7806XXXXXX-1305300006

CH2M HILL Mound, Inc.
1075 Mound Road
P.O. Box 750
Miamisburg, OH 45343-0750

CH2MHILL

SMO-215/06
March 28, 2006

Mr. Don Pfister, Director
Miamisburg Closure Project
U. S. Department of Energy
175 Tri-County Parkway
Springdale, OH 45246

ATTENTION: Paul Lucas

SUBJECT: **Contract No. DE-AC24-03OH20152:** Deliverable #36 Building Data Package; Section C.2.1.2 Facility Transfer; Final Status Report T Building Survey Units # 1C-05 and SYS-PRS 342, Final

Dear Mr. Pfister:

Attached is the following Final document for your records:

- Final Status Report, T Building Survey Units # 1C-05 and SYS-PRS 342, Final

If you or members of your staff have any questions regarding the document, or if additional support is needed, please contact Dave Rakel at 937-865-4203.

Sincerely,

Michael D. Ebben
Site Manager

ME/jg

Enclosures

cc: T. Fischer, USEPA, (1) w/attachments
B. Nickel, OEPA, (1) w/attachments
S. Helmer, ODH, (1) w/attachments
J. Colleli, ODH, (1) w/attachments
M. Wojciechowski, Tetra Tech, (1) w/attachs
G. Gorsuch, DOE/MCP, (1) w/attachments
G. Desai, DOE/HQ, (1) w/attachments
M. Sizemore, CH2M Hill, (1) w/attachments
ER Records, CH2M Hill, (1) w/attachments
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M. Ebben, CH2M Hill, w/o attachments
K. Armstrong, CH2M Hill, w/o attachments
D. Rakel, CH2M Hill, w/o attachments
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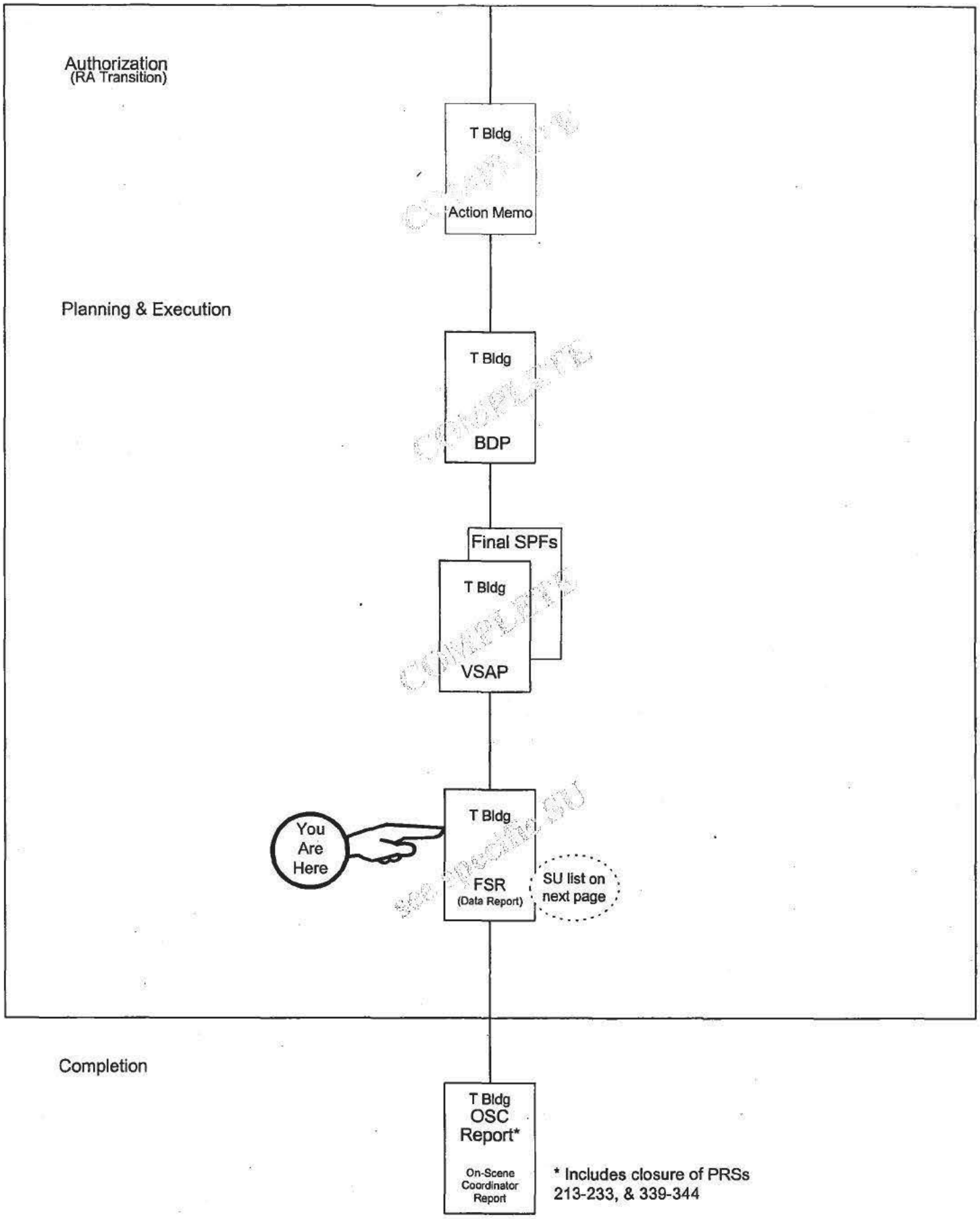
MOAT Coordinator, CH2M Hill, w/o attachs
S. Barr, CH2M Hill, w/o attachments
M. McDougal, CH2M Hill, w/o attachments
file, CH2M Hill, w/o attachments

Final Status Survey Report – Final
T Building
Survey Unit #'s 1C-05 and SYS-PRS 342

Prepared by:	Mary Sizemore / Mary Sizemore	Date:	3-23-06
Reviewed by:	Robert Coblentz/ Robert Coblentz	Date:	3/23/06
Approved by:	Ken Armstrong / K. P. Armstrong	Date:	3/23/06

T Building & PRSs 213-233, & 339-344



10May05

T Building, Final Status Report, Survey Unit - You Are Here

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Table of Contents

Attachments

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1.0 Historical Overview

T Building is a heavily reinforced subterranean concrete structure. Construction was completed in 1948. The two main floors are compartmentalized into three general areas (bays) by two 30-inch thick reinforced concrete firewalls. T Building contains more than 200 rooms and 20 corridors. The Core Team authorized the Removal Action via the T Building Action Memorandum (Reference 1) due to radiological contamination from various missions and projects in the building. A complete list of contaminants of concern (COCs) is provided in Attachment A.

Associated building structures include two exhaust airshafts, which each historically were attached to a two-hundred-foot tall brick and mortar exhaust stack. The exhaust stacks have been demolished. The building has three towers along the north wall, one at each end and one at the center. The end towers contain stairways, passenger elevators, airshafts for intake ventilation air, and pedestrian entrances at grade level. The middle tower was used for providing intake ventilation air.

T Building was designed with interstitial spaces above the two primary floors (1^{st} and 2^{nd}). These interstitial spaces are referred to as "Crawlspaces".

1.1 Survey Unit Overview

SU# 1C-05 (Rooms 36, 36A, 37, and 38) is located in the Center Bay on the 1^{st} floor of T-Building. These rooms were initially part of the polonium process area and contained drain chases of lines that previously held drain pipes to a Class 1 sump in a nearby room. SU# SYS-PRS 342 (Fire Water Sump) is located in Room 37 and is an active sump.

SU# 1C-05 is a Class 1 survey unit. SU# SYS-PRS 342 is a Class 2 survey unit. Survey unit classifications are based on historical records, a survey report entitled Mound Site Radionuclides by Location (Reference 2), the T Building White Paper (Reference 3), interviews with past and present building managers, and previous and past radiological data. A table listing contaminants of concern is given in Attachment A.

The room surfaces were free of dirt, insulation, and loose paint at the time of survey. The rooms were completely emptied prior to final status survey, doors were locked and access was restricted. The sump is an active firewater sump. It was dry at the time of survey. This Final Status Survey Report (FSSR) documents completion of the survey and evaluation of the survey data.

2.0 Survey Objectives

The objective of the T Building Verification Sampling and Analysis Plan (VSAP) (Reference 4) was to determine whether or not the residual radioactivity on the building surfaces in T Building meets the surface release criteria. This was to be accomplished by measuring the fixed and removable contamination on building surfaces and systems. Residual radioactivity levels were evaluated versus established surface release criteria provided in Attachment A and stated in the Work Plan for Environmental Restoration of the DOE Mound Site, The Mound 2000 Approach (hereafter referred to as 'Mound 2000', Reference 5). The survey data were compared to the release criteria of Mound 2000, using methods defined in Reference 6. The surface release criteria stated as the allowable total residual

surface contamination in the Mound 2000 are the Derived Concentration Guidelines (DCGL's) for building release. The specific survey objectives were outlined on the Survey Plan Form (SPF) located in Attachment E.

2.1 Survey Design

The Type I error denoted by alpha (α) was set at 0.05 and the Type II error denoted by beta (β) was set at 0.01. The number of data points was determined by calculating the relative shift, denoted by delta/sigma (Δ/σ), from the Derived Concentration Guideline Limit (DCGL) value, the lower bound of the gray region (LBGR), and the standard deviation denoted by sigma (σ) of the contaminant in the survey unit (Δ/σ = DCGL-LBGR/σ). For this survey plan, the LBGR was set at 50% of the $DCGL_w$ (average concentration over a wide area). The standard deviation was determined to be 17-dpm/100cm^2 based on previous surveys and the relative shift was calculated was 2.94. The required number of data points (N = 20) per survey unit was obtained from Table 5.5 Reference 6.

The SU sample locations within T Building were named based on which floor elevation and bay they occupied. The designated SUs on each floor were sub-categorized into 'north', 'central', and 'south' areas, corresponding to the three bays split by the firewalls within the building. The general naming convention follows: XY-ZZ-#

where:

X	=	building floor elevation
Y	=	bay
ZZ	=	SU number
#	=	floor/lower wall (1) or upper wall/ceiling (2) designator

followed by a letter designator

D	=	Drain
V	=	Vent
U	=	Utility
J	=	Judgmental
S	=	Static

For example:

1C-01-1S =	1st floor, center bay, SU# 1, floor & lower wall survey unit, static
2N-05-2V =	2nd floor, north bay, SU# 5, upper wall & ceiling survey unit, vent

The numerical indices restart in each bay of each floor.

Systems within T Building were named based on the PRS number associated with them or were assigned a unique ID number. Examples are: SYS-PRS 215 (for PRS 215) and SYS-10 (Breathing Air System).

Statistical survey data point locations were selected within the survey unit using a triangular grid pattern with a randomly selected starting point. The Visual Sample Plan (VSP) computer program (Reference 7) was used for this purpose. (For any areas designated as Class 3, only judgmental survey data point locations are required.)

In SU# SYS-PRS 342 only professional judgment (biased) surveys were performed. No statistically selected data were collected. Judgmental survey data were compared directly to the release criteria.

Professional judgment (biased) surveys were performed to supplement the statistical survey data, but were not combined with the statistical data. Judgmental survey data were compared directly to the release criteria.

2.2 Survey Data

The gross alpha and beta fixed-point measurements were compared to their respective guideline values. Graphical representations of the average and maximum direct and removable activity for alpha, beta, and tritium are shown in Attachment B. Retrospective power curves for direct and removable activity measurements provided in Attachment C show that the survey design had sufficient power (probability) to meet DQO's for this survey plan.

Direct alpha and beta scans were performed on 100% of the floors. Walls and ceilings were scanned in accordance with the SPF T-01 (Attachment E). Direct alpha and beta scans were performed on dry accessible surfaces of the sump in accordance with the SPF T-06 (Attachment E). Gamma scans were performed on 100% of the area previously occupied by drain pipes that used to lead to a Class 1 sump in an adjacent room in accordance with the SPFT-05 (Attachment E) The drains associated with the Class 1 sump were removed.

Direct alpha and beta measurements are taken on drains, vents, and utilities. The drains associated with Class 1 sumps are removed. Drains associated with Class 2 sumps are surveyed at each accessible location. This survey consists of removing any drain covers and debris to fully expose the interior of the pipes and direct measurements for gross alpha and beta activity and smears for removable alpha, beta, and tritium contamination .

The ventilation systems are separate survey units, however as part the room surveys, vent covers are surveyed. Direct measurements and smears are taken directly on the vent cover. If activity on the vent cover appears to be elevated, the vent cover is removed and disposed of as radioactive waste and the interior of the immediate ventilation system is then surveyed as far as can be reached from the open vent. This survey consists of direct measurements for gross alpha and beta activity and smears for removable alpha, beta, and tritium contamination.

The utility systems are separate survey units, however as part the room surveys, utility drops and utility systems are surveyed. The survey for utility drops consists of removing any utility drop covers to expose the interior of the utility line. This survey consists of direct measurements for alpha and beta and smears for alpha, beta, and tritium. The survey for utility systems in rooms, such as fire water systems, is performed by taking direct measurements for gross alpha and beta activity and smears for removable alpha, beta, and tritium contamination on the exterior surfaces of the utility system.

The instruments selected for this survey were gas flow proportional detectors. Alpha/beta fixed point measurements were made using the Ludlum 2350-1 data logger with a 43-68

hand-held probe. This instrument was also used for scanning walls and small areas. Large area scanning was performed using the Ludlum 2350-1 with 43-37 floor probe and/or the SHONKA Surface Contamination Monitor (SCM). The scanning instruments were set to alarm at 75% of the applicable guideline values, $DCGL_{EMC}$, (elevated measurement comparison) for the most restrictive alpha emitter and most difficult to detect beta emitter. Instrument calibration and source check data were documented in accordance with Mound procedures.

Loose surface contamination was measured by smearing an area of 100 cm^2 at each data point. Smears were counted for gross alpha/beta activity. Removable tritium contamination was measured by liquid scintillation counting of the smears. Smear results were not combined with the statistical data but compared directly to the removable surface release criteria.

General area exposure rate measurements were performed using a Micro Rem meter to ensure that the average level of gamma radiation did not exceed the background level by more than 20 micro-R/hr.

Survey data were documented on the Radiological Survey Data Sheets (RSDS) provided in Attachment F. The RSDS maps are not engineered drawings and may not be to scale. These maps were used for general information purposes only. The dxf. file maps that were imported into VSP were engineered drawings.

2.3 Quality Control

Quality Control (QC) measurements will be taken in accordance with Mound procedures (Reference 8) and results evaluated and documented in the T Building Final Status Survey Report.

2.4 Conclusion

The objective of the survey plan was to determine whether or not the residual radioactivity of the surfaces of building materials associated with T Building satisfy the surface release criteria established by Mound 2000 (Reference 5) and documented in the T Building VSAP (Reference 4). This is accomplished by comparing the survey data to the surface release criteria in accordance with MARSSIM (Reference 6).

All the DQO's have been met and no further measurements are required. Access will remain restricted until all survey units have been completed and the building has been released. Access is being controlled using locks and/or tamper-indicating devices (TIDs) on doors to rooms in SU# 1C-05. SU# SYS-PRS 342 is an active fire water sump and will remain in service. The building's HVAC design minimizes the potential for cross contamination via air exchange by utilizing single pass air. Any remediation in nearby SUs would be performed using standard practices for contamination control and containment, to prevent migration to other areas.

SU#'s 1C-05 and SYS-PRS 342 meet the surface release criteria. The average and maximum residual activity is less than the $DCGL_w$ and the survey is accepted as the Final Status Survey in accordance with the T Building VSAP (Reference 4). The tables in Attachment D show the maximum direct and removable activity on surfaces.

3.0 References

1. Action Memorandum T Building Removal Action, Final CH2M Hill Mound, June 2003.
2. MD-22153, Mound Site Radionuclides by Location, March 2001.
3. CH2M Hill Mound Inc. White Paper: T Building, Structural History and Process History Summary Background Document, November 2002.
4. T Building Verification Sampling and Analysis Plan, Final, October 2004.
5. Work Plan for Environmental Restoration of the DOE Mound Site, The Mound 2000 Approach, BWXT of Ohio, February 1999.
6. NUREG 1575, Rev. 1, August 2000, Multi-Agency Radiation Survey and Site Investigation Manual, (MARSSIM).
7. Visual Sample Plan, Pacific Northwest Laboratory.
8. MARSSIM Implementing Procedures, Field Quality Control for Building Contamination Surveys, MD-80046, Op. 402.

Attachment A

T Building Contaminants of Concern

and

Surface Release Criteria

Attachment A
T Building Contaminants of Concern

Radionuclide	Name	Half Life	Principal Decay Emissions
H-3	Tritium	12.3 yr	β_{max} (0.0185 MeV)
Co-60	Cobalt-60	5.3 yr	β_{max} (0.318 MeV) γ (1.332, 1.173 MeV)
Sr/Y-90	Strontium-90 Yttrium-90	28.8 yr 2.67d	β_{max} (0.546 MeV) β_{max} (2.281 MeV)
Ag-108m	Silver-108m (metastable)	127 yr	γ (0.434, 0.614, 0.723 MeV)
Cs-137	Cesium-137	30.07 yr	β_{max} (0.514 MeV) γ (0.662 MeV) from Ba-137m
Bi-207	Bismuth-207	33.7 yr	γ (0.569, 1.063 MeV)
Bi-210m	Bismuth-210m	3.0E6 yr	α (4.910, 4.949 MeV) γ (0.266, 0.305 MeV)
Po-209	Polonium-209	103 yr	α (4.866 MeV)
Ra-226	Radium-226	1599 yr	α (4.784, 4.602 MeV) γ (0.1862 MeV)
Ac-227	Actinium-227	21.7 yr	α (several from progeny) β_{max} (0.043 MeV)
Th-230	Thorium-230	7.7E4 yr	α (4.621, 4.688 MeV)
U-234	Uranium- 234	2.47E5 yr	α (4.77, 4.72 MeV)
U-235	Uranium-235	7.04E8 yr	α (4.364, 4.396 MeV) γ (0.144, 0.184 MeV)
U-238	Uranium-238	4.47E9 yr	α (4.197, 4.147 MeV)
Pu-238	Plutonium-238	87.75 yr	α (5.456, 5.499 MeV)
Pu-239	Plutonium-239	2.41E4 yr	α (4.858 MeV)
Pu-240	Plutonium-240	6.58E3 yr	α (5.17, 5.12 MeV)
Pu-241	Plutonium-241	13.2 yr	β_{max} (0.021 MeV)
Pu-242	Plutonium-242	3.79E5 yr	α (4.90, 4.86 MeV)
Am-241	Americium-241	432.7 yr	α (5.486, 5.443 MeV) γ (0.0595 MeV)

Attachment A

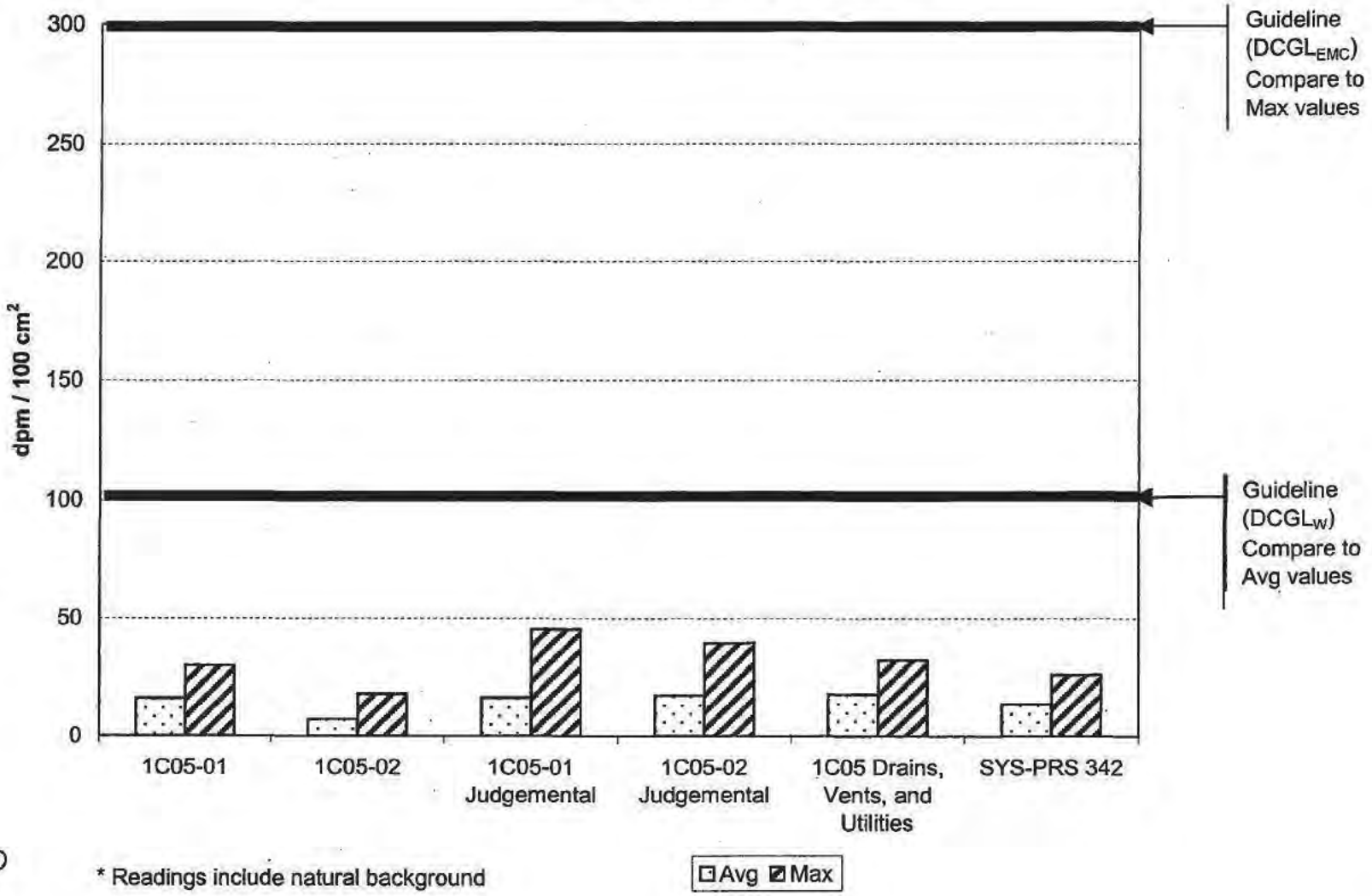
Surface Release Criteria

Allowable Total Residual Surface Contamination (dpm/100 cm^2)[1]			
Radionuclides[2]	**Average**[3,4] **($DCGL_W$)**	**Maximum**[5,6] **($DCGL_{EMC}$)**	**Removable**[6]
Group 1: Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	100	300	20
Group 2: Th-natural, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1,000	3,000	200
Group 3: U-Natural, U235, U238 and associated decay products, alpha emitters	5,000	15,000	1,000
Group 4: Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous[7] fission) except Sr-90 and others listed above. Includes mixed fission products containing Sr-90.	5,000	15,000	1,000
Tritium	N/A	N/A	10,000

Note: Refer to Work Plan for Environmental Restoration of the DOE Mound Site, The Mound 2000 Approach, Table 1, "Surface Contamination Guidelines", page A-3 for specific information on surface contamination guidelines and additional notes (Reference 5).

Attachment B
Direct and Removable Activity Graphs

Attachment B
Mound - T Building Final Status Survey
Alpha Activity* (direct)



* Readings include natural background

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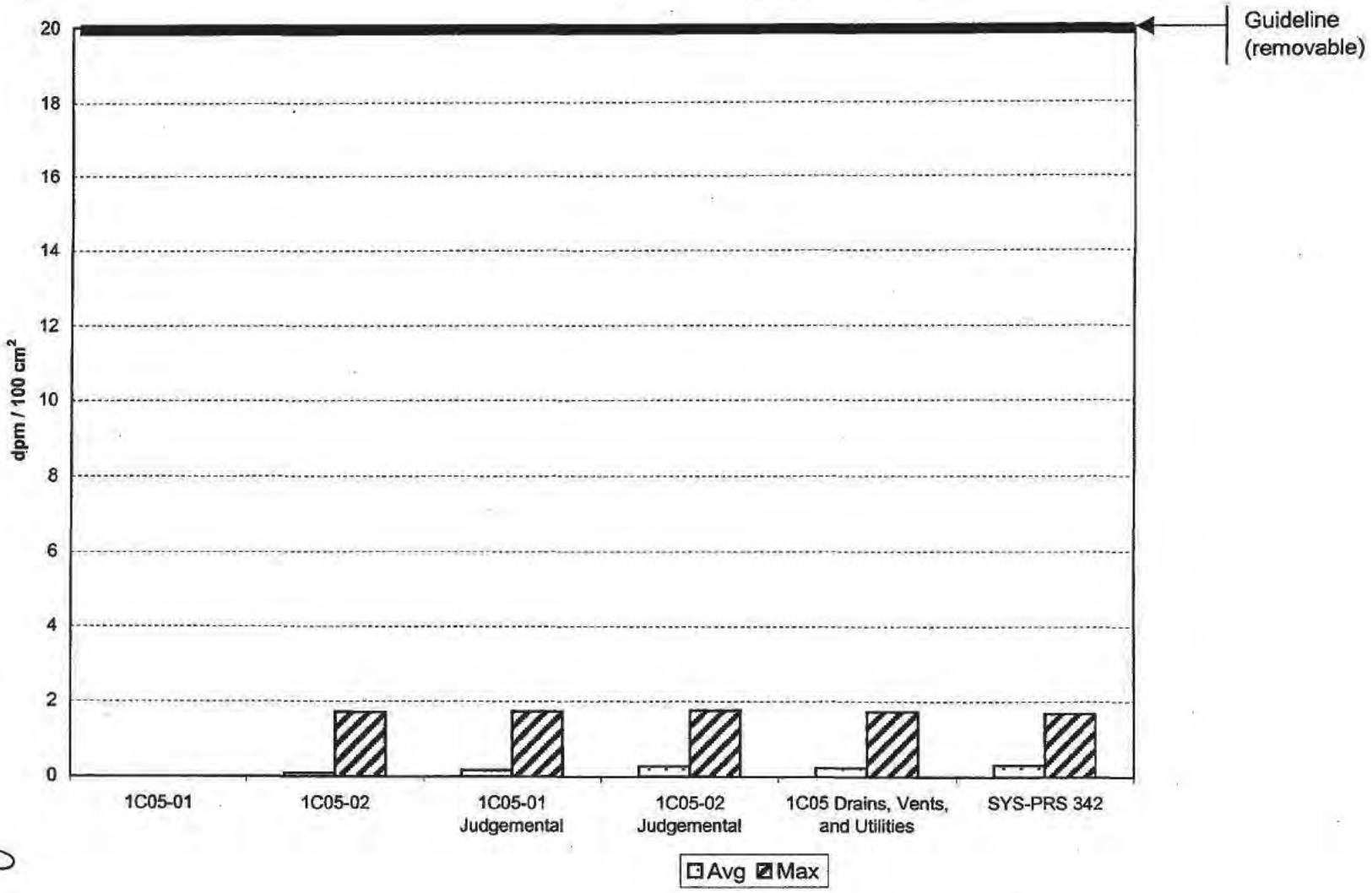
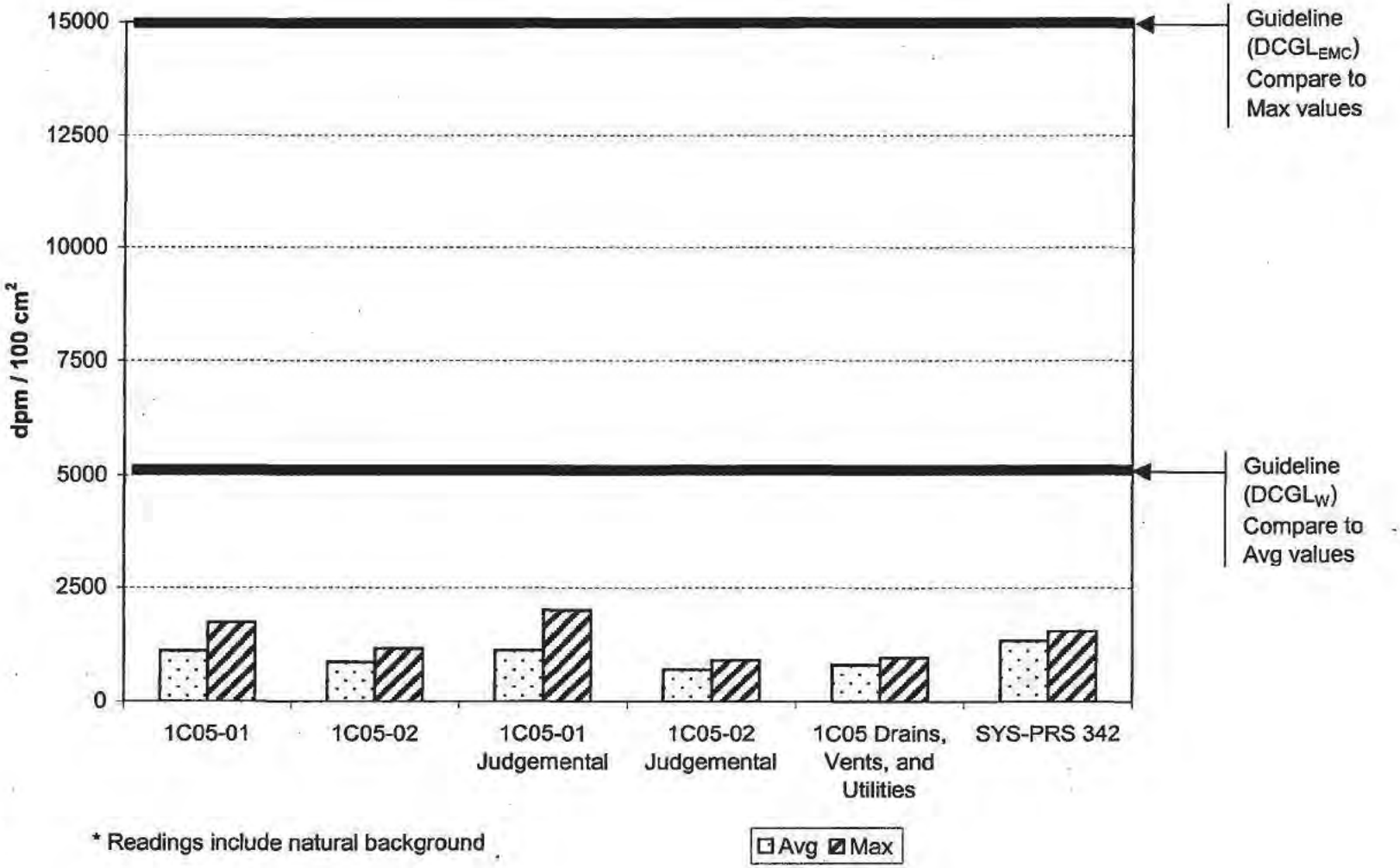
Attachment B
Mound - T Building Final Status Survey
Alpha Activity (removable)



SPEG

Attachment B
Mound - T Building Final Status Survey
Beta Activity* (direct)



