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Rocky Flats Environmental Technology Site

PRE-DEMOLITION SURVEY REPORT (PDSR)

886 CLUSTER–PHASE 1 CLOSURE PROJECT
(Buildings 886, T886A, 888, 888A, 875)

REVISION 0

July 10, 2001

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REVISION 0

July 10, 2001

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2

TABLE OF CONTENTS

1 INTRODUCTION 1

1.1 PURPOSE 1
1.2 SCOPE 1
1.3 DATA QUALITY OBJECTIVES 2

2 HISTORICAL SITE ASSESSMENT 2

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS 2

3.1 RADIOLOGICAL CHARACTERIZATION 2
3.2 RADIOLOGICAL HAZARDS SUMMARY 3

4 CHEMICAL CHARACTERIZATION AND HAZARDS 3

4.1 CHEMICAL CHARACTERIZATION 3
4.1.1 Asbestos 3
4.1.2 Beryllium (Be) 4
4.1.3 RCRA/CERCLA Constituents [including metals and volatile and semi-volatile organic compounds (VOCs & SVOCs)] 5
4.1.4 Polychlorinated Biphenyls (PCBs) 5
4.2 CHEMICAL HAZARDS SUMMARY 5
4.2.1 Asbestos 6
4.2.2 Beryllium 6
4.2.3 RCRA/CERCLA Constituents 7
4.2.4 PCBs 7

5 PHYSICAL HAZARDS 7

6 DATA QUALITY ASSESSMENT 7

7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES 8

8 CONCLUSIONS 8

9 REFERENCES 9

ATTACHMENTS

A Facility Location Map
B Reconnaissance Level Characterization Report for the 886 Cluster Decommissioning Project
C Radiological Characterization Package
D Chemical Characterization Package
E Radiological Data Summaries and Survey Maps
F Chemical Data Summaries and Sample Maps
G Decommissioning Waste Types And Volume Estimates
H Data Quality Assessment (DQA) Details
I B888 Historical Site Assessment Report

3

ABBREVIATIONS/ACRONY

ACM	Asbestos containing material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
$DCGL_{EMC}$	Derived Concentration Guideline Level – elevated measurement comparison
$DCGL_{W}$	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U.S. Department of Energy
DPP	Decommissioning Program Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U.S. Environmental Protection Agency
FDPM	Facility Disposition Program Manual
HVAC	Heating, ventilation, air conditioning
HSAR	Historical Site Assessment Report
IHSS	Individual Hazardous Substance Site
IWCP	Integrated Work Control Package
K-H	Kaiser-Hill
LBP	Lead-based paint
LLW	Low-level waste
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
NORM	Naturally occurring radioactive material
NRA	Non-Rad-Added Verification
OSHA	Occupational Safety and Health Administration
PARCC	Precision, accuracy, representativeness, comparability and completeness
PCBs	Polychlorinated Biphenyls
PDS	Pre-demolition survey
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFFO	Rocky Flats Field Office
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report
RSP	Radiological Safety Practices
SVOCs	Semi-volatile organic compounds
TSA	Total surface activity
VOCs	Volatile organic compounds

4

EXECUTIVE SUMMARY

A Pre-Demolition Survey (PDS) was performed to enable compliant disposition and waste management of facilities 886, T886A, 875, 888 and 888A. The 886 Cluster was divided into two separate phases for characterization purposes. Phase 1 areas were anticipated to be low-hazard-potential areas. Most Phase 2 areas are areas that will require additional equipment stripout and/or decontamination work prior to a PDS characterization. Some Phase 2 areas are adjacent to areas that will require additional equipment stripout and/or decontamination work. Phase 1 and Phase 2 areas are broken down as follows:

Phase 1: 886 exterior, 875 exterior, T886 interior and exterior, 888 interior and exterior, 888A (transformer slab and block wall) exterior, and 886 Office Room interiors (i.e., Rooms 106, 111, 116 –123, 125, and 127-131)

Phase 2: 886 interior rooms (i.e., Rooms 101-104, 108-110, 112-115, 126, 126A, 126B, 140, and 141), 875 interior, 880 interior and exterior, and 828 Pit

All Phase 1 area surfaces were characterized in this PDS, including the interior and exterior surfaces of the facilities (i.e., floors (slabs), walls, ceilings and roofs) as detailed in the Phase 1 area description. Environmental media beneath and surrounding the facilities were not within the scope of this PDS Report (PDSR), but will be addressed through environmental restoration scope and appropriate sampling and analysis plans.

The PDS encompassed both radiological and chemical characterization to enable compliant disposition and waste management pursuant to the D&D Characterization Protocol (MAN-077-DDCP). The characterization built upon physical, chemical and radiological hazards identified in Attachment B, *Reconnaissance Level Characterization Report for the 886 Cluster Decommissioning Project* (RF/RMRS-97-124.UN).

Results indicate that no radiological contamination exists in excess of the prescribed release limits of DOE Order 5400.5. Asbestos containing materials, both friable and non-friable form, exist in B886. The 886 RLCR identified B888 interior wall paint as hazardous waste (lead and chromium). However, additional sampling conducted during the PDS, confirmed that the painted drywall is not hazardous, and can be handled as Lead Based Painted debris. PCB light ballasts and asbestos containing materials will be removed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations. Painted facility surfaces may contain PCBs. All demolition debris will be managed in compliance with regulations governing PCBs (40 CFR 761), and Environmental Compliance Guidance #27, *Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal* as applicable.

To ensure that the facilities remain free of contamination and that PDS data remain valid, isolation controls have been established, and the Phase 1 areas have been posted accordingly. 886 Cluster-Phase 2 areas will be characterized after equipment stripout and/or decontamination work is completed, and a separate Phase 2 PDSR will be submitted for approval. Demolition of Buildings 886, 875, 880 and 828 Pit shall not occur until the Phase 2 PDSR is submitted and approved. Buildings T886A, 888 and 888A may be disposed of after Regulatory approval of this report is received.

1 INTRODUCTION

A Pre-Demolition Survey (PDS) was performed to enable compliant disposition and waste management of facilities 886, T886A, 875, 888 and 888A. The 886 Cluster was divided into two separate phases for characterization purposes. Phase 1 areas were anticipated to be low-hazard-potential areas. Most Phase 2 areas are areas that will require additional equipment stripout and/or decontamination work prior to a PDS characterization. Some Phase 2 areas are adjacent to areas that will require additional equipment stripout and/or decontamination work. Phase 1 and Phase 2 areas are broken down as follows:

Phase 1: 886 exterior, 875 exterior, T886 interior and exterior, 888 interior and exterior, 888A (transformer slab and block wall) exterior, and 886 Office Room interiors (i.e., Rooms 106, 111, 116 –123, 125, and 127-131)

Phase 2: 886 interior rooms (i.e., Rooms 101-104, 108-110, 112-115, 126, 126A, 126B, 140, and 141), 875 interior, 880 interior and exterior, and 828 Pit

Environmental media beneath and surrounding the facilities were not within the scope of this PDS Report (PDSR) but will be addressed through environmental restoration scope and appropriate sampling and analysis plans.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. Among these are the 886 Cluster facilities. The locations of these facilities are shown in Attachment A. These facilities no longer support the RFETS mission and need to be removed to reduce Site infrastructure, risks and/or operating costs.

Before the facilities can be removed, a Pre-Demolition Survey (PDS) must be conducted; this document presents the PDS results. The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). The PDS built upon physical, chemical and radiological hazards identified in Attachment B, *Reconnaissance Level Characterization Report for the 886 Cluster Decommissioning Project* (RF/RMRS-97-124.UN).

1.1 Purpose

The purpose of this report is to communicate and document the results of the PDS effort. PDSs are performed before building demolition to define the final radiological and chemical conditions of a facility. Final conditions are compared with the release limits for radiological and non-radiological contaminants. PDS results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

1.2 Scope

This report presents the final radiological and chemical conditions of the 886 Cluster-Phase 1 areas. Environmental media beneath and surrounding the facilities are not within

the scope of this PDSR and will be addressed using the Soil Disturbance Permit process. Both facilities and environmental media will be dispositioned pursuant to the Rocky Flats Cleanup Agreement (RFCA). 886 Cluster-Phase 2 areas will be characterized after equipment stripout and/or decontamination work is completed, and a separate Phase 2 PDSR will be submitted for approval.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this PDS were the same DQOs identified in the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). Refer to section 2.0 of MAN-127-PDSP for these DQOs.

2 HISTORICAL SITE ASSESSMENT

Facility-specific Historical Site Assessments (HSAs) and a Reconnaissance Level Characterization were conducted to understand facility histories and related hazards. The HSAs consisted of facility walkdowns, interviews, and document review, including review of the Historical Release Report. The 886 Cluster RLC was performed in FY 1997 and identified both radiological and chemical hazards. HSA and RLC results were used to identify data gaps and needs, and to develop radiological and chemical PDS characterization packages. Results of the 886 Cluster HSA and RLC were documented in the *Reconnaissance Level Characterization Report for the 886 Cluster Decommissioning Project* (RF/RMRS-97-124.UN). Refer to Attachment B for a copy of the 886 Cluster RLCR text. For a complete copy of the 886 Cluster RLCR including Appendices A, B and C, refer to the 886 Cluster Characterization Project Files. Since the 886 Cluster RLCR did not include B888 (except for sampling of paint on the interior drywall), an independent HSA was performed for B888. Refer to Attachment I for a copy of the B888 HSA. In summary, the 886 Cluster RLCR and B888 HSA identified radiological hazards in the Phase 2 areas; and chemical hazards in the Phase 1 areas including chromium and lead in the paint on the drywall material of B888, and asbestos containing material in B886 and B888.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

Phase 1 areas were characterized for radiological hazards per the PDSP. Section 3.1 describes the radiological characterization process that was performed, and Section 3.2 summarizes the radiological hazards that were identified, if any.

3.1 Radiological Characterization

Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on or in Phase 1 areas. Measurements were performed to evaluate the contaminants of concern. Based upon a review of the RLCR, historical and process knowledge, building walkdowns, and MARSSIM guidance, the Phase 1 areas were broken down into survey areas, survey units, and classifications. A Radiological Characterization Package (refer to Attachment C) was developed during the planning phase that describes how the facilities were broken-down into survey units, the justification for the survey unit classifications, and the minimum sampling requirements per survey unit.

Radiological survey unit packages were developed for each survey unit in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure*. Total Surface Activity (TSA), removable and scan measurements were collected in accordance with RSP 16.02, Radiological *Surveys of Surfaces and Structures*. Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis*. Quality Control measures were implemented throughout the survey and sampling process in accordance with RSP 16.05, *Radiological Survey/Sample Quality Control*.

Radiological data, statistical analysis results, and survey locations are presented in Attachment E, Radiological Data Summaries and Survey Maps. Radiological survey unit packages are maintained in the 886 Cluster Characterization Project files.

3.2 Radiological Hazards Summary

The PDS confirmed that the Phase 1 areas do not contain radiological contamination above the surface contamination guidelines provided in DOE Order 5400.5 and the RFETS Radiological Control Manual. Isolation control postings are displayed at all entrances to the Phase 1 areas to ensure no radioactive materials are introduced.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

Phase 1 areas were characterized for chemical hazards per the PDSP. Section 3.1 describes the chemical characterization process that was performed, and Section 3.2 summarizes the chemical hazards that were identified, if any.

4.1 Chemical Characterization

Chemical characterization was performed to determine the nature and extent of chemical contamination that may be present on or in the Phase 1 areas. Based upon a review of the RLCR, historical and process knowledge, visual inspections, and PDSP DQOs, additional sampling needs were determined. A Chemical Characterization Package (refer to Attachment D) was developed during the planning phase that describes sampling requirements and the justification for the sample locations and estimated sample numbers. Contaminants of concern included asbestos and beryllium. Refer to Attachment F, Chemical Summary Data and Sample Maps, for details on sample results and sample locations.

4.1.1 Asbestos

An asbestos inspection was performed during the 886 Cluster RLC by a CDPHE-certified asbestos inspector. The results of the characterization are provided in the 886 Cluster RLCR and Attachment F. The 886 Cluster RLCR was reviewed for completeness, and it was deemed necessary to collect additional asbestos bulk samples in locations that were either presumed to contain asbestos and never sampled, or presumed to be asbestos free without sufficient documentation or characterization data. A CDPHE-certified asbestos inspector reviewed the 886 Cluster RLCR and conducted the additional inspection and

8

sampling in accordance with PRO-563-ACPR *Asbestos Characterization Procedure,* Revision 0. Potential ACM was identified for sampling at the discretion of the inspector.

4.1.2 Beryllium (Be)

Based on the 886 Cluster RLCR, additional documentation reviews of past facility operations, and personal interviews performed with past building occupants, there was no record of beryllium operations in the facilities. Examples of documents that were reviewed by facility management and SMEs for possible references to Be use included:

- Daily operating logs and records
- Experimental summaries and reports
- Reports of accidents, spills, and incidents
- Letters from Lab staff to others at RFETS
- Summary report of the HEUN Removal Project
- Routine and non-routine radiological survey results
- Historical and current facility drawings

There is no mention of Beryllium ever made in any of the 886 project specific materials. Facility management has interviewed numerous personnel who were assigned to 886 over the years and none of the personnel have any memory of Be ever being introduced into the facility. A security fence and guardhouse that surrounded the 886 Cluster, therefore, the chance of any inadvertent introduction was miniscule. During the research and development of the 886 Cluster RLCR, there was no indication or mention of Be being discovered or reported.

A formal-documented interview with Dr. Rothe was also performed on May 21st, 2001, to determine the potential for Be use in the 886 Cluster. Dr. Rothie occupied the facility from the time of construction (1964) to the time R&D operations shutdown (1994). He was the lead scientist in B886 and he has extensive process knowledge of the 886 Cluster operations. Based on Dr. Rothe's interview, there was no indication that Be was ever brought into or used in the 886 Cluster facilities during his tenure. Dr Rothe stated the Be was never used or stored in the B886 Cluster, and that no transfer or exchanges of equipment and/or materials between B886 Cluster and B865/B883 Clusters ever took place.

Since the Phase 1 areas are office-type spaces, and based on the above information, there is virtually no potential for Be contamination in the Phase 1 areas. Therefore, no Be sampling was performed in Phase 1 areas.

Recently (since the 886 Cluster RLCR was developed), beryllium smears from Building 865 have been brought over to 886, Room 104, to be analyzed for loose radioactive contamination prior to being sent to an offsite laboratory. The Be smears were always transported in a sealed container, and the exterior surfaces of the transport container were always verified to be radiologically clean prior to transfer from 865 to 886. Therefore, the only room that might have had a new potential for Be contamination since the 886 Cluster RLCR was developed would have been Room 104. Hence, biased Be PDS samples were collected in Room 104 in accordance with PRO-536-BCPR, *Beryllium*

9

Characterization Procedure, Revision 0. All five Room 104 Be sample results were less than 0.1 $\mu g/100cm^2$, and will be reported in the Phase 2 PDSR.

4.1.3 RCRA/CERCLA Constituents [including metals and volatile and semi-volatile organic compounds (VOCs & SVOCs)]

Based on Attachment B, *Reconnaissance Level Characterization Report for the 886 Cluster Decommissioning Project* (RF/RMRS-97-124.UN), there was no record of RCRA/CERCLA constituent operations or storage in the Phase 1 areas. Sampling was conducted during the RLC on the interior paint of B888, with sample results indicating above regulatory levels of chromium and lead. Additional RCRA sampling was conducted on the painted drywall during the PDS to determine if the painted drywall is hazardous, or can be managed as LBP debris.

Additional sampling, over what was conducted during the RLC and B888, for lead in paint for the remaining Phase 1 areas was not required. Environmental Waste Compliance Guidance #27, *Lead-based Paint (LBP) and Lead-based paint Debris Disposal*, states that LBP debris generated outside of currently identified high contamination areas shall be managed as non-hazardous (solid) wastes, and additional analysis for characteristics of hazardous waste derived from LBP is not a requirement for disposal. No other Phase 1 areas had regulatory levels of chromium identified in the RLCR.

4.1.4 Polychlorinated Biphenyls (PCBs)

Based on Attachment B, *Reconnaissance Level Characterization Report for the 886 Cluster Decommissioning Project* (RF/RMRS-97-124.UN), there was no record of PCB use or storage in the Phase 1 areas (e.g., equipment containing PCB oils), therefore, PCB sampling was not performed. The Phase 1 areas contain fluorescent light ballasts that may contain PCBs. Therefore, fluorescent light fixtures will be inspected to identify PCB ballasts during removal operations. PCB ballasts will be identified based on factors such as labeling (e.g., PCB-containing and non-PCB-containing), manufacturer, and date of manufacturing. All ballasts that do not indicate non-PCB-containing are assumed to be PCB-containing.

Environmental Waste Compliance Guidance #25, *Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition*, has directed that applied dried paints, varnishes, waxes, or other similar coatings or sealants are acceptable for disposal (with notification) in a non-hazardous solid waste landfill as PCB Bulk Product Waste under 40 CFR 761.3 and 40 CFR 761.62 paragraph (b), and therefore, need not be sampled as long as restrictions outlined in 40 CFR 761.62 regarding their disposition are met. Current plans are to dispose of demolition debris from the Phase 1 areas in an off-site, non-hazardous solid waste landfill as PCB Bulk Product Waste.

4.2 Chemical Hazards Summary

Portions of the Phase 1 areas were sampled for the presence of asbestos-containing material (ACM).

4.2.1 Asbestos

Asbestos containing materials will be removed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations. Asbestos sample data and sample location maps are contained in Attachment F, Chemical Summary Data and Sample Maps. Appendix C, *Certified Asbestos Inspector's Report, dated December 1997,* from the 886 Cluster RLCR is also included in Attachment F. Based on the analytical sample results, T886A and 888 do not contain ACM. Asbestos containing materials were discovered in B886 in the floor tile, ceiling tile, thermal systems insulation, cinderblock skim-coat, wall penetration filler, wire insulation, and roofing material during the RLCR asbestos inspection. Most of the ACM in B886 has already been abated, the only remaining ACM in 886 Phase 1 areas is piping insulation (friable - approximately 100 liner ft), wall penetration filler insulation (friable - approximately 50 sq ft), and cinderblock skim-coat (non-friable - approximately 400 sq ft).

4.2.1.1 T886A

The 886 Cluster RLCR states that T886A was not constructed with any materials that contained asbestos. This information was received by conversation with an employee of the manufacturing company. No other documentation (letter, e-mail or fax) from the manufacturer could be produced to verify the T886A as asbestos free. Without written documentation, an asbestos inspection was performed to present analytical data to prove T886A was manufactured without asbestos containing materials.

Based on the analytical results of samples collected of T886A for this PDSR, no T886A asbestos containing materials were identified. This confirms the 886 Cluster RLCR report conclusions.

4.2.1.2 B888

The 886 Cluster RLCR indicated that only B888 drywall systems were sampled for asbestos containing materials. No other B888 suspect materials were sampled during the 886 Cluster RLC. In addition, the 888 roof was assumed to contain asbestos. Additional samples were collected for this PDSR of suspect materials not previously sampled. In particular, the exterior soffit panels were sampled, and the roof material was inspected.

The roof is solid concrete with a rubber lining over the entire surface and is not considered a suspect asbestos containing material. The roof was not constructed using tar-impregnated asbestos containing materials as stated in the 886 Cluster RLCR. Based on PDS analytical results, the B888 exterior soffit panels do not contain asbestos.

4.2.2 Beryllium

Based on the 886 Cluster RLCR, additional process history, personnel interviews with past building occupants, and extensive reviews of classified build operations documents, beryllium was determined not to be a potential hazard in Phase 1 areas. Therefore, beryllium sampling was not performed in Phase 1 areas.

11

4.2.3 RCRA/CERCLA Constituents

Based on the 886 Cluster RLCR, there was no record of RCRA/CERCLA constituent operations or storage in the Phase 1 areas. The 886 Cluster RLCR identified chromium and lead on the drywall in B888: however, the sampling conducted in the PDS confirms that the painted drywall is not hazardous waste, but can be managed as LBP debris. Estimated quantities of wastes are presented in Attachment G, Decommissioning Waste Types and Volume Estimates.

4.2.4 PCBs

PCB ballasts may be found in the Phase 1 areas and will be removed and disposed of in accordance with site procedures prior to building demolition. Plans are to dispose of demolition debris in an off-site, non-hazardous solid waste landfill as PCB Bulk Product Waste. Estimated quantities of PCB Bulk Product Waste are presented in Attachment G, Decommissioning Waste Types and Volume Estimates.

5 PHYSICAL HAZARDS

Physical hazards associated with the Phase 1 areas consist of those common to standard industrial environments and include hazards associated with energized systems, utilities, and trips and falls. There are no unique hazards associated with the facilities. The facilities have been relatively well maintained and are in good physical condition, and therefore, do not present hazards associated with building deterioration. Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of the Phase 1 areas, and consequent waste management, are of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments A – I) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original DQOs of the project.

Adequate data quality for decision-making is required by the Kaiser-Hill Team Quality Assurance Program (K-H, 1997, §7.1.4 and 7.2.2), the DOE (Order O 414.1, Quality Assurance, §4.b.(2)(b)), and the Regulators (EPA Region VIII and the CDPHE). The data and consequent environmental decisions must be technically and legally defensible. Verification and validation (V&V) of the data, in concert with the DQO process, ensure that data used in decisions resulting from the PDS are usable and defensible.

V&V of the data are the primary components of the DQA, and are detailed in Attachment H. A summary of the decisions and uncertainties resulting from the DQO process specific to this project are displayed in Attachment H, Table H-1. DQA for radiological data drew heavily from guidance provided in the MARSSIM (NUREG-1575) and Radiological Safety Practices (RSPs) 16.04 and 16.05. V&V of non-radiological data drew from a number of requirements and guidance documents, including EPA QA/G-4

12

(EPA, 1994) and QA/G-9 (EPA, 1998). Other applicable guidance and requirements documents are referenced within the 886 Cluster Characterization Project Files.

In summary, the V&V process corroborates that the following elements of the characterization process are adequate:

- the *number* of samples and surveys;
- the *types* of samples and surveys;
- the sampling/survey process, in the field; and
- the laboratory analytical process, relative to accuracy and precision considerations.

7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of Phase 1 areas will generate a variety of wastes. Attachment G presents the estimated waste volumes and waste types for facilities T886A, 888A and 888. Estimated waste volumes and waste types for facilities 886, 875, 828 Pit and 880 will be detailed in the 886 Cluster Phase 2 PDSR. All wastes from T886A, 888A and 888 can be disposed of as sanitary waste, except PCB Bulk Product Waste. There is no radioactive waste in T886A, 888A and 888. Asbestos and PCB ballasts will be managed pursuant to Site asbestos and PCB abatement and waste management procedures.

8 CONCLUSIONS

The PDS of the 886 Cluster-Phase 1 areas was performed in accordance with the DDCP and PDSP, all PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. These Phase 1 areas do not contain radiological nor RCRA hazardous wastes. All demolition debris will be managed in compliance with regulations governing PCBs (40 CFR 761), as applicable, in accordance with the Decommissioning Program Plan, Section 3.3.5. PCB ballasts and asbestos containing material will be removed and disposed of in compliance with EPA and CDPHE regulations. Environmental media beneath and surrounding the facilities will be addressed through environmental restoration scope and appropriate sampling and analysis plans.

To ensure that the Phase 1 areas remain free of contamination and that PDS data remain valid, isolation controls have been established, and the facilities are posted accordingly. 886 Cluster-Phase 2 areas will be characterized after equipment stripout and/or decontamination work is completed, and a separate Phase 2 PDSR will be submitted for approval. Demolition of Buildings 886, 875, 880 and 828 Pit shall not occur until the Phase 2 PDSR is submitted and approved. Buildings T886A, 888 and 888A may be disposed of after Regulatory approval of this report is received.

13

9 REFERENCES

DOE/RFFO, CDPHE, EPA, 1996. Rocky Flats Cleanup Agreement (RFCA), July 19, 1996.

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DOE Order 414.1A, "Quality Assurance."

EPA, 1994. "The Data Quality Objective Process," EPA QA/G-4.

K-H, 1997. "Kaiser-Hill Team Quality Assurance Program", Rev. 5, December, 1997.

K-H, 1998. Facility Disposition Program Manual, MAN-076-FDPM, Rev. 1, September 1999.

K-H, 1999. Decontamination and Decommissioning Characterization Protocol, MAN-077-DDCP, Rev. 1, June 19, 2000.

K-H, 1999. Decommissioning Program Plan, June 21, 1999.

K-H, 2000. Pre-Demolition Survey Plan, MAN-127-PDSP, Rev. 0, March 26, 2001.

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PRO-475-RSP-16.01, Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure, September 30, 1999.

PRO-476-RSP-16.02, Radiological Surveys of Surfaces and Structures, September 30, 1999.

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

PRO-478-RSP-16.04, Radiological Survey/Sample Data Analysis, September 30,1999.

PRO-479-RSP-16.05, Radiological Survey/Sample Quality Control, September, 30, 1999

PRO-563-ACPR, Asbestos Characterization Procedure, Revision 0

PRO-536-BCPR, Beryllium Characterization Procedure, Revision 0.

RFETS, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition.

RFETS, Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal.

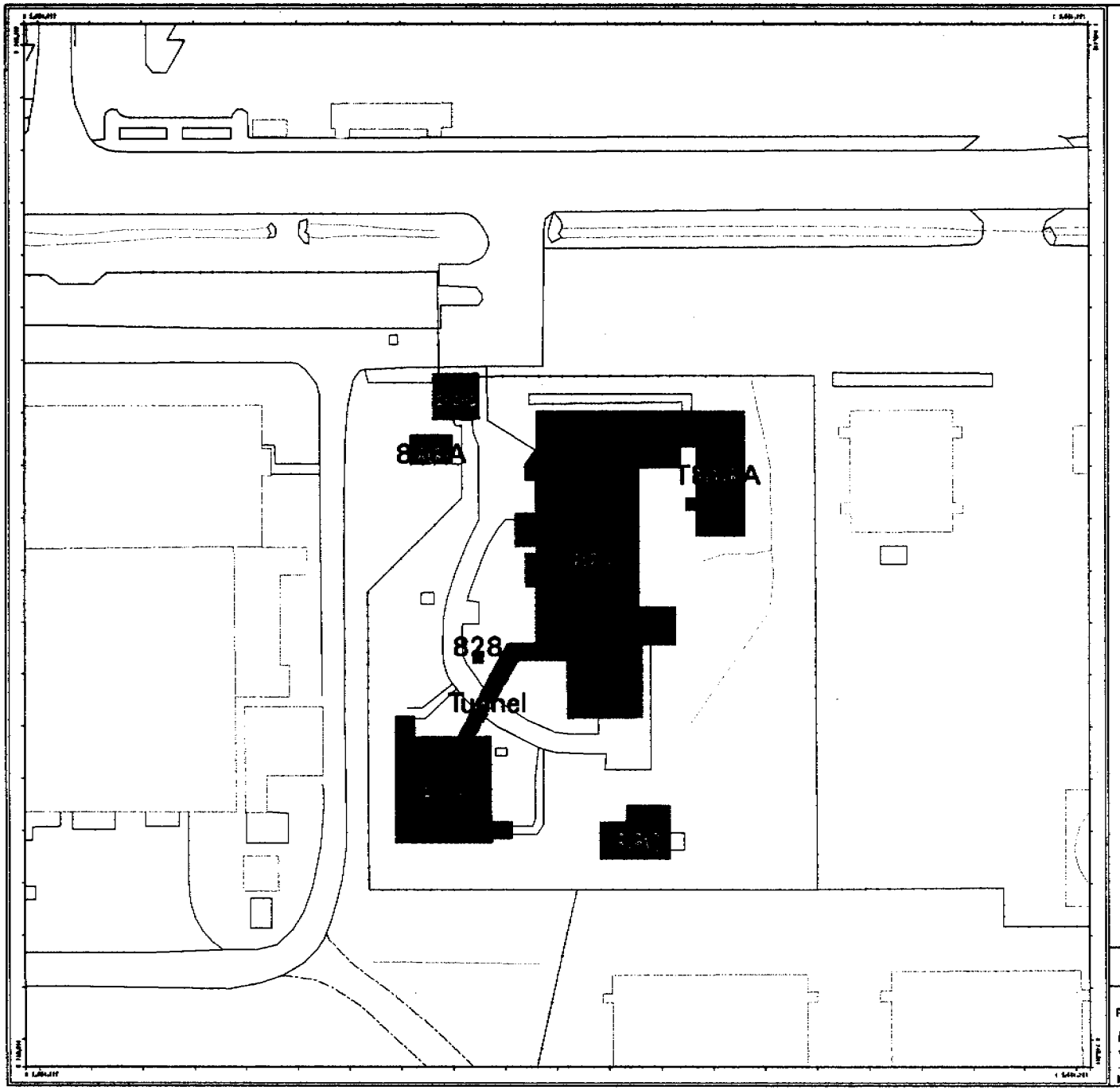
Reconnaissance Level Characterization Report for the 886 Cluster Decommissioning Project, RF/RMRS-97-124.UN.

14

ATTACHMENT A

Facility Location Map

Best Available Copy



Cluster Area

EXPLANATION

Building 886 cluster

Standard Map Features

Buildings and other structures

Solar Evaporation Ponds (SEP)

Lakes and ponds

Streams, ditches, or other drainage features

Fences and other barriers

Paved roads

Dirt roads

Scale = 1 : 1080
1 inch represents approximately 88 feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: DynCorp

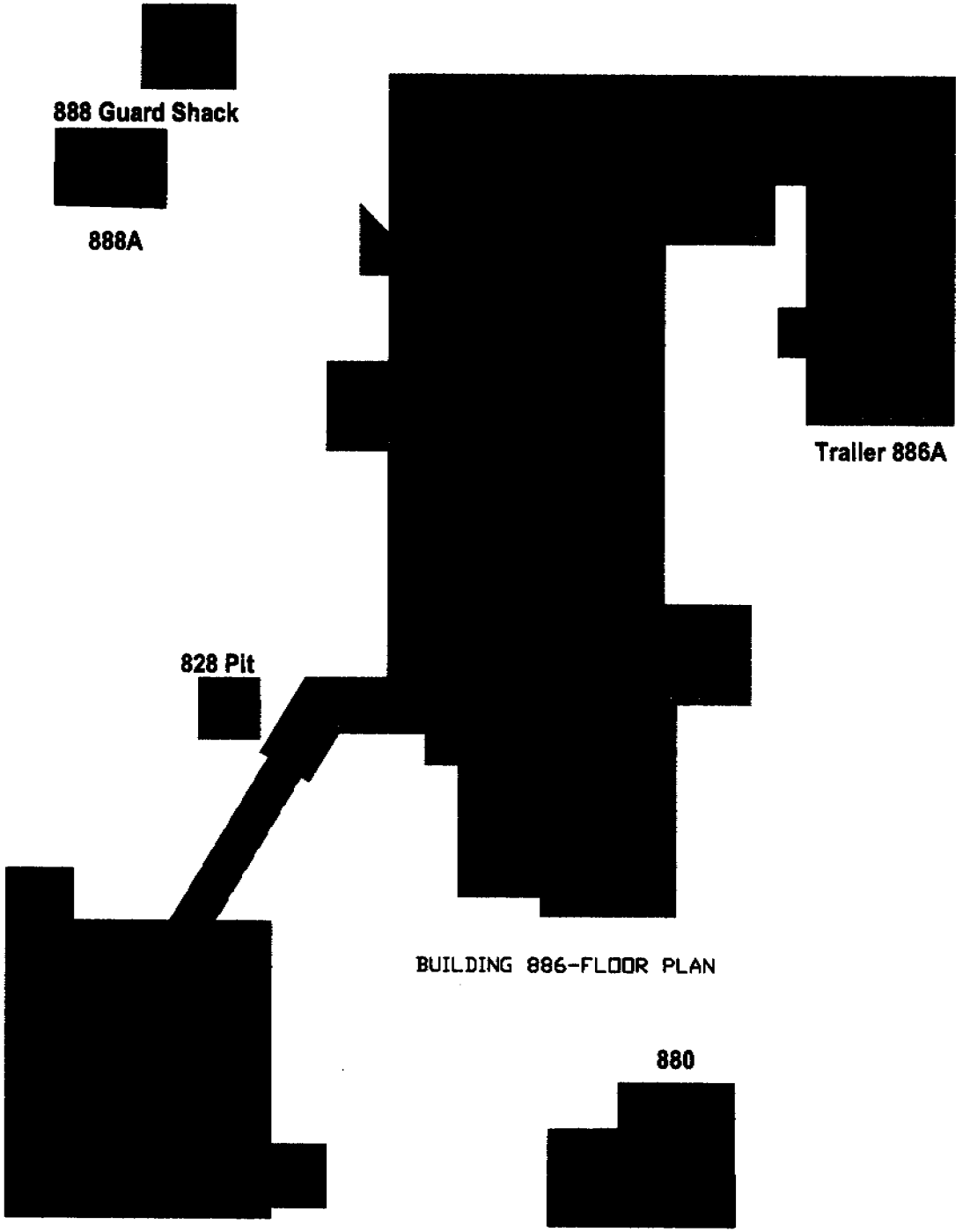
Prepared for: KAISER-HILL

MAP ID: 01-0081

May 18, 2001

NT_Svr w:/projects/fy2001/01-0081/886-area.aml

16



Building 886 Cluster Survey Units

Explanation

Phase 1

- Survey Unit 886-A-001
  Front Offices, Utility & Tool Rooms, Trailer
- Survey Unit 886-B-009
  Exterior walls & roof
- Survey Unit 886-C-010
  (880 and 888A)

Phase 2

- Phase 2 Areas

North

NOT TO SCALE

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Rocky Flats Environmental Technology Site

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ATTACHMENT B

Reconnaissance Level Characterization Report for the 886 Cluster Decommissioning Project (RF/RMRS-97-124.UN)

18

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RF/RMRS-97-124.UN

RECONNAISSANCE LEVEL CHARACTERIZATION REPORT FOR THE 886 CLUSTER DECOMMISSIONING PROJECT

December 24, 1997
Revision 1

19

RECONNAISSANCE LEVEL CHARACTERIZATION REPORT FOR THE 886 CLUSTER DECOMMISSIONING PROJECT

TABLE OF CONTENTS

Section **Page**

1.0 EXECUTIVE SUMMARY 1

2.0 INTRODUCTION 1
- 2.1 Report Purpose 4
- 2.2 Characterization Scope 4
- 2.3 Report Content 4

3.0 SUMMARY OF CHARACTERIZATION ACTIVITIES 4
- 3.1 Data Quality Objectives Used 5
- 3.2 Sampling and Field Measurement Methods, Equipment, and Procedures 6
- 3.3 Laboratory Analysis 7

4.0 CLUSTER OPERATING HISTORY 7
- 4.1 History of Buildings 7
- 4.2 Significant Releases and Events 7
- 4.3 Current Operations 8
- 4.4 RCRA and CERCLA Designated Areas 8

5.0 PHYSICAL DESCRIPTION 8
- 5.1 Summary Description 8
- 5.2 Specific Description 8

6.0 IDENTIFIED HAZARDS 10
- 6.1 Physical Hazards 13
- 6.2 Radiological Hazards 14
- 6.3 Chemical Hazards 16
- 6.4 Asbestos 16
- 6.5 Pressurized Gas and Liquid Nitrogen 18
- 6.6 Electrical 18
- 6.7 Wastes 18

7.0 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES 19

8.0 DATA QUALITY ASSESSMENTS 19
- 8.1 Project Decisions 20
- 8.2 Inputs to the Decisions 20
- 8.3 Decision, Rules, and Error Limits 20
- 8.4 PARCC Parameters 20

9.0 INFORMATION SOURCES 26

10.0 REFERENCES 26

20

TABLE OF CONTENTS (Cont.)

