

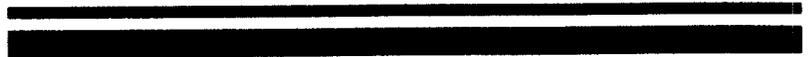
*Certification Docket for the  
Remedial Action Performed  
at the Alba Craft Laboratory and  
Vicinity Properties Site  
in Oxford, Ohio*

*Department of Energy  
Former Sites Restoration Division  
Oak Ridge Operations Office*

*January 1997*



Printed on recycled/recyclable paper.



CERTIFICATION DOCKET  
FOR THE  
REMEDIAL ACTION PERFORMED AT THE  
FORMER ALBA CRAFT LABORATORY AND VICINITY PROPERTIES SITE IN  
OXFORD, OHIO

JANUARY 1997

Prepared for  
United States Department of Energy  
Oak Ridge Operations Office  
Under Contract No. DE-AC05-91OR21949

By

Bechtel National, Inc.  
Oak Ridge, Tennessee

Bechtel Job No. 14501

# CONTENTS

	Page
FIGURES .....	v
TABLES.....	vi
ACRONYMS .....	vii
UNITS OF MEASURE.....	viii
INTRODUCTION.....	ix
EXHIBIT I SUMMARY OF REMEDIAL ACTION AT THE FORMER ALBA CRAFT LABORATORY AND VICINITY PROPERTIES IN OXFORD, OHIO	
1.0 INTRODUCTION .....	I-1
2.0 SITE HISTORY .....	I-4
3.0 SITE DESCRIPTION.....	I-5
4.0 RADIOLOGICAL HISTORY AND STATUS .....	I-6
4.1 RADIOLOGICAL SURVEYS .....	I-6
4.2 REMEDIAL ACTION GUIDELINES .....	I-9
4.3 POST-REMEDIAL ACTION STATUS.....	I-11
5.0 SUMMARY OF REMEDIAL ACTION.....	I-12
5.1 PRE-REMEDIAL ACTION ACTIVITIES .....	I-12
5.2 DECONTAMINATION ACTIVITIES .....	I-12
5.2.1 Former Alba Craft Laboratory.....	I-13
5.2.2 Vicinity Property at 525 South Main Street .....	I-16
5.3 POST-REMEDIAL ACTION MEASUREMENTS.....	I-19
5.3.1 Post-Remedial Action Measurements at the Former Alba Craft Facility .....	I-19
5.3.2 Post-Remedial Action Measurements at 525 South Main Street .....	I-22
5.4 VERIFICATION ACTIVITIES.....	I-33
5.5 PUBLIC AND OCCUPATIONAL EXPOSURES.....	I-33
5.5.1 Occupational Exposure.....	I-33
5.5.2 Exposure Pathways to the General Public.....	I-33
5.6 WASTE MANAGEMENT.....	I-34
5.7 COSTS .....	I-34
REFERENCES.....	I-36

# CONTENTS

(continued)

Page

APPENDIX I-A	DOE ORDER 5400.5, CHAPTER IV RESIDUAL RADIOACTIVE MATERIAL	
EXHIBIT II	DOCUMENTS SUPPORTING THE CERTIFICATION OF THE REMEDIAL ACTION PERFORMED AT THE FORMER ALBA CRAFT LABORATORY AND VICINITY PROPERTIES IN OXFORD, OHIO	
1.0	CERTIFICATION PROCESS.....	II-1
2.0	SUPPORTING DOCUMENTATION.....	II-2
2.1	DECONTAMINATION OR STABILIZATION CRITERIA.....	II-3
2.2	DESIGNATION OR AUTHORIZATION DOCUMENTATION.....	II-7
2.3	RADIOLOGICAL AND CHEMICAL CHARACTERIZATION REPORTS.....	II-12
2.4	ENVIRONMENTAL COMPLIANCE DOCUMENTATION.....	II-15
2.5	REAL ESTATE LICENSES.....	II-38
2.6	POST-REMEDIAL ACTION REPORT.....	II-71
2.7	INTERIM VERIFICATION LETTERS TO PROPERTY OWNERS AND VERIFICATION STATEMENTS AND REPORTS.....	II-72
2.8	STATE, COUNTY, AND LOCAL CORRESPONDENCE ON REMEDIAL ACTION.....	II-104
2.9	RESTRICTIONS.....	II-117
2.10	FEDERAL REGISTER NOTICE.....	II-118
2.11	APPROVED CERTIFICATION STATEMENT(S).....	II-123
EXHIBIT III	DIAGRAMS OF THE REMEDIAL ACTION PERFORMED AT THE ALBA CRAFT LABORATORY AND VICINITY PROPERTIES IN OXFORD, OHIO, FROM AUGUST 1994 - FEBRUARY 1995	

## FIGURES

<b>Figure</b>	<b>Title</b>	<b>Page</b>
I-1	General Site Location.....	I-2
I-2	Areas of Excavation at Former Alba Craft Laboratory Site and Vicinity Properties .....	I-3
I-3	Alba Craft Laboratory Building .....	I-7
I-4	Post-Remedial Action Results at Alba Craft.....	I-15
I-5	Site Plan of the Vicinity Property at 525 South Main Street .....	I-17
I-6	Post-Remedial Action Soil Sample Results at 525 South Main Street .....	I-18
I-7	525 South Main Street - Downstairs Den - Approximate Post-Remedial Action Survey Locations .....	I-23
I-8	525 South Main Street - Upstairs Bedroom and Hallway - Approximate Post-Remedial Action Survey Locations .....	I-24
I-9	525 South Main Street - Upstairs Connector - Approximate Post-Remedial Action Survey Locations .....	I-25
I-10	525 South Main Street - Garage Bathroom - Approximate Post-Remedial Action Survey Locations .....	I-26
I-11	525 South Main Street - Approximate Soil Sampling Locations in the Basement Crawl Space.....	I-27
III-1	General Site Location.....	III-2
III-2	Areas of Excavation at Former Alba Craft Laboratory Site and Vicinity Properties .....	III-3
III-3	Alba Craft Laboratory Building .....	III-7
III-4	Post-Remedial Action Results at Alba Craft.....	III-15
III-5	Site Plan of the Vicinity Property at 525 South Main Street .....	III-17
III-6	Post-Remedial Action Soil Sample Results at 525 South Main Street .....	III-18
III-7	525 South Main Street - Downstairs Den - Approximate Post-Remedial Action Survey Locations .....	III-23
III-8	525 South Main Street - Upstairs Bedroom and Hallway - Approximate Post-Remedial Action Survey Locations .....	III-24
III-9	525 South Main Street - Upstairs Connector - Approximate Post-Remedial Action Survey Locations .....	III-25
III-10	525 South Main Street - Garage Bathroom - Approximate Post-Remedial Action Survey Locations .....	III-26
III-11	525 South Main Street - Approximate Soil Sampling Locations in the Basement Crawl Space.....	III-27

## TABLES

<b>Table</b>	<b>Title</b>	<b>Page</b>
I-1	Summary of DOE Guidelines for Residual Radioactive Contamination.....	I-10
I-2	Decontamination Techniques Used at the Alba Craft Site.....	I-14
I-3	Post-Remedial Action Measurements in Drainpipe and Manhole.....	I-20
I-4	Alba Craft Post-Remedial Action Sampling Results .....	I-21
I-5	Summary of Post-Remedial Action Radiological Survey Results for 525 South Main Street .....	I-28
I-6	Summary of Post-Remedial Action Gamma Radiation Exposure Rates .....	I-29
I-7	Post-Remedial Action Soil Samples from the Crawl Space at 525 South Main Street.....	I-31
I-8	Post-Remedial Action Sample Results for 525 South Main Street.....	I-32
I-9	Remedial Action Summary .....	I-35
I-10	Cost of Remedial Action at the Alba Craft Laboratory and Vicinity Properties .....	I-36

## ACRONYMS

AEC	Atomic Energy Commission
ALARA	as low as reasonably achievable
BNI	Bechtel National, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DCG	derived concentration guide
DOE	Department of Energy
EPA	Environmental Protection Agency
FUSRAP	Formerly Utilized Sites Remedial Action Program
HEPA	high-efficiency particulate air
HSP	health and safety plan
IVC	independent verification contractor
NLO	National Lead of Ohio
ORNL	Oak Ridge National Laboratory
PIC	pressurized ionization chamber
PPE	personal protective equipment
RCRA	Resource Conservation and Recovery Act

## UNITS OF MEASURE

cm	centimeter
cpm	counts per minute
dpm	disintegrations per minute
ft	foot
g	gram
h	hour
in.	inch
m	meter
$\mu\text{Ci}$	microcurie
ml	milliliter
$\mu\text{R}$	microroentgen
mrad	millirad
mrem	millirem
pCi	picocurie
yr	year

## INTRODUCTION

The U.S. Department of Energy (DOE), Office of Environmental Management, Division of Off-Site Programs conducted remedial action at the former Alba Craft Laboratory in Oxford, Ohio, from August 22, 1994, to January 5, 1995. The work was administered by DOE's Formerly Utilized Sites Remedial Action Program (FUSRAP) under the direction of the Deputy Assistant Secretary for Environmental Restoration.

The United States Congress authorized DOE to initiate FUSRAP in 1974 to identify and clean up or otherwise control sites where chemical contamination and/or residual radioactive material (exceeding current guidelines) remain from the early years of the nation's energy program or from commercial operations causing conditions that Congress has authorized DOE to remedy. The objectives of FUSRAP, as they apply to the Alba Craft Laboratory site, are to

- identify and assess sites formerly used in support of early Manhattan Engineer District/Atomic Energy Commission (MED/AEC) nuclear work to determine whether further decontamination and/or control is needed;
- decontaminate and/or apply controls to the sites, where needed, to achieve compliance with current applicable guidelines;
- dispose of or stabilize all resulting residues in an environmentally acceptable manner;
- accomplish all work in accordance with appropriate landowner agreements and local and state environmental and land-use requirements to the extent permitted by federal law and applicable DOE orders, regulations, standards, policies, and procedures; and
- certify, at the completion of the remedial action, that the condition of the site complies with applicable guidelines and that the site may be released for use without radiological restrictions, or recommend the uses to which the site can be put to provide adequate safeguards.

FUSRAP is managed by the DOE Oak Ridge Operations Office, Former Sites Restoration Division (DOE-FSRD). Bechtel National, Inc. (BNI) is the project management contractor for FUSRAP. Thermo NUtech (formerly ThermoAnalytical, Inc.) was the radiological support subcontractor and provided sampling, analysis, and health physics support for site activities. Oak Ridge National Laboratory, the independent verification contractor, performed independent surveys and sampling to verify that remedial action at the Alba Craft site was complete.

## **Environmental Regulations Applicable to FUSRAP**

To assess the environmental impacts of federal actions, Executive Order 11991 empowered the Council on Environmental Quality (CEQ) to issue regulations to federal agencies for implementing the procedural provisions of the National Environmental Policy Act (NEPA) that are mandatory under the law. In June 1979, CEQ issued regulations containing guidance and specific requirements. DOE guidelines for implementing the NEPA process and satisfying the CEQ regulations were subsequently issued and became effective on March 28, 1980. These regulations were revised April 24, 1992 (57 FR 15122).

The NEPA process requires FUSRAP decision-makers to identify and assess the environmental consequences of proposed actions before beginning remedial action, developing disposal sites, or transporting and emplacing radioactive wastes. For the remedial activities discussed in this certification docket, the NEPA requirements were satisfied by the preparation and approval of a categorical exclusion for the remedial action. This NEPA document confirmed that there would be no adverse effects on the environment from the remedial activities.

The cleanup of radioactively contaminated soil and building debris at the former Alba Craft Laboratory and vicinity properties was conducted under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and its implementing regulations, the National Contingency Plan found at 40 CFR 300. The most significant advantage of performing the cleanup under CERCLA authority, as opposed to DOE authority under the Atomic Energy Act of 1954, as amended, is the CERCLA Section 121(e) permit exemption. This section allows CERCLA response actions to be conducted entirely onsite. Another advantage is the submittal of an engineering evaluation/cost analysis to the public for comment and acknowledgment of the planned remedial action.

Work performed under FUSRAP by the project management contractor or by architect-engineers, construction and service subcontractors, and other project subcontractors is governed by the provisions of the quality assurance program developed for the project and is in compliance with DOE Order 5700.6C. The effectiveness of the quality assurance program is assessed regularly by the BNI quality assurance organization and by DOE-FSRD.

### **Property Identification**

The Alba Craft Laboratory site comprises the former Alba Craft Laboratory property, located at 10-14 West Rose Avenue, Oxford, Ohio, and the vicinity properties at

- 525 South Main Street,
- 9 West Rose Avenue,
- 550 South Main Street, and
- West Rose Avenue immediately adjacent to the former Alba Craft Laboratory building.

Post-remedial action surveys and samples have demonstrated and DOE has certified that the properties are in compliance with applicable DOE and proposed Environmental Protection Agency and Nuclear Regulatory Commission standards and criteria established to protect human health and safety and the environment. A notice of certification of the radiological condition of the site was published in the *Federal Register* on November 26, 1996.

## **Docket Contents**

The purpose of this docket is to document the successful decontamination of radioactively contaminated areas at the former Alba Craft Laboratory and vicinity properties in 1994 and 1995. Material in this docket consists of documents supporting the DOE certification that conditions at the subject properties are in compliance with the criteria and standards determined to be applicable to the properties. Furthermore, this certification docket provides the documents certifying that future use of the properties will not result in any significant radiological hazard or dose to the general public as a result of the activities of DOE or its predecessor agencies.

Exhibit I of this docket is a summary of remedial activities conducted at the Alba Craft site. The exhibit provides a brief history of the origin of the radioactive material at the site, radiological characterization activities, remedial action performed, post-remedial action surveys and soil sampling, and verification activities. Cost information from all phases of the remedial actions conducted at the site are also included in Exhibit I. Appendix A of Exhibit I presents the DOE guidelines for residual radioactive materials (materials that may be left onsite) at FUSRAP sites.

Exhibit II consists of the letters, memos, and reports that were produced to document the entire remedial action process, from designation of the site under FUSRAP to the certification that no radiological restrictions limit the future use of the site. Documents that are brief are included in Exhibit II. Lengthy documents are referenced in the exhibit and are provided as an attachment to the certification docket at publication.

Exhibit III provides diagrams of the site identifying the areas of contamination that were remediated during cleanup activities.

The certification docket and associated references will be archived by DOE through the Assistant Secretary for Management and Administration. Copies will be available for public review between 9:00 a.m. and 4:00 p.m., Monday through Friday (except federal holidays), at the DOE Public Reading Room located in Room 1E-190 of the Forrestal Building, 1000 Independence Avenue, SW, Washington, D.C. Copies will also be available in the Public Document Room, Federal Building, 200 Administration Road, Oak Ridge, Tennessee, and at the Lane Public Library, 15 S. College Avenue, Oxford, Ohio.

EXHIBIT I  
SUMMARY OF REMEDIAL ACTION AT THE FORMER ALBA CRAFT  
LABORATORY AND VICINITY PROPERTIES IN OXFORD, OHIO

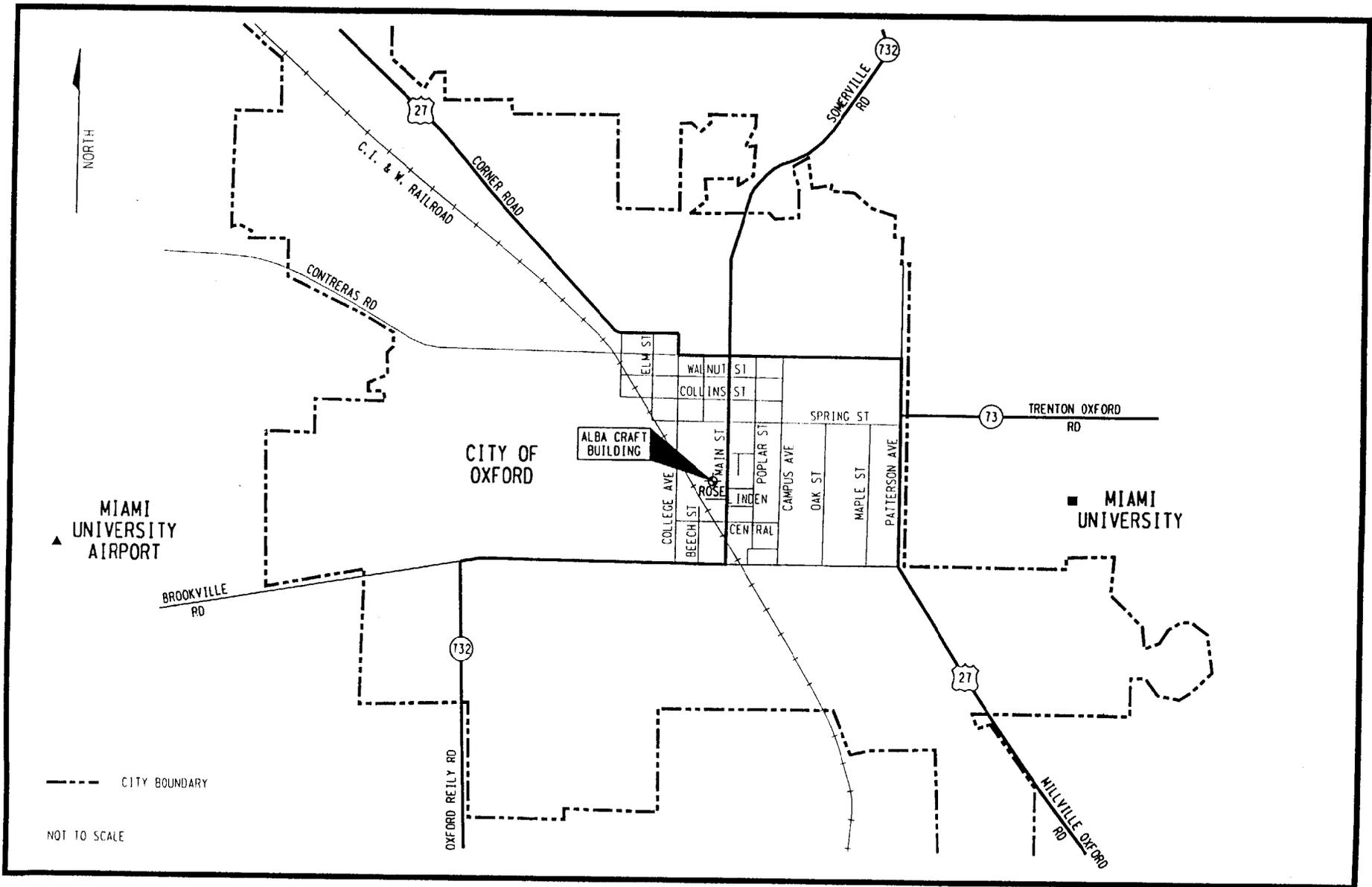
## 1.0 INTRODUCTION

Exhibit I summarizes the activities culminating in the certification that radiological conditions at the former Alba Craft site are in compliance with applicable guidelines and that future use of the site will not result in exposure to radioactivity above Department of Energy (DOE) criteria and standards or the proposed guidelines established by the Environmental Protection Agency (EPA) and the Nuclear Regulatory Commission to protect members of the general public and occupants of the site. These activities were conducted under the DOE Formerly Utilized Sites Remedial Action Program (FUSRAP) (Ref. 1). This summary includes a discussion of remedial action processes at the Alba Craft site, including

- radiological characterization of the site,
- designation of the property as requiring remedial action,
- performance of the remedial action, and
- verification that the radioactive materials have been removed.

Further details of each activity described in Exhibit I are included in the referenced documents.

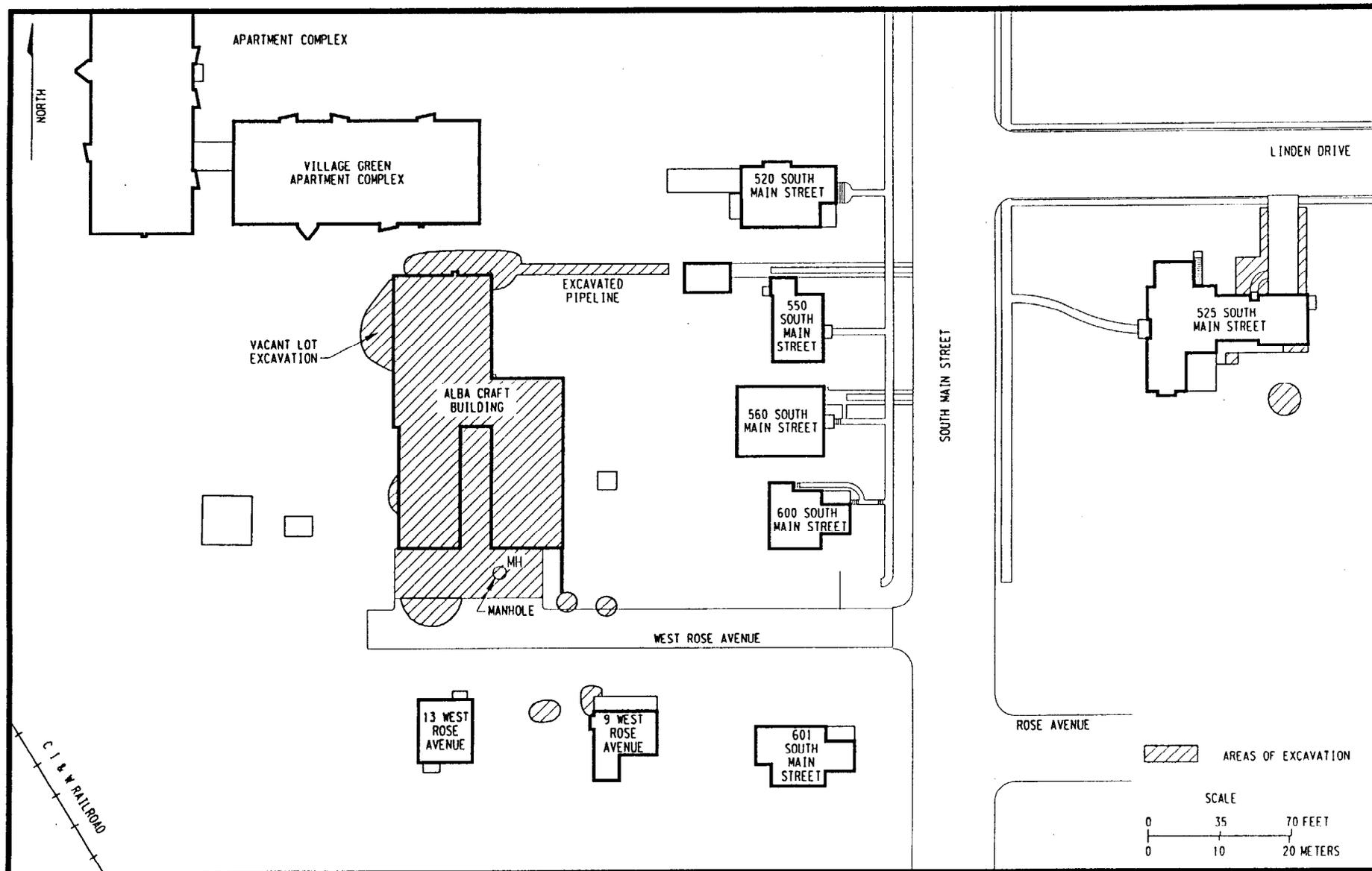
The Alba Craft site is located approximately 56 km (35 mi) northwest of Cincinnati, Ohio, off State Route 27 in Oxford, Ohio (Figure I-1). Before remediation was performed at the site, an "h"-shaped building known as the Alba Craft Laboratory existed at 10-14 West Rose Avenue (Figure I-2). Because the building was in poor structural condition and residual natural uranium material was found throughout the interior, the building was demolished. The resulting debris was reduced in volume and removed from the site as radioactively contaminated waste. In addition to the laboratory property, the Alba Craft site comprises properties at 525 South Main Street, 9 West Rose Avenue, 550 South Main Street, and West Rose Avenue near the Alba Craft building.



R74F001.DGN

Figure I-1  
General Site Location

I-3



R74F002.DGN

Figure I-2  
Areas of Excavation at  
Former Alba Craft Laboratory Site and Vicinity Properties

## 2.0 SITE HISTORY

Alba Craft Laboratory, Inc., under subcontract to National Lead of Ohio (NLO), was a primary contractor for the Atomic Energy Commission (AEC) from October 1952 to February 1957. NLO provided a variety of machine shop services on natural uranium metal (i.e., uranium metal that was neither enriched nor depleted, but contained the uranium isotopes in natural abundance). Early work included developmental and general machining of threaded reactor fuel slugs for use at the Savannah River Site. Subsequent operations consisted of hollow drilling and turning of metal slugs to be used in the Savannah River and Hanford nuclear reactors. The total quantity of uranium machined by NLO at the Alba Craft Laboratory was estimated to be several hundred tons (Ref. 2). NLO supplied the machinery, operators, and materials for machining operations during the subcontract period.

During machining operations and associated activities performed at the former Alba Craft site, equipment, portions of the building, the grounds, and portions of nearby properties became contaminated with low levels of radioactivity. After the AEC machining and related activities ended, the site was decontaminated in accordance with regulations in effect at that time. In January 1957, Alba Craft personnel decontaminated the building and equipment in accordance with specifications outlined by the NLO Industrial Hygiene Department. The equipment and floors were steam cleaned and scrubbed with wire brushes and sodium hexametaphosphate. Much of the radioactive material was reportedly swept or washed out the rear door of the building. Soil was removed from the area around the door and sent to the DOE Feed Materials Production Center at Fernald, Ohio, for disposal (shipping date unknown) (Ref. 3). Since then, the applicable DOE guidelines for residual radioactivity in buildings and soils for release of such sites without radiological restrictions have become more conservative. Thus, further cleanup of the Alba Craft site was determined to be warranted.

### 3.0 SITE DESCRIPTION

The Alba Craft site is located in a mixed commercial/residential area of Oxford, Ohio. The site is south of McCullough-Hyde Memorial Hospital, approximately 50 m (60 yd) west of Main Street on West Rose Avenue. The C.I. & W. railroad is west of the site, and to the east is Main Street. Village Green Apartments is immediately north of the site, and Rose Avenue is south. The major route leading to the site area is State Route 27, which approaches Oxford from the south, runs north through the Miami University campus, turns westward, and exits from the northwestern corner of the city of Oxford (parallel to the railroad) (see Figure I-1). The Miami University Airport is located 3.2 km (2 mi) east, and Huseton Woods State Park is approximately 4.8 km (3 mi) north of the former Alba Craft Laboratory.

The site was initially investigated in June and July 1992, and a more detailed characterization of the site was performed by Oak Ridge National Laboratory (ORNL) in September 1992 at the request of DOE (Ref. 2). Radiological surveys conducted during the investigations indicated that residual uranium contamination, exceeding the current guidelines for residual radioactive contamination, was present both inside and outside the former Alba Craft Laboratory building. The poor structural condition of the building and the extent to which the building was contaminated ultimately led to a decision to demolish and remove the structure from the site. The site and the vicinity properties involved in the remedial action were restored to existing grade and revegetated.

## 4.0 RADIOLOGICAL HISTORY AND STATUS

The former Alba Craft Laboratory site was investigated in July and September of 1992 by the ORNL Measurement Applications Division at the request of DOE, and subsequent radiological studies indicated that residual uranium material exceeding the current guidelines was present both inside and outside the building. As a result, the site was designated in March 1993 for remediation under FUSRAP (Ref. 4).

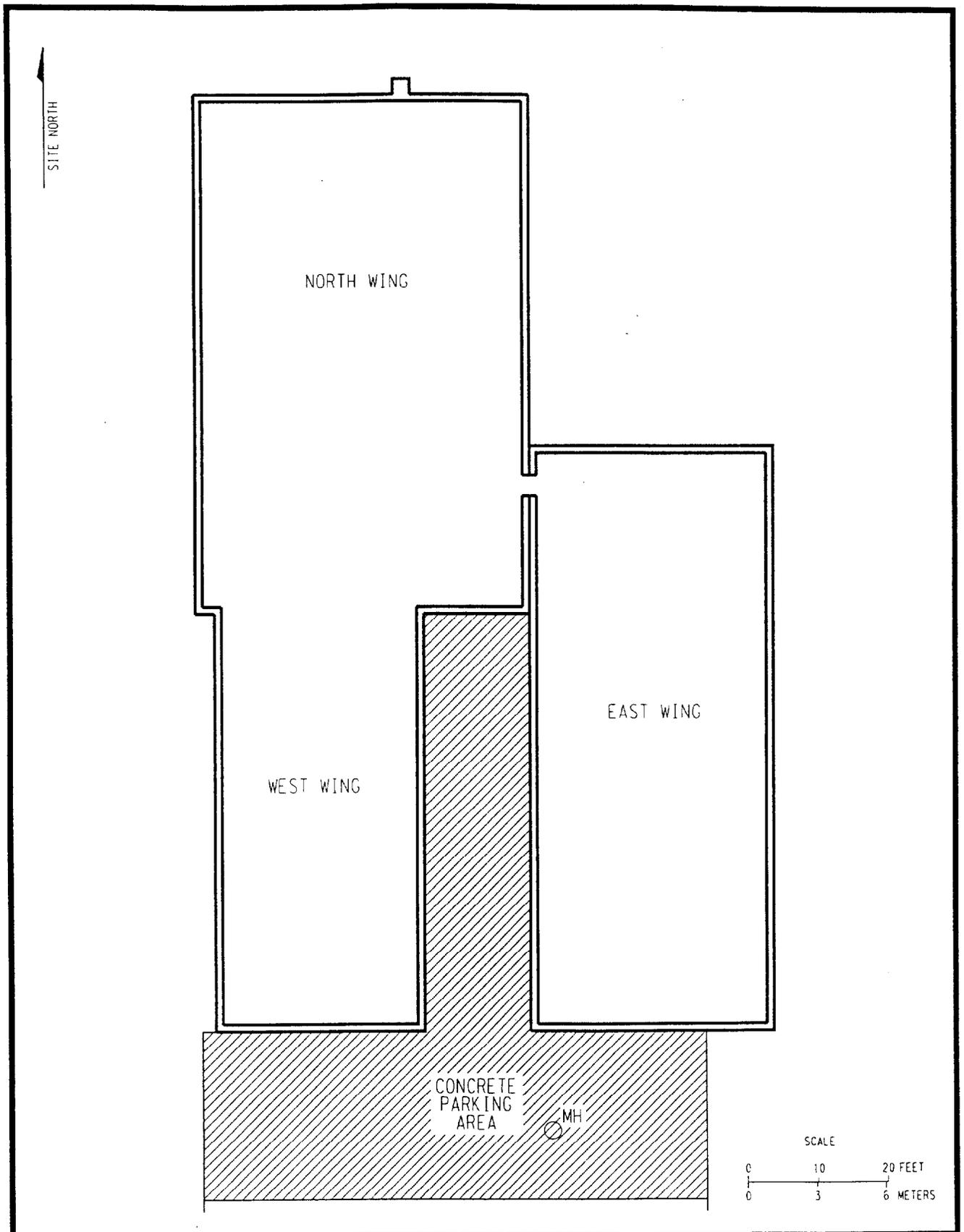
The current owner of the former Alba Craft Laboratory bought the property in May 1988 and began renovating the building to support various business enterprises. Before remediation, the former Alba Craft building was composed of three cinder block structures built in sequence and joined to appear as one building. The roof consisted of metal trusses supporting wood decking with a tar-coated layer to provide waterproofing. Floors were concrete with typical crack-control and expansion joints. The west wing (see Figure I-3) was built in 1952 and housed the original laboratory. The large room to the north was added in 1955. Uranium milling operations were conducted in both the north and west wings of the building from 1955 to 1957. The east wing was built in 1956 and connected to the west wing by a small corridor along the north end. Uranium machining operations were moved into the east wing upon its completion.

Before remedial action at the former Alba Craft Laboratory began, it was discovered that the former owner of the building had lived at 525 South Main Street, within walking distance of the site, and that developmental machining operations were conducted inside the garage of the residence. In April 1994, ORNL conducted an investigation of the property (Ref. 5). The investigation revealed that residual uranium turnings, filings, and small particles had been transported from the laboratory to the residence. Radiological surveys of the residence verified the existence of residual radioactive material exceeding the current DOE guidelines and criteria.

Additional concerns, such as former workers' properties and areas suspected by the public to be contaminated, were also investigated. These investigations revealed that other vicinity properties contaminated above DOE's site-specific cleanup guidelines included portions of 550 South Main Street, 9 West Rose Avenue, and West Rose Avenue near the former Alba Craft Laboratory.

### 4.1 RADIOLOGICAL SURVEYS

DOE worked cooperatively with Oxford citizens and Oxford city government officials to locate areas that warranted investigation during the July and September 1992 surveys. The community efforts developed suggestions for the investigation of the vicinity properties based on the history of the site. Walkover surveys were conducted at the Alba Craft grounds and on several of the suspect properties to locate areas of elevated external gamma exposure rates. Soil samples were taken from the Alba Craft grounds and adjacent properties where elevated gamma exposure rates were observed and where the potential for contaminant migration existed. These samples were taken at random locations and at specific areas identified by walkover surveys and were analyzed for radioactive isotopes.



R74F003.DGN

Figure I-3  
Former Alba Craft Laboratory Building

Direct radiation measurements of the interior floors, walls, and ceilings of the Alba Craft Laboratory were taken to locate areas of contamination above the DOE guidelines. In addition, external gamma radiation exposure rates were obtained. Samples of loose dust, dirt, and debris were collected from several locations and sent to an analytical laboratory to determine the identity and concentrations of the radioactive materials in these samples. Samples of air inside the building were collected with a high-volume air sampler and analyzed for radioactive dust and dirt particles that could be entrained and inadvertently inhaled.

The properties investigated in the vicinity of the former Alba Craft Laboratory were the residences along South Main Street and Linden Drive and the lot adjacent to the laboratory (Ref. 6). These areas had the highest potential for migration of the uranium material. Results of the surveys on these properties indicated that there was no radioactivity above the current DOE guidelines, and therefore no action was required except for the excavation of a small amount of soil in the upper northeastern corner of the lot adjacent to the laboratory (see Figure I-2).

The Oxford Church of God property at 5450 College Corner Pike and the Oxford Municipal Landfill were investigated when it was learned that these properties were reported to have received an unauthorized shipment of material from the laboratory site during the summer of 1992. Contrary to DOE recommendations, some construction activities were conducted at the laboratory site after the July 1992 survey. Excavated concrete and some of the construction debris were reportedly taken to the municipal landfill. Soil from the site was reportedly taken to the church property. The investigation indicated that the risk of exposure to radioactive material above current guidelines is minimal, the probability of detection is low because of the depth of the material, and the costs associated with finding the material too large to warrant further investigations at these two locations (Ref. 6).

Gaskill Hall at Miami University in Oxford was surveyed because the Process Control Laboratory was reported to have been used by the former owner of the Alba Craft Laboratory. Walkover surveys were completed at all locations, and soil samples were taken by ORNL from locations with elevated survey readings. Results indicated that no uranium material above DOE standards was present (Ref. 6).

## **4.2 REMEDIAL ACTION GUIDELINES**

The source of contamination on the designated properties requiring remediation was natural uranium metal filings and turnings resulting from the machining operations in the Alba Craft building. Radioactive materials throughout and surrounding the building resulted from the migration and redistribution of the fine uranium metal dust and filings by such mechanisms as disposal (sweeping or washing through doorways, dumping, washing through drain lines), transporting the materials on shoes and clothing, and dispersion of materials by small fires involving the metal filings.

The residual radioactivity contamination guidelines governing the release of properties for radiologically unrestricted future use are included in DOE Order 5400.5, *Radiation Protection of the Public and Environment*, Chapter IV, and are summarized in Table I-1. The remedial action guidelines for alpha activity (due to natural uranium, uranium-235, uranium-238, and associated decay products) fixed or adhering to indoor and outdoor structure surfaces are 5,000 disintegrations per minute per 100 square centimeters (dpm/100 cm<sup>2</sup>) averaged over the whole surface area; 15,000 dpm/100 cm<sup>2</sup> maximum; and 1,000 dpm/100 cm<sup>2</sup> for removable activity. A copy of DOE Order 5400.5, Chapter IV, is included in this document as Appendix I-A.

Direct surface contamination is the total amount of radioactive contamination on a surface; therefore, a survey of direct surface contamination quantifies both the transferable and permanently fixed contamination. Transferable contamination is the removable component of the total surface contamination; it is the portion of contamination that could potentially be transferred to clothing or skin upon contact.

To quantify direct surface contamination, radiation detection instrumentation is placed directly on the surface to measure the radioactivity emitted from a known surface area. Direct alpha radiation is measured with an alpha scintillation detector connected to a rate meter, an instrument that counts the number of radioactive disintegrations (decays) detected in a specified amount of time. Direct beta/gamma radiation measurements are obtained with a Geiger-Mueller probe attached to a rate meter. The probe is placed on the surface to be surveyed, and pulses are allowed to accumulate for one minute on the rate meter, resulting in a measurement of counts per minute (cpm) for the surface area. These measurements are then converted, with appropriate calibration and conversion factors, to dpm/100 cm<sup>2</sup>, a common unit of measurement in health physics.

Transferable contamination is measured by "swiping" or "smearing" a contaminated surface with a soft absorbent paper. The smear is placed in a portable smear counter, and alpha and beta/gamma radiation are each counted for one minute. The resulting measurements in counts per minute are then readily converted to dpm/100 cm<sup>2</sup>.

Because only trace concentrations of radium and thorium exist in uranium metal after processing, only extremely low concentrations of these two radionuclides were detected in samples obtained during characterization and waste classification activities. The only radioactive isotopes present from the former AEC activities were uranium isotopes. The site-specific criterion for soil contamination is 35 picocuries per gram (pCi/g) for total uranium averaged over the remediated area, based on DOE applying the "as-low-as-reasonably achievable" (ALARA) principle to the site-specific guidance derived by Argonne National Laboratory (Ref. 7). At a concentration of 35 pCi/g, the dose rate from all sources (excluding radon) is estimated to be less than 10 mrem/yr, significantly lower than DOE's 100 mrem/yr basic dose rate guideline limit and the proposed EPA standard of 30 mrem/yr. *Design Criteria for Formerly Utilized Sites*

**Table I-1**  
**Summary of DOE Guidelines for Residual Radioactive Contamination**

Base Dose Limits

The basic limit for the annual radiation dose (excluding radon) received by an individual member of the general public is 100 mrem/yr. In implementing this limit, DOE applies as-low-as-reasonably achievable (ALARA) principles to establish the site-specific guidelines.

Site-Specific Soil Guidelines

The site-specific criterion for soil is 35 pCi/g for total uranium (Ref. 7).

Indoor/Outdoor Structure Surface Contamination

Listed below are the residual contamination guidelines for fixed and transferable radioactive contamination (dpm/100 cm<sup>2</sup>):

<b>Radionuclide</b>	<b>Average</b>	<b>Maximum</b>	<b>Removable</b>
U-Natural, U-235, U-238, and associated decay products	5,000 (alpha)	15,000 (alpha)	1,000 alpha
Beta/gamma emitters (radionuclides with decay modes other than alpha emissions)	5,000 (beta/gamma)	15,000 (beta/gamma)	1,000 (beta/gamma)

*Remedial Action Program (FUSRAP) and Surplus Facilities Management Program (SFMP)* (Ref. 8) contains additional information regarding federal regulations.

### **4.3 POST-REMEDIAL ACTION STATUS**

Analytical results of post-remedial action surveys and soil samples (Ref. 9) indicate that the levels of radioactivity in the remediated areas comply with applicable DOE standards and guidelines for residual radioactive contamination. The independent verification contractor (IVC) was responsible for preparing a plan outlining the procedures used to conduct verification activities. The IVC conducted both type A and type B verifications, as specified in the draft verification plan. Type A verification consisted of reviewing the post-remedial action survey results and collecting and analyzing additional samples if necessary. For the type B verification review, the IVC conducted an independent survey of the site, including direct measurements. The IVC also reviewed the methods and results of the post-remedial action survey activities and the soil sampling results. In addition to its independent surveys and samples, the IVC reviewed the quality assurance data to determine whether the measurements verified that these areas complied with the established DOE guidelines for the site. After the results were verified to be in compliance, the site was released by the IVC as being radiologically unrestricted for future use (Refs. 10 and 11), and BNI restored, backfilled, and reseeded the site.

## **5.0 SUMMARY OF REMEDIAL ACTION**

The following sections describe the remedial action process and the actions taken to protect the public and the environment.

### **5.1 PRE-REMEDIAL ACTION ACTIVITIES**

After the appropriate access agreements and real estate instruments were obtained from the property owners and the State of Ohio, but before remedial action began, the contaminated areas were resurveyed. These surveys were performed to more accurately define the boundaries of radioactive materials above DOE guidelines, to supplement existing characterization information, and to obtain the information necessary to classify the waste to be removed during remediation. Areas that were inaccessible (e.g., plugged and/or buried drain pipes) were surveyed as they became accessible during remedial action. No hazardous contaminants, other than trace radioactivity, were found; however, the size of some of the areas requiring remediation was expanded as a result of these surveys.

### **5.2 DECONTAMINATION ACTIVITIES**

Approximately 2,140 m<sup>3</sup> (2,800 yd<sup>3</sup>) of low-level radioactive waste (soil and building debris) resulted from the demolition and excavation of the former Alba Craft facility and vicinity properties. The material was packaged in intermodal transportable containers and shipped to the Envirocare disposal facility in Clive, Utah.

During the remedial action, a combination of engineering and administrative controls and personal protective equipment (PPE) were used to protect remediation workers from potential exposure to radiation above applicable standards. These controls are specified in a site-specific health and safety plan (HSP). These measures prevented potential migration of radioactive material to adjacent uncontaminated areas and, therefore, protected the general public from any potential radiation exposure as well.

All personnel working in areas containing radioactive materials above DOE guidelines were required to use PPE specified in the HSP for the Alba Craft site. When conditions warranted, additional protective clothing and equipment such as hoods and respirators were required for entry into contaminated areas, as specified in the hazardous work permits.

Workers leaving radioactively contaminated work areas were surveyed (frisked) at the control point by a health physics technician with a hand-held radiation detection instrument to ensure that no radioactive materials were transferred from the area. The contaminated PPE worn by the workers was disposed of at Envirocare with the other waste generated at the site.

The primary potential exposure pathways for onsite personnel during remediation activities were inhalation and ingestion of radioactively contaminated airborne dust from the mechanical decontamination of interior structural surfaces. The VacuBlast™ and the Blastrac™ systems used to decontaminate these surfaces have built-in systems that control the spread of dust, and HEPA filtration units were used to minimize the potential for contaminants becoming airborne. Site workers wore respirators to prevent exposure during operations that caused dust to be generated.

The primary exposure pathways to radioactive material for members of the general public were inhalation and ingestion of radioactively contaminated airborne dust generated during the excavation of contaminated soils, dismantlement of the building (cutting and razing walls), and size reduction of the debris. To minimize the potential for dust migration during these operations, a fine mist of water was sprayed on the material in the work area.

### **5.2.1 Former Alba Craft Laboratory**

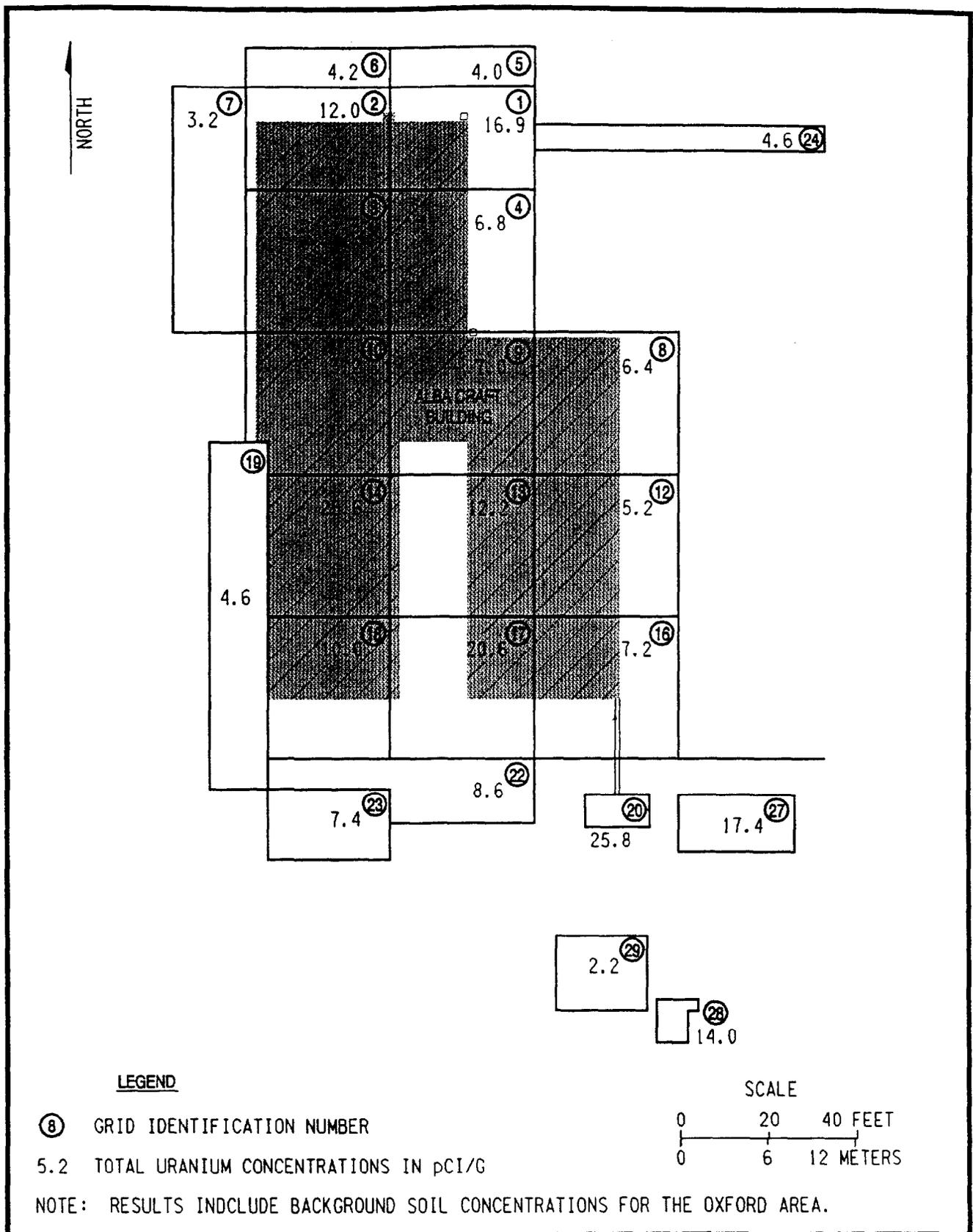
At the time remedial action began, the main building was vacant, containing only incidental manufacturing rubbish and debris. Most of the building contents were surveyed and released as nonradioactively contaminated (“clean”) materials according to current DOE guidelines. The interior structure of the building was then surveyed to identify all “hot spots” on the floor and walls. These spots required decontamination before dismantlement of the building in order to reduce the overall exposure of the labor force and to minimize the potential for offsite releases during building dismantlement and size reduction of the debris. The decontamination process began in the overhead areas (ceiling, trusses) and proceeded down to the floor. Table I-2 lists various decontamination techniques used at the Alba Craft site and vicinity properties.

After decontamination work inside the building was complete, the dismantlement of the roof and walls was completed. Removal of the roof and walls began in the sewing room (north wing) and proceeded to the main room (east wing), the main room (west wing), and finally the laboratory/office (see Figure I-3). After the roof and walls were removed, the remaining concrete floor and foundation were excavated. The volume of concrete building debris resulting from the demolition was reduced (crushed) by using a Torgerson size-reduction device. The debris was then packaged in intermodal containers and shipped to the disposal facility. The underlying and surrounding soil was excavated as necessary to remove any remaining material that was radioactively contaminated above the site-specific criteria.

A manhole in the parking area was decontaminated using the techniques described in Table I-2. A drain line in the northeastern corner of the building was found to contain radioactive material above DOE guidelines and was excavated along with all contaminated soil surrounding the pipe (see grid 24 of Figure I-4). Approximately 20 m (65 ft) of pipe was removed; the remaining pipe was decontaminated to levels well below the applicable guidelines. Removal of the pipe led to the excavation and backfilling of the area on the vicinity property at 550 South Main Street.

**Table I-2**  
**Decontamination Techniques Used at the Alba Craft Site**

<b>Technique</b>	<b>Description</b>
HEPA vacuuming	High-efficiency particulate air (HEPA)-filtered vacuum cleaners were used to remove loose contamination, primarily in overhead areas.
Mechanical shot blasting	Two commercially available shot-blast systems, the BlasTrak™ and VacuBlast™ decontamination systems with self-contained dust collection systems, were used to clean “hot spots” on the floor and wall surfaces by using metallic abrasive material on the work surface and removing incremental layers of contaminated material.
Cutting with a gasoline-powered circular saw	A gasoline-powered circular saw with a concrete cutting blade, vented to the exterior of the building, was used to remove sections of the foundation that had expansion joints with material that exceeded DOE guidelines for residual radioactive material.
Demolition and excavation	The building was demolished, and all building material and debris were disposed of as low-level radioactive waste. The contaminated soil under the building and on vicinity properties was excavated and disposed of, as appropriate.



