

Annex

- Table A4. Transport Safety Appraisal Service (TranSAS) missions in 2003
- Table A5. Peer review of radiation safety infrastructure missions in 2003
- Table A6. International PSA Review Team (IPSART) missions in 2003
- Table A7. International Regulatory Review Team (IRRT) missions in 2003
- Table A8. Safety Culture Enhancement Programme (SCEP) missions in 2003
- Table A9. Operational Safety Review Team (OSART) missions in 2003
- Table A10. Peer Review of Operational Safety Performance Experience (PROSPER) missions in 2003
- Table A11. Integrated Safety Assessment of Research Reactors (INSARR) missions in 2003
- Table A12. Engineering Safety Review Service missions in 2003
- Table A13. International Nuclear Security Advisory Service (INSServ) missions in 2003
- Table A14. International Physical Protection Advisory Service (IPPAS) missions in 2003
- Table A15. Border evaluation missions in 2003
- Table A16. State System of Accounting for and Control of Nuclear Material (SSAC) missions in 2003
- Table A17. Advisory missions in 2003 in response to illicit trafficking incidents
- Table A18. National strategies missions in 2003 for regaining control over radioactive sources
- Table A19. Missions under the 'Trilateral Initiative' involving the Agency, the Russian Federation and the USA
- Table A20. Status with regard to the conclusion of safeguards agreements and additional protocols
- Table A21. Number of States having significant nuclear activities at the end of 2001, 2002 and 2003
- Table A22. Approximate quantities of material subject to Agency safeguards at the end of 2003
- Table A23. Number of facilities under safeguards or containing safeguarded material on 31 December 2003
- Table A24. Facilities under Agency safeguards or containing safeguarded material on 31 December 2003
- Table A25. Coordinated Research Projects initiated in 2003
- Table A26. Coordinated Research Projects completed in 2003
- Table A27. Training courses, seminars and workshops in 2003
- Table A28. Publications issued in 2003

Table A4. Transport Safety Appraisal Service (TranSAS) missions in 2003

Type	Country
TranSAS mission	Turkey
TranSAS mission	Panama
Pre-TranSAS mission	France

Table A5. Peer review of radiation safety infrastructure missions in 2003

Scope	Country	Project
Regulatory infrastructure and occupational radiation control	Algeria	Model project
Regulatory infrastructure and occupational radiation control	Nigeria	Model project
Regulatory infrastructure and occupational radiation control	Zambia	Model project
Regulatory infrastructure and occupational radiation control	Cyprus	Model project
Regulatory infrastructure and occupational radiation control	Paraguay	Model project
Regulatory infrastructure and occupational radiation control	Uruguay	Model project
Regulatory infrastructure and occupational radiation control	Guatemala	Model project
Regulatory infrastructure and occupational radiation control	Vietnam	Model project
Regulatory infrastructure and occupational radiation control	Yemen	Model project
Regulatory infrastructure and occupational radiation control	Qatar	Model project
Regulatory infrastructure and occupational radiation control	Saudi Arabia	Model project

Table A6. International PSA Review Team (IPSART) missions in 2003

Type	Plant/Site	Country
Level 1, internal events	Cernavoda	Romania
Level 1 full power (incl. int. fire+floods) + shutdown; level 2 full power	Temelin	Czech Republic
Level 1, internal events	Qinshan 1	China

Table A7. International Regulatory Review Team (IRRT) missions in 2003

Type	Location	Country
Preparatory meeting	Helsinki	Finland
Full scope follow-up mission	Villigen	Switzerland
Preparatory meeting	Sofia	Bulgaria
Full scope follow-up mission	Budapest	Hungary
Full scope follow-up mission	Sofia	Bulgaria
Full scope follow-up mission	Helsinki	Finland
Full scope follow-up mission	Jakarta	Indonesia
Preparatory meeting for full scope mission	Yerevan	Armenia
Full scope IRRT	Islamabad	Pakistan

Table A8. Safety Culture Enhancement Programme (SCEP) missions in 2003

Type	Plant / location	Country
Workshop on self-assessment	High Flux Reactor (HFR), Petten	Netherlands
Safety culture mission, integrated with PROSPER	HFR, Petten	Netherlands
Follow-up of self-assessment	Angra nuclear power plant	Brazil
Meeting with management on launching SCEP	Barsebäck nuclear power plant	Sweden

Table A9. Operational Safety Review Team (OSART) missions in 2003

Type	Plant and reactor type	Country
Preparatory OSART	Kashiwazaki-Kariwa BWR	Japan
Preparatory OSART	Penly PWR	France
Preparatory OSART	Philippsburg PWR	Germany
Preparatory OSART	Zaporozhe WWER	Ukraine
Preparatory OSART	Qinshan 3 PHWR	China
Preparatory OSART	Chasma PWR	Pakistan
OSART	Nogent PWR	France
OSART	Civaux PWR	France
OSART	Angra 1 PWR	Brazil
OSART	Rovno WWER	Ukraine
OSART	Krsko PWR	Slovenia
Follow-up OSART	Temelin 1/2 WWER	Czech Republic
Follow-up OSART	Dukovany 1/4 WWER	Czech Republic
Follow-up OSART	Tricastin PWR	France
Follow-up OSART	Santa Maria de Garona PWR	Spain

Table A10. Peer Review of Operational Safety Performance Experience (PROSPER) missions in 2003

Type	Plant and reactor type	Country
PROSPER mission	Metsamor WWER	Armenia
PROSPER mission	EdF Corporate PWR	France
Workshop	HFR Petten, research reactor	Netherlands
Regional workshop		Slovakia

Table A11. Integrated Safety Assessment of Research Reactors (INSARR) missions in 2003

Type	Location / Reactor	Country
Pre-INSARR	Prague, 10 MW	Czech Republic
INSARR	Dalat, DRR-1	Vietnam
INSARR	Bangkok, TRR-1/M1	Thailand
INSARR	Prague, 10 MW	Czech Republic
Follow-up INSARR	Bandung, Kartini-PPNY	Indonesia
Follow-up INSARR	Warsaw, Maria RR	Poland
Follow-up of earlier mission	Tashkent, WWR-CM	Uzbekistan
Follow-up of earlier mission	Manila, PRR-1	Philippines
Follow-up of earlier mission	Bangi, Kajang, MINT RTP	Malaysia
Stuck rod event review mission	Tehran, TRR	Islamic Republic of Iran
Establishment of quality assurance system for Centre/IRT-1	Tajoura, IRT-1	Libyan Arab Jamahiriya

Table A12. Engineering Safety Review Service missions in 2003

Type	Plant/Site	Held in
Expert mission on start-up procedure	Tianwan	China
Review of feasibility study for desalination plant	Madura Island	Indonesia
Design safety review preparatory meeting	Metsamor	Armenia
Design safety review	Metsamor	Armenia
Expert mission on seismic re-evaluation	Metsamor	Armenia
Review of seismic hazard assessment	Temelin	Czech Republic
Review of seismic hazard assessment	TRIGA Mark II, Bandung	Indonesia
Review of seismic hazard assessment, preparatory meeting	Cernavoda	Romania
Review of seismic hazard assessment	Cernadova	Romania
Review of seismic hazard assessment, follow-up	Mochovce	Slovakia
Review of seismic test of reactor core	Qinshan	China
Expert mission on plant lifetime management	Paks	Hungary
Two expert missions on plant lifetime management	(Authorities)	Ukraine
Ageing management assessment team	Borssele	Netherlands

Table A13. International Nuclear Security Advisory Service (INSServ) missions in 2003

Country	Type of activity	Date
Azerbaijan	Mission	12–16 May 2003
Uzbekistan	Mission	2–6 June 2003
Uganda	Mission	4–8 August 2003
Greece	Mission	1–9 September 2003
Greece	INSServ follow-up mission	21–30 September 2003
United Republic of Tanzania	Mission	3–7 November 2003
Democratic Republic of the Congo	Mission	17–21 November 2003

Table A14. International Physical Protection Advisory Service (IPPAS) missions in 2003

Country	Type of activity	Date
Bulgaria	IPPAS follow-up support activity	24–26 February 2003
Ukraine, Chernobyl nuclear power plant	Mission	31 March–8 April 2003
Poland, ‘Maria’ reactor	IPPAS follow-up support activity	22–25 April 2003
Ukraine, Khmelnytsky nuclear power plant	Mission	10–20 June 2003
Poland	IPPAS follow-up support activity	16–18 June 2003
Turkey	Mission	23 June–2 July 2003
Romania	IPPAS follow-up support activity conducted in Switzerland (scientific visit)	25–30 August 2003
Poland	IPPAS follow-up support activity	10–12 September 2003
Norway	Mission	22 September–3 October 2003
Philippines	Mission	10–21 November 2003
Turkey	IPPAS follow-up support activity conducted in Germany and Sweden (scientific visit)	17–18 November 2003
Armenia	Mission	17–27 November 2003
Chile	Mission	1–12 December 2003
Mexico	Mission	1–12 December 2003
Peru	Mission	10–18 December 2003

Table A15. Border evaluation missions in 2003

Country	Type of activity	Date
Croatia	Mission	27–31 January 2003
The Former Yugoslav Republic of Macedonia	Mission	3–6 March 2003
Georgia	Mission	31 March–4 April 2003
Ukraine (Chernobyl Exclusion Zone)	Mission	31 March–4 April 2003

Table A16. State System of Accounting for and Control of Nuclear Material (SSAC) missions in 2003

Country	Type of activity	Date
Azerbaijan	Mission	21–24 January 2003
Tajikistan	Mission	5–9 May 2003

Table A17. Advisory missions in 2003 in response to illicit trafficking incidents

Country	Type of activity	Date
Nigeria	Mission	16–18 February 2003
Qatar	Mission	24–30 March 2003
Ecuador	Mission	31 May–4 June 2003

Table A18. National strategies missions in 2003 for regaining control over radioactive sources

Country	Type of activity	Date
Armenia	Mission	13–16 January 2003
Algeria	Mission	15–19 March 2003
United Republic of Tanzania	Mission	22–30 March 2003
Cyprus	Mission	5–9 May 2003
Costa Rica	Mission	26–30 May 2003
Yemen	Mission	3–9 July 2003
Ethiopia	Mission	11–15 August 2003
Paraguay	Mission	22–26 September 2003
Qatar	Mission	5–9 October 2003
Latvia	Mission	27–31 October 2003

Table A19. Missions under the ‘Trilateral Initiative’ involving the Agency, the Russian Federation and the USA

Country	Type of activity	Date
Kazakhstan	Mission	14–18 April 2003
Tajikistan	Mission	30 June–4 July 2003
Azerbaijan	Mission	4–8 August 2003
Belarus	Mission	13–17 October 2003

**Table A20. Status with regard to the conclusion of safeguards agreements and additional protocols^{a, b}
(as of 31 December 2003)**

State	SQP ^c	Status of safeguards agreement(s)	INFCIRC	Additional protocol status
Afghanistan	X	In force: 20 February 1978	257	
Albania ^d		In force: 28 November 2002	359/Mod.1	
Algeria		In force: 7 January 1997	531	
Andorra	X	<i>Signed: 9 January 2001</i>		Signed: 9 January 2001
Angola				
Antigua and Barbuda ^e	X	In force: 9 September 1996	528	
Argentina ^f		In force: 4 March 1994	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 ^g		Accession: 31 July 1996	193	Signed: 22 September 1998 ^h
Azerbaijan	X	In force: 29 April 1999	580	In force: 29 November 2000
Bahamas ^e	X	In force: 12 September 1997	544	
Bahrain				
Bangladesh		In force: 11 June 1982	301	In force: 30 March 2001
Barbados ^e	X	In force: 14 August 1996	527	
Belarus		In force: 2 August 1995	495	
Belgium		In force: 21 February 1977	193	Signed: 22 September 1998 ^h
Belize ^e	X	In force: 21 January 1997	532	
Benin				
Bhutan	X	In force: 24 October 1989	371	
Bolivia ^e	X	In force: 6 February 1995	465	
Bosnia and Herzegovina ⁱ		In force: 28 December 1973	204	
Botswana				
Brazil ^j		In force: 4 March 1994	435	
Brunei Darussalam	X	In force: 4 November 1987	365	
Bulgaria		In force: 29 February 1972	178	In force: 10 October 2000
Burkina Faso	X	In force: 17 April 2003	618	In force: 17 April 2003
Burundi				
Cambodia	X	In force: 17 December 1999	586	
Cameroon	X	<i>Signed: 21 May 1992</i>		
Canada		In force: 21 February 1972	164	In force: 8 September 2000
Cape Verde				
Central African Republic				
Chad				
Chile ^k		In force: 5 April 1995	476	In force: 3 November 2003
China		In force: 18 September 1989	369*	In force: 28 March 2002
Colombia ^k		In force: 22 December 1982	306	
Comoros				
Congo				
Costa Rica ^e	X	In force: 22 November 1979	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 ^l		<i>In force: 5 May 1980</i>	281	<i>Signed: 15 October 1999</i>
		<i>In force: 7 October 1983</i>	311	<i>Signed: 15 October 1999</i>
		<i>Signed: 18 September 2003</i>		<i>Signed: 18 September 2003</i>
Cyprus	X	In force: 26 January 1973	189	In force: 19 February 2003
Czech Republic ^m		In force: 11 September 1997	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	In force: 9 April 2003
Denmark ⁿ		In force: 21 February 1977	193	Signed: 22 September 1998 ^h

