-4
										Mean	0.4	-11.3
										Median	0.3	-6.3
										SD	0.8	20.0
										Minimum	-0.4	-51.9
										Maximum	2.4	22.6
24	215W-4-71E-1	11/14/2006	4	924	2	213	0.2	46.2	0.50	53	0.8	25
25	215W-4-71E-2	11/14/2006	4	924	0	212	0.2	46.2	0.00	53	-0.6	24
26	215W-4-71E-3	11/14/2006	4	924	1	205	0.2	46.2	0.25	51	0.1	18
27	215W-4-71E-4	11/14/2006	4	924	4	213	0.2	46.2	1.00	53	2.2	25
28	215W-4-71E-5	11/14/2006	4	924	2	195	0.2	46.2	0.50	49	0.8	9
29	215W-4-71E-6	11/14/2006	4	924	1	225	0.2	46.2	0.25	56	0.1	35
30	215W-4-71S-7	11/14/2006	4	924	4	117	0.2	46.2	1.00	29	2.2	-59
31	215W-4-71S-8	11/14/2006	4	924	0	212	0.2	46.2	0.00	53	-0.6	24
32	215W-4-71S-9	11/14/2006	4	924	0	205	0.2	46.2	0.00	51	-0.6	18
33	215W-4-71S-10	11/14/2006	4	924	0	236	0.2	46.2	0.00	59	-0.6	45

Biased Removable Activity Results

Survey Unit 215 Section 4 Class 3

Instrument and Survey Information - 2007 Survey

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3947	0.2947	5.0	20.0

$DCGL_w$ = 38 dpm/100 cm^2

Instrument and Survey Information - 2006 Survey

alpha eff.	beta eff.	Sample Count Time (min)	Background Count Time (min)
0.3588	0.2849	4.0	20.0

Biased Samples

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
34	215W-4-29N-1	11/15/2006	4	1000	0	213	0.2	50.0	0.00	53	-0.6	11
35	215W-4-29N-2	11/15/2006	4	1000	5	210	0.2	50.0	1.25	53	2.9	9
36	215W-4-29N-3	11/15/2006	4	1000	0	202	0.2	50.0	0.00	51	-0.6	2
37	215W-4-29N-4	11/15/2006	4	1000	0	188	0.2	50.0	0.00	47	-0.6	-11
38	215W-4-79N-5	11/15/2006	4	1000	0	191	0.2	50.0	0.00	48	-0.6	-8
39	215W-4-79N-6	11/15/2006	4	1000	0	216	0.2	50.0	0.00	54	-0.6	14
										Mean	0.3	11.2
										Median	-0.6	15.9
										SD	1.2	23.7
										Minimum	-0.6	-59.5
										Maximum	2.9	44.9
20	215B-4-58-6	11/13/2006	4	982	0	170	0.2	49.1	0.00	43	-0.6	-23
24	215B-4-64-8	11/13/2006	4	982	2	211	0.2	49.1	0.50	53	0.8	13
25	215B-4-31-1	11/13/2006	4	982	2	215	0.2	49.1	0.50	54	0.8	16
26	215B-4-67-9	11/13/2006	4	982	2	205	0.2	49.1	0.50	51	0.8	8
29	215B-4-54-5	11/13/2006	4	982	1	200	0.2	49.1	0.25	50	0.1	3
30	215B-4-37-3	11/13/2006	4	982	0	182	0.2	49.1	0.00	46	-0.6	-13
31	215B-4-62-7	11/13/2006	4	982	4	186	0.2	49.1	1.00	47	2.2	-9
33	215B-4-35-2	11/13/2006	4	982	1	219	0.2	49.1	0.25	55	0.1	20
34	215B-4-52-4	11/13/2006	4	982	2	201	0.2	49.1	0.50	50	0.8	4
										Mean	0.5	2.1
										Median	0.8	4.0
										SD	0.9	14.4
										Minimum	-0.6	-23.2
										Maximum	2.2	19.8

Rail Scale Concrete Pad, Class 2

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	Rail Scale Survey #1	10/31/2006	3	978	1	194	0.2	48.9	0.25	49	0.3	-1
2	Rail Scale Survey #2	10/31/2006	3	978	0	209	0.2	48.9	0.00	52	-0.4	12
3	Rail Scale Survey #3	10/31/2006	3	978	1	198	0.2	48.9	0.25	50	0.3	2
4	Rail Scale Survey #4	10/31/2006	3	978	2	190	0.2	48.9	0.50	48	1.0	-5
5	Rail Scale Survey #5	10/31/2006	3	978	2	194	0.2	48.9	0.50	49	1.0	-1
6	Rail Scale Survey #6	10/31/2006	3	978	0	187	0.2	48.9	0.00	47	-0.4	-8
7	Rail Scale Survey #7	10/31/2006	3	978	0	204	0.2	48.9	0.00	51	-0.4	7
8	Rail Scale Survey #8	10/31/2006	3	978	1	192	0.2	48.9	0.25	48	0.3	-3
9	Rail Scale Survey #9	10/31/2006	3	978	1	216	0.2	48.9	0.25	54	0.3	18
10	Rail Scale Survey #10	10/31/2006	3	978	3	183	0.2	48.9	0.75	46	1.7	-11
11	Rail Scale Survey #11	10/31/2006	3	978	1	203	0.2	48.9	0.25	51	0.3	6
12	Rail Scale Survey #12	10/31/2006	3	978	1	196	0.2	48.9	0.25	49	0.3	0
13	Rail Scale Survey #13	10/31/2006	3	978	2	175	0.2	48.9	0.50	44	1.0	-18
14	Rail Scale Survey #14	10/31/2006	3	978	2	207	0.2	48.9	0.50	52	1.0	10
15	Rail Scale Survey #15	10/31/2006	3	978	3	212	0.2	48.9	0.75	53	1.7	14
16	Rail Scale Survey #16	10/31/2006	3	978	2	209	0.2	48.9	0.50	52	1.0	12
17	Rail Scale Survey #17	10/31/2006	3	978	0	192	0.2	48.9	0.00	48	-0.4	-3
18	Rail Scale Survey #18	10/31/2006	3	978	5	191	0.2	48.9	1.25	48	3.1	-4
19	Rail Scale Survey #19	10/31/2006	3	978	1	208	0.2	48.9	0.25	52	0.3	11
20	Rail Scale Survey #20	10/31/2006	3	978	2	199	0.2	48.9	0.50	50	1.0	3
										Mean	0.6	2.1
										Median	0.3	1.2
										SD	0.9	9.2
										Minimum	-0.4	-18.1
										Maximum	3.1	17.9

Shrinkwrapping Area, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	Shrinkwrapping Area Outside #1	11/7/2006	3	1002	0	196	0.2	50.1	0.00	49	-0.4	-4
2	Shrinkwrapping Area Outside #2	11/7/2006	3	1002	2	210	0.2	50.1	0.50	53	1.0	8
3	Shrinkwrapping Area Outside #3	11/7/2006	3	1021	5	206	0.2	51.1	1.25	52	3.1	2
4	Shrinkwrapping Area Outside #4	11/8/2006	1	1021	3	220	0.1	51.1	0.75	55	2.0	14
5	Shrinkwrapping Area Outside #5	11/8/2006	1	1021	6	189	0.1	51.1	1.50	47	4.0	-13
6	Shrinkwrapping Area Outside #6	11/8/2006	1	1021	1	192	0.1	51.1	0.25	48	0.6	-11
7	Shrinkwrapping Area Outside #7	11/8/2006	1	1021	5	221	0.1	51.1	1.25	55	3.3	15
8	Shrinkwrapping Area Outside #8	11/8/2006	1	1021	5	206	0.1	51.1	1.25	52	3.3	2
9	Shrinkwrapping Area Outside #9	11/8/2006	1	1021	1	203	0.1	51.1	0.25	51	0.6	-1
10	Shrinkwrapping Area Outside #10	11/8/2006	1	1021	0	197	0.1	51.1	0.00	49	-0.1	-6
										Mean	1.7	0.5
										Median	1.5	0.3
										SD	1.6	9.6
										Minimum	-0.4	-13.3
										Maximum	4.0	14.7

Storage and Transport Area South, Class 3

alpha eff.	beta eff.
0.3947	0.2947

Sample Count Time (min)	Background Count Time (min)
5.0	20.0

alpha eff.	beta eff.
0.3588	0.2849

Sample Count Time (min)	Background Count Time (min)
4.0	20.0

* Daily Count

	ID	Date	Background Counts*		Sample Counts		Background cpm		Sample cpm		Sample (dpm/100 cm^2)	
			alpha	beta	alpha	beta	alpha	beta	alpha	beta	alpha	beta
1	Storage/Transport Area #1	11/8/2006	1	1021	4	190	0.1	51.1	1.00	48	2.6	-12
2	Storage/Transport Area #2	11/8/2006	1	1021	5	198	0.1	51.1	1.25	50	3.3	-5
3	Storage/Transport Area #3	11/8/2006	1	1021	2	208	0.1	51.1	0.50	52	1.3	3
4	Storage/Transport Area #4	11/8/2006	1	1021	3	168	0.1	51.1	0.75	42	2.0	-32
5	Storage/Transport Area #5	11/8/2006	1	1021	3	218	0.1	51.1	0.75	55	2.0	12
6	Storage/Transport Area #6	11/8/2006	1	1021	0	190	0.1	51.1	0.00	48	-0.1	-12
7	Storage/Transport Area #7	11/8/2006	1	1021	4	251	0.1	51.1	1.00	63	2.6	41
8	Storage/Transport Area #8	11/8/2006	1	1021	1	199	0.1	51.1	0.25	50	0.6	-5
9	Storage/Transport Area #9	11/8/2006	1	1021	1	203	0.1	51.1	0.25	51	0.6	-1
10	Storage/Transport Area #10	11/8/2006	1	1021	2	206	0.1	51.1	0.50	52	1.3	2
11	Storage/Transport Area #11	11/8/2006	1	1021	2	199	0.1	51.1	0.50	50	1.3	-5
12	Storage/Transport Area #12	11/8/2006	1	1021	1	192	0.1	51.1	0.25	48	0.6	-11
13	Storage/Transport Area #13	11/8/2006	1	1021	4	280	0.1	51.1	1.00	70	2.6	67
14	Storage/Transport Area #14	11/8/2006	1	1021	2	181	0.1	51.1	0.50	45	1.3	-20
15	Storage/Transport Area #15	11/8/2006	1	1021	2	196	0.1	51.1	0.50	49	1.3	-7
16	Storage/Transport Area #16	11/8/2006	1	1021	0	202	0.1	51.1	0.00	51	-0.1	-2
17	Storage/Transport Area #17	11/8/2006	1	1021	1	211	0.1	51.1	0.25	53	0.6	6
18	Storage/Transport Area #18	11/8/2006	1	1021	0	193	0.1	51.1	0.00	48	-0.1	-10
19	Storage/Transport Area #19	11/8/2006	1	1021	0	191	0.1	51.1	0.00	48	-0.1	-12
20	Storage/Transport Area #20	11/8/2006	1	1021	1	211	0.1	51.1	0.25	53	0.6	6
										Mean	1.2	0.1
										Median	1.3	-4.6
										SD	1.1	21.2
										Minimum	-0.1	-31.8
										Maximum	3.3	66.5

APPENDIX D

SURVEY QUALITY ASSURANCE / QUALITY CONTROL AND CALIBRATION CERTIFICATES

APPENDIX D

SURVEY QUALITY ASSURANCE / QUALITY CONTROL AND CALIBRATION CERTTIFICATES

New Haven Depot FSS Instrument QC

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 6)

Counting Instrument:			2929		Detector:	43-10-1		Calibration Date:		5/9/2007								
Serial #:			163827		Serial #:	PR171322		12 month calibration:		OK								
Detector Active Area or Area Covered by Smear (cm^2):						100												
	Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	$T_{1/2}$ (yr)	Source Decayed Activity	Required MDA ($DPM/100cm^2$)	Control Chart & Daily Bkg Count Time	Control Chart & Daily Source-Sample Count Time	Control Chart bkg Average α/β cpm	Control Chart bkg 1 sigma, cpm	Control Chart Source-bkg Average α/β cpm	Control Chart source 1 sigma, cpm				
Alpha	0.3947	Th-230	4001-02	5,070	7/18/2006	7.54E+04	5,070	4	20	5	0.18	0.09	1837.2	29.32				
Beta	0.2947						#DIV/0!				#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!				

Date	Daily Bkg Counts		Daily Check Source Counts		Daily Bkg Rate (cpm)		Net Daily Source Rate (cpm)		Bkg QC Pass/Fail		Source QC Pass/Fail				α MDA OK?	β MDA OK?	H.P. Technician	Technician Initials
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	MDA α (dpm)	MDA β (dpm)				
6/5/2007	4	921	9157		0.2	#DIV/0!	1831.2		PASS	#DIV/0!	PASS		3.38		Yes			
6/6/2007	4	908	9144		0.2	#DIV/0!	1828.6		PASS	#DIV/0!	PASS		3.38		Yes			
6/7/2007	4	976	9335		0.2	#DIV/0!	1866.8		PASS	#DIV/0!	PASS		3.38		Yes			
6/8/2007	5	960	9228		0.3	#DIV/0!	1845.4		PASS	#DIV/0!	PASS		3.60		Yes			
6/11/2007	5	987	9209		0.3	#DIV/0!	1841.6		PASS	#DIV/0!	PASS		3.60		Yes			
6/12/2007	2	943	9249		0.1	#DIV/0!	1849.7		PASS	#DIV/0!	PASS		2.84		Yes			
6/13/2007	2	942	9114		0.1	#DIV/0!	1822.7		PASS	#DIV/0!	PASS		2.84		Yes			
6/14/2007	6	922	9125		0.3	#DIV/0!	1824.7		PASS	#DIV/0!	PASS		3.80		Yes			
6/15/2007	3	950	9071		0.2	#DIV/0!	1814.1		PASS	#DIV/0!	PASS		3.13		Yes			
6/18/2007	2	942	9438		0.1	#DIV/0!	1887.5		PASS	#DIV/0!	PASS		2.84		Yes			
6/19/2007	5	951	9212		0.3	#DIV/0!	1842.2		PASS	#DIV/0!	PASS		3.60		Yes			
6/20/2007	3	941	9204		0.2	#DIV/0!	1840.7		PASS	#DIV/0!	PASS		3.13		Yes			
6/21/2007	3	1037	9176		0.2	#DIV/0!	1835.1		PASS	#DIV/0!	PASS		3.13		Yes			
6/22/2007	4	997	9201		0.2	#DIV/0!	1840.0		PASS	#DIV/0!	PASS		3.38		Yes			
6/25/2007	6	1030	9155		0.3	#DIV/0!	1830.7		PASS	#DIV/0!	PASS		3.80		Yes			
6/26/2007	6	983	9009		0.3	#DIV/0!	1801.5		PASS	#DIV/0!	PASS		3.80		Yes			
6/27/2007	3	932	9120		0.2	#DIV/0!	1823.9		PASS	#DIV/0!	PASS		3.13		Yes			
6/28/2007	3	932	9120		0.2	#DIV/0!	1823.9		PASS	#DIV/0!	PASS		3.13		Yes			

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 6)

Trial MDA Calculator	α	β
Sample Count Time (min)	1	
Bkg Count Rate (cpm)	0.1	
Bkg Count Time (min)	1	
Counter Efficiency	0.3947	0.2947
MDCR (cpm)	4.471333	#DIV/0!
MDA (dpm)	11.32843	#DIV/0!

Initial Background and Source Counts for Control Chart

#	Initial bkg counts				Initial source plus bkg counts			
	Alpha	cpm	Beta	cpm	Alpha	cpm	Beta	cpm
1	3	0.15	917	#DIV/0!	9178	1835.6		
2	4	0.2	994	#DIV/0!	9165	1833		
3	3	0.15	989	#DIV/0!	9324	1864.8		
4	4	0.2	924	#DIV/0!	9460	1892		
5	3	0.15	970	#DIV/0!	9183	1836.6		
6	4	0.2	956	#DIV/0!	8998	1799.6		
7	1	0.05	966	#DIV/0!	9048	1809.6		
8	4	0.2	947	#DIV/0!	9341	1868.2		
9	8	0.4	986	#DIV/0!	9091	1818.2		
10	2	0.1	992	#DIV/0!	9079	1815.8		
Mean		0.18		#DIV/0!		1837.3		#DIV/0!
$S_{(n-1)}$		0.09		#DIV/0!		29.33		#DIV/0!
-3 sigma		-0.10		#DIV/0!		1749.36		#DIV/0!
+3 sigma		0.46		#DIV/0!		1925.32		#DIV/0!
-2 sigma		0.00		#DIV/0!		1778.69		#DIV/0!
+2 sigma		0.36		#DIV/0!		1895.99		#DIV/0!
					Mean-bkg	1837.2		#DIV/0!
					$S_{(n-1)}$	29.32		#VALUE!
				Mean-bkg	-3 sigma	1749.19		#DIV/0!
				Mean-bkg	+3 sigma	1925.13		#DIV/0!
				Mean-bkg	-2 sigma	1778.52		#DIV/0!
				Mean-bkg	+2 sigma	1895.80		#DIV/0!
						1835.45		#VALUE!
						1832.8		#VALUE!
						1864.65		#VALUE!
						1891.8		#VALUE!
						1836.45		#VALUE!
						1799.4		#VALUE!
						1809.55		#VALUE!
						1868		#VALUE!
						1817.8		#VALUE!
						1815.7		#VALUE!

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 6)

Counting Instrument:			2360		Detector:	43-37		Calibration Date:		2/14/2007						
Serial #:			184938		Serial #:	PR178371		12 month calibration:		OK						
Detector Active Area or Area Covered by Smear (cm^2):						582										
	Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	$T_{1/2}$ (yr)	Source Decayed Activity	Required MDA ($DPM/100cm^2$)	Control Chart & Daily Bkg Count Time	Control Chart & Daily Source-Sample Count Time	Control Chart bkg Average α/β cpm	Control Chart bkg 1 sigma, cpm	Control Chart Source-bkg Average α/β cpm	Control Chart source 1 sigma, cpm		
Alpha	0.1720	Th-230	4001-02	5,070	7/18/2006	7.54E+04	5,070	25	1	1	15.60	3.03	650.6	80.96		
Beta		Tc-99	5634-05	12,600	12/28/2005	2.11E+05	12,600				#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!		

Date	Daily Bkg Counts		Daily Check Source Counts		Daily Bkg Rate (cpm)		Net Daily Source Rate (cpm)		Bkg QC Pass/Fail		Source QC Pass/Fail				α MDA OK?	β MDA OK?
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	MDA α (dpm)	MDA β (dpm)		
6/14/2007	13		721		13.0		708.0		PASS		PASS		19.76		Yes	
6/15/2007	20		773		20.0		753.0		PASS		PASS		23.78		Yes	
6/18/2007	16		737		16.0		721.0		PASS		PASS		21.59		Yes	
6/19/2007	18		731		18.0		713.0		PASS		PASS		22.72		Yes	
6/20/2007	21		722		21.0		701.0		PASS		PASS		24.30		Yes	
6/22/2007	15		797		15.0		782.0		PASS		PASS		21.00		Yes	
6/25/2007	14		625		14.0		611.0		PASS		PASS		20.39		Yes	
6/26/2007	12		669		12.0		657.0		PASS		PASS		19.10		Yes	
6/27/2007	15		585		15.0		570.0		PASS		PASS		21.00		Yes	
6/28/2007																
6/29/2007																

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 6)

Initial Background and Source Counts for Control Chart								
	Initial bkg counts				Initial source plus bkg counts			
#	Alpha	cpm	Beta	cpm	Alpha	cpm	Beta	cpm
1	17	17			778	778		
2	19	19			724	724		
3	12	12			756	756		
4	14	14			577	577		
5	18	18			662	662		
6	17	17			653	653		
7	10	10			570	570		
8	14	14			593	593		
9	19	19			759	759		
10	16	16			590	590		
Mean		15.60		#DIV/0!		666.2		#DIV/0!
$S_{(n-1)}$		3.03		#DIV/0!		82.38		#DIV/0!
-3 sigma		6.52		#DIV/0!		419.05		#DIV/0!
+3 sigma		24.68		#DIV/0!		913.35		#DIV/0!
-2 sigma		9.55		#DIV/0!		501.43		#DIV/0!
+2 sigma		21.65		#DIV/0!		830.97		#DIV/0!
					Mean-bkg	650.6		#DIV/0!
					$S_{(n-1)}$	80.96		#VALUE!
				Mean-bkg	-3 sigma	407.71		#DIV/0!
				Mean-bkg	+3 sigma	893.49		#DIV/0!
				Mean-bkg	-2 sigma	488.67		#DIV/0!
				Mean-bkg	+2 sigma	812.53		#DIV/0!
						761		#VALUE!
						705		#VALUE!
						744		#VALUE!
						563		#VALUE!
						644		#VALUE!
						636		#VALUE!
						560		#VALUE!
						579		#VALUE!
						740		#VALUE!
						574		#VALUE!

Trial MDA Calculator	α	β
Sample Count Time (min)	1	
Bkg Count Rate (cpm)	0.1	
Bkg Count Time (min)	1	
Counter Efficiency	0.172	0
MDCR (cpm)	4.471333	#DIV/0!
MDA (dpm)	25.99612	#DIV/0!

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 6)

Counting Instrument:			2360		Detector:	43-37		Calibration Date:		5/30/2007						
Serial #:			193675		Serial #:	PR216984		12 month calibration:		OK						
Detector Active Area or Area Covered by Smear (cm^2):						582										
	Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	$T_{1/2}$ (yr)	Source Decayed Activity	Required MDA ($DPM/100cm^2$)	Control Chart & Daily Bkg Count Time	Control Chart & Daily Source-Sample Count Time	Control Chart bkg Average α/β cpm	Control Chart bkg 1 sigma, cpm	Control Chart Source-bkg Average α/β cpm	Control Chart source 1 sigma, cpm		
Alpha	0.1760	Th-230	4001-02	5,070	7/18/2006	7.54E+04	5,070	24	1	1	13.10	3.73	810.1	49.77		
Beta							#DIV/0!				#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!		

Date	Daily Bkg Counts		Daily Check Source Counts		Daily Bkg Rate (cpm)		Net Daily Source Rate (cpm)		Bkg QC Pass/Fail		Source QC Pass/Fail				α MDA OK?	β MDA OK?
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	MDA α (dpm)	MDA β (dpm)		
6/8/2007	11		794		11.0		783.0		PASS		PASS		17.99		Yes	
6/11/2007	13		841		13.0		828.0		PASS		PASS		19.31		Yes	
6/12/2007	15		775		15.0		760.0		PASS		PASS		20.52		Yes	
6/13/2007	10		874		10.0		864.0		PASS		PASS		17.29		Yes	
6/14/2007	12		814		12.0		802.0		PASS		PASS		18.66		Yes	
6/15/2007	11		765		11.0		754.0		PASS		PASS		17.99		Yes	
6/18/2007	16		736		16.0		720.0		PASS		PASS		21.10		Yes	
6/19/2007	15		759		15.0		744.0		PASS		PASS		20.52		Yes	
6/20/2007	13		900		13.0		887.0		PASS		PASS		19.31		Yes	
6/21/2007	16		781		16.0		765.0		PASS		PASS		21.10		Yes	
6/22/2007	13		779		13.0		766.0		PASS		PASS		19.31		Yes	
6/25/2007	13		725		13.0		712.0		PASS		PASS		19.31		Yes	
6/26/2007	16		738		16.0		722.0		PASS		PASS		21.10		Yes	
6/27/2007	15		810		15.0		795.0		PASS		PASS		20.52		Yes	
6/28/2007	15		836		15.0		821.0		PASS		PASS		20.52		Yes	
6/29/2007	12		729		12.0		717.0		PASS		PASS		18.66		Yes	
7/9/2007	11		720		11.0		709.0		PASS		*QUESTION*		17.99		Yes	
7/10/2007	14		760		14.0		746.0		PASS		PASS		19.92		Yes	
7/11/2007	14		819		14.0		805.0		PASS		PASS		19.92		Yes	
7/12/2007	13		799		13.0		786.0		PASS		PASS		19.31		Yes	
7/13/2007	11		743		11.0		732.0		PASS		PASS		17.99		Yes	
7/16/2007	11		806		11.0		795.0		PASS		PASS		17.99		Yes	
7/18/2007	11		792		11.0		781.0		PASS		PASS		17.99		Yes	
7/30/2007	7	440	687	6151	7.0	#DIV/0!	680.0	#DIV/0!	PASS	#DIV/0!	*QUESTION*	#DIV/0!	14.95	#DIV/0!	Yes	#DIV/0!
7/31/2007	6	376	768	6032	6.0	#DIV/0!	762.0	#DIV/0!	PASS	#DIV/0!	PASS	#DIV/0!	14.06	#DIV/0!	Yes	#DIV/0!
8/3/2007	13	502	771	6029	13.0	#DIV/0!	758.0	#DIV/0!	PASS	#DIV/0!	PASS	#DIV/0!	19.31	#DIV/0!	Yes	#DIV/0!
8/10/2007	13		802		13.0		789.0		PASS		PASS		19.31		Yes	
9/10/2007	9	362	814		9.0	#DIV/0!	805.0		PASS	#DIV/0!	PASS		16.56		Yes	
9/11/2007	12	435	768		12.0	#DIV/0!	756.0		PASS	#DIV/0!	PASS		18.66		Yes	
9/12/2007	10	489	798		10.0	#DIV/0!	788.0		PASS	#DIV/0!	PASS		17.29		Yes	

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 6)

Initial Background and Source Counts for Control Chart

#	Initial bkg counts				Initial source plus bkg counts			
	Alpha	cpm	Beta	cpm	Alpha	cpm	Beta	cpm
1	12	12			779	779		
2	16	16			912	912		
3	8	8			815	815		
4	18	18			819	819		
5	18	18			846	846		
6	12	12			800	800		
7	10	10			784	784		
8	8	8			804	804		
9	15	15			765	765		
10	14	14			908	908		
Mean		13.10		#DIV/0!		823.2		#DIV/0!
$S_{(n-1)}$		3.73		#DIV/0!		51.06		#DIV/0!
-3 sigma		1.92		#DIV/0!		670.02		#DIV/0!
+3 sigma		24.28		#DIV/0!		976.38		#DIV/0!
-2 sigma		5.65		#DIV/0!		721.08		#DIV/0!
+2 sigma		20.55		#DIV/0!		925.32		#DIV/0!
					Mean-bkg	810.1		#DIV/0!
					$S_{(n-1)}$	49.77		#VALUE!
				Mean-bkg	-3 sigma	660.80		#DIV/0!
				Mean-bkg	+3 sigma	959.40		#DIV/0!
				Mean-bkg	-2 sigma	710.57		#DIV/0!
				Mean-bkg	+2 sigma	909.63		#DIV/0!
						767		#VALUE!
						896		#VALUE!
						807		#VALUE!
						801		#VALUE!
						828		#VALUE!
						788		#VALUE!
						774		#VALUE!
						796		#VALUE!
						750		#VALUE!
						894		#VALUE!

