Entergy

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Jerry C. Roberts
Director, Nuclear Safety Assurance

RBG-46771

December 17, 2007

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: Emergency License Amendment Request (LAR 2007-22)
Local Power Range Monitor Surveillance Frequency Extension Request
River Bend Station, Unit 1
Docket No. 50-458
License No. NPF-47

Dear Sir or Madam:

Pursuant to 10 CFR 50.90 and 10 CFR 50.91 (a)(5), Entergy Operations, Inc. (Entergy) hereby requests the following emergency license amendment for River Bend Station, Unit 1 (RBS). As discussed with your staff on December 14, 2007, this request cannot be processed using the guidance for a normal or exigent review due to the limited period for Entergy development and NRC review.

The amendment request proposes a license condition (Attachment 3) for a one-time extension of Reactor Protection System (RPS) Instrumentation Surveillance Requirement (SR) 3.3.1.1.8 concerning the calibration of Local Power Range Monitors (LPRMs). This proposed license condition also includes actions to ensure continued compliance with the associated safety analysis and resolution of this condition as soon as possible. This extension will allow operation until Refuel Outage (RF) -14 and establishment of the necessary conditions following the outage to allow the calibration to be performed.

The calibration of the LPRMs requires the use of the Transversing Incore Probe (TIPs) system which is currently out of service and unrepairable while in Mode 1 (power operations). As a result, the required surveillance of the LPRMs cannot be performed. Additional information discussing the sequence of events and justification for an emergency request is included in Attachment 2.

Entergy requests approval of the proposed amendment by December 21, 2007, to avoid a shutdown to repair the TIPs and subsequent startup to perform the surveillances. The surveillance associated with the LPRMs, based on expected operating conditions, is required to be performed by December 26, 2007. This surveillance must be performed during steady state power operations. This will require that the TIPs be repaired while shutdown prior to performing the LPRM surveillance.

Designated Original
Bhalchandra Vaidya
A001
NRR

If this request is not granted, a sufficient operating period must be reserved to enable a startup and steady state operating conditions to be established to enable completion of SR 3.3.1.1.8. This is the basis for the requested approval date of December 21, 2007.

The repair of the TIPs will be performed during RF-14, currently scheduled for January 2008, or during a shutdown, should one occur prior to RF14. This action is included in the proposed license condition.

Thè proposed change has been evaluated in accordance with 10 CFR 50.91 (a)(1) using criteria in 10 CFR 50.92 (c) and it has been determined that this change involves no significant hazards consideration. The bases for these determinations are included in the attachments. This request has been reviewed by the plant On-Site Safety Review Committee and the Safety Review Committee. Once approved, this amendment will be implemented prior to the required due date for the SR.

The proposed change does not include any new commitments. The necessary actions and limitations are included within the license condition.

If you have any questions or require additional information, please contact David Lorfing at 225-381-4157.

I declare under penalty of perjury that the foregoing is true and correct. Executed on December 17, 2007.

Sincerely,

Director, Nuclear Safety Assurance
River Bend Station - Unit 1

JCR/DNL/bmb

Attachments:

1. Technical Analysis of Proposed Technical Specification Change
2. Justification of Emergency Request
3. Proposed Technical Specification Changes (mark-up)

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Attachment 1

RBG-46771

Technical Analysis of Proposed Technical Specification Change

1.0 INTRODUCTION

This evaluation supports a request to amend Operating License NPF-47 for River Bend Station, Unit 1 (RBS) on a one time basis to extend the surveillance interval of Surveillance Requirement (SR) 3.3.1.1.8.

This proposed change is an emergency request in accordance with10 CFR 50.91 (a)(5). Additional information explaining the emergency conditions is described in Attachment 2.

2.0 DESCRIPTION OF PROPOSED CHANGE

RBS Technical Specification (TS) SR 3.3.1.1.8 requires the Local Power Range Monitors (LPRMs) to be calibrated at an interval of 2,000 megawatt-days/metric ton (MWD/T) (approximately every 71 full power days) with an allowance under TS SR 3.0.2 to extend the surveillance interval to 2500 MWD/T (approximately 89 full power days). Entergy proposes a one-time change to revise the calibration interval to 3,000 MWD/T (approximately 107 total or an additional 18 full power days). This proposed one-time extension will be implemented by a proposed license condition presented in Attachment 3.

