

Perry Nuclear Power Plant License Renewal Application

February 14, 2023

Environmental Report & SAMA Second Pre-Application Meeting

Agenda

- Opening Remarks/Introductions
- Background
- Discussion Items
- SAMA Candidate Selection
- Lessons Learned
- Topics of Interest
- Closing Remarks

Opening Remarks / Project Team Members

Energy Harbor License Renewal Project Environmental Report Development Team

Energy Harbor

- Michael Koberling (Energy Harbor, Director of Site Engineering, Project Sponsor)
- Mark Bensi (Energy Harbor, LR Team, Project Manager)
- Theodore Hilston (Energy Harbor, LR Team, Technical Lead)
- Benjamin Spiesman (Energy Harbor, LR Team, ER/SAMA and OE)
- John Grimm (Energy Harbor, LR Team, ER/SAMA)

Enercon

- Stacy Burgess - Project Manager
- Rachel Turney-Work - Manager, Environmental Licensing
- Mary Hoganson – Environmental Licensing Specialist
- Steven Phillippi - Supervisor, PRA Services

Background

Perry Nuclear Power Plant

- Single Unit General Electric BWR
- Current rated core thermal power 3,758 MWt
- Current gross electrical output 1,327.6 MWe, net output 1,277 MWe
- Capital improvements include a 5% Thermal Power Uprate in 2000
- No refurbishment anticipated for period of extended operation (PEO)

	OLs	40 Yrs	60 Yrs
Unit 1	1986	2026	2046



Plant Aerial



- Legend**
- Protected Area Fence
 - Submerged Tunnel
 - ++ Railroad
 - Buildings/Structures
 - Exclusion Area Boundary (EAB)
 - PNPP Site Boundary



