

**PERRY NUCLEAR POWER PLANT UNIT 1
LICENSE RENEWAL APPLICATION ENVIRONMENTAL REVIEW
REQUESTS FOR CONFIRMATION OF INFORMATION**

Regulatory Basis

Licensees are required by Title 10 of the *Code of Federal Regulations* (10 CFR) Part 51.53(c)(1) to submit with its application a separate document entitled "Applicant's Environmental Report—Operating License Renewal Stage." The U.S. Nuclear Regulatory Commission's (NRC) regulations at 10 CFR Part 51, which implement section 102(2) of the National Environmental Policy Act of 1969, as amended (NEPA), include requirements for applicants to provide information as may be useful in aiding the NRC staff in complying with NEPA. As part of its review, the NRC staff is required to prepare a Supplemental Environmental Impact Statement to NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants." Review guidance for the staff is provided in NUREG-1555, Supplement 1, Revision 1, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants: Supplement 1 – Operating License Renewal."

Requests for Confirmation of Information

The letter to Rod L. Penfield, Site Vice President, dated December 20, 2023 (Agencywide Documents Access and Management System [ADAMS] ML23321A047), contained an audit plan, which included a list of information needs with unique identifiers. During the environmental audit, the NRC staff reviewed documents that were made available on the applicant's electronic information portal in response to the staff audit needs. The staff also participated in breakout sessions with applicant personnel for certain resource areas to gather information that will likely be used in the site-specific environmental impact statement. To the best of the staff's knowledge, this information on the applicant's electronic information portal and discussed in breakout sessions is not currently on the docket or publicly accessible. The NRC staff requests that the applicant submits confirmation that the information gathered from the audit and listed below is correct or provides the associated corrected information.

1) Info Need AQ-1

From information gathered during the environmental site audit, please confirm the following: that the Perry Plant cooling water intake system does not include a fish return system. Perry Plant staff inspect the fish baskets when checking the traveling screens. Any fish present in the baskets are discarded with municipal waste. Due to the low intake velocity of 0.5 - 0.7 feet per second, fish are rarely found in the baskets and when present, occur in low numbers (i.e., 1 to 2 fish).

2) Info Need AQ-6

From the information gathered during the environmental site audit, please confirm that no federally or State-listed mussel species have been identified during periodic surveys to monitor mussel settlement in plant systems during spawning season in Lake Erie.

3) Info Need AQN-1

During the environmental audit's Air Quality and Noise break-out session and in response to information need AQN-1, Energy Harbor stated that quantified particulate matter emissions for the Unit 1 cooling tower have not been calculated because the facility has demonstrated compliance with all annual emissions limitations. Please confirm Energy Harbor does not have quantified particulate matter emissions for the Perry Plant Unit 1 cooling tower.

4) Info Need AQN-2

During the environmental audit's Air Quality and Noise break-out session and in response to information need AQN-2, Energy Harbor stated that:

- the annual air emissions in table 3.3-10 of the environmental report (ER) accounts for the auxiliary boilers and Perry Plant's three emergency diesel generators;
- the three emergency diesel generators are not required to be included in Perry Plant's conditional air permit and are Permit by Rule qualified emission units; and
- additional onsite equipment that contribute to air emissions, but not included in table 3.3-10 of the ER, include four Permit by Rule qualified emission units whose emissions are minimal and are not required to be calculated until or unless the auxiliary boilers emit 20 percent of a major source (20 tons per year).

Please confirm that the summary above is accurate.

5) Info Need AQN-3

In response to information need AQN-3, Energy Harbor provided air emission reports that are submitted to the Ohio Environmental Protection Agency for NRC staff review. The NRC staff noted that for calendar year 2021 (January 2021-December 2021), 2020 (January 2020-December 2020), and 2019 (January 2019-December 2019) emissions for certain pollutants are inconsistent with those presented in table 3.3-10 of the ER. Please confirm the following:

- for calendar year 2021, the correct sulfur dioxide emissions are 0.048 tons;
- for calendar year 2020, the correct sulfur dioxide emissions are 0.027 tons;
- for calendar year 2019, the correct nitrogen oxides emission are 10.898 tons; and
- for calendar year 2019, the correct carbon monoxide emissions are 2.793 tons

6) Info Need AQN-4

During the environmental audit's Air Quality and Noise break-out session and in response to information need AQN-4, Energy Harbor stated that Perry Plant has not received any notices of violation or non-compliances associated with Perry Plant's conditional operating air permit since 2021 to present (12/18/2023). Please confirm that Perry Plant has not received any notices of violation or non-compliances associated with Perry Plant's conditional operating air permit from 2021 to 2023.

7) Info Need AQN-5

During the environmental audit's Air Quality and Noise break-out session and in response to information need AQN-5, Energy Harbor stated that:

- annual greenhouse gas emissions presented in table 3.3-11 of the Perry Plant ER accounts for two site auxiliary boilers and three diesel generators.
- Sulfur hexafluoride is not used in equipment at Perry Plant.

Please confirm that the summary above is accurate.