The change is justified based upon the current licensing basis safety analysis and plant specific data, which confirms that the RBS LPRM response is bounded by the currently approved power distribution uncertainties used in the Minimum Critical Power Ratio (MCPR) limit analysis with an additional Maximum Fraction of Limiting Critical Power Ratio (MFLCPR) margin. The proposed change to SR 3.3.1.1.8 to extend the LPRM calibration interval with the additional MFLCPR margin continues to support the safety analysis methods, core thermal limits, and current safety analysis results.

3.0 BACKGROUND

The neutron monitoring system is a system of in-core neutron detectors and out-of-core electronic monitoring equipment. The system provides indication of neutron flux, which can be correlated to thermal power level for the entire range of flux conditions that can exist in the core. The source range monitors (SRMs) and the intermediate range monitors (IRMs) provide flux level indications during reactor startup and low power operation. The local power range monitors (LPRMs) and average power range monitors (APRMs) allow assessment of local and overall flux conditions during power range operation. The traversing in-core probe system (TIP) provides a means to calibrate the individual LPRM sensors.

The LPRM system consists of 132 neutron detection channels, and is capable of monitoring the thermal neutron flux of the core over the entire range of normal and transient reactor operations. Each channel contains a miniature in-core fission chamber ("detector"), a high voltage power supply, and a flux amplifier. The detectors are physically arranged in strings of four detectors each. The 33 detector strings are radially distributed throughout the core in the intersectional gaps between fuel cells. This allows radial and axial flux distribution monitoring throughout the core. Each detector string also contains a calibration tube to allow insertion of a movable TIP fission chamber ("detector") for calibration of the flux channels. The LPRM detectors are not retractable from the core, but may be removed for maintenance purposes during an outage.

LPRMs provide signals proportional to local thermal neutron flux at various radial and axial locations within the reactor core. The neutron flux signal developed by the LPRM system is utilized by the Plant Process Computer (PPC), the APRM System, Period Based Detection System (PBDS), and Rod Control and Information System (RC&IS) to ensure protection of the fuel cladding and aid the operator in evaluating the nuclear and thermal-hydraulic performance of the reactor core. Further discussion on LPRM calibration history is provided in section 5.2.

The function of the PPC system is to provide inputs for determination of core thermal performance; to improve data reduction, accounting, and logging functions; and to supplement procedural requirements for control and manipulation during reactor startup and shutdown. The process computer provides to the operator a means of monitoring, displaying, and recording both Nuclear Steam Supply System and Balance of Plant events.

The APRM system is divided into eight channels. The LPRM system by itself does not produce any protective trip signals. APRMs are calibrated to the PPC power calculations using the average of the proportional-to-local thermal neutron flux signals and set trip points. Each channel accepts 16 or 17 LPRM inputs, averages them, and uses the results to produce calibrated trip signals for the Reactor Protection System and RC&IS.

The PBDS is a monitoring system only, and is used to protect the reactor core from thermal hydraulic instability events. The stability detection system uses a simplified period-based algorithm to detect the approach to reactor instability. The algorithm is implemented in the PBDS card. The PBDS card is installed into existing unused card slots of the “A” and “B” APRMs to process LPRM signals and to provide an alarm function to the operator. This extension has no effect on this function.

The RC&IS performs the two general functions of information gathering and control rod driving. The vertical position of each control rod in the core is displayed. The RC&IS allows the plant operator to select and move control rods within predetermined patterns and constraints for safe startup and shutdown of the plant, adjusting power level, and economic fuel consumption. Other functions include monitoring a variety of conditions pertaining to the control rods and providing system indication to the operator.

The TIP system consists of four independent neutron detection units. Each unit contains a detector which is positioned from outside the drywell by a motor driven mechanism. The detector is attached to the drive mechanism by means of a flexible drive cable. Operation of the drive mechanism causes the fission chamber to be inserted or retracted from the reactor core within individual TIP guide tubes. These tubes are an integral part of the LPRM detector assemblies. Each TIP unit uses an indexing device to route the detector to the selected LPRM assembly.

The 33 LPRM strings are divided among the four TIP machines with one common assembly connected to all four TIP machines for purposes of cross channel calibration. When not inserted into the core, the TIP detectors are retracted to locations within the reactor vessel, but below the core.

