From: Fred Sears <cfsnuc@engr.psu.edu>
To: "Mendonca, Marvin" <MMM@nrc.gov>, Kevin Witt <kmw@nrc.gov>
Date: 10/1/04 9:03AM
Subject: PSBR TS 4.1.1 Change Request

Penn State Breazeale Reactor, License R-2, Facility Docket Number 50-005

Request for Change/Extension of Allowable Time Period for TS 4.1.1

This email requests a change to the allowable time period for Tech Spec 4.1.1, Reactor Power Calibration, for the Penn State Breazeale Reactor, License R-2, Facility Docket Number 50-005. If this change is not possible a one-time three (3) month extension of the allowable time period is requested.

Tech Spec 4.1.1 requires "A thermal power calibration shall be made on the linear power level monitoring channel annually, not to exceed 15 months." CCP-2, Reactor Thermal Power Calibration, is the implementing procedure for accomplishing Tech Spec 4.1.1. Our last thermal power calibration was performed on July 8th and 15th, 2003.

As we were upgrading our reactor console computers (beginning of August, 2004) and moving to a new fuel loading (mid-August, 2004), we delayed performance of CCP-2, Reactor Thermal Power Calibration until after those two evolutions were performed since the new fuel loading would have required another thermal power calibration. When we undertook the performance of CCP-2 on August 27th, 2004, our primary flow measurement instrumentation suffered an electrical failure. This instrumentation is a magnetic flow measurement device. Other instrumentation such as flow orifices and turbine flow meters have proven unreliable due to the extremely short runs of pipe and many bends of our primary coolant heat exchanger system. The magnetic flow device is somewhat unique since it is designed for the high purity water used in our primary system. To date we have been unable to obtain appropriate repair or replacement of that flow device. The current efforts to return the flow measurement system to service and perform CCP-2 may not be completed in time to meet the 15-month interval.

In conjunction with the new fuel loading the steady state reactor power has been administratively limited to 850 kW with a reduction of RSS overpower setpoints from 108% to 93%. This reduction was put into effect upon completing the core loading change and will remain in effect until CCP-2 is completed and any necessary changes to the linear power level monitoring channel are completed. The effect of the new fuel loading on measured power was predicted to be less than 5%. The best estimate of change in indicated power was expected to be within the measurement uncertainties. The 15% reduction in power level and setpoints was thus conservative. Operations to date based on both measured fuel temperatures and irradiation results have not shown any noticeable variation between indicated power and expected results for that power level. Thus we have reasonable assurance that the indicated power is very close to the actual power.

Initially we only intended to ask for an extension of the allowable time period but upon reviewing the history of thermal power

calibrations it was found that our experience base over the last five years supported an overall change to the allowable time period from "annually, not to exceed 15 months" to "every 24 months, not to exceed 30 months"

Review of our records show that the last time we needed to adjust indicated power to the thermal power measurements was 1998. Since that time all thermal power calibrations have met the acceptance criteria and no adjustments were made. Thus we have a five-year history showing that annual adjustment is not needed and this in turn supports increasing the required surveillance interval from 12 months to 24 months.

Since we have reasonable assurance as to actual power level and are operating with restricted power level due to moving to the new core loading we believe either a change or an extension is appropriate. We have significant education, research, and service work that would be negatively impacted if we had to shutdown the reactor. Every effort has been and is being made to complete our instrumentation repair/replacement in time to be in compliance with the existing TS 4.1.1.

This change request has been reviewed with the Chairman of the Penn State Reactor Safeguards Committee. Due to the emergent nature of this issue there is insufficient time to get the full committee review. The Chairman has approved the submittal of this change request. The change request will be reviewed with the full committee during their scheduled meeting on October 19, 2004.

If there are any questions regarding this request please contact me.

Your acknowledgement of receipt of this change/extension request is requested.

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