Pfizer Inc
700 Chesterfield Pkwy West
Chesterfield, MO 63017-1732

Global Research & Development

January 15, 2009

Ms. Patricia J. Pelke
United States Nuclear Regulatory Commission,
Region III Materials Licensing Branch
2443 Warrenville Road, Suite 210
Lisle, IL 60532-4352

Subject: License Amendment Request to Remove the Creve Coeur Site (License Number 24-32439-01)

Dear Ms. Pelke:

This letter is to request an amendment to radioactive materials license number 24-32439-01 authorizing unrestricted release of the Creve Coeur site for return to the landlord. The facility is located at 800 North Lindbergh Blvd., Creve Coeur, MO.

Licensed activities have ceased and the facility has undergone decommissioning. Decommissioning was conducted under the provisions of the Pfizer radioactive materials license and in accordance with a MARSSIM-based Decommissioning Work Plan. The enclosed Final Status Report provides conclusive evidence that the facility meets the criteria for unrestricted use specified in 10 CFR 20 Subpart E. Additionally, each final status measurement indicates that residual licensed material at the facility is less than the Pfizer ALARA goal of 5000 dpm/100cm^2 total activity, and 200 dpm/100cm^2 removable activity. Dose modeling indicates that the TEDE to an average member of the critical group is < 0.005 mrem/year (< 0.02% of the NRC release criterion of 25 mrem/yr) using the results of the survey unit with the highest average activity.

I have personally inspected the facility and verified that all licensed radioactive material, radioactive sources and all radioactive markings have been removed from the site.

Pfizer Inc
700 Chesterfield Pkwy West
Chesterfield, MO 63017-1732

Global Research & Development

I appreciate your time and efforts with this matter and look forward to hearing back from you. If you have any questions or concerns, please contact me at 636-247-2527.

Sincerely yours,

Kevin Sharkey

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Creve Coeur Site Decommissioning Final Status Report

Pfizer Global Research and Development
800 North Lindbergh Blvd.
Creve Coeur, MO 63167

NRC License Number 24-32439-01
Issued to Pharmacia Corporation
(Wholly Owned Subsidiary of Pfizer, Inc.)

January 5, 2009

Prepared by:
Chase Environmental Group, Inc.
109 Flint Road
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Prepared:	Ken Gavlik	Radiological Engineer	Date:	1/5/09
Technical Review:	Patrick McDermott	Certified Health Physicist	Date:	1/8/09
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APPENDICES

ACRONYMS

ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
$DCGL_{EMC}$	Derived Concentration Guideline Level – Elevated Measurement Comparison
$DCGL_W$	Derived Concentration Guideline Level – Wilcoxon Rank Sum
DWP	Decommissioning Work Plan
DQA	Data Quality Assessment
DQO	Data Quality Objective
DSV	Default Screening Value
FSS	Final Status Survey
GSF	Gross Square Feet
HSA	Historical Site Assessment
LBGR	Lower Bound of the Gray Region
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDC	Minimum Detectable Concentration
NRC	U.S. Nuclear Regulatory Commission
NIST	National Institute of Standards and Technology
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
RSO	Radiation Safety Officer
TEDE	Total Effective Dose Equivalent

1.0 Executive Summary

Pfizer Global Research and Development has decided to permanently cease licensed activities and decommission their leased St. Louis area satellite location at 800 North Lindbergh Blvd., Creve Coeur, MO 63167. Facilities include research laboratories, offices and vivarium space. The site is being decommissioned for unrestricted use and returned to the Owner, the Monsanto Company (Monsanto). Pfizer is requesting a license amendment to remove the site from radioactive materials license number 24-32439-01 issued to Pharmacia Corporation, a wholly owned subsidiary of Pfizer, inc. The site is currently licensed by both Monsanto and Pfizer. After removal of the site from the Pfizer license, Monsanto intends to continue to use the site for activities involving radioactive materials under the Monsanto license.

Radioactive materials used at the facility consisted of a variety of radionuclides for research. Primarily these included H-3, C-14, P-32, P-33 and I-125. Pfizer has conducted a historical site assessment and classified facility areas according to MARSSIM classifications. Based on an analysis of the default screening values, quantities used, physical forms, half-lives, and receipt and distribution records, H-3 and C-14 are the only nuclides of concern for decommissioning.

Pfizer was first authorized to use byproduct materials at the site under the current license on April 8, 2004.[1] Research activities involving radioactive materials ceased and all radioactive materials were shipped off-site in December 2008, prior to performing decommissioning activities discussed in this report. All radioactive waste generated as a result of remediation for ALARA purposes were packaged as radioactive waste and shipped off-site on December 22, 2008.

Pfizer procured Chase Environmental Group, Inc. (Chase) to perform decommissioning activities. Decommissioning was conducted under the provisions of the Pfizer radioactive materials license and in accordance with a project-specific Decommissioning Work Plan (DWP) and a Quality Assurance Project Plan (QAPP). On-site activities were performed from December 18 to 21, 2008.

The DWP was developed using the guidance provided in NUREG 1757, "Consolidated NMSS Decommissioning Guidance"; and NUREG 1575, "Multi-Agency Radiation Survey and Site Investigation Manual" (MARSSIM). It provided the approach, methods, and techniques for the radiological decommissioning of impacted areas of the facility. Final status surveys were designed to implement the protocols and guidance provided in MARSSIM to demonstrate compliance with the default screening values (DSV) specified in NUREG 1757, Appendix B or generated using the default scenarios and parameters of the DandD code v.2.1. These methods ensured technically defensible data were generated to aid in determining whether or not the facility meets the release criteria for unrestricted use specified in 10 CFR 20 Subpart E.

[1] Research activities conducted by Monsanto date back to the 1960's.

Pfizer established conservative ALARA goals based on a combination of Pfizer operational limits and the release criteria for equipment and materials specified in FC 83-23, "Guidelines for the Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Byproduct, Source, or Special Nuclear Material Licenses." Specifically, the following surface contamination limits were used for decommissioning activities:

- 5,000 dpm/100cm^2 total surface contamination (averaged over 1m^2)
- 15,000 dpm/100cm^2 maximum total surface contamination (limited to 100 cm^2)
- 200 dpm/100cm^2 removable surface contamination (each LSC channel)

Facility characterization surveys identified several locations on building structural surfaces with residual radioactivity above ALARA goals, but at a small fraction of the DSV. All surfaces were remediated to below ALARA goals for final status.

This report presents sufficient data to support the conclusion that the facility meets the NRC release criteria. Final status surveys demonstrate that building structural surfaces and systems included in the scope of this report are orders of magnitude below release criteria and are suitable for unrestricted release. All final status surface contamination measurements were less than the ALARA goals. Based on the Building Occupancy Scenario of NRC DandD dose modeling software Version 2.1, **the Total Effective Dose Equivalent (TEDE) to an average member of the critical group is < 0.005 mrem/year (< 0.02% of the release criterion of 25 mrem/yr)** using the results of the survey unit with the highest average activity.

Pfizer requests that the NRC release the site for unrestricted use and amend radioactive materials license number 24-32439-01 to remove the site as an area of authorized usage of radioactive materials.

2.0 Site Descriptions and History

2.1 Historical Site Assessment

Pfizer contracted Chase to perform a Historical Site Assessment (HSA) in October 2008. The purpose of the HSA was to determine the current status of the facility including potential, likely, or known sources of radioactive contamination by gathering data from various sources. This data includes physical characteristics and location of the site as well as information determined from personnel interviews and found in site operating records, including radiological surveys.

Records reviewed included: radioactive materials licenses, license applications, amendment requests, meeting minutes, radiological surveys, radionuclide receipt and distribution records, incident reports, facility renovation records, blueprints, plans and design specifications. Personnel interviews included radiation safety, maintenance,

operations, and facilities personnel. The records review only included records in Pfizer's files dating back to 2003 and did not include Monsanto records that include operations since the beginning of radioactive materials usage at the site. However, interviews included personnel with knowledge of historical operations conducted under the Monsanto licenses.

2.2 Ownership

The site is owned by Monsanto and leased to Pfizer.

2.3 Potential Contaminants

Potential contaminants were determined from license files, including survey and materials receipt records. **Error! Reference source not found.** lists the nuclides used at the facility. This list was compiled through review of radionuclide receipt and distribution records, radioactive waste records, audit and survey records, and interviews with facility personnel.

Table 2-1 Radionuclides Used

Nuclide	Half Life (years)	Dispersible Form?	Half Life >120 days?
H-3	12.3 y	YES	YES
C-14	5730 y	YES	YES
P-32	14.3 d	YES	NO
P-33	24.4 d	YES	NO
S-35	87.9 d	YES	NO
Ca-45	165 d	YES	YES
Cr-51	27.8 d	YES	NO
I-125	60.2 d	YES	NO

All short-lived nuclides ($t_{1/2}$ < 120 days) were eliminated from consideration as nuclides of concern based on calculations of the potential residual activity that could remain as a result of their usage.[2] After considering quantities of radionuclides used, the locations of use, and the impact of radioactive decay, the nuclides of concern are H-3 and C-14.

Sealed sources used at the site include those found in analytical instruments. These instruments, along with the sources, have been relocated to other Pfizer licensed facilities. There has never been any indication of a leaking sealed source at the site.

[2] For short-lived nuclides (including Ca-45), the decay-corrected activities of all receipts of each nuclide in each room were summed. The surface contamination level resulting from evenly spreading one percent of the summed activities over an area of one square meter were calculated for each room and compared to the DSVs. If the resulting surface contamination was less than the DSV, then the nuclide was eliminated from consideration as a nuclide of concern. It should be noted that these nuclides would be detected and controlled at a fraction of their DSV using the survey protocols and ALARA goals designed for C-14.

2.4 License History

The facility operated under Broad Scope Type B license number 24-32439-01, Amendment 3, issued July 5, 2005 with an expiration date of April 30, 2014. Amendment 3 possession limits and authorized uses are summarized in Table 2-2. Radioactive materials license files were reviewed to identify historical operations, nuclides used and quantities used. Essentially, licensed operations for research and development did not change over the history of the license. In fact, based on interviews, research operations did not change much over the history of operations at the site (dating back to the 1960s). Radioactive materials receipt and use records offered the most insight regarding potential nuclides of concern and quantities used.

Table 2-2 Current Possession Limits and Uses[3]

Isotope	Physical Form	Possession Limit (mCi)	Authorized Usage
Atomic # 1-83	Any	100 mCi per nuclide, total not to exceed 5 Ci	R&D as defined 10CFR30.4 including animal studies
Hydrogen-3	Any	25 Ci	R&D as defined 10CFR30.4 including animal studies
Carbon-14	Any	5 Ci	R&D as defined 10CFR30.4 including animal studies
P-32	Any	3 Ci	R&D as defined 10CFR30.4 including animal studies
P-33	Any	2 Ci	R&D as defined 10CFR30.4 including animal studies
S-35	Any	5 Ci	R&D as defined 10CFR30.4 including animal studies
I-125	Any	500 mCi	R&D as defined 10CFR30.4 including animal studies
Ni-63	Foils or plated sources	no single source to exceed 15 mCi, 30 sources total	Gas chromatograph sample analysis
Cs-137	Sealed Source	2 sources not to exceed 2100 Ci each	Gammacell 40 irradiator for biological samples and small animals

Amendments were reviewed to evaluate how operations changed and the relevance to decommissioning. Amendments are described in Table 2-3.

[3] Possession limits are for all three St. Louis area Pfizer sites and are not specific to the Creve Coeur site. For example, the Gammacell is not located at the Creve Coeur site.

Table 2-3 License Amendment History

Amendment	Date	Description
3	7/5/2005	Changed name to Pharmacia Corporation, a wholly owned subsidiary of Pfizer, Inc.
2	4/1/2005	Changed name to Pharmacia LLC Changed wording on reporting of leaking sources
1	7/12/2004	Changed RSO
Original	4/8/2004	

2.5 Operational and Closeout Radiological Surveys

During the HSA, the radiological status of the facility was determined by reviewing historical survey records and interviewing Radiation Safety personnel. During operation, facility surfaces were maintained <200 dpm/100cm^2 removable surface contamination. The facility conducted routine periodic surveys, which were performed by researchers and Radiation Safety personnel. Laboratory closeout procedures were used when researchers completed experiments involving radioactive materials. In addition to removable contamination measurements, laboratory closeout procedures involved beta-gamma scan surveys using a pancake GM detector, low energy gamma scans using a low energy gamma scintillator, and gamma dose rate measurements with a micro-R meter.

2.6 Previous Decommissioning Activities

There have been no decommissioning activities conducted at the site.

3.0 Current/Future Use

The site will be returned to the owner (Monsanto) after release from the Pfizer license. The site is currently included as an area of radioactive materials usage under the Monsanto license. Monsanto has indicated that they plan to continue radioactive research in impacted areas after release from the Pfizer license.

4.0 Impacted Building Descriptions

Impacted buildings include the T Building and the Z Building. The T Building is a four story building with penthouse. Each elevation consists of laboratory rooms and associated offices. Pfizer occupies the 1st, 2nd and 3rd floors. Monsanto occupies the 4th floor. The Z building is a single story vivarium facility with animal holding rooms, procedure rooms and other support areas.

Laboratory areas are maintained at a negative pressure relative to office and common areas. Fume hood ventilation in the T Building is accomplished by fans located in the penthouse via fume hoods and room exhausts. Each fan serves a single laboratory room. The single fume hood in the Z Building is serviced by a dedicated fan located in the penthouse.

A common central vacuum system is shared by the T and the Z Buildings. The vacuum system pumps and accumulators are located in the basement of the T Building. Researchers were required to use collection traps between radioactive materials and vacuum nozzles to prevent contamination of the central vacuum system.

Laboratory drains are discharged into the sanitary sewer system without processing or storage. Sewer disposal of licensed material was not authorized in laboratory sinks. Liquid radioactive wastes were collected and disposed at a different location.

5.0 Facility Release Criteria

Facility release criteria for unrestricted use are that of NRC 10CFR20 Subpart E. Specifically, the facility was surveyed in accordance with the guidance contained in MARSSIM to demonstrate compliance with the criteria of 10CFR20.1402, "Radiological Criteria for Unrestricted Use." The criteria is that residual radioactivity results in a TEDE to an average member of the critical group that does not exceed 25 mrem per year, and that the residual radioactivity has been reduced to levels that are as low as reasonably achievable (ALARA).

6.0 Nuclides of Concern

After considering results of the HSA and scoping surveys, quantities and locations of nuclides, and the impact of radioactive decay, the nuclides of concern are C-14 and H-3.

7.0 Derived Concentration Guideline Levels

The NRC has published default screening values in NUREG 1757 for commonly used radionuclides. The isotopes of concern screening values for surfaces under default conditions (generic screening levels) from NUREG 1757, Volume 1, Appendix B are provided in Table 7-1.

Table 7-1 Default Screening Values for Nuclides of Concern

Isotope	Half-life	Radiation Type	Default Screening Value ($dpm/100cm^2$)
H-3	12.3 years	Beta	1.2E8
C-14	5730 years	Beta	3.7E6

The default screening values (DSV) are the basis for developing the derived concentration guideline levels (DCGL's) for the project. The DCGL is the radionuclide specific surface activity concentration that could result in a dose equal to the release criterion. $DCGL_W$ is the concentration limit if the residual activity is essentially evenly distributed over a large area. For this project, $DCGL_W$ is equal to the DSV. In the case of non-uniform contamination, MARSSIM allows for evaluation of higher levels of activity over small areas using the $DCGL_{EMC}$. Due to the radiological cleanliness of the facility and Pfizer's conservative ALARA goal, small areas of elevated activity above the

$DCGL_W$ are not considered. Additionally, due to Pfizer's conservative ALARA goal, application of the unity rule for multiple radionuclides is not required to demonstrate compliance with the release criteria. An important assumption of the dose model is that removable contamination is <10% of total contamination. Historical survey results as well as characterization, final status and QA survey results confirm that removable contamination levels are very low and meet this assumption. H-3 cannot be accurately detected directly by field instrumentation due to its low energy. Therefore, H-3 contamination was evaluated by removable contamination measurements only.

8.0 ALARA Goals

Pfizer has established conservative ALARA goals based on operational removable contamination limits and the release criteria specified in FC 83-23, "Guidelines for the Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Byproduct, Source, or Special Nuclear Material Licenses." Specifically, the following surface contamination limits were used for decommissioning activities:

- 5,000 dpm/100cm^2 total surface contamination (averaged over 1m^2)
- 15,000 dpm/100cm^2 maximum total surface contamination (limited to 100 cm^2)
- 200 dpm/100cm^2 removable surface contamination (per LSC channel)

Because of the conservatism of the ALARA goals, these criteria were applied to gross beta measurements and the unity rule was not applied. The number of measurements required by MARSSIM to demonstrate compliance with the release criteria was calculated using the $DCGL_W$ and not the ALARA goal.

9.0 ALARA Analysis

Due to the extremely low doses associated with residual radioactivity at the facility, a quantitative ALARA analysis was not required. Default screening values were used to establish DCGLs. Furthermore, Pfizer routinely maintained all laboratory areas of the facility at levels less than 200 dpm/100cm^2 removable activity.

NUREG 1757, Volume 2, Appendix N states in part: "For ALARA during decommissioning, all licensees should use typical good-practice efforts such as floor and wall washing, removal of readily removable radioactivity in buildings or in soil areas, and other good housekeeping practices. In addition, licensees should provide a description in the FSSR [final status survey report] of how these practices were employed to achieve the final activity levels. In light of the conservatism in the building surface and surface soil generic screening levels developed by NRC, NRC staff presumes, absent information to the contrary, that licensee who remediate building surfaces or soil to the generic screening levels do not need to provide analyses to demonstrate that these screening levels are ALARA. In addition, if residual radioactivity cannot be detected, it

may be assumed that it has been reduced to levels that are ALARA. Therefore, the licensee may not need to conduct an explicit analysis to meet the ALARA requirement."

10.0 Project Management and Organization

Due to the radiological cleanliness of the facility and the relative simplicity of the final status survey design, a complex management organization was not required. Decommissioning operations were conducted under the same Pfizer management structure as current licensed activities. Chase Environmental Group, Inc. (Chase), a licensed D&D services provider, was contracted to perform all decommissioning activities. Chase conducted activities under the direction of the Pfizer Radiation Safety Officer. A Pfizer Project Manager was assigned to coordinate activities between Chase and Pfizer management. Decommissioning tasks were performed according to written plans and procedures approved by Pfizer management to ensure they provided adequate worker protection and complied with the facility radioactive materials license.

11.0 Training

Pfizer provided all contractors with radiation worker training required by the facility radioactive materials license. Chase provided training for D&D-specific programs, plans and procedures. Individuals performing D&D tasks were trained on all project procedures and plans.

12.0 Radiation Safety and Health Program

Radiological work was performed according to the Pfizer radioactive materials license Radiation Safety Program under the management and supervision of the facility Radiation Safety Officer.

13.0 Environmental Monitoring Program

Due to the simplicity of this project, a project-specific environmental monitoring program was not required.

14.0 Radioactive Waste Management

All radioactive wastes generated during decommissioning were packaged in DOT-approved shipping containers and shipped to the Pfizer Chesterfield site.

15.0 Quality Assurance Program

Chase operated under a project-specific Quality Assurance Project Plan (QAPP) utilizing the guidelines of MARSSIM Section 9. The QAPP was developed and organized with emphasis given to maximizing worker safety, minimizing/eliminating off-site releases and minimizing overall project costs.

16.0 Survey Instrumentation

16.1 Instrument Calibration

Laboratory and portable field instruments were calibrated within the previous year with National Institute of Standards and Technology (NIST) traceable sources of the nuclides of concern. Portable instrument calibration records are included as Appendix C. Liquid scintillation counter records are maintained in Pfizer license files.

16.2 Functional Checks

Functional checks were performed at least daily when in use. The background, source check, and field measurement count times for radiation detection instrumentation were specified by procedure to ensure measurements were statistically valid. Background readings were taken as part of the daily instrument check and compared with the acceptance range for instrument and site conditions.

16.3 Determination of Counting Times and Minimum Detectable Concentrations

Minimum counting times for background determinations and measurement of total and removable contamination were chosen to provide a minimum detectable concentration (MDC) that met the DQOs. MARSSIM equations relative to building surfaces have been modified to convert to units of dpm/100cm^2. Count times and scanning rates are determined using the following equations:

16.3.1 Static Counting

Static counting Minimum Detectable Concentration at a 95% confidence level is calculated using the following equation, which is an expansion of NUREG 1507, "Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions", Table 3.1 (Strom & Stansbury, 1992):

Equation 1

$$MDC_{static} = \frac{3 + 3.29\sqrt{B_r \cdot t_s \cdot (1 + \frac{t_s}{t_b})}}{t_s \cdot E_{tot} \cdot \frac{A}{100cm^2}}$$

Where:

MDC_{static} = minimum detectable concentration (dpm/100cm^2)
B_r = background count rate (counts per minute)
t_b = background count time (minutes)
t_s = sample count time (minutes)
E_{tot} = total detector efficiency for radionuclide emission of interest (cpm/dpm)
A = detector probe area (cm^2)

A typical static MDC calculation for the Ludlum Model 43-68 gas flow proportional detector is shown below:

$$MDC_{STATIC} = \frac{3 + 3.29\sqrt{(500)(0.1)\left(1 + \frac{0.1}{1}\right)}}{(0.1)(0.13)\frac{126}{100}} = 1673\,\text{dpm}/100\text{cm}^2$$

16.3.2 Ratemeter Scanning

Scanning Minimum Detectable Concentration at a 95% confidence level is calculated using the following equation, which is a combination of MARSSIM equations 6-8, 6-9, and 6-10:

Equation 2

$$MDC_{scan} = \frac{d'\sqrt{b_i}\left(\frac{60}{i}\right)}{\sqrt{p} \cdot E_{tot} \cdot \frac{A}{100cm^2}}$$

Where:

MDC_{scan} = minimum detectable concentration (dpm/100 cm^2)
d' = desired performance variable (1.38)
b_i = background counts during the residence interval (counts)
i = residence interval (seconds)
p = surveyor efficiency (0.5)
E_{tot} = total detector efficiency for radionuclide emission of interest (cpm/dpm)
A = detector probe area (cm^2)

A typical MDC_{SCAN} calculation for the Ludlum 43-37 gas flow proportional detector is shown below:

$$\text{i} = 13.3\,\text{cm} \cdot \frac{\text{inch}}{2.54\,\text{cm}} \cdot \frac{\text{sec}}{80\,\text{inch}} \cdot = 0.065\,\text{sec}$$

$$\text{b}_\text{i} = 0.065\,\text{sec} \cdot \frac{1000\,\text{counts}}{\text{minute}} \cdot \frac{\text{minute}}{60\,\text{sec}} = 1.08\,\text{counts}$$

$$MDC_{SCAN} = \frac{1.38\sqrt{1.08}\left(\frac{60}{0.065}\right)}{\left(\sqrt{0.5}\right)(0.13)\left(\frac{582}{100}\right)} = 2474\ \text{dpm}/100\text{cm}^2$$

16.3.3 Smear Counting

Smear counting Minimum Detectable Concentration at a 95% confidence level is calculated using the following equation, which is NUREG 1507, "Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions", Table 3.1 (Strom & Stansbury, 1992):

Equation 3

$$MDC_{smear} = \frac{3 + 3.29\sqrt{B_r \cdot t_s \cdot (1 + \frac{t_s}{t_b})}}{t_s \cdot E}$$

Where:

MDC_{smear} = minimum detectable concentration level (dpm/smear)
B_r = background count rate (counts per minute)
t_b = background count time (minutes)
t_s = sample count time (minutes)
E = instrument efficiency for radionuclide emission of interest (cpm/dpm)

Typical MDC calculations for H-3 and C-14 are shown below.

$$^{3}\text{H MDC}_{\text{SMEAR}} = \frac{3 + 3.29\sqrt{(12)(1)\left(1 + \frac{1}{1}\right)}}{(1)(0.40)} = 48\ \text{dpm}$$

$$^{14}\text{C MDC}_{\text{SMEAR}} = \frac{3 + 3.29\sqrt{(13)(1)\left(1 + \frac{1}{1}\right)}}{(1)(0.80)} = 25\ \text{dpm}$$

16.4 Instrumentation Specifications

The instrumentation used for facility decommissioning surveys is summarized in the following tables. Table 16-1 lists the standard features of each instrument such as probe size and efficiency. Table 16-2 lists the typical operational parameters such as scan rate, count time, and the associated Minimum Detectable Concentrations (MDC).

Table 16-1 Instrumentation Specifications

Detector Model	Detector Type	Detector Width	Detector Area	Meter Model	Window Thickness	Typical 4π Efficiency
Ludlum 43-68	Gas Flow Proportional	8.8 cm	126 cm^2	Ludlum 2241	0.8 mg/cm^2	13 % (C-14)
Ludlum 43-37 Floor Monitor	Gas Flow Proportional	13.3 cm	582 cm^2	Ludlum 2241	0.8 mg/cm^2	13 % (C-14)
Packard TriCarb	Liquid Scintillation	N/A	N/A	N/A	N/A	40% (H-3) 80% (C-14)

Table 16-2 Typical Instrument Operating Parameters and Sensitivities

Measurement Type	Detector Model	Max. Scan Rate[4]	Count Time	Background (cpm)	MDC ($dpm/100cm^2$)
Surface Scans	Ludlum 43-68	20 in./sec.	N/A	500	4,958 (C-14)
Surface Scans	Ludlum 43-37	80 in./sec.	N/A	1000	2,474 (C-14)
Total Surface Activity	Ludlum 43-68	N/A	6 sec.	500 (60 sec.)	1,673 (C-14)
Total Surface Activity	Ludlum 43-37	N/A	60 sec.	1000 (60 sec.)	198 (C-14)
Removable Activity	Packard TriCarb	N/A	60 sec.	12 (H-3) 13 (C-14)	48 (H-3) 25 (C-14)

16.5 Efficiency Determination

The ALARA goals are conservatively based on FC 83-23 criteria in which activities are determined using 4π instrument efficiency. MARSSIM protocols for building structures use ISO-7503-1 methodology that takes into account the texture of the surface and the 2π detector efficiency. Under MARSSIM, the default surface efficiency for beta emitters with maximum energies less than 400 KeV is conservatively set at 0.25, resulting in a total efficiency of approximately one half of the 4π efficiency. To reconcile this incongruity and to aid in data management, the 4π calibration efficiency was used to determine field measurement activities. However the calculated dose to demonstrate compliance with the facility release criteria for each survey unit was doubled to correct for the ISO 7503-1 surface efficiency. This methodology was chosen because:

[4] Maximum scan rates were based on achieving MDC objectives. Actual scan rates were much slower.

