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◎ General Descriptions ◎

In 2010, nuclear facilities in service were maintained in safe operation and the quality of nuclear facilities under construction was effectively controlled. There were no safety-related events or accidents of level 2 or above occurred in any operational NPPs, research reactors, nuclear fuel cycle facilities, radioactive waste storage, treatment and disposal facilities, or radioactive material transportation activities. Minor events and nonconformance of nuclear facilities in operation and under construction were timely handled.

In 2010, the nuclear facilities and nuclear technology application activities in China were constantly increasing, and the radiation in environment was generally maintained in a good state. The ionizing radiation level in environment was kept as same as previous years'. There was no significant change of the radiation levels of the environment adjacent to nuclear facilities and nuclear technology application activities. The general condition of environmental electromagnetic level was in good state and there was no significant change of the electromagnetic radiation levels adjacent to the electromagnetic radiation facilities.

NNSA coordinated and guided the nuclear and radioactive emergency rescue work on the debris flow disaster in Zhouqu County of Gansu Province and on the earthquake in Yushu of Qinghai Province. The supervision and inspections, technical supports and contingency preparedness for nuclear safety & radiation protection and nuclear security in Shanghai World Expo, Guangzhou Asian Games and other significant activities were accomplished.

The 'Five-Year Plan for System of Regulations on Nuclear and Radiation Safety' was issued. The project management of nuclear and radiation safety regulation was further standardized; the performance appraisal system of national radiation environmental monitoring project was initially established; the implementation plans for the performance appraisal system were compiled, and the performance appraisal in some provinces and external supporting organizations was carried out accordingly.

Planning

To meet the needs of the rapid development of nuclear energy and nuclear technology application, based on the scientific analysis of the current situation of national nuclear and radiation safety regulation capacity and its developing trends, the NNSA began to draw up the '12th Five-Year Plan for Nuclear Safety and the Prevention and Control of Radioactive Pollution' and the '12th Five-Year Plan for the Capacity Building on Nuclear and Radiation Safety Regulation', and brought forward the principles, objectives, key issues and relevant supporting measures of the nuclear safety work during the 12th Five-Year period in China. The public health and environmental safety were secured, and the public confidence in nuclear safety was enhanced.

Capacity Building

The project of technical support system for nuclear safety regulation of the 11th Five-Year Plan for the Environmental Regulation Capacity Building was in good progression. The Nuclear and Radiation Safety Center (NSC)

was equipped with necessary software for safety analysis, simulator for verification and validation as well as the supporting databases.

The construction of R&D Base for National Nuclear and Radiation Safety Regulation was planned during the 12th Five-Year period. The leading group and the executive office of construction of the R&D base for nuclear and radiation safety regulation technology was set up, which took the responsibility of the preparatory work for the construction of the R&D base. By the end of 2010, the preliminary preparation for the R&D base went smoothly and the draft of the overall design was completed.

‘The 2010 Implementation Plan for the Nuclear and Radiation Safety Inspection and Enforcement Capacity Building’ was accomplished; the Nuclear and Radiation Safety Center and all regional nuclear and radiation safety regional offices were equipped with portable radiation environment monitoring devices as well as equipment for inspection and enforcement.

Organization Development

In 2010, the human resources of nuclear and radiation safety regulation got strengthened. The Reply to the Issues on Increasing the Nuclear Safety Regulation Staffing of the Ministry of Environmental Protection (SCOPSR [2010]40) was issued by the State Commission Office for Public Sector Reform, which approved that the staffing size of nuclear and radiation safety inspection stations increased by 231 and that of the Nuclear and Radiation Safety Center (‘NSC’ hereinafter) increased by 438, and the NSC also served as the Technical Center for Nuclear Safety Equipment Regulation of the Ministry of Environmental Protection.

By the end of 2010, the staff number of the nuclear and radiation safety regional offices reached 173 and that of NSC reached 239.

Nuclear Safety Regulation

In accordance with the laws and regulations, NNSA implemented strict and effective supervision over the nuclear installations nationwide, and all nuclear installations maintained safe status.

With the principles of active yet prudent, orderly and balanced development, NNSA performed strict review on different types of reactor units. The Construction Permits (CP) to 10 PWR units were issued in 2010 and the construction quality of nuclear power plants was under effective control. The evaluation system of operational safety indicators was established, and the review on the important safety modifications and operational experience feedback of NPPs in operation was strengthened.

The periodic safety review on research reactors were carried out according to the plan. The Operational Permits of 4 research reactors were issued. Surveillances and inspections on the commissioning of research reactors were strictly carried out. The experimental fast reactor in China reached initial criticality.

Radiation Safety Regulation

In 2010, the online national radiation safety regulation system for nuclear technology application was put into operation, which realized the management of radiation safety licenses, import, export, transport and transfer of the radioisotopes through information system. Special rectification plan to prevent the source blockage of γ irradiator was carried out. The construction of city radioactive waste repositories in different provinces, autonomous regions and municipal cities was accelerated. By the end

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of 2010, the construction of repositories of 29 provinces, autonomous regions and municipal cities had been completed.

International Cooperation

In April of 2010, Chinese President Hu Jintao attended the first Nuclear Security Summit in Washington and put forward five points of proposition on enhancing nuclear safety.

NNSA continued to consolidate and expand the international cooperation on nuclear safety at bilateral, multilateral and regional levels and actively participated in relevant international activities.

In July of 2010, the International Atomic Energy Agency (IAEA) carried out comprehensive and systematic review on the nuclear and radiation safety regulation system in China.



◎ Compilation and Revision of Regulations and Standards ◎

For the purpose to further standardize and strengthen the compilation and revision of nuclear and radiation safety regulations, NNSA issued ‘Five-Year Plan for System of Regulations on Nuclear and Radiation Safety’. The ‘Regulations on Safe Transport of Radioactive Material’ has been put into effect since Jan. 1, 2010; ‘Regulations on Radioactive Waste Safety’ has been put in the first class legislative plan by State Council Legislative Affairs Office. In 2010, the ‘Committee on the Review of Regulations and Standards on Nuclear and Radiation Safety’ held four review meetings, and 25 drafts of nuclear and radiation safety regulations, standards, safety guides and technical documents were reviewed.



Fig.1 Regulations and Standards Review Meeting



Fig.2 Nuclear and Radiation Regulations issued in 2010 (part of all)

Regulations of nuclear safety issued in 2010 are as below:

Title	Category
Licensing Management on Safe Transport of Radioactive Material	Department Rule
Classification and Directory of Radioactive Material (Provisional)	Regulatory Positions
Technical Requirements for Specific Rectification of Irradiator Source Blockage (Provisional)	Regulatory Positions
Catalogue of Key Position in Nuclear Safety Field (the First Catalogue)	Regulatory Positions
Emergency Preparedness and Response to Operating Organization of Nuclear Fuel Cycle Facility	Safety Guide
Emergency Preparedness and Response to Operating Organization of Nuclear Power Plant	Safety Guide
Maintenance, Periodic Testing and Inspection of Research Reactors	Safety Guide
Commissioning of Research Reactors	Safety Guide

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Title	Category
Standard Formats and Contents of Safety Assessment Report on Design of Transport Container of Radioactive Material	Safety Guide
Safe Close of Research Reactor	Safety Technical Document
Glossary of Nuclear Safeguards	Safety Technical Document

By the end of 2010, the number of regulations and standards being revised and compiled reached 84.

◎ Safety Regulation on NPPs ◎

1. Nuclear Power Plants in Operation

In 2010, there was no radioactive event endangering the safety of the public or the environment happened in operational nuclear power plants. The monitoring indicators over the year showed that the integrity of all three safety barriers was in sound status.

The Operating Data of the Operational Nuclear Power Plants in 2010

NPP Name	Generation Output in 2010(TWh)	Unit	IAEA Unit No.	Nominal power (MW)	Generation Output of Unit (TWh)	Load Factor (%)	Capability Factor (%)
Qinshan	2.324	1	CN01	310	2.324	83.99	83.35
Qinshan Phase II	10.371	1	CN04	650	5.321	93.45	91.70
		2	CN05	650	5.051	88.71	86.64
	—	3	CN14	650	—	—	—
Qinshan Phase III	11.412	1	CN08	700	5.636	91.92	89.73
		2	CN09	700	5.776	94.19	92.07
Daya Bay	15.704	1	CN02	984	7.663	88.90	89.08
		2	CN03	984	8.041	93.29	92.80
LingAo	15.910	1	CN06	990	8.059	92.93	93.71
		2	CN07	990	7.850	90.52	91.12
	—	3	CN12	1080	—	—	—
Tianwan	15.702	1	CN10	1060	8.071	92.13	87.02
		2	CN11	1060	7.631	87.11	82.28

1) Qinshan NPP

The unit of Qinshan NPP was connected to the grid after the twelfth refueling overhaul R12.

Regulatory Review and Approval

Document No.	Approval Date	Title
NNSA [2010]13	Feb. 08,2010	Reply on approving the operation quality assurance program of Qinshan Nuclear Power Corporation
NNSA [2010]19	Feb. 11,2010	Notification of approving the modification application of low-voltage switches cabinet in No.02 Building of Qinshan NPP
NNSA [2010]47	Apr. 12,2010	Notification of approving the modification application of part of instrument root valves in main steam system of Qinshan NPP

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Document No.	Approval Date	Title
NNSA [2010]48	Apr. 12,2010	Notification of approving the modification application of input thermometer T0801 in heat-exchangersof Residual Heat Removal System of Qinshan NPP
NNSA Notice [2010]53	Apr. 27,2010	Notification of modification application of optimizing some logic functions of the reactor protection system of Qinshan NPP 310MWe unit
NNSA [2010]68	Apr. 28,2010	Notification of approving the modification application of control cabinets of spent fuel pool and spent fuel purification system cooling pump of Qinshan NPP
NNSA Notice [2010]67	Apr. 28,2010	Notification of approving the modification application of shutdown circuit breaker of Qinshan NPP
NNSA [2010]73	May 31,2010	Notification of approving the delay of some important safety modifications in Qinshan NPP
NNSA [2010]121	Oct. 22,2010	Notification of modifying the operating licenses units of Qinshan NPP

Inspection

Date	Title	Main Content
Jul. 21—22, 2010	The routine nuclear safety inspection before criticality after twelfth refueling overhaul of Qinshan NPP	Refueling overhaul status Fulfillment status of the reactor first criticality starting conditions after refueling overhau
Aug. 23,2010	The first criticality of the reactor after the twelfth refueling overhaul	Supervision of the projects to be implemented in Qinshan NPP. Safety-related periodic tests and performance test completed before the first criticality in Qinshan NPP
Oct. 26—27, 2010	The non-routine nuclear safety inspection on the Qinshan NPP	The operating events during twelfth refueling overhaul; The experiences feedback status of operating events in Qinshan NPP
December 10,2010	The inspection on the comprehensive emergency exercise of Qinshan NPP in 2010	The integrity of exercise procedures; The implementation status of the emergency exercise ; The improved status of the emergency facilities

Operational Events

Date	Title	Cause	INS Level
Jul. 18,2010	2P59 Circuit breaker trip incident led to loss of all off-site power	Human error	0

Date	Title	Cause	INS Level
Aug.23,2010	The safety injection system was falsely triggered during the comparison and correction of the main system TC/RTD (at 180°C level)	Human error	0
Aug.30,2010	Interlock halt and shutdown by 95% ground protecting action	Equipment failure	0

Safety Barriers Integrity

In 2010, three safety barriers of Qinshan NPP were kept intact. The fuel assembly damage rate, the leakage rate of the primary loop coolant, and the leakage rate of the containment were all within the stated limits.

Radioprotection Dose

Annual Effective Dose Per Person(mSv)	Maximum Annual Individual Dose(mSv)	Annual Collective Dose(man·Sv)	Normalized Collective Dose(man·mSv/Gwh)
0.305	4.814	0.4	0.1724

2) Qinshan Phase II NPP

In Qinshan Phase II NPP, the seventh refueling overhaul of unit 1 and the sixth refueling overhaul of unit 2 were completed.

Regulatory Review and Approval

Document No.	Approval Date	Title
NNSA[2010]6	Jan. 21,2010	Notification of releasing the reactor first criticality control point after the seventh refueling overhaul of unit 1 of Qinshan Phase II NPP
NNSA[2010]63	May 27,2010	Notification of approval the modification of the rubber support pad replacement of the relay frame
NNSA[2010]70	Jun. 03,2010	Notification of approval of increasing siphon tube and valve to chemical reagents of containment spray system in Unit 2 of Qinshan Phase II NPP
NNSA[2010]71	Jun. 03,2010	Notification of approval of the ratification for single channel alarm high 1 signal to increase the containment pressure of the Qinshan Phase II NPP
NNSA [2010]94	Jun. 21,2010	Notification of releasing the reactor first criticality control point after the sixth refueling overhaul of unit 2 of Qinshan Phase II NPP
NNSA [2010]143	Sep. 28,2010	Notification of issuing the operating licenses to unit1and unit2 of Qinshan phase II NPP

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Document No.	Approval Date	Title
NNSA [2010]182	Dec. 29,2010	Notification of approving the replacement program of outlet nozzle on SIWT(Safety Injection Water Tank) of Qinshan II NPP
NNSA [2010]185	Dec. 31,2010	Notification of approving the follow-up solution of weld defects of backplate bracing in main steam piping of unit 1 of Qinshan II Phase NPP

Inspection

Date	Item	Main content
Jun. 16,2010	The first criticality routine nuclear safety inspection after the 107 refueling overhaul	The fulfillment status of the reactor criticality startup conditions after the refueling overhaul



Fig.3 MEP Vice Minister Mr. Li Ganjie visited Qinshan Phase II NPP and instructed the safe operation

Operational event

Date	Unit	Item	Cause	Level
Jan. 13,2010	2	Shutdown event caused by false signal P4	Equipment failure	0

Safety Barriers Integrity

In 2010, three safety barriers of Qinshan phase II NPP were kept intact. The fuel assembly damage rate, the leakage rate of the primary loop coolant, and the leakage rate of the containment were all within the stated limits.