R74F004.DGN

Figure I-4  
Post-Remedial Action Results at Alba Craft

Excavation of radioactively contaminated soil above the DOE standards and guidelines was also conducted on approximately 37 m<sup>2</sup> (400 ft<sup>2</sup>) of West Rose Avenue in front of the Alba Craft building, approximately 4.5 m<sup>2</sup> (50 ft<sup>2</sup>) at 9 West Rose Avenue (Figure I-2), and several exterior areas at 525 South Main Street (see Section 5.2.2). Following the remedial action and confirmation that remediation was complete, excavated areas were restored and seeded.

### **5.2.2 Vicinity Property at 525 South Main Street**

The property at 525 South Main Street (Figure I-5), where the former owner of the Alba Craft Laboratory lived, was designated a vicinity property of the Alba Craft facility after ORNL performed a designation survey of the property in 1992. The survey confirmed that residual radioactive material exceeding current DOE guidelines was present inside the dwelling and on some portions of the grounds. The uranium was believed to have been transported to the residence by the former owner of the laboratory, who may have "tracked" small quantities of residual radioactive material (uranium dust and/or filings) into his home on his shoes and clothing; however, most of the material is believed to have resulted from machining of uranium metal in the garage.

The interior areas requiring remedial action were in the den, upstairs, and in the garage (Figure I-6). Areas in the den included the fireplace footer, the hardwood flooring and portions of the subfloor, the crawl space under the den, and the stairs leading down to the den.

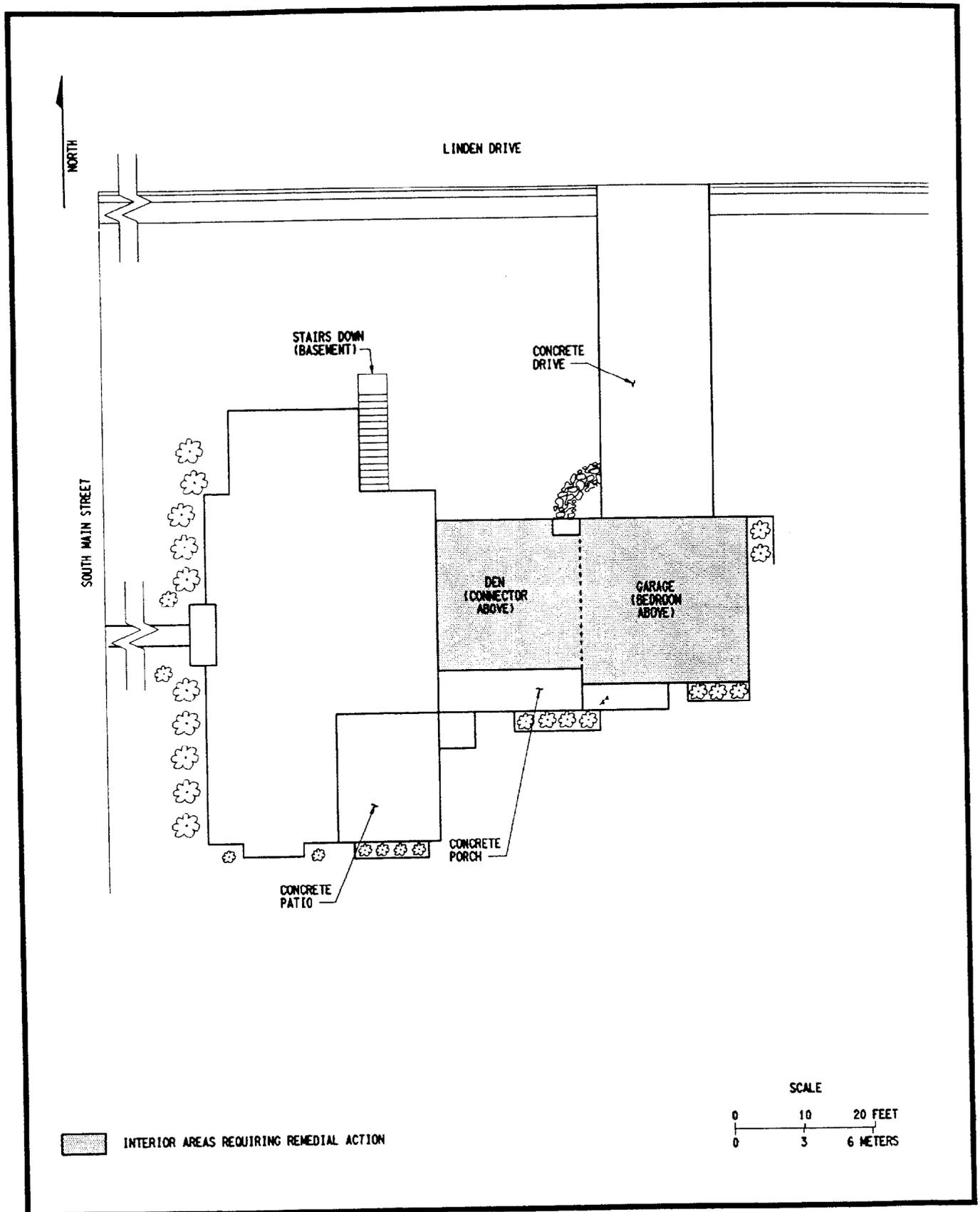
Upstairs areas requiring remedial action included the hardwood flooring and portions of the subfloors in the upstairs east bedroom, the hallway between the bedroom and the connector, and the entrances to the crawl space of the connector.

The ceiling, staircase, and a drain line in the garage required remedial action, as well as the garage bathroom floor and door frame and the threshold of the southern garage door.

The exterior areas that were excavated consisted of three flower beds, two in the front and one in the rear of the house, and sections on both sides of the driveway. A 3.7-m<sup>2</sup> (40-ft<sup>2</sup>) area in the back yard was also found to exceed current DOE guidelines, and the soil in this area was excavated (Figure I-6).

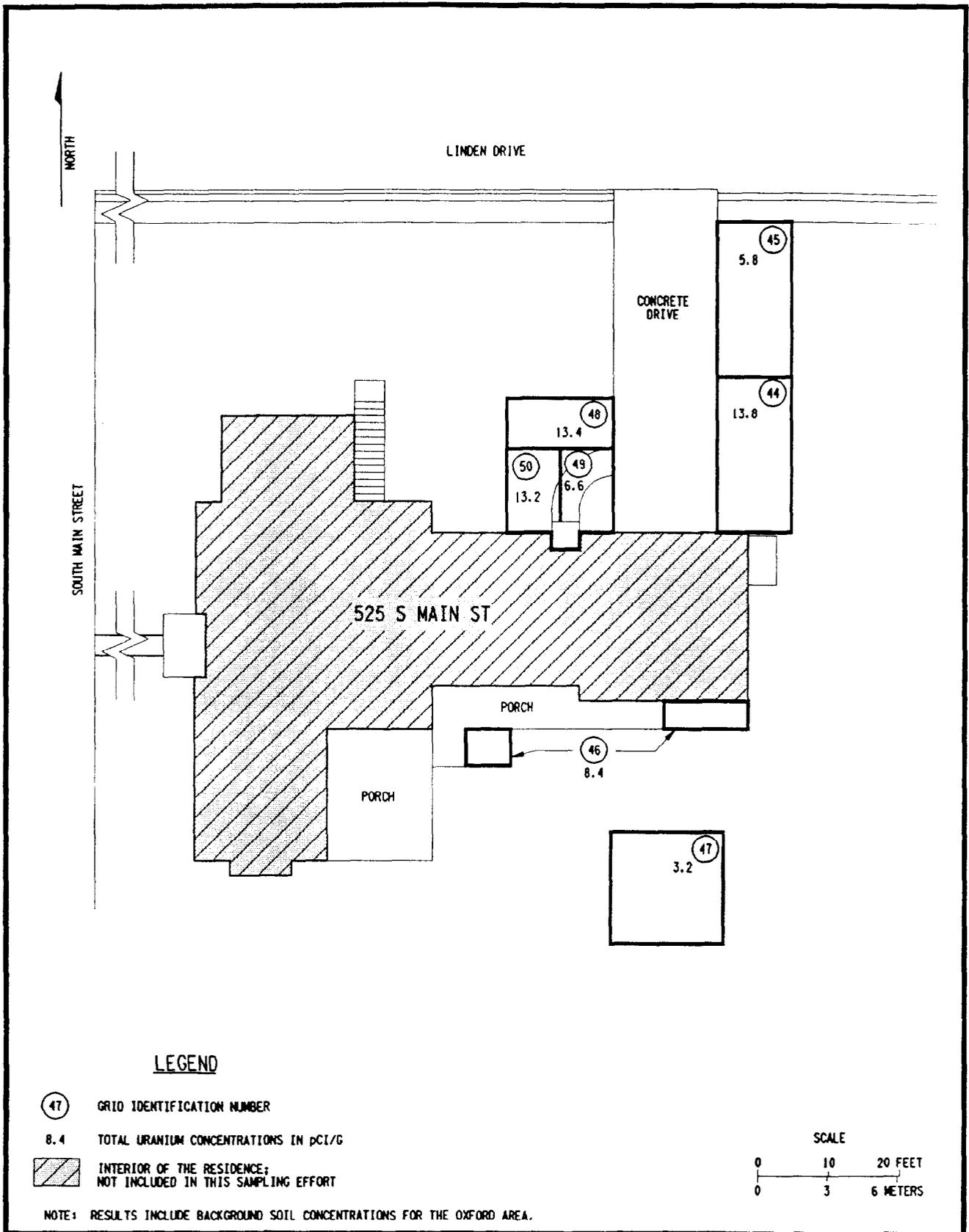
## **5.3 POST-REMEDIAL ACTION MEASUREMENTS**

As remediation of the site was completed, post-remedial action surveys were performed and samples taken to ensure that decontamination efforts were successful in meeting DOE cleanup criteria. Post-remediation surveys were conducted by ThermoAnalytical, Inc. (now known as Thermo NUtech), the radiological support subcontractor, on behalf of BNI. Survey techniques used during the post-remedial action and verification surveys included direct (nontransferable and transferable) surface contamination measurements, walkover gamma scans, exposure rate measurements, and soil sampling.



R74F005.DGN

Figure I-5  
Site Plan of the Vicinity Property at 525 South Main Street



R74F006.DGN

Figure I-6  
Post-Remedial Action Soil Sample Results at 525 South Main Street

The Alba Craft site post-remedial action survey plan (Ref. 13) describes the methodologies for each of the survey and sampling techniques. Exposure rate measurements were taken with a pressurized ionization chamber (PIC) to confirm that external gamma exposure rates were below the DOE guideline of 20  $\mu\text{R}/\text{h}$  above background for building interiors and the dose rate (11  $\mu\text{R}/\text{h}$  above background) that could lead to doses of 100 mrem/yr to members of the general public. Soil samples were collected and analyzed by the radiological support subcontractor to establish that soil contaminated above the site-specific criteria had been removed. Concentrations of direct alpha and beta/gamma and transferable alpha and beta/gamma contamination were also measured to ensure that decontamination efforts were successful. Details about the post-remedial action measurements for the former Alba Craft Laboratory and vicinity properties are provided in the post-remedial action report for the site (Ref. 9). Sample results received a multidisciplinary data validation review and evaluation relative to the DOE guidelines.

### **5.3.1 Post-Remedial Action Measurements at the Former Alba Craft Facility**

Concentrations of direct and transferable surface contamination were measured on surfaces remaining after remediation to ensure that decontamination efforts were successfully completed. These measurements were performed on the manhole located north of West Rose Avenue on the former Alba Craft property where the concrete parking area was located and on the pipeline that extended onto 550 South Main Street (Figure I-4). Post-remedial action survey measurements ranged from 112 to 1,142 dpm/100  $\text{cm}^2$  for direct contamination and less than the minimum detectable activity for the transferable surface contamination (Table I-3).

After remediation of the site, external gamma exposure rate measurements were obtained using a PIC to ensure that the external gamma exposure rates for the remediated areas were below the applicable standards and criteria. Results from these surveys ranged from 7.5 to 11.6  $\mu\text{R}/\text{h}$  (Table I-4).

Figure I-4 shows the grid used to perform sampling activities and post-remedial action concentrations of total uranium where the main Alba Craft building existed, including areas along West Rose Avenue and at 9 West Rose Avenue. Results ranged from 2.2 to 25.6 pCi/g (Table I-4). Composite soil samples for each grid were collected and analyzed by gamma spectroscopy to ensure that contaminated soil had been removed to concentrations below the site-specific cleanup guideline of 35 pCi/g of total uranium.

### **5.3.2 Post-Remedial Action Measurements at 525 South Main Street**

To confirm that no radioactivity exceeding DOE guidelines remained in the remediated areas, radiological surveys were conducted as remedial actions were being completed. These surveys included direct and transferable surface measurements inside the dwelling and analysis of soil samples collected from the excavated areas outside the structure and in the remediated crawl space.

**Table I-3**  
**Post-Remedial Action Measurements in Drainpipe and Manhole**

<b>Location</b>	<b>Direct Beta/ Gamma Results (dpm/100 cm<sup>2</sup>)</b>	<b>Transferable Beta/ Gamma Results (dpm/100 cm<sup>2</sup>)</b>
Distance into remaining piping:		
1 ft	531	<12
2 ft	398	<18
3 ft	929	<-8
4 ft	1,142	<-32
5 ft	1,088	<-42
6 ft	504	<12
7 ft	1,035	<-61
8 ft	717	<21
9 ft	770	<26
10 ft	1,115	<3
Manhole cover, edge	391	<-25
Cover, ledge	559	<-30
Concrete base	363	<-20
Concrete base	112	<-16
Guidelines	5,000	1,000

- NOTE: 1. "<" sign indicates that the measurement is less than the minimum detectable activity (MDA).
2. "<-" sign indicates that the measurement was less than the MDA and that after background was subtracted, the numerical value was negative (e.g., <MDA result minus >MDA background = negative result indicated by "<-").

**Table I-4**  
**Alba Craft Post-Remedial Action Sampling Results**

Grid	Coordinates <sup>a</sup>	Sample No.	Uranium-238 (pCi/g)	Total Uranium <sup>b</sup> (pCi/g)	Gamma Exposure <sup>b</sup> Rate (μR/h)
1	N43, E15	10994091	8.5	16.9	10.5
2	N43, E5	10994092	6.0	12.0	11.3
3	N35, E5	10994056	<1.7	3.4	10.6
4	N35, E15	10994057	3.4	6.8	10.3
5	N50, E15	10994029	<2.0	4.0	10.6
6	N50, E00	10994030	2.1	4.2	11.6
7	N40, E-2.5	10994043	<1.6	3.2	10.8
8	N25, E25	10994044	3.2	6.4	8.4
9	N25, E15	10994099	3.5	7.0	9.8
10	N25, E5	10994063	1.6	3.2	10.2
12	N15, E25	10994045	2.6	5.2	8.3
13	N15, E15	10994105	6.1	12.2	9.0
14	N15, E05	10994065	12.9	25.6	7.9
16	N5, E25	10994066	3.6	7.2	10.2
17	N5, E15	10994106	10.3	20.6	8.7
18	N5, E5	10994072	5.0	10.0	9.1
19	N10, E0	10994094	2.3	4.6	8.9
20	N-4.5, E27	10994078	12.9	25.8	7.5
22	N-2, E20	10994073	4.3	8.6	8.5
23	N-5, E26	10994069	3.7	7.4	10.1
24	N45, E26	10994075	2.3	4.6	8.6
27	N-4, E37	10994089	8.7	17.4	10.0
28	N-19, E27	10994079	7.0	14.0	7.5
29	N-17, E24	10994082	1.1	2.2	8.2
<b>Guidelines</b>				35	--- <sup>c</sup>

<sup>a</sup>All grid coordinates indicate the center of the grid where a composite sample was obtained.

<sup>b</sup>All results include background readings for the Oxford, Ohio, area.

<sup>c</sup>Less than 20 μR/h above background for habitable structures or a maximum of 100 mrem/yr from all pathways except radon.

NOTE: "<" indicates that the sample result is less than the minimum detectable activity.

Post-remedial action surveys were conducted on all decontaminated surfaces inside the dwelling including areas in the den, upstairs, and in the garage (Figures I-7 through I-11). All survey results were well below the DOE guidelines.

After 100 percent walkover gamma surveys were completed, 1-m (3.3-ft) survey grids were established over the remediated floors, and measurements to detect both alpha and beta/gamma radiation were collected at the corners and in the center of each grid (Figures I-7 through I-11). Post-remedial action results are presented in Table I-5.

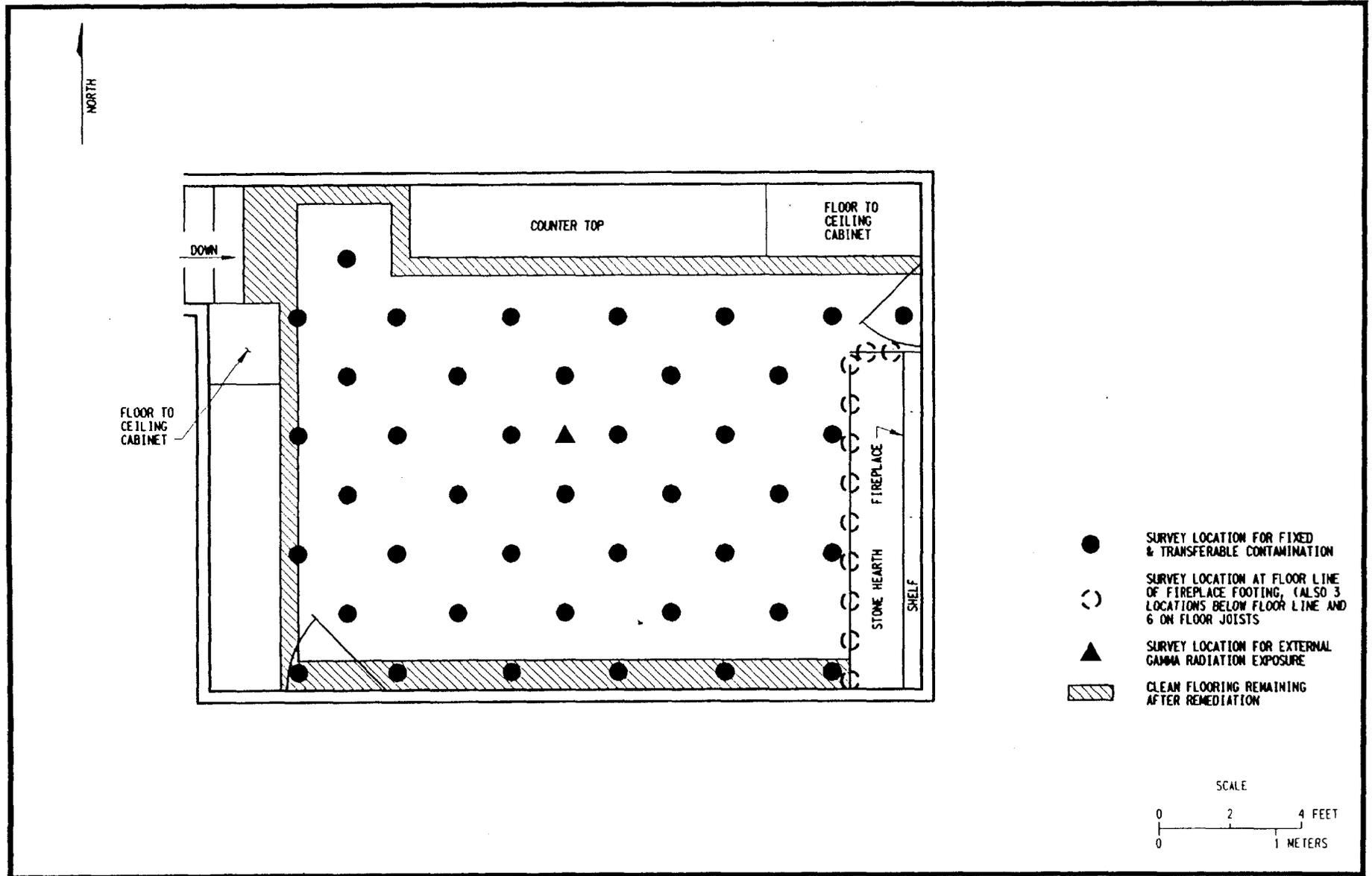
The gamma exposure rate was measured 1 m (3.3 ft) above the floor in the rooms where contaminated flooring was removed (see Figures I-7 and I-11). Readings taken at this height provide an estimate of the potential exposure from gamma radiation to the critical organs of the body nearest the ground or floor. Measurements were made with a PIC. All exposure rates were indistinguishable from the background exposure rate, which ranged from 8 to 9.4  $\mu\text{R}/\text{h}$ . The exposure rates inside the dwelling were, therefore, well below the DOE guideline, which specifies 20  $\mu\text{R}/\text{h}$  above background exposure rate as the maximum acceptable average exposure rate inside a building or habitable structure. Results are presented in Table I-6.

The external gamma exposure rate measurements for the outside of the residence were verified by the IVC to be well below the applicable standards and criteria. The measurements ranged from 9.1 to 9.9  $\mu\text{R}/\text{h}$  (Table I-5).

To confirm that all contamination was removed from exterior soils and the crawl space adjacent to the basement, samples of the soil were collected and analyzed for uranium-238, uranium-235, and uranium-234. The concentrations of uranium in these samples were indistinguishable from background.

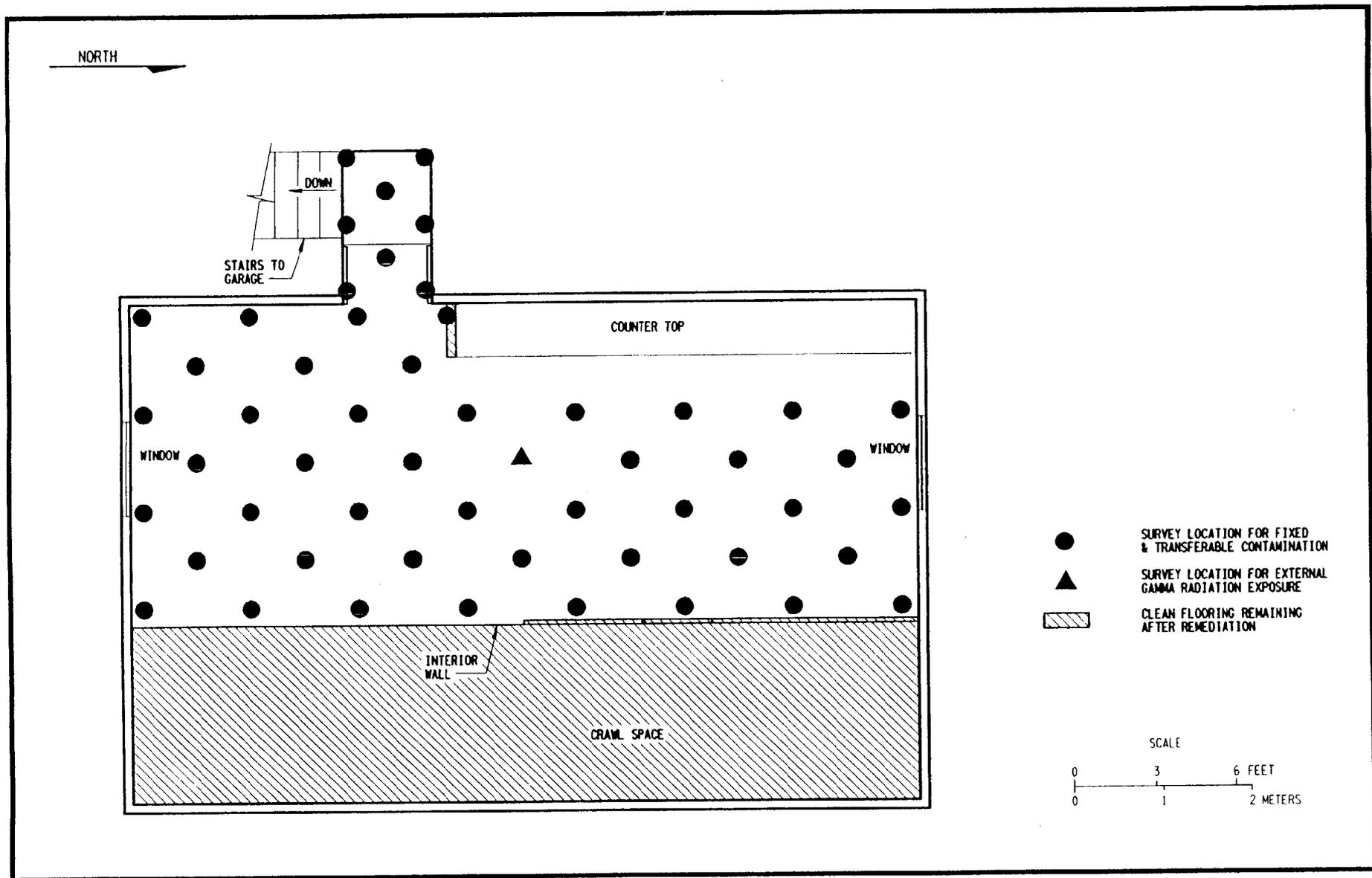
The sum of the concentrations of the three uranium isotopes resulted in the total uranium concentration for a sample. The 35-pCi/g criterion applied to the cleanup of soil in the crawl space and the yard. The samples from the crawl space contained only background concentrations of uranium and were therefore well below the 35-pCi/g limit.

To obtain the samples, a 1-m (3.3-ft) grid was established in the area, and samples were collected from the first 15 cm (6 in.) at 14 of the grid locations. These samples were composited and analyzed as a single sample representing the average for the first 15 cm (6 in.) of soil in the crawl space. Additionally, from 6 of the 14 locations, samples of the soil at the 15- to 30-cm (6- to 12-in.) depth were collected, composited, and analyzed as a single average sample. Sampling locations are shown in Figure I-11. Results are presented in Table I-7.



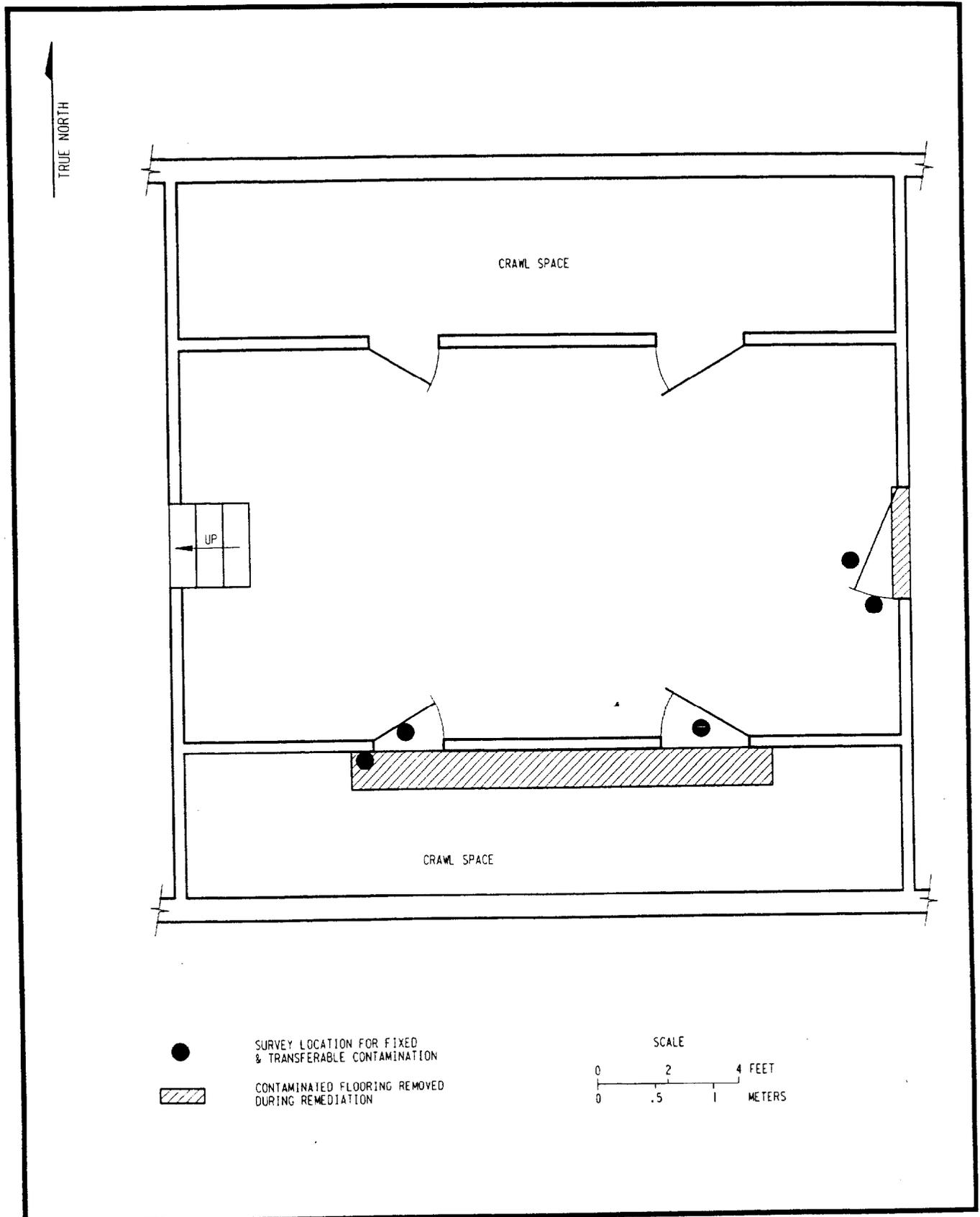
R74F 007.DGN

Figure I-7  
525 South Main Street - Downstairs Den -  
Approximate Post-Remedial Action Survey Locations



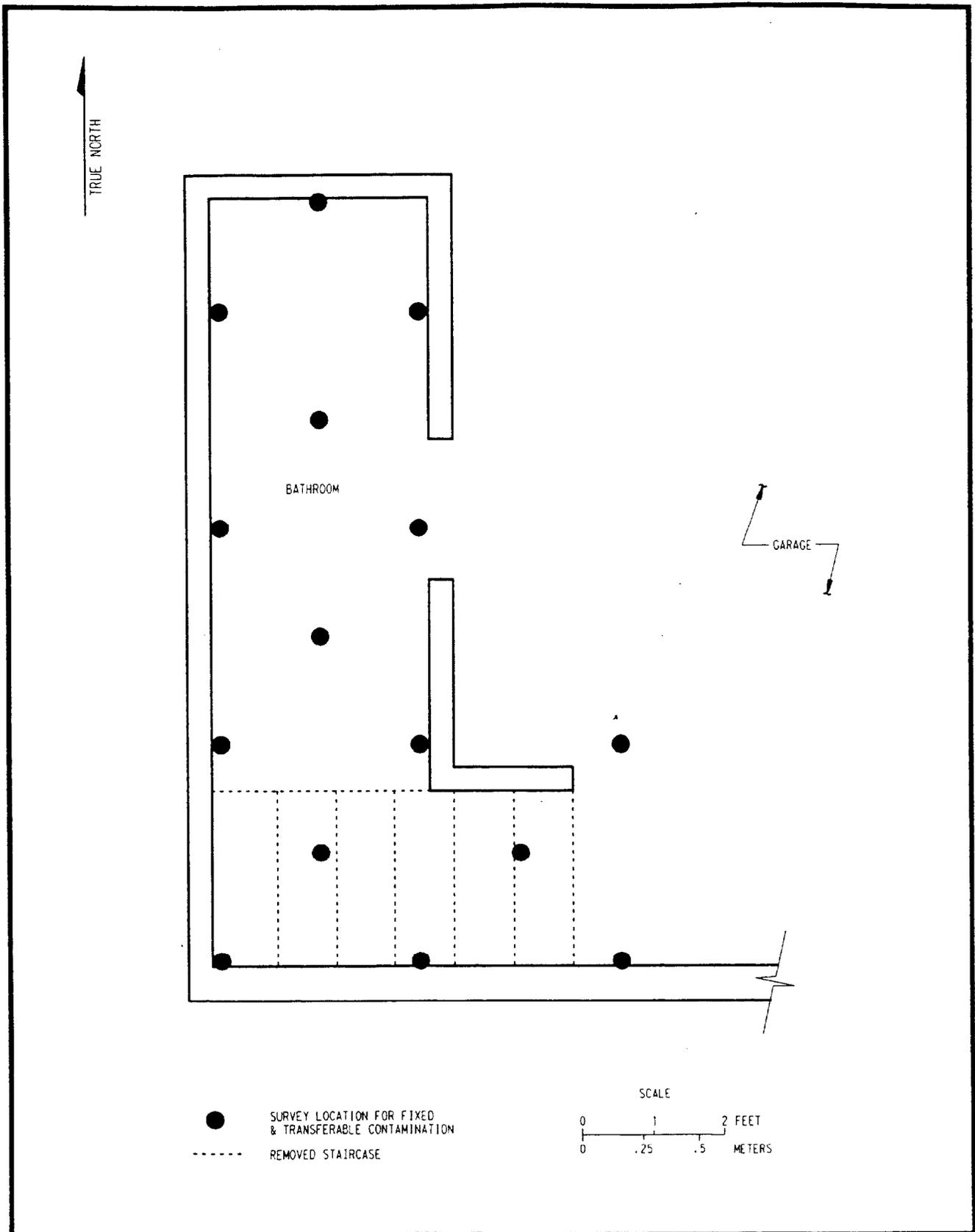
R74F 008.DGN

Figure I-8  
525 South Main Street - Upstairs Bedroom and Hallway -  
Approximate Post-Remedial Action Survey Locations



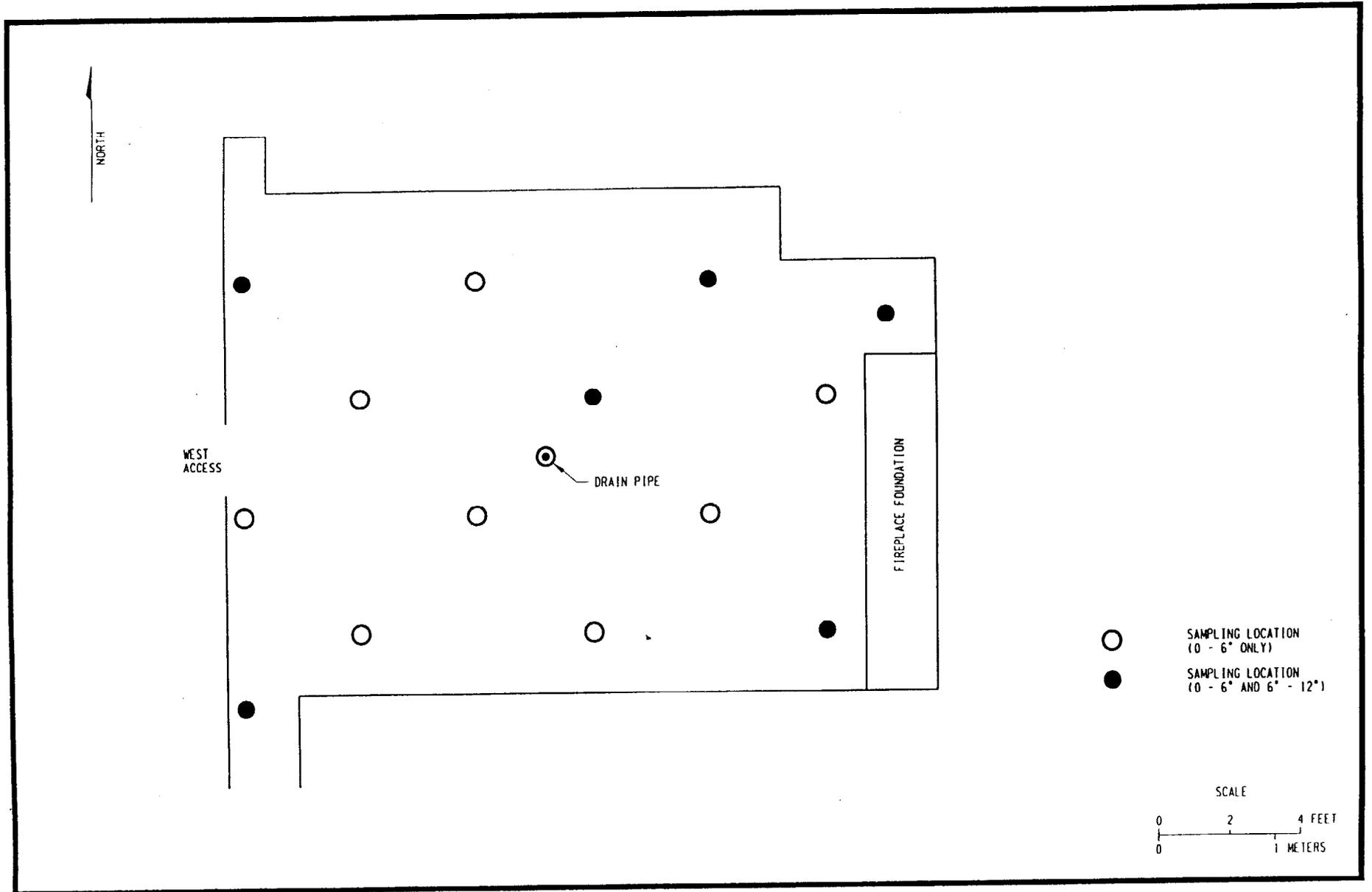
R74F009.DGN

Figure I-9  
 525 South Main Street - Upstairs Connector -  
 Approximate Post-Remedial Action Survey Locations



R74F010.DGN

Figure I-10  
 525 South Main Street - Garage Bathroom -  
 Approximate Post-Remedial Action Survey Locations



R74F 011.DGN

Figure I-11  
525 South Main Street - Approximate Soil Sampling Locations  
in the Basement Crawl Space

**Table I-5**  
**Summary of Post-Remedial Action Radiological Survey Results for 525 South Main Street**

Room/Location	Direct Surface Contamination				Transferable Contamination			
	Alpha		Beta/Gamma		Alpha		Beta/Gamma	
	Sample Activity Range (dpm/100cm <sup>2</sup> )	Number of Measurements/ Number below Criteria <sup>a</sup>	Sample Activity Range (dpm/100cm <sup>2</sup> )	Number of Measurements/ Number below Criteria <sup>a</sup>	Sample Activity Range (dpm/100cm <sup>2</sup> )	Number of Measurements/ Number below Criteria <sup>a</sup>	Sample Activity Range (dpm/100cm <sup>2</sup> )	Number of Measurements/ Number below Criteria <sup>a</sup>
Den floor <sup>b</sup>	<27	42/42	<243 - <503	42/42	3 - 6	42/42	<37 - <67	42/42
Fireplace footer in den <sup>c</sup>	32 - 219	15/15	<370 - <707	15/15	<2 - 8	15/15	<58 - <102	15/15
Floor joist in den <sup>c</sup>	<33 - 172	6/6	<370 - 693	6/6	<2 - 8	6/6	<58	6/6
Upstairs bedroom <sup>b</sup>	<16 - <31	48/48	<243 - 818	48/48	3 - 6	48/48	<37 - <67	48/48
Entrances to crawl space adjacent to connector <sup>b</sup>	<16	3/3	<243 - <440	3/3	3	3/3	<37 - <44	3/3
Connector entrance to hallway <sup>b</sup>	<16 - <31	2/2	275 - 1069	2/2	3	2/2	<37	2/2
Upstairs landing and hallway to bedroom and connector <sup>b</sup>	<16	8/8	<243 - <461	8/8	3 - 6	8/8	<37 - <44	8/8
Floor of garage bathroom <sup>d</sup>	<2 - 124	17/17	<459 - 1027	17/17	<3 - <6	17/17	<55 - <73	17/17
Door frame of garage bathroom <sup>d</sup>	18 - 98	2/2	<706 - 1188	2/2	<3	2/2	<55	2/2
Top of east wall of garage bathroom <sup>d</sup>	<2	2/2	<882 - 1059	2/2	<3	2/2	<55 - <59	2/2
Southern garage door threshold <sup>d</sup>	69 - 140	3/3	468 - 676	3/3	<2 - 5	3/3	<52	3/3
<b>DOE Guideline<sup>e</sup></b>	5,000		5,000		1,000		1,000	

<sup>a</sup>A measurement that is below criteria is judged to be radiologically clean.

<sup>b</sup>Surveys performed October 26-27, 1993.

<sup>c</sup>Survey performed January 6, 1994.

<sup>d</sup>Surveys performed March 3-12, 1994.

<sup>e</sup>The guidelines presented are extracted from DOE Order 5400.5, "Radiation Protection of the Public and the Environment"; these values represent the average allowable surface residual contamination (over a 1-m<sup>2</sup> area).

NOTE: "<" sign indicates that the measurement is less than the minimum detectable activity.

**Table I-6**  
**Summary of Post-Remedial Action Gamma Radiation Exposure Rates**

Room or Area	Exposure Rate <sup>a</sup> ( $\mu$ R/h)	Number of Measurements	Number Exceeding Indoor Exposure Limit <sup>b</sup>
West bedroom	8.0	3	0
Den	8.8	3	0
Background range	8.0 - 9.4	3	N/A
DOE guideline <sup>b</sup>	<20		

<sup>a</sup>Reported gamma radiation exposure rates include background for the Oxford area.

<sup>b</sup>The guideline is extracted from DOE Order 5400.5, "Radiation Protection of the Public and the Environment," which states that the average level of gamma radiation inside a building on a site that has no radiological restrictions on its use shall not exceed the background level by more than 20  $\mu$ R/h.

After the soil in the flower beds and areas adjacent to the driveway was excavated, composite soil samples were taken on a 10-m by 10-m (30-ft by 30-ft) grid to verify that the remedial action was complete. Figure I-6 shows the post-remedial action results for total uranium in soil at 525 South Main Street, validating that the soil concentrations are well below current DOE guidelines. Results ranged from 3.2 to 13.8 pCi/g (Table I-8).

#### **5.4 VERIFICATION ACTIVITIES**

After the remedial action was completed, the IVC conducted a survey and obtained soil samples to verify that the site was remediated to levels below applicable guidelines. The objective of the independent verification survey was to confirm that the surveys, sampling, and analyses conducted during the remedial action process provided an accurate and complete description of the radiological status of the property.

The IVC's activities included reviewing the published radiological survey reports and the post-remedial action report, visually inspecting the site, and performing radiological survey and sampling activities. The surveys were conducted in accordance with DOE-approved verification and certification protocol (Ref. 13). Upon completion of the verification activities, the IVC prepared verification reports and submitted them to DOE (Refs. 10 and 11).

#### **5.5 PUBLIC AND OCCUPATIONAL EXPOSURES**

##### **5.5.1 Occupational Exposure**

The primary exposure pathway for onsite personnel during remediation activities was inhalation and ingestion of radioactively contaminated airborne dust from the mechanical decontamination of the interior structural surfaces, material size-reduction operations, and excavation of contaminated soils. The spread of dust was controlled by HEPA filtration units; a Vacublast™ decontamination system, which has an internal dust reduction system; and maintaining adequate debris and soil moisture with a fine mist of water.

Particulate air monitoring devices were placed in the areas being remediated to monitor the airborne particulate concentrations available for the exposure pathways. The concentrations of uranium-238 ranged from background to  $7.0 \times 10^{-13}$   $\mu\text{Ci/ml}$  (0.0007 pCi/L). These concentrations were conservatively derived by collecting air particulate samples daily from lapel air samplers worn by workers and conservatively assuming all of the activity on the filter to be uranium-238. The measured airborne concentrations were then compared with the applicable DOE derived air concentrations (DACs). For occupational exposures to airborne uranium 238, the DAC is  $2.0 \times 10^{-11}$   $\mu\text{Ci/ml}$  (0.02 pCi/L) (DOE Order 5480.11).

**Table I-7**  
**Post-Remedial Action Soil Samples from the Crawl Space at 525 South Main Street**

Sampling Location	Uranium Concentration (pCi/g) in Soil Samples					Number of Sampling Locations
	Gamma Spectroscopy Results	Alpha Spectroscopy Results			Total Uranium <sup>a</sup>	
	Uranium-238	Uranium-238	Uranium-234	Uranium-235		
0 to 6 in.	<1.50	1.60 ± 0.71	1.60 ± 0.72	0.08 ± 0.11	4.79	14 <sup>b</sup>
6 to 12 in.	<2.50	1.40 ± 0.57	1.80 ± 0.69	<0.08	4.54	6 <sup>b</sup>
Average background	<2.90	-	-	-	-	3
DOE Guideline	-	-	-	-	35 pCi/g	

<sup>a</sup>Represents the maximum total uranium concentration in the sample (95% confidence), calculated as the sum of the results for uranium-238, uranium-234, and uranium-235 and their respective error terms.

<sup>b</sup>Samples collected from each location were composited and analyzed as a single sample.

NOTE: "<" sign indicates that the measurement is less than the minimum detectable activity.

**Table I-8**  
**Post-Remedial Action Sample Results for**  
**525 South Main Street**

<b>Grid</b>	<b>Coordinates<sup>a</sup></b>	<b>Sample No.</b>	<b>Uranium-238 (pCi/g)</b>	<b>Total Uranium<sup>b</sup> (pCi/g)</b>	<b>Gamma Exposure Rate<sup>b</sup> (μR/h)</b>
44	N18, E23	10994033	6.9	13.8	9.1
45	N25, E23	10994034	2.9	5.8	9.1
46	N5, E13	10994035	4.2	8.4	9.1
47	N-1, E20	10994036	1.6	3.2	9.5
48	N19, E15	10994037	6.7	13.4	9.9
49	N17, E16	10994038	3.3	6.6	9.9
50	N17, E14	10994070	6.6	13.2	9.9
DOE Guidelines				35	--- <sup>c</sup>

<sup>a</sup>All grid coordinates indicate the center of the grid where a composite sample was obtained.

<sup>b</sup>Results include background readings for the Oxford, Ohio, area.

<sup>c</sup>Less than 20 μR/h above background for habitable structures or a maximum of 100 mrem/yr from all pathways except radon.

### 5.5.2 Exposure Pathways to the General Public

During remedial activities, the primary potential exposure pathways to radioactive material for members of the general public were inhalation and ingestion of radioactively contaminated airborne dust generated during the material size-reduction operations and the excavation of contaminated soils. During these processes, the potential for dust migration was minimized by spraying a fine mist of water on the debris and soil.

Perimeter air particulate sampling was also performed adjacent to areas being remediated to ensure that no member of the general public was exposed to radioactivity above the current DOE guidelines (DOE Order 5400.5). The limits expressed in DOE Order 5400.5 are derived concentration guides (DCGs); a DCG is the concentration of a particular radionuclide that would yield a committed effective dose equivalent of 100 mrem/yr (the DOE basic dose limit) to an individual continuously exposed to the radionuclide by one pathway for an entire year. The DCG is  $2.0 \times 10^{-12}$   $\mu\text{Ci/ml}$  (0.002 pCi/L) for uranium-238. This guideline was established to protect members of the general public and the environment against undue risk from radiation. A high-volume air sampler was used for these measurements. The filters were collected daily and counted after sufficient time was allowed for radon progeny decay. The concentrations of uranium-238 measured ranged from background to  $1.9 \times 10^{-14}$   $\mu\text{Ci/ml}$  (0.000019 pCi/L), less than one-hundredth of the DCG.

## 5.6 WASTE MANAGEMENT

The decontamination and demolition of the Alba Craft building was conducted in a manner that would reduce costs while expediting the remedial action. One cost-reduction measure was the use of a Torgerson Rock Crusher. The crusher was used to reduce the size of concrete debris from the building into a granular soil-like consistency. The soil-like material could be shipped and disposed of at significantly lower unit rates than the rates for shipping and disposing of debris.

The types of waste streams and the volumes that were generated during cleanup of the Alba Craft site are listed in Table I-9. All of the excavated material was disposed of as low-level radioactive material; none of the crushed building material was used for backfill or fill material.

## 5.7 COSTS

The final costs associated with the remedial action performed at the former Alba Craft Laboratory site are presented in Table I-10.

**Table I-9  
Remedial Action Summary**

WBS 109  
 SITE Former Alba Craft Laboratory  
 OWNER Mr. Gilbert Pacey  
 SITE ADDRESS 10-14 West Rose Avenue  
 CITY, STATE Oxford, Ohio

REMEDIATION AUTHORITY  
 NEPA/CERCLA  
 SUPERFUND  
 RCRA

ACTION	DATE	RESPONSIBLE ENTITY	DOCUMENT
DESIGNATION	09-25-1992	DOE	Designation/Authorization Report
CHARACTERIZATION	03-10-1992	ORNL	Results of the Radiological Surveys at the Former Alba Craft Laboratory Site Properties, Oxford, Ohio
CHARACTERIZATION	04-04-1994	ORNL	Results of Radiological Survey at 525 South Main Street
CHARACTERIZATION	09-02-1994	ORNL	Alba Craft Site - Radiological Condition of the Property at 550 South Main Street
FINAL RA	07-31-1995	DOE/ORNL/ BNI	Post-Remedial Action Report for the Former Alba Craft Laboratory Site and Vicinity Properties, Oxford, Ohio

TOTAL VOLUME 2,764 yd<sup>3</sup>

To Remain In Situ 0  
 Volume Reduction 0  
 Net Disposal 2,764 yd<sup>3</sup>

Documentation Used: N/A

TYPE OF WASTE FOR NET DISPOSAL:

REGULATORY

- LLRW  
 11(E)2  
 MIXED \_\_\_\_\_  
 CHEMICAL \_\_\_\_\_

VOLUME  
2,764 yd<sup>3</sup>

DISPOSAL SITE  
Clive, Utah

PHYSICAL

- BUILDING RUBBLE  
 SOIL  
 LIQUID  
 OTHER \_\_\_\_\_

TREATMENT TECHNOLOGIES APPLIED AT THE SITE:

Torgerson Rock Crusher - Volume Reduction Unit

**Table I-10**  
**Cost of Remedial Action at the**  
**Alba Craft Laboratory and Vicinity Properties**

<b>Description</b>	<b>Cost</b>
Design engineering	\$ 79,000
Remedial action operations	1,528,000
Waste transport and disposal	1,791,000
Final engineering reports	35,000
Project support <sup>a</sup>	994,000
<b>TOTAL</b>	<b>\$4,427,000</b>

<sup>a</sup>Project support cost includes all travel, materials and supplies, leased equipment, site reimbursement, and administrative costs.

