

AD-A227 822

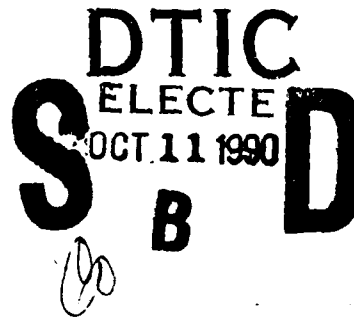
U S A T H A M A

U.S. Army Toxic and Hazardous Materials Agency

Report of Sampling and Analysis Results

Ansonia Army Housing Units
Ansonia, Connecticut

August 1990



Prepared for:

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

Prepared by:



DISTRIBUTION STATEMENT A

Approved for public release;
Distribution Unlimited

Under the supervision of:



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

90

10 11 007



NOTICE

The views, opinions, and/or findings contained in this report are those of the author(s) and should not be construed as official Department of the Army position, policy, or decision unless so designated by other documentation.

The use of trade names in this report does not constitute an official endorsement or approval of the use of such commercial products. This report may not be cited for purposes of advertisement.

**Report of Sampling and
Analysis Results
Ansonia Army Housing Units
Ansonia, Connecticut**

August 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**

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

REPORT SECURITY CLASSIFICATION UNCLASSIFIED		1b. RESTRICTIVE MARKINGS	
SECURITY CLASSIFICATION AUTHORITY		3. DISTRIBUTION / AVAILABILITY OF REPORT Distribution Unlimited	
DECLASSIFICATION / DOWNGRADING SCHEDULE			
PERFORMING ORGANIZATION REPORT NUMBER(S)		5. MONITORING ORGANIZATION REPORT NUMBER(S) CETHA-BC-CR-90111	
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)	
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	
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	
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.
TITLE (Include Security Classification) UNCLASSIFIED Report of Sampling and Analysis Results: Ansonia Army Housing Units Ansonia, Connecticut			
PERSONAL AUTHOR(S)			
TYPE OF REPORT Final	13b. TIME COVERED FROM _____ TO _____	14. DATE OF REPORT (Year, Month, Day) August 1990	15. PAGE COUNT
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			
COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP	SUB-GROUP	
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 Ansonia, 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.			
DISTRIBUTION / AVAILABILITY OF ABSTRACT ☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS		21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED	
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
ANSONIA, CONNECTICUT**

TABLE OF CONTENTS

Page

	EXECUTIVE SUMMARY	ii
SECTION 1.	INTRODUCTION	1
	1.1 PURPOSE AND SCOPE	1
	1.2 SITE DESCRIPTION	1
	1.3 REPORT ORGANIZATION	2
SECTION 2.	ASBESTOS-CONTAINING MATERIALS	3
	2.1 SAMPLING RATIONALE	3
	2.2 FIELD ACTIVITIES AND OBSERVATIONS	3
	2.3 LABORATORY PROCEDURES AND RESULTS	4
	2.4 CONCLUSIONS AND RECOMMENDATIONS	9
SECTION 3.	UNDERGROUND STORAGE TANKS	10
	3.1 SAMPLING RATIONALE	10
	3.2 SAMPLING METHODOLOGY AND OBSERVATIONS	10
	3.3 LABORATORY PROCEDURES AND RESULTS	11
	3.4 CONCLUSIONS AND RECOMMENDATIONS	11
SECTION 4.	SUMMARY OF FINDINGS	16

LIST OF TABLES

TABLE 2.1	BULK SAMPLE SUMMARY, ANSONIA FAMILY HOUSING	7
TABLE 2.2	ASBESTOS CONTAINING MATERIALS, ANSONIA FAMILY HOUSING	8
TABLE 3.1	SOIL CHARACTERISTICS, HOUSING UNIT NO. 9	12
TABLE 3.2	SUMMARY OF LABORATORY RESULTS FOR SOIL SAMPLES HOUSING UNIT NO. 09	13

LIST OF APPENDICES

APPENDIX A.	SUPPORTING DATA - ASBESTOS-CONTAINING MATERIALS
	A.1 FIELD DATA
	A.2 LABORATORY DATA
APPENDIX B.	SUPPORTING DATA - UNDERGROUND STORAGE TANKS
	B.1 FIELD DATA
	B.2 LABORATORY DATA

EXECUTIVE SUMMARY

The U.S. Army family housing units (FHUs) at Ansonia, 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 14 February to investigate the possible presence of asbestos-containing materials (ACM). One underground storage tank (UST) location was investigated to determine if fuel oil has been released into the environment.

The ANL Draft Sampling and Analysis Plan, Revision 1 (SAP) specified identification and sampling of 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 all the units were all unoccupied and in similar condition. Based on this assessment, the housing units chosen, Nos. 003, 008, and 009, were considered to be representative of the other 13 units.

Twelve samples of floor tile and vinyl sheeting, and eight samples of pipe run and fitting insulation were collected by WESTON from the three units and analyzed. These analyses revealed that asbestos is present in floor tile and vinyl sheeting, and in pipe insulation at all three housing units examined. Asbestos was quantified at 4% or greater by polarized light microscopy (PLM) in three samples of the vinyl floor covering and was qualitatively identified in six other samples by Transmission Electron Microscopy (TEM). Asbestos was found by PLM in all eight samples of the pipe run and fitting insulation. 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 most significant risk of asbestos exposure to occupants is presented by the friable asbestos-containing pipe run and fitting insulation. All damaged material should be repaired or removed in a planned, properly executed program, as soon as practical. If repairs are made rather than removal, an Operations and Maintenance (O&M) Plan should be developed and implemented. This plan must describe the locations of all known ACM, procedures for their maintenance, repair and removal, and personnel responsible for its implementation. It must remain in place until such time as all ACM is removed from the facility.

- The vinyl floor coverings pose no significant risk as long as they are in good condition and are not damaged by excessive wear or misuse. The materials should be left in place and managed under an O&M program which describes procedures for the regular inspection of the floor coverings and the removal and replacement of any that become damaged.
- Other suspect materials identified but not sampled, including roofing shingles and felt, should be assumed to contain asbestos and managed in place under an O&M program until they are either removed or determined to contain no asbestos.

The UST at Unit 009 was located and sampling was attempted in accordance with the ANL SAP. Three exploratory soil borings were attempted at the locations recommended, but bedrock was encountered at a depth of approximately two feet in each case. No soil samples were collected for laboratory analysis from these borings, since the depth of penetration was too shallow to provide meaningful data. Therefore, a fourth boring was drilled very near the UST to a depth of 6.7 feet. Three soil samples were collected for laboratory analysis. Field screening of the core samples using a HNU brand detector indicated that hydrocarbons were present in the soils. Total petroleum hydrocarbon (TPH) analyses performed at the WESTON laboratory indicated a maximum concentration of 7,400 mg/kg in the soil at the 4.0 to 5.7 foot interval.

Based on the strata encountered during the soil explorations, it appears that the Ansonia site is underlain by bedrock at a shallow depth. The UST appears to be situated in a natural or man-made depression in this bedrock. The TPH levels found in the soil samples from within the bedrock depression indicate that significant contamination has occurred due to spills or leaks in the tank.

The UST examined should be removed in accordance with applicable state and Federal regulations. Since the soils surrounding the tank appear to contain TPH levels that will require action, the soil remediation should be done at the time that the tanks are removed. The extent of the soil contamination cannot be determined, due to the limited nature of this assessment. However, it is our experience that remediation of contamination caused by small tanks such as this one can be performed effectively at the time of tank removal.

Accession For	
NTIS GRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

SECTION 1. INTRODUCTION

**SAMPLING AND ANALYSIS AT THE U.S. ARMY
FAMILY HOUSING UNIT (FHU) PROPERTY
ANSONIA, 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 Ansonia, 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 properties which are 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 Ansonia, Connecticut consists of 16 single-family housing units located on 4.46 acres, situated along Hughes Circle. The areas surrounding the FHU property include residential properties to the south and woodlands to the north, east, and west.

