



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

August 24, 2016

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. 05000302/2016002, DUKE ENERGY
FLORIDA, INC., CRYSTAL RIVER UNIT 3, CRYSTAL RIVER, FLORIDA

Dear Mr. Hobbs:

On July 28, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an on-site inspection under Inspection Manual Chapter 2561, "Decommissioning Power Reactor Inspection Program," at the permanently shut down Crystal River Nuclear Plant Unit 3 (CR-3). 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 inspector, interviews with personnel, and a review of procedures and records. The results of the inspection were discussed with Phyllis Dixon, Decommissioning Technical Support Manager, and other members of the CR-3 staff on July 28, 2016, 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; select Radioactive Waste; Decommissioning of Nuclear Facilities; then Regulations, Guidance and Communications. The current Enforcement Policy is included on the NRC's website at 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 MRoberts for/

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

Enclosure: Inspection Report 05000302/2016002

cc w/encl: Distribution via ListServ

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 MRoberts for/

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

Enclosure: Inspection Report 05000302/2016002

cc w/encl: Distribution via ListServ

DOCUMENT NAME: G:\WordDocs\Current\Insp Letter\LDPR-72.2016002.docx

SUNSI Review Complete: SHammann

After declaring this document AAn Official Agency Record≡ it **will** be released to the Public.

To receive a copy of this document, indicate in the box: AC≡ = Copy w/o attach/encl AE≡ = Copy w/ attach/encl AN≡ = No copy **ML16238A062**

OFFICE	DNMS/RI	N	DNMS/RI	DNMS/RI			
NAME	SHammann\sth		RPowell\mr for				
DATE	8/19/16		8/24/16				

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

INSPECTION REPORT

Inspection No. 05000302/2016002
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: July 26-28, 2016
Inspector: Stephen Hammann, Senior Health Physicist
Decommissioning and Technical Support Branch
Division of Nuclear Materials Safety, Region I
Approved By: Raymond Powell, Chief
Decommissioning and Technical Support Branch
Division of Nuclear Materials Safety, Region I

EXECUTIVE SUMMARY

Duke Energy
Crystal River Nuclear Plant
NRC Inspection Report No. 05000302/2016002

An announced CR-3 decommissioning on-site inspection was performed July 26-28, 2016. The inspection included a review of site radiological programs, maintenance and surveillance, and decommissioning performance. The inspection consisted of observations by the inspector, 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."

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 [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). CR-3 is currently in the SAFSTOR phase of decommissioning as described in Inspection Manual Chapter (IMC) 2561.

2.0 Post Operation Transition Phase Performance and Status Review

a. Inspection Scope [Inspection Procedures (IPs) 62801, 71801, 83750, 84750, 86750]

The inspector performed an on-site inspection the week of July 26-28, 2016. The inspection consisted of observations by the inspector, interviews with Duke Energy personnel, a review of procedures and records, and plant walk-downs.

The inspector reviewed activities and documentation associated with occupational exposure, radioactive waste management, and effluent and environmental monitoring to determine the effectiveness of site radiological programs. The inspector accompanied a CR-3 radiation protection (RP) technician during a plant walk-down which included; general area surveys, checking and verifying radiological postings, air sample collection and analysis, checking locked doors and gates, and general housekeeping. The inspector also toured the instrument calibration lab, instrument/counting room, and chemistry lab. The inspector reviewed 2015 dose totals, radiation work permits, and As Low As Reasonably Achievable (ALARA) work plans to verify radiation work activities were pre-planned effectively to limit worker exposure. The inspector performed a walk-down of the radwaste system and site effluent monitoring points to ensure CR-3 properly processes and stores radioactive materials and that radiological environmental monitoring programs (REMP) are effectively implemented. The inspector reviewed procedures, diagrams of effluent monitoring systems, annual REMP report, annual radioactive effluent report, and the Off-Site Dose Calculation Manual. The inspector also reviewed the work package for the most recent shipment of radwaste to verify compliance with the regulations.