## REFERENCES

1. DOE, Description of the Formerly Utilized Sites Remedial Action Program, ORO-777, Oak Ridge, Tenn., September 1980.
2. M. E. Murray, K. S. Brown, and R. A. Mathis, Results of the Radiological Survey at the Former Alba Craft Laboratory Site Properties, Oxford, Ohio (OX0001), ORNL/RASA-92/14, Oak Ridge National Laboratory, March 1993.
3. DOE, Engineering Evaluation and Cost Analysis for the Alba Craft Site, Oxford, Ohio, Oak Ridge Operations Office, August 1994.
4. DOE, Office of Environmental Restoration, Designation Summary for Alba Craft Laboratory, Oxford, Ohio, October 1, 1992.
5. Memorandum from M. E. Murray (ORNL) to W. A. Williams (DOE-HQ), "Results of Radiological Survey at 525 South Main Street," BNI CCN 115778, April 4, 1994.
6. DOE, Radiological Survey Results for Neighboring Properties of the Alba Craft Site, Oxford, Ohio, March 1, 1994.
7. Argonne National Laboratory, Derivation of Uranium Residual Radioactive Material Guidelines for the Former Alba Craft Laboratory Site, Oxford, Ohio, ANL/EAD/TM-9, January 1994.
8. DOE, Design Criteria for Formerly Utilized Sites Remedial Action Program (FUSRAP) and Surplus Facilities Management Program (SFMP), Rev. 2, Oak Ridge, Tenn., February 1986.
9. BNI, Post-Remedial Action Report for the Alba Craft Site and Vicinity Properties, Oxford, Ohio, DOE/OR/21949-387, August 1995
10. ORNL, Results of the Independent Radiological Verification Survey of the Remedial Action Performed at the Former Alba Craft Laboratory Site, Oxford, Ohio (OX0001), ORNL/TM-12968, Oak Ridge, Tenn., April 1996.
11. ORNL, Results of the Independent Radiological Verification Survey of the Remedial Action Performed at 525 S. Main Street, Oxford, Ohio (OX0002), ORNL/RASA-95/2, Oak Ridge, Tenn., April 1996.
12. BNI, Alba Craft Laboratory and Vicinity Properties Post-Remedial Action Survey Plan, BNI CCN 119033, August 3, 1994.
13. DOE, Verification and Certification Protocol for the Office of Environmental Restoration FUSRAP and D&D Program, Revision 3, November 1990.

APPENDIX I-A  
DOE ORDER 5400.5, CHAPTER IV  
RESIDUAL RADIOACTIVE MATERIAL

## CHAPTER IV

### RESIDUAL RADIOACTIVE MATERIAL

1. **PURPOSE.** This chapter presents radiological protection requirements and guidelines for cleanup of residual radioactive material and management of the resulting wastes and residues and release of property. These requirements and guidelines are applicable at the time the property is released. Property subject to these criteria includes, but is not limited to sites identified by the Formerly Utilized Sites Remedial Action Program (FUSRAP) and the Surplus Facilities Management Program (SFMP). The topics covered are basic dose limits, guidelines and authorized limits for allowable levels of residual radioactive material, and control of the radioactive wastes and residues. This chapter does not apply to uranium mill tailings or to properties covered by mandatory legal requirements.
2. **IMPLEMENTATION.** DOE elements shall develop plans and protocols for the implementation of this guidance. FUSRAP sites shall be identified, characterized, and designated, as such, for remedial action and certified for release. Information on applications of the guidelines and requirements presented herein, including procedures for deriving specific property guidelines for allowable levels of residual radioactive material from basic dose limits, is contained in DOE/CH 8901, "A Manual for Implementing Residual Radioactive Material Guidelines, A Supplement to the U.S. Department of Energy Guidelines for Residual Radioactive Material at FUSRAP and SFMP Sites," June 1989.
  - a. **Residual Radioactive Material.** This chapter provides guidance on radiation protection of the public and the environment from:
    - (1) Residual concentrations of radionuclides in soil (for these purposes, soil is defined as unconsolidated earth material, including rubble and debris that might be present in earth material);
    - (2) Concentrations of airborne radon decay products;
    - (3) External gamma radiation;
    - (4) Surface contamination; and
    - (5) Radionuclide concentrations in air or water resulting from or associated with any of the above.
  - b. **Basic Dose Limit.** The basic dose limit for doses resulting from exposures to residual radioactive material is a prescribed standard from which limits for quantities that can be monitored and controlled are derived; it is specified in terms of the effective dose equivalent as defined in this Order. The basic dose limits are used for deriving guidelines for residual concentrations of radionuclides in soil. Guidelines for residual concentrations of thorium and radium in soil, concentrations of airborne radon decay products, allowable indoor external gamma radiation levels, and residual surface contamination concentrations are based on existing radiological protection standards (40 CFR Part 192; NRC Regulatory Guide 1.86 and subsequent NRC guidance on residual radioactive material). Derived guidelines or limits based on the basic dose limits for those quantities are used only when the guidelines provided in the existing standards are shown to be inappropriate.

c. Guideline. A guideline for residual radioactive material is a level of radioactive material that is acceptable for use of property without restrictions due to residual radioactive material. Guidelines for residual radioactive material presented herein are of two kinds, generic and specific. The basis for the guidelines is generally a presumed worst-case plausible-use scenario for the property.

- (1) Generic guidelines, independent of the property, are taken from existing radiation protection standards. Generic guideline values are presented in this chapter.
- (2) Specific property guidelines are derived from basic dose limits using specific property models and data. Procedures and data for deriving specific property guideline values are given by DOE/CH-8901.

d. Authorized Limit. An authorized limit is a level of residual radioactive material that shall not be exceeded if the remedial action is to be considered completed and the property is to be released without restrictions on use due to residual radioactive material.

(1) The authorized limits for a property will include:

- (a) Limits for each radionuclide or group of radionuclides, as appropriate, associated with residual radioactive material in soil or in surface contamination of structures and equipment;
- (b) Limits for each radionuclide or group of radionuclides, as appropriate, in air or water; and
- (c) Where appropriate, a limit on external gamma radiation resulting from the residual material.

(2) Under normal circumstances expected at most properties, authorized limits for residual radioactive material are set equal to, or below, guideline values. Exceptional conditions for which authorized limits might differ from guideline values are specified in paragraphs IV-5 and IV-7.

(3) A property may be released without restrictions if residual radioactive material does not exceed the authorized limits or approved supplemental limits, as defined in paragraph IV.7a, at the time remedial action is completed. DOE actions in regard to restrictions and controls on use of the property shall be governed by provisions in paragraph IV.7b. The applicable controls and restrictions are specified in paragraph IV.6 and IV.7.c.

e. ALARA Applications. The monitoring, cleanup, and control of residual radioactive material are subject to the ALARA policy of this Order. Applications of ALARA policy shall be documented and filed as a permanent record.

### 3. BASIC DOSE LIMITS.

a. Defining and Determining Dose Limits. The basic public dose limits for exposure to residual radioactive material, in addition to natural occurring "background" exposures, are 100 mrem (1 mSv) effective dose equivalent in a year, as specified in paragraph II.1a.

- b. Unusual Circumstances. If, under unusual circumstances, it is impracticable to meet the basic limit based on realistic exposure scenarios, the respective project and/or program office may, pursuant to paragraph II.1a(4), request from EH-1 for a specific authorization for a temporary dose limit higher than 100 mrem (1 mSv), but not greater than 500 mrem (5 mSv), in a year. Such unusual circumstances may include temporary conditions at a property scheduled for remedial action or following the remedial action. The ALARA process shall apply to the selection of temporary dose limits.

#### 4. GUIDELINES FOR RESIDUAL RADIOACTIVE MATERIAL.

- a. Residual Radionuclides in Soil. Generic guidelines for thorium and radium are specified below. Guidelines for residual concentrations of other radionuclides shall be derived from the basic dose limits by means of an environmental pathway analysis using specific property data where available. Procedures for these derivations are given in DOE/CH-8901. Residual concentrations of radioactive material in soil are defined as those in excess of background concentrations averaged over an area of 100 m<sup>2</sup>.

(1) Hot Spots. If the average concentration in any surface or below-surface area less than or equal to 25 m<sup>2</sup>, exceeds the limit or guideline by a factor of  $(100/A)^{0.5}$ , [where A is the area (in square meters) of the region in which concentrations are elevated], limits for "hot-spots" shall also be developed and applied. Procedures for calculating these hot-spot limits, which depend on the extent of the elevated local concentrations, are given in DOE/CH-8901. In addition, reasonable efforts shall be made to remove any source of radionuclide that exceeds 30 times the appropriate limit for soil, irrespective of the average concentration in the soil.

(2) Generic Guidelines. The generic guidelines for residual concentrations of Ra-226, Ra-228, Th-230, and Th-232 are:

- (a) 5 pCi/g, averaged over the first 15 cm of soil below the surface; and
- (b) 15 pCi/g, averaged over 15-cm-thick layers of soil more than 15 cm below the surface.

(3) Ingrowth and Mixtures. These guidelines take into account ingrowth of Ra-226 from Th-230 and of Ra-228 from Th-232, and assume secular equilibrium. If both Th-230 and Ra-226 or both Th-232 and Ra-228 are present and not in secular equilibrium, the appropriate guideline is applied as a limit for the radionuclide with the higher concentration. If other mixtures of radionuclides occur, the concentrations of individual radionuclides shall be reduced so that either the dose for the mixtures will not exceed the basic dose limit or the sum of the ratios of the soil concentration of each radionuclide to the allowable limit for that radionuclide will not exceed 1. Explicit formulas for calculating residual concentration guidelines for mixtures are given in DOE/CH-8901.

- b. Airborne Radon Decay Products. Generic guidelines for concentrations of airborne radon decay products shall apply to existing occupied or habitable structures on private property that are intended for release without restriction; structures that will be demolished or buried are excluded. The applicable generic guideline (40 CFR Part 192) is: In any occupied or habitable building, the objective of remedial action shall be, and a reasonable effort shall be made to achieve, an annual average (or equivalent) radon

decay product concentration (including background) not to exceed 0.02 WL. [A working level (WL) is any combination of short-lived radon decay products in 1 L of air that will result in the ultimate emission of  $1.3 \times 10^5$  MeV of potential alpha energy.] In any case, the radon decay product concentration (including background) shall not exceed 0.03 WL. Remedial actions by DOE are not required in order to comply with this guideline when there is reasonable assurance that residual radioactive material is not the source of the radon concentration.

- c. External Gamma Radiation. The average level of gamma radiation inside a building or habitable structure on a site to be released without restrictions shall not exceed the background level by more than 20  $\mu$ R/h and shall comply with the basic dose limit when an "appropriate-use" scenario is considered. This requirement shall not necessarily apply to structures scheduled for demolition or to buried foundations. External gamma radiation levels on open lands shall also comply with the basic limit and the ALARA process, considering appropriate-use scenarios for the area.
- d. Surface Contamination. The generic surface contamination guidelines provided in Figure IV-1 are applicable to existing structures and equipment. These guidelines are generally consistent with standards of the NRC (NRC 1982) and functionally equivalent to Section 4, "Decontamination for Release for Unrestricted Use," of Regulatory Guide 1.86, but apply to nonreactor facilities. These limits apply to both interior equipment and building components that are potentially salvageable or recoverable scrap. If a building is demolished, the guidelines in paragraph IV.6a are applicable to the resulting contamination in the ground.
- e. Residual Radionuclides in Air and Water. Residual concentrations of radionuclides in air and water shall be controlled to the required levels shown in paragraph II.1a and as required by other applicable Federal and/or State laws.

## 5. AUTHORIZED LIMITS FOR RESIDUAL RADIOACTIVE MATERIAL.

- a. Establishment of Authorized Limits. The authorized limits for each property shall be set equal to the generic or derived guidelines unless it can be established, on the basis of specific property data (including health, safety, practical, programmatic and socioeconomic considerations), that the guidelines are not appropriate for use at the specific property. The authorized limits shall be established to (1) provide that, at a minimum, the basic dose limits of in paragraph IV.3, will not be exceeded under the "worst-case" or "plausible-use" scenarios, consistent with the procedures and guidance provided in DOE/CH-8901, or (2) be consistent with applicable generic guidelines. The authorized limits shall be consistent with limits and guidelines established by other applicable Federal and State laws. The authorized limits are developed through the project offices in the field and are approved by the Headquarters Program Office.

**Figure IV-1**  
**Surface Contamination Guidelines**

<b>Radionuclides</b> <sup>2</sup>	<b>Allowable Total Residual Surface Contamination</b> (dpm/100 cm <sup>2</sup> ) <sup>1</sup>		
	<b>Average</b> <sup>3,4</sup>	<b>Maximum</b> <sup>4,5</sup>	<b>Removable</b> <sup>4,6</sup>
Transuranics, I-125, I-129, Ra-226, Ac-227, Ra-228, Th-228, Th-230, Pa-231	RESERVED 100*	RESERVED 300*	RESERVED 20*
Th-Natural, Sr-90, I-126, I-131, I-133, Ra-223, Ra-224, U-232, Th-232	1,000	3,000	200
U-Natural, U-235, U-238, and associated decay product, alpha emitters	5,000	15,000	1,000
Beta-gamma emitters(radionuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above. <sup>7</sup>	5,000	15,000	1,000

<sup>1</sup> As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute measured by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

<sup>2</sup> Where surface contamination by both alpha- and beta-gamma-emitting radionuclides exists, the limits established for alpha- and beta-gamma-emitting radionuclides should apply independently.

<sup>3</sup> Measurements of average contamination should not be averaged over an area of more than 1 m<sup>2</sup>. For objects of less surface area, the average should be derived for each such object.

<sup>4</sup> The average and maximum dose rates associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/h and 1.0 mrad/h, respectively, at 1 cm.

<sup>5</sup> The maximum contamination level applies to an area of not more than 100 cm<sup>2</sup>.

<sup>6</sup> The amount of removable material per 100 cm<sup>2</sup> of surface area should be determined by wiping an area of that size with dry filter or soft absorbent paper, applying moderate pressure, and measuring the amount of radioactive material on the wiping with an appropriate instrument of known efficiency. When removable contamination on objects of surface area less than 100 cm<sup>2</sup> is determined, the activity per unit area should be based on the actual area and the entire surface should be wiped. It is not necessary to use wiping techniques to measure removable contamination levels if direct scan surveys indicate that the total residual surface contamination levels are within the limits for removable contamination.

<sup>7</sup> This category of radionuclides includes mixed fission products, including the Sr-90 which is present in them. It does not apply to Sr-90 which has been separated from the other fission products or mixtures where the Sr-90 has been enriched.

\* Because no values are presented in this order, FUSRAP uses the values shown based on "DOE Guidelines for Residual Radioactive Materials at FUSRAP and Remote SFMP Sites," Revision 2, March 1987 (CCN 046176).

- b. Application of Authorized Limits. Remedial action shall not be considered complete until the residual radioactive material levels comply with the authorized limits, except as authorized pursuant to paragraph IV.7 for special situations where the supplemental limits and exceptions should be considered and it is demonstrated that it is not appropriate to decontaminate the area to the authorized limit or guideline value.
6. CONTROL OF RESIDUAL RADIOACTIVE MATERIAL. Residual radioactive material above the guidelines shall be managed in accordance with Chapter II and the following requirements.
- a. Operational and Control Requirements. The operational and control requirements specified in the following Orders shall apply to interim storage, interim management, and long-term management.
    - (1) DOE 5000.3B, Occurrence Reporting and Processing of Operations Information
    - (2) DOE 5440.1E, National Environmental Policy Act Compliance Program
    - (3) DOE 5480.4, Environmental Protection, Safety, and Health Protection Standards
    - (4) DOE 5482.1B, Environmental, Safety, and Health Appraisal Program
    - (5) DOE 5483.1A, Occupational Safety and Health Program for DOE Employees at Government-Owned, Contractor-Operated Facilities
    - (6) DOE 5484.1, Environmental Protection, Safety, and Health Protection Information Reporting Requirements
    - (7) DOE 5820.2A, Radioactive Waste Management.
  - b. Interim Storage.
    - (1) Control and stabilization features shall be designed to provide, to the extent reasonably achievable, an effective life of 50 years with a minimum life of at least 25 years.
    - (2) Controls shall be designed such that Rn-222 concentrations in the atmosphere above facility surfaces or openings in addition to background levels, will not exceed:
      - (a) 100 pCi/L at any given point;
      - (b) An annual average concentration of 30 pCi/L over the facility site; and
      - (c) An annual average concentration of 3 pCi/L at or above any location outside the facility site.
      - (d) Flux rates from the storage of radon producing wastes shall not exceed 20 pCi/sq.m-sec., as required by 40 CFR Part 61.
    - (3) Controls shall be designed such that concentrations of radionuclides in the groundwater and quantities of residual radioactive material will not exceed applicable Federal or State standards.

- (4) Access to a property and use of onsite material contaminated by residual radioactive material should be controlled through appropriate administrative and physical controls such as those described in 40 CFR Part 192. These control features should be designed to provide, to the extent reasonable, an effective life of at least 25 years.

c. Interim Management.

- (1) A property may be maintained under an interim management arrangement when the residual radioactive material exceeds guideline values if the residual radioactive material is in inaccessible locations and would be unreasonably costly to remove provided that administrative controls are established by the responsible authority (Federal, State, or local) to protect members of the public and that such controls are approved by the appropriate Program Secretarial Officer.
- (2) The administrative controls include but are not limited to periodic monitoring as appropriate; appropriate shielding; physical barriers to prevent access; and appropriate radiological safety measures during maintenance, renovation, demolition, or other activities that might disturb the residual radioactive material or cause it to migrate.
- (3) The owner of the property should be responsible for implementing the administrative controls and the cognizant Federal, State, or local authorities should be responsible for enforcing them.

d. Long-Term Management.

(1) Uranium, Thorium, and Their Decay Products.

- (a) Control and stabilization features shall be designed to provide, to the extent reasonably achievable, an effective life of 1,000 years with a minimum life of at least 200 years.
- (b) Control and stabilization features shall be designed to limit Rn-222 emanation to the atmosphere from the wastes to less than an annual average release rate of 20 pCi/m<sup>2</sup>/s and prevent increases in the annual average Rn-222 concentration at or above any location outside the boundary of the contaminated area by more than 0.5 pCi/L. Field verification of emanation rates shall be in accordance with the requirements of 40 CFR Part 61.
- (c) Before any potentially biodegradable contaminated wastes are placed in a long-term management facility, such wastes shall be properly conditioned so that the generation and escape of biogenic gases will not cause the requirement in paragraph IV.6d(1)(b) to be exceeded and that biodegradation within the facility will not result in premature structural failure in violation of the requirements in paragraph IV.6d(1)(a).
- (d) Ground water shall be protected in accordance with legally applicable Federal and State standards.

(e) Access to a property and use of onsite material contaminated by residual radioactive material should be controlled through appropriate administrative and physical controls such as those described in 40 CFR Part 192. These controls should be designed to be effective to the extent reasonable for at least 200 years.

(2) Other Radionuclides. Long-term management of other radionuclides shall be in accordance with Chapters II, III, and IV of DOE 5820.2A, as applicable.

7. SUPPLEMENTAL LIMITS AND EXCEPTIONS. If special specific property circumstances indicate that the guidelines or authorized limits established for a given property are not appropriate for any portion of that property, then the DOE Field Office Manager may request, through the Program Office, that supplemental limits or an exception be applied. The responsible DOE Field Office Manager shall document the decision that the subject guidelines or authorized limits are not appropriate and that the alternative action selected will provide adequate protection, giving due consideration to health and safety, the environment, costs, and public policy considerations. The DOE Field Office Manager shall obtain approval for specific supplemental limits or exceptions from Headquarters as specified in paragraph IV.5, and shall provide to the Headquarters Program Office those materials required by Headquarters for the justification as specified in this paragraph and in the FUSRAP and SFMP protocols and subsequent guidance documents. The DOE Field Office Manager shall also be responsible for coordination with the State and local government regarding the limits or exceptions and associated restrictions as appropriate. In the case of exceptions, the DOE Field Office Manager shall be responsible for coordinating with the State and/or local governments to ensure the adequacy of restrictions or conditions of release and that mechanisms are in place for their enforcement.

a. Supplemental Limits. Any supplemental limits shall achieve the basic dose limits set forth in Chapter II of this Order for both current and potential unrestricted uses of a property. Supplemental limits may be applied to any portion of a property if, on the basis of a specific property analysis, it is demonstrated that

(1) Certain aspects of the property were not considered in the development of the established authorized limits for that property; and

(2) As a result of these certain aspects, the established limits either do not provide adequate protection or are unnecessarily restrictive and costly.

b. Exceptions to the authorized limits defined for a property may be applied to any portion of the property when it is established that the authorized limits cannot reasonably be achieved and that restrictions on use of the property are necessary. It shall be demonstrated that the exception is justified and that the restrictions will protect members of the public within the basic dose limits of this Order and will comply with the requirements for control of residual radioactive material as set forth in paragraph IV.6.

c. Justification for Supplemental Limits and Exceptions. The need for supplemental limits and exceptions shall be documented by the DOE Field Office on a case-by-case basis using specific property data. Every reasonable effort should be made to minimize the use of supplemental limits and exceptions. Examples of specific situations that warrant DOE use of supplemental standards and exceptions are:

- (1) Where remedial action would pose a clear and present risk of injury to workers or members of the public, notwithstanding reasonable measures to avoid or reduce risk.
- (2) Where remedial action, even after all reasonable mitigative measures have been taken, would produce environmental harm that is clearly excessive compared to the health benefits to persons living on or near affected properties, now or in the future. A clear excess of environmental harm is harm that is long-term, manifest, and grossly disproportionate to health benefits that may reasonably be anticipated.
- (3) Where it is determined that the scenarios or assumptions used to establish the authorized limits do not apply to the property or portion of the property identified, or where more appropriate scenarios or assumptions indicate that other limits are applicable or appropriate for protection of the public and the environment.
- (4) Where the cost of remedial action for contaminated soil is unreasonably high relative to long-term benefits and where the residual material does not pose a clear present or future risk after taking necessary control measure. The likelihood that buildings will be erected or that people will spend long periods of time at such a property should be considered in evaluating this risk. Remedial action will generally not be necessary where only minor quantities of residual radioactive material are involved or where residual radioactive material occurs in an inaccessible location at which specific property factors limit its hazard and from which it is difficult or costly to remove. Examples include residual radioactive material under hard-surfaced public roads and sidewalks, around public sewer lines, or in fence-post foundations. A specific property analysis shall be provided to establish that the residual radioactive material would not cause an individual to receive a radiation dose in excess of the basic dose limits stated in paragraph IV.3, and a statement specifying the level of residual radioactive material shall be provided to the appropriate State and/or local agencies for appropriate action, e.g., for inclusion in local land records.
- (5) Where there is no feasible remedial action.

## 8. SOURCES.

- a. Basic Dose Limits. Dosimetry model and dose limits are defined in Chapter II of this Order.
- b. Generic Guidelines for Residual Radioactive Material. Residual concentrations of radium and thorium in soil are defined in 40 CFR Part 192. Airborne radon decay products are also defined in 40 CFR Part 192, as are guidelines for external gamma radiation. The surface contamination definition is adapted from NRC (1982).
- c. Control of Radioactive Wastes and Residues. Interim storage is guided by this Order and DOE 5820.2A. Long-term management is guided by this Order, 40 CFR Part 192, and DOE 5820.2A.

EXHIBIT II  
DOCUMENTS SUPPORTING THE CERTIFICATION OF REMEDIAL ACTION  
PERFORMED AT THE FORMER ALBA CRAFT LABORATORY  
AND VICINITY PROPERTIES  
IN OXFORD, OHIO

## 1.0 CERTIFICATION PROCESS

The purpose of this certification docket is to provide a consolidated and permanent record of DOE activities at the Alba Craft Laboratory site and vicinity properties and of the radiological conditions of these properties at the time of certification. A summary of the remedial action activities conducted at the site was provided in Exhibit I. Exhibit II contains or cites the letters, memos, reports, and other documents that encompass the entire remedial action process from designation of the site under FUSRAP to certification of the properties for future radiologically unrestricted use.

## 2.0 SUPPORTING DOCUMENTATION

Each page number begins with the designator "II-" to distinguish the numbering systems used in the supporting documentation that constitutes Exhibit II. These page numbers will be listed in the table of contents at the beginning of this docket and in Sections 2.1 through 2.11. Lengthy documents are incorporated by reference only and will be designated as such with the abbreviation "Ref."; the actual documents are provided as attachments to the certification docket.

The number following the term "Ref." corresponds to the number in the reference list at the end of Exhibit I.

## 2.1 DECONTAMINATION OR STABILIZATION CRITERIA

The following documents contain the guidelines that determine the need for remedial action. The Alba Craft Laboratory site and vicinity properties have been decontaminated to comply with these guidelines.

	<b>Page</b>
DOE Order 5400.5, <i>Radiation Protection of the Public and the Environment</i> , Chapter IV, "Residual Radioactive Material," February 8, 1990.	App. I-A
DOE, <i>Description of the Formerly Utilized Sites Remedial Action Program</i> , ORO-777, Oak Ridge, Tenn., September 1980.	Ref. 1
Argonne National Laboratory, <i>Derivation of Uranium Residual Radioactive Material Guidelines for the Former Alba Craft Laboratory Site, Oxford, Ohio</i> , ANL/EAD/TM-9, January 1994.	Ref. 7
DOE, <i>Design Criteria for Formerly Utilized Sites Remedial Action Program (FUSRAP) and Surplus Facilities Management Program (SFMP)</i> , 14501-00-DC-01, Rev. 2, Oak Ridge, Tenn., March 1986.	Ref. 8
Memorandum from J. W. Wagoner (DOE-HQ) to L. Price (DOE-FSRD), "Uranium Guidelines for the Alba Craft Site, Oxford, Ohio," July 15, 1994.	II-4

United States Government

Department of Energy

# memorandum

JUL 20 1 35 PM '94

DATE: JUL 15 1994  
REPLY TO: EM-421 (W. A. Williams, 301-427-1719)  
ATTN OF:  
SUBJECT: Uranium Guidelines for the Alba Craft Site, Oxford, Ohio

TO: L. Price, OR

This is in response to the request for approval of uranium guidelines for the Alba Craft Site of the Formerly Utilized Sites Remedial Action Program (FUSRAP), pursuant to Department of Energy (DOE) Order 5400.5. This site is located in Oxford, Ohio, and was used by DOE's predecessor for machining and shaping uranium metal. You requested approval of a residual uranium guideline of 35 picoCuries per gram of total uranium for the site. These recommendations were made based on a supporting analysis by Argonne National Laboratory (ANL) and a narrative description of the costs of verifying and confirming cleanup at a lower level.

## Basic Dose Requirement:

The Oxford Site is located in a commercial area with an adjacent residential neighborhood in Oxford, Ohio. The site consists of a large commercial building, which is almost as large as its lot. One adjacent property is used for commercial purposes (a lumber yard). Other adjacent properties are used for residential purposes and consists of several single family homes and a low-rise garden apartment complex. The ANL analysis calculated a maximum residual concentration of total uranium in soil of 770 picoCuries per gram (pCi/g) and 280 pCi/g for the current commercial and residential use of the property (Scenarios A and B in the ANL report). These concentrations are equivalent to 30 millirem per year, the dose constraint for current or likely use of land proposed in 10 CFR 834.

The possible agricultural use of the site in the future must be also considered. Scenario C examines this use and assumes a resident farmer will:

- (1) reside at the site after cleanup;
- (2) drink water from an on-site well;
- (3) eat plant foods grown in the decontaminated area;
- (4) drink milk and eat meat from cattle grown on the site; and
- (5) ingest 100 milligrams per day of soil at the site.

These assumptions are very unlikely but may be plausible in the distant future. The applicable dose limit in DOE Order 5400.5 and proposed 10 CFR 834 is 100 millirem per year. The recommended guideline of 35 pCi/g is equivalent to an annual exposure of 11 millirem per year under these assumptions and, therefore, complies with the 100 millirem per year dose limit.

The recommended 35 pCi/g guideline equates to less than 2 millirem per year for an industrial worker (Scenario A in the ANL Report). For residential use, the recommended guideline equates to 4 millirems per year (Scenario B). For the subsistence agricultural use (Scenario C), the recommended guideline is equivalent to 11 millirem per year.

Based on the ANL analysis, the recommended value of 35 pCi/g of total uranium is within DOE's dose guideline of 100 millirem per year, which must be met under all worst case, plausible scenarios, including the assumed subsistence residential use. The recommended level of 35 pCi/g also meets the constraint of 30 millirem per year for current or likely land use, as proposed in 10 CFR 834.

As Low as Reasonably Achievable (ALARA) Analysis:

In addition to meeting the basic radiation protection guideline, any cleanup guideline must be analyzed to keep exposures ALARA. The ALARA analysis in the request stated that reducing the soil guideline to the recommended level of 35 pCi/g would increase the volume of soil by approximately 10 percent. Further reductions will significantly increase post remedial survey and verification costs, and even at this level, the incremental costs for post remedial survey activities are estimated to be in excess of \$100,000.

In the application of ALARA, practical considerations are also taken into account. For practical considerations, it is likely that the contaminated areas will be cleaned up to a level below whatever guideline is established. This is likely for two reasons. First, in order to remove all material above the guideline, some soil contaminated below the guideline will be removed. This will have the practical effect of lowering the guideline as it is applied during cleanup operations. Second, during cleanup operations, it is difficult (as discussed above) to precisely delineate the point at which contamination above the guideline ends. As a result, remedial personnel will remove suspect materials to avoid repeated cleanup operations on the same property. For these reasons, it is likely that cleanup will be accomplished at some level lower than the approved cleanup guideline.

A final practical consideration is the use of clean fill material to replace excavated materials, which will cause a shielding and covering effect on the remaining soils. The ANL analysis does not assume that there is any clean fill or cover placed over the site after cleanup. For this reason, the doses calculated in the ANL report are clearly a worst case scenario.

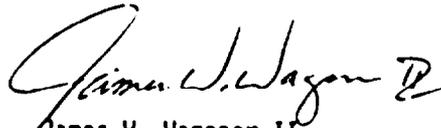
A review of the ANL report indicates that one significant pathway for Scenario A and B is via inhalation of contaminated dust. The mass loading factor used for airborne dust in the calculations (100 micrograms per cubic meter) is much higher than would be expected for respirable particles at the site under ambient conditions. This estimate reflects the level of airborne dust expected from plowing or digging in the soil. Such a high dust load is unlikely on a continual basis, and it is very

unlikely that all of the soil at this level would be of a respirable particle size. There are a number of other sources of uncertainty and conservatism in the dose calculations; these are briefly summarized on pages 11 and 14 of the ANL report.

Summary and Approval:

Based on the analysis and site-specific ALARA considerations summarized above, a guideline of 35 pCi/g for total uranium above background levels is approved for use in the cleanup of the Alba Craft Site, pursuant to DOE Order 5400.5, Chapter IV, Section 5a. Please provide ANL with post-remedial action data to permit the preparation of another dose estimate report to reflect the actual doses after completion of the cleanup.

We also recommend that your staff discuss the site characterization data and the approved guidelines with the State staff and other stakeholders at an appropriate time.



James W. Wagoner II  
Director  
Off-Site/Savannah River Program Division  
Office of Eastern Area Programs  
Office of Environmental Restoration

Attachment

cc:  
D. Adler, OR  
A. Wallo III, EH-232  
C. Yu, ANL  
R. Foley, ORNL  
M. Murray, ORNL  
K. Klinehans, ORNL

## 2.2 DESIGNATION OR AUTHORIZATION DOCUMENTATION

The following documentation designated or authorized the remedial action at the Alba Craft Laboratory site and vicinity properties.

	<b>Page</b>
Memorandum from J. W. Wagoner (DOE-HQ) to L. Price (DOE-FSRD), "Authorization for Remedial Action at Alba Craft Laboratory in Oxford, OH," BNI CCN 095798, September 25, 1992.	Ref. 4
Memorandum from Albert S. Johnson (DOE-HQ) to L. Price (DOE-FSRD), "Designation of 525 South Main Street, Oxford, Ohio," BNI CCN 109829, October 18, 1993.	II-8
Memorandum from J. W. Wagoner (DOE-HQ) to L. Price (DOE-FSRD), ( "Designation of Vicinity Properties in Oxford, Ohio," BNI CCN 117155, June 3, 1994.	II-11

United States Government

109829  
Department of Energy

# memorandum

DATE: OCT 18 1993

1993 OCT 22 AM 9:13

REPLY TO

ATTN OF: EM-421 (W. A. Williams, 903-8149)

SUBJECT: Designation of 525 South Main Street, Oxford, Ohio

TO: L. Price, OR

Pursuant to the attached Oak Ridge National Laboratory (ORNL) letter report, a residential property at 525 South Main Street in Oxford, Ohio, is designated for remedial action as a vicinity property to the Alba Craft Laboratory Site.

A radiological survey report is presently being prepared by ORNL; copies will be furnished to you when it has been published.

  
Albert S. Johnson  
Acting Director  
Division of Off-site Programs  
Office of Eastern Area Programs  
Office of Environmental Restoration

Attachment

CC:  
D. Adler, OR  
M. Murray, ORNL

109829

OAK RIDGE NATIONAL LABORATORY  
OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008  
OAK RIDGE, TENNESSEE 37831

August 18, 1993

Dr. W. A. Williams  
Department of Energy  
Trevion II Building  
EM-421  
Washington, D. C. 20585-0002

Dear Dr. Williams:

**Preliminary Results of the Radiological Survey at 525 South Main Street, Oxford, Ohio**

Beginning on August 2, 1993, a team from the Oak Ridge National Laboratory (ORNL) conducted a radiological survey of a residence at 525 South Main Street, Oxford, Ohio. The work included both inside and outside surveying for the presence of residual uranium, possibly transported from the former Alba Craft facility located on West Rose Avenue (approximately 100 yards away). The current property owners requested the survey upon learning the owner/operator of the former Alba Craft was a former owner of their house. Residual uranium was found outside the house as well as inside. The owners were immediately informed of the field measurements and were told that the radiation exposure was quite low; however, they were advised not to take any action which would disturb the materials in the floor cracks where the uranium was found, such as sanding or remodeling.

The uranium found inside the house was restricted to two rooms which appeared to be part of the original house construction. The den area (20 x 12 feet) has most of the uranium in an area, 4 x 9 feet directly in front of a fireplace. The majority of the uranium was in the cracks of the hardwood floor; however, some activity was in the wood grain. This small area has a typical dose rate of 0.2 milli rad/hr (beta) and a maximum dose rate of 1.4 milli rad/hour (beta). Eight other spots of lesser contamination were also found in the den. The other room where the uranium was found is a bedroom (12.5 x 23 feet) above the garage. Numerous spots were found where the uranium had settled into the hardwood floor cracks and all measured dose rates were less than 0.44 milli rad/hour (beta). Multiple gamma exposure measurements were made with a pressurized ion chamber (PIC) at one meter from the floor. The highest exposure rate was 10 micro R/hour which is typical of background radiation in the southern Ohio area.

The uranium outside the house was primarily found in three locations. The soil around the original front porch had slightly elevated levels of uranium. Preliminary measurements indicate uranium soil concentrations of 180 to 450 pCi/gram. The second location about 27 feet from the house in the backyard, had a surface exposure rate of about 0.25 mR/hour and the maximum uranium concentration of 13,500 pCi/gram. The uranium was located four to eight inches below the soil surface. The vast majority of this uranium was removed by sampling and the hole filled with clean soil. The third location, behind the garage near a downspout, had 5 pCi/gram <sup>238</sup>U. It also had approximately 6 pCi/gram of <sup>137</sup>Cs, most likely fallout from atmospheric nuclear weapons tests. The <sup>137</sup>Cs was concentrated at the location by rain water.

109829

Dr. W. A. Williams

2

August 18, 1993

One other spot in the backyard, where elevated gamma measurements were found, turned out not to be uranium. It was an electrical switch with a radium button for visibility in the dark.

All data provided herein is preliminary and should only be used as such. The samples from this site will be expeditiously processed and the results published as soon as possible. Please direct any questions about this survey to R. D. Foley, W. D. Cottrell or M. E. Murray, (615) 574-5838.

Sincerely,



Michael E. Murray  
Measurement Applications  
and Development Group

MEM:ec

c: D. G. Adler (DOE-ORO)  
W. D. Cottrell  
R. D. Foley  
C. Jenkins (BNI)

# memorandum

DATE: JUN 3 1994

Jun 8 1 50 PM '94

REPLY TO: EM-421 (W. A. Williams, 903-8149)  
ATTN OF:

SUBJECT: Designation of Vicinity Properties in Oxford, Ohio

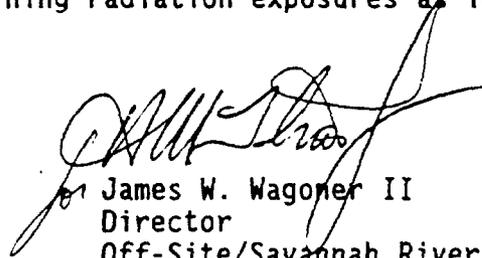
TO: L. Price, OR

The following vicinity properties to the Alba Craft Laboratory are hereby designated for remedial action as a part of the Formerly Utilized Sites Remedial Action Program:

- 550 South Main Street in Oxford, Ohio; and
- West Rose Avenue in the vicinity of the site.

In the case of the residence, a stormwater sewer pipe running through this property is contaminated with uranium above the approved guidelines for the site. In the case of the municipal street, there are several spots of residual uranium on the street right-of-way in the vicinity of the site, and it is possible that additional contamination is located underneath the pavement.

In addition, it is our expectation that your staff will establish fences and other access control measures at the site before beginning remedial action. Since the site is in close proximity to other properties, we believe that site control will involve all of the adjacent properties. It is appropriate for Department of Energy to remove any residual uranium located within this control area regardless of whether the particular property has been designated. Such removal would meet the Department's goal and policy of maintaining radiation exposures as low as reasonably achievable.



James W. Wagoner II  
Director  
Off-Site/Savannah River Program Division  
Office of Eastern Area Programs  
Office of Environmental Restoration

CC:  
D. Adler, OR  
M. Murray, Oak Ridge National Laboratory  
K. Kleinhans, Oak Ridge National Laboratory

### 2.3 RADIOLOGICAL AND CHEMICAL CHARACTERIZATION REPORTS

The pre-remedial status of the Alba Craft Laboratory and vicinity properties is described in the following documents.

	<b>Page</b>
M. E. Murray, K. S. Brown, and R. A. Mathis, <i>Results of the Radiological Survey at the Former Alba Craft Laboratory Site Properties, Oxford, Ohio</i> (OXO001), ORNL/RASA-92/14, Oak Ridge National Laboratory, March 1993.	Ref. 2
Memorandum from M. E. Murray (ORNL) to W. A. Williams (DOE-HQ), "Results of Radiological Survey at 525 S. Main Street," BNI CCN 115778, April 4, 1994.	Ref. 5
Memorandum from D. Adler (DOE-FSRD) to J. Brandabur, "Alba Craft Site - Radiological Condition of the Property at 550 South Main Street," BNI CCN 120074, September 2, 1994.	II-13



120074

## Department of Energy

Oak Ridge Operations  
P.O. Box 2001  
Oak Ridge, Tennessee 37831— 8723

September 2, 1994

Mr. Joe Brandabur  
550 South Main Street  
Oxford, OH 45056

Dear Mr. Brandabur:

### **ALBA CRAFT SITE - RADIOLOGICAL CONDITION OF THE PROPERTY AT 550 SOUTH MAIN STREET**

As you requested, we are providing information regarding the extent of radioactive contamination on your property at 550 South Main Street. In July and September of 1992, at the request of the U.S. Department of Energy (DOE), a team from Oak Ridge National Laboratory (ORNL) conducted a radiological survey of the former Alba Craft Laboratory and adjacent properties. The survey results were reported in "Results of the Radiological Survey at the Former Alba Craft Laboratory Site Properties, Oxford, Ohio (OX0001)" (ORNL/RASA-92/14), and key elements pertaining to your property are summarized in this letter.

A clean-up guideline for remediation of the Alba Craft laboratory and adjacent properties has been agreed upon by DOE and the State of Ohio. When compared to this guideline, the soil sampling results indicate that the uranium contamination extends at least 20 feet onto your property on the northwest corner to a depth of at least 1.5 feet.

To provide information on radiation occurring naturally in the Oxford area (background radiation), the ORNL team collected soil samples and measured external gamma exposure rates at areas believed to be unaffected by the activities at the former Alba Craft laboratory. Then, to determine the extent of contamination on your property, they measured gamma radiation across the entire yard and then collected soil samples in the areas exhibiting measurements for gamma radiation that were higher than readings normally found in the Oxford area. Soil samples were also collected from systematic grid locations that were not known or suspected to be contaminated. All were analyzed for uranium-238, thorium-232, and radium-226.

The enclosed table and figure provide a summary of the survey and sampling results for your property. Gamma exposure rate measurements collected in the front (South Main Street side) and back yard (laboratory side) were within the range of naturally occurring radiation. The highest measured concentration of uranium-238 in soil on your property (60 pCi/g) occurred on the northwest portion of your property immediately adjacent to the former Alba Craft laboratory. A sample of the sediment trapped in the storm drain in the back yard contained concentrations of uranium-238 that were elevated but lower than those found on the northwest corner.

Mr. Joe Brandabur

2

September 2, 1994

Cleanup of the Alba Craft facility and the adjacent properties will consist of dismantlement of the laboratory building followed by excavation of the contaminated soils. This excavation will remove the inlet portion of the storm drain and the contaminated soils in the northwest corner of the back yard. The entire storm sewer will not be removed because any residual contamination present in the remaining portion would be inaccessible to the public and would not pose a health or environmental threat. It is not anticipated that significant concentrations of contamination will be found in the sewer.

If you have any further questions, please feel free to contact me at (615) 576-9634.

Sincerely,



David G. Adler, Site Manager  
Former Sites Restoration Division

Enclosure

## 2.4 ENVIRONMENTAL COMPLIANCE DOCUMENTATION

Documents listed in this section fulfill the NEPA documentation requirements for the former Alba Craft Laboratory site.

	<b>Page</b>
Memorandum from J. La Grone (DOE) to C. M. Borgstrom (NEPA), "Categorical Exclusion (CX) Determination - Alba Craft Vicinity Property Removal Action," BNI CCN 109721, October 19, 1993.	II-16
Letter from G. Palau (BNI) to J. Waddell (SAIC), "Alba Craft Laboratory Site - Engineering Evaluation/Cost Analysis - Review of Ohio Radiation Code," BNI CCN 113570, February 22, 1994.	II-20
Memorandum from J. La Grone (DOE-OR) to T. P. Grumbly (DOE-HQ), "Categorical Exclusion (CX) Determination - Removal Action at the Alba Craft Laboratory Site," BNI CCN 116756, May 24, 1994.	II-26
Memorandum from L. Marz (DOE-FSRD) to J. A. Turi (DOE-HQ), "Alba Craft Laboratory Site - Use of Exemption from DOE 5820.2A for Radioactive Waste from the Formerly Utilized Sites Remedial Action Program (FUSRAP)," BNI CCN 117451, June 16, 1994.	II-30
Memorandum from R. Atwood (BNI) to G. Palau (BNI), "Expedited Protocol Review," BNI CCN 109854, October 22, 1993.	II-31
Memorandum of telephone conversation between R. T. Tucker (SAIC) and S. Mack (City of Oxford, Ohio), "Floodplains and Wetlands Involvement," BNI CCN 114118, February 15, 1994.	II-37

United States Government

Department of Energy

# memorandum

Oak Ridge Operations

DATE: October 19, 1993  
REPLY TO: EW-93:Hartman  
ATTN OF:  
SUBJECT: CX DETERMINATION - ALBA CRAFT VICINITY PROPERTY REMOVAL ACTION

TO: Carol M. Borgstrom, Director, Office of NEPA Oversight, EH-25, FORS

Attached is a categorical exclusion (CX) determination describing the proposed removal and disposal of radiologically contaminated materials at the Alba Craft Vicinity Property, Oxford, Ohio. I have determined that this action conforms to an existing NEPA Subpart D CX and may be categorically excluded from further NEPA review and documentation.

If you have any questions concerning NEPA compliance issues, please contact Patricia W. Phillips, ORO NEPA Compliance Officer, at (615) 576-4200.

  
Joe La Grone  
Manager

## Attachment

cc w/attachment:  
J. L. King, SAIC  
G. L. Palau, BNI  
R. S. Scott, EM-20, FORS  
P. Doolittle, EM-421, BAH, TREV II  
J. W. Wagoner, EM-421, TREV II  
L. E. Harris, EM-431, TREV II  
P. W. Phillips, SE-311, ORO  
N. Hendrix, EW-91, ORO  
D. G. Adler, EW-93, ORO  
G. S. Hartman, EW-93, ORO  
W. M. Seay, EW-93, ORO

**CATEGORICAL EXCLUSION (CX) FOR  
REMOVAL ACTION AT THE  
ALBA CRAFT VICINITY PROPERTY**

**PROPOSED ACTION:** Removal of radiologically contaminated materials at the Alba Craft Vicinity Property.

**LOCATION:** Alba Craft Vicinity Property, Oxford, Ohio [FUSRAP site]. The Alba Craft Vicinity Property is located in Oxford, Ohio, and is part of DOE's Formerly Utilized Sites Remedial Action Program (FUSRAP).

**DESCRIPTION OF PROPOSED ACTION:** The proposed action is to safely remove, decontaminate, and temporarily store, or transport and dispose of radiologically contaminated materials at the Alba Craft Vicinity Property, thereby eliminating potential exposure of workers and the public to contamination exceeding applicable cleanup guidelines. The Alba Craft Vicinity Property is a currently occupied residential structure. Proposed site activities include, but are not limited to, the following: Removal of radiologically contaminated hardwood flooring and associated materials inside the residential structure; temporary storage of wastes at the Alba Craft site; and packaging, transporting, and disposing of low-level radiologically contaminated materials at existing appropriately licensed disposal facilities. In the event that disposal delays require temporary storage of contaminated wastes, storage would be conducted in accordance with all applicable regulations. Removal action at this site would be undertaken as part of FUSRAP and would be conducted consistent with applicable requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

The proposed removal action would be conducted under DOE authorities pursuant to the Atomic Energy Act (AEA), would be consistent with the final remedial action for the site, and meets the eligibility criteria for conditions that are integral elements of actions eligible for categorical exclusion as stated in 10 CFR 1021:

1. The proposed action would not threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, including requirements of DOE orders. All activities would be managed by the FUSRAP program.
2. The proposed action would not require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators and facilities for treating wastewater, surface water, and groundwater). Wastes generated during the proposed action would be collected, analyzed to determine waste characteristics, and segregated into nonhazardous, RCRA-only, mixed, and radiological-only categories. If hazardous wastes are determined to be commingled with radioactive waste, removal and temporary storage would be done in

CATEGORICAL EXCLUSION (CX) FOR  
REMOVAL ACTION AT THE  
ALBA CRAFT VICINITY PROPERTY (cont.)

accordance with applicable requirements; the mixed waste would then be disposed of at an existing facility designed to accept these wastes. Wastes would be transported offsite in accordance with applicable transportation and disposal requirements and disposed of at existing facilities or stored temporarily at the Alba Craft site in accordance with applicable requirements pending evaluation of final disposal options in accordance with CERCLA. If temporary storage is required, wastes generated from these activities would be managed in accordance with regulations applicable to the types of wastes being managed.

3. The proposed action would not disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases. The removal action would be conducted in an environmentally responsible manner to ensure site-specific control of environmental contamination.
4. The proposed action would not adversely affect any environmentally sensitive resources defined in the Federal Register Notice referenced below, including archaeological or historical sites; potential habitats of endangered or threatened species; floodplains; wetlands; areas having a special designation such as Federally- and state-designated wilderness areas, national parks, national natural landmarks, wild and scenic rivers, state and Federal wildlife refuges, and marine sanctuaries; prime agricultural lands; special sources of water such as sole-source aquifers; and tundra, coral reefs, or rain forests. The proposed action would occur in a previously disturbed/developed area.

There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal, and the proposal is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211.

The estimated cost for this action is less than \$2 million and would take less than 12 months to complete.

**CX TO BE APPLIED:** From the DOE NEPA Implementing Procedures, 10 CFR 1021, Subpart D, Appendix B, under actions that "Normally Do Not Require EAs or EISs," "B6.1 Removal actions under CERCLA (including those taken as final response actions and those taken before remedial action) and removal-type actions similar in scope under RCRA and other authorities (including those taken as partial closure actions and those taken before corrective action), including treatment (e.g., incineration), recovery, storage, or disposal of wastes at existing facilities currently handling the type of waste involved in the removal action."