Trial MDA Calculator	α	β
Sample Count Time (min)	1	
Bkg Count Rate (cpm)	0.1	
Bkg Count Time (min)	1	
Counter Efficiency	0.176	0
MDCR (cpm)	4.471333	#DIV/0!
MDA (dpm)	25.4053	#DIV/0!

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 6)

Counting Instrument:			2224		Detector:	43-68		Calibration Date:		1/18/2007						
Serial #:			183048		Serial #:	PR161781		12 month calibration:		OK						
Detector Active Area or Area Covered by Smear (cm^2):						125										
	Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	$T_{1/2}$ (yr)	Source Decayed Activity	Required MDA ($DPM/100cm^2$)	Control Chart & Daily Bkg Count Time	Control Chart & Daily Source-Sample Count Time	Control Chart bkg Average α/β cpm	Control Chart bkg 1 sigma, cpm	Control Chart Source-bkg Average α/β cpm	Control Chart source 1 sigma, cpm		
Alpha	0.2002	Th-230	4001-02	5,070	7/18/2006	7.54E+04	5,070	18	10	3	2.22	1.35	837.6	42.52		
Beta							#DIV/0!				#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!		

Date	Daily Bkg Counts		Daily Check Source Counts		Daily Bkg Rate (cpm)		Net Daily Source Rate (cpm)		Bkg QC Pass/Fail		Source QC Pass/Fail				α MDA OK?	β MDA OK?
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	MDA α (dpm)	MDA β (dpm)		
6/27/2007	10		2594		1.0		863.7		PASS		PASS		12.65		Yes	
6/28/2007	11		2693		1.1		896.6		PASS		PASS		13.07		Yes	
6/29/2007	19		2658		1.9		884.1		PASS		PASS		15.93		Yes	
7/9/2007	19		2810		1.9		934.8		PASS		*QUESTION*		15.93		Yes	
7/10/2007	14		2829		1.4		941.6		PASS		*QUESTION*		14.24		Yes	
7/11/2007	11		2546		1.1		847.6		PASS		PASS		13.07		Yes	
7/12/2007	16		2516		1.6		837.1		PASS		PASS		14.94		Yes	
7/13/2007	15		2611		1.5		868.8		PASS		PASS		14.60		Yes	
7/16/2007	17		2596		1.7		863.6		PASS		PASS		15.28		Yes	
7/18/2007	17		2675		1.7		890.0		PASS		PASS		15.28		Yes	
7/31/2007	13		2775		1.3		923.7		PASS		*QUESTION*		13.86		Yes	
8/1/2007	6		2709		0.6		902.4		PASS		PASS		10.70		Yes	
8/3/2007	5		2667		0.5		888.5		PASS		PASS		10.12		Yes	
8/10/2007	14		2405	25157	1.4		800.3	#DIV/0!	PASS		PASS	#DIV/0!	14.24	#VALUE!	Yes	#VALUE!

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 6)

Initial Background and Source Counts for Control Chart

#	Initial bkg counts				Initial source plus bkg counts			
	Alpha	cpm	Beta	cpm	Alpha	cpm	Beta	cpm
1	37	3.7			2585	861.6667		
2	45	4.5			2522	840.6667		
3	41	4.1			2301	767		
4	17	1.7			2488	829.3333		
5	15	1.5			2507	835.6667		
6	20	2			2367	789		
7	11	1.1			2679	893		
8	15	1.5			2510	836.6667		
9	12	1.2			2721	907		
10	9	0.9			2515	838.3333		
Mean		2.22		#DIV/0!		839.8		#DIV/0!
$S_{(n-1)}$		1.35		#DIV/0!		41.96		#DIV/0!
-3 sigma		-1.82		#DIV/0!		713.96		#DIV/0!
+3 sigma		6.26		#DIV/0!		965.71		#DIV/0!
-2 sigma		-0.47		#DIV/0!		755.92		#DIV/0!
+2 sigma		4.91		#DIV/0!		923.75		#DIV/0!
					Mean-bkg	837.6		#DIV/0!
					$S_{(n-1)}$	42.52		#VALUE!
				Mean-bkg	-3 sigma	710.04		#DIV/0!
				Mean-bkg	+3 sigma	965.18		#DIV/0!
				Mean-bkg	-2 sigma	752.57		#DIV/0!
				Mean-bkg	+2 sigma	922.66		#DIV/0!
						857.9667		#VALUE!
						836.1667		#VALUE!
						762.9		#VALUE!
						827.6333		#VALUE!
						834.1667		#VALUE!
						787		#VALUE!
						891.9		#VALUE!
						835.1667		#VALUE!
						905.8		#VALUE!
						837.4333		#VALUE!

Trial MDA Calculator	α	β
Sample Count Time (min)	1	
Bkg Count Rate (cpm)	0.1	
Bkg Count Time (min)	1	
Counter Efficiency	0.2002	0
MDCR (cpm)	4.471333	#DIV/0!
MDA (dpm)	22.33433	#DIV/0!

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 6)

Counting Instrument:			2360		Detector:	43-37		Calibration Date:		2/14/2007						
Serial #:			184938		Serial #:	PR178371		12 month calibration:		OK						
Detector Active Area or Area Covered by Smear (cm^2):						582										
	Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	$T_{1/2}$ (yr)	Source Decayed Activity	Required MDA ($DPM/100cm^2$)	Control Chart & Daily Bkg Count Time	Control Chart & Daily Source-Sample Count Time	Control Chart bkg Average α/β cpm	Control Chart bkg 1 sigma, cpm	Control Chart Source-bkg Average α/β cpm	Control Chart source 1 sigma, cpm		
Alpha	0.1720	Th-230	4001-02	5,070	7/18/2006	7.54E+04	5,070	23	1	1	15.00	3.65	528.8	18.28		
Beta		Tc-99	5634-05	12,600	12/28/2005	2.11E+05	12,600				#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!		

Date	Daily Bkg Counts		Daily Check Source Counts		Daily Bkg Rate (cpm)		Net Daily Source Rate (cpm)		Bkg QC Pass/Fail		Source QC Pass/Fail				α MDA OK?	β MDA OK?
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	MDA α (dpm)	MDA β (dpm)		
6/6/2007	17		536		17.0		519.0		PASS		PASS		22.16		Yes	
6/7/2007	15		568		15.0		553.0		PASS		PASS		21.00		Yes	
6/8/2007	15		555		15.0		540.0		PASS		PASS		21.00		Yes	
6/11/2007	19		546		19.0		527.0		PASS		PASS		23.26		No	
6/12/2007	18		531		18.0		513.0		PASS		PASS		22.72		Yes	
6/13/2007	16		518		16.0		502.0		PASS		PASS		21.59		Yes	
6/14/2007	13		570		13.0		557.0		PASS		PASS		19.76		Yes	

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 6)

Initial Background and Source Counts for Control Chart								
	Initial bkg counts				Initial source plus bkg counts			
#	Alpha	cpm	Beta	cpm	Alpha	cpm	Beta	cpm
1	17	17			568	568		
2	14	14			543	543		
3	19	19			522	522		
4	12	12			552	552		
5	18	18			525	525		
6	10	10			534	534		
7	15	15			564	564		
8	17	17			567	567		
9	19	19			529	529		
10	9	9			534	534		
Mean		15.00		#DIV/0!		543.8		#DIV/0!
$S_{(n-1)}$		3.65		#DIV/0!		17.76		#DIV/0!
-3 sigma		4.05		#DIV/0!		490.51		#DIV/0!
+3 sigma		25.95		#DIV/0!		597.09		#DIV/0!
-2 sigma		7.70		#DIV/0!		508.27		#DIV/0!
+2 sigma		22.30		#DIV/0!		579.33		#DIV/0!
					Mean-bkg	528.8		#DIV/0!
					$S_{(n-1)}$	18.28		#VALUE!
				Mean-bkg	-3 sigma	473.96		#DIV/0!
				Mean-bkg	+3 sigma	583.64		#DIV/0!
				Mean-bkg	-2 sigma	492.24		#DIV/0!
				Mean-bkg	+2 sigma	565.36		#DIV/0!
						551		#VALUE!
						529		#VALUE!
						503		#VALUE!
						540		#VALUE!
						507		#VALUE!
						524		#VALUE!
						549		#VALUE!
						550		#VALUE!
						510		#VALUE!
						525		#VALUE!

Trial MDA Calculator	α	β
Sample Count Time (min)	1	
Bkg Count Rate (cpm)	0.1	
Bkg Count Time (min)	1	
Counter Efficiency	0.172	0
MDCR (cpm)	4.471333	#DIV/0!
MDA (dpm)	25.99612	#DIV/0!

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 6)

Counting Instrument:			2224		Detector:	43-68		Calibration Date:		1/18/2007						
Serial #:			183048		Serial #:	PR161781		12 month calibration:		OK						
Detector Active Area or Area Covered by Smear (cm^2):						125										
	Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	$T_{1/2}$ (yr)	Source Decayed Activity	Required MDA ($DPM/100cm^2$)	Control Chart & Daily Bkg Count Time	Control Chart & Daily Source-Sample Count Time	Control Chart bkg Average α/β cpm	Control Chart bkg 1 sigma, cpm	Control Chart Source-bkg Average α/β cpm	Control Chart source 1 sigma, cpm		
Alpha	0.2002	Th-230	4001-02	5,070	7/18/2006	7.54E+04	5,070	18	10	3	0.87	0.24	975.2	17.95		
Beta							#DIV/0!				#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!		

Date	Daily Bkg Counts		Daily Check Source Counts		Daily Bkg Rate (cpm)		Net Daily Source Rate (cpm)		Bkg QC Pass/Fail		Source QC Pass/Fail				α MDA OK?	β MDA OK?
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	MDA α (dpm)	MDA β (dpm)		
6/13/2007	12		2922		1.2		972.8		PASS		PASS		13.48		Yes	
6/21/2007	12		2857		1.2		951.1		PASS		PASS		13.48		Yes	
6/22/2007	12		2936		1.2		977.5		PASS		PASS		13.48		Yes	

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 6)

Initial Background and Source Counts for Control Chart

#	Initial bkg counts				Initial source plus bkg counts			
	Alpha	cpm	Beta	cpm	Alpha	cpm	Beta	cpm
1	6	0.6			2841	947		
2	8	0.8			2864	954.6667		
3	10	1			2990	996.6667		
4	5	0.5			2928	976		
5	10	1			2947	982.3333		
6	12	1.2			2927	975.6667		
7	8	0.8			2972	990.6667		
8	9	0.9			2953	984.3333		
9	12	1.2			2994	998		
10	7	0.7			2867	955.6667		
Mean		0.87		#DIV/0!		976.1		#DIV/0!
$S_{(n-1)}$		0.24		#DIV/0!		18.09		#DIV/0!
-3 sigma		0.16		#DIV/0!		921.83		#DIV/0!
+3 sigma		1.58		#DIV/0!		1030.37		#DIV/0!
-2 sigma		0.40		#DIV/0!		939.92		#DIV/0!
+2 sigma		1.34		#DIV/0!		1012.28		#DIV/0!
					Mean-bkg	975.2		#DIV/0!
					$S_{(n-1)}$	17.95		#VALUE!
				Mean-bkg	-3 sigma	921.37		#DIV/0!
				Mean-bkg	+3 sigma	1029.09		#DIV/0!
				Mean-bkg	-2 sigma	939.33		#DIV/0!
				Mean-bkg	+2 sigma	1011.13		#DIV/0!
						946.4		#VALUE!
						953.8667		#VALUE!
						995.6667		#VALUE!
						975.5		#VALUE!
						981.3333		#VALUE!
						974.4667		#VALUE!
						989.8667		#VALUE!
						983.4333		#VALUE!
						996.8		#VALUE!
						954.9667		#VALUE!

Trial MDA Calculator	α	β
Sample Count Time (min)	1	
Bkg Count Rate (cpm)	0.1	
Bkg Count Time (min)	1	
Counter Efficiency	0.2002	0
MDCR (cpm)	4.471333	#DIV/0!
MDA (dpm)	22.33433	#DIV/0!

Inst.#2224 #110002 43-89 alpha		
QC Daily Source		
Date	Result (cpm)	P/F
8/2/2007	761	Pass
8/7/2007	809	Pass
8/8/2007	769	Pass
8/9/2007	789	Pass
8/10/2007	772	Pass
8/13/2007	802	Pass
8/14/2007	800	Pass
8/15/2007	762	Pass
8/16/2007	811	Pass
8/17/2007	761	Pass
8/21/2007	782	Pass
8/22/2007	760	Pass
8/23/2007	791	Pass
8/24/2007	790	Pass
8/27/2007	761	Pass
8/28/2007	807	Pass
8/29/2007	781	Pass
8/30/2007	793	Pass

Inst.#2224 #110002 43-89 alpha		Source Ser. #	DNS-11
Initial Source Readings		Nuclide	Th-230
Date	Result (cpm)		
8/2/2007	776		
8/2/2007	788		
8/2/2007	749		
8/2/2007	829		
8/2/2007	824		
8/2/2007	789		
8/2/2007	788		
8/2/2007	780		
8/2/2007	819		
8/2/2007	797		
	Average		
	794		

Inst.#2224 #110002 43-89		
QC Daily Source		
Date	Result (cpm)	P/F
8/2/2007	5652	Pass
8/7/2007	5666	Pass
8/8/2007	5641	Pass
8/9/2007	5750	Pass
8/10/2007	5999	Pass
8/13/2007	5713	Pass
8/14/2007	5703	Pass
8/15/2007	5637	Pass
8/16/2007	5604	Pass
8/17/2007	5637	Pass
8/21/2007	5645	Pass
8/22/2007	5567	Pass
8/23/2007	5576	Pass
8/24/2007	5674	Pass
8/27/2007	5772	Pass
8/28/2007	5827	Pass
8/29/2007	5673	Pass
8/30/2007	5670	Pass

Inst.#2224 #110002 43-89		Source Ser. #	
Initial Source Readings		Nuclide	Cs-137
Date	Result (cpm)		
8/2/2007	5652		
8/2/2007	5772		
8/2/2007	5701		
8/2/2007	5866		
8/2/2007	5807		
8/2/2007	5719		
8/2/2007	5694		
8/2/2007	5850		
8/2/2007	5846		
8/2/2007	5713		
	Average		
	5762		

Inst.#2221 #176952 21700F (7)		
QC Daily Source		
Date	Result (cpm)	P/F
7/10/2007	6043	Pass
7/16/2007	6092	Pass
7/17/2007	6867	Pass
7/18/2007	6848	Pass
7/19/2007	6108	Pass
7/20/2007	5785	Pass
7/23/2007	6094	Pass
7/24/2007	6481	Pass
7/25/2007	6615	Pass
7/26/2007	5934	Pass
7/27/2007	6985	Pass
7/30/2007	6132	Pass
7/31/2007	6577	Pass
8/1/2007	6301	Pass
8/2/2007	6476	Pass
8/10/2007	6176	Pass
8/13/2007	6221	Pass
8/30/2007	6390	Pass
9/6/2007	6068	Pass
9/12/2007	5893	Pass

Inst.#2221 #176952 21700F (7)	Source Ser. #	
Initial Source Readings	Nuclide	Cs-137
Date	Result (cpm)	
7/10/2007	6157	
7/10/2007	6116	
7/10/2007	6222	
7/10/2007	6157	
7/10/2007	6176	
7/10/2007	6158	
7/10/2007	6198	
7/10/2007	6275	
7/10/2007	6123	
7/10/2007	6109	
	Average	
	6169	

Inst.#2221 #176952 21700F (7)		
QC Daily Source		
Date	Result (cpm)	P/F
7/10/2007	132381	Pass
7/16/2007	134328	Pass
7/17/2007	129785	Pass
7/18/2007	126810	Pass
7/19/2007	131110	Pass
7/20/2007	130391	Pass
7/23/2007	131735	Pass
7/24/2007	128431	Pass
7/25/2007	128238	Pass
7/26/2007	125814	Pass
7/27/2007	127155	Pass
7/30/2007	126786	Pass
7/31/2007	127133	Pass
8/1/2007	130598	Pass
8/2/2007	128346	Pass
8/10/2007	119126	Pass
8/13/2007	120654	Pass
8/30/2007	130172	Pass
9/6/2007	129680	Pass
9/12/2007	130716	Pass

Inst.#2221 #176952 21700F (7)	Source Ser. #	
Initial Source Readings	Nuclide	Cs-137
Date	Result (cpm)	
7/10/2007	131102	
7/10/2007	131201	
7/10/2007	131819	
7/10/2007	131804	
7/10/2007	131992	
7/10/2007	132128	
7/10/2007	132208	
7/10/2007	132302	
7/10/2007	132289	
7/10/2007	132733	
	Average	
	131958	

Inst.#2221 #132861 51200 (8)		
QC Daily Source		
Date	Result (cpm)	P/F
7/10/2007	5897	Pass
7/11/2007	5592	Pass
7/12/2007	6100	Pass
7/13/2007	5784	Pass
7/16/2007	6053	Pass
7/19/2007	5994	Pass
7/20/2007	5767	Pass
7/23/2007	5753	Pass
7/24/2007	6078	Pass
7/25/2007	6495	Pass
7/31/2007	5955	Pass
8/1/2007	6140	Pass
8/2/2007	6088	Pass
8/3/2007	6500	Pass
8/6/2007	5922	Pass
8/7/2007	5822	Pass
8/9/2007	6675	Pass
8/13/2007	5703	Pass
8/14/2007	6152	Pass
8/15/2007	6217	Pass
8/16/2007	5853	Pass
8/17/2007	5885	Pass
8/20/2007	6019	Pass
8/21/2007	5651	Pass
8/22/2007	5843	Pass
8/23/2007	5433	Pass
8/28/2007	5904	Pass
8/29/2007	6109	Pass

Inst.#2221 #132861 51200 (8)	Source Ser. #	
Initial Source Readings	Nuclide	Cs-137
Date	Result (cpm)	
7/10/2007	5987	
7/10/2007	5909	
7/10/2007	5881	
7/10/2007	5784	
7/10/2007	5723	
7/10/2007	5809	
7/10/2007	5743	
7/10/2007	5922	
7/10/2007	5887	
7/10/2007	5922	
	Average	
	5857	

Inst.#2221 #132861 51200 (8)		
QC Daily Source		
Date	Result (cpm)	P/F
7/10/2007	123847	Pass
7/11/2007	118082	Pass
7/12/2007	128938	Pass
7/13/2007	119204	Pass
7/16/2007	124081	Pass
7/19/2007	122411	Pass
7/20/2007	121998	Pass
7/23/2007	124667	Pass
7/24/2007	121659	Pass
7/25/2007	119243	Pass
7/31/2007	120114	Pass
8/1/2007	124148	Pass
8/2/2007	121156	Pass
8/3/2007	119757	Pass
8/6/2007	118022	Pass
8/7/2007	118341	Pass
8/9/2007	114585	Pass
8/13/2007	114944	Pass
8/14/2007	117295	Pass
8/15/2007	116323	Pass
8/16/2007	120967	Pass
8/17/2007	121128	Pass
8/20/2007	119753	Pass
8/21/2007	123224	Pass
8/22/2007	115037	Pass
8/23/2007	116967	Pass
8/28/2007	118345	Pass
8/29/2007	114408	Pass

Inst.#2221 #132861 51200 (8)		Source Ser. #	
Initial Source Readings		Nuclide	Cs-137
Date	Result (cpm)		
7/10/2007	122338		
7/10/2007	123432		
7/10/2007	123540		
7/10/2007	123711		
7/10/2007	124193		
7/10/2007	123781		
7/10/2007	123913		
7/10/2007	124299		
7/10/2007	123935		
7/10/2007	124247		
	Average		
	123739		

Inst.#14C 194299 bkgd		
QC Daily Source		
Date	Result (cpm)	P/F
6/5/2007	60	Pass
7/11/2007	60	Pass
7/12/2007	60	Pass
7/13/2007	50	Pass
7/16/2007	50	Pass
7/17/2007	50	Pass
7/18/2007	50	Pass
7/19/2007	60	Pass
7/23/2007	50	Pass
7/24/2007	50	Pass
7/25/2007	50	Pass
7/30/2007	50	Pass
7/31/2007	50	Pass
8/1/2007	50	Pass
8/2/2007	50	Pass
8/3/2007	50	Pass
8/6/2007	50	Pass
8/7/2007	50	Pass
8/8/2007	50	Pass
8/9/2007	50	Pass
8/10/2007	50	Pass
8/13/2007	50	Pass
8/14/2007	50	Pass
8/15/2007	50	Pass
8/16/2007	50	Pass
8/20/2007	50	Pass
8/21/2007	50	Pass
8/22/2007	50	Pass
8/23/2007	50	Pass
8/24/2007	50	Pass
8/27/2007	50	Pass
8/28/2007	50	Pass
8/29/2007	50	Pass
8/30/2007	50	Pass
8/31/2007	50	Pass
9/4/2007	50	Pass
9/5/2007	50	Pass
9/6/2007	50	Pass
9/7/2007	50	Pass
9/10/2007	50	Pass
9/11/2007	50	Pass
9/12/2007	50	Pass
9/13/2007	50	Pass
9/14/2007	50	Pass
9/17/2007	50	Pass

Inst.#14C 194299 bkgd	
Initial Source Readings	
Date	Result (cpm)
6/5/2007	60
6/5/2007	60
6/5/2007	50
6/5/2007	60
6/5/2007	50
6/5/2007	60
6/5/2007	60
6/5/2007	50
6/5/2007	40
6/5/2007	60
	Average
	55

Inst.#14C 194299 bkgd		
QC Daily Source		
Date	Result (cpm)	P/F
6/5/2007	7700	Pass
7/11/2007	7700	Pass
7/12/2007	7700	Pass
7/13/2007	7500	Pass
7/16/2007	7700	Pass
7/17/2007	7700	Pass
7/18/2007	7600	Pass
7/19/2007	7500	Pass
7/23/2007	7800	Pass
7/24/2007	7500	Pass
7/25/2007	7500	Pass
7/30/2007	7500	Pass
7/31/2007	7500	Pass
8/1/2007	7500	Pass
8/2/2007	7800	Pass
8/3/2007	7400	Pass
8/6/2007	7500	Pass
8/7/2007	7500	Pass
8/8/2007	7500	Pass
8/9/2007	7500	Pass
8/10/2007	7500	Pass
8/13/2007	7500	Pass
8/14/2007	7500	Pass
8/15/2007	7500	Pass
8/16/2007	7500	Pass
8/20/2007	7500	Pass
8/21/2007	7500	Pass
8/22/2007	7500	Pass
8/23/2007	7500	Pass
8/24/2007	7500	Pass
8/27/2007	7500	Pass
8/28/2007	7500	Pass
8/29/2007	7500	Pass
8/30/2007	7500	Pass
8/31/2007	7500	Pass
9/4/2007	7500	Pass
9/5/2007	7500	Pass
9/6/2007	7500	Pass
9/7/2007	7500	Pass
9/10/2007	7500	Pass
9/11/2007	7500	Pass
9/12/2007	7500	Pass
9/13/2007	7500	Pass
9/14/2007	7500	Pass
9/17/2007	7500	Pass

Inst.#14C 194299 bkgd	
Initial Source Readings	
Date	Result (cpm)
6/5/2007	7600
6/5/2007	7400
6/5/2007	7300
6/5/2007	7300
6/5/2007	7900
6/5/2007	7600
6/5/2007	8000
6/5/2007	7800
6/5/2007	7900
6/5/2007	7700
	Average
	7650

Inst.#2221 #176952 21700F (7)		
QC Daily Source		
Date	Result (cpm)	P/F
6/21/2007	6250	Pass
6/22/2007	6474	Pass
6/25/2007	6887	Pass
6/26/2007	6204	Pass
6/27/2007	6114	Pass
6/28/2007	5786	Pass
6/29/2007	5817	Pass
	changed geometry	Fail

Inst.#2221 #176952 21700F (7)		Source Ser. #	
Initial Source Readings		Nuclide	Cs-137
Date	Result (cpm)		
6/20/2007	6370		
6/20/2007	6211		
6/20/2007	6249		
6/20/2007	6131		
6/20/2007	6249		
6/20/2007	6212		
6/20/2007	6229		
6/20/2007	6064		
6/20/2007	6037		
6/20/2007	5999		
	Average		
	6175		

Inst.#2221 #176952 21700F (7)		
QC Daily Source		
Date	Result (cpm)	P/F
6/21/2007	126749	Pass
6/22/2007	124874	Pass
6/25/2007	121686	Pass
6/26/2007	122666	Pass
6/27/2007	125182	Pass
6/28/2007	127496	Pass
6/29/2007	121592	Pass
	changed geometry	Fail

Inst.#2221 #176952 21700F (7)		Source Ser. #	
Initial Source Readings		Nuclide	Cs-137
Date	Result (cpm)		
6/20/2007	125939		
6/20/2007	126282		
6/20/2007	126629		
6/20/2007	126078		
6/20/2007	127176		
6/20/2007	115391		
6/20/2007	126904		
6/20/2007	127653		
6/20/2007	127272		
6/20/2007	123378		
	Average		
	125270		

Inst.#2221 #132861 51200 (8)		
QC Daily Source		
Date	Result (cpm)	P/F
6/21/2007	5899	Pass
6/22/2007	5639	Pass
6/25/2007	6995	Pass
6/26/2007	5785	Pass
6/27/2007	5986	Pass
6/28/2007	5768	Pass
6/29/2007	5872	Pass
	changed geometry	Fail

Inst.#2221 #132861 51200 (8)		Source Ser. #	
Initial Source Readings		Nuclide	Cs-137
Date	Result (cpm)		
6/20/2007	5817		
6/20/2007	5857		
6/20/2007	5846		
6/20/2007	5900		
6/20/2007	6111		
6/20/2007	5996		
6/20/2007	5937		
6/20/2007	5974		
6/20/2007	5931		
6/20/2007	5747		
	Average		
	5912		

Inst.#2221 #132861 51200 (8)		
QC Daily Source		
Date	Result (cpm)	P/F
6/21/2007	118996	Pass
6/22/2007	119656	Pass
6/25/2007	116781	Pass
6/26/2007	116201	Pass
6/27/2007	118011	Pass
6/28/2007	115412	Pass
6/29/2007	119607	Pass
	changed geometry	Fail

Inst.#2221 #132861 51200 (8)		Source Ser. #	
Initial Source Readings		Nuclide	Cs-137
Date	Result (cpm)		
6/20/2007	118645		
6/20/2007	120245		
6/20/2007	120268		
6/20/2007	121473		
6/20/2007	121066		
6/20/2007	120610		
6/20/2007	121345		
6/20/2007	121243		
6/20/2007	120733		
6/20/2007	120499		
	Average		
	120613		

