APPENDIX E TO PART 61—COMPLIANCE PROCEDURES METHODS FOR DETERMINING COMPLIANCE WITH SUBPART I

1. Purpose and Background

This Appendix provides simplified procedures to reduce the burden on Nuclear Regulatory Commission (NRC) licensees, and non-Department of Energy Federal facilities in determining compliance with 40 CFR part 61, subpart I. The procedures consist of a series of increasingly more stringent steps, depending on the facility's potential to exceed the standard.

First, a facility can be found in compliance if the quantity of radioactive material possessed during the year is less than that listed in a table of annual possession quantities. A facility will also be in compliance if the average annual radionuclide emission concentration is less than that listed in a table of air concentration levels. If the facility is not in compliance by these tables, it can establish compliance by estimating a dose using screening procedure developed by the National Council on Radiation Protection and Measurements with a radiological source term derived using EPA approved emission factors. These procedures are described in a ''Guide for Determining Compliance with the Clean Air Act Standards for Radionuclide Emissions From NRC-Licenced and Non-DOE Federal Facilities.''

A user-friendly computer program called COMPLY has been developed to reduce the burden on the regulated community. The Agency has also prepared a ''User's Guide for the COMPLY Code'' to assist the regulated community in using the code, and in handling more complex situations such as multiple release points. The basis for these compliance procedures are provided in ''Background Information Document: Procedures Approved for Demonstrating Compliance with 40 CFR Part 61, Subpart I''. The compliance model is the highest level in the COMPLY computer code and provides for the most realistic assessment of dose by allowing the use of site-specific information.

2. Table of Annual Possession Quantity

(a) Table 1 may be used for determining if facilities are in compliance with the standard. The possession table can only be used if the following conditions are met:

(i) No person lives within 10 meters of any release point; and

(ii) No milk, meat, or vegetables are produced within 100 meters of any release point.

(b) Procedures described in Reference (1) shall be used to determine compliance or exemption from reporting by use of Table 2.

TABLE 1—ANNUAL POSSESSION QUANTITIES FOR ENVIRONMENTAL COMPLIANCE

[Annual Possession Quantities (Ci/yr)]

Radionuclide	Gaseous form*	Liquid/ powder forms	Solid form*
Ac-225	9.6E·05	9.6E·02	9.6E+01
Ac-227	1.6E·07	1.6E·04	1.6E·01
Ac-228	3.4E·03	3.4E+00	3.4E+03
Ag-106	1.6E+00	1.6E+03	1.6E+06
Ag-106m	2.6E·03	2.6E+00	2.6E+03

TABLE 1—ANNUAL POSSESSION QUANTITIES FOR ENVIRONMENTAL COMPLIANCE—Continued

[Annual Possession Quantities (Ci/yr)]

Radionuclide	Gaseous form*	Liquid/ powder forms	Solid form*
Ag-108m	6.5E·06	6.5E·03	6.5E+00
Ag-110m	9.4E·05	9.4E·02	9.4E+01
Ag-111	6.7E·02	6.7E+01	6.7E+04
Al-26	4.0E·06	4.0E·03	4.0E+00
Am-241	2.3E·06	2.3E·03	2.3E+00
Am-242	1.8E·02	1.8E+01	1.8E+04
Am-242m	2.5E·06	2.5E·03	2.5E+00
Am-243	2.3E·06	2.3E·03	2.3E+00
Am-244	4.6E·02	4.6E+01	4.6E+04
Am-245	7.0E+00	7.0E+03	7.0E+06
Am-246	9.8E·01	9.8E+02	9.8E+05
Ar-37	1.4E+06	.....	.....
Ar-41	1.4E+00	.....	.....
As-72	2.9E·02	2.9E+01	2.9E+04
As-73	6.0E·02	6.0E+01	6.0E+04
As-74	4.3E·03	4.3E+00	4.3E+03
As-76	8.8E·02	8.8E+01	8.8E+04
As-77	7.9E·01	7.9E+02	7.9E+05
At-211	1.0E·02	1.0E+01	1.0E+04
Au-193	4.2E·01	4.2E+02	4.2E+05
Au-194	3.5E·02	3.5E+01	3.5E+04
Au-195	3.3E·03	3.3E+00	3.3E+03
Au-198	4.6E·02	4.6E+01	4.6E+04
Au-199	1.5E·01	1.5E+02	1.5E+05
Ba-131	1.0E·02	1.0E+01	1.0E+04
Ba-133	4.9E·05	4.9E·02	4.9E+01
Ba-133m	9.3E·02	9.3E+01	9.3E+04
Ba-135m	5.8E·01	5.8E+02	5.8E+05
Ba-139	4.7E+00	4.7E+03	4.7E+06
Ba-140	2.1E·03	2.1E+00	2.1E+03
Ba-141	1.3E+00	1.3E+03	1.3E+06
Ba-142	1.1E+00	1.1E+03	1.1E+06
Be-7	2.3E·02	2.3E+01	2.3E+04
Be-10	3.0E·03	3.0E+00	3.0E+03
Bi-206	3.1E·03	3.1E+00	3.1E+03
Bi-207	8.4E·06	8.4E·03	8.4E+00
Bi-210	4.2E·03	4.2E+00	4.2E+03
Bi-212	4.7E·02	4.7E+01	4.7E+04
Bi-213	6.0E·02	6.0E+01	6.0E+04
Bi-214	1.4E·01	1.4E+02	1.4E+05
Bk-249	7.0E·04	7.0E·01	7.0E+02
Bk-250	1.0E·01	1.0E+02	1.0E+05
Br-77	7.5E·02	7.5E+01	7.5E+04
Br-80	1.2E+01	1.2E+04	1.2E+07
Br-80m	1.5E+00	1.5E+03	1.5E+06
Br-82	1.6E·02	1.6E+01	1.6E+04
Br-83	9.9E+00	9.9E+03	9.9E+06
Br-84	5.6E·01	5.6E+02	5.6E+05
C-11	1.3E+00	1.3E+03	1.3E+06
C-14	2.9E·01	2.9E+02	2.9E+05
Ca-41	2.7E·02	2.7E+01	2.7E+04
Ca-45	5.8E·02	5.8E+01	5.8E+04
Ca-47	1.1E·02	1.1E+01	1.1E+04
Cd-109	5.0E·03	5.0E+00	5.0E+03
Cd-113	3.3E·04	3.3E·01	3.3E+02
Cd-113m	4.4E·04	4.4E·01	4.4E+02
Cd-115	5.4E·02	5.4E+01	5.4E+04
Cd-115m	1.0E·02	1.0E+01	1.0E+04
Cd-117	5.6E·02	5.6E+01	5.6E+04
Cd-117m	1.3E·01	1.3E+02	1.3E+05
Ce-139	2.6E·03	2.6E+00	2.6E+03
Ce-141	1.8E·02	1.8E+01	1.8E+04
Ce-143	1.0E·01	1.0E+02	1.0E+05
Ce-144	1.7E·03	1.7E+00	1.7E+03
Cf-248	2.0E·05	2.0E·02	2.0E+01
Cf-249	1.7E·06	1.7E·03	1.7E+00
Cf-250	4.0E·06	4.0E·03	4.0E+00
Cf-251	1.7E·06	1.7E·03	1.7E+00

