From:	Mitchell Dehmer
To:	FW4FLESRegs@fws.gov; Wright, Laura J
Cc:	Michelle Rome (She/Her); Robert Sun; Amy Minor (She/Her); Briana Arlene
Subject:	Supplement to NRC Request for Concurrence with Endangered Species Act Determinations for Crystal River Unit 3 Nuclear Generating Plant License Termination Plan (Consultation Code: 2024-0023697)
Date:	Tuesday, June 18, 2024 2:37:00 PM
Attachments:	image002.png



UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D.C. 20555-0001

Dear Florida Ecological Services Field Office:

The purpose of this email is to supplement the U.S. Nuclear Regulatory Commission's (NRC) Request for Concurrence with Endangered Species Act Determinations for Crystal River Unit 3 Nuclear Generating Plant License Termination Plan (Consultation Code: 2024-0023697) (ML24060A086). On May 14, 2024, the NRC and U.S. Fish and Wildlife Service (FWS) staff met virtually to discuss the FWS's May 8, 2024, requests for additional information (RAIs) regarding the NRC's ESA determinations for the Crystal River Unit 3 (CR3) license termination plan (LTP) review. As a result of the discussion, the following supplemental information is provided in this letter:

- 1. Information on the background of the site
- 2. Clarifying information on the proposed action
- 3. Clarifying information on the ownership of the intake/discharge structure

4. Additional information on conservation measures implemented by the licensee to mitigate potential effects on listed species

5. Additional information on effects to terrestrial species, which may include effects from decommissioning activities such as noise, vibration, and the time work is performed

6. Clarification on the differences between the NRC's not likely to adversely affect (NLAA) and no effect ESA determinations

The information in this letter supports the NRC staff's conclusions that the decommissioning of CR3, in Citrus County (28.959779, -82.695944), Florida, is NLAA the eastern black rail (*Laterallus jamaicensis*), everglade snail kite (*Rostrhamus sociabilis plumbeus*), Florida scrub-jay (*Aphelocoma coerulescens*), red-cockaded woodpecker (*Picoides borealis*), whooping crane (*Grus americana*), eastern indigo snake (*Drymarchon couperi*), monarch butterfly (*Danaus plexippus*), and wood stork (*Mycteria americana*). At the end of this letter, the NRC staff requests the FWS's concurrence with the NRC staff's NLAA determinations pursuant to Section 7 of the Endangered Species Act of 1973, as amended (ESA).

# 1. Site Background and History

The CR3 is part of the larger Crystal River Energy Complex (CREC), which is located on the Gulf of Mexico. Duke Energy of Florida (DEF) is the owner of the complex, with Accelerated Decommissioning Partners, LLC (ADP) assuming control of CR3. CR3 is a commercial nuclear power plant licensed by the NRC but ended operations in 2009 and was officially retired on February 5, 2013 (ADP 2024a).

The CR3 is part of the CREC, which is approximately 7.5 miles northwest of the City of Crystal River, and 70 miles north of Tampa. The CREC occupies 1,917 hectares (ha) (4,738 acres [ac]) of land, of which 429.8 ha (1,062 ac) is developed. Structures within the 358-ha (884-ac) NRC-licensed boundary include the CR3, two coal-fueled power generation units, two large cooling towers, parking lots, coal delivery and storage areas, ash storage area, office buildings, warehouses, barge handling docks, and a railroad (ADP 2024a). The action area, the CR3 site, occupies approximately 11 ha (27 ac) within the NRC-licensed boundary (ADP 2024a). Located outside the NRC-licensed boundary are two gas combined-cycle units. On April 1, 2020, the NRC approved the requested transfer of the CR3 from DEF to ADP to commence decontamination, dismantlement, and demolition (NRC 2020).

