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Table 3-1 Average Annual Exposure Data for Certain Categories of NRC Licensees

NRC License Category* and Program Code	Calendar Year	Number of Licensees Reporting	Number of Monitored Individuals	Number of Individuals with Measurable TEDE	Collective TEDE (person-rem)	Average TEDE (rem)	Average Measurable TEDE per Individual (rem)
Industrial Radiography 03310 03320 04312 04313	2014	57	3,288	2,862	1,778.171	0.54	0.62
	2015	69	3,426	2,908	1,695.040	0.49	0.58
	2016	64	3,035	2,635	1,270.459	0.42	0.48
	2017	62	3,389	2,912	1,709.858	0.50	0.59
	2018	61	3,876	3,303	1,967.879	0.51	0.60
	2019	60	3,732	3,152	1,668.408	0.45	0.53
	2020	56	3,058	2,577	1,130.511	0.37	0.44
	2021	43	2,331	1,996	789.140	0.34	0.40
	2022	48	2,523	2,137	962.450	0.38	0.45
	2023	51	3,241	2,817	1,541.161	0.48	0.55
	2024	51	3,158	2,746	1,384.854	0.44	0.50
Manufacturing and Distribution 02500 03211 03212 03214	2014	19	962	656	138.631	0.14	0.21
	2015	21	949	634	155.688	0.16	0.25
	2016	21	905	606	142.958	0.16	0.24
	2017	21	940	615	139.071	0.15	0.23
	2018	14	1,086	718	136.505	0.13	0.19
	2019	16	1,188	804	147.927	0.12	0.18
	2020	13	1,112	799	134.045	0.12	0.17
	2021	16	1,258	896	181.531	0.14	0.20
	2022	16	1,287	998	182.718	0.14	0.18
	2023	17	1,300	1,034	192.289	0.15	0.19
	2024	13	1,588	1,221	228.649	0.14	0.19
Independent Spent Fuel Storage 23100 23200	2014	2	51	22	3.192	0.06	0.15
	2015	2	57	20	1.102	0.02	0.06
	2016	2	57	22	0.579	0.01	0.03
	2017	2	67	20	0.631	0.01	0.03
	2018	2	70	17	1.740	0.02	0.10
	2019	2	79	28	1.939	0.02	0.07
	2020	2	59	19	0.454	0.01	0.02
	2021	2	76	20	0.795	0.01	0.04
	2022	3	96	27	1.891	0.02	0.07
	2023	2	93	15	0.994	0.01	0.07
	2024	2	82	22	1.550	0.02	0.07
Fuel Cycle Licenses – Fabrication, Processing, and Uranium Enrichment, and UF_6 Production Plants 11400 21200 21210	2014	9	6,689	3,685	366.224	0.05	0.10
	2015	7	5,296	3,033	327.112	0.06	0.11
	2016	7	5,413	2,999	277.687	0.05	0.09
	2017	7	5,058	2,930	254.997	0.05	0.09
	2018	7	4,737	2,783	229.530	0.05	0.08
	2019	7	4,347	2,690	250.522	0.06	0.09
	2020	7	3,900	2,755	244.264	0.06	0.09
	2021	7	4,267	2,769	238.564	0.06	0.09
	2022	7	4,933	3,464	304.805	0.06	0.09
	2023	7	6,036	4,001	329.353	0.05	0.08
	2024	7	6,023	3,267	297.930	0.05	0.09
Commercial LWRs** 41111	2014	100	174,853	70,847	7,124.519	0.04	0.10
	2015	99	176,886	70,798	7,019.088	0.04	0.10
	2016	99	155,574	59,353	5,365.709	0.03	0.09
	2017	99	157,072	64,761	6,416.548	0.04	0.10
	2018	98	150,219	61,014	5,829.471	0.04	0.10
	2019	96	134,897	53,615	5,080.795	0.04	0.09
	2020	95	125,010	52,820	4,899.128	0.04	0.09
	2021	93	122,681	50,667	5,303.198	0.04	0.10
	2022	92	125,338	51,010	5,085.286	0.04	0.10
	2023	92	124,892	51,049	5,552.061	0.04	0.11
	2024	93	122,389	52,082	4,903.383	0.04	0.09
Grand Totals and Averages	2014	187	185,843	78,072	9,410.737	0.05	0.12
	2015	198	186,614	77,393	9,198.030	0.05	0.12
	2016	193	164,984	65,615	7,057.392	0.04	0.11
	2017	190	159,355	67,341	7,909.670	0.05	0.12
	2018	182	159,988	67,835	8,165.125	0.05	0.12
	2019	174	143,026	59,765	6,590.069	0.05	0.11
	2020	163	132,942	58,501	6,109.158	0.05	0.10
	2021	167	131,520	57,293	6,755.062	0.05	0.12
	2022	166	134,177	57,636	6,537.150	0.05	0.11
	2023	169	135,562	58,916	7,615.858	0.06	0.13
	2024	166	133,240	59,338	6,816.366	0.05	0.11

NOTE: The data shown in this table for all categories of licensees have not been adjusted to account for transient individuals (see section 5). TEDE is defined as total effective dose equivalent.

* These categories include only NRC licensees required to submit an annual report (see section 2).
** This category includes all light-water reactors (LWRs) that had been in commercial operation for at least a full year as of December 31 of the year under consideration.

Table 3-2 Distribution of TEDE by License Category 2024

License Category (Number of Sites Reporting)	Number of Individuals with TEDE in Range (rem) *											Number of Monitored Individuals	Number with Meas. TEDE	Total Collective TEDE (person-rem)
	No. Meas.	Meas. <0.10	0.10–0.25	0.25–0.50	0.50–0.75	0.75–1.0	1.0–2.0	2.0–3.0	3.0–4.0	4.0–5.0	>5.0			
INDUSTRIAL RADIOGRAPHY														
Fixed Locations (2)	6	6	-	-	-	-	-	-	-	-	-	12	6	0.239
1–5 Temporary Job Sites (44)	278	548	336	329	239	146	301	73	19	5	-	2,274	1,996	1,138.815
6–20 Temporary Job Sites (5)	128	263	153	154	88	40	41	4	1	-	-	872	744	245.800
Total (51)	**412**	**817**	**489**	**483**	**327**	**186**	**342**	**77**	**20**	**5**	**-**	**3,158**	**2,746**	**1,384.854**
MANUFACTURING AND DISTRIBUTION														
Broad-Type A (2)	138	386	103	62	20	11	46	9	-	-	-	778	640	171.474
Broad-Type B and Other (0)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nuclear Pharmacies (11)	229	429	90	44	10	5	2	1	-	-	-	810	581	57.175
Total (13)	**367**	**815**	**193**	**106**	**30**	**16**	**48**	**10**	**-**	**-**	**-**	**1,588**	**1,221**	**228.649**
INDEPENDENT SPENT FUEL STORAGE														
Total (2)	**60**	**16**	**3**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**82**	**22**	**1.550**
FUEL CYCLE*														
Total (7)	**2,756**	**2,431**	**445**	**301**	**66**	**17**	**7**	**-**	**-**	**-**	**-**	**6,023**	**3,267**	**297.930**
COMMERCIAL POWER REACTORS***														
Boiling Water (31)	19,946	17,975	5,402	2,320	602	179	81	7	-	-	-	46,512	26,566	2,943.736
Pressurized Water (62)	50,361	19,688	4,329	1,210	213	51	25	-	-	-	-	75,877	25,516	1,959.647
Total (93)	**70,307**	**37,663**	**9,731**	**3,530**	**815**	**230**	**106**	**7**	**-**	**-**	**-**	**122,389**	**52,082**	**4,903.383**
GRAND TOTALS	**73,902**	**41,742**	**10,861**	**4,423**	**1,238**	**449**	**503**	**94**	**20**	**5**	**0**	**133,240**	**59,338**	**6,816.366**

NOTE: The data shown in this table for all categories of licensees have not been adjusted to account for transient individuals (see section 5). TEDE is defined as total effective dose equivalent.

* TEDE values exactly equal to the values separating ranges are reported in the higher range.
** This category includes fabrication, processing, and uranium enrichment plants (see section 3.3.5).
*** This category includes all reactors that had been in commercial operation for a full year as of December 31, 2024. Vogtle 4 became operational on April 29, 2024, and is not included in these values.

Table 3-3 Annual Dose Data for Industrial Radiography Licensees, 2022–2024

Year	Type of License	Number of Licensees	Number of Monitored Individuals	Number of Individuals with Measurable TEDE	Collective TEDE (person-rem)	Average Measurable TEDE (rem)
2022	Fixed Location	2	11	6	1.565	0.26
	1–5 Temporary Job Sites	42	1,699	1,449	747.824	0.52
	6–20 Temporary Job Sites	4	813	682	213.061	0.31
	Total	**48**	**2,523**	**2,137**	**962.450**	**0.45**
2023	Fixed Location	2	12	8	0.409	0.05
	1–5 Temporary Job Sites	45	2,465	2,146	1,314.182	0.61
	6–20 Temporary Job Sites	4	764	663	226.570	0.34
	Total	**51**	**3,241**	**2,817**	**1,541.161**	**0.55**
2024	Fixed Location	2	12	6	0.239	0.04
	1–5 Temporary Job Sites	44	2,274	1,996	1,138.815	0.57
	6–20 Temporary Job Sites	5	872	744	245.800	0.33
	Total	**51**	**3,158**	**2,746**	**1,384.854**	**0.50**

NOTE: TEDE is defined as total effective dose equivalent.

Table 3-4 Annual Exposure Information for Manufacturing and Distribution Licensees, 2022–2024

Year	Type of License	Number of Licensees	Number of Monitored Individuals	Number of Individuals with Measurable TEDE	Collective TEDE (person-rem)	Average Measurable TEDE (rem)
2022	M&D—Broad-Type A	2	443	393	129.751	0.33
	M&D—Broad-Type B and Other	0	0	0	0.000	0.00
	M&D—Nuclear Pharmacies	14	844	605	52.967	0.09
	Total	**16**	**1,287**	**998**	**182.718**	**0.18**
2023	M&D—Broad-Type A	2	465	420	134.366	0.32
	M&D—Broad-Type B and Other	0	0	0	0.000	0.00
	M&D—Nuclear Pharmacies	15	835	614	57.923	0.09
	Total	**17**	**1,300**	**1,034**	**192.289**	**0.19**
2024	M&D—Broad-Type A	2	778	640	171.474	0.27
	M&D—Broad-Type B and Other	0	0	0	0.000	0.00
	M&D—Nuclear Pharmacies	11	810	581	57.175	0.10
	Total	**13**	**1,588**	**1,221**	**228.649**	**0.19**

NOTE: TEDE is defined as total effective dose equivalent.

Table 3-5 Annual Exposure Information for Fuel Cycle Licensees, 2022–2024

Year	Type of License	Number of Licensees	Number of Monitored Individuals	Number of Individuals with Meas. TEDE	Collective TEDE (person-rem)	Average Meas. TEDE (rem)	Number of Individuals with Meas. DDE	Collective DDE (person-rem)	Average Meas. DDE (rem)	Number of Individuals with Meas. CEDE	Collective CEDE (person-rem)	Average Meas. CEDE (rem)
2022	Fuel Cycle	7	4,933	3,464	304.805	0.09	2,757	194.757	0.07	2,296	110.048	0.05
2023	Fuel Cycle	7	6,036	4,001	329.353	0.08	3,218	219.769	0.07	2,364	109.676	0.05
2024	Fuel Cycle	7	6,023	3,267	297.930	0.09	2,449	195.085	0.08	2154	102.845	0.05

NOTE: TEDE is defined as total effective dose equivalent.

Table 3-6 Intake by Licensee Category and Radionuclide—Mode of Intake: Ingestion or Other, 2024

Mode	Licensee Category	Program Code	Radionuclide	Number of Intake Records	Collective Intake (microcuries) (sci. notation)
Ingestion	Nuclear Power Reactor	41111	Ag-110M	1	1.00E-02
	Nuclear Power Reactor	41111	Am-241	1	5.00E-04
	Nuclear Power Reactor	41111	Cm-242	1	2.00E-02
	Nuclear Power Reactor	41111	Cm-243	1	1.00E-03
	Nuclear Power Reactor	41111	Co-60	**10**	2.74E+01
	Nuclear Power Reactor	41111	Fe-55	1	4.16E+01
	Nuclear Power Reactor	41111	Mn-54	4	5.88E-02
	Nuclear Power Reactor	41111	Ni-63	1	4.39E+00
	Nuclear Power Reactor	41111	Pu-238	1	3.00E-03
	Nuclear Power Reactor	41111	Pu-239	1	3.00E-03
	Nuclear Power Reactor	41111	Pu-241	1	3.00E-01
	Nuclear Power Reactor	41111	Sr-90	1	6.76E+00
	Nuclear Power Reactor	41111	Zr-95	1	**4.18E+01**

NOTE: The data values shown in bold and boxed represent the highest value in each category.

