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APPENDIX A - ICD CODES & CORRESPONDING ORGANS FOR EXTERNAL DOSE RECONSTRUCTION

ICD-9	Primary Cancer description	External Dose Organ
140	Malignant neoplasm of lip.	Skin ¹
141	Malignant neoplasm of tongue.	Remainder ²
142	Malignant neoplasm of major salivary glands.	Remainder ²
143	Malignant neoplasm of gum.	Remainder ²
144	Malignant neoplasm of floor of mouth.	Remainder ²
145	Malignant neoplasm of other and unspecified parts of mouth.	Remainder ²
146	Malignant neoplasm of oropharynx.	Esophagus ³
147	Malignant neoplasm of nasopharynx.	Esophagus ³
148	Malignant neoplasm of hypopharynx.	Esophagus ³
149	Malignant neoplasm of other and ill- defined sites within the lip, oral cavity, and pharynx.	Remainder ²
150	Malignant neoplasm of esophagus.	Esophagus
151	Malignant neoplasm of stomach.	Stomach
152	Malignant neoplasm of small intestine, including duodenum.	Stomach ⁴
153	Malignant neoplasm of colon.	Colon
154	Malignant neoplasm of rectum, rectosigmoid junction, and anus.	Colon ⁵
155	Malignant neoplasm of liver and intrahepatic bile ducts.	Liver
156	Malignant neoplasm of gall bladder and extrahepatic bile ducts.	Bladder
157	Malignant neoplasm of pancreas.	Stomach ⁴
158	Malignant neoplasm of retroperitoneum and peritoneum.	Stomach ⁴
159	Malignant neoplasm of other and ill- defined sites within the digestive organs and peritoneum.	Stomach
160	Malignant neoplasm of nasal cavities, middle ear, and accessory sinuses.	Remainder ²
161	Malignant neoplasm of larynx.	Esophagus
162	Malignant neoplasm of trachea, bronchus and lung.	Esophagus
163	Malignant neoplasm of pleura.	Lung ⁶
164	Malignant neoplasm of thymus, heart, and mediastinum.	Thymus
165	Malignant neoplasm of other and ill- defined sites within the respiratory system and intrathoracic organs.	Lung
170	Malignant neoplasm of bone and articular cartilage.	Bone Surface
171	Malignant neoplasm of connective and other soft tissue.	Remainder ²
172	Malignant melanoma of skin.	Skin
173	Other malignant neoplasms of skin.	Skin
174	Malignant neoplasm of female breast.	Breast
175	Malignant neoplasm of male breast.	Breast
179	Malignant neoplasm of uterus, part unspecified.	Uterus
180	Malignant neoplasm of cervix uteri.	Uterus
181	Malignant neoplasm of placenta.	Uterus
182	Malignant neoplasm of body of uterus.	Uterus
183	Malignant neoplasm of ovary and other uterine adnexa.	Ovaries
184	Malignant neoplasm of other and unspecified female genital organs.	Uterus ⁷
185	Malignant neoplasm of prostate.	Testes
186	Malignant neoplasm of testes.	Testes

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187	Malignant neoplasm of penis and other male genital organs.	Testes
188	Malignant neoplasm of urinary bladder.	Bladder
189	Malignant neoplasm of kidney and other and unspecified urinary organs.	Remainder ²
190	Malignant neoplasm of eye.	Eye Lens
191	Malignant neoplasm of brain.	Remainder ²
192	Malignant neoplasm of other and unspecified parts of nervous system.	Remainder ²
193	Malignant neoplasm of thyroid gland.	Thyroid
194	Malignant neoplasm of other endocrine glands and related structures.	Remainder ²
195	Malignant neoplasm of other and ill- defined sites.	Remainder ²
196	Secondary and unspecified malignant neoplasm of the lymph nodes.	Refer to Table 1 in 42 CFR 81 for likely primary cancers
197	Secondary malignant neoplasm of the respiratory and digestive organs.	Refer to Table 1 in 42 CFR 81 for likely primary cancers
198	Secondary malignant neoplasm of other tissue and organs.	Refer to Table 1 in 42 CFR 81 for likely primary cancers
199	Malignant neoplasm without specification of site.	Remainder ²
200	Lymphosarcoma and reticulosarcoma.	Remainder ²
201	Hodgkin's disease.	Remainder ²
202	Other malignant neoplasms of lymphoid and histiocytic tissue.	Remainder ²
203	Multiple myeloma and other immunoproliferative neoplasms.	Red Bone Marrow
204	Lymphoid leukemia.	Red Bone Marrow
205	Myeloid leukemia.	Red Bone Marrow

Explanation of dose calculation methodology

In some cases, models for calculating both internal and external dose to specific organs do not exist. In these cases alternative methods must be used. The rationale for these decisions is explained below.

¹The external dose for ICD code 140 will be determined by using dose calculated for the skin. There is no model that calculates external dose to this organ. The dose to the skin is the most representative of the models available.

²The external dose for multiple organs will be determined by using dose calculated for the remainder as specified in ICRP 74. Since there are no models that calculate external dose to these organs, an organ in close proximity to the cancer site should be used. When the cancer site is unspecified, a claimant friendly approach that will overestimate the dose to these organs using the remainder organs. The ICD codes for which this approach will be used are as follows:

141 through 145, 149, 160, 171, 189, 191, 192, 194, 195, 199 through 202.

³The external dose for ICD codes 146, 147, and 148 will be determined by using dose calculated for the esophagus. There is no model that calculates external dose to these organs. Given the location of these organs, the dose to the esophagus most closely represents the dose to these organs.

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⁴The external dose for ICD codes 152, 157, and 158 will be determined by using dose calculated for the stomach. There is no model that calculates external dose to these organs. Given the location of these organs, the dose to the stomach most closely represents the dose to these organs.

⁵The external dose for ICD code 154 will be determined by using dose calculated for the colon. There is no model that calculates external dose to these organs. Given the location of these organs, the dose to the colon most closely represents the dose to these organs.

⁶The external dose for ICD code 163 will be determined by using dose calculated for the lung. There is no model that calculates external dose to these organs. Given the location of these organs, the dose to the lung most closely represents the dose to these organs.

⁷The external dose for ICD code 184 will be determined by using dose calculated for the uterus. There is no model that calculates external dose to these organs. Given the location of these organs, the dose to the uterus most closely represents the dose to these organs.

APPENDIX B – PHOTON DOSE CONVERSION FACTORS (DCF)

Organ: Bladder

Photon Exposures

Deep Dose Equivalent (H_p(10)) to Organ Dose (H_r)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.166 (0.000-0.426)	0.006 (0.000-0.035)	0.046 (0.000-0.141)	0.030 (0.000-0.100)	0.000	0.426
30 - 250 keV	0.873 (0.426-0.914)	0.419 (0.035-0.500)	0.491 (0.141-0.553)	0.379 (0.100-0.432)	0.035	0.914
>250 Kev	0.913 (0.876-0.929)	0.720 (0.500-0.753)	0.764 (0.553-0.846)	0.672 (0.432-0.755)	0.432	0.929

Ambient Dose Equivalent (H(10)) to Organ Dose (H_r)*

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.168 (0.000-0.431)	0.007 (0.000-0.036)	0.046 (0.000-0.143)	0.030 (0.000-0.101)	0.000	0.431
30 - 250 keV	0.940 (0.431-1.007)	0.452 (0.036-0.527)	0.528 (0.143-0.583)	0.408 (0.101-0.456)	0.036	1.007
>250 Kev	0.911 (0.885-0.947)	0.719 (0.527-0.751)	0.763 (0.583-0.855)	0.671 (0.456-0.763)	0.456	0.947

Exposure (R) to Organ Dose (H_r)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.175 (0.008-0.431)	0.010 (0.000-0.036)	0.054 (0.001-0.143)	0.036 (0.001-0.101)	0.000	0.431
30 - 250 keV	1.244 (0.431-1.523)	0.590 (0.036-0.684)	0.695 (0.143-0.809)	0.536 (0.101-0.613)	0.036	1.523
>250 Kev	0.883 (0.840-1.103)	0.694 (0.607-0.713)	0.736 (0.661-0.812)	0.647 (0.523-0.725)	0.523	1.103

Kerma (K_a) to Organ Dose (H_r)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.193 (0.008-0.474)	0.005 (0.000-0.039)	0.056 (0.001-0.157)	0.038 (0.001-0.111)	0.000	0.474
30 - 250 keV	1.434 (0.474-1.732)	0.682 (0.039-0.789)	0.799 (0.157-0.922)	0.618 (0.111-0.704)	0.039	1.732
>250 Kev	1.043 (0.973-1.284)	0.818 (0.704-0.841)	0.866 (0.772-0.940)	0.762 (0.606-0.839)	0.606	1.284

Organ: Bone (Red Marrow)

Photon Exposures

Deep Dose Equivalent (Hp(10)) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.030 (0.016-0.063)	0.068 (0.030-0.154)	0.036 (0.015-0.084)	0.028 (0.012-0.066)	0.012	0.154
30 - 250 keV	0.479 (0.063-0.540)	0.704 (0.154-0.791)	0.483 (0.084-0.573)	0.395 (0.066-0.475)	0.063	0.791
>250 keV	0.746 (0.540-0.834)	0.864 (0.791-0.906)	0.760 (0.573-0.846)	0.692 (0.475-0.800)	0.475	0.906

Ambient Dose Equivalent (H(10)) to Organ Dose (Hr)*

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.030 (0.016-0.063)	0.069 (0.030-0.155)	0.036 (0.016-0.085)	0.028 (0.012-0.067)	0.012	0.155
30 - 250 keV	0.479 (0.063-0.570)	0.758 (0.155-0.842)	0.520 (0.085-0.605)	0.425 (0.067-0.501)	0.063	0.842
>250 keV	0.746 (0.570-0.843)	0.861 (0.826-0.915)	0.758 (0.605-0.855)	0.690 (0.501-0.808)	0.501	0.915

Exposure (R) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.025 (0.004-0.063)	0.061 (0.008-0.155)	0.033 (0.004-0.085)	0.027 (0.003-0.067)	0.003	0.155
30 - 250 keV	0.626 (0.063-0.712)	0.996 (0.155-1.167)	0.681 (0.085-0.780)	0.557 (0.067-0.632)	0.063	1.167
>250 keV	0.720 (0.645-0.801)	0.834 (0.815-0.973)	0.732 (0.674-0.812)	0.666 (0.570-0.768)	0.570	0.973

Kerma (K_a) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.028 (0.000-0.070)	0.067 (0.000-0.171)	0.036 (0.000-0.093)	0.028 (0.000-0.073)	0.000	0.171
30 - 250 keV	0.721 (0.070-0.822)	1.147 (0.171-1.347)	0.784 (0.093-0.900)	0.641 (0.073-0.729)	0.070	1.347
>250 keV	0.849 (0.755-0.927)	0.982 (0.968-1.132)	0.863 (0.789-0.940)	0.785 (0.665-0.889)	0.665	1.132

Organ: Bone (Surface)

Photon Exposures

Deep Dose Equivalent (Hp(10)) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.215 (0.094-0.483)	0.283 (0.127-0.624)	0.224 (0.101-0.485)	0.170 (0.075-0.379)	0.075	0.624
30 - 250 keV	0.850 (0.483-1.161)	0.988 (0.624-1.383)	0.794 (0.485-1.087)	0.649 (0.379-0.878)	0.379	1.383
>250 keV	0.792 (0.685-0.852)	0.831 (0.759-0.882)	0.769 (0.642-0.845)	0.702 (0.540-0.797)	0.540	0.882

Ambient Dose Equivalent (H(10)) to Organ Dose (Hr)*

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.218 (0.095-0.488)	0.287 (0.129-0.631)	0.227 (0.102-0.490)	0.173 (0.076-0.384)	0.076	0.631
30 - 250 keV	0.915 (0.488-1.283)	1.063 (0.631-1.519)	0.854 (0.490-1.201)	0.698 (0.384-0.970)	0.384	1.519
>250 keV	0.791 (0.708-0.861)	0.832 (0.779-0.891)	0.767 (0.667-0.854)	0.700 (0.564-0.805)	0.564	0.891

