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In-Process Characterization Plan For the Building 886 Closure Project

RF/RMRS-99-349
Revision 0

October 1999

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IN-PROCESS CHARACTERIZATION PLAN FOR THE BUILDING 886 CLOSURE PROJECT

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APPENDICES

ACRONYMS

ADM	Administrative Procedures Manual
ALARA	As Low as Reasonably Achievable
AR	Administrative Records
ASD	Analytical Services Division
ASTM	American Society for Testing Materials
BIO	Basis of Interim Operation
CA	Contamination Area
CAM	Continuous Air Monitor
CCR	Colorado Code of Regulations
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental, Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CML	Critical Mass Laboratory
COC	Contaminant of Concern
DAC	Derived Air Concentration
D&D	Decontamination and Decommissioning
DCGL	Derived Concentration Guidance Level
DOE	Department of Energy
DPM	Disintegrations per Minute
DQO	Data Quality Objectives
EPA	Environmental Protection Agency
FIDLER	Field Instrument for the Detection of Low Energy Radiation
FO	Field Operations (Manual)
FSSP	Final Status Survey Plan
FSSR	Final Status Survey Report
g	Gram(s)
HCA	High Contamination Area
HEUN	Highly Enriched Uranyl Nitrate
HASP	Health and Safety Plan
IPC	In-Process Characterization
IPCP	In-Process Characterization Plan
IM/IRA	Interim Measures/ Interim Remedial Action
JHA	Job Hazard Analysis
KH	Kaiser Hill Company
LBP	Lead Based Paint
LLW	Low-level Waste
m	Meter(s)
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
mg/L	Milligrams per Liter
MRI	Midwest Research Institute
PCBs	Polychlorinated biphenyls
pCi/g	Picocuries per Gram
PPE	Personal Protective Equipment

ACRONYMS (Continued)

ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA	Quality Assurance
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
REP	Radiological Engineering Procedure
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RIN	Report Identification Number
RLC	Reconnaissance Level Characterization
RLCP	Reconnaissance Level Characterization Plan
RLCR	Reconnaissance Level Characterization Report
RMA	Radioactive Material Area
RMRS	Rocky Mountain Remediation Services, L.L.C.
ROI	Radiological Operating Instruction
RSP	Radiological Safety Practice
RSSIP	Radiation Survey and Site Investigation Process
RWP	Radiological Work Permit
SOE	Stationary Operating Engineer
TCLP	Toxicity Characteristic Leaching Procedure
TLD	Thermal Luminescent Dosimeter
TSCA	Toxic Substances Control Act
UCL	Upper Confidence Level
WSRIC	Waste Stream and Residue Identification and Characterization

1.0 INTRODUCTION

The Building 886 Cluster is comprised of Buildings 886, 888, 888A, 880, 875, and T886A and an underground tunnel with ventilation ducts that connect Building 886 to Building 875. Because Building 886 and its associated facilities have no anticipated future mission, the cluster will be decontaminated and decommissioned to reduce maintenance costs and to eliminate hazards within the cluster's buildings. Consistent with the Rocky Flats Cleanup Agreement (RFCA) (DOE, 1996), the Building 886 Closure Project is being conducted as a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) removal action (RFCA ¶ 70). The Reconnaissance Level Characterization Plan (RLCP) was implemented in November and December of 1997 (RMRS, 1997a). The RLC Report (RLCR) (RMRS, 1997b) was submitted to the regulatory agencies in December of 1997. The Interim Measure/Interim Remedial Action (IM/IRA) for the project was approved in July 1998 (DOE, 1998). This action will be executed as reflected in the RFETS Project Closure Baseline schedule.

1.1 Purpose

The purpose of the 886 Cluster in-process characterization (IPC) is to

- identify additional hazards that may be present or un-covered during facility strip-out and decontamination (if any),
- perform asbestos core sampling and analysis,
- perform radiological characterization to support development of the Final Status Survey Plan (FSSP), and
- evaluate previous assumptions regarding waste types.

The purpose of this IPC Plan is to detail the data requirements and methodology for the IPC. In addition, characterization performed after strip-out and/or decontamination will be in accordance with this plan and other referenced protocols to ensure that the building surfaces and/or structures meet applicable release criteria. Consistent with the Decontamination and Decommissioning Characterization Protocol, MAN-077-DDCP, Revision 0 (KH, 1998a), this Plan documents the Data Quality Objectives (DQOs) for IPC of the 886 Cluster facilities and methodologies for collecting and analyzing IPC samples. IPC results will be presented in the FSSP and/or the Final Status Survey Report (FSSR).

Assumptions regarding the types of waste generated from the decontamination and decommissioning (D&D) and resulting volume estimates are presented in the Final 886 Cluster Closure Project Waste Management Plan (RMRS, 1998a). Generally, aside from the items for property utilization and disposition, waste generated from the D&D is assumed to be surface contaminated (i.e., low level waste), sanitary (i.e., unrestricted release), or asbestos containing. Initial building and/or room classification (Table 2-1) will also be verified based on the survey unit measurements.

1.2 Scope

The data collected during the Reconnaissance Level Characterization (RLC) were evaluated to identify data needs to be addressed during IPC. The primary data gap associated with the cluster is the lack of radiological characterization data. The scope of this document is to present this and any other data gaps identified along with the associated characterization plan to fill the data gaps. Additionally, the

methodologies for IPC sample/survey collection and analysis are prescribed within this plan. In the event that unplanned IPC samples are identified during strip-out (i.e., additional hazards identified), these samples will also be collected and analyzed in accordance with the methodologies presented in this plan. This plan was prepared using guidance primarily from the Protocol (KH, 1998a), Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) NUREG-1575, and Guidance for Planning for Data Collection in Support of Environmental Decision Making Using the Data Quality Objectives Process, EPA QA/G-4 (EPA, 1994) with procedural references from the Radiation Safety Practices Manual and the American Society for Testing and Materials (ASTM).

2.0 CLUSTER DESCRIPTION

The construction of Buildings 886, 875, and 888A was completed in 1964 and commissioned in 1965. The trailer T886A was located east of Building in approximately 1980; a breezeway connected the two at a later date. The construction date of Building 880 is unknown. The purpose of the 886 Cluster was to conduct criticality experiments on liquids, powder, and solid forms of fissionable materials. The date of the last criticality experiment was October 1987. These experiments were essential to validate computer models used to establish nuclear criticality safety limits, now called Criticality Safety Operating Limits. Detailed descriptions of the 886 Cluster facilities and operational purpose along with figures illustrating the facilities are provided in the IM/IRA (DOE, 1998) and the RLC Report (RMRS, 1997b).

2.1 Summary of Existing Data

The RLC focused on the identification of potential sources of chemical contamination. The characterization strategy was based on the data needs identified in the RLCP from a DQO development process. A radiological hazard identified in the RLCR was assumed to exist if existing radiological survey data and process knowledge indicated contamination above the unrestricted release criteria was likely present; however, radiological characterization data was not collected. The hazards characterized from the RLC were physical and chemical (i.e., lead and metals, polychlorinated biphenyls [PCBs], asbestos). The results from the RLC are summarized in the RLCR.

2.1.1 Radiological

Existing radiological contamination was characterized by process knowledge and existing surveys and presented in the RLCR in that manner. The radiological areas of concern within the cluster are generally identified as Contamination Areas (CAs) and High Contamination Areas (HCAs). The CA within Building 886 is comprised of rooms 101, 102, and 103 and a hallway (room 108) all with slightly different construction. Rooms 104, 114 and all of Building 875 are designated Radiological Material Areas (RMAs). Area maps of the CAs and RMAs are posted in Building 886 and are available. Contamination within a CA is within the limit of <2,000 dpm/100 cm^2 for transuranics and are posted as such. Thus the CAs in Building 886 are maintained below these levels of contamination (DOE, 1998).

The posted HCAs in Building 875 are Filter Plenum 502 and associated ductwork. The posted HCAs in Building 886 are the Assembly Hood (doghouse) in Room 101, the downdraft table with attached glovebox in Room 103, the west wall of Room 101 around some of the process piping, lab type vent hood in Room

103, and some portions of the Room 103 pit. Alpha contamination levels within these areas ranges from 2,000 dpm/100 cm^2 to 4E6 dpm/100 cm^2. Most of the contamination is loose on surfaces or components; however, there are areas such as the 103 pit and the floor of the doghouse that have fixed contamination (DOE, 1998). It is assumed that the contaminated portions of the Building 886 Cluster resulted primarily through the handling and use of Highly Enriched Uranyl Nitrate (HEUN) solutions. The hood (B-Box) located in Room 103 may be contaminated with both uranium and plutonium. The glovebox and downdraft table located in Room 103 is primarily contaminated with plutonium. Although low-level criticality experiments were performed in Room 101 of Building 886, residual radioactivity resulting from the production of fission products is not expected to exist within the facility. Additionally, based on information provided in the Process Knowledge Characterization Building 886 Highly Enriched Uranyl Nitrate Solution, TD-95-012 (EG&G, 1995), there is no documentation that suggests the use of radioisotopes whose primary decay mode is beta gamma emission within the facility with the exception of radioactive check sources. A review of routine radiological contamination surveys performed within the Building 886 Cluster supports the assumption that beta-gamma emitting radioisotope activities originating from DOE operations or the activities in the Cluster, if present, are below the release criteria.

Radiological survey results in the tunnel linking the Air Filter Plenum (Building 875) with Building 886 indicate radiological levels below free release criteria. Existing survey data presented in the RLCR indicate that measurements in the tunnel range from 0 to 56 dpm direct alpha; 0 to 42 dpm/100 cm^2 removable beta; 0 to 6 dpm/100 cm^2 removable alpha (DOE, 1998).

2.1.2 Non-Radiological

The RLCR concluded the lead/metals hazards in the Cluster are exclusively attributable to paint. The hazard was identified as such because, if removed, the paint would be regulated as hazardous waste. A PCB hazard was identified for PCBs, which are present above 50 ppm, because disposal options above this level are more limited. The PCB hazard is primarily attributable to the painted surfaces on the building structures. The presence of asbestos (i.e., >1% by volume) was also confirmed and/or presumed in a variety of materials in Buildings 886 and 875 (i.e., piping insulation, skim coat on cinder block, floor and ceiling tiles, filler, wiring insulation, roof) during the RLC.

2.2 Known or Suspected Data Gaps

The data gaps and rationale are expressed for radiological and non-radiological parameters. It is the purpose of this Plan to present the characterization strategy necessary to address the data gaps identified.

2.2.1 Radiological

Radioactive contamination is known to be in the 886 Cluster based on past radiological survey results; however, isotopic analyses have not been performed to characterize the nature of the radioactive contamination. As the result of known plutonium contamination in the glovebox and downdraft table, discussed in Section 2.1.1, past practice has been to release wastes, materials and equipment using the more restrictive transuranic limits. Adequate characterization of these facilities is necessary to identify the contaminants of concern and determine the appropriate derived concentration guidance levels (DCGLs) as

required by MARSSIM (NUREG-1575). Because it is assumed the Building 886 Cluster is free of isotopes whose primary decay mode is from beta-gamma emissions, the need for DCGLs based on beta-gamma emitting radioisotopes is not anticipated. However, as indicated in Table 4-1, this assumption will be verified through gamma spectroscopic analysis of building media samples obtained during IPC.

The primary means of determining surface contamination concentrations on building surfaces is through direct measurements utilizing field instrumentation. However, because residual radiological contamination may be incorporated into the building material matrix as a result of the porosity of the material (concrete, cinder block, dry wall) or due to the degradation of the material (asphalt roofing material), it is necessary to collect actual samples of the building materials for laboratory radiochemistry analysis. Additionally, residual radiological contamination may have been covered by paint or some other treatment thus masking contamination on the underlying surface and/or the coating itself. Therefore, if the activity is a pure alpha emitter or low energy beta emitter, direct measurements obtained on the surface would not likely be representative of the true levels of contamination. To assess the potential for masked contamination, analysis to characterize the media underlying the painted surfaces is warranted. To address the data needs identified, three types of building media samples are necessary: (1) paint samples, (2) roof core samples, and (3) concrete core samples.

In addition to building media samples, surface contamination surveys will also be performed in those areas omitted from the RLCP. Surveys will be used to further characterize those areas initially classified as Class 1 or Class 2 areas based on data obtained during the historical site assessment and RLC survey results, refer to Table 2-1. Surface contamination surveys will be obtained in accordance with RSP 07.02, *Contamination Monitoring Requirements,* and Sampling and Survey Instructions prepared by Radiological Engineering, which are included in Appendix A.

In summary, results from isotopic analyses of paint samples, surface contamination surveys, and core samples are required to:

- Identify/verify radiological contaminants of concern and/or assumptions regarding the contaminants of concern;
- Establish DCGLs to support development of the FSSP;
- Verify the absence or extent of contamination below or within painted surfaces;
- Verify the absence of DOE radioactive material as a result of a building release or other site release on the roof and exterior surfaces of the facilities in the cluster;
- Verify the absence or extent of building slab contamination; and
- Verify the initial classification of the buildings and rooms within the cluster.

Table 2-1. Summary of Process Information and Initial Classification of Buildings and Rooms within the 886 Cluster.

ROOM	DESCRIPTION	RADIOLOGICAL PROCESS INFORMATION	INIITAL CLASSIFICATION
Bldg. 886			
101	Criticality Assembly Room	Contamination Area. Surface contamination surveys and process knowledge indicate the presence of fixed and removable radioactive contamination.	Class 1
102	SNM Storage Vault	Contamination Area. Surface contamination surveys and process knowledge indicate the presence of fixed and removable radioactive contamination.	Class 1
103	Mixing Room – Fissile material storage area (tnk fm)	Contamination Area. Surface contamination surveys and process knowledge indicate the presence of fixed and removable radioactive contamination.	Class 1
104	Stepoff Pad	Radioactive Material Area	Class 1
106	Office Area (storage room off Rm 111)	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
107	Locker Room	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
108	Hallway within the CML	Contamination Area. Surface contamination surveys and process knowledge indicate the presence of fixed and removable radioactive contamination due to activities conducted in Rooms 101, 102, and 103.	Class 1
109	Restroom	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
110	Janitorial Storage Room	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
111	Utility Room	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
112	Control Room	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
113	Locker Room	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
114	Dress-out Room	Radioactive Material Area. Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
115	Storage Room	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
116	Office Area	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
117	Office Area	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
118	Office Area	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
119	Office Area	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
120	Office Area	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
121	Office Area	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
122	Office Area	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
123	Office Area	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
125	Office Area	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3

Table 2-1 (Continued)

125A	Building Entrance Vestibule	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
125B	Building Entrance Vestibule	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
126	Hallway (Office Area)	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
127	Office Area	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
128	Office Area	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
129	Office Area	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
130	Office Area	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
131	Office Area	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
140	SOE Control Room	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
141	Tunnel Entrance Vestibule	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
Bldg 880	Storage Area	Radioactive Material Area	Class 1
Bldg 875	Filter Plenum Building and Tunnel	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge. Classification is due to the potential for contamination due to posted HCAs within the Building and Tunnel.	Class 2 (Building) Class 2 (Tunnel)
Bldg T886A	Office Trailer	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
Bldg 888A	Electrical Substation	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3
Bldg 828	Pit Building	Contamination Area. Surface contamination surveys and process knowledge indicate the presence of fixed and removable radioactive contamination.	Class 1
Bldg 888	Guard Post	Minimal radiological concern based on historical surface contamination surveys and/or process knowledge.	Class 3

2.2.2 Non-Radiological

IPC data from Building 123 Closure Project indicated the presence of asbestos within exterior cinder block walls. Buildings 886, 875, and 888 are constructed of cinder block, therefore, cores into the hollow portions of the cinder blocks are necessary to evaluate the potential for asbestos.

3.0 DATA QUALITY OBJECTIVES

Characterization objectives to be achieved by implementation of the IPC Plan are developed to specify the data collection requirements necessary to provide information for use during decommissioning activities. Information and data obtained during the characterization effort will be presented in the FSSP and/or FSSR. In addition, characterization data will be used to evaluate waste management assumptions and provide a mechanism to identify additional hazards that may be uncovered during facility strip-out and

decontamination. DQOs for radiological and non-radiological IPC parameters are consistent with those prescribed in the Protocol (KH, 1998a). Definition and implementation of DQOs is also consistent with EPA (G-4, 1994), DOE (DOE, 1994), and the Facility Disposition Program Manual (KH, 1998b).

3.1 Radiological

3.1.1 Statement of the Problem

The radiological contaminants of concern (COCs) for the 886 Cluster were identified based on radiological survey results. Isotopic analyses have not been performed to characterize the nature of the radioactive contamination. Additionally, isotope-specific results are needed to derive the DCGLs, which will be used to develop the FSSP. The required building media samples are (1) paint samples, (2) roof core samples, and (3) concrete core samples.

3.1.2 Identification of Decisions

Radiological characterization data acquired through implementation of the IPC Plan will be used to derive DCGLs to support the unrestricted release of building materials and support the categorization of waste streams by identifying residual radioactivity within building media.

3.1.3 Identification of Inputs to the Decisions

Sample locations, sample types, and number of building media samples to be collected is based on professional judgement. The sample size will be verified following data analysis, using approved statistical methods. The results will be presented in the FSSP and/or FSSR. Sample types (i.e., roof, paint, core) were identified after evaluating each facility in the Cluster in terms of the construction materials used, the age of construction, and whether or not a facility is painted both on the interior and exterior were factored into these selections. Samples will be collected in accordance with the instructions presented in Section 4.0.

3.1.4 Definition of Project Boundaries

The characterization boundaries are limited to the spatial confines of the Building 886 Cluster including materials, equipment, equipment components, and media that make-up or are within the buildings (interior and exterior).

3.1.5 Development of Decision Rules

RFCA states that for a building to be released for unrestricted use, it would need to meet the 15 mrem annual dose equivalent to the maximally exposed member of the public as estimated using appropriate analysis techniques (i.e., DCGLs which are measured in terms of dpm/100 cm^2); or have control measures providing that level of protection in place consistent with its use. RFCA indicates that procedures defined in DOE Order 5400.5 for free release of equipment are to be used (DOE, 1996). The referenced procedures may be found in Sections II-5 and IV-5 of DOE Order 5400.5 and are further clarified in DOE Memorandum,

Application of DOE 5400.5 Requirements for Release and Control of Property Containing Residual Radioactive Material, November 17, 1995.

3.1.5.1 Decision Rule for Fixed and Removable Radiological Surveys

To comply with RFCA and the referenced procedures, DCGLs used during the implementation of the FSSP will be obtained from generic surface contamination guidelines provided in Figure IV-1 of DOE Order 5400.5. Consistency is promoted by equating the terms $DCGL_W$ and $DCGL_{EMC}$ to the total contamination level (in dpm/100 cm^2). The total contamination level is estimated by averaging the measurements obtained by scanning of the 1 m^2 surface area. The maximum total contamination level (in dpm) is presented in Table 3-1. Guideline values are listed in the Table 3-1, which are consistent with Table 2-2 of the RFETS Radiological Control Manual. Measurements in excess of these values indicate the related area or volume of material is radiologically contaminated.

Table 3-1. Surface Contamination Guideline Values

Radionuclide	Average Total (Fixed + Removable) Contamination **$DCGL_W$** dpm /100 cm^2	Maximum Total (Fixed + Removable) Contamination **$DCGL_{EMC}$** dpm /100 cm^2	Removable Contamination dpm /100 cm^2
Transuranic; Ra^{-226}, Ra^{-228}, Th^{-228}, Pa^{-231}, Ac^{-227}, I^{-125}, I^{-129}	100	300	20
Th-Natural; Th^{-232}, Sr^{-90}, Ra^{-223}, Ra^{-224}, U^{-232}, I^{-131}, I^{-133}	1,000	3,000	200
U-Natural; U^{-235}, U^{-238}, and associated decay products, alpha emitters	5,000 α	15,000 α	1,000 α
Beta-gamma emitters (radionuclides with decay modes other than the alpha emission or spontaneous fission) except Sr^{-90} and others noted above.	5,000 $\beta\gamma$	15,000 $\beta\gamma$	1,000 $\beta\gamma$

3.1.5.2 Decision Rule for Paint Scrape Samples

Paint samples obtained from the Building 886 Cluster will be analyzed for isotopic americium, plutonium, and uranium. Interior paint samples will also be evaluated using gamma spectroscopy. Gamma spectroscopy results will be intended to address any fission product contamination concerns by determining the presence/absence of gamma emitters contaminating the building interiors. This data will be referenced in justifying any beta/gamma emitters detected during the final surveys as naturally occurring uranium daughter products. Isotopic results from analytical laboratories on paint samples are typically given in pCi/g. Knowing the original surface area of the sample and total mass, the concentration can be calculated in terms of dpm/100cm^2. These results will be compared to Average Total Fixed + Removable Contamination given in Table 3-1, above. If the paint scrape results exceed Table 3-1 levels, then the applicable area will require further remediation or a classification as a LLW.

3.1.5.3 Decision Rule for Concrete Core Samples

Concrete cores will be collected from two types of areas: suspect and non-suspect areas (i.e., Class 3 areas). The cores from non-suspect areas, such as the administrative office areas, will be considered representative of background activities in concrete. Four background cores will be collected as specified by Table 4-1. These values will be compared to those activities reported in cores collected from the suspect areas of the Building 886 Cluster. Based on the distribution characteristics of the data, an appropriate statistical test will be applied to compare sample set results with the background data set (e.g., parametric vs. non-parametric statistical analyses). The level of significance will be at least 10% (i.e., confidence 90% or better).

3.1.5.4 Decision Rule for Roofing Core Samples

Core samples will be collected from the roofing materials of Buildings 886 and 875 (see Table 4-1). Isotopic analyses will be performed on the bulk samples and compared to criteria specified in Radiological Safety Practice (RSP) 3-PRO-140-RSP-09.03, Unrestricted Release of Bulk or Volume Material. If uranium concentrations exceed the values in Appendix 1, Table 1, Environmental Background Radioactivity Levels for Front Range Surficial Soils (pCi/g), the uranium isotopic mix will be evaluated to determine whether the elevated levels are driven by DOE operations (e.g., characteristic of enriched or depleted uranium ratios) or naturally occurring radioactive materials found in the composition of the roofing material.

If roofing sample results consistently exceed free release levels, a different method of sampling and/or data reduction may be required to attain realistic results. Comparison of bulk roofing material to background activities in surface soils is a conservative means of comparing real results to DOE 5400.5 free release levels.

