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# USATHAMA

U.S. Army Toxic and Hazardous Materials Agency

## Report of Sampling and Analysis Results

New Britain Army Housing Units  
New Britain, Connecticut

June 1990

Prepared for:

U.S. ARMY TOXIC AND  
HAZARDOUS MATERIALS AGENCY  
Aberdeen Proving Ground  
Maryland 21010-5401

Prepared by:



Under the supervision of:



Environmental Assessment and  
Information Sciences Division  
Argonne National Laboratory  
Argonne, Illinois 60439



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## REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED		1b. RESTRICTIVE MARKINGS	
2a. SECURITY CLASSIFICATION AUTHORITY		3. DISTRIBUTION / AVAILABILITY OF REPORT Distribution Unlimited	
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE		4. PERFORMING ORGANIZATION REPORT NUMBER(S)	
4. PERFORMING ORGANIZATION REPORT NUMBER(S)		5. MONITORING ORGANIZATION REPORT NUMBER(S) CETHA-BC-CR-90079	
6a. NAME OF PERFORMING ORGANIZATION ROY F. WESTON, INC.	6b. OFFICE SYMBOL (if applicable)	7a. NAME OF MONITORING ORGANIZATION Environmental Assessment & Information Sciences Division Argonne National Laboratory (for USATHAMA)	
6c. ADDRESS (City, State, and ZIP Code) Roy F. Weston, Inc. Weston Way West Chester, PA 19380		7b. ADDRESS (City, State, and ZIP Code) Argonne National Laboratory 9700 S. Cass Avenue Argonne, IL 60439	
8a. NAME OF FUNDING / SPONSORING ORGANIZATION U.S. Army Toxic & Hazardous Materials Agency	8b. OFFICE SYMBOL (if applicable) CETHA-BC	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER U.S. Department of Energy Contract W-31-109-ENG-38	
8c. ADDRESS (City, State, and ZIP Code) U.S. Toxic & Hazardous Materials Agency Attn: CETHA-BC Aberdeen Proving Ground, MD 21010-5401		10. SOURCE OF FUNDING NUMBERS	
		PROGRAM ELEMENT NO.	PROJECT NO.
		TASK NO.	WORK UNIT ACCESSION NO.
11. TITLE (Include Security Classification) UNCLASSIFIED Report of Sampling and Analysis Results: New Britain Army Housing Units New Britain, Connecticut			
12. PERSONAL AUTHOR(S)			
13a. TYPE OF REPORT Final	13b. TIME COVERED FROM _____ TO _____	14. DATE OF REPORT (Year, Month, Day) June 1990	15. PAGE COUNT
16. SUPPLEMENTARY NOTATION Prepared for the U.S. Army Toxic & Hazardous Materials Agency by Roy F. Weston under a contract from, and the supervision of Argonne National Laboratory			
17. COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP	SUB-GROUP	
19. ABSTRACT (Continue on reverse if necessary and identify by block number) Roy F. Weston, Inc. has conducted a sampling and analysis program of the Army housing property located in New Britain, Connecticut. The objectives of this effort include further characterization of environmental contamination identified in an enhanced preliminary assessment carried out in 1989. The specific activities performed at this site were identification, evaluation of the condition, and collection of samples from specific suspected asbestos-containing materials, including floor tiles, pipe run and pipe fitting insulation, dust in the ductwork, and exterior siding, where present. These evaluations were necessary to clarify potential environmental issues identified in the earlier report, prior to the sale or realignment of the property. JS)			
20. DISTRIBUTION / AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS		21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED	
22a. NAME OF RESPONSIBLE INDIVIDUAL Joseph Ricci		22b. TELEPHONE (Include Area Code) (301) 671-3461	22c. OFFICE SYMBOL CETHA-BC

**SAMPLING AND ANALYSIS AT THE U.S. ARMY  
FAMILY HOUSING UNIT (FHU) PROPERTY  
NEW BRITAIN, CONNECTICUT**

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## EXECUTIVE SUMMARY

The U.S. Army family housing units (FHUs) at New Britain, Connecticut were inspected by Roy F. Weston Inc. (WESTON) personnel during February 1990 to further evaluate the environmental concerns identified in the enhanced Preliminary Assessment reports prepared and submitted earlier by Argonne National Laboratory (ANL) for the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA). Three of the 16 single-family "Capehart" housing units were examined on 20 February to investigate the possible presence of asbestos-containing materials (ACM).

The ANL Draft Sampling and Analysis Plan, Revision 1 (SAP) specified identifying and sampling the following materials, that frequently are suspected to contain asbestos, from ten per cent of the housing units or a minimum of three, whichever is greater.

- Pipe run insulation.
- Dust accumulated inside heating ductwork within the concrete slab, where present and open.
- Vinyl floor tiles.

The WESTON personnel selected three housing units for inspection after review of maintenance records and drawings, discussions with housing management personnel, and determination that the units were in similar condition. The housing units chosen, Nos. 006, 028, and 312, were considered to be representative of the other 13 units, but this was not confirmed by an examination of all the units.

Nine samples of vinyl floor tile were collected by WESTON from the three units and analyzed. These analyses revealed that asbestos is present in floor tile at the three housing units examined. Asbestos was quantified at 10% or greater by polarized light microscopy (PLM) in three of the samples. Asbestos was qualitatively identified in four other samples by transmission electron microscopy (TEM). No samples of pipe insulation were collected since the pipes in the units examined were not insulated. Dust samples were not collected because all floor vents had been permanently sealed. During the asbestos sampling activity, other suspect materials observed were roof shingles and felt.

The following practices should be observed with regard to the known and suspected asbestos-containing materials identified:

- The vinyl floor tiles pose no significant risk as long as they are in good condition and are not damaged by excessive wear or misuse. They should be managed in place under an Operation and Maintenance (O&M) plan which describes procedures for the regular inspection of the floor tiles and the removal and replacement of any that become damaged.

SECTION 1. INTRODUCTION .

**SAMPLING AND ANALYSIS AT THE U.S. ARMY  
FAMILY HOUSING UNIT (FHU) PROPERTY  
NEW BRITAIN, CONNECTICUT**

**SECTION 1. INTRODUCTION**

Roy F. Weston, Inc. (WESTON) was retained by Argonne National Laboratory (ANL) to provide assistance in gathering additional environmental data for the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) at 53 family housing unit properties (FHUs) in 12 states. The New Britain, Connecticut property is one of these FHUs.

**1.1 PURPOSE AND SCOPE**

The purpose of this project was to provide the Department of the Army with sound environmental data on the property which is scheduled for sale or realignment as a result of the Defense Authorization Amendments and Base Closure and Realignment Act (Public Law 100-526). Environmental assessments of each property covered by the Act are required by the Secretary of Defense prior to their closure or realignment. Such actions must be performed in accordance with applicable provisions of the National Environmental Policy Act (NEPA) and to ensure that any environmental hazards will be identified and mitigated where required.