Radioprotection Dose

Annual Effective Dose per Person(mSv)	Maximum Annual Individual Dose(mSv)	Annual Collective Dose(man·Sv)	Normalized Collective Dose(man·mSv/Gwh)
0. 218	4. 941	0. 459	0. 042

3) Qinshan Phase III NPP

Regulatory Review and Approval

Document No.	Approval Date	Title
NNSA [2010]9	Feb. 08,2010	Notification of approving modification of isolating magnifying instrument of shutdown system signal in Qinshan Phase III NPP
NNSA Notice [2010]12	Feb. 08,2010	Notification of approving <refueling program (version IV) of Qinshan Phase III NPP>
NNSA Notice [2010]14	Feb. 09,2010	Notification of approving the increase of entrance and exit in controlled area of Qinshan Phase III NPP
NNSA Notice [2010]70	Apr. 27,2010	Notification of approving modification of high count rate tripping setting values about related actuator instruments in the technical specifications of Qinshan Phase III NPP
NNSA Notice [2010]203	Dec. 27,2010	Notification of approving the maintenance program and policy of Qinshan Phase III NPP
NNSA Notice [2010]223	Dec. 31,2010	Notification of approving the operation quality assurance program of Qinshan Phase III NPP. (version 2B)
NNSA [2010]186	Dec. 31,2010	Notification of approving the target value of gaseous radioactive effluents C-14 emissions management

Inspection

Date	Item	Main content
Jan. 10-11,2010	The nuclear safety inspection before first criticality nuclear safety inspection after the fourth refueling overhaul of unit2 of Qinshan Phase III NPP	The overhaul maintance and conditions fulfillment of the reactor criticality after the refueling overhaul and the processing status of refueling overhaul
May 31,-Jun. 01,2010	The nuclear safety inspection before first criticality after the fifth refueling overhaul of unit 1 of Qinshan Phase III NPP	The overhaul maintance and conditions fulfillment of the reactor criticality after the refueling overhaul
Jul. 15,2010	The on-site inspection on temporary spent fuel dry storage facility of Qinshan Phase III NPP	The on-site operating status of facility

Operational Event

Date	Unit	Item	Cause	level
Feb. 18,2010	2	Manually shutdown by reducing the power of unit 2 because of high pressure gas injection isolation valve failure	Equipment failure	1
May 17,2010	1	The automatic trip of the unit 1 shutdown system at the status of the ensured shutdown of unit 1	Equipment failure	0

Safety Barriers Integrity

In 2010, three safety barriers of Qinshan NPP were kept intact. The fuel assembly damage rate, the leakage rate of the primary loop coolant, the leakage rate and the internal pressure of the containment were all in stated limits.

Radioprotection Dose

Annual Effective Dose per Person(mSv)	Maximum Annual Individual Dose(mSv)	Annual Collective Dose(man·Sv)	Normalized Collective Dose (man·mSv/Gwh)
0.329	5.431	0.727	0.064

4) Daya Bay NPP and LingAo NPP

In 2010, the fourteenth refueling overhaul of unit 1 and unit 2 was carried out in Daya Bay NPP. The eighth refueling overhaul of unit 1 and unit 2 were carried out in LingAo NPP.

Regulatory Review and Approval

Document No.	Approval Date	Title
NNSA[2010]3	Jan. 15,2010	Notification of approving the application for modifying the operating technical specifications of LingAo NPP
NNSA[2010]29	Mar. 01,2010	Notification of approving of releasing the criticality control point after the eighth refueling overhaul of unit 1 of LingAo NPP
NNSA [2010]39	Mar. 19,2010	Notification of approving the renew of operating license of unit 1 and unit 2 of Daya Bay NPP and the operating license of unit 1 and unit 2 of LingAo NPP
NNSA[2010]46	Apr. 09,2010	Notification of approving the license application of dynamic engraved rod demonstration test after physical tests within zero power in D214 refueling overhaul of the Daya Bay NPP

Document No.	Approval Date	Title
NNSA[2010]54	Apr. 30,2010	Notification of approving implementation of no secondary neutron source fuel loading and startup of the fourteenth refueling overhaul in unit 2 of Daya Bay NPP
NNSA[2010]55	Apr. 30,2010	Notification of approving implementation with one loop delay of eddy current inspection on heat transfer tubes of SG 1 in unit 2 of Daya Bay NPP
NNSA[2010]59	May 12,2010	Notification of approving of releasing the criticality control point after the fourteenth refueling overhaul of unit 2 of Daya Bay NPP
NNSA[2010]82	Jun. 10,2010	Notification of approving the application for modifying the isolation valve seals from recycle pipings of EAS and RIS to refueling water storage tank
NNSA[2010]106	Jul. 29,2010	Notification of approving the <surveillance requirements of periodic tests of safe-related systems and equipments> (version C0)
NNSA[2010]123	Aug. 17,2010	Notification of approving the <surveillance requirements of periodic tests of safe-related systems and equipments> (version 23)
NNSA[2010]137	Nov. 06,2010	Notification of approving implementation with one loop delay of eddy current inspection on heat transfer tubes of SG 1 in unit 2 of LingAo NPP
NNSA[2010]151	Oct. 26,2010	Notification of approving the license application of dynamic engraved rod demonstration test after physical tests within zero power in D114 refueling overhaul of the Daya Bay NPP
NNSA[2010]155	Nov. 11,2010	Notification of approving implementation of no secondary neutron source fuel loading and startup of the fourteenth refueling overhaul in unit 2 of Daya Bay NPP
NNSA[2010]160	Nov. 19,2010	Notification of approving the re-startup operation with the fuel assembly (YQ4082 or YQ40FG) in slightly damaged frame of unit 1 in LingAo NPP.
NNSA[2010]161	Nov. 22,2010	Notification of approving modification of increasing the moving load of emergency diesel generator in Daya Bay NPP and LingAo NPP
NNSA[2010]168	Nov. 25,2010	Notification of approving the releasing of criticality control point after the fourteenth refueling overhaul of unit1 of Daya Bay NPP
NNSA[2010]169	Nov. 29,2010	Notification of approving the in-service inspection program (version 10) of Daya Bay NPP and LingAo NPP

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Document No.	Approval Date	Title
NNSA[2010]171	Dec. 06,2010	Notification of approving the overall improvement of chargers and power strips of LCE system of Ling Ao nuclear power plant (phase I)
NNSA[2010]172	Dec. 06,2010	Notification of approving the modification and implementation because of the shift from LGR system load to newly-built 220kv auxiliary switch station of LingAo phase I NPP
NNSA[2010]177	Dec. 27,2010	Notification of approving of releasing the criticality control point after the eighth refueling overhaul of unit 2 of LingAo NPP

Inspection

Date	Item	Main Content
Feb.22-23,2010	The re-criticality nuclear safety inspection after the eighth refueling overhaul of unit 1 of LingAo NPP	The fulfillment status of the reactor criticality startup condition after L208 refueling overhaul
May 06-07,2010	The re-criticality nuclear safety inspection after the fourteenth refueling overhaul of unit 2 of Daya Bay NPP	The fulfillment status of the reactor criticality startup condition after D14 refuel overhaul
Jun. 23-25,2010	The routine inspection on the implementation of quality assurance program	To verify the implementing status of the operating quality assurance program of DNMC. Evaluation was made to the implementation validity of the operating quality assurance program. Self-evaluation was made to the implementation validity of quality assurance with related production departments. Inspection on quality assurance, inspection plan, execution status and conclusion, other special subjects
Oct. 12-13,2010	Special nuclear safety inspection on experiences feedback system of Daya Bay NPP and LingAo NPP	The policy and objective of the experiences feedback of NPP. The organization and affiliated personnel, related programs, management procedures, Related work and activities of the experiences feedback of NPP. The conclusion and validity of the experience feedback

Date	Item	Main Content
Nov. 03,2010	The non-routine inspection on safeguard during the Asian Games	Security work plan and implementation status before and after the Asian Games; Risks of the production of power and control implementation during the power assurance period in Asian Games; Implementation of security measures for radioactive source storehouses; Guangdong Beilong low and intermediate level waste repository, and dangerous goods warehouse
Nov. 17-18,2010	The pre-recritical nuclear safety inspection after the fourteenth refueling overhaul of unit 1 of Daya Bay NPP	The fulfillment status of the reactor criticality after D114 refueling overhaul
Dec. 23-24,2010	The re-criticality nuclear safety inspection after the eighth (L208) refueling overhaul of unit 2 of LingAo NPP	The fulfillment status of the reactor criticality after the eighth (L208) refueling overhaul

Operational event

Date	Unit	Event	Cause	Level
Feb. 08,2010	Unit 2 of LingAo NPP	The flow over proof primary loop of RCP of unit 2 of LingAo NPP	Equipment failure	0
May 07,2010	Unit 2 of Daya Bay NPP	Loss of all external power of Daya Bay NPP caused by trip of Ping-He line	Equipment failure	0
May 19,2010	Unit 1 of Daya Bay NPP	Over-temperature as well as over power ΔT of primary loop with settling over proof of protecting the setting calculation caused by the abnormality of testing switches	Equipment failure	0
Oct. 23, 2010	Unit 1 of Daya Bay NPP	Crack existing in the upstream of DIRCP212VP primary loop pipe of unit one of Daya Bay NPP	Equipment failure	1

Safety Barriers Integrity

In 2010, three safety barriers of Daya Bay NPP and LingAo NPP were kept intact. The fuel assembly damage rate, the leakage rate of the primary loop coolant, and the leakage rate of the

containment were all within the stated limits.

Radiation protection Dose

NPP	Annual Effective Dose per Person(mSv)	Maximum Annual Individual Dose(mSv)	Annual Collective Dose(man·Sv)	Normalized Collective Dose(man·mSv/Gwh)
Daya Bay	0.343	10.843	0.946	0.060
LingAo	0.334	9.905	0.925	0.058



Fig.4 Daya Bay Nuclear Power Plant

5) Tianwan NPP

In 2010, unit 1 and unit 2 of Tianwan NPP completed the third refueling overhaul.

Regulatory Review and Approval

Document No.	Approval Date	Title
NNSA [2010]33	Mar. 16,2010	Notification of ratification for the modifications of throttle plate of the fuel pool cooling system of unit 1 and unit 2 of Tianwan nuclear power plant
NNSA [2010]49	Apr. 10,2010	(LCQ14AA101)Notification of approving the replacement of gate valves of unit1 and unit 2 in Tianwan NPP
NNSA [2010]64	May 27,2010	Notification of issuing the operating license of unit1 and unit 2 of Tianwan NPP
NNSA [2010]127	Aug. 24,2010	Notification of approving replacements of four items such as EAS electrical activated mechanism of unit1 and unit2 of Tianwan NPP
NNSA [2010]181	Dec. 18,2010	Notification of approving of application for loading the six groups of TVS-2M pilot fuel assemblies in the fifth fuel cycle of unit 1 of Tianwan NPP

Inspection

Date	Item	Main Content
Apr. 19-20,2010	The re-criticality nuclear safety inspection after the third refueling overhaul of unit1 of Tianwan NPP	The fulfillment status of the reactor criticality startup condition after the third refueling overhaul of Unit 1 of Tianwan NPP
Jun. 18-19,2010	The re-criticality nuclear safety inspection after the third refueling overhaul of unit 2 of Tianwan NPP	The fulfillment status of the reactor criticality startup condition after the third refueling overhaul of Unit 2 of Tianwan NPP

Operational Event

Date	Unit	Event	Cause	Level
Apr. 14,2010	1	The suspicious bag was inspected in the 11UCB+30m building WC of unit 1 of Tianwan NPP	Human error	0
Dec 17,2010	2	The protection action of reactor shutdown during the heating process of unit 2 of Tianwan NPP	Procedural defect	0

Safety Barriers Integrity

In 2010, the three security barriers of Tianwan NPP were integrated. The fuel element damage rate, the leakage rate of the primary loop coolant, and the leakage rate of containment were all within the specified limits.

Radiation protection Dose

Annual Effective Dose per Person(mSv)	Maximum Annual Individual Dose(mSv)	Annual Collective Dose(man·Sv)	Normalized Collective Dose(man·mSv/Gwh)
0.174	2.156	0.426	0.0271

2. Nuclear Power Plant under construction

1) Unit 3&4 of LingAo NPP¹

In 2010, the construction and installation quality of units 3&4 of LingAo NPP was under control. The unit 3 was formally connected to the grid for operation. NNSA issued the initial fuel loading ratification for Unit 4.

¹ The Unit 3 of LingAo NPP was put into operation, but there were still activities on construction for Unit 4 in 2010.

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Regulatory Review and Approval

Document No.	Approval Date	Title
NNSA Notice [2010]43	Mar. 15,2010	Notification of approving of quality assurance program at commissioning stage of LingAo Phase II NPP
MEP[2010]114	Apr. 16,2010	Reply on approving the environmental impact reports for the first loading stage of unit 3&4 of LingAo NPP
NNSA[2010]51	Apr. 20,2010	Notification of issuing the first loading ratification for Unit 3 of LingAo NPP
NNSA[2010]65	May 28,2010	Notification of approving of releasing the first reactor criticality control point of Unit 3 of LingAo NPP
NNSA[2010]103	Jul. 14,2010	Notification of approving of releasing the control point at the 10% rated power
NNSA[2010]129	Aug. 23,2010	Notification of approving of releasing the control point at the 90% rated power
NNSA[2010]141	Nov. 19,2010	Notification of approving of releasing the control point at the 100% rated power
NNSA[2010]184	Dec. 30,2010	Notification of issuing the first fuel loading ratification for Unit 4 of LingAo NPP
NNSA Notice [2010]220	Dec. 31,2010	Notification of approving theCommissioning Program of Unit 3 and Unit 4 (version C) of LingAo NPP

Inspection

Date	Item	Main content
Mar. 11-13,2010	The comprehensive inspection on the pre-first loading of Unit 3 of LingAo NPP	Mechanical.instrumental and control equipment; pre-in-service inspection; physical protection and nuclear fuel storage, system commissioning, preparation of producing, the implementation on the promise of the FSAR; radioprotection and emergence preparedness; environmental protection facilities, QA work
May 20-21,2010	The re-criticality nuclear safety inspection	The accomplishment status of the pre-criticality commissioning projects The status of main abnormalities and defects during the refueling overhaul; the application status of modifications of design The operating status of the technical specifications after the first loading. The operating status of periodic experiments; The fulfillment status of the reactor criticality startup condition; Other questions needed to be discussed

Date	Item	Main content
Jul. 13-14,2010	Nuclear safety inspection on the control point at the platform of 10% rated power of unit 3	The fulfillment status of the commissioning project at the platform of 10% rated power; the preparedness status of the rate increasing; the treatment and experiences feedback of operational events after the first critical point; other special topics of nuclear safety
Aug. 16-17,2010	Nuclear safety inspection on the control point at the platform of 90% rated power of unit 3	The fulfillment status of the commissioning project at the platform of this rated power; the preparedness status of the rate increasing; the treatment and experiences feedback of operational events; the commissioning status of the engineered safeguard features; other special topics of nuclear safety
Nov. 15-16,2010	Nuclear safety inspection on the control point at the platform of 100% rated power of unit 3	The fulfillment status and the treatment of the residual of commissioning project at the 100% rated power ; the treatment and experience feedback of current operational events ; special topics of nuclear safety ; software defects of rod control system RGL081KM
Dec. 13-15,2010	Comprehensive nuclear safety inspection before the first fuel loading of unit 4	Pre-service inspection, the non-conformance of mechanical and electrical instrumentation & control equipment; physical protection, nuclear fuel storage; system commissioning and production preparation; radiation protection and emergency preparedness; three wastes systems and environmental protection facilities; quality assurance

2) Unit 3&4 of Expansion Project of Qinshan Phase II NPP²

In 2010, the construction and installation quality of Units 3&4 of expansion project of Qinshan Phase II NPP was under control. The unit 3 was formally connected to the grid for operation.

