



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

January 12, 2015

Docket No. 05000302

License No. DPR-72

Terry Hobbs  
Decommissioning General Manager  
Duke Energy Florida, Inc.  
Crystal River Unit 3  
15760 W. Power Line Road  
Crystal River, FL 34428-6708

SUBJECT: NRC INSPECTION REPORT NO. 05000302/2014004, DUKE ENERGY  
FLORIDA, INC., CRYSTAL RIVER UNIT 3, CRYSTAL RIVER, FLORIDA

Dear Mr. Hobbs:

On December 31, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed a quarterly inspection of activities at Crystal River Nuclear Plant Unit 3 (CR-3). On-site inspections were performed on November 3-6, 2014. In-office reviews of information supplied by Duke Energy Florida, Inc. were also performed during the inspection period. The inspection examined activities conducted under your license as they relate to safety 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 Dan Westcott, Licensing Manager, and other members of the CR-3 staff on January 5, 2015, and are described in the enclosed report. No findings of safety significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure(s), and your response, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC document system (ADAMS), accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

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).

T. Hobbs

2

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/*

Marc S. Ferdas, Chief  
Decommissioning and Technical Support  
Branch  
Division of Nuclear Materials Safety

Enclosure: Inspection Report 05000302/2014004

cc w/encl: State of Florida  
Distribution via ListServ

T. Hobbs

2

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**SUNSI Review Complete: SHammann**

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OFFICE	DNMS/RI	N	DNMS/RI	DNMS/RI		
NAME	SHammann/sth		MFerdas/msf			
DATE	1/12/15		1/12/15			

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U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

INSPECTION REPORT

Inspection No. 05000302/2014004

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: October 1, 2014 to December 31, 2014

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

Elise Burket, EP Inspector  
Plant Support Branch 1  
Division of Reactor Safety, RI

Steven P. Sanchez, Senior EP Inspector  
Plant Support Branch 1  
Division of Reactor Safety, RII

Steve LaVie, Senior EP Specialist  
Inspection and Regulatory Improvement Branch  
Office of Nuclear Security and Incident Response

Kathy Dolce Modes, Senior Health Physicist  
Decommissioning and Technical Support Branch  
Division of Nuclear Material Safety, RI

Approved By: Marc Ferdas, Chief  
Decommissioning and Technical Support Branch  
Division of Nuclear Material Safety, RI

## EXECUTIVE SUMMARY

Duke Energy  
Crystal River Nuclear Plant  
NRC Inspection Report No. 05000302/2014004

An announced quarterly inspection was completed at CR-3 on December 31, 2014. On-site inspections were conducted the week of November 3-6, 2014. In-office reviews of information supplied by Duke Energy were also performed during the inspection period. The inspection included a review of operations and management oversight, and plant support activities.

The inspectors also reviewed CR-3's biennial emergency preparedness (EP) exercise to assess the adequacy of the exercise and Duke Energy's capability to assess emergency response organization (ERO) performance via a formal critique process. The inspectors also reviewed Duke Energy's EP program at CR-3 to determine whether the EP program had been maintained in a state of operational readiness and whether changes made to the EP program continue to meet commitments, the NRC requirements, and have not negatively affected the overall state of emergency preparedness at CR-3.

The inspection consisted of observations by the inspectors, interviews with Duke Energy personnel, a review of procedures and records, and plant walk-downs. The U.S. Nuclear Regulatory Commission's (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."

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

## **REPORT DETAILS**

### **1.0 Background**

On February 20, 2013, Duke Energy sent a letter (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 CFR 50.82(a)(1)(i) and 50.82(a)(1)(ii). CR-3 is currently in the "Post Operation Transitional Phase" of decommissioning as described in IMC 2561.