State	SQP ^c	Status of safeguards agreement(s)	INFCIRC	Additional protocol status
<i>Djibouti</i>				
Dominica ^o	X	In force: 3 May 1996	513	
Dominican Republic ^e	X	In force: 11 October 1973	201	
Ecuador ^e	X	In force: 10 March 1975	231	In force: 24 October 2001
Egypt		In force: 30 June 1982	302	
El Salvador ^e	X	In force: 22 April 1975	232	Signed: 5 September 2003
<i>Equatorial Guinea</i>	X	<i>Approved: 13 June 1986</i>		
<i>Eritrea</i>				
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 ^p		Accession: 1 October 1995	193	Signed: 22 September 1998 ^h
France		In force: 12 September 1981 Signed: 26 September 2000 ^q	290*	Signed: 22 September 1998 ^h
<i>Gabon</i>	X	<i>Signed: 3 December 1979</i>		<i>Approved: 18 March 2003</i>
Gambia	X	In force: 8 August 1978	277	
Georgia		In force: 3 June 2003	617	In force: 3 June 2003
Germany ^r		In force: 21 February 1977	193	Signed: 22 September 1998 ^h
Ghana		In force: 17 February 1975	226	Signed: 12 June 1998 ^s
Greece ^t		Accession: 17 December 1981	193	Signed: 22 September 1998 ^h
Grenada ^e	X	In force: 23 July 1996	525	
Guatemala ^e	X	In force: 1 February 1982	299	Signed: 14 December 2001
<i>Guinea</i>				
<i>Guinea-Bissau</i>				
Guyana ^e	X	In force: 23 May 1997	543	
<i>Haiti^e</i>	X	<i>Signed: 6 January 1975</i>		Signed: 10 July 2002
Holy See	X	In force: 1 August 1972	187	In force: 24 September 1998
Honduras ^e	X	In force: 18 April 1975	235	
Hungary		In force: 30 March 1972	174	In force: 4 April 2000
Iceland	X	In force: 16 October 1974	215	In force: 12 September 2003
India		In force: 30 September 1971	211	
		In force: 17 November 1977	260	
		In force: 27 September 1988	360	
		In force: 11 October 1989	374	
		In force: 1 March 1994	433	
Indonesia		In force: 14 July 1980	283	In force: 29 September 1999
Iran, Islamic Republic of		In force: 15 May 1974	214	Signed: 18 December 2003 ^u
Iraq		In force: 29 February 1972	172	
Ireland		In force: 21 February 1977	193	Signed: 22 September 1998 ^h
Israel		In force: 4 April 1975	249/Add.1	
Italy		In force: 21 February 1977	193	Signed: 22 September 1998 ^h
Jamaica ^e		In force: 6 November 1978	265	In force: 19 March 2003
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	Approved : 18 June 2003
<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	In force: 2 June 2003
<i>Kyrgyzstan</i>	X	<i>Signed: 18 March 1998</i>		
Lao Peoples 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>				

State	SQP ^c	Status of safeguards agreement(s)	INFCIRC	Additional protocol status
Libyan Arab Jamahiriya ^u		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	In force: 18 September 2003
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	Signed: 24 April 2003
<i>Marshall Islands</i>				
<i>Mauritania</i>	X	<i>Signed: 2 June 2003</i>		<i>Signed: 2 June 2003</i>
Mauritius	X	In force: 31 January 1973	190	
Mexico ^v		In force: 14 September 1973	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	In force: 12 May 2003
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 ^q	229	
		In force: 21 February 1977	193	Signed: 22 September 1998 ^h
New Zealand	X	In force: 29 February 1972	185	In force: 24 September 1998
Nicaragua ^e	X	In force: 29 December 1976	246	Signed: 18 July 2002
<i>Niger</i>		<i>Signed: 11 June 2002</i>		
Nigeria		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	
		In force: 2 March 1977	248	
		In force: 10 September 1991	393	
		In force: 24 February 1993	418	
<i>Palau, Republic of</i>				
Panama ^k	X	In force: 23 March 1984	316	In force: 11 December 2001
Papua New Guinea	X	In force: 13 October 1983	312	
Paraguay ^e	X	In force: 20 March 1979	279	Signed: 24 March 2003
Peru ^e		In force: 1 August 1979	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 ^w		Accession: 1 July 1986	193	Signed: 22 September 1998 ^h
<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 ^o	X	In force: 7 May 1996	514	
St. Lucia ^o	X	In force: 2 February 1990	379	
St. Vincent and the Grenadines ^o	X	In force: 8 January 1992	400	

State	SQP ^c	Status of safeguards agreement(s)	INFCIRC	Additional protocol status
Samoa	X	In force: 22 January 1979	268	
San Marino	X	In force: 21 September 1998	575	
<i>São Tome and Príncipe</i>				
<i>Saudi Arabia</i>				
Senegal	X	In force: 14 January 1980	276	
Serbia and Montenegro ^x		In force: 28 December 1973	204	
<i>Seychelles</i>	X	<i>Approved: 18 March 2003</i>		<i>Approved: 18 March 2003</i>
<i>Sierra Leone</i>	X	<i>Signed: 10 November 1977</i>		
Singapore	X	In force: 18 October 1977	259	
Slovakia ^y		In force: 3 March 1972	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 ^h
Sri Lanka		In force: 6 August 1984	320	
Sudan	X	In force: 7 January 1977	245	
Suriname ^e	X	In force: 2 February 1979	269	
Swaziland	X	In force: 28 July 1975	227	
Sweden ^z		Accession: 1 June 1995	193	Signed: 22 September 1998 ^h
Switzerland		In force: 6 September 1978	264	Signed: 16 June 2000
Syrian Arab Republic		In force: 18 May 1992	407	
Tajikistan	X	Signed: 7 July 2003		Signed: 7 July 2003
Thailand		In force: 16 May 1974	241	
The Former Yugoslav Rep. Of Macedonia	X	In force: 16 April 2002	610	
<i>Timor-Leste</i>				
<i>Togo</i>	X	<i>Signed: 29 November 1990</i>		<i>Signed: 26 September 2003</i>
Tonga	X	In force: 18 November 1993	426	
Trinidad and Tobago ^c	X	In force: 4 November 1992	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
United Arab Emirates	X	In force: 6 October 2003	622	
United Kingdom		In force: 14 December 1972	175 ⁱⁱ	
		In force: 14 August 1978	263*	Signed: 22 September 1998 ^h
		Approved: 16 September 1992 ^q		
<i>United Republic of Tanzania</i>	X	<i>Signed: 26 August 1992</i>		
United States of America		In force: 9 December 1980	288*	Signed: 12 June 1998
		In force: 6 April 1989 ^q	366	
Uruguay ^e		In force: 17 September 1976	157	Signed: 29 September 1997
Uzbekistan		In force: 8 October 1994	508	In force: 21 December 1998
<i>Vanuatu</i>				
Venezuela ^e		In force: 11 March 1982	300	
Viet Nam		In force: 23 February 1990	376	
Yemen, Republic of	X	In force: 14 August 2002	614	
Zambia	X	In force: 22 September 1994	456	
Zimbabwe	X	In force: 26 June 1995	483	

Key

States: States not party to the NPT whose safeguards agreements are of INFCIRC/66-type.

States: Non-nuclear-weapon States which are party to the NPT but have not brought into force a safeguards agreement pursuant to Article III of that Treaty.

*: Voluntary offer safeguards agreement for NPT nuclear-weapon States.

- ^a This table does not aim to list all safeguards agreements that the Agency has concluded. Not included are agreements whose application has been suspended in light of the application of safeguards pursuant to a comprehensive safeguards agreement. Unless otherwise indicated, the safeguards agreements referred to are comprehensive safeguards agreements concluded pursuant to the NPT.
- ^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 with a legal obligation to conclude a comprehensive safeguards agreement, with nuclear material in quantities not exceeding the limits of paragraph 37 of INFCIRC/153 and no nuclear material in a facility, have the option to conclude a Small Quantity Protocol, 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. This column contains countries whose SQPs have been approved by the Board and for whom, as far as the Secretariat is aware, these conditions continue to apply.
- ^d Sui generis comprehensive safeguards agreement. On 28 November 2002, upon approval by the Board of Governors, an exchange of letters entered into force confirming that the safeguards agreement satisfies the requirement of Article III of the NPT.
- ^e Safeguards agreement refers to both the Treaty of Tlatelolco and the NPT.
- ^f 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 satisfies the requirements of Article 13 of the Treaty of Tlatelolco and Article III of the NPT to conclude a safeguards agreement with the Agency.
- ^g 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.
- ^h 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.
- ⁱ 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.
- ^j 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 satisfies 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 satisfies the requirements of Article III of the NPT.
- ^k 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; for Panama on 21 November 2003) confirming that the safeguards agreement satisfies the requirement of Article III of the NPT.
- ^l Cuba has in force two INFCIRC/66 type safeguards agreements to which an additional protocol has been signed. Following its accession to the NPT on 4 November 2002, Cuba signed a comprehensive safeguards agreement with the Agency on 18 September 2003, as well as an additional protocol thereto. The CSA will replace, upon ratification, Cuba's current safeguards agreement.
- ^m 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.

- ⁿ 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.
- ^o An exchange of letters has taken place 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.
- ^p 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.
- ^q The safeguards agreement referred to is pursuant to Additional Protocol I to the Treaty of Tlatelolco.
- ^r 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.
- ^s Pending entry into force, the additional protocol is applied provisionally in this State.
- ^t 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.
- ^u The Islamic Republic of Iran and the Libyan Arab Jamahiriya have pledged to act as if the additional protocol was in force pending entry into force.
- ⁱⁱ Date refers to the INFCIRC/66-type safeguards agreement, concluded between the United Kingdom and the Agency, which remains in force.

Table A21. Number of States having significant nuclear activities at the end of 2001, 2002 and 2003

	Number of States		
	2001	2002	2003
States with safeguards applied under NPT or NPT/Tlatelolco agreements	61	59*	62
States with safeguards applied under Tlatelolco agreements	0	0	0
States with safeguards applied pursuant to other comprehensive safeguards agreements	0	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	0
Total number of States with significant nuclear activities^b	70	68	71

^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 excludes Iraq, where safeguards activities are subsumed under activities carried out pursuant to UNSC resolutions.

** At the end of 2003, there were no facilities designated for inspection in the Russian Federation

Table 22. Approximate quantities of material subject to Agency safeguards at the end of 2003

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	626.54	33.4	95.9	94470
Separated plutonium outside reactor cores	12.7	0.1	72.8	10683
Separated plutonium in fuel elements in reactor cores	14.2	0.3	0	1811
HEU (equal to or greater than 20% ²³⁵ U)	21.7	0.1	10.0	672
LEU (less than 20% ²³⁵ U)	45480	3069	4422	13836
Source material ^d (natural or depleted uranium and thorium)	88130	2124	11998	7846
Non-nuclear material^e				
Heavy water	0	610	0	
Total significant quantities				129 318

^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 90 t (11 238 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 C/S 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 A23. Number of facilities under safeguards or containing safeguarded material on 31 December 2003

Facility type	Number of facilities (number of installations)			Total
	Comprehensive safeguards agreements ^a	INFCIRC/66 ^b	Nuclear weapon States	
Power reactors	182(219)	13 (16)	1 (1)	196 (236)
Research reactors and critical assemblies	141 (152)	7 (7)	1 (1)	149 (160)
Conversion plants	13 (13)	1 (1)	0	14 (14)
Fuel fabrication plants	37 (39)	3 (3)	0	40 (42)
Reprocessing plants	5 (5)	1 (1)	0	6 (6)
Enrichment plants	9 (9)	0	2 (4)	11 (13)
Separate storage facilities	76 (79)	3 (3)	6 (7)	85 (89)
Other facilities	83 (95)	1 (1)	1 (1)	89 (97)
Subtotals	546 (611)	29 (32)	11 (14)	586 (657)
Other locations	325 (426)	3 (30)	0	328 (456)
Non-nuclear installations	0	1 (1)	0	1 (1)
Totals	871 (1037)	33 (63)	11 (14)	915 (1114)

^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.