The units at the FHU property are three-bedroom, single-family dwellings built in 1958 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 are embedded in the concrete slab, which was covered with vinyl floor tile and vinyl sheeting. The units have pitched roofs surfaced with asphalt shingles and 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 reports pertaining to asbestos are provided in Appendices A.1 and A.2. Section 3 contains a description of the underground storage tank (UST) sampling activities and results of laboratory analyses. Copies of field data and laboratory reports for the UST investigations are included in Appendices B.1 and B.2 respectively. Section 4 is a summation of findings for the site.

SECTION 2. ASBESTOS-CONTAINING MATERIALS

SECTION 2. ASBESTOS-CONTAINING MATERIALS

WESTON personnel inspected three of the 16 "Capehart" units at the Ansonia family housing facility on 14 February 1990 for the presence of suspected ACM. Pipe run and fitting insulation, floor tile, and vinyl sheeting were the only suspect materials found within the buildings that were 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 Ansonia required sampling of the following materials, if present:

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

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. Twelve samples of vinyl floor tile and sheeting, and eight samples of pipe run and fitting insulation were collected at the facility. No dust samples were 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.

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 discussions with Directorate of Engineering and Housing (DEH) personnel, it was determined that all of the units at the Ansonia FHU were similar in condition. Units 003, 008, and 009 were chosen by the WESTON field team leader as representative units to be sampled.

2.2 FIELD ACTIVITIES AND OBSERVATIONS

Each of the units was inspected to determine if suspect materials were present. Samples of the pipe run and fitting insulation were retrieved using disposable coring devices with one-half inch diameter tubes, designed such that the coring devices also serve as the sampling containers. Before the coring tool was inserted, the materials to be sampled were moistened to prevent asbestos fibers from becoming airborne. The coring devices were placed in their outer sample containers and secured by a tight fitting lid. These containers were labeled with sample numbers, and shipped to the lab. The sampling tools were wiped clean with a damp cloth and all debris resulting from the sampling activities was collected and placed into plastic bags. The small bore holes were sealed with an encapsulant.

Two samples of pipe run insulation were taken in each of the three units and one sample of pipe fitting insulation was taken in two of the three units. The pipe run and fitting insulation is friable, as defined by EPA regulations, meaning that it can be crushed, crumbled, pulverized, or otherwise reduced to a powder using hand pressure. Friable ACM is considered to be more hazardous than non-friable ACM since it is much more likely to release asbestos fibers. Because of its friability and instances of damage, the pipe run insulation is considered to be the most hazardous type of ACM in the Ansonia FHU.

Three colors, gray, brown, and white, of 9" x 9" vinyl floor tile, brown and white speckled of 12" x 12" vinyl floor tile, and brown vinyl sheeting were sampled. All three units contained brown vinyl sheeting, brown and white speckled 12" x 12" vinyl floor tile, and white 9" x 9" vinyl floor tile. Units 008 and 009 contained gray 9" x 9" vinyl floor tile, and Unit 003 contained brown 9" x 9" vinyl floor tile. One sample was taken of each of the floor tile found 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 covering 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 covering 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 EPA's "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.

Floor tile and vinyl sheeting 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 contaminate samples, 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, 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 (um) in diameter and reliable detection and quantification of fibers smaller than 1 um 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 therefore to 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 estimated asbestos content is often used 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 was detected 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 Ansonia 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.

All eight pipe run and fitting insulation samples were found to contain the chrysotile type of asbestos in a friable form at concentrations ranging from 1% to 65% using the PLM technique for analysis. Based on these observations, the pipe run and fitting insulation should be considered to contain asbestos.

Three of the vinyl floor covering samples were found by PLM to contain asbestos at or greater than 4%. Six samples for which no asbestos was reported following PLM analysis were found to contain asbestos fibers by the TEM procedure. While this result is qualitative in nature, consideration of the process through which floor coverings were manufactured leads to the conclusion that this material should be treated as ACM. Thus, nine of the 12 floor covering samples were found to contain asbestos. The 13 units not inspected should be considered to have ACM present in the floor tiles and vinyl sheeting unless additional sampling and analysis is performed and shows that no asbestos is present in these units.

TABLE 2.1
BULK SAMPLE SUMMARY
ANSONIA FAMILY HOUSING

SAMPLE IDENTIFICATION	MATERIAL TYPE	LOCATION	ASBESTOS CONTENT PLM ANALYSIS	CONFIRMATION TEM ANALYSIS
=====				
Unit 008				

AP582-29-CT-008-API	Pipe run insulation	Utility room	Chrysotile, 12%	
AP583-29-CT-008-API	Pipe run insulation	Utility room	Chrysotile, 4%	
AP584-29-CT-008-AFT	Speckled 12" x 12" floor tile	Kitchen	None Detected	Positive
AP585-29-CT-008-AFT	Gray 9" x 9" floor tile	All rooms except kitchen	Chrysotile, 8%	
AP586-29-CT-008-AFT	Brown vinyl sheeting	Bath	None Detected	Negative
AP587-29-CT-008-AFT	White 9" x 9" floor tile	Over floor vents	None Detected	Positive
Unit 009				

AP588-29-CT-009-API	Pipe fitting insulation	Utility room	Chrysotile, 60%	
AP589-29-CT-009-API	Pipe run insulation	Utility room	Chrysotile, 1%	
AP590-29-CT-009-API	Pipe run insulation	Utility room	Chrysotile, 10%	
AP591-29-CT-009-AFT	White 9" x 9" floor tile	Over floor vents	None Detected	Positive
AP592-29-CT-009-AFT	Brown vinyl sheeting	Bath	None Detected	Positive
AP593-29-CT-009-AFT	Speckled 12" x 12" floor tile	Kitchen	None Detected	Positive
AP594-29-CT-009-AFT	Gray 9" x 9" floor tile	All rooms except kitchen	Chrysotile, 4%	
Unit 003				

AP595-29-CT-003-API	Pipe fitting insulation	Utility room	Chrysotile, 65%	
AP596-29-CT-003-API	Pipe run insulation	Utility room	Chrysotile, 4%	
AP597-29-CT-003-API	Pipe run insulation	Utility room	Chrysotile, 10%	
AP598-29-CT-003-AFT	Brown vinyl sheeting	Bath	None Detected	Negative
AP599-29-CT-003-AFT	Speckled 12" x 12" floor tile	Kitchen	None Detected	Positive
AV000-29-CT-003-AFT	Brown 9" x 9" floor tile	All rooms except kitchen	Chrysotile, 7%	
AV001-29-CT-003-AFT	White 9" x 9" floor tile	Over floor vents	None Detected	Negative

TABLE 2.2
ASBESTOS CONTAINING MATERIALS
ANSONIA FAMILY HOUSING

SAMPLE IDENTIFICATION	MATERIAL TYPE	LOCATION	QUANTITY	UNITS
=====				
Unit 008				

AP582-29-CT-008-API	Pipe run insulation	Utility room	3	Linear ft
AP583-29-CT-008-API	Pipe run insulation	Utility room	N/A	
AP584-29-CT-008-AFT	Speckled 12" x 12" floor tile	Kitchen	75	Square ft
AP585-29-CT-008-AFT	Gray 9" x 9" floor tile	Kitchen	780	Square ft
AP587-29-CT-008-AFT	White 9" x 9" floor tile	Over floor vents	15	Square ft
Unit 009				

AP588-29-CT-009-API	Pipe fitting insulation	Utility room	1	Fitting
AP589-29-CT-009-API	Pipe run insulation	Utility room	10	Linear ft
AP590-29-CT-009-API	Pipe run insulation	Utility room	N/A	
AP591-29-CT-009-AFT	White 9" x 9" floor tile	Over floor vents	15	Square ft
AP592-29-CT-009-AFT	Brown vinyl sheeting	Bath	20	Square ft
AP593-29-CT-009-AFT	Speckled 12" x 12" floor tile	Kitchen	75	Square ft
AP594-29-CT-009-AFT	Gray 9" x 9" floor tile	All rooms except kitchen	780	Square ft
Unit 003				

AP595-29-CT-003-API	Pipe fitting insulation	Utility room	1	Fitting
AP596-29-CT-003-API	Pipe run insulation	Utility room	10	Linear ft
AP597-29-CT-003-API	Pipe run insulation	Utility room	N/A	Square ft
AP599-29-CT-003-AFT	Speckled 12" x 12" floor tile	Kitchen	75	Square ft
AV000-29-CT-003-AFT	Brown 9" x 9" floor tile	All rooms except kitchen	780	Square ft

N/A = Included in previous quantity for sample of same type.