109721

FUSRAP-025  
Page 3 of 3

**CATEGORICAL EXCLUSION (CX) FOR  
REMOVAL ACTION AT THE  
ALBA CRAFT VICINITY PROPERTY (cont.)**

I have concluded that the proposed action meets the requirements for the CX referenced above. Therefore, I recommend that the proposed action be categorically excluded from further NEPA review and documentation.

James L. Elmer 10/7/93  
For Patricia W. Phillips, ORO NEPA Compliance Officer Date

Based on my review and the recommendation of the ORO NEPA Compliance Officer, I recommend that the proposed action be categorically excluded from further NEPA review and documentation.

William D. Adams 10/15/93  
William D. Adams, Assistant Manager for Date  
Environmental Restoration and Waste Management, ORO

Based on the recommendations of the ORO NEPA Compliance Officer and the Assistant Manager for Environmental Restoration and Waste Management, I determine that the proposed action is categorically excluded from further NEPA review and documentation.

Joe La Grone 10-18-93  
Joe La Grone, Manager, DOE Oak Ridge Operations Office, ORO Date

**Bechtel**

Oak Ridge Corporate Center  
 151 Lafayette Drive  
 P.O. Box 350  
 Oak Ridge, Tennessee 37831-0350

Facsimile: (615) 220-2100

Bechtel Job No. 14501, FUSRAP Project  
 DOE Contract No. DE-AC05-91OR21949  
 Code: 7440/WBS: 109

FEB 22 1994

Science Applications International Corporation  
 P.O. Box 2501  
 Oak Ridge, TN 37831-2501

Attention: J. Waddell, Program Manager

Subject: Alba Craft Laboratory Site - Engineering Evaluation/Cost  
 Analysis - Review of Ohio Radiation Code

Dear Mr. Waddell:

Please find enclosed a regulatory review and interpretation of select Ohio laws and regulations related to radiation protection. This review and interpretation was performed by the Missouri/Ohio Team Environmental Compliance Coordinator to support the Engineering Evaluation/Cost Analysis for the Alba Craft Laboratory Site.

The interpretation outlines a viable argument to support the disposal of "clean" building debris and rubble from the demolition of the Alba Craft Laboratory at a municipal landfill that accepts construction/demolition debris. However, this argument may be subject to differing interpretations by Ohio state regulators.

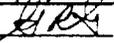
If you have any questions, please contact Richard Atwood at 574-3599.

Sincerely,



G. L. Palau  
 Project Manager - FUSRAP

Enclosure: Regulatory Compliance Review and Interpretation of Ohio  
 Radiation Protection Laws

Concurrence: R. K. Atwood @   
 G. R. Galen 



**Bechtel National, Inc.**

110070

# REGULATORY COMPLIANCE REVIEW AND INTERPRETATION OF OHIO RADIATION PROTECTION LAWS AND REGULATIONS

## SITE BACKGROUND INFORMATION

The following site background information is summarized from the Designation Summary for Alba Craft Laboratory, Oxford, Ohio (CCN 095798). Alba Craft provided a variety of shop services for machining normal uranium metal for National Lead of Ohio from 1952 to 1957. The facility is located in Oxford, Ohio, and has a total area of 7,000 to 8,000 square feet. The building houses an office, conference room, and a small water chemistry laboratory, all of which have been remodeled with carpeting, drop ceiling, and sheetrock walls.

Estimates place the quantity of uranium machined by Alba Craft at several hundred tons. The site was decontaminated in 1957.

DOE has reviewed the past activities of the Atomic Energy Commission (AEC) at the site, and completed a radiological survey (1992). It has been determined that residual radioactive materials (uranium) inside the building exceed current guidelines for use without radiological restrictions.

Generally, all of the old concrete in the building is contaminated. All floor surfaces are contaminated to some extent. Contamination exists on walls, window ledges, electrical switch boxes, and other horizontal surfaces where dust could settle. Some soil contamination exists outside the building.

## CLEANUP ALTERNATIVES

There are three cleanup alternatives being considered in order to remediate the site. In Option 1, the building would be emptied, the entire roof removed, and then the walls and floor of the building would be demolished and the rubble run through a crusher. The crushed building rubble would then be mixed together (homogenized) so that the residual radioactivity is evenly distributed. Calculations indicate that the homogenized mixture will be below DOE radiation cleanup criteria. The rubble would then be shipped to a local approved demolition/construction landfill.

In Option 2, contaminated material from the wooden portions of the roof would be shaved off, and the interior of the building would be vacuumed to collect radioactive dust and dirt from the floor and walls. Spots of contamination would be scabbled and removed from the floor, and all contaminated material would be placed in containers and shipped to the Envirocare facility for disposal. The remainder of the building would be rubbleized and sent to a local landfill.

In Option 3, the building would be torn down, but not decontaminated. All the building rubble and soil would be shipped to

Envirocare for disposal.

Two of the three alternatives considered in the Alba Craft Laboratory Site Engineering Evaluation/Cost Analysis (EE/CA) include the disposal of building rubble in a local construction/demolition landfill. Although any rubble or soil sent to the local landfill under either of these options would be significantly below the proposed DOE cleanup criteria of 70 pCi/g, some measurable residual radioactivity would remain in this rubble.<sup>1</sup>

### REGULATORY ISSUES AND ANALYSIS

The issue to be addressed by an examination of Ohio regulation is whether the building rubble and soil generated from Option 2 or Option 3 discussed above would be subject to Ohio radiation protection or disposal laws, and whether there is any prohibition from disposing of this material in a local construction/demolition landfill.

Ohio has established radiation control standards for worker protection and radioactive materials management. They are found in Title 37 of the Ohio Revised Code Annotated. Specifically, Radiation Control standards can be found in Section 3701.90 et. seq., and the Ohio General Radiation Protection Standards can be found in Section 3701.38.01 et. seq. Only these two regulatory provisions were reviewed for this evaluation.<sup>2</sup>

Several of the definitions found in Section 3701.90 are crucial to the determination of whether activities planned for Alba Craft apply to state jurisdiction. The text of the definitions are set forth below: (emphasis added)

"Radioactive material" means any material, solid, liquid, or gas, that emits ionizing radiation spontaneously and is used for industrial, commercial, investigative, diagnostic, or therapeutic purposes. Radioactive material includes accelerator-produced and naturally occurring materials, but does not include radioactive material already licensed by any agency of the federal government. Section 3701.90(B).

---

<sup>1</sup> CERCLA liability will attach for the building rubble sent to a demolition/construction landfill by virtue of DOE being a generator and arranging for disposal of hazardous substances (uranium).

<sup>2</sup> The State of Ohio regulates radioactive materials in several other statutes and regulations. For example, there are specific fire code standards for buildings holding radioactive materials, there are fire code regulations for Underground Storage Tanks (USTs) holding hazardous substances, including radioactive materials, there are prohibitions in the Ohio version of the RCRA Land Disposal Restrictions (LDRs) against the disposal of mixed waste, and there are MCLs promulgated for radionuclides in drinking water.

"Low-level radioactive waste" means waste that consists of or contains class A, B, or C radioactive waste as defined in 10 CFR 61.55, as that regulation was in effect on January 26, 1983. Section 3701.914(A)(1).

"Person" means any legal entity defined as a person under section 1.59 of the Revised Code, the state or any agency of the state, any political subdivision or agency of a political subdivision, and the United States or any agency or instrumentality of the United States other than the United States Department of Energy or the United States Nuclear Regulatory Commission where state regulation of the treatment, recycling, storage, or disposal of low-level radioactive waste by either of those agencies is prohibited by federal law. Section 3701.914(A)(2).

"Registrant" means a person required by rule 3701-38-06, to register with the director. 3701-38-06 requires "persons" having possession of any "radiation source" to register with the director, unless exempted in rule 3701-38-07. Section 3701-38-01(S).

"Radiation source" means a radiation machine or radioactive material. Section 3701-38-01(R).

### Interpretation That Favors DOE

A review of the definitions and the types of activities sought to be regulated by the state reveals that disposal of building rubble from facilities such as the Alba Craft Laboratory was not specifically addressed by the regulations.

An important definition to review is the definition of "radioactive material". Ohio only regulates that radioactive material that is used for industrial, commercial, investigative, diagnostic, or therapeutic purposes. The radioactive material at Alba Craft is waste, generated from defense related purposes, and is being cleaned up under the CERCLA process. In addition, the state does not regulate radioactive material already licensed by any agency of the federal government. Although DOE is not subject to any Nuclear Regulatory Commission (NRC) licensing process, DOE has asserted jurisdiction over the material at Alba Craft.

The State of Ohio exercises jurisdiction over "registrants" disposing of "radioactive material". To be subject to registration requirements, the potential registrant must be a "person", as defined above. DOE is exempted from the definition of a "person", where state regulation of the disposal of low-level radioactive waste is prohibited by federal law. In other words, where DOE exercises authority and control over the facility, the State of Ohio has declined to regulate that activity.

Section 3701-38-07 provides several exemptions from registration of radioactive materials, including radioactive materials and products containing radioactive materials which are subject to regulation by the United States Atomic Energy Commission (AEC) (Section 3701-38-07(a)(4)). The contamination present at Alba Craft is a result of AEC-related activities, and DOE has taken responsibility for the cleanup under the FUSRAP program. Therefore, this provision in the Ohio code provides an exemption from registration, and by definition,

an exemption from the prohibition of disposal of radioactive material by burial in soil (Section 3701-38-28).

This argument can also be asserted for exempting DOE activities from any portion of the Ohio Radiation Protection code. Section 3701-38-02 provides the scope to which the code applies, and exempts from all Ohio regulation all persons to the extent they receive, possess, use, transfer, own, or acquire any radiation sources subject to regulation by the AEC.

Current plans for disposal of clean, as defined by DOE cleanup criteria, building rubble and soil at a local demolition/construction landfill rest in part on the argument that the rubble destined for the landfill is not "low-level radioactive waste" because it is below DOE cleanup criteria.

#### Weaknesses in Interpretation That Favors DOE

There are provisions of Ohio code that regulators could use to assert that DOE is prohibited from disposing of "Low-level radioactive waste", as defined above. In Option 2 discussed above, contaminated material shipped to Envirocare would be shipped as "low-level radioactive waste", specifically categorized as class A, as defined in 10 CFR 61.55. The state could argue that the residual radioactive material remaining in the structure before demolition and before the building rubble is homogenized was also "low-level radioactive waste", as it was identical to the waste going to Envirocare, except for its concentration. As such, Ohio code provides that: (emphasis added)

No person shall treat, recycle, store, or dispose of any low-level radioactive waste except at a facility that is licensed for treatment, recycling, storage, or disposal of that waste under the "Atomic Energy Act of 1954", as amended, and regulations adopted under it regardless of whether the waste has been reclassified as "below regulatory concern" by the United States Nuclear Regulatory Commission pursuant to any rule or standard adopted after January 1, 1990. Section 3701.914(B).

Ohio regulators could argue that the above code section makes clear that disposal of "low-level radioactive waste" is prohibited in Ohio, regardless of whether the concentration of radioactive material in the waste is "below regulatory concern" (below cleanup guidelines).

Although Ohio regulators could make this argument, it does not appear to have greater merit than DOE's argument that material defined as clean, based on DOE cleanup guidelines, is not, in fact, a "low-level radioactive waste".

**MANAGEMENT RECOMMENDATION**

A comprehensive overview of the two Ohio radiation protection regulations indicates that the options discussed in the draft EE/CA for the Alba Craft Laboratory, aside from the disposal of building rubble in a local construction/demolition landfill, would be in compliance with Ohio regulations. Whether the disposal of the building rubble in a local landfill is in compliance with state law depends on Ohio regulators not objecting to the options in the EE/CA. However, Ohio state regulators could assert that DOE is subject to the prohibition for disposal of Low-level radioactive waste, and reject any disposal options which call for the disposal of any contaminated material in Ohio, regardless of whether the material is below DOE release criteria.

The Environmental Compliance Group recommends that both the Ohio EPA and the Ohio Department of Health, Division of Radiation Protection, be afforded the opportunity to participate in the public comment planned for the EE/CA.

United States Government

Department of Energy

Oak Ridge Operations

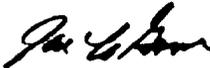
# memorandum

DATE: May 24, 1994  
REPLY TO: EW-93:Hartman  
ATTN OF:  
SUBJECT: CX DETERMINATION - REMOVAL ACTION AT THE ALBA CRAFT LABORATORY SITE

TO: Thomas P. Grumbly, Assistant Secretary for Environmental Restoration and Waste Management, EM-1

Attached is a categorical exclusion (CX) determination describing the proposed removal and disposal of radioactively contaminated materials at the Alba Craft Laboratory site, Oxford, Ohio. I have determined that this action conforms to an existing NEPA Subpart D CX and may be categorically excluded from further NEPA review and documentation.

If you have any questions concerning NEPA compliance issues, please contact Patricia W. Phillips, ORO NEPA Compliance Officer, at (615) 576-4200.

  
Joe La Grone  
Manager

## Attachment

cc w/attachment:  
J. L. King, SAIC  
G. L. Palau, BNI  
R. S. Scott, EM-20, FORS  
S. C. Golian, EM-22, TREV II  
P. Doolittle, EM-421, BAH, TREV II  
J. W. Wagoner, EM-421, TREV II  
L. E. Harris, EM-431, TREV II  
N. Hendrix, EW-91, ORO  
D. G. Adler, EW-93, ORO  
G. S. Hartman, EW-93, ORO  
W. M. Seay, EW-93, ORO  
P. W. Phillips, SE-311, ORO

**CATEGORICAL EXCLUSION (CX) FOR  
REMOVAL ACTION AT THE  
ALBA CRAFT LABORATORY SITE**

PROPOSED ACTION: Removal of radioactively contaminated materials at the Alba Craft Laboratory site.

LOCATION: Alba Craft Laboratory site, Oxford, Ohio [FUSRAP site].  
The Alba Craft Laboratory site is located at 10-14 West Rose Avenue, Oxford, Ohio, and is part of DOE's Formerly Utilized Sites Remedial Action Program (FUSRAP).

DESCRIPTION OF PROPOSED ACTION: The proposed action is to safely remove, transport, and dispose of radioactively contaminated materials at the Alba Craft Laboratory site and vicinity properties, thereby eliminating potential exposure of workers and the public to contamination exceeding applicable cleanup guidelines. Proposed site activities include, but are not limited to, the following: Decontamination and demolition of the Alba Craft Laboratory building (resulting in approximately 550 yds.<sup>3</sup> of building rubble, some of which may be radioactively contaminated); decontamination of associated piping and drains; excavation and removal of approximately 310 yds.<sup>3</sup> radioactively contaminated soil; temporary onsite storage of wastes; packaging, transportation, and disposal of materials at existing appropriately licensed disposal facilities; and disposal of waste/debris below DOE contamination guidelines in a commercial landfill. In the event that disposal delays require temporary storage of contaminated wastes, storage would be conducted in accordance with all applicable regulations. Removal action at this site would be undertaken as part of FUSRAP and would be conducted consistent with applicable requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

The proposed removal action would be conducted under DOE authorities pursuant to the Atomic Energy Act (AEA), would be consistent with the final remedial action for the site, and meets the eligibility criteria for conditions that are integral elements of actions eligible for categorical exclusion as stated in 10 CFR 1021:

1. The proposed action would not threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, including requirements of DOE orders. All activities would be managed by the FUSRAP program.
2. The proposed action would not require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators and facilities for treating wastewater, surface water, and groundwater). Wastes generated during the proposed action would be collected, analyzed to determine waste characteristics, and

**CATEGORICAL EXCLUSION (CX) FOR  
REMOVAL ACTION AT THE  
ALBA CRAFT LABORATORY SITE (cont.)**

segregated as they are generated into nonhazardous, RCRA-only, mixed, and radioactive-only categories. If hazardous wastes are determined to be commingled with radioactive waste, removal and temporary storage would be done in accordance with applicable requirements; the mixed waste would then be disposed of at an existing facility designed to accept these wastes. Wastes would be transported offsite in accordance with applicable transportation and disposal requirements and disposed of at existing facilities or stored temporarily onsite in accordance with applicable requirements pending evaluation of final disposal options in accordance with CERCLA. If temporary storage is required, wastes generated from these activities would be managed in accordance with regulations applicable to the types of wastes being managed.

3. The proposed action would not disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases. The removal action would be conducted in an environmentally responsible manner to ensure site-specific control of environmental contamination.
4. The proposed action would not adversely affect any environmentally sensitive resources defined in the Federal Register Notice referenced below, including archaeological or historical sites; potential habitats of endangered or threatened species; floodplains; wetlands; areas having a special designation such as Federally- and state-designated wilderness areas, national parks, national natural landmarks, wild and scenic rivers, state and Federal wildlife refuges, and marine sanctuaries; prime agricultural lands; special sources of water such as sole-source aquifers; and tundra, coral reefs, or rain forests. The proposed action would occur in a previously disturbed/developed area.

There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal, and the proposal is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211.

The estimated cost for this action is less than \$2 million and would take less than 12 months to complete.

**CX TO BE APPLIED:** From the DOE NEPA Implementing Procedures, 10 CFR 1021, Subpart D, Appendix B, under actions that "Normally Do Not Require EAs or EISs," "B6.1 Removal actions under CERCLA (including those taken as final response actions and those taken before remedial action) and removal-type

**CATEGORICAL EXCLUSION (CX) FOR  
REMOVAL ACTION AT THE  
ALBA CRAFT LABORATORY SITE (cont.)**

actions similar in scope under RCRA and other authorities (including those taken as partial closure actions and those taken before corrective action), including treatment (e.g., incineration), recovery, storage, or disposal of wastes at existing facilities currently handling the type of waste involved in the removal action...."

I have concluded that the proposed action meets the requirements for the CX referenced above. Therefore, I recommend that the proposed action be categorically excluded from further NEPA review and documentation.

*James Z. Elmer*

*5/18/94*

for Patricia W. Phillips, ORO NEPA Compliance Officer

Date

Based on my review and the recommendation of the ORO NEPA Compliance Officer, I recommend that the proposed action be categorically excluded from further NEPA review and documentation.

*William D. Adams*

*5/24/94*

William D. Adams, Assistant Manager for  
Environmental Restoration and Waste Management, ORO

Date

Based on the recommendations of the ORO NEPA Compliance Officer and the Assistant Manager for Environmental Restoration and Waste Management, I determine that the proposed action is categorically excluded from further NEPA review and documentation.

*Joe La Grone*

*5/24/94*

Joe La Grone, Manager, DOE Oak Ridge Operations Office

Date

United States Government

Department of Energy

Oak Ridge Operations

# memorandum

DATE: June 16, 1994

REPLY TO  
ATTN OF: EW-93:Marz

SUBJECT: ALBA CRAFT LABORATORY SITE - USE OF EXEMPTION FROM DOE 5820.2A FOR RADIOACTIVE WASTE FROM THE FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (FUSRAP)

TO: James A. Turi, Director, Office of Program Support, Office of the Deputy Assistant Secretary Waste Management, EM-33

This memorandum serves to notify EM-33 of FUSRAP's intent to dispose of radioactive waste at a commercial disposal facility.

In compliance with authorization (Grumbly to DOE Oak Ridge Operations Office, 10/12/93), the following information is being provided prior to shipping the low-level radioactive waste (LLW) from the Alba Craft Laboratory and vicinity properties that are located in Oxford, Ohio. This shipping campaign is to begin September 1994.

**Waste type:** Solid LLW consisting of debris and soil are contaminated with natural uranium and will be packaged in strong-tight packages (e.g., bimodal boxes) which meet the DOT and disposal site requirements.

**Total volume:** 1,000 cubic yards

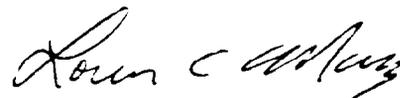
**Distribution:** Envirocare of Utah, Inc., Clive, Utah

**Type of environmental documentation:** The remediation at Aliquippa Forge was conducted using DOE's Expedited Procedures for Remedial Action at Small Sites. These procedures are contained in DOE Memorandum prepared by Andrew Wallo (CCN 070264).

**Status of environmental documentation:** The CX was approved by DOE on May 24, 1994.

**Date of last audit:** In August 1993, DOE Oak Ridge Environmental Restoration Division performed an onsite audit. The audit resulted in Envirocare obtaining a DOE acceptable compliance status.

If you have any questions, please contact me at (615) 576-9636.



Loren Marz, Environmental Engineer  
Former Sites Restoration Division

cc: J. W. Wagoner II, EM-421, TREV II

109854

# Bechtel

## Interoffice Memorandum

To G. L. Palau File No. 7440/109

Subject Expedited Protocol Review: Date October 22, 1993  
Elzey Residence From R. K. Atwood  
Of FUSRAP

Copies to G. R. Galen At Oak Ridge Ext. 4-3599  
T. E. Morris  
M. J. Williams

Attached is an environmental compliance review to support the expedited response action planned for the Oxford, Ohio, Vicinity Property located at 525 S. Main Street (Elzey residence). This review complies with the documentation requirements of the DOE Expedited Protocol as outlined in the DOE Memorandum of A. Wallo to J. Fiore dated June 25, 1990.

The Expedited Protocol outlines a process for identification and characterization, evaluation and planning, remediation, and certification of a site designated for cleanup. This review provides the documentation for the evaluation and planning phase based on an informal, desktop Preliminary Assessment (PA)/ Site Investigation (SI) and a Hazardous Ranking System (HRS) score equivalent using criteria typically considered in CERCLA remediations.

This environmental compliance review assesses the relative degree of risk at the Elzey residence to human health and the environment. It is based on two documents: the designation report for the site, and the preliminary radiological survey report. The information reviewed is sufficient to determine that the site would not qualify for inclusion on the CERCLA National Priority List (NPL) and that levels of contamination do not constitute a significant environmental or human health risk. This compliance review does not address the applicability of any environmental statutes, nor is it intended to be a CERCLA ARARs review for activities planned at the site. This evaluation was performed at a preliminary level, as a screening tool to provide a more cost effective, efficient method for satisfying the evaluation requirements embodied under the Expedited Protocol.

If you have any questions, please contact me at 574-3599.

RKA:jah:IO\_0798

Attachment: (1) Elzey Residence Vicinity Property Expedited Protocol Review



## Attachment

**ELZEY RESIDENCE VICINITY PROPERTY – OXFORD, OHIO  
EXPEDITED PROTOCOL REVIEW**

---

**I. INTRODUCTION**

Remediation at the Elzey residence will be conducted using the Expedited Protocol developed by DOE (See the memorandum of June 20, 1990, from A. Wallo to J. Fiore). The protocol is a process which involves the following phases: identification and characterization, evaluation and planning, remediation, and certification. This document meets the requirements for a desktop review following the format for a CERCLA Preliminary Assessment (PA)/ Site Investigation (SI) for data requirements and the preparation of an informal CERCLA Hazardous Ranking System (HRS) score, all conducted as part of the evaluation and planning phase.

**II. BACKGROUND**

The Elzey residence is located at 525 S. Main Street, Oxford, Ohio. The house was radiologically surveyed after learning that the owner/operator of the Alba Craft laboratory (a site designated under the FUSRAP program) was a former owner of the residence. The Alba Craft facility was used as a machine shop for machining uranium metal under contract with the Atomic Energy Commission (AEC).

The radiological survey of the house revealed residual uranium at levels above DOE cleanup criteria primarily in hardwood flooring in two rooms of the house. Uranium was found in elevated concentrations in both cracks and in the surface of the flooring. Contamination was also found in isolated spots in the yard (specifically, in soil around the front porch).

Under present conditions, it is unlikely that the residents of the house would be subject to exposure above background levels since the highest exposure rate measured at one meter from the contaminated floor area was 10 micro R/hour which is typical of background radiation in the southern Ohio area (See Letter from Murray to Williams, Preliminary Results of the Radiological Survey, CCN 107513). All contamination is limited to radioactivity. There is no chemical contamination evident.

**III. PA EQUIVALENT EVALUATION**

This PA evaluation is based on 40 CFR parts 300.410 (removal site evaluation), 300.415 (removal action), and 300.420 (remedial site



evaluation). The following factors are intended to determine whether further environmental studies and clean up of the Elzey residence is warranted.

- (a) **Source Identification, Nature/Threat of the Release:**  
Residual radioactive contamination (Uranium-238) was detected in several discrete, localized spots throughout the residence and in soil near the front porch. The nature of the release was limited and remains localized. There is no apparent threat of further release to individuals other than current residents.
- (b) **ATSDR/Other Agencies Public Health Threat Evaluation:**  
No other evaluations have been performed to date.
- (c) **Evaluation of the Magnitude of the Threat:**  
The radiological survey results indicate no immediate health risk to the residents from the residual contamination at the Elzey residence. This determination is based on the contamination being very localized, fixed, and limited in extent.
- (d) **Factors Determining Removal Action:**
  1. **Exposure to nearby human, animal populations, and food chain:**  
Under present conditions there are no significant exposures to nearby human populations, animal populations, or food chain. The residual uranium exceeding DOE cleanup guidelines is in a private residence.
  2. **Contamination of Drinking Water Supplies or Sensitive Ecosystems:**  
The contamination is limited to a few localized areas inside the building and outdoors and is limited in extent. Historical knowledge and the degree of migration expected under the existing conditions at the residence indicates that no threat to drinking water or sensitive ecosystems exists.
  3. **Tanks or Bulk Storage Containers Posing a Threat of Release:**  
No contaminants are stored in bulk storage containers.
  4. **High Levels of Contaminants in Surface Soils which may Migrate:**  
There is only limited exterior soil contamination. Available data seem to indicate there is little likelihood of contaminant migration due to the location of contamination in relation to waterways or groundwater.
  5. **Weather Conditions which may Induce Migration of Contamination:**  
Most of the contamination is contained inside the residence hence, weather conditions will not induce migration of contamination unless there is a significant loss of the



building's structural integrity due to natural disaster. Outdoor contamination is primarily limited to an area near the front porch. Areas of the yard where elevated readings are found are well vegetated and would not be subject to wind dispersal.

6. Threat of Fire or Explosion:  
The nature of contamination reveals no threat from fire or explosion.
7. Response by Federal/State Agencies to Potential Release:  
DOE has the authority to conduct remedial action under the Expedited Protocol, on the interior residual radioactivity as well as any limited outdoor contamination. This authority is based upon the presence of contamination traced to a facility under contract to the AEC. No state involvement is necessary or expected.
8. Other Factors Representing a Threat to the Public Welfare:  
Because the contamination is highly localized, confined to a few areas, and most contamination is contained inside the residence, no other factors represent a threat to the public welfare.

#### IV. SI EQUIVALENT EVALUATION

Requirements for an SI evaluation are based on 40 CFR part 300.420 (remedial site evaluation). The following factors are intended to determine the potential need for additional studies and if remedial action is warranted.

- (a) Site Information:  
The Elzey residence is located at 525 S. Main Street, Oxford, Ohio. The current property owners requested a radiological survey upon learning the owner/operator of the former Alba Craft facility was a former owner of their house and based on anecdotal reports that uranium was machined on the premises of the residence.
- (b) Waste Source Information:  
Residual uranium was found inside the house and in small quantities outside the house. The majority of the uranium found in the house is in cracks in the hardwood floor in the den.
- (c) Radiological Survey Results:  
The uranium found in cracks in the hardwood floors, and in the wood grain had a typical dose rate of 0.2 milli rad/hour (beta) and a maximum dose rate of 1.4 milli rad/hour (beta). The highest exposure rate, measured at one meter from the floor was 10 micro R/hour. This dose rate is typical of background radiation in the southern Ohio area.



- (d) **Hazard Assessment - Groundwater Route:**  
Available information on the extent and location of contamination, and historical and preliminary data, indicate that no groundwater contamination at this residential property would be expected. There is little likelihood of release of contaminants to the groundwater, as soil contamination is limited to surface soils. It is not likely that any significant contamination could migrate downward to groundwater.
- (e) **Hazard Assessment - Surface Water Route:**  
The nature and extent of contamination makes it unlikely that contaminants have been transported to any surface water, as there are no nearby surface water bodies.
- (f) **Hazard Assessment - Soil Route:**  
There is a minimal risk via the soil route, as the contamination is found in a residential yard. However, the residents have been asked not to disturb the soil in the yard until remedial action is complete.
- (g) **Hazard Assessment - Air Route:**  
There are no significant air contaminants detected nor are any suspected.

#### V. HAZARD RANKING SYSTEM

The HRS is intended to be a numerical screening tool, providing an indication of the specific level of risk from contamination at the site. As risk levels to human health and the environment are minimal given that most contamination is indoors with limited outdoor contamination, this HRS evaluation was limited to a qualitative review of each migration pathway.

- (a) **Ground Water Migration Pathway:**  
Likelihood of contaminant release to the groundwater and drinking water wells is minimal under present conditions. Additionally, there are no populations or wellhead protection areas potentially at risk within close proximity to the residence.
- (b) **Surface Water Migration Pathway:**  
It is very unlikely that runoff containing radioactivity from the site has reached surface water or that releases have occurred via groundwater to surface water, as there are no discharges to the surface water. There are no populations, food chains, or sensitive environments at risk within close proximity to the residence.
- (c) **Soil Exposure Pathway:**  
There is minimal potential for exposure by direct, physical contact with the contaminated surfaces inside the building



because contamination is confined or fixed to cracks in hardwood floors. The soil pathway presents minimal exposure levels due to low levels of contamination, and there are no resident or nearby populations, or sensitive terrestrial environments at risk.

(d) Air Migration Pathway:

Under present conditions there are no observed or potential releases of airborne gases or particulates, and there are no populations or sensitive environments at risk. Therefore, the air migration pathway does not pose a significant route for additional risk.

## VI. CONCLUSIONS

The DOE Expedited Protocol has been chosen as the method for conducting remedial action at the Elzey residence. The Expedited Protocol provides a cost effective, efficient method for remediating FUSRAP sites under the conditions and circumstances described in this review.

To document the rationale for remediating the Elzey residence under the DOE Expedited Protocol, a modified desktop PA/SI and HRS review was conducted. Based on the site designation report, and the preliminary results of the site radiological survey, this qualitative review evaluates the relative degree of risk at the Elzey residence, to human health and the environment. As a final check of the appropriate use of the expedited process, a comparison to the HRS criteria for inclusion on the CERCLA National Priorities List (NPL) is called for by the Expedited Protocol. Information provided in this review is sufficient for making the qualitative conclusion that the Elzey residence would not qualify for inclusion on the NPL.

Based on the above review, the level of remedial response anticipated under DOE's Expedited Protocol is both warranted and appropriate, and represents the most efficient, cost effective method for remediating the Elzey residence to ensure that any threat to the environment or public welfare is minimized.





Science Applications  
International Corporation  
An Employee Owned Company

SAIC/FUSRAP  
CONTACT LOG

Document Control No. 114118

Project: OXford EEC/A

Prepared by: Robert W. Tucker

Date: 2/15/94

Made Call to: Contact: Stuart Mack, OXford  
 Received Call from: Affiliation: City of OXford  
 Meeting Held with: Date: 2/15/94 Phone: 513 523 2171

Discussion: I called to discuss Flood plain and wetlands involvement for Albu Craft site. He responded that no wetlands are present and the site is quite far from the nearest creek and not in a flood plain. The insurance panel # for OXford is 390231-0001C August 4 1988 version. It shows the flood plain map for insurance purposes.

Action Items:

Person Responsible	Required Action	Date Required
_____	_____	_____
_____	_____	_____
_____	_____	_____

Distribution:  
H. Coffren  
G. Palau, BNI  
Joe Wood BNI  
Joe Williams, BNI

John Waddell  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Oak Ridge Office  
 301 Laboratory Road  
 P.O. Box 2501  
 Oak Ridge, Tennessee 37831  
 (615) 482-9031 • Fax: (615) 482-6828

## 2.5 REAL ESTATE LICENSES

Fully executed real estate licenses were obtained from the property owners before the remedial action began.

	<b>Page</b>
Real Estate License No. REORDOER-7-94-0123, between Dr. Wayne and Marilyn Elzey and DOE, property located at 525 South Main Street, Oxford, Ohio.	II-39
Real Estate License No. REORDOER-7-94-0132, between Mr. Gilbert and Vicki Pacey and DOE, property located at 10-14 West Rose Avenue, Oxford, Ohio.	II-43
Real Estate License No. REORDOER-7-94-0181, between James H. Burch and Darlene S. Burch and DOE, property located at 550 South Main Street, Oxford, Ohio.	II-47
Real Estate License No. REORDOER-7-94-0182, between Alfred A. Schwegman and DOE, property located at 9 West Rose Avenue, Oxford, Ohio.	II-51
Real Estate License No. REORDOER-7-94-0183, between Juanita I. Robinson, Terry Susan Fulton, and Amy Grace Clark and DOE, property located at 560 South Main Street, Oxford, Ohio.	II-55
Real Estate License No. REORDOER-7-94-0184, between J.R.J. Company and DOE, property located on West Rose Avenue, Oxford, Ohio.	II-59
Real Estate License No. REORDOER-7-94-0185, between Rosezelia L. Patton and DOE, property located at 520 South Main Street, Oxford, Ohio.	II-63
Real Estate License No. REORDOER-7-95-0106, between Dwight Harold Johnson, Jr. and Sandra Johnson and DOE, property located at 600 South Main Street, Oxford, Ohio.	II-67

DEPARTMENT OF ENERGY

LICENSE

PROJECT: FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM  
LOCATION: OXFORD, OHIO  
PURPOSE: REMEDIAL ACTION, SAMPLING, SURVEYS

THIS LICENSE, between Dr. Wayne and Marilyn Elzey,  
known as the "Grantor" and the U.S. Department of Energy, known as the  
"Grantee", is subject to the following terms and conditions.

1. Rights Granted - The Grantor grants to the Grantee, its agents, employees,  
or representatives permission to use the premises or facilities, together with  
ingress and egress, for the purpose of removing low-level radioactive material  
or performing any other reasonable action consistent with the completion of  
the remedial action, taking soil samples, and conducting follow-up  
radiological surveys at the location shown depicted on Exhibit "A" attached to  
this instrument and more specifically identified in whole or in part as Parcel  
No(s) 700,705,710 filed in Deed/Plat Book 1539, Page 268 in the records  
of Butler County, Ohio.

2. Term/Termination Rights - This License is valid upon execution by the  
Grantee and will be effective on the date of execution by the Grantor of this  
instrument and shall continue in effect for a period of/thru December 31, 1994  
unless terminated by either of the parties on not less than thirty (30) days  
prior written notice given to the other; provided, however, that the Grantor  
may not terminate this License without the Grantee's approval.

~~3. Consideration - Upon execution of this license by the Grantee, the Grantee  
shall initiate action DELETED to the Grantor the sum of \$                       
                     as full and complete payment for the rights  
granted within this License.~~

4. Authority to License - The Grantor represents and warrants that it is the  
owner of the property and has full right, power, and authority to enter into  
this License and grant the rights set out in this License.

5. Grantor Responsibility - The Grantor responsibility is set out within the terms and conditions of the rights granted under this License. The Grantor makes no representation as to the suitability or fitness of the premises for the intended purpose. Upon certification by the Grantee that the Grantor's property meets all applicable radiological criteria, the Grantor agrees to release the Grantee, its agents, employees, or representatives from all responsibility related to the radioactive contamination and the remedial action covered by this License.

6. Grantee Responsibility - The Grantee, its agents, employees, or representatives will be responsible for property damage or injury to persons caused by the sole and direct negligence of their respective employees in performing on the Grantor's premises the activities and restoration which are the subject of this License. Grantee shall obtain all necessary permits, licenses, and approvals in connection with the activities to be conducted by the Grantee on the premises. During the performance of the activities specified in this License, the Grantee shall not unreasonably interfere with the use and enjoyment of the premises by the Grantor.

7. Access - During the term of this License, the Grantee, its agents, employees, or representatives shall have the right of access to and egress from the premises as needed and shall have the right to bring necessary equipment upon the premises in connection with the performance of the Grantee's activities as set out in Condition 1.

8. Remedial Action - Grantee shall perform removal of low-level radioactive material in accordance with the Remedial Action Plan set forth in Exhibit "B" attached to this instrument. Grantee shall maintain the premises in such a manner as not to create a nuisance or be a hazard to the health, safety, and welfare of the citizens of the State in which the premises are located. Following completion of the remediation action, the Grantee shall restore the premises as set out in Condition 10.

9. Title to Equipment, Fixtures - Title to all equipment, fixtures, appurtenances, and other improvements furnished and/or installed in connection with the Grantee's activities under this License shall remain with the Grantee.

10. Restoration - Upon termination of this License, the Grantee shall remove all its equipment, fixtures, appurtenances, and other improvements furnished and/or installed on the premises in connection with the Grantee's activities under this License. The Grantee shall restore the premises, when such restoration is required in connection with the Grantee's activities, to the extent reasonably practical, to the condition existing at the time of initiation of the Grantee's activities. With the consent of the Grantor, the Grantee may abandon Grantee-owned equipment, fixtures, appurtenances, and other improvements in place in lieu of restoration when it is in the best interests of the Grantee.

11. Successors in Interest - This License and the parties' commitments within, shall be binding on both parties, their successors, and assigns.

12. Funding - Obligations of the Grantee under this License shall be subject to the availability of funds appropriated by the Congress which the Grantee may legally spend for such purposes and nothing in this License implies that Congress will appropriate funds to perform this License.

13. Notices - All notices regarding the specific terms and conditions of this License, and within the restrictions of this License, shall be in writing and shall be deemed effectively given upon personal delivery, upon verified facsimile receipt, or upon mailing by registered or certified mail, postage prepaid, and addressed to the parties at the following respective addresses, or to such other persons or at such other addresses as may be designated in writing by either party to the other.

If to the Grantee:

If to the Grantor:

Richard P. Nicholson  
Realty Officer  
Department of Energy  
P.O. Box 2001  
Oak Ridge, Tennessee 37831

Dr. Wayne and Marilyn Elzey  
525 South Main Street  
Oxford, Ohio 45056

14. Entire Agreement - This License represents the entire understanding of the parties on this matter and no oral statements or collateral documents (except as noted within) may modify this License.

15. Amendment - This License may not be amended or superseded except by an agreement in writing executed by the Grantor and Grantee.

That prior to execution of this License certain Conditions were deleted, revised, and/or added (with the additions being as set out below or as designated as Page(s) n/a and being made a part of this License) in the following manner:

Condition No. 3 was deleted in its entirety.

The above terms and conditions are acknowledged and agreed upon as indicated by the signatures affixed below:

GRANTOR: Dr. Wayne Elzey

GRANTEE: U.S. Department of Energy

By: *Wayne Elzey*

By: *for Katy Katis*  
Richard P. Nicholson

Title: *Cover*

Title: Realty Officer

Date: 10/15/93

Date: 10-21-93

DEPARTMENT OF ENERGY

LICENSE

PROJECT: FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM  
LOCATION: OXFORD, OHIO  
PURPOSE: REMEDIAL ACTION, SAMPLING, SURVEYS

THIS LICENSE, between Mr. Gilbert and Vickie Pacey,  
known as the "Grantor" and the U.S. Department of Energy, known as the  
"Grantee", is subject to the following terms and conditions.

1. Rights Granted - The Grantor grants to the Grantee, its agents, employees,  
or representatives permission to use the premises or facilities, together with  
ingress and egress, for the purpose of removing low-level radioactive material  
or performing any other reasonable action consistent with the completion of  
the remedial action, taking soil samples, and conducting follow-up  
radiological surveys at the location shown depicted on Exhibit "A" attached to  
this instrument and more specifically identified in whole or in part as Parcel  
No(s) .538,540,541,544 filed in Deed/Plat Book 1632, Page 517 in the records  
of Butler County, Ohio.

2. Term/Termination Rights - This License is valid upon execution by the  
Grantee and will be effective on the date of execution by the Grantor of this  
instrument and shall continue in effect for a period of/thru December 31, 1994  
unless terminated by either of the parties on not less than thirty (30) days  
prior written notice given to the other; provided, however, that the Grantor  
may not terminate this License without the Grantee's approval.

~~3. Consideration - Upon execution of this License by the Grantee, the Grantee  
shall initiate action to pay to the Grantor the sum of \$ \_\_\_\_\_  
as full and complete payment for the rights  
granted within this License.~~

4. Authority to License - The Grantor represents and warrants that it is the  
owner of the property and has full right, power, and authority to enter into  
this License and grant the rights set out in this License.

5. Grantor Responsibility - The Grantor responsibility is set out within the terms and conditions of the rights granted under this License. The Grantor makes no representation as to the suitability or fitness of the premises for the intended purpose. Upon certification by the Grantee that the Grantor's property meets all applicable radiological criteria, the Grantor agrees to release the Grantee, its agents, employees, or representatives from all responsibility related to the radioactive contamination and the remedial action covered by this License.

6. Grantee Responsibility - The Grantee, its agents, employees, or representatives will be responsible for property damage or injury to persons caused by the sole and direct negligence of their respective employees in performing on the Grantor's premises the activities and restoration which are the subject of this License. Grantee shall obtain all necessary permits, licenses, and approvals in connection with the activities to be conducted by the Grantee on the premises. During the performance of the activities specified in this License, the Grantee shall not unreasonably interfere with the use and enjoyment of the premises by the Grantor.

7. Access - During the term of this License, the Grantee, its agents, employees, or representatives shall have the right of access to and egress from the premises as needed and shall have the right to bring necessary equipment upon the premises in connection with the performance of the Grantee's activities as set out in Condition 1.

8. Remedial Action - Grantee shall perform removal of low-level radioactive material in accordance with the Remedial Action Plan set forth in Exhibit "B" attached to this instrument. Grantee shall maintain the premises in such a manner as not to create a nuisance or be a hazard to the health, safety, and welfare of the citizens of the State in which the premises are located. Following completion of the remediation action, the Grantee shall restore the premises as set out in Condition 10.

9. Title to Equipment, Fixtures - Title to all equipment, fixtures, appurtenances, and other improvements furnished and/or installed in connection with the Grantee's activities under this License shall remain with the Grantee.

10. Restoration - Upon termination of this License, the Grantee shall remove all its equipment, fixtures, appurtenances, and other improvements furnished and/or installed on the premises in connection with the Grantee's activities under this License. The Grantee shall restore the premises, when such restoration is required in connection with the Grantee's activities, to the extent reasonably practical, to the condition existing at the time of initiation of the Grantee's activities. With the consent of the Grantor, the Grantee may abandon Grantee-owned equipment, fixtures, appurtenances, and other improvements in place in lieu of restoration when it is in the best interests of the Grantee.

11. Successors in Interest - This License and the parties' commitments within, shall be binding on both parties, their successors, and assigns.

12. Funding - Obligations of the Grantee under this License shall be subject to the availability of funds appropriated by the Congress which the Grantee may legally spend for such purposes and nothing in this License implies that Congress will appropriate funds to perform this License.

13. Notices - All notices regarding the specific terms and conditions of this License, and within the restrictions of this License, shall be in writing and shall be deemed effectively given upon personal delivery, upon verified facsimile receipt, or upon mailing by registered or certified mail, postage prepaid, and addressed to the parties at the following respective addresses, or to such other persons or at such other addresses as may be designated in writing by either party to the other.

If to the Grantee:

Richard P. Nicholson  
Realty Officer  
Department of Energy  
P.O. Box 2001  
Oak Ridge, Tennessee 37831

If to the Grantor:

Mr. Gilbert Pacey  
494 White Oak Drive  
Oxford, Ohio 45056

14. Entire Agreement - This License represents the entire understanding of the parties on this matter and no oral statements or collateral documents (except as noted within) may modify this License.

15. Amendment - This License may not be amended or superseded except by an agreement in writing executed by the Grantor and Grantee.

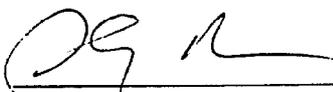
That prior to execution of this License certain Conditions were deleted, revised, and/or added (with the additions being as set out below or as designated as Page(s) n/a and being made a part of this License) in the following manner:

Condition No. 3 has been deleted in its entirety.

The above terms and conditions are acknowledged and agreed upon as indicated by the signatures affixed below:

GRANTOR: Mr. Gilbert Pacey

GRANTEE: U.S. Department of Energy

By: 

By:   
for Richard P. Nicholson

Title: owner

Title: Realty Officer

Date: Oct 20, 1993

Date: 10-28-93

DEPARTMENT OF ENERGY  
LICENSE

PROJECT: FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM  
LOCATION: OXFORD, OHIO  
PURPOSE: REMEDIAL ACTION, SAMPLING, SURVEYS

THIS LICENSE, between James H. Burch and Darlene S. Burch, known as the "Grantor" and the U.S. Department of Energy, known as the "Grantee", is subject to the following terms and conditions.

1. Rights Granted - The Grantor grants to the Grantee, its agents, employees, or representatives permission to use the premises or facilities, together with ingress and egress, for the purpose of removing low-level radioactive material or performing any other reasonable action consistent with the completion of the remedial action, taking soil samples, and conducting follow-up radiological surveys at the location shown depicted on Exhibit "A" attached to this instrument and more specifically identified in whole or in part as Parcel No(s). 539 filed in Deed/Plat Book 1350, Page 598,599 in the records of Butler County, Ohio.

2. Term/Termination Rights - This License is valid upon execution by the Grantee and will be effective on the date of execution by the Grantor of this instrument and shall continue in effect for a period of/thru 12/31/95 unless terminated by either of the parties on not less than thirty (30) days prior written notice given to the other; provided, however, that the Grantor may not terminate this License without the Grantee's approval.

3. Consideration - Upon execution of this license by the Grantee, the Grantee shall initiate action to pay to the grantor the sum of \$                      complete payment for the rights granted within this License. **DELETED**

Handwritten initials and a circular stamp containing the text "MHP for GLP".

4. Authority to License - The Grantor represents and warrants that it is the owner of the property and has full right, power, and authority to enter into this License and grant the rights set out in this License.

5. Grantor Responsibility - The Grantor responsibility is set out within the terms and conditions of the rights granted under this License. The Grantor makes no representation as to the suitability or fitness of the premises for the intended purpose. Upon certification by the Grantee that the Grantor's property meets all applicable radiological criteria, the Grantor agrees to release the Grantee, its agents, employees, or representatives from all responsibility related to the radioactive contamination and the remedial action covered by this License.

6. Grantee Responsibility - The Grantee, its agents, employees, or representatives will be responsible for property damage or injury to persons caused by the sole and direct negligence of their respective employees in performing on the Grantor's premises the activities and restoration which are the subject of this License. Grantee shall obtain all necessary permits, licenses, and approvals in connection with the activities to be conducted by the Grantee on the premises. During the performance of the activities specified in this License, the Grantee shall not unreasonably interfere with the use and enjoyment of the premises by the Grantor.

7. Access - During the term of this License, the Grantee, its agents, employees, or representatives shall have the right of access to and egress from the premises as needed and shall have the right to bring necessary equipment upon the premises in connection with the performance of the Grantee's activities as set out in Condition 1.

8. Remedial Action - Grantee shall perform removal of low-level radioactive material in accordance with the Remedial Action Plan set forth in Exhibit "B" attached to this instrument. Grantee shall maintain the premises in such a manner as not to create a nuisance or be a hazard to the health, safety, and welfare of the citizens of the State in which the premises are located. Following completion of the remediation action, the Grantee shall restore the premises as set out in Condition 10.

9. Title to Equipment, Fixtures - Title to all equipment, fixtures, appurtenances, and other improvements furnished and/or installed in connection with the Grantee's activities under this License shall remain with the Grantee.

10. Restoration - Upon termination of this License, the Grantee shall remove all its equipment, fixtures, appurtenances, and other improvements furnished and/or installed on the premises in connection with the Grantee's activities under this License. The Grantee shall restore the premises, when such restoration is required in connection with the Grantee's activities, to the extent reasonably practical, to the condition existing at the time of initiation of the Grantee's activities. With the consent of the Grantor, the Grantee may abandon Grantee-owned equipment, fixtures, appurtenances, and other improvements in place in lieu of restoration when it is in the best interests of the Grantee.

11. Successors in Interest - This License and the parties' commitments within, shall be binding on both parties, their successors, and assigns.

12. Funding - Obligations of the Grantee under this License shall be subject to the availability of funds appropriated by the Congress which the Grantee may legally spend for such purposes and nothing in this License implies that Congress will appropriate funds to perform this License.

13. Notices - All notices regarding the specific terms and conditions of this License, and within the restrictions of this License, shall be in writing and shall be deemed effectively given upon personal delivery, upon verified facsimile receipt, or upon mailing by registered or certified mail, postage prepaid, and addressed to the parties at the following respective addresses, or to such other persons or at such other addresses as may be designated in writing by either party to the other.

If to the Grantee:

Richard P. Nicholson  
Realty Officer  
Department of Energy  
P.O. Box 2001  
Oak Ridge, Tennessee 37831

If to the Grantor:

James H. Burch and Darlene S. Burch  
550 South Main Street  
Oxford, Ohio 45056

14. Entire Agreement - This License represents the entire understanding of the parties on this matter and no oral statements or collateral documents (except as noted within) may modify this License.

15. Amendment - This License may not be amended or superseded except by an agreement in writing executed by the Grantor and Grantee.