Model 2 95952		
QC Daily Source		
Date	Result (µrem/hr)	P/F
7/16/2007	800	Pass
7/17/2007	800	Pass
7/19/2007	800	Pass
7/20/2007	800	Pass
7/23/2007	800	Pass
7/24/2007	800	Pass
7/25/2007	800	Pass
7/26/2007	800	Pass
7/27/2007	800	Pass
7/30/2007	800	Pass
7/31/2007	800	Pass
8/1/2007	800	Pass
8/2/2007	800	Pass
8/3/2007	800	Pass
8/6/2007	800	Pass
8/7/2007	800	Pass
8/8/2007	800	Pass
8/9/2007	800	Pass
8/10/2007	800	Pass
8/13/2007	800	Pass
8/14/2007	800	Pass
8/15/2007	800	Pass
8/16/2007	800	Pass
8/17/2007	800	Pass
8/21/2007	800	Pass
8/22/2007	800	Pass
8/23/2007	800	Pass
8/24/2007	800	Pass
8/27/2007	800	Pass
8/28/2007	800	Pass
8/29/2007	800	Pass
8/30/2007	800	Pass
8/31/2007	800	Pass
9/4/2007	800	Pass
9/5/2007	800	Pass
9/7/2007	800	Pass
9/10/2007	800	Pass
9/11/2007	800	Pass
9/12/2007	800	Pass
9/13/2007	800	Pass
9/14/2007	800	Pass

Model 2 95952	
Initial Source Readings	
Date	Result (µrem/hr)
7/16/2007	800
7/16/2007	800
7/16/2007	800
7/16/2007	800
7/16/2007	800
7/16/2007	800
7/16/2007	800
7/16/2007	800
7/16/2007	800
7/16/2007	800
	Average
	800

Inst.#Microrem #C854F		
QC Daily Source		
Date	Result (µrem/hr)	P/F
9/14/2007	7	Pass

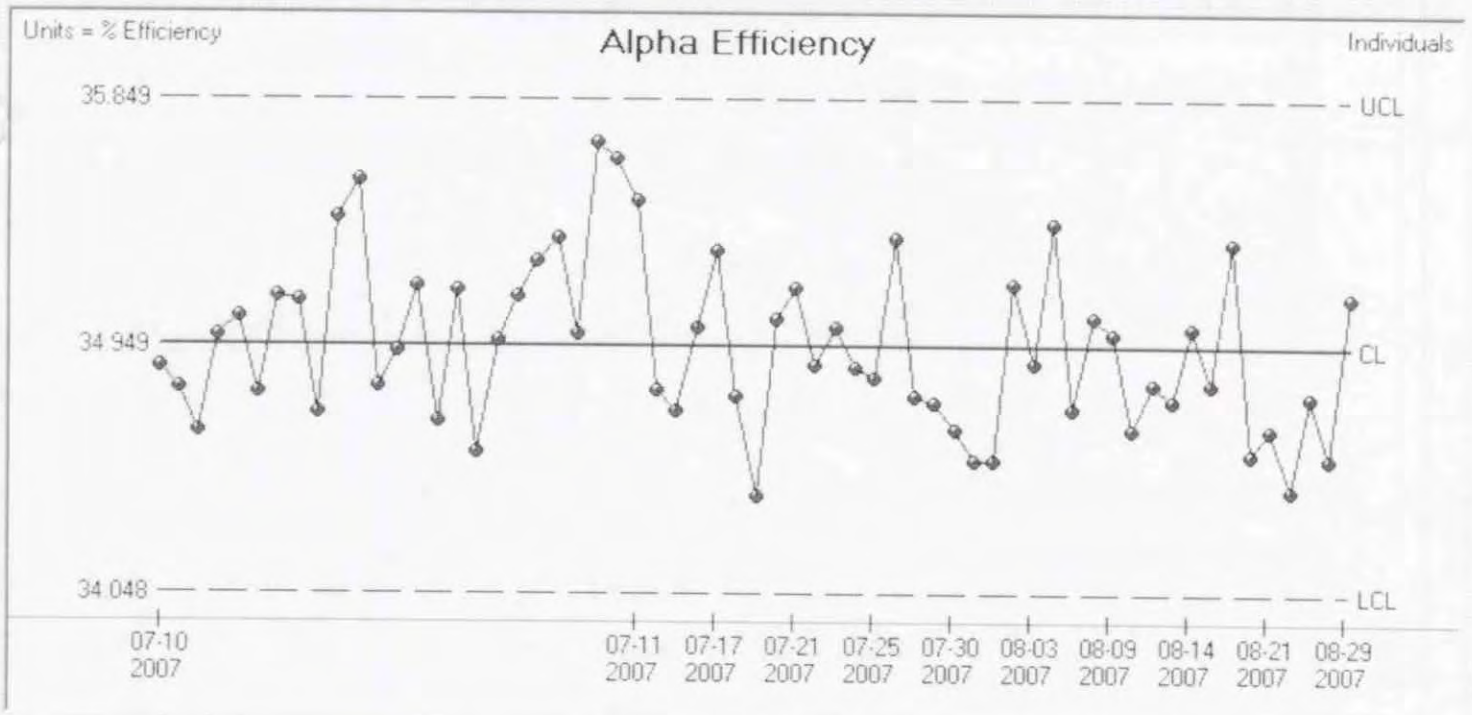
Inst.#Microrem #C854F		Source Ser. #	
Initial Source Readings		Nuclide	Cs-137
Date	Result (µrem/hr)		
9/14/2007	5		
9/14/2007	6		
9/14/2007	7		
9/14/2007	5		
9/14/2007	6		
9/14/2007	6		
9/14/2007	5		
9/14/2007	5		
9/14/2007	9		
9/14/2007	8		
	Average		
	6		

Inst.#Microrem #C854F		
QC Daily Source		
Date	Result (µrem/hr)	P/F
9/14/2007	625	Pass

Inst.#Microrem #C854F		Source Ser. #	
Initial Source Readings		Nuclide	Cs-137
Date	Result (µrem/hr)		
9/14/2007	650		
9/14/2007	625		
9/14/2007	600		
9/14/2007	615		
9/14/2007	652		
9/14/2007	600		
9/14/2007	625		
9/14/2007	625		
9/14/2007	600		
9/14/2007	650		
	Average		
	624		

New Haven Depot Tennelec QC Plots

QC Chart



Profile Settings

UCL & LCL = 3 sigma

Sample Driven Test Active

1 Sigma = 0.300

Mean = 34.949

Data Point: 0

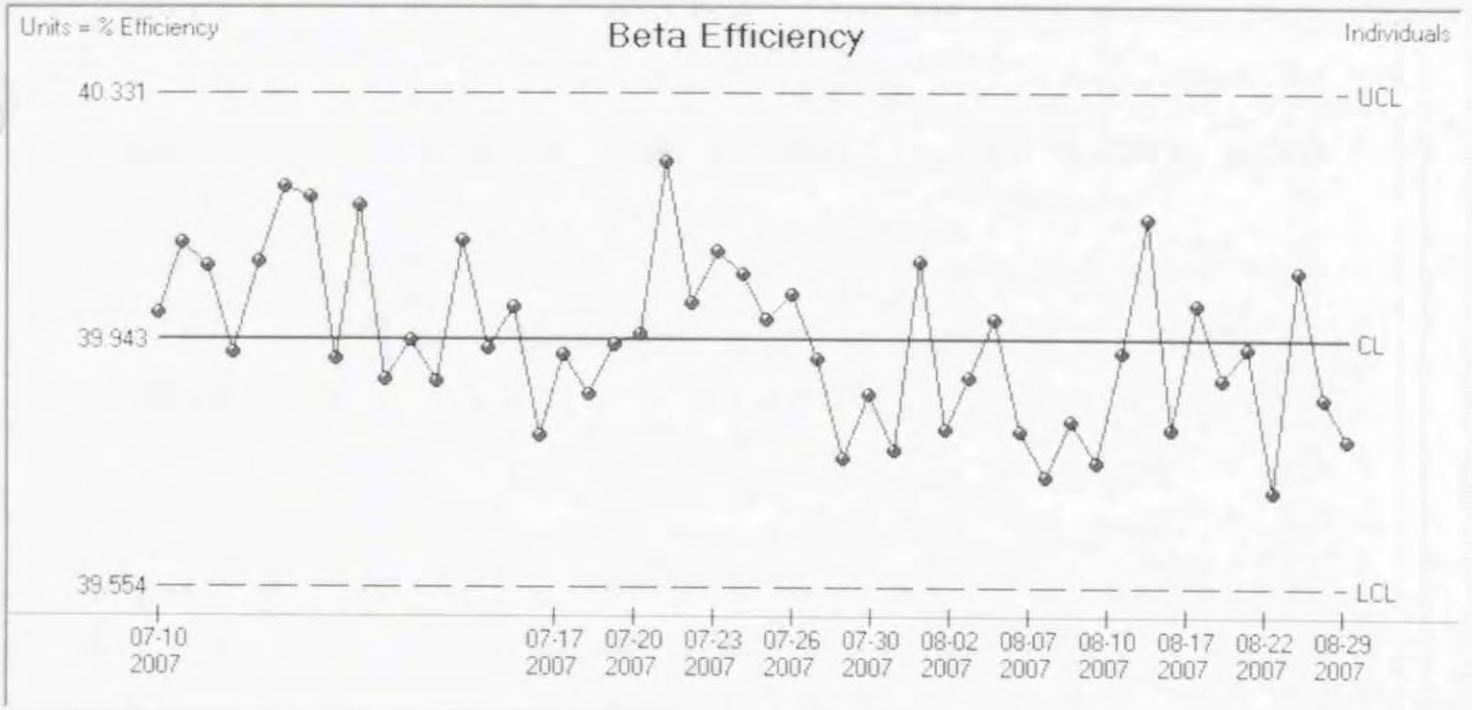
Value: 0

Comment:

Remove Data Point

Print | Back | Next | Exit

QC Chart



Profile Settings

UCL & LCL = 3 sigma

Sample Driven Test Active

1 Sigma = 0.129

Mean = 39.943

Data Point: 0

Value: 0.0

Comment:

Remove Data Point

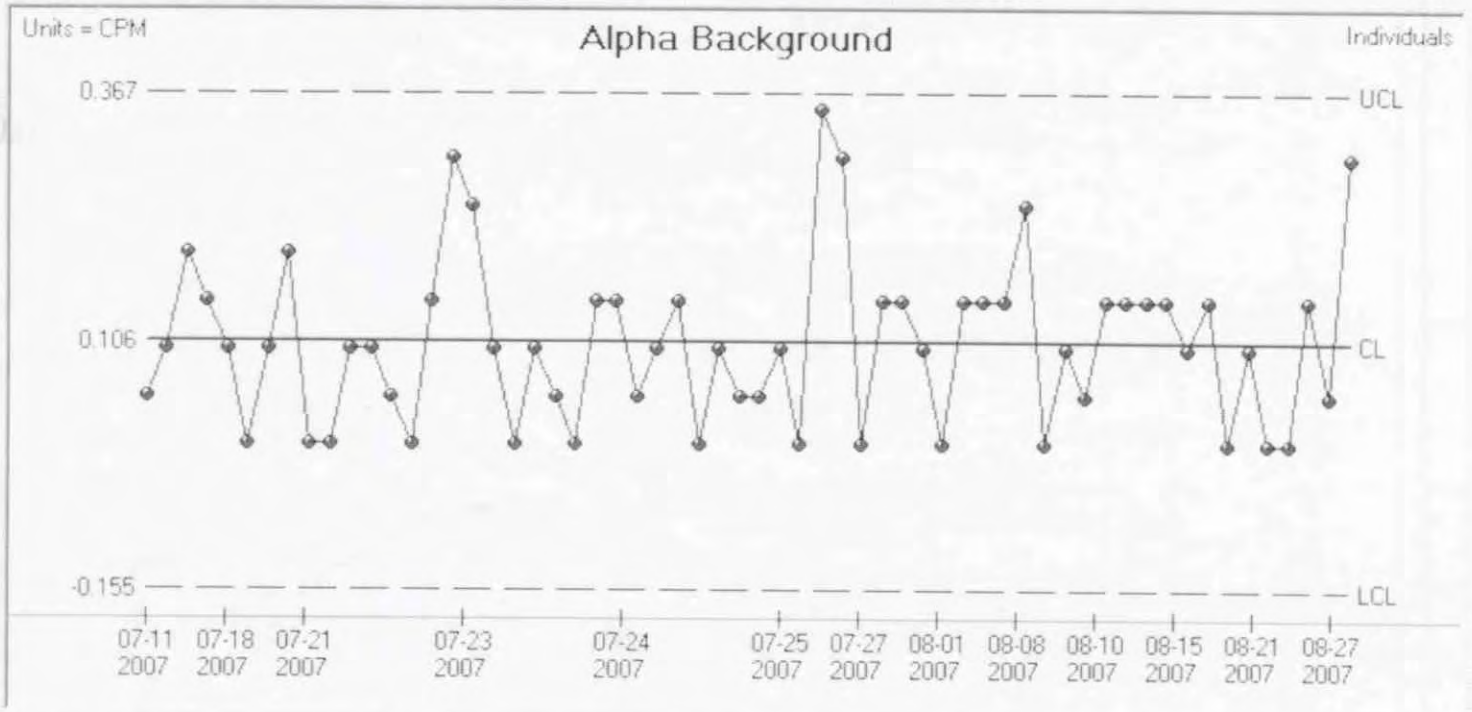
Print

Back

Next

Exit

QC Chart



Profile Settings

UCL & LCL = 3 sigma Sample Driven Test Active

1 Sigma = 0.087

Mean = 0.106

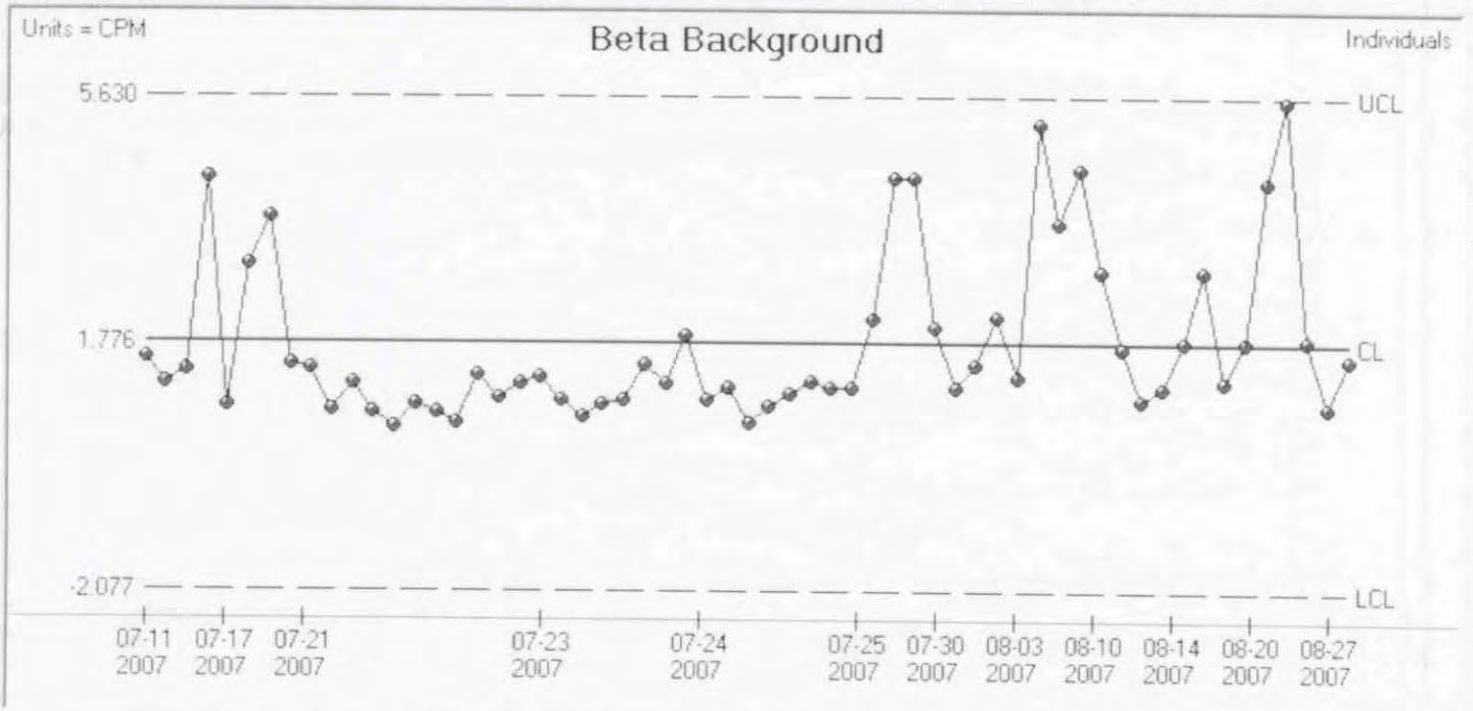
Data Point: 0 Value: 0.0

Comment:

Remove Data Point

Print Back Next Exit

QC Chart



Profile Settings

UCL & LCL = 3 sigma Sample Driven Test Active

1 Sigma = 1.285

Mean = 1.776

Data Point: 0 Value: 0.0

Comment:

Remove Data Point

Print Back Next Exit

New Haven Depot Onsite Lab QA_Local

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

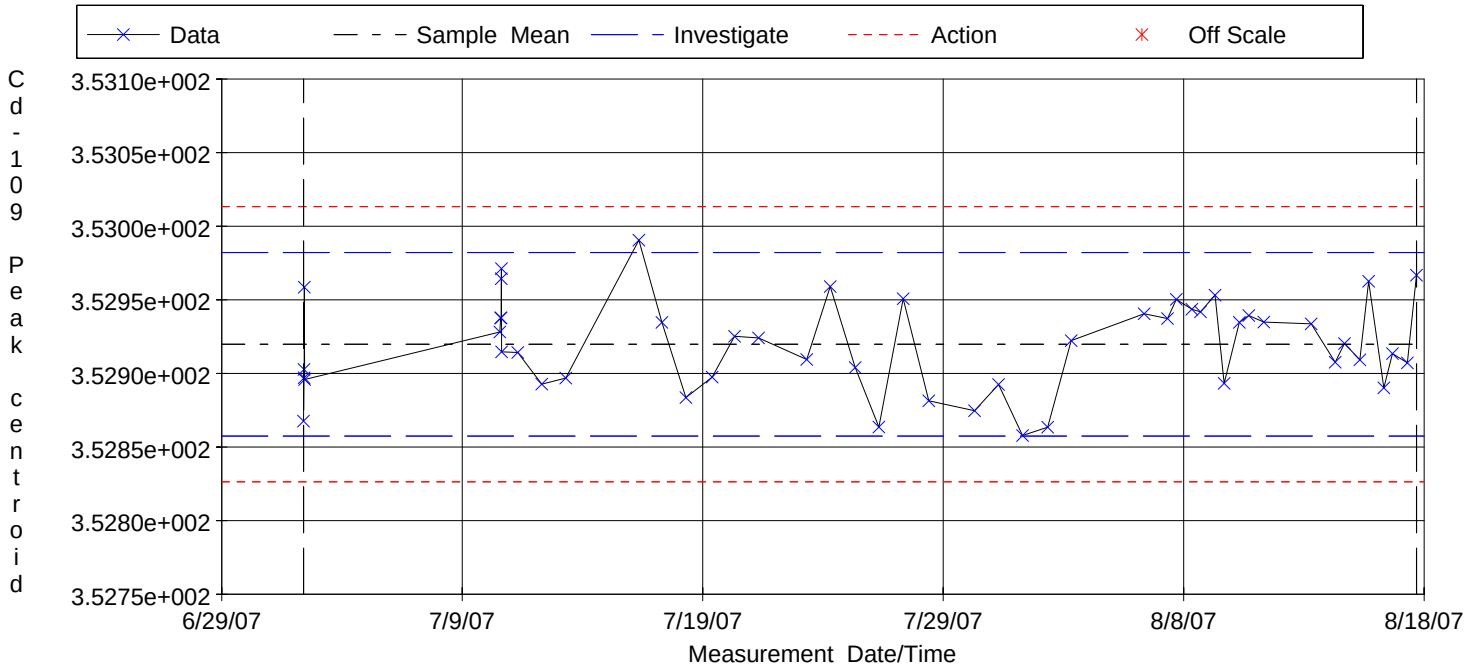
Full Parameter Results Report
2/20/08 11:32:59 AM

QA File: C:\GENIE2K\CAMFILES\New Haven.QA
Description: Cd-109 Peak centroid
Parameter Units: ch
Parameter Type: Peak Search

Measurement Time	Sample ID	Analyst	Value (ch)	Flags LU	SD	UD	BS
7/2/07 9:32:36 AM	QC01		3.5287E+002				
7/2/07 9:57:36 AM	QC02		3.5290E+002				
7/2/07 10:10:36 AM	QC03		3.5290E+002				
7/2/07 10:21:37 AM	QC04		3.5296E+002				
7/2/07 10:34:53 AM	QC05		3.5290E+002				
7/10/07 1:27:42 PM	QC071007		3.5293E+002				
7/10/07 2:19:20 PM	QC071007		3.5294E+002				
7/10/07 2:39:39 PM	QC08		3.5294E+002				
7/10/07 2:49:04 PM	QC09		3.5296E+002				
7/10/07 3:01:41 PM	QC10		3.5297E+002				
7/10/07 3:14:07 PM	QC 07/10/07		3.5291E+002				
7/11/07 7:22:40 AM	QC 07/11/07		3.5291E+002				
7/12/07 7:20:30 AM	QC 071207		3.5289E+002				
7/13/07 7:16:40 AM	QC071307		3.5290E+002				
7/16/07 8:17:09 AM	QC 071607		3.5299E+002				
7/17/07 7:16:43 AM	QC 07/17/07		3.5293E+002				
7/18/07 7:12:08 AM	QC 7/18/07		3.5288E+002				
7/19/07 9:17:41 AM	QC 7/19/07		3.5290E+002				
7/20/07 7:43:01 AM	QC 7/20/07		3.5293E+002				
7/21/07 7:41:23 AM	QC 07/21/07		3.5292E+002				
7/23/07 7:38:28 AM	QC 07 23 07		3.5291E+002				
7/24/07 7:14:00 AM	QC 07/24/07		3.5296E+002				
7/25/07 8:01:30 AM	QC 07/25/07		3.5290E+002				
7/26/07 7:42:50 AM	QC 07/26/07		3.5286E+002				
7/27/07 7:55:51 AM	QC 07/27/07		3.5295E+002				
7/28/07 9:36:05 AM	QC 07/28/07		3.5288E+002				
7/30/07 7:10:36 AM	QC 07/30/07		3.5287E+002				
7/31/07 7:11:44 AM	QC 07/31/07		3.5289E+002				
8/1/07 7:07:29 AM	QC 080108		3.5286E+002				
8/2/07 8:09:41 AM	QC 08/02/07		3.5286E+002				
8/3/07 7:41:54 AM	QC 08/03/07		3.5292E+002				
8/6/07 8:32:50 AM	QC 08/06/07		3.5294E+002				
8/7/07 7:48:20 AM	QC 08/07/07		3.5294E+002				
8/7/07 4:38:27 PM	NIGHT QC 080		3.5295E+002				
8/8/07 7:59:19 AM	QC 08/08/07		3.5294E+002				
8/8/07 4:38:26 PM	Night QC 8/8		3.5294E+002				
8/9/07 7:14:18 AM	QC 08/09/07		3.5295E+002				
8/9/07 4:20:57 PM	QC Nightly 8		3.5289E+002				
8/10/07 7:29:26 AM	QC 08/10/07		3.5293E+002				
8/10/07 4:58:51 PM	QC Nightly 8		3.5294E+002				

Measurement Time		Sample ID	Analyst	Value (ch)	Flags LU	SD	UD	BS
8/11/07	7:57:03 AM	QC 08/11/07		3.5293E+002				
8/13/07	7:06:33 AM	QC 08/13/07		3.5293E+002				
8/14/07	7:08:27 AM	QC 081407		3.5291E+002				
8/14/07	4:23:04 PM	NIGHT QC 8/1		3.5292E+002				
8/15/07	7:39:44 AM	QC 08/15/07		3.5291E+002				
8/15/07	4:28:56 PM	Night QC 8/1		3.5296E+002				
8/16/07	7:39:17 AM	QC 08/16/07		3.5289E+002				
8/16/07	4:20:15 PM	Night QC 8/1		3.5291E+002				
8/17/07	7:11:14 AM	QC 08/17/07		3.5291E+002				
8/17/07	4:12:20 PM	Night QC 8/1		3.5297E+002				

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)



QA Filename : C:\GENIE2K\CAMFILES\New Haven.QAF
Parameter Description : Cd-109 Peak centroid (ch)
Selection Dates : 7/02/07 9:32:36 AM - 8/17/07 4:12:20 PM
Sample Mean +/- Std Dev : 352.920 +/- 0.031

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

Full Parameter Results Report
2/20/08 11:45:29 AM

QA File: C:\GENIE2K\CAMFILES\New Haven.QA
Description: Cd-109 Decay corrected activity
Parameter Units: uCi/unit
Parameter Type: Energy line