Section **Page**

11.0 APPENDICES 26

LIST OF TABLES

Table **Page**

Table 3-1. Laboratory Analysis Methods 7
Table 5-1. Building 886 Equipment 9
Table 6-0. Hazard Summary 11
Table 6-1. Summary of contamination values for Unrestricted Release 15
Table 7-1. Estimated Wastes From the 886 Cluster Decommissioning Project 19
Table 8-4. Precision Results by Method 22
Table 8-5. Summary for Completeness of the Data Set 25

LIST OF FIGURES

Figure **Page**

Figure 1-1. 886 Cluster location at RFETS 2
Figure 1-2. 886 Cluster 3

21

ACRONYMS

ACM	Asbestos Containing Materials
AHERA	Asbestos Hazard Emergency Response Act
ALARA	As Low As Reasonably Achievable
BIO	Basis for Interim Operation
CA	Contamination Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CML	Critical Mass Laboratory
COCs	Contaminants of Concern
DOE	Department of Energy
EDDs	Electronic Data Deliverables
dpm	Disintegrations Per Minute
DQO	Data Quality Objectives
HCA	High Contamination Area
HEPA	High Efficiency Particulate Air filter
HEUN	Highly Enriched Uranyl Nitrate
HVAC	Heating Ventilation and Air Conditioning
IM/IRA	Interim Measure/Interim Remedial Action
LLMW	Low Level Mixed Waste
LLW	Low Level Waste
MAA	Material Access Area
MSDs	Matrix Spike Duplicates
PARCC	Precision, Accuracy, Representativeness, Completeness, and Comparability
PCBs	Polychlorinated biphenyls
PLM	Polarized Light Microscopy
ppm	Parts Per Million
RCA	Radiation Control Area
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RLCP	Reconnaissance Level Characterization Plan
RLCR	Reconnaissance Level Characterization Report
RPD	Relative Percent Difference
SNM	Special Nuclear Material
SOE	Stationary Operating Engineer
TCLP	Toxic Characteristic Leachate Procedure
TRU	Transuranic
TSI	Thermal System Insulation
UCL	Upper Confidence Level

22

RECONNAISSANCE LEVEL CHARACTERIZATION REPORT FOR THE 886 CLUSTER DECOMMISSIONING PROJECT

1.0 EXECUTIVE SUMMARY

Building 886 housed the Critical Mass Laboratory and was operated from 1965 until 1987. Since then, operations within the building have been limited to maintaining the safety envelope and compliance with the Basis of Interim Operation. Since Building 886 and its associated facilities have no mission, the cluster is being decommissioned to reduce operating costs and to eliminate hazards within the cluster's buildings. Deactivation activities are not yet complete, but had progressed to the point where a meaningful characterization could be conducted. The purpose of this Reconnaissance Level Characterization Report is to present the historical data and process information pertaining to the 886 Cluster to provide a baseline of information for hazards within the building cluster. The reconnaissance level characterization of the Building 886 Cluster included a review of historical records and the collection of process knowledge and samples to determine the extent of contamination within the cluster.

The characterization of the 886 Cluster has revealed that the cluster has been maintained within the safety envelope required by the Basis for Interim Operation. The hazards which will need to be considered in developing plans for and executing decommission activities can be summarized in the following list.

- Physical Hazards (i.e., trip and fall hazards, noise hazards, sharp edges, etc.) - Hazards are found in Buildings 886, 875, 888A, 828, and 880.
- Radiological Hazards - Contamination areas are found in Buildings 886, 875, and 880. High contamination areas are found in Buildings 886 and 875.
- Chemical Hazards - Primarily lead and other metals in building paints, and some polychlorinated biphenyls (PCB) sources. No beryllium has been identified associated with the cluster either through process knowledge or analytical results.
- Asbestos Hazards - Asbestos containing materials are found throughout the cluster with the exception of T886A. An asbestos abatement plan will be required as part of the decommissioning activities.
- Pressurized Gas Cylinders Hazards - Only one nitrogen gas container remains in the 886 Cluster.
- Electrical Hazards - Electrical systems are currently in a safe and compliant condition. However, when decommissioning activities begin, significant electrical hazards in Buildings 886, 875, and 888A will need to be addresses.

2.0 INTRODUCTION

The Building 886 Cluster (Figure 1-1) is comprised of Buildings 886, 888A, 880, 875, 828, T886A, and an underground tunnel with ventilation ducts that connects Building 886 to Building 875 (Figure 1-2). Because Building 886 and its associated facilities have no mission, the cluster is being decommissioned to reduce operating costs and to eliminate hazards within the cluster's buildings. Consistent with the Rocky Flats Cleanup Agreement (RFCA), the 886 Cluster Decommissioning Project is being conducted as a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) removal action. The 886 Cluster Decommissioning Project is one of the decommissioning activities at the Rocky Flats Environmental Technology Site (RFETS) selected to meet the site's goals.

23

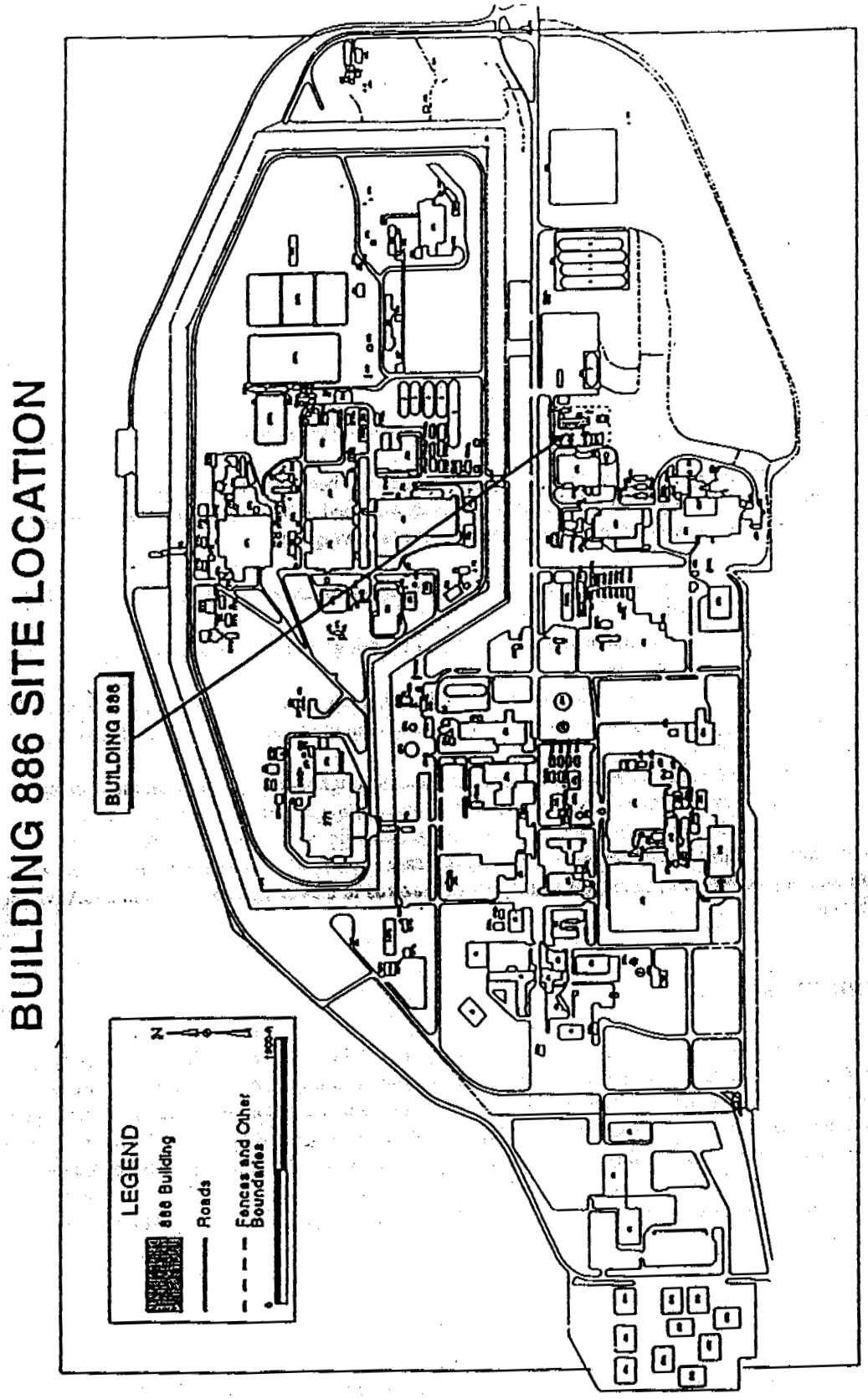


Figure 1-1. 886 Cluster Location at RFETS

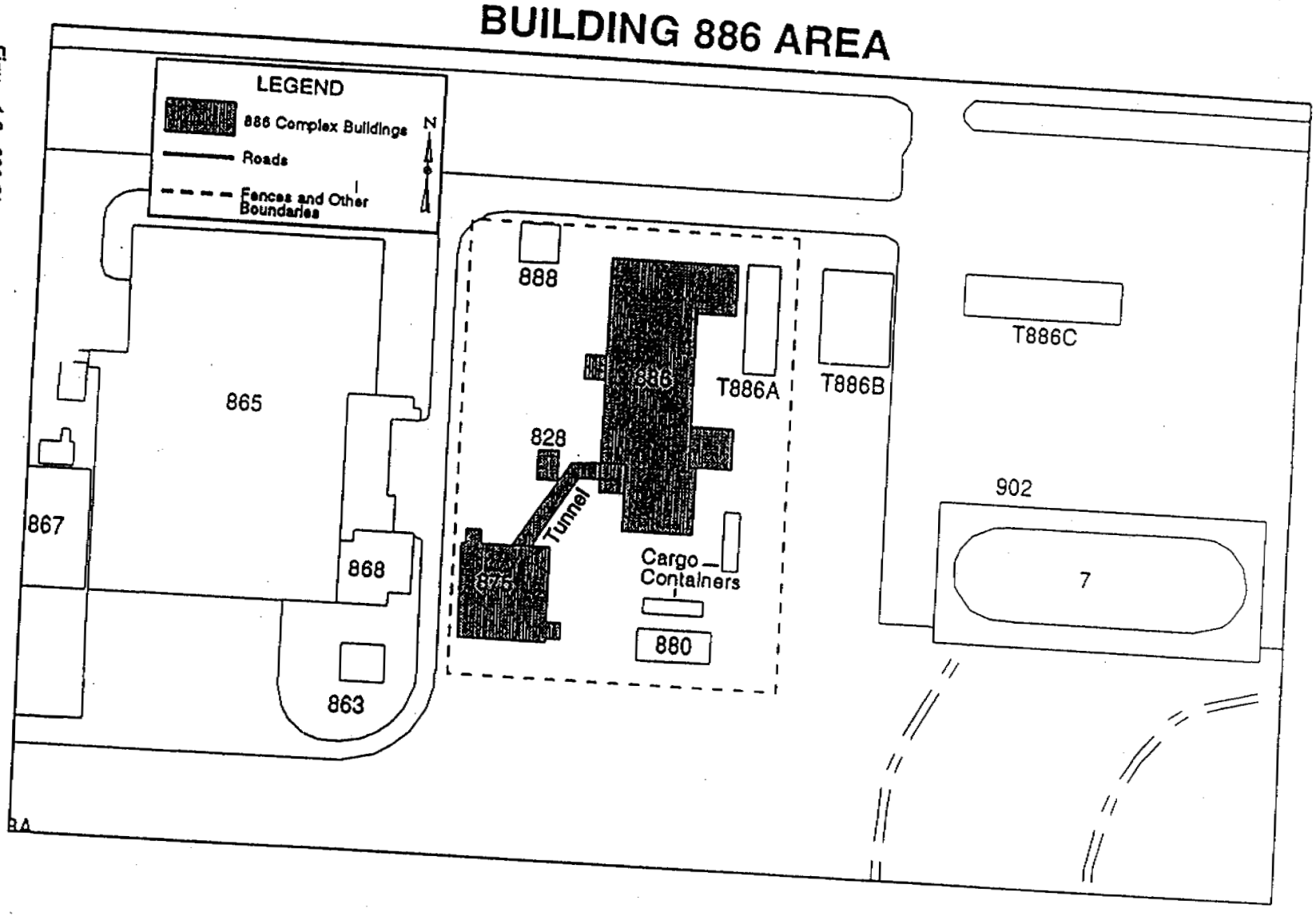


Figure 1-2. 886 Cluster

2.1 Report Purpose

The purpose of this Reconnaissance Level Characterization Report (RLCR) is to present the historical data and process information pertaining to the 886 Cluster to provide a baseline of information for hazards within the building cluster. Characterization includes identification of the type, quantity, condition, and location of radioactive and hazardous materials which are, or which may be present as residual contamination in the subject facilities. Information from the report will be incorporated into an Interim Measure/Interim Remedial Action (IM/IRA) plan for the 886 Cluster Decommissioning Project.

2.2 Characterization Scope

The reconnaissance level characterization of the Building 886 Cluster included a review of historical records and the collection of process knowledge information covering the operational time period for the facility from original construction to present. This information was evaluated to identify data needs for the characterization effort. Samples were then collected from throughout the cluster and analyzed to complete the information needed to represent the current condition of the buildings and associated contamination.

2.3 Report Content

Information and data presented in this report specifically pertain to the Building 886 Cluster. The report includes a summary of the characterization activities, a brief physical description of the facilities, identifies the hazards within the cluster, estimates the types and volumes of wastes which will be generated during decommissioning activities, presents a data quality assessment, and lists the information source and references used in compiling the characterization of the Building 886 Cluster.

3.0 SUMMARY OF CHARACTERIZATION ACTIVITIES

The characterization effort for the 886 cluster included a review of historical records pertaining to the cluster and collecting process knowledge regarding conditions within the buildings. As part of this investigation, comprehensive physical inspections of all accessible areas of the 886 Cluster were conducted during November and December, 1997. The primary purpose of these inspections were:

- confirm the accuracy of file documentation of as-built or modified facility construction, equipment installations, and general facility conditions;
- obtain volume estimates for wastes that will be generated during removal activities;
- identify equipment, structures, process lines, and associated items that will require hazardous and/or radioactive surveys and analytical sampling to further characterize the cluster;
- identify potential sources of lead and asbestos;
- identify potential chemical contamination;
- identify physical hazards;
- locate, identify, and document any facility condition or problem situation which had not been previously identified or otherwise documented in appropriate building records or files; and
- identify equipment, structures, process lines, and associated items which require field surveys and/or analytical sampling for the purpose of characterizing the cluster for radioactive and hazardous contaminants.

The final portion of the characterization effort involved the development and execution of a Reconnaissance Level Characterization Plan (RLCP). This document stated the sampling effort to be conducted in the cluster buildings. It included plans for sampling areas potentially containing or contaminated with asbestos, polychlorinated biphenyls

26

(PCBs), and lead and metals. The plan was reviewed and approved and the execution was directly supervised by a State of Colorado certified asbestos inspector. Radiological contamination was sufficiently characterized by process knowledge and existing surveys.

3.1 Data Quality Objectives Used

Data Quality Objectives (DQOs) were established and defined in Section 3.0 of the RLCP. Definition of DQOs is a quality requirement as well as a proven tool for optimizing sampling and analysis costs relative to attaining adequate confidence in technical project decisions. The DQO process was designed after EPA (EPA, 1994, G-4) and DOE guidelines. All DQOs were consistent with applicable state and federal regulations governing the contaminants of concern (COCs). A concise summary of the DQOs as presented in the RLCP is given below.

THE PROBLEM

Several contaminants were suspected within the 886 Cluster, but the quantities and concentrations of contaminated media were unknown relative to the requirements associated with D&D activities. Determination of the types and quantities of contamination, and the associated consequent waste streams, are required for successful implementation of D&D. Based on historical process knowledge of the 886 Cluster, the potential COCs are asbestos, PCBs, lead/metals, and radionuclides.

THE DECISIONS

The critical technical decisions for the project were as follows:

- What materials (e.g., paint, concrete, pipe insulation, etc), media (e.g., water, oil, solid, sludge, etc), or equipment within the facility are contaminated or, conversely, not contaminated?
- What are the generic classification categories by which the materials, equipment, and/or media will be managed, relative to an eventual assignment as contaminated (hazardous, radiological, or mixed) or not contaminated (nonhazardous)? In other words, what are the categories of waste streams that will result from the D&D of the 886 Cluster?
- What are the ultimate dispositions (i.e., waste classifications) of the waste streams, including quantities (e.g., a completed summary table)?

INPUTS to the DECISIONS

Inputs to the decisions were designed to be both qualitative and quantitative. Qualitative information consisted of nominal data (e.g., paint color or equipment type) derived from visual observation of buildings' equipment and materials. Quantitative data was produced from analytical and petrographic analyses of samples (for characteristic metals, PCBs, and asbestos). Radiation activities were estimated based on historical surveys.

PROJECT BOUNDARIES

The 886 Building cluster (i.e., the buildings themselves) and all equipment/materials contained within, was relegated as within the project boundaries, whereas environmental media outside the buildings were not.

DECISION RULES and ERROR LIMITS

All decision rules were based on objective, reproducible, and verifiable quantitative criteria as stated in Section 3.5 of the RLCP. Decision error tolerance was established at 5% (i.e., a 95% upper confidence limit) for data sets representing homogeneous media.

OPTIMIZATION OF DESIGN

Any modifications to the DQOs hinged on visual observations and new information revealing data gaps as the project progressed, and are discussed in the Data Quality Analysis.

3.2 Sampling and Field Measurement Methods, Equipment, and Procedures

Acquisition of a sample directly depends on the sampling team's observations of the material, equipment, equipment components, or media of interest. Because of excess equipment noted in some of the rooms and/or buildings, access to all potential survey points is not possible. In addition, the cluster is not through deactivation. These deactivation activities (such as size reduction and removal of radiologically contaminated materials and equipment) may jeopardize the characterization surveys. Therefore, if data gaps are identified subsequent to the characterization sampling and decisions described herein (i.e., the decision cannot be made with confidence), additional sampling of source materials and/or waste streams will be conducted.

As stated earlier in this report, the radiological contamination within the 886 Cluster was able to be characterized using process knowledge and existing surveys. Similarly, process knowledge was conclusive concerning the absence of beryllium contamination with the 886 Cluster. Thus, the characterization effort focused on the following hazardous constituents: asbestos, PCBs, and lead and metals. The sampling and field measurements, equipment, and procedures used to perform the characterization for these contaminants are described below.

Asbestos

Asbestos containing materials (ACM) were inspected and sampled by a State of Colorado certified inspector in accordance with the Colorado Code of Regulations 8 and the Asbestos Hazard Emergency Response Act (AHERA), 40 Code of Federal Regulation (CFR) 763. The materials evaluated include thermal systems (e.g., pipe insulation), surfacing materials (e.g., fireproofing, ceiling texture), and miscellaneous materials (floor tiles, ceiling panels, concrete foundations and walls). Bulk samples were taken using coring bits or hammer and chisel in accordance with the RLCP.

Polychlorinated Biphenyls (PCBs)

Potential PCB contamination was evaluated in accordance with 40 CFR 761.125. To assess material against the regulatory threshold of 50 parts per million (ppm), a practical quantitation limit of 5 ppm (one order of magnitude less than the regulatory action level) was used. Material sampled included transformers, capacitors, fluorescent light ballasts, gaskets in potential PCB-containing systems, and paints in accordance with the RLCP.

28

Lead and Metals

All materials suspected of containing or being coated with lead or other Resource Conservation and Recovery Act (RCRA) regulated metals were representatively sampled. This included paint, gloveboxes, shielding, piping, plates, lead fills in walls, skirting, and additives (e.g., plaster). The bulk samples were collected as described in American Standard for Testing Materials (ASTM) Method E 1729-95 using chisels, scrapers, and cutting tools in accordance with the RLCP. The analysis routinely includes evaluation for beryllium.

3.3 Laboratory Analysis

Table 3-1 summarizes the analytical methods performed on the various samples taken during the characterization effort.

Table 3-1. Laboratory Analysis Methods

Suspected Contaminant	Laboratory Analysis Method
Asbestos	Polarized Light Microscopy
PCBs	SW8081
Lead and Metals	SW6010A

4.0 CLUSTER OPERATING HISTORY

The purpose of the 886 Cluster was to conduct criticality experiments on liquid, 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.

4.1 History of Buildings

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 breeze-way connected the two at a later date. The construction date of Building 880 is unknown. The last criticality experiment was conducted in October 1987. Since then the buildings have been maintained within the safety envelope, but the facility is not operational.

4.2 Significant Releases and Events

There reportedly have been five incidents where uranyl nitrate was spilled onto the floor of the Critical Mass Laboratory (CML). The largest spill involved between 50 and 60 gallons of solution. The laboratory floors are sealed and bermed to contain such spills, and in no case did solution escape the building. The solution was recovered for further use. In another case in the late 1960's, an accumulation of uranyl nitrate salt was found inside the base of the ventilation system filter plenum outside of Building 886. This accumulation, about one foot square and one-quarter inch thick, is thought to have most likely resulted from an incident in which some solution overflowed into a vent line and dried, with subsequent air flow over the vent carrying the salt to the filter plenum.

There are no recorded instances where contamination was released to the environment.

4.3 Current Operations

Building 886 is not currently operational. The buildings have been vacated except for three individuals who are planning moves and T886A, which is being utilized as a project support trailer. Deactivation activities were suspended in late FY97 to because resources were diverted to other efforts. The only ongoing operations are those necessary to maintain the safety envelope and comply with the basis for operation (BIO) building authorization.

4.4 RCRA and CERCLA Designated Areas

There are no RCRA or CERCLA designated areas within the 886 cluster. However, the 886 Cluster Decommissioning Project is being conducted as a CERCLA removal action.

5.0 PHYSICAL DESCRIPTION

The 886 Cluster is located in the RFETS industrial area at the east central portion of the site. It is located just south of Central Avenue and just east of the pedestrian traffic signal. The buildings were used in support of criticality experimentation from 1965 through 1987. Primary construction materials used in the buildings include concrete masonry, steel, and wood with siding.

5.1 Summary Description

The buildings associated with the cluster are 886, 888A, 880, 875, and T886A. The cluster also includes an outside concrete pit containing two raschig ring tanks also referred to as building 828, and an underground tunnel linking the Air Filter Plenum Building (875) with Building 886. All the structures are single story buildings, with the exception of the criticality laboratory portion of Building 886 which is two stories high. The individual buildings are described in more detail in the following sections.

5.2 Specific Description

Building 886

Building 886 contains the Critical Mass Laboratory (CML) where criticality experiments were performed. It is approximately 10,785 square feet, of which approximately 4,000 square feet constitutes the radiological control area (RCA). The remaining area is comprised of office space. The facility has no basement. The RCA is comprised of rooms 101, 102, and 103; and a hallway, referred to as room 108; all with slightly different construction from each other.

Room 101 is the assembly room where all criticality experiments were performed. It is approximately 2,000 square feet. It has four to five feet three thick concrete walls and the north wall is reinforced concrete. The ceiling is 30 feet above the floor and is also thick concrete. The floor is concrete and is a floating floor with respect to the walls.

Room 102 was a storage vault for special nuclear material (SNM). It is approximately 600 square feet. The walls are double reinforced concrete with a cast integral concrete roof.

Room 103 is the mixing room which serves as a fissile solution mixing and storage area. It is approximately 900 square feet. It has three walls that are reinforced concrete with the west wall constructed of back filled cinder blocks with rebar. The roof is sheet metal with a tar overlay. Approximately half of the room is two to four feet below the building's floor level.

Room 108 is the hallway within the CML connecting Rooms 101, 102, and 103. It is approximately 500 square feet.

Outside of the RCA, Room 111 is the Utility Room and Room 112 is the Control Room. Room 141 is the Stationary Operating Engineer (SOE) Control Room. The remaining rooms within the building are considered office space. The floor of these rooms is a slab on grade and the walls are back filled cinder block with a built up roof.

Recent removal of containers of low enriched uranium oxides and two check sources of Cobalt-60 and one check source of Californium-252 was completed as a risk reduction activity. Highly enriched uranyl nitrate (HEUN) was drained from the tanks in Building 886 and the raschig rings were removed from the tanks in Room 103 as part of a risk reduction activity.

The equipment located in Building 886 is listed in Table 5-1.

Table 5-1. Building 886 Equipment

Equipment	Quantity	Equipment	Quantity
Horizontal Split Table (RCA)	1	Concrete Reflector Panels (RCA)	8
Vertical Split Table (RCA)	1	Solution Transfer Pump (RCA)	6
Solution Base (RCA)	1	Reactor Control Console	1
Water Reflector Apparatus (RCA)	1	Air Compressors	2
Elevated Platform (RCA)	1	Bridgeport Mill	1
Walk-in Hood (RCA)	1	Logan Lathe	1
Stainless Steel Tanks (RCA)	11	Lektriever	1
Glovebox Type Enclosures (RCA)	2		

Building 875

Building 875 is approximately 3,900 square feet and houses the filter plenums that filter air which has been circulated through the Building 886 Exhaust System. The building is cinder block construction with a concrete floor. The roof is tar impregnated felt.

The facility has a concrete pit on the north end which accesses the tunnel. The tunnel connecting 875 and 886 is considered part of this facility. Plenum 501 is a two-stage high efficiency particulate air (HEPA) filter servicing the office area. Plenum 502 is a four-stage HEPA filter plenum servicing the material access area

31

(MAA) exhaust air. Tank D-501 is the plenum deluge tank. The building also contains a 1,200-gallon critically safe tank filled with raschig rings. A metal cabinet containing sources is also in the facility. Groundwater seepage into the raschig ring tank area is routinely pumped out. Drummed waste located in Building 875 has been packaged and radiologically surveyed and is presently awaiting shipment.

Building 888A

Building 888A is an approximately 400 square feet enclosure, and is an electrical substation for the cluster's buildings. It consists of two cinder block walls on the north and west, with the remaining sides consisting of chain link fence with razor wire top. There is no roof and the floor is natural ground. The structure encloses one feeder transformer that operates at 13,800 volts which supplies power to Buildings 886 and 875. The transformer has been previously tagged indicating that polychlorinated biphenyls (PCBs) are not present.

Building 880

Building 880 is an unpainted, metal building of approximately 800 square feet currently being used for excess storage. It is a metal "Butler" type building 100 feet south of Building 886. It has several items of used experimental equipment waiting anticipated re-use. Some of these items were, at one time, contaminated with enriched uranium and packaged in the then-acceptable contained configuration. While contaminated materials and equipment are included in the current inventory, no materials are being moved in or out of the building. The majority of waste streams are considered, and will be packaged and handled as, low-level waste.

Building T886A

Building T886A is approximately 1,900 square feet and is an officer trailer attached to the northeast corner of Building 886. It serves as office space for the 886 Cluster Decommissioning Project and is of standard trailer construction.

Building 828

Building 828 is an outside concrete pit containing two 1,000 liter tanks filled with unused raschig rings. Groundwater has historically seeped into the pit and was pumped out to a tanker, sampled, and transported for appropriate disposal.

6.0 IDENTIFIED HAZARDS

The hazards identified during the reconnaissance level characterization for the 886 Cluster are summarized in Table 6-0 and described in the following sections by hazard category and by area.

32

Table 6-0. Hazard Summary

Bldg./ Room	Description	Square Feet	Hazard	Matrix
B886	General Building (specific rooms detailed below)	10,785	Asbestos	Piping insulation, skim coat on cinder block, floor and ceiling tiles, filler, wiring insulation, roof
			Press. Gas	one cylinder of nitrogen gas
			Lead	Paint (see Appendix B for concentrations for specific paint colors)
			Chromium	Paint (see Appendix B for concentrations for specific paint colors)
			PCBs	Paint (see Appendix B for concentrations for specific paint colors)
101	Critical Mass Laboratory	2,000	Physical	Elevated platform, overhead equipment, falls
			Radiological	Tanks, process lines, ventilation ducts, assembly hood, floor, and equipment
			Hold up	2 tanks with raschig rings, SCRAM tank, annular tank
102	Storage Vault	600	Radiological	Potential fixed contamination in floor
103	Mixing Room	900	Physical	Un-secured ladder, protruding piping and valves
			Radiological	Tanks, process lines, ventilation ducts, glovebox, floor
			Hold up	Pumps
108	Hallway	500	Radiological	Potential loose surface contamination
111	Utility Room	1,000	Physical	Sharp edges, corners, protruding piping and valves
			PCBs	Gasket material from vibration damper
			Electrical	Equipment, electrical panels

Bldg./ Room	Description	Square Feet	Hazard	Matrix
112	Control Room	480	Physical	Control boxes and sheet metal with sharp edges
			Electrical	Control boxes, electrical panels
All others	Offices	5,300	Physical	Sheet metal with sharp edges
B875	Filter Plenum Facility	3,900	B875 was built at the same time as B886 and from similar materials. It is assumed that the characterization results from B886 apply to B875. The following list of hazards for B875 is provided in addition to the B886 characterization.	
B875	Filter Plenum Facility	3,900	Physical	Noise, sharp edges
			Radiological	Filter Plenum
			Asbestos	Piping insulation, roof
			Electrical	Equipment, electrical panels
B880	Storage	800	Physical	Trip and fall, protruding edges
			Radiological	Stored waste
B828	Tank Pit	170	Physical	Confined space, falls, protruding pipes and valves, slips, spiders
B888A	Electrical Substation	400	Physical	Razor wire
			Asbestos	Wiring insulation, arc chutes, arc protection, insulators, conduit trays
			Electrical	Substation
T886A	Project Trailer	1,900	None	

34

6.1 Physical Hazards

The buildings within the 886 Cluster have been maintained within the safety envelope required by the BIO. As a result, there are no physical hazards from damaged or dilapidated infrastructure. However, some physical hazards are intrinsic with portions of the cluster and are described below.

Building 886

Room 101 has an elevated platform with equipment located on it as well as an overhead crane. These may represent an overhead hazard when D&D activities begin. Work on the platform has fall hazards associated with it.

Room 103 has a ladder going to an elevated platform which is not secure and has been barricaded. The room also has protruding piping and valves which represent a hazard to workers when they are working closely around the equipment.

Room 111 has numerous sharp edges, corners, and protruding pieces of equipment, pipes, and valves. Although safe for current operations in that they do not impinge on the walk ways, when workers begin D&D operations in this room, they will need to be cognizant of these hazards.

Room 112 has numerous control boxes and sheet metal with sharp edges.