3.1.6 Limits on Decision Errors

For radionuclides, no statistically based sample sets are required for the IPC and, as a result, decision errors do not apply (KH, 1998a).

3.1.7 Optimization of the Sampling Design

The survey design is optimized by identifying sample locations for DCGL development based (in whole or in part) on historical site assessment, analytical data and professional judgment. Assumptions used to develop the sampling design and select sampling locations are as follows:

1) Knowing that HEUN was the primary radioactive material handled and used in Building 886, it is appropriate to expect that residual contamination associated with the interior portions of the building consists primarily of Uranium – 235 by mass (however, the activity is primarily U-234). It is therefore appropriate to presume that the DCGLs applicable to the interior portions of Building 886 will be equivalent to the uranium surface contamination guideline values.

2) Because no processes occurred within the Building 886 Support Facilities, residual contamination within these facilities would have most likely resulted from radiological contamination originating from the Building 886 research and development areas, transferred via personnel, equipment, and common

systems. It is therefore justifiable to apply the same DCGLs throughout all interior portions of the Building 886 Cluster.

3) The DCGLs applicable to the interior portions of the facilities associated with the 886 Cluster will be supported chiefly through process history. This history will be verified using isotopic data and the analysis of swipes obtained in areas with measurable levels of removable contamination. The DCGLs will only be applied to areas intended for release and will be identified by Survey Unit in the FSSP.

Table 4-1 summarizes the number and location of swipe samples based the assumptions listed above and professional judgment (e.g., selecting locations suspected of contamination and/or biased based on field measurement). The locations of surface contamination surveys and gross alpha contamination levels will be documented on the applicable Building 886 – U:Transuranic Survey Forms (Appendix C). Sample size will be verified following data analysis, using statistical methods as prescribed in MARSSIM. The results will be presented in the FSSP and/or FSSR. Should isotopic data indicate a uranium to transuranic ratio that would prevent the use of the uranium release limits, DCGLs will be prescribed to ensure both the uranium and transuranic release limits are met.

The planned location, sample types, and number of building media samples (Table 4-1) to be collected is based on professional judgement (e.g., selecting locations to provide representative sampling). The sample size will be verified following data analysis, using statistical methods as prescribed by MARSSIM. The results will be presented in the FSSP and/or FSSR. Sample types (i.e., roof, paint, core) were identified after evaluating each facility in the Cluster in terms of the construction materials used, the age of construction, and whether or not a facility is painted both on the interior and exterior. Examples of sample type selection include not sampling the roof of Building 888 because it is constructed of metal; not sampling the exterior paint of Building 888 because it was constructed after any known releases; not sampling Building 875 exterior paint because it is not painted.

Survey instructions for collecting swipe samples, which were developed in accordance with 3-PRO-165-RSP-07.02, are presented in Appendix A.

3.2 Non-Radiological

3.2.1 Statement of the Problem

The non-radiological COCs for the 886 cluster were identified during the RLC as asbestos, PCBs, and lead/metals. During the D&D of Building 123, asbestos-containing material within the hollow portions of cinder block walls was discovered. The potential for a similar circumstance exists for Buildings 886, 875 and 888 because they are constructed of cinder block. This potential hazard was not characterized as part of the RLC. Additionally, previously uncharacterized chemical hazards which may impact waste characterization or volume estimates and/or health and safety may be identified during strip-out (e.g., paints, piping, plates/bars/brackets/shields, lead fills in walls, skirting, additives in plaster). If identified, these hazards will be characterized.

3.2.2 Identification of Decisions

Additional asbestos characterization is necessary to guide asbestos abatement and D&D activities. If previously uncharacterized non-radiological contaminants are identified, the data collected will augment the data collected during RLC.

3.2.3 Identification of Inputs to the Decisions

Cores into the cinder block walls of Building 886, 875, and 888 are required to assess the potential for asbestos containing material within the hollow portion of the cinder blocks. Samples will be collected in accordance with 40 Code of Federal Regulations (CFR) 763.86. Non-radiological characterization data will be collected based on visual identification of materials, equipment, equipment components, or media and sampled according to the instructions presented in the Protocol (KH, 1998a) and summarized in Section 4.0. The minimum sampling requirements for the non-radioactive COCs (i.e., asbestos, PCBs, and Lead/metals) are described in the Protocol (KH, 1998a) as well as the methods required to determine chemistry of the samples. Methods, as prescribed in the Protocol, shall be implemented. Although professional judgment is instrumental to the execution of the IPC Plan, sampling will err to the conservative (i.e., collecting more samples) if there is any doubt regarding homogeneity of the materials sampled.

3.2.4 Definition of Project Boundaries

The characterization boundaries are limited to the spatial confines of the Building 886 Cluster including materials, equipment, equipment components, and media that make-up or are within the buildings (interior and exterior).

3.2.5 Development of Decision Rules

3.2.5.1 Asbestos

The presence of asbestos (i.e., >1% by volume) will be determined at an offsite, certified laboratory using Method EPA 600/R-93/116. Point counting is required by CCR 1001-10 Part B, Subsection 111, 6ii, when PLM results on friable asbestos range between 1% or less and more than 0%. All offsite laboratory contractual and quality specifications are under the auspices of the RFETS Analytical Services Division. Based on the sampling results and the bulk materials represented by the samples, the quantities of friable and non-friable ACM will be estimated for subsequent abatement and waste management purposes. Asbestos waste will be managed in accordance with 40 CFR 763, 40 CFR 261-268, the Colorado Hazardous Waste Amendments, and 5 CCR-1001-10, Part B.

3.2.5.2 PCBs

If PCBs are only suspected in or on materials that fall within the definition of "PCB Bulk Product Waste," it may be disposed of at a facility that is permitted, licensed, or registered by a State to manage municipal solid waste subject to 40 CFR 258, or non-municipal, non-hazardous waste subject to 40 CFR 257.30. For most bulk product wastes, implementing this strategy precludes the need for PCB characterization prior to or during facility disposition. However, notification to the disposal facility is required at least 15 days in advance of shipping wastes to the facility if that disposal facility does not possess a commercial PCB storage or disposal approval.

Management strategy for PCB remediation waste will be determined on a case-by-case basis. If PCB contamination is suspected, or if a PCB spill is discovered that has not been adequately cleaned up, the area will be treated as directed by the most recent versions of 40 CFR 761 through 766, the RFETS Polychlorinated Biphenyls Management Plan (PRO-673-EWQA-1.5), and the WSRIC standards. For each planned cleanup, PCB regulations under TSCA will be evaluated as potentially Applicable or Relevant and Appropriate Requirements (ARARs), including the disposal options for PCB remediation waste listed under 40 CFR 761.61. Characterization requirements vary depending on the TSCA waste type (e.g., PCB liquids, PCB items, PCB remediation waste, PCB bulk product waste) and the specific disposal options allowable for each waste type under the PCB regulations.

3.2.5.3 Lead and Metals

For any sample that exceeds the toxicity characteristic leaching procedure (TCLP) thresholds or if the waste exhibits a characteristic of hazardous waste, the associated medium will be considered Resource Conservation and Recovery Act (RCRA) waste in accordance with 6 CCR 1007-3, Part 261; otherwise, the waste is considered non-hazardous.

If material is to be disposed as hazardous waste, the material will have to be disposed in compliance with Land Disposal Restrictions (40 CFR 268) and in conformance with Treatment Storage and Disposal Facility Waste Acceptance Criteria. For example, most characteristic wastes (i.e., ignitable, corrosive, reactive and organic wastes) must be characterized for underlying hazardous constituents.

With respect to bulk, painted items, results of previous TCLP tests performed at RFETS on similar material indicate the metals in the paint remain fixed to the surface to which they are applied. As a result, when disposed in bulk, these materials are considered non-hazardous (see Environmental/Waste Compliance Guidance No. 27, Lead Based Paint (LBP) and LBP Debris Disposal).

3.2.6 Limits on Decision Errors

Consistent with the Protocol (KH, 1998a), decision error does not apply to asbestos sample sets per 40 CFR 763 because the results are compared with the action levels on a sample-by-sample basis. Additionally, the maximum value for false positive and false negative errors is 5% when calculating the number of samples required for RCRA and TSCA characterization.

3.2.7 Optimization of the Sampling Design

Acquisition of a sample directly depends on the sampling team's observations of the material, equipment, equipment components, or media of interest. If data gaps are identified subsequent to the IPC sampling and decisions described herein (i.e., the decision can not be made with confidence), additional sampling of source materials and/or waste streams will be conducted during the implementation of the FSSP.

4.0 SAMPLING AND ANALYSIS

The sampling and analysis methods for each type of sample event to be performed under this IPC Plan were selected to be consistent with the DQOs presented in Section 3.0 and the Protocol (KH 1998a). If conditions are encountered during characterization which make the use of a sampling technique unsafe or

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inappropriate for the task at hand, the specified procedures may be modified or replaced as long as the modification or replacement procedure is justified and detailed in the sampling records and the resulting data is comparable and adequate to meet the objectives of the project.

4.1 Radiological

As summarized on Table 4-1, the types of radiological samples to be collected as part of the IPC are isotopic swipes and media samples consisting of paint, roof cores, and concrete cores. Instructions for collecting swipe samples, in accordance with 3-PRO-165-RSP-07.02, are presented in Appendix A.

4.1.1 Isotopic Swipe Samples

Isotopic swipe sample results will be used to estimate DCGLs. The samples will be biased towards known areas of contamination. The samples will be collected by radiological control technicians per RSP 07.02, *Contamination Monitoring Requirements* and analyzed for americium, uranium, plutonium and gross alpha/beta.

While the Radiation Survey and Site Investigation Process (RSSIP) is performed using guidance provided by MARSSIM, the derivation of the DCGLs is outside the scope of MARSSIM. Two potential DCGLs are defined within MARSSIM based on the area of contamination.

1) The $DCGL_W$ is derived based on an average concentration over a large area. If the residual radioactivity is evenly distributed over a large area, the release decision is based on the average activity over the entire area.

2) The $DCGL_{EMC}$ is derived separately for these individual areas. If the residual radioactivity appears as small areas of elevated activity within a larger area, the release decision is based on the results of individual measurements.

Table 4-1. Radiological Sampling and Analysis

Location	Quantity	Sample Type	Analysis	Purpose	Sampling Location Strategy
Swipe Samples					
B 886 Rm. 101 Assembly Hood	10	Swipe	Pu-U-Am Gross α,β	Isotopic analysis results will be used to develop a Uranium to Transuranic activity ratio to be used during the determination of DCGLs.	Swipe samples will be biased in areas of known contamination for ratio development
B 886 Room 103 Downdraft Room/Glovebox	10	Swipe	Pu-U-Am Gross α,β	Isotopic analysis results will be used to develop a Uranium to Transuranic activity ratio to be used during the determination of DCGLs.	Swipe samples will be biased in areas of known contamination for ratio development
B 886 Room 103 Pit Area	5	Swipe	Pu-U-Am Gross α,β	Isotopic analysis results will be used to develop a Uranium to Transuranic activity ratio to be used during the determination of DCGLs.	Swipe samples will be biased in areas of known contamination for ratio development
B 886 Room 103 Hood	5	Swipe	Pu-U-Am Gross α,β	Isotopic analysis results will be used to develop a Uranium to Transuranic activity ratio to be used during the determination of DCGLs.	Swipe samples will be biased in areas of known contamination for ratio development
Roof Samples					
B 886 Room 101	12	Core	Pu-U-Am	Verify the absence of DOE radioactive material, deposited as a result of a building release or other Site release.	Roof will be divided into 4 equal sections, 3 samples obtained from each section
B 886 remaining	16	Core	Pu-U-Am	Verify the absence of DOE radioactive material, deposited as a result of a building release or other Site release.	Roof will be divided into 4 equal sections, 4 samples obtained from each section
B 875	8	Core	Pu-U-Am	Verify the absence of DOE radioactive material, deposited as a result of a building release or other Site release.	Roof will be divided into 4 equal sections, 2 samples obtained from each section
Exterior Paint Samples					
B 886	30	Paint scraping using 5 x 8" template	Pu-U-Am	Verify the absence of DOE radioactive material, deposited as a result of a building release or other Site release.	Paint sample locations will be distributed uniformly over the building, so that at least 1 sample is obtained from each exterior plane surface (Note: a wall may exhibit more than one plane – each plane will be sampled)
B 888A	8	Paint scraping using 5 x 8" template	Pu-U-Am	Verify the absence of DOE radioactive material, deposited as a result of a building release or other Site release.	Obtain 2 paint samples per exterior wall

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Table 4-1 (continued).

Location	Quantity	Sample Type	Analysis	Purpose	Sampling Location Strategy
Slab Samples					
B 886 Room 103 (pit)	4	Core sample to 2"	Pu-U-Am, Gamma Spectroscopy	Determine extent of building slab contamination. Cores from these areas are suspect of contamination due to ground water intrusion. Isotopic analysis results will be used during the determination of DCGLs.	Floor will be divided into 4 equal sections, 1 sample obtained from each section
B 875 (areas of slab subjected to ground water intrusion)	3	Core sample to 2"	Pu-U-Am, Gamma Spectroscopy	Determine absence or extent of Building slab contamination. Isotopic analysis results will be used during the determination of DCGLs.	Area below grade around rashing ring tank
B 828 (pit west of B886)	3	Core sample to 2"	Pu-U-Am, Gamma Spectroscopy	Determine absence or extent of Building slab contamination. Isotopic analysis results will be used during the determination of DCGLs.	Floor will be divided into 3 sections, 1 sample obtained from each section
B 886 North Administrative Office Areas	4	Core sample to 2"	Pu-U-Am, Gamma Spectroscopy	Determine background. These samples are representative from concrete poured at the same time as original building construction and were not impacted by radiological operations.	Office areas will be divided in 4 equal sections, 1 sample obtained from each section
Interior Paint Samples					
B 886 Room 101 (above 2m)	20	Paint scraping using 5 x 8" template	Pu-U-Am, Gamma Spectroscopy	Determine absence or extent of contamination below painted surfaces. Isotopic analysis results will be used during the determination of DCGLs.	Paint sample locations will be distributed uniformly over each wall, so that at least 5 samples are obtained from each wall
B 886 Room 101 (below 2m)	20	Paint scraping using 5 x 8" template	Pu-U-Am, Gamma Spectroscopy	Determine absence or extent of contamination below painted surfaces. Isotopic analysis results will be used during the determination of DCGLs.	Paint sample locations will be distributed uniformly over each wall, so that at least 5 samples are obtained from each wall
B 886 Room 101 (floor)	12	Paint scraping using 5 x 8" template	Pu-U-Am, Gamma Spectroscopy	Determine absence or extent of contamination below painted surfaces. Isotopic analysis results will be used during the determination of DCGLs.	Floor will be divided into 4 equal sections, 3 samples obtained from each section
B 886 Room 102 (above 2m)	8	Paint scraping using 5 x 8" template	Pu-U-Am, Gamma Spectroscopy	Determine absence or extent of contamination below painted surfaces. Isotopic analysis results will be used during the determination of DCGLs.	Paint sample locations will be distributed uniformly over each wall, so that at least 2 samples are obtained from each wall
B 886 Room 102 (below 2m)	16	Paint scraping using 5 x 8" template	Pu-U-Am, Gamma Spectroscopy	Determine absence or extent of contamination below painted surfaces. Isotopic analysis results will be used during the determination of DCGLs.	Paint sample locations will be distributed uniformly over each wall, so that at least 4 samples are obtained from each wall

Table 4-1 (continued).

Location	Quantity	Sample Type	Analysis	Purpose	Sampling Location Strategy
B 886 Room 102 (floor)	12	Paint scraping using 5 x 8" template	Pu-U-Am, Gamma Spectroscopy	Determine absence or extent of contamination below painted surfaces. Isotopic analysis results will be used during the determination of DCGLs.	Floor will be divided into 4 equal sections, 3 samples obtained from each section
B 886 Room 103 (above 2m)	16	Paint scraping using 5 x 8" template	Pu-U-Am, Gamma Spectroscopy	Determine absence or extent of contamination below painted surfaces. Isotopic analysis results will be used during the determination of DCGLs.	Paint sample locations will be distributed uniformly over each wall, so that at least 4 samples are obtained from each wall
B 886 Room 103 (below 2m)	16	Paint scraping using 5 x 8" template	Pu-U-Am, Gamma Spectroscopy	Determine absence or extent of contamination below painted surfaces. Isotopic analysis results will be used during the determination of DCGLs.	Paint sample locations will be distributed uniformly over each wall, so that at least 4 samples are obtained from each wall
B 886 Room 103 (behind S.S. room)	4	Paint scraping using 5 x 8" template	Pu-U-Am, Gamma Spectroscopy	Determine absence or extent of contamination below painted surfaces. Isotopic analysis results will be used during the determination of DCGLs.	Paint sample locations will be distributed uniformly over wall section covered by stainless steel room
B 886 Room 103 (floor)	12	Paint scraping using 5 x 8" template	Pu-U-Am, Gamma Spectroscopy	Determine absence or extent of contamination below painted surfaces. Isotopic analysis results will be used during the determination of DCGLs.	Floor will be divided into 4 equal sections, 3 samples obtained from each section (excludes 103 pit, 103 pit analyzed via core samples.
B 886 (hallway, includes section above ceiling)	16	Paint scraping using 5 x 8" template	Pu-U-Am, Gamma Spectroscopy	Determine absence or extent of contamination below painted surfaces. Isotopic analysis results will be used during the determination of DCGLs.	Paint sample locations will be distributed uniformly.
B 886 (outside RBA)	25	Paint scraping using 5 x 8" template	Pu-U-Am, Gamma Spectroscopy	Determine absence or extent of contamination below painted surfaces. Isotopic analysis results will be used during the determination of DCGLs.	1 paint sample per room
B 875 (distributed through out building)	16	Paint scraping using 5 x 8" template	Pu-U-Am, Gamma Spectroscopy	Determine absence or extent of contamination below painted surfaces. Isotopic analysis results will be used during the determination of DCGLs.	Paint sample locations will be distributed uniformly.
B 888 (guard shack)	8	Paint scraping using 5 x 8" template	Pu-U-Am, Gamma Spectroscopy	Determine absence or extent of contamination below painted surfaces. Isotopic analysis results will be used during the determination of DCGLs.	Paint sample locations will be distributed uniformly over each wall, so that at least 2 samples are obtained from each wall

4.1.2 Media Samples

The following sections describe the various media samples. In order to reduce costs and facilitate the shipment of radiological samples offsite, efforts will be made to analyze the shipping screen samples by gamma spectroscopy using the same sample containers prepared for laboratory analyses.

4.1.2.1 Interior/Exterior Paint Samples

Interior and exterior paint samples will be obtained in accordance with procedure PRO-477-RSP-16.03, *Radiological Samples of Building Media* (RMRS, 1999c) to determine if residual radioactivity exists beneath or within painted surfaces. Paint will be removed from each sample location in a designated sample area of5 by 8 inches. Paint removal will be performed in a method that minimizes the amount of underlying building material removed, the amount of building material removed will be restricted to the first few millimeters. In addition, every effort will be taken to collect all paint chips removed from the area as information derived from this will be required to support subsequent calculations. If an instance occurs in which a portion of the collected sample is lost due to spillage, a new sample location will be selected immediately adjacent (where possible) to the original sample location. Direct and removable contamination surveys will be performed at each sample location prior to and after paint sampling per RSP 07.01 and RSP 07 and documented on the Building Media Sample Location and Survey Forms (Appendix B).

Since laboratory results are typically reported in pCi/g (essentially an activity based concentration) the mass of the sample must be known and the pCi/g value must be multiplied by the total sample mass to calculate the total activity of the sample. It is therefore critical that the total sample mass of each sample be measured and recorded prior to any isotopic analyses, preferably by the laboratory to an accuracy of the nearest 1/100 of a gram. The area of each actual sampled surface must also be accurately measured and recorded to support the conversion of pCi/g to dpm/100 cm^2. Any variances from the designated sample grid area will be corrected using professional judgement based on a visual inspection. With the area known and the total activity provide by the lab, the total surface activity can be calculated in dpm/100 cm^2 and compared to against the respective DCGLs.

4.1.2.2 Concrete Core Sample

Concrete core samples will be obtained in areas affected by ground water intrusion to determine the presence/absence of residual contamination in accordance with procedure PRO-477-RSP-16.03, *Radiological Samples of Building Media* (RMRS, 1999c). Background samples will be collected in the administration areas outside of the CAs in areas unaffected by groundwater intrusion (see Table 4-1). Sample locations will be documented on the Building Media Sample Location and Survey Form (Appendix B).

Background samples and samples in contaminated areas will be collected in a consistent manner to promote consistency. Background samples will be collected in a manner consistent with Sitewide protocols for the determination of background. Concrete core samples will be analyzed for isotopic plutonium, uranium and americium and gamma spectroscopy.

4.1.2.3 Roof Core Sample

Roof core samples will be obtained to determine the presence/absence of DOE radioactive material, deposited as a result of a building release or other Site releases within the roof matrix. Sample locations will be documented on the Building Media Sample Location and Survey Form (Appendix B). Roof core

samples will be analyzed for isotopic plutonium, uranium and americium and collected in accordance with procedure PRO-477-RSP-16.03, *Radiological Samples of Building Media* (RMRS, 1999c).

4.2 Non-radiological

4.2.1 Asbestos

Cores into the cinder block walls of Building 886, 875, and 888 are required to assess the potential for asbestos containing material within the hollow portion of the cinder blocks. All asbestos characterization sampling shall be performed per the RFETS Asbestos Characterization Procedure, Rev. 0, PRO-563-ACPR (RMRS, 1999a), which was developed in accordance with the 40 CFR 763.86 and applicable state regulations.

Additionally, if surfacing materials, thermal insulation materials, and miscellaneous materials suspect of containing asbestos that have not been previously characterized are uncovered during strip-out, the material(s) will be sampled for asbestos per 40 CFR 763.86. For friable surfacing materials, a minimum of three samples is required per homogeneous area <1,000 ft^2 in dimension. Five samples are required per homogeneous areas between 1,000 ft^2 and 5,000 ft^2. Where homogeneous areas of >5,000 ft^2 are encountered, 7 samples are required. Samples are randomly selected from the centers of a grid section partitioned proportional to the size of the area. Grid spacing is only required for friable surfacing materials which may include drywall joint compound if suspected by the inspector. Suspect, Thermal Systems Insulation is sampled at 3 samples/homogeneous area, 3 samples for patches >6 linear feet and at least 1 sample for joints or fitting. Miscellaneous materials are sampled at the inspector's discretion, with 3 samples/homogeneous area for friable miscellaneous materials. Appendix D provides an example of an ACM Inventory Worksheet and a Sampling Record. These forms (or their equivalent) shall be used for the collection of asbestos samples.