2.4 CONCLUSIONS AND RECOMMENDATIONS

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

The insulation should be remediated in those units where asbestos-containing pipe run insulation and fitting insulation is damaged, by repairing damaged areas and encapsulating the friable materials or by complete removal, prior to realignment. If repairs are made, rather than removal, an Operations and Maintenance (O&M) program should be developed and implemented. An O&M program 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.

All of the asbestos-containing pipe run insulation must be removed prior to a planned renovation of the plumbing system or demolition of the units.

The vinyl floor coverings 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 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 O&M program until they must be removed during a planned renovation of the units or another activity that may disturb them. The vinyl floor tiles should then be removed in accordance with regulations applicable at the time.

Other suspect materials noted were roof shingles and felt, which should be managed under an O&M program. 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.

SECTION 3. UNDERGROUND STORAGE TANKS

SECTION 3. UNDERGROUND STORAGE TANKS

WESTON personnel conducted a site visit at the Ansonia, Connecticut Family Housing unit (FHU) on 20 February 1990, accompanied by Mr. Al Yagovane, the DEH representative. One purpose of the inspection was to locate a buried UST which was documented in the ANL SAP. The UST, used for storage of heating oil, was identified as a potential area of petroleum hydrocarbon contamination. Prior to this visit, on 12 February 1990, WESTON had contacted the local utilities "Call Before You Dig" hotline to determine the location of any buried utilities such as telephone and electrical cables or water supply and sewer lines, verify that they would not be affected by the planned activities, and obtain any clearances necessary prior to commencement of drilling activities.

The primary objective of the SAP was to provide additional information on the Ansonia site, supplementing that presented in the enhanced PA conducted by ANL for USATHAMA. A selective soil sampling and analytical evaluation was performed in accordance with the SAP to determine if petroleum hydrocarbon contaminants are present in the specific area of concern. The SAP was not designed or intended to characterize the movement, concentration, or extent of contamination at the site.

3.1 SAMPLING RATIONALE

The rationale for sampling the UST at the Ansonia, Connecticut site was identified by ANL in the draft FHU SAP. The location of the UST was identified by Mr. Yagovane during the site reconnaissance. This location was confirmed by the residents of the housing unit, who also identified it as an area where oil seepage was observed on the ground surface during wet periods. Mr. Yagovane reported that the UST had been "Closed in Place," by removing its contents and filling it with a sandy material in accordance with state and Federal requirements.

The UST is situated in the back yard of FHU Unit 9, approximately 10 feet from the rear of the housing, and midway between the rear door and a newly constructed above-ground storage tank. The yard measures approximately 22 by 26 feet and is surrounded by a fence. As reported in the SAP, housing unit No. 9 was the only unit at this property which is suspected to have had furnace-oil leakage from the underground tank.

Three soil borings, SB-01, SB-02, and SB-03, were to be drilled on all three sides of the UST, away from the housing unit wall, based on the specifications presented in the ANL SAP. Each boring was spaced at a distance from the UST center (as established by the DEH representative) equal to the estimated UST length. Soil samples were to be collected at depths of 2.0-3.5 feet, 5.0-6.5 feet, 8.0-9.5 feet, and at a depth 3 feet lower than the UST bottom. If stratified sediments were encountered, samples were taken within the respective soil horizons.

3.2 SAMPLING METHODOLOGY AND OBSERVATIONS

A WESTON field geologist conducted the drilling and collected the soil samples. Each boring was advanced from the ground surface using a "Little Beaver" power auger. Soil samples were recovered using a two-inch diameter 18-inch long split spoon sampler. The split spoon sampler was driven at the bottom of the open borehole and penetrated to a maximum of 1-1/2 foot per sample. Upon retrieval, the soil sample was removed from the split spoon sampler, screened for any organic vapors using an HNU photo-ionization

detector (PID), apportioned into two 125 milliliter glass sample containers, and sealed with screw-on lids. The containers were labeled with the standard USATHAMA sample identification number, date, and analyte. Each lid was secured by a custody seal, and the sample was placed on ice in an insulated cooler.

Sampling information was entered into the field logbook by the WESTON project geologist, who described each soil sample, noting texture, consistency, color, moisture content and any visible staining or odor observed. Each split-spoon sampler was decontaminated prior to the start of sampling and following each usage using an Alconox® and water solution, followed by a rinse of distilled water. Each borehole was backfilled upon completion with its cuttings and the area was restored to the original condition.

Soil borings SB-01, SB-02, and SB-03 encountered shallow bedrock consistently at a depth of 2.0 feet. This prevented the collection of soil samples from the desired locations and necessitated a fourth soil boring, SB-04. The bedrock was composed of foliated green schist with assemblages of platy minerals, muscovite and chlorite. This was evidenced by the drill cuttings as well as in a bedrock outcropping located approximately 100 feet up the slope at the rear of the housing. The thin veneer of residual soil which covered the bedrock surface was composed of a dark brown, dry sandy loam.

Soil boring SB-04 was drilled between the UST and the rear of the house very near the UST. This boring was drilled to a depth of 6.7 feet until refusal at the bedrock surface. The soils encountered in SB-04 were consistent with those described above, with the noted exception of black staining and strong petroleum odors originating from the borehole. Water was encountered at 3.5 feet and a light oily sheen was observed on the mud from the drill cuttings. A summary of the sample I.D. numbers, depth intervals, and general soil descriptions is presented in Table 3.1.

3.3 LABORATORY PROCEDURES AND RESULTS

WESTON was able to collect only three soil samples for laboratory analysis due to the shallow bedrock at this site. The soil samples were analyzed for total petroleum hydrocarbons (TPH) by WESTON's analytical laboratory, located in Lionville, Pennsylvania. EPA Standard Method 9071 from SW-846 was used for solvent extraction of the fuel oil residuals from the soil matrix. The extract containing any hydrocarbons was then analyzed by infrared techniques found in EPA Method 418.1 (USEPA 600/4-79-020) for determination of oil and grease.

The laboratory reports for the soil boring samples are listed in Table 3.2 and copies are included in Appendix B-2. The soils collected from boring SB-04 show significant concentrations of petroleum hydrocarbons ranging from 72 mg/kg (ppm) at 2.5 to 4.0 feet, to 7,400 ppm at 4.0 to 5.7 feet, and back down to 1,100 ppm at 5.7 to 6.7 feet. However, this level in the deepest sample may have been elevated by materials "carried down" from the 4.0 to 5.7 foot interval.

3.4 CONCLUSIONS AND RECOMMENDATIONS

The conclusions presented below are based upon the information gathered by WESTON during the site investigation, including observations, analytical results for soils, and interviews with the residents and DEH representatives.

TABLE 3.1. SOIL CHARACTERISTICS
HOUSING UNIT NO. 9

Soil Boring	Sample I.D. Number	Depth Interval (ft)	General Soil Description
Soil Borings Number 1, 2, and 3			
SB-01	*	0 - 2.0	Sandy loam, dark brown to gray grading to a weathered green
SB-02	*	0 - 2.0	Micaceous schist dry, competent rock (schist) encountered consistently at 2.0 feet below surface. (Chatter on power auger).
SB-03	*	0 - 2.0	
Soil Boring Number 4			
SB-04	29-CT 09-SST-04-01	2.5 - 4.0	Sandy Silt, lt. brown to gray: little frag. green schist; wet a 3.5' slight odor and sheen on mud.
SB-04	29-CT-09-SST-04-02	4.0 - 5.7	Same with some black staining. Strong petroleum odor, wet.
SB-04	29-CT-09-SST-04-03	5.7 - 6.7	Sandy weathered schist, wet (refusal at 6.7 feet).

