IAEA ANNUAL REPORT 2020

Additional Annex Information

IAEA
International Atomic Energy Agency
Atoms for Peace and Development

Table A28. Coordinated research projects initiated in 2020

Nuclear Fuel Cycle and Waste Management

- Spent Fuel Characterization
- Testing and Simulation for Advanced Technology and Accident Tolerant Fuels (ATF-TS)

Capacity Building and Nuclear Knowledge Maintenance for Sustainable Energy Development

- Economic Appraisal of Small Modular Reactors Projects: Methodologies and Applications

Nuclear Science

- Development and Application of Ion Beam Techniques for Materials Irradiation and Characterization Relevant to Fusion Technology
- Hydrogen Permeation in Fusion-Relevant Materials
- Pathways to Energy from Inertial Fusion: Materials Research and Technology Development
- Updating Fission Yield Data for Applications

Food and Agriculture

- Depletion of Veterinary Pharmaceuticals and Radiometric Analysis of their Residues in Animal Matrices
- Developing Climate Smart Agricultural Practices for Mitigation of Greenhouse Gases
- Improvement of Diagnostic and Vaccine Tools for Emerging and Re-emerging Animal Health Threats
- Mosquito Irradiation, Sterilization and Quality Control

Human Health

- Efficacy of Spatially-Fractionated Radiation Therapy (SFRT) in Palliative Treatment of Lung and Cervical Cancer Patients
- IAEA Non-invasive Cardiology Protocols Study — INCAPS 2
- Optimising Nuclear Techniques to Assess Accurate Quantitative Biomarkers of Added Sugar Intake in Adults

Radioisotope Production and Radiation Technology

- Production of Cyclotron-Based Gallium-68 Radioisotope and Related Radiopharmaceuticals

Safety of Nuclear Installations

- Developing a Phenomena Identification and Ranking Table (PIRT) and a Validation Matrix, and Performing a Benchmark for In-Vessel Melt Retention

Table A29. Coordinated research projects completed in 2020

Nuclear Power

- Understanding and Prediction of Thermal Hydraulics Phenomena Relevant to Supercritical Water Cooled Reactors

Nuclear Fuel Cycle and Waste Management

- Accelerator-Driven System (ADS) Applications and Use of Low-Enriched Uranium in ADSs
- Benchmarks of Computational Tools against Experimental Data on Fuel Burnup and Material Activation for Utilization, Operation and Safety Analysis of Research Reactors

Capacity Building and Nuclear Knowledge Maintenance for Sustainable Energy Development

- Assessments of the Potential Role of Nuclear Energy in National Climate Change Mitigation Strategies

Food and Agriculture

- Accessible Technologies for the Verification of Origin of Dairy Products as an Example Control System to Enhance Global Trade and Food Safety
- Comparing Rearing Efficiency and Competitiveness of Sterile Male Strains Produced by Genetic, Transgenic or Symbiont-Based Technologies
- Dormancy Management to Enable Mass-Rearing and Increase Efficacy of Sterile Insects and Natural Enemies

Human Health

- Optimizing Nuclear Techniques to Assess Vitamin A Status

Water Resources

- Use of Isotope Hydrology to Characterize Groundwater Systems in the Vicinity of Nuclear Power Plants

Radioisotope Production and Radiation Technology

- Copper-64 Radiopharmaceuticals for Theranostic Applications
- Sharing and Developing Protocols to Further Minimize Radioactive Gaseous Releases to the Environment in the Manufacture of Medical Radioisotopes, as Good Manufacturing Practice
- Therapeutic Radiopharmaceuticals Labelled with New Emerging Radionuclides (^{67}Cu, ^{186}Re, ^{47}Sc)

Nuclear Security

- Improved Assessment of Initial Alarms from Radiation Detection Instruments

Table A30. Publications issued in 2020

Nuclear Power

- Application of Wireless Technologies in Nuclear Power Plant Instrumentation and Control Systems — IAEA Nuclear Energy Series
- Assessing Behavioural Competencies of Employees in Nuclear Facilities — IAEA TECDOC
- Assuring the Competence of Nuclear Power Plant Contractor Personnel — IAEA TECDOC
- Benchmarking of Computational Fluid Dynamics Codes for Fuel Assembly Design — IAEA TECDOC
- Case Study on Assessment of Radiological Environmental Impact from Potential Exposure — IAEA TECDOC
- Challenges and Approaches for Selecting, Assessing and Qualifying Commercial Industrial Digital Instrumentation and Control Equipment for Use in Nuclear Power Plant Applications — IAEA Nuclear Energy Series
- Climate Change and the Role of Nuclear Power — IAEA Proceedings Series
- Computer Security Aspects of Design for Instrumentation and Control Systems at Nuclear Power Plants — IAEA Nuclear Energy Series
- Considerations for Environmental Impact Assessment for Small Modular Reactors — IAEA TECDOC
- Country Nuclear Power Profiles — Non-serial Publications
- Developments in the Analysis and Management of Combustible Gases in Severe Accidents in Water Cooled Reactors following the Fukushima Daiichi Accident — IAEA TECDOC
- Implementation and Effectiveness of Actions Taken at Nuclear Power Plants following the Fukushima Daiichi Accident — IAEA TECDOC
- Initiating Nuclear Power Programmes: Responsibilities and Capabilities of Owners and Operators — IAEA Nuclear Energy Series
- INPRO Methodology for Sustainability Assessment of Nuclear Energy Systems: Safety of Nuclear Fuel Cycle Facilities — IAEA TECDOC
- INPRO Methodology for Sustainability Assessment of Nuclear Energy Systems: Safety of Nuclear Reactors — IAEA TECDOC
- INPRO Methodology for Sustainability Assessment of Nuclear Energy Systems: Waste Management — IAEA TECDOC
- Management of Nuclear Power Plant Projects — IAEA Nuclear Energy Series
- Milestones in the Development of a National Infrastructure for Nuclear Power — IAEA Nuclear Energy Series (Russian)
- Operating Experience with Nuclear Power Stations in Member States — Operating Experience with Nuclear Power Stations in Member States (CD-ROM)
- Passive Shutdown Systems for Fast Neutron Reactors — IAEA Nuclear Energy Series
- Quality Assurance and Quality Control in Nuclear Facilities and Activities — IAEA TECDOC
- Reload Design and Core Management in Operating Nuclear Power Plants — IAEA TECDOC
- Understanding and Prediction of Thermohydraulic Phenomena Relevant to Supercritical Water Cooled Reactors (SCWRs) — IAEA TECDOC

Nuclear Fuel Cycle and Materials Technology

- Analysis of Options and Experimental Examination of Fuels for Water Cooled Reactors with Increased Accident Tolerance (ACTOF) — IAEA TECDOC
- Condition Monitoring and Incipient Failure Detection of Rotating Equipment in Research Reactors — IAEA TECDOC
- Costing Methods and Funding Schemes for Radioactive Waste Disposal Programmes — IAEA Nuclear Energy Series
- Decommissioning of Particle Accelerators — IAEA Nuclear Energy Series
- Descriptive Uranium Deposit and Mineral System Models — Non-serial Publications
- Design Principles and Approaches for Radioactive Waste Repositories — IAEA Nuclear Energy Series

- Geochemical and Mineralogical Characterization of Uranium and Thorium Deposits — IAEA TECDOC
- Light Water Reactor Fuel Enrichment beyond the Five Per Cent Limit: Perspectives and Challenges — IAEA TECDOC
- Management of Spent Fuel from Nuclear Power Reactors — IAEA Proceedings Series
- Modelling of Fuel Behaviour in Design Basis Accidents and Design Extension Conditions — IAEA TECDOC
- Underground Disposal Concepts for Small Inventories of Intermediate and High Level Radioactive Waste — IAEA TECDOC
- Uranium Raw Material for the Nuclear Fuel Cycle: Exploration, Mining, Production, Supply and Demand, Economics and Environmental Issues (URAM-2018) — IAEA Proceedings Series
- World Uranium Geology, Exploration, Resources and Production — Non-serial Publications

