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June 9, 2005

U.S. Nuclear Regulatory Commission
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Subject: McGuire Nuclear Station - Units 1 & 2
Docket Nos. 50-369, 50-370
Inservice Testing Program
Request for Additional Information (RAI)
Relief Request Nos. MC-GRP-01, MC-SRP-KC-01, MC-SRP-ND-01, and MC-SRV-NS-01 (TAC Nos. MC5571, MC5572, MC5573, MC5574, MC5575, MC5576, MC5577, and MC5578)

Reference: (1) Letter from Mr. G.R. Peterson of Duke Power to NRC, dated August 12, 2004, (2) Letter from Mr. G.R. Peterson of Duke Power to NRC, dated November 18, 2004, and (3) Letter from Mr. James J. Shea of the NRC to Mr. G.R. Peterson of Duke Power, dated April 8, 2005.

Attached is the additional information that was requested by the NRC staff during a telephone conference conducted on March 17, 2005. The NRC staff's requests for information and Duke's responses are stated in Attachment 1. Please note that Attachment 2 includes the revised Relief Request No. MC-SRP-ND-01 as discussed in the Duke's responses. Also note that Relief Request No. MC-SRV-NS-01 is being withdrawn.

Questions with respect to this matter should be directed to Norman T. Simms of Regulatory Compliance at 704-875-4685.

Sincerely yours,

G.R. Peterson

Attachments

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ATTACHMENT 1

Duke's Response to NRC RAIs

Response to Nuclear Regulatory Commission Staff
Request for Additional Information
Relief Request Nos. MC-GRP-01, MC-SRP-KC-01,
MC-SRP-ND-01, and MC-SRV-NS-01
Duke Power Company
McGuire Nuclear Station, Units 1 and 2

Generic Relief Request No. MC-GRP-01

Comment

The licensee is requesting generic relief for all the pumps characterized as "smooth-running pumps." The staff has not authorized establishment of a minimum vibration reference value generically and has not authorized alert and required action range values for pumps classified in a licensee's inservice testing (IST) program as "smooth running." If a licensee intends to request an alternative using a minimum reference value for each pump, the submittal should address the current vibration levels and the methodology for detecting pump degradation.

Question 1

In order for the NRC staff to complete its review of this relief request, please provide the pump specific information on vibration levels and the methodology for detecting pump degradation for all pumps for which relief is requested.

Response to Question 1

This generic relief request was granted for the licensee's previous IST Program 10 yr submittal. It is desired to re-approve the relief in order to maintain a standard generic lower threshold for acceptance criteria for any pump vibration measurement point reference value which falls below the threshold. Such generic relief has also been granted to Oconee Nuclear Station (ON-GRP-01) and similar specific relief was previously granted to Palo Verde Nuclear Generating Station (PRR-08).

The intent of the generic relief request above is to apply to any pump in the MNS IST program which has a vibration point reference value less than or equal to 0.075 in/sec. The desired acceptable range for such vibration points would be 0 to and including 0.19 in/sec (based on the code requirement 2.5 Vr value), alert range would be > 0.19 in/sec to and including 0.45 in/sec (based on the code requirement 2.5 Vr through 6 Vr), and required action would be > 0.45 in/sec. McGuire desires to continue applying these acceptance criteria for all pump vibration points on all pumps for all tests (Group A or B pump tests as well as Comprehensive pump tests).

In addition to the code required testing, all of the pumps in the IST program are included in the Licensee's Predictive Maintenance Program. Additional monitoring includes advanced vibration monitoring techniques (bearing high frequency detection and spectral analysis for the pump as well as the driver), and lubricant analysis (for oil lubricated pumps) for wear debris, chemical composition and cleanliness. The Predictive Maintenance Program provides supplemental information to assure detection of pump degradation.

