CHINA ATOMIC ENERGY AUTHORITY STANDARD SYSTEM

（V1.0）

CHINA ATOMIC ENERGY AUTHORITY

Preparation instructions

In order to develop the nuclear energy undertakings, promote the scientific and technological progress of the world nuclear energy and strengthen the communication and cooperation in the nuclear energy between China and other countries, we have prepared *China Atomic Energy Authority Standard System (V 1.0)*.

The framework of *China Atomic Energy Authority Standard System (V 1.0)* is consisted of 8 parts, namely General (A), Reactors (B), Nuclear Fuel Cycle Facilities (C), Disposal Facilities for Radioactive Waste (D), Application of Radioactive Source (E), Transportation of Radioactive Materials (F), Nuclear Security (G) and Nuclear Emergency Preparedness and Response (H). A total of 107 standards are included in the framework.

General (A) include standards regarding quality assurance, radiation protection, nuclear criticality safety, and the three wastes and decommissioning.

Reactors (B) include standards regarding the nuclear power plants and research reactors.

Nuclear Fuel Cycle Facilities (C) include standards regarding uranium mining and metallurgy, uranium conversion, nuclear fuel element fabrication and spent fuel storage.

Disposal Facilities for Radioactive Waste (D) include standards regarding very low active wastes disposal, low-level radioactive wastes disposal, intermediate radioactive wastes disposal and high-level radioactive wastes disposal.

Application of Radioactive Source (E) include standards regarding radiation processing and isotope.

Transportation of Radioactive Materials (F) include standards regarding package of radioactive materials and shipment of radioactive materials.

Nuclear Security (G) include standards regarding general, security of fixed places, transportation security and nuclear security incident response.

Nuclear Emergency Preparedness and Response (EPR)(H)include standards regarding general, EPR for reactors, other nuclear facilities, transport accidents and other emergencies.