Regulatory Review and Approval

Document No.	Approval Date	Title
NNSA Notice [2010]24	Feb. 11,2010	Notification of approving the quality assurance program of commissioning of Unit 3 &4 of Qinshan Phase II NPP
NNSA Notice [2010]80	May 27,2010	Reply on printing and distributing the nuclear safety comprehensive inspection report before the First loading of unit 3 of Qinshan Phase II NPP
NNSA Notice [2010]66	May 28,2010	Notification of issuing the first loading ratification of unit 3 of Qinshan phase II NPP

² The Unit 3 of Qinshan Phase II NPP was put into operation, but there were still activities on construction for Unit 4 in 2010.

National Nuclear Safety Administration

Document No.	Approval Date	Title
MEP[2010]145	May 28,2010	Reply on the environmental impacts reports of unit3 and unit 4 of Qinshan Phase II NPP. First loading stage
NNSA[2010]101	Jul. 13,2010	Notification of approving of releasing the reactor first criticality control point of the unit3 of Qinshan Phase II NPP
NNSA[2010]108	Jul. 30,2010	Notification of approving of releasing 10% rated power control point of unit three of Qinshan Phase II NPP
NNSA[2010]126	Aug. 30,2010	Notification of approving the non-conformance treatment program for manufacturing size-over proof of 90-degree elbow extension of the primary pipe transition section of Qinshan NPP
NNSA Notice [2010]137	Aug. 30,2010	Notification of approving of QA Program of the unit3 and unit 4 of Qinshan Phase II NPP. (Commissioning stage) edited version II
NNSA [2010]139	Nov. 10,2010	Notification of approving of releasing the control point at the 90% rated power
NNSA [2010]150	Oct. 11,2010	Notification of approving of releasing the control point at the 100% rated power

Inspection

Date	Event	Main Content
Mar. 11-12,2010	The routine nuclear safety inspection on the preparation status of heat commissioning of unit 3	The implementation status of the QA program; cold functional test and the inspection on the results of pre-service inspection at commissioning stage of unit 3; Inspection on the preparation status of heat functional test of unit 3; The fulfillment status of the requirements and guides claimed by NNSA
May 11-12,2010	The comprehensive nuclear safety inspection on the first loading of unit 3	Mechanical and I&C equipment and the pre-service inspection items; Preparation status of Production and system commissioning; Radioprotection and emergency preparedness; environmental protection facilities; quality assurance work; radioactive waste storage and the physical protection

Date	Event	Main Content
Jun. 29-30,2010	The comprehensive nuclear safety inspection on pre-first criticality of unit 3	The fulfillment status of the commissioning items of pre-first criticality of unit 3; The application status of the main abnormalities items and design modification of unit 3; The implementation status of technical specifications after the first loading; The implementation status of periodical test; The preparation work of pre-first criticality; other special topics of nuclear safety
Jul. 26-27,2010	Nuclear safety inspection on the control point at the platform of 10% rated power of unit 3	The fulfillment status of commissioning items before the 10% rated power platform; the preparedness status of the power increasing ; The treatment and experience feedback of operational events after first fuel loading; special topics of nuclear safety
Sep. 02-03,2010	Nuclear safety inspection on the control point at the platform of 90% rated power of unit 3	The fulfillment status of commissioning items after the first fuel loading; the preparedness status of test procedures for the following stage; the treatment and experience feedback of current operational events; the commissioning status of engineered safeguard features; other special topics of nuclear safety
Oct. 08-09,2010	Nuclear safety inspection on the control point at the platform of 100% rated power of unit 3	The fulfillment status and treatment of the residual of the commissioning items at 100% rated power platform; treatment and experience feedback status of current operational events, special topics of nuclear safety

3) Liaoning Hongyanhe NPP

In 2010, the construction and installation quality of units 1 to 4 of Liaoning Hongyanhe NPP was under control.

Inspection

Date	Item	Main Content
May 31-Jun. 01,2010	Annual routine nuclear safety inspection	The project development and subcontracting status (including the equipment manufacturing surveillance by the operation unit), the implementation status of quality assurance program of operation unit;The construction quality of the important structures; The emergency preparedness status of the NPP. Other special subjects of nuclear safety

4) Fujian Ningde NPP

In 2010 the construction and installation quality of units 1 and 2 was under control. The NNSA issued the Construction Permit of unit 3 and unit 4.

Regulatory Review Approval

Document No.	Approval Date	Title
NNSA[2010]1	Jan. 01,2010	Notification of approving of issuing the Construction Permit of unit3 and unit4 of Ningde NPP
NNSA[2010]122	Aug. 13,2010	Notification of approving "the blocking scheme of the plasma leakage channel at location of the 1RX102 prestressed pipeline of Ningde NPP" of Fujian Ningde Nuclear Power Co.,LTD
NNSA Notice [2010]132	Aug. 23,2010	Notification of requirements for rectification of the nuclear island pre-stressed construction issues of unit 1 of Fujian Ningde Nuclear Power Co.,LTD
NNSA[2010]138	Nov. 10,2010	Notification of non-conformance disposal of nuclear island containment pre-stress of unit 1 in Fujian Ningde NPP
NNSA[2010]140	Nov. 15,2010	Notification of approving the Restoration and Construction Scheme for 1RX Steel Lining dome Bulge
NNSA[2010]146	Nov. 25,2010	Notification of approving the first concrete pouring of unit 4 reactor base of Fujian Ningde NPP

Inspection

Date	Item	Main Content
Jul. 28-29,2010	Special inspection on the non-conformance of containment pre-pressure of nuclear island of unit 1	The process of prestressed abnormalities of 1RX in Ningde NPP; The review of restoration scheme for part of the 1-RX containment steel lining dome
Aug. 25-26,2010	The nuclear safety inspection on the site preparation status before the First Concrete was poured in the nuclear island base of unit 4 of Ningde NPP; and the annual routine inspection of Ningde NPP	The preparation status on site before FCD of unit 4 nuclear island base; The inspection on implementation status of quality assurance program; Inspection on implementation status of the quality control of safety-related important items on-site



Fig.5 MEP Vice Minister Mr. Li Ganjie visited Ningde NPP.

5) Fujian Fuqing NPP

In 2010, the quality of construction and installation of unit 1 and unit 2 of Fujian Fuqing NPP was under control. NNSA issued the construction permits of unit 3 and unit 4 of Fujian Fuqing NPP.

Regulatory Review and approval

Document No.	Approval Date	Title
NNSA Notice [2010]119	Jul. 27,2010	Notification of consultation for construction permits of unit 3 and unit 4 of Fujian Fuqing NPP
MEP[2010]433	Dec. 30,2010	Notification of approving the environmental impact reports of unit 3 and unit 4 of Fujian Fuqing NPP (design stage)
NNSA[2010]183	Dec. 30,2010	Notification of approving construction permits of unit 3 and unit 4 of Fujian Fuqing NPP
NNSA Notice [2010]217	Dec. 30,2010	Notification of approving the quality assurance program of Fujian Fuqing NPP at construction stage (version 2)

Inspection

Date	Item	Main content
Oct. 21-22,2010	The annual routine nuclear safety inspection	The implementation status of the quality assurance program of unit 1 and unit 2 of Fujian Fuqing NPP at design and construction stage; The quality control of nuclear island construction and installation of Fujian Fuqing NPP; The fulfillment status of the requirements of nuclear safety regulations and guides.The general contracting and subcontracting of the project

National Nuclear Safety Administration

Date	Item	Main content
Dec. 20-21,2010	The nuclear safety inspection on the site preparation status before the First Concrete was poured in the nuclear island base of unit 3	The implementation status of the quality assurance program at design and construction stage;The quality control status of on-site safety-related important item; The preparation work before the First Concrete was poured in the nuclear island base of unit 3

6) Guangdong Yangjiang NPP

In 2010, the quality control of unit 1 and unit 2 of Yangjiang NPP was under control; NNSA issued the unit 3 and unit 4 Construction Permits.

Regulatory Receive and Approval

Document No.	Approval Date	Title
NNSA Notice [2010]120	Jul. 27,2010	Notification of consultation about the CP of unit 3 &4 in Guangdong Yangjiang NPP
MEP[2010]371	Nov. 12,2010	Reply on the environmental impacts reports at the design stage of the unit 3&4 of Guangdong Yangjiang NPP
NNSA Notice [2010]179	Nov. 12,2010	Notification of approving the quality assurance program in design and construction stage of Yangjiang NPP(Version 4)
NNSA[2010]157	Nov. 12,2010	Notification of approving of issuing the construction permits of unit 3&4 of Yangjiang NPP

Inspection

Date	Item	Main Content
Jan. 21-22,2010	Nuclear safety inspection on the excavations of the nuclear island foundation pit of unit 3 & 4 of Yangjiang NPP	The construction procedures and construction records of negative excavations of the nuclear island foundation pit ; and the results verification of detailed exploration of nuclear island excavation; non-conformance and their treatments; preparations status of others in the early construction
Oct. 26-27,2010	the annual routine nuclear safety inspection of on-site preparation before the first concrete was poured in the nuclear island base of unit 3 of Yangjiang NPP	The implementation of quality assurance programs at design and construction phase; on-site installation and construction quality control of important safety items; the construction preparation status before FCD

7) Qinshan NPP Expansion Project (Fangjiashan Nuclear Power Project)

In 2010, quality of construction and installation of units 1 and 2 of Qinshan NPP Expansion Project (Fangjiashan Nuclear Power Project) was under control.

Inspection

Date	Item	Main Content
Aug. 26-27,2010	Annual nuclear safety inspection	The implementation status of quality assurance program of Qinshan NPP Expansion Project (FangJiaShan Nuclear Power Project), Inspection on construction quality control of on-site major items; the implementation and progress of construction permit application

8) Taishan NPP

In 2010 the quality of construction of units 1&2 of Taishan NPP was under control. The first concrete of unit 2 was poured.

Inspection

Date	Item	Main content
Apr. 10-11,2010	Nuclear safety inspection of on site preparation before the first concrete was poured in the nuclear island base of unit 2.	The treatment status of early-construction management and residual issues of the nuclear island foundation ;construction organization and plans of nuclear island,etc; the preparation status before the first concrete pouring; the implementation status of the construction quality assurance program ,the development and implementation status of relevant record documents and construction management program

9) Hainan Changjiang NPP

In April, 2010, Construction Permits of units 1&2 of Hainan Changjiang NPP were issued by NNSA. The first concrete was poured for unit 1 in April, and that for unit 2 in November.

Regulatory Review and Approval

Document No.	Approval Date	Title
NNSA Notice [2010]38	Mar. 04,2010	Notification of approving of the QA program of unit1&2 of Hainan Changjiang NPP at the design and construction stage
MEP[2010]72	Mar. 08,2010	Notification of approving of the EIR of unit1&2 of Hainan Changjiang NPP at the design stage

National Nuclear Safety Administration

Document No.	Approval Date	Title
NNSA[2010]52	Apr. 20,2010	Notification of approving of CP of unit1&2 of Hainan Changjiang NPP

Inspection

Date	Item	Main Content
Feb. 25-26,2010	Nuclear safety inspection on the unit 1 before the first concrete pouring	The treatment status of prophase construction management and residual issues of the nuclear island foundation; construction organization and plans of nuclear island, etc; the preparation status before the first concrete pouring; including onsite construction site, plant material, mixing station etc; the implementation status of the quality assurance program of construction, the development and implementation status of relevant record documents and construction management program
Sep. 27,2010	Nuclear safety inspection on the unit 2 before the first concrete pouring	The treatment status of prophase construction management and residual issues of the nuclear island foundation; construction organization and plans of nuclear island, etc; the preparation status before the first concrete pouring; including onsite construction site, plant material, mixing station etc; the implementation status of the quality assurance program of construction, the development and implementation status of relevant record documents and construction management program

10) Guangxi Fangchenggang NPP

In July 2010, Construction Permits of units 1 and 2 of Guangxi Fangchenggang NPP were issued by NNSA. The first concrete was poured for unit 1 in July, and that for unit 2 in December.

Regulatory Review and approval

Document No.	Approval Date	Title
NNSA Notice [2010]59	Apr. 16,2010	Notification of approving of the QA program of unit1&2 of Guangxi Fangchenggang NPP at the design and construction stage
MEP[2010]118	Apr. 20,2010	Notification of approving the EIR of unit1&2 of Guangxi Fangchenggang NPP at the design stage
NNSA[2010]104	Jul. 18,2010	Notification of approvingthe CP of unit1&2 of Guangxi Fangchenggang NPP



Fig.6 Director General Mr. Liu Hua visited Guangxi Fangchenggang NPP and instructed the safe construction

Inspection

Date	Item	Main Content
Jan. 30-31,2010	Nuclear safety inspection on negative excavation of nuclear island foundation pit of unit 2	Construction procedures and construction records of excavation of nuclear island foundation pit; verification of the nuclear island foundation conditions; construction of non-conformance and their treatments; quality assurance of the early-construction and its implementation status
May 06-07,2010	Nuclear safety inspection on the unit 1 before the first concrete pouring	The treatment status of prophase construction management and residual issues of the nuclear island foundation; construction organization and plans of nuclear island, etc; the preparation status before the first concrete pouring; including onsite construction site, plant material, mixing station etc; the implementation status of the quality assurance program of construction, the development and implementation status of relevant record documents and construction management program
Dec. 16-17,2010	Nuclear safety inspection on the unit 2 before the first concrete pouring	The treatment status of prophase construction management and residual issues of the nuclear island bottom ground; construction organization and plans of nuclear island, etc; the preparation status before the first concrete pouring; including onsite construction site, plant material, mixing station etc; the implementation status of the quality assurance program of construction, the development and implementation status of relevant record documents and construction management program

11) Sanmen NPP

In 2010, the quality of construction and installation of units 1 and 2 of Sanmen NPP was under control. The installation of No. 1, 2 and 3 annulus of steel containment vessel (CV01, CV02, and CV03) of unit 1 was completed, and the CV01 installation of unit 2 was completed.

Regulatory Review and Approval

Document No.	Approval Date	Title
NNSA Notice [2010]65.	Apr. 24,2010	Reply on the application for modification of the first span design of the steam turbine building.
NNSA Notice [2010]90.	Jun. 11,2010	Reply on the license application for CA20 concrete pouring of unit 1 of Sanmen NPP.
NNSA Notice [2010]141.	Aug. 30,2010	Reply on the license application for structure construction of the wall below intake of the shield building of Unit 1 of Sanmen NPP.
NNSA Notice [2010]221.	Dec. 31,2010	Notification of ratification of quality assurance program or Sanmen Phase I NPP (design and construction stage) (version six).

