

2025 Annual Site Inspection Report for the Piqua, Ohio, Decommissioned Reactor Site

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U.S. DEPARTMENT OF
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Legacy
Management

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Abbreviations

DOE	U.S. Department of Energy
LM	Office of Legacy Management
LTS&M	Long-Term Surveillance and Maintenance

Executive Summary

This report presents the annual site inspection results for the Piqua, Ohio, Decommissioned Reactor Site. In accordance with the site's Long-Term Surveillance and Maintenance Plan, the facility was inspected on May 7, 2025.

This report covers results of the second annual inspection since the demolition of the reactor facility was completed in 2023. The site now consists of the entombment, which sits below grade with a raised earthen cap topped with a riprap cover protected by jersey barriers on the surface. The surrounding area is paved and utilized by the City of Piqua for commercial and industrial use under lease to the U.S. Department of Energy.

The site, on the east bank of the Great Miami River in Piqua, Ohio, is in excellent physical condition. No evidence of vandalism, trespassing, or nonindustrial or commercial use was observed during this year's inspection and there were no findings of risk to the entombment. The U.S. Department of Energy Office of Legacy Management remains responsible for the entombed low-level radioactive waste and its protective cover in accordance with the contract and lease amendment.

1.0 Introduction

This report presents the results of the annual U.S. Department of Energy (DOE) inspection of the Piqua, Ohio, Decommissioned Reactor Site, which is assigned to the Office of Legacy Management (LM) for long-term custody and care.

The Legacy Management Support contractor conducted the site inspection on May 7, 2025, and was accompanied by LM staff, as well as a representative from the Ohio Department of Health.

The purpose of the inspection was to assess the general conditions of the site and to ensure that the entombment remains in a protective state until radiation limits defined in Title 10 *Code of Federal Regulations* Section 20 (10 CFR 20), “Standards for Protection Against Radiation,” have been reached within the entombment. Specific criteria for the inspection are identified in Section 3.2 of the *Long-Term Surveillance and Maintenance Plan for the Piqua, Ohio, Decommissioned Reactor Site* (DOE 2024), hereafter referred to as the Long-Term Surveillance and Maintenance Plan (LTS&M Plan), and are discussed in Section 2.0, “Inspection Results,” of this document.

1.1 Background

The site is in southwestern Ohio (north of Dayton) on the east bank of the Great Miami River in the southeastern portion of the City of Piqua (Figure A-1) and sits on DOE-owned land about 900 feet southeast of the Piqua Municipal Power Plant and about 150 feet north of the city’s wastewater treatment plant. The north and east sides of the decommissioned facility are bounded by a limestone quarry owned by the Cleveland-Cliffs Inc. (formerly Armco Steel Company). The site is approximately 120 feet from the Great Miami River.

Title to the land was transferred to DOE at the completion of decommissioning in the late 1960s (City of Piqua 1968), and the land was subsequently leased back to the City of Piqua (City of Piqua 1969). This arrangement will continue until the radioactive materials left in place decay to levels that would permit transfer of site ownership back to the City of Piqua. At that time, DOE will reconvey the title to the land and facilities to the City of Piqua.

As a result of the 2023 demolition of the Piqua decommissioned reactor facility, the Auxiliary Building, and the utility vaults at the site, the City of Piqua is now able to use the property as an industrial and commercial laydown yard, in accordance with the existing lease and contract with DOE. A summary of the demolition project can be found in the LTS&M Plan, and a series of demolition project fact sheets are available on the LM public website. Institutional controls (as described in the LTS&M Plan) will remain in place to ensure long-term protectiveness of the entombment, and LM will continue long-term stewardship of the site.

2.0 Inspection Results

Site inspections are conducted to document that the onsite entombed low-level radioactive waste material remains undisturbed in a safe configuration protective of human health and the environment. The criteria for the site inspections include checking for the following items: slumping or other issues on the riprap cover or parking lot; erosion of the vegetation on the

eastern hillside or any observations of hillslope instability, slumping, or sliding; vegetation health on that hillside; vegetation and weeds on the riprap cover and the need for management as necessary (for aesthetic purposes only, not for cap integrity); evidence of trespassing; obvious evidence of nonindustrial or commercial use; and the condition of the rail barriers and site signage.

