



**ADP CR3, LLC**  
**CR3 Decommissioning**

15760 West Power Line Street | Crystal River, FL 34428

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**Billy Reid**, Site Executive  
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3F0624-01  
June 11, 2024

10 CFR 50.90  
10 CFR 50.82 (a)(9)

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555-0001

Docket Nos. 50-302 & 72-1035, Operating License Number DPR-72  
Crystal River Unit 3 Nuclear Power Station

Subject: Response to questions from the NRC Environmental Assessment Branch's review of  
License Termination Plan during virtual meeting dated May 20, 2024.

Dear Commissioners and Staff,

May 20, 2024, a discussion was held with ADP CR3, LLC (CR3) personnel and the NRC Environmental Assessment Staff, supporting the review of the License Termination Plan (LTP) for Crystal River Unit 3 Nuclear Generating Plant. The purpose of the discussion was to gain insight into CR3 demolition activities that were questioned during a consultation between the Staff and Florida Fish and Wildlife Conservation Commission representatives. In support of the Staff's review of the LTP, Enclosure 1 of this letter provides the responses to the questions presented. Attachment A, of Enclosure 1, contains a proprietary diagram which should not be made publicly available. Upon removal of Attachment A Diagram, the remainder of this letter may be made public.

There are no new regulatory commitments contained within this letter.

If you have any questions regarding this submittal or require additional information, please contact Mr. Billy Reid at 865-384-6789.

I state under penalty of perjury that the foregoing is true and correct. Executed on June 11, 2024.

Sincerely,

A handwritten signature in black ink that reads "Billy E. Reid".

Billy Reid, Nuclear Executive



Cc: Regional Administrator, Region 1  
NMSS Project Manager  
Environmental Review Materials Branch Chief

Enclosure 1:  
Technical Memorandum to support NRC's consultation with Florida Fish and Wildlife  
Conservation Commission



## Enclosure 1

Technical Memorandum to support NRC's consultation with Florida Fish and  
Wildlife Conservation Commission  
Accelerated Decommissioning Partners, Crystal River Unit 3



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**Technical Memorandum to support NRC's consultation with Florida Fish and Wildlife  
Conservation Commission  
Accelerated Decommissioning Partners, Crystal River Unit 3**

In support of the Nuclear Regulatory Commission's (NRC's) review of the License Termination Plan (LTP) for the Accelerated Decommissioning Partners Crystal River 3 (ADP-CR3) decommissioning project, a virtual meeting was held on 20 May 2024 to discuss topics that were raised during their consultation with the Florida Fish and Wildlife Conservation Commission (FWCC). This discussion included ADP's approach to the following topics:

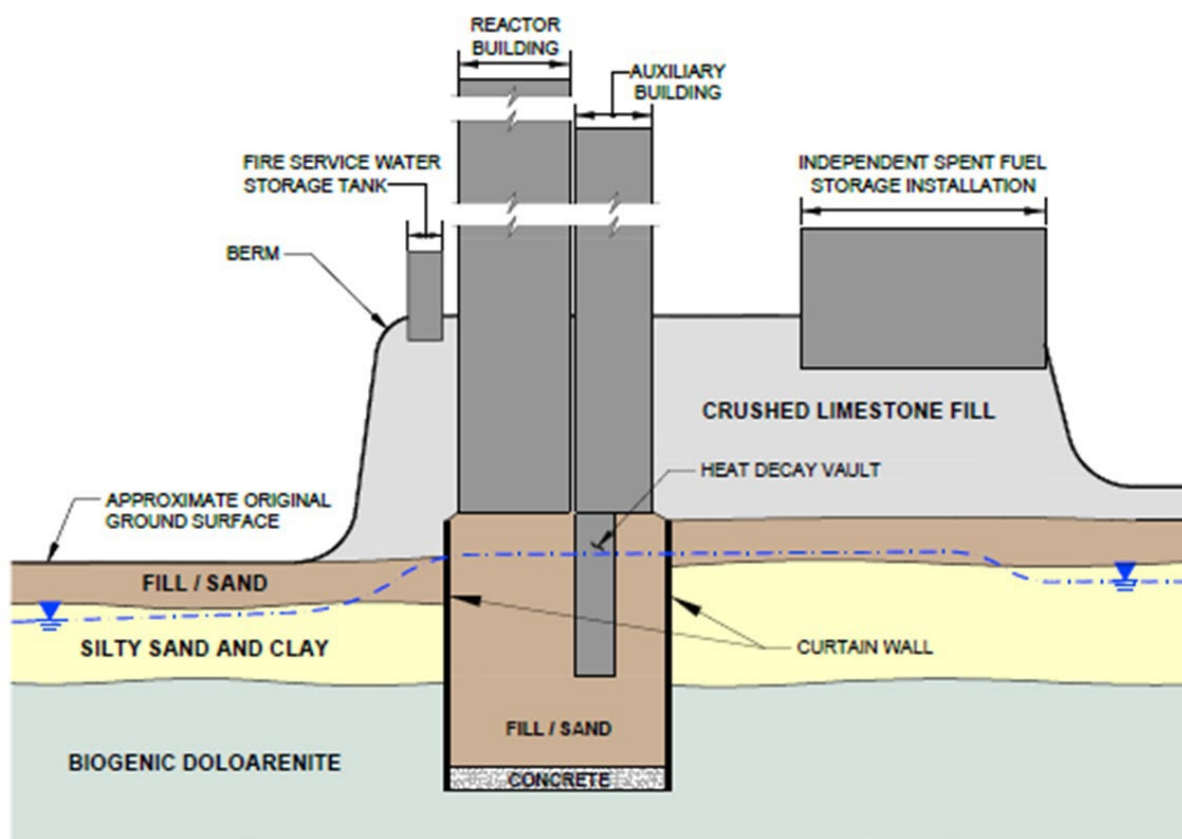
- Demolition Methods
- Anticipated Noise Levels
- Vibrations
- Herbicide Applications
- Avian Protection Plan
- Best Management Practices
- Demolition Schedule