*No sample collected, due to shallow bedrock encountered.

Note: Sample Identification

29 - Site Name (Ansonia)
SST - Soil, Storage Tank
CT - Connecticut
04 - Soil Boring No.
09 - Housing Unit
01 - Soil Sample Number

TABLE 3.2. SUMMARY OF LABORATORY RESULTS FOR SOIL SAMPLES
HOUSING UNIT NO. 09

SAMPLE I.D.	DEPTH	PETROLEUM HYDROCARBONS (mg/kg)
29-CT-09-SST-04-01	2.5 - 4.0	72
29-CT-09-SST-04-02	4.0 - 5.7	7400
29-CT-09-SST-04-03	5.7 - 6.7	1100

Note: Sample Identification Key

13 - Site name (Milford)	SST - Soil, Storage Tank
CT - Connecticut	02-01 - Soil boring, Soil Sample Number
16 - Housing Unit	

* J represents an estimated concentration value that is present below the quantitation limit.

The UST was reported to have been "permanently closed" in place. This included removal of all contents and filling the tank with a sandy soil mixture. These procedures conform with the Code of Federal Regulation, 40 CFR Part 280 UST, Technical Requirements.

Contamination related to the UST fuel oil once stored in the tank was found at significant levels in soil boring SB-04, immediately adjacent to the UST. A maximum contamination level of 7,400 mg/kg of petroleum hydrocarbons was detected in the soil sample from the 4.0 to 5.7 feet depth interval.

Oil appears to be present in the interstitial pore spaces within the soils, based upon observations by the residents of an occasional oil sheen on the ground surface during periods of heavy precipitation. An oil sheen was also observed on the drill cutting mud by the WESTON field crew. Saturation of this shallow zone during wet periods apparently causes the light fuel oil to float to the surface.

Based upon the shallow depth to the bedrock, approximately two feet in SB-01, SB-02, and SB-03, and an assumed tank width of approximately 30 inches for a 275 gallon UST lying on its side, it appears that the UST resides in a depression in the bedrock. This depression is a possible sink for the fuel oil, if it is leaking or has leaked from the UST. This assumption cannot be confirmed until the tank is removed.

Although no specific statutory standards for petroleum hydrocarbons in soils exist in the State of Connecticut, the Department of Environmental Protection (DEP) has established criteria to provide general guidance. Action levels call for soil remediation on a site specific basis at contamination levels as low as 100 mg/kg for petroleum hydrocarbons in soils. According to the DEP Hazardous Materials Management Unit, these action levels are established based upon the groundwater standards generally set forth by the State Water Enforcement Bureau, Groundwater Section.

For comparison, the New Jersey DEP and other states have also established similar "action levels" for petroleum hydrocarbons of 100 mg/kg in soils. Based on the concentration of petroleum hydrocarbons present in the vicinity of the UST at Housing Unit No. 9, further remediation is required. The actual extent of possible soil contamination around the UST cannot be ascertained until the UST is excavated. The following steps are recommended to further investigate and remediate the site:

- Determine if the UST contains residual liquids or solids, prior to excavation, and, if present, pump out and dispose of any remaining materials.
- Excavate and remove the UST, segregating any obviously contaminated soils encountered during excavation.
- Inspect the open excavation after the UST is removed. Soils visibly contaminated or exhibiting high organic vapor readings on field instruments should be excavated to the water table and stored for disposal in a secure landfill. If extensive soil contamination or free product is found around the UST, alternate remediation procedures should be evaluated, based on the quantity and extent of contamination.
- Analyze the underlying soils for metals and flammability to characterize the soils as generally required by waste disposal firms and aid in the selection of an appropriate disposal facility. Sample soils at the boundaries of the excavation, and analyze for total petroleum hydrocarbons.

- Pump the ground water, if a layer of fuel oil is discovered floating on the water during UST removal, to an oil/water separator for recovery of any remaining free organics and to pretreat the water in preparation for disposal.

SECTION 4. SUMMARY OF FINDINGS

SECTION 4. SUMMARY OF FINDINGS

Pipe insulation, vinyl floor tile, and vinyl sheeting were the only materials found in the three units examined at the Ansonia facility that were suspected to possibly contain asbestos. Several different types and colors of vinyl floor tile and vinyl sheeting were observed during the examination, and all were generally in good condition. Pipe insulation, found on the water supply lines, showed some signs of damage that may need to be repaired. The floor vents that were once associated with the heating systems of these units had been permanently sealed by filling them with concrete and covering the surface with floor tile. The exteriors of the units were covered with vinyl siding.

Friable asbestos was determined to be present in the pipe run and pipe fitting insulation at the Ansonia FHU property. The asbestos content was found to range from 1% to 65% in this material. In addition, three samples of floor tile were found by PLM to contain more than 1% asbestos, and asbestos was identified by TEM in six other samples of vinyl floor coverings collected in the three units examined. These floor coverings were not significantly damaged, and are considered by EPA regulations to be non-friable. Other suspect materials noted included roofing shingles and felt.

The friable asbestos-containing pipe insulation should be removed from the facilities or repaired and encapsulated to prevent future damage that may result in a fiber release. The asbestos-containing floor tiles and other suspect materials do not require immediate action, since they are in good condition. However, their condition must be monitored and remedial action implemented in the event that they deteriorate or are damaged. They may have to be removed prior to demolition or renovation of the facilities. An O&M plan should be developed and implemented if ACM is left in place in the units, to aid in the proper management of this remaining material until its ultimate removal.

The UST which supplied heating oil to Unit 009 was located and sampling was attempted in accordance with the ANL SAP. Three exploratory soil borings were attempted but not completed at the locations recommended, because bedrock was encountered at a depth of approximately two feet in each case. Therefore, a fourth boring was successfully drilled to a depth of 6.7 feet, near the tank, and three soil samples were collected for laboratory analysis. The TPH concentration in the soil at the 4.0 to 5.7 foot interval of this boring was determined to be 7,400 mg/kg.

Based on the strata encountered during the soil explorations, it appears that the Ansonia site is underlain by bedrock at a shallow depth. The UST appears to be situated in a depression in this bedrock, that was either a natural occurrence or was man-made. The TPH levels found in the soil samples from within the bedrock depression indicate that significant contamination has occurred due to spills or leaks in the tank.

The UST should be removed in accordance with applicable state and Federal regulations. Since the soils surrounding the tank appear to contain TPH levels that will require action, this remediation should be done at the time that the tanks are removed. The extent of the soil contamination cannot be determined, due to the limited nature of this assessment, but typically, remediation of contamination caused by small tanks such as this one can be performed effectively at the time of tank removal.

APPENDIX A.1. FIELD DATA

SITE SURVEY LOG

CLIENT Argonne National Labs WESTON WORK ORDER NO. 2104-13-01
 FACILITY/BLDG. NO. ANSONIA, CT 3 HUGHES CIR.
 FACILITY CONTACT TEE NALEAH TELEPHONE NUMBER (203) 468-6934
 TECHNICIAN NAME ROBERT LYNCH SIGNATURE Robert Lynch
 TECHNICIAN NAME Ken Anderson SIGNATURE Ken Anderson
 TIME ARRIVED 0905 TIME DEPARTED 0920 DATE 14 Feb 1990
 dd mm yy

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

This is a one story capehart style home with yellow ~~with~~ aluminum siding. The roofing shingles and felt are suspect. There is suspect pipe insulation present. There are 3 types of floor tile and one type of sheet vinyl present. The old floor vents have been sealed. It is a three bedroom home.

The pipe fittings are less than 4" and fittings under canvas. The pipe runs are less 4" air-cell type under canvas. The pipe insulation is friable and only in the utility room. The bath has brown sheet vinyl on it. The floor. There is 12x12 brown

ACTIVITY CHECKLIST

Interviews Completed <u>✓</u>	Number of Samples <u>7</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>0</u>	Exp. Assess. Form Init. <u>✓</u>

Q.A. Check _____ SIGNATURE _____

DATE 1 / 1 / 90
dd mm yy

SITE SURVEY LOG

(Continued)

and white speckled floor tile in the kitchen. There is 9x9 brown floor tile in all other rooms. The old floor vents are covered with 9x9 white floor tile. All of the floor coverings are non friable.

