TMI DOCUMENTS

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G/P/U ELECTRIC POWER COMPANIES

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B C Getty

February 25, 1974
S&L-2267

TO: Mr. R. Edelman
Mr. J. G. Herbein
Mr. C. R. Montgomery
Mr. J. P. Moore
Mr. N. G. Trikouros

SUBJECT: AEC REGULATORY STAFF POSITION PAPER ON CHARCOAL FILTER INSTALLATION AND TESTING

The enclosed Regulatory Position paper was recently received and is quite current. It is forwarded for your information and utilization on your current projects. As stated in the first paragraph, the design aspects are not being applied retroactively but I believe changes to Technical Specifications may eventually be suggested to make testing of filters conform to this position.

Tom

T. M. Crimmins, Jr.
Safety & Licensing Manager

tie line
70-633

TMC/ab

Enclosure

cc: Mr. J. R. Thorpe

228 301

BEST/EGHT

THREE MILE ISLAND UNIT NO. 2
BURNS & ROE INC.
FIELD QUESTIONNAIRE NO. 590

002/II

DATE 3-14-75

.0 SYSTEM A.H. (Aux. Bldg & F.H. Bldg.) MTX NO. _____
.0 REFERENCE:
.1 Flow Diagram or Engr. Dwg. No. 2042 (Aux Bldg H&V) and 2343 (F.H. Bldg H&V)
.2 Elem. Wiring Diagram No. _____
.3 R. O. or Specification No. _____
.4 Other _____
.0 INQUIRY SOURCE:

General Question ☐ Drawing Clarification ☐
Test Result ☐ Equipment Clarification ☒
Test or Oper. Procedure ☐ Anticipated Problem ☒

Immediate Action Required ☐

228 302

.0 QUESTION
- Problem:

Page 2 of the attached letter seems to indicate that the filter bypass lines on the Auxiliary Bldg Exhaust Filters and Fuel Handling Bldg Exhaust Filters will have to be blocked off. What is the GPUSC/B&R position on meeting this requirement?

.1 Individual Initiating Question: Name B.C. Gotty Organization Met Ed

B Organization Serial No. 136

.0 ANSWER: The following is GPUSC's position - R.J. Toole 3/20/75:
"The attached letter describes a ventilation system with a controlled bypass that would be open when the filters are in service, otherwise there couldn't be preferential flow through the bypass. FSAR sections 9.4.2.3.d and 9.4.3.3.d clearly state that the bypass is closed when the filter is in service, therefore, the referenced letter does not apply to Unit II design."
B&R agrees with GPUSC position stated above.

.1 Date Completed 3/20/75 B&R Engineer R. Brownewell
.2 Follow-Up Action req'd. by B&R Home Office: ☐ Yes ☐ No By _____
.3 Follow-Up Action completed: Date: _____ B&R Engineer _____

ECM _____
PCN _____
FCR _____

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"MEB AEC REGULATORY STAFF POSITION PAPER
CHARCOAL FILTER INSTALLATION AND TESTING"

It is the Staff's generic position that charcoal filter installations with bypass flow arrangements are unacceptable since moisture entrainment on the absorber material will cause blockage and result in preferential flow through the bypass. The reduced flow through the absorber could be below that required to meet minimum safety standards. The Staff, therefore, will require, starting with the Indian Point Unit No. 2 facility, that the bypass be eliminated from the filter design and replaced with additional charcoal trays.

Details of Required Charcoal Filter Tests

(The tests presented below refer to in-containment filter systems, standby gas treatment systems, fuel-handling building systems and control room systems as noted for each test. Where no note appears, that section is equally applicable to all of the above.)

Item 1 Adsorber Efficiency Test

a. Remove one charcoal tray from the system and install a replacement.

b. Empty adsorbent from one bed of the removed tray - mix adsorbent thoroughly.

c. Take from the mixed adsorbent not less than two samples. Each sample will be two inches or greater in diameter and of a length equal to the thickness of the adsorber bed from which the adsorber was emptied.

d. Samples will be tested for retention of methyl iodide. Testing will be performed at 95% relative humidity and 250°F with inlet methyl iodide concentration of at least 10 mg/m^3 and a face velocity of 40 ft/min. (for SGTS 70% relative humidity and 190°F, 1 mg/m^3 40 ft/min; for Fuel-Handling Filters 95% relative humidity, 130°F, 0.1 mg/m^3 and 40 ft/min; for Control Room Filters 95% relative humidity and 130°F, 0.1 mg/m^3 and 40 ft/min.).

e. If test results indicate methyl iodide retention of less than 85% (for SGTS 95%; for Fuel-Handling Filters 90%; for Control Room Filters 90%), all adsorbent in the system shall be replaced with an adsorbent qualified to Table I of Regulatory Guide 1.52.

Item 2 Uniformity of Air Flow Test

Each HEPA and Adsorber will be tested with a pitot tube traverse or the equivalent to demonstrate that air distribution is uniform within 20%.

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Item 3 Air Deficiency Test

Flow must be demonstrated within 10% of the specified flow.

Item 4 HEPA Penetration Test

This test must be performed using DOP in accordance with ANSI N101.1 with a minimum retention of 99%. This test must be performed on the filter unit "as is" prior to repairs to holes, etc. If the filter unit does not meet the acceptance criteria, it must be replaced and the entire system retested.

Item 5 Adsorber Penetration Test

This test must be performed with Freon in accordance with the Regulatory Position C.5.c of Regulatory Guide 1.52. The acceptance criterion is no more than 1% Freon penetration.

Item 6 Total System Bypass Test

This test is to be performed by introducing DOP at the inlet. The exhaust is to be measured with an aerosol photometer in accordance with ANSI N101.1 with an acceptance criterion of no more than 1% of the inlet concentration.

Item 7 Each redundant unit of the system will be operated individually for a period of not less than 10 hours per month.

Item 8 At least quarterly, inspections will be conducted of loop seal drains to determine water level.

Item 9 Test Frequency

a. Repeat annually Tests 1, 2, 3, 4 and 5.

b. Repeat tests as appropriate after repairs, replacements, or painting or other chemical release, etc. in ventilation zones.

c. Repeat Tests 1, 4 and 5 whenever a unit of the system has accumulated 720 hours of operation since the latest date of any of these three tests.