Following is a list of current IST pump vibration reference values less than 0.075 in/sec:

<u>Pump Name</u>	<u>Vibration Point</u>	<u>Vibration (in/sec)</u>
Boric Acid Transfer Pump 1A	Inboard Horizontal	0.02053
	Inboard Vertical	0.07349
	Outboard Axial	0.02713
	Outboard Horizontal	0.02368
Boric Acid Transfer Pump 1B	Inboard Horizontal	0.03245
	Inboard Vertical	0.05688
	Outboard Axial	0.04288
	Outboard Horizontal	0.01703
	Outboard Vertical	0.03993
Boric Acid Transfer Pump 2A	Inboard Horizontal	0.01277
	Inboard Vertical	0.01752
	Outboard Axial	0.02148
	Outboard Horizontal	0.01350
	Outboard Vertical	0.03349
Boric Acid Transfer Pump 2B	Inboard Horizontal	0.01785
	Inboard Vertical	0.01616
	Outboard Axial	0.01254
	Outboard Horizontal	0.01904
	Outboard Vertical	0.01747
Centrifugal Charging Pump 1A	Inboard Vertical	0.07203
	Outboard Axial	0.05674
	Outboard Horizontal	0.05607

Centrifugal Charging Pump 1B	Inboard Vertical	0.07411
	Outboard Axial	0.06698
Centrifugal Charging Pump 2A	Inboard Horizontal	0.06698
	Inboard Vertical	0.06466
	Outboard Axial	0.03303
	Outboard Vertical	0.05093
Centrifugal Charging Pump 2B	Outboard Axial	0.04941
Component Cooling Water Pump 1A1	Outboard Axial	0.05496
Component Cooling Water Pump 1A2	Inboard Horizontal	0.05063
	Inboard Vertical	0.05728
	Outboard Axial	0.05807
	Outboard Horizontal	0.04816
	Outboard Vertical	0.06442
Component Cooling Water Pump 1B1	Inboard Horizontal	0.04910
	Inboard Vertical	0.05093
	Outboard Axial	0.03505
	Outboard Horizontal	0.05123
	Outboard Vertical	0.06051
Component Cooling Water Pump 1B2	Inboard Horizontal	0.05963
	Outboard Axial	0.04655
	Outboard Vertical	0.07096
Component Cooling Water Pump 2A1	Inboard Vertical	0.06560
	Outboard Axial	0.05033
	Outboard Horizontal	0.06855
	Outboard Vertical	0.06766
Component Cooling Water Pump 2A2	Inboard Horizontal	0.05781
	Inboard Vertical	0.07084
	Outboard Axial	0.05002
	Outboard Horizontal	0.07391
	Outboard Vertical	0.05620

Component Cooling Water Pump 2B1	Inboard Horizontal	0.05226
	Inboard Vertical	0.04956
	Outboard Axial	0.02857
	Outboard Horizontal	0.05167
	Outboard Vertical	0.05048
Component Cooling Water Pump 2B2	Inboard Horizontal	0.06966
	Inboard Vertical	0.06250
	Outboard Axial	0.04800
	Outboard Vertical	0.06395
Containment Spray Pump 1B	Lower Bearing Axial	0.07493
Containment Spray Pump 2A	Lower Bearing Axial	0.07224
Control Area Chilled Water Pump Train A	Inboard Horizontal	0.03591
	Inboard Vertical	0.02486
	Outboard Axial	0.02613
	Outboard Horizontal	0.04243
	Outboard Vertical	0.03057
Control Area Chilled Water Pump Train B	Inboard Horizontal	0.04987
	Inboard Vertical	0.05441
	Outboard Axial	0.02294
	Outboard Horizontal	0.02606
	Outboard Vertical	0.04358
Diesel Generator Sump Pump 1A2	Lower Bearing	0.00627
	Lower Bearing + 90 Degrees	0.01040
	Upper Bearing	0.03185
	Upper Bearing + 90 Degrees	0.04555
	Upper Bearing Axial	0.05138
Diesel Generator Sump Pump 1A3	Lower Bearing	0.01342
	Lower Bearing + 90 Degrees	0.01442
	Upper Bearing Axial	0.04655

