U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

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Environmental Assessment for Specific Decommissioning Activities at Three Mile Island, Unit 2 in Dauphin County, Pennsylvania

Draft for Review

Completed: May 2024

Environmental Center of Expertise
Division of Rulemaking, Environmental, and Financial Support
Office of Nuclear Material Safety and Safeguards

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ABBREVIATIONS AND ACRONYMS

ac	acre(s)
ACHP	Advisory Council on Historic Preservation
ADAMS	Agencywide Documents Access and Management System
BMP	best management practice
CAP	Community Advisory Panel
CFR	*Code of Federal Regulations*
DECON	active decontamination and decommissioning
DOE	U.S. Department of Energy
EA	Environmental Assessment
EMP	Environmental Management Program
ESA	Endangered Species Act of 1973
Exelon	Exelon Generation Company, LLC
FBM	fuel-bearing material
FERC	Federal Energy Regulatory Commission
FWS	U.S. Fish and Wildlife Service
GEIS	Generic Environmental Impact Statement
ha	hectare(s)
Inland NLF	Inland Nature-Like Fishway
IPaC	Information for Planning and Conservation
ISFSI	Independent Spent Fuel Storage Installation
km	kilometer(s)
km^2	square kilometer(s)
LAR	License Amendment Request
mi	mile(s)
mi^2	square mile(s)
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NLF	Nature-Like Fishway
NPDES	National Pollutant Discharge Elimination System
NRC	U.S. Nuclear Regulatory Commission
NRHP	National Register of Historic Places
SHPO	State Historic Preservation Office
PADEP	Pennsylvania Department of Environmental Protection
PDMS	Post-Defueling Monitored Storage

PEIS	Programmatic Environmental Impact Statement
PNDI	Pennsylvania Natural Diversity Inventory
POL	Possession Only License
PSDAR	post-shutdown decommissioning activities report
TMI-1	Three Mile Island Nuclear Station, Unit 1
TMI-2	Three Mile Island Nuclear Station, Unit 2
TMI-2*Solutions*	Three Mile Island Nuclear Station, Unit 2 (TMI-2) Energy*Solutions*
TMINS	Three Mile Island Nuclear Station
YHHPMD	York Haven Hydroelectric Project Main Dam
YHPC	York Haven Power Company

1 INTRODUCTION

By letter dated February 22, 2023, the U.S. Nuclear Regulatory Commission (NRC) received an application from Three Mile Island Nuclear Station, Unit 2 (TMI-2) Energy*Solutions* (TMI-2Solutions) requesting an amendment to their Possession Only License (POL) for License Number DPR-73 for the TMI-2, located in the Londonderry Township of Dauphin County, Pennsylvania (TMI-2*Solutions* 2023a). The amendment request explained that TMI-2*Solutions* will be engaging in certain major decommissioning activities, and that these decommissioning activities include the physical demolition of buildings previously deemed eligible for the National Register of Historic Places (NRHP) by the Pennsylvania State Historic Preservation Office (SHPO). Because the impacts on the historic properties from these decommissioning activities have not been previously evaluated and are not bounded by the impact evaluation in NUREG-0586, "Final Generic Environmental Impact Statement (GEIS) on Decommissioning of Nuclear Facilities," TMI-2*Solutions* requested an amendment for evaluation of the impacts of the activities on historic and cultural resources and the NRHP-eligible properties, in compliance with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50.82(a)(6)(ii), which prohibits licensees from performing any decommissioning activities (as defined in 10 CFR 50.2) that would result in significant environmental impacts that have not been reviewed previously.

1.1 History of TMI-2

The Three Mile Island Nuclear Station (TMINS) is approximately 16 kilometers (km) (10 miles [mi]) southeast of Harrisburg, Pennsylvania. The TMINS site includes Three Mile Island Nuclear Station, Unit 1 (TMI-1) and TMI-2. It encompasses approximately 178 hectare (ha) (440 acres [ac]), including the adjacent islands on the north end, a strip of land on the mainland along the eastern shore of the river, and an area on the eastern shore of Shelley Island.

The TMINS site has significance in U.S. history because it is the site of the Nation's most serious commercial nuclear power plant accident, occurring at TMI-2. On March 28, 1979, TMI-2 experienced an accident initiated by interruption of secondary feedwater flow which led to a core heat up that caused fuel damage[1]. The partial meltdown of the reactor core led to a very small offsite release of radioactivity. The TMI-2 accident initiated an institutional and public response that was unprecedented in the history of nuclear power in the United States (NRC 2016). In response to this accident many changes were introduced at nuclear power plants including emergency response planning, reactor operator training, human factors engineering, radiation protection, and heightened NRC regulatory oversight. All of these changes significantly enhanced U.S. reactor safety (NRC 2004). TMI-2 has been shut down since the accident in 1979. In 1993, the facility was defueled and in a condition known as Post-Defueling Monitored Storage (PDMS) where it remained until December 2020, when the license was transferred to TMI-2*Solutions* to perform decommissioning activities. Since then, TMI-2 facilities have transitioned from PDMS to active decontamination and decommissioning (DECON).

1.2 Decommissioning Activities

Following the 1979 TMI-2 accident, approximately 99 percent of the fuel was successfully removed from the reactor, leaving a small quantity of fuel-bearing material (FBM)(small

[1] More details about the accident can be found at the NRC Fact Sheet, "Three Mile Island Accident" (Agencywide Documents Access and Management System [ADAMS] ML082560250).

quantities of spent nuclear fuel, damaged core material, and high-level waste) at TMI-2. On August 15, 1988, the TMI-2 licensee submitted a request to amend TMI-2 Operating License No. DPR-73 to a POL and to extensively modify the Technical Specifications consistent with the licensee plans for long-term storage of the facility (NRC 2023). Between 1986 and 1990, the removed fuel was shipped to Idaho National Laboratory in Butte County, Idaho, for storage and is under the responsibility of the U.S. Department of Energy (DOE), Idaho Operations Office.

On April 12, 1990, the licensee informed the NRC staff that it had completed defueling efforts at the TMI-2 facility. The cleanup to meet the NRC post-accident safe storage criteria was completed and accepted by the NRC with TMI-2 entering into PDMS in December 1993 (NRC 2023).

Prior to the initiation of the PDMS in December 1993, the reactor coolant system was decontaminated to the extent practical to reduce radiation levels to as low as is reasonably achievable. As part of the decontamination effort, water was removed to the extent practical from the reactor coolant system and the fuel transfer canal, and the fuel transfer tubes were isolated. Radioactive wastes from the major cleanup activities have been shipped offsite or have been packaged and staged for shipment offsite. Following the decontamination activities, only the reactor building and a few areas in the auxiliary and fuel handling buildings continued to have general area radiation levels higher than those of an undamaged reactor facility nearing the end of its operating life (TMI-2*Solutions* 2024c).

On February 21, 2021, TMI-2*Solutions* submitted a request for an amendment to the POL and Technical Specifications to support the transition of TMI-2 from a PDMS condition to that of a facility undergoing radiological decommissioning (DECON) pursuant to 10 CFR 50.82(a)(7) (TMI-2*Solutions* 2021). The request included removal or revision of certain license conditions and certain technical specification requirements to reflect current plant conditions to support entry into DECON. NRC approved and issued the license amendment on March 31, 2023 (NRC 2023).

The future decommissioning of TMI-2 has been divided into multiple phases. TMI-2*Solutions* completed Phase 1a radiological decommissioning activities and is currently moving forward with activities in Phase 1b of the post-shutdown decommissioning activities report (PSDAR) at TMI-2 (TMI-2*Solutions* 2024c). Major decommissioning activities will occur under Phase 1b and Phase 2 (TMI-2*Solutions* 2024c). These phases are described below.

- Phase 1 consists of Phase 1a and Phase 1b.
  - Phase 1a focused on preparation for decommissioning, which included activities such as decommissioning planning, engineering and regulatory activities, performance of radiation surveys, including the use of remote technologies, procurement of long lead equipment, installation of shielding and monitoring equipment, restoration of lighting and cranes, and limited decontamination activities consistent with the PDMS Safety Analysis Report.
  - Phase 1b focuses on FBM recovery and radiological source term reduction, which includes the recovery, packaging, and storage of FBM and the reduction of the overall radiological source term at TMI-2 and the TMI-2 Site to levels that are generally consistent with a non-core damaged nuclear plant toward the end of its operational life. Most of this Phase 1b activity will occur inside buildings, such as source term reduction of the reactor coolant system including the reactor pressure vessel, steam generators, pressurizer, and piping; dose reduction and decontamination of locked high-radiation

areas, and packaging and shipment of low-level waste (TMI-2*Solutions* 2024c). The FBM will be recovered, packaged, and stored in the Independent Spent Fuel Storage Installation (ISFSI) onsite. Phase 1b activities are scheduled for completion in 2029 (TMI-2*Solutions* 2024c).

