ATTACHMENT 2

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: TT/1/A/9100/101A
Change(s) 0 to
0 Incorporated

(2) STATION: McGUIRE

(3) PROCEDURE TITLE: AUXILIARY BUILDING VENTILATION SYSTEM
AIR FLOW DISTRIBUTION MEASUREMENTS I

(4) PREPARED BY: Philip W. Roberson DATE: 10/22/85

(5) REVIEWED BY: R A Thomas DATE: 10/25/85

Cross-Disciplinary Review By: _____ N/R: RAT

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: _____ Date: _____

(8) MISCELLANEOUS:

Reviewed/Approved By: David Moore Date: 10-23-85

Reviewed/Approved By: _____ Date: _____

DUKE POWER COMPANY
McGUIRE NUCLEAR STATION
AUXILIARY BUILDING VENTILATION SYSTEM
AIR FLOW DISTRIBUTION MEASUREMENTS I

1.0 Purpose

To determine air flow velocity profile for prefilter entry and HEPA exit in the VA filtered exhaust package.

2.0 References

2.1 ANSI N-510, Rev. 1980

2.2 ANSI N-510, Rev. 1975

2.3 TP/0/A/1450/02

3.0 Time Required

One test coordinator and technician for 2 hours.

4.0 Prerequisite Tests

None

5.0 Test Equipment

5.1 Flashlight

5.2 Hot-wire anemometer

5.3 Ladder

6.0 Limits and Precautions

6.1 Follow HP guidelines for entry into operating filter package.

6.2 Use caution during testing to avoid placement of ladders, personnel, etc. such that velocity readings would be affected.

7.0 Required Unit Status

None

8.0 Prerequisite System Conditions

Initial/Date

____/____ 8.1 The Unit 1 VA Filtered Exhaust Package is running in filter mode (keyswitch turned to TEST) with both Unit 1 VA supply fans on.

9.0 Test Method

A traverse of the upstream face of the VA filter package prefilters and the downstream face of the HEPA filters will be performed with an anemometer. Thirty-five data points will be recorded for each plane in order to analyze flow distribution.

10.0 Data Required

10.1 VA filtered exhaust system flow rate (as read by in-place instrumentation).

10.2 Air flow velocity readings as specified by enclosures (as read by anemometer).

10.3 Average velocities and worst case high and low percent deviations as calculated on Enclosure 13.3.

11.0 Acceptance Criteria

11.1 Results of velocity distribution data will be evaluated by Design Engineering to determine effects on residence time and representative carbon sampling per MCC-1211.00-00-0096, Acceptance Criteria for Supplemental Filte Testing.

12.0 Procedure

Initial/Date

NOTE: IV means independent verification is required.

___/___ 12.1 Prerequisites are met and Limits and Precautions have been reviewed.

___/___ 12.2 Record VA filtered exhaust flow rate as read by 1MVAPG9370: _____cfm.

___/___ 12.3 Enter VA filtered exhaust package on the upstream side of the prefilters and ensure door is closed.

___/___ 12.4 Complete all data blanks as required by Enclosure 13.1.

___/___ 12.5 Exit filter housing, being sure to remove all test equipment.

___/___ 12.6 Enter VA filtered exhaust package between the downstream HEPA face and carbon adsorber bed, and ensure door is closed.

___/___ 12.7 Complete all data blanks as required by Enclosure 13.2.

___/___ 12.8 Exit filter housing, being sure to remove all test equipment.

___/___ 12.9 Ensure all VA filter package doors, entry ports and sample

___/___IV ports are properly sealed.

___/___ 12.10 Perform calculations as required by Enclosure 13.3.

13.0 Enclosures

13.1 Velocity Distribution at Prefilter Upstream Face

13.2 Velocity Distribution at HEPA Downstream Face

13.3 Velocity Distribution Calculations

Enclosure 13.1
Velocity Distribution at Prefilter Upstream Face

1. Record instrument identification:

   Anemometer ID # _____

   Last Calibration _____

   Calibration Due _____

2. Perform velocity measurements with the anemometer at the center of each prefilter face. Record readings in the corresponding blanks below.