LM will also verify that the terms and conditions of the lease and contract are being upheld by the City of Piqua and that no actions have been taken or are planned that could impact the entombment. Furthermore, LM will meet with the City of Piqua to reinforce suitable land uses under the site's institutional controls and ensure that the entity using the area adjacent to the site boundary is aware of applicable institutional controls. Features discussed in this report are shown in the attached site drawing (Figure A-1).

2.1 Entombment

The onsite low-level radioactive waste entombment was found to be in excellent condition. No slumping was observed on the riprap cover (Figure 1). Vegetative sprouts were observed in a handful of areas across the riprap. This early growth appears to be surface in nature and was most likely blown in from the surrounding green space (Figure 2). Vegetation was found to be an aesthetic nuisance only and does not have the ability to negatively impact the protectiveness of the entombment to human health or the environment given the robust concrete and steel structure of the underlying entombment.



Figure 1. Entombment of Low-Level Radioactive Waste



Figure 2. Observed Vegetation Growth Waste Entombment

The protective jersey barriers are in place as designed surrounding the entombment. It was observed during the 2024 inspection that there are several instances where the jersey barriers do not contact each other, leaving gaps of up to 6 inches. Although this condition was observed, there is no adverse impact to the functionality or protectiveness of the barriers (Figure 3). The site marker remains in place at the center of the entombment and was found to be in excellent condition (Figure 4). Lastly, there was no evidence of trespassing or vandalism.



Figure 3. Examples of Spacing Between Protective Jersey Barriers Observed in 2024 and 2025



Figure 4. Piqua Site Marker Placed atop the Center of the Entombment

2.2 Surrounding Area

The area surrounding the entombment was visually observed. The four corner markers of the DOE-owned property were visually verified. In addition, the parking lot that was paved in 2023 and the 2-year-old vegetation on the eastern hillside were visually inspected. The parking lot was found to be in excellent condition. No subsidence was observed (Figure 5).



Figure 5. Paved Area Where Administration Building Stood Predemolition

As for the eastern hillside, the vegetation was found to be in good health except for a few bare spots (Figure 6). No slumping or sliding was observed. The stability of the hillside remains sound, and the minor surface erosion observed during the 2024 inspection was unchanged and not impactful (Figure 7). The vegetation is considered fully established and will not be a primary focus area of future inspections unless an observation is made that could potentially impact protectiveness of the entombment. The City of Piqua remains responsible for maintenance of the nonnuclear areas of the site, including the hillside vegetation, in accordance with the lease amendment.



Figure 6. Vegetation on Eastern Hillside



Figure 7. Small Erosion near Base of Hillside Observed During 2024 Site Inspection

2.3 Interaction with the City of Piqua

During the site inspection, discussions were held with City of Piqua staff specifically to discuss the use of the site area around the entombment. LM reinforced the suitability of land use as industrial and commercial use in accordance with the lease and DOE letter covering applicable uses of the area. The usage of the site was found to be in compliance with the lease agreement, and the City of Piqua communicated no future planned uses of the site that would be noncompliant with the lease agreement or that could impact protectiveness of the entombment. As such, the terms and conditions of the lease and contract are being upheld by the City of Piqua and no actions have been taken or are planned that could impact the entombment.

3.0 Maintenance Action Requests and Lessons Learned

Real-time photograph logging was utilized during the 2025 site inspection and is expected to continue in future inspections. No maintenance actions resulted from the site inspection. The new vegetation observed on the riprap will be reassessed in the next site inspection, which is currently planned for 2026. DOE may evaluate and implement future vegetation control if warranted.

There were no lessons learned during this site inspection.

4.0 References

10 CFR 20. “Standards for Protection Against Radiation,” *Code of Federal Regulations*.

City of Piqua, 1968. Contract No. AT(11-1)-1798, Agreement Between the United States of America Acting Through the United States Atomic Energy Commission and the City of Piqua, Ohio, May 10, as amended in 2019.

City of Piqua, 1969. Lease Between the U.S. Atomic Energy Commission and the City of Piqua, Ohio, June 25, as amended in 2019.

DOE (U.S. Department of Energy), 2024. *Long-Term Surveillance and Maintenance Plan for the Piqua, Ohio, Decommissioned Reactor Site*, LMS/PIQ/S00076-5.0, Office of Legacy Management, September.

Appendix A

Site Drawing

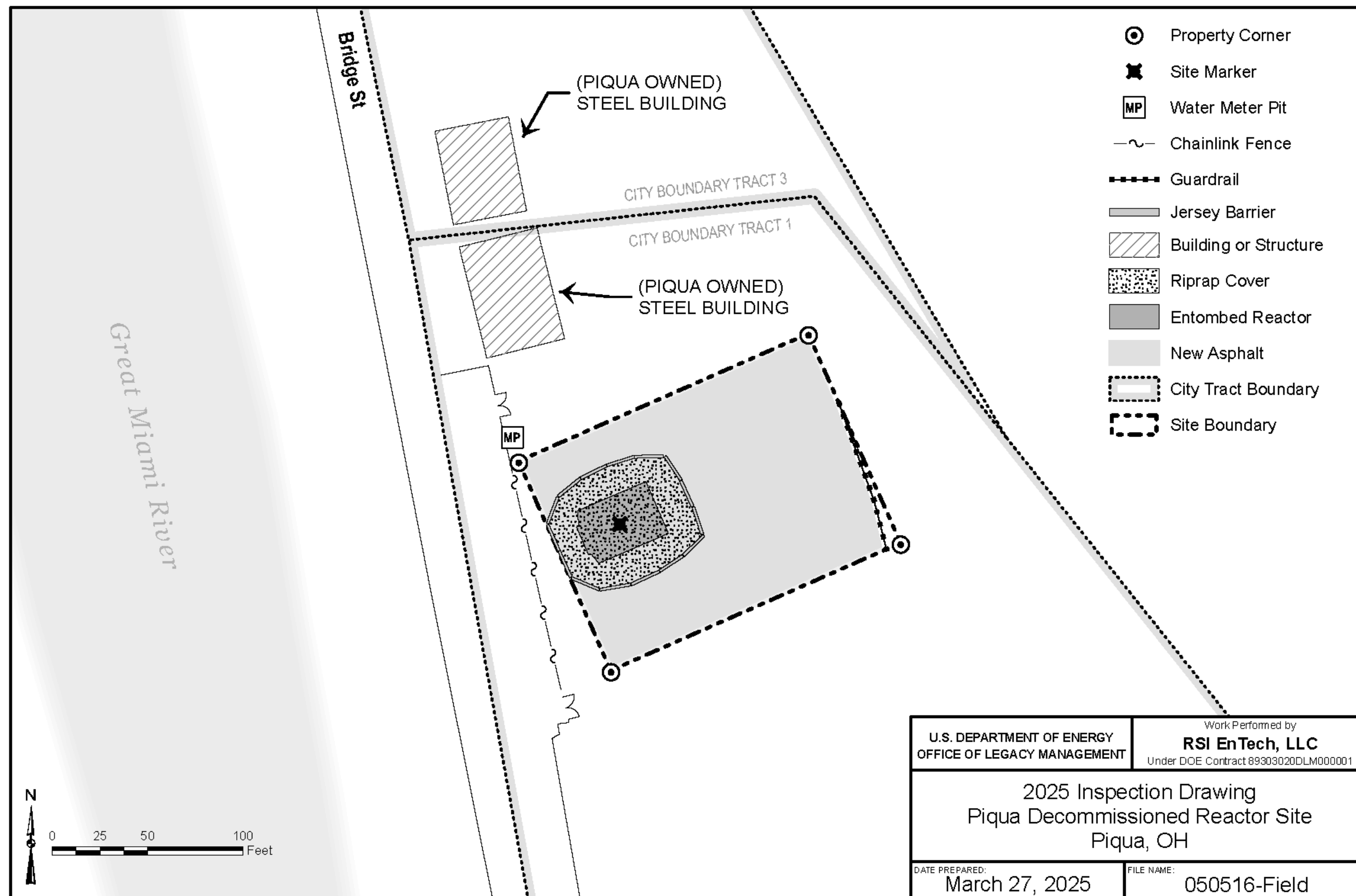


Figure A-1. 2025 Annual Site Inspection Map for the Piqua, Ohio, Decommissioned Reactor Site