



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION I
2100 RENAISSANCE BLVD.
KING OF PRUSSIA, PA 19406-2713

July 5, 2016

Docket No. 07201035

License No. DPR-72

Mr. 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. 07201035/2016001, DUKE ENERGY FLORIDA, INC.,
CRYSTAL RIVER UNIT 3, CRYSTAL RIVER, FLORIDA**

Dear Mr. Hobbs:

On June 9, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection of the permanently shut down Crystal River Nuclear Plant Unit 3 (CR-3) Independent Spent Fuel Storage Installation (ISFSI) pre-operational activities. On-site inspections were performed on March 1-3, 2016 and June 7-9, 2016. In-office reviews of information supplied by Duke Energy Florida, Inc. were also performed during the inspection period from December 3, 2015 to June 9, 2016. The purpose of the inspection was to determine whether ISFSI activities were conducted safely and in accordance with NRC requirements. The inspection consisted of observations by the inspectors, interviews with personnel, and a review of procedures and records. The results of this inspection were discussed with Mr. Terry Hobbs, Decommissioning General Manager, and other members of your staff on June 9, 2016, and are described in the enclosed report. No findings of safety significance were identified.

In accordance with 10 Code of Federal Regulations (CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure, and your response (if any) 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

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No reply to this letter is required. Please contact Briana DeBoer at 610-337-5370 if you have any questions regarding this matter.

Sincerely,

/RA/

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

Docket No.: 07201035

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Enclosure: Inspection Report 07201035/2016001
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

T. Hobbs

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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Docket No: 072-01035

License No: DPR-72

Report No: 07201035/2016001

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

Dates: December 3, 2015 through June 9, 2016

Inspectors: B. DeBoer, Health Physicist
Decommissioning and Technical Support Branch
Division of Nuclear Materials Safety, Region 1

E. Gray, Senior Reactor Inspector
Engineering Branch 1
Division of Reactor Safety, Region 1

B. Tripathi, Senior Structural Engineer
Containment, Structural and Thermal Branch
Division of Spent Fuel Management
Office of Nuclear Materials Safety and Safeguards

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

Enclosure

EXECUTIVE SUMMARY

Duke Energy
Crystal River Nuclear Plant
NRC Inspection Report No. 07201035/2016001

This report covered on-site inspections and in-office reviews by Nuclear Regulatory Commission regional and Office of Nuclear Material Safety and Safeguards based inspectors of activities related to Crystal River Nuclear Plant Unit 3 (CR-3) dry cask storage of spent fuel during the inspection period from December 3, 2015 to June 9, 2016. The inspection included a review of the single failure proof spent fuel building crane and of the structural analysis for the independent spent fuel storage installation (ISFSI) storage pad. 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 dry storage of spent fuel at an ISFSI is described in Inspection Manual Chapter 2690, "Inspection Program for Dry Storage of Spent Reactor Fuel at Independent Spent Fuel Storage Installations and for 10 Code of Federal Regulations (CFR) Part 71 Transportation Packagings."

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

REPORT DETAILS

1.0 Independent Spent Fuel Storage Installation

1.1 Pre-operational Testing of Independent Spent Fuel Storage Installations (ISFSI) at Operating Plants (IP 60854 and 60854.1)

a. Inspection Scope

On March 1-3, 2016, the inspectors conducted a pre-installation inspection of CR-3's new 130 ton, single failure proof crane. The inspectors reviewed the crane specification, the design basis for the crane, the ASME NOG-1-2004, "Rules for Construction of Overhead and Gantry Cranes," compliance matrix which is a line-by-line comparison of the single failure proof criteria of NUREG 0544, "Single Failure-Proof Cranes for Nuclear Power Plants," and NUREG 0612, "Control of Heavy Loads at Nuclear Power Plants," to the crane configuration and controls, the qualification and training requirements of the crane operators; and the scope of testing of the crane after installation in the plant. The inspectors confirmed that the single failure proof crane was tested at the factory and disassembled for transportation to CR-3. On May 16, 2016, the crane was in place and the load test for the single failure proof crane's main and auxiliary hooks were completed successfully.

On June 7-9, 2016, the inspectors observed the new, single failure proof crane in place in the fuel handling building and observed the crane in use. The crane bridge, crane trolley and the 130-ton and 15-ton lift capacity hooks were observed in motion. The crane test results and crane test work package were reviewed to confirm the crane condition and testing scope requirements of ASME NOG-1-2004 were met.

b. Findings

No findings of significance were identified.

1.2 Review of 10 CFR 72.212(b) Evaluations (IP 60856)

a. Inspection Scope

The inspectors performed an in-office review of ISFSI pad design documentation to determine if the storage pad would adequately support both static and dynamic loads, as required by 10 CFR 72.212(b)(5)(ii). The inspectors reviewed and verified that the assumptions the licensee used in the seismic and liquefaction analyses for the storage pad were appropriate. The inspectors reviewed the licensee's conclusions about the acceptability of the storage pads design with respect to the site's hydrology, geology, and seismology. The inspectors also determined that the various design loads were in accordance with CR-3's Final Safety Analysis Report.

b. Findings

No findings of significance were identified.