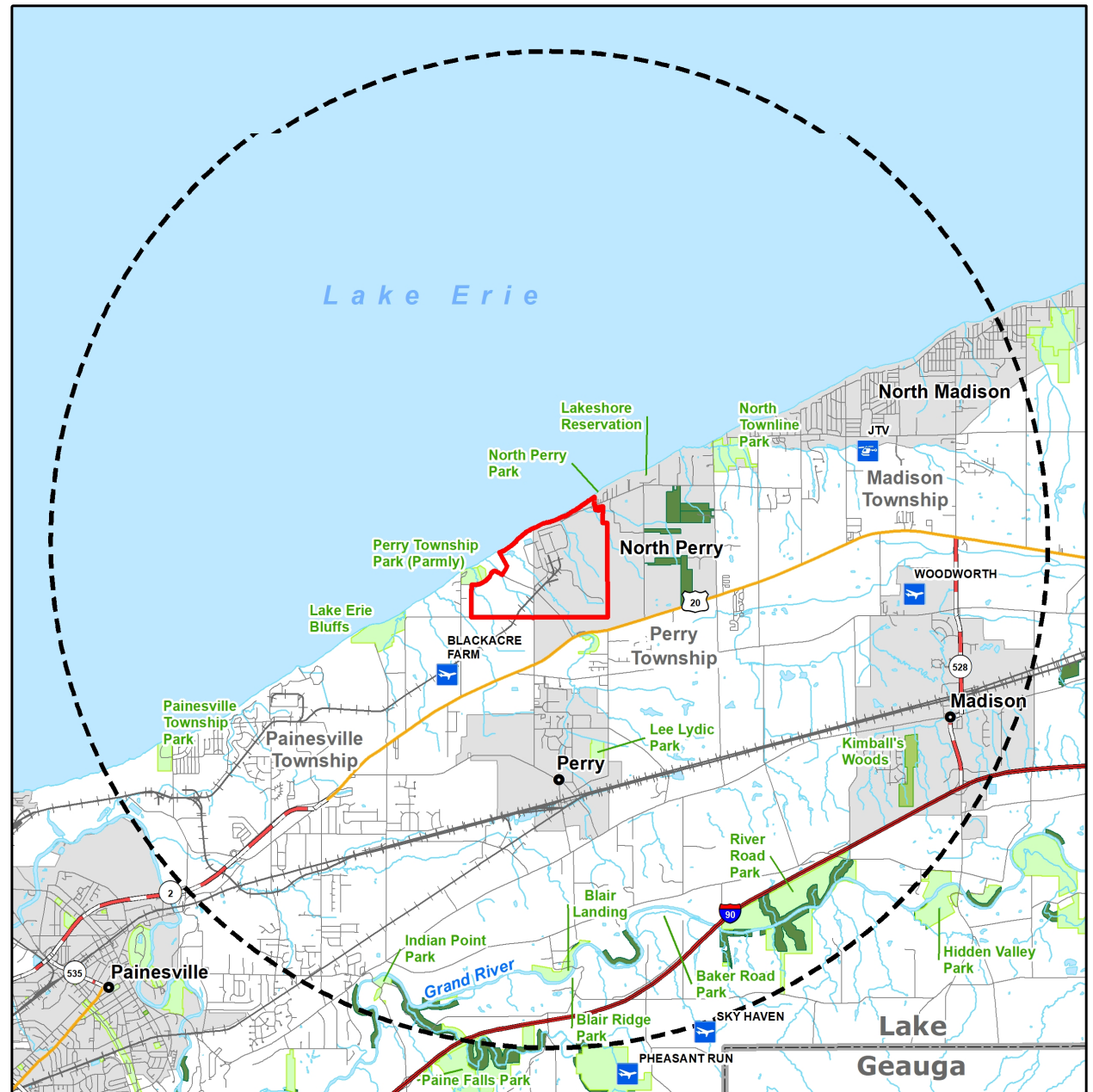
0 1,000 2,000 Feet

- The Perry Nuclear Power Plant (PNPP) is owned and operated by Energy Harbor, the licensee and applicant
- The PNPP plant site is approximately 1,030 acres along the southern shore of Lake Erie
- Entirely located within Lake County, Ohio
 - Approx. 2/3 of the site is located within the Village of North Perry, while the remaining 1/3 is located within Perry township
- Except for Lake Erie and the switchyard, the PNPP Exclusion Area Boundary (EAB) falls entirely within the site boundary
- The switchyard is owned by FirstEnergy Corp but controlled by Energy Harbor via an easement

Vicinity (6-mile) Map










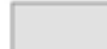


Legend

- Community
- Interstate
- U.S. Route
- State Highway
- Local Road
- ++ Railroad
- ▭ PNPP Site Boundary
- ✈ Airport
- ✈ Heliport
- ☪ Surface Water
- ⬢ 6-Mile Radius
- ▭ County
- ▭ Place
- ▭ Federal
- ▭ State
- ▭ Local



Region (50-mile) Map

Legend

-  PNPP
-  Community
-  Airport
-  Heliport
-  Surface Water
-  50-Mile Radius
-  Interstate
-  U.S. Route
-  State Highway
-  Railroad
-  Place
-  County
-  State



Environmental Report (ER) Discussion Items

Methodology

- Regulatory
- Incorporate by Reference

Major Permits / Authorizations

- Coastal Zone Management Act (CZMA)
- Clean Water Act (CWA) 401 Certification
- National Pollutant Discharge Elimination System (NPDES)

Consultations & Public Communications

- Consultations with agencies and Native American Tribes have taken place and all received responses are included in the License Renewal Application Environmental Report

ER Discussion Items, Cont'd

- Surface and Groundwater Use
- Circulating Water System
- Severe Accident Mitigation Alternatives (SAMA) Analysis Status
 - Development and Screening of Candidate SAMAs
 - Guidance from Nuclear Energy Institute (NEI) 05-01
 - Qualitative and Quantitative SAMA screening
 - Full Level 3 PRA / Cost Benefit Analysis
 - The results of this analysis have been detailed in the SAMA Basis Document and summarized in the Environmental Report
- Alternatives Analysis
- Independent Spent Fuel Storage Installation

ER Discussion Items: Ecology

Essential Fish Habitat

- No essential fish habitat (EFH) or EFH areas protected from fishing are located within the vicinity of the PNPP

Habitat Areas of Particular Concern

- No habitat areas of particular concern (HAPC) are located within the 6-mile vicinity of the PNPP

Critical Habitat

- Lake County features critical habitat for the piping plover

Threatened and Endangered Species

- Seven federally-listed threatened and endangered (T&E) species are listed within Lake County
- 63 state-listed T&E species are located within Lake County

ER Discussion Items: Cultural Resources

- One Cultural Resource Survey performed for the PNPP
 - No archaeological entries and no National Register of Historic Places (NRHP) eligible cultural resources are located within the PNPP property
 - No structures within the PNPP property are listed on the Ohio Historic Structures Inventory
- Within the 6-mile vicinity there have been 15 cultural resource surveys documented:
 - 37 NRHP sites listed and two sites are eligible
 - 64 archeological sites (one site on the NRHP list and one eligible)
 - 100 historic structures (29 listed on the NRHP)
 - 21 cemeteries
- There will be no impacts to cultural resources located within the plant vicinity

