

WBN2Public Resource

From: Clark, Mark Steven [msclark0@tva.gov]
Sent: Tuesday, April 12, 2011 8:23 AM
To: Poole, Justin; Alvarado, Rosssnyev
Cc: Knuettel, Edward Terry; Odess-Gillett, Warren R
Subject: WINCISE Info

Justin:

I looked in Adams this morning for information on the Seabrook IIS. I confirmed that Seabrook started out with a Moveable Incore Detector System. However, it appears that they replaced that system with a Fixed Incore Detector System. Most likely this was done under 50.59 which is why it is hard to find information in ADAMS. The highlighted text below, supports the Westinghouse statement that Seabrook has a system similar to WINCISE, with the license renewal excerpt providing the critical information.

Seabrook License Renewal Submittal ML101590098, Page 114

Incore Instrumentation Support Structures

The incore instrumentation support structure consists of a guide tubing system to convey and support flux thimbles penetrating the vessel through the bottom. Each flux thimble assembly includes five fixed neutron flux detectors, a thimble tube for a movable neutron flux detector, and a thermocouple. The thimble guide tubes extend from the seal table down through the concrete shield area and terminate in socket welds at the reactor vessel bottom head penetrations. The guide tube bend radius is 12 feet. The Inconel flux thimble assemblies extend through the guide tubing and vessel penetrations, through hollow passages in the lower internals, and finally through instrumentation support tubes in the fuel assemblies. The thimbles remain in place during operation but are pulled back approximately 13 feet at the seal table during refueling to avoid interference within the core. The thimbles are closed at the leading ends and sealed against the guide tubes at the seal table. Mechanical seals between the retractable thimbles and conduits are provided at the seal line. During normal operation, the retractable thimbles are stationary and move only during refueling or for maintenance, at which time a space of approximately 15 feet above the seal line is cleared for the retraction operation.

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detectors are directed through the reactor vessel bottom head via thimble tubes or guideways, and core exit thermocouples are brought in through the reactor vessel top head. In the San Onofre 1 and Yankee Rowe designs, all incore instrumentation is brought in through the top head. In Seabrook, Surry 1 and 2, and H. B. Robinson, thermocouples are combined with flux detectors for a complete bottom entry instrument assembly. For the BMI design, the thimble tubes are retractable, and insertion/retraction of these tubes is directed by long-radius guides below the bottom head and by internals guides between the bottom head and fuel assemblies.

Regards,

Steve

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