- Application of the ISO-7503-1 surface efficiency would significantly impact final status survey time and data quality while providing no credible benefit. The impact would be in the form of slower scanning speeds, longer counting times and magnification of the variability of the natural background radioactivity present in some building materials.
- Structures being surveyed are primarily sheet metal, plastic, glass, vinyl, sheetrock and finished concrete that have smooth surfaces similar to the electroplated calibration source used to determine the 4π instrument efficiency.
- The MARSSIM default surface efficiency is conservatively based on structural surfaces usually encountered in decommissioning projects such as scabbled concrete and not on the structural surfaces usually encountered in a pristine laboratory environment.
- FC 83-23 criteria are not dose-based resulting in extreme conservatism for low energy beta emitters. For example, Co-60 would result in a modeled dose of 17.6 mrem/yr at the FC 83-23 criterion of 5,000 dpm/100 cm^2 (this is equivalent to 2.6E6 dpm/100cm^2 C-14).
- The higher efficiencies apply only to the self-imposed ALARA goals that are orders of magnitude less than the DCGL. All final status dose results presented in this report are corrected to account for the ISO-7503-1 methodology.

17.0 Data Quality Objectives (DQO)

- Static measurements were taken to achieve an MDC_{static} of less than the ALARA goal of 5,000 dpm/100cm^2.
- Scanning was conducted at a rate to achieve an MDC_{scan} of less than 5,000 dpm/100cm^2.
- Removable contamination measurements were counted to achieve an MDC_{smear} of less than 200 dpm/100cm^2.
- Individual measurements were made to a 95% confidence interval.
- Decision error probability rates were set at 0.05 for both α and β.
- The null hypothesis (H_0) and alternate null hypothesis (H_A) are that of NUREG 1505 scenario A:
  H_0 is that the survey unit does not meet the release criteria
  H_A is that the survey unit meets the release criteria
- Quality assurance surveys were conducted at a rate of 5%.
- Characterization and remedial action support surveys were conducted under the same quality assurance criteria as final status surveys such that the data may be used as final status survey data to the maximum extent possible.

Instrument operating parameters and methodologies were established to meet the DQOs. Additionally, investigation levels were developed to verify the assumptions for classifying survey units. If these investigation levels were exceeded, an investigation was performed to verify the initial assumptions behind the classification and determine the

appropriate resolution. The established investigation levels are summarized in Table 17-1.

Table 17-1 Survey Investigation Levels

Survey Unit Classification	Flag Direct Measurement or Sample Result When:	Flag Scanning Measurement Result When:	Flag Removable Measurement Result When:
All	>5,000 dpm/100cm^2	>5,000 dpm/100cm^2	> 200 gross dpm/100cm^2 in any channel

18.0 Area Classifications

Based on the results of the historical site assessment and previous survey results, facility areas were classified as impacted or non-impacted.

18.1 Non-Impacted Area

Non-impacted areas are areas without residual radioactivity from licensed activities and were not surveyed during final status surveys. The following areas were classified as non-impacted:

- Structural surfaces above a two meter height
- Building exterior surfaces (except selected roof surfaces)
- Surface and subsurface soils of outside grounds
- Internal surfaces of positive pressure systems (air, nitrogen, gas, etc.)

Based on historical operations, a potential existed for residual contamination from spills or tracking on surfaces less than two meters in height. Thorough surveys of building entrances/exits and ventilation exhausts were conducted during characterization to provide adequate assurance that any residual contamination was contained within the building structure. Additionally, all building exhausts were surveyed.

18.2 Impacted Areas

Impacted areas are those areas that have potential residual radioactivity from licensed activities. Impacted areas are subdivided into Class 1, Class 2 or Class 3 areas. Class 1 areas have the greatest potential for contamination and therefore receive the highest degree of survey effort for the final status survey using a graded approach, followed by Class 2, and then by Class 3. Impacted sub-classifications are defined as follows:

18.2.1 Class 1 Area

Areas with the highest potential for contamination, and meet the following criteria: (1) impacted; (2) potential for delivering a dose above the release criterion; (3) potential for small areas of elevated activity; and (4) insufficient evidence to support classification as Class 2 or Class 3.

18.2.2 Class 2 Area

Areas that meet the following criteria: (1) impacted; (2) low potential for delivering a dose above the release criterion; and (3) little or no potential for small areas of elevated activity.

18.2.3 Class 3 Area

Areas that meet the following criteria: (1) impacted; (2) little or no potential for delivering a dose above the release criterion; and (3) little or no potential for small areas of elevated activity.

The radiological status of the facility was determined by reviewing historical survey records, interviewing Radiation Safety personnel and performing scoping surveys. The facility was maintained < 200 dpm/100cm^2 removable surface contamination. Direct measurements taken during routine surveys and closeout procedures demonstrate that the facility was maintained at a very small fraction of the default screening values. Extensive survey data were available to conclude that the facility met the NRC release criteria and that Class 3 was appropriate for all impacted areas.

18.3 Survey Units

A survey unit is a geographical area of specified size and shape for which a separate decision is made whether or not that area meets the release criteria. A survey unit is normally a portion of a building or site that is surveyed, evaluated, and released as a single unit. For the purposes of this project, areas of similar construction and composition were grouped together as survey units and tested individually against the DCGLs and the null hypothesis to show compliance with the release criteria. Survey units were homogeneous in construction, contamination potential, and contamination distribution.

The number of discrete sampling locations needed to determine if a uniform level of residual radioactivity exists within a survey unit does not depend on the survey unit size. However, the sampling density should reflect the potential for small elevated areas of residual radioactivity. Survey units were sized according to the potential for small elevated areas of residual radioactivity. Recommended maximum survey unit sizes for building structures, based on floor area, is Class 1: up to 100 m^2, Class 2: 100 m^2 to 1000 m^2 and Class 3: no limit.

Survey Unit Numbering Protocol

Each survey unit was assigned a unique number consisting of the building number followed by a dash and a four digit identifier. The four digit identifier consists of one digit for the elevation, one digit for the classification and two digits as a numerical identifier in the event the first 2 digits are the same for two or more survey units. Elevation codes are: 1=1st Floor, 2=2nd Floor, etc.

Example:
T-2301 is T Building, second floor, class 3

Structural surfaces survey unit classifications and designations are listed in tabular format in Table 18-1.

Table 18-1 Building Structural Survey Units

Building	Survey Unit Number	Elevation	Class
T	1301	First (West)	3
	1302	First (East)	3
	2301	Second (West)	3
	2302	Second (East)	3
	3301	Third (West)	3
	3302	Third (East)	3
	5301	Fifth (Penthouse)	3
Z	1301	First	3

Building systems survey units were arranged by building and system type. There are three types of systems – ventilation, vacuum and drain. Each system survey unit encompasses all of a certain type within a particular building (i.e., all drains in Building Z are grouped into survey unit Z-DR01 and all vacuum system components in Building T are grouped into survey unit T-VA01). The building system survey units are presented in Table 18-2.

Table 18-2 Building Systems Survey Units

Building	Systems Survey Unit		
	Drain	Vacuum	Ventilation
T	T-DR01	T-VA01	T-VE01
Z	Z-DR01	Z-VA01	Z-VE01

19.0 Characterization Surveys

The survey protocol for building surfaces consisted of performing the scanning portion of the final status survey protocol, with judgmental smears and static measurements on the highest probability areas for residual radioactivity. Judgmental static measurements and smears were also taken on vertical surfaces as part of the Class 3 final status survey protocols described in section 21.3.5.

The purpose of scanning was to identify locations of elevated activity. The minimum scan percentages are presented in section 21.2. Scanning was performed by moving the probe over surfaces at a distance of approximately one centimeter and at a rate less than the maximum allowable scan rate necessary to achieve DQOs. Where elevated activity

was identified, the surveyor stopped and re-scanned the suspect area at a slower rate to determine if the elevated activity was sustained. Where a sustained increase in the audible response was identified, a static measurement and smear were taken at the location of highest activity and the boundary of the elevated area was marked to aid in locating the area for remedial actions. Each location of elevated activity was remediated as discussed in section 20.1. Based on contamination potential, at least ten locations in each survey unit were judgmentally selected to perform a static measurement and removable contamination measurement.

The survey protocol for building system surveys consisted of performing removable contamination measurements of internal surfaces of ventilation, vacuum and drain systems. The percentage of systems surveyed was consistent with the final status survey protocols contained in this report.

If the initial characterization survey results indicated that contamination was not present in excess of the ALARA goals, then data from the survey was used as part of the final status survey. For areas that were partially contaminated, the characterization survey data was used as part of the final status survey provided that 1) the data used was only from areas with contamination levels below the ALARA goals, and 2) decontamination work was controlled such that areas could not have become cross-contaminated.

20.0 Remediation

20.1 Remediation Activities

Remediation methods included simple decontamination (i.e. wet wiping with a mild detergent) and removal of contaminated material. All remediation activities were authorized by the Pfizer RSO and conducted to control the spread of contamination and to maintain personnel exposures ALARA. Remediation performed on structural surfaces is summarized in Table 20-1. No remediation of systems was required.

Table 20-1 Remediated Surfaces and Structures

Survey Unit	Location/ Size (ft^2)	Maximum Activity ($dpm/100cm^2$)		Remediation Method	Post-Remediation Maximum Activity ($dpm/100cm^2$)	
		Total	Removable (cpm)		Total	Removable (cpm)
T-1301	Room 101W Fumehood (4)	46,435	37 – ^3H 13 – ^{14}C	Removed Hood Work Surface and Disposed	N/A	N/A
T-2301	Room 208W Benchtop (0.1)	30,238	23 – ^3H 17 – ^{14}C	Wet Wiped, Scrubbed and Scoured	< MDC	26 – ^3H 19 – ^{14}C
T-2301	Room 208W Benchtop (0.25)	8,520	24 – ^3H 17 – ^{14}C	Wet Wiped, Scrubbed and Scoured	< MDC	23 – ^3H 16 – ^{14}C
T-2301	Room 201E Fumehood (0.50)	25,174	37 – ^3H 20 – ^{14}C	Wet Wiped, Scrubbed and Scoured	<MDC	17 – ^3H 20 – ^{14}C
T-2301	Room 201E Benchtop/ Casework (4)	28,502	42 – ^3H 19 – ^{14}C	Wet Wiped, Scrubbed Scoured and Sanded	<MDC	15 – ^3H 14 – ^{14}C
T-2301	Room 201E Benchtop (0.25)	39,136	33 – ^3H 132 – ^{14}C	Wet Wiped, Scrubbed and Scoured	<MDC	34 – ^3H 21 – ^{14}C
T-2301	Room 201E Floor (3.5)	46,074	6 – ^3H 36 – ^{14}C	Removed Six Floor Tiles	<MDC[5]	28 – ^3H 13 – ^{14}C
T-2302	Room 220E Fumehood (0.1)	4,980	19 – ^3H 14 – ^{14}C	Wet Wiped, Scrubbed and Scoured	<MDC	30 – ^3H 14 – ^{14}C
T-2302	Room 217E Fumehood (1)	2,065	25 – ^3H 15 – ^{14}C	Wet Wiped, Scrubbed and Scoured	<MDC	37 – ^3H 14 – ^{14}C

20.2 Remedial Action Surveys

Remediation was conducted to control the spread of contamination and keep personnel exposures ALARA. Remedial action surveys were conducted in support of remediation activities to help determine when an area was ready for a final status survey and to provide updated estimates for final status survey planning. Remedial action surveys served to monitor the effectiveness of decontamination efforts and to ensure that surrounding areas were not cross-contaminated from remediation actions.

[5] Post remediation surveys taken on the floor surface after removal of floor tile.

Remedial action surveys consist of scan surveys, direct measurements and removable contamination measurements. These were conducted following remediation activities to establish the success or failure of decontamination efforts. Results of the survey were the decision basis for continued remediation or conduct of final status surveys. Remedial action surveys were designed to meet the objectives of the final status surveys and, to the extent allowed by MARSSIM, the results of the remedial action surveys were used to supplement the final status survey.

21.0 Design and Performance of Final Status Surveys

Final status surveys were performed using the Data Quality Objective (DQO) process to demonstrate that residual radioactivity in each survey unit satisfied the predetermined criteria for release for unrestricted use. Final status surveys were conducted by performing the appropriate combination of scan surveys, total activity measurements and removable activity measurements as discussed further in this section. All final status surveys were performed according to survey package instructions. Survey data were documented on survey maps and/or associated data information sheets.

21.1 Background Determination

The use of reference background areas or paired background comparisons was not necessary. Material and ambient background values were not significant in comparison to the DCGLs or ALARA goals. For direct measurements, an ambient background was determined for each survey, was subtracted from gross measurements, and was used to calculate the actual survey MDCs and associated count errors. Material-specific background determinations were not performed. Background was not subtracted from removable activity measurements and all results are reported in gross dpm/100cm^2.

21.2 Surface Scans

Scanning was used to identify locations within the survey unit that exceed the investigation level. Table 21-1 summarizes the minimum scan percentage of accessible building structural surfaces based on classification.

Table 21-1 Scan Survey Coverage by Classification

Structure	Class 3
Floors	20%
Fume Hoods	10%
Other Structures	10%

For surfaces that received less than 100% scan survey, the surfaces scanned were those with the highest potential to contain residual radioactivity at the discretion of the

surveyor. The percentage of survey area scanned was, in some cases, increased based on suspected or actual elevated activity. If elevated activity was identified in excess of the ALARA goals, an evaluation was made regarding the decision to upgrade an area. If the contamination was confined to a single room, then that room received additional scans (100%). No survey results indicated activity above the DCGL. Floor areas near building entrances and exits received a 100% scan survey regardless of the area classification.

If elevated activity was detected during the scan surveys, then the location was marked and total and removable surface activity measurements were taken to quantify the activity. However, these total surface activity measurements were in addition to the static measurements required for the Sign test.

21.3 Total Surface Activity Measurements

Direct surveys (static measurements) for total surface activity were taken on building surfaces in impacted areas utilizing instrumentation of the best geometry based on the surface at the survey location. Additionally, locations of elevated activity identified and marked during the scan survey received direct survey measurements. Static measurements were taken in impacted areas at each identified sample location. Scaler count times were determined to achieve the detection sensitivities stated in the DQOs. Field measurements were converted to activity concentrations using the following equation:

Equation 2

$$\text{Activity (dpm/100cm}^2) = \frac{cpm_{sample} - cpm_{background}}{E_{total} \cdot \frac{A}{100cm^2}}$$

21.3.1 Determining the Number of Samples

The minimum number of samples required for the Sign Test was calculated using equations in Section 5 of MARSSIM. A conservative estimate of the standard deviation of total surface activity measurements (2500 dpm/100cm^2) was used. The LBGR was set at one half of the DCGL. The calculations performed to determine the required number of samples are provided below.

21.3.2 Determination of the Relative Shift

The number of required samples depends on the ratio involving the activity level to be measured relative to the variability in the concentration. The ratio to be used is called the Relative Shift, Δ/σ_S, and is defined in MARSSIM as:

Equation 3

$$\Delta / \sigma_S = \frac{DCGL - LBGR}{\sigma_S}$$

Where:

DCGL = derived concentration guideline level (dpm/100cm^2)
LBGR = concentration at the lower bound of the gray region. The LBGR is the average concentration to which the survey unit should be cleaned in order to have an acceptable probability of passing the test (dpm/100cm^2)
σ_S = an estimate of the standard deviation of the residual radioactivity in the survey unit (dpm/100cm^2)

The actual calculation is provided below:

$$\Delta / \sigma_S = \frac{3.7E6 - 1.85E6}{2500} = 740$$

Since MARRSIM Table 5.5 does not include relative shifts above 3 and the number of samples required decreases with an increasing relative shift, the relative shift was conservatively set at 3.

21.3.3 Determination of Acceptable Decision Errors

A decision error is the probability of making an error in the decision on a survey unit by passing a unit that should fail (α decision error) or failing a unit that should pass (β decision error). MARSSIM uses the terminology α and β decision errors; this is the same as the more common terminology of Type I and Type II errors, respectively. The decision errors are 0.05 for Type I errors and 0.05 for Type II errors.

21.3.4 Determination of Number of Data Points (Sign Test)

The number of direct measurements for a particular survey unit, employing the Sign Test, is determined from MARSSIM Table 5.5, which is based on the following equation (MARSSIM equation 5-2):

Equation 4

$$N = \frac{\left(Z_{1-\alpha} + Z_{1-\beta}\right)^2}{4\left(SignP - 0.5\right)^2}$$

Where:

N = number of samples needed in the survey unit
$Z_{1-\alpha}$ = percentile represented by the decision error α
$Z_{1-\beta}$ = percentile represented by the decision error β
SignP = estimated probability that a random measurement will be less than the DCGL when the survey unit median is actually at the LBGR
Note: SignP is determined from MARSSIM Table 5.4

MARSSIM recommends increasing the calculated number of measurements by 20% to ensure sufficient power of the statistical tests and to allow for possible data losses. MARSSIM Table 5.5 values include an increase of 20% of the calculated value. The approach for this project was to predetermine a number of samples to be applied to all survey units. This approach provides sufficient power for the statistical test while streamlining the survey planning process. The following calculations were made to determine this number:

$$N = \frac{(1.645 + 1.645)^2}{4(0.998650 - 0.5)^2} = 11$$

$Z_{1-\alpha}$ and $Z_{1-\beta}$ are equal to 1.645 using the error rate of 0.05 from MARSSIM Table 5.2. SignP is equal to 0.998650 from MARSSIM Table 5.4. Adding an additional 20% to account for data losses resulted in a value of 14.

Therefore, the determined number of samples per survey unit for the final status surveys for planning purposes was **14**.

21.3.5 Determination of Sample Locations

Class 3 survey locations are determined from computer selected randomly generated x and y coordinates. In laboratory areas, permanent counter tops and other horizontal surfaces that block floor surfaces were included as a replacement to the blocked floor surface. Likewise, fixed cabinetry faces and other permanent equipment were used to replace blocked wall surfaces. Internal surfaces of permanent furnishings (i.e., drawer or cabinetry interior surfaces) were not included in the systematic measurement location placement. However, these surfaces were included in the scan surveys. Additional total surface activity measurements were collected at each area of elevated activity identified during the scan surveys.

21.3.5.1 Determining Class 3 Sample Locations

Class 3 survey units generally consist of many rooms. Representing each room in a "fold-out" view to show all surfaces is difficult and time-consuming. The process to identify, map and locate measurement coordinates in survey units with

many rooms is complicated due to the noncontiguous nature of the survey unit once walls are "folded-out".

For the reasons above, the MARSSIM sample measurement locations (i.e., random static and wipe measurements) for Class 3 survey units were determined only on horizontal surfaces as determined on floor plans. This protocol increases the sample density on the surfaces with the highest probability for residual contamination (floors, benchtops, fume hood working surfaces, etc.). The appropriate percentage of all survey unit surfaces (including vertical surfaces) were scanned according to the survey unit classification.

As part of characterization, the survey technician judgmentally selected locations with the highest probability of contamination on vertical surfaces for a static measurement and smear, such as light switches, door knobs, door pulls, push plates, and other locations. These measurements were in addition to and were not included in the statistical analysis of the locations selected by MARSSIM protocols.

Maps were generated of the survey unit horizontal surfaces. Sample locations were determined using computer generated random x and y coordinates for each sample location. Each location was then plotted on the applicable survey map.

Maps of final status survey locations for all survey units are included in Appendix D.

21.4 Removable Contamination Measurements

Removable contamination measurements were collected by wiping an area of approximately 100 cm^2 on structural surfaces and inside building systems. The smears/swabs were counted to achieve the detection sensitivities stated in the DQOs. The liquid scintillation counter (LSC) was setup for dual label counting without background subtraction (gross dpm) for ^{3}H and ^{14}C.

21.5 Surveys of Building Mechanical System Internals

Surveys of various building system components were performed. Survey design for these systems is out of the scope of MARSSIM. For the purposes of identifying potential residual contamination within these systems, a survey protocol was established and is presented in Table 21-2.

Table 21-2 System Survey Coverage

Structure	Coverage
Vacuum Nozzles, Pumps, Accumulators	100%
Fume Hood Vent Ducts and Fans	100%
General Ventilation Exhaust Ducts and Fans	10%
Laboratory Drain Traps	100%

21.6 Data Validation

Field data were reviewed by the Project Manager and validated to ensure:

- Completeness of forms
- Proper types of surveys were performed
- The MDCs for measurements met the established data quality objectives
- Independent calculations were performed on a representative sample of data sheets
- Satisfactory instrument calibrations and daily functionality checks were performed as required

Additionally, all final status survey data were entered into the Final Status Survey Database. This provided the means to sort survey data, verify activity calculations, and to compute the associated MDC and counting errors. Once data entry for a survey unit was complete, a verification report was printed and compared to original data sheets to ensure correct data entry.

21.7 Survey Documentation

A survey package was developed for each survey unit containing the following:

- Survey Unit number (e.g., Building and Room Number, System Number, etc.)
- Survey Instruction Sheets
- General survey requirements
- Percentage of surfaces requiring scan surveys
- Number of total and removable contamination measurements required Instrument requirements with associated MDCs, count times and scan rates
- Overview maps detailing survey locations and placement methodology
- Survey Data Sheets

- Any additional specific survey instruction
- Signature of Data Collector and Reviewer

To ensure proper data management and organization, a unique location code system was used so that survey data could be properly entered and organized in the Final Status Survey Database. A breakdown of the location code and specific code components are provided in Table 21-6.

Table 21-3 Location Code Description

A unique location code was assigned to each individual survey location to ensure proper data management of the survey results. The following format was used to ensure consistency throughout the final status survey process:

BBB-RRRR-SS-M-LLL

Where:

BBB:	Building Code. This field represents the building number. (3 characters)
RRRR:	Survey Unit Number. This is the assigned survey unit number. (4 characters)
SS:	Structural Surface Code. This field represents the structural surface such as floor, wall, ceiling, etc. (2 characters) B1 = Benchtop, D1 = Sink Drain, D2 = Floor Drain, F1 = Floor, G1 = Ventilation Duct, G2 = Ventilation Fan, H1 = Fume Hood Vent, H2 = Fume Hood Fan, V1 = Vacuum Nozzle, V2 = Vacuum System Component
M:	Structural Material Code. This field represents the type of structural material on which a particular measurement is taken. (1 character) A = Painted Concrete, C = Concrete, H =Epoxy, P = Porcelain/Ceramic, R = Rug/Carpet, T = Vinyl Tile
LLL:	Numerical Identifier. This field represents the survey location number. The field "001" means survey point location number 1. Numerical identifiers are unique within a survey unit. (3-characters)

22.0 Data Quality Assessment and Interpretation of Survey Results

The statistical guidance contained in Section 8 of MARSSIM was used to determine if areas are acceptable for unrestricted release and whether additional surveys or sample measurements were required.

22.1 Preliminary Data Review

A preliminary data review was performed for each survey unit to identify any patterns, relationships or anomalies. Additionally, measurement data were reviewed and compared with the DCGLs and investigation levels to confirm the correct classification of survey units. All calculations of means, standard deviations, minimum and maximum values and comparisons between survey data and investigation levels are presented in the following tables. Total beta surface activity reports for each survey unit are included as Appendix E[6]. Reports for building systems surveys are presented in Appendix F.

Table 22-1 Structural Surfaces Total Beta Surface Activity DQA

Survey Unit	# of Sample Locations	Mean	MDC	Standard Deviation	Min.	Max.	Investigation Level	Any Result Exceeding Investigation Level?
		(dpm/100 cm^2)						
T-1301	14	-102	374	280	-478	372	5,000	NO
T-1302	14	-33	971	257	-361	619	5,000	NO
T-2301	14	114	889	188	-206	568	5,000	NO
T-2302	14	350	867	215	-52	671	5,000	NO
T-3301	14	55	910	217	-258	361	5,000	NO
T-3302	14	22	910	279	-361	568	5,000	NO
T-5301	14	336	151	50	219	410	5,000	NO
Z-1301	14	303	956	357	-16	1481	5,000	NO

Table 22-2 Building Structural Surfaces Removable ^{3}H Summary

Survey Unit	# of Sample Locations	Mean	Standard Deviation	Min.	Max.	Investigation Level	Any Result Exceeding Investigation Level?
		(gross dpm/100 cm^2)					
T-1301	14	24	7	12	36	200	NO
T-1302	14	24	10	9	51	200	NO
T-2301	14	27	6	18	40	200	NO
T-2302	14	32	13	6	52	200	NO
T-3301	14	28	7	12	43	200	NO
T-3302	14	24	9	6	35	200	NO
T-5301	14	32	8	17	49	200	NO
Z-1301	14	32	12	17	60	200	NO

[6] For all results presented in Appendices E, F and G: results above MDC are presented in bold type.

