



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION I  
2100 RENAISSANCE BOULEVARD, SUITE 100  
KING OF PRUSSIA, PA 19406-2713

May 2, 2016

Docket No. 05000302

License No. DPR-72

Terry Hobbs  
Decommissioning General Manager  
Duke Energy Florida, Inc.  
Crystal River Nuclear Plant  
15760 W. Power Line Road  
Crystal River, FL 34428-6708

SUBJECT: NRC INSPECTION REPORT NO. 05000302/2016001, DUKE ENERGY  
FLORIDA, INC., CRYSTAL RIVER NUCLEAR PLANT, CRYSTAL RIVER,  
FLORIDA

Dear Mr. Hobbs:

On April 4, 2016, the U.S. Nuclear Regulatory Commission completed an inspection under Inspection Manual Chapter 2561, "Decommissioning Power Reactor Inspection Program," at the permanently shut down Crystal River Nuclear Plant Unit 3 (CR-3). An on-site inspection was performed on March 1-3, 2016 and in-office reviews of information supplied by Duke Energy Florida, Inc. were also performed. The inspection examined activities conducted under your license as they relate to safety, security, and compliance with the Commission's rules and regulations, and the conditions of your license. The inspection consisted of observations by the inspectors, interviews with personnel, and a review of procedures and records. The results of the inspection were discussed with you and other members of the CR-3 staff on April 4, 2016, and are described in the enclosed report.

Based on the results of this inspection, the NRC has determined that one Severity Level (SL) IV violation of NRC requirements occurred. This violation is being treated as a Non-Cited Violation (NCV), consistent with Section 2.3.2 of the Enforcement Policy. The NCV contains security related information and is documented in Enclosure 2 of the subject inspection report. If you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to: (1) the Regional Administrator, Region I; (2) the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and (3) the NRC Senior Decommissioning Inspector, Region I.

Enclosure 2 contains Sensitive Unclassified Non-Safeguards information. When separated from Enclosure 2, the document is decontrolled.
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T. Hobbs

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However, the material enclosed in Enclosure 2 contains security-related information in accordance with 10 CFR 2.390(d)(1), and its disclosure to unauthorized individuals could present a security vulnerability. Therefore, the material in Enclosure 2 will not be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's ADAMS. If you choose to provide a response, and security-related information is necessary to provide an acceptable response, please mark your entire response "Security-Related Information – Withhold from Public Disclosure under 10 CFR 2.390" in accordance with 10 CFR 2.390(d)(1), and follow instructions for withholding in 10 CFR 2.390(b)(1). In accordance with 10 CFR 2.390(b)(1)(ii), the NRC is waiving the affidavit requirements for your response.

Current NRC regulations and guidance are included on the NRC's website at [www.nrc.gov](http://www.nrc.gov); select **Nuclear Materials; Med, Ind, & Academic Uses**; then **Regulations, Guidance and Communications**. The current Enforcement Policy is included on the NRC's website at [www.nrc.gov](http://www.nrc.gov); select **About NRC, Organizations & Functions; Office of Enforcement; Enforcement documents**; then **Enforcement Policy (Under 'Related Information')**. You may also obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-866-512-1800. The GPO is open from 8:00 a.m. to 5:30 p.m. EST, Monday through Friday (except Federal holidays).

No reply to this letter is required. Please contact Steve Hammann at 610-337-5399 if you have any questions regarding this matter.

Sincerely,

**/RA/**

Raymond Powell, Chief  
Decommissioning and Technical Support  
Branch  
Division of Nuclear Materials Safety

Enclosures:

1. (Public) Inspection Report 05000302/2016001
2. (Non-Public) Inspection Report 05000302/2016001

cc w/encl 1: Distribution via ListServ

cc w/encl 2: T. Hobbs, Decommissioning General Manager

T. Hobbs

2

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**SUNSI Review Complete:** SHammann

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NAME	SHammann/sth		RMckinley /rm		RPowell/rp			
DATE	4/25/16		4/25/16		5/2/16			

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U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

INSPECTION REPORT

Inspection No. 05000302/2016001

Docket No. 05000302

License No. DPR-72

Licensee: Duke Energy Florida, Inc. (Duke Energy)

Facility: Crystal River Unit 3 (CR-3)

Location: 15760 W. Power Line Road  
Crystal River, FL 34428-6708

Inspection Dates: March 1-3, 2016

Inspectors: Stephen Hammann, Senior Health Physicist  
Decommissioning and Technical Support Branch  
Division of Nuclear Materials Safety

Briana DeBoer, Health Physicist  
Decommissioning and Technical Support Branch  
Division of Nuclear Materials Safety