Each topic is discussed further below:

**Demolition Methods.** At this stage of decommissioning, ADP is evaluating options for demolishing the remaining buildings, including the reactor building. The options under review include using surgical methods to remove portions of the building's base (to 'walk' the building to ground level) or the use of explosives. Mechanical demolition would use construction equipment such as excavators outfitted with hydraulic hammers, pulverizers, and crushers, attached to the backhoe 'arm'.

Both mechanical and explosive methods will cause increased vibrations and noise, however, it is likely to be at levels similar to the recent demolition of the Crystal River Units 1 and 2, completed in November 2021. For this effort, vibrations were monitored at the Independent Spent Fuel Storage Installation (ISFSI) as well as across the Discharge and Intake Canals, to evaluate potential impacts to nearby structures. A copy of the documentation as well as the location of the monitors are provided in Attachment A.

No other permits were required from the Florida State Building Codes or by those for Citrus County for this demolition project, which was located closer to the intake and discharge canals than the ADP CR3 activities. Furthermore, any demolition will be conducted on the elevated area where the plant was constructed and is also referred to as the 'berm'. This berm area was built up to approximately 23 feet higher than the surrounding land for surge protection from storms or tsunamis. The area was first excavated for the deeper basement structures then backfilled with compressed limestone. The limestone fill is less dense and less competent than the limestone bedrock and will also dampen any vibrations, compared to the Units 1 & 2 demolitions. A schematic representation of the berm and associated buildings is shown below in Figure 1.



**Figure 1. Cross section schematic of the ADP-CR3 plant (not to scale).**

Finally, it should be noted that no demolition work is anticipated to occur in or immediately adjacent to the canals. There will be no pile driving or demolition activities in the canals, however, there may be sediment sampling activities, which will be conducted using hand tools or potentially direct push sampling methods (i.e. GeoProbe™) from the 0 to 1 meter depth interval. Work conducted in the canals will be completed in accordance with Duke Energy's Standard Manatee Conditions for In-Water Work (Attachment B).

**Anticipated Noise Levels.** Noise evaluations have not been completed for aquatic or terrestrial receptors. Hearing protection is required for workers in the immediate area of the demolition, and in accordance with ADP's Safety Requirements, which ensure compliance with the Occupational Safety and Health Administration (OSHA). Hearing protection is not required for workers outside the work zone. All terrestrial and aquatic habitats are also outside the work zones.

**Vibrations.** As noted above, sediment sampling may occur in the discharge canal, but will be completed with minimal vibrations and in accordance with Duke Energy's Standard Manatee Conditions for In-Water Work. Should limited remediation be required (i.e. removal of sediments) the work will require permits from the U.S. Army Corps of Engineers and with additional consultation with FWCC.

**Herbicide Applications.** Limited herbicides are used to maintain the rail line used for the shipment of construction waste off-site. All work is completed by a licensed contractor and to manufacturer specifications. No ADP CR3 staff apply herbicides to control vegetation on Site.



**Avian Protection Plan.** ADP follows Duke Energy's Crystal River Energy Complex Wildlife Management Plan, provided in Attachment C.

**Best Management Practices (BMPs).** As noted in the License Termination Plan (LTP), BMPs will be used to minimize impacts of site activities on the environment, including terrestrial and aquatic habitats including the following:

- Adherence to the ADP CR3 Stormwater Pollution Prevention 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 required annual toxicity testing
- Routine, frequent site inspections
- General housekeeping
- Training for all badged personal (all personnel with unescorted access) including proper chemical handling/disposal, spill reporting, and reporting observations
- Dust suppression activities for all dust-inducing activities
- Soil stabilization for open areas to minimize runoff or erosion

**Demolition Schedule.** As this is an ongoing project with several large structures already demolished, and because structures are not located near or adjacent to the canals, work will continue year-round.