* Readings include natural background

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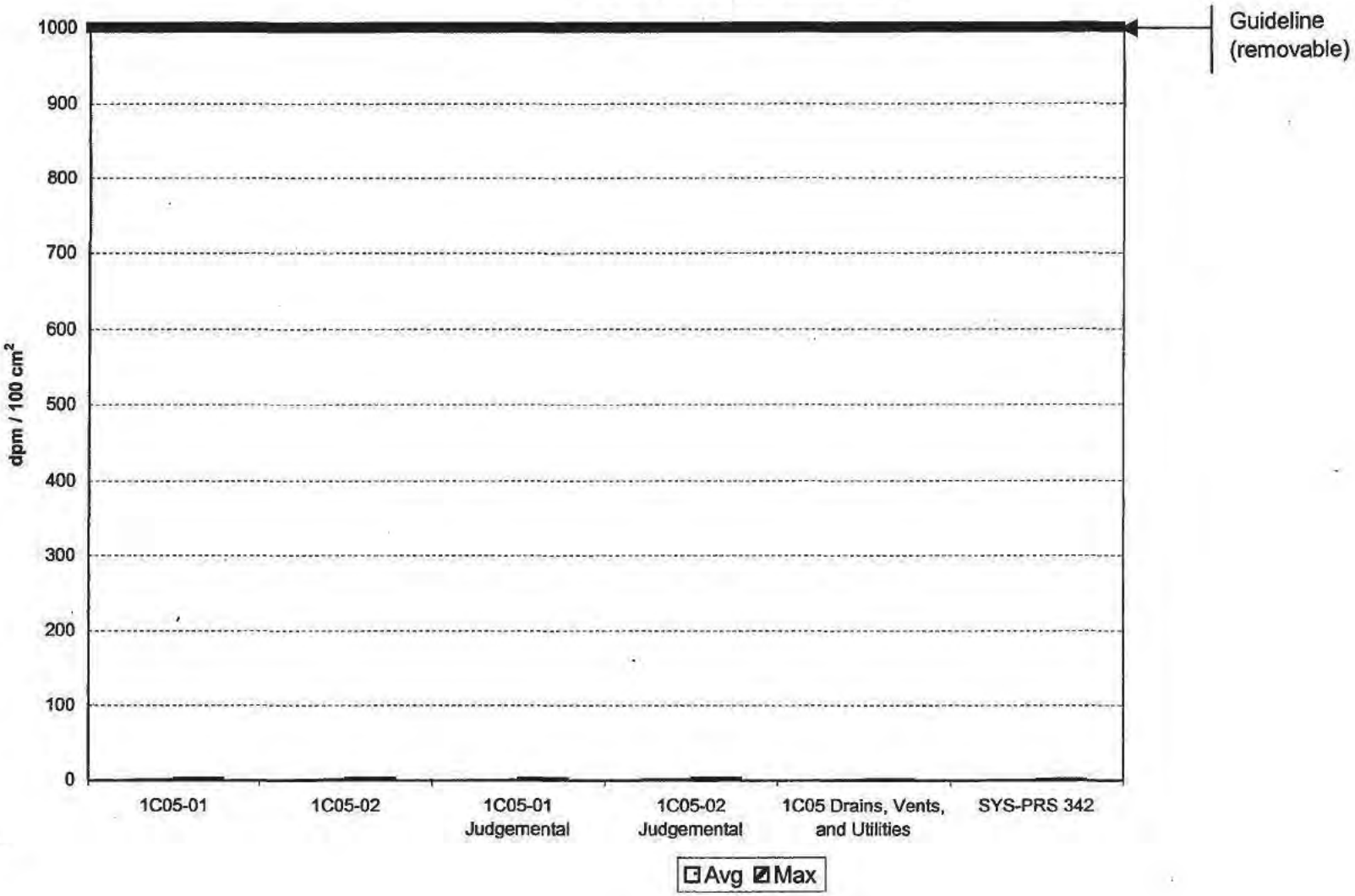
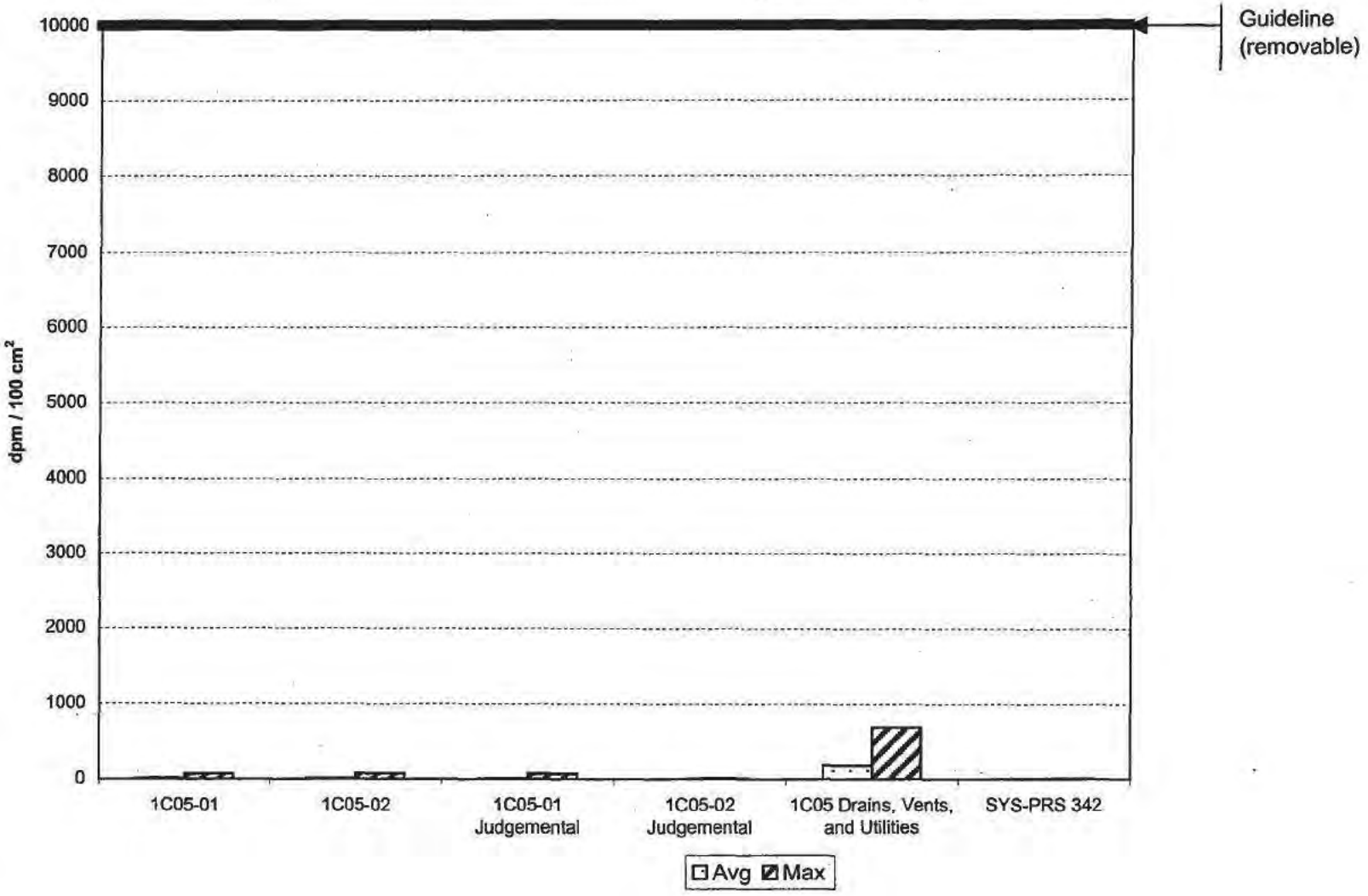
Attachment B
Mound - T Building Final Status Survey
Beta Activity (removable)



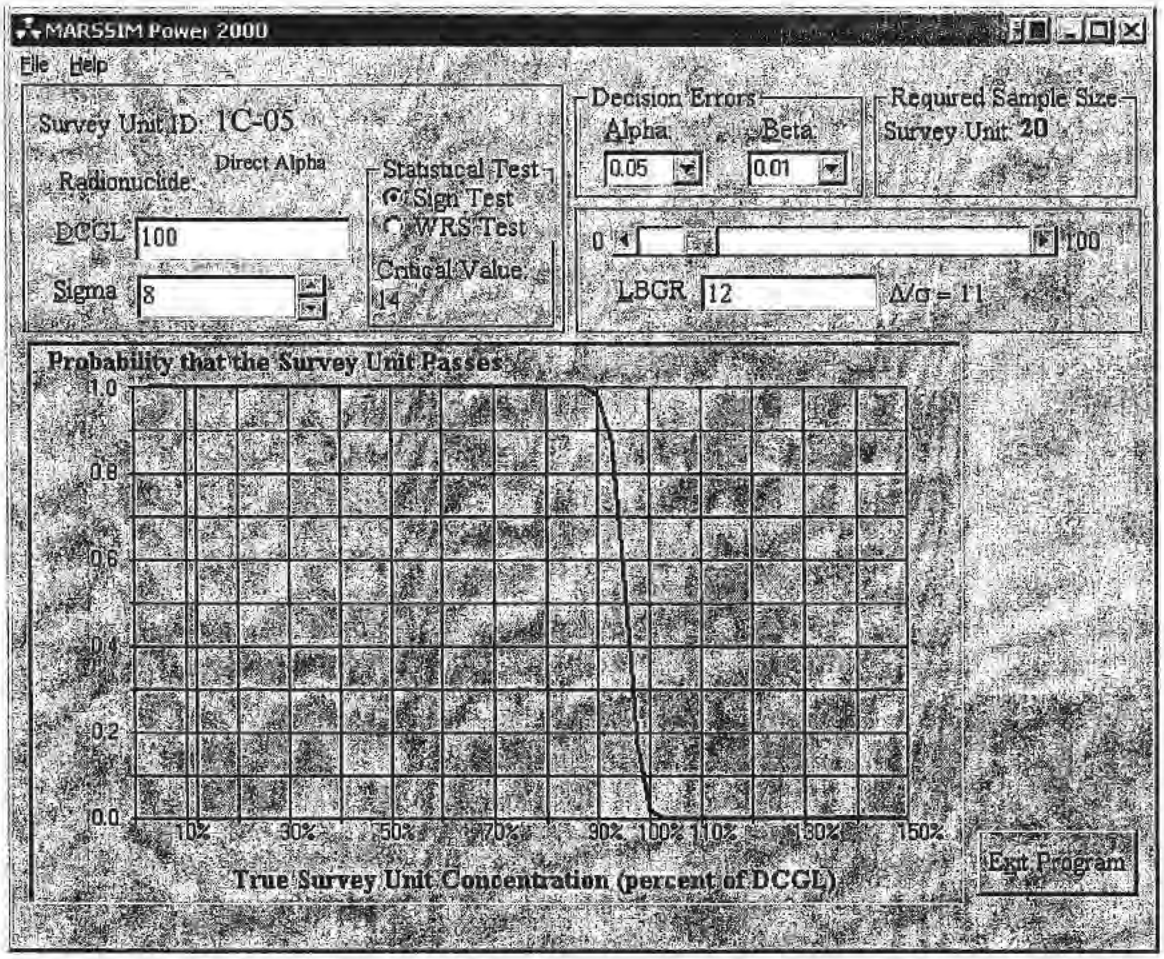
Attachment B
Mound - T Building Final Status Survey
Tritium Activity (removable)



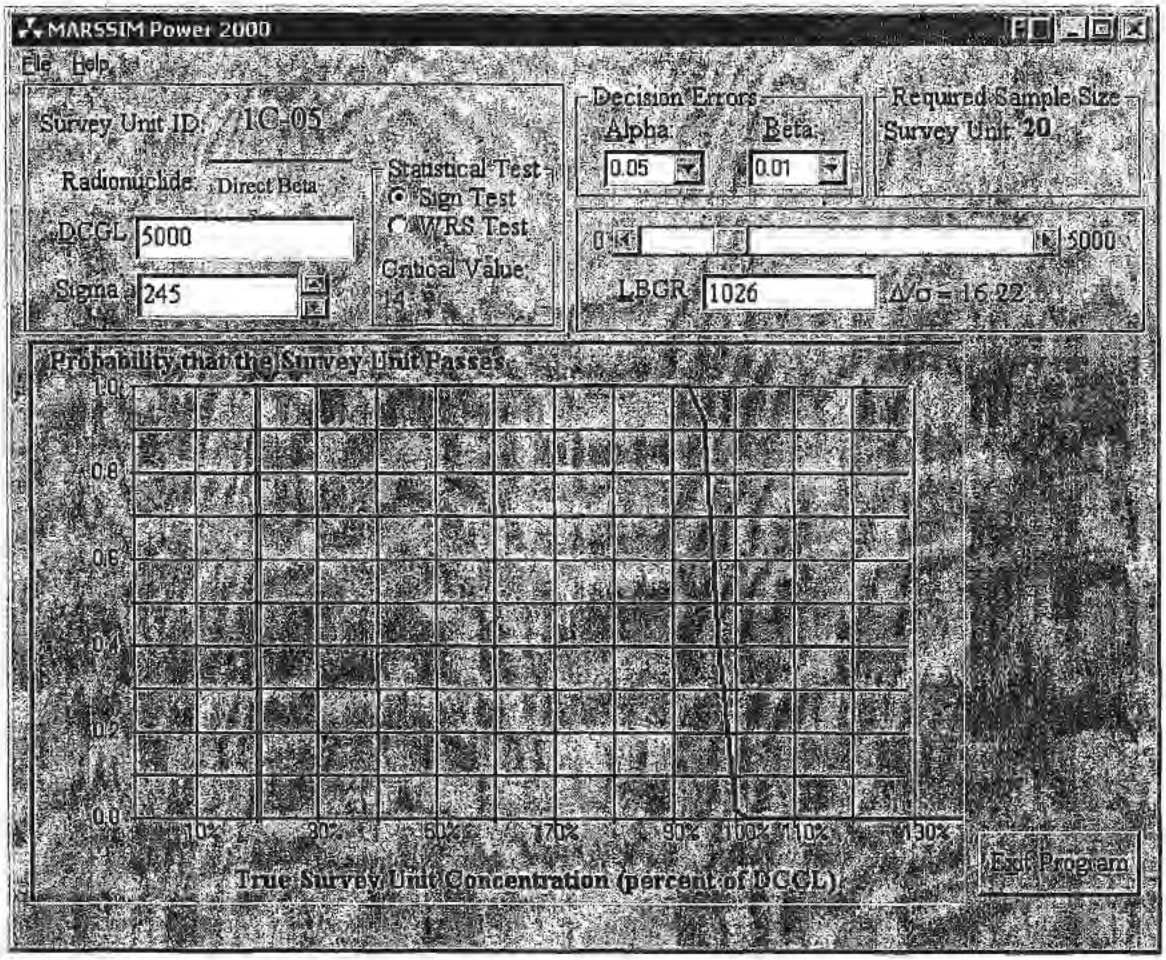
BS/S

Attachment C
Retrospective Power Curves

Attachment C
Retrospective Power Curve
Direct Alpha



Attachment C
Retrospective Power Curve
Direct Beta



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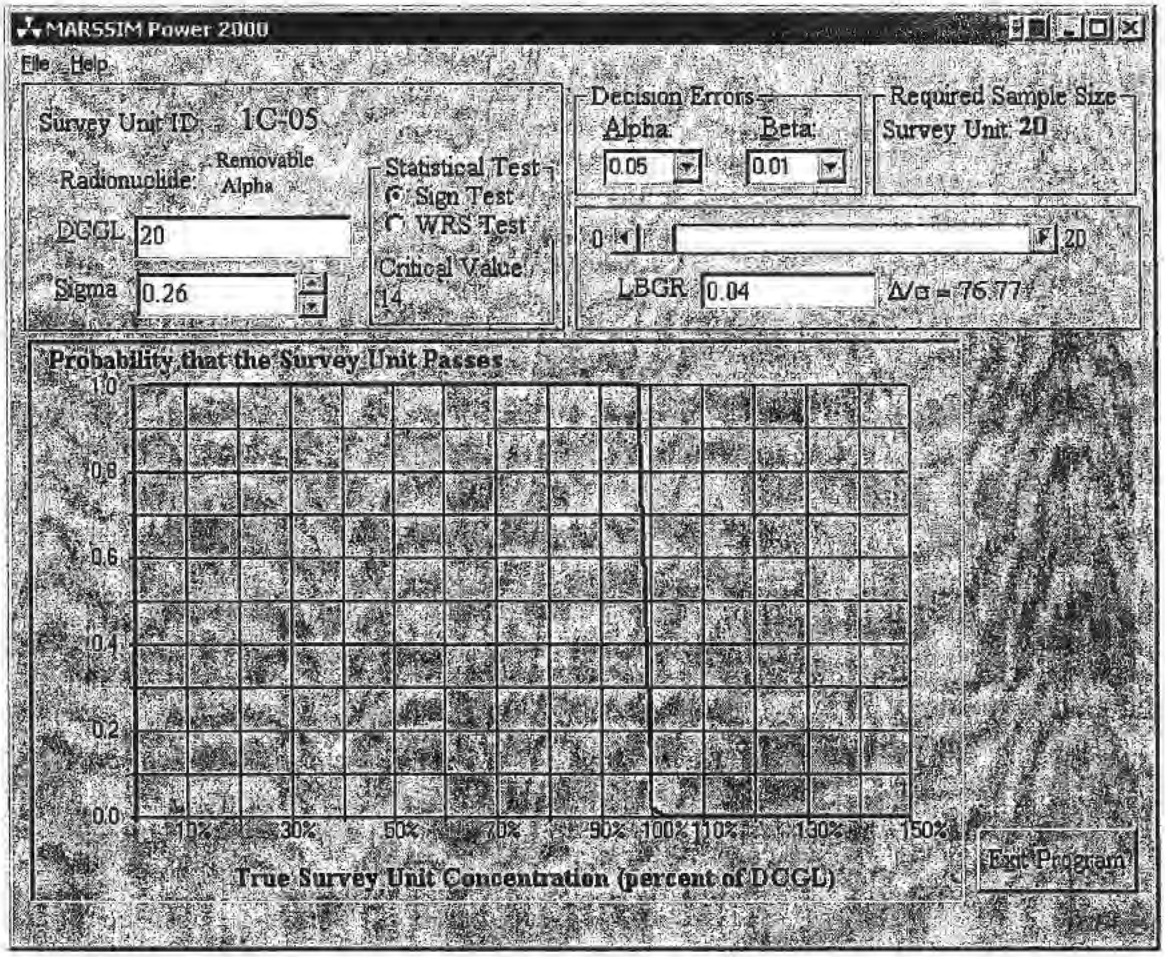
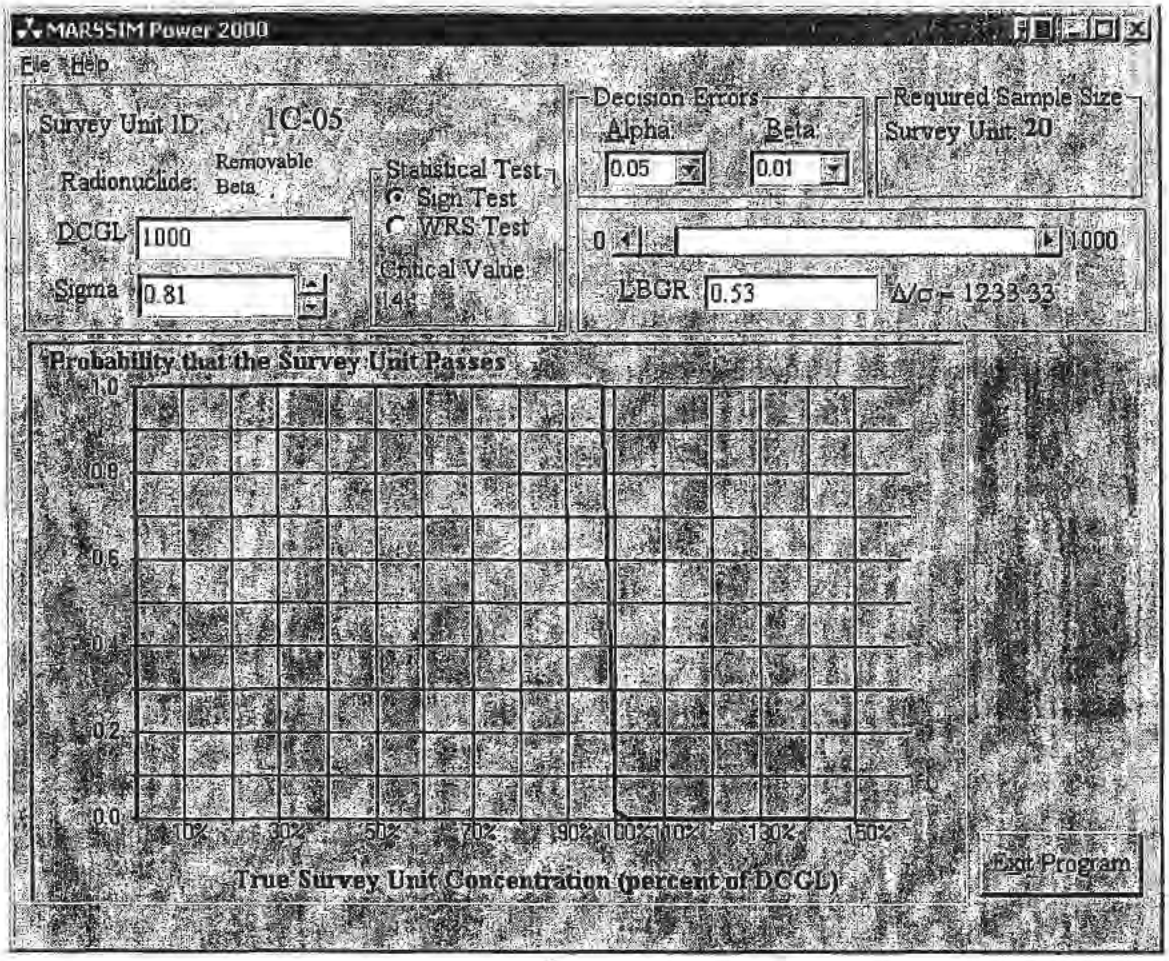
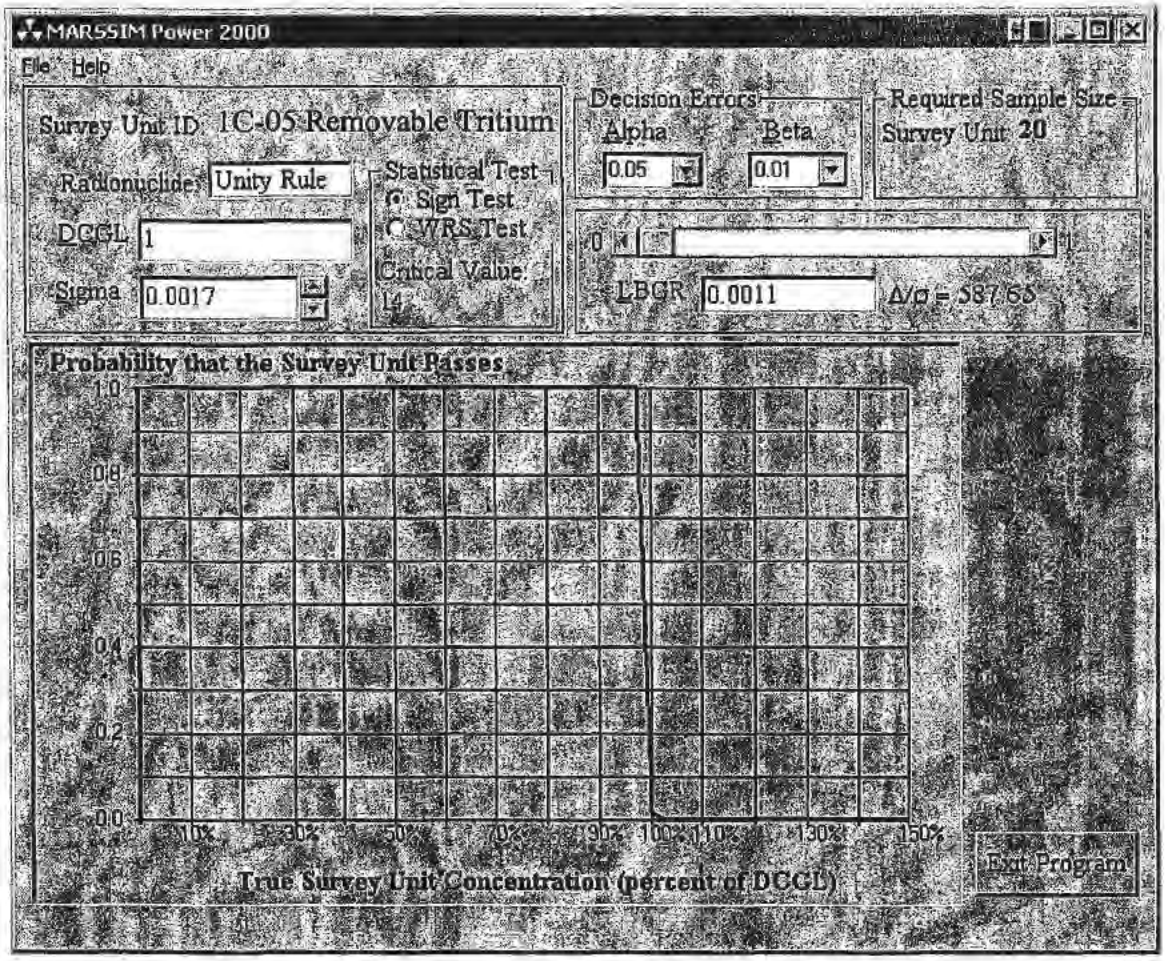
Attachment C
Retrospective Power Curve
Removable Alpha



Attachment C
Retrospective Power Curve
Removable Beta



Attachment C
Retrospective Power Curve
Removable Tritium



Note: The software program used to generate these power curves (MARSSIM Power 2000) fails to produce a legible curve when a large value, such as 10,000 is input as the DCGL. The curve depicted was generated by normalizing the LBGR and standard deviation (sigma) to the DCGL.

C5b

Attachment D
Data Analysis Worksheets

T Building rooms	T36, T36A, T37, and T-38
MARSSIM classification	Class 1
Historical use	These rooms were used for a variety of purposes, including office support, storage, and laboratory functions.

Survey description summary

alpha and beta scan:	floor – 100%
	walls below 2 meters - 100%
	walls above 2 meters – 25%
	ceiling - approx. 1 meter area scanned around each static measurement
gamma scan:	drain chases - 100%
static measurements:	25 each static locations measurements on floor and walls below 2 meters
	20 each static location measurements on ceiling and walls above 2 meters
	36 each judgmental location measurements on floor and walls below 2 meters
	12 each judgmental location measurements on ceiling and walls above 2 meters
	7 each judgmental location measurements on drains, vents, and utilities

* Judgmental measurements are biased measurements in locations where, in the professional judgment of the surveyor, the potential for residual contamination exists.

removable contamination measurements: smears were taken at each static measurement location and each was assayed for gross alpha, gross beta, and tritium

exposure rate measurement: taken from 1 meter above floor in center of room

Survey results summary

alpha and beta scan: all readings below alarm set points

gamma scan: no activity significantly above natural background detected

static measurements: all readings below alarm set points

** Instruments are set to alarm at 75% of the applicable guideline values for the most restrictive alpha emitter and most difficult to detect beta emitter.

removable contamination measurements: all smears were below applicable guideline values

exposure rate measurement: less than 20 μR/hr above natural background

Treatment of elevated*** measurements

None were identified.

*** defined as direct gross alpha measurement exceeding 100 dpm/100 cm^2, direct beta measurement exceeding 5000 dpm/100 cm^2, removable gross alpha exceeding 20 dpm/100 cm^2, removable gross beta exceeding 1000 dpm/100 cm^2, or removable tritium exceeding 10,000 dpm/100 cm^2.

Conclusion Survey unit meets the release criteria

Attachment D
Mound - T Building Survey Unit 1C-05 and SYS-PRS 342
Data Analysis Worksheet

1C05-01 (25 samples each)	Removable			Direct*	
	α (dpm/100 cm²)	β (dpm/100 cm²)	^{3}H (dpm/100 cm²)	α (dpm/100 cm²)	β (dpm/100 cm²)
Average	0.00	0.40	11	16	1133
StDev	0.00	0.72	16	7	252
Max	0.00	2.73	67	30	1741

1C05-02 (20 samples each)	Removable			Direct*	
	α (dpm/100 cm²)	β (dpm/100 cm²)	^{3}H (dpm/100 cm²)	α (dpm/100 cm²)	β (dpm/100 cm²)
Average	0.09	0.70	11	7	893
StDev	0.38	0.90	18	5	159
Max	1.72	3.25	71	18	1181

1C05-01 Judgemental (36 samples each)	Removable			Direct*	
	α (dpm/100 cm²)	β (dpm/100 cm²)	^{3}H (dpm/100 cm²)	α (dpm/100 cm²)	β (dpm/100 cm²)
Average	0.16	0.46	7	17	1142
StDev	0.49	0.77	15	12	334
Max	1.74	2.79	68	45	2012

1C05-02 Judgemental (12 samples each)	Removable			Direct*	
	α (dpm/100 cm²)	β (dpm/100 cm²)	^{3}H (dpm/100 cm²)	α (dpm/100 cm²)	β (dpm/100 cm²)
Average	0.29	0.92	2	18	734
StDev	0.68	1.17	4	11	149
Max	1.77	3.71	11	40	934

1C05 Drains, Vents, and Utilities (7 samples each)	Removable			Direct*	
	α (dpm/100 cm²)	β (dpm/100 cm²)	^{3}H (dpm/100 cm²)	α (dpm/100 cm²)	β (dpm/100 cm²)
Average	0.25	0.40	185	18	837
StDev	0.65	0.56	265	8	138
Max	1.73	1.58	690	32	992

1C05 Statistical Data Points (45 samples)	Removable			Direct*	
	α (dpm/100 cm²)	β (dpm/100 cm²)	^{3}H (dpm/100 cm²)	α (dpm/100 cm²)	β (dpm/100 cm²)
Number	45.00	45.00	45	45	45
Average	0.04	0.53	11	12	1026
StDev	0.26	0.81	17	8	245
Max	1.72	3.25	71	30	1741

SYS-PRS 342 (10 samples each)	Removable			Direct*	
	α (dpm/100 cm²)	β (dpm/100 cm²)	^{3}H (dpm/100 cm²)	α (dpm/100 cm²)	β (dpm/100 cm²)
Average	0.33	0.53	2	14	1357
StDev	0.69	0.72	2	7	132
Max	1.69	1.63	6	26	1551

D3/6

Attachment D Mound T - BLDG
Survey Unit 1C-05 and SYS-PRS 342
Data Analysis Worksheet

	Location	RSDS	Removable (dpm/100cm^2)			Direct (dpm/100cm^2)	
			a	b	H	a	b
1C05-01 (25 samples each)	1C050101S	1031	**0.00**	1.74	5	**30**	**1741**
	1C050102S	1031	0.00	0.00	0	23	1179
	1C050103S	1031	0.00	0.39	0	19	1098
	1C050104S	1031	0.00	1.42	4	30	1070
	1C050105S	1031	0.00	0.00	0	19	1061
	1C050101S	1096	0.00	0.99	10	7	1474
	1C050102S	1096	0.00	0.00	**67**	11	1512
	1C050103S	1096	0.00	0.00	13	7	1134
	1C050104S	1096	0.00	0.00	11	25	973
	1C050105S	1096	0.00	0.00	18	14	1020
	1C050106S	1096	0.00	0.00	3	18	1483
	1C050107S	1096	0.00	0.00	12	4	1105
	1C050108S	1096	0.00	0.00	9	0	973
	1C050109S	1096	0.00	1.59	8	14	1087
	1C050110S	1096	0.00	0.27	19	7	1002
	1C050111S	1096	0.00	0.18	3	22	1266
	1C050112S	1096	0.00	0.20	5	18	1294
	1C050113S	1096	0.00	0.00	10	18	1398
	1C050114S	1096	0.00	0.42	0	22	794
	1C050115S	1096	0.00	0.00	5	14	1200
	1C050116S	1096	0.00	**2.73**	5	18	850
	1C050117S	1096	0.00	0.00	6	11	1105
	1C050118S	1096	0.00	0.00	2	18	1020
	1C050119S	1096	0.00	0.00	0	18	595
	1C050120S	1096	0.00	0.00	58	18	879
1C05-02 (20 samples each)	1C050201S	1096	0.00	**3.25**	28	4	888
	1C050202S	1096	0.00	1.74	31	7	765
	1C050203S	1096	0.00	0.00	0	14	926
	1C050204S	1096	0.00	1.58	1	7	1096
	1C050205S	1096	**1.72**	0.00	16	0	**1181**
	1C050206S	1096	0.00	0.00	23	0	1077
	1C050207S	1096	0.00	0.00	0	7	869
	1C050208S	1096	0.00	0.42	0	7	794
	1C050209S	1096	0.00	0.00	0	11	633
	1C050210S	1096	0.00	0.00	14	7	699
	1C050211S	1096	0.00	0.54	0	11	803
	1C050212S	1096	0.00	1.02	**71**	**18**	803
	1C050213S	1096	0.00	1.63	0	7	992
	1C050214S	1096	0.00	0.00	8	4	1087
	1C050215S	1096	0.00	0.00	11	4	1153
	1C050216S	1096	0.00	0.47	3	11	822
	1C050217S	1096	0.00	1.49	21	4	813
	1C050218S	1096	0.00	0.00	0	7	935
	1C050219S	1096	0.00	1.54	0	4	699
	1C050220S	1096	0.00	0.39	0	11	822

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Attachment D Mound T - BLDG
Survey Unit 1C-05 and SYS-PRS 342
Data Analysis Worksheet

