DOE F 1325.8
(8-89)
EFG (07-90)

OH.22-2

United States Government **Department of Energy**

memorandum

DATE: SEP 25 1992

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

SUBJECT: Authorization for Remedial Action at Alba Craft Laboratory in Oxford, Ohio

TO: L. Price, OR

The former Alba Craft Laboratory site at 10-14 West Rose Avenue, Oxford, Ohio, is designated for remedial action under the Formerly Utilized Sites Remedial Action Program (FUSRAP). Dr. and Mrs. Gilbert Pacey, of Oxford, Ohio, own the site. This designation is based on the results of a radiological survey and conclusions from an authority review as noted in the attached Designation Summary. Copies of the radiological survey letter report and the authority review are provided for your information. A complete radiological survey report is under preparation by Oak Ridge National Laboratory.

The site has been assigned a low priority under the FUSRAP protocol. Based on the survey results, the property contains residual radioactive contaminants in concentrations that exceed current guidelines. Under present use conditions, the contamination does not present a significant health risk to individuals who access the area. Because of the limited extent of the contamination, the cleanup of the site may follow the expedited cleanup protocol for a removal action.

The effect of this designation on the FUSRAP baseline should be evaluated, documented, and submitted for approval under the baseline change control procedures.

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

3 Attachments

bcc:
Weston

Distribution:
EM-40 (2)
EM-42 (3)
EM-GTN
EM-FOR
Pat Suspense
Williams Reader

EM-421:wagoner:djn:903-8145:9/24/92:albacrft.dsg

P. Hevner Review: PH 10/1
M. White Review:

Williams
EM-421
9/24/92

Wagoner
EM-421
9/25/92

Palmer
EM-42
10/1/92

Fiore
EM-42
10/1/92

Bauhlitz
EM-40
10/5/92

Whitfield
EM-40
10/7/92

5254

FORMERLY USED SITES
REMEDIAL ACTION PROGRAM

DESIGNATION SUMMARY
FOR ALBA CRAFT LABORATORY
OXFORD, OHIO

October 1, 1992

U.S. DEPARTMENT OF ENERGY
OFFICE OF ENVIRONMENTAL RESTORATION

Designation Summary
Alba Craft Laboratory, Oxford

CONTENTS

Designation Summary
Alba Craft Laboratory, Oxford

INTRODUCTION

The Department of Energy (DOE), Office of Environmental Restoration, has reviewed the past activities of the Atomic Energy Commission (AEC) at the former Alba Craft Laboratory site in Oxford, Ohio, and has completed a radiological survey of the site (Murray 1992a & 1992b). DOE has determined that the residual radioactive materials inside the building exceed current guidelines (DOE 1990) for use without radiological restrictions.

Based on a review of the available historical documentation and the results of the survey, DOE has concluded that this site shall be designated for remedial action under the Formerly Utilized Sites Remedial Action Program (FUSRAP). The survey results indicate that the residual radioactivity is limited in extent and poses no immediate risk to workers. Therefore, the site has been assigned a low priority. The remainder of this report summarizes the site information and the designation decision.

BACKGROUND

Site Function

The following information is based on an authority review and determination (Williams 1992) dated September 21, 1992.

Alba Craft Laboratory, Incorporated, was a subcontractor to National Lead of Ohio (NLO) from approximately October 1952 until February 1957. Alba Craft provided a variety of machine shop services on normal uranium metal for NLO. Early work included general machining and developmental machining of Savannah River threaded slugs. Final operations were on a production scale and consisted of hollow drilling and turning slugs for the Savannah River and Hanford reactors. The total quantity of uranium machined by Alba Craft is unknown; a rough estimate is several hundred tons. Records from 1953 suggest machining of 2,000 slugs; an accountability survey in July 1955 recorded 20,124 Kg of normal uranium on site; and 1956 contract records indicate machining (hollowing) approximately 110,000 slugs. During 1954, NLO supplied its own operators for machining, and quantities were not recorded.