Previously, ANL conducted enhanced preliminary assessments (PAs) for each property. These enhanced PAs made recommendations regarding sampling and analysis to determine (1) whether and in what quantities asbestos is present in certain building construction materials (including pipe run insulation, dust accumulated in heating ductwork, vinyl floor tile, and exterior siding shingles, where present), (2) in selected contexts, whether and in what concentration soils and groundwater may be contaminated, and (3) whether and in what range transformer oils at selected sites may contain polychlorinated biphenyls (PCBs). WESTON gathered this data by implementing Argonne National Laboratory's (ANL's) Draft FHU Sampling and Analysis Plan, Revision 1 (SAP).

**1.2 SITE DESCRIPTION**

The Department of the Army's FHU property in New Britain, Connecticut consists of 16 single-family units located on 3.71 acres and situated between Green Street and Halsey Street. This FHU property is surrounded by woodland.

The units at the FHU property are two- and three-bedroom, single-family dwellings built in 1959 in the "Capehart" style. The single-story, wood-frame units were constructed on concrete slab foundations with no basements or crawl spaces. The ducts for the original heating system and the domestic water lines were embedded in the concrete slab, which was covered with vinyl floor tile. The units have pitched roofs surfaced with asphalt shingles and the exteriors finished with vinyl siding.

### 1.3 REPORT ORGANIZATION

This report contains the results of the sampling and analysis program performed by WESTON. Section 2 contains a description of the asbestos sampling performed at the property and laboratory results for samples of suspected asbestos-containing material (ACM) collected. Copies of field notes and laboratory results pertaining to asbestos are provided in Appendices A.1 and A.2.

SECTION 2. ASBESTOS-CONTAINING MATERIALS

## SECTION 2. ASBESTOS-CONTAINING MATERIALS

WESTON personnel inspected three of the 16 "Capehart" units at the New Britain family housing facility on 20 February 1990 for the presence of suspected ACM. Vinyl floor tile was the only suspect material found within the buildings that was sampled. All sampling was done following the requirements of ANL's SAP. Additionally, all field work was performed in accordance with applicable Federal regulations, including 40 CFR Part 61 subpart M, 40 CFR Part 763 subpart E, and 29 CFR Part 1910.1001.

### 2.1 SAMPLING RATIONALE

The sampling rationale used by WESTON for this project followed the recommendations set forth by ANL. The type of suspect ACM to be sampled, the number of housing units to be examined at each FHU facility, and number of samples to be taken for each material found were described in the SAP. The plan for New Britain required sampling of the following materials, if present:

- Pipe run insulation.
- Accumulated dust inside heating ductwork if not sealed.
- Vinyl floor tiles.

In accordance with the SAP, three units were examined at this facility. The sampling plan, however, did not identify specific units which were to be sampled. The task of determining which housing units were representative of the facility as a whole and, therefore, would be sampled was left to the WESTON field team. After reviewing all available maintenance records and drawings and discussing the facility with Directorate of Engineering and Housing (DEH) personnel, it was determined that all of the units at the New Britain FHU were similar in condition. Units 006, 028, and 312 were chosen by the WESTON field team leader as representative units to be sampled.

The SAP specifies that a minimum of two pipe run insulation samples, four dust samples, and one sample of each color of floor tile be collected from each of the housing units examined. Nine samples of vinyl floor tile were collected at the facility. No pipe insulation samples were collected since the pipes in the units examined were not insulated. Dust samples were not collected because all floor vents had been permanently sealed. Documentation of the sealed vents was provided by the Army and is included in Appendix A.1.

### 2.2 FIELD ACTIVITIES AND OBSERVATIONS

Each of the three units was inspected to determine if suspect materials were present. Two colors (white and tan) of 9" x 9" vinyl floor tile and one color (speckled) of 12" x 12" vinyl floor tile were sampled in all the units examined. One sample was taken of each of the floor tiles in each housing unit, resulting in a total of nine samples for laboratory determination of asbestos content. These samples were collected by breaking off a small piece of floor tile in an inconspicuous location. About one square inch of the tile surface area was taken for each sample. No effort was made to separate the mastic, which sometimes contains asbestos, from the floor tile samples themselves.

The vinyl floor tile in all three of the units inspected was in good condition. This material is considered to be a non-friable type of ACM, unless damaged. If significant damage occurs, such that the

material becomes friable as defined in the asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP), the U.S. Environmental Protection Agency (EPA) would classify these tiles as friable materials. However, an EPA opinion was recently released that changes certain previous interpretations regarding non-friable ACM. On 23 February 1990, a memorandum was issued by the Director of Emissions Standards Division, the Director of Stationary Source Compliance Division, and the Associate Enforcement Counsel for Air Enforcement of the EPA Office of Air Quality Planning and Standards (OAQPS). This memorandum was circulated to other air quality officials and EPA regional offices in early March 1990. This latest position states that floor tiles and certain other non-friable materials do not have to be removed from a facility prior to demolition, unless they are severely damaged and thus are considered friable, or unless the demolition may cause fiber release through grinding or abrasion of the tiles. Floor tile removal shall be done if demolition is to be accomplished by burning, either of the unit or of the debris from demolition. However, if the floors in the housing units are to be renovated, special care must be taken during the process to prevent the release of asbestos fibers.

The WESTON field team was directed, as a part of the project scope contained in the SAP, to perform sampling and analysis of specific suspect ACM. Other suspect materials observed were roof shingles and felt. Copies of the field notes are included in Appendix A 1.

## 2.3 LABORATORY PROCEDURES AND RESULTS

The bulk samples of building materials were analyzed for asbestos content by WESTON's optical microscopy laboratory in Auburn, Alabama. This laboratory is accredited by the American Industrial Hygiene Association (AIHA) and the National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP). The bulk samples were analyzed by Polarized Light Microscopy (PLM) using the "Interim Method for the Determination of Asbestos in Bulk Insulation Samples", EPA 600/M4-82-020, December 1982. Copies of the laboratory reports are included in Appendix A 2.

Vinyl floor tile samples for which no asbestos was found using PLM methods were analyzed qualitatively for the presence of asbestos by Transmission Electron Microscopy (TEM) at WESTON's NVLAP accredited electron microscopy laboratory in Auburn, Alabama. Copies of these laboratory reports are also included in Appendix A 2.