Each TIP machine consists of a TIP detector assembly, drive mechanism, indexing mechanism and the necessary control and processing equipment for system operation. The detector signal cable, 0.256 inch diameter and 150 feet long, is an integral part of the mechanical drive cable. The outer sheath of the drive cable is constructed in a helical array to facilitate coupling with the motor drive mechanism. This helical wrap of carbon steel provides a low friction means of driving the detector and protects the signal cable. The output signal is connected to a signal transmission cable at the drive mechanism take-up reel.

The drive mechanism provides the means of positioning the TIP detector at the desired location. The drive mechanism is located outside of the drywell in an area of low radiation for maintenance accessibility. The TIP drive cable is connected to a take-up reel within the mechanism.

The indexer mechanism is situated between the stationary guide tubes going to the reactor vessel and the drive mechanism. Its purpose is to position the TIP detector for movement in the ten TIP tubes available for traverse. The indexer provides precise alignment between the guide tube of the indexer and the selected stationary guide tube leading to the core. Core locations common to the indexers are connected by multi-way connectors. These connectors each have multiple inputs and a single outlet. These connectors feed two or more indexers into a single guide tube. One of the multi-way connectors feeds all four TIP detectors into a single, common guide tube.

The detector position display provides a continuous, four digit readout of the detector position in both the automatic and manual modes. The core limit display provides a four digit readout of the core bottom or core top limit, depending on the position of the core limit switch, for the TIP channel selected by the channel select switch.

To perform LPRM calibrations using the TIP system, core equilibrium and steady state operation is needed. The need for core equilibrium and steady state operation is based on the evolution taking up to 24 hours to perform. The TIP run and data processing require approximately 4 hours, after which Instrumentation & Control Technicians perform the actual calibration on the population of LPRM detectors determined to be outside a pre-determined administrative tolerance (typically 1.04) which is conservative to the operability limit of 1.20. This population can consist of 60 to 100 LPRM detectors, and is typically highest at beginning of cycle. If the core flux is not at equilibrium, the LPRM calibrations can be affected by localized xenon transients or changes in flux shape as xenon builds in. After a typical start-up from Cold Shutdown, 48 to 72 hours are needed to attain steady state equilibrium.

4.0 REGULATORY REQUIREMENTS & GUIDANCE

Entergy has determined that the proposed change does not require any exemption or relief from regulatory requirements, other than the Technical Specifications, and does not affect conformance to any General Design Criteria differently than described in the USAR. GDC 26, GDC 28, and GDC 29 require reactivity to be controllable such that fuel design limits are not exceeded during normal operation and anticipated operational occurrences (AOOs). The change to the LPRM calibration interval, with the additional MFLCPR margin, continues to support the current thermal limit analysis and will not adversely affect the ability to control reactivity within fuel design limits.

5.0 TECHNICAL ANALYSIS

The RBS TS currently requires LPRMs to be calibrated every 2000 MWD/T. This calibration interval was originally established based on the General Electric 3D-MONICORE core monitoring system. As part of the RBS Cycle 11 Reload Amendment to the Operating License, (LAR 2000-28), this calibration frequency was confirmed to be applicable for AREVA methods at RBS. RBS currently uses the AREVA NP POWERPLEX-III core monitoring system as well as newer design LPRM chambers (NA250 series) for the operable detectors which exhibit more consistent sensitivity than older LPRM detectors.

Extending the LPRM calibration interval may increase the LPRM detector response uncertainty due to minor changes in LPRM sensitivity between calibrations, and thus exceed the assumptions of the safety analysis. While extending the LPRM calibration interval does impact the existing uncertainties assumed in the RBS safety analyses, this effect is bounded by the MFLCPR margin. The LPRM detector response uncertainty value is used in the calculation of radial bundle power uncertainty in the MCPR safety limit analysis. The safety limit is combined with the AOO MCPR analysis results in order to establish the Operating Limit MCPR. The MCPR operating limit is the only thermal limit based on the LPRM detector response uncertainty.