The last contract, covering the period September 1956 to February 1957 and accounting for the bulk of site operations, provided health and safety services to Alba Craft by NLO. Also, NLO supervised and reimbursed Alba Craft for plant decontamination. Disposition of machining equipment removed from the building is unknown.

Site Description

The following is based on two trip reports (Murray 1992a & 1992b).

Designation Summary
Alba Craft Laboratory, Oxford

The former Alba Craft Laboratory facility is located at 10-14 West Rose Avenue, Oxford, Ohio. The facility is "U" shaped (open on the south side) with a total area of approximately 7,000 to 8,000 square feet. The east wing now contains an office, a conference room, and a small water chemistry laboratory, all of which have been remodeled with carpeting, drop ceiling, and sheetrock walls. The west wing is being used to produce embroidered shirts and other items with customized logos. The area contains computerized stitching machines, supplies and other miscellaneous equipment. The north end of the building is used for warehousing packaged foods.

The building is located in a residential neighborhood. An apartment building is located approximately 20 feet from the rear of the "Alba" building.

Owner History

Butler County records indicate that Alba Craft Laboratories, Inc., owned the property until May 1988. Dr. and Mrs. Gilbert Pacey of Oxford, Ohio, are the current owners of the site.

Radiological History and Status

The following is based on two trip reports (Murray 1992a & 1992b) and the authority review (Williams 1992).

NLO conducted industrial hygiene surveys at the site in August 1954 and January 1956, prior to the July-December 1956 hollow slug campaign. The maximum dust sample measured 196 disintegrations per minute per cubic meter. The highest occupational dose was approximately 15 mR/hr. The site was decontaminated during the month of January 1957. Residual alpha readings were below current guidelines; however, surface dose rates for beta and gamma radiation measured .9 mR/hr and .03 mR/hr, respectively. The decontamination report notes that a large amount of contamination was forced out of the rear door of the building and onto the ground. The soil was drummed and shipped to Fernald. The remaining soil was sampled and the maximum uranium concentration exceeded current DOE clean-up criteria.

In 1992, soil samples contained residual radioactive contamination with most occurring in the first 6 inches of soil. The concrete pad on the south side of the building is a combination of old and new concrete and some apparently poured within the last month. Generally all of the old concrete is contaminated. There are also gamma readings with no measurable beta which indicates subsurface contamination. This was further substantiated when an excavated piece of the old concrete was found to have contamination on the underneath side.

The indoor gamma rate average fell within DOE guidelines. Generally, all of the floor surfaces were contaminated to some extent. Contamination on the walls was spotty and usually occurred near the floor. Window ledges,

electrical switch boxes, old work benches, and other horizontal surfaces where dust could settle and be undisturbed showed contamination. Most overhead structures such as electrical junction boxes, lights, and trusses were found to be contaminated. Most of the building has levels of contamination in excess of the applicable DOE guidelines.

Authority Review

In 1992, the DOE determined that it had authority to conduct a radiological survey and on-site investigations at this site (USDOE 1986, Williams 1992). This determination was based on the following factors.

- Available records indicate that Alba Craft was directly supervised by the AEC prime contractor. During one time period, the prime contractor furnished operators for the machine equipment. The AEC approved the use of the facility.
- Accountability of uranium was controlled by the AEC directly.
- As a part of the operations at the site, there were requirements concerning security, health, and safety. These were controlled by the AEC directly by approval of subcontracts and carried out through its prime contractor.
- The uranium machined at the site was owned by the government. Other government-owned property was furnished to support the production activities.
- Final cleanup of the facility was directly supervised by the prime contractor.

DESIGNATION DETERMINATION

Available records indicate a direct AEC involvement in the uranium machining operation conducted at the Alba Craft facility. A radiological survey indicates that uranium remains on the premises; this residual uranium is the result of the AEC work at the facility. Based on a review of the available historic documents, DOE has authority to perform the needed remedial action at the Alba Craft site.