Table A24. Facilities under Agency safeguards or containing safeguarded material on 31 December 2003

State ^a	Abbreviated name of facility	Number of reactor units	Location	Subsidiary arrangements in force
Power reactors				
Argentina	Atucha NPP	1	Lima	—
	Embalse NPP	1	Embalse	—
Armenia	Armenia NPP	2	Medzamor	x
Belgium	DOEL-1	2	Doel	x
	DOEL-3	1	Doel	x
	DOEL-4	1	Doel	x
	Tihange-1	1	Tihange	x
	Tihange-2	1	Tihange	x
	Tihange-3	1	Tihange	x
Brazil	Admiral Alvaro Alberto (Angra-1)	1	Angra dos Reis	x
	Admiral Alvaro Alberto (Angra-2)	1	Angra dos Reis	x
Bulgaria	Kozloduy-I	2	Kozloduy	x
	Kozloduy-II	2	Kozloduy	x
	Kozloduy-III	2	Kozloduy	x
Canada	Bruce A	4	Tiverton	x
	Bruce B	4	Tiverton	x
	Darlington N.G.S.	4	Bowmanville	x
	Gentilly-2	1	Gentilly	x
	Pickering G.S.	8	Pickering	x
	Point Lepreau G.S.	1	Point Lepreau	x
China	QSNPP	1	Hai Yan	x
Cuba	Juragua	2	Juragua	x
Czech Republic	EDU-1	2	Dukovany	x
	EDU-2	2	Dukovany	x
	Temelin	2	Temelin	x
Democratic People's Republic of Korea	Nyongbyon-1	1	Nyongbyon	—
Finland	Loviisa	2	Loviisa	—
	TVO I	1	Olkiluoto	—
	TVO II	1	Olkiluoto	—
Germany	AVR	1	Jülich	—
	KWG Grohnde	1	Grohnde	x
	GKN-2	1	Neckarwestheim	x
	RWE Biblis-A	1	Biblis	x
	RWE Biblis-B	1	Biblis	x
	KBR Brokdorf	1	Brokdorf	x
	KKB Brunsbüttel	1	Brunsbüttel	x
	KKE Emsland	1	Lingen	x
	KKG Grafenrheinfeld	1	Grafenrheinfeld	x
	KKI Isar-Ohu	1	Ohu bei Landshut	x
	KKI Isar-2	1	Essenbach	x
	KKK Krümmel	1	Geesthacht	x

State ^a	Abbreviated name of facility	Number of reactor units	Location	Subsidiary arrangements in force
	GKN Neckarwestheim	1	Neckarwestheim	x
	KWO Obrigheim	1	Obrigheim	x
	KKP Philippsburg-1	1	Philippsburg	x
	KKP Philippsburg-2	1	Philippsburg	x
	KRB II Gundremmingen B	1	Gundremmingen	x
	KRB II Gundremmingen C	1	Gundremmingen	x
	KKS Stade	1	Stade	x
	KKU Unterweser	1	Unterweser	x
	HKG-THTR 300	1	Hamm	—
	KKW Greifswald 1	2	Lubmin	—
	KKW Greifswald 2	2	Lubmin	—
	KKW Greifswald 3	1	Lubmin	—
Hungary	PAKS-I	2	Paks	x
	PAKS-II	2	Paks	x
India	RAPS	2	Rajasthan	x
	TAPS	2	Tarapur	x
Italy	ENEL-Latina	1	Borgo-Sabotino	x
	ENEL-Caorso	1	Caorso	x
	ENEL-Trino	1	Trino-Vercellese	x
Japan	Fugen	1	Tsuruga-shi, Fukui-ken	x
	Fukushima Dai-Ichi-1	1	Futaba-gun, Fukushima-ken	x
	Fukushima Dai-Ichi-2	1	Futaba-gun, Fukushima-ken	x
	Fukushima Dai-Ichi-3	1	Futaba-gun, Fukushima-ken	x
	Fukushima Dai-Ichi-4	1	Futaba-gun, Fukushima-ken	x
	Fukushima Dai-Ichi-5	1	Futaba-gun, Fukushima-ken	x
	Fukushima Dai-Ichi-6	1	Futaba-gun, Fukushima-ken	x
	Fukushima Dai-Ni-1	1	Futaba-gun, Fukushima-ken	x
	Fukushima Dai-Ni-2	1	Futaba-gun, Fukushima-ken	x
	Fukushima Dai-Ni-3	1	Futaba-gun, Fukushima-ken	x
	Fukushima Dai-Ni-4	1	Futaba-gun, Fukushima-ken	x
	Genkai-1	1	Higashimatsura-gun, Saga-ken	x
	Genkai-2	1	Higashimatsura-gun, Saga-ken	x
	Genkai-3	1	Higashimatsura-gun, Saga-ken	x
	Genkai-4	1	Higashimatsura-gun, Saga-ken	x
	Hamaoka-1	1	Ogasa-gun, Shizuoka-ken	x
	Hamaoka-2	1	Ogasa-gun, Shizuoka-ken	x
	Hamaoka-3	1	Ogasa-gun, Shizuoka-ken	x
	Hamaoka-4	1	Ogasa-gun, Shizuoka-ken	x
	Ikata-1	1	Nishiuwa-gun, Ehime-ken	x
	Ikata-2	1	Nishiuwa-gun, Ehime-ken	x
	Ikata-3	1	Nishiuwa-gun, Ehime-ken	x
	Joyo	1	Higashi-gun, Ibaraki-ken	x
	Kashiwazaki-1	1	Kashiwazaki-shi, Niigata-ken	x
	Kashiwazaki-2	1	Kashiwazaki-shi, Niigata-ken	x
	Kashiwazaki-3	1	Kashiwazaki-shi, Niigata-ken	x
	Kashiwazaki-4	1	Kashiwazaki-shi, Niigata-ken	x
	Kashiwazaki-5	1	Kashiwazaki-shi, Niigata-ken	x
	Kashiwazaki-6	1	Kashiwazaki-shi, Niigata-ken	x
	Kashiwazaki-7	1	Kashiwazaki-shi, Niigata-ken	x
	Mihama-1	1	Mikata-gun, Fukui-ken	x
	Mihama-2	1	Mikata-gun, Fukui-ken	x
	Mihama-3	1	Mikata-gun, Fukui-ken	x
	Monju	1	Tsuruga-shi, Fukui-ken	x

State ^a	Abbreviated name of facility	Number of reactor units	Location	Subsidiary arrangements in force
	Ohi-1 and 2	2	Ohi-gun, Fukui-ken	x
	Ohi-3	1	Ohi-gun, Fukui-ken	x
	Ohi-4	1	Ohi-gun, Fukui-ken	x
	Onagawa-1	1	Oshika-gun, Miyaki-ken	x
	Onagawa-2	1	Oshika-gun, Miyaki-ken	x
	Sendai-1	1	Sendai-shi, Kagoshima-ken	x
	Sendai-2	1	Sendai-shi, Kagoshima-ken	x
	Shika	1	Hakui-gun, Ishikawa-ken	x
	Shimane-1	1	Yatsuka-gun, Shimane-ken	x
	Shimane-2	1	Yatsuka-gun, Shimane-ken	x
	Takahama-1	1	Ohi-gun, Fukui-ken	x
	Takahama-2	1	Ohi-gun, Fukui-ken	x
	Takahama-3	1	Ohi-gun, Fukui-ken	x
	Takahama-4	1	Ohi-gun, Fukui-ken	x
	Tokai-2	1	Tokai-Mura, Ibaraki-ken	x
	Tomari-1	1	Furui-gun, Hokkaido	x
	Tomari-2	1	Furui-gun, Hokkaido	x
	Tsuruga-1	1	Tsuruga-shi, Fukui-ken	x
	Tsuruga-2	1	Tsuruga-shi, Fukui-ken	x
Kazakhstan	BN-350	1	Aktau	—
Korea, Republic of	Kori-1	1	Pusan	x
	Kori-2	1	Pusan	x
	Kori-3	1	Pusan	x
	Kori-4	1	Pusan	x
	Ulchin-1	1	Ulchin	x
	Ulchin-2	1	Ulchin	x
	Ulchin-3	1	Ulchin	x
	Ulchin-4	1	Ulchin	x
	Wolsong-1	1	Kyongju	x
	Wolsong-2	1	Kyongju	x
	Wolsong-3	1	Kyongju	x
	Wolsong-4	1	Kyongju	x
	Younggwang-1	1	Younggwang	x
	Younggwang-2	1	Younggwang	x
	Younggwang-3	1	Younggwang	x
	Younggwang-4	1	Younggwang	x
	Younggwang-5	1	Younggwang	—
	Younggwang-6		Younggwang	
Lithuania	Ignalina NPP	2	Visaginas	x
Mexico	Laguna Verde 1	1	Alto Lucero	x
	Laguna Verde 2	1	Alto Lucero	x
Netherlands	Borssele	1	Borssele	x
	Dodewaard NPP	1	Dodewaard	x
Pakistan	KANUPP	1	Karachi	x
	Chasnupp-1	1	Kundian	—
Romania	Cernavoda-1	1	Cernavoda	x
Slovakia	EMO-1	2	Mochovce	—
	V-1	2	Bohunice	x
	V-2	2	Bohunice	x

State ^a	Abbreviated name of facility	Number of reactor units	Location	Subsidiary arrangements in force
Slovenia	Krško	1	Krško	x
South Africa	Koeberg-1	1	Cape Town	x
	Koeberg-2	1	Cape Town	x
Spain	Almaraz-1	1	Almaraz	x
	Almaraz-2	1	Almaraz	x
	Asco-1	1	Asco	x
	Asco-2	1	Asco	x
	Cofrentes	1	Cofrentes	x
	José Cabrera	1	Almonazid de Zorita	x
	Santa María de Garona	1	Santa María de Garona	x
	Trillo-1	1	Trillo	x
	Vandellos 1	1	Vandellos	—
	Vandellos 2	1	Vandellos	x
	Sweden	Barsebäck 1	1	Malmö
Barsebäck 2		1	Malmö	—
Forsmark 1		1	Uppsala	—
Forsmark 2		1	Uppsala	—
Forsmark 3		1	Uppsala	—
Oskarshamn 1		1	Oskarshamn	—
Oskarshamn 2		1	Oskarshamn	—
Oskarshamn 3		1	Oskarshamn	—
Ringhals 1		1	Göteborg	—
Ringhals 2		1	Göteborg	—
Ringhals 3		1	Göteborg	—
Ringhals 4		1	Göteborg	—
Switzerland		KKB Beznau I	1	Beznau
	KKB Beznau II	1	Beznau	x
	KKG Gösgen	1	Gösgen-Däniken	x
	KKL Leibstadt	1	Leibstadt	x
	KKM Mühleberg	1	Mühleberg	x
Ukraine	Chernobyl NPP	3	Chernobyl	—
	Khmelnitski 1	1	Neteshin	—
	Rovno 1 and 2	2	Kuznetsovsk	—
	Rovno 3	1	Kuznetsovsk	—
	South Ukraine 1	1	Yuzhnoukrainsk	—
	South Ukraine 2	1	Yuzhnoukrainsk	—
	South Ukraine 3	1	Yuzhnoukrainsk	—
	Zaporozhe 1	1	Energodar	—
	Zaporozhe 2	1	Energodar	—
	Zaporozhe 3	1	Energodar	—
	Zaporozhe 4	1	Energodar	—
	Zaporozhe 5	1	Energodar	—
	Zaporozhe 6	1	Energodar	—
Research reactors and critical assemblies				
Algeria	NUR Reactor	1	Algiers	—
	Es Salam research reactor	1	Ain Oussera	—
Argentina	Argentine reactor-1	1	Constituyentes	x
	Argentine reactor-3	1	Ezeiza	x
	Argentine reactor-4	1	Rosario	x