8) Info Need AQN-6

During the environmental audit's Air Quality and Noise break-out session and in response to information need AQN-6, Energy Harbor stated that there are no known field tests concerning ozone and nitrogen emissions generated by Perry Plant's 22-kV and 345-kV in-scope transmission lines. Please confirm that there are no known field tests concerning ozone and nitrogen oxides emission generated by Perry Plant's 22-kv and 345-kV in scope transmission lines.

9) Info Need FPE-3

From information gathered during the environmental site audit, please confirm that Energy Harbor does not plan to undertake tree removal or conduct any other activities at Perry Plant during the license renewal period that would disturb habitat suitable for bat roosting or maternity activities.

10) Info Need AQN-8

During the environmental audit's Air Quality and Noise break-out session and in response to information need AQN-8, Energy Harbor stated that Perry Plant has not received any noise complaints from 2022 to 2023. Please confirm that Perry Plant has not received any noise complaints from 2022 to 2023.

11) Info Need FPE-5

From information gathered during the environmental site audit, the NRC understands that Energy Harbor has not found milkweed on the Perry Plant site. Although Energy Harbor has not conducted surveys to specifically assess the presence of either the monarch butterfly or milkweed on the site, Energy Harbor conducted Vegetation Index Biological Integrity surveys annually from 2015 through 2021 related to an onsite minor stream relocation project. No milkweed was identified during these surveys. Please confirm that the summary above is accurate.

12) Info Need FPE-7

From information gathered during the environmental audit, the NRC staff understands that Energy Harbor has both corporate and site-specific environmental policies and procedures relating to Endangered Species Act (ESA) compliance. These documents summarize the requirements of the ESA, explain how these requirements apply to Energy Harbor's sites and activities, and detail the protocols and reporting procedures that Energy Harbor personnel and contractors must follow to consider listed species before undertaking activities at the Perry Plant site.

For instance, these procedures specify that a site environmental subject matter expert should identify if a planned activity or project could impact federally listed species. If an activity could affect listed species, Energy Harbor must contact the U.S. Fish and Wildlife Service (FWS) and the appropriate State natural resource agency. Specific to listed bats, if suitable habitat occurs in the area and trees must be cut, then cutting must occur between September 30 and April 1. If suitable trees must be cut during the summer months of April 2 to September 29, then a net survey must be conducted in May or June prior to cutting. Energy Harbor procedures also require personnel to consult with a subject matter expert if activities or projects may encounter caves, railroad trestles, or disturb trees other than cutting, as these are cited by the FWS as being used by listed species local to various Energy Harbor facilities.

Energy Harbor's procedures detail how incidents should be logged and reported if a listed species is harmed. Energy Harbor personnel must gather detailed information about the incident and report it to the Energy Harbor wildlife team, the FWS, and the appropriate State natural resource agency, as appropriate. Such reporting would also trigger a report to the NRC under 10 CFR 50.72(b)(2)(xi), as described in Section 3.2.12 of NUREG-1022, Rev. 3, "Event Report Guidelines 10 CFR 50.72 and 50.73."

Please confirm that the summary above is accurate.

13) Info Needs GE-1 and GE-2

During the virtual audit, Energy Harbor provided reports and drawings related to shoreline erosion near to the Perry Plant site. During further discussion during the virtual and in-person site audit, the NRC staff gained a better understanding of the current state of shoreline erosion and about historical and current erosion protection methods implemented near the plant. Please confirm that the following statements about shoreline erosion and erosion prevention plans are accurate.

1. The majority of plant shoreline is protected by riprap rocks and sheet pile arrangement.
2. Instructions to survey shoreline erosion is contained in environmental and reporting program (EMARP) No.5 titled, "Monitoring of Shoreline Recession and Bluff Erosion". Survey lines are defined in EMARP-0005.
3. The most recent erosion survey data were collected in August and September 2022.
4. Since 2018, approximately 49 feet of shoreline has been lost to erosion. The majority of this loss has occurred along a section of shoreline approximately 700 feet north-east of the Unit 1 Cooling Tower where current plant erosion protection measures end.
5. As of January 2024, a preliminary plan to place Armor Stone and Splash Zone Stone along the area of receding shoreline is confirmed. As part of this preliminary plan, Energy Harbor is in contact with the Ohio Environmental Protection Agency and the Ohio Department of Natural Resources for potential permit requirements.
6. The preliminary plan is expected to commence in May 2024, and the protection measures have an anticipated lifetime of 30-50 years.

14) Info Need GW-2

During the in-person site audit, Energy Harbor provided engineering drawings of the underdrain system and the emergency service water (ESW) pumphouse for the NRC staff's review. Based on the discussions with the Energy Harbor staff during the in-person audit, the NRC staff gained a better understanding of the ESW system, the ESW pumphouse, and the pumped underdrain system water to the ESW forebay. Please confirm that the following statements about the ESW system, the ESW pumphouse, and the underdrain system pumpage are accurate.