Table 22-3 Building Structural Surfaces Removable ^{14}C Summary

Survey Unit	# of Sample Locations	Mean	Standard Deviation	Min.	Max.	Investigation Level	Any Result Exceeding Investigation Level?
		(gross dpm/100 cm^2)					
T-1301	14	14	3	9	20	200	NO
T-1302	14	10	3	4	15	200	NO
T-2301	14	12	3	6	19	200	NO
T-2302	14	10	3	6	15	200	NO
T-3301	14	12	3	5	18	200	NO
T-3302	14	14	4	8	20	200	NO
T-5301	14	14	5	9	26	200	NO
Z-1301	14	11	4	5	17	200	NO

Table 22-4 Building Systems Removable ^{3}H Summary

Survey Unit	# of Sample Locations	Mean	Standard Deviation	Min.	Max.	Investigation Level	Any Result Exceeding Investigation Level?
		(gross dpm/100 cm^2)					
T-DR01	150	33	18	9	137	200	NO
T-VA01	313	26	11	5	144	200	NO
T-VE01	140	37	12	11	71	200	NO
Z-DR01	82	32	12	10	62	200	NO
Z-VA01	24	30	9	14	55	200	NO
Z-VE01	121	12	4	2	27	200	NO

Table 22-5 Building Systems Removable ^{14}C Summary

Survey Unit	# of Sample Locations	Mean	Standard Deviation	Min.	Max.	Investigation Level	Any Result Exceeding Investigation Level?
		(gross dpm/100 cm^2)					
T-DR01	150	13	5	3	27	200	NO
T-VA01	313	13	4	3	26	200	NO
T-VE01	140	13	5	3	33	200	NO
Z-DR01	82	14	4	5	29	200	NO
Z-VA01	24	13	4	6	23	200	NO
Z-VE01	121	12	4	2	27	200	NO

22.2 Determining Compliance for Building Surfaces and Structures

Final status survey results were initially compared to the investigation levels. All total activity results and removable activity results on building structural surfaces were less than the investigation levels.

The Sign test is used to determine the minimum number of sample locations. Because all measurements are less than the DCGL, all survey units pass the Sign Test. Therefore, the null hypothesis can be rejected and all survey units meet the release criterion and are suitable for release for unrestricted use.

The results of the data quality assessment and calculations of the dose from each structural surface survey unit are presented in Table 22-6.

Table 22-6 Structural Surfaces Total Beta Surface Activity Dose Calculations

Survey Unit	Standard Deviation (dpm/100 cm^2)	# Samples Required	Actual # of Samples	Adequate # of Samples?	Mean (dpm/100 cm^2)	Calculated Annual TEDE[7] (mrem/yr)
T-1301	280	11	14	YES	-102	-1.4E-03
T-1302	257	11	14	YES	-33	-4.5E-04
T-2301	188	11	14	YES	114	1.5E-03
T-2302	215	11	14	YES	350	4.7E-03
T-3301	217	11	14	YES	55	7.4E-04
T-3302	279	11	14	YES	22	3.0E-04
T-5301	50	11	14	YES	336	4.5E-03
Z-1301	357	11	14	YES	303	4.1E-03
					Maximum:	4.7E-03

22.3 Determining Compliance for Building Systems

All removable surface activity measurements were compared directly to the investigation levels to determine if an area required further examination. The geometry of building systems precluded scanning and total activity measurements. Therefore, all systems survey units meet the release criteria and are suitable for release.

[7] The TEDE shown is calculated by multiplying 25 mrem/yr by the ratio of the mean total surface activity to the C-14 DCGL of 3.7E6 dpm/100cm^2 and then multiplying by 2 to account for the ISO 7503-1 surface efficiency. See Section 16.5 for a discussion of efficiency determinations.

23.0 Quality Assurance Surveys

Quality assurance surveys consisted of re-performing the FSS protocol to achieve a minimum of 5% duplication. Areas were judgmentally selected by the Project Manager. All QA survey results were similar to FSS data and the conclusions were the same.

23.1 QA Survey Results

The conclusions reached based on QA surveys would be the same as those based on the initial surveys. QA survey results are presented in Appendix G and are summarized in the tables below.

Table 23-1 QA Survey Building Structural Surfaces Total Activity Summary

Survey Unit	# of Sample Locations	Mean	MDC	Standard Deviation	Min.	Max.	Investigation Level	Any Result Exceeding Investigation Level?
		($dpm/100\ cm^2$)						
QA-QA01	10	-78	142	71	-182	7	5,000	NO

Table 23-2 QA Survey Building Structural Surfaces Removable ^3H Summary

Survey Unit	# of Sample Locations	Mean	Standard Deviation	Min.	Max.	Investigation Level	Any Result Exceeding Investigation Level?
		($gross\ dpm/100\ cm^2$)					
QA-QA01	10	28	8	15	38	200	NO

Table 23-3 QA Survey Building Structural Surfaces Removable ^{14}C Summary

Survey Unit	# of Sample Locations	Mean	Standard Deviation	Min.	Max.	Investigation Level	Any Result Exceeding Investigation Level?
		($gross\ dpm/100\ cm^2$)					
QA-QA01	10	13	5	7	23	200	NO

24.0 References

- NRC Regulations 10 CFR 20 Subpart E
- NUREG-1575, "Multi-Agency Radiation Survey and Site Investigation Manual" (MARSSIM)
- NUREG-1505, "A Nonparametric Statistical Methodology for the Design and Analysis of Final Decommissioning Surveys"

- NUREG 1507, "Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions"
- NUREG 1757, Volume 1 "Consolidated NMSS Decommissioning Guidance," September, 2002
- USNRC Policy and Guidance Directive FC 83-23, "Guidelines for the Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Byproduct, Source, or Special Nuclear Material Licenses."
- ISO-7503-1, "Evaluation of Surface Contamination – Part 1: Beta Emitters and Alpha Emitters." 1988
- Pfizer Creve Coeur Site Decommissioning Work Plan
- Pfizer Creve Coeur Decommissioning Quality Assurance Project Plan
- Pfizer Creve Coeur Site Decommissioning Health and Safety Plan
- Pfizer Radioactive Materials License Number 24-32439-01

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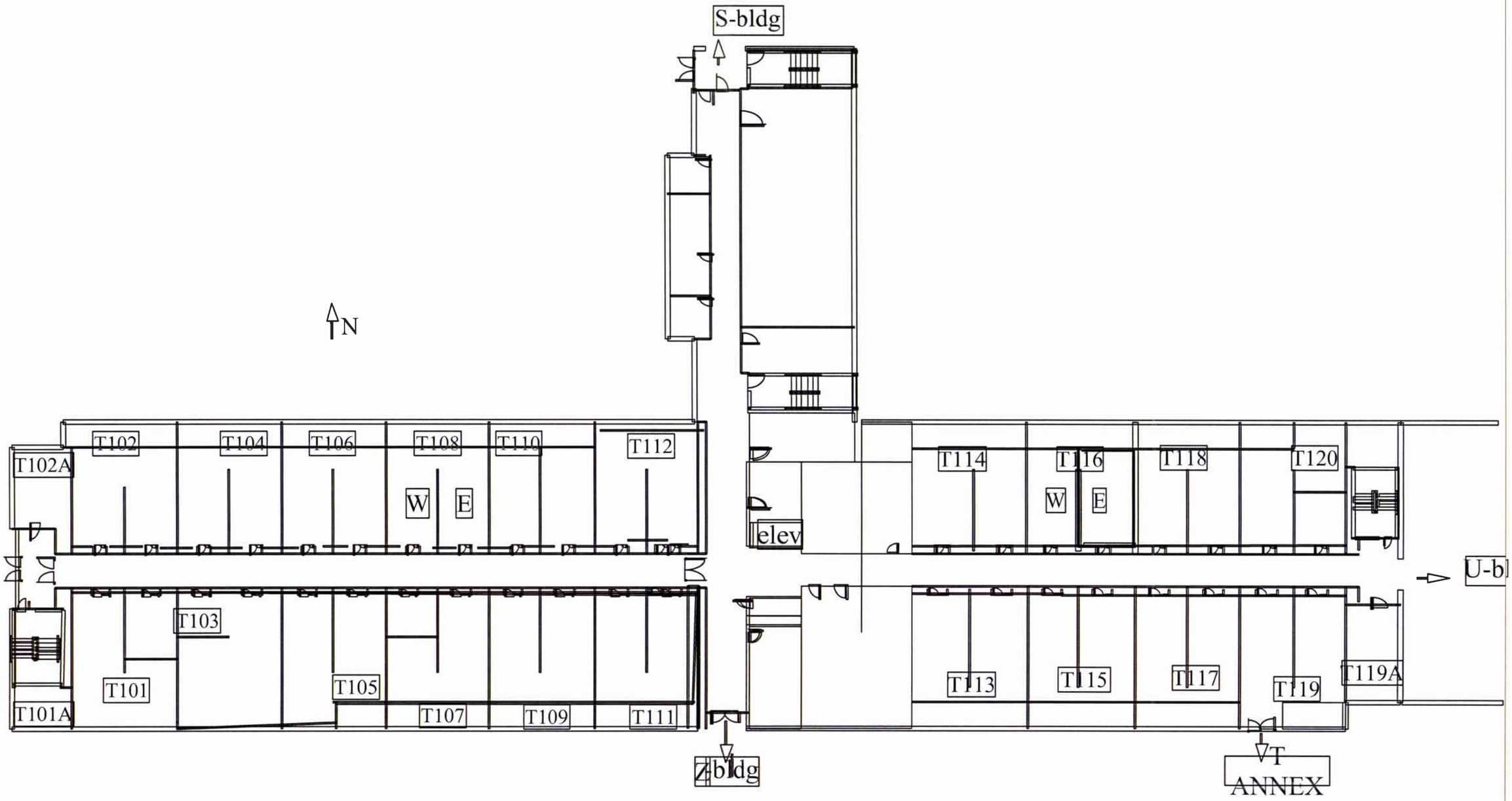
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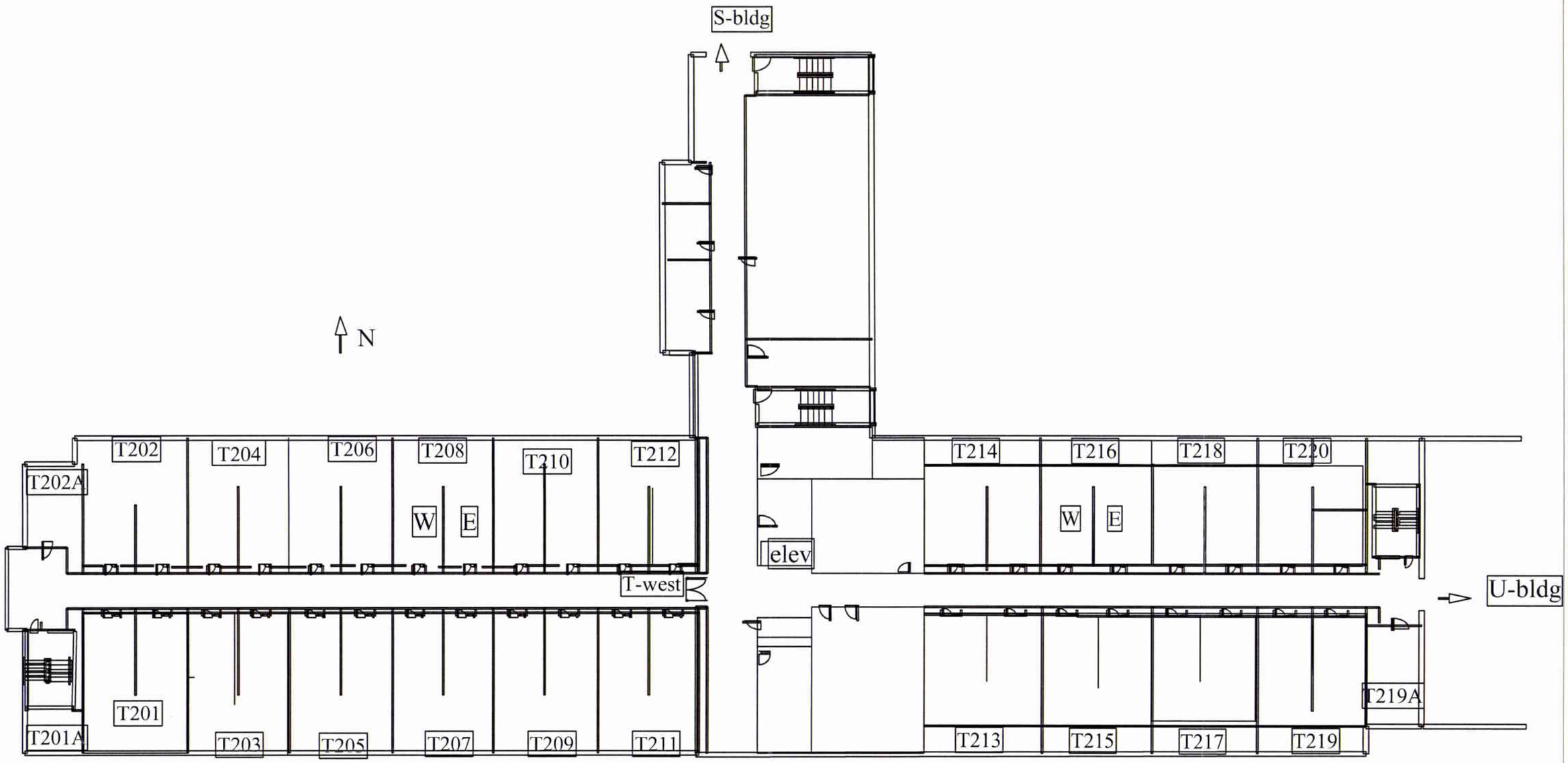
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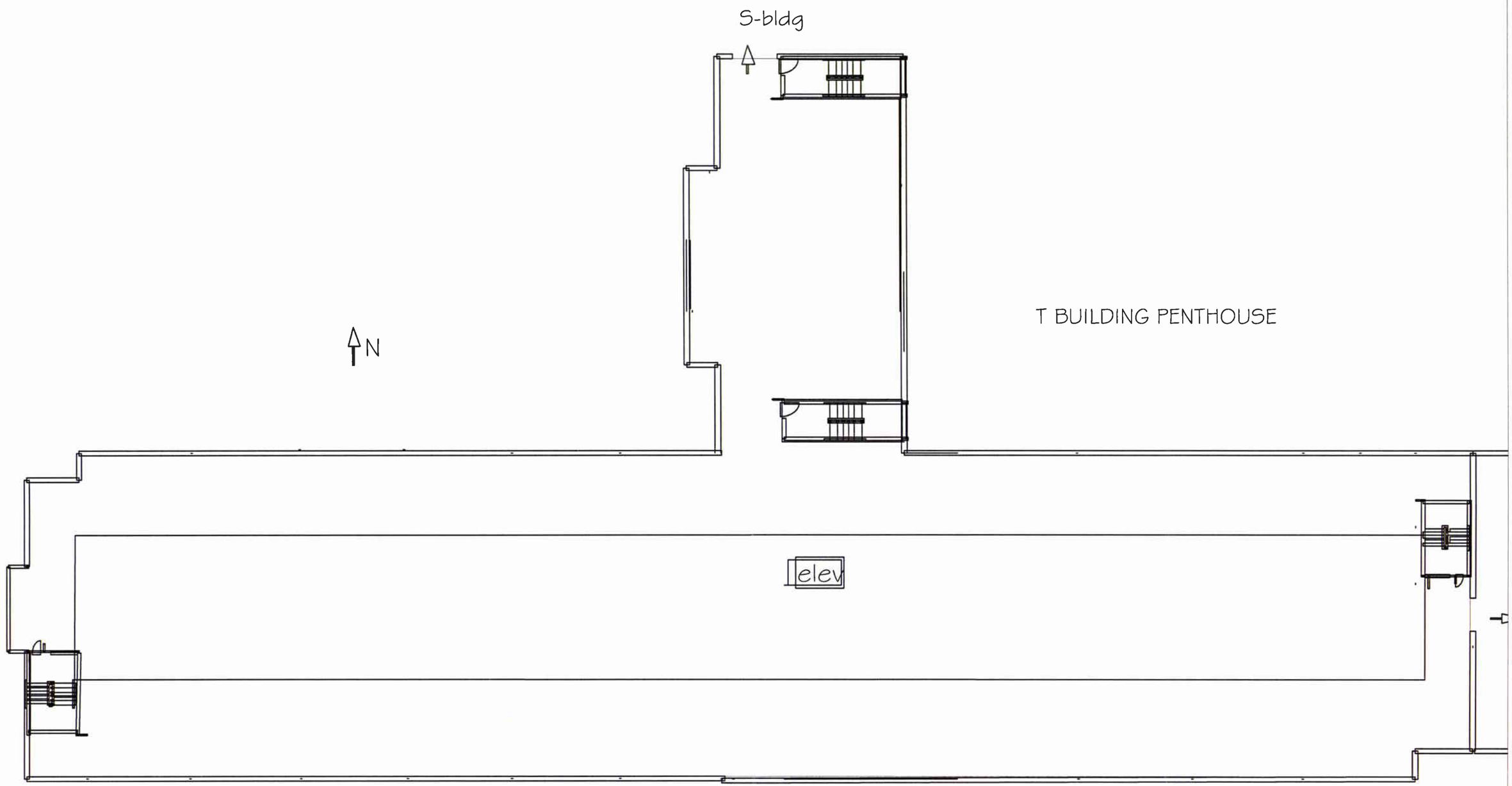
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Designer and Manufacturer of Scientific and Industrial Instruments

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 MACTEC INC ORDER NO. 20113194

Mfg. Ludlum Measurements, Inc. Model 2241-3 Serial No. 255363

Mfg. _____ Model _____ Serial No. _____

Cal. Date 13-Aug-08 Cal Due Date 13-Aug-09 Cal. Interval 1 Year Meterface NA

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 72 °F RH 51 % Alt 700.8 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
☑ 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 Comments V Input Sens. 35 mV Det. Oper. _____ V at _____ mV Threshold Dial Ratio _____ = _____ mV

COMMENTS:

	Det.1(cpm)	Det.2(cpm)	Det.3(cpm)	Det.4(cpm)
Deadtime Correction:	0µSec	0µSec	0µSec	0µSec
Calibration Constant:	100e-2	100e-2	100e-2	100e-2
Ratemeter Alarm:	50.0kcpm	50.0kcpm	50.0kcpm	50.0kcpm
Ratemeter Alert:	20.0kcpm	20.0kcpm	20.0kcpm	20.0kcpm
High Voltage:	900v	900v	900v	900v

Overload checked but not set.
firmware#: P-10-12

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*
Digital			
Digital			

*Uncertainty within ± 10% C.F. within ± 20%

Range(s) Calibrated Electronically

	REFERENCE CAL POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Ratemeter Readout	800K cpm		799 kc/m
	200K cpm		200 kc/m
	80K cpm		79.9 kc/m
	20K cpm		20.0 kc/m
	8K cpm		8.00 kc/m
	2K cpm		2.00 kc/m
	800 cpm		800 c/m
	200 cpm		200 c/m

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Scaler Readout	800K cpm		79968 (c)
	200K cpm		20008 (c)
	80K cpm		7996 (c)
	20K cpm		2000 (c)
	8K cpm		800 (c)
	2K cpm		200 (c)
	800 cpm		80 (c)
	200 cpm		20 (c)

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 38120 ☐ Oscilloscope S/N _____ ☑ Multimeter S/N 84260131

Calibrated By: Lenna Ortega Date 13-Aug-08

Reviewed By: Diana DeHaven Date 13 Aug 08

FORM C22E 01/24/2007

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 MACTEC INC ORDER NO. 20113194

Mfg. Ludlum Measurements, Inc. Model 2241-3 Serial No. 253346

Mfg. _____ Model _____ Serial No. _____

Cal. Date 13-Aug-08 Cal Due Date 13-Aug-09 Cal. Interval 1 Year Meterface NA

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 72 °F RH 51 % Alt 700.8 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
☑ 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 Comments V Input Sens. 35 mV Det. Oper. _____ V at _____ mV Threshold Dial Ratio _____ = _____ mV

COMMENTS:

	Det.1(cpm)	Det.2(cpm)	Det.3(cpm)	Det.4(cpm)
Deadtime Correction:	0µSec	0µSec	0µSec	0µSec
Calibration Constant:	100e-2	100e-2	100e-2	100e-2
Ratemeter Alarm:	50.0kcpm	50.0kcpm	50.0kcpm	50.0kcpm
Ratemeter Alert:	20.0kcpm	20.0kcpm	20.0kcpm	20.0kcpm
High Voltage:	900v	900v	900v	900v

Overload checked but not set.
firmware#: 8-10-12

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*
Digital			
Digital			

*Uncertainty within ± 10% C.F. within ± 20% Range(s) Calibrated Electronically

Ratemeter Readout	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
	800K cpm		800 kc/m
	200K cpm		200 kc/m
	80K cpm		80.0 kc/m
	20K cpm		20.0 kc/m
	8K cpm		8.00 kc/m
	2K cpm		2.00 kc/m
	800 cpm		800 c/m
	200 cpm		200 c/m

Scaler Readout	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
	800K cpm		80041 (0)
	200K cpm		19948 (0)
	80K cpm		8004 (0)
	20K cpm		1995 (0)
	8K cpm		800 (0)
	2K cpm		200 (0)
	800 cpm		80 (0)
	200 cpm		20 (0)

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 38120 ☐ Oscilloscope S/N _____ ☑ Multimeter S/N 84260131

Calibrated By: Jenna Ortega Date 13-Aug-08

Reviewed By: Diana De Koeve Date 13 Aug 08

GRIFFIN INSTRUMENTS

CALIBRATION CERTIFICATE FOR 43-37 PROBE # PR259902

Owner: CHASE ENV

DATE: 12/12/08 LOCATION: Griffin Inst

TECH: Joanne Glenn DATE LAST CAL EXPIRES:

REASON FOR CALIBRATION:

(●) Due For Calibration ( ) Repair (See Remarks) ( ) Other (See Remarks) ( ) Due and Repair

CABLE LENGTH: 6' INPUT SENSITIVITY: 2 mV

NIST TRACEABLE EQUIPMENT AND STANDARDS USED DURING CALIBRATION

MODEL: 2241-3 SERIAL #: 253346 CAL. DUE: 08/13/09

NIST TRACEABLE SOURCES USED

Source Number	Isotope	4 pi Activity	Assay Date	2 pi Activity
99TC470-1814	Tc99 SS	37,300 dpm	08/03/99	23,300 cpm
2697-00	Sr90	12,200 dpm	03/01/00	8,530 cpm
PX 726	C14	48,780 dpm	01/21/08	18,660 cpm
99TH470-1815	Th230	30,000 dpm	04/11/06	15,200 cpm
2696-00	Pu239	18,500 dpm	07/18/06	9,390 cpm

Condition: (●) Sat ( ) Unsat

Efficiencies from last cal.:

Pu: Th: Sr:

Tc ss: C14: Tc Ni:

As Found (AF) Efficiencies:

HV / Vernier:	Tc-99 Source Response Nickel (CPM):			Pu-239 Source Response (CPM):			Background (CPM):		Tc-99 Source Response Stainless Steel (CPM):		
	A ch.	B ch.	Net Eff.	A ch.	B ch.	Net Eff.	A ch.	B ch.	A ch.	B ch.	Net Eff.
N/A											

Net A to B Xtalk: <10%	B to A Xtalk: <1%
	<1%

	Pu239	Tc99 Ni	Tc99 ss	Th-230	Sr90	C-14
AF CPM:						
AF 4 pi eff:						
AF 2 pi eff:						

Is as found efficiency within 20% of the efficiency from the last cal? ( ) Yes (●) No (See Remarks)

Note: If the as found data is within 10% of the last calibration and the B-A Xtalk is <1% and the A-B Xtalk is <10%, then the technician may N/A the plateau section and go directly to remarks.

GRIFFIN INSTRUMENTS

PROBE #: **PR259902**
Date: 12/12/08

α ONLY HV gp 12/12/08

PLATEAU AND SET POINT DATA

HV / Vernier:	Tc-99 Source Response SS (CPM):			Pu-239 Source Response (CPM):			Background (CPM):		Net A to B Xtalk: <10%	B to A Xtalk: <1%
	A ch.	B ch.	Net Eff.	A ch.	B ch.	Net Eff.	A ch.	B ch.		
1150				4121		22.2%	5			
1200				4302		23.2%	6			
1250				4549		24.6%	2			
1300				4581		24.7%	4			
1350				4602		24.9%	4			

Alpha / Beta Bkg (cpm) 3

HV / Vernier		Pu-239	Tc-99 Ni	Tc-99 SS	Th-230	C-14	Sr-90
1300 / N/A	CPM:	4496			5944		
4 pi AL Efficiencies:		**24.29%**			**19.80%**		
2 pi AL Efficiencies:		***47.85%***			***39.09%***		

α + B HV gp 12/12/08

PROBE #: **PR259902**
Date: 12/12/08

PLATEAU AND SET POINT DATA

HV / Vernier:	Tc-99 Source Response SS (CPM):			Pu-239 Source Response (CPM):			Background (CPM):		Net A to B Xtalk: <10%	B to A Xtalk: <1%
	A ch.	B ch.	Net Eff.	A ch.	B ch.	Net Eff.	A ch.	B ch.		
1700		9325	22.9%					780		
1750		10175	24.7%					980		
1800		10534	25.3%					1080		
1850		10530	25.3%					1096		
1900		10744	25.8%					1111		

Alpha / Beta Bkg (cpm) 1096

HV / Vernier		Pu-239	Tc-99 Ni	Tc-99 SS	Th-230	C-14	Sr-90
1850 / N/A	CPM:			10507		8670	5432
4 pi AL Efficiencies:				**25.23%**		**15.53%**	**43.88%**
2 pi AL Efficiencies:				***40.39%***		***40.59%***	***62.75%***

GRIFFIN INSTRUMENTS

REMARKS: Det 2 = 1850V for b+a HV, Det 4 = 1300V for alpha only HV. No previous cal data. Cal due 8/13/09 to match box.