State ^a	Abbreviated name of facility	Number of reactor units	Location	Subsidiary arrangements in force
	Argentine reactor-6	1	Bariloche	x
	Argentine reactor-0	1	Córdoba	x
	Argentine reactor-8	1	Pilcaniyeu	x
Australia	HIFAR	1	Lucas Heights	x
	MOATA	1	Lucas Heights	x
Austria	ASTRA	1	Seibersdorf	—
	Siemens Argonaut Reactor	1	Graz	—
	Triga II	1	Vienna	—
Bangladesh	At. Energy Res. Est.	1	Dhaka	x
Belarus	Sosny	1	Minsk	—
Belgium	BR1-CEN	1	Mol	x
	BR2-CEN-BRO2	2	Mol	x
	CEN-Venus	1	Mol	x
	Thetis	1	Gent	x
Brazil	IEA-R1	1	São Paulo	—
	RIEN-1 Argonaut RR	1	Rio de Janeiro	x
	IPR-RI-CDTN	1	Belo Horizonte	x
	IPEN Critical assembly	1	São Paulo	x
Bulgaria	IRT-2000	1	Sofia	x
Canada	Biology, Chemistry, Physics	2	Chalk River	x
	McMaster	1	Hamilton	x
	NRU	1	Chalk River	x
	NRX	1	Chalk River	x
	Slowpoke-Dalhousie Univ.	1	Halifax	x
	Slowpoke-Ecole Polytechnique	1	Montreal	x
	Slowpoke-Kingston	1	Kingston	x
	Slowpoke-Saskatchewan	1	Saskatoon	x
	Slowpoke-Univ. of Alberta	1	Edmonton	x
	DIF	1	Chalk River	—
Chile	La Reina	1	Santiago	x
	Lo Aguirre	1	Santiago	x
China	HTGR	1	Nankou	—
Colombia	IAN-R1	1	Bogotá	x
Czech Republic	LR-O	1	Rez	x
	Univ. Training Reactor VR-1P	1	Prague	x
	VVR-S	1	Rez	x
Democratic People's Republic of Korea	Critical Assembly	1	Bungang-Ri, Nyongbyon	x
	IRT	1	Bungang-Ri, Nyongbyon	x
Democratic Republic of the Congo	Triga II	1	Kinshasa	x
Denmark	DR-1	1	Roskilde	x
	DR-3	1	Roskilde	x
Egypt	RR-I	1	Inshas	x
	MPR	1	Inshas	—

State ^a	Abbreviated name of facility	Number of reactor units	Location	Subsidiary arrangements in force
Estonia	Paldiski reactor	1	Paldiski	—
Finland	FIR 1	1	Espoo	—
Georgia	MTSKHETA	1	Tbilisi	—
Germany	BER-2	1	Berlin	x
	FH-Furtwangen	1	Furtwangen	x
	FRM	1	Garching	x
	FRM-II	1	Garching	—
	GKSS-FRG1&FRG2	2	Geesthacht	x
	KFA-FRJ2	1	Jülich	x
	SUR 100	1	Hannover	x
	SUR 100 (FHK)	1	Kiel	x
	SUR 100 (FHU)	1	Ulm	x
	SUR 100 (UNIV)	1	Stuttgart	x
	SUR 100 (TUB)	1	Berlin	x
	SUR 100 (RWTH)	1	Aachen	x
	Tech. Univ. AKR	1	Dresden	x
	Tech. Hochschule ZLR	1	Zittau	x
	Triga	1	Mainz	x
DKFZ-Triga	1	Heidelberg	x	
Ghana	GHARR-1	1	Legon-Accra	x
Greece	GRR-1	1	Attiki	x
Hungary	Training reactor	1	Budapest	x
	WWR-S M 10	1	Budapest	x
Indonesia	PPNY	1	Yogyakarta	x
	RSG-GAS	1	Serpong	x
	P3TN	1	Bandung	x
Iran, Islamic Republic of	TRR	1	Tehran	x
	HWZPR	1	Esfahan	x
	MNSR	1	Esfahan	x
Israel	IRR-1	1	Soreq	x
Italy	AGN-201	1	Palermo	x
	RTS-1	1	San Piero a Grado	x
	TAPIRO	1	Santa Maria di Galeria	x
	Triga-RC1	1	Santa Maria di Galeria	x
	Triga-2	1	Pavia	x
Jamaica	Centre for Nucl. Sciences	1	Kingston	x
Japan	DCA	1	Oarai-machi, Ibaraki-ken	x
	FCA	1	Tokai-Mura, Ibaraki-ken	x
	HTR	1	Kawasaki-shi, Kanagawa-ken	x
	HTTR	1	Higashi-gun, Ibaraki-ken	x
	JMTR	1	Higashi-gun, Ibaraki-ken	x
	JMTRCA	1	Higashi-gun, Ibaraki-ken	x
	JRR-2	1	Tokai-Mura, Ibaraki-ken	x
	JRR-3	1	Tokai-Mura, Ibaraki-ken	x
	JRR-4	1	Tokai-Mura, Ibaraki-ken	x
	Kinki University reactor	1	Higashiosaka-shi, Osaka-fu	x
	KUCA	3	Osaka	x
	KUR	1	Sennan-gun, Osaka	x

State ^a	Abbreviated name of facility	Number of reactor units	Location	Subsidiary arrangements in force
	Musashi reactor	1	Kawasaki-shi, Kanagawa-ken	x
	NCA	1	Kawasaki-shi	x
	NSRR	1	Tokai-Mura, Ibaraki-ken	x
	Rikkyo University R.R.	1	Nagasaka, Kanagawa-ken	x
	TCA	1	Tokai-Mura, Ibaraki-ken	x
	TODAI	1	Tokai-Mura, Ibaraki-ken	x
	TTR	1	Kawasaki-shi, Kanagawa-ken	x
	VHTRC	1	Tokai-Mura, Ibaraki-ken	x
Kazakhstan	Kurchatov test reactor	3	Semipalatinsk	—
	WWR-K	1	Almaty	—
Korea, Republic of	Kyunghee Univ.	1	Suwoon	x
	Hanaro	1	Taejon	x
Latvia	IRT	1	Riga	x
Libyan Arab Jamahiriya	IRT reactor	1	Tajura	x
Malaysia	Puspati	1	Bangi, Selangor	x
Mexico	Triga Mark III	1	Ocoyoacac	x
Netherlands	HOR	1	Delft	x
	HFR	1	Petten	x
	LFR	1	Petten	x
Nigeria	NIRR-1	1	Zaria	—
Norway	HBWR-Halden	1	Halden	x
	JEEP-II	1	Kjeller	x
Pakistan	PARR-1	1	Rawalpindi	x
	PARR-2	1	Rawalpindi	x
Peru	RP-0	1	Lima	x
	RP-10	1	Lima	x
Philippines	PRR-1	1	Quezon City, Diliman	x
Poland	Agata and Anna	2	Swierk	x
	Ewa	1	Swierk	x
	Maria	1	Swierk	x
Portugal	RPI	1	Sacavem	x
Romania	Triga II	1	Pitești Colibași	x
	VVR-S	2	Magurele	x
Slovenia	Triga II	1	Ljubljana	x
South Africa	SAFARI-1	1	Pelindaba	x
Sweden	Studsvik RR	2	Studsvik	—
Switzerland	AGN 211P	1	Basel	x
	Crocus	1	Lausanne	x
	Proteus	1	Würenlingen	x
Syrian Arab Republic	MNSR	1	Damascus	x
Thailand	TRR-1	1	Bangkok	x
Turkey	Çekmece Nuclear Research	1	Istanbul	x

State ^a	Abbreviated name of facility	Number of reactor units	Location	Subsidiary arrangements in force
	and Training Centre ITU-TRR Triga Mark II	1	Istanbul	x
Ukraine	Kiev RR	1	Kiev	—
	IR-100 RR	1	Sevastopol	—
Uzbekistan	Photon	1	Tashkent	—
	WWR-SM	1	Tashkent	—
Venezuela	RV-I	1	Altos de Pipe	x
Vietnam	Da Lat Research Reactor	1	Da Lat, Lam Dong	x
Serbia and Montenegro	RA-RB	2	Vinca	x
Conversion plants, including pilot plants				
Argentina	UF ₆ production facility		Pilcaniyeu	—
	UO ₂ conversion plant		Córdoba	—
Canada	CAMECO		Port Hope	x
Chile	Lab. exper. de conversión		Santiago	x
Japan	JCO		Tokai-Mura, Ibaraki-ken	x
	Ningyo R&D		Tomata-gun, Okayama-ken	x
	PCDF		Tokai-Mura, Ibaraki-ken	x
Mexico	Fuel fabrication pilot plant		Salazar	x
Romania	UO ₂ powder fabrication plant		Pilcaniyeu	—
South Africa	Conversion plant		Pelindaba	x
	HEU-UF ₆ production plant		Pelindaba	x
Sweden	Ranstad Mineral		Ranstad	—
Fuel fabrication plants, including pilot plants				
Algeria	UDEC		Draria Nuclear Site	—
Argentina	Experimental plant		Constituyentes	—
	Fuel fabrication plant		Ezeiza	x
	Fuel fabrication plant		Constituyentes	x
Belgium	BN-MOX		Dessel	x
	FBFC		Dessel	x
	FBFC MOX		Dessel	—
Brazil	Fuel fabrication plant		Resende	x
Canada	CRNL fuel fabrication		Chalk River	x
	Fuel fabrication facility		Chalk River	x
	GEC, Inc.		Toronto	x
	GEC, Inc.		Peterborough	x
	Zircatec		Port Hope	x
Chile	UMF		Santiago	x
Democratic People's	Nuclear fuel fabrication plant		Nyongbyon	—

State ^a	Abbreviated name of facility	Number of reactor units	Location	Subsidiary arrangements in force
Republic of Korea				
Denmark	Metallurgy		Roskilde	x
Egypt	FMPP		Inshas	—
Germany	Adv. Nuclear Fuels		Lingen	x
	Siemens MOX		Hanau	x
India	Ceramic fuel fab. assembly area EFFP-NFC		Hyderabad	x
			Hyderabad	x
Indonesia	Experimental fuel element installation (IEBE)		Serpong	x
	Research reactor fuel element production installation (IPEBRR)		Serpong	x
Iran, Islamic Rep. of	Fuel fabrication lab.		Esfahan	—
Italy	Fabnuc		Bosco Marengo	x
Japan	JNF		Yokosuka-shi, Kanagawa-ken	x
	MNF		Tokai-Mura, Ibaraki-ken	x
	NFI (Kumatori-1)		Sennan-gun, Osaka	x
	NFI (Kumatori-2)		Sennan-gun, Osaka	x
	NFI Tokai		Tokai-Mura, Ibaraki-ken	x
	PFPF		Tokai-Mura, Ibaraki-ken	x
	PPFF		Tokai-Mura, Ibaraki-ken	x
Kazakhstan	Ulbinski Metallurgical Works		Kamenogorsk	—
Korea, Republic of	CANDU fuel fabrication plant KNFFP		Taejon	x
			Taejon	x
Romania	Romfuel		Pitești Colibasi	x
South Africa	LEU fuel fabrication		Pelindaba	x
Spain	ENUSA fuel fabrication plant		Juzbado	—
Sweden	ABB		Västerås	x

Chemical reprocessing plants, including pilot plants

Democratic People's Republic of Korea	Radiochemical Laboratory		Bungang-Ri, Nyongbyon	—
Germany	WAK		Eggenstein-Leopoldshafen	x
India	PREFRE		Tarapur	x
Italy	EURE		Saluggia	x
	ITREC-Trisaia		Rotondella	x
Japan	Tokai reprocessing plant		Tokai-Mura, Ibaraki-ken	x

In addition, the following R&D facilities and locations are associated with reprocessing technology:

Argentina	Lapep		Buenos Aires	—
	Fission products div.		Ezeira	—
Brazil	Reprocessing project		São Paulo	—