REFERENCES

Murray, M. E. 1992a: Trip Report for the June 8, 1992, visit to the Former Alba Craft Laboratory, 10-14 West Rose Avenue, Oxford, Ohio. USDOE; June 12.

Murray, M. E. 1992b: Trip Report: Radiological Survey at the Former Alba Craft Laboratory, Oxford, Ohio, July 9, 1992. USDOE, August 12.

United States Department of Energy (USDOE), 1986: Formerly Utilized Sites Remedial Action Program, Summary Protocol, Identification - Characterization - Designation - Remedial Action - Certification. Office of Nuclear Energy, January.

USDOE, 1987: U.S. Department of Energy Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites. Revision 2, Office of Nuclear Energy, March.

USDOE, 1990: Radiation Protection of the Public and the Environment. Office of Environment, Safety, and Health, February 8.

Williams, W. A. 1992: Authority Determination -- Alba Craft Laboratory, Oxford, Ohio. USDOE, September 21.

DOE F 1325.8
(8-89)
EFG (07-90)

United States Government | Department of Energy

memorandum

DATE: SEP 21 1992

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

SUBJECT: Authority Determination--Alba Craft Laboratory, Oxford, Ohio

TO: The File

The attached review, documents the basis for determining whether DOE has authority for taking remedial action at the former Alba Craft Laboratory Site in Oxford, Ohio, under the Formerly Utilized Sites Remedial Action Program (FUSRAP). The Alba Craft facility was used by the AEC's prime contractor for uranium metal machining from 1952 until 1957. The following factors are significant in reaching an authority determination:

- Available records indicate that Alba Craft was directly supervised by the AEC prime contractor. During one time period, the prime contractor also furnished operators for the machine equipment. The AEC approved the use of the facility;

- Accountability of uranium was controlled by the AEC directly;

- As a part of the operations at the site, there were requirements concerning security, health, and safety. These were controlled by the AEC directly by approval of subcontracts and carried out through its prime contractor;

- The uranium machined at the site was owned by the government. Other government owned property was furnished to support the production activities; and

- Final cleanup of the facility was directly supervised by the prime contractor.

A draft copy of a previous tentative authority review was furnished to the Office of General Counsel for review. The Office of General Counsel has indicated that the prior review is adequate and that additional review is not necessary for a final authority determination.

After review of the available original records and the authority review, I have determined that the Department of Energy has authority to conduct remedial action at the former Alba Craft Laboratory site in Oxford, Ohio.

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

Attachment

cc:
S. Miller, GC-11

bcc:
Weston

Distribution:
EM-40 (2)
EM-42 (3)
Williams Reader

EM-421:wagoner:djn:903-8145:9/15/92:alba2.aut

Wagoner
EM-421
9/21/92

Williams
EM-421
9/15/92

Authority Review For
Former Alba Craft Laboratory
10-14 West Rose Avenue
Oxford, Ohio

INTRODUCTION

As part of the Formerly Utilized Sites Remedial Action Program (FUSRAP), the U.S. Department of Energy (DOE) has reviewed available information on the Alba Craft Laboratory site in Oxford, Ohio. The site is being reviewed for potential inclusion in FUSRAP, which applies to certain sites previously involved with activities of the Manhattan Engineering District (MED) or U.S. Atomic Energy Commission (AEC), both DOE predecessors. Such sites may require remedial action if they have residual contamination from those previous activities. This review is conducted to determine whether DOE has the authority to perform needed remedial action at the site.

The former Alba Craft Laboratory, located in Oxford, Ohio, machined uranium slugs for National Lead of Ohio (NLO), a prime AEC contractor, from 1952 to 1957. NLO also used the Alba Craft facilities in 1954 and supplied its own operators and material for machining.

The information presented in the following sections is in summary form. Pertinent references are identified in the text.