Does Instrument Meet Final Acceptance Criteria?: (•) Yes ( ) No

Calibration Sticker Attached?: (•) Yes ( ) No

Date Instrument Is Due For Next Calibration: 08/13/09

INSTRUMENT MARRIED WITH 2241-3 # 253346

Performed/Reviewed by: Jeanne Glenn Date: 12/12/2008 Entered by: ____ Initials

2 pi efficiencies denoted in italics. Calibrations performed to ANSI N323A-1997 standards.

GRIFFIN INSTRUMENTS

CALIBRATION CERTIFICATE FOR 43-68 PROBE # PR216394

Owner: CHASE ENV

DATE: 12/12/08 LOCATION: Griffin Inst
TECH: Joanne Glenn DATE LAST CAL EXPIRES: 08/13/09

REASON FOR CALIBRATION:

○ Due For Calibration ○ Repair (See Remarks) ◉ Other (See Remarks) ○ Due and Repair

CABLE LENGTH: 6' INPUT SENSITIVITY: 2 mV

NIST TRACEABLE EQUIPMENT AND STANDARDS USED DURING CALIBRATION

MODEL: 2241-3 SERIAL #: 253346 CAL. DUE: 08/13/09

NIST TRACEABLE SOURCES USED

Source Number	Isotope	4 pi Activity	Assay Date	2 pi Activity
99TC470-1814	Tc99 SS	37,300 dpm	08/03/99	23,300 cpm
99TH470-1815	Th230	30,000 dpm	08/03/99	15,200 cpm
2696-00	Pu239	18,500 dpm	07/18/06	9,390 cpm
2697-00	Sr90	12,200 dpm	03/01/00	8,530 cpm
PX 726	C14	48,780 dpm	01/21/08	18,660 cpm

Condition: ◉ Sat ○ Unsat

Efficiencies from last cal.:

Pu: | Th: 21.70% | Sr:

Tc ss: 25.45% | C14: 15.37% | Tc Ni:

As Found (AF) Efficiencies:

α op 12/12/08

HV / Vernier: B+A HV	Tc-99 Source Response Nickel (CPM):			Pu-239 Source Response (CPM):			Background (CPM):		Tc-99 Source Response Stainless Steel (CPM):		
	A ch.	B ch.	Net Eff.	A ch.	B ch.	Net Eff.	A ch.	B ch.	A ch.	B ch.	Net Eff.
1250 / 1650				4946		26.71%	5	271		9818	25.80%

Net A to B Xtalk: <10%	B to A Xtalk: <1%
	<1%

	Pu239	Tc99 Ni	Tc99 ss	Th-230	Sr90	C-14
AF CPM:	4946		9818	6099	4592	7772
AF 4 pi eff:	26.71%		25.80%	20.31%	43.72%	15.38%
AF 2 pi eff:	*52.62%*		*40.97%*	*40.09%*	*62.54%*	*40.20%*

Is as found efficiency within 20% of the efficiency from the last cal? ◉ Yes ○ No (See Remarks)

Note: If the as found data is within 10% of the last calibration and the B-A Xtalk is <1% and the A-B Xtalk is <10%, then the technician may N/A the plateau section and go directly to remarks.

GRIFFIN INSTRUMENTS

PROBE #: PR216394
Date: 12/12/08

PLATEAU AND SET POINT DATA

HV / Vernier:	Tc-99 Source Response SS (CPM):			Pu-239 Source Response (CPM):			Background (CPM):		Net A to B Xtalk: <10%	B to A Xtalk: <1%
	A ch.	B ch.	Net Eff.	A ch.	B ch.	Net Eff.	A ch.	B ch.		
N/A										

α Alpha / Beta Bkg (cpm) 5 271

HV / Vernier ~~β+α HV~~ @ 12/12/08		Pu-239	Tc-99 Ni	Tc-99 SS	Th-230	C-14	Sr-90
1250 /1650	CPM:	4946		9818	6099	7772	4592
4 pi AL Efficiencies:		**26.71%**		**25.60%**	**20.31%**	**15.38%**	**43.72%**
2 pi AL Efficiencies:		***52.62%***		***40.97%***	***40.09%***	***40.20%***	***62.54%***

REMARKS: Det 1 = 1650 V for b+a HV, Det 3 = 1250V for alpha only HV. Cal due 8/13/09 to match box.

Does Instrument Meet Final Acceptance Criteria?: (•) Yes ( ) No

Calibration Sticker Attached?: (•) Yes ( ) No

Date Instrument Is Due For Next Calibration: **08/13/09**

INSTRUMENT MARRIED WITH **2241-3** **# 253346**

Performed/Reviewed by: Joanne Glenn **Date:** 12/12/2008 **Entered by:** ____ **Initials**

2 pi efficiencies denoted in italics.

Calibrations performed to ANSI N323A-1997 standards.

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 MACTEC INC ORDER NO. 20113194

Mfg. Ludlum Measurements, Inc. Model 2241-3 Serial No. 253351

Mfg. _____ Model _____ Serial No. _____

Cal. Date 13-Aug-08 Cal Due Date 13-Aug-09 Cal. Interval 1 Year Meterface NA

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 72 °F RH 51 % Alt 700.8 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
☑ 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 Comments V Input Sens. 35 mV Det. Oper. _____ V at _____ mV Threshold Dial Ratio _____ = _____ mV

COMMENTS:

	Det.1 (cpm)	Det.2 (cpm)	Det.3 (cpm)	Det.4 (cpm)
Deadtime Correction:	0µSec	0µSec	0µSec	0µSec
Calibration Constant:	100e-2	100e-2	100e-2	100e-2
Ratemeter Alarm:	50.0kcpm	50.0kcpm	50.0kcpm	50.0kcpm
Ratemeter Alert:	20.0kcpm	20.0kcpm	20.0kcpm	20.0kcpm
High Voltage:	900v	900v	900v	900v

Overload checked but not set.
firmware#: P-10-12

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*
Digital			
Digital			

*Uncertainty within ± 10% C.F. within ± 20% Range(s) Calibrated Electronically

Ratemeter Readout	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
	800K cpm		800 kc/m
	200K cpm		200 kc/m
	80K cpm		80.0 kc/m
	20K cpm		20.0 kc/m
	8K cpm		8.00 kc/m
	2K cpm		2.00 kc/m
	800 cpm		800 c/m
	200 cpm		200 c/m

Scaler Readout	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
	800K cpm		80045 (0)
	200K cpm		19914 (0)
	80K cpm		8004 (0)
	20K cpm		1991 (0)
	8K cpm		800 (0)
	2K cpm		200 (0)
	800 cpm		80 (0)
	200 cpm		20 (0)

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 38120 ☐ Oscilloscope S/N _____ ☑ Multimeter S/N 84260131

Calibrated By: Lemuel Ortega Date 13-Aug-08

Reviewed By: Diane De Rosa Date 13 Aug 08

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

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POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER MACTEC INC ORDER NO. 20113194

Mfg. Ludlum Measurements, Inc. Model 2241-3 Serial No. 253356

Mfg. _____ Model _____ Serial No. _____

Cal. Date 13-Aug-08 Cal Due Date 13-Aug-09 Cal. Interval 1 Year Meterface NA

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 72 °F RH 51 % Alt 700.8 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
☑ 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 Comments V Input Sens. 35 mV Det. Oper. _____ V at _____ mV Threshold Dial Ratio _____ = _____ mV

COMMENTS:

	Det.1(cpm)	Det.2(cpm)	Det.3(cpm)	Det.4(cpm)
Deadtime Correction:	0µSec	0µSec	0µSec	0µSec
Calibration Constant:	100e-2	100e-2	100e-2	100e-2
Ratemeter Alarm:	50.0kcpm	50.0kcpm	50.0kcpm	50.0kcpm
Ratemeter Alert:	20.0kcpm	20.0kcpm	20.0kcpm	20.0kcpm
High Voltage:	900v	900v	900v	900v

Overload checked but not set.
firmware#: P-10-12

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*
Digital			
Digital			

*Uncertainty within ± 10% C.F. within ± 20% Range(s) Calibrated Electronically

Ratemeter Readout	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
	800K cpm		800 kc/m
	200K cpm		200 kc/m
	80K cpm		80.0 kc/m
	20K cpm		20.0 kc/m
	8K cpm		8.00 kc/m
	2K cpm		2.00 kc/m
	800 cpm		800 c/m
	200 cpm		200 c/m

Scaler Readout	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
	800K cpm		79985 (0)
	200K cpm		19990 (0)
	80K cpm		7998 (0)
	20K cpm		1999 (0)
	8K cpm		800 (0)
	2K cpm		200 (0)
	800 cpm		80 (0)
	200 cpm		20 (0)

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 38120 ☐ Oscilloscope S/N _____ ☑ Multimeter S/N 84260131

Calibrated By: Lina Ortega Date 13-Aug-08

Reviewed By: Dina De La Cerda Date 13 Aug 08

GRIFFIN INSTRUMENTS

CALIBRATION CERTIFICATE FOR 43-37 PROBE # PR265548

Owner: CHASE ENV

DATE: 12/12/08 LOCATION: Griffin Inst

TECH: Joanne Glenn DATE LAST CAL EXPIRES:

REASON FOR CALIBRATION:

(•) Due For Calibration ( ) Repair (See Remarks) ( ) Other (See Remarks) ( ) Due and Repair

CABLE LENGTH: 6' INPUT SENSITIVITY: 2 mV

NIST TRACEABLE EQUIPMENT AND STANDARDS USED DURING CALIBRATION

MODEL: 2241-3 SERIAL #: 253351 CAL. DUE: 08/13/09

NIST TRACEABLE SOURCES USED

Source Number	Isotope	4 pi Activity	Assay Date	2 pi Activity
99TC470-1814	Tc99-SS	37,300 dpm	08/03/99	23,300 cpm
99TH470-1815	Th230	30,000 dpm	04/11/06	15,200 cpm
2696-00	Pu239	18,500 dpm	07/18/06	9,390 cpm
2697-00	Sr90	12,200 dpm	03/01/00	8,530 cpm
PX 726	C14	48,780 dpm	01/21/08	18,660 cpm

Efficiencies from last cal.:

Condition: (•) Sat ( ) Unsat

Pu: Th: Sr:

Tc ss: C14: Tc Ni:

As Found (AF) Efficiencies:

HV / Vernier:	Tc-99 Source Response Nickel (CPM):			Pu-239 Source Response (CPM):			Background (CPM):		Tc-99 Source Response Stainless Steel (CPM):		
	A ch.	B ch.	Net Eff.	A ch.	B ch.	Net Eff.	A ch.	B ch.	A ch.	B ch.	Net Eff.
N/A											

Net A to B Xtalk: <10%	B to A Xtalk: <1%
	<1%

	Pu239	Tc99 Ni	Tc99 ss	Th-230	Sr90	C-14
AF CPM:						
AF 4 pi eff:						
AF 2 pi eff:						

Is as found efficiency within 20% of the efficiency from the last cal? ( ) Yes (•) No (See Remarks)

Note: If the as found data is within 10% of the last calibration and the B-A Xtalk is <1% and the A-B Xtalk is <10%, then the technician may N/A the plateau section and go directly to remarks.

GRIFFIN INSTRUMENTS

B + α HV
QP 12/12/08

PROBE #: **PR265548**
Date: 12/12/08

PLATEAU AND SET POINT DATA

HV / Vernier:	Tc-99 Source Response SS (CPM):			Pu-239 Source Response (CPM):			Background (CPM):		Net A to B Xtalk: <10%	B to A Xtalk: <1%
	A ch.	B ch.	Net Eff.	A ch.	B ch.	Net Eff.	A ch.	B ch.		
1700		8363	21.0%					533		
1750		9984	24.2%					943		
1800		10334	24.7%					1124		
1850		10933	26.3%					1116		
1900		10551	25.2%					1138		

Alpha / Beta Bkg (cpm) 1116

HV / Vernier		Pu-239	Tc-99 NI	Tc-99 SS	Th-230	C-14	Sr-90
1850 /N/A	CPM:			10933		9470	5624
4 pi AL Efficiencies:				**26.32%**		**17.13%**	**45.62%**
2 pi AL Efficiencies:				***42.13%***		***44.77%***	***65.24%***

α only HV
QP 12/12/08

PROBE #: **PR265548**
Date: 12/12/08

PLATEAU AND SET POINT DATA

HV / Vernier:	Tc-99 Source Response SS (CPM):			Pu-239 Source Response (CPM):			Background (CPM):		Net A to B Xtalk: <10%	B to A Xtalk: <1%
	A ch.	B ch.	Net Eff.	A ch.	B ch.	Net Eff.	A ch.	B ch.		
1150				4625		25.0%	3			
1200				4741		25.6%	4			
1250				4800		25.9%	7			

Alpha / Beta Bkg (cpm) 0

HV / Vernier		Pu-239	Tc-99 NI	Tc-99 SS	Th-230	C-14	Sr-90
1200 /N/A	CPM:	4699			6608		
4 pi AL Efficiencies:		**25.40%**			**22.03%**		
2 pi AL Efficiencies:		***50.04%***			***43.47%***		

GRIFFIN INSTRUMENTS

REMARKS: Det 2, 1850V = a+b HV, Det 4, 1200V = alpha only HV. No previous cal data. Cal due 8/13/09 to match boxes. Client requested to be setup w/ 2241-3 #253351 & 253356.

Does Instrument Meet Final Acceptance Criteria?: (•) Yes ( ) No

Calibration Sticker Attached?: (•) Yes ( ) No

Date Instrument is Due For Next Calibration: 08/13/09

INSTRUMENT MARRIED WITH #

Performed/Reviewed by: Joanne Glenn Date: 12/12/2008 Entered by: ____ Initials

2 pi efficiencies denoted in italics. Calibrations performed to ANSI N323A-1997 standards.

GRIFFIN INSTRUMENTS

CALIBRATION CERTIFICATE FOR 43-68 PROBE # PR190903

Owner: CHASE ENV

DATE: 12/12/08 LOCATION: Griffin Inst

TECH: Joanne Glenn DATE LAST CAL EXPIRES:

REASON FOR CALIBRATION:

(●) Due For Calibration ( ) Repair (See Remarks) ( ) Other (See Remarks) ( ) Due and Repair

CABLE LENGTH: 6' INPUT SENSITIVITY: 2 mV

NIST TRACEABLE EQUIPMENT AND STANDARDS USED DURING CALIBRATION

MODEL: 2241-3 SERIAL #: 253351 CAL. DUE: 08/13/09

NIST TRACEABLE SOURCES USED

Source Number	Isotope	4 pi Activity	Assay Date	2 pi Activity
99TC470-1814	Tc99 SS	37,300 dpm	08/03/99	23,300 cpm
99TH470-1815	Th230	30,000 dpm	04/11/06	15,200 cpm
2696-00	Pu239	18,500 dpm	07/18/06	9,390 cpm
2697-00	Sr90	12,200 dpm	03/01/00	8,530 cpm
PX 726	C14	48,780 dpm	01/21/08	18,660 cpm

Condition: (●) Sat ( ) Unsat

Efficiencies from last cal.:

Pu: Th: Sr:

Tc ss: C14: Tc Ni:

As Found (AF) Efficiencies:

HV / Vernier:	Tc-99 Source Response Nickel (CPM):			Pu-239 Source Response (CPM):			Background (CPM):		Tc-99 Source Response Stainless Steel (CPM):		
	A ch.	B ch.	Net Eff.	A ch.	B ch.	Net Eff.	A ch.	B ch.	A ch.	B ch.	Net Eff.
N/A											

Net A to B Xtalk: <10%	B to A Xtalk: <1%
	<1%

	Pu239	Tc99 Ni	Tc99 ss	Th-230	Sr90	C-14
AF CPM:						
AF 4 pi eff:						
AF 2 pi eff:						

Is as found efficiency within 20% of the efficiency from the last cal? ( ) Yes (●) No (See Remarks)

Note: If the as found data is within 10% of the last calibration and the B-A Xtalk is <1% and the A-B Xtalk is <10%, then the technician may N/A the plateau section and go directly to remarks.

GRIFFIN INSTRUMENTS

α only HV
dp 12/12/08

PROBE #: PR190903
Date: 12/12/08

PLATEAU AND SET POINT DATA

HV / Vernier:	Tc-99 Source Response SS (CPM):			Pu-239 Source Response (CPM):			Background (CPM):		Net A to B Xtalk: <10%	B to A Xtalk: <1%
	A ch.	B ch.	Net Eff.	A ch.	B ch.	Net Eff.	A ch.	B ch.		
1100				4325		23.4%	1			
1150				4494		24.3%	0			
1200				4457		24.1%	2			
1250				4522		24.4%	0			

Alpha / Beta Bkg (cpm) 1

HV / Vernier		Pu-239	Tc-99 Ni	Tc-99 SS	Th-230	C-14	Sr-90
1200 /N/A	CPM:	4543			6321		
4 pi AL Efficiencies:		**24.55%**			**21.07%**		
2 pi AL Efficiencies:		***48.37%***			***41.58%***		

B + α HV
dp 12/12/08

PROBE #: PR190903
Date: 12/12/08

PLATEAU AND SET POINT DATA

HV / Vernier:	Tc-99 Source Response SS (CPM):			Pu-239 Source Response (CPM):			Background (CPM):		Net A to B Xtalk: <10%	B to A Xtalk: <1%
	A ch.	B ch.	Net Eff.	A ch.	B ch.	Net Eff.	A ch.	B ch.		
1500		4963	13.2%					46		
1550		7028	18.2%					252		
1600		8055	21.0%					215		
1650		9414	24.6%					255		
1700		9661	25.2%					262		
1750		9660	25.2%					256		

Alpha / Beta Bkg (cpm) 287

HV / Vernier		Pu-239	Tc-99 Ni	Tc-99 SS	Th-230	C-14	Sr-90
1700 / N/A	CPM:			9654		7582	4522
4 pi AL Efficiencies:				**25.11%**		**14.95%**	**42.85%**
2 pi AL Efficiencies:				***40.20%***		***39.09%***	***61.29%***

GRIFFIN INSTRUMENTS

REMARKS: Det 1, 1700V for a+b HV, Det 3, 1200V for alpha only HV. No previous cal data. Cal due 8/13/09 to match boxes. Client requested setup w/ 2 2241-3s, #253356 & 253351

Does Instrument Meet Final Acceptance Criteria?: (•) Yes ( ) No

Calibration Sticker Attached?: (•) Yes ( ) No

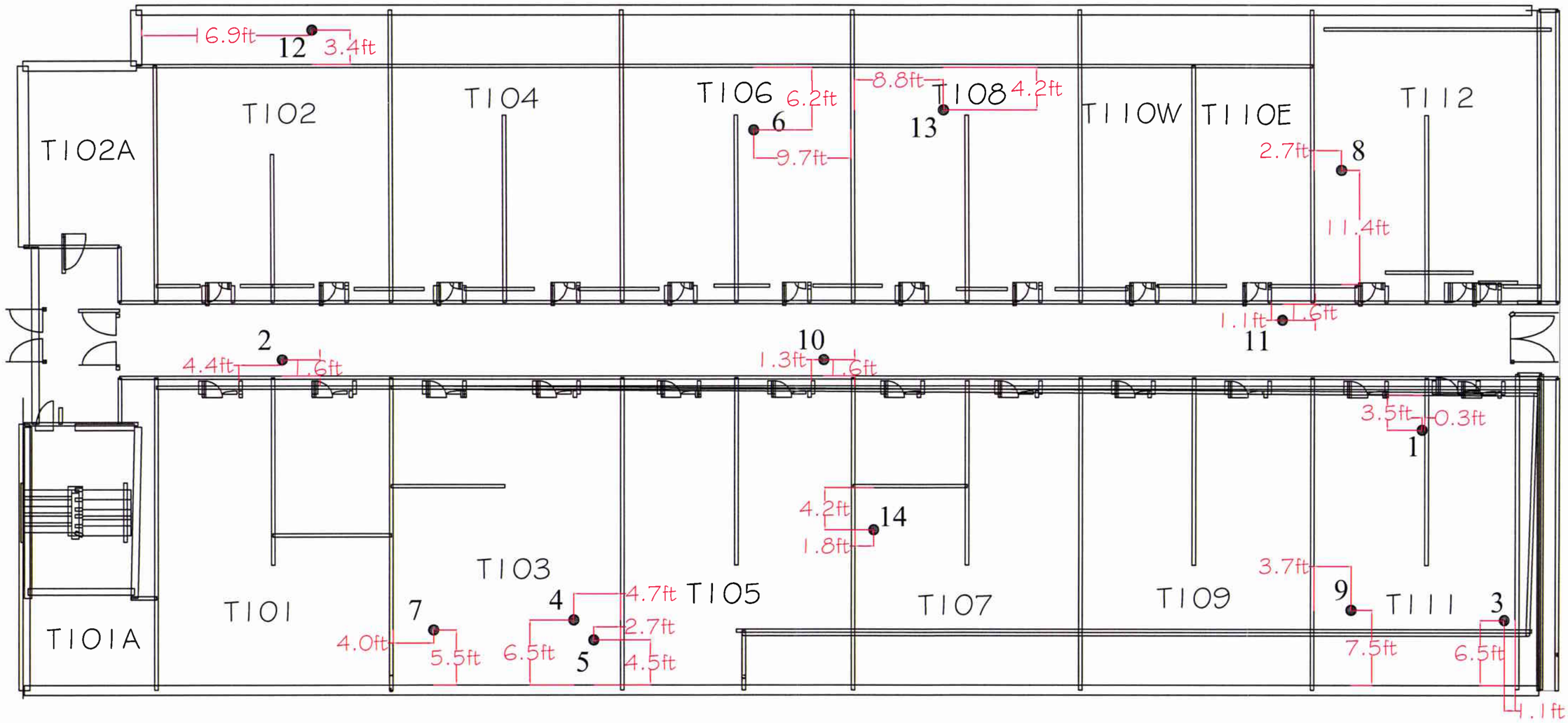
Date Instrument is Due For Next Calibration: 08/13/09

INSTRUMENT MARRIED WITH # .

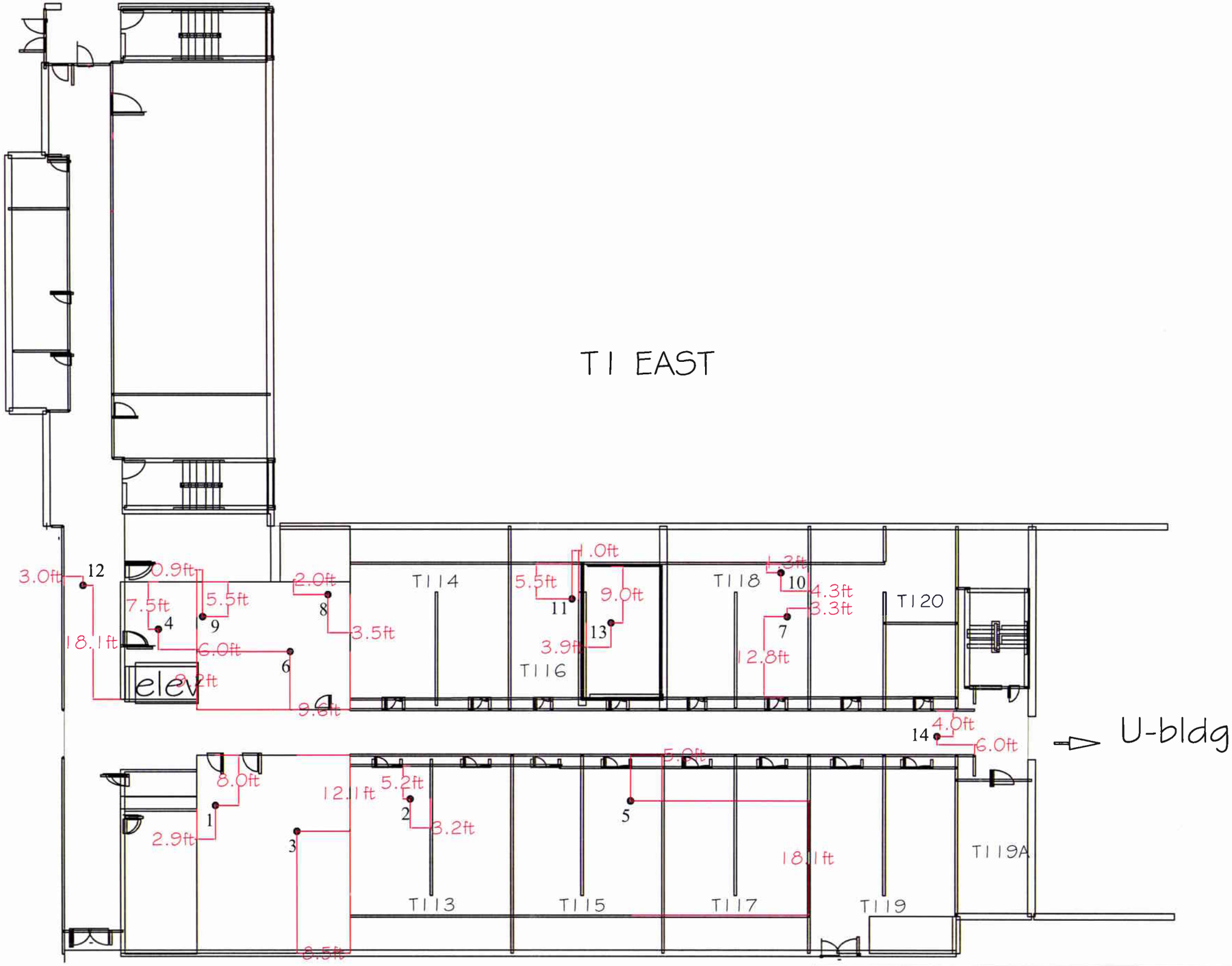
Performed/Reviewed by: Jeanne Glenn Date: 12/12/2008 Entered by: ____ Initials

2 pi efficiencies denoted in italics. Calibrations performed to ANSI N323A-1997 standards.

