

Annex

Table A1. Allocation and utilization of Regular Budget resources in 2002

Programme	2002	2002	2002 total expenditure		Unused	Balance
	Budget	adjusted	Amount	% of adjusted	(over-expended)	
	GC(45)/8 (at € 0.9229)	budget ^a (at € 1.0724)		budget	Budget	(2) – (3) – (5)
	(1)	(2)	(3)	(4)	(5)	(6)
Overall Management, Co-ordination and Common Activities	662 000	586 000	593 409	101.26%	(7 409)	0
Nuclear Power	4 664 000	4 166 427	4 128 142	99.08%	38 285	0
Nuclear Fuel Cycle and Material Technologies	2 271 000	2 035 000	2 035 258	100.01%	(258)	0
Analysis for Sustainable Energy Development	2 664 000	2 383 000	2 382 938	100.00%	62	0
Nuclear Sciences	8 158 000	7 516 614	7 390 084	98.32%	126 530	0
Subtotal	18 419 000	16 687 041	16 529 831	99.06%	157 210	0
Overall Management, Co-ordination and Common Activities	659 000	581 970	591 394	101.62%	(9 424)	0
Food and Agriculture	11 006 000	9 964 000	10 033 871	100.70%	(69 871)	0
Human Health	6 232 000	5 667 140	5 447 756	96.13%	219 384	0
Water Resources	2 969 000	2 657 852	2 695 023	101.40%	(37 171)	0
Protection of the Marine and Terrestrial Environments	3 685 000	3 251 000	3 238 961	99.63%	12 039	0
Physical and Chemical Applications	2 519 000	2 273 762	2 253 170	99.09%	20 592	0
Subtotal	27 070 000	24 395 724	24 260 175	99.44%	135 549	0
Overall Management, Co-ordination and Common Activities	764 000	680 000	692 713	101.87%	(12 713)	0
Safety of Nuclear Installations	7 804 000	6 928 000	6 852 874	98.92%	75 126	0
Radiation Safety	5 189 000	4 693 124	4 754 623	101.31%	(61 499)	0
Management of Radioactive Waste	6 159 000	5 495 000	5 495 914	100.02%	(914)	0
Subtotal	19 916 000	17 796 124	17 796 124	100.00%	0	0
Overall Management, Co-ordination and Common Activities	994 000	870 761	768 795	88.29%	101 966	0
Safeguards	86 052 000	76 159 223	75 886 681	99.64%	272 542	0
Security of Material	860 000	763 004	725 039	95.02%	37 965	0
Verification in Iraq Pursuant to UNSC Resolutions (extrabudgetary funding only)						
Subtotal	87 906 000	77 792 988	77 380 515	99.47%	412 473	0
Outreach and Information Support Services						
Public Information	3 207 000	2 828 000	2 827 946	100.00%	54	0
Information Technology Infrastructure and Services	5 746 000	5 028 731	5 013 439	99.70%	15 292	0
Nuclear Information Resources	6 522 000	5 782 659	5 763 166	99.66%	19 493	0
Conference, Translation and Publishing Services	4 018 000	3 531 000	3 546 509	100.44%	(15 509)	0
Subtotal	19 493 000	17 170 390	17 151 060	99.89%	19 330	0
Management of Technical Co-operation for Development	14 690 000	12 902 567	12 888 845	99.89%	13 722	0
Subtotal	14 690 000	12 902 567	12 888 845	99.89%	13 722	0
Policy and General Management						
Executive Management, Policy-Making and Co-ordination	13 598 000	12 113 302	11 292 619	93.22%	820 683	0
Administration and General Services	35 702 000	31 159 678	30 596 686	98.19%	562 992	0
Oversight and Evaluation	1 914 000	1 680 186	1 484 178	88.33%	196 008	0
Subtotal	51 214 000	44 953 166	43 373 483	96.49%	1 579 683	0
Total – Agency Programmes	238 708 000	211 698 000	209 380 033	98.91%	2 317 967	0
Reimbursable Work for Others	4 552 000	4 018 000	2 906 362	72.33%	0	1 111 638
Total	243 260 000	215 716 000	212 286 395	98.41%	2 317 967	1 111 638
Special Appropriation for the Acquisition of Safeguards Equipment	1 847 000	1 847 000	1 830 875	99.13%	16 125	0
	245 107 000	217 563 000	214 117 270	98.42%	2 334 092	1 111 638

^a Based on the decision of the Board of Governors in document (GOV/1999/15), an amount of \$73 124 was transferred to the nuclear safety area to cover the cost of emergency assistance provided to Afghanistan, Bolivia, Georgia, Poland and Uganda. To recover this advance, year-end unencumbered balances in the Regular Budget Appropriation Sections were used.

Table A2. Extrabudgetary funds in 2002

Programme	Extrabudgetary budget figures		Resources		Total resources	Expenditure as at	Unused balance as at
	GC(45)/8	Unused balance as at	Receipts ^a as at	Adjustments as at	as at	31 Dec 2002	31 Dec 2002
	(1)	1 Jan 2002 (2)	31 Dec 2002 (3)	31 Dec 2002 (4)	31 Dec 2002 (2)+(3)+(4) (5)	(6)	(5)-(6) (7)
Overall Management, Co-ordination and Common Activities	110 000	0	0	0	0	0	0
Nuclear Power	1 681 000	651 356	1 637 305	4 528	2 293 189	1 198 032	1 095 157
Nuclear Fuel Cycle and Material Technologies	432 000	264 227	254 470	108	518 805	235 128	283 677
Analysis for Sustainable Energy Development	20 000	0	0	0	0	0	0
Nuclear Science	13 000	52 307	265 957	0	318 264	21 518	296 746
Total	2 256 000	967 890	2 157 732	4 636	3 130 258	1 454 678	1 675 580
Overall Management, Co-ordination and Common Activities	0	0	278 812	0	278 812	116 296	162 516
Food and Agriculture (excl. FAO)	241 000	465 484	122 610	992	589 086	263 532	325 554
FAO	2 834 000 ^b	0	2 150 000	0	2 150 000	1 846 321	303 679
Total	3 075 000	465 484	2 272 610	992	2 739 086	2 109 853	629 233
Human Health	0	192 257	0	4 500	196 757	81 693	115 064
Water Resources	0	0	0	0	0	0	0
Protection of the Marine and Terrestrial Environments	630 000	591 219	564 154	23 179	1 178 552	644 790	533 762
Physical and Chemical Applications	0	8 500	0	0	8 500	0	8 500
Total	3 705 000	1 257 460	3 115 576	28 671	4 401 707	2 952 632	1 449 075
Safety of Nuclear Installations	3 137 000	3 546 235	3 529 500	7 472	7 083 207	3 067 684	4 015 523
Radiation Safety	248 000	488 057	3 589 991	0	4 078 048	541 130	3 536 918
Management of Radioactive Waste	256 000	652 708	784 795	0	1 437 503	928 685	508 818
Total	3 641 000	4 687 000	7 904 286	7 472	12 598 758	4 537 499	8 061 259
Overall Management, Co-ordination and Common Activities	0	3 154	0	(3 047)	107	107	0
Safeguards	7 423 000	15 213 817	19 427 402	(60 274)	34 580 945	19 674 902	14 906 043
Security of Material	197 000	1 022 543	5 542 722	396 666	6 961 931	1 851 406	5 110 525
Verification in Iraq Pursuant to UNSC Resolutions	10 650 000	15 288	2 737 230	1 696	2 754 214	2 746 110	8 104
Total	18 270 000	16 254 802	27 707 354	335 041	44 297 197	24 272 525	20 024 672
Public Information	740 000	809 826	894 568	14 119	1 718 513	759 032	959 481
Information Technology, Infrastructure and Services	0	0	30 000	0	30 000	11 722	18 278
Nuclear Information Resources	12 000	500	32 293	212	33 005	32 276	729
Conf. Transl. and Publishing Services	0	0	0	0	0	0	0
Total	752 000	810 326	956 861	14 331	1 781 518	803 030	978 488
Management of Technical Co-operation for Development	300 000	132 433	337 016	0	469 449	243 644	225 805
Total	300 000	132 433	337 016	0	469 449	243 644	225 805
Policy and General Management							
Executive Management, Policy-Making and Co-ordination	0	60 400	459 700	0	520 100	325 285	194 815
Administration and General Services	0	930	0	0	930	930	0
Oversight and Evaluation	100 000	0	150 000	0	150 000	120 113	29 887
Total	100 000	61 330	609 700	0	671 030	446 328	224 702
Total extrabudgetary	29 024 000	24 171 241	42 788 525	390 151	67 349 917	34 710 336	32 639 581

^a The column "Receipts" includes cash contributions received as well as budgets from FAO, UNEP and UNOPS for approved activities.

^b The FAO budget includes \$1 057 176 estimated costs for FAO Professional staff working in the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture. The salaries of these staff members are paid by FAO and, therefore, are not included in the column of the Agency's resources and expenditures.

Table A3. **Technical co-operation disbursements by Agency programme and region in 2002**
(in thousands of dollars)

Programme	Africa	East Asia and the Pacific	Europe	Latin America	West Asia	Global/ inter- regional	Total
Nuclear Power	240.5	378.2	1566.2	621.9	996.7	58.4	3861.9
Nuclear Fuel Cycle and Material Technologies	189.7	92.8	294.0	276.0	5.2	0.0	857.9
Analysis for Sustainable Energy Development	128.9	151.1	218.6	48.8	44.5	0.0	592.0
Nuclear Science	1560.8	963.3	539.7	932.5	1293.1	304.7	5594.2
Food and Agriculture	5427.9	1968.1	730.4	2345.5	1309.0	609.6	12390.5
Human Health	5879.7	2646.1	2860.6	3112.9	988.0	324.4	15811.6
Water Resources	1708.1	1286.7	125.6	1057.3	285.4	0.0	4463.1
Protection of the Marine and Terrestrial Environments	218.7	127.4	974.0	200.7	192.1	42.4	1755.2
Physical and Chemical Applications	1672.0	1683.9	2007.9	1480.1	1138.3	0.0	7982.1
Safety of Nuclear Installations	252.8	608.4	2198.1	343.1	410.6	0.0	3812.9
Radiation Safety Management of Radioactive Waste	1245.4	943.9	2452.3	1584.9	972.1	0.0	7198.6
Safeguards	0.0	0.0	22.2	0.0	0.0	0.0	22.2
Security of Material	138.5	52.9	1036.5	106.4	0.0	9.2	1343.5
Public Information	0.0	0.0	0.0	4.3	0.0	21.4	25.7
Information Technology Infrastructure and Services	5.3	37.9	0.0	4.6	0.0	0.0	47.7
Management of Technical Co-operation for Development	771.8	756.5	532.2	1563.8	124.1	1103.3	4851.6
Executive Management, Policy-Making and Co-ordination	164.6	43.6	111.1	11.7	0.0	0.0	331.0
Total	20 126.2	11 820.9	17 463.3	14 149.4	7917.9	3357.8	74 835.5

Table A4. **International Regulatory Review Team (IRRT) missions**

Type	Location	Country
Full scope follow-up IRRT ^a	Bucharest	Romania
Full scope IRRT	Yerevan	Armenia
Follow-up IRRT	Bratislava	Slovakia
Preparatory meeting	Villigen	Switzerland
Preparatory meeting	Budapest	Hungary
Preparatory meeting	Islamabad	Pakistan

Table A5. **Peer reviews of radiation safety infrastructure**

Scope	Country	Project
Implementation of BSS ^a	Slovakia	Model project
Implementation of BSS ^a	El Salvador	Model project
Regulatory infrastructure	Belarus	National technical co-operation project
Regulatory infrastructure	Uzbekistan	Model project
Regulatory infrastructure	Georgia	Model project
Regulatory infrastructure	Bangladesh	Model project
Regulatory infrastructure	Turkey	Model project

^a BSS: *International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources*, Safety Series No. 115.