	Location	RSDS	Removable (dpm/100cm^2)			Direct (dpm/100cm^2)	
			a	b	H	a	b
1C-05-01 (judgmental 36 samples each)	1C050101J	1031	0.76	1.51	0	23	1170
	1C050102J	1031	0.00	1.02	1	34	1261
	1C050103J	1031	0.00	0.31	3	**45**	1261
	1C050104J	1031	0.00	0.00	0	15	1605
	1C050105J	1031	0.00	0.00	5	23	998
	1C050104J	1042	0.00	0.00	0	44	1307
	1C050105J	1042	0.00	0.00	2	41	1429
	1C050106J	1042	0.00	1.49	0	18	1279
	1C050107J	1042	0.00	0.00	0	30	1420
	1C050108J	1042	0.00	**2.79**	0	7	1279
	1C050101J	1112	**1.74**	0.00	0	29	1030
	1C050102J	1112	0.00	0.42	2	18	841
	1C050103J	1112	0.00	0.00	0	22	746
	1C050104J	1112	1.68	1.33	2	4	756
	1C050105J	1112	0.00	0.00	0	18	831
	1C050106J	1112	0.00	0.27	7	7	709
	1C050107J	1112	0.00	0.00	2	7	595
	1C050108J	1112	0.00	2.79	11	22	973
	1C050109J	1112	0.00	1.58	0	18	841
	1C050110J	1112	0.00	1.42	7	22	926
	1C050101X	1041	0.00	0.00	4	4	1002
	1C050102X	1041	0.00	0.00	3	7	1153
	1C050103X	1041	0.00	0.31	**68**	11	1266
	1C050104X	1041	0.00	0.00	5	0	954
	1C050105X	1041	0.00	0.26	4	11	1020
	1C050106X	1041	0.00	0.00	19	7	1616
	1C050107X	1041	1.73	0.00	12	4	869
	1C050108X	1041	0.00	0.00	5	14	794
	1C050109X	1041	0.00	0.00	58	4	1134
	1C050110X	1041	0.00	0.39	0	11	898
	1C050101I	955	0.00	0.00	0	13	1693
	1C050102I	955	0.00	0.00	0	5	1149
	1C050111X	1250	0.00	0.00	15	29	945
	1C050112X	1250	0.00	0.34	0	14	1672
	1C050113X	1250	0.00	0.41	0	7	**2012**
	1C050114X	1250	0.00	0.00	0	11	1691
1C-05-02 (judgmental 12 samples each)	1C050201J	1031	0.00	1.59	0	23	707
	1C050202J	1031	0.00	0.00	8	11	**934**
	1C050201J	1112	**1.77**	1.80	0	7	841
	1C050202J	1112	0.00	1.53	0	22	775
	1C050203J	1112	0.00	1.73	4	14	784
	1C050204J	1112	0.00	0.00	0	**40**	624
	1C050205J	1112	0.00	0.00	0	29	520
	1C050206J	1112	0.00	**3.71**	0	18	869
	1C050207J	1112	0.00	0.00	6	11	822
	1C050208J	1112	0.00	0.00	0	29	813
	1C050209J	1112	0.00	0.72	0	4	425
	1C050210J	1112	1.71	0.00	**11**	4	690

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Attachment D Mound T - BLDG
Survey Unit 1C-05 and SYS-PRS 342
Data Analysis Worksheet

	Location	RSDS	Removable (dpm/100cm^2)			Direct (dpm/100cm^2)	
			a	b	H	a	b
1C05 Drams, Vents and Utilities (7 samples each)	1C050101U	1096	0.00	0.62	317	**32**	945
	1C050102U	1096	0.00	0.29	290	7	973
	1C050103U	1096	0.00	**1.58**	**690**	11	850
	1C050104U	1096	0.00	0.18	0	22	746
	1C050101V	1096	0.00	0.00	0	14	671
	1C050102V	1096	**1.73**	0.12	0	22	680
	1C050101D	1096	0.00	0.00	0	18	**992**
SYS-PRS 342 (10 samples each)	SYPRS3420101J	1198	0.00	0.00	0	4	1469
	SYPRS3420102J	1198	1.56	1.42	**6**	**26**	1460
	SYPRS3420103J	1198	0.00	0.00	2	8	1306
	SYPRS3420104J	1198	0.00	0.00	0	15	1397
	SYPRS3420105J	1198	0.00	0.54	2	8	**1551**
	SYPRS3420106J	1198	0.00	0.00	0	15	1197
	SYPRS3420107J	1198	0.00	**1.63**	5	23	1397
	SYPRS3420108J	1198	0.00	1.56	4	15	1161
	SYPRS3420109J	1198	**1.69**	0.11	0	8	1424
	SYPRS3420110J	1198	0.00	0.00	1	19	1206

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Attachment E
Survey Plan Form

#T-01 (Revised 7-30-05)
and
#T-05 (Revised 6-01-05)
and
#T-06 (Revised 9-26-05)

SURVEY PLAN FORM			
SP NUMBER	T-01	**DATE OF REQUEST**	
TYPE OF SP	☒ **FSS** ☐ **CHARACTERIZATION** ☐ **REFERENCE** ☐ **OTHER:**		
AREA/LOCATION	T Building		
PURPOSE	The purpose of this SPF is to perform a final status survey in Class 1 floors and lower walls and Class 2 ceilings and upper walls in T Building to support decisions on final disposition and free release of the building.		
SURVEY UNIT # 1	See Attachment 1	**SURVEY UNIT # 4**	
SURVEY UNIT # 2		**SURVEY UNIT # 5**	
SURVEY UNIT # 3		**SURVEY UNIT # 6**	

SURVEY TYPE					
SURFACE SCAN	☒ **BETA** ☐ **GAMMA** ☒ **ALPHA**	**INST. TYPE** **PROBE TYPE**	Shonka PSPC 2 ft, 4ft, or 6 ft	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Refer to SHONKA Surface Contamination Monitor (SCM) operating procedures.
SURFACE SCAN	☒ **BETA** ☐ **GAMMA** ☒ **ALPHA**	**INST. TYPE** **PROBE TYPE**	L-2350 43-37 Floor Probe or 43-68 Hand Probe	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Scan surface at a rate of ½" per second at a distance of not more than ¼" from the surface
SURFACE SCAN	☒ **BETA** ☐ **GAMMA** ☒ **ALPHA**	**INST. TYPE** **PROBE TYPE**	L-2360 43-89 hand probe	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Refer to MD-80036, Op 30030, Operation of Ludlum 2360 Scaler/ratemeter with Ludlum 43-89 alpha/beta scintillator
STATIC MEASUREMENT	☒ **BETA** ☐ **GAMMA** ☒ **ALPHA**	**INST. TYPE** **PROBE TYPE**	L-2350 43-68 Hand Probe (or 43-37 Floor)	**COUNT TIME & DETECTOR DISTANCE FROM SURFACE**	Perform 2 minute counts (α) and 1 minute count (β) at specified locations not more than ¼" from the surface for hand probe (30 seconds (α) and (β) counts if using floor probe).
STATIC MEASUREMENT	☒ **BETA** ☐ **GAMMA** ☒ **ALPHA**	**INST. TYPE** **PROBE TYPE**	L-2360 43-89 hand probe	**COUNT TIME & DETECTOR DISTANCE FROM SURFACE**	Refer to MD-80036, Op 30030, Operation of Ludlum 2360 Scaler/ratemeter with Ludlum 43-89 alpha/beta scintillator
GENERAL AREA EXPOSURE RATE MEASUREMENT	☐ **BETA** ☒ **GAMMA** ☐ **ALPHA**	**INST. TYPE** **PROBE TYPE**	Micro Rem meter 	**DETECTOR DISTANCE FROM SURFACE**	Perform general area exposure rate measurements 1 meter (m) from the surface.
COMMENTS AND GENERAL REQUIREMENTS	All surveys shall be performed and documented in accordance with Mound Radiological Control procedures. Perform scan surveys prior to fixed-point surveys. Ensure building surfaces are clean and free of loose debris, dirt, and obstructions prior to performing surveys. Rad Con shall document all discrepancies from the above sampling and surveying instructions on the RSDS. **Continued next page**				

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Specific Sampling and Survey Instructions Continued

Safety Considerations

1. Obtain assistance from the responsible building custodian for access to upper walls, ceilings, roof, etc.
2. Exercise extreme caution when performing surveys from ladders, lifts, or scaffolds.
3. Follow appropriate site safety procedures when accessing areas requiring fall protection measures.
4. Ensure ventilation units are de-energized prior to attempting to collect a sample from them.
5. Obtain approval and assistance from the responsible building custodian to dismantle any equipment for sample collection.
6. Use L2360 if locations are not safely accessible using the L2350 (e.g. close tight spaces, on top roofs, etc).

Scanning using Ludlum 2350-1 with 43-37 (floor) and 43-68 (hand) probes

1. Verify that the rate meters are set to alarm at or below 225 dpm/100 cm^2 alpha and 11250 dpm/100 cm^2 beta. (The RPOC or Rad Engineer will provide cpm values for alarm set points).
2. Scan at a rate of ½ inch per sec at a distance of not more than ¼ " from the surface.
3. Perform a static measurement at every location where an indication of elevated activity is observed.
4. Record the locations and document the results of the area scanned on the RSDS.

Scanning using Ludlum 2360 with 43-89 probe

1. Scan in accordance with instrument procedures at a rate of ½ inch per sec at a distance of not more than ¼ " from the surface.
2. Perform a static measurement at every location where an indication of elevated activity is observed.
3. Record the locations and document the results of the area scanned on the RSDS.

Scanning using SHONKA Position Sensitive Proportional Counter (PSPC) with 2',4' and 6' probes

1. Scan in accordance with instrument procedures at a rate of 0.4 inch per sec for alpha and 4.0 inch per sec for beta, at a distance of not more than ¼ " from the surface.
2. Perform a static measurement at every location where an indication of elevated activity is observed.
3. Record the locations and document the results of the area scanned on the RSDS.

Continued next page

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Specific Sampling and Survey Instructions Continued

Scanning in Class 1 areas

1.Scan 100% of the floor and walls up to 2 meters

Scanning in Class 2 areas

1. Scan at least 25% of walls above 2 meters using a serpentine pattern with scan paths spaced three probe widths apart.
2. On ceilings and in crawlspaces, scan an area of approximately 1 m^2 around each static measurement location.

Static measurements

1. When using hand probes, the count time is 2 min for alpha measurements and 1 min for beta measurements. When using the floor probe, the count time for alpha and beta measurements is 30 sec.
2. Perform integrated counts at all pre-designated sample location and at any elevated locations identified by scanning.
3. Perform at least 10 measurements on beams, supports, or other horizontal structural surfaces in each survey unit where, in the judgment of the surveyor, a potential exists for residual contamination.
4. Record the location and document the results on the RSDS in accordance with Mound Rad Con procedures.
5. Document the gross activity for each location (no "<" or ">" values).

Data Point Location

1. Locate the data points in each survey unit.
2. Mark each data point with tape or other non-permanent marking.
3. Document locations on the appropriate RSDS.

General Area Exposure Rate Measurements

1. Perform general area exposure rate measurement using Micro Rem survey meter in each room in the survey unit at a distance of 1 meter (m) from the floor.
2. Record reading results (microRem/hr) including background on RSDS in accordance with Mound Rad Con procedures (no "<" or ">" values).

Loose Surface Contamination

1. Obtain a smear of 100cm^2 at each pre-designated static measurement location.
2. Count each smear for alpha, beta, and ^3H.
3. Record location and attach results on the RSDS in accordance with Mound Rad Con procedures (no "<" or ">" values).

Continued next page

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Specific Sampling and Survey Instructions Continued

Quality Control

1. Check Configuration Index (CI) for latest revision of procedures.
2. Daily source checks will be performed at the beginning and end of each day in accordance with Mound Rad Con procedures.
3. 16 fixed measurement data points will be selected for resurvey from the pool of Class 1 areas. Data points selected for resurvey should include the highest and lowest measurement from the data pool.
4. 16 smears will be randomly selected for recount from the pool of Class 1 areas.
5. 5% of the scan measurements taken in Class 1 areas will randomly be selected for replicate scan surveys.
6. Follow Rad Con procedures for Chain of Custody requirements.
7. Ensure alpha and beta smear results are obtained before performing ^{3}H analysis.
8. Record location and results on the RSDS in accordance with Mound Rad Con procedures.

APPROVAL SIGNATURES			
Project Engineer	Mary Siemon	**DATE**	7-30-05
Radiological Engineer		**DATE**	7/30/05
Manager		**DATE**	8/1/05
SP CLOSE-OUT SIGNATURES			
Project Engineer		**DATE**	
Radiological Engineer		**DATE**	
Manager		**DATE**	
COMMENTS			

EJ/16

ATTACHMENT 1: SPF T-01

Floors and walls < 2m

1C-01-1	2C-01-1
1C-02-1	2C-02-1
1C-03-1	2C-03-1
1C-04-1	2C-04-1
1C-05-1	2C-05-1
1C-06-1	2C-06-1
1C-07-1	2C-07-1
1C-08-1	2C-08-1
1C-09-1	2C-09-1
1C-10-1	2C-10-1
1C-11-1	2C-11-1
1C-12-1	2C-12-1
1C-13-1	2C-13-1
1C-14-1	2C-14-1
1C-15-1	2C-15-1
1C-16-1	2C-16-1
1C-17-1	2C-17-1
1C-18-1	2C-18-1
1N-01-1	2C-19-1
1N-04-1	2N-06-1
1N-07-1	2N-07-1
1N-08-1	2N-08-1
1S-05-1	2S-06-1
1S-06-1	2S-07-1
1S-07-1	2S-08-1
1S-09-1	2S-09-1
1S-10-1	2S-10-1
1S-11-1	2S-12-1
1S-12-1	2S-13-1
1C-19-1	2S-14-1
1C-20-1	2S-15-1

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ATTACHMENT 1 continued: SPF T-01

Ceilings and walls > 2m

1C-01-2	2C-01-2
1C-02-2	2C-02-2
1C-03-2	2C-03-2
1C-04-2	2C-04-2
1C-05-2	2C-05-2
1C-06-2	2C-06-2
1C-07-2	2C-07-2
1C-08-2	2C-08-2
1C-09-2	2C-09-2
1C-10-2	2C-10-2
1C-11-2	2C-11-2
1C-12-2	2C-12-2
1C-13-2	2C-13-2
1C-14-2	2C-14-2
1C-15-2	2C-15-2
1C-16-2	2C-16-2
1C-17-2	2C-17-2
1C-18-2	2C-18-2
1N-01-2	2C-19-2
1N-04-2	2N-06-2
1N-07-2	2N-07-2
1N-08-2	2N-08-2
1S-05-2	2S-06-2
1S-06-2	2S-07-2
1S-07-2	2S-08-2
1S-09-2	2S-09-2
1S-10-2	2S-10-2
1S-11-2	2S-12-2
1S-12-2	2S-13-2
1C-19-2	2S-14-2
1C-20-2	2S-15-2

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SURVEY PLAN FORM					
SP NUMBER	T-05			**DATE OF REQUEST**	
TYPE OF SP	☒ FSS ☐ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:				
AREA/LOCATION	T Building				
PURPOSE	The purpose of this SPF is to perform a final status survey in Class 1 sumps and associated piping in T Building to support decisions on final disposition and free release of T Building				
SURVEY UNIT # 1	See Attachment 1	**SURVEY UNIT # 4**		**SURVEY UNIT # 7**	
SURVEY UNIT # 2		**SURVEY UNIT # 5**		**SURVEY UNIT # 8**	
SURVEY UNIT # 3		**SURVEY UNIT # 6**		**SURVEY UNIT # 9**	

SAMPLE TYPE
☐ **SCRAPING/SEDIMENT SAMPLE:**
☐ **FLUID/LIQUID SAMPLE:**
☐ **OTHER:**

SURVEY TYPE					
SURFACE SCAN	☒ BETA ☐ GAMMA ☒ ALPHA	**INST. TYPE**	L-2350	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Scan surface at a rate of ½" per second at a distance of not more than ¼" from the surface
		PROBE TYPE	43-68 Hand Probe		
SURFACE SCAN	☐ BETA ☒ GAMMA ☐ ALPHA	**INST. TYPE**	L-2360	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Refer to MD-80036, Op number 30040, Operation of Ludlum 2360 with Fidler probe.
		PROBE TYPE	Fidler Probe		
STATIC MEASUREMENT	☒ BETA ☐ GAMMA ☒ ALPHA	**INST. TYPE**	L-2350	**COUNT TIME & DETECTOR DISTANCE FROM SURFACE**	Perform 2 minute counts (α) and 1 minute count (β) at specified locations not more than ¼" from the surface.
		PROBE TYPE	43-68 Hand Probe		
GENERAL AREA EXPOSURE RATE MEASUREMENT	☐ BETA ☒ GAMMA ☐ ALPHA	**INST. TYPE**	Micro Rem meter	**DETECTOR DISTANCE FROM SURFACE**	Perform general area exposure rate measurements 1 meter (m) from the surface.
		PROBE TYPE			
COMMENTS AND GENERAL REQUIREMENTS	Class 1 sumps and associated piping are excavated and disposed of as radioactive waste. They are not to be surveyed and released. This SPF addresses surveys performed in excavated sump pits and empty pipe chases. All surveys shall be performed and documented in accordance with Mound Radiological Control procedures. Perform scan surveys prior to fixed-point surveys. Rad Con shall document all discrepancies from the above sampling and surveying instructions on the RSDS. **Continued next page**				

E7/16

Safety Considerations

1. Obtain assistance from the responsible building custodian for access to sumps.
2. Exercise extreme caution when performing surveys inside sump area.
3. Follow appropriate site safety procedures when accessing areas requiring fall protection measures.

Scanning using Ludlum 2350-1 with 43-68 hand probe

1. Verify that the rate meters are set to alarm at or below 225 dpm/100 cm^2 alpha and 11250 dpm/100 cm^2 beta. (The RPOC or Rad Engineer will provide cpm values for alarm set points).
2. Scan at a rate of ½ inch per sec at a distance of not more than ¼ " from the surface.
3. Perform a static measurement at every location where an indication of elevated activity is observed.
4. Record the locations and document the results of the area scanned on the RSDS.
5. Use L2360 with Fidler probe if surfaces are too uneven to use L2350.

Scanning in Class 1 areas

Scan 100% of the sump pit and empty drain chases.

Surface Scan Using a Ludlum 2360 with a Fidler probe

1. Scan the sump pit and empty drain chase surfaces at a rate of 2.5" per second.
2. Record the locations of the area scanned on the RSDS and document the results in accordance with Mound Rad Con procedures (no "<" or ">" values).

General Area Exposure Rate Measurements

1. Perform general area exposure rate measurement using a Micro Rem survey meter for each sump at a distance of 1m from the surface.
2. Record reading results (microRem/hr) on RSDS in accordance with Mound Rad Con procedures (no "<" or ">" values).

Data Point Location

1. Locate the data points in each survey unit.
2. Mark each data point with tape or other non-permanent marking.
3. Document locations on the appropriate RSDS.

Continued next page

E8/14

Specific Sampling and Survey Instructions Continued

Static measurements

1. The count time for static measurements using the hand probe is 2 min for alpha and 1 min for beta.
2. Perform integrated counts at each sample location.
3. Record location, material type, and results on RSDS in accordance with Mound Rad Con procedures.
4. Document gross activity for each location (no "<" or ">" values).

Loose Surface Contamination

1. Obtain a smear of 100 cm^2 at each survey point identified above.
2. Count each smear for alpha, beta, and ^3H.
3. Record location and results on RSDS map in accordance with Mound Rad Con procedures.

Continued next page

Eq/1b

Specific Sampling and Survey Instructions Continued

QUALITY CONTROL

1. Check Configuration Index (CI) for latest revision of procedures.
2. Daily source checks will be performed at the beginning and end of each day in accordance with Mound Rad Con procedures.
3. 16 fixed measurement data points will be selected for resurvey from the Class 1 sumps. Data points selected for resurvey should include the highest and lowest measurement from the data pool
4. 16 smears will be randomly selected for recount from the Class 1 sumps.
5. 5% of the scan measurements taken in Class 1 sumps will randomly be selected for replicate scan surveys in accordance with MD-80046, Op 402.
6. Follow Rad Con procedures for Chain of Custody requirements.
7. Ensure alpha and beta smear results are obtained before performing ^{3}H analysis.
8. Record location, material, and results on RSDS in accordance with Mound Rad Con procedures.

APPROVAL SIGNATURES

Project Engineer	Mary E Symmonds	**DATE**	6-1-05
Technical Reviewer		**DATE**	6/1/05
Manager	Bo Mue	**DATE**	6/1/05

SP CLOSE-OUT SIGNATURES

Project Engineer		**DATE**	
Technical Reviewer		**DATE**	
Manager		**DATE**	

COMMENTS

E10/10

ATTACHMENT 1: SPF T-05
Class 1 sumps

Sump #	**Survey Unit ID#**	**Identification**
Sump 5	SYS-PRS 340	Waste Water Sump (Tank 251)
Sump 6	SYS-PRS 225	Beta Waste Water Sump (Tank 227)
Sump 7	SYS-PRS 227	Alpha Waste Water Sump (Tank 229)
Sump 8	SYS-PRS 228	Alpha Waste Water Sump (Tank 230)
Sump 9	SYS-PRS 339	Waste Water Sump (Tank 250)
Sump 10	SYS-PRS 229	Alpha Waste Water Sump (Tank 231)
Sump 11	SYS-PRS 230	Alpha Waste Water Sump (Tank 232)
Sump 13	SYS-PRS 233	Alpha Waste Water Sump (Tank 235)

E11/16

SURVEY PLAN FORM					
SP NUMBER	T-06			**DATE OF REQUEST**	
TYPE OF SP	☒ FSS ☐ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:				
AREA/LOCATION	T Building				
PURPOSE	The purpose of this SPF is to perform a final status survey in Class 2 sumps and associated piping in T Building to support decisions on final disposition and free release of T Building				
SURVEY UNIT # 1	See Attachment 1	**SURVEY UNIT # 4**		**SURVEY UNIT # 7**	
SURVEY UNIT # 2		**SURVEY UNIT # 5**		**SURVEY UNIT # 8**	
SURVEY UNIT # 3		**SURVEY UNIT # 6**		**SURVEY UNIT # 9**	

SAMPLE TYPE
☐ **SCRAPING/SEDIMENT SAMPLE:**
☐ **FLUID/LIQUID SAMPLE:**
☐ **OTHER:**

SURVEY TYPE					
SURFACE SCAN	☒ BETA ☐ GAMMA ☒ ALPHA	**INST. TYPE**	L-2350	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Scan surface at a rate of ½" per second at a distance of not more than ¼" from the surface
		PROBE TYPE	43-68 Hand Probe		
SURFACE SCAN	☐ BETA ☒ GAMMA ☐ ALPHA	**INST. TYPE**	L-2360	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Refer to MD-80036, Op number 30040, Operation of Ludlum 2360 with Fidler probe.
		PROBE TYPE	Fidler Probe		
STATIC MEASUREMENT	☒ BETA ☐ GAMMA ☒ ALPHA	**INST. TYPE**	L-2350	**COUNT TIME & DETECTOR DISTANCE FROM SURFACE**	Perform 2 minute counts (α) and 1 minute count (β) at specified locations not more than ¼" from the surface.
		PROBE TYPE	43-68 Hand Probe		
GENERAL AREA EXPOSURE RATE MEASUREMENT	☐ BETA ☒ GAMMA ☐ ALPHA	**INST. TYPE**	Micro Rem meter	**DETECTOR DISTANCE FROM SURFACE**	Perform general area exposure rate measurements 1 meter (m) from the surface.
		PROBE TYPE			

COMMENTS AND GENERAL REQUIREMENTS

All surveys shall be performed and documented in accordance with Mound Radiological Control procedures.

Perform scan surveys prior to fixed-point surveys.

Ensure building surfaces are clean and free of loose debris, dirt, and obstructions prior to performing surveys.

Rad Con shall document all discrepancies from the above sampling and surveying instructions on the RSDS.

Continued next page

E12/16

Specific Sampling and Survey Instructions Continued

Safety Considerations

1. Obtain assistance from the responsible building custodian for access to sumps.
2. Exercise extreme caution when performing surveys inside sump area. Follow appropriate site safety procedures when accessing areas requiring fall protection measures.

Scanning using Ludlum 2350-1 with 43-68 hand probe

1. Verify that the rate meters are set to alarm at or below 225 dpm/100 cm^2 alpha and 11250 dpm/100 cm^2 beta. (The RPOC or Rad Engineer will provide cpm values for alarm set points).
2. Scan at a rate of ½ inch per sec at a distance of not more than ¼ " from the surface.
3. Perform a static measurement at every location where an indication of elevated activity is observed.
4. Record the locations and document the results of the area scanned on the RSDS.
5. Record the locations and document the results of any integrated counts on the RSDS.
6. Document the gross activity for each location (no "<" or ">" values).

Scanning using Ludlum 2360 with 43-89 probe

1. Scan in accordance with instrument procedures at a rate of ½ inch per sec.
2. Perform a static measurement at every location where an indication of elevated activity is observed.
3. Record the locations and document the results of the area scanned on the RSDS.
4. Record the locations and document the results of any integrated counts on the RSDS.
5. Document the gross activity for each location (no "<" or ">" values).

Scanning

1. Scan 100% of all dry accessible surfaces with the L-2350-1 with 43-68 hand probe.
2. Record the locations of the area scanned on the RSDS.

Continued next page

E13/16

Specific Sampling and Survey Instructions Continued

Surface Scan Using a Ludlum 2360 with a Fidler probe

1. If the sump has been physically removed, scan the sump pit and any accessible drain pipe locations at a rate of 2.5" per second.
2. Record the locations of the area scanned on the RSDS and document the results in accordance with Mound Rad Con procedures (no "<" or ">" values).

General Area Exposure Rate Measurements

1. Perform general area exposure rate measurement using Bicron Micro Rem survey meter for each sump at a distance of 1m from the surface..
2. Record reading results (microRem/hr) on RSDS in accordance with Mound Rad Con procedures (no "<" or ">" values).

Data Point Location

1. Locate the data points in each survey unit.
2. Mark each data point with tape or other non-permanent marking.
3. Document locations on the appropriate RSDS.

Static measurements

1. When using hand probes, the count time is 2 min for alpha measurements and 1 min for beta measurements. When using the floor probe, the count time for alpha and beta measurements is 30 sec.
2. Perform integrated counts at each sample location.
3. Record location, material type, and results on RSDS in accordance with Mound Rad Con procedures.
4. Document gross activity for each location (no "<" or ">" values).

Loose Surface Contamination

1. Obtain a smear of 100 cm^2 at each survey point identified above.
2. Count each smear for alpha, beta, and ^3H.
3. Record location and results on RSDS map in accordance with Mound Rad Con procedures.

E14/16

Continued next page

Specific Sampling and Survey Instructions Continued

QUALITY CONTROL

1. Check Configuration Index (CI) for latest revision of procedures.
2. Daily source checks will be performed at the beginning and end of each day in accordance with Mound Rad Con procedures.
3. 16 fixed measurement data points will be selected for resurvey from the Class 2 sumps. Data points selected for resurvey should include the highest and lowest measurement from the data pool
4. 16 smears will be randomly selected for recount from the Class 2 sumps.
5. 5% of the scan measurements taken in Class 2 sumps will randomly be selected for replicate scan surveys in accordance with MD-80046, Op 402.
6. Follow Rad Con procedures for Chain of Custody requirements.
7. Ensure alpha and beta smear results are obtained before performing ^{3}H analysis.
8. Record location, material, and results on RSDS in accordance with Mound Rad Con procedures.

APPROVAL SIGNATURES			
Project Engineer	Mary Symons	DATE	9-26-05
Radiological Engineer		DATE	9/26/05
Manager	Bo	DATE	9/26/05
SP CLOSE-OUT SIGNATURES			
Project Engineer		DATE	
Radiological Engineer		DATE	
Manager		DATE	

COMMENTS

Visually inspect the sump to determine if an area of breached integrity exists. Contact Radiological Engineer or RPOC to determine if additional measurements or instrumentation is needed, if there is evidence of a breach in the integrity of the sump. A smear or additional sampling of the breached area may be required.

E15/16

ATTACHMENT 1: SPF T-06
Class 2 sumps

Survey Unit ID#	Identification	Sump #
SYS-PRS 215	Cooling Water Sump #1 (Tank 124) Room T-1	1
SYS-PRS 219	Cooling Water Sump #15 (Tank 128) Stair 3	15
SYS-PRS 220	Steam Condensate Sump #16 (Tank 129) T-78	16
SYS-PRS 223	Storm Sump #20 (Tank 132), Room 90	20
SYS-PRS 226	Floor Drain Sump #3 (Tank 228), Corridor 9	3
SYS-PRS 232	Alpha Waste Water Sump #12 (Tank 234), Corridor 7	12
SYS-PRS 341	Condensate Sump #19 (Tank 269) T-90	19
SYS-PRS 342	Hot Side Fire Water Tank (Tank 271) T-1	N/A
SYS-PRS 343	Fire Water Sump (Tank 272), Room 20	N/A
SYS-PRS 344	Fire Water Sump (Tank 273), Room 37	N/A

E11/16

Attachment F
Summary of Attached
Radiological Survey Data Sheets

RSDS	date	su	Content
MT-05-0955	07-Oct-05	1C05	Judgmental (01)
MT-05-1030	19-Oct-05	1C05	scan (room 36a)
MT-05-1031	19-Oct-05	1C05	static judgmental
MT-05-1041	20-Oct-05	1C05	Elevated Measurement
MT-05-1042	20-Oct-05	1C05	judgmental (rooms 36/37/38)
MT-05-1096	27-Oct-05	1C05	scan (36a, 36, 37 & 38) static, DVU (37, 38)
MT-05-1112	31-Oct-05	1C05	static, judgmental, dose (36, 36a, 37, 38)
MT-05-1250	1-Dec-05	1C05	Elevated measurement
MT-05-1198	16-Nov-05	SYS-PRS 342	Judgmental
MT-05-1199	16-Nov-05	SYS-PRS 342	scan,, dose

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) TBldg / IC05 / Rm. 36, 36A	SURVEY NO. MT-05-0955
PURPOSE: INVESTIGATION of Possible Elevated AREAS IDENTIFIED By SHONKA	RWP NO. NA
	DATE: 10-7-05
	TIME: 1000

MAP / DRAWING

See ATTACHED FOR SMEAR LOCATION

See ATTACHED FOR SURVEY RESULTS

SCAN of All POINTS Show NO Elevated Readings A / B'

COPY

LEGEND:

= mrem/hr (γ) whole body

#E = mrem/hr (β+η+γ) extremity on contact

K = factor of 1000

—·—·— = radiological boundary

(#) = mrem/hr neutron (#) = swipe number

[#] = air sample number (#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350-1	5924/5929	5-17-06
	N	
	A	

Completed by: (Signature) K. Abercrombie Date: 10-7-05

Completed by: (Print Name) K. Abercrombie

Counted by: (Signature) See ATTACHED HP# Date:

Counted by: (Print Name) See ATTACHED

Reviewed/Approved by: (Signature) Jerry Taylor Date: 10-27-05

Reviewed/Approved by: (Print Name) Jerry Taylor

F1/85

Survey No.
MT-05-0955

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination

Swipes (dpm/100cm²)

Sample #	β / γ	Alpha	Tritium	Comments
1	See Attached Sheets			1C050101I
2	↓	↓	↓	1C050102I

N A

Removable Contamination

Swipes (dpm/100cm²)

Sample #	β / γ	Alpha	Tritium	Comments
	See Attached Sheets			

N A

COMMENTS:

N A

NOTES:

1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β / γ, alpha, or tritium, leave column blank. Mark column N/A if not needed. If count room results are attached, write " see attached " in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

F-2/05

10-13-05 KA

Page 3 of 8 MT-05-0955

MARSSIM Smear Data

Assay Definition-

Assay Description:
MARSSIM Smear Data

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: D:\MARSSIM_LSC
Raw Results Path: C:\Packard\Tricarb\Results\5801\MARSSIM_Smear_4\20051010_1152.results
Comma-Delimited File Name: D:\MARSSIM_LSC\MT-05-0955.001
Assay File Name: C:\Packard\TriCarb\Assays\MARSSIM_Smear_4.1sa

Count Conditions-

Nuclide: H-3 Mound
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: H-3 Smear
Count Time (min): 2.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: On - 1st Vial
Low CPM Threshold: Off
2 Sigma % Terminator: Off

Regions	LL	UL	Bkg Subtract
A	0.5	18.6	1st Vial
B	2.0	18.6	1st Vial
C	40.0	2000.0	1st Vial

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				

COPY

8/31

MARSSIM Smear Data

MT-05-0920 Page 4 of 8
KA 7474

B
C

Instrument Block Data
Machine=Tri-Carb 2900TR
Version=2.06
423022
MODEL=Tri-Carb 2900TR
VERSION=2.06
SERIAL=423022

Cycle 1 Results

DATE	TIME	S#	Count Time	CPMA	CPMB	CPMC	LUM	tSIE	DPM1	A:2S%	MESSAGES	P#
10/10/05	11:53:28 AM	-1	10.00	8	7	9	7	622.38	0	22.3	B	4
10/10/05	12:04:16 PM	0	2.00	380	362	2	0	540.99	738	7.3		4
10/10/05	12:06:58 PM	1	2.00	0	0	0	9	560.90	0	0.0		4
10/10/05	12:09:40 PM	√ 2	2.00	0	0	3	13	498.88	0	0.0		4

KA

F4/85

Page 2 of 10

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: Mar_046
Batch Ended: 10/10/05 10:50
Cal. Due Date: 11/17/05
Serial Number: 26966-3

Batch ID: MT-05-0955 KA [2] GWD

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.00	2.20		0.00	1.86	
A2	2	0.00	2.00		0.00	1.18	

KA KA

KA 10-17-05

F545

T-Building Follow up Survey (1C05)