- Phase 2 activities include the removal of any radioactive components in preparation for demolition of structures, decommissioning and dismantlement of the TMI-2 site to a level that permits the release of the site, except for an area potentially to be set aside for storage of FBM on the ISFSI, backfilling of the site, license termination plan submittal and implementation, and site restoration activities (TMI-2*Solutions* 2024c).
- Phase 3 refers to the management of the FBM on the ISFSI, which include providing security and maintenance for the ISFSI as well as decommissioning the ISFSI. FBM will remain on the ISFSI until it is transferred to DOE after which the ISFSI will be decommissioned. License termination will occur following NRC approval of the final site survey.

Phase 2 activities have not yet begun. Pursuant to 10 CFR 50.82(a)(6)(ii), the licensee is not able to begin Phase 2 activities, including demolition of structures, because the impacts to historic and cultural resources and NRHP-eligible structures have not previously been reviewed.
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1.3 Scope of the Environmental Analysis

To fulfill its obligations under the National Environmental Policy Act (NEPA) of 1969, the NRC must evaluate the radiological and nonradiological environmental impacts associated with the proposed action. The NRC previously evaluated the potential environmental impacts of nuclear reactor decommissioning in NUREG-0586, Supplement 1, *Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities* (NRC 2002). The Decommissioning Generic Environmental Impact Statement (GEIS) is used by NRC staff to evaluate environmental impacts that would occur during the decommissioning of nuclear power reactors. The Decommissioning GEIS is considered “generic” in that it evaluates environmental impacts from decommissioning activities common to nuclear power reactor facilities. The GEIS addresses decommissioning of nuclear power reactors licensed by the NRC, including pressurized-water reactors, boiling-water reactors, and multiple reactor stations. The generic analysis was based, in part, on experience with reactors that had already undergone or were undergoing decommissioning.

After the accident at TMI-2, the NRC issued NUREG-0683, *Final Programmatic Environmental Impact Statement related to decontamination and disposal of radioactive wastes resulting from March 28, 1979, accident Three Mile Island Nuclear Station, Unit 2* (PEIS) (NRC 1984; 1987). The PEIS is intended to provide an overall evaluation of the potential environmental impacts from cleanup activities including decontamination and disposal of radioactive waste resulting from the 1979 accident.

The NRC staff evaluated the potential environmental impacts associated with the proposed action and the no-action alternative and has documented the results in this environmental assessment (EA). The NRC staff performed this review in accordance with the requirements of 10 CFR 51 and applicable staff guidance found in NUREG-1748 (NRC 2003). The NRC staff reviewed the documents submitted by the licensee and from prior NRC reviews, including:

- PSDAR Revision 6 dated March 28, 2024 (TMI-2*Solutions* 2024c)

- Generic Environmental Impact Statement for License Renewal of Nuclear Plants (LR GEIS); Supplement 37 Regarding TMI-1 Final Report (NRC 2009)
- Issuance of Amendment No. 67 for TMI-2 Phase 1b source term reduction (NRC 2023)
- Responses to Requests for Additional Information (TMI-2*Solutions* 2023b; TMI-2*Solutions* 2023c; TMI-2*Solutions* 2024a, 2024b)
- NUREG-0683, "Final Programmatic Environmental Impact Statement related to decontamination and disposal of radioactive wastes resulting from March 28, 1979, accident Three Mile Island Nuclear Station, Unit 2" (PEIS) (NRC 1984; 1987)
- NUREG-0586, "Generic Environmental Impact Statement (GEIS) on Decommissioning of Nuclear Facilities" (NRC 2002)

These documents are further identified in Section 7 of this EA.

2 PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

The proposed action is to amend License DPR-73 so that TMI-2*Solutions* can continue with certain major decommissioning activities as described under Phase 2, discussed above. In order to comply with 10 CFR 50.82(a)(6)(ii), TMI-2*Solutions* is requesting that NRC evaluate the impacts of certain major decommissioning activities on historic and cultural resources and NRHP-eligible properties. The definition of major decommissioning activity is in 10 CFR 50.2, which states, “Major decommissioning activity means, for a nuclear power reactor facility, any activity that results in permanent removal of major radioactive components, permanently modifies the structure of the containment, or results in dismantling components for shipment containing greater than class C waste in accordance with § 61.55 of this chapter.” Due to radioactive contamination, the TMI-2 structures must be demolished and removed during decommissioning.

2.2 Purpose of and Need for the Proposed Action

By letter dated February 22, 2023, the licensee submitted its license amendment request (LAR) to the NRC with a request for review of major decommissioning activities, as defined in 10 CFR 50.2, that would diminish the historic integrity (e.g., physical demolition) of the TMI-2*Solutions* owned buildings previously determined eligible for the NRHP by the Pennsylvania SHPO. The licensee requests this review of TMI-2 structures deemed eligible for the NRHP prior to the removal, dismantlement, and disposal of contaminated, radioactive mechanical systems and components, as well as the eventual physical demolition of the facility (TMI-2*Solutions* 2023a). Due to the historic accident in 1979, the Pennsylvania SHPO has determined TMI-2 structures eligible for listing on the NRHP under Criterion A (properties significant for their association with events that have made a significant contribution to the broad patterns of history) and Criterion Consideration G (properties that have achieved significance within the last 50 years). Both the effects on NRHP-eligible properties, and effects on historic and cultural resources beyond the operational area for sites with no current cultural and historic resource survey, are not bounded by the evaluation in the Decommissioning GEIS and therefore could cause significant impacts not previously reviewed under 10 CFR 50.82(a)(6)(ii).

Therefore, the purpose of the proposed license amendment, as informed by the NRC staff’s review in this EA of previously unassessed potential impacts, is to ensure that TMI-2*Solutions* decommissioning activities will not result in significant environmental impacts not previously reviewed, and therefore, TMI-2*Solutions* can continue decommissioning the facility in accordance with NRC requirements. Decommissioning is necessary to ensure the facility and site will ultimately meet NRC radiological criteria for unrestricted use in 10 CFR 20.1402.

2.3 Alternative to the Proposed Action

The alternative to the proposed action is the no-action alternative. Under the no-action alternative, the NRC would deny the licensee’s amendment request to allow for the continuation of major decommissioning activities under Phase 2. In this case, the NRC staff would not review the historic and cultural resource impacts of the major decommissioning activities as defined in 10 CFR 50.2 and would therefore disallow the removal of NRHP-eligible structures and any impacts to historic and cultural resources. However, due to the presence of radioactive contamination, TMI-2 structures, including the NRHP-eligible structures, must be removed

during the decommissioning process to maintain public health and safety (TMI-2*Solutions* 2023a). Furthermore, the no-action alternative would not allow the licensee to meet commitments made during licensing. The historic and cultural resource impacts have not yet been evaluated and the TMI-2 structures must be removed due to radioactive contamination; therefore, the NRC staff concludes that denying the amendment request is not a reasonable alternative.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

TMI-2 is located on the northern portion of Three Mile Island in the Susquehanna River adjacent to TMI-1 and about 16 km (10 mi) southeast of Harrisburg, Pennsylvania (Figure 1). About 81 ha (200 ac) of TMINS's 178 ha (440-ac) site are occupied by the station. As seen in Figure 2, there are four 112 meter (370-feet), natural draft cooling towers on the site. The two southern most cooling towers were used by the TMI-2 during operation and the two northern most cooling towers were used by TMI-1. Other buildings on the site include the reactor buildings, auxiliary buildings, fuel-handling buildings, station blackout diesel generator building, intake screen and pump house, and the turbine building.