2.0 Exit Meeting

The inspection results were discussed with Mr. Terry Hobbs, Decommissioning Plant Manager, and other members of the Duke Energy staff, on June 9, 2016. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTARY INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Noiel Esoo	Crane Engineer
Kenny Ewell	Transnuclear
Alan Fata	ISFSI Project Director
Bill Gwalnty	Nuclear Oversight
Gary Hollinger	Duke Loading Manager
Jeff LaPratt	Crane Project Manager
Bob Marckese	ISFSI Engineering Manager
Jerome Odell	Lead ISFSI Civil Engineer
Phil Rose	Crystal River Licensing
Mark Vansicklen	Crystal River Licensing

ITEMS OPENED, CLOSED, AND DISCUSSED

None

LIST OF DOCUMENTS REVIEWED

Procedures

CAP-0200, Conduct of Performance Improvement, Revision 3
AD-NO-NGO-0403, Supplier Surveillance, Revision 1
AD-NO-ALL-0500, Major and Complex Project Oversight, Revision 1
P&H Procedure #36539-15, Crystal River 3 Crane Installation Procedure, Revision 10

Condition Reports

CR 02025425 CR 02035723

Drawings

Drawing No. 54216684, Main Hoist 125% & 100% Test Weight Assembly, Revision 7
Drawing No. 54221468, ISO-LAY-Out DRWG, Jacking Tower Plate Installation, Revision 2
Drawing No. 54214675, Crane Assay Installation Equipment ISO-Grinder; Crane, Old G1 Girder Prep, Revision 3
Drawing No. 61599-200, OS200 Cask Lifting Yoke Assembly, Revision 1
Drawing No. NUH-08-8003, NUHOMS-OS200 Onsite Transfer Cask Main Assembly, Revision 7
Progress Energy Drawings, EC 70142, Drawing No. 744-062 Sheet # 1 through 7, Revision 5

Miscellaneous

Analysis / Calculation S08-0041, Design Subsurface Profile and Engineering Properties
Analysis / Calculation S08-0042, Settlement and Bearing Capacity of the ISFSI Pads and Aprons
Analysis / Calculation S08-0044, Slope Stability of the Crystal River ISFSI Site
Analysis / Calculation S08-0046, Geotechnical Design Report, Independent Spent Fuel Storage
Analysis / Calculation S09-0030, Soil-Structure Interaction Analysis of the Crystal River ISFSI Storage Pad
Analysis / Calculation S09-0031, Structural Design of the CR3 ISFSI Storage Pad Installation, Crystal River Nuclear Power Plant

CN-36539-19, NOG-1-2004 Compliance Matrix P&H Single Failure Proof Crane for Crystal River 3 Spent Fuel Cask Crane, Revision 3
 CR-3 Fuel Handling Building Crane, Single Failure Proof Crane, Site Acceptance Test Procedure, MMH Procedure 36539-13, Rev 4. MMH Crane CN-36539
 Crane Operator Certification Form – Cab, Mobile, Pulpit Cranes, Training Tracking System No. MEQ0009C, dated May 31, 2016
 EC 284629, dated 4/12/2016. FSAR Update for the ISFSI Auxiliary Building Crane Replacement (FHCR-5), LDCR Number 2012-0002.
 Engineering Change 70140R5, ISFSI Site Ground Modification
 KoneCranes recommended crane lubricants, including those for wire rope, (lift cable)
 MMH Procedure 36539-13, Site Acceptance Test Procedure, Completed April 18, 2016
 Nicholson Grout Plan for Low Mobility and High Mobility Grouting at Crystal River 3 ISFSI Pad NPOP 2014-002, NOS Nuclear Project Oversight Plan for Crystal River 3 Dry Fuel Storage Project, Revision 3
 PCAR 703- CR3 Seal Interference on MH Shaft, Revision 0
 P&H Document Number CN-36539-19. NOG-1-2004 Compliance Matrix for CR-3 Single Failure Proof Spent Fuel Cask Crane
 Progress Report No. SSI-1, 3rd Party Review, Seismic SSI Analyses of the ISFSI Pads, June 7, 2010
 Scope Document for Spent Fuel Cask Crane at CR-3, Revision 1, February 17, 2009
 Test Grout Area Report, GZA GeoEnvironmental, Inc., dated March 28, 2016

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access and Management System
CFR	Code of Federal Regulations
CR-3	Crystal River Nuclear Plant, Unit 3
Duke Energy	Duke Energy Florida, Inc.
ISFSI	Independent Spent Fuel Storage Installation
NRC	U.S. Nuclear Regulatory Commission