1. Within the ESW pumphouse, the ESW forebay is hydraulically connected to Lake Erie.
2. The ESW suction bay is isolated from the ESW forebay unless the stop gates between the two bays are opened.
3. According to the dimensions indicated on engineering drawing 015-0002-00000, Rev. G, the volume of the ESW forebay with the Lake Erie water surface elevation at the minimum average monthly level of 565.26 ft (USGS datum) is approximately 330,600 gallons.
4. Water pumped from the underdrain system is discharged into the ESW forebay with a typical pumping rate of approximately 5 gallons per minute.

15) Info Need GW-3

During the virtual and in-person audit, Energy Harbor provided clarifications relating to the underdrain system and inadvertent release of radionuclide response. Please confirm the following statements are accurate:

1. In response to a tritium detection above 2,000 pCi/L in MH-20 in December 2021, Energy Harbor implemented a documented titled "Plan of Action for Operations Challenge" for the issue "Tritium detected in UDMH20" dated 12/16/21 – 3/28/21. The action plan includes pumping groundwater from piezometer tubes and discharging to the radwaste treatment system. Current piezometer pumping is set to underdrain recharge rates, which vary between 5-50 gpd. A sampling plan was implemented that specified sampling piezometers 2, 3, and 20 every Thursday, Manhole 18 every other Thursday, and the ESW loops A/B/C each time the pump is started. The Tritium Action plan will remain open until MH-20 activity decreases below 1,000 pCi/L for a 2-week period or until a source is identified.

2. Pumped water in response to contaminated spills/leaks is discharged to the radwaste treatment system is recycled back to the plant if water quality specifications are met. If water quality specifications are not met, the water is discharged to the ESW forebay.
3. The following procedures are used in relation to tritium response: NOP-OP-2012 (“Groundwater Monitoring”), NOP-OP-4705 (“Response to Contaminated Spills/Leaks”), REC 0104 (“Chemistry Specifications: Radwaste, Environmental, and Chemistry Instruction”), and NOBP-OP-2012 (“System/Work Practice Prioritization for NEI 07-07”)
4. Gamma radiation monitors in MH 20 and MH 23 shut down pumping of the underdrain system if gamma sensors exceed 3 times background. Gamma radiation monitors, by definition, do not detect non-gamma-emitting radionuclides, including tritium. Following a cessation of underdrain pumps, groundwater levels would rise until interception by the gravity discharge system. If no intervening measures are taken (e.g., manual pumping of contaminated groundwater from the underdrain system to the radwaste treatment building or to holding tanks), all radionuclides would be discharged to Lake Erie via the gravity discharge system.

16) Info Need GW-4

During the virtual audit, it was discussed that the 2023 Annual Radioactive Effluent Release Report (ARERR) (Agencywide Documents Access and Management System ML23117A196) for Perry Plant incorrectly reported tritium sample results for MH-20 (table 14 on page 29 or 32). Please confirm the following table reports the correct tritium sample results for MH 20 and MH 23 in Q1-4 of 2022 and confirm “LLD” refers to “lowest limit of detection.”

Underdrain Manhole	Quarter 1 H-3, µCi/mL	Quarter 2 H-3, µCi/mL	Quarter 3 H-3, µCi/mL	Quarter 4 H-3, µCi/mL
20	1.53E-06	8.60E-07	5.67E-07	4.84E-07
23	<LLD	3.11E-07	<LLD	4.50E-07

17) Info Need GW-5

Please confirm the following statements in relation to tritium, gamma, or difficult to detect radionuclides:

1. No gamma or difficult to detect radionuclides were identified in piezometers, manholes, or groundwater monitoring wells at Perry Plant from January 2022 to October 2023.
2. From October 2023 to January 2024, Co-60 has been detected in Pz-6 and Pz-21 only. No other gamma or difficult to detect radionuclides have been identified in piezometers, manholes, or wells at Perry Plant.
3. Energy Harbor defines “ Isotopic Analysis” as measuring a suite of difficult to detect radionuclides and other gamma emitting isotopes using gamma spectrometry.

18) Info Need GW-6

During the virtual audit, Energy Harbor provided clarifying information related to investigations of two recent releases of tritium at Perry Plant (June 2023 and January 2024). Please confirm the following statements:

1. A past leak was ruled out as the source of the June 2023 release. Other categories considered for investigation of potential sources include degraded underground piping with reactor interface and degraded plant building and piping integrity.
2. It is currently unconfirmed if the June 2023 leak represents a cyclic leak or an active leak.

3. Low-volume pumping from piezometer 21 (PZ-21) began in July 2023 and was ongoing until the new leak investigation was launched in January 2024. The intent was to continue pumping from PZ-21 until activity in samples from that location were below 5000 pCi/L, at which point pumping would stop but monitoring would continue.
4. In response to the January 2024 leak, higher-volume pumps were installed in piezometers PZ-6, PZ-14, and PZ-21; these are being pumped to reduce the amount of contaminated water entering the underdrain system. Additional pumps may be installed depending on sampling results.
5. Groundwater pumped from piezometers associated with both the July 2023 and January 2024 tritium releases is discharged to the radwaste treatment building.
6. It is currently unconfirmed whether the leaks in July 2023 and January 2024 are related.
7. Total groundwater pumping at the site does not exceed 100 gpm.

