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SOUTHERN COMPANY
Energy to Serve Your World℠

Docket Nos.: 50-348
50-364

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

Joseph M. Farley Nuclear Plant
Control Room Emergency Filtration, Penetration Room Filtration,
and Containment Purge Exhaust Filtration Systems
Enforcement Discretion Supplement 2

Ladies and Gentlemen:

The purpose of this letter is to document our phone conversation that took place between Southern Nuclear (SNC) and the NRC on April 10, 1997, concerning the Technical Specification amendment that was requested on February 24, 1997, and referenced in our request for enforcement discretion.

In SNC letter dated March 13, 1997, we stated that Unit 1 was acceptance tested to the requirements of Regulatory Guide 1.52, Revision 0, and Unit 2 was acceptance tested to Regulatory Guide 1.52, Revision 2. In the phone conversation it was requested that SNC state the extent of the acceptance testing performed. SNC has reviewed the Regulatory Guide in-place testing requirements contained in Rev 0 and Rev 2 and the acceptance test results for the filtration systems on Unit 1 and Unit 2 respectively. All Regulatory Guide required in-place testing was performed on the systems as part of the original acceptance testing.

Also requested on the phone conversation was clarification on three exceptions taken to the testing requirements of ASME N510-1989 contained in the FSAR Tables submitted with the March 13 letter. Attachment 1 to this letter contains the requested information.

Attachment 2 provides a list of attendees to the subject phone call.

A001

If there are any questions, please advise.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

By Morey

Dave Morey

Sworn to and subscribed before me this 11th *day of* April *1997*

Martha Dayle Dow

Notary Public

My Commission Expires: 11/01/97

JGS/maf noedque.doc

Attachments:

1. SNC Additional Information
2. Listing of Phone Call Attendees

cc: Mr. L. A. Reyes, Region II Administrator
Mr. J. I. Zimmerman, NRR Licensing Project Manager
Mr. T. M. Ross, FNP Sr. Resident Inspector

ATTACHMENT 1

Discussion Item # 2

Question: Why is SNC taking exception to Figure 9-5 of the Industrial Ventilation Recommended Practice Manual, 20th Edition for measured system airflow?

Response: ASME N510-1989 requirements for air flow measurements refers to methodology provided for in the American Conference of Governmental Industrial Hygienists, Industrial Ventilation, A Manual of Recommended Practice, 20th Edition. The guidance provided in the 20th Edition of the Industrial Ventilation Manual is similar to that currently utilized at Farley Nuclear Plant for air flow measurements. The current test procedures are based on the 15th Edition of the Industrial Ventilation Manual. In general, the recommended methods of obtaining air flow measurements per Chapter 9 of the Industrial Ventilation Manual are integrated into the Technical Specification surveiliance tests. However, the 20th Edition of the Industrial Ventilation Manuals includes an acceptance criteria for velocity distribution at traverse points which did not previously exist in the 15th Edition or in the original design specifications.

Existing pitot traverse points may be subjected to some turbulence which prevents field testing results from always obtaining a velocity distribution as recommended in Figure 9-5 of the 20th Edition of the Industrial Ventilation Manual. The existing traverse points were located during startup activities by the HVAC Test and Balance Contractor. They were determined to be acceptable flow measurement locations at that time based on design specification requirements. The existing test ports have been used for all previous Technical Specification surveillance testing and have provided repeatable data for those tests. The flows measured are within the design capacity of the fans which indicates that the measurements are accurate. The recent dirty filter testing performed on the PRF systems and the Control Room Recirculation systems also produced a dp vs. flow curves that indicate the flow measurements were accurate (i.e., there was no scatter to the data).

The ability to locate and use additional test ports for meeting the recommended velocity profiles is not possible without significant physical modifications to the system. The limited space available in the mechanical rooms along with the existing conduits, cable trays, piping, other ductwork and associated supports prevents the addition of new locations for traverse points (i.e., locating a new test port further away from a damper or ductwork elbow may not be accessible for the test instruments). This system was never designed to ANSI N509 and the test ports have been located in this same location since the units were tested originally.

Even with the exception to the velocity distribution acceptance criteria, the intent of ASME N510-1989 air flow measurement will be met by Farley Nuclear Plant Technical Specification surveillance testing.

Discussion Item #3

Question: Why is SNC taking exception to using Technical Specification flowrate as acceptance criteria for dirty filter testing.

Response:

Option 1

Section 8.6.1 of ASME N510-1989 states "... airflows shall be ± 10% of the value specified in the test program or projection specifications with the pressure drop greater than or equal to the maximum housing component pressure drop." SNC proposes to use an acceptance criteria per the test program method. The test program air flow acceptance criteria for the maximum housing component pressure drop test will be based on system functional requirements. The test program will determine the flowrate based on stable fan operation, maintaining a minimum pressure for the system boundary, obtaining a minimum flowrate for the heater (where applicable), and utilizing the worst case system configuration alignment.

