



GULF STATES UTILITIES COMPANY

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April 11, 1986
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File Nos. G9.5, G9.25.1.5

Mr. Robert D. Martin, Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Dear Mr. Martin:

River Bend Station - Unit 1
Docket No. 50-458

Attached for your information is a report containing a brief description of changes to the River Bend Station (RBS) initial test program (ST-30A, ST-30B, and ST-30C) and a summary of the safety evaluation for each change. This report is provided with regard to the RBS Facility Operating License NPF-47, Section 2.c(12).

Sincerely,

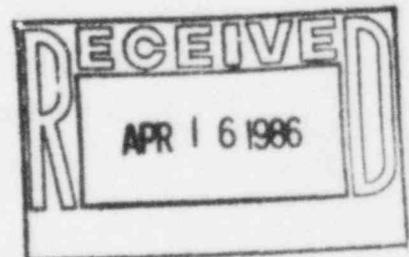
J. E. Booker

J. E. Booker
Manager-Engineering,
Nuclear Fuels & Licensing
River Bend Nuclear Group

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Attachments

cc: Director of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 2005



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ATTACHMENT 1

Summary Description of Change (ST-30A)

SUMMARY

Regulatory Guide 1.68 (Revision 2, August 1978), Appendix A, paragraph 5.i.i requires that the dynamic response of the plant is in accordance with design for limiting reactor coolant pump trips. The method for initiating the pump trip should result in the fastest credible coastdown in flow for the system (recommended at 100% power). Startup Test 30A, One Pump Trip, performs a single recirculation pump trip at Test Conditions 3 and 6. The tests are performed to obtain recirculation system performance during the pump trip, flow coastdown and pump restart and to verify feedwater control system capability to control water level without a resulting high water level scram. This change deletes the one pump trip at Test Conditions 3 and 6. Testing of the recirculation pump coastdown characteristics during Startup Test 27, Generator Load Rejection, at Test Condition 6 will demonstrate that Regulatory Guide 1.68, Appendix A, paragraph 5.i.i objectives are met for recirculation pump trips.

DISCUSSION

Response of the system during a single pump trip is determined by analyzing test data and comparing to acceptance criteria which define the required system performance. For the single pump trip test, the reactor water level, simulated heat flux and APRM signal must have margin to scram setpoints. These criteria are applied to provide assurance that the system can avoid a scram during a single pump trip to improve plant availability. The testing is not required to verify FSAR transient analysis since it has been demonstrated by previous BWR/6 startup testing and analytically (FSAR) that the single pump trip has a negligible impact on safety limits. In addition, the characteristics of recirculation pump trips are well understood and have been demonstrated during pump ascension testing at previous plants.

During Startup Test 27, Generator Load Rejection, at Test Condition 6, a two pump trip occurs as the result of the protective RPT function. The recirculation flow coastdown of both recirculation loops will be demonstrated during this testing. Comparison of the drive and loop flows of the two loops during the two pump trip test can be performed to verify that their performance is essentially identical. Since the response of the system during the single pump trip does not provide information on the safety of the plant, the testing at Test Conditions 3 and 6 can be deleted from the power ascension testing program.

Startup Test 16A, Select Process Temperatures requires vessel and recirculation loop temperatures to be measured during planned recirculation pump trips to verify that temperature stratification does not occur in the idle recirculation loops or in the lower plenum when one or more loops are inactive. This temperature data is also required by Technical Specification section 3/4.4.1 which limits the temperature differential between the recirculation, loops and the vessel. Therefore, compliance with this Technical Specification when applicable will satisfy the requirements of Startup Test 16A following a recirculation pump(s) trip.

Startup Test 33B, Drywell Piping Vibration verifies that recirculation piping vibration is within acceptable limits. Remote vibration and deflection measurements are taken during recirculation pump starts and pump trips at approximately 100% of rated flow. Previous plant startup results indicate that vibration and deflection measurements of recirculation piping during recirculation pump trips and restarts are always well within the expected range and are significantly below the allowable range. These results are indicative of the expected response of River Bend Station and provide the basis for deleting the recirculation pump trip and restart vibration data during the single pump trips at Test Condition 3 and 6.