All analyses were performed in accordance with protocols set forth in the Laboratory Accreditation package submitted by WESTON under NVLAP. This document includes standard procedures for sample analysis and quality assurance/quality control (QA/QC) which were acceptable to NIST. The QA/QC protocols for the laboratory differ significantly from those commonly found in chemical analysis procedures, due to the nature of the analytical procedure. Since there are no reagents, digestions, or other steps in the process that provide significant opportunities for sample contamination or analyte loss, lot blanks and sample spikes are not performed. Instead, all analyses are performed using the following steps:

- Incoming samples are divided into lots of ten for analysis
- One sample is selected at random to serve as the QC check and divided into two containers
- The sample lot is assigned to an analyst who determines the asbestos content of each sample

- The QC sample is analyzed by a different analyst, designated by the sample custodian.
- The results of both analysts are submitted to the QC Coordinator for review, and comparison to the laboratory QC chart.
- The results are reviewed and approved, based on the written QC review procedures, or rejected. If rejected, the sample lot and QC sample are reanalyzed.

The WESTON laboratory routinely runs blank checks to ensure that equipment and refractive index oils are not contaminated, collects and analyzes samples of the air in the work areas to document that airborne asbestos fibers do not threaten worker health or sample contamination, and analyzes samples submitted by NIST to document precision of results as required by the NVLAP program. Samples provided in past rounds of proficiency checks are used for analyst training and to document analyst proficiency. The use of third party laboratory comparisons is often done, and is accomplished by sending duplicates of samples to an outside laboratory and comparing the results obtained by the two facilities.

In interpreting the asbestos results, it should be noted that the definition of asbestos presence differs between the EPA and some state agencies. According to the EPA definition, any materials that contain greater than one per cent (>1%) asbestos are classified as ACM by the 1977 NESHAP regulations. However, California has recently implemented state regulations that consider all materials containing 0.1 per cent (%) or more asbestos as asbestos-containing. It is believed that several other states will soon follow the lead of California in lowering the threshold limit to 0.1 per cent, including some in which properties under review in this study are located. Currently, the State of Connecticut continues to abide by the EPA definition, hence, all samples containing >1% asbestos are considered to be ACM.

The matter is further complicated by the fact that the PLM method was developed specifically for friable materials, but not for non-friable types of suspect ACM such as vinyl floor tiles, vinyl sheeting, and siding. In fact, no specific method has been developed and promulgated to date for such samples, so laboratories use PLM as the only available documented procedure for their analysis. PLM has an inherent limitation on fiber resolution of about 0.25 micrometer ( $\mu\text{m}$ ) in diameter and reliable detection and quantification of fibers smaller than 1  $\mu\text{m}$  in diameter is difficult. The manufacturing process for vinyl floor tiles, for example, results in the very small fiber diameters which often cannot be seen by PLM. WESTON's experience is that frequently such samples do, in fact, contain significant quantities of asbestos. WESTON has developed a qualitative technique using TEM to detect the presence of such small fibers and minimize false negatives in the laboratory results. This technique, however, does not allow a good quantitative estimate of asbestos content.

For these reasons, the WESTON laboratories have implemented a policy of reporting asbestos presence as follows:

- Asbestos determined by PLM to be present at greater than 1% is reported as the quantity detected.
- If asbestos is estimated to be less than 1% by PLM, it is reported as <1%. This estimate of asbestos content may be made when only one asbestos structure is observed.
- If asbestos is not detected in certain non-friable materials by PLM, then the samples are subjected to TEM analysis. The results are reported as positive if asbestos is detected by TEM.

Recommendations made in this report are based on the >1% regulatory limit, except for floor tiles as discussed earlier and except as otherwise noted. However, all samples in which asbestos is observed are discussed. This represents a conservative approach to the assessment of asbestos presence at the facility.

Table 2.1 contains a summary of all samples collected at the New Britain FHU, including sample locations, material descriptions, and laboratory results. PLM results are quantitative while TEM results are qualitative only. Quantity estimates for materials sampled that were suspected to contain asbestos are presented in Table 2.2. The field notes describing the observations are provided in Appendix A.1, while copies of the original laboratory reports are included as Appendix A.2.

Three samples of the floor tile were found by PLM to contain asbestos at or greater than 10%. Four of the remaining six samples, for which no asbestos was reported following PLM analysis, were found to contain asbestos fibers by the TEM procedure. While these results are qualitative in nature, consideration of the process through which floor tiles were manufactured leads to the conclusion that these materials should be treated as ACM. Two samples were found to contain no detectable asbestos by both PLM and TEM. Thus, seven of the nine floor tile samples were found to contain asbestos. The 13 units not inspected should be considered to have ACM present in the floor tile unless additional sampling and analysis is performed and shows that no asbestos is present in these units.

## 2.4 CONCLUSIONS AND RECOMMENDATIONS

The sample analyses performed by WESTON have revealed that asbestos is present in the vinyl floor tiles in the three units examined. These units are thought to be representative of the other 13 at the site, but this was not confirmed by sampling all units.

The vinyl floor tiles in the three housing units inspected were in good condition, but, should they become broken or damaged, asbestos fibers may be released. The recent EPA clarification of the definition for damaged non-friable materials apparently removes some concerns about the status of these materials at the time of renovation or demolition. Inspection of these normally non-friable materials prior to demolition is required, but, if they are in good condition at the time, they may be left in place as long as planned demolition

TABLE 2.1  
 BULK SAMPLE SUMMARY  
 NEW BRITAIN FAMILY HOUSING

SAMPLE IDENTIFICATION	MATERIAL TYPE	LOCATION	ASBESTOS CONTENT PLM ANALYSIS	CONFIRMATION TEM ANALYSIS
Unit 028				
AV077-32-CT-028-AFT	Speckled 12" x 12" floor tile	All rooms except bedrms	None Detected	Negative
AV078-32-CT-028-AFT	Tan 9" x 9" floor tile	Bedrooms	Chrysotile, 10%	
AV079-32-CT-028-AFT	White 9" x 9" floor tile	Over floor vents	None Detected	Positive
Unit 006				
AV080-32-CT-006-AFT	White 9" x 9" floor tile	Over floor vents	None Detected	Negative
AV081-32-CT-006-AFT	Speckled 12" x 12" floor tile	All rooms except bedrms	None Detected	Positive
AV082-32-CT-006-AFT	Tan 9" x 9" floor tile	Bedrooms	Chrysotile, 10%	
Unit 312				
AV083-32-CT-312-AFT	White 9" x 9" floor tile	Over floor vents	None Detected	Positive
AV084-32-CT-312-AFT	Tan 9" x 9" floor tile	Bedrooms	Chrysotile, 12%	
AV085-32-CT-312-AFT	Speckled 12" x 12" floor tile	All rooms except bedrms	None Detected	Positive