Throughout the building, and the rest of the cluster, there is sheet metal with sharp edges. Although not normally accessible, as D&D activities begin around the sheet metal, attention to cutting edges will be required.

Building 875

The operation of the air filtration system in Building 875 creates a noise hazard which requires the use of hearing protection within the building when the filter plenum system is in operation.

Building 888A

This enclosure around the electrical substation has razor wire around the top. This represents a hazard to the workers when they proceed with D&D activities.

Building 828

Building 828 is a below grade confined space. Any work within the pit will require a confined space permit. Furthermore, the pit represents a falling hazard if left open and consideration will need to be given during the D&D process to maintaining fall protection or barricades around it.

The pit also contains numerous protruding pipes and valves which will be a hazard for workers in the pit.

Historically, there have been numerous occasions when ground water has enter 828. This water was pumped out, but the pit is wet, muddy, and slick.

The pit is also a natural breeding ground for spiders. Measures have been taken in the past to eliminate the spiders before beginning work in the pit. Similar precautions will be needed for the D&D activities.

35

Building 880

Building 880 has been used for storage. The material stored in the building creates numerous trip and fall hazardous, and protruding edges if moving among the containers.

6.2 Radiological Hazards

Past Activities

Deactivation activities had previously begun in Building 886 prior to the initiation of this project. Those activities involved the draining and offsite shipment of the highly enriched uranyl nitrate (HEUN) as well as deactivation of most the HEUN storage tanks. There are several tanks in the cluster that still require the raschig rings to be removed which could potentially contain solution hold up. Deactivation will be completed prior to strip-out of the tanks for waste packaging. Extensive decontamination efforts were also completed to bring all areas of the cluster into current Site radiological requirements. Although the HEUN solutions were removed to the maximum extent possible, there is known to be dry residues contained within the storage tanks and the associated piping. This residue will result in higher levels of contamination during deactivation activities than those currently shown in the cluster routine surveys.

Current Conditions

The Building 886 Cluster radiological areas are posted and controlled in accordance with 10 CFR 835. Contamination control criteria for this project include postings that are currently applicable to the radiological conditions in the 886 Cluster. Those postings are Contamination Area (CA) and High Contamination Area (HCA). There are presently CAs in Building 886, 875, and 880. HCAs are located in Buildings 886 and 875. All control levels for these areas are based on the transuranic limits due to possible uncertainty concerning quantity and locating plutonium handling in Building 886 (transuranic limits are the most conservative). This control process is consistent with DOE radiological policy for other activities at the Site.

Contamination Areas are controlled to a limit of 2000 disintegrations per minute (dpm) per 100 square centimeters. See Table 6-1 for the summary of contamination values used to establish radiological control areas. Radiological surveys are being performed for in-process work and on a regular basis for all areas of the cluster, usually weekly, to ensure that contamination is maintained below requisite levels. As deactivation is completed in each of the remaining areas, decontamination surveys will be the used as the baseline for future decommissioning activities.

The cluster safety envelope has been maintained throughout its life cycle. There is good continuity of personnel from the deactivation and HEUN removal projects. Based on these factors, process and historical knowledge as well as the radiological conditions documented on the survey logs are believed to be very reliable.

As Low As Reasonably Achievable (ALARA)

As Low As Reasonably Achievable (ALARA) principles will be used in the planning and execution of D&D activities to minimize exposures to workers and public. The DOE RadCon Manual and 10 CFR 835 give general guidance on field implementation (e.g., ALARA Committee, Pre-Job Planning, Post-Job Review) of ALARA principles. Project specific work procedures will include ALARA considerations to minimize worker exposure during D&D activities. ALARA principles will also be reflected in the final release criteria to minimize public exposure following D&D.

Table 6-1. Summary of contamination values for Unrestricted Release

Radionuclide	Average Total (Fixed + Removable) Contamination (dpm/100cm²)	Maximum Total (Fixed + Removable) Contamination (dpm/100cm²)	Removable Contamination (dpm/100cm²)
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	15,000	1,000
Beta-gamma emitters (radionuclides with decay modes other than the alpha emission or spontaneous fission) except Sr^{-90} and others noted above.	5,000	15,000	1,000

Isotopes of Concern

The principal DOE isotopes of concern include:

- Uranium-235,
- Uranium-234,
- Uranium-238,
- Plutonium-239, and
- Americium-241.

The specific isotopes were identified based on survey results, personnel interviews, and historical records. Trace amounts of some decay products may be present and will be evaluated during waste characterization.

Surveys Performed/Evaluated

Radiological surveys have been performed in representative areas of the 886 Cluster. The level of detail for specific surveys was based on the radioactive contamination potential for the area. Extensive radiological survey information was used for this characterization effort in lieu of new surveys.

Additional routine surveys were performed in accordance with procedures. In addition to removable alpha surveys, removable beta was also determined. Buildings 875 and 880 were also surveyed in accordance with routine survey procedures. Appendix A contains copies of the surveys that are the basis for this radiological characterization.

As stated previously, the downdraft unit and associated glovebox in Room 103, the assembly hood in Room 101, process piping in Rooms 101 and 103, and the ventilation plenum in Building 875 were not characterized as part of this effort but will be characterized as deactivation activities are completed. These

37

areas are associated with high levels of contamination (HCAs) and will require deactivation and decontamination prior to decommissioning of the 886 Cluster.

6.3 Chemical Hazards

A summary of the chemical hazards is presented in Table 6-0. Appendix B contains the analytical results used to characterize the chemical hazards within the 886 Cluster. A brief discussion of the significant results is presented below.

Metals

Lead and chromium were found in excess of the regulatory limit in numerous paint samples throughout Building 886. Since Building 875 is of similar construction, it is assumed the same paint in that building will likewise be contaminated.

Beryllium

Historical and process information indicated that beryllium was not a contaminant of concern in the 886 Cluster. This was supported by the characterization results which found no instances of beryllium above the regulatory limit.

PCBs

PCBs were detected above the regulatory limit in a sample from a gasket material in a vibration damper in Room 111 (Utility Room) of Building 886, and in paint samples from the green and purple paints.

6.4 Asbestos

During the inspection process, historical records were accessed and evaluated, along with physical inspection of the cluster. The investigation reviewed original specifications and blueprints, asbestos and lead in paint bulk samples, and interviews with facility occupants, including the Facility Manager. The findings of the characterization are discussed by building in the following sections and Appendix C contains the Certified Asbestos Inspector's Report.

Building 886

Building 886 is the main structure of the cluster. The inspection process discovered asbestos containing thermal systems insulation (TSI) on piping and tanks associated with the domestic water, chiller system, steam system in the interior and exterior of the building, and on a small heating ventilation and air conditioning (HVAC) system located outside on the west side of Building 886. This TSI is generally in good condition and appears to have regular maintenance.

Asbestos containing surface materials discovered during the inspection were limited to a light skim coat on the interior cinder block associated with the oldest section of the structure. This material is covered with a minimum of one coat of paint and is in good condition. Due to the thinness of the application and the relatively low percentage of asbestos (trace to five percent), point counting analysis was utilized to more accurately evaluate asbestos content with results indicating levels consistently above one percent. This material must remain as part of the asbestos waste stream even though a composite of this skim coat and the cinder block would reduce the asbestos percentage to far less than one percent.

38

Miscellaneous asbestos containing material (ACM) discovered during the inspection included nine inch and twelve inch floor tiles dispersed throughout the cold side of the facility, including under the sheet vinyl in the hallways. The adhesive associated with the floor tiles tested negative for asbestos except in Room 110, the janitorial closet. The tiles are in generally good condition and appear to receive regular maintenance.

The predominant pattern of ceiling tiles (2 by 4 feet white with wide latitudinal grooves, pits, and pin holes) tested positive for asbestos. Due to the modular nature of a suspended ceiling, the remaining patterns must be assumed to be contaminated with asbestos. The suspended ceiling system was in good condition at the time of the inspection.

A filler between the HVAC ducts and wall penetrations is 98 percent asbestos. This filler was not observed in all locations, but is predominant throughout the facility. At the time of the inspection, the filler was painted and in good condition where observable.

A previous inspector acquired a sample of the electrical wiring in Room 114 which indicated asbestos in the insulation. Until the building circuits are de-energized and a comprehensive survey can be completed, it must be assumed that all original wiring insulation for the structure, and for the original structures in the cluster, is asbestos containing.

Building 886 has a built up roof system that was specified as containing asbestos in the felt and tar. As such, the roof is assumed to be asbestos containing without the need of sampling. Tar impregnated roofing felts may be disposed of with normal demolition debris under most circumstances.

Building 828

The Building 828 exterior walls are assumed to be asbestos containing based on historical data from other locations on the Site and on the expert judgement of the Certified Asbestos Inspector. The piping associated with the underground storage tanks is not insulated.

Building T886A

T886A is a modular trailer (S.N. 3404) constructed by Elder in 1984. Alan Koenig from G.E. Capital, the parent company of Elder, verified that this particular structure was not constructed with any materials that contained either lead or asbestos.

Building 888

Although not included as part of the 886 Cluster, Building 888 is powered from 886 and will be impacted by the demolition of the 886 Cluster. Because of this, the inspector evaluated the building on the chance that it may be included, or that work may be required on it during the 886 D&D activities. The building is a guard post constructed in the mid 1980's. As such, building materials have a low possibility of containing asbestos. Based on visual inspection, all materials were eliminated as suspect asbestos containing materials except the roofing and the drywall systems. Samples were acquired of the drywall system and the analytical results were non-detects. The built-up roofing can be assumed to be asbestos containing tar impregnated roofing felt, which can be disposed of with the regular construction debris in most cases.

Building 875

Building 875 is the Plenum Facility for Building 886 and includes the service tunnel to 886. Since this structure is of the same construction date as Building 886, suspected ACM are shared. As such, all piping insulation must be considered to be asbestos containing unless it can be eliminated by physical touch as either foam or fiberglass insulation. The asbestos insulation was predominantly confined to the fittings, reductions, hangers, tees, and elbows, while the straight runs were predominantly foam and fiberglass.

The roofing of Building 875 is similar in construction to that of Building 886. As such, the original specification called for the use of tar and felt containing asbestos. Based on this information, the roofing materials are assumed to be asbestos containing. These materials may be treated as regular demolition debris in most cases.

Building 880

At the time of inspection, no asbestos containing building materials were discovered in Building 880.

Building 888A

Building 888A is the electrical substation for the facility. Due to the inherent safety concerns with sampling live electrical equipment, no samples were acquired. Suspect ACM include wiring insulation, arc chutes, arc protection, insulators, and conduit trays. Once the substation is de-energized, samples can be safely acquired of these materials. In the interim, these materials are assumed to be asbestos containing.

6.5 Pressurized Gas and Liquid Nitrogen

There is only one cylinder of pressurized gas in the 886 Cluster. It is nitrogen gas used for maintenance on the chiller unit. The bottle is located in a bottle rack outside Building 886 on the west side.

6.6 Electrical

The 886 Cluster is currently in a safe condition for electrical hazards. However, when D&D activities begin, significant electrical hazards are located through out the cluster, particularly in the control and utility rooms of Building 886, Building 875, and in and around Building 888A. Additionally, consideration will need to be given as to how to resupply the guard shack located next to 888A with power once the supply from 886 is interrupted.

It should be noted that numerous system changes have been made to the electrical system in the cluster over the years of operation. These changes are not reflected well in the as-built drawings for the facilities. The electrical system will require tracing of questionable lines with a tic tracer or similar device before D&D activities are implemented.

6.7 Wastes

When deactivation activities were suspended in the 886 Cluster in late FY97, some waste remained in the buildings. This waste is all low level (LL) waste. Plans are currently in place to remove this waste from the buildings. There are 80 55-gallon drums which have been assayed, 40 55-gallon drums that are in the process of being assayed, and three full-size waste crates that need to have their contents verified and

40

assayed. In addition to this packaged waste, there is some unpackaged waste in Room 101. The majority of this waste is metal and is mainly excess equipment.

7.0 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

Table 7-1 summarizes the types and quantities of wastes estimated for the deactivation of the 886 Cluster. These estimates were derived from existing documentation regarding equipment and materials in the cluster and from inventories compiled during walk-through of the facilities.

Table 7-1. Estimated Wastes From the 886 Cluster Decommissioning Project

Type of Waste	Primary Matrix	Quantity (cubic meters)	Type of Waste Package	Quantity of Waste Package
Hazardous	Painted materials	3	Standard Crate	1
Asbestos	Insulation, building materials, wiring, etc.	200	Bulk	N/A
Low-level	Paper/Glass/Plastic/Pipe	225	Standard Crate	75
Low-level Mixed	Plastic/Pipe	3	Standard Crate	1
TRU	None	0	N/A	N/A
TRU Mixed	None	0	N/A	N/A
Sanitary	Rubble	1,000	Bulk	N/A

8.0 DATA QUALITY ASSESSMENTS

The purpose of data quality assessment is to determine whether a set of data is adequate for its intended use, especially relative to supporting predefined project decisions with acceptable levels of confidence (after EPA G-9, 1996). EPA's approach to data quality assessment heavily emphasizes the use of statistical methodologies, which incorporate "ratio" data, i.e., data exhibiting a broad range of values relative to action levels. This reconnaissance level characterization, however, hinges primarily on nominal data (e.g., paint colors or equipment /material types), with associated analytical results indicating a nominal outcome from at least one judgmental (i.e., non-statistical) sample: Pass/Fail. Therefore, typical statistical (EPA) methodologies that might be used for comparing a project's data set with a background or baseline to evaluate significance is not well suited for use with most of the contaminants of concern evaluated for the 886 Cluster, with the exception of radionuclides. Based on the availability of previous radiological survey data within the areas of interest, DQOs were not formally presented for this reconnaissance effort, but will be addressed for final decontamination surveys.

Notwithstanding the limited statistical applications to the non-radionuclide contaminants of concern, a data quality analysis is still necessary to determine if the data collected are adequate for their intended use. Table 6-0 exhibits a summary of the hazards based on the samples collected for each contaminant category – by location and by nominal category represented (e.g., paint color).

8.1 Project Decisions

A summary of the project decisions is also given in Table 6-0 based on the original DQOs expressed in §3.1, which are:

- definition of the contaminated equipment and materials and hazards, based on sample representativeness and analytical results, and
- definition of the waste classifications and assignment of all contaminated equipment/media to those classifications (for subsequent treatment, storage, transport, and/or disposal). Table 7.1 provides estimated quantities of the waste types.

8.2 Inputs to the Decisions

Inputs to the decisions noted above consisted of the project's data, which is presented in Appendix B. Data quality is addressed in terms of precision, accuracy, representativeness, completeness, and comparability -- the PARCC parameters – in Section 8.4.

8.3 Decision, Rules, and Error Limits

With the exception of asbestos, statistically-based samples, particularly with respect to randomness and quantities, were neither taken nor required. Therefore, calculations of upper confidence limits on the data (e.g., 95% UCLs) are not needed; asbestos sample decisions are based on comparison with the 40 CFR 763.86 action levels. However, it should be noted that the contaminants of concern were either not detected (i.e., well below action levels) or were well above action levels (and therefore, of course, much greater than detection limits). This clustering of the data suggests, semi-quantitatively, that there is little probability of either alpha (false-positives) or beta (false negatives) errors; stated differently, no data resides in the "gray regions", where results are within 5 times or 1/5 the action levels.

Further, in sampling situations where samples were not taken (see Sections 6.3 and 6.4 for example) – typically due to safety precautions – the media of interest is assumed to be contaminated. These assumptions increase the alpha (producer's) error, which translates into more cost for the RFETS, but reduce the beta (consumer's) error, which translates into greater safety for the workers and the public.

8.4 PARCC Parameters

In general, precision and accuracy are determined by analytical lab controls and subsequently qualified based on a data validation process. At least 25% of the results of the data are planned for formal data validation via the K-H APO. The primary categories of interest within the validation process are included within the subsections below.

<u>Accuracy</u>

Accuracies indicate how close the measured values are to "true" values, or conversely, accuracy quantifies the amount of error associated with the measured value as compared to a true value.

<u>Precision</u>

Precision quantifies how repeatable the sample measurements are. Precision is quantified with respect to both the lab and the overall project. Matrix spike duplicates (MSDs) are typically used by the lab whereas

field duplicate samples, blind to the laboratory, are used to evaluate overall repeatability in the project. Precision results based on the field duplicate samples are given in Table 8-4 (by method); all duplicate values were well within tolerances (40% RPD for solids, 30% RPD for liquids), except for TCLP results, where duplicate samples were not taken. As a result, repeatability of TCLP measurements was indeterminate.

Table 8-4. Precision Results by Method

PAIR #	Sample ID	Asbestos (%)	Metals (mg/kg)							PCBs (ug/kg)
			Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver	
REAL SAMPLES										
1	886-971119-MD-001									
2	98A0485-007.003		1.1	198	0.14	21.6	220	0.62	0.19	350
3	886-971119-MS-022	0								
4	886-971121-MS-053	0.03								
5	886-971119-MS-028	0								
6	886-971124-MS-072	0								
DUPLICATE SAMPLES										
1	886-971119-MD-002									
2	98A0485-010.003		1.1	220	0.2	22.1	223	0.57	0.25	350
3	886-971119-MS-023	0								
4	886-971121-MS-054	0.06								
5	886-971119-MS-029	0								
6	886-971124-MS-073	0								

			Metals (mg/kg)							
PAIR #	Sample ID	Asbestos (%)	Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver	PCBs (ug/kg)
RELATIVE PERCENT DIFFERENCE VALUES										
1										
2			0	3	9	1	1	2	7	0
3		~0								
4		17								
5		~0								
6		~0								

RELATIVE PERCENT DIFFERENCE = [(real result) - (duplicate result)]/{[(real result) + (duplicate result)]/2}

45

Representativeness

The samples are representative of all potentially contaminated media visible within the 886 Cluster based on the following criteria:

- professional judgment of the sampling team
- walk-throughs and collaborations by and within the sampling team
- summary of the samples acquired and analyzed (Table 6-0)
- implementation of forensic Chain of Custody protocol
- compliance with sample preservation and holding times
- compliance with the RLCP (RMRS, 1997) – reviewed and approved by management consensus

RMRS quality assurance personnel performed surveillance 97-100 to verify compliance with the 886 Cluster RLCP. This surveillance used a checklist developed directly from the approved and controlled 886 Cluster RLCP. One deficiency was identified concerning the documentation of sampling equipment decontamination. This deficiency was resolved satisfactorily resolved prior to the completion of field sampling activities.

Comparability

Analytical results from this project are comparable with similar samples and media on a state-wide, nation-wide, or DOE-complex basis given the use of documented plans and procedures for sample collection and standardized EPA-approved methods for sample analysis.

Completeness

Completeness is typically defined as a percentage, calculated as the ratio of usable results to either 1) the number of samples planned or 2) the number of samples actually acquired for analysis. Because #1 is not applicable, the ratio with respect to #2 is the appropriate measure. Completeness of the data set is given in Table 8-5, and is well above 95 percent, which is a common industry standard, for real and quality control samples (with the exception of metal TCLP and quality control samples). Known data gaps due to components which have yet to be deactivated are listed below. The characterization will be performed and documented after these elements are deactivated.

- Bldg 888A – pending de-energization of the substations
- Assembly Hood - Pending deactivation
- Raschig Ring Tanks - Pending deactivation
- Glovebox - Pending deactivation

Completeness may be corroborated by referencing the associated quality records of analytical results, which include hardcopy data packages and electronic data deliverables (EDDs), managed by the K-H Analytical Projects Office.

46.

Table 8-5. Summary for Completeness of the Data Set

	Asbestos			Total Metals			TCLP Metals			PCBs		
	Total Acquired	Total Usable	Percent	Total Acquired	Total Usable	Percent	Total Acquired	Total Usable	Percent	Total Acquired	Total Usable	Percent
Real Samples	74	74	100	7	7	100	2	2	100	10	10	100
Duplicate Samples	4	4	100	1	1	100				1	1	100

COMPLETENESS = [(total collected) - (unusable)]/(total collected)
Where: (total collected) = total number of samples collected
(unusable) = number of samples unusable in final reporting

9.0 INFORMATION SOURCES

886 Cluster as-built drawings

Site personnel

Task 3 and 4 Final Draft Report, Operations History, August 1992.

10.0 REFERENCES

Basis for Interim Operation Building 886, Revision 5, Kaiser-Hill 1997

Facility/Activity Responsibility Transfer Checklist, Building 886 Cluster Landlord Functions, RMRS 1997.

Guidance for Data Quality Assessment, Practical Methods for Data Analysis, EPA QA/G-9 (QA 96 Version), EPA, 1996

Historical Release Report, DOE 1992.

Reconnaissance Level Characterization Plan for the 886 Cluster Decommissioning Project, Revision 0, RMRS 1997.

11.0 APPENDICES

A Radiological Characterization Surveys

B Chemical Hazards Characterization Results

C Certified Asbestos Inspector's Report

48

ATTACHMENT C

Radiological Characterization Package

Rocky Flats Environmental Technology Site

RADIOLOGICAL CHARACTERIZATION PACKAGE

BUILDING 886 CLUSTER CLOSURE PROJECT

PHASE I

REVISION 1

March 1, 2001

Prepared by: Jay M. Britten / 2/27/01
Radiological Engineer

Reviewed by: Duane Parsons / 2/27/01
RISS Facility Characterization Coordinator

Reviewed by: Steve Luker / 3/1/01
Quality Assurance

Approved by: Jerry Anderson / 6 Mar 01
Closure Project Facility Manager

50

Radiological Characterization Package
PHASE I
B886 Cluster (B886, B875 Exterior, B888, 888A and T886A)

Building:	886	Last Updated:	Date:	2/26/01	Time:	730	Initials:	JMB

* This characterization package was prepared in accordance with MAN-077-DDCP , D&D Characterization Protocols (7/26/00), and MAN-127-PDSP, Pre-Demolition Survey Plan for D&D Facilities (02/14/01).
* PDSP Data Quality Objectives were used to develop this characterization package.

Instructions:

1. Verify characterization activities are on the Plan-of-the-Day (POD).
2. Perform a Pre-Evolution Brief and/or Job Task Brief in accordance with the Site Conduct of Operations Manual.
3. Verify personnel have appropriate training for the applicable tasks they will be performing.
4. Comply with RWP requirements, if applicable.
5. Comply with JHA and facility PPE requirements, as applicable.
6. Inform the Facility Manager, or designee prior to starting characterization activities.
7. Follow applicable characterization and sampling procedures.
8. Notify Wackenhut Security (x2444) and the Shift Supervisor (x2914), and verify appropriate safety precautions/requirements are followed prior to accessing facility roofs.
9. Coordination with the Environmental Restoration Program organization will be required to further characterize underneath facility foundations and slabs prior to removal.
10. Collect and maintain all characterization paperwork in the Project File(s).
11. All radiological surveys shall be conducted in accordance with the sampling and instruction forms included in 886 Cluster Package Identification numbers 01-0001, 01-0002, and 01-0003. Sample locations are denoted on scaled maps attached to each survey package.

Class 1 Areas

Building Area	Survey Unit	Class	Description	Total m²	Floor m²	Scan m²	USA	Smears	Media	Comments/Rationale
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No Class 1 Areas identified in this characterization unit. Historical Site Assessment and process knowledge indicate no need for this classification.
			Class 1 Totals	0	0	0	0	0	0	

51

Radiological Characterization Package
PHASE I
B886 Cluster (B886, B875 Exterior, B888, 888A and T886A)

Class 2 Areas

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No Class 2 Areas identified in this characterization unit. Historical Site Assessment and process knowledge indicate no need for this classification.
			Class 2 Totals	0	0	0	0	0	0	

52

Radiological Characterization Package
PHASE I
B886 Cluster (B886, B875 Exterior, B888, 888A and T886A)

Class 3 Areas

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
A	886-A-001 (Phase I)	3	886 Front Offices (Rooms 130, 131, 129, 128, 123, 125, 121, 119, 116, 127, 122, 118, 120, 117) & Room 111 (Utility), Room 106 (tools) EXCLUDE HALLWAY T886A (Interior) +	2111	492	212	15 - Random 45 - Biased 3 - QC	15 - Random 45 - Biased	0	Areas are not expected to contain, or have ever contained, any residual radioactivity greater than the $DCGL_W$. Historical Site Assessment and years of routine radiological surveys in this unit provide a high degree of confidence that no individual measurement will exceed the $DCGL_W$. A 10% scan will be biased towards areas of greater potential for contamination (e.g., floors and lower walls).
B	886-B-009 (Phase I)	3	Exterior Walls and Roof of B886, B875, & T886A	3916	1582 (ceiling)	392	15 - Random 85 - Biased 5 - QC	15 - Random 85 - Biased	0	Areas are not expected to contain, or have ever contained, any residual radioactivity greater than the $DCGL_W$. Historical Site Assessment and years of routine radiological surveys in this unit provide a high degree of confidence that no individual measurement will exceed the $DCGL_W$. A 10% scan will be biased towards areas of greater potential for contamination.
C	886-C-010 (Phase I)	3	Entire Guard Shack (B888) [interior & exterior] & 888A slab and block walls	101	16	11	15 - Random 3 - Biased 2 - QC	15 - Random 3 - Biased	0	Areas are not expected to contain, or have ever contained, any residual radioactivity greater than the $DCGL_W$. Historical Site Assessment and years of routine radiological surveys in this unit provide a high degree of confidence that no individual measurement will exceed the $DCGL_W$. A 10% scan will be biased towards areas of greater potential for contamination (e.g., floors and lower walls).
			Class 3 Totals	**6128**	**2090**	**615**	**178**	**178**	**0**	
All Class Areas			**All Class Totals**	**6128**	**2090**	**615**	**178**	**178**	**0**	

53

Radiological Characterization Package
PHASE I
B886 Cluster (B886, B875 Exterior, B888, 888A and T886A)

Non-Impacted Areas

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No Non-Impacted Areas identified in this characterization unit. Historical Site Assessment and process knowledge indicate no need for this classification.
			Non-Impacted Totals	N/A	N/A	N/A	N/A	N/A	N/A	

54

ATTACHMENT D

Chemical Characterization Package

Rocky Flats Environmental Technology Site

CHEMICAL CHARACTERIZATION PACKAGE

BUILDING 886 CLUSTER CLOSURE PROJECT – Phase 1

REVISION 1

February 20, 2001

Prepared by: _____
Industrial Hygiene

Prepared by: _____ 2/20/01
Environmental Compliance

Reviewed by: _____
Quality Assurance

Reviewed by: _____ 2/21/01
RISS Facility Characterization Coordinator

Approved by: _____ 23 Feb 01
Closure Project Facility Manager

56

CHEMICAL CHARACTERIZATION PACKAGE

BUILDING: 886 CLUSTER –PHASE 1 AREAS (Front Office Rooms 130, 131, 129, 128, 123, 125, 121, 119, 116, 127, 122, 118, 120, 117, Room 111 (Utility), Room 106 (tools), T886A (interior), exterior walls and roofs of B886, B875, & T886A, B888 (interior & exterior), and 888A slab and block walls

* This characterization package was prepared in accordance with MAN-077-DDCP, D&D Characterization Protocols, and MAN-127-PDSP, Pre-Demolition Survey Plan for D&D Facilities.
* PDSP Data Quality Objectives were used to develop this characterization package.

Instructions:

1. Verify characterization activities are on the Plan-of-the-Day (POD).
2. Perform a Pre-Evolution Brief and/or Job Task Brief in accordance with the Site Conduct of Operations Manual.
3. Verify personnel have appropriate training for the applicable tasks they will be performing.
4. Comply with RWP requirements, if applicable.
5. Comply with JHA and facility PPE requirements, as applicable.
6. Inform the Facility Manager, or designee prior to starting characterization activities.
7. Follow applicable characterization and sampling procedures.
8. Notify Wackenhut Security (x2444) and the Shift Supervisor (x2914), and verify appropriate safety precautions/requirements are followed prior to accessing facility roofs.
9. Coordination with the Environmental Restoration Program organization will be required to further characterize underneath facility foundations and slabs prior to removal.
10. Collect and maintain all characterization paperwork in the Project File(s), and all electronic data in the appropriate D&D RISS subdirectory.

ASBESTOS		
Sample Location	**Estimated Number of Samples**	**Sample location and justification/rational**
T886A	15	T886A was not characterized during the RLC phase. The number of samples necessary to complete the inspection is estimated at 15.
886	0	Characterization previously completed during RLC. No additional sampling is necessary.
875	0	Characterization previously completed during RLC. No additional sampling is necessary.
B888	6	The roof is assumed to be asbestos containing since sampling was not performed during the RLC phase; sample collection could prove otherwise. Suspect transite panels were not previously sampled during the RLC.
888A Slab and block walls	0	Cinderblock walls are not considered suspect ACM. However, need to ensure no skim coat on cinderblock and no asbestos insulation used to fill the blocks. Unlikely any samples will be collected.
Total Samples:	21	The exact sample numbers and locations will not be determined until a comprehensive, invasive inspection is performed in accordance with 40 CFR Part 763, Subpart E. Sample locations will be specified on sample maps during characterization efforts. Samples will be obtained in accordance with PRO-653-ACPR, Asbestos Characterization Procedure and 40 CFR 763.

BERYLLIUM		
Sample Location	**Number of Samples (smears)**	**Sample location and justification/rational**
886 Cluster – Phase 1 Areas	0	Historical and process knowledge, and the 886 Cluster RCLR (RF/RMRS-97-124.UN), indicates beryllium (Be) was never used or stored in the 886 Cluster, therefore no additional Be sampling is needed

5/2/01

57

LEAD		
Sample Location	**Number of Samples**	**Sample location and justification/rational**
886 Cluster, all locations	0	Lead sampling is not required in the 886 Cluster. All paint will remain a part of the infrastructure during demolition and therefore does not require sampling per Environmental Waste Compliance Guidance No. 27, Lead Based Paint (LBP) and LBP Debris Disposal. Sampling for lead for IH requirements will be at the discretion of the demolition contractor.
Total Samples:	0	

RCRA/CERCLA CONSTITIUENTS		
Sample Location	**Number of Samples**	**Sample location and justification/rational**
B886 Cluster Phase 1 all locations	0	Based on B886 Cluster RLCR (RF/RMRS-97-124.UN), dated, December 24th, 1997, there were no chemical hazards associated with the Phase 1 portions of these buildings (except for drywall in 888). Construction debris will go offsite to a sanitary landfill; therefore no additional sampling is required.
Total Samples:	0	

PCBs		
Sample Location	**Number of Samples**	**Sample location and justification/rational**
B886 Phase 1 locations	0	The Phase 1 portions of these buildings will go off-site as assumed PCB bulk product waste, therefore no additional sampling is required.
B888	0	The Phase 1 portions of these buildings will go off-site as assumed PCB bulk product waste, therefore no additional sampling is required.
B875 (Building only)	0	The Phase 1 portions of these buildings will go off-site as assumed PCB bulk product waste, therefore no additional sampling is required.
Total Samples:	0	

* PCB ballasts, fluorescent light bulbs, potential mercury switches in thermostats, and mercury vapor light bulbs shall be removed prior to demolition.