Exposure (R) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.209 (0.024-0.488)	0.278 (0.032-0.631)	0.217 (0.026-0.490)	0.162 (0.019-0.384)	0.019	0.631
30 - 250 keV	1.229 (0.488-1.962)	1.433 (0.631-2.331)	1.150 (0.490-1.838)	0.938 (0.384-1.484)	0.384	2.331
>250 keV	0.764 (0.732-0.865)	0.803 (0.782-0.973)	0.742 (0.697-0.811)	0.681 (0.603-0.764)	0.603	0.973

Kerma (K_a) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.217 (0.001-0.537)	0.286 (0.002-0.694)	0.223 (0.002-0.539)	0.173 (0.001-0.422)	0.001	0.694
30 - 250 keV	1.415 (0.537-2.219)	1.644 (0.694-2.628)	1.323 (0.539-2.078)	1.079 (0.422-1.678)	0.422	2.628
>250 keV	0.903 (0.863-1.006)	0.943 (0.924-1.132)	0.875 (0.821-0.941)	0.799 (0.706-0.885)	0.706	1.132

Organ: Breast (Female)

Photon Exposures

Deep Dose Equivalent ($H_p(10)$) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.873 (0.705-2.478)	0.009 (0.000-0.044)	0.351 (0.283-0.966)	0.310 (0.252-0.848)	0.000	2.478
30 - 250 keV	0.894 (0.862-0.918)	0.340 (0.044-0.452)	0.545 (0.404-0.604)	0.503 (0.380-0.563)	0.044	0.918
>250 keV	0.966 (0.918-0.971)	0.763 (0.452-0.821)	0.798 (0.604-0.837)	0.768 (0.563-0.820)	0.452	0.971

Ambient Dose Equivalent ($H^(10)$) to Organ Dose (Hr)*

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.901 (0.715-2.788)	0.009 (0.000-0.044)	0.360 (0.287-1.086)	0.332 (0.255-0.954)	0.000	2.788
30 - 250 keV	0.960 (0.871-0.973)	0.366 (0.044-0.476)	0.587 (0.408-0.637)	0.540 (0.385-0.594)	0.044	0.973
>250 keV	0.966 (0.947-0.969)	0.762 (0.476-0.828)	0.794 (0.637-0.845)	0.768 (0.594-0.828)	0.476	0.969

Exposure (R) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.561 (0.179-0.871)	0.012 (0.000-0.044)	0.249 (0.072-0.408)	0.232 (0.064-0.385)	0.000	0.871
30 - 250 keV	1.266 (0.871-1.488)	0.477 (0.044-0.554)	0.769 (0.408-0.852)	0.708 (0.385-0.776)	0.044	1.488
>250 keV	0.930 (0.900-1.128)	0.735 (0.554-0.787)	0.769 (0.729-0.803)	0.741 (0.681-0.787)	0.554	1.128

Kerma (K_a) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.614 (0.022-0.958)	0.012 (0.000-0.049)	0.272 (0.009-0.449)	0.252 (0.008-0.423)	0.000	0.958
30 - 250 keV	1.460 (0.958-1.683)	0.549 (0.049-0.644)	0.884 (0.449-0.971)	0.815 (0.423-0.883)	0.049	1.683
>250 keV	1.099 (1.042-1.313)	0.865 (0.644-0.911)	0.903 (0.851-0.930)	0.874 (0.794-0.911)	0.644	1.313

Organ: Colon

Photon Exposures

Deep Dose Equivalent ($H_p(10)$) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.060 (0.000-0.226)	0.011 (0.000-0.059)	0.018 (0.000-0.085)	0.012 (0.000-0.056)	0.000	0.226
30 - 250 keV	0.747 (0.226-0.798)	0.541 (0.059-0.624)	0.485 (0.085-0.560)	0.364 (0.056-0.426)	0.056	0.798
>250 keV	0.874 (0.798-0.891)	0.785 (0.624-0.824)	0.746 (0.560-0.799)	0.659 (0.426-0.751)	0.426	0.891

Ambient Dose Equivalent ($H^*(10)$) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.061 (0.000-0.228)	0.011 (0.000-0.060)	0.019 (0.000-0.086)	0.012 (0.000-0.056)	0.000	0.228
30 - 250 keV	0.803 (0.228-0.859)	0.583 (0.060-0.659)	0.522 (0.086-0.591)	0.392 (0.056-0.449)	0.056	0.859
>250 keV	0.872 (0.839-0.890)	0.783 (0.659-0.832)	0.744 (0.591-0.807)	0.658 (0.449-0.758)	0.449	0.890

Exposure (R) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.075 (0.000-0.228)	0.017 (0.000-0.060)	0.024 (0.000-0.086)	0.016 (0.000-0.056)	0.000	0.228
30 - 250 keV	1.060 (0.228-1.276)	0.767 (0.060-0.898)	0.684 (0.086-0.792)	0.515 (0.056-0.591)	0.056	1.276
>250 keV	0.844 (0.829-0.981)	0.754 (0.732-0.790)	0.720 (0.664-0.767)	0.634 (0.520-0.720)	0.520	0.981

Kerma (K_a) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.081 (0.000-0.251)	0.014 (0.000-0.066)	0.025 (0.000-0.095)	0.015 (0.000-0.062)	0.000	0.251
30 - 250 keV	1.221 (0.251-1.454)	0.882 (0.066-1.036)	0.789 (0.095-0.907)	0.593 (0.062-0.677)	0.062	1.454
>250 keV	0.995 (0.978-1.142)	0.891 (0.857-0.915)	0.847 (0.778-0.888)	0.747 (0.603-0.834)	0.603	1.142

Organ: Esophagus

Photon Exposures

Deep Dose Equivalent (Hp(10)) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.010 (0.000-0.053)	0.006 (0.000-0.039)	0.008 (0.000-0.046)	0.005 (0.000-0.028)	0.000	0.053
30 - 250 keV	0.486 (0.053-0.573)	0.598 (0.039-0.688)	0.470 (0.046-0.552)	0.354 (0.028-0.426)	0.028	0.688
>250 keV	0.772 (0.573-0.849)	0.813 (0.688-0.841)	0.778 (0.552-0.865)	0.678 (0.426-0.775)	0.426	0.865

Ambient Dose Equivalent (H(10)) to Organ Dose (Hr)*

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.011 (0.000-0.053)	0.006 (0.000-0.040)	0.009 (0.000-0.046)	0.005 (0.000-0.029)	0.000	0.053
30 - 250 keV	0.523 (0.053-0.605)	0.644 (0.040-0.727)	0.506 (0.046-0.582)	0.381 (0.029-0.450)	0.029	0.727
>250 keV	0.770 (0.605-0.857)	0.812 (0.724-0.845)	0.776 (0.582-0.874)	0.677 (0.450-0.783)	0.450	0.874

Exposure (R) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.014 (0.000-0.053)	0.007 (0.000-0.040)	0.013 (0.000-0.046)	0.007 (0.000-0.029)	0.000	0.053
30 - 250 keV	0.688 (0.053-0.803)	0.854 (0.040-0.986)	0.661 (0.046-0.767)	0.500 (0.029-0.576)	0.029	0.986
>250 keV	0.745 (0.694-0.814)	0.782 (0.761-0.846)	0.743 (0.658-0.830)	0.654 (0.524-0.744)	0.524	0.846

Kerma (K_a) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.010 (0.000-0.059)	0.005 (0.000-0.044)	0.010 (0.000-0.051)	0.005 (0.000-0.031)	0.000	0.059
30 - 250 keV	0.792 (0.059-0.926)	0.975 (0.044-1.138)	0.764 (0.051-0.885)	0.575 (0.031-0.665)	0.031	1.138
>250 keV	0.877 (0.809-0.943)	0.923 (0.897-0.984)	0.883 (0.766-0.961)	0.770 (0.607-0.861)	0.607	0.984

Organ: Eye

Photon Exposures

Deep Dose Equivalent ($H_p(10)$) to Organ Dose (H_r)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	3.624 (1.076-33.778)	0.000 (0.000-0.000)	1.477 (0.529-12.667)	1.199 (0.470-9.744)	0.000	33.778
30 - 250 keV	0.879 (0.789-1.076)	0.126 (0.000-0.196)	0.595 (0.449-0.683)	0.527 (0.420-0.600)	0.000	1.076
>250 Kev	0.908 (0.838-0.958)	0.573 (0.196-0.750)	0.854 (0.683-0.957)	0.788 (0.600-0.867)	0.196	0.958

*Upper limit should be truncated at 6.816 unless the photon energy is less than 12.5 keV

Ambient Dose Equivalent ($H^*(10)$) to Organ Dose (H_r)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	3.862 (1.088-38.000)	0.000 (0.000-0.000)	1.562 (0.535-14.250)	1.264 (0.475-10.963)	0.000	38.000
30 - 250 keV	0.945 (0.850-1.088)	0.136 (0.000-0.206)	0.640 (0.472-0.721)	0.567 (0.435-0.633)	0.000	1.088
>250 Kev	0.908 (0.846-0.978)	0.572 (0.206-0.757)	0.853 (0.721-0.966)	0.787 (0.633-0.875)	0.206	0.978

**Upper limit should be truncated at 7.275 unless the photon energy is less than 12.5 keV

Exposure (R) to Organ Dose (H_r)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.936 (0.638-1.088)	0.000 (0.000-0.000)	0.437 (0.276-0.535)	0.383 (0.227-0.475)	0.000	1.088
30 - 250 keV	1.236 (1.088-1.361)	0.174 (0.000-0.240)	0.840 (0.535-0.893)	0.742 (0.475-0.786)	0.000	1.361
>250 Kev	0.880 (0.804-1.134)	0.549 (0.240-0.719)	0.825 (0.771-0.918)	0.759 (0.710-0.832)	0.240	1.134

Kerma (K_a) to Organ Dose (H_r)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.859 (0.304-1.197)	0.000 (0.000-0.000)	0.397 (0.114-0.588)	0.340 (0.088-0.523)	0.000	1.197
30 - 250 keV	1.421 (1.197-1.550)	0.201 (0.000-0.279)	0.966 (0.588-1.030)	0.854 (0.523-0.907)	0.000	1.550
>250 Kev	1.036 (0.931-1.319)	0.648 (0.279-0.833)	0.971 (0.908-1.063)	0.894 (0.835-0.963)	0.279	1.319

Organ: Gonads (female-ovaries)

Photon Exposures

Deep Dose Equivalent (Hp(10)) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.034 (0.000-0.142)	0.013 (0.000-0.071)	0.012 (0.000-0.059)	0.005 (0.000-0.032)	0.000	0.142
30 - 250 keV	0.672 (0.142-0.742)	0.626 (0.071-0.698)	0.495 (0.059-0.578)	0.348 (0.032-0.411)	0.032	0.742
>250 keV	0.849 (0.742-0.950)	0.803 (0.698-0.833)	0.759 (0.578-0.869)	0.651 (0.411-0.752)	0.411	0.950

Ambient Dose Equivalent (H(10)) to Organ Dose (Hr)*

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.031 (0.000-0.144)	0.014 (0.000-0.071)	0.012 (0.000-0.060)	0.005 (0.000-0.032)	0.000	0.144
30 - 250 keV	0.726 (0.144-0.795)	0.674 (0.071-0.749)	0.532 (0.060-0.610)	0.375 (0.032-0.434)	0.032	0.795
>250 keV	0.848 (0.771-0.960)	0.800 (0.735-0.842)	0.758 (0.610-0.878)	0.650 (0.434-0.760)	0.434	0.960

Exposure (R) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.047 (0.000-0.144)	0.019 (0.000-0.071)	0.022 (0.000-0.060)	0.009 (0.000-0.032)	0.000	0.144
30 - 250 keV	0.955 (0.144-1.111)	0.888 (0.071-1.069)	0.702 (0.060-0.803)	0.494 (0.032-0.577)	0.032	1.111
>250 keV	0.819 (0.782-0.913)	0.775 (0.762-0.858)	0.732 (0.668-0.834)	0.626 (0.505-0.722)	0.505	0.913