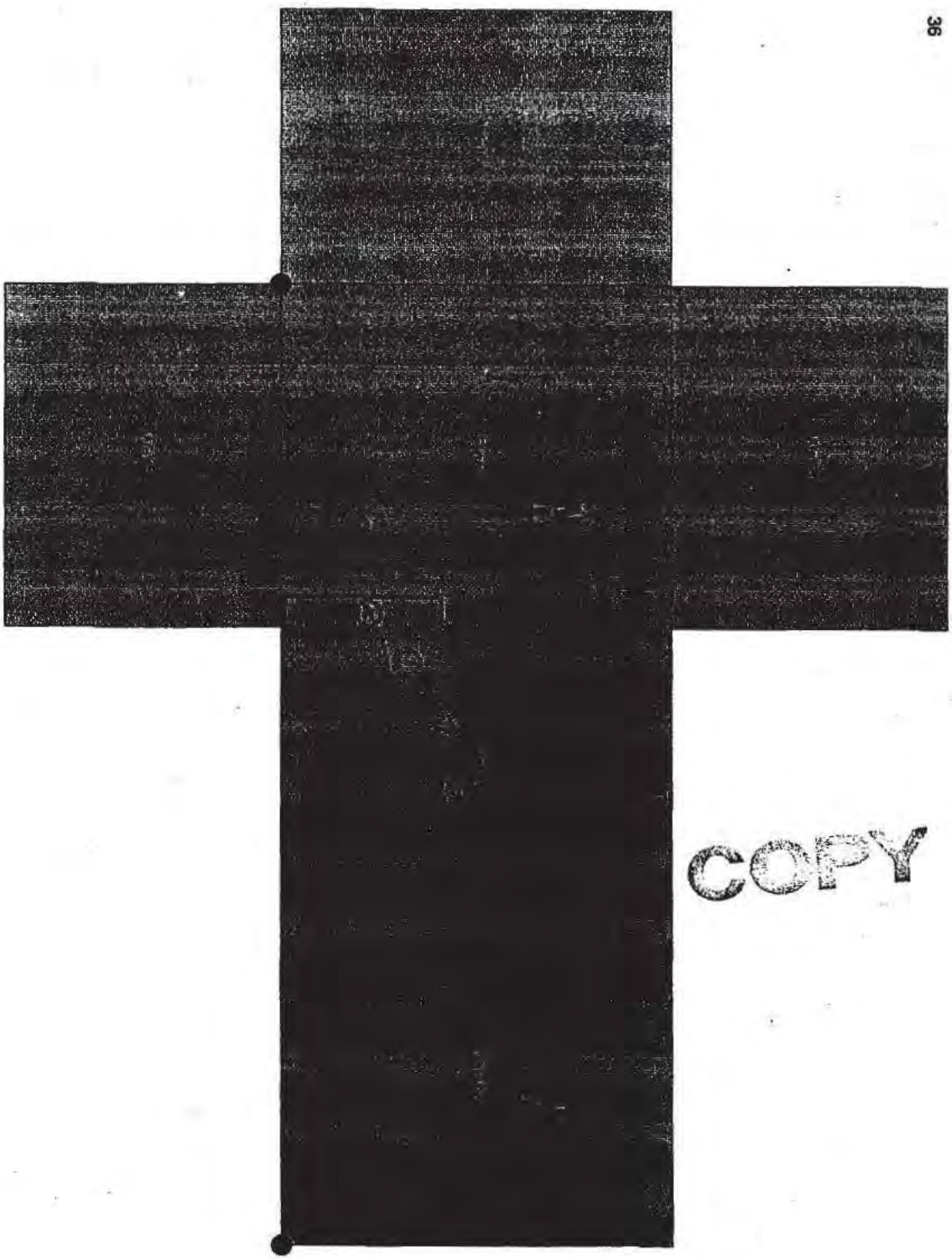
RSDS# MT-05-0955 *RCT:* [redacted] *RCT:* N/A

Alpha	43-68 BKG:	0	EFF:	0.3 ✓	PROBE AREA:	126	cm^2	Surface Eff:	0.5	Detector # :	1
Beta	43-68 BKG:	0	EFF:	0.21 ✓	PROBE AREA:	126	cm^2	Surface Eff:	0.5	Detector # :	2
Alpha Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:	0.5	Detector # :	3
Beta Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:	0.5	Detector # :	4

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	item	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	1C050101I	5924	[redacted]	5929	1	1	10/07/05	8:07	5	120	13
ALPHA	1C050102I	5924	[redacted]	5929	1	2	10/07/05	8:21	2	120	5 ✓
BETA	1C050101I	5924	[redacted]	5929	2	1	10/07/05	8:09	224	60	1693
BETA	1C050102I	5924	[redacted]	5929	2	2	10/07/05	8:23	152	60	1149 ✓

F6/85

KA [redacted]



36

1C-05 judgmental 10/27/05
Class 1

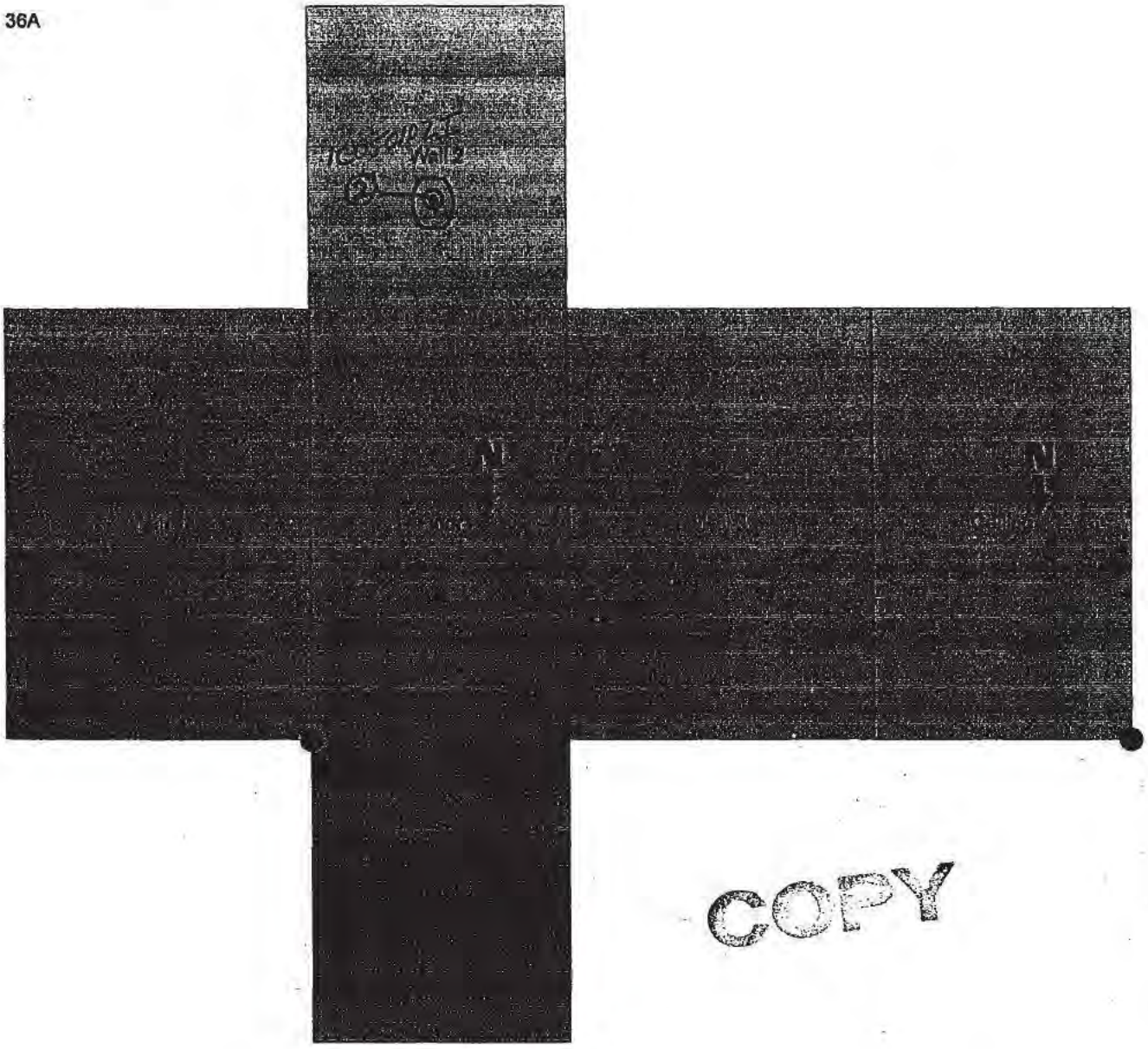
COPY

2350-1 5924/5929 5-17-06

KA [redacted]

1C-05 ~~**Judgmentals**~~ 10/27/05
Class 1

36A



COPY

2350-1 5924/5929 5-17-06

KA [redacted]

F 8/85

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) T Bldg Room 36A	SURVEY NO. MT-05-1030
PURPOSE: MARSSIM SURVEY (SURVEY UNIT 1C05)	RWP NO. N/A
	DATE: 10-19-05
	TIME: 1300

MAP/DRAWING

MARSSIM SURVEY 100% SCAN OF FLOOR AREA NOT COMPLETED BY SCM AND 25% UPPER WALLS. NO elevated Readings (2 F) detected. W/2350-1

ALSO SCAN OF TRENCHES WITH 2360 WITH Fiddler PROBE. BACKGROUND 400 CPM. SCAN RESULTS 380-400 CPM.

See attached maps

COPY

100% α/β scan on floors and walls up 6' 2 meters and 25% α/β scan on walls above 2 meters using SCM 23

1 potentially elevated area detected in Room 36A and
2 Potentially elevated areas detected in Room 36.
See MT-05-955 for follow up surveys.

3 potentially elevated areas detected in Room 37 and
14 Potentially elevated areas detected in Room 38.
See MT-05-1041 for follow up surveys.

LEGEND: # = mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
#△ = mrem/hr neutron
(#) = swipe number
[#] = air sample number
(#/α) or/β = direct cont. measurement in dpm/100cm²

SCM23	C180	R180	6/1/06

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5904/5905	1-22-06
2360	5874/3966	6-13-06

Completed by: (Signature)	Jim Kay	HP [redacted]	DATE: 10-20-05
Completed by: (Print Name)	TOM King / Joe Worley		
Counted by: (Signature)		HP# N/A	DATE: N/A
Counted by: (Print Name)	N/A		
Reviewed/Approved by: (Signature)		HP [redacted]	DATE: 11/4/05
Reviewed/Approved by: (Print Name)	Jerry Taylor		

F9/85

ML-0820 (2-96)

Survey No. MF05 1030

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17		N	β-	
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59		N	β-	
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				

COMMENTS:

NOTES:

1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

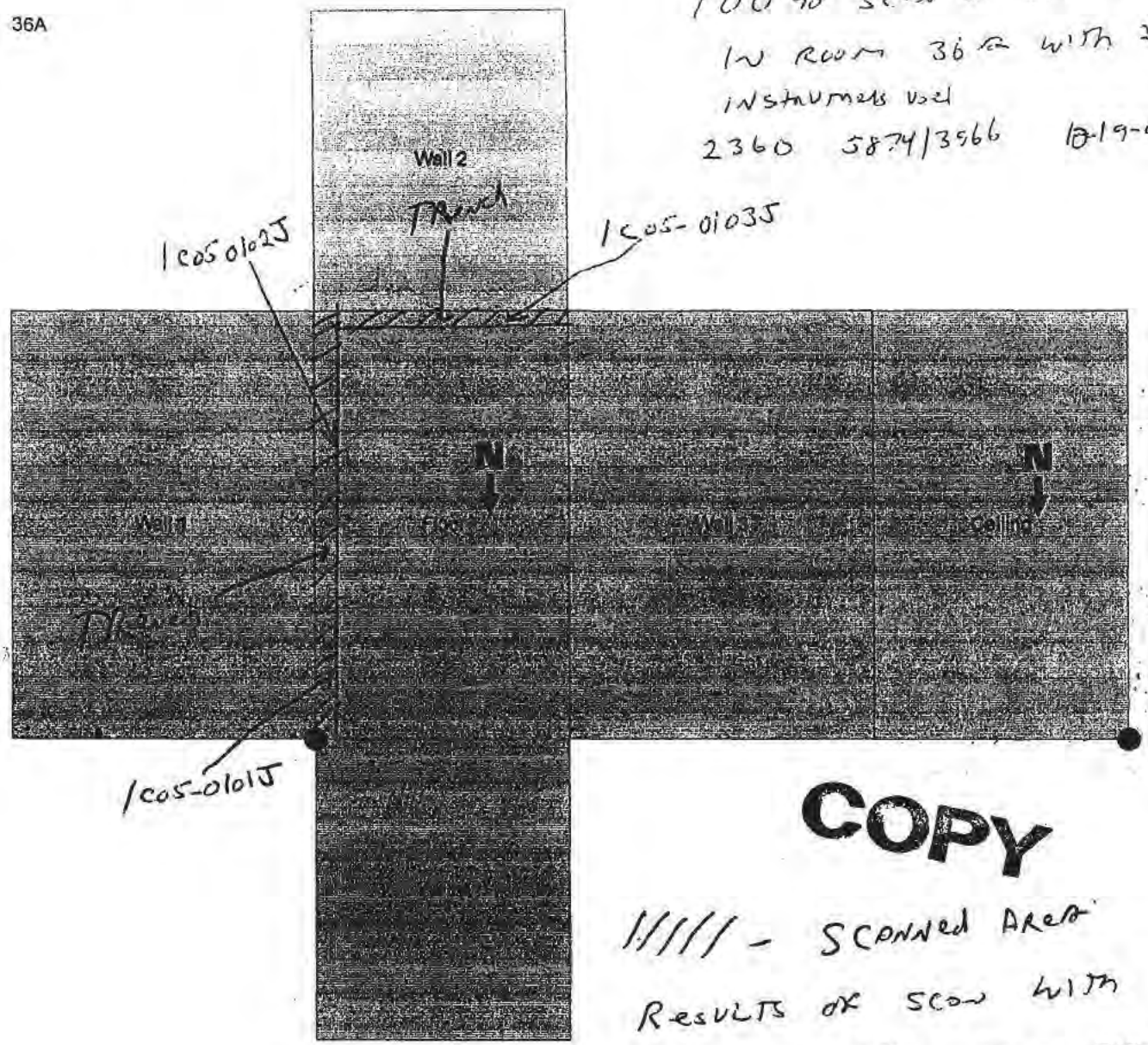
F 19/85

100 % Scan of Trenches

MT-05-1030

1C-05 ~~100% sacan of floor and walls < 2 meters~~ 10-14-05
Class 1 ~~25% scan of walls ≥ 2 meters~~ 10-14-05

100 % Scan of trenches
IN Room 36a with 2360.
Instruments used
2360 5874/3966 10-19-05 ✓



COPY

//// - Scanned Area
Results of Scan with
2360 / Paddles Phase 350-400 CPM
Btrs 400 CPM.

F 11/05

Page 4 of 8 on 12/6/05

SCAN Area of Floor NOT Completed BY SCM

1C-05 ~~**100% sacan of floor and walls < 2 meters**~~ 10-19-05

Class 1 **25% scan of walls > 2 meters**

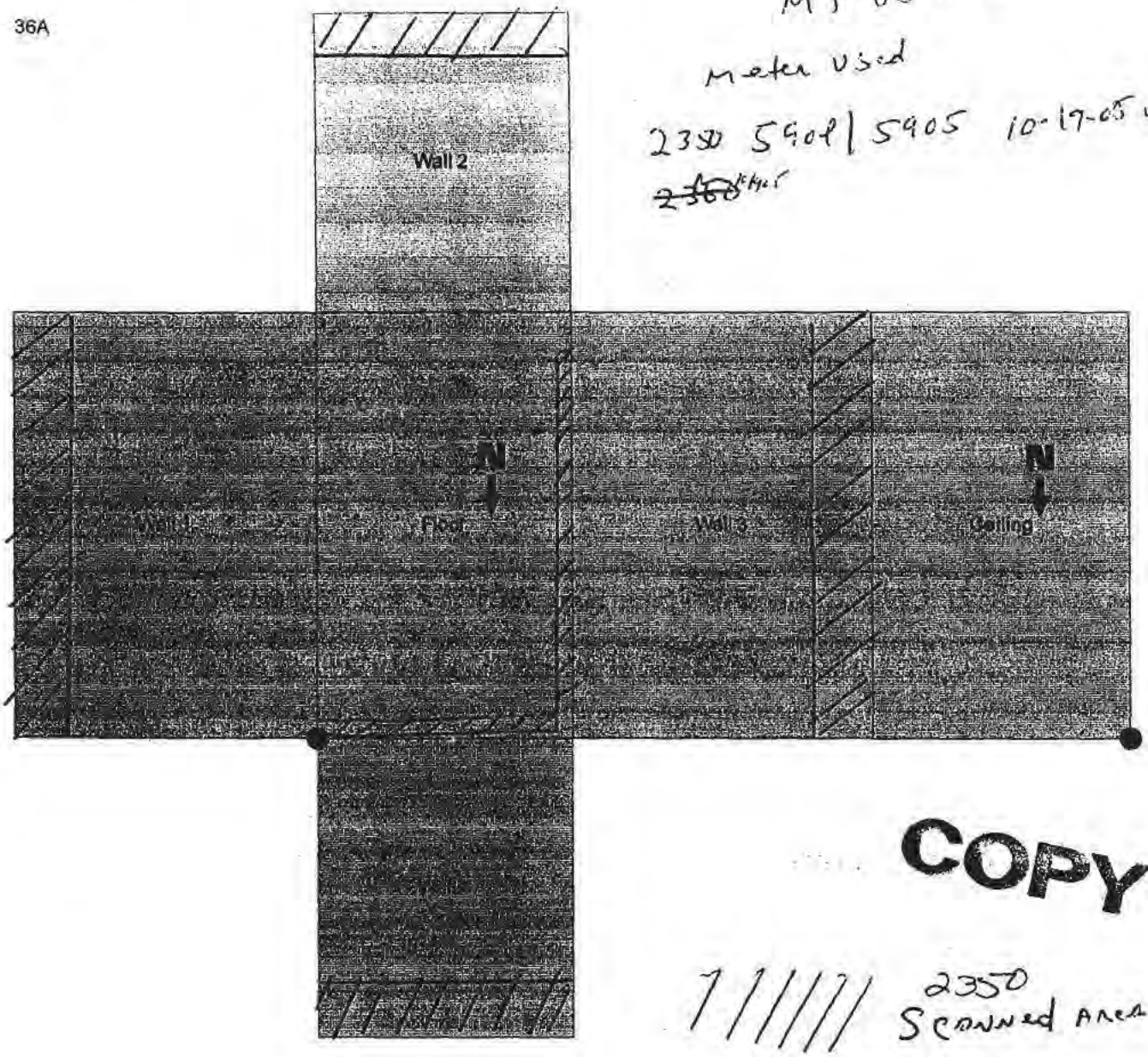
36A

MT-051030

Meter Used

2350 5904 | 5905 10-19-05 ✓

~~2360~~ Meter



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2350 Scanned Area

SCM Scan area

9-9-05

With C180 probe

Cal. Due Date

6-1-06

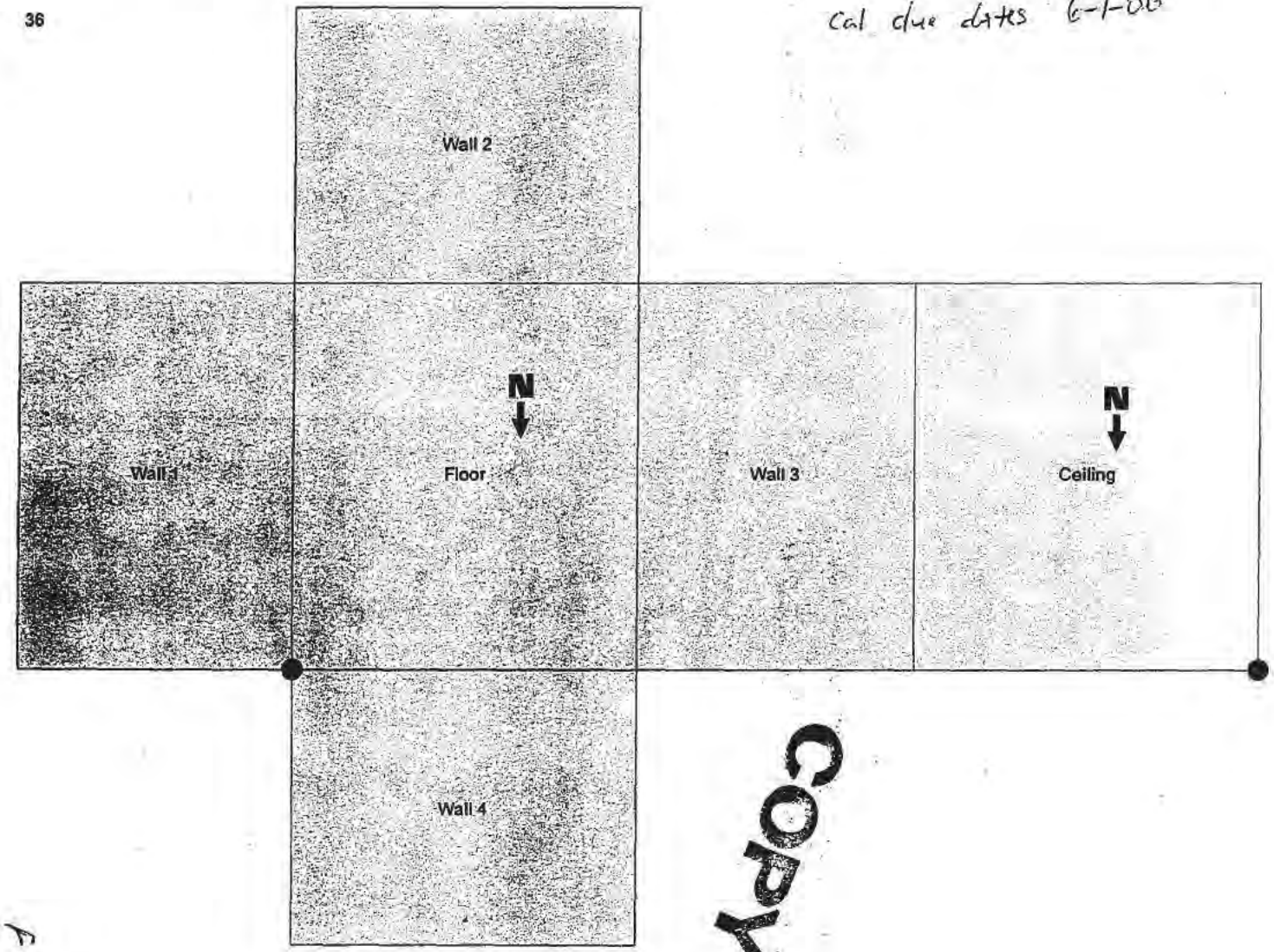
F12/85

RSDS # MT-05-1030

done with SCM33 on 9/7/05 and 9/8/05
with C180, R180 probes
cal due dates 6-1-06

1C-05 **100% scan of floor and walls < 2 meters**
Class 1 **25% scan of walls > 2 meters**

36



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F 13/85

MT-05-1030

DCK 12-20-05

Surface Contamination Monitor Survey Investigation Summary

Survey Unit	1C-05
SCM ID (Circle One)	SCM 53 (SCM 23)
Calibration Due Date	06-01-06

Room	Surface	Investigations
Room 36A	Floor	0
	Walls	1
Room 36	Floor	2
	Walls	0
Corridor 39	Floor	11
	Walls	0

Name Sherry Dean

Signature Sherry Dean

Date 11-17-05

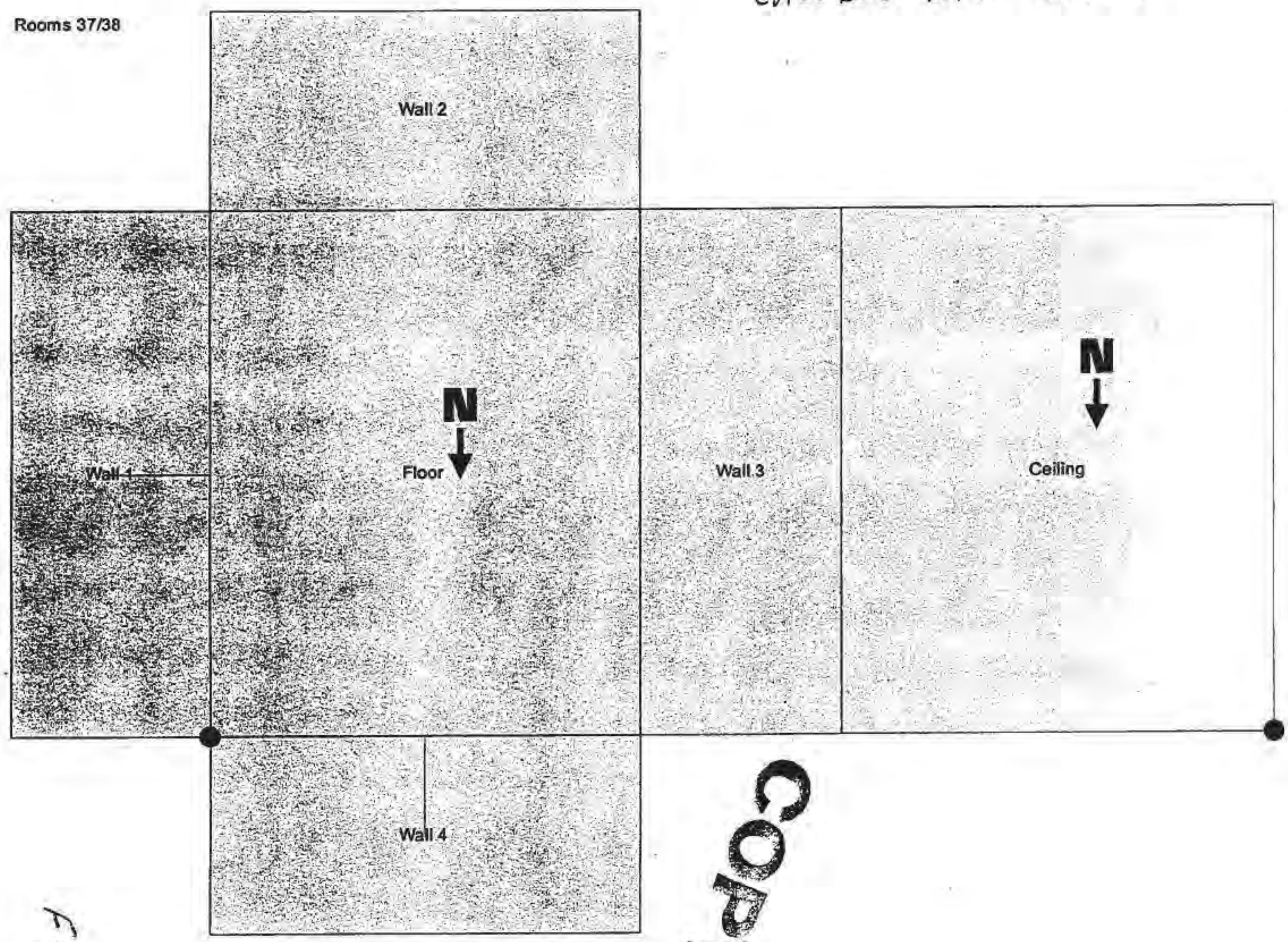
F-14/85

RSDS# MT-05-1030

1C-05 **100% scan of floor and walls < 2 meters**
Class 1 **25% scan of walls > 2 meters**

done with SCM23 on 9/0
with R180, C180
CAL. DUE DATE 6/1/06

Rooms 37/38



MT-05-1030

DCK 12-20-05

Surface Contamination Monitor Survey Investigation Summary

Survey Unit	1C-05 (1C-06)
SCM ID (Circle One)	SCM 53 / (SCM 23)
Calibration Due Date	06-01-06

Room	Surface	Investigations
Room 37	Floor	1
"	Walls	* 2
Room 38	Floor	1
"	Walls	* 13

* Includes WALL that WAS removed

Name Sherry Dean

Signature Sherry Dean

Date 12-1-05

F-16/85

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) T Bldg Room 36A	SURVEY NO. MT-05-1031
PURPOSE: MARSSIM SURVEY (SURVEY UNIT 1205)	RWP NO. NA
	DATE: 10-19-05
	TIME: 1100

MAP/DRAWING

MARSSIM Survey of Lower and Upper Judgementals - Lower statics. No elevated Readings (αβ) detected. Static Location on ceiling (1) square meter & direct Reading - all others direct Readings.
ALSO Judgementals ~~[illegible]~~ Taken [illegible] in Trenches. No elevated Readings (αβ) detected

See attached maps & survey results
NOTE: Survey unit will be Remapped. Lower & Upper Judgementals & Lower statics will be Resurveyed after change of maps.
1m² square scan around ceiling Judgemental Point

COPY

LEGEND: # = mrem/hr (γ) whole body; #E = mrem/hr (β+η+γ) extremity on contact; (triangle #) = mrem/hr neutron; (box #) = air sample number; (circle #) = swipe number; (circle #/α) or/β = direct cont. measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5904/5905	1-22-06
N		

Completed by: (Signature) [signature]	ID [redacted]	DATE: 10-19-05
Completed by: (Print Name) Tom King / Joe Lowley		
Counted by: (Signature) See Attached Sheets	HP # N/A	DATE: N/A
Counted by: (Print Name)		
Reviewed/Approved by: (Signature) [signature]	HP # [redacted]	DATE: 10-27-05
Reviewed/Approved by: (Print Name) Jerry Taylor		

ML-0620 (2-96)

[illegible] 8/25 [illegible]

Mod 11-18-05

Survey No. MT-05-1031

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	
1	See	Original	Sheet	0101J
2				0102J
3				0103J
4				0104J
5				0105J
6				0201J
7				0202J
8				0101S
9				0102S
10				0103S
11				0104S
12	↓	↓	↓	0105S
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53		N		
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				

N/A

COMMENTS:

NOTES:
1. See MD-80136 Y0002 for calculations of MDL, activity and skin dose rates.
2. To request RO Count Room analysis for β, γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in comments.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

F. 1/85

ML-0020 (4-98)

MARSSIM Smear Data

Pg 3 of 9

Assay Definition-

Assay Description:
MARSSIM Smear Data

MT-05-1031

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: D:\MARSSIM_LSC
Raw Results Path: C:\Packard\Tricarb\Results\5801\MARSSIM_Smear_2\20051019_1502.results
Comma-Delimited File Name: D:\MARSSIM_LSC\MT-05-1031.001
Assay File Name: C:\Packard\TriCarb\Assays\MARSSIM_Smear_2.lsa

Count Conditions-

Nuclide: H-3 Mound
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: H-3 Smear
Count Time (min): 2.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: On - 1st Vial
Low CPM Threshold: Off
2 Sigma % Terminator: Off

Regions	LL	UL	Bkg Subtract
A	0.5	18.6	1st Vial
B	2.0	18.6	1st Vial
C	40.0	2000.0	1st Vial

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				

COPY

10/19/05

4 of 4 10-27-05 10-26-05

MARSSIM Smear Data

Pg 4 of 9

B
C

Instrument Block Data
Machine=Tri-Carb 2900TR
Version=2.06
423022
MODEL=Tri-Carb 2900TR
VERSION=2.06
SERIAL=423022

MT-05-1031

Cycle 1 Results

DATE	TIME	S#	Count Time	CPMA	CPMB	CPMC	LUM	tSIE	DPM1	A:2S%	MESSAGES	P#
10/19/05	3:03:31 PM	-1	10.00	9	8	11	11	614.10	0	21.5	B	2
10/19/05	3:14:21 PM	0	2.00	477	450	0	0	575.20	902	6.5		2
10/19/05	3:17:03 PM	1	2.00	0	1	0	6	590.63	0	6172.5		2
10/19/05	3:19:45 PM	2	2.00	0	1	0	0	584.99	1	1210.4		2
10/19/05	3:22:27 PM	3	2.00	1	2	0	10	581.49	3	350.2		2
10/19/05	3:25:09 PM	4	2.00	0	0	0	20	527.51	0	0.0		2
10/19/05	3:27:52 PM	5	2.00	3	3	0	4	581.79	5	176.1		2
10/19/05	3:30:32 PM	6	2.00	0	0	0	6	601.82	0	0.0		2
10/19/05	3:33:15 PM	7	2.00	4	4	1	19	556.03	8	123.8		2
10/19/05	3:35:57 PM	8	2.00	2	3	0	13	491.33	5	209.5		2
10/19/05	3:38:39 PM	9	2.00	0	0	0	13	569.14	0	0.0		2
10/19/05	3:41:20 PM	10	2.00	0	0	1	19	589.32	0	0.0		2
10/19/05	3:44:00 PM	11	2.00	2	2	1	14	585.07	4	211.7		2
10/19/05	3:46:42 PM	12	2.00	0	0	0	13	602.65	0	0.0		2

ow 10-20-05

F2 of 5

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: Mar_101
Batch Ended: 10/19/05 13:00
Cal. Due Date: 11/17/05
Serial Number: 26966-3

Batch ID: MT-05-1031 [12] WORLEY 10-19-05 RLH

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
B1	1	0.76	1.92		1.51	2.07	
B2	2	0.00	1.89		1.02	1.94	
B3	3	0.00	2.20		0.31	1.88	
B4	4	0.00	1.97		0.00	1.21	
C1	5	0.00	2.05		0.00	1.23	
C2	6	0.00	1.93		1.59	1.95	
C3	7	0.00	2.06		0.00	1.22	
C4	8	0.00	1.98		1.74	1.95	
D1	9	0.00	2.05		0.00	1.25	
D2	10	0.00	2.17		0.39	1.68	
D3	11	0.00	2.11		1.42	2.15	
D4	✓12	0.00	2.04		0.00	1.17	