That prior to execution of this License certain Conditions were deleted, revised, and/or added (with the additions being as set out below or as designated as Page(s) N/A and being made a part of this License) in the following manner:

Condition Number 3 was deleted in its entirety.

The above terms and conditions are acknowledged and agreed upon as indicated by the signatures affixed below:

GRANTOR: James H. Burch and  
Darlene S. Burch

GRANTEE: U.S. Department of Energy

By: *Darlene S Burch*

By: *for Katy Kates*  
Richard P. Nicholson

Title: *Owner*

Title: Realty Officer

Date: *Feb. 22, 1994*

Date: *3-24-94*

DEPARTMENT OF ENERGY

LICENSE

PROJECT: FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM  
LOCATION: OXFORD, OHIO  
PURPOSE: REMEDIAL ACTION, SAMPLING, SURVEYS

THIS LICENSE, between Alfred A. Schwegman,  
known as the "Grantor" and the U.S. Department of Energy, known as the  
"Grantee", is subject to the following terms and conditions.

1. Rights Granted - The Grantor grants to the Grantee, its agents, employees,  
or representatives permission to use the premises or facilities, together with  
ingress and egress, for the purpose of removing low-level radioactive material  
or performing any other reasonable action consistent with the completion of  
the remedial action, taking soil samples, and conducting follow-up  
radiological surveys at the location shown depicted on Exhibit "A" attached to  
this instrument and more specifically identified in whole or in part as Parcel  
No(s). 542 filed in Deed/Plat Book 1669, Page 636,637 in the records  
of Butler County, Ohio.

2. Term/Termination Rights - This License is valid upon execution by the  
Grantee and will be effective on the date of execution by the Grantor of this  
instrument and shall continue in effect for a period of/thru 12/31/95  
unless terminated by either of the parties on not less than thirty (30) days  
prior written notice given to the other; provided, however, that the Grantor  
may not terminate this License without the Grantee's approval.

3. Consideration - Upon execution of this License by the Grantee, the Grantee  
shall initiate action to pay to the Grantor the sum of                       
(\$           ) as full and complete payment for the rights  
granted within this License.

MDP  
For  
GLP

4. Authority to License - The Grantor represents and warrants that it is the  
owner of the property and has full right, power, and authority to enter into  
this License and grant the rights set out in this License.

5. Grantor Responsibility - The Grantor responsibility is set out within the terms and conditions of the rights granted under this License. The Grantor makes no representation as to the suitability or fitness of the premises for the intended purpose. Upon certification by the Grantee that the Grantor's property meets all applicable radiological criteria, the Grantor agrees to release the Grantee, its agents, employees, or representatives from all responsibility related to the radioactive contamination and the remedial action covered by this License.

6. Grantee Responsibility - The Grantee, its agents, employees, or representatives will be responsible for property damage or injury to persons caused by the sole and direct negligence of their respective employees in performing on the Grantor's premises the activities and restoration which are the subject of this License. Grantee shall obtain all necessary permits, licenses, and approvals in connection with the activities to be conducted by the Grantee on the premises. During the performance of the activities specified in this License, the Grantee shall not unreasonably interfere with the use and enjoyment of the premises by the Grantor.

7. Access - During the term of this License, the Grantee, its agents, employees, or representatives shall have the right of access to and egress from the premises as needed and shall have the right to bring necessary equipment upon the premises in connection with the performance of the Grantee's activities as set out in Condition 1.

8. Remedial Action - Grantee shall perform removal of low-level radioactive material in accordance with the Remedial Action Plan set forth in Exhibit "B" attached to this instrument. Grantee shall maintain the premises in such a manner as not to create a nuisance or be a hazard to the health, safety, and welfare of the citizens of the State in which the premises are located. Following completion of the remediation action, the Grantee shall restore the premises as set out in Condition 10.

9. Title to Equipment, Fixtures - Title to all equipment, fixtures, appurtenances, and other improvements furnished and/or installed in connection with the Grantee's activities under this License shall remain with the Grantee.

10. Restoration - Upon termination of this License, the Grantee shall remove all its equipment, fixtures, appurtenances, and other improvements furnished and/or installed on the premises in connection with the Grantee's activities under this License. The Grantee shall restore the premises, when such restoration is required in connection with the Grantee's activities, to the extent reasonably practical, to the condition existing at the time of initiation of the Grantee's activities. With the consent of the Grantor, the Grantee may abandon Grantee-owned equipment, fixtures, appurtenances, and other improvements in place in lieu of restoration when it is in the best interests of the Grantee.

11. Successors in Interest - This License and the parties' commitments within, shall be binding on both parties, their successors, and assigns.

12. Funding - Obligations of the Grantee under this License shall be subject to the availability of funds appropriated by the Congress which the Grantee may legally spend for such purposes and nothing in this License implies that Congress will appropriate funds to perform this License.

13. Notices - All notices regarding the specific terms and conditions of this License, and within the restrictions of this License, shall be in writing and shall be deemed effectively given upon personal delivery, upon verified facsimile receipt, or upon mailing by registered or certified mail, postage prepaid, and addressed to the parties at the following respective addresses, or to such other persons or at such other addresses as may be designated in writing by either party to the other.

If to the Grantee:

Richard P. Nicholson  
Realty Officer  
Department of Energy  
P.O. Box 2001  
Oak Ridge, Tennessee 37831

If to the Grantor:

  
Alfred A. Schwegman  
4712 ~~4709~~ Booth Road  
Oxford, Ohio 45056

14. Entire Agreement - This License represents the entire understanding of the parties on this matter and no oral statements or collateral documents (except as noted within) may modify this License.

15. Amendment - This License may not be amended or superseded except by an agreement in writing executed by the Grantor and Grantee.

That prior to execution of this License certain Conditions were deleted, revised, and/or added (with the additions being as set out below or as designated as Page(s) N/A and being made a part of this License) in the following manner:

Condition Number 3 was deleted in its entirety.

The above terms and conditions are acknowledged and agreed upon as indicated by the signatures affixed below:

GRANTOR: Alfred A. Schwegman

GRANTEE: U.S. Department of Energy

By: *Alfred Schwegman*

By: *Katy Kates*  
*for* Richard P. Nicholson

Title: *Owner*

Title: Realty Officer

Date: *2-27-94*

Date: *3-24-94*

DEPARTMENT OF ENERGY  
LICENSE

PROJECT: FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM  
LOCATION: OXFORD, OHIO  
PURPOSE: REMEDIAL ACTION, SAMPLING, SURVEYS

THIS LICENSE, between Juanita I. Robinson and Terry Susan Fulton and Amy Grace Clark, known as the "Grantor" and the U.S. Department of Energy, known as the "Grantee", is subject to the following terms and conditions.

1. Rights Granted - The Grantor grants to the Grantee, its agents, employees, or representatives permission to use the premises or facilities, together with ingress and egress, for the purpose of removing low-level radioactive material or performing any other reasonable action consistent with the completion of the remedial action, taking soil samples, and conducting follow-up radiological surveys at the location shown depicted on Exhibit "A" attached to this instrument and more specifically identified in whole or in part as Parcel No(s). 540 filed in Deed/Plat Book 1761, Page 474 in the records of Butler County, Ohio.

2. Term/Termination Rights - This License is valid upon execution by the Grantee and will be effective on the date of execution by the Grantor of this instrument and shall continue in effect for a period of/thru 12/31/95 unless terminated by either of the parties on not less than thirty (30) days prior written notice given to the other; provided, however, that the Grantor may not terminate this License without the Grantee's approval.

3. Consideration - Upon execution of this License by the Grantee, the Grantee shall initiate action to pay to the Grantor the sum of \$ DELETED as full and complete payment for the rights granted within this License.

4. Authority to License - The Grantor represents and warrants that it is the owner of the property and has full right, power, and authority to enter into this License and grant the rights set out in this License.

5. Grantor Responsibility - The Grantor responsibility is set out within the terms and conditions of the rights granted under this License. The Grantor makes no representation as to the suitability or fitness of the premises for the intended purpose. Upon certification by the Grantee that the Grantor's property meets all applicable radiological criteria, the Grantor agrees to release the Grantee, its agents, employees, or representatives from all responsibility related to the radioactive contamination and the remedial action covered by this License.

6. Grantee Responsibility - The Grantee, its agents, employees, or representatives will be responsible for property damage or injury to persons caused by the sole and direct negligence of their respective employees in performing on the Grantor's premises the activities and restoration which are the subject of this License. Grantee shall obtain all necessary permits, licenses, and approvals in connection with the activities to be conducted by the Grantee on the premises. During the performance of the activities specified in this License, the Grantee shall not unreasonably interfere with the use and enjoyment of the premises by the Grantor.

7. Access - During the term of this License, the Grantee, its agents, employees, or representatives shall have the right of access to and egress from the premises as needed and shall have the right to bring necessary equipment upon the premises in connection with the performance of the Grantee's activities as set out in Condition 1.

8. Remedial Action - Grantee shall perform removal of low-level radioactive material in accordance with the Remedial Action Plan set forth in Exhibit "B" attached to this instrument. Grantee shall maintain the premises in such a manner as not to create a nuisance or be a hazard to the health, safety, and welfare of the citizens of the State in which the premises are located. Following completion of the remediation action, the Grantee shall restore the premises as set out in Condition 10.

9. Title to Equipment, Fixtures - Title to all equipment, fixtures, appurtenances, and other improvements furnished and/or installed in connection with the Grantee's activities under this License shall remain with the Grantee.

10. Restoration - Upon termination of this License, the Grantee shall remove all its equipment, fixtures, appurtenances, and other improvements furnished and/or installed on the premises in connection with the Grantee's activities under this License. The Grantee shall restore the premises, when such restoration is required in connection with the Grantee's activities, to the extent reasonably practical, to the condition existing at the time of initiation of the Grantee's activities. With the consent of the Grantor, the Grantee may abandon Grantee-owned equipment, fixtures, appurtenances, and other improvements in place in lieu of restoration when it is in the best interests of the Grantee.

11. Successors in Interest - This License and the parties' commitments within, shall be binding on both parties, their successors, and assigns.

12. Funding - Obligations of the Grantee under this License shall be subject to the availability of funds appropriated by the Congress which the Grantee may legally spend for such purposes and nothing in this License implies that Congress will appropriate funds to perform this License.

13. Notices - All notices regarding the specific terms and conditions of this License, and within the restrictions of this License, shall be in writing and shall be deemed effectively given upon personal delivery, upon verified facsimile receipt, or upon mailing by registered or certified mail, postage prepaid, and addressed to the parties at the following respective addresses, or to such other persons or at such other addresses as may be designated in writing by either party to the other.

If to the Grantee:

Richard P. Nicholson  
Realty Officer  
Department of Energy  
P.O. Box 2001  
Oak Ridge, Tennessee 37831

If to the Grantor:

Terry Susan Fulton and  
Amy Grace Clark  
560 South Main Street  
Oxford, Ohio 45056

14. Entire Agreement - This License represents the entire understanding of the parties on this matter and no oral statements or collateral documents (except as noted within) may modify this License.

15. Amendment - This License may not be amended or superseded except by an agreement in writing executed by the Grantor and Grantee.

That prior to execution of this License certain Conditions were deleted, revised, and/or added (with the additions being as set out below or as designated as Page(s) N/A and being made a part of this License) in the following manner:

Condition Number 3 was deleted in its entirety.

The above terms and conditions are acknowledged and agreed upon as indicated by the signatures affixed below:

GRANTOR:	<u>Juanita I. Robinson and</u> <sup>(MOD)</sup>	GRANTEE:	<u>U.S. Department of Energy</u>
	<u>Terry Susan Fulton and</u> <sup>(REC)</sup>		
	<u>Amy Grace Clark</u> <sup>J.S.</sup>		
By:	<u>Juanita I. Robinson</u>	By:	<u>Katy Bates</u>
	<u>Amy Grace Clark</u>		<u>Richard P. Nicholson</u>
	<u>Terry Susan <del>Fulton</del> Fulton</u> <sup>2/22/94</sup>		
Title:	<u>CO-Trustee</u>	Title:	<u>Realty Officer</u>
	<u>2/22/94</u>		
Date:	<u>2-22-94</u>	Date:	<u>3-24-94</u>



5. Grantor Responsibility - The Grantor responsibility is set out within the terms and conditions of the rights granted under this License. The Grantor makes no representation as to the suitability or fitness of the premises for the intended purpose. Upon certification by the Grantee that the Grantor's property meets all applicable radiological criteria, the Grantor agrees to release the Grantee, its agents, employees, or representatives from all responsibility related to the radioactive contamination and the remedial action covered by this License.

6. Grantee Responsibility - The Grantee, its agents, employees, or representatives will be responsible for property damage or injury to persons caused by the sole and direct negligence of their respective employees in performing on the Grantor's premises the activities and restoration which are the subject of this License. Grantee shall obtain all necessary permits, licenses, and approvals in connection with the activities to be conducted by the Grantee on the premises. During the performance of the activities specified in this License, the Grantee shall not unreasonably interfere with the use and enjoyment of the premises by the Grantor.

7. Access - During the term of this License, the Grantee, its agents, employees, or representatives shall have the right of access to and egress from the premises as needed and shall have the right to bring necessary equipment upon the premises in connection with the performance of the Grantee's activities as set out in Condition 1.

8. Remedial Action - Grantee shall perform removal of low-level radioactive material in accordance with the Remedial Action Plan set forth in Exhibit "B" attached to this instrument. Grantee shall maintain the premises in such a manner as not to create a nuisance or be a hazard to the health, safety, and welfare of the citizens of the State in which the premises are located. Following completion of the remediation action, the Grantee shall restore the premises as set out in Condition 10.

9. Title to Equipment, Fixtures - Title to all equipment, fixtures, appurtenances, and other improvements furnished and/or installed in connection with the Grantee's activities under this License shall remain with the Grantee.

10. Restoration - Upon termination of this License, the Grantee shall remove all its equipment, fixtures, appurtenances, and other improvements furnished and/or installed on the premises in connection with the Grantee's activities under this License. The Grantee shall restore the premises, when such restoration is required in connection with the Grantee's activities, to the extent reasonably practical, to the condition existing at the time of initiation of the Grantee's activities. With the consent of the Grantor, the Grantee may abandon Grantee-owned equipment, fixtures, appurtenances, and other improvements in place in lieu of restoration when it is in the best interests of the Grantee.

11. Successors in Interest - This License and the parties' commitments within, shall be binding on both parties, their successors, and assigns.

12. Funding - Obligations of the Grantee under this License shall be subject to the availability of funds appropriated by the Congress which the Grantee may legally spend for such purposes and nothing in this License implies that Congress will appropriate funds to perform this License.

13. Notices - All notices regarding the specific terms and conditions of this License, and within the restrictions of this License, shall be in writing and shall be deemed effectively given upon personal delivery, upon verified facsimile receipt, or upon mailing by registered or certified mail, postage prepaid, and addressed to the parties at the following respective addresses, or to such other persons or at such other addresses as may be designated in writing by either party to the other.

If to the Grantee:

If to the Grantor:

Richard P. Nicholson  
Realty Officer  
Department of Energy  
P.O. Box 2001  
Oak Ridge, Tennessee 37831

J. R. J. COMPANY  
415 South College Avenue  
Oxford, Ohio 45056

14. Entire Agreement - This License represents the entire understanding of the parties on this matter and no oral statements or collateral documents (except as noted within) may modify this License.

15. Amendment - This License may not be amended or superseded except by an agreement in writing executed by the Grantor and Grantee.

That prior to execution of this License certain Conditions were deleted, revised, and/or added (with the additions being as set out below or as designated as Page(s) N/A and being made a part of this License) in the following manner:

Condition Number 3 was deleted in its entirety.

The above terms and conditions are acknowledged and agreed upon as indicated by the signatures affixed below:

GRANTOR: J. R. J. COMPANY

GRANTEE: U.S. Department of Energy

By: *Robert P. Weispi*

By: *Kathy Kates*  
for Richard P. Nicholson

Title: Partner

Title: Realty Officer

Date: 2-26-94

Date: 3-24-94

DEPARTMENT OF ENERGY

LICENSE

PROJECT: FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM  
LOCATION: OXFORD, OHIO  
PURPOSE: REMEDIAL ACTION, SAMPLING, SURVEYS

THIS LICENSE, between Rosezelia L. Patton,  
known as the "Grantor" and the U.S. Department of Energy, known as the  
"Grantee", is subject to the following terms and conditions.

1. Rights Granted - The Grantor grants to the Grantee, its agents, employees,  
or representatives permission to use the premises or facilities, together with  
ingress and egress, for the purpose of removing low-level radioactive material  
or performing any other reasonable action consistent with the completion of  
the remedial action, taking soil samples, and conducting follow-up  
radiological surveys at the location shown depicted on Exhibit "A" attached to  
this instrument and more specifically identified in whole or in part as Parcel  
No(s). 24 filed in Deed/Plat Book 1595, Page 729, in the records  
of Butler County, Ohio. 730

2. Term/Termination Rights - This License is valid upon execution by the  
Grantee and will be effective on the date of execution by the Grantor of this  
instrument and shall continue in effect for a period of/thru 12/31/95  
unless terminated by either of the parties on not less than thirty (30) days  
prior written notice given to the other; provided, however, that the Grantor  
may not terminate this License without the Grantee's approval.

3. Consideration - Upon ~~execution of this License by the~~ Grantee, the Grantee  
shall initiate action to ~~pay to the Grantor the sum of \$~~ **DELETED** MDP  
K of  
GLB  
(\$) as full and complete payment for the rights  
granted within this License.

4. Authority to License - The Grantor represents and warrants that it is the  
owner of the property and has full right, power, and authority to enter into  
this License and grant the rights set out in this License.

5. Grantor Responsibility - The Grantor responsibility is set out within the terms and conditions of the rights granted under this License. The Grantor makes no representation as to the suitability or fitness of the premises for the intended purpose. Upon certification by the Grantee that the Grantor's property meets all applicable radiological criteria, the Grantor agrees to release the Grantee, its agents, employees, or representatives from all responsibility related to the radioactive contamination and the remedial action covered by this License.

6. Grantee Responsibility - The Grantee, its agents, employees, or representatives will be responsible for property damage or injury to persons caused by the sole and direct negligence of their respective employees in performing on the Grantor's premises the activities and restoration which are the subject of this License. Grantee shall obtain all necessary permits, licenses, and approvals in connection with the activities to be conducted by the Grantee on the premises. During the performance of the activities specified in this License, the Grantee shall not unreasonably interfere with the use and enjoyment of the premises by the Grantor.

7. Access - During the term of this License, the Grantee, its agents, employees, or representatives shall have the right of access to and egress from the premises as needed and shall have the right to bring necessary equipment upon the premises in connection with the performance of the Grantee's activities as set out in Condition 1.

8. Remedial Action - Grantee shall perform removal of low-level radioactive material in accordance with the Remedial Action Plan set forth in Exhibit "B" attached to this instrument. Grantee shall maintain the premises in such a manner as not to create a nuisance or be a hazard to the health, safety, and welfare of the citizens of the State in which the premises are located. Following completion of the remediation action, the Grantee shall restore the premises as set out in Condition 10.

9. Title to Equipment, Fixtures - Title to all equipment, fixtures, appurtenances, and other improvements furnished and/or installed in connection with the Grantee's activities under this License shall remain with the Grantee.

10. Restoration - Upon termination of this License, the Grantee shall remove all its equipment, fixtures, appurtenances, and other improvements furnished and/or installed on the premises in connection with the Grantee's activities under this License. The Grantee shall restore the premises, when such restoration is required in connection with the Grantee's activities, to the extent reasonably practical, to the condition existing at the time of initiation of the Grantee's activities. With the consent of the Grantor, the Grantee may abandon Grantee-owned equipment, fixtures, appurtenances, and other improvements in place in lieu of restoration when it is in the best interests of the Grantee.

11. Successors in Interest - This License and the parties' commitments within, shall be binding on both parties, their successors, and assigns.

12. Funding - Obligations of the Grantee under this License shall be subject to the availability of funds appropriated by the Congress which the Grantee may legally spend for such purposes and nothing in this License implies that Congress will appropriate funds to perform this License.

13. Notices - All notices regarding the specific terms and conditions of this License, and within the restrictions of this License, shall be in writing and shall be deemed effectively given upon personal delivery, upon verified facsimile receipt, or upon mailing by registered or certified mail, postage prepaid, and addressed to the parties at the following respective addresses, or to such other persons or at such other addresses as may be designated in writing by either party to the other.

If to the Grantee:

Richard P. Nicholson  
Realty Officer  
Department of Energy  
P.O. Box 2001  
Oak Ridge, Tennessee 37831

If to the Grantor:

Rosezelia L. Patton  
520 South Main Street  
Oxford, Ohio 45056

14. Entire Agreement - This License represents the entire understanding of the parties on this matter and no oral statements or collateral documents (except as noted within) may modify this License.

15. Amendment - This License may not be amended or superseded except by an agreement in writing executed by the Grantor and Grantee.

That prior to execution of this License certain Conditions were deleted, revised, and/or added (with the additions being as set out below or as designated as Page(s) N/A and being made a part of this License) in the following manner:

Condition Number 3 was deleted in its entirety.

The above terms and conditions are acknowledged and agreed upon as indicated by the signatures affixed below:

GRANTOR: Rosezelia L. Patton

GRANTEE: U.S. Department of Energy

By: Rosezelia L. Patton

By: Kate Kates  
for Richard P. Nicholson

Title: Owner

Title: Realty Officer

Date: Feb. 24, 1994

Date: 3-24-94



6. Grantee Responsibility - The Grantee, its agents, employees, or representatives will be responsible for property damage or injury to persons caused by the sole and direct negligence of their respective employees in performing on the Grantor's premises the activities and restoration which are the subject of this License. Grantee shall obtain all necessary permits, licenses, and approvals in connection with the activities to be conducted by the Grantee on the premises. During the performance of the activities specified in this License, the Grantee shall not unreasonably interfere with the use and enjoyment of the premises by the Grantor.

7. Access - During the term of this License, the Grantee, its agents, employees, or representatives shall have the right of access to and egress from the premises as needed and shall have the right to bring necessary equipment upon the premises in connection with the performance of the Grantee's activities as set out in Condition 1.

8. Title to Equipment, Fixtures - Title to all equipment, fixtures, appurtenances, and other improvements furnished and installed in connection with the Grantee's activities under this License shall remain with the Grantee.

9. Restoration - Upon termination of this License, the Grantee shall remove all its equipment, fixtures, appurtenances, and other improvements furnished and installed on the premises in connection with the Grantee's activities under this License. The Grantee shall restore the premises, when such restoration is required in connection with the Grantee's activities, to the extent reasonably practical, to the condition existing at the time of initiation of the Grantee's activities. With the consent of the Grantor, the Grantee may abandon Grantee-owned equipment, fixtures, appurtenances, and other improvements in place in lieu of restoration when it is in the best interests of the Grantee.

10. Successors in Interest - This License and the parties' commitments within, shall be binding on both parties, their successors, and assigns.

11. Funding - Obligations of the Grantee under this License shall be subject to the availability of funds appropriated by the Congress which the Grantee may legally spend for such purposes and nothing in this License implies that Congress will appropriate funds to perform this License.

12. Notices - All notices regarding the specific terms and conditions of this License, and within the restrictions of this License, shall be in writing and shall be deemed effectively given upon personal delivery, upon verified facsimile receipt, or upon mailing by registered or certified mail, postage prepaid, and addressed to the parties at the following respective addresses, or to such other persons or at such other addresses as may be designated in writing by either party to the other:

If to the Grantee:

Richard P. Nicholson  
Realty Officer  
Department of Energy  
P.O. Box 2001  
Oak Ridge, Tennessee 37831

If to the Grantor:

Mr. & Mrs. Dwight H. Johnson, Jr.  
P.O. Box 541  
Oxford, OH 45056

13. Entire Agreement - This License represents the entire understanding of the parties on this matter and no oral statements or collateral documents (except as noted within) may modify this License.

14. Amendment - This License may not be amended or superseded except by an agreement in writing executed by the Grantor and Grantee.

That prior to execution of this License certain Conditions were deleted, revised, and/or added (with the additions being as set out below or as designated as Page(s) N/A and being made a part of this License) in the following manner:

Condition Number 3 was deleted in its entirety.

The above terms and conditions are acknowledged and agreed upon as indicated by the signatures affixed below:

GRANTOR: Dwight Harold Johnson, Jr.  
and Sandra Johnson

By: *Sandra Dwight Johnson*

Title: *Dwight Sandra*

Date: *8-12-94*

GRANTEE: U.S. Department of Energy

By: *Katy Kates*  
*for* Richard P. Nicholson

Title: Realty Officer

Date: *10-28-94*

## 2.6 POST-REMEDIATION ACTION REPORT

The following documents describe the extent of the remedial action and the successful decontamination of the Alba Craft Laboratory and the vicinity properties.

	<b>Page</b>
<i>BNI, Post-Remedial Action Report for the Former Alba Craft Laboratory and Vicinity Properties, Oxford, Ohio, DOE/OR/21949-387, August 1995.</i>	Ref. 9

## 2.7 INTERIM VERIFICATION LETTERS TO PROPERTY OWNERS AND VERIFICATION STATEMENTS AND REPORTS

This section contains the documents related to the successful decontamination of the subject properties.

	Page
Letter from W. A. Williams (DOE-HQ) to Dr. and Mrs. Wayne Elzey, "Preliminary Results of the Radiological Survey at 525 South Main Street, Oxford, Ohio," BNI CCN 109829, August 1993.	II-73
Letter from D. Adler (DOE-FSRD) to Wayne and Marilyn Elzey, "Oxford, Ohio - Post-Remedial Action Results for the Interior of 525 South Main Street, Oxford, Ohio," BNI CCN 117657, September 2, 1994.	II-77
Letter from D. Adler (DOE-FSRD) to Wayne and Marilyn Elzey, "Sample Results for the Exterior of 525 South Main Street, Oxford, Ohio," BNI CCN 121989, October 18, 1994.	II-92
Letter from D. Adler (DOE-FSRD) to Wayne and Marilyn Elzey, "Post-Remedial Action Results for 525 South Main Street, Oxford, Ohio," BNI CCN 126546, February 1, 1995.	II-96
Letter from D. Adler (DOE-FSRD) to J. C. Collard (City of Oxford), "Oxford, Ohio - Post-Remedial Action Report of West Rose Avenue," BNI CCN 126060, February 7, 1995.	II-102
ORNL, <i>Results of the Independent Radiological Verification Survey of the Remedial Action Performed at the Former Alba Craft Laboratory Site, Oxford, Ohio (OXO001)</i> , ORNL/TM-12968, Oak Ridge, Tenn., April 1996.	Ref. 10
ORNL, <i>Results of the Independent Radiological Verification Survey of the Remedial Action Performed at 525 S. Main Street, Oxford, Ohio (OXO002)</i> , ORNL/RASA-95/2, Oak Ridge, Tenn., April 1996.	Ref. 11

109829

OAK RIDGE NATIONAL LABORATORY  
OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008  
OAK RIDGE, TENNESSEE 37831

August 18, 1993

Dr. W. A. Williams  
Department of Energy  
Trevion II Building  
EM-421  
Washington, D. C. 20585-0002

Dear Dr. Williams:

**Preliminary Results of the Radiological Survey at 525 South Main Street, Oxford, Ohio**

Beginning on August 2, 1993, a team from the Oak Ridge National Laboratory (ORNL) conducted a radiological survey of a residence at 525 South Main Street, Oxford, Ohio. The work included both inside and outside surveying for the presence of residual uranium, possibly transported from the former Alba Craft facility located on West Rose Avenue (approximately 100 yards away). The current property owners requested the survey upon learning the owner/operator of the former Alba Craft was a former owner of their house. Residual uranium was found outside the house as well as inside. The owners were immediately informed of the field measurements and were told that the radiation exposure was quite low; however, they were advised not to take any action which would disturb the materials in the floor cracks where the uranium was found, such as sanding or remodeling.

The uranium found inside the house was restricted to two rooms which appeared to be part of the original house construction. The den area (20 x 12 feet) has most of the uranium in an area, 4 x 9 feet directly in front of a fireplace. The majority of the uranium was in the cracks of the hardwood floor; however, some activity was in the wood grain. This small area has a typical dose rate of 0.2 milli rad/hr (beta) and a maximum dose rate of 1.4 milli rad/hour (beta). Eight other spots of lesser contamination were also found in the den. The other room where the uranium was found is a bedroom (12.5 x 23 feet) above the garage. Numerous spots were found where the uranium had settled into the hardwood floor cracks and all measured dose rates were less than 0.44 milli rad/hour (beta). Multiple gamma exposure measurements were made with a pressurized ion chamber (PIC) at one meter from the floor. The highest exposure rate was 10 micro R/hour which is typical of background radiation in the southern Ohio area.

The uranium outside the house was primarily found in three locations. The soil around the original front porch had slightly elevated levels of uranium. Preliminary measurements indicate uranium soil concentrations of 180 to 450 pCi/gram. The second location about 27 feet from the house in the backyard, had a surface exposure rate of about 0.25 mR/hour and the maximum uranium concentration of 13,500 pCi/gram. The uranium was located four to eight inches below the soil surface. The vast majority of this uranium was removed by sampling and the hole filled with clean soil. The third location, behind the garage near a downspout, had 5 pCi/gram <sup>238</sup>U. It also had approximately 6 pCi/gram of <sup>137</sup>Cs, most likely fallout from atmospheric nuclear weapons tests. The <sup>137</sup>Cs was concentrated at the location by rain water.

Dr. W. A. Williams

2

August 12, 1993

One other spot in the backyard, where elevated gamma measurements were found, turned out not to be uranium. It was an electrical switch with a radium button for visibility in the dark.

All data provided herein is preliminary and should only be used as such. The samples from this site will be expeditiously processed and the results published as soon as possible. Please direct any questions about this survey to R. D. Foley, W. D. Cottrell or M. E. Murray, (615) 574-5838.

Sincerely,



Michael E. Murray  
Measurement Applications  
and Development Group

MEM:ec

c: D. G. Adler (DOE-ORO)  
W. D. Cottrell  
R. D. Foley  
C. Jenkins (BNI)



109829

**Department of Energy**  
Washington, DC 20585

AUG 11 1993

Dr. and Mrs. Wayne Elzey  
525 South Main Street  
Oxford, Ohio 45056

Dear Dr. and Mrs. Elzey:

I am enclosing a copy of the preliminary results furnished to the Department of Energy (DOE) by Oak Ridge National Laboratory as a result of the radiological survey at your home on August 2, 1993. A complete radiological survey report is being prepared and will be furnished to you when it is complete early next year.

Inside the house, residual uranium was identified in the den and in a bedroom above the garage. In both locations, the uranium is stuck or fixed in the cracks and grain of the hardwood floor. Under these conditions, there is no significant risk. To avoid the generation of airborne radioactivity, we strongly recommend against any sanding or grinding of the floor in the rooms where the uranium is present. Normal cleaning of the floor with a vacuum cleaner, broom, or dust mop are entirely appropriate; it is only cleaning methods that scour or abrade the floor surface that pose a potential risk.

Two areas of elevated uranium levels were identified in the soil in the yard. The soil around the original front porch of the house has slightly elevated levels of uranium. A spot in your back yard exhibited much higher levels; most of this spot was removed by sampling. These elevated uranium levels, as well as those located inside the house, appear to be related to the former Alba Craft Laboratory operation.

Two other spots of elevated radioactivity were identified during the survey. One of these spots, located near a downspout behind the garage, contained slightly elevated levels of uranium and Cesium-137. The cesium is from fallout from atmospheric nuclear weapons tests; it was deposited on the roof and concentrated near the downspout by the runoff of rainwater from the roof. The low levels of uranium that were identified at this spot may be background levels, may result from fertilizer application, or may be related to the Alba Craft Laboratory operation. The second spot is an electrical switch with a luminescent radium button. This material is not related to the operations at the Alba Craft Laboratory.

The information contained in the letter report should be considered preliminary, because the soil samples have not been processed to precisely determine the uranium concentration. Please call me at 301-903-8149 if I may be of further assistance.

Sincerely,



W. Alexander Williams, PhD  
Designation and Certification Manager  
Division of Off-Site Programs  
Office of Eastern Area Programs  
Office of Environmental Restoration

Enclosure

cc:  
D. Adler, OR  
M. Murray, ORNL



**Department of Energy**

Oak Ridge Operations  
P.O. Box 2001  
Oak Ridge, Tennessee 37831—

117657

Wayne and Marilyn Elzey  
525 South Main Street  
Oxford, Ohio 45056

Dear Dr. and Mrs. Elzey:

**OXFORD OHIO - POST-REMEDIAL ACTION RESULTS FOR THE INTERIOR OF 525 SOUTH MAIN STREET**

This letter transmits a summary of sampling and survey results confirming the completion of the remedial action (RA) performed in your home. The post-RA results for your home are not only well below applicable DOE guidelines, they are indistinguishable from background readings (soil uranium concentrations and gamma radiation exposure). Therefore, these results indicate that the conditions in your home do not differ from conditions at locations uninfluenced by the activities at the former Alba Craft laboratory.

Included in this letter are figures showing the approximate sample and survey locations, tables reporting the radiation instrument readings and analytical results from samples collected, and comparisons of the data to background levels and applicable guidelines.

As always, if you have any questions or concerns, please contact me at (615) 576-9634. Given that much of the information enclosed is fairly technical in nature, I would be happy to arrange for someone to discuss it with you in person once you have reviewed it, if you so desire.

I would once again like to thank you, on behalf of all the FUSRAP staff, for your patience and cooperation during the process leading to the completion of cleanup inside your home.

Sincerely,

David G. Adler, Site Manager  
Former Sites Restoration Division

**POST-REMEDIAL ACTION SAMPLING AND SURVEYING RESULTS**  
**525 South Main Street**

To document the completeness of the decontamination of your home, the following surveying and sampling activities were performed:

**1. Background Samples and Surveys**

Prior to collection of any post-RA data, measurements and samples were obtained from remote background locations in the general vicinity of your home. Background data serves as a frame of reference for evaluating data from your home because it presents information on typical conditions for the area. Soil samples from locations unaffected by operations at the former Alba Craft facility were analyzed for uranium-238, and external gamma radiation exposure rates were measured. This data is presented in Table 1. The approximate background locations are shown on Figure 1.

**2. Post-RA Survey of Direct Surface Contamination and Transferable Contamination**

Table 2 provides the data for the post-RA surveys for direct (total) surface contamination and transferable contamination and shows that all survey results were well below the DOE guidelines. Post-RA surveys were conducted on all decontaminated surfaces in your home including:

- the fireplace footer in the den
- the sub-floor of the den
- the sub-floors of the upstairs east bedroom, the hallway between the bedroom and the connector, and the entrances to the crawl space of the connector
- the garage bathroom floor and bathroom door frame
- the threshold of the southern garage door.

Survey grids with one-meter spacing were established over the remediated floors, and measurements to detect both alpha and beta/gamma radiation were collected at the corners and in the center of each grid square (Figures 2, 3, and 5).

Direct surface contamination is the total amount of radioactive contamination on a surface; therefore, a survey of direct surface contamination will quantify both that portion of the contamination that is removable and that which is permanently fixed. Transferable contamination is the removable component of the total contamination on the surface and is that contamination that could conceivably be picked up on clothing or skin upon contact.

To quantify direct surface contamination, radiation detection instrumentation is placed directly on the surface to measure the radioactivity emitted from a known surface area. Direct alpha radiation is measured with an alpha scintillation detector connected to a rate meter, an instrument that counts the number of radioactive disintegrations (decays) detected in a specified amount of time. Direct beta/gamma radiation measurements are obtained with

a Geiger-Mueller probe attached to a rate meter. The probe is placed on the surface to be surveyed, and pulses are allowed to accumulate for one minute on the rate meter, resulting in a measurement of counts per minute (cpm) for the surface area. These measurements are then converted, with appropriate calibration and conversion factors, to disintegrations per minute per 100 square centimeters (dpm/100 cm<sup>2</sup>), a commonly used unit of measurement in health physics.

Transferable contamination is the unattached radioactive material that can be removed from a surface when it is "swiped" or "smeared" with a soft absorbent paper. The smear is placed in a portable smear counter, and alpha and beta/gamma radiation are each counted for one minute. The resulting measurements in counts per minute are then readily converted to dpm/100 cm<sup>2</sup>.

### 3. External Gamma Radiation Exposure Survey

Table 3 lists the results of the gamma radiation exposure survey conducted in each remediated room. The gamma exposure rate one meter above the floor was measured in the rooms where contaminated flooring was removed (Figures 2 and 3). Readings taken at this height provide an estimate of the potential exposure from gamma radiation to the critical body organs nearest the ground or floor.

Measurements were collected using a pressurized ionization chamber (PIC). All exposure rates were indistinguishable from the background exposure rate, which ranged from 8 to 9.4  $\mu$ R/h (Table 1). The exposure rates in your home were, therefore, well below the DOE guideline, which specifies 20  $\mu$ R/h above background exposure rate as the maximum acceptable average exposure rate inside a building or habitable structure.

### 4. Soil Samples from the Crawl Space

To confirm that all contamination was removed from the crawl space adjacent to the basement, samples of the soil were collected and analyzed for uranium-238, uranium-235, and uranium-234. The concentration of uranium in these samples was indistinguishable from background.

The sum of the concentrations of the three uranium isotopes is the total uranium concentration for a sample. It is expected that the clean-up criterion for total uranium in soil will be 35 pCi/g for the FUSRAP properties in Oxford. This criterion is considerably lower than criteria established for most other FUSRAP sites (ranging from 50 to 100 pCi/g for total uranium). The 35 pCi/g criterion applies to the clean-up of soil in the crawl space and would also apply to remediation of your yard. The samples from the crawl space contained only background concentrations of uranium and were therefore well below the 35 pCi/g limit (Table 4).

To obtain the samples, a one-meter grid was established in the area, and samples were collected from the first 6 inches at fourteen of the grid locations. These fourteen samples were composited and analyzed as a single sample representing the average for the first 6 inches of the crawl space soil. Additionally, from six of those 14 locations, samples of the soil at the 6 to 12 inch depth were collected, composited, and analyzed as a single average sample. Sampling locations are presented in Figure 6.

**NOTE REGARDING DATA TABLES:** In the data tables included in this letter, the use of the "less than" (<) notation in reporting analytical results indicates that the radioactive contamination, either on a structural surface or in a soil sample, was below the detection limit of the analytical technique and/or the detection instrument used to quantify the amount of radioactivity present. This lower limit, or the quantitative capacity, depends on various factors, including the efficiency and total surface area of the detection instrument used, the background radiation present when and where samples are being counted, the size and volume of the sample, and the length of time that the sample is counted. Therefore, the actual concentration of radioactivity in a sample is less than the reported value preceded by the less than (<) symbol.

Table 1

Uranium-238 Concentrations and External Gamma Radiation Exposure Rates at Background Locations

Location	Distance from your home	Gamma Radiation Exposure Rate ( $\mu\text{R}/\text{h}$ )	Uranium-238 (pCi/g)
1. Intersection of Central St. and Campus St., 40' from sidewalk towards recreation facility	0.20 mi	9.0	<3.00
2. Stewart Elementary School, intersection of W. Spring St. and S. Beech St., baseball field second base	0.25 mi	8.0	<2.80
3. Field adjacent to Hamilton Ophthalmology Clinic at intersection of N. Main St. and E. Sycamore St.	0.85 mi	---	<3.00
4. Scottish Inn, Highway 27 north	1.5 mi	9.4	---
Average Background Radioactivity		8.8	<2.9

Refer to Figure 1 for approximate background locations.

--- indicates that no measurement/sample of this type was collected at this location

Table 2

Summary of Post-Remedial Action Radiological Survey Results for 525 S. Main St., Oxford, Ohio

Room/Location	Direct Surface Contamination				Transferable Contamination			
	Alpha		Beta/Gamma		Alpha		Beta/Gamma	
	Sample Activity Range (dpm/100cm <sup>2</sup> )	Number of Measurements/ Number below criteria <sup>a</sup>	Sample Activity Range (dpm/100cm <sup>2</sup> )	Number of Measurements/ Number below criteria <sup>a</sup>	Sample Activity Range (dpm/100cm <sup>2</sup> )	Number of Measurements/ Number below criteria <sup>a</sup>	Sample Activity Range (dpm/100cm <sup>2</sup> )	Number of Measurements/ Number below Criteria <sup>a</sup>
Den floor <sup>b</sup>	<27	42/42	<243 - <503	42/42	3 - 6	42/42	<37 - <67	42/42
Fireplace footer in den <sup>c</sup>	32 - 219	15/15	<370 - <707	15/15	<2 - 8	15/15	<58 - <102	15/15
Floor joist in den <sup>c</sup>	<33 - 172	6/6	<370 - 693	6/6	<2 - 8	6/6	<58	6/6
Upstairs bedroom <sup>b</sup>	<16 - <31	48/48	<243 - 818	48/48	3 - 6	48/48	<37 - <67	48/48
Entrances to crawl space adjacent to connector <sup>b</sup>	<16	3/3	<243 - <440	3/3	3	3/3	<37 - <44	3/3
Connector entrance to hallway <sup>b</sup>	<16 - <31	2/2	275 - 1069	2/2	3	2/2	<37	2/2
Upstairs landing and hallway to bedroom and connector <sup>b</sup>	<16	8/8	<243 - <461	8/8	3 - 6	8/8	<37 - <44	8/8
Floor of garage bathroom <sup>d</sup>	<2 - 124	17/17	<459 - 1027	17/17	<3 - <6	17/17	<55 - <73	17/17
Door frame of garage bathroom <sup>d</sup>	18 - 98	2/2	<706 - 1188	2/2	<3	2/2	<55	2/2
DOE Guideline	5000		5000		1000		1000	

Table 2  
(continued)

Room/Location	Direct Surface Contamination				Transferable Contamination			
	Alpha		Beta/Gamma		Alpha		Beta/Gamma	
	Sample Activity Range (dpm/100cm <sup>2</sup> )	Number of Measurements/ Number below criteria <sup>a</sup>	Sample Activity Range (dpm/100cm <sup>2</sup> )	Number of Measurements/ Number below criteria <sup>a</sup>	Sample Activity Range (dpm/100cm <sup>2</sup> )	Number of Measurements/ Number below criteria <sup>a</sup>	Sample Activity Range (dpm/100cm <sup>2</sup> )	Number of Measurements/ Number below Criteria <sup>a</sup>
Top of east wall of garage bathroom <sup>d</sup>	<2	2/2	< 882 - 1059	2/2	<3	2/2	<55 - <59	2/2
Southern garage door threshold <sup>d</sup>	69 - 140	3/3	468 - 676	3/3	<2 - 5	3/3	<52	3/3
DOE Guideline <sup>e</sup>	5,000		5,000		1,000		1,000	

<sup>a</sup>A measurement that is below criteria is judged to be clean.

<sup>b</sup>Surveys performed 10/26-27/93.

<sup>c</sup>Survey performed 1/6/94.

<sup>d</sup>Surveys performed 3/3-12/94.

<sup>e</sup>The guidelines presented are extracted from DOE Order 5400.5 "Radiation Protection of the Public and the Environment" and represent the average allowable surface residual contamination (over a 1 square meter area).

**Table 3**  
**Summary of Post-Remedial Action Gamma Radiation Exposure Rates**

Room or Area	Exposure Rate <sup>a</sup> ( $\mu$ R/h)	Number of Measurements	Number Exceeding Indoor Exposure Limit <sup>b</sup>
West bedroom	8.0	3	0
Den	8.8	3	0
Background range	8.0 - 9.4	3	N/A
DOE guideline <sup>b</sup>	20		

<sup>a</sup>Reported gamma radiation exposure rates include background for the Oxford area.

<sup>b</sup>The guideline is extracted from DOE Order 5400.5 "Radiation Protection of the Public and the Environment" which states that the average level of gamma radiation inside a building on a site that has no radiological restrictions on its use shall not exceed the background level by more than 20  $\mu$ R/h.

**Table 4**

**Summary of Post-Remedial Action Soil Samples from the Crawl Space at 525 South Main Street, Oxford, Ohio**

Sampling Location	Uranium Concentration (pCi/g) in Soil Samples					Number of Sampling Locations
	Gamma Spectroscopy Results	Alpha Spectroscopy Results				
		Uranium-238	Uranium-238	Uranium-234	Uranium-235	
0 to 6 inches	<1.50	1.60 ± 0.71	1.60 ± 0.72	0.08 ± 0.11	4.79	14 <sup>b</sup>
6 to 12 inches	<2.50	1.40 ± 0.57	1.80 ± 0.69	<0.08	4.54	6 <sup>b</sup>
Average background	<2.90	-	-	-	-	3
DOE Guideline	-	-	-	-	35 pCi/g	

<sup>a</sup>Represents the maximum total uranium concentration in the sample (95% confidence), calculated as the sum of the results for U-238, U-234, and U-235 and their respective error terms.

<sup>b</sup>Samples collected from each location were composited and analyzed as a single sample.