58

ATTACHMENT E

Radiological Data Summaries and Survey Maps

SURVEY UNIT DATA SUMMARY: 886-A-001

Survey Unit Description:

Interior of 886 Rooms: 106, 111, 116, 117, 118, 119, 120, 121, 122, 123, 125, 127, 128, 129, 130, 131, and interor of T886A

60

Survey Unit 886-A-001 Data Summary

Total Surface Activity Measurements

	60	60	
	Number Required	Number Obtained	
MIN	-26.8		dpm/100 cm^2
MAX	51.4		dpm/100 cm^2
MEAN	3.4		dpm/100 cm^2
STD DEV	13.6		dpm/100 cm^2
TRANSURANIC $DCGL_W$	100		dpm/100 cm^2

Removable Activity Measurements

	60	60	
	Number Required	Number Obtained	
MIN	-0.6		dpm/100 cm^2
MAX	8.8		dpm/100 cm^2
MEAN	0.7		dpm/100 cm^2
STD DEV	2.6		dpm/100 cm^2
TRANSURANIC $DCGL_W$	20		dpm/100 cm^2

61

Survey Unit 886-A-001 Total Surface Activity Results

Manufacturer:	NE Electra	NE Electra	NE Electra	NE Electra	NE Electra	NE Electra
Model:	DP-6	DP-6	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	7	8	9	10	11	12
Serial #:	1546	3114	1254	1379	1366	1254
Cal Due Date:	5/3/01	5/6/01	5/20/01	5/6/01	5/6/01	5/20/01
Analysis Date:	3/12/01	3/12/01	3/12/01	3/12/01	4/2/01	4/2/01
Alpha Eff. (c/d):	0.228	0.220	0.227	0.197	0.204	0.227
Alpha Bkgd (cpm)	3.3	0.0	2.0	2.0	1.3	1.3
Sample Time (min)	1.5	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm^2)	39.0	9.1	32.5	37.4	31.0	27.9

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	LAB Gross Counts (cpm)	Sample Net Activity (dpm/100cm2)
1	9	2.0	2.7	-3.6
2	9	1.3	3.3	-6.7
3	7	2.0	4.0	-3.6
4	9	4.0	2.7	5.2
5	7	-3.3	6.0	-26.8
6	7	-0.7	6.7	-15.4
7	7	3.3	4.0	2.1
8	7	1.3	0.7	-6.6
9	8	2.7	3.3	-0.5
10	9	6.7	3.3	17.1
11	9	2.0	3.3	-3.6
12	9	6.0	3.3	14.0
13	7	0.7	0.7	-9.3
14	9	5.3	0.7	11.0
15	7	-2.0	4.0	-21.1
16	9	5.3	1.3	11.0
17	7	3.3	1.3	2.1
18	9	2.0	3.3	-3.6
19	11	13.3	3.3	51.4
20	12	6.7	0.7	17.1
21	12	2.7	3.3	-0.5
22	11	4.0	4.0	5.8
23	12	3.3	3.3	2.1
24	11	3.3	7.3	2.4
25	11	3.3	3.3	2.4
26	12	1.3	5.3	-6.7
27	12	4.7	1.3	8.3
28	11	7.3	0.0	22.0
29	12	4.7	2.0	8.3
30	11	4.7	2.0	9.2
31	11	2.7	7.3	-0.6
32	12	3.3	1.3	2.1
33	12	2.0	2.7	-3.6
34	11	4.0	3.3	5.8
35	12	4.0	3.3	5.2
36	12	4.0	2.0	5.2
37	11	5.3	4.0	12.2
38	11	3.3	3.3	2.4
39	11	1.3	2.7	-7.4
40	11	6.7	3.3	19.1
41	12	2.7	2.7	-0.5
42	12	2.7	1.3	-0.5
43	11	4.7	3.3	9.2
44	12	2.7	0.7	-0.5
45	11	0.0	6.7	-13.8
46	12	2.0	2.7	-3.6
47	12	2.0	0.7	-3.6

62

Survey Unit 886-A-001 Total Surface Activity Results

Manufacturer:	NE Electra	NE Electra	NE Electra	NE Electra	NE Electra	NE Electra
Model:	DP-6	DP-6	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	7	8	9	10	11	12
Serial #:	1546	3114	1254	1379	1366	1254
Cal Due Date:	5/3/01	5/6/01	5/20/01	5/6/01	5/6/01	5/20/01
Analysis Date:	3/12/01	3/12/01	3/12/01	3/12/01	4/2/01	4/2/01
Alpha Eff. (c/d):	0.228	0.220	0.227	0.197	0.204	0.227
Alpha Bkgd (cpm)	3.3	0.0	2.0	2.0	1.3	1.3
Sample Time (min)	1.5	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm^2)	39.0	9.1	32.5	37.4	31.0	27.9

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	LAB Gross Counts (cpm)	Sample Net Activity (dpm/100cm2)
48	11	0.7	0.0	-10.4
49	11	1.3	2.7	-7.4
50	11	12.0	0.7	45.0
51	12	7.3	2.7	19.8
52	11	2.7	3.7	-0.6
53	11	0.7	1.3	-10.4
54	12	0.7	2.0	-9.3
55	12	0.7	2.0	-9.3
56	12	10.7	3.3	34.7
57	11	6.0	0.7	15.6
58	11	4.7	1.3	9.2
59	12	3.3	2.7	2.1
60	12	5.3	4.0	11.0
			Average LAB	2.8
			MIN	-26.8
			MAX	**51.4**
			MEAN	**3.4**
			SD	13.6
			Transuranic $DCGL_W$	**100**

QC 16	8	4.7	3.0	6.7
QC 17	8	4.0	2.7	3.5
QC 56	8	12.0	4.0	39.8
			Average LAB	3.2
			MIN	3.5
			MAX	**39.8**
			MEAN	**16.7**
			SD	20.1
			Transuranic $DCGL_W$	**100**

63

Survey Unit 886-A-001 Smear Results

Manufacturer:	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	1	2	3	4	13	14
Serial #:	770	757	833	830	830	833
Cal Due Date:	7/18/01	4/11/01	7/23/01	8/12/01	8/12/01	7/23/01
Analysis Date:	3/13/01	3/13/01	3/13/01	3/13/01	4/2/01	4/2/01
Alpha Eff. (c/d):	0.33	0.33	0.33	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.1	0.1	0.2	0.0	0.1	0.2
Sample Time (min)	2	2	2	2	2	2
Bkgd Time (min)	10	10	10	10	10	10
MDC (dpm/100cm^2)	7.0	7.0	8.0	4.5	7.0	8.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm^2)
1	1	0.0	-0.3
2	2	0.0	-0.3
3	3	0.0	-0.6
4	4	0.0	0.0
5	1	0.0	-0.3
6	2	0.0	-0.3
7	3	0.0	-0.6
8	4	0.0	0.0
9	1	0.0	-0.3
10	2	0.0	-0.3
11	3	1.0	2.4
12	4	0.0	0.0
13	1	0.0	-0.3
14	2	1.0	2.7
15	3	0.0	-0.6
16	4	0.0	0.0
17	1	0.0	-0.3
18	2	0.0	-0.3
19	13	0.0	-0.3
20	14	0.0	-0.6
21	16	0.0	-0.6
22	15	3.0	8.5
23	14	3.0	8.5
24	13	3.0	8.8
25	16	0.0	-0.6
26	15	0.0	-0.6
27	13	0.0	-0.3
28	14	0.0	-0.6
29	15	0.0	-0.6
30	16	0.0	-0.6
31	14	0.0	-0.6
32	13	2.0	5.8
33	16	0.0	-0.6
34	15	0.0	-0.6
35	14	0.0	-0.6
36	14	0	-0.6
37	15	0	-0.6
38	16	1	2.4
39	13	0	-0.3
40	14	0	-0.6
41	15	2	5.5
42	13	3	8.8
43	16	0	-0.6
44	15	0	-0.6
45	16	0	-0.6
46	15	0	-0.6

64

Survey Unit 886-A-001 Smear Results

Manufacturer:	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	1	2	3	4	13	14
Serial #:	770	757	833	**830**	830	833
Cal Due Date:	7/18/01	4/11/01	7/23/01	**8/12/01**	8/12/01	7/23/01
Analysis Date:	3/13/01	3/13/01	3/13/01	**3/13/01**	4/2/01	4/2/01
Alpha Eff. (c/d):	0.33	0.33	0.33	**0.33**	0.33	0.33
Alpha Bkgd (cpm)	0.1	0.1	0.2	0.0	0.1	0.2
Sample Time (min)	2	2	2	**2**	2	2
Bkgd Time (min)	10	10	10	**10**	10	10
MDC (dpm/100cm^2)	7.0	7.0	8.0	**4.5**	7.0	8.0

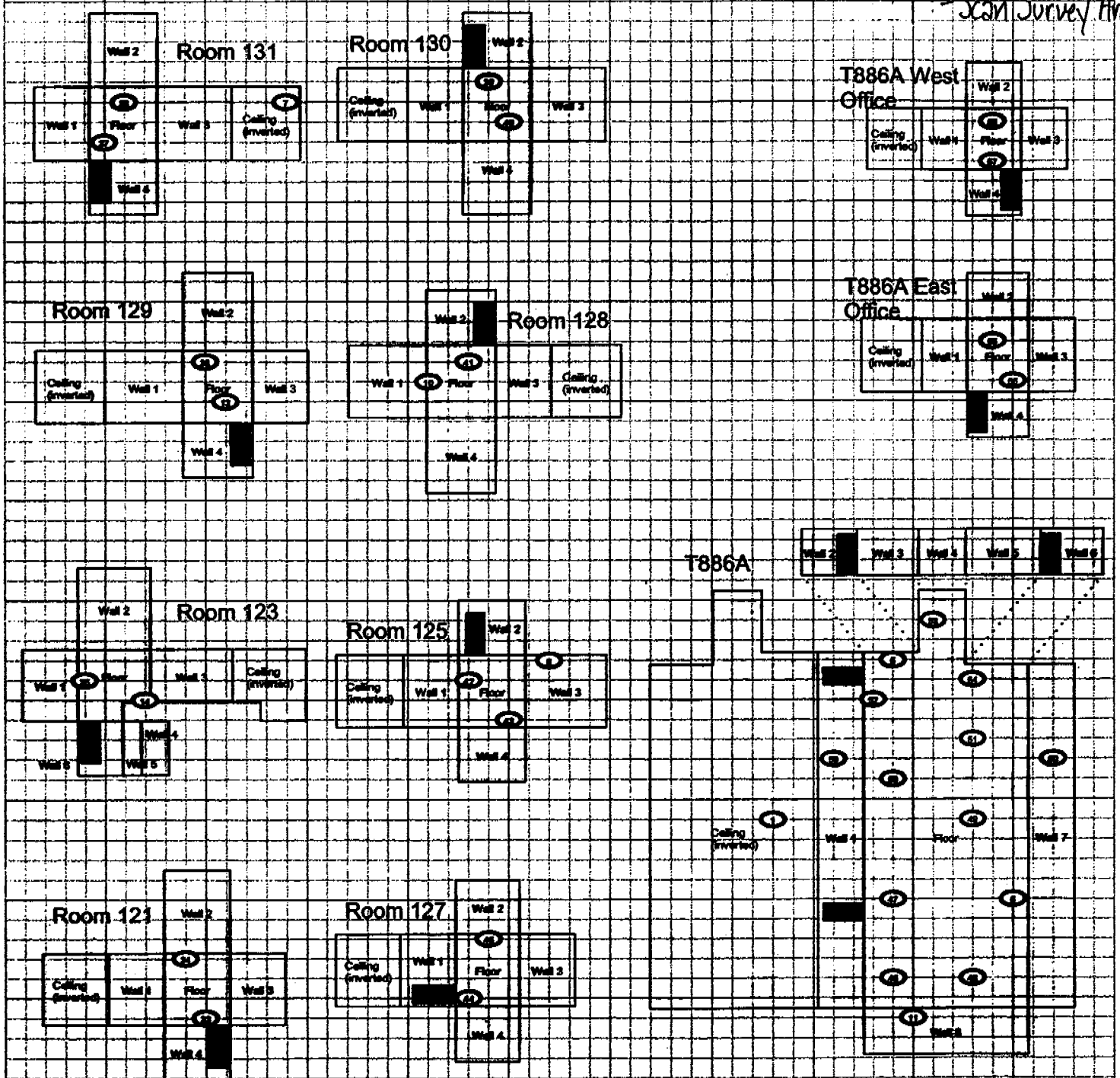
Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm^2)
47	13	1	2.7
48	16	1	2.4
49	13	0	-0.3
50	14	0	-0.6
51	15	0	-0.6
52	13	0	-0.3
53	14	1	2.4
54	16	0	-0.6
55	16	0	-0.6
56	15	0	-0.6
57	13	0	-0.3
58	14	0	-0.6
59	13	0	-0.3
60	14	0	-0.6
		MIN	-0.6
		MAX	**8.8**
		MEAN	0.7
		SD	2.6
		Transuranic $DCGL_W$	**20**

65

RE-DEMOLITION SURVEY FOR B886 CLUST.

Survey Area: A **Survey Unit:** 886-A-001 **Classification:** 3
Building: 886
Survey Unit Description: B886 - Interior Surfaces
Total Area: 2111 sq. m. **Total Floor Area:** 492 sq. m.

= Scan Survey Area



SURVEY MAP LEGEND

- Scaner & TEA Location
- Scaner, TEA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

N

0 FEET 30
0 METERS 10
1 inch = 24 feet 1 grid sq. = 1 sq. m.

Scan Survey Information
Survey Instrument ID #(s): 10, 11, 12
RCT ID #(s): 3, 5, 5

U.S. Department of Energy
Rocky Flats Environmental Technology Site
Prepared by: GIS Dept. 303-966-7707 Prepared for:
DynCorp
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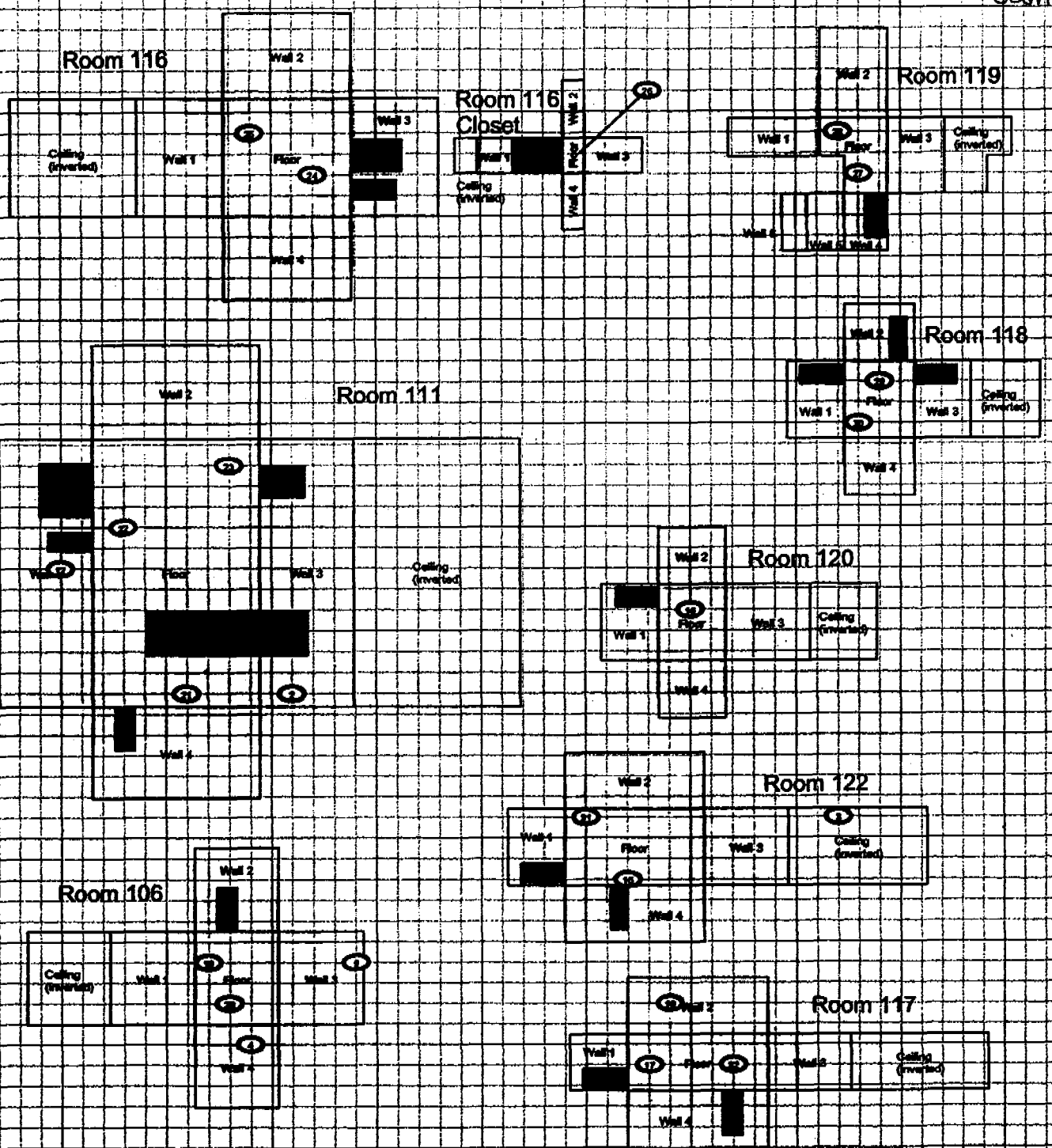
PRE-DEMOLITION SURVEY FOR B886 CLUST[illegible]

Survey Area: A **Survey Unit:** 886-A-001 **Classification:** 3
Building: 886
Survey Unit Description: B886 - Interior Surfaces
Total Area: 2111 sq. m. **Total Floor Area:** 492 sq. m.

= Scan Survey Areas



SURVEY MAP LEGEND

- Smear & TEA Location
- Smear, TEA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

N

0 FEET 30
0 METERS 10
1 inch = 24 feet 1 grid sq. = 1 sq. m.

Scan Survey Information
Survey Instrument ID #(s): 10, 11, 12
RCT ID #(s): 3, 4, 5

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Rocky Flats Environmental Technology Site

Prepared by: [illegible] Prepared for:

DynCorp
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PAGE 2 OF 2

67

SURVEY UNIT DATA SUMMARY: 886-B-009

Survey Unit Description:

Exterior of 886, 875 and T886A

68

Survey Unit 886-B-009 Data Summary

Total Surface Activity Measurements

	100	100	
	Number Required	Number Obtained	
MIN	-10.0		dpm/100 cm^2
MAX	67.3		dpm/100 cm^2
MEAN	13.0		dpm/100 cm^2
STD DEV	16.2		dpm/100 cm^2
TRANSURANIC $DCGL_W$	100		dpm/100 cm^2

Removable Activity Measurements

	100	100	
	Number Required	Number Obtained	
MIN	-1.2		dpm/100 cm^2
MAX	10.9		dpm/100 cm^2
MEAN	0.4		dpm/100 cm^2
STD DEV	1.9		dpm/100 cm^2
TRANSURANIC $DCGL_W$	20		dpm/100 cm^2

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69

Survey Unit 886-B-009 Total Surface Activity Results

Manufacturer:	NE Electra	NE Electra	NE Electra	NE Electra	NE Electra	NE Electra	NE Electra	NE Electra	NE Electra
Model:	DP-6	DP-6	DP-6	DP-6	DP-6	DP-7	DP-8	DP-9	DP-9
Instrument ID#:	7	8	9	11	12	19	20	21	36
Serial #:	1366	1254	1241	1546	1241	1513	1546	1254	1358
Cal Due Date:	5/6/01	5/20/01	8/26/01	5/3/01	8/26/01	9/29/01	5/3/01	5/20/01	8/23/01
Analysis Date:	4/3/01	4/3/01	4/3/01	4/4/01	4/4/01	4/17/01	4/17/01	4/19/01	5/1/01
Alpha Eff. (c/d):	0.204	0.227	0.214	0.228	0.214	0.211	0.228	0.227	0.223
Alpha Bkgd (cpm)	3.3	0.7	0.7	1.3	1.3	2.0	1.3	0.7	4.7
Sample Time (min)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm^2)	43.6	22.8	24.2	27.8	29.6	1.9	2.9	5.4	45.9

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	LAB Gross Counts (cpm)	Sample Net Activity (dpm/100cm2)
1	19	12.7	5.3	4.6
2	8	3.3	2.0	-1.2
3	8	6.0	2.0	10.7
4	7	17.3	2.3	67.3
5	20	6.0	4.7	1.9
6	20	5.3	2.3	1.3
7	8	8.7	3.3	22.6
8	20	4.0	2.0	0.3
9	20	9.3	4.7	4.4
10	7	10.0	4.7	31.6
11	8	2.7	2.0	-3.8
12	7	2.3	8.0	-6.2
13	8	8.0	2.7	19.5
14	20	10.0	1.3	5.0
15	7	2.7	2.7	-4.2
16	8	10.0	4.0	28.4
17	7	2.0	4.0	-7.7
18	8	3.3	3.3	-1.2
19	20	6.0	2.0	1.9
20	20	4.0	4.0	0.3
21	20	14.0	4.7	8.0
22	20	7.3	4.7	2.9
23	20	11.3	2.7	8.0
24	20	5.3	2.7	1.3
25	20	5.3	2.7	1.3
26	20	12.7	0.7	7.0
27	20	4.0	5.3	0.3
28	19	2.7	3.3	-0.4
29	19	5.3	3.3	0.9
30	19	6.7	6.0	1.6
31	19	4.0	4.0	0.2
32	21	8.7	2.0	7.3
33	21	10.7	1.3	10.2
34	21	10.7	0.0	10.2
35	7	10.0	4.0	31.6
36	19	12.7	4.0	4.6
37	9	10.0	6.0	30.1
38	7	5.3	4.0	8.5
39	9	9.3	4.7	26.8
40	9	6.0	7.3	11.4
41	19	4.0	5.3	0.2
42	9	8.0	5.3	20.7
43	19	5.3	5.3	0.9
44	7	2.7	2.0	-4.2
45	7	4.7	1.3	5.6
46	9	8.0	3.3	20.7
47	7	10.7	3.3	35.0
48	9	4.7	2.7	5.3
49	7	3.3	3.3	-1.3
50	7	4.7	3.3	5.6
51	7	5.3	6.0	8.5
52	9	7.3	5.3	17.5
53	9	4.7	3.3	5.3
54	9	7.3	5.3	17.5
55	7	7.3	2.0	18.3
56	9	8.7	6.0	24.0
57	7	7.3	2.7	18.3
58	7	4.0	2.7	2.1
59	7	5.3	4.0	8.5
60	8	8.0	1.3	19.5
61	11	15.3	3.3	51.5
62	7	4.0	1.3	2.1
63	7	6.0	2.7	11.9
64	9	12.0	4.7	39.4
65	8	1.3	2.0	-10.0
66	8	5.3	0.7	7.7
67	11	6.7	3.3	13.8
68	9	3.3	1.3	-1.2
69	19	11.3	5.3	3.9

70

Survey Unit 886-B-009 Total Surface Activity Results

Manufacturer:	NE Electra	NE Electra	NE Electra	NE Electra	NE Electra	NE Electra	NE Electra	NE Electra	NE Electra
Model:	DP-6	DP-6	DP-6	DP-6	DP-6	DP-7	DP-8	DP-9	DP-6
Instrument ID#:	7	8	9	11	12	19	20	21	36
Serial #:	1366	1254	1241	1546	1241	1513	1546	1254	1356
Cal Due Date:	5/6/01	5/20/01	8/26/01	5/3/01	8/26/01	9/29/01	5/3/01	5/20/01	8/23/01
Analysis Date:	4/3/01	4/3/01	4/3/01	4/4/01	4/4/01	4/17/01	4/17/01	4/19/01	5/1/01
Alpha Eff. (c/d):	0.204	0.227	0.214	0.228	0.214	0.211	0.228	0.227	0.223
Alpha Bkgd (cpm)	3.3	0.7	0.7	1.3	1.3	2.0	1.3	0.7	4.7
Sample Time (min)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm^2)	43.8	22.8	24.2	27.8	29.6	1.9	2.9	5.4	45.9

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	LAB Gross Counts (cpm)	Sample Net Activity (dpm/100cm2)
70	9	10.0	2.7	30.1
71	20	6.7	5.3	2.4
72	20	5.3	2.7	1.3
73	7	2.0	2.7	-7.7
74	7	5.3	3.3	8.5
75	7	6.7	3.3	15.4
76	9	6.7	5.3	14.7
77	7	4.0	4.7	2.1
78	9	7.3	6.0	17.5
79	9	7.3	3.3	17.5
80	7	4.0	2.7	2.1
81	7	9.3	1.3	28.1
82	9	10.0	5.3	30.1
83	7	9.3	1.3	28.1
84	7	4.0	4.7	2.1
85	7	4.7	4.7	5.6
86	9	9.3	5.3	26.8
87	12	12.7	2.7	42.7
88	19	4.7	8.0	0.6
89	12	6.0	2.0	11.4
90	12	14.7	4.7	62.0
91	19	12.7	4.0	4.6
92	12	12.7	4.0	42.7
93	12	17.3	2.0	64.2
94	12	8.0	4.0	20.7
95	12	12.7	3.3	42.7
96	12	16.7	4.7	61.4
97	19	8.7	4.0	2.6
98	12	7.3	2.7	17.5
99	12	4.0	1.3	2.0
100	12	7.3	5.3	17.5
			Average LAB	3.6
			MIN	-10.0
			MAX	67.3
			MEAN	13.0
			SD	18.2
			Transuranic $DCGL_W$	100

QC_7	7	5.3	3.3	10.3
QC_2	7	4.0	4.7	3.9
QC_90	36	17.3	3.3	63.2
QC_63	36	4.7	2.7	6.7
QC_66	36	6.7	2.0	15.7
			Average LAB	3.2
			MIN	3.9
			MAX	63.2
			MEAN	20.0
			SD	24.6
			Transuranic $DCGL_W$	100

Best Available Copy

Survey Unit 886-B-009 Smear Results

Manufacturer:	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4	SAC-4	SAC-5	SAC-6	SAC-7	SAC-8	SAC-4
Instrument ID#:	1	2	3	4	15	16	17	18	29	30
Serial #:	830	833	1157	770	830	833	1157	770	830	833
Cal Due Date:	8/12/01	7/23/01	8/27/01	7/18/01	8/12/01	7/23/01	8-237-01	7/18/01	8/12/01	7/23/01
Analysis Date:	5/1/01	5/1/01	5/1/01	5/1/01	4/17/01	4/17/01	4/17/01	4/17/01	4/19/01	4/19/01
Alpha Eff. (c/d):	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.4	0.2	0	0.3	0.1	0.1	0.0	0.3	0.3	0.1
Sample Time (min)	2	2	2	2	2	2	2	2	2	2
Bkgd Time (min)	10	10	10	10	10	10	10	10	10	10
MDC (dpm/100cm²)	9.4	8.0	4.5	8.8	7.0	7.0	4.5	8.8	8.8	7.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm²)
1	16	0	-0.3
2	2	0	-0.6
3	2	2	5.5
4	3	0	0.0
5	17	0	0.0
6	16	1	2.7
7	3	2	6.1
8	18	0	-0.9
9	16	0	-0.3
10	3	0	0.0
11	1	0	-1.2
12	2	0	-0.6
13	3	0	0.0
14	16	0	-0.3
15	1	1	1.8
16	16	0	-0.3
17	3	0	0.0
18	2	0	-0.6
19	15	1	2.7
20	17	0	0.0
21	18	0	-0.9
22	18	0	-0.9
23	15	0	-0.3
24	18	0	-0.9
25	17	1	3.0
26	17	0	0.0
27	15	0	-0.3
28	18	1	2.1
29	17	0	0.0
30	15	0	-0.3
31	15	0	-0.3
32	29	1	2.1
33	30	0	-0.3
34	29	0	-0.9
35	1	0	-1.2
36	3	0	0.0
37	4	0	-0.9
38	1	0	-1.2
39	4	1	2.1
40	3	1	3.0
41	2	0	-0.6
42	3	0	0.0
43	1	1	1.8
44	4	0	-0.9
45	1	0	-1.2
46	2	0	-0.6
47	3	0	0.0
48	4	0	-0.9
49	1	1	1.8
50	3	0	0.0
51	2	0	-0.6
52	4	0	-0.9
53	2	0	-0.6
54	4	0	-0.9
55	1	1	1.8
56	3	1	3.0
57	4	1	2.1
58	1	0	-1.2
59	2	0	-0.6
60	1	0	-1.2
61	4	1	2.1
62	4	0	-0.9

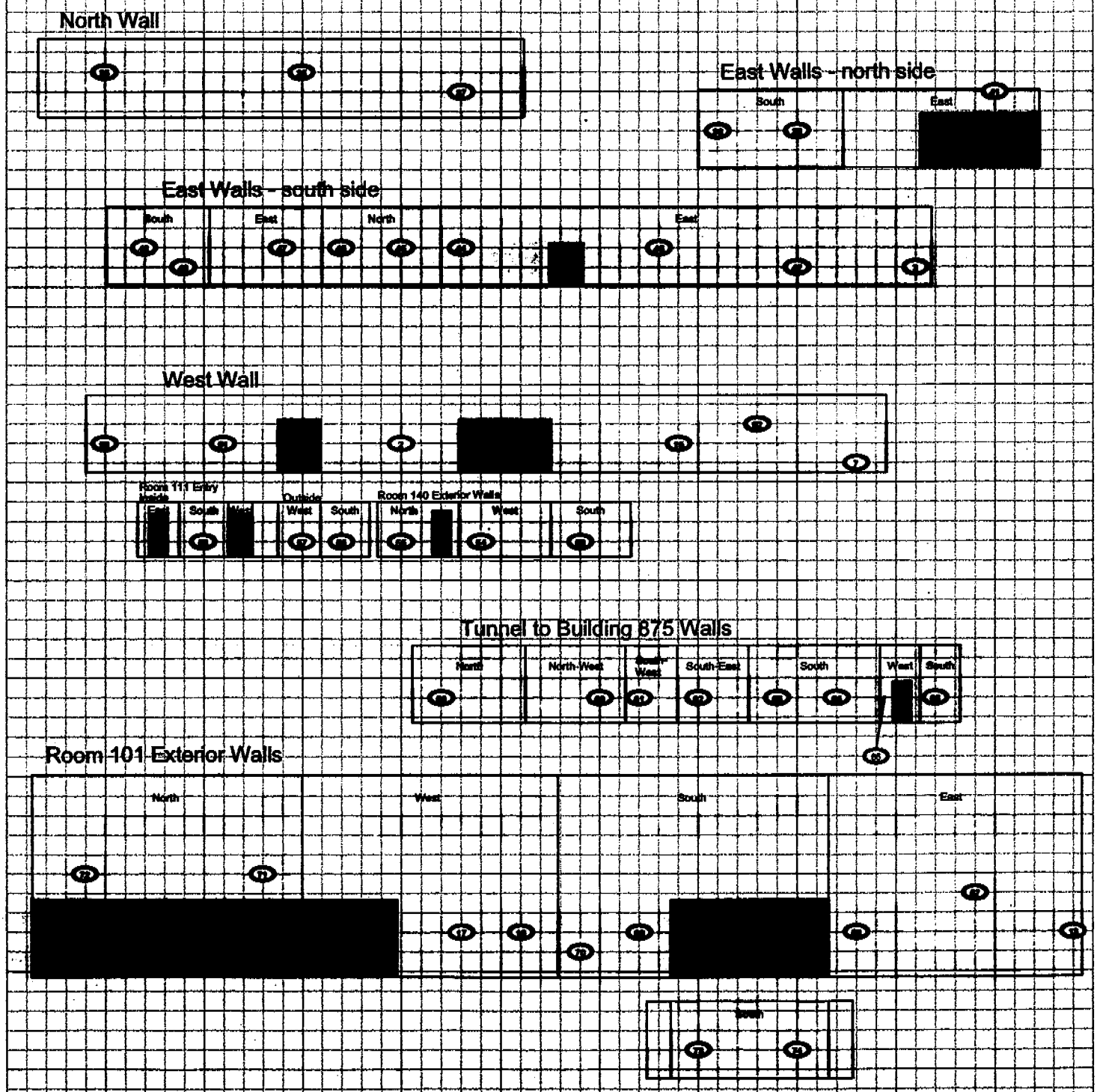
72

Best Available Copy

PRE-DEMOLITION SURVEY FOR B886 CLUSTER

Survey Area: B **Survey Unit:** 886-B-009 **Classification:** 3
Building: 886
Survey Unit Description: B886 - Exterior Walls & Roof
Total Area: 3316 sq. m. **Total Floor Area:** 0 sq. m.

Scan Survey Areas



SURVEY MAP LEGEND

- Smear & TEA Location
- Smear, TEA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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Scan Survey Information
Survey Instrument ID #(s): 10, 22-24, 31-36
RCT ID #(s): 1, 2, 3

0 FEET 30
0 METERS 10
1 inch = 24 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7767 Prepared for:
DynCorp
THE ACT OF TECHNOLOGY

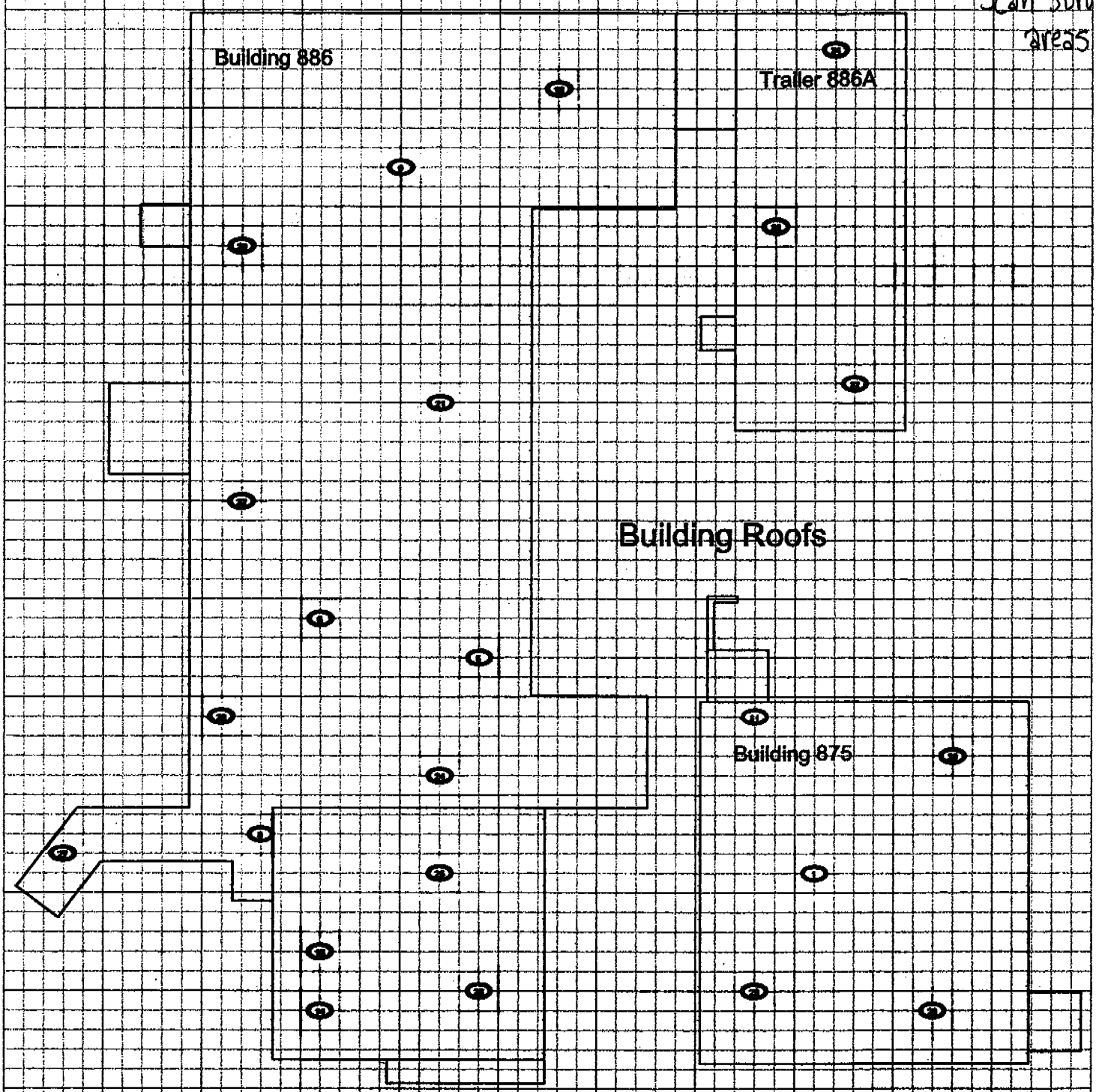
MAP ID: 0/881/01/0351 January 24, 2001

13

PRE-DEMOLITION SURVEY FOR B886 CLUSTER

Survey Area: B **Survey Unit:** 886-B-009 **Classification:** 3
Building: 886
Survey Unit Description: B886 - Exterior Walls & Roof
Total Area: 3316 sq. m. **Total Floor Area:** 0 sq. m.