Based upon available drawings, maintenance records, and discussions with Mrs. Naderh it was determined all of the homes are alike. This was one of three randomly chosen homes.

ASBESTOS SURVEY DATA

0231

BLDG. NO.: 1953
INSTALLATION 0219

TASK TEAM MEMBERS
ROBERT LYNCH
STAN ANDERSON

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

BLDG. NAME: ANSONIA FAMILY HSG.

DATE (dd/mm/yy): 11/27/90

BLDG. DESCRIPTION: CAPE HART STYLE

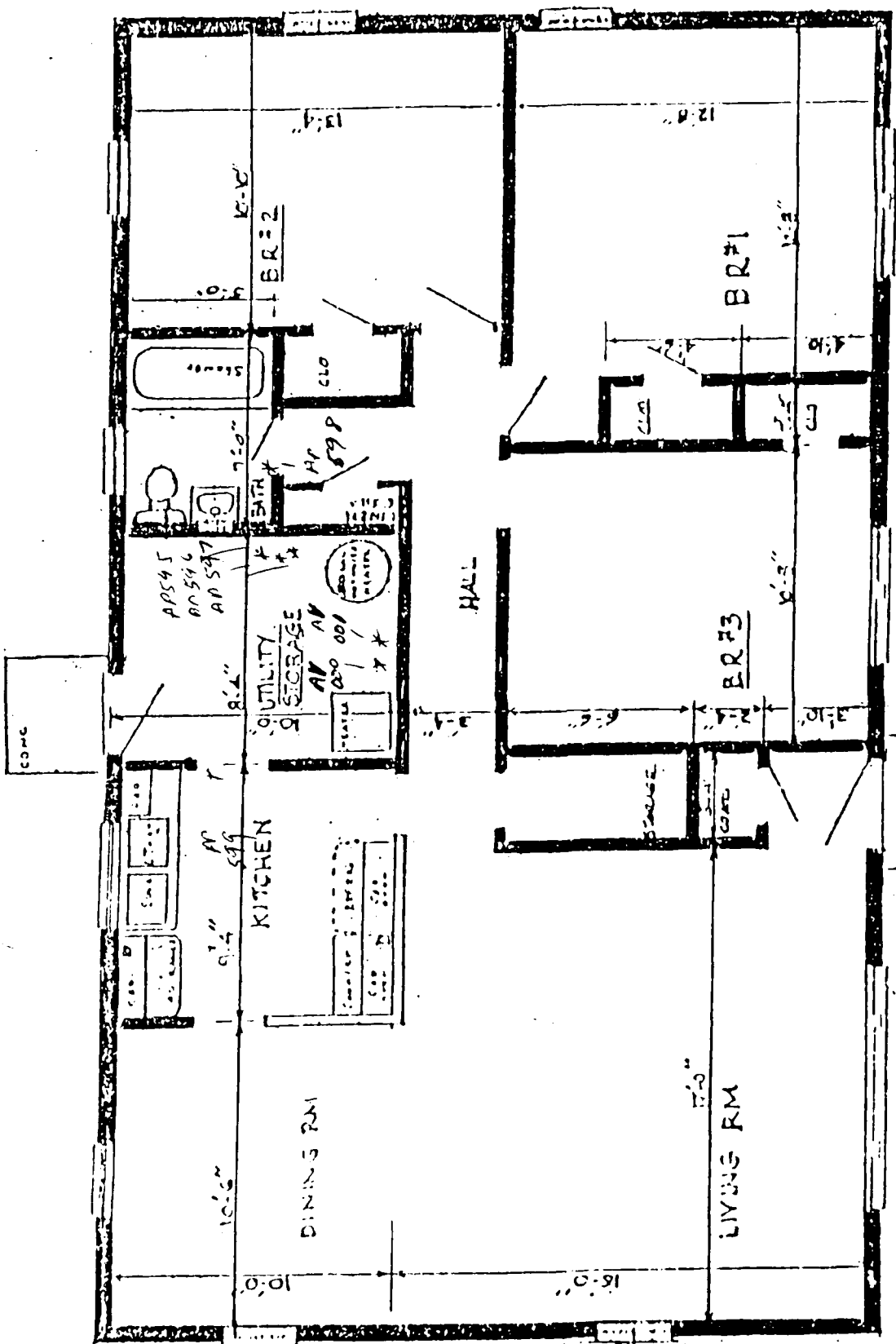
TIME ARRIVED: 0952

ITEM NO.	LAB SAMPLE NO.	BASE NO.	STATE	UNIT NO.	SAMPLE CODE	AREA	QUANTITY	PHOTO	E.A. FORM NO.	NOTES
1.	AP585-219	CT	003	APF		UTILITY RM	1		10119A	01
2.	AP586-219	CT	003	APF		UTILITY RM	140		10119B	02
3.	AP587-219	CT	003	APF		UTILITY RM	N/A		10119C	03
4.	AP588-219	CT	003	APF		BATH	210		10119D	04
5.	AP589-219	CT	003	APF		KITCHEN	75		10119E	05
6.	AP590-219	CT	003	APF		ALL RMS EXCEPT KITCHEN	780		10119F	06
7.	AP591-219	CT	003	APF		OVER VENTS	115		10119G	07
8.	_____	_____	_____	_____	ALL	_____	_____	_____	_____	_____
9.	_____	_____	_____	_____	ALL	_____	_____	_____	_____	_____
10.	_____	_____	_____	_____	ALL	_____	_____	_____	_____	_____
11.	_____	_____	_____	_____	ALL	_____	_____	_____	_____	_____
12.	_____	_____	_____	_____	ALL	_____	_____	_____	_____	_____

NOTE NO.	NOTES/REMARKS/COMMENTS/DETAILS/OTHER MATERIALS, QUANTITY, ETC.
01	less than 4" mud fitting under canvas.
02	less than 4" air cell type non insulation on hot water pipes.
03	brown sheet vinyl in bath only
04	12x12 brown and white speckled floor tile in kitchen only
05	9x9 brown floor tile in all rooms except kitchen and bath.
06	9x9 white floor tile over old floor vents.

TECHNICIAN SIGNATURE Robert Lynch

QUALITY ASSURANCE SIGNATURE _____



- 3 Higher Circle

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

CAPEHART TYPE "A"

AP 501 '44 '41

SITE SURVEY LOG

CLIENT Argonne National Labs WESTON WORK ORDER NO. 2104-13-01
 FACILITY/BLDG. NO. ANSONIA CT, 9 HURKES CIR.
 FACILITY CONTACT JOE NADGAM TELEPHONE NUMBER (203) 468-396934
 TECHNICIAN NAME ROBERT LYNCH SIGNATURE Robert Lynch
 TECHNICIAN NAME Stan A. Egan SIGNATURE Stan A. Egan
 TIME ARRIVED 0850 TIME DEPARTED 0905 DATE 11 FEB 90
 dd mm yy

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

This is a one story cape hat with blue aluminum siding. It is a three bedroom home. The old floor vents have been sealed. There are 4 types of floor tile present. There is a small amount of pipe insulation in the utility room. The roofing shingles and felt are suspect.

The pipe insulation is present in the utility room only. The fittings are less than 4" size and are made of mud, under canvas wrap. The pipe run insulation is less than 4" pipe air cell ~~wrap~~ under canvas wrap. The pipe run and fitting

ACTIVITY CHECKLIST

Interviews Completed <u>✓</u>	Number of Samples <u>7</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>0</u>	Exp. Assess. Form Init. <u>✓</u>

Q.A. Check SIGNATURE DATE 1 / 11 / 90
dd mm yy

SITE SURVEY LOG

(Continued)

insulation is feasible. The kitchen has 12x12 brown and white speckled floor tile. The bath ~~has~~ has brown sheet vinyl. The rest of the rooms have 9x9 grey floor tile. The old floor vents are covered with 9x9 white floor tile.