Kerma (K_a) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.030 (0.000-0.158)	0.015 (0.000-0.079)	0.012 (0.000-0.066)	0.007 (0.000-0.035)	0.000	0.158
30 - 250 keV	1.102 (0.158-1.282)	1.022 (0.079-1.234)	0.805 (0.066-0.926)	0.566 (0.035-0.666)	0.035	1.282
>250 keV	0.966 (0.918-1.062)	0.913 (0.905-0.999)	0.862 (0.786-0.966)	0.736 (0.586-0.836)	0.586	1.062

Organ: Gonads (male-testes)

Photon Exposures

Deep Dose Equivalent ($H_p(10)$) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.978 (0.739-3.244)	0.008 (0.000-0.037)	0.278 (0.216-0.827)	0.235 (0.169-0.621)	0.000	3.244
30 - 250 keV	1.011 (0.983-1.026)	0.350 (0.037-0.461)	0.519 (0.343-0.568)	0.451 (0.303-0.501)	0.037	1.026
>250 keV	0.973 (0.904-1.010)	0.737 (0.461-0.796)	0.763 (0.568-0.846)	0.720 (0.501-0.804)	0.461	1.010

Ambient Dose Equivalent ($H^(10)$) to Organ Dose (Hr)*

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.918 (0.750-3.650)	0.008 (0.000-0.037)	0.277 (0.220-0.930)	0.246 (0.172-0.699)	0.000	3.650
30 - 250 keV	1.090 (0.994-1.135)	0.376 (0.037-0.487)	0.557 (0.346-0.600)	0.483 (0.306-0.528)	0.037	1.135
>250 keV	0.974 (0.913-1.056)	0.734 (0.487-0.804)	0.758 (0.600-0.855)	0.715 (0.528-0.812)	0.487	1.056

Exposure (R) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.622 (0.188-0.994)	0.011 (0.000-0.037)	0.204 (0.055-0.346)	0.179 (0.043-0.306)	0.000	0.994
30 - 250 keV	1.434 (0.994-1.734)	0.491 (0.037-0.566)	0.732 (0.346-0.831)	0.632 (0.306-0.715)	0.037	1.734
>250 keV	0.941 (0.867-1.231)	0.709 (0.566-0.763)	0.735 (0.665-0.812)	0.693 (0.612-0.771)	0.566	1.231

Kerma (K_a) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.516 (0.029-1.093)	0.008 (0.000-0.041)	0.169 (0.007-0.381)	0.144 (0.006-0.337)	0.000	1.093
30 - 250 keV	1.649 (1.093-1.961)	0.564 (0.041-0.658)	0.843 (0.381-0.946)	0.729 (0.337-0.815)	0.041	1.961
>250 keV	1.108 (1.004-1.432)	0.835 (0.658-0.884)	0.866 (0.779-0.940)	0.818 (0.710-0.893)	0.658	1.432

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Organ: Liver

Photon Exposures

Deep Dose Equivalent ($H_p(10)$) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.095 (0.000-0.286)	0.039 (0.000-0.143)	0.042 (0.000-0.143)	0.027 (0.000-0.098)	0.000	0.286
30 - 250 keV	0.748 (0.286-0.794)	0.576 (0.143-0.645)	0.516 (0.143-0.578)	0.402 (0.098-0.462)	0.098	0.794
>250 keV	0.886 (0.794-0.904)	0.807 (0.645-0.843)	0.766 (0.578-0.818)	0.691 (0.462-0.753)	0.462	0.904

Ambient Dose Equivalent ($H^*(10)$) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.092 (0.000-0.289)	0.040 (0.000-0.145)	0.042 (0.000-0.145)	0.028 (0.000-0.099)	0.000	0.289
30 - 250 keV	0.805 (0.289-0.850)	0.620 (0.145-0.680)	0.556 (0.145-0.610)	0.432 (0.099-0.488)	0.099	0.850
>250 keV	0.884 (0.835-0.904)	0.805 (0.680-0.848)	0.764 (0.610-0.826)	0.690 (0.488-0.761)	0.488	0.904

Exposure (R) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.106 (0.003-0.289)	0.048 (0.001-0.145)	0.050 (0.001-0.145)	0.033 (0.000-0.099)	0.000	0.289
30 - 250 keV	1.064 (0.289-1.269)	0.816 (0.145-0.951)	0.731 (0.145-0.852)	0.568 (0.099-0.653)	0.099	1.269
>250 keV	0.845 (0.844-0.976)	0.780 (0.749-0.806)	0.740 (0.680-0.785)	0.665 (0.564-0.723)	0.564	0.976

Kerma (K_a) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.086 (0.000-0.318)	0.037 (0.000-0.159)	0.039 (0.000-0.159)	0.027 (0.000-0.109)	0.000	0.318
30 - 250 keV	1.221 (0.318-1.446)	0.938 (0.159-1.083)	0.841 (0.159-0.970)	0.654 (0.109-0.744)	0.109	1.446
>250 keV	1.007 (0.994-1.135)	0.917 (0.881-0.935)	0.870 (0.795-0.909)	0.784 (0.654-0.837)	0.654	1.135

Organ: Lung

Photon Exposures

Deep Dose Equivalent ($H_p(10)$) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.082 (0.000-0.267)	0.109 (0.000-0.324)	0.052 (0.000-0.180)	0.035 (0.000-0.127)	0.000	0.324
30 - 250 keV	0.695 (0.267-0.750)	0.754 (0.324-0.813)	0.552 (0.180-0.615)	0.441 (0.127-0.503)	0.127	0.813
>250 keV	0.870 (0.750-0.884)	0.909 (0.813-0.917)	0.802 (0.615-0.845)	0.730 (0.503-0.804)	0.503	0.917

Ambient Dose Equivalent ($H^*(10)$) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.083 (0.000-0.270)	0.109 (0.000-0.327)	0.053 (0.000-0.182)	0.035 (0.000-0.128)	0.000	0.327
30 - 250 keV	0.749 (0.270-0.792)	0.812 (0.327-0.858)	0.595 (0.182-0.649)	0.475 (0.128-0.531)	0.128	0.858
>250 keV	0.866 (0.792-0.883)	0.906 (0.858-0.914)	0.801 (0.649-0.854)	0.727 (0.531-0.812)	0.531	0.914

Exposure (R) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.100 (0.002-0.270)	0.120 (0.003-0.327)	0.055 (0.001-0.182)	0.042 (0.001-0.128)	0.001	0.327
30 - 250 keV	0.986 (0.270-1.168)	1.077 (0.327-1.260)	0.779 (0.182-0.912)	0.625 (0.128-0.717)	0.128	1.260
>250 keV	0.842 (0.834-0.922)	0.875 (0.860-1.000)	0.773 (0.732-0.811)	0.706 (0.614-0.771)	0.614	1.000

Kerma (K_a) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.076 (0.000-0.297)	0.098 (0.000-0.360)	0.049 (0.000-0.200)	0.033 (0.000-0.141)	0.000	0.360
30 - 250 keV	1.133 (0.297-1.331)	1.230 (0.360-1.435)	0.899 (0.200-1.039)	0.718 (0.141-0.817)	0.141	1.435
>250 keV	0.989 (0.971-1.073)	1.034 (0.999-1.163)	0.911 (0.856-0.939)	0.828 (0.712-0.893)	0.712	1.163

Organ: Remainder Organs

Photon Exposures

Deep Dose Equivalent ($H_p(10)$) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.078 (0.024-0.192)	0.080 (0.024-0.191)	0.052 (0.017-0.131)	0.036 (0.012-0.094)	0.012	0.192
30 - 250 keV	0.621 (0.192-0.681)	0.623 (0.191-0.688)	0.498 (0.131-0.569)	0.393 (0.094-0.459)	0.094	0.688
>250 keV	0.815 (0.681-0.841)	0.818 (0.688-0.853)	0.761 (0.569-0.824)	0.689 (0.459-0.770)	0.459	0.853

Ambient Dose Equivalent ($H^(10)$) to Organ Dose (Hr)*

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.079 (0.025-0.195)	0.081 (0.025-0.193)	0.052 (0.017-0.133)	0.036 (0.012-0.095)	0.012	0.195
30 - 250 keV	0.668 (0.195-0.719)	0.670 (0.193-0.726)	0.536 (0.133-0.600)	0.423 (0.095-0.484)	0.095	0.726
>250 keV	0.814 (0.719-0.847)	0.815 (0.726-0.862)	0.759 (0.600-0.833)	0.686 (0.484-0.777)	0.484	0.862

Exposure (R) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.071 (0.006-0.195)	0.075 (0.006-0.193)	0.050 (0.004-0.133)	0.035 (0.003-0.095)	0.003	0.195
30 - 250 keV	0.879 (0.195-1.033)	0.885 (0.193-1.033)	0.705 (0.133-0.808)	0.555 (0.095-0.629)	0.095	1.033
>250 keV	0.787 (0.773-0.837)	0.793 (0.775-0.846)	0.735 (0.678-0.791)	0.663 (0.561-0.738)	0.561	0.846

Kerma (K_a) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.060 (0.001-0.214)	0.061 (0.001-0.212)	0.040 (0.000-0.146)	0.028 (0.000-0.104)	0.000	0.214
30 - 250 keV	1.014 (0.214-1.177)	1.017 (0.212-1.177)	0.812 (0.146-0.925)	0.639 (0.104-0.719)	0.104	1.177
>250 keV	0.927 (0.911-0.974)	0.929 (0.913-0.984)	0.864 (0.794-0.916)	0.781 (0.650-0.855)	0.650	0.984

Organ:Skin

Photon Exposures

Deep Dose Equivalent ($H_p(10)$) to Organ Dose (H_r)

If $H_p(10)$ was measured the shallow dose equivalent $H_p(0.07)$ should also be available and should be used for skin dose.

Ambient Dose Equivalent ($H^(10)$) to Organ Dose (H_r)*

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	1.839 (0.595-29.375)	1.798 (0.589-29.625)	1.580 (0.528-25.000)	1.989 (0.495-21.500)	0.495	3.785*
30 - 250 keV	0.677 (0.550-0.744)	0.674 (0.541-0.741)	0.608 (0.486-0.676)	0.564 (0.448-0.622)	0.448	0.744
>250 keV	0.863 (0.744-0.893)	0.860 (0.741-0.902)	0.822 (0.676-0.864)	0.787 (0.622-0.835)	0.622	0.902

*Upper level truncated at 12.5 keV (midpoint between last two data points). If photon energy is less than 12.5 keV, the data in this table cannot be used.