Capacity Building and Nuclear Knowledge for Sustainable Energy Development

- Application of Plant Information Models to Manage Design Knowledge through the Nuclear Power Plant Life Cycle — IAEA TECDOC
- Approaches to Management of Requirement Specifications for Nuclear Facilities throughout Their Life Cycle — IAEA TECDOC
- Climate Change and Nuclear Power 2020 — Non-serial Publications
- Energy, Electricity and Nuclear Power Estimates for the Period up to 2050 — Reference Data Series
- Integrated Assessment of Climate, Land, Energy and Water — Non-serial Publications
- International Nuclear Management Academy Master's Programmes in Nuclear Technology Management — IAEA Nuclear Energy Series
- Mapping Organizational Competencies in Nuclear Organizations — IAEA Nuclear Energy Series
- Nuclear Power Reactors in the World — Reference Data Series

Nuclear Science

- An Introduction to Practical Industrial Tomography Techniques for Non-destructive Testing (NDT) — IAEA TECDOC
- Challenges for Coolants in Fast Neutron Spectrum Systems — IAEA TECDOC
- Guidelines for the Operation and Maintenance Assessment for Research Reactors (OMARR) — IAEA Services Series
- Industrial Applications of Sealed Radioactive Sources — IAEA TECDOC
- Material Properties of Unirradiated Uranium–Molybdenum (U–Mo) Fuel for Research Reactors — IAEA TECDOC
- Modern Neutron Detection — IAEA TECDOC
- Nuclear Data Newsletter Issue No. 68, January 2020
- Nuclear Data Newsletter Issue No. 69, July 2020
- Pathways to Energy from Inertial Fusion: Structural Materials for Inertial Fusion Facilities — IAEA TECDOC
- Radiotracer Technologies for Wear, Erosion and Corrosion Measurement — IAEA TECDOC
- Trends in Radiopharmaceuticals (ISTR-2019) — IAEA Proceedings Series

Food and Agriculture

- Animal Production and Health Newsletter No. 71, January 2020
- Animal Production and Health Newsletter No. 72, July 2020
- Food and Environmental Protection Newsletter Vol. 23, No. 2, July 2020
- Insect Pest Control Newsletter No. 95, July 2020
- Landscape Salinity and Water Management for Improving Agricultural Productivity — IAEA TECDOC

- Optimizing Soil, Water and Nutrient Use Efficiency in Integrated Cropping–Livestock Production Systems — IAEA TECDOC
- Plant Breeding and Genetics Newsletter No. 45, July 2020
- Soils Newsletter Vol. 42, No. 2, January 2020
- Soils Newsletter Vol. 43, No. 1, July 2020
- Strategies and Practices in the Remediation of Radioactive Contamination in Agriculture — IAEA Proceedings Series

Human Health

- Advances in Radiation Oncology (ICARO-2) — IAEA Proceedings Series
- COVID-19 Pandemic: Technical Guidance for Nuclear Medicine Departments — Non-serial Publications
- Nuclear Medicine Resources Manual 2020 Edition — IAEA Human Health Series
- Nutritional & Health Related Environmental Studies Newsletter No. 11, January 2020
- Nutritional & Health Related Environmental Studies Newsletter No. 12, August 2020
- SSDL Newsletter Issue No. 71, April 2020
- SSDL Newsletter Issue No. 72, August 2020

Environment

- Certification of Polycyclic Aromatic Hydrocarbon Mass Fractions in IAEA-477 Sediment Sample — IAEA Analytical Quality in Nuclear Applications Series
- Certification of Trace Element Mass Fractions in Marine Sediment IAEA-475 — IAEA Analytical Quality in Nuclear Applications Series
- Environment Laboratories Newsletter Vol. 7, No. 1, January–July 2020
- Environmental Transfer of Radionuclides in Japan following the Accident at the Fukushima Daiichi Nuclear Power Plant — IAEA TECDOC

Incident and Emergency Preparedness and Response

- Arrangements for Public Communication in Preparedness and Response for a Nuclear or Radiological Emergency — IAEA Safety Standards Series
- Arrangements for the Termination of a Nuclear or Radiological Emergency — IAEA Safety Standards Series (Spanish)
- Guidance for Medical Physicists Responding to a Nuclear or Radiological Emergency — Emergency Preparedness and Response
- International Radiation Monitoring Information System — Emergency Preparedness and Response
- International Radiological Information Exchange (IRIX) Format — Emergency Preparedness and Response
- Medical Management of Radiation Injuries — Safety Reports Series
- Operations Manual for IAEA Assessment and Prognosis during a Nuclear or Radiological Emergency — Emergency Preparedness and Response
- Operations Manual for Incident and Emergency Communication — Emergency Preparedness and Response
- Pocket Guide for Medical Physicists Supporting Response to a Nuclear or Radiological Emergency — Emergency Preparedness and Response
- Preparedness and Response for a Nuclear or Radiological Emergency Combined with Other Incidents or Emergencies — Emergency Preparedness and Response

Safety of Nuclear Installations

- Ageing Management for Nuclear Power Plants: International Generic Ageing Lessons Learned (IGALL) — Safety Reports Series

- Applicability of Design Safety Requirements to Small Modular Reactor Technologies Intended for Near Term Deployment — IAEA TECDOC
- Considerations on Performing Integrated Risk Informed Decision Making — IAEA TECDOC
- Design of Auxiliary Systems and Supporting Systems for Nuclear Power Plants — IAEA Safety Standards Series
- Design of Fuel Handling and Storage Systems for Nuclear Power Plants — IAEA Safety Standards Series
- Design of the Reactor Coolant System and Associated Systems for Nuclear Power Plants — IAEA Safety Standards Series
- Effective Management of Regulatory Experience for Safety — IAEA TECDOC
- Establishing the Safety Infrastructure for a Nuclear Power Programme — IAEA Safety Standards Series
- Experiences in Implementing Safety Improvements at Existing Nuclear Power Plants — IAEA TECDOC
- In-vessel Melt Retention and Ex-vessel Corium Cooling — IAEA TECDOC
- Methodologies for Seismic Safety Evaluation of Existing Nuclear Installations — Safety Reports Series
- Operating Experience from Events Reported to the IAEA/NEA Fuel Incident Notification and Analysis System (FINAS) — IAEA TECDOC
- Periodic Safety Review for Research Reactors — Safety Reports Series
- Probabilistic Safety Assessment for Seismic Events — IAEA TECDOC
- Radiation Safety of Accelerator Based Radioisotope Production Facilities — IAEA Safety Standards Series
- Reliability Data for Research Reactor Probabilistic Safety Assessment — IAEA TECDOC
- Research Reactors: Addressing Challenges and Opportunities to Ensure Effectiveness and Sustainability — IAEA Proceedings Series
- Safety Analysis and Licensing Documentation for Nuclear Fuel Cycle Facilities — Safety Reports Series
- Safety Culture Practices for the Regulatory Body — IAEA TECDOC
- Seismic Isolation Systems for Nuclear Installations — IAEA TECDOC
- Site Evaluation for Nuclear Installations — IAEA Nuclear Security Series (French)
- Technical Review of Acceptance Criteria for Pressurized Heavy Water Reactor Fuel — IAEA TECDOC

Radiation and Transport Safety

- Methodology for a Safety Case of a Dual Purpose Cask for Storage and Transport of Spent Fuel — IAEA TECDOC
- Occupational Radiation Protection Appraisal Service (ORPAS) Guidelines — IAEA Services Series
- Occupational Radiation Protection in the Uranium Mining and Processing Industry — Safety Reports Series
- Postgraduate Educational Course in Radiation Protection and the Safety of Radiation Sources — Training Course Series (Arabic)
- Postgraduate Educational Course in Radiation Protection and the Safety of Radiation Sources — Training Course Series (French)
- Postgraduate Educational Course in Radiation Protection and the Safety of Radiation Sources — Training Course Series (Spanish)
- Radiation Safety in the Use of Nuclear Gauges — IAEA Safety Standards Series
- Radiation Safety in Well Logging — IAEA Safety Standards Series
- Radiation Safety of X Ray Generators and Other Radiation Sources Used for Inspection Purposes and for Non-medical Human Imaging — IAEA Safety Standards Series
- Regulatory Control of the Safety of Ion Radiotherapy Facilities — IAEA TECDOC