TABLE 2.2  
 ASBESTOS CONTAINING MATERIALS  
 NEW BRITAIN FAMILY HOUSING

SAMPLE IDENTIFICATION	MATERIAL TYPE	LOCATION	QUANTITY	UNITS
Unit 028				
AV078-32-CT-028-AFT	Tan 9" x 9" floor tile	Bedrooms	475	Square ft
AV079-32-CT-028-AFT	White 9" x 9" floor tile	Over floor vents	15	Square ft
Unit 006				
AV081-32-CT-006-AFT	Speckled 12" x 12" floor tile	All rooms except bedrms	400	Square ft
AV082-32-CT-006-AFT	Tan 9" x 9" floor tile	Bedrooms	475	Square ft
Unit 312				
AV083-32-CT-312-AFT	White 9" x 9" floor tile	Over floor vents	15	Square ft
AV084-32-CT-312-AFT	Tan 9" x 9" floor tile	Bedrooms	475	Square ft
AV085-32-CT-312-AFT	Speckled 12" x 12" floor tile	All rooms except bedrms	400	Square ft

procedures will not release a significant amount of asbestos fibers. However, if demolition will subject these non-friable materials to grinding, sanding, or abrading, or if demolition involves burning of the structure or debris from the structure, all forms of ACM, including these floor tiles, must be removed in advance.

The vinyl floor coverings should be left in place and managed under an Operations and Maintenance (O&M) plan. An O&M plan must address the following:

- The locations of all known and suspected ACM.
- The procedures and frequency for periodically assessing the ACM in the facility.
- The procedures for safely handling the ACM during maintenance or removal activities.
- Designation of an asbestos coordinator for the facility.
- The responsibilities and requirements for training of personnel involved with maintenance and renovation of the facility.
- The record-keeping program for the facility.

The vinyl floor tiles should be removed during a planned renovation of the units, in accordance with the regulations applicable at the time.

Other suspect materials noted were roof shingles and felt. Care should be taken during renovations or demolition to identify suspect materials that may have been hidden from the view of the assessment team. The suspect materials observed by the field team, and any hidden suspect materials found later, should be analyzed for the presence of asbestos prior to being disturbed.

APPENDIX A.1. FIELD DATA



REPORT  
ATTENTION USE

DEPARTMENT OF THE ARMY  
HEADQUARTERS FORT DEVENS  
FORT DEVENS, MASSACHUSETTS



01433-5100

February 22, 1990

Directorate of Engineering  
and Housing

SUBJECT: Sealing of floor register openings; Off-Post  
Housing

Roy F. Weston, Incorporated  
1635 Pumphrey Avenue  
Attention: Mr. Alex Muncie  
Auburn, Alabama 36830

Dear Mr. Muncie:

Per our phone conversation of February 20, 1990, I am writing to inform you that we are aware the floor diffuser openings of the Hull, Randolph, Bedford, Nahant and Burlington, Massachusetts housing areas have been sealed with concrete.

Additionally, all of the housing areas in the Connecticut Defense area with the exception of Shelton, have had the floor diffuser openings plugged with concrete.

Sincerely,

Richard W. Green III  
Chief, Design Branch  
Engineering, Plans and  
Services Division

## SITE SURVEY LOG

CLIENT Argonne National Labs WESTON WORK ORDER NO. 2104-13-01  
 FACILITY/BLDG. NO. NEW BRITAIN CT 38 KULPER RD.  
 FACILITY CONTACT Joe NADIAH TELEPHONE NUMBER (203) 468-6934  
 TECHNICIAN NAME ROBERT LYNCH SIGNATURE Robert Lynch  
 TECHNICIAN NAME S-A P. A. ... SIGNATURE Jan ...  
 TIME ARRIVED 0845 TIME DEPARTED 6900 DATE 20 FEB 90  
 dd mm yy

## SPECIFIC SITE ACTIVITIES, COMMENTS, INTERVIEW RESULTS &amp; BRIEF DESCRIPTION OF FACILITY

This is a one story 3 bedroom  
 Capehart home, white  
 aluminum siding. There are  
 three types of floor tile present.  
 The old floor vents are all sealed.  
 The roofing shingles and felt are  
 suspect. There is no pipe insula-  
 tion present.

The living room, dining room,  
 hall, and utility room all have  
 12x12 brown and white speckled  
 floor tile in them. The bedrooms  
 have 9x9 tan floor tile with  
 white 9x9 over the old floor vents.

## ACTIVITY CHECKLIST

Interviews Completed <u>1</u>	Number of Samples <u>3</u>
Drawings Reviewed <u>-</u>	Survey Form Completed <u>✓</u>
Drawings Attached <u>1</u>	Site Log Completed <u>✓</u>
Visual Inspection <u>-</u>	Chain-of-Custody Initiated <u>✓</u>
Number of Photos <u>1</u>	Exp. Assess. Form Init. <u>1</u>
Q.A. Check _____	SIGNATURE _____
	DATE <u>1</u> / <u>190</u>
	dd mm yy

SITE SURVEY LOG

(Continued)

Based upon available drawings, maintenance records, and discussions with housing management personnel, it was found that all of the houses are the same. This was one of three randomly chosen homes.