Scan survey areas



SURVEY MAP LEGEND

- Smear & TSA Location
- Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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0 FEET 30
0 METERS 10
1 inch = 24 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: [illegible] Prepared for:

DynCorp
THE ACT OF TECHNOLOGY

Scan Survey Information
Survey Instrument ID #(s): 10, 22-24, 31-310
RCT ID #(s): 1-2, 5

74

Survey Unit 886-B-009 Smear Results

Manufacturer:	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4	SAC-4	SAC-5	SAC-6	SAC-7	SAC-8	SAC-4
Instrument ID#:	1	2	3	4	15	16	17	18	29	30
Serial #:	830	833	1157	770	830	833	1157	770	830	833
Cal Due Date:	8/12/01	7/23/01	8/27/01	7/18/01	8/12/01	7/23/01	8-237-01	7/18/01	8/12/01	7/23/01
Analysis Date:	5/1/01	5/1/01	5/1/01	5/1/01	4/17/01	4/17/01	4/17/01	4/17/01	4/19/01	4/19/01
Alpha Eff. (cd):	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.4	0.2	0	0.3	0.1	0.1	0.0	0.3	0.3	0.1
Sample Time (min)	2	2	2	2	2	2	2	2	2	2
Bkgd Time (min)	10	10	10	10	10	10	10	10	10	10
MDC (dpm/100cm^2)	9.4	8.0	4.5	8.8	7.0	7.0	4.5	8.8	8.8	7.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm^2)
63	1	0	-1.2
64	3	0	0.0
65	2	0	-0.6
66	4	0	-0.9
67	1	1	1.8
68	2	1	2.4
69	3	0	0.0
70	4	1	2.1
71	16	0	-0.3
72	15	0	-0.3
73	4	1	2.1
74	1	0	-1.2
75	2	0	-0.6
76	2	0	-0.6
77	4	0	-0.9
78	2	1	2.4
79	1	0	-1.2
80	4	0	-0.9
81	3	0	0.0
82	1	0	-1.2
83	2	0	-0.6
84	3	0	0.0
85	4	0	-0.9
86	1	0	-1.2
87	3	0	0.0
88	4	1	2.1
89	4	1	2.1
90	2	0	-0.6
91	3	1	3.0
92	2	1	2.4
93	1	1	1.8
94	4	1	2.1
95	1	4	10.9
96	2	0	-0.6
97	1	0	-1.2
98	2	0	-0.6
99	4	0	-0.9
100	3	2	6.1
		MIN	-1.2
		MAX	10.9
		MEAN	0.4
		SD	1.9
		Transuranic $DCGL_W$	20

75

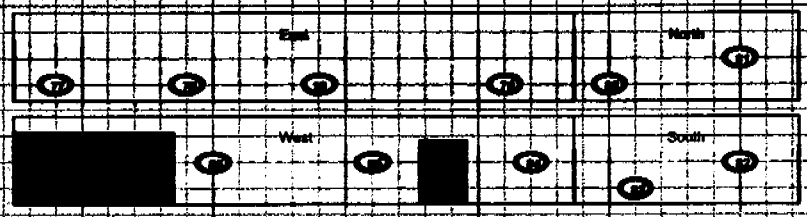
PRE-DEMOLITION SURVEY FOR B886 CLUSTER

Survey Area: B **Survey Unit: 886-B-009** **Classification: 3**
Building: 886
Survey Unit Description: B886 - Exterior Walls & Roof
Total Area: 3316 sq. m. **Total Floor Area: 0 sq. m.**

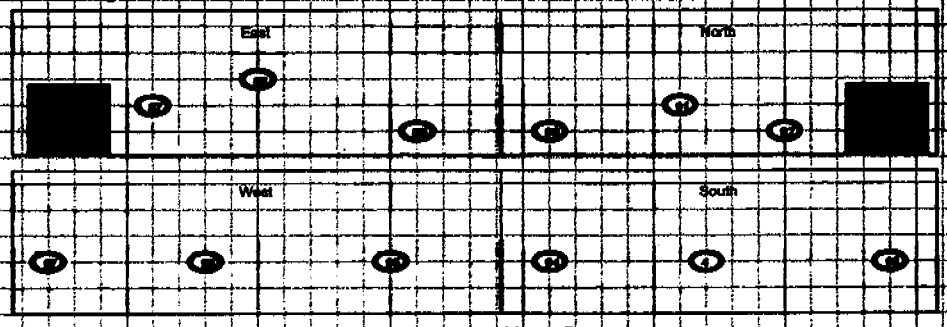
Scan Survey Areas

Vestibule Walls

T886A Walls



Building 875 Walls



East Entrance

North Entrance

SURVEY MAP LEGEND

- Smear & TSA Location
- Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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Scan Survey Information
Survey Instrument ID #(s): 10, 22-24, 31-36
RCT ID #(s): 1, 2, 3

0 FEET 30
0 METERS 10
1 inch = 24 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7707 Prepared for:

DynCorp
THE ART OF TECHNOLOGY

MAP ID: [illegible] January 24, 2001

76

SURVEY UNIT DATA SUMMARY: 886-C-010

Survey Unit Description:

Interior and Exterior of 888 and 888A

77

Survey Unit 886-C-010 Data Summary

Total Surface Activity Measurements

	18	18	
	Number Required	Number Obtained	
MIN	-8.7		dpm/100 cm^2
MAX	45.1		dpm/100 cm^2
MEAN	10.5		dpm/100 cm^2
STD DEV	15.7		dpm/100 cm^2
TRANSURANIC $DCGL_W$	100		dpm/100 cm^2

Removable Activity Measurements

	18	18	
	Number Required	Number Obtained	
MIN	-0.9		dpm/100 cm^2
MAX	3.0		dpm/100 cm^2
MEAN	0.6		dpm/100 cm^2
STD DEV	1.5		dpm/100 cm^2
TRANSURANIC $DCGL_W$	20		dpm/100 cm^2

18

Survey Unit 886-C-010 Total Surface Activity Results

Manufacturer:	NE Electra	NE Electra	NE Electra	NE Electra	NE Electra
Model:	DP-6	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	7	8	9	10	11
Serial #:	1254	3114	1546	1366	1546
Cal Due Date:	5/20/01	5/6/01	5/3/01	5/6/01	5/3/01
Analysis Date:	3/27/01	3/27/01	3/27/01	3/27/01	4/25/01
Alpha Eff. (c/d):	0.227	0.22	0.228	0.204	0.228
Alpha Bkgd (cpm)	0.7	0.0	0.7	0.7	1.3
Sample Time (min)	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm^2)	22.8	9.1	22.7	25.4	27.8

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	LAB Gross Counts (cpm)	Sample Net Activity (dpm/100cm2)
1	7	5.3	1.3	9.8
2	7	5.3	3.3	9.8
3	7	9.3	3.3	27.4
4	7	3.3	2.0	1.0
5	7	8.0	3.3	21.7
6	11	4.7	2.7	7.1
7	7	13.3	2.7	45.1
8	11	6.7	3.3	15.9
9	10	1.3	2.7	-8.7
10	7	8.0	2.0	21.7
11	7	6.7	4.0	16.0
12	7	2.0	4.7	-4.7
13	11	12.0	2.7	39.2
14	7	2.7	4.0	-1.6
15	7	3.3	1.3	1.0
16	7	2.0	2.7	-4.7
17	10	2.0	3.3	-5.3
18	10	2.8	6.0	-1.3
			Average LAB	3.1
			MIN	-8.7
			MAX	45.1
			MEAN	10.5
			SD	15.7
			Transuranic $DCGL_W$	100

QC 18	9	4.0	2.7	7.2
QC 12	9	4.0	2.0	7.2
			Average LAB	2.4
			MIN	7.2
			MAX	7.2
			MEAN	7.2
			SD	0.0
			Transuranic $DCGL_W$	100

79

Survey Unit 886-C-010 Smear Results

Manufacturer:	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	1	2	3	4	5	6	13
Serial #:	830	833	1157	770	830	833	1157
Cal Due Date:	8/12/01	7/23/01	8/27/01	7/18/01	8/12/01	7/23/01	8/27/01
Analysis Date:	3/28/01	3/28/01	3/28/01	3/28/01	4/26/01	4/26/01	4/26/01
Alpha Eff. (c/d):	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.0	0.0	0.0	0.3	0.2	0.1	0
Sample Time (min)	2	2	2	2	2	2	2
Bkgd Time (min)	10	10	10	10	10	10	10
MDC (dpm/100cm^2)	4.5	4.5	4.5	8.8	8.0	7.0	4.5

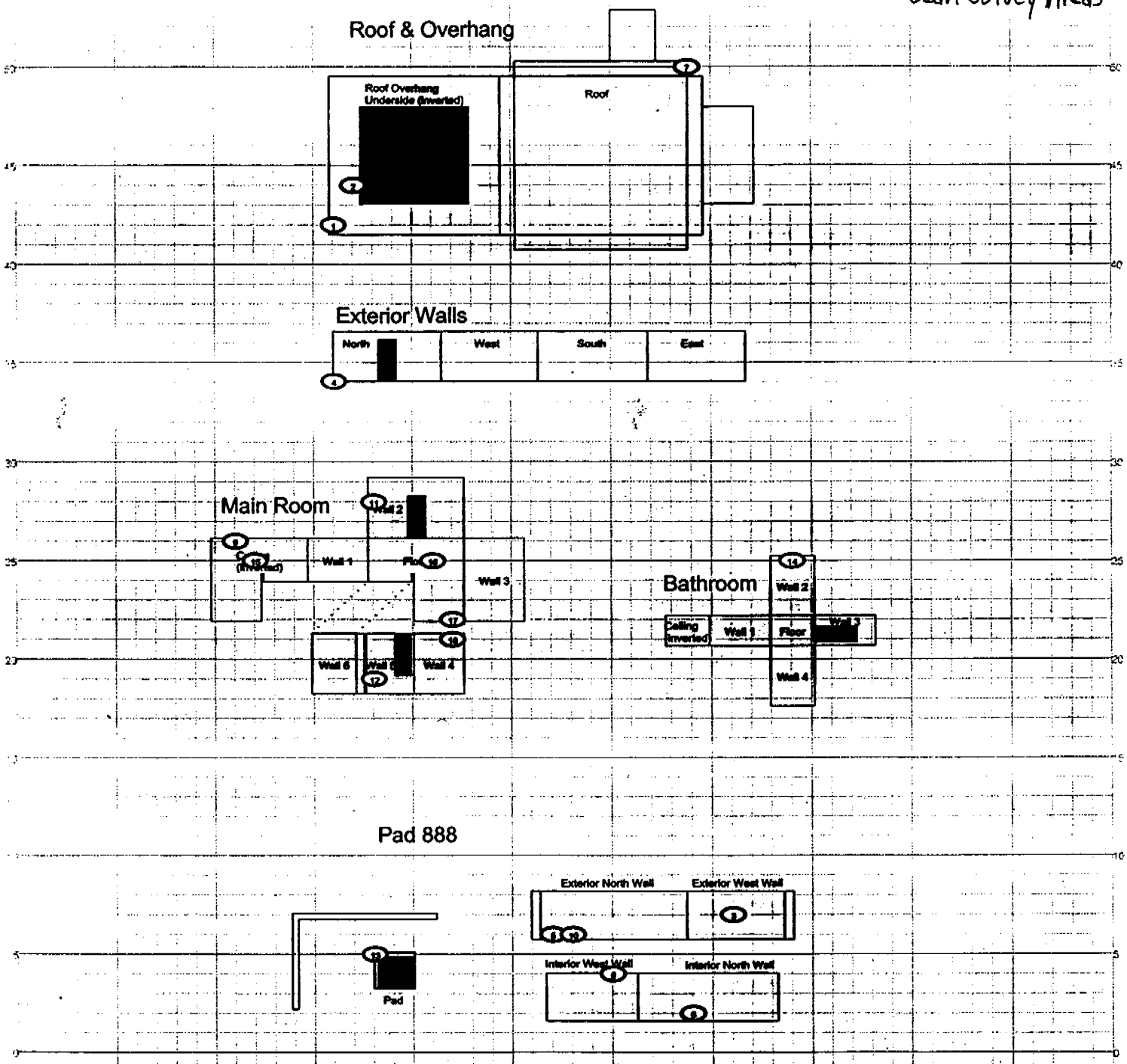
Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm^2)
1	1	1	3.0
2	2	0	0.0
3	3	1	3.0
4	4	1	2.1
5	1	0	0.0
6	13	0	0.0
7	2	0	0.0
8	6	0	-0.3
9	3	0	0.0
10	4	0	-0.9
11	1	1	3.0
12	2	0	0.0
13	5	0	-0.6
14	3	0	0.0
15	4	0	-0.9
16	1	0	0.0
17	2	0	0.0
18	3	1	3.0
		MIN	-0.9
		MAX	3.0
		MEAN	0.6
		SD	1.5
		Transuranic $DCGL_W$	20

80

P. DEMOLITION SURVEY FOR B888 GUARD SHA

Survey Area: C **Survey Unit: 886-C-010** **Classification: 3**
Building: 888 Guard Shack
Survey Unit Description: B888 Guard Shack - Interior & Exterior
Total Area: 101 sq. m. **Total Floor Area: 16 sq. m.**

= Scan Survey Areas



SURVEY MAP LEGEND

- Smear & TSA Location
- Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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N

Scan Survey Information
Survey Instrument ID #(s): 8,9,11
RCT ID #(s): 2,3,4

0 FEET 30
0 METERS 10
1 inch = 24 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: [illegible] Prepared for:

DynCorp
THE ART OF TECHNOLOGY

MAP ID: [illegible] February 23, 2001

81

ATTACHMENT F

Chemical Data Summaries and Sample Maps

82

Asbestos Data Summary

Sample Number	Material Sampled & Location	Analytical Results
T886A-02282001-05-001	T886A, Room 1, Ceiling tile; 2' x 4' white speckle pattern	Not Detected
T886A-02282001-05-002	T886A, Ceiling tile; 2' x 4' white speckle pattern; center of trailer (by cube 10)	Not Detected
T886A-02282001-05-003	T886A, Ceiling tile; 2' x 4' white long groove; center of trailer	Not Detected
T886A-02282001-05-004	T886A, Room 1, Drywall; drywall without tape joint compound	Not Detected
T886A-02282001-05-005	T886A, Drywall; drywall without tape joint compound; center of west wall	Not Detected
T886A-02282001-05-006	T886A, Drywall; drywall without tape joint compound; south wall	Not Detected
T886A-02282001-05-007	T886A, Caulking; white; exterior caulking on southwest door	Not Detected
888-02282001-05-001	888, Soffit panel; gray painted brown; exterior southeast corner	Not Detected
888-02282001-05-002	888, Soffit panel; gray painted brown; exterior northwest corner	Not Detected

RCRA/CERCLA Constituents Data Summary

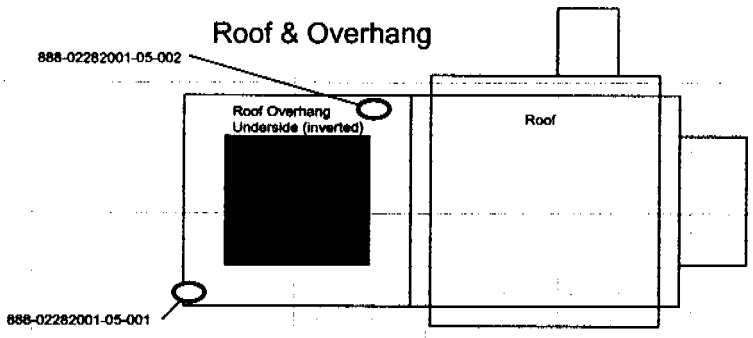
Sample Number	Sample Location – Main Room	Result (µg/L)
01D0934-001.001	B888-Drywall Main Room Wall 5	Metals less than regulatory limits listed below

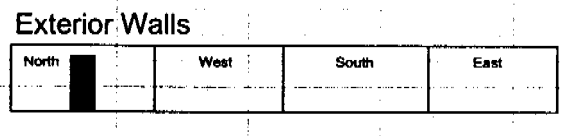
Metals Analyzed

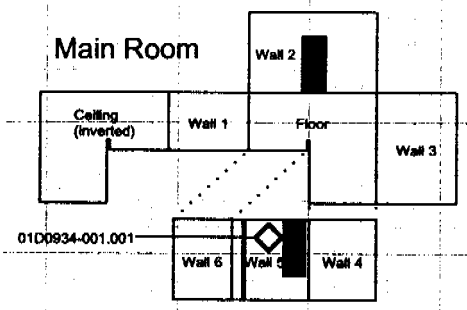
Analyte	Regulatory limit (mg/L)
Arsenic (D004)	5.0
Barium (D005)	100.0
Cadmium (D006)	1.0
Chromium (D007)	5.0
Lead (D008)	5.0
Selenium (D010)	1.0
Silver (D011)	5.0

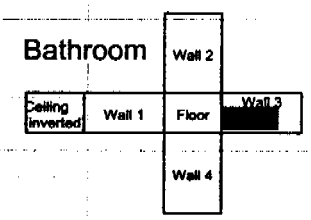
PRE-DEMOLITION SURVEY FOR B888 GUARD SHACK

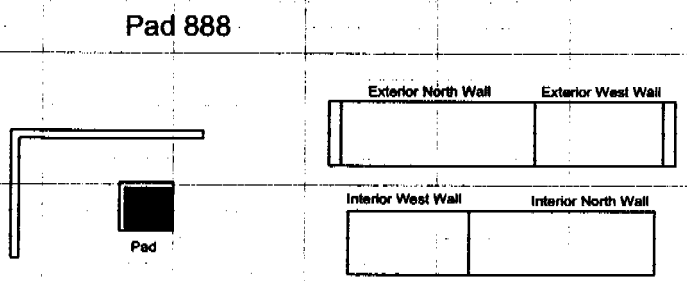
Survey Area: C **Survey Unit: 886-C-010** **Classification: N/A**
Building: 888 Guard Shack
Survey Unit Description: B888 Guard Shack - Interior & Exterior
Total Area: 101 sq. m. **Total Floor Area: 16 sq. m.**











SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCBS Sample Location

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- Open/Inaccessible Area
- Area in Another Survey Unit

N

0 FEET 30
0 METERS 10

1 inch = 24 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7707 Prepared for:

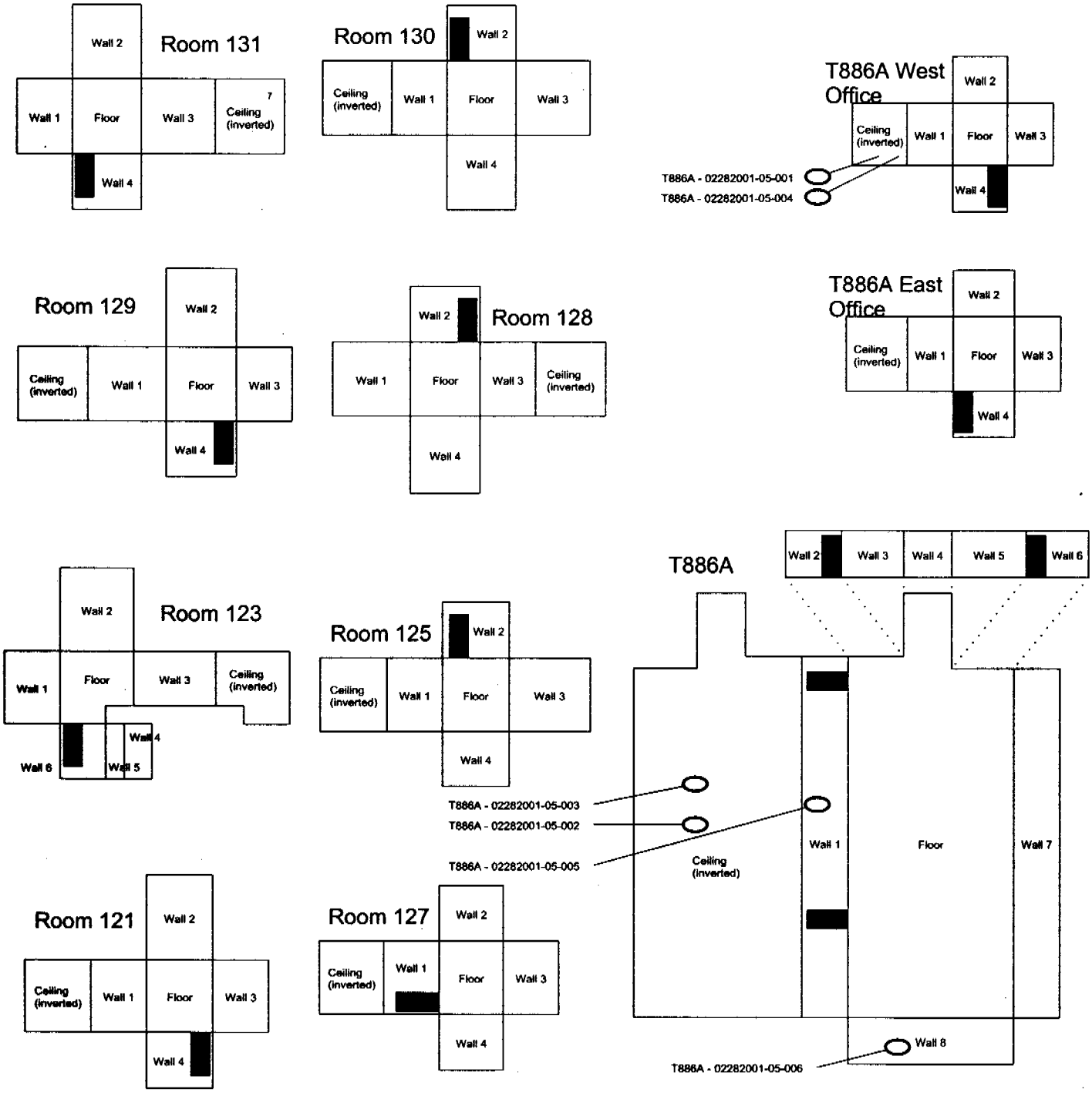
DynCorp
THE ART OF TECHNOLOGY

MAP ID: 0/2001/01-0129 May 9, 2001

84

PRE-DEMOLITION SURVEY FOR B886 CLUSTER

Survey Area: A **Survey Unit: 886-A-001** **Classification: N/A**
Building: 886
Survey Unit Description: B886 - Interior Surfaces
Total Area: 2111 sq. m. **Total Floor Area: 492 sq. m.**



SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCBS Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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N

0 FEET 30
0 METERS 10
1 inch = 24 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7797 Prepared for:

DynCorp
THE ART OF TECHNOLOGY

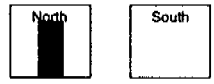
MAP ID: fv2001/01-0181 May 9, 2001

85

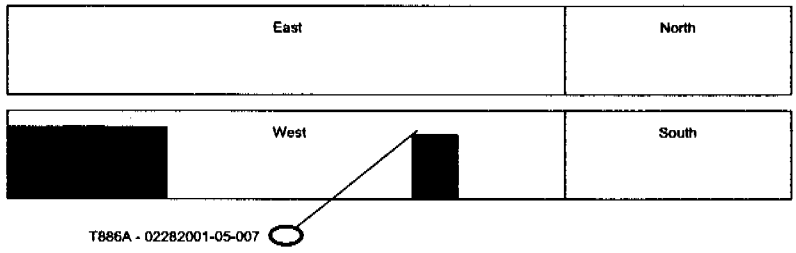
PRE-DEMOLITION SURVEY FOR B886 CLUSTER

Survey Area: B **Survey Unit: 886-B-009** **Classification: N/A**
Building: 886
Survey Unit Description: B886 - Exterior Walls & Roof
Total Area: 3316 sq. m. **Total Floor Area: 0 sq. m.**

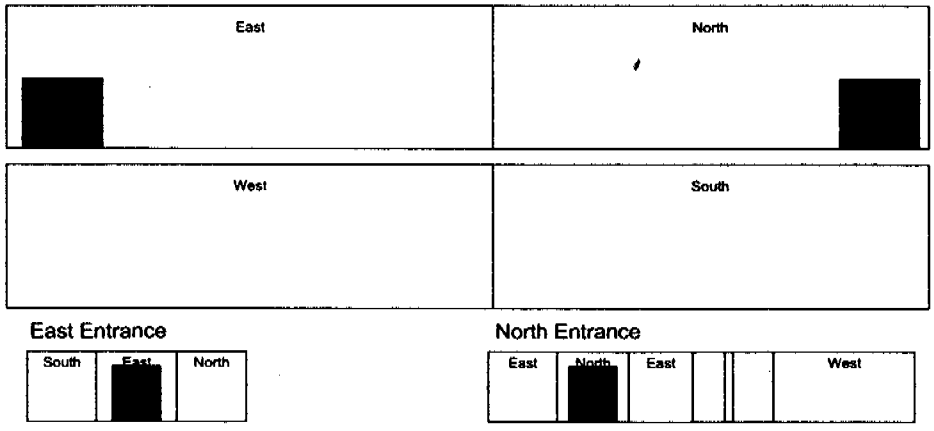
Vestibule Walls



T886A Walls



Building 875 Walls



SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCBS Sample Location

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- Open/Inaccessible Area
- Area in Another Survey Unit

0 FEET 30
0 METERS 10
1 inch = 24 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7707 Prepared for:

DynCorp
THE ART OF TECHNOLOGY

MAP ID: D/2881/01-0181 May 9, 2001

86

APPENDIX C

CERTIFIED ASBESTOS INSPECTOR'S REPORT

Asbestos Characterization Report

Building 886 Cluster

Rocky Mountain Remediation Services

Revision 0

December 1997

88

1.0 INTRODUCTION

During the weeks of November 17-21, November 24-28, and December 1-5, 1997 The Building 886 cluster was inspected for the presence of asbestos containing building materials (ACBM). This includes buildings 888, 886, 886A, 875, 828 and 881. The purpose of this inspection was to prepare for the demolition of this structure.

The asbestos inspection was conducted according to the guidelines set forth by the Asbestos Hazard Emergency Response Act (AHERA) and complies with the United States Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA) and State of Colorado regulations covering asbestos inspections.

The enclosed report contains the estimated quantities, physical assessment, location and descriptions of all materials either assumed or identified through sampling and analysis to be asbestos containing.

2.0 ASBESTOS SURVEY

2.1 INSPECTION PROCEDURES

Bulk samples were acquired to determine the presence of asbestos in building materials. Suspect materials were chosen based on historical significance or on the judgement of the accredited inspector. Each sample was assigned an individual number made up of the building number, the date the sample was acquired, the initials of the sampling technician, and a three digit number in sequence. Quality Control samples are designated in the Bulk Sample Data Table as (QC).

A total of 78 samples were acquired from suspected materials. These materials included surfacing materials, thermal systems insulation, and miscellaneous materials. All samples were acquired in a random manner representative of the suspected material.

All bulk samples were analyzed by Reservoirs Environmental Services, Inc. (RESI) of Denver, Colorado. RESI is accredited through the National Institute of Standards and Technology (NIST) and participates in the NIST National Voluntary Laboratory Accreditation Program (NVLAP) as required by the EPA. Bulk samples were analyzed by Polarized Light Microscopy (PLM) in compliance with guidelines established by the EPA 40 CFR 763, Subpart F, Appendix A. Asbestos concentrations were visually estimated and reported in percent by layer of each sample.

2.2 SUMMARY OF ACBM DISCOVERED DURING INSPECTION

During the inspection process of this facility, historical records were accessed and evaluated, along with physical inspection of the cluster. The historical records included original specifications and blueprints, asbestos and lead in paint bulk samples, and interviews with facility occupants including the Facility Manager, Larry Fischer.

2.2.1 BUILDING 886

Building 886 is the main structure of the cluster. It has three construction dates, starting in 1964. The inspection process discovered asbestos containing Thermal Systems Insulation on piping and tanks associated with the domestic water, chiller system, steam system in the interior and exterior of the building, and on a small HVAC system located outside of 886 on the west side. This TSI is generally in good condition and appears to have regular maintenance.

Asbestos containing Surfacing Materials discovered during the inspection were limited to a light

skim coat on the interior cinderblock associated with the oldest section of the structure. This material is covered with a minimum of one coat of paint and is in good condition. Due to the thinness of the application and the relatively low percentage of asbestos (trace to 5%), Point Counting analysis was utilized to more accurately evaluate asbestos content with results indicating levels consistently above 1%. This material must remain as part of the asbestos waste stream even though a composite of this skim coat and the cinderblock would reduce the asbestos percentage to far less than 1%.

Miscellaneous asbestos containing materials discovered during inspection included nine inch and twelve inch floor tiles dispersed throughout the "cold side" of the facility, including under the sheet vinyl in the hallways.. The adhesive associated with the floor tile tested negative for asbestos except in room 110, the janitor's closet. The tiles are in generally good condition and appear to receive regular maintenance.

The predominate pattern of ceiling tiles (2' x 4' white with wide latitudinal grooves, pits and pin holes) tested positive for asbestos. Due to the modular nature of a suspended ceiling, the remaining patterns must be assumed to be contaminated with asbestos. The suspended ceiling system was in good condition at the time of inspection.

A filler between the HVAC ducts and wall penetrations is 98% asbestos. This filler was not observed in all locations, but is predominate throughout the facility. At the time of inspection, the filler was painted and in good condition where observable.

A previous inspector acquired a sample of the electrical wiring in room 114 which indicated asbestos in the insulation. Until the building circuits are de-energized and a comprehensive survey can be completed, it must be assumed that all original wiring insulation for the structure, and for the other original structures in the cluster, is asbestos containing.

Building 886 has a built up roof system that was specified as containing asbestos in the felt and tar. As such, the roof is assumed to be asbestos containing without the need of sampling. Tar impregnated roofing felts may be disposed of with normal demolition debris under most circumstances.

2.2.2 Building 828

Building 828 exterior walls are assumed to be asbestos containing corrugated cementitious panels based on historical data from other locations on the site and on the expert judgement of the Certified Asbestos Inspector. The piping associated with the underground storage tanks is uninsulated.

2.2.3 Building T886A

Building 886A is a modular trailer (S.N. 3404) constructed by Elder in 1984. Alan Koenig from G.E. Capital, the parent company of Elder, verified that this particular type and age of structure was not constructed with any materials that contained either lead or asbestos.

2.2.4 Building 888

Building 888 is a guard post constructed in the mid 1980's. As such, building materials have a low possibility of containing asbestos. Based on visual inspection, all materials were eliminated as suspect asbestos containing materials except the roofing and the drywall systems. Samples were acquired of the drywall system which indicate no detectable asbestos present. The built-up roofing can be assumed to be asbestos containing tar impregnated roofing felt, which can be disposed of with the regular construction debris in most cases.

2.2.5 Building 875

Building 875 is the Plenum Facility for building 886 and includes the service tunnel to 886. Since

this structure is of the same construction date as building 886, suspect asbestos containing materials are shared. As such, all pipe insulation must be considered to be asbestos containing unless it can be eliminated by physical touch as either a foam or fiberglass product. At the time of inspection, the pipe insulation was a mixture of asbestos containing, foam and fiberglass insulation. The asbestos insulation was predominately confined to the fittings, reductions, hangers, tees and elbows, while the straight runs were predominately foam and fiberglass. The asbestos containing insulation associated with this structure is in generally good condition and appears to have regular maintenance.