Management of Radioactive Waste

- Application of the Graded Approach to Post-closure Safety Assessment for the Disposal of Disused Sealed Radioactive Sources in Boreholes — IAEA TECDOC
- Development of a Common Framework for Addressing Climate and Environmental Change in Post-closure Radiological Assessment of Solid Radioactive Waste Disposal — IAEA TECDOC
- International Peer Review of the Deep Well Injection Practice for Liquid Radioactive Waste in the Russian Federation — Non-serial Publications
- Storage of Spent Nuclear Fuel — IAEA Safety Standards Series

Nuclear Security

- Building Capacity for Nuclear Security — IAEA Nuclear Security Series (French)
- Building Capacity for Nuclear Security — IAEA Nuclear Security Series (Spanish)
- Establishing and Operating a National Nuclear Security Support Centre — Non-serial Publications
- Nuclear Forensics: Beyond the Science — IAEA TECDOC
- Nuclear Security Systems and Measures for the Detection of Nuclear and Other Radioactive Material out of Regulatory Control — IAEA Nuclear Security Series (Spanish)
- Preparation, Conduct and Evaluation of Exercises for Detection of and Response to Acts Involving Nuclear and Other Radioactive Material out of Regulatory Control — IAEA Nuclear Security Series
- Preventive and Protective Measures against Insider Threats — IAEA Nuclear Security Series
- Security of Radioactive Material in Transport — IAEA Nuclear Security Series
- Sustaining a Nuclear Security Regime — IAEA Nuclear Security Series (French)
- The Gate to Africa Exercise Programme: Morocco–Spain Joint Tabletop and Field Exercises on Maritime Security of Radioactive Material in Transport — Non-serial Publications

Executive Management, Policy-Making and Coordination

- The 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage — Explanatory Texts — IAEA International Law Series

Table A31. Technical cooperation training courses held in 2020

Energy

- Virtual Event — Training Course on Innovations in Nuclear Technologies to Combat Climate Change: Emancipating Nuclear in a Fair and Green Society
  Austria
- Virtual Event — Training Course on Policy, Strategy and Regulation of Decommissioning and Environmental Remediation Projects
  Austria
- Virtual Regional Training Course on Assessing Demand-side Contributions to Energy and Climate Strategies
  Austria

Health and Nutrition

- Regional (AFRA) Training Course on Quality Control, Quality Assurance and Dosimetry in Planar Imaging for French-Speaking Countries
  Algeria
- Virtual Event — Regional (AFRA) Training Course for Nuclear Medicine Professionals on New Trends in Nuclear Medicine
  Austria
- Virtual Event — Regional (AFRA) Training Course on Quality Control/Quality Assurance and Dosimetry in Mammography
  Austria
- Virtual Event — Training Course for the Treatment of Cervical Cancer: Clinical, Quality and Safety Aspects
  Austria
- Regional Training Course on Quality Assurance and Dosimetry in Mammography and Digital Breast Tomosynthesis
  Montenegro
- IAEA/RCA Regional Training Course on Diagnosis of Cardiovascular and Pulmonary Disease
  Philippines
- Virtual Event — Regional Training Course: Introduction to Quality Practices in Diagnostic Radiology for Radiology Technologists (Radiographer)
  United States of America

Nuclear Knowledge Development and Management

- E-Learning Course on Diagnostic and Therapeutic Radioisotopes and Radiopharmaceuticals Application
  Austria
- Virtual Event — KOICA-KAERI-WCI-IAEA Joint Training Course on Establishment of Long-Term Management Plan by Strengthening Capacity for Diagnostic and Therapeutic Radioisotopes and Radiopharmaceutical Application
  Austria
- Virtual Event — Regional Training Course on Supporting Women for Nuclear Science Education and Communications: A Continuing Education Program for Female University Science Teachers and Science Communication Professionals
  Austria
- Virtual Event — Training Course on Strategic Planning/Management for young leaders
  Austria
- Virtual Event — Webinar series on Strategic Communications for NNIs
  Austria

- Virtual Training Course on the Economic Feasibility Analysis for Radiation Technology Projects
  Austria
- Regional Virtual Training Course on Train the Trainers on Nuclear Sciences in Secondary Schools
  Austria
- Postgraduate Educational Course on Radiation Protection and Safety of Radiation Sources for English-speaking Countries (PGEC)
  Ghana
- Postgraduate Educational (PGEC) Course (French)
  Morocco

Safety and Security

- Postgraduate Specialisation Training Course on Radiation Protection and Safety of Radiation Sources 2020 — Part I
  Argentina
- Postgraduate Specialisation Training Course on Radiation Protection and Safety of Radiation Sources 2020 — Part II
  Argentina
- Virtual Event — Interregional Training Course on Establishing a National Position for a New Nuclear Power Programme
  Austria
- Virtual Event — Interregional Training Course on Nuclear Power Infrastructure Development
  Austria
- Virtual Event — Interregional Training Course on Nuclear Power Plant Contract Specifications and Reactor Technology Assessment
  Austria
- Virtual Event — Interregional Training Course on Nuclear Power Plant Financing and Risk Allocation
  United States of America
- Virtual Event — Regional (AFRA) Training Course on QMS
  Austria
- Virtual Event — Regional Training Course on Stakeholder Engagement and Communication Plan Development for SIT Projects
  Austria
- Regional Training Course on the Use of Whole Genome Sequencing Platforms in Differentiation of Emerging and Re-emerging Animal and Zoonotic Pathogens in Africa
  Ethiopia

Water and the Environment

- Virtual Regional Training Course on Isotope Hydrology
  Austria
- Virtual Regional Training Course on Isotope Hydrology in Russian Language
  Austria
- Regional Training Course on Marine and Terrestrial Sampling
  Kenya
- Regional Training Course on Advanced Source Apportionment Techniques
  Uruguay

Table A32. Agency corporate social media accounts

Facebook
Arabic
www.facebook.com/IAEAarabic

English
www.facebook.com/iaeaorg

French
www.facebook.com/aieaorg

Russian
www.facebook.com/magateorg

Spanish
www.facebook.com/oieaorg

Instagram
instagram.com/iaeaorg

LinkedIn
www.linkedin.com/company/iaea

Twitter
twitter.com/iaeaorg

Weibo
Chinese
http://weibo.com/iaeaorg

Youtube
www.youtube.com/user/IAEAvideo

Table A33(a). Number and types of facilities under Agency safeguards by State during 2020

State[a]	Power reactors	Research reactors and critical assemblies	Conversion plants	Fuel fabrication plants	Repro-cessing plants	Enrichment plants	Separate storage facilities	Other facilities	Total
Algeria		2	1	1					4
Argentina	4	7	4	3		3	6	7	34
Armenia	2						1		3
Australia		2					1	2	5
Austria		1							1
Bangladesh	1	1							2
Belarus	2	1					2		5
Belgium	6	3		1	1		6	5	22
Brazil	3	6	1	1		5	2	5	23
Bulgaria	3	1					2		6
Canada	6	8	2	5			12		33
Chile		2	1	1					4
China	1	1				1			3
Colombia		1							1
Czech Republic	3	3					4	2	12
Democratic Republic of the Congo		1							1
Denmark		1					2	1	4
Egypt	1	2	1	2				3	9
Estonia		1							1
Finland	5	1					2	1	9
France				1	1	1			3
Georgia		1						1	2
Germany	21	13		1	1	1	23	6	66
Ghana		1							1
Greece		1							1
Hungary	3	2					2		7
India	10			3			2		15
Indonesia		3		2			1	1	7
Iran, Islamic Republic of	4	6	2	2		3	1	3	21
Iraq							1		1
Israel		1							1
Italy	5	6			2		5	1	19
Jamaica		1							1
Japan	64	20	2	8	6	3	7	15	125
Jordan		1							1
Kazakhstan	1	4		2			6		13
Korea, Republic of	32	3		1			3	7	46