### **2.0 Post Operation Transition Phase Performance and Status Review**

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

The inspectors performed an on-site inspection the week of November 3-6, 2014. In-office reviews of information supplied by Duke Energy were also performed during the inspection period. 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 assessed management oversight of the site's transition to decommissioning status. The inspectors reviewed the site's organization and staffing levels to ensure the safe storage of radioactive materials would not be adversely impacted by organizational changes. The inspectors reviewed corrective action reports to determine if issues were being properly assessed, reviewed, prioritized, and corrective actions were being appropriately implemented.

The inspectors reviewed CR-3's programs for the safe wet storage of spent fuel. The inspectors performed a walkdown of the spent fuel pool (SFP) and associated support systems to assess material condition, configuration control, and system operation. The inspectors also observed the removal of carborundum samples from the spent fuel pool as part of Duke Energy's actions to monitor and maintain neutron absorbing material in the SFP.

#### **b. Observations and Findings**

Further staff reductions occurred on December 1, 2014 as part of Duke Energy's transition to SAFSTOR. Staffing reviews were continuously being performed by Duke Energy to ensure that adequate staffing levels were being maintained to support plant activities.

The inspectors verified that the programs for the safe wet storage of spent fuel were being performed within the established frequencies and that the equipment was being properly maintained. The inspectors verified that maintenance and surveillance testing was conducted in accordance with the technical specification requirements and established procedures. The inspectors noted that the new chiller system for SFP cooling had been installed and the system was properly tested prior to being placed in service.

c. Conclusions

Based on the results of this inspection, no findings of safety significance were identified. No major decommissioning activities have taken place at CR-3.

**3.0 Decommissioning Emergency Preparedness Scenario Review and Exercise Evaluation**

a. Inspection Scope (Inspection Procedure (IP) 82401)

The inspectors performed an on-site inspection of CR-3's biennial EP exercise that was scheduled for November 4, 2014. The inspectors assessed the adequacy of the exercise and Duke Energy's capability to assess ERO performance via a formal critique process. Prior to the EP exercise, the inspectors conducted an in-office review of the exercise objectives and scenario to determine if the exercise would adequately test major elements of the CR-3 emergency plan.

The exercise evaluation consisted of observation and assessment of Duke Energy's performance in the biennial full-participation exercise and the overall adequacy of Duke Energy's emergency response facilities. The following other areas were also reviewed: ERO's recognition of abnormal plant conditions; command and control; intra-and inter-facility communications; prioritization of mitigating activities; interface with offsite agencies; and the overall implementation of the emergency plan and its implementing procedures. Following the exercise, the inspectors observed Duke Energy's drill critique to ensure that issues were being properly identified. Additionally, the inspectors performed a review of past performance issues from previous Duke Energy EP drill reports to determine the effectiveness of licensee corrective actions as demonstrated during the exercise and to ensure compliance with NRC requirements.

b. Observations and Findings

The inspectors noted that the scenario developed by Duke Energy was based on current plant conditions and that it included opportunities that allowed for the demonstration of proficiency in key skills necessary to implement the principle functional areas of emergency response.

The inspectors performed independent observations of ERO performance in the control room, technical support center, emergency operations facility, and emergency news center. The inspectors noted weaknesses associated with ERO performance however, Duke Energy's critique process identified those issues and entered them into their corrective action program (AR717188, 717157, 717110, 716972, and 716963).

c. Conclusions

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

#### **4.0 Decommissioning Emergency Preparedness Program Evaluation**

##### **a. Inspection Scope (IP 82501)**

The inspectors reviewed Duke Energy's EP program at CR-3 to determine whether the EP program had been maintained in a state of operational readiness and whether changes made to the EP program continue to meet license commitments, the NRC requirements, and have not negatively affected the overall state of EP at CR-3. The inspection consisted of interviews with Duke Energy personnel and a review of procedures and records.

The inspectors reviewed the alert and notification system (ANS) procedures and the Federal Emergency Management Agency (FEMA) approved ANS design report to ensure compliance with design report commitments for system maintenance and testing.