   NOTE: Prefilter numbering is from top left to bottom right, as viewed facing downstream.

1. _____	2. _____	3. _____	4. _____	5. _____	6. _____	7. _____
8. _____	9. _____	10. _____	11. _____	12. _____	13. _____	14. _____
15. _____	16. _____	17. _____	18. _____	19. _____	20. _____	21. _____
22. _____	23. _____	24. _____	25. _____	26. _____	27. _____	28. _____
29. _____	30. _____	31. _____	32. _____	33. _____	34. _____	35. _____

Measurements Taken By _____ Date _____

Data Recorded By _____ Date _____

Enclosure 13.2
Velocity Distribution at HEPA Downstream Face

1. Record instrument identification:

   Anemometer ID # _____

   Last Calibration _____

   Calibration Due _____

2. Perform velocity measurements with the anemometer at the center of each HEPA downstream face. Record readings in the corresponding blanks below.

   NOTE: Prefilter numbering is from top right to bottom left, as viewed facing upstream. HEPAs and prefilters in the same location thus are numbered the same.

7. _____	6. _____	5. _____	4. _____	3. _____	2. _____	1. _____
14. _____	13. _____	12. _____	11. _____	10. _____	9. _____	8. _____
21. _____	20. _____	19. _____	18. _____	17. _____	16. _____	15. _____
28. _____	27. _____	26. _____	25. _____	24. _____	23. _____	22. _____
35. _____	34. _____	33. _____	32. _____	31. _____	30. _____	29. _____

Measurements Taken By _____ Date _____

Data Recorded By _____ Date _____

1.0 Transfer velocity readings from Enclosures 13.1 and 13.2 to the following corresponding blanks:

Prefilter Upstream	HEPA Downstream	Prefilter Upstream	HEPA Downstream	Prefilter Upstream	HEPA Downstream
1. _____	_____	13. _____	_____	25. _____	_____
2. _____	_____	14. _____	_____	26. _____	_____
3. _____	_____	15. _____	_____	27. _____	_____
4. _____	_____	16. _____	_____	28. _____	_____
5. _____	_____	17. _____	_____	29. _____	_____
6. _____	_____	18. _____	_____	30. _____	_____
7. _____	_____	19. _____	_____	31. _____	_____
8. _____	_____	20. _____	_____	32. _____	_____
9. _____	_____	21. _____	_____	33. _____	_____
10. _____	_____	22. _____	_____	34. _____	_____
11. _____	_____	23. _____	_____	35. _____	_____
12. _____	_____	24. _____	_____		

2.0 Average all prefilter upstream velocities. $\left(\frac{\Sigma V_{pu}}{35} \right)$

$V_{avg,pu}$ = _____ fpm

3.0 Enter lowest and highest prefilter upstream velocities and calculate percent deviation from average.

$V_{l,pu}$ = _____ fpm $\qquad$ $V_{h,pu}$ = _____ fpm

$$\% \text{ dev(l)} = \frac{V_{avg,pu} - V_{l,pu}}{V_{avg,pu}} \times 100 \qquad \% \text{ dev(h)} = \frac{V_{h,pu} - V_{avg,pu}}{V_{avg,pu}} \times 100$$

= _____% $\qquad$ = _____%

4.0 Average all HEPA downstream velocities. $\left(\frac{\Sigma V_{Hd}}{35} \right)$

$V_{avg,Hd}$ = _____ fpm

5.0 Enter lowest and highest HEPA downstream velocities and calculate percent deviation from average.

$V_{l,Hd}$ = _____ $\qquad$ $V_{h,Hd}$ = _____

$$\% \text{ dev(l)} = \frac{V_{avg,Hd} - V_{l,Hd}}{V_{avg,Hd}} \times 100 \qquad \% \text{ dev(h)} = \frac{V_{h,Hd} - V_{avg,Hd}}{V_{avg,Hd}} \times 100$$

= _____% $\qquad$ = _____%

Data Calculated By _____ Date _____