Major milestones related to the construction and operational history of CR3 are listed below (ADP 2019):

- Construction Permit Issued: September 25, 1968
- Operating License Issued: January 28, 1977
- Commercial Operation Began: March 13, 1977
- Final Reactor Shutdown: September 26, 2009
- Final Removal of Fuel from Reactor Vessel: May 28, 2011
- Initial Operating License Expiration: December 3, 2016
- Final Transfer of Fuel from Pool to ISFSI Pad January 12, 2018
- CR3 License Transfer from DEF to ADP: April 1, 2020
- 2. Proposed Action

The NRC is reviewing ADP's LTP for the decommissioning of CR3. The proposed action is the NRC's decision of whether to approve the CR3 LTP. In its license amendment request, ADP requested an amendment to the CR3 license to add license conditions that (1) reflect the NRC staff's approval of the LTP and (2) provide criteria for when NRC approval is needed for subsequent LTP changes. If the NRC approves the LTP, approval will be issued in the form of an amendment to the CR3 license that adds the requested license conditions. Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50.82 (a)(10) sets forth the process for the licensee to decommission a nuclear power plant, including submission of the LTP. If the NRC approves the LTP, the NRC will amend the CR3 license (No. DPR-72) to include license conditions that pertain to the LTP. By letter dated December 12, 2022 (ML22355A441), as supplemented by letter dated June 9, 2023 (ML23163A063), ADP CR3 requested the NRC to add a condition to include LTP requirements to the CR3 license.

Activities associated with the proposed action include:

- Site characterization
  - Decommissioning and dismantlement activities:
    - Auxiliary building dismantlement (December 2024)
      - o Intermediate building dismantlement (July 2025)
      - Reactor building above grade dismantlement (May 2025)
      - Site restoration (December 2026)
    - Final site survey (FSS) activities (December 2026)
- Actions that ADP would take to remediate remaining residual radioactivity at the CR3 site to a level that complies with the NRC's radiological criteria for license termination<sup>1</sup>

<sup>1</sup> In accordance with the NRC regulation at 10 CFR 20.1402, "Radiological criteria for unrestricted use," a site will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a Total Effective Dose Equivalent to an average member of the critical group that does not exceed 25 millirems per year, including from groundwater sources of drinking water, and the residual radioactivity has been reduced to levels that are as low as reasonably achievable.

The NRC will not terminate the CR3 license until ADP demonstrates in its final radiation survey that (1) the site meets 10 CFR 20.1402 criteria and (2) the facility has been dismantled in accordance with the approved LTP.

# 3. Intake and Discharge Structures

CR3 historically used the intake and discharge structures for nuclear operations. CR3 ceased discharging heated effluent over 9 years ago when the Spent Fuel Cooling System was converted to use mechanical chillers to transfer the heat load to the surrounding atmosphere (Northstar 2024). On June 7, 2021, Duke Energy submitted a National Pollutant Discharge Elimination System (NPDES) permit renewal application (FL0000159) to the Florida Department of Environmental Protection (FDEP) for the intake and discharge structure which states that the cooling water intake is now part of the Duke Energy Citrus Combined Cycle Station and no longer in use for nuclear power generation or associated with CR3 (ADP). As a result, NMFS (2022) determined that the 2002 biological opinion for the water intake system no longer applies to NRC or CR3. Duke Energy, not the NRC's licensee (ADP), operates the intake in accordance with the programmatic biological opinion on the EPA's 2014 final rule on Section 316(b) of the Clean Water Act. Therefore, the CREC intake and discharge structures are out of scope for this review.

# 4. Existing and Proposed Conservation Measures

# Permits

The permits relevant to the proposed action are as follows:

- FDEP Multi-Sector General Permit No. FLR05I568-001
- FDEP Industrial Wastewater Discharge Permit No. FL0A00004
- FDEP Environmental Resource Permit No. 09-0270612-042-EI

• Florida Department of Business and Professional Regulation General Contractor License No. CGC1527969

# ADP Best Management Practices (BMPs) (ML24166A079, ADP 2024b)

- Adherence to ADP CR3 Stormwater Pollution Protection Plan (SWPPP)
- Adherence to the ADP CR3 Spill Prevention, Control and Countermeasures (SPCC) Plan

• Water treatment and sampling for all discharges under the Industrial Discharge Permit, including the annual toxicity testing

- Routine site inspections
- Training for all badged personnel, which includes chemical handling/disposal and spill reporting
- Dust suppression activities for all dust-inducing activities
- Soil stabilization for open areas to minimize runoff and/or erosion

# Crystal River Energy Complex Wildlife Management Plan (ADP 2024b)

ADP maintains a Wildlife Management Plan that pertains to protected birds, snakes, manatees, sea turtles, and alligators, among other wildlife. The plan specifies protocol that ADP personnel must follow when site activities have the potential to affect wildlife. The plan includes criteria for when ADP environmental experts, the Florida Fish and Wildlife

Commission, or FWS should be contacted or involved. ADP would adhere to this plan throughout the CR3 decommissioning process.