TABLE 1—ANNUAL POSSESSION QUANTITIES FOR ENVIRONMENTAL COMPLIANCE—Continued

[Annual Possession Quantities (Ci/yr)]

Radionuclide	Gaseous form*	Liquid/ powder forms	Solid form*
Cf-252	6.4E·06	6.4E·03	6.4E+00
Cf-253	3.3E·04	3.3E·01	3.3E+02
Cf-254	3.6E·06	3.6E·03	3.6E+00
Cl-36	1.9E·04	1.9E·01	1.9E+02
Cl-38	6.5E·01	6.5E+02	6.5E+05
Cm-242	6.0E·05	6.0E·02	6.0E+01
Cm-243	3.3E·06	3.3E·03	3.3E+00
Cm-244	4.2E·06	4.2E·03	4.2E+00
Cm-245	2.3E·06	2.3E·03	2.3E+00
Cm-246	2.3E·06	2.3E·03	2.3E+00
Cm-247	2.3E·06	2.3E·03	2.3E+00
Cm-248	6.4E·07	6.4E·04	6.4E·01
Cm-249	4.6E+00	4.6E+03	4.6E+06
Cm-250	1.1E·07	1.1E·04	1.1E·01
Co-56	2.4E·04	2.4E·01	2.4E+02
Co-57	1.6E·03	1.6E+00	1.6E+03
Co-58	9.0E·04	9.0E·01	9.0E+02
Co-58m	1.7E·01	1.7E+02	1.7E+05
Co-60	1.6E·05	1.6E·02	1.6E+01
Co-60m	4.0E+00	4.0E+03	4.0E+06
Co-61	3.8E+00	3.8E+03	3.8E+06
Cr-49	9.0E·01	9.0E+02	9.0E+05
Cr-51	6.3E·02	6.3E+01	6.3E+04
Cs-129	1.5E·01	1.5E+02	1.5E+05
Cs-131	2.8E·01	2.8E+02	2.8E+05
Cs-132	1.3E·02	1.3E+01	1.3E+04
Cs-134	5.2E·05	5.2E·02	5.2E+01
Cs-134m	3.2E·01	3.2E+02	3.2E+05
Cs-135	2.4E·02	2.4E+01	2.4E+04
Cs-136	2.1E·03	2.1E+00	2.1E+03
Cs-137	2.3E·05	2.3E·02	2.3E+01
Cs-138	4.4E·01	4.4E+02	4.4E+05
Cu-61	4.0E·01	4.0E+02	4.0E+05
Cu-64	5.2E·01	5.2E+02	5.2E+05
Cu-67	1.5E·01	1.5E+02	1.5E+05
Dy-157	4.4E·01	4.4E+02	4.4E+05
Dy-165	5.6E+00	5.6E+03	5.6E+06
Dy-166	8.1E·02	8.1E+01	8.1E+04
Er-169	4.0E·01	4.0E+02	4.0E+05
Er-171	3.6E·01	3.6E+02	3.6E+05
Es-253	2.6E·04	2.6E·01	2.6E+02
Es-254	2.3E·05	2.3E·02	2.3E+01
Es-254m	1.8E·03	1.8E+00	1.8E+03
Eu-152	1.6E·05	1.6E·02	1.6E+01
Eu-152m	3.5E·01	3.5E+02	3.5E+05
Eu-154	2.0E·05	2.0E·02	2.0E+01
Eu-155	5.2E·04	5.2E·01	5.2E+02
Eu-156	3.2E·03	3.2E+00	3.2E+03
F-18	5.6E·01	5.6E+02	5.6E+05
Fe-52	4.9E·02	4.9E+01	4.9E+04
Fe-55	1.4E·01	1.4E+02	1.4E+05
Fe-59	1.3E·03	1.3E+00	1.3E+03
Fm-254	1.8E·02	1.8E+01	1.8E+04
Fm-255	4.0E·03	4.0E+00	4.0E+03
Fr-223	1.4E·01	1.4E+02	1.4E+05
Ga-66	5.6E·02	5.6E+01	5.6E+04
Ga-67	1.1E·01	1.1E+02	1.1E+05
Ga-68	7.6E·01	7.6E+02	7.6E+05
Ga-72	3.6E·02	3.6E+01	3.6E+04
Gd-152	4.4E·06	4.4E·03	4.4E+00
Gd-153	2.0E·03	2.0E+00	2.0E+03
Gd-159	6.8E·01	6.8E+02	6.8E+05
Ge-68	2.3E·04	2.3E·01	2.3E+02
Ge-71	2.6E+00	2.6E+03	2.6E+06
Ge-77	1.0E·01	1.0E+02	1.0E+05
H-3	1.5E+01	1.5E+04	1.5E+07
Hf-181	2.5E·03	2.5E+00	2.5E+03
Hg-193m	9.5E·02	9.5E+01	9.5E+04

