



## SITE CERTIFICATION SUMMARY

This Site Certification Summary provides information about the **Oxford, Ohio, Site**. The U.S. Department of Energy Office of Legacy Management is responsible for long-term stewardship of the site under the **Formerly Utilized Sites Remedial Action Program**.

### Site Description and History

The Oxford, Ohio, Site (formerly the Alba Craft Laboratory site) is located about 35 miles northwest of Cincinnati. The site comprises:

- The former Alba Craft Laboratory property at 10-14 West Rose Avenue.
- Vicinity properties at:
  - 525 South Main Street.
  - 9 West Rose Avenue.
  - 550 South Main Street.
  - West Rose Avenue.

From October 1952 to February 1957, Alba Craft Laboratory, Inc., which was a primary contractor for the U.S. Atomic Energy Commission, worked under a subcontract to National Lead of Ohio (NLO). NLO provided a variety of machine shop services for natural uranium metal, including hollow drilling and turning of metal slugs used in the nuclear reactors in Savannah River, South Carolina, and Hanford, Washington. Before remediation occurred at the Oxford site, the Alba Craft Laboratory building was demolished because of poor structural conditions and extensive contamination.

### Site Remediation Timeline

**June to September 1992** — The Oak Ridge National Laboratory (ORNL) investigated the Oxford site.

**March 1993** — The Oxford site was designated for remediation under the Formerly Utilized Sites Remedial Action Program (FUSRAP).

**August 1993** — ORNL conducted a radiological survey of the 525 South Main Street property.

**August 22, 1994 to January 5, 1995** — The U.S. Department of Energy (DOE) remediated the Oxford site.

**December 1994** — ORNL completed independent verification surveys at the site.

**November 26, 1996** — DOE published a notice of certification of the radiological condition in the Federal Register.

**Fiscal Year 2004** — DOE transferred responsibility for the Oxford site to the DOE Office of Legacy Management (LM).



The Alba Craft Laboratory building before remediation (date unknown).

*Map of the excavation areas at the Alba Craft Laboratory building and vicinity properties. (Click image to enlarge.)*

## Certification Docket Contents

The [Certification Docket](#) documents the successful remediation of radioactively contaminated areas at the Oxford site. The docket includes documents supporting DOE certification that the subject properties comply with applicable radiological guidelines and standards. In addition, the certification docket provides documents certifying that the use of the properties will not result in any measurable radiological hazard to the general public.

## Other Investigated Areas

In addition to the properties on West Rose Avenue and South Main Street, three other locations were investigated for potential radioactive contamination. 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 may have received unauthorized shipments of material from the laboratory site during the summer 1992. The investigation indicated that the risk of exposure to radioactive material above current guidelines was minimal, the probability of detection was low because of the depth of the material, and the costs associated with finding the material were too large to warrant further investigations at these two locations.

Gaskin Hall at Miami University in Oxford was surveyed because the Process Control Laboratory may have been used by the former owner of the Alba Craft Laboratory. ORNL completed walkover surveys at all locations and collected soil samples from areas with elevated survey readings. Results indicated that no uranium material above DOE standards was present.

## Remedial Action

Remedial activities at the Oxford site were performed from August 1994 to January 1995 as part of FUSRAP. See the [Fact Sheet](#) for details.

FUSRAP objectives for the site were to:

- Identify and assess sites formerly used in support of nuclear work to determine whether further decontamination and/or control is needed.
- Decontaminate and/or apply controls to the sites to achieve compliance with current applicable guidelines.
- Dispose or stabilize all resulting residues in an environmentally acceptable manner.
- Accomplish all work in accordance with appropriate landowner agreements and environmental and land use requirements.
- 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.



*Demolition of the Alba Craft Laboratory building (October 1994).*

## Post-Remediation Sampling

After each portion of the site was decontaminated, a radiological survey of the area was conducted to confirm that all radioactive contamination above the cleanup criteria had been removed. Survey techniques included transferable and nontransferable surface contamination measurements, walkover gamma scans, exposure rate measurements, and soil sampling.