Inspection

Date	Item	Main Content
Feb. 08,2010	Inspection on maintenance of concrete pouring of nuclear island foundation of unit 2 of Sanmen NPP.	Maintenance of concrete pouring of nuclear island foundation The preparation status and subsequent conditions of construction
May 26-27,2010	Nuclear safety inspection of On-site preparation status before the CVBH integral hoisting and installation of unit 2 of Sanmen NPP.	Effectiveness of the implementation of quality assurance system; the fulfillment status of CVBH manufacture; the preparation status of organization and construction program of CVBH integral hoisting and installation; other on-site construction-related work
May 28,2010	Special item inspection on the construction subcontract project of Sanmen NPP	The subcontracting status of construction of Sanmen NPP Phase I
Jun. 22-23,2010	Inspection of On-site preparation status before the integral hoisting and installation of CA20 structure module of unit 2 of Sanmen NPP	Validity of the implementation of quality assurance system; The treatment status of the residual issues of the CA20 structural module in prophase construction;the preparation status of the organization and construction scheme before the integral hoisting and installation of CA20 structure module ; other on-site construction-related work



Fig. 7 The construction site of Sanmen AP1000 nuclear power plant

12) Haiyang NPP

In 2010, the quality of construction and installation of units 1&2 of Haiyang NPP was under control. The CV01, CV02 and CV03 installation of unit 1 was completed, and the steel containment vessel bottom head (CVBH) installation of unit 2 was completed.

Regulatory Review and Approval

Document No.	Approval Date	Title
NNSA Notice [2010]222	Dec. 31,2010	Reply on the license application for structure construction of the wall below intake of the shield building of Unit 1 of Haiyang NPP

Inspection

Date	Item	Main Content
Jan. 21-22,2010	Routine inspection of on-site preparation status before the integral hoisting and installation of CA20 structure module of unit 1 of Haiyang NPP	the preparation status of the organization and construction scheme of CA20 structural module integral hoisting and installation; implementation status of the CA20 structure module assembly; other on-site construction-related work
Mar. 17-18,2010	Nuclear safety inspection of On-site preparation status before the integral hoisting and installation of CVBH of unit 1 of Haiyang NPP	The preparation status of the organization, construction scheme and others for CVBH ;the validity of implementation of quality assurance system and the treatment of residual issues of CVBH prophase construction; other on-site construction-related work

Date	Item	Main Content
Jun. 02,2010	Special item inspection on the construction subcontract project of Haiyang NPP	The subcontracting status of construction of Haiyang Phase I NPP
Jun. 03-04,2010	nuclear safety inspection of on-site preparation before the First Concrete was poured in the nuclear island base of unit 2 of Haiyang NPP	Construction management and residual issues treatments in early-construction the nuclear island foundation of unit 2; construction organization and plans, construction schemes of nuclear island construction of Unit 2; the onsite preparation status before the first concrete was poured in nuclear island base of unit 2; The implementation status of quality assurance program at the design and construction stage of Haiyang Phase I NPP.
Jul. 29~30,2010	Inspection on the maintenance for concrete pouring of nuclear island bottom plate of unit 2 of Haiyang NPP	The quality control and concrete pouring of nuclear island foundation pit of the Unit 2; Maintenance for concrete pouring and acceptance of nuclear island foundation pit.
Oct. 20~21,2010	Nuclear safety inspection of On-site preparation status before the integral hoisting and installation of CVBH of unit 2of Haiyang NPP	The preparation status of the organization, construction scheme and others for CVBH integral hoisting and installation;the validity of implementation of quality assurance system and other on-site construction-related work
Dec. 14-15,2010	Inspection of On-site preparation status before the integral hoisting and installation of CA20 structure module of unit 2 of Haiyang NPP	the preparation status of the organization and construction scheme of CA20 structural module integral hoisting and installation; implementation status of the CA20 structure module assembly; other on-site construction related work



Fig. 8 MEP Vice Minister Mr. Li Ganjie visited Haiyang NPP

3. Nuclear Power Plants in Planning

1) Huaneng Shandong Shidaowan HTR-PM NPP Demonstration Project

In 2010, Huaneng Shandong Shidaowan HTR PM NPP Demonstration Project was at the stage of applying for construction permit.

Inspection

Date	Item	Main Content
Mar. 23,2010	Special inspection on maintenance and protection status of nuclear island floor reinforcement bound	construction status of demonstration project ; the maintenance and protection status of nuclear island floor with reinforcement bars; corrosion treatment programe
Nov. 02,2010	Review and onsite inspection on the performance test program of nuclear island floor reinforcement materials	performance test program of nuclear island floor reinforcement materials; Nuclear island floor reinforcement straight screw connection experiments program; derusting measures

2) Expansion Project of Tianwan NPP (Unit 5&6)

In July 2010, Regulatory Postion on Plant Siting Review of Units 5 and 6 of expansion project of Tianwan NPP were issued; in August, PSAR, Quality Assurance Program and EIR (design stage) of Units 5 and 6 of expansion project of Tianwan NPP were accepted for technical review.

Regulatory review and approval

Document No.	Approval Date	Title
NNSA[2010]56	May 04,2010	Review opinion of plant siting of Unit 5/6 of expansion project of Tianwan NPP
MEP[2010]132	May 04,2010	Reply on environment impact report of Unit 5/6 of expansion project of Tianwan NPP (siting stage)

Inspection

Date	Item	Main Content
Jul. 08-09,2010	Nuclear safety inspection on negative excavation of nuclear island foundation pit of Unit 5/6 of expansion project of Tianwan NPP	Construction procedures and construction records of excavation of nuclear island foundation pit ; Non-conformance and their treatments in construction; Implementation status of quality assurance in early construction; other preparations related to the early construction

3) Liaoning Hongyanhe NPP (Unit 5&6)

The EIR at plant siting stage and Site Safety Analysis Report of Units 5 and 6 of Liaoning Hongyanhe NPP were approved. Preliminary Safety Analysis Report (PSAR) and Environment Impact Report (design stage) of Units 5 and 6 of Liaoning Hongyanhe NPP were accepted for licensing review.

Regulatory Review and Approval

Document No.	Approval Date	Title
NNSA [2010]142	Sep. 19,2010	Review opinion of plant siting of Unit 5/6 of Liaoning Hongyanhe NPP
MEP [2010]297	Sept. 19,2010	Reply on environment impact report of Unit 5/6 of Liaoning Hongyanhe NPP (siting stage)

4) Fujian Fuqing NPP (Unit 5&6)

Safety analysis report and environment impact report (design stage) of Units 5 and 6 of Liaoning Hongyanhe NPP were accepted for technical review.

5) Hunan Taohuajiang NPP

Review report of relevant characteristics of Hunan Taohuajiang NPP site and complementary EIR were reviewed.

6) Hubei Xianning NPP

Review report of relevant characteristics of Hubei Xianning NPP site and complementary EIR were reviewed.

7) Jiangxi Pengze NPP

Review report of relevant characteristics of Jiangxi pengze NPP site and complementary EIR were reviewed.



◎ Safety Regulation on Research Reactor ◎

In 2010, NNSA further enhanced the nuclear safety regulation of research reactors in service and under construction. The nuclear safety regulation mode was standardized and improved. The experience feedback and information sharing were strengthened, and system of regulations of research reactors was continuously improved. In 2010, there were 19 in-service research reactors, among which 8 research reactors were operating (Initial fuel loading was completed at China Experimental Fast Reactor in June 2010), and 11 research reactors were in safety shutdown condition (Shandong Miniature Neutron Nuclear Reactor was decommissioned in December 2010). There were 4 operational events in 2010, of which there was no event above level 1.

Operation Status of Research Reactors in 2010

Name	Designed Power	Operating Organization	Operation Status	Integrated Flux
101 HWRR	10MW	CIAE	Not in operation	—
49-2 SPR	3.5MW	CIAE	2354.59 h	343.38MW·d
MNSR	27kW	CIAE	29 times	776.8kW·h
CFMNSR	—	CIAE	Not in operation	—
SSZR	—	CIAE	Not in operation	—
DF-VI CFFR	—	CIAE	Not in operation	—
UCF	—	CIAE	42times	—
CEFR	65MW	CIAE	Commissioning with fuel	—
SER	1MW	INET\TU	Not in operation	—
5MW-NHR	5MW	INET\TU	Not in operation	—
10MW- HTR	10MW	INET\TU	Not in operation	—
HFETR	125MW	NPIC	39.67d	2514.10MW·d
HFEZR	—	NPIC	Not in operation	—
CRP	1MW	NPIC	Not in operation	—
MJTR	5MW	NPIC	17.97d	89.86MW·d
18-5 Critical Facility	—	NPIC	27times	—
MNSR	27kW	SITT	Decommissioning	—
MNSR	30kW	INTCA\SU	Not in operation	—
IHNI	30kW	CNCT	32 times	1164.2kW·h

Regulatory Review and Approval

The NNSA accepted and reviewed application documents and reports by CIAE related to periodic safety review of 4 research reactors. Operation licenses of these 4 research reactor were renewed in June 2010.

Document No.	Date	Title
NNSA [2010]5	Jan.18, 2010	Notification of Approving of Releasing 100% Nominal Power Control Point of the IHNI Project
NNSA [2010]76	Jun.04, 2010	Notification of Renewal Operation License of CFMNSR
NNSA [2010]77	Jun.04, 2010	Notification of Renewal Operation License of SSZR
NNSA [2010]78	Jun.04, 2010	Notification of Renewal Operation License of NSMNSR
NNSA [2010]81	Jun.04, 2010	Notification of Renewal Operation License of DF-VI CFFR

Regulatory Inspection

Date	Item	Main Content
Mar.23-24,2010	Special nuclear safety inspection of maintenance and fire prevention of CIAE	Effectiveness of the maintenance program; maintenance personnel qualifications; maintenance records; in-service inspection; effectiveness of fire prevention program; periodic test of fire-fighting equipment; fire drill; training management; fire management
May.12-13, 2010	Special nuclear safety inspection of maintenance and fire prevention of INET\TU	Effectiveness of the maintenance program; maintenance personnel qualifications; maintenance records; in-service inspection; effectiveness of fire prevention program; periodic test of fire-fighting equipment; fire drill; training management; fire management
Jun.01-02, 2010	Special nuclear safety inspection of HFETR	Special nuclear safety inspection of electric bush spark failure and lifetime for 1# reliable disel generator set; on-site witnesses on periodic test of secondary containment
Jun.22, 2010	Special nuclear safety inspection of IHNI operation safety and personnel qualifications	Management of operation limits; maintenance, periodic test and inspection; operation records and conservation; personnel training and license management; implementation of measures claimed in previous inspections; question discussion of routine supervision and inspection; and other related content
Jul.21, 2010	Special nuclear safety inspection of periodic test, inspection and maintenance of INET\TU	Implementation of periodic test and inspection plan in operation stage of nuclear reactor; maintenance process of in-service equipment

National Nuclear Safety Administration

Date	Item	Main Content
Aug.16-19, 2010	Special inspection of NPIC nuclear facilities responding to geological disaster influence	To verify whether geological disasters such as mountain massif landslide, mud-rock flow could affect nuclear facilities; check the potential danger and counter measures
Dec.13-14, 2010	Annual regular nuclear safety inspection of INETVU	The situation of fulfilling the requirements claimed in the last annual inspections and claimed in special inspections and dialogue meetings this year; management of radioactive waste; emergency preparedness; implementation status of quality assurance program
Dec.15-16, 2010	Annual regular nuclear safety inspection of CIAE	The situation of fulfilling the requirements claimed in the last annual inspections and claimed in special inspections and dialogue meetings this year; management of radioactive waste; emergency preparedness; implementation status of quality assurance program
Dec.17, 2010	Annual regular nuclear safety inspection of IHNI	The situation of fulfilling the requirements claimed in the last annual inspections and claimed in special inspections this year; important nuclear safety activities this year; implementation status of quality assurance program



Fig. 9 China Experiment Fast Reactor

Operation Event

Date	Facility	Event Description	Cause	Level
Jan.18, 2010	10MW- HTR 10MW	Pipeline frozen leak of residual heat removal system	Equipment failure	0
Apr.11, 2010	49-2 SPR 49-2	Automatic reactor trip induced by power failure of rob 1 control logic cabinet in control and protective system	Equipment failure	0
Jun.16, 2010	CEFR	Fire induced by spontaneous combustion of cotton wiper during the maintenance of transport room	Human error	0
Jun.19, 2010	MJTR	Manually shutdown induced by 1# cycle monitoring system failure	Equipment failure	0

◎ Safety Regulation on Fuel Cycle Installations ◎

1. Installations for Manufacture, Fabrication, Storage and Reprocessing of Nuclear Fuels

In 2010, the safe operation of in-service installations for manufacture, fabrication, storage and reprocessing of nuclear fuels was maintained, and the quality of the installations under-construction was effectively controlled. The facilities kept good safety records and there were no unacceptable nuclear and radiation harm to the personnel, the public and the environment.