#### **Attachments**

Attachment A – Vibration Monitoring from Units 1 and 2 Demolition

Attachment B – Duke Energy; Manatee Protection Program

Attachment C – Crystal River Energy Complex Wildlife Management Plan



**Attachment A**  
**Vibration Monitoring from Units 1 and 2 Demolition**

# TLG, LLC

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## VIBRATION & AIR OVERPRESSURE MONITORING REPORT

FOR THE DEMOLITION OF THE:

**DUKE ENERGY CRYSTAL RIVER POWER PLANT UNITS  
#1 AND #2**

LOCATED IN:

**CRYSTAL RIVER, FLORIDA**

PERFORMED ON:

**JUNE 12, 2021**

PREPARED AT THE REQUEST OF:

**CONTROLLED DEMOLITION, INC.  
13401 STILL HAVEN COURT  
PHOENIX, MARYLAND 21131**



**VIBRATION MONITORING**

Instantel®-manufactured Minimate Plus seismographs were used to measure air overpressure (airblast) and ground vibration from the demolition. All seismographs were shake table calibrated in accordance with manufacturer's recommendations within the last year.

The seismographs record on four channels with a standard linear microphone and five channels with a standard linear microphone and a high pressure microphone.

Three orthogonal channels measuring ground motion with a peak particle velocity (PPV) range of 0.005 to 10.0 inches per second (in/sec) in a frequency range of 2 to 250 Hertz (Hz). These channels are arranged at right angles to yield a complete time history of the ground motion.

One of these channels measures air overpressure, detected by the standard linear microphone, up to 148 dB (L) (0.073 pounds per square inch (psi)) in a frequency range of 2 to 250 Hz.

One of these channels measures air overpressure, detected by a High-pressure (HP) microphone to measure air overpressure up to 10.0 psi (190.8 dB(L)) in a frequency range of 5 to 1,000 Hz. The sampling rate for all channels was set to 1,024 samples per second.

**VIBRATION MONITORING LOCATIONS AND DATA**

Vibration measurements were recorded at stations adjacent to the implosion.

The table shown on Page 4 summarizes the vibration data measured at the locations as marked on the attached plan.

**VIBRATION STANDARDS****Ground Vibration Standards:**

Decades of vibration research has led to the established criteria relating to the likelihood of damage to structures from vibration intensities and frequencies. The intensity is typically measured as peak particle velocity (PPV, or the rate-of-motions of an oscillating particle within a mass, usually the ground.

Most vibration standards designed to correlate damage with impulsive man-made vibration focus on residential structures. "Residential" means one, one and a half, and two-story, freestanding structures that constitute what we generally assume to be a single-family dwelling. For residential construction, this research has resulted in the recommendation that vibration outside the resonant frequencies of the subject structures not exceed 2.0 in/sec PPV. This standard is designed to preclude "threshold damage" to residential structures. Threshold damage is defined as "loosening of paint; small plaster cracks and joints between construction elements; lengthening of old cracks."

The damage threshold for engineered concrete and steel framed structures, load bearing masonry walls, heavy commercial buildings, or higher levels of damage to residential structures, is published as being 3.0 in/sec for masonry and 10.0 in/sec for reinforced mass concrete and higher for steel structures. A study by Chae (1978), recommends a safe threshold criterion of 4.0 in/sec for commercial structures of substantial construction. Studies by Oriard (1980) and others suggest that reinforced concrete framed commercial and industrial construction (such as bridges) can withstand vibration in excess of 10.0 in/sec without sustaining damage. Utilities and pipelines (Siskind and Stagg, 1994) and other engineering structures that are designed to withstand live loads from pressurization, seismic activity, tsunamis, or high winds (hurricanes) would have an even higher damage threshold.

**Peak Overpressure:**

Studies have shown that in the worst case of a window pane under stress, windows can withstand Peak Overpressure (PO) levels up to 151 dB (L) (0.1 psi) and that properly installed windows can withstand PO levels up to 170 dB (L) (1.0 psi). Window breakage would be the first type of damage to result from PO. The United States Bureau of Mines (USBM) (1980) recommends a peak overpressure limit of 133 dB(L) (0.013 psi) to minimize complaints from quarry blasting; however, explosive demolition operations are typically exempt from the limit due to the singular nature of the event and the overly restrictive nature of this limit for demolition work.

**CONCLUSIONS**

Based on vibration monitoring results reported herein, we have developed the following conclusions.

- ♦ Ground vibrations and air overpressures transmitted to adjacent above and below grade structures were below generally accepted safe limits for the respective types of adjacent structures/exposures.
- ♦ No changes from the pre-demolition conditions were observed by or reported to CDI during the post-demolition survey.

**LIMITATIONS**

The vibration and airblast levels measured and reported under this agreement were conducted in accordance with current standards of the industry. Loizeaux Group L.L.C. does not warrant that vibration or airblast damage to premises being monitored will not occur even when readings indicate vibration and airblast levels below normally accepted threshold values.