OPERATIONAL HISTORY

Alba Craft Laboratory, Incorporated was a subcontractor to NLO from approximately October 1952 until February 1957. Alba Craft provided a variety of machine shop services on normal uranium metal for NLO. Early work included general machining and developmental machining of Savannah River threaded slugs. Final operations were on a large production scale and consisted of hollow drilling and turning slugs for Savannah River and Hanford reactors. The total quantity of uranium machined by Alba Craft is unknown; a rough estimate is several hundred tons. Records from 1953 suggest machining of 2,000 slugs; an accountability survey in July 1955 recorded 20,124 Kg of normal uranium on site; and 1956 contract records indicate machining (hollowing) approximately 110,000 slugs. During 1954 NLO supplied its own operators for machining, and quantities were not recorded.

Two early contracts between NLO and Alba Craft contain clauses which indemnify NLO and the Atomic Energy Commission/U.S. Government from all claims by Alba Craft. The last contract, covering the period September 1956 to February 1957 which accounted for the bulk of site operations, does not have an indemnification clause. In addition to providing health and safety services in the last contract, NLO supervised and reimbursed Alba Craft for plant decontamination. References a through j support the foregoing discussion.

CURRENT CONDITIONS

NLO conducted industrial hygiene surveys at the site in August 1954 and January 1956 prior to the July-December 1956 hollow slug campaign. The maximum dust sample measured 196 disintegrations per minute per cubic meter. The highest occupational dose was approximately 15 mR/hr. The site was decontaminated during the month of January 1957. Residual alpha readings were below current guidelines; however, surface dose rates for beta and gamma radiation measured .9 mR/hr and .03 mR/hr, respectively. The decontamination report, reference k, notes that a large amount of contamination was forced out of the rear door of the building and onto the ground. The soil was drummed and shipped to Fernald. The remaining soil was sampled and the maximum uranium concentration measured was .09 percent, or 300 pCi/gram of Uranium-238. The current site-specific clean up criterion for FUSRAP sites ranges from 35-150 pCi/gram.

In 1991, a brief, curb-side inspection of the site was conducted by a DOE representative (reference k). The visit confirmed that the building at West Rose Avenue is the former Alba Craft Laboratory machining site. The building is located in a residential neighborhood. An apartment building is located approximately 20 feet from the rear of the "Alba" building. Disposition of the machining equipment is not known.

On June 8, 1992, personnel from Oak Ridge National Laboratory (ORNL) visited the facility and determined that residual uranium in excess of DOE guidelines was present at the site. From July 27 through July 31, 1992, ORNL conducted a radiological survey at the site and determined that surface contamination within the building and soil contamination outside the building were in excess of DOE Order 5400.5, Chapter IV. These findings show clear evidence of residual uranium at the site (Reference 1).

AUTHORITY ANALYSIS

The authority determination is made according to the FUSRAP protocol by considering the answers to five questions based on available records. The answers to these questions, based on a review of available information, are provided below.

- Was the site/operation owned by a DOE predecessor or did a DOE predecessor have significant control over the operations or site?

  DOE and its predecessors have never owned the site. The AEC selected the site, surveyed it for security purposes, and approved NLO subcontracts. NLO was responsible for Health Physics protection. NLO conducted an industrial survey, monitored Alba Craft employees for radiation exposure, provided protective equipment, and supervised the cleanup of the site by Alba Craft (reference k). These conditions constitute the controls that NLO and the AEC exercised over the Alba Craft Laboratory operations.

- Was a DOE predecessor agency responsible for maintaining or ensuring the environmental integrity of the site (i.e., was it responsible for cleanup)?

  NLO conducted industrial health and safety services. NLO also reimbursed Alba Craft for and supervised the conduct of site decontamination. The AEC did not add a Nuclear Hazards Indemnity clause to NLO's contract until September 1958. NLO subcontracts number S-14, S-18, S-44, and S-58 with Alba Craft contain an indemnification provision in which Alba Craft agrees to indemnify and hold NLO and the AEC harmless from any claims. The last subcontract, number S-247, does not contain an indemnification provision. The majority of machining and site clean-up were conducted under subcontract S-247.