The NRC staff evaluated previous environmental documents (NRC 1984; 1987) and the PSDAR (TMI-2*Solutions* 2024c) to describe the affected environment. Environmental impacts from decommissioning activities are addressed in the Decommissioning GEIS (NRC 2002) and the PEIS for TMI-2 (NRC 1984; 1987). After review of the PSDAR, NRC staff found certain decommissioning impacts for TMI-2 to be bounded by the Decommissioning GEIS and PEIS (NRC 2013),but that others, were not bounded by the prior environmental reviews and, instead, required a site specific assessment. PSDAR Revision 4 (TMI-2*Solutions* 2022) stated that TMI-2 structures are NRHP-eligible and Revision 5 stated that TMI-2 was determined to be NRHP-eligible in 2010 by the Pennsylvania SHPO (TMI-2*Solutions* 2022). Demolition to structures eligible for listing on the NRHP would be considered an adverse impact or an unreviewed significant environmental impact pursuant to 10 CFR 50.82(a)(6). Because mitigation was not yet developed in consultation with the SHPO (see Section 3.1.2), the impacts on NRHP-eligible properties are not bounded by the Decommissioning GEIS. The Decommissioning GEIS also concluded that threatened and endangered species and environmental justice must always be evaluated on a site-specific basis in site-specific EAs and are not bounded by the Decommissioning GEIS. Additionally, terrestrial and aquatic ecology impacts beyond the operational area are considered to be conditionally site-specific in the Decommissioning GEIS.

The proposed action is to amend the license so the licensee is able to continue with certain major decommissioning activities after the NRC concludes its review of the potential impacts of these activities on historic and cultural resources and NRHP-eligible properties. Based on a review of the information described above, the NRC concludes that potential impacts of the proposed action would not result in additional impact beyond that considered in the PSDAR (TMI-2*Solutions* 2024c), PEIS (NRC 1984, 1987) and Decommissioning GEIS (NRC 2002) for: land use, visual and scenic resources, the geologic environment, surface and groundwater resources, air quality, noise, socioeconomic conditions, public and occupational health, transportation, and waste generation and management. Those areas, therefore, do not require an additional, site specific review. Accordingly, this EA focuses on impacts from the proposed action on the remaining areas requiring site-specific analysis: impacts on NRHP-eligible properties (see Sec. 3.1 "Historic and Cultural Resources"), threatened and endangered species (see Sec. 3.2.3 "Conclusion for Federally Listed Species"), and environmental justice (see Sec. 3.3), as well as the terrestrial and aquatic ecology impacts that are considered to be conditionally site specific (see Sec. 3.2.1. and 3.2.2.). The proposed action is part of Phase 2 of decommissioning, as discussed earlier in the EA.

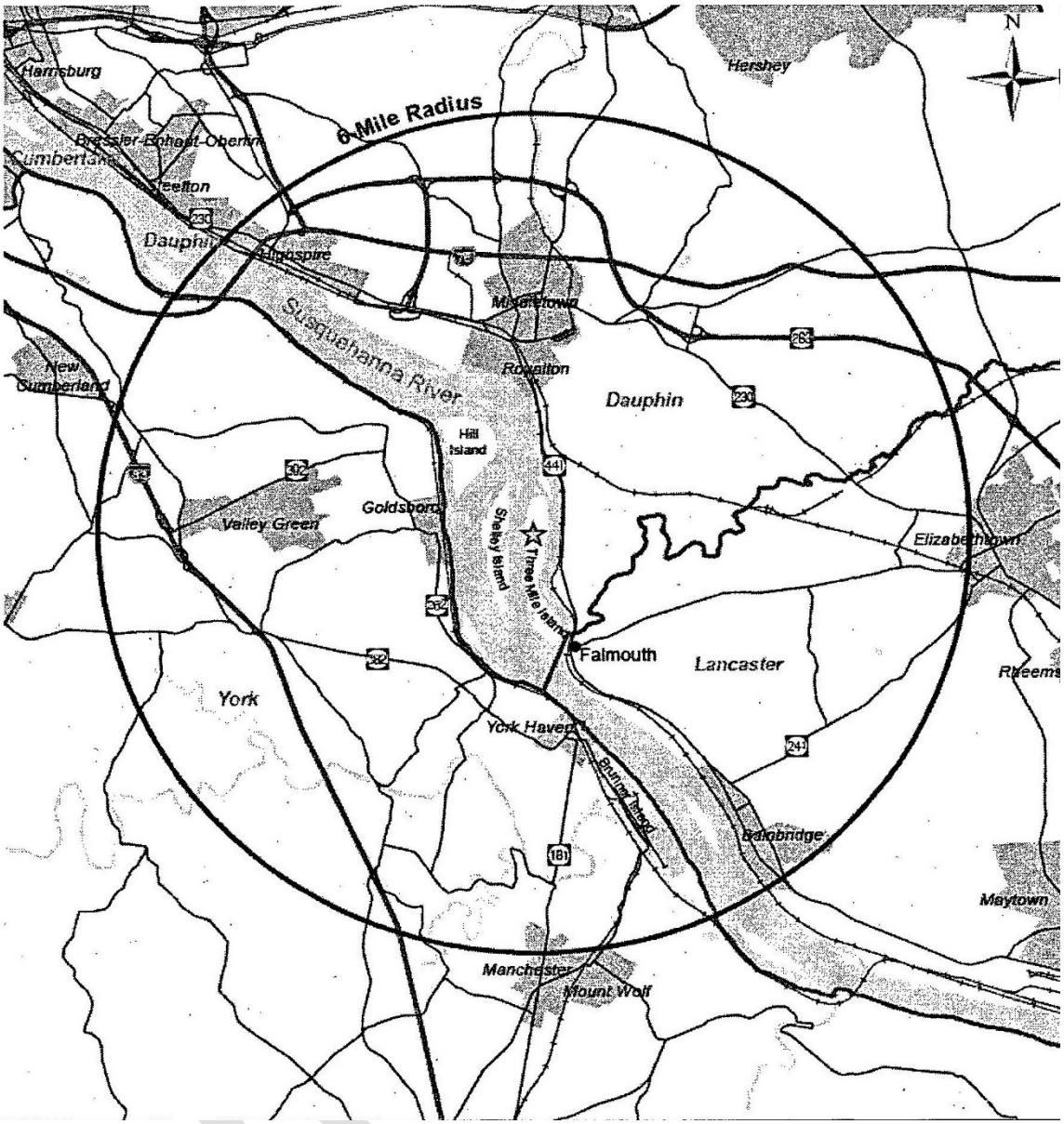

Figure 1 **General Three Mile Island Nuclear Station Site Location. Adapted from NRC 2009**.

Figure 2 **Three Mile Island Nuclear Station, Unit 2 Historic District Above-Ground Resource from the Pennsylvania Historic and Archaeological Resource Exchange**

Figure 3 Three Mile Island Nuclear Station, Unit Area of Potential Effect

3.1 Historic and Cultural Resources

3.1.1 Historic and Cultural Resources Affected Environment

The licensee for TMI-1, which is adjacent to TMI-2, assessed the archaeological potential of Three Mile Island in its entirety as part of its PSDAR (Exelon 2019). The effort concluded that there is high archaeological potential for subsurface resources on the island. There are seven archaeological sites located in the TMI-1 and TMI-2 operational area. Four of these are within the TMI-2 area of potential effect (Figure 3) (TMI-2*Solutions* 2022); none will be affected by the proposed action. Of these four sites, two were determined not eligible for the NRHP, and two archaeological sites were likely removed during construction of TMINS. There are 13 properties listed on the NRHP in a 10 km (6 mi) radius of Three Mile Island and 32 properties that are NRHP-eligible. The closest of these properties is 0.6 km (0.4 mi) away from TMI-1 and TMI-2, a section of the Pennsylvania Railroad Main Line linear historic district, while the remaining properties are over 1.6 km (1 mi) away (TMI-2*Solutions* 2022).

In addition to the archaeological sites referenced above, the TMI-2 structures were determined to be eligible for listing on the NRHP in 2010 (TMI-2*Solutions* 2023a). These structures are eligible under Criterion A (properties significant for their association with event that have made a significant contribution to the broad patterns of history), and under Criterion Consideration G (properties that have achieved significance within the last 50 years) of the National Historic Preservation Act (NHPA) of 1966, as amended.

3.1.2 Historic and Cultural Resources Direct and Indirect Impacts

Section 4.3.14 of the Decommissioning GEIS (NRC 2002) determined that potential effects of decommissioning on cultural, historic, and archaeological resources would be small when the decommissioning activities are confined to the operational area. Section 4.3.14.2 of the Decommissioning GEIS states that, “In a few situations, the nuclear facility itself could be potentially eligible for inclusion in the National Register of Historic Places, especially if it is older than 50 years and represents a significant historic or engineering achievement. In this case, appropriate mitigation would be developed in consultation with the SHPO [State Historic Preservation Officer]” (NRC 2002).