Table A6. **Operational Safety Review Team (OSART) missions**

Type	Plant and reactor type	Country
OSART	Tricastin PWR	France
OSART	Santa Maria de Garoña PWR	Spain
OSART follow-up	Gösgen PWR	Switzerland
OSART follow-up	North Anna PWR	USA
Preparatory meeting	Krško PWR	Slovenia
OSART follow-up	Belleville PWR	France
Preparatory meeting	Civaux PWR	France
OSART follow-up	Muehleberg BWR	Switzerland
Preparatory meeting	Rovno WWER	Ukraine
Preparatory meeting	Tianwan WWER	China
Preparatory meeting	Bushehr WWER	Islamic Rep. of Iran
OSART	Angra 2 PWR	Brazil
OSART follow-up	Lingao PWR	China

Table A7. **Peer Review of Operational Safety Performance Experience (PROSPER)**

Type	Plant/location	Country
PROSPER seminar	Armenia-1	Armenia
Seminar on management of safety during changes	Cernavoda	Romania
Operational experience process users group meeting	IAEA	
Workshop on event analysis	Kori	Rep. of Korea

TABLE A8. **Safety Culture Enhancement Programme (SCEP) missions**

Type	Plant/location	Country
Peer review of assessment process at INB	Rio, Angra	Brazil
Assessment of safety management and safety culture	Petten HFR	Netherlands (in co-ordination with INSARR mission)

Table A9. **International PSA Review Team (IPSART) missions**

Type	Plant and reactor type	Country
Level 1, including internal and external hazards	Bohunice V1 WWER	Slovakia
Levels 2 and 3, follow-up of level 1	Petten HFR (research reactor)	Netherlands
Follow-up of level 1	Tianwan WWER	China
Level 1	Bushehr WWER	Islamic Rep. of Iran

Table A10. **Engineering Safety Review Service missions**

Type	Plant/Site	Held in
Review of PSAR	Bushehr-1	Russian Federation
Seismic/foundation review	Bushehr-2	Russian Federation
Preparatory mission for final review of PSAR	Bushehr-1	Islamic Rep. of Iran
Expert mission on strengthening owner's functions	Bushehr	Russian Federation
Expert mission on seismic re-evaluation	Armenia-1	Armenia
Expert mission on commissioning and startup	Bushehr-1	Islamic Rep. of Iran
Review of environmental report	Bushehr	Islamic Rep. of Iran
Review mission on certification of operators	Bushehr-1	Islamic Rep. of Iran
Expert mission to support regulatory review of PSAR	Bushehr-1	Islamic Rep. of Iran
Safety review mission	Kozloduy 3 and 4	Bulgaria
Expert mission on core design and fuel management	Tianwan	China
Expert mission on safety issues related to PSAR	Bushehr-1	Islamic Rep. of Iran
AMAT preparatory meeting	Borssele	Netherlands
Expert mission on utility safety requirements for	Beijing	China
		evolutionary nuclear power plants (3 missions)
Expert mission on fire hazard analysis	Tianwan	Russian Federation
Review of ageing management programme	Armenia-1	Armenia
Expert mission on seismic re-evaluation	Armenia-1	Armenia

Table A11. **Integrated Safety Assessment of Research Reactors (INSARR) missions**

Type	Location/Reactor	Country
Pre-INSARR mission	Petten HFR	Netherlands
INSARR follow-up	Delft HOR	Netherlands
INSARR	Petten HFR	Netherlands
Follow-up mission	Tashkent WWR-CM	Uzbekistan
INSARR	Pitesti TRIGA II	Romania
Expert mission/SAR update	Serpong	Indonesia
Follow-up of SAR review	Jakarta RSG-GAS	Indonesia
Review of revised SAR	Dhaka TRIGA II	Bangladesh
INSARR	Santiago RECH-1	Chile
Pre-INSARR	Dalat DRR-1	Viet Nam
Review mission	Kinshasa TRICO II	Dem. Rep. of the Congo

Table A12. **Transport Safety Appraisal Service (TranSAS) missions**

Type	Country
TranSAS mission	Brazil
TranSAS mission	United Kingdom
Pre-TranSAS meeting	Panama

Table A13. **Status with regard to the conclusion of safeguards agreements and additional protocols** ^{a, b} (as of 31 December 2002)

State ^c	SQP ^d	Status of safeguards agreement(s)	INFCIRC	Additional protocol status
Afghanistan	X	In force: 20 February 1978	257	
Albania		In force: 25 March 1988 ¹	359	
Algeria		In force: 7 January 1997	531	
<i>Andorra</i>	X	<i>Signed: 9 January 2001</i>		Signed: 9 January 2001
<i>Angola</i>				
Antigua and Barbuda	X	In force: 9 September 1996 ²	528	
Argentina		In force: 4 March 1994 ³	435/Mod.1	
Armenia		In force: 5 May 1994	455	Signed: 29 September 1997
Australia		In force: 10 July 1974	217	In force: 12 December 1997
Austria		Accession: 31 July 1996 ⁴	193	Signed: 22 September 1998 ⁵
Azerbaijan	X	In force: 29 April 1999	580	In force: 29 November 2000
Bahamas	X	In force: 12 September 1997 ²	544	
<i>Bahrain</i>				
Bangladesh		In force: 11 June 1982	301	In force: 30 March 2001
Barbados	X	In force: 14 August 1996 ²	527	
Belarus		In force: 2 August 1995	495	
Belgium		In force: 21 February 1977	193	Signed: 22 September 1998
Belize	X	In force: 21 January 1997 ²	532	
<i>Benin</i>				
Bhutan	X	In force: 24 October 1989	371	
Bolivia	X	In force: 6 February 1995 ²	465	
Bosnia and Herzegovina		In force: 28 December 1973 ⁶	204	
<i>Botswana</i>				
Brazil		In force: 4 March 1994 ⁷	435	
Brunei Darussalam	X	In force: 4 November 1987	365	
Bulgaria		In force: 29 February 1972	178	In force: 10 October 2000
<i>Burkina Faso</i>				
<i>Burundi</i>				
Cambodia	X	In force: 17 December 1999	586	
<i>Cameroon</i>	X	<i>Signed: 21 May 1992</i>		
Canada		In force: 21 February 1972	164	In force: 8 September 2000
<i>Cape Verde</i>				
<i>Central African Republic</i>				
<i>Chad</i>				
Chile		In force: 5 April 1995 ⁸	476	Signed: 19 September 2002
China		In force: 18 September 1989	369 ^(*)	In force: 28 March 2002

^a This annex does not aim at listing all safeguards agreements that the Agency has concluded. Not included are agreements whose application has been suspended in the light of the application of safeguards pursuant to a comprehensive safeguards agreement.

^b The Agency also applies safeguards in Taiwan, China under two agreements, INFCIRC/133 and INFCIRC/158, which came into force on 13 October 1969 and 6 December 1971, respectively.

^c States in bold type are those which are not party to the NPT and whose safeguards agreements are of INFCIRC/66-type. States in italics are those which are party to the NPT but have not concluded a safeguards agreement pursuant to that Treaty; the safeguards agreements referred to are comprehensive safeguards agreements concluded pursuant to the NPT unless otherwise indicated. Safeguards agreements marked with an asterisk denote voluntary offer safeguards agreements.

^d Small quantities protocol (SQP): States with a legal obligation to conclude a comprehensive safeguards agreement which have nuclear material in quantities not exceeding the limits of paragraph 37 of INFCIRC/153 and no nuclear material in any facility, have the option to conclude an SQP, thus holding in abeyance the implementation of most of the detailed provisions set out in Part II of a comprehensive safeguards agreement as long as these conditions continue to apply. Six States meet the conditions for an SQP but do not have one i.e. Albania, Bosnia and Herzegovina, Côte d'Ivoire, Liechtenstein, Sri Lanka and Tunisia.

Table A13. (cont.)

State ^c	SQP ^d	Status of safeguards agreement(s)	INFCIRC	Additional protocol status
Colombia		In force: 22 December 1982 ⁸	306	
Comoros				
Congo, Republic of the				
Costa Rica	X	In force: 22 November 1979 ²	278	Signed: 12 December 2001
Côte d'Ivoire		In force: 8 September 1983	309	
Croatia	X	In force: 19 January 1995	463	In force: 6 July 2000
Cuba		<i>In force: 5 May 1980 ⁹</i> <i>In force: 7 October 1983 ⁹</i>	281 311	<i>Signed: 15 October 1999</i>
Cyprus	X	In force: 26 January 1973	189	Signed: 29 July 1999
Czech Republic		In force: 11 September 1997 ¹⁰	541	In force: 1 July 2002
Democratic People's Republic of Korea		In force: 10 April 1992	403	
Democratic Republic of the Congo		In force: 9 November 1972	183	Approved: 28 November 2002
Denmark		In force: 21 February 1977 ¹¹	193	Signed: 22 September 1998
Djibouti				
Dominica	X	In force: 3 May 1996 ¹²	513	
Dominican Republic	X	In force: 11 October 1973 ²	201	
Ecuador	X	In force: 10 March 1975 ²	231	In force: 24 October 2001
Egypt		In force: 30 June 1982	302	
El Salvador	X	In force: 22 April 1975 ²	232	Approved: 23 September 2002
Equatorial Guinea		<i>Approved: 13 June 1986</i>		
Eritrea				
Estonia		In force: 24 November 1997	547	Signed: 13 April 2000
Ethiopia	X	In force: 2 December 1977	261	
Fiji	X	In force: 22 March 1973	192	
Finland		Accession: 1 October 1995 ¹³	193	Signed: 22 September 1998 ⁵
France		In force: 12 September 1981 Signed: 26 September 2000 ¹⁴	290 ⁽⁷⁾	Signed: 22 September 1998
Gabon	X	<i>Signed: 3 December 1979</i>		
Gambia	X	In force: 8 August 1978	277	
Georgia		<i>Signed: 29 September 1997</i>		Signed: 29 September 1997
Germany		In force: 21 February 1977 ¹⁵	193	Signed: 22 September 1998 ⁵
Ghana		In force: 17 February 1975	226	Signed: 12 June 1998 ¹⁶
Greece		Accession: 17 December 1981 ¹⁷	193	Signed: 22 September 1998 ⁵
Grenada	X	In force: 23 July 1996 ²	525	
Guatemala	X	In force: 1 February 1982 ²	299	Signed: 14 December 2001
Guinea				
Guinea-Bissau				
Guyana	X	In force: 23 May 1997 ²	543	
Haiti	X	<i>Signed: 6 January 1975 ²</i>		Signed: 10 July 2002
Holy See	X	In force: 1 August 1972	187	In force: 24 September 1998
Honduras	X	In force: 18 April 1975 ²	235	
Hungary		In force: 30 March 1972	174	In force: 4 April 2000
Iceland	X	In force: 16 October 1974	215	
India		In force: 30 September 1971 In force: 17 November 1977 In force: 27 September 1988 In force: 11 October 1989 In force: 1 March 1994	211 260 360 374 433	
Indonesia		In force: 14 July 1980	283	In force: 29 September 1999
Iran, Islamic Republic of		In force: 15 May 1974	214	
Iraq		In force: 29 February 1972	172	
Ireland		In force: 21 February 1977	193	Signed: 22 September 1998

Table A13. (cont.)