# ASBESTOS SURVEY DATA

0291

BLDG. NO.: 522  
 INSTALLATION: E3D

TASK TEAM MEMBERS  
STAN HULEWICZ  
ROBERT CYNCH

W.O. No. 2104-13-01  
 CLIENT: ARGONNE NATIONAL LAB

BLDG. NAME: NEW KATHIN FAMILY HSE

DATE (dd/mm/yy): 10/22/90

BLDG. DESCRIPTION: CAVEHART STGE

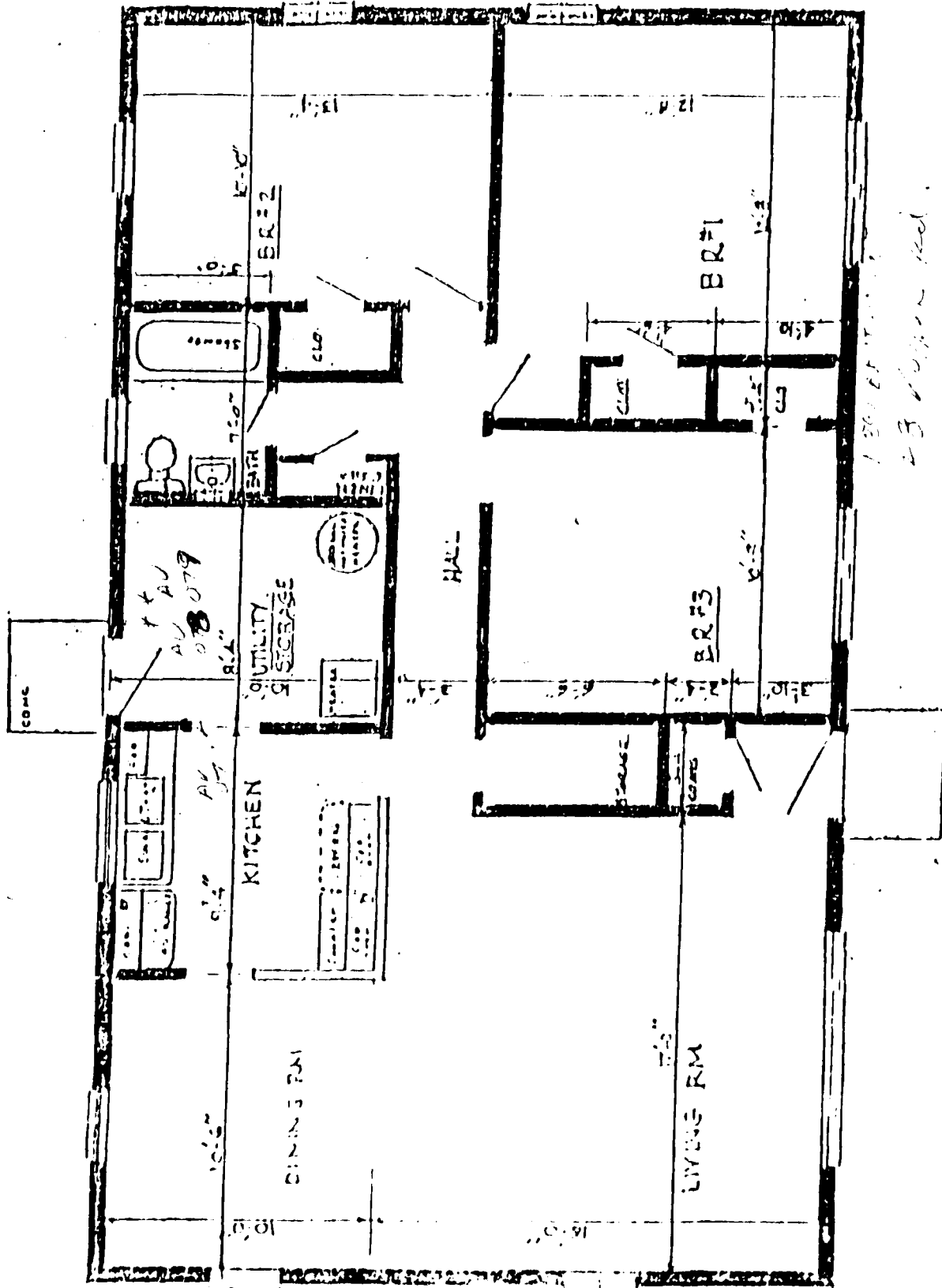
TIME ARRIVED: 2645

ITEM NO.	LAB SAMPLE NO.	BASE NO.	STATE	UNIT NO.	SAMPLE CODE	AREA	QUANTITY	PHOTO	E.A. FORM NO.	NOTES
1.	141101217-32	CT	URB	AFT		HALL	2100		102414	01
2.	141101218-32	CT	URB	AFT		BEDROOM	4125		102418	02
3.	141101219-32	CT	URB	AFT		<del>HALL</del> KITCHEN	15		102419	03
4.		-	-	-	-			-		
5.		-	-	-	-			-		
6.		-	-	-	-			-		
7.		-	-	-	-			-		
8.		-	-	-	-			-		
9.		-	-	-	-			-		
10.		-	-	-	-			-		
11.		-	-	-	-			-		
12.		-	-	-	-			-		

NOTE NO.	NOTES/REMARKS/COMMENTS/DETAILS/OTHER MATERIALS, QUANTITY, ETC.
01	12x12 brown and white speckled floor tile in all rooms except the bedrooms.
02	9x9 tan floor in bedroom and utility room.
03	9x9 white floor in rest of rooms in bedrooms.

TECHNICIAN SIGNATURE: Robert Cynch

QUALITY ASSURANCE SIGNATURE: \_\_\_\_\_



TYPICAL 3 BEDROOM CAPSHARE UNIT  
 LOCATED IN ANSONIA, FAIRFIELD,  
 SHELTON, ORANGE, NEW BRITAIN, CT.

DID YOU HAVE THIS PLAN



## SITE SURVEY LOG

CLIENT Argonne National Labs WESTON WORK ORDER NO. 2104-13-01  
 FACILITY/BLDG. NO. New Britain, CT C GREEN 37  
 FACILITY CONTACT Joe Madeni TELEPHONE NUMBER (203) 415-6931  
 TECHNICIAN NAME ROBERT LYNCH SIGNATURE Robert Lynch  
 TECHNICIAN NAME Stan Adams SIGNATURE Stan Adams  
 TIME ARRIVED 9:00 TIME DEPARTED 11:00 DATE 28 / 12 / 90  
 dd mm yy

## SPECIFIC SITE ACTIVITIES, COMMENTS, INTERVIEW RESULTS &amp; BRIEF DESCRIPTION OF FACILITY

This is a one story 3 bedroom Capehart style home, with white aluminum siding. The roofing shingles and felt are suspect. There is no pipe insulation present. The old floor vents have been sealed. There are 3 types of tile present.

There is ~~17~~ 9x9 white floor tile over the old floor vents in the bathroom. There is 9x12 brown and white speckled floor tile in all of the rooms except the bathroom and utility room. There is 9x9 tan floor tile in the bedrooms and the utility room.

## ACTIVITY CHECKLIST

Interviews Completed <u>✓</u>	Number of Samples <u>3</u>
Drawings Reviewed <u>✓</u>	Survey Form Completed <u>✓</u>
Drawings Attached <u>✓</u>	Site Log Completed <u>✓</u>
Visual Inspection <u>✓</u>	Chain-of-Custody Initiated <u>✓</u>
Number of Photos <u>✓</u>	Exp. Assess. Form Init. <u>✓</u>
Q.A. Check _____	SIGNATURE _____
	DATE <u>1</u> / <u>1</u> / <u>90</u> dd mm yy

SITE SURVEY LOG

(Continued)

Management, including drawings,  
 maintenance records, and discussion  
 with housing management personnel  
 it was determined that all of the  
 homes were the same. There is  
 one of three randomly chosen  
 homes.