# 5. Potential Effects of Proposed Action on Terrestrial Resources (ADP 2024b)

This section provides background regarding the direct and indirect impact to terrestrial resources located at the site. Many of the impacts described below are relevant to both protected and non-protected species and are therefore presented below in order to support the findings related to each protected species noted within the enclosure.

# 5.1 Direct Impacts

ADP states in its Post Shutdown Decommissioning Activity Report (PSDAR) and LTP that all dismantlement, demolition, and waste staging activities would take place within the former operation and pre-disturbed area of the CR3 site (ADP 2023). ADP indicates that land disturbance would not be conducted in environmentally sensitive lands, such as nearby marsh wetlands and shorelines. Direct impacts, such as clearing native vegetation or filling wetland, will be restricted to previously disturbed land (ADP 2023). Therefore, no wildlife or natural habitats would be affected by these activities. Herbicide application, if necessary, will abide by the vegetation management plan, and certified applicators will apply herbicides according to the prescribed, appropriate label-use near the rail line (ADP 2024b). The NRC staff concludes that direct impacts to listed species are discountable.

#### 5.2 Indirect Impacts

ADP acknowledges that terrestrial habitats adjoining the operational area could be subject to indirect impacts from decommissioning and license termination activities which may include demolition activities, noise impacts, and vibration impacts (ADP 2023). ADP holds several environmental permits to ensure that impact to the surrounding environment is minimized. These include the FDEP multi-sector general permit (FLR05I568-001), the FDEP industrial wastewater discharge permit (FLA00004), and FDEP environmental resource permit (09-0270612-042-EI) (ADP 2024a).

#### Dismantlement Activities

No dismantlement work is anticipated to occur in or immediately adjacent to the intake and discharge canals. Two methods for building dismantlement are under review by ADP. The first proposed method is mechanical where ADP will remove sections of the building's base to "walk" the buildings down to ground level with excavators equipped with hydraulic hammers, pulverizers, and crushers. The second proposed method includes the use of explosives (ADP 2024b). Both mechanical and explosive methods for dismantlement may cause indirect impacts to listed species, which includes noise and vibration. The demolition of Crystal River Unit 1 and Unit 2, completed in November 2021, serves as an environmental baseline regarding the indirect impacts of demolition activities. Dismantlement activities will occur on an elevated area where the plant was constructed, known as the "berm." The berm is approximately 23 feet (7.01 m) higher than the surrounding area and provides the plant protection from adverse weather. It is constructed with compressed limestone which sits on top of limestone bedrock which will further dampen vibrations resulting from dismantlement activities (ADP 2024b). Upon completion of CR3 dismantlement activities, the site will be restored to its natural state. CR3 decommissioning activities are temporary in nature and overall, the final impacts from decommissioning may be beneficial to listed species that may be present in the vicinity of the action area due to its planned release for unrestricted use.

#### Noise Impacts

ADP has not specifically conducted noise evaluations for terrestrial and aquatic species. However, hearing protection for construction personnel is not required outside of the immediate work zone, so noise impacts will dissipate quickly with distance. Noise generated from the proposed action will be similar to the dismantlement activities of CR1 and CR2 conducted in November 2021. Because CREC has been an industrial-use site for several decades, protected species in the action area are likely acclimated to noise generated at the facility and are, therefore, not likely to be adversely affected by noise associated with CR3 dismantlement activities. Upon completion of the CR3 decommissioning activities, the noise levels associated with the industrial site will be reduced to levels prior to the establishment of CR3 which will benefit listed species.

#### Vibration Impacts

Vibration resulting from the demolition of CR1 and CR2 was historically monitored at the Independent Spent Fuel Storage Installation (ISFSI), as well as at the intake and discharge canals. ADP provided information on vibration from Crystal River 1 and 2 dismantlement (ADP 2024b). CR3 vibration dismantlement impacts are likely to be at levels similar to those recorded during CR1 and CR2 dismantlement. Listed species located in the action area are likely acclimated to industrial noise and vibration and are not likely to be adversely affected.