A lower flowrate than the Technical Specification flow is anticipated which will increase adsorber efficiencies due to longer residence times. Therefore, a flowrate less than the Technical Specification limit of ± 10% of design flow along with functional requirements provides assurance that the filtration system will perform its intended safety function with dirty filters. This approach provides reasonable filter loading margins within our specific system design which does not have provisions to modulate or adjust for dirty filters. SNC prefers this option based on its technical merit and the fact that it places more demand on the fans and structural components. The notes in the FSAR Tables previously submitted implement this option.

Option 2

During the phone conversation another alternative was presented for the acceptance criteria for these tests. It was proposed to use the maximum housing dp (by adding up all of the dp's for each filter) that is established through testing performed at the Technical Specification flowrate ± 10% as the acceptance criteria. The FSAR tables have been revised to reflect this acceptance criteria and replacement pages are provided with this attachment.

It should be noted that the dirty filter simulation test is an acceptance test requirement and would only be implemented in post modification test situations. To perform this test per ASME N510-1989 at the Technical Specification flowrate with the maximum housing dp specified by the manufacture for system structural integrity would require significant physical modifications to the system. The modifications would consist of installing larger fans, a compensating device, and ductwork changes. The original design of these systems was to Regulatory Guide 1.52, Revision 0 for both units. Unit 2 was in-place acceptance tested to Revision 2 of the Guide. Neither of the Guide revisions required in-place dirty filter testing; however for Unit 2 the system was tested to

option 1. The two options that SNC has proposed provide for future acceptance testing guidance that accomplishes the intent of N510-1989 to the extent practical given the design of the Farley systems.

Discussion Item # 4

Question: Why is SNC taking exception to air temperature measurements as required for heater performance testing?

Response: Section 14 of ASME N510-1989 requires heater capacity verification via a mechanical test in addition to electrical checks and capacity determination. The mechanical test requires measurement of the air flow rate and the air temperatures entering and leaving the heater. SNC has taken exception to the surveillance requirement for the mechanical test and plans to only perform the electrical capacity verification and checks. SNC is proposing this approach because with our system design we will face difficulties in accurately testing the heater for air temperature changes. Ductwork layout and test port locations are not conducive to getting accurate air temperature measurements and to conduct the temperature test properly would require design modifications to the system.

SNC may have to measure air temperatures in rooms at the air intake and in ductwork after fans. These measurement points would interject errors in the measured heat capacity of the heater. The ductwork is not insulated and in some cases is embedded in concrete which would tend to reduce the air temperature as it travels down the ductwork. In addition, some systems would require leaving air temperatures to be taken downstream of fans which would result in additional heat being added to the air stream by the work of the fan.

Electrical resistance type heaters are utilized in FNP ESF filtration systems. The wattage of resistance heaters is a straight-forward calculation. The heaters are surveillance tested to ensure that they are capable of their design wattage rating. Modulating control features (i.e., controllers, humidistats, and thermostats) are locked out during surveillance testing; therefore, repeatable data is obtained when the capacity is verified. Visual inspection and other N510 electrical checks provide assurance that the heater elements are in good condition and that no heater bypass flow paths are present. A flow distribution test was performed on these systems as required by the applicable Regulatory Guide 1.52 and the results were acceptable. The heaters are located in the air flow stream such that there are no bypass paths and all the air flows over the heater banks. This assures that the charcoal filters are seeing uniformly heated airflow.

These systems were designed to Regulatory Guide 1.52, Revision 0, for both units and do not have provisions for the airflow temperature change tests that were incorporated into later standard requirements. The in-place testing requirements of Regulatory Guide 1.52, Revision 0 and Revision 2, also do not address the mechanical temperature change testing. Current Technical Specifications include only the KW dissipation acceptance criteria to assure the air reaching the charcoal is at or less than the 70 % relative humidity for the charcoal efficiency used in dose calculations and lab testing.

Even with the exception to the mechanical heater test requirements, the intent of ASME N510-1989 heater capacity verification will be met by FNP during Technical Specification surveillance testing.