Exposure (R) to Organ Dose (H_r)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.504 (0.363-0.595)	0.502 (0.363-0.589)	0.447 (0.318-0.528)	0.418 (0.291-0.495)	0.291	0.595
30 - 250 keV	0.892 (0.595-0.974)	0.885 (0.589-0.962)	0.799 (0.528-0.861)	0.731 (0.495-0.778)	0.495	0.974
>250 keV	0.835 (0.823-0.866)	0.837 (0.821-0.863)	0.796 (0.768-0.820)	0.759 (0.711-0.793)	0.711	0.866

Kerma (K_a) to Organ Dose (H_r)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.473 (0.235-0.654)	0.470 (0.237-0.648)	0.418 (0.200-0.581)	0.388 (0.172-0.544)	0.172	0.654
30 - 250 keV	1.027 (0.654-1.109)	1.019 (0.648-1.096)	0.920 (0.581-0.981)	0.841 (0.544-0.886)	0.544	1.109
>250 keV	0.986 (0.970-1.007)	0.987 (0.966-1.004)	0.941 (0.899-0.953)	0.895 (0.832-0.919)	0.832	1.007

Organ: Stomach

Photon Exposures

Deep Dose Equivalent (Hp(10)) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.167 (0.001-0.434)	0.008 (0.000-0.044)	0.052 (0.000-0.152)	0.034 (0.000-0.110)	0.000	0.434
30 - 250 keV	0.881 (0.434-0.914)	0.437 (0.044-0.520)	0.513 (0.152-0.576)	0.401 (0.110-0.459)	0.044	0.914
>250 Kev	0.915 (0.902-0.919)	0.736 (0.520-0.795)	0.775 (0.576-0.841)	0.690 (0.459-0.763)	0.459	0.919

Ambient Dose Equivalent (H(10)) to Organ Dose (Hr)*

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.167 (0.001-0.439)	0.008 (0.000-0.044)	0.053 (0.000-0.154)	0.035 (0.000-0.111)	0.000	0.439
30 - 250 keV	0.950 (0.439-1.012)	0.470 (0.044-0.548)	0.551 (0.154-0.607)	0.431 (0.111-0.484)	0.044	1.012
>250 keV	0.916 (0.908-0.958)	0.735 (0.548-0.803)	0.773 (0.607-0.849)	0.690 (0.484-0.771)	0.484	0.958

Exposure (R) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.182 (0.008-0.439)	0.011 (0.000-0.044)	0.058 (0.002-0.154)	0.040 (0.001-0.111)	0.000	0.439
30 - 250 keV	1.251 (0.439-1.534)	0.618 (0.044-0.706)	0.725 (0.154-0.853)	0.566 (0.111-0.648)	0.044	1.534
>250 keV	0.885 (0.863-1.117)	0.710 (0.637-0.763)	0.747 (0.685-0.807)	0.664 (0.556-0.732)	0.556	1.117

Kerma (K_a) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.143 (0.000-0.483)	0.008 (0.000-0.049)	0.046 (0.000-0.169)	0.032 (0.000-0.122)	0.000	0.483
30 - 250 keV	1.441 (0.483-1.740)	0.710 (0.049-0.815)	0.838 (0.169-0.972)	0.652 (0.122-0.739)	0.049	1.740
>250 keV	1.044 (1.002-1.299)	0.836 (0.738-0.883)	0.879 (0.803-0.934)	0.783 (0.644-0.848)	0.644	1.299

Organ: Thymus

Photon Exposures

Deep Dose Equivalent (Hp(10)) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.273 (0.000-0.629)	0.000 (0.000-0.007)	0.077 (0.000-0.201)	0.051 (0.000-0.143)	0.000	0.629
30 - 250 keV	0.991 (0.629-1.030)	0.273 (0.007-0.345)	0.528 (0.201-0.598)	0.434 (0.143-0.498)	0.007	1.030
>250 keV	0.922 (0.840-0.999)	0.593 (0.345-0.732)	0.764 (0.598-0.839)	0.708 (0.498-0.788)	0.345	0.999

Ambient Dose Equivalent (H(10)) to Organ Dose (Hr)*

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.274 (0.000-0.636)	0.000 (0.000-0.007)	0.077 (0.000-0.204)	0.051 (0.000-0.145)	0.000	0.636
30 - 250 keV	1.065 (0.636-1.131)	0.292 (0.007-0.364)	0.568 (0.204-0.631)	0.467 (0.145-0.525)	0.007	1.131
>250 keV	0.922 (0.848-1.054)	0.590 (0.364-0.739)	0.763 (0.631-0.847)	0.707 (0.525-0.795)	0.364	1.054

Exposure (R) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.288 (0.015-0.636)	0.000 (0.000-0.007)	0.083 (0.003-0.204)	0.057 (0.002-0.145)	0.000	0.636
30 - 250 keV	1.408 (0.636-1.692)	0.381 (0.007-0.441)	0.746 (0.204-0.846)	0.614 (0.145-0.692)	0.007	1.692
>250 keV	0.892 (0.806-1.229)	0.566 (0.422-0.702)	0.737 (0.705-0.805)	0.682 (0.606-0.756)	0.422	1.229

Kerma (K_a) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.226 (0.000-0.700)	0.001 (0.000-0.008)	0.067 (0.000-0.224)	0.045 (0.000-0.159)	0.000	0.700
30 - 250 keV	1.620 (0.700-1.926)	0.444 (0.008-0.505)	0.859 (0.224-0.974)	0.706 (0.159-0.788)	0.008	1.926
>250 keV	1.052 (0.933-1.429)	0.672 (0.489-0.813)	0.868 (0.831-0.932)	0.804 (0.703-0.875)	0.489	1.429

Organ: Thyroid

Photon Exposures

Deep Dose Equivalent ($H_p(10)$) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.538 (0.140-0.818)	0.000 (0.000-0.010)	0.193 (0.032-0.368)	0.087 (0.013-0.185)	0.000	0.818
30 - 250 keV	1.017 (0.818-1.042)	0.298 (0.010-0.385)	0.684 (0.368-0.757)	0.453 (0.185-0.522)	0.010	1.042
>250 keV	1.003 (0.906-1.066)	0.684 (0.385-0.809)	0.927 (0.757-0.961)	0.740 (0.522-0.842)	0.385	1.066

Ambient Dose Equivalent ($H^(10)$) to Organ Dose (Hr)*

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.545 (0.158-0.827)	0.000 (0.000-0.010)	0.192 (0.036-0.372)	0.089 (0.015-0.187)	0.000	0.827
30 - 250 keV	1.091 (0.827-1.135)	0.321 (0.010-0.406)	0.735 (0.372-0.799)	0.487 (0.187-0.551)	0.010	1.135
>250 keV	1.004 (0.915-1.089)	0.683 (0.406-0.817)	0.925 (0.799-0.967)	0.739 (0.551-0.850)	0.406	1.089

Exposure (R) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.473 (0.093-0.827)	0.003 (0.000-0.010)	0.183 (0.022-0.372)	0.087 (0.009-0.187)	0.000	0.827
30 - 250 keV	1.440 (0.827-1.702)	0.420 (0.010-0.475)	0.965 (0.372-1.083)	0.639 (0.187-0.718)	0.010	1.702
>250 keV	0.972 (0.870-1.269)	0.663 (0.472-0.776)	0.894 (0.868-0.930)	0.714 (0.637-0.808)	0.472	1.269

Kerma (K_a) to Organ Dose (Hr)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.377 (0.001-0.910)	0.001 (0.000-0.011)	0.146 (0.000-0.409)	0.068 (0.000-0.206)	0.000	0.910
30 - 250 keV	1.660 (0.910-1.938)	0.483 (0.011-0.549)	1.112 (0.409-1.234)	0.735 (0.206-0.818)	0.011	1.938
>250 keV	1.143 (1.007-1.477)	0.777 (0.549-0.899)	1.054 (1.019-1.082)	0.841 (0.739-0.935)	0.549	1.477

Organ: Uterus

Photon Exposures

Deep Dose Equivalent ($H_p(10)$) to Organ Dose (H_r)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.044 (0.000-0.195)	0.012 (0.000-0.063)	0.013 (0.000-0.068)	0.009 (0.000-0.044)	0.000	0.195
30 - 250 keV	0.711 (0.195-0.762)	0.546 (0.063-0.621)	0.461 (0.068-0.530)	0.343 (0.044-0.402)	0.044	0.762
>250 keV	0.812 (0.754-0.820)	0.757 (0.621-0.782)	0.713 (0.530-0.778)	0.628 (0.402-0.729)	0.402	0.820

Ambient Dose Equivalent ($H^*(10)$) to Organ Dose (H_r)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.045 (0.000-0.197)	0.013 (0.000-0.064)	0.015 (0.000-0.069)	0.009 (0.000-0.045)	0.000	0.197
30 - 250 keV	0.765 (0.197-0.834)	0.588 (0.064-0.656)	0.497 (0.069-0.559)	0.369 (0.045-0.424)	0.045	0.834
>250 keV	0.811 (0.784-0.817)	0.758 (0.656-0.781)	0.711 (0.559-0.785)	0.627 (0.424-0.736)	0.424	0.817

Exposure (R) to Organ Dose (H_r)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.061 (0.000-0.197)	0.017 (0.000-0.064)	0.019 (0.000-0.069)	0.012 (0.000-0.045)	0.000	0.197
30 - 250 keV	1.011 (0.197-1.212)	0.774 (0.064-0.913)	0.653 (0.069-0.757)	0.485 (0.045-0.553)	0.045	1.212
>250 keV	0.786 (0.764-0.928)	0.734 (0.724-0.764)	0.688 (0.633-0.746)	0.604 (0.485-0.700)	0.485	0.928

Kerma (K_a) to Organ Dose (H_r)

Photon Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<30 keV	0.045 (0.000-0.217)	0.010 (0.000-0.070)	0.014 (0.000-0.076)	0.009 (0.000-0.049)	0.000	0.217
30 - 250 keV	1.163 (0.217-1.381)	0.890 (0.070-1.054)	0.751 (0.076-0.874)	0.558 (0.049-0.636)	0.049	1.381
>250 keV	0.924 (0.885-1.079)	0.863 (0.853-0.888)	0.809 (0.739-0.864)	0.712 (0.562-0.810)	0.562	1.079

APPENDIX B – NEUTRON DOSE CONVERSION FACTORS (DCF)

Organ: Bladder

Neutron Exposures

Fluence (f) to Organ Dose Equivalent (H_T) (cSv cm²)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	2.214E-09 (6.40E-10 - 2.51E-9)	9.388E-10 (2.50E-10 - 1.08E-9)	9.704E-10 (2.75E-10 - 1.11E-9)	6.945E-10 (2.30E-10 - 7.97E-10)	2.30E-10	2.51E-09
10 - 100 keV	5.175E-09 (2.51E-9 - 7.23E-9)	2.133E-09 (1.08E-9 - 3.05E-9)	2.286E-09 (1.11E-9 - 3.29E-9)	1.779E-09 (7.97E-10 - 2.57E-9)	7.97E-10	7.23E-09
0.1 - 2.0 Mev	3.119E-08 (7.23E-9 - 4.47E-8)	8.458E-09 (3.05E-9 - 1.42E-8)	1.273E-08 (3.29E-9 - 1.98E-8)	9.070E-09 (2.57E-9 - 1.46E-8)	2.57E-09	4.47E-08
2.0 - 20.0 Mev	5.462E-08 (4.47E-8 - 5.64E-8)	3.377E-08 (1.42E-8 - 4.00E-8)	3.502E-08 (1.98E-8 - 3.96E-8)	2.853E-08 (1.46E-8 - 3.25E-8)	1.42E-08	5.64E-08
> 20.0 Mev	4.607E-08 (4.20E-8 - 5.32E-8)	5.276E-08 (4.00E-8 - 6.97E-8)	4.925E-08 (3.96E-8 - 5.91E-8)	n/a	3.96E-08	6.97E-08

Ambient Dose Equivalent (H(10)) to Organ Dose Equivalent (H_T) (cSv/cSv)*

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	2.633 (0.906-2.755)	1.114 (0.361-1.161)	1.153 (0.372-1.195)	0.826 (0.311-0.852)	0.311	2.755
10 - 100 keV	1.291 (0.822-2.392)	0.558 (0.346-1.030)	0.575 (0.374-1.060)	0.438 (0.292-0.759)	0.292	2.392
0.1 - 2.0 Mev	0.822 (0.661-1.065)	0.229 (0.168-0.346)	0.333 (0.258-0.471)	0.243 (0.184-0.348)	0.168	1.065
2.0 - 20.0 Mev	1.170 (0.887-1.401)	0.708 (0.338-0.813)	0.740 (0.471-0.850)	0.601 (0.348-0.685)	0.338	1.401
> 20.0 Mev	1.488 (0.887-1.767)	1.790 (0.666-2.789)	1.653 (0.660-2.365)	n/a	0.660	2.789

Deep Dose Equivalent H_{p,slab}(10) to Organ Dose Equivalent (H_T) (cSv/cSv)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	2.301 (0.781-2.355)	0.974 (0.305-0.992)	1.007 (0.336-1.022)	0.720 (0.281-0.733)	0.281	2.355
10 - 100 keV	1.268 (0.798-2.243)	0.549 (0.336-0.966)	0.570 (0.363-0.994)	0.432 (0.283-0.712)	0.283	2.243
0.1 - 2.0 Mev	0.796 (0.626-1.012)	0.216 (0.163-0.336)	0.326 (0.247-0.447)	0.234 (0.177-0.331)	0.163	1.012
2.0 - 20.0 Mev	1.105 (0.887-1.325)	0.670 (0.321-0.740)	0.698 (0.447-0.780)	0.568 (0.331-0.629)	0.321	1.325
> 20.0 Mev	n/a	n/a	n/a	n/a	n/a	n/a