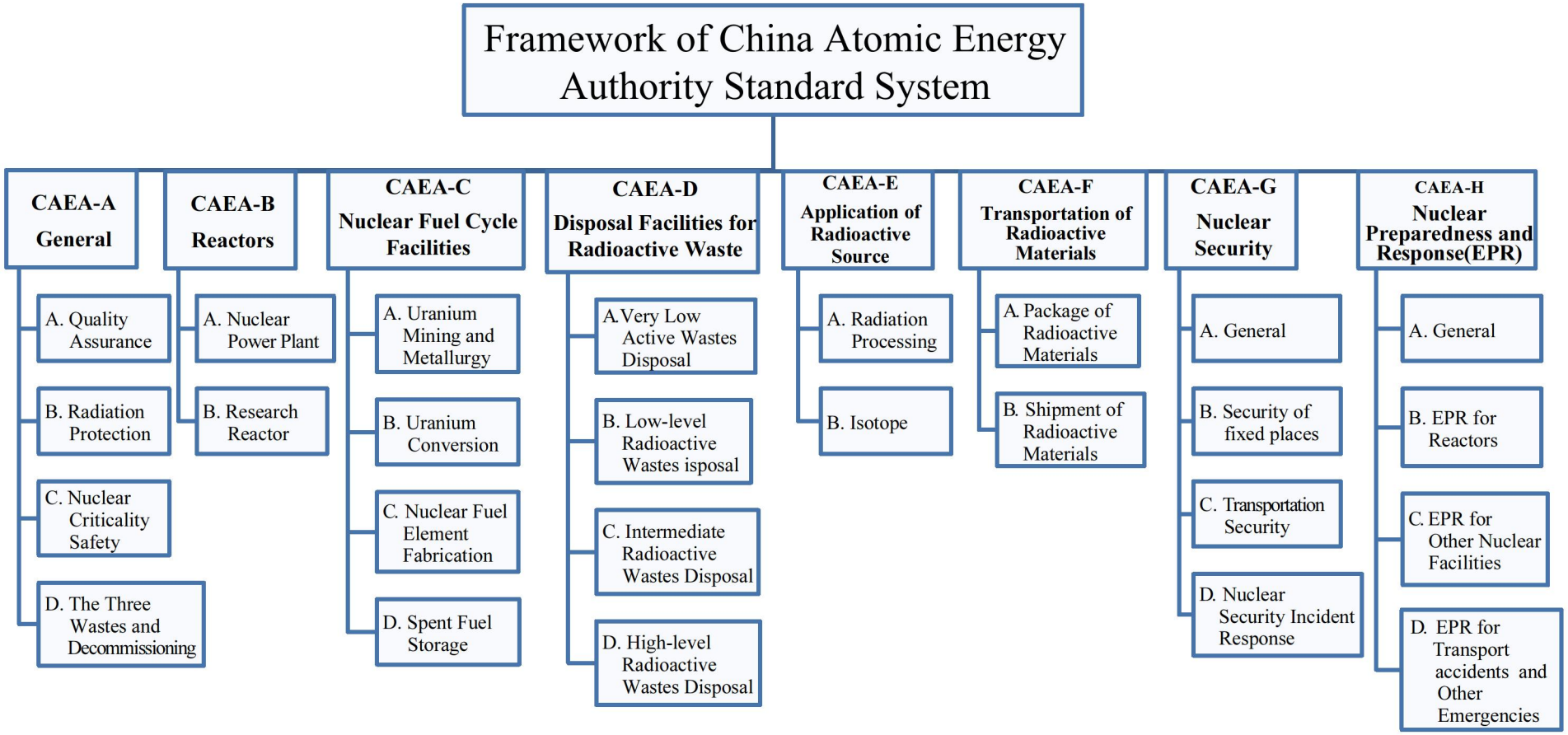

Figure1 Framework of China Atomic Energy Authority Standard System

This standard system numbering consists of 11 characters, where the initial four characters uses the identification of CAEA for China Atomic Energy Authority; the 5th character is the branch code of the first layer that is identified with an alpha code (A through H), followed by the detail code (indexed in alphabetical order) and the sequence code (digits in numerical order at the same layer of detail code). CAEA-AAB001 (see Fig.2), for example, indicates the 1st item of radiation protection (detail code) under the branch of the General.

The last is the sequence code for standard items of this module (use 0 to fill the space if the number is less than three digits).

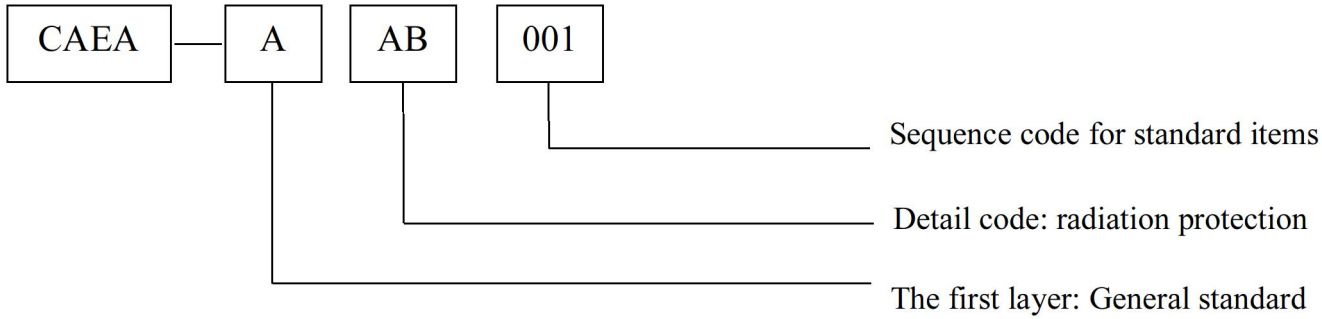

Figure2 The schematic diagram for standard system numbering

Diagrams of Standard System of China Atomic Energy Authority

Serial Number	Number of Standard System	Standard Name
	CAEA-A	General
	CAEA-AA	Quality Assurance
1	CAEA-AA0001	Requirements on Quality Management System for Nuclear Industry
2	CAEA-AA0002	Safety requirement of nuclear fuel cycle facilities
3	CAEA-AA0003	Safety of research and development facilities for nuclear fuel cycle
	CAEA-AB	Radiation Protection
4	CAEA-AB0001	Requirements of radiation protection program for decommissioning operations of nuclear facilities
5	CAEA-AB0002	Technical regulations for environmental protection of uranium heap leaching and in-situ leaching
6	CAEA-AB0003	Regulations on personal radiation protection in uranium mining and metallurgy
7	CAEA-AB0004	Regulations on personal radiation monitoring and management in uranium geology mining and metallurgy
8	CAEA-AB0005	Regulations on personal radiation monitoring and management
9	CAEA-AB0006	General provisions of workplace monitoring for ionizing radiation
10	CAEA-AB0007	Regulations on personal radiation protection and monitoring in uranium mining and metallurgy