The figure below displays the linear distance from the reactor vessel to nearby canals (two) and nearby terrestrial habitat. The NRC staff used Google Earth to measure the distance from the reactor vessel to both canals and nearby potential terrestrial habitat. Both canals are located approximately 460 feet away from the reactor building and the terrestrial habitat is located approximately 820 feet away from the reactor building. Historical vibration data from CR1 and CR2 dismantlement (stations A-H) includes distances from the disturbance and peak overpressure measurements which are expected to be similar to the dismantlement planned at CR3 (ADP 2024b). The vibration monitoring Station G, 755 feet away from the disturbance point, reported a maximum peak overpressure of 0.01518 psi. Station D, 343 feet away from the disturbance point, reported a maximum peak overpressure of 0.18600 psi. The data from Stations G and D closely resemble the distances from CR3 to the canals (D) and potential terrestrial habitat (G). Therefore, ADP expects similar

peak overpressure data for dismantlement planned at CR3 in relation to the canals and nearby terrestrial habitat. The NRC staff finds the potential effects of peak overpressure on listed species to be insignificant. For this reason, the NRC staff concludes that vibration impacts are not likely to adversely affect terrestrial protected species.



# 6. ESA Effect Determinations

As part of its environmental review, the NRC staff evaluated impacts of the proposed action on federally listed species and critical habitats. The attached table displays the NRC staff's ESA findings for each federally listed species and critical habitat in the action area.

# **Request for Concurrence**

The NRC staff requests your written concurrence with its NLAA determinations for the species identified in the attached table in accordance with 50 CFR 402.13(c). The NRC staff includes, but does not request concurrence for, "no effect" findings. The NRC staff includes "no effect" findings for a complete record and as a courtesy to the FWS.

Please provide your response electronically to the following email addresses: <u>EndangeredSpecies@nrc.gov</u>, <u>Briana.Arlene@nrc.gov</u>, and <u>Mitchell.Dehmer@nrc.gov</u>. Should you need additional time to review this request, please reach out to discuss an extended timeframe so that the NRC staff can communicate this timeline to and obtain consent from its applicant, ADP, in accordance with 50 CFR 402.13(c)(2). Should you need to discuss the information in this email or if you require additional information concerning this project, please reach out to Mitchell Dehmer at <u>Mitchell.Dehmer@nrc.gov</u>.

Thank you,

Mitchell R. Dehmer

Environmental Scientist | Ecological Resources Environmental Center of Expertise Office of Materials Safety and Safeguards U.S. Nuclear Regulatory Commission

IPaC Consultation Code: 2024-0023697 Docket No.: 50-302 ADAMS Accession No.: ML24170A924

CONCURRENCE				
OFFICE	CB:ETRB1:REFS	PM:ELRB:REFS	BC:ETRB1:REFS	CB:ETRB1:REFS

OFFICIAL RECORD COPY				
DATE	6/14/24	6/14/24	6/17/24	6/14/24
NAME	BArlene	AMinor	MRome	MDehmer

#### **References**

ADP (Accelerated Decommissioning Partners, LLC). 2019. "Notification of Revised Post-Shutdown Decommissioning Activities Report (Revised PSDAR) Crystal River Unit 3 Nuclear Generating Plant (CR-3) Docket Nos. 50-302 & 72-1035 License No. DPR-72". Crystal River, Florida. ADAMS <u>ML19177A080</u>.

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[ADP] ADP CR3, LLC. 2024a. Response to Request for Additional Information for the Environmental Assessment of the License Termination Plan for Crystal River Unit 3 Nuclear Generating Plan (Docket Number: 05000302). January 18, 2024. ADAMS Accession No. <u>ML24018A151</u>.

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[NMFS] National Marine Fisheries Service. 2022. Status of Section 7 Consultation Under the Endangered Species Act for the cooling water intake system at the Crystal River Energy Complex (F/SER/2001/01080). Accession No. <u>ML22024A214</u>.