Measurement Time	Sample ID	Analyst	Value (uCi/unit)	Flags LU	SD	UD	BS
7/2/07 9:32:36 AM	QC01		2.2223E-001				
7/2/07 9:57:36 AM	QC02		2.2873E-001				
7/2/07 10:10:36 AM	QC03		2.2448E-001				
7/2/07 10:21:37 AM	QC04		2.2489E-001				
7/2/07 10:34:53 AM	QC05		2.3550E-001				
7/10/07 1:27:42 PM	QC071007		2.5670E-001				
7/10/07 2:19:20 PM	QC071007		2.6863E-001				
7/10/07 2:39:39 PM	QC08		2.6863E-001				
7/10/07 2:49:04 PM	QC09		2.6203E-001				
7/10/07 3:01:41 PM	QC10		2.6009E-001				
7/10/07 3:14:07 PM	QC 07/10/07		2.5250E-001				
7/11/07 7:22:40 AM	QC 07/11/07		2.6099E-001				
7/12/07 7:20:30 AM	QC 071207		2.5682E-001				
7/13/07 7:16:40 AM	QC071307		2.5730E-001				
7/16/07 8:17:09 AM	QC 071607		2.4715E-001				
7/17/07 7:16:43 AM	QC 07/17/07		1.5771E-001				
7/18/07 7:12:08 AM	QC 7/18/07		2.5287E-001				
7/19/07 9:17:41 AM	QC 7/19/07		1.5288E-001				
7/20/07 7:43:01 AM	QC 7/20/07		1.5456E-001				
7/21/07 7:41:23 AM	QC 07/21/07		1.5927E-001				
7/23/07 7:38:28 AM	QC 07 23 07		1.5583E-001				
7/24/07 7:14:00 AM	QC 07/24/07		1.5195E-001				
7/25/07 8:01:30 AM	QC 07/25/07		1.5486E-001				
7/26/07 7:42:50 AM	QC 07/26/07		1.5481E-001				
7/27/07 7:55:51 AM	QC 07/27/07		1.5604E-001				
7/28/07 9:36:05 AM	QC 07/28/07		1.4867E-001				
7/30/07 7:10:36 AM	QC 07/30/07		1.5303E-001				
7/31/07 7:11:44 AM	QC 07/31/07		1.5116E-001				
8/1/07 7:07:29 AM	QC 080108		1.5287E-001				
8/2/07 8:09:41 AM	QC 08/02/07		1.5595E-001				
8/3/07 7:41:54 AM	QC 08/03/07		1.5271E-001				
8/6/07 8:32:50 AM	QC 08/06/07		1.5555E-001				
8/7/07 7:48:20 AM	QC 08/07/07		1.5174E-001				
8/7/07 4:38:27 PM	NIGHT QC 080		1.5032E-001				
8/8/07 7:59:19 AM	QC 08/08/07		1.4945E-001				
8/8/07 4:38:26 PM	Night QC 8/8		1.5004E-001				
8/9/07 7:14:18 AM	QC 08/09/07		1.4863E-001				
8/9/07 4:20:57 PM	QC Nightly 8		1.5326E-001				
8/10/07 7:29:26 AM	QC 08/10/07		1.4745E-001				
8/10/07 4:58:51 PM	QC Nightly 8		1.4860E-001				

Measurement Time		Sample ID	Analyst	Value (uCi/unit)	Flags LU	SD	UD	BS
8/11/07	7:57:03 AM	QC 08/11/07		1.5303E-001				
8/13/07	7:06:33 AM	QC 08/13/07		1.5096E-001				
8/14/07	7:08:27 AM	QC 081407		1.5555E-001				
8/14/07	4:23:04 PM	NIGHT QC 8/1		1.5196E-001				
8/15/07	7:39:44 AM	QC 08/15/07		1.5459E-001				
8/15/07	4:28:56 PM	Night QC 8/1		1.5238E-001				
8/16/07	7:39:17 AM	QC 08/16/07		1.4537E-001				
8/16/07	4:20:15 PM	Night QC 8/1		1.4832E-001				
8/17/07	7:11:14 AM	QC 08/17/07		1.5004E-001				
8/17/07	4:12:20 PM	Night QC 8/1		1.5549E-001				

Flags Key:
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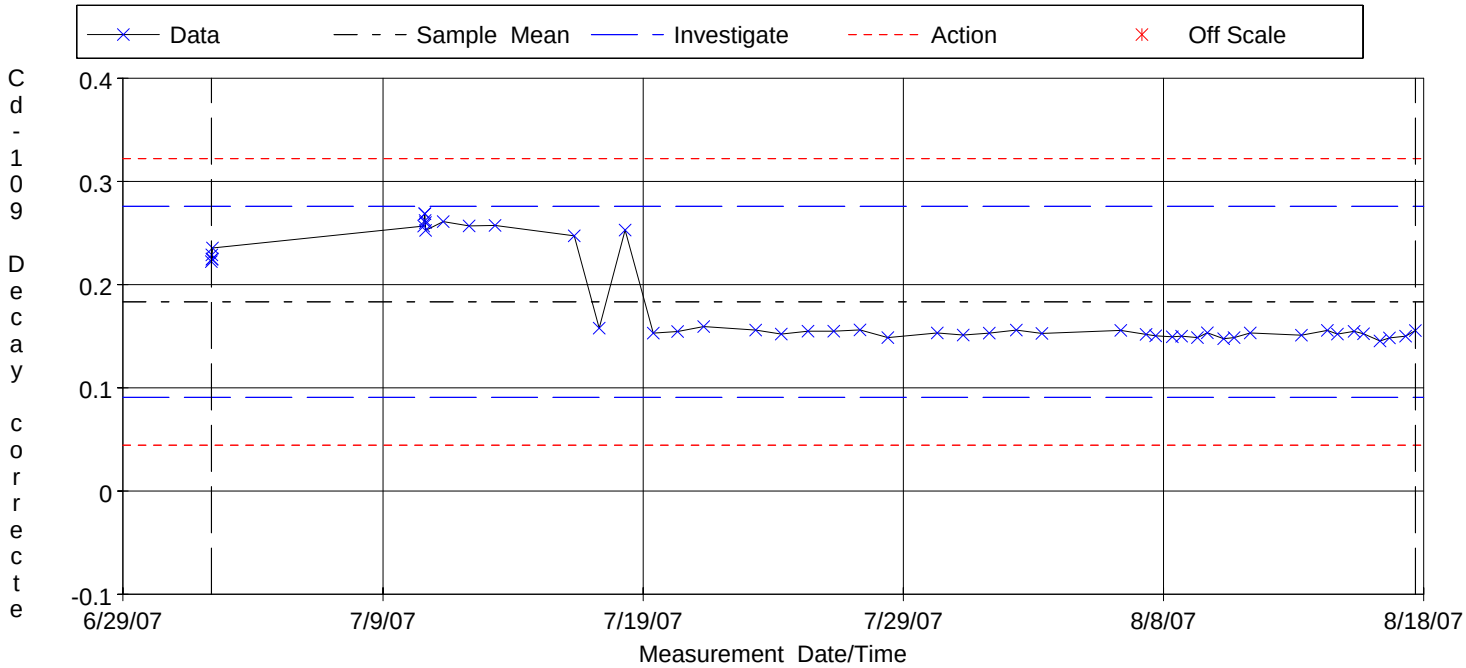
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)



QA Filename : C:\GENIE2K\CAMFILES\New Haven.QAF
Parameter Description : Cd-109 Decay corrected activity (uCi/unit)
Selection Dates : 7/02/07 9:32:36 AM - 8/17/07 4:12:20 PM
Sample Mean +/- Std Dev : 0.183 +/- 0.046

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

Full Parameter Results Report
2/20/08 11:44:14 AM

QA File: C:\GENIE2K\CAMFILES\New Haven.QA
Description: Cd-109 Peak FWHM
Parameter Units: keV
Parameter Type: Peak Search

Measurement Time	Sample ID	Analyst	Value (keV)	Flags LU	SD	UD	BS
7/2/07 9:32:36 AM	QC01		1.1707E+000				
7/2/07 9:57:36 AM	QC02		1.1259E+000				
7/2/07 10:10:36 AM	QC03		1.1800E+000				
7/2/07 10:21:37 AM	QC04		1.1340E+000				
7/2/07 10:34:53 AM	QC05		1.1571E+000				
7/10/07 1:27:42 PM	QC071007		1.2147E+000				
7/10/07 2:19:20 PM	QC071007		1.2041E+000				
7/10/07 2:39:39 PM	QC08		1.2041E+000				
7/10/07 2:49:04 PM	QC09		1.2246E+000				
7/10/07 3:01:41 PM	QC10		1.2236E+000				
7/10/07 3:14:07 PM	QC 07/10/07		1.2233E+000				
7/11/07 7:22:40 AM	QC 07/11/07		1.1274E+000				
7/12/07 7:20:30 AM	QC 071207		1.2197E+000				
7/13/07 7:16:40 AM	QC071307		1.2572E+000				
7/16/07 8:17:09 AM	QC 071607		1.1065E+000				
7/17/07 7:16:43 AM	QC 07/17/07		1.2002E+000				
7/18/07 7:12:08 AM	QC 7/18/07		1.1798E+000				
7/19/07 9:17:41 AM	QC 7/19/07		1.1552E+000				
7/20/07 7:43:01 AM	QC 7/20/07		1.1217E+000				
7/21/07 7:41:23 AM	QC 07/21/07		1.1975E+000				
7/23/07 7:38:28 AM	QC 07 23 07		1.1388E+000				
7/24/07 7:14:00 AM	QC 07/24/07		1.2179E+000				
7/25/07 8:01:30 AM	QC 07/25/07		1.2079E+000				
7/26/07 7:42:50 AM	QC 07/26/07		1.1831E+000				
7/27/07 7:55:51 AM	QC 07/27/07		1.2123E+000				
7/28/07 9:36:05 AM	QC 07/28/07		1.1488E+000				
7/30/07 7:10:36 AM	QC 07/30/07		1.2074E+000				
7/31/07 7:11:44 AM	QC 07/31/07		1.1960E+000				
8/1/07 7:07:29 AM	QC 080108		1.1513E+000				
8/2/07 8:09:41 AM	QC 08/02/07		1.1935E+000				
8/3/07 7:41:54 AM	QC 08/03/07		1.2461E+000				
8/6/07 8:32:50 AM	QC 08/06/07		1.2342E+000				
8/7/07 7:48:20 AM	QC 08/07/07		1.2022E+000				
8/7/07 4:38:27 PM	NIGHT QC 080		1.2287E+000				
8/8/07 7:59:19 AM	QC 08/08/07		1.2100E+000				
8/8/07 4:38:26 PM	Night QC 8/8		1.2560E+000				
8/9/07 7:14:18 AM	QC 08/09/07		1.2022E+000				
8/9/07 4:20:57 PM	QC Nightly 8		1.1431E+000				
8/10/07 7:29:26 AM	QC 08/10/07		1.1793E+000				
8/10/07 4:58:51 PM	QC Nightly 8		1.2749E+000				

Measurement Time		Sample ID	Analyst	Value (keV)	Flags LU	SD	UD	BS
8/11/07	7:57:03 AM	QC 08/11/07		1.1653E+000				
8/13/07	7:06:33 AM	QC 08/13/07		1.1982E+000				
8/14/07	7:08:27 AM	QC 081407		1.2216E+000				
8/14/07	4:23:04 PM	NIGHT QC 8/1		1.1623E+000				
8/15/07	7:39:44 AM	QC 08/15/07		1.1800E+000				
8/15/07	4:28:56 PM	Night QC 8/1		1.2396E+000				
8/16/07	7:39:17 AM	QC 08/16/07		1.1140E+000				
8/16/07	4:20:15 PM	Night QC 8/1		1.1692E+000				
8/17/07	7:11:14 AM	QC 08/17/07		1.2089E+000				
8/17/07	4:12:20 PM	Night QC 8/1		1.2705E+000				

Flags Key:
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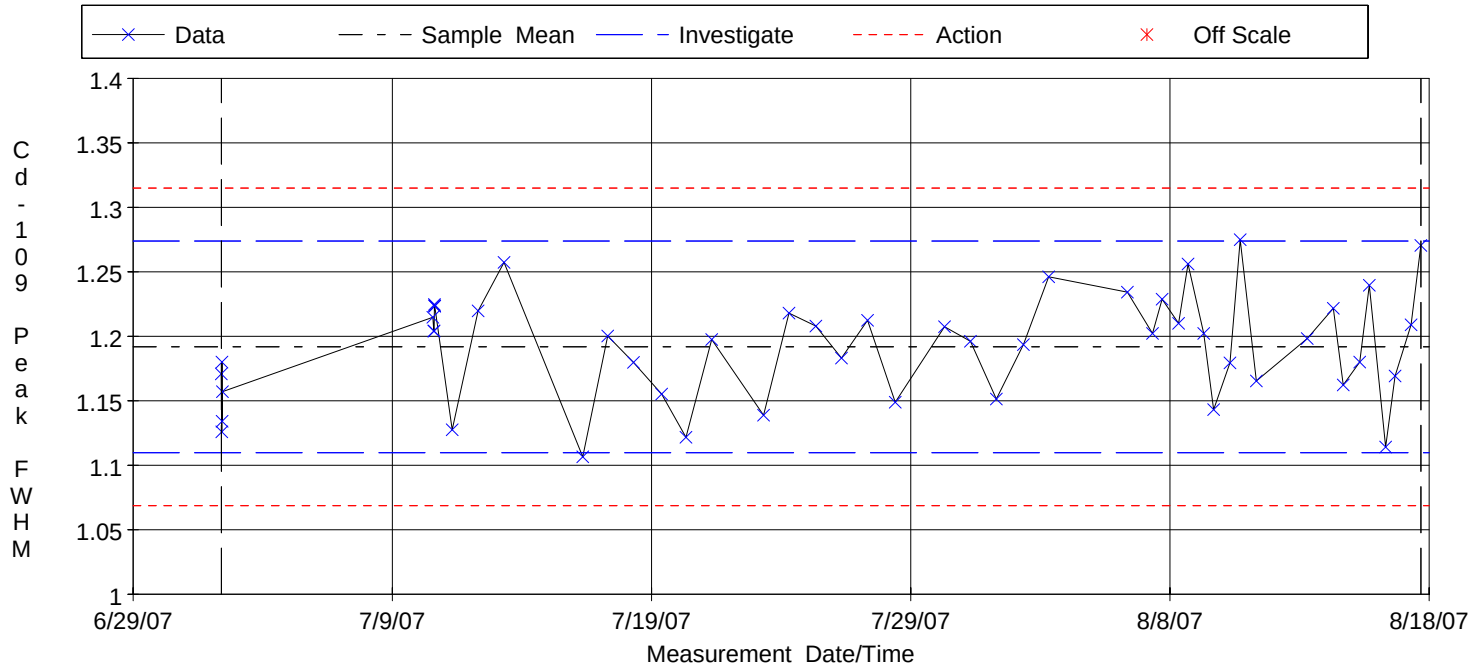
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)



QA Filename : C:\GENIE2K\CAMFILES\New Haven.QAF
Parameter Description : Cd-109 Peak FWHM (keV)
Selection Dates : 7/02/07 9:32:36 AM - 8/17/07 4:12:20 PM
Sample Mean +/- Std Dev : 1.192 +/- 0.041

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

Full Parameter Results Report
2/20/08 11:34:24 AM

QA File: C:\GENIE2K\CAMFILES\New Haven.QA
Description: Co-60 Peak centroid
Parameter Units: ch
Parameter Type: Peak Search

Measurement Time	Sample ID	Analyst	Value (ch)	Flags LU	SD	UD	BS
7/2/07 9:32:36 AM	QC01		5.3290E+003				
7/2/07 9:57:36 AM	QC02		5.3290E+003				
7/2/07 10:10:36 AM	QC03		5.3290E+003				
7/2/07 10:21:37 AM	QC04		5.3290E+003				
7/2/07 10:34:53 AM	QC05		5.3290E+003				
7/10/07 1:27:42 PM	QC071007		5.3290E+003				
7/10/07 2:19:20 PM	QC071007		5.3292E+003				
7/10/07 2:39:39 PM	QC08		5.3292E+003				
7/10/07 2:49:04 PM	QC09		5.3292E+003				
7/10/07 3:01:41 PM	QC10		5.3293E+003				
7/10/07 3:14:07 PM	QC 07/10/07		5.3292E+003				
7/11/07 7:22:40 AM	QC 07/11/07		5.3288E+003				
7/13/07 7:16:40 AM	QC071307		5.3289E+003				
7/16/07 8:17:09 AM	QC 071607		5.3290E+003				
7/17/07 7:16:43 AM	QC 07/17/07		5.3289E+003				
7/18/07 7:12:08 AM	QC 7/18/07		5.3288E+003				
7/19/07 9:17:41 AM	QC 7/19/07		5.3290E+003				
7/20/07 7:43:01 AM	QC 7/20/07		5.3289E+003				
7/21/07 7:41:23 AM	QC 07/21/07		5.3288E+003				
7/23/07 7:38:28 AM	QC 07 23 07		5.3289E+003				
7/24/07 7:14:00 AM	QC 07/24/07		5.3291E+003				
7/25/07 8:01:30 AM	QC 07/25/07		5.3290E+003				
7/26/07 7:42:50 AM	QC 07/26/07		5.3289E+003				
7/27/07 7:55:51 AM	QC 07/27/07		5.3289E+003				
7/28/07 9:36:05 AM	QC 07/28/07		5.3289E+003				
7/30/07 7:10:36 AM	QC 07/30/07		5.3290E+003				
7/31/07 7:11:44 AM	QC 07/31/07		5.3291E+003				
8/1/07 7:07:29 AM	QC 080108		5.3290E+003				
8/2/07 8:09:41 AM	QC 08/02/07		5.3290E+003				
8/3/07 7:41:54 AM	QC 08/03/07		5.3290E+003				
8/6/07 8:32:50 AM	QC 08/06/07		5.3293E+003				
8/7/07 7:48:20 AM	QC 08/07/07		5.3292E+003				
8/7/07 4:38:27 PM	NIGHT QC 080		5.3294E+003				
8/8/07 7:59:19 AM	QC 08/08/07		5.3290E+003				
8/9/07 7:14:18 AM	QC 08/09/07		5.3290E+003				
8/9/07 4:20:57 PM	QC Nightly 8		5.3290E+003				
8/10/07 7:29:26 AM	QC 08/10/07		5.3290E+003				
8/10/07 4:58:51 PM	QC Nightly 8		5.3289E+003				
8/11/07 7:57:03 AM	QC 08/11/07		5.3290E+003				
8/13/07 7:06:33 AM	QC 08/13/07		5.3291E+003				

Measurement Time		Sample ID	Analyst	Value (ch)	Flags LU	SD	UD	BS
8/14/07	7:08:27 AM	QC 081407		5.3289E+003				
8/14/07	4:23:04 PM	NIGHT QC 8/1		5.3293E+003				
8/15/07	7:39:44 AM	QC 08/15/07		5.3289E+003				
8/15/07	4:28:56 PM	Night QC 8/1		5.3293E+003				
8/16/07	7:39:17 AM	QC 08/16/07		5.3290E+003				
8/16/07	4:20:15 PM	Night QC 8/1		5.3291E+003				
8/17/07	7:11:14 AM	QC 08/17/07		5.3291E+003				
8/17/07	4:12:20 PM	Night QC 8/1		5.3294E+003				

Flags Key:
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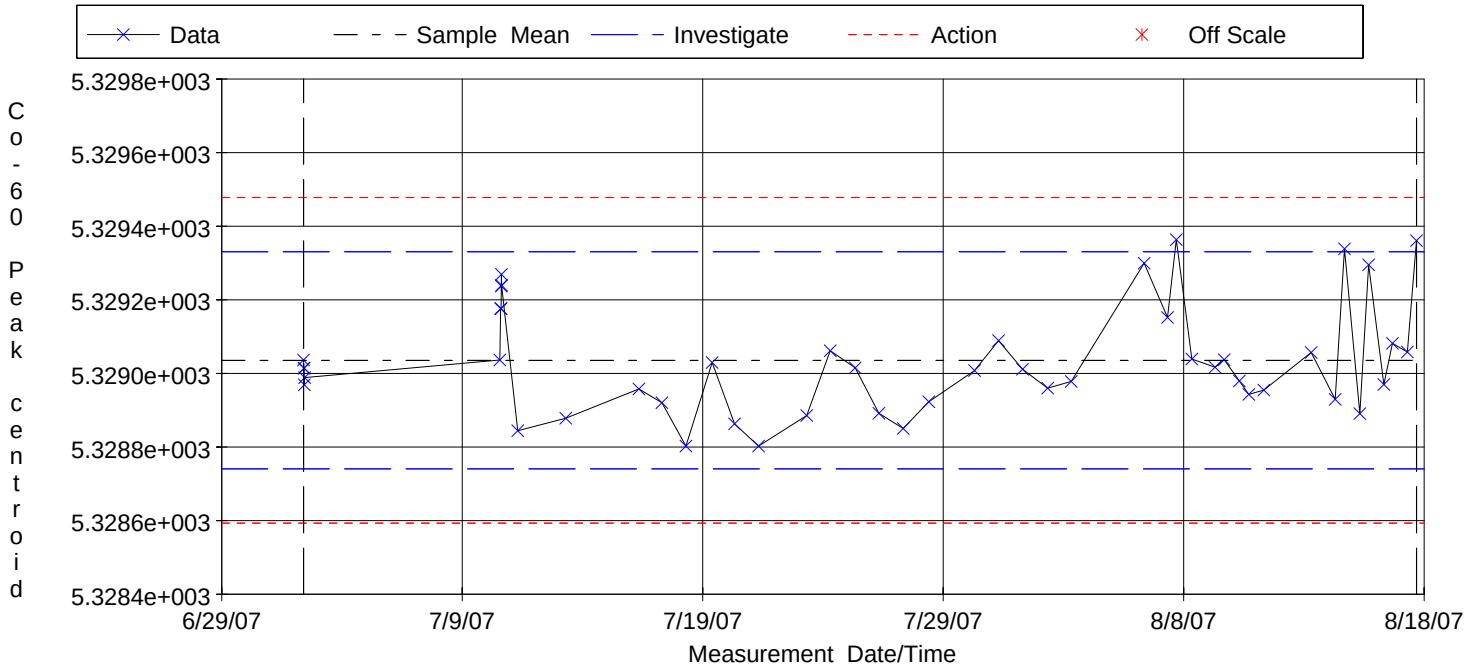

QA Filename : C:\GENIE2K\CAMFILES\New Haven.QAF
Parameter Description : Co-60 Peak centroid (ch)
Selection Dates : 7/02/07 9:32:36 AM - 8/17/07 4:12:20 PM
Sample Mean +/- Std Dev : 5329.036 +/- 0.147

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

Full Parameter Results Report
2/20/08 11:45:52 AM

QA File: C:\GENIE2K\CAMFILES\New Haven.QA
Description: Co-60 Decay corrected activity
Parameter Units: uCi/unit
Parameter Type: Energy line

Measurement Time	Sample ID	Analyst	Value (uCi/unit)	Flags LU	SD	UD	BS
7/2/07 9:32:36 AM	QC01		3.0590E-001				
7/2/07 9:57:36 AM	QC02		3.0839E-001				
7/2/07 10:10:36 AM	QC03		3.0883E-001				
7/2/07 10:21:37 AM	QC04		3.0607E-001				
7/2/07 10:34:53 AM	QC05		3.0830E-001				
7/10/07 1:27:42 PM	QC071007		4.1815E-001				
7/10/07 2:19:20 PM	QC071007		4.1827E-001				
7/10/07 2:39:39 PM	QC08		4.1827E-001				
7/10/07 2:49:04 PM	QC09		4.1851E-001				
7/10/07 3:01:41 PM	QC10		4.1761E-001				
7/10/07 3:14:07 PM	QC 07/10/07		4.1931E-001				
7/11/07 7:22:40 AM	QC 07/11/07		4.1501E-001				
7/12/07 7:20:30 AM	QC 071207		4.1444E-001				
7/13/07 7:16:40 AM	QC071307		4.2002E-001				
7/16/07 8:17:09 AM	QC 071607		4.1889E-001				
7/17/07 7:16:43 AM	QC 07/17/07		3.7114E-001				
7/18/07 7:12:08 AM	QC 7/18/07		4.1916E-001				
7/19/07 9:17:41 AM	QC 7/19/07		3.6815E-001				
7/20/07 7:43:01 AM	QC 7/20/07		3.6910E-001				
7/21/07 7:41:23 AM	QC 07/21/07		3.6837E-001				
7/23/07 7:38:28 AM	QC 07 23 07		3.7084E-001				
7/24/07 7:14:00 AM	QC 07/24/07		3.6763E-001				
7/25/07 8:01:30 AM	QC 07/25/07		3.6801E-001				
7/26/07 7:42:50 AM	QC 07/26/07		3.6465E-001				
7/27/07 7:55:51 AM	QC 07/27/07		3.6779E-001				
7/28/07 9:36:05 AM	QC 07/28/07		3.6656E-001				
7/30/07 7:10:36 AM	QC 07/30/07		3.6825E-001				
7/31/07 7:11:44 AM	QC 07/31/07		3.7044E-001				
8/1/07 7:07:29 AM	QC 080108		3.6961E-001				
8/2/07 8:09:41 AM	QC 08/02/07		3.6462E-001				
8/3/07 7:41:54 AM	QC 08/03/07		3.6792E-001				
8/6/07 8:32:50 AM	QC 08/06/07		3.6695E-001				
8/7/07 7:48:20 AM	QC 08/07/07		3.6548E-001				
8/7/07 4:38:27 PM	NIGHT QC 080		3.7265E-001				
8/8/07 7:59:19 AM	QC 08/08/07		3.6667E-001				
8/8/07 4:38:26 PM	Night QC 8/8		3.6193E-001				
8/9/07 7:14:18 AM	QC 08/09/07		3.6732E-001				
8/9/07 4:20:57 PM	QC Nightly 8		3.6250E-001				
8/10/07 7:29:26 AM	QC 08/10/07		3.5998E-001				
8/10/07 4:58:51 PM	QC Nightly 8		3.6605E-001				

Measurement Time		Sample ID	Analyst	Value (uCi/unit)	Flags LU	SD	UD	BS
8/11/07	7:57:03 AM	QC 08/11/07		3.6088E-001				
8/13/07	7:06:33 AM	QC 08/13/07		3.6177E-001				
8/14/07	7:08:27 AM	QC 081407		3.6031E-001				
8/14/07	4:23:04 PM	NIGHT QC 8/1		3.6346E-001				
8/15/07	7:39:44 AM	QC 08/15/07		3.6543E-001				
8/15/07	4:28:56 PM	Night QC 8/1		3.6529E-001				
8/16/07	7:39:17 AM	QC 08/16/07		3.6535E-001				
8/16/07	4:20:15 PM	Night QC 8/1		3.6260E-001				
8/17/07	7:11:14 AM	QC 08/17/07		3.6090E-001				
8/17/07	4:12:20 PM	Night QC 8/1		3.6342E-001				