- Is the waste or radioactive material on the site the result of DOE predecessor related operations?

  Yes. DOE predecessor operations are the most likely cause of the residual radioactivity that remain at the site.

- Is the site in need of further clean-up and was the site left in a non-acceptable condition as a result of DOE predecessor related activity?

  Yes. The site clearly requires clean-up as a result of DOE predecessor activities.

- Did the present owner accept responsibility for the site with the knowledge of its contaminated condition and that additional remedial measures are necessary before the site is acceptable for use without radiological restrictions?

  There is no evidence that the present owner was aware of the contaminated condition or that the present owner was aware of the prior uranium machining activity.

DISCUSSIONS AND CONCLUSIONS

Surveys of the former Alba Craft Laboratory site indicate residual uranium contamination from machining of uranium for the AEC.

Based upon the results of the survey and reference materials, there is sufficient evidence to indicate authority for remedial action at the former Alba Craft Laboratory site under the Atomic Energy Act through FUSRAP.

COPIES OF REFERENCES

a. AEC Letter, S. R. Sapirie to E.J. Block, "Request for Approval to Survey ORO Facilities and Geographical Areas Assigned to Other Operations Offices," December 23, 1955.

b. NLO Subcontract Number S-14 with Alba Craft Shop dated November 4, 1952.

c. NLO Subcontract Number S-18 with Alba Craft Shop dated November 14, 1952, and supplemental agreement dated April 24, 1953.

d. NLO Subcontract Number S-44 with Alba Craft Shop dated July 20, 1953, and five amendments.

e. NLO Subcontract Number S-58 with Alba Craft Shop dated October 8, 1953, and three letter extensions.

f. NLO Subcontract Number S-247 with Alba Craft Laboratory, Inc. dated September 11, 1956, and two amendments.

NOTE: Subcontract Number S-177 for work performed from November 15, 1955, through June 30, 1956, has not been located.

g. NLO Plant Assistance and Development Proposal and Authorization for reopening the Alba Craft Shop development contract, dated June 24, 1953.

h. Letter dated September 16, 1955, from S. R. Sapirie, Oak Ridge Operations, to C. L. Karl, Fernald Area, "SS Accountability Surveys Numbers 75 (Alba Craft) and 77."

i. Letter dated February 3, 1956, from C. E. Schumann and J. A. Huesing, NLO, to J. A. Quigley, M.D., NLO, "Trip Report to Alba Craft Laboratory on January 23, 1956."

j. Letter dated March 11, 1957, from R. L. Ruhe and C. E. Schumann, NLO to J. A. Quigley, M.D., NLO, "Decontamination of Alba Craft Laboratories, Oxford, Ohio."

k. Memo dated July 3, 1991, from G. W. Westerbeck, Fernald Office, to W.A. Williams, DOE-Germantown, "Request for Information - Alba Craft Laboratories."

l. Letter dated June 12, 1992, from M. E. Murray, ORNL, to W.A. Williams, DOE-Germantown, "Trip Report for the June 8, 1992, Visit to the former Alba Craft Laboratory, 10-14 West Rose Avenue, Oxford, Ohio. Letter dated August 12, 1992, from M. E. Murray to W. A. Williams, "Trip Report: Radiological Survey of the Former Alba Craft Laboratories, Oxford, Ohio, July 9 [sic], 1992." M. E. Murray et al., Radiological Survey of the Former Alba Craft Laboratory, 10-14 West Rose Avenue, Oxford, Ohio, in preparation.

OH.22
FUSRAP

OAK RIDGE NATIONAL LABORATORY
MANAGED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE U.S. DEPARTMENT OF ENERGY

POST OFFICE BOX 2008
OAK RIDGE, TENNESSEE 37831

June 12, 1992

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

Dear Dr. Williams:

Trip Report for the June 8, 1992 Visit to the former Alba Craft Laboratory, 10-14 West Rose Avenue, Oxford, Ohio

On June 8, 1992, W. D. Cottrell and M. E. Murray visited the subject facility to ascertain its current condition and to determine the time and resources necessary to conduct an adequate radiological survey of the facility. The current owner, Gilbert Pacey, met Mr. Cottrell and Mr. Murray at the facility, briefed them on the current activities and planned uses of the facility and gave them free access to tour the building.