CONCLUSION

Testing of the recirculation pump trip coastdown during the Generator Load Rejection at Test Condition 6 demonstrates the performance of the recirculation system during pump trips. This testing satisfies the objective of Regulatory Guide 1.68, Appendix A, paragraph 5.i.i. Performance of single pump trips are only required to demonstrate the ability of the feedwater control system to improve plant availability by avoiding a high water level scram during single pump trips. Therefore, deleting the single pump trip at Test Conditions 3 and 6 will not adversely affect any safety related systems or safe operation of the plant and therefore does not involve an unreviewed safety question. Data for Startup Test 16A, Select Process Temperatures can be obtained by Technical Specification surveillance procedures when applicable. In addition, previous plant startup results have demonstrated that the vibration and deflection measurements during recirculation pump trips and restarts are well below prescribed limits and this data is not required during the single pump trip at Test Conditions 3 and 6. Therefore, Startup Test 30A, One Pump Trip, can be deleted at Test Conditions 3 and 6.

ATTACHMENT 2

Summary Description of Change (ST-30B)

SUMMARY

Regulatory Guide 1.68 (Revision 2, August 1978), Appendix A, paragraph 5.i.i requires that the dynamic response of the plant is in accordance with design for limiting reactor coolant pump trips. The method for initiating the pump trip should result in the fastest credible coastdown in flow for the system (recommended at 100% power). Startup Test 30B, Recirculation Pump Trip (RPT) - Two Pumps, is currently planned to be performed at Test Condition 3 as a preliminary check of the RPT circuit and the recirculation pump flow coastdown. The two pump trip will be initiated by simultaneously tripping both recirculation RPT breakers using a test switch. This change provides for performance of this test in conjunction with Startup Test 27, Generator Load Rejection, at Test Condition 6. This testing will demonstrate that Regulatory Guide 1.68, Appendix A, paragraph 5.i.i objectives are met for a two pump trip.

DISCUSSION

Response of the system during a two pump trip is determined by analyzing test data and comparing to acceptance criteria which define the required system performance. For the two pump trip test, the recirculation drive flow coastdown must be within specified limits used in the FSAR transient analyses. During Startup Test 27, Generator Load Rejection at Test Condition 6, a two pump trip occurs as the result of the protective RPT function. This testing results in an actual demonstration of the RPT circuit. The flow coastdown data, which is negligibly affected by the load rejection transient, is recorded during the transient to demonstrate compliance with Regulatory Guide 1.68 requirements. Testing the recirculation drive flow coastdown at Test Condition 3 will not satisfy the requirements of Regulatory Guide 1.68 since the pump coastdown is more limiting at higher power levels. The load rejection is performed at Test Condition 6 (approximately 100% power) as required by paragraph 5.i.i of Regulatory Guide 1.68.

The characteristics of recirculation pump trips are well understood and have been demonstrated during power ascension at previous plants. The two pump RPT event has a negligible effect on plant parameters as demonstrated in the FSAR and therefore the two pump trip transient test is not required to verify FSAR transient analyses.

Operability of the RPT function prior to its demonstration during Startup Test 27 at Test Condition 6 is demonstrated during preoperational testing. In addition, Technical Specification

section 3/4.3.4.2, End-of-Cycle RPT System Instrumentation, requires demonstration of operability at least once every 31 days. These tests provide adequate assurance that the RPT will operate properly during Startup Test 27 at Test Condition 6.

Startup Test 16A, Select Process Temperatures requires vessel and recirculation loop temperatures to be measured during planned recirculation pump trips to verify that temperature stratification does not occur in the idle recirculation loops or in the lower plenum when one or more loops are inactive. This temperature data is also required by Technical Specification section 3/4.4.4 which limits the temperature differential between the recirculation loops and the vessel. Therefore, compliance with this Technical Specification when applicable will satisfy the requirements of Startup Test 16A following recirculation pump trips.