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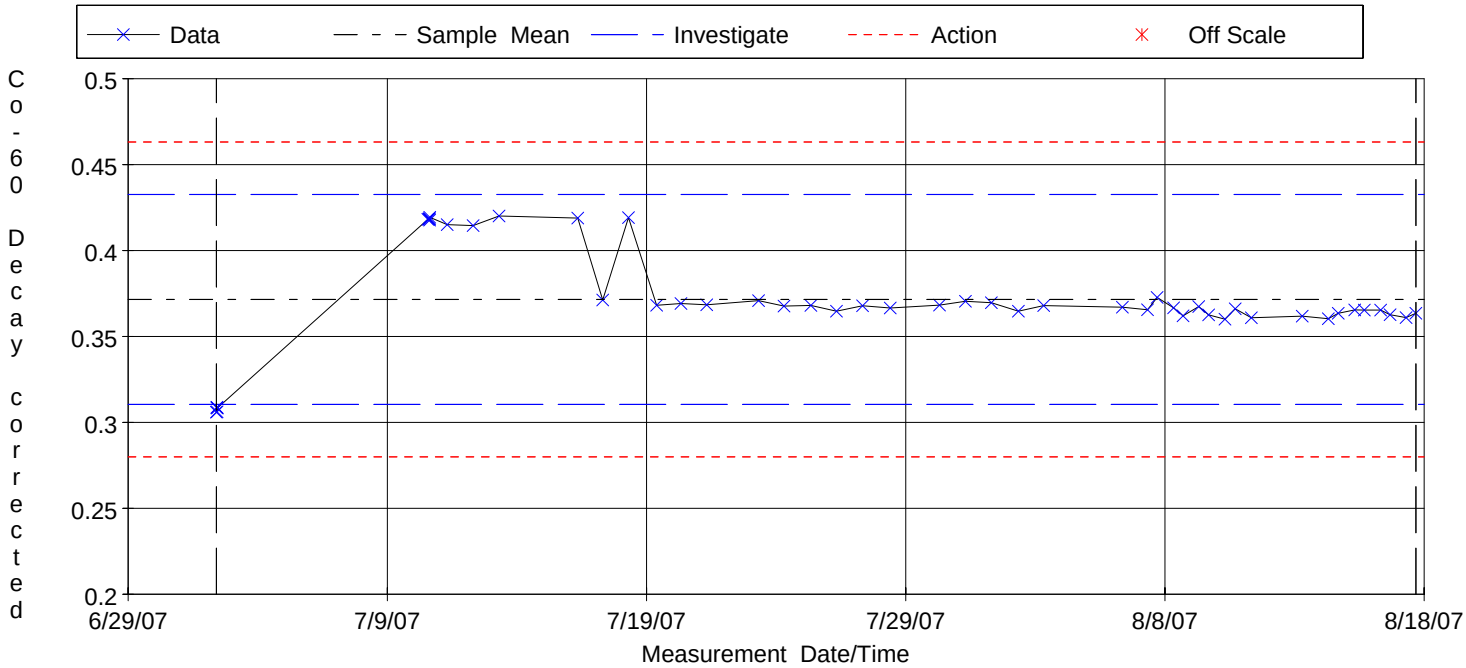

QA Filename : C:\GENIE2K\CAMFILES\New Haven.QAF
Parameter Description : Co-60 Decay corrected activity (uCi/unit)
Selection Dates : 7/02/07 9:32:36 AM - 8/17/07 4:12:20 PM
Sample Mean +/- Std Dev : 0.372 +/- 0.031

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

Full Parameter Results Report
2/20/08 11:44:59 AM

QA File: C:\GENIE2K\CAMFILES\New Haven.QA
Description: Co-60 Peak FWHM
Parameter Units: keV
Parameter Type: Peak Search

Measurement Time	Sample ID	Analyst	Value (keV)	Flags LU	SD	UD	BS
7/2/07 9:32:36 AM	QC01		1.9427E+000				
7/2/07 9:57:36 AM	QC02		1.9292E+000				
7/2/07 10:10:36 AM	QC03		1.9390E+000				
7/2/07 10:21:37 AM	QC04		1.9277E+000				
7/2/07 10:34:53 AM	QC05		1.9315E+000				
7/10/07 1:27:42 PM	QC071007		1.9598E+000				
7/10/07 2:19:20 PM	QC071007		1.9753E+000				
7/10/07 2:39:39 PM	QC08		1.9753E+000				
7/10/07 2:49:04 PM	QC09		1.9694E+000				
7/10/07 3:01:41 PM	QC10		1.9751E+000				
7/10/07 3:14:07 PM	QC 07/10/07		1.9872E+000				
7/11/07 7:22:40 AM	QC 07/11/07		1.9418E+000				
7/12/07 7:20:30 AM	QC 071207		1.9684E+000				
7/13/07 7:16:40 AM	QC071307		1.9693E+000				
7/16/07 8:17:09 AM	QC 071607		1.9703E+000				
7/17/07 7:16:43 AM	QC 07/17/07		1.9381E+000				
7/18/07 7:12:08 AM	QC 7/18/07		1.9726E+000				
7/19/07 9:17:41 AM	QC 7/19/07		1.9430E+000				
7/20/07 7:43:01 AM	QC 7/20/07		1.9559E+000				
7/23/07 7:38:28 AM	QC 07 23 07		1.9489E+000				
7/24/07 7:14:00 AM	QC 07/24/07		1.9521E+000				
7/25/07 8:01:30 AM	QC 07/25/07		1.9596E+000				
7/26/07 7:42:50 AM	QC 07/26/07		1.9613E+000				
7/27/07 7:55:51 AM	QC 07/27/07		1.9646E+000				
7/28/07 9:36:05 AM	QC 07/28/07		1.9382E+000				
7/30/07 7:10:36 AM	QC 07/30/07		1.9302E+000				
7/31/07 7:11:44 AM	QC 07/31/07		1.9705E+000				
8/1/07 7:07:29 AM	QC 080108		1.9765E+000				
8/2/07 8:09:41 AM	QC 08/02/07		1.9750E+000				
8/3/07 7:41:54 AM	QC 08/03/07		1.9800E+000				
8/6/07 8:32:50 AM	QC 08/06/07		1.9971E+000				
8/7/07 7:48:20 AM	QC 08/07/07		1.9493E+000				
8/7/07 4:38:27 PM	NIGHT QC 080		1.9838E+000				
8/8/07 7:59:19 AM	QC 08/08/07		1.9316E+000				
8/8/07 4:38:26 PM	Night QC 8/8		1.9785E+000				
8/9/07 7:14:18 AM	QC 08/09/07		1.9331E+000				
8/9/07 4:20:57 PM	QC Nightly 8		2.0151E+000				
8/10/07 7:29:26 AM	QC 08/10/07		1.9496E+000				
8/10/07 4:58:51 PM	QC Nightly 8		1.9435E+000				
8/11/07 7:57:03 AM	QC 08/11/07		1.9634E+000				

Measurement Time		Sample ID	Analyst	Value (keV)	Flags LU	SD	UD	BS
8/13/07	7:06:33 AM	QC 08/13/07		1.9978E+000				
8/14/07	7:08:27 AM	QC 081407		1.9527E+000				
8/14/07	4:23:04 PM	NIGHT QC 8/1		1.9873E+000				
8/15/07	7:39:44 AM	QC 08/15/07		1.9447E+000				
8/15/07	4:28:56 PM	Night QC 8/1		1.9648E+000				
8/16/07	7:39:17 AM	QC 08/16/07		1.9314E+000				
8/16/07	4:20:15 PM	Night QC 8/1		1.9789E+000				
8/17/07	7:11:14 AM	QC 08/17/07		1.9630E+000				
8/17/07	4:12:20 PM	Night QC 8/1		2.0047E+000				

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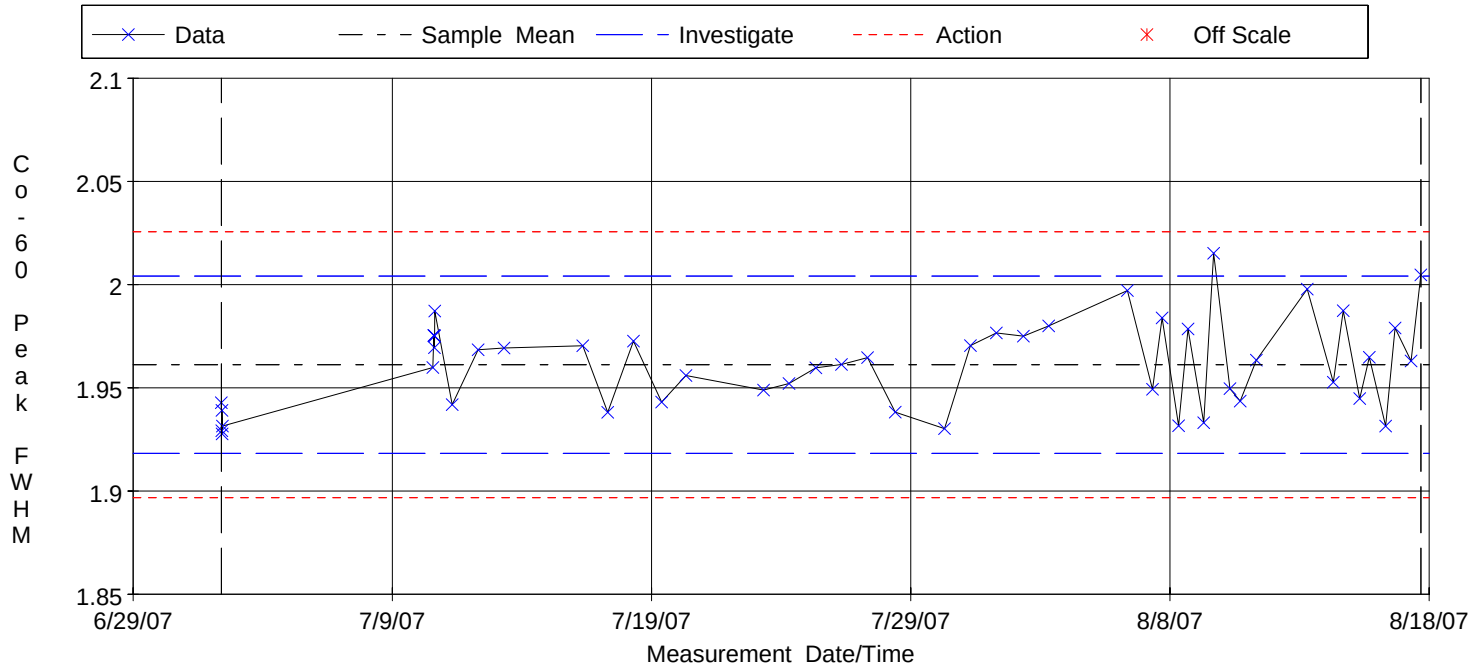

QA Filename : C:\GENIE2K\CAMFILES\New Haven.QAF
Parameter Description : Co-60 Peak FWHM (keV)
Selection Dates : 7/02/07 9:32:36 AM - 8/17/07 4:12:20 PM
Sample Mean +/- Std Dev : 1.961 +/- 0.021

New Haven Depot Onsite Lab QA

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

Full Parameter Results Report
2/20/08 12:23:15 PM

QA File: C:\GENIE2K\CAMFILES\New Haven_GL
Description: Peak energy (Cd-109 88 keV)
Parameter Units: keV
Parameter Type: Peak Search

Lower Boundary: 8.7000E+001
Upper Boundary: 8.9000E+001

Measurement Time	Sample ID	Analyst	Value (keV)	Flags LU	SD	UD	BS
8/22/07 7:06:27 AM	QC		8.8071E+001	:	:	:	
8/23/07 7:03:15 AM	QC		8.8081E+001	:	:	:	
8/24/07 7:05:52 AM	QC		8.8078E+001	:	:	:	
8/25/07 12:12:56 PM	QC		8.8077E+001	:	:	:	
8/25/07 12:38:42 PM	QC		8.8076E+001	:	:	:	
8/26/07 10:32:00 AM	QC		8.8066E+001	:	:	:	
8/27/07 7:07:36 AM	QC		8.8091E+001	:	:	:	
8/28/07 12:12:13 PM	QC		8.8081E+001	:	:	:	
8/29/07 7:01:19 AM	QC		8.8065E+001	:	:	:	
8/30/07 7:12:35 AM	QC		8.8080E+001	:	:	:	
8/30/07 7:46:41 AM	QC		8.8085E+001	:	:	:	
8/31/07 1:46:55 PM	QC		8.8084E+001	:	:	:	
8/31/07 2:22:22 PM	QC		8.8092E+001	:	:	:	
8/31/07 2:53:34 PM	QC		8.8077E+001	:	:	:	
9/5/07 7:45:17 AM	QC		8.8098E+001	:	:	:	
9/6/07 7:02:54 AM	QC		8.8087E+001	:	:	:	
9/7/07 7:05:09 AM	QC		8.8073E+001	:	:	:	
9/8/07 7:52:16 AM	QC		8.8064E+001	:	:	:	
9/10/07 7:04:47 AM	QC		8.8058E+001	:	:	:	
9/11/07 6:58:49 AM	QC		8.8060E+001	:	:	:	
9/12/07 7:16:50 AM	QC		8.8061E+001	:	:	:	
9/13/07 7:03:29 AM	QC		8.8076E+001	:	:	:	
9/14/07 7:04:42 AM	QC		8.8081E+001	:	:	:	
9/15/07 8:12:46 AM	QC		8.8056E+001	:	:	:	
9/17/07 7:18:59 AM	QC		8.8089E+001	:	:	:	
9/18/07 7:17:50 AM	QC		8.8088E+001	:	:	:	
9/18/07 7:42:34 AM	QC		8.8080E+001	:	:	:	
9/19/07 7:53:32 AM	QC		8.8086E+001	:	:	:	

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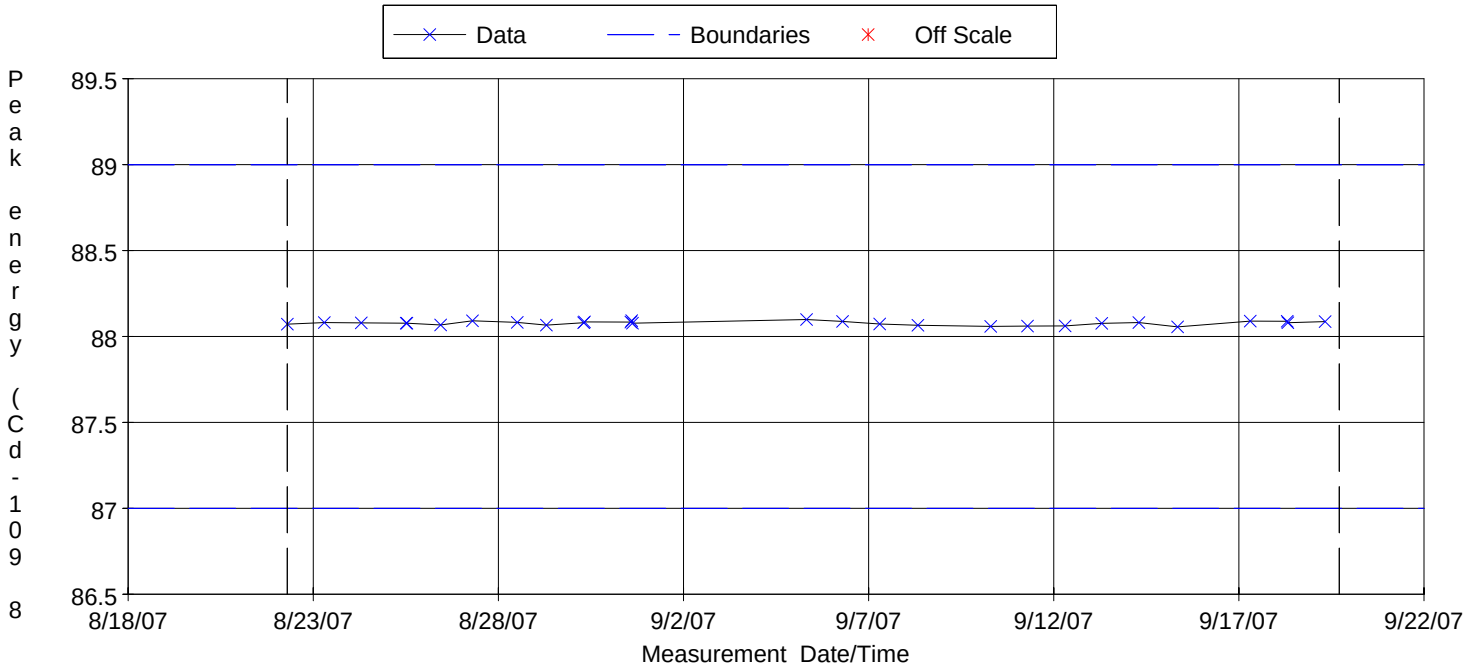

QA Filename : C:\GENIE2K\CAMFILES\New Haven_GL.QAF
Parameter Description : Peak energy (Cd-109 88 keV) (keV)
Selection Dates : 8/22/07 7:00:00 AM - 9/19/07 5:00:00 PM
Lower/Upper Boundaries : 87.000 - 89.000

```
*********************************************************************
*****        G E N I E   Q U A L I T Y   A S S U R A N C E        *****
*********************************************************************
```

Full Parameter Results Report
2/20/08 12:21:53 PM

QA File: C:\GENIE2K\CAMFILES\New Haven_GL
Description: Peak FWHM (Cd-109 88.0 keV)
Parameter Units: keV
Parameter Type: Peak Search

Sample Start Date:
Sample End Date:
Sample Mean: 8.9609E-001
Sample Std. Deviation: 1.9376E-002

Measurement Time	Sample ID	Analyst	Value (keV)	Flags LU	SD	UD	BS
8/22/07 7:06:27 AM	QC		8.8693E-001				
8/23/07 7:03:15 AM	QC		8.9207E-001				
8/24/07 7:05:52 AM	QC		8.7812E-001				
8/25/07 12:12:56 PM	QC		8.8741E-001				
8/25/07 12:38:42 PM	QC		8.6955E-001				
8/26/07 10:32:00 AM	QC		8.7791E-001				
8/27/07 7:07:36 AM	QC		9.2284E-001				
8/28/07 12:12:13 PM	QC		8.8579E-001				
8/29/07 7:01:19 AM	QC		8.7442E-001				
8/30/07 7:12:35 AM	QC		8.9650E-001				
8/30/07 7:46:41 AM	QC		9.1842E-001				
8/31/07 1:46:55 PM	QC		9.2175E-001				
8/31/07 2:22:22 PM	QC		9.1458E-001				
8/31/07 2:53:34 PM	QC		8.8805E-001				
9/5/07 7:45:17 AM	QC		8.7499E-001				
9/6/07 7:02:54 AM	QC		9.2134E-001				
9/7/07 7:05:09 AM	QC		9.0604E-001				
9/8/07 7:52:16 AM	QC		8.7313E-001				
9/10/07 7:04:47 AM	QC		9.0329E-001				
9/11/07 6:58:49 AM	QC		8.8253E-001				
9/12/07 7:16:50 AM	QC		8.8977E-001				
9/13/07 7:03:29 AM	QC		8.8117E-001				
9/14/07 7:04:42 AM	QC		9.0795E-001				
9/15/07 8:12:46 AM	QC		9.0145E-001				
9/17/07 7:18:59 AM	QC		9.2981E-001				
9/18/07 7:17:50 AM	QC		9.3402E-001				
9/18/07 7:42:34 AM	QC		8.8532E-001				
9/19/07 7:53:32 AM	QC		8.7635E-001				

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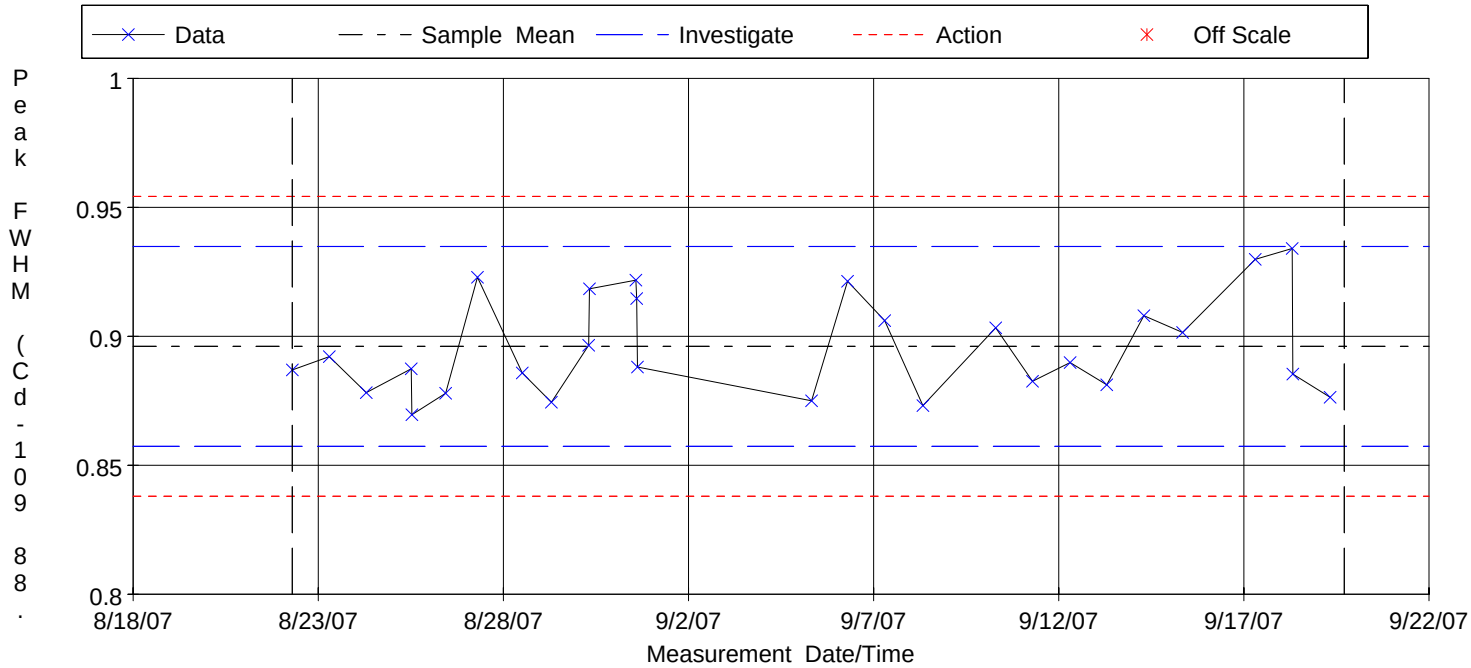
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)