Organ: Bone (Red Marrow)

Neutron Exposures

Fluence (f) to Organ Dose Equivalent (H_T) (cSv cm²)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	9.868E-10 (3.05E-10 - 1.15E-9)	1.568E-09 (5.70E-10 - 1.82E-9)	9.450E-10 (3.10E-10 - 1.10E-9)	6.618E-10 (2.40E-10 - 7.66E-10)	2.40E-10	1.82E-09
10 - 100 keV	2.676E-09 (1.15E-9 - 3.95E-9)	4.282E-09 (1.82E-9 - 6.46E-9)	2.506E-09 (1.10E-9 - 3.72E-9)	1.914E-09 (7.66E-10 - 2.86E-9)	7.66E-10	6.46E-09
0.1 - 2.0 Mev	1.415E-08 (3.95E-9 - 2.22E-8)	2.709E-08 (6.46E-9 - 3.90E-8)	1.600E-08 (3.72E-9 - 2.41E-8)	1.200E-08 (2.86E-9 - 1.79E-8)	2.86E-09	3.90E-08
2.0 - 20.0 Mev	3.587E-08 (2.22E-8 - 3.83E-8)	4.567E-08 (3.90E-8 - 4.73E-8)	3.504E-08 (2.41E-8 - 3.66E-8)	2.897E-08 (1.79E-8 - 3.28E-8)	1.79E-08	4.73E-08
> 20.0 Mev	4.183E-08 (3.74E-8 - 4.86E-8)	4.025E-08 (3.89E-8 - 4.40E-8)	3.999E-08 (3.59E-8 - 4.66E-8)	n/a	3.59E-08	4.86E-08

Ambient Dose Equivalent (H(10)) to Organ Dose Equivalent (H_T) (cSv/cSv)*

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.167 (0.422-1.209)	1.861 (0.759-1.930)	1.113 (0.443-1.161)	0.786 (0.335-0.811)	0.335	1.930
10 - 100 keV	0.659 (0.448-1.091)	1.042 (0.735-1.729)	0.615 (0.423-1.048)	0.455 (0.324-0.729)	0.324	1.729
0.1 - 2.0 Mev	0.375 (0.279-0.528)	0.716 (0.585-0.929)	0.422 (0.336-0.574)	0.316 (0.253-0.425)	0.253	0.929
2.0 - 20.0 Mev	0.761 (0.528-0.891)	0.980 (0.733-1.179)	0.745 (0.574-0.872)	0.611 (0.425-0.682)	0.425	1.179
> 20.0 Mev	1.395 (0.633-1.942)	1.320 (0.733-1.700)	1.334 (0.606-1.863)	n/a	0.606	1.942

Deep Dose Equivalent H_{p,slab}(10) to Organ Dose Equivalent (H_T) (cSv/cSv)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.023 (0.372-1.033)	1.635 (0.696-1.650)	0.980 (0.379-0.992)	0.688 (0.293-0.693)	0.293	1.650
10 - 100 keV	0.651 (0.436-1.022)	1.028 (0.713-1.621)	0.607 (0.411-0.983)	0.452 (0.315-0.683)	0.315	1.621
0.1 - 2.0 Mev	0.361 (0.268-0.502)	0.690 (0.554-0.883)	0.407 (0.318-0.545)	0.305 (0.240-0.404)	0.240	0.883
2.0 - 20.0 Mev	0.720 (0.502-0.825)	0.927 (0.733-1.125)	0.705 (0.545-0.814)	0.578 (0.404-0.629)	0.404	1.125
> 20.0 Mev	n/a	n/a	n/a	n/a	n/a	n/a

Organ: Bone (Surface)

Neutron Exposures

Fluence (f) to Organ Dose Equivalent (H_T) (cSv cm²)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.045E-09 (3.85E-10 - 1.21E-9)	1.245E-09 (4.70E-10 - 1.43E-9)	8.755E-10 (3.35E-10 - 1.02E-9)	6.340E-10 (2.70E-10 - 7.47E-10)	2.70E-10	1.43E-09
10 - 100 keV	2.671E-09 (1.21E-9 - 4.03E-9)	3.354E-09 (1.43E-9 - 5.07E-9)	2.400E-09 (1.02E-9 - 3.66E-9)	1.834E-09 (7.47E-10 - 2.81E-9)	7.47E-10	5.07E-09
0.1 - 2.0 Mev	1.696E-08 (4.03E-9 - 2.41E-8)	2.056E-08 (5.07E-9 - 2.88E-8)	1.633E-08 (3.66E-9 - 2.34E-8)	1.301E-08 (2.81E-9 - 1.87E-8)	2.81E-09	2.88E-08
2.0 - 20.0 Mev	3.364E-08 (2.41E-8 - 3.62E-8)	3.688E-08 (2.88E-8 - 3.85E-8)	3.214E-08 (2.34E-8 - 3.41E-8)	2.765E-08 (1.87E-8 - 3.08E-8)	1.87E-08	3.85E-08
> 20.0 Mev	4.179E-08 (3.62E-8 - 4.84E-8)	3.990E-08 (3.82E-8 - 4.21E-8)	3.996E-08 (3.41E-8 - 4.62E-8)	n/a	3.41E-08	4.84E-08

Ambient Dose Equivalent (H(10)) to Organ Dose Equivalent (H_T) (cSv/cSv)*

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.239 (0.519-1.292)	1.479 (0.632-1.525)	1.038 (0.472-1.072)	0.752 (0.340-0.776)	0.340	1.525
10 - 100 keV	0.666 (0.457-1.151)	0.817 (0.576-1.362)	0.586 (0.416-0.970)	0.441 (0.319-0.711)	0.319	1.362
0.1 - 2.0 Mev	0.451 (0.373-0.574)	0.547 (0.455-0.685)	0.433 (0.351-0.557)	0.343 (0.273-0.446)	0.273	0.685
2.0 - 20.0 Mev	0.714 (0.574-0.818)	0.785 (0.641-0.903)	0.682 (0.557-0.787)	0.586 (0.446-0.680)	0.446	0.903
> 20.0 Mev	1.394 (0.603-1.934)	1.315 (0.641-1.686)	1.335 (0.569-1.849)	n/a	0.569	1.934

Deep Dose Equivalent H_{p,slab}(10) to Organ Dose Equivalent (H_T) (cSv/cSv)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.083 (0.470-1.104)	1.292 (0.574-1.312)	0.908 (0.409-0.916)	0.657 (0.311-0.667)	0.311	1.312
10 - 100 keV	0.656 (0.444-1.079)	0.807 (0.559-1.277)	0.577 (0.404-0.909)	0.435 (0.310-0.667)	0.310	1.277
0.1 - 2.0 Mev	0.436 (0.353-0.545)	0.529 (0.433-0.651)	0.417 (0.332-0.530)	0.332 (0.259-0.424)	0.259	0.651
2.0 - 20.0 Mev	0.675 (0.545-0.758)	0.743 (0.641-0.848)	0.646 (0.530-0.731)	0.554 (0.424-0.629)	0.424	0.848
> 20.0 Mev	n/a	n/a	n/a	n/a	n/a	n/a

Organ: Breast (Female)

Neutron Exposures

Fluence (f) to Organ Dose Equivalent (H_T) (cSv cm²)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.366E-09 (8.40E-10 - 1.66E-9)	4.783E-10 (1.40E-10 - 5.50E-10)	6.798E-10 (3.45E-10 - 8.22E-10)	5.023E-10 (2.95E-10 - 6.14E-10)	1.40E-10	1.66E-09
10 - 100 keV	4.905E-09 (1.66E-9 - 8.28E-9)	1.073E-09 (5.50E-10 - 1.52E-9)	2.362E-09 (8.22E-10 - 3.85E-9)	2.099E-09 (6.14E-10 - 3.66E-9)	5.50E-10	8.28E-09
0.1 - 2.0 Mev	4.469E-08 (8.28E-9 - 5.71E-8)	6.863E-09 (1.52E-9 - 1.34E-8)	2.323E-08 (3.85E-9 - 3.09E-8)	2.143E-08 (3.66E-9 - 3.00E-8)	1.52E-09	5.71E-08
2.0 - 20.0 Mev	5.514E-08 (5.08E-8 - 5.77E-8)	3.134E-08 (1.34E-8 - 3.73E-8)	3.619E-08 (3.09E-8 - 3.81E-8)	3.668E-08 (3.00E-8 - 3.93E-8)	1.34E-08	5.77E-08
> 20.0 Mev	3.153E-08 (2.48E-8 - 5.08E-8)	4.586E-08 (3.73E-8 - 5.31E-8)	2.902E-08 (2.73E-8 - 3.64E-8)	n/a	2.48E-08	5.31E-08

Ambient Dose Equivalent (H(10)) to Organ Dose Equivalent (H_T) (cSv/cSv)*

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.612 (0.938-1.676)	0.569 (0.172-0.591)	0.803 (0.419-0.838)	0.595 (0.333-0.611)	0.172	1.676
10 - 100 keV	1.117 (0.941-1.585)	0.276 (0.173-0.524)	0.548 (0.437-0.783)	0.472 (0.416-0.584)	0.173	1.585
0.1 - 2.0 Mev	1.180 (0.940-1.358)	0.180 (0.106-0.318)	0.611 (0.437-0.735)	0.563 (0.414-0.714)	0.106	1.358
2.0 - 20.0 Mev	1.185 (0.846-1.412)	0.657 (0.318-0.758)	0.789 (0.607-0.884)	0.779 (0.642-0.878)	0.318	1.412
> 20.0 Mev	0.982 (0.846-1.050)	1.534 (0.622-2.122)	0.928 (0.607-1.223)	n/a	0.607	2.122

Deep Dose Equivalent H_{p,slab}(10) to Organ Dose Equivalent (H_T) (cSv/cSv)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.411 (0.925-1.486)	0.498 (0.155-0.505)	0.709 (0.408-0.734)	0.525 (0.320-0.548)	0.155	1.486
10 - 100 keV	1.111 (0.914-1.486)	0.271 (0.168-0.491)	0.545 (0.425-0.734)	0.471 (0.404-0.548)	0.168	1.486
0.1 - 2.0 Mev	1.145 (0.892-1.291)	0.173 (0.101-0.302)	0.592 (0.420-0.698)	0.542 (0.393-0.679)	0.101	1.291
2.0 - 20.0 Mev	1.121 (0.846-1.355)	0.622 (0.302-0.690)	0.729 (0.607-0.817)	0.737 (0.642-0.839)	0.302	1.355
> 20.0 Mev	n/a	n/a	n/a	n/a	n/a	n/a

Organ: Colon

Neutron Exposures

Fluence (f) to Organ Dose Equivalent (H_T) (cSv cm²)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.697E-09 (4.45E-10 - 1.94E-9)	1.264E-09 (3.85E-10 - 1.46E-9)	9.216E-10 (2.65E-10 - 1.05E-9)	7.074E-10 (2.00E-10 - 8.10E-10)	2.00E-10	1.94E-09
10 - 100 keV	3.688E-09 (1.94E-9 - 5.13E-9)	2.988E-09 (1.46E-9 - 4.28E-9)	2.297E-09 (1.05E-9 - 3.10E-9)	1.717E-09 (8.10E-10 - 2.44E-9)	8.10E-10	5.13E-09
0.1 - 2.0 Mev	1.926E-08 (5.13E-9 - 3.02E-8)	1.324E-08 (4.28E-9 - 2.18E-8)	1.086E-08 (3.10E-9 - 1.80E-8)	7.476E-09 (2.44E-9 - 1.24E-8)	2.44E-09	3.02E-08
2.0 - 20.0 Mev	4.539E-08 (3.02E-8 - 4.78E-8)	3.879E-08 (2.18E-8 - 4.44E-8)	3.307E-08 (1.80E-8 - 3.79E-8)	2.723E-08 (1.24E-8 - 3.25E-8)	1.24E-08	4.78E-08
> 20.0 Mev	4.888E-08 (4.78E-8 - 4.94E-8)	5.055E-08 (4.44E-8 - 5.36E-8)	4.593E-08 (3.79E-8 - 5.66E-8)	n/a	3.79E-08	5.66E-08