Table 3-7 Intake by Licensee Category and Radionuclide—Mode of Intake: Inhalation, 2024

Licensee Category	Program Code	Radionuclide	Pulmonary Clearance Class or Solubility Type	Number of Intake Records *	Collective Intake (microcuries) (sci. notation)
Manufacturing and Distribution Broad-Type A	03211	In-111	D	**1**	**5.75E+02**
Nuclear Pharmacies	02500	I-123	W	16	1.64E-01
	02500	I-131	D	1	8.72E-02
	02500	I-131	W	**73**	**2.14E+00**
Nuclear Power Reactors	41111	Ag-110M	Y	1	9.00E+01
	41111	Am-241	W	**15**	4.53E-04
	41111	C-14	V	1	7.92E-06
	41111	Cm-243	W	1	8.63E-06
	41111	Co-58	Y	9	2.36E-01
	41111	Co-60	Y	10	5.56E-01
	41111	Cs-137	D	1	4.45E-02
	41111	Fe-55	D	1	8.94E-02
	41111	Fe-55	W	1	1.51E+00
	41111	H-3	D	4	**9.03E+02**
	41111	Mn-54	W	3	5.10E-02
	41111	Nb-95	Y	1	4.00E-03
	41111	Ni-63	D	1	1.83E-01
	41111	Ni-63	W	1	2.61E-02
	41111	Pu-238	W	1	7.11E-06
	41111	Pu-239	W	1	2.28E-06
	41111	Pu-241	W	1	8.35E-05
	41111	Sr-90	W	1	1.94E-04
	41111	Tc-99	W	1	1.04E-05
	41111	U-234	Y	1	4.35E-06
	41111	U-238	Y	1	7.22E-07
Uranium Fuel Processing Plants	21210	Am-241	M	17	1.70E-06
	21210	Pu-239	M	35	4.62E-05
	21210	Sr-90	S	279	**2.21E+07**
	21210	Th-232	M	6	2.69E-06
	21210	Th-232	S	22	1.58E-05
	21210	U-232	W	1	1.20E-07
	21210	U-232	Y	29	4.08E-05
	21210	U-234	D	90	7.15E-02

NOTE: The data values shown in bold and boxed represent the highest value in each category.

* An intake event may involve multiple nuclides; individuals may incur multiple intakes during the year. The number of intake records given here indicates the number of separate intake reports that were submitted using NRC Form 5 under 10 CFR 20.2206.

Table 3-7 Intake by Licensee Category and Radionuclide—Mode of Intake: Inhalation, 2024 (continued)

Licensee Category	Program Code	Radionuclide	Pulmonary Clearance Class or Solubility Type	Number of Intake Records *	Collective Intake (microcuries) (sci. notation)
Uranium Fuel Processing Plants (continued)	21210	U-234	F	703	6.34E-02
	21210	U-234	M	647	7.41E-03
	21210	U-234	S	**1,831**	1.72E+00
	21210	U-234	W	48	1.84E-02
	21210	U-234	Y	409	6.30E-01
	21210	U-235	D	82	2.59E-03
	21210	U-235	S	293	4.97E-02
	21210	U-235	W	48	6.82E-04
	21210	U-235	Y	214	2.32E-02
	21210	U-236	D	82	1.11E-04
	21210	U-236	F	650	1.09E-03
	21210	U-236	S	79	9.88E-04
	21210	U-236	W	48	3.26E-05
	21210	U-236	Y	214	2.26E-03
	21210	U-238	D	90	9.69E-03
	21210	U-238	M	590	3.66E-04
	21210	U-238	S	298	1.75E-01
Uranium Hexafluoride (UF_6) Production Plants	21210	U-238	W	48	2.48E-03
	21210	U-238	Y	409	8.49E-02
	11400	Ac-227	W	265	6.08E-04
	11400	Pa-231	W	265	6.08E-04
	11400	Pb-210	W	240	4.85E-04
	11400	Po-210	W	211	3.88E-04
	11400	Ra-226	W	391	1.50E-03
	11400	Ra-228	W	200	3.51E-04
	11400	Th-228	W	200	3.51E-04
	11400	Th-230	D	1	5.00E-06
	11400	Th-230	W	615	1.52E-02
	11400	Th-232	W	200	3.51E-04
	11400	U-234	D	1	4.25E-04
	11400	U-234	W	**621**	**1.41E+00**
	11400	U-235	D	1	2.00E-05
	11400	U-235	W	**621**	6.56E-02
	11400	U-238	D	1	3.54E-04
	11400	U-238	W	**621**	1.17E+00

NOTE: The data values shown in bold and boxed represent the highest value in each category.

* An intake event may involve multiple nuclides; individuals may incur multiple intakes during the year. The number of intake records given here indicates the number of separate intake reports that were submitted using NRC Form 5 under 10 CFR 20.2206.

Table 3-8 Collective and Average CEDE by Licensee Category, 2024

Licensee Category	Licensee Name	License Number	Number with Meas. CEDE*	Collective CEDE (person-rem)	Average Meas. CEDE (rem)
MANUFACTURING AND DISTRIBUTION FACILITIES					
02500	CARDINAL HEALTH	34-29200-01MD	**31**	**0.059**	**0.002**
02500	CARDINAL HEALTH	34-31473-02MD	2	0.002	0.001
	Totals and Averages		**33**	**0.061**	**0.002**
MANUFACTURING AND DISTRIBUTION FACILITIES					
03211	CURIUM US, LLC	24-04206-01	1	0.317	0.317
	Totals and Averages		1	0.317	0.317
UF_6 PRODUCTION FACILITIES					
11400	HONEYWELL PERFORMANCE MATERIALS AND TECHNOLOGY	SUB-0526	**621**	**20.404**	**0.033**
	Totals and Averages		**621**	**20.404**	**0.033**
FUEL FABRICATION FACILITIES					
21210	BWX TECHNOLOGIES, INC	SNM-0042	261	8.418	0.032
21210	FRAMATOME INC	SNM-1227	214	18.804	0.088
21210	GLOBAL NUCLEAR FUEL—AMERICAS, LLC	SNM-1097	197	15.257	0.077
21210	NUCLEAR FUEL SERVICES, INC.	SNM-0124	**568**	2.983	0.005
21210	WESTINGHOUSE ELECTRIC COMPANY, LLC	SNM-1107	293	**36.979**	**0.126**
	Totals and Averages		**1,533**	**82.441**	**0.054**
COMMERCIAL LIGHT-WATER REACTORS					
41111	ARKANSAS	DPR-51	4	0.014	0.004
41111	COLUMBIA GENERATING	NPF-21	1	0.004	0.004
41111	FERMI	NPF-43	6	0.011	0.002
41111	RIVER BEND	NPF-47	1	0.001	0.001
41111	SOUTH TEXAS	NPF-76	2	0.003	0.002
41111	COOK	DPR-58	**10**	**0.198**	**0.020**
41111	MILLSTONE	NPF-49	1	0.007	0.007
41111	FITZPATRICK	DPR-59	1	0.001	0.001
41111	SUMMER	NPF-12	1	0.010	0.010
41111	GRAND GULF	NPF-29	2	0.011	0.006
	Totals and Averages		**29**	**0.260**	**0.009**
Grand Totals and Averages			**2,217**	**103.483**	**0.047**

NOTE: The data values shown in bold and boxed represent the highest value in each category.

* CEDE is defined as committed effective dose equivalent.

Table 3-9 Internal Dose (CEDE) Distribution, 1994–2024

Year	Number of Individuals with CEDE in Range (rem) *										Number with Meas. CEDE	Collective CEDE (person-rem)	Average Meas. CEDE (rem)
	Meas. – 0.020	0.020– 0.100	0.100– 0.250	0.250– 0.500	0.500– 0.750	0.750– 1.0	1.0– 2.0	2.0– 3.0	3.0– 4.0	4.0– 5.0			
1994	3,425	577	287	683	237	141	293	69	2	-	5,714	1,170.453	0.205
1995	2,869	691	338	730	254	147	290	49	2	-	5,370	1,167.105	0.217
1996	3,096	598	305	584	324	138	187	22	2	2	5,258	931.799	0.177
1997	3,835	869	381	827	267	148	169	30	-	-	6,526	998.406	0.153
1998	3,310	932	426	746	246	140	153	21	2	-	5,976	922.935	0.154
1999	3,423	752	466	438	206	117	173	29	-	-	5,604	813.605	0.145
2000	3,275	1,001	570	383	216	98	224	58	7	1	5,833	988.640	0.169
2001	1,774	827	716	364	128	53	146	82	15	1	4,106	884.134	0.215
2002	1,760	746	647	531	144	33	23	3	-	-	3,887	494.821	0.127
2003	2,208	778	726	388	116	17	5	-	-	-	4,238	395.573	0.093
2004	1,989	838	657	381	105	17	3	-	-	-	3,990	375.021	0.094
2005	1,205	706	685	341	98	33	2	-	-	-	3,070	365.258	0.119
2006	1,302	726	686	346	96	18	3	-	-	-	3,177	346.918	0.109
2007	1,480	805	646	310	52	5	3	-	-	-	3,301	300.863	0.091
2008	1,008	761	526	303	41	8	4	-	-	-	2,651	267.415	0.101
2009	1,115	711	597	229	80	21	7	-	-	-	2,760	293.251	0.106
2010	1,216	884	669	210	67	30	6	-	-	-	3,082	308.332	0.100
2011	1,243	916	628	270	72	19	14	1	-	-	3,163	322.615	0.102
2012	1,158	933	554	155	52	6	3	-	-	-	2,861	232.462	0.081
2013	1,632	758	353	149	20	1	-	-	-	-	2,913	164.799	0.057
2014	1,175	829	417	86	24	1	-	-	-	-	2,532	157.191	0.062
2015	1,036	838	442	103	16	-	-	-	-	-	2,435	162.670	0.067
2016	1,100	920	407	69	7	-	-	-	-	-	2,503	144.627	0.058
2017	1,073	766	324	99	6	-	-	-	-	-	2,268	128.373	0.057
2018	1,159	489	297	99	1	-	-	-	-	-	2,045	112.004	0.055
2019	1,096	482	318	91	3	1	-	-	-	-	1,991	111.187	0.056
2020	978	484	291	75	2	-	-	-	-	-	1,830	99.151	0.054
2021	1,141	475	268	81	2	1	-	-	-	-	1,968	99.971	0.051
2022	1,352	665	266	90	4	0	-	-	-	-	2,377	110.594	0.047
2023	1,446	657	302	65	3	0	-	-	-	-	2,473	110.230	0.045
2024	1,312	575	256	67	7	0	-	-	-	-	2,217	103.483	0.047

* CEDE values exactly equal to the values separating ranges are reported in the next higher range.

Table 4-1 Summary of Information Reported by Commercial BWRs, 1994–2024

Year	Number of Reactors Included*	Number of Individuals with Measurable TEDE**	Annual Collective TEDE (person-rem)	Average Measurable TEDE per Individual (rem)**	Average Collective TEDE per Reactor (person rem)	Average Number of Individuals with Measurable TEDE per Reactor**	Electricity Generated*** (MW-yr)	Average Collective TEDE per MW-yr (person-rem/ MW-yr)	Average Electricity Generated per Reactor (MW-yr)	Average Maximum Dependable Capacity Net (Mwe)	Maximum Dependable Capacity Achieved
1994	37	39,171	12,098	0.31	327	1,059	22,139.0	0.55	598	801	75%
1995	37	35,686	9,471	0.27	256	964	24,737.0	0.38	669	835	80%
1996	37	37,792	9,466	0.25	256	1,021	24,322.2	0.39	657	838	78%
1997	37	34,021	7,603	0.22	205	919	22,866.1	0.33	618	845	73%
1998	36	32,899	6,829.296	0.21	190	914	23,781.2	0.29	661	874	76%
1999	35	31,482	6,434.430	0.20	184	899	26,962.6	0.24	770	885	87%
2000	35	31,186	6,089.676	0.20	174	891	28,476.9	0.21	814	893	91%
2001	35	28,797	4,835.397	0.17	138	823	28,730.4	0.17	821	895	92%
2002	35	30,978	6,107.767	0.20	175	885	29,460.0	0.21	842	907	93%
2003	35	30,759	5,659.434	0.18	162	879	29,094.4	0.19	831	912	91%
2004	35	33,948	5,450.982	0.16	156	970	29,424.8	0.19	841	893	94%
2005	35	33,544	5,995.975	0.18	171	958	29,386.8	0.20	840	946	89%
2006	35	34,159	4,989.761	0.15	143	976	30,238.4	0.17	864	954	91%
2007	35	37,515	5,388.416	0.14	154	1,072	30,189.3	0.18	863	955	90%
2008	35	34,642	4,522.413	0.13	129	990	31,248.3	0.14	893	957	93%
2009	35	36,207	5,282.869	0.15	151	1,034	30,762.7	0.17	879	959	92%
2010	35	37,214	4,807.656	0.13	137	1,063	31,274.6	0.15	894	961	93%
2011	35	38,202	4,976.503	0.13	142	1,091	30,549.7	0.16	873	937	93%
2012	35	38,164	4,200.281	0.11	120	1,090	30,485.4	0.14	871	968	90%
2013	35	36,513	4,459.270	0.12	127	1,043	31,221.1	0.14	892	967	92%
2014	35	33,706	3,798.108	0.11	109	963	31,904.2	0.12	912	976	93%
2015	34	35,346	4,155.273	0.12	122	1,040	31,720.1	0.13	933	992	94%
2016	34	31,299	3,339.055	0.11	98	921	31,464.8	0.11	925	995	93%
2017	34	32,234	4,007.342	0.12	118	948	31,820.0	0.13	936	995	94%
2018	33	31,169	3,659.588	0.12	111	945	30,722.7	0.12	931	1,008	92%
2019	32	29,100	3,372.909	0.12	105	909	31,237.4	0.11	976	1,018	96%
2020	31	26,398	2,946.746	0.11	95	852	30,249.1	0.10	976	1,032	95%
2021	31	26,540	3,345.582	0.13	108	856	30,946.5	0.11	998	1,043	96%
2022	31	25,318	3,111.590	0.12	100	817	30,335.1	0.10	979	1,042	94%
2023	31	26,135	3,607.444	0.14	116	843	30,465.2	0.12	983	1,043	94%
2024	31	26,566	2,943.736	0.11	95	857	30,864.1	0.10	996	1,043	95%

NOTE: TEDE is defined as total effective dose equivalent.