Decommissioning activities at TMI-2 will be conducted within the operational area and backfill would be obtained from an offsite source (TMI-2*Solutions* 2024c). In accordance with the TMI-2 Cultural Resources Protection Plan, TMI-2*Solutions* plans to avoid significant ground disturbing activities within areas with potential archaeological historic properties and areas having high archaeological sensitivity identified by the Pennsylvania SHPO. A significant ground disturbing activity would be (1) obtaining fill material, or (2) another activity that, in terms of comparative depth or breadth, causes more disturbance to the native ground than was caused by the construction of the Three Mile Island ISFSI or caused by the construction of the improvements to structures that are located in the Archaeologically Sensitive Areas (NRC 2024a). Additionally, the TMI-2 Cultural Resources Protection Plan requires notifying the Pennsylvania SHPO prior to conducting decommissioning activities that may occur near or within culturally sensitive areas (TMI-2*Solutions* 2023d). Therefore, the impact to archaeological resources within the operational area is bounded by the conclusion in the Decommissioning GEIS.

Mitigation had not been developed in consultation with the SHPO at the time of the PSDAR Revision 5 submittal in October 2022, therefore, the Decommissioning GEIS conclusion related to cultural and historic resources was not bounding for TMI-2. To address this, by letter dated

February 22, 2023, TMI-2*Solutions* submitted its license amendment request (LAR) to the NRC with a request for review of major decommissioning activities, as defined in 10 CFR 50.2, that would diminish the historic integrity (e.g., physical demolition) of the TMI2*Solutions* owned buildings previously deemed eligible for the NRHP by the Pennsylvania SHPO. Following this, the NRC staff initiated consultation under NHPA Section 106 with the SHPO for this proposed action.

The NRC has identified the TMI-2 Historic District (Resource # 2010RE03382) within the area of potential effect as an above ground historic property (Figure 2), which is eligible for listing in the NRHP under Criterion A in the area of industry for its association with the sequence of events that took place from March 28 through April 4, 1979, during and immediately after the most serious accident in U.S. commercial nuclear power plant operating history. The property meets Criterion Consideration G as an exceptional property of recent history. The above ground NRHP-eligible historic property consists of four non-contiguous areas totaling 5.4 ha (13.3 ac) and including: (1) TMI-2 Reactor Containment Building, (2) TMI-2 Turbine Building, (3) TMI-2 Control Service Building, (4) TMI-2 Natural Draft Cooling Towers, (5) TMI-2 Mechanical Draft Cooling Tower, (6) TMI-2 Intake Screen and Pump House, (7) Fuel Handling Building, (8) TMI-2 Auxiliary Building, and (9) Observation Center.

By letters dated April 6 and August 14, 2023 (see Appendix A), the NRC staff initiated consultation with the Pennsylvania SHPO, ACHP, Constellation Energy, 16 Tribes, TMI-2*Solutions*, the TMI-2 Community Advisory Panel (CAP), Historic Harrisburg Association, York County History Center, Dauphin County Historical Society, and Middletown Historical Restoration Commission (see Section 4.1 for more information about the consultation process). Given that the TMI-2 Historic District will be adversely affected by the TMI-2 decommissioning, and adverse effects cannot be avoided, the consultation focused on development of a Programmatic Agreement to mitigate the unavoidable adverse effects. The NRC staff held a series of webinars from August 2023 through February 2024 with the Consulting Parties to develop a draft TMI-2 Decommissioning Project Programmatic Agreement. Consulting Parties provided comments and input during development of the draft programmatic agreement. Webinar participants, or Consulting Parties, included the NRC, the Pennsylvania SHPO, ACHP, TMI-2*Solutions*, and the CAP.

The draft programmatic agreement was issued for public review and comment through a *Federal Register* Notice dated March 6, 2024 (89 FR 16037), which provided an opportunity for public involvement in the process. One comment was received during the comment period (Jennings 2024); that comment suggested further consideration be given to the preservation of the two cooling towers. NRC considered the comment in consultation with the programmatic agreement Consulting Parties. Due to structural integrity, safety, liability, and future maintenance, as well as ownership concerns, retaining the cooling towers was determined not to be feasible and no changes were made to the programmatic agreement as a result of this comment. The executed programmatic agreement provides the specific details regarding mitigation of the identified adverse effect (NRC 2024a).

3.2 Ecological Resources

This section evaluates the potential impacts of the proposed action on ecological resources. The TMINS site includes TMI-1 and TMI-2. It encompasses approximately 178 ha (440 ac), including TMINS and adjacent islands on the north end, a strip of land on the mainland along the eastern shore of the river, and an area on the eastern shore of Shelley Island. The proposed action is part of Phase 2 decommissioning, as discussed earlier in the EA. For the purposes of

this ecological analysis, the affected environment is the operational area of the TMINS site located on Three Mile Island including concrete intake structures and immediately adjacent land where terrestrial wildlife and habitats could experience indirect effects.

3.2.1 Terrestrial Resources

Three Mile Island is located within the Lower Susquehanna River Subbasin. This subbasin drains about 15,300 km^2 (5,900 mi^2) of urban and rural areas, ridges, and open valleys and empties into the Chesapeake Bay at Havre de Grace, Maryland. The ridges of this subbasin are primarily forested, and the valleys are predominantly used for agriculture. Other portions of this subbasin contain developed areas with some abandoned mine lands. A dike system was created during initial construction of TMI-1 and TMI-2, and a wetland habitat developed once the associated borrow pits began to fill with water. Approximately 81 ha (200 ac) of natural habitat remains on the island, mostly on its southern half (NRC 2009).

3.2.1.1 State-Listed Species

TMI-2*Solutions*' PSDAR Section 6.1.7 identifies several terrestrial species that Pennsylvania natural resources agencies have listed as State-threatened or endangered or designated as species of greatest conservation need that are known to occur on Three Mile Island in unmaintained areas adjacent to the operational area (TMI-2*Solutions* 2022). American holly (*Ilex opaca*), which has the status of State-threatened, was observed on the southern portion of the island in 2008 during ecological surveys conducted in support of the TMI-1 license renewal (NRC 2009). Bald eagles (*Haliaeetus leucocephalus*), peregrine falcons (*Falco peregrinus*), and ospreys (*Pandion haliaetus*), all of which are protected under Pennsylvania's Game and Wildlife Code, occur on the TMINS site (TMI-2*Solutions* 2022). Undisturbed areas in the southern half of the island are likely to provide favorable habitat for these birds.

In January 2024, TMI-2S*olutions* obtained a Pennsylvania Department of Environmental Protection (PADEP) Pennsylvania Natural Diversity Inventory (PNDI) review of the decommissioning project to support TMI-2*Solutions*' responses to NRC's requests for additional information (RAIs) regarding the occurrence of listed threatened and endangered species (TMI-2*Solutions* 2024a). TMI-2S*olutions* provided a copy of the PNDI review to NRC to demonstrate TMI-2S*olutions'* process of determining whether listed species may occur in the project area before proceeding with decommissioning activities. The PNDI review serves as a clearinghouse for all State agencies tasked with protecting rare and sensitive species and combines results from the PA Game Commission (PAGC), PA Department of Conservation and Natural Resources (PADCNR), PA Fish and Boat Commission (PAFBC), as well as the U.S. Fish and Wildlife Service (FWS). For the PNDI review that TMI-2*Solutions*' generated for the purpose of responding to NRC RAIs, the PAGD, PADCNR, PAFBC, and FWS considered whether there may be potential impacts to threatened, endangered, or special concern species, habitats, and resources within the project area and under each agency's jurisdiction. The PAGC identified the peregrine falcon (*Falco peregrinus*) as a special concern species.

Two bald eagles first nested on Three Mile Island in 2010 and the species has historically been seen foraging in the area since at least 1990. Two bald eagle nests are present on Three Mile Island—one is located north of the North Access Road, and one is located adjacent to the South Access Road (TMI-2*Solutions* 2024c). Peregrine falcons have nested on the developed portion of the TMINS site since 2002 and have produced two or three offspring annually since. Most recently, TMI-2*Solutions* observed a peregrine falcon nest on the TMI-2 reactor building several years ago (TMI-2*Solutions* 2024c). Ospreys have nested on the TMI-1 meteorological tower on

the north end of the island since 2005 and on two platforms erected on the south end of the island.