QA Filename : C:\GENIE2K\CAMFILES\New Haven_GL.QAF
Parameter Description : Peak FWHM (Cd-109 88.0 keV) (keV)
Selection Dates : 8/22/07 7:00:00 AM - 9/19/07 5:00:00 PM
Sample Mean +/- Std Dev : 0.896 +/- 0.019

```
*********************************************************************
*****        G E N I E   Q U A L I T Y   A S S U R A N C E        *****
*********************************************************************
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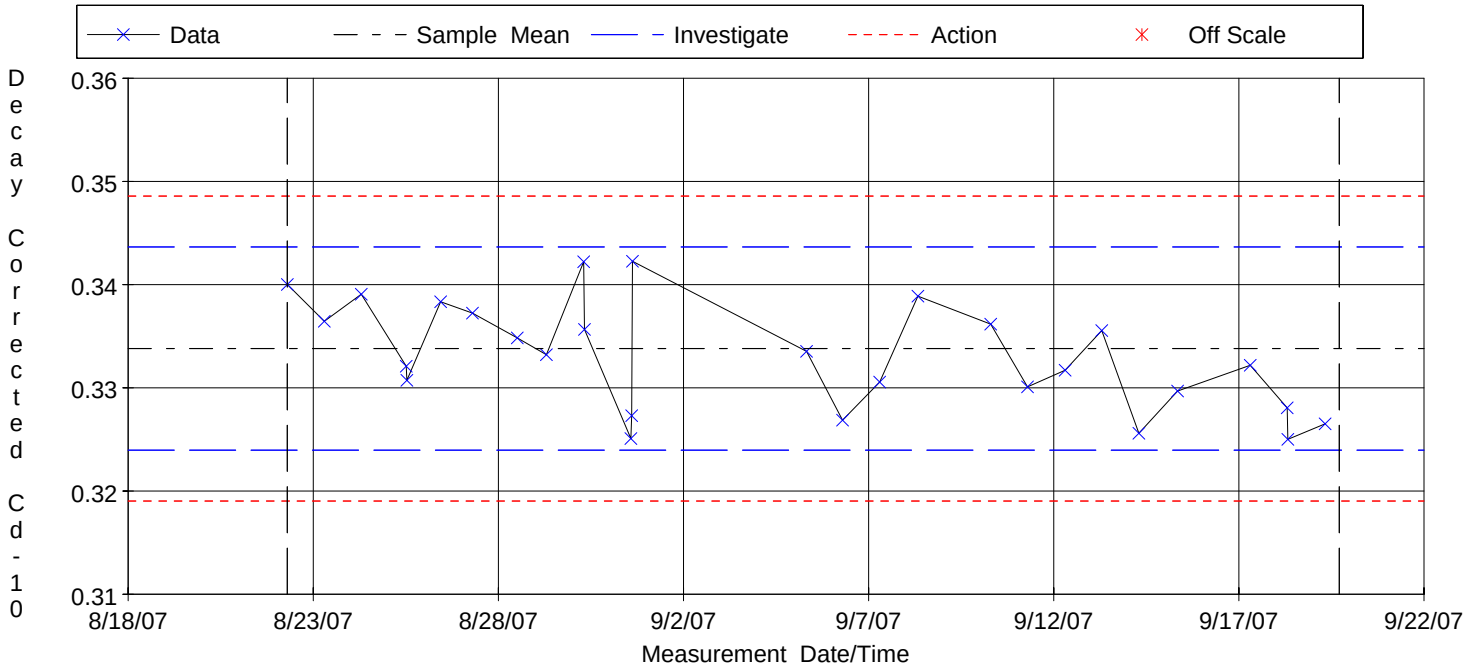
Full Parameter Results Report
2/20/08 12:25:31 PM

QA File: C:\GENIE2K\CAMFILES\New Haven_GL
Description: Decay Corrected Cd-109 Activity
Parameter Units: uCi
Parameter Type: Energy line

Sample Start Date:
Sample End Date:
Sample Mean: 3.3381E-001
Sample Std. Deviation: 4.9241E-003

Measurement Time	Sample ID	Analyst	Value (uCi)	Flags LU	SD	UD	BS
8/22/07 7:06:27 AM	QC		3.4000E-001				
8/23/07 7:03:15 AM	QC		3.3645E-001				
8/24/07 7:05:52 AM	QC		3.3906E-001				
8/25/07 12:12:56 PM	QC		3.3209E-001				
8/25/07 12:38:42 PM	QC		3.3071E-001				
8/26/07 10:32:00 AM	QC		3.3834E-001				
8/27/07 7:07:36 AM	QC		3.3724E-001				
8/28/07 12:12:13 PM	QC		3.3483E-001				
8/29/07 7:01:19 AM	QC		3.3321E-001				
8/30/07 7:12:35 AM	QC		3.4222E-001				
8/30/07 7:46:41 AM	QC		3.3564E-001				
8/31/07 1:46:55 PM	QC		3.2507E-001				
8/31/07 2:22:22 PM	QC		3.2729E-001				
8/31/07 2:53:34 PM	QC		3.4226E-001				
9/5/07 7:45:17 AM	QC		3.3352E-001				
9/6/07 7:02:54 AM	QC		3.2686E-001				
9/7/07 7:05:09 AM	QC		3.3056E-001				
9/8/07 7:52:16 AM	QC		3.3888E-001				
9/10/07 7:04:47 AM	QC		3.3617E-001				
9/11/07 6:58:49 AM	QC		3.3009E-001				
9/12/07 7:16:50 AM	QC		3.3169E-001				
9/13/07 7:03:29 AM	QC		3.3554E-001				
9/14/07 7:04:42 AM	QC		3.2559E-001				
9/15/07 8:12:46 AM	QC		3.2968E-001				
9/17/07 7:18:59 AM	QC		3.3218E-001				
9/18/07 7:17:50 AM	QC		3.2805E-001				
9/18/07 7:42:34 AM	QC		3.2499E-001				
9/19/07 7:53:32 AM	QC		3.2651E-001				

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)



QA Filename : C:\GENIE2K\CAMFILES\New Haven_GL.QAF
Parameter Description : Decay Corrected Cd-109 Activity (uCi)
Selection Dates : 8/22/07 7:00:00 AM - 9/19/07 5:00:00 PM
Sample Mean +/- Std Dev : 0.334 +/- 4.92e-003

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

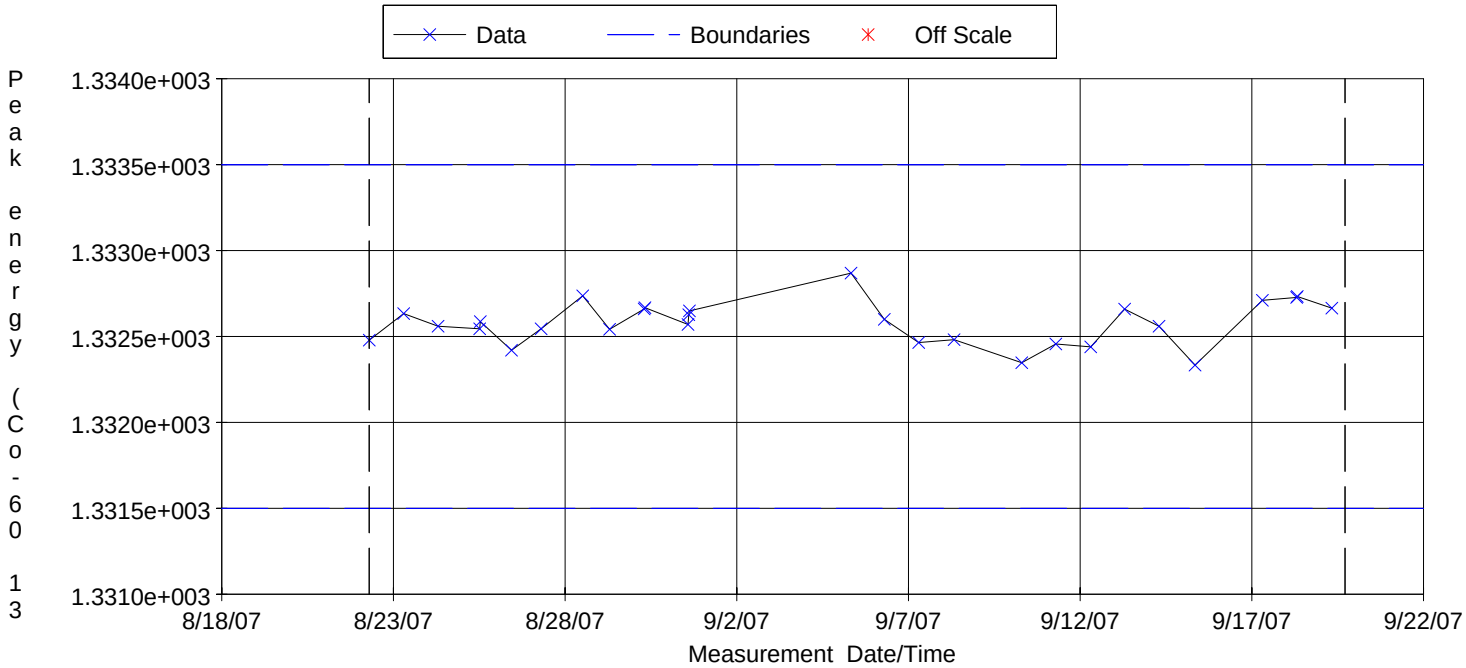
Full Parameter Results Report
2/20/08 12:23:37 PM

QA File: C:\GENIE2K\CAMFILES\New Haven_GL
Description: Peak energy (Co-60 1332 keV)
Parameter Units: keV
Parameter Type: Peak Search

Lower Boundary: 1.3315E+003
Upper Boundary: 1.3335E+003

Measurement Time	Sample ID	Analyst	Value (keV)	Flags LU	SD	UD	BS
8/22/07 7:06:27 AM	QC		1.3325E+003				
8/23/07 7:03:15 AM	QC		1.3326E+003				
8/24/07 7:05:52 AM	QC		1.3326E+003				
8/25/07 12:12:56 PM	QC		1.3325E+003				
8/25/07 12:38:42 PM	QC		1.3326E+003				
8/26/07 10:32:00 AM	QC		1.3324E+003				
8/27/07 7:07:36 AM	QC		1.3325E+003				
8/28/07 12:12:13 PM	QC		1.3327E+003				
8/29/07 7:01:19 AM	QC		1.3325E+003				
8/30/07 7:12:35 AM	QC		1.3327E+003				
8/30/07 7:46:41 AM	QC		1.3327E+003				
8/31/07 1:46:55 PM	QC		1.3326E+003				
8/31/07 2:22:22 PM	QC		1.3326E+003				
8/31/07 2:53:34 PM	QC		1.3326E+003				
9/5/07 7:45:17 AM	QC		1.3329E+003				
9/6/07 7:02:54 AM	QC		1.3326E+003				
9/7/07 7:05:09 AM	QC		1.3325E+003				
9/8/07 7:52:16 AM	QC		1.3325E+003				
9/10/07 7:04:47 AM	QC		1.3323E+003				
9/11/07 6:58:49 AM	QC		1.3325E+003				
9/12/07 7:16:50 AM	QC		1.3324E+003				
9/13/07 7:03:29 AM	QC		1.3327E+003				
9/14/07 7:04:42 AM	QC		1.3326E+003				
9/15/07 8:12:46 AM	QC		1.3323E+003				
9/17/07 7:18:59 AM	QC		1.3327E+003				
9/18/07 7:17:50 AM	QC		1.3327E+003				
9/18/07 7:42:34 AM	QC		1.3327E+003				
9/19/07 7:53:32 AM	QC		1.3327E+003				

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)



QA Filename : C:\GENIE2K\CAMFILES\New Haven_GL.QAF
Parameter Description : Peak energy (Co-60 1332 keV) (keV)
Selection Dates : 8/22/07 7:00:00 AM - 9/19/07 5:00:00 PM
Lower/Upper Boundaries : 1331.500 - 1333.500

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

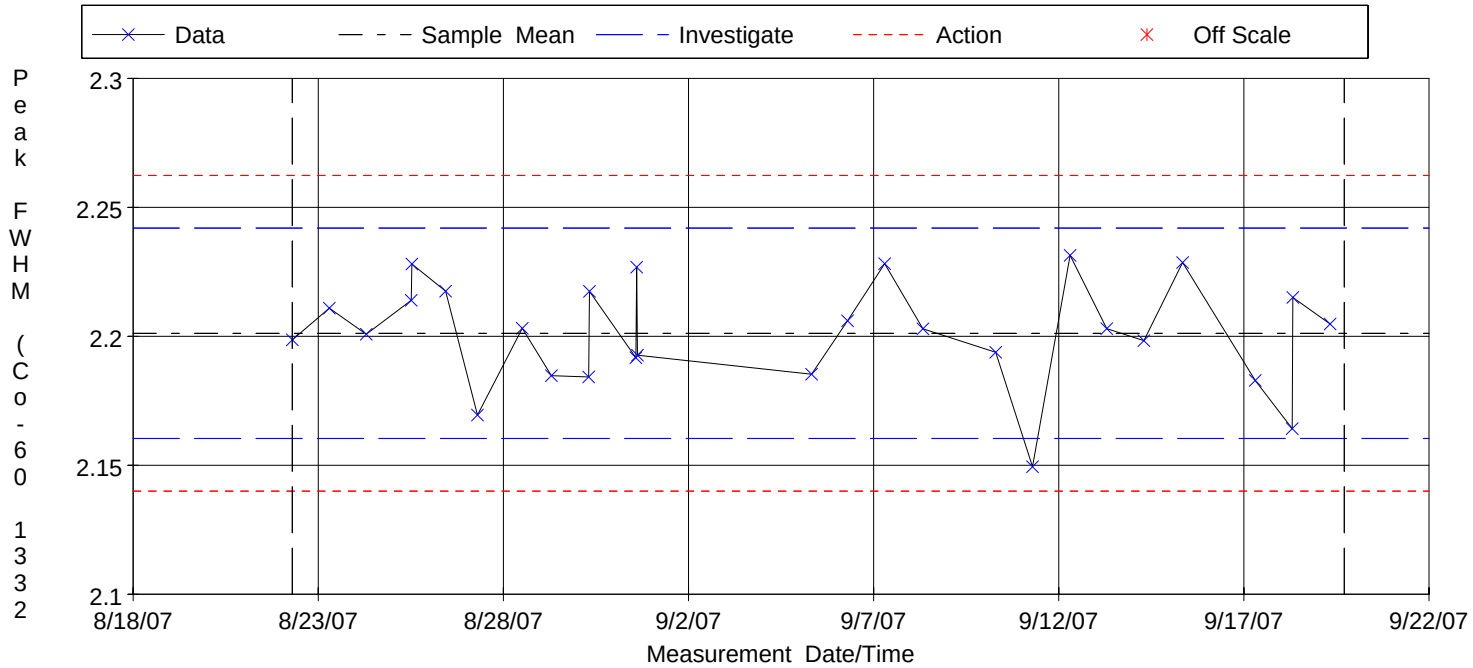
Full Parameter Results Report
2/20/08 12:22:55 PM

QA File: C:\GENIE2K\CAMFILES\New Haven_GL
Description: Peak FWHM (Co-60 1332 keV))
Parameter Units: keV
Parameter Type: Peak Search

Sample Start Date:
Sample End Date:
Sample Mean: 2.2012E+000
Sample Std. Deviation: 2.0392E-002

Measurement Time	Sample ID	Analyst	Value (keV)	Flags LU	SD	UD	BS
8/22/07 7:06:27 AM	QC		2.1986E+000				
8/23/07 7:03:15 AM	QC		2.2109E+000				
8/24/07 7:05:52 AM	QC		2.2007E+000				
8/25/07 12:12:56 PM	QC		2.2139E+000				
8/25/07 12:38:42 PM	QC		2.2280E+000				
8/26/07 10:32:00 AM	QC		2.2174E+000				
8/27/07 7:07:36 AM	QC		2.1695E+000				
8/28/07 12:12:13 PM	QC		2.2031E+000				
8/29/07 7:01:19 AM	QC		2.1847E+000				
8/30/07 7:12:35 AM	QC		2.1842E+000				
8/30/07 7:46:41 AM	QC		2.2174E+000				
8/31/07 1:46:55 PM	QC		2.1917E+000				
8/31/07 2:22:22 PM	QC		2.2268E+000				
8/31/07 2:53:34 PM	QC		2.1926E+000				
9/5/07 7:45:17 AM	QC		2.1853E+000				
9/6/07 7:02:54 AM	QC		2.2060E+000				
9/7/07 7:05:09 AM	QC		2.2281E+000				
9/8/07 7:52:16 AM	QC		2.2029E+000				
9/10/07 7:04:47 AM	QC		2.1938E+000				
9/11/07 6:58:49 AM	QC		2.1494E+000		In		
9/12/07 7:16:50 AM	QC		2.2314E+000				
9/13/07 7:03:29 AM	QC		2.2029E+000				
9/14/07 7:04:42 AM	QC		2.1983E+000				
9/15/07 8:12:46 AM	QC		2.2286E+000				
9/17/07 7:18:59 AM	QC		2.1828E+000				
9/18/07 7:17:50 AM	QC		2.1642E+000				
9/18/07 7:42:34 AM	QC		2.2150E+000				
9/19/07 7:53:32 AM	QC		2.2048E+000				

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)



QA Filename : C:\GENIE2K\CAMFILES\New Haven_GL.QAF
Parameter Description : Peak FWHM (Co-60 1332 keV)) (keV)
Selection Dates : 8/22/07 7:00:00 AM - 9/19/07 5:00:00 PM
Sample Mean +/- Std Dev : 2.201 +/- 0.020

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

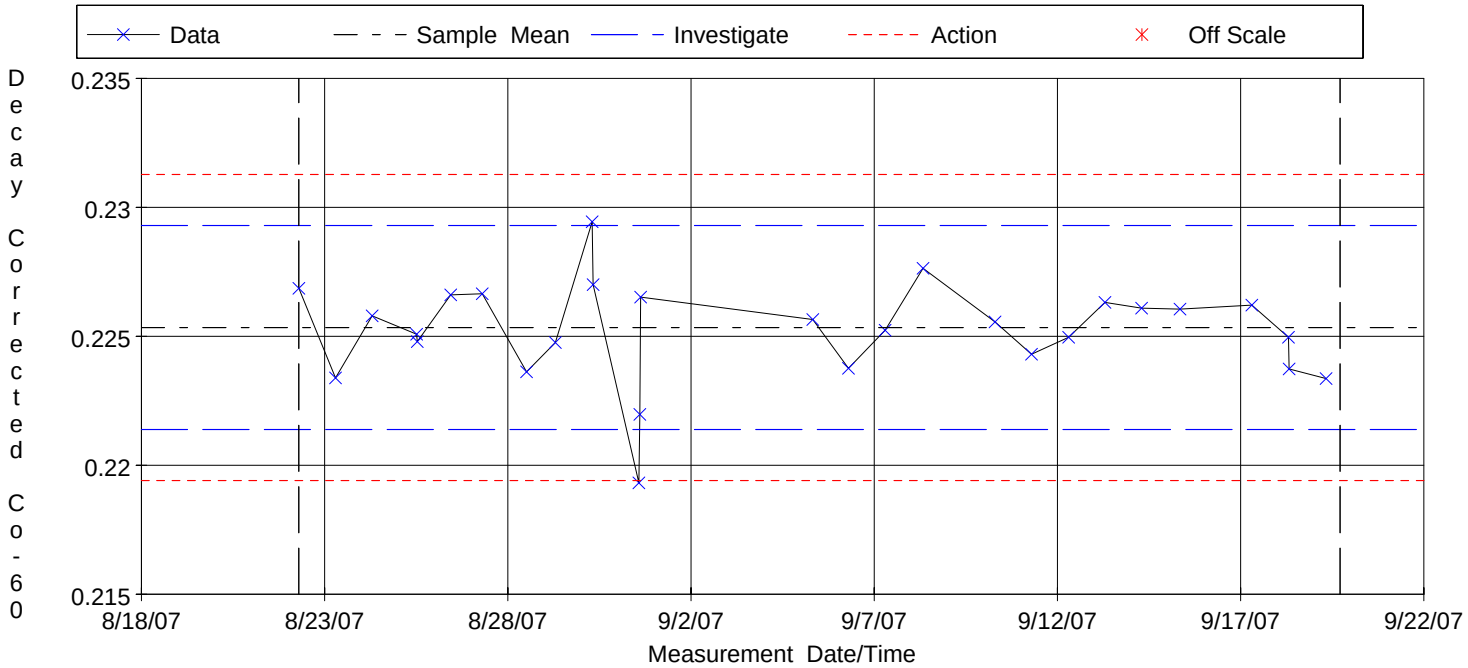
Full Parameter Results Report
2/20/08 12:24:07 PM

QA File: C:\GENIE2K\CAMFILES\New Haven_GL
Description: Decay Corrected Co-60 Activity
Parameter Units: uCi
Parameter Type: Energy line

Sample Start Date:
Sample End Date:
Sample Mean: 2.2534E-001
Sample Std. Deviation: 1.9772E-003

Measurement Time	Sample ID	Analyst	Value (uCi)	Flags LU	SD	UD	BS
8/22/07 7:06:27 AM	QC		2.2686E-001				
8/23/07 7:03:15 AM	QC		2.2338E-001				
8/24/07 7:05:52 AM	QC		2.2579E-001				
8/25/07 12:12:56 PM	QC		2.2508E-001				
8/25/07 12:38:42 PM	QC		2.2479E-001				
8/26/07 10:32:00 AM	QC		2.2660E-001				
8/27/07 7:07:36 AM	QC		2.2665E-001				
8/28/07 12:12:13 PM	QC		2.2362E-001				
8/29/07 7:01:19 AM	QC		2.2476E-001				
8/30/07 7:12:35 AM	QC		2.2944E-001		In		
8/30/07 7:46:41 AM	QC		2.2700E-001				
8/31/07 1:46:55 PM	QC		2.1931E-001		Ac		
8/31/07 2:22:22 PM	QC		2.2197E-001				
8/31/07 2:53:34 PM	QC		2.2651E-001				
9/5/07 7:45:17 AM	QC		2.2565E-001				
9/6/07 7:02:54 AM	QC		2.2376E-001				
9/7/07 7:05:09 AM	QC		2.2523E-001				
9/8/07 7:52:16 AM	QC		2.2763E-001				
9/10/07 7:04:47 AM	QC		2.2556E-001				
9/11/07 6:58:49 AM	QC		2.2430E-001				
9/12/07 7:16:50 AM	QC		2.2496E-001				
9/13/07 7:03:29 AM	QC		2.2631E-001				
9/14/07 7:04:42 AM	QC		2.2609E-001				
9/15/07 8:12:46 AM	QC		2.2605E-001				
9/17/07 7:18:59 AM	QC		2.2621E-001				
9/18/07 7:17:50 AM	QC		2.2496E-001				
9/18/07 7:42:34 AM	QC		2.2373E-001				
9/19/07 7:53:32 AM	QC		2.2336E-001				

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)



QA Filename : C:\GENIE2K\CAMFILES\New Haven_GL.QAF
Parameter Description : Decay Corrected Co-60 Activity (uCi)
Selection Dates : 8/22/07 7:00:00 AM - 9/19/07 5:00:00 PM
Sample Mean +/- Std Dev : 0.225 +/- 1.98e-003

New Haven Depot Soil Sample Z-Scores

	On-Site Lab Analytical Results							Off-Site Lab Analytical Results						Correction Factor Using Initial On-Site Analysis Results and Off-site Anaylsis Results		Correction Factor Percent Difference (Off-Site Lab Results Compared to Initial Correction Factor of 1.26 for B-214 and 1.0 for Ac-228)		Activity Percent Difference (Off-Site Lab Results Compared to On-Site Using Correction Factor of 1.3 for Bi-214 and 1.0 for Ac-228)		Z-Score		
#	Sample ID	Bi-214 Result (pCi/g)	Unc.	Bi-214 Result (pCi/g) with 1.3 CF	Unc.	Ac-228 Result (pCi/g)	Unc.	U-238 Result (pCi/g)	Unc.	Bi-214 Result (pCi/g)	Unc.	Ac-228 Result (pCi/g)	Unc.	U (Bi-214) CF	Th (Ac-228) Correction Factor	Bi-214 Result (pCi/g)	Ac-228 Result (pCi/g)	U (Bi-214) Correction Factor	Th (Ac-228) Correction Factor	Bi:Bi	Bi:U	Ac:Ac
1	SU1 1 S SS	0.04	0.00	0.06	0.00	0.07	0.00	-0.02	0.13	0.10	0.02	0.02	0.03	2.21	0.21	69.9%	-78.6%	75.3%	-78.6%	-0.98	0.29	1.02
2	SU1 5 S SS	0.07	0.00	0.08	0.00	0.08	0.00	-0.17	0.08	0.05	0.02	0.02	0.03	0.69	0.24	-46.7%	-75.6%	-45.1%	-75.6%	0.99	1.59	1.15
3	SU1 11 S SS	1.49	0.19	1.94	0.25	0.52	0.00	1.65	0.33	1.44	0.14	0.26	0.08	0.97	0.50	-25.7%	-49.8%	-23.3%	-49.8%	0.88	0.35	1.62
4	SU1 12 S SS	1.24	0.15	1.62	0.20	0.60	0.13	2.07	0.98	2.20	0.18	1.02	0.14	1.77	1.71	36.0%	71.4%	40.4%	71.4%	-1.10	-0.23	-1.11
5	SU1 21 S SS	1.88	0.15	2.44	0.20	1.03	0.15	1.94	0.35	2.46	0.20	0.64	0.14	1.31	0.62	0.9%	-37.6%	4.1%	-37.6%	-0.04	0.62	0.95
6	SU1 22 S SS	1.50	0.15	1.95	0.19	1.08	0.16	1.30	0.30	1.78	0.16	0.99	0.17	1.19	0.92	-8.8%	-8.4%	-5.9%	-8.4%	0.35	0.92	0.19
7	SU1 23 S SS	1.24	0.14	1.62	0.19	0.98	0.18	1.99	0.42	1.59	0.15	0.72	0.13	1.28	0.74	-1.7%	-26.3%	1.4%	-26.3%	0.06	-0.41	0.58
8	SU1 32 S SS	2.49	0.19	3.23	0.25	1.24	0.17	1.77	0.39	2.15	0.18	1.05	0.15	0.87	0.85	-33.4%	-15.4%	-31.3%	-15.4%	1.76	1.58	0.43
9	SU1 1 S SB	0.12	0.00	0.15	0.00	0.04	0.00	-0.01	0.15	0.10	0.03	0.03	0.03	0.86	0.62	-33.7%	-38.1%	-31.6%	-38.1%	0.91	0.54	0.26
10	SU1 5 S SB	0.09	0.00	0.12	0.00	0.13	0.00	0.15	0.08	0.11	0.02	0.03	0.03	1.18	0.25	-9.6%	-75.2%	-6.7%	-75.2%	0.26	-0.22	1.57
11	SU1 11 S SB	1.49	0.19	1.94	0.25	0.70	0.00	2.01	0.43	1.61	0.16	0.22	0.10	1.08	0.31	-17.0%	-68.7%	-14.4%	-68.7%	0.56	-0.07	**2.41**
12	SU1 12 S SB	1.11	0.13	1.45	0.17	0.86	0.15	1.17	0.27	1.45	0.14	0.97	0.17	1.30	1.12	0.1%	12.4%	3.3%	12.4%	0.00	0.44	-0.24
13	SU1 21 S SB	1.20	0.16	1.56	0.21	0.75	0.14	1.90	0.43	1.50	0.14	0.75	0.10	1.25	1.00	-4.0%	0.3%	-1.0%	0.3%	0.13	-0.35	-0.01
14	SU1 22 S SB	1.48	0.16	1.92	0.20	1.45	0.19	1.33	0.31	1.77	0.16	1.20	0.17	1.20	0.83	-7.8%	-17.4%	-4.9%	-17.4%	0.29	0.80	0.49
15	SU1 32 S SB	2.50	0.21	3.25	0.28	1.16	0.19	2.38	0.65	2.53	0.23	1.39	0.20	1.01	1.20	-22.1%	19.9%	-19.6%	19.9%	0.99	0.61	-0.42
16	SU2 1 S SS	0.80	0.12	1.04	0.15	0.85	0.14	2.02	0.67	1.36	0.13	1.09	0.15	1.69	1.28	30.3%	27.8%	34.4%	27.8%	-0.78	-0.71	-0.58
17	SU2 3 S SS	1.07	0.17	1.38	0.22	1.24	0.21	1.12	0.30	1.68	0.15	1.21	0.19	1.58	0.98	21.3%	-2.3%	25.2%	-2.3%	-0.56	0.36	0.05
18	SU2 13 S SS	0.29	0.00	0.38	0.00	0.03	0.00	0.41	0.16	0.26	0.03	0.16	0.04	0.90	5.00	-30.7%	400.0%	-28.5%	400.0%	**2.09**	-0.09	-1.72
19	SU2 16 S SS	2.08	0.19	2.70	0.24	1.05	0.18	1.85	0.60	2.15	0.15	1.03	0.12	1.04	0.98	-20.3%	-2.0%	-17.8%	-2.0%	0.97	0.66	0.05
20	SU2 19 S SS	0.83	0.08	1.08	0.10	0.13	0.00	0.87	0.17	1.14	0.09	0.27	0.05	1.38	2.12	6.0%	111.7%	9.4%	111.7%	-0.25	0.52	-1.43
21	SU2 25 S SS	1.49	0.12	1.93	0.15	0.41	0.00	2.76	0.34	2.44	0.17	0.25	0.06	1.64	0.61	26.1%	-38.9%	30.1%	-38.9%	-1.10	-1.11	1.25
22	SU2 30 S SS	1.31	0.12	1.70	0.16	0.76	0.11	1.25	0.20	1.38	0.10	0.65	0.08	1.05	0.86	-19.0%	-13.7%	-16.4%	-13.7%	0.86	0.89	0.38
23	SU2 1 S SB	1.00	0.14	1.30	0.19	1.09	0.18	1.23	0.43	1.54	0.15	0.87	0.17	1.54	0.80	18.6%	-20.0%	22.3%	-20.0%	-0.51	0.07	0.44
24	SU2 13 S SB	0.40	0.00	0.53	0.00	0.21	0.15	0.38	0.10	0.25	0.03	0.10	0.02	0.61	0.46	-53.0%	-53.7%	-51.5%	-53.7%	**4.49**	0.73	0.38
25	SU2 3 S SB	1.03	0.00	1.33	0.00	1.16	0.21	1.25	0.28	1.57	0.14	1.00	0.13	1.53	0.86	17.7%	-14.1%	21.4%	-14.1%	-0.84	0.15	0.33
26	SU2 5 S SB	0.83	0.16	1.07	0.21	1.04	0.21	1.42	0.74	1.33	0.12	1.01	0.13	1.61	0.98	23.9%	-2.4%	27.8%	-2.4%	-0.53	-0.23	0.05
27	SU2 16 S SB	1.71	0.15	2.22	0.19	0.82	0.13	1.54	0.43	1.77	0.13	0.70	0.08	1.04	0.85	-20.2%	-14.6%	-17.7%	-14.6%	0.97	0.72	0.38
28	SU2 19 S SB	1.37	0.11	1.78	0.15	0.19	0.00	1.24	0.21	1.65	0.11	0.30	0.06	1.20	1.60	-7.5%	59.6%	-4.6%	59.6%	0.36	1.06	-0.95
29	SU2 25 S SB	0.78	0.09	1.01	0.12	0.36	0.09	0.77	0.13	0.94	0.07	0.34	0.06	1.21	0.94	-7.2%	-5.9%	-4.2%	-5.9%	0.26	0.69	0.10
30	SU2 30 S SB	1.52	0.20	1.97	0.26	0.64	0.00	1.40	0.46	1.41	0.10	0.67	0.08	0.93	1.05	-28.5%	4.7%	-26.2%	4.7%	1.00	0.54	-0.19
31	SU3 1 S SS	1.04	0.16	1.35	0.20	1.11	0.17	1.42	0.23	1.73	0.13	1.08	0.13	1.67	0.98	28.3%	-2.4%	32.4%	-2.4%	-0.80	-0.12	0.06
32	SU3 3 S SS	0.90	0.14	1.18	0.18	1.10	0.17	1.57	0.36	1.56	0.12	1.09	0.14	1.73	0.99	32.7%	-0.8%	37.0%	-0.8%	-0.88	-0.49	0.02
33	SU3 9 S SS	0.78	0.00	1.01	0.00	0.40	0.00	1.22	0.22	0.92	0.08	0.24	0.05	1.19	0.60	-8.5%	-39.8%	-5.6%	-39.8%	0.52	-0.48	1.47
34	SU3 13 S SS	0.47	0.08	0.61	0.10	0.12	0.00	0.81	0.17	0.63	0.07	0.21	0.05	1.34	1.80	2.9%	79.7%	6.2%	79.7%	-0.07	-0.50	-0.96
35	SU3 23 S SS	1.24	0.14	1.61	0.18	0.97	0.17	1.31	0.27	1.75	0.15	1.05	0.14	1.41	0.65	8.5%	8.0%	11.9%	-34.9%	-0.29	0.47	-0.17
36	SU3 30 S SS	1.22	0.17	1.59	0.22	0.94	0.20	2.09	0.85	1.89	0.16	1.13	0.16	1.55	0.71	18.9%	20.5%	22.6%	-28.9%	-0.54	-0.28	-0.37
37	SU3 31 S SS	1.58	0.14	2.05	0.19	1.26	0.16	2.23	0.64	2.28	0.18	1.20	0.16	1.45	0.59	11.4%	-4.5%	14.9%	-41.4%	-0.45	-0.14	0.12
38	SU3 1 S SB	0.98	0.14	1.27	0.19	1.12	0.20	1.95	0.44	1.57	0.13	1.19	0.16	1.60	0.94	23.4%	6.2%	27.3%	-6.5%	-0.66	-0.71	-0.14
39	SU3 3 S SB	0.74	0.14	0.97	0.18	1.20	0.18	1.79	0.65	1.54	0.12	1.18	0.14	2.07	1.22	59.4%	-1.6%	64.5%	22.2%	-1.35	-0.61	0.04
40	SU3 9 S SB	0.70	0.00	0.90	0.00	0.02	0.00	0.83	0.16	0.85	0.08	0.32	0.06	1.22	0.36	-6.3%	1694.4%	-3.3%	-64.3%	0.35	0.23	**-2.63**
41	SU3 13 S SB	0.47	0.08	0.61	0.10	0.12	0.00	0.61	0.31	0.48	0.05	0.25	0.05	1.02	0.41	-21.4%	111.0%	-18.9%	-59.2%	0.57	0.00	-1.46
42	SU3 15 S SB	0.85	0.15	1.10	0.19	0.50	0.00	1.15	0.28	0.96	0.08	0.43	0.07	1.14	0.39	-12.5%	-14.1%	-9.7%	-61.3%	0.33	-0.07	0.49
43	SU3 23 S SB	1.17	0.14	1.52	0.19	1.14	0.17	1.06	0.22	1.84	0.14	1.11	0.13	1.58	0.73	21.3%	-2.5%	25.1%	-26.8%	-0.69	0.79	0.07
44	SU3 30 S SB	1.16	0.17	1.50	0.22	1.52	0.22	1.79	0.63	1.62	0.15	1.19	0.18	1.40	0.79	7.9%	-21.8%	11.3%	-20.7%	-0.22	-0.22	0.59
45	SU3 31 S SB	1.21	0.18	1.57	0.23	1.09	0.21	1.13	0.28	0.92	0.29	1.11	0.13	0.76	0.71	-41.5%	1.9%	-39.6%	-29.4%	0.88	0.61	-0.04
46	SU5 5 S SS	0.59	0.13	0.77	0.16	0.44	0.00	1.40	0.38	0.92	0.10	0.23	0.07	1.57	0.53	20.4%	-47.3%	24.2%	-47.3%	-0.42	-0.77	1.53
47	SU5 7 S SS	1.27	0.15	1.65	0.19	0.86	0.17	1.13	0.25	1.57	0.12	0.83	0.10	1.24	0.96	-4.7%	-4.2%	-1.7%	-4.2%	0.17	0.82	0.09
48	SU5 6 S SS	0.56	0.08	0.73	0.10	0.14	0.00	0.50	0.13	0.56	0.06	0.10	0.03	0.99	0.71	-23.8%	-29.2%	-21.3%	-29.2%	0.73	0.68	0.66

		On-Site Lab Analytical Results						Off-Site Lab Analytical Results						Correction Factor Using Initial On-Site Analysis Results and Off-site Anaylsis Results		Correction Factor Percent Difference (Off-Site Lab Results Compared to Initial Correction Factor of 1.26 for B-214 and 1.0 for Ac-228)		Activity Percent Difference (Off-Site Lab Results Compared to On-Site Using Correction Factor of 1.3 for Bi-214 and 1.0 for Ac-228)		Z-Score		
#	Sample ID	Bi-214 Result (pCi/g)	Unc.	Bi-214 Result (pCi/g) with 1.3 CF	Unc.	Ac-228 Result (pCi/g)	Unc.	U-238 Result (pCi/g)	Unc.	Bi-214 Result (pCi/g)	Unc.	Ac-228 Result (pCi/g)	Unc.	U (Bi-214) CF	Th (Ac-228) Correction Factor	Bi-214 Result (pCi/g)	Ac-228 Result (pCi/g)	U (Bi-214) Correction Factor	Th (Ac-228) Correction Factor	Bi:Bi	Bi:U	Ac:Ac
49	SU5 11 S SS	0.34	0.00	0.45	0.00	0.21	0.00	0.32	0.14	0.35	0.05	0.10	0.04	1.03	0.47	-20.6%	-52.9%	-18.1%	-52.9%	0.85	0.45	1.50
50	SU5 17 S SS	1.17	0.16	1.52	0.21	1.17	0.20	1.78	0.61	1.67	0.16	0.91	0.15	1.43	0.78	10.1%	-22.1%	13.6%	-22.1%	-0.29	-0.20	0.51
51	SU5 21 S SS	2.39	0.23	3.10	0.30	0.79	0.00	2.25	0.45	2.05	0.17	0.43	0.10	0.86	0.54	-33.9%	-45.6%	-31.8%	-45.6%	1.55	0.79	1.88
52	SU5 22 S SS	0.86	0.15	1.12	0.19	0.56	0.00	1.66	0.56	1.38	0.12	0.79	0.12	1.60	1.41	23.4%	40.6%	27.4%	40.6%	-0.59	-0.46	-0.95
53	SU5 25 S SS	1.15	0.14	1.50	0.18	0.64	0.14	1.41	0.21	1.61	0.12	0.84	0.12	1.40	1.31	7.3%	31.5%	10.7%	31.5%	-0.25	0.16	-0.54
54	SU5 29 S SS	0.66	0.12	0.85	0.16	0.67	0.00	1.00	0.41	0.85	0.07	0.39	0.07	1.29	0.58	-0.6%	-42.3%	2.6%	-42.3%	0.01	-0.17	**2.14**
55	SU5 5 S SB	1.14	0.12	1.48	0.15	0.72	0.13	1.38	0.51	1.41	0.13	0.97	0.18	1.23	1.35	-5.0%	34.9%	-2.0%	34.9%	0.19	0.10	-0.56
56	SU5 6 S SB	0.23	0.00	0.30	0.00	0.31	0.00	0.88	0.20	0.88	0.20	0.78	0.11	3.78	2.53	190.5%	153.2%	199.7%	153.2%	-1.44	-1.44	**-2.15**
57	SU5 7 S SB	1.24	0.13	1.61	0.17	1.06	0.15	0.56	0.18	0.45	0.06	0.18	0.06	0.36	0.17	-72.1%	-82.7%	-71.2%	-82.7%	**3.21**	**2.13**	**2.69**
58	SU5 9 S SB	1.08	0.13	1.40	0.17	1.29	0.17	1.40	0.30	1.39	0.12	0.40	0.08	1.29	0.31	-0.5%	-68.9%	2.6%	-68.9%	0.02	0.00	**2.37**
59	SU5 11 S SB	0.33	0.00	0.43	0.00	0.20	0.00	0.48	0.18	0.39	0.05	0.11	0.05	1.18	0.54	-9.4%	-45.7%	-6.6%	-45.7%	0.38	-0.13	0.87
60	SU5 17 S SB	1.21	0.18	1.57	0.23	1.24	0.00	1.21	0.38	1.70	0.15	1.16	0.15	1.40	0.93	8.1%	-6.7%	11.5%	-6.7%	-0.23	0.41	0.28
61	SU5 21 S SB	0.63	0.13	0.82	0.17	0.81	0.00	0.93	0.24	0.76	0.11	0.39	0.08	1.21	0.48	-7.2%	-52.0%	-4.3%	-52.0%	0.14	-0.19	**2.57**
62	SU5 22 S SB	0.54	0.09	0.70	0.12	0.28	0.00	1.10	0.34	1.41	0.13	1.01	0.14	2.63	3.59	102.4%	259.4%	108.8%	259.4%	**-2.01**	-0.56	**-2.60**
63	SU5 29 S SB	0.45	0.07	0.58	0.09	0.23	0.00	0.50	0.13	0.53	0.05	0.17	0.03	1.17	0.72	-10.1%	-27.8%	-7.2%	-27.8%	0.28	0.26	0.98
64	SU6 4 S SS	1.30	0.19	1.69	0.25	1.13	0.20	1.06	0.17	1.59	0.12	0.88	0.09	1.22	0.78	-6.1%	-22.2%	-3.2%	-22.2%	0.19	1.05	0.57
65	SU6 13 S SS	0.88	0.13	1.14	0.16	0.74	0.15	1.16	0.34	1.37	0.10	0.67	0.09	1.56	0.90	20.3%	-9.6%	24.1%	-9.6%	-0.60	-0.03	0.20
66	SU6 14 S SS	0.89	0.12	1.16	0.16	0.78	0.13	0.88	0.15	1.26	0.10	0.60	0.07	1.41	0.77	8.4%	-23.3%	11.9%	-23.3%	-0.26	0.65	0.61