19) Info Need GW-7

The NRC staff reviewed the Five-Year Update of Groundwater Flow Characteristics Report for Perry Nuclear Power Plant, December 24, 2020, prepared by Environmental Resources Management (Boston) during the audit period. Please confirm the following statements:

1. The 2020 report recommended Energy Harbor confirm consistency of management and reporting of groundwater results as described in REC-0104 and NOP-OP-2012, and fleet response to contaminated leaks/spills in NOP-OP-4705. In response, there is an open tracking action by Energy Harbor staff to revise procedures NOP-OP-2012 and NOP-OP-4705 to be aligned in reporting requirements. No revisions have been implemented as of February 14, 2023.
2. Energy Harbor completed an updated risk assessment of structures, systems, components most recently in 2019.

20) Info Need HCR-2

During the environmental audit, Energy Harbor was asked what steps were taken to identify historic properties as ER Section 3.8.3 did not describe any recent in-field surveys to identify historic properties within the 1,030-acre archaeological area of potential effect (APE). Energy Harbor answered that there have not been any cultural resource surveys done since the 1973 study described in license renewal (LR) ER section 3.8.5. Further, a review of the Ohio History Connection mapping system did not show any previously recorded archaeological sites within the Perry Plant site. Please confirm that there have been no in-field surveys to identify historic properties within the 1,030 archaeological APE since 1973.

21) Info Need HCR-3

As part of the environmental audit, Energy Harbor was asked to provide a summary of its October 13, 2022, conversation with the Ohio State Historic Preservation Office (SHPO). Energy Harbor summarized that after receiving the initial SHPO letter September 28, 2022, Energy Harbor requested a follow up meeting to discuss the SHPO's recommendation that an architectural survey be done as the power plant was constructed in 1974, approaching the age requirement to evaluate the facility for potential listing on the National Register of Historic Places (NRHP). In the follow up meeting, three Energy Harbor representatives explained to the SHPO reviewer that although construction began in the early 1970s, the plant was not finished until around 1985. Therefore, the request to evaluate the plant for potential eligibility to be on the NRHP could be delayed until the buildings were closer to the 50-year mark. The SHPO reviewer agreed. Post-meeting, the SHPO reviewer sent an email to the three Energy Harbor representatives rescinding her original recommendation and now recommended waiting to do the architectural survey until the facility was closer to 45-50 years.

Please confirm that the above summary is accurate.

22) Info Need HCR-4

During the environmental audit, Energy Harbor representatives were asked to clarify when construction of Perry Plant was completed. In response, they answered that the construction was completed around 1985. They added that the caption for figure 3.8-10 should read “Late Construction Photograph of the PNPP Site, August 1984.” Further, they indicated that the text in LR ER Section 3.8.1 should read “A general overview of the PNPP facility on the south shore of Lake Erie nearing the completion of construction of 1984 is presented in figure 3.8-10.”

Please confirm that Perry Plant construction was completed in 1985, as well as the change in the caption for figure 3.8-10.

23) Info Need HCR-5

As part of the environmental audit, Energy Harbor was asked to provide copies of letters and other communication documents they’ve received from consulting Tribes since May 17, 2022, the date on the initial letters Energy Harbor issued. In response, Energy Harbor indicated that they have not received any correspondence from any consulting Tribes. Please confirm that Energy Harbor has not received any correspondence from Tribes regarding Perry Plant LR.

24) Info Need HCR-6

As part of the environmental audit, Energy Harbor was asked to provide the two procedures which aim to identify, protect, and minimize the potential of impact to cultural resources within the PNPP facility. In response, Energy Harbor provided FENOC [FirstEnergy Nuclear Operating Company] Environmental Evaluations (NOP-OP-2010 R-9) and the Excavation and Trenching Controls (NOP-WM-4007 R-6) procedures for staff review.

During the environmental audit, staff inquired about whether the procedures have been implemented before. Had they had a “stop work?” Were they aware if cultural resources have been encountered in past digging activities? Staff also asked for clarification in what the Chemistry Duty Manager position was (referenced in Excavation and Trenching Controls (NOP-WM-4007 R-6)).

Energy Harbor stated that steps are identified through their work process. They were unaware if any cultural resources have been found in the past. They clarified the role of the Chemistry Duty Manager and the responsibilities associated with the role. Energy Harbor mentioned that the duty manager changes every week.

When asked if Energy Harbor had any staff who was knowledgeable in identifying cultural resources, they replied that they did not. If there was any digging to occur in undisturbed areas, they would reach out to their vendors, in particular, an environmental team who gets pulled in to assist.

Please confirm whether the above summary is accurate. If not, clarify any inconsistencies.

25) Info Need HH-3

Please confirm as discussed during the Human Health breakout session of the January 2024 environmental virtual audit that a search of public data concerning waterborne diseases in Ohio in 2022 and 2023 was conducted and did not yield any new results from what was presented in the ER in section 3.10.1 for waterborne diseases in the vicinity of the plant. In addition, please confirm that no new data was available from the Centers for Disease Control and Prevention National Outbreak Reporting System and that plant records did not produce any instances of notification

from local, state, or federal agencies relating to waterborne diseases or algal bloom growth and there have been no onsite observations of algae or reportable conditions of E. coli.