COPY

92W 10-20-05

92W 10-20-05

F21/85

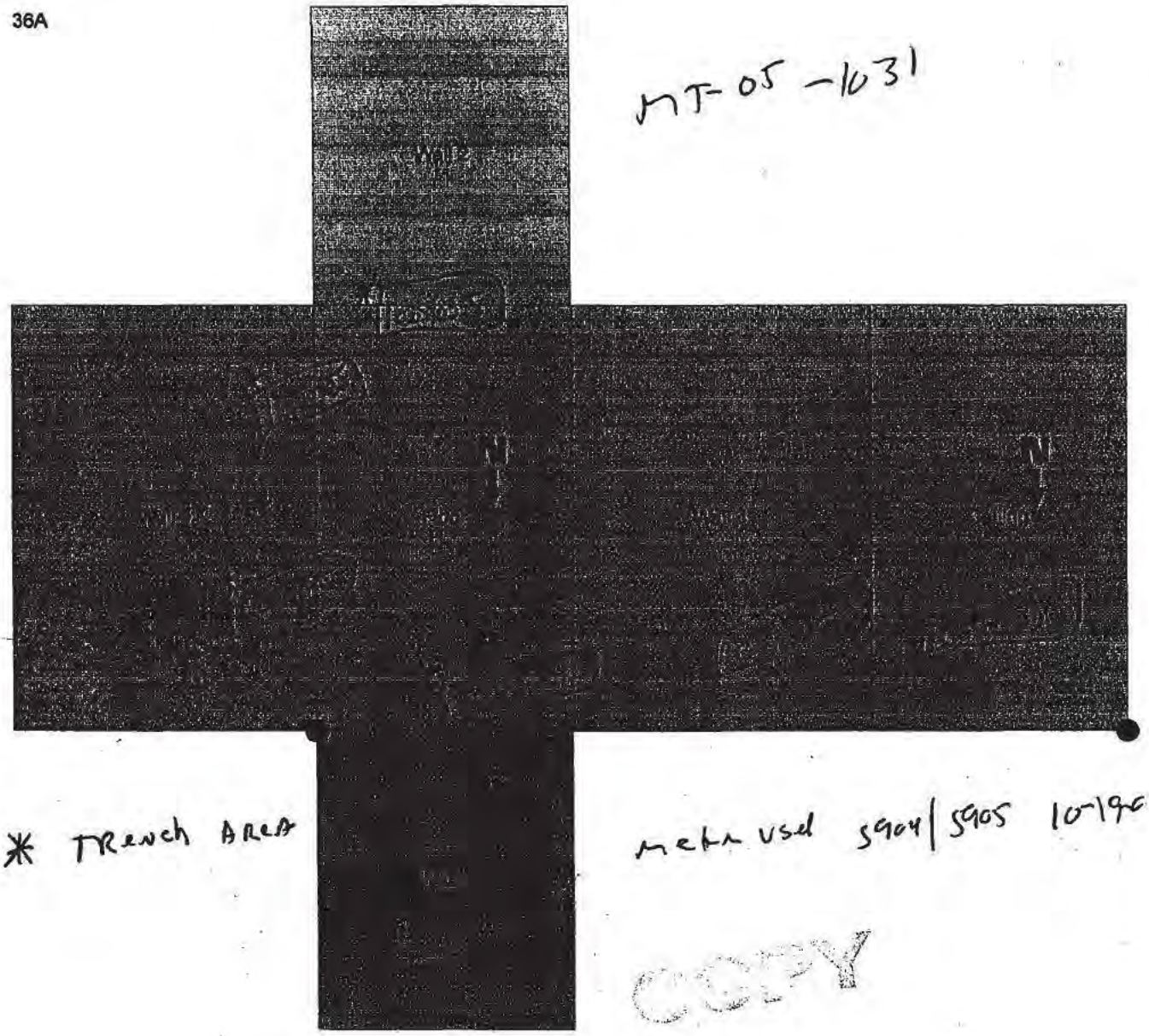
RLH

page 6 of 9 pages

1C-05 Judgmentals Lower 1 upper
Class 1

pg 6 of 9

36A



MT-05-1031

* TRench AREA

metal used 5904/5905 10-19-05

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F-22/85

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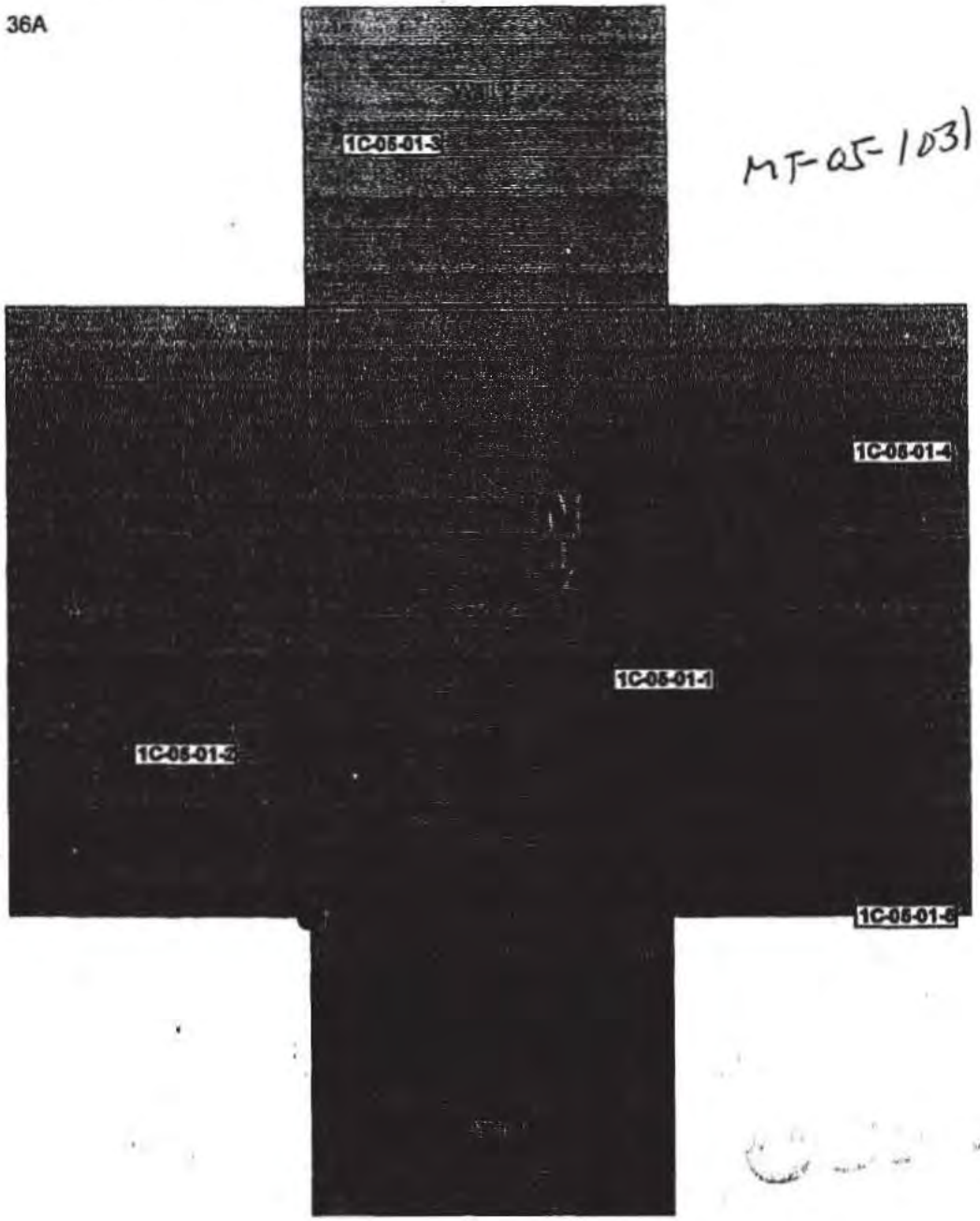
1C-05-01
floor and lower wall static measurement locations

36A



MT-05-1031

Meter used
2350 serial/gross
10-19-05

F23/85

T-Building Rm 36A; STATICS & JUDGMENTALS; 1C05

RSDS# MT-05-1031 RCT: [redacted] RCT [redacted]

Alpha	43-68 BKG:	0	EFF:	0.21 ✓	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.175 ✓	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Alpha Scan	43-37 BKG:	0	EFF:	N/A	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
Beta Scan	43-37 BKG:	0	EFF:	N/A	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 4

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	Item	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	1C050101J	5904	[redacted]	5905	1	1	10/18/05	15:20	6	120	23
ALPHA	1C050102J	5904		5905	1	2	10/18/05	15:25	9	120	34
ALPHA	1C050103J	5904		5905	1	3	10/18/05	15:32	12	120	45
ALPHA	1C050104J	5904		5905	1	4	10/18/05	15:38	4	120	15
ALPHA	1C050105J	5904		5905	1	5	10/18/05	15:41	6	120	23
ALPHA	1C050201J	5904		5905	1	6	10/18/05	15:47	6	120	23
ALPHA	1C050202J	5904		5905	1	7	10/18/05	15:55	3	120	11
ALPHA	1C050101S	5904		5905	1	8	10/18/05	16:00	8	120	30
ALPHA	1C050102S	5904		5905	1	9	10/18/05	17:36	6	120	23
ALPHA	1C050103S	5904		5905	1	10	10/18/05	17:40	5	120	19
ALPHA	1C050104S	5904		5905	1	11	10/18/05	17:46	8	120	30
ALPHA	1C050105S	5904		5905	1	12	10/18/05	17:49	5	120	19 ✓
BETA	1C050101J	5904		5905	2	1	10/18/05	15:21	129	60	1170
BETA	1C050102J	5904		5905	2	2	10/18/05	15:27	139	60	1261
BETA	1C050103J	5904		5905	2	3	10/18/05	15:33	139	60	1261
BETA	1C050104J	5904		5905	2	4	10/18/05	15:39	177	60	1605
BETA	1C050105J	5904		5905	2	5	10/18/05	15:43	110	60	998
BETA	1C050201J	5904		5905	2	6	10/18/05	15:48	78	60	707
BETA	1C050202J	5904		5905	2	7	10/18/05	15:56	103	60	934
BETA	1C050101S	5904		5905	2	8	10/18/05	16:02	192	60	1741
BETA	1C050102S	5904		5905	2	9	10/18/05	17:37	130	60	1179
BETA	1C050103S	5904		5905	2	10	10/18/05	17:41	121	60	1098
BETA	1C050104S	5904		5905	2	11	10/18/05	17:47	118	60	1070
BETA	1C050105S	5904		5905	2	12	10/18/05	17:50	117	60	1061 ✓

Survey Unit Number: 1C-05

(Supplemental sheet for biased measurements.)

RSDS # MT-05-1031
RCT INT/HP JW7176 TK5887

Label	Room	Surface	LX	LY
1C050101J	36A	WAll #1		
1C050102J	36A	WAll #1		
1C050103J	36A	WAll #2		
1C050104J	36A	Floor		
1C050105J	36A	WAll #4		
1C050201J	36A	Ceiling		
1C050202J	36A	WAll #3		
	N	A		N/A

J- designator represents measurement as judgmental location
E-designator represents measurement as potentially elevated activity.
D-designator represents measurement at a drain.
V-designator represents measurement on ventilation system.
U-designator represents measurement on a utility drop.

F25/85

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) TR06 / ICQS / ROOM 38	SURVEY NO. MT-05-1041
PURPOSE: INVESTIGATE AREAS IDENTIFIED BY THE SHONKA UNIT.	RWP NO. N/A
	DATE: 10/20/05
	TIME: 1615

MAP/DRAWING

SEE ATTACHED SHEET FOR SURVEY LOCATION.

SEE ATTACHED SHEET FOR SURVEY RESULTS.

A SCAN OF THE AREA AROUND EACH POINT SHOWED NO ELEVATED α OR β^- CONTAMINATION.

COPY

LEGEND: # = mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
(#) = mrem/hr neutron
[#] = air sample number
(#) = swipe number
(#/α) = or/β = direct cont. measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360-1	5928/5927	5/24/06
	N	
	A	

Completed by: (Signature) [redacted]		DATE: 10-20-05
Completed by: (Print Name) RICARD V. BURKE / K. Abercrombie		
Counted by: (Signature) SEE ATTACHED SHEET	EP #	DATE:
Counted by: (Print Name) SEE ATTACHED SHEET		
Reviewed/Approved by: (Signature) [redacted]	EP #	DATE: 11/16/05
Reviewed/Approved by: (Print Name) Jess Griffin		F 26/85

ML-9620 (2-98)

Survey No. MT-05-1041

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	
1	SEE	ATTACHED	SHEET	1C05-0101x
2				1C05-0102x
3				1C05-0103x
4				1C05-0104x
5				1C05-0105x
6				1C05-0106x
7				1C05-0107x
8				1C05-0108x
9				1C05-0109x
10	↓	↓	↓	1C05-0110x
11				
12				
13				
14				
15				
16				
17				
18		N		
19				
20				
21				
22				A
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48		N		
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				A
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				

COMMENTS: N A

NOTES:

1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

F 21/85

MARSSIM Smear Data

Assay Definition-

Assay Description:
MARSSIM Smear Data

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: D:\MARSSIM LSC
Raw Results Path: C:\Packard\Tricarb\Results\5801\MARSSIM_Smear_3\20051020_1142.results
Comma-Delimited File Name: D:\MARSSIM_LSC\MT-05-1041.001
Assay File Name: C:\Packard\TriCarb\Assays\MARSSIM_Smear_3.lsa

COPY

Count Conditions-

Nuclide: H-3 Mound
  Quench Indicator: tSIE/AEC
  External Std Terminator (sec): 0.5 2s%
  Pre-Count Delay (min): 0.00
Quench Set:
  Low Energy: H-3 Smear
Count Time (min): 2.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: On - 1st Vial
Low CPM Threshold: Off
2 Sigma % Terminator: Off

Regions	LL	UL	Bkg Subtract
A	0.5	18.6	1st Vial
B	2.0	18.6	1st Vial
C	40.0	2000.0	1st Vial

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				

MARSSIM Smear Data

B
C

Instrument Block Data
Machine=Tri-Carb 2900TR
Version=2.06
423022
MODEL=Tri-Carb 2900TR
VERSION=2.06
SERIAL=423022

Cycle 1 Results

DATE	TIME	S#	Count Time	CPMA	CPMB	CPMC	LUM	tSIE	DPM1	A:2S%	MESSAGES	P#
10/20/05	11:43:32 AM	-1	10.00	7	7	11	3	616.00	0	23.5	B	3
10/20/05	11:54:20 AM	0	2.00	278	261	1	0	526.99	547	8.6		3
10/20/05	11:57:02 AM	1	2.00	2	2	0	5	555.82	4	207.8		3
10/20/05	11:59:44 AM	2	2.00	1	1	0	11	562.88	3	305.0		3
10/20/05	12:02:26 PM	3	2.00	35	13	0	66	546.03	68	26.7		3
10/20/05	12:05:10 PM	4	2.00	3	3	0	15	521.24	5	173.9		3
10/20/05	12:07:52 PM	5	2.00	2	1	0	17	483.55	4	260.9		3
10/20/05	12:10:34 PM	6	2.00	9	7	0	18	503.25	19	63.6		3
10/20/05	12:13:16 PM	7	2.00	6	3	2	30	570.95	12	87.5		3
10/20/05	12:15:58 PM	8	2.00	3	2	0	5	484.32	5	179.1		3
10/20/05	12:18:39 PM	9	2.00	28	18	0	70	483.06	58	30.6		3
10/20/05	12:21:22 PM	10	2.00	0	0	0	33	477.75	0	0.0		3

RB

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COPY

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: Mar_107
Batch Ended: 10/20/05 9:48
Cal. Due Date: 11/17/05
Serial Number: 26966-3

Batch ID: MT-05-1041 [10] KA 10-20-05 RLH

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
B1	1	0.00	1.88		0.00	1.20	
B2	2	0.00	1.85		0.00	1.13	
B3	3	0.00	2.20		0.31	1.88	
B4	4	0.00	1.97		0.00	1.21	
C1	5	0.00	2.06		0.26	1.74	
C2	6	0.00	1.91		0.00	1.12	
C3	7	1.73	2.06		0.00	1.22	
C4	8	0.00	1.95		0.00	1.13	
D1	9	0.00	2.05		0.00	1.25	
D2	10	0.00	2.17		0.39	1.68	

RB RB

~~Page 1 of 1~~ RB 10/24/05

E30/85

T-Building Posible Elevated Readings Survey (1C05) Room 38

RSDS# MT-05-1041 *RCT:* [redacted] *RCT:* [redacted]

Alpha	43-68 BKG:	0	EFF:	0.22	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.168	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Alpha Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
Beta Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 4

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	Item	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	1C050101X	5928	[redacted]	5927	1	1	10/20/05	7:35	1	120	4
ALPHA	1C050102X	5928		5927	1	2	10/20/05	7:42	2	120	7
ALPHA	1C050103X	5928		5927	1	3	10/20/05	7:47	3	120	11
ALPHA	1C050104X	5928		5927	1	4	10/20/05	7:54	0	120	0
ALPHA	1C050105X	5928		5927	1	5	10/20/05	8:00	3	120	11
ALPHA	1C050106X	5928		5927	1	6	10/20/05	8:06	2	120	7
ALPHA	1C050107X	5928		5927	1	7	10/20/05	8:11	1	120	4
ALPHA	1C050108X	5928		5927	1	8	10/20/05	8:15	4	120	14
ALPHA	1C050109X	5928		5927	1	9	10/20/05	8:20	1	120	4
ALPHA	1C050110X	5928		5927	1	10	10/20/05	8:25	3	120	11
BETA	1C050101X	5928		5927	2	1	10/20/05	7:36	106	60	1002
BETA	1C050102X	5928		5927	2	2	10/20/05	7:43	122	60	1153
BETA	1C050103X	5928		5927	2	3	10/20/05	7:48	134	60	1266
BETA	1C050104X	5928		5927	2	4	10/20/05	7:55	101	60	954
BETA	1C050105X	5928		5927	2	5	10/20/05	8:01	108	60	1020
BETA	1C050106X	5928		5927	2	6	10/20/05	8:07	171	60	1616
BETA	1C050107X	5928		5927	2	7	10/20/05	8:12	92	60	869
BETA	1C050108X	5928		5927	2	8	10/20/05	8:16	84	60	794
BETA	1C050109X	5928		5927	2	9	10/20/05	8:21	120	60	1134
BETA	1C050110X	5928		5927	2	10	10/20/05	8:26	95	60	898

COPY

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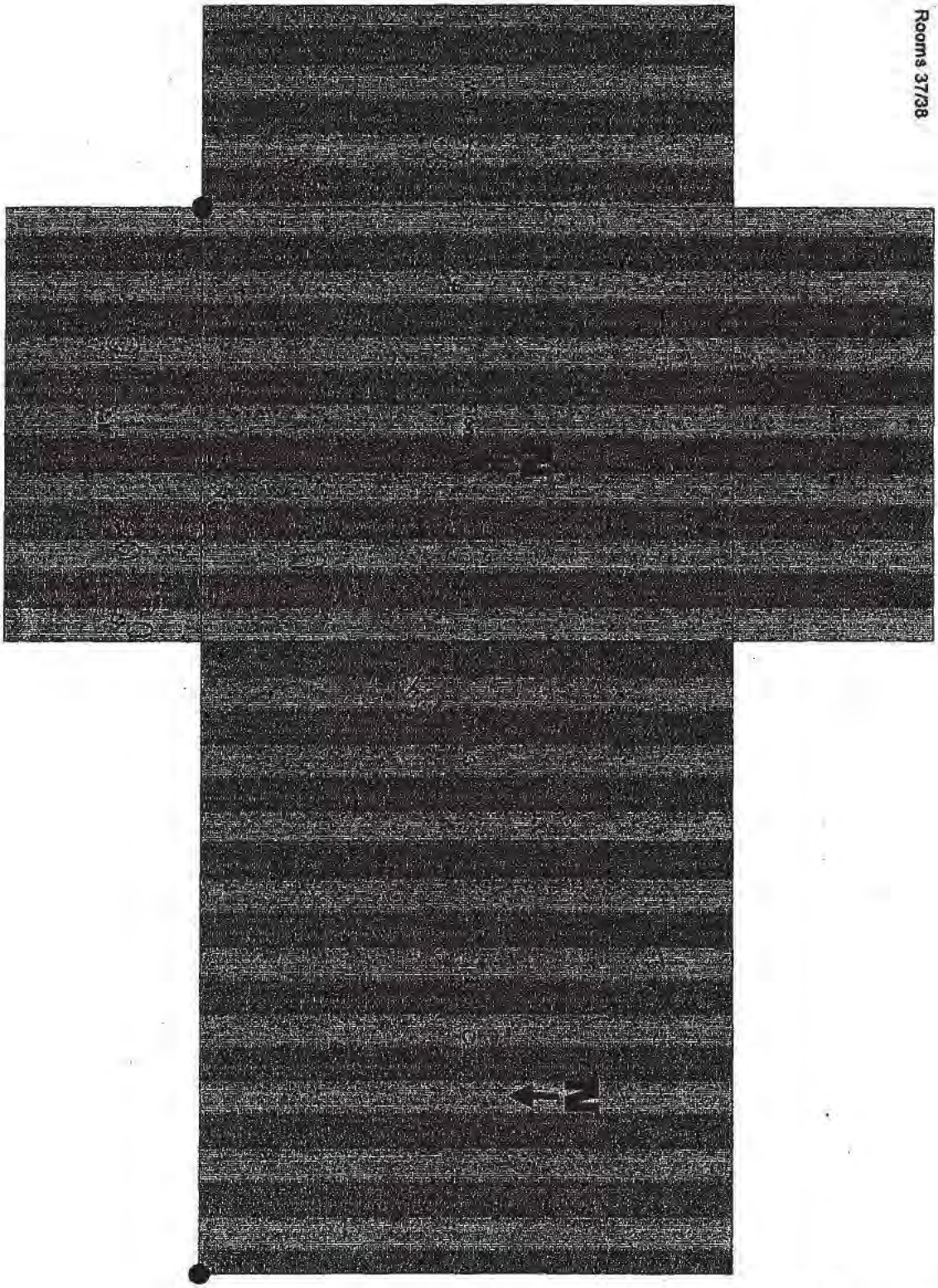
MT-05-1041
11/18/06



Rooms 37/38

1C-05
Class 1

COPY

1350-1 5928/5827 5/24/06
BURKE [redacted] ABERCROMBIE [redacted]

Survey Unit Number: 1C05 Page 8 of 8

(Supplemental sheet for biased measurements.)

RSDS # MT-05-1041

RCT INT/HP RB [redacted] /KA [redacted]

Label	Room	Surface	LX	LY
1C050101X	38	Lower Wall #1		
1C050102X	38	Floor		
1C050103X	38	Lower Wall #1		
1C050104X	38	Lower Wall #4		
1C050105X	38	Lower Wall #4		
1C050106X	38	Floor		
1C050107X	38	Lower Wall #4		
1C050108X	38	Lower Wall #4		
1C050109X	38	Lower Wall #3		
1C050110X	38	Lower Wall #4		
				N
				A
	N			
	A			
			X	

J- designator represents measurement as judgmental location
E-designator represents measurement as potentially elevated activity.
D-designator represents measurement at a drain.
V-designator represents measurement on ventilation system.
U-designator represents measurement on a utility drop.

COPY

F33/85

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) T Bldg Room 36, 37, 38	SURVEY NO. MT-05-1042
PURPOSE: MARSSIM Survey (Survey Unit 1C05)	RWP NO. NA
	DATE: 10-20-05
	TIME: 1000

MAP/DRAWING

MARSSIM Survey of Trenches in Room 36, 37 & 38

Trenches scanned with 2360 / fiddler probe. Scan results 350 to 400 cpm. Background 400 cpm.

Judgementals taken with 2350. No elevated readings (α β) detected. See maps & survey results attached.

NOTE: Trench survey for Room 36 A (Survey Unit 1C05) Reference RSDS MT-05-1030

LEGEND: # = mrem/hr (γ) whole body; #E = mrem/hr (β+η+γ) extremity on contact; (triangle) = mrem/hr neutron; (box #) = air sample number; (circle #) = swipe number; (circle #/α) α/β = direct cont. measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5883 / 5685	1-7-06
2360	5874 / 3966	6-13-06

Completed by: (Signature) Joe Worley / Tom King	HP# [redacted]	DATE: 10-24-05
Completed by: (Print Name) Joe Worley / Tom King		
Counted by: (Signature) See	HP# NA	DATE: NA
Counted by: (Print Name) attachments		
Reviewed/Approved by: (Signature) [signature]	HP# [redacted]	DATE: 11/4/05
Reviewed/Approved by: (Print Name) [illegible]		

Survey No. MF05-1042

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	
1	See	attached	sheets	0104J
2	↓	↓	↓	0105J
3				0106J
4				0107J
5				0108J
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21		N/A		
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54		N/A		
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				

COPY

COMMENTS: N/A

NOTES:
1. See MD-80036 10002 for [illegible] of WB, [illegible] and skin dose rates.
2. To request RO Count Room [illegible] for [illegible] [illegible] column blank. Mark column N/A if not needed. If count room printout of results are attached, write [illegible] [illegible] column.
3. [illegible] special sample [illegible] [illegible] or otherwise in Comments. If not needed, mark N/A.

ML-9620 (4-98)

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3 05-B 10-27-05 10-24-05 Pg 3 of 9

MARSSIM Smear Data

Assay Definition-

Assay Description:
MARSSIM Smear Data

MT-05-1042

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: D:\MARSSIM_LSC
Raw Results Path: C:\Packard\Tricarb\Results\5801\MARSSIM_Smear_2\20051020_1115.results
Comma-Delimited File Name: D:\MARSSIM_LSC\MT-05-1042.001
Assay File Name: C:\Packard\TriCarb\Assays\MARSSIM_Smear_2.lsa

COPY

Count Conditions-

Nuclide: H-3 Mound
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: H-3 Smear
Count Time (min): 2.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: On - 1st Vial
Low CPM Threshold: Off
2 Sigma % Terminator: Off

Regions	LL	UL	Bkg Subtract
A	0.5	18.6	1st Vial
B	2.0	18.6	1st Vial
C	40.0	2000.0	1st Vial

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				

F36/85

MARSSIM Smear Data

B
C

Instrument Block Data
Machine=Tri-Carb 2900TR
Version=2.06
423022
MODEL=Tri-Carb 2900TR
VERSION=2.06
SERIAL=423022

Cycle 1 Results

DATE	TIME	S#	Count Time	CPMA	CPMB	CPMC	LUM	tSIE	DPM1	A:2S%	MESSAGES	P#
10/20/05	11:15:59 AM	-1	10.00	9	9	10	8	614.41	0	21.3	B	2
10/20/05	11:26:48 AM	0	2.00	542	509	2	0	579.16	1022	6.1		2
10/20/05	11:29:30 AM	1	2.00	0	0	3	0	573.96	0	0.0		2
10/20/05	11:32:10 AM	2	2.00	1	0	0	5	615.43	2	417.1		2
10/20/05	11:34:52 AM	3	2.00	0	0	0	7	615.15	0	0.0		2
10/20/05	11:37:33 AM	4	2.00	0	0	3	6	605.06	0	2844.7		2
10/20/05	11:40:15 AM	5	2.00	0	0	2	6	599.44	0	0.0		2

M.T-05-1042
Pg 4 of 9

F37/85

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: Mar_110
Batch Ended: 10/20/05 10:22
Cal. Due Date: 11/17/05
Serial Number: 26966-3

Batch ID: MT-05-1042 [5] WORLEY 10-20-05 RLH ✓

Detector ID	Sample ID	Alpha Activity DPM	σ	flags	Beta Activity DPM	σ	flags
C1	1	0.00	2.05		0.00	1.23	
C2	2	0.00	1.91		0.00	1.13	
C3	3	0.00	2.08		1.49	2.11	
C4	4	0.00	1.95		0.00	1.12	
D1 ✓	5	0.00	2.08		2.79	2.50	

RL 10-24-05

10-24-05

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10-27-05

Page 1 of 1

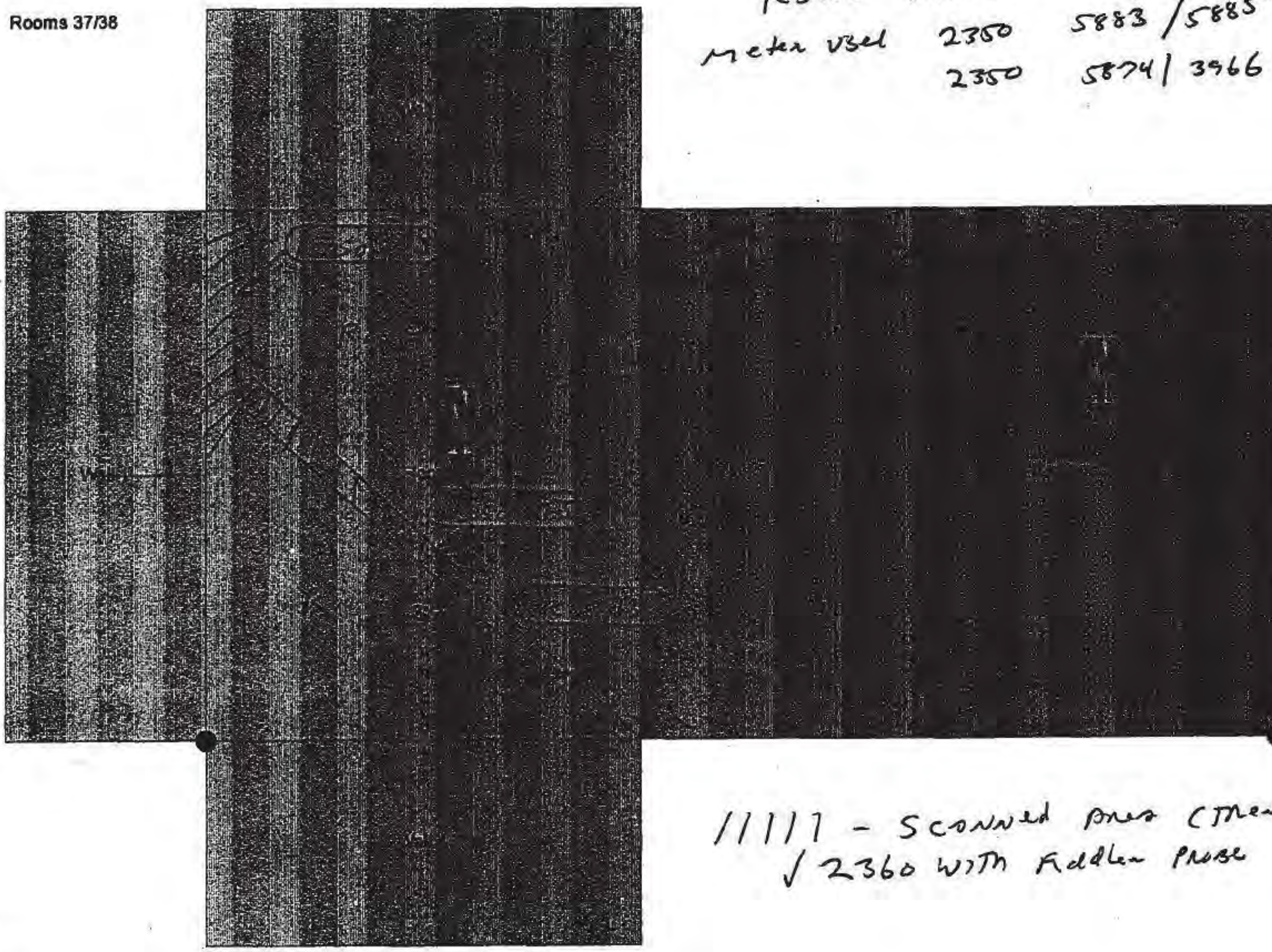
10-24-05

RLH

1C-05 **Judgmentals** Trench Room 37/38
Class 1

Rsds MT-05-1042
Meter Used 2350 5883/5885 10-20-05 ✓
2350 5874/3966 10-20-05 ✓

Rooms 37/38



///// - Scanned Area (Trench)
✓ 2360 with Fiddler Probe

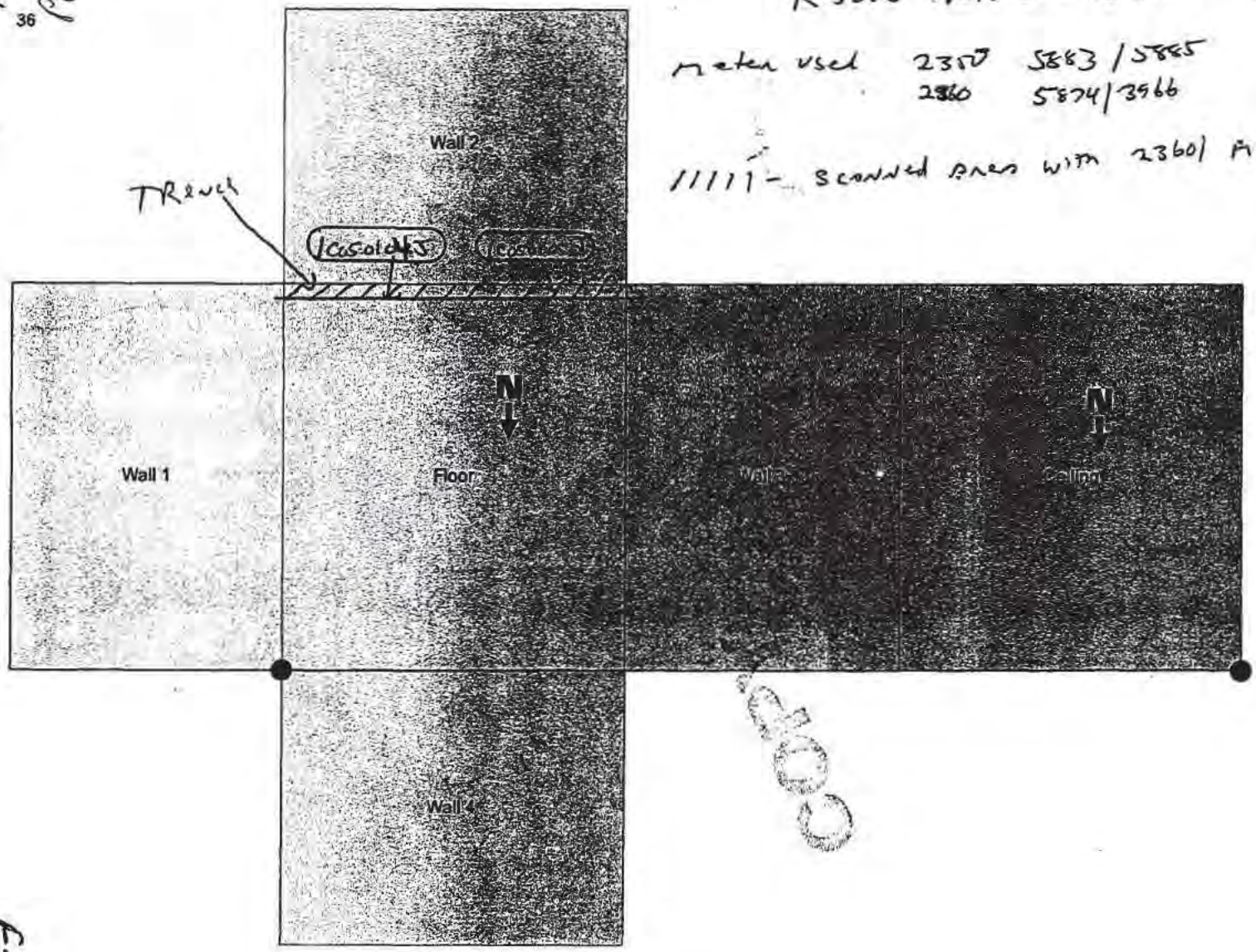
COPY

1C-05 Judgmentals Trench Room 36
Class 1

Rsds MT-05-1042

meter used 2350 5863/5865 10-20-05 ✓
2360 5874/3966 10-20-05 ✓

//// - scanned area with 2360/ Paddle Probe ✓



T-Building Rooms 36/37/38;Judgmentals in Trenches 1C05

RSDS# MT-05-1042 RCT: [redacted] RCT: [redacted]

Alpha	43-68 BKG:	0	EFF:	0.215 ✓	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1688 ✓	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Alpha Scan	43-37 BKG:	0	EFF:	N/A	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
Beta Scan	43-37 BKG:	0	EFF:	N/A	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 4

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	Item	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	1C050104J	5883	[redacted]	5885	1	1	10/20/05	8:11	12	120	44
ALPHA	1C050105J	5883		5885	1	2	10/20/05	8:15	11	120	41
ALPHA	1C050106J	5883		5885	1	3	10/20/05	8:29	5	120	18
ALPHA	1C050107J	5883		5885	1	4	10/20/05	8:34	8	120	30
ALPHA	1C050108J	5883		5885	1	5	10/20/05	8:38	2	120	7 ✓
BETA	1C050104J	5883		5885	2	1	10/20/05	8:12	139	60	1307
BETA	1C050105J	5883		5885	2	2	10/20/05	8:16	152	60	1429
BETA	1C050106J	5883		5885	2	3	10/20/05	8:30	136	60	1279
BETA	1C050107J	5883		5885	2	4	10/20/05	8:35	151	60	1420
BETA	1C050108J	5883		5885	2	5	10/20/05	8:39	136	60	1279 ✓

N

A

F 4/85

Survey Unit Number:

(Supplemental sheet for biased measurements.)