AREVA has evaluated the impact of extending the LPRM calibration interval on the LPRM detector response uncertainty for Grand Gulf Nuclear Station (GGNS) which was approved by the NRC in Amendment 177 (ML073190250), Reference 1. This evaluation was performed to extend the GGNS calibration interval from 1000 MWD/T to 2000 MWD/T. The GGNS safety limit contained increased uncertainty allowances to support extended calibration intervals. The submittal provided GGNS specific data which demonstrated that the LPRM uncertainties were less than those assumed in the safety limit. The submittal describes the methodology used to determine the increase in LPRM detector response uncertainty using plant calibration data. The applicability of the GGNS LPRM detector uncertainty is discussed in section 5.1. The GGNS evaluation is based on calibration data from cycles 3 through 14. This database included data from older 8x8 and 9x9 fuel designs as well as the current Atrium-10 10x10 design. The calibration data developed over this period using older core monitoring systems like the POWERPLEX-II system as well as the current advanced POWRPLEX-III system. A more accurate modern core monitoring system calculates more accurate detector fluence data. This data is used to correct for LPRM depletion between calibrations. This reduces the LPRM detector response uncertainty which contains depletion correction terms.

5.1 Justification For Use Of GGNS Analysis

Both GGNS and RBS currently use the Atrium-10 fuel designs, the POWERPLEX-III core monitoring system and NA250 series LPRMs. In order to determine the applicability of the AREVA LPRM analysis results to RBS, an analysis of the RBS LPRM calibration data was performed. The data used in this evaluation includes calibration data from RBS cycles 11 through 14 to date. The POWERPLEX-III core monitoring system was used through out this period. The ATRIUM-10 fuel was introduced in cycle 11 and is the dominate fuel type for the period. For the current cycle 14 the RBS reactor core has all ATRIUM-10. Additionally, the newer NA-250 LPRM detectors were used. This results in a more consistent set of data which is more applicable to the RBS cycle 14.

RBS specific data is provided in Table 1. This data is developed based on the actual plant data without creating longer exposure intervals by skipping calibration points as noted in some of the GGNS data. A comparable set of data for GGNS was presented in response to question 1 in a letter from GGNS to NRC dated August 16, 2007, (ML072610504) Reference 3. Both sets of data used a fixed LPRM decay factor. Both GGNS and RBS use detector specific decay factors in their core monitoring systems which, as described in the GGNS analysis, reduces the LPRM uncertainty. The RBS data shows an overall lower uncertainty and less sensitivity to increases in the calibration interval. This is as expected since the RBS calibration data was extracted from a more consistent LPRM detector, core monitoring, and fuel design operating history.

Table 1: LPRM Uncertainty Comparison

Calibration Interval (MWD/MT)	2000	4000	Increase in LPRM Uncertainty (% per 100 MWD/MT)
RBS LPRM Uncertainty (%)	1.99	2.73	0.037

While the RBS uncertainties are lower than those developed for GGNS, the GGNS values will conservatively be used to simplify the review of the proposed TS change. A conservative value of 0.10 % /100 MWD/MTU is used for the rate of increase in the LPRM uncertainty. This results in an increase in the LPRM uncertainty of 0.50 % for the requested 500 MWD/MT calibration interval extension.

AREVA has performed sensitivity studies on the impact of changes in the LPRM calibration uncertainty on the MCPR safety limit using their NRC approved methods (ANF-524 (P)(A) Revision 2 and Supplements 1 and 2, "ANF Critical Power Methodology for Boiling Water Reactors," November 1990) Reference 2. These studies demonstrate that a change in the LPRM uncertainty of 0.50% results in an increase in the MCPR safety limit of less than 0.2% (0.002). As a conservative measure, AREVA recommended and RBS will reserve 1% (0.01) Maximum Fraction of Limiting Critical Power Ratio (MFLCPR) margin during the extended calibration period. This margin is in addition to the 0.6% (0.006) margin currently being reserved due to the reported critical power correlation error (Part 21 Report 2007-29-00). RBS has imposed an administrative MFLCPR limit of 0.994 since the condition was discovered on August 21, 2007. This administrative limit will be maintained until AREVA provides data library for POWERPLEX. Therefore, RBS will impose an administrative MFLCPR limit of 0.984 or less in plant procedures while the requested interval is in place. Following the calibration, an administrative MFLCPR limit of 0.994 will be maintained until the POWERPLEX library is updated.