Serial Number	Number of Standard System	Standard Name
11	CAEA-AB0008	Regulations for monitoring of occupational exposure for uranium processing and fuel fabrication facilities
12	CAEA-AB0009	Radiation protection monitoring in radioisotope production and processing
13	CAEA-AB0010	Regulations of individual monitoring for X、γ ray external exposure
14	CAEA-AB0011	Regulations of individual monitoring for occupational internal exposure
15	CAEA-AB0012	Monitoring and dose assessment of occupational internal exposure due to intakes of fission and activation products
16	CAEA-AB0013	Monitoring, dose estimation and assessment of plutonium internal exposure of radiation workers
17	CAEA-AB0014	Assessment for internal exposure of uranium workers
18	CAEA-AB0015	Dose estimation and assessment method for internal exposure of tritium
19	CAEA-AB0016	Dose estimation and assessment method for internal exposure of Cs-137
20	CAEA-AB0017	Dose estimation and assessment method for internal exposure of Ce-144
21	CAEA-AB0018	Dose estimation and assessment method for internal exposure of I-131
22	CAEA-AB0019	Exposure scenarios, calculation models and parameters for driving acceptable levels of residual radioactive materials left in soil of a site following decommissioning
	CAEA-AC	Nuclear Criticality Safety
23	CAEA-AC0001	Nuclear criticality safety for fissile materials outside reactors -Part 1: Administrative regulation for nuclear criticality safety

Serial Number	Number of Standard System	Standard Name
24	CAEA-AC0002	Nuclear criticality safety for fissile materials outside reactors -Part 2: Basic technical practices and subcritical limits for handling, processing and operations with fissile materials
25	CAEA-AC0003	Nuclear criticality safety for fissile materials outside reactors -Part3: Requirements for nuclear criticality safety in the storage of fissile material
26	CAEA-AC0004	Nuclear criticality safety for fissile materials outside reactors - Nuclear criticality safety criteria for steel-pipe intersections containing aqueous solutions of fissile material
27	CAEA-AC0005	Nuclear criticality safety for fissile materials outside reactors - Nuclear criticality control criteria and subcritical limits for plutonium-natural uranium mixtures
28	CAEA-AC0006	Nuclear criticality safety for fissile materials outside reactors Part 6- Borosilicate glass Raschig rings and its application criteria
29	CAEA-AC0007	Nuclear criticality safety for fissile materials outside reactors - Safety controls in conducting subcritical neutron multiplication measurements in situ
30	CAEA-AC0008	Nuclear criticality safety for fissile materials outside reactors –Part8: Criticality safety criteria for the handling, storage and transportation of LWR fuel unit outside reactors
31	CAEA-AC0009	Nuclear criticality safety for fissile materials outside reactors - Performance and testing requirements for nuclear criticality detection and alarm systems
32	CAEA-AC0010	Nuclear criticality safety for fissile materials outside reactors safety requirements for the use of fixed neutron absorbers
33	CAEA-AC0011	Nuclear criticality safety for fissile materials outside reactors nuclear criticality safety based on limiting controlling moderators

Serial Number	Number of Standard System	Standard Name
	CAEA-AE	The Three Wastes and Decommission
34	CAEA-AE0001	Method of spent radium source conditioning
35	CAEA-AE0002	Safety analysis report requirements of low- and intermediate-level radioactive solid waste temporary storage
36	CAEA-AE0003	Technical regulations for radioactive waste management of a nuclear fuel reprocessing plant
37	CAEA-AE0004	Technical regulations for predisposal management of high level radioactive waste
	CAEA-B	Safety of Research Reactor
	CAEA-BA	Nuclear Power Plant
38	CAEA-BA0001	Criteria for fuel oil systems desifn for safety-related emergency diesel generators of nuclear power plant
39	CAEA-BA0002	The control of water chemistry for pressurized water reactor nuclear power plant
40	CAEA-BA0003	Rules for operational radiation protection in nuclear power plants
41	CAEA-BA0004	Preparation of fire hazard analyses for nuclear power plants
	CAEA-BB	Research Reactor
42	CAEA-BB0001	The development of technical specifications for research reactors
43	CAEA-BB0002	Management of research reactor ageing
	CAEA-C	Nuclear Fuel Cycle Facilities