# ASBESTOS SURVEY DATA

0295

BLDG. NO.: 1016  
 INSTALLATION: 1312

TASK TEAM MEMBERS  
Robert [unclear]  
[unclear]

W.O. No. 2104-13-01  
 CLIENT: ARGONNE NATIONAL LAB

BLDG. NAME: New Britain Laundry Bldg  
 BLDG. DESCRIPTION: 1st Flr 1st Flr

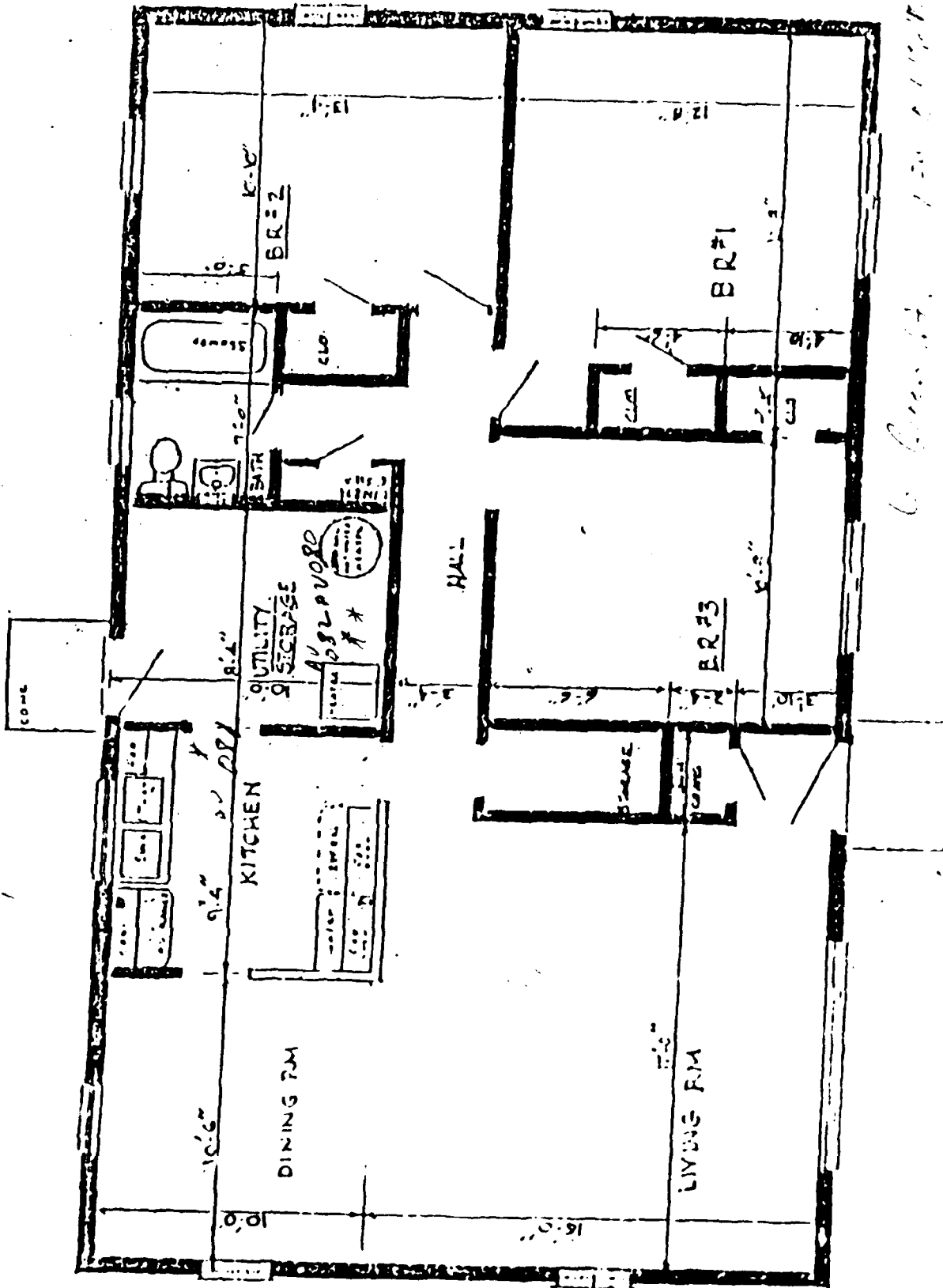
DATE (dd/mm/yy): 02/12/90  
 TIME ARRIVED: 1:30

ITEM NO.	LAB SAMPLE NO.	BASE NO.	STATE	UNIT NO.	SAMPLE CODE	AREA	QUANTITY	PHOTO	EA FORM NO.	NOTES
1.	<u>ANALYST-30-01</u>	<u>101</u>			<u>AFI</u>	<u>21VIEW 1 VIEW 1 S</u>	<u>1/10</u>			<u>01</u>
2.	<u>ANALYST-30-02</u>	<u>102</u>			<u>AFI</u>	<u>1142 1143 1144 1145 1146 1147 1148 1149</u>	<u>1/10</u>			<u>02</u>
3.	<u>ANALYST-30-03</u>	<u>103</u>			<u>AFI</u>	<u>1150 1151 1152 1153 1154 1155 1156 1157 1158 1159</u>	<u>1/10</u>			<u>03</u>
4.	<u>    </u>	<u>  </u>	<u>  </u>	<u>  </u>	<u>ALL</u>	<u>    </u>	<u>  </u>			<u>  </u>
5.	<u>    </u>	<u>  </u>	<u>  </u>	<u>  </u>	<u>ALL</u>	<u>    </u>	<u>  </u>			<u>  </u>
6.	<u>    </u>	<u>  </u>	<u>  </u>	<u>  </u>	<u>ALL</u>	<u>    </u>	<u>  </u>			<u>  </u>
7.	<u>    </u>	<u>  </u>	<u>  </u>	<u>  </u>	<u>ALL</u>	<u>    </u>	<u>  </u>			<u>  </u>
8.	<u>    </u>	<u>  </u>	<u>  </u>	<u>  </u>	<u>ALL</u>	<u>    </u>	<u>  </u>			<u>  </u>
9.	<u>    </u>	<u>  </u>	<u>  </u>	<u>  </u>	<u>ALL</u>	<u>    </u>	<u>  </u>			<u>  </u>
10.	<u>    </u>	<u>  </u>	<u>  </u>	<u>  </u>	<u>ALL</u>	<u>    </u>	<u>  </u>			<u>  </u>
11.	<u>    </u>	<u>  </u>	<u>  </u>	<u>  </u>	<u>ALL</u>	<u>    </u>	<u>  </u>			<u>  </u>
12.	<u>    </u>	<u>  </u>	<u>  </u>	<u>  </u>	<u>ALL</u>	<u>    </u>	<u>  </u>			<u>  </u>

NOTE NO.	NOTES/REMARKS/COMMENTS/DETAILS/OTHER MATERIALS, QUANTITY, ETC.
<u>01</u>	<u>11 7 white floor tile in utility room</u>
<u>02</u>	<u>1149 tan floor tile in <del>rest room</del> restrooms and utility room</u>
<u>03</u>	<u>1142 1143 1144 1145 1146 1147 1148 1149 floor tile in restrooms except restrooms</u>
<u>04</u>	<u>1149 tan floor tile in restrooms and utility room</u>

TECHNICIAN SIGNATURE: Robert [unclear]

QUALITY ASSURANCE SIGNATURE: \_\_\_\_\_



6-11-54 100-1111

TYPICAL 3 BEDROOM CABINETS UNIT  
 LOCATED IN ANSONIA, FAIRFIELD,  
 SHELTON, GRANGE, NEW BRITAIN, CT.