The 1% (0.01) MFLCPR margin was conservatively established since it does not credit the reduced LPRM uncertainty associated with the use of the detector specific decay factors; the safety limit assumes that 66 LPRMs are out-of-service when only 7 LPRMs are currently out-of-service; it is based on a conservative increase in LPRM uncertainty for the extended calibration interval and a conservative MCPR impact.

5.2 LPRM Calibration Performance

Historical calibration data from the last 2 years shows that very few of the LPRM detectors which are selected for calibration are actually out of tolerance and that the majority of the LPRM detectors are well within 50% of the tolerance, 1.10 to the limit of 1.20.

There is a total population of 132 LPRM detectors. Of those, two are stuck in their respective dry tubes and are bypassed. On average there are two to three other detectors bypassed for maintenance issues at any given time. For conservatism, assume six are bypassed, resulting in a population of 126 LPRM detectors. The table below summarizes the results of past calibrations:

Table 2 LPRM Calibration History

DATE	<1.05	%	<1.10	%	<1.15	%	<1.20	%	>1.20	%
9/4/2007	95	75.4%	29	23.0%	2	1.6%				
6/25/07	85	67.5%	38	30.2%			2	1.6%	1	0.8%
4/6/2007	84	66.7%	42	33.3%						
11/2/2006	90	71.4%	36	28.6%						
8/8/2006	97	77.0%	29	23.0%						
5/24/2006*	3	2.4%	44	34.9%	49	38.9%	16	12.7%	14	11.1%
3/2/2006	68	54.0%	55	43.7%	3	2.4%				
12/14/2005	114	90.5%	12	9.5%						
9/29/2005	89	70.6%	37	29.4%						
7/14/2005	88	69.8%	36	28.6%	2	1.6%				

* Beginning of Cycle with new LPRM detectors

Note that other than beginning of cycle, when a number of LPRM detectors have been replaced and those which were bypassed for maintenance have been recovered, there are very seldom any detectors that are out of tolerance and over 97% are within 50% of tolerance, i.e., within 1.10. Even at beginning of cycle, over 88% of the LPRM detectors are within tolerance.

5.3 MCPR Margin Available

Based on the projected operation of River Bend Station, MFLCPR is not expected to exceed 0.95% for the remainder of the cycle. Currently, River Bend Station is at all rods out and there are no power maneuvers planned between now and the end of cycle. Based upon historical data, beginning of cycle start-ups are not challenged by MFLCPR and the expectation is that 0.98% would not be exceeded.

5.4 Impact Of Request On Other Functions

As discussed above, the effects of this condition is limited to impacting the uncertainty in the power distribution when monitoring MCPR. The monitoring of the remaining thermal limits are unaffected.

In addition to supporting core thermal limits, the neutron flux signal developed by the LPRM system is utilized by the APRM System to support RPS, Period Based Detection System (PBDS), and Rod Control and Information System (RC&IS) These systems are supported by the LPRMs by use of a number of LPRMs to determine average core power. This average power signal is calibrated through a heat balance required every 7 days as required by SR 3.3.1.1.2. This weekly calibration will continue to ensure core power and the associated functions remain within limits. Therefore, these functions are unaffected by the proposed change.

5.5 Justification For Amount Of Extension

The exposure at which the last LPRM calibration was performed was 12188.4 MWD/T. Adding 2000 MWD/T shows the exposure at which the LPRM calibration was due is 14188.4 in accordance with SR 3.3.1.1.8. Applying the 25% allowance of SR 3.0.2 adds 500 MWD/T to that exposure, which is 14688.4 MWD/T. The end of cycle is expected to occur at an exposure of approximately 14960 MWD/T, which is approximately 300 MWD/T over the exposure at which the LPRM calibration is due including the 25% allowance of SR 3.0.2. Typically, a beginning of cycle startup is 3 effective full power days (EFPD), after which the core must stabilize for 2 to 3 days to get to equilibrium xenon conditions. At that time the LPRM calibration is performed, which can require an additional 24 hours. Therefore, 200 MWD/T, approximately 7 days, is requested for a total additional exposure of 500 MWD/T.

