Department of Energy
Washington, DC 20585

December 19, 2000

The Honorable John T. Conway
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, NW
Suite 700
Washington, D.C. 20004

Dear Mr. Chairman:

Consistent with the Department's implementation plan for the Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2000-2, the following provides information regarding commitment 26, due November 2000. The Department has completed the commitment and proposes closure of this commitment.

The Department committed to issue a letter to field office managers describing changes to DOE Handbook 3010-94, *Airborne Release Fractions/Rates and Respirable Fraction for Nonreactor Nuclear Facilities* and the need to screen authorization basis documents for possible unreviewed safety questions. Attached are copies of letters from the Offices of Defense Programs and Environmental Management fulfilling this commitment.

If you have any questions, please contact me at 202-586-0264 or have your staff contact Earl Hughes at 202-586-0065.

Sincerely,

Steven V. Cary
Principal Deputy Assistant Secretary for
Environment, Safety and Health

Enclosure

cc w/enclosures:
D. Burnfield, DNFSB Staff
K. Fortenberry, DNFSB Staff
J. DeLoach, DNFSB Staff
M. Whitaker, S-3.1

DOE F 1325.8
(8-89)
EFG (07-90)

00 · 2285

United States Government | Department of Energy

memorandum

DATE: DEC 18 2000

REPLY TO ATTN OF: EM-5 (M. Keane, 3 -7275)

SUBJECT: Assess Potential for Unreviewed Safety Questions Due to Change Notice for DOE-HDBK-3010-94, Airborne Release Fractions for Nonreactor Nuclear Facilities

TO: Distribution

In March 2000, the Department of Energy (DOE) released a Change Notice for DOE-HDBK-3010-94, Airborne Release Fractions/Rates and Respirable Fractions for Nonreactor Nuclear Facilities. This change on page 5-30 of volume 1 eliminated the first paragraph of section 5.4.1 that erroneously suggested that High Efficiency Particulate Air (HEPA) filters could withstand temperatures in excess of their actual limit (attached).

An Unreviewed Safety Question (USQ) could exist via identification of Potential Inadequacy of Safety Analysis (PISA) as a result of relying on the faulty paragraph in DOE-HDBK-3010-94 that was eliminated by the Change Notice.

Please screen your authorization basis documents for any PISA. Inform Michael Keane, of EM-5, by March 31, 2000, of any necessary corrective actions, a schedule for completion, and the name of the person responsible so that these actions are completed. If you cannot respond by the March 31, 2001 deadline, provide a justification for the delay and your proposed schedule for completion.

This requirement satisfies a commitment to the Defense Nuclear Facilities Safety Board 2000-2.

If you have any questions, please contact Michael Keane on (301) 903-7275.

Michael J. Oldham
Chief Operating Officer
Environmental Management

Attachment

Distribution

Beverly Cook, Manager, Idaho Operations Office (ID)
Susan Brechbill, Manager, Ohio Field Office (OH)
Richard Klein, Manager, Richland Operations Office (RL)
Harry Boston, Manager, Office of River Protection (ORP)
Barbara Mazurowski, Manager, Rocky Flats Field Office (RF)
Greg Rudy, Manager, Savannah River Operations Office (SR)
Dr. Inez Triay, Manager, Carlsbad Field Office (CFO)

00·2285

TS

NOT MEASUREMENT SENSITIVE

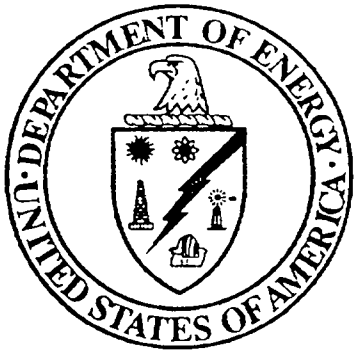
DOE-HDBK-3010-94
December 1994

CHANGE NOTICE NO. 1
March 2000

DOE HANDBOOK

AIRBORNE RELEASE FRACTIONS/RATES AND RESPIRABLE FRACTIONS FOR NONREACTOR NUCLEAR FACILITIES

Volume I - Analysis of Experimental Data



U.S. Department of Energy
Washington, D.C. 20585

AREA SAFT

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited

Change Notice No. 1

DOE-HDBK-3010-94

March 2000

Airborne Release Fractions/Rates and Respirable Fractions

For Nonreactor Nuclear Facilities

Page / Section	Change
p. 5-30, Section 5.4.1	Delete the first paragraph of this section since it contains erroneous information.