The inspector accompanied a plant systems engineer on a walk-down of key safety systems and equipment important to the defueled condition of the plant. The inspector observed work activities, reviewed work orders and related procedures for the quarterly preventative maintenance of the "B" chiller to verify that maintenance was being performed within the established frequencies and that the equipment was being properly maintained. The inspector also met with CR-3 maintenance supervision and discussed staffing levels, how routine maintenance and emergent work is requested, prioritized, and scheduled, and reviewed the current maintenance workload. The inspector reviewed the backlog of maintenance work to assess the age and prioritization of the items. The inspector reviewed the maintenance rule program, periodic assessment, and scoping and performance criteria.

The inspector reviewed work orders, work instructions, and procedures for the new fuel assembly shipping project. The inspector observed CR-3 and Areva, Inc. personnel moving new fuel assemblies into shipping containers to be transported offsite, and evaluated CR-3's adherence to procedures. The inspector also reviewed the shipping paperwork for the first offsite shipment of new fuel assemblies.

The inspector interviewed personnel and reviewed documentation related to the demolition and removal of the Ready Warehouse. The inspector reviewed work orders, work plans, engineering change package, and radiological surveys to verify activities were performed in accordance with plant procedures, technical specifications (TS) and the regulations. The inspector also reviewed work orders and procedures for non-radiological hazardous materials removal from the project.

b. Observations and Findings

The inspector determined that survey records were clear and complete, RP staff effectively controlled work activities, and technician training and qualifications were up to date. The inspectors verified that ALARA plans and in-progress ALARA reviews were performed as needed and post-ALARA reviews were performed to assess the effectiveness of radiological controls. The inspector noted that the RP staff may be supplemented with contractors depending on the project. The inspector verified that the annual radiological effluent and the annual REMP reports demonstrated that calculated doses were below regulatory dose criteria of 10 Code of Federal Regulations (CFR) 50, Appendix I. The inspector also determined that waste treatment systems were maintained and operated in accordance with site procedures. The inspector verified that effluent releases to the environment were being properly controlled, monitored, and quantified as required by NRC regulations.

The inspector verified that the maintenance and surveillance program for systems and components had been conducted in accordance with the TS requirements and established procedures. The inspector noted that throughout the inspection period, housekeeping and plant material condition standards were being maintained. The inspector determined that workers followed work plans, surveillance procedures and industrial safety protocols and were aware of job controls specified in work instructions. The inspector determined that the maintenance backlog is reviewed by site management on a regular basis.

The inspector noted that the new fuel assembly shipments are being performed in two phases and is scheduled to be completed in early 2017.

The inspector determined the pre- and post-radiological surveys of the Ready Warehouse were adequately performed and the demolition and removal of the warehouse was performed in accordance with site procedures and the regulations. The inspector also determined CR-3 and its contracted workforce conducted the warehouse removal in accordance with licensed requirements.

c. Conclusions

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

3.0 Exit Meeting Summary

On July 28, 2016, the inspector presented the inspection results to Phyllis Dixon, Decommissioning Technical Support Manager, and other members of Duke Energy's staff. The inspector confirmed that proprietary information was not removed from the site.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

K. Ankrum, Finance
B. Akins, Radiation Protection and Chemistry Manager
C. Burtoff, Lead RP
P. Dixon, Decommissioning Technical Support Manager
T. Hobbs, Decommissioning General Manager
J. Lane, Systems Engineer
J. LaPratt, ISFSI PM
R. Macko, Sr. Scientist
L. McDougal, Maintenance and Operations PM
P. Rose, Licensing
K. Shelton, RP Supervisor
D. Sumners, RP Tech
M. Van Sicklen, Licensing
T. Worthington, Supervisor Engineering

ITEMS OPEN, CLOSED, AND DISCUSSED

None

LIST OF DOCUMENTS REVIEWED

Audits and Reports

2015 Radiation Protection Annual Dose Report for Members of the Public and Unmonitored Occupational Individuals in the Restricted Area
2016 Prospective Assessment Dose Monitoring Evaluation
Benchmark Report AR Numbers: 758358, 2039163
Crystal River Dose Report 2015
Self-Assessment Report AR Numbers: 734454-11, 1965865-11, 2008137-11, 2039155, 1990900-11, 2025556