Proposed FSAR Table 9.4 - 15
Conformance to ASME N510-1989 (Sections 5, 8, 14)
Control Room Emergency Filtration System (CREFS) Filtration Filter Units

N510-1989 Paragraph	Description of N510-1989 Testing Requirement	Testing Conformance	
		Routine Surveillance	Following Modification or Repair
8.5.2.2 *	Airflow Distribution Through Adsorber Banks. For banks containing Type I adsorbers, the air distribution test shall follow the same procedures specified for HEPA filter banks in para. 8.5.2.1. For banks containing Type II modular trays, the air distribution test shall follow the same procedure specified for filter banks in para. 8.5.2.1, except that all velocity measurements shall be made in the plane of the face of the air channels, in the center of every open channel and an equal distance away from the adsorbers. For type III adsorbers, velocity measurements shall be made in the plane of the face of the air channels. These measurements shall be made in centers of equal area that cover the entire open face, not in excess of 12 in. between points on a channel, and an equal distance away from the adsorber. *Note: This test will not be performed since a single HEPA filter is present.*	No (Not required)	N/A (See note)
8.5.2.3 *	Calculate the average of the velocity readings (Section 3) *Note: This test will not be performed since a single HEPA filter is present.*	No (Not required)	N/A (See note)
8.5.2.4 *	Note the highest and lowest velocity readings and calculate the percentage they vary from the average found in para. 8.5.2.3. If acceptance criteria are exceeded, notify owner. *Note: This test will not be performed since a single HEPA filter is present.*	No (Not required)	N/A (See note)
8.6.0 Acceptance Criteria			
8.6.1	Acceptance Criteria for Airflow Capacity Test. Airflow shall be within ± 10% of the value specified in the test program or project specifications. Maximum housing component pressure drop airflows shall be ± 10% of the value specified in the test program or project specifications with the pressure drop greater than or equal to the maximum housing component pressure drop. For systems with carbon adsorbers, the maximum velocity of air through the carbon beds shall be limited to that value specified in the laboratory test (Section 15). *Notes:* *(1) Applies only to sections 8.5.1.1 and 8.5.1.2.* *(2) Maximum housing component pressure drops will be based on those that result in the system maintaining the TS flowrate ±10%.*	Yes (See note 1)	Yes (See note 2)

Proposed FSAR Table 9.4 - 16
Conformance to ASME N510-1989 (Sections 5, 8, 14)
Control Room Emergency Filtration System (CREFS) Pressurization Filter Units

N510-1989 Paragraph	Description of N510-1989 Testing Requirement	Testing Conformance	
		Routine Surveillance	Following Modification or Repair
8.5.2.2 *	Airflow Distribution Through Adsorber Banks. For banks containing Type I adsorbers, the air distribution test shall follow the same procedures specified for HEPA filter banks in para. 8.5.2.1. For banks containing Type II modular trays, the air distribution test shall follow the same procedure specified for filter banks in para. 8.5.2.1, except that all velocity measurements shall be made in the plane of the face of the air channels, in the center of every open channel and an equal distance away from the adsorbers. For type III adsorbers, velocity measurements shall be made in the plane of the face of the air channels. These measurements shall be made in centers of equal area that cover the entire open face, not in excess of 12 in. between points on a channel, and an equal distance away from the adsorber.	No (Not required)	Yes
8.5.2.3 *	Calculate the average of the velocity readings (Section 3)	No (Not required)	Yes
8.5.2.4 *	Note the highest and lowest velocity readings and calculate the percentage they vary from the average found in para. 8.5.2.3. If acceptance criteria are exceeded, notify owner.	No (Not required)	Yes
8.6.0 Acceptance Criteria			
8.6.1	Acceptance Criteria for Airflow Capacity Test. Airflow shall be within ± 10% of the value specified in the test program or project specifications. Maximum housing component pressure drop airflows shall be ± 10% of the value specified in the test program or project specifications with the pressure drop greater than or equal to the maximum housing component pressure drop. For systems with carbon adsorbers, the maximum velocity of air through the carbon beds shall be limited to that value specified in the laboratory test (Section 15). *Notes:* *(1) Applies only to sections 8.5.1.1 and 8.5.1.2.* *(2) Maximum housing component pressure drops will be based on those that result in the system maintaining the TS flowrate ±10%.*	Yes (See note 1)	Yes (See note 2)
8.6.2 *	Airflow Distribution Test. No velocity readings shall exceed ± 20% of the calculated average. For system with carbon adsorbers, maximum velocity of air through the carbon beds shall be limited to that value specified in the laboratory test. (Section 15)	No (Not required)	Yes

Proposed FSAR Table 9.4 - 17
Conformance to ASME N510-1989 (Sections 5, 8, 14)
Control Room Emergency Filtration System (CREFS) Recirculation Filter Units