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NRC (U.S. Nuclear Regulatory Commission). 2020. "Crystal River Unit 3 Nuclear Generating Plant – Order Approving Transfer of Licensed Authority from Duke Energy Florida, LLC To ADP, LLC and Draft Conforming Administrative License Amendment." Washington, DC. ADAMS <u>ML20069A023</u>.

# Crystal River Unit 3 Nuclear Generating Plant License Termination Plan ESA Determination Table FWS Consultation Code: 2024-0023697

Species	Federal	U.S. Nuclear Regulatory Commission (NRC) Endangered Species Act (ESA) Effect
	Status <sup>(a)</sup>	Determination
whooping crane (Grus americana)	FE (NEP)	May Affect But is Not Likely to Adversely Affect (NLAA). Several factors affect the conservation of this species to include alteration and destruction of habitat, climate change, and reduction in river flows (FWS 2023). The NRC staff concludes that whooping cranes may occur in the action area during migration to wintering grounds in Florida, as well as in the nearby Chassahowitzka National Wildlife Refuge (NRC 2011). All land disturbances and construction or demolition work would occur on previously disturbed land and would not affect any natural habitats where whooping cranes may occur. Potential stressors that whooping cranes could experience during the decommissioning period include noise; behavioral changes, such as avoidance, from vehicles, machinery, and general human activity; collisions with site structures and transmission lines; and effects related to herbicide application. Whooping cranes, if present in the action area, have already acclimated to regular site disturbances. Thus, continued disturbances during decommissioning would not cause behavioral changes in birds to a degree that would be able to be meaningfully measured, detected, or evaluated or that would reach the scale where a take might occur. Collision hazards would remain the same as during the operational period; to date, the NRC staff is not aware of any whooping crane injuries or mortalities on the Crystal River Energy Complex (CREC) site associated with birds colliding with site structures or transmission lines. Accelerated Decommissioning Partners Crystal River Unit 3, LLC (ADP) would use U.S. Environmental Protection Agency (EPA)-approved herbicides according to label instructions, and licensed applicators would apply herbicides under supervision. Herbicide application would be limited to developed or maintained areas. All potential effects on the whooping crane resulting from the proposed action would be discountable. Therefore, the NRC staff concludes that the proposed action <i>may affect but is not likely to adversely affect</i> the
eastern indigo snake (Drymarchon couperi)	FT	<b>NLAA</b> . Several factors affect the conservation of this species to include habitat destruction, fragmentation, and degradation (FWC 2023). The NRC staff concludes that the eastern indigo snake may occur in the action area due to the presence of suitable habitat. All land disturbances and construction or demolition work would occur on previously disturbed land and would not affect any natural habitats where eastern indigo snakes may occur. Potential stressors that the eastern indigo snake could experience during the decommissioning period include noise; behavioral changes, such as avoidance, from vehicles, machinery, and general human activity; and effects related to herbicide application. Snakes, if present in the action area, have already acclimated to regular site disturbances. Thus, continued disturbances during decommissioning would not cause behavioral changes in snakes to a degree that would be able to be meaningfully measured, detected, or evaluated. ADP would use EPA-approved herbicides according to label instructions, and licensed applicators would apply herbicides under supervision. Herbicide application would be limited to developed or maintained areas of the site, and thus, snakes are unlikely to come into direct contact with these chemicals. ADP maintains a wildlife management program which educates plant workers on listed species. The NRC staff finds that all potential effects on the eastern indigo snake resulting from the proposed action <i>would be discountable</i> . Therefore, the NRC staff concludes that the proposed action <i>may affect but is not likely to adversely affect</i> the Eastern indigo snake resulting from the proposed action <i>may affect but is not likely to adversely affect</i> the Eastern indigo snake.
Everglade snail kite (Rostrhamus sociabilis plumbeus)	FE	<b>NLAA</b> . Several factors affect the conservation of this species to include the loss and degradation of wetlands, harassment from humans, and degradation of water quality (FWC 2023). The NRC staff concludes that the Everglade snail kite may occur in the action area due to the presence of wetlands,