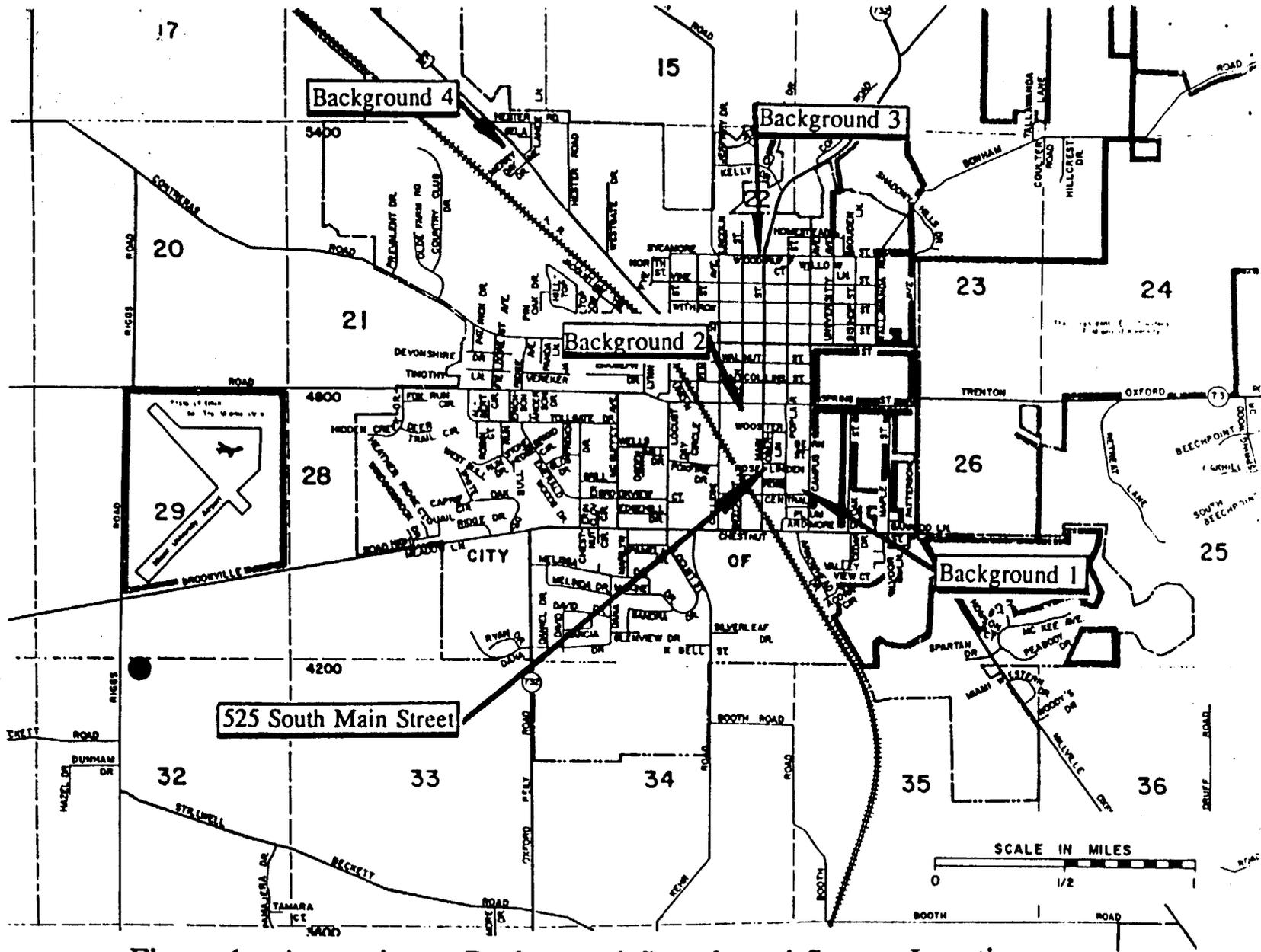
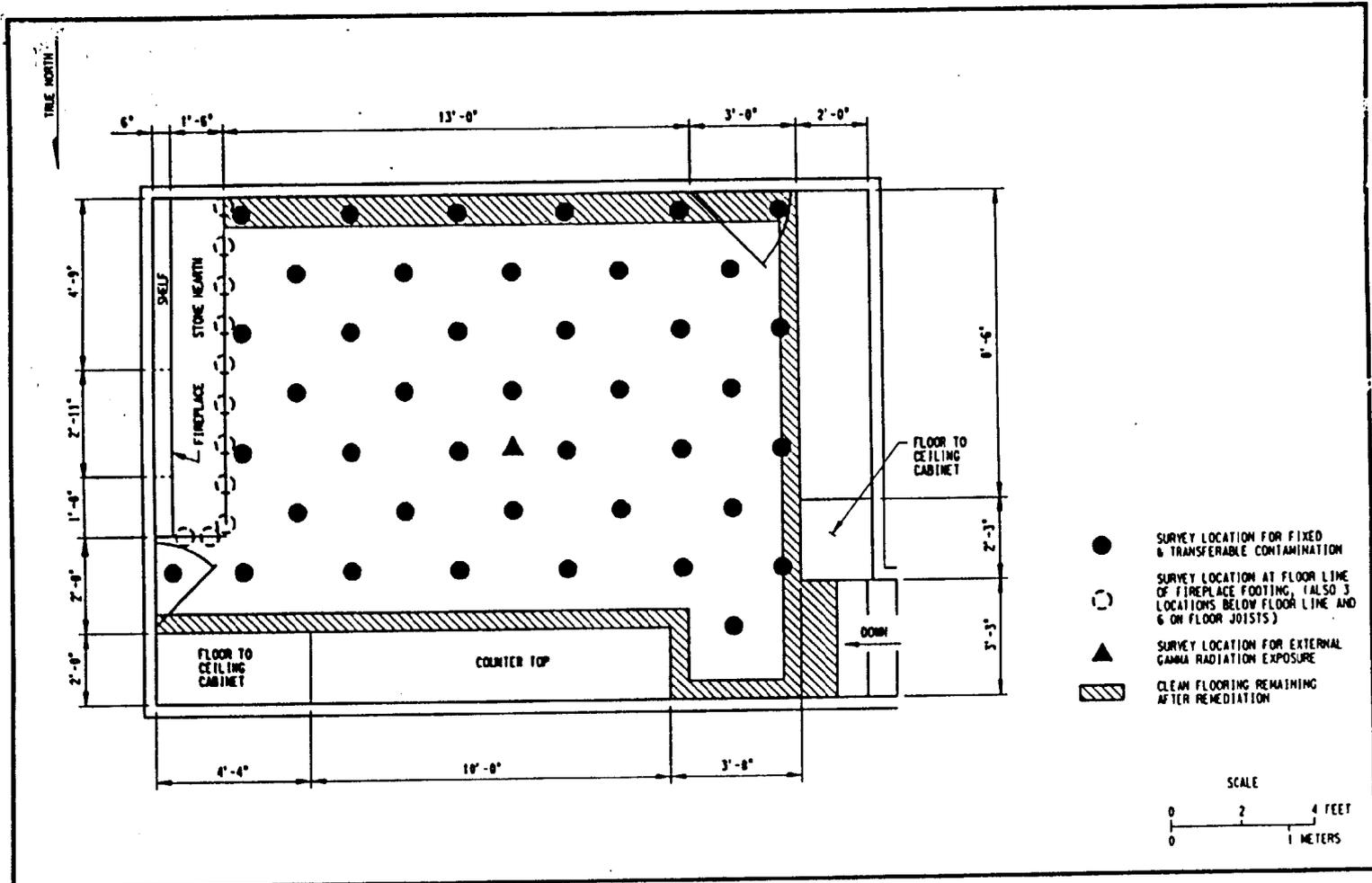
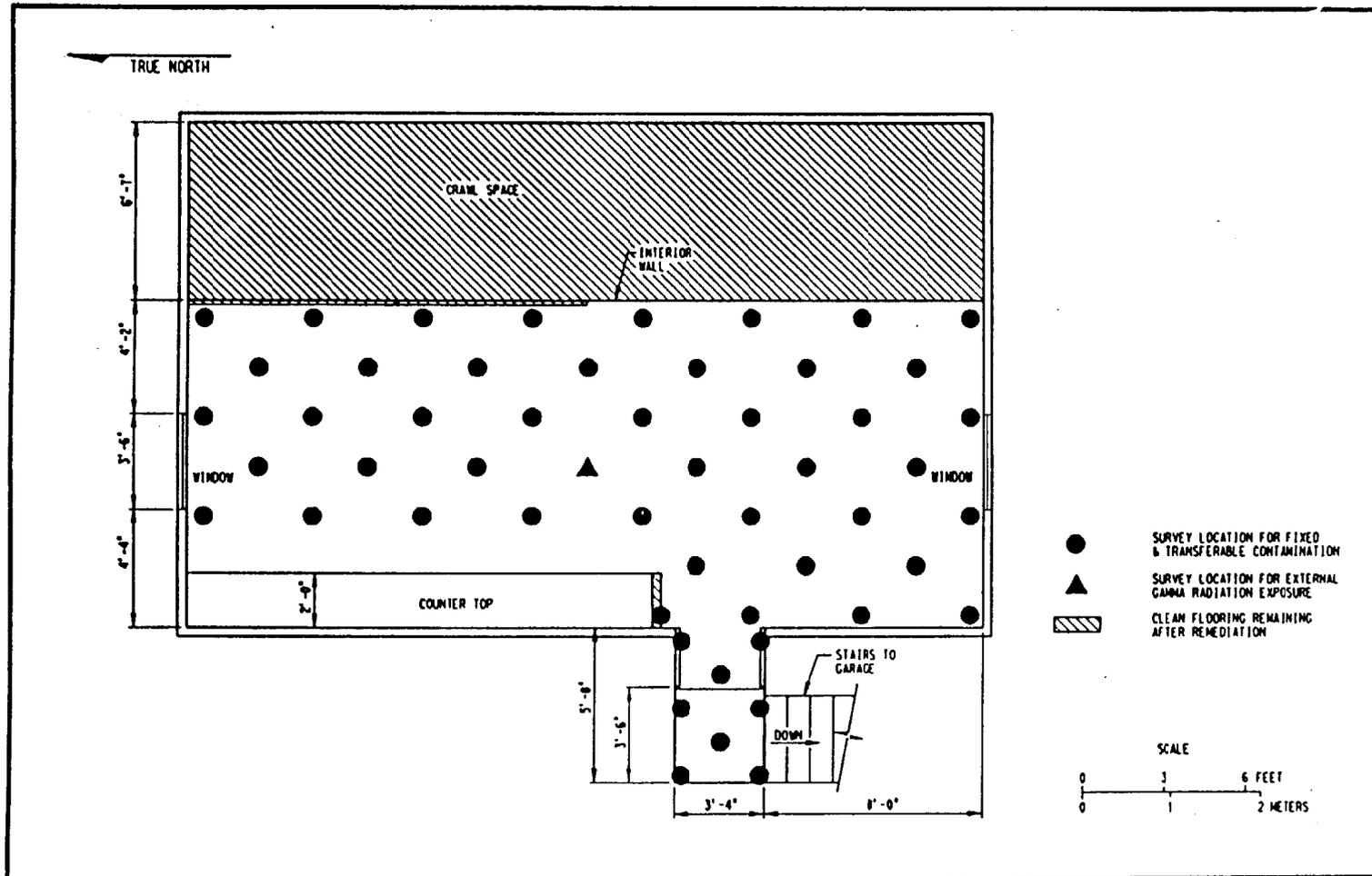


Figure 1: Approximate Background Sample and Survey Locations



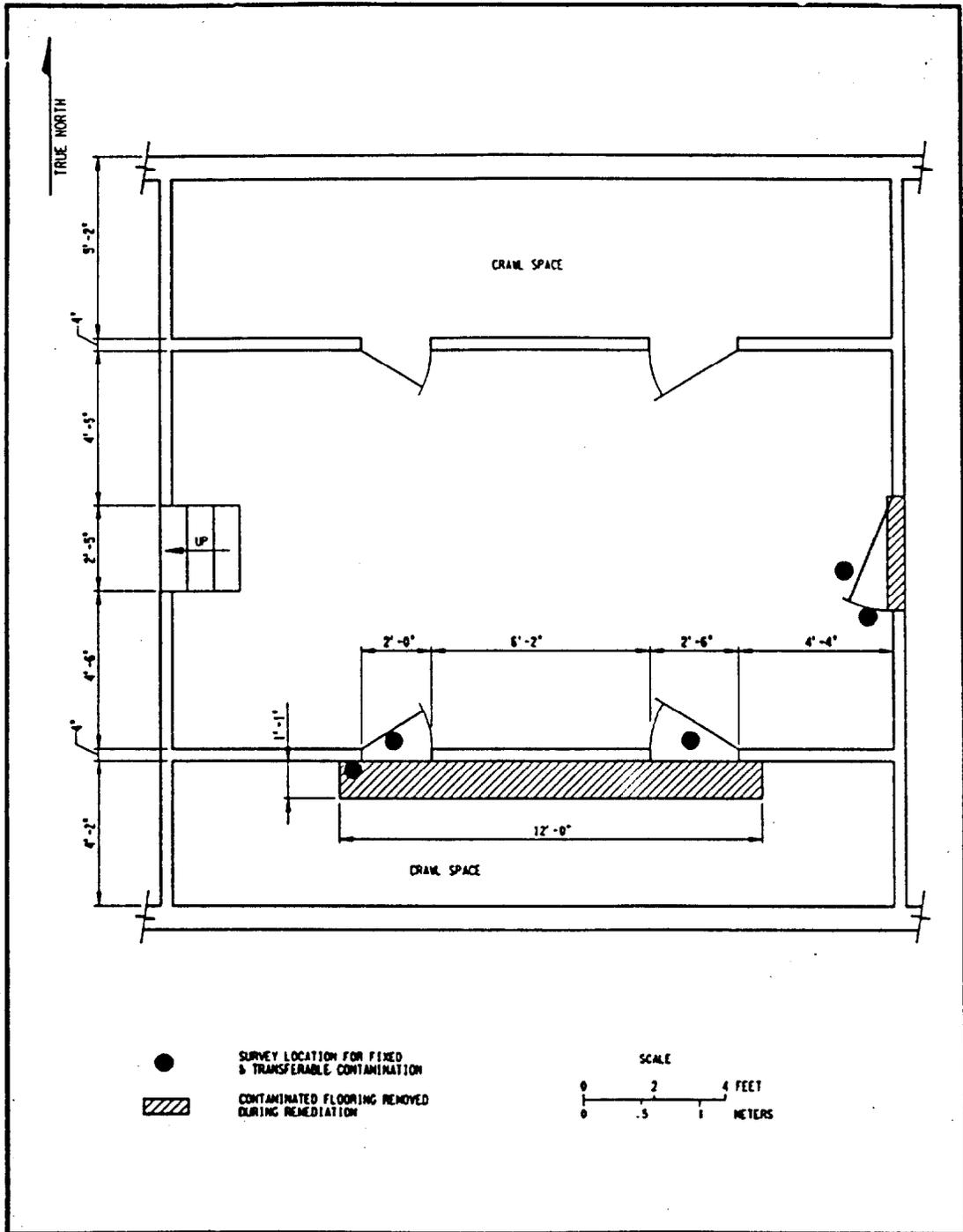
RSSF001.DGN

Figure 2  
525 South Main Street - Downstairs Den  
Approximate Post-RA Survey Locations



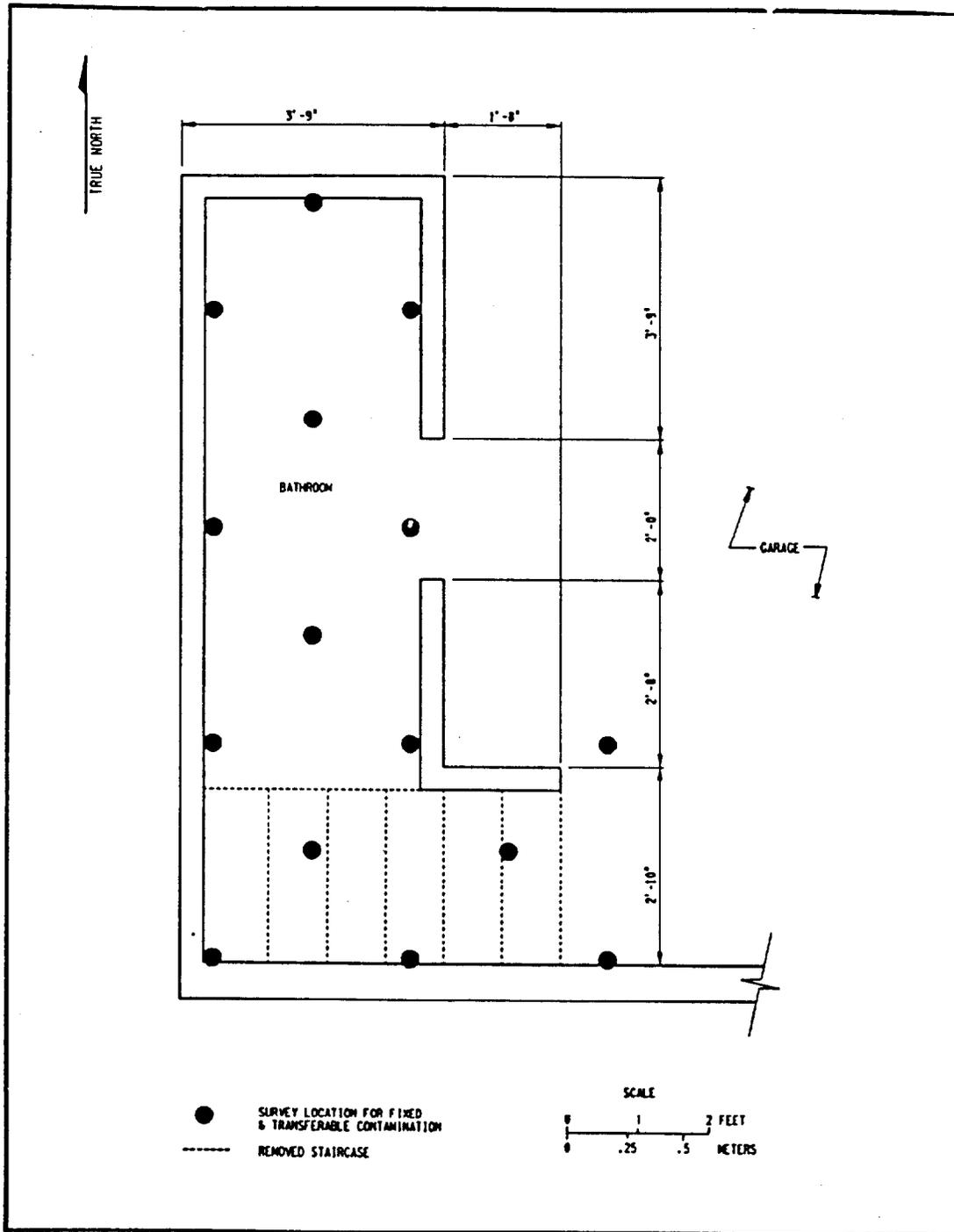
R55F003.DGN

Figure 3  
525 South Main Street Upstairs Bedroom & Hallway  
Approximate Post-RA Survey Locations



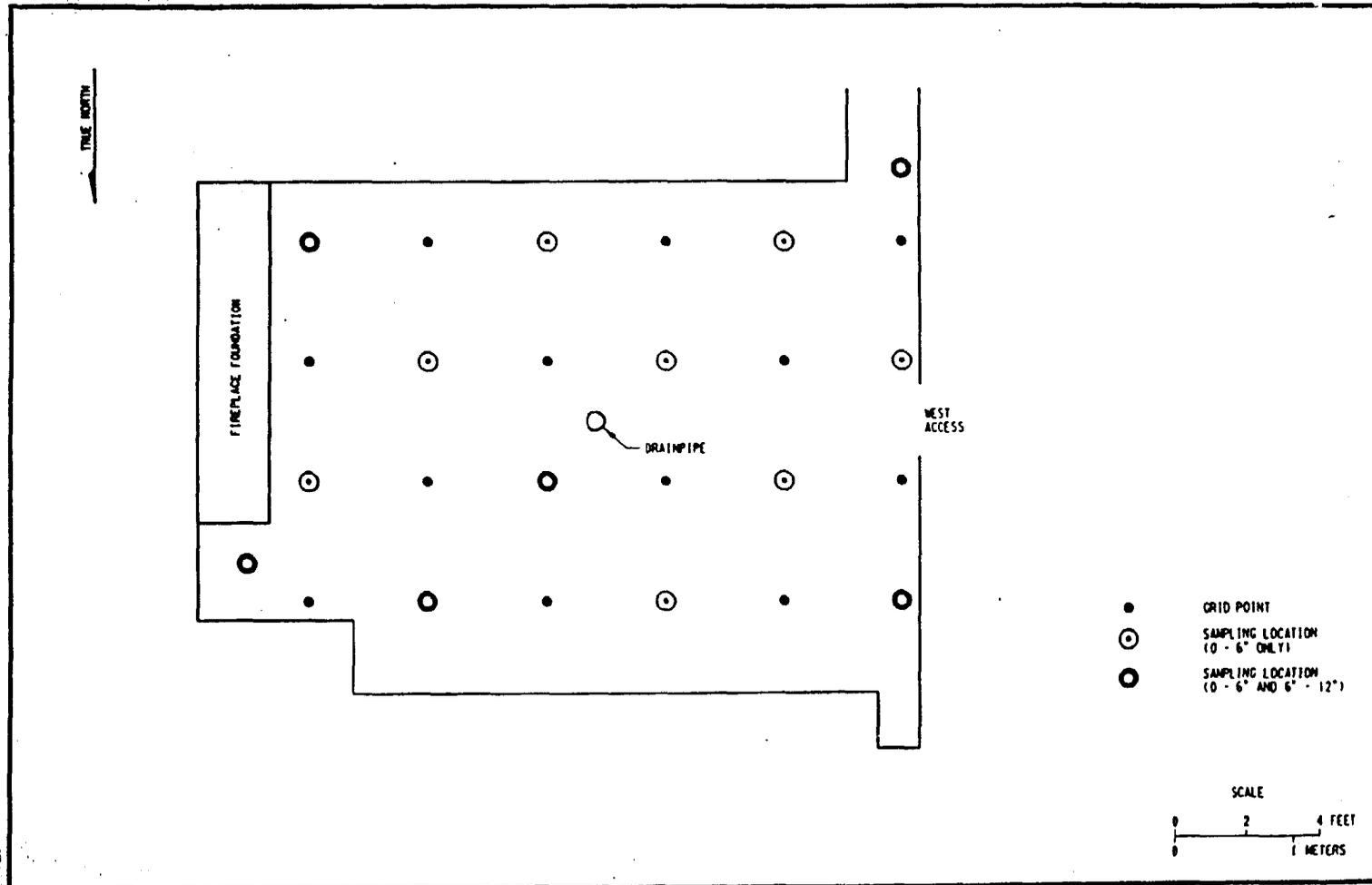
R55F005.DGN

**Figure 4**  
**525 South Main Street Upstairs Connector**  
**Approximate Post-RA Survey Locations**



R55F 004.DGN

**Figure 5**  
**525 South Main Street Garage Bathroom**  
**Approximate Post-RA Survey Locations**



R55F002.DGN

**Figure 6**  
**525 South Main Street**  
**Approximate Soil Sampling Locations in the Basement Crawl Space**



121989

Department of Energy

Oak Ridge Operations  
P.O. Box 2001  
Oak Ridge, Tennessee 37831— 8723

October 18, 1994

Wayne and Marilyn Elzey  
525 South Main Street  
Oxford, Ohio 45056

Dear Dr. and Mrs. Elzey:

**SAMPLE RESULTS FOR THE EXTERIOR OF 525 SOUTH MAIN STREET, OXFORD, OHIO**

This letter transmits a summary of sampling results from characterization samples that were collected in your yard from March 1994 through September 1994. Also included in this letter is a figure showing approximate sample locations. As indicated on the figure, the shaded areas exceed the clean up criteria of 35 pCi/g of uranium. These shaded areas are therefore the areas where the radioactively contaminated soil will be excavated for disposal in Utah.

As always, if you have any questions or concerns, please contact me at (615) 576-9634. I would be happy to discuss these results with you in person once you have reviewed them if you so desire.

I would once again like to thank you, on behalf of all the FUSRAP staff, for your patience and cooperation during the process leading to the completion of cleanup of your home.

Sincerely,

A handwritten signature in black ink, appearing to read "David G. Adler".

David G. Adler, Site Manager  
Former Sites Restoration Division

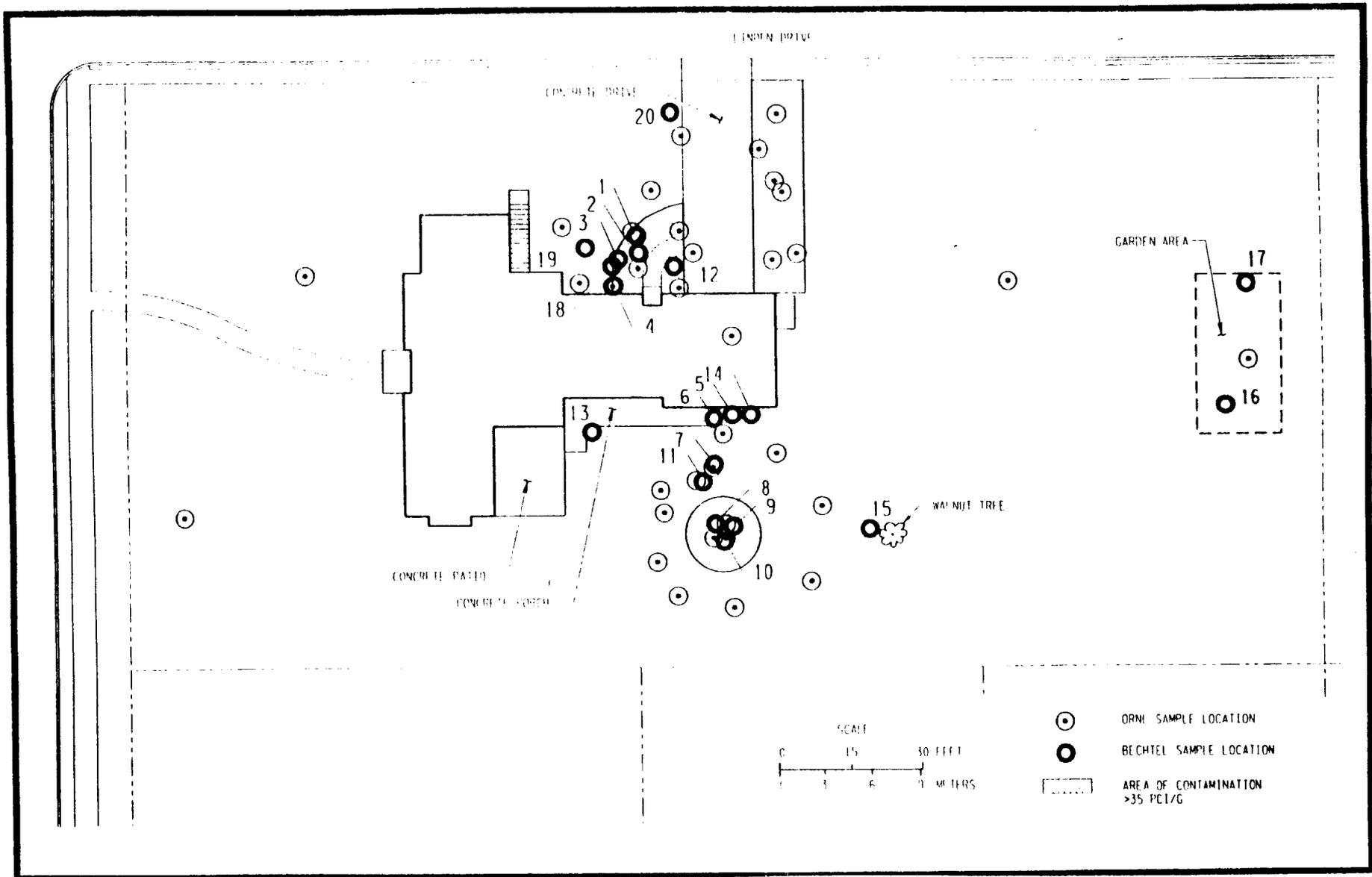
Enclosure

TMA/Eberline Oak Ridge, FUSRAP Radiological Reports  
 Sampling Event: ALB

Sample ID	F/UF	Date Collected	Analyte	Result	Error	Units	MDA	BNI Flag	Qualifier Code	Matrix	Smp_type	Analytical Method	TMA/E Number	DATAFUSR Number
109-VP-101A		03/09/94	U-238	17.10	3.700	PCI/G	0.85			SL	REG	GAMMASPEC	9403036	17161
109-VP-101B		03/09/94	U-238	63.80	4.100	PCI/G	0.83			SL	REG	GAMMASPEC	9403036	17161
109-VP-10A		03/09/94	U-238	3.70	0.000	PCI/G	3.70	UJ	ERR	SL	REG	GAMMASPEC	9403032	17159
109-VP-10B		03/09/94	U-238	2.10	0.000	PCI/G	2.10	UJ	ERR	SL	REG	GAMMASPEC	9403032	17159
109-VP-10C		03/09/94	U-238	3.00	0.000	PCI/G	3.00	UJ	ERR	SL	REG	GAMMASPEC	9403032	17159
109-VP-10D		03/09/94	U-238	3.40	0.000	PCI/G	3.40	UJ	ERR	SL	REG	GAMMASPEC	9403032	17159
109-VP-11A		03/10/94	U-238	3.30	0.000	PCI/G	3.30	UJ	LCS	SL	REG	GAMMASPEC	9403033	17160
109-VP-11B		03/10/94	U-238	2.30	0.000	PCI/G	2.30	UJ	LCS	SL	REG	GAMMASPEC	9403033	17160
109-VP-12B		03/09/94	U-238	3.10	0.000	PCI/G	3.10	UJ	ERR	SL	REG	GAMMASPEC	9403032	17159
109-VP-13AB		09/08/94	U-238	6.90	2.700	PCI/G	2.10	J	LCS	SL	REG	GAMMASPEC	9409047	18404
109-VP-13CD		09/08/94	U-238	3.00	1.600	PCI/G	2.10	J	LCS	SL	REG	GAMMASPEC	9409047	18404
109-VP-14AB		09/08/94	U-238	5.00	2.000	PCI/G	1.90	J	LCS	SL	REG	GAMMASPEC	9409047	18404
109-VP-14CD		09/08/94	U-238	2.70	1.500	PCI/G	1.90	J	LCS	SL	REG	GAMMASPEC	9409047	18404
109-VP-14EF		09/08/94	U-238	2.20	1.500	PCI/G	2.00	J	LCS	SL	REG	GAMMASPEC	9409047	18404
109-VP-15AB		09/08/94	U-238	2.00	0.000	PCI/G	2.00	UJ	LCS	SL	REG	GAMMASPEC	9409047	18404
109-VP-15CD		09/08/94	U-238	3.80	1.400	PCI/G	2.10	J	LCS	SL	REG	GAMMASPEC	9409047	18404
109-VP-15EF		09/08/94	U-238	2.40	1.200	PCI/G	1.90	J	LCS	SL	REG	GAMMASPEC	9409047	18404
109-VP-16AB		09/08/94	U-238	3.30	1.700	PCI/G	1.70	J	LCS	SL	REG	GAMMASPEC	9409047	18404
109-VP-16CD		09/08/94	U-238	2.30	1.300	PCI/G	1.70	J	LCS	SL	REG	GAMMASPEC	9409047	18404
109-VP-17AB		09/08/94	U-238	2.70	1.600	PCI/G	2.20	J	LCS	SL	REG	GAMMASPEC	9409047	18404
109-VP-17CD		09/08/94	U-238	2.80	0.000	PCI/G	2.80	UJ	LCS	SL	REG	GAMMASPEC	9409047	18404
109-VP-18AB		09/08/94	U-238	2.90	2.600	PCI/G	1.70	J	LCS	SL	REG	GAMMASPEC	9409047	18404
109-VP-18CD		09/08/94	U-238	5.30	2.000	PCI/G	2.10	J	LCS	SL	REG	GAMMASPEC	9409047	18404
109-VP-19AB		09/08/94	U-238	1.30	2.100	PCI/G	1.90	UJ	EGR	SL	REG	GAMMASPEC	9409048	18405
109-VP-19CD		09/08/94	U-238	1.90	1.300	PCI/G	1.70			SL	REG	GAMMASPEC	9409048	18405
109-VP-1A		03/09/94	U-238	19.70	4.700	PCI/G	0.63			SL	REG	GAMMASPEC	9403036	17161
109-VP-1B		03/09/94	U-238	3.10	0.000	PCI/G	3.10	UJ	ERR	SL	REG	GAMMASPEC	9403036	17161
109-VP-20AB		09/08/94	U-238	4.90	2.100	PCI/G	1.90			SL	REG	GAMMASPEC	9409048	18405
109-VP-2A		03/09/94	U-238	62.40	4.100	PCI/G	0.68			SL	REG	GAMMASPEC	9403036	17161
109-VP-2A		03/09/94	U-234	71.08	11.900	PCI/G	0.76			SL	REG	ALPHASPEC	9403036	17161
109-VP-2A		03/09/94	U-235	3.31	1.970	PCI/G	1.29			SL	REG	ALPHASPEC	9403036	17161
109-VP-2A		03/09/94	U-238	78.83	12.830	PCI/G	1.29			SL	REG	ALPHASPEC	9403036	17161
109-VP-2B		03/09/94	U-238	7.60	2.300	PCI/G	0.97			SL	REG	GAMMASPEC	9403036	17161
109-VP-2B		03/09/94	U-234	6.95	1.690	PCI/G	0.05			SL	REG	ALPHASPEC	9403036	17161
109-VP-2B		03/09/94	U-235	0.26	0.150	PCI/G	0.05			SL	REG	ALPHASPEC	9403036	17161
109-VP-2B		03/09/94	U-238	7.77	1.870	PCI/G	0.08			SL	REG	ALPHASPEC	9403036	17161
109-VP-35		03/10/94	U-238	18.30	3.900	PCI/G	0.42			OS	REG	GAMMASPEC	9403032	17159
109-VP-36		03/10/94	U-238	131.00	10.800	PCI/G	0.21			OS	REG	GAMMASPEC	9403032	17159
109-VP-3A		03/09/94	U-238	8.30	2.900	PCI/G	0.58			SL	REG	GAMMASPEC	9403036	17161

TMA/Eberline Oak Ridge, FUSRAP Radiological Reports  
 Sampling Event: ALB

Sample ID	F/UF	Date		Analyte	Result	Error	Units	BNI		Qualifier		Smp_type	Analytical Method	TMA/E Number	DATAFUSR Number
		Collected						MDA	Flag	Code	Matrix				
109-VP-3B		03/09/94		U-238	13.70	4.500	PCI/G	0.93	J	LCS	SL	REG	GAMMASPEC	9403033	17160
109-VP-4A		03/09/94		U-238	3.40	0.000	PCI/G	3.40	UJ	LCS	SL	REG	GAMMASPEC	9403033	17160
109-VP-4B		03/09/94		U-238	3.90	0.000	PCI/G	3.90	UJ	LCS	SL	REG	GAMMASPEC	9403033	17160
109-VP-5A		03/09/94		U-238	3.00	0.000	PCI/G	3.00	UJ	LCS	SL	REG	GAMMASPEC	9403033	17160
109-VP-5B		03/09/94		U-238	2.60	0.000	PCI/G	2.60	UJ	LCS	SL	REG	GAMMASPEC	9403033	17160
109-VP-6A		03/10/94		U-238	3.30	0.000	PCI/G	3.30	UJ	LCS	SL	REG	GAMMASPEC	9403033	17160
109-VP-6B		03/10/94		U-238	2.20	0.000	PCI/G	2.20	UJ	LCS	SL	REG	GAMMASPEC	9403033	17160
109-VP-6C		03/10/94		U-238	2.20	0.000	PCI/G	2.20	UJ	LCS	SL	REG	GAMMASPEC	9403033	17160
109-VP-6D		03/10/94		U-238	3.00	0.000	PCI/G	3.00	UJ	LCS	SL	REG	GAMMASPEC	9403033	17160
109-VP-6E		03/10/94		U-238	2.30	0.000	PCI/G	2.30	UJ	LCS	SL	REG	GAMMASPEC	9403033	17160
109-VP-7A		03/10/94		U-238	2.90	0.000	PCI/G	2.90	UJ	LCS	SL	REG	GAMMASPEC	9403033	17160
109-VP-7B		03/10/94		U-238	2.30	2.400	PCI/G	1.30	J	LCS	SL	REG	GAMMASPEC	9403033	17160
109-VP-8A		03/09/94		U-238	3.40	0.000	PCI/G	3.40	UJ	LCS	SL	REG	GAMMASPEC	9403033	17160
109-VP-8B		03/09/94		U-238	2.60	0.000	PCI/G	2.60	UJ	LCS	SL	REG	GAMMASPEC	9403033	17160
109-VP-8C		03/09/94		U-238	1.90	0.000	PCI/G	1.90	UJ	ERR	SL	REG	GAMMASPEC	9403032	17159
109-VP-8D		03/09/94		U-238	3.00	0.000	PCI/G	3.00	UJ	ERR	SL	REG	GAMMASPEC	9403032	17159
109-VP-8E		03/09/94		U-238	3.50	0.000	PCI/G	3.50	UJ	ERR	SL	REG	GAMMASPEC	9403032	17159
109-VP-9A		03/09/94		U-238	2.80	0.000	PCI/G	2.80	UJ	ERR	SL	REG	GAMMASPEC	9403032	17159
109-VP-9B		03/09/94		U-238	2.20	0.000	PCI/G	2.20	UJ	ERR	SL	REG	GAMMASPEC	9403032	17159
109-VP-9C		03/09/94		U-238	2.00	0.000	PCI/G	2.00	UJ	ERR	SL	REG	GAMMASPEC	9403032	17159
109-VP-9D		03/09/94		U-238	3.90	0.000	PCI/G	3.90	UJ	ERR	SL	REG	GAMMASPEC	9403032	17159



109F 043.DGN

Sampling Locations and Areas of Contamination  
at the Vicinity Property  
525 S. Main Street, Oxford, Ohio



126546

## Department of Energy

Oak Ridge Operations  
P.O. Box 2001  
Oak Ridge, Tennessee 37831—

Wayne and Marilyn Elzey  
525 South Main Street  
Oxford, Ohio 45056

Dear Dr. And Mrs. Elzey:

### **POST-REMEDIAL ACTION RESULTS FOR 525 SOUTH MAIN STREET, OXFORD, OHIO**

This letter transmits a summary of exterior sampling and survey activities conducted on your property during the later part of 1994. All post-remedial action results, including the interior results previously transmitted, are an indication that the cleanup has successfully achieved compliance with DOE's basic health guidelines, as well as the recommended guidelines being proposed by the U. S. Nuclear Regulatory Commission and the U. S. Environmental Protection Agency. It is therefore concluded that remedial action at your property is complete.

Included in this letter are figures showing the approximate exterior sample and survey locations, tables reporting the radiation instrument readings, analytical results from samples collected, and comparisons of the data to background levels and applicable guidelines.

A copy of the Post-Remedial Action Report for the former Alba Craft Laboratory and associated vicinity properties will be issued by June 1995. This report will supply information on all activities conducted in your area. The independent verification contractor, Oak Ridge National Laboratory, will also issue a final report with their findings in the summer of 1995.

I would once again like to thank you, on behalf of all the FUSRAP staff, for your patience and cooperation during the process leading to the successful completion of cleanup of your property. As always, if you have any questions or concerns, please contact me at (615) 576-9634.

Sincerely,

David G. Adler, Site Manager  
Former Sites Restoration Division

Enclosure

## POST-REMEDIATION ACTION SAMPLING AND SURVEYING RESULTS

### 525 South Main Street

To document the completeness of the decontamination of the exterior portions of your property, the following surveying and sampling activities were performed:

- walkover gamma scans
- external gamma exposure rate measurements
- and post-remedial action soil sampling.

The Alba Craft Site Post-Remedial Action Survey Plan (see the Appendix) refers to the methodologies for each of the survey techniques. Oak Ridge National Laboratory, (ORNL), functioning as the independent verification contractor (IVC), performed independent verification surveys of the remediated areas using comparable survey techniques. Upon agreement by both parties that the site was remediated, the IVC then demobilized on December 29, 1994, and on December 31, 1994, BNI completed initial restoration of the site. The IVC survey data will be issued as a separate report by ORNL in the summer of 1995.

#### 1. Background Samples and Surveys

Prior to collection of any post-RA data, measurements and samples were obtained from remote background locations in the general vicinity of your home. Background data serves as a frame of reference for evaluating data from your home because it presents information on typical conditions for the area. Soil samples from locations unaffected by operations at the former Alba Craft Laboratory were analyzed for uranium-238, and external gamma radiation exposure rates were measured (see Table 1).

## **2. Soil Samples**

The exterior areas that were excavated consisted of the flower beds, both in the front and the rear of the house, and two areas (281 ft<sup>2</sup> and 492 ft<sup>2</sup>, on the east and west sides respectively) adjacent to the driveway. A small area in the back yard (approximately 40 ft<sup>2</sup>) was also found to exceed the current DOE guidelines and was excavated to remove the contaminated soil.

To confirm that all contamination above the DOE guidelines was removed from the soil, samples were collected and analyzed for uranium. The concentration of total uranium in these samples ranged from 3.2 to 13.8 pCi/g (see Table 2 and Figure 1). The clean-up criterion for total uranium in soil was 35 pCi/g for the FUSRAP properties in Oxford. This criterion is considerably lower than criteria established for most other FUSRAP sites (ranging from 50 to 100 pCi/g for total uranium).

## **3. External Gamma Radiation Exposure Survey**

Table 2 also lists the results of the external gamma radiation exposure rate survey results from each excavated grid area. The external gamma exposure rates were measured using a pressurized ion chamber instrument (PIC), one meter above the ground at the center of each grid shown in Figure 2. Readings taken at this height provide an estimate of the potential exposure from external gamma radiation to the critical organs. All exposure rates were below the DOE guidelines and in fact, were below the background level of 8.8  $\mu$ R/h.

Table 1

**Uranium-238 Concentrations and External Gamma Radiation Exposure Rates at Background Locations**

Location	Gamma Radiation Exposure Rate ( $\mu\text{R/h}$ )	Uranium-238 (pCi/g)
1. Intersection of Central St. and Campus St., 40' from sidewalk towards recreation facility	9.0	<3.00*
2. Stewart Elementary School, intersection of W. Spring St. and S. Beech St., baseball field second base	8.0	<2.80
3. Field adjacent to Hamilton Ophthalmology Clinic at intersection of N. Main St. and E. Sycamore St.	---	<3.00
4. Scottish Inn, Highway 27 north	9.4	---
<hr/>		
Average Background Radioactivity	8.8	<2.9

Refer to Figure 1 for approximate background locations.

--- indicates that no measurement/sample of this type was collected at this location

\* NOTE REGARDING DATA TABLES: In the data tables included in this letter, the use of the "less than" (<) notation in reporting analytical results indicates that the radioactivity, either on a structural surface or in a soil sample, was below the detection limit of the analytical technique and/or the detection instrument used to quantify the amount of radioactivity present. This lower limit, or the quantitative capacity, depends on various factors, including the efficiency and total surface area of the detection instrument used, the background radiation present when and where samples are being counted, the size and volume of the sample, and the length of time that the sample is counted. Therefore, the actual concentration of radioactivity in a sample is less than the reported value preceded by the less than (<) symbol.

**TABLE 2****525 SOUTH MAIN STREET, POST-RA SAMPLE RESULTS**  
(refer to attached property figure for grid locations)

Grid	Coord.	Sample No.	Total Uranium (pCi/g)	Gamma Exposure Rate ( $\mu$ R/h)
44	N18,E23	10994033	13.8	9.1
45	N25,E23	10994034	5.8	9.1
46	N5,E13	10994035	8.4	9.1
47	N-1,E20	10994036	3.2	9.5
48	N19,E15	10994037	13.4	9.9
49	N17,E16	10994038	6.6	9.9
50	N17,E14	10994070	13.2	9.9

NOTE: All grid coordinates indicate the center of the grid where a composite sample was obtained

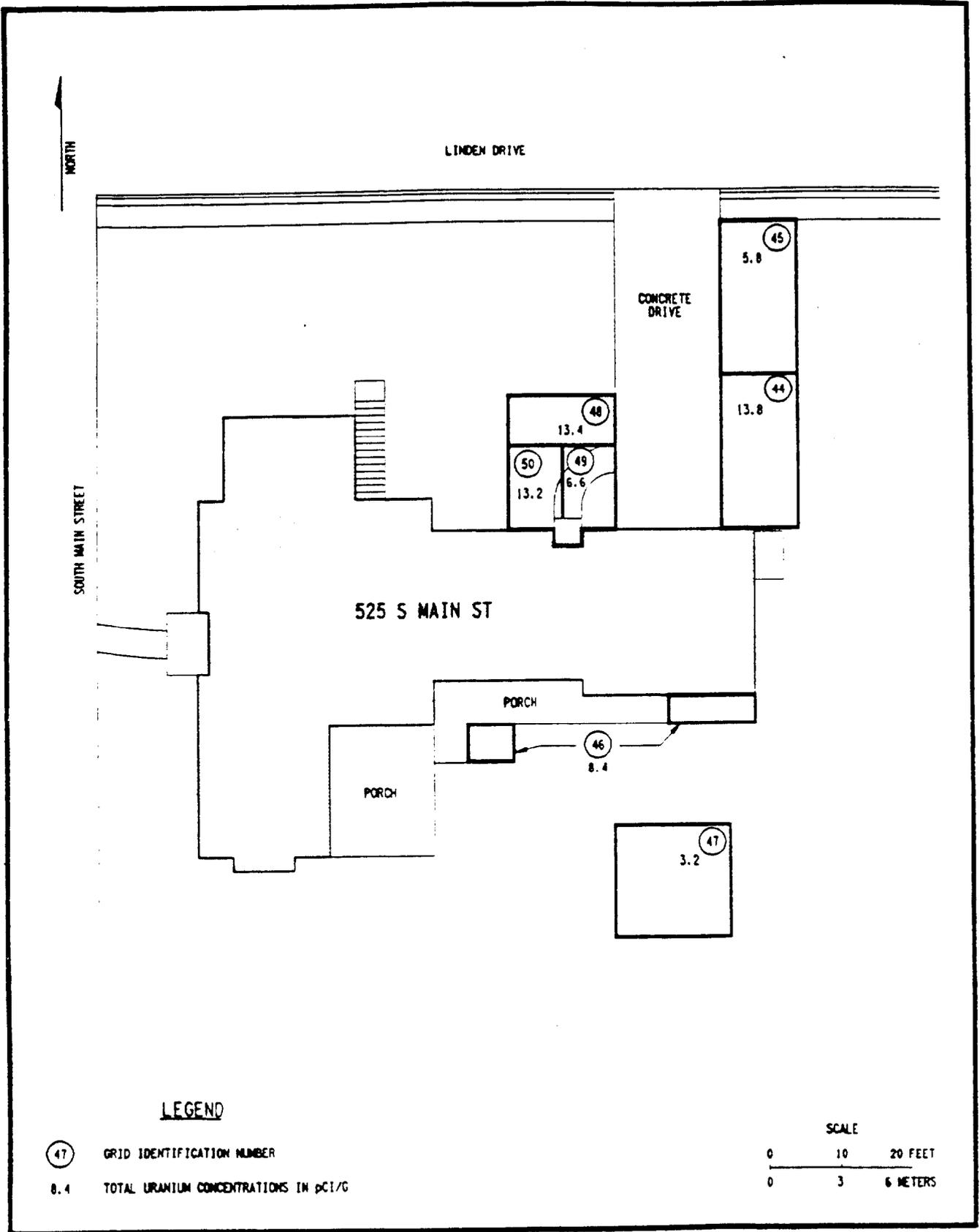


Figure 1  
 Areas of Excavation and Post-Remedial Action Soil Sample Results  
 at 525 South Main Street



126060

**Department of Energy**

05-052

Oak Ridge Operations  
P.O. Box 2001  
Oak Ridge, Tennessee 37831— 8723

February 7, 1995

Mr. James C. Collard  
City Manager  
City of Oxford  
101 East High Street  
Oxford, OH 45056-1887

Dear Mr. Collard:

**OXFORD, OHIO - POST-REMEDIATION ACTION REPORT OF WEST ROSE AVENUE**

This letter transmits the post-remedial action soil sample and gamma exposure rate survey results confirming that remedial action is complete on the city property along the West Rose Avenue right-of-way adjacent to the former Alba Craft facility. The post-remedial action results are all well below the Department of Energy's clean-up criteria of 35 picocuries per gram (pCi/g) of residual uranium in soil.

Along West Rose Avenue there are four grids that were remediated, the results for post-remedial action soil samples from these areas were 7.4, 8.6, 25.8 and 17.4 pCi/g as shown on the enclosed figure. The gamma exposure rate surveys were performed in the center of each grid and the results for grids 23, 22, 20 and 27 were 10.07, 8.45, 7.52, 9.96 microrentgen per hour ( $\mu$ R/hr) respectively -- indistinguishable from the average background reading of 10.3  $\mu$ R/hr.

The post-remedial action sampling and survey results indicate that these areas have been remediated to the accepted cleanup standards. This conclusion has been confirmed by the verification work performed by the Oak Ridge National Laboratory.

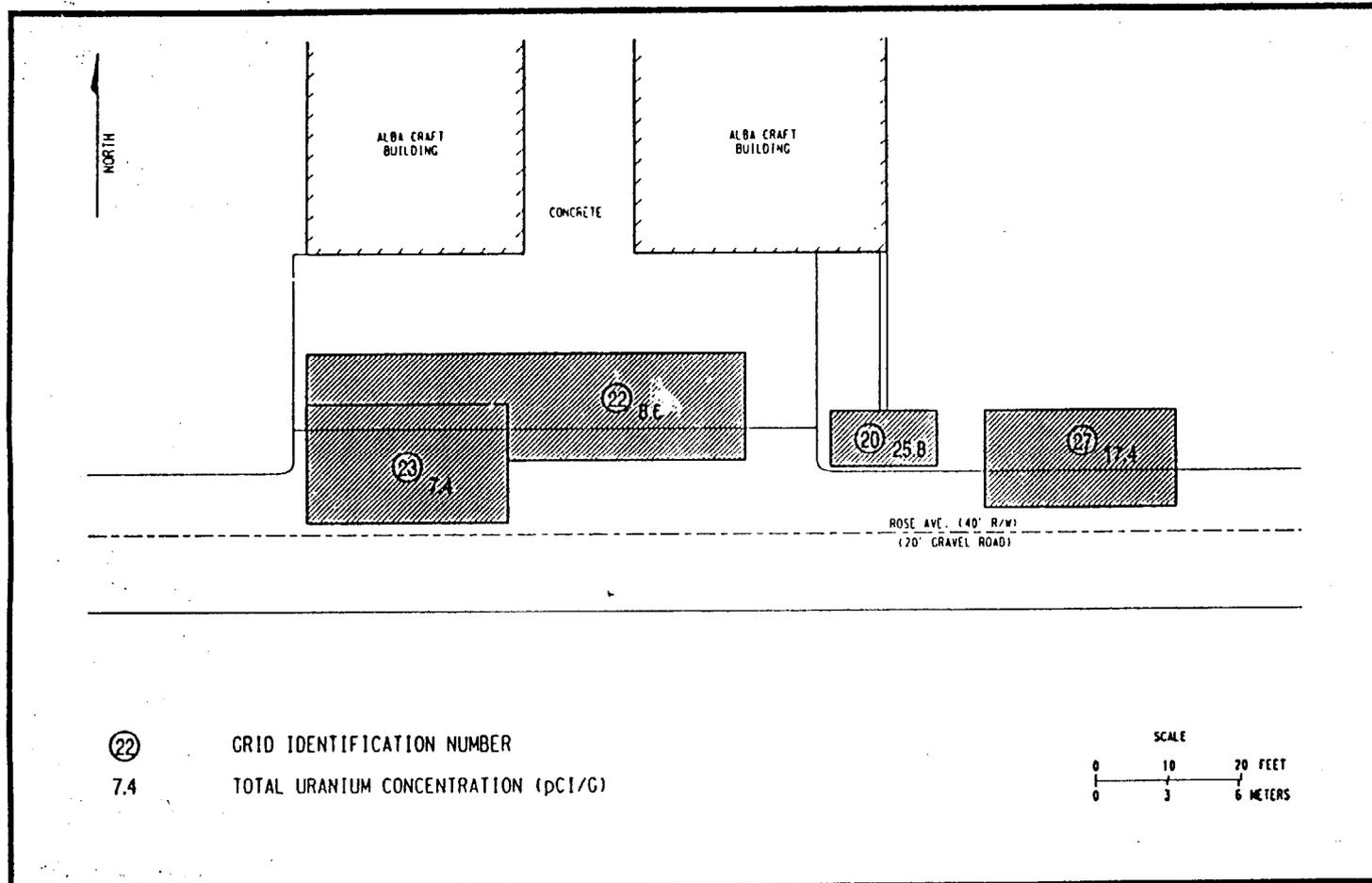
If you have further questions regarding this matter, please call me at (615) 576-9634. Thank you for your cooperation in the completion of the cleanup at the former Alba Craft facility.

Sincerely,

A handwritten signature in black ink, appearing to read "David G. Adler".

David G. Adler, Site Manager  
Former Sites Restoration Division

Enclosure



109054.DGN

Post Remedial Action Results at Alba Craft

## 2.8 STATE, COUNTY, AND LOCAL CORRESPONDENCE ON REMEDIAL ACTION

This section contains correspondence with the state, county, or local governments.