67	SU6 15 S SS	0.94	0.13	1.22	0.17	0.61	0.14	0.80	0.15	1.18	0.09	0.64	0.07	1.25	1.05	-3.5%	5.4%	-0.5%	5.4%	0.12	0.95	-0.11
68	SU6 21 S SS	1.39	0.17	1.81	0.22	1.00	0.17	1.06	0.17	1.53	0.11	0.76	0.07	1.10	0.76	-15.6%	-24.1%	-12.9%	-24.1%	0.58	1.36	0.67
69	SU6 25 S SS	1.71	0.22	2.22	0.28	1.10	0.00	1.73	0.44	1.93	0.14	1.02	0.11	1.13	0.93	-13.0%	-7.3%	-10.3%	-7.3%	0.46	0.47	0.36
70	SU6 27 S SS	1.07	0.17	1.39	0.22	1.28	0.22	1.50	0.43	1.49	0.11	1.01	0.11	1.39	0.79	7.1%	-20.8%	10.5%	-20.8%	-0.20	-0.11	0.54
71	SU6 32 S SS	1.16	0.00	1.51	0.00	1.30	0.24	0.94	0.21	1.66	0.13	0.98	0.13	1.43	0.75	9.9%	-24.6%	13.4%	-24.6%	-0.57	1.36	0.58
72	SU6 4 S SB	1.10	0.19	1.43	0.25	1.22	0.00	0.92	0.18	1.49	0.12	0.96	0.10	1.35	0.78	4.0%	-21.9%	7.3%	-21.9%	-0.10	0.83	1.41
73	SU6 13 S SB	0.90	0.14	1.17	0.18	1.02	0.17	1.28	0.20	1.45	0.11	0.92	0.11	1.61	0.90	23.5%	-9.9%	27.4%	-9.9%	-0.67	-0.20	0.25
74	SU6 14 S SB	0.99	0.14	1.29	0.18	0.83	0.15	1.45	0.53	1.59	0.11	0.91	0.11	1.61	1.10	23.5%	10.2%	27.5%	10.2%	-0.72	-0.15	-0.22
75	SU6 15 S SB	1.17	0.14	1.52	0.19	0.77	0.17	1.22	0.29	1.42	0.10	0.74	0.08	1.21	0.96	-6.6%	-3.5%	-3.6%	-3.5%	0.24	0.44	0.07
76	SU6 21 S SB	0.89	0.13	1.16	0.17	0.87	0.14	1.07	0.17	1.45	0.10	1.02	0.13	1.63	1.18	25.5%	17.8%	29.4%	17.8%	-0.74	0.18	-0.41
77	SU6 25 S SB	1.21	0.19	1.57	0.24	1.32	0.23	1.35	0.40	1.63	0.12	0.97	0.10	1.35	0.73	3.6%	-26.7%	6.9%	-26.7%	-0.11	0.24	0.71
78	SU6 27 S SB	1.21	0.20	1.58	0.26	1.17	0.22	1.58	0.59	1.55	0.11	1.05	0.11	1.28	0.90	-1.7%	-10.3%	1.4%	-10.3%	0.05	0.00	0.24
79	SU6 32 S SB	1.17	0.18	1.52	0.23	1.08	0.21	1.05	0.17	1.58	0.11	1.03	0.09	1.35	0.95	4.1%	-4.9%	7.4%	-4.9%	-0.12	0.81	0.11
	Mean	**1.05**	**0.12**	**1.36**	**0.16**	**0.77**	**0.11**	**1.25**	**0.33**	**1.35**	**0.12**	**0.70**	**0.10**	**1.34**	**0.94**	**-1.2%**	**-8.9%**	**6.3%**	**-5.7%**	**0.10**	**0.24**	**0.27**
	Median	**1.08**	**0.14**	**1.40**	**0.18**	**0.83**	**0.14**	**1.24**	**0.30**	**1.49**	**0.12**	**0.79**	**0.10**	**1.29**	**0.83**							
	SD	**0.51**	**0.06**	**0.66**	**0.08**	**0.41**	**0.09**	**0.58**	**0.19**	**0.58**	**0.05**	**0.39**	**0.05**	**0.44**	**0.69**							

New Haven Depot FSS Cal Certs

EBERLINE SERVICES

CERTIFICATE OF CALIBRATION

Electroplated Alpha Standard

S.O.# 6500
P.O.# 07-006

Description of Standard:

Model No. DNS-11 Serial No. 99TH470 0992 Isotope Th-230

Electroplated on polished Ni disc, 0.79 mm thick.

Total diameter of 4.77 cm and an active diameter of 4.45 cm.

The radioactive material is permanently fixed to the disc by heat treatment without any covering over the active surface.

Measurement Method:

The 2pi alpha emission rate was measured using an internal gas flow proportional chamber. Absolute counting of alpha particles emitted in the hemisphere above the active surface was verified by counting above, below, and at the operative voltage. The calibration is traceable to NIST by reference to an NIST calibrated alpha source S/N 4001-02.

Measurement Result:

The observed alpha particles emitted from the surface of the disc per minute (cpm) on the calibration date was:

2,570 ± 128

The total disintegration rate (dpm) assuming 1.5% backscatter of alpha particles from the surface of the disc, was:

5,070 ± 253 (0.00228 μCi)

The uncertainty of the measurement is 5 %, which is the sum of random counting error at the 99% confidence level, and the estimated upper limit of systematic error in this measurement.

Calibrated by: ART REUST Reviewed by: [signature]

Calibration Technician: Art Reust Q.A. Representative: Anthony W. Toth

Calibration Date: 7-18-2006 Reviewed Date: 7-27-06

Half life 1.4E10 years

7021 Pan American Freeway NE
Albuquerque, New Mexico 87109-4238
(505) 262-2694 Fax (505) 262-2698
www.eberlineservices.com

THE SOURCE INC. *Radiation Standards and Check Sources*

2810 Siler Lane
Santa Fe, NM 87501
(505) 473-9538
FAX: (505) 473-5805

Certificate of Calibration
(Beta Source)

The Cesium 137 beta source was measured in a gas proportional counter using P-10 as counting gas. The beta emissions from the surface of the source were measured at its plateau voltage to determine its 2π particle emission rate (i.e. particles per minute). Corrections were applied for background, coincidence loss and backscatter factors when applicable.

Beta standard 91CS5000139 is our NIST calibrated source used in establishing NIST traceability following ANSI N42.22 participating in the NIST radioactivity measurement assurance program annually.

REF.PO# 271

Model S-Cs-50 sp

Active Diameter (or area) 44mm Mounting Material SS/Kapton

Total Diameter (or area) 50mm Thickness 2mm

16,500	ppm ±	825	ppm 2π
38,600	dpm ±	1,930	dpm 4π
0.0174	uCi		Bq
08-11-99	date of measurement		
99CS5002021	source serial number		
5.0	overall uncertainty (percent)		
	backscatter (percent)		

Michael A. Ortiz . . . . Calibration Manager

Vera Padilla . . Quality Control

<2200 dpm leak test results (dpm/100cm²)

The overall uncertainty of the measurement is three times the value found from combining quadratically the sum of the overall uncertainty reported by NIST in the radioactive measurements assurance program; the standard deviation of the mean for the NIST standard as measured in the system used for calibration; and the standard deviation of the mean for the source measurements.

AC006-97

Half 30.23 years

Calibration Technology

A Division of RSCS, Inc.

Calibration Certificate
ID Number: 9595212741-0

Customer: Chuck Mikaitis
Cabrera Services, Inc.
473 Silver Lane
East Hartford, CT 06118-

Instrument
Ludlum Model 2-001R

Serial Number
95952

Probe Model
Ludlum 44-6

Serial Number
051218

Precision Check				
Test 1	Test 2	Test 3	Mean	Results
4.00 mR/hr	4.00 mR/hr	4.00 mR/hr	4.00 mR/hr	Satisfactory

Accuracy Check			
Range	Target Value	As Found	As Left
X10	40 mR/Hr	40 mR/Hr	40 mR/Hr
X10	10 mR/Hr	10 mR/Hr	10 mR/Hr
X1	4 mR/Hr	4 mR/Hr	4 mR/Hr
X1	1 mR/Hr	1 mR/Hr	1 mR/Hr
X0.1	0.4 mR/Hr	0.5 mR/Hr *	0.40 mR/Hr
X0.1	0.1 mR/Hr	0.5 mR/Hr *	0.10 mR/Hr

Readings with * indicate ranges where As-Found readings are >20% of Target value. Readings with ** indicate As-left readings are >10% of Target value

Outer Physical Check: *Pass*
Internal Check: *Pass*
Geotropism Check: *Pass*
Mechanical Zero: *Pass*

Calibrated by: | QA Review:

Calibration Date: 06/25/2007
Expires: 06/25/2008

Atmospheric Conditions - Temperature: 76°F Humidity: 30% Barometric Pressure: 29.56"hg
This calibration was performed by RSCS Inc. 91 Portsmouth ave, Stratham NH 03885 using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4. This calibration certificate shall not be reproduced except in full without the express written consent of RSCS, Inc

Radiation Safety and Control Services, Inc.
91 Portsmouth Ave. Stratham, NH 03885
1-800-525-8339 (603) 778-2871 Fax (603) 778-6879 www.radsafety.com

Calibration Certificate
ID Number: 9595212741-0

Calibration Technology
A Division of RSCS, Inc.

Customer: Chuck Mikaitis
Cabrera Services, Inc.
473 Silver Lane
East Hartford, CT 06118-

Instrument
Ludlum Model 2-001R

Serial Number
95952

Probe Model
Ludlum 44-6

Serial Number
051218

Precision Check				
Test 1	Test 2	Test 3	Mean	Results
4.00 mR/hr	4.00 mR/hr	4.00 mR/hr	4.00 mR/hr	Satisfactory

Accuracy Check			
Range	Target Value	As Found	As Left
X10	40 mR/Hr	40 mR/Hr	40 mR/Hr
X10	10 mR/Hr	10 mR/Hr	10 mR/Hr
X1	4 mR/Hr	4 mR/Hr	4 mR/Hr
X1	1 mR/Hr	1 mR/Hr	1 mR/Hr
X0.1	0.4 mR/Hr	0.5 mR/Hr *	0.40 mR/Hr
X0.1	0.1 mR/Hr	0.5 mR/Hr *	0.10 mR/Hr

Readings with * indicate ranges where As-Found readings are >20% of Target value. Readings with ** indicate As-left readings are >10% of Target value

Outer Physical Check: *Pass* Mechanical Zero: *Pass*
Internal Check: *Pass*
Geotropism Check: *Pass*

Calibrated by: | QA Review:

Calibration Date: 06/25/2007
Expires: 06/25/2008

Atmospheric Conditions - Temperature: 76°F Humidity: 30% Barometric Pressure: 29.56"hg
This calibration was performed by RSCS Inc. 91 Portsmouth ave, Stratham NH 03885 using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4. This calibration certificate shall not be reproduced except in full without the express written consent of RSCS, Inc

Radiation Safety and Control Services, Inc.
91 Portsmouth Ave. Stratham, NH 03885
1-800-525-8339 (603) 778-2871 Fax (603) 778-6879 www.radsafety.com

Duratek

CALIBRATION CERTIFICATE

Duratek Instrument Services
628 Gallaher Road
Kingston, TN 37763
Phone: (865) 376-8337
Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

CUSTOMER INFORMATION		INSTRUMENT INFORMATION	
Customer Name: Duratek Instrument Services		Manufacturer: Ludlum	
Address: 628 Gallaher Road, Kingston, TN 37763		Model: 2224	Serial Number: 110002
Contact Name: Tony Riggs		Probe: N/A	Serial Number: N/A
Customer Purchase Order Number: N/A	Work Order Number: 2007-04579	Calibration Method: Electronic	

INSTRUMENT CALIBRATION INFORMATION

Instrument Range	Calibration Standard Value	Ratemeter Response		Calibration Standard Value	Tolerances (cpm) ± 2%	Scaler Response	
		As Found	As Left			As Found	As Left
X 1	100	100	100	40	40	40	40
X 1	200	200	200	400	392-408	399	399
X 1	400	400	400	4,000	3,920-4,080	3,996	3,996
X 10	1,000	1,000	1,000	40,000	39.2K-40.8K	39,957	39,957
X 10	2,000	2,000	2,000	400,000	392K-408K	399,564	399,564
X 10	4,000	4,000	4,000				
X 100	10,000	10,000	10,000				
X 100	20,000	20,000	20,000				
X 100	40,000	40,000	40,000				
X 1000	100,000	100,000	100,000				
X 1000	200,000	200,000	200,000				
X 1000	400,000	400,000	400,000				

STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology. (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated By:	Reviewed By: Date: 07/30/07
Calibration Date: 07/30/2007	Calibration Due: 07/30/2008

Model: 2224 Serial Number: 110002

M&TE				Environmental Conditions		
Volt Meter	ID# 6565015	Cal Due:	10/30/07	Barometer	ID# 2551	Cal Due: 10/18/07
Pulser	ID# 101500	Cal Due:	10/06/07	Thermometer	ID# 2551	Cal Due: 10/18/07
Humidity	ID# 958670	Cal Due:	05/09/08	Temp: 22.9 °C	Pressure: 737mHg	Humidity: 62%

Special Test			
Geotropism	Sat (√) Unsat ( )	As Found	As Left
Audio Check	Sat (√) Unsat ( )	Alpha Sensitivity= 120 mv	Alpha Sensitivity= 120 mv
Mechanical Zero	Sat (√) Unsat ( )	Beta Sensitivity= 3.5 mv	Beta Sensitivity= 3.5 mv
Reset	Sat (√) Unsat ( )	Beta Window= 30 mv	Beta Window= 30 mv
HV Analog Display	Sat (√) Unsat ( )	See detector sheet for proper High Voltage setting	
Batt. Ck. (Min. Volt 2.2VDC)	Sat (√) Unsat ( )	Overload Not Set	Overload Not Set

High Voltage Calibration				H.V. Set With Detector Not Connected			
Voltage	Tolerance	As Found	As Left				
500	450-550	495	495				
1000	900-1100	979	979				
1500	1350-1650	1,474	1,474				

COMMENTS

Calibrated with 5ft. Cable

Calibrated in accordance with OEM Technical Manual

Instrument Calibrated By:	Reviewed By: Date: 07/30/07
Calibration Date: 07/30/2007	Calibration Due: 07/30/2008

Duratek

CALIBRATION CERTIFICATE

Duratek Instrument Services
628 Gallaher Road
Kingston, TN 37763
Phone: (865) 376-8337
Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

CUSTOMER INFORMATION		DETECTOR INFORMATION
Customer Name: Duratek Instrument Services		Manufacturer: Ludlum
Address: 628 Gallaher Road, Kingston, TN 37763		Detector Model: 43-89
Contact Name: Tony Riggs		Serial Number: 164832
Customer Purchase: Order Number: N/A	Work Order Number: 2007-04579	Evaluation Method: Source

DETECTOR EVALUATION INFORMATION

Source Nuclide	Serial Number	Activity (dpm)	Net Response	Efficiency (%)
Pu-239	019442	13,613	2,298	16.9%
Th-230	119709	2,442	321	13.1%
Tc-99	099608	21,312	1,837	7.5%

SCALER INFORMATION			DETECTOR INFORMATION		
Model	Serial Number	Due Date	Background	Operating Voltage	Threshold
2224	110002	07/30/08	1	825V	Alpha (120mV)
2224	110002	07/30/08	239	825V	Beta (3.5-30mV)

ATTACHMENTS

Voltage Plateau: YES√ NO

Statistical Evaluation: YES NO√

COMMENTS

Precision test performed with Pu-239#019442

Calibrated in accordance with original equipment technical manual.

Efficiency and HV plateau performed with 5 foot cable.

LINEARITY TEST

Count 1 (Toe)	2,266
Count 2 (Mid)	2,298
Count 3 (Heel)	2,162
Average	2,242
Pass/Fail	PASS (+/-10% Tolerance)

STATEMENT OF CERTIFICATION

We Certify that the detector listed above was evaluated for proper operation prior to shipment and that it met all the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology. (We are not responsible for damage incurred during shipment or use of this detector).

Detector Certified By: [signature] Reviewed By: [signature] Date: 07/30/07

Certification Date: 07/30/2007 Certification Due: 07/30/2008

Detector 43-89 #164832 Raw Data (Counts)										
	Background		Pu-239		Tc-99		N/A		N/A	
Voltage	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta
775	2	125	1697	1729	2	1149				
800	0	168	1967	2049	4	1536				
825	**2**	**244**	**2161**	**2549**	**1**	**1781**				
850	2	341	2342	3273	3	2221				

Source Info

Nuclide	**Pu-239**	**Tc-99**	**N/A**	**N/A**
ID	19442	99608		
Initial DPM	13613	21,312		
Certification Date	6/1/1992	8/8/1996		
Today's Date	7/30/2007	7/30/2007	7/30/2007	7/30/2007
Source Age (Years)	15.16	10.97	107.58	107.58
Half-Life (Years)	2.41E+04	2.13E+05		
Corrected Activity	13607	21311	#DIV/0!	#DIV/0!

Net CPM (Efficiencies determined below only used for selecting operating voltage)														
	MDA/Cross-Talk			Beta Eff.	Alpha Eff.	Pu-239		Tc-99		N/A		N/A	
Voltage	Beta MDA	Alpha MDA	Beta-Alpha	(%)	(%)	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta
775	1139.0	74.6	0.2%	4.80%	12.5%	1695	1604	0	1024	-2	-125	-2	-125
800	981.7	18.7	0.3%	6.42%	14.5%	1967	1881	4	1368	0	-168	0	-168
825	**1045.3**	**58.6**	**0.1%**	**7.21%**	**15.9%**	**2159**	**2305**	-1	1537	-2	-244	-2	-244
850	1004.7	54.0	0.1%	8.82%	17.2%	2340	2932	1	1880	-2	-341	-2	-341
875	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	0.0%	0	0	0	0	0	0	0	0
900	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	0.0%	0	0	0	0	0	0	0	0
925	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	0.0%	0	0	0	0	0	0	0	0
950	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	0.0%	0	0	0	0	0	0	0	0
975	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	0.0%	0	0	0	0	0	0	0	0

Performed By: _____ Date: 7/30/07

Reveiwed By: _____ Date: 07/30/07

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER CABRERA SERVICES ORDER NO. 265558 / 307202

Mfg. Ludlum Measurements, Inc. Model 14C Serial No. 194299

Mfg. Ludlum Measurements, Inc. Model 44-38 Serial No. PR198885

Cal. Date 26-Oct-06 Cal Due Date 26-Oct-07 Cal. Interval 1 Year Meterface 202-241

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 74 °F RH 56 % Alt 695.8 mm Hg

☐ New Instrument Instrument Received ☐ Within Toler. +-10% ☑ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☐ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC

☐ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☑ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 900 V Input Sens. 32 mV Det. Oper. 900 V at 32 mV Threshold Dial Ratio = mV

☐ HV Readout (2 points) Ref./Inst. / V Ref./Inst. / V

COMMENTS:

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X1000	1500mR/hr	1.55	1.5
X1000	500mR/hr	0.58	0.55
X100	150mR/hr	1.5	1.5
X100	50mR/hr	0.5	0.5
X 10	15mR/hr	1.5	1.5
X 10	5mR/hr	0.5	0.5
X 1	1.5mR/hr= 1750 cpm	1.5	1.5
X 1	1.0mR/hr	1.0	1.0
X0.1	175 cpm	1.5	1.5
X0.1	58 cpm	0.5	0.5

*Uncertainty within ± 10% C.F. within ± 20% X0.1 **Range(s) Calibrated Electronically**

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout				Log Scale			

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources: ☐ S-394 ☐ 1122 ☐ 781
Cs-137 Gamma S/N ☐ 1162 ☑ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☑ E551 ☐ 720 ☐ 734 ☐ 1616 ☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ☐ Beta S/N ☐ Other

☑ m 500 S/N 189509 ☐ Oscilloscope S/N ☑ Multimeter S/N 71300492

Calibrated By: Wendell Williams Date 26 OCT 06

Reviewed By: Rhonda Harris Date 26 Oct 06

This certificate shall not be reproduced except in full, without the written approval of Ludlum Measurements, Inc.
FORM C22A 06/02/2006

AC Inst. Only ☐ Passed Dielectric (Hi-Pot) and Continuity Test ☐ Failed:

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CONVERSION CHART

Customer CABRERA SERVICES Date 26-Oct-06 Order #. 265558 / 307202

Model 14C Serial No. 194299 Detector Model 44-9 Serial No. PR201558

Source Cs137, G112, E551 High Voltage 900 V

Input Sensitivity 32 mV

Reference Point	"As Found" Readings (CPM): Meter Reading	Range/Scale	After Adjustment Readings (CPM): Meter Reading	Range/Scale
150 mR/hr	N/A		N/A	
50 mR/hr	1.55 K	X 100	1.55 K	X 100
15 mR/hr	0.55 K	X 100	0.55 K	X 100
5 mR/hr	1.65 K	X 10	1.65 K	X 10
1.5 mR/hr	0.5 K	X 10	0.5 K	X 10
1.0 mR/hr	0.35 K	X 10	0.35 K	X 10

Signature: Wendell Williams Date 26·OCT·06

FORM C17-1A 04/09/2003

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER CABRERA SERVICES ORDER NO. 276136/313051

Mfg. Ludlum Measurements, Inc. Model 2929 Serial No. 163827

Mfg. Ludlum Measurements, Inc. Model 43-10-1 Serial No. PR 171322

Cal. Date 9-May-07 Cal Due Date 9-May-08 Cal. Interval 1 Year Meterface 202-014

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 73 °F RH 55 % Alt 700.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Window Operation

☑ Audio ck.

☑ Meter Zeroed Alpha Sensitivity 175 mV Beta Sensitivity 4 mV Beta Window 50 mV

☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 850 V = 3.38 on High Voltage dial. High Voltage set with detector connected.

☑ HV Readout (2 points) Ref./Inst. 500 / 495 V Ref./Inst. 2000 / 1995 V

COMMENTS:

4pi Eff. for Ni63 ≈ 0.53%, Source Count= 1604 cpm, Background= 59 cpm, Source Size= 288947 dpm