The presence of asbestos (i.e., >1% by volume) will be determined at an offsite, certified laboratory using Method EPA 600/R-93/116. Point counting is required by CCR 1001-10 Part B, Subsection 111, 6ii, when PLM results on friable asbestos range between 1% or less and more than 0%. All offsite laboratory contractual and quality specifications are under the auspices of the RFETS Analytical Services Division. Based on the sampling results and the bulk materials represented by the samples, the quantities of friable and non-friable ACM will be estimated for subsequent abatement and waste management purposes.

4.2.2 PCBs

If PCBs are only suspected in or on materials that fall within the definition of "PCB Bulk Product Waste", it may be disposed of in accordance with the requirements specified in Section 3.2.5.2. If previously uncharacterized materials suspected of containing PCBs (e.g., transformers, capacitors, fluorescent light ballasts, gaskets in potential PCB-containing systems, electrical wiring, paints) are uncovered during strip-out, samples will be collected. Appendix D provides and example of a Sampling Record form to be used if PCB sampling will be required. Sampling and analysis to verify PCB spill clean-up will comply with RFETS Metals and PCB Characterization Procedure, PRO-487-MPCR (RMRS, 1999b).

4.2.3 Lead and Metals

If materials suspected of containing lead and/or other RCRA metals that have not been previously characterized are uncovered during strip-out, samples will be collected. All previously uncharacterized materials, equipment, or media suspected of containing lead and/or other RCRA metals (e.g., construction materials) will be sampled and analyzed for compounds and elements in accordance with RFETS Metals and PCB Characterization Procedure, PRO-487-MPCR (RMRS, 1999b). Analytical methods will have PQLs at levels better than 50% of the regulatory thresholds (listed below). Appendix D provides and example of a Sampling Record form to be used if sampling for lead and metals will be required.

Samples will be collected and submitted for analysis in bulk form (i.e., in a form and cumulative composition most representative of the anticipated form of waste stream). For example, samples for metals in paint on walls constructed with cinder blocks shall contain both the surficial paint layer(s) and a portion of the associated cinder block wall. A minimum of 100 and maximum of 200 grams (g) of sample (bulk and paint chip) sample is needed for performance of the TCLP procedure. Material will not be cored in excess of 2 inches into the material being sampled.

Both total analysis and the TCLP can be used to characterize solid samples. If total analysis is used, results shall be divided by 20 before comparison with the regulatory thresholds listed below. If TCLP is used, the SW-1311 preparation method will be used. All samples from painted surfaces (non-asbestos samples) acquired for lab analysis shall acquired by ASTM Method E 1729-95, *Standard Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques*. Samples must be analyzed for all metals necessary to determine whether the material has hazardous waste characteristics (except for mercury, which has been eliminated based on process knowledge). The metals of concern, and associated regulatory thresholds for the leachate, are as follows:

METAL	Regulatory Level (mg/L, TCLP)
Arsenic	5.0
Barium	100.0
Cadmium	1.0
Chromium	5.0
Lead	5.0
Selenium	1.0
Silver	5.0

For any sample exceeding the toxicity characteristic thresholds listed, the associated medium will be considered RCRA waste (RFETS Environmental Leadership Team, 1999).

4.3 Sample Handling and Equipment Decontamination Procedures

Samples collected for laboratory analysis will be collected in accordance with the procedures specified in the Commodore Advanced Sciences, Inc. procedure CAS SOP-003, Sampling for Waste Characterization for General Sampling Activities at the RFETS. Samples will be packaged and transported in accordance with the following Rocky Flats Transportation Safety Manual procedures; Traffic 112, Sample Packaging and Transfer and Traffic 110, On-site Transportation of Hazardous Materials and Radioactive Materials.

When reusable sampling equipment is used, the equipment will be decontaminated in accordance with CAS SOP-003.

4.4 Documentation

Data shall be documented on the forms developed for this project. The originator will authenticate (legibly sign and date) each completed hardcopy of the data. A peer reviewer, someone other than the originator, will perform a peer review on each hardcopy of data. The peer reviewer will authenticate (legibly sign and date) each hardcopy completed by the originator. Any modifications will be lined-through, initialed, and dated by the reviewer (in ink). The locations of samples must be diagrammed on schematics that illustrate the building, infrastructure, or layout of interest. The schematics shall include all detail associated with the sample location, e.g., sampling grid pattern, dimensions, random numbers assigned, and actual numbers chosen for final sample locations.

4.5 PPE Evaluation

Anti-contamination clothing will be worn in areas of known radiological contamination, as appropriate. PPE such as tyvek will be necessary for asbestos, PCB, and lead/metals surveys. PPE generated from this project (i.e., PPE worn for asbestos surveys in radiological contamination areas) will be evaluated with respect to potential chemical and radiological contamination. It is anticipated that spent PPE generated during the project will be disposed as non-hazardous, non-radioactive solid waste. Some decontamination of PPE may be required prior to disposal. All spent PPE will be surveyed prior to removal from the characterization area or disposed as low level waste. If radiological contamination is detected above release requirements, or if the PPE appears to be stained and/or heavily soiled, the PPE may be decontaminated so that it no longer contains significant soiling, staining or contamination.

To meet the conditions of unrestricted release, the PPE must:

- Be free of appreciable staining and/or heavy soiling to address chemical concerns,
- Meet the requirements for unrestricted release in procedure 4-S23-ROI-03.02, *Radiological Requirements for Unrestricted Release*, and the evaluation criteria specified in procedure 4-Q97-REP-1003, *Radiological Evaluation for Unrestricted Release of Property/Waste.*

PPE that cannot meet these requirements will be evaluated on a case by case basis, including the probable disposition (off-site), and the collection of appropriate samples to support disposition. PPE evaluations will be documented in the field records.

4.6 QC Samples

Quality control (QC) samples will be collected as part of the characterization at a frequency of 1 in 20 samples. The following types of QC samples will be collected to support the characterization:

Duplicates: Duplicate (collocated) samples will be collected in the same manner and analyzed by the same analytical methods, in the same laboratory as the regular samples. These samples will be submitted blind to the laboratory. All duplicate samples will be collected using the same

sampling equipment used for collection of the regular samples. Sampling equipment will be decontaminated while collecting regular and QC samples from the same location.

Because equipment rinsate blanks will not be collected, all detections of COCs will be considered real and not attributable to cross contamination.

4.7 Sample Designation

Each sample will be assigned a unique number in accordance with the RFETS Analytical Services Division (ASD) requirements. The Report Identification Number (RIN) is used by the ASD to track and file analytical data and will be designated by ASD prior to sampling activities. The unique sample number will be broken down into the following three parts:

- The RIN
- The Event Number
- The Bottle Number

The RIN is a seven digit alphanumeric code starting with the year (e.g., "00" for the year 2000). The RIN will be followed by a dash "-" and then the event number. The event number is a three digit code, starting with "001" under the RIN, and will be sequential. Each typical sample location will have a unique event number under the RIN. QC samples will have unique event numbers to support a "blind" submittal to the analytical laboratories. The event number will be followed by a period "." and then by the sequential bottle number. The bottle number is a three digit sequential code, starting with "001", and will be used to identify individual sample containers collected at the same location and same event number.

In addition to the sample numbering scheme above, additional information will be collected with respect to each sample and recorded on the project logsheets. This includes:

- Sample type
- QC code

QC Codes will include the following, as appropriate:

- REAL: Regular Sample
- DUP: Duplicate Sample

An overview of the sampling and analysis is presented in this section along with a discussion regarding sample handling, equipment decontamination, personal protective equipment (PPE) evaluation, quality control sampling, and sample designation. The sample identification number will be documented on the records included in Appendices A, B, and C or similar records.

5.0 Health and Safety

All IPC operations shall be conducted in accordance with the guidance of the RMRS Generic Health and Safety Plan (HASP) for Characterization Sampling, RF/RMRS-98-284 (RMRS, 1999d). The HASP will be revised, as required, to support implementation of the IPCP. The baseline information will be continuously updated and augmented using the Job Hazard Analysis (JHA) process.

5.1 Activity Hazard Analysis

Consistent with the Integrated Safety Management System, and the HASP, the project team will use the JHA process to evaluate the hazards as well as the actions necessary to eliminate or mitigate those hazards (i.e., training requirements, protective control measures, monitoring requirements and special equipment needed for specific job steps).

5.2 Monitoring

Occupational monitoring requirements for individual work tasks will be documented in the JHA.

5.2.1 Chemical Hazard Monitoring

Per the HASP, the Project Safety Officer or designee will determine the need for chemical hazard monitoring. Air sampling will be performed in accordance with approved National Institute of Occupational Safety and Health or Occupation Safety and Health Administration sampling methods. All instrumentation used for real time air monitoring will be calibrated and operated in accordance with factory recommendations.

5.2.2 Radiological Hazard Monitoring

Per the HASP, air monitoring within the work areas will be performed using portable Continuous Air Monitors (CAMs), and high volume and/or low volume air sampling. The use of portable CAMs allows the project flexibility in monitoring locations, resulting in more effective monitoring. Training on the use and response of these monitors will be provided to all project personnel. Personnel monitoring for radiological hazards will be identified in the Radiological Work Permits (RWPs) and the As Low As Reasonably Achievable (ALARA) job reviews. All radiological monitoring will be performed in accordance with the procedures contained in the RFETS HSP Manual, RFETS Radiological Control Manual, and the Radiological Safety Procedures (RSPs).

The requirements for monitoring radiological hazards from the RFETS Radcon Manual are individualized to a particular work task and are documented in the RWP. Typical monitoring for radiological hazards will include:

- Airborne - Monitored using high or low volume sampling pumps. Sample media is typically glass fiber filter and must be counted for alpha and/or beta-gamma activity to determine the exposure. Exposure is measured in Derived Air Concentrations (DACs) and is dependent upon the particular radionuclide(s) present (e.g., Pu-239 DAC is 2E-12 microCuries per milliliter). The frequency of monitoring is dependent upon the work task and contamination levels and is specified in the RWP.

- Contamination - Monitored by smear sample and/or direct measurement with a frisking instrument such as a Bicron Frisktech. Limits for contamination are listed in the RFETS Radiological Control Manual and are dependent upon the particular radionuclide present and are expressed in units of dpm/100 cm^2. Frequency of monitoring will include routine surveys (per shift, daily, etc.), as required by the RWP and at the discretion of Radiological Controls personnel.

Radiation – Radiation surveys are performed using instrumentation that is capable of detecting the type and energy of emitted energy present and is expressed in units of mrem/hr. These exposure rates are used to determine personnel exposure estimates, provide data to ensure that all exposure is ALARA, and to properly control areas of potential exposure to personnel. Personnel exposure is monitored using Thermal Luminescent Dosimeters (TLDs). Frequency of monitoring will include routine surveys, as required by the RWP and at the discretion of the Radiological Controls personnel.

6.0 QUALITY ASSURANCE

Analytical data collected in support of the 886 Cluster IPCP will be evaluated in accordance with , *Evaluation of Data for Usability in Final Reports* (RF/RMRS-98-200). This procedure establishes the guidelines for evaluating analytical data with respect to precision, accuracy, representativeness, completeness, and comparability parameters. Data validation will be performed according to the RFETS Analytical Services Division, Analytical Services Performance Assurance Group procedures, but will be done after the data is used for its intended purpose. Analytical laboratories supporting this task have all passed regular laboratory audits by the Analytical Services Division.

6.1 Quality Assurance Program

The RMRS Quality Assurance (QA) Program implements the requirements of 10 CFR 830.120 through the RMRS Quality Assurance Program Description (RMRS-QAPD-001). The 886 Cluster organizational responsibilities are identified in the Project Execution Plan (RMRS, 1998b).

6.2 Training Requirements

Training requirements for 886 Cluster decommissioning are defined in the Building 886 Training Implementation Matrix. Additional training identified during the IPC will be documented through Conduct of Operations Section 6.D, Required Reading Program for Operations and Support Organizations and Section 4.C, Pre-evolution Briefing.

6.3 Corrective Action

The site Corrective Action Process and the RMRS QA-3.1, Corrective Action procedure and the occurrence reporting systems are utilized to handle items, services and processes not conforming to established requirements.

6.4 Document Control

All documents are prepared, reviewed and approved in accordance with RMRS DC-06.01, Document Control Program. Since this activity is considered a CERCLA removal action, all Administrative Records (AR) generated shall be identified, handled and submitted in accordance with the RMRS Administrative Record Document Identification and Transmittal (RM 06.04) procedure. All non-AR records shall be handled in accordance with the RMRS Records Identification, Generation, and Transmittal procedure (RM-

06.02). All activities described in the IPC Plan for the Building 886 Closure Project are conducted in accordance with approved and controlled instructions and procedures identified in the IPC Plan.

6.5 Change Control

Design activities are conducted in accordance with the Sites Configuration Change Control Program and the Integrated Work Control Program ,1-454000-CSM-001. Activities are also conducted in accordance with the RMRS Conduct of Engineering Manual.

6.6 Procurement

Procurement activities are conducted in accordance the Site Acquisition Procedure for Requisitioning Commodities and Services, 1-W36-APR-111, and the RMRS Quality Assurance Program Description.

6.7 Inspection and Acceptance Testing

Inspection and Acceptance Testing is conducted in accordance with 1-D23-QAP-10.02, Inspection; Conduct of Operations, Section 7.G.11, Return to Service and Operability Declaration; 1-V51-COEM-DES-210, Design Process Requirements; and 1-I97-ADM-12.01, Control of Measuring and Test Equipment.

6.8 Management Assessments

Management Assessments are conducted in accordance with the RMRS QA 9.01, RMRS Management Assessments.

6.9 Independent Assessments

RMRS Independent Assessments are conducted in accordance with RMRS-QA-10.01, Independent Assessment and RMRS WI-QA-10.01, Conduct of Surveillances.

7.0 REFERENCES

DOE, 1994, *Decommissioning Handbook,* DOE/EM-0142P.

DOE, 1996, Rocky Flats Cleanup Agreement.

DOE, 1998, *Interim Measure/Interim Remedial Action Plan for the 886 Cluster,* RF/RMRS-97-135, July 30.

EG&G, 1992, Environmental Management Department Procedures Manual.

EG&G, 1995, *Process Knowledge Characterization Building 886 Highly Enriched Uranyl Nitrate Solution,* TD-95-012.

EPA, 1986, Midwest Research Institute.

EPA, 1994, *Guidance for Planning for Data Collection in Support of Environmental Decision Making Using the Data Quality Objectives Process,* EPA QA/G-4.

KH, 1995, Basis for Interim Operation, Building 886, October.

KH, 1998a, *Decontamination and Decommissioning Characterization Protocol,* MAN-077-DDCP, Revision 0.

KH, 1998b, *Facility Disposition Program Manual,* MAN-076-FDPM, Revision 0.

NUREG/CR-5849 *Manual for Conducting Radiological Surveys in Support of License Termination* NUREG/CR-5849

NUREG-1575 *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)* NUREG-1575, December 1997.

RFETS Environmental Leadership Team, 1999. Environmental/Waste Compliance Guidance No. 27, Lead Based Paint (LBP) and LBP Debris Disposal

RMRS 1997a. *Reconnaissance Level Characterization Plan for the 886 Cluster Decommissioning Project,* RF/RMRS-97-100, Revision 0, November 13.

RMRS 1997b. *Reconnaissance Level Characterization Report for the 886 Cluster Decommissioning Project* RF/RMRS-97-124.UN, Revision 1, December 24.

RMRS 1998a, *Final 886 Cluster Closure Project Waste Management Plan,* RF/RMRS-98-230, Revision 0, April 23.

RMRS 1998b, *Draft Project Execution Plan for the Building 886 Closure Project,* RF/RMRS-98-247, Revision 0, November 11.

RMRS, 1999a, *RFETS Asbestos Characterization Procedure*, PRO-563- ACPR, Revision 0, September.

RMRS, 1999b, *RFETS Metals and PCB Characterization Procedure*, PRO-487-MPCR, Revision 0, September.

RMRS, 1999c, *Radiological Samples of Building Media*, PRO-477-RSP-16.03, September 30.

RMRS, 1999d, *RMRS Generic Health and Safety Plan for Characterization Sampling*, RF/RMRS-98-284, Revision 1, January.

APPENDIX A

SAMPLING AND SURVEY INSTRUCTIONS

SAMPLING AND SURVEY INSTRUCTIONS

Building 886 Cluster

Removable Contamination and Surface Media Sampling Instructions

The following steps may be performed out of sequence in order to obtain multiple samples..

NOTE: Disregard steps 2 and 6-12 for areas where paint samples are not required (Class 3 areas and areas where surfaces are not painted).

1. RCT – If not already completed, grid and label the survey unit surfaces per the attached survey map(s).
2. RCT – If not already completed, mark an approximate 5" by 8" sample area adjacent to each grid intersection.
3. RCT – If not already completed, transpose sample numbers from attached survey maps onto the labels at each corresponding grid intersection on the survey unit surfaces.
4. RCT - Obtain pre-media sampling 100cm^2 total alpha direct measurements (and local area background measurements) at each labeled measurement location (within the marked sample area) per *3-PRO-165-RSP 07.02, Contamination Monitoring Requirements*. Record the results on the attached "Building Media Sample Survey Form".
5. RCT - Obtain pre-media sampling 100cm^2 removable alpha smears at each labeled measurement location (within the marked 5" by 8" sample area) *per 3-PRO-165-RSP 07.02, Contamination Monitoring Requirements*.
6. Media Sampler – Affix a plastic bag, or equivalent, around the marked sample area.
7. Media Sampler – Using an appropriate sampling tool, remove the surface material to a depth sufficient to expose the base material over the entire sample area. Label the sample container and sample location with the necessary information. Record the required information on the chain of custody form (COC) and the attached "Smear/Sample Tracking Form."
8. Media Sampler - After each sample, wipe-down the sampling tool to remove loose sample media and prevent possible sample cross-contamination.
9. Media Sampler – Repeat the above steps at each designated sample location.
10. Media Sampler - After all survey unit surface media samples have been obtained, forward, the COC forms and the surface media samples to Final Survey Radiological Engineering for processing.
11. RCT – Obtain a post-media sampling 100cm^2 total alpha direct measurement (and local area background measurement) at each labeled measurement location (within the marked sample area) per *3-PRO-165-RSP 07.02. Contamination Monitoring Requirements*. Record the results on the "Building Media Sample Survey Form".
12. RCT – Obtain a post-media sampling 100cm^2 removable alpha smear at each labeled measurement location (within the marked sample area) per *3-PRO-165-RSP 07.02, Contamination Monitoring Requirements*.
13. RCT – Analyze alpha smears using a one-minute count on a Tennelec or two-minute count on a Final Survey Radiological Engineer approved instrument. Attach the alpha smear results to the survey package or record the results on the "Building Media Sample Survey Form".
14. RCT – Complete the attached "Building Media Sample Survey Form" for all signatures and instrumentation used for this final survey and forward the survey package to the RCT Foreman for review.
15. RCT – In the event any alpha removable measurement exceeds 20 dpm/100cm^2 or any total activity measurement exceeds 100 dpm/100cm^2, notify the Final Survey Radiological Engineer.
16. RCT – Collect **QC** measurements (TSA only) at a frequency of 5% of the total number of initial measurement locations (minimum of 2 per survey unit). Collect measurements at the locations with the highest initial results.
17. RCT Foreman – Review the applicable forms in the final survey package for completeness, complete the attached Survey Signature Sheet and forward the survey package to Final Survey Radiological Engineering for final disposition.

* Post total activity measurements and post removable alpha measurements are obtained to validate media sampling and are not intended to satisfy MARSSIM requirements.

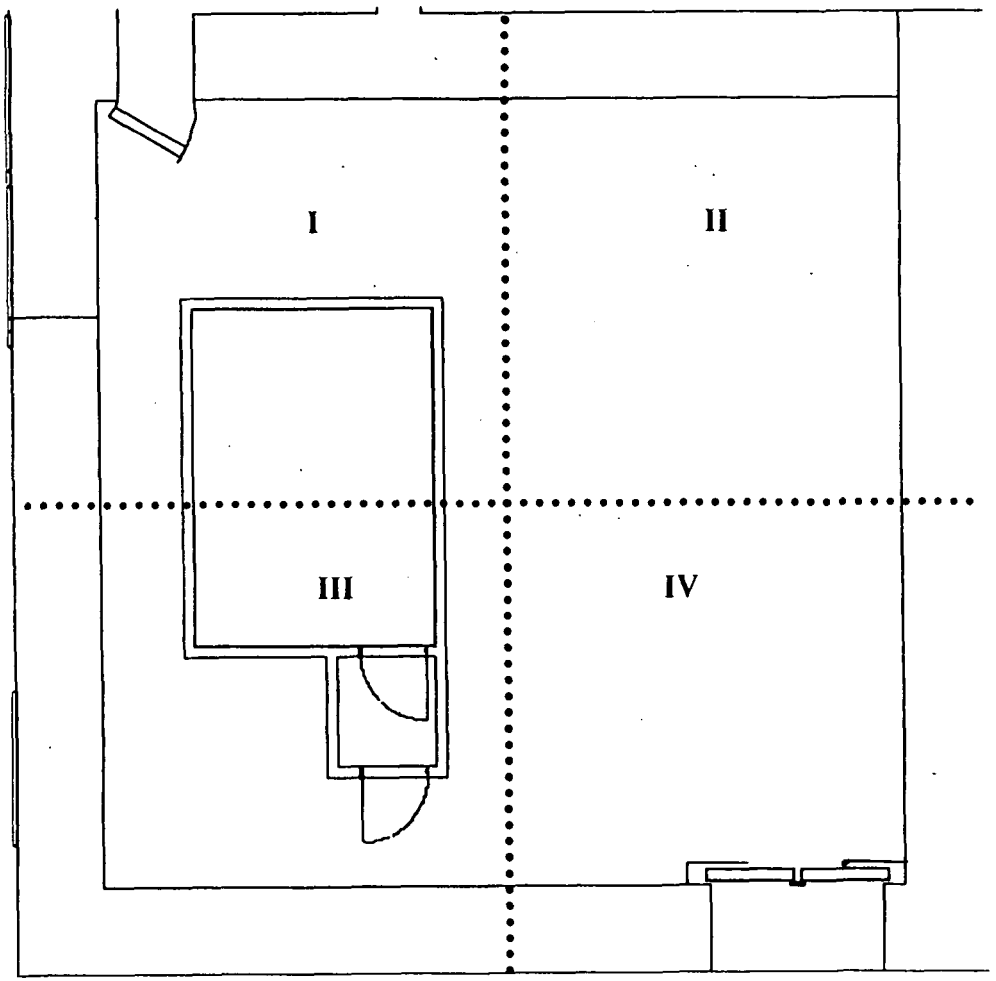
**Additional samples/measurements are obtained to ensure full surface area coverage for gridding.