State ^c	SQP ^d	Status of safeguards agreement(s)	INFCIRC	Additional protocol status
Israel		In force: 4 April 1975	249/Add.1	
Italy		In force: 21 February 1977	193	Signed: 22 September 1998
Jamaica		In force: 6 November 1978 ²	265	Approved: 12 June 2002
Japan		In force: 2 December 1977	255	In force: 16 December 1999
Jordan	X	In force: 21 February 1978	258	In force: 28 July 1998
Kazakhstan		In force: 11 August 1995	504	
<i>Kenya</i>				
Kiribati	X	In force: 19 December 1990	390	Approved: 10 September 2002
Korea, Republic of		In force: 14 November 1975	236	Signed: 21 June 1999
Kuwait	X	In force: 7 March 2002	607	Signed: 19 June 2002
<i>Kyrgyzstan</i>	X	<i>Signed: 18 March 1998</i>		
Lao People's Democratic Republic	X	In force: 5 April 2001	599	
Latvia		In force: 21 December 1993	434	In force: 12 July 2001
Lebanon	X	In force: 5 March 1973	191	
Lesotho	X	In force: 12 June 1973	199	
<i>Liberia</i>				
Libyan Arab Jamahiriya		In force: 8 July 1980	282	
Liechtenstein		In force: 4 October 1979	275	
Lithuania		In force: 15 October 1992	413	In force: 5 July 2000
Luxembourg		In force: 21 February 1977	193	Signed: 22 September 1998
Madagascar	X	In force: 14 June 1973	200	
Malawi	X	In force: 3 August 1992	409	
Malaysia		In force: 29 February 1972	182	
Maldives	X	In force: 2 October 1977	253	
Mali	X	In force: 12 September 2002	615	In force: 12 September 2002
Malta	X	In force: 13 November 1990	387	Approved: 28 November 2002
<i>Marshall Islands</i>				
<i>Mauritania</i>				
Mauritius	X	In force: 31 January 1973	190	
Mexico		In force: 14 September 1973 ¹⁸	197	
<i>Micronesia, Federated States of</i>				
Monaco	X	In force: 13 June 1996	524	In force: 30 September 1999
Mongolia	X	In force: 5 September 1972	188	Signed: 5 December 2001
Morocco	X	In force: 18 February 1975	228	
<i>Mozambique</i>				
Myanmar	X	In force: 20 April 1995	477	
Namibia	X	In force: 15 April 1998	551	Signed: 22 March 2000
Nauru	X	In force: 13 April 1984	317	
Nepal	X	In force: 22 June 1972	186	
Netherlands		In force: 5 June 1975 ¹⁴	229	
		In force: 21 February 1977	193	Signed: 22 September 1998 ⁵
New Zealand 1998 ¹⁹	X	In force: 29 February 1972	185	In force: 24 September
Nicaragua	X	In force: 29 December 1976 ²	246	Signed: 18 July 2002
<i>Niger</i>		<i>Signed 11 June 2002</i>		
Nigeria	X	In force: 29 February 1988	358	Signed: 20 September 2001
Norway		In force: 1 March 1972	177	In force: 16 May 2000
<i>Oman</i>	X	<i>Signed: 28 June 2001</i>		
Pakistan		In force: 5 March 1962	34	
		In force: 17 June 1968	116	
		In force: 17 October 1969	135	
		In force: 18 March 1976	239	

Table A13. (cont.)

State ^c	SQP ^d	Status of safeguards agreement(s)	INFCIRC	Additional protocol status
		In force: 2 March 1977	248	
		In force: 10 September 1991	393	
		In force: 24 February 1993	418	
<i>Palau, Republic of</i>				
<i>Panama</i>	X	<i>In force: 23 March 1984</i> ²⁰	316	<i>In force: 11 December 2001</i>
Papua New Guinea	X	In force: 13 October 1983	312	
Paraguay	X	In force: 20 March 1979 ²	279	Approved: 12 June 2002
Peru		In force: 1 August 1979 ²	273	In force: 23 July 2001
Philippines		In force: 16 October 1974	216	Signed: 30 September 1997
Poland		In force: 11 October 1972	179	In force: 5 May 2000
Portugal		Accession: 1 July 1986 ²¹	193	Signed: 22 September 1998 ⁵
<i>Qatar</i>				
<i>Republic of Moldova</i>	X	<i>Signed: 14 June 1996</i>		
Romania		In force: 27 October 1972	180	In force: 7 July 2000
Russian Federation		In force: 10 June 1985	327*	Signed: 22 March 2000
<i>Rwanda</i>				
St. Kitts and Nevis	X	In force: 7 May 1996 ¹²	514	
St. Lucia	X	In force: 2 February 1990 ¹²	379	
St. Vincent and the Grenadines	X	In force: 8 January 1992 ¹²	400	
Samoa	X	In force: 22 January 1979	268	
San Marino	X	In force: 21 September 1998	575	
<i>São Tome and Principe</i>				
<i>Saudi Arabia</i>				
Senegal	X	In force: 14 January 1980	276	
<i>Seychelles</i>				
<i>Sierra Leone</i>	X	<i>Signed: 10 November 1977</i>		
Singapore	X	In force: 18 October 1977	259	
Slovakia		In force: 3 March 1972 ²²	173	Signed: 27 September 1999
Slovenia		In force: 1 August 1997	538	In force: 22 August 2000
Solomon Islands	X	In force: 17 June 1993	420	
<i>Somalia</i>				
South Africa		In force: 16 September 1991	394	In force: 13 September 2002
Spain		Accession: 5 April 1989	193	Signed: 22 September 1998 ⁵
Sri Lanka		In force: 6 August 1984	320	
Sudan	X	In force: 7 January 1977	245	
Suriname	X	In force: 2 February 1979 ²	269	
Swaziland	X	In force: 28 July 1975	227	
Sweden		Accession: 1 June 1995 ²³	193	Signed: 22 September 1998 ⁵
Switzerland		In force: 6 September 1978	264	Signed: 16 June 2000
Syrian Arab Republic		In force: 18 May 1992	407	
<i>Tajikistan</i>		Approved: 12 June 2002		Approved: 12 June 2002
Thailand		In force: 16 May 1974	241	
The Former Yugoslav Rep. of Macedonia	X	In force: 16 April 2002	610	
<i>Togo</i>	X	<i>Signed: 29 November 1990</i>		
Tonga	X	In force: 18 November 1993	426	
Trinidad and Tobago	X	In force: 4 November 1992 ²	414	
Tunisia		In force: 13 March 1990	381	
Turkey		In force: 1 September 1981	295	In force: 17 July 2001
<i>Turkmenistan</i>				
Tuvalu	X	In force: 15 March 1991	391	
<i>Uganda</i>				
Ukraine		In force: 22 January 1998	550	Signed: 15 August 2000
<i>United Arab Emirates</i>	X	<i>Signed: 15 December 2002</i>		

Table A13. (cont.)

State ^c	SQP ^d	Status of safeguards agreement(s)	INFCIRC	Additional protocol status
United Kingdom		In force: 14 December 1972 In force: 14 August 1978 Approved: September 1992 ¹⁴	175 ²⁴ 263 ^(*)	Signed: 22 September 1998 ⁵
<i>United Republic of Tanzania</i>	X	<i>Signed: 26 August 1992</i>		
United States of America		In force: 9 December 1980 In force: 6 April 1989 ¹	288 ^(*) 366	Signed: 12 June 1998
Uruguay		In force: 17 September 1976 ²	157	Signed: 29 September 1997
Uzbekistan		In force: 8 October 1994	508	In force: 21 December 1998
<i>Vanuatu</i>				
Venezuela		In force: 11 March 1982 ²	300	
Viet Nam		In force: 23 February 1990	376	
Yemen, Republic of	X	In force: 14 August 2002	614	
Yugoslavia, Federal Republic of		In force: 28 December 1973 ²⁵	204	
Zambia	X	In force: 22 September 1994	456	
Zimbabwe	X	In force: 26 June 1995	483	

¹ Date refers to a sui generis comprehensive safeguards agreement. On 28 November 2002, an exchange of letters entered into force confirming that the safeguards agreement satisfied the requirements of Article III of the NPT.

² Safeguards agreement refers to both the Treaty of Tlatelolco and the NPT.

³ Date refers to the safeguards agreement concluded between Argentina, Brazil, ABACC and the Agency. On 18 March 1997, upon approval by the Board of Governors, an exchange of letters entered into force between Argentina and the Agency confirming that the safeguards agreement satisfied the requirements of Article 13 of the Treaty of Tlatelolco and Article III of the NPT to conclude a safeguards agreement with the Agency.

⁴ The application of safeguards in Austria under the NPT safeguards agreement INFCIRC/156, in force since 23 July 1972, was suspended on 31 July 1996, on which date the agreement of 5 April 1973 (INFCIRC/193) between the non-nuclear-weapon States of Euratom, Euratom and the Agency, to which Austria had acceded, entered into force for Austria.

⁵ The Agency has received notification from the State that it has fulfilled its own internal requirements for entry into force of the additional protocol concluded with Euratom and the Agency. The additional protocol will enter into force on the date when the Agency receives written notification from all the States and Euratom that their respective requirements for entry into force have been met.

⁶ The NPT safeguards agreement concluded with the Socialist Federal Republic of Yugoslavia (INFCIRC/204), which entered into force on 28 December 1973, continues to be applied in Bosnia and Herzegovina to the extent relevant to the territory of Bosnia and Herzegovina.

⁷ Date refers to the safeguards agreement concluded between Argentina, Brazil, ABACC and the Agency. On 10 June 1997, upon approval by the Board of Governors, an exchange of letters entered into force between Brazil and the Agency confirming that the safeguards agreement satisfied the requirements of Article 13 of the Treaty of Tlatelolco. On 20 September 1999, upon approval by the Board of Governors, an exchange of letters entered into force confirming that the safeguards agreement also satisfied the requirements of Article III of the NPT.

⁸ Date refers to a safeguards agreement pursuant to Article 13 of the Treaty of Tlatelolco. Upon approval by the Board of Governors an exchange of letters entered into force (for Chile on 9 September 1996; for Colombia on 13 June 2001) confirming that the safeguards agreement satisfied the requirement of Article III of the NPT.