Latvia		1						1
Libya		1					1	2
Lithuania	1					2		3
Malaysia		1						1
Mexico	2	1		1		1		5
Morocco		1						1
Netherlands	2	2			1	2	1	8
Nigeria		1						1
Norway		2					1	3
Pakistan	7	2						9
Peru		2						2
Philippines	1	1						2
Poland		2				1		3
Portugal		1				1		2
Romania	4	2	1	1		1		9
Russian Federation						1		1
Serbia		1						1
Slovakia	5					3		8
Slovenia	1	1				1		3
South Africa	2	1	2	2		8	3	18
Spain	8			1		7	1	17
Sweden	12	1		1		2		16
Switzerland	5	3				2	3	13
Syrian Arab Republic		1						1
Tajikistan		1						1
Thailand		3						3
Turkey	3	2		1		2		8
Ukraine	21	2				8	6	37
United Arab Emirates	4							4
United Kingdom					1	2		3
United States of America						1		1
Uzbekistan		1						1
Venezuela, Bolivarian Republic of		1						1
Viet Nam		1						1

[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: 1. The numbers indicated here include projected and operational facilities, and facilities at the decommissioning stage.
2. The Agency was also applying safeguards at 15 facilities in Taiwan, China.

Table A33(b). Facilities under Agency safeguards or containing safeguarded nuclear material during 2020

State[a]	Name of facility	Location
Power reactors		
Argentina	Atucha I Nuclear Power Plant	Lima
	Atucha II Nuclear Power Plant	Lima
	Carem	Lima
	Embalse Nuclear Power Plant	Embalse
Armenia	Armenian NPP	Metsamor
	Armenian NPP 3	Metsamor
Bangladesh	Rooppur NPP	Ishwardi, Pabna District
Belarus, Republic of	Belarus 1	Ostrovets
	Belarus 2	Ostrovets
Belgium	Doel 1 & 2 NPP	Doel
	Doel 3 NPP	Doel
	Doel 4 NPP	Doel
	Tihange 1 NPP	Tihange
	Tihange 2 NPP	Tihange
	Tihange 3 NPP	Tihange
Brazil	Angra 1	Angra dos Reis
	Angra 2	Angra dos Reis
	Angra 3	Angra dos Reis
Bulgaria	NPP Kozloduy 1 & 2	Kozloduy
	NPP Kozloduy 3 & 4	Kozloduy
	NPP Kozloduy 5 & 6	Kozloduy
Canada	Bruce ‘A’ N.G.S.	Tiverton, Ontario
	Bruce ‘B’ N.G.S.	Tiverton, Ontario
	Darlington NGD	Bowmanville, Ontario
	Gentilly II	Gentilly, Quebec
	Pickering N.G.S.	Pickering, Ontario
	Point Lepreau	Pt. Lepreau, New Brunswick
China	HTR-PM	Rongcheng, Shandong Province
Czech Republic	NPP Dukovany (Edu-1)	Dukovany
	NPP Dukovany (Edu-2)	Dukovany
	NPP Temelin	Temelin
Egypt	El Dabaa NPP	El Dabaa
Finland	Hanhikivi-I	Pyhaejoki

State[a]	Name of facility	Location
	Loviisa NPP	Loviisa
	TVO I	Olkiluoto
	TVO II	Olkiluoto
	TVO III	Olkiluoto
Germany	HKG-THTR 300	Hamm
	KKW Brokdorf	Brokdorf
	KKW Brunsbuettel	Brunsbuettel
	KKW Emsland	Lingen (Ems)
	KKW Grafenrheinfeld	Grafenrheinfeld
	KKW Grohnde	Emmerthal
	KKW Gundremmingen, Block B	Gundremmingen
	KKW Gundremmingen, Block C	Gundremmingen
	KKW Isar 1	Essenbach
	KKW Isar 2	Essenbach
	KKW Kruemmel	Geesthacht
	KKW Neckarwestheim 1	Neckarwestheim
	KKW Neckarwestheim 2	Neckarwestheim
	KKW Obrigheim	Obrigheim
	KKW Philippsburg 1	Philippsburg
	KKW Philippsburg 2	Philippsburg
	KKW Unterweser	Unterweser
	KW Biblis A	Biblis
	KW Biblis B	Biblis
	KWL Lingen	Lingen
	KWW Muelheim-Kaerlich	Muelheim-Kaerlich
Hungary	MVM Paks NPP Ltd. I	Paks
	MVM Paks NPP Ltd. II	Paks
	Paks II Nuclear Power Plant	Paks
India	KAPS 1 & 2	Surat, Gujrat
	KAPS 3 & 4	Surat, Gujrat
	KKNPP 1 & 2	Kudankulam, Tamil Nadu
	KKNPP 3 & 4	Kudankulam, Tamil Nadu
	NAPS 1 & 2	Bulandshahar, Uttar Pradesh
	RAPS 1 & 2	Rawatbhata, Rajasthan
	RAPS 3 & 4	Rawatbhata, Rajasthan

State[a]	Name of facility	Location
	RAPS 5 & 6	Rawatbhata, Rajasthan
	RAPS 7 & 8	Rawatbhata, Rajasthan
	TAPS	Tarapur, Maharashtra
Iran, Islamic Republic of	Bushehr NPP	Bushehr
	Bushehr NPP	Bushehr
	Bushehr NPP	Bushehr
	IR360 NPP	Darkhovein
Italy	Area Disattivazione Caorso	Caorso
	Centrale Latina	Borgo Sabotino
	Centrale Nucleare di Trino	Trino Vercellese
	Cirene (On Load)	Borgo Sabotino
	So.G.I.N. CN del Garigliano	Sessa Aurunca (CE)
Japan	Fugen	Tsuruga-Shi, Fukui-Ken
	Fuku-I-1	Futaba-Gun, Fukushima-Ken
	Fuku-I-2	Futaba-Gun, Fukushima-Ken
	Fuku-I-3	Futaba-Gun, Fukushima-Ken
	Fuku-I-4	Futaba-Gun, Fukushima-Ken
	Fuku-I-5	Futaba-Gun, Fukushima-Ken
	Fuku-I-6	Futaba-Gun, Fukushima-Ken
	Fuku-N-1	Futaba-Gun, Fukushima-Ken
	Fuku-N-2	Futaba-Gun, Fukushima-Ken
	Fuku-N-3	Futaba-Gun, Fukushima-Ken
	Fuku-N-4	Futaba-Gun, Fukushima-Ken
	Genkai-1	Higashimatsuura-Gun, Saga-Ken
	Genkai-2	Higashimatsuura-Gun, Saga-Ken
	Genkai-3	Higashimatsuura-Gun, Saga-Ken
	Genkai-4	Higashimatsuura-Gun, Saga-Ken
	Hamaoka-1	Ogasa-Gun, Shizuoka-Ken
	Hamaoka-2	Ogasa-Gun, Shizuoka-Ken
	Hamaoka-3	Ogasa-Gun, Shizuoka-Ken
	Hamaoka-4	Ogasa-Gun, Shizuoka-Ken
	Hamaoka-5	Ogasa-Gun, Shizuoka-Ken
	Higashidoori-1	Shimokita-Gun, Aomori-Ken
	Higashidoori-1	Shimokita-Gun, Aomori-Ken
	Ikata-1	Nishiuwa-Gun, Ehime-Ken