Diesel Generator Sump Pump 1B2	Lower Bearing	0.00905
	Lower Bearing + 90 Degrees	0.00951
	Upper Bearing	0.04363
	Upper Bearing + 90 Degrees	0.04202
	Upper Bearing Axial	0.03816
Diesel Generator Sump Pump 1B3	Lower Bearing	0.00933
	Lower Bearing + 90 Degrees	0.00820
	Upper Bearing	0.03898
	Upper Bearing + 90 Degrees	0.04539
	Upper Bearing Axial	0.04979
Diesel Generator Sump Pump 2A2	Lower Bearing	0.00699
	Lower Bearing + 90 Degrees	0.00863
	Upper Bearing	0.03654
	Upper Bearing + 90 Degrees	0.03257
	Upper Bearing Axial	0.03777
Diesel Generator Sump Pump 2A3	Lower Bearing	0.01160
	Lower Bearing + 90 Degrees	0.01184
	Upper Bearing	0.03877
	Upper Bearing + 90 Degrees	0.04216
	Upper Bearing Axial	0.03137
Diesel Generator Sump Pump 2B2	Lower Bearing	0.01033
	Lower Bearing + 90 Degrees	0.01083
	Upper Bearing	0.04341
	Upper Bearing + 90 Degrees	0.06039
	Upper Bearing Axial	0.03867
Diesel Generator Sump Pump 2B3	Lower Bearing	0.00760
	Lower Bearing + 90 Degrees	0.00726
	Upper Bearing	0.02796
	Upper Bearing + 90 Degrees	0.03007
	Upper Bearing Axial	0.03654
Groundwater Drainage Sump A Pump A	Upper Bearing	0.04243
	Upper Bearing + 90 Degrees	0.05123
	Upper Bearing Axial	0.07031

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Groundwater Drainage Sump B Pump A	Upper Bearing	0.06536
Groundwater Drainage Sump B Pump B	Upper Bearing	0.06064
	Upper Bearing + 90 Degrees	0.06606
	Upper Bearing Axial	0.07117
Groundwater Drainage Sump C Pump B	Upper Bearing + 90 Degrees	0.07100
Motor Driven Auxiliary Feedwater Pump 1A	Inboard Vertical	0.02988
	Outboard Axial	0.05846
	Outboard Vertical	0.04720
Motor Driven Auxiliary Feedwater Pump 1B	Inboard Vertical	0.04752
	Outboard Axial	0.06089
	Outboard Vertical	0.04879
Motor Driven Auxiliary Feedwater Pump 2A	Inboard Vertical	0.03935
	Outboard Axial	0.06395
	Outboard Vertical	0.05384
Motor Driven Auxiliary Feedwater Pump 2B	Inboard Horizontal	0.05885
	Inboard Vertical	0.03185
	Outboard Axial	0.04752
	Outboard Horizontal	0.05975
	Outboard Vertical	0.03877
Nuclear Service Water Pump 2A	Inboard Vertical	0.05674
Residual Heat Removal Pump 1B	Lower Bearing Axial	0.07245
Residual Heat Removal Pump 2A	Lower Bearing	0.06900
	Lower Bearing Axial	0.07370
Residual Heat Removal Pump 2B	Lower Bearing Axial	0.06900
Safety Injection Pump 1A	Inboard Horizontal	0.03291
	Inboard Vertical	0.02408
	Outboard Axial	0.04059
	Outboard Horizontal	0.03935
	Outboard Vertical	0.02642

Safety Injection Pump 1B	Inboard Horizontal	0.03945
	Inboard Vertical	0.03149
	Outboard Axial	0.04436
	Outboard Horizontal	0.03569
	Outboard Vertical	0.05370
Safety Injection Pump 2A	Inboard Horizontal	0.02930
	Inboard Vertical	0.02439
	Outboard Axial	0.04069
	Outboard Horizontal	0.03057
	Outboard Vertical	0.04736
Safety Injection Pump 2B	Inboard Horizontal	0.02720
	Inboard Vertical	0.02039
	Outboard Axial	0.02956
	Outboard Horizontal	0.02903
	Outboard Vertical	0.03125
Turbine Driven Auxiliary Feedwater Pump 1	Inboard Vertical	0.04925

Specific Relief Request No. MC-SRP-KC-01

Question 2

The American Society of Mechanical Engineers (ASME) Operations and Maintenance (OM) Code Edition 1998 through the 2000 Addenda, requires that all pumps within the scope of an IST program need to be categorized either as Group A or Group B. Therefore, please specify the category of the component cooling water pumps (i.e., either Group A or Group B) and use the appropriate instrument accuracy, as required by the Table ISTB-3500-1

Response to Question 2

The submittal lists pump Group in the tables shown in Section 3.1 as follows:

<u>Pump</u>	<u>Category</u>
KC - Component Cooling Pumps	Group A

Only the instrument accuracy requirements for the Group A test (+/- 2%) are associated with this relief request.