		marshes, and emergent vegetation on or near the CREC site. Direct impacts would be limited to the operational area as decommissioning activities will not degrade further habitat. Indirect effects such as noise and vibration may impact the Everglade snail kite as this species is known to abandon their nest if approached or spooked. The noise and vibration caused by decommissioning activities is temporary and impacts are expected to be less than the CR1 and CR2 demolition activities. Collision hazards would remain the same as during the operational period; to date, the NRC staff is not aware of any Everglade snail kite injuries or mortalities on the CREC site associated with birds colliding with site structures or transmission lines. The NRC staff finds that all potential effects on the Everglade snail kite resulting from the proposed action would be discountable. Therefore, the NRC staff concludes that the proposed action <i>may affect but is not likely to adversely affect</i> the Everglade snail kite.
red-cockaded woodpecker (Picoides borealis)	FE	<b>NLAA</b> . The primary threat to this species is the loss and deterioration of habitat (FWC 2023). The NRC staff concludes that the red-cockaded woodpecker may occur within the action area due to known reporting in Citrus County and the presence of longleaf pine and slash pine. Direct impacts would be limited to the operational area as decommissioning activities will not degrade further surrounding habitat. Indirect effects such as noise and vibration will be temporary. Collision hazards would remain the same as during the operational period; to date, the NRC staff is not aware of any red-cockaded woodpecker injuries or mortalities on the CREC site associated with birds colliding with site structures or transmission lines. The NRC staff finds that all potential effects on the red-cockaded woodpecker resulting from the proposed action would be discountable. Therefore, the NRC staff concludes that the proposed action <i>may affect but is not likely to adversely affect</i> the red-cockaded woodpecker.
eastern black rail (Laterallus jamaicensis)	FT	<b>NLAA.</b> Several factors affect the conservation of this species to include habitat fragmentation, altered hydrology, land management, climate change, environmental contaminants, disease, altered food webs, and human disturbance (FWS 2023). The NRC staff concludes that the eastern black rail may occur within the action area due to suitable habitat present. Direct impacts would be limited to the operational area as decommissioning activities will not degrade further surrounding habitat. Indirect effects such as noise and vibration will be temporary and is expected to display similar peak overpressure when compared to CR1 and CR2 demolition. Collision hazards would remain the same as during the operational period; to date, the NRC staff is not aware of any Eastern black rail injuries or mortalities on the CREC site associated with birds colliding with site structures or transmission lines. The NRC staff finds that all potential effects on the eastern black rail resulting from the proposed action would be discountable. Therefore, the NRC staff concludes that the proposed action <i>may affect but is not likely to adversely affect</i> the eastern black rail.
Florida scrub-jay (Aphelocoma coerulescens)	FT	<i>NLAA</i> . Several factors affect the conservation of this species including habitat destruction, and degradation from development and agriculture, and vehicle strikes (FWC 2023). The NRC staff concludes that the Florida scrub-jay may occur within the action area due to suitable habitat and past reporting of the species' presence (NRC 2011). Notably, in 2011, the FWS (2011) issued a biological opinion to the NRC for the Florida scrub-jay related to construction and operation of two new nuclear units near the CREC site; however, these units were never constructed and, therefore, this opinion never became effective. For that project, most anticipated effects to the Florida scrub-jay would have resulted from construction of new transmission lines. CR3 decommissioning would not involve new transmission lines and would not involve any of the other potential impacts assessed in the FWS's opinion for Levy. Direct impacts of CR3 decommissioning activities would be limited to the operational area as decommissioning activities will not degrade further surrounding habitat. Indirect effects such as noise and vibration will be temporary and not likely to affect this species. Vehicle traffic around the operational area is expected to continue at current levels as decommissioning activities progress. Collision hazards would remain the same as during the operational period; to date, the NRC staff is not aware of any Florida scrub-jay injuries or mortalities on the CREC site associated with birds colliding with site structures or transmission lines. The NRC staff finds that all potential effects on the Florida scrub-jay injuries or movel the tore structurable. Therefore, the NRC staff concludes that the proposed action would be discountable. Therefore, the NRC staff concludes that the proposed action may affect but is <i>not likely to adversely affect</i> the Florida scrub-jay.
wood stork (Mycteria americana)	FT	<b>NLAA</b> . The primary threat to conservation of this species is due to agricultural expansion and altered hydrocycles, nest predation, prolonged drought, and loss of nesting trees (FWC 2023). The NRC staff concludes that the wood stork may occur within the action area due to prior reports of the species utilizing the percolation ponds and nearby wetlands of the CREC site. Direct impacts would be limited to the operational area as decommissioning activities will not degrade further surrounding habitat. Indirect effects such as noise and vibration will be temporary and not likely to affect this species. Collision hazards would remain the same as during the operational period; to date, the NRC staff is not aware of any wood stork injuries or mortalities on the CREC site associated with birds colliding with site structures or transmission lines. The NRC staff finds that all potential effects on the wood stork resulting from the proposed action would be discountable. Therefore, the NRC staff concludes that the proposed action <i>may affect but is not likely to adversely affect</i> the wood stork.
monarch butterfly (Danaus plexippus)	CND	<b>NLAA.</b> Several factors affect the conservation of this species to include habitat alteration, herbicide use, drought, and climate change (FWS 2023). The NRC staff concludes that the monarch butterfly may occur within the action area due to the presence of suitable habitat. Continued preservation of the existing natural areas on site would result in positive impacts on monarch butterflies. Herbicides would only be applied according to labeled uses in developed and manicured areas of the site, and herbicides would not be applied in natural areas. Monarchs would only have the potential to occur in the action area infrequently, making the likelihood of herbicide exposure low. All potential effects on the monarch butterfly resulting from the proposed action would be discountable. Therefore, the NRC staff concludes that the proposed action <i>may affect but is not likely to adversely affect</i> the monarch butterfly.
American alligator (Alligator mississippiensis)	FT(S/A)	<b>NLAA.</b> The factors that affect the conservation of this species include destruction and degradation of wetland habitat mainly due to human development, and predation of eggs (FWC 2023). The NRC staff concludes that alligators may occur in the action area in nearby wetland habitats. All land disturbances