3.2.1.2 Decommissioning GEIS Determination

The Decommissioning GEIS concludes generically that potential impacts to terrestrial resources from decommissioning activities conducted within the operational area of a nuclear power plant site would be SMALL. The Decommissioning GEIS acknowledges that land disturbed by construction of a nuclear power plant typically continues to be of low value as terrestrial habitat throughout operations and decommissioning unless the site goes into a decade-long period of low decommissioning activity (NRC 2002). If impacts are expected outside the operational area, the Decommissioning GEIS indicates that a site-specific analysis is required to determine the significance of such impacts (NRC 2002).

3.2.1.3 Site-Specific Activities

This section discusses site-specific impacts that would occur outside the operational area, and therefore, are not bounded by the Decommissioning GEIS (NRC 2002). Terrestrial wildlife and habitats adjacent to and outside of the operational area could experience impacts from decommissioning activities caused by increased noise, lights, vibrations, fugitive dust, soil erosion, and surface runoff. TMI-2*Solutions* anticipates that decommissioning activities with greatest potential for direct and indirect effects on terrestrial plant and animal communities are those involving major reactor structure demolition, such as the TMI-2 cooling towers, which may require TMI-2*Solutions* to use either explosives or mechanical means to demolish structures (TMI-2*Solutions* 2022). Animals would be exposed to elevated sound and pressure levels for a very brief period when explosives are used. The PADEP has established regulatory limits for noise and in-audible airborne vibration energy from the use of explosives. PADEP regulations also limit peak particle velocities to minimize ground vibrations. While this regulation is not specific to protecting wildlife, placing limits on noise and vibrations from explosives also limits the potential effects on wildlife. If TMI-2*Solutions* uses explosives, it would obtain the necessary PADEP permit and implement standard demolition industry best management practices (BMPs) (TMI-2*Solutions* 2022).

Because the TMINS site is an established industrial area that has operated continuously for several decades, wildlife outside of the operational area, but near the site has generally acclimated to noise and human activity associated with the site, including noise levels expected during decommissioning. Noise levels associated with decommissioning activities outside of the operational area are expected to be similar to noise levels that were generated during normal operations of TMI-2 or during refueling outages. The TMI-2 Environmental Management Program (EMP) includes procedures, plans, and environmental monitoring requirements related to birds and other wildlife.

Nesting bald eagles located adjacent to the north and south access road will be exposed to louder noises during major demolition activities than they are routinely exposed to from the TMINS site. TMI-2*Solutions* stated in their RAI response (TMI-2*Solutions*. 2024b) that they will (1) consult with appropriate Federal and State resource agencies during the planning process for removal of the TMI-2 owned and controlled buildings and structures to ensure that Federal and State agency concerns are addressed, and (2) ensure processes are in place such that any potential impacts to terrestrial or aquatic species, as well as any threatened or endangered species observed on or near the TMI operational area, are avoided (TMI-2*Solutions* 2024a,c). If peregrine falcons continue to nest on the reactor building and present a risk of effecting the

schedule for demolishing TMI-2 structures during the falcon nesting season, TMI-2*Solutions* plans to contract with environmental specialists prior to demolition to determine the most feasible method to prevent the falcons from nesting on the structure without harming them and attempt to relocate their nesting site. Although ospreys also nest on the TMINS site, the NRC staff do not expect conflicts from decommissioning on ospreys because the nests are located outside of and farther away from the operational area on the north and south ends of the island compared to the eagle nests (TMI-2*Solutions* 2024c).

Dust generation from decommissioning activities and increased truck traffic would be a short-lived, temporary adverse impact to nearby wildlife. During TMI-2 decommissioning, TMI-2*Solutions* would use water to abate dust (TMI-2*Solutions* 2024c). TMI-2*Solutions* would implement reasonable and appropriate control measures, such as wetting soil piles and concrete structure demolition by hammering, covering loads and staging areas, and seeding bare areas to control fugitive dust (TMI-2*Solutions* 2024c). These mitigation measures would limit dust that may settle on nearby vegetation that would otherwise render it undesirable for animal consumption. The NRC staff finds that these measures would minimize erosion, runoff, and fugitive dust and prevent adverse impacts to terrestrial habitats.

TMI-2*Solutions* maintains an EMP, which ensures that decommissioning activities are conducted in a manner that avoids or minimizes adverse impacts to the environment and that TMI-2*Solutions* complies with applicable permits and environmental authorizations when carrying out activities (TMI-2*Solutions* 2024b). The TMI-2 EMP outlines environmental monitoring requirements related to avian and wildlife management, air permit preparation, erosion and sediment control, and protection of cultural resources. The plan specifies BMPs that TMI-2*Solutions* will implement during decommissioning to comply with environmental permits and authorizations and minimize impacts to the environment. These include:

- minimizing emissions of air/airborne pollutants
- preventing inadvertent releases of hazardous substances into the environment
- minimizing the generation of radiologically contaminated hazardous waste (i.e., mixed waste)
- preventing discharge of oil in harmful quantities to the Susquehanna River due to equipment failure or human error
- controlling discharges to the Susquehanna River in accordance with the National Pollutant Discharge Elimination System (NPDES) permit (individual and Construction General Permit)
- minimizing loss of fish or other aquatic life

In its PSDAR, TMI-2*Solutions* indicates that it would consult with State and Federal resource agencies during the planning process for removal of TMI-2 buildings and structures to ensure that State and Federal resource agency concerns are addressed. As stated in section 3.2.1.1, TMI-*2Solutions* generated a January 2024 PNDI review to respond to NRC RAIs to demonstrate TMI-2S*olutions'* process of determining whether listed species may occur in the project area before proceeding with decommissioning activities. Because TMI-2S*olutions* (1) demonstrated their process of evaluating environmental impacts on threatened and endangered or special concern species and resources from site-specific decommissioning activities for the PSDAR, (2) plan to request PNDI reviews if a decommissioning activity requires a new permit or revision to an existing permit as determined by the TMI-2 Environmental Screening Assessment process, (3) stated that they will consult with appropriate State and Federal resource agencies during the planning process for removal of the TMI-2 owned and controlled buildings and structures to

ensure that State and Federal resource agency concerns are addressed, and (4) stated that they will ensure processes are in place such that any potential impacts to threatened and endangered or special concern species and resources on or near the TMI operational area, are avoided, the NRC staff concludes that TMI-2*Solutions* would effectively minimize impacts to threatened and endangered or special concern species and resources. Section 3.2.1.3 describes potential impacts to peregrine falcons and additional BMPs that TMI-2*Solutions* will implement to ensure that PAGC concerns are addressed. If potential impacts to sensitive species or habitats are anticipated, TMI-2*Solutions* would implement appropriate procedures and BMPs to avoid such impacts. As a Federal action agency, the NRC has statutory obligations relating to certain federally protected ecological resources, such as species and habitats protected under the Endangered Species Act of 1973, as amended (ESA). Section 3.2.5 of this EA addresses federally protected ecological resources and the NRC's related consultations.

In its February 12, 2024, response to an NRC staff request for additional information, TMI-2*Solutions* stated that its company practice is to obtain a new PADEP PNDI review if a decommissioning activity requires a new permit or revision to an existing permit as determined by its Environmental Screening Assessment process, or at least prior to expiration of the most recent PNDI review obtained, whichever is sooner, to ensure that potential impacts to sensitive species or habitats are appropriately addressed prior to performing the activity (TMI-2*Solutions* 2024b). If during this process, TMI-2*Solutions* identifies that site activities may affect federally listed species, this would trigger consultation requirements under ESA Section 7. Section 3.2.2 discusses these requirements in more detail.

