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(See attached file: RCS Followup Info.doc)

1. New Open Item 3.0.3.10.2-1, volumetric examination of small-bore Class 1 pipe welds in susceptible locations

In follow-up to a telephone discussion held between Duke and the staff on November 19, 2002, the following additional information is provided concerning the *Small Bore Piping Examination.*

The *Small Bore Piping Examination* will be an activity within the *Inservice Inspection Plan* during the period of extended operation as most recently described in Duke letter dated November 14, 2002. In order to establish the sample of small bore piping locations to be volumetrically inspected, Duke will first determine the population of Duke Class A piping that is less than 4-inch NPS for the unit to be inspected. This population of piping will then be reviewed by experienced engineers to determine the more likely locations that could be impacted by the various damage mechanisms described in Duke letter dated November 14, 2002. The determination will involve a review of the physical plant design such as piping layout, geometry and operating temperatures as well as both plant and industry operating experience that could indicate more optimum inspection locations. The set of locations selected will comprise the scope of the *Small Bore Piping Examination* and will be identified within the Inservice Inspection plan for each station.

2. Steam generator divider plates and pressurizer surge and spray nozzle thermal sleeves

In follow-up to a telephone discussion held between Duke and the staff on November 19, 2002, the following additional information is provided concerning the aging management of the nickel-based alloy welds associated with the thermal sleeves in the pressurizer surge and spray nozzles most recently discussed in Duke letter dated November 14, 2002. No additional information was requested by the staff relative to the steam generator divider plates during this telephone call.

Pressurizer Surge and Spray Nozzle Assembly Description

As background, the pressurizer surge and spray nozzles consist of an assembly of parts. Each nozzle includes the manufactured nozzle itself which forms the Reactor Coolant System pressure boundary along with thermal sleeves welded inside the nozzle. The thermal sleeves serve to protect the nozzle from damage due to thermal cycling. The nozzles themselves are constructed of alloy steel and clad inside with stainless steel. The thermal sleeves are constructed of stainless steel and are welded to the nozzle by a nickel-based alloy weld.

Aging Management Review Results

In the Application, two entries were provided for this assembly. One entry covered the nozzles themselves (Table 3.1-1, pg. 3.1-9, line 2). The other entry covered the thermal sleeves and welds (Table 3.1-1, pg. 3.1-9, line 4). In order to be more clear about the aging management programs applicable to the thermal sleeves and welds, this latter entry has been divided into two entries in the table below. As can be noted in the table below, the aging effects associated with the thermal sleeves are managed by the *Chemistry Control Program.* The potential cracking of the welds will be managed by a combination of the existing *Chemistry Control Program* and the new *Alloy 600 Aging Management Review.*

For the welds, the *Chemistry Control Program* manages aging through control of the environment to which they are exposed. Additionally, the *Alloy 600 Aging Management Review* will serve to manage aging of the welds by including them in the review process for all nickel-based alloy components and parts in the Reactor Coolant System, meaning that they could ultimately receive a detailed physical inspection should it be warranted.

The *Alloy 600 Aging Management Review* consists of four major steps. The first step is to identify all the nickel based alloy components and parts in the Reactor Coolant System. The second step is to rank these items based on their susceptibility to primary water stress corrosion cracking – the aging effect of concern. Engineering evaluations will be used to predict the most susceptible locations. This approach is supported by industry operating experience to date. The susceptibility ranking is then used in step three to assure that the nickel-based alloy locations are adequately inspected. These thermal sleeve welds are not routinely inspected as a part of the *Inservice Inspection Plan*. Therefore, should the susceptibility ranking indicate a need for physical inspection, a supplemental inspection for the period of extend operation will be developed as noted in description of the *Alloy 600 Aging Management Review* in Section B.3.1 of the Application.

Should such a supplemental inspection be required for one or both of these welds, Duke will include the requirement in Chapter 7 of the appropriate station's *Inservice Inspection Plan*. For both McGuire and Catawba, Chapter 7 contains the augmented inservice inspection plan for that station. These augmented plans capture inspections which are accomplished using techniques similar to those prescribed in ASME Section XI, but which are motivated by requirements beyond the Code such as Generic Letters, Bulletins and operating experience.

Commitment to Submit Results

During the telephone call on November 19, 2002, the staff requested that Duke commit to provide the results of the *Alloy 600 Aging Management Review* for the pressurizer surge and spray nozzle thermal sleeves attachment welds. Accordingly, the following commitment will be added to the summary description of the *Alloy 600 Aging Management Review* contained in Section 18.2.1 of each station's UFSAR Supplement:

> Following the completion of the *Alloy 600 Aging Management Review* on each station, Duke will submit to the NRC the results for the pressurizer surge and spray nozzle thermal sleeves attachment welds. Duke understands that the staff will review these results and may request additional information to gain an understanding of the results.
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> For McGuire, the results for the pressurizer surge and spray nozzle thermal sleeves attachment welds will be submitted to the NRC following issuance of renewed operating licenses for McGuire Nuclear Station and by June 12, 2021 (the end of the initial license of McGuire Unit 1).
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> For Catawba, the results for the pressurizer surge and spray nozzle thermal sleeves attachment welds will be submitted to the NRC following issuance of renewed operating licenses for Catawba Nuclear Station and by December 6, 2024 (the end of the initial license of Catawba Unit 1).

Supplemental Response to New Open Item 3.0.3.10.2-2

During the telephone call on November 19, 2002, the staff also requested that Duke supplement its previous response to New Open Item 3.0.3.10.2-2. Accordingly, the results provided in the below table entry supplement the response to New Open Item 3.0.3.10.2-2 provided previously in Duke letter dated October 28, 2002.

Table 3.1-1 Revision

Table 3.1-1, page 3.1-9, row 4 of the Application is revised to read as follows:

Component Type	Component Function	Material	Environment	Aging Effect	Aging Management Programs and Activities
Pressurizer Surge and Spray Nozzle Thermal Sleeves	Note 1	Stainless Steel	Borated Water	Loss of Material Cracking	Chemistry Control Program
Pressurizer Surge and Spray Nozzle Thermal Sleeves Attachment Welds	Note 2	Nickel Based Alloy Weld	Borated Water	Cracking	Chemistry Control Program Alloy 600 Aging Management review

Note 1: The pressurizer surge and spray nozzle thermal sleeves support the pressurizer surge and spray nozzles as described above.
Note 2: The pressurizer surge and spray nozzle thermal sleeves attachment welds could degrade the Reactor Coolant System pressure boundary if cracking were to occur.