TABLE 1—ANNUAL POSSESSION QUANTITIES FOR ENVIRONMENTAL COMPLIANCE—Continued

[Annual Possession Quantities (Ci/yr)]

Radionuclide	Gaseous form*	Liquid/ powder forms	Solid form*
Hg-197	2.4E·01	2.4E+02	2.4E+05
Hg-197m	2.5E·01	2.5E+02	2.5E+05
Hg-203	5.2E·03	5.2E+00	5.2E+03
Ho-166	2.8E·01	2.8E+02	2.8E+05
Ho-166m	6.0E·06	6.0E·03	6.0E+00
I-123	4.9E·01	4.9E+02	4.9E+05
I-124	9.3E·03	9.3E+00	9.3E+03
I-125	6.2E·03	6.2E+00	6.2E+03
I-126	3.7E·03	3.7E+00	3.7E+03
I-128	9.3E+00	9.3E+03	9.3E+06
I-129	2.6E·04	2.6E·01	2.6E+02
I-130	4.6E·02	4.6E+01	4.6E+04
I-131	6.7E·03	6.7E+00	6.7E+03
I-132	2.0E·01	2.0E+02	2.0E+05
I-133	6.7E·02	6.7E+01	6.7E+04
I-134	3.2E·01	3.2E+02	3.2E+05
I-135	1.2E·01	1.2E+02	1.2E+05
In-111	4.9E·02	4.9E+01	4.9E+04
In-113m	2.1E+00	2.1E+03	2.1E+06
In-114m	4.9E·03	4.9E+00	4.9E+03
In-115	2.7E·04	2.7E·01	2.7E+02
In-115m	1.4E+00	1.4E+03	1.4E+06
In-116m	3.5E·01	3.5E+02	3.5E+05
In-117	1.3E+00	1.3E+03	1.3E+06
In-117m	7.6E·02	7.6E+01	7.6E+04
Ir-190	3.5E·03	3.5E+00	3.5E+03
Ir-192	9.7E·04	9.7E·01	9.7E+02
Ir-194	2.5E·01	2.5E+02	2.5E+05
Ir-194m	1.5E·04	1.5E·01	1.5E+02
K-40	6.8E·05	6.8E·02	6.8E+01
K-42	2.9E·01	2.9E+02	2.9E+05
K-43	6.0E·02	6.0E+01	6.0E+04
K-44	4.9E·01	4.9E+02	4.9E+05
Kr-79	7.0E+00	.....	.....
Kr-81	1.8E+02	.....	.....
Kr-83m	2.0E+04	.....	.....
Kr-85	8.4E+02	.....	.....
Kr-85m	1.1E+01	.....	.....
Kr-87	2.0E+00	.....	.....
Kr-88	4.2E·01	.....	.....
La-140	1.6E·02	1.6E+01	1.6E+04
La-141	1.1E+00	1.1E+03	1.1E+06
La-142	2.3E·01	2.3E+02	2.3E+05
Lu-177	1.4E·01	1.4E+02	1.4E+05
Lu-177m	3.5E·04	3.5E·01	3.5E+02
Mg-28	2.1E·02	2.1E+01	2.1E+04
Mn-52	3.5E·03	3.5E+00	3.5E+03
Mn-52m	5.2E·01	5.2E+02	5.2E+05
Mn-53	5.7E·02	5.7E+01	5.7E+04
Mn-54	2.5E·04	2.5E·01	2.5E+02
Mn-56	2.5E·01	2.5E+02	2.5E+05
Mo-93	1.5E·03	1.5E+00	1.5E+03
Mo-99**	5.7E·02	5.7E+01	5.7E+04
Mo-101	8.4E·01	8.4E+02	8.4E+05
Na-22	3.2E·05	3.2E·02	3.2E+01
Na-24	2.6E·02	2.6E+01	2.6E+04
Nb-90	2.5E·02	2.5E+01	2.5E+04
Nb-93m	1.2E·02	1.2E+01	1.2E+04
Nb-94	6.0E·06	6.0E·03	6.0E+00
Nb-95	2.3E·03	2.3E+00	2.3E+03
Nb-95m	2.0E·02	2.0E+01	2.0E+04
Nb-96	2.5E·02	2.5E+01	2.5E+04
Nb-97	1.0E+00	1.0E+03	1.0E+06
Nd-147	3.0E·02	3.0E+01	3.0E+04
Nd-149	1.1E+00	1.1E+03	1.1E+06
Ni-56	2.0E·03	2.0E+00	2.0E+03
Ni-57	2.1E·02	2.1E+01	2.1E+04
Ni-59	2.2E·02	2.2E+01	2.2E+04

TABLE 1—ANNUAL POSSESSION QUANTITIES FOR ENVIRONMENTAL COMPLIANCE—Continued

[Annual Possession Quantities (Ci/yr)]