Based upon available drawings, maintenance records, and discussion with Mr. Nadeau it was determined that all of the homes are alike. This is one of three ~~to~~ randomly chosen homes.

ASBESTOS SURVEY DATA

0227

BLDG. NO.: C129
INSTALLATION C129

TASK TEAM MEMBERS

ROBERT LYNCH
STAN ANDERSON

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

BLDG. NAME: ANDERSON FAMILY 453
BLDG. DESCRIPTION: CAMPUS STYLE

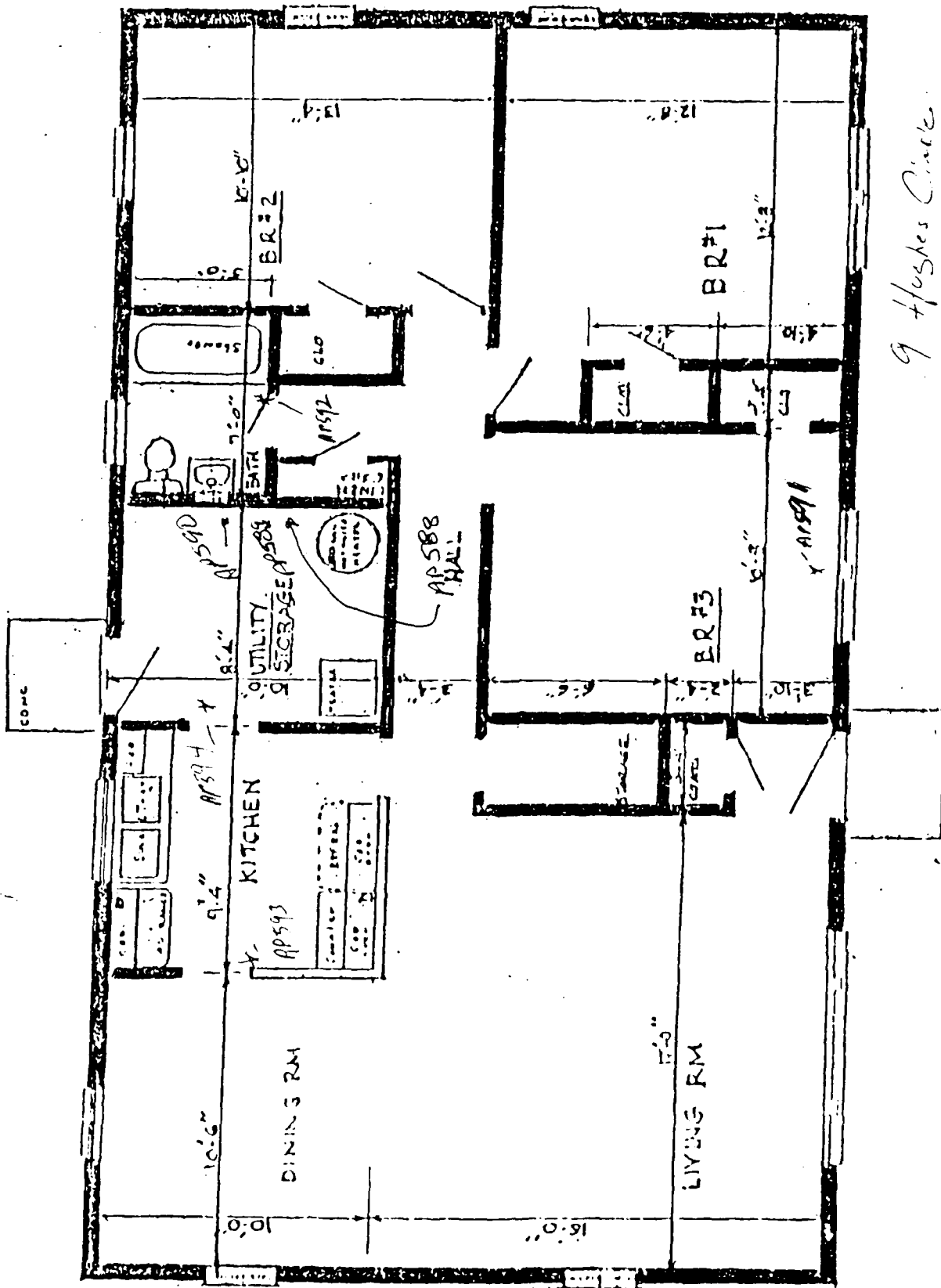
DATE (dd/mm/yy): 14/02/90
TIME ARRIVED: 0850

ITEM NO.	LAB SAMPLE NO.	BASE NO.	STATE	UNIT NO.	SAMPLE CODE	AREA	QUANTITY	PHOTO	E.A. FORM NO.	NOTES
1.	AP586-29-CF-009-A1P					UTILITY RM	11/1		10091A	01
2.	AP587-29-CF-009-A1P					UTILITY RM	11/10		10091B	02
3.	AP588-29-CF-009-A1P					UTILITY RM	11/14		10091C	012
4.	AP589-29-CF-009-A1P					OVER WENTS	11/5		10091C	03
5.	AP590-29-CF-009-A1P					BATH	120		10091D	04
6.	AP591-29-CF-009-A1P					KITCHEN	175		10091E	05
7.	AP594-29-CF-009-A1P					ALL KIDS BACGET KIN	280		10091F	06
8.	1111-1-1-1-1-1-A1									
9.	1111-1-1-1-1-1-A1									
10.	1111-1-1-1-1-1-A1									
11.	1111-1-1-1-1-1-A1									
12.	1111-1-1-1-1-1-A1									

NOTE NO.	NOTES/REMARKS/COMMENTS/DETAILS/OTHER MATERIALS, QUANTITY, ETC.
01	less than 4" size round type
02	fitting on Hot water line
	air cell type insulation on hot
	water line, less than 4" size.
03	9x9 white floor tile over old
	floor vents.
04	brown sheet vinyl in bath
	only
05	ex. 12x12 speckled (brown and white)
	floor tile in kitchen.
06	9x9 grey floor tile in all
	rooms except kitchen and
	bath

TECHNICIAN SIGNATURE Robert Lynch

QUALITY ASSURANCE SIGNATURE _____



9 Hughes Circle
TYPICAL 3 BEDROOM CAPEHART UNIT
LOCATED IN ANSONIA, FAIRFIELD,
SHELTON, GRANGE, NEW BRITAIN, CT.

CAPEHART TYPE "A"

9 Hughes Circle



SITE SURVEY LOG

CLIENT Argonne National Labs WESTON WORK ORDER NO. 2104-13-01
 FACILITY/BLDG. NO. ANSONIA CT. 8 HUGHES CIR.
 FACILITY CONTACT JOE NAREAH TELEPHONE NUMBER (203) 468-6934
 TECHNICIAN NAME ROBERT LYNCH SIGNATURE Robert Lynch
 TECHNICIAN NAME Stan Anderson SIGNATURE Stan Anderson
 TIME ARRIVED 0830 TIME DEPARTED 0850 DATE 14 Feb 90
 dd mm yy

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

This is a one story Capehart 3 bedroom, with tan aluminum siding. ~~This~~ The roofing shingles and felt are suspect. There is a small amount of air cell type pipe insulation on the hot water pipes. The old floor vents have been sealed. There are ~~four~~ types of floor ^{COVERING} tile present.

The pipe insulation is present only in the utility room. It is less than 4" size air-cell type insulation, only on domestic water lines. There is brown sheet vinyl in the bathroom, 12x12 brown and white speckled floor tile in the

ACTIVITY CHECKLIST

Interviews Completed <u>✓</u>	Number of Samples <u>6</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>0</u>	Exp. Assess. Form Init. <u>✓</u>

Q.A. Check SIGNATURE DATE 1 / 90
 dd mm yy

SITE SURVEY LOG

(Continued)

kitchen, 9x9 white floor tile over the
old floor vents. All other rooms
have 8x8 tan floor tile.

The pipe insulation is friable and
under a canvas wrap. The floor tile
is non-friable.

Based upon available drawings, maintenance,
records and discussions with
Mr. Madach it was found all
of the homes were the same. This
is one of three randomly chosen
homes.