Serial Number	Number of Standard System	Standard Name
	CAEA-CA	Uranium Mining and Metallurgy
44	CAEA-CA0001	Safety regulations for uranium exploration
45	CAEA-CA0002	Safety design regulation for uranium tailings pond at a hydrometallurgy plant
46	CAEA-CA0003	Safety technical criteria for uranium tailings pond
	CAEA-CB	Uranium Conversion
47	CAEA-CB0001	Code for fire protection design of uranium conversion facility
	CAEA-CC	Nuclear Fuel Fabrication
48	CAEA-CC0001	Design criteria for uranium fuel element factory
49	CAEA-CC0002	Safety requirements of uranium fuel fabrication facilities
	CAEA-CD	Spent Fuel Storage
50	CAEA-CD0001	Design criteria for safety of away-from-reactor spent fuel storage pool
51	CAEA-CD0002	Design criteria for pressurized water spent fuel storage facilities at nuclear power plant
	CAEA-D	Disposal Facilities for Radioactive Waste
	CAEA-DA	Very Low Active Wastes Disposal
	CAEA-DB	Low-level Radioactive Wastes Disposal

Serial Number	Number of Standard System	Standard Name
52	CAEA-DB0001	Regulations for design of near surface disposal facilities of low and intermediate level radioactive wastes----disposal except in rock caverns
53	CAEA-DB0002	Regulations for design of near surface disposal facilities of low and intermediate level radioactive wastes----disposal in rock caverns
	CAEA-DC	Intermediate Radioactive Wastes Disposal
	CAEA-DD	High-level Radioactive Wastes Disposal
	CAEA-E	Application of Radioactive Source
	CAEA-EA	Radiation Processing
54	CAEA-EA0001	Specifications on the design of radiation protection of particle accelerator engineering facilities
55	CAEA-EA0002	Standard format and content of safety analysis report of particle accelerator facilities
	CAEA-EB	Isotope
	CAEA-F	Transportation of Radioactive Materials
	CAEA-FA	Package of Radioactive Materials
	CAEA-FB	Shipment of Radioactive Materials
56	CAEA-FB0001	Regulations on the safe transportation of uranium ores and uranium compounds
57	CAEA-FB0002	Standard format and content of safety analysis report of radioactive material transportation

Serial Number	Number of Standard System	Standard Name
58	CAEA-FB0003	Radiation protection programmes for the transport of radioactive material
59	CAEA-FB0004	Management system for safe transportation of radioactive material
	CAEA-G	Nuclear Security
	CAEA-GA	General
60	CAEA-GA0001	Nuclear Security Terminology
61	CAEA-GA0002	Universal Graphical Symbols for Nuclear Security
62	CAEA-GA0003	Standards on the Training and Assessment of Nuclear Security Personnel
	CAEA-GB	Security of fixed places
63	CAEA-GB0001	Technical requirements of integrated management system for physical protection of nuclear material and nuclear facility
64	CAEA-GB0002	Technical requirements of video monitoring system for physical protection of nuclear material and nuclear facilities
65	CAEA-GB0003	Technical requirements of wire intercom communication system for physical protection of nuclear material and nuclear facilities
66	CAEA-GB0004	Technical requirements for control alarm station of physical protection for nuclear facilities
67	CAEA-GB0005	Physical protection requirements on nuclear security of nuclear material and nuclear facilities

Serial Number	Number of Standard System	Standard Name
68	CAEA-GB0006	Technical requirements of access control system for physical protection of nuclear material and nuclear facilities-Part 1: General
69	CAEA-GB0007	Technical requirements of access control system for physical protection of nuclear material and nuclear facilities-Part 2: Access controller
70	CAEA-GB0008	Technical requirements of access control system for physical protection of nuclear material and nuclear facilities-Part 3: Turnstile
71	CAEA-GB0009	Technical requirements of access control system for physical protection of nuclear material and nuclear facilities-Part 4: Vehicle assess control mechanism-Electric vehicle gate
72	CAEA-GB0010	Technical requirements of access control system for physical protection of nuclear material and nuclear facilities-Part 5: Vehicle assess control mechanism-Anti-crash vehicle barriers
73	CAEA-GB0011	Technical requirements for access control system for physical protection of nuclear materials and facilities - Part 6: Digital radiography vehicle inspection system
74	CAEA-GB0012	Technical requirements of intrusion detection alarm system for physical protection of nuclear material and nuclear facilities-Part 1: General
75	CAEA-GB0013	Technical requirements of intrusion alarm system for physical protection of nuclear material and nuclear facilities-Part 2: bistatic microwave intrusion detector
76	CAEA-GB0014	Design Specifications of Intrusion Alarm System for Physical Protection of Nuclear Facilities
77	CAEA-GB0015	Design Specifications of Access Control System for Physical Protection of Nuclear Facilities
78	CAEA-GB0016	Design Specifications of Video Monitoring System for Physical Protection of Nuclear Facilities