Procedures

ADM-0101, Maintenance Rule Program, Rev. 1
ADM-0105, ALARA Planning, Rev. 2
AI-1602, ALARA Committee, Rev. 1
AI-504, Guidelines for Key Safety Function, Rev. 49
AI-1810, Asbestos Management and Exposure Control Programs, Rev.11
AI-1821, Radioactive Waste Management Program, Rev.0
CP-161, Radiological Environmental Monitoring Program, Rev. 8
CP-163, Nuclear Chemistry Quality Control, Rev. 11
CP-9000, Radiological Groundwater Protection, Rev. 1
DOS-4010, Internal Dose Assessment, Rev. 1
DOS-4011, In Vitro Bioassay, Rev. 0
FP-304, Receiving New Fuel Containers for Batch 19, Rev. 25
FP-305, Loading and Shipping Batch 19 Fuel Containers to Off-Site, Rev. 13

Procedures (Cont'd)

FS-278 Mk-B Unused Fuel Inspections, Rev. 3 (Areva, Fuel Field Services)
HPS-0001, Radioactive Material Receipt and Shipping Procedure, Rev. 1
HPS-1000, Radiation Protection-Conduct of Operations, Rev.2
RSP-101, Basic Radiological Safety Information and Instructions for Radiation Workers, Rev. 57
SAF-SUBS-00013, Lead Exposure, Rev. 8
WDT-6, Primary Resin Tank Operations, Rev. 15
WP-210, Sluicing, Loading, Filling, and Venting Waste Disposal Tanks WDT-15 Through
WDT-21 Demineralizer System, Rev 11

Completed Surveillance Procedures and Surveys

Radiological Survey CR3-M-20150303-5, CR3-M-20150309-5, CR3-M-20150316-5, CR3-M-
20150316-10, CR3-M-20150413-3, CR3-M-20160613-2, CR3-M-20160625-1, CR3-M-
20160415-2, CR3-M-20160426-1, CR3-M-20160512-2
CR3 Operations Log: CHHE-4A, CHHE-4B, CHHE-4C
Equipment Work History: CHHE-4A, CHHE-4B, CHHE-4C
NESHAP Demolition Asbestos Survey, Ready Warehouse Building, August 18, 2015

Miscellaneous

ALARA Committee Meeting Minutes: April 13, 2016; May 5, 2016; June 10, 2016
ALARA Work Plan 16-02, 16-03
Crystal River Maintenance Backlog
D.H. Griffin Wrecking Co., Inc., Work Plan, Crystal River Plant, CR-3 Ready Warehouse
Radioactive Waste Manifest Packages, 0769-04-0002 and 0769-04-0002, Used Steam
Generators
In-Progress ALARA Evaluations 16-02, 16-03
Maintenance Rule Scoping and Performance Criteria
Off-Site Dose Calculation Manual, Rev 36
Post Job ALARA Critique 16-02, 16-03
Quarterly Waste Container Inventory
Radioactive Shipment Record, 16-013
RP Survey Instructions to Support Ready Warehouse Demolition
Radioactive Waste Manifest Packages, 0769-04-0002, Used Steam Generator
Standard Work Instruction (SWI-410090A) - Preparing, Shipping and Receiving of 51032-2
Containers Offsite (Areva)
Standard Work Instruction (SW50303A) - 51032-2 Shipping Container – Packing Fuel Bundles
Offsite (Areva)

Work Orders

1347909 10 – Ready Warehouse Demolition
1347909 03- Perform Lead and Asbestos Sampling and Abatement
20048278 01- CHHE-4A Quarterly Maintenance
20043379-05 – load batch 19 fuel assemblies

LIST OF ACRONYMS USED

ADAMS	Agency Documentation and Management System
ALARA	As Low As Reasonably Achievable
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
REMP	Radiological Environmental Monitoring Program
RP	Radiation Protection
TS	Technical Specifications