**BIBLIOGRAPHY**

- ♦ Chae, Y. S. (1978). Design of Excavation Blasts to Prevent Damage. Civil Engineering. ASCE, Vol. 48, No. 4, pp.77-79.
- ♦ International Society of Explosive Engineers. (1998). ISEE Blasters' Handbook, 17<sup>th</sup> Edition. Cleveland, OH.
- ♦ Oriard, L.L., and Coulson, J.H. (1980). TVA Blast Vibration Criteria for Mass Concrete. Minimizing Detrimental Construction Vibrations. ASCE Preprint 80-175. ASCE. New York. pp. 101-123.
- ♦ Siskind, D. E., Stachura, V. J., Stagg, M. S., Kopp, J. W. (1980). Structure Response and Damage Produced by Airblast from Surface Mining. Report of Investigations RI 848. U.S. Bureau of Mines. Washington, D.C.
- ♦ Siskind, D. E., Stagg, M. S. (1994). Surface Mine Blasting Near Pressurized Transmission Pipelines. Report of Investigations RI 9523. U.S. Bureau of Mines. Washington, D.C.
- ♦ Siskind, D. E., Stagg, M. S., Kopp, J.W., and Dowding, C. H. (1980). Structure Response and Damage Produced by Ground Vibrations from Surface Mine Blasting. Report of Investigations RI 8507. U.S. Bureau of Mines, Washington. DC.
- ♦ Siskind, D. E. (2000). Vibration from Blasting. International Society of Explosives Engineers. Cleveland, OH.

**TLG****VIBRATION & AIR OVERPRESSURE MONITORING REPORT**

STATION NO.	UNIT NO.	SEISMOGRAPH SERIAL #	GEOPHONE SERIAL #	LINEAR SERIAL #	HP SERIAL #	APPROX. MIN. DISTANCE (FT) FROM FOOTPRINT	MAXIMUM PPV (IN/SEC)	MAXIMUM PO ((dB(L)) / (PSI)
A	1	BE10874	BG10216	BH11631	BN5163	552'	0.110	152.6 / 0.1233
B	2	BE10873	BG10215	BH11630	BN5052	163'	0.235	160.1 / 0.295
C	4	BE9926	BG10105	BH8630	BN5007	199'	0.200	156.0 / 0.183
D	5	BE9907	BG10104	BH8629	BN5311	343'	0.190	156.1 / 0.186
E	6	BE17602	BG16503	BH12462	BN5194	240'	0.175	161.7 / 0.352
F	7	BE6985	BG8109	BH6301	BN5299	242'	0.275	159.1 / 0.260
G	3	BE10866	BG10106	BH8631	BN5314	755'	0.030	134.4 / 0.01518
H	8	BE6790	BG21608	BH5354	BN5312	741'	0.370	154.4 / 0.1519



**Attachment B**  
**Duke Energy; Manatee Protection Program**

## STANDARD MANATEE CONDITIONS FOR IN-WATER WORK

2011

The permittee shall comply with the following conditions intended to protect manatees from direct project effects:

- a. All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.
- b. All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.
- c. Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.
- d. All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.
- e. Any collision with or injury to a manatee shall be reported immediately to the Florida Fish and Wildlife Conservation Commission (FWC) Hotline at 1-888-404-3922. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-731-3336) for north Florida or in Vero Beach (1-772-562-3909) for south Florida, and emailed to FWC at [ImperiledSpecies@myFWC.com](mailto:ImperiledSpecies@myFWC.com).
- f. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Temporary signs that have already been approved for this use by the FWC must be used. One sign which reads *Caution: Boaters* must be posted. A second sign measuring at least 8½" by 11" explaining the requirements for "Idle Speed/No Wake" and the shut down of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities. These signs can be viewed at [http://www.myfwc.com/WILDLIFEHABITATS/manatee\\_sign\\_vendors.htm](http://www.myfwc.com/WILDLIFEHABITATS/manatee_sign_vendors.htm). Questions concerning these signs can be forwarded to the email address listed above.

# CAUTION: MANATEE HABITAT

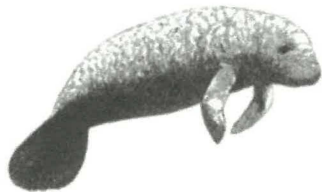
**All project vessels**

**IDLE SPEED / NO WAKE**

**When a manatee is within 50 feet of work  
all in-water activities must**

**SHUT DOWN**

**Report any collision with or injury to a manatee:**



**Wildlife Alert:**

**1-888-404-FWCC(3922)**

**cell \*FWC or #FWC**



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## **Attachment C**

### **Crystal River Energy Complex Wildlife Management Plan**



# CRYSTAL RIVER ENERGY COMPLEX

## WILDLIFE MANAGEMENT PLAN

### PURPOSE

The purpose of the Crystal River Energy Complex (CREC) Wildlife Management Plan (WMP) is to provide guidance for human interactions with healthy, orphaned, disoriented, dangerous, injured, sick, displaced, or expired wildlife.