Ambient Dose Equivalent (H(10)) to Organ Dose Equivalent (H_T) (cSv/cSv)*

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	2.012 (0.589-2.102)	1.500 (0.533-1.559)	1.090 (0.367-1.134)	0.837 (0.278-0.872)	0.278	2.102
10 - 100 keV	0.961 (0.583-1.850)	0.767 (0.487-1.386)	0.554 (0.352-1.000)	0.431 (0.277-0.771)	0.277	1.850
0.1 - 2.0 Mev	0.504 (0.375-0.718)	0.355 (0.262-0.520)	0.283 (0.208-0.429)	0.200 (0.152-0.295)	0.152	0.718
2.0 - 20.0 Mev	0.967 (0.718-1.127)	0.818 (0.520-0.925)	0.698 (0.429-0.791)	0.573 (0.295-0.668)	0.295	1.127
> 20.0 Mev	1.606 (0.797-2.016)	1.673 (0.740-2.154)	1.543 (0.632-2.264)	n/a	0.632	2.264

Deep Dose Equivalent H_{p,slab}(10) to Organ Dose Equivalent (H_T) (cSv/cSv)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.758 (0.532-1.797)	1.310 (0.470-1.333)	0.955 (0.324-0.978)	0.734 (0.244-0.746)	0.244	1.797
10 - 100 keV	0.947 (0.567-1.734)	0.753 (0.473-1.299)	0.546 (0.342-0.938)	0.425 (0.269-0.723)	0.269	1.734
0.1 - 2.0 Mev	0.490 (0.361-0.683)	0.338 (0.254-0.494)	0.274 (0.200-0.408)	0.193 (0.146-0.280)	0.146	0.683
2.0 - 20.0 Mev	0.912 (0.683-1.049)	0.775 (0.494-0.851)	0.659 (0.408-0.725)	0.541 (0.280-0.612)	0.280	1.049
> 20.0 Mev	n/a	n/a	n/a	n/a	n/a	n/a

Organ: Esophagus

Neutron Exposures

Fluence (f) to Organ Dose Equivalent (H_T) (cSv cm²)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.328E-09 (2.50E-10 - 1.55E-9)	1.681E-09 (4.75E-10 - 1.90E-9)	1.010E-09 (2.65E-10 - 1.16E-9)	7.175E-10 (2.00E-10 - 8.35E-10)	2.00E-10	1.90E-09
10 - 100 keV	3.045E-09 (1.55E-9 - 4.22E-9)	3.742E-09 (1.90E-9 - 5.21E-9)	2.371E-09 (1.16E-9 - 3.26E-9)	1.683E-09 (8.35E-10 - 2.39E-9)	8.35E-10	5.21E-09
0.1 - 2.0 MeV	1.612E-08 (4.22E-9 - 2.77E-8)	1.661E-08 (5.21E-9 - 2.46E-8)	1.068E-08 (3.26E-9 - 1.82E-8)	7.644E-09 (2.39E-9 - 1.32E-8)	2.39E-09	2.77E-08
2.0 - 20.0 MeV	4.303E-08 (2.77E-8 - 4.52E-8)	4.062E-08 (2.46E-8 - 4.48E-8)	3.679E-08 (1.82E-8 - 4.08E-8)	2.863E-08 (1.32E-8 - 3.32E-8)	1.32E-08	4.52E-08
> 20.0 MeV	4.874E-08 (4.18E-8 - 5.96E-8)	4.707E-08 (4.37E-8 - 5.31E-8)	4.712E-08 (4.08E-8 - 5.61E-8)	n/a	4.08E-08	5.96E-08

Ambient Dose Equivalent (H(10)) to Organ Dose Equivalent (H_T) (cSv/cSv)*

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.575 (0.379-1.656)	1.996 (0.613-2.075)	1.201 (0.356-1.250)	0.851 (0.264-0.886)	0.264	2.075
10 - 100 keV	0.787 (0.479-1.476)	0.949 (0.592-1.814)	0.585 (0.370-1.109)	0.425 (0.272-0.795)	0.272	1.814
0.1 - 2.0 MeV	0.427 (0.277-0.661)	0.445 (0.349-0.592)	0.283 (0.197-0.434)	0.204 (0.154-0.313)	0.154	0.661
2.0 - 20.0 MeV	0.919 (0.661-1.101)	0.859 (0.586-0.986)	0.785 (0.434-0.910)	0.601 (0.313-0.670)	0.313	1.101
> 20.0 MeV	1.634 (0.718-2.385)	1.560 (0.746-2.122)	1.572 (0.679-2.243)	n/a	0.679	2.385

Deep Dose Equivalent H_{p,slab}(10) to Organ Dose Equivalent (H_T) (cSv/cSv)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.378 (0.305-1.415)	1.746 (0.567-1.786)	1.047 (0.321-1.069)	0.750 (0.241-0.757)	0.241	1.786
10 - 100 keV	0.775 (0.466-1.384)	0.937 (0.575-1.700)	0.591 (0.359-1.039)	0.421 (0.264-0.746)	0.264	1.700
0.1 - 2.0 MeV	0.412 (0.267-0.628)	0.430 (0.336-0.575)	0.271 (0.190-0.412)	0.196 (0.148-0.298)	0.148	0.628
2.0 - 20.0 MeV	0.869 (0.628-1.037)	0.812 (0.557-0.907)	0.735 (0.412-0.837)	0.569 (0.298-0.619)	0.298	1.037
> 20.0 MeV	n/a	n/a	n/a	n/a	n/a	n/a

Organ: Lung

Nu neutrons Exposures

Fluence (f) to Organ Dose Equivalent (H_T) (cSv cm²)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.283E-09 (3.85E-10 - 1.46E-9)	1.381E-09 (4.05E-10 - 1.58E-9)	9.128E-10 (2.90E-10 - 1.04E-9)	6.722E-10 (2.35E-10 - 7.72E-10)	2.35E-10	1.58E-09
10 - 100 keV	2.943E-09 (1.46E-9 - 4.20E-9)	3.349E-09 (1.58E-9 - 4.81E-9)	2.172E-09 (1.04E-9 - 3.19E-9)	1.650E-09 (7.72E-10 - 2.42E-9)	7.72E-10	4.81E-09
0.1 - 2.0 Mev	2.218E-08 (4.20E-9 - 3.42E-8)	2.669E-08 (4.81E-9 - 4.09E-8)	1.648E-08 (3.19E-9 - 2.60E-8)	1.196E-08 (2.42E-9 - 1.99E-8)	2.42E-09	4.09E-08
2.0 - 20.0 Mev	4.709E-08 (3.42E-8 - 4.87E-8)	5.132E-08 (4.09E-8 - 5.26E-8)	3.974E-08 (2.60E-8 - 4.20E-8)	3.282E-08 (1.99E-8 - 3.63E-8)	1.99E-08	5.26E-08
> 20.0 Mev	4.563E-08 (4.54E-8 - 4.77E-8)	4.487E-08 (4.32E-8 - 5.06E-8)	4.474E-08 (4.18E-8 - 4.91E-8)	n/a	4.18E-08	5.06E-08

Ambient Dose Equivalent (H(10)) to Organ Dose Equivalent (H_T) (cSv/cSv)*

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.523 (0.524-1.587)	1.646 (0.583-1.711)	1.070 (0.400-1.120)	0.795 (0.297-0.824)	0.297	1.711
10 - 100 keV	0.751 (0.478-1.392)	0.820 (0.547-1.506)	0.541 (0.363-0.994)	0.410 (0.275-0.735)	0.275	1.506
0.1 - 2.0 Mev	0.579 (0.405-0.813)	0.699 (0.496-0.974)	0.429 (0.296-0.619)	0.310 (0.203-0.475)	0.203	0.974
2.0 - 20.0 Mev	1.004 (0.794-1.183)	1.097 (0.844-1.310)	0.845 (0.619-0.984)	0.694 (0.475-0.787)	0.475	1.310
> 20.0 Mev	1.492 (0.794-1.858)	1.453 (0.844-1.771)	1.481 (0.700-1.963)	n/a	0.700	1.963

Deep Dose Equivalent H_{p,slab}(10) to Organ Dose Equivalent (H_T) (cSv/cSv)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.332 (0.470-1.358)	1.436 (0.495-1.462)	0.847 (0.354-0.966)	0.697 (0.276-0.708)	0.276	1.462
10 - 100 keV	0.737 (0.464-1.305)	0.802 (0.531-1.412)	0.533 (0.352-0.932)	0.406 (0.267-0.689)	0.267	1.412
0.1 - 2.0 Mev	0.557 (0.383-0.773)	0.671 (0.470-0.926)	0.414 (0.280-0.588)	0.300 (0.192-0.451)	0.192	0.926
2.0 - 20.0 Mev	0.950 (0.773-1.115)	1.040 (0.844-1.238)	0.798 (0.588-0.916)	0.656 (0.451-0.738)	0.451	1.238
> 20.0 Mev	n/a	n/a	n/a	n/a	n/a	n/a

Organ: Gonads (female - ovaries)

Neutron Exposures

Fluence (f) to Organ Dose Equivalent (H_T) (cSv cm²)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.610E-09 (3.75E-10 - 1.86E-9)	1.492E-09 (4.00E-10 - 1.71E-9)	9.845E-10 (2.50E-10 - 1.13E-9)	6.959E-10 (1.90E-10 - 8.10E-10)	1.90E-10	1.86E-09
10 - 100 keV	3.702E-09 (1.86E-9 - 5.08E-9)	3.224E-09 (1.71E-9 - 4.97E-9)	2.425E-09 (1.13E-9 - 3.43E-9)	1.756E-09 (8.10E-10 - 2.49E-9)	8.10E-10	5.08E-09
0.1 - 2.0 Mev	1.659E-08 (5.08E-9 - 2.69E-8)	1.755E-08 (4.97E-9 - 2.72E-8)	1.026E-08 (3.43E-9 - 1.87E-8)	6.955E-09 (2.49E-9 - 1.18E-8)	2.49E-09	2.72E-08
2.0 - 20.0 Mev	4.500E-08 (2.69E-8 - 4.79E-8)	4.564E-08 (2.72E-8 - 5.07E-8)	3.594E-08 (1.87E-8 - 3.97E-8)	2.873E-08 (1.18E-8 - 3.27E-8)	1.18E-08	5.07E-08
> 20.0 Mev	5.053E-08 (4.55E-8 - 5.96E-8)	4.746E-08 (4.65E-8 - 5.07E-8)	5.011E-08 (3.97E-8 - 5.71E-8)	n/a	3.97E-08	5.96E-08

Ambient Dose Equivalent (H(10)) to Organ Dose Equivalent (H_T) (cSv/cSv)*

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.910 (0.556-1.999)	1.775 (0.528-1.841)	1.168 (0.379-1.209)	0.825 (0.239-0.859)	0.239	1.999
10 - 100 keV	0.950 (0.578-1.771)	0.886 (0.565-1.627)	0.606 (0.390-1.072)	0.440 (0.283-0.771)	0.283	1.771
0.1 - 2.0 Mev	0.439 (0.310-0.640)	0.437 (0.321-0.648)	0.277 (0.189-0.446)	0.187 (0.143-0.283)	0.143	0.648
2.0 - 20.0 Mev	0.955 (0.640-1.127)	0.966 (0.648-1.115)	0.758 (0.446-0.887)	0.605 (0.280-0.707)	0.280	1.127
> 20.0 Mev	1.684 (0.784-2.385)	1.549 (0.845-1.902)	1.677 (0.661-2.284)	n/a	0.661	2.385