APPENDIX B

BUILDING MEDIA SAMPLE SURVEY FORMS

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: Room 101 Roof (CORE SAMPLES TAKEN FROM RM.101 ROOF)



Date:_____ Time:_____

RWP Number: _____

Survey Log No. :_____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Room 103 Pit Core Sample Locations:

Roof over Rm. 101 is divided into four (4) sections. Three (3) samples (cores) will be obtained from each section. Total of twelve (12) cores sampled.

Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signatu_____ **Date:**_____

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:**_____

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Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Roof
Building: 886
Room: 101
Location: Roof divided into 4 equal sections, 3 samples from each section
Quantity: 12 Real, 1 Duplicate(s)
Collection Date: _____

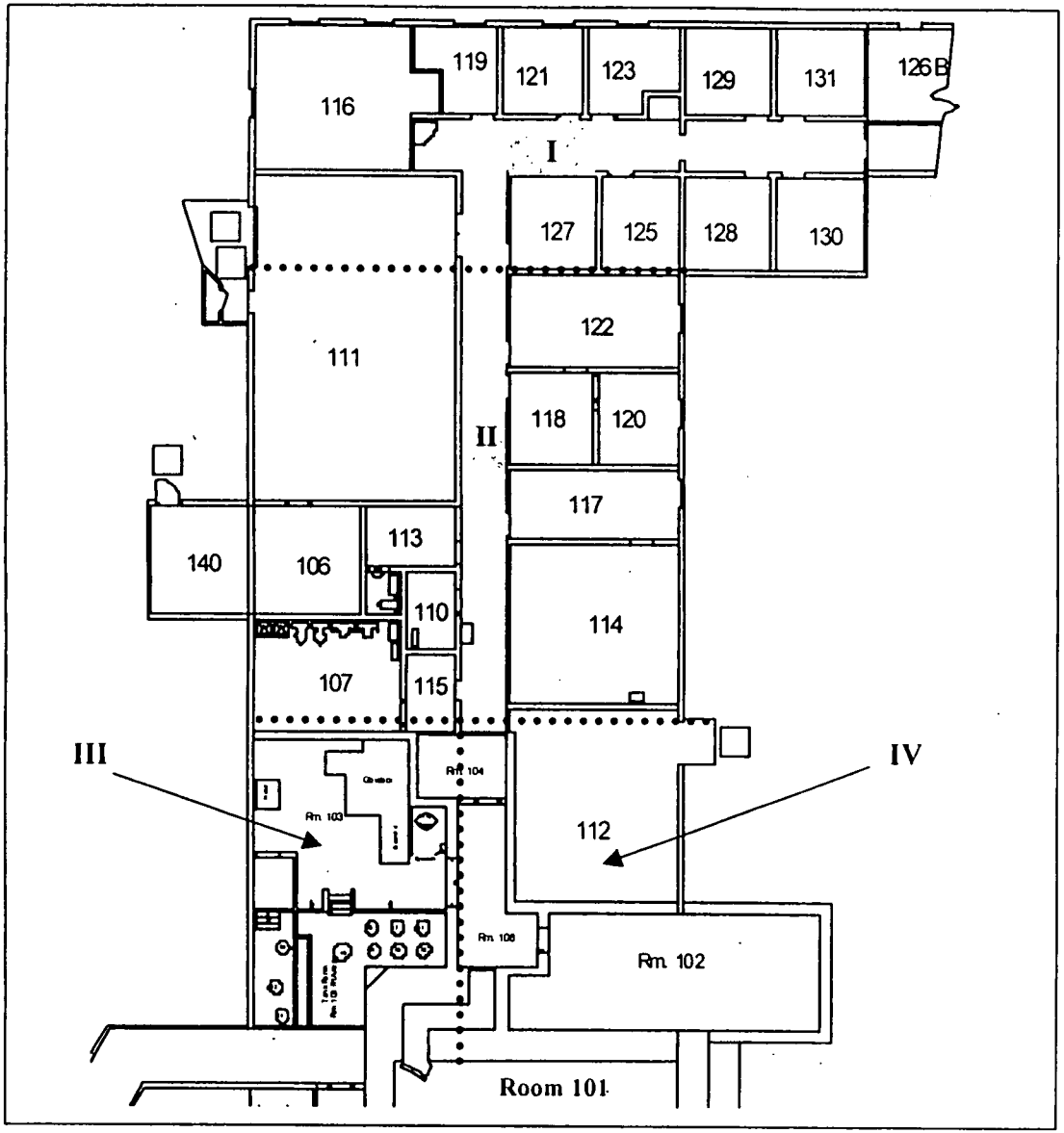
RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Post-Sampling Alpha	
						Direct	Removable	Direct	Removable
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		DUP of ____				

38

Survey Log Number: _____

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: **Building 886 (Roof samples – 4 per Quadrant)**



Date:_____ Time:_____

RWP Number: _____

Survey Log No. : _____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Building 886 Roof Sample Locations:

Roof is divided into four (4) sections. Four (4) samples will be taken from each section; total of sixteen (16) samples.

Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature: _____ **Date:** _____

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Roof
Building: 886
Room: Remaining
Location: Roof divided into 4 equal sections, 4 samples from each section
Quantity: 16 Real, 0 Duplicate(s)
Collection Date: _____

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Post-Sampling Alpha	
						Direct	Removable	Direct	Removable
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				

Survey Log Number: _____

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Post-Sampling Alpha	
						Direct	Removable	Direct	Removable
		001	Isotopic		Real				
		001	Isotopic		Real				

Survey Log Number: _____

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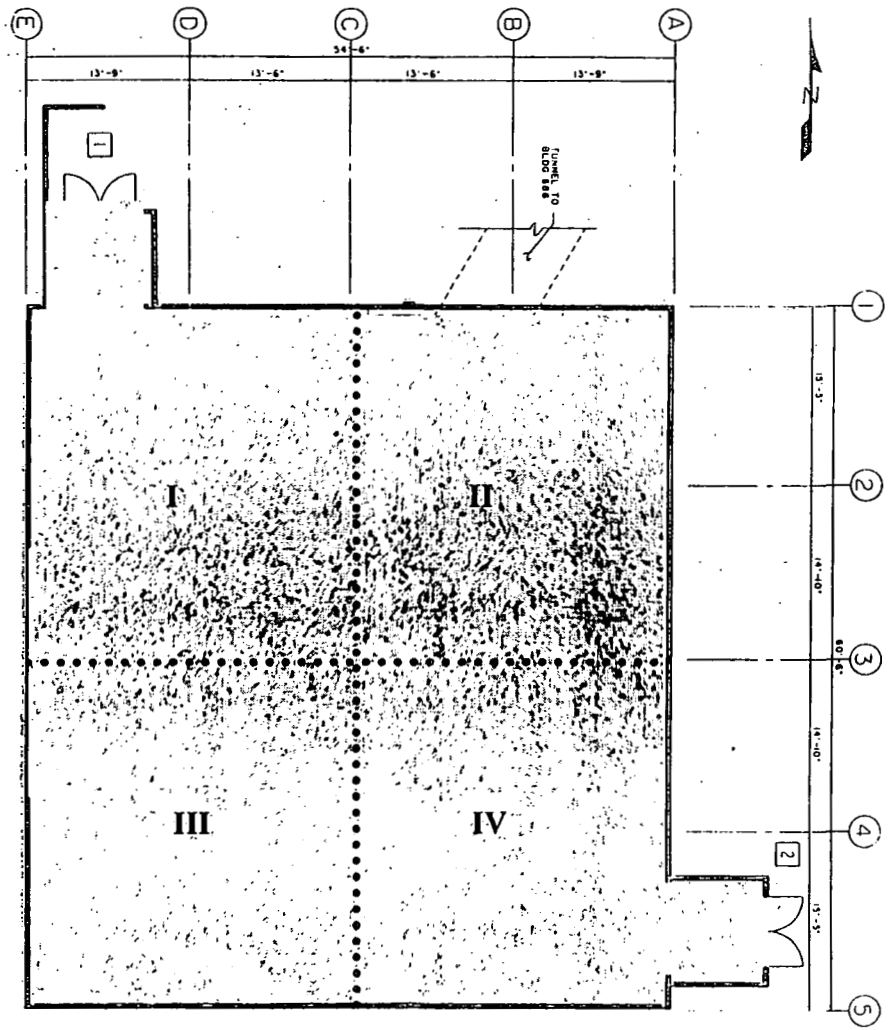
BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: **Building 875 (Roof samples – 2 per Quadrant)**



Date:_____ Time:_____

RWP Number: _____

Survey Log No. :_____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Building 875 Roof Sample Locations:

Roof is divided into four (4) sections. Two (2) samples will be taken from each section; total of eight (8) samples.

Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ Emp.#_____

Signature:_____ Date: _____

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

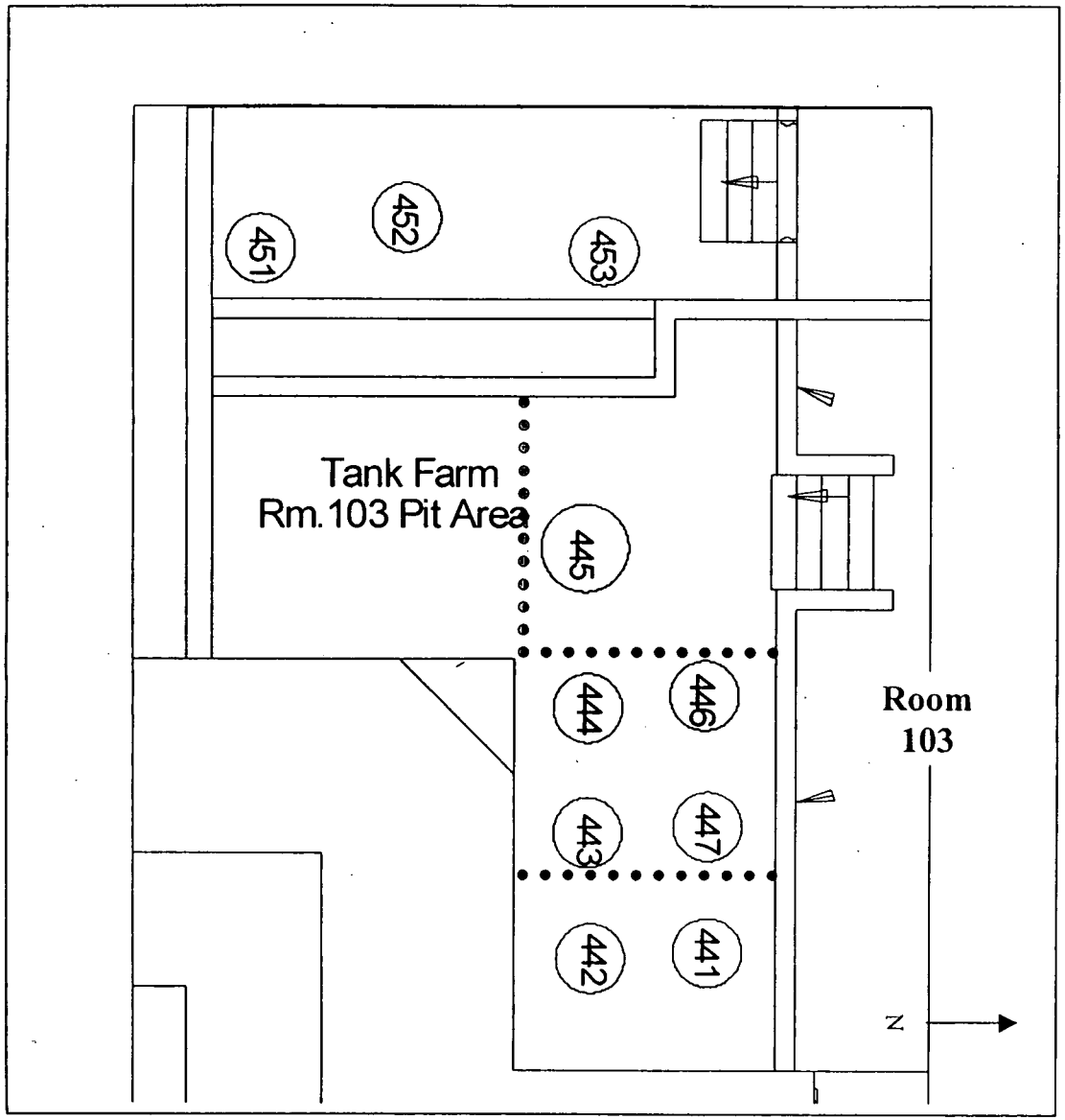
Sample Type: Roof
Building: 875
Room: N/A
Location: Roof divided into 4 equal sections, 2 samples from each section
Quantity: 8 Real, 1 Duplicate(s)
Collection Date: _____

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Post-Sampling Alpha	
						Direct	Removable	Direct	Removable
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		Real				
		001	Isotopic		DUP of _____				

Survey Log Number: _____

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: Tank Farm – Room 103 Pit (CORE SAMPLES TAKEN RM.103 SLAB)



Date:_____ Time:_____

RWP Number: _____

Survey Log No. : _____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Room 103 Pit Core Sample Locations:

Slab Floor is divided into four (4) sections. One (1) sample (core) will be obtained from each section. Core sample to 2-inches.

Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Slab
Building: 886
Room: 103 (Pit)
Location: Floor divided into 4 equal sections, 1 sample from each section
Quantity: 4 Real, 1 Duplicate(s)
Collection Date: _____

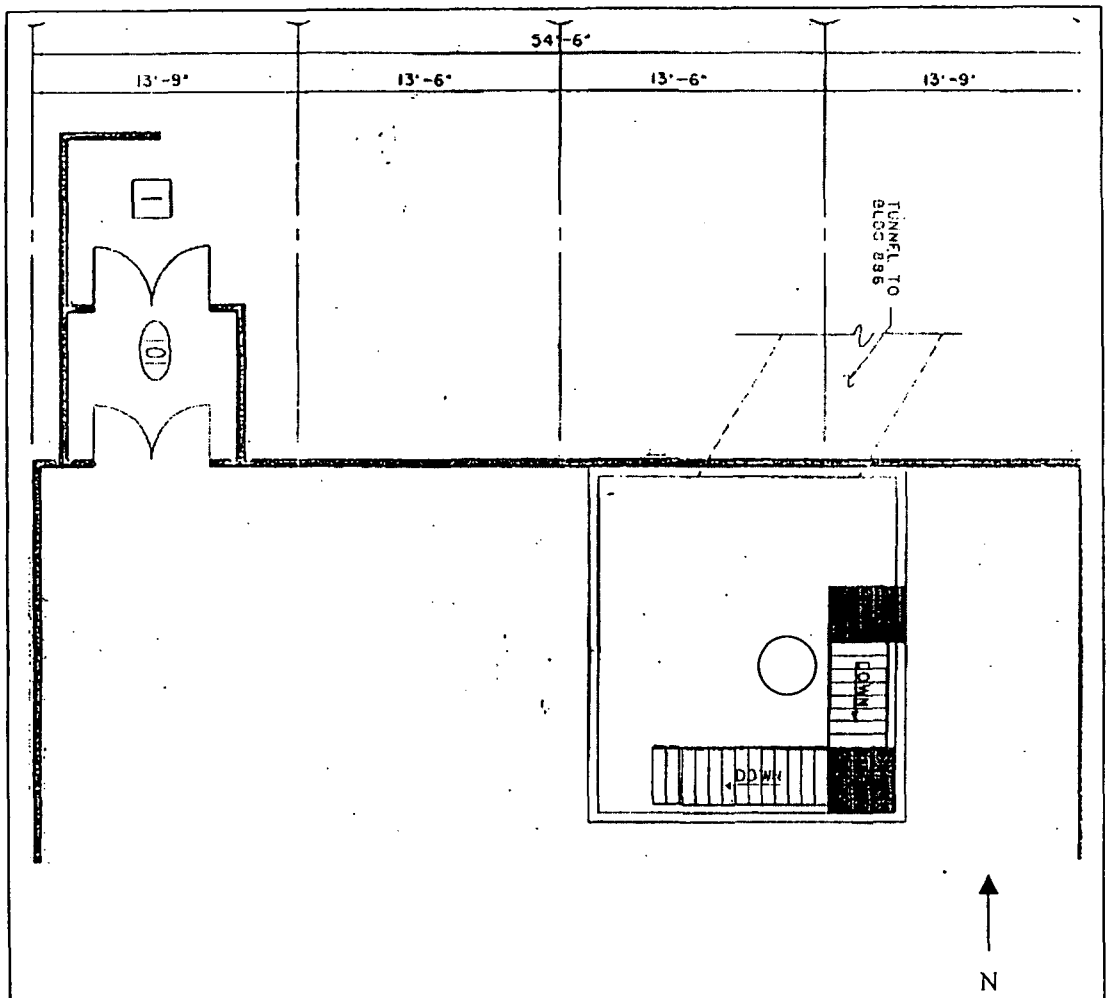
RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha	
						Direct	Removable
		001	Isotopic/ γ Spec		Real		
		001	Isotopic/ γ Spec		Real		
		001	Isotopic/ γ Spec		Real		
		001	Isotopic/ γ Spec		Real		
		001	Isotopic/ γ Spec		DUP of _____		

Survey Log Number: _____

45

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: **Bldg. 875** – Rashing Tank Area (3 Cores Around Tank)



Date:_____ Time:_____

RWP Number: _____

Survey Log No. :_____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Building 875 Core Sample Locations:

Slab floor below grade, around rashing ring tank. Three (3) core samples to 2-inches are required.

[see attached sheet(s) for sampling data]

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ Date: _____

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Building 886 Cluster In-Process Characterization Sample Collection Logsheet

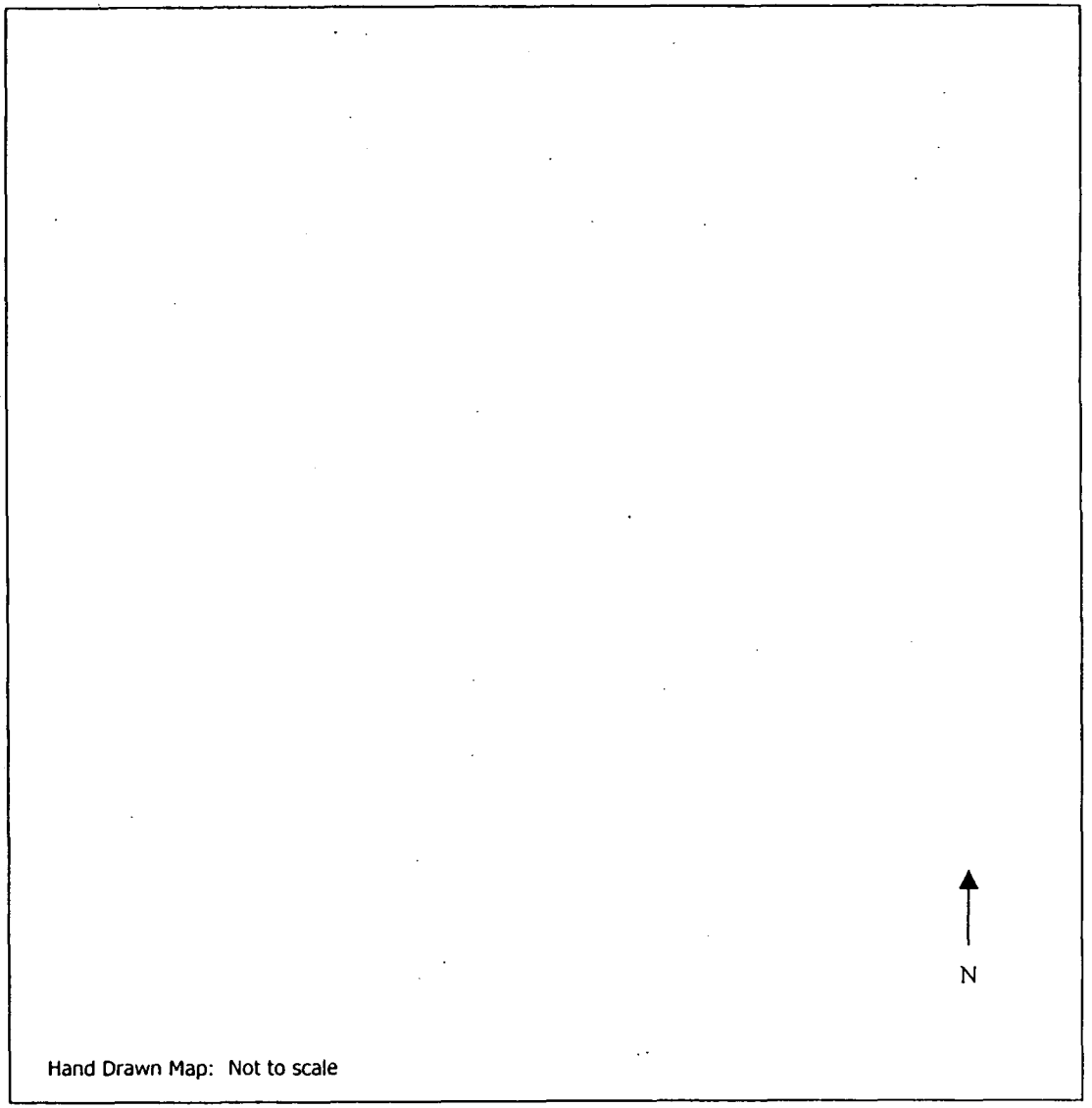
Sample Type: Slab
Building: 875
Room: Areas of slab subjected to groundwater intrusion
Location: Area below grade around rashing ring tank
Quantity: 3 Real, 0 Duplicate(s)
Collection Date: _____

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha	
						Direct	Removable
		001	Isotopic/ γ Spec		Real		
		001	Isotopic/ γ Spec		Real		
		001	Isotopic/ γ Spec		Real		

Survey Log Number: _____

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: **Bldg. 828** – Pit Slab (3 Cores; 1 core per section of slab)



Hand Drawn Map: Not to scale

Date:_____ Time:_____

RWP Number: _____

Survey Log No. :_____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Building 875 Core Sample Locations:

Slab floor below grade (in Pit), around tanks. Divide slab into three (3) sections. Three (3) core samples to 2-inches are required; 1 sample per section.

Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

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Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Slab
Building: 828
Room: Pit west of Building 886
Location: Floor will be divided into 3 sections, 1 sample obtained from each section
Quantity: 3 Real, 0 Duplicate(s)
Collection Date: _____

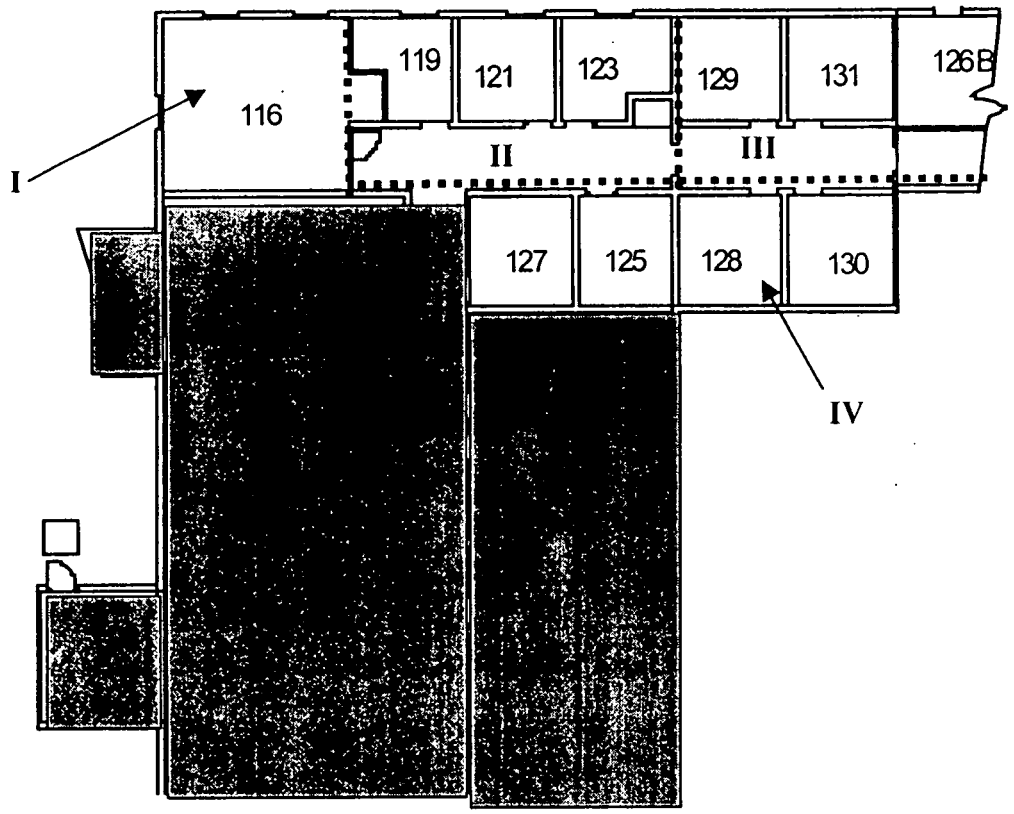
RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha	
						Direct	Removable
		001	Isotopic/ γ Spec		Real		
		001	Isotopic/ γ Spec		Real		
		001	Isotopic/ γ Spec		Real		

Survey Log Number: _____

49

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: Building 886 N. Admin Offices (Concrete Core Samples – 1 per Quadrant)



Date:_____ Time:_____

RWP Number: _____

Survey Log No. :_____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp.:_____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Building 886 North Office Coring Sample Locations:

North office area is divided into four (4) sections. One (1) sample will be taken from each section; total of four (4) samples.

Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

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Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Slab
Building: 886
Room: North administrative office areas
Location: Office areas will be divided into 4 equal sections, 1 sample obtained from each section
Quantity: 4 Real, 0 Duplicate(s)
Collection Date: _____

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha	
						Direct	Removable
		001	Isotopic/ γ Spec		Real		
		001	Isotopic/ γ Spec		Real		
		001	Isotopic/ γ Spec		Real		
		001	Isotopic/ γ Spec		Real		

Survey Log Number: _____

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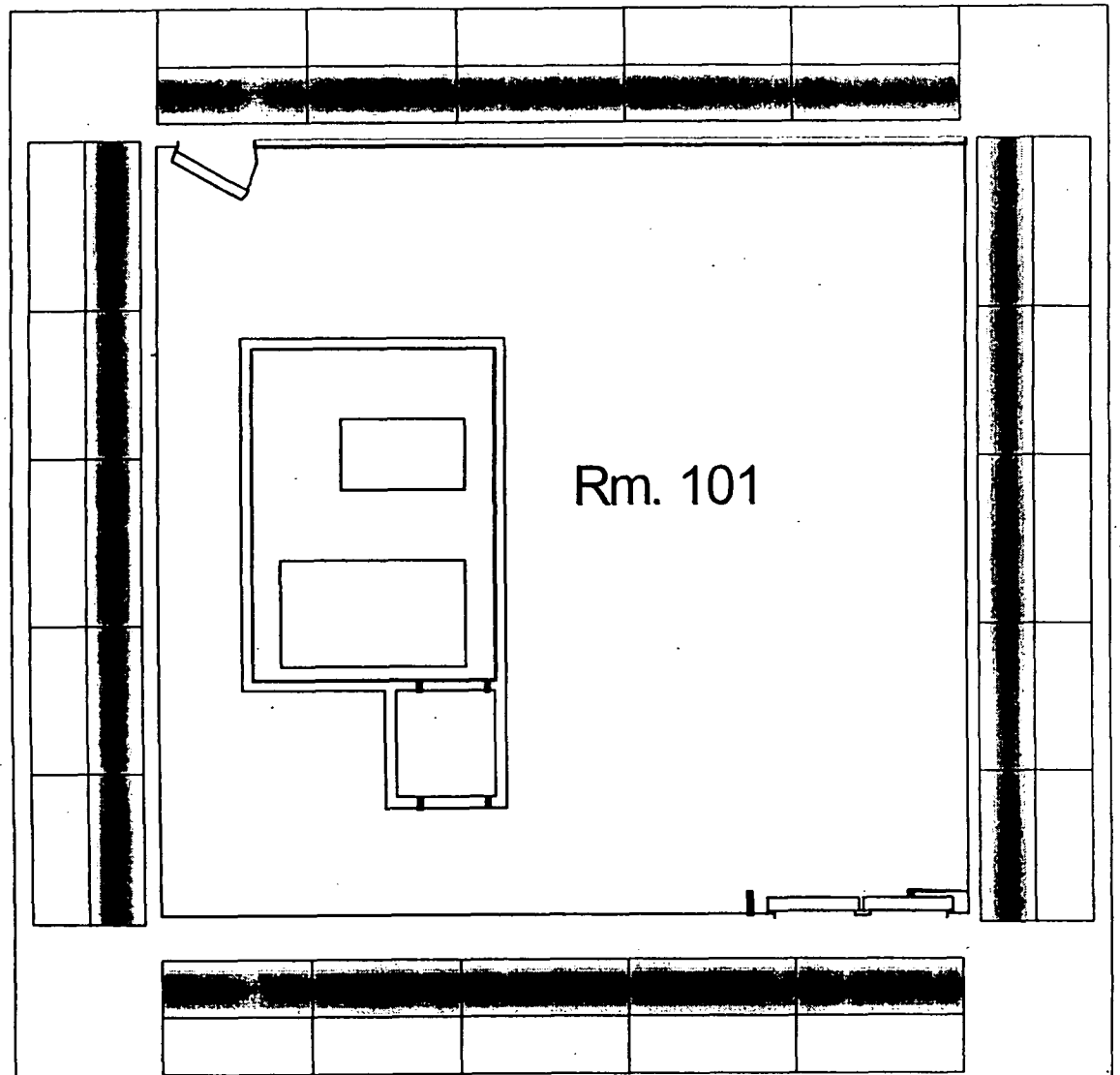
BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: **Bldg. 886** – PAINT SAMPLE, ROOM 101 Walls > 2m Above Slab



Date:_____ Time:_____

RWP Number: _____

Survey Log No. : _____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Building 886 Paint Sample Locations:

Each paint sample shall be taken at a height **> 2m** above floor. Five (5) samples shall be taken on each wall (N, S, E, W) for a total of twenty (20) samples.

RCT shall perform gross alpha scan of each sample location prior to any sampling operations. Samples will not be taken in areas where the gross alpha reading is > the detection limit.

Findings shall be logged on attached survey data sheet.
[see attached sheet(s) for sampling data]

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Interior Paint Samples
Building: 886
Room: 101
Location: Above 2 Meters, at least 5 samples obtained from each interior wall distributed uniformly
Quantity: 20 Real, 1 Duplicate(s)
Collection Date: ____________________

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						

Survey Log Number: ____________________

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		DUP of _____						

Survey Log Number:_____

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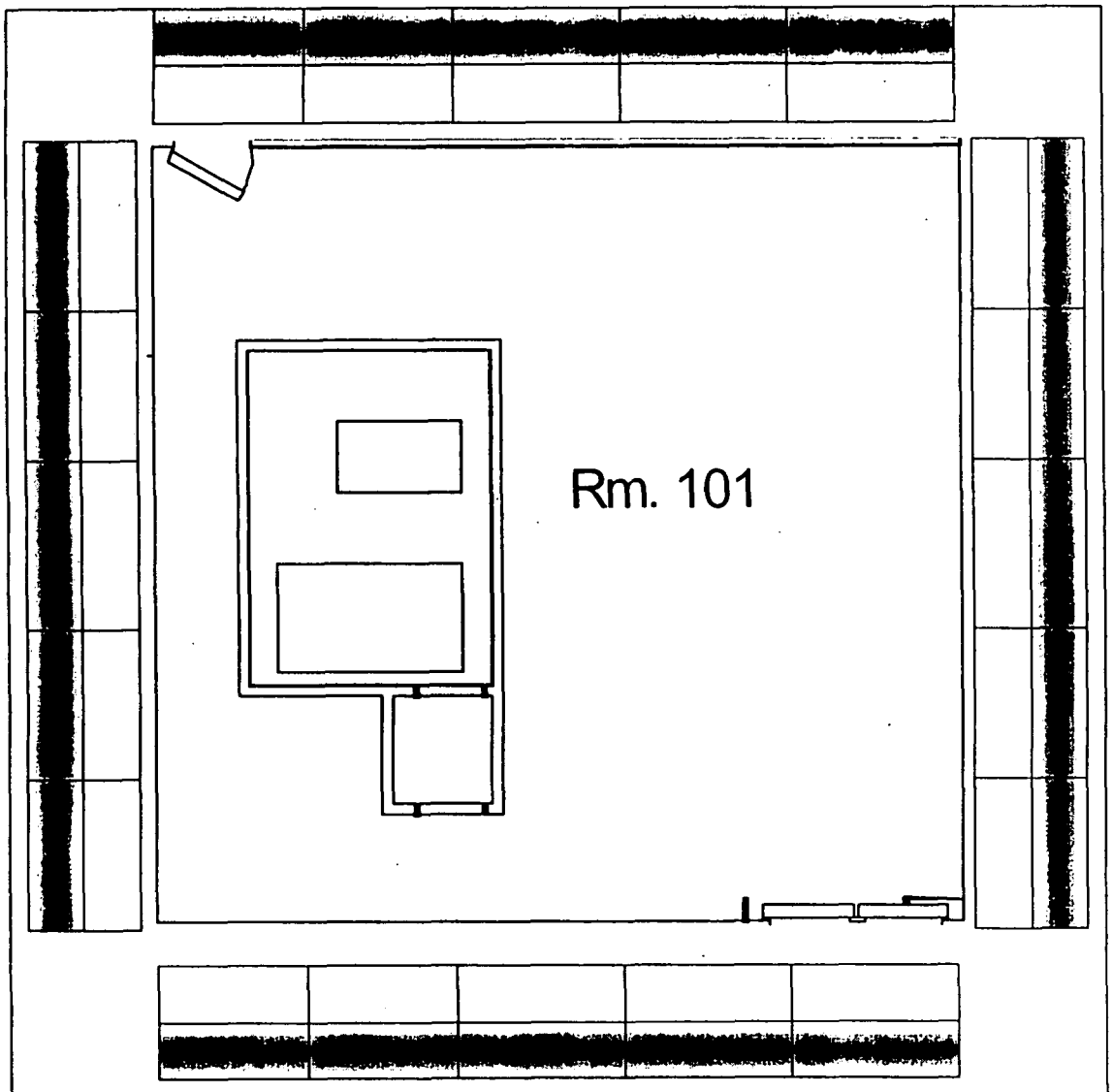
BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: **Bldg. 886** – PAINT SAMPLE, ROOM 101 Walls < 2m Above Slab



Date:_____ Time:_____

RWP Number: _____

Survey Log No. :_____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Building 886 Paint Sample Locations:

Each paint sample shall be taken at a height < **2m** above floor. Five (5) samples shall be taken on each wall (N, S, E, W) for a total of twenty (20) samples.

RCT shall perform gross alpha scan of each sample location prior to any sampling operations. Samples will not be taken in areas where the gross alpha reading is > the detection limit.

Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature: _____ **Date:** _____

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

55

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Interior Paint Samples
Building: 886
Room: 101
Location: Below 2 Meters, at least 5 samples obtained from each interior wall distributed uniformly
Quantity: 20 Real, 1 Duplicate(s)
Collection Date: ____________________

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						

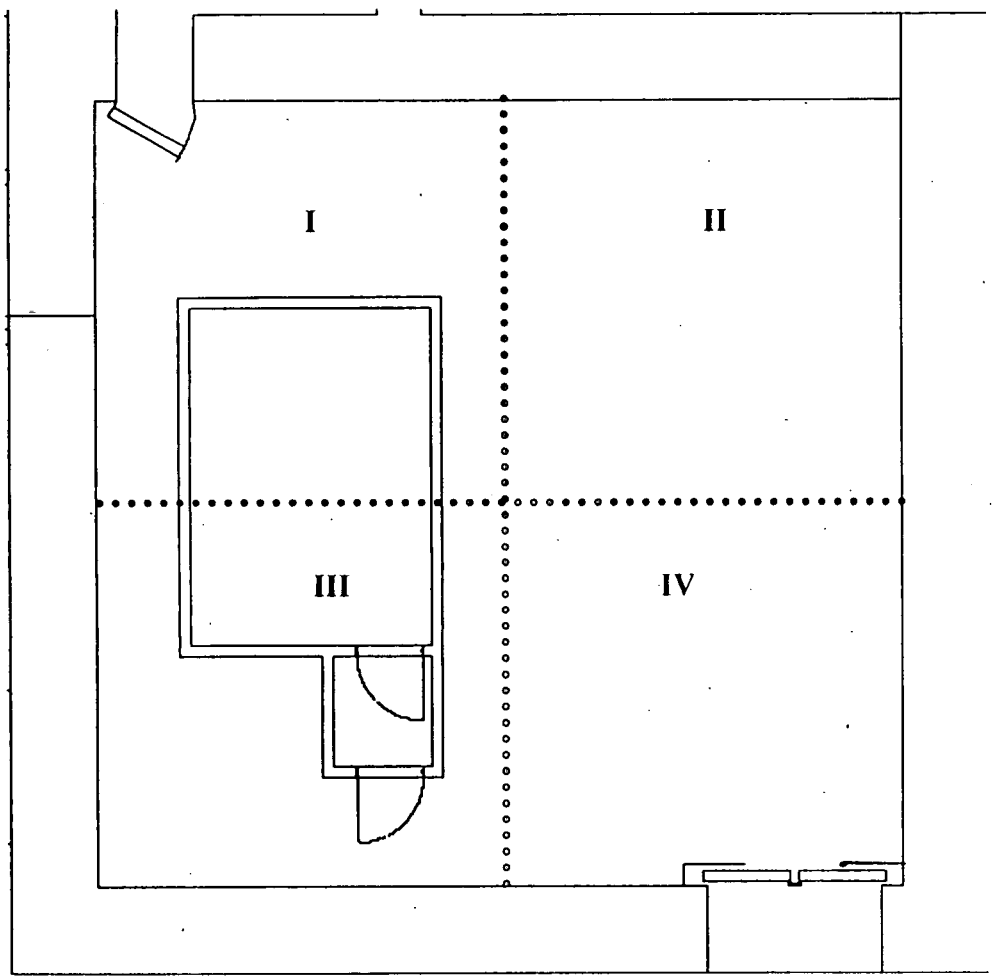
Survey Log Number: ____________________

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		DUP of _____						

Survey Log Number:_____

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: Room 101 Floor (PAINT SAMPLES TAKEN RM.101)



Date:_____ Time:_____

RWP Number: _____

Survey Log No. :_____

Measurements Performed by (R.C.T.):

Printed Name:_____Emp.:_____

Signature:_____Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Room 101 Floor - Paint Sample Locations:
Floor is divided into four (4) sections. Three (3) samples (PAINT) will be obtained from each section.

RCT shall perform gross alpha scan of each sample location prior to any sampling operations. Samples will not be taken in areas where the gross alpha reading is > the detection limit.

Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ Emp.#_____

Signature:_____ Date: _____

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____**Emp.#**_____

Signature:_____**Date:**_____

58

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Interior Paint Samples
Building: 886
Room: 101
Location: Floor divided into 4 equal sections, 3 samples obtained from each section
Quantity: 12 Real, 1 Duplicate(s)
Collection Date: ____________________

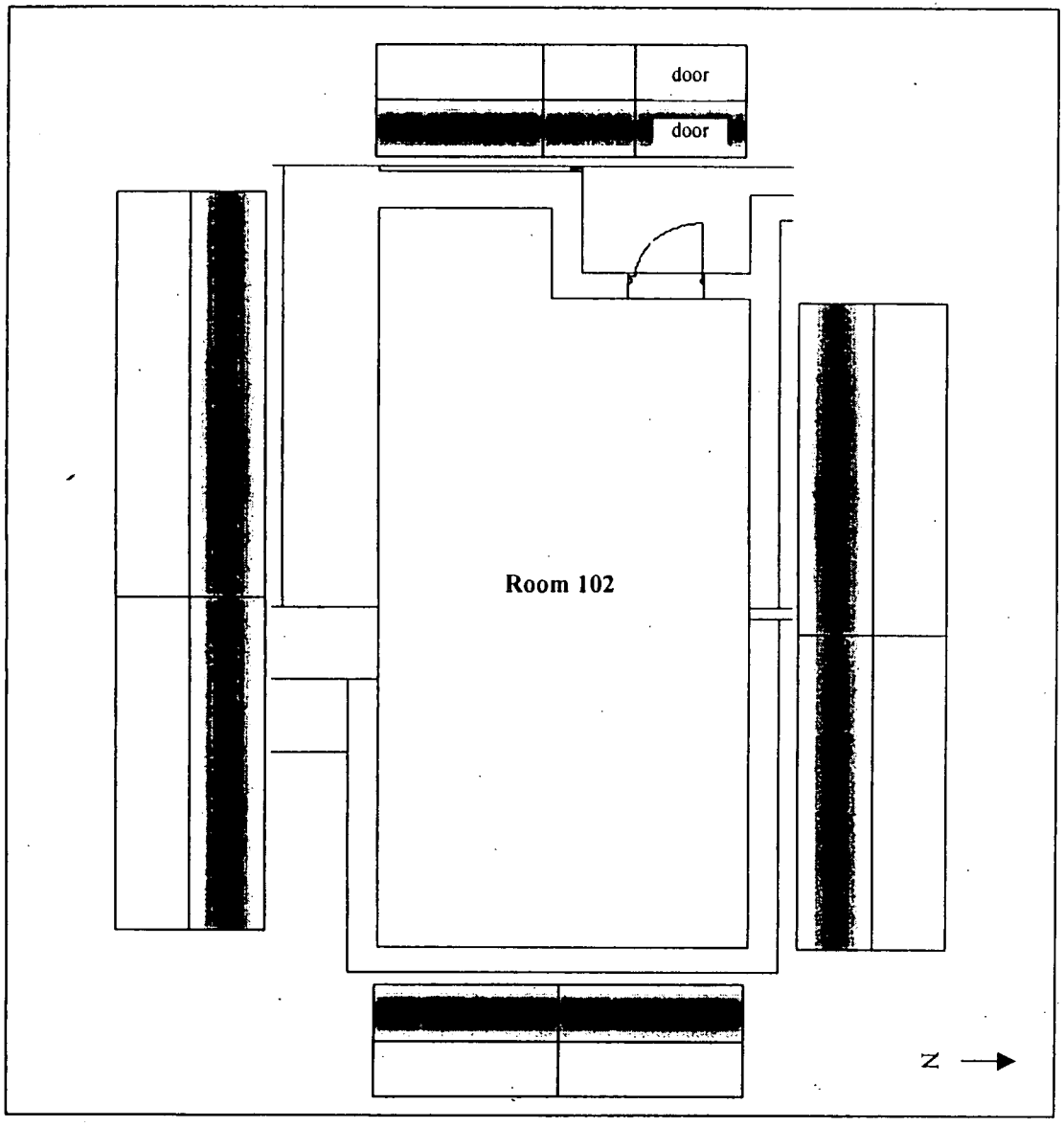
RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		DUP of _____						

Survey Log Number: ____________________

59

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: Bldg. 886 – PAINT SAMPLE, Room 102 Walls > 2m Above Slab



Date:_____ Time:_____

RWP Number: _____

Survey Log No. : _____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Room 102 Paint Sample Locations:

Each paint sample shall be taken at a height > **2m** above floor. Two (2) samples shall be taken on each wall (N, S, E, W) for a total of eight (8) samples.

RCT shall perform gross alpha scan of each sample location prior to any sampling operations. Samples will not be taken in areas where the gross alpha reading is > the detection limit.

Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Interior Paint Samples
Building: 886
Room: 102
Location: Above 2 Meters, at least 2 samples obtained from each wall distributed uniformly
Quantity: 8 Real, 0 Duplicate(s)
Collection Date: _____

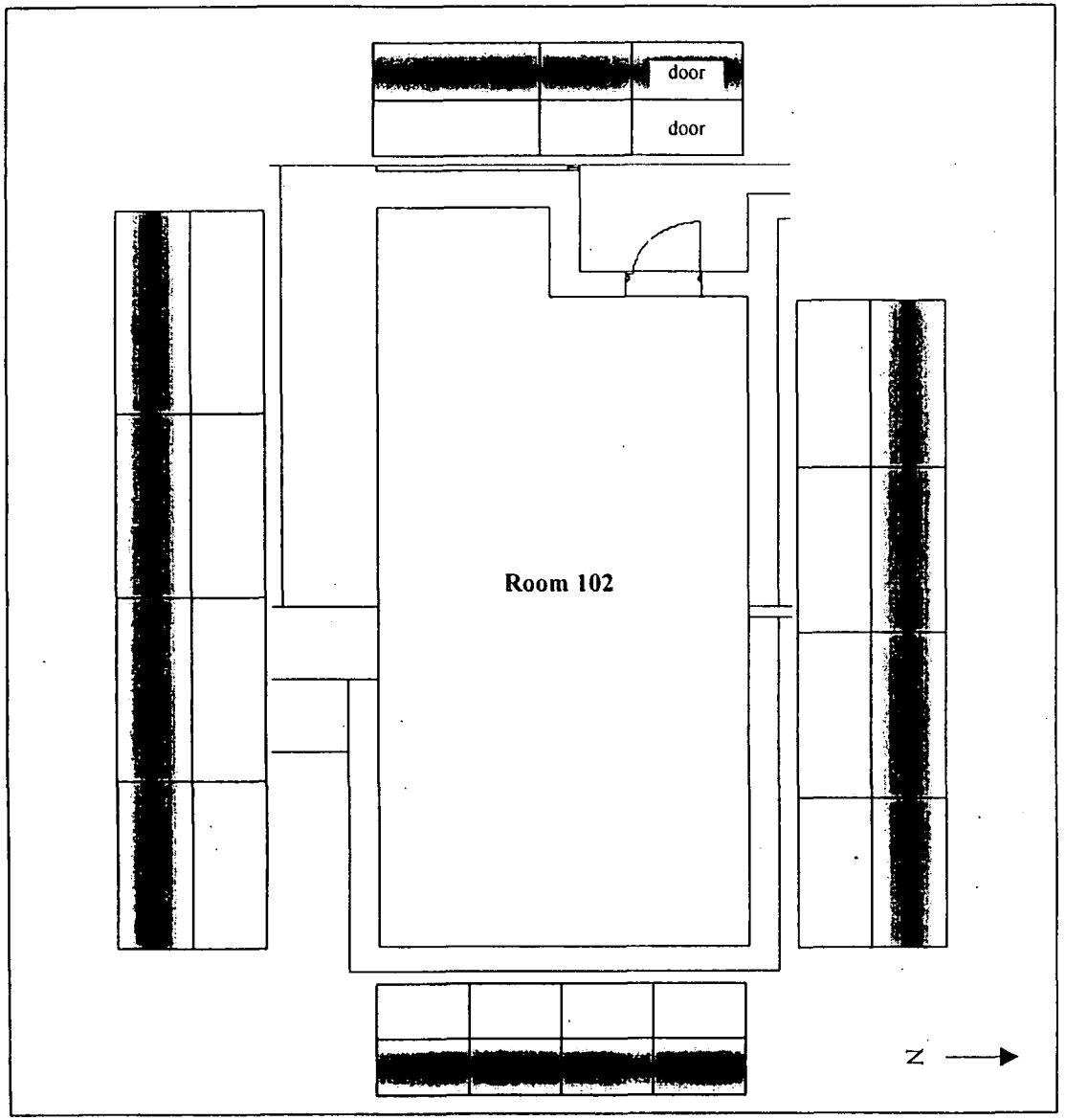
RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						

Survey Log Number: _____

61

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: Bldg. 886 – PAINT SAMPLE, Room 102 Walls < 2m Above Slab



Date:_____ Time:_____

RWP Number: _____

Survey Log No. : _____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Room 102 Paint Sample Locations:

Each paint sample shall be taken at a height **< 2m** above floor. Four (4) samples shall be taken on each wall (N, S, E, W) for a total of sixteen (16) samples.

RCT shall perform gross alpha scan of each sample location prior to any sampling operations. Samples will not be taken in areas where the gross alpha reading is > the detection limit.

Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ Emp.#_____

Signature:_____ Date: _____

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

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Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Interior Paint Samples
Building: 886
Room: 102
Location: Below 2 Meters, at least 4 samples obtained from each wall distributed uniformly
Quantity: 16 Real, 1 Duplicate(s)
Collection Date: ________________

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						

Survey Log Number: ________________

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		DUP of _____						

Survey Log Number:_____

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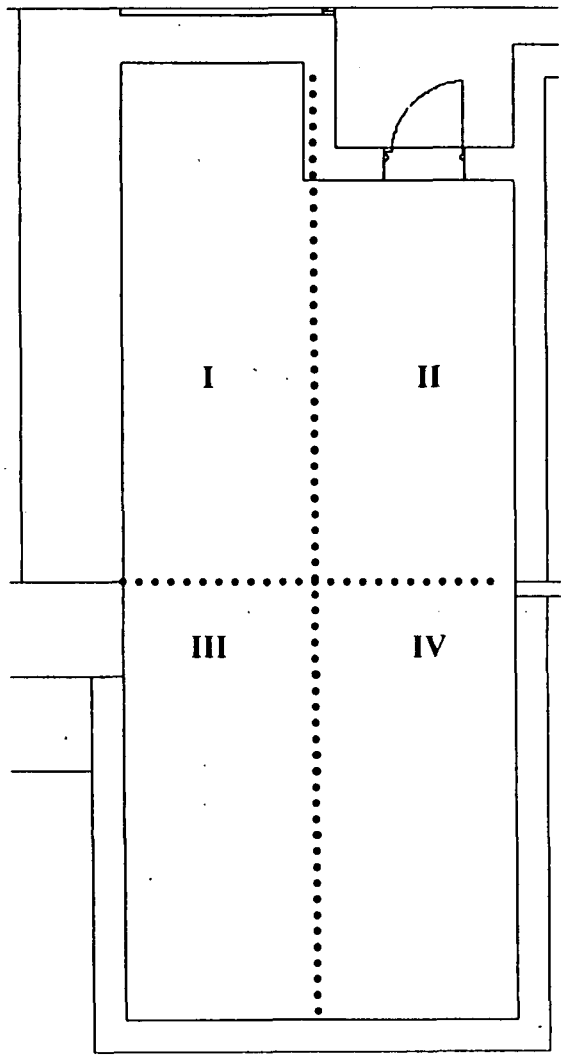
BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: Room 102 Floor (PAINT SAMPLES TAKEN RM.102 SLAB)



Date:_____ Time:_____

RWP Number: _____

Survey Log No. :_____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Room 102 Floor Paint Sample Locations:
Slab Floor is divided into four (4) sections. Three (3) samples (paint) will be obtained from each section. Core sample to 2-inches.

RCT shall perform gross alpha scan of each sample location prior to any sampling operations. Samples will not be taken in areas where the gross alpha reading is > the detection limit.

Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ Emp.#_____

Signature:_____ Date: _____

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ Emp.#_____

Signature: _____ Date: _____

65

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

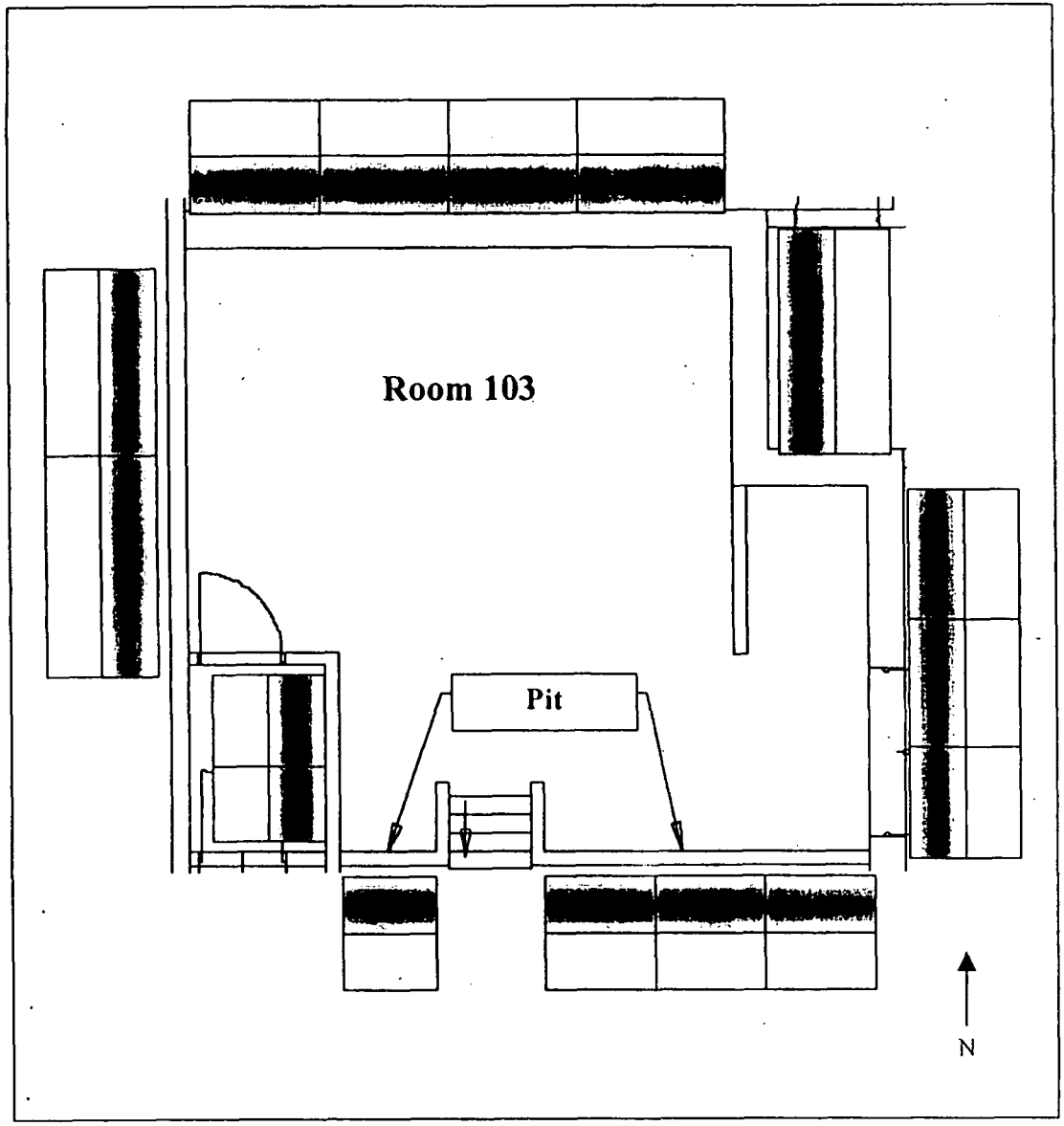
Sample Type: Interior Paint Samples
Building: 886
Room: 102
Location: Floor divided into 4 equal sections, 3 samples obtained from each section
Quantity: 12 Real, 1 Duplicate(s)
Collection Date: ______________

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		DUP of _____						

Survey Log Number: ______________

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: Bldg. 886 – PAINT SAMPLE, ROOM 103 Walls > 2m Above Slab



Date:_____ Time:_____

RWP Number: _____

Survey Log No. :_____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Room 103 Non-Pit Paint Sample Locations:
Each paint sample shall be taken at a height **> 2m** above floor. Four (4) samples shall be taken on each wall (N, S, E, W) for a total of sixteen (16) samples.

RCT shall perform gross alpha scan of each sample location prior to any sampling operations. Samples will not be taken in areas where the gross alpha reading is > the detection limit.
Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signatu[redacted] _____ **Date:** [redacted]

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ Date: [redacted]

67

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Interior Paint Samples
Building: 886
Room: 103
Location: Above 2 Meters, at least 4 samples obtained from each wall distributed uniformly
Quantity: 16 Real, 1 Duplicate(s)
Collection Date: ________________

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						

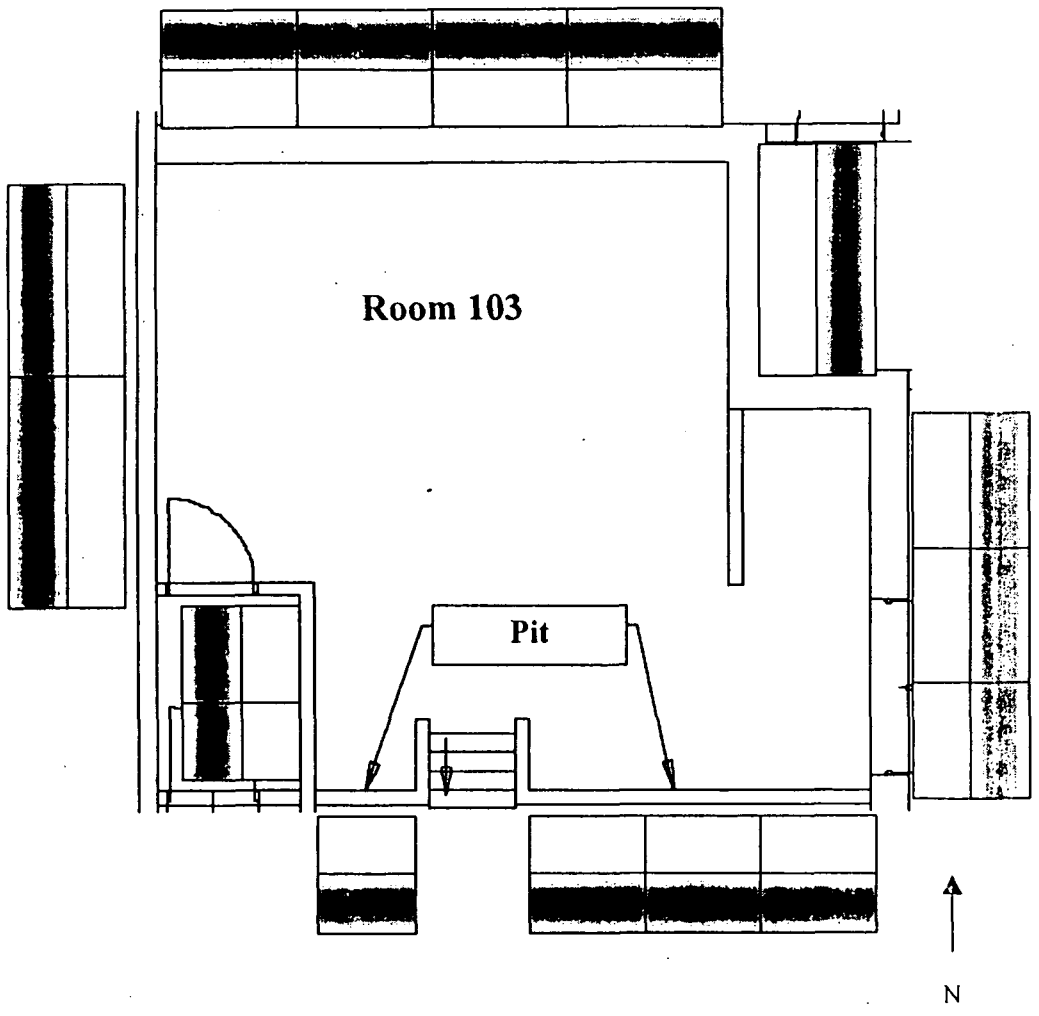
Survey Log Number: ________________

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		DUP of _____						

Survey Log Number:_____

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: Bldg. 886 – PAINT SAMPLE, ROOM 103 Walls < 2m Above Slab



Date:_____ Time:_____

RWP Number: _____

Survey Log No. : _____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Room 103 Non-Pit Paint Sample Locations:

Each paint sample shall be taken at a height **< 2m** above floor. Four (4) samples shall be taken on each wall (N, S, E, W) for a total of sixteen (16) samples.

RCT shall perform gross alpha scan of each sample location prior to any sampling operations. Samples will not be taken in areas where the gross alpha reading is > the detection limit.

Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Interior Paint Samples
Building: 886
Room: 103
Location: Below 2 Meters, at least 4 samples obtained from each wall distributed uniformly
Quantity: 16 Real, 1 Duplicate(s)
Collection Date: ____________

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area	Mass	Post-Sampling Alpha	
						Direct	Removable	(cm^2)	(g)	Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						

Survey Log Number: ____________

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RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		DUP of _____						

Survey Log Number:_____

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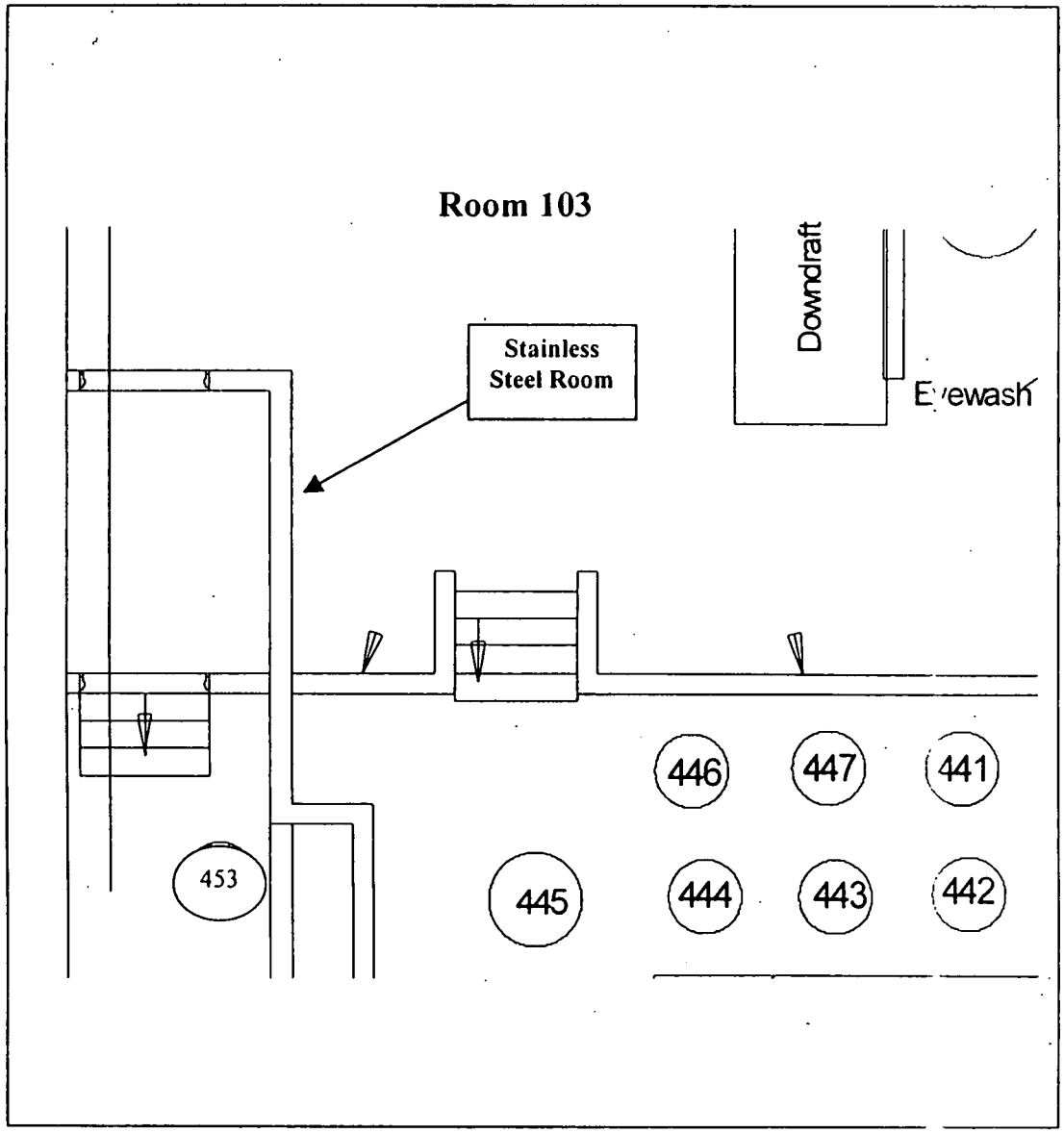
BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: RM 103 BEHIND STAINLESS STEEL ROOM (Paint samples from walls)



Date:_____ Time:_____

RWP Number: _____

Survey Log No. :_____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp.#_____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Stainless Steel Room Paint Sample Locations:
Stainless Steel Room walls. Four (4) samples (paint) will be obtained, uniformly distributed over entire room. Sampling shall also include section above ceiling

RCT shall perform gross alpha scan of each sample location prior to any sampling operations. Samples will not be taken in areas where the gross alpha reading is > the detection limit.

Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ Emp.#_____

Signature:_____ Date: _____

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

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Building 886 Cluster In-Process Characterization Sample Collection Logsheet

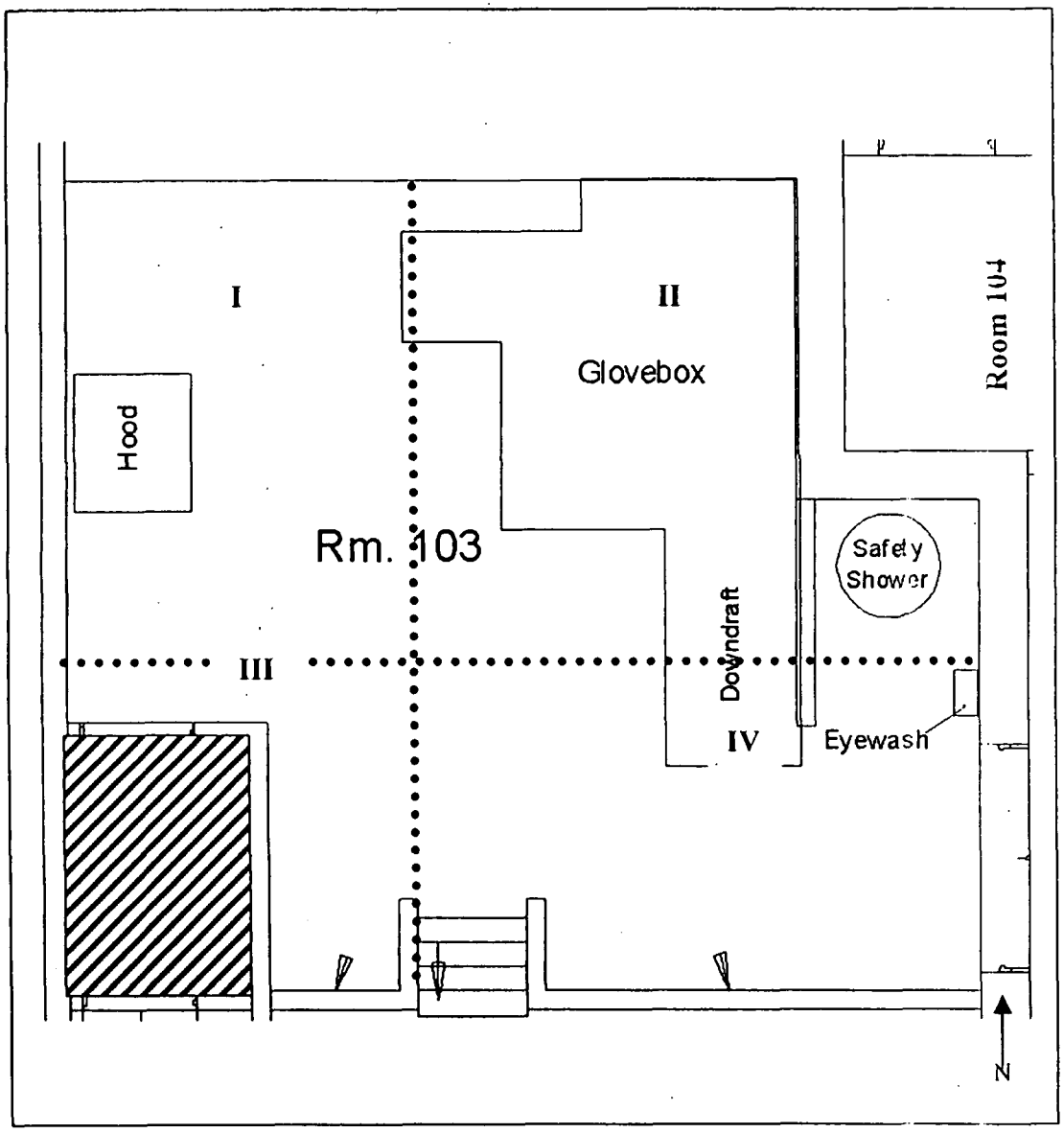
Sample Type: Interior Paint Samples
Building: 886
Room: 103
Location: Behind S.S. Room, samples distributed uniformly over wall section covered by stainless steel room
Quantity: 4 Real, 0 Duplicate(s)
Collection Date: _____

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						

Survey Log Number: _____

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: Room 103 Floor (PAINT SAMPLES FROM SLAB-Not in Pit)



Date:_____ Time:_____

RWP Number: _____

Survey Log No. : _____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Room 103 Non-Pit Paint Sample Locations:

Slab Floor is divided into four (4) sections. Three (3) samples (paint) will be obtained from each section. Core sample to 2-inches.

Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signatu[redacted] _____ **Date:** [redacted]

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** [redacted]

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Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Interior Paint Samples
Building: 886
Room: 103
Location: Floor divided into 4 equal sections, 3 samples obtained from each section (excludes 103 pit)
Quantity: 12 Real, 1 Duplicate(s)
Collection Date: ____________

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		DUP of _____						

Survey Log Number: ____________

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: ROOM 108 – Hallway (Paint samples from walls-includes section above ceiling) Date:_____ Time:_____

RWP Number: _____

Survey Log No. : _____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

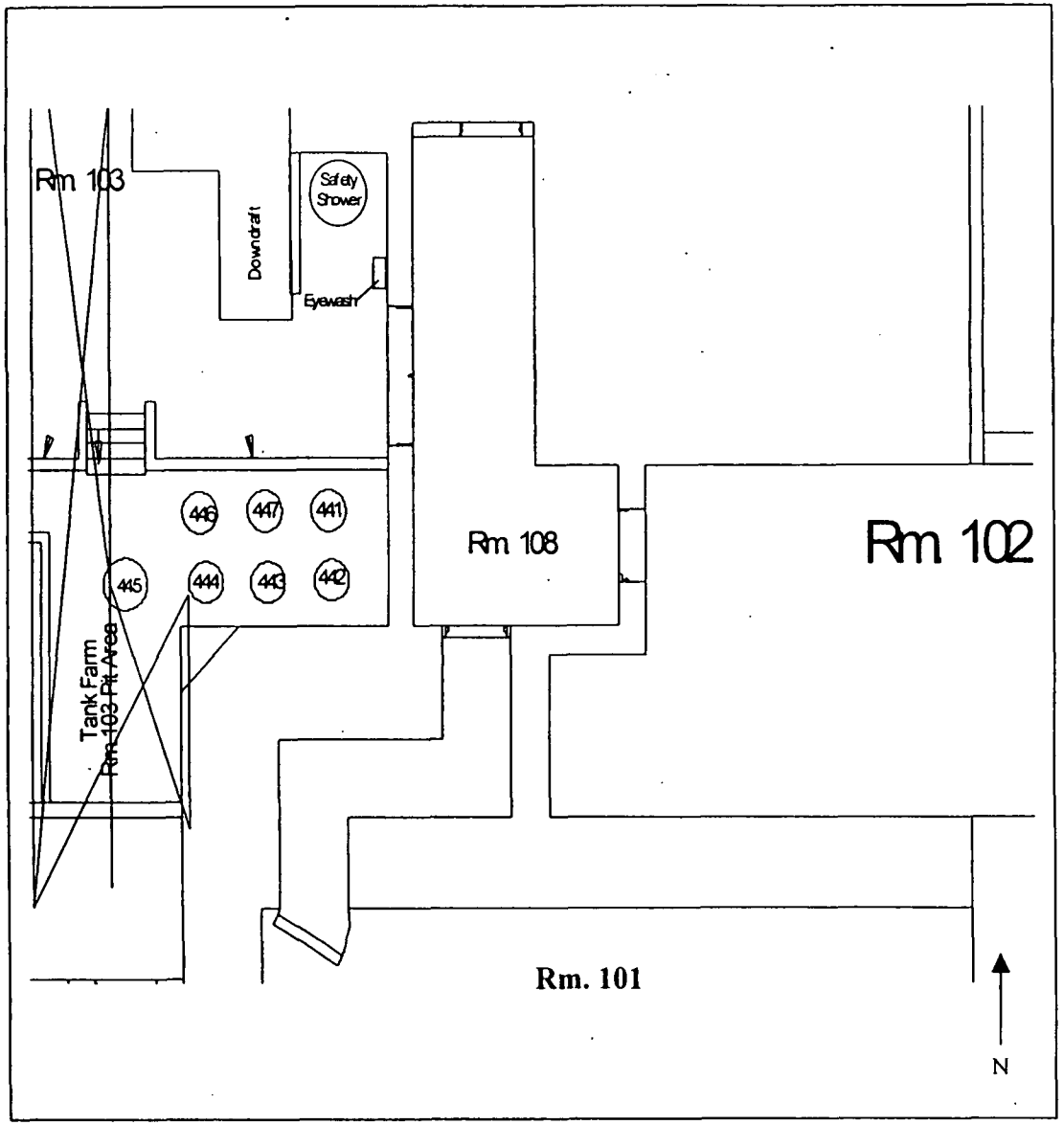
Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____



Room 108 – Hallway, Paint Sample Locations:
Hallway walls. Sixteen (16) samples (paint) will be obtained, uniformly distributed over entire room. Sampling shall also include section above ceiling

RCT shall perform gross alpha scan of each sample location prior to any sampling operations. Samples will not be taken in areas where the gross alpha reading is > the detection limit.

Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signatu[redacted] _____ **Date:** [redacted]

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

[redacted]

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Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Interior Paint Samples
Building: 886
Room: 108
Location: Hallway, includes section above ceiling, samples distributed uniformly
Quantity: 16 Real, 1 Duplicate(s)
Collection Date: ____________

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						

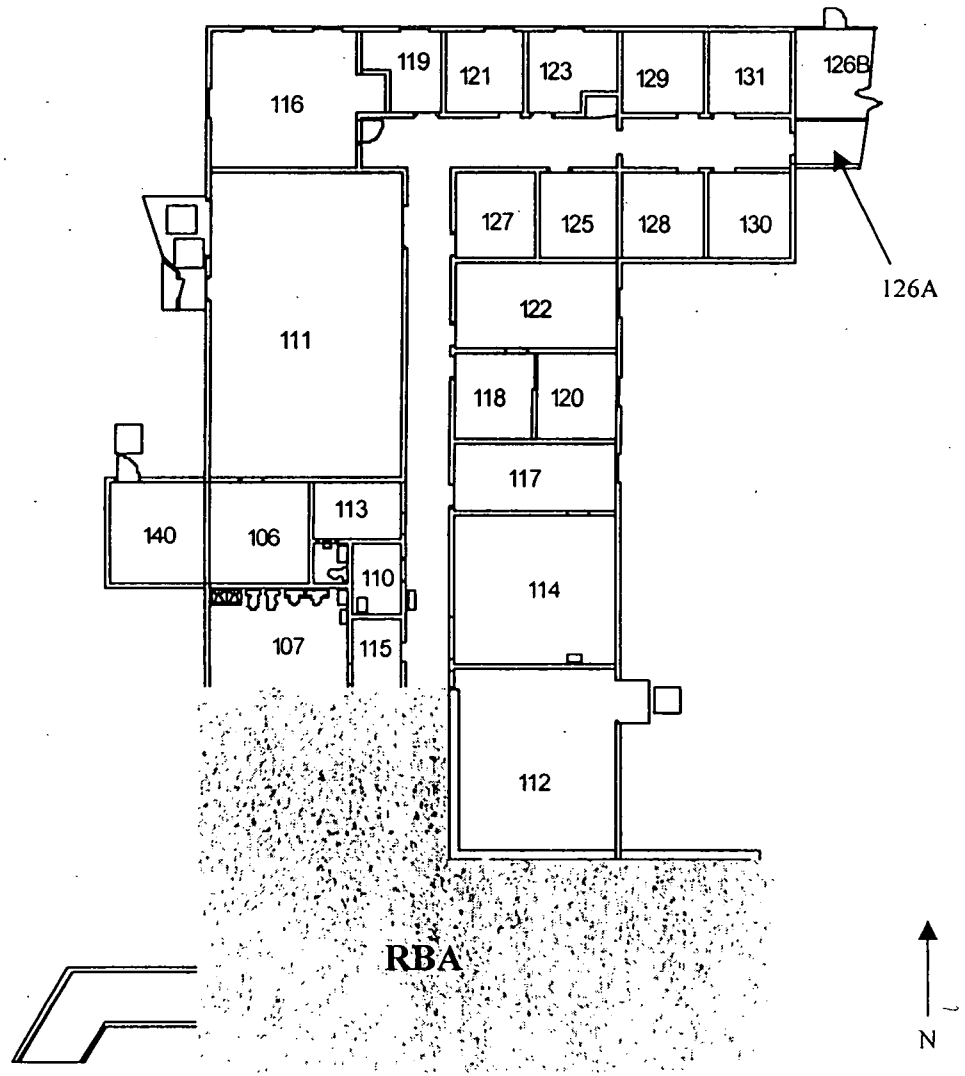
Survey Log Number: ____________

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		DUP of _____						

Survey Log Number:_____

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: Non-RBA Rooms (Paint samples from walls-all rooms outside RBA)



Date:_____ Time:_____

RWP Number: _____

Survey Log No. : _____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Non-RBA Rooms - Paint Sample Locations:
Rooms outside RBA. Twenty-five (25) samples (paint) will be obtained. One (1) paint sample shall be obtained per room.

RCT shall perform gross alpha scan of each sample location prior to any sampling operations. Samples will not be taken in areas where the gross alpha reading is > the detection limit.

Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ Emp.#_____

Signature:_____ Date: _____

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

80

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Interior Paint Samples
Building: 886
Room: Non-RBA Rooms; See Column Below
Location: 1 Paint Sample per Room
Quantity: 25 Real, 1 Duplicate(s)
Collection Date: ____________________

RIN	Event	Bottle	Analysis	Time	Room	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
							Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						

Survey Log Number: ____________________

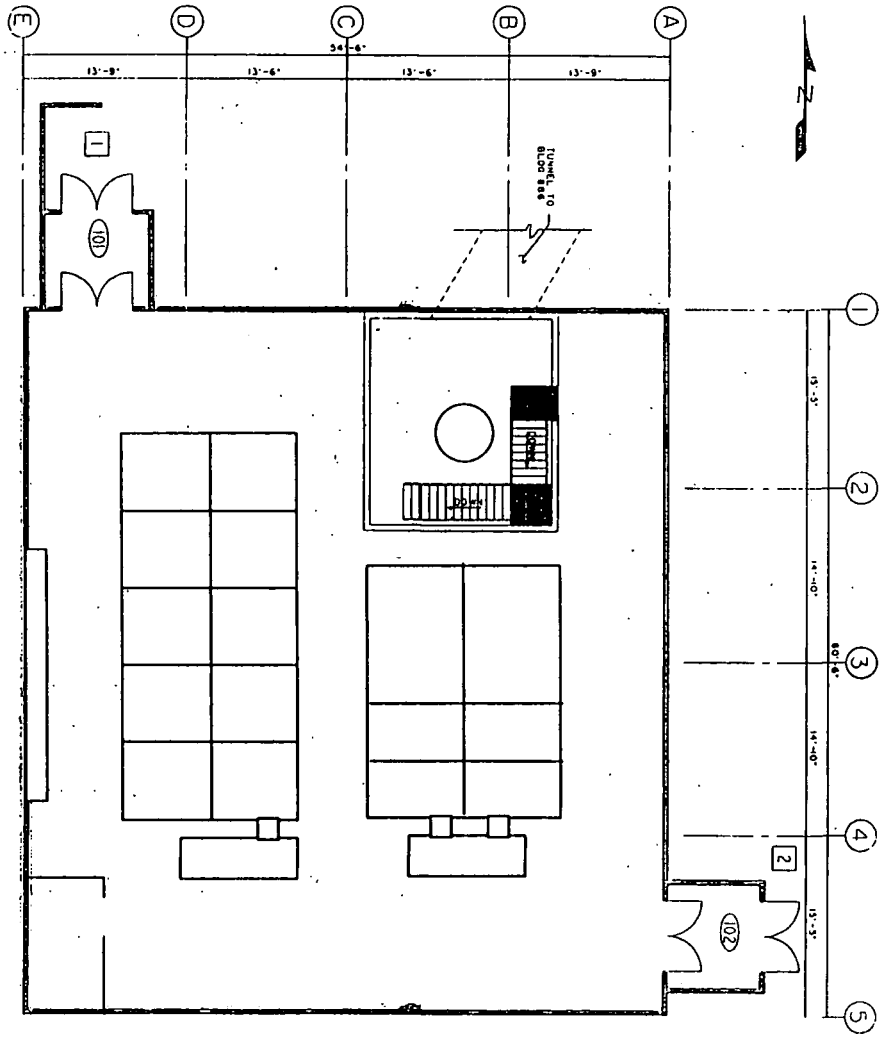
RIN	Event	Bottle	Analysis	Time	Room	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
							Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			DUP of _____						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			Real						
		001	Isotopic/ γ Spec			DUP of _____						

Survey Log Number: _____

82

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: **Building 875** (Paint samples – uniformly distributed throughout area)



Date:_____ Time:_____

RWP Number: _____

Survey Log No. : _____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Building 875 Paint Sample Locations:

Sixteen (16) samples (paint) will be obtained, uniformly distributed over entire area.

RCT shall perform gross alpha scan of each sample location prior to any sampling operations. Samples will not be taken in areas where the gross alpha reading is > the detection limit.

Findings shall be logged on the attached survey data sheet.

[see attached sheet(s) for sampling data]

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ Emp.#_____

Signature:_____ Date: _____

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature: _____ **Date:** _____

83

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Interior Paint Samples
Building: 875
Room: Distributed Throughout Building
Location: Distributed Uniformly
Quantity: 16 Real, 1 Duplicate(s)
Collection Date: ________________

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						

Survey Log Number: ________________________

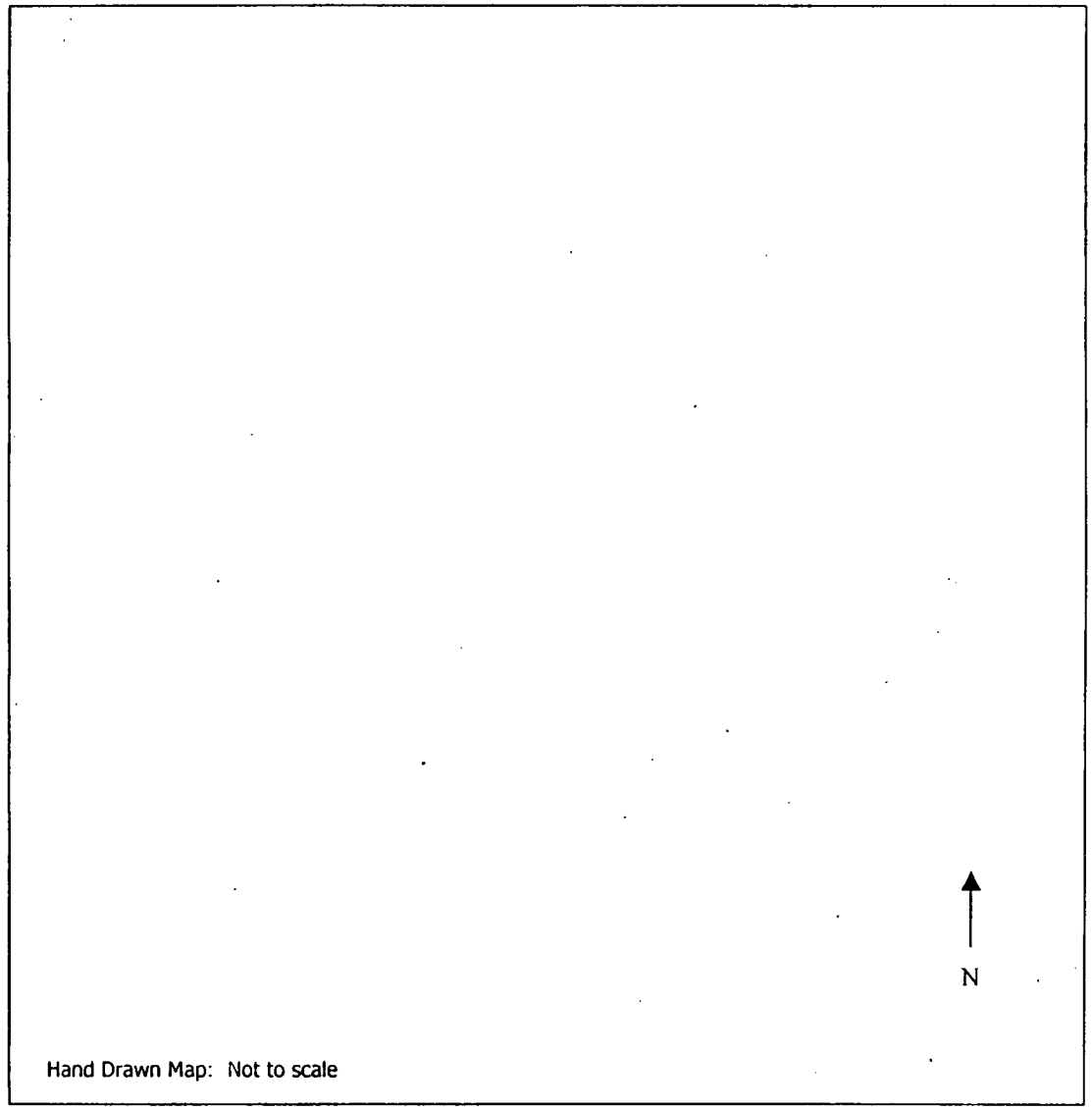
RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		DUP of _____						

Survey Log Number:_____

85

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: **Bldg. 888** – Guard Shack (Interior Paint Samples)



Hand Drawn Map: Not to scale

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Date:_____ Time:_____

RWP Number: _____

Survey Log No. :_____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Building 888 Paint Sample Locations:

Eight (8) samples (paint) will be obtained, uniformly distributed over entire area. At least 2 samples will be taken from each wall.

RCT shall perform gross alpha scan of each sample location prior to any sampling operations. Samples will not be taken in areas where the gross alpha reading is > the detection limit.