	<b>Page</b>
Letter from G. S. Hartman (DOE-FSRD) to S. Gliser (Ohio Historical Society), "Alba Craft Vicinity Property - National Historic Preservation Act (NHPA) (Section 106) Determination," BNI CCN 109611, October 15, 1993.	II-105
Letter from Martha Raymond (Ohio Historic Preservation Office) to G. S. Hartman (DOE-FSRD), "Re: Removal of Radiological Contamination at 525 S. Main Street, Oxford, Ohio," BNI CCN 110332, October 26, 1993.	II-109
Letter from Martha Raymond (Ohio Historic Preservation Office) to G. S. Hartman (DOE-FSRD), "Re: Demolition of Alba Craft Laboratory Site, Oxford, Ohio," BNI CCN 115535, April 13, 1994.	II-110
Letter from D. Adler (DOE-FSRD) to J. C. Collard (City of Oxford), "Oxford, Ohio - Characterization and Remedial Action Data from the Former Alba Craft Facility," BNI CCN 125572, December 19, 1994.	II-111
Letter from Graham E. Mitchell (Ohio EPA) and Ruth H. Vandegrift (Ohio Dept. of Health) to James C. Collard (Oxford City Manager), "Ohio EPA and Ohio Department of Health Report on Alba Craft Cleanup," BNI CCN 128361, March 31, 1995.	II-112



109611

93-802

**Department of Energy**

Oak Ridge Operations  
P.O. Box 2001  
Oak Ridge, Tennessee 37831-8723

October 15, 1993

Mr. Saul Gliser  
Ohio Historical Society  
Historic Preservation Division  
1985 Velma Avenue  
Columbus, Ohio 43211

Dear Mr. Gliser:

**ALBA CRAFT VICINITY PROPERTY - NATIONAL HISTORIC PRESERVATION ACT (NHPA)  
(SECTION 106) DETERMINATION**

In accordance with Section 106 of the National Historic Preservation Act (NHPA), the Department of Energy (DOE) has determined that the proposed removal of radiological contamination at the Alba Craft site vicinity property located at 525 South Main Street in Oxford, Ohio, will have no effect on properties included, or eligible for inclusion, on the National Register of Historic Places.

A description of proposed site activities is enclosed, along with a site map and photograph. The Alba Craft site vicinity property is a presently occupied residential property; therefore, we want to proceed with this action as soon as possible. Your concurrence that this undertaking will have no effect on properties included, or eligible for inclusion, on the National Register of Historic Places is requested by October 25, 1993.

If you have any questions or if you need additional information, please call me at (615) 576-0273.

Sincerely,

Handwritten signature of Gary S. Hartman in cursive.

Gary S. Hartman, Environmental Scientist  
Former Sites Restoration Division

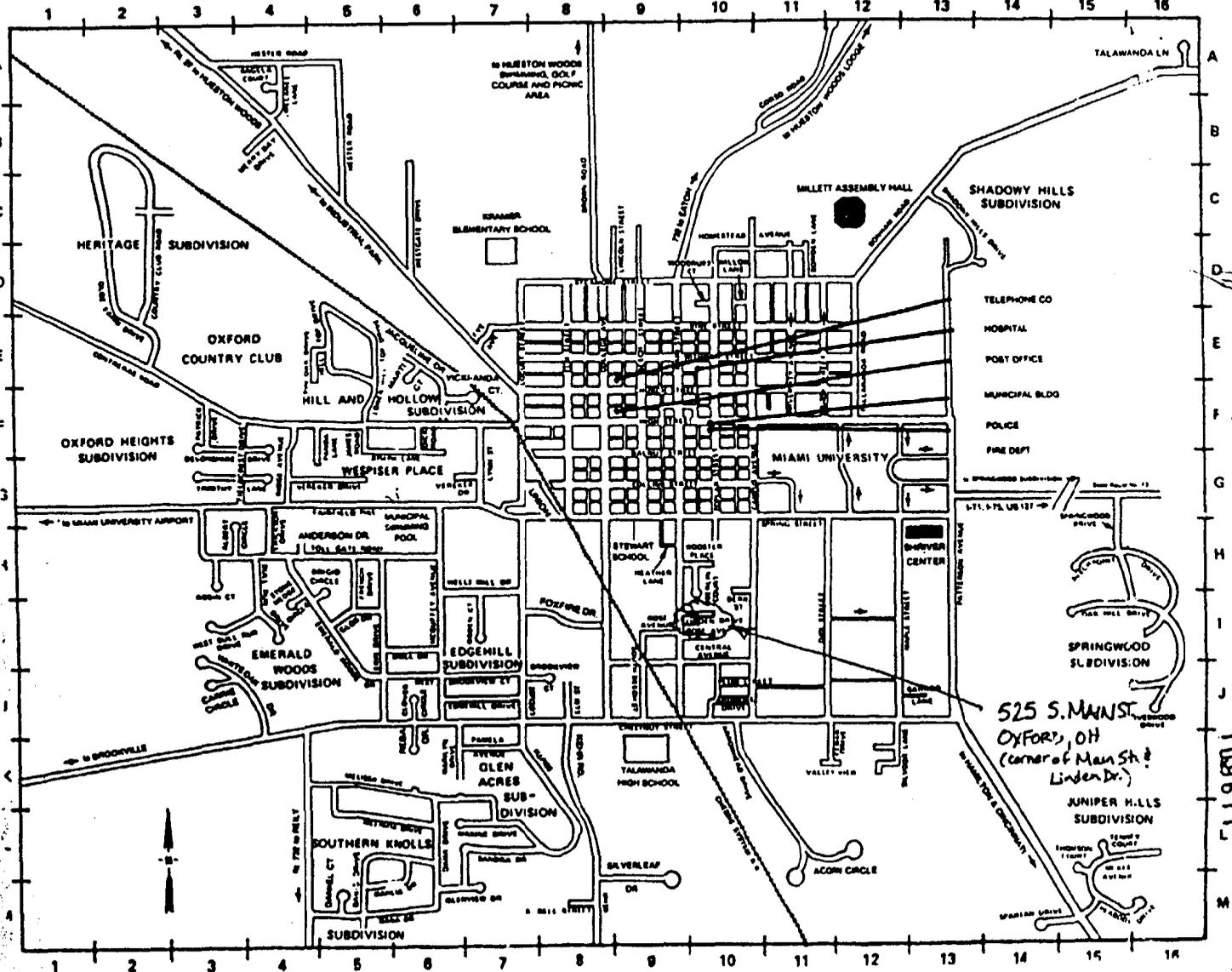
**Enclosures**

cc w/enclosures:  
G. L. Palau, BNI  
R. T. Moore, SE-311, ORO  
D. G. Adler, EW-93, ORO  
J. G. Hart, EW-93, ORO  
L. K. Price, EW-93, ORO  
W. M. Seay, EW-93, ORO

ALBA CRAFT VICINITY PROPERTY  
KEY FACTS

- The site is a currently occupied residential property (i.e., house) located at 525 South Main Street in Oxford, Ohio. The house is located in a mature neighborhood with tree-lined streets. Most of the structures in the area are single-family dwellings, with a small apartment complex located across the street.
- The house is presently owned by Dr. Wayne Elzey, a professor at Miami University. It was originally owned by Eugene Albaugh, owner of the Alba Craft site (approximately one block away) where uranium was machined during the 1950s in support of Manhattan Engineer District (MED) activities.
- The date of construction of the house is unknown; however, it is believed to be about mid-1950s vintage. An addition to the house was added in the 1960s (right-hand portion on the enclosed photograph).
- The house is a one-story wood-frame structure with a finished attic (used as a bedroom) and basement. The interior walls of the house consist of wood paneling (i.e., 1x8 tongue-in-groove "knotty-pine").
- Radiological contamination at 525 South Main Street, consisting of uranium contamination between interstices in hardwood floors in two rooms inside (i.e., downstairs den and upstairs bedroom) and isolated pockets of contaminated soil outside the house, was confirmed during a survey conducted in August 1993. Although the radioactive contamination identified there is not considered to be an imminent health hazard to the occupants of the residence, contamination in a residential setting does present a greater opportunity for exposure than contamination in soil outdoors or in an industrial setting.
- Removal of radiological contamination at the site will result in the removal of the hardwood flooring in the downstairs den and the upstairs bedroom, and removal of small isolated pockets (approximately 1-5 feet in diameter and approximately one foot deep) of radiologically contaminated soil outside the house. The structure of the building would not be affected by this undertaking.

# CITY OF OXFORD AND IMMEDIATE AREA



II-107

108611

109611

115535

**Ohio Historic Preservation Office**

Ohio Historical Center  
1982 Velma Avenue  
Columbus, Ohio 43211-2497  
614/297-2471  
Fax: 297-2546



**OHIO  
HISTORICAL  
SOCIETY**  
SINCE 1885

April 13, 1994

Gary S. Hartman  
Environmental Scientist  
Department of Energy  
Oak Ridge Operations, P.O. Box 2001  
Oak Ridge, Tennessee 37831-8723

Dear Mr. Hartman:

Re: Demolition of Alba Craft Laboratory Site  
Oxford, Ohio

This is in response to your correspondence, received on March 15, 1994, concerning the project noted above. My staff has reviewed the information that you provided. Based on their recommendation, it is my opinion that the proposed project will have no effect on properties listed in or eligible for the National Register of Historic Places. No further coordination with this office is necessary unless the scope of the project should change.

Any questions concerning this matter should be addressed to Saul Gleiser D., History/Architecture Reviews Manager, at (614) 297-2470. Thank you for your cooperation.

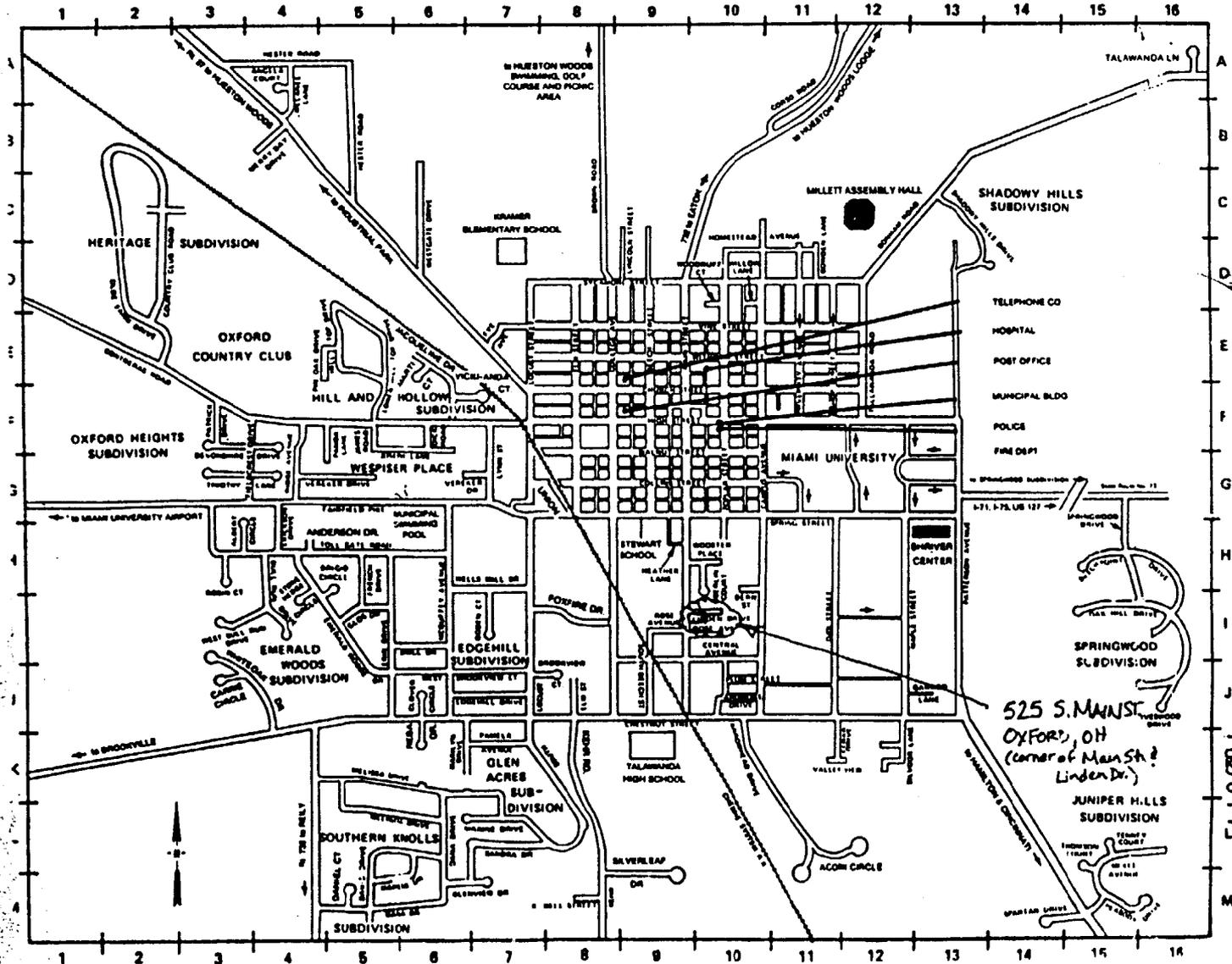
Sincerely,

Martha Reymond, Department Head  
Technical and Review Services

MJR/SGD:sg

1994 APR 13 PM 1:11

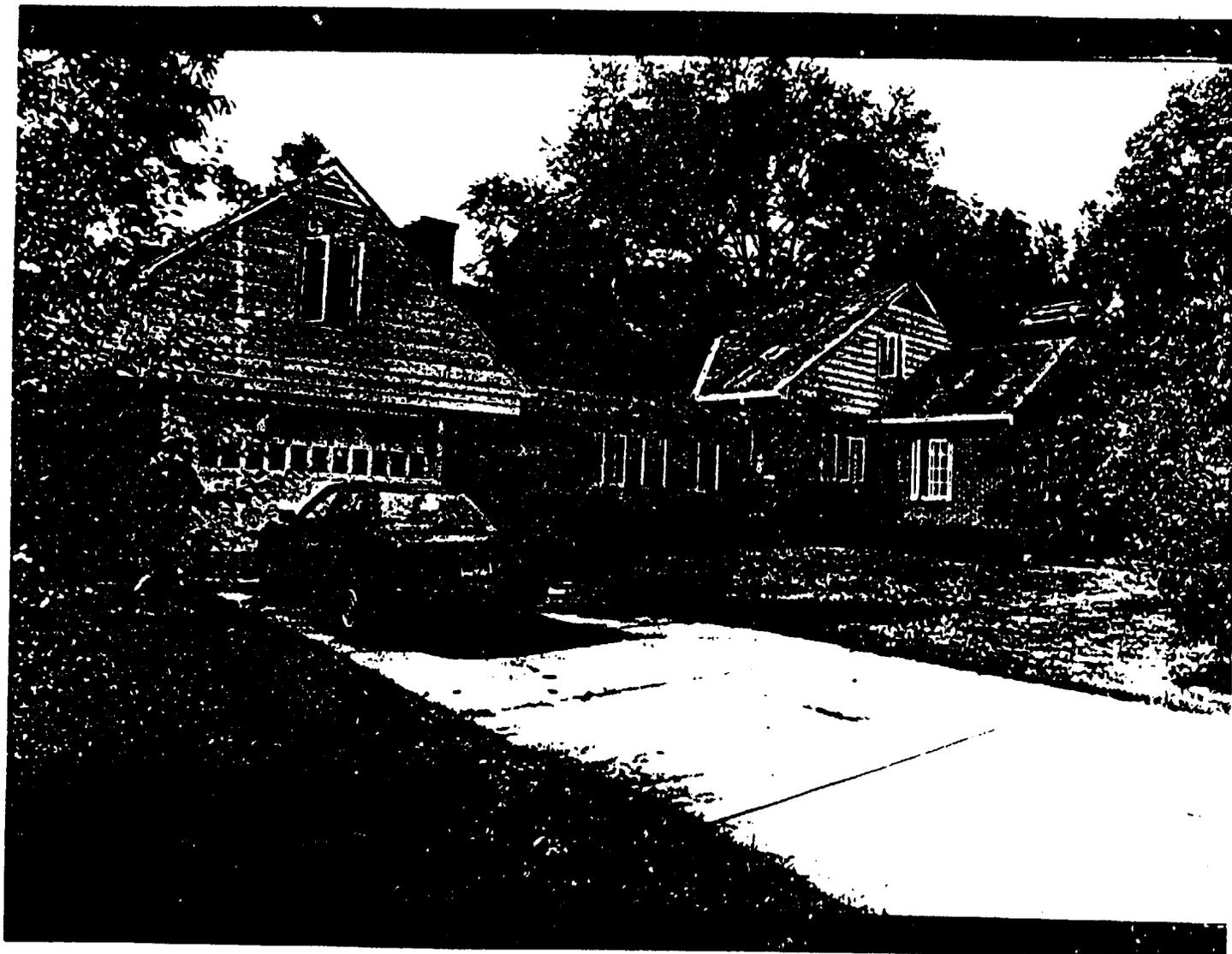
# CITY OF OXFORD AND IMMEDIATE AREA



II-107

108611 J  
M

II-108



109611

525 S. MAIN ST., OXFORD, OH - FACING SOUTH (FROM LINDEN DR.)

Ohio Historic Preservation Office

Ohio Historical Center  
1982 Velma Avenue  
Columbus, Ohio 43211-2497  
614/297-2470  
Fax: 297-2411

1993 NOV -4 AM 9: 09



11-0432

October 26, 1993

OHIO  
HISTORICAL  
SOCIETY  
SINCE 1885

Gary S. Hartman  
Environmental Scientist  
Department of Energy  
Oak Ridge Operations  
P.O. Box 2001  
Oak Ridge, Tennessee 37831-8723

Dear Mr. Hartman:

Re: Removal of radiological contamination at 525 S. Main Street  
Oxford, Ohio

This is in response to your correspondence, received on October 22, 1993 concerning the undertaking noted above. My staff has reviewed the information that you provided. Given the limited information submitted we are unable to assess the eligibility of the structure. However, given the project description, and based on my staff recommendation, it is my opinion that the proposed project will have no effect on properties listed in or eligible for the National Register of Historic Places. No further coordination with this office is necessary unless the scope of the project should change.

Any questions concerning this matter should be addressed to Saul Gleiser D., History/Architecture Reviews Manager, at (614) 297-2470. Thank you for your cooperation.

Sincerely,

Martha-Raymond, Department Head  
Technical and Review Services

MJR/SGD:sg

115535

Ohio Historic Preservation Office

Ohio Historical Center  
1982 Velma Avenue  
Columbus, Ohio 43211-2497  
614/297-2471  
Fax: 297-2546



OHIO  
HISTORICAL  
SOCIETY  
SINCE 1885

April 13, 1994

Gary S. Hartman  
Environmental Scientist  
Department of Energy  
Oak Ridge Operations, P.O. Box 2001  
Oak Ridge, Tennessee 37831-8723

Dear Mr. Hartman:

Re: Demolition of Alba Craft Laboratory Site  
Oxford, Ohio

This is in response to your correspondence, received on March 15, 1994, concerning the project noted above. My staff has reviewed the information that you provided. Based on their recommendation, it is my opinion that the proposed project will have no effect on properties listed in or eligible for the National Register of Historic Places. No further coordination with this office is necessary unless the scope of the project should change.

Any questions concerning this matter should be addressed to Saul Gleiser D., History/Architecture Reviews Manager, at (614) 297-2470. Thank you for your cooperation.

Sincerely,

Martha Raymond, Department Head  
Technical and Review Services

MJR/SGD:sg

1994 APR 13 PM 11:11



125572

## Department of Energy

Oak Ridge Operations  
P.O. Box 2001  
Oak Ridge, Tennessee 37831-8723

December 19, 1994

Mr. James C. Collard  
City Manager  
City of Oxford  
101 East High Street  
Oxford, Ohio 45056-1887

Dear Mr. Collard:

### **OXFORD, OHIO - CHARACTERIZATION AND REMEDIAL ACTION DATA FROM THE FORMER ALBA CRAFT FACILITY**

In response to your written request on November 11, 1994, we are providing the characterization data for the former Alba Craft Facility as well as data generated from air monitoring, direct surface and transferable contamination surveys, and walk over readings conducted at the Alba Craft Site. The data included in this package are all the data for characterization, air sampling, direct surface, and transferable contamination surveys and three remote background locations through November 18, 1994. The remainder of the data will be sent to you upon completion of remedial action, planned for mid-January.

Enclosed in this package are the following data:

- Characterization Data (from Oak Ridge National Lab and Bechtel National)
- Air Particulate Sample Reporting Logs from 08/24/94 - 11/11/94.
- Radiological Survey Air Sampling-Radon Daughters data from 09/08/94 - 10/03/94.
- Direct Surface and Transferable Contamination Surveys from 08/30/94 - 11/14/94.
- Background Surveys - Carl R. Garnett Park and Talawanda Middle and High Schools on 08/25/94. Scottish Inn on North 27 on 10/25/94.

If you have any questions regarding this report please contact me at (615) 576-9634. You should be receiving the final set of data January 31, 1995. Thank you for your interest in this matter.

Sincerely,

  
David G. Adler, Site Manager  
Former Sites Restoration Division

Enclosure



State of Ohio Environmental Protection Agency

Southwest District Office

401 East Fifth Street  
Dayton, Ohio 45402-2911  
(513) 285-6357  
FAX (513) 285-6249

126351

Apr 7 10 02 AM '95

George V. Voinovich  
Governor

March 31, 1995

RE: OHIO EPA AND OHIO DEPARTMENT  
OF HEALTH  
REPORT ON ALBA  
CRAFT CLEANUP

Mr. James C. Collard  
Oxford City Manager  
101 East High Street  
Oxford, Ohio 45056-1887

Dear Mr. Collard:

The purpose of this letter is to report on Ohio EPA and Ohio Department of Health's oversight of the remediation of the Alba Craft FUSRAP and other associated sites in Oxford. Our goals were to provide oversight during the planning and actual cleanup. We participated in all planning sessions and public meetings, reviewed and commented on work plans and inspected the site at least once a week during the actual remediation (September 1994 - January 1995).

Sampling

OEPA and ODH personnel surveyed and sampled the home of the former owner of Alba Craft on December 16, 1993. This effort resulted in the discovery and subsequent removal of additional contamination from this residence.

Two sampling events occurred (December 19, 1994 and January 14, 1995) in which OEPA and ODH personnel conducted radiological surveys and collected soil samples after DOE and contractor staff made their first determination that cleanup goals had been achieved. A total of 11 soil samples were split with DOE for analysis at the onsite lab while the remaining portion of each sample was analyzed at the Ohio Department of Health's Radiological Laboratory in Columbus. The purpose of these sampling events were:

1. To compare laboratory results of split samples. If laboratory results are comparable then all parties can be more comfortable using DOE's contractor results.
2. To determine if cleanup goals of 35 pCi/g total uranium plus As Low As Reasonably Achievable (ALARA) goals were being met.

Mr. James C. Collard  
 March 31, 1995  
 Page 2

In most cases Ohio collected a single sample in a grid based on a survey data collected with radiological survey meters. The goal of Ohio's sampling effort was to locate and sample the areas of highest concentration (hot spots). DOE/contractor cleanup results are based on an average of 25 composited samples per grid.

#### Inspections

During all of Ohio's inspections of the Alba Craft Site, DOE and contractors were utilizing accepted and safe practices for demolition clean up work. DOE and contractors were responsive to suggestions from OEPA, ODH, and local citizens. This was especially noticeable during early demolition work when DOE and the City worked together to get better water service for dust control which also provided improved controls when the crusher came on line. It appeared that the entire operation occurred with minimal offsite releases of dust and contamination. DOE and contractors operated air monitors near several nearby residences to document the effectiveness of control measures.

#### Sampling Results

Listed below and on the attached site map are the ODH and DOE results of the split samples collected by Ohio. The last column of data are the average total uranium values achieved by DOE for each grid.

#### December 19, 1994 - North Part of Site

Grid #	ODH Result pCi/g Total Uranium	DOE Result pCi/g Total Uranium	Final DOE Grid Average pCi/g Total Uranium
1A*	113	85.9	16.9
1B*	8.1	11.0	16.9
2	16.9	13.4	12.8
8	10.8	4.7	6.4
9*	46.6	45.0	7.0

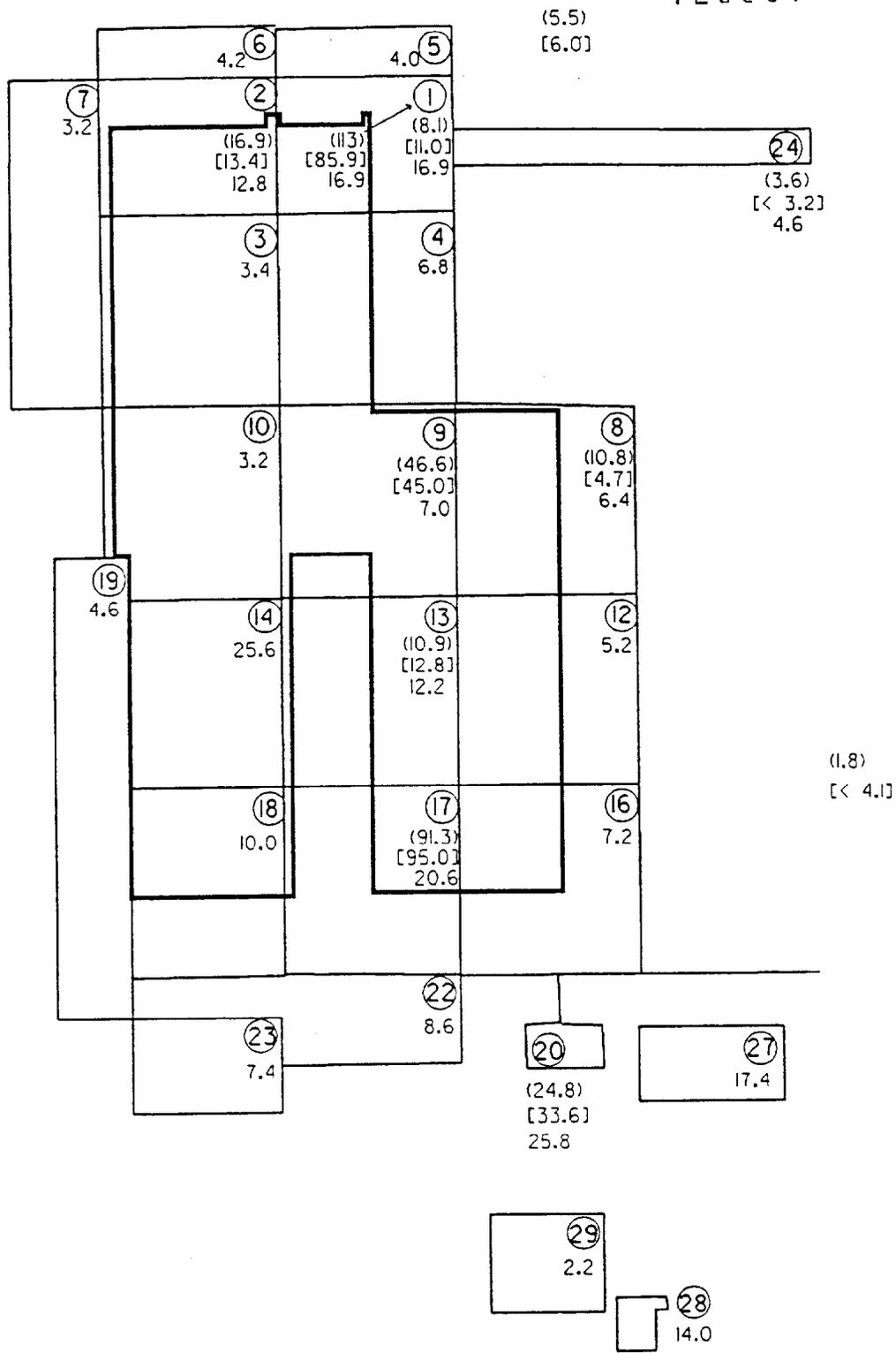
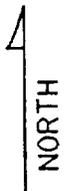
#### January 4, 1995-South Portion of Site, Drainage Ditch, and Offsite locations.

13	10.9	12.8	12.2
17*	91.3	95.0	20.6
20	24.8	33.6	25.8
24	3.6	< 3.2	4.6
North edge of site	5.5	6.0	**
East of site	1.8	< 4.1	**

\*Indicates that DOE and contractor performed additional removal of soils following these sampling efforts to achieve cleanup goals.

\*\* Not part of DOE sampling grid.

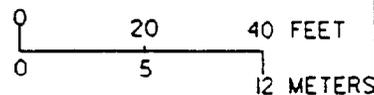
128361



### LEGEND

- ⊙ DENOTES GRID IDENTIFICATION NUMBER
- (\*) DENOTES OHIO'S SPLIT SAMPLE RESULTS
- [\*] DENOTES DOE'S SPLIT SAMPLE RESULTS
- \* DOE AVERAGE TOTAL URANIUM FOR EACH GRID

### SCALE



II-114

Mr. James C. Collard  
March 31, 1995  
Page 3

For the most part, split sampling results indicate favorable comparisons between the ODH lab and the DOE/contractor lab. This increases the confidence level in all the other sample results generated by DOE/contractor. It is important to note that, at all locations with results exceeding cleanup goals of 35 pCi/g total uranium, DOE/contractor conducted additional removal of soils to achieve the cleanup level and the ALARA goal. The two samples collected offsite indicated low to background concentrations of total uranium.

#### Conclusions

1. Ohio EPA and Ohio Department of Health believe that DOE has completed the cleanup of Alba Craft by removing contaminated soil and building debris to acceptable radiological cleanup levels and meeting the ALARA goal. The site should be released for unrestricted use (see Future Action section) or for any uses determined by the City and citizens of Oxford.
2. A large amount of clean backfill was necessary to bring the site back to grade. Please note that this backfill, while not a required part of the cleanup, will act as additional protection from any residual uranium.

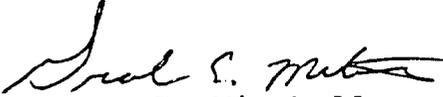
#### Future Actions

1. Ohio EPA and possibly the State Fire Marshall's Office will be evaluating the oil contamination found around and under the site. Additional non DOE cleanup actions may result from further evaluation.
2. DOE should continue to follow through with commitments made to the City.
  - A. Sample leachate from the Oxford Landfill.
  - B. Provide survey or sampling support if new information indicates uranium contamination at any other sites in the Oxford area that may have been associated with activities at Alba Craft.
  - C. Complete seeding and restoration of the site.

Ohio EPA and Ohio Department of Health would like to thank the City of Oxford, the Oxford Citizens For Peace and Justice, and Residents and Alba Craft Workers for assistance and cooperation during all phases of this cleanup. We would also like to acknowledge the cooperation from DOE and their contractors. The success of this cleanup is an excellent example of citizens and government working together to solve problems.

Please contact us if you have any questions or would like any additional information.

Sincerely,



Graham E. Mitchell  
Chief, Office of Federal Facilities  
Oversight  
Ohio EPA

AND



Ruth H. Vandegrift  
Supervisor Contaminated Sites  
Ohio Department of Health

GEM/DB/bjb

cc: Jan Carlson, OEPA  
Tom Winston, OEPA  
Jim Crawford, OEPA  
Dwain Baer, ODH  
Linda Kimball  
Yerevan Peterson  
David Adler, DOE

## 2.9 RESTRICTIONS

There are no radiologically based restrictions on the future use of the subject properties.

## **2.10 FEDERAL REGISTER NOTICE**

This section contains a copy of the notice published in the *Federal Register*. It documents the certification that the subject properties are in compliance with all applicable decontamination criteria and standards.

1865, Facsimile No.: (510) 637-2074, E Mail: james.solomon@oak.doe.gov.

**SUPPLEMENTARY INFORMATION:** The solicitation document contains all the information relative to this action for prospective applicants. The solicitation is targeted for release on or about January 7, 1997. The actual work to be accomplished will be determined by the experiments and diagnostic techniques that are selected for award. Proposed experiments and diagnostic techniques will be evaluated through scientific peer review against predetermined, published and available criteria. Final selection will be made by the DOE. It is anticipated that multiple grants will be awarded within the available funding. The unique resources of the NLUF are available, on a no-fee basis, to scientists for state-of-the-art experiments primarily in the area of inertial confinement fusion (ICF) and related plasma physics. Other areas such as spectroscopy of high ionized atoms, laboratory astrophysics, fundamental physics, materials science and biology and chemistry will be considered on a secondary basis.

The LLE was established in 1970 to investigate the interaction of high-power lasers with matter. Available at the LLE for NLUF researchers is the upgraded Omega Laser, a 30-40 kJ UV, 60 beam laser system (at 0.35um) suitable for direct-drive ICF implosions and other experimental configurations. This system is suitable for a variety of experiments including laser-plasma interactions and atomic spectroscopy.

The NLUF program for FY92 will support experiments that can be done with the Omega Laser at the University of Rochester and development of diagnostic techniques suitable for the Omega Laser system. Measurements of the laser coupling, laser-plasma interactions, core temperature, and core density are needed to determine the characteristics of target implosions. Diagnostic techniques could include either new instrumentation, development of analysis tools, or development targets that are applicable for 30-40 kJ implosions. Additional technical information about the available facilities and potential collaboration at the NLUF can be obtained from: Dr. John M. Soures, Manager, National Laser Users' Facility, University of Rochester/LLE, 250 East River Road, Rochester, NY 14623-1299.

Dated: November 19, 1996.

**Joan Macrusky,**

Chief, Financial Assistance Branch, Program Acquisition and Assistance Division.

[FR Doc. 96-30141 Filed 11-25-96; 8:45 am]

BILLING CODE 6450-01-P-M

### Environmental Management Site-Specific Advisory Board, Nevada Test Site; Meeting

**AGENCY:** Department of Energy.

**ACTION:** Notice of open meeting.

**SUMMARY:** Pursuant to the provisions of the Federal Advisory Committee Act (Public Law 92-463, 86 Stat. 770) notice is hereby given of the following Advisory Committee meeting: Environmental Management Site-Specific Advisory Board (EM SSAB), Nevada Test Site.

**DATE:** Wednesday, December 4, 1996: 5:30 p.m.-9:00 p.m.

**ADDRESS:** Community College of Southern Nevada (Cheyenne Avenue Campus), High Desert Conference and Training Center, Room 1422, 3200 East Cheyenne Avenue, North Las Vegas, Nevada 89030-4296. 702-651-4294.

**FOR FURTHER INFORMATION CONTACT:** Kevin Rohrer, U.S. Department of Energy, Office of Environmental Management, P.O. Box 98518, Las Vegas, Nevada 89193-8513, phone: 702-295-0197.

**SUPPLEMENTARY INFORMATION:** *Purpose of the Board:* The purpose of the Advisory Board is to make recommendations to DOE and its regulators in the areas of environmental restoration, waste management, and related activities.

#### December Agenda

5:30 pm—Call to Order  
5:40 pm—Presentations  
7:00 pm—Public Comment/Questions  
7:30 pm—Break  
7:45 pm—Review Action Items  
8:00 pm—Approve Meeting Minutes  
8:10 pm—Committee Reports  
8:45 pm—Public Comment  
9:00 pm—Adjourn

*Public Participation:* The meeting is open to the public. Written statements may be filed with the Committee either before or after the meeting. Individuals who wish to make oral statements pertaining to agenda items should contact Kevin Rohrer, at the telephone number listed above. Requests must be received 5 days prior to the meeting and reasonable provision will be made to include the presentation in the agenda. The Designated Federal Official is empowered to conduct the meeting in a fashion that will facilitate the orderly conduct of business. This notice is being published less than 15 days in advance of the meeting due to programmatic issues that needed to be resolved.

*Minutes:* The minutes of this meeting will be available for public review and copying at the Freedom of Information Public Reading Room, 1E-190, Forrestal Building, 1000 Independence Avenue,

SW, Washington, DC 20585, between 9:00 a.m. and 4 p.m., Monday-Friday, except Federal holidays. Minutes will also be available by writing to Kevin Rohrer at the address listed above.

Issued at Washington, DC, on November 20, 1996.

**Rachel M. Samuel,**

Acting Deputy Advisory Committee Management Officer.

[FR Doc. 96-30142 Filed 11-25-96; 8:45 am]

BILLING CODE 6450-01-P

### Certification of the Radiological Condition of the Alba Craft Site in Oxford, Ohio, 1995

**AGENCY:** Office of Environmental Management, Department of Energy.

**ACTION:** Notice of certification.

**SUMMARY:** The Department of Energy (DOE) has completed remedial actions to decontaminate properties in Oxford, Ohio. Formerly, the properties were found to contain quantities of residual radioactive material resulting from activities conducted by contractors for DOE or its predecessors at the former Alba Craft Laboratory, Inc. Radiological surveys show that the properties now meet applicable requirements for use without radiological restrictions, and the docket related to cleanup activities is now available.

**ADDRESSES:** The docket is available from:

Public Reading Room, Room 1E-190, Forrestal Building, U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, D.C. 20585.  
Public Document Room, Oak Ridge Operations Office, U.S. Department of Energy, 200 Administration Road, Oak Ridge, Tennessee 37831.  
Lane Public Library, Oxford Branch, 15 S. College Avenue, Oxford, Ohio 45056.

**FOR FURTHER INFORMATION CONTACT:** William E. Murphie, Acting Director, Office of Eastern Area Programs, Office of Environmental Restoration (EM-42), U.S. Department of Energy, Germantown, Maryland 20874. (301) 903-2328 Fax: (301) 903-2385.

**SUPPLEMENTARY INFORMATION:** DOE, Office of Eastern Area Programs, Formerly Utilized Sites Remedial Action Program (FUSRAP) Team, has conducted remedial action at the Alba Craft site in Oxford, Ohio, as part of FUSRAP. The objective of the program is to identify and remediate or otherwise control sites where residual radioactive contamination remains from activities carried out under contract with the Department's statutory predecessors

(e.g., the Manhattan Engineer District (MED) or the Atomic Energy Commission (AEC)) during the early years of the nation's atomic energy program or from commercial operations causing conditions that Congress has authorized DOE to remedy. In 1992, the Alba Craft site was designated for cleanup under FUSRAP.

Alba Craft Laboratory, Inc., under subcontract to National Lead of Ohio (NLO), a primary contractor for AEC from October 1952 to February 1957, provided a variety of machine-shop services on natural uranium metal (i.e., uranium metal that was neither enriched nor depleted but contained the uranium isotopes in natural abundance). Operations at the site consisted of hollow drilling and turning of uranium metal slugs. Production was discontinued at the site in 1957, and Alba Craft personnel decontaminated the building and equipment in accordance with NLO Industrial Hygiene Department specifications.

In 1992, DOE's Oak Ridge National Laboratory performed a radiological survey in and around the Alba Craft Laboratory building and adjacent properties suspected to have become contaminated as a result of activities conducted at the laboratory. The survey identified radioactive contamination exceeding current DOE guidelines for release of properties for use without radiological restrictions and four properties including the Alba Craft Laboratory building, and three radioactively contaminated "vicinity properties" were designated for remedial action by FUSRAP.

In addition to the laboratory property, residual radioactive contamination was found on exterior areas of vicinity properties at 525 South Main Street, 550 South Main Street, and West Rose Avenue near the Alba Craft building. The property at 525 South Main Street, where the former owner of the Alba Craft Laboratory lived, was the only vicinity property at which interior contamination was found.

Remedial action was performed at the former Alba Craft Laboratory and vicinity properties from August 1994 to January 1995. Post-remedial action surveys have demonstrated, and DOE has certified, that the subject properties are in compliance with DOE radiological decontamination criteria and standards. The standards are established to protect members of the general public and occupants of the properties and to ensure that future use of the properties will result in no radiological exposure above applicable health-based guidelines. Accordingly,

these properties are released from FUSRAP.

The certification docket will be available for review between 9:00 a.m. and 4:00 p.m., Monday through Friday (except Federal holidays) in the DOE Public Reading Room located in Room 1E-190 of the Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585. Copies of the certification docket will also be available in the DOE Public Document Room, U.S. Department of Energy, Oak Ridge Operations Office, Oak Ridge, Tennessee 37831, and in the Lane Public Library, Oxford Branch, 15 S. College Avenue, Oxford, Ohio 45056.

DOE, through the Oak Ridge Operations Office, Former Sites Restoration Division, has issued the following statement:

**Statement of Certification: Alba Craft Laboratory, Inc. and Vicinity Properties Site in Oxford, Ohio**

DOE, Oak Ridge Operations Office, Former Sites Restoration Division, has reviewed and analyzed the radiological data obtained following remedial action at the former Alba Craft Laboratory site and vicinity properties in Oxford, Ohio. Based on analysis of all data collected, including post-remedial action surveys, DOE certifies that any residual contamination on the Laboratory site and vicinity properties falls within current guidelines for use of land without radiological restrictions. This certification of compliance provides assurance that reasonably foreseeable future use of the properties will result in no radiological exposure above current radiological guidelines established to protect members of the general public, as well as occupants of the site.

Property owned by Gilbert and Vicki Pacey, 10-14 West Rose Avenue, Oxford, Ohio

Property owned by James H. and Darlene S. Burch, 550 South Main Street, Oxford, Ohio

Property owned by Wayne and Marilyn Elzey, 525 South Main Street, Oxford, Ohio  
Municipal Property, West Rose Avenue, Oxford, Ohio.

Issued in Washington, D.C., on November 15, 1996.

**James M. Owendoff,**

*Deputy Assistant Secretary for Environmental Restoration.*

{FR Doc. 96-30140 Filed 11-25-96; 8:45 am}

BILLING CODE 6450-01-P

**ENVIRONMENTAL PROTECTION AGENCY**

[OPPTS-00202; FRL-5575-9]

**Forum on State and Tribal Toxics Action (FOSTTA) Projects; Open Meetings**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Notice.

**SUMMARY:** The four projects of the Forum on State and Tribal Toxics Action (FOSTTA) will hold meetings open to the public, who are encouraged to attend the proceedings as observers. However, in the interest of time and efficiency, the meeting is structured to provide maximum opportunity for state, tribal, and EPA invited participants to discuss items on the predetermined agenda. At the discretion of the chair of the project, an effort will be made to accommodate participation by observers attending the proceedings.

**DATES:** The four projects will meet December 9, 1996, from 8 a.m. to 5 p.m. and on December 10, 1996, from 8 a.m. to noon.

**ADDRESSES:** The meetings will be held at The Embassy Suites Hotel, 1900 Diagonal Road, Alexandria, VA, in Old Town.

**FOR FURTHER INFORMATION CONTACT:** Darlene Harrod, Designated Federal Official (DFO), Office of Pollution Prevention and Toxics (7408), U.S. Environmental Protection Agency, 401 M St., SW., Washington, DC 20460, telephone (202) 260-6904. E-mail Harrod.darlene@epamail.epa.gov. Any observer wishing to speak should advise the DFO at telephone number or E-mail address listed above no later than 4 p.m. on December 6, 1996.

**SUPPLEMENTARY INFORMATION:** FOSTTA, a group of state and tribal toxics environmental managers, is intended to foster the exchange of toxics-related program enforcement information among the states/tribes and between the states/tribes and U.S. EPA's Office of Prevention, Pesticides and Toxic Substances (OPPTS) and Office of Enforcement and Compliance Assurance (OECA). FOSTTA currently consists of the Coordinating Committee and four issue-specific projects. The projects are: (1) The Toxics Release Inventory Project; (2) The State and Tribal Enhancement Project; (3) The Chemical Management Project; and (4) The Lead (Pb) Project.

**List of Subjects**

Environmental protection.

**2.11 APPROVED CERTIFICATION STATEMENT(S)**

The following statements document the certification of the subject properties for future use without radiological restrictions.

# memorandum

DATE: November 18, 1996

REPLY TO: EM-42 (W. A. Williams, 301-903-8149)  
ATTN OF:

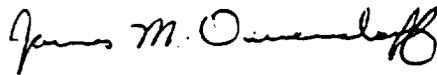
SUBJECT: Federal Register Notice for Certification of the Radiological Condition of  
the Alba Craft Laboratory Site

TO: R. Rosen, GC-75

Attached are the original and three copies of the signed Federal Register Notice certifying the completion of remedial action at the Alba Craft Laboratory Site in Oxford, Ohio. This site was cleaned up by the Department of Energy Formerly Utilized Sites Remedial Action Program. The attached notice has been reviewed by and concurred in by the Office of General Counsel (GC-51 and GC-72), and a copy of that concurrence is also attached for your information and use.

We have also attached a letter for your signature that transmits the disk containing the Federal Register Notice.

We are requesting that the notice be published in the Federal Register as soon as possible.



James M. Owendoff  
Deputy Assistant Secretary  
for Environmental Restoration

Attachments





**Department of Energy**  
Germantown, MD 20874-1290

Mr. Richard Claypoole  
Director, Office of the  
Federal Register  
800 North Capitol Street  
Washington, D.C. 20002

Dear Mr. Claypoole:

This letter is to certify that the enclosed disk is a true copy of the Certification of the Radiological Condition of the Alba Craft Laboratory Site in Oxford, Ohio. The disk should be used by the Government Printing Office in preparing the document for publication.

Sincerely,

A handwritten signature in black ink, appearing to read "W. E. Murphie".

William E. Murphie  
Acting Director  
Office of Eastern Area Programs  
Office of Environmental Restoration

Rita Rosen  
DOE Federal Register  
Liaison Officer

2 Enclosures



[6450-01-P]

DEPARTMENT OF ENERGY

Certification of the Radiological Condition of the Alba Craft Site in  
Oxford, Ohio, 1995

AGENCY: Office of Environmental Management, Department  
of Energy

ACTION: Notice of Certification

SUMMARY: The Department of Energy (DOE) has completed remedial  
actions to decontaminate properties in Oxford, Ohio.  
Formerly, the properties were found to contain quantities  
of residual radioactive material resulting from activities  
conducted by contractors for DOE or its predecessors at  
the former Alba Craft Laboratory, Inc. Radiological  
surveys show that the properties now meet applicable  
requirements for use without radiological restrictions,  
and the docket related to cleanup activities is now  
available.

ADDRESSES: The docket is available from:  
Public Reading Room  
Room 1E-190  
Forrestal Building  
U.S. Department of Energy  
1000 Independence Avenue, S.W.  
Washington, D.C. 20585

Public Document Room  
Oak Ridge Operations Office  
U.S. Department of Energy  
200 Administration Road  
Oak Ridge, Tennessee 37831

Lane Public Library  
Oxford Branch  
15 S. College Avenue  
Oxford, Ohio 45056

FOR FURTHER INFORMATION CONTACT:

William E. Murphie, Acting Director  
Office of Eastern Area Programs  
Office of Environmental Restoration (EM-42)  
U.S. Department of Energy  
Germantown, Maryland 20874  
(301) 903-2328 Fax: (301) 903-2385

SUPPLEMENTARY INFORMATION:

DOE, Office of Eastern Area Programs, Formerly Utilized Sites Remedial Action Program (FUSRAP) Team, has conducted remedial action at the Alba Craft site in Oxford, Ohio, as part of FUSRAP. The objective of the program is to identify and remediate or otherwise control sites where residual radioactive contamination remains from activities carried out under contract with the Department's statutory predecessors (e.g., the

Manhattan Engineer District (MED) or the Atomic Energy Commission (AEC)) during the early years of the nation's atomic energy program or from commercial operations causing conditions that Congress has authorized DOE to remedy. In 1992, the Alba Craft site was designated for cleanup under FUSRAP.

Alba Craft Laboratory, Inc., under subcontract to National Lead of Ohio (NLO), a primary contractor for AEC from October 1952 to February 1957, provided a variety of machine-shop services on natural uranium metal (i.e., uranium metal that was neither enriched nor depleted but contained the uranium isotopes in natural abundance). Operations at the site consisted of hollow drilling and turning of uranium metal slugs. Production was discontinued at the site in 1957, and Alba Craft personnel decontaminated the building and equipment in accordance with NLO Industrial Hygiene Department specifications.

In 1992, DOE's Oak Ridge National Laboratory performed a radiological survey in and around the Alba Craft Laboratory building and adjacent properties suspected to have become contaminated as a result of activities conducted at the laboratory. The survey identified radioactive contamination exceeding current DOE guidelines for release of properties for use without radiological restrictions and four properties including the Alba Craft Laboratory building, and three radioactively contaminated "vicinity properties" were designated for remedial action by FUSRAP.

In addition to the laboratory property, residual radioactive contamination was found on exterior areas of vicinity properties at 525 South Main Street, 550 South Main Street, and West Rose Avenue near the Alba Craft building. The property at 525 South Main Street, where the former owner of the Alba Craft Laboratory lived, was the only vicinity property at which interior contamination was found.

Remedial action was performed at the former Alba Craft Laboratory and vicinity properties from August 1994 to January 1995. Post-remedial action surveys have demonstrated, and DOE has certified, that the subject properties are in compliance with DOE radiological decontamination criteria and standards. The standards are established to protect members of the general public and occupants of the properties and to ensure that future use of the properties will result in no radiological exposure above applicable health-based guidelines. Accordingly, these properties are released from FUSRAP.

The certification docket will be available for review between 9:00 a.m. and 4:00 p.m., Monday through Friday (except Federal holidays) in the DOE Public Reading Room located in Room 1E-190 of the Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585. Copies of the certification docket will also be available in the DOE Public Document Room, U.S. Department of Energy, Oak Ridge Operations Office, Oak Ridge, Tennessee, 37831, and in the Lane Public Library, Oxford Branch, 15 S. College Avenue, Oxford, Ohio, 45056.

