Fairfield, Ohio, Site





This Site Certification Summary provides information about the **Fairfield, 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 Fairfield, Ohio, Site (formerly the Associate Aircraft site) is located at 3660 Dixie Highway, about 15 miles northwest of Cincinnati. The site is comprised of the former Associate Aircraft building and an exterior parking lot shared by two other companies. The U.S. Atomic Energy Commission (AEC) and National Lead of Ohio contracted with Associate Aircraft Tool and Manufacturing Company to machine hollow slugs from natural uranium (i.e., neither depleted nor enriched) from February to September 1956 for the Hanford reactor in Washington and the Savannah River reactor in South Carolina. The primary activities included machining, hollow drilling, reaming, and turning slugs to a final outside diameter. Records suggest that Associate Aircraft machined about 95,000 slugs during the eight-month contract.

Site Remediation Timeline

October and November 1956 — The site was decontaminated to levels considered acceptable under the regulations in effect at that time.

June 1992 — Uranium contamination was found in some concrete expansion joints and on several overhead horizontal surfaces.

September 14 through 18, 1992 — Oak Ridge National Laboratory conducted a radiological survey of the remainder of the property, identifying additional residual uranium contamination inside the building and in isolated spots outdoors.

1993 — The Fairfield, Ohio, Site was designated for remedial action under the Formerly Utilized Sites Remedial Action Program (FUSRAP).

December 1994 to June 1995 — Bechtel National Inc. (BNI) defined the extent of contamination and performed remedial-design engineering and remedial action at the Fairfield site.

September 16, 1996 — The U.S. Department of Energy (DOE) published a notice of cleanup certification for the site in the Federal Register.

Certification Docket Contents

The Certification Docket documents the successful decontamination of radioactively contaminated areas at the Fairfield site in 1994 and 1995. The docket includes documents supporting DOE certification that conditions at the subject property comply with the criteria and standards applicable to the property. In addition, the certification docket provides documents certifying that the use of the property will not result in any significant radiological hazard to the general public from residual radioactivity that originated during activities conducted by DOE or its predecessor agencies.

Remedial Action

BNI remediated the Fairfield site from December 1994 to June 1995 as part of the FUSRAP. To accomplish remedial action tasks without adversely affecting ongoing site production activities, the contaminated portions of the building were subdivided into eight zones, and remedial action proceeded in a phased approach. The decontaminated components in each zone — including roof trusses, walls, floors, and expansion and crack-control joints — were very similar. See the Fact Sheet for details.

FUSRAP objectives for the Fairfield site were to:

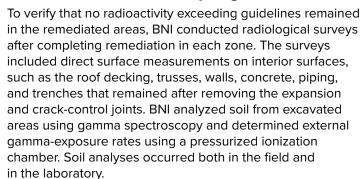
- Identify and assess sites formerly utilized in support of early Manhattan Engineer District (MED)/AEC nuclear work to determine whether further decontamination or control is needed.
- Decontaminate or apply controls to the sites, where needed, to permit conformance to current applicable guidelines.

- Dispose of or stabilize all generated radioactive waste residues in an environmentally acceptable manner while minimizing waste volumes.
- Accomplish work in accordance with appropriate landowner agreements and local and state environmental and land use requirements to the extent required by federal law and applicable DOE orders, regulations, standards, policies, and procedures.
- Certify, at the completion of the remedial action, that the condition of the site complies with guidelines and that the release of the site without radiological restrictions is appropriate.
- Remove hazardous waste that is mixed with radioactively contaminated waste resulting from MED/AEC-related work, regardless of its characteristics, as listed under the Resource Conservation and Recovery Act.



New building addition at the Fairfield, Ohio, Site (May 2006).

Post-Remediation Sampling **L**

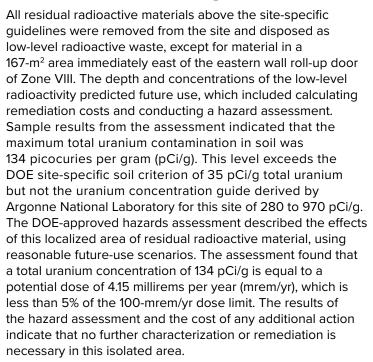


Exterior soil samples from each area were collected at a frequency of 25 equally spaced plugs per 100-squaremeter (m²) surface area with a depth of 15 centimeters (cm) and diameter of 2.5 cm. Interior (sub-slab) soil samples were also collected from each trench created by the removal of contaminated expansion or crack control joints. After determining a 100-m² area in each trench, BNI collected and composited 25 equally spaced plug-soil samples within that area for gamma spectroscopy analysis.

Post-remedial action direct surface contamination measurements and soil samples verified the removal of the residual radioactive material. External gamma-exposure rate measurements, taken within each zone, ensured that the exposure rate from all pathways, except radon decay, was well below the guideline of 20 micro roentgen per hour above background for habitable structures.

For more detailed results of the post-remediation sampling, see the Site Certification Data Summary Worksheet on page 4. For a detailed map of the site and sampling locations, see the Site Overview Map on page 5.

Current Site Conditions



The post-remedial action survey data indicated that all areas of the Fairfield site determined to be contaminated during characterization surveys now comply with standards applicable to residual radioactive contamination. DOE determined that the site's radiological conditions complied with the Department's decontamination criteria and standards for protecting health, safety, and the environment. DOE declared that the site was appropriate for future use without radiological restrictions. DOE has been responsible for long-term stewardship of the Fairfield site since 1996. The stewardship requirements and protocols are captured in the FUSRAP Long-Term Surveillance and Maintenance Plan, which is available on the DOE Office of Legacy Management website (www.energy.gov/lm/fairfield-ohio-site).







ADDITIONAL INFORMATION

Documents related to FUSRAP activities at the Fairfield, Ohio, Site are available on the LM website at Impublicsearch.Im.doe.gov/SitePages/default.aspx?sitename=Fairfield.

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

U.S. Department of Energy

Office of Legacy Management

2597 Legacy Way

Grand Junction, CO 81503

Email:

FUSRAPinfo@lm.doe.gov public.affairs@lm.doe.gov

DOE Office of Legacy Management (970) 248-6070



Fairfield, Ohio, Site Certification Data Summary Worksheet

One table referenced in the Fairfield Certification Docket provides the evidence used to certify the site as clean.

The "Post-Remedial Action Report" is the BNI report "Post-Remedial Action Report for the Associate Aircraft Site, Fairfield, Ohio" (July 1996).

Post-Remedial Action Radiological Survey Results for the Associated Aircraft Site								
	Component	Number of Samples/ Measurements	Direct Surface Contamination		Transferable Surface Contamination		External Gamma- Exposure Rate	Total Uranium Concentration
Zone								
			Alpha	Beta/Gamma	Alpha	Beta/Gamma	Exposure Rate (μR/h) ^{a,b}	(pCi/g) ^b
			(dpm/100 cm ²)	(dpm/100 cm ²)	(dpm/100 cm ²)	(dpm/100 cm ²)		
I	Roof trusses	40	c	52 - 2,716	<1 - 63	<1 - 205	d	e
II	Roof trusses	282	<2 - 444	27 - 3,070	<1- 66	<7 - 247	6.9	
	Walls	19	<10 - 31	402 - 1,054	<1 - 2 ^d	<4 - 29 ^d		
	Floor	547	<-4 - 114 ^f	<31 - 957	9	9		
	Eastern wall roll-up door	7	169 - 845	<54-845	g	g		
	Trenches		h	h	9	9		1.06 - 22.40
III	Roof trusses	198	<2 - 94	<25 - 1,898	<5 - 28	<39 - 102	6.9	
	Floor	465	<4 - 131	<29 - 914	9	9		
	Trenches		h	h	9	9		8.94 ⁱ
IV	Roof trusses	297	<2 - 69	<24 - 569	g	g	6.9	
	Walls	153	<4 - 141	<25 - 781	9	9		
	Floor	290	<2 - 142	<24 - 1,680	<1 - 5	<86 - 90		
	Trenches	88	<2 - 52	146 - 1,485	<1 - 8	<5 - 90		9.78 ⁱ
V	Roof trusses	251	<2 - 1,013	<29 - 3,481	<1 - 36	<3 - 62	7.7	
	Walls	266	<2 - 192	<31 - 2,416	<1 - 5	<7 - 18		
	Floor	1,145	<2 - 110	<43 - 2,947	<1 - 5	<3 - 52		
	Trenches	27	<2 - 92	<29 - 922	9	9		23.06 ⁱ
VI	Trenches	27	<2 - 92	<29 - 922	9	g	6.8	16.52 ⁱ
VII	Northern parking lot	10	<2 - 65	54 - 265	g	g		6.86 ⁱ
	Southern side force control building	198	<2 - 89	50 - 695	g	9		
	Southern side trenches	5	<-36 - (-7) ^f	553 - 829	9	g		4.36 ⁱ
VIII	Trenches	69	<9 - 74	<27 - 1,740	<-1 - 5 ^f	<-4 - 44 ^f	6.4	0.86 - 1.3
DOE Guideline:			5,000	5,000	1,000	1,000	<20 ^j	35

^aThe external gamma-exposure rate was measured for the zone listed.

^bResults include background levels for the Fairfield area.

^cAlpha measurements on the roof traces not taken.

^dBecause of the size and location of Zone 1, the external gamma-exposure rate for Zone 1 is included in the measurements for Zones III and V.

^eNo excavation performed or soil removed in Zone 1.

[&]quot;<-" 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 "<-").

Transferable measurements required when the criterion for transferable surface contamination (1,000 dpm/100 cm²) is exceeded in direct

Direct surface contamination measurements are included in the results for the entire zone floor.

One measurement or composite sample collected because of the limited area remediated. Less than 20 μ R/h above background in habitable structures, or a maximum of 100 mrem/yr for all pathways, excluding radon.

Fairfield, Ohio, Site Map