* Includes only those reactors that had been in commercial operation for at least 1 full year as of December 31 of each of the indicated years.
** Figures are not adjusted for the multiple reporting of transient individuals (see section 5).
*** Beginning in 1997, the data on electricity generated indicate the net electricity generated.

Table 4-2 Summary of Information Reported by Commercial PWRs, 1994–2024

Year	Number of Reactors Included*	Number of Individuals with Measurable TEDE**	Annual Collective TEDE (person-rem)	Average Measurable TEDE per Individual (rem)**	Average Collective TEDE per Reactor (person rem)	Average Number of Individuals with Measurable TEDE per Reactor**	Electricity Generated*** (MW-yr)	Average Collective TEDE per MW-yr (person-rem/ MW-yr)	Average Electricity Generated per Reactor (MW-yr)	Average Maximum Dependable Capacity Net (Mwe)	Maximum Dependable Capacity Achieved
1994	70	44,283	9,574	0.22	137	633	52,397.6	0.18	749	928	81%
1995	70	49,985	11,762	0.24	168	714	54,138.2	0.22	773	929	83%
1996	72	46,852	9,417	0.20	131	651	55,337.8	0.17	769	935	82%
1997	72	50,690	9,546	0.19	133	704	48,985.3	0.19	680	943	72%
1998	69	38,586	6,358.096	0.16	92	559	53,288.7	0.12	772	942	82%
1999	69	43,938	7,231.281	0.16	105	637	56,235.0	0.13	815	942	87%
2000	69	42,922	6,562.006	0.15	95	622	57,529.9	0.11	834	943	88%
2001	69	38,773	6,273.155	0.16	91	562	58,822.4	0.11	852	946	90%
2002	69	42,264	6,018.423	0.14	87	613	59,369.7	0.10	860	947	91%
2003	69	44,054	6,296.136	0.14	91	638	57,920.6	0.11	839	949	88%
2004	69	35,901	4,916.915	0.14	71	520	60,398.7	0.08	875	943	93%
2005	69	44,583	5,459.832	0.12	79	646	59,790.9	0.09	867	955	91%
2006	69	46,106	6,031.425	0.13	87	668	59,751.3	0.10	866	960	90%
2007	69	42,015	4,731.597	0.11	69	609	61,955.6	0.08	898	961	93%
2008	69	44,808	4,673.527	0.10	68	649	60,586.0	0.08	878	964	91%
2009	69	45,547	4,741.935	0.10	69	660	60,467.9	0.08	876	966	91%
2010	69	37,796	3,823.728	0.10	55	548	60,859.4	0.06	882	967	91%
2011	69	43,119	3,795.601	0.09	55	625	59,682.5	0.06	865	937	92%
2012	69	41,385	3,835.112	0.09	56	600	57,272.5	0.07	830	974	85%
2013	65	30,723	2,300.277	0.07	35	473	58,785.5	0.04	904	987	92%
2014	65	37,141	3,326.411	0.09	51	571	59,262.2	0.06	912	989	92%
2015	65	35,452	2,863.815	0.08	44	545	59,377.2	0.05	913	990	92%
2016	65	28,054	2,026.654	0.07	31	432	60,052.5	0.03	924	1,001	92%
2017	65	32,527	2,409.206	0.07	37	500	60,148.9	0.04	925	1,001	92%
2018	65	29,845	2,169.883	0.07	34	459	61,113.7	0.04	940	1,002	94%
2019	64	24,515	1,707.886	0.07	27	383	60,400.6	0.03	944	1,008	94%
2020	64	26,422	1,952.382	0.07	31	413	59,648.7	0.03	932	1,008	92%
2021	62	24,127	1,957.616	0.08	32	389	57,834.3	0.03	933	1,008	93%
2022	61	25,692	1,973.696	0.08	32	421	57,506.2	0.03	943	1,013	93%
2023	61	24,914	1,944.617	0.08	32	408	57,643.9	0.03	945	1,013	93%
2024	62	25,516	1,959.647	0.08	32	412	57,473.3	0.03	927	1,013	92%

NOTE: TEDE is defined as total effective dose equivalent.

* Includes only those reactors that had been in commercial operation for at least 1 full year as of December 31 of each of the indicated years.
** Figures are not adjusted for the multiple reporting of transient individuals (see section 5).
*** Beginning in 1997, the data on electricity generated indicate the net electricity generated.

Table 4-3 Summary of Information Reported by All Commercial LWRs, 1994–2024

Year	Number of Reactors Included*	Number of Individuals with Measurable TEDE**	Annual Collective TEDE (person-rem)	Average Measurable TEDE per Individual (rem)**	Average Collective TEDE per Reactor (person rem)	Average Number of Individuals with Measurable TEDE per Reactor**	Electricity Generated*** (MW-yr)	Average Collective TEDE per MW-yr (person-rem/ MW-yr)	Average Electricity Generated per Reactor (MW-yr)	Average Maximum Dependable Capacity Net (Mwe)	Maximum Dependable Capacity Achieved
1994	107	83,454	21,672	0.26	203	780	74,536.6	0.29	697	884	79%
1995	107	85,671	21,233	0.25	198	801	78,875.2	0.27	737	896	82%
1996	109	84,644	18,883	0.22	173	777	79,660.0	0.24	731	902	81%
1997	109	84,711	17,149	0.20	157	777	71,851.4	0.24	659	910	72%
1998	105	71,485	13,187.392	0.18	126	681	77,069.9	0.17	734	918	80%
1999	104	75,420	13,665.711	0.18	131	725	83,197.6	0.16	800	923	87%
2000	104	74,108	12,651.682	0.17	122	713	86,006.8	0.15	827	926	89%
2001	104	67,570	11,108.552	0.16	107	650	87,552.8	0.13	842	929	91%
2002	104	73,242	12,126.190	0.17	117	704	88,829.7	0.14	854	934	91%
2003	104	74,813	11,955.570	0.16	115	719	87,015.0	0.14	837	936	89%
2004	104	69,849	10,367.897	0.15	100	672	89,823.5	0.12	864	926	93%
2005	104	78,127	11,455.807	0.15	110	751	89,177.7	0.13	857	952	90%
2006	104	80,265	11,021.186	0.14	106	772	89,989.7	0.12	865	958	90%
2007	104	79,530	10,120.013	0.13	97	765	92,144.9	0.11	886	959	92%
2008	104	79,450	9,195.940	0.12	88	764	91,834.3	0.10	883	961	92%
2009	104	81,754	10,024.804	0.12	96	786	91,230.6	0.11	877	964	91%
2010	104	75,010	8,631.384	0.12	83	721	92,134.0	0.09	886	965	92%
2011	104	81,321	8,771.326	0.11	84	782	90,232.2	0.10	868	967	90%
2012	104	79,549	8,035.393	0.10	77	765	87,757.9	0.09	844	972	87%
2013	100	67,236	6,759.547	0.10	68	672	90,006.6	0.08	900	980	92%
2014	100	70,847	7,124.519	0.10	71	708	91,166.4	0.08	912	985	93%
2015	99	70,798	7,019.088	0.10	71	715	91,097.3	0.08	920	991	93%
2016	99	59,353	5,365.709	0.09	54	600	91,517.3	0.06	924	999	93%
2017	99	64,761	6,416.548	0.10	65	654	91,968.8	0.07	929	999	93%
2018	98	61,014	5,829.471	0.10	59	623	91,836.4	0.06	937	1,004	93%
2019	96	53,615	5,080.795	0.09	53	558	91,638.0	0.06	955	1,011	94%
2020	95	52,820	4,899.128	0.09	52	556	89,897.8	0.05	946	1,016	93%
2021	93	50,667	5,303.198	0.10	57	545	88,780.8	0.06	955	1,020	94%
2022	92	51,010	5,085.286	0.10	55	554	87,841.3	0.06	955	1,023	93%
2023	92	51,049	5,552.061	0.11	60	555	88,109.0	0.06	958	1,022	94%
2024	93	52,082	4,903.383	0.09	53	560	88,337.4	0.06	950	1,023	93%

NOTE: TEDE is defined as total effective dose equivalent.

* Includes only those reactors that had been in commercial operation for at least 1 full year as of December 31 of each of the indicated years.
** Figures are not adjusted for the multiple reporting of transient individuals (see section 5).
*** Beginning in 1997, the data on electricity generated indicate the net electricity generated.

Table 4-4a Summary of Distribution of Annual TEDE at Commercial LWRs,* 1994–2024

Year	Number of Individuals with TEDE in Range (rem)**											Total Number Monitored	Number with Measurable Exposure	Collective TEDE (person-rem)	Average Measurable TEDE (rem)
	No. Measurable Exposure	Measurable <0.01	0.10–0.25	0.25–0.50	0.50–0.75	0.75–1.0	1.0–2.0	2.0–3.0	3.0–4.0	4.0–5.0	>5.0				
1994	85,145	36,528	18,633	14,246	6,800	3,502	3,323	215	6	-	-	168,398	83,253	21,534.000	0.259
1995	81,032	38,575	20,245	15,279	6,884	3,336	3,077	125	5	-	-	168,558	87,526	21,674.000	0.248
1996	78,197	39,426	19,955	14,201	5,809	2,648	2,342	68	-	-	-	162,646	84,449	18,874.000	0.223
1997	80,163	41,759	19,951	13,396	5,394	2,240	1,671	59	3	-	-	164,636	84,473	17,136.000	0.203
1998	77,080	37,039	17,189	10,467	3,930	1,562	1,129	35	-	-	-	148,431	71,351	13,169.366	0.185
1999	74,867	39,663	18,063	10,964	3,994	1,569	1,141	24	2	-	-	150,287	75,420	13,665.711	0.181
2000	73,793	40,301	17,598	10,310	3,525	1,375	976	23	-	-	-	147,901	74,108	12,651.682	0.171
2001	73,206	37,461	16,078	9,231	2,930	1,060	747	63	-	-	-	140,776	67,570	11,108.552	0.164
2002	76,270	41,588	16,752	9,426	3,121	1,245	1,003	105	2	-	-	149,512	73,242	12,126.190	0.166
2003	77,889	42,720	17,231	9,589	3,139	1,233	864	37	-	-	-	152,702	74,813	11,955.570	0.160
2004	80,473	41,583	15,626	8,245	2,733	978	668	16	-	-	-	150,322	69,849	10,367.897	0.148
2005	82,574	46,444	17,754	9,191	2,934	1,104	683	17	-	-	-	160,701	78,127	11,455.807	0.147
2006	84,558	48,571	18,269	9,312	2,675	904	532	2	-	-	-	164,823	80,265	11,021.186	0.137
2007	84,551	49,998	17,672	8,294	2,329	824	402	11	-	-	-	164,081	79,530	10,120.013	0.127
2008	89,875	51,831	17,337	7,578	1,847	583	269	5	-	-	-	169,325	79,450	9,195.940	0.116
2009	94,627	52,670	17,417	8,352	2,161	741	413	-	-	-	-	176,381	81,754	10,024.804	0.123
2010	104,638	49,571	16,042	6,656	1,801	602	333	5	-	-	-	179,648	75,010	8,631.384	0.115
2011	110,217	55,407	16,651	6,753	1,675	559	276	-	-	-	-	191,538	81,321	8,771.326	0.108
2012	114,428	55,735	15,593	6,072	1,509	385	242	13	-	-	-	193,977	79,549	8,035.393	0.101
2013	107,378	47,190	13,158	5,088	1,227	380	191	2	-	-	-	174,614	67,236	6,759.547	0.101
2014	104,006	50,110	13,650	5,231	1,167	421	235	33	-	-	-	174,853	70,847	7,124.519	0.101
2015	106,088	50,067	13,856	4,980	1,230	421	242	2	-	-	-	176,886	70,798	7,019.088	0.099
2016	96,221	43,386	10,938	3,829	865	243	92	-	-	-	-	155,574	59,353	5,365.709	0.090
2017	92,311	45,920	12,376	4,745	1,184	382	154	-	-	-	-	157,072	64,761	6,416.548	0.099
2018	89,205	44,206	11,030	4,207	1,086	316	168	1	-	-	-	150,219	61,014	5,829.471	0.096
2019	81,282	39,068	9,512	3,636	942	300	156	1	-	-	-	134,897	53,615	5,080.795	0.095
2020	72,190	39,021	9,254	3,192	815	320	217	1	-	-	-	125,010	52,820	4,899.128	0.093
2021	72,014	36,168	9,206	3,521	999	478	286	9	-	-	-	122,681	50,667	5,303.198	0.105
2022	74,328	36,262	9,837	3,500	886	338	185	2	-	-	-	125,338	51,010	5,085.286	0.100
2023	73,843	35,725	9,635	3,840	1,113	423	308	5	-	-	-	124,892	51,049	5,552.061	0.109
2024	70,307	37,663	9,731	3,530	815	230	106	7	-	-	-	122,389	52,082	4,903.383	0.094

NOTE: TEDE is defined as total effective dose equivalent.