State ^a	Abbreviated name of facility	Number of reactor units	Location	Subsidiary arrangements in force
<i>Indonesia</i>	<i>RMI</i>		<i>Serpong</i>	—
<i>Japan</i>	<i>SCF</i>		<i>Tokai-Mura, Ibaraki-ken</i>	<i>x</i>
	<i>JAERI Tokai R&D</i>		<i>Tokai-Mura, Ibaraki-ken</i>	<i>x</i>
	<i>JNC Tokai R&D</i>		<i>Tokai-Mura, Ibaraki-ken</i>	<i>x</i>
	<i>Sumitomi Met. Mining</i>		<i>Tokai-Mura, Ibaraki-ken</i>	<i>x</i>
Enrichment plants, including pilot plants				
Argentina	Pilcaniyeu enrichment plant		Pilcaniyeu	—
Brazil	Enrichment laboratory		Ipero	—
	Uranium enrichment pilot plant		São Paulo	—
	Laser spectroscopy lab.		San jose dos Campos	—
China	Shaanxi		Han Zhang	—
Germany	UTA-1		Gronau	x
Japan	Uranium Enrichment Plant		Tomata-gun, Okayama-ken	x
	Rokkasho Enrichment Plant		Kamikita-gun, Aomori-ken	x
Iran, Islamic Republic of	PFEP		Natanz	—
Netherlands	URENCO		Almelo	x
United Kingdom	URENCO E22, E23 & A3 plant		Capenhurst	x
In addition, the following R&D facilities and locations are associated with enrichment technology:				
<i>Australia</i>	<i>Silex</i>			
<i>Brazil</i>	<i>UF₆ laboratory</i>		<i>Belo Horizonte</i>	—
<i>Germany</i>	<i>Urenco</i>		<i>Jülich</i>	—
<i>Japan</i>	<i>Asahi Chemical Industry</i>		<i>Hyuga-shi, Miyazaki-ken</i>	<i>x</i>
	<i>Hitachi laboratory</i>		<i>Hitachi-shi, Ibaraki-ken</i>	<i>x</i>
	<i>JAERI Tokai R&D</i>		<i>Tokai-Mura, Ibaraki-ken</i>	<i>x</i>
	<i>NDC U-Lab.</i>		<i>Tokai-Mura, Ibaraki-ken</i>	<i>x</i>
	<i>JNC Tokai R&D</i>		<i>Tokai-Mura, Ibaraki-ken</i>	<i>x</i>
	<i>Toshiba R&D Centre</i>		<i>Kawasaki-shi, Kanagawa-ken</i>	<i>x</i>
		<i>CTF</i>		<i>Kitakami-gun, Amori-ken</i>
<i>Netherlands</i>	<i>Urenco</i>		<i>Almelo</i>	<i>x</i>
Separate storage facilities				
Argentina	Central store		Ezeiza	x
	Central store		Constituyentes	x
	DUE		Ezeiza	—
	Nuclear material store		Constituyentes	—
	Storage bunker		Ezeiza	—
Armenia	Dry spent fuel storage		Metsamor	—
Australia	Vault storage		Lucas Heights	x
Belgium	Belgoprocess		Dessel	x
	Elbel		Beveren	—

State ^a	Abbreviated name of facility	Number of reactor units	Location	Subsidiary arrangements in force
	Wet Store		Tihange	—
Brazil	Aramar stores (2 units)		Ipero	—
	UF ₆ production facility		São Paulo	—
Bulgaria	Long term storage		Kozloduy	x
Canada	Nuclear material		Chalk River	x
	Spent fuel canister store		Chalk River	x
	Douglas Point dry storage		Tiverton	x
	Gentilly-1		Gentilly	x
	Spent fuel storage		Chalk River	x
	Spent fuel storage		Chalk River Ontario	—
	AECL Research		Pinawa	x
	PUFDSF		Pickering	x
	BUFDSF		Tiverton	—
Czech Republic	Storage Škoda		Bolevec	x
	HLW store		Rez	—
	ISFS Dukovany		Dukovany	x
Democratic People's Republic of Korea	Nuclear fuel storage		Bungang-Ri, Nyongbyon	—
Denmark	Risø Store		Roskilde	x
	Risø Waste		Roskilde	—
Finland	TVO-KPA store		Olkiluoto	—
France	Cogéma UP2 and UP3		La Hague	x
Germany	Bundeslager		Wolfgang	—
	Standort Zwischenlager		Lingen	—
	ANF UF ₆ Lager		Lingen	x
	KFA AVR BL		Jülich	—
	KFA AVR		Jülich	x
	BZA-Ahaus		Ahaus	—
	NCS-Lagerhalle		Hanau	—
	Energiewerke Nord GmbH		Lubmin	x
	Energiewerke Nord-ZLN		Lubmin	—
	Transportbehälterlager		Gorleben	—
	TR Halle 87		Rosendorf	—
	Kernmateriallager		Rosendorf	—
Hungary	Central radionuclide store		Budapest	x
	MVDS		Paks	x
India	AFR		Tarapur	x
Indonesia	TC and ISFSF		Serpong	—
Iran, Islamic Republic of	Karaj Waste Storage		Karaj	—
Iraq	Tuwaita, Location C		Tuwaita	—
Italy	Compes. deposito		Saluggia	x
	Essor nuclear plant		Ispra	—
	Essor storage		Ispra	x
	Research centre		Ispra	—
Japan	KUFFS		Kyoto	x
	Fukushima Dai-Ichi SFS		Futaba-gun, Fukushima-ken	x

State ^a	Abbreviated name of facility	Number of reactor units	Location	Subsidiary arrangements in force
	RSFS		Kamikita-gun, Aomori-ken	x
Kazakhstan	Ulbinski Thorium Storage		Kamenogorsk	—
	Kurchatov Thorium Storage		Semipalatinsk	—
Korea, Republic of	DUF 4 Conv.		Taejon	—
	NMSF		Taejon	—
Lithuania	Spent fuel dry storage		Visaginas	—
Netherlands	Covra Store		Vlissingen	—
	Habog		Vlissingen	—
Pakistan	Hawks Bay depot		Karachi	x
Portugal	Inst. de Armazenagem		Sacavem	x
Romania	ISFS Cernavoda NPP		Cernavoda	—
Slovakia	AFRS		Bohunice	x
South Africa	Waste storage		Pelindaba	—
	Bulk storage facility		Pelindaba	x
	HEU storage vault		Pelindaba	x
	Thabana pipe store		Pelindaba	x
	Z - Plant		Pelindaba	x
	E - building		Valindaba	—
	Koeberg Castor Storage Facility		Cape Town	—
Spain	Trillo		Trillo	—
Sweden	Central long term storage		Oskarshamn	—
Switzerland	Saphir		Wuerenlingen	x
	Zwilag		Wuerenlingen	—
Ukraine	Chernobyl storage		Chernobyl	—
	Zaporoshe SFS		Energodar	—
United Kingdom	Special nuclear material store 9		Sellafield	x
	Thorp Plutonium Store		Sellafield	—
United States of America	Pu storage vault		Hanford	—
	Y-12 plant		Oak Ridge	x
	KAMS storage		Savannah River	—
Other facilities				
Algeria	AURES 1		Ain Oussara	—
	Es Salam reactor		Ain Oussara	—
Argentina	Alpha facility		Constituyentes	—
	Experimental UO ₂ plant		Cordoba	—
	Enriched uranium lab.		Ezeiza	—
	Fission products div.		Ezeiza	x
	Fuel fabrication plant		Ezeiza	x
	LFR		Buenos Aires	—
	Uranium powder fab. plant		Constituyentes	—
	Triple Altura Lab.		Ezeiza	—
	LAPEP		Buenos Aires	—
Australia	Research Lab.		Lucas Heights	x

State ^a	Abbreviated name of facility	Number of reactor units	Location	Subsidiary arrangements in force
Belgium	IRMM-Geel		Geel	x
	CEN-Labo		Mol	x
	CEN-Waste		Dessel	—
	I.R.E.		Fleurus	x
	CEN-lab. Pu		Mol	x
Brazil	Fuel tech. co-ord. unit		São Paulo	x
	Isotope laboratory		São Paulo	—
	Metal. uran. project		São Paulo	—
	Nuclear material lab.		Ipero	—
	Nuclear fuel and instr. dev. lab.		São Paulo	—
	Reconversion project		São Paulo	—
	Reprocessing project		São Paulo	x
	Safeguards store		São Paulo	x
Czech Republic	Nuclear Fuel Inst. (UJP)		Zbraslav	x
	Research Laboratories		Rez	x
Democratic People's Republic of Korea	Subcritical assembly		Pyongyang	x
Estonia	Balti ES		Narva	—
Georgia	Subcritical Assembly		Tbilisi	—
	Sukhumi Institute		Sukhumi	—
Germany	KFA-heisse Zellen		Jülich	x
	KFK-IHCH		Eggenstein-Leopoldshafen	x
	KFA Lab.		Jülich	x
	Transuran		Eggenstein-Leopoldshafen	x
	VKT. Tec. ZTR		Rosendorf	x
Hungary	Institute of Isotopes		Budapest	x
Indonesia	RMI		Serpong	x
Iran, Islamic Republic of	LWSCR		Esfahan	x
	GSCR		Esfahan	—
	JHL		Tehran	—
Italy	CNEN-LAB. PU.		Santa Maria di Galeria	x
Japan	JAERI-Oarai R&D		Higashi-gun, Ibaraki-ken	x
	JAERI-Tokai R&D		Tokai-Mura, Ibaraki-ken	x
	Kumatori R&D		Sennan-gun, Osaka	x
	Mitsui Iwakuni-Ohtake		Kuga-gun, Yamaguchi	x
	Mitsui Osaka		Takai-shi, Osaka-fu	x
	NDC Fuel Hot Lab.		Tokai-Mura, Ibaraki-ken	x
	NDC fuel laboratories		Tokai-Mura, Ibaraki-ken	x
	NERL, University of Tokyo		Tokai-Mura, Ibaraki-ken	x
	NFD		Higashi-gun, Ibaraki-ken	x
	NFI Tokai-2		Tokai-Mura, Ibaraki-ken	x
	NRF Neutron Radiation Facility		Tsukuba-shi, Ibaraki-ken	x
	JNC FMF		Higashi-gun, Ibaraki-ken	x
	JNC IRAF		Higashi-gun, Ibaraki-ken	x
	JNC-Oarai R&D		Higashi-gun, Ibaraki-ken	x
	JNC-Tokai R&D		Tokai-Mura, Ibaraki-ken	x
	SCF		Tokai-Mura, Ibaraki-ken	x
	Showa-Kawasaki		Kawasaki-shi, Kanagawa-ken	x
	Sumitomo-Chiba		Sodegaura-shi, Chiba-ken	x

State ^a	Abbreviated name of facility	Number of reactor units	Location	Subsidiary arrangements in force
	Uranium Material Laboratory		Higashi-gun, Ibaraki-ken	x
Korea, Republic of	PIEF		Taejon	x
	Acrylonitrile plant		Ulsan	x
	DFDF		Taejon	x
	DUF 4		Taejon	—
	HFFL		Taejon	x
	IMEF		Taejon	x
	KAERI R&D		Taejon	—
Netherlands	ECN and JRC		Petten	x
Norway	Research laboratories		Kjeller	x
Poland	Institute for Nuclear Chemistry and Engineering		Warsaw	—
	Institute of Nuclear Research		Swierk	x
South Africa	Decommissioned pilot enrichment plant		Pelindaba	x
	Decontamination and waste recovery		Pelindaba	x
	Hot Cell Complex		Pelindaba	x
	NU and DU metals plant		Pelindaba	x
Switzerland	EIR		Würenlingen	x
	CERN		Geneva	x
Turkey	Nuclear fuel pilot plant		Istanbul	x
Ukraine	Chernobyl unit 4 shelter		Chernobyl	—
	Khmelnitski FF Storage		Neteshin	—
	KHFTI		Kharkov	—
	Rovno FF Storage		Kuznetsovsk	—
	South Ukraine Storage		Yuzhnoukrainsk	—
	Zaporozhe FF Storage		Energodar	—
	Sevastopol subcritical assembly		Sevastopol	—
IR-100 RR		Sevastopol	—	
United States of America	BWXT Facility 179		Lynchburg, VA	—
Non-nuclear installations				
Cuba	Storage of equipment		Prov. Havana	—

^a An entry in this column does not imply the expression of any opinion whatsoever on the part of the Agency concerning the legal status of any country or territory or of its authorities, or concerning the delimitation of its frontiers.

Note: The Agency was also applying safeguards in Taiwan, China, at eight power reactors, four research reactors/critical assemblies, one uranium pilot conversion plant, one fuel fabrication plant, one storage facility and one R&D facility.