26) Info Need HH-4

Please confirm that the transmission line clearance evaluation as discussed in the ER section 3.10.2 and provided as requested for review during both the environmental virtual and onsite audit weeks for the Perry Plant license renewal application applied the 2017 issuance of the National Electrical Safety Code and all in-scope transmission lines were found to have adequate clearance. In addition, please confirm that Perry Plant defines the in-scope transmission lines shown in figure 2.2-2 and the associated text as transmission corridors with multiple transmission lines to include lines to the Perry Plant Unit 1 and Unit 2 startup transformers and the line to the main transformer.

27) Info Need SW-3

Please confirm that the following monthly surface water withdrawal data are accurate.

Water Withdrawn (million gallons)	Year	
	2022	2023
January	2,206.65	2,307.00
February	2,007.21	2,212.50
March	2,230.14	2,312.60
April	2,189.42	2,604.77
May	2,274.46	2,630.15
June	2,399.49	2,256.07
July	3,036.94	2,974.85
August	2,789.61	3,524.58
September	2,902.51	2,950.26
October	2,854.41	2,397.87
November	2,352.10	2,151.76
December	2,433.33	2,391.45
Total	29,676.27	30,713.86

28) Info Need TER-5

From information gathered during the environmental audit, please confirm that the Perry Plant MET tower is 60 miles (m) above ground level and guyed, with steady red lights at 30m and blinking red lights at 60m.

29) Info Need WM-1

As discussed during the virtual audit, please confirm that there are no proposed changes or upgrades to the environmental monitoring or effluent programs being considered during the license renewal term.

30) Info Need WM-2

Please confirm that in the event that mixed waste is generated, it would be stored in a designated storage locker and no other waste types would be stored with it. In addition, please confirm that Perry Plant staff would consult with a mixed waste treatment/disposal vendor regarding potential disposal paths for the waste.

31) Info Need WM-3

Please confirm that Perry Plant has adequate storage capacity to store the low-level waste produced during the LR term. In addition, please confirm that the waste will be processed

packaged and intermittently stored and that Perry Plant has no planned changes to how they manage the waste.

32) Info Need WM-4

Please confirm that there have been no reportable oil releases at Perry Plant under the provisions of 40 CFR 110 in 2022, 2023 or through the audit took place in January 2024.

33) Info Need WM-5

Please confirm that the following describes the unplanned releases of radioactive materials since the ER was written.

- a. The 2022 ARERR (ML23117A196), sections 15.1 and 15.2 describes that there were two abnormal liquid releases in 2022 associated with the Nuclear Closed Cooling and Auxiliary Boiler respectively. Both of these releases were accounted for in annual/monthly calculations, which do not exceed Offsite Dose Calculation Manual (ODCM) standards.
- b. In 2023, one reportable event (reportable under 10 CFR 50.72(b)(2)(xi) occurred (NRC Event Number 56588). On June 23, 2023, Perry Plant reported elevated levels of tritium in the underdrain system to the State of Ohio as a non-voluntary reporting of tritium.
- c. In 2024, an elevated tritium reading was identified on January 5, 2024. The 2024 occurrence was reported to the NRC under 10 CFR 50.72(b)(2)(xi) on January 4, 2024 (NRC Event Number 56914).

34) Info Need WM-6

Please confirm there have been no inadvertent releases or spills of non-radioactive contaminants at Perry Plant which would trigger a notification requirement as discussed in section 9.5.3.7 Reportable Spills [ORC 3750.06] of the ER in 2022, 2023, or through the audit in January 2024.

35) Info Needs WM-7 and DECOM-1

During the virtual audit for Perry Plant, there was a detailed discussion during the waste management breakout session related to the Emergency Service Water (ESW) silt and sediment (referred to collectively here as sediment) that is being stored in the chemical cleaning lagoon and the Unit 2 circulating water pumphouse flume area (WM-7). Because of the level of detail involved in the audit discussion, this request for confirmation of information is broken into multiple sections for ease of confirmation. Please confirm the NRC's understanding of the placement, storage, and monitoring of the sediment as noted in (a) through (k):

(a) Criteria to Ensure Regulatory Compliance - Placement and storage of the sediment is subject to the criteria specified by the plant Section 5.5.1 of the Plant Technical Specifications (Tech Specs) which addresses the ODCM requirements to ensure compliance with 10 CFR 20, 10 CFR 50 and 40 CFR 190. These criteria are also contained in EI-200, "SW/ESW Sediment Disposition."