Startup Test 33B, Drywell Piping Vibration verifies that recirculation piping vibration is within acceptable limits. Remote vibration and deflection measurements are taken during recirculation pump starts and pump trips at approximately 100% of rated flow. Previous plant start results indicate that vibration and deflection measurements of recirculation piping during recirculation pump trips and restarts are always well within the expected range and are significantly below the allowable range. These results are indicative of the expected response of River Bend Station and provide the basis for deleting the recirculation pump trip and restart vibration data during the two pump trip at Test Condition 3.

CONCLUSION

Testing of the two pump RPT function in conjunction with the Generator Load Rejection, at Test Condition 6, demonstrates the actuation of the RPT circuits and verifies the drive flow coastdown characteristics. This testing satisfies the objectives of Regulatory Guide 1.68, Appendix A, paragraph 5.i.i and will not adversely affect any safety related systems or safe operation of the plant and therefore does not involve an unreviewed safety question. Data for Startup Test 16A, Select Process Temperatures can be obtained by Technical Specification surveillance procedures when applicable. In addition, previous plant startup results have demonstrated that the vibration and deflection measurements during recirculation pump trips and restarts are well below prescribed limits and this data is not required during the two pump trip. Therefore, Startup Test 30B, RPT Trip - Two Pumps, can be performed in conjunction with Startup Test 27, Generator Load Rejection at Test Condition 6.

Attachment 3

Summary Description of Change (ST-30C)

The purpose of Startup Test 30C is to record recirculation system parameters during the power test program. Startup Test 30A, one pump trip, has been deleted in a previous change, therefore the corresponding portions of Startup Test 30C will also be deleted. This change also inserts Level 2 acceptance criteria (to perform the flow control system adjustment to limit the maximum core flow to 102.5 percent of rated) from Startup Test 35 to expedite testing.

DISCUSSION

Since Startup Test 30A will be deleted, the recording of system parameters in conjunction with the single pump trip will also be deleted. This does not create an unreviewed safety question since the system parameters during a single pump trip will be evaluated during Startup Test 27, Generator Load Rejection, as discussed in Attachment 1. Temperature stratification measurements and piping vibration measurements are also addressed during ST-16A and ST-33B, respectively, and its associated safety evaluation is also addressed in Attachment 1.

Startup Test 35 performs the complete calibration of the installed recirculation system flow instrumentation. This test must be performed to establish the relationship between the jet pump drive flow and the total core flow. Startup Test 30C provides data along constant rod lines, as indicated on the Startup and Test Condition flow map of percent core flow vs. percent power (FSAR Fig. 14.2-4). This data is extrapolated to determine the flow control valve position at 102.5 percent core flow. Therefore, the acceptance criterion for this adjustment (level 2) would be better suited under this test instead of test 35 where all data is taken at 100% core flow. There are no changes to the acceptance criteria itself and as such, it will be met in exactly the same manner as previously intended. There have been no changes to the method of meeting this criteria so there are no unreviewed safety questions created with this change.

CONCLUSION

Data for Startup Test 16A, Select Process Temperatures can be obtained by Technical Specification surveillance procedures when applicable. In addition, previous plant startup results have demonstrated that the vibration and deflection measurements during recirculation pump trips and restarts are well below prescribed limits and this data is not required during the single pump trip at Test Condition 3 and 6. Therefore, deleting the

recording of system parameters in conjunction with the single pump trip, 30A, will not adversely affect any safety related systems or safe operation of the plant and therefore does not involve an unreviewed safety question and can be implemented.

After the appropriate portions of Startup Test 35 are performed (establishing the relationship between jet pump drive flow and total core flow) data from Startup Test 30C is used to determine the flow control valve position at 102.5 percent rated core flow. Changing this level 2 acceptance criteria from Startup Test 35 to Startup Test 30C does not change the criteria itself or the manner in which it is met. As such, this change does not create an unreviewed safety question and can therefore be implemented.