Statistics of Main Nuclear Fuel Manufactures, Fabrications, Storages and Reprocessing Installations in China

Installation	Operating Organization	Product	Status
Yi Bin NPP fuel fabrication line	China Jianzhong Nuclear Fuel Co., Ltd (CJNFC), CNNC	PWR nuclear fuel assembly	In operation
Expansion project of Yi Bin NPP fuel fabrication line	China Jianzhong Nuclear Fuel Co., Ltd (CJNFC), CNNC	PWR nuclear fuel assembly	In trial operation
Yibin gadolinium-contained fuel fabrication line	China Jianzhong Nuclear Fuel Co., Ltd (CJNFC), CNNC	Agglomerated blocks from UO_2 and Gd_2O_3	In operation
VVER-1000 nuclear fuel fabrication line	China Jianzhong Nuclear Fuel Co., Ltd (CJNFC), CNNC	PWR nuclear fuel assembly	In trial operation
Baotou PWR nuclear fuel fabrication line	China Northern Nuclear Fuel Co., Ltd (CNNFC), CNNC	PWR nuclear fuel assembly	In trial operation
Baotou HWR nuclear fuel fabrication line	China Northern Nuclear Fuel Co., Ltd (CNNFC), CNNC	HWR nuclear fuel assembly	In operation
Shannxi Uranium centrifugal uranium separation facility	Shannxi Uranium Enrichment Co., Ltd, CNNC	Low enrichment UF_6	In operation
Lanzhou Uranium centrifugal uranium separation facility	Lanzhou Uranium Enrichment Co., Ltd, CNNC	Low enrichment UF_6	In operation
spent fuel storage facility	No.404 Co., Ltd, CNNC	Spent fuel of PWR and Research Reactor	In operation
spent fuel reprocessing pilot plant	No.404 Co., Ltd, CNNC	--	In trial operation
temporary spent fuel Dry storage facility, Qinshan NPP Phase III	Qinshan NPP Phase III	---	In operation

Regulatory Review and Approval

Document No.	Date	Main contents
MEP App. [2010]66	2010-03-05	Reply on the EIR (operation stage) of spent fuel storage facility expansion project of the spent fuel reprocessing pilot plant
MEP App.[2010]87	2010-03-11	Reply notice on administrative approval work of the construction project of uranium conversion, enrichment and fuel fabrication
NNSA [2010]52	2010-04-06	Notice on approval of validity extension of the temporary spent fuel dry storage facility trial operation of , Qinshan NPP III
MEP App. [2010]96	2010-04-06	Reply on EIR (Operation stage) of approval of PWR nuclear fuel fabrication line of China Northern Nuclear Fuel Co.,Ltd (CNNFC)
NNSA [2010]50	2010-04-15	Notification on approval of material feeding to PWR nuclear fuel fabrication line of China Northern Nuclear Fuel Co., Ltd (CNNFC)
NNSA [2010]112	2010-07-16	Notification on approval of safety modification of liquefying and homogenizing system
MEP Acc. [2010]223	2010-08-10	Notice of opinion on the construction completion phase environmental protection acceptance of the temporary spent fuel dry storage facility Qinshan NPP III
NNSA [2010]153	2010-10-27	Notification on approval of the license for the operating of the temporary spent fuel dry storage facility Qinshan NPP III
NNSA [2010]159	2010-11-18	Notification on approval of material feeding after relevant modifications and on approval of the operation validity extension of combustible waste treatment facility, China Jianzhong Nuclear Fuel Co., Ltd(CJNFC)

Regulatory Inspection

Date	Title	Main contents
Mar. 16-18, 2010	Inspection on Nuclear safety before operation licence renew of Shanxi Uranium Enrichment Co., Ltd, CNNC	The progress situation of modification project, QA, organization and management, the situation of nuclear safety management, the situation of fulfilling the correction requirement from previous nuclear safety inspection
Jun. 30-Jul.1, 2010	Specific inspection on nuclear safety of CJNFC	γ alarm system of nuclear criticality safety, QA system of fuel assembly fabrication
Jul. 15, 2010	Examination and acceptance on environment protection of the temporary dry storage facility for spent fuel in Qinshan NPP III	Examination and acceptance on environment protection

Date	Title	Main contents
Oct. 20-22, 2010	Inspection on nuclear safety before 50% power level commissioning of the spent fuel reprocessing pilot plant	the situation of fulfilling the correction requirement of 5% power level commissioning stage, the preparation of 50% power level commissioning

2. Regulation on Uranium Mining and Milling Installations

At present, there are 38 uranium mining and milling installations (branches) under construction and in operation, called as ‘Eight Mines and One Mill’, located in Xinjiang, Liaoning, Hebei, Inner Mongolia, Shanxi, Sichuan, Gansu, Jiangxi, Guangxi, Hunan, Zhejiang, and Guangdong.

Regulatory Review and Approval

The NNSA reviewed and approved seven EIRs of uranium mining and milling projects in 2010, such as ‘Comprehensive technical reconstruction project of Zhejiang Quzhou Uranium Industry Co., Ltd’, ‘No.6191 mineral deposit of nuclear industry’, and ‘Decommissioning project of No.752 mine of nuclear industry’.

The environmental protection acceptance appraisals on project completion for decommissioning of five projects were conducted in 2010, such as emergency rehabilitation project of No.752 mine of CNNC, emergency rehabilitation project of Gaoshan Temple tailing, No. 904 ore dump flood remediation of No. 214 Brigade of CNNC, decommissioning and rehabilitation project of No.713 mine of CNNC.



◎ Safety Regulation on Radioactive Waste ◎

1. Regulation on Legacy Radioactive Waste Arising from Nuclear Activities

Based on the ‘Law of the People’s Republic of China on the Prevention and Control of Radioactive Pollution’, The regulation on the radioactive waste was enhanced, the efforts were made actively to minimize radioactive waste and to treat and dispose the legacy radioactive waste. The projects on decommissioning and rehabilitation of Shanghai MNSR and Jinan MNSR were completed. The radiation environment and radioactive pollution investigation of Baotou and Baiyune’ bo associated mineral resources was completed.

2. Radioactive Waste Regulation in Nuclear Facilities

Statistics of Radioactive Waste Discharge from Qinshan NPP in 2010

Category		Unit	Annual limit	Annual management limit	Annual discharge or output
Gas	Aerosol	Bq	1.04E+8	5.20E+07	7.90E+06
	Inert gases		7.70E+13	3.85E+13	4.54E+12
	Halogen		8.56E+09	4.28E+09	8.47E+06
Liquid	Tritium	Bq	6.70E+12	5.36E+12	3.11E+12
	Other nuclides		1.30E+10	6.50E+9	3.44E+08
Solid	Compressible	m ³	--	35	18.8
	Uncompressible			--	--
	Other			--	--
	Cement solidify			--	8.8
	Package gross volume			--	27.6

Statistics of Radioactive Waste Discharge from Qinshan Phase II NPP in 2010

Category		Unit	Annual limit	Annual management limit	Annual discharge or output
Gas	Aerosol	Bq	4.80E+09	3.60E+08	4.09E+06
	Inert gases		2.94 E+14	1.10 E+14	1.45 E+13
	Halogen		1.78 E+09	6.67 E+08	2.91 E+06
Liquid	Tritium	Bq	7.00 E+13	5.30 E+13	3.03 E+13
	Other nuclides		3.72 E+11	2.79 E+10	1.09 E+09
Solid	Compressible	m ³	--	--	--
	Uncompressible				--
	Others				--
	Package gross volume			360	169.50

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Statistics of Radioactive Waste Discharge from Qinshan Phase III NPP in 2010

Category		Unit	Annual limit	Annual management limit	Annual discharge or output
Gas	Aerosol	Bq	4.86E+09	4.86E+09	2.69E+06
	Inert gases		1.85E+14	1.85E+14	1.78E+12
	Halogen		5.28E+08	5.28E+08	5.78E+05
Liquid	Tritium	Bq	N/A	7.00E+14	4.26E+13
	Other nuclides		2.75E+10	2.75E+10	5.74E+09
Solid	Compressible	m ³	--	38	36
	Uncompressible			5	1.6
	Others			1	0.2
	Package gross volume			44	37.8

Statistics of Radioactive Waste Discharge from Daya Bay NPP in 2010

Category		Unit	Annual limit	Annual management limit	Annual discharge or output
Gas	Aerosol	Bq	3.80E+09	—	2.49E+06
	Inert gases		9.70E+14	6.80E+12	9.44E+11
	Halogen		3.42E+10	--	4.31E+06
Liquid	Tritium	Bq	--	--	6.01E+13
	Other nuclides		4.20E+11	4.20E+09	2.05E+08
Solid	Steel vessel	m ³	--	--	53.6
	Concrete vessel		--	--	75.6
	Package gross volume		--	130	129.2

Statistic of Radioactive Waste Discharge from LingAo NPP in 2010

Category		Unit	Annual limit	Annual management limit	Annual discharge or output
Gas	Aerosol	Bq	3.80E+09	--	3.26E+06
	Inert gases		9.70E+14	6.80E+12	9.59E+11
	Halogen		3.42E+10	--	3.48E+06
Liquid	Tritium	Bq	--	--	5.43E+13
	Other nuclides		4.20E+11	4.20E+09	1.31E+08
Solid	Steel vessel	m ³	--	--	48.8
	Concrete vessel		--	--	80.4
	Package gross volume		--	130	129.2

Statistics of Radioactive Waste Discharge from Tianwan NPP in 2010

Category		Unit	Annual limit	Annual management limit	Annual discharge or output
Gas	Aerosol	Bq	1.50E+10	1.50E+9	1.53E+07
	Inert gases		8.30E+14	8.30E+13	3.44E+12
	Halogen		2.50E+10	2.50E+9	1.11E+07
Liquid	Tritium		5.00E+13	4.50E+13	2.29E+13
	Other nuclides		2.50E+11	2.50E+10	1.33E+09
Solid	Compressible	m ³	--	--	63.60
	Uncompressible				5.80
	Others				152.00
	Package gross volume				569

3. Regulation on Low and Intermediate Level Waste Repositories

Northwest Low and Intermediate Level Waste Repository

In 2010, Northwest Low and Intermediate Level Waste Repository accepted 3813 barrels/boxes of low and intermediate level wastes, totally 3157m³. The main nuclides contained in the wastes are ⁶⁰Co, ¹³⁷Cs, ⁹⁰Sr, ²²⁶Ra, ²³⁸U and ²³²Th, with total activity of 3.07E+13Bq.

By the end of 2010, Northwest Low and Intermediate level Waste Repository accepted 10509 barrels/boxes of low and intermediate level wastes, totally 6467m³. Main nuclides contained in the wastes included: ⁶⁰Co, ¹³⁷Cs, ⁹⁰Sr, ²²⁶Ra, ²³⁸U, ²³²Th with total activity of 3.91E+13Bq.

Guangdong Beilong Low and Intermediate Level Waste Repository

In 2010, according to the relevant regulations and the requirements of regulatory body, Guangdong Beilong Low and Intermediate Level Waste Repository did not receive or dispose low and intermediate level waste packages due to upgrade and maintenance of the facility.

By the end of 2010, Guangdong Beilong Low and Intermediate Level Waste Repository had totally 352 waste packages for temporary storage, which included 14 pieces of waste packages of reactor disused baffles and 2 pieces of used pressure vessel upper heads, 200 pieces of C1 concrete packages, and 136 pieces of C4 concrete packages. The total waste activity was 2.7696E+13Bq.

Feifengshan Low and Intermediate Level Waste Repository

In 2010, the MEP(NNSA) reviewed and approved EIR (siting stage) of Feifengshan Low and Intermediate Level Waste Repository. Feifengshan Low and Intermediate Level Waste Repository started preliminary work of construction.

◎ Safety Regulation on Radioisotope and Irradiation Facilities ◎

Up to 31 December, 2010, there were totally 53787 entities producing, selling or using radioisotope and irradiation facilities in China. Among them, there were 11577 entities producing, selling and using radioactive sources, the number of the radioactive sources used was 95384. There were 42101 entities only producing, selling, or using irradiation devices (not produce, sell, or use radioactive sources), the number of irradiation devices was 95595. There were 11390 old and discarded radioactive sources which were accepted by provincial/municipal radioactive waste storages, and 72102 old and discarded radioactive sources had been accepted by the national radioactive waste storage.

Standardization of Regulation

In 2010, two national (eastern and western regions) seminars on experience exchange of radiation safety regulation were held in Kunshan and Chongqing, respectively. Provincial level representatives exchanged their experience, discussed problems met during regulating, and clarified the further working plan. For the Radiation Safety License renewal, the representatives brought forward the principle of “simplified procedure for law-complying entities and strict procedure for law-violating entities” .

NNSA comprehensively promoted the application of ‘The National Nuclear Technology Utilization Radiation Safety Management System’ , which started test use nationwide since March, 2010. By the end of 2010, the online application, review and approval on the radioisotope’s import and export was realized. The provincial EPBs also gradually began to use this system to transact radioisotope’s transfer on internet.

The special rectification work on preventing sources blockage accidents of γ radiation facilities was nationally developed. Rectification plans of 96 entities with γ radiation facilities were accepted by expert reviews before the end of the year. Most of the rectification work for γ radiation facilities was accomplished. Six Regional Offices organized the demonstrative onsite acceptance appraisal of the special rectification work, respectively, and the requirements of acceptance appraisal were unified.

Licensing and Inspection

Onsite inspection of radiation safety licenses and environmental protection acceptance appraisals on project completion of seven provincial radioactive waste storages were conducted in 2010. Ten radiation safety licenses were issued. Twenty-seven Radiation Safety Licenses were modified or reviewed for added items. Environmental protection acceptance appraisals on decommissioning project completion of four entities were accomplished. Environmental Impact Reports of construction projects of three entities were reviewed and approved.

Review and Approval of Radioisotope Import and Export

Totally 1,100 radioisotope import and export applications were approved in 2010, including 800 import applications. Imported radioactive sources added up to 4,400, including 1700 category I, II and III radioactive sources. The quantity was almost the same as that of last year.

Radiation safety training

In 2010, seven national radiation safety institutes organized fifty training courses. The total number of trainees came to 5536.

Radiation Accidents and Emergency response

There were 19 radiation accidents in 2010, including 1 major accident and 18 ordinary accidents. The major accident was a source dropped into one oil well. This accident was properly disposed (the well was sealed). The reason for all the ordinary accidents was poor management resulting in the loss or steal of the radioactive sources. These accidents involved 28 sources, among which 15 were found. Up to now all the accidents did not find causing personnel expose or environmental pollution.

Construction of Urban Radioactive Waste Storages

On March 17–19 2010, the urban radioactive waste storage monitoring and management seminar was held in Hangzhou, Zhejiang Province. Through exchange, discussion and site survey during the seminar, the purposes of promoting the construction of the waste storages, perfecting the relevant supporting installations, and standardizing working procedures were achieved. In 2010, the construction of major structure of 29 provincial radioactive waste storages was completed, and environmental protection acceptance appraisals on project completion of 19 provincial radioactive waste storages were accomplished.

◎ Nuclear Material Control and Physical Protection for Nuclear Installations ◎

Approval of Nuclear Material Licenses

After document review and on-site verification, approval confirmation of nuclear material licenses for Northwest Machine Co., Ltd and Lingdong Nuclear Power Co., Ltd were completed, and the nuclear material licenses were issued.

Review and Inspection on Physical Protection of Nuclear Installations

Review on addition of staff entrance in protected area in Qinshan NPP phase III was completed.

The Inspection of nuclear material control for 12 facilities was completed. The entities inspected were as follows: China Nuclear Energy Industry Co., Ltd, Xi'an ET Medical Technology Co., Ltd, China National Petroleum Logging Co., Ltd, Dandong Sunshine Instrument Co., Ltd, Beijing Tuoyuan Instrumentation Components Factory, Beijing Laokezong Technology Development Center, Institute of High Energy Physics Chinese Academy of Sciences, Beijing Shucheng S&T Development Co., Ltd, Shanghai HuaXian Medical Nuclear Instrument Co., Ltd, Shanghai gamma Star Technology Development Co., Ltd, Shanghai WangXing Destructive Testing Equipment Factory and Haimen gamma Star detection Equipment Co., Ltd.



◎ Regulation on Safe Transport of Radioactive Material ◎

After the enforcement of the ‘Regulations for the Safe Transport of Radioactive Material’, NNSA issued five administrative management procedures. They were ‘Approval procedures on applying for license or its extension/change of transportation container design for Category I radioactive material’, ‘Approval procedures on applying for license or its extension/change of transport container manufacture for Category I radioactive material’, ‘Approval procedures on applying for nuclear and radiation safety analysis report on transportation or its extension/change for Class I radioactive material’, ‘Approval procedures on applying for license or its extension/change on use of import transportation containers for Category I radioactive material’, ‘Filing procedures on design, manufacture and use of transportation containers for Category II radioactive material’, and assisted other governmental organizations, such as Ministry of Public Security, Ministry of Transport and Civil Aviation Administration, to draft their related supporting documents.