6.0 REGULATORY ANALYSIS

In conclusion, based on the considerations above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

7.0 NO SIGNIFICANT HAZARDS CONSIDERATION

Entergy proposes to add a River Bend Station license condition to extend the surveillance interval of the local power range monitor (LPRM) calibrations from 2000 megawatt-days/metric ton (MWD/T) to 3000 MWD/T, with no tolerance afforded by SR 3.0.2. Entergy has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The extended surveillance interval with the additional Maximum Fraction of Limiting Critical Power Ratio (MFLCPR) margin continues to ensure that the LPRM detectors are adequately calibrated to provide an accurate indication of core power distribution and local power changes. The change will not alter the basic operation of any process variables, structures, systems, or components as described in the safety analyses, and no new equipment is introduced. Hence, the probability of accidents previously evaluated is unchanged.

The thermal limits established by safety analysis calculations ensure that reactor core operation is maintained within fuel design limits during any Anticipated Operational Occurrence (AOO). The analytical methods and assumptions used in evaluating these transients and establishing the thermal limits assure adequate margins to fuel design limits are maintained. These methods account for various calculation uncertainties including radial bundle power uncertainty which can be affected by LPRM accuracy. While extending the LPRM calibration interval does impact the existing uncertainties assumed in the RBS safety analyses, this effect is bounded by the MFLCPR margin.

Plant specific evaluation of LPRM sensitivity to exposure has determined that the extended calibration interval with the additional MFLCPR margin will continue to support the uncertainty value currently used in the safety analysis. The remaining safety analysis calculations and the associated thermal limits are not affected by the extended LPRM calibration interval and the consequences of an accident previously evaluated are not changed. Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed license condition will not change the design function, reliability, or operation of any plant systems, components, or structures. It does not create the possibility of a new failure mechanism, malfunction, or accident initiators not considered in the design and licensing bases. Plant operation will continue to be within the core operating limits that are established using NRC approved methods that are applicable to the RBS design and the RBS fuel.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The thermal limits established by safety analysis calculations ensure that reactor core operation is maintained within fuel design limits during any AOO. The analytical methods and assumptions used in evaluating these transients and establishing the thermal limits assure adequate margins to fuel design limits are maintained. These methods account for various calculation uncertainties including radial bundle power uncertainty which can be affected by LPRM accuracy. A plant-specific evaluation of LPRM sensitivity to exposure has determined that the extended calibration interval with the additional MFLCPR margin will continue to support the results in the safety analyses. The thermal limits, determined by NRC approved analytical methods, will continue to provide adequate margin to fuel design limits Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, Entergy concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

8.0 Environmental Considerations

The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

References

1. Letter GNRI-2007-0122, "Grand Gulf Nuclear Station Unit 1 – Issuance of Amendment To Technical Specifications Surveillance RE: Changes to Technical Specifications Surveillance Requirement 3.3.1.1.7 The Local Power Range Monitor Calibration Frequency" (ML073190250 / TAC# MD3469 / Amendment 177)

2. ANF-524 (P)(A) Revision 2 and Supplements 1 and 2, "ANF Critical Power Methodology for Boiling Water Reactors," November 1990.

3. Letter GNRO-2007/00056, "Supplement 3 to Amendment Request: Changes to the LPRM Calibration Frequency," dated August 16, 2007.

Attachment 2

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Justification of Emergency Request

Justification of Emergency Request

On December 10, 2007, troubleshooting on TIP machine "D" was being performed. This troubleshooting was to address an earlier condition when the detector position display on TIP machine "D" malfunctioned and was the continuation of previous troubleshooting. The detector could be moved, but the position indication was not consistent with the expected response. The symptoms displayed in the troubleshooting up to this point indicated that the problem was only with the position indication components.

During the troubleshooting on December 10, a new condition was identified, in that the probe could not be inserted into the core in four separate channels. When TIP D was run into the common channel, it traveled with little mechanical resistance from the starting drywell position until it reached approximately 700-800 counts (1 inch = 5 counts) and abruptly stopped. Utilizing drawings of the TIP system layout, it was determined that TIP D had traveled beyond the indexer and was near the multi-way connector when it stopped.

On December 11, an assessment of the symptoms was conducted by GE engineers, site engineers, and maintenance technicians. It was determined that the "D" detector was likely damaged, and would need to be replaced.