(b) Brief History - In the early days of plant commercial operation, sediment from the ESW forebay was thought to be free from plant-derived radioactive material and was stored in a temporary pool which was breached and spilled into the storm drains. Low levels of contamination from a plant derived radionuclide (Co-60) were identified in the Minor Stream (currently called the Remnant Minor Stream) in March of 1992. The radioactivity was attributed to the precipitation of material at the liquid effluent discharge, which had already been accounted for as effluent discharge in the annual reports. The radioactive liquid effluent water entered the ESW forebay because of the design of the sluice gates between the liquid effluent and the ESW, which did not have a water-tight seal. Sediment build up in the ESW forebay was therefore contaminated. The contaminated soil due to the overflow and spill from the retention pools and the sediments generated prior to December 1994 were processed and shipped for burial in December 1994. Additional ESW sediment that was being stored in on site storage containers (OSSCs) remains stored at PNPP's

OSSC yard. The chemical cleaning lagoon and the Unit 2 Circulating Water System Pumphouse flume area were also identified and used as storage locations for the ESW sediment.

(c) Frequency of Sediment Retrieval - Approximately every two to three years the site retrieves additional sediment. The ESW and Service Water (SW) Pump House (forebays and pump bays), the intake tunnels (normal ESW and SW tunnels) and ESW Alternate Intake tunnel are inspected at a frequency of two years or less (normally by divers or other appropriate means) per EMARP-0011, "Emergency Service Water System Monitoring Program." The sediment is removed as needed to facilitate fluid flow and system operations and not to reduce the volume of radioactive materials as the sediment is produced from the lake and not from plant systems. The material removed is characterized by volume, isotopes, concentration, and total curie amount. The volume retrieved with each instance is roughly 200-300 cubic yards on average but can range from less than 100 cubic yards to more than 400 cubic yards. The characterization data is tracked/logged in the site 10 CFR 50.75(g) file, which will be used to inform decommissioning activities.

(d) Designation – The current storage locations for the removed sediment are the Chemical Cleaning Lagoon and Unit 2 Circulating Water System Pumphouse flume area, which are located within the Protected Area, and are outside of the Radiologically Controlled Area, but they are designated as Radioactive Material Areas in accordance with 10 CFR 20 subpart I.

(e) Anticipated volume over the license renewal term – Future retrieval of the sediment throughout the period of extended operation is expected to continue at roughly same frequency and amount as during the initial licensing term. During the NRC audit, the site was asked if they had estimated the total amount of volume expected to be stored compared to the total capacity remaining in the two storage locations. A formal calculation has not been completed to determine the ultimate storage capacity of the two storage locations for the period of extended operation, but it is reasonable to anticipate that site will need to address the issue of additional storage capacity at some point during this period of extended operation. The site does not currently have specific plans to store the sediment in additional locations. Per the procedural requirements of EMARP-0013, "Site and Environmental Inspection," the chemical cleaning lagoon, as well as other locations named in the procedure, are monitored at least once each week by qualified Chemistry staff or more frequently when significant impacts could have occurred (including but not limited to excessive rain or rainstorm erosion, construction excavating, vegetation clearance, debris, reported oil or chemical spills, etc.). If, during the period of extended operation, the capacity becomes an issue the site will address it in the corrective action program. Potential corrective actions may include shipping the sediment to a low-level waste facility or establishing additional onsite storage locations. The use of any additional storage locations would undergo additional safety evaluations according to the site's 10 CFR 50.59 change evaluation process and environmental evaluation process.

(f) Corrective Action - One corrective action pursued in the 1990's was to try to reduce the contamination of the sediment by minimizing the discharge of liquid radioactive waste from the plant. The site continues to minimize the effluent concentration, but it is not feasible to reduce the levels to zero.

(g) Storage Locations for the Material - The site stated that the Unit 2 Cooling Water Pump House Basin is not being used as a storage location even though it was mentioned in a previous safety evaluation. The safety evaluation used several names to describe the Unit 2 storage area: pump house suction bay, Unit 2 circulating water pump house basin, Unit 2 circulating water suction bay, suction bay, and Unit 2 circulating water pump house. These terms are describing storage of sediment in the Unit 2 Circulating Water System Pumphouse flume area. The station is not storing

contaminated sediment in the Unit 2 cooling tower basin (area directly under the cooling tower).

(h) Decanting/Removal of Water – The site may use both storage locations with each sediment retrieval campaign to allow for decanting water. For example, the site first pumps a portion of the sediment from the pump forebay or intake tunnel until the chemical lagoon is full of water and sediment. The site then allows for the settling of sediment from solution in the chemical lagoon, while they pump the sediment into the Circulating Water system pumphouse flume area. Prior to decanting the water from the chemical cleaning lagoon, it is sampled and analyzed to ensure it is in compliance with environmental release requirements in accordance with REC-0104, “Chemistry Specification.” The removal of water provides additional space to put more sediment in the next retrieval. Water may also be pumped out after rainfall events and is sampled in accordance with REC-0104.

(i) Extreme Precipitation – In the event of extreme precipitation event that results in overflow of the Unit 2 Circulating Water system pumphouse flume area, the site would observe the affected results from the E-2-83 well and potentially Manhole #23. In the event of an extreme precipitation event that results in the overflow of the earthen berm from the Chemical Cleaning Lagoon, samples from the Remnant Minor Stream (water) would show affected results. These locations are selected directly in relationship to the Five-Year Update of Groundwater Flow Characteristics Report performed in 2020 by vendor Environmental Resource Management. The plant also performs weekly environmental surveillances of the Chemical Cleaning Lagoon, Minor Diversion Stream, and the Remnant Minor Stream, among other areas, in accordance with EMARP-0013, “Site Environmental Inspection.”