Regulatory Review and Approval

Document No.	Date	Title
NNSA Notice [2010] 15	Feb. 8, 2010	Notification of approval of imported sources shipping
NNSA Notice [2010] 42	Mar. 11, 2010	Notification of approval of ⁶⁰ Co source transportation of Beijing SanQiangHeLi Radiation Engineering Technology Co.,Ltd
NNSA [2010] 40	Mar. 24, 2010	Notification of approval of spent fuel transportation of Daya Bay NPP
NNSA [2010] 41	Mar. 24, 2010	Notification of issuing license on use of NAC-STC spent fuel shipping container
NNSA [2010] 42	Mar.25, 2001	Reply on approval of Nuclear fuel assembly shipping validity extension
NNSA [2010] 79	Jun .4, 2010	Notification of approval of radioactive material transport exemption of the North quantitative RIA kit
MEP [2010] 93	Jun .17, 2010	Notification of approval of nuclear and radiation safety analysis report on spent fuel transportation for 49-3 reactor
NNSA [2010] 102	Jul .13, 2010	Notification of approval of safety analysis report of ⁶⁰ Co adjustment bar transportation of Candu reactor for Third Qinshan NPP
NNSA [2010] 109	Aug .5, 2010	Reply on approval of nuclear and radiation safety analysis report of VVER-1000 fuel assemblies

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Document No.	Date	Title
NNSA [2010] 114	Aug .6, 2010	Reply on approval of nuclear and radiation safety analysis report of Legacy radium waste repackaging and transportation
NNSA [2010] 124	Aug .18, 2010	Notification of approval of nuclear and radiation safety analysis report of Kazakhstan UO ₂ pellet transportation
NNSA Notice [2010] 163	Oct .26, 2010	Notification of approval of domestic transportation of long period refueling TVS-2M type pilot assemblies for Tianwan NPP
NNSA [2010] 158	Nov .18, 2010	Notification of approval of transportation nuclear and radiation safety analysis report of Nuclear fuel assemblies for China Jianzhong Nuclear Fuel Co., Ltd

Nuclear Safety Inspection

Date	Activity	Content
Nov .10,2010 -- Nov .12,2010	Nuclear Safety Inspection of radioactive materials transportation for Nuclear Power Institute of China and Gaotong Isotope Corporation	<p>Nuclear Power Institute of China: Work readiness for license change of ⁶⁰Co radioactive source transportation container design. Readiness of applying for license of transportation container manufacture for Class I radioactive materials</p> <p>Gaotong Isotope Corporation: Readiness of design application of special form radioactive materials.</p> <p>Preparation for nuclear and radiation safety analysis report of radioactive materials transportation for Class I.</p> <p>Management and manufacturing situation of transportation container of radioactive materials for Nuclear Power Institute of China and Gaotong Isotope Corporation.</p>

◎ Safety Regulation on Civil Nuclear Equipment ◎

Licensing of Civil Nuclear Safety Equipment

In 2010, 84 applications for nuclear safety equipment licensing had been received and reviewed, 36 of which had not been accepted after the preliminary review of the applications. NNSA approved 43 applications, of which 11 were for extension, 3 for renewal, and 29 for new licenses. NNSA completed technical review of licensees that had major changes on working places and technical capabilities, etc.

By the end of 2010, 159 licensees were qualified for the design, manufacture, installation and non-destructive examination of nuclear safety equipment, including 103 for mechanical equipment, 35 for electrical equipment, 17 for installing and 4 for non-destructive examination.

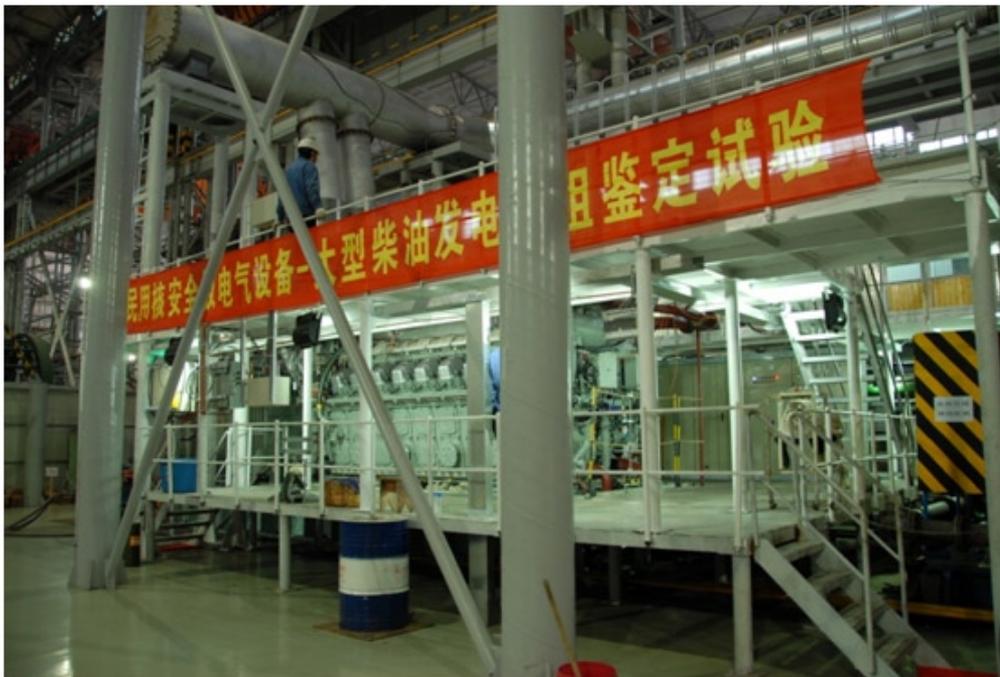


Fig.10 Civil Nuclear Safety Electrical Equipment Design/Manufacture Certification Review to Hoppecke Power System(Wuhan)Co., Ltd.

Document No.	Date	Title
NNSA [2010] 14	Feb. 12, 2010	Notification of approval of scope expansion of license of civil nuclear safety mechanical equipment manufacture for Yantai Taihai Manoir Nuclear Equipment Co.,Ltd.
NNSA [2010] 15	Feb. 12, 2010	Notification of issuing license of civil nuclear safety electrical equipment design & manufacture for No.719 Research Institute of China Shipbuilding Industry Corporation.

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Document No.	Date	Title
NNSA [2010] 16	Feb. 12, 2010	Notification of issuing license of civil nuclear safety mechanical equipment manufacture for Zhejiang Hanyuan Power equipment manufacture Co.,Ltd.
NNSA [2010] 17	Feb. 12, 2010	Notification of issuing license of civil nuclear safety electrical equipment design & manufacture for Yantai Cable Factory.
NNSA [2010] 18	Feb. 12, 2010	Notification of issuing license of civil nuclear safety mechanical equipment manufacture for Harbin EINELECTRIC Corporation(QHD) Heavey Equipment Company Limited.
NNSA [2010] 20	Feb. 12, 2010	Notification of approval license expansion on civil nuclear safety mechanical equipment installation for China Nuclear Industry Fifth Construction Co.,Ltd.
NNSA [2010] 22	Feb. 12, 2010	Notification of issuing license of civil nuclear safety electrical equipment design & manufacture for China Techenergy Co.,Ltd
NNSA [2010] 23	Feb. 12, 2010	Notification of issuing license of civil nuclear safety electrical equipment design & manufacture for Shanghai Welltech Automation Co.,Ltd.
NNSA [2010] 24	Feb. 12, 2010	Notification of issuing license of civil nuclear safety electrical equipment design & manufacture for Far East Cable Co.,Ltd.
NNSA [2010] 31	Mar.8,2010	Notification of issuing license of civil nuclear safety mechanical equipment design & manufacture for Chongqing Pump Industry Co.,Ltd.
NNSA [2010] 32	Mar.8,2010	Notification of issuing license of civil nuclear safety mechanical equipment design for Nuclear Engineering Research & Design Institute.
NNSA [2010] 57	Apr.30,2010	Notification of issuing license of civil nuclear safety mechanical equipment design & manufacture for Suzhou Neway Valve Co.,Ltd.
NNSA [2010] 58	May. 4, 2010	Notification of issuing license of civil nuclear safety mechanical equipment manufacture for Citic Heavy Industries Co.,Ltd.
NNSA [2010] 83	Jun. 10, 2010	Notification of approval license extension on civil nuclear safety mechanical equipment manufacture for Dalian Dv Valve Co.,Ltd.
NNSA [2010] 84	Jun. 10, 2010	Notification of issuing license of civil nuclear safety mechanical equipment manufacture for Pall Corportation (Beijing)
NNSA [2010] 85	Jun. 10, 2010	Notification of approval license extension on civil nuclear safety mechanical equipment manufacture for Guizhou Aerospace Xinli Forging & Casting Co.,Ltd.

Document No.	Date	Title
NNSA [2010]87	Jun. 12, 2010	Notification of approval license extension on civil nuclear safety equipment non-destructive testing for State Nuclear Power Plant Service Company
NNSA [2010] 88	Jun. 12, 2010	Notification of issuing license of civil nuclear safety electrical equipment design & manufacture for Sichuan Star Cable Co., Ltd.
NNSA [2010] 89	Jun. 12, 2010	Notification of approval license extension on civil nuclear safety mechanical equipment manufacture for Shanghai No.1 Machine Tool Works.
NNSA [2010] 90	Jun. 12, 2010	Notification of issuing license of civil nuclear safety mechanical equipment manufacture for Shanghai Shenjiang Forging Co.,Ltd.
NNSA [2010] 91	Jun. 12, 2010	Notification of approval license extension on civil nuclear safety mechanical equipment manufacture for Baoshan Iron & Steel Co., Ltd.
NNSA [2010] 92	Jun. 12, 2010	Notification of issuing license of civil nuclear safety electrical equipment design & manufacture for Hoppecke Battery System(Wuhan) Co.,Ltd.
NNSA [2010] 115	Aug.4,2010	Notification of issuing license of civil nuclear safety mechanical equipment installation for China Construction Second Engineering Bureau Ltd.
NNSA [2010] 117	Aug.4,2010	Notification of approval license extension on civil nuclear safety equipment manufacture for China First Heavy Industries
NNSA [2010] 118	Aug. 4, 2010	Notification of issuing license of civil nuclear safety mechanical equipment manufacture for Sichuan Great Wall Steel Tube Co., Ltd.
NNSA [2010] 110	Aug. 5, 2010	Notification of approval of license extension on civil nuclear safety mechanical equipment design & manufacture for Dalian Deep Blue Pump Co., Ltd.
NNSA [2010] 112	Aug. 6, 2010	Notification of approval of license extension on civil nuclear safety mechanical equipment design & manufacture for Shanghai Automation Instrument Co., Ltd.
NNSA [2010] 113	Aug. 6, 2010	Notification of approval of license extension on civil nuclear safety mechanical equipment manufacture for Jiangsu Xinghe Group Co., Ltd.
NNSA [2010] 116	Aug. 6, 2010	Notification of issuing license of civil nuclear safety mechanical equipment manufacture for Hunan XEMC Changsha Pump Works Casting Co., Ltd.

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Document No.	Date	Title
NNSA [2010] 119	Aug. 6, 2010	Notification of issuing license of civil nuclear safety mechanical equipment manufacture for Baoyin Special Steel Tube Co., Ltd.
NNSA [2010] 130	Aug. 30, 2010	Notification of issuing license of civil nuclear safety mechanical equipment manufacture for Bohai Shipbuilding Heavy Industry Co.,Ltd.
NNSA [2010] 131	Aug. 30, 2010	Notification of Approval of License Expansion of civil nuclear safety mechanical equipment manufacture for Wuhan Heavy Industry Casting and Forging Co., Ltd.
NNSA [2010] 132	Aug. 30, 2010	Notification of Approval of License Expansion of civil nuclear safety mechanical equipment manufacture for China Erzhong Group (Deyang) Heavy Industries Co., Ltd.
NNSA [2010] 133	Aug. 30, 2010	Notification of issuing license of civil nuclear safety electrical equipment design for China Nuclear Power Design Company. Ltd(Shenzhen).
NNSA [2010] 134	Aug. 30, 2010	Notification of issuing license of civil nuclear safety electrical equipment design & manufacture for China Nuclear Power Design Company. Ltd (Shenzhen)
NNSA [2010] 135	Aug. 30, 2010	Notification of issuing license of civil nuclear safety electrical equipment design for China Nuclear Power Engineering Co., Ltd.
NNSA [2010] 136	Aug. 30, 2010	Notification of issuing license of civil nuclear safety electrical equipment design & manufacture for Hudong Heavy Machinery Co., Ltd.
NNSA [2010] 149	Oct. 12, 2010	Notification of issuing license of civil nuclear safety mechanical equipment manufacture for Angang Heavy Machine Co., Ltd.
NNSA [2010] 162	Nov. 19, 2010	Notification of issuing license of civil nuclear safety electrical equipment design & manufacture for JiangSu New Yuancheng Cable Co., Ltd.
NNSA [2010] 163	Nov. 19, 2010	Notification of Approval of License Expansion of civil nuclear safety mechanical equipment manufacture for Dalian Baoyuan Nuclear Equipment Co., Ltd.
NNSA [2010] 164	Nov. 19, 2010	Notification of issuing license of civil nuclear safety mechanical equipment manufacture for Dongfang Electric (Wuhan) Nuclear Equipment Co., Ltd.

Document No.	Date	Title
NNSA [2010] 165	Nov. 19, 2010	Notification of issuing license of civil nuclear safety mechanical equipment design & manufacture for Xi'an Shaangu Power Co., Ltd.
NNSA [2010] 174	Dec. 9, 2010	Notification of approval of license change on civil nuclear safety mechanical equipment manufacture for Dongfang Electric (Guangzhou) Heavy Machinery Co., Ltd.

Registration of Imported Civil Nuclear Safety Equipment

In 2010, 70 overseas applications for nuclear safety equipment registration were received and reviewed. Among these applications, 39 were reviewed, of which 31 were issued registration confirmation by NNSA.

By the end of 2010, 117 entities obtained registration confirmation for nuclear safety equipment, including 6 for various equipment, 83 for mechanical equipment, 26 for electrical equipment, and 2 for non-destructive examination.