T1 WEST

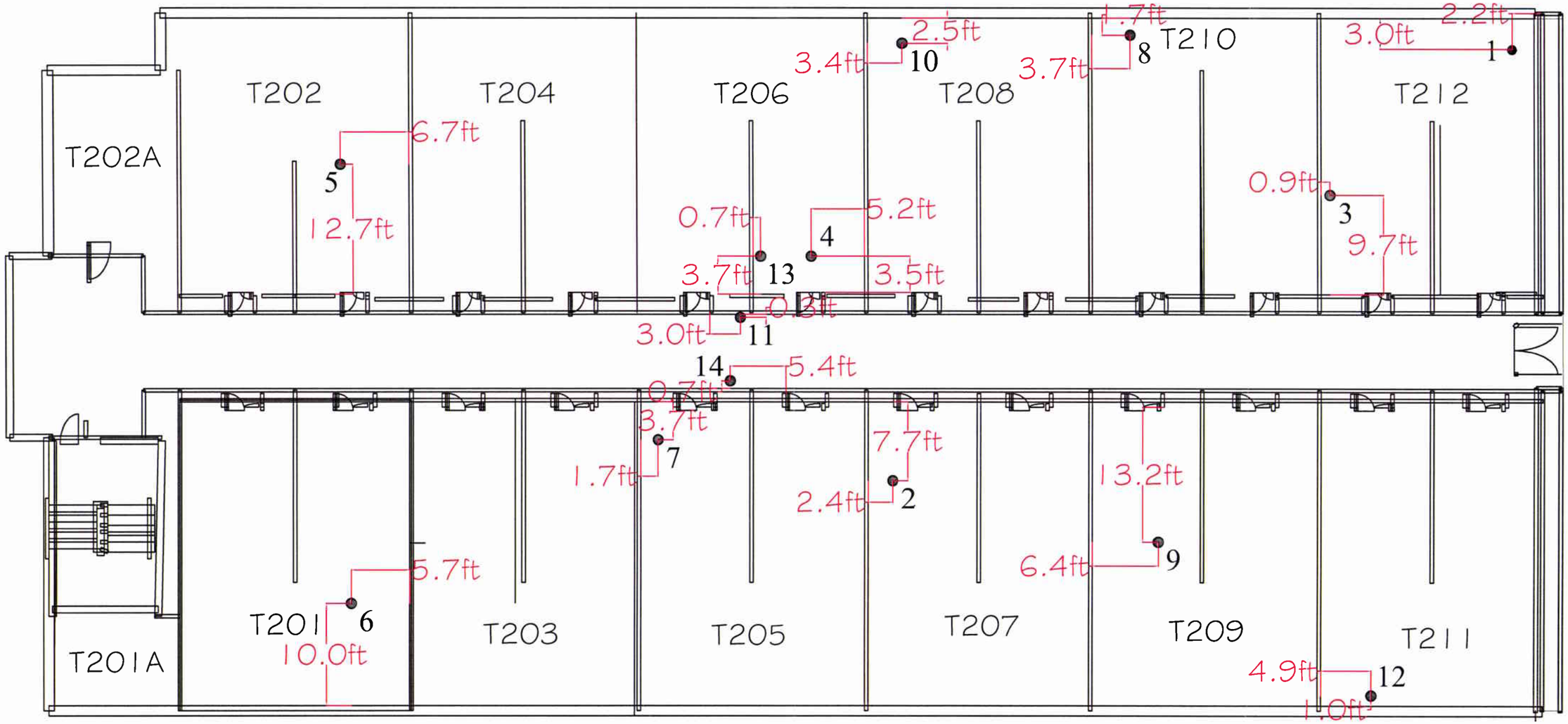


• Sample Location

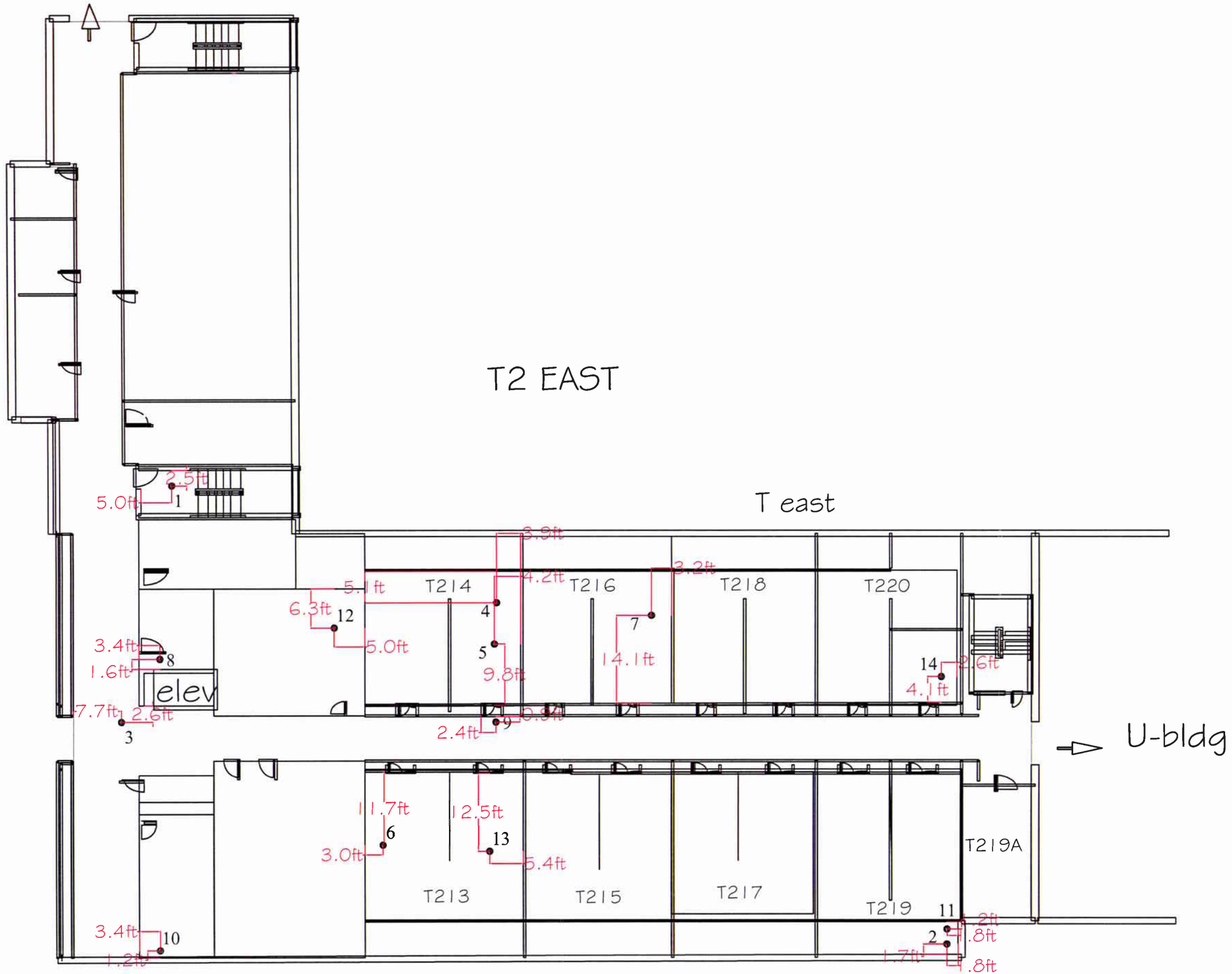


• Sample Location

T2 WEST

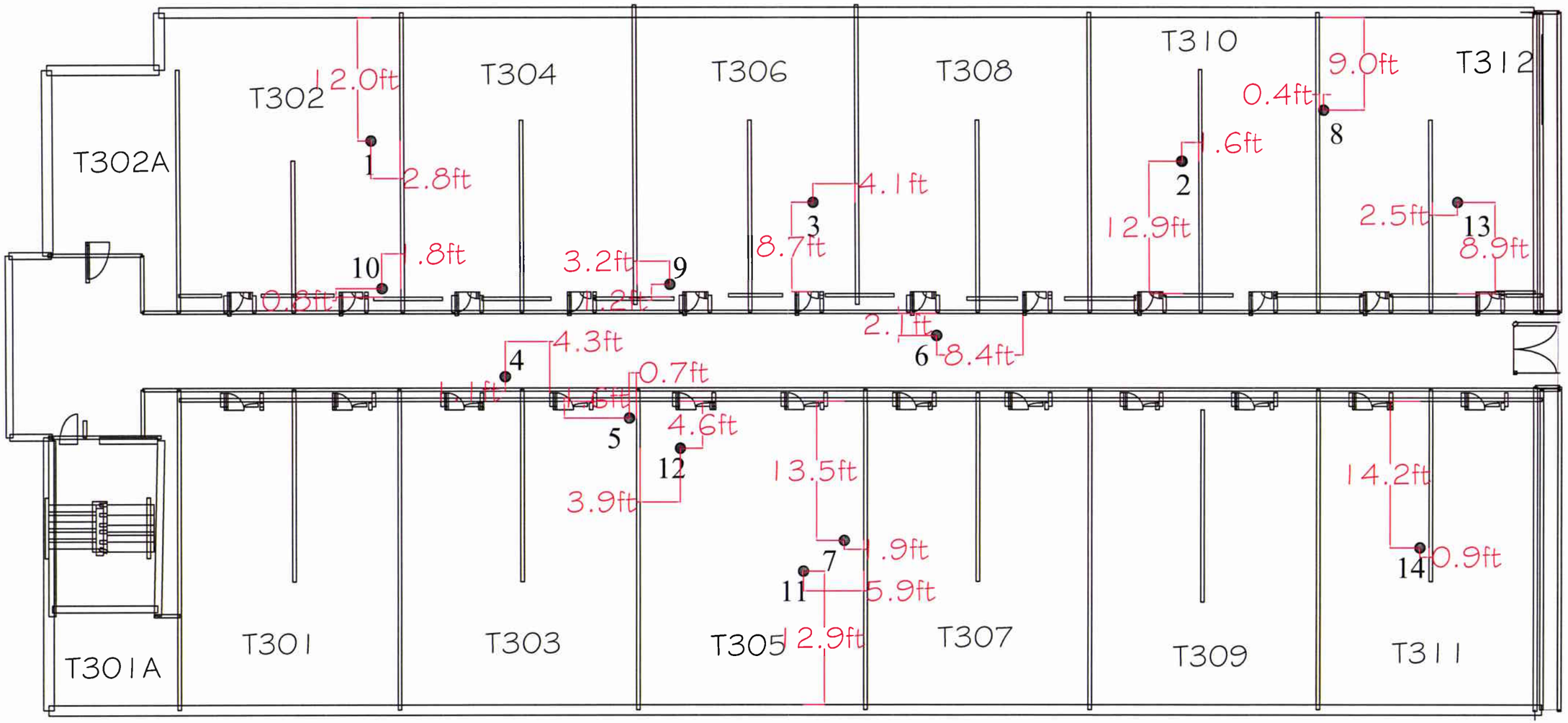


• Sample Location

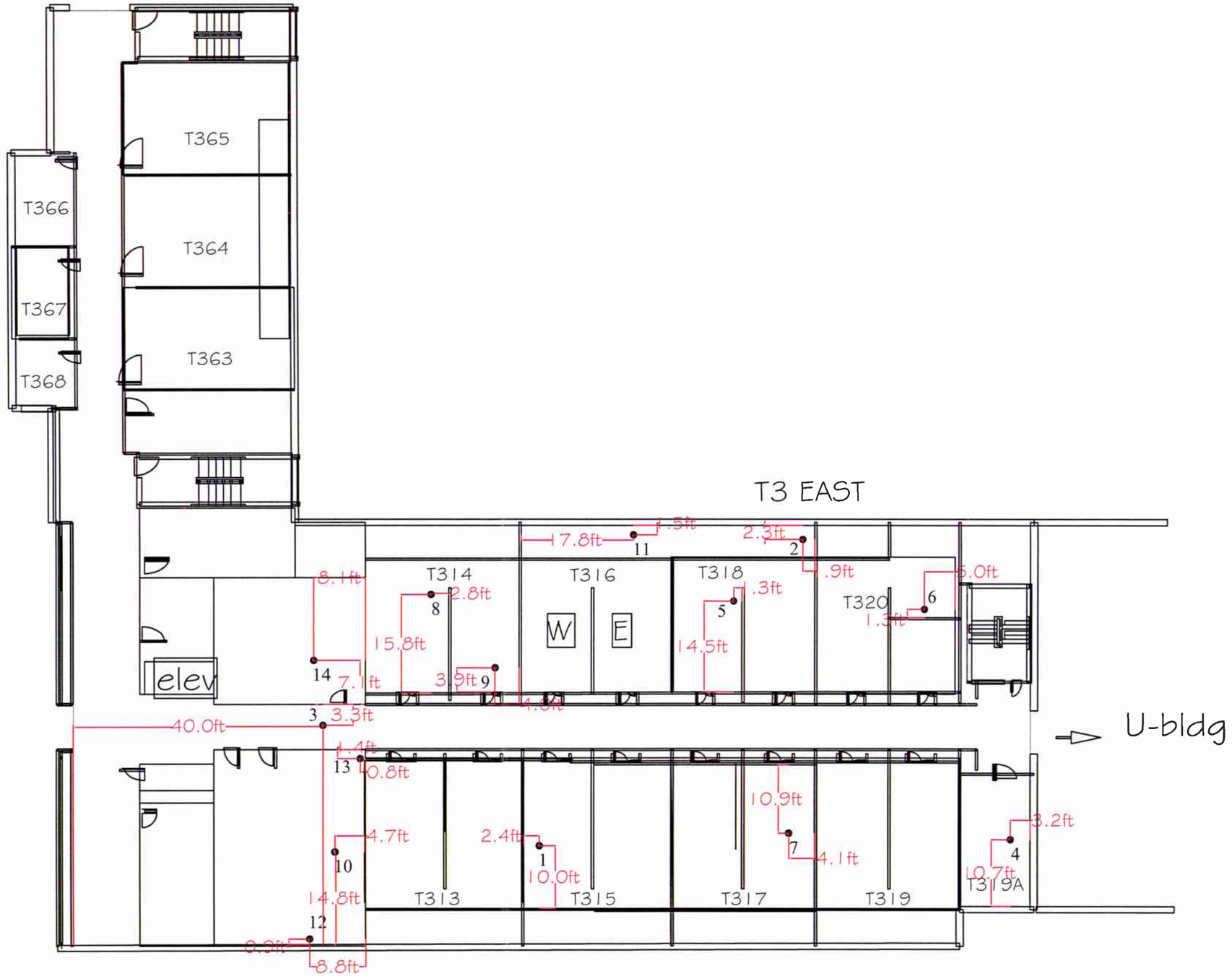


- Sample Location

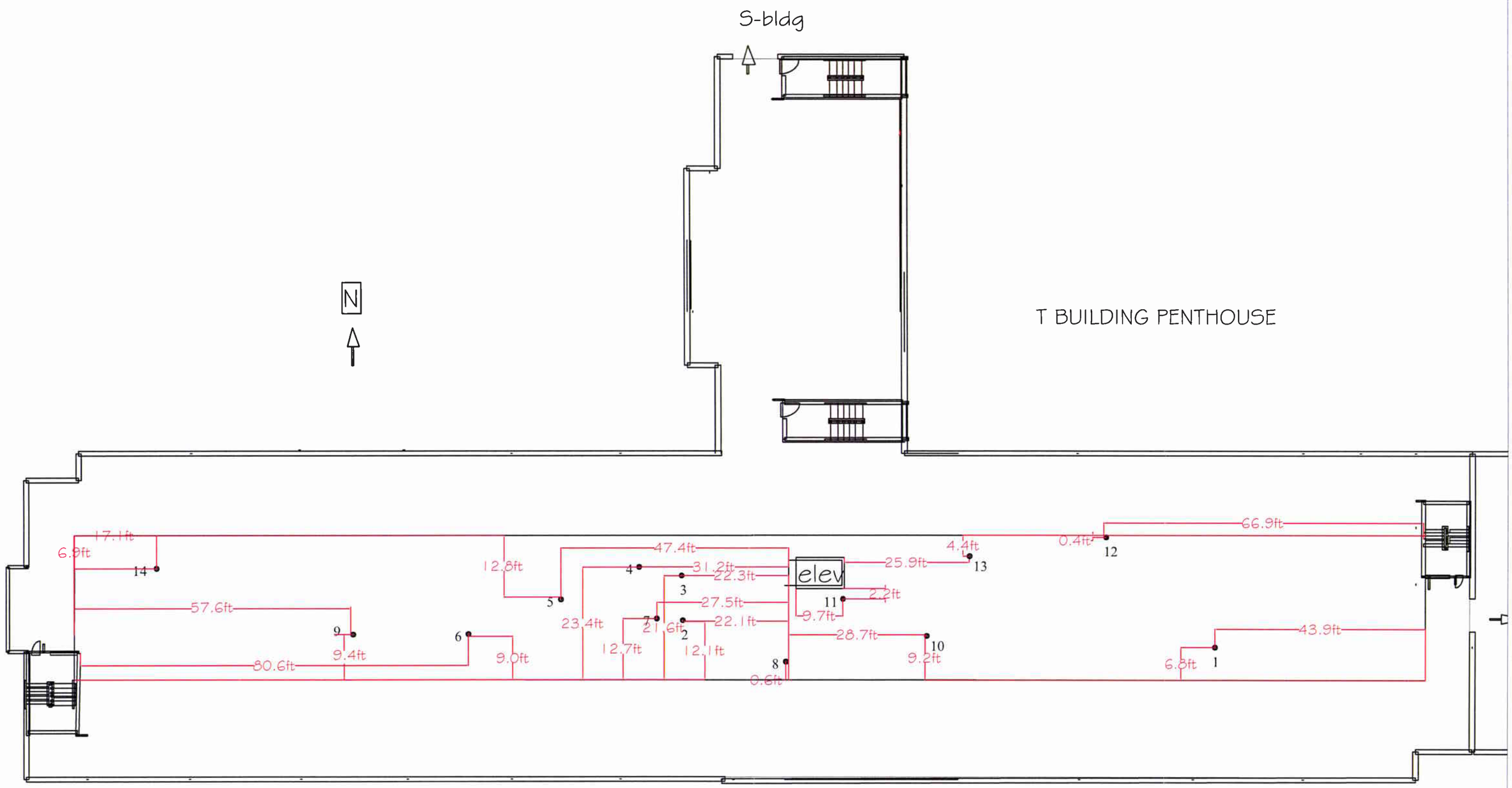
T3 WEST



● Sample Location



• Sample Location



• Sample Location

Z-1

● Sample Location

Structural Surfaces Survey Results

Building 00T Survey Unit 1301 Class 3

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-1301-F1-T-001	159 ± 278	374	18 ± 8	48	12 ± 7	25
00T-1301-F1-T-002	265 ± 284	374	27 ± 10	48	15 ± 8	25
00T-1301-B1-M-003	-319 ± 249	374	24 ± 10	48	15 ± 8	25
00T-1301-F1-T-004	-478 ± 238	374	32 ± 11	48	20 ± 9	25
00T-1301-F1-T-005	53 ± 272	374	36 ± 12	48	9 ± 6	25
00T-1301-F1-T-006	-53 ± 265	374	22 ± 9	48	12 ± 7	25
00T-1301-F1-T-007	372 ± 290	374	32 ± 11	48	15 ± 8	25
00T-1301-F1-T-008	-212 ± 256	374	14 ± 7	48	17 ± 8	25
00T-1301-F1-T-009	-478 ± 238	374	22 ± 9	48	12 ± 7	25
00T-1301-F1-T-010	-319 ± 249	374	28 ± 10	48	10 ± 6	25
00T-1301-F1-T-011	-319 ± 249	374	27 ± 10	48	14 ± 7	25
00T-1301-F1-T-012	-319 ± 249	374	12 ± 7	48	16 ± 8	25
00T-1301-F1-T-013	106 ± 275	374	22 ± 9	48	17 ± 8	25
00T-1301-F1-T-014	106 ± 275	374	24 ± 10	48	12 ± 7	25
Summary for Survey Unit # 1301 (14 detail records)						
Average	-102		24		14	
Minimum	-478		12		9	
Maximum	372		36		20	
Standard Deviation	280		7		3	

Note: All results reported in dpm/100cm^2.

Structural Surfaces Survey Results

Building 00T Survey Unit 1302 Class 3

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-1302-F1-T-001	206 ± 2023	971	30 ± 11	48	15 ± 8	25
00T-1302-F1-T-002	-206 ± 1672	971	9 ± 6	48	8 ± 6	25
00T-1302-F1-T-003	206 ± 2023	971	10 ± 6	48	4 ± 4	25
00T-1302-F1-C-004	-103 ± 1766	971	19 ± 9	48	12 ± 7	25
00T-1302-F1-T-005	-361 ± 1519	971	19 ± 9	48	12 ± 7	25
00T-1302-F1-T-006	-206 ± 1672	971	18 ± 8	48	6 ± 5	25
00T-1302-F1-T-007	-155 ± 1720	971	25 ± 10	48	11 ± 7	25
00T-1302-F1-T-008	619 ± 2322	971	23 ± 9	48	10 ± 6	25
00T-1302-F1-T-009	-52 ± 1812	971	25 ± 10	48	12 ± 7	25
00T-1302-F1-T-010	-310 ± 1572	971	28 ± 10	48	13 ± 7	25
00T-1302-F1-T-011	-52 ± 1812	971	32 ± 11	48	9 ± 6	25
00T-1302-F1-T-012	-52 ± 1812	971	30 ± 11	48	8 ± 6	25
00T-1302-F1-T-013	155 ± 1983	971	22 ± 9	48	12 ± 7	25
00T-1302-F1-T-014	-155 ± 1720	971	**51** ± 14	48	4 ± 4	25
Summary for Survey Unit # 1302 (14 detail records)						
Average	-33		24		10	
Minimum	-361		9		4	
Maximum	619		51		15	
Standard Deviation	257		10		3	

Note: All results reported in dpm/100cm^2.

Structural Surfaces Survey Results

Building 00T Survey Unit 2301 Class 3

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-2301-F1-T-001	206 ± 1854	889	22 ± 9	48	11 ± 7	25
00T-2301-F1-T-002	155 ± 1810	889	20 ± 9	48	11 ± 7	25
00T-2301-F1-T-003	103 ± 1764	889	34 ± 11	48	12 ± 7	25
00T-2301-F1-T-004	103 ± 1764	889	40 ± 12	48	12 ± 7	25
00T-2301-F1-M-005	206 ± 1854	889	18 ± 8	48	15 ± 8	25
00T-2301-F1-T-006	-103 ± 1570	889	23 ± 9	48	10 ± 6	25
00T-2301-F1-T-007	0 ± 1670	889	28 ± 10	48	14 ± 7	25
00T-2301-F1-T-008	52 ± 1718	889	31 ± 11	48	12 ± 7	25
00T-2301-F1-T-009	155 ± 1810	889	20 ± 9	48	11 ± 7	25
00T-2301-F1-T-010	-206 ± 1462	889	22 ± 9	48	13 ± 7	25
00T-2301-F1-T-011	568 ± 2139	889	27 ± 10	48	16 ± 8	25
00T-2301-F1-T-012	103 ± 1764	889	27 ± 10	48	6 ± 5	25
00T-2301-B1-M-013	310 ± 1940	889	28 ± 10	48	12 ± 7	25
00T-2301-F1-T-014	-52 ± 1621	889	35 ± 12	48	19 ± 9	25
Summary for Survey Unit # 2301 (14 detail records)						
Average	114		27		12	
Minimum	-206		18		6	
Maximum	568		40		19	
Standard Deviation	188		6		3	

Note: All results reported in dpm/100cm^2.

Structural Surfaces Survey Results

Building 00T Survey Unit 2302 Class 3

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-2302-F1-T-001	619 ± 2139	867	31 ± 11	48	6 ± 5	25
00T-2302-B1-M-002	361 ± 1939	867	15 ± 8	48	15 ± 8	25
00T-2302-F1-T-003	464 ± 2021	867	**52** ± 14	48	11 ± 7	25
00T-2302-F1-T-004	-52 ± 1569	867	32 ± 11	48	8 ± 6	25
00T-2302-F1-T-005	464 ± 2021	867	40 ± 12	48	9 ± 6	25
00T-2302-F1-T-006	258 ± 1854	867	6 ± 5	48	8 ± 6	25
00T-2302-F1-T-007	568 ± 2100	867	25 ± 10	48	12 ± 7	25
00T-2302-F1-T-008	206 ± 1809	867	33 ± 11	48	14 ± 7	25
00T-2302-F1-T-009	155 ± 1764	867	18 ± 8	48	15 ± 8	25
00T-2302-F1-T-010	671 ± 2176	867	27 ± 10	48	7 ± 5	25
00T-2302-B1-M-011	258 ± 1854	867	**50** ± 14	48	10 ± 6	25
00T-2302-F1-T-012	516 ± 2061	867	41 ± 13	48	10 ± 6	25
00T-2302-F1-T-013	52 ± 1669	867	25 ± 10	48	12 ± 7	25
00T-2302-F1-T-014	361 ± 1939	867	46 ± 13	48	8 ± 6	25
Summary for Survey Unit # 2302 (14 detail records)						
Average	350		32		10	
Minimum	-52		6		6	
Maximum	671		52		15	
Standard Deviation	215		13		3	

Note: All results reported in dpm/100cm^2.