* Data are from reports submitted in accordance with 10 CFR 20.2206 for BWRs and PWRs that had been in commercial operation for at least 1 full year as of December 31 of each of the indicated years. Figures have not been adjusted to account for transient individuals (see table 4-4b and section 5).

** TEDE values exactly equal to the values separating ranges are reported in the next range.

Table 4-4b Summary of Distribution of Annual TEDE at Commercial LWRs,* Adjusted for Transient Individuals, 1994–2024

Year	Number of Individuals with TEDE in Range (rem)**											Total Number Monitored	Number with Measurable Exposure	Collective TEDE (person-rem)	Average Measurable TEDE (rem)
	No. Measurable Exposure	Measurable <0.01	0.10–0.25	0.25–0.50	0.50–0.75	0.75–1.0	1.0–2.0	2.0–3.0	3.0–4.0	4.0–5.0	>5.0				
1994	67,700	29,847	14,841	11,716	6,124	3,586	4,222	508	40	-	-	138,584	70,884	21,534.000	0.304
1995	61,505	29,588	15,097	12,020	6,121	3,300	3,906	595	133	2	-	132,267	70,762	21,674.000	0.306
1996	58,292	30,021	14,831	11,340	5,418	2,831	3,194	408	67	-	-	126,402	68,110	18,874.000	0.277
1997	58,647	31,751	14,881	10,902	5,228	2,447	2,598	286	41	-	-	126,781	68,134	17,136.000	0.252
1998	57,041	27,905	12,829	8,802	3,930	1,839	1,829	182	15	1	-	114,373	57,332	13,169.366	0.230
1999	55,121	29,271	13,278	9,017	3,806	1,908	1,898	245	18	-	-	114,562	59,441	13,665.711	0.230
2000	53,324	28,480	12,921	8,679	3,571	1,644	1,734	186	18	-	-	110,557	57,233	12,651.682	0.221
2001	52,636	27,246	11,491	7,659	2,907	1,323	1,392	221	53	-	-	104,928	52,292	11,108.552	0.212
2002	53,440	28,523	11,610	7,668	3,004	1,479	1,820	320	35	1	-	107,900	54,460	12,126.190	0.223
2003	54,028	29,161	11,971	8,190	3,253	1,527	1,651	184	18	-	-	109,983	55,955	11,955.570	0.214
2004	57,420	28,863	11,178	7,335	2,873	1,233	1,190	188	13	-	-	110,293	52,873	10,367.897	0.196
2005	56,709	31,035	12,422	7,813	3,106	1,537	1,490	147	3	-	-	114,262	57,553	11,455.807	0.199
2006	57,546	32,439	12,687	7,802	2,971	1,415	1,407	82	2	-	-	116,351	58,805	11,021.186	0.187
2007	57,314	32,706	11,961	7,396	2,714	1,284	1,100	97	9	-	-	114,581	57,267	10,120.013	0.177
2008	61,336	33,832	12,322	6,786	2,430	1,026	922	38	-	-	-	118,692	57,356	9,195.940	0.160
2009	66,310	35,877	12,318	7,317	2,562	1,174	1,144	68	4	-	-	126,774	60,464	10,024.804	0.166
2010	74,218	33,873	11,670	6,356	2,231	946	832	42	3	-	-	130,171	55,953	8,631.384	0.154
2011	78,090	36,745	12,119	6,307	2,226	1,008	837	23	-	-	-	137,355	59,265	8,771.326	0.148
2012	79,222	36,990	11,943	5,904	1,962	774	672	37	-	-	-	137,504	58,282	8,035.393	0.138
2013	76,261	32,326	10,166	5,231	1,680	674	430	18	-	-	-	126,786	50,525	6,759.547	0.134
2014	73,390	32,917	10,285	5,212	1,685	695	589	58	-	-	-	124,831	51,441	7,124.519	0.138
2015	71,980	31,806	10,208	5,034	1,686	708	647	27	3	-	-	122,099	50,119	7,019.088	0.140
2016	67,685	29,063	8,736	4,196	1,236	429	332	16	1	-	-	111,694	44,009	5,365.709	0.122
2017	62,882	29,448	9,210	4,695	1,666	671	532	11	-	-	-	109,115	46,233	6,416.548	0.139
2018	59,356	28,012	8,146	4,205	1,488	663	462	20	2	-	-	102,354	42,998	5,829.471	0.136
2019	55,718	25,322	7,167	3,798	1,272	554	402	4	-	-	-	94,237	38,519	5,080.795	0.132
2020	50,006	25,125	6,962	3,416	1,154	532	457	13	-	-	-	87,665	37,659	4,899.128	0.130
2021	48,780	22,249	6,640	3,489	1,292	676	646	24	-	-	-	83,796	35,016	5,303.198	0.151
2022	49,530	21,948	7,233	3,712	1,231	555	462	19	-	-	-	84,690	35,160	5,085.286	0.145
2023	49,291	21,363	6,708	3,568	1,404	679	732	39	-	-	-	83,784	34,493	5,552.061	0.161
2024	45,888	22,805	7,166	3,634	1,277	464	357	17	-	-	-	81,608	35,720	4,903.383	0.137

NOTE: TEDE is defined as total effective dose equivalent.

* Summary of reports submitted in accordance with 10 CFR 20.2206 for BWRs and PWRs that had been in commercial operation for at least 1 full year as of December 31 of each of the indicated years.

** TEDE values exactly equal to the values separating ranges are reported in the next higher range.

Table 4-5 Three-Year Totals and Averages for BWRs, in Ascending Order of Collective TEDE per Reactor, 2022–2024

Plant Name*	Reactor-Years	Three-Year Collective TEDE per Reactor Year, 2022–2024 (person rem)	Three-Year Collective TEDE per Site (person rem)	Number of Individuals with Measurable TEDE	Average TEDE per Worker (rem)	Total Electricity Output (MW-yrs)	Average TEDE per MW-Yr (rem)
PEACH BOTTOM 2,3	6	63.706	382.233	4,320	0.088	7,553.1	0.05
HATCH 1,2	6	64.810	388.862	3,750	0.104	4,891.8	0.08
DRESDEN 2,3	6	69.736	418.417	5,585	0.075	5,238.1	0.08
CLINTON	3	70.224	210.673	2,000	0.105	3,062.1	0.07
SUSQUEHANNA 1,2	6	76.341	458.047	3,340	0.137	6,878.6	0.07
MONTICELLO	3	80.359	241.077	1,827	0.132	1,805.4	0.13
BROWNS FERRY 1,2,3	9	81.229	731.058	7,315	0.100	10,213.8	0.07
LIMERICK 1,2	6	82.231	493.388	5,328	0.093	6,571.7	0.08
COOPER STATION	3	88.248	264.744	2,420	0.109	2,126.0	0.12
COLUMBIA GENERATING	3	92.376	277.129	2,677	0.104	3,219.1	0.09
HOPE CREEK 1	3	92.877	278.631	2,677	0.104	3,214.2	0.09
FITZPATRICK	3	100.743	302.229	2,644	0.114	2,367.6	0.13
NINE MILE POINT 1,2	6	104.330	625.980	4,217	0.148	5,271.4	0.12
BRUNSWICK 1,2	6	104.947	629.681	4,446	0.142	5,322.9	0.12
RIVER BEND 1	3	117.968	353.904	2,808	0.126	2,419.2	0.15
GRAND GULF	3	123.818	371.455	3,052	0.122	3,549.9	0.10
QUAD CITIES 1,2	6	127.886	767.317	5,754	0.133	5,228.9	0.15
PERRY	3	168.889	506.666	2,113	0.240	3,323.2	0.15
LASALLE 1,2	6	173.724	1,042.342	6,210	0.168	6,634.1	0.16
FERMI 2	3	306.312	918.937	5,575	0.165	2,773.3	0.33
Totals and Averages	**93**	**-**	**9,662.770**	**78,058**	**0.124**	**91,664.4**	**0.11**
Average per Reactor-Year	**-**	**103.901**	**-**	**839**	**-**	**985.6**	**-**

NOTE: TEDE is defined as total effective dose equivalent.

* Sites where not all reactors had completed 3 full years of commercial operations as of December 31, 2024, are not included.

Table 4-6 Three-Year Totals and Averages for PWRs, in Ascending Order of Collective TEDE per Reactor, 2022–2024

Plant Name*	Reactor-Years	Three-Year Collective TEDE per Reactor Year, 2022–2024 (person rem)	Three-Year Collective TEDE per Site (person rem)	Number of Individuals with Measurable TEDE	Average TEDE per Worker (rem)	Total Electricity Output (MW-yrs)	Average TEDE per MW-Yr (rem)
HARRIS 1	3	12.714	38.141	835	0.046	2,749.5	0.01
FARLEY 1,2	6	14.266	85.593	1,459	0.059	4,886.6	0.02
PALO VERDE 1,2,3	9	15.098	135.885	2,427	0.056	10,931.6	0.01
OCONEE 1,2,3	9	18.017	162.157	3,480	0.047	7,421.3	0.02
DIABLO CANYON 1,2	6	18.084	108.502	1,925	0.056	6,140.6	0.02
CALLAWAY 1	3	20.185	60.554	1,044	0.058	3,262.2	0.02
BYRON 1,2	6	22.391	134.343	2,433	0.055	6,735.3	0.02
BRAIDWOOD 1,2	6	23.830	142.977	2,529	0.057	6,813.2	0.02
PRAIRIE ISLAND 1,2	6	25.701	154.207	2,066	0.075	2,591.5	0.06
SEABROOK	3	26.161	78.482	1,151	0.068	3,436.7	0.02
CALVERT CLIFFS 1,2	6	26.796	160.773	2,124	0.076	5,075.3	0.03
COMANCHE PEAK 1,2	6	27.176	163.056	2,062	0.079	6,690.1	0.02
SUMMER 1	3	27.249	81.748	1,200	0.068	2,683.7	0.03
NORTH ANNA 1,2	6	27.646	165.875	2,143	0.077	5,253.0	0.03
DAVIS-BESSE 1	3	28.587	85.761	1,471	0.058	2,490.9	0.03
GINNA	3	29.743	89.228	1,206	0.074	1,651.7	0.05
VOGTLE 1,2,3	7	29.947	209.630	2,527	0.083	6,596.6	0.03
BEAVER VALLEY 1,2	6	30.658	183.948	2,026	0.091	5,043.9	0.04
SOUTH TEXAS 1,2	6	31.552	189.311	1,430	0.132	7,159.7	0.03
ST. LUCIE 1,2	6	32.405	194.428	2,312	0.084	5,403.0	0.04
CATAWBA 1,2	6	33.366	200.198	2,412	0.083	6,454.7	0.03
POINT BEACH 1,2	6	37.648	225.889	1,556	0.145	3,413.4	0.07
COOK 1,2	6	38.746	232.476	2,549	0.091	6,078.4	0.04
TURKEY POINT 3,4	6	39.036	234.216	2,428	0.096	4,833.1	0.05
ROBINSON 2	3	39.711	119.132	1,650	0.072	2,118.6	0.06
MILLSTONE 2,3	6	40.955	245.729	2,622	0.094	5,375.8	0.05
SEQUOYAH 1,2	6	42.739	256.436	3,565	0.072	5,876.7	0.04
SURRY 1,2	6	42.807	256.839	2,799	0.092	4,640.1	0.06
ARKANSAS 1,2	6	43.304	259.826	3,673	0.071	5,010.9	0.05
WOLF CREEK 1	3	43.746	131.237	1,601	0.082	3,249.6	0.04
MCGUIRE 1,2	6	44.680	268.082	3,260	0.082	6,569.4	0.04
WATERFORD 3	3	52.900	158.699	2,248	0.071	2,492.8	0.06
SALEM 1,2	6	53.932	323.594	3,163	0.102	6,429.6	0.05
WATTS BAR 1,2	6	56.835	341.008	4,745	0.072	6,189.6	0.06
Totals and Averages	**184**	**-**	**5,877.960**	**76,121**	**0.077**	**171,749.1**	**0.03**
Average per Reactor-Year	**-**	**31.945**	**-**	**414**	**-**	**933.4**	**-**

NOTE: These data do not include Palisades, which closed in May 2022. TEDE is defined as total effective dose equivalent.

* Sites where not all reactors had completed 3 full years of commercial operation as of December 31, 2024, are not included.

Table 4-7 Three-Year Collective TEDE per Reactor-Year for BWRs, 2022–2024

	Plant Name	Three-Year Coll. TEDE per Reactor-Year, 2022–2024	Percentage Change from 2021–2023	2021–2023 Quartile (If Changed)	
1st Quartile	PEACH BOTTOM 2,3	63.706	-1% ▼	-	
	HATCH 1,2	64.810	23% ▲	-	
	DRESDEN 2,3	69.736	7% ▲	-	
	CLINTON	70.224	-29% ▼	3	
	SUSQUEHANNA 1,2	76.341	0% ▲	2	
2nd Quartile	MONTICELLO	80.359	-27% ▼	3	
	BROWNS FERRY 1,2,3	81.229	-8% ▼	-	
	LIMERICK 1,2	82.231	20% ▲	-	
	COOPER STATION	88.248	60% ▲	1	
	COLUMBIA GENERATING	92.376	-51% ▼	4	
3rd Quartile	HOPE CREEK 1	92.877	-8% ▼	-	
	FITZPATRICK	100.743	58% ▲	1	
					< Average 103.901
	NINE MILE POINT 1,2	104.330	21% ▲	2	
	BRUNSWICK 1,2	104.947	0% ▲	-	
	RIVER BEND 1	117.968	-34% ▼	4	
4th Quartile	GRAND GULF	123.818	48% ▲	2	
	QUAD CITIES 1,2	127.886	26% ▲	3	
	PERRY	168.889	-31% ▼	-	
	LASALLE 1,2	173.724	-31% ▼	-	
	FERMI 2	306.312	38% ▲	-	
	Average per Reactor-Year	**103.901**	**-4% ▼**		

NOTE: TEDE is defined as total effective dose equivalent.