⁹ Dates refer to INFCIRC/66-type agreements.

¹⁰ The NPT safeguards agreement concluded with the Czechoslovak Socialist Republic (INFCIRC/173), which entered into force on 3 March 1972, continued to be applied in the Czech Republic to the extent relevant to the territory of the Czech Republic until 11 September 1997, on which date the NPT safeguards agreement concluded with the Czech Republic entered into force.

¹¹ The NPT safeguards agreement with Denmark (INFCIRC/176), in force since 1 March 1972, has been replaced by the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (INFCIRC/193). Since 1 May 1974, that agreement also applies to the Faroe Islands. Upon Greenland's secession from Euratom as of 31 January 1985, the agreement between the Agency and Denmark (INFCIRC/176) re-entered into force for Greenland.

- ¹² An exchange of letters has entered into force between this State and the Agency confirming that the NPT safeguards agreement satisfies the obligations of the State under Article 13 of the Treaty of Tlatelolco.
- ¹³ The application of safeguards in Finland under the NPT safeguards agreement INFCIRC/155, in force since 9 February 1972, was suspended on 1 October 1995, on which date the agreement of 5 April 1973 (INFCIRC/193) between the non-nuclear-weapon States of Euratom, Euratom and the Agency, to which Finland had acceded, entered into force for Finland.
- ¹⁴ The safeguards agreement referred to is pursuant to Additional Protocol I to the Treaty of Tlatelolco.
- ¹⁵ The NPT safeguards agreement of 7 March 1972 concluded with the German Democratic Republic (INFCIRC/181) is no longer in force with effect from 3 October 1990, on which date the German Democratic Republic acceded to the Federal Republic of Germany.
- ¹⁶ Pending entry into force, the additional protocol is applied provisionally in this State.
- ¹⁷ The application of safeguards in Greece under the NPT safeguards agreement INFCIRC/166, provisionally in force since 1 March 1972, was suspended on 17 December 1981, on which date Greece acceded to the agreement of 5 April 1973 (INFCIRC/193) between the non-nuclear-weapon States of Euratom, Euratom and the Agency.
- ¹⁸ The safeguards agreement referred to was concluded pursuant to both the Treaty of Tlatelolco and the NPT. The application of safeguards under an earlier safeguards agreement pursuant to the Treaty of Tlatelolco, which entered into force on 6 September 1968 (INFCIRC/118), was suspended as of 14 September 1973.
- ¹⁹ INFCIRC/185 also applies to Cook Islands, Niue and Tokelau, but these territories are not covered by the additional protocol, INFCIRC/185/Add.1.
- ²⁰ Date refers to a safeguards agreement concluded pursuant to Article 13 of the Treaty of Tlatelolco. A safeguards agreement pursuant to the NPT and the Tlatelolco Treaty was signed on 22 December 1988, but has not yet entered into force.
- ²¹ The application of safeguards in Portugal under the NPT safeguards agreement INFCIRC/272, in force since 14 June 1979, was suspended on 1 July 1986, on which date Portugal acceded to the agreement of 5 April 1973 (INFCIRC/193) between the non-nuclear-weapon States of Euratom, Euratom and the Agency.
- ²² The NPT safeguards agreement concluded with the Czechoslovak Socialist Republic (INFCIRC/173), which entered into force on 3 March 1972, continues to be applied in Slovakia to the extent relevant to the territory of Slovakia. A new NPT safeguards agreement concluded with Slovakia was approved by the Board of Governors on 14 September 1998.
- ²³ The application of safeguards in Sweden under the NPT safeguards agreement INFCIRC/234, in force since 14 April 1975, was suspended on 1 June 1995, on which date the agreement of 5 April 1973 (INFCIRC/193) between the non-nuclear-weapon States of Euratom, Euratom and the Agency, to which Sweden had acceded, entered into force for Sweden.
- ²⁴ Date refers to the INFCIRC/66-type safeguards agreement, concluded between the United Kingdom and the Agency, which remains in force.
- ²⁵ The NPT safeguards agreement concluded with the Socialist Federal Republic of Yugoslavia (INFCIRC/204), which entered into force on 28 December 1973, continues to be applied in the Federal Republic of Yugoslavia to the extent relevant to the territory of the Federal Republic of Yugoslavia.

Table A14. **Number of States having significant nuclear activities at the end of 2000, 2001 and 2002**

	Number of States		
	2000	2001	2002
States with safeguards applied under NPT or NPT/Tlatelolco agreements	60	61	60*
States with safeguards applied under Tlatelolco agreements	1	0	0
States with safeguards applied under INFCIRC/66/Rev.2-type agreements ^a	4	4	4
Nuclear weapon States with safeguards applied under voluntary offer agreements	5	5	5**
States without any safeguards agreement in force	1	1	1
Total number of States with significant nuclear activities ^b	71	71	70

^a Nuclear weapon States with INFCIRC/66/Rev.2-type agreements in force are not included. Safeguards are also applied to nuclear installations in Taiwan, China.

^b According to information available to the Agency for the year in question.

* This includes Iraq where safeguards activities are subsumed under activities carried out pursuant to UNSC resolutions.

** At the end of 2002, there were no facilities designated for inspection in the Russian Federation

Table A15. **Approximate quantities of material subject to Agency safeguards at the end of 2002**

Type of material	Quantity of material (t)			Quantity in SQs
	Comprehensive safeguards agreements ^a	INFCIRC/66 ^b	Nuclear weapon States	
Nuclear material				
Plutonium ^c contained in irradiated fuel	599.2	31.1	88.5	89 845
Separated plutonium outside reactor cores	13.2	0.1	68.7	10 249
Recycled plutonium in fuel elements in reactor cores	12.4	0.4	0	1605
HEU (equal to or greater than 20% uranium-235)	21.7	0.1	10.0	673
LEU (less than 20% uranium-235)	43 982	3006	4237	13 548
Source material ^d (natural or depleted uranium and thorium)	82 411	1772	12 227	7401
Non-nuclear material^e				
Heavy water	—	472	—	24
Total significant quantities				123 344

^a Covering safeguards agreements pursuant to NPT and/or Treaty of Tlatelolco and other comprehensive safeguards agreements.

^b Excluding installations in nuclear weapon States; including installations in Taiwan, China.

^c The quantity includes an estimated 95 t (11 872 SQ) of plutonium in irradiated fuel, which is not yet reported to the Agency under the reporting procedures agreed to (the non-reported plutonium is contained in irradiated fuel assemblies to which item accountancy and containment/surveillance measures are applied).

^d This table does not include material within the terms of subparagraphs 34(a) and (b) of INFCIRC/153 (Corrected).

^e Non-nuclear material subject to Agency safeguards under INFCIRC/66/Rev.2-type agreements.

Table A16. **Number of facilities under safeguards or containing safeguarded material on 31 December 2002**

Facility type	Number of facilities (number of installations)			Total
	Comprehensive safeguards agreements ^a	INFCIRC/66 ^b	Nuclear weapon States	
Power reactors	185 (222)	13 (16)	1 (1)	199 (239)
Research reactors and critical assemblies	139 (150)	7 (7)	1 (1)	147 (158)
Conversion plants	13 (13)	1 (1)	— (—)	14 (14)
Fuel fabrication plants	38 (39)	3 (3)	— (—)	41 (42)
Reprocessing plants	5 (5)	1 (1)	— (—)	6 (6)
Enrichment plants	8 (8)	— (—)	2 (4)	10 (12)
Separate storage facilities	70 (70)	3 (3)	7 (9)	80 (82)
Other facilities	84 (95)	1 (1)	1 (1)	86 (97)
Subtotals	542 (602)	29 (32)	12 (16)	583 (650)
Other locations	322 (419)	3 (30)	— (—)	325 (449)
Non-nuclear installations	— (—)	1 (1)	— (—)	1 (1)
Totals	864 (1021)	33 (63)	12 (16)	909 (1100)

^a Covering safeguards agreements pursuant to NPT and/or the Treaty of Tlatelolco and other comprehensive safeguards agreements.

^b Excluding installations in nuclear weapon States; including installations in Taiwan, China.

Table A17. **Additional safeguards support provided by States**

States and organizations representing groups of States having formal support programmes	States having R&D contracts and test programmes
Argentina	Austria
Australia	Israel
Belgium	Latvia
Canada	Pakistan
European Commission	Russian Federation
Finland	
France	
Germany	
Hungary	
Japan	
Republic of Korea	
Netherlands	
Russian Federation	
Sweden	
United Kingdom	
United States of America	

Table A18. **Co-ordinated Research Projects – new or completed in 2002**
(A full list of all current CRPs is available on the Agency’s WorldAtom web site.)

Nuclear Power

New

Advances in high temperature gas cooled reactor fuel technology
 Economic research on, and assessment of selected nuclear desalination projects and case studies
 Studies of advanced reactor technology options for effective incineration of radioactive waste

Completed

Information management solutions for systematic approach to training (SAT) applications

Nuclear Fuel Cycle and Material Technologies

New

Corrosion of research reactor aluminium clad spent fuel in water
 Disposal aspects of low and intermediate level decommissioning waste
 Improvement of models used for fuel behaviour simulation (FUMEX II)

Completed

Spent fuel performance assessment and research (SPAR)

Analysis for Sustainable Energy Development

New

Cost effectiveness of nuclear power compared to carbon dioxide capture and sequestration from fossil fuel power plants

Completed

Role of nuclear power and other energy options in meeting international goals on greenhouse gas emission reductions

Nuclear Science

New

Data for the thorium–uranium fuel cycle
 Improvement of the standard cross-sections for light elements

Completed

Comparison of compact toroid configurations: spherical tokamaks, spheromaks and field reversed configurations
 Fission product yield data required for transmutation of minor actinide nuclear waste
 Nuclear model parameter testing (RIPL phase II)
 Use of ion beam techniques for analysis of light elements in thin films, including depth profiling

Food and Agriculture

New

Assessing the effectiveness of soil conservation techniques for sustainable watershed management using fallout radionuclides
 Development of strategies for the effective monitoring of veterinary drug residues in livestock and livestock products in developing countries
 Improvement of the codling moth sterile insect technique to facilitate expansion of field applications
 Physical mapping technologies for the identification and characterization of mutated genes contributing to crop quality
 Testing the efficiency and uncertainty of sample processing for the analysis of food contaminants

Completed

Determination of profiles of human bacterial pathogens in foods for experts by introduction of quality assured microbiology assays
 Enhancement of the sterile insect technique through genetic transformation of arthropods using nuclear techniques
 Evaluation of methods of analysis for determining mycotoxin contamination of food and feed

Table A18. (cont.)