3.2.1.4 Conclusion

The NRC staff concludes that direct terrestrial resource impacts may occur within previously disturbed areas of the TMINS site. The NRC staff does not anticipate any direct impacts beyond those considered in the Decommissioning GEIS. The Decommissioning GEIS concluded the impacts of decommissioning on terrestrial resources are of SMALL significance within the operational area. Indirect terrestrial resource impacts could affect animals immediately adjacent to the operational area, and potential impacts to terrestrial ecology outside of the operational area are not bounded by the GEIS. TMI-2*Solutions* plans to limit land disturbance from decommissioning activities to the existing operational area, comply with its NPDES permit, contract with environmental specialists prior to structure demolition to ensure that impacts to peregrine falcon nests are minimized, and consult with appropriate State and Federal resource agencies to ensure that agency concerns are addressed. Additionally, TMI-2*Solutions* would continue implementing its EMP and Environmental Screening Assessment process, as well as follow BMPs throughout decommissioning to protect terrestrial resources from indirect impacts, such as increased noise, lights, vibrations, fugitive dust, soil erosion, and surface runoff. NRC staff does not expect changes to local species populations. Indirect impacts from decommissioning activities on terrestrial resources beyond the operational area would be temporary. Based on the temporary and localized nature of any indirect impacts and on TMI-2*Solutions*' processes to minimize impacts to terrestrial or aquatic species, as well as any threatened or endangered species observed on or near the TMI operational area, are avoided, (2) EMP, and (3) proposed BMPs, the NRC staff concludes that impacts to terrestrial ecological resources outside of the operational area are expected to be SMALL and temporary.

3.2.2 Aquatic Resources

The aquatic resources of concern for TMI-2 decommissioning are York Haven Pond and Lake Frederic, which form an impounded section of the Susquehanna River downstream of Middletown, Pennsylvania, and the aquatic life within this impoundment. Lake Frederic provides storage capacity for the York Haven Hydroelectric Project and served as the source of cooling water for TMI-2 when it was operating. Section 2.2.5 of the NRC's Supplemental Environmental Impact Statement for TMI-1 license renewal describes the aquatic resources in the vicinity of the TMINS site in detail (NRC 2009). This region of the Susquehanna River has been highly dammed, and this historically caused population declines in multiple anadromous species, including American shad (*Alosa sapidissima*) and river herring. Intensive restoration efforts for these species, including construction of upstream fish passage facilities at multiple dams in the 1990s and early 2000s, have allowed these populations to rebound. This region is also used for recreational fishing smallmouth bass (*Micropterus dolomieu*), flathead catfish (*Pylodictis* spp.), channel catfish (*Ictalurus punctatus*), and walleye (*Sander vitreus*), among other species (NRC 2009).

3.2.2.1 State-Listed Species

As discussed in Section 3.2.1, TMI-2*Solutions* obtained a PNDI review of the decommissioning project. In the report, the PA Fish and Boat Commission did not identify any aquatic species and stated that, "No impact is anticipated to [state-listed] threatened and endangered species and/or special concern species and resources (TMI-2*Solutions* 2024b)." While TMI-2*Solutions*' PSDAR identifies the Atlantic sturgeon (*Acipenser oxyrinchus*) as a Pennsylvania endangered species and a species of greatest conservation need (TMI-2*Solutions* 2024c; PNHP 2024), TMI-2*Solutions* states there has been no observation of this species near Three Mile Island (TMI-2*Solutions* 2024c).

3.2.2.2 Site-Specific Activities

Direct impacts to aquatic resources may occur from decommissioning activities related to intake structure removal (TMI-2*Solutions* 2022), which was evaluated in the Decommissioning GEIS. The staff anticipate no additional impacts on aquatic resources from removal of intake structures than those described in the GEIS. During TMI-2 operations, water from the Susquehanna River was used to cool reactor systems and heated effluent was discharged into the Susquehanna River. TMI-2*Solutions* plans to use cofferdams with dewatering systems during intake structure removal. TMI-2*Solutions* would use BMPs to limit erosion while intake structures are removed and would comply with regulatory and permit requirements to protect surface water and groundwater resources (TMI-2*Solutions* 2024c). If the removal of intake structures could impact jurisdictional wetlands, TMI-2*Solutions* would be required to obtain a Clean Water Act Section 404 permit and to follow the applicable regulations set forth at 25 Pennsylvania Code § 105, Dam Safety and Waterway Management. With respect to other indirect impacts, TMI-2*Solutions* would comply with all relevant permits and adhere to erosion and sediment controls, soil stabilization practices, structural practices, and pollution prevention measures to ensure that any water quality impacts from decommissioning are minimized and temporary (TMI-2*Solutions* 2024c).

As described in Section 3.2.1, Terrestrial Resources, TMI-2*Solutions* maintains an EMP, which ensures that decommissioning activities are conducted in a manner that avoids or minimizes adverse impacts to the environment and that TMI-2*Solutions* complies with applicable permits and environmental authorizations when carrying out activities, including controlling discharges

to the Susquehanna River in accordance with their NPDES permit (individual and Construction General Permit) and BMPs (TMI-2*Solutions* 2024b). Additionally, TMI-2*Solutions* would request the PADEP to perform a new PNDI review of the decommissioning project if a decommissioning activity requires a new permit or revision to an existing permit as determined by its Environmental Screening Assessment process, or at least prior to expiration of the most recent PNDI review obtained, whichever is sooner, to ensure that potential impacts to sensitive species or habitats are appropriately consider prior to performing the activity (TMI-2*Solutions* 2024b).

3.2.2.3 Conclusion

The NRC staff concludes direct and indirect aquatic ecology impacts in areas adjacent to the operational area would be insignificant. The NRC staff does not anticipate any impacts to aquatic ecology other than those discussed in the Decommissioning GEIS. The Decommissioning GEIS concluded the impacts of decommissioning on aquatic resources are of SMALL significance within the operational area. TMI-2*Solutions* plans to maintain its EMP, comply with its NPDES permit, conduct no dredging activities, continue the EMP and Environmental Screening Assessment process, and implement BMPs throughout decommissioning to protect the Susquehanna River from sedimentation, runoff, and fugitive dust. Impacts to aquatic ecological resources outside of the operational area are expected to be SMALL from decommissioning activities because decommissioning would occur within previously disturbed areas of the TMI-2 site and impacts would be temporary and minimized through the implementation of the EMP and associated BMPs.

3.2.3 Conclusion for Federally Listed Species

The NRC must consider the effects of its actions on ecological resources protected under several Federal statutes and must consult with the FWS or the National Oceanic and Atmospheric Administration prior to acting in cases where an agency may affect those resources. These statues include the following:

- ESA of 1973, as amended (16 U.S.C. § 1531 et seq.)
- Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (16 U.S.C. § 1801 et seq.)
- National Marine Sanctuaries Act (16 U.S.C. 1431 § et seq.)

The NRC staff used the FWS's Environmental Conservation Online System Information for Planning and Conservation (IPaC) database to identify federally protected species and critical habitats that may be present in the TMI-2 action area. The IPaC database (FWS 2024) identified six species under FWS jurisdiction that potentially occur in the action area: Indiana bat (*Myotis sodalist*), northern long-eared bat (*Myotis septentrionalis*), tricolored bat (*Perimyotis subflavus*), green floater (*Lasmigona subviridis*), northeastern bulrush (*Scirpus ancistrochaetus*), and monarch butterfly (*Danaus plexippus*). The NRC staff determined these species to be relevant to this review based on the FWS's IPaC report, desktop analysis of the TMI-2 action area, and available scientific literature and studies. The NRC staff concluded that the proposed action may affect but is not likely to adversely affect these six species. The NRC staff's determination is provided in a letter to FWS May 24, 2024 (NRC 2024b), and is incorporated here by reference. The NRC staff requested the FWS's concurrence with the staff's determination and FWS's comments will be provided in the final EA.

3.3 Executive Order 12898—Environmental Justice

Executive Order (E.O.) 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," (59 FR 7629) dated February 16, 1994, directs Federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law. Although independent agencies, such as the NRC, were only requested, rather than directed, to comply with the E.O., NRC Chairman Ivan Selin, in a letter to the President, indicated that "the NRC would endeavor to carry out the measures set forth in the E.O. and the accompanying memorandum as part of the NRC's efforts to comply with the requirements of NEPA." In 2004, the Commission issued its Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions (69 FR 52040).

The environmental justice impact analysis evaluates the potential for disproportionate and adverse human health and environmental effects on minority and low-income populations that could result from the proposed decommissioning activities. Such effects may include human health, biological, cultural, economic, or social impacts. Minority and low-income populations are subsets of the general public residing around the reactor, and all are exposed to the same health and environmental effects generated from decommissioning activities.