Document No.	Date	Title
NNSA [2010] 13	Feb. 5, 2010	Notification of issuing registration confirmation of civil nuclear safety equipment for SMST-TUBES ITALIA S.r.l.
NNSA [2010] 34	Mar. 11, 2010	Notification of issuing registration confirmation of civil nuclear safety equipment for 7 oversea enterprises, FOMASS S.p.A of Italia, etc.
NNSA [2010] 107	July. 30, 2010	Notification of issuing registration confirmation of civil nuclear safety equipment for 8 oversea enterprises, Aruna Alloy Steels Pvt. Ltd. of India, etc.
NNSA [2010] 152	Oct. 27, 2010	Notification of issuing registration confirmation of civil nuclear safety equipment for 8 oversea enterprises, Flowserve Lynchburg of US, etc.



Fig.11 Diesel generator civil nuclear safety equipment design/manufacture certification review to Shanghai-East Heavy Machinery Limited Company

Inspection on Nuclear Safety Equipment and Safety Inspection of Imported equipment

In 2010, six on-site regional offices were established in some areas where enterprises of manufacturing key equipment were concentrated for the purpose of conducting on-site inspections. According to inspection plan and program, 848 inspections on key working procedures, including 408 on-site witnesses, were completed for 81 domestic enterprises; comprehensive inspections for 28 domestic and 1 foreign enterprises, and special inspections for 5 design and manufacturing enterprises were performed. In addition, review and inspection were conducted on verifying non-destructive testing capability for CNPO and CITEC, which carried out in-service testing of Qinshan Phase II expansion NPP and Lingdong NPP, respectively.

The release papers were signed for 236 batches of imported nuclear safety equipment which meet the requirements, including more than 26000 sets of mechanical equipment and 230 sets of electrical equipment. Forty-five unpacking witnesses were completed.

Rectification requirements were raised in time where there were problems discovered during inspections. Expert reviews and special inspections were performed to major non-conformance related to nuclear safety. In 2010, administrative punishments such as fine, rectification within a time limit, public criticism, and suspend license were imposed on those licensees who violated the provisions of Regulations on Supervision and Control of Civil Nuclear Safety Equipment. That ensured the compliance of the design and manufacture of nuclear safety equipment with the

requirements of nuclear safety regulations and standards.

In general, the qualities of design, manufacture, installation and non destructive examination of nuclear safety equipment were under control in 2010.

Date	Activity	Content
Jan. 18, 2010	Integrated inspection for Sulzer (Dalian) Pumps & Compressors Ltd	Inspections on the compliance with regulations and the design license conditions, implementation of Quality Assurance Programme and the quality of design and manufacture activity for nuclear safety Class 3 pumps; Inspections on quality control for pumps of component cooling system manufacturing for Hongyanhe NPP unit 1.
Jan. 27, 2010	Integrated inspection for Anhui Yinliu Group Huoshan Forging Co., Ltd	Inspections on the compliance with regulations and the design licenses, implementation of nuclear quality assurance system, quality of forging and manufacture activity and operating organization audit activity for nuclear safety casting; Inspections on quality control for the SG vertical supporting casting of Ningde NPP and the valve casting of Yangjiang NPP.
Feb. 2, 2010	Integrated inspection for China Nuclear Power Engineering Co., Ltd	Integrated inspections on the compliance with regulations and design license qualifications, implementation of nuclear quality assurance system, quality of design activity for Class II and III nuclear safety parts, such as pressure vessel, heat exchanger, pump and valve, and super pipe of CNNC project in progress.
Mar.19,2010	Integrated inspection and item inspection for Suzhou East-instrument Automatic Control Equipment Co., Ltd	Integrated inspections on the compliance with regulations and design license qualifications, implementation of nuclear quality assurance system, quality of manufacture activity, supervision and monitoring of operation, rectification and implementation of non-conformance related to nuclear safety for design and manufacture of Class 1E I&C; Inspections on manufacturing of K3 power case, lighting case, batch meter case of electric and I&C for LingAo Phase II; Inspections on designing and manufacturing of relay frame remould for Qinshan Phase II.

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Date	Activity	Content
Mar.29,2010	Integrated inspection for Dalian Dv Valve Co., Ltd.	<p>Integrated inspections on the compliance with regulations and design license qualifications, effective implementation of quality assurance program, quality of design and manufacture, for Class I, II and III valve design and manufacture activity and forging of nuclear valve manufacture activity;</p> <p>Inspections on designing and manufacturing of Class II highCV swing check valve and Class I cut-off valve for Ningde;</p> <p>Inspections on designing and manufacturing of cut-off valve in nuclear island for Hongyanhe unit 1&2;</p> <p>Inspections on designing and manufacturing of Class I high CV swing check valve and Class II cut-off control valve for Fuqing;</p> <p>Inspections on designing and manufacturing of Class I high pressure lift check valve for Fangjiashan.</p>
Apr.1,2010	Integrated inspection for Sbw Turbo Machinery Corporation	<p>Integrated inspections on the compliance with regulations and design license qualifications, effective implementation of quality assurance program, quality of design and manufacture, for Class I, II and III pump design and manufacture activity;</p> <p>Inspections on designing and manufacturing of first containment spray pump, low head Safety Injection pump for Yangjiang, and SEC pump for Ningde.</p>
Apr.7,2010	Integrated inspection for China Nuclear Power Operation Technology Corporation, Ltd.	<p>Integrated inspections on the compliance with regulations and design license qualifications, effective implementation of quality assurance program, compliance with standards and related technical condition of non-destructive examination for Tianwan, Qinshan, Daya Bay, Lingao NPP etc.</p>
Apr.22,2010	Special inspection for China First Heavy Industries	<p>Special inspections on the design transformation and performance of nuclear safety rectification measures of written decision of administrative penalty;</p> <p>Inspections on designing and manufacturing of RPV for Hongyanhe unit 1, RPV for Ningde unit 2, RPV and SG for Ningde unit 3&4, and RPV for Yangjiang unit 1&2;</p> <p>Inspections on designing and manufacturing of RPV, SG and primary pump case for Fuqing unit 1&2 and Fangjiashan unit 1&2;</p> <p>Inspections on major forging designing and manufacturing of RPV, SG and CMT for AP1000 project Sanmen, RPV and CMT for AP1000 project Haiyang.</p>

Date	Activity	Content
Apr.28,2010	Integrated inspection for Shijiazhuang First Valve Plant Inc.	Integrated inspections on the compliance with regulations and design license qualifications, effective implementation of quality assurance program, quality of design and manufacture, for nuclear valve (air valve).
May.18,2010	Special inspection for Shanghai Zhongxing Jiqi Chang Co., Ltd.	Special inspections on the effective implementation of nuclear quality assurance system, quality of forging manufacturing, implementation of rectification requirements of special inspections in 2009; Inspections on forging manufacturing of Reactor Internals, RPV and SG for Hongyanhe, Ningde, Fangjiashan, Fuqing, Haiyang, Changjiang, Sanmen, Tianwan, Yangjiang and Shidaowan NPPs.
May.20,2010	Special inspection of penalty and rectification for Xi'an Nuclear Equipment Co., Ltd.	Special inspections on the implementation of rectification requirements of administrative penalty; Inspections on manufacturing of Class II and III pressure vessel for Fangjiashan, Fuqing, Taishan.
Jun.10,2010	Integrated inspection for Wuxi Xinfeng Pipe Co., Ltd.	Integrated inspections on the compliance with regulations and design license qualifications, effective implementation of nuclear quality assurance system, quality of pipe fittings manufacture, supervision and monitoring of operation, for nuclear important primary equipment manufacturing; Inspections on manufacturing of tee, reducer etc for Hongyanhe, Ningde and yangjiang.
Jul.12,2010	Integrated inspection for China National Erzhong Group Co.	Integrated inspections on the compliance with regulations and design license qualifications, effective implementation of nuclear quality assurance system, quality of primary equipment forging manufacture, supervision and monitoring of operation, for primary equipment forging manufacturing; Inspections on forging manufacturing of SG for Ningde unit 2, primary pump flywheel for Fuqing, pressurizer and SG tube plate for Changjiang unit 2, core filling water tank shell for Sanmen and SG tube plate for Taohuajiang.
Aug.7,2010	Integrated inspection for MTU Diesel Generator Company, Germany	Inspections on factory performance testing of emergency diesel generator for Fuqing NPP.
Sep.6, 2010	Integrated inspection for Sichuan sanzong scmp nuclear equipment manufacture incorporation	Integrated inspection on the compliance with regulations and design license qualifications, effective implementation of quality assurance program, quality of primary pipes manufacturing activities, supervision and monitoring for project in progress; Inspections on manufacturing of primary pipes for Fuqing, Hongyanhe NPPs.

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Date	Activity	Content
Sep.6, 2010	Integrated inspection for Areva Donggang Reactor Coolant Pumps Co., Ltd	Integrated inspection on the compliance with regulations and design license qualifications, effective implementation of quality assurance program, quality of manufacturing activities for Class I reactor coolant pump; Inspections on designing and manufacturing of Class I reactor coolant pump for Lingao Phase II, Ningde NPPs.
Sep.8, 2010	Integrated inspection for LanZhou LS Heat Exchange Equipment Co., Ltd	Integrated inspection on the compliance with regulations and design license qualifications, effective implementation of quality assurance program, quality of manufacturing activities, supervision and monitoring of operation for Class III plate heat exchanger; Inspections on manufacturing of RRI plate heat exchanger for Fuqing NPP.
Sep.9, 2010	Integrated inspection for Shanghai Electric Power Equipment Co., Ltd. Shanghai Station Auxiliary Machine Factory	Integrated inspection on the compliance with regulations and design license qualifications, effective implementation of quality assurance program, quality of manufacturing activities, supervision and monitoring of operation for Class II and III pressure vessel, heat exchanger; Inspections on manufacturing of Class II and III pressure vessel, heat exchanger for Ningde, Fuqing, Hongyanhe, Sanmen, Taishan NPPs.
Sep.13, 2010	Special inspection of primary equipment for Nuclear Power Institute of China	Special inspection on the compliance with regulations and design license qualifications, effective implementation of quality assurance program, quality of designing activities for RPV、SG、primary pipes and control rod drive mechanism etc.
Sep.13, 2010	Integrated inspection for Shanghai Xin Min Heavy Duty Forging Co., Ltd	Integrated inspections on the compliance with regulations and design license qualifications, effective implementation of quality assurance program, quality of primary equipment forging and manufacturing activities, supervision and monitoring of operation for nuclear forging; Inspections on manufacturing of low temperature cooling sampler tube sheet for Ningde NPP, vessel saddle forging for Taishan NPP, Accumulator flange forging for Fuqing NPP, heat exchanger tube sheet forging for Yangjiang NPP and vessel forging for Fangjiashan NPP.

Date	Activity	Content
`Sep.13, 2010	Integrated inspection for Xi'an Nuclear Instrument Factory	Integrated inspections on the compliance with regulations and design license qualifications, effective implementation of quality assurance program, quality of design and manufacturing activities, supervision and monitoring of operation for Class 1E I&C equipment. and implement of rectification for illegal behavior of nuclear safety requiements; Inspections on designing and manufacturing of Class 1E Plant radiation detection system for Fuqing,Fangjiashan NPPs.
Sep.16, 2010	Integrated inspection for Guizhou Aerospace Xinli Castings and Forgings Co., Ltd.	Integrated inspections on the compliance with regulations and design license qualifications, effective implementation of quality assurance program, quality of primary equipment forging and manufacturing activities, supervision and monitoring of operation for nuclear forging; Inspections on manufacturing of RPV primary bolt forging for Ningde NPP, heat exchanger Shell forging, support casting of reactor coolant pump for Fuqing NPP, discharging tubeforging of HTR, manhole forging of boron injection tanks for Changjiang NPP, pressurizer surge nozzle safe end forging for Hongyanhe NPP, manhole flange forging of pressure vessels and nuclear rupture valve body casting for HTR.
Sep.26, 2010	Integrated inspection for Jiamusi Elecreic Machine Company limited	Integrated inspections on the compliance with regulations and design license qualifications, effective implementation of quality assurance program, quality of Class 1E electromotor designing and manufacturing activities, supervision and monitoring of operation, and implement of rectification for illegal behavior of nuclear safely requiements; Inspections on designing and manufacturing of essential service water pump , component cooling water pump and the electromotor of ASG pump for Hongyanhe, Ningde, Fuqing NPPs; the electromotor of nuclear fan of DVH,DVK for Fangjiashan, Fuqing NPPs.
Oct. 27, 2010	Integrated inspection for Shanxi Diesel Generator Heavy Industry Co., Ltd.	Integrated inspections on the compliance with regulations and design license qualifications, effective implementation of quality assurance program, quality of emergency diesel generator set manufacturing activities, supervision and monitoring of operation, and implement of rectification for violation of nuclear safety requiements; Inspections on the first emergency diesel generator set of Hongyanhe NPP and the NO.1 set of Ningde NPP.

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Date	Activity	Content
Nov. 08, 2010	Integrated inspection for Shanghai Weltech Automation Co., Ltd.	<p>Inspections on the compliance with regulations and the design license conditions, implementation of nuclear quality assurance system, quality of manufacture activity, owner audit activity and rectification to the action violating the regulations for 1E pressure and difference pressure transmitter;</p> <p>Inspections on quality control for 1E pressure and difference pressure transmitter of Fuqing and Fang Jiashan NPP.</p>
Nov. 10, 2010	Integrated inspection for Shanghai Automation Instrumentation Company	<p>Inspections on the compliance with regulations and the design license conditions, implementation of nuclear quality assurance system, quality of manufacture activity, owner audit activity and rectification to the action violating the regulations;</p> <p>Inspections on quality control for emergency diesel generator units of Hong Yanhe NPP. and 1E RTDs of Qinshan phase I modification project.</p>
Nov. 23, 2010	Integrated inspection for Nuclear Power Institute of China	<p>Inspections on the compliance with regulations and the design license conditions, implementation of nuclear quality assurance system, quality of manufacture activity, owner audit activity and rectification to the action violating the regulations for 1E electric penetration;</p> <p>Inspections on quality control for mid-voltage and low-voltage electric penetrations and the electric penetrations used in personnel air lock of Hong Yanhe NPP.</p>
Dec. 27, 2010	Integrated inspection for Shanghai Power Equipment Research Institute	<p>Inspections on the compliance with regulations and the design license conditions, implementation of nuclear quality assurance system, quality of manufacture activity, owner audit activity and rectification to the action violating the regulations for 1E electric penetration;</p> <p>Inspections on quality control for 1E electric penetrations used in personnel air lock of Hong Yanhe NPP, Ningde NPP and Yangjiang NPP.</p>

◎ Environmental Regulation on Electromagnetic Radiation ◎

Project Review and Approval

In 2010, NNSA reviewed and approved 20 electric power transmission and transform project environmental impact reports including ‘Zhenxiong electric factory 500kV power transmission project environmental impact report’. NNSA conducted environmental protection acceptance appraisals on project completion of 56 electric power transmission and transform projects, including ‘DaFang and QianXi electric factory 500kV double routes power transmission project’.