(j) Monitoring for Leaks – The site has certain indicators available to demonstrate if the storage locations are leaking (see above regarding extreme precipitation). If the sediment were to leak outside of the storage locations, the closest Radiological Environmental Monitoring Program point is the Remnant Minor Stream which is sampled once every 184 days.

(k) Decanting Water and Shielding – In EI-0200, section 6.3.1 it states, “If the answer to Question 6 is NO, then determine the quantity of clean fill or water required to be placed over the sediments in the lagoon to provide shielding to reduce below the criteria.” As discussed during the onsite audit, Perry has never had a need to provide shielding as noted in EI-200, but the site described that in the case that shielding with additional water were necessary to meet the ODCM limits, the site ensures they are still meeting these limits when decanting through (e.g., radiation protection programs, radiation protection procedures, etc.). If the calculated doses of the total sediment inventory in a storage location exceeds the CFR limits shown in EI-0200 section C, #6, (i.e., answer to Question 6 is NO), the storage location would be roped-off and posted in accordance with NOP-OP-4102, “Radiological Posting and Labeling.” Adequate shielding in the form of dirt or water would be applied in accordance with RPI-0122, “Temporary Shielding Program.” In accordance with RPI-0122, section 4.4.1.7.c, postings will alert personnel not to add, remove or alter temporary shielding. In addition, NOBP-OP-4009, “Radworker Expectations,” section 4.2.2.12 states that temporary shielding is not to be moved, modified, or removed without the approval and oversight of Radiation Protection. A water layer used as shielding would not be decanted until the calculated dose of the sediment inventory met the regulatory limits per the requirements of EI-0200 (i.e., answer to Question 6 is YES). All Radiation Protection Program and Procedural requirements would remain in effect until that time.

**PERRY NUCLEAR POWER PLANT UNIT 1
LICENSE RENEWAL APPLICATION ENVIRONMENTAL REVIEW
REQUESTS FOR ADDITIONAL INFORMATION**

1) Info Need GEN-1

REQUIREMENT: Title 10 of the *Code of Federal Regulations* (10 CFR) Part 51.53(c)(iv) requires that environmental reports contain any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware.

ISSUE: Table B-2 of the draft Supplemental Environmental Impact Statement, "Operating Permits and Other Requirements," will list the permits and licenses issued by Federal, State, and local authorities for activities at Perry, as identified in table 9.1-1 in section 9.9 in appendix E of the Perry Environmental Report (ER), dated July 3, 2023 ((Agencywide Documents Access and Management System ML23184A081). As part of preparing the site-specific environmental impact statement, the staff must consider whether there have been any changes to operating permits or other requirements.

REQUEST: Please provide any relevant updates to table 9.1-1 that have transpired since the ER dated July 3, 2023. If any permits have expired since submitting the license renewal (LR) application to the U.S. Nuclear Regulatory Commission (NRC), please provide the status of those permits and/or renewals.

2) Info Need FPE-2

REQUIREMENT: Licensees are required by 10 CFR 51.53(c)(3)(ii)(E) to assess the impact of refurbishment, continued operations, and other license renewal-related construction activities on important plant and animal habitats. Additionally, the applicant shall assess the impact of the proposed action on threatened or endangered species in accordance with Federal laws protecting wildlife, including but not limited to, the Endangered Species Act (ESA). Additionally, the ESA regulations at 10 CFR 402.10 require Federal agencies to confer with the U.S. Fish and Wildlife Service (FWS) concerning species proposed for Federal listing under ESA Section 7.

ISSUE: The FWS published a proposed rule to list the tricolored bat (*Perimyotis subflavus*) as endangered under the ESA on September 14, 2022 (87 FR 56381).

REQUEST: Please provide an analysis of the potential impacts of the proposed Perry Plant license renewal on the tricolored bat.

3) Info Need GE-3

REQUIREMENT: 10 CFR 51.53(c)(2) requires an environmental report describe in detail the affected environment around the plant, the modifications directly affecting the environment or any plant effluents, and any planned refurbishment activities.

ISSUE: The environmental report includes figure 3.5-3, Geologic Cross-Section and Location at Perry Plant, that is of low resolution. This figure appears to be from the updated groundwater flow characteristics report (2020).

REQUEST: Provide a readable, high-resolution version of figure 6 ("Updated Conceptual Site Model Section View, Perry Nuclear Power Plant, Perry, OH") from the Energy Harbor "Five-Year Update of Groundwater Flow Characteristics Report, Perry Nuclear Power Plant," dated December 24, 2020.

4) Info Need GW-5

REQUIREMENT: 10 CFR 51.53(c)(3)(ii)(P) requires an applicant to assess the impact of any documented inadvertent releases of radionuclides into groundwater. The assessment must include a description of any past inadvertent releases and the projected impact to the environment (e.g., aquifers, rivers, lakes, ponds, ocean) during the license renewal term.