ASBESTOS SURVEY DATA

0223

BLDG. NO.: 008
INSTALLATION 0129

TASK TEAM MEMBERS

Robert Lynch
Stan Anderson

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

BLDG. NAME: ANSONIA FAMILY HSG
BLDG. DESCRIPTION: CARHART STYLE

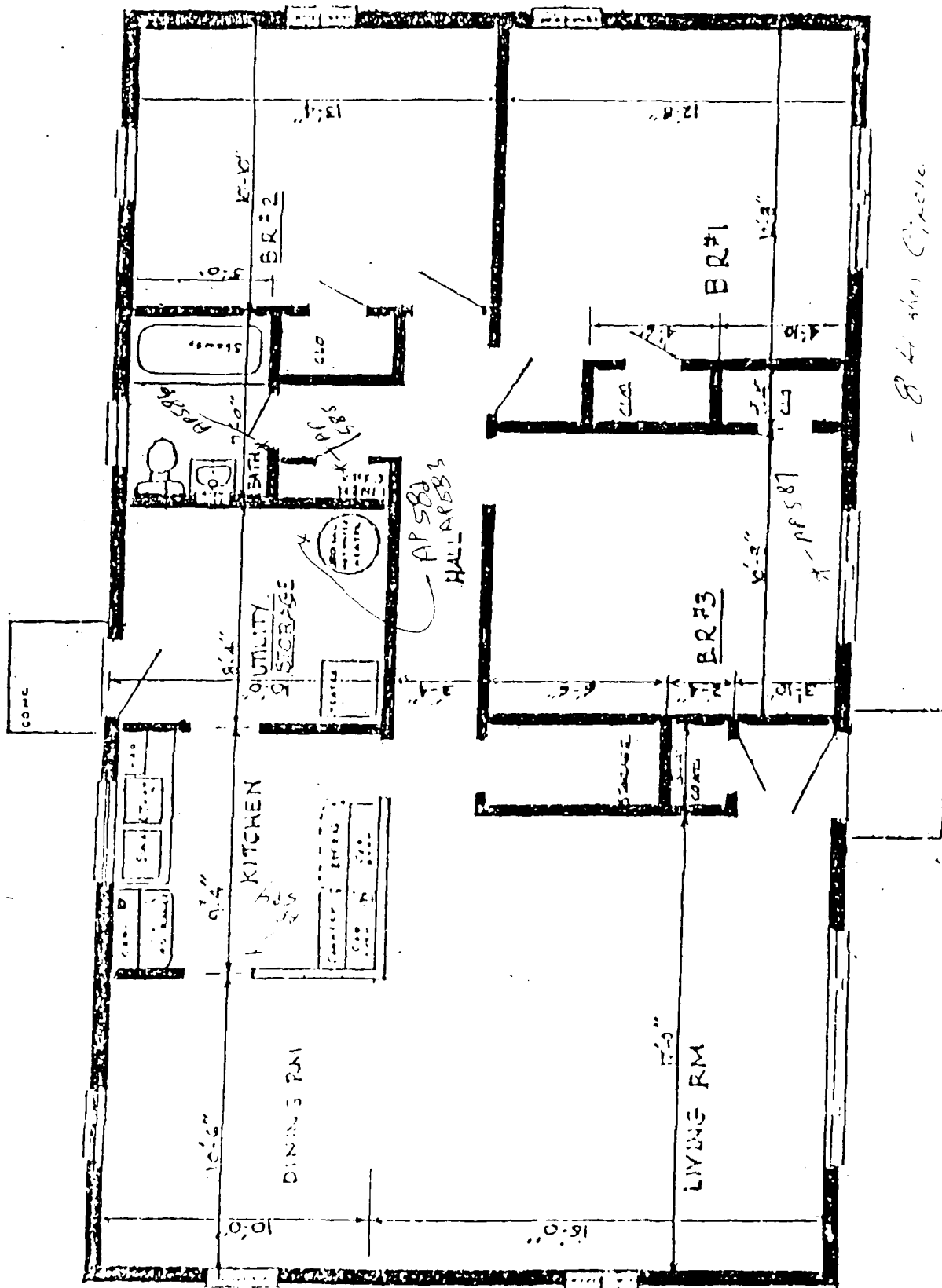
DATE (dd/mm/yy): 14/02/90
TIME ARRIVED: 0830

ITEM NO.	LAB SAMPLE NO.	BASE NO.	STATE	UNIT NO.	SAMPLE CODE	AREA	QUANTITY	PHOTO	E.A. FORM NO.	NOTES
1.	<u>APSB2</u>	<u>29</u>	<u>CT</u>	<u>008</u>	<u>AIF</u>	<u>UTILITY RM</u>	<u>3</u>		<u>1008A</u>	<u>01</u>
2.	<u>APSB3</u>	<u>47</u>	<u>CT</u>	<u>008</u>	<u>AIF</u>	<u>UTILITY RM</u>	<u>14/14</u>		<u>1008A</u>	<u>01</u>
3.	<u>APSB4</u>	<u>29</u>	<u>CT</u>	<u>008</u>	<u>AIF</u>	<u>KITCHEN</u>	<u>75</u>		<u>1008B</u>	<u>02</u>
4.	<u>APSB5</u>	<u>47</u>	<u>CT</u>	<u>008</u>	<u>AIF</u>	<u>ALL RM EXCEPT KITCH</u>	<u>180</u>		<u>1008C</u>	<u>03</u>
5.	<u>APSB6</u>	<u>47</u>	<u>CT</u>	<u>008</u>	<u>AIF</u>	<u>BATH</u>	<u>20</u>		<u>1008D</u>	<u>04</u>
6.	<u>APSB7</u>	<u>47</u>	<u>CT</u>	<u>008</u>	<u>AIF</u>	<u>OVER VENTS</u>	<u>15</u>		<u>1008E</u>	<u>05</u>
7.	<u>----</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>		<u>---</u>	<u>---</u>
8.	<u>----</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>		<u>---</u>	<u>---</u>
9.	<u>----</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>		<u>---</u>	<u>---</u>
10.	<u>----</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>		<u>---</u>	<u>---</u>
11.	<u>----</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>		<u>---</u>	<u>---</u>
12.	<u>----</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>		<u>---</u>	<u>---</u>

NOTE NO.	NOTES/REMARKS/COMMENTS/DETAILS/OTHER MATERIALS, QUANTITY, ETC.
<u>01</u>	<u>air cell type pipe insulation less than 4" size in utility room.</u>
<u>02</u>	<u>12x12 speckled floor tile in kitchen only</u>
<u>03</u>	<u>9x9 grey floor tile in all rooms except kitchen and bath</u>
<u>04</u>	<u>Brown sheet vinyl in bath only</u>
<u>05</u>	<u>over old floor vents. 9x9 white floor tile</u>

TECHNICIAN SIGNATURE Robert A Lynch

QUALITY ASSURANCE SIGNATURE _____



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

CAPEHART TYPE "A"

- 8'4" x 10'0" CLO

17'0" x 16'0"





REPLY TO
ATTENTION OF

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

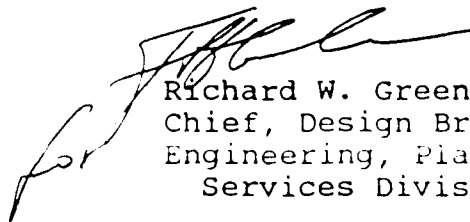
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Attention: Mr. Alex Muncie
Auburn, Alabama 36830

