

APPENDIX B TO PART 835 [RESERVED]

APPENDIX C TO PART 835—DERIVED AIR CONCENTRATION (DAC) FOR WORKERS FROM EXTERNAL EXPOSURE DURING IMMERSION IN A CLOUD OF AIRBORNE RADIOACTIVE MATERIAL

a. The data presented in appendix C are to be used for controlling occupational exposures in accordance with §835.209, identifying the need for air monitoring in accordance with §835.403 and identifying the need for posting of airborne radioactivity areas in accordance with §835.603(d).

b. The air immersion DAC values shown in this appendix are based on a stochastic dose limit of 5 rems (0.05 Sv) per year. Four columns of information are presented: (1) Radionuclide; (2) half-life in units of seconds (s), minutes (min), hours (h), days (d), or

years (yr); (3) air immersion DAC in units of $\mu\text{Ci/mL}$; and (4) air immersion DAC in units of Bq/m^3 . The data are listed by radionuclide in order of increasing atomic mass. The air immersion DACs were calculated for a continuous, nonshielded exposure via immersion in a semi-infinite cloud of airborne radioactive material. The DACs listed in this appendix may be modified to allow for submersion in a cloud of finite dimensions.

c. The DAC values are given for individual radionuclides. For known mixtures of radionuclides, determine the sum of the ratio of the observed concentration of a particular radionuclide and its corresponding DAC for all radionuclides in the mixture. If this sum exceeds unity (1), then the DAC has been exceeded. For unknown radionuclides, the most restrictive DAC (lowest value) for those isotopes not known to be absent shall be used.

AIR IMMERSION DAC

Air immersion DAC			
Radionuclide	Half-Life	($\mu\text{Ci/mL}$)	(Bq/m^3)
Ar-37	35.02 d	1 E+00	4 E+10
Ar-39	269 yr	4 E-04	1 E+07
Ar-41	1.827 h	1 E-06	3 E+04
Kr-74	11.5 min	1 E-06	4 E+04
Kr-76	14.8 h	3 E-06	1 E+05
Kr-77	74.7 h	1 E-06	5 E+04
Kr-79	35.04 h	5 E-06	2 E+05
Kr-81	2.1E+05 yr	2 E-04	9 E+06
Kr-83m	1.83 h	2 E-02	9 E+08
Kr-85	10.72 yr	2 E-04	9 E+06
Kr-85m	4.48 h	9 E-06	3 E+05
Kr-87	76.3 min	1 E-06	5 E+04
Kr-88	2.84 h	6 E-07	2 E+04
Xe-120	40.0 min	3 E-06	1 E+05
Xe-121	40.1 min	7 E-07	2 E+04
Xe-122	20.1 h	2 E-05	1 E+06
Xe-123	2.14 h	2 E-06	8 E+04
Xe-125	16.8 h	5 E-06	2 E+05
Xe-127	36.406 d	5 E-06	2 E+05
Xe-129m	8.89 d	6 E-05	2 E+06
Xe-131m	11.84 d	1 E-04	6 E+06
Xe-133	5.245 d	4 E-05	1 E+06
Xe-133m	2.19 d	4 E-05	1 E+06
Xe-135	9.11 h	5 E-06	2 E+05
Xe-135m	15.36 min	3 E-06	1 E+05
Xe-138	14.13 min	1 E-06	4 E+04

For any single radionuclide not listed above with decay mode other than alpha emission or spontaneous fission and with radioactive half-life less than two hours, the DAC value shall be $6 \text{ E-06 } \mu\text{Ci/mL}$ (2 E+04 Bq/m^3).

[72 FR 31940, June 8, 2007]

APPENDIX D TO PART 835—SURFACE CONTAMINATION VALUES

The data presented in appendix D are to be used in identifying the need for posting of contamination and high contamination areas in accordance with §835.603(e) and (f) and identifying the need for surface contamination monitoring and control in accordance with §§ 835.1101 and 835.1102.