ISSUE: Information was provided on the audit portal documenting the monitoring of tritium in groundwater wells, manholes, and piezometers during the period of time after the environmental report was published. This monitoring indicates the presence of radionuclides in groundwater at levels consistent with an inadvertent release.

REQUEST: Please provide on the docket the following files that were provided on the audit portal: 1) "GW wells.pdf"; 2) "Pz Manhole Tritium.pdf"; 3) "Pz and Manhole.pdf".

5) Info Need HCR-1

REQUIREMENT: Section 106 of the National Historic Preservation Act [54 USC §306108]) directs Federal agencies to take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for the National Register of Historic Places within the area of potential effect.

ISSUE: As part of information needs provided to Energy Harbor, HCR-1 asked about potential ground-disturbing activities that would be part of ongoing maintenance, inspection, and refueling activities as part of the proposed action. Many times, ongoing maintenance includes ground disturbance. Energy Harbor was asked what procedures were in place to guarantee that historic and cultural resources would not be impacted by those activities.

Energy Harbor responded in writing that there weren't current plans to do ground-disturbing activities as part of the license renewal application except those to maintain existing structures and operations. Any digging that would be associated with those actions would be in previously disturbed areas. If any projects were to occur in undisturbed portions of their site, the project would undergo an environmental review, and if applicable, cultural resource surveys would be conducted.

During the environmental audit, staff inquired if there had ever been a project that occurred in undisturbed areas, and if so, how were their procedures applied. Specifically, did they do a cultural resource survey and if one was done, what were the results of the survey?

REQUEST: Answer the following:

1. Has there been an instance within Energy Harbor property, specifically the 1,030-acre project area, where a ground disturbing activity occurred outside disturbed areas?
2. If so, how were Energy Harbor's procedures applied?
3. If an environmental review was done and a cultural resource survey was applicable, provide the results of that survey.

6) Info Need HCR-6

REQUIREMENT: 10 CFR 51.41 indicates that NRC may direct the applicants to provide NRC information to complete the National Environmental Policy Act process. NUREG-1555 states that the applicant's cultural resource protection procedures or Cultural Resource Management Plans may be requested.

ISSUE: In reviewing the two procedures Energy Harbor provided to identify, protect, and minimize the potential of impact to cultural resources within the Perry Plant facility, neither procedure mentioned the work process that would occur in the event that human remains were to be inadvertently discovered.

REQUEST: Describe what workflow process would be enacted if human remains were to be encountered in the field, including coordination with the local coroner's office and the State Historic Preservation Offices. If the process is captured in a procedure other than FENOC [FirstEnergy Nuclear Operating Company] Environmental Evaluations (NOP-OP-2010 R-9) and Excavation and Trenching Controls (NOP-WM-4007 R-6), provide excerpts from the procedure for NRC staff's review, if possible.

7) Info Need TER-1

REQUIREMENT: 10 CFR 51.53(c)(iv) requires that environmental reports contain any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware.

ISSUE: As part of information needs provided to Energy Harbor, TER-1 asked about records of bird mortality and nesting from the Perry Plant site from 2013-2023. Energy Harbor provided a summary of these incidents, along with individual condition reports prepared for each incident.

REQUEST: Please provide a complete Perry Plant site bird incident report from 2013-2023, in chronological order, that contains all incidents (at least 22 incidents): (a) Add the following 5 incidents to the draft incident report: 08191016, 10272017, 05172018, 01282018, 07262021, (b) injured peregrine falcon described in the ER 3.7.7.2 (discovered at PNPP on January 28, 2022 and taken to a rehab center), (c) If avian incidents occurred in 2014, 2019, 2020, or 2023, add them to the report. Otherwise, provide a statement that no avian incidents occurred during these years.

8) Info Need TER-2

REQUIREMENT: 10 CFR 51.53(c)(iv) requires that environmental reports contain any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware.

ISSUE: TER-2 asked for clarification regarding specific procedures when handling migratory birds and their nests. In reviewing corporate avian handling procedures and incidents Energy Harbor provided during the audit, no procedures defined the exact workflows that occur on-site at the Perry Plant when avian incidents occur, or specific procedures involved in determining an avian incident is a Significant or Unusual Environmental Event.

REQUEST: Please clarify whether any staff on-site are knowledgeable in handling or identifying birds, how remains are handled and identified on-site and by off-site vendor, whether the identification process includes noting whether or not the species are protected by the Migratory Bird Treaty Act (MBTA), how long identification typically takes, and describe any other avian transport, nest handling, or disposal processes. Please provide the following: (a) thresholds or other definitions of Significant or Unusual Environmental Event when the avian species are not federally-listed or state-listed as Endangered or Threatened, (b) whether the threshold varies if the

species is protected by the MBTA but is not listed as Endangered or Threatened by FWS or the state, (c) whether the threshold varies if the mortality cause is a collision versus an impingement, (d) a description of how the two different avian reporting forms are generated (those beginning with "CR" versus those with dates of incident only), (e) which Energy Harbor staff make the determination that an avian incident is a Significant or Unusual Environmental Event, (f) specific procedures and regulatory authorities contacted when the avian incident is determined to be a Significant or Unusual Environmental Event.