### OVERVIEW

The CREC exists within a 4,812.55-acre site located in Citrus County on the west coast of Florida. Development and activities related to power production occur on approximately 1400 acres which are bordered by the Gulf of Mexico as well as undeveloped and state preserve lands. Indigenous wildlife includes amphibians, birds, fish, mammals, and reptiles. Almost all are protected by various treaties and laws; including endangered and threatened species such as the West Indian manatee, Eastern indigo snake, Wood stork and sea turtles. Guidance on wildlife emergencies, laws, permits and nuisance wildlife is available from Environmental Services (ES) by contacting the site Environmental Field Support personnel (ES) and Subject Matter Experts (SME). Duke Energy has Florida Fish and Wildlife Conservation Commission (FWC), and U.S. Fish and Wildlife Service (FWS) permits for managing nuisance wildlife and protected species. Compliance with Duke Energy's Business Code of Ethics, Environmental Policy and state/federal regulations are essential components of this plan. Non-compliance with state and federal environmental laws and regulations can result in individual and/or corporate fines as well as disciplinary action.

### GENERAL GUIDELINES

The CREC site philosophy is **COEXIST** - leave the wildlife alone and they leave us alone. When this philosophy fails, ES will investigate and determine if the situation warrants further action (i.e., removal or relocation). Unless there is imminent danger to a human or animal, contact ES and Crystal River North Operations Team Supervisor (CRN OTS) before coordinating a response through an agency, rescue organization or independent action. All wildlife is to be treated in a humane manner – it is against the law to treat animals inhumanely. All wildlife has a fight or flight response – employees should always be aware of their surroundings and the possibility of wildlife interactions. But they should also realize that when those encounters occur, employees should always provide a route of escape for the wildlife – cornering any creature will likely elicit only a fight response.

It is important to take reasonable and prudent measures to exclude wildlife from buildings and structures, including sealing holes/penetrations, keeping doors/windows properly protected and proper storage/handling of organic materials (potential food attractant). Additionally, do not feed the wildlife at CREC. Feeding wild animals desensitizes them to the human presence, causes them to lose their natural fear of humans and increases the potential for undesirable human/wildlife interactions. No one likes to see an animal suffering, but care needs to be taken when considering a response. Employees and contractors are not authorized to feed, possess, harass, molest, or destroy wildlife. Wildlife concerns and interactions should be reported to ES as well as the CRN OTS.

### SAFETY

Employees and contractors should be aware of the possible presence of wildlife and remain cognizant that some species (i.e., alligators, venomous snakes, spiders, insects) can present unpredictable hazards in the work environment. Assessment of potential human/wildlife interactions should be factored into pre-job briefs as well as individual Two Minute and 360° safety drills throughout the day. Employees should not attempt to capture or handle wildlife. Monitor the animal from a safe distance and immediately contact ES or CRN OTS for assistance.

Besides the obvious bites, animals may have claws, spines, beaks, abrasive, or noxious components for defense mechanisms. All have the potential to cause harm to humans. There is potential for exposure to blood-borne pathogens, including any bodily fluid. This would include contact with carcasses. Also, the potential exists for zoonotic disease exposure (disease that can be transmitted from animals to humans) from both live and dead wildlife, including viral, bacterial, and parasitic elements. Environmental and responders are to use appropriate personal protective equipment and animal control devices when responding to wildlife issues and should never attempt to handle potentially dangerous situations without assistance from wildlife experts. If conditions warrant assistance from FWC, Citrus County Animal Services or a wildlife rescue organization, secure the area and monitor the animal until they arrive. Euthanization of wildlife must be done by FWC (or authorized agent) or under their direct supervision.



## **CONTACT INFORMATION**

- **ENVIRONMENTAL FIELD SUPPORT (ES)**

<b>Crystal River Energy Complex</b>	<b>Cindy Armstrong</b>	<b>(352) 464-3211</b>	<b>(352) 651-4671</b>
Mariculture Center	Eric Latimer	(352) 464-7801	
CR North	Ashley Nichols	(352) 501-5499	(813) 695-3806
CR South / Demo	Cindy Armstrong	(352) 464-3211	(352) 651-4671
CR 3 / NorthStar	Hailey Warrington	(352) 843-6044	(352) 224-1200 ext. 2918
Citrus Combined Cycle	Matt Davis	(386) 362-9822	
Natural Resources (SME)	Tonya Corder	(727) 631-7859	(727) 820-5607
Natural Resources (SME)	Matt McKinney	(352) 456-8777	
- **CRN OPERATIONS TEAM SUPERVISOR** (352) 501-5332 (352) 464-7808
- **CITRUS – OPERATIONS TEAM SUPERVISOR** (352) 501-2223
- **WILDLIFE RESCUE**

Nature World Wildlife Rescue (NWWR)	(352) 621-5575	Information/Help/Transport
Homosassa Animal & Bird Hospital	(352) 628-4200	Emergency Care for NWWR
- **AGENCY CONTACTS**

FWC Nuisance Alligator Hotline	(866) 392-4286	Alligator harvest/removal
FWC Wildlife Alert & Information Hotline	(888) 404-3922	
Citrus County Animal Services – Officer on duty	(352) 726-7660	
Citrus County Sheriff’s Non-emergency	(352) 726-1121	
Citrus County Sheriff’s Office Dispatch	(352) 249-2790	
USDA-APHIS Wildlife Service – David Romano	(352) 535-5207	Vultures/Raccoons/Pigeons