DOE, through the Oak Ridge Operations Office, Former Sites Restoration Division, has issued the following statement:

**STATEMENT OF CERTIFICATION: ALBA CRAFT LABORATORY, INC. AND  
VICINITY PROPERTIES SITE IN OXFORD, OHIO**

DOE, Oak Ridge Operations Office, Former Sites Restoration Division, has reviewed and analyzed the radiological data obtained following remedial action at the former Alba Craft Laboratory site and vicinity properties in Oxford, Ohio. Based on analysis of all data collected, including post-remedial action surveys, DOE certifies that any residual contamination on the Laboratory site and vicinity properties falls within current guidelines for use of land without radiological restrictions. This certification of compliance provides assurance that reasonably foreseeable future use of the properties will result in no radiological exposure above current radiological guidelines established to protect members of the general public, as well as occupants of the site.

Property owned by Gilbert and Vicki Pacey  
10-14 West Rose Avenue  
Oxford, Ohio

Property owned by James H. and Darlene S. Burch  
550 South Main Street  
Oxford, Ohio

Property owned by Wayne and Marilyn Elzey  
525 South Main Street  
Oxford, Ohio

Municipal Property  
West Rose Avenue  
Oxford, Ohio

Issued in Washington, D.C., on November 15, 1996.

  
James M. Owendoff  
Deputy Assistant Secretary  
for Environmental Restoration

**STATEMENT OF CERTIFICATION: ALBA CRAFT LABORATORY INC. AND VICINITY PROPERTIES  
SITE IN OXFORD, OHIO**

The U.S. Department of Energy (DOE), Oak Ridge Operations Office, Former Sites Restoration Division, has reviewed and analyzed the radiological data obtained following remedial action at the former Alba Craft Laboratory site and vicinity properties in Oxford, Ohio. Based on analysis of all data collected, DOE certifies that the following property is in compliance with current DOE radiological decontamination criteria and standards. This certification of compliance provides assurance that reasonably foreseeable future use of the property will result in no radiological exposure above applicable guidelines established to protect members of the general public or site occupants.

Property owned by Gilbert and Vicki Pacey:

10-14 West Rose Avenue  
Oxford, Ohio 45056



\_\_\_\_\_  
L. K. Price, Director  
Former Sites Restoration Division  
Oak Ridge Operations Office  
U.S. Department of Energy

Date: 3/11/96

**STATEMENT OF CERTIFICATION: ALBA CRAFT LABORATORY INC. AND VICINITY PROPERTIES  
SITE IN OXFORD, OHIO**

The U.S. Department of Energy (DOE), Oak Ridge Operations Office, Former Sites Restoration Division, has reviewed and analyzed the radiological data obtained following remedial action at the Alba Craft vicinity property located at 525 South Main Street, Oxford, Ohio. Based on analysis of all data collected, DOE certifies that the following property is in compliance with current DOE radiological decontamination criteria and standards. This certification of compliance provides assurance that reasonably foreseeable future use of the property will result in no radiological exposure above applicable guidelines established to protect members of the general public or site occupants.

Property owned by Wayne and Marilyn Elzey:

525 South Main Street  
Oxford, Ohio 45056



\_\_\_\_\_  
L. K. Price, Director  
Former Sites Restoration Division  
Oak Ridge Operations Office  
U.S. Department of Energy

Date: \_\_\_\_\_

3/11/96

**STATEMENT OF CERTIFICATION: ALBA CRAFT LABORATORY INC. AND VICINITY PROPERTIES  
SITE IN OXFORD, OHIO**

The U.S. Department of Energy (DOE), Oak Ridge Operations Office, Former Sites Restoration Division, has reviewed and analyzed the radiological data obtained following remedial action at the Alba Craft vicinity property located at 550 South Main Street, Oxford, Ohio. Based on analysis of all data collected, DOE certifies that the following property is in compliance with current DOE radiological decontamination criteria and standards. This certification of compliance provides assurance that reasonably foreseeable future use of the property will result in no radiological exposure above applicable guidelines established to protect members of the general public or site occupants.

Property owned by James H. and Darlene Burch:

550 South Main Street  
Oxford, Ohio 45056

  
\_\_\_\_\_  
L. K. Price, Director  
Former Sites Restoration Division  
Oak Ridge Operations Office  
U.S. Department of Energy

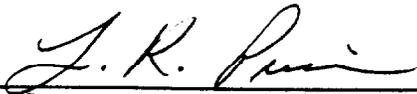
Date: 3/11/82

STATEMENT OF CERTIFICATION: ALBA CRAFT LABORATORY INC. AND VICINITY PROPERTIES  
SITE IN OXFORD, OHIO

The U.S. Department of Energy (DOE), Oak Ridge Operations Office, Former Sites Restoration Division, has reviewed and analyzed the radiological data obtained following remedial action at the Alba Craft vicinity property located at 9 West Rose Avenue, Oxford, Ohio. Based on analysis of all data collected, DOE certifies that the following property is in compliance with current DOE radiological decontamination criteria and standards. This certification of compliance provides assurance that reasonably foreseeable future use of the property will result in no radiological exposure above applicable guidelines established to protect members of the general public or site occupants.

Property owned by Alfred A. Schwegman:

9 West Rose Avenue  
Oxford, Ohio 45056

  
\_\_\_\_\_  
L. K. Price, Director  
Former Sites Restoration Division  
Oak Ridge Operations Office  
U.S. Department of Energy

Date: \_\_\_\_\_

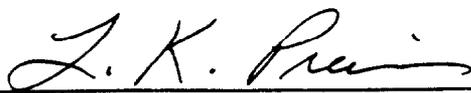


STATEMENT OF CERTIFICATION: ALBA CRAFT LABORATORY INC. AND VICINITY PROPERTIES  
SITE IN OXFORD, OHIO

The U.S. Department of Energy (DOE), Oak Ridge Operations Office, Former Sites Restoration Division, has reviewed and analyzed the radiological data obtained following remedial action at the Alba Craft vicinity property located on West Rose Avenue, Oxford, Ohio. Based on analysis of all data collected, DOE certifies that the following property is in compliance with current DOE radiological decontamination criteria and standards. This certification of compliance provides assurance that reasonably foreseeable future use of the property will result in no radiological exposure above applicable guidelines established to protect members of the general public or site occupants.

Property (vacant lot immediately west of Alba Craft building)  
owned by J.R.J. Company:

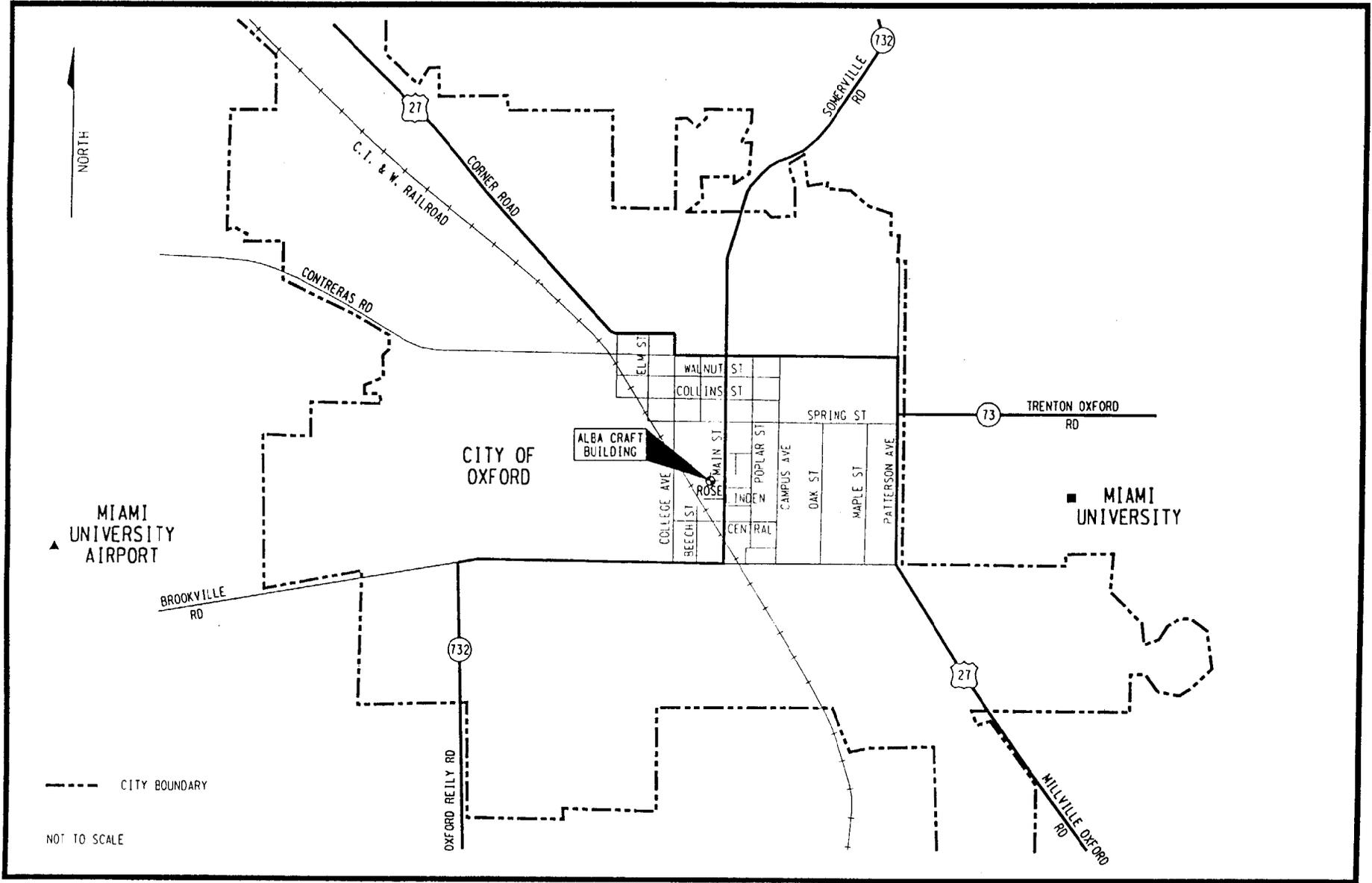
West Rose Avenue  
Oxford, Ohio 45056

  
\_\_\_\_\_  
L. K. Price, Director  
Former Sites Restoration Division  
Oak Ridge Operations Office  
U.S. Department of Energy

Date: 3/11/82

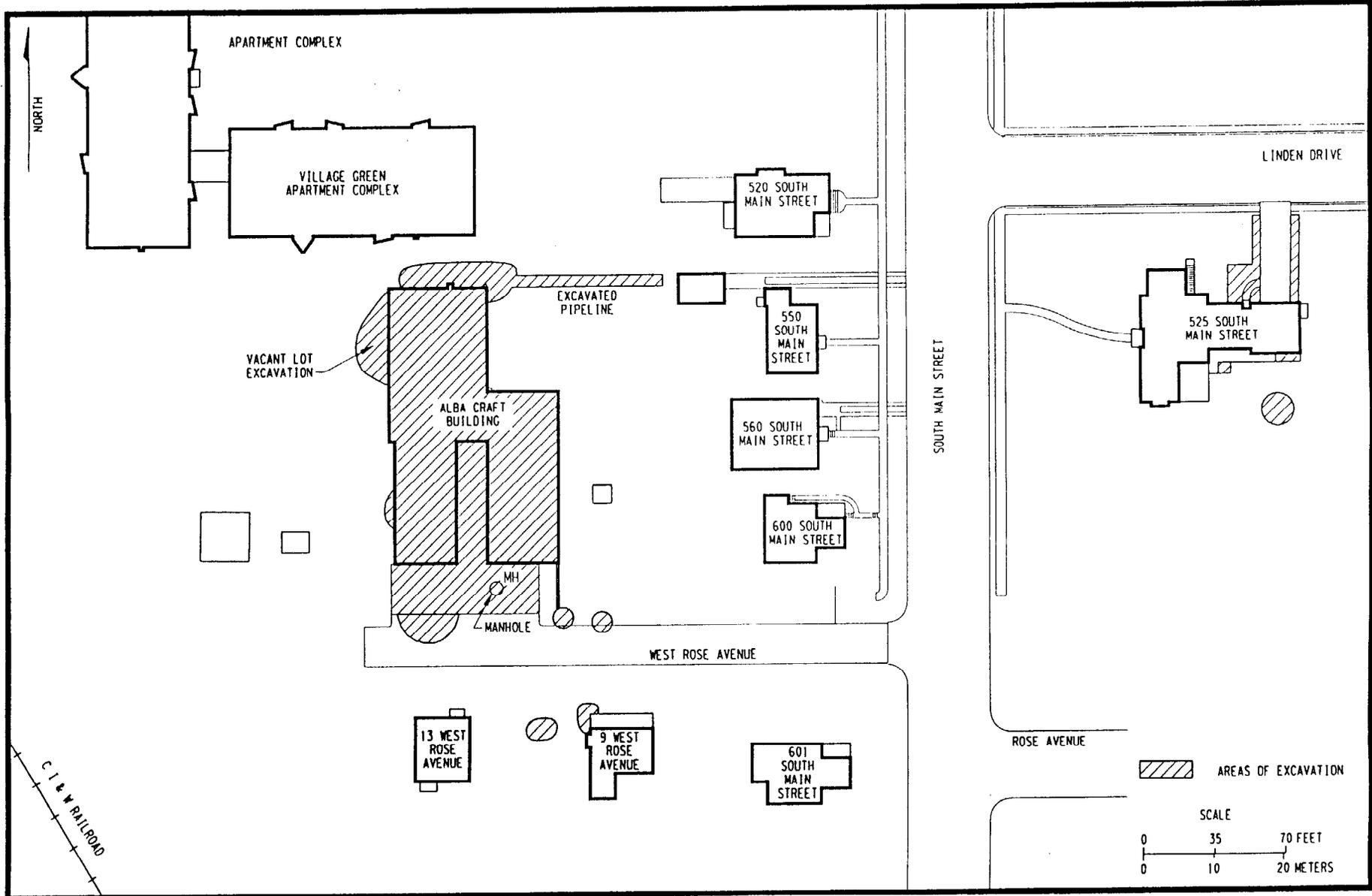
EXHIBIT III  
DIAGRAMS OF THE REMEDIAL ACTION PERFORMED AT THE ALBA CRAFT  
LABORATORY AND VICINITY PROPERTIES IN OXFORD, OHIO,  
FROM AUGUST 1994-FEBRUARY 1995

The figures provided on the following pages are taken from the post-remedial action report; they show the location of the Alba Craft site and the locations of remedial action at the laboratory and vicinity properties.



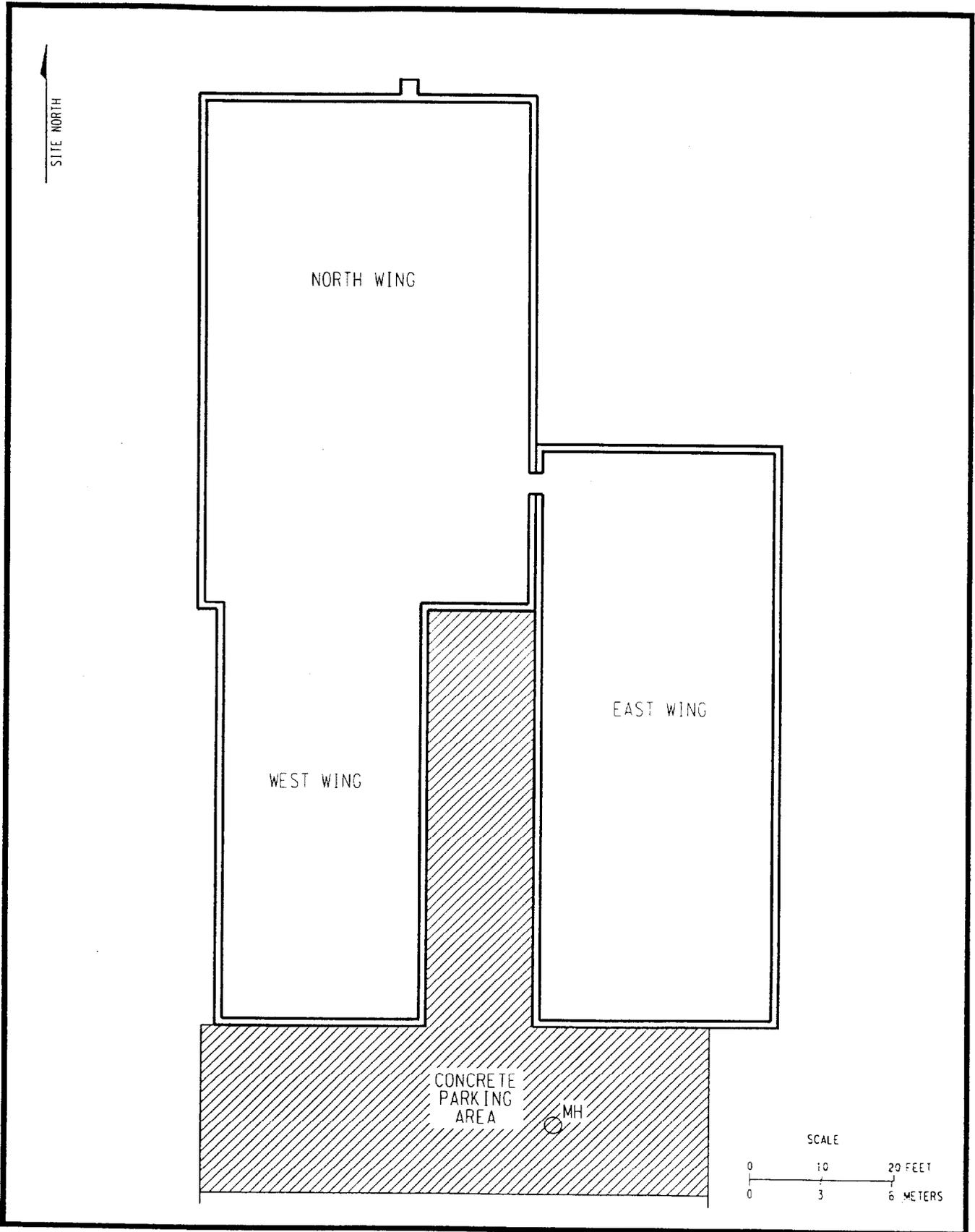
R74F001.DGN

Figure III-1  
General Site Location



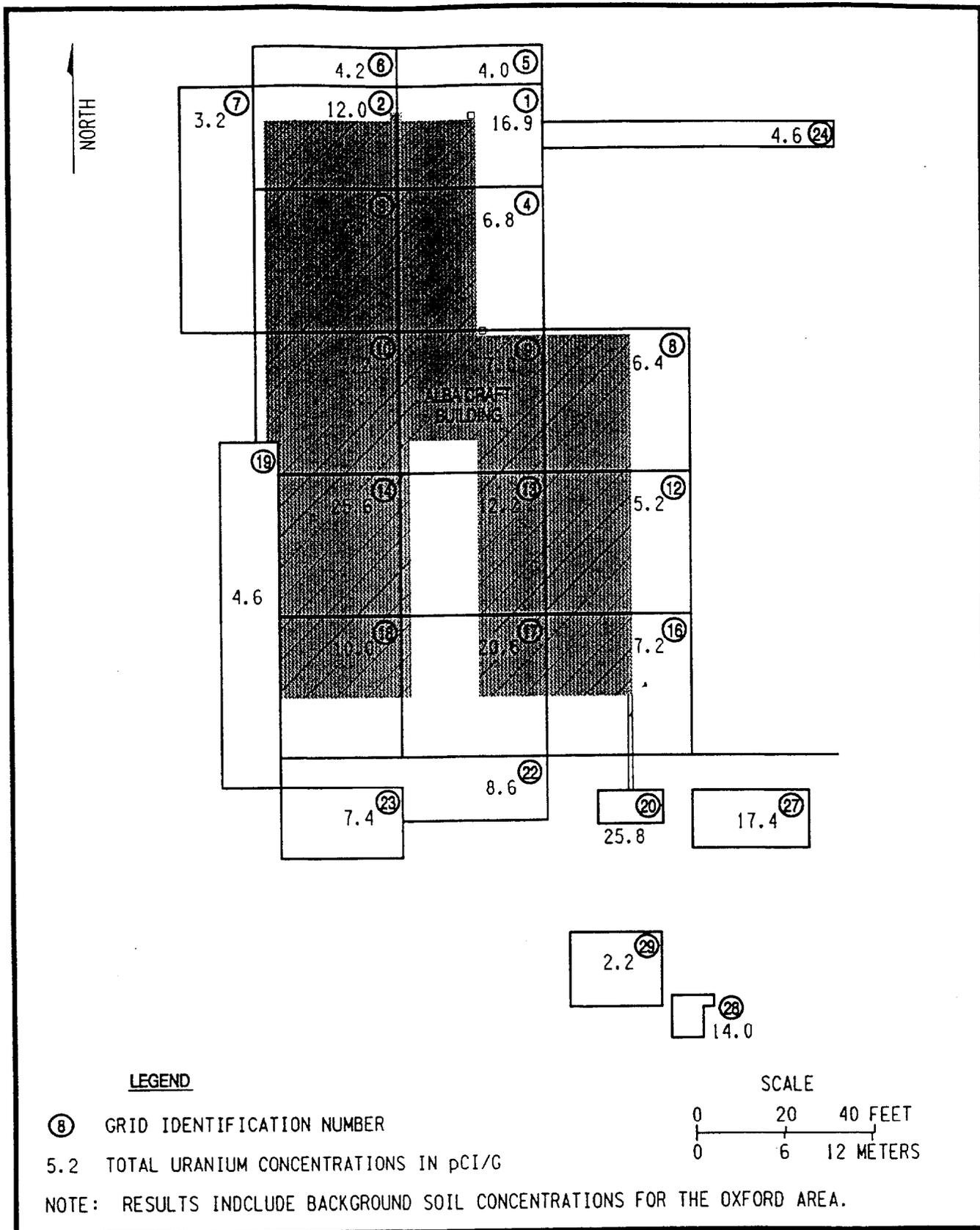
R74F002.DGN

Figure III-2  
Areas of Excavation at  
Former Alba Craft Laboratory Site and Vicinity Properties



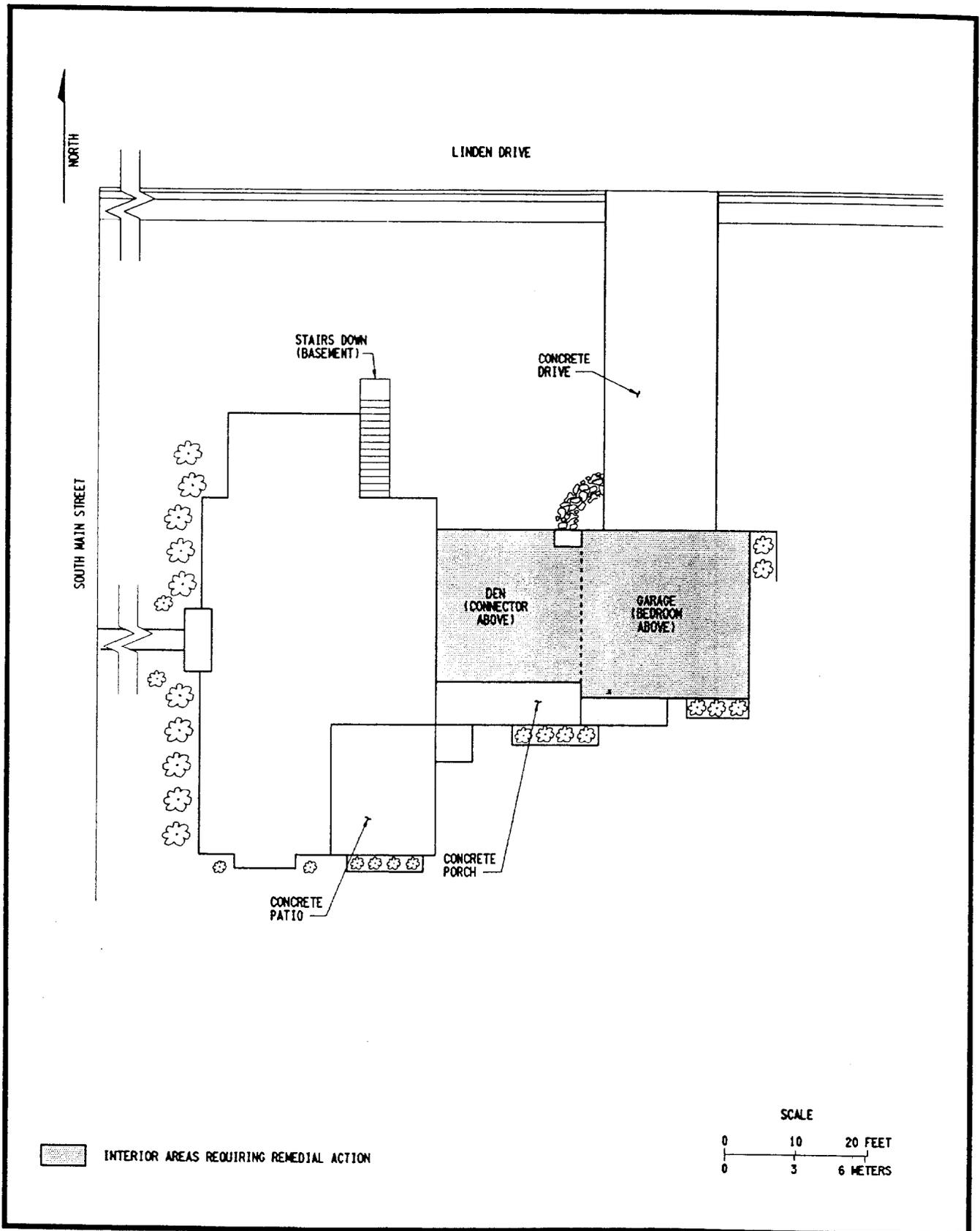
R74F003.DGN

Figure III-3  
Former Alba Craft Laboratory Building



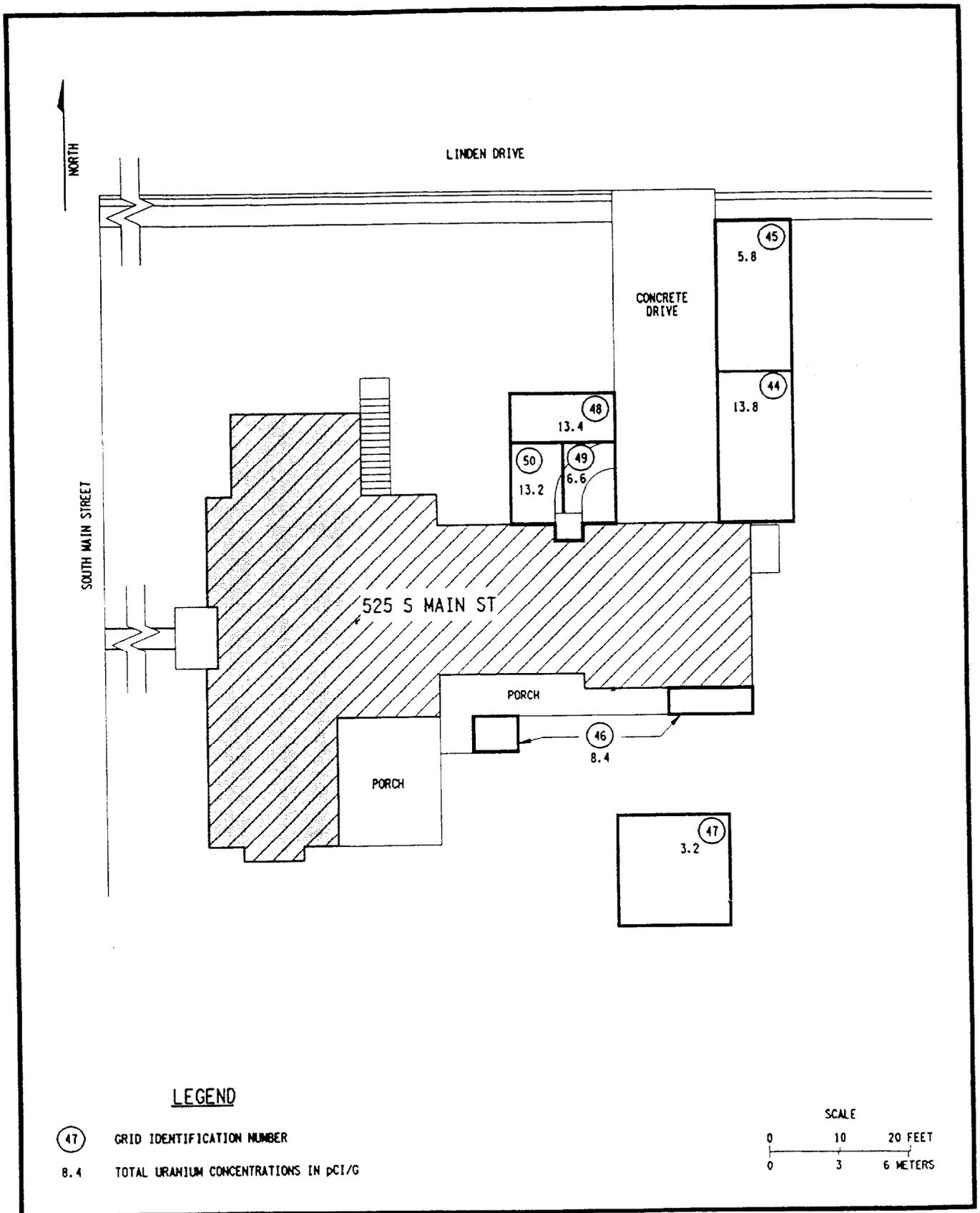
R74F004.DGN

Figure III-4  
Post-Remedial Action Results at Alba Craft



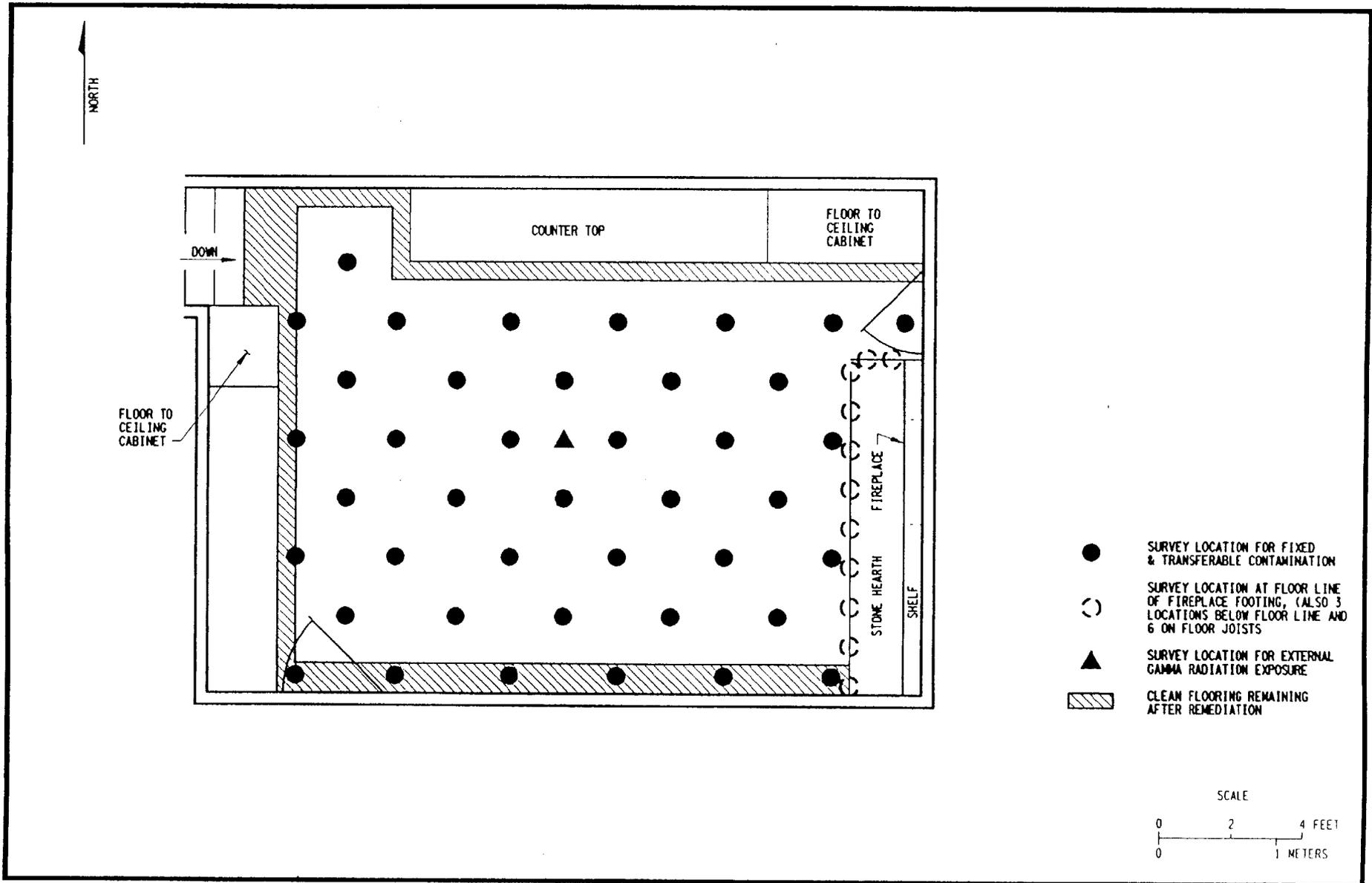
R74F 005.DGN

Figure III-5  
Site Plan of the Vicinity Property at 525 South Main Street



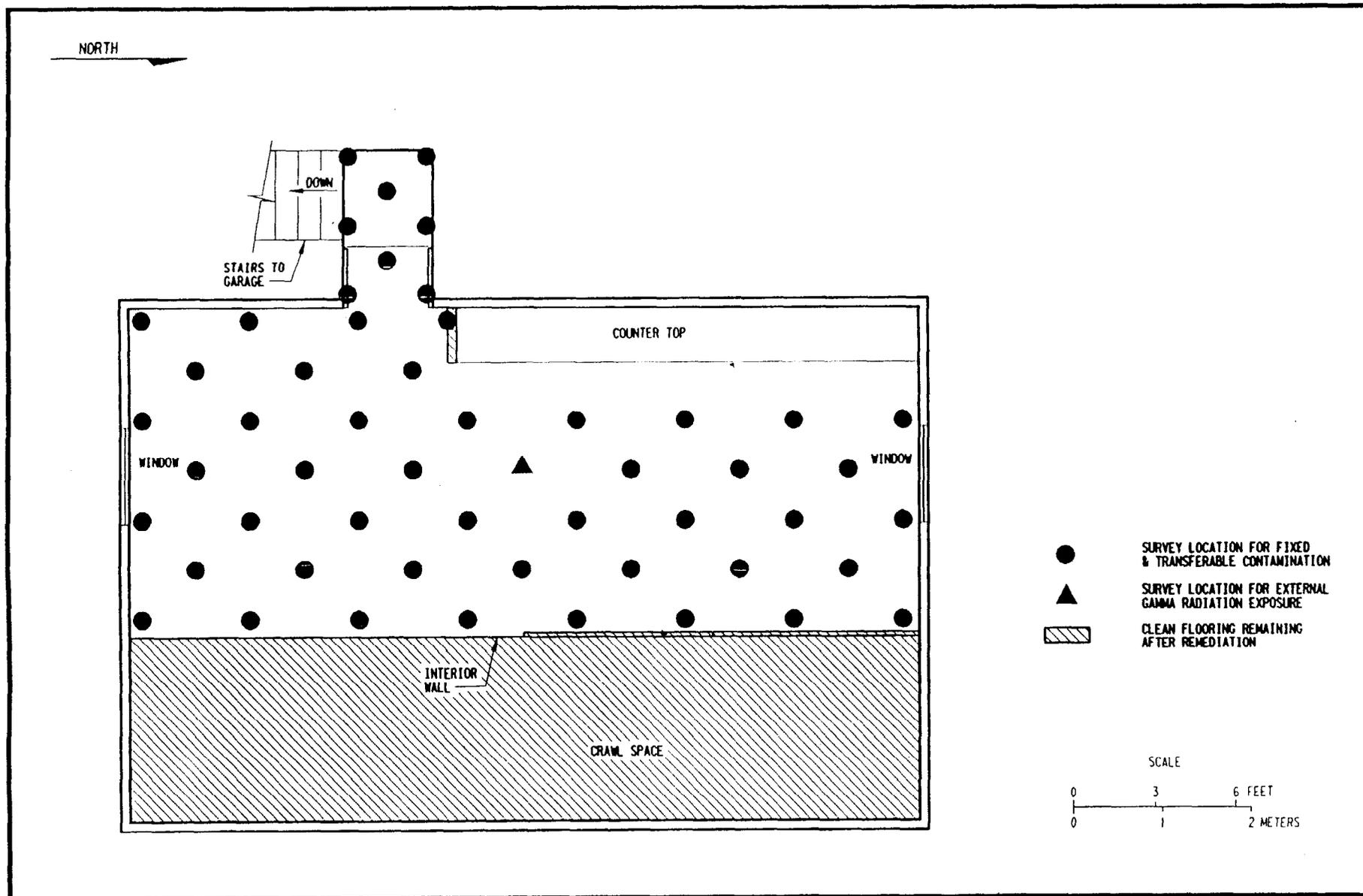
R74F 006.DGN

Figure III-6  
 Post-Remedial Action Soil Sample Results at 525 South Main Street



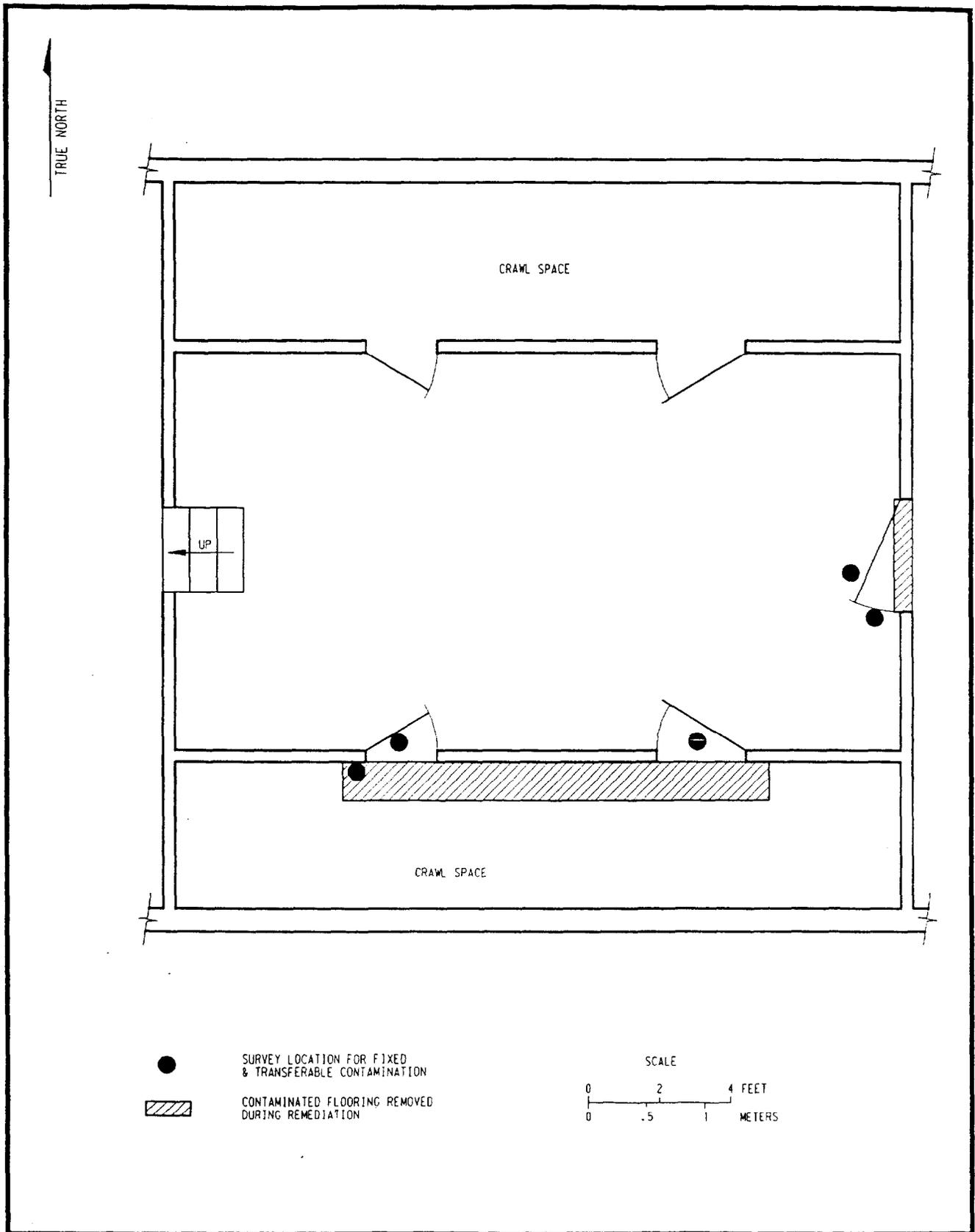
R74F 007.DGN

Figure III-7  
 525 South Main Street - Downstairs Den  
 Approximate Post-Remedial Action Survey Locations



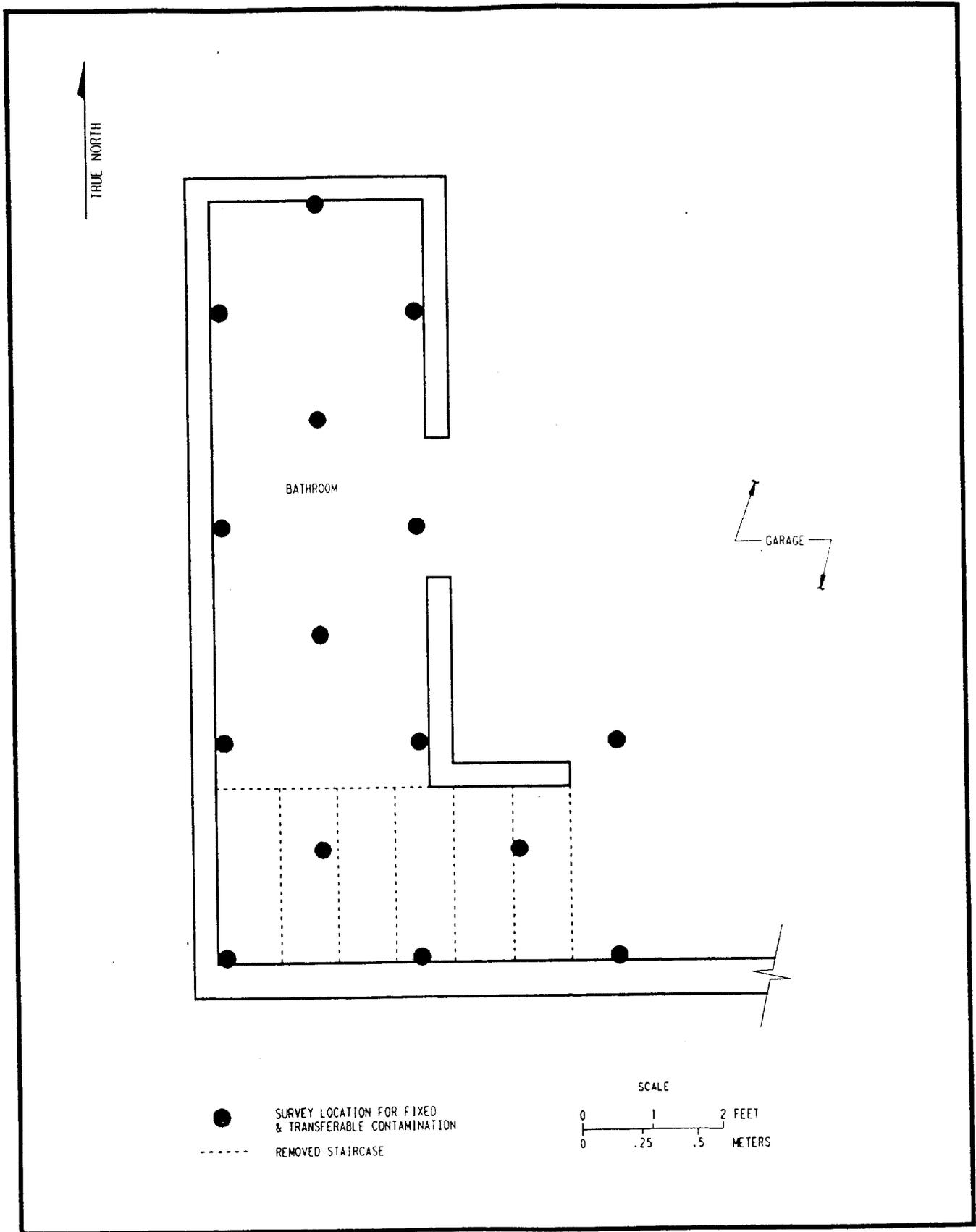
R74F 008.DGN

Figure III-8  
525 South Main Street - Upstairs Bedroom and Hallway  
Approximate Post-Remedial Action Survey Locations



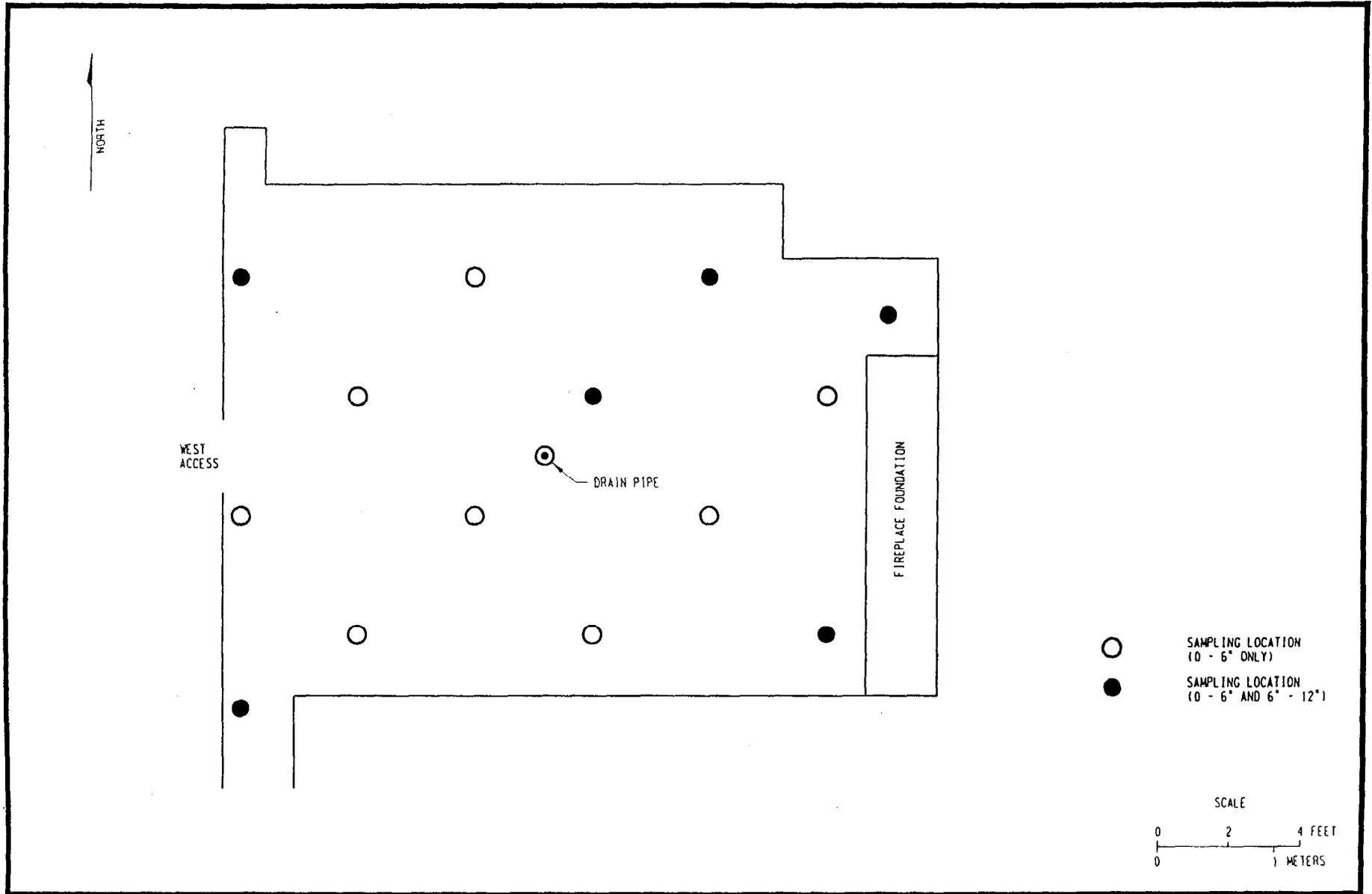
R74F 009.DGN

Figure III-9  
 525 South Main Street - Upstairs Connector  
 Approximate Post-Remedial Action Survey Locations



R74F 010.DGN

Figure III-10  
 525 South Main Street - Garage Bathroom  
 Approximate Post-Remedial Action Survey Locations



R74F 011.DCN

Figure III-11  
525 South Main Street - Approximate Soil Sampling Locations  
in the Basement Crawl Space