Approved By: Raymond Powell, Chief  
Decommissioning and Technical Support Branch  
Division of Nuclear Materials Safety

**EXECUTIVE SUMMARY**

Duke Energy  
Crystal River Nuclear Plant  
NRC Inspection Report No. 05000302/2016001

An announced CR-3 decommissioning inspection was completed on April 4, 2016. The inspectors performed an on-site inspection the week of March 1-3, 2016. In-office reviews of information supplied by Duke Energy were also performed during the inspection. The inspection included a review of management oversight, organization and staffing, spent fuel pool (SFP) safety, and decommissioning performance. The inspection consisted of observations by the inspectors, interviews with Duke Energy personnel, a review of procedures and records, and plant walk-downs. The NRC's program for overseeing the safe operation of a shut-down nuclear power reactor is described in Inspection Manual Chapter (IMC) 2561, "Decommissioning Power Reactor Inspection Program."

**REPORT DETAILS**

**1. Background**

On February 20, 2013, Duke Energy sent a letter [Agency Documentation and Management System (ADAMS) Accession Number: ML13056A005] to the NRC certifying the permanent cessation of activities and certifying that the fuel had been permanently removed from the reactor. This met the requirements of 10 Code of Federal Regulations (CFR) 50.82(a)(1)(i) and 50.82(a)(1)(ii). Currently, CR-3 is in the SAFSTOR phase of decommissioning as described in IMC 2561.

**2. SAFSTOR Performance and Status Review**

**a. Inspection Scope (Inspection Procedures (IPs) 36801, 60801, 71801)**

The inspectors performed an on-site inspection the week of March 1-3, 2016. In-office reviews of information supplied by Duke Energy were also performed during the inspection. The inspection consisted of observations by the inspectors, interviews with Duke Energy personnel, a review of procedures and records, and plant walk-downs.

The inspectors conducted document reviews, performed observations, attended site meetings, and interviewed plant personnel to verify the following: regulatory requirements were properly implemented with respect to the site organization, staffing and staff qualifications; certified fuel handler and employee training programs were implemented in accordance with Duke Energy procedures and NRC requirements; Duke Energy established procedures and processes to resolve employee safety concerns, disseminate safety information and effectively resolved identified problems; and Duke Energy's decommissioning activities were performed in a manner consistent with the Post Shutdown Decommissioning Activities Report (PSDAR).

The inspectors reviewed CR-3's programs for the safe wet storage of spent fuel. The inspectors performed a walk-down of the SFP and associated support systems to assess material condition, configuration control, and system operation. The inspectors also accompanied chemistry technicians as they sampled and analyzed SFP water, and observed radiation protection technicians performing SFP cleaning activities in order to assess SFP chemistry and cleanliness controls. The inspectors interviewed employees and reviewed work orders, procedures, and water analysis to verify compliance with the technical specifications.

The inspectors observed CR-3 and Areva, Inc. personnel performing holddown spring removals of spent fuel assemblies. The holddown spring removals, along with fuel assembly grid repositioning, are being done to prepare the fuel assemblies for the CR-3 campaign to move all fuel assemblies from the spent fuel pool and into dry cask storage. The inspectors reviewed the procedures, work plans, radiation work permits, equipment setup, RP coverage of the project, and evaluated CR-3's adherence to procedures.

b. Observations and Findings

The inspectors verified that management oversight was adequate for the SAFSTOR phase of decommissioning and that no significant changes had been made to the CR-3 SAFSTOR organization since the previous inspection. The inspectors determined that training programs were being appropriately implemented by the responsible section managers and reported up to the Decommissioning Manager. The inspectors attended a plant safety meeting and found potential safety hazards were being discussed with the staff.

The inspectors verified spent fuel pool chemistry and cleanliness controls were being adequately implemented. The inspectors verified the chiller system installed after CR-3 entered decommissioning to replace the existing SFP cooling system was functioning adequately. The inspectors determined tests had been adequately performed to assess the condition of the carborundum poison material in SFP A.

The inspectors noted that the work being performed on the fuel assemblies is to prepare for placing the fuel assemblies into the dry shielded canisters. The inspectors noted that Areva personnel were performing the activities with oversight and support from CR-3 personnel. The inspectors determined that the project to ensure fuel assemblies are acceptable for dry cask storage is on-going and the next phase will include gauging suspect fuel assemblies to determine if they will fit into cells in the dry shielded canisters.

c. Conclusions

Based on the results of this inspection, no findings of safety significance were identified.

3. **Exit Meeting**

On April 4, 2016, the inspectors presented the inspection results, via teleconference, to Terry Hobbs, Decommissioning General Manager, and other members of Duke Energy's staff. The inspectors confirmed that proprietary information was not removed from the site.