Minority Populations in the Vicinity of TMI-2—According to the U.S. Census Bureau's 2020 Census data, approximately 18 percent of the population (approximately 63,000 individuals) residing within a 10 km (6 mi) radius of TMI-2 identified themselves as minority. The largest minority population were Black or African American alone or in combination with other race (approximately 4,400 individuals or 7 percent) followed by Hispanic or Latino of any race (approximately 4,000 individuals or 6 percent) (MCDC 2024). According to the 2020 Census, 39 percent of the Dauphin County population identified themselves as minority with Black or African American alone or in combination with other race (21 percent), Hispanic or Latino of any race (11 percent), and Asian alone or in combination with other race (7 percent) comprising the largest minority populations (USCB 2024).

Low-income Populations in the Vicinity of TMI-2—According to the U.S. Census Bureau's 2018–2022 American community survey 5-year estimates, approximately 5,000 persons and 900 families (approximately 8 and 6 percent, respectively) residing within a 10 km (6 mi) radius of TMI-2 were identified as living below the Federal poverty threshold (MCDC 2024). The 2022 Federal poverty threshold was $30,186 for a family of four. According to the U.S. Census Bureau's 2022 American Community Survey Census 1-Year Estimates, the median household income for Pennsylvania was $71,798 while approximately 8 percent of families and 12 percent of the State population were found to be living below the Federal poverty threshold. Dauphin County had a higher estimated median household income average ($122,403) and lower percentages of families (10 percent) and persons (13 percent) living below the poverty level (USCB 2024).

Impact Analysis—Potential impacts to minority and low-income populations would mostly consist of radiological effects, which would be the same as for those of the general population. However, radiation doses from decommissioning activities associated with the proposed action are expected to be below regulatory limits with no significant visual or noise impacts. Based on this information and the analysis of human health and environmental impacts in this EA, the proposed decommissioning activities would not have disproportionate and adverse human health and environmental effects on minority and low -income populations living near TMI-2.

3.4 Cumulative Effects

The NRC staff's assessment of cumulative effects considers the incremental effects of the proposed action when combined with the effects of other past, present, and reasonably foreseeable actions at the TMI-2 site.

In the preceding sections of this EA, the NRC staff has determined that the proposed action has the potential to affect NRHP-eligible properties, threatened and endangered species, and environmental justice. Accordingly, this section only addresses the cumulative effects that could result from the proposed action and other actions on these resources. The proposed action would have no effect on the remaining resources, and thus, cumulative effects would not occur for these environmental resources.

As part of a Settlement Agreement for the Federal Energy Regulatory Commission (FERC) relicensing of the York Haven Hydroelectric Project, York Haven Power Company (YHPC) plans to construct an Inland Nature-Like Fishway (Inland NLF) along the Susquehanna River where the York Haven Hydroelectric Project Main Dam (YHHPMD) joins Three Mile Island. The primary purpose of the Inland NLF is to improve fish passage and connectivity in the Susquehanna River (USACE 2023). An earlier in-river design was found not to be feasible. The Inland NLF construction will involve the creation of an inland bypass channel on Three Mile Island as well as certain modifications to the rock-filled concrete portion of the dam itself. This area of Three Mile Island is known to have archaeological sites, and the York Haven Hydroelectric Development facilities are eligible for the NRHP. Two previously listed archaeological sites are located in the vicinity of the York Haven Project where the Inland NLF will be constructed, and one of the sites is NRHP eligible. The Inland NLF may affect a portion of the archaeological sites and the YHHPMD. The construction of the Inland NLF is scheduled to occur over the course of approximately 18 months commencing in May 2024. YHPC has initiated Section 106 consultation with the Pennsylvania SHPO and is requesting a modification to its current FERC license for the construction of the Inland NLF to replace the original in-river NLF design. FERC, as the lead Federal agency, has responsibility to ensure compliance with NHPA. Due to the ongoing Section 106 consultation for the construction of the Inland NLF, the NRC staff finds that the Inland NLF is not likely to contribute to cumulative effects on historic and cultural resources. The Inland NLF would permanently impact wetlands. Additionally, the U.S. Army Corps of Engineers has preliminarily determined that the project is not likely to adversely affect federally listed threatened or endangered species or critical habitat under ESA Section 7 (USACE 2023).

In addition to the TMI-2, Three Mile Island also contains the TMI-1 facility that permanently ceased power operations on September 20, 2019. TMI-1 is owned and operated by Exelon Generation Company, LLC (Exelon). Exelon has submitted a PSDAR to NRC detailing its decommissioning plan and schedule (Exelon 2019). As required by 10 CFR 50.82(a)(7), Exelon must notify NRC in writing before performing any decommissioning activity inconsistent with, or making significant schedules change from, those described in the PSDAR. Additionally, Exelon will provide the NRC with updates of site-specific impact assessments once decommissioning activities have been finally determined and scheduled. Decommissioning at TMI-1 is planned for completion by 2078 (Exelon 2019). Decommissioning at TMI-2 is planned to be completed in 2037 (TMI-2*Solutions* 2024c), such that the demolition of TMI-1 buildings is unlikely to overlap with the TMI-2 demolition activities. Ultimately, the TMINS will be released from NRC regulatory authority after decommissioning and license termination is complete.

3.5 Summary of Environmental Consequences

The proposed action would not result in additional impacts in any of the resource areas beyond those considered in the TMI-2 PSDAR, PEIS, and generically addressed in the Decommissioning GEIS, except for those areas requiring site-specific analysis: impacts on NRHP-eligible properties, threatened and endangered species, and environmental justice. Depending on site-specific circumstances, terrestrial ecology beyond the operational area and aquatic ecology beyond the operational area are considered to be conditionally site specific.

The proposed action will result in adverse impacts to historic properties. Therefore, a programmatic agreement was executed as a means to resolve the adverse effects caused by demolition of the TMI-2 buildings. The mitigation of adverse effects to the TMI-2 Historic District, which is eligible for listing in the NRHP, will be completed in accordance with the TMI-2 Demolition and Decommissioning Programmatic Agreement (NRC 2024a).

Impacts to threatened and endangered species are not bounded by the Decommissioning GEIS and must always be evaluated on a site-specific basis. The staff found that the proposed action may affect but is not likely to adversely affect the Indiana bat (*Myotis sodalist*), northern long-eared bat (*Myotis septentrionalis*), tricolored bat (*Perimyotis subflavus*), green floater (*Lasmigona subviridis*), northeastern bulrush (*Scirpus ancistrochaetus*), and monarch butterfly (*Danaus plexippus*). The NRC staff requested the FWS's concurrence on federally listed species in correspondence dated May 24, 2024 (NRC 2024b). FWS's comments will be provided in the final EA.

Environmental justice impacts could not be generically dispositioned in the Decommissioning GEIS and must be assessed on a site-specific basis. The proposed action would not have disproportionate and adverse human health and environmental effects on minority and low-income populations living near TMI-2.

4 CONSULTATION AND COORDINATION

The NRC staff consulted with other agencies regarding the proposed action in accordance with NUREG-1748 (NRC 2003). These consultations were undertaken to (1) assure that the requirements of Section 106 of the NHPA, and Section 7 of the ESA were met, and (2) provide the designated Federal and State liaison agencies the opportunity to comment on the proposed action.

4.1 National Historic Preservation Act Section 106 Consultation

By letter dated April 6, 2023, the NRC staff initiated consultation with the Pennsylvania SHPO, 16 Tribes and other identified members of the public. **Error! Reference source not found.** contains the list of correspondence. In the letters initiating consultation, the NRC informed the recipients about the project, requested any available information and started the consultation process where appropriate.

The NRC received two responses; one from the Pennsylvania SHPO (Pennsylvania SHPO 2023) acknowledging receipt and initiation of the Section 106 process and providing comments on historic resources, the other from the Shawnee Tribe accepting the invitation for consultation and requesting to be informed of any future discoveries (Shawnee Tribe 2023). By letter dated August 14, 2023, the NRC sent six additional letters to local organizations inviting them into consultation on the programmatic agreement. **Error! Reference source not found.** contains the list of correspondence. The NRC received two responses: one from the CAP accepting consultation (CAP 2023), the other from Pennsylvania State Archives (PSA 2023) deferring consultation to the Pennsylvania SHPO. All correspondence related to Section 106 consultation can be found in **Error! Reference source not found.**.

4.2 ESA Section 7 Consultation

Upon receipt of TMI-2*Solutions*' application, the NRC staff considered whether any federally listed or proposed species or designated or proposed critical habitats may be present in the action area (as defined at 50 CFR 402.02) for the proposed action. As discussed in section 3.2.3 of this EA and in the May 24, 2024 letter detailing the NRC determinations to the FWS for its review and concurrence (NRC 2024b), the NRC staff found that the proposed action may affect, but is not likely to adversely affect the Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), tricolored bat (*Perimyotis subflavus*), monarch butterfly (*Danaus plexippus*), northeastern bulrush (*Scirpus ancistrochaetus*), or green floater (*Lasmigona subviridis*). FWS's comments will be provided in the final EA.