Further troubleshooting on December 12 found that neither TIP machine "A" or "B" could insert its detector past the multi-way connector in the common channel. The "A" machine could, however, insert fully into the core in channel 2, and the "B" machine could fully insert into the core in channel 3. With two machines not able to run in the common channel, an LPRM calibration cannot be completed, and the acceptance criteria for the LPRM calibration surveillance cannot be satisfied.

Based on troubleshooting performed to this time, it is believed that the common channel is blocked or there is a problem in the multi-way connector that feeds the common channel. Repair of either problem requires a plant shutdown and drywell entry.

The frequency of the current surveillance requirement is based on average core exposure (MWD/T) and is 2000 MWD/T. The plant accumulates 27.84 MWD/T daily when operating at 100% power, and less when operating at off-rated conditions. The last LPRM calibration was completed on September 5, 2007. The core average exposure for the start of the surveillance as recorded by reactor engineering and the core monitoring system was 12188.4 MWD/T. Based on the current core average exposure of 14300.1 MWD/T on December 12, 2007, at 10:00 hours and a conservative projected operation (100%) from that point on, the over-due date exposure for this surveillance (14688.4) will be reached on December 26, 2007, at 08:00 hours.

Basis for Emergency

Per the requirements of 10CFR50.91 (a)(5), "Where the Commission finds that an emergency situation exists, in that failure to act in a timely way would result in derating or shutdown of a nuclear power plant, or in prevention of either resumption of operation or of increase in power output up to the plant's licensed power level, it may issue a license amendment involving no significant hazards consideration without prior notice and opportunity for a hearing or for public comment. In such a situation, the Commission will not publish a notice of proposed determination of no significant hazards consideration, but will publish a notice of issuance under § 2.106 of this chapter, providing for opportunity for a hearing and for public comment after issuance. The Commission expects its licensees to apply for license amendments in timely fashion. It will decline to dispense with notice and comment on the determination of no significant hazards consideration if it determines that the licensee has abused the emergency provision by failing to make timely application for the amendment and thus itself creating the emergency. Whenever an emergency situation exists, a licensee requesting an amendment must explain why this emergency situation occurred and why it could not avoid this situation, and the Commission will assess the licensee's reasons for failing to file an application sufficiently in advance of that event."

The failure of the TIP system which is preventing the performance of the LPRM calibration surveillance was discovered on December 12, 2007. The failure on December 12 was identified during troubleshooting of a previously identified problem. Until December 12 all of the troubleshooting performed suggested that the problems were associated with the position indicating components in the "D" machine, and could be repaired online. It was not until December 12 that it was discovered that the common channel could not be traversed by multiple detectors. This is when it was reasonable to conclude that a malfunction had occurred in the drywell. Repairs in the drywell cannot be performed during power operation.

With the identification that the TIP system cannot perform the required calibration of the LPRMs on December 12, 2007, there is not sufficient time to allow for the normal or exigent public involvement periods. Without NRC approval of the requested amendment, a unit shutdown will be required.

Based on the above, Entergy believes that the circumstances are such that there was no opportunity to avoid this condition, and that an emergency change to Technical Specifications is justified.

Attachment 3

RBG-46771

Proposed License Condition Changes (mark-up)

(3) EOI, pursuant to the Act and 10 CFR Part 70, to receive, possess and to use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;

(4) EOI, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(5) EOI, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and

(6) EOI, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

EOI is authorized to operate the facility at reactor core power levels not in excess of 3091 megawatts thermal (100% rated power) in accordance with the conditions specified herein. The items identified in Attachment 1 to this license shall be completed as specified. Attachment 1 is hereby incorporated into this license.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 155 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. EOI shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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(20) Temporary Surveillance Interval Extension

For the end of fuel cycle 14, after December 26, 2007, and beginning of fuel cycle 15 operation the frequency for Reactor Protection System Instrumentation Surveillance Requirement 3.3.1.1.8, of 2000 MWD/T average core exposure is extended to 3000 MWD/T average core exposure on a one time basis with the following additional conditions:

a. The Maximum Fraction of Limiting Critical Power Ratio (MFLCPR) will be maintained with a margin of 0.01.
b. The tolerance allowed by SR 3.0.2 cannot be applied with this condition.
c. The Transversing Incore Probe system will be repaired prior to startup from the first time the unit enters a shutdown.
d. The LPRMs will be calibrated during startup from the first time the unit enters a shutdown.