Improved attractants for enhancing the efficiency of tsetse fly suppression operations and barrier systems used in tsetse control/eradication campaigns

Irradiation as a phytosanitary treatment of food and agricultural commodities

Use of nuclear and colorimetric techniques for measuring microbial protein supply from local feed resources in ruminant animals

Human Health

New

Improvement in the treatment of acute lymphoblastic leukaemia by the detection of minimal residual disease

Nitrate augmented myocardial imaging for the assessment of myocardial viability

The role of teletherapy supplementary to intraluminal high dose rate brachytherapy in the palliation of advanced oesophagus cancer

Completed

Application of nuclear techniques in the prevention of degenerative diseases (obesity, non-insulin dependent diabetes and coronary heart disease) in ageing

Clinical application of radiosensitizers in cancer radiotherapy

Comparison of clinical applications software between nuclear medicine laboratories by software phantoms developed by COST-B

Development and validation of an internet based clinical and technical study communication system for nuclear medicine

Development of a Code of Practice for dose determination in photon, electron and proton beams based on measurement standards of absorbed dose to water

Electron paramagnetic resonance (EPR) biodosimetry

Genotype phenotype correlation in thalassemia and muscular dystrophy

Molecular typing of *Mycobacteria* strains in multi-drug resistant tuberculosis

Randomized clinical trial of radiotherapy combined with Mitomycin C in the treatment of advanced head and neck tumours

Regional hyperthermia combined with radiotherapy for locally advanced cancer

Validation and application of plants as biomonitors of trace element atmospheric pollution, analysed by nuclear and related techniques

Water Resources

New

Design criteria for a network to monitor isotope compositions of runoff in large rivers

Nuclear and isotopic techniques for the characterization of submarine groundwater discharge (SGD) in coastal zones

Physical and Chemical Applications

New

Comparative laboratory evaluation of therapeutic radiopharmaceuticals

Corrosion and deposit determination in large diameter pipes, with and without insulation, by radiography testing

Development of radioactive sources for emerging therapeutic and industrial applications

New applications of prompt gamma neutron activation analysis (PGNAA)

Remediation of polluted waters and wastewater by radiation processing

Safety of Nuclear Installations

New

Assessment of interfaces between neutronic, thermal-hydraulic, structural and radiological aspects in accident analyses

Safety significance of postulated initiating events for different research reactor types and assessment of analytical tools

Table A18. (cont.)

Safety significance of near field earthquakes

Completed

Safety of RBMK type nuclear power plants in relation to external events

Radiation Safety

New

Avoidance of unnecessary dose to patients while transitioning from analogue to digital radiology

Dose reduction in computed tomography (CT) while maintaining diagnostic confidence

Evaluating quantitatively and promoting patient dose reduction approaches in interventional radiology

Exploring the possibility of establishing guidance levels for interventional radiology

Completed

Image quality and patient dose optimization in mammography in Eastern European countries

Management of Radioactive Waste

New

Application of safety assessment methodologies for near surface waste disposal facilities (ASAM)

Security of Material

New

Improvement of technical measures to detect and respond to the illicit trafficking of nuclear and other radioactive materials

Table A19. **Training courses, seminars and workshops in 2002**

Nuclear Power

Courses

Korea International Cooperation Agency/IAEA course on nuclear power policy, planning and project management – Republic of Korea

Regional course on advanced technology for the modernization of instrumentation and control in nuclear power plants – Germany; Republic of Korea

Regional course/workshop for the planning and management of the decommissioning of nuclear power plants – Germany

Seminars and Workshops

IAEA/FORATOM workshop on training on quality management – Belgium

Management workshop on operational and safety issues – Republic of Korea

Regional workshop on managing change in nuclear utilities – Russian Federation

Regional workshop on non-destructive testing in relation to lifetime evaluation – Croatia

Regional workshop on nuclear power plant outage management – Republic of Korea

Regional workshop on optimization of steam generator performance – Ukraine

Regional workshop on the economics of nuclear power plant performance – Hungary

Regional workshop on upgrading training capabilities to respond to emerging needs – Republic of Korea

Specialist workshop on practical experience and improvements – Bulgaria

Workshop on nuclear power plant decommissioning in the Central and Eastern Europe countries – Headquarters

Workshop on pre-service inspection and in-service inspection of WWER-1000 type nuclear power plants – Islamic Republic of Iran

Workshop on quality assurance grading for the Bushehr-1 nuclear power plant – Headquarters

Workshop on the application and development of advanced nuclear reactor simulators for educational purposes – ICTP

Workshop on the application of ISO quality standards to meet IAEA quality assurance standards – Headquarters

Workshop on the development of a system for nuclear power plant manager training – Islamic Republic of Iran

Nuclear Fuel Cycle and Material Technologies

Courses

Regional course for East Asia and the Pacific on the decommissioning of research reactors and other small nuclear installations – Argentina

Seminars and Workshops

Radiological characterization workshop for the Ignalina Nuclear Power Plant – Lithuania

Regional (AFRA) workshop on good management practice in radioactive waste – Ethiopia

Regional workshop on nuclear power plant decommissioning technology and infrastructure building in Central and Eastern Europe Countries – Headquarters

Workshop on the basics of decommissioning – Federal Republic of Yugoslavia

Workshop on the Net Enabled Waste Management Data Base – Headquarters; USA

Analysis for Sustainable Energy Development

Courses

Advanced analysis of domestic greenhouse gas mitigation options with consideration of nuclear power – Indonesia
Development and evaluation of alternative energy strategies in support of sustainable development using the IAEA's new tool MESSAGE – Romania

Economic evaluation of electricity generation options using the IAEA's WASP model – Tunisia

Enhanced energy system analysis for sustainable development – ICTP

Historical evolution of Indicators of Sustainable Energy Development (ISED) and the use of this information for designing guidelines for future energy strategies in conformity with the objectives of sustainable development – ICTP

Table A19. (cont.)

Medium to long term planning for electricity generation using the IAEA's WASP-IV model – Syrian Arab Republic

Use of the IAEA's energy models – Italy

Use of the IAEA's MAED model for the evaluation and projection of energy demand – Italy

Use of the IAEA's WASP model – Bulgaria

Nuclear Science

Courses

BATAN Accelerator School national course – Indonesia

Group fellowship training on the maintenance of nuclear spectroscopy instruments – Agency's Laboratories, Seibersdorf

National course on maintenance, troubleshooting and repair of instruments constructed with surface mounted devices – Kenya

National course on the application of the EPTSoft package for teaching on nuclear instrumentation – Sudan

National course on the application of the Multisim 2001 package for teaching on nuclear instrumentation – Ethiopia; Sudan; United Republic of Tanzania

National course on the X ray fluorescence analysis of geological and environmental samples – Sudan

Regional course (AFRA) on repair and maintenance of microprocessor based nuclear systems – Algeria

Regional course on digital signal processing – Agency's Laboratories, Seibersdorf

Seminars and Workshops

Advanced workshop on the repair and maintenance of microprocessor and microcontroller based instruments – Sudan

Interregional workshop to assess the utilization of developed ICT based training/learning materials for the maintenance of nuclear instruments – USA

National laboratory workshop on nuclear physics teaching – Angola

Regional workshop (AFRA) on the repair and maintenance of liquid scintillation counters – Kenya

Food and Agriculture

Courses

Course (RAF) on the use of nuclear techniques in nitrogen and water dynamics in rain fed arid and semi-arid areas – Senegal

Course (RCA) on the use of nitrogen-15 techniques for identifying management practices for the efficient use of nitrogen fertilizers in wetland rice soils – Malaysia

Course on mycotoxin methodologies, sample processing and QA/QC and ISO 17025 principles – Agency's Laboratories, Seibersdorf

Course on use of the neutron probe for drought tolerance screening – Kenya

Interregional course on mutant germplasm characterization using molecular markers – Agency's Laboratories, Seibersdorf

Interregional course on the use of the sterile insect and related techniques for the integrated area wide management of insect pests – Canada

National course on marker assisted selection and DNA fingerprinting in rice – Viet Nam

National course on mutation techniques for the improvement of field crops – Yemen

National course on on-farm trials of improved finger millet mutants – Zambia

Regional course on establishing a national GIS capacity for ongoing and planned tsetse/trypanosomosis intervention campaigns – Burkina Faso

Regional Latin America course on fruit fly management with emphasis on the sterile insect technique – Guatemala

Seminars and Workshops

FAO/IAEA training workshop on advanced instrumental techniques in pesticide residue analysis – Agency's Laboratories, Seibersdorf

FAO/IAEA training workshop on techniques in integrated soil, water and nutrient management for sustainable rice-wheat cropping systems in Asia – Headquarters

Table A19. (cont.)

- FAO/IAEA workshop (RCA) on irradiation to ensure microbiological safety of food — India
- FAO/IAEA workshop (RCA) on use of irradiation to ensure quarantine security of food and agricultural commodities — Australia
- FAO/IAEA workshop on implementation of quality assurance/quality control measures in pesticide residue analytical laboratories — Malaysia; Agency's Laboratories, Seibersdorf
- International workshop on mycotoxins: "An attempt to harmonize mycotoxin training programmes worldwide" — USA
- National seminar on the assessment of wheat quality — The Former Yugoslav Republic of Macedonia
- National training workshop on feed supplementation strategies and reproduction of camels and yak — Mongolia
- National training workshop on livestock disease control — Yemen
- National training workshop on livestock disease diagnosis and epidemiology — Mongolia
- National training workshop on urea molasses multivitamin blocks and feed supplementation strategies — Thailand
- National workshop on applications of induced mutation and molecular tools in horticultural crops including ornamental plants — Malaysia
- National workshop on black pepper improvement: Cell and tissue culture, breeding and induced mutations and molecular markers — Sri Lanka
- National workshop on gas chromatography and the application of nuclear techniques — Colombia
- Project co-ordination workshop (RCA) on the restoration of soil fertility and sustenance of agricultural productivity — Thailand
- Project co-ordination workshop (RER) on fertigation for improved crop production and environmental protection — Greece
- RCA project formulation workshop on measuring soil erosion/sedimentation and associated pesticide contamination — China
- Regional training workshop on the application of molecular markers in disease diagnostic and mutant characterization in date palm — Algeria
- Regional West Asia workshop on tephritid fruit flies trapping and fruit sampling — Greece
- Train the trainers workshop (AFRA) on improved breeding data management and integration of progesterone based farmer services in artificial insemination systems — Morocco
- Train the trainers workshop on the development of information communication technology based materials for refresher courses for cattle artificial insemination technicians — Uganda
- Training workshop (RAF) on the use of nuclear techniques in soil, water and nutrient management in rain fed arid and semi-arid areas — Headquarters
- Training workshop (RCA) on management and utilization of field and laboratory data for breeding support services to livestock farmers — Bangladesh
- Training workshop (RCA) on the use of caesium-137 techniques for establishing soil redistribution and its relationship to soil quality parameters — China
- Workshop (RCA) of national consultants on evaluation of breeding bulls and semen quality control — Pakistan
- Workshop on establishing quality systems in veterinary diagnostic testing laboratories — Colombia
- Workshop on irradiation as a critical control point to ensure microbiological safety of food — USA
- Workshop on the South African Development Community's veterinary laboratory capacities and accreditation procedures — South Africa

Human Health

Courses

- Course on basic clinical radiobiology (IAEA/ESTRO) — Russian Federation
- Course on basic clinical radiobiology (IAEA/ESTRO) — Sweden
- Course on dose determination in modern radiotherapy: Beam characterization, calculation and verification (IAEA/ESTRO) — Italy
- Course on dosimetry and quality assurance in diagnostic radiology — China
- Course on evidence based radiation oncology: Methodological basis for clinical application (IAEA/ESTRO) — Spain
-

Table A19. (cont.)