### Former Alba Craft Laboratory Site and Vicinity Properties at 550 South Main Street and West Rose Avenue

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 a maintenance hole (referred to as “manhole” in the certification docket) located north of West Rose Avenue and on the pipeline that extended onto 550 South Main Street. Post-remedial action survey measurements ranged from 112 to 1,142 disintegration per minute (dpm)/100 square centimeters (cm<sup>2</sup>) for direct contamination (the guideline is below 5,000 dpm/100cm<sup>2</sup>) and less than the minimum detectable activity for transferable surface contamination.

After remediation, external gamma-exposure rate measurements were obtained using a pressurized ionization chamber. Results from these surveys ranged from 7.5 to 11.6 microrentgens (μR/h), which included background readings for the Oxford, Ohio, area. The guideline for gamma exposure is less than 20 μR/h above background. Sampling for post-remediation concentrations of total uranium occurred where the main Alba Craft Laboratory building once existed, including areas along West Rose Avenue and at 9 West Rose Avenue. Uranium concentrations in composite soil samples ranged from 2.2 to 25.6 picocuries per gram (pCi/g), below the site-specific cleanup guideline of 35 pCi/g.

## Vicinity Property at 525 South Main Street

Before remediation began, DOE discovered that the former owner of the Alba Craft Laboratory building had lived at 525 South Main Street and that developmental machining operations were conducted inside the garage of the residence, resulting in contamination by uranium turnings, filing, and small particles. The home's interior and exterior required remediation.

Post-remedial action surveyed all decontaminated surfaces inside the dwelling, including areas in the den, upstairs, and in the garage. All survey results were well below the DOE guidelines.

For more detailed results of the post-remediation sampling, please see the [Site Certification Data Summary Worksheet](#) on pages 4-6. For a more detailed map of the site and sampling locations, please see the [Site Overview Map](#) on page 7.

Because the remedial activities at the Oxford site took place before October 1997, residual contamination guidelines from DOE Order 5400.5, *Radiation Protection of the Public and the Environment*, were met. Sites remediated after October 1997 must meet the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq.), as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300).

## Current Site Conditions

Post-remedial action surveys and samples have demonstrated, and DOE has certified, that the properties comply with applicable DOE standards and criteria. An independent radiological verification survey also verified that the residual uranium contamination at the Oxford site is below FUSRAP guidelines for unrestricted use.

DOE has been responsible for long-term stewardship of the Oxford site since 2004. The stewardship requirements and protocols are captured in the Long-Term Stewardship Plan for Completed FUSRAP Sites, which is available on the DOE Office of Legacy Management website ([www.energy.gov/lm/oxford-ohio-site](http://www.energy.gov/lm/oxford-ohio-site)).



## ADDITIONAL INFORMATION

Documents related to FUSRAP activities at the Oxford, Ohio, Site are available on the LM website at [lmpublicsearch.lm.doe.gov/SitePages/default.aspx?sitename=Oxford](http://lmpublicsearch.lm.doe.gov/SitePages/default.aspx?sitename=Oxford).

For other information on site history or current long-term stewardship activities, please contact us at:

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**2597 Legacy Way**  
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DOE Office of Legacy Management  
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# Oxford, Ohio, Site Certification Data Summary Worksheet

Five tables in the Oxford Certification Docket provide the evidence used to certify the site as clean.

When the tables refer to the "Certification Docket," that is the "Certification Docket for the Remedial Action Performed at the Alba Craft Laboratory and Vicinity Properties Site in Oxford, Ohio" (dated January 1997).

Post-Remedial Action Measurements in Drainpipe and Manhole		
Table I-3 in Certification Docket (page I-20)		
Location	Direct Beta/Gamma Results (dpm/100 cm <sup>2</sup> )	Transferable Beta/Gamma Results (dpm/100 cm <sup>2</sup> )
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
NOTES: Guidelines for residual contamination come from Table I-1 on page I-10 in the Certification Docket. "<" sign indicates that the measurement is less than the minimum detectable activity (MDA). "<-" 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 "<-").		