Structural Surfaces Survey Results

Building 00T Survey Unit 3301 Class 3

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-3301-B1-H-001	103 ± 1810	910	28 ± 10	48	12 ± 7	25
00T-3301-F1-T-002	361 ± 2022	910	30 ± 11	48	13 ± 7	25
00T-3301-F1-T-003	206 ± 1898	910	12 ± 7	48	12 ± 7	25
00T-3301-F1-T-004	-155 ± 1570	910	23 ± 9	48	15 ± 8	25
00T-3301-B1-H-005	155 ± 1855	910	29 ± 11	48	9 ± 6	25
00T-3301-F1-T-006	-258 ± 1463	910	43 ± 13	48	10 ± 6	25
00T-3301-F1-T-007	361 ± 2022	910	30 ± 11	48	15 ± 8	25
00T-3301-F1-T-008	-258 ± 1463	910	28 ± 10	48	14 ± 7	25
00T-3301-F1-T-009	258 ± 1940	910	25 ± 10	48	11 ± 7	25
00T-3301-F1-T-010	206 ± 1898	910	22 ± 9	48	16 ± 8	25
00T-3301-F1-T-011	103 ± 1810	910	22 ± 9	48	5 ± 4	25
00T-3301-F1-T-012	-155 ± 1570	910	38 ± 12	48	9 ± 6	25
00T-3301-B1-H-013	-103 ± 1621	910	28 ± 10	48	14 ± 7	25
00T-3301-B1-H-014	-52 ± 1670	910	27 ± 10	48	18 ± 8	25
Summary for Survey Unit # 3301 (14 detail records)						
Average	55		28		12	
Minimum	-258		12		5	
Maximum	361		43		18	
Standard Deviation	217		7		3	

Note: All results reported in dpm/100cm^2.

Structural Surfaces Survey Results

Building 00T Survey Unit 3302 Class 3

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-3302-B1-M-001	568 ± 2177	910	21 ± 9	48	14 ± 7	25
00T-3302-F1-T-002	-52 ± 1670	910	26 ± 10	48	17 ± 8	25
00T-3302-F1-T-003	-52 ± 1670	910	31 ± 11	48	17 ± 8	25
00T-3302-F1-M-004	310 ± 1982	910	29 ± 11	48	13 ± 7	25
00T-3302-B1-M-005	-361 ± 1347	910	11 ± 7	48	11 ± 7	25
00T-3302-F1-T-006	-52 ± 1670	910	23 ± 9	48	8 ± 6	25
00T-3302-F1-T-007	361 ± 2022	910	27 ± 10	48	11 ± 7	25
00T-3302-F1-T-008	155 ± 1855	910	34 ± 11	48	19 ± 9	25
00T-3302-F1-T-009	-52 ± 1670	910	6 ± 5	48	20 ± 9	25
00T-3302-F1-T-010	-103 ± 1621	910	31 ± 11	48	12 ± 7	25
00T-3302-F1-T-011	-206 ± 1518	910	23 ± 9	48	14 ± 7	25
00T-3302-F1-T-012	-361 ± 1347	910	35 ± 12	48	11 ± 7	25
00T-3302-F1-T-013	-155 ± 1570	910	24 ± 10	48	14 ± 7	25
00T-3302-F1-T-014	310 ± 1982	910	12 ± 7	48	18 ± 8	25

Summary for Survey Unit # 3302 (14 detail records)			
Average	22	24	14
Minimum	-361	6	8
Maximum	568	35	20
Standard Deviation	279	9	4

Note: All results reported in dpm/100cm^2.

Structural Surfaces Survey Results

Building 00T — Survey Unit 5301 — Class 3

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-5301-F1-C-001	**324** ± 556	151	21 ± 9	48	12 ± 7	25
00T-5301-F1-C-002	**294** ± 552	151	34 ± 11	48	13 ± 7	25
00T-5301-F1-C-003	**341** ± 558	151	25 ± 10	48	11 ± 7	25
00T-5301-F1-C-004	**290** ± 552	151	44 ± 13	48	10 ± 6	25
00T-5301-F1-C-005	**310** ± 554	151	34 ± 11	48	21 ± 9	25
00T-5301-F1-C-006	**364** ± 561	151	32 ± 11	48	11 ± 7	25
00T-5301-F1-C-007	**350** ± 559	151	32 ± 11	48	9 ± 6	25
00T-5301-F1-C-008	**219** ± 542	151	29 ± 11	48	16 ± 8	25
00T-5301-F1-C-009	**410** ± 567	151	32 ± 11	48	18 ± 8	25
00T-5301-F1-C-010	**308** ± 554	151	30 ± 11	48	16 ± 8	25
00T-5301-F1-C-011	**368** ± 562	151	**49** ± 14	48	12 ± 7	25
00T-5301-F1-C-012	**351** ± 559	151	37 ± 12	48	12 ± 7	25
00T-5301-F1-C-013	**375** ± 563	151	34 ± 11	48	13 ± 7	25
00T-5301-F1-C-014	**404** ± 566	151	17 ± 8	48	**26** ± 10	25
Summary for Survey Unit # 5301 (14 detail records)						
Average	336		32		14	
Minimum	219		17		9	
Maximum	410		49		26	
Standard Deviation	50		8		5	
Summary for Building # 00T (98 detail records)						
Avg	106		27		12	
Min	-478		6		4	
Max	671		52		26	

Note: All results reported in dpm/100cm^2.

Structural Surfaces Survey Results

Building 00Z Survey Unit 1301 Class 3

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00Z-1301-F1-H-001	196 ± 1979	956	36 ± 12	48	15 ± 8	25
00Z-1301-F1-R-002	234 ± 2009	956	24 ± 10	48	12 ± 7	25
00Z-1301-F1-A-003	202 ± 1983	956	43 ± 13	48	11 ± 7	25
00Z-1301-F1-A-004	488 ± 2205	956	31 ± 11	48	11 ± 7	25
00Z-1301-F1-T-005	196 ± 1979	956	39 ± 12	48	5 ± 4	25
00Z-1301-F1-A-006	297 ± 2060	956	41 ± 13	48	6 ± 5	25
00Z-1301-F1-A-007	170 ± 1957	956	**60** ± 15	48	11 ± 7	25
00Z-1301-F1-A-008	175 ± 1962	956	26 ± 10	48	17 ± 8	25
00Z-1301-B1-M-009	-16 ± 1797	956	30 ± 11	48	14 ± 7	25
00Z-1301-F1-A-010	111 ± 1908	956	40 ± 12	48	10 ± 6	25
00Z-1301-F1-A-011	165 ± 1953	956	21 ± 9	48	15 ± 8	25
00Z-1301-F1-A-012	271 ± 2039	956	17 ± 8	48	10 ± 6	25
00Z-1301-F1-T-013	271 ± 2039	956	21 ± 9	48	6 ± 5	25
00Z-1301-F1-P-014	**1481** ± 2842	956	23 ± 9	48	10 ± 6	25
Summary for Survey Unit # 1301 (14 detail records)						
Average	303		32		11	
Minimum	-16		17		5	
Maximum	1481		60		17	
Standard Deviation	357		12		4	
Summary for Building # 00Z (14 detail records)						
Avg	303		32		11	
Min	-16		17		5	
Max	1481		60		17	

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T Survey Unit DR01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-DR01-D2-M-001			27 ± 10	48	16 ± 8	25
00T-DR01-D2-M-002			42 ± 13	48	9 ± 6	25
00T-DR01-D2-M-003			**50** ± 14	48	6 ± 5	25
00T-DR01-D1-M-004			25 ± 10	48	17 ± 8	25
00T-DR01-D1-M-005			23 ± 9	48	9 ± 6	25
00T-DR01-D1-M-006			10 ± 6	48	22 ± 9	25
00T-DR01-D1-M-007			26 ± 10	48	12 ± 7	25
00T-DR01-D1-M-008			21 ± 9	48	14 ± 7	25
00T-DR01-D1-M-009			16 ± 8	48	16 ± 8	25
00T-DR01-D1-M-010			10 ± 6	48	16 ± 8	25
00T-DR01-D1-M-011			32 ± 11	48	12 ± 7	25
00T-DR01-D1-M-012			20 ± 9	48	12 ± 7	25
00T-DR01-D1-M-013			31 ± 11	48	6 ± 5	25
00T-DR01-D1-M-014			13 ± 7	48	9 ± 6	25
00T-DR01-D1-M-015			13 ± 7	48	16 ± 8	25
00T-DR01-D1-M-016			24 ± 10	48	14 ± 7	25
00T-DR01-D1-M-017			31 ± 11	48	18 ± 8	25
00T-DR01-D1-M-018			14 ± 7	48	11 ± 7	25
00T-DR01-D1-M-019			29 ± 11	48	13 ± 7	25
00T-DR01-D1-M-020			32 ± 11	48	8 ± 6	25
00T-DR01-D1-M-021			19 ± 9	48	16 ± 8	25
00T-DR01-D1-M-022			31 ± 11	48	8 ± 6	25
00T-DR01-D1-M-023			24 ± 10	48	5 ± 4	25
00T-DR01-D1-M-024			14 ± 7	48	21 ± 9	25
00T-DR01-D1-M-025			27 ± 10	48	15 ± 8	25
00T-DR01-D1-M-026			45 ± 13	48	6 ± 5	25
00T-DR01-D1-M-027			27 ± 10	48	12 ± 7	25
00T-DR01-D1-M-028			28 ± 10	48	11 ± 7	25
00T-DR01-D1-M-029			33 ± 11	48	6 ± 5	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T Survey Unit DR01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-DR01-D1-M-030			**49** ± 14	48	23 ± 9	25
00T-DR01-D1-M-031			36 ± 12	48	14 ± 7	25
00T-DR01-D1-M-032			46 ± 13	48	12 ± 7	25
00T-DR01-D1-M-033			22 ± 9	48	18 ± 8	25
00T-DR01-D1-M-034			27 ± 10	48	5 ± 4	25
00T-DR01-D1-M-035			40 ± 12	48	15 ± 8	25
00T-DR01-D1-M-036			33 ± 11	48	16 ± 8	25
00T-DR01-D1-M-037			**56** ± 15	48	10 ± 6	25
00T-DR01-D1-M-038			43 ± 13	48	15 ± 8	25
00T-DR01-D1-M-039			41 ± 13	48	10 ± 6	25
00T-DR01-D2-M-040			39 ± 12	48	11 ± 7	25
00T-DR01-D2-M-041			43 ± 13	48	6 ± 5	25
00T-DR01-D2-M-042			44 ± 13	48	17 ± 8	25
00T-DR01-D1-M-043			34 ± 11	48	7 ± 5	25
00T-DR01-D1-M-044			19 ± 9	48	9 ± 6	25
00T-DR01-D1-M-045			31 ± 11	48	12 ± 7	25
00T-DR01-D1-M-046			**54** ± 14	48	7 ± 5	25
00T-DR01-D1-M-047			23 ± 9	48	15 ± 8	25
00T-DR01-D1-M-048			36 ± 12	48	16 ± 8	25
00T-DR01-D1-M-049			31 ± 11	48	15 ± 8	25
00T-DR01-D1-M-050			16 ± 8	48	18 ± 8	25
00T-DR01-D1-M-051			27 ± 10	48	11 ± 7	25
00T-DR01-D1-M-052			19 ± 9	48	16 ± 8	25
00T-DR01-D1-M-053			21 ± 9	48	17 ± 8	25
00T-DR01-D1-M-054			**122** ± 22	48	11 ± 7	25
00T-DR01-D1-M-055			27 ± 10	48	13 ± 7	25
00T-DR01-D1-M-056			16 ± 8	48	5 ± 4	25
00T-DR01-D1-M-057			30 ± 11	48	9 ± 6	25
00T-DR01-D1-M-058			43 ± 13	48	15 ± 8	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T Survey Unit DR01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-DR01-D1-M-059			**112** ± 21	48	3 ± 3	25
00T-DR01-D1-M-060			24 ± 10	48	8 ± 6	25
00T-DR01-D1-M-061			48 ± 14	48	8 ± 6	25
00T-DR01-D1-M-062			32 ± 11	48	11 ± 7	25
00T-DR01-D1-M-063			32 ± 11	48	11 ± 7	25
00T-DR01-D1-M-064			40 ± 12	48	14 ± 7	25
00T-DR01-D1-M-065			29 ± 11	48	16 ± 8	25
00T-DR01-D1-M-066			**51** ± 14	48	10 ± 6	25
00T-DR01-D1-M-067			43 ± 13	48	16 ± 8	25
00T-DR01-D1-M-068			**62** ± 15	48	9 ± 6	25
00T-DR01-D1-M-069			25 ± 10	48	10 ± 6	25
00T-DR01-D1-M-070			43 ± 13	48	13 ± 7	25
00T-DR01-D1-M-071			**66** ± 16	48	10 ± 6	25
00T-DR01-D1-M-072			24 ± 10	48	20 ± 9	25
00T-DR01-D1-M-073			45 ± 13	48	12 ± 7	25
00T-DR01-D1-M-074			35 ± 12	48	13 ± 7	25
00T-DR01-D1-M-075			**52** ± 14	48	15 ± 8	25
00T-DR01-D1-M-076			30 ± 11	48	9 ± 6	25
00T-DR01-D1-M-077			47 ± 13	48	7 ± 5	25
00T-DR01-D1-M-078			**56** ± 15	48	15 ± 8	25
00T-DR01-D1-M-079			42 ± 13	48	12 ± 7	25
00T-DR01-D1-M-080			**58** ± 15	48	9 ± 6	25
00T-DR01-D1-M-081			35 ± 12	48	7 ± 5	25
00T-DR01-D1-M-082			43 ± 13	48	14 ± 7	25
00T-DR01-D1-M-083			27 ± 10	48	7 ± 5	25
00T-DR01-D1-M-084			15 ± 8	48	13 ± 7	25
00T-DR01-D1-M-085			16 ± 8	48	12 ± 7	25
00T-DR01-D1-M-086			29 ± 11	48	11 ± 7	25
00T-DR01-D1-M-087			48 ± 14	48	9 ± 6	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T Survey Unit DR01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-DR01-D1-M-088			30 ± 11	48	8 ± 6	25
00T-DR01-D1-M-089			37 ± 12	48	10 ± 6	25
00T-DR01-D1-M-090			45 ± 13	48	14 ± 7	25
00T-DR01-D1-M-091			20 ± 9	48	12 ± 7	25
00T-DR01-D1-M-092			18 ± 8	48	10 ± 6	25
00T-DR01-D1-M-093			42 ± 13	48	6 ± 5	25
00T-DR01-D1-M-094			44 ± 13	48	6 ± 5	25
00T-DR01-D1-M-095			29 ± 11	48	22 ± 9	25
00T-DR01-D1-M-096			26 ± 10	48	17 ± 8	25
00T-DR01-D2-M-097			137 ± 23	48	14 ± 7	25
00T-DR01-D1-M-098			25 ± 10	48	10 ± 6	25
00T-DR01-D2-M-099			39 ± 12	48	14 ± 7	25
00T-DR01-D1-M-100			24 ± 10	48	10 ± 6	25
00T-DR01-D1-M-101			9 ± 6	48	18 ± 8	25
00T-DR01-D1-M-102			11 ± 7	48	20 ± 9	25
00T-DR01-D1-M-103			31 ± 11	48	13 ± 7	25
00T-DR01-D1-M-104			14 ± 7	48	19 ± 9	25
00T-DR01-D1-M-105			20 ± 9	48	14 ± 7	25
00T-DR01-D1-M-106			19 ± 9	48	13 ± 7	25
00T-DR01-D1-M-107			23 ± 9	48	11 ± 7	25
00T-DR01-D1-M-108			21 ± 9	48	14 ± 7	25
00T-DR01-D1-M-109			42 ± 13	48	19 ± 9	25
00T-DR01-D1-M-110			24 ± 10	48	20 ± 9	25
00T-DR01-D1-M-111			43 ± 13	48	12 ± 7	25
00T-DR01-D1-M-112			25 ± 10	48	19 ± 9	25
00T-DR01-D1-M-113			23 ± 9	48	13 ± 7	25
00T-DR01-D1-M-114			18 ± 8	48	9 ± 6	25
00T-DR01-D1-M-115			17 ± 8	48	15 ± 8	25
00T-DR01-D1-M-116			36 ± 12	48	12 ± 7	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T | Survey Unit DR01 | Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-DR01-D1-M-117			21 ± 9	48	15 ± 8	25
00T-DR01-D1-M-118			**51** ± 14	48	11 ± 7	25
00T-DR01-D1-M-119			**50** ± 14	48	20 ± 9	25
00T-DR01-D1-M-120			29 ± 11	48	9 ± 6	25
00T-DR01-D1-M-121			15 ± 8	48	15 ± 8	25
00T-DR01-D1-M-122			**71** ± 17	48	10 ± 6	25
00T-DR01-D1-M-123			32 ± 11	48	9 ± 6	25
00T-DR01-D1-M-124			30 ± 11	48	15 ± 8	25
00T-DR01-D1-M-125			11 ± 7	48	12 ± 7	25
00T-DR01-D1-M-126			36 ± 12	48	11 ± 7	25
00T-DR01-D1-M-127			33 ± 11	48	19 ± 9	25
00T-DR01-D1-M-128			24 ± 10	48	25 ± 10	25
00T-DR01-D1-M-129			17 ± 8	48	22 ± 9	25
00T-DR01-D1-M-130			27 ± 10	48	13 ± 7	25
00T-DR01-D1-M-131			**54** ± 14	48	23 ± 9	25
00T-DR01-D1-M-132			33 ± 11	48	12 ± 7	25
00T-DR01-D1-M-133			14 ± 7	48	10 ± 6	25
00T-DR01-D1-M-134			16 ± 8	48	17 ± 8	25
00T-DR01-D1-M-135			37 ± 12	48	17 ± 8	25
00T-DR01-D1-M-136			29 ± 11	48	**27** ± 10	25
00T-DR01-D1-M-137			19 ± 9	48	13 ± 7	25
00T-DR01-D1-M-138			22 ± 9	48	12 ± 7	25
00T-DR01-D1-M-139			22 ± 9	48	20 ± 9	25
00T-DR01-D1-M-140			15 ± 8	48	19 ± 9	25
00T-DR01-D1-M-141			32 ± 11	48	12 ± 7	25
00T-DR01-D1-M-142			9 ± 6	48	22 ± 9	25
00T-DR01-D1-M-143			38 ± 12	48	22 ± 9	25
00T-DR01-D1-M-144			43 ± 13	48	25 ± 10	25
00T-DR01-D1-M-145			35 ± 12	48	15 ± 8	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T Survey Unit DR01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-DR01-D1-M-146			73 ± 17	48	21 ± 9	25
00T-DR01-D1-M-147			39 ± 12	48	6 ± 5	25
00T-DR01-D2-M-148			26 ± 10	48	20 ± 9	25
00T-DR01-D1-M-149			21 ± 9	48	18 ± 8	25
00T-DR01-D2-M-150			17 ± 8	48	12 ± 7	25
Summary for Survey Unit # DR01 (150 detail records)						
Average			33		13	
Minimum			9		3	
Maximum			137		27	
Standard Deviation			18		5	

