



Pictured are two of four storage heads that will be used during Calandria Tube Removal at Darlington's Unit 2.

A Q&A on Darlington Unit 2's Calandria Tube Removal

The Darlington Refurbishment team completed removal of all 960 calandria tube inserts from Darlington Nuclear's Unit 2 on March 28, and is now transitioning into the final step in the reactor disassembly phase: Calandria Tube Removal. Here's what's involved in this work series:

1. What is a calandria tube?

A calandria tube is a long cylinder made of zirconium that sits inside the reactor's core and houses a pressure tube containing nuclear fuel bundles. The tube minimizes heat loss by providing an insulating inert gas that also provides an effective leak detection capability. There are 480 calandria tubes inside a reactor.

2. How are the calandria tubes being removed?

First, Refurbishment Control Centre (RCC) operators use the Super Shield Plug Insertion and Removal Tool to remotely remove the thumbtack shield plug located at the end of each calandria tube.

On one side of the reactor, RCC operators then position one of four storage heads into a guide sleeve. The head locks onto, engages and extracts the tube. This extraction is supported on the other side by the calandria tube guide ram, which pulls the tube out and into a flask.

Next, vault workers close up the flask and transfer the calandria tube to the Re-tube Waste Processing Building on an Automated Guided Vehicle. After removing the flask, the vehicle returns to the vault with an empty flask to repeat the process.

3. What kind of training is required for this work series?

Workers are being trained for two specializations in this complex work series: Refurbishment Control Centre operations and vault work. The training involves in-class learning, practical exercises in the Mock-up and Training Facility and practical exercises in the RCC.

RCC operator training focuses on running trials and trouble-shooting while vault worker training focuses on flask transfer from the vault to the Re-tube Waste Processing Building.

Approximately 75 workers will be provided 40 hours of specialized training.

4. How will Calandria Tube Removal remain on schedule?

Lessons learned are being constantly applied. The team found greater efficiency using a new type of scheduling tool during previous the work series. This new tool allows for precise scheduling of each step on both critical path and necessary parallel activities during the series.

5. What happens next?

The removal of all reactor components marks the completion of two of four major segments in the project. The team will next turn their attention to Segment Three, focusing on the precision work of rebuilding the reactor.