The facility is "U" shaped with the open area on the south side with a total area of approximately 7000 to 8000 square feet. The east wing contains an office, a conference room and a small water chemistry laboratory, all of which have been remodeled with carpeting, drop ceiling, and sheetrock walls. The west wing is being used to produce embroidered shirts and other items with customized logos. The area contains computerized stitching machines, supplies and other miscellaneous equipment. The north end of the building is being remodeled with plans for using this area for warehousing packaged foods.

Uranium contamination was found in concrete expansion joints, on the tops of lighting fixtures, the upper side on roof support beams and in the soil between the building and the street. Portable survey instruments gave direct measurements as high as 5 mrad/h in the concrete expansion joints, 0.8 mrad/h on the lighting fixtures, and 1 mrad/h on the roof supports. An additional spot of contamination was found on the outside of the north wall below a door that measured 15 mrad/h. Preliminary results of soil and debris samples indicate that the contamination is normal uranium. The ^{238}U concentration in one surface soil sample indicated levels in excess of 2000 pCi/g. The contamination on the roof beams and the lighting fixtures is easily removable.

The owner was advised that under present use conditions, the contamination does not present a significant health risk to the occupants. He was further advised to contact W. A. Williams, DOE, (301) 903-8149, prior to performing any additional work which might cause contamination to become airborne.

Please contact W. D. Cottrell (615) 574-5834 or M. E. Murray (615) 574-5838 for additional details concerning these observations or radiological survey requirements.

Sincerely,

M E Murray

M. E. Murray
Measurement Applications
and Development Group

MEM:ec

c: W. D. Cottrell
R. D. Foley
R. E. Rodriguez
P. S. Rohwer
R. E. Swaja

FILE COPY

OAK RIDGE NATIONAL LABORATORY
MANAGED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE U.S. DEPARTMENT OF ENERGY

POST OFFICE BOX 2008
OAK RIDGE, TENNESSEE 37831

June 12, 1992

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

Dear Dr. Williams:

Trip Report for the June 8, 1992, visit to the Force Controls Industries (formerly Associate Aircraft), 3660 Dixie Highway, Fairfield, Ohio

On June 8, 1992, W. D. Cottrell and M. E. Murray visited the subject facility to ascertain its current condition and to determine the time and resources necessary to conduct an adequate radiological survey of the facility. James Besl, facility manager, and senior staff met with Mr. Cottrell and Mr. Murray at the facility, briefed them on the current activities and gave them free access to tour the building. The entire facility is an operating machine shop with a total area of approximately 20,000 to 25,000 square feet.

Uranium contamination was found in some concrete expansion joints and ont he upper side on roof support beams. Portable survey instruments gave direct measurements as high as 3 mrad/h in the concrete expansion joints and .5 mrad/h on the roof supports. A cursory walkover identified one spot in a concrete expansion joint which has a gamma level of 120 μR/h at contact. Preliminary results of the dust and debris samples indicate that the contamination is normal uranium. The contamination on the roof beams is held in place by an oily/greasy/dirt residue but is easily removed by wiping. A roof beam location selected at random had a removable contamination level of approximately 5000 dpm/100 cm^2.

Mr. Besl was advised that under present use conditions, the contamination does not present a significant health risk to the occupants of the building.

Please contact W. D. Cottrell (615/574-5834) or M. E. Murray (615/574-5838) for additional details concerning these observations or radiological survey requirements.