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T | Survey Unit VA01 | Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-VA01-V1-M-001			21 ± 9	48	9 ± 6	25
00T-VA01-V1-M-002			24 ± 10	48	13 ± 7	25
00T-VA01-V1-M-003			14 ± 7	48	16 ± 8	25
00T-VA01-V1-M-004			25 ± 10	48	12 ± 7	25
00T-VA01-V1-M-005			20 ± 9	48	7 ± 5	25
00T-VA01-V1-M-006			27 ± 10	48	9 ± 6	25
00T-VA01-V1-M-007			17 ± 8	48	16 ± 8	25
00T-VA01-V1-M-008			35 ± 12	48	14 ± 7	25
00T-VA01-V1-M-009			21 ± 9	48	15 ± 8	25
00T-VA01-V1-M-010			21 ± 9	48	21 ± 9	25
00T-VA01-V1-M-011			35 ± 12	48	11 ± 7	25
00T-VA01-V1-M-012			35 ± 12	48	13 ± 7	25
00T-VA01-V1-M-013			43 ± 13	48	16 ± 8	25
00T-VA01-V1-M-014			30 ± 11	48	13 ± 7	25
00T-VA01-V1-M-015			17 ± 8	48	20 ± 9	25
00T-VA01-V1-M-016			32 ± 11	48	15 ± 8	25
00T-VA01-V1-M-017			20 ± 9	48	9 ± 6	25
00T-VA01-V1-M-018			30 ± 11	48	15 ± 8	25
00T-VA01-V1-M-019			21 ± 9	48	14 ± 7	25
00T-VA01-V1-M-020			15 ± 8	48	12 ± 7	25
00T-VA01-V1-M-021			39 ± 12	48	15 ± 8	25
00T-VA01-V1-M-022			22 ± 9	48	10 ± 6	25
00T-VA01-V1-M-023			29 ± 11	48	18 ± 8	25
00T-VA01-V1-M-024			13 ± 7	48	10 ± 6	25
00T-VA01-V1-M-025			21 ± 9	48	14 ± 7	25
00T-VA01-V1-M-026			32 ± 11	48	11 ± 7	25
00T-VA01-V1-M-027			32 ± 11	48	14 ± 7	25
00T-VA01-V1-M-028			32 ± 11	48	11 ± 7	25
00T-VA01-V1-M-029			17 ± 8	48	12 ± 7	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T | Survey Unit VA01 | Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-VA01-V1-M-030			40 ± 12	48	10 ± 6	25
00T-VA01-V1-M-031			18 ± 8	48	18 ± 8	25
00T-VA01-V1-M-032			20 ± 9	48	12 ± 7	25
00T-VA01-V1-M-033			28 ± 10	48	17 ± 8	25
00T-VA01-V1-M-034			29 ± 11	48	16 ± 8	25
00T-VA01-V1-M-035			42 ± 13	48	13 ± 7	25
00T-VA01-V1-M-036			30 ± 11	48	10 ± 6	25
00T-VA01-V1-M-037			26 ± 10	48	15 ± 8	25
00T-VA01-V1-M-038			18 ± 8	48	16 ± 8	25
00T-VA01-V1-M-039			25 ± 10	48	11 ± 7	25
00T-VA01-V1-M-040			25 ± 10	48	12 ± 7	25
00T-VA01-V1-M-041			16 ± 8	48	8 ± 6	25
00T-VA01-V1-M-042			19 ± 9	48	23 ± 9	25
00T-VA01-V1-M-043			22 ± 9	48	18 ± 8	25
00T-VA01-V1-M-044			27 ± 10	48	19 ± 9	25
00T-VA01-V1-M-045			27 ± 10	48	8 ± 6	25
00T-VA01-V1-M-046			31 ± 11	48	17 ± 8	25
00T-VA01-V1-M-047			31 ± 11	48	11 ± 7	25
00T-VA01-V1-M-048			22 ± 9	48	10 ± 6	25
00T-VA01-V1-M-049			33 ± 11	48	16 ± 8	25
00T-VA01-V1-M-050			19 ± 9	48	12 ± 7	25
00T-VA01-V1-M-051			27 ± 10	48	9 ± 6	25
00T-VA01-V1-M-052			34 ± 11	48	8 ± 6	25
00T-VA01-V1-M-053			28 ± 10	48	14 ± 7	25
00T-VA01-V1-M-054			13 ± 7	48	15 ± 8	25
00T-VA01-V1-M-055			29 ± 11	48	13 ± 7	25
00T-VA01-V1-M-056			32 ± 11	48	10 ± 6	25
00T-VA01-V1-M-057			22 ± 9	48	9 ± 6	25
00T-VA01-V1-M-058			24 ± 10	48	18 ± 8	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T Survey Unit VA01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-VA01-V1-M-059			25 ± 10	48	19 ± 9	25
00T-VA01-V1-M-060			11 ± 7	48	12 ± 7	25
00T-VA01-V1-M-061			25 ± 10	48	23 ± 9	25
00T-VA01-V1-M-062			31 ± 11	48	12 ± 7	25
00T-VA01-V1-M-063			25 ± 10	48	12 ± 7	25
00T-VA01-V1-M-064			23 ± 9	48	14 ± 7	25
00T-VA01-V1-M-065			36 ± 12	48	11 ± 7	25
00T-VA01-V1-M-066			29 ± 11	48	8 ± 6	25
00T-VA01-V1-M-067			29 ± 11	48	8 ± 6	25
00T-VA01-V1-M-068			30 ± 11	48	14 ± 7	25
00T-VA01-V1-M-069			38 ± 12	48	13 ± 7	25
00T-VA01-V1-M-070			32 ± 11	48	6 ± 5	25
00T-VA01-V1-M-071			39 ± 12	48	12 ± 7	25
00T-VA01-V1-M-072			24 ± 10	48	22 ± 9	25
00T-VA01-V1-M-073			27 ± 10	48	18 ± 8	25
00T-VA01-V1-M-074			33 ± 11	48	17 ± 8	25
00T-VA01-V1-M-075			29 ± 11	48	19 ± 9	25
00T-VA01-V1-M-076			17 ± 8	48	14 ± 7	25
00T-VA01-V1-M-077			36 ± 12	48	9 ± 6	25
00T-VA01-V1-M-078			29 ± 11	48	23 ± 9	25
00T-VA01-V1-M-079			16 ± 8	48	17 ± 8	25
00T-VA01-V1-M-080			21 ± 9	48	6 ± 5	25
00T-VA01-V1-M-081			17 ± 8	48	13 ± 7	25
00T-VA01-V1-M-082			18 ± 8	48	9 ± 6	25
00T-VA01-V1-M-083			18 ± 8	48	19 ± 9	25
00T-VA01-V1-M-084			11 ± 7	48	17 ± 8	25
00T-VA01-V1-M-085			30 ± 11	48	6 ± 5	25
00T-VA01-V1-M-086			27 ± 10	48	12 ± 7	25
00T-VA01-V1-M-087			9 ± 6	48	19 ± 9	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T | Survey Unit VA01 | Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-VA01-V1-M-088			30 ± 11	48	5 ± 4	25
00T-VA01-V1-M-089			33 ± 11	48	13 ± 7	25
00T-VA01-V1-M-090			23 ± 9	48	17 ± 8	25
00T-VA01-V1-M-091			38 ± 12	48	10 ± 6	25
00T-VA01-V1-M-092			19 ± 9	48	14 ± 7	25
00T-VA01-V1-M-093			20 ± 9	48	17 ± 8	25
00T-VA01-V1-M-094			31 ± 11	48	10 ± 6	25
00T-VA01-V1-M-095			22 ± 9	48	10 ± 6	25
00T-VA01-V1-M-096			11 ± 7	48	20 ± 9	25
00T-VA01-V1-M-097			16 ± 8	48	12 ± 7	25
00T-VA01-V1-M-098			**144** ± 24	48	8 ± 6	25
00T-VA01-V1-M-099			23 ± 9	48	11 ± 7	25
00T-VA01-V1-M-100			**62** ± 15	48	15 ± 8	25
00T-VA01-V1-M-101			25 ± 10	48	9 ± 6	25
00T-VA01-V1-M-102			28 ± 10	48	24 ± 10	25
00T-VA01-V1-M-103			38 ± 12	48	10 ± 6	25
00T-VA01-V1-M-104			30 ± 11	48	23 ± 9	25
00T-VA01-V1-M-105			30 ± 11	48	10 ± 6	25
00T-VA01-V1-M-106			35 ± 12	48	12 ± 7	25
00T-VA01-V1-M-107			19 ± 9	48	11 ± 7	25
00T-VA01-V1-M-108			21 ± 9	48	14 ± 7	25
00T-VA01-V1-M-109			34 ± 11	48	17 ± 8	25
00T-VA01-V1-M-110			18 ± 8	48	11 ± 7	25
00T-VA01-V1-M-111			38 ± 12	48	9 ± 6	25
00T-VA01-V1-M-112			28 ± 10	48	17 ± 8	25
00T-VA01-V1-M-113			29 ± 11	48	8 ± 6	25
00T-VA01-V1-M-114			32 ± 11	48	16 ± 8	25
00T-VA01-V1-M-115			21 ± 9	48	14 ± 7	25
00T-VA01-V1-M-116			38 ± 12	48	18 ± 8	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T Survey Unit VA01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-VA01-V1-M-117			14 ± 7	48	18 ± 8	25
00T-VA01-V1-M-118			38 ± 12	48	16 ± 8	25
00T-VA01-V1-M-119			31 ± 11	48	11 ± 7	25
00T-VA01-V1-M-120			24 ± 10	48	10 ± 6	25
00T-VA01-V1-M-121			19 ± 9	48	12 ± 7	25
00T-VA01-V1-M-122			41 ± 13	48	8 ± 6	25
00T-VA01-V1-M-123			18 ± 8	48	13 ± 7	25
00T-VA01-V1-M-124			22 ± 9	48	15 ± 8	25
00T-VA01-V1-M-125			40 ± 12	48	16 ± 8	25
00T-VA01-V1-M-126			27 ± 10	48	9 ± 6	25
00T-VA01-V1-M-127			35 ± 12	48	12 ± 7	25
00T-VA01-V1-M-128			25 ± 10	48	10 ± 6	25
00T-VA01-V1-M-129			31 ± 11	48	13 ± 7	25
00T-VA01-V1-M-130			32 ± 11	48	11 ± 7	25
00T-VA01-V1-M-131			33 ± 11	48	10 ± 6	25
00T-VA01-V1-M-132			25 ± 10	48	9 ± 6	25
00T-VA01-V1-M-133			24 ± 10	48	10 ± 6	25
00T-VA01-V1-M-134			**52 ± 14**	48	16 ± 8	25
00T-VA01-V1-M-135			17 ± 8	48	14 ± 7	25
00T-VA01-V1-M-136			35 ± 12	48	11 ± 7	25
00T-VA01-V1-M-137			31 ± 11	48	5 ± 4	25
00T-VA01-V1-M-138			30 ± 11	48	17 ± 8	25
00T-VA01-V1-M-139			20 ± 9	48	19 ± 9	25
00T-VA01-V1-M-140			37 ± 12	48	17 ± 8	25
00T-VA01-V1-M-141			23 ± 9	48	15 ± 8	25
00T-VA01-V1-M-142			26 ± 10	48	16 ± 8	25
00T-VA01-V1-M-143			23 ± 9	48	14 ± 7	25
00T-VA01-V1-M-144			26 ± 10	48	12 ± 7	25
00T-VA01-V1-M-145			32 ± 11	48	10 ± 6	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T | Survey Unit VA01 | Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-VA01-V1-M-146			33 ± 11	48	16 ± 8	25
00T-VA01-V1-M-147			35 ± 12	48	20 ± 9	25
00T-VA01-V1-M-148			43 ± 13	48	13 ± 7	25
00T-VA01-V1-M-149			25 ± 10	48	19 ± 9	25
00T-VA01-V1-M-150			22 ± 9	48	17 ± 8	25
00T-VA01-V1-M-151			25 ± 10	48	13 ± 7	25
00T-VA01-V1-M-152			36 ± 12	48	14 ± 7	25
00T-VA01-V1-M-153			30 ± 11	48	13 ± 7	25
00T-VA01-V1-M-154			33 ± 11	48	13 ± 7	25
00T-VA01-V1-M-155			30 ± 11	48	15 ± 8	25
00T-VA01-V1-M-156			45 ± 13	48	9 ± 6	25
00T-VA01-V1-M-157			28 ± 10	48	14 ± 7	25
00T-VA01-V1-M-158			31 ± 11	48	10 ± 6	25
00T-VA01-V1-M-159			24 ± 10	48	18 ± 8	25
00T-VA01-V1-M-160			20 ± 9	48	4 ± 4	25
00T-VA01-V1-M-161			28 ± 10	48	11 ± 7	25
00T-VA01-V1-M-162			33 ± 11	48	19 ± 9	25
00T-VA01-V1-M-163			39 ± 12	48	17 ± 8	25
00T-VA01-V1-M-164			30 ± 11	48	19 ± 9	25
00T-VA01-V1-M-165			32 ± 11	48	15 ± 8	25
00T-VA01-V1-M-166			16 ± 8	48	8 ± 6	25
00T-VA01-V1-M-167			23 ± 9	48	17 ± 8	25
00T-VA01-V1-M-168			26 ± 10	48	13 ± 7	25
00T-VA01-V1-M-169			28 ± 10	48	13 ± 7	25
00T-VA01-V1-M-170			36 ± 12	48	15 ± 8	25
00T-VA01-V1-M-171			16 ± 8	48	18 ± 8	25
00T-VA01-V1-M-172			28 ± 10	48	17 ± 8	25
00T-VA01-V1-M-173			16 ± 8	48	17 ± 8	25
00T-VA01-V1-M-174			24 ± 10	48	13 ± 7	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T Survey Unit VA01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-VA01-V1-M-175			20 ± 9	48	8 ± 6	25
00T-VA01-V1-M-176			15 ± 8	48	14 ± 7	25
00T-VA01-V1-M-177			31 ± 11	48	17 ± 8	25
00T-VA01-V1-M-178			27 ± 10	48	11 ± 7	25
00T-VA01-V1-M-179			40 ± 12	48	10 ± 6	25
00T-VA01-V1-M-180			33 ± 11	48	5 ± 4	25
00T-VA01-V1-M-181			35 ± 12	48	10 ± 6	25
00T-VA01-V1-M-182			12 ± 7	48	15 ± 8	25
00T-VA01-V1-M-183			31 ± 11	48	15 ± 8	25
00T-VA01-V1-M-184			18 ± 8	48	16 ± 8	25
00T-VA01-V1-M-185			27 ± 10	48	18 ± 8	25
00T-VA01-V1-M-186			24 ± 10	48	15 ± 8	25
00T-VA01-V1-M-187			30 ± 11	48	17 ± 8	25
00T-VA01-V1-M-188			28 ± 10	48	4 ± 4	25
00T-VA01-V1-M-189			23 ± 9	48	16 ± 8	25
00T-VA01-V1-M-190			30 ± 11	48	15 ± 8	25
00T-VA01-V1-M-191			40 ± 12	48	12 ± 7	25
00T-VA01-V1-M-192			22 ± 9	48	21 ± 9	25
00T-VA01-V1-M-193			12 ± 7	48	19 ± 9	25
00T-VA01-V1-M-194			28 ± 10	48	17 ± 8	25
00T-VA01-V1-M-195			23 ± 9	48	21 ± 9	25
00T-VA01-V1-M-196			23 ± 9	48	14 ± 7	25
00T-VA01-V1-M-197			33 ± 11	48	12 ± 7	25
00T-VA01-V1-M-198			24 ± 10	48	24 ± 10	25
00T-VA01-V1-M-199			40 ± 12	48	10 ± 6	25
00T-VA01-V1-M-200			29 ± 11	48	12 ± 7	25
00T-VA01-V1-M-201			13 ± 7	48	23 ± 9	25
00T-VA01-V1-M-202			30 ± 11	48	13 ± 7	25
00T-VA01-V1-M-203			23 ± 9	48	17 ± 8	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T Survey Unit VA01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-VA01-V1-M-204			19 ± 9	48	14 ± 7	25
00T-VA01-V1-M-205			25 ± 10	48	16 ± 8	25
00T-VA01-V1-M-206			32 ± 11	48	8 ± 6	25
00T-VA01-V1-M-207			15 ± 8	48	16 ± 8	25
00T-VA01-V1-M-208			28 ± 10	48	11 ± 7	25
00T-VA01-V1-M-209			12 ± 7	48	15 ± 8	25
00T-VA01-V1-M-210			13 ± 7	48	21 ± 9	25
00T-VA01-V1-M-211			33 ± 11	48	3 ± 3	25
00T-VA01-V1-M-212			44 ± 13	48	11 ± 7	25
00T-VA01-V1-M-213			20 ± 9	48	13 ± 7	25
00T-VA01-V1-M-214			28 ± 10	48	15 ± 8	25
00T-VA01-V1-M-215			26 ± 10	48	6 ± 5	25
00T-VA01-V1-M-216			33 ± 11	48	13 ± 7	25
00T-VA01-V1-M-217			20 ± 9	48	11 ± 7	25
00T-VA01-V1-M-218			26 ± 10	48	15 ± 8	25
00T-VA01-V1-M-219			32 ± 11	48	8 ± 6	25
00T-VA01-V1-M-220			28 ± 10	48	6 ± 5	25
00T-VA01-V1-M-221			30 ± 11	48	10 ± 6	25
00T-VA01-V1-M-222			24 ± 10	48	10 ± 6	25
00T-VA01-V1-M-223			23 ± 9	48	21 ± 9	25
00T-VA01-V1-M-224			19 ± 9	48	16 ± 8	25
00T-VA01-V1-M-225			10 ± 6	48	13 ± 7	25
00T-VA01-V1-M-226			18 ± 8	48	13 ± 7	25
00T-VA01-V1-M-227			28 ± 10	48	13 ± 7	25
00T-VA01-V1-M-228			36 ± 12	48	9 ± 6	25
00T-VA01-V1-M-229			11 ± 7	48	10 ± 6	25
00T-VA01-V1-M-230			18 ± 8	48	19 ± 9	25
00T-VA01-V1-M-231			36 ± 12	48	7 ± 5	25
00T-VA01-V1-M-232			25 ± 10	48	18 ± 8	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T Survey Unit VA01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-VA01-V1-M-233			25 ± 10	48	18 ± 8	25
00T-VA01-V1-M-234			39 ± 12	48	6 ± 5	25
00T-VA01-V1-M-235			17 ± 8	48	15 ± 8	25
00T-VA01-V1-M-236			31 ± 11	48	12 ± 7	25
00T-VA01-V1-M-237			28 ± 10	48	15 ± 8	25
00T-VA01-V1-M-238			22 ± 9	48	13 ± 7	25
00T-VA01-V1-M-239			27 ± 10	48	9 ± 6	25
00T-VA01-V1-M-240			30 ± 11	48	16 ± 8	25
00T-VA01-V1-M-241			21 ± 9	48	15 ± 8	25
00T-VA01-V1-M-242			28 ± 10	48	**26** ± 10	25
00T-VA01-V1-M-243			22 ± 9	48	12 ± 7	25
00T-VA01-V1-M-244			25 ± 10	48	16 ± 8	25
00T-VA01-V1-M-245			23 ± 9	48	23 ± 9	25
00T-VA01-V1-M-246			8 ± 6	48	14 ± 7	25
00T-VA01-V1-M-247			23 ± 9	48	15 ± 8	25
00T-VA01-V1-M-248			21 ± 9	48	13 ± 7	25
00T-VA01-V1-M-249			23 ± 9	48	15 ± 8	25
00T-VA01-V1-M-250			18 ± 8	48	16 ± 8	25
00T-VA01-V1-M-251			28 ± 10	48	6 ± 5	25
00T-VA01-V1-M-252			32 ± 11	48	15 ± 8	25
00T-VA01-V1-M-253			18 ± 8	48	11 ± 7	25
00T-VA01-V1-M-254			28 ± 10	48	15 ± 8	25
00T-VA01-V1-M-255			36 ± 12	48	10 ± 6	25
00T-VA01-V1-M-256			23 ± 9	48	9 ± 6	25
00T-VA01-V1-M-257			27 ± 10	48	15 ± 8	25
00T-VA01-V1-M-258			8 ± 6	48	12 ± 7	25
00T-VA01-V1-M-259			24 ± 10	48	14 ± 7	25
00T-VA01-V1-M-260			25 ± 10	48	9 ± 6	25
00T-VA01-V1-M-261			20 ± 9	48	19 ± 9	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T | Survey Unit VA01 | Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-VA01-V1-M-262			22 ± 9	48	15 ± 8	25
00T-VA01-V1-M-263			11 ± 7	48	12 ± 7	25
00T-VA01-V1-M-264			25 ± 10	48	12 ± 7	25
00T-VA01-V1-M-265			34 ± 11	48	15 ± 8	25
00T-VA01-V1-M-266			28 ± 10	48	11 ± 7	25
00T-VA01-V1-M-267			33 ± 11	48	14 ± 7	25
00T-VA01-V1-M-268			7 ± 5	48	17 ± 8	25
00T-VA01-V1-M-269			10 ± 6	48	12 ± 7	25
00T-VA01-V1-M-270			31 ± 11	48	12 ± 7	25
00T-VA01-V1-M-271			11 ± 7	48	10 ± 6	25
00T-VA01-V1-M-272			5 ± 4	48	6 ± 5	25
00T-VA01-V1-M-273			10 ± 6	48	18 ± 8	25
00T-VA01-V1-M-274			22 ± 9	48	9 ± 6	25
00T-VA01-V1-M-275			35 ± 12	48	16 ± 8	25
00T-VA01-V1-M-276			19 ± 9	48	6 ± 5	25
00T-VA01-V1-M-277			26 ± 10	48	12 ± 7	25
00T-VA01-V1-M-278			25 ± 10	48	23 ± 9	25
00T-VA01-V1-M-279			13 ± 7	48	13 ± 7	25
00T-VA01-V1-M-280			25 ± 10	48	7 ± 5	25
00T-VA01-V1-M-281			22 ± 9	48	15 ± 8	25
00T-VA01-V1-M-282			26 ± 10	48	13 ± 7	25
00T-VA01-V1-M-283			18 ± 8	48	10 ± 6	25
00T-VA01-V1-M-284			21 ± 9	48	18 ± 8	25
00T-VA01-V1-M-285			16 ± 8	48	7 ± 5	25
00T-VA01-V1-M-286			18 ± 8	48	13 ± 7	25
00T-VA01-V1-M-287			23 ± 9	48	11 ± 7	25
00T-VA01-V1-M-288			21 ± 9	48	15 ± 8	25
00T-VA01-V1-M-289			13 ± 7	48	7 ± 5	25
00T-VA01-V1-M-290			42 ± 13	48	17 ± 8	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T — Survey Unit VA01 — Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-VA01-V1-M-291			17 ± 8	48	11 ± 7	25
00T-VA01-V1-M-292			8 ± 6	48	16 ± 8	25
00T-VA01-V1-M-293			22 ± 9	48	9 ± 6	25
00T-VA01-V1-M-294			16 ± 8	48	7 ± 5	25
00T-VA01-V1-M-295			29 ± 11	48	15 ± 8	25
00T-VA01-V1-M-296			16 ± 8	48	16 ± 8	25
00T-VA01-V1-M-297			33 ± 11	48	13 ± 7	25
00T-VA01-V1-M-298			19 ± 9	48	13 ± 7	25
00T-VA01-V1-M-299			21 ± 9	48	15 ± 8	25
00T-VA01-V1-M-300			14 ± 7	48	15 ± 8	25
00T-VA01-V1-M-301			31 ± 11	48	13 ± 7	25
00T-VA01-V1-M-302			20 ± 9	48	19 ± 9	25
00T-VA01-V1-M-303			32 ± 11	48	15 ± 8	25
00T-VA01-V1-M-304			34 ± 11	48	10 ± 6	25
00T-VA01-V1-M-305			11 ± 7	48	11 ± 7	25
00T-VA01-V1-M-306			21 ± 9	48	8 ± 6	25
00T-VA01-V1-M-307			21 ± 9	48	14 ± 7	25
00T-VA01-V1-M-308			24 ± 10	48	13 ± 7	25
00T-VA01-V1-M-309			18 ± 8	48	18 ± 8	25
00T-VA01-V2-M-310			17 ± 8	48	17 ± 8	25
00T-VA01-V2-M-311			27 ± 10	48	12 ± 7	25
00T-VA01-V2-M-312			20 ± 9	48	11 ± 7	25
00T-VA01-V2-M-313			16 ± 8	48	11 ± 7	25
Summary for Survey Unit # VA01 (313 detail records)						
Average			26		13	
Minimum			5		3	
Maximum			144		26	
Standard Deviation			11		4	

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T Survey Unit VE01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-VE01-H2-M-001			44 ± 13	48	13 ± 7	25
00T-VE01-H2-M-002			**70** ± 16	48	9 ± 6	25
00T-VE01-H2-M-003			**51** ± 14	48	8 ± 6	25
00T-VE01-H2-M-004			41 ± 13	48	13 ± 7	25
00T-VE01-H2-M-005			21 ± 9	48	24 ± 10	25
00T-VE01-H2-M-006			38 ± 12	48	19 ± 9	25
00T-VE01-H2-M-007			39 ± 12	48	12 ± 7	25
00T-VE01-H2-M-008			25 ± 10	48	8 ± 6	25
00T-VE01-H2-M-009			19 ± 9	48	13 ± 7	25
00T-VE01-H2-M-010			30 ± 11	48	12 ± 7	25
00T-VE01-H2-M-011			**59** ± 15	48	13 ± 7	25
00T-VE01-H2-M-012			30 ± 11	48	10 ± 6	25
00T-VE01-H2-M-013			43 ± 13	48	17 ± 8	25
00T-VE01-H2-M-014			26 ± 10	48	16 ± 8	25
00T-VE01-H2-M-015			**58** ± 15	48	12 ± 7	25
00T-VE01-H2-M-016			31 ± 11	48	21 ± 9	25
00T-VE01-H2-M-017			31 ± 11	48	9 ± 6	25
00T-VE01-H2-M-018			**71** ± 17	48	8 ± 6	25
00T-VE01-H2-M-019			38 ± 12	48	7 ± 5	25
00T-VE01-H2-M-020			31 ± 11	48	8 ± 6	25
00T-VE01-H2-M-021			20 ± 9	48	16 ± 8	25
00T-VE01-H2-M-022			34 ± 11	48	12 ± 7	25
00T-VE01-H2-M-023			37 ± 12	48	21 ± 9	25
00T-VE01-H2-M-024			19 ± 9	48	20 ± 9	25
00T-VE01-H2-M-025			**58** ± 15	48	12 ± 7	25
00T-VE01-H2-M-026			44 ± 13	48	9 ± 6	25
00T-VE01-H2-M-027			30 ± 11	48	6 ± 5	25
00T-VE01-H2-M-028			25 ± 10	48	24 ± 10	25
00T-VE01-H2-M-029			33 ± 11	48	13 ± 7	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T | Survey Unit VE01 | Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-VE01-H2-M-030			44 ± 13	48	11 ± 7	25
00T-VE01-H2-M-031			38 ± 12	48	14 ± 7	25
00T-VE01-H2-M-032			21 ± 9	48	13 ± 7	25
00T-VE01-H2-M-033			24 ± 10	48	10 ± 6	25
00T-VE01-H2-M-034			45 ± 13	48	14 ± 7	25
00T-VE01-H2-M-035			39 ± 12	48	23 ± 9	25
00T-VE01-H2-M-036			46 ± 13	48	18 ± 8	25
00T-VE01-H2-M-037			25 ± 10	48	10 ± 6	25
00T-VE01-H2-M-038			39 ± 12	48	9 ± 6	25
00T-VE01-H2-M-039			17 ± 8	48	**27** ± 10	25
00T-VE01-H2-M-040			31 ± 11	48	10 ± 6	25
00T-VE01-H2-M-041			26 ± 10	48	10 ± 6	25
00T-VE01-H2-M-042			36 ± 12	48	22 ± 9	25
00T-VE01-H2-M-043			16 ± 8	48	21 ± 9	25
00T-VE01-H2-M-044			38 ± 12	48	14 ± 7	25
00T-VE01-H2-M-045			39 ± 12	48	9 ± 6	25
00T-VE01-H2-M-046			**53** ± 14	48	11 ± 7	25
00T-VE01-H2-M-047			23 ± 9	48	16 ± 8	25
00T-VE01-H2-M-048			22 ± 9	48	14 ± 7	25
00T-VE01-H2-M-049			11 ± 7	48	16 ± 8	25
00T-VE01-H2-M-050			40 ± 12	48	13 ± 7	25
00T-VE01-H2-M-051			41 ± 13	48	11 ± 7	25
00T-VE01-H2-M-052			34 ± 11	48	6 ± 5	25
00T-VE01-H2-M-053			34 ± 11	48	11 ± 7	25
00T-VE01-H2-M-054			**62** ± 15	48	18 ± 8	25
00T-VE01-H2-M-055			33 ± 11	48	14 ± 7	25
00T-VE01-H2-M-056			31 ± 11	48	10 ± 6	25
00T-VE01-H2-M-057			25 ± 10	48	11 ± 7	25
00T-VE01-H2-M-058			**55** ± 15	48	**26** ± 10	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T Survey Unit VE01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-VE01-H2-M-059			**55** ± 15	48	9 ± 6	25
00T-VE01-H2-M-060			47 ± 13	48	7 ± 5	25
00T-VE01-H2-M-061			36 ± 12	48	8 ± 6	25
00T-VE01-H1-M-062			42 ± 13	48	10 ± 6	25
00T-VE01-G1-M-063			26 ± 10	48	16 ± 8	25
00T-VE01-H1-M-064			**64** ± 16	48	5 ± 4	25
00T-VE01-H1-M-065			26 ± 10	48	17 ± 8	25
00T-VE01-G1-M-066			**62** ± 15	48	10 ± 6	25
00T-VE01-H1-M-067			38 ± 12	48	9 ± 6	25
00T-VE01-H1-M-068			42 ± 13	48	15 ± 8	25
00T-VE01-G1-M-069			36 ± 12	48	5 ± 4	25
00T-VE01-H1-M-070			30 ± 11	48	13 ± 7	25
00T-VE01-H1-M-071			30 ± 11	48	14 ± 7	25
00T-VE01-G1-M-072			30 ± 11	48	13 ± 7	25
00T-VE01-G1-M-073			47 ± 13	48	8 ± 6	25
00T-VE01-H1-M-074			47 ± 13	48	14 ± 7	25
00T-VE01-G1-M-075			33 ± 11	48	17 ± 8	25
00T-VE01-H1-M-076			24 ± 10	48	5 ± 4	25
00T-VE01-G1-M-077			46 ± 13	48	17 ± 8	25
00T-VE01-G1-M-078			37 ± 12	48	15 ± 8	25
00T-VE01-G1-M-079			28 ± 10	48	22 ± 9	25
00T-VE01-H1-M-080			25 ± 10	48	18 ± 8	25
00T-VE01-G1-M-081			39 ± 12	48	16 ± 8	25
00T-VE01-H1-M-082			36 ± 12	48	8 ± 6	25
00T-VE01-H1-M-083			28 ± 10	48	12 ± 7	25
00T-VE01-G1-M-084			**69** ± 16	48	10 ± 6	25
00T-VE01-G1-M-085			32 ± 11	48	6 ± 5	25
00T-VE01-G1-M-086			40 ± 12	48	4 ± 4	25
00T-VE01-H1-M-087			41 ± 13	48	10 ± 6	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T | Survey Unit VE01 | Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-VE01-G1-M-088			45 ± 13	48	6 ± 5	25
00T-VE01-H1-M-089			26 ± 10	48	15 ± 8	25
00T-VE01-H1-M-090			34 ± 11	48	10 ± 6	25
00T-VE01-G1-M-091			42 ± 13	48	**33** ± 11	25
00T-VE01-G1-M-092			28 ± 10	48	11 ± 7	25
00T-VE01-G1-M-093			33 ± 11	48	16 ± 8	25
00T-VE01-H1-M-094			29 ± 11	48	8 ± 6	25
00T-VE01-H1-M-095			40 ± 12	48	9 ± 6	25
00T-VE01-G1-M-096			42 ± 13	48	9 ± 6	25
00T-VE01-H1-M-097			35 ± 12	48	7 ± 5	25
00T-VE01-G1-M-098			20 ± 9	48	15 ± 8	25
00T-VE01-H1-M-099			31 ± 11	48	7 ± 5	25
00T-VE01-H1-M-100			**54** ± 14	48	3 ± 3	25
00T-VE01-H1-M-101			31 ± 11	48	20 ± 9	25
00T-VE01-G1-M-102			18 ± 8	48	16 ± 8	25
00T-VE01-G1-M-103			24 ± 10	48	14 ± 7	25
00T-VE01-G1-M-104			30 ± 11	48	14 ± 7	25
00T-VE01-H1-M-105			24 ± 10	48	13 ± 7	25
00T-VE01-H1-M-106			**61** ± 15	48	13 ± 7	25
00T-VE01-H1-M-107			42 ± 13	48	22 ± 9	25
00T-VE01-G1-M-108			33 ± 11	48	11 ± 7	25
00T-VE01-H1-M-109			**54** ± 14	48	11 ± 7	25
00T-VE01-G1-M-110			40 ± 12	48	14 ± 7	25
00T-VE01-G1-M-111			22 ± 9	48	17 ± 8	25
00T-VE01-G1-M-112			**50** ± 14	48	7 ± 5	25
00T-VE01-H1-M-113			25 ± 10	48	12 ± 7	25
00T-VE01-G1-M-114			24 ± 10	48	18 ± 8	25
00T-VE01-H1-M-115			33 ± 11	48	15 ± 8	25
00T-VE01-G1-M-116			35 ± 12	48	14 ± 7	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00T Survey Unit VE01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00T-VE01-H1-M-117			41 ± 13	48	10 ± 6	25
00T-VE01-G1-M-118			28 ± 10	48	8 ± 6	25
00T-VE01-H1-M-119			**56** ± 15	48	19 ± 9	25
00T-VE01-G1-M-120			25 ± 10	48	12 ± 7	25
00T-VE01-H1-M-121			19 ± 9	48	13 ± 7	25
00T-VE01-G1-M-122			48 ± 14	48	17 ± 8	25
00T-VE01-H1-M-123			42 ± 13	48	15 ± 8	25
00T-VE01-G1-M-124			30 ± 11	48	12 ± 7	25
00T-VE01-H1-M-125			42 ± 13	48	**29** ± 11	25
00T-VE01-G1-M-126			23 ± 9	48	**26** ± 10	25
00T-VE01-H1-M-127			33 ± 11	48	15 ± 8	25
00T-VE01-H1-M-128			24 ± 10	48	13 ± 7	25
00T-VE01-G1-M-129			38 ± 12	48	17 ± 8	25
00T-VE01-G1-M-130			**56** ± 15	48	9 ± 6	25
00T-VE01-H1-M-131			30 ± 11	48	14 ± 7	25
00T-VE01-G1-M-132			**53** ± 14	48	11 ± 7	25
00T-VE01-H1-M-133			29 ± 11	48	14 ± 7	25
00T-VE01-G1-M-134			24 ± 10	48	10 ± 6	25
00T-VE01-H1-M-135			**53** ± 14	48	11 ± 7	25
00T-VE01-G1-M-136			**50** ± 14	48	11 ± 7	25
00T-VE01-H1-M-137			34 ± 11	48	5 ± 4	25
00T-VE01-H1-M-138			**49** ± 14	48	17 ± 8	25
00T-VE01-H1-M-139			45 ± 13	48	17 ± 8	25
00T-VE01-H1-M-140			48 ± 14	48	7 ± 5	25
Summary for Survey Unit # VE01 (140 detail records)						
Average			37		13	
Minimum			11		3	
Maximum			71		33	
Standard Deviation			12		5	