Table A25. CRPs initiated in 2003

Major Programme 1: Nuclear Science and Technology

Programme B: Nuclear Fuel Cycle and Material Technologies

- Study of process-losses in separation processes in Partitioning and Transmutation (P&T) systems in view of minimizing long term environmental impacts (2003-2007)

Programme D: Nuclear Science

- Ion beam modification of insulators
- Development of improved sources and imaging systems for neutron radiography

Major Programme 2: Nuclear Techniques for Development and Environmental Protection

Programme E: Food and Agriculture

- Integrated soil, water and nutrient management in conservation agriculture
- Effects of mutagenic agents on the DNA sequence in plants
- Improving sterile male performance in fruit fly SIT programmes
- Development and use of rumen molecular techniques for predicting and enhancing livestock productivity

Programme F: Human Health

- Role of radionuclide techniques in the diagnosis of early dementia
- Resource sparing treatment of head and neck cancer
- Doctoral CRP on clinical and experimental studies to improve radiotherapy outcome in AIDS cancer patients
- Harmonization of quality practices for nuclear medicine radioactivity measurements
- Development of procedures for quality assurance for dosimetry calculations in radiotherapy
- The application of isotopic and nuclear techniques in studies related to intrauterine growth restriction (IUGR) issues in populations from developing countries
- Assessment of total energy expenditure and body composition for older adult subjects with different lifestyles

Programme H: Protection of the Marine and Terrestrial Environments

- Nuclear and isotopic studies of the El Niño phenomenon in the ocean

Programme I: Physical and Chemical Applications

- Controlling of degradation effects in radiation processing of polymers
- Industrial process gamma tomography
- Development of Tc-99m based small molecules using novel Tc-99m cores

Major Programme 3: Nuclear Safety and Protection against Radiation

Programme L: Management of Radioactive Waste

- New developments and improvements in processing of problematic waste streams (2003-2006)

Table A26. CRPs completed in 2003

Major Programme 1: Nuclear Science and Technology

Programme A: Nuclear Power

- National approaches to correlate nuclear power plant performance targets and O&M costs
- Scientific basis and engineering solutions for cost effective assessments of software based I&C systems (1999-2003).
- Mechanism of nickel effect in radiation embrittlement of Reactor Pressure Vessel steels (1999-2003).
- Surveillance programmes results application to reactor pressure vessel integrity assessment (1999-2003).
- Establishment of thermophysical properties database for LWRs and HWRs (1998-2003).
- Optimisation of the coupling of nuclear reactors and desalination systems (1998-2003).
- Information management solutions for SAT applications (SAT-IM) (2000-2003).

Programme B: Nuclear Fuel Cycle and Material Technologies

- Hydrogen and hydride degradation of the mechanical and physical properties of zirconium-based alloys (1998-2003).

Programme C: Analysis for Sustainable Energy Development

- The impact of infrastructural requirements on the competitiveness of nuclear power (1999-2003).

Programme D: Nuclear Science

- Database of Prompt Gamma Rays from Slow Neutron Capture for Elemental Analysis (1999-2003).
- Development of alpha particle spectrometry instrumentation, methods and applications (2000-2003)
- In-situ applications of X ray techniques (2000-2003).
- The use of ion beam techniques for analysis of light elements in thin films, including depth profiling (2000-2003).

Major Programme 2: Nuclear Techniques for Development and Environmental Protection

Programme E: Food and Agriculture

- Genetic improvement of underutilized and neglected crops in low income food deficit countries (LIFDCs) through irradiation and related techniques (1998-2003).
- Monitoring of contagious bovine pleuropneumonia in Africa using enzyme immunoassays (1997-2003).
- Application of genetics to improve the SIT for tsetse (1998-2003).
- Irradiation as a phytosanitary treatment of food and agricultural commodities (1998-2002).
- Alternative methods to gas and high performance liquid chromatography for pesticide residue analysis in grain (1997-2002).
- Evaluation of methods of analysis for determining mycotoxin contamination of food and feed (1998-2003).

Programme F: Human Health

- Comparative evaluation of ictal brain SPECT, MRI and X-ray CT of brain in the management of patients with refractory seizures (2000-2003).
- Study the relationship between recurrent lower respiratory tract infection, gastroesophageal reflux and bronchial asthma in children (2000-2003).
- Isotopic evaluations in infant growth monitoring (a collaboration with WHO) (1999-2003).
- Use of isotopic techniques to examine the significance of infection and other insults in early childhood to diarrhoeal morbidity malassimilation and failure to thrive (1999-2003).
- The significance of viral load and virus type in Hepatitis B and C for Pathogenesis and treatment efficacy (1999-2003).
- Dosimetry in X-ray diagnostic radiology. An international Code of Practice (2000-2003).
- Randomized clinical trail of radiotherapy combined with Mitomycin C (MMC) in the treatment of advanced head and neck tumours (1995-2003).
- Comparative assessment of teletherapy modalities (2001-2003).

- Application of nuclear techniques in the prevention of degenerative diseases (obesity and non-insulin dependant diabetes) in ageing (1998-2003).
- Fission product yield data required for transmutation of minor actinide nuclear waste (1997-2003).
- Ageing of materials in spent fuel storage facilities (1999-2003).

Programme G: Water Resources

- Isotope response to dynamic changes in groundwater systems due to long term exploitation (1999-2003).

Programme I: Physical and Chemical Applications

- Standardized high current solid targets for cyclotron production of diagnostic and therapeutic radionuclides (2000-2003).
- Development of kits for Tc-99m radiopharmaceuticals for infection imaging (2000-2003).
- Application of nuclear techniques to anti-personnel landmines identification (1999-2003).

Major Programme 3: Nuclear Safety and Protection against Radiation

Programme J: Safety of Nuclear Installations

- Development and application of indicators to monitor NPP operational safety performance (1999-2000).

Programme K: Radiation Safety

- To investigate appropriate methods and procedures to apply probabilistic safety assessment (PSA) techniques of large radiation sources (2002-2003).

Table A27. Training courses, seminars and workshops in 2003 (funded from the regular budget)

Major Programme 1: Nuclear Science and Technology

Programme A: Nuclear Power

- Training course series on WWER-1000 reactor simulator; pressurized water simulator; and boiling water reactor simulator.

Programme C: Analysis for Sustainable Energy Development

- Training workshop on designing sustainable energy systems
- IAEA-ICTP college on evaluation energy technologies and policies for implementation of Agenda-21 (ICTP, Italy).
- Workshop on economic analysis of nuclear power in changing electricity markets, Ljubljana, Slovenia.
- Workshop in Brazil on the use of MESSAGE and MAED.

Programme D: Nuclear Science

- Workshop on nuclear data for science and technology: materials characterization and analysis, 19-30 May 2003, ICTP Trieste, Italy.
- Workshop on atomic and molecular data for fusion research, 8-12 Sept 2003, ICTP Trieste, Italy.
- Workshop on nuclear structure and decay data: Theory and evaluation, 17-28 Nov 2003, ICTP Trieste, Italy.
- Workshop on relational databases for nuclear data development – dissemination and processing, 1-5 Dec 2003, IAEA Vienna.
- Workshop on resonant scattering of synchrotron X-rays as a probe of electronic properties, 2-3 December 2003, Trieste, Italy.
- INIS and knowledge management seminar, Cairo, Egypt.

Major Programme 2: Nuclear Techniques for Development and Environmental Protection

Programme E: Food and Agriculture

- FAO/IAEA Interregional Training Course on “The use of nuclear and related techniques to increase water use efficiency in rainfed and irrigated agriculture”, 1–29 July 2003.
- A three-day Workshop on fluorescence in situ hybridization (FISH).
- 2nd and 3rd Interregional Training Course on Mutant Germplasm Characterization using Molecular Markers, Seibersdorf, Austria (2002 and 2003).
- Joint FAO/IAEA training course on Polymerase Chain Reaction Methodology, with Onderstepoort Veterinary Institute – South Africa, 2-28 May 2002.
- Workshop on diagnosis and monitoring of CBPP - Mali, 10-14 February 2003.
- Joint FAO/IAEA training course on Polymerase Chain Reaction Methodology, with Onderstepoort Veterinary Institute – South Africa, 3-28 March, 2003.
- Training Course on Strengthening Capacities for Implementing Codex Standards, Guidelines and the Recommended International Codes of Practice for Control of the Use of Veterinary Drugs - Seibersdorf, 16-27 June 2003.
- Policy Makers Workshop on Strengthening Capacities for Implementing Codex Standards, Guidelines and the Recommended International Codes of Practice for Control of the Use of Veterinary Drugs - Vienna, 20-24 October 2003.
- Training Course on Strengthening Capacities for Implementing Codex Standards, Guidelines and the Recommended International Codes of Practice for Control of the Use of Veterinary Drugs – South Africa, 10-21 November 2003.
- Workshop on the development of guidelines for verification of tsetse fly- and trypanosomosis-free areas — Vienna.
- FAO/IAEA regional training workshop on tephritid fruit fly identification (Seibersdorf).
- Workshop on codling moth genetic sexing — Vienna.
- Workshop on the development and transfer of genetic sexing mass rearing technologies for the production of Mexican fruit fly — Tapachula, Mexico.
- Workshop on improving sterile male performance in fruit fly SIT programmes — Vienna..

Programme G: Water Resources

Workshops:

- Workshop on water balance calculation, Cali, Colombia, 20 April - 2 May 2003
- Workshop on contamination and vulnerability of aquifers", San Jose, Costa Rica, 10-21 March 2003
- Workshop on monitoring network, Montevideo, Uruguay, 28 July to 8 August 2003
- Workshop on discussion on quality control of chemical analysis, Santiago, Chile, 23-27 July 2003
- Regional workshop to establish groundwater, precipitation and evapotranspiration sampling networks in the Lake Victoria region. 25 August to 2 September 2003, Mwanza, United Republic of Tanzania

Seminars:

- Seminar on development and application of isotope tracer diagnostics in regional climate models ICTP, IAEA, Trieste, Italy, 22 to 26 September 2003

Programme H: Protection of the Marine and Terrestrial Environments

- RCM on nuclear applications to determine bioaccumulation parameters and processes used for establishing coastal zone monitoring and management criteria (2-5 Dec. 2003, Monaco).
- Workshop on harmful algal blooms, September 1-5, 2003 in ICTP, Trieste.

Major Programme 3: Nuclear Safety and Protection against Radiation

Programme J: Safety of Nuclear Installations

- Seminar on safety related information learned from Paks NPP incident, 15-16 August 2003, Trnava, Slovakia.
- Earthquake prediction workshop, 6 October 2003, Trieste, Italy.
- Workshop on ageing management programme in NPPs, 8-12 December 2003, Mumbai, India.
- Workshop on Self Assessment and Management Oversight of Operational Safety, 2-6 June 2003, Brno, Czech Republic.
- Joint SEGHO/OECD NEA workshop on human factors in NPP design changes) 6-10 October 2003, Paris.
- Safety Culture Enhancement Programme workshop, 18-21 November 2003, Rio de Janeiro, Brazil.
- Workshop on use of PSA in safety analyses: Regulatory and operational practices, 23-27 June 2003, Moscow, Russia.
- IAEA Training programme on seismic re-evaluation of nuclear power plants for Indian engineers, 17-21 March 2003, Budapest, Hungary.

Programme L: Management of Radioactive Waste

- IAEA Meeting of the Geological Repository Safeguards Experts Group (SAGOR) Rauma, Finland, September 2003.
- The first Review Meeting of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, Vienna, 3 to 14 November 2003.
- Developing radioactive waste management registry for collecting information on nuclear application waste inventory, Vienna.
- Conditioning of high activity sealed radioactive sources, Pretoria, South Africa.
- Training meeting/workshop on development of the Net Enabled Waste Management Database (NEWMDB).

Major Programme 4: Nuclear Verification

Programme M: Safeguards

- Workshop on IAEA safeguards activities, 20-24 October 2003, Kazakhstan.
- International training course on implementation of State Systems of Accounting for and Control of Nuclear Material 28 April to 16 May 2003, USA.
- Workshop on IAEA safeguards activities, 27 May to 6 June 2003, Russian Federation.
- Workshop on nuclear material accounting and reporting at uranium conversion and enrichment facilities, Vienna, 22 to 26 Sept.
- National training course on the protocol additional to safeguards agreements, 18 to 21 Nov, Chile.
- Regional safeguards training course, 1 to 18 Dec 2003, Japan.