State[a]	Name of facility	Location
	Ikata-2	Nishiuwa-Gun, Ehime-Ken
	Ikata-3	Nishiuwa-Gun, Ehime-Ken
	Joyo	Higashi, Ibaraki-Ken
	Kaminoseki-1	Kumage-Gun, Yamaguchi-Ken
	Kashiwazaki-1	Kashiwazaki-Shi, Niigata-Ken
	Kashiwazaki-2	Kashiwazaki-Shi, Niigata-Ken
	Kashiwazaki-3	Kashiwazaki-Shi, Niigata-Ken
	Kashiwazaki-4	Kashiwazaki-Shi, Niigata-Ken
	Kashiwazaki-5	Kashiwazaki-Shi, Niigata-Ken
	Kashiwazaki-6	Kashiwazaki-Shi, Niigata-Ken
	Kashiwazaki-7	Kashiwazaki-Shi, Niigata-Ken
	Mihama-1	Mikata-Gun, Fukui-Ken
	Mihama-2	Mikata-Gun, Fukui-Ken
	Mihama-3	Mikata-Gun, Fukui-Ken
	Monju	Tsuruga-Shi, Fukui-Ken
	Ohi 1 & 2	Ohi-Gun, Fukui-Ken
	Ohi 3	Ohi-Gun, Fukui-Ken
	Ohi 4	Ohi-Gun, Fukui-Ken
	Ohma	Shimokita-Gun, Aomori-Ken
	Onagawa-1	Oshika-Gun, Miyagi-Ken
	Onagawa-2	Oshika-Gun, Miyagi-Ken
	Onagawa-3	Oshika-Gun, Miyagi-Ken
	Sendai-1	Sendai-Shi, Kagoshima-Ken
	Sendai-2	Sendai-Shi, Kagoshima-Ken
	Sendai-3	Satsumasendai-Shi
	Shika-1	Hakui-Gun, Ishikawa-Ken
	Shika-2	Hakui-Gun, Ishikawa-Ken
	Shimane-1	Yatsuka-Gun, Shimane-Ken
	Shimane-2	Yatsuka-Gun, Shimane-Ken
	Shimane-3	Yatsuka-Gun, Shimane-Ken
	Takahama-1	Ohi-Gun, Fukui-Ken
	Takahama-2	Ohi-Gun, Fukui-Ken
	Takahama-3	Ohi-Gun, Fukui-Ken
	Takahama-4	Ohi-Gun, Fukui-Ken
	Tokai	Tokai-Mura, Ibaraki-Ken

State[a]	Name of facility	Location
	Tokai-2	Tokai-Mura, Ibaraki-Ken
	Tomari-1	Furuu-Gun, Hokkaido
	Tomari-2	Furuu-Gun, Hokkaido
	Tomari-3	Furuu-Gun, Hokkaido
	Tsuruga-1	Tsuruga-Shi, Fukui-Ken
	Tsuruga-2	Tsuruga-Shi, Fukui-Ken
Kazakhstan	BN-350	Aktau
Korea, Republic of	Hanbit-1	Yeonggwang
	Hanbit-2	Yeonggwang
	Hanbit-3	Yeonggwang
	Hanbit-4	Yeonggwang
	Hanbit-5	Yeonggwang
	Hanbit-6	Yeonggwang
	Hanul-1	Ulchin
	Hanul-2	Ulchin
	Hanul-3	Ulchin
	Hanul-4	Ulchin
	Hanul-5	Ulchin
	Hanul-6	Ulchin
	Kori-1	Pusan
	Kori-2	Pusan
	Kori-3	Pusan
	Kori-4	Pusan
	Shin Hanul-1	Ulchin
	Shin Hanul-2	Ulchin
	Shin Hanul-3	Ulchin
	Shin Hanul-4	Ulchin
	Shin Kori-1	Pusan
	Shin Kori-2	Pusan
	Shin Kori-3	Pusan
	Shin Kori-4	Pusan
	Shin Kori-5	Pusan
	Shin Kori-6	Pusan
	Shin Wolsong-1	Kyongju
	Shin Wolsong-2	Kyongju

State[a]	Name of facility	Location
	Wolsong-1	Kyongju
	Wolsong-2	Kyongju
	Wolsong-3	Kyongju
	Wolsong-4	Kyongju
Lithuania	Ignalina NPP	Visaginas
Mexico	Central Laguna Verde Unit I	Muni. Al. Luc. Veracruz
	Central Laguna Verde Unit II	Muni. Al. Luc. Veracruz
Netherlands	Epz. Borssele	Borssele
	N. V. GKN-Dodewaard	Dodewaard
Pakistan	Chasnupp-1	Kundian, District Mianwali
	Chasnupp-2	Kundian, District Mianwali
	Chasnupp-3	Kundian, District Mianwali
	Chasnupp-4	Kundian, District Mianwali
	Kanupp	Karachi
	Kanupp-2	Karachi
	Kanupp-3	Karachi
Philippines	BNPP	Morong, Bataan
Romania	Cernavoda 3	Cernavoda
	Cernavoda 4	Cernavoda
	CNE Cernavoda 1	Cernavoda
	CNE Cernavoda 2	Cernavoda
Slovakia	JAVYS NPP A-1	Jaslovske Bohunice
	JAVYS NPP V-1	Jaslovske Bohunice
	NPP Mochovce Units 1 & 2	Mochovce
	NPP Mochovce Units 3 & 4	Mochovce
	V-2 NPP	Jaslovske Bohunice
Slovenia	Krško (NEK)	Krško
South Africa	Koeberg Unit I	Cape Town
	Koeberg Unit II	Cape Town
Spain	Asco 1	Asco
	Asco 2	Asco
	C.N. Almaraz 1	Almaraz
	C.N. Almaraz 2	Almaraz
	C.N. Cofrentes	Cofrentes
	C.N. de Sta. Maria de Garona	Santa Maria de Garona

State[a]	Name of facility	Location
	CN Trillo-1	Trillo
	CN Vandellos-2	Vandellos
Sweden	Barsebaeck Unit 1	Loeddekoepinge
	Barsebaeck Unit 2	Loeddekoepinge
	Forsmark Unit 1	Oesthammar
	Forsmark Unit 2	Oesthammar
	Forsmark Unit 3	Oesthammar
	Oskarshamn Unit 1	Oskarshamn
	Oskarshamn Unit 2	Oskarshamn
	Oskershamn Unit 3	Oskarshamn
	Ringhals 1	Ringhals
	Ringhals 2	Ringhals
	Ringhals 3	Ringhals
	Ringhals 4	Ringhals
Switzerland	KKB Beznau-I	Beznau Doettingen
	KKB Beznau-II	Beznau Doettingen
	KKG Goesgen	Goesgen Daeniken
	KKL Leibstadt	Leibstadt
	KKM Muehleberg	Muehleberg
Turkey	Akkuyu Unit 1	Büyükeceli
	Akkuyu Unit 2	Büyükeceli
	Akkuyu Unit 3	Büyükeceli
Ukraine	Chernobyl NPP, Unit 1	Chornobyl
	Chernobyl NPP, Unit 2	Chornobyl
	Chernobyl NPP, Unit 3	Chornobyl
	Chernobyl NPP, Unit 5	Chornobyl
	Chernobyl NPP, Unit 6	Chornobyl
	Khmelnitski 1	Netishyn
	Khmelnitski 2	Netishyn
	Khmelnitski 3	Netishyn
	Khmelnitski 4	Netishyn
	Rovno 1 & 2	Varash
	Rovno 3	Varash
	Rovno 4	Varash
	South Ukraine 1	Yuzhnoukrayinsk

State[a]	Name of facility	Location
	South Ukraine 2	Yuzhnoukrayinsk
	South Ukraine 3	Yuzhnoukrayinsk
	Zaporozhe 1	Enerhodar
	Zaporozhe 2	Enerhodar
	Zaporozhe 3	Enerhodar
	Zaporozhe 4	Enerhodar
	Zaporozhe 5	Enerhodar
	Zaporozhe 6	Enerhodar
United Arab Emirates	BNPP-1	Barakah
	BNPP-2	Barakah
	BNPP-3	Barakah
	BNPP-4	Barakah
Research reactors and critical assemblies		
Algeria	Es Salam Reactor	Ain Oussera
	Nur Reactor	Draria-Bp29 Wilaya de Tipaza
Argentina	Argentine Reactor 0 (RA-0)	Cordoba
	Argentine Reactor 1 (RA-1)	Buenos Aires
	Argentine Reactor 3 (RA-3)	Centro Atomico Ezeiza
	Argentine Reactor 4 (RA-4)	Rosario
	Argentine Reactor 6 (RA-6)	Centro Atomico Bariloche
	Argentine Reactor 8 (RA-8)	Pilcaniyeu
	Argentine Reactor 10 (RA-10)	Centro Atomico Ezeiza
Australia	HIFAR	Lucas Heights, New South Wales
	OPAL	Lucas Heights, New South Wales
Austria	TRIGA Mark II Reactor	Vienna
Bangladesh	Atomic Energ. Res. Estab.	Dhaka
Belarus	Sosny	Minsk
Belgium	BR1-CEN	Mol
	BR2-CEN	Mol
	Venus-CEN	Mol
Brazil	Brazilian Multipurpose Reactor	Iperó, São Paolo
	CDTN/IRP-R1 Reactor	Belo Horizonte
	IEN/Argonauta Reactor	Rio de Janeiro
	IPEN/IEA-R1	São Paulo
	IPEN/MB01 Critical Assembly	São Paulo