Table 4-8 Three-Year Collective TEDE per Reactor-Year for PWRs, 2022–2024

	Plant Name	Three-Year Coll. TEDE per Reactor-Year, 2022–2024	Percentage Change from 2021–2023	2021–2023 Quartile (If Changed)
1st Quartile	HARRIS 1	12.714	3% ▲	-
	FARLEY 1,2	14.266	-23% ▼	-
	PALO VERDE 1,2,3	15.098	6% ▲	-
	OCONEE 1,2,3	18.017	19% ▲	-
	DIABLO CANYON 1,2	18.084	20% ▲	-
	CALLAWAY 1	20.185	1% ▲	-
	BYRON 1,2	22.391	4% ▲	-
	BRAIDWOOD 1,2	23.830	-15% ▼	2
	PRAIRIE ISLAND 1,2	25.701	12% ▲	2
2nd Quartile	SEABROOK	26.161	-7% ▼	-
	CALVERT CLIFFS 1,2	26.796	8% ▲	-
	COMANCHE PEAK 1,2	27.176	-36% ▼	3
	SUMMER 1	27.249	30% ▲	1
	NORTH ANNA 1,2	27.646	11% ▲	-
	DAVIS-BESSE 1	28.587	49% ▲	1
	GINNA	29.743	0% ▼	-
	VOGTLE 1,2,3	29.947	-15% ▼	3
3rd Quartile	BEAVER VALLEY 1,2	30.658	-4% ▼	-
	SOUTH TEXAS 1,2	31.552	22% ▲	2
	ST. LUCIE 1,2	32.405	-6% ▼	-
	CATAWBA 1,2	33.366	-22% ▼	4
	POINT BEACH 1,2	37.648	-12% ▼	4
	COOK 1,2	38.746	26% ▲	-
	TURKEY POINT 3,4	39.036	-11% ▼	4
	ROBINSON 2	39.711	67% ▲	2
4th Quartile	MILLSTONE 2,3	40.955	5% ▲	3
	SEQUOYAH 1,2	42.739	9% ▲	3
	SURRY 1,2	42.807	9% ▲	3
	ARKANSAS 1,2	43.304	-11% ▼	-
	WOLF CREEK 1	43.746	-7% ▼	-
	MCGUIRE 1,2	44.680	-5% ▼	-
	WATERFORD 3	52.900	4% ▲	-
	SALEM 1,2	53.932	12% ▲	-
	WATTS BAR 1,2	56.835	-7% ▼	-
	Average per Reactor-Year	**31.945**	**4% ▲**	

Average 31.945

NOTE: These data do not include Palisades, which closed in May 2022. TEDE is defined as total effective dose equivalent.

* Sites where not all reactors had completed 3 full years of commercial operation as of December 31, 2024, are not included.

Table 4-9 Plants No Longer in Operation, 2024

Plant Name	Date of First Commercial Operation	Ceased Operations	License Termination Plan Approved by NRC	PSDAR Submitted	Plant Status*	Completion of Decommissioning**
CRYSTAL RIVER 3	12/1/1976	2/2013	TBD	6/2019	DECON	2026-2030
DRESDEN 1	8/1/1960	10/1978	TBD	6/1998	SAFSTOR	2036
DUANE ARNOLD	2/1/1975	8/2020	TBD	4/2020	SAFSTOR	2080
FERMI 1	5/10/1963	9/1972	TBD	4/1998	SAFSTOR	2032
FORT CALHOUN	8/9/1973	10/2016	TBD	12/2019	DECON	2026
INDIAN POINT 1	8/1/1962	10/1974	TBD	12/2019	DECON	2033
INDIAN POINT 2	7/1/1974	4/2020	TBD	12/2019	DECON	2033
INDIAN POINT 3	8/30/1976	4/2021	TBD	12/2019	DECON	2033
KEWAUNEE	12/1/1973	5/2013	TBD	5/2013	DECON	2073
MILLSTONE 1	12/28/1970	7/1998	TBD	6/1999	SAFSTOR	2056
OYSTER CREEK	12/1/1969	9/2018	TBD	6/2018	DECON	2025
PALISADES	12/31/1971	5/2022	TBD	12/2020	SAFSTOR	2041
PEACH BOTTOM 1	6/1/1967	10/1974	TBD	6/1998	SAFSTOR	2034
PILGRIM 1	12/1/1972	5/2019	TBD	11/2018	DECON	2063
SAN ONOFRE 1	1/1/1968	11/1992	TBD	5/2020	DECON	2028
SAN ONOFRE 2	1/1/1983	6/2013	TBD	5/2020	DECON	2028
SAN ONOFRE 3	1/1/1984	6/2013	TBD	5/2020	DECON	2028
THREE MILE ISLAND 1	9/2/1974	9/2019	TBD	4/2019	SAFSTOR	2079
THREE MILE ISLAND 2	12/30/1978	3/1979	TBD	3/2024	DECON	2053
VERMONT YANKEE	11/30/1972	12/2014	TBD	4/2017	DECON	2026-2030
REACTOR DECOMMISSIONING COMPLETED* **						
BIG ROCK POINT	3/29/1963	8/1997	TBD	9/1997	ISFSI only	2007
HADDAM NECK	12/27/1974	12/1996	TBD	8/1997	ISFSI only	2007
HUMBOLDT BAY 3	8/1/1963	7/1976	2012	2/1998	ISFSI only	2021****
LACROSSE	11/1/1969	4/1987	TBD	5/1991	ISFSI only	2023
MAINE YANKEE	6/29/1973	8/1997	TBD	8/1997	ISFSI only	2005
RANCHO SECO	4/17/1975	6/1989	5/2008	3/1997	ISFSI only	2009
TROJAN	5/20/1976	11/1992	2/2001	8/1995	ISFSI only	2004****
YANKEE ROWE	12/24/1963	10/1991	TBD	-	ISFSI only	2007
ZION 1	12/31/1973	2/1997	9/2018	3/2008	ISFSI only	2024
ZION 2	9/17/1974	9/1996	9/2018	3/2008	ISFSI only	2024

* Plant status as of 2024.
** Including the generally licensed ISFSI.
*** Not including ISFSI.
**** 10 CFR Part 72 ISFSI, 10 CFR Part 50 license terminated.

NOTE: Information on the latest decommissioning status of plants listed in this table can be found in SECY-23-0098, “Status of the Decommissioning Program—2023 Annual Report,” dated December 5, 2023 (Agencywide Documents Access and Management System Accession No. ML23262B428) [Ref. 22]. Rows displayed in gray represent plants that have completed decommissioning [Refs. 22–24].

TBD: To be determined.

SAFSTOR (often considered “delayed DECON”): The nuclear facility is maintained and monitored in a condition that allows the radioactivity to decay; afterwards, it is dismantled.

DECON (immediate dismantlement): Soon after the nuclear facility closes or transitions out of SAFSTOR, equipment, structures, and portions of the facility containing radioactive contaminants are removed or decontaminated to a level that permits release of the property and termination of the NRC license.

Table 5-1 Effects of Transient Individuals on Annual Statistical Compilations,* 2024

License Category	Number of Individuals with TEDE in Range (rem)**											Total Number Monitored	Number with Measurable TEDE	Collective TEDE (person-rem)	Average Measurable TEDE (rem)
	No. Measurable Exposure	Measurable <0.01	0.10–0.25	0.25–0.50	0.50–0.75	0.75–1.0	1.0–2.0	2.0–3.0	3.0–4.0	4.0–5.0	>5.0				
COMMERCIAL LIGHT-WATER REACTORS															
(1a) Form 5 Summation	70,307	37,663	9,731	3,530	815	230	106	7	-	-	-	122,389	52,082	4,903.383	0.09
(2a) Transients, as Reported	30,690	22,232	6,464	2,358	523	140	60	3	-	-	-	62,470	31,780	3,157.517	0.10
(3a) Transients, Actual	6,271	7,374	3,899	2,462	985	374	311	13	-	-	-	21,689	15,418	3,157.517	0.20
Corrected Distribution (1- [2 - 3]) **	**45,888**	**22,805**	**7,166**	**3,634**	**1,277**	**464**	**357**	**17**	**-**	**-**	**-**	**81,608**	**35,720**	**4,903.383**	**0.14**
ALL LICENSEES															
(1b) Form 5 Summation	73,902	41,742	10,861	4,423	1,238	442	502	94	20	5	-	133,240	59,338	6,816.366	0.11
(2b) Transients, as Reported	32,219	22,890	6,724	2,508	582	153	87	5	2	-	-	65,170	32,951	3,368.906	0.10
(3b) Transients, Actual	6,544	7,586	3,990	2,551	1,042	416	362	16	2	-	-	22,509	15,965	3,368.906	0.21
Corrected Distribution (1- [2 - 3]) **	**48,227**	**26,438**	**8,127**	**4,466**	**1,698**	**705**	**777**	**105**	**20**	**5**	**-**	**90,579**	**42,352**	**6,816.37**	**0.16**

NOTE: TEDE is defined as total effective dose equivalent.

* TEDE values exactly equal to the values separating ranges are reported in the next higher range.
** The corrected distribution applies only to the number of individuals and is calculated by the total number in (1) minus the difference between (2) and (3).

Table 6-1 Summary of Annual TEDE Distributions for Certain NRC Licensees,* 2014–2024

Year	Total Number of Monitored Individuals		Individuals with Measurable TEDE ***			
			< 2 rem	> 2 rem	< 5 rem	> 5 rem
	Reported Number	Corrected Number **	%	Number	%	Number
2014	185,843	135,817	99.8%	224	100%	-
2015	186,614	131,827	99.9%	133	99.9%	2
2016	164,984	121,129	99.9%	81	100%	-
2017	166,526	118,715	99.9%	164	99.9%	2
2018	159,988	110,861	99.8%	188	99.9%	1
2019	144,243	102,182	99.9%	110	100%	-
2020	133,139	94,779	99.9%	74	99.9%	2
2021	130,613	90,470	99.9%	84	100%	-
2022	134,177	107,070	99.9%	92	100%	-
2023	135,562	93,489	99.8%	166	100%	-
2024	133,240	90,579	99.9%	130	100%	-

NOTE: TEDE is defined as total effective dose equivalent.

* Licensees required to submit radiation exposure reports to the NRC under 10 CFR 20.2206.
** The values in this column have been corrected to account for transient individuals (i.e., individuals who may have been counted more than once because they worked at more than one facility during the monitoring year; see section 5).
*** The data for 2014–2024 are based on the distribution of individual doses after adjusting for the multiple counting of transient individuals (see section 5).

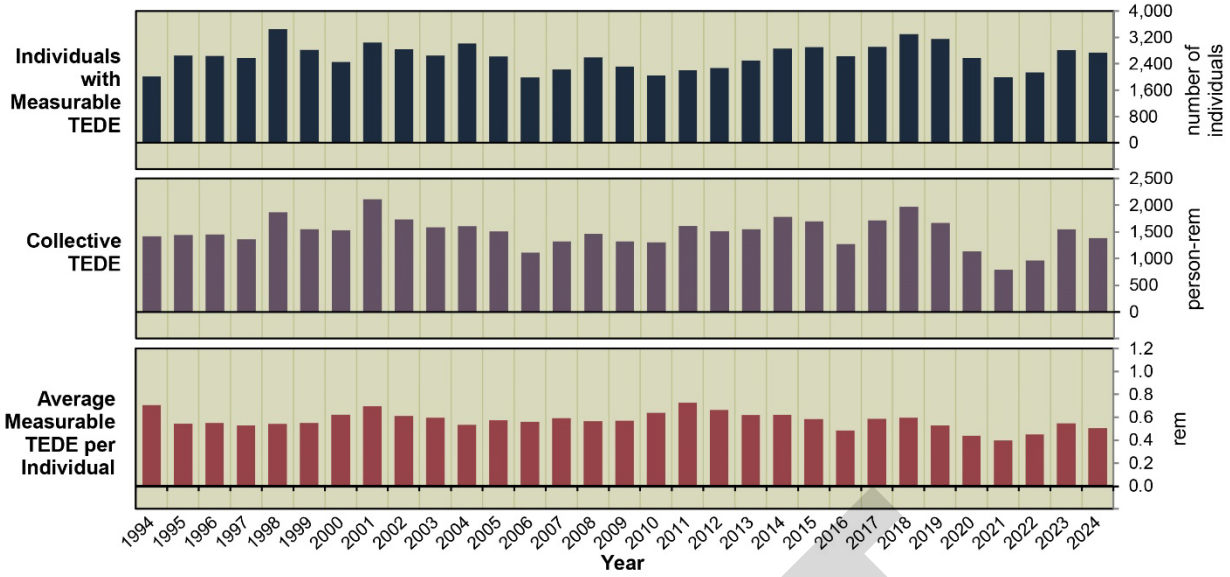
Table 6-2 Maximum Occupational Doses for Each Exposure Category,* 2024

Dose Category**	Annual Dose Limit, 10 CFR 20***	Maximum Annual Dose Reported (rem)	Max Dose Percentage of Limit	Number of Individuals with Measurable Dose	Number of Individuals with >25% of Limit	Number of Individuals with >50% of Limit	Number of Individuals with >75% of Limit	Number of Individuals with >95% of Limit	Number of Individuals with Dose > Limit
SDE-ME	50 rem	38.100	76%	36,682	71	9	1	-	-
SDE-WB	50 rem	4.717	9%	42,441	-	-	-	-	-
LDE	15 rem	0.596	4%	41,818	7	-	-	-	-
CEDE		0.565		2,217					
CDE		4.724		2,009					
DDE		4.453		42,435					
TEDE	5 rem	4.453	89%	42,352	522	57	7	-	-
TODE	50 rem	4.842	10%	42,460	-	-	-	-	-

NOTE: TEDE is defined as total effective dose equivalent.