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

APPENDIX A.2. LABORATORY DATA

BULK SAMPLE ANALYSIS SUMMARY

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

Sample Number AP582 through Sample AV001

AO LAB ID NO	CLIENT/CLIENT ID	LOCATION	MATERIAL DESCRIPTION*	DATE RECEIVED	RESULTS**					LAYERS	ANALYST
					CH	AM	CR	OT	TL		
AP582	29-CT-008-API	UTILRM	F, PIPE INSUL	02/19/90	12	ND	ND	ND	12	Yes	07323
AP583	29-CT-008-API	UTILRM	F, PIPE INSUL	02/19/90	4	ND	ND	ND	4	Yes	07323
AP584	29-CT-008-AFT	KITCHN	NF, 12X12 FT	02/19/90	ND	ND	ND	ND	ND	No	07323
AP585	29-CT-008-AFT	ALLRMS	NF, GY, 9X9 FT	02/19/90	8	ND	ND	ND	8	Yes	07323
AP586	29-CT-008-AFT	BATH	NF, BR, SHT VINYL	02/19/90	ND	ND	ND	ND	ND	No	07323
AP587	29-CT-008-AFT	OVERVE	NF, WH, 9X9 FT	02/19/90	ND	ND	ND	ND	ND	No	07323
AP588	29-CT-009-API	UTILRM	F, MUD FITT	02/19/90	60	ND	ND	ND	60	Yes	07323
AP589	29-CT-009-API	UTILRM	F, INSULATION	02/19/90	1	ND	ND	ND	1	Yes	07323
AP590	29-CT-009-API	UTILRM	F, INSULATION	02/19/90	10	ND	ND	ND	10	Yes	07323
AP591	29-CT-009-AFT	OVERVE	NF, WH, 9X9 FT	02/19/90	ND	ND	ND	ND	ND	No	07323
AP592	29-CT-009-AFT	BATH	NF, BR, SHT VINYL	02/19/90	ND	ND	ND	ND	ND	No	07323
AP593	29-CT-009-AFT	KITCHN	NF, 12X12 FT	02/19/90	ND	ND	ND	ND	ND	Yes	07323
AP594	29-CT-009-AFT	ALLRMS	NF, GY, 9X9 FT	02/19/90	4	ND	ND	ND	4	Yes	07323
AP595	29-CT-003-API	UTILRM	F, MUD FITT	02/19/90	65	ND	ND	ND	65	Yes	07323
AP596	29-CT-003-API	UTILRM	F, INSULATION	02/19/90	4	ND	ND	ND	4	Yes	07323
AP597	29-CT-003-API	UTILRM	F, INSULATION	02/19/90	10	ND	ND	ND	10	Yes	07323
AP598	29-CT-003-AFT	BATH	NF, BR, SHT VINYL	02/19/90	ND	ND	ND	ND	ND	Yes	07323
AP599	29-CT-003-AFT	KITCHN	NF, BR, 12X12 FT	02/19/90	ND	ND	ND	ND	ND	Yes	07323
AV000	29-CT-003-AFT	ALLRMS	NF, BR, 12X12 FT	02/19/90	7	ND	ND	ND	7	No	07323
AV001	29-CT-003-AFT	OVERVE	NF, WH, 9X9 FT	02/19/90	ND	ND	ND	ND	ND	No	07323

MATERIAL DESCRIPTION	FRIABLE ¹	COLOR ²		SYSTEM ³
Friable ¹ , Color ² , System ³ , 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	OT - Other			
AM - Amosite	TL - Total			
CR - Crocidolite				

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).



ROY F. WESTON, INC.
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: Ansonia

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 μ 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

AP584-29-CT-008-AFT	Positive
AP586-29-CT-008-AFT	Negative
AP587-29-CT-008-AFT	Positive
AP591-29-CT-009-AFT	Positive
AP592-29-CT-009-AFT	Positive
AP593-29-CT-009-AFT	Positive
AP598-29-CT-003-AFT	Negative
AP599-29-CT-003-AFT	Positive
AV001-29-CT-003-AFT	Negative



(Approved for Transmittal)

4/3/10

(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.

APPENDIX B.I. FIELD DATA

12 February 1970

Argonne National Lab ANL.
(USATNAMA) Box Closure
Program. WO# 2104-13-01
Within Field Team

LTJL: Tom Williams *[Signature]*

Sand. Almac SA

Loft Weston 0520 hrs, arrived at
Mildred Reese Center 0945 hrs.
Met DEH. Representative AL Yagorone
Arranged for digging permit during
clearance with utilities.

"Call before you dig" # 1 800-922-4455
Request # I 90070060 Mtknd

90070086 Skelton
90070093 Ansonia

UTILITIES NOTIFIED

Ansonia

Ansonia Daring Water ✓
Town of Ansonia ✓
United Illuminating ✓
S. New England Telephone
Skelton
Yankee Gas
Town of Skelton
United Illuminating
S. New England Telephone
Bridgeport Hydraulic.

(1)

ANSONIA, CT

20 February 70

05 05 40 29-CT-9 SST-04 01 1330h
 Towed from 25
 2.5 ft.
 05 40 29-CT-9 SST-04 01 1330h
 30 45 29-CT-9 SST-04 01 1330h
 35 45 29-CT-9 SST-04 01 1330h
 40 45 29-CT-9 SST-04 01 1330h
 45 45 29-CT-9 SST-04 01 1330h
 50 45 29-CT-9 SST-04 01 1330h
 55 45 29-CT-9 SST-04 01 1330h
 60 45 29-CT-9 SST-04 01 1330h
 65 45 29-CT-9 SST-04 01 1330h
 70 45 29-CT-9 SST-04 01 1330h
 75 45 29-CT-9 SST-04 01 1330h
 80 45 29-CT-9 SST-04 01 1330h
 85 45 29-CT-9 SST-04 01 1330h
 90 45 29-CT-9 SST-04 01 1330h
 95 45 29-CT-9 SST-04 01 1330h
 100 45 29-CT-9 SST-04 01 1330h

(20)

ANSONIA, CT

20 February 90

Completed Sampling at @ 1530 hrs.
 Disassembled Equipment, Cat Head
 (wreck) tripod, power dumper, Split
 Spoons and A-Rocker De covered equipment
 Spoons, rods, and diggers using
 Alkoxyl sweet and D.I. residue.
 I completed plan of century sheets
 applied century seals to sample
 container and placed samples in
 plastic ice box baggies in
 cooler.
 Completed plus activities @
 1640 hrs. All papers (WCH)
 on site, discussed findings and
 future activities with him.
 Planned to meet him at noon
 center tomorrow to go to Station
 Site. Departed Site @ 1650 hrs.

Adel

(23)

APPENDIX B.2. LABORATORY DATA

ROY F. WESTON, INC.
Lionville Laboratory

Client: USATHAMA-ANL
RFW # : 9002L609
W.O. #: 2104-13-01-0000

- U = Indicates that the compound was analyzed for but not detected. The detection limit for the sample (not the method detection limit) is reported with U (e.g., 10u).
- J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10mg/L and a concentration of 3mg/L is calculated, it is reported as 3J.

NA = Not Applicable. NR = Not Required.

NC = Not calculable, results below detection limit.

The method used for the analysis of petroleum hydrocarbons is EPA Method 418.1 (USEPA 600/4-79-020). Solid samples are extracted using Method 9071 (USEPA SW846) then analyzed by EPA Method 418.1.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analysis:

- . Blank spike recoveries were acceptable.
- . Blanks were free of contamination.

Samples Received : 02/23/90
Date of Extraction: 02/27/90
Date Of Analysis : 03/08/90

for Dept D. Vester
J. Michael Taylor
Project Director
Lionville Analytical Laboratory

3-13-90
DATE

Roy F. Weston, Inc. - Lionville Laboratory
Petroleum Hydrocarbons by IR

RFW Batch Number: 9002L609 Client: USATHAMA-ANL Work Order: 2104-13-01-0000 Report Date: 03/13/90 10:18 Page: 1

Cust ID: 29-CT-9-SST-		04-01	04-01	04-01	04-02	04-03	PBLK
RFW#:		011	011 REP	011 MS	012	013	90DHC053-MB1
Matrix:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
D.F.:		1.00	1.00	2.00	50.0	10.0	1.00
Units:		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Petroleum Hydrocarbon		72	74	140 %	7400	1100	4.0 U

Cust ID: PBLK BS

Sample Information		RFW#: 90DHC053-MB1
		Matrix: SOIL
		D.F.: 1.00
		Units: mg/Kg
Petroleum Hydrocarbon		86 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. * = Outside of EPA CLP QC