RSDS # MT-05-1042
RCT INT/HP Jw / TK

Label	Room	Surface	LX	LY
1C050104J	36	Floor trench		
1C050105J	36	Floor trench		
1C050106J	10/28/03 ~~36~~ 37	Floor trench		
1C050107J	37	Floor trench		
1C050108J	38	Floor trench		
	N/A			N/A

J- designator represents measurement as judgmental location
E-designator represents measurement as potentially elevated activity.
D-designator represents measurement at a drain.
V-designator represents measurement on ventilation system.
U-designator represents measurement on a utility drop.

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BLDG / 1005 / RMS 36, 36A, 37 + 38	SURVEY NO. MT-05-1096
PURPOSE: PERFORM STATIC SURVEY POINTS. CONFIRGTH DRAINS, VENTS + UTILITIES.	RWP NO. N/A
	DATE: 10/28/05
	TIME: 0800

MAP/DRAWING

SEE ATTACHED SHEET FOR SURVEY LOCATION.

SEE ATTACHED SHEET FOR SURVEY RESULTS.

A SCAN OF $1M^2$ AREA AROUND EACH SURVEY POINT SHOWED NO ELEVATED α OR β^- CONTAMINATION.

LEGEND: # = mrem/hr (γ) whole body
#E = mrem/hr ($\beta+\eta+\gamma$) extremity on contact
(#) = mrem/hr neutron
[#] = air sample number
(#) = swipe number
(#/α) or/β = direct cont. measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360-1	5928/5927	5/24/06
	N	
	A	

Completed by: (Signature) R. Abercrombie		DATE: 10/28/05
Completed by: (Print Name) RICARDO V. BURKE / K. Abercrombie		
Counted by: (Signature) SEE ATTACHED SHEET	HP #	DATE:
Counted by: (Print Name) SEE ATTACHED SHEET		
Reviewed/Approved by: (Signature)	HP #	DATE: 11/16/05
Reviewed/Approved by: (Print Name) Jess Griffin		F43/75

ML-0620 (2-96)

Survey No. MI-05-1096

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	
1	SEE ATTACHED	SHEET		1C05 01015
2	↓	↓	↓	1C05 01025
3				1C05 01035
4				1C05 01045
5				1C05 0105 S
6				1C05 0201 S
7				1C05 01065
8				1C05 01075
9				1C05 01085
10				1C05 01095
11				1C05 01105
12				1C05 02025
13				1C05 02035
14				1C05 02045
15				1C05 02055
16				1C05 02065
17				1C05 02075
18				1C05 0208 S
19				1C05 0209 S
20				1C05 02105
21				1C05 02115
22				1C05 02125
23				1C05 02135
24				1C05 02145
25				1C05 02155
26				1C05 02165
27				1C05 02175
28				1C05 02185
29				1C05 02195
30				1C05 02205
31				1C05 01115
32				1C05 01125
33				1C05 01135
34				1C05 01145
35	↓	↓	↓	1C05 01155

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	
36	SEE ATTACHED SHEET			1C05 01165
37	↓	↓	↓	1C05 01175
38				1C05 01185
39				1C05 01195
40				1C05 01205
41				1C05 0101 D
42				1C05 0101
43				1C05 0102
44				1C05 0101 U
45				1C05 0102 U
46				1C05 0103 U
47	↓	↓	↓	1C05-0104
48				
49				
50				
51		N/A		
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				

COMMENTS: N/A

NOTES:
1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

F-44/85

ML-0620 (4-96)

MARSSIM Smear Data

Assay Definition-

Assay Description:
MARSSIM Smear Data

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: D:\MARSSIM_LSC
Raw Results Path: C:\Packard\Tricarb\Results\5801\MARSSIM_Smear_1\20051027_1434.results
Comma-Delimited File Name: D:\MARSSIM_LSC\MT-05-1096.001
Assay File Name: C:\Packard\TriCarb\Assays\MARSSIM_Smear_1.lsa

Count Conditions-

Nuclide: H-3 Mound
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: H-3 Smear
Count Time (min): 2.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: On - 1st Vial
Low CPM Threshold: Off
2 Sigma % Terminator: Off

Regions	LL	UL	Bkg Subtract
A	0.5	18.6	1st Vial
B	2.0	18.6	1st Vial
C	40.0	2000.0	1st Vial

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				

MARSSIM Smear Data

B
C

Instrument Block Data
Machine=Tri-Carb 2900TR
Version=2.06
423022
MODEL=Tri-Carb 2900TR
VERSION=2.06
SERIAL=423022

Cycle 1 Results

DATE	TIME	S#	Count Time	CPMA	CPMB	CPMC	LUM	tSIE	DPM1	A:2S%	MESSAGES	P#
10/27/05	2:34:55 PM	-1	10.00	11	10	12	2	622.54	0	19.4	B	1
10/27/05	2:45:41 PM	0	2.00	523	498	2	0	547.92	1010	6.3		1
10/27/05	2:48:25 PM	1	2.00	5	6	4	13	559.25	10	111.3		1
10/27/05	2:51:07 PM	2	2.00	36	32	21	2	575.54	67	27.6		1
10/27/05	2:53:49 PM	3	2.00	7	7	0	3	634.00	13	85.6		1
10/27/05	2:56:31 PM	4	2.00	6	5	4	6	627.95	11	103.3		1
10/27/05	2:59:14 PM	5	2.00	10	9	0	2	620.53	18	67.0		1
10/27/05	3:01:56 PM	6	2.00	15	14	5	4	596.95	28	49.1		1
10/27/05	3:04:38 PM	7	2.00	1	2	2	8	552.71	3	363.5		1
10/27/05	3:07:21 PM	8	2.00	6	5	0	11	555.01	12	99.3		1
10/27/05	3:10:03 PM	9	2.00	5	5	0	3	596.75	9	117.2		1
10/27/05	3:12:45 PM	10	2.00	4	5	0	7	554.11	8	144.9		1
10/27/05	3:15:26 PM	11	2.00	10	9	0	10	597.72	19	67.2		1
10/27/05	3:18:08 PM	12	2.00	17	15	2	4	611.73	31	45.5		1
10/27/05	3:20:50 PM	13	2.00	0	1	0	5	613.38	0	0.0		1
10/27/05	3:23:30 PM	14	2.00	0	0	0	9	626.98	1	1255.1		1
10/27/05	3:26:13 PM	15	2.00	9	9	8	3	613.02	16	73.8		1
10/27/05	3:28:55 PM	16	2.00	13	13	0	2	631.82	23	55.5		1
10/27/05	3:32:00 PM	17	2.00	0	0	0	5	587.42	0	0.0		1
10/27/05	3:34:43 PM	18	2.00	0	0	0	15	596.94	0	0.0		1
10/27/05	3:37:25 PM	19	2.00	0	0	0	25	578.58	0	0.0		1
10/27/05	3:40:07 PM	20	2.00	7	7	0	3	608.24	14	85.9		1
10/27/05	3:42:49 PM	21	2.00	0	0	0	0	603.85	0	0.0		1
10/27/05	3:45:30 PM	22	2.00	37	35	0	1	575.72	71	26.8		1
10/27/05	3:48:13 PM	23	2.00	0	0	0	12	591.29	0	0.0		1
10/27/05	3:50:54 PM	24	2.00	5	5	0	3	600.59	8	128.2		1
10/27/05	3:53:36 PM	25	2.00	6	5	0	0	629.26	11	103.3		1
10/27/05	3:56:18 PM	26	2.00	1	2	4	0	616.55	3	377.4		1
10/27/05	3:59:00 PM	27	2.00	11	12	1	0	603.86	21	60.9		1
10/27/05	4:01:41 PM	28	2.00	0	0	0	11	508.64	0	0.0		1
10/27/05	4:04:23 PM	29	2.00	0	0	0	11	598.51	0	0.0		1
10/27/05	4:07:04 PM	30	2.00	0	0	0	0	593.87	0	0.0		1
10/27/05	4:09:47 PM	31	2.00	1	0	0	33	513.19	3	377.4		1

IMAGE 5 OF 16 MT-05-1096

MARSSIM Smear Data

10/27/05	4:12:29 PM	32	2.00	2	2	0	15	500.66	5	228.3	1
10/27/05	4:15:11 PM	33	2.00	5	6	2	3	527.22	10	120.9	1
10/27/05	4:17:54 PM	34	2.00	0	0	0	13	536.98	0	0.0	1
10/27/05	4:20:59 PM	35	2.00	3	3	0	4	590.55	5	192.2	1
10/27/05	4:23:40 PM	36	2.00	3	2	0	4	607.95	5	213.9	1
10/27/05	4:26:22 PM	37	2.00	3	3	0	3	641.67	6	164.3	1
10/27/05	4:29:05 PM	38	2.00	1	0	0	22	529.32	2	574.7	1
10/27/05	4:31:47 PM	39	2.00	0	0	0	10	617.12	0	0.0	1
10/27/05	4:34:29 PM	40	2.00	31	12	0	86	592.45	58	30.2	1
10/27/05	4:37:11 PM	41	2.00	0	0	0	0	492.45	0	0.0	1
10/27/05	4:39:53 PM	42	2.00	0	0	0	0	497.32	0	0.0	1
10/27/05	4:42:34 PM	43	2.00	0	0	0	0	521.24	0	0.0	1
10/27/05	4:45:17 PM	44	2.00	170	156	0	0	592.24	317	11.2	1
10/27/05	4:47:59 PM	45	2.00	157	145	0	0	604.87	290	11.7	1
10/27/05	4:50:41 PM	46	2.00	382	352	0	0	631.64	690	7.4	1
10/27/05	4:53:23 PM	47	2.00	0	0	0	7	614.03	0	0.0	1

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: Mar_159
Batch Ended: 10/27/05 12:57
Cal. Due Date: 11/17/05
Serial Number: 26966-3

Batch ID: MT-05-1096 KA 10-27-05 RLH

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.22		0.99	2.27	
A2	2	0.00	2.00		0.00	1.18	
A3	3	0.00	2.27		0.00	1.27	
A4	4	0.00	2.10		0.00	1.22	
B1	5	0.00	1.88		0.00	1.21	
B2	6	0.00	1.94		3.25	2.50	
B3	7	0.00	2.18		0.00	1.34	
B4	8	0.00	1.97		0.00	1.21	
C1	9	0.00	2.05		0.00	1.23	
C2	10	0.00	1.93		1.59	1.95	
C3	11	0.00	2.07		0.27	1.72	
C4	12	0.00	1.98		1.74	1.95	
D1	13	0.00	2.05		0.00	1.25	
D2	14	0.00	2.18		1.58	2.06	
D3	15	1.72	2.09		0.00	1.25	
D4	16	0.00	2.04		0.00	1.17	
A1	17	0.00	2.18		0.00	1.33	
A2	18	0.00	2.02		0.42	1.65	
A3	19	0.00	2.27		0.00	1.27	
A4	20	0.00	2.10		0.00	1.22	
B1	21	0.00	1.90		0.54	1.69	
B2	22	0.00	1.89		1.02	1.94	
B3	23	0.00	2.22		1.63	2.30	
B4	24	0.00	1.97		0.00	1.21	
C1	25	0.00	2.05		0.00	1.23	
C2	26	0.00	1.92		0.47	1.59	
C3	27	0.00	2.08		1.49	2.11	

RB RB

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: Mar_159
Batch Ended: 10/27/05 12:57
Cal. Due Date: 11/17/05
Serial Number: 26966-3

Batch ID: MT-05-1096 [47] KA 10-27-05 RLH

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
C4	28	0.00	1.95		0.00	1.12	
D1	29	0.00	2.07		1.54	2.16	
D2	30	0.00	2.17		0.39	1.68	
D3	31	0.00	2.10		0.18	1.75	
D4	32	0.00	2.05		0.20	1.66	
A1	33	0.00	2.20		0.00	1.86	
A2	34	0.00	2.02		0.42	1.65	
A3	35	0.00	2.27		0.00	1.27	
A4	36	0.00	2.15		2.73	2.42	
B1	37	0.00	1.88		0.00	1.20	
B2	38	0.00	1.85		0.00	1.14	
B3	39	0.00	2.18		0.00	1.34	
B4	40	0.00	1.96		0.00	1.21	
C1	41	0.00	2.05		0.00	1.23	
C2	42	0.00	1.91		0.00	1.12	
C3	43	1.73	2.07		0.12	1.72	
C4	44	0.00	1.96		0.62	1.59	
D1	45	0.00	2.06		0.29	1.77	
D2	46	0.00	2.18		1.58	2.06	
D3	47	0.00	2.10		0.18	1.75	

RB RB

11/17/05

T-Building Static Survey (1C05) Rms. 36, 36A, 37 & 38

RSDS# MT-05-1096 *RCT:* [redacted] *RCT:* [redacted]

Alpha	43-68 BKG:	0	EFF:	0.22	PROBE AREA:	126	cm^2	Surface Eff:	0.5	Detector # :	1
Beta	43-68 BKG:	0	EFF:	0.168	PROBE AREA:	126	cm^2	Surface Eff:	0.5	Detector # :	2
Alpha Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:	0.5	Detector # :	3
Beta Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:	0.5	Detector # :	4

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	Item	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	1C050101S	5928	[redacted]	5927	1	1	10/25/05	1216	2	120	7
ALPHA	1C050102S	5928		5927	1	2	10/25/05	1238	3	120	11
ALPHA	1C050103S	5928		5927	1	3	10/25/05	1243	2	120	7
ALPHA	1C050104S	5928		5927	1	4	10/25/05	1249	7	120	25
ALPHA	1C050105S	5928		5927	1	5	10/25/05	1258	4	120	14
ALPHA	1C050201S	5928		5927	1	6	10/25/05	1302	1	120	4
ALPHA	1C050106S	5928		5927	1	7	10/25/05	1314	5	120	18
ALPHA	1C050107S	5928		5927	1	8	10/25/05	1319	1	120	4
ALPHA	1C050108S	5928		5927	1	9	10/25/05	1323	0	120	0
ALPHA	1C050109S	5928		5927	1	10	10/25/05	1328	4	120	14
ALPHA	1C050110S	5928		5927	1	11	10/25/05	1332	2	120	7
ALPHA	1C050202S	5928		5927	1	12	10/26/05	759	2	120	7
ALPHA	1C050203S	5928		5927	1	13	10/26/05	804	4	120	14
ALPHA	1C050204S	5928		5927	1	14	10/26/05	813	2	120	7
ALPHA	1C050205S	5928		5927	1	15	10/26/05	820	0	120	0
ALPHA	1C050206S	5928		5927	1	16	10/26/05	826	0	120	0
ALPHA	1C050207S	5928		5927	1	17	10/26/05	830	2	120	7
ALPHA	1C050208S	5928		5927	1	18	10/26/05	1030	2	120	7
ALPHA	1C050209S	5928		5927	1	19	10/26/05	1304	3	120	11
ALPHA	1C050210S	5928		5927	1	20	10/26/05	1259	2	120	7
ALPHA	1C050211S	5928		5927	1	21	10/26/05	1303	3	120	11
ALPHA	1C050212S	5928		5927	1	22	10/26/05	1307	5	120	18
ALPHA	1C050213S	5928		5927	1	23	10/26/05	1312	2	120	7
ALPHA	1C050214S	5928		5927	1	24	10/26/05	1317	1	120	4
ALPHA	1C050215S	5928		5927	1	25	10/26/05	1322	1	120	4
ALPHA	1C050216S	5928		5927	1	26	10/26/05	1327	3	120	11
ALPHA	1C050217S	5928		5927	1	27	10/26/05	1332	1	120	4
ALPHA	1C050218S	5928		5927	1	28	10/26/05	1338	2	120	7
ALPHA	1C050219S	5928		5927	1	29	10/26/05	1343	1	120	4
ALPHA	1C050220S	5928		5927	1	30	10/26/05	1348	3	120	11
ALPHA	1C050111S	5928		5927	1	31	10/27/05	928	6	120	22
ALPHA	1C050112S	5928		5927	1	32	10/27/05	933	5	120	18
ALPHA	1C050113S	5928		5927	1	33	10/27/05	937	5	120	18
ALPHA	1C050114S	5928		5927	1	34	10/27/05	941	6	120	22
ALPHA	1C050115S	5928		5927	1	35	10/27/05	945	4	120	14
ALPHA	1C050116S	5928		5927	1	36	10/27/05	950	5	120	18
ALPHA	1C050117S	5928		5927	1	37	10/27/05	954	3	120	11
ALPHA	1C050118S	5928		5927	1	38	10/27/05	958	5	120	18
ALPHA	1C050119S	5928		5927	1	39	10/27/05	1002	5	120	18
ALPHA	1C050120S	5928		5927	1	40	10/27/05	1006	5	120	18
ALPHA	1C050101D	5928		5927	1	41	10/27/05	1014	5	120	18
ALPHA	1C050101V	5928		5927	1	42	10/27/05	1019	4	120	14

F59/85

T-Building Static Survey (1C05) Rms. 36, 36A, 37 & 38

RSDS# MT-05-1096 **RCT:** [redacted] **RCT:** [redacted]

Alpha	43-68 BKG:	0	EFF:	0.22	PROBE AREA:	126	cm^2	Surface Eff:	0.5	Detector # :	1
Beta	43-68 BKG:	0	EFF:	0.188	PROBE AREA:	126	cm^2	Surface Eff:	0.5	Detector # :	2
Alpha Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:	0.5	Detector # :	3
Beta Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:	0.5	Detector # :	4

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	Item	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	1C050102V	5928	[redacted]	5927	1	43	10/27/05	1024	6	120	22
ALPHA	1C050101U	5928	[redacted]	5927	1	44	10/27/05	1222	9	120	32
ALPHA	1C050102U	5928	[redacted]	5927	1	45	10/27/05	1225	2	120	7
ALPHA	1C050103U	5928	[redacted]	5927	1	46	10/27/05	1234	3	120	11
ALPHA	1C050104U	5928	[redacted]	5927	1	47	10/27/05	1240	6	120	22
BETA	1C050101S	5928	[redacted]	5927	2	1	10/25/05	1217	156	60	1474
BETA	1C050102S	5928	[redacted]	5927	2	2	10/25/05	1239	160	60	1512
BETA	1C050103S	5928	[redacted]	5927	2	3	10/25/05	1244	120	60	1134
BETA	1C050104S	5928	[redacted]	5927	2	4	10/25/05	1250	103	60	973
BETA	1C050105S	5928	[redacted]	5927	2	5	10/25/05	1300	108	60	1020
BETA	1C050201S	5928	[redacted]	5927	2	6	10/25/05	1304	94	60	888
BETA	1C050106S	5928	[redacted]	5927	2	7	10/25/05	1315	157	60	1483
BETA	1C050107S	5928	[redacted]	5927	2	8	10/25/05	1320	117	60	1105
BETA	1C050108S	5928	[redacted]	5927	2	9	10/25/05	1324	103	60	973
BETA	1C050109S	5928	[redacted]	5927	2	10	10/25/05	1329	115	60	1087
BETA	1C050110S	5928	[redacted]	5927	2	11	10/25/05	1333	106	60	1002
BETA	1C050202S	5928	[redacted]	5927	2	12	10/26/05	801	81	60	765
BETA	1C050203S	5928	[redacted]	5927	2	13	10/26/05	805	98	60	926
BETA	1C050204S	5928	[redacted]	5927	2	14	10/26/05	814	116	60	1096
BETA	1C050205S	5928	[redacted]	5927	2	15	10/26/05	821	125	60	1181
BETA	1C050206S	5928	[redacted]	5927	2	16	10/26/05	827	114	60	1077
BETA	1C050207S	5928	[redacted]	5927	2	17	10/26/05	831	92	60	869
BETA	1C050208S	5928	[redacted]	5927	2	18	10/26/05	1032	84	60	794
BETA	1C050209S	5928	[redacted]	5927	2	19	10/26/05	1035	67	60	633
BETA	1C050210S	5928	[redacted]	5927	2	20	10/26/05	1300	74	60	699
BETA	1C050211S	5928	[redacted]	5927	2	21	10/26/05	1304	85	60	803
BETA	1C050212S	5928	[redacted]	5927	2	22	10/26/05	1309	85	60	803
BETA	1C050213S	5928	[redacted]	5927	2	23	10/26/05	1313	105	60	992
BETA	1C050214S	5928	[redacted]	5927	2	24	10/26/05	1318	115	60	1087
BETA	1C050215S	5928	[redacted]	5927	2	25	10/26/05	1323	122	60	1153
BETA	1C050216S	5928	[redacted]	5927	2	26	10/26/05	1328	87	60	822
BETA	1C050217S	5928	[redacted]	5927	2	27	10/26/05	1333	86	60	813
BETA	1C050218S	5928	[redacted]	5927	2	28	10/26/05	1339	99	60	935
BETA	1C050219S	5928	[redacted]	5927	2	29	10/26/05	1344	74	60	699
BETA	1C050220S	5928	[redacted]	5927	2	30	10/26/05	1349	87	60	822
BETA	1C050111S	5928	[redacted]	5927	2	31	10/27/05	929	134	60	1266
BETA	1C050112S	5928	[redacted]	5927	2	32	10/27/05	934	137	60	1294
BETA	1C050113S	5928	[redacted]	5927	2	33	10/27/05	938	148	60	1398
BETA	1C050114S	5928	[redacted]	5927	2	34	10/27/05	942	84	60	794
BETA	1C050115S	5928	[redacted]	5927	2	35	10/27/05	947	127	60	1200
BETA	1C050116S	5928	[redacted]	5927	2	36	10/27/05	952	90	60	850
BETA	1C050117S	5928	[redacted]	5927	2	37	10/27/05	955	117	60	1105

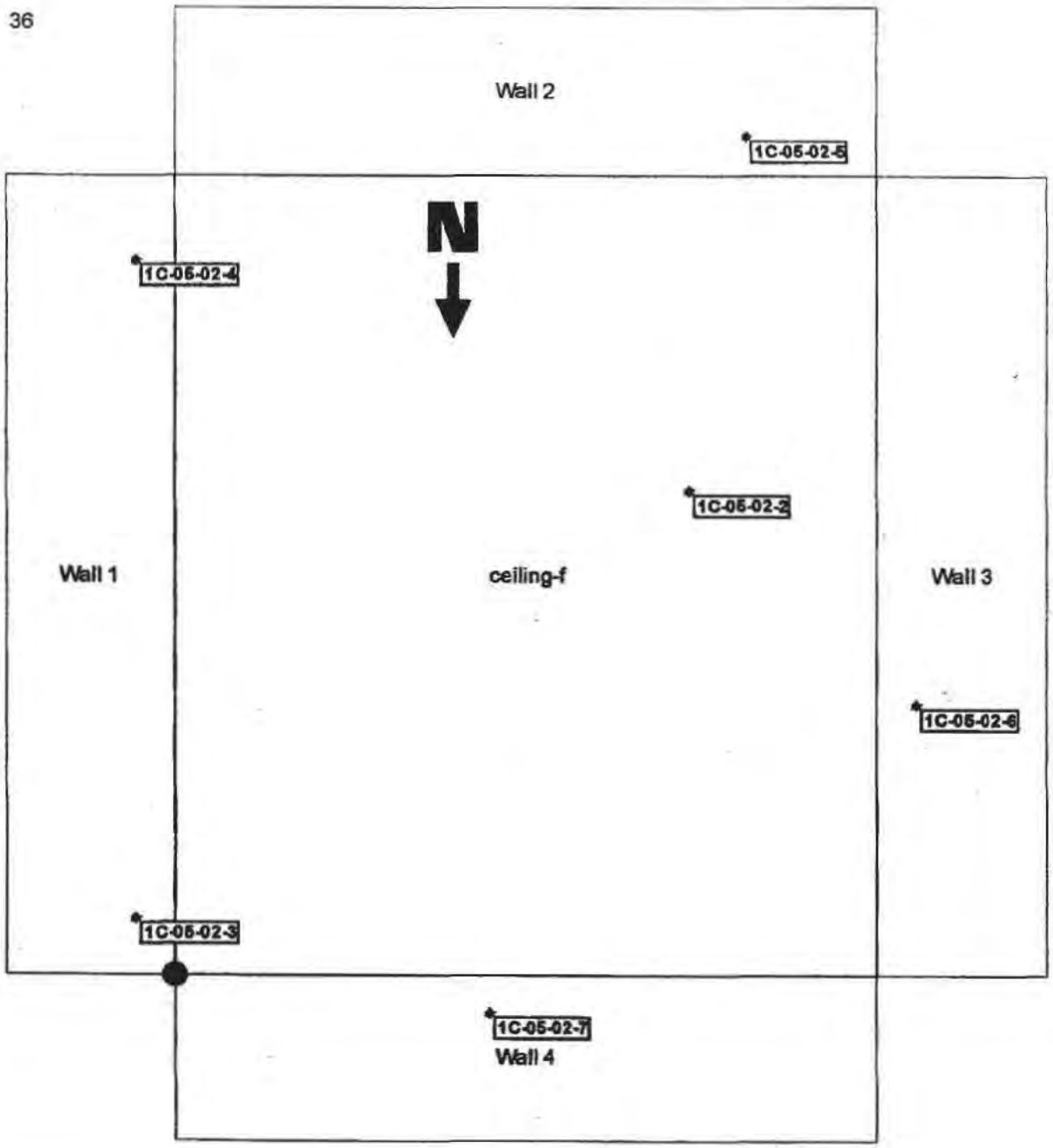
T-Building Static Survey (1C05) Rms. 36, 36A, 37 & 38

RSDS# MT-05-1096 ***RCT:*** [redacted] ***RCT:*** [redacted]

Alpha	43-68 BKG:	0	EFF:	0.22	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.168	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Alpha Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
Beta Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 4

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	item	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	1C050118S	5928	[redacted]	5927	2	38	10/27/05	1000	108	60	1020
BETA	1C050119S	5928		5927	2	39	10/27/05	1003	63	60	595
BETA	1C050120S	5928		5927	2	40	10/27/05	1007	93	60	879
BETA	1C050101D	5928		5927	2	41	10/27/05	1015	105	60	992
BETA	1C050101V	5928		5927	2	42	10/27/05	1020	71	60	671
BETA	1C050102V	5928		5927	2	43	10/27/05	1025	72	60	680
BETA	1C050101U	5928		5927	2	44	10/27/05	1223	100	60	945
BETA	1C050102U	5928		5927	2	45	10/27/05	1226	103	60	973
BETA	1C050103U	5928		5927	2	46	10/27/05	1235	90	60	850
BETA	1C050104U	5928		5927	2	47	10/27/05	1241	79	60	746

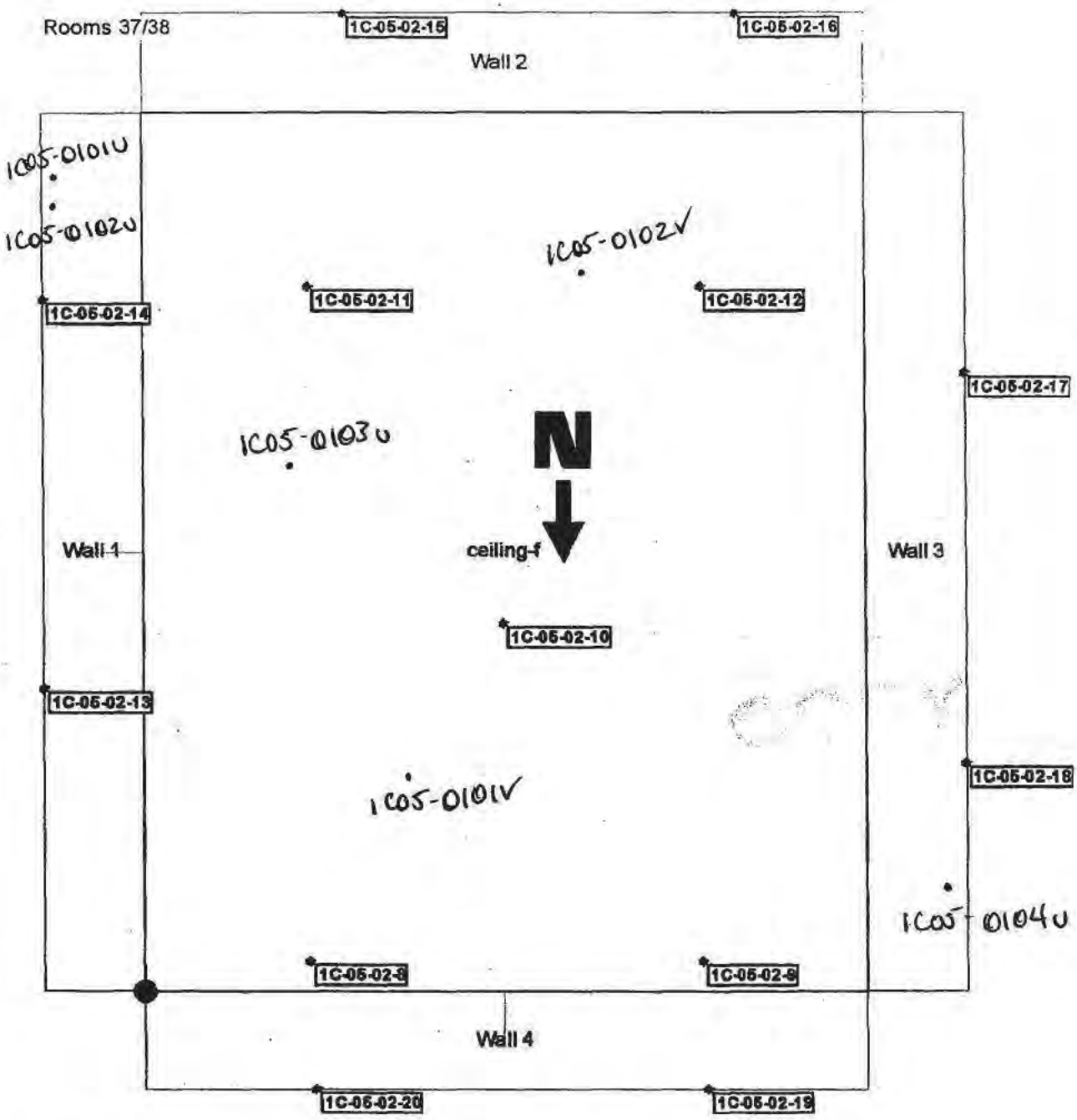
1C-05-02
ceiling and upper wall static measurement locations
scan an area of approximately 1m^2 around each ceiling location