N510-1989 Paragraph	Description of N510-1989 Testing Requirement	Testing Conformance	
		Routine Surveillance	Following Modification or Repair
8.5.2.2 *	Airflow Distribution Through Adsorber Banks. For banks containing Type I adsorbers, the air distribution test shall follow the same procedures specified for HEPA filter banks in para. 8.5.2.1. For banks containing Type II modular trays, the air distribution test shall follow the same procedure specified for filter banks in para. 8.5.2.1, except that all velocity measurements shall be made in the plane of the face of the air channels, in the center of every open channel and an equal distance away from the adsorbers. For type III adsorbers, velocity measurements shall be made in the plane of the face of the air channels. These measurements shall be made in centers of equal area that cover the entire open face, not in excess of 12 in. between points on a channel, and an equal distance away from the adsorber.	No (Not required)	Yes
8.5.2.3 *	Calculate the average of the velocity readings (Section 3)	No (Not required)	Yes
8.5.2.4 *	Note the highest and lowest velocity readings and calculate the percentage they vary from the average found in para. 8.5.2.3. If acceptance criteria are exceeded, notify owner.	No (Not required)	Yes
8.6.0 Acceptance Criteria			
8.6.1	Acceptance Criteria for Airflow Capacity Test. Airflow shall be within ± 10% of the value specified in the test program or project specifications. Maximum housing component pressure drop airflows shall be ± 10% of the value specified in the test program or project specifications with the pressure drop greater than or equal to the maximum housing component pressure drop. For systems with carbon adsorbers, the maximum velocity of air through the carbon beds shall be limited to that value specified in the laboratory test (Section 15). *Notes:* *(1) Applies only to sections 8.5.1.1 and 8.5.1.2.* *(2) Maximum housing component pressure drops will be based on those that result in the system maintaining the TS flowrate ±10%.*	Yes (See note 1)	Yes (See note 2)
8.6.2 *	Airflow Distribution Test. No velocity readings shall exceed ± 20% of the calculated average. For system with carbon adsorbers, maximum velocity of air through the carbon beds shall be limited to that value specified in the laboratory test. (Section 15)	No (Not required)	Yes

Proposed FSAR Table 9.4 - 18
Conformance to ASME N510-1989 (Sections 5, 8, 14)
Penetration Room Filtration (PRF) System Filter Units

N510-1989 Paragraph	Description of N510-1989 Testing Requirement	Testing Conformance	
		Routine Surveillance	Following Modification or Repair
8.5.2.2 *	Airflow Distribution Through Adsorber Banks. For banks containing Type I adsorbers, the air distribution test shall follow the same procedures specified for HEPA filter banks in para. 8.5.2.1. For banks containing Type II modular trays, the air distribution test shall follow the same procedure specified for filter banks in para. 8.5.2.1, except that all velocity measurements shall be made in the plane of the face of the air channels, in the center of every open channel and an equal distance away from the adsorbers. For type III adsorbers, velocity measurements shall be made in the plane of the face of the air channels. These measurements shall be made in centers of equal area that cover the entire open face, not in excess of 12 in. between points on a channel, and an equal distance away from the adsorber.	No (Not required)	Yes
8.5.2.3 *	Calculate the average of the velocity readings (Section 3)	No (Not required)	Yes
8.5.2.4 *	Note the highest and lowest velocity readings and calculate the percentage they vary from the average found in para. 8.5.2.3. If acceptance criteria are exceeded, notify owner.	No (Not required)	Yes
8.6.0 Acceptance Criteria			
8.6.1	Acceptance Criteria for Airflow Capacity Test. Airflow shall be within ± 10% of the value specified in the test program or project specifications. Maximum housing component pressure drop airflows shall be ± 10% of the value specified in the test program or project specifications with the pressure drop greater than or equal to the maximum housing component pressure drop. For systems with carbon adsorbers, the maximum velocity of air through the carbon beds shall be limited to that value specified in the laboratory test (Section 15). *Notes:* *(1) Applies only to sections 8.5.1.1 and 8.5.1.2.* *(2) Maximum housing component pressure drops will be based on those that result in the system maintaining the TS flowrate ±10%.*	Yes (See note 1)	Yes (See note 2)
8.6.2 *	Airflow Distribution Test. No velocity readings shall exceed ± 20% of the calculated average. For system with carbon adsorbers, maximum velocity of air through the carbon beds shall be limited to that value specified in the laboratory test. (Section 15)	No (Not required)	Yes

ATTACHMENT 2

PHONE CONFERENCE ATTENDEES

Mark J. Ajluni	SNC
John A. Posenecker	SCS
Steve F. Berryhill	SCS
Alvin Harris	SNC
Jerry G. Sims	SNC
James J. Thomas	SNC
Ray Morris	SNC
Jake I. Zimmerman	NRC
John Segala	NRC
Harold Walker	NRC