The inspectors conducted a review of the CR-3 ERO augmentation staffing requirements and the process for notifying and augmenting the ERO to ensure the system was adequate to allow meeting ERO augmentation staffing and facility activation time commitments. The inspectors reviewed the ERO duty roster, applicable station procedures, augmentation test results, on-shift staffing analysis, and corrective action reports. The inspectors also reviewed a sample of ERO responder training records to verify training and qualifications were up to date.

The inspectors reviewed 10 CFR 50.54(q) evaluations to determine whether the CR-3 EP program was maintained in a state of operational readiness and whether changes made to the licensee's EP program continue to meet commitments, NRC requirements, and have not resulted in a reduction in effectiveness of the CR-3 emergency plan.

##### **b. Observations and Findings**

The inspectors noted that the siren ANS was being maintained and tested in accordance with commitments made by Duke Energy to FEMA. The inspectors determined that the ERO positions had a sufficient number of qualified personnel to ensure augmentation was capable of occurring within the time requirements specified in the CR-3 emergency plan.

The inspectors also noted that changes made to the CR-3 emergency plan did not reduce its effectiveness and that screenings and evaluations contain the appropriate level of detail and sufficient basis to support the change. However, this review is not a formal safety evaluation and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety.

##### **c. Conclusions**

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



## **5.0 Exit Meeting Summary**

On January 5, 2015, the inspectors presented the inspection results, via teleconference, to Dan Westcott, Licensing 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

T. Hobbs, General Manager  
B. Wunderly, Plant Manager  
M. Austin, Emergency Preparedness  
C. Bergstrom, Emergency Preparedness Manager  
P. Dixon, Decommissioning Technical Support Manager  
S. McDaniel, Senior Licensing Engineer  
I. Wilson, Operations and Maintenance Manager  
J. Lane, Lead System Engineer, Spent Fuel Pool System Engineering  
R. Biddleman, Superintendent, Nuclear Oversight  
F. Frando, Technical Specialist II  
C. Alm, Senior Engineer, Special Nuclear Material Custodian  
L. McDowgal, Duke Project Manager  
D. Shute, Non-Certified Nuclear Fuel Handler  
W. Deagle, Chief Nuclear Fuel Handler  
E. Richardson, Chief Nuclear Waste System Engineer  
D. Sumner, Radiation Protection  
D. Wallace, Non-Certified Nuclear Fuel Handler  
M. Dudek, Duke Energy Oversight, Maintenance  
C. Chapin, Emergency Planning Coordinator  
S. Mansfield, Emergency Planning Coordinator

Contractors

G. Parks, Task Manager, PSC  
G. Maxwell, PSC Site Manager

**ITEMS OPEN, CLOSED, AND DISCUSSED**

none

**LIST OF DOCUMENTS REVIEWED**

Action Request

590649, 596220, 600654, 600920, 601389, 607728, 616359, 617713, 618972, 621223, 621627, 621628, 628286, 628589, 629546, 629547, 643263, 645921, 652790, 655347, 686662, 700961, 709581, 716963, 716972, 717110, 717157, 717188

Audits and Reports

C-EP-13-01, EP Nuclear Oversight Audit, dated 1/7/13  
C-EP-FR-13-01, Mid-Cycle Review of EP, dated 11/18/13  
Critique of 2012 Annual RERP Exercise on 11/14/12, dated 9/30/13  
Critique of 2013 Annual RERP Exercise on 11/13/13, dated 12/12/13  
Quick Hit Self-Assessment 562903, ERO Training Program Alignment with INPO 09-006, dated 2/21/13  
RERP September 18, 2013, Training Drill Report  
RERP May 20, 2014, ERO Team Tabletop Drill Report  
Self-Assessment Report 627959, EP Effectiveness Review, dated 8/22/13  
Self Assessment Report, Spent Fuel Pool Response Team, 9/16/2014