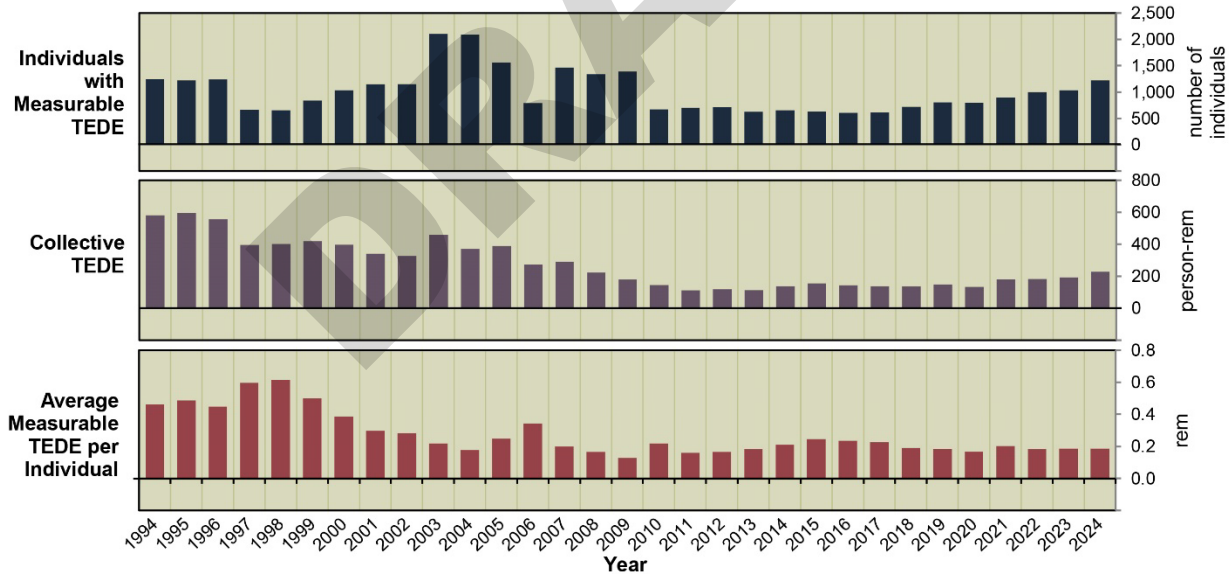
* Only records reported by licensees required to report under 10 CFR 20.2206 are included. Numbers have been adjusted for the multiple reporting of transient individuals (see section 5).
** SDE-ME = shallow dose equivalent to the maximally exposed extremity
SDE-WB = shallow dose equivalent to the whole body
LDE = lens dose equivalent to the lens of the eye
CEDE = committed effective dose equivalent
CDE = committed dose equivalent
DDE = deep dose equivalent
TEDE = total effective dose equivalent
TODE = total organ dose equivalent
*** Shaded boxes represent dose categories that do not have specific dose limits defined in 10 CFR Part 20.

LIST OF FIGURES



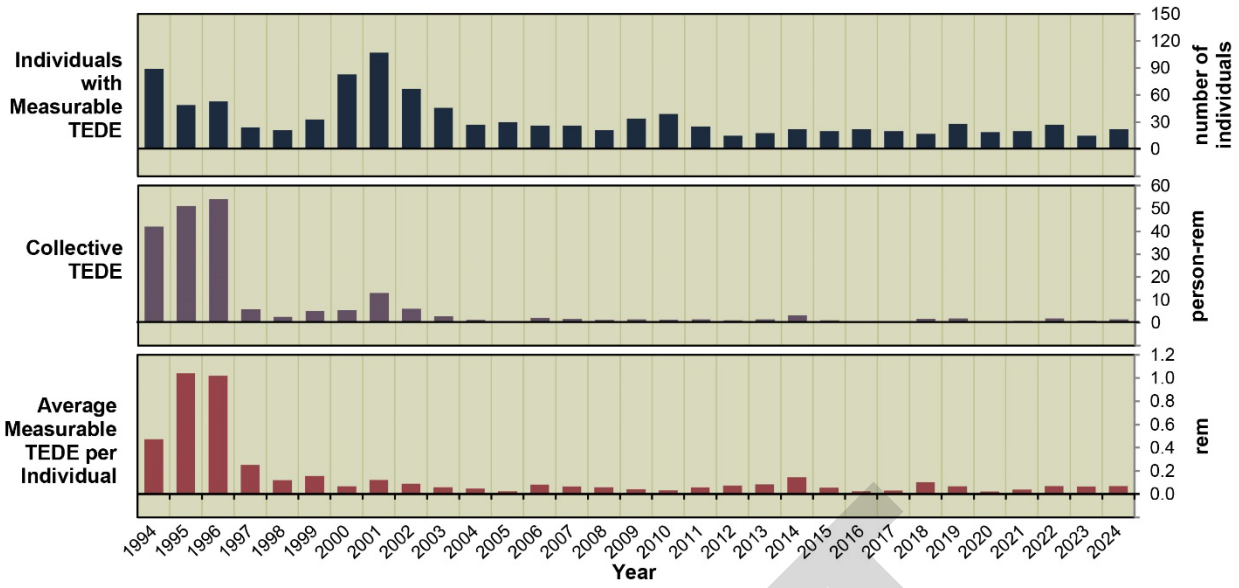
NOTE: TEDE is defined as total effective dose equivalent.

Figure 3-1 Number of Individuals with Measurable TEDE, Collective TEDE, and Average Measurable TEDE for Industrial Radiography Licensees, 1994–2024



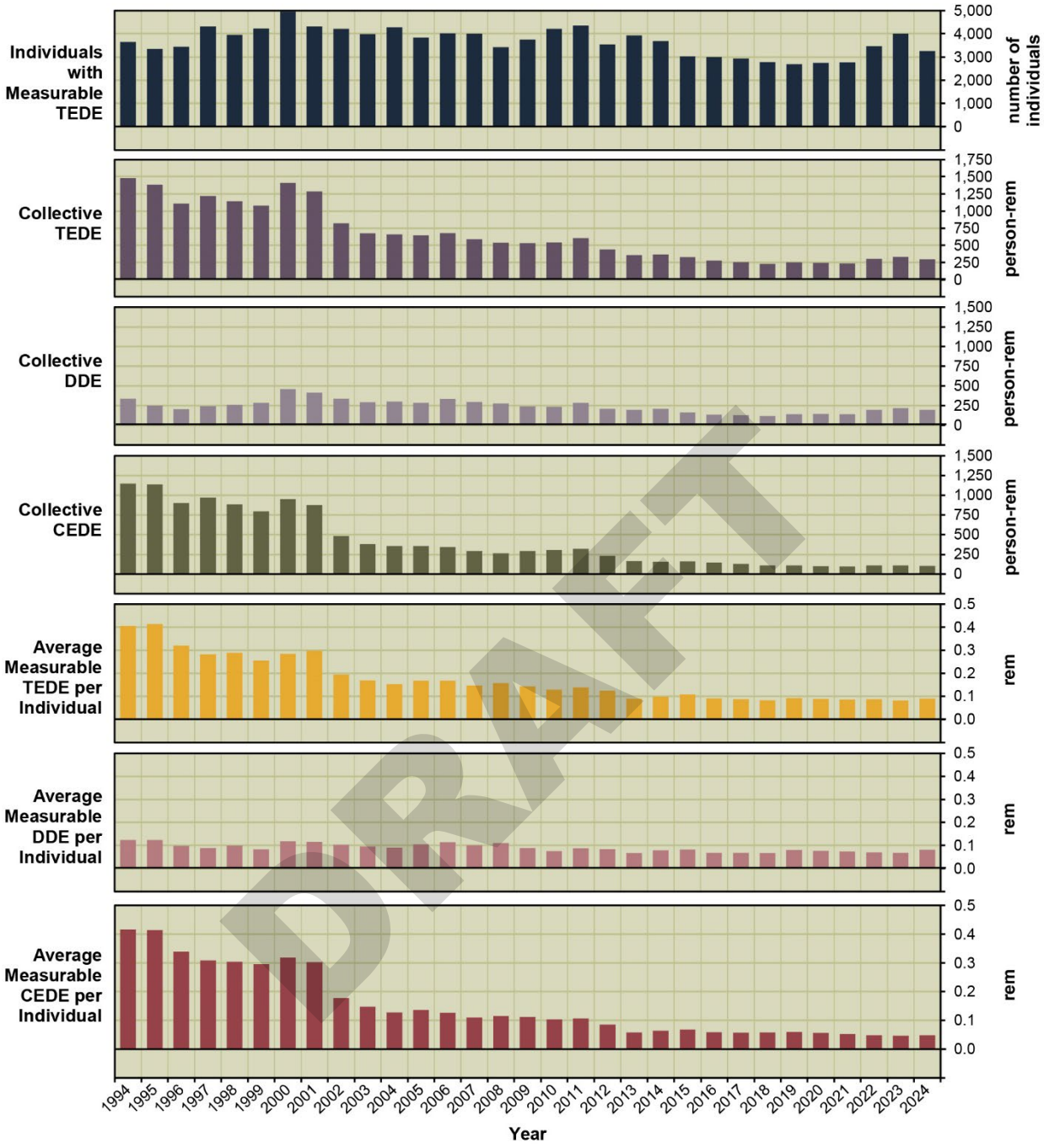
NOTE: TEDE is defined as total effective dose equivalent.

Figure 3-2 Number of Individuals with Measurable TEDE, Collective TEDE, and Average Measurable TEDE for Manufacturing and Distribution Licensees, 1994–2024



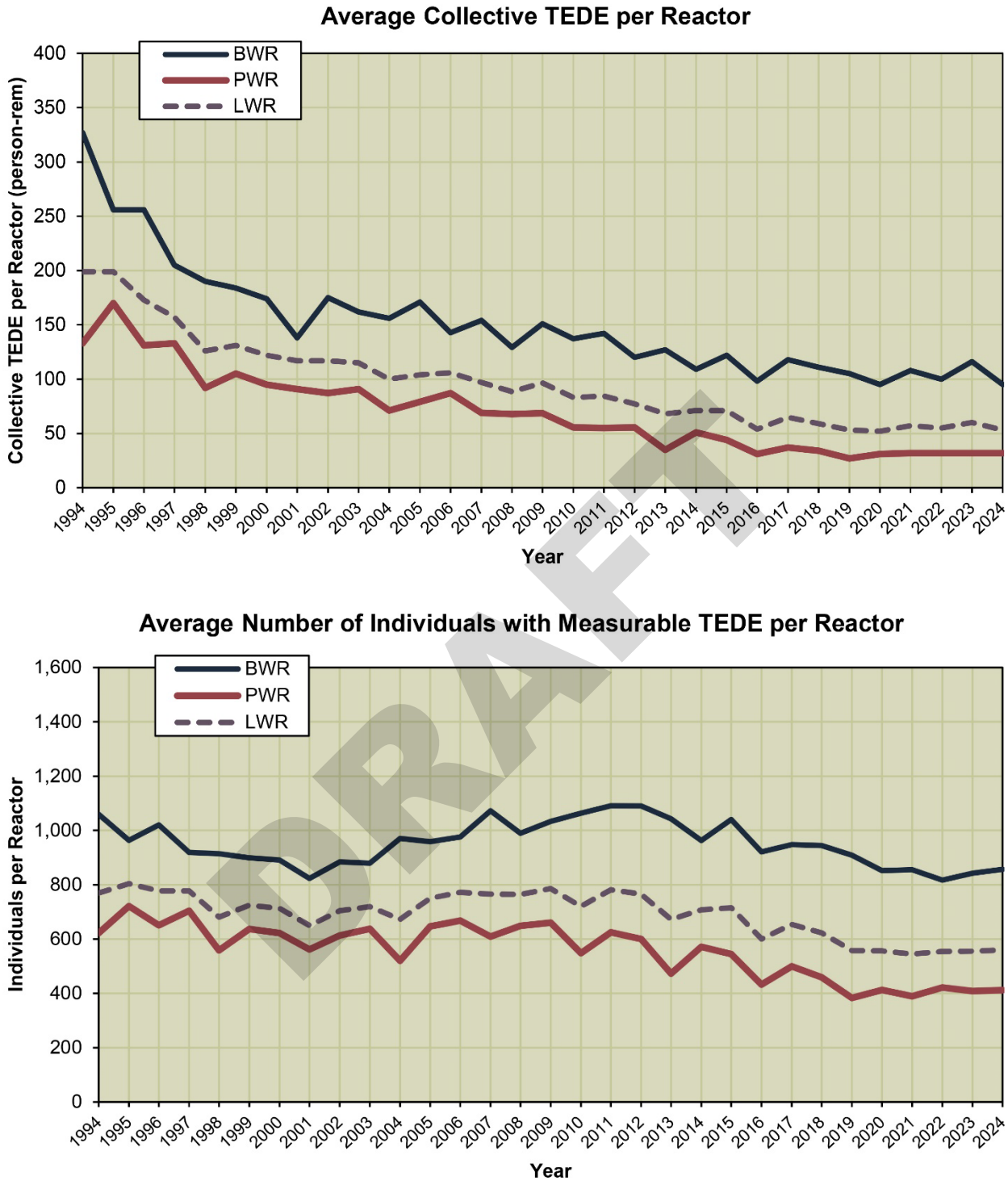
NOTE: TEDE is defined as total effective dose equivalent.