Radionuclide	Gaseous form*	Liquid/ powder forms	Solid form*
Ni-63	1.4E·01	1.4E+02	1.4E+05
Ni-65	7.0E·01	7.0E+02	7.0E+05
Np-235	3.0E·02	3.0E+01	3.0E+04
Np-237	1.8E·06	1.8E·03	1.8E+00
Np-238	1.9E·02	1.9E+01	1.9E+04
Np-239	1.0E·01	1.0E+02	1.0E+05
Np-240	6.5E·01	6.5E+02	6.5E+05
Np-240m	4.7E+00	4.7E+03	4.7E+06
Os-185	9.2E·04	9.2E·01	9.2E+02
Os-191m	9.0E·01	9.0E+02	9.0E+05
Os-191	3.8E·02	3.8E+01	3.8E+04
Os-193	2.9E·01	2.9E+02	2.9E+05
P-32	1.7E·02	1.7E+01	1.7E+04
P-33	1.2E·01	1.2E+02	1.2E+05
Pa-230	6.3E·04	6.3E·01	6.3E+02
Pa-231	8.3E·07	8.3E·04	8.3E·01
Pa-233	9.3E·03	9.3E+00	9.3E+03
Pa-234	9.3E·02	9.3E+01	9.3E+04
Pb-203	8.3E·02	8.3E+01	8.3E+04
Pb-205	1.2E·02	1.2E+01	1.2E+04
Pb-209	1.1E+01	1.1E+04	1.1E+07
Pb-210	5.5E·05	5.5E·02	5.5E+01
Pb-211	1.2E·01	1.2E+02	1.2E+05
Pb-212	6.0E·03	6.0E+00	6.0E+03
Pb-214	1.2E·01	1.2E+02	1.2E+05
Pd-103	2.1E·01	2.1E+02	2.1E+05
Pd-107	8.2E·02	8.2E+01	8.2E+04
Pd-109	9.4E·01	9.4E+02	9.4E+05
Pm-143	7.6E·04	7.6E·01	7.6E+02
Pm-144	1.1E·04	1.1E·01	1.1E+02
Pm-145	5.2E·04	5.2E·01	5.2E+02
Pm-146	4.4E·05	4.4E·02	4.4E+01
Pm-147	2.6E·02	2.6E+01	2.6E+04
Pm-148	1.7E·02	1.7E+01	1.7E+04
Pm-148m	7.6E·04	7.6E·01	7.6E+02
Pm-149	2.8E·01	2.8E+02	2.8E+05
Pm-151	1.2E·01	1.2E+02	1.2E+05
Po-210	9.3E·05	9.3E·02	9.3E+01
Pr-142	2.8E·01	2.8E+02	2.8E+05
Pr-143	1.0E·01	1.0E+02	1.0E+05
Pr-144	1.5E+01	1.5E+04	1.5E+07
Pt-191	6.4E·02	6.4E+01	6.4E+04
Pt-193	2.1E·02	2.1E+01	2.1E+04
Pt-193m	4.8E·01	4.8E+02	4.8E+05
Pt-195m	1.4E·01	1.4E+02	1.4E+05
Pt-197	1.1E+00	1.1E+03	1.1E+06
Pt-197m	3.6E+00	3.6E+03	3.6E+06
Pu-236	7.0E·06	7.0E·03	7.0E+00
Pu-237	2.3E·02	2.3E+01	2.3E+04
Pu-238	2.7E·06	2.7E·03	2.7E+00
Pu-239	2.5E·06	2.5E·03	2.5E+00
Pu-240	2.5E·06	2.5E·03	2.5E+00
Pu-241	1.3E·04	1.3E·01	1.3E+02
Pu-242	2.5E·06	2.5E·03	2.5E+00
Pu-243	3.8E+00	3.8E+03	3.8E+06
Pu-244	2.4E·06	2.4E·03	2.4E+00
Pu-245	2.1E·01	2.1E+02	2.1E+05
Pu-246	4.8E·03	4.8E+00	4.8E+03
Ra-223	1.3E·04	1.3E·01	1.3E+02
Ra-224	3.2E·04	3.2E·01	3.2E+02
Ra-225	1.3E·04	1.3E·01	1.3E+02
Ra-226	5.5E·06	5.5E·03	5.5E+00
Ra-228	1.3E·05	1.3E·02	1.3E+01
Rb-81	4.2E·01	4.2E+02	4.2E+05
Rb-83	1.4E·03	1.4E+00	1.4E+03
Rb-84	2.0E·03	2.0E+00	2.0E+03
Rb-86	1.7E·02	1.7E+01	1.7E+04
Rb-87	1.0E·02	1.0E+01	1.0E+04

TABLE 1—ANNUAL POSSESSION QUANTITIES FOR ENVIRONMENTAL COMPLIANCE—Continued

[Annual Possession Quantities (Ci/yr)]