Post-Remedial Action Sampling Results				
Table I-4 in Certification Docket (page I-21)				
Grid	Sample No. <sup>a</sup>	Uranium-238 (pCi/g)	Total Uranium <sup>b</sup> (pCi/g)	Gamma Exposure <sup>b</sup> Rate (μR/h)
1	10994091	8.5	16.9	10.5
2	10994092	6.0	12.0	11.3
3	10994056	<1.7	3.4	10.6
4	10994057	3.4	6.8	10.3
5	10994029	<2.0	4.0	10.6
6	10994030	2.1	4.2	11.6
7	10994043	<1.6	3.2	10.8
8	10994044	3.2	6.4	8.4
9	10994099	3.5	7.0	9.8
10	10994063	1.6	3.2	10.2
12	10994045	2.6	5.2	8.3
13	10994105	6.1	12.2	9.0
14	10994065	12.9	25.6	7.9
16	10994066	3.6	7.2	10.2
17	10994106	10.3	20.6	8.7
18	10994072	5.0	10.0	9.1
19	10994094	2.3	4.6	8.9
20*	10994078	12.9	25.8	7.5
22*	10994073	4.3	8.6	8.5
23*	10994069	3.7	7.4	10.1
24***	10994075	2.3	4.6	8.6
27*	10994089	8.7	17.4	10.0
28**	10994079	7.0	14.0	7.5
29**	10994082	1.1	2.2	8.2
Guidelines			35	— <sup>c</sup>
NOTE: Guidelines for residual contamination come from Table I-1 on page I-10 in the Certification Docket. <sup>a</sup> All sample numbers 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 20μR/h above background for habitable structures or a maximum of 100 mrem/yr from all pathways except Radon. *These locations are part of the West Rose Avenue, adjacent to the lab building, vicinity property. **These locations are part of the 9 West Rose Avenue vicinity property. ***This location is part of the 550 South Main Street property. NOTE: "<" indicates that the sample result is less than the minimum detectable activity.				



## Oxford, Ohio, Site Certification Data Summary Worksheet

### Summary of Post-Remedial Action Radiological Survey Results for 525 South Main Street

Table I-5 in Certification Docket (page I-28)

Direct Surface Contamination					Transferable Contamination			
	Alpha		Beta/Gamma		Alpha		Beta/Gamma	
	Sample Activity Range (dpm/100 cm <sup>2</sup> )	Number of Measurements/ Number below Criteria <sup>a</sup>	Sample Activity Range (dpm/100 cm <sup>2</sup> )	Number of Measurements/ Number below Criteria <sup>a</sup>	Sample Activity Range (dpm/100 cm <sup>2</sup> )	Number of Measurements/ Number below Criteria <sup>a</sup>	Sample Activity Range (dpm/100 cm <sup>2</sup> )	Number of Measurements/ Number below Criteria <sup>a</sup>
Room/Location								
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 in 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
DOE Guideline <sup>e</sup>	5,000		5,000		1,000		1,000	

NOTE: Guidelines for residual contamination come from Table I-1 on page I-10 in the Certification Docket.

<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>Surveys 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.

## Oxford, Ohio, Site Certification Data Summary Worksheet

### Post-Remedial Action Soil Samples from the Crawl Space at 525 South Main Street

Table I-7 in Certification Docket (page I-31)

#### Uranium Concentration (pCi/g) in Soil Samples

	Gamma Spectroscopy Results	Alpha Spectroscopy Results				
Sampling Location	Uranium -238	Uranium-238	Uranium-234	Uranium-235	Total Uranium <sup>a</sup>	Number of Sampling Locations
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.

#### NOTES:

Guidelines for residual contamination come from Table I-1 on page I-10 in the Certification Docket.

“<” sign indicates that the measurement is less than the minimum detectable activity.

### Post-Remedial Action Sample Results for 525 South Main Street

Table I-8 in Certification Docket (page I-32)

Grid	Sample No. <sup>a</sup>	Uranium-238 (pCi/G)	Total Uranium <sup>b</sup> (pCi/g)	Gamma Exposure Rate <sup>b</sup> (μR/h)
44	10994033	6.9	13.8	9.1
45	10994034	2.9	5.8	9.1
46	10994035	4.2	8.4	9.1
47	10994036	1.6	3.2	9.5
48	10994037	6.7	13.4	9.9
49	10994038	3.3	6.6	9.9
50	10994070	6.6	13.2	9.9