The roof of building 875 is similar in construction as that of building 886. As such, the original specifications called for the use of tar and felt containing asbestos. Based on this information, the roofing materials are assumed to be asbestos containing. These materials may be treated as regular demolition debris in most cases.

2.2.6 Building 880

At the time of inspection, no suspect asbestos containing building materials were discovered in building 880.

2.2.7 Building 888A

Building 888A is the electrical substation for the facility. Due to the inherent safety concerns with sampling live electrical equipment, no samples were acquired. Suspect asbestos containing materials include wiring insulation, arc chutes, arc protection, insulators, and conduit trays. Once the substation is de-energized, samples can be safely acquired of these materials. In the interim, prudence would dictate assuming these materials do contain asbestos.

2.3 DESCRIPTION AND HAZARD ASSESSMENT OF ACM

2.3.1 Building 886

2.3.1.1 Thermal Systems Insulation

Approximately 390 linear feet of 4" to 6" diameter pipe insulation and 122 assorted mudded fittings associated with the steam and chiler systems. This insulation is located primarily in the overheads of the north-south 126 hall and rooms 108, 101 and 111. At the time of inspection, the insulation was in good condition, with minor deterioration in small spots in room 111. The EPA/AHERA hazard assessment category for the pipe insulation and related fittings is "Friable Thermal Systems Insulation in Good Condition." The appropriate response action for this material is to continue to periodically observe and to remove prior to demolition.

Approximately 550 linear feet of less than 4" diameter pipe insulation and 164 assorted mudded fittings associated with the domestic hot, steam and chiller systems, including HVAC fan coil runouts. These systems are primarily located in the overheads of the 126 hall, the rooms on the east side of the building, rooms 110, 113, 106, 107, 111, 108 and 101. At the time of inspection the insulation and fittings were in good condition and periodically maintained. The EPA/AHERA hazard assessment category for the insulation and associated fittings is "Friable Thermal Systems Insulation in Good Condition." The appropriate response action for this material is to continue to periodically observe and to remove prior to demolition.

Approximately 750 linear feet of less than 4" diameter metal jacketed pipe insulation and 164 assorted mudded fittings associated with the steam and chiller systems. These systems are primarily located on the exterior west side and roof of the structure. At the time of inspection the insulation and fittings were in good condition and periodically maintained. The EPA/AHERA hazard assessment category for the insulation and associated fittings is "Thermal Systems Insulation in Good Condition." The appropriate response action for this material is to continue to periodically observe and to remove prior to demolition.

Approximately 200 square feet of HVAC duct insulation associated with room 140.This insulation is located on the exterior west side of the structure to the south of the south wall of room 140. At the time of inspection, the insulation was weathered and losing it's integrity, but was still intact. The EPA/AHERA hazard assessment category for the insulation is "Damaged Friable Thermal Systems Insulation." The appropriate response action is to provide periodic surveillance and patch deterioration and subsequently remove the insulation prior to demolition.

2.3.1.2 Surfacing Materials

Approximately 8,900 square feet of friable surfacing material. This material is located on the cinderblock walls of the main section of the structure, bordered by rooms 107, 116, 123, and 114. At the time of inspection, this material was in good condition and was sealed with a minimum of one layer of paint. The EPA/AHERA hazard assessment category for the surfacing material is "Friable Surfacing Material in Good Condition." The appropriate response action is to continue to maintain and inspect for damage, patch damage, and subsequently remove the material prior to demolition.

2.3.1.3 Miscellaneous Materials

Approximately 6800 square feet of floor tile squares, either 9" or 12", of various colors. These tiles are located throughout the building with the exception of rooms 111, 140, 103,108,102, and 101. Many of the offices are carpeted. The 126 hall has sheet vinyl over the floor tile squares. At the time of inspection, the floor tiles were in good condition, with the exception of some water damage and tile loosening in room 110. The EPA/AHERA hazard assessment category for the tile squares is "Miscellaneous Non-Friable Material in Good Condition." The appropriate response action is to continue to maintain the exposed tiles, repair the damage in room 110 and remove the tiles if demolition could potentially disturb the tiles and make them friable.

Approximately 6800 square feet of suspended ceiling tile panels. The suspended ceiling tiles are located in the same rooms as the floor tiles, and are absent in the same rooms as those absent of floor tiles. Although several patterns exist in the structure and a few tested negative for asbestos, prudence dictates that due to the modular construction of this system, all ceiling tiles be considered to be asbestos contaminated. At the time of inspection, some water damage, mars, broken corners, and small holes were present in the tiles. The EPA/AHERA hazard assessment category for the tiles is "Damaged Friable Miscellaneous Material." The appropriate response action is to continue to observe the ceiling tiles and not disturb the tiles without proper training. The suspended ceiling tiles must be removed prior to demolition.

Approximately 100 square feet of HVAC duct/wall penetration filler. This filler is located in the gap between the walls and duct where the duct penetrates the walls, and is predominately associated with the original building system and not with that added at a later date. At the time of inspection, the filler was in good condition. The EPA/AHERA hazard assessment category for the filler is "Miscellaneous Friable Material in Good Condition." The appropriate response action for the filler is to continue to observe conditions and to remove the filler prior to demolition.

Approximately 100 square feet of floor tile mastic. This black mastic is associated with the floor tiles in room 110. At the time of inspection the mastic was in good condition, although the tiles were delaminating at the south side of the room. The EPA/AHERA hazard assessment category for the mastic is "Miscellaneous Non-Friable Material in Good Condition." The appropriate response action is to continue to observe conditions. The mastic does not have to be removed prior to demolition if it remains non-friable during the demolition process.

Approximately 13,000 square feet of tar impregnated roofing felt, tar and pea gravel built-up roofing. This roofing material is located on all levels of the structure. According to original specifications for the structure, the roofing felt and tar were required to be asbestos containing, hence the materials were assumed to be asbestos containing and no samples were acquired. At the time of inspection, the roof was in good condition. The EPA/AHERA hazard assessment

category for the roofing materials is "Miscellaneous Non-Friable Material in Good Condition. The appropriate response action for the roofing is to continue to observe the conditions until such time as the building is demolished. This type of roofing does not have to be removed prior to demolition if it remains non-friable throughout the process.

2.3.2 Building 875

2.3.2.1 Thermal Systems Insulation

Approximately 36 square feet of condensate tank insulation. This tank/insulation is located in room 111 on the west wall near the west entry. At the time of inspection, the insulation was in good condition. The EPA/AHERA hazard assessment category for the insulation is "Friable Thermal Systems Insulation in Good Condition." The appropriate response action is to continue to observe conditions and to remove the insulation prior to demolition.

Approximately 300 linear feet of greater than 4" diameter pipe insulation and 104 assorted mudded pipe fittings associated with the chiller and steam systems. The majority of this insulation is located in the tunnel connected to building 886. At the time of inspection, the insulation was in good condition. The EPA/AHERA hazard assessment category for the insulation is "Friable Thermal Systems Insulation in Good Condition." The appropriate response action is to continue to observe conditions and to remove the insulation prior to demolition.

Approximately 500 linear feet of less than 4" diameter pipe insulation and 140 assorted mudded fittings associated with the steam and chiller systems. This insulation is primarily located along the interior perimeter of the building. At the time of inspection, the insulation was in good condition, with several patched areas evident. The EPA/AHERA hazard assessment category for the insulation is "Friable Thermal Systems Insulation in Good Condition." The appropriate response action is to continue to observe conditions and to remove the insulation prior to demolition.

2.3.2.2 Miscellaneous Materials

Approximately 4200 square feet of tar impregnated roofing felt, tar and pea gravel built-up roofing. According to original specifications for the structure, the roofing felt and tar were required to be asbestos containing, hence the materials were assumed to be asbestos containing and no samples were acquired. At the time of inspection, the roof was in good condition. The EPA/AHERA hazard assessment category for the roofing materials is "Miscellaneous Non-Friable Material in Good Condition. The appropriate response action for the roofing is to continue to observe the conditions until such time as the building is demolished. This type of roofing does not have to be removed prior to demolition if it remains non-friable throughout the process.

2.3.3 Building 888A

Building 888A is the electrical substation for the facility. Due to the inherent safety concerns with sampling live electrical equipment, no samples were acquired. Suspect asbestos containing materials include wiring insulation, arc chutes, arc protection, insulators, and conduit trays. Once the substation is de-energized, samples can be safely acquired of these materials. In the interim, prudence would dictate assuming these materials do contain asbestos.

2.3.4 Building 886A

Building 886A is a modular trailer (S.N. 3404) constructed by Elder in 1984. Alan Koenig from G.E. Capital, the parent company of Elder, verified that this particular type and age of structure was not constructed with any materials that contained either lead or asbestos.

2.3.5 Building 880

At the time of inspection, no suspect asbestos containing building materials were discovered in building 880.

2.3.6 Building 828

2.3.6.1 Miscellaneous Materials

Approximately 600 square feet of corrugated cementitious siding and roofing. This material, commonly known as "Transite", is assumed to be asbestos containing based on historical data, homogeneous materials sampled elsewhere on site and the judgement of the Certified Asbestos Inspector. At the time of inspection, the siding and roofing were in good condition, with minimal weathering, chipping, blisters and cracks. The EPA/AHERA hazard assessment category for the cementitious siding is "Miscellaneous Non-Friable Material in Good Condition." The appropriate response action for the siding and roofing is to continue to maintain observation and remove the materials prior to demolition.

2.3.7 Building 888

Building 888 is a guard post constructed in the mid 1980's. As such, building materials have a low possibility of containing asbestos. Based on visual inspection, all materials were eliminated as suspect asbestos containing materials except the roofing and the drywall systems. Samples were acquired of the drywall system which indicate no detectable asbestos present. The built-up roofing can be assumed to be asbestos containing tar impregnated roofing felt, which can be disposed of with the regular construction debris in most cases.

2.4 DESCRIPTION OF MATERIALS TESTING NEGATIVE FOR ASBESTOS

2.4.1 Building 886

2.4.1.1 Drywall, Tape, and Joint Compound

The drywall, tape and joint compound in the newer construction (rooms 128-131 and the main north entry breezeway) areas were sampled and analyzed for asbestos. All sample results indicate there is no detectable asbestos present in the materials.

2.4.1.2 Wall Plaster

The wall plaster discovered throughout the older construction areas of the building was sampled and analyzed for asbestos. Analysis indicates no detectable levels of asbestos in this material.

2.4.1.3 Concrete

The concrete associated with room 101 was rumored to be asbestos containing. Although not normally a suspect material, samples were acquired of the interior and exterior. Results indicate no asbestos above a trace in this material.

2.4.1.4 Cove Base and Adhesive

Several colors and sizes of cove base/adhesive were sampled for asbestos. Analytical results indicate no levels above trace in these materials.

2.4.1.5 Sheet Vinyl Flooring

The simulated mosaic sheet vinyl flooring located in the hallways and room 115 was sampled for asbestos. Analytical results indicate no detectable levels of asbestos. However, the hallway does have asbestos containing floor tile under the sheeting.

2.4.1.6 Carpet Adhesive

The carpet adhesive was sampled for asbestos. Analytical results indicate no detectable levels

of asbestos.

2.4.1.7 Floor Tile Mastic

The floor tile mastic consistently tested negative for detectable levels of asbestos during the sampling and and analysis of the floor tiles throughout the building.

2.4.1.8 Exterior Texture

The exterior texture on both the cinderblock and concrete were sampled for asbestos. Analytical results indicate no detectable levels of asbestos.

2.4.2 Building 888

2.4.2.1 Drywall, Tape and Joint Compound

The drywall, tape and joint compound on the interior wall spaces of this building were sampled for asbestos. Analytical results indicate no detectable levels of asbestos.

Attachment 1

Inspector Certifications

Statement of Certification

The asbestos building inspection evaluation performed on **Building 886 Cluster** was performed in accordance with applicable regulations, and employed only EPA AHERA accredited personnel.

INSPECTOR: [redacted]

EPA ACCREDITATION: [redacted]

STATE OF COLORADO CERTIFICATION: [redacted]

I hereby attest and certify that I performed the asbestos building inspection evaluation on **Building 886 Cluster** at Rocky Flats Environmental Technology Site.

Signature: Date: 12/17/97

97

Attachment 2

Bulk Asbestos Sample Lab/Data Table

98

Bulk Sample Data Table

Sample Number	Sample Description and Location	Lab Result PLM (PC)
886-971119-MS-001	TSI mud (B) and canvass (A); from room 111 condensate tank 3' east of west wall, 2' south of west door, 2' from the floor.	A: ND B: 10%
886-971119-MS-002	TSI mud (B) and canvass (A); from room 111 condensate tank 2' east of west wall, 2' south of west door, 3' from the floor.	A: ND B: 8%
886-971119-MS-003	TSI mud (C,E) and canvass/foil (A,B,D); from room 111 condensate tank 2' east of west wall, 2' south of west door, 3' from the floor.	A: ND B: ND C: 85% D: ND E: 8%
886-971119-MS-004	Cinderblock mortar (B) and skim (A); from room 111 south wall 1' east of south door, 6' from the floor.	A: TR B: ND
886-971119-MS-005	TSI mud (B) and canvass (A); from room 111 chiller return pipe elbow 9' east of west wall 2.5' north of the south wall 6.5' from the floor.	A: ND B: 15%
886-971119-MS-006	TSI mud (B) and canvass (A); from room 111 chiller return pipe valve 15' east of west wall, 2.5' north of south wall, 6.5' from the floor.	A: ND B: 15%
886-971119-MS-007	TSI mud (B) and canvass (A); from room 111 chiller supply pipe elbow 2' west of east wall, 3.5' north of south wall, 3' from the floor.	A: ND B: 15%
886-971119-MS-008	TSI mud (B) and canvass (A); from room 111 steam supply pipe 13.5' east of west wall, 2' north of south wall, 4.5' from the floor.	A: ND B: 30%
886-971119-MS-009	TSI mud (B) and canvass (A); from room 111 steam supply pipe tee 13.5' east of west wall, 2' north of south wall, 4.5' from the floor.	A: ND B: 15%
886-971119-MS-010	TSI mud (B) and canvass (A); from room 111 steam supply pipe 14' east of west wall, 7' north of south wall, 6' from the floor.	A: ND B: 20%
886-971119-MS-011	TSI mud (B) and canvass (A); from room 111 steam supply pipe 3' east of west wall, 6' north of south wall, 5' from the floor.	A: ND B: 20%
886-971119-MS-012	Tan carpet mastic; from room 106, 6.5' east of west wall, 5.5' north of south wall.	A: ND
886-971119-MS-013	White duct/wall penetration filler; from room 106 south wall 2.5' east of west wall, 9' from the floor.	A: 98% B: ND C: ND
886-971119-MS-014	Black 4" cove base and black glue; from room 107 south wall, 5' west of east wall.	A: TR B: ND
886-971119-MS-015	White ceiling tile with longitudinal grooves, pits and pin holes; from room 107, 13' west of east wall, 6' north of south wall.	A: ND
886-971119-MS-016	Brown 9" floor tile (B) and black mastic (A); from room 107, 10' west of east wall, 6' north of south wall.	A: ND B: 5%

Sample Number	Sample Description and Location	Lab Result PLM (PC)
886-971119-MS-017	Painted (A) concrete (B,C); from room 107, south wall, 3' west of east wall, 5' from the floor.	A: ND B: ND C: ND
886-971119-MS-018	Cinderblock mortar (B) and skim (A); from room 115 west wall, 2.5' south of north wall, 5' from the floor.	A: 2% (1%) B: ND
886-971119-MS-019	Simulated mosaic sheet vinyl flooring; from room 115, 3' north of south wall, 5' west of east wall.	A: ND B: ND
886-971119-MS-020	Grey cove base (C) and tan resin (A,B); from room 115 east wall, 3' south of north wall.	A: ND B: ND C: ND
886-971119-MS-021	White ceiling tile with light latitudinal grooves and pin holes: from room 115, 4' south of north wall, 2' west of east wall.	A: 4% (2%)
886-971119-MS-022	White ceiling tile with light longitudinal grooves and hashes; from room 115, 5' north of south wall, 4.5' west of east wall.	A: ND B: ND
886-971119-MS-023 (QC)	White ceiling tile with light longitudinal grooves and hashes; from room 115, 5' north of south wall, 4.5' west of east wall.	A: ND B: ND
886-971119-MS-024	TSI mud (B) and canvass (A); from room 110 domestic hot water pipe elbow; NW corner 1.5' from the floor.	A: ND B: 21%
886-971119-MS-025	Tan/white flecks 9" floor tile (B) and black mastic (A); from room 110, 1' north of south wall, 3' east of west wall.	A: 5% B: 4%
886-971119-MS-026	Beige with brown streaks 9" floor tile (B) and black mastic (A); from room 113, 4.5' west of east wall, 0.5' north of south wall.	A: ND B: 4%
886-971119-MS-027	White/grey floor tile (B) and black mastic (A) under carpet; from room 116, 8' west of east wall, 4' north of south wall.	A: ND B: 3%
886-971119-MS-028	Painted wall plaster; from room 116 west wall, 2' north of south wall, 4.5' from the floor.	A: ND B: ND C: ND D: ND
886-971119-MS-029 (QC)	Painted wall plaster; from room 116 west wall, 2' north of south wall, 4.5' from the floor.	A: ND B: ND C: ND D: ND
886-971119-MS-030	Grey and tan checkerboard pattern 9" floor tile (C,D) with black/tan mastic (A,B); from room 1190.5' west of east wall, 0.5' south of north wall.	A: ND B: ND C: 3% D: 5%
886-971121-MS-031	Cinderblock mortar (B) and skim (A); from room 119 west wall, 4.5' south of north wall, 5' from the floor.	A: ND B: ND

100

Sample Number	Sample Description and Location	Lab Result PLM (PC)
886-971121-MS-032	Painted (A) wall plaster (B,C) and foam (D); from room 119 north wall, 1.5' east of west wall, 4' from the floor.	A: ND B: ND C: ND D: ND
886-971121-MS-033	Red and tan checkerboard 9" floor tile (B) with black/tan mastic (A) under carpet; from room 123, 6.5' east of west wall, 0.5' north of south wall.	A: ND B: ND C: 4% D: 4%
886-971121-MS-034	White ceiling tile with wide, shallow latitudinal grooves and pin holes; from room 123, 6' west of east wall, 2' south of the north wall.	A: 8%
886-971121-MS-035	White ceiling tile with latitudinal moustache and pin holes; from room 123, 2' west of east wall, 2' south of north wall.	A: TR (ND)
886-971121-MS-036	White ceiling tile with latitudinal worm holes and dense pin holes; from room 129, 2' north of south wall, 4' west of east wall.	A: ND
886-971121-MS-037	Tan/brown floor tile (C) with black/tan mastic (A,B) under carpet; from room 129, 0.5' west of east wall, 0.5' north of south wall.	A: ND B: ND C: 8%
886-971121-MS-038	Tan/brown floor tile (C) with black/tan mastic (A,B) under carpet; from room 131, 0.5' west of east wall, 0.5' north of south wall.	A: ND B: ND C: 8%
886-971121-MS-039	Cinderblock mortar (B) and skim (A); from room 131 west wall, 3' north of south wall, 3' from the floor.	A: ND B: ND
886-971121-MS-040	Drywall (D) tape (C) and joint compound (A,B); from room 131 northeast corner, 3.5' from the floor.	A: ND B: ND C: ND D: ND
886-971121-MS-041	Drywall (C) tape (B) and joint compound (A); from main entry north wall, 3' east of the west wall, 3' from the floor.	A: ND B: ND C: ND
886-971121-MS-042	Drywall (D) tape (C) and joint compound (A,B); from main entry north wall, 1' east of west wall, 8' from the floor.	A: ND B: ND C: ND D: ND
886-971121-MS-043	Drywall (D) tape (C) and joint compound (A,B); from main entry north wall, 1' west of east wall, 8' from the floor.	A: ND B: ND C: ND D: ND
886-971121-MS-044	Drywall (D) tape (C) and joint compound (A,B); from room 130 east wall, 5' north of south wall, 5' from the floor.	A: ND B: ND C: ND D: ND

Sample Number	Sample Description and Location	Lab Result PLM (PC)
886-971121-MS-045	Brown floor tile (B) and black/tan mastic (A,B) under carpet; from room 130, 0.5' east of west wall, 0.5' south of north wall.	A: ND B: 9%
886-971121-MS-046	Drywall (D) tape (C) and joint compound (A,B); from room 128 southeast corner, 4' from the floor.	A: ND B: ND C: TR (0.5%) D: ND
886-971121-MS-047	Wall plaster; from room 125 east wall, 3' south of north wall, 5' from floor.	A: ND B: ND C: ND D: ND
886-971121-MS-048	Cinderblock mortar (C) and skim (A,B) ; from room 127, west wall, 5' north of south wall, 5' from floor.	A: 5% (2.25%) B: ND C: ND
886-971121-MS-049	Light brown 4" cove base; from room 118 north wall, 6.5' east of west wall.	A: TR B: ND
886-971121-MS-050	Wall plaster; from room 120 east wall, 4.5' south of north wall, 6' from the floor.	A: ND B: ND C: ND
886-971121-MS-051	Dark brown 4" cove base and tan glue; from room 117 south wall, 4.5' east of west wall.	A: TR B: ND
886-971121-MS-052	White ceiling tile with wide latitudinal grooves and pin holes; from room 114, 10' west of east wall, 6.5' north of south wall.	A: 10%
886-971121-MS-053	Cinderblock mortar (C) and skim (A,B); from room 114 south wall, 6' west of east wall, 6' from the floor.	A: 3% (1.75%) B: ND C: ND
886-971121-MS-054 (QC)	Cinderblock mortar (C) and skim (A,B); from room 114 south wall, 6' west of east wall, 6' from the floor.	A: 3% (1.75%) B: ND C: ND
886-971121-MS-055	Grey/black 9" floor tile (B) with black mastic (A); from room 114, 10' west of east wall, 9' north of south wall.	A: ND B: 3%
886-971121-MS-056	Wall plaster; from room 114 east wall, 8' south of north wall, 5' from the floor.	A: ND B: ND C: ND D: ND
886-971121-MS-057	Light brown and beige checkerboard floor tiles (C,D) with tan/black mastic (A,B); from room 117, 6' west of east wall, at south doorway.	A: ND B: ND C: 5% D: 5%
886-971121-MS-058	Grey and blue checkerboard floor tiles (B,C) and tan/black mastic (A); from room 112, 4' north of south wall, 1' west of east wall.	A: ND B: 5% C: 8%

Sample Number	Sample Description and Location	Lab Result PLM (PC)
886-971121-MS-059	Wall plaster; from room 112 east wall, 14' south of north wall, 5' from floor.	A: ND B: ND C: ND D: ND
886-971121-MS-060	Simulated mosaic sheet vinyl flooring (C,D) over white tile (B) and black mastic (A); from 126 hall, 0.5' east of west wall, between rooms 110 & 113.	A: ND B: 5% C: ND D: ND
886-971121-MS-061	Cinderblock mortar (B) and skim (A); from 126 hall, south wall, 3.5' east of 116 entry, 5' from the floor.	A: TR (TR) B: ND
886-971121-MS-062	Cinderblock mortar (C) and skim (A,B); from 126 hall east wall, 2' north of 127 entry, 5' from floor.	A: 4% (1.25%) B: ND C: ND
886-971121-MS-063	Cinderblock mortar (C) and skim (A,B); from 126 hall east wall, 1.5' south of 118 entry, 5' from floor.	A: ND B:5% (3%) C: ND
886-971124-MS-064	TSI canvass (A,B,C) on duct for control room HVAC; west exterior, 20' south of room 140 south wall, 4.5' west of east wall, 10' from ground.	A: ND B: ND C: ND D: 20%
886-971124-MS-065	TSI canvass (A,B) and mud (B) on duct for control room HVAC; west exterior, 20' south of room 140 south wall, 4.5' west of east wall, 10' from ground.	A: ND B: ND C: 20%
886-971124-MS-066	TSI canvass (A,B) and mud/tar (C) on duct for control room HVAC; west exterior, 20' south of room 140 south wall, 4.5' west of east wall, 10' from ground.	A: ND B: ND C: 45%
886-971124-MS-067	Texture on concrete; from 886 exterior, 12.5' north of SW corner, 1.5' from ground.	A: ND B: ND
886-971124-MS-068	Texture on concrete; from 886 exterior, 7' east of SW corner, 3.5' from ground.	A: ND B: ND
886-971124-MS-069	Texture on concrete; from 886 exterior, 19 ' north of SE corner, 5' from ground.	A: ND B: ND
886-971124-MS-070	Texture on cinderblock; from 886 exterior, 18' north of room 140 wall, 5' from ground.	A: ND B: ND
886-971124-MS-071	Texture on cinderblock; from 886 exterior, 27' north of SW corner , 5' west of wall, 5' from ground.	A: ND B: ND
886-971124-MS-072	Texture on cinderblock; from 886 exterior, 1' north of 886 door 3, east wall, 4' from ground.	A: ND B: ND
886-971124-MS-073 (QC)	Texture on cinderblock; from 886 exterior, 1' north of 886 door 3, east wall, 4' from ground.	A: ND B: ND

Sample Number	Sample Description and Location	Lab Result PLM (PC)
886-971124-MS-074	Concrete core; from north wall of entry to room 101, 5' from floor.	A: TR B: ND
886-971124-MS-075	Concrete core; from floor in entry hall to 101 at first turn.	A: ND
886-971124-MS-076	Drywall (D) tape (A,B) and joint compound (C); from Building 888; at SW corner main area, 5' from floor.	A: ND B: ND C: ND D: ND
886-971124-MS-077	Drywall (D) tape (A,B) and joint compound (C); from Building 888; at North edge of devising wall main area, 5' from floor.	A: ND B: ND C: ND D: ND
886-971124-MS-078	Drywall (D) tape (A,B) and joint compound (C); from Building 888; at SW corner restroom, 5' from floor.	A: ND B: ND C: ND D: ND

Note: ND means Non 886-971124-MS-064 e Detected; TR means Trace.

Attachment 3

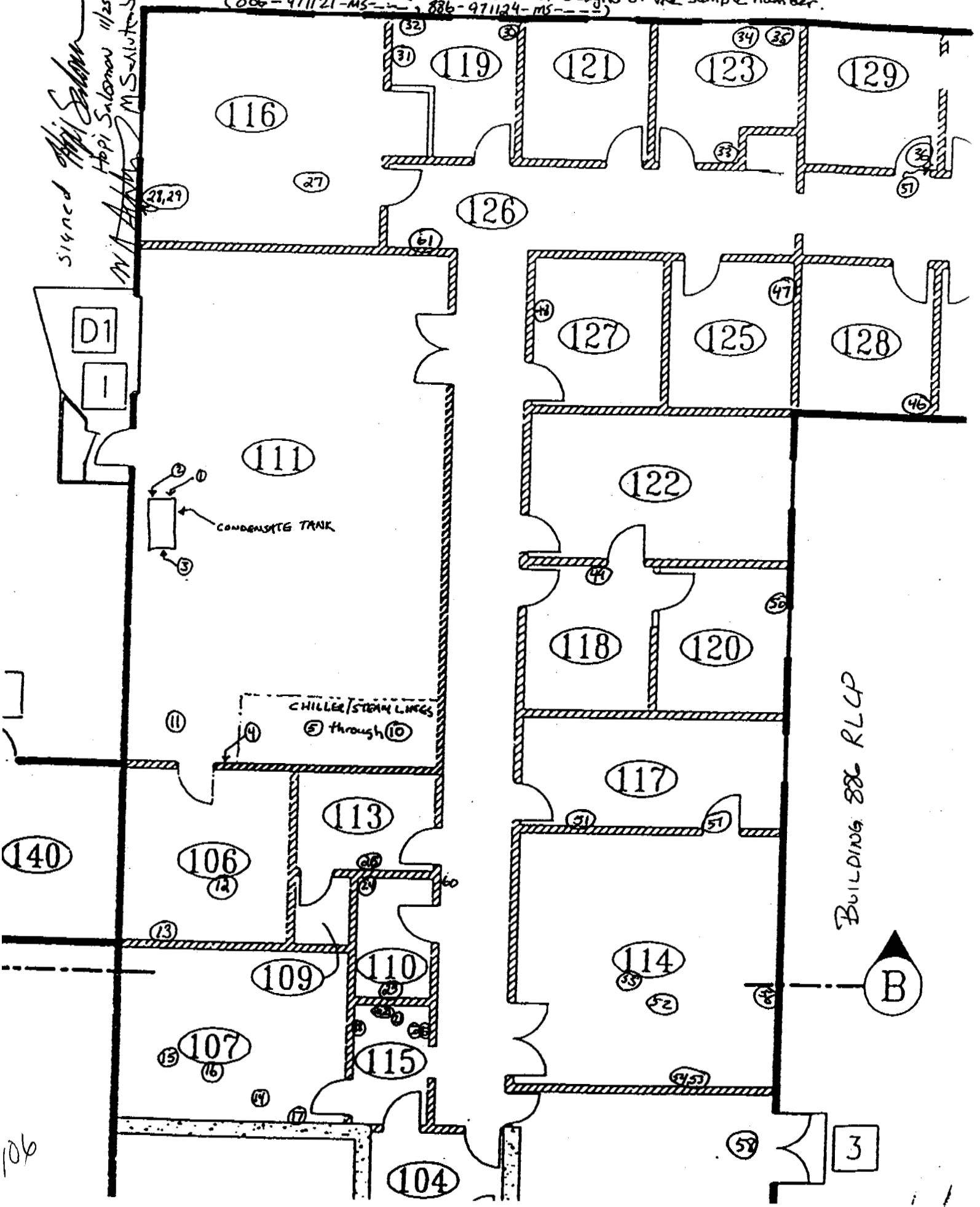
Bulk Asbestos Sample Drawings

105

BUILING 886 RCLP Asbestos Sampling Locations

Not to Scale

(#) = SAMPLE LOCATIONS THAT CORRESPOND to the last 3 digits of the sample number.
(886-971121-MS-___, 886-971124-MS-___)

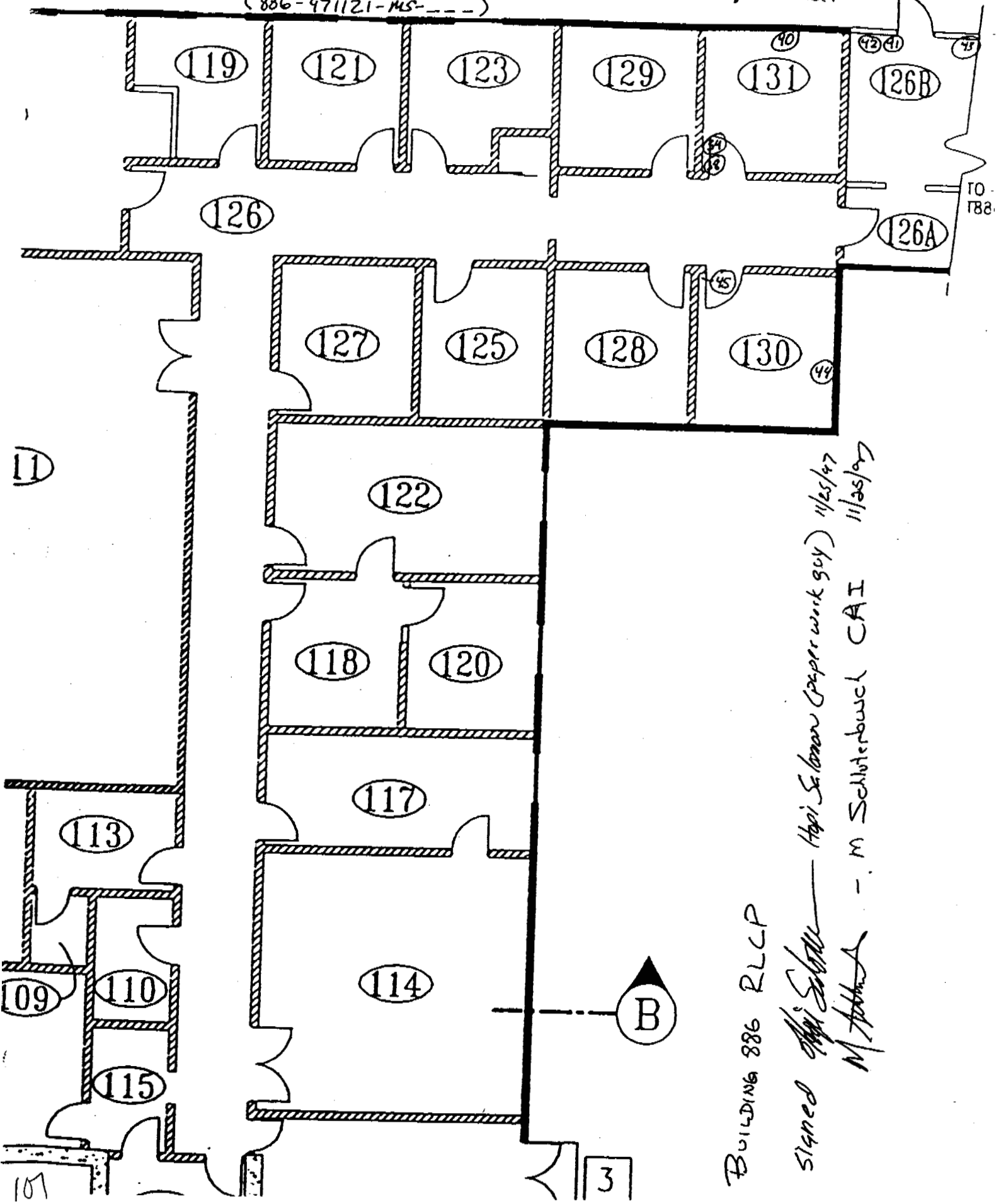


Signed Hopi Salomon 11/25/97
Hopi Salomon
M Salomon
M Smith

BUILDING 886 Asbestos sampling Location

Not to scale

(#) = sample locations that correspond with last three digits of the sample number
(886-971121-MS-___)