Sincerely yours,

Michael E. Murray
Health and Safety Research Division

MEM:sh

cc: W. D. Cottrell
R. D. Foley
R. E. Rodriguez
P. S. Rohwer
R. E. Swaja

OH.2

OAK RIDGE NATIONAL LABORATORY
MANAGED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE U.S. DEPARTMENT OF ENERGY

POST OFFICE BOX 2008
OAK RIDGE, TENNESSEE 37831

August 12, 1992

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

Dear Dr. Williams:

Trip Report: Radiological Survey of the Former Alba Craft Laboratories, Oxford, Ohio, July 9, 1992

Beginning on July 27 and continuing through July 31, a radiological survey was conducted at the referenced facility. This letter is intended to provide highlights of the survey. In addition to Dr. W. A. Williams, a number of others visited the site for various reasons. David Adler, Department of Energy (DOE)- Oak Ridge Field Office, came for a couple of hours on July 27 and Gerald Palau, Dennis Smith, and Robert Orewiler of Bechtel were on site July 30 and 31.

Survey methods included gamma radiation measurements using NaI detectors (typical background of 2500 to 3500 counts per minute); beta/gamma measurements with GM "pancake" probes (typical background is less than 60 cpm); alpha measurements with ZnS "beer mug" detectors, and exposure measurements with a pressurized ion chamber (PIC). All accessible grounds and floors, approximately half of the interior walls, most overhead structures with flat surfaces, selected overhead trusses, parts of the flat roof reachable without actually being on the tar surface, and other miscellaneous areas where there was potential for contamination to exist, were surveyed. Smear samples were taken of both floor and overhead surfaces to determine if the contamination was transferrable. Systematic and biased soil samples were collected near the building. The air inside the building was sampled for particulate contamination at various locations.

At the request of Dr. W. A. Williams and one of the building occupants, a urine sample was collected from the occupant who expressed concern about possible internal contamination during the remodeling work in the office area of the building. The urine sample was collected according to the Oak Ridge National Laboratory (ORNL) procedure and submitted for uranium analysis.

Biased soil samples were collected on all but the east side of the building, with the highest surface gamma reading of 60,000 cpm and most of the contamination occurring in the first six inches of soil. Systematic soil samples were collected on the south and west sides of the building. The concrete pad on the south side of the building is a combination of old and new concrete and some apparently poured within the last month. Generally all of the old concrete showed contamination with spots as high as 15,000 cpm beta. There are also spots where the gamma reading was 10,000 cpm with no measurable beta which indicates subsurface contamination. This was further substantiated when an excavated piece of the old concrete was found to have contamination on the underneath side.

Generally all of the floor surfaces were contaminated between 200 and 500 cpm beta with high spots up to 30,000 cpm beta, 70,000 cpm gamma, and 162 cpm alpha. Contamination on the walls was

spotty and usually occurred near the floor with the highest spot being 9000 cpm beta. Window ledges, electrical switch boxes, old work benches, and other horizontal surfaces where dust could settle and be undisturbed showed contamination. Most overhead structures such as electrical junction boxes, lights, and trusses were found to be contaminated up to 15,000 cpm beta. After the instrument readings have been corrected for detector efficiencies, most of the building has levels of contaminations in excess of the applicable guidelines given in DOE Order 5400.5.

The roof of the building is a flat tar surface consisting of wooden planks on metal trusses for support. The roof has been replaced since the work with the uranium ceased. The wooden planks were checked from underneath with only trace contamination found in a few locations. A limited survey of the exterior roof only found a few slightly contaminated spots on the edge of the masonry structure.

The PIC measurements indicated the average indoor exposure rate to be less than six μR/h.

The air, soil, urine, and smear samples have not been analyzed at this time. The results of these analysis will be relayed to you when available. The remaining work consists of surveying the vicinity properties and tying up some loose ends. We plan to finish the Oxford site concurrent with the Fairfield survey, probably in September.

If there are any questions concerning this survey, please contact Richard Mathis (615) 574-5832 or Michael Murray (615) 574-5838.

Sincerely,

Michael E. Murray
Measurement Applications
and Development Group

MEM:ec

c: W. D. Cottrell
R. A. Mathis
R. E. Swaja