State[a]	Name of facility	Location
	LABGENE	Iperó
Bulgaria	IRT-2000	Sofia
Canada	Biology, Chemistry, Physics	Chalk River, Ontario
	DIF	Chalk River, Ontario
	Ecole Polytechnique	Montreal, Quebec
	McMaster Nuclear Reactor	Hamilton, Ontario
	NRU Reactor	Chalk River, Ontario
	NRX Reactor	Chalk River, Ontario
	Slowpoke Kingston	Kingston, Ontario
	Slowpoke Saskatchewan	Saskatoon, Saskatchewan
Chile	RECH-1	Santiago
	RECH-2	Santiago
China	HTR-10	Nankou, Beijing
Colombia	Ian-R1 R. Reactor	Bogotá
Czech Republic	LR-0	Řež
	LVR-15	Řež
	VR-1	Prague
Democratic Republic of the Congo	TRIGA II Reactor	Kinshasa
Denmark	Danish Decommissioning-DR3	Roskilde
Egypt	ET RR-1	Inshas
	ET RR-2	Inshas
Estonia	A.L.A.R.A.	Paldiski
Finland	FiR 1	Espoo
Georgia	Decom. IRT-M	Tbilisi
Germany	AKR-2	Dresden
	BER-II	Berlin
	FH-Furtwangen	Furtwangen
	FRM	Garching
	FRM II	Garching
	Helmholtz-Zentrum Geesthacht	Geesthacht
	KFA-FRJ2	Juelich
	Labor-ST	Zittau
	SUR-100 FHU	Ulm
	SUR-100 Hannover	Hannover
	SUR-100 Stuttgart	Stuttgart

State[a]	Name of facility	Location
	SUR100-RWTH	Aachen
	TRIGA Mainz	Mainz
Ghana	GHARR-1 Ghana Research React. 1	Legon-Accra
Greece	GRR-1	Attikis
Hungary	Budapest Research Reactor	Budapest
	Training Reactor	Budapest
Indonesia	ChTkN	Bandung
	PPNY	Yogyakarta
	RSG-GAS	Serpong
Iran, Islamic Republic of	Esfahan MNSR	Esfahan
	FARS Research Reactor FRR	Shiraz
	HWZPR	Esfahan
	KHRR	Arak
	LWCR	Tehran
	Tehran Research Reactor (TRR)	Tehran
Israel	Israel Res. Reactor (IRR1)	Soreq
Italy	AGN-201	Palermo
	CEC-Complexe-Essor	Ispra
	CISAM-RTS-1	San Piero a Grado
	Lena	Pavia
	TAPIRO- Casaccia	Santa Maria di Galeria
	TRIGA RC1 Mark II	Santa Maria di Galeria
Jamaica	CNS	Kingston
Japan	DCA	Oarai-Machi, Ibaraki-Ken
	FCA	Tokai-Mura, Ibaraki-Ken
	HTR	Kawasaki-Shi, Kanagawa-Ken
	HTTR	Higashi, Ibaraki-Ken
	JMTR	Higashi, Ibaraki-Ken
	JMTRC	Higashi-Gun, Ibaraki-Ken
	JRR-2	Tokai-Mura, Ibaraki-Ken
	JRR-3	Tokai-Mura, Ibaraki-Ken
	JRR-4	Tokai-Mura, Ibaraki-Ken
	KINKI	Higashiosaka-Shi, Osaka-Fu
	KUCA	Osaka
	KUR	Sennan-Gun, Osaka

State[a]	Name of facility	Location
	Musashi Reactor	Kawasaki-Shi, Kanagawa-Ken
	NCA	Kawasaki-Shi, Kanagawa-Ken
	NSRR	Tokai-Mura, Ibaraki-Ken
	Rikkyo	Nagasaka, Kanagawa-Ken
	TCA	Tokai-Mura, Ibaraki-Ken
	TODAI	Tokai-Mura, Ibaraki-Ken
	TTR	Kawasaki-Shi, Kanagawa-Ken
	VHTRC	Tokai-Mura, Ibaraki-Ken
Jordan	JRTR	Jordan Univ. Science & Tech.
Kazakhstan	IGR Reactor	Kurchatov
	IVG.1M Reactor	Kurchatov
	RA Reactor	Kurchatov
	WWR-K	Almaty
Korea, Republic of	Gijang Research Reactor	Gijang, Busan Metropol. City
	Hanaro	Taejeon
	Kyung Hee	Suwoon
Latvia	IRT	Salaspils
Libya	IRT-Tajura	Tajura
Malaysia	Puspati	Bangi, Selangor
Mexico	TRIGA Mark III	Ocoyoacac
Morocco	MA-R1	Rabat, Agdal
Netherlands	HFR-Petten	Petten
	IRI HOR	Delft
Nigeria	NIRR-1	Ahmadu Bello University, Zaria
Norway	HBWR	Halden
	JEEP-II	Kjeller
Pakistan	PARR-1	Rawalpindi
	PARR-2	Rawalpindi
Peru	CNIP RP-10 R. Reactor	Lima
	RP-0 R. Reactor	Lima
Philippines	PRR-1	Quezon City, Diliman
Poland	Anna & Agata	Otwock-Świerk
	Maria	Otwock-Świerk
Portugal	IST (CTN) RPI	Sacavem
Romania	IFIN-HH	Magurele

State[a]	Name of facility	Location
	TRIGA Research & MTR	Piteşti-Mioveni
Serbia	RA-RB	Vinča
Slovenia	TRIGA II	Ljubljana
South Africa	Safari-I Research Reactor	Pelindaba
Sweden	Studsvik AB and AB Svafo	Studsvik
Switzerland	AGN 211-P	Basel
	Crocus	Lausanne
	Proteus	Villigen
Syrian Arab Republic	MNSR	Damascus
Tajikistan	Argus Research Reactor	Dushanbe
Thailand	MNSR	Nakhon Ratchasima Province
	ONRC	Ongkharak
	TRR-1	Bangkok
Turkey	Çekmece Nuc. Res. & Tr. Centre	Istanbul
	ITU-TRR- TRIGA Mark II	Istanbul
Ukraine	IR-100 Research Reactor	Sevastopol
	WWR-M Research Reactor	Kyiv
Uzbekistan	WWR-SM Reactor	Ulugbek
Venezuela, Bolivarian Republic of	RV-1 Ivic R. Reactor	Altos de Pipe
Viet Nam	Da Lat Research Reactor	Da Lat, Lam Dong
Conversion plants		
Algeria	Pilot Uranium Conversion Plant	Draria Nuclear Research Center
Argentina	Experimental Dry Conversion	Pilcaniyeu
	UF_6 Conversion Plant	Pilcaniyeu
	UO_2 Conversion Plant	Cordoba
	Uranium Powder Production Fac.	Polo Cientifico, Tecnologico y Inn.
Brazil	USEXA	Iperó, São Paulo
Canada	Blind River	Blind River, Ontario
	Port Hope	Port Hope, Ontario
Chile	Lab. Experiment de Conversion	Santiago
Egypt	Uranium Products Semi-pilot Plant	Inshas
Iran, Islamic Republic of	EUPP	Esfahan
	UCF	Esfahan
Japan	JCO	Tokai-Mura, Ibaraki-Ken