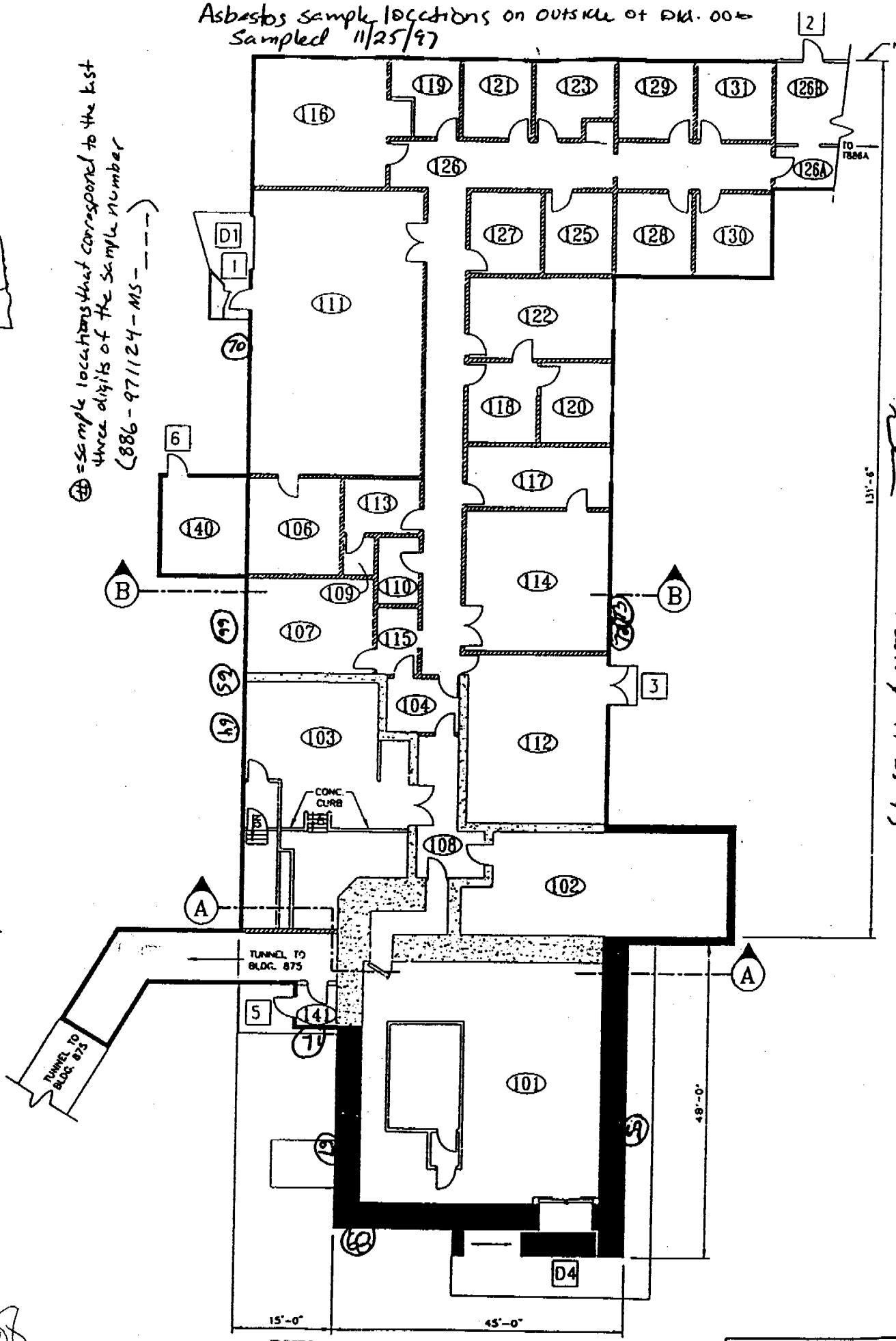
BUILDING 886 RLCP

SIGNED Hapi Solomon (paperwork guy) 11/25/97
M Schlisterbunck CAI 11/25/97

Asbestos sample locations on outside of Bld. 886
Sampled 11/25/97

Samplers - [illegible] (paperwork) 11/25/97
CHI - [illegible] sample acquisition 11/26/97
HSS - B. Jones [illegible] Hand Tool + Safety 11-25-97

⊕ = sample locations that correspond to the last three digits of the sample number (886-971124-MS-____)

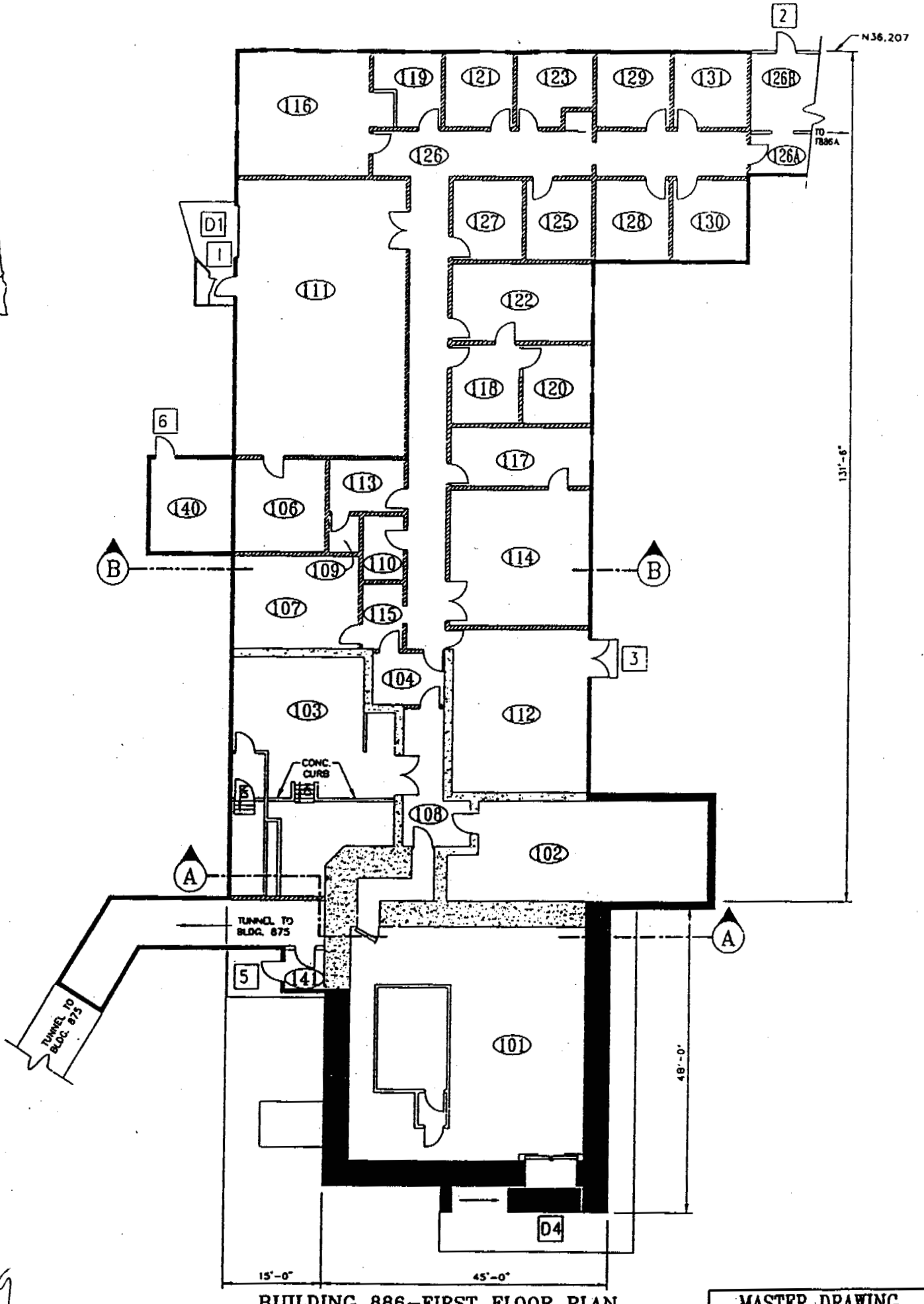


BUILDING 886-FIRST FLOOR PLAN
SCALE: 1"=10'-0"

Building 886 RLCP

MASTER DRAWING
MAINTAIN AS-BUILT PER CDEM 662

108



BUILDING 886–FIRST FLOOR PLAN

SCALE: 1"=10'-0"

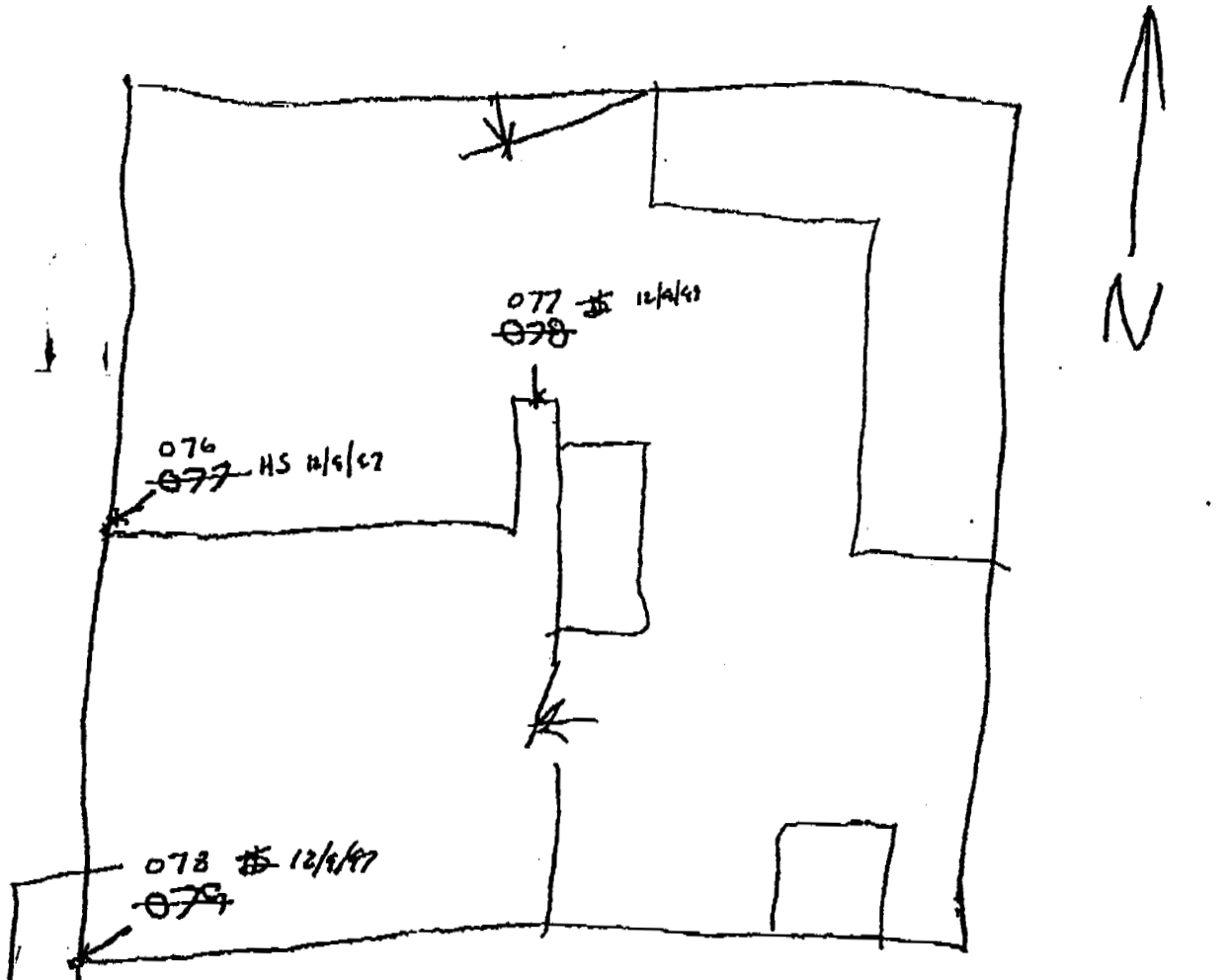
MASTER DRAWING

MAINTAIN AS-BUILT PER CDEM 662

109

Asbestos Sample Locations - Building 888
12/8/97

Sample Location - Schematic



#'s correspond with last 3 digits of sample numbers 886 - 971124-MS-___

RIN 98D0452

Illustrated by: M Schluterbusch
Date: 12/8/97
Reviewed by: [illegible]
Date: 12/4/97

110

ATTACHMENT G

Decommissioning Waste Types and Volume Estimates

Attachment G – Decommissioning Waste Types and Volumes Estimates

Facility	Concrete[1] (cu ft)	Wood[1] (cu ft)	Metal[1] (cu ft)	Corrugated/ Sheet Metal[1] (cu ft)	Wall Board[1] (cu ft)	ACM (sq. ft)	Other Waste (cu ft)
T886A	300	300	300	500	200	None	Glass – 5 Insulation – 360 Acoustical Tile - 125
B888	1500	75	100	None	100	None	Glass – 25 Insulated Acoustical Tile – 70
B888A	300	None	64	None	None	None[2]	None

(1) Materials are assumed to be PCB Bulk Product Waste.
(2) The potential ACM materials identified in the 888A equipment in the 886 Cluster RLCR will be dealt with after the equipment is de-energized. No potential ACM was identified in or on the 888A structure itself.

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

NVLAP Accredited Laboratory #1896

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: RES 47729-2
Client: Kaiser-Hill Company, LLC
Client Project: 9800452,
Date Samples Received: November 25, 1997
Analysis Type: PLM Short Report, Bulk
Turnaround: 3-5 Day

Note: The US EPA requires use of stratified analysis for NESHAP and AHERA compliance. Composite results only apply for specific exceptions.

Client Sample Number	Lab ID Number	Layer	Physical Description	Portion of Total Sample (%)	ASBESTOS CONTENT BY LAYER: Mineral	Visual Estimate (%)	Non-Asbestos Fibrous Components (%): CELL	GLASS	SYNTH	HAIR	WOLL	TALC	OTHER	Non-Fibrous Components (%)
886-971121-MS-052	EM 318847	A	White fibrous material w/white paint	100	Amosite	10	0	70	0	0	0	0	0	20
886-971121-MS-053	EM 318848	A	White plaster	1	Chrysotile	3	0	0	0	0	0	0	0	97
					Point Count	*1.75*								
		B	Multicolored paint	7		ND	0	0	0	0	0	0	0	100
		C	Gray granular plaster	92		ND	0	0	0	0	0	0	0	100
886-971121-MS-054	EM 318849	A	White plaster	2	Chrysotile	3	0	0	0	0	0	0	0	97
					Point Count	*1.0*								
		B	Multicolored paint	6		ND	0	0	0	0	0	0	0	100
		C	Gray granular plaster	92		ND	0	0	0	0	0	0	0	100
886-971121-MS-055	EM 318850	A	Black tar	8		ND	0	0	0	0	0	0	0	100
		B	Gray/multicolored tile	92	Chrysotile	3	0	0	0	0	0	0	0	97
886-971121-MS-056	EM 318851	A	Multicolored paint	5		ND	0	0	0	0	0	0	0	100
		B	White plaster	10		ND	0	0	0	0	0	0	0	100
		C	Blue foam	35		ND	0	0	0	0	0	0	0	100
		D	Gray granular plaster	50		ND	0	0	0	0	0	0	0	100
886-971121-MS-057	EM 318852	A	Black tar	5		ND	0	0	0	0	0	0	0	100
		B	Tan resin	10		ND	10	0	TR	0	0	0	0	90
		C	White tile	40	Chrysotile	5	0	0	0	0	0	0	0	95
		D	Tan tile	45	Chrysotile	5	0	0	0	0	0	0	0	95

ND = None Detected CELL = Cellulose ORG = Organic WOLL = Wollastonite GYP = Gypsum
TR = Trace, < 1% Visual Estimate Tram-Act = Tremolite-Actinolite BRUC = Brucite SYNTH = Synthetic

Data QA

114

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

NVLAP Accredited Laboratory #1896

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: RES 47729-2
Client: Kaiser-Hill Company, LLC
Client Project: 98D0452,
Date Samples Received: November 25, 1997
Analysis Type: PLM Short Report, Bulk
Turnaround: 3-5 Day

Note: The US EPA requires use of stratified analysis for NESHAP and AHERA compliance. Composite results only apply for specific exceptions.

Client Sample Number	Lab ID Number	Layer	Physical Description	Portion of Total Sample (%)	ASBESTOS CONTENT BY LAYER: Mineral	Visual Estimate (%)	Non-Asbestos Fibrous Components (%): CELL	GLASS	SYNTH	HAIR	WOLL	TALC	OTHER	Non-Fibrous Components (%)
886-971121-MS-046	EM 318841	A	Gray granular plaster	1		ND	0	0	0	0	0	0	0	100
		B	White plaster w/multicolored paint	4		ND	97	0	0	0	0	0	0	3
		C	Tan fibrous material	15	Chrysotile	TR	0	0	0	0	0	0	0	100
					Point Count	*0.5*								
		D	Blue foam	15		ND	0	0	0	0	0	0	0	100
		E	White plaster	65		ND	8	0	0	0	0	0	0	92
886-971121-MS-047	EM 318842	A	Multicolored paint	5		ND	0	0	0	0	0	0	0	100
		B	White plaster	20		ND	0	0	0	0	0	0	0	100
		C	Blue foam	20		ND	0	0	0	0	0	0	0	100
		D	White granular plaster	55		ND	TR	0	0	0	0	0	0	100
886-971121-MS-048	EM 318843	A	White plaster	3	Chrysotile	5	0	0	0	0	0	0	0	95
					Point Count	*2.25*								
		B	Multicolored paint	7		ND	0	0	0	0	0	0	0	100
		C	Gray granular plaster	90		ND	0	0	0	0	0	0	0	100
886-971121-MS-049	EM 318844	A	Multicolored resin w/white paint	15	Tram-Act	TR	0	0	0	0	4	4	0	92
		B	Brown resinous material	85		ND	0	0	0	0	0	0	0	100
886-971121-MS-050	EM 318845	A	Multicolored paint	10		ND	0	0	0	0	0	0	0	100
		B	White plaster	30		ND	0	0	0	0	0	0	0	100
		C	Gray granular plaster	60		ND	TR	0	0	0	0	0	0	100
886-971121-MS-051	EM 318846	A	Tan/brown resin w/pink paint	10	Tram-Act	TR	0	0	0	0	4	1	0	95
		B	Brown resinous material	90		ND	0	0	0	0	0	0	0	100

ND = None Detected
TR = Trace, < 1% Visual Estimate
CELL = Cellulose
ORG = Organic
Tram-Act = Tremolite-Actinolite
WOLL = Wollastonite
BRUC = Brucite
GYP = Gypsum
SYNTH = Synthetic

Analyst: PDL

Data QA

115

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

NVLAP Accredited Laboratory #1896

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: RES 47732-1
Client: Kiewit-Hill Company, LLC
Client Project: 98D0452, ME94AA
Date Samples Received: November 26, 1997
Analysis Type: PLM Short Report, Bulk
Turnaround: 3-5 Day

Note: The US EPA requires use of stratified analysis for NESHAP and AHERA compliance. Composite results only apply for specific exceptions.

Client Sample Number	Lab ID Number	Layer	Physical Description	Portion of Total Sample (%)	ASBESTOS CONTENT BY LAYER: Mineral	ASBESTOS CONTENT BY LAYER: Visual Estimate (%)	Non-Asbestos Fibrous Components (%): CELL	GLASS	SYNTH	HAIR	WOLL	TALC	OTHER	Non-Fibrous Components (%)
886-971124-MS-064	EM 318901	A	Silver foil w/white fibrous woven material	10		ND	0	5	0	0	0	0	0	95
		B	Tan fibrous material	10		ND	96	0	0	0	0	0	0	4
		C	Gold fibrous material	15		ND	0	80	0	0	0	0	0	20
		D	Black tar w/pink/white paint	65	Chrysotile	20	0	0	0	0	0	0	0	80
886-971124-MS-065	EM 318902	A	Yellow fibrous material	5		ND	0	80	0	0	0	0	0	20
		B	Silver foil w/tan fibrous material & white fibrous woven material	15		ND	60	10	0	0	0	0	0	30
		C	Black tar w/pink & white paint	80	Chrysotile	20	0	0	0	0	0	0	0	80
886-971124-MS-066	EM 318903	A	Yellow fibrous material	5		ND	0	80	0	0	0	0	0	20
		B	Tan fibrous material w/silver foil, white fibrous woven material	10		ND	60	15	0	0	0	0	0	25
		C	Black fibrous tar w/multicolored paint	85	Chrysotile	45	0	0	0	0	0	0	0	55
886-971124-MS-067	EM 318904	A	Multicolored resinous paint	30		ND	0	0	0	0	0	0	0	100
		B	Gray granular plaster	70		ND	0	0	0	0	0	0	0	100
886-971124-MS-068	EM 318905	A	Gray granular plaster	15		ND	0	0	0	0	0	0	0	100
		B	Tan/green resinous paint	85		ND	0	0	0	0	0	0	0	100

ND = None Detected CELL = Cellulose ORG = Organic WOLL = Wollastonite GYP = Gypsum Analyst: PDL
TR = Trace, < 1% Visual Estimate Tram-Act = Tremolite-Actinolite BRUC = Brucite SYNTH = Synthetic

DEH QA

116

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

NVLAP Accredited Laboratory #1896

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: RES 47729-2
Client: Kaiser-Hill Company, LLC
Client Project: 98D0452,
Date Samples Received: November 25, 1997
Analysis Type: PLM Short Report, Bulk
Turnaround: 3-5 Day

Note: The US EPA requires use of stratified analysis for NESHAP and AHERA compliance. Composite results only apply for specific exceptions.

Client Sample Number	Lab ID Number	Layer	Physical Description	Portion of Total Sample (%)	ASBESTOS CONTENT BY LAYER: Mineral	Visual Estimate (%)	Non-Asbestos Fibrous Components (%): CELL	GLASS	SYNTH	HAIR	WOLL	TALC	OTHER	Non-Fibrous Components (%)
886-971121-MS-058	EM 318853	A	Tan resin w/black tar	10		ND	0	0	0	0	0	0	0	100
		B	White tile	45	Chrysotile	5	0	0	0	0	0	0	0	95
		C	Blue tile	45	Chrysotile	8	0	0	0	0	0	0	0	92
886-971121-MS-059	EM 318854	A	Blue/white paint	3		ND	0	0	0	0	0	0	0	100
		B	White plaster	7		ND	0	0	0	0	0	0	0	100
		C	Blue foam	40		ND	0	0	0	0	0	0	0	100
		D	White granular plaster	50		ND	TR	0	0	TR	0	0	0	100
886-971121-MS-060	EM 318855	A	Black tar	1		ND	0	0	0	0	0	0	0	100
		B	White tile	14	Chrysotile	5	0	0	0	0	0	0	0	95
		C	Gray fibrous material w/white resin	40		ND	30	7	8	0	5	0	0	50
		D	Multicolored resinous tile	45		ND	0	0	0	0	0	0	0	100
886-971121-MS-061	EM 318856	A	Multicolored paint w/white plaster	6	Chrysotile	TR	0	0	0	0	0	0	0	100
					Point Count	*TR*	Observed but not countable under protocol, < 0.25%							
		B	Gray granular plaster	94		ND	0	0	0	0	0	0	0	100
886-971121-MS-062	EM 318857	A	White plaster	5	Chrysotile	4	0	0	0	0	0	0	0	96
					Point Count	*1.25*								
		B	Multicolored paint	5		ND	0	0	0	0	0	0	0	100
		C	Gray granular plaster	90		ND	TR	0	0	0	0	0	0	100
886-971121-MS-063	EM 318858	A	Multicolored paint	7		ND	0	0	0	0	0	0	0	100
		B	White plaster	8	Chrysotile	5	0	0	0	0	0	0	0	95
					Point Count	*3.0*								
		C	Gray granular plaster	85		ND	0	0	0	0	0	0	0	100

ND = None Detected CELL = Cellulose ORG = Organic WOLL = Wollastonite GYP = Gypsum
TR = Trace, < 1% Visual Estimate Trem-Act = Tremolite-Actinolite BRUC = Brucite SYNTH = Synthetic

Data QA

117

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

NVLAP Accredited Laboratory #1696

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: RES 48002-1
Client: Kaiser-Hill Company, LLC
Client Project: FF332500 / 98D0601,
Date Samples Received: December 09, 1997
Analysis Type: PLM Short Report, Bulk
Turnaround: 2 Hour

Note: The US EPA requires use of stratified analysis for NESHAP and AHERA compliance. Composite results only apply for specific exceptions.

Client Sample Number	Lab ID Number	Layer	Physical Description	Portion of Total Sample (%)	ASBESTOS CONTENT BY LAYER: Mineral	ASBESTOS CONTENT BY LAYER: Visual Estimate (%)	Non-Asbestos Fibrous Components (%): CELL	GLASS	SYNTH	HAIR	WOLL	TALC	OTHER	Non-Fibrous Components (%)
886-971124-MS-076	EM 320435	A	White paint	5		ND	0	0	0	0	0	0	0	100
		B	Brown fibrous material	15		ND	98	0	0	0	0	0	0	2
		C	White plaster (mud)	15		ND	0	0	0	0	0	0	0	100
		D	White plaster (drywall)	65		ND	1	3	0	0	0	0	0	96
886-971124-MS-077	EM 320436	A	White paint	5		ND	0	0	0	0	0	0	0	100
		B	Brown fibrous material	10		ND	98	0	0	0	0	0	0	2
		C	White plaster (mud)	20		ND	0	0	0	0	0	0	0	100
		D	White plaster (drywall)	65		ND	1	3	0	0	0	0	0	96
886-971124-MS-078	EM 320437	A	White paint	4		ND	0	0	0	0	0	0	0	100
		B	Brown fibrous material	10		ND	98	0	0	0	0	0	0	2
		C	White plaster (mud)	20		ND	0	0	0	0	0	0	0	100
		D	White plaster (drywall)	66		ND	1	3	0	0	0	0	0	96

ND = None Detected CELL = Cellulose ORG = Organic WOLL = Wollastonite GYP = Gypsum Analyst: PPK
TR = Trace, < 1% Visual Estimate Trem-Act = Tremolite-Actinolite BRUC = Brucite SYNTH = Synthetic

Data QA

118

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

NVLAP Accredited Laboratory #1896

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: RES 47964-1
Client: Kaiser-Hill Company, LLC
Client Project: RIN 98D0452
Date Samples Received: December 08, 1997
Analysis Type: PLM Short Report, Bulk
Turnaround: 24 Hour

Note: The US EPA requires use of stratified analysis for NESHAP and AHERA compliance. Composite results only apply for specific exceptions.

Client Sample Number	Lab ID Number	Layer	Physical Description	Portion of Total Sample (%)	ASBESTOS CONTENT BY LAYER: Mineral	Visual Estimate (%)	Non-Asbestos Fibrous Components (%): CELL	GLASS	SYNTH	HAIR	WOLL	TALC	OTHER	Non-Fibrous Components (%)
886-971124-MS-074	EM 320266	A	Multicolored paint w/trace gray plaster	3	Chrysotile	TR	0	0	0	0	0	0	0	100
		B	Gray granular plaster	97		ND	0	0	0	0	0	0	0	100
886-971124-MS-075	EM 320267	A	Gray granular plaster w/gray paint	100		ND	0	0	0	0	0	0	0	100

ND = None Detected
TR = Trace, < 1% Visual Estimate
CELL = Cellulose
ORG = Organic
Trem-Act = Tremolite-Actinolite
WOLL = Wollastonite
BRUC = Brucite
GYP = Gypsum
SYNTH = Synthetic

Analyst: PDL

Date/QA

119

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

NVLAP Accredited Laboratory #1896

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: RES 47732-1
Client: Kaiser-Hill Company, LLC
Client Project: 98D0452, ME94AA
Date Samples Received: November 25, 1997
Analysis Type: PLM Short Report, Bulk
Turnaround: 3-5 Day

Note: The US EPA requires use of stratified analysis for NESHAP and AHERA compliance. Composite results only apply for specific exceptions.

Client Sample Number	Lab ID Number	Layer	Physical Description	Portion of Total Sample (%)	ASBESTOS CONTENT BY LAYER: Mineral	ASBESTOS CONTENT BY LAYER: Visual Estimate (%)	Non-Asbestos Fibrous Components (%): CELL	GLASS	SYNTH	HAIR	WOLL	TALC	OTHER	Non-Fibrous Components (%)
886-971124-MS-069	EM 318906	A	Gray granular plaster	30		ND	0	0	0	0	0	0	0	100
		B	Multicolored resinous paint	70		ND	0	0	0	0	0	0	0	100
886-971124-MS-070	EM 318907	A	Gray granular plaster	35		ND	0	0	0	0	0	0	0	100
		B	Gray plaster w/tan/white paint	65		ND	0	0	0	0	0	0	0	100
886-971124-MS-071	EM 318908	A	Gray granular plaster	40		ND	0	0	0	0	0	0	0	100
		B	Green plaster w/tan & white paint	60		ND	0	0	0	0	0	0	0	100
886-971124-MS-072	EM 318909	A	Gray granular plaster	25		ND	0	0	0	0	0	0	0	100
		B	Green plaster w/tan & white paint	75		ND	0	0	0	0	0	0	0	100
886-971124-MS-073	EM 318910	A	Gray granular plaster	30		ND	0	0	0	0	0	0	0	100
		B	Green plaster w/tan & white paint	70		ND	0	0	0	0	0	0	0	100

ND = None Detected
TR = Trace, < 1% Visual Estimate
CELL = Cellulose
ORG = Organic
Tram-Act = Tremolite-Actinolite
WOLL = Wollastonite
BRUC = Brucite
GYP = Gypsum
SYNTH = Synthetic

Data QA

120

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

NVLAP Accredited Laboratory #1896

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: RES 47847-1
Client: Kaiser-Hill Company, LLC
Client Project: RIN98D0452, ME94AA
Date Samples Received: November 21, 1997
Analysis Type: PLM Short Report, Bulk
Turnaround: 24 Hour

Note: The US EPA requires use of stratified analysis for NESHAP and AHERA compliance. Composite results only apply for specific exceptions.

Client Sample Number	Lab ID Number	Layer	Physical Description	Portion of Total Sample (%)	ASBESTOS CONTENT BY LAYER: Mineral	ASBESTOS CONTENT BY LAYER: Visual Estimate (%)	Non-Asbestos Fibrous Components (%): CELL	GLASS	SYNTH	HAIR	WOLL	TALC	OTHER	Non-Fibrous Components (%)
886-971121-MS-042	EM 318251	A	White paint	3		ND	0	0	0	0	0	0	0	100
		B	Brown fibrous material	7		ND	100	0	0	0	0	0	0	0
		C	White plaster (mud)	20		ND	0	0	0	0	0	0	0	100
		D	White plaster (drywall)	70		ND	2	0	0	0	0	0	0	98
886-971121-MS-043	EM 318252	A	White paint	2		ND	0	0	0	0	0	0	0	100
		B	Brown fibrous material	5		ND	98	0	0	0	0	0	0	2
		C	White plaster (mud)	15		ND	0	0	0	0	0	0	0	100
		D	White plaster (drywall)	78		ND	2	0	0	0	0	0	0	98
886-971121-MS-044	EM 318253	A	Tan paint	2		ND	0	0	0	0	0	0	0	100
		B	Brown fibrous material	10		ND	98	0	0	0	0	0	0	2
		C	Blue foam	10		ND	0	0	0	0	0	0	0	100
		D	White plaster (drywall)	78		ND	3	0	0	0	0	0	0	97
886-971121-MS-045	EM 318254	A	Black tar	3		ND	0	0	0	0	0	0	0	100
		B	Yellow resin	7		ND	0	0	0	0	0	0	0	100
		C	Brown tile	90	Chrysotile	9	0	0	0	0	0	0	0	91

ND = None Detected
TR = Trace, < 1% Visual Estimate
CELL = Cellulose
ORG = Organic
Tremi-Act = Tremolite-Actinolite
WOLL = Wollastonite
BRUC = Brucite
GYP = Gypsum
SYNTH = Synthetic

Analyst: PFK

121

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

NVLAP Accredited Laboratory #1896

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: RES 47640-1
Client: Kaiser-Hill Company, LLC
Client Project: RINS8D0452,
Date Samples Received: November 21, 1997
Analysis Type: PLM Short Report, Bulk
Turnaround: 24 Hour

Note: The US EPA requires use of stratified analysis for NESHAP and AHERA compliance. Composite results only apply for specific exceptions.