100-1111

SITE SURVEY LOG

CLIENT Argonne National Labs WESTON WORK ORDER NO. 2124-13-01  
 FACILITY BLDG. NO. NGN EAST 17 112 West Hill Ave  
 FACILITY CONTACT J.E. [unclear] TELEPHONE NUMBER [unclear]  
 TECHNICIAN NAME [unclear] SIGNATURE [unclear]  
 TECHNICIAN NAME [unclear] SIGNATURE [unclear]  
 TIME ARRIVED 9:10 TIME DEPARTED [unclear] DATE 2/28/92  
 dd mm yy

SPECIFIC SITE ACTIVITIES, COMMENTS, INTERVIEW RESULTS & BRIEF DESCRIPTION OF FACILITY

*[Handwritten notes describing site activities and facility details, including mentions of 'NGN East 17', '112 West Hill Ave', and 'interviews']*

ACTIVITY CHECKLIST

Interviews Completed 2 Number of Samples 2  
 Drawings Reviewed 1 Survey Form Completed 1  
 Drawings Attached 1 Site Log Completed 1  
 Visual Inspection 1 Chain-of-Custody Initiated 1  
 Number of Photos 1 Exp. Assess. Form Init. 1

Q.A. Check 1 SIGNATURE [unclear] DATE 2/28/92  
 dd mm yy



SITE SURVEY LOG

(Continued)

limited input available. Meetings,  
maintenance, etc., and discussions  
with housing management, and  
it was determined all of the homes  
are the same. This is  
one of three consistently chosen  
homes.

# ASBESTOS SURVEY DATA

0299

BLDG. NO.: 3112  
 INSTALLATION: C1312

TASK TEAM MEMBERS  
ROBERT LYNCH  
STAN FINLIFSON

W.O. No. 2104-13-01  
 CLIENT: ARGONNE NATIONAL LAB

BLDG. NAME: NEW BRITAIN FAMILY HSG  
 BLDG. DESCRIPTION: CORRECTOR STYLE

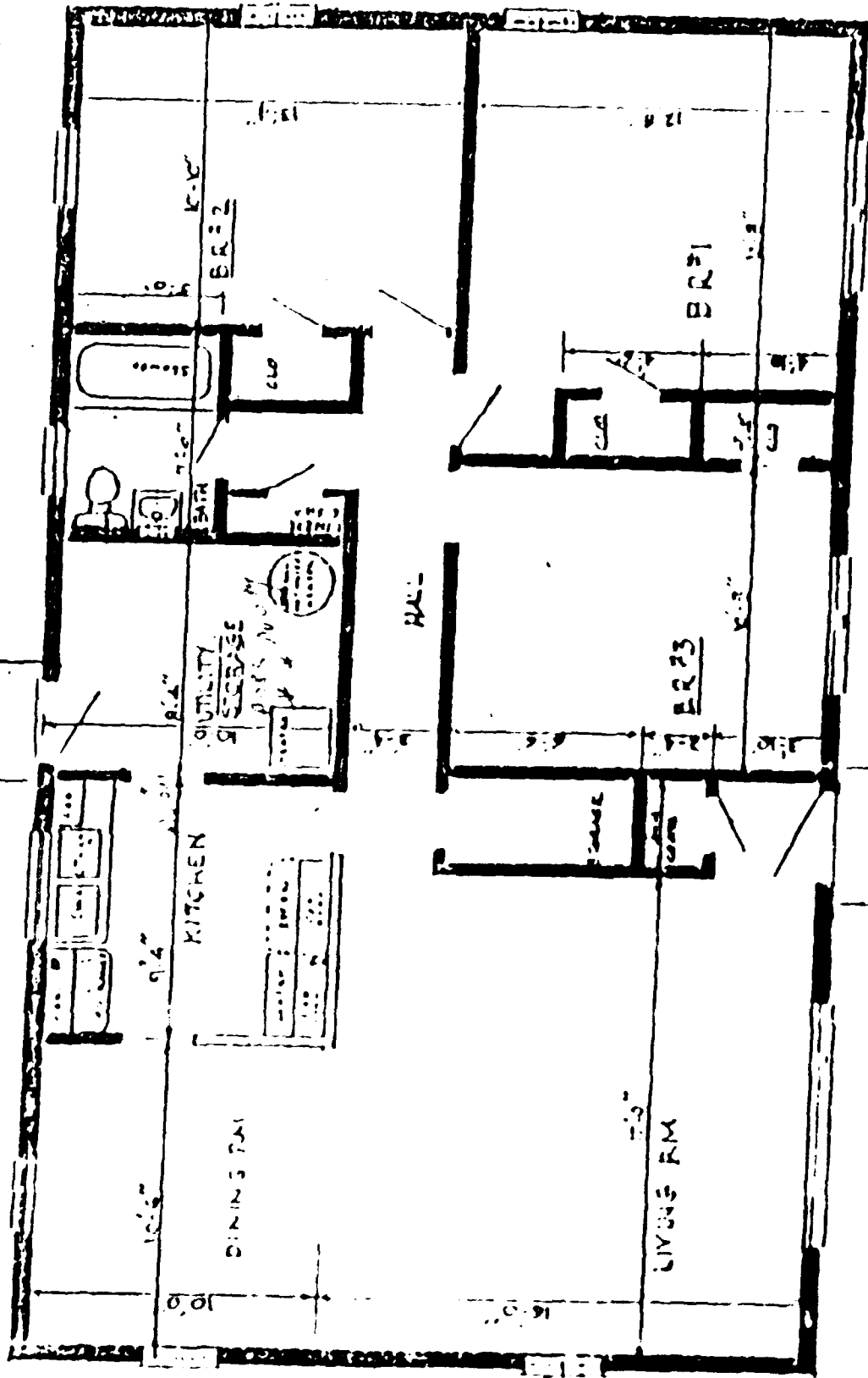
DATE (dd/mm/yy): 26/02/90  
 TIME ARRIVED: 0910