## **WILDLIFE QUICK REFERENCE GUIDE FOR ENVIRONMENTAL AND STATION PERSONNEL**

*Accurate and timely identification is critical to ensure compliance with FWC and Nuclear Regulatory Commission reporting requirements. Contact site ES or SME for guidance on species identification, wildlife emergencies, laws, permits or nuisance wildlife.*

### **INITIAL RESPONSE**

Considerations in response to wildlife concerns include personal and workplace safety as well as the species, natural/alterd behavior, injuries, and potential exit route for the animal. Assess each situation independently and respond using the guidance in this document and assistance from Environmental. Although it is impracticable to list steps for all scenarios, below is an outline to facilitate the process:

- Confirm the report, assess the situation to identify potential safety hazards, species and determine appropriate response methods (ES is available to assist as needed).
- If no further action is warranted, update site ES and individual who initiated the report.
- If action is required, identify the species, and follow the guidance provided in this plan to develop and execute an appropriate response. ES is available to assist as needed. Update site ES and SMEs to ensure agency notifications are made in compliance with specific permit conditions.
- If conditions warrant assistance from FWC, Citrus County Animal Services, or a wildlife rescue organization, secure the area, contact agency/organization, process site access paperwork, monitor the animal until they arrive and provide support throughout the process.

### **REHABILITATION AND VETERINARY CARE**

- **Nature World Wildlife Rescue** is a rehabilitation facility; *volunteers are not badged for site access but may be available to assist with captures and transports.* Injured wildlife can be transported to
  - Homosassa Animal & Bird Hospital (352-628-4200) is located at 8177 W. Grover Cleveland Blvd. – just east of US Highway 19.

**SPECIES SPECIFIC AND MISCELLANEOUS INFORMATION**

- **ALLIGATORS - SPECIES OF SPECIAL CONCERN.** *Promptly notify Environmental Field Support of nuisance alligator complaints and immediately contact Cindy Armstrong 352-651-4671 regarding captures and relocations. [CREC's permit requires notification to FWC within 24-hours of a relocation](#) (<http://myfwc.com/relocate>, the Nuisance Alligator Hotline 866-392-4286 or email at [snap@myfwc.com](mailto:snap@myfwc.com)).* Florida law states that only authorized personnel may handle or relocate alligators. Duke Energy or authorized agent is permitted by FWC Special Purpose Permit to capture (non-injurious methods), hold, and relocate alligators at the CREC in accordance with specific conditions and provisions. ES Professionals are authorized to handle alligators ≤4' or contact the FWC Nuisance Alligator Hotline to initiate harvest and removal of nuisance alligators by a Commission contracted FWC trapper. *FWC trappers are not badged for CREC, site-access authorization is required.* Alligators captured for relocation must be transported and released immediately into appropriate wetland, marsh, or canal. Record capture and release site GPS coordinates for permit reporting purposes.
- **AQUATIC LIFE - Immediate notification to ES** regarding fish kill, marine mammal stranding, harmful algae bloom or concerns related to aquatic organisms.
- **BIRDS - Report all avian nests, injuries, or deaths to ES upon discovery.** All birds as well as their nests and eggs are protected by the Migratory Bird Treaty Act and/or other laws, except the English House Sparrow, Rock Pigeon, Starling, or other nonnative birds such as the monk (or Quaker) parrot. The CREC Nuisance Vulture Management Plan outlines strategies for management of nuisance vultures. It's not uncommon to find disoriented racing pigeons on site. The American Racing Pigeon Union website provides instructions and links for various clubs to locate the owner.
- **CARCASSES** - Proper personal protection equipment should be utilized when handling wildlife carcasses.
  - **Immediate notification to ES upon discovery of an endangered, threatened or species of special concern carcass.** *ES will provide guidance on carcass preservation and agency notifications.*
  - Report carcasses of non-listed species to environmental personnel. Carcasses should be removed promptly and buried or deposited in a covered solid waste dumpster to discourage vultures and other scavengers.
  - Large fish carcasses: Goliath Grouper carcasses occasionally surface in the intake canal - notify ES and CRN OTS. ES will determine reportability and final disposition of the carcass.
  - Fresh animal carcasses (i.e., deer, hog) can be donated to a wildlife rescue/rehabilitation facility. If needed, provide a courtesy call to the FWC Wildlife Alert Hotline to create an official record in case the individual transporting the carcass is stopped by law enforcement.
- **DATA & REPORTING** - Wildlife activities are documented in the CREC Wildlife Database or the CREC Sea Turtle Stranding and Salvage Database. Environmental personnel will enter qualifying events in eTRAC or Plantview.
- **EQUIPMENT** - ES Field Support personnel have animal control poles, snake tongs, Kevlar arm protection sleeves and gloves as well as transport cages and a trap. Wildlife freezer in the shed located on north side of the old site administration building.
- **EUTHANASIA** - Immediately contact FWC if an animal is mortally injured and requires euthanasia. Do not act independently – an FWC Officer will respond or provide guidance. Florida law (Title XLVI 828.12) prohibits killing animals in cruel or inhumane ways that cause unjustifiable pain or suffering and the American Veterinary Medical Association provides guidelines on euthanasia. Carcass disposal is discussed in the "Carcasses" section.
- **FISHING** - Fishing is not allowed on site at the Crystal River Energy Complex as of 5/4/2012.
- **MANATEE - ENDANGERED SPECIES.** *Immediate notification to ES regarding the death or unusual behavior and appearance of a manatee.* CREC Manatee Protection Plan.
- **RACCOON - Raccoons are known vectors for rabies and distemper.** USDA-APHIS Wildlife Service is contracted to assist with nuisance raccoons. If USDA-APHIS is unavailable, call the Citrus County Sheriff's Office Dispatch and request assistance from the Animal Services Officer on duty to remove a sick/injured raccoon.
- **SEA TURTLES - ENDANGERED AND THREATENED SPECIES.** *Immediate notification to ES is required regarding a stranding, death, or unusual observation. CCC-PRC-00-AD-001 CCC-Sea Turtle Rescue and Handling Guidance (7/1/22) "At no time shall Duke Energy staff or contractors rescue and/or handle any sea turtles (dead, comatose, injured, live or other) without on-site supervision and direction of a third-party such as Clearwater Marine Aquarium."*
- **SNAKES** - Florida has 44 species of native snakes (38 non-venomous and 6 venomous). Of the non-venomous species indigenous to Citrus County, the following are classified as either threatened or species of special concern: Eastern Indigo, Florida Pine Snake, Florida Brown Snake and Short-tailed Snake. All snakes will bite in self-defense.
  - **THREATENED / SPECIES OF SPECIAL CONCERN - Immediate notification to ES – do not harm or harass.**
  - **NON-VENOMOUS** snakes should be guided elsewhere (i.e., water spray, broom) or relocated on site.
  - **VENOMOUS** - The four-venomous species indigenous to Citrus County are not listed as imperiled, the Coral Snake, Eastern Diamondback Rattlesnake, Pygmy Rattlesnake and Cottonmouth. The Canebrake Rattlesnake and Copperhead are uncommon to Citrus County. Venomous snakes can be humanely euthanized if workplace safety is jeopardized or relocated by ES to a remote area on site if personal safety is not compromised.