loggerhead sea turtle (Caretta caretta) Northwest Atlantic Ocean DPS	FT	natural habitats where alligators may occur. Potential stressors that alligators could experience during the decommissioning period include noise; behavioral changes, such as avoidance, from vehicles, machinery, and general human activity; and effects related to herbicide application. Alligators, if present in the action area, have already acclimated to regular site disturbances. Thus, continued disturbances during decommissioning would not cause behavioral changes in alligators to a degree that would be able to be meaningfully measured, detected, or evaluated or that would reach the scale where a take might occur. ADP would use EPA-approved herbicides according to label instructions, and licensed applicators would apply herbicides under supervision. Herbicide application would be limited to developed or maintained areas of the site, and thus, alligators are unlikely to come into direct contact with these chemicals. For these reasons, the NRC staff concludes that the proposed action <i>may affect but is not likely to adversely affect</i> the American alligator. <b>No Effect.</b> The factors that affect the conservation of this species include bycatch in fishing gear, climate change, direct harvest of turtles and eggs, loss and degradation of nesting habitat, ocean pollution and debris, predation of eggs and hatchlings, and vessel strikes (NOAA 2023). The loggerhead sea turtle is known to occur in the action area, and NMFS (2002) addressed it in its 2002 biological opinion regarding operation of CR3. During operation of C202 biological opinion regarding operati
		captured at the cooling water intake structure. In 2022, NMFS (2022) determined that the 2002 biological opinion no longer applies because the cooling water intake is now part of the Duke Energy Citrus Combined Cycle Station and is no longer in use for CR3. Duke Energy and not the NRC's licensee (ADP), operates the intake in accordance with the programmatic biological opinion on the EPA's 2014 final rule on Section 316(b) of the Clean Water Act. CR3 would continue to intermittently withdrawal and discharge small amounts of water during the decommissioning period. These withdrawals and discharges would be regulated by the FDEP through the site's National Pollutant Discharge Elimination System (NPDES) permit, and any impacts to federally listed species would be addressed under the programmatic 316(b) biological opinion. Nonetheless, the NRC staff finds that loggerhead sea turtles, if present, would be unaffected by water withdrawals because the low flow associated with the small volume of water being withdrawn would not pose an impingement or entrainment risk. Sea turtles are unlikely to be in the area of the discharge canal that would be affected by discharges, and continued compliance with the NPDES permit would ensure that discharges do not harm the aquatic environment. The NRC's (2011) license renewal supplemental environmental impact statement (SEIS) describes that when work is performed in the intake or discharge canal, the licensee must comply with the "Sea Turtle and Smalltooth Sawfish Construction Conditions" that are part of the Florida Department of Environmental Protection's (FDEP) State Programmatic General Permit. This procedure would continue to apply during the decommissioning period; however, any future dredging would be performed by Duke Energy and not the NRC licensee (ADP). Before dredging, Duke Energy would be required to obtain appropriate permits from the U.S. Army Corps of Engineers (USACE) who, as a Federal agency, would be required to consult with NMFS regarding this