ITEM NO.	LAB SAMPLE NO.	BASE NO.	STATE	UNIT NO.	SAMPLE CODE	AREA	QUANTITY	PHOTO	E.A. FORM NO.	NOTES
1.	<u>HL003</u>	<u>312</u>	<u>CT</u>	<u>3112</u>	<u>AVT</u>	<u>COVERS WENTS</u>	<u>115</u>		<u>100014</u>	<u>C1</u>
2.	<u>HL004</u>	<u>312</u>	<u>CT</u>	<u>3112</u>	<u>AVT</u>	<u>SEDIMENT</u>	<u>475</u>		<u>100016</u>	<u>C2</u>
3.	<u>HL005</u>	<u>312</u>	<u>CT</u>	<u>3112</u>	<u>AVT</u>	<u>ALUMINUMS EXCEPT 100014</u>	<u>400</u>		<u>100018</u>	<u>C3</u>
4.	<u>    </u>	<u>-</u>	<u>CT</u>	<u>  </u>	<u>ALL</u>		<u>   </u>		<u>   </u>	<u> </u>
5.	<u>    </u>	<u>-</u>	<u>-</u>	<u>  </u>	<u>ALL</u>		<u>   </u>		<u>   </u>	<u> </u>
6.	<u>    </u>	<u>-</u>	<u>-</u>	<u>  </u>	<u>ALL</u>		<u>   </u>		<u>   </u>	<u> </u>
7.	<u>    </u>	<u>-</u>	<u>-</u>	<u>  </u>	<u>ALL</u>		<u>   </u>		<u>   </u>	<u> </u>
8.	<u>    </u>	<u>-</u>	<u>-</u>	<u>  </u>	<u>ALL</u>		<u>   </u>		<u>   </u>	<u> </u>
9.	<u>    </u>	<u>-</u>	<u>-</u>	<u>  </u>	<u>ALL</u>		<u>   </u>		<u>   </u>	<u> </u>
10.	<u>    </u>	<u>-</u>	<u>-</u>	<u>  </u>	<u>ALL</u>		<u>   </u>		<u>   </u>	<u> </u>
11.	<u>    </u>	<u>-</u>	<u>-</u>	<u>  </u>	<u>ALL</u>		<u>   </u>		<u>   </u>	<u> </u>
12.	<u>    </u>	<u>-</u>	<u>-</u>	<u>  </u>	<u>ALL</u>		<u>   </u>		<u>   </u>	<u> </u>

NOTE NO.	NOTES/REMARKS/COMMENTS/DETAILS/OTHER MATERIALS, QUANTITY, ETC.
<u>C1</u>	<u>9x9 white floor tile over old floor wents.</u>
<u>C2</u>	<u>9x9 tan floor tile in bedroom and utility room.</u>
<u>C3</u>	<u>12x12 brown and white speckled floor tile - all rooms except bedrooms and utility room.</u>

TECHNICIAN SIGNATURE: Robert Lynch

QUALITY ASSURANCE SIGNATURE: \_\_\_\_\_



TYPICAL 3 BED ROOM APARTMENT UNIT  
 LOCATED IN AMERICA, PALMER  
 SHELTON, CRANES, NEW BRITAIN, CT.

APPENDIX A 2 LABORATORY DATA

BULK SAMPLE ANALYSIS SUMMARY

Weston W.O. No. 2104-13-01-0000

Sample Number AV077 through Sample AV085

AO LAB ID NO	CLIENT/CLIENT ID	LOCATION	MATERIAL DESCRIPTION*	DATE RECEIVED	RESULTS**					LAYERS	ANALYST
					CH	AM	CR	OT	TL		
AV077	32-CT-028-AFT	ALLRMS	NF, BR, 12x12 FT	02/22/90	ND	ND	ND	ND	ND	No	06071
AV078	32-CT-028-AFT	BEDRMS	NF, TN, 9x9 FT	02/22/90	10	ND	ND	ND	10	No	06071
AV079	32-CT-028-AFT	OVERVE	NF, WH, 9x9 FT	02/22/90	ND	ND	ND	ND	ND	No	06071
AV080	32-CT-006-AFT	OVERVE	NF, WH, 9x9 FT	02/22/90	ND	ND	ND	ND	ND	No	06071
AV081	32-CT-006-AFT	ALLRMS	NF, BR, 12x12 FT	02/22/90	ND	ND	ND	ND	ND	No	06071
AV082	32-CT-006-AFT	BEDRMS	NF, TN, 9x9 FT	02/22/90	10	ND	ND	ND	10	No	06071
AV083	32-CT-312-AFT	OVERVE	NF, WH, 9x9 FT	02/22/90	ND	ND	ND	ND	ND	No	06071
AV084	32-CT-312-AFT	BEDRM	NF, TN, 9x9 FT	02/22/90	12	ND	ND	ND	12	Yes	06071
AV085	32-CT-312-AFT	ALLRMS	NF, BR, 12x12 FT	02/22/90	ND	ND	ND	ND	ND	No	06071

MATERIAL DESCRIPTION	FRIABLE <sup>1</sup>	COLOR <sup>2</sup>	SYSTEM <sup>3</sup>
Friable <sup>1</sup> , Color <sup>2</sup> , System <sup>3</sup> , Type	F - Friable NF - Non-Friable	BK - Black BL - Blue BR - Brown GR - Green GY - Gray RD - Red TN - Tan WH - White YL - Yellow	CHW - Chilled Water DOM - Domestic Water HHW - Heating Hot Water STM - Steam UNK - Unknown
RESULTS			
CH - Chrysotile AM - Amosite CR - Crocidolite	OT - Other TL - Total		

Upon issue, this report may be reproduced only in full.

All analyses are performed in accordance with the methods set forth in U.S. EPA 600/M4-82-020, as amended. Weston's Optical Microscopy Laboratory is accredited by the National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program for asbestos fiber analysis (Laboratory Code 1254).



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 1635 PUMPHREY AVE  
 AUBURN, AL 36830  
 PHONE (205) 826-6100  
 FAX (205) 826-8232

**Transmission Electron Microscopy  
 Asbestos Summary Report**

Client: Argonne National Laboratories      Weston W.O. No.: 2104-13-01-0000

Sample Type: Floor Tiles      Sampling Location: New Britain

**QUALITATIVE ANALYSIS**

FLOOR TILES: A 0.5 to 2.0 gram portion of each floor tile sample was ultrasonically disaggregated in four milliliters of deionized, 0.2  $\mu$ m membrane filtered water. After the coarse fraction settled, a drop of the suspended, clay-sized fraction was placed on a Formvar coated 200 mesh Cu TEM grid and allowed to dry. The grid was carbon coated for thermal stability in the electron beam and examined with a Philips CM12 transmission electron microscope operating at 120 kilovolts accelerating voltage.

**ANALYTICAL RESULTS**

SAMPLE IDENTIFICATION

RESULTS

AV077-32-CT-028-AFT	Negative
AV079-32-CT-028-AFT	Positive
AV080-32-CT-006-AFT	Negative
AV081-32-CT-006-AFT	Positive
AV083-32-CT-312-AFT	Positive
AV085-32-CT-312-AFT	Positive

*Darryl Rayfield*

(Approved for Transmittal)

*3/16/90*

(Date)

\* This test report relates only to the specific items tested.

\*\* These sample results may only be reproduced in full, and are valid only if approved for transmittal.