DOE Guidelines

35

——c

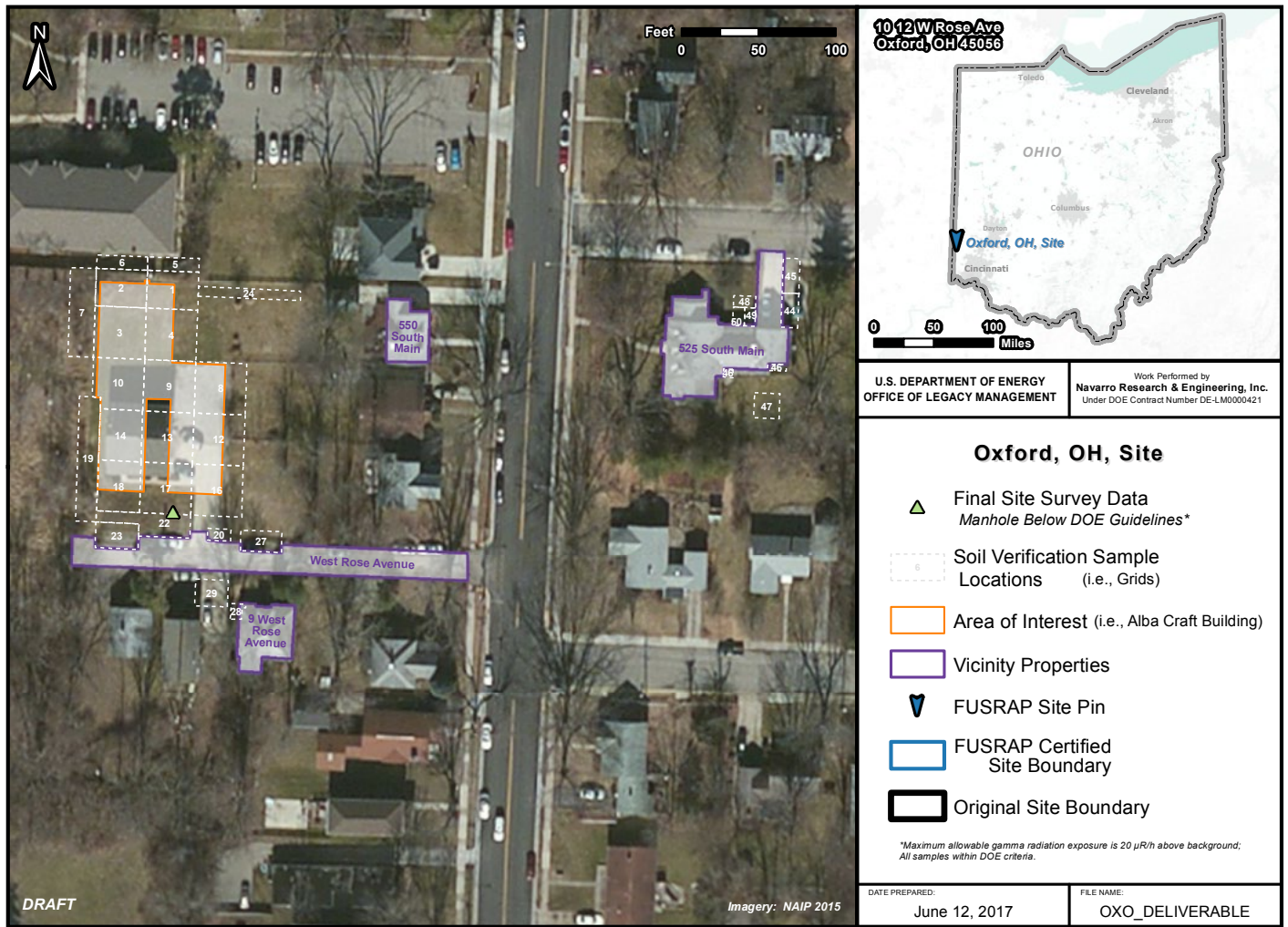
Guidelines for residual contamination come from Table I-1 on page I-10 in the Certification Docket.

<sup>a</sup>All sample numbers 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.

# Oxford, Ohio, Site Map



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