Radionuclide	Gaseous form*	Liquid/ powder forms	Solid form*
Rb-88	1.7E+00	1.7E+03	1.7E+06
Rb-89	6.4E·01	6.4E+02	6.4E+05
Re·184	1.8E·03	1.8E+00	1.8E+03
Re-184m	3.6E·04	3.6E·01	3.6E+02
Re-186	1.9E·01	1.9E+02	1.9E+05
Re-187	9.3E+00	9.3E+03	9.3E+06
Re-188	3.7E·01	3.7E+02	3.7E+05
Rh-103m	1.7E+02	1.7E+05	1.7E+08
Rh-105	3.4E·01	3.4E+02	3.4E+05
Ru-97	8.3E·02	8.3E+01	8.3E+04
Ru-103	3.1E·03	3.1E+00	3.1E+03
Ru-105	2.9E·01	2.9E+02	2.9E+05
Ru-106	5.9E·04	5.9E·01	5.9E+02
S-35	7.5E·02	7.5E+01	7.5E+04
Sb-117	2.0E+00	2.0E+03	2.0E+06
Sb-122	3.9E·02	3.9E+01	3.9E+04
Sb-124	6.0E·04	6.0E·01	6.0E+02
Sb-125	1.4E·04	1.4E·01	1.4E+02
Sb-126	1.8E·03	1.8E+00	1.8E+03
Sb-126m	7.6E·01	7.6E+02	7.6E+05
Sb-127	2.0E·02	2.0E+01	2.0E+04
Sb-129	1.8E·01	1.8E+02	1.8E+05
Sc-44	1.4E·01	1.4E+02	1.4E+05
Sc-46	4.0E·04	4.0E·01	4.0E+02
Sc-47	1.1E·01	1.1E+02	1.1E+05
Sc-48	1.1E·02	1.1E+01	1.1E+04
Sc-49	1.0E+01	1.0E+04	1.0E+07
Se-73	1.6E·01	1.6E+02	1.6E+05
Se-75	1.1E·03	1.1E+00	1.1E+03
Se-79	6.9E·03	6.9E+00	6.9E+03
Si-31	4.7E+00	4.7E+03	4.7E+06
Si-32	7.2E·04	7.2E·01	7.2E+02
Sm-147	1.4E·05	1.4E·02	1.4E+01
Sm-151	3.5E·02	3.5E+01	3.5E+04
Sm-153	2.4E·01	2.4E+02	2.4E+05
Sn-113	1.9E·03	1.9E+00	1.9E+03
Sn-117m	2.3E·02	2.3E+01	2.3E+04
Sn-119m	2.8E·02	2.8E+01	2.8E+04
Sn-123	1.8E·02	1.8E+01	1.8E+04
Sn-125	7.2E·03	7.2E+00	7.2E+03
Sn-126	4.7E·06	4.7E·03	4.7E+00
Sr-82	1.9E·03	1.9E+00	1.9E+03
Sr-85	1.9E·03	1.9E+00	1.9E+03
Sr-85m	1.5E+00	1.5E+03	1.5E+06
Sr-87m	1.2E+00	1.2E+03	1.2E+06
Sr-89	2.1E·02	2.1E+01	2.1E+04
Sr-90	5.2E·04	5.2E·01	5.2E+02
Sr-91	1.2E·01	1.2E+02	1.2E+05
Sr-92	2.5E·01	2.5E+02	2.5E+05
Ta-182	4.4E·04	4.4E·01	4.4E+02
Tb-157	2.2E·03	2.2E+00	2.2E+03
Tb-160	8.4E·04	8.4E·01	8.4E+02
Tc-95	9.0E·02	9.0E+01	9.0E+04
Tc-95m	1.4E·03	1.4E+00	1.4E+03
Tc-96	5.6E·03	5.6E+00	5.6E+03
Tc-96m	7.0E·01	7.0E+02	7.0E+05
Tc-97	1.5E·03	1.5E+00	1.5E+03
Tc-97m	7.2E·02	7.2E+01	7.2E+04
Tc-98	6.4E·06	6.4E·03	6.4E+00
Tc-99	9.0E·03	9.0E+00	9.0E+03
Tc-99m	1.4E+00	1.4E+03	1.4E+06
Tc-101	3.8E+00	3.8E+03	3.8E+06
Te-121	6.0E·03	6.0E+00	6.0E+03
Te-121m	5.3E·04	5.3E·01	5.3E+02
Te-123	1.2E·03	1.2E+00	1.2E+03
Te-123m	2.7E·03	2.7E+00	2.7E+03
Te-125m	1.5E·02	1.5E+01	1.5E+04
Te-127	2.9E+00	2.9E+03	2.9E+06

TABLE 1—ANNUAL POSSESSION QUANTITIES FOR ENVIRONMENTAL COMPLIANCE—Continued

[Annual Possession Quantities (Ci/yr)]

Radionuclide	Gaseous form*	Liquid/ powder forms	Solid form*
Te-127m	7.3E·03	7.3E+00	7.3E+03
Te-129	6.5E+00	6.5E+03	6.5E+06
Te-129m	6.1E·03	6.1E+00	6.1E+03
Te-131	9.4E·01	9.4E+02	9.4E+05
Te-131m	1.8E·02	1.8E+01	1.8E+04
Te-132	6.2E·03	6.2E+00	6.2E+03
Te-133	1.2E+00	1.2E+03	1.2E+06
Te-133m	2.9E·01	2.9E+02	2.9E+05
Te-134	4.4E·01	4.4E+02	4.4E+05
Th-226	3.0E·02	3.0E+01	3.0E+04
Th-227	6.4E·05	6.4E·02	6.4E+01
Th-228	2.9E·06	2.9E·03	2.9E+00
Th-229	4.9E·07	4.9E·04	4.9E·01
Th-230	3.2E·06	3.2E·03	3.2E+00
Th-231	8.4E·01	8.4E+02	8.4E+05
Th-232	6.0E·07	6.0E·04	6.0E·01
Th-234	2.0E·02	2.0E+01	2.0E+04
Ti-44	5.2E·06	5.2E·03	5.2E+00
Ti-45	4.0E·01	4.0E+02	4.0E+05
Tl-200	4.4E·02	4.4E+01	4.4E+04
Tl-201	1.8E·01	1.8E+02	1.8E+05
Tl-202	1.0E·02	1.0E+01	1.0E+04
Tl-204	2.5E·02	2.5E+01	2.5E+04
Tm-170	2.4E·02	2.4E+01	2.4E+04
Tm-171	5.9E·02	5.9E+01	5.9E+04
U-230	5.0E·05	5.0E·02	5.0E+01
U-231	1.4E·01	1.4E+02	1.4E+05
U-232	1.3E·06	1.3E·03	1.3E+00
U-233	7.6E·06	7.6E·03	7.6E+00
U-234	7.6E·06	7.6E·03	7.6E+00
U-235	7.0E·06	7.0E·03	7.0E+00
U-236	8.4E·06	8.4E·03	8.4E+00
U-237	4.7E·02	4.7E+01	4.7E+04
U-238	8.6E·06	8.6E·03	8.6E+00
U-239	8.3E+00	8.3E+03	8.3E+06
U-240	1.8E·01	1.8E+02	1.8E+05
V-48	1.4E·03	1.4E+00	1.4E+03
V-49	1.3E+00	1.3E+03	1.3E+06
W-181	1.1E·02	1.1E+01	1.1E+04
W-185	1.6E·01	1.6E+02	1.6E+05
W-187	1.1E·01	1.1E+02	1.1E+05
W-188	1.0E·02	1.0E+01	1.0E+04
Xe-122	7.6E·02	7.6E+01	7.6E+04
Xe-123	1.6E+00	1.6E+03	1.6E+06
Xe-125	6.0E·01	.....	.....
Xe-127	7.0E+00	.....	.....
Xe-129m	7.6E+01	.....	.....
Xe-131m	2.2E+02	.....	.....
Xe-133	5.2E+01	.....	.....
Xe-133m	6.0E+01	.....	.....
Xe-135	7.6E+00	.....	.....
Xe-135m	4.2E+00	.....	.....
Xe-138	9.9E·01	.....	.....
Y-86	2.8E·02	2.8E+01	2.8E+04
Y-87	2.3E·02	2.3E+01	2.3E+04
Y-88	2.5E·04	2.5E·01	2.5E+02
Y-90	1.1E·01	1.1E+02	1.1E+05
Y-90m	4.3E·01	4.3E+02	4.3E+05
Y-91	1.8E·02	1.8E+01	1.8E+04
Y-91m	1.6E+00	1.6E+03	1.6E+06
Y-92	7.0E·01	7.0E+02	7.0E+05
Y-93	3.8E·01	3.8E+02	3.8E+05
Yb-169	5.5E·03	5.5E+00	5.5E+03
Yb-175	2.1E·01	2.1E+02	2.1E+05
Zn-62	8.6E·02	8.6E+01	8.6E+04
Zn-65	4.4E·04	4.4E·01	4.4E+02
Zn-69	2.7E+01	2.7E+04	2.7E+07
Zn-69m	2.0E·01	2.0E+02	2.0E+05
Zr-86	2.4E·02	2.4E+01	2.4E+04
Zr-88	2.7E·04	2.7E·01	2.7E+02
Zr-89	1.6E·02	1.6E+01	1.6E+04
Zr-93	2.8E·03	2.8E+00	2.8E+03
Zr-95	6.4E·04	6.4E·01	6.4E+02
Zr-97	4.6E·02	4.6E+01	4.6E+04