Deep Dose Equivalent H_{p,slab}(10) to Organ Dose Equivalent (H_T) (cSv/cSv)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.670 (0.458-1.709)	1.549 (0.476-1.574)	1.020 (0.305-1.036)	0.727 (0.216-0.734)	0.216	1.709
10 - 100 keV	0.935 (0.561-1.661)	0.875 (0.549-1.525)	0.599 (0.379-1.005)	0.436 (0.274-0.723)	0.274	1.661
0.1 - 2.0 Mev	0.424 (0.298-0.608)	0.423 (0.309-0.616)	0.265 (0.184-0.424)	0.181 (0.138-0.274)	0.138	0.616
2.0 - 20.0 Mev	0.903 (0.608-1.042)	0.913 (0.616-1.040)	0.717 (0.424-0.820)	0.571 (0.266-0.649)	0.266	1.042
> 20.0 Mev	n/a	n/a	n/a	n/a	n/a	n/a

Organ: Gonads (male - testes)

Neutron Exposures

Fluence (f) to Organ Dose Equivalent (H_T) (cSv cm²)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.964E-09 (1.00E-9 - 2.33E-9)	6.421E-10 (1.80E-10 - 7.28E-10)	7.823E-10 (3.40E-10 - 9.17E-10)	6.032E-10 (3.25E-10 - 7.09E-10)	1.80E-10	2.33E-09
10 - 100 keV	6.309E-09 (2.33E-9 - 1.04E-8)	1.448E-09 (7.28E-10 - 2.00E-9)	2.300E-09 (9.17E-10 - 3.61E-9)	1.932E-09 (7.09E-10 - 3.16E-9)	7.09E-10	1.04E-08
0.1 - 2.0 MeV	5.070E-08 (1.04E-8 - 6.36E-8)	6.101E-09 (2.00E-9 - 1.12E-8)	1.845E-08 (3.61E-9 - 2.65E-8)	1.739E-08 (3.16E-9 - 2.45E-8)	2.00E-09	6.36E-08
2.0 - 20.0 MeV	6.001E-08 (5.43E-8 - 6.39E-8)	3.333E-08 (1.12E-8 - 4.06E-8)	3.626E-08 (2.65E-8 - 3.90E-8)	3.320E-08 (2.45E-8 - 3.71E-8)	1.12E-08	6.39E-08
> 20.0 MeV	3.278E-08 (2.78E-8 - 5.43E-8)	5.090E-08 (4.06E-8 - 6.42E-8)	4.318E-08 (3.79E-8 - 5.15E-8)	n/a	2.78E-08	6.42E-08

Ambient Dose Equivalent (H(10)) to Organ Dose Equivalent (H_T) (cSv/cSv)*

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	2.311 (1.283-2.411)	0.757 (0.259-0.790)	0.915 (0.458-0.955)	0.711 (0.382-0.735)	0.259	2.411
10 - 100 keV	1.478 (1.181-2.223)	0.373 (0.228-0.693)	0.556 (0.410-0.874)	0.450 (0.359-0.675)	0.228	2.223
0.1 - 2.0 MeV	1.349 (1.147-1.515)	0.163 (0.113-0.265)	0.483 (0.378-0.632)	0.456 (0.348-0.582)	0.113	1.515
2.0 - 20.0 MeV	1.293 (0.906-1.550)	0.695 (0.265-0.791)	0.772 (0.632-0.884)	0.702 (0.582-0.777)	0.265	1.550
> 20.0 MeV	1.030 (0.906-1.135)	1.718 (0.677-2.567)	1.442 (0.650-2.062)	n/a	0.650	2.567

Deep Dose Equivalent H_{p,slab}(10) to Organ Dose Equivalent (H_T) (cSv/cSv)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	2.034 (1.206-2.084)	0.666 (0.220-0.679)	0.808 (0.415-0.819)	0.624 (0.355-0.633)	0.220	2.084
10 - 100 keV	1.466 (1.147-2.084)	0.363 (0.221-0.650)	0.550 (0.398-0.819)	0.448 (0.349-0.633)	0.221	2.084
0.1 - 2.0 MeV	1.307 (1.089-1.440)	0.152 (0.110-0.252)	0.470 (0.357-0.600)	0.440 (0.330-0.553)	0.110	1.440
2.0 - 20.0 MeV	1.222 (0.906-1.490)	0.658 (0.252-0.721)	0.729 (0.600-0.825)	0.664 (0.553-0.723)	0.252	1.490
> 20.0 MeV	n/a	n/a	n/a	n/a	n/a	n/a

Organ: Liver

Neutron Exposures

Fluence (f) to Organ Dose Equivalent (H_T) (cSv cm²)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.715E-09 (4.90E-10 - 1.95E-9)	1.294E-09 (3.50E-10 - 1.48E-9)	1.079E-09 (3.05E-10 - 1.24E-9)	7.280E-10 (2.30E-10 - 8.35E-10)	2.30E-10	1.95E-09
10 - 100 keV	3.960E-09 (1.95E-9 - 5.63E-9)	2.869E-09 (1.48E-9 - 4.23E-9)	2.511E-09 (1.24E-9 - 3.59E-9)	1.826E-09 (8.35E-10 - 2.63E-9)	8.35E-10	5.63E-09
0.1 - 2.0 Mev	2.520E-08 (5.63E-9 - 3.71E-8)	1.617E-08 (4.23E-9 - 2.55E-8)	1.509E-08 (3.59E-9 - 2.36E-8)	1.008E-08 (2.63E-9 - 1.70E-8)	2.63E-09	3.71E-08
2.0 - 20.0 Mev	4.904E-08 (3.71E-8 - 5.09E-8)	4.108E-08 (2.55E-8 - 4.42E-8)	3.797E-08 (2.36E-8 - 4.08E-8)	3.059E-08 (1.70E-8 - 3.44E-8)	1.70E-08	5.09E-08
> 20.0 Mev	4.413E-08 (4.31E-8 - 4.89E-8)	4.623E-08 (4.29E-8 - 5.20E-8)	4.569E-08 (4.08E-8 - 4.92E-8)	n/a	4.08E-08	5.20E-08

Ambient Dose Equivalent (H(10)) to Organ Dose Equivalent (H_T) (cSv/cSv)*

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	2.038 (0.667-2.116)	1.536 (0.511-1.594)	1.275 (0.394-1.333)	0.860 (0.311-0.893)	0.311	2.116
10 - 100 keV	0.997 (0.640-1.856)	0.753 (0.481-1.410)	0.631 (0.408-1.181)	0.452 (0.299-0.795)	0.299	1.856
0.1 - 2.0 Mev	0.664 (0.508-0.884)	0.421 (0.314-0.607)	0.391 (0.291-0.562)	0.268 (0.182-0.404)	0.182	0.884
2.0 - 20.0 Mev	1.047 (0.816-1.231)	0.873 (0.607-1.008)	0.806 (0.562-0.941)	0.644 (0.404-0.723)	0.404	1.231
> 20.0 Mev	1.442 (0.816-1.809)	1.532 (0.735-2.082)	1.516 (0.680-1.970)	n/a	0.680	2.082

Deep Dose Equivalent H_{p,slab}(10) to Organ Dose Equivalent (H_T) (cSv/cSv)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.778 (0.598-1.815)	1.349 (0.427-1.370)	1.121 (0.356-1.139)	0.754 (0.281-0.767)	0.281	1.815
10 - 100 keV	0.983 (0.621-1.740)	0.743 (0.467-1.322)	0.623 (0.397-1.107)	0.447 (0.290-0.746)	0.290	1.740
0.1 - 2.0 Mev	0.641 (0.481-0.840)	0.407 (0.301-0.577)	0.381 (0.276-0.534)	0.259 (0.175-0.384)	0.175	0.840
2.0 - 20.0 Mev	0.990 (0.816-1.157)	0.825 (0.577-0.935)	0.761 (0.534-0.870)	0.609 (0.384-0.669)	0.384	1.157
> 20.0 Mev	n/a	n/a	n/a	n/a	n/a	n/a

Organ: Remainder Organs

Neutron Exposures

Fluence (f) to Organ Dose Equivalent (H_T) (cSv cm²)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.285E-09 (4.00E-10 - 1.50E-9)	1.345E-09 (4.25E-10 - 1.57E-9)	9.441E-10 (2.85E-10 - 1.10E-9)	6.383E-10 (2.20E-10 - 7.47E-10)	2.20E-10	1.57E-09
10 - 100 keV	3.355E-09 (1.50E-9 - 4.97E-9)	3.799E-09 (1.57E-9 - 5.58E-9)	2.414E-09 (1.10E-9 - 3.53E-9)	1.911E-09 (7.47E-10 - 2.76E-9)	7.47E-10	5.58E-09
0.1 - 2.0 Mev	2.057E-08 (4.97E-9 - 3.09E-8)	2.272E-08 (5.58E-9 - 3.40E-8)	1.622E-08 (3.53E-9 - 2.53E-8)	1.189E-08 (2.76E-9 - 1.92E-8)	2.76E-09	3.40E-08
2.0 - 20.0 Mev	4.422E-08 (3.09E-8 - 4.64E-8)	4.633E-08 (3.40E-8 - 4.79E-8)	3.875E-08 (2.53E-8 - 4.10E-8)	3.273E-08 (1.92E-8 - 3.65E-8)	1.92E-08	4.79E-08
> 20.0 Mev	4.906E-08 (4.63E-8 - 5.20E-8)	4.916E-08 (4.61E-8 - 5.41E-8)	4.797E-08 (4.10E-8 - 5.61E-8)	n/a	4.10E-08	5.61E-08

Ambient Dose Equivalent (H(10)) to Organ Dose Equivalent (H_T) (cSv/cSv)*

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.524 (0.556-1.587)	1.595 (0.599-1.656)	1.120 (0.400-1.168)	0.756 (0.316-0.783)	0.316	1.656
10 - 100 keV	0.830 (0.565-1.428)	0.905 (0.634-1.494)	0.600 (0.401-1.048)	0.439 (0.314-0.711)	0.314	1.494
0.1 - 2.0 Mev	0.540 (0.426-0.735)	0.595 (0.470-0.809)	0.422 (0.309-0.603)	0.314 (0.241-0.458)	0.241	0.809
2.0 - 20.0 Mev	0.942 (0.735-1.096)	0.990 (0.785-1.157)	0.824 (0.603-0.960)	0.692 (0.458-0.784)	0.458	1.157
> 20.0 Mev	1.620 (0.773-2.092)	1.627 (0.785-2.163)	1.604 (0.684-2.243)	n/a	0.684	2.243

Deep Dose Equivalent H_{p,slab}(10) to Organ Dose Equivalent (H_T) (cSv/cSv)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.331 (0.488-1.356)	1.397 (0.519-1.415)	0.982 (0.348-0.998)	0.666 (0.269-0.669)	0.269	1.415
10 - 100 keV	0.819 (0.549-1.339)	0.895 (0.616-1.401)	0.592 (0.389-0.983)	0.435 (0.305-0.667)	0.305	1.401
0.1 - 2.0 Mev	0.525 (0.407-0.698)	0.577 (0.452-0.769)	0.409 (0.292-0.573)	0.301 (0.230-0.435)	0.230	0.769
2.0 - 20.0 Mev	0.889 (0.698-1.021)	0.934 (0.769-1.094)	0.778 (0.573-0.892)	0.655 (0.435-0.733)	0.435	1.094
> 20.0 Mev	n/a	n/a	n/a	n/a	n/a	n/a