Document No.	Approve Date	Title
MEP Notice[2010]33	2010-02-05	The reply on Nuozhadu electric power plant ±800 kV AC transmission Guangdong project environmental impact report
MEP Notice [2010]34	2010-02-05	The reply on Xiluodu right bank electric power plant ±500 kV same tower and double route transmission Guangdong project environmental impact report
MEP Notice [2010]35	2010-02-05	The reply on Baoji second electric power plant 750 kV transmission project environmental impact report
MEP Notice [2010]36	2010-02-05	The reply on Chongxin electric power plant first phase 750 kV transmission project environmental impact report
MEP Notice [2010]37	2010-02-05	The reply on Pingliang switch station 750 kV expand project environmental impact report
MEP Notice [2010]38	2010-02-05	The reply on Pingliang electric power plant second phase 750 kV transmission project environmental impact report
MEP Notice [2010]39	2010-02-05	The reply on Shanxi huadian yuheng electric power plant first phase 750 kV transmission project environmental impact report
MEP Notice [2010]40	2010-02-05	The reply on Huaneng yanan electric power plant first phase 750 kV transmission project environmental impact report
MEP Notice [2010]42	2010-02-08	The reply on Tulufan-Bazhou(Bayinguoleng) 750 kV transmission project environmental impact report
MEP Notice [2010]71	2010-03-09	The reply on Jinan-Wulanhaote-Baicheng 500 kV transmission project environmental impact report
MEP Notice [2010]129	2010-04-30	The reply on Ninxia electric Co.,Lingwu power plant second phase-yinchuan east 750 kV transmission project environmental impact report

Document No.	Approve Date	Title
MEP Notice [2010]134	2010-05-10	The reply on Ninxia electric power Co., Shuidonggou power plant-Yinchuan east 750 kV transmission project environmental impact report
MEP Notice [2010]135	2010-05-10	The reply on Anhui electric power transfer to Huainan and Shanghai 1000 kV transmission project environmental impact report
MEP Notice [2010]146	2010-05-31	The reply on Zhenxiong electric power plant 500 kV transmission project environmental impact report
MEP Notice [2010]169	2010-06-25	The reply on Hulunbeier-Liaoning DC transmission project environmental impact report
MEP Notice [2010]170	2010-06-25	The reply on Fenhu-Nanqiao-Sanlin 500 kV increased capacity transmission project environmental impact report
MEP Notice [2010]199	2010-07-16	The reply on Guanting transformer substation NO.2 main equipment reconstruct 750 kV transmission project environmental impact report
MEP Notice [2010]273	2010-09-07	The reply on Jinsoutheast-Nanyang-Jing UHV AC pilot demonstration reconstruct project environmental impact report
MEP Notice [2010]341	2010-10-27	The reply on Jilin Tongyufeng power plant-Lishu 500kV transmission project environmental impact report
MEP Notice [2010]374	2010-11-22	The reply on Fenghuang-Wusu-Yili 750 kV transmission project environmental impact report

In September of 2010, NNSA organized experts and relevant organizations to review the ‘Survey Plan for environmental protection acceptance appraisals on project completion’ of the nation’s first UHV DC transmission project’s trial run, which is Xiangjiaba–Shanghai ± 800 kV DC transmission project.

In July and August of 2010, in order to know the electromagnetic radiation effect in different conditions, NNSA organized the electromagnetic radiation environment review and monitoring in key areas of Jinsoutheast–Nanyang–Jing UHV AC pilot demonstration project.

In 2010, NNSA reviewed and approved 6 electromagnetic radiation environmental impact reports, including State Radio Monitoring Beijing monitoring station Center’s satellite interference and positioning phase I project.

◎ Radiation Environmental Monitoring ◎

Radiation Environmental Monitoring

‘Radiation monitoring capability assessment program (Trial)’ was compiled, and provincial level assessment of institutional capacity to monitor the radiation environment for Jiangsu, Zhejiang, Beijing, Sichuan, Guangdong five provinces (municipalities) was carried out. The national radiation environment monitoring network run smoothly and successfully completed the annual monitoring tasks. The first national environmental monitoring meeting among nuclear power plants to exchange experience was held, and the construction of surrounding environment supervisory monitoring systems for new nuclear power plants was started. The National Radiation Environment Automatic Monitoring System achieved substantial progress, and the hardware, software and large screen display system of the national radiation monitoring data center was installed. Emergency monitoring of the radiation environment was strengthened, and the monitoring of radioactive inert gas Xenon isotopes was carried out.

Environmental Ionizing Radiation

Environmental γ radiation dose rate of cities above the prefecture level, gross α and β radioactivity of aerosol and fallout of the provincial capital cities, activity concentration of tritiated water in atmosphere were all at environmental normal levels; In water body of rivers, lakes and reservoirs including: the seven key river systems of Changjiang, Huanghe, Zhujiang, Songhuajiang, Huaihe and Liaohe, southwestern and northwestern rivers, South-to-North water diversion, rivers in Zhejiang and Fujian provinces, key lakes and reservoirs, the activity concentrations of radionuclides did not show any significant changes compared with those of past years, and activity concentrations of natural radionuclides were at the national investigation levels of natural radioactive measurement(1983–1990). Activity concentrations of gross α and β were all lower than the guideline values of ‘Sanitary Standards for Drinking Water’ (GB5749–2006) in drinking water from monitored central drinking-water source area. Activity concentrations of artificial radionuclide ^{90}Sr and ^{137}Cs in offshore water were all lower than regulatory limits of ‘Quality Standards for Sea Water’ (GB3097–1997). Compared with past years, the activity concentration of radionuclides in monitored soil of the provincial capital cities and some prefecture level cities did not show any significant changes, and activity concentrations of natural radionuclides were at the national investigation levels of natural radioactive measurement (1983–1990).

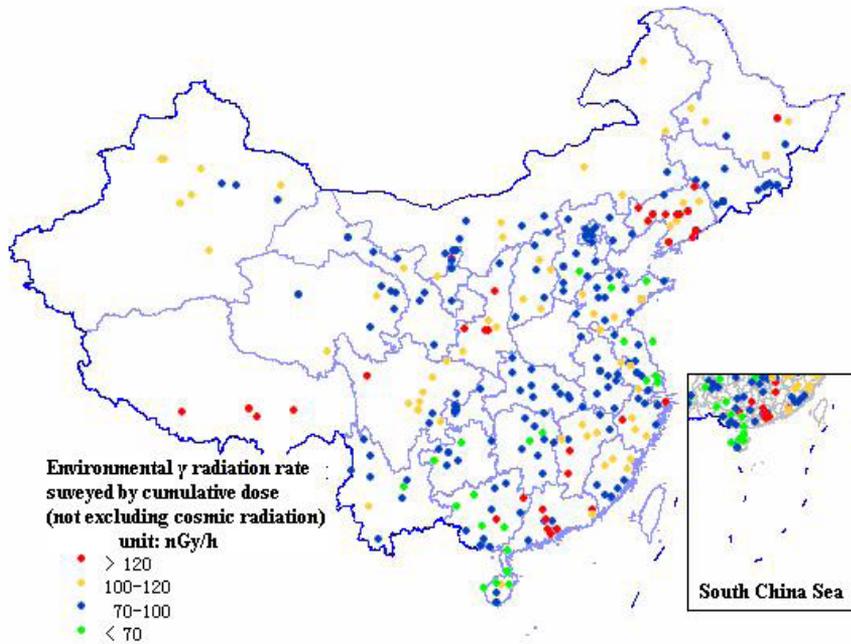


Fig.12 Environmental γ radiation dose rate of key cities above the prefecture level

Environment Ionizing Radiation Ambient Nuclear Power Plants in Operation

Zhejiang Qinshan nuclear power base, Guangdong Daya Bay/LingAo nuclear power plants and Jiangsu Tianwan nuclear power plant operated safely. The annual average values of γ radiation dose rate (including cosmic ray response values) by ambient radiation environmental automatic monitoring stations were 102.6nGy/h, 122.6nGy/h and 101.0nGy/h, respectively, and were within the swing range of local natural background level. Compared with the background before the operation of the nuclear power plants, the activity concentrations of tritium had slightly elevated in air, precipitation, surface water and some biology samples around Zhejiang Qinshan nuclear power base, and in sea waters around the discharge outlets of Guangdong Daya Bay/LingAo nuclear power plants, but its additional dose to public was far lower than regulatory limits. The activity concentrations of the other radionuclides than tritium in the environmental media of nuclear power plants had no significant change compared with those of past years.

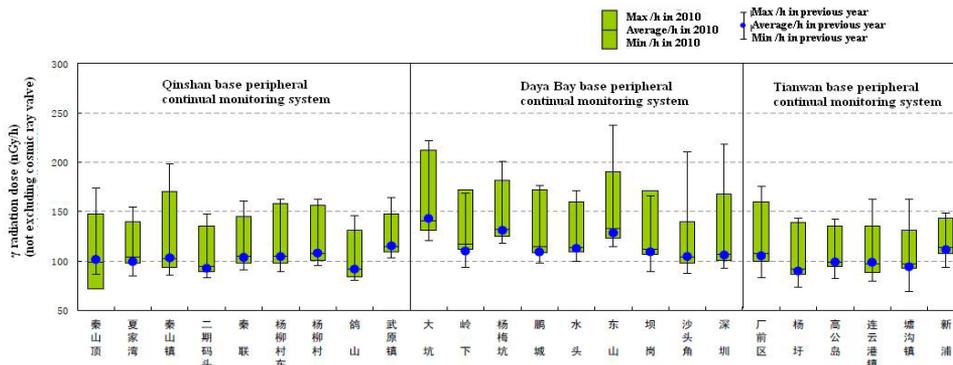


Fig.13 Environmental γ radiation dose rate ambient nuclear power plants in operation

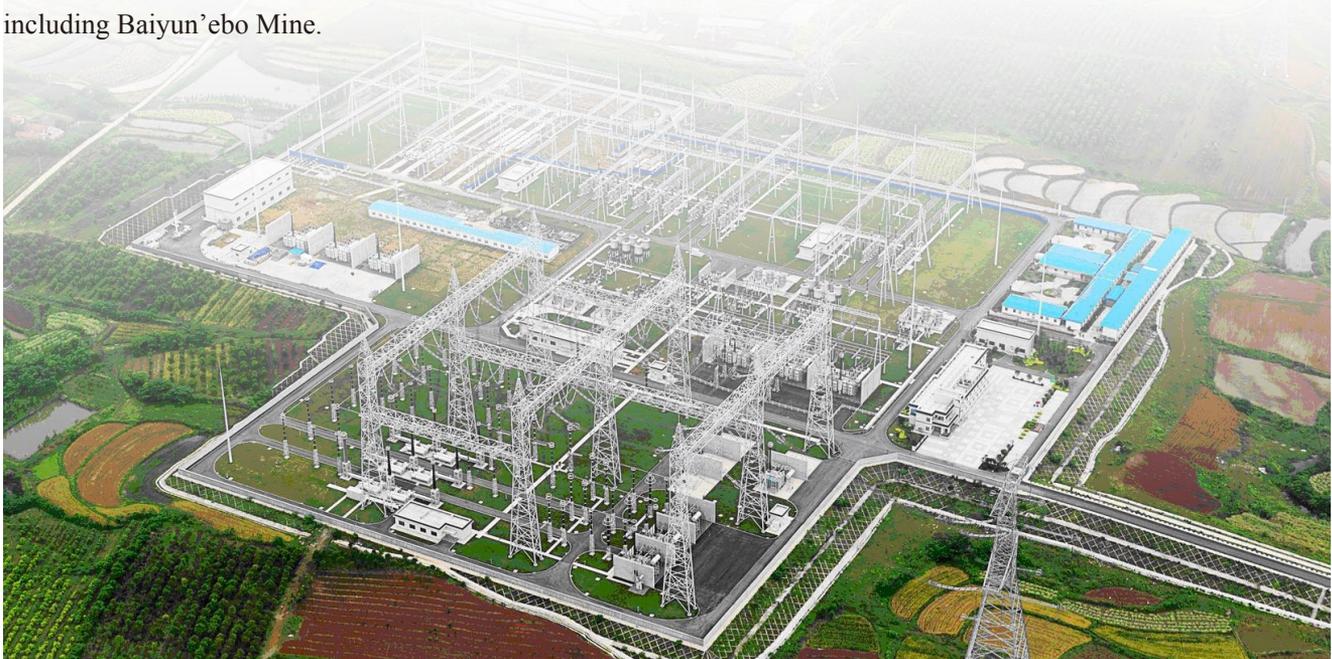
Environment Ionizing Radiation Ambient Reactors Other than NPPs, and Nuclear Fuel Cycle Facilities

For China Institute of Atomic Energy, Institute of Nuclear and New Energy Technology of Tsinghua University, Nuclear Power Institute of China, Shaanxi Northwest Institute of Nuclear Technology, the ambient environment γ radiation dose rates, and radionuclide activity concentrations in aerosol, fallout, surface water, soil and biological samples had no significant change compared with those of past years. Gross α and β radioactive activity concentrations of drinking groundwater were all lower than the limits regulated (specified) in ‘Sanitary Standard for Drinking Water’.

For Lanzhou Uranium Enrichment Corporation, Shaanxi Uranium Enrichment Co., Ltd, Baotou Nuclear Fuel Plant, Jianzhong Nuclear Fuel Corporation\CNNC, No.404 Corporation\CNNC, Northwest Low and intermediate Level Solid Radioactive Waste Repository, Beilong Low and intermediate Level Solid Radioactive Waste Repository and other Nuclear fuel cycle facilities, the ambient environment γ radiation dose rates were still at the normal environment levels, and the increase of activity concentrations of radionuclides due to manufacturing, fabricating, storing and transporting work was not monitored in environmental media.

Environment Ionizing Radiation Ambient Uranium Mining and Mining Facilities and Companion Radiation Mines

No abnormal conditions were found for the radon concentration in the air, gross α and β activity concentrations in aerosol and fallout, and the activity concentrations of radionuclides uranium and radium-226 in underground water and biology samples of ambient environment of uranium mining and milling facilities. Different extents of influences were caused to the local environment by the activities of mining, smelting, processing of some radioaction associated ores including Baiyun'ebo Mine.



Environment Electromagnetic Radiation Ambient Electromagnetic Radiation Facilities

The general condition of environment electromagnetic radiation level was relatively good. The electromagnetic radiation levels of the monitored environmental sensitive sites around mobile communication base station antennas were lower than the public exposure derived limits specified in ‘Regulations for Electromagnetic Radiation Protection’; the work frequency electric field intensities and magnetic induction intensities of the monitored environmental sensitive sites around electric transmission and transform facilities were all lower than the work frequency field evaluation standard for residential area specified in ‘Technical regulations on environmental impact assessment of electromagnetic radiation produced by 500 KV ultra-high voltage transmission and transform electric power engineering’.