*Radionuclides boiling at 100 °C or less, or exposed to a temperature of 100 °C, must be considered a gas. Capsules containing radionuclides in liquid or powder form can be considered to be solids.

**Mo-99 contained in a generator to produce Technetium-99 can be assumed to be a solid.

3. Table of Concentration Levels

(a) Table 2 may be used for determining if facilities are in compliance with the standard.

1. The concentration table as applied to emission estimates can only be used if all releases are from point sources and concentrations have been measured at the stack or vent using EPA-approved methods, and the distance between each stack or vent and the nearest resident is greater than 3 times the diameter of the stack or vent. Procedures provided in Ref. (1) shall be used to determine compliance or exemption from reporting by use of Table 2.

2. The concentration table may be used to determine compliance with the standard based on environmental measurements provided these measurements are made in conformance with the requirements of § 61.107(b)(5).

4. NCRP Screening Model

The procedures described in Reference (4) may be used to determine doses to members of the general public from emissions of radionuclides to the atmosphere. Both the total dose from all radionuclides emitted, and the dose caused by radioactive iodine must be considered in accordance with the procedures in Ref. (1).

5. The COMPLY Computer Code

The COMPLY computer code may be used to determine compliance with subpart I. The compliance model in the COMPLY computer code may be used to determine the dose to members of the general public from emissions of radionuclides to the atmosphere. The EPA may add radionuclides to all or any part of COMPLY to cover radionuclides that may be used by the regulated community.

TABLE 2—CONCENTRATION LEVELS FOR ENVIRONMENTAL COMPLIANCE

Radionuclide	Concentration (Ci/m³)	Radionuclide	Concentration (Ci/m³)
Ac-225	9.1E·14	Bi-207	1.0E·14
Ac-227	1.6E·16	Bi-210	2.9E·13
Ac-228	3.7E·12	Bi-212	5.6E·11
Ag-106	1.9E·09	Bi-213	7.1E·11
Ag-106m	1.2E·12	Bi-214	1.4E·10
Ag-108m	7.1E·15	Bk-249	5.6E·13
Ag-110m	9.1E·14	Bk-250	9.1E·11