ER Discussion Items: New and Significant Information Review

- An investigative process purposely seeking new information
 - Discussions with Energy Harbor and PNPP subject matter experts
 - Review of permits, data or reports from the past five years, plant procedures, agency correspondence
 - Review of previous LRAs and SLRAs from other applicants
- Staying abreast of new and emerging environmental issues and concerns on an ongoing basis through:
 - Nuclear industry organizations/publications
 - Contact with state and federal agencies
 - Review of regulatory guidance and procedures that address ongoing and emergent issues
- New information is considered for significance
 - Does the information present a seriously different picture than in the GEIS?
 - Does the information involve a new activity or aspect that can act upon the environment in a manner or an intensity not previously recognized?
 - Does the information identify an environmental issue not generically considered in the GEIS?

SAMA Candidate Selection

SAMA Candidate Screening Approach

- Follow the approach in NEI 05-01 for SAMA identification and screening

Qualitative SAMA Candidate Screening

- Evaluate Industry SAMAs for Applicability
 - 129 SAMAs reviewed from other sites
- Examine Prior PNPP SAMAs for Continued Assessment
 - 25 SAMAs re-evaluated from the previous draft SAMA evaluation for PNPP
- Define Composite List for Expert Panel Review

PNPP Expert Panel Suggestion, Review, and Concurrence

- Expert Panel identified three (3) new PNPP specific SAMA candidates
 - Consider replacing relays with more rugged models to address seismic relay chatter
 - Install a flood barrier or curb between the direct current switchgear room and Division 2 alternating current switchgear room
 - Review of current HFEs used to isolate a flooding event, to identify if there are any procedure enhancements or simple modifications to improve the timing/reliability of these HFEs
- Expert Panel provides concurrence on SAMA Screening

SAMA Candidate Selection, Cont'd

SAMA Candidate Quantitative Evaluation

- Two SAMA candidates were carried forward for Phase II quantitative screening
 - Provide alternate cooling to the EDG Rooms. The cooling would dissipate heat generated by the Emergency Diesel Generators in the event of a loss of normal cooling
 - Examines upgrading/replacing the most significant relay contributors with more seismically-rugged models. This may require improved cabinet anchorage and possible cabinet replacement if the relay cabinets cannot accommodate the more rugged relays
- These SAMA candidates were evaluated and screened out based on limited risk benefit

SAMA Candidate Final Assessment

- Through the Qualitative Screening, Expert Panel Review, and Quantitative Screening evaluations, No SAMA candidates were retained for potential implementation

ER Lessons Learned – LR Review

- Incorporated lessons learned from previously submitted Environmental Report (ER) & SAMA analyses into the PNPP License Renewal (LR) ER and basis documents
 - SAMA Evaluations
 - Agency Consultations
 - Alternatives
- Reviewed and incorporated applicable information into the PNPP ER based on previously submitted license renewal and Supplemental License Renewal (SLR) ER Requests for Additional Information (RAIs)
- We will allocate sufficient time to test Information Technology resources and NRC access to the portal in support of the ER audit

Topics of Interest

- PNPP Property Ownership
 - All PNPP property was previously owned by subsidiaries of the previous parent company FirstEnergy Corp (FE)
 - Several parcels retained by FE post Energy Harbor license transfer
 - Expected to be resolved prior to the submittal of the PNPP License Renewal Application (LRA)
- Flooding License Amendment Request
 - In April 2021, PNPP submitted a License Amendment Request (LAR) reconstituting the site's external flood hazard design basis
 - Flooding LAR approval was granted Feb. 2023
 - Environmental Report based on scope of LAR
- License Renewal Application Timing
 - PNPP is on track to submit the LRA in July 2023
 - PNPP current operating license expires November 2026
 - PNPP granted an Exemption to 10 CFR 54.17(a) providing timely renewal protection with LRA submittal by three years prior to license expiration

Scheduling and Closing Remarks

- PNPP is on track to submit the License Renewal Application in July 2023
- PNPP will submit a high-quality application which will support efficient Staff reviews
 - Highly knowledgeable team with significant License Renewal experience
 - Participation in industry working groups and meetings
 - Industry Peer Reviews of the PNPP LRA
 - Monitoring on-going applicant processes
 - Reviews of recent applicant RAIs, RCIs and Supplements
- PNPP's License Renewal Application will be consistent with NRC requirements for initial LRA, industry practices and recent precedent