Serial Number	Number of Standard System	Standard Name
79	CAEA-GB0017	Specifications on the Engineering Supervision of Physical Protection System of Nuclear Facilities
80	CAEA-GB0018	Specifications on the Operation and Maintenance of Physical Protection System of Nuclear Facilities
81	CAEA-GB0019	General Technical Requirements on Power Supply System for Physical Protection of Nuclear Facilities
82	CAEA-GB0020	General Technical Rules on Water Safety of Nuclear Facilities
83	CAEA-GB0021	Technical Specifications on Maritime Security System of Floating Nuclear Reactors
84	CAEA-GB0022	Specifications on the Design and Construction of Maritime Security System of Nuclear Power Plants
85	CAEA-GB0023	Standards on the Testing of Nuclear Security Systems and Devices for Waters
86	CAEA-GB0024	Standards on the Testing of Defense System for Nuclear Facilities against Low, Slow Small Unmanned Aerial Vehicles
87	CAEA-GB0025	Technical Standards on the Testing of Execution Equipment of Access Control System for Nuclear Facilities
88	CAEA-GB0026	Technical Standards on the Testing of the Microwave Interruption Detection Devices of the Perimeter Intrusion Detection System of Nuclear Facilities
89	CAEA-GB0027	Technical specification on the Acceptance Evaluation of the Physical Protection System of Nuclear Facilities
90	CAEA-GB0028	Technical Requirements on the Effectiveness Evaluation of the Physical Protection System of Nuclear Facilities
	CAEA-GC	Transportation Security
	CAEA-GD	Nuclear Security incident Response

Serial Number	Number of Standard System	Standard Name
91	CAEA-GD0001	Development of contingency response plan for physical protection of nuclear material and nuclear facility
	CAEA-H	Nuclear Emergency Preparedness and Response (EPR)
	CAEA-HA	General
92	CAEA-HA0001	Terminology of Nuclear Emergency
93	CAEA-HA0002	General Graphic Symbols in Nuclear Emergency Preparedness and Response
94	CAEA-HA0003	Training syllabus and examination standards for nuclear emergency preparedness and response personnel
95	CAEA-HA0004	Regulations of installations and equipment for emergency medical treatment in the event of a nuclear or radiological accident
	CAEA-HB	Nuclear Emergency Preparedness and Response for Reactors
96	CAEA-HB0001	Criteria for emergency planning and preparedness for nuclear power plants Part 1:The dividing of emergency planning zone
97	CAEA-HB0002	Criteria for emergency planning and preparedness for nuclear power plants Part 2: The off-site emergency functions and organization
98	CAEA-HB0003	Criteria for emergency planning and preparedness for nuclear power plants Part 3:Functional and physical characteristics of off-site emergency facilities
99	CAEA-HB0004	Criteria for emergency planning and preparedness for nuclear power plants Part 4:The off-site emergency planning and implementing procedures

Serial Number	Number of Standard System	Standard Name
100	CAEA-HB0005	Criteria for emergency planning and preparedness for nuclear power plants Part 5:Maintenance of off-site emergency response capacity
101	CAEA-HB0006	Criteria for emergency planning and preparedness for nuclear power plants Part 6:On-site emergency response functions and organizations
102	CAEA-HB0007	Criteria for emergency planning and preparedness for nuclear power plants Part 7:Function and physical characteristics of on-site emergency facilities
103	CAEA-HB0008	Criteria for emergency planning and preparedness for nuclear power plants Part 8:On-site emergency planning and implementing procedures
104	CAEA-HB0009	Criteria for emergency planning and preparedness for nuclear power plants Part 9:Maintenance of on-site emergency response capacity
105	CAEA-HB0010	Criteria for emergency planning and preparedness for nuclear power plants Part 10:Criteria for emergency radiological field monitoring, sampling and analysis conducted by nuclear power plant operating organizations
106	CAEA-HB0011	Criteria for emergency planning and preparedness for nuclear power plants Part 11:Criteria for the conduct of offsite radiological assessment for emergency response
107	CAEA-HB0012	Criteria for emergency planning and preparedness for nuclear power plants Part 12:Planning,development,conduct and evaluation of nuclear emergency drills and exercises
	CAEA-HC	Emergency Preparedness and Response for Other Nuclear Facilities
	CAEA-HD	Nuclear Emergency Preparedness and Response for Transport Accidents and Other Emergencies