Figure 3-3 Number of Individuals with Measurable TEDE, Collective TEDE, and Average Measurable TEDE for ISFSI Licensees, 1994–2024



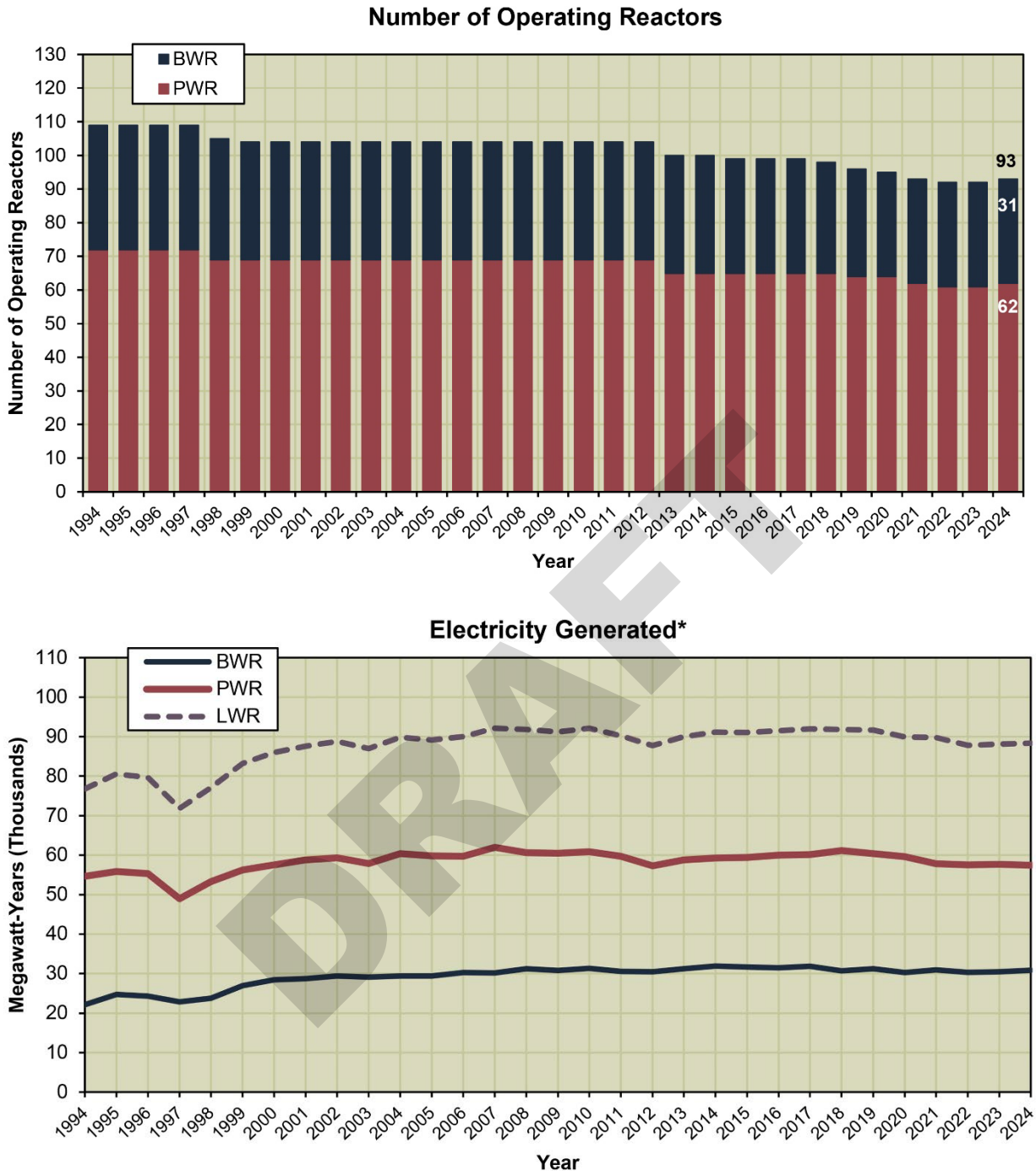
NOTE: TEDE is defined as total effective dose equivalent.

Figure 3-4 Annual Exposure Information for Fuel Cycle Licensees, 1994–2024



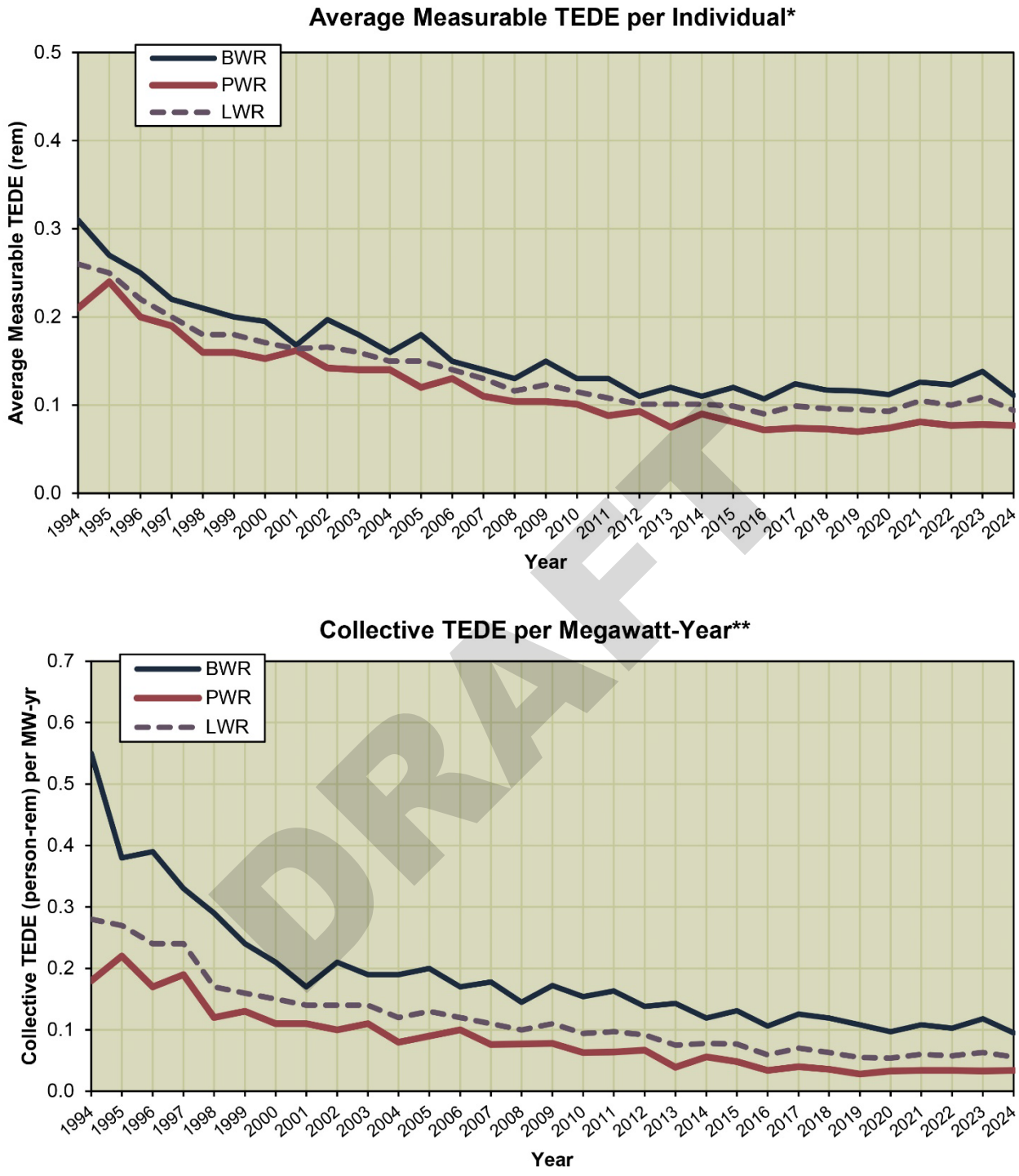
NOTE: TEDE is defined as total effective dose equivalent.

Figure 4-1 Average Collective TEDE per Reactor and Average Number of Individuals with Measurable TEDE per Reactor, 1994–2024



*Gross electricity is shown for 1994–1996; net electricity is shown for 1997–2024.

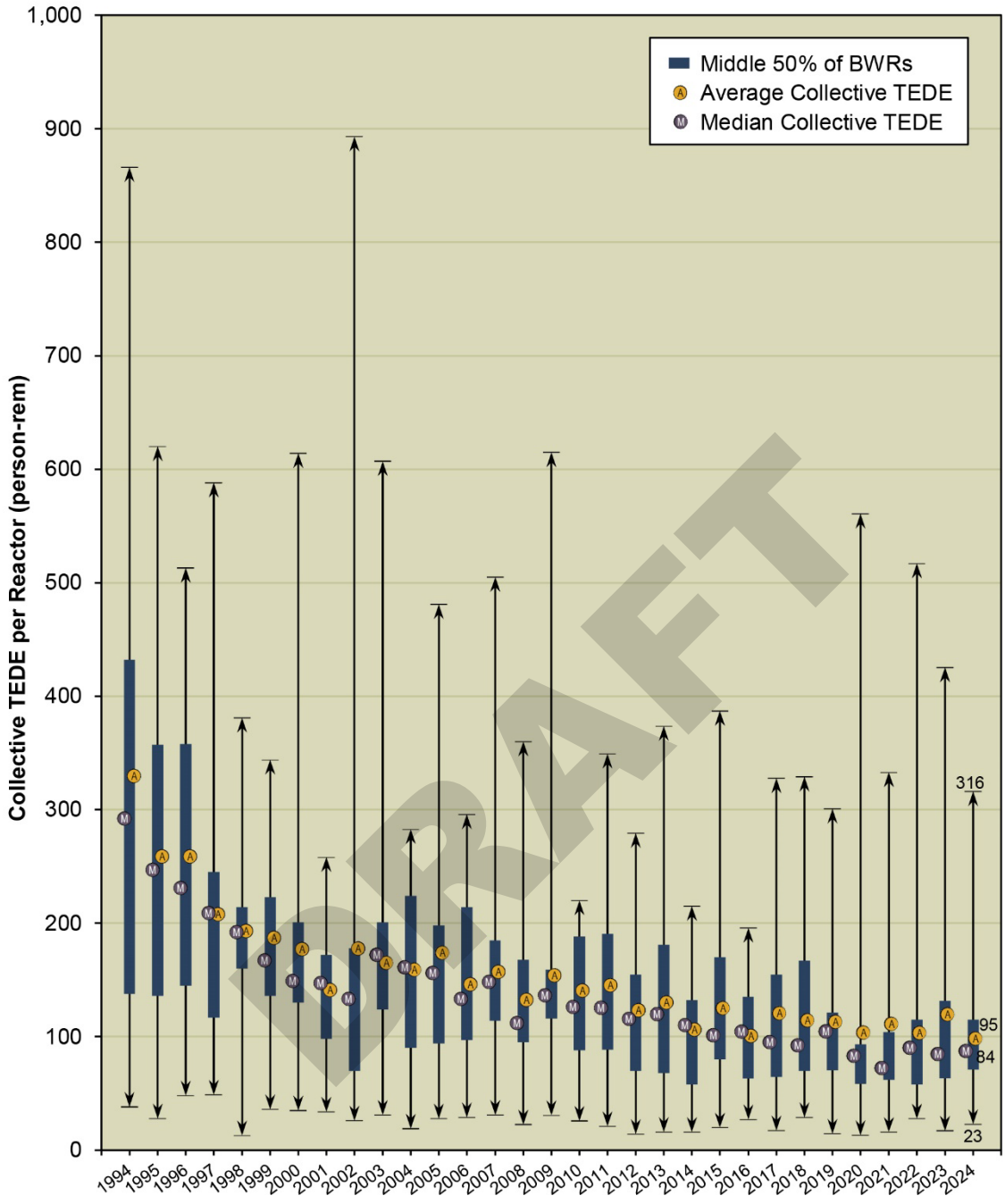
Figure 4-2 Number of Operating Reactors and Electricity Generated, 1994–2024



NOTE: TEDE is defined as total effective dose equivalent.