Question 3

The licensee is requested to specify the paragraph of the OM Code from which relief is requested.

Response to Question 3

The specific OM code section for which relief is requested is Paragraph ISTB-3510(b)(1) which states "the full-scale range of each analog instrument shall be not greater than three times the reference value."

Question 4

Under the, "Basis for Relief " paragraph, the licensee specified a required pressure instrument accuracy of 2 percent based on Table ISTB-3500-1, This pressure instrument accuracy of 2 percent is only for Group A and Group B tests. The licensee did not provide accuracy information (i.e. +/- 0.5 percent) to be used for the comprehensive test of component cooling water pumps, as specified in Table ISTB-3500-1. Please clarify, and include the accuracy requirements for the comprehensive pump test.

Response to Question 4

The submittal table shown in Section 3.1 lists relief request MC-SRP-KC-01 as only applicable to the Group A quarterly flow/differential pressure test. Relief is not requested for instrument range requirements for the comprehensive test for which Code range and accuracy requirements are met.

Question 5

Under the, "Basis for Relief" paragraph, the licensee did not provide information related to the component cooling water pumps discharge pressure and pressure gauge accuracy requirements (for Group A or Group B and comprehensive pump tests). Please clarify and provide all the related information.

Response to Question 5

Relief is not requested for the comprehensive test for which instrumentation used meets Code range and accuracy requirements.

Specific Relief Request No. MC-SRP-ND-01

Question 6

ASME OM Code Edition 1998 through the 2000 Addenda, requires that all pumps within the scope of an IST program need to be categorized either as Group A or Group B. Therefore, please specify the category of the residual heat removal pumps (i.e., either Group A or Group B) and use the appropriate instrument accuracy, as required by the Table ISTB-3500-1

Response to Question 6

The submittal lists pump Group in the tables shown in Section 3.1 as follows:

<u>Pump</u>	<u>Category</u>
ND - Residual Heat Removal and Low Head Safety Injection Pumps	Group A

Only the instrument accuracy requirements for the Group A test (+/- 2%) are associated with this relief request.

Question 7

The licensee is requested to specify the paragraph of the OM Code from which relief is requested.

Response to Question 7

The specific OM code section for which relief is requested is Paragraph ISTB-3510(b)(1) which states "the full-scale range of each analog instrument shall be not greater than three times the reference value."

Question 8

Under the, "Basis for Relief" paragraph, the licensee states "Range requirements will be waived for the tests. The purpose of quarterly test is to verify Tech. Spec. requirements are met and to obtain vibration data for trending. The instrumentation used for the quarterly residual heat removal test will meet accuracy requirements for assuring RHR pump operability per Tech. Spec."

Please clarify and explain how quarterly inservice testing fulfills the Technical Specification Requirements.

Response to Question 8

The use of process analog instruments with 0.5% accuracy will more than compensate for instrument error in cases where installed instrument range is slightly greater than three times the reference value limitation required by the code in order to meet the 2% accuracy requirement for the Group A test. Instrumentation used for the comprehensive test meets instrument range and accuracy requirements.

Question 9

The licensee is requested to rearrange and clarify the details provided under "Basis for Relief" and "Alternative Testing" so that the information is easily distinguished between the "Basis for Relief" and "alternative Testing" paragraphs.

Response to Question 9

Please replace the relief request originally submitted with the one in Attachment 2. The discussion in both sections refers only to the Group A test. The relief request is not applicable to the comprehensive test.

Question 10

Under the, "Alternative Testing" paragraph, the licensee specified a required pressure instrument accuracy of 2 percent based on Table ISTB-3500-1. This pressure instrument accuracy of +/- 2 percent is only for Group A and Group B tests. The licensee did not provide accuracy information (i.e. +/- 0.5 percent) related to the comprehensive test as specified in Table ISTB-3500-1. Please clarify, and include the accuracy requirements for the comprehensive pump test.