State[a]	Name of facility	Location
	PCDF	Tokai-Mura, Ibaraki-Ken
Romania	National Uranium Company	Feldioara
South Africa	Conversion Plant (U Plant)	Pelindaba
	HEU/LEU Conversion Plant	Pelindaba
Fuel fabrication plants		
Algeria	UDEC	Draria Nuclear Research Center
Argentina	ECRI	Buenos Aires
	FECN	Ezeiza
	R. Reactor Fuel Fab. Plant	Ezeiza
Belgium	FBFC DNU Fab.	Dessel
Brazil	Fuel Fabrication Plant	Resende
Canada	Cameco, Port Hope	Port Hope, Ontario
	Fuel Eng. Met. Che. Op.	Chalk River, Ontario
	Fuel Fabrication Facility	Chalk River, Ontario
	BWXT, Peterborough	Peterborough, Ontario
	BWXT, Toronto	Toronto, Ontario
Chile	United de Metalur, Fisica (UMF)	Santiago, Chile
Egypt	FMPP (Fuel Manuf. Pilot Plant)	Inshas
	R&D-NFL	Inshas
France	Melox de Marcoule	Chusclan
Germany	Advanced Nuclear Fuels	Lingen
India	NFC	Hyderabad
	NFC-NU	Hyderabad
	PFFF	Kota, Rjasthan
Indonesia	IEBE	Serpong
	IPEBRR	Serpong
Iran, Islamic Republic of	FMP	Esfahan
	FPFP	Esfahan
Japan	GNF-J	Yokosuka-Shi, Kanagawa-Ken
	J-MOX	Oaza Obuchi, Rokkasho-Mura
	MNF	Tokai-Mura, Ibaraki-Ken
	NFI Kumatori-1	Sennan-Gun, Osaka
	NFI Tokai-1	Tokai-Mura, Ibaraki-Ken
	NFI Tokai-2	Tokai-Mura, Ibaraki-Ken
	PFPF	Tokai-Mura, Ibaraki-Ken

State[a]	Name of facility	Location
	PPFF	Tokai-Mura, Ibaraki-Ken
Kazakhstan	Fuel Assembly Fabrication Plant	Ust-Kamenogorsk
	UMP	Ust-Kamenogorsk
Korea, Republic of	KNFFP	Taejeon
Mexico	Fuel Fabrication Pilot Plant	Salazar
Romania	SN NFP Subsidiary	Mioveni
South Africa	MTR Fuel Fabrication Plant	Pelindaba
	LEU Fuel Fabrication Plant	Pelindaba
Spain	ENUSA Fab. Juzbado	Juzbado
Sweden	Westinghouse Electric	Vaesteras/Finnslaetten
Turkey	Nuclear Fuel Pilot Plant	Istanbul
Reprocessing plants		
Belgium	RECUMO	Mol
France	AREVA NC-UP2 & UP3	La Hague
Germany	KTE GmbH	Eggenstein-Leopoldshafen
Italy	So. G.I.N. SpA-Impianto EUREX	Saluggia
	So. G.I.N. SpA-Trisaia	Rotondella
Japan	CPF	Tokai-Mura, Ibaraki-Ken
	RETF	Tokai-Mura, Ibaraki-Ken
	RRF	Ibaraki-Ken
	RRP	Kamikita-Gun, Aomori-Ken
	SCF	Tokai-Mura, Ibaraki-Ken
	TRP	Tokai-Mura, Ibaraki-Ken
Enrichment plants		
Argentina	Lasie	Bariloche
	Pilcaniyeu Mock-up Laboratory	Pilcaniyeu
	Uranium Enrichment Pilot Plant	Pilcaniyeu
Brazil	CTMSP/Ladesi-Copesp	São Paulo
	CTMSP/LEI	Iperó
	CTMSP/USIDE	Iperó
	FCN-Enrichment Plant	Resende
	IAEV/AR/LAS	São Jose dos Campos
China	Shaanxi	Han Zhang, Shaanxi Province
France	Georges Besse II	Bollene
Germany	UTA 1 and UTA 2	Gronau

State[a]	Name of facility	Location
Iran, Islamic Republic of	FEP	Natanz
	FFEP	20 km North-East of Qom City
	PFEP	Natanz
Japan	CTF	Kitakami-Gun, Aomori-Ken
	NEP	Tomata-Gun, Okayama-Ken
	REP	Kamikita-Gun, Aomori-Ken
Netherlands	Urenco Nederland	Almelo
United Kingdom	Urenco Capenhurst E22, E23, A3	Capenhurst
Separate storage facilities		
Argentina	Cent. St. Irr. Sp. Fiss. M. (DCMFEI)	Centro Atomico Ezeiza
	Centr. Store Sp. Fiss. Mat. (DCMFE)	Buenos Aires
	DUE	Centro Atomico Ezeiza
	FACIRI	Ezeiza
	Nuclear Material Storage	Buenos Aires
	Storage Bunker	Centro Atomico Ezeiza
Armenia	SSFS	Metsamor
Australia	Bulk Storage Facility	Lucas Heights, Sutherland
Belarus	Belarus NPP FF storage	Ostrovets
	Sosny 2	Minsk
Belgium	Belgoprocess	Dessel
	Belgoprocess Dry Storage	Dessel
	Belgoprocess UF_6	Dessel
	Elbel Doel Dry Storage	Beveren
	Tihange Dry Storage	Tihange
	Tihange Wet Storage	Tihange
Brazil	Angra Dry Storage	Angra dos Reis
	Planned Fuel Storage Facility	Ilha Da Madeira, Itaguai
Bulgaria	DSFSF KNPP 2	Kozloduy
	SFSF Kozloduy 1	Kozloduy
Canada	ACEL Research	Pinawa, Manitoba
	CRL Waste Storage Facility	Chalk River, Ontario
	DP Dry Storage	Tiverton, Ontario
	DWMF	Darlington, Ontario
	FPSF	Chalk River, Ontario
	Gentilly I	Gentilly, Quebec

State[a]	Name of facility	Location
	LTWMF	Port Hope, Ontario
	NMSF	Chalk River, Ontario
	PWMF	Pickering, Ontario
	Spent Fuel Canister Storage	Chalk River, Ontario
	Waste Storage Facility	Chalk River, Ontario
	WUFDSF	Tiverton, Ontario
Czech Republic	ISFS Dukovany	Dukovany
	ISFS Temelin	Temelin
	Radioactive Waste Rep. Richard	Litoměřice
	Vao, HLWS	Řež
Denmark	DD Storage	Roskilde
	DD Waste	Roskilde
Finland	Geological Repository	Olkiluoto
	TVO-KPA-Store	Olkiluoto
Germany	AVR-BL	Juelich
	BZA Ahaus	Ahaus
	Daher Nuclear Technologies GmbH	Hanau
	EWN Zwischenlager Nord GmbH	Lubmin
	HDB	Eggenstein - Leopoldshafen
	Kernmateriallager 87	Rossendorf
	KFK-FR-2	Eggenstein-Leopoldshafen
	PTB-Spaltstofflager	Lubmin
	SZK Kruemmel	Geesthacht
	SZL Biblis	Biblis
	SZL Brokdorf	Brokdorf
	SZL Brunsbuettel	Brunsbuettel
	SZL Emsland	Lingen (Ems)
	SZL Grafenrheinfeld	Grafenrheinfeld
	SZL Grohnde	Emmerthal
	SZL Gundremmingen	Gundremmingen
	SZL Isar	Essenbach
	SZL Neckarwestheim	Neckarwestheim
	SZL Philippsburg	Philippsburg
	SZL Unterweser	Stadland
	TBH (B) 87.2	Rossendorf