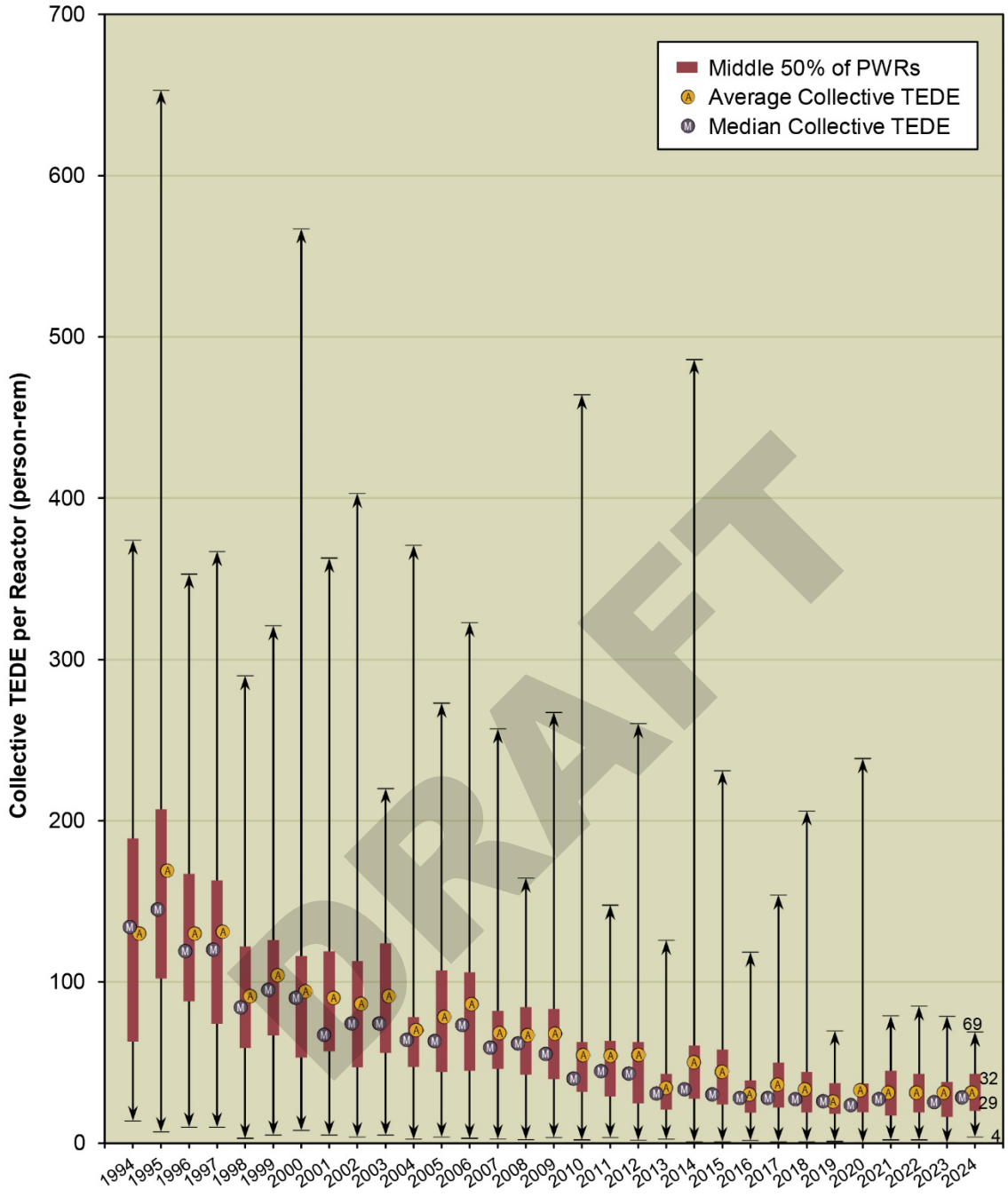
* Not adjusted to account for transient individuals; see section 5.
** Gross electricity is shown for 1994–1996; net electricity is shown for 1997–2024.

Figure 4-3 Average Measurable TEDE per Individual and Collective TEDE per Megawatt-Year, 1994–2024



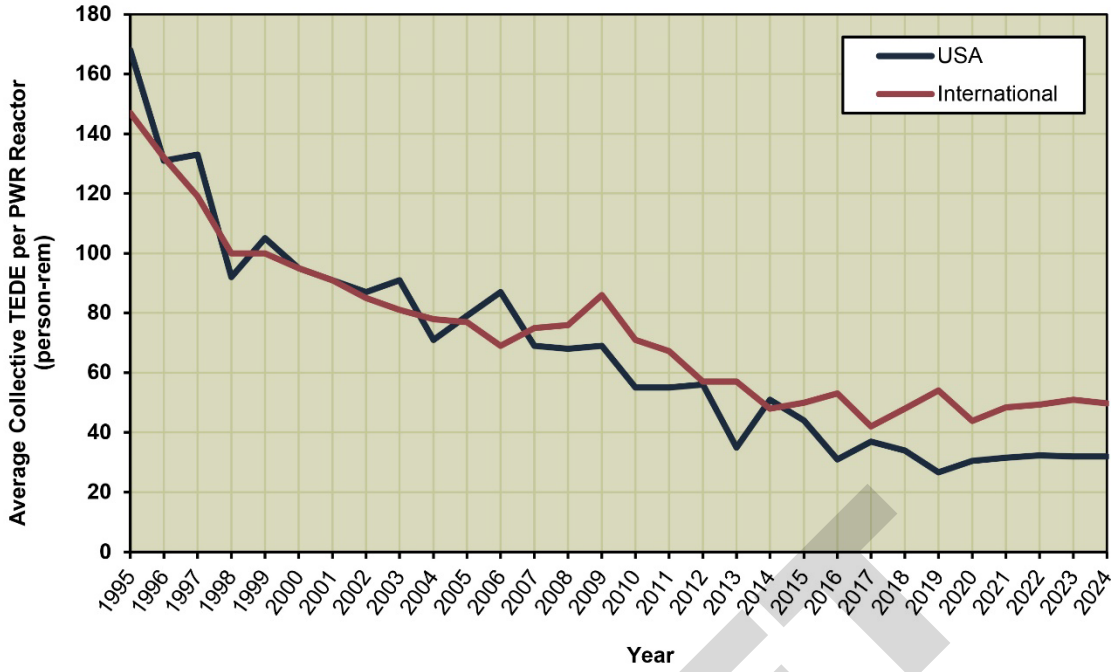
NOTE: TEDE is defined as total effective dose equivalent.

Figure 4-4a Average, Median, and Extreme Values of the Collective TEDE per BWR, 1994–2024



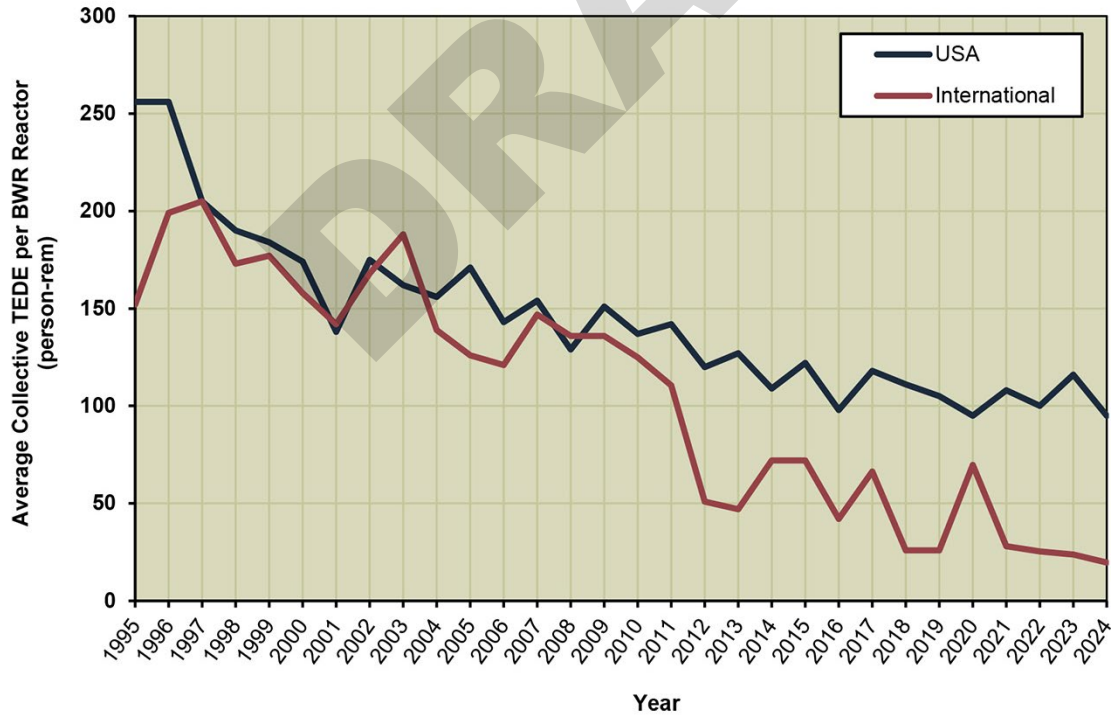
NOTE: TEDE is defined as total effective dose equivalent.

Figure 4-4b Average, Median, and Extreme Values of the Collective TEDE per PWR, 1994–2024



NOTE: TEDE is defined as total effective dose equivalent.

Figure 4-5 Average Collective TEDE per PWR, 1995–2024



NOTE: TEDE is defined as total effective dose equivalent.

Figure 4-6 Average Collective TEDE per BWR, 1995–2024

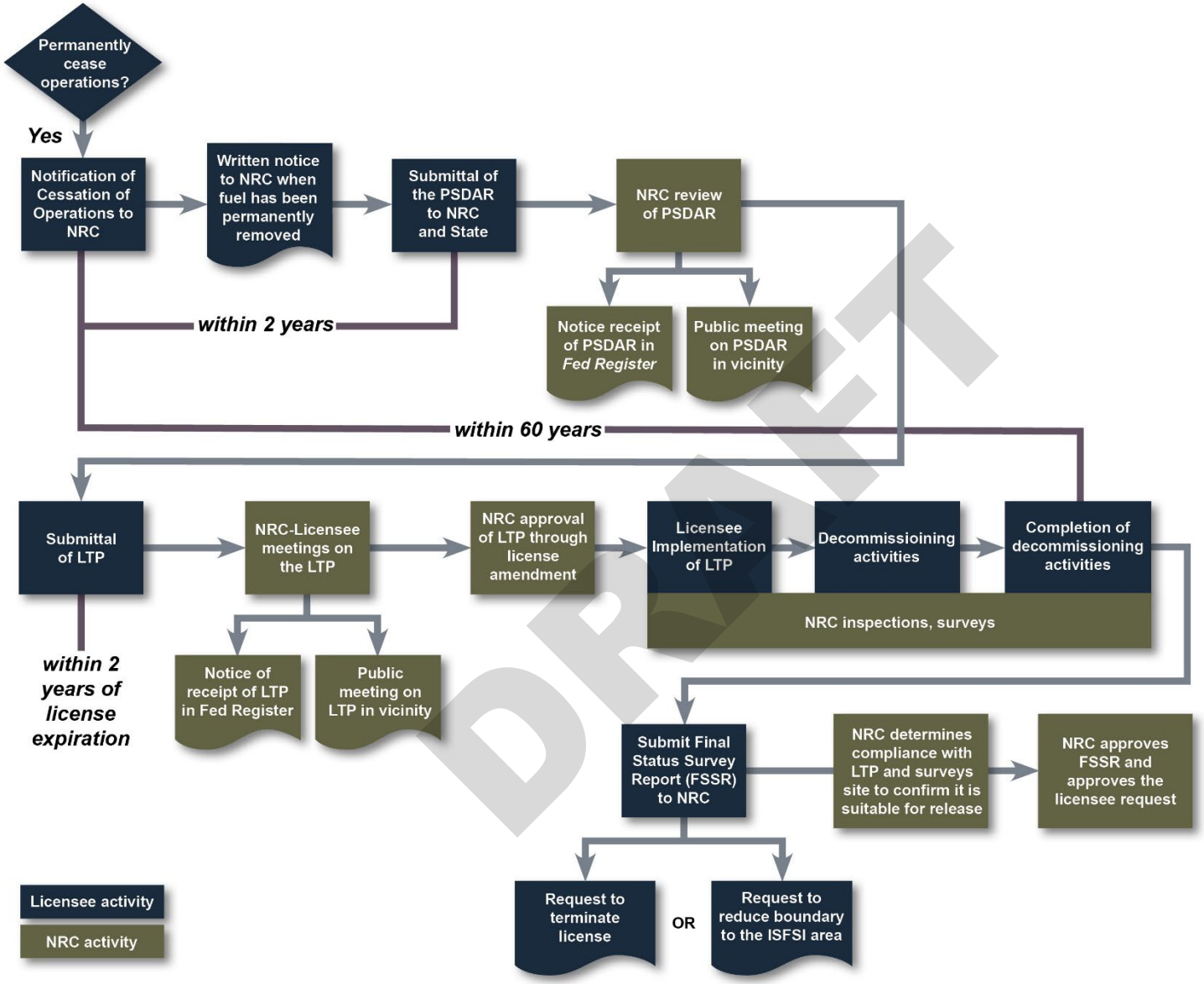


Figure 4-7 Commercial Nuclear Power Reactor Decommissioning Process Flowchart