Procedures

AI-4000, Conduct of Emergency Preparedness and Schedule for Radiological Emergency Response Plan Maintenance, Revision 16  
AI-4001, Conduct of Drills and Exercises Supporting the Radiological Emergency Response Plan, Revision 5  
AP-770 Emergency Diesel Generator Actuation Procedure 10/8/2014  
EC 93675 TP 1, EC Functional Test Procedure for Control Complex Chiller CHHE-4C  
EC 93676 TP 1, EC Functional Test Procedure for Spent Fuel Pool Chillers CHHE-4A/B  
EM-202, Duties of the Emergency Coordinator, Revision 103  
EM-204A, Offsite Dose Assessment during Radiological Emergencies (Control Room Method), Revision 25  
EM-206, Emergency Response Organization Notification, Revision 11  
EM-220B, Violent Weather (Tornado Watch or Warning), Revision 1  
EM-500, Equipment Important to EP and Response, Revision 1  
EM-911D, Security Threats for Decommissioned Plant, Revision 1  
EMG-NGGC-0010, Emergency Plan Change Screening and Evaluation 10 CFR 50.54(q)(3), Revision 4  
EPSPG-20, EP Staff Guideline for ANS, Revision 4  
OP-406, Spent Fuel Pool Cooling System Revision 97 10/8/2014  
OPS-1000, Conduct of Operations during Decommissioning, Revision 4  
REG-0010, 10 CFR 50.59 and Selected Regulatory Reviews, Revision 2  
SP-192 High Density Rack Poison Sampling 11/3/2014  
SP-300D Defueled Daily Surveillance for the Auxiliary Building 10/23/2014  
SP-319 Spent Fuel Pool Inventory Verification 4/29/2013  
TPP-901, Certified Fuel Handler Training and Retraining Program, Revision 0

Miscellaneous

Approved FEMA Design Report for Primary and Backup ANS, dated 12/8/12  
CR3 Radiological Emergency Response Plan, Revision 35  
Crystal River Unit 3, ERO Annual Exercise, November 4, 2014, Scenario Package, dated 10/15/14  
Emergency Action Level Bases Manual, Crystal River Unit 3, Revision 17  
ERO roster 10/27/14  
List of Condition Reports between 9/15 and 10/10/2014 (59 total)  
List of non-fuel items in pool 8/14/2014  
On-Shift Staffing Analysis for the Operations Decommissioning Transition Organization, Crystal River 3 Nuclear Plant, dated February, 2014  
Operator Logs for 10/25 – 11/3/2014  
Proposed SAFSTOR I Organization Chart effective on or before 7/1/2015  
Radiological Emergency Response Plan, Revision 35  
Spent Fuel Pool Move Sheets for 1/1 – 8/7/2014  
TMS-001, Time-Motion Study for Catastrophic Loss of SF Pool Level, Revision 1  
TMS-002, Time-Motion Study for B.5.b Mitigating Actions for Loss of Spent Fuel Level, dated October 2014

Screenings and Reviews

EMG-NGGC-0010, Revision 4, Attachment 1 – 50.54(q)(3) Screening Sheet, Screening/  
Evaluation Numbers: EREG 66942, EREG 686107, EREG 669637, EREG 675747

EMG-NGGC-0010, Revision 3, Attachment 2 – 50.54(q)(3) Evaluation Sheet, Screening/  
Evaluation Numbers; EREG 610019, CR 607728, EREG 693270, EREG 607430,  
EREG 609102, EREG 693270

**LIST OF ACRONYMS USED**

ANS	Alert and Notification System
CFR	Code of Federal Regulations
CR-3	Crystal River Unit 3
Duke Energy	Duke Energy Florida, Inc
EP	Emergency Preparedness
ERO	Emergency Response Organization
FEMA	Federal Emergency Management Agency
IMC	Inspection Manual Chapter
IP	Inspection Procedure
NRC	U.S. Nuclear Regulatory Commission
NCV	Non-Cited Violation
SPF	Spent Fuel Pool