



Letter Authorization for 51032-2 Containers to Ship Crystal River 3 Contaminated Unirradiated Fuel

May 14, 2015



Agenda



- ▶ **Introduction**
- ▶ **Background**
- ▶ **Proposed Letter Authorization Request**
- ▶ **Supporting Criticality Analysis**
- ▶ **Closeout/Questions**



▶ Introduction of Attendees

- ◆ NRC Personnel
- ◆ AREVA Personnel
- ◆ Duke Personnel

- ▶ AREVA is preparing a Letter Authorization to enable shipment of fuel assemblies with 4.95% enrichment in the 51032-2 container from Crystal River, Unit 3, to support decommissioning of that facility

Background

- ▶ **Crystal River 3 (CR3) Nuclear Plant to be Decommissioned**
 - ◆ Duke will “recycle” contaminated non-burned fuel
 - ◆ Fuel will go to Oconee for use

- ▶ **76 Unirradiated Fuel Assemblies (FAs) to be shipped from CR3**
 - ◆ AREVA Mk B-HTP-1 Assemblies
 - ◆ 40 FAs are 4.55% enrichment
 - ◆ 36 FAs 4.95% enrichment
 - ◆ FAs have been loaded into CR3 core and spent fuel pool, but have not been critical
 - ◆ Shipments of FAs planned for mid-2016 and mid-2017

51032-2 Shipping Container

- ▶ **Certificate of Compliance (CoC) USA/9252/AF, Rev. 8, Expires October 31, 2018**
- ▶ **AREVA owns nine 51032-2 containers**
- ▶ **AREVA used the 51032-2 for transfer of contaminated fresh fuel from San Onofre (CE 16x16) to Richland for download in late 2013**
- ▶ **AREVA Mk B-HTP-1 fuel assemblies authorized for shipment in 51032-2 CoC, but limited to 4.8% maximum enrichment**

51032-2 Shipping Container



Proposed Letter Authorization Request

- ▶ **Potential options evaluated to ship 4.95% CR3 fuel**
 - ◆ Shipment of only one 4.95% fuel assembly per container
 - ◆ Shipment of one 4.55% and one 4.95% fuel assembly per container

- ▶ **Letter Authorization prepared for selected approach**
 - ◆ Criticality evaluation will support approach
 - ◆ Controls will limit application to only the CR3 campaign – Shipment of the noted 76 fuel assemblies between CR3 and either Oconee or Richland Fuel Fabrication site.

Criticality Analysis Results

▶ Options evaluated

- ◆ Shipment of only one 4.95 wt% U-235 fuel assembly per container meets the USL for the Criticality Safety Index (CSI), CSI = 1, indicated in Certificate USA/9252/AF, Rev. 8.
- ◆ Shipment of one 4.55 wt% U-235 and one 4.95 wt% U-235 fuel assembly per container does not meet the USL.

▶ Letter Authorization prepared for selected approach

- ◆ Criticality evaluation will support the shipment of a single AREVA Mk B-HTP-1 fuel assembly at 4.95 wt% U-235 per container.
- ◆ Controls will limit application to only the CR3 campaign – Shipment of the noted 76 fuel assemblies between CR3 and either Oconee or AREVA Richland Fuel Fabrication site.

Controls for Use of Letter Authorization

- ▶ **Ensure that 4.95% assemblies will only be shipped in the one assembly per 51032-2 container configuration**

- ▶ **The following controls will be invoked for each shipment to ensure compliance with the approved configuration:**
 - ◆ **Enrichment of each FA is tracked via serial numbers**
 - ◆ **Fuel container loading plan prepared and approved by AREVA Accountability, AREVA TN, and Duke representatives**
 - ◆ **Duke prepares transfer sheets and accountability records**
 - ◆ **AREVA Fuel Services loads the containers per Duke transfer sheets**
 - ◆ **AREVA TN and Duke on-site representatives verify container loading**
 - ◆ **AREVA off-site personnel approve documentation prior to shipment**

Controls for Use of Letter Authorization (con't)

- ▶ **Surveys will be performed to verify the contamination on the assemblies does not cause the package contents to exceed a Type A quantity of material.**

Closeout/Questions

- ▶ **AREVA is preparing a Letter Authorization request**
 - ◆ Shipment of a single 4.95% assembly per container
 - ◆ Shipments between CR3, Oconee and/or Richland in summer 2016 and 2017
- ▶ **Letter Authorization Projected Submittal Date is late June 2015**
- ▶ **Questions?**