Response to Question 10

Relief is not requested for the comprehensive test for which instrumentation used meets Code range and accuracy requirements. Although the submitted relief request contained the text "Group A/Comprehensive Test", the revised request from the previous question has deleted the reference to the Comprehensive test.

Specific Relief Request No. MC-SRV-NS-01

Question 11

In order for the staff to evaluate whether the proposed IST alternative is acceptable, the licensee must demonstrate that (1) the proposed alternative provides an acceptable level of quality and safety pursuant to 10 CFR 50.55a(a)(3)(i) or (2) compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety pursuant to 10 CFR 50.55a(a)(3)(ii), or (3) the code requirements are impractical pursuant to 10 CFR 50.55a(f)(5)(iii). Please provide the information necessary to demonstrate the basis for the request consistent with these requirements.

Response to Question 11

The check valves covered by this relief request are included in the Appendix II Check Valve Condition Monitoring Program. This relief (which was approved for the previous 10 year IST submittal) was requested again but for the contingency where these valves might be removed from the condition monitoring program and resume exercise testing under ISTC-3510, ISTC-3520 and ISTC5221. It is no longer desirable to submit a relief request for a contingency and this relief request is hereby retracted.

Question 12

The licensee is requested to specify the paragraph of the OM Code from which relief is requested.

Response to Question 12

This relief request is retracted as explained above.

Question 13

In the submitted relief request, it appears that the licensee intends to use grouping criteria for IST of the subject check valves, however, it is unclear which paragraph of the OM Code the licensee is requesting relief from. Please clearly identify the IST criteria and the specific paragraph of the OM Code for which relief is requested.

Please note that ISTC-5221 (c)(1) states, "Grouping of check valves for sample disassembly examination program shall be technically justified and shall consider, as a minimum, valve manufacturer, design, service, size, materials of construction, and orientation." Paragraph ISTC-5221(c)(3) states, "At least one valve from each group shall be disassembled and

examined at least once every 8 years." Provided the licensee meets all the requirements of grouping for these check valves as specified in ISTC-5221 (c), it is unclear why the licensee needs Relief from Code requirements.

Response to Question 13

This relief request is retracted as explained above.

ATTACHMENT 2
REVISED RELIEF REQUEST
MC-SRP-ND-01

Specific Relief Request

RELIEF REQUEST: MC-SRP-ND-01

PUMPS: 1NDPU0001, 1A Residual Heat Removal Pump
1NDPU0002, 1B Residual Heat Removal Pump
2NDPU0001, 2A Residual Heat Removal Pump
2NDPU0002, 2B Residual Heat Removal Pump

TEST REQUIREMENT: OMB-2000, ISTB-3510(b)(1) The full-scale range of each analog instrument shall be not greater than three times the reference value.

BASIS FOR RELIEF: The subject pumps have discharge process instrumentation installed. The discharge pressure gauge has a range of 0-1000 PSIG and an accuracy of 0.5%. Typical reference values for pump discharge pressures are in the 230-260 PSIG range. Therefore, the process range does not meet the three times reference value criteria of the code. Installation and removal of special discharge test gauges for the purpose of quarterly Group A testing is a hardship. The minimum code requirement for instrument accuracy for these pressure gauges for Group A testing is 2% per Table ISTB-3500-1. Since the accuracy of the installed process instrumentation is 0.5% it more than compensates for the use of the increased range of the process instrumentation. Therefore there is no compensating increase in level of quality or safety in performing the hardship of installation and removal of test instrumentation for quarterly testing for each these four pumps.

ALTERNATE TESTING: Perform the quarterly Group A Tests with the installed process instrumentation for the subject pumps. The accuracy of the process instrumentation (0.5%) is much greater than the requirements specified in Table ISTB-3500-1 for instrument accuracy (2%). The actual reading error at test pressure due to the process instrument is 2.2% ($0.5\% * 1000/230$) for discharge pressure at the low end of this range. If a 0-690 PSIG gauge was used with the code minimum 2% accuracy, then the reading error would be 6% ($2\% * 690/230$). Therefore the actual instrumentation error introduced into the test would be less (2.2% vs. 6%). Using the installed process instrumentation data provides reasonable assurance that the component is operationally ready and meets the intent of the instrumentation requirements of the code. This relief was approved in the previous 120 month code update.