2350-1 5928/5927 05/24/06
Burke [redacted] Abercrombie [redacted]

F53/85

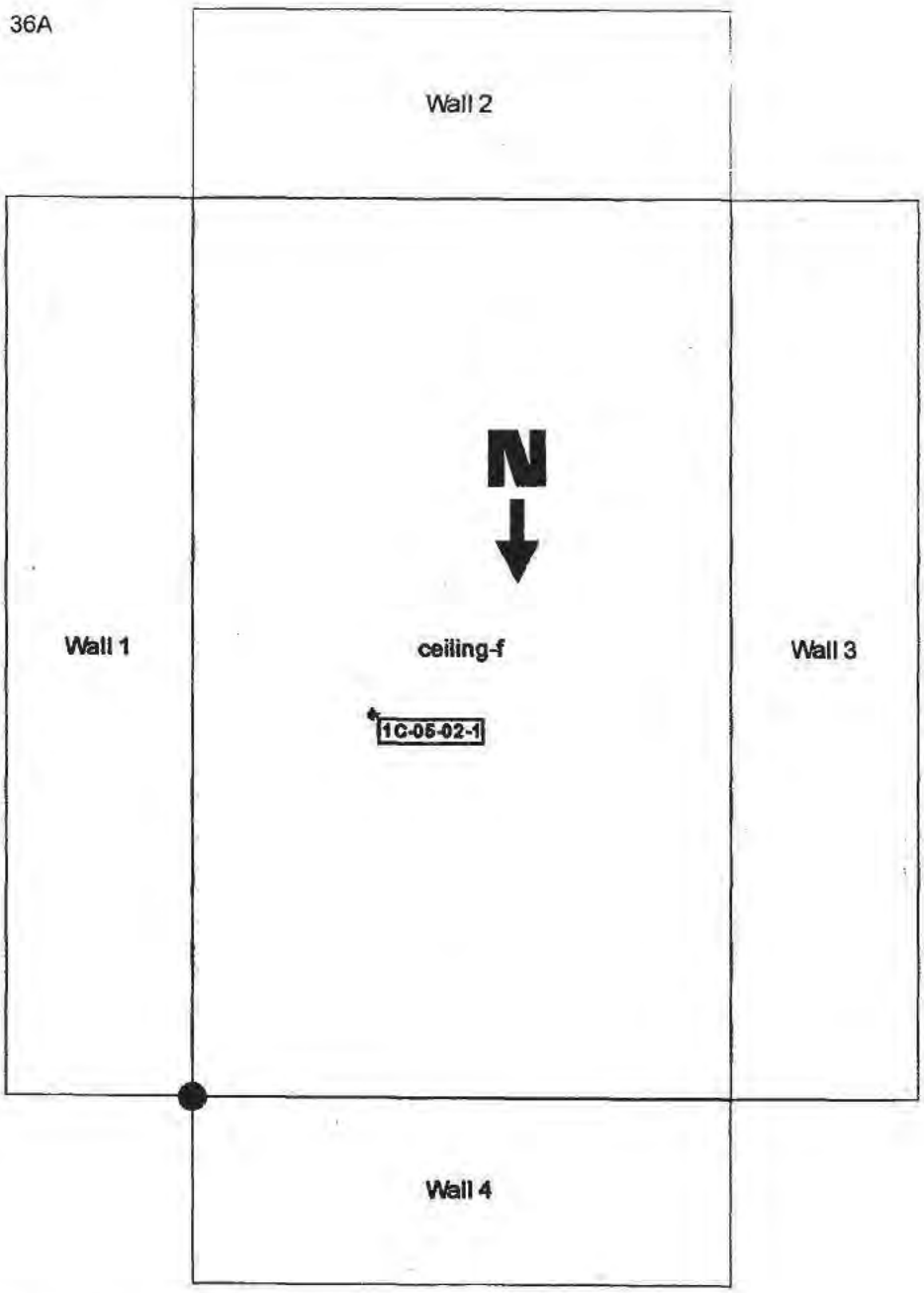
1C-05-02
ceiling and upper wall static measurement locations
scan an area of approximately 1m^2 around each ceiling location
Drains, vents, and utilities



2350-1 5928/5927 05/24/06
Burke [redacted] Abercrombie [redacted]

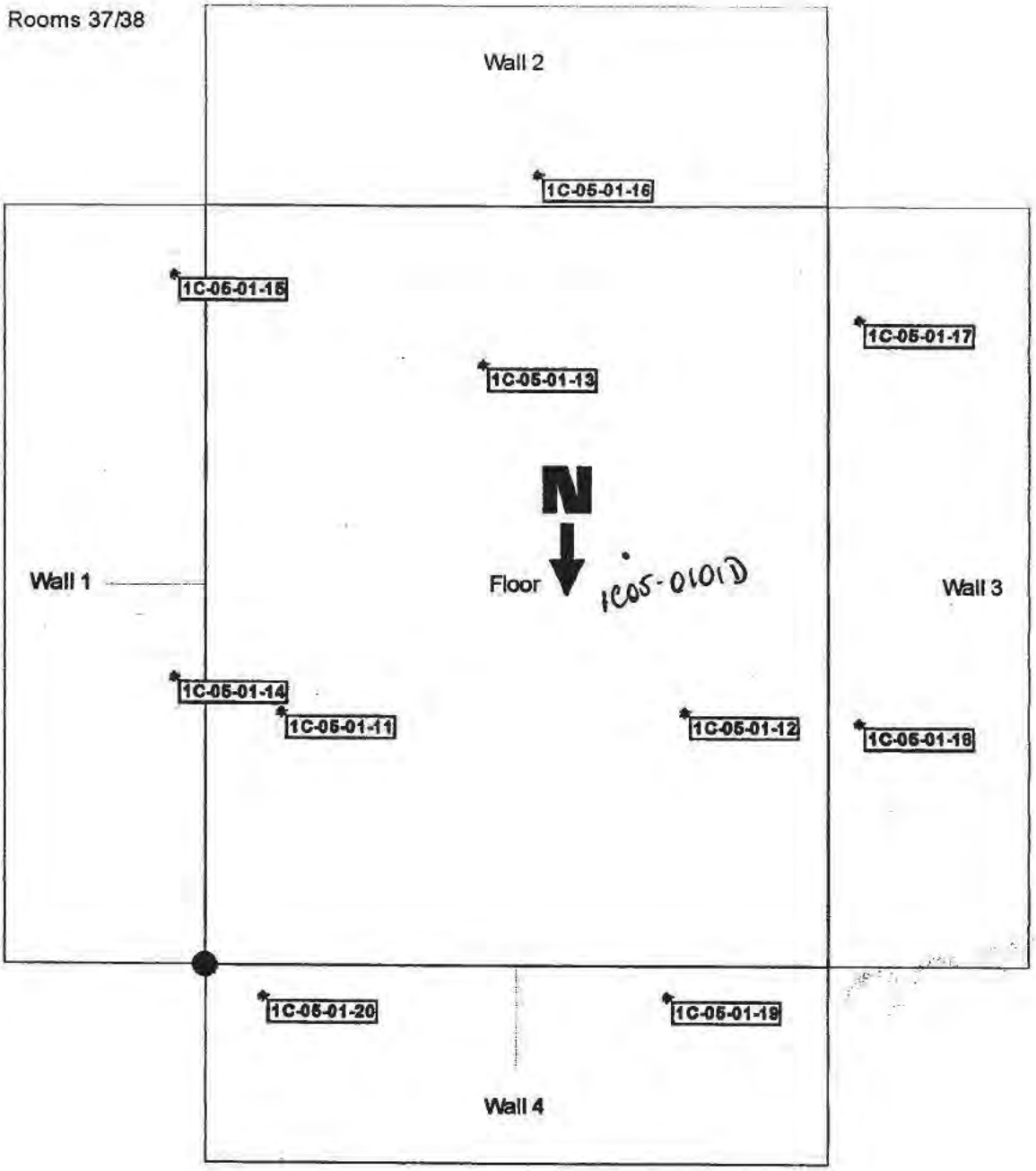
F54/85

1C-05-02
ceiling and upper wall static measurement locations
scan an area of approximately 1m^2 around each ceiling location



2350-1 5928/5927 05/24/06
Burke [redacted] Abercrombie [redacted]

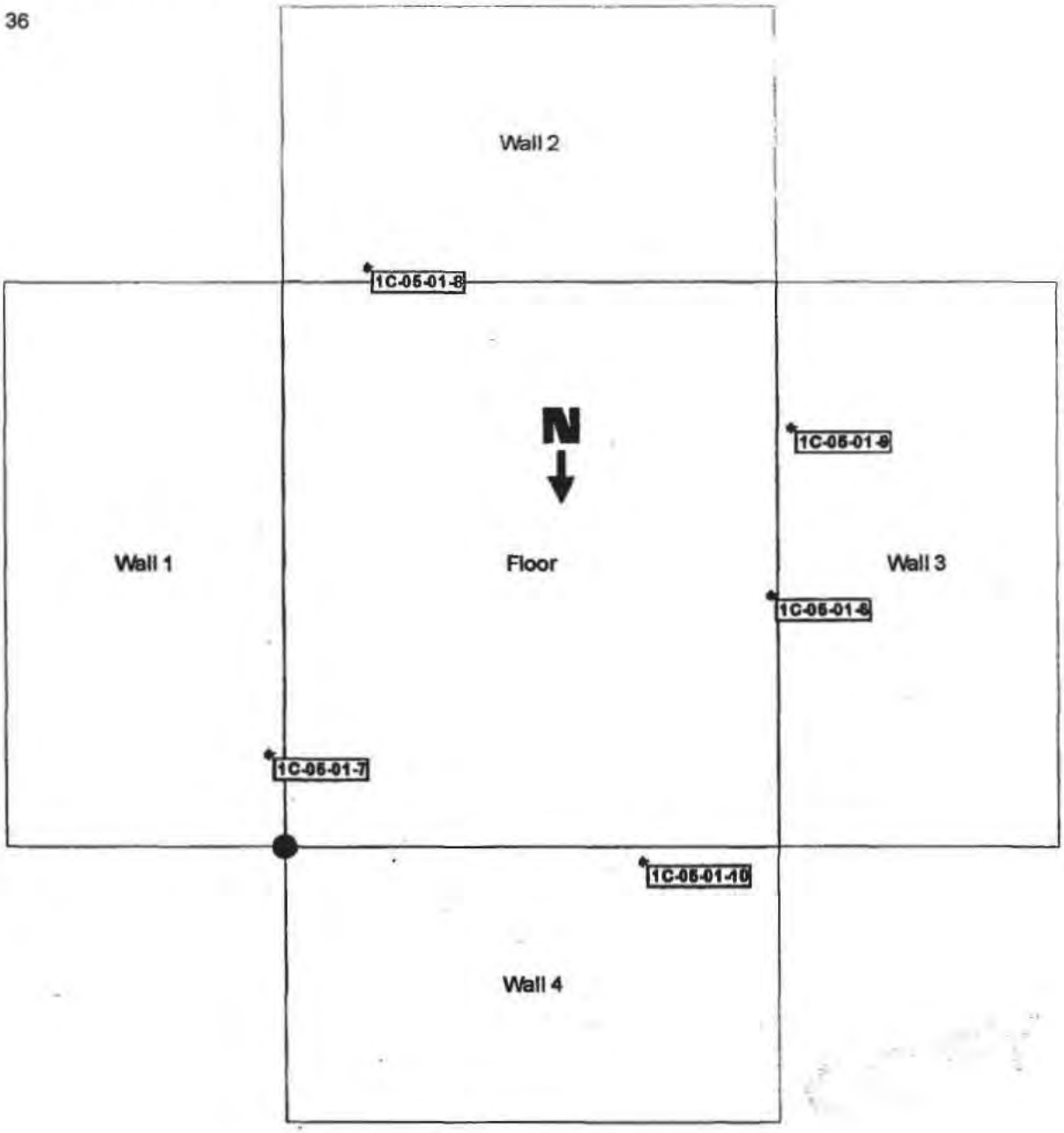
1C-05-01
floor and lower wall static measurement locations
Drains, vents, and utilities



2350-1 5928/5927 05/24/06
Burke [redacted] Abercrombie [redacted]

F54/85

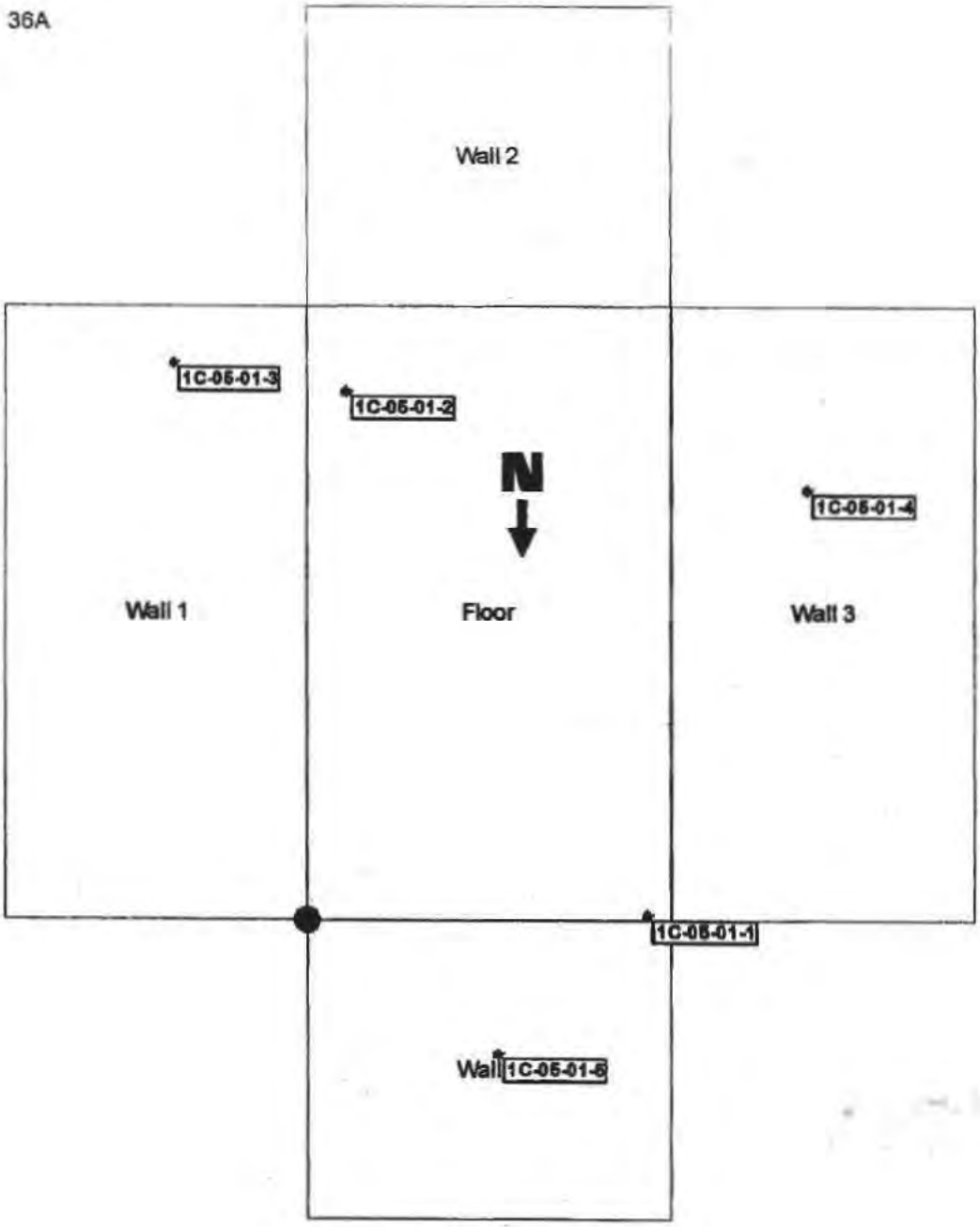
1C-05-01
floor and lower wall static measurement locations



2350-1 5928/5927 05/24/06
Burke [redacted] Abercrombie [redacted]

F57/85

1C-05-01
floor and lower wall static measurement locations



2350-1 5928/5927 05/24/06
Burke [redacted] Abercrombie [redacted]

F58/85

(Supplemental sheet for biased measurements.)

RSDS # MT-05-1096

RCT INT/HP [redacted]

KA

Label	Room	Surface	LX	LY
1C05-0101U	**37/38**	**Wall 1**	**N/A**	**N/A**
1C05-0102U	**37/38**	**Wall 1**	**N/A**	**N/A**
1C05-0103U	**37/38**	**Ceiling**	**N/A**	**N/A**
1C05-0104U	**37/38**	**Wall 4**	**N/A**	**N/A**
1C05-0101V	**37/38**	**Ceiling**	**N/A**	**N/A**
1C05-0102V	**37/38**	**Ceiling**	**N/A**	**N/A**
1C05-0101D	**37/38**	**Floor**	**N/A**	**N/A**

J- designator represents measurement as judgmental location
E-designator represents measurement as potentially elevated activity.
D-designator represents measurement at a drain.
V-designator represents measurement on ventilation system.
U-designator represents measurement on a utility drop.

RADIOLOGICAL SURVEY DATA SHEET

Page 1 of 10

LOCATION: (BLDG./AREA/ROOM) 1 BLDG / 1C05 / RMS 36, 36A, 37 & 38	SURVEY NO. MT-05-1112
PURPOSE: PERFORM JUDGEMENTAL SURVEY & DOSE RATE SURVEY.	RWP NO. N/A
	DATE: 10/31/05
	TIME: 1630

MAP/DRAWING

SEE ATTACHED SURVEY MAP FOR LOCATION.

SEE ATTACHED SHEET FOR SURVEY RESULTS.

A SCAN OF 1 M^2 AREA AROUND EACH SURVEY POINT SHOWED NO ELEVATED α OR β - CONTAMINATION.

GENERAL AREA DOSE RATE - 5 μREM/HR

BACKGROUND DOSE RATE - 5 μREM/HR

LEGEND: # = mrem/hr (γ) whole body; # E = mrem/hr ($\beta+\eta+\gamma$) extremity on contact; (#) = mrem/hr neutron; [#] = air sample number; (#) = swipe number; (#/α) or /β = direct cont. measurement in dpm/100cm^2

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350-1	5928 / 5927	5/24/06
Micro REM	3979	4/7/06
	N/A	

Completed by: (Signature) R Abercrombie	HP# 7474 3822	Date: 10/31/05
Completed by: (Print Name) RICARDO V. BURKE / K. Abercrombie		
Counted by: (Signature) SEE ATTACHED SHEET	HP#	Date:
Counted by: (Print Name) SEE ATTACHED SHEET		
Reviewed/Approved by: (Signature)	HP#	Date: 11/16/05
Reviewed/Approved by: (Print Name) Joss Griffin		

ML-9620 (2-98)

F60/80

Survey No. MT-05-1112

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
	Swipes (dpm/100cm²)			
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE ATTACHED		SHEET	1C05-0101J
2				1C05-0102J
3				1C05-0201J
4				1C05-0202J
5				1C05-0203J
6				1C05-0204J
7				1C05-0205J
8				1C05-0103J
9				1C05-0104J
10				1C05-0105J
11				1C05-0106J
12				1C05-0107J
13				1C05-0108J
14				1C05-0109J
15				1C05-0110J
16				1C05-0206J
17				1C05-0207J
18				1C05-0208J
19				1C05-0209J
20	↓	↓	↓	1C05-0210J
		N		
			A	

Removable Contamination				
	Swipes (dpm/100cm²)			
Sample #	β/γ	Alpha	Tritium	Comments
		N		
			A	

COMMENTS:
N
A

NOTES:

1. See MD-60036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If needed, mark N/A.

F.61/85

PAGE 3 OF 10
MT-05-1112

MARSSIM Smear Data

Assay Definition-

Assay Description:
MARSSIM Smear Data

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: D:\MARSSIM_LSC
Raw Results Path: C:\Packard\Tricarb\Results\5801\MARSSIM_Smear_2\20051101_1729.results
Comma-Delimited File Name: D:\MARSSIM_LSC\MT-05-1112.001
Assay File Name: C:\Packard\TriCarb\Assays\MARSSIM_Smear_2.lsa

Count Conditions-

Nuclide: H-3 Mound
  Quench Indicator: tSIE/AEC
  External Std Terminator (sec): 0.5 2s%
  Pre-Count Delay (min): 0.00
Quench Set:
  Low Energy: H-3 Smear
Count Time (min): 2.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: On - 1st Vial
Low CPM Threshold: Off
2 Sigma % Terminator: Off

Regions	LL	UL	Bkg Subtract
A	0.5	18.6	1st Vial
B	2.0	18.6	1st Vial
C	40.0	2000.0	1st Vial

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				

12/20/05

MARSSIM Smear Data

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MT-05-1112

B
C

Instrument Block Data
Machine=Tri-Carb 2900TR
Version=2.06
423022
MODEL=Tri-Carb 2900TR
VERSION=2.06
SERIAL=423022

Cycle 1 Results

DATE	TIME	S#	Count Time	CPMA	CPMB	CPMC	LUM	tSIE	DPM1	A:2S%	MESSAGES	P#
11/1/05	5:29:42 PM	-1	10.00	9	8	12	10	609.40	0	21.5	B	2
11/1/05	5:40:33 PM	0	2.00	515	485	0	0	578.34	970	6.3		2
11/1/05	5:43:14 PM	1	2.00	0	0	0	15	548.39	0	0.0		2
11/1/05	5:45:55 PM	2	2.00	1	0	0	5	633.76	2	551.9		2
11/1/05	5:48:35 PM	3	2.00	0	0	0	13	610.43	0	0.0		2
11/1/05	5:51:17 PM	4	2.00	0	1	0	0	531.14	0	1845.8		2
11/1/05	5:53:58 PM	5	2.00	2	3	0	5	627.38	4	213.9		2
11/1/05	5:56:39 PM	6	2.00	0	0	3	38	520.27	0	0.0		2
11/1/05	5:59:21 PM	7	2.00	0	0	0	18	572.29	0	0.0		2
11/1/05	6:02:02 PM	8	2.00	0	0	0	6	628.81	0	0.0		2
11/1/05	6:04:44 PM	9	2.00	1	2	0	5	625.95	2	356.5		2
11/1/05	6:07:26 PM	10	2.00	0	0	1	8	619.93	0	0.0		2
11/1/05	6:10:08 PM	11	2.00	4	3	0	20	626.85	7	144.7		2
11/1/05	6:12:49 PM	12	2.00	1	1	0	11	605.68	2	551.9		2
11/1/05	6:15:31 PM	13	2.00	5	4	2	48	384.83	11	113.6		2
11/1/05	6:18:12 PM	14	2.00	0	0	0	0	623.31	0	0.0		2
11/1/05	6:20:53 PM	15	2.00	4	4	0	4	597.06	7	138.2		2
11/1/05	6:23:34 PM	16	2.00	0	0	0	0	614.23	0	0.0		2
11/1/05	6:26:22 PM	17	2.00	3	4	0	0	617.91	6	156.0		2
11/1/05	6:29:03 PM	18	2.00	0	1	0	6	632.07	0	0.0		2
11/1/05	6:31:44 PM	19	2.00	0	0	0	6	625.11	0	0.0		2
11/1/05	6:34:25 PM	20	2.00	6	5	0	3	575.78	11	98.8		2

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MT-05-1112

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: Mar_001
Batch Ended: 11/1/05 15:29
Cal. Due Date: 11/17/05
Serial Number: 26966-3

Batch ID: MT-05-1112 K.A (20) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	1.74	2.19		0.00	1.33	
A2	2	0.00	2.02		0.42	1.65	
A3	3	1.77	2.30		1.80	2.18	
A4	4	0.00	2.13		1.53	2.10	
B1	5	0.00	1.92		1.73	2.07	
B2	6	0.00	1.85		0.00	1.13	
B3	7	0.00	2.18		0.00	1.34	
B4	8	0.00	1.97		0.00	1.21	
C1	9	1.68	2.08		1.33	2.13	
C2	10	0.00	1.91		0.00	1.12	
C3	11	0.00	2.07		0.27	1.72	
C4	12	0.00	1.95		0.00	1.12	
D1	13	0.00	2.08		2.79	2.50	
D2	14	0.00	2.18		1.58	2.06	
D3	15	0.00	2.11		1.42	2.15	
D4	16	0.00	2.09		3.71	2.63	
A1	17	0.00	2.20		0.00	1.86	
A2	18	0.00	2.00		0.00	1.18	
A3	19	0.00	2.28		0.72	1.78	
A4	20	1.71	2.10		0.00	1.22	

RB RB

RB 11/4/05

RB

T-Building Judgemental Survey (1C05) Rms. 36, 36A, 37 & 38

RSDS# MT-05-1112 *RCT:* [redacted] *RCT:* [redacted]

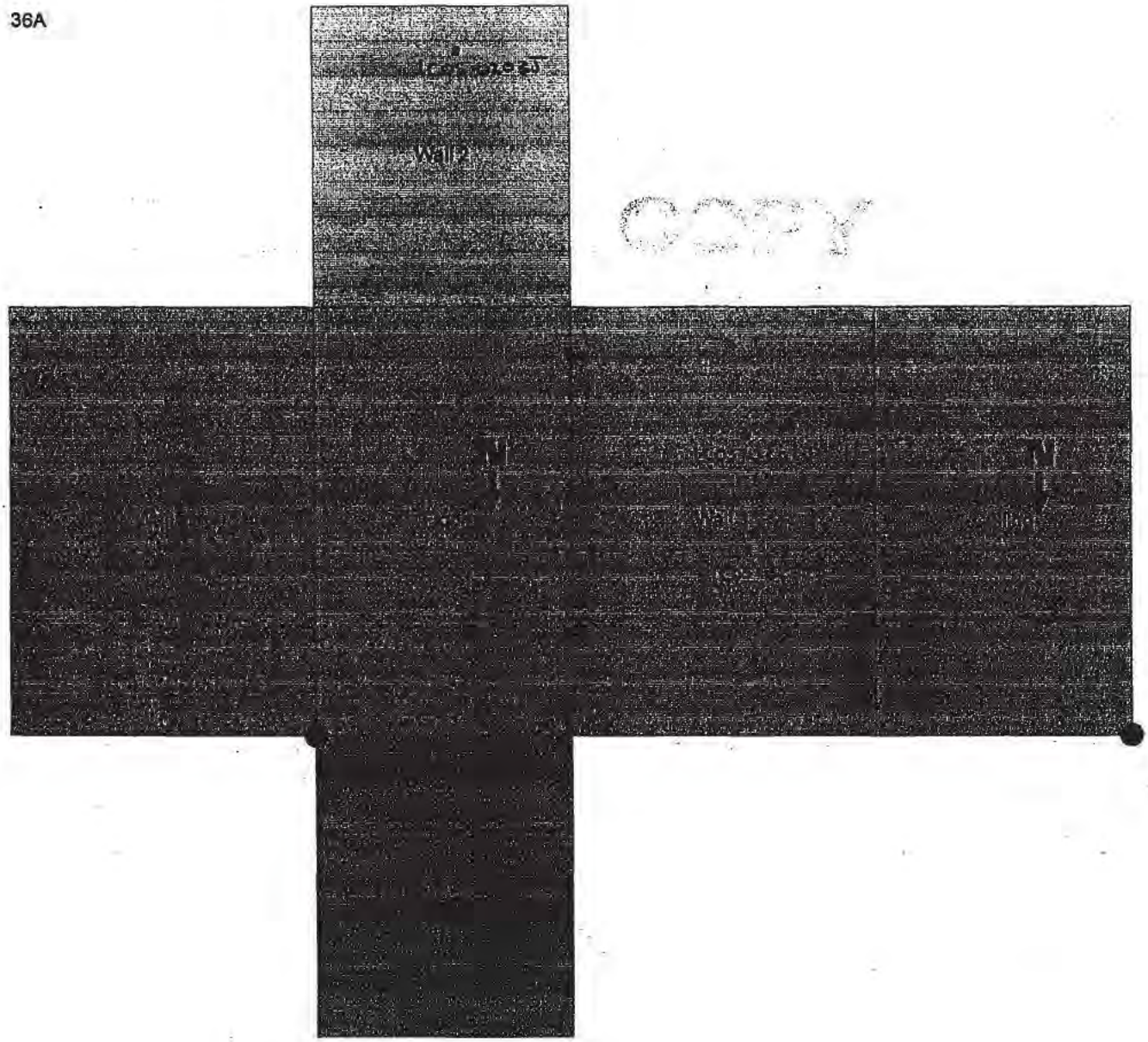
Alpha	43-68 BKG:	0	EFF:	0.22	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.168	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Alpha Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
Beta Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 4

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	Item	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	1C050101J	5928	[redacted]	5927	1	1	10/31/05	8:46	8	120	29
ALPHA	1C050102J	5928		5927	1	2	10/31/05	8:51	5	120	18
ALPHA	1C050201J	5928		5927	1	3	10/31/05	8:57	2	120	7
ALPHA	1C050202J	5928		5927	1	4	10/31/05	9:04	6	120	22
ALPHA	1C050203J	5928		5927	1	5	10/31/05	9:11	4	120	14
ALPHA	1C050204J	5928		5927	1	6	10/31/05	9:43	11	120	40
ALPHA	1C050205J	5928		5927	1	7	10/31/05	9:48	8	120	29
ALPHA	1C050103J	5928		5927	1	8	10/31/05	9:53	6	120	22
ALPHA	1C050104J	5928		5927	1	9	10/31/05	9:58	1	120	4
ALPHA	1C050105J	5928		5927	1	10	10/31/05	10:03	5	120	18
ALPHA	1C050106J	5928		5927	1	11	10/31/05	13:02	2	120	7
ALPHA	1C050107J	5928		5927	1	12	10/31/05	13:07	2	120	7
ALPHA	1C050108J	5928		5927	1	13	10/31/05	13:12	6	120	22
ALPHA	1C050109J	5928		5927	1	14	10/31/05	13:32	5	120	18
ALPHA	1C050110J	5928		5927	1	15	10/31/05	13:36	6	120	22
ALPHA	1C050206J	5928		5927	1	16	10/31/05	13:48	5	120	18
ALPHA	1C050207J	5928		5927	1	17	10/31/05	13:57	3	120	11
ALPHA	1C050208J	5928		5927	1	18	10/31/05	14:44	8	120	29
ALPHA	1C050209J	5928		5927	1	19	10/31/05	14:48	1	120	4
ALPHA	1C050210J	5928		5927	1	20	10/31/05	14:53	1	120	4
BETA	1C050101J	5928		5927	2	1	10/31/05	8:47	109	60	1030
BETA	1C050102J	5928		5927	2	2	10/31/05	8:52	89	60	841
BETA	1C050201J	5928		5927	2	3	10/31/05	8:58	89	60	841
BETA	1C050202J	5928		5927	2	4	10/31/05	9:05	82	60	775
BETA	1C050203J	5928		5927	2	5	10/31/05	9:12	83	60	784
BETA	1C050204J	5928		5927	2	6	10/31/05	9:45	66	60	624
BETA	1C050205J	5928		5927	2	7	10/31/05	9:49	55	60	520
BETA	1C050103J	5928		5927	2	8	10/31/05	9:55	79	60	746
BETA	1C050104J	5928		5927	2	9	10/31/05	9:59	80	60	756
BETA	1C050105J	5928		5927	2	10	10/31/05	10:04	88	60	831
BETA	1C050106J	5928		5927	2	11	10/31/05	13:03	75	60	709
BETA	1C050107J	5928		5927	2	12	10/31/05	13:08	63	60	595
BETA	1C050108J	5928		5927	2	13	10/31/05	13:13	103	60	973
BETA	1C050109J	5928		5927	2	14	10/31/05	13:33	89	60	841
BETA	1C050110J	5928		5927	2	15	10/31/05	13:37	98	60	926
BETA	1C050206J	5928		5927	2	16	10/31/05	13:49	92	60	869
BETA	1C050207J	5928		5927	2	17	10/31/05	13:58	87	60	822
BETA	1C050208J	5928		5927	2	18	10/31/05	14:45	86	60	813
BETA	1C050209J	5928		5927	2	19	10/31/05	14:49	45	60	425
BETA	1C050210J	5928		5927	2	20	10/31/05	14:54	73	60	690