## SUPPORTING DOCUMENTS AND LINKS

### **DUKE ENERGY DOCUMENTS**

AVIAN PROTECTION PLAN	<a href="#">AVIAN PROTECTION PLAN</a>
CODE OF BUSINESS ETHICS	<a href="#">CODE OF BUSINESS ETHICS</a>
ENVIRONMENTAL POLICY	<a href="#">ENVIRONMENTAL POLICY</a>
CREC WILDLIFE MANAGEMENT JOB HAZARD ANALYSIS	FPC-JHA-00672 (9/14/11)
ENVIRONMENTAL COMPLIANCE MANUAL CHAPTERS	<a href="#">Natural Resources / Biological Monitoring</a>
<ul style="list-style-type: none"> <li>- ADMP-ENV-EVS-00089 INVESTIGATING AND REPORTING FISH KILLS</li> <li>- ADMP-ENV-EVS-00013 AVIAN PROTECTION PROCEDURE</li> <li>- ADMP-ENV-EVS-00094 ENDANGERED SPECIES PROCEDURE</li> </ul>	
STATION PERMITS AND SITE-SPECIFIC DOCUMENTS	
<ul style="list-style-type: none"> <li>- MANATEE PROTECTION PLAN</li> <li>- CCC-PRC-00-AD-0001 CCC-SEA TURTLE RESCUE AND HANDLING GUIDANCE</li> </ul>	

### **WEBSITES**

#### AMERICAN RACING PIGEON UNION

- Home Page: <http://www.pigeon.org/lostbirdinfo.htm>

#### AMERICAN VETERINARY MEDICAL ASSOCIATION

- AVMA Guidelines on Euthanasia (2013): <https://www.avma.org/KB/Policies/Pages/Euthanasia-Guidelines.aspx>

#### CITRUS COUNTY ANIMAL SERVICES

- Home Page - Citrus County Sheriff's Department: <http://www.sheriffcitrus.org>

#### CORNELL LAB OF ORNITHOLOGY

- HOME PAGE / ALL ABOUT BIRDS: <http://www.allaboutbirds.org/NetCommunity/Page.aspx?pid=1189#>

#### FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

- Home Page: <http://myfwc.com>
  - Alligators
  - Endangered Species, Threatened Species and Species of Special Concern
  - Non-venomous Snake Guide
  - Venomous Snake Guide
  - Species of Sea Turtles Found in Florida

#### FLORIDA NATURAL AREAS INVENTORY

- Home Page: [http:// www.fnai.org](http://www.fnai.org)