TABLE 2—CONCENTRATION LEVELS FOR ENVIRONMENTAL COMPLIANCE—Continued

Radionuclide	Concentration (Ci/m³)	Radionuclide	Concentration (Ci/m³)
Ag-111	2.5E·12	Br-77	4.2E·11
Al-26	4.8E·15	Br-80	1.4E·08
Am-241	1.9E·15	Br-80m	1.8E·09
Am-242	1.5E·11	Br-82	1.2E·11
Am-242m	2.0E·15	Br-83	1.2E·08
Am-243	1.8E·15	Br-84	6.7E·10
Am-244	4.0E·11	C-11	1.5E·09
Am-245	8.3E·09	C-14	1.0E·11
Am-246	1.2E·09	Ca-41	4.2E·13
Ar-37	1.6E·03	Ca-45	1.3E·12
Ar-41	1.7E·09	Ca-47	2.4E·12
As-72	2.4E·11	Cd-109	5.9E·13
As-73	1.1E·11	Cd-113	9.1E·15
As-74	2.2E·12	Cd-113m	1.7E·14
As-76	5.0E·11	Cd-115	1.6E·11
As-77	1.6E·10	Cd-115m	8.3E·13
At-211	1.1E·11	Cd-117	6.7E·11
Au-193	3.8E·10	Cd-117m	1.6E·10
Au-194	3.2E·11	Ce-139	2.6E·12
Au-195	3.1E·12	Ce-141	6.3E·12
Au-198	2.1E·11	Ce-143	3.0E·11
Au-199	4.8E·11	Ce-144	6.2E·13
Ba-131	7.1E·12	Cf-248	1.8E·14
Ba-133	5.9E·14	Cf-249	1.4E·15
Ba-133m	5.9E·11	Cf-250	3.2E·15
Ba-135m	1.8E·10	Cf-251	1.4E·15
Ba-139	5.6E·09	Cf-252	5.6E·15
Ba-140	1.3E·12	Cf-253	3.1E·13
Ba-141	1.4E·09	Cf-254	3.0E·15
Ba-142	1.3E·09	Cl-36	2.7E·15
Be-7	2.3E·11	Cl-38	7.7E·10
Be-10	1.6E·12	Cm-242	5.3E·14
Bi-206	2.3E·12	Cm-243	2.6E·15
Cm-244	3.3E·15	Eu-156	1.9E·12
Cm-245	1.8E·15	F-18	6.7E·10
Cm-246	1.9E·15	Fe-52	5.6E·11
Cm-247	1.9E·15	Fe-55	9.1E·12
Cm-248	5.0E·16	Fe-59	6.7E·13
Cm-249	3.7E·09	Fm-254	2.0E·11
Cm-250	9.1E·17	Fm-255	4.3E·12
Co-56	1.8E·13	Fr-223	3.3E·11
Co-57	1.3E·12	Ga-66	6.2E·11
Co-58	6.7E·13	Ga-67	7.1E·11
Co-58m	1.2E·10	Ga-68	9.1E·10
Co-60	1.7E·14	Ga-72	3.8E·11
Co-60m	.4.3E·09	Gd-152	5.0E·15
Co-61	4.5E·09	Gd-153	2.1E·12
Cr-49	1.1E·09	Gd-159	2.9E·10
Cr-51	3.1E·11	Ge-68	2.0E·13
Cs-129	1.4E·10	Ge-71	2.4E·10
Cs-131	3.3E·11	Ge-77	1.0E·10
Cs-132	4.8E·12	H-3	1.5E·09
Cs-134	2.7E·14	Hf-181	1.9E·12
Cs-134m	1.7E·10	Hg-193m	1.0E·10
Cs-135	4.0E·13	Hg-197	8.3E·11
Cs-136	5.3E·13	Hg-197m	1.1E·10
Cs-137	1.9E·14	Hg-203	1.0E·12
Cs-138	5.3E·10	Ho-166	7.1E·11
Cu-61	4.8E·10	Ho-166m	7.1E·15
Cu-64	5.3E·10	I-123	4.3E·10
Cu-67	5.0E·11	I-124	6.2E·13
Dy-157	5.0E·10	I-125	1.2E·13
Dy-165	6.7E·09	I-126	1.1E·13
Dy-166	1.1E·11	I-128	1.1E·08
Er-169	2.9E·11	I-129	9.1E·15
Er-171	4.0E·10	I-130	4.5E·11
Es-253	2.4E·13	I-131	2.1E·13
Es-254	2.0E·14	I-132	2.3E·10
Es-254m	1.8E·12	I-133	2.0E·11

TABLE 2—CONCENTRATION LEVELS FOR ENVIRONMENTAL COMPLIANCE—Continued

Radionuclide	Concentration (Ci/m³)	Radionuclide	Concentration (Ci/m³)
Eu-152	2.0E·14	I-134	3.8E·10
Eu-152m	3.6E·10	I-135	1.2E·10
Eu-154	2.3E·14	In-111	3.6E·11
Eu-155	5.9E·13	In-113m	2.5E·09
In-114m	9.1E·13	Nb-95	2.2E·12
In-115	7.1E·14	Nb-95m	1.4E·11
In-115m	1.6E·09	Nb-96	2.4E·11
In-116m	4.2E·10	Nb-97	1.2E·09
In-117	1.6E·09	Nd-147	7.7E·12
In-117m	9.1E·11	Nd-149	7.1E·10
Ir-190	2.6E·12	Ni-56	1.7E·12
Ir-192	9.1E·13	Ni-57	1.8E·11
Ir-194	1.1E·10	Ni-59	1.5E·11
Ir-194m	1.7E·13	Ni-63	1.4E·11
K-40	2.7E·14	Ni-65	8.3E·10
K-42	2.6E·10	Np-235	2.5E·11
K-43	6.2E·11	Np-237	1.2E·15
K-44	5.9E·10	Np-238	1.4E·11
Kr-79	8.3E·09	Np-239	3.8E·11
Kr-81	2.1E·07	Np-240	7.7E·10
Kr-83m	2.3E·05	Np-240m	5.6E·09
Kr-85	1.0E·06	Os-185	1.0E·12
Kr-85m	1.3E·08	Os-191m	2.9E·10
Kr-87	2.4E·09	Os-191	1.1E·11
Kr-88	5.0E·10	Os-193	9.1E·11
La-140	1.2E·11	P-32	3.3E·13
La-141	7.7E·10	P-33	2.4E·12
La-142	2.7E·10	Pa-230	3.2E·13
Lu-177	2.4E·11	Pa-231	5.9E·16
Lu-177m	3.6E·13	Pa-233	4.8E·12
Mg-28	1.5E·11	Pa-234	1.1E·10
Mn-52	2.8E·12	Pb-203	6.2E·11
Mn-52m	6.2E·10	Pb-205	5.6E·12
Mn-53	1.5E·11	Pb-209	1.3E·08
Mn-54	2.8E·13	Pb-2I0	2.8E·15
Mn-56	2.9E·10	Pb-211	1.4E·10
Mo-93	1.1E·12	Pb-212	6.3E·12
Mo-99	1.4E·11	Pb-214	1.2E·10
Mo-101	1.0E·09	Pd-103	3.8E·11
Na-22	2.6E·14	Pd-107	3.1E·11
Na-24	2.6E·11	Pd-109	4.8E·10
Nb-90	2.6E·11	Pm-143	9.1E·13
Nb-93m	1.0E·11	Pm-144	1.3E·13
Nb-94	7.1E·15	Pm-145	6.2E·13
Pm-146	5.3E·14	Re-184m	3.7E·13
Pm-147	1.1E·11	Re-186	1.8E·11
Pm-148	5.0E·12	Re-187	2.6E·10
Pm-148m	6.7E·13	Re-188	1.7E·10
Pm-149	4.2E·11	Rh-103m	2.1E·07
Pm-151	7.1E·11	Rh-105	1.3E·10
Po-210	7.1E·15	Ru-97	6.7E·11
Pr-142	1.1E·10	Ru-103	2.6E·12
Pr-143	7.1E·12	Ru-105	2.8E·10
Pr-144	1.8E·08	Ru-106	3.4E·13
Pt-191	4.3E·11	S-35	1.3E·12
Pt-193	1.8E·11	Sb-117	2.4E·09
Pt-193m	4.8E·11	Sb-122	1.4E·11
Pt-195m	3.2E·11	Sb-124	5.3E·13
Pt-197	4.0E·10	Sb-125	1.6E·13
Pt-197m	2.6E·09	Sb-126	1.4E·12
Pu-236	5.9E·15	Sb-126m	9.1E·10
Pu-237	1.9E·11	Sb-127	7.1E·12
Pu-238	2.1E·15	Sb-129	7.7E·11
Pu-239	2.0E·15	Sc-44	1.7E·10
Pu-240	2.0E·15	Sc-46	4.2E·13
Pu-241	1.0E·13	Sc-47	3.8E·11
Pu-242	2.0E·15	Sc-48	9.1E·12
Pu-243	4.2E·09	Sc-49	1.2E·08
Pu-244	2.0E·15	Se-73	1.7E·10