**PARTIAL LIST OF PERSONS CONTACTED**

Licensee

B. Akins, Radiation Protection and Chemistry Manager  
P. Dixon, Decommissioning Technical Support Manager  
C. Gavin, Nuclear Performance Specialist  
T. Hobbs, Decommissioning General Manager  
J. Lane, Systems Engineer  
P. Rose, Licensing  
I. Wilson, Operations and Maintenance Manager  
K. Shelton, RP Supervisor  
M. Van Sicklen, Licensing  
P. Worthington, Engineering Supervisor

**ITEMS OPEN, CLOSED, AND DISCUSSED**

None

**LIST OF DOCUMENTS REVIEWED**

Procedures

AI-1806, CR-3 Safety Committee, Rev. 25  
AREVA FS-043, MK-B4 Holddown Spring Removal Procedure, Rev. 08  
AREVA FS-097, Foreign Material Removal and Retrieval, Rev. 06  
AREVA FS-285, Fuel Assembly Grid Positioning, Rev. 01  
CH-400A, Nuclear Chemistry Data Sheets, Primary Water Chemistry and Countroom, Rev. 20  
CH-513A, Spent Fuel Coolant Sampling (SFP), Rev. 4  
CH-513C, Spent Fuel Coolant Filter 3A&3B/Demineralizer Outlet Sampling (SFDM-1), Rev. 2  
CH-572A, FST-1A Sampling, Rev. 3  
CH-9000, Spent Fuel Pool Cooling Chilled Water System (ChhE-4A/B) and Control Complex Cooling Chilled Water System (CHHE-4C) Sampling and Chemical Addition, Rev. 3  
EHS-PGM-105, Environmental, Health and Safety Event Reporting and Investigation Program, Rev. 0  
FP-204, Auxilliary Building Fuel Handling Operations, Rev. 6  
FP-601C, Operation of Spent Fuel Pool Handling Bridge FHCR-3, Rev. 50  
FP-601G, Operation of Spent Fuel Handling Monorail FHCR-3A, Rev. 5  
MNT-0007, Foreign Material Exclusion Program, Rev. 0  
MNT-020, Cranes and Hoists, Rev. 0  
MP-806, Mobile Crane Control, Rev. 14  
OP-421C, Operation of the Auxilliary Building Overhead Crane FHCR-5, Rev. 44  
OP-421D, Operation of the Spent Fuel Pit Missile Shield Crane FHCR-7, Rev. 26  
SP-318, Spent Fuel Pool Boron Concentration Verification, Rev. 3  
TAP-403, Conduct of Written Examinations, Rev. 23  
TAP-404, Training Documentation and Records, Rev. 10  
TAP-408, Development and Conduct of Job Performance Measures, Rev. 11



Procedures (Contd)

TAP-413, Conduct of Operator Continuing Training, Rev. 24  
TPP-219, Emergency Response Organization Training Program, Rev 7  
TPP-901, Certified Fuel Handler Training and Retraining Program, Rev. 1  
TRN-1000, Performance Based Training, Rev. 2

Completed Surveillance Procedures and Surveys

SFP water analysis, 10/06/15 – 3/1/2016  
Water sample analysis 10-Feb-2016-003 and 16-Feb-2016-003

Miscellaneous

AR 01960787  
CR-3 Grid Strip-HDS-Debris Removal Site Schedule  
CR-3 Safety Council Members, October 15, 2015  
Maintenance CRC Meeting Minutes, 10-06-15  
Operations CRC Meeting Minutes, September 23, 2015  
RWP #1061, Rev. 0  
SAF-2176, Job Safety Analysis (JSA)  
SAFSTOR CRC Meeting Minutes, September 9, 2015  
Station Performance Oversight Committee (SPOC) Meeting Minutes, December 15, 2015  
Team Safety – Top Safety Concerns 2015, 11/09/2015

Work Orders

WO 01929241 01, High Density Rack Poison SAM  
WO 20037898 01, Clean the A&B SFP & Cask Loading Area  
WO 20037931 01, Spent Fuel Pool Boron Concentration Verification  
WO 13535579, Sample Mold in Buildings & Analysis

**LIST OF ACRONYMS USED**

ADAMS	Agency Documentation and Management System
CFR	Code of Federal Regulations
CR-3	Crystal River Unit 3
Duke Energy	Duke Energy Florida, Inc.
IMC	Inspection Manual Chapter
IP	Inspection Procedure
NRC	U.S. Nuclear Regulatory Commission
PSDAR	Post Shutdown Decommissioning Activities Report
SAFSTOR	Long Term Safe Storage
SFP	Spent Fuel Pool