#### NOAA FISHERIES SERVICE

- Home Page: <http://www.nmfs.noaa.gov>

#### STATE OF FLORIDA

- Florida Statute - Title XLVI 828.12 Cruelty to Animals:  
[http://www.leg.state.fl.us/Statutes/index.cfm?App\\_mode=Display\\_Statute&URL=Ch0828/tit0828.htm&StatuteYear=2000&Title=%2D%3E2000%2D%3EChapter%20828](http://www.leg.state.fl.us/Statutes/index.cfm?App_mode=Display_Statute&URL=Ch0828/tit0828.htm&StatuteYear=2000&Title=%2D%3E2000%2D%3EChapter%20828)

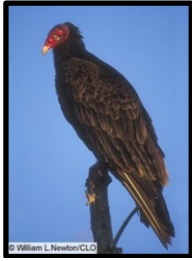
#### UNIVERSITY OF FLORIDA/FLORIDA NATURAL MUSEUM OF HISTORY

- Online guide to the Snakes of Florida: <http://www.flmnh.ufl.edu/herpetology/fl-guide/onlineguide.htm>

#### US FISH AND WILDLIFE SERVICE

- Home Page: <http://www.fws.gov>
- Endangered Species Program: <http://www.fws.gov/endangered/>

# CREC NUISANCE VULTURE MANAGEMENT PLAN



## TURKEY VULTURE

*Cathartes aura*

Federally protected - MBTA

Common

February - May

Oct-Nov / Feb-March

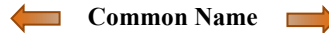
Ciconiformes / Cathartidae

3.5 – 5.2 lbs. / 2 - 2.3 ft.

5.2 – 5.9 ft

Growl, Hiss

Acidic vomit (~2pH), play dead



**Common Name**

**Scientific Name**

**Status**

**Occurrence in FL**

**Nesting**

**Migration Fall / Spring**

**Order / Family**

**Weight / Length**

**Wingspan**

**Vocalization**

**Defense Strategies**

## BLACK VULTURE

*Coragyps atratus*

Federally protected - MBTA

Common

January – August

Oct-Nov / Feb-March

Ciconiformes / Cathartidae

3.5 – 5 lbs. / 1.9 – 2.3 ft.

4.6 – 5.2 ft

Grunt, Snarl, Hiss

Aggressive, acidic vomit (~2pH), biting, wing flapping

## MANAGEMENT STRATEGY

- Management of nuisance vultures will be a collaborative effort between CREC personnel and Environmental Services to ensure safety and operational conflicts are mitigated in compliance with company and regulatory policies.
- Proper storage and handling of organic materials (potential food attractant); including use of covered dumpsters and garbage cans.
- Utilize awareness reports from plant personnel to ensure an appropriate response is initiated quickly to minimize the amount of time and effort necessary for a successful deterrent action.
- Assess each situation independently and mitigate using integrated non-harmful management techniques to discourage loafing and/or roosting on plant structures.
- FWS Depredation Permit (MB05556B-0) in conjunction with USDA-APHIS Wildlife Service Cooperative Service Agreement for supplemental control activities (including take by shotgun).
- Monitor and document vulture activity site-wide; modify/expand management efforts as needed.

## ILLEGAL MANAGEMENT TECHNIQUES

- Any device, method or action initiated by plant personnel that could result in injury or death (human or vulture). Examples include firearms, water, air-soft pellet impact to head, laser directed at eyes, physical contact, tainted food/water, and projectiles.

## APPROVED NON-HARMFUL MANAGEMENT TECHNIQUES

- Artificial vultures (effigies) suspended upside down from plant structures.
- Red laser light directed around the birds and surrounding area, no contact with vulture or human eyes.
- Air-Soft gun with biodegradable pellets directed at the body, no contact to the head or eyes.
- Barrier netting to prevent or minimize access to structure; bird wire to deter landing and/or perching.
- Pyrotechnic screamer launcher to scare vultures away.
- Human harassment: loud noise, loud voice, hand clapping, walking through roost, laser, and Air-Soft gun.

## PERSONAL PROTECTION EQUIPMENT

- Adhere to Duke policies for PPE; hardhat; eye/ hearing/hand/ skin/respiratory protection; steel-toed shoes.

## HEALTH/SAFETY CONSIDERATIONS

- Slips, trips, falls, bumps (structural design, equipment, vomit, fecal matter, and moisture).
- Maintain a distance  $\geq 6'$  and always provide a safe exit route for yourself and the vulture.
- Potential for zoonotic disease exposure (viral, bacterial, parasitic) from both live and dead vultures; including bodily fluids. Air-borne fecal dust may contain bacteria or fungi.
- Physical injury or workplace safety concern related to discharge of pyrotechnics and shotgun.
- Physical injury from the beak, claws, wings, or acidic vomit (1-2 pH) burn/irritate skin/eyes on contact.
- Vocalizations and noxious odor (vomit/feces) may startle and distract humans.

(08/12/15)