West Indian manatee ( <i>Trichechys manatus</i> )	FT	<b>No Effect.</b> The factors that affect the conservation of this species include hunting and habitat fragmentation/loss (FWS 2023). Historically, manatees used the CREC discharge canal and surrounding area during the winter months as warmwater refuges, and Progress Energy Florida, Inc. maintained an FDEP-approved manatee protection plan to address potential effects of operation on this species (NRC 2011). However, CR3 ceased discharging heated effluent over 9 years ago when the Spent Fuel Cooling system was converted to use mechanical chillers to transfer the heat load to the surrounding atmosphere (Northstar 2024). Therefore, any remaining thermal effluent being discharged at CREC is from the Citrus Combined Cycle Station. As previously explained, the cooling water intake system is now part of the Duke Energy Citrus Combined Cycle Station. Duke Energy and not the NRC's licensee (ADP), and therefore, is not part of the proposed action for the Crystal River LTP.
		The below information provides a historical context of the previous and current ESA consultation. Duke Energy operates this system in accordance with the programmatic biological opinion on the U.S. Environmental Protection Agency's 2014 final rule on Section 316(b) of the Clean Water Act (NMFS 2022). Duke Energy has obtained applicable permits from the USACE and State of Florida to modify the vertical weir wall structure within the discharge canal to permit manatees to move freely within the canal and not get trapped if they swim behind it at high tide (Northstar 2024). Duke Energy tentatively plans to perform this work in Spring 2024. However, this work is not associated with CR3 decommissioning activities and will not involve NRC's licensee (ADP).
		During the decommissioning period, CR3 would continue to intermittently withdrawal and discharge small amounts of water. These withdrawals and discharges would be regulated by the FDEP through the site's NPDES permit, and any impacts to federally listed species would be addressed under the programmatic 316(b) biological opinion that Duke Energy would be responsible for implementing. Before dredging, Duke Energy would be required to obtain appropriate permits from the USACE who, as a Federal agency, would be required to consult with the U.S. Fish and Wildlife Service (FWS) regarding this species, as appropriate, to address any potential impacts. For these reasons, the NRC staff concludes that the proposed action would have <i>no effect</i> on the West Indian manatee.
Critical Habitat	Federal Status <sup>(a)</sup>	NRC ESA Effect Determination
West Indian manatee	DCH	<b>No Effect.</b> NMFS established critical habitat for the West Indian manatee in 1977 to include Crystal Bay and its headwaters, known as King's Bay (50 CFR 17.95). As previously explained, CR3 would captions to intermittently withdrawal and displayee amail a manufe of water during the

decommissioning period. These withdrawals and discharges would be regulated by the FDEP through the site's NPDES permit, and habitat within Crystal Bay would not experience any effects from these small and intermittent withdrawals and discharges. Therefore, the NRC staff concludes that the proposed action would have *no effect* on critical habitat of the West Indian manatee.

<sup>(a)</sup> The NRC staff obtained the list of federally listed species and critical habitats from the following sources: FWS 2023b: FWC 2023; NOAA 2023.
<sup>(b)</sup>FE: federally endangered; FT: federally threatened; FT(S/A): federally threatened due to similarity of appearance; DCH: designated critical habitat, NEP = in the vicinity of the action area, this species is part of a nonessential experimental population.

**References** 

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[NRC] U.S. Nuclear Regulatory Commission. 2011. Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 44, Regarding Crystal River Unit 3 Nuclear Generating Plant. May 2011. ADAMS No. <u>ML11139A153</u>.