- Seminar on non-proliferation of nuclear weapons: Strengthened safeguards and the Additional Protocol, 23 to 25 June 2003, Tashkent, Uzbekistan.
- Regional seminar on strengthened safeguards and additional protocols, 3 to 5 Feb 2003, Romania.
- Regional training course on safeguards implementation, 20 to 31 Oct 2003, Pretoria, South Africa.
- Workshop on IAEA safeguards under the Coordinated Technical Support Programme (CTSP) to the Newly Independent States (NIS). 01 to 24 Oct, Ust Kamenogorsk, Kazakhstan.

Major Programme 5: Information Support Services

Programme R: Nuclear Information Resources

- INIS training seminar, Vienna, June 2003.
- Training course on IAEA Library information resources and services: Vienna

Major Programme 7: Policy and General Management

Programme U: Executive Management, Policy-Making and Coordination

- Presentation on RBA to the Technical Group of the Panel of External Auditors of the UN System Organizations — Vienna.
- Second Francophone Africa training workshop for the development of a legal framework governing the safety of radioactive waste management and the safe transport of radioactive material, Vienna.
- International workshop in the framework of the G-8 technical regulation of nuclear and radiation safety, Moscow, Russian Federation, 17 December 2003.
- Regional seminar on strengthened safeguards agreements and additional protocols, Poiana Brasov, Romania, 3–5 February 2003.
- State System of Accounting for and Control of Nuclear Material (SSAC), Santa Fe, New Mexico, 28 April–16 May 2003.

Programme V: Administration and General Services

- Workshop on enterprise resource planning systems, Vienna.
- Classification workshop on the new master standards, Vienna.

Programme W: Oversight and Evaluation

- Workshop on self-evaluation, Colombia.
- Insight series presentation of the activities of evaluation.
- Risk management group training course, Vienna, December 2003.

Training courses, seminars and workshops in 2003 (funded from extrabudgetary resources)

Major Programme 1: Nuclear Science and Technology

Programme A: Nuclear Power

- Workshop on nuclear desalination technology and economics, 24 March-4 April 2003, ICTP, Trieste.
- Workshop on status of high temperature gas-cooled reactor (HTGR) technology, 7-11 July 2003, ICTP Trieste.
- Workshop on technology and applications of accelerator driven systems (ADS), 13-17 October 2003, ICTP, Trieste.

Programme D: Nuclear Science

- On the job training in methodology and applications of XRF, micro-XRF and TXRF, Seibersdorf.

Major Programme 2: Nuclear Techniques for Development and Environmental Protection

Programme E: Food and Agriculture

- National workshop on moving from criteria for selection of priority areas to formulation of tsetse and trypanosomiasis field programme proposals, Ethiopia Southern Rift valley-Case Study, Rome.
- National course on development and application of codling moth SIT, Neuquen, Argentina.
- Regional training course on the application of SIT against fruit flies of economic importance, Tapachula, Mexico.
- Regional workshop on fruit fly management in South-East Asia, Hanoi, Vietnam.
- Regional workshop on the management of medfly SIT projects in the Near East, Vienna.
- FAO/IAEA training workshop on testing the quality of pesticide products, 20 October-14 November 2003, Suwon, Republic of Korea.
- FAO/IAEA workshop on the introduction and implementation of the principles of good agriculture practice (GAP) in the production of fresh fruits and vegetables, 2-4 December 2003, Bangkok.
- FAO/IAEA workshop on a practical integrated approach to agricultural countermeasures for enhancing food safety and security following a nuclear or radiological emergency, 27-29 September 2003, Crete.

Programme H: Protection of the Marine and Terrestrial Environments

- Two training courses on measurement of organochlorinated contaminants in the marine environment, June and November 2003, IAEA-MEL.
- Two training courses on measurement of trace metals in the marine environment, October 2003, Doha.
- Three training courses on the determination of petroleum hydrocarbons in the marine environment, Tehran.

Major Programme 3: Nuclear Safety and Protection against Radiation

Programme J: Safety of Nuclear Installations

- EBP regional workshop on protection against fire for research reactors and other facilities/and consultation with NISA (METI), 10-18 March 2003, Daejeon, Republic of Korea.
- IAEA workshop on security of nuclear installations against sabotage, 25-27 March 2003, Budapest.
- Workshop to train the regulators on safety assessment (and INSARR mission), 19-27 June 2003, Hanoi/Dalat, Vietnam.
- National basic professional training course, 25-29 August 2003, Jakarta.
- IAEA/REA Workshop on engineering safety aspects of the physical protection of nuclear facilities against sabotage, 30 September-2 October 2003, St. Petersburg, Russian Federation.
- WWER's horizontal SG tubing and primary composite material pipe examination technology, 16-21 November 2003, Wuhan, China.
- Training for system engineers (Qinshan I), 13-17 January 2003, Vandellos, Spain.
- Workshop on management of safety and safety culture for SKI, 24-25 March 2003, Stockholm.
- Safety culture seminar for the Swedish Work Environment Authority, 26-27 March 2003, Solna, Sweden.
- Safety culture seminar for the maintenance department of Ringhals and Barsebaeck, 9-10 April 2003, Ringhals, Sweden.

- Safety culture workshop for Spanish regulators, 19-23 May 2003, Madrid.
- Operational assessment workshop, 8-12 September 2003, Qinshan, China.
- Workshop on operating experience and human performance, JRC/HFR Research Reactor, 22-24 September, Petten, Netherlands.
- UK Nuclear Safety and Safety Culture Seminar, 22 October 2003, London.
- EBP Safety Culture training workshop for South East Asia Regional Group, 9-14 November 2003, Daejon, Republic of Korea.
- INES seminar Ringhals NPP, 11-13 March 2003, Ringhals, Sweden.
- First meeting and workshop of the working group on regulatory use of PSA methods of the Co-operation Forum for WWER Regulators, 7-9 April 2003, Helsinki, Finland.
- INES seminar, 24-26 June 2003, Washington, DC.
- Workshop on risk-informed inspection activities, 3-7 November 2003, Beijing, China.
- NUCNET seminar presentation on “INES: A Scale of Common Understanding”, 6 November 2003, Zurich.
- Presentation on lessons learned from the Paks NPP fuel cleaning incident, 24-25 November 2003, Villigen, Switzerland.
- Lecture on lessons learned from the Paks NPP fuel cleaning incident, 17 September 2003, Dukovany, Czech Republic.
- Regional standard safety culture workshop, 10-14 November 2003, Republic of Korea.

Programme K: Radiation Safety

- Action Plan workshops: August 2002, Kazakhstan; Sep. 2002, Mexico City; Nov. 2002 Tokyo..
- National strategy workshops: July 2003, Bulgaria; Nov. 2003, Argentina; Nov 2003, Vietnam.

Major Programme 4: Nuclear Verification

Programme M: Safeguards

- International training course on implementation of State Systems of Accounting for and Control of Nuclear Material, 28 April–16 May 2003, USA.
- IAEA workshop: Surveillance roadmapping, September 29–October 3, 2003 New York, USA.
- Workshop on IAEA safeguards activities, 27 May to 06 June 2003, Russian Federation.
- Regional training course on State Systems of Accounting for and Control of Nuclear Material, 20-31 October 2003, South Africa.
- Regional safeguards training course, 1-18 December 2003, Japan.
- Workshop on nuclear material accounting and reporting at uranium conversion and enrichment facilities (for Iranian personnel), 22-26 September 2003, Vienna.
- Seminar on strengthened safeguards and the Additional Protocols, 3-5 February 2003, Poiana Braşov, Romania.
- Seminar for ASEAN States on the non-proliferation of nuclear weapons: Strengthened safeguards and the Additional Protocols, 31 March-2 April 2003, Kuala Lumpur, Malaysia.
- Seminar on the non-proliferation of nuclear weapons: The strengthened safeguards system, 23-25 June 2003, Tashkent, Uzbekistan.
- International seminar on the Agency’s safeguards system: Multilateral verification of nuclear non-proliferation undertakings, 26-28 November 2003, Vienna.
- National seminars on the Additional Protocol, Bangkok, Bogotá, Kuala Lumpur.
- National seminar on the strengthened safeguards system, Port-au-Prince, Haiti.

Major Programme 5: Information Support Services

Programme P: Public Information

- Public information seminar, 8–11 April, Beijing.
- Workshops for nuclear communicators, 5–6 February, 2003, Malta; 4–6 November 2003 Tokyo; 2–4 December 2003, South Africa.

Major Programme 7: Policy and General Management

Programme U: Executive Management, Policy-Making and Coordination

- Preparatory meeting of the International Expert Group on Nuclear Liability (INLEX), 26-27 May 2003, Vienna.
- First Meeting of INLEX, 16-17 October 2003, Vienna.

Table A28. Publications issued in 2003

Major Programme 1: Nuclear Power, Fuel Cycle and Nuclear Science

Programme A: Nuclear Power

- Means of Evaluating and Improving the Effectiveness of Training of Nuclear Power Plant Personnel - IAEA-TECDOC-1358.
- Managing the Early Termination of Operation of Nuclear Power Plants - Safety Reports Series-31.
- Operating Experience with Nuclear Power Stations in Member States in 2002
- Country Nuclear Power Profiles - 2002 Edition - Miscellaneous Publication.
- Managing Human Resources in the Nuclear Power Industry: Lessons Learned - IAEA-TECDOC-1364.
- Guidance for Optimizing Nuclear Power Plant Maintenance Programmes - IAEA-TECDOC-1383.
- Nuclear Power Plant Life Management - C&S Papers Series (CD-ROM).
- Configuration Management in Nuclear Power Plants - IAEA-TECDOC-1335.
- Nuclear Power Reactors in the World, Reference Data Series No. 2 (April 2003 edition).
- Guidance for the Evaluation of Innovative Nuclear Reactors and Fuel Cycles - IAEA-TECDOC-1362.
- Pressurized Water Reactor Simulator – Workshop Material - Training Course Series-22.
- Boiling Water Reactor Simulator - Training Course Series 23.
- Harmonization and Validation of Fast Reactor Thermomechanical and Thermohydraulic Codes and Relations Using Experimental Data - IAEA-TECDOC (CD-ROM)-1318.
- Emerging Nuclear Energy and Transmutation Systems: Core Physics and Engineering Aspects - IAEA-TECDOC-1356.
- WWER-1000 Reactor Simulator - Training Course Series 21.
- Power Reactor and sub-critical Blanket Systems with Lead and Lead-Bismuth as Coolant and/or Target Material - IAEA-TECDOC-1348.
- Market Potential for Non-electric Applications of Nuclear Energy - Technical Reports Series-410.
- Review of National Accelerator Driven System Programmes for Partitioning and Transmutation – IAEA-TECDOC-1365.
- Potential of Thorium Based Fuel Cycles to Constrain Plutonium and Reduce Long Lived Waste Toxicity – IAEA-TECDOC-1349.

Programme B: Nuclear Fuel Cycle and Material Technologies

- Guidelines for Radioelement Mapping Using Gamma Ray Spectrometry Data - IAEA-TECDOC (CD-ROM)-1363.
- Guidelines for Radioelement Mapping Using Gamma Ray Spectrometry Data - IAEA-TECDOC-1363.
- Uranium 2003: Resources, Production and Demand (published jointly with OECD/NEA).
- Fuel Failure in Water Reactors: Causes and Mitigation - IAEA-TECDOC-1345.
- Fuel Failure in Water Reactors: Causes and Mitigation (CD-ROM) - IAEA-TECDOC (CD-ROM)-1345.
- Development Status of Metallic, Dispersion and Non-oxide Advanced and Alternative Fuels for Power and Research Reactors - IAEA-TECDOC-1374.
- Status and Advances in MOX Fuel Technology - Technical Reports Series-415.
- Storage of Spent Fuel from Power Reactors - C&S Papers Series (Print)-20.
- Storage of Spent Fuel from Power Reactors (2003 Conference) - C&S Papers Series (CD-ROM)-20.
- Spent Fuel Performance Assessment and Research - IAEA-TECDOC-1343.
- Practices and Developments in Spent Fuel Burnup Credit Applications - IAEA-TECDOC-1378.
- Practices and Developments in Spent Fuel Burnup Credit Applications - IAEA-TECDOC (CD-ROM)-1378.
- Advances in Destructive and Non-Destructive Analysis for Environmental Monitoring and Nuclear Forensics - Proceedings Series.

Programme C: Analysis for Sustainable Energy Development

- Case Studies to Assess and Compare Different Energy Sources in Sustainable Energy and Electricity Supply Strategies - IAEA-TECDOC-1370.
- Energy, Electricity and Nuclear Power Estimates for the Period up to 2030 July 2003 - Reference Data Series-1.