State[a]	Name of facility	Location
	TBL-G	Gorleben
	Uranoxid-Lager UAG	Gronau
Hungary	Central Isotope Storage	Budapest
	MVDS	Paks
India	PREFRE	Tarapur
	TAPS AFR	Tarapur
Indonesia	Ria-Nd ISFSF	Serpong
Iran, Islamic Republic of	KWS	Karaj
Iraq	Former Location C	Tuwaitha
Italy	Centro Comune di Ricerca	Ispra
	Dep. Avogadro Elementi Irragg	Torino
	Essor Storage	Ispra
	Lab. Misure Nucleari Perla	Ispra
	Nucleco S.p.A.	Rome
Japan	Fuku-I-CSFS	Futaba-Gun, Fukushima-Ken
	Hamaoka (Storage-UC)	Omaezaki-Shi, Shizuoka-Ken
	JAERI Mutsu	Mutsu-Shi, Aomori-Ken
	KUFFS	Sennan-Gun, Osaka
	NFI Kumatori-2	Sennan-Gun, Osaka
	Ningyo R&D	Tomata-Gun, Okayama-Ken
	RFSC	Mutsu-Shi, Aomori-Ken
Kazakhstan	Baikal-1 DSFS	Kurchatov
	BN-350 Temporary Storage	Aktau
	DU & PU Source Storage	Kurchatov
	IAEA LEU Storage Facility	Ust-Kamenogorsk
	Thorium Storage Facility	Kurchatov
	Ulba Thorium Storage	Ust-Kamenogorsk
Korea, Republic of	NMSF	Kaeri-Taejeon
	Uranium Residue Storage Fac.	Kaeri-Taejeon
	WLDC	Kyongju
Lithuania	SNFS-1	Visaginas
	SNFS-2	Visaginas
Mexico	IFSI	Estado de Veracruz
Netherlands	COVRA	Vlissingen
	HABOG	Vlissingen

State[a]	Name of facility	Location
Poland	ZUOP	Otwock-Świerk
Portugal	IST (CTN) Instalacao Piloto	Sacavem
Romania	CNE Cernavoda IDSFS	Cernavoda
Russian Federation	IUEC Storage Facility	Angarsk
Slovakia	JAVYS Nuclear Store	Jaslovske Bohunice
	JAVYS ISFS	Jaslovske Bohunice
	Bohunice Dry SNF Storage	Jaslovske Bohunice
Slovenia	Spent Fuel Dry Storage	Krško
South Africa	E-Building Storage Facility	Pelindaba
	HEU Storage Vault	Pelindaba
	Koeberg Castor Storage Fac.	Cape Town
	Thabana Pipe Store	Pelindaba
	Vaalputs	Springbok
	Waste Storage Facility	Pelindaba
	Y-Plant Storage Facility	Pelindaba
	Z-Plant Storage Facility	Pelindaba
Spain	Almaraz Dry Storage	Almaraz
	Asco Dry Storage	Asco
	ATC Centralized Storage	Madrid
	Cofrentes Dry Storage	Cofrentes
	Nuclenor, S.A. Storage	Santa Maria de Garona
	Trillo Dry Storage	Trillo
	Zorita Dry Storage	Almonacid de Zorita
Sweden	SFK	Oesthammar
	SKB Clab Store	Oskarshamn
Switzerland	Zwibez Kernkraftwerk Beznau	Doettingen
	Zwilag	Wuerenlingen Aargau
Turkey	Akkuyu Fresh Fuel Storage	Büyükeceli
	Akkuyu Spent Fuel Storage	Büyükeceli
Ukraine	Chernobyl NPP-SFS	Chornobyl
	Chernobyl SNFSF-2	Chornobyl
	Khmelnitski FF Storage	Netishyn
	Rovno FF Storage	Varash
	South Ukraine FF Storage	Yuzhnoukrayinsk
	Ukraine Centralized Dry Store	Chornobyl

State[a]	Name of facility	Location
	Zaporozhe FF Storage	Enerhodar
	Zaporozhe SFS	Enerhodar
United Kingdom	SNM Store 9	Sellafield
	Thorp Product Store	Sellafield
United States of America	KAMS Storage	Savannah River Site
Other facilities		
Argentina	Alpha Laboratory	Buenos Aires
	PPRF	Centro Atomico Ezeiza
	Lapep	Centro Atomico Ezeiza
	Tripple Altura Laboratory (LTA)	Centro Atomico Ezeiza
	Enriched Uranium Recovery Lab (LUE)	Centro Atomico Ezeiza
	Uranium Power Fab. Plant (PFPU)	Buenos Aires
	PPCA	Buenos Aires
Australia	R&D Labs	Lucas Heights, Sutherland
	SYNROC	Lucas Heights, Sutherland
Belgium	Belgoprocess Waste Treatment	Mol
	I.R.E.	Fleurus
	IRMM. Geel	Geel
	SCK•CEN Lab.	Mol
	SCK•CEN Pu Laboratories	Mol
Brazil	Aramar Store	Iperó
	CTMSP/Lambat	Iperó
	IPEN-Nuclear Fuel Centre	São Paulo
	IPEN-Reprocessing Project	São Paulo
	LADICON	São Paulo
Czech Republic	Lab. & Stores, Centr. Anal. Lab.	Řež
	UJP	Prague
Denmark	Danish Decommiss. - Hotcell	Roskilde
Egypt	Hydrometallurgy Unit	Inshas
	Molybdenum Production Unit	Inshas
	NCB	Inshas
Finland	Encapsulation Plant	Olkiluoto
Georgia	Sukhumi Institute	Sukhumi
Germany	Inst. Kernchemie	Mainz

State[a]	Name of facility	Location
	JRC-ITU	Eggenstein-Leopoldshafen
	Betriebsstätten der JEN	Juelich
	Lab. Juelich	Juelich
	PKA Gorleben	Gorleben
	WAK-Heisse Zellen der HVT	Eggenstein-Leopoldshafen
Indonesia	RMI	Serpong
Iran, Islamic Republic of	JHL	Tehran
	LWSCR	Esfahan
	MIX Separation Facility	Tehran
Italy	Impianto Plutonio	Santa Maria di Galeria
Japan	JNC Tokai R&D	Tokai-Mura, Ibaraki-Ken
	FMF	Higashi, Ibaraki-Ken
	IRAF	Higashi-Gun, Ibaraki-Ken
	JAERI Oarai R&D	Higashi, Ibaraki-Ken
	JAERI Tokai	Tokai-Mura, Ibaraki-Ken
	JNC Oarai R&D	Higashi, Ibaraki-Ken
	Kumatori	Sennan-Gun, Osaka
	Mitsui Iwakuni-Ohtake	Kuga-Gun, Yamaguchi-Ken
	Mitsui Osaka	Takai-Shi, Osaka-Fu
	NDC Fuel Hot Lab	Tokai-Mura, Ibaraki-Ken
	NERL	Tokai-Mura, Ibaraki-Ken
	NFD	Higashi, Ibaraki-Ken
	Showa	Kawasaki-Shi, Kanagawa-Ken
	Sumitomo-Chiba	Sodegaura-Shi, Chiba-Ken
	UML	Higashi, Ibaraki-Ken
Korea, Republic of	ACPF	Taejeon
	DFDF	Taejeon
	HFFL	Taejeon
	IMEF	Taejeon
	KAERI R&D Facility	Taejeon
	PIEF	Taejeon
	PRIDE	Kaeri Site, Taejeon
Libya	Tajura Uranium R&D Facility	Tajura
Netherlands	GCO/ECN Lab.	Petten
Norway	Research Laboratories	Kjeller

State[a]	Name of facility	Location
South Africa	Decontam. and Waste Recovery Pl.	Pelindaba
	Hot Cell Complex	Pelindaba
	Nu and Du Metals Plant	Pelindaba
Spain	C.A. El Cabril	El Cabril
Switzerland	AERA	Villigen
	CERN	Meyrin-Geneva
	Hot Labor	Villigen
Ukraine	Chernobyl Conditioning	Chornobyl
	Chernobyl Unit 4 Shelter	Chornobyl
	Izotop Enterprise	Kyiv
	KHFTI	Kharkiv
	KHFTI	Kharkiv
	Sevastopol Subcritical Assembly	Sevastopol

[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: 1. The Agency was also applying safeguards at 15 facilities in Taiwan, China.

2. Additionally under Agency safeguards there were 604 material balance areas outside facilities in 144 States and in Taiwan, China. These include 65 material balance areas established for States with a small quantities protocol based on revised standard text.

3. The list includes projected and operational facilities and facilities at the decommissioning stage.