Vermont Yankee - Location of Two Fuel Pin Segments

Entergy is pursuing an NRC-identified discrepancy regarding the location of two small fuel pin segments thought to have been stored within the Vermont Yankee (VY) spent fuel pool in 1980. Entergy does not yet know whether the problem is related to the documentation of segment location or if the segments in question have actually been removed from the fuel pool.

In March 2004, the VY resident inspectors performed inspections in accordance with TI 2515/154, "Spent Fuel Material Control and Accounting at Nuclear Power Plants." Because VY had removed irradiated fuel pins from fuel assemblies in the past, TI 2515/154 required the residents to perform Phase II of the TI. The Phase II review included determining if Entergy had procedures for the control of material in the spent fuel pool (SFP), if Entergy performed an annual physical inventory of items in the SFP, and to the extent possible, performing a visual check to determine if all locations identified on inventory maps contained separated rods as indicated.

The inspectors determined that Entergy performed an annual physical inventory of items stored in the SFP in accordance with Vermont Yankee Operating Procedure (OP) 0400, "Special Nuclear Material Inventory and Accountability Procedure," Form 0400.19. This physical inventory requires, in part, that Entergy verify that the SFP contains the same number of fuel assemblies as the inventory records. The procedure also states that a "piece count" satisfies this requirement.

Although Entergy and its predecessor had been performing the annual inventory of the SFP per OP 0400, the inspectors identified that Entergy and its predecessor did not perform a "piece count" of the two fuel pin segments contained in a special container stored on the bottom of the pool. This container is a 5-gallon stainless steel bucket with two stainless steel pipes welded vertically inside. These pipes have an approximate inside diameter of 3/4 inches and are approximately 24 and 12 inches in length respectively.

Records indicate that the two fuel pin segments were inserted into the pipes for storage in 1980 following a failed fuel disassembly and reconstitution effort. The fuel pin segments were approximately 17 inches and 7 inches in length. Instead of performing a "piece count" of the fuel pin segments in the bucket, Entergy personnel ensured the bucket remained upright and in place at the bottom of SFP. Procedure OP-0400 allows this type of inventory provided the container is sealed using a "tamper-safe" locking device. The bucket has no tamper safe device.

Based on the inspector's observations, Entergy initiated condition report (CR) 2004-0671 that included corrective actions to visually check (to the extent possible) that the two fuel pin segments were still in the bucket, to change their inventory procedure to ensure the contents of the bucket are properly inventoried, and finally to do a borescopic inspection of the bucket internals during their April 2004 refueling outage (RFO 24) to verify the location of the fuel pin segments. Entergy performed an initial visual check in March 2004 and concluded that it appeared the segments were in the bucket. On April 20, Entergy performed the borescopic inspections and, following the inspections, Entergy Management reported to the inspectors that

neither of the fuel pin segments were in the bucket. Entergy entered this into their corrective actions program as CR 2004-1339. To date, it appears that the location of the two fuel pin

segments is the only SFP inventory discrepancy. However, Entergy has only just started their investigation.

Entergy Management is currently developing a plan which will include a detailed inspection of the SFP in an attempt to locate the two fuel pin segments. Additionally, Entergy will be performing a detailed audit of all records related to fuel assembly reconstitution as well as all records regarding the movement of material within the SFP. The resident inspectors will continue to monitor Entergy's actions.

On April 21, 2004, the Vermont Yankee Site Vice President, Mr. Jay Thayer, briefed Mr. David O'Brien, Commissioner of the Vermont Department of Public Service (DPS), and Mr. William Sherman, the DPS Nuclear Engineer concerning these issues. Mr. O'Brien indicated that he would be briefing the Vermont Governor later that day.

Entergy has indicated that they will issue a press release and will provide official notification to the NRC.

Attachment