5 CONCLUSION AND DRAFT FINDING OF NO SIGNIFICANT IMPACT

Based on its review of the proposed action, in accordance with the requirements of 10 CFR 51, the NRC staff has determined that amendment of NRC License DPR-73, addressing evaluation of impacts of specific decommissioning activities on historic and cultural resources and the NRHP-eligible properties, would not significantly affect the quality of the human environment.

The Decommissioning GEIS and the PEIS generically addressed many of the potential environmental impacts of the specific decommissioning activities proposed at TMI-2. During its review of the LAR, the NRC concluded that the impacts of the proposed action for the following resource areas are bounded by the Decommissioning GEIS and PEIS: land use, visual and scenic resources, the geologic environment, surface and groundwater resources, air quality, noise, socioeconomic conditions, public and occupational health, transportation, and waste generation and management. For these resource areas, the NRC does not expect impacts beyond those discussed in the Decommissioning GEIS and PEIS, which concluded that the impacts would be SMALL.

Three resource areas required a site-specific review; impacts on NRHP-eligible properties, threatened and endangered species, and environmental justice. The proposed action will result in adverse impacts to historic properties, which have been mitigated and resolved through the execution of the TMI-2 Demolition and Decommissioning Programmatic Agreement (NRC 2024a). The staff found that the proposed action may affect, but is not likely to adversely effect, the Indiana bat (*Myotis sodalist*), northern long-eared bat (*Myotis septentrionalis*), tricolored bat (*Perimyotis subflavus*), green floater (*Lasmigona subviridis*), northeastern bulrush (*Scirpus ancistrochaetus*), and monarch butterfly (*Danaus plexippus*). The NRC staff transmitted a letter detailing the NRC determinations to the FWS for its review and concurrence on May 24, 2024 (NRC 2024b). FWS's comments will be provided in the final EA. The NRC staff found that the proposed decommissioning activities would not have disproportionate and adverse human health and environmental effects on minority and low-income populations living near TMI-2.

Therefore, based on this preliminary assessment, in accordance with 10 CFR 51.31, the NRC staff has concluded that the proposed action does not warrant the preparation of an environmental impact statement, and, pursuant to 10 CFR 51.32, a finding of no significant impact is appropriate.

6 LIST OF PREPARERS

This EA was prepared by the Environmental Center of Expertise in the Division of Rulemaking, Environmental, and Financial Support in the Office of Nuclear Material Safety and Safeguards. Contributors to the EA are listed below (**Error! Reference source not found.**.)

Table 6-1 List of Contributors

Contributor	Years of Experience, Education
Stacey Imboden, NRC	• BS Meteorology • MS Environmental Engineering • Duke NEPA Certificate • 23 years of professional experience
Jean Trefethen, NRC	• BA Biology and Chemistry • Duke NEPA Certificate • 15 years of professional experience
Amy Minor, NRC	• BA Environmental Studies • Duke NEPA Certificates • 23 years of environmental site analysis and evaluations
Jeffrey Rikhoff, NRC	• BA English • MS Development Economics • MRP Regional Environmental Planning • A total of 43 years of combined industry and government experience in NEPA compliance for DOE Defense Programs/NNSA and Nuclear Energy, DoD, and DOI; project management; socioeconomics and environmental justice impact analysis, historic and cultural resource impact assessments, consultation with American Indian Tribes, and comprehensive land-use and development planning studies

BA = Bachelor of Arts; BS = Bachelor of Science; DoD = U.S. Department of Defense; DOE = Department of Energy; DOI = U.S. Department of Interior; NRC = U.S. Nuclear Regulatory Commission; MRP = Master of Regional Planning; MS = Master of Science; NEPA = National Environmental Policy Act of 1969; NNSA = National Nuclear Security Administration; NRC = U.S. Nuclear Regulatory Commission; PhD = Doctor of Philosophy.

7 REFERENCES

References used in the preparation of this EA are publicly available online or through the NRC's Agencywide Documents Access and Management System (ADAMS) at http://www.nrc.gov/reading-rm/adams.html. To begin a search in ADAMS, select "Begin WBA Search." The ADAMS accession number is provided for references in ADAMS.

10 CFR Part 51. *Code of Federal Regulations*, Title 10, *Energy*, Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions."

40 CFR Part 81. *Code of Federal Regulations*, Title 40, *Protection of Environment*, Part 81, "Designation of Areas for Air Quality Planning Purposes."

50 CFR Part 402. *Code of Federal Regulations*, Title 50, *Wildlife and Fisheries*, Part 402, "Interagency Cooperation—Endangered Species Act of 1973, as amended."

59 FR 7629. Executive Order No. 12898. "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." *Federal Register* 59(32):7629–7634. February 16, 1994.

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APPENDIX A

CONSULTATION CORRESPONDENCE

This appendix contains a listing of correspondence between U.S. Nuclear Regulatory Commission (NRC) and other Parties related to Section 106 of the U.S. Nuclear Regulatory Commission (NHPA). The correspondence in this appendix can be found through the NRC's Agencywide Documents Access and Management System (ADAMS) at http://www.nrc.gov/reading-rm/adams.html. To begin a search in ADAMS, select "Begin WBA Search." The ADAMS accession number is provided below.

Table A-1 List of Correspondence

	Addressee	Affiliation	ADAMS Accession
1	Emma Diehl	Pennsylvania Historic Preservation Office	ML23086A013
		Response from Pennsylvania SHPO to the NRC	ML23138A066
2	John Eddins	Advisory Council on Historic Preservation	ML23093A055
3	Roger Hill	Tonawanda Seneca Nation, Chief	ML23094A255
4	Sidney Hill	Onondaga Nation, Chief	ML23094A258
5	Darren Bonaparte	St. Regis Mohawk Tribe, THPO	ML23094A240
6	Courtney Gerzetich	Oneida Nation of Wisconsin, THPO	ML23094A239
7	Bryan Printup	Tuscarora Nation, THPO	ML23094A235
8	Carissa Speck	Delaware Nation, Historic Preservation Director	ML23094A236
9	Clint Halftown	Cayuga Nation, Federal Representative	ML23094A238
10	Susan Bachor	Delaware Tribe of Indians, Preservation Representative	ML23094A245
11	Tonya Tipton	Shawnee Tribe, THPO	ML23094A256
	Response from Shawnee Tribe to the NRC		ML23135A399
12	Joe Stahlman	Seneca Nation of Indians, THPO	ML23094A257
13	William Tarrant	Seneca-Cayuga Nation, Cultural Director	ML23094A260
14	Devon Frazier	Absentee-Shawnee Tribe of Indians of Oklahoma, THPO	ML23094A265
15	Ray Halbritter	Oneida Indian Nation, Representative	ML23094A259
16	Paul Barton	Eastern Shawnee Tribe of Oklahoma, THPO	ML23094A261
17	Larry Heady	Delaware Tribe of Indians, THPO	ML23086C065
18	Jeffery Bendremer	Stockbridge-Munsee Community Band of Mohican Indians, THPO	ML23094A254
19	Steve Minnick	TMI-1, Site Decommissioning Director	ML23093A056
20	Steve Letavic	Londonderry Township, Manager and TMI Community Advisory Panel Chairperson	ML23093A060 ML23216A178
		Response from David Shoff, Chief, State Archives Division	ML24130A269

	Addressee	Affiliation	ADAMS Accession
		Response from Marie Louise Abram. TMI Community Advisory Panel	ML24130A265
21	Joanna Cain	Middletown Historical Restoration Commission, President	ML23093A057 ML23216A175
22	Christine Turner	Historical Society of Dauphin County, Executive Director	ML23093A058 ML23216A173
23	Rebecca Countess	York County History Center, Chair	ML23093A059 ML23216A177
24	David Morrisor	Historic Harrisburg Association, Executive Director	ML23086C052 ML23216A174

ADAMS = Agencywide Documents Access and Management System; NRC = U.S. Nuclear Regulatory Commission; SHPO = State Historic Preservation Office; TMI = Three Mile Island Nuclear Station; TMI-1 = Three Mile Island Nuclear Station, Unit 1.