F65/35

1C-05 Judgmentals
Class 1

36A



2350-1 5928/5927 5/24/06
BURKE [redacted] ABERCROMBIE [redacted]

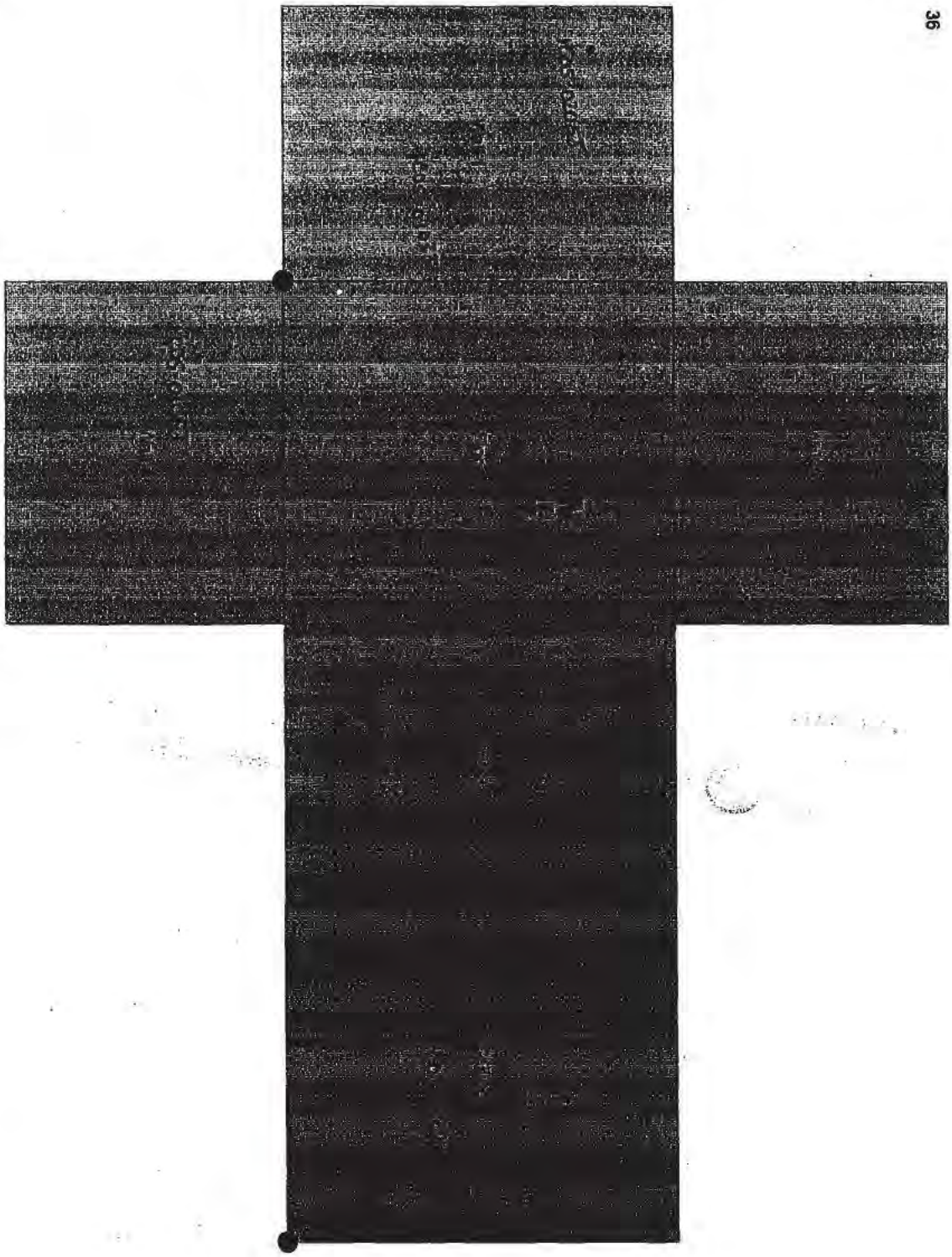
F66/85

98/49-J

PAGE 8 OF 10
MT-05-1112

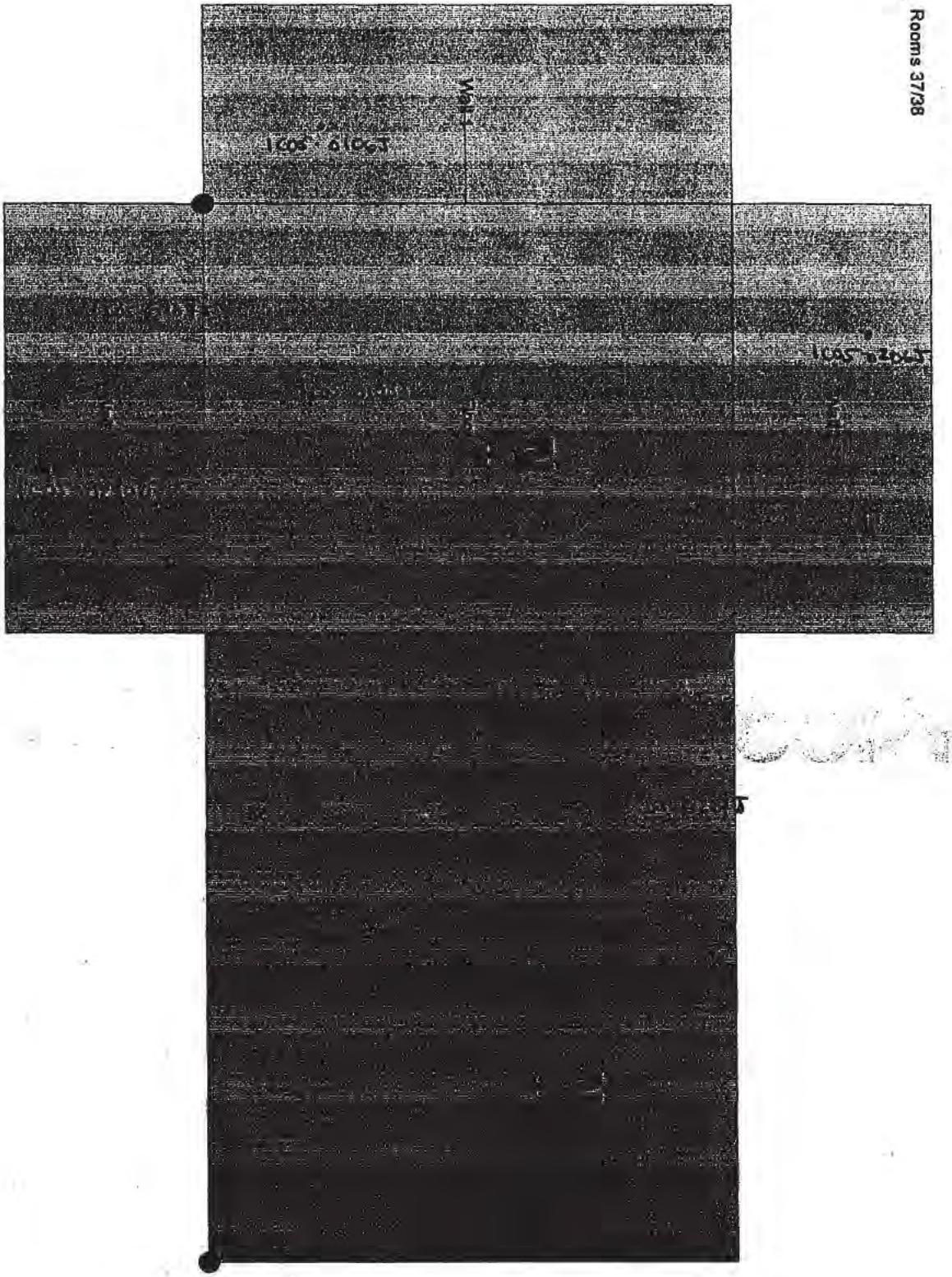
36

1C-05 Judgmentals
Class 1



23501 5928/5927 5/24/06

BURKE [redacted] ABERCROMBIE [redacted]



1C-05 Judgmentals
Class 1
Rooms 37/38

2350-1 5928/5927 5/24/06
BURKE [redacted] ABERCROMBIE [redacted]

F68/85

Survey Unit Number: 1C-05-01 10 minimum
1C-05-02 10 minimum
(Supplemental sheet for biased measurements.)

RSDS # MT-05-1112
RCT INT/HP RR [redacted]
KA

Label	Room	Surface	LX	LY
1C05-0101J	36A	Floor	5	2
1C05-0102J	36A	Wall 2	8	5
1C05-0103J	36	Wall 1	8	5
1C05-0104J	36	Wall 3	12	5
1C05-0105J	36	Wall 4	10	5
1C05-0106J	38	Wall 1	7	4
1C05-0107J	38	Wall 4	16	3
1C05-0108J	38	Floor	9	10
1C05-0109J	37	Wall 2	16	5
1C05-0110J	37	Wall 3	10	5
1C05-0201J	36A	Wall 3	5	1
1C05-0202J	36A	Wall 3 Exhaust	7	1
1C05-0203J	36A	Wall 2	5	2
1C05-0204J	36	Ceiling Exhaust	6	7
1C05-0205J	36	Wall 1	11	2
1C05-0206J	37	Wall 2	11	1
1C05-0207J	37	Wall 3	3	2
1C05-0208J	38	Wall 3	19	0
1C05-0209J	38	Ceiling	20	7
1C05-0210J	38	Wall 4	11	1

J- designator represents measurement as judgmental location
E-designator represents measurement as potentially elevated activity.
D-designator represents measurement at a drain.
V-designator represents measurement on ventilation system.
U-designator represents measurement on a utility drop.

F69/85

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 1 BLDG / 1C05 / 3Rd CLOSET	SURVEY NO. MT-05-1250
PURPOSE: SURVEY OF POSSIBLE ELEVATED AREAS IDENTIFIED BY SHONKA UNIT.	RWP NO. N/A
	DATE: 12/1/05
	TIME: 1700

MAP/DRAWING

SEE ATTACHED FOR SURVEY LOCATION.
SEE ATTACHED FOR SURVEY RESULTS.

COPY

LEGEND: # = mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
(triangle #) = mrem/hr neutron
(square #) = air sample number
(circle #) = swipe number
(circle #/α) α/β = direct cont. measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350-1	5928/5927	5/24/06
	N	
	A	

Completed by: (Signature) K Abercrombie	HP# 7474 3822	DATE: 12/1/05
Completed by: (Print Name) RICARDO V. BURKE / K. Abercrombie		
Counted by: (Signature) SEE ATTACHED SHEETS	HP#	DATE:
Counted by: (Print Name) SEE ATTACHED SHEETS		
Reviewed/Approved by: (Signature)	HP#	DATE: 12/14/05
Reviewed/Approved by: (Print Name)		

ML-9620 (2-98)

F70/85

Survey No. MT-05-1250

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
	Swipes (dpm/100cm²)			
Sample #	β/γ	Alpha	Tritium	
1	SEE ATTACHED		SHEET	1C05-0111X
2	↓	↓	↓	1C05-0112X
3				1C05-0113X
4				1C05-0114X
5				
6				
7				
8				
9				
10				
11				
12				
13				
14		N		
15				
16				
17				
18				
19				A
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				

Removable Contamination				
	Swipes (dpm/100cm²)			
Sample #	β/γ	Alpha	Tritium	
36				
37				
38				
39				
40				
41				
42				
43			COPY	
44				
45				
46				
47				
48				
49				
50		N		
51				
52				
53				A
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				

COMMENTS: N A

NOTES:
1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

F 11/85

MARSSIM Smear Data

Assay Definition-

Assay Description:
MARSSIM Smear Data

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: D:\MARSSIM_LSC
Raw Results Path: C:\Packard\Tricarb\Results\5801\MARSSIM_Smear_4\20051201_1739.results
Comma-Delimited File Name: D:\MARSSIM_LSC\MT-05-1250.001
Assay File Name: C:\Packard\TriCarb\Assays\MARSSIM_Smear_4.lsa

Count Conditions-

Nuclide: H-3 Mound
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: H-3 Smear
Count Time (min): 2.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: On - 1st Vial
Low CPM Threshold: Off
2 Sigma % Terminator: Off

Regions	LL	UL	Bkg Subtract
A	0.5	18.6	1st Vial
B	2.0	18.6	1st Vial
C	40.0	2000.0	1st Vial

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				

Protocol# 4 - MARSSIM_Smear_4.lsa User: 5801

MARSSIM Smear Data

B
C

Instrument Block Data
Machine=Tri-Carb 2900TR
Version=2.06
423022
MODEL=Tri-Carb 2900TR
VERSION=2.06
SERIAL=423022

Cycle 1 Results

DATE	TIME	S#	Count Time	CPMA	CPMB	CPMC	LUM	tSIE	DPM1	A:2S%	MESSAGES	P#
12/1/05	5:39:56 PM	-1	10.00	11	10	13	5	620.70	0	19.1	B	4
12/1/05	5:50:45 PM	0	2.00	288	271	0	1	550.56	556	8.5		4
12/1/05	5:53:28 PM	1	2.00	8	9	0	0	606.26	15	80.8		4
12/1/05	5:56:10 PM	2	2.00	0	0	0	0	522.87	0	0.0		4
12/1/05	5:58:54 PM	3	2.00	0	0	0	7	615.52	0	0.0		4
12/1/05	6:01:37 PM	4	2.00	0	0	0	0	597.19	0	0.0		4

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: Mar_110
Batch Ended: 12/1/05 16:46
Cal. Due Date: 11/17/06
Serial Number: 26966-3

Batch ID: MT-05-1250 RICK BURKE (4) AG

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.00	2.18		0.00	1.31	
A2	2	0.00	2.01		0.34	1.64	
A3	3	0.00	2.28		0.41	1.78	
A4	4	0.00	2.10		0.00	1.21	

RB RB

~~Page 1 of 1~~ RB 12/5/05

12/14/05

T-Building Possible Elevated Area Survey (1C05) Rm 38A

RSDS# MT-05-1250 *RCT:* [redacted] *RCT:* [redacted]

Alpha	43-68 BKG:	0	EFF:	0.22	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.168	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Alpha Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
Beta Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 4

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	item	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	1C050111X	5928	[redacted]	5927	1	1	12/01/05	13:28	8	120	29
ALPHA	1C050112X	5928		5927	1	2	12/01/05	13:32	4	120	14
ALPHA	1C050113X	5928		5927	1	3	12/01/05	13:35	2	120	7
ALPHA	1C050114X	5928		5927	1	4	12/01/05	13:39	3	120	11
BETA	1C050111X	5928		5927	2	1	12/01/05	13:29	100	60	945
BETA	1C050112X	5928		5927	2	2	12/01/05	13:33	177	60	1672
BETA	1C050113X	5928		5927	2	3	12/01/05	13:36	213	60	2012
BETA	1C050114X	5928		5927	2	4	12/01/05	13:40	179	60	1691

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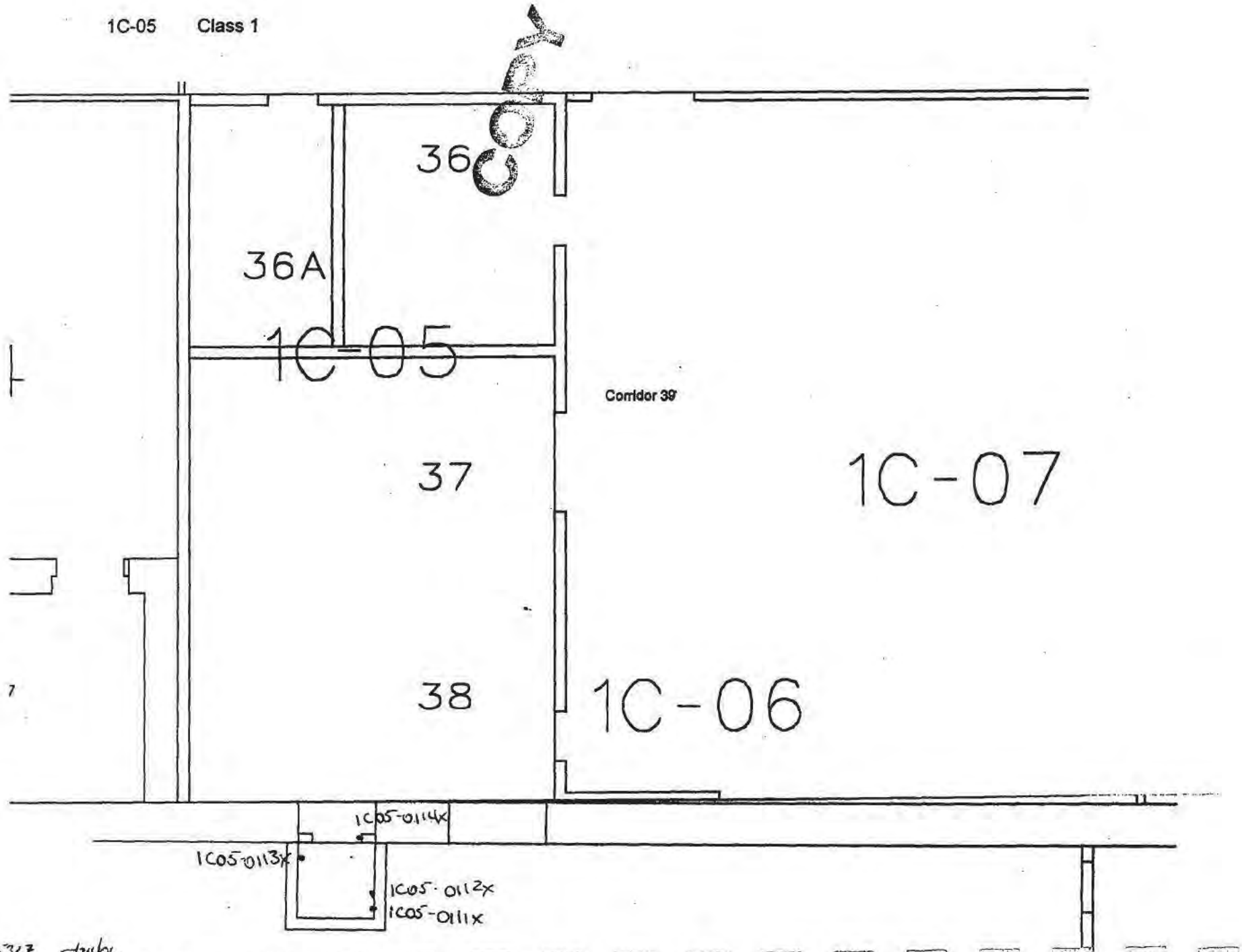
F-75/85

MT-05-1250

1C-05 Class 1



SB/96.1

ISO-1 5926/5927 5/24/06

RADIOLOGICAL SURVEY DATA SHEET

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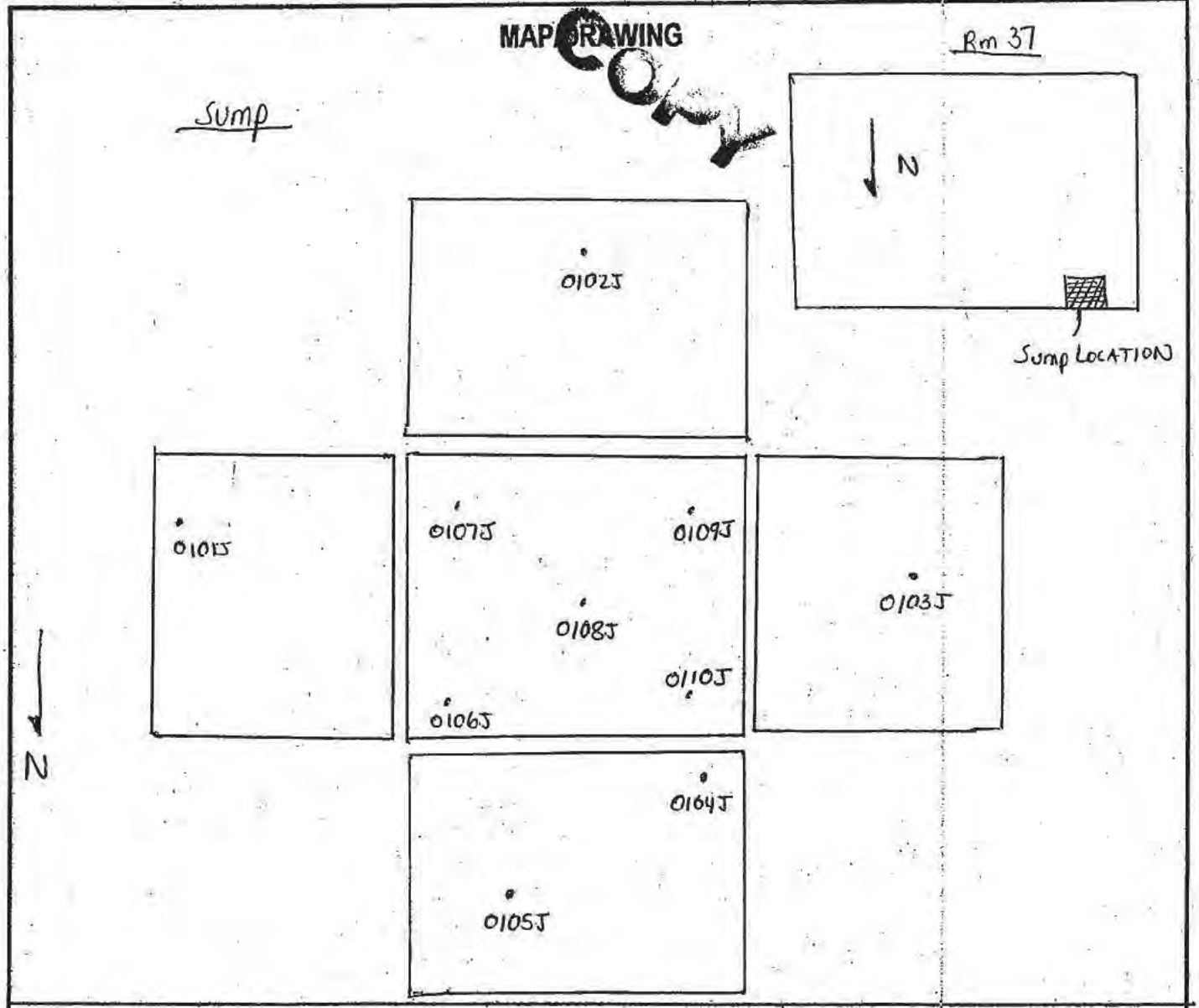
LOCATION: (BLDG./AREA/ROOM) T-BLDG. Rm 37	SURVEY NO. MT-05-1198
PURPOSE: JUDGEMENTALS SyS PRS 342 FIRE WATER SUMP	RWP NO. N/A
	DATE: 11/16/05
	TIME: 1530

MAP/DRAWING COPY



LEGEND: # = mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
(#) = mrem/hr neutron
[#] = air sample number
(#) = swipe number
(#/α) = α/β = direct cont. measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350 -	5904 | 5905	2/22/06

Completed by: (Signature) [redacted]		DATE: 11/16/05
Completed by: (Print Name) S. Richardson		
Counted by: (Signature) SEE ATTACHED	HP # N/A	DATE: N/A
Counted by: (Print Name) SHEETS		
Reviewed/Approved by: (Signature) [redacted]		DATE: 11-21-05
Reviewed/Approved by: (Print Name) Jerry Taylor		

F77/85

ML-9620 (2-98)

Survey No. MT-05-1198

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE	ATTACHED		0101J
2				0102J
3				0103J
4				0104J
5				0105J
6				0106J
7				0107J
8				0108J
9				0109J
10	SEE	ATTACHED		0110J
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21			N/A	
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51			N/A	
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				

COMMENTS: N/A

NOTES:

1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

F78/85

11-21-05

MARSSIM Smear Data

Assay Definition-

Assay Description:
MARSSIM Smear Data

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: D:\MARSSIM_LSC
Raw Results Path: C:\Packard\Tricarb\Results\5801\MARSSIM_Smear_1\20051116_1523.results
Comma-Delimited File Name: D:\MARSSIM_LSC\MT-05-1198.001
Assay File Name: C:\Packard\TriCarb\Assays\MARSSIM_Smear_1.1sa

Count Conditions-

Nuclide: H-3 Mound
  Quench Indicator: tSIE/AEC
  External Std Terminator (sec): 0.5 2s%
  Pre-Count Delay (min): 0.00
Quench Set:
  Low Energy: H-3 Smear
Count Time (min): 2.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: On - 1st Vial
Low CPM Threshold: Off
2 Sigma % Terminator: Off

Regions	LL	UL	Bkg Subtract
A	0.5	18.6	1st Vial
B	2.0	18.6	1st Vial
C	40.0	2000.0	1st Vial

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				

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MT-05-1198

11/21/05

MARSSIM Smear Data

B
C

Instrument Block Data
Machine=Tri-Carb 2900TR
Version=2.06
423022
MODEL=Tri-Carb 2900TR
VERSION=2.06
SERIAL=423022

Cycle 1 Results

DATE	TIME	S#	Count Time	CPMA	CPMB	CPMC	LUM	tSIE	DPM1	A:2S%	MESSAGES	P#
11/16/05	3:24:05 PM	-1	10.00	10	10	12	1	627.76	0	19.9	B	1
11/16/05	3:34:49 PM	0	2.00	470	448	0	0	548.88	908	6.6		1
11/16/05	3:37:31 PM	1	2.00	0	0	0	6	597.97	0	0.0		1
11/16/05	3:40:14 PM	2	2.00	3	3	0	7	578.93	6	162.3		1
11/16/05	3:42:58 PM	3	2.00	1	0	1	14	573.89	2	599.9		1
11/16/05	3:45:40 PM	4	2.00	0	0	0	7	605.75	0	0.0		1
11/16/05	3:48:23 PM	5	2.00	1	0	0	5	597.72	2	544.8		1
11/16/05	3:51:06 PM	6	2.00	0	0	0	7	590.00	0	0.0		1
11/16/05	3:53:48 PM	7	2.00	3	3	0	0	590.74	5	186.6		1
11/16/05	3:56:31 PM	8	2.00	2	1	0	4	574.25	4	235.9		1
11/16/05	3:59:12 PM	✓9	2.00	0	0	0	5	572.38	0	0.0		1
11/16/05	4:01:55 PM	✓10	2.00	0	0	0	5	602.14	1	1146.3		1

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MT-05-1198 Pg 4 of 7

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: Mar_063
Batch Ended: 11/16/05 14:36
Cal. Due Date: 11/17/05
Serial Number: 26966-3

Batch ID: MT-05-1198 RICHARDSON (10) AG

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.00	2.20		0.00	1.86	
A2	2	1.56	2.03		1.42	2.02	
A3	3	0.00	2.27		0.00	1.27	
A4	4	0.00	2.10		0.00	1.22	
B1	5	0.00	1.90		0.54	1.69	
B2	6	0.00	1.85		0.00	1.13	
B3	7	0.00	2.22		1.63	2.30	
B4	8	0.00	2.01		1.56	2.08	
C1	9	1.69	2.06		0.11	1.74	
C2	10	0.00	1.91		0.00	1.13	

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11-21-05

5 Pg 5 of 7 MT-05-1198

58/18-1

T-Building rm 37 judgementals sump prs 342

RSDS# MT-05-1198 *RCT:* [redacted] *RCT:* N/A

Alpha	43-68 BKG:	0	EFF:	0.21 ✓	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.175 ✓	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Alpha Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
Beta Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 4

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	item	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SYPRS3420101J	5904	[redacted]	5905	1	1	11/16/05	8:05	1	120	4
ALPHA	SYPRS3420102J	5904		5905	1	2	11/16/05	8:09	7	120	26
ALPHA	SYPRS3420103J	5904		5905	1	3	11/16/05	8:13	2	120	8
ALPHA	SYPRS3420104J	5904		5905	1	4	11/16/05	8:16	4	120	15
ALPHA	SYPRS3420105J	5904		5905	1	5	11/16/05	8:20	2	120	8
ALPHA	SYPRS3420106J	5904		5905	1	6	11/16/05	8:23	4	120	15
ALPHA	SYPRS3420107J	5904		5905	1	7	11/16/05	8:27	6	120	23
ALPHA	SYPRS3420108J	5904		5905	1	8	11/16/05	8:30	4	120	15
ALPHA	SYPRS3420109J	5904		5905	1	9	11/16/05	8:34	2	120	8
ALPHA	SYPRS3420110J	5904		5905	1	10	11/16/05	8:37	5	120	19 ✓
BETA	SYPRS3420101J	5904		5905	2	1	11/16/05	8:06	162	60	1469
BETA	SYPRS3420102J	5904		5905	2	2	11/16/05	8:10	161	60	1460
BETA	SYPRS3420103J	5904		5905	2	3	11/16/05	8:14	144	60	1306
BETA	SYPRS3420104J	5904		5905	2	4	11/16/05	8:18	154	60	1397
BETA	SYPRS3420105J	5904		5905	2	5	11/16/05	8:21	171	60	1551
BETA	SYPRS3420106J	5904		5905	2	6	11/16/05	8:24	132	60	1197
BETA	SYPRS3420107J	5904		5905	2	7	11/16/05	8:28	154	60	1397
BETA	SYPRS3420108J	5904		5905	2	8	11/16/05	8:31	128	60	1161
BETA	SYPRS3420109J	5904		5905	2	9	11/16/05	8:35	157	60	1424
BETA	SYPRS3420110J	5904		5905	2	10	11/16/05	8:38	133	60	1206 ✓

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Survey Unit Number: 5ys PRS 342 Page 7 of 7

(Supplemental sheet for biased measurements.)

RSDS # MT-05-1198

RCT INT/HP [redacted] /SOM

Label	Room	Surface	LX	LY
0101J	37	WALL	SEE PAGE #1	
0102J	37	WALL		
0103J	37	WALL		
0104J	37	WALL		
0105J	37	WALL		
0106J	37	Floor		
0107J	37	Floor		
0108J	37	Floor		
0109J	37	Floor		
0110J	37	Floor	SEE PAGE #1	
		N/A		

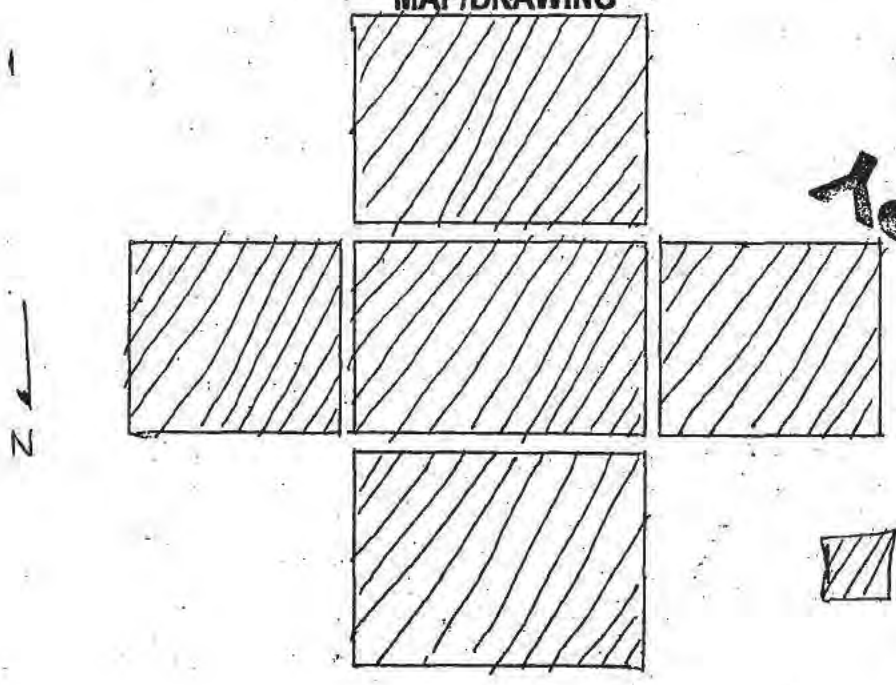
J- designator represents measurement as judgmental location
E-designator represents measurement as potentially elevated activity.
D-designator represents measurement at a drain.
V-designator represents measurement on ventilation system.
U-designator represents measurement on a utility drop.

F83/85

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) T-BLDG Rm 37	SURVEY NO. MT-05-1199
PURPOSE: SCAN FIRE WATER SUMP. + DOSE RATES SySPRS342	RWP NO. N/A
	DATE: 11/21/05
	TIME: 0800

MAP/DRAWING



BACKGROUND DOSE RATE 5 urem/hr

MAX. DOSE RATE 5 urem/HR

NO ELEVATED READINGS DETECTED DURING SCAN

LEGEND: # = mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
(#) = mrem/hr neutron
[#] = air sample number
(#) = swipe number
(#/α) = direct cont. or/β measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	S904/S905	2/22/06
MICROREM	1488	4/7/06
	N/A	

Completed by: (Signature) 0776	[redacted]	DATE: 11.21.05
Completed by: (Print Name) S. Richardson		
Counted by: (Signature) N/A	HP # N/A	DATE: N/A
Counted by: (Print Name) N/A		
Reviewed/Approved by: (Signature)	HP # [redacted]	DATE: 11-30-05
Reviewed/Approved by: (Print Name) J. HOLLABAUGH		

ML-9620 (2-98)

F8485

Survey No.
MT · 05-1199

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				N/A
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				N/A
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				

COMMENTS: N/A

NOTES:
1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620 (4-96)

F 85/85