Client Sample Number	Lab ID Number	Layer	Physical Description	Portion of Total Sample (%)	ASBESTOS CONTENT BY LAYER: Mineral	ASBESTOS CONTENT BY LAYER: Visual Estimate	Non-Asbestos Fibrous Components (%): CELL	GLASS	SYNTH	HAIR	WOLL	TALC	OTHER	Non-Fibrous Components (%)
886-971119-MS-038	EM 318267	A	Black tar	5		ND	0	0	0	0	0	0	0	100
		B	Tan resin	15		ND	2	0	2	0	0	0	0	96
		C	Tan/brown tile	80	Chrysotile	8	0	0	0	0	0	0	0	92
886-971119-MS-039	EM 318268	A	Multicolored paint	15		ND	0	0	0	0	0	0	0	100
		B	Gray granular plaster	85		ND	0	0	0	0	0	0	0	100
886-971119-MS-040	EM 318269	A	Multicolored paint	5		ND	0	0	0	0	0	0	0	100
		B	White plaster	7		ND	1	0	0	0	0	0	0	99
		C	Tan fibrous material	18		ND	97	0	0	0	0	0	0	3
		D	White fibrous plaster	70		ND	10	0	0	0	0	0	0	90
886-971119-MS-041	EM 318270	A	White paint w/white plaster (mud)	7		ND	0	0	0	0	0	0	0	100
		B	Tan fibrous material	28		ND	95	0	0	0	0	0	0	5
		C	White plaster (drywall)	65		ND	5	0	0	0	0	0	0	95

ND = None Detected
TR = Trace, < 1% Visual Estimate
CELL = Cellulose
ORG = Organic
Trem-Act = Tremolite-Actinolite
WOLL = Wollastonite
BRUC = Brucite
GYP = Gypsum
SYNTH = Synthetic

Data QA

122

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

NVLAP Accredited Laboratory #1896

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: RES 47848-2
Client: Kaiser-Hill Company, LLC
Client Project: RIN98D0452, ME94AA
Date Samples Received: November 21, 1997
Analysis Type: PLM Short Report, Bulk
Turnaround: 24 Hour

Note: The US EPA requires use of stratified analysis for NESHAP and AHERA compliance. Composite results only apply for specific exceptions.

Client Sample Number	Lab ID Number	Layer	Physical Description	Portion of Total Sample (%)	ASBESTOS CONTENT BY LAYER: Mineral	ASBESTOS CONTENT BY LAYER: Visual Estimate	Non-Asbestos Fibrous Components (%): CELL	GLASS	SYNTH	HAIR	WOLL	TALC	OTHER	Non-Fibrous Components (%)
886-971119-MS-032	EM 318261	A	Multicolored paint	5		ND	0	0	0	0	0	0	0	100
		B	White plaster	10		ND	0	0	0	0	0	0	0	100
		C	White granular plaster	40		ND	TR	0	0	TR	0	0	0	100
		D	Blue foam	45		ND	0	0	0	0	0	0	0	100
886-971119-MS-033	EM 318262	A	Black tar	2		ND	0	0	0	0	0	0	0	100
		B	Tan resin	13		ND	2	0	2	0	0	0	0	96
		C	Red/white tile	35	Chrysotile	4	0	0	0	0	0	0	0	96
		D	White tile	50	Chrysotile	4	0	0	0	0	0	0	0	96
886-971119-MS-034	EM 318263	A	White fibrous material w/white paint	100	Amosite	8	0	75	0	0	0	0	0	17
886-971119-MS-035	EM 318264	A	White fibrous material w/white paint	100	Chrysotile	TR	0	80	0	0	0	0	0	20
					Point Count	*ND*								
886-971119-MS-036	EM 318265	A	Tan fibrous perlitic material w/white paint	100		ND	25	40	0	0	0	0	0	35
886-971119-MS-037	EM 318266	A	Black tar	5		ND	0	0	0	0	0	0	0	100
		B	Tan resin	10		ND	1	0	1	0	0	0	0	98
		C	Tan/brown tile	85	Chrysotile	8	0	0	0	0	0	0	0	92

ND = None Detected
TR = Trace, < 1% Visual Estimate
CELL = Cellulose
ORG = Organic
Trem-Act = Tremolite-Actinolite
WOLL = Wollastonite
BRUC = Brucite
GYP = Gypsum
SYNTH = Synthetic

Date QA

123

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

NVLAP Accredited Laboratory #1696

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: RES 47648-1
Client: Kaiser-Hill Company, LLC
Client Project: RIN98D0452
Date Samples Received: November 21, 1997
Analysis Type: PLM Short Report, Bulk
Turnaround: 24 Hour

Note: The US EPA requires use of stratified analysis for NESHAP and AHERA compliance. Composite results only apply for specific exceptions.

Client Sample Number	Lab ID Number	Layer	Physical Description	Portion of Total Sample (%)	ASBESTOS CONTENT BY LAYER: Mineral	ASBESTOS CONTENT BY LAYER: Visual Estimate	Non-Asbestos Fibrous Components (%): CELL	GLASS	SYNTH	HAIR	WOLL	TALC	OTHER	Non-Fibrous Components (%)
886-971119-MS-026	EM 318255	A	Black tar	8		ND	0	0	0	0	0	0	0	100
		B	White/tan tile	92	Chrysotile	4	0	0	0	0	0	0	0	96
886-971119-MS-027	EM 318256	A	Black tar	3		ND	0	0	0	0	0	0	0	100
		B	White/gray tile	97	Chrysotile	3	0	0	0	0	0	0	0	97
886-971119-MS-028	EM 318257	A	Multicolored paint	5		ND	0	0	0	0	0	0	0	100
		B	White plaster	15		ND	0	0	0	0	0	0	0	100
		C	White granular plaster	40		ND	TR	0	0	0	0	0	0	100
		D	Blue foam	40		ND	0	0	0	0	0	0	0	100
886-971119-MS-029	EM 318258	A	Multicolored paint	5		ND	0	0	0	0	0	0	0	100
		B	White plaster	10		ND	0	0	0	0	0	0	0	100
		C	Blue foam	35		ND	0	0	0	0	0	0	0	100
		D	White granular plaster	50		ND	0	0	0	0	0	0	0	100
886-971119-MS-030	EM 318259	A	Black tar	2		ND	0	0	0	0	0	0	0	100
		B	Tan resin	13		ND	TR	0	8	0	0	0	0	92
		C	White/gray tile	30	Chrysotile	3	0	0	0	0	0	0	0	97
		D	Blue tile	55	Chrysotile	5	0	0	0	0	0	0	0	95
886-971119-MS-031	EM 318260	A	Multicolored paint	5		ND	0	0	0	0	0	0	0	100
		B	Gray granular plaster	95		ND	0	0	0	0	0	0	0	100

ND = None Detected
TR = Trace, < 1% Visual Estimate
CELL = Cellulose
ORG = Organic
Trem-Act = Tremolite-Actinolite
WOLL = Wollastonite
BRUC = Brucite
GYP = Gypsum
SYNTH = Synthetic

Analyst: PDL

Data QA

124

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

NVLAP Accredited Laboratory #1896

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: RES 47646-1
Client: Kaiser-Hill Company, LLC
Client Project: RIN98D0452, ME94AA
Date Samples Received: November 21, 1997
Analysis Type: PLM Short Report, Bulk
Turnaround: 24 Hour

Note: The US EPA requires use of stratified analysis for NESHAP and AHERA compliance. Composite results only apply for specific exceptions.

Client Sample Number	Lab ID Number	Layer	Physical Description	Portion of Total Sample (%)	ASBESTOS CONTENT BY LAYER: Mineral	ASBESTOS CONTENT BY LAYER: Visual Estimate (%)	Non-Asbestos Fibrous Components (%): CELL	GLASS	SYNTH	HAIR	WOLL	TALC	OTHER	Non-Fibrous Components (%)
886-971119-MS-024	EM 318249	A	White fibrous woven material w/white paint	4		ND	90	0	0	0	0	0	0	10
		B	White fibrous plaster	96	Chrysotile	21	0	40	0	0	0	0	0	39
886-971119-MS-025	EM 318250	A	Black tar	5	Chrysotile	5	0	0	0	0	0	0	0	95
		B	Tan tile	95	Chrysotile	4	0	0	0	0	0	0	0	96

ND = None Detected
TR = Trace, < 1% Visual Estimate
CELL = Cellulose
ORG = Organic
Trem-Act = Tremolite-Actinolite
WOLL = Wollastonite
BRUC = Brucite
GYP = Gypsum
SYNTH = Synthetic

Dept QA

125

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

NVLAP Accredited Laboratory #1896

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: RES 47646-2
Client: Kaiser-Hill Company, LLC
Client Project: RIN98D0452, ME94AA
Date Samples Received: November 21, 1997
Analysis Type: PLM Short Report, Bulk
Turnaround: 24 Hour

Note: The US EPA requires use of stratified analysis for NESHAP and AHERA compliance. Composite results only apply for specific exceptions.

Client Sample Number	Lab ID Number	Layer	Physical Description	Portion of Total Sample (%)	ASBESTOS CONTENT BY LAYER: Mineral	Visual Estimate (%)	Non-Asbestos Fibrous Components (%): CELL	GLASS	SYNTH	HAIR	WOLL	TALC	OTHER	Non-Fibrous Components (%)
886-971119-MS-017	EM 318242	A	Blue/black paint	5		ND	0	0	0	0	0	0	0	100
		B	Gray granular plaster	15		ND	0	0	0	0	0	0	0	100
		C	Tan granular plaster	80		ND	0	0	0	0	0	0	0	100
886-971119-MS-018	EM 318243	A	Tan paint w/white plaster	5	Chrysotile	2	0	0	0	0	0	0	0	98
					Point Count	*1.00*								
		B	Tan granular plaster	95		ND	0	0	0	0	0	0	0	100
886-971119-MS-019	EM 318244	A	Gray fibrous plaster	35		ND	15	8	10	0	3	0	0	64
		B	Multicolored tile	65		ND	0	0	0	0	0	0	0	100
886-971119-MS-020	EM 318245	A	Yellow resin	5		ND	0	0	0	0	0	10	0	90
		B	Brown resin	7		ND	0	0	0	0	0	3	0	97
		C	Tan resinous material	88		ND	0	0	0	0	0	0	0	100
886-971119-MS-021	EM 318246	A	White fibrous material w/white paint	100	Amosite	4	TR	78	0	0	0	0	0	18
					Point Count	*2.00*								
886-971119-MS-022	EM 318247	A	White paint	10		ND	0	98	0	0	0	0	0	2
		B	Yellow fibrous material	90		ND	0	0	0	0	0	10	0	90
886-971119-MS-023	EM 318248	A	White paint	8		ND	0	0	0	0	0	5	0	95
		B	Yellow fibrous material	92		ND	0	90	0	0	0	0	0	10

ND = None Detected; CELL = Cellulose; ORG = Organic; WOLL = Wollastonite; GYP = Gypsum; Analyst: PFK
TR = Trace, < 1% Visual Estimate; Trem-Act = Tremolite-Actinolite; BRUC = Brucite; SYNTH = Synthetic

Data QA

126

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

NVLAP Accredited Laboratory #1896

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: RES 47649-1
Client: Keiser-Hill Company, LLC
Client Project: RIN 98D0452
Date Samples Received: November 21, 1997
Analysis Type: PLM Short Report, Bulk
Turnaround: 2 Hour

Note: The US EPA requires use of stratified analysis for NESHAP and AHERA compliance. Composite results only apply for specific exceptions.

Client Sample Number	Lab ID Number	Layer	Physical Description	Portion of Total Sample (%)	ASBESTOS CONTENT BY LAYER: Mineral	ASBESTOS CONTENT BY LAYER: Visual Estimate (%)	Non-Asbestos Fibrous Components (%): CELL	GLASS	SYNTH	HAIR	WOLL	TALC	OTHER	Non-Fibrous Components (%)
886-971119-MS-011	EM 318284	A	White fibrous woven material with white paint	5		ND	70	0	0	0	0	0	0	30
		B	Gray fibrous plaster	95	Amosite	20	0	0	0	0	0	0	0	80
886-971119-MS-012	EM 318285	A	Tan resin	100		ND	12	0	0	0	0	0	0	88
886-971119-MS-013	EM 318286	A	White fibrous material	1	Chrysotile	98	0	0	0	0	0	0	0	2
		B	White paint	4		ND	0	0	0	0	0	0	0	100
		C	White resinous material	95		ND	0	0	0	0	0	0	0	100
886-971119-MS-014	EM 318287	A	Brown resin	10	Tram-Act	TR	0	0	0	0	0	0	0	100
					Anthophyllite	TR	0	0	0	0	0	0	0	100
		B	Black resinous material	90		ND	0	0	0	0	0	0	0	100
886-971119-MS-015	EM 318288	A	Gray fibrous perlitic material with white paint	100		ND	25	35	0	0	0	0	0	40
886-971119-MS-016	EM 318289	A	Black tar	4		ND	0	0	0	0	0	0	0	100
		B	Tan/white tile	96	Chrysotile	5	0	0	0	0	0	0	0	95

ND = None Detected CELL = Cellulose ORG = Organic WOLL = Wollastonite GYP = Gypsum
TR = Trace, < 1% Visual Estimate Tram-Act = Tremolite-Actinolite BRUC = Brucite SYNTH = Synthetic

Date QA

127

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

NVLAP Accredited Laboratory #1896

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: RES 47949-1
Client: Kaiser-Hill Company, LLC
Client Project: RIN 98D0452
Date Samples Received: November 21, 1997
Analysis Type: PLM Short Report, Bulk
Turnaround: 2 Hour

Note: The US EPA requires use of stratified analysis for NESHAP and AHERA compliance. Composite results only apply for specific exceptions.

Client Sample Number	Lab ID Number	Layer	Physical Description	Portion of Total Sample (%)	Asbestos Content by Layer: Mineral	Asbestos Content by Layer: Visual Estimate (%)	Non-Asbestos Fibrous Components (%): CELL	GLASS	SYNTH	HAIR	WOLL	TALC	OTHER	Non-Fibrous Components (%)
886-971119-MS-006	EM 318279	A	White fibrous woven material with white paint	8		ND	70	0	0	0	0	0	0	30
		B	White fibrous plaster	92	Chrysotile Amosite	15 TR	0	30	0	0	0	0	0	55
886-971119-MS-007	EM 318280	A	White fibrous woven material with white paint	8		ND	70	0	0	0	0	0	0	30
		B	White fibrous plaster	92	Chrysotile Amosite	15 TR	TR	30	0	0	0	0	0	55
886-971119-MS-008	EM 318281	A	White fibrous woven material w/white paint & tan fibrous material	7		ND	50	0	0	0	0	0	0	50
		B	White fibrous plaster	93	Chrysotile Amosite	15 15	0	0	0	0	0	0	0	70
886-971119-MS-009	EM 318282	A	White fibrous woven material with white paint	6		ND	70	0	0	0	0	0	0	30
		B	White fibrous plaster	94	Chrysotile Amosite	15 TR	0	30	0	0	0	0	0	55
886-971119-MS-010	EM 318283	A	White fibrous woven material with white paint	5		ND	80	0	0	0	0	0	0	20
		B	Gray fibrous plaster	95	Amosite	20	0	0	0	0	0	0	0	80

ND = None Detected
TR = Trace, < 1% Visual Estimate
CELL = Cellulose
ORG = Organic
Tram-Act = Tremolite-Actinolite
WOLL = Wollastonite
BRUC = Brucite
GYP = Gypsum
SYNTH = Synthetic

Data QA

128

ATTACHMENT G

Decommissioning Waste Types and Volume Estimates

Attachment G – Decommissioning Waste Types and Volumes Estimates

Facility	Concrete[1] (cu ft)	Wood[1] (cu ft)	Metal[1] (cu ft)	Corrugated/ Sheet Metal[1] (cu ft)	Wall Board[1] (cu ft)	ACM (sq. ft)	Other Waste (cu ft)
T886A	300	300	300	500	200	None	Glass – 5 Insulation – 360 Acoustical Tile - 125
B888	1500	75	100	None	100	None	Glass – 25 Insulated Acoustical Tile – 70
B888A	300	None	64	None	None	None[2]	None

(1) Materials are assumed to be PCB Bulk Product Waste.
(2) The potential ACM materials identified in the 888A equipment in the 886 Cluster RLCR will be dealt with after the equipment is de-energized. No potential ACM was identified in or on the 888A structure itself.

ATTACHMENT H

Data Quality Assessment (DQA) Details

DATA QUALITY ASSESSMENT (DQA) – 886 PDSR – Phase I

VERIFICATION & VALIDATION OF RESULTS

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question. The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses, specifically beryllium and asbestos.

The DQA checklist for radiological data is maintained in the original radiological Survey Package (taken from RSP 16.04); the chemical checklists are provided in Tables H-1 (asbestos) and H-2 (RCRA/CERCLA constituents). A completeness summary, includes all data acquired for the Project, and is given in Table H-3.

All relevant Quality records supporting this report are maintained in a Project File. This report will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of approval by the Regulators. All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units. Chemical data are organized by sample number and corresponding sample location.

No beta/gamma survey designs were implemented for the 886 Cluster based on the conservatism of the transuranic limits used as DCGLs in the unrestricted release decision process. Stated differently, based on the well-established suite of actinides historically used at the RFETS, all of these actinides would emit alpha radiation in exceedance of the applicable transuranic DCGLs before other DCGLs would be exceeded for their respective Uranium species – Technical Basis Document 00162, Rev. 0, *Technical Justification for Types of Surveys Performed During Reconnaissance Level Characterization Surveys and Pre-Demolition Surveys in RISS Facilities,* corroborates the use of this conservative approach.

Consistent with EPA's G-4 DQO process, the radiological survey design was optimized by checking actual measurement results (acquired during pre-demolition surveys) against model output with original estimates. Use of actual sample/survey (result) variances in the MARSSIM DQO model confirms that an adequate number of surveys were acquired.

SUMMARY

In summary, the data presented in this report have been verified and validated relative to quality requirements and the project decisions as stated in the original DQOs. All data are satisfactory without qualification. All media surveyed and sampled yielded results less than their associated action levels, and all with acceptable uncertainties. Therefore, the Survey Units and buildings in question meet the unrestricted-release criteria with the confidences stated in this section and throughout the 886 Cluster – Phase 1 PDSR.

Table H-1 V&V of Chemical Results-Asbestos

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		
ASBESTOS	METHOD: EPA 600/R-93/116	LAB ---->	Reservoirs Environmental, Inc	
QUALITY REQUIREMENTS		RIN ---->	01D0546	
		Measure	Frequency	COMMENTS
ACCURACY		below detectable amounts	≥1	Semi-quantitative, per (microscopic) visual observation
PRECISION		all below detectable amounts	≥40 samples	Semi-quantitative, per (microscopic) visual observation
REPRESENTATIVENESS	COC	Qualitative	NA	Chain-of-Custody intact: completed paperwork, containers w/ custody seals
	Hold times/preservation	Qualitative	NA	Not applicable
	Controlling Documents (Plans, Procedures, etc.)	Qualitative	NA	See Table H-1 for analytical methods; original Characterization Package (planning document) for field/sampling procedures; thorough documentation of the planning, sampling/analysis process, and data reduction into formats
COMPARABILITY		% by bulk volume	NA	Use of standardized engineering units in the reporting of measurement results
COMPLETENESS	Plan vs. Actual samples Usable results vs. unusable	Qualitative	NA	See Table H-1; final number of samples at Certified Inspector's discretion
SENSITIVITY	Detection limits	<1% by volume	all measures	

Table H-2 V&V of Chemical Results-RCRA/CERCLA Constituents

V&V CRITERIA, CHEMICAL ANALYSES			DATA PACKAGE		COMMENTS
TCLP Metals	METHOD: SW1311/6010		LAB ---->	RECRA, Lionville, PA	
QUALITY REQUIREMENT			RIN ---->	01D0934	
			measure	frequency	
ACCURACY	calibrations	initial	r^2 >0.99	≥1/batch	original data package filed by ASD, Bldg 881
		continuing	80%<%R<120%	≥1/batch	as above
	LCS		80%<%R<120%	≥1/batch	Accuracy was adequate based on acceptable percent recoveries of LCS performed on a laboratory batching basis (spike @ x ug).
	blanks	lab & field	<MDL	≥1/batch	Because no chemical results exceeded detection limits, evaluation of blank data was not required; field blanks yielded nondetect values.
	interference check std (ICP)		80%<%R<120%	≥1/batch	
PRECISION	LCSD		80%<%R<120% (RPD<20%)	≥1/batch	Intralaboratory precision was adequate based on acceptable percent recoveries of LCSD performed on a laboratory batching basis (%R ± 20% @ 10 ug).
	field duplicate		all results < RL	≥1/batch	Repeatability of beryllium results was not evaluated through field duplicates, based on the removable nature of the sampling process; this is consistent with radiological survey methodology, where repeatability is only evaluated relative to TSA measurements (fixed activity), and not removable activity. Overall repeatability within the sample set was evident based on all 14 sample results less than the detection limit (0.1µg/100cm^2).
REPRESENTATIVENESS	COC		Qualitative	NA	Chain-of-Custody intact:: completed paperwork, containers w/ custody seals
	hold times/preservation		<180 days	NA	
	Controlling Documents (Plans, Procedures, etc.)		Qualitative	NA	see Table H-1 for analytical methods; original Characterization Package (planning document) for field/sampling procedures; thorough documentation of the planning, sampling/analysis process, and data reporting format satisfactory – summary format (report) combined with complete data packages (on file w/ ASD)
COMPARABILITY			ug/100cm^2	NA	Use of standardized engineering units in the reporting of measurement results;
COMPLETENESS	Plan vs. Actual samples usable results vs. unusable		>95% >95%	NA	Typically, only one sample would not satisfy completeness criteria; however, because the relatively thin paint layer adheres to a relatively thick underlying substratum of drywall (sp. gypsum and anhydrite), it can be argued (stoichiometrically) that metals would not leach out of the bulk sample due to the highly alkaline nature of the bulk material, which retards the leaching phenomenon by neutralizing the acidic leachate. One sample was taken to confirm this rationale.
SENSITIVITY	detection limits		various	all measures	All reporting limits were less than one order of magnitude of the associated action level.

Table H-3 Sampling & Survey Completeness Summary

ANALYTE	# Samples Required (incl. Media; Real & QC Samples)	# Taken (Real & QC Samples)[B]	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Asbestos[A] • T886A • 888	(all reals, no QC) 7 biased 2 biased	6 (int) 1 (ext)	No ACM present No ACM present	40 CFR 763.86 5 CCR 1001-10 EPA 600/R-93/116 ("not detected" is <1% by volume)
RCRA/CERCLA 888	1 biased	1 real	No hazardous constituents present	01D00934 SW1311/6010 Cr and Pb, previously identified as hazardous in paint alone, are not hazardous as paint on a drywall substrate. Analysis for Hg was not requested based on previous (paint) sample results.
Radiological • Survey Unit: 886-A-001 • Survey Unit: 886-B-009 • Survey Unit: 886-C-010	60 TSA & Smears (15 random + 45 biased) 3 QC TSA 10% Scan 60 TSA & Smears (15 random + 45 biased) 3 QC TSA 10% Scan 18 TSA & Smears (15 random + 3 biased) 1 QC TSA 10% Scan	60 TSA & Smears (random + biased) 3 QC TSA 10% Scan 45 TSA & Smears (random + biased) 5 QC TSA 10% Scan 105 TSA & Smears (random + biased) 2 QC TSA 10% Scan	No contamination at any location above the action levels (>95% confidence)	No results above $DCGL_W$ action level (20 dpm/100cm^2 removable, 100 dpm/100cm^2 [average per 1m^2])

[A] # of samples required is estimate only, based on miscellaneous material types; final # of samples at discretion of IH

[B] int – building interior, ext – building exterior

ATTACHMENT I

B888 Historical Site Assessment Report

D&D RISS Facility Characterization
Historical Site Assessment Report

Facility ID: B888 Guard Post
Anticipated Facility Type (1, 2, or 3): Type 1

Refer to attached site drawing for facility location.
This facility specific Historical Site Assessment (HSA) has been performed in accordance with:
D&D Characterization Protocol, RFETS MAN-077-DDCP, latest version, and
Facility Disposition Program Manual, RFETS MAN-076-FDPM, latest version

Physical Description

Building 888 was designed and constructed as a guard post in the early 1980s. It is located just south of Central Avenue near the NW corner of B886. The guard post allowed access to B865 and B886. It is a one-story structure approximately 23' wide X 17' long X 11' high, and contains approximately 624 square feet of floor space. There is one room and a restroom. The building has a poured-concrete floor and roof. The roof is sloped to the south for drainage, and has a 5' overhang with lighting on all four sides. The roof contains lighting protection. Transite board is located on the exterior walls under the eaves. The building's outer walls are 6"-thick, poured, steel-reinforced concrete. The building has 6 windows with bullet-proof glass, weapon slots in all four outer walls, and a steel-plate access door with bullet-proof glass. Two of the windows had metal shelves to display badges. The restroom has a steel door and an exhaust fan. The building walls have been insulated, covered with drywall, and painted. B888 has an insulated, drop acoustical tile ceiling with recessed lighting. The building has electric heat units and one air conditioner.

Historical Operations

Building 888 was always used as a guard post. The building also contains a small, dry-type transformer used to transmit power to stop lights on Central Avenue.

Current Operational Status

At the time of this assessment, the facility was out-of-service and unoccupied. Power was being disconnected, and restroom water and sanitary lines had been disconnected. The restroom had been stripped out. The transformer was still in operation.

Contaminants of Concern

Asbestos

Describe any potential, likely, or known sources of Asbestos:
There is Transite board on the exterior walls under the eaves. No other ACM was identified (refer to the Reconnaissance Level Characterization Report for the 886 Cluster Decommissioning Project, Section 6.4, RF/RMRS-97-124.UN, 12/24/97). The building has no asbestos posting.
Note: This information should be evaluated/verified by a Certified Asbestos building Inspector.

Beryllium (Be)

Describe any potential, likely, or known Be production or storage locations:
None. B888 is not on the list of known Be areas and is not posted as a Be area.
Note: This information should be evaluated and /or verified during the RLCR process

Summarize any recent Be sampling results:
None found.
Note. This information should be evaluated and /or verified during the RLCR process

137

Lead

Describe any potential, likely, or known sources of Lead (e.g., paint, shielding, etc.):
Lead-based paint could have been used in painting the building. Lead also could be present in electrical equipment.
Note: This information should be evaluated and /or verified during the RLCR process.

RCRA/CERCLA Constituents

Describe any potential, likely, or known sources of RCRA/CERCLA constituents (e.g., chemical storage, waste storage, processes):
None. No known hazardous chemical were ever stored or used in B888. Freon may be in the AC unit. Historical information does not indicate the building was ever a RCRA storage or RCRA 90-day accumulation area. The building is not on the "Master List of RCRA Units". There is no regulated idle equipment in the building.
Note: This information should be evaluated and /or verified during the RLCR process.

Describe any potential, likely, or known spill locations (and sources, if any):
None.
Note: This information should be evaluated and /or verified during the RLCR process.

Describe methods in which spills were mitigated, if any:
None.
Note: This information should be evaluated and /or verified during the RLCR process

PCBs

Describe any potential, likely, or known sources of PCBs (e.g., light ballasts, paints, equipment, etc.):
There is no information to indicate that PCB-containing equipment was ever installed or stored in B888. Light ballasts may contain PCBs, even though unlikely based on the age of the building. The building is not posted as a PCB area.
Note: This information should be evaluated and /or verified during the RLCR process.

Describe any potential, likely, or known spill locations (and sources, if any):
None.
Note: This information should be evaluated and /or verified during the RLCR process.

Describe methods in which spills were mitigated, if any:
None.
Note: This information should be evaluated and /or verified during the RLCR process.

138

Radiological Contaminants

Describe any potential, likely, or known radiological production or storage locations:
B888 has no radiological postings. The building was reportedly used to temporarily store a contained radioactive source. There are no records or evidence to indicate that the source ever leaked.
Note: This information should be evaluated and /or verified during the RLCR process

Describe any potential, likely, or known spill locations (e.g., known leaking sealed radioactive sources, leaking waste drums, potentially contaminated drains, etc.):
None.
Note: This information should be evaluated and /or verified during the RLCR process.

Describe methods in which spills were mitigated, if any:
None.
Note: This information should be evaluated and /or verified during the RLCR process.

Describe any potential, likely, or known isotopes of concern (e.g., weapons grade plutonium, uranium isotopes, pure beta emitters, mixed fission products, etc.):
None.
Note: This information should be evaluated and /or verified during the RLCR process.

Describe any potential, likely, or known external facility contamination (e.g., stack release points, unfiltered ventilation, facility's physical location to known site releases, etc.):
None.
Note: This information should be evaluated and /or verified during the RLCR process.

Environmental Restoration Concerns

Describe any ER concerns that could affect facility characterization (e.g., IHSSs, PACs, UBCs):
There are no IHSSs or PACs around the building, however, it is close to the B886 UBC boundary.
Note: This information should be evaluated and /or verified during the RLCR process.

Additional Information

Describe any additional information that may be useful during facility characterization (e.g., contaminant migration routes, waste handling operations, physical hazards, Historical Release Reports, WSRIC data, etc.):
A WSRIC, either current or deleted, could not be found for Building 888.

References

Provide all sources of information utilized to gather data for facility history (e.g., documents, files, interviews). Attach all applicable supporting documentation:

Waste Volume Estimates and Material Types

Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM	Other Waste (cu ft)
1500	75	100	None	100	Transite 25 cu ft	Glass – 25 Insulated acoustical ceiling tile - 70

139

Further Actions
Recommend any further actions, if any (e.g., characterization, decontamination, special handling, etc.):
PDS can proceed.

	Print Name	Signature	Date
Prepared By:	Gerard Kelly	G M Kelly	5/21/01
Reviewed By:	Doug Bryant	Doug Bryant	5/21/01

140

D&D RISS Facility Characterization
Historical Site Assessment - Interview Checklist

Facility ID: Building 888
Facility Type (1, 2, or 3): Type 1

This facility specific Historical Site Assessment (HSA) - Interview Checklist has been conducted in accordance with:
D&D Characterization Protocol, RFETS MAN-077-DDCP, latest version, and
Facility Disposition Program Manual, RFETS MAN-076-FDPM, latest version

Personnel Interviewed (Name, Title, and Function):

Jerry Anderson, 800 Area Closure Project Manager, T886A, X6438

What time frame did the interviewee work in the facility?

Jerry Anderson has been the Closure Project Manager since 1997. Mr. Anderson was the Radiological Engineer for the 886 Cluster (including B888) from 1992 to 1997.

Has the building configuration changed since you worked in the building? If so, in what way?

There were no configuration changes made in the building configuration.

What operations/processes were conducted in the building during the interviewee's time at the facility?

Mr. Anderson stated the building was a guardhouse and had always been a guardhouse.

What types of equipment were in the building during the interviewee's time in the facility?

General office equipment and some lockers. There was a sealed source stored in the main room of the two-room building. Mr. Anderson could not recall what the source was made of, but he said he had addressed the source during his characterization of the facility. Mr. Anderson added that this building has had the Pre-Demolition Survey performed on it.

An electric heater , an AC unit and a dry-type transformer were not discussed during the interview, but are located in the building.

Where was the equipment located? (specific rooms/areas)

The equipment was located in the main room of the building. The only other room in the building is a restroom.

Were any radioactive materials or equipment handled in the building? If so, what types and where?

Mr. Anderson stated a sealed source was stored in the building. Mr. Anderson also stated no pure beta emitters were used in B888.

141

Were any chemicals (e.g., Asbestos, Beryllium, Lead, RCRA/CERCLA Constituents, PCBs, etc.) handled in the building? If so, what types and where? No known chemicals or RCRA/CERCLA constituents, including Be and PCB's, were handled in the building. Mr. Anderson did indicate the underside of the exterior eaves did contain some asbestos board and that the asbestos board was scheduled to be removed during the week of 5-21-01.
Did any spills or uncontrolled release of radioactive materials or chemicals occur while you worked in the building? If so, what types and where? No known radioactive or chemical spills in the building.
Were these spills/releases cleaned up? If so, how were they cleaned up? N/A. No known spills/releases occurred in the building.
Do you know of any additional issues, concerns, or process knowledge that could affect facility characterization? Mr. Anderson had no other concerns.

Prepared By: Doug Bryant (Print Name) | Doug Bryant (Signature) | 5-21-01 (Date)

142/142