Organ: Skin

Neutron Exposures

Fluence (f) to Organ Dose Equivalent (H_T) (cSv cm²)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	9.326E-10 (6.75E-10 - 1.23E-9)	9.267E-10 (6.50E-10 - 1.22E-9)	7.056E-10 (5.00E-10 - 9.49E-10)	5.190E-10 (3.95E-10 - 6.96E-10)	3.95E-10	1.23E-09
10 - 100 keV	4.398E-09 (1.23E-9 - 7.57E-9)	4.382E-09 (1.22E-9 - 7.54E-9)	3.671E-09 (9.49E-10 - 6.40E-9)	3.376E-09 (6.96E-10 - 6.00E-9)	6.96E-10	7.57E-09
0.1 - 2.0 MeV	3.294E-08 (7.57E-9 - 4.14E-8)	3.282E-08 (7.54E-9 - 4.14E-8)	3.012E-08 (6.40E-9 - 3.85E-8)	2.776E-08 (6.00E-9 - 3.59E-8)	6.00E-09	4.14E-08
2.0 - 20.0 MeV	4.545E-08 (4.14E-8 - 4.75E-8)	4.543E-08 (4.14E-8 - 4.75E-8)	4.270E-08 (3.85E-8 - 4.43E-8)	3.936E-08 (3.59E-8 - 4.09E-8)	3.59E-08	4.75E-08
> 20.0 MeV	2.985E-08 (2.67E-8 - 4.33E-8)	2.977E-08 (2.66E-8 - 4.33E-8)	3.023E-08 (2.75E-8 - 4.11E-8)	n/a	2.66E-08	4.33E-08

Ambient Dose Equivalent (H(10)) to Organ Dose Equivalent (H_T) (cSv/cSv)*

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.091 (0.596-1.169)	1.086 (0.585-1.163)	0.830 (0.441-0.904)	0.610 (0.322-0.663)	0.322	1.169
10 - 100 keV	0.989 (0.860-1.169)	0.986 (0.857-1.163)	0.816 (0.727-0.913)	0.714 (0.663-0.753)	0.663	1.169
0.1 - 2.0 MeV	0.879 (0.817-0.987)	0.876 (0.815-0.987)	0.801 (0.710-0.917)	0.738 (0.661-0.855)	0.661	0.987
2.0 - 20.0 MeV	0.982 (0.722-1.127)	0.981 (0.722-1.127)	0.925 (0.685-1.067)	0.840 (0.665-0.966)	0.665	1.127
> 20.0 MeV	0.961 (0.722-1.328)	0.958 (0.722-1.330)	0.980 (0.674-1.370)	n/a	0.674	1.370

Deep Dose Equivalent H_{p,slab}(10) to Organ Dose Equivalent (H_T) (cSv/cSv)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	0.955 (0.592-1.096)	0.957 (0.585-1.090)	0.729 (0.437-0.847)	0.538 (0.313-0.621)	0.313	1.096
10 - 100 keV	0.986 (0.836-1.117)	0.982 (0.832-1.117)	0.814 (0.706-0.887)	0.714 (0.621-0.765)	0.621	1.117
0.1 - 2.0 MeV	0.853 (0.773-0.938)	0.850 (0.770-0.938)	0.776 (0.674-0.871)	0.713 (0.625-0.812)	0.625	0.938
2.0 - 20.0 MeV	0.918 (0.722-1.052)	0.917 (0.722-1.050)	0.863 (0.685-1.003)	0.794 (0.665-0.922)	0.665	1.052
> 20.0 MeV	n/a	n/a	n/a	n/a	n/a	n/a

Organ: Stomach

Neutron Exposures

Fluence (f) to Organ Dose Equivalent (H_T) (cSv cm²)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	2.162E-09 (6.15E-10 - 2.45E-9)	9.786E-10 (2.50E-10 - 1.12E-9)	9.915E-10 (2.95E-10 - 1.13E-9)	7.128E-10 (2.25E-10 - 8.16E-10)	2.25E-10	2.45E-09
10 - 100 keV	4.904E-09 (2.45E-9 - 6.93E-9)	2.302E-09 (1.12E-9 - 3.18E-9)	2.401E-09 (1.13E-9 - 3.42E-9)	1.771E-09 (8.16E-10 - 2.58E-9)	8.16E-10	6.93E-09
0.1 - 2.0 Mev	3.238E-08 (6.93E-9 - 4.58E-8)	8.968E-09 (3.18E-9 - 1.53E-8)	1.387E-08 (3.42E-9 - 2.13E-8)	1.008E-08 (2.58E-9 - 1.63E-8)	2.58E-09	4.58E-08
2.0 - 20.0 Mev	5.432E-08 (4.58E-8 - 5.58E-8)	3.416E-08 (1.53E-8 - 3.96E-8)	3.537E-08 (2.13E-8 - 3.95E-8)	2.935E-08 (1.63E-8 - 3.35E-8)	1.53E-08	5.58E-08
> 20.0 Mev	4.531E-08 (4.09E-8 - 5.30E-8)	5.196E-08 (3.96E-8 - 6.32E-8)	4.673E-08 (3.95E-8 - 5.81E-8)	n/a	3.95E-08	6.32E-08

Ambient Dose Equivalent (H(10)) to Organ Dose Equivalent (H_T) (cSv/cSv)*

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	2.567 (0.889-2.679)	1.161 (0.356-1.209)	1.176 (0.406-1.216)	0.844 (0.316-0.872)	0.316	2.679
10 - 100 keV	1.244 (0.787-2.332)	0.579 (0.361-1.066)	0.593 (0.388-1.079)	0.441 (0.293-0.777)	0.293	2.332
0.1 - 2.0 Mev	0.858 (0.675-1.090)	0.236 (0.171-0.364)	0.365 (0.277-0.508)	0.266 (0.192-0.388)	0.171	1.090
2.0 - 20.0 Mev	1.160 (0.883-1.387)	0.721 (0.364-0.830)	0.748 (0.508-0.849)	0.618 (0.388-0.694)	0.364	1.387
> 20.0 Mev	1.458 (0.883-1.726)	1.752 (0.660-2.526)	1.570 (0.659-2.324)	n/a	0.659	2.526

Deep Dose Equivalent H_{p,slab}(10) to Organ Dose Equivalent (H_T) (cSv/cSv)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	2.244 (0.751-2.295)	1.016 (0.305-1.033)	1.028 (0.360-1.042)	0.738 (0.275-0.750)	0.275	2.295
10 - 100 keV	1.221 (0.765-2.186)	0.571 (0.351-1.000)	0.584 (0.377-1.011)	0.437 (0.285-0.729)	0.285	2.186
0.1 - 2.0 Mev	0.824 (0.639-1.036)	0.226 (0.166-0.351)	0.351 (0.263-0.483)	0.256 (0.185-0.369)	0.166	1.036
2.0 - 20.0 Mev	1.099 (0.883-1.312)	0.682 (0.346-0.760)	0.707 (0.483-0.782)	0.584 (0.369-0.641)	0.346	1.312
> 20.0 Mev	n/a	n/a	n/a	n/a	n/a	n/a

Organ: Thyroid

Neutron Exposures

Fluence (f) to Organ Dose Equivalent (H_T) (cSv cm²)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.526E-09 (7.05E-10 - 1.80E-9)	5.344E-10 (1.45E-10 - 6.07E-10)	8.223E-10 (3.70E-10 - 9.62E-10)	5.675E-10 (2.95E-10 - 6.58E-10)	1.45E-10	1.80E-09
10 - 100 keV	4.581E-09 (1.80E-9 - 7.51E-9)	1.037E-09 (6.07E-10 - 1.62E-9)	2.402E-09 (9.62E-10 - 3.77E-9)	1.707E-09 (6.58E-10 - 2.55E-9)	6.07E-10	7.51E-09
0.1 - 2.0 MeV	4.256E-08 (7.51E-9 - 5.57E-8)	5.291E-09 (1.62E-9 - 9.83E-9)	2.195E-08 (3.77E-9 - 3.24E-8)	1.219E-08 (2.55E-9 - 1.82E-8)	1.62E-09	5.57E-08
2.0 - 20.0 MeV	5.520E-08 (5.18E-8 - 5.72E-8)	2.543E-08 (9.83E-9 - 3.14E-8)	4.384E-08 (3.24E-8 - 4.59E-8)	3.257E-08 (1.82E-8 - 4.07E-8)	9.83E-09	5.72E-08
> 20.0 MeV	3.787E-08 (3.18E-8 - 5.18E-8)	5.471E-08 (3.14E-8 - 6.72E-8)	4.625E-08 (4.56E-8 - 4.66E-8)	n/a	3.14E-08	6.72E-08

Ambient Dose Equivalent (H(10)) to Organ Dose Equivalent (H_T) (cSv/cSv)*

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.803 (0.919-1.882)	0.623 (0.193-0.660)	0.964 (0.425-1.010)	0.674 (0.298-0.694)	0.193	1.882
10 - 100 keV	1.079 (0.853-1.717)	0.311 (0.184-0.578)	0.579 (0.428-0.916)	0.398 (0.290-0.627)	0.184	1.717
0.1 - 2.0 MeV	1.125 (0.848-1.325)	0.144 (0.092-0.234)	0.567 (0.400-0.772)	0.320 (0.248-0.434)	0.092	1.325
2.0 - 20.0 MeV	1.186 (0.864-1.418)	0.533 (0.234-0.611)	0.934 (0.765-1.081)	0.682 (0.434-0.729)	0.234	1.418
> 20.0 MeV	1.199 (0.864-1.351)	1.864 (0.524-2.688)	1.515 (0.765-1.881)	n/a	0.524	2.688

Deep Dose Equivalent H_{p,slab}(10) to Organ Dose Equivalent (H_T) (cSv/cSv)

Neutron Energy	DCF _{AP}	DCF _{PA}	DCF _{ROT}	DCF _{ISO}	DCF _{Min}	DCF _{Max}
<10 keV	1.579 (0.861-1.610)	0.554 (0.177-0.568)	0.856 (0.395-0.863)	0.588 (0.303-0.595)	0.177	1.610
10 - 100 keV	1.066 (0.829-1.610)	0.302 (0.179-0.542)	0.571 (0.416-0.859)	0.391 (0.281-0.587)	0.179	1.610
0.1 - 2.0 MeV	1.086 (0.805-1.259)	0.132 (0.089-0.222)	0.552 (0.378-0.734)	0.309 (0.235-0.412)	0.089	1.259
2.0 - 20.0 MeV	1.123 (0.864-1.355)	0.504 (0.222-0.561)	0.881 (0.734-1.013)	0.644 (0.412-0.692)	0.222	1.355
> 20.0 MeV	n/a	n/a	n/a	n/a	n/a	n/a

APPENDIX C - IREP-EXCEL INPUT FORMAT

PERSONAL INFORMATION								
<u>Claimant Name</u>	<u>Claim #</u>	<u>Claimant SSN</u>	<u>DOL Claim Center</u>	<u>Gender</u>	<u>Birth Year</u>	<u>Year of Diagnosis</u>	<u>Cancer Model</u>	<u>Should alt model be run?</u>
John Q. Doe	000001-DE	123-45-6789	Denver CO	Male	1942	2002	Oral Cavity and Pharynx	No

CLAIMANT CANCER DIAGNOSES						
	<u>Primary Cancer #1</u>	<u>Primary Cancer #2</u>	<u>Primary Cancer #3</u>	<u>Secondary Cancer #1</u>	<u>Secondary Cancer #2</u>	<u>Secondary Cancer #3</u>
<u>Cancer Type</u>	N/A	N/A	N/A	N/A	N/A	N/A
<u>Date of Daignosis</u>	N/A	N/A	N/A	N/A	N/A	N/A

EXPOSURE INFORMATION							
<u>Number of exposures</u>							
1							
<u>Exposure #</u>	<u>Exposure Year</u>	<u>Exposure Rate</u>	<u>Radiation Type</u>	<u>Dose Distribution Type</u>	<u>Parameter 1</u>	<u>Parameter 2</u>	<u>Parameter 3</u>
1	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
2	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
3	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
4	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
5	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
6	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
7	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
8	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
9	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
10	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
11	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
12	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
13	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
14	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
15	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
16	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
17	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
18	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
19	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
20	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
21	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
22	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
23	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
24	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
25	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
26	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
27	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
28	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
29	1982	chronic	electrons	Lognormal	2.000	2.000	0.000
30	1982	chronic	electrons	Lognormal	2.000	2.000	0.000