TABLE 2—CONCENTRATION LEVELS FOR ENVIRONMENTAL COMPLIANCE—Continued

Radionuclide	Concentration (Ci/m³)	Radionuclide	Concentration (Ci/m³)
Pu-245	2.1E·10	Se-75	1.7E·13
Pu-246	2.2E·12	Se-79	1.1E·13
Ra-223	4.2E·14	Si-31	5.6E·09
Ra-224	1.5E·13	Si-32	3.4E·14
Ra-225	5.0E·14	Sm-147	1.4E·14
Ra-226	3.3E·15	Sm-151	2.1E·11
Ra-228	5.9E·15	Sm-153	5.9E·11
Rb-81	5.0E·10	Sn-113	1.4E·12
Rb-83	3.4E·13	Sn-117m	5.6E·12
Rb-84	3.6E·13	Sn-119m	5.3E·12
Rb-86	5.6E·13	Sn-123	1.1E·12
Rb-87	1.6E·13	Sn-125	1.7E·12
Rb-88	2.1E·09	Sn-126	5.3E·15
Rb-89	7.1E·10	Sr-82	6.2E·13
Re-184	1.5E·12	Sr-85	1.8E·12
Sr-85m	1.6E·09	Th-232	6.2E·16
Sr-87m	1.4E·09	Th-234	2.2E·12
Sr-89	1.8E·12	Ti-44	6.2E·15
Sr-90	1.9E·14	Ti-45	4.8E·10
Sr-91	9.1E·11	Tl-200	4.5E·11
Sr-92	2.9E·10	Tl-201	1.0E·10
Ta-182	4.5E·13	Tl-202	5.0E·12
Tb-157	2.5E·12	Tl-204	1.2E·12
Tb-160	7.7E·13	Tm-170	3.3E·12
Tc-95	1.0E·10	Tm-171	2.6E·11
Tc-95m	1.4E·12	U-230	1.5E·14
Tc-96	5.6E·12	U-231	4.2E·11
Tc-96m	6.7E·10	U-232	1.3E·15
Tc-97	.7.1E·13	U-233	7.1E·15
Tc-97m	7.1E·12	U-234	7.7E·15
Tc-98	6.7E·15	U-235	7.1E·15
Tc-99	1.4E·13	U-236	7.7E·15
Tc-99m	1.7E·09	U-237	1.0E·11
Tc-101	4.5E·09	U-238	8.3E·15
Te-121	1.0E·12	U-239	4.3E·09
Te-121m	1.2E·13	U-240	1.3E·10
Te-123	1.4E·13	V-48	1.0E·12
Te-123m	2.0E·13	V-49	1.6E·10
Te-125m	3.6E·13	W-181	6.7E·12
Te-127	1.0E·09	W-185	2.6E·12
Te-127m	1.5E·13	W-187	7.7E·11
Te-129	7.7E·09	W-188	5.3E·13
Te-129m	1.4E·13	Xe-122	9.1E·11
Te-131	9.1E·11	Xe-123	1.6E·09
Te-131m	1.0E·12	Xe-125	1.1E·11

TABLE 2—CONCENTRATION LEVELS FOR ENVIRONMENTAL COMPLIANCE—Continued

Radionuclide	Concentration (Ci/m³)	Radionuclide	Concentration (Ci/m³)
Te-132	7.1E·13	Xe-127	8.3E·09
Te-133	9.1E·10	Xe-129m	9.1E·08
Te-133m	2.2E·10	Xe-131m	2.6E·07
Te-134	5.3E·10	Xe-133	6.2E·08
Th-226	3.4E·11	Xe-133m	7.1E·08
Th-227	3.8E·14	Xe-135	9.1E·09
Th-228	3.1E·15	Xe-135m	5.0E·09
Th-229	5.3E·16	Xe-138	1.2E·09
Th-230	3.4E·15	Y-86	3.0E·11
Th-231	2.9E·10	Y-87	1.7E·11
Y-88	2.7E·13	Zn-65	9.1E·14
Y-90	1.3E·11	Zn-69	3.2E·08
Y-90m	1.9E·10	Zn-69m	1.7E·10
Y-91	2.1E·12	Zr-86	2.4E·11
Y-91m	1.3E·09	Zr-88	3.1E·13
Y-92	8.3E·10	Zr-89	1.3E·11
Y-93	2.9E·10	Zr-93	2.6E·12
Yb-169	3.7E·12	Zr-95	6.7E·13
Yb-175	4.3E·11	Zr-97	3.8E·11
Zn-62	9.1E·11		

6. References

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(2) Environmental Protection Agency, ''User's Guide for the COMPLY Code'', EPA 520/1–89–003, October 1989.

(3) Environmental Protection Agency, ''Background Information Document: Procedures Approved for Demonstrating Compliance with 40 CFR Part 61, Subpart I'', EPA 520/1–89–001, January 1989.

(4) National Council on Radiation Protection and Measurement, ''Screening Techniques for Determining Compliance with Environmental Standards'' NCRP Commentary No. 3, Revision of January 1989 with addendum of October, 1989.

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