4pi Eff. for Th230 ≈ 39.47%, Source Count= 7876 cpm, Background= 59 cpm, Source Size= 19800 dpm
4pi Eff. for Tc99 ≈ 29.47%, Source Count= 8548 cpm, Background= 59 cpm, Source Size= 28800 dpm
4pi Eff. for SrY90 ≈ 39.62%, Source Count= 22977 cpm, Background= 59 cpm, Source Size= 57834 dpm

Cal'd high voltage with detector connected.

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

Alpha Channel Digital Readout	REFERENCE CAL POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
	400K cpm	39949 (0)	39949 (0)
	40K cpm	3994	3994
	4K cpm	399	399
	400 cpm	40	40
	40 cpm	4	4

Beta/Gamma Channel Digital Readout	REFERENCE CAL POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
	400K cpm	40055 (0)	40055 (0)
	40K cpm	4006	4006
	4K cpm	405	405
	400 cpm	40	40
	40 cpm	4	4

*Uncertainty within ± 10% C.F. within ± 20%

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978. State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources: ☐ S-394/1122 ☐ 1131 ☐ 781

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ 720 ☐ 734 ☐ 1616 ☐ Neutron Am-241 Be S/N T-304

☑ Alpha S/N Th230: S/N 121495 ☑ Beta S/N Tc99 S/N 5279, Ni-63 S/N 99NI2204017, ☑ Other SrY90 S/N 99Sr2204016

☑ m 500 S/N 190566 ☐ Oscilloscope S/N ☑ Multimeter S/N 86250390

Calibrated By: Jason Flores Date 9-May-07

Reviewed By: Rhonda Harris Date 9 May 07

This certificate shall not be reproduced except in full, without the written approval of Ludlum Measurements, Inc.
FORM C25 01/24/2007

AC Inst. Only ☑ Passed Dielectric (Hi-Pot) and Continuity Test ☐ Failed:

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 43-10-1 Serial No. PR 171322 Order #. 276136/313051

Customer CABRERA SERVICES Alpha Input Sensitivity 175 mV

Counter 2929 Serial No. 163827 Beta Input Sensitivity 4 mV

Count Time 1 Minute Beta Window 50 mV

Other Distance Source to Detector TRAY

High Voltage	Background		Isotope Th230 Size 19800 dpm		Isotope Tc99 Size 28800 dpm		Isotope SrY90 Size 57834 dpm	
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta
800	0	53	7846	414	14	6694	2	22195
825	0	69	7828	497	16	7679	5	22663
850	0	59	7876	602	12	8548	2	22977
875	0	82	7984	778	10	8806	4	22888

☐ Gas Proportional detector count rate decreased ≤ 10% after 15 hour static test using 39" cable.

☐ Gas proportional detector count rate decreased ≤ 10% after 5 hour static test using 39" cable and alpha/beta counter.

Signature Jason Floan Date 9-MAY-07

FORM C4B 04/09/2003

• *Serving The Nuclear Industry Since 1962* •

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 43-10-1 Serial No. PR 171322 Order #. 276136/313051

Customer CABRERA SERVICES Alpha Input Sensitivity 125 mV

Counter 2929 Serial No. 163827 Beta Input Sensitivity 4 mV

Count Time 1Minute Beta Window 50 mV

Other Distance Source to Detector TRAY

High Voltage	Background Alpha	Background Beta	Isotope Ni 63 Size 288947dpm Alpha	Beta	Isotope Size Alpha	Beta	Isotope Size Alpha	Beta
800	0	53	4	109				
825	0	69	2	537				
850	0	59	2	1604				
875	0	82	1	3538				

☐ Gas Proportional detector count rate decreased ≤ 10% after 15 hour static test using 39" cable.

☐ Gas proportional detector count rate decreased ≤ 10% after 5 hour static test using 39" cable and alpha/beta counter.

Signature Jason Flown Date 9-MAY-07

FORM C48 04/09/2003

• *Serving The Nuclear Industry Since 1962* •

Calibration Certificate
ID Number: 1328617750-0

Calibration Technology
A Division of RSCS, Inc.

Customer: Chuck Mikaitis
Cabrera Services, Inc.
473 Silver Lane
East Hartford, CT 06118-

Instrument	Serial Number
Ludlum Model 2221	132861

Probe Model	Serial Number
Alpha Spectra Inc G5	051200A

Precision Check

Test 1	Test 2	Test 3	Mean	Results
40.00 Kcpm	**40.00 Kcpm**	**40.00 Kcpm**	**40.00 Kcpm**	**Satisfactory**

Accuracy Check

Range	Target Value	As Found	As Left
X1000	400 Kcpm	400 Kcpm #	400 Kcpm #
X1000	100 Kcpm	100 Kcpm #	100 Kcpm #
X100	40 Kcpm	40 Kcpm #	40 Kcpm #
X100	10 Kcpm	10 Kcpm #	10 Kcpm #
X10	4 Kcpm	4 Kcpm #	4 Kcpm #
X10	1 Kcpm	1 Kcpm #	1 Kcpm #
X1	400 cpm	400 cpm #	400 cpm #
X1	100 cpm	100 cpm #	100 cpm #

Readings with * indicate ranges where As-Found readings are >20% of Target value. Readings with ** indicate As-left readings are >10% of Target value
Readings with # indicate ranges were calibrated using a pulser

Probe Model & SN	Isotope	Efficiency	NIST Source ID	Geometry
G5 051200A	Co-57	0.4366 C/D	Co-57 (SN: 5586)	On Contact
G5 051200A	I-129	0.3405 C/D	I-129 (SN: NES-186S)	On Contact

MTE Instrument Type	Model	CalDueDate
Pulser	Ludlum 500-4SN: 66151	01/03/2007

Outer Physical Check: *Pass*
Internal Check: *Pass*
Geotropism Check: *Pass*
Mechanical Zero: *Pass*
Tap Test: *Pass*

Electronics Checks	As Found	As Left
High Voltage	**990 Volts**	**1150 Volts**
Low Level Discriminator #1	**10 mV**	**10 mV**
Window	**Out**	**Out**

Calibrated by: JCB/NHG QA Review:

Date: 10/04/2006
Expires: 10/04/2007

Atmospheric Conditions - Temperature: 76° F Humidity: 38 % Barometric Pressure: 29.92 in/hg
This calibration was performed by RSCS using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4.
This calibration certificate shall not be reproduced except in full without the express written consent of RSCS, Inc

Radiation Safety and Control Services, Inc.
91 Portsmouth Ave. Stratham, NH 03885
1-800-525-8339 (603) 778-2871 Fax (603) 778-6879 www.radsafety.com

Calibration Technology

A Division of RSCS, Inc.

Calibration Certificate
ID Number: 1769527751-0

Customer: Chuck Mikaitis
Cabrera Services, Inc.
473 Silver Lane
East Hartford, CT 06118-

Instrument	Serial Number
Ludlum Model 2221	176952

Probe Model	Serial Number
Alpha Spectra Inc G5	021700F

Precision Check				
Test 1	Test 2	Test 3	Mean	Results
4.01 Kcpm	**4.01 Kcpm**	**4.00 Kcpm**	**4.01 Kcpm**	**Satisfactory**

Accuracy Check			
Range	Target Value	As Found	As Left
X1000	400 Kcpm	400.9 Kcpm #	400.9 Kcpm #
X1000	100 Kcpm	99.92 Kcpm #	99.92 Kcpm #
X100	40 Kcpm	40.09 Kcpm #	40.09 Kcpm #
X100	10 Kcpm	9.99 Kcpm #	9.99 Kcpm #
X10	4 Kcpm	4.01 Kcpm #	4.01 Kcpm #
X10	1 Kcpm	0.998 Kcpm #	0.998 Kcpm #
X1	400 cpm	400 cpm #	400 cpm #
X1	100 cpm	100 cpm #	100 cpm #

Readings with * indicate ranges where As-Found readings are >20% of Target value. Readings with ** indicate As-left readings are >10% of Target value
Readings with # indicate ranges were calibrated using a pulser

Probe Model & SN	Isotope	Efficiency	NIST Source ID	Geometry
G5 021700F	Co-57	0.4678 C/D	Co-57 (SN: 5586)	On Contact
G5 021700F	I-129	0.3675 C/D	I-129 (SN: NES-186S)	On Contact

MTE Instrument Type	Model	CalDueDate
Pulser	Ludlum 500-4SN: 66151	01/03/2007

Outer Physical Check: *Pass*
Internal Check: *Pass*
Geotropism Check: *Pass*
Mechanical Zero: *Pass*
Tap Test: *Pass*

Electronics Checks	As Found	As Left
High Voltage	**1145 Volts**	**1145 Volts**
Low Level Discriminator #1	**10 mV**	**10 mV**
Window	**Out**	**Out**

Calibrated by: QA Review:

Date: 10/04/2006
Expires: 10/04/2007

Atmospheric Conditions - Temperature: 76° F Humidity: 38 % Barometric Pressure: 29.92 in/hg
This calibration was performed by RSCS using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4.
This calibration certificate shall not be reproduced except in full without the express written consent of RSCS, Inc

Radiation Safety and Control Services, Inc.
91 Portsmouth Ave. Stratham, NH 03885
1-800-525-8339 (603) 778-2871 Fax (603) 778-6879 www.radsafety.com

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER CABRERA SEVICES ORDER NO. 277310/313701

Mfg. Ludlum Measurements, Inc. Model 2360 Serial No. 193675

Mfg. Ludlum Measurements, Inc. Model 43-37 Serial No. PR-216984

Cal. Date 30-May-07 Cal Due Date 30-May-08 Cal. Interval 1 Year Meterface 202-855

Check mark ✓ applies to applicable instr. and/or detector IAW mfg. spec. T. 75 °F RH 50 % Alt 698.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☐ F/S Resp. ck ☑ Reset ck. ☑ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC
☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 1675 V

☑ HV Readout (2 points) Ref./Inst. 500 / 502 V Ref./Inst. 1500 / 1500 V

Firmware Version: 39010n27
Alpha Threshold: 100 mv
Beta Threshold: 4 mv
Beta Window: 40 mv
Overload Checked but not set
Instrument calibrated with a 5' cable.
High voltage set with detector disconnected

(EEPROM Settings)
User Time: 1.0
Alpha Alarm: 50000
Beta Alarm: 50000
A/B Alarm: 50000
Model 2360 Date: 05/30/07
Calibration Date Due: 05/30/08

COMMENTS:

Eff. for Th230sn: 1495, Eff.≈ 17.6% 4pi
Eff. for Tc99sn: 5279-04, Eff.≈ 31.7% 4pi
Eff. for Sr90y90sn: 5281-04, Eff.≈ 28.5% 4pi
Eff. for Ni63sn: 4017, Eff.≈ 4.7% 4pi

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
x1000	400kcpm	400	400
x1000	100kcpm	100	100
x100	40kcpm	400	400
x100	10kcpm	100	100
x10	4kcpm	400	400
x10	1kcpm	100	100
x1	400kcpm	400	400
x1	100kcpm	100	100

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout	400kcpm	39796 (07)	39796 (07)	Log Scale			
	40kcpm	3979	3979				
	4kcpm	398	398				
	400cpm	40	40				
	40cpm	4	4				

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques.
The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources: ☐ S-394/1122 ☐ 1131 ☐ 781
Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ 720 ☐ 734 ☐ 1616 ☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ☐ Beta S/N ☐ Other

☑ m 500 S/N 50800 ☐ Oscilloscope S/N ☑ Multimeter S/N 83990502

Calibrated By: Charles Lisk Date 30 May 07

Reviewed By: Rhonda Harris Date 30 May 07

This certificate shall not be reproduced except in full, without the written approval of Ludlum Measurements, Inc.
FORM C22S 01/24/2007

AC Inst. Only ☐ Passed Dielectric (Hi-Pot) and Continuity Test ☐ Failed:

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 43-37 Serial No. PR-216984 Order #. 277310/313701

Customer CABRERA SEVICES Alpha Input Sensitivity 100 mV

Counter 2360 Serial No. 193625 Beta Input Sensitivity 4 mV

Count Time 1Minute Beta Window 40 mV

Other w/5' cable Distance Source to Detector Surface

High Voltage	Background Alpha	Background Beta	Isotope Th230 Size 19800 dpm Alpha	Isotope Th230 Size 19800 dpm Beta	Isotope Tc99 Size 28800 dpm Alpha	Isotope Tc99 Size 28800 dpm Beta	Isotope Sr90Y90 Size 111580 dpm Alpha	Isotope Sr90Y90 Size 111580 dpm Beta
1625	8	345	3153	1543	14	7880	7	23243
1650	7	467	3435	1672	15	8554	8	27170
1675	5	598	3501	1819	14	9744	2	32447
1700	6	847	3684	2101	13	10034	33	36796

☐ Gas Proportional detector count rate decreased ≤ 10% after 15 hour static test using 39" cable.

☑ Gas proportional detector count rate decreased ≤ 10% after 5 hour static test using 39" cable and alpha/beta counter.

Signature Charles Lisk Date 3 May 07

FORM C4B 04/09/2003

• *Serving The Nuclear Industry Since 1962* •

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 43-37 Serial No. PR-216984 Order #. 277310/313701

Customer CABRERA SEVICES Alpha Input Sensitivity 100 mV

Counter 2360 Serial No. 193675 Beta Input Sensitivity 4 mV

Count Time 1Minute Beta Window 40 mV

Other w/5' cable Distance Source to Detector Surface

High Voltage	Background Alpha	Background Beta	Isotope NI63 Size 288832dpm Alpha	Isotope NI63 Size 288832dpm Beta	Isotope ____ Size ____ Alpha	Isotope ____ Size ____ Beta	Isotope ____ Size ____ Alpha	Isotope ____ Size ____ Beta
1625	8	345	3	11178				
1650	7	467	10	13419				
1675	5	598	13	14340				
1700	6	847	5	14662				

☐ Gas Proportional detector count rate decreased ≤ 10% after 15 hour static test using 39" cable.

☑ Gas proportional detector count rate decreased ≤ 10% after 5 hour static test using 39" cable and alpha/beta counter.

Signature Charles Dish Date 3 May 07

FORM C4B 04/09/2003

• *Serving The Nuclear Industry Since 1962* •

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER CABRERA SERVICES ORDER NO. 269548 / 309434

Mfg. Ludlum Measurements, Inc. Model 2224 Serial No. 183048

Mfg. Ludlum Measurements, Inc. Model 43-68 Serial No. PR-161781

Cal. Date 18-Jan-07 Cal Due Date 18-Jan-08 Cal. Interval 1 Year Meterface 202-783

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 76 °F RH 20 % Alt 705.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☐ F/S Resp. ck ☑ Reset ck. ☑ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC
☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 1625 V Input Sens. Comments mV Det. Oper. 1625 V at Comments mV Threshold Dial Ratio = mV

☑ HV Readout (2 points) Ref./Inst. 500 / 505 V Ref./Inst. 2000 / 1995 V

COMMENTS:

Input Sensitivity: Alpha = 120mV
Beta = 3.5mV
Beta WIN = 50mV

Firmware: 390063
Overload checked but not set.
Calibrated using 5' C-cable.

4pi Efficiencies:
Th230: Source size = 19,800 dpm, Background = 0 cpm, Source count = 3,963 cpm, Efficiency ≈ 20.02%
Tc99: Source size = 33,200 dpm, Background = 256 cpm, Source count = 11,502 cpm, Efficiency ≈ 33.87%
Ni-63: Source size = 289,557 dpm, Background = 256 cpm, Source count = 21,442 cpm, Efficiency ≈ 7.32%
SrY90: Source size = 112,569 dpm, Background = 256 cpm, Source count = 41,465 cpm, Efficiency ≈ 36.61%

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
x1000	400k cpm	400	400
x1000	100k cpm	100	100
x100	40k cpm	400	400
x100	10k cpm	100	100
x10	4k cpm	400	400
x10	1k cpm	100	100
x1	400 cpm	400	400
x1	100 cpm	100	100

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout	400k cpm	39930(0)	39930(0)	Log Scale			
	40k cpm	3994	3994				
	4k cpm	399	399				
	400 cpm	40	40				
	40 cpm	4	4				

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques.
The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources: ☐ S-394 ☐ 1122 ☐ 781

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ 720 ☐ 734 ☐ 1616 ☐ Neutron Am-241 Be S/N T-304

☑ Alpha S/N Th230 s/n 121495 ☑ Beta S/N Tc99 s/n 5296 SrY90 s/n 5231 Ni-63 s/n 99Ni220401 7 ☐ Other

☑ m 500 S/N 81084 ☐ Oscilloscope S/N ☑ Multimeter S/N 78401030

Calibrated By: Sebaste Ceballos Date 18-Jan-07

Reviewed By: Richard Harris Date 19 Jan 07

This certificate shall not be reproduced except in full, without the written approval of Ludlum Measurements, Inc.
FORM C22A 06/02/2006

AC Inst. Only ☐ Passed Dielectric (Hi-Pot) and Continuity Test ☐ Failed:

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 43-68 Serial No. PR-161781 Order #. 269548 / 309434

Customer CABRERA SERVICES Alpha Input Sensitivity 120 mV

Counter 2224 Serial No. 183048 Beta Input Sensitivity 3.5 mV

Count Time 1Minute Beta Window 50 mV

Other Distance Source to Detector Surface

High Voltage	Background		Isotope Th230 Size 19,800 dpm		Isotope Tc99 Size 33,200 dpm		Isotope Ni-63 Size 289,557 dpm		Isotope Sr-Y90 Size 112,569 dpm	
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta
1550V	2	145	3,106	1,493	7	9,904	0	19,220	1	27,840
1575	1	169	3,539	1,524	11	10,888	3	19,873	1	33,998
1600	0	190	3,688	1,584	9	11,305	2	20,771	2	39,732
* 1625	0	256	3,963	1,582	14	11,502	2	21,442	29	41,465
1650	1	306	4,171	1,577	44	10,827	3	21,390	168	43,902
1675	2	321	4,379	1,428	206	9,774	2	21,338	773	41,616

☐ Gas Proportional detector count rate decreased ≤ 10% after 15 hour static test using 39" cable.

☑ Gas proportional detector count rate decreased ≤ 10% after 5 hour static test using 39" cable and alpha/beta counter.

Signature Sebastian Cabalos Date 18-Jan-07

FORM C4B-1 04/08/2005

• *Serving The Nuclear Industry Since 1962* •

MJW Technical Services
243 Root St.
Suite 100
Olean, New York 14760
Voice: (716) 372-5300
Fax: (716) 372-5307

Certificate Of Calibration

This Certificate will be accompanied by Calibration Charts or Readings where Applicable

Customer	Instrument
Customer Name: Cabrera Services Inc	Manufacturer: Ludlum Measurements, Inc.
Address: 473 Silver Lane East Hartford, CT 06118	Model: 2360 Serial Number: 184938 Detector Manufacturer: Ludlum Measurements, Inc.
Contact Name: Chuck M	Det. Model: 43-37 Serial Number: PR178371
Customer PO/ CC. Number: Work Order Number: 2007-185	Meterface: 202-855 Calibration Method: Electronic

Instrument Received: ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other (See Comments)

☑ Geotropism ☑ Meter Zero ☑ Mech. Ck. ☐ HV Readout ☑ Battery Check ☑ Reset

☑ Audio ☐ Window Status ☐ FS Response ☐ Linearity ☐ Background Subtract ☐ Alarm Set

Temperature: 71.3 F Humidity: 21 % Pressure: 716.3 mm Hg Altitude: 1451 ft

Instrument Calibration

Multiplier\Range	Calibration Point	Instrument Response	
		Before Calibration	After Calibration
X 1	100 cpm	100 cpm	100 cpm
X 1	400 cpm	400 cpm	400 cpm
X 10	1 Kcpm	1 Kcpm	1 Kcpm
X 10	4 Kcpm	4 Kcpm	4 Kcpm
X 100	10 Kcpm	10 Kcpm	10 Kcpm
X 100	40 Kcpm	40 Kcpm	40 Kcpm
X 1K	100 Kcpm	100 Kcpm	100 Kcpm
X 1K	400 Kcpm	400 Kcpm	400 Kcpm
Digital Readout	40 cpm	40 cpm	40 cpm
Digital Readout	400 cpm	399 cpm	399 cpm
Digital Readout	4 Kcpm	3.996 Kcpm	3.996 Kcpm
Digital Readout	40 Kcpm	39.958 Kcpm	39.958 Kcpm
Digital Readout	400 Kcpm	399.555 Kcpm	399.555 Kcpm

Reference Instruments and / or Sources			
Pulser: LUD500-2	220099		
Pu-239	C7639	Th-230	C7644
C-14	C7804	Sr-90	C7661
Tc-99	C7641		

Comments

Inst. Voltage: 1650 V
Alpha threshold: 100 mV
Beta threshold: 3.5 mV
Beta window: 40 mV

4pi efficiencies on contact with detector surface
C14 = 8.1%
Sr90 = 22.1%
Tc99 = 20%
Th230 = 17.2%

Statement of Certification

MJW Technical Sevices, Inc certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANS/NCSL Z540-1-1994 and ANSI N323. The Instrument listed above was inspected prior to shipment and it met all the manufacturer's published operating specifications. (MJW technical Services is not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated By: [signature] Reviewed By: Linda M. Lund Date 2/14/07

Calibration Date: 02/14/2007 Calibration Due: 02/14/2008