5.4 HEPA FILTERS

5.4.1 Thermal Stress

HEPA filters, both unused and removed from service due to high differential pressures (clogged), were tested using solid particles at a range of temperatures less than required for failure. The efficiencies of the filters prior to testing for 1.8 μm particles ranged from 99.97% to 99.9999989%. Two high flow (2000 cfm) and one 1000 cfm HEPA filters with glass fiber media and various sealant and gasket materials were tested. No releases were found at temperatures below 150°C (175°C for one of the high flow filters). For the 1000 cfm type filter, the release rates for temperatures from 175°C and 190°C started at 1E-6/min and reduced to 5E-8/min within 1 hour (the lower limit of detection was 2E-8/min). The high flow HEPAs were tested to temperatures of 200°C and 250°C with release rates starting at 2E-4/min and 2E-5/min and reducing to 3E-7/min in 30 min and 2E-8/min in 60 min. The decay in release was exponential during the initial 30-minutes approaching the 60-min rate asymptotically. There was no release of contamination from a oven-fired, mineral sealant, high flow type filter at temperatures up to 350°C and the release in other types of HEPA filters is associated with the emission of smoke (binder, degradation of inert dust on filter, pyrolysis of gaskets). Thus, it appears that the heat-induced release from 1000 cfm HEPA filter prior to failure may be as high as 1E-5. It is assumed that HEPA filters destroyed by flame intrusion or by the impact of air at a temperature sufficiently high to melt the glass fiber are subjected to high temperature air to result in the release given above for heat-induced release. The RF is assumed to be 1.0 without an experimental basis. ARFs for high-flowrate HEPA filter may be an order of magnitude higher (1E-4). On these bases, bounding ARF and RF values for the impact of heat upon loaded HEPA filters are assessed to be 1E-4 and 1.0.

00·2285

DOE F 1325.8
(08-93)

Department of Energy
National Nuclear Security Administration

United States Government

memorandum

DATE: November 22, 2000

REPLY TO ATTN OF: DP-45:R. C. Crowe.3-6214

SUBJECT: ASSESS POTENTIAL FOR UNREVIEWED SAFETY QUESTIONS DUE TO CHANGE NOTICE FOR DOE-HDBK-3010-94, AIRBORNE RELEASE FRACTIONS FOR NONREACTOR NUCLEAR FACILITIES

TO Manager, Albuquerque Operations Office
Manager, Nevada Operations Office
Manager, Oakland Operations Office
Manager, Y-12 Area Office
Manager, Defense Programs Operations, Savannah River Area Office

In March 2000, the Department of Energy released a Change Notice for DOE-HDBK-3010-94, Airborne Release Fractions/Rates and Respirable Fractions for Nonreactor Nuclear Facilities. This change on page 5-30 of volume 1 eliminated the first paragraph of section 5 4.1 that erroneously suggested that High Efficiency Particulate Air (HEPA) filters could withstand temperatures in excess of their actual limit (attached).

An Unreviewed Safety Question (USQ) could exist via identification of Potential Inadequacy of Safety Analysis (PISA) as a result of relying on the faulty paragraph in DOE-HDBK-3010-94 that was eliminated by the Change Notice.

Please screen your authorization basis documents for any PISA. Inform me of any necessary corrective actions and enter them into the Corrective Action Tracking System (CATS). This requirement satisfies a commitment to the Defense Nuclear Facilities Safety Board.

If you have any questions, please contact Dae Chung, DP-45. He may be reached at (301) 903-3968

Ralph E. Erickson
Acting Chief Operating Officer
Defense Programs

Attachment

NOT MEASUREMENT SENSITIVE

DOE-HDBK-3010-94
December 1994

CHANGE NOTICE NO. 1
March 2000

DOE HANDBOOK

AIRBORNE RELEASE FRACTIONS/RATES AND RESPIRABLE FRACTIONS FOR NONREACTOR NUCLEAR FACILITIES

Volume I - Analysis of Experimental Data

U.S. Department of Energy
Washington, D.C. 20585

AREA SAFT

Change Notice No. 1

DOE-HDBK-3010-94

March 2000

Airborne Release Fractions/Rates and Respirable Fractions

For Nonreactor Nuclear Facilities

Page / Section	Change
p. 5-30, Section 5.4.1	Delete the first paragraph of this section since it contains erroneous information.

5.4 HEPA FILTERS

5.4.1 Thermal Stress

HEPA filters, both unused and removed from service due to high differential pressures (clogged), were tested using solid particles at a range of temperatures less than required for failure. The efficiencies of the filters prior to testing for 1.8 μm particles ranged from 99.97% to 99.9999989%. Two high flow (2000 cfm) and one 1000 cfm HEPA filters with glass fiber media and various sealant and gasket materials were tested. No releases were found at temperatures below 150°C (175°C for one of the high flow filters). For the 1000 cfm type filter, the release rates for temperatures from 175°C and 190°C started at 1E-6/min and reduced to 5E-8/min within 1 hour (the lower limit of detection was 2E-8/min). The high flow HEPAs were tested to temperatures of 200°C and 250°C with release rates starting at 2E-4/min and 2E-5/min and reducing to 3E-7/min in 30 min and 2E-8/min in 60 min. The decay in release was exponential during the initial 30-minutes approaching the 60-min rate asymptotically. There was no release of contamination from a oven-fired, mineral sealant, high flow type filter at temperatures up to 350°C and the release in other types of HEPA filters is associated with the emission of smoke (binder, degradation of inert dust on filter, pyrolysis of gaskets). Thus, it appears that the heat-induced release from 1000 cfm HEPA filter prior to failure may be as high as 1E-5. It is assumed that HEPA filters destroyed by flame intrusion or by the impact of air at a temperature sufficiently high to melt the glass fiber are subjected to high temperature air to result in the release given above for heat-induced release. The RF is assumed to be 1.0 without an experimental basis. ARFs for high-flowrate HEPA filter may be an order of magnitude higher (1E-4). On these bases, bounding ARF and RF values for the impact of heat upon loaded HEPA filters are assessed to be 1E-4 and 1.0.