- Market Potential for Non-electric Applications of Nuclear Energy - Technical Reports Series-410.
- Nuclear technology review, 2003 update.

Programme D: Nuclear Science

- Atomic and Plasma-Material Interaction Data for Fusion, by R E H Clark, issues 11 and 12, March/Aug 2003.
- Corrosion of Research Reactor Aluminium Clad Spent Fuel in Water in Water. Technical Report Series Number 418.
- XRF Newsletter, No. 5, ISSN 1011-2669, January 2003.
- XRF Newsletter, No. 6, ISSN 1011-2669, August 2003.

Major Programme 2: Nuclear Techniques for Development and Environmental Protection

Programme E: Food and Agriculture

- Guidelines for the use of isotopes of sulphur in soil-plant studies – Training Course Series No. 20.
- Management of crop residues for sustainable crop production – IAEA-TECDOC-1354.
- Neutron and gamma probes: Their use in agronomy. Second Edition. Training Course Series No. 16.
- Soils Newsletter – Volume 26, Issue numbers 1 and 2.
- Sub-programme website. <http://www.iaea.org/programmes/nafa/d1/index.html>.
- Improvement of new traditional industrial crops by induced mutations and related biotechnology – IAEA-TECDOC-1369.
- Automation for tsetse mass-rearing for use in sterile insect technique programmes — IAEA-TECDOC-1353.
- Improved attractants for enhancing tsetse suppression — IAEA-TECDOC-1373.
- Insect pest control newsletter — Issue numbers 61 and 62.

Programme F: Human Health

- IAEA Quality Control Atlas for scintillation camera systems - STI/PUB/1141 and CD-ROM Edition.
- SSDL Newsletter, issue numbers 47 and 48.
- Biomonitoring of atmospheric pollution (with emphasis on trace elements) – BioMAP II - IAEA-TECDOC 1338:
- Collection and preparation of bottom sediment samples for analysis of radionuclides and trace elements – IAEA-TEC DOC 1360.
- “Improving Nutrition through Nuclear Science”, an IAEA Brochure.
- A Silent Crisis: Cancer Treatment in Developing Countries, an IAEA Brochure.

Programme I: Physical and Chemical Applications:

- Manual for reactor produced radioisotopes –IAEA-TEC-DOC 1340.
- Labelling of biomolecules for targeted therapy – IAEA-TECDOC-1359.
- Clean laboratories and clean rooms for analysis of radionuclides and trace elements. IAEA-TECDOC-1339.
- Development and use of reference materials and quality control materials, IAEA-TECDOC-1350.
- Nuclear analytical techniques in archaeological investigations, STI/DOC/010/416.
- Radiation technology in emerging industrial applications, C&S Papers Series – 18/CD.
- Tracer applications in oil field investigations — brochure.

Major Programme 3: Nuclear Safety and Protection against Radiation

Programme J: Safety of Nuclear Installations

- Earthquake experience and seismic qualification by indirect methods in nuclear installations — STI/PUB/1144 (NS-G-3.3).
- Meteorological events in site evaluation for nuclear power plants — STI/PUB/1148 (NS-G-3.4).
- Commissioning for nuclear power plants — STI/PUB/1152 (NS-G-2.9).
- Design of fuel handling and storage systems in nuclear power plants — STI/PUB/1156 (NS-G-1.4).
- Periodic safety review of nuclear power plants — STI/PUB/1157 (NS-G-2.10).
- Seismic design and qualification for nuclear power plants — STI/PUB/1158 (NS-G-1.6).
- Site evaluation for nuclear installations — STI/PUB/1177 (NS-R-3).

- External events excluding earthquakes in the design of nuclear power plants — STI/PUB/1159 (NS-G-1.5).
- Seismic evaluation of existing nuclear power plants — STI/PUB/1149 (SRS No. 28).
- Accident analysis for nuclear power plants with pressurized heavy water reactors — STI/PUB/1161 (SRS No. 29).
- Accident analysis for nuclear power plants with pressurized water reactors — STI/PUB/1162 (SRS No. 30).
- Safety margins of operating reactors analysis of uncertainties and implications for decision making — IAEA-TECDOC-1332.
- Earthquake experience and seismic qualification by indirect methods in nuclear installations IAEA-TECDOC-1333.
- Extreme external events in the design and assessment of nuclear power plants — IAEA-TECDOC-1341.
- Consideration of external events in the design of nuclear facilities other than nuclear power plants, with emphasis on earthquakes — IAEA-TECDOC-1347.
- Incorporation of advanced accident analysis methodology into safety analysis reports — IAEA-TECDOC-1351.
- Application of simulation techniques for accident management training in nuclear power plants — IAEA-TECDOC-1352.
- Assessment and management of ageing of major nuclear power plant components important to safety primary piping in PWRs — IAEA-TECDOC-1361.
- Considerations in the development of safety requirements for innovative reactors: application to modular high temperature gas cooled reactors — IAEA-TECDOC-1366.
- Use of computational fluid dynamics codes for safety analysis of nuclear reactor systems — IAEA-TECDOC-1379.
- Analysis of differences in fuel safety criteria for WWER and Western PWR nuclear power plants — IAEA-TECDOC-1381.

Programme K: Radiation Safety

- Safe transport of radioactive material, Third edition – IAEA-TCS-01/03 (Training Series).
- Directory of national competent authorities approval certificates for package design, special form material and shipment of radioactive material, Third edition – IAEA-TECDOC-1377.
- Input data for quantifying risks associated with the transport of radioactive material – IAEA-TECDOC-1346.
- Appraisal for Brazil of the safe transport of radioactive material – IAEA Safety Standards Applications, TranSAS-2.
- Occupational radiation protection: protecting workers against exposure to ionizing radiation – Proceedings Series.
- Intercalibration of in-vivo counting systems using an Asian phantom – IAEA-TECDOC-1334.
- Practice specific model regulations: radiation safety of non-medical irradiation facilities; Interim report for comment – IAEA-TECDOC-4244 (K401)
- Security of radioactive sources, interim guidance for comments – IAEA-TECDOC-1355.
- Security of radioactive sources – Proceedings Series.
- Categorization of radioactive sources – Revision of IAEA-TECDOC 1191 – IAEA-TECDOC-1344.

Programme L: Management of Radioactive Waste

- Predisposal management of high level radioactive waste – IAEA Safety Standards Series, WS-G-2.6.
- Predisposal management of low and intermediate level radioactive waste – IAEA Safety Standards Series, WS-G-2.5.
- Long term storage of radioactive waste: safety and sustainability – A position paper of international experts – IAEA-LTS-RW.
- Safety indicators for the safety assessment of radioactive waste disposal – IAEA-TECDOC-1372.
- Scientific and technical basis for the geological disposal of radioactive waste – Technical Report Series No. 413.
- Considerations in the development of near surface repositories for radioactive waste – Technical Reports Series No. 417.
- Combined methods for liquid radioactive waste treatment – IAEA-TECDOC-1336.
- Safety considerations in the disposal of disused sealed radioactive sources in borehole facilities – IAEA-TECDOC-1368.

- Selection of efficient options for processing and storage of radioactive waste in countries with small amounts of waste generation – IAEA-TECDOC-1371.
- Radioactive waste management glossary – 2003 Edition.
- Reference biospheres for solid radioactive waste disposal, IAEA-BIOMASS-6 (Methodology).
- Modelling the transfer of radionuclides to fruit – IAEA-BIOMASS-5 (Methodology).
- Modelling the environmental transport of tritium in the vicinity of long term atmospheric and sub-surface sources – IAEA-BIOMASS-3 (Methodology).
- Testing of environmental transfer models using the Chernobyl fallout from the Input river catchment area, Bryansk Region, Russian Federation – IAEA-BIOMASS-4 (Methodology).
- Testing the environmental transfer models using data from the atmospheric release of Iodine-131 from the Hanford site, USA in 1963 – IAEA-BIOMASS-2 (Methodology).
- Assessing radiation doses to the public from radionuclides in timber and wood – IAEA-TECDOC-1376.
- Protection of the environment from ionizing radiation – C&S Papers Series, 17 (Proceedings Series).
- Modelling of the radiological impact of radioactive waste dumping in the Arctic Sea – IAEA-TECDOC-1330.
- Determining the suitability of materials for disposal at sea under the London Convention 1972: A radiological assessment procedure – IAEA-TECDOC-1375 .
- Safe decommissioning for nuclear activities – Proceedings Series.
- Radiological conditions in areas of Kuwait with residues of depleted uranium, English and Arabic versions (Report).
- Remediation of areas contaminated by past activities and accidents – IAEA Safety Standards Series, WS-R-3.
- Monitoring and surveillance of residues from the mining and milling of uranium and thorium – Safety Reports Series 27.
- Decommissioning of small medical, industrial and research facilities – Technical Reports Series No. 414.
- Extent of environmental contamination by Naturally Occurring Radioactive Material (NORM) and technological options for mitigation – Technical Reports Series No. 419.
- Management of disused long lived sealed radioactive sources – IAEA-TECDOC-1357.
- Radioactive Waste Management: Status and Trends No.3.
- Radioactive Waste Management Profiles: A Compilation of Data from the Net Enabled Waste Management Database No.5.

Major Programme 4: Nuclear Verification

Programme M: Safeguards

- International Nuclear Verification Series: Safeguards Techniques and Equipment, 2003 Edition, revised.
- International Nuclear Verification Series: IAEA Safeguards Glossary, CD-ROM Edition.

Major Programme 5: Information Support Services

Programme P: Public Information

Periodicals:

- IAEA Bulletin Nos 45/1 and 45/2.
- Meetings on Atomic Energy (4 issues)
- Brochures:
- Improving Nutrition through Nuclear Science.
- A Silent Crisis: Cancer Treatment in Developing Countries.
- IAEA at a Glance.

Fact sheets:

- IAEA Safeguards: Stemming the Spread of Nuclear Weapons.
- Promoting Nuclear Security: What the IAEA is doing.

Programme R: Nuclear Information Resources

- INIS database Manual –2003
- INIS Authority List for Journal Titles - 2003

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- ^a This table does not aim to list all safeguards agreements that the Agency has concluded. Not included are agreements whose application has been suspended in light of the application of safeguards pursuant to a comprehensive safeguards agreement. Unless otherwise indicated, the safeguards agreements referred to are comprehensive safeguards agreements concluded pursuant to the NPT.
- ^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 with a legal obligation to conclude a comprehensive safeguards agreement, with nuclear material in quantities not exceeding the limits of paragraph 37 of INFCIRC/153 and no nuclear material in a facility, have the option to conclude a Small Quantity Protocol, 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. This column contains countries whose SQPs have been approved by the Board and for whom, as far as the Secretariat is aware, these conditions continue to apply.
- ^d Sui generis comprehensive safeguards agreement. On 28 November 2002, upon approval by the Board of Governors, an exchange of letters entered into force confirming that the safeguards agreement satisfies the requirement of Article III of the NPT.
- ^e Safeguards agreement refers to both the Treaty of Tlatelolco and the NPT.
- ^f 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 satisfies the requirements of Article 13 of the Treaty of Tlatelolco and Article III of the NPT to conclude a safeguards agreement with the Agency.
- ^g 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.
- ^h 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.
- ⁱ 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.
- ^j 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 satisfies 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 satisfies the requirements of Article III of the NPT.
- ^k 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; for Panama on 21 November 2003) confirming that the safeguards agreement satisfies the requirement of Article III of the NPT.
- ^l Cuba has in force two INFCIRC/66 type safeguards agreements to which an additional protocol has been signed. Following its accession to the NPT on 4 November 2002, Cuba signed a comprehensive safeguards agreement with the Agency on 18 September 2003, as well as an additional protocol thereto. The CSA will replace, upon ratification, Cuba's current safeguards agreement.
- ^m 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.
- ⁿ 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.
- ^o An exchange of letters has taken place 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.
- ^p 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.
- ^q The safeguards agreement referred to is pursuant to Additional Protocol I to the Treaty of Tlatelolco.
- ^r 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.
- ^s Pending entry into force, the additional protocol is applied provisionally in this State.
- ^t 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.

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- ^u The Islamic Republic of Iran and the Libyan Arab Jamahiriya have pledged to act as if the additional protocol was in force pending entry into force.
- ⁱⁱ Date refers to the INFCIRC/66-type safeguards agreement, concluded between the United Kingdom and the Agency, which remains in force.