[see attached sheet(s) for sampling data]

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ Emp.#_____

Signature:_____ Date: _____

86

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Interior Paint Samples
Building: 888
Room: Guard Shack
Location: 2 Samples from each wall, distributed uniformly
Quantity: 8 Real, 0 Duplicate(s)
Collection Date: _____

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						

Survey Log Number: _____

87

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: **Bldg. 888** – Guard Shack Exterior (Paint Samples)

Date:_____ Time:_____

RWP Number: _____

Survey Log No. : _____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

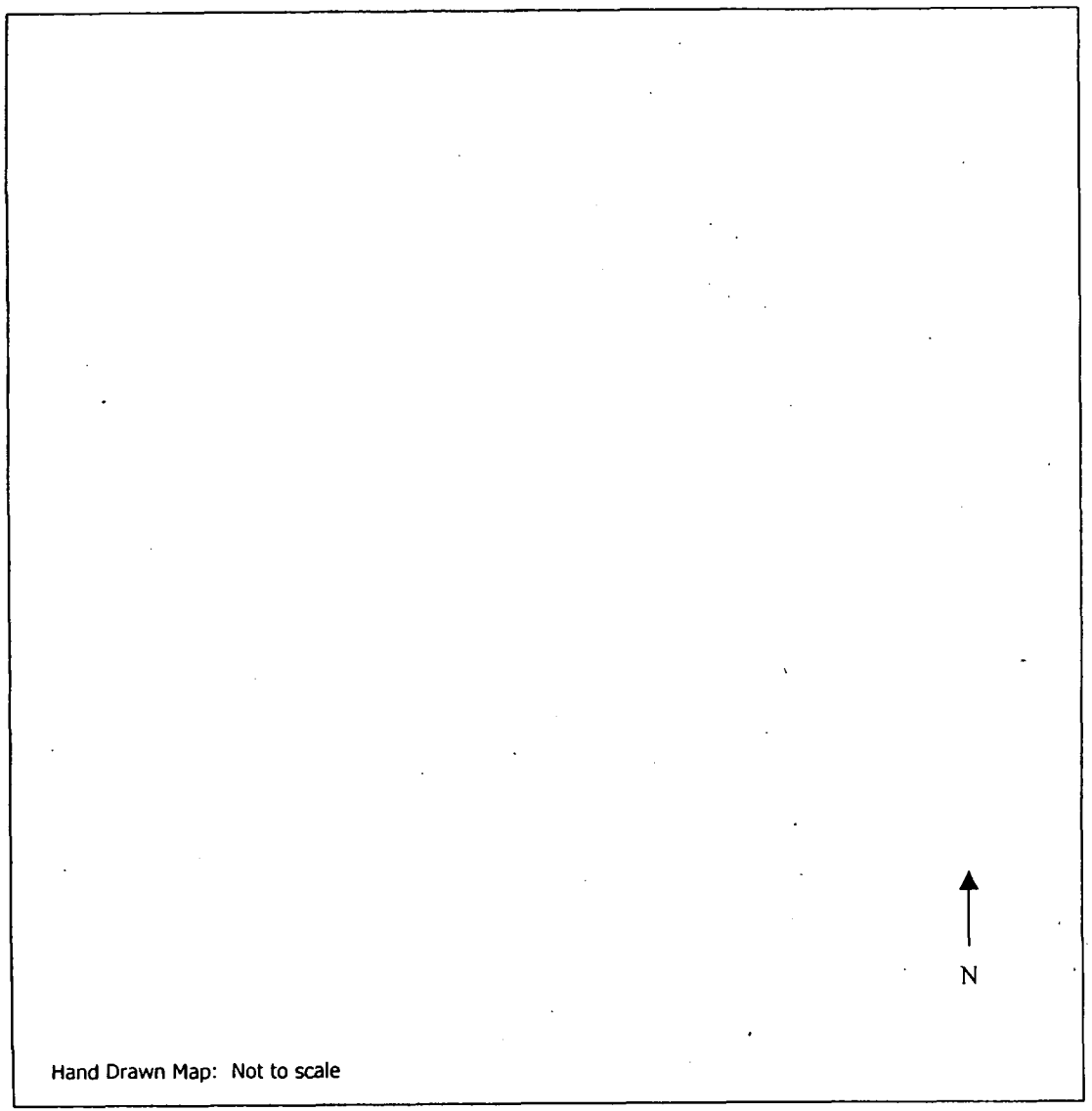
Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____



Hand Drawn Map: Not to scale

Building 888 Paint Sample Locations:
Eight (8) samples (paint) will be obtained, uniformly distributed over entire area. At least 2 samples will be taken from each wall.

RCT shall perform gross alpha scan of each sample location prior to any sampling operations. Samples will not be taken in areas where the gross alpha reading is > the detection limit.

[see attached sheet(s) for sampling data]

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

88

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Exterior Paint Samples
Building: 888A
Room: Guard Shack Exterior Walls
Location: Obtain 2 paint samples from each exterior wall
Quantity: 8 Real, 1 Duplicate(s)
Collection Date: _____

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		DUP of _____						

Survey Log Number: _____

89

BUILDING 886 – BUILDING MEDIA SAMPLE SURVEY FORM

SURVEY LOCATION: **Bldg. 886**– Exterior Walls (Paint Samples)

Date:_____ Time:_____

RWP Number: _____

Survey Log No. :_____

Measurements Performed by (R.C.T.):

Printed Name:_____Emp._____

Signature:_____Date:_____

SURVEY INSTRUMENT

Mfg. : _____

Model: _____

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

N

Hand Drawn Map: Not to scale

Building 886 Paint Sample Locations:

Thirty (30) samples (paint) will be obtained, uniformly distributed over entire building. At least 1 samples will be taken from each exterior plane surface. Note that a wall may exhibit more than one plane – each plane shall be sampled.

RCT shall perform gross alpha scan of each sample location prior to any sampling operations. Samples will not be taken in areas where the gross alpha reading is > the detection limit.

[see attached sheet(s) for sampling data]

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____**Emp.#**_____

Signature:_____**Date:** _____

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

90

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Exterior Paint Samples
Building: 886
Room: Exterior Walls
Location: Sample locations distributed uniformly, at least 1 paint sample obtained from each exterior wall
Quantity: 30 Real, 1 Duplicate(s)
Collection Date: ____________________

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						

Survey Log Number: ____________________

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha		Area (cm^2)	Mass (g)	Post-Sampling Alpha	
						Direct	Removable			Direct	Removable
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		Real						
		001	Isotopic/ γ Spec		DUP of _____						

92

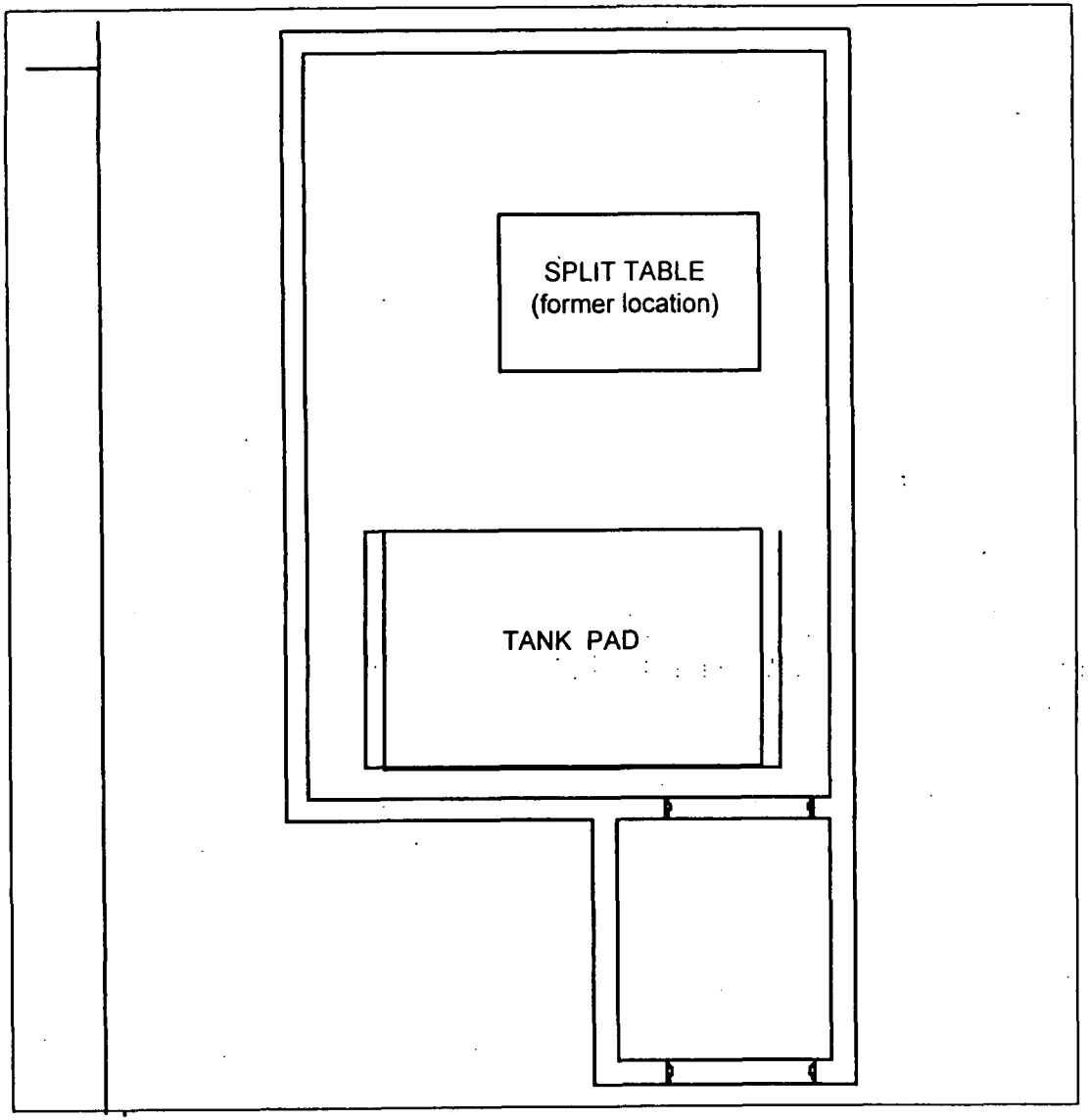
Survey Log Number:______________________

APPENDIX C

U: TRANSURANIC SURVEY FORMS

BUILDING 886 - U:TRANSURANIC SURVEY FORM

SURVEY LOCATION: Room 101 – Assembly Hood (10 Survey Points Required)



Date:_____ Time:_____

RWP Number: _____

Survey Log No. :_____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp.____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : Eberline

Model: SAC-4

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Survey Measurements: ALPHA(dpm/100cm^2)

886-101AH-01:_____	886-101AH-06:_____
886-101AH-02:_____	886-101AH-07:_____
886-101AH-03:_____	886-101AH-08:_____
886-101AH-04:_____	886-101AH-09:_____
886-101AH-05:_____	886-101AH-10:_____

Survey Swipes Counted by (R.C.T.):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

94

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

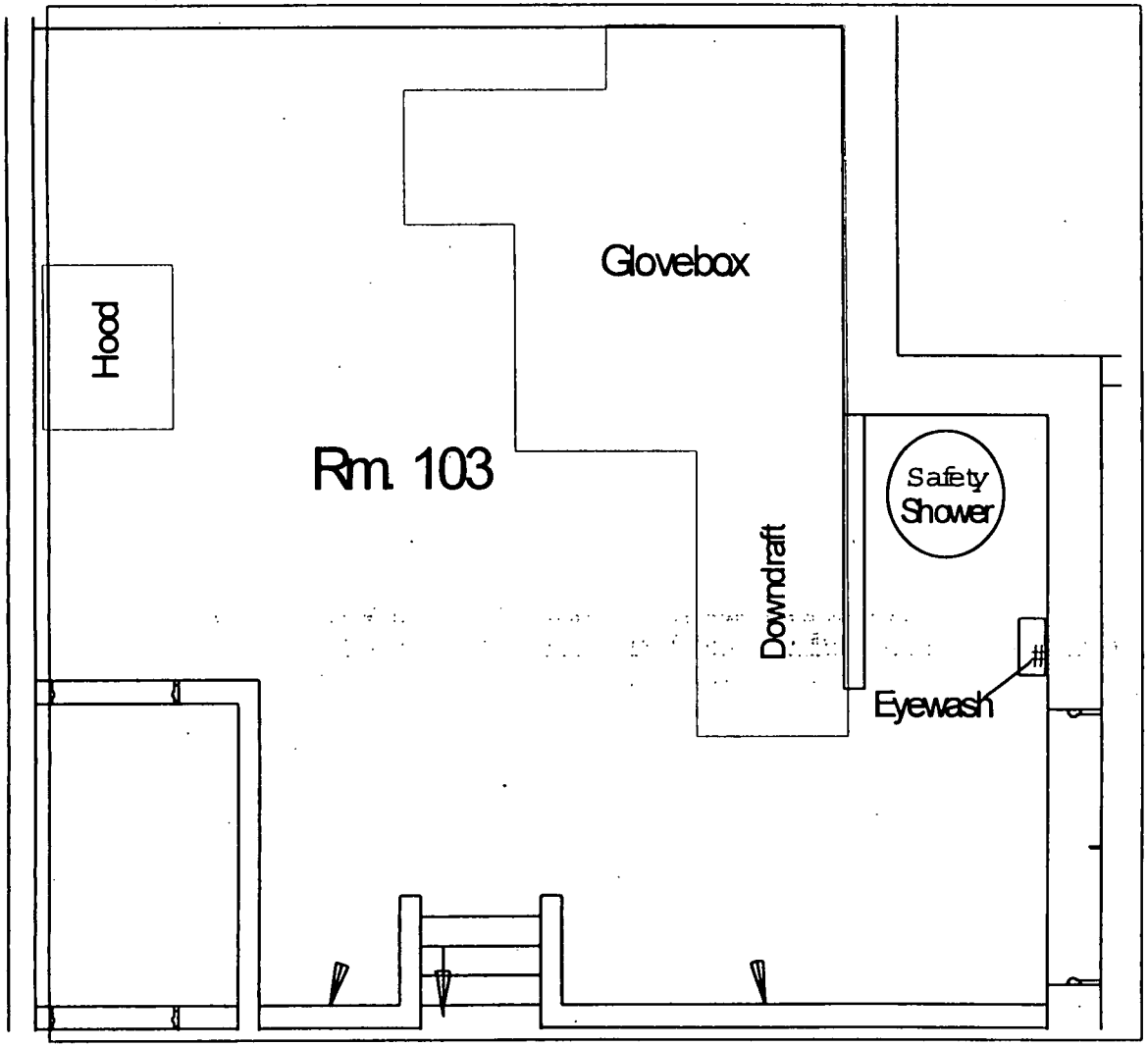
Sample Type: Swipe
Building: 886
Room: 101
Location: Assembly Hood, samples biased in areas of known contamination for ratio development
Quantity: 10 Real, 1 Duplicate(s)
Collection Date: _____

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha	
						Direct	Removable
		001	Isotopic/ Gross α,β		Real		
		001	Isotopic/ Gross α,β		Real		
		001	Isotopic/ Gross α,β		Real		
		001	Isotopic/ Gross α,β		Real		
		001	Isotopic/ Gross α,β		Real		
		001	Isotopic/ Gross α,β		Real		
		001	Isotopic/ Gross α,β		Real		
		001	Isotopic/ Gross α,β		Real		
		001	Isotopic/ Gross α,β		Real		
		001	Isotopic/ Gross α,β		Real		
		001	Isotopic/ Gross α,β		DUP of _____		

Survey Log Number:_____

BUILDING 886 - U:TRANSURANIC SURVEY FORM

SURVEY LOCATION: Room 103 – Downdraft/Glovebox Area (10 Survey Points Required)



Date:_____ Time:_____

RWP Number: _____

Survey Log No. :_____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : Eberline

Model: SAC-4

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Survey Measurements: ALPHA(dpm/100cm^2)

886-103DD-01:_____	886-103DD-06:_____
886-103DD-02:_____	886-103DD-07:_____
886-103DD-03:_____	886-103DD-08:_____
886-103DD-04:_____	886-103DD-09:_____
886-103DD-05:_____	886-103DD-10:_____

Survey Swipes Counted by (R.C.T.):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

96

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Swipes
Building: 886
Room: 103
Location: Downdraft Room/Glovebox, samples biased in areas of known contamination for ratio development
Quantity: 10 Real, 1 Duplicate(s)
Collection Date: ________________

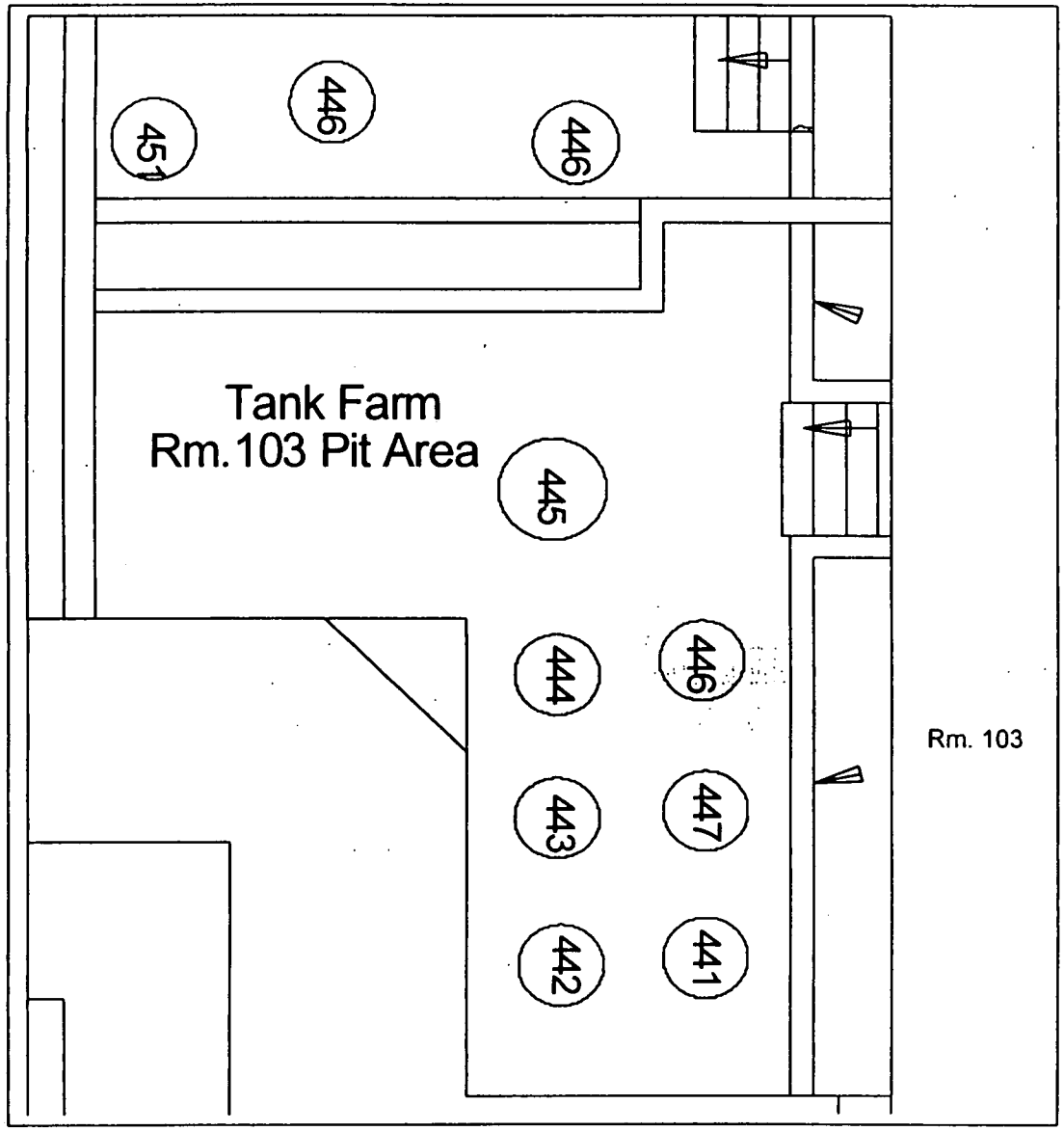
RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha	
						Direct	Removable
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		DUP of _____		
		002	Isotopic				

Survey Log Number: ____________________

97

BUILDING 886 - U:TRANSURANIC SURVEY FORM

SURVEY LOCATION: Tank Farm – Room 103 Pit (5 Survey Points Required)



Date:_____ Time:_____

RWP Number: _____

Survey Log No. :_____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : Eberline

Model: SAC-4

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Survey Measurements: ALPHA(dpm/100cm²)

886-103PA-01:_____	886-103PA-06: XXX
886-103PA-02:_____	886-103PA-07: XXX
886-103PA-03:_____	886-103PA-08: XXX
886-103PA-04:_____	886-103PA-09: XXX
886-103PA-05:_____	886-103PA-10: XXX

Survey Swipes Counted by (R.C.T.):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

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Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Swipes
Building: 886
Room: 103
Location: Pit Area, samples biased in areas of known contamination for ratio development
Quantity: 5 Real, 0 Duplicate(s)
Collection Date: _____

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha	
						Direct	Removable
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		Real		
		002	Isotopic				

Survey Log Number: _____

99

BUILDING 886 - U:TRANSURANIC SURVEY FORM

SURVEY LOCATION: Room 103 – Hood [B-Box] (5 Survey Points Required)

Date:_____ Time:_____

RWP Number: _____

Survey Log No. :_____

Measurements Performed by (R.C.T.):

Printed Name:_____ Emp._____

Signature:_____ Date:_____

SURVEY INSTRUMENT

Mfg. : Eberline

Model: SAC-4

Serial No. : _____

Date Calib'd: _____

Cal. Due Date: _____

Efficiency (%): _____ Bkgnd:_____

MDA: _____

Survey Measurements: ALPHA(dpm/100cm^2)

886-103HD-01:	_____	886-103HD-06:	XXX
886-103HD-02:	_____	886-103HD-07:	XXX
886-103HD-03:	_____	886-103HD-08:	XXX
886-103HD-04:	_____	886-103HD-09:	XXX
886-103HD-05:	_____	886-103HD-10:	XXX

Survey Swipes Counted by (R.C.T.):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Survey Documented by (R.C.T.):

RWP#:_____

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

Reviewed by (Rad. Ops. Supervision):

Printed Name:_____ **Emp.#**_____

Signature:_____ **Date:** _____

100

Building 886 Cluster In-Process Characterization Sample Collection Logsheet

Sample Type: Swipes
Building: 886
Room: 103
Location: Hood, samples biased in areas of known contamination for ratio development
Quantity: 5 Real, 0 Duplicate(s)
Collection Date: _____

RIN	Event	Bottle	Analysis	Time	Type	Pre-Sampling Alpha	
						Direct	Removable
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		Real		
		002	Isotopic				
		001	Gross α, β		Real		
		002	Isotopic				

Survey Log Number: _____

101

ACM Inventory Worksheet

Project: 886 Cluster RCLP
Building:
Room (if applicable):

TSI Inventory:

Pipe

Type	Linear or ft²	Fitting count

Duct

Type	Duct size/app.	Ft²

Surface Inventory

Location	Description	Ft²

Miscellaneous Inventory

Location	Description	Ft²

Evaluated:
Date:

Reviewed by:
Date:

Sampling Record

Project: 886 Cluster IPC
Building:
Room (if applicable):
Area is classified as (circle as appropriate): Affected Unaffected
Analysis (circle as appropriate): Asbestos PCB Swipe PCB media Lead/Metals Other:_____

Sample Number	Detailed Sample Type and Description (i.e., type of material, equipment, equipment components, media)	Comments

Evaluated/Sampled by:
Date:

Reviewed by:
Date:

Sample Location - Schematic

Illustrated by:
Date:

Reviewed by:
Date: