

2024 Annual Site Inspection Report for the Piqua, Ohio, Decommissioned Reactor Site

June 2024



U.S. DEPARTMENT OF
ENERGY

Legacy
Management

Contents

Abbreviations	ii
Executive Summary	iii
1.0 Introduction	1
1.1 Background.....	1
2.0 Inspection Results	1
2.1 Entombment	2
2.2 Surrounding Area	4
2.3 Interaction with City of Piqua	5
3.0 Maintenance Action Requests and Lessons Learned	5
4.0 References	6

Figures

Figure 1. Onsite Low-Level Radioactive Waste Entombment	2
Figure 2. Examples of Spacing Between Protective Jersey Barriers	3
Figure 3. Piqua Site Marker Placed atop the Center of the Entombment	3
Figure 4. Two of the Four Property Corner Markers.....	4
Figure 5. Newly Paved Area Where Administration Building Stood in 2023.....	4
Figure 6. Vegetation on Eastern Hillside.....	5
Figure 7. Small Erosion Near Base of Hillside.....	5

Appendix

Appendix A Site Drawing

Abbreviations

DOE	U.S. Department of Energy
LM	Office of Legacy Management
LMS	Legacy Management Support

Executive Summary

This report presents the annual site inspection findings 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 1, 2024.

The largest change since the last inspection in 2019 was the 2023 demolition of the reactor facility, Auxiliary Building, and utility vaults that the City of Piqua vacated in the fall of 2018. The site now consists of the entombment which sits below grade with a riprap cover protected by bollards on the surface, with the surrounding area paved for use by the city of Piqua for commercial and industrial use.

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. The U.S. Department of Energy Office of Legacy Management remains responsible for the entombed low-level radioactive waste and its protective cover per the contract and lease amendment.

1.0 Introduction

This report presents the findings 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 (LMS) contractor site lead conducted the site inspection on May 1, 2024. The LM site manager also participated in the site inspection.

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 have been reached within the entombment. Specific criteria for the inspection are identified in Section 3.2 of *Long-Term Surveillance and Maintenance Plan for the Piqua, Ohio, Decommissioned Reactor Site* (LMS/PIQ/S00076), hereafter referred to as the LTSM 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). It is 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 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 (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. At that time, DOE will reconvey the title to the land and facilities to the city.

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 LTSM plan, and a series of demolition project fact sheets are available on the LM 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 looking for slumping or other issues with the riprap cover or parking lot; erosion of the vegetation on the eastern hillside or any observations of hillslope instability, slumping, or sliding; health of the vegetation on that hillside; vegetation and weeds in 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 within the city that is adjacent to the site boundary that is using the area is aware of applicable institutional controls. Features discussed in this report are shown on the attached drawing (Figure A-1).

2.1 Entombment

The onsite low-level waste entombment was found to be in excellent condition. No slumping was observed in the riprap cover nor was there any presence of vegetative growth (refer to Figure 1).



Figure 1. Onsite Low-Level Radioactive Waste Entombment

The protective jersey barriers are in place as designed surrounding the entombment. It was observed 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 their functionality of protectiveness (refer to Figure 2). The site marker was in place in the center of the entombment and found to be in excellent condition (Figure 3). Lastly, there was no evidence of trespassing or vandalism.



Figure 2. Examples of Spacing Between Protective Jersey Barriers



Figure 3. 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 (refer to Figure 4). In addition, the newly (2023) paved parking lot and 1-year-young vegetation on the eastern hillside were visually inspected. The parking lot was found to be in excellent condition. No subsidence was observed (refer to Figure 5).



Figure 4. Two of the Four Property Corner Markers



Figure 5. Newly Paved Area Where Administration Building Stood in 2023

As for the eastern hillside, the vegetation was in good health with a few bare spots noticed and a minor surface erosion near the base of the hillside near the wastewater treatment plant retaining wall. No slumping or sliding was observed. The area of slight erosion does not appear to be impactful to the stability of the hillside. This area will be reassessed during the 2025 site inspection to reaffirm no impact. Refer to Figure 6 and Figure 7.



Figure 6. Vegetation on Eastern Hillside



Figure 7. Small Erosion Near Base of Hillside

2.3 Interaction with City of Piqua

During the site inspection, discussions were held with the City of Piqua Wastewater Treatment Plant manager, specifically to discuss the use of the site area around the entombment. The LM site manager reinforced the suitability of land use as an industrial laydown area then inquired of the current and planned use of the site footprint. At the time of the inspection, the city was not actively using the area and no near-term definitive plans have been defined for its use other than a laydown and storage area which is consistent with industrial and commercial use. 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

No maintenance action resulted from the site inspection. It is noted that the eastern hillside minor erosion area will be reassessed during the 2025 annual site inspection.

One lesson was learned during this inspection. The use of real-time photo logging could not occur due to lack of internet access to the field mapping system. The LMS site lead will rectify this access limitation prior to the 2025 annual site inspection.

4.0 References

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.

Long-Term Surveillance and Maintenance Plan for the Piqua, Ohio, Decommissioned Reactor Site, LMS/PIQ/S00076, continually updated, prepared by the U.S. Department of Energy Office of Legacy Management.

Appendix A

Site Drawing

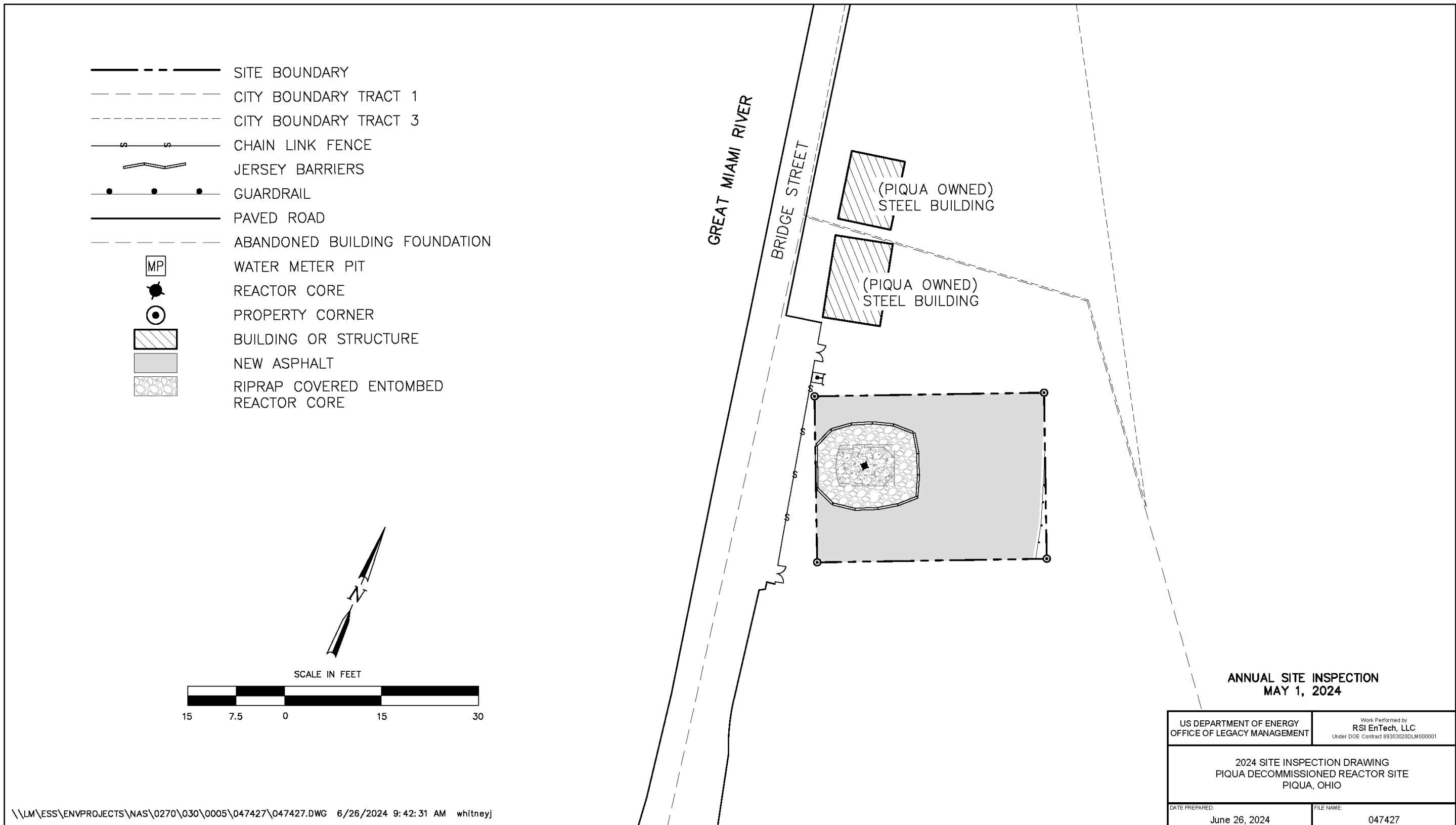


Figure A-1. 2024 Annual Site Inspection Map for the, Piqua, Ohio, Decommissioned Reactor Site