Course on imaging for target volume determination in radiotherapy (IAEA/ESTRO) – Portugal

Course on implementation of a quality assurance programme in diagnostic radiology – Armenia

Course on modern brachytherapy techniques (IAEA/ESTRO) – Portugal

Course on physics for clinical radiotherapy (IAEA/ESTRO) – Belgium

Course on quality assurance/quality control in diagnostic radiology – Armenia

Course on radiotherapy treatment planning: Principles and practice (IAEA/ESTRO) – Ireland

National course on nephro-urology – Uruguay

National course on routine applications of nuclear medicine procedures – Syrian Arab Republic

Regional course and workshop on radionuclide treatment of liver cancer – Viet Nam

Regional course for medical physicists on the establishment of the protocol for quality assurance and quality control in mammography – Panama

Regional course for technicians and technologists on quality assurance and quality control in mammography – Cuba

Regional course in clinical dosimetry – Venezuela

Regional course on application of radionuclide techniques in the management of diabetic complications – Uzbekistan

Regional course on cardiology and oncology for nuclear medicine technologists – Islamic Republic of Iran

Regional course on clinical aspects of brachytherapy in uterine cervix cancer – Japan

Regional course on conventional and molecular methods for susceptibility testing of drug resistant TB – South Africa

Regional course on interventional nuclear medicine – Headquarters

Regional course on molecular and radioisotopic techniques for virological laboratories – Costa Rica

Regional course on nuclear medicine in the management of thyroid disorders – Morocco

Regional course on nuclear oncology – Philippines

Regional course on prevention, early diagnosis, management, radiotherapy treatment delivery and verification, palliation and psychosocial aspects of cervical cancer – Morocco

Regional course on the application of radionuclide techniques in medical emergency practice – Malta

Regional course on the application of radionuclide techniques in the management of coronary artery disease – Tunisia

Regional course on the application of radionuclide techniques in the management of diabetes mellitus – United Arab Emirates

Regional course on the clinical application of radionuclides in the management of inflammation and infection – Syrian Arab Republic

Regional course on therapeutic nuclear medicine – Romania

Seminars and Workshops

National seminar on neonatal screening – Mongolia

National workshop on neonatal screening programme – Viet Nam

Regional workshop on quality assurance for treatment planning systems – Morocco

Regional workshop on quality assurance in radiotherapy: Physical and technical aspects – United Republic of Tanzania

Regional workshop on radiation oncology departmental management decision making – Algeria

Regional workshop on scintimammography, sentinel lymph node detection and intraoperative surgical probe technology in the management of breast cancer – Poland

Regional workshop on the implementation of Technical Reports Series No. 398 – Tunisia

Regional workshop on the management of quality systems – Viet Nam

Technical trouble shooting workshop on current problems of specimen collection and transport – Bangladesh

Workshop on air biomonitoring – Mexico

Workshop on food fortification (IAEA/ADB) – Thailand

Table A19. (cont.)

Workshop on isotopic and related techniques to assess air pollution — China
Workshop on quality assurance in radiotherapy — Thailand
Workshop on stable isotope applications in body composition measurements — Mexico
Workshop on the application of advanced data analysis methods to ambient aerosol compositional data — New Zealand
Workshop on the elimination of micronutrient malnutrition in Asia (IAEA/ADB) — Thailand
Workshop on total quality management, evidence based practice and technology — Uzbekistan

Water Resources

Courses

Advanced regional course on isotope data interpretation — USA
Course on the application, advantages and limitation of mathematical models — Peru
Interregional course on advanced techniques in the application of isotopes and radioactive tracers to geothermal reservoir management — Mexico
National course on groundwater field methods — Ethiopia
National course on groundwater modelling using the M3 code, geostatistics and optimization of the groundwater monitoring network — Ethiopia
Regional course on advanced numerical groundwater modelling for water resources management — Viet Nam
Regional course on isotope hydrology with particular emphasis on dam safety — Tunisia
Regional course on radiotracer techniques for geothermal reservoir management — Costa Rica
Regional course on the use of methodologies of isotope hydrology — Morocco; Uganda

Seminars and Workshops

Executive seminar (RCA) for water resources managers on isotope use in managing and protecting drinking water — Malaysia
National training workshop on isotope hydrology — Kenya
National workshop on isotope hydrology with particular emphasis on stable and radioactive isotopes — Bangladesh
National workshop on the monitoring network — Colombia
National workshop on the use of isotopes as alternative techniques in dam safety and dam sustainability — Malaysia
Regional (RCA) training workshop on the tracer demonstration technique in isotope hydrology with particular emphasis on dam safety — Sri Lanka
Regional (RCA) workshop on dissemination of information on use of isotopes in dam safety and sustainability — Republic of Korea
Regional workshop on hydrogeochemistry — Chile
Regional workshop on the use of artificial tracers in hydrogeology — Ecuador
Technical review workshop on the sustainable development of groundwater resources — Headquarters
Workshop on managing shared aquifer resources in Africa — Libyan Arab Jamahiriya
Workshop on new strategies for an integrated science approach to enhance understanding of hydrological and ecological processes across scales (IAEA-UNESCO/IHP) — Poland

Protection of the Marine and Terrestrial Environments

Courses

Course on oil hydrocarbons in marine environmental samples — Algeria
Course on the analysis of organic contaminants (petroleum hydrocarbons and chlorinated pesticides) in marine biological and sediment samples — IAEA-MEL; Bahrain; Oman
Course on the analysis of trace metals in marine biological and sediment samples — Bahrain; IAEA-MEL; Kuwait; Oman

Table A19. (cont.)

Physical and Chemical Applications

Courses

- Regional course on introduction to basic training in non-destructive testing, level 3 – South Africa
- Regional course on non-destructive testing and in-service inspection in the petroleum and petrochemical industries – Republic of Korea
- Regional course on non-destructive testing in-service inspection in the petroleum industry – Algeria
- Regional course on proficiency tests in the radiographic and ultrasonic testing of welds – Republic of Korea
- Regional course on prompt gamma neutron activation analysis – Chile
- Regional course on quality assurance/quality control in nuclear analytical techniques – Malaysia
- Regional course on radiation treatment of industrial and municipal wastewater – Tunisia
- Regional course on radiography testing for level 3 with basic non-destructive testing and RT method examination – Islamic Republic of Iran
- Regional course on radiotracers in wastewater treatment – Brazil
- Regional course on the preparation and quality control of radiopharmaceuticals for immunoscintigraphy based on monoclonal antibodies – Peru

Workshops

- Regional workshop on condition monitoring of civil engineering by using non-destructive testing methods – Morocco
- Regional workshop on non-destructive inspection of concrete structures – Syrian Arab Republic; Lebanon
- Regional workshop on process optimization using tracers in the petrochemical industry – Republic of Korea
- Regional workshop on prompt gamma neutron activation analysis applications in the mining, cement and processing industries – China
- Regional workshop on the benefits of using radioisotope technology in industry – Indonesia
- Regional workshop on the radiation processing of natural polymers for health care applications – Malaysia
- Regional workshop on the thin layer activation technique for monitoring corrosion in industry – China
- Regional workshop on the validation of low activity and portable nucleonic gauges for the optimization of coal and mineral resources recovery – Viet Nam
- Workshop on the marketing of nuclear analytical services – Poland

Safety of Nuclear Installations

Courses

- Course on regulatory control of nuclear power plants – Germany
- Regional basic professional course on nuclear safety – France
- Regional course on electronics for the instrumentation and control of research reactors and small nuclear facilities – Argentina
- Regional course on management of the operational safety of nuclear power plants – Germany
- Regional course on safety analysis related to lifetime extension – Slovenia
- Regional course on safety assessment of nuclear power plants to assist decision making – Spain
- Regional course on the use of computer codes for accident management – Croatia
- Regional train the trainers course on nuclear safety – USA

Seminars and Workshops

- Focused safety culture workshop: Ignalina – Lithuania
- IAEA-OECD/NEA workshop on advanced nuclear reactor safety issues and research needs – France
- ICTP workshop on earthquake engineering – Italy
- INES seminars – Canada; Netherlands; Slovakia; Sweden; USA
- International workshop on future European Union needs in materials for research reactors (FEUMARR) – France
- International workshop on the safety of first-generation WWER-440 nuclear power plants – Slovakia
- Joint HSK-IAEA-OECD/NEA workshop on regulatory decision making processes – Switzerland
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Table A19. (cont.)

Joint management workshop — Republic of Korea

Joint WANO–IAEA workshop on fire protection issues at nuclear power plants — Hungary

National workshop on review, assessment, inspection and enforcement activities related to nuclear power plants — China

National workshop on risk monitors and probabilistic safety assessment applications — China

National workshop on: strategies for safe operation: Risk informed management — China

National/extrabudgetary programme workshop on the operation and maintenance of the research reactor Serpong — Indonesia

OSART seminar at BNFL — United Kingdom

OSART workshop — China

Regional workshop on computer codes for deterministic safety analysis (conservative and best estimate calculations) — Czech Republic

Regional workshop on experience and good practices in the management of safety identified in IAEA and other missions — Slovenia

Regional workshop on licensing over the life cycle of nuclear power plants — Lithuania

Regional workshop on operational safety during new unit commissioning and startup — Russian Federation

Regional workshop on risk informed decision making — Hungary

Regional workshop on safety analysis methodology and computer code utilization — Republic of Korea

Regional workshop on the application of event analysis methodologies on selected events with special focus on organizational factors — Hungary

Regional workshop on transparency and communication of nuclear safety issues — Slovenia

Review workshop on the commissioning programme for the Tianwan nuclear power plant — Czech Republic

Safety culture workshop for the European Commission Joint Research Centre High Flux Reactor — Netherlands

Safety management and safety culture — Russian Federation

Seminar on field inspection techniques — Bulgaria

Seminar on recent advances in seismology — Slovakia

Seminar on severe accidents and accident management — China

Seminar on the applicability of guidelines for the self-assessment of safety and security in nuclear installations — Pakistan

Seminar on the IAEA safety culture programme at the USNRC — USA

Seminar on the methodology used by OSART — Ukraine

Seminar on the OSART methodology applied to field inspections — France

Seminar on the results of the IAEA extrabudgetary programme on mitigation of intergranular stress corrosion cracking in RBMK reactors — Headquarters

Seminar on the safety and security of nuclear installations — Hungary

Seminar on ultrasonic inspection of piping repaired by overlay welding — Ukraine

Seminar on ultrasonic testing qualification pilot study — Ukraine

Third workshop on high energy piping at the 28.8 m level at SUJB headquarters — Czech Republic

Workshop for Industrias Nucleares do Brazil (INB) — Brazil

Workshop for training inspectors of the Indonesian regulator BAPETEN — Indonesia

Workshop/lecture on the IAEA Safety Guide ‘Format and content of safety analysis reports for nuclear power plants’ — Slovak Republic

Workshop on accident management and emergency preparedness for research reactors — Republic of Korea

Workshop on documentation for use in regulating nuclear facilities — Ukraine

Workshop on education and training — Czech Republic

Workshop on emergency operation procedures (EOP) — China

Workshop on engineering safety assessment of nuclear power plant systems important to safety — Russian Federation

Table A19. (cont.)