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Summary for Building # 00T (603 detail records)		
Avg	30	13
Min	5	3
Max	144	33

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00Z Survey Unit DR01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00Z-DR01-D1-M-001			17 ± 8	48	14 ± 7	25
00Z-DR01-D1-M-002			19 ± 9	48	22 ± 9	25
00Z-DR01-D1-M-003			17 ± 8	48	21 ± 9	25
00Z-DR01-D1-M-004			26 ± 10	48	13 ± 7	25
00Z-DR01-D1-M-005			35 ± 12	48	**29** ± 11	25
00Z-DR01-D1-M-006			**52** ± 14	48	17 ± 8	25
00Z-DR01-D1-M-007			47 ± 13	48	11 ± 7	25
00Z-DR01-D1-M-008			22 ± 9	48	19 ± 9	25
00Z-DR01-D2-M-009			32 ± 11	48	16 ± 8	25
00Z-DR01-D2-M-010			27 ± 10	48	18 ± 8	25
00Z-DR01-D2-M-011			17 ± 8	48	13 ± 7	25
00Z-DR01-D2-M-012			17 ± 8	48	23 ± 9	25
00Z-DR01-D2-M-013			36 ± 12	48	19 ± 9	25
00Z-DR01-D2-M-014			**50** ± 14	48	7 ± 5	25
00Z-DR01-D2-M-015			29 ± 11	48	14 ± 7	25
00Z-DR01-D2-M-016			26 ± 10	48	19 ± 9	25
00Z-DR01-D2-M-017			28 ± 10	48	15 ± 8	25
00Z-DR01-D2-M-018			30 ± 11	48	8 ± 6	25
00Z-DR01-D2-M-019			25 ± 10	48	15 ± 8	25
00Z-DR01-D2-M-020			43 ± 13	48	10 ± 6	25
00Z-DR01-D2-M-021			17 ± 8	48	14 ± 7	25
00Z-DR01-D2-M-022			23 ± 9	48	12 ± 7	25
00Z-DR01-D2-M-023			31 ± 11	48	5 ± 4	25
00Z-DR01-D1-M-024			34 ± 11	48	9 ± 6	25
00Z-DR01-D2-M-025			17 ± 8	48	12 ± 7	25
00Z-DR01-D2-M-026			30 ± 11	48	16 ± 8	25
00Z-DR01-D1-M-027			26 ± 10	48	14 ± 7	25
00Z-DR01-D2-M-028			36 ± 12	48	10 ± 6	25
00Z-DR01-D2-M-029			26 ± 10	48	14 ± 7	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00Z Survey Unit DR01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00Z-DR01-D2-M-030			**55** ± 15	48	10 ± 6	25
00Z-DR01-D2-M-031			38 ± 12	48	12 ± 7	25
00Z-DR01-D2-M-032			**57** ± 15	48	7 ± 5	25
00Z-DR01-D2-M-033			11 ± 7	48	20 ± 9	25
00Z-DR01-D2-M-034			**52** ± 14	48	13 ± 7	25
00Z-DR01-D2-M-035			12 ± 7	48	16 ± 8	25
00Z-DR01-D2-M-036			23 ± 9	48	16 ± 8	25
00Z-DR01-D2-M-037			17 ± 8	48	17 ± 8	25
00Z-DR01-D2-M-038			26 ± 10	48	14 ± 7	25
00Z-DR01-D1-M-039			48 ± 14	48	10 ± 6	25
00Z-DR01-D2-M-040			**49** ± 14	48	5 ± 4	25
00Z-DR01-D1-M-041			22 ± 9	48	17 ± 8	25
00Z-DR01-D2-M-042			34 ± 11	48	9 ± 6	25
00Z-DR01-D1-M-043			48 ± 14	48	17 ± 8	25
00Z-DR01-D2-M-044			33 ± 11	48	12 ± 7	25
00Z-DR01-D2-M-045			29 ± 11	48	13 ± 7	25
00Z-DR01-D1-M-046			25 ± 10	48	18 ± 8	25
00Z-DR01-D2-M-047			22 ± 9	48	15 ± 8	25
00Z-DR01-D2-M-048			23 ± 9	48	14 ± 7	25
00Z-DR01-D1-M-049			30 ± 11	48	17 ± 8	25
00Z-DR01-D2-M-050			10 ± 6	48	19 ± 9	25
00Z-DR01-D2-M-051			**50** ± 14	48	17 ± 8	25
00Z-DR01-D2-M-052			42 ± 13	48	12 ± 7	25
00Z-DR01-D2-M-053			40 ± 12	48	11 ± 7	25
00Z-DR01-D1-M-054			31 ± 11	48	13 ± 7	25
00Z-DR01-D1-M-055			30 ± 11	48	16 ± 8	25
00Z-DR01-D2-M-056			28 ± 10	48	13 ± 7	25
00Z-DR01-D2-M-057			25 ± 10	48	15 ± 8	25
00Z-DR01-D1-M-058			21 ± 9	48	17 ± 8	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00Z — Survey Unit DR01 — Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00Z-DR01-D2-M-059			**56** ± 15	48	9 ± 6	25
00Z-DR01-D2-M-060			40 ± 12	48	23 ± 9	25
00Z-DR01-D1-M-061			23 ± 9	48	17 ± 8	25
00Z-DR01-D1-M-062			32 ± 11	48	16 ± 8	25
00Z-DR01-D1-M-063			27 ± 10	48	11 ± 7	25
00Z-DR01-D2-M-064			22 ± 9	48	14 ± 7	25
00Z-DR01-D2-M-065			32 ± 11	48	8 ± 6	25
00Z-DR01-D2-M-066			32 ± 11	48	9 ± 6	25
00Z-DR01-D2-M-067			26 ± 10	48	13 ± 7	25
00Z-DR01-D2-M-068			29 ± 11	48	17 ± 8	25
00Z-DR01-D2-M-069			36 ± 12	48	16 ± 8	25
00Z-DR01-D2-M-070			23 ± 9	48	15 ± 8	25
00Z-DR01-D2-M-071			18 ± 8	48	13 ± 7	25
00Z-DR01-D1-M-072			**55** ± 15	48	15 ± 8	25
00Z-DR01-D2-M-073			33 ± 11	48	8 ± 6	25
00Z-DR01-D2-M-074			22 ± 9	48	12 ± 7	25
00Z-DR01-D2-M-075			43 ± 13	48	19 ± 9	25
00Z-DR01-D1-M-076			29 ± 11	48	20 ± 9	25
00Z-DR01-D1-M-077			**62** ± 15	48	9 ± 6	25
00Z-DR01-D1-M-078			41 ± 13	48	19 ± 9	25
00Z-DR01-D2-M-079			30 ± 11	48	15 ± 8	25
00Z-DR01-D2-M-080			37 ± 12	48	15 ± 8	25
00Z-DR01-D2-M-081			**51** ± 14	48	12 ± 7	25
00Z-DR01-D2-M-082			23 ± 9	48	14 ± 7	25
Summary for Survey Unit # DR01 (82 detail records)						
Average			32		14	
Minimum			10		5	
Maximum			62		29	
Standard Deviation			12		4	

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00Z Survey Unit VA01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00Z-VA01-V1-M-001			28 ± 10	48	16 ± 8	25
00Z-VA01-V1-M-002			25 ± 10	48	16 ± 8	25
00Z-VA01-V1-M-003			30 ± 11	48	16 ± 8	25
00Z-VA01-V1-M-004			27 ± 10	48	10 ± 6	25
00Z-VA01-V1-M-005			27 ± 10	48	8 ± 6	25
00Z-VA01-V1-M-006			39 ± 12	48	16 ± 8	25
00Z-VA01-V1-M-007			21 ± 9	48	17 ± 8	25
00Z-VA01-V1-M-008			22 ± 9	48	20 ± 9	25
00Z-VA01-V1-M-009			14 ± 7	48	11 ± 7	25
00Z-VA01-V1-M-010			26 ± 10	48	10 ± 6	25
00Z-VA01-V1-M-011			40 ± 12	48	11 ± 7	25
00Z-VA01-V1-M-012			48 ± 14	48	16 ± 8	25
00Z-VA01-V1-M-013			28 ± 10	48	16 ± 8	25
00Z-VA01-V1-M-014			37 ± 12	48	13 ± 7	25
00Z-VA01-V1-M-015			24 ± 10	48	15 ± 8	25
00Z-VA01-V1-M-016			31 ± 11	48	6 ± 5	25
00Z-VA01-V1-M-017			28 ± 10	48	11 ± 7	25
00Z-VA01-V1-M-018			22 ± 9	48	23 ± 9	25
00Z-VA01-V1-M-019			15 ± 8	48	10 ± 6	25
00Z-VA01-V1-M-020			32 ± 11	48	10 ± 6	25
00Z-VA01-V1-M-021			28 ± 10	48	16 ± 8	25
00Z-VA01-V1-M-022			29 ± 11	48	10 ± 6	25
00Z-VA01-V1-M-023			36 ± 12	48	9 ± 6	25
00Z-VA01-V1-M-024			55 ± 15	48	11 ± 7	25
Summary for Survey Unit # VA01 (24 detail records)						
Average			30		13	
Minimum			14		6	
Maximum			55		23	
Standard Deviation			9		4	

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00Z Survey Unit VE01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00Z-VE01-G1-M-001			41 ± 13	48	7 ± 5	25
00Z-VE01-G1-M-002			31 ± 11	48	13 ± 7	25
00Z-VE01-G1-M-003			**53** ± 14	48	7 ± 5	25
00Z-VE01-G1-M-004			30 ± 11	48	16 ± 8	25
00Z-VE01-G1-M-005			**82** ± 18	48	5 ± 4	25
00Z-VE01-G1-M-006			34 ± 11	48	13 ± 7	25
00Z-VE01-G1-M-007			23 ± 9	48	12 ± 7	25
00Z-VE01-G1-M-008			30 ± 11	48	6 ± 5	25
00Z-VE01-G1-M-009			25 ± 10	48	12 ± 7	25
00Z-VE01-G1-M-010			33 ± 11	48	15 ± 8	25
00Z-VE01-G1-M-011			20 ± 9	48	18 ± 8	25
00Z-VE01-G1-M-012			18 ± 8	48	14 ± 7	25
00Z-VE01-G1-M-013			28 ± 10	48	13 ± 7	25
00Z-VE01-G1-M-014			39 ± 12	48	13 ± 7	25
00Z-VE01-G1-M-015			24 ± 10	48	10 ± 6	25
00Z-VE01-G1-M-016			44 ± 13	48	12 ± 7	25
00Z-VE01-G1-M-017			13 ± 7	48	14 ± 7	25
00Z-VE01-G1-M-018			31 ± 11	48	11 ± 7	25
00Z-VE01-G1-M-019			44 ± 13	48	**27** ± 10	25
00Z-VE01-G1-M-020			22 ± 9	48	12 ± 7	25
00Z-VE01-G1-M-021			**56** ± 15	48	7 ± 5	25
00Z-VE01-G1-M-022			41 ± 13	48	21 ± 9	25
00Z-VE01-G1-M-023			**49** ± 14	48	16 ± 8	25
00Z-VE01-G1-M-024			**54** ± 14	48	11 ± 7	25
00Z-VE01-G1-M-025			40 ± 12	48	15 ± 8	25
00Z-VE01-G1-M-026			22 ± 9	48	13 ± 7	25
00Z-VE01-G1-M-027			48 ± 14	48	5 ± 4	25
00Z-VE01-G1-M-028			26 ± 10	48	16 ± 8	25
00Z-VE01-G1-M-029			27 ± 10	48	8 ± 6	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00Z Survey Unit VE01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00Z-VE01-G1-M-030			43 ± 13	48	14 ± 7	25
00Z-VE01-G1-M-031			**58** ± 15	48	5 ± 4	25
00Z-VE01-H1-M-032			32 ± 11	48	7 ± 5	25
00Z-VE01-G1-M-033			33 ± 11	48	9 ± 6	25
00Z-VE01-G1-M-034			41 ± 13	48	16 ± 8	25
00Z-VE01-G1-M-035			24 ± 10	48	16 ± 8	25
00Z-VE01-G1-M-036			42 ± 13	48	13 ± 7	25
00Z-VE01-G1-M-037			18 ± 8	48	10 ± 6	25
00Z-VE01-G1-M-038			**52** ± 14	48	10 ± 6	25
00Z-VE01-G1-M-039			21 ± 9	48	15 ± 8	25
00Z-VE01-G1-M-040			**67** ± 16	48	12 ± 7	25
00Z-VE01-G1-M-041			29 ± 11	48	10 ± 6	25
00Z-VE01-G1-M-042			**57** ± 15	48	10 ± 6	25
00Z-VE01-G1-M-043			**53** ± 14	48	19 ± 9	25
00Z-VE01-G1-M-044			28 ± 10	48	10 ± 6	25
00Z-VE01-G1-M-045			33 ± 11	48	9 ± 6	25
00Z-VE01-G1-M-046			28 ± 10	48	12 ± 7	25
00Z-VE01-G1-M-047			36 ± 12	48	18 ± 8	25
00Z-VE01-G1-M-048			**51** ± 14	48	5 ± 4	25
00Z-VE01-G1-M-049			27 ± 10	48	11 ± 7	25
00Z-VE01-G1-M-050			18 ± 8	48	13 ± 7	25
00Z-VE01-G1-M-051			32 ± 11	48	21 ± 9	25
00Z-VE01-G1-M-052			27 ± 10	48	2 ± 3	25
00Z-VE01-G1-M-053			40 ± 12	48	15 ± 8	25
00Z-VE01-G1-M-054			35 ± 12	48	10 ± 6	25
00Z-VE01-G1-M-055			23 ± 9	48	13 ± 7	25
00Z-VE01-G1-M-056			26 ± 10	48	17 ± 8	25
00Z-VE01-G1-M-057			45 ± 13	48	7 ± 5	25
00Z-VE01-G1-M-058			30 ± 11	48	16 ± 8	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00Z Survey Unit VE01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00Z-VE01-G1-M-059			37 ± 12	48	13 ± 7	25
00Z-VE01-G1-M-060			34 ± 11	48	14 ± 7	25
00Z-VE01-G1-M-061			41 ± 13	48	18 ± 8	25
00Z-VE01-G1-M-062			**58** ± 15	48	7 ± 5	25
00Z-VE01-G1-M-063			33 ± 11	48	12 ± 7	25
00Z-VE01-G1-M-064			35 ± 12	48	18 ± 8	25
00Z-VE01-G1-M-065			25 ± 10	48	15 ± 8	25
00Z-VE01-G1-M-066			38 ± 12	48	13 ± 7	25
00Z-VE01-G1-M-067			**56** ± 15	48	4 ± 4	25
00Z-VE01-G1-M-068			28 ± 10	48	10 ± 6	25
00Z-VE01-G1-M-069			**50** ± 14	48	5 ± 4	25
00Z-VE01-G1-M-070			32 ± 11	48	15 ± 8	25
00Z-VE01-G1-M-071			37 ± 12	48	15 ± 8	25
00Z-VE01-G1-M-072			47 ± 13	48	11 ± 7	25
00Z-VE01-G1-M-073			38 ± 12	48	8 ± 6	25
00Z-VE01-G1-M-074			45 ± 13	48	14 ± 7	25
00Z-VE01-G1-M-075			**52** ± 14	48	7 ± 5	25
00Z-VE01-G1-M-076			**57** ± 15	48	12 ± 7	25
00Z-VE01-G1-M-077			**68** ± 16	48	10 ± 6	25
00Z-VE01-G1-M-078			32 ± 11	48	12 ± 7	25
00Z-VE01-G1-M-079			40 ± 12	48	14 ± 7	25
00Z-VE01-G1-M-080			29 ± 11	48	12 ± 7	25
00Z-VE01-G1-M-081			33 ± 11	48	15 ± 8	25
00Z-VE01-G1-M-082			**52** ± 14	48	10 ± 6	25
00Z-VE01-G1-M-083			43 ± 13	48	11 ± 7	25
00Z-VE01-G1-M-084			45 ± 13	48	17 ± 8	25
00Z-VE01-G1-M-085			23 ± 9	48	12 ± 7	25
00Z-VE01-G1-M-086			21 ± 9	48	6 ± 5	25
00Z-VE01-G1-M-087			18 ± 8	48	24 ± 10	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00Z Survey Unit VE01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00Z-VE01-G1-M-088			14 ± 7	48	14 ± 7	25
00Z-VE01-G1-M-089			24 ± 10	48	14 ± 7	25
00Z-VE01-G1-M-090			34 ± 11	48	11 ± 7	25
00Z-VE01-G1-M-091			**49** ± 14	48	10 ± 6	25
00Z-VE01-G1-M-092			**59** ± 15	48	8 ± 6	25
00Z-VE01-G1-M-093			**51** ± 14	48	15 ± 8	25
00Z-VE01-G1-M-094			27 ± 10	48	13 ± 7	25
00Z-VE01-G1-M-095			25 ± 10	48	20 ± 9	25
00Z-VE01-G1-M-096			31 ± 11	48	6 ± 5	25
00Z-VE01-G1-M-097			34 ± 11	48	13 ± 7	25
00Z-VE01-G1-M-098			40 ± 12	48	8 ± 6	25
00Z-VE01-G1-M-099			32 ± 11	48	13 ± 7	25
00Z-VE01-G1-M-100			31 ± 11	48	7 ± 5	25
00Z-VE01-G1-M-101			35 ± 12	48	5 ± 4	25
00Z-VE01-G1-M-102			35 ± 12	48	3 ± 3	25
00Z-VE01-G1-M-103			**68** ± 16	48	12 ± 7	25
00Z-VE01-G1-M-104			46 ± 13	48	12 ± 7	25
00Z-VE01-G1-M-105			**49** ± 14	48	7 ± 5	25
00Z-VE01-G1-M-106			35 ± 12	48	17 ± 8	25
00Z-VE01-G1-M-107			39 ± 12	48	21 ± 9	25
00Z-VE01-G1-M-108			29 ± 11	48	16 ± 8	25
00Z-VE01-G1-M-109			**49** ± 14	48	12 ± 7	25
00Z-VE01-G1-M-110			30 ± 11	48	11 ± 7	25
00Z-VE01-G1-M-111			34 ± 11	48	15 ± 8	25
00Z-VE01-G1-M-112			26 ± 10	48	13 ± 7	25
00Z-VE01-G1-M-113			25 ± 10	48	20 ± 9	25
00Z-VE01-G1-M-114			46 ± 13	48	12 ± 7	25
00Z-VE01-G1-M-115			**59** ± 15	48	18 ± 8	25
00Z-VE01-G1-M-116			31 ± 11	48	6 ± 5	25

Note: All results reported in dpm/100cm^2.

Building Systems Final Status Survey Results

Building 00Z Survey Unit VE01 Class: N/A

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
00Z-VE01-G1-M-117			48 ± 14	48	17 ± 8	25
00Z-VE01-G1-M-118			**50** ± 14	48	6 ± 5	25
00Z-VE01-G1-M-119			**56** ± 15	48	10 ± 6	25
00Z-VE01-G1-M-120			**71** ± 17	48	13 ± 7	25
00Z-VE01-G1-M-121			**56** ± 15	48	8 ± 6	25
Summary for Survey Unit # VE01 (121 detail records)						
Average			38		12	
Minimum			13		2	
Maximum			82		27	
Standard Deviation			13		4	
Summary for Building # 00Z (227 detail records)						
Avg			35		13	
Min			10		2	
Max			82		29	

Note: All results reported in dpm/100cm^2.

Quality Assurance Survey Results

Building 0QA Survey Unit QA01 Class 3

Location Code	Total Beta Activity Measurements		Removable Activity Measurements			
			Tritium		Carbon-14	
	Activty	MDC	Activity	MDC	Activity	MDC
0QA-QA01-B1-M-001	-182 ± 457	142	31 ± 11	48	12 ± 7	25
0QA-QA01-F1-T-002	-131 ± 464	142	36 ± 12	48	14 ± 7	25
0QA-QA01-F1-T-003	-70 ± 473	142	38 ± 12	48	8 ± 6	25
0QA-QA01-F1-T-004	-141 ± 463	142	25 ± 10	48	14 ± 7	25
0QA-QA01-F1-T-005	-168 ± 459	142	35 ± 12	48	18 ± 8	25
0QA-QA01-F1-T-006	-22 ± 479	142	32 ± 11	48	8 ± 6	25
0QA-QA01-F1-T-007	-11 ± 481	142	28 ± 10	48	23 ± 9	25
0QA-QA01-F1-T-008	7 ± 483	142	16 ± 8	48	12 ± 7	25
0QA-QA01-F1-T-009	-22 ± 479	142	15 ± 8	48	9 ± 6	25
0QA-QA01-F1-T-010	-38 ± 477	142	24 ± 10	48	7 ± 5	25
Summary for Survey Unit # QA01 (10 detail records)						
Average	-78		28		13	
Minimum	-182		15		7	
Maximum	7		38		23	
Standard Deviation	71		8		5	
Summary for Building # 0QA (10 detail records)						
Avg	-78		28		13	
Min	-182		15		7	
Max	7		38		23	

Note: All results reported in dpm/100cm^2.

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