Workshop on enhancement of safety culture — Armenia
Workshop on external event probabilistic safety assessment — China
Workshop on harmonization of probabilistic safety assessment methodology approaches for WWER-440 reactors and comparison of PSA results — Slovakia
Workshop on inspector training — China
Workshop on living probabilistic safety assessment and applications — Russian Federation
Workshop on management of operational safety and safety culture for the nuclear fuel fabrication industry in Japan — Japan
Workshop on methodology for identification of vital areas for nuclear power plants (organized by Sandia National Laboratories) — Ukraine
Workshop on nuclear safety education and training — China
Workshop on operations — Indonesia
Workshop on physical protection and vulnerability — Islamic Republic of Iran
Workshop on probabilistic safety assessment and applications — Armenia
Workshop on safety analysis methodology and computer code utilization for research reactors — Republic of Korea
Workshop on safety culture for senior management — Ukraine
Workshop on self-assessment of operating performance — China
Workshop on Spanish experience with design basis reconstitution — Spain
Workshop on strengthening the management of operational safety at nuclear power plants and utility organizations — Romania
Workshop on strengthening the management of operational safety through self-assessment of operational performance — Czech Republic
Workshop on training in inspection techniques — Thailand

Radiation Safety

Courses

European course on radiation protection and the safety of sources — France
Post-graduate educational course in radiation protection and nuclear safety — Argentina
Post-graduate educational course in radiation protection and the safety of sources — Belarus; Malaysia; Morocco; Syrian Arab Republic
Regional course for instructors on evaluation and response to nuclear emergencies — Argentina
Regional course for trainers in radiation protection facilities under radiation control — Japan
Regional course on assessment of occupational exposure due to the intake of radionuclides — Islamic Republic of Iran
Regional course on authorization and inspection in industrial and research irradiators — Argentina
Regional course on authorization and inspection in industrial radiography — Brazil; Turkey; Venezuela
Regional course on authorization and inspection in nuclear medicine — Brazil; Cuba; Peru
Regional course on authorization and inspection of medical practices — United Arab Emirates
Regional course on occupational radiation protection and safety — Japan
Regional course on practical response to a radiological emergency — Australia; Latvia
Regional course on radiation protection and safety in diagnostic and interventional radiology — France; Kenya; Kuwait; Malaysia
Regional course on radiation protection and safety in industrial radiography — United Kingdom
Regional course on radiation protection and safety in nuclear medicine — Albania
Regional course on radiation protection and safety in radiotherapy — Turkey
Regional course on the organization and implementation of a national programme for the control of radiation sources — Croatia; Czech Republic; Indonesia; Mexico
Regional course on the safe transport of radioactive material — South Africa

Table A19. (cont.)

Seminars and Workshops

Regional workshop on calibration of radiation measuring instruments for radiation protection — Jordan

Regional workshop on procedures for medical response during radiological emergencies — Croatia

Regional workshop on radiation protection applied to radioisotope production — China

Regional workshop on radiation protection, waste management and quality assurance in nuclear medicine — Philippines

Regional workshop on radiation safety in industrial radiography — India

Regional workshop on regulatory authorization and inspection of radiation sources in diagnostic radiology and radiotherapy — Libyan Arab Jamahiriya

Regional workshop on the assessment of occupational exposure due to external radiation — Morocco; Tunisia; Viet Nam

Regional workshop on the establishment of a judicial framework in radiation protection — Headquarters

Regional workshop on the improvement of national personal monitoring systems — Headquarters

Regional workshop: Intercomparison exercise aimed at assessment of individual doses due to internal radiation — Headquarters

Waste Safety

Courses

Regional course on radiation protection aspects in radioactive waste management — Republic of Moldova

Regional course on safety assessment methodologies for near surface waste disposal facilities — Russian Federation

Regional course on the decommissioning of research reactors and other nuclear facilities — Argentina

Regional course on the preparation of a safety analysis report for near surface disposal facilities — United Republic of Tanzania

Regional course on the radiation protection aspects of radioactive waste management — Indonesia

Regional course on the safety of radioactive waste management — Chile; Syrian Arab Republic

Workshops

Regional workshop on the derivation of acceptance criteria for near surface waste disposal facilities — Czech Republic

Regional workshop on the effect of ionizing radiation on the ecological situation of countries from the Caucasian region and Caspian Sea basin — Azerbaijan

Regional workshop on upgrading near surface waste disposal facilities — Hungary

Safeguards

Courses

Course on implementation of state systems of accounting for and control of nuclear material — Russian Federation

National course on accounting and control — Algeria

Regional course on IAEA safeguards — Japan

Regional course on state systems of accounting for and control of nuclear material — Japan

Seminars and Workshops

Regional seminar on safeguards agreements and the additional protocol — Kazakhstan

Safeguards seminar on accounting, reporting and inspection activities — Switzerland

Seminar for African States on the non-proliferation of nuclear weapons — South Africa

Workshop on IAEA safeguards — Republic of Korea

Workshop on IAEA safeguards activities — Russian Federation

Workshop on nuclear material accounting and reporting — Ukraine

Workshop on safeguards for natural uranium conversion plant operators — Islamic Republic of Iran

Table A19. (cont.)

Outreach and Information Support Services

Regional public information seminar on Central Europe's nuclear challenges – Poland

Policy and General Management

Workshop on the development of a legal framework governing the safety of radioactive waste management, physical protection of nuclear material and the safe transport of radioactive material for countries of Latin America – Argentina

Table A20. **Publications issued in 2002**

Nuclear Power

- Comparative assessment of thermophysical and thermohydraulic characteristics of lead, lead–bismuth and sodium coolants — IAEA-TECDOC-1289
- Cost drivers for the assessment of nuclear power plant life extension — IAEA-TECDOC-1309
- Country nuclear power profiles: 2001 edition — IAEA-CNPP-2001
- Country nuclear power profiles: 2001 edition (CD-ROM) — IAEA-CNPP/2001/CD
- Decommissioning costs of WWER-440 nuclear power plants — IAEA-TECDOC-1322
- Design concepts of nuclear desalination plants — IAEA-TECDOC-1326
- Developing an economic system to enhance nuclear power plant competitiveness — Technical Reports Series No. 406
- Harmonization and validation of fast reactor thermomechanical and thermohydraulic codes and relations using experimental data — IAEA-TECDOC-1318
- Harmonization of the licensing process for digital instrumentation and control systems in nuclear power plants — IAEA-TECDOC-1327
- Heavy water reactors: Status and projected development — Technical Reports Series No. 407
- Improving economics and safety of water cooled reactors: Proven means and new approaches — IAEA-TECDOC-1290
- Information technology impacts on nuclear power plant documentation — IAEA-TECDOC-1284
- Natural circulation data and methods for advanced nuclear power plant design — IAEA-TECDOC-1281
- Nuclear power plant outage optimization strategy — IAEA-TECDOC-1315
- Nuclear power reactors in the world: April 2002 — Reference Data Series No. 2/22
- Operating experience with nuclear power stations in Member States in 2001 — Annual publication
- Quality standards: Comparison between IAEA 50-C/SG-Q and ISO 9001:2000 — Safety Reports Series No. 22
- Safe and effective nuclear power plant life cycle management towards decommissioning — IAEA-TECDOC-1305
- Small and medium sized reactors: Status and prospects — C&S Papers Series No. 14/P
- Small and medium sized reactors: Status and prospects (proceedings of an international seminar, Cairo, 27–31 May 2001) — C&S Papers Series No. 14/CD
- Solutions for cost effective assessment of software based instrumentation and control systems in nuclear power plants — IAEA-TECDOC-1328
- Thorium fuel utilization: Options and trends — IAEA-TECDOC-1319
- Verification of analysis methods for predicting the behaviour of seismically isolated nuclear structures — IAEA-TECDOC-1288

Nuclear Fuel Cycle and Material Technologies

- Advanced post-irradiation examination techniques for water reactor fuel — IAEA-TECDOC-1277
- Advanced post-irradiation examination techniques for water reactor fuel (CD-ROM) — IAEA-TECDOC-CD-1277
- Application of ion exchange processes for the treatment of radioactive waste and management of spent ion exchangers — Technical Reports Series No. 408
- Decommissioning techniques for research reactors — IAEA-TECDOC-1273
- Effects of radiation and environmental factors on the durability of materials in spent fuel storage and disposal — IAEA-TECDOC-1316
- Environmental aspects based on operational performance of nuclear fuel fabrication facilities — IAEA-TECDOC-1306
- Factors determining the long term back end nuclear fuel cycle strategy and future nuclear systems — IAEA-TECDOC-1286
- Fuel behaviour under transient and LOCA conditions — IAEA-TECDOC-1320
- Fuel behaviour under transient and LOCA conditions (CD-ROM) — IAEA-TECDOC-CD-1320
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Table A20. (cont.)

- High temperature on-line monitoring of water chemistry and corrosion control in water cooled power reactors — IAEA-TECDOC-1303
- Institutional framework for long term management of high level waste and/or spent nuclear fuel — IAEA-TECDOC-1323
- Long term storage of spent nuclear fuel: Survey and recommendations — IAEA-TECDOC-1293
- Management of low and intermediate level radioactive wastes with regard to their chemical toxicity — IAEA-TECDOC-1325
- Management of radioactive wastes from non-power applications: Sharing the experience — 15/CD
- Management of spent high activity radioactive sources (SHARS) — IAEA-TECDOC-1301
- Non-technical factors impacting on the decision making processes in environmental remediation — IAEA-TECDOC-1279
- Radioactive Waste Management Profiles 4: Compilation of Data from the Net Enabled Waste Management Database (CD-ROM) — IAEA/WMDB/4
- Radioactive waste management: Status and trends No. 2 — IAEA/WMDB/ST/2
- Record keeping for the decommissioning of nuclear facilities: Guidelines and experience — Technical Reports Series No. 411
- Reliability assurance programme guidebook for advanced light water reactors — IAEA-TECDOC-1264
- Scientific and technical basis for the near surface disposal of low and intermediate level waste — Technical Reports Series No. 412
- Socio-economic and other non-radiological impacts of the near surface disposal of radioactive waste — IAEA-TECDOC-1308
- Technical and economic limits to fuel burnup extension — IAEA-TECDOC-1299
- Technologies for the treatment of effluents from uranium mines, mills and tailings — IAEA-TECDOC-1296
- The uranium production cycle and the environment (proceedings of a symposium, Vienna, 2–6 October 2000) — C&S Papers Series No. 10/P
- Waste management research abstracts No. 27 — IAEA/WMRA/27/CD

Analysis for Sustainable Energy Development

- Comparative studies on energy supply options in Poland for 1997–2020 — IAEA TECDOC-1304
- Energy, electricity and nuclear power estimates for the period up to 2020: September 2002 edition — Reference Data Series No. 1
- Market potential for non-electric applications of nuclear energy — Technical Reports Series No. 410
- Nuclear technology review 2002

Nuclear Science

- Atomic and plasma–material interaction data for fusion (APID) — Volume 10
- CINDA 2002 — annual publication
- Data acquisition for X ray microprobes — Computer Manual Series No. 17
- Development and characterization of semiconductor materials by ion beams — IAEA-TECDOC-1292
- International bulletin on atomic and molecular data for fusion — IBAMD/61
- ITER Council proceedings — ITER EDA Documentation Series No. 23
- ITER CTA newsletter — Issue numbers 2–12
- ITER technical basis — ITER EDA Documentation Series No. 24
- Nuclear data newsletter — Issue number 33
- Reference neutron activation library — IAEA-TECDOC-1285
- Specialized software utilities for gamma ray spectrometry — IAEA-TECDOC-1275
- World survey of activities in controlled fusion research: 2001
- World survey of activities in controlled fusion research: 2001, CD edition
- X ray fluorescence newsletter — Issue numbers 3 and 4
-

Table A20. (cont.)

Food and Agriculture

- Animal production and health newsletter — Issue numbers 35 and 36
- Assessment of soil phosphorus status and management of phosphatic fertilizers to optimize crop production — IAEA-TECDOC-1272
- Assessment of soil phosphorus status and management of phosphatic fertilizers to optimize crop production (CD-ROM)— IAEA-TECDOC-CD-1272
- Development and field evaluation of animal feed supplementation packages — IAEA TECDOC-1294
- Dosimetry for food irradiation — Technical Reports Series No. 409
- Evaluation of lepidoptera population suppression by radiation induced sterility — IAEA-TECDOC-1283
- Food and environmental protection newsletter — Volume 4, Issue numbers 1 and 2
- Insect pest control newsletters — Issue numbers 58 and 59
- Irradiated sewage sludge for application to cropland — IAEA-TECDOC-1317
- Irradiated sewage sludge for application to cropland (CD-ROM) — IAEA-TECDOC-CD-1317
- Natural and induced radioactivity in food — IAEA-TECDOC-1287
- Neutron and gamma probes: Their use in agronomy — Training Course Series No. 16
- Nuclear techniques in integrated plant nutrient, water and soil management (proceedings of a symposium, Vienna, 16–20 October 2000) — C&S Papers Series No. 11/P
- Nuclear techniques in integrated plant nutrient, water and soil management (proceedings of a symposium, Vienna, 16–20 October 2000) — C&S Papers Series No. 11/CD
- Plant breeding and genetics newsletter — Issue numbers 8 and 9
- Soils newsletter — Volume 25, Issue numbers 1 and 2
- Study of the impact of food irradiation on preventing losses: Experience in Africa — IAEA-TECDOC-1291
- Water balance and fertigation for crop improvement in West Asia — IAEA-TECDOC-1266
- Use of isotope and radiation methods in soil and water management and crop nutrition — Training Course Series No. 14

Human Health

- Calibration of photon and beta ray sources used in brachytherapy: Guidelines on standardized procedures at Secondary Standards Dosimetry Laboratories (SSDLs) and hospitals — IAEA-TECDOC-1274
- Predictive assays and their role in selection of radiation as the therapeutic modality — IAEA-TECDOC-1297
- SSDL newsletter — Issue number 46
- Use of electron paramagnetic resonance dosimetry with tooth enamel for retrospective dose assessment — IAEA-TECDOC-1331

Water Resources

- Isotope aided studies of atmospheric carbon dioxide and other greenhouse gases: Phase II — IAEA-TECDOC-1269
- Radionuclide transport dynamics in freshwater resources — IAEA-TECDOC-1314
- Stable isotope measurement techniques for atmospheric greenhouse gases — IAEA-TECDOC-1268
- Study of environmental change using isotope techniques — C&S Papers Series No. 13/P
- The application of isotope techniques to the assessment of aquifer systems in major urban areas — IAEA-TECDOC-1298
- Use of isotopes for analyses of flow and transport dynamics in groundwater systems: IAEA-UIAGS/CD — Miscellaneous publication
- Water and environment news — Numbers 15 and 16

Physical and Chemical Applications

- Development of kits for radioimmunometric assays for tumour markers — IAEA-TECDOC-1307
- Directory of cyclotrons used for radionuclide production in Member States — IAEA-DCRP/CD (CD-ROM)
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Table A20. (cont.)

Guidebook on non-destructive testing of concrete structures — Training Course Series No. 17
Optimization of synthesis and quality control procedures for the preparation of ^{18}F and ^{123}I labelled peptides for nuclear medicine — IAEA-TECDOC-1310
Radiation synthesis and modification of polymers for biomedical applications — IAEA-TECDOC-1324
Reference materials for microanalytical nuclear techniques — IAEA-TECDOC-1295
Training guidelines in non-destructive testing techniques: 2002 edition — IAEA-TECDOC-628/Rev.1

Safety of Nuclear Installations

Accident analysis for nuclear power plants — Safety Reports Series No. 23
Core management and fuel handling for nuclear power plants — Safety Standards Series No. NS-G-2.5
Dispersion of radioactive material in air and water and consideration of population distribution in site evaluation for nuclear power plants — Safety Standards Series No. NS-G-3.2
External human induced events in site evaluation for nuclear power plants — Safety Standards Series No. NS-G-3.1
Guidelines for IAEA International Regulatory Review Teams (IRRTs) — IAEA Services Series No. 8
IAEA guidance on ageing management for nuclear power plants: Version 1, 2002 — IAEA-GNPPA-CD/1
Instrumentation and control systems important to safety in nuclear power plants — Safety Standards Series No. NS-G-1.3
Maintenance, surveillance and in-service inspection in nuclear power plants — Safety Standards Series No. NS-G-2.6
Mitigation of intergranular stress corrosion cracking in RBMK reactors — IAEA-EBP-IGSCC
Operational safety review programmes for nuclear power plants guidelines for assessment — Services Series No. 7
Procedures for conducting probabilistic safety assessment for non-reactor nuclear facilities — IAEA-TECDOC-1267
Recruitment, qualification and training of personnel for nuclear power plants — Safety Standards Series No. NS-G-2.8
Review of methodologies for analysis of safety incidents at nuclear power plants — IAEA-TECDOC-1278
Review of probabilistic safety assessments by regulatory bodies — Safety Reports Series No. 25
Safety culture in nuclear installations — IAEA-TECDOC-1329
Self-assessment of safety culture in nuclear installations, highlights and good practices — IAEA-TECDOC-1321
The operating organization for nuclear power plants — Safety Standards Series No. NS-G-2.4

Radiation Safety

Advisory material for the IAEA regulations for the safe transport of radioactive material — Safety Standards Series No. TS-G-1.1 (ST-2)
Appraisal for the United Kingdom of the safety of the transport of radioactive material — IAEA Safety Standards Applications TransSAS-3
Compendium of neutron spectra and detector responses for radiation protection purposes — Technical Reports Series No. 403
Detection of radioactive materials at borders — IAEA-TECDOC-1312
Directory of national competent authorities' approval certificates for package design, special form material and shipment of radioactive material: 2002 edition — IAEA-TECDOC-1302
Emergency notification and assistance technical operations manual — EPR-ENATOM (2002)
Follow-up of delayed health consequences of acute accidental radiation exposure — IAEA-TECDOC-1300
Joint radiation emergency management plan of the international organizations — EPR-JPLAN (2002)
Medical preparedness and response — EPR-MEDICAL-T-2002/CD
National competent authorities responsible for approvals and authorizations in respect of the transport of radioactive material (2002 edition): National Competent Authorities List No. 33 — IAEA-NCAL-33
Optimization of radiation protection in the control of occupational exposure — Safety Reports Series No. 21
Planning and preparing for emergency response to transport accidents involving radioactive material — Safety Standards Series No. TS-G-1.2 (ST-3)

Table A20. (cont.)

Postgraduate educational course in radiation protection and the safety of radiation sources, volume 1:
Standard syllabus — Training Course Series No. 18

Preparedness and response for a nuclear or radiological emergency — Safety Standards Series No. GS-R-2

Prevention of the inadvertent movement and illicit trafficking of radioactive materials — IAEA-TECDOC-1311

Radiation protection and radioactive waste management in the operation of nuclear power plants —
Safety Standards Series No. NS-G-2.7

Radiological protection for medical exposure to ionizing radiation — Safety Standards Series No. RS-G-1.5

Response to events involving the inadvertent movement or illicit trafficking of radioactive materials —
IAEA-TECDOC-1313

Technologically enhanced natural radiation (TENR II) — IAEA-TECDOC-1271

The radiological accident in Gilan — special publication

The radiological accident in Samut Prakarn — special publication

Radioactive Waste Safety

Ethical considerations in protecting the environment from the effects of ionizing radiation: A report for discussion —
IAEA-TECDOC-1270

Issues relating to safety standards on the geological disposal of radioactive waste — IAEA-TECDOC-1282

Management of radioactive waste from the mining and milling of ores — Safety Standards Series No. WS-G-1.2

Modelling the migration and accumulation of radionuclides in forest ecosystems: Report of the forest working group
of the Biosphere Modelling and Assessment (BIOMASS) programme, theme 3 — IAEA-BIOMASS-1

Monitoring and surveillance of residues from the mining and milling of uranium and thorium —
Safety Reports Series No. 27

Radiation legacy of the 20th century: Environmental restoration — IAEA-TECDOC-1280

Safe enclosure of nuclear facilities during deferred dismantling — Safety Reports Series No. 26

Miscellaneous safety publications

Communication planning by the nuclear regulatory body — Safety Reports Series No. 24

Documentation for use in regulating nuclear facilities — Safety Standards Series No. GS-G-1.4

Key practical issues in strengthening safety culture (including booklet) — INSAG Series No. 15

Nuclear safety review for the year 2001 — annual publication

Organization and staffing of the regulatory body for nuclear facilities — Safety Standards Series No. GS-G-1.1

Regulatory control of nuclear power plants — Training Course Series No. 15

Regulatory inspection of nuclear facilities and enforcement by the regulatory body — Safety Standards Series No.
GS-G-1.3

Review and assessment of nuclear facilities by the regulatory body — Safety Standards Series No. GS-G-1.2

Topical issues in nuclear safety (including CD-ROM) (proceedings of a conference, Vienna, 3–6 September 2001) —
Proceedings Series

Safeguards

IAEA safeguards glossary: 2001 edition — International Nuclear Verification Series No. 3

IAEA safeguards glossary: 2001 edition — International Nuclear Verification Series No. 3, CD-ROM

Security of Material

Handbook on the physical protection of nuclear materials and facilities — IAEA-TECDOC-1276

Measures to prevent, intercept and respond to illicit uses of nuclear material and radioactive sources (proceedings
of a conference, Stockholm, 7–11 May 2001) — C&S Papers Series No. 12/P

Table A20. (cont.)

Outreach and Information Support Services

INIS: Authority list for journal titles — IAEA-INIS-11 (Rev. 28)

INIS: Joint thesaurus — IAEA-ETDE/INIS-1

INIS: Manual for subject analysis — IAEA-ETDE/INIS-3

INIS: Subject categories and scope descriptions — IAEA-ETDE/INIS-2

Nuclear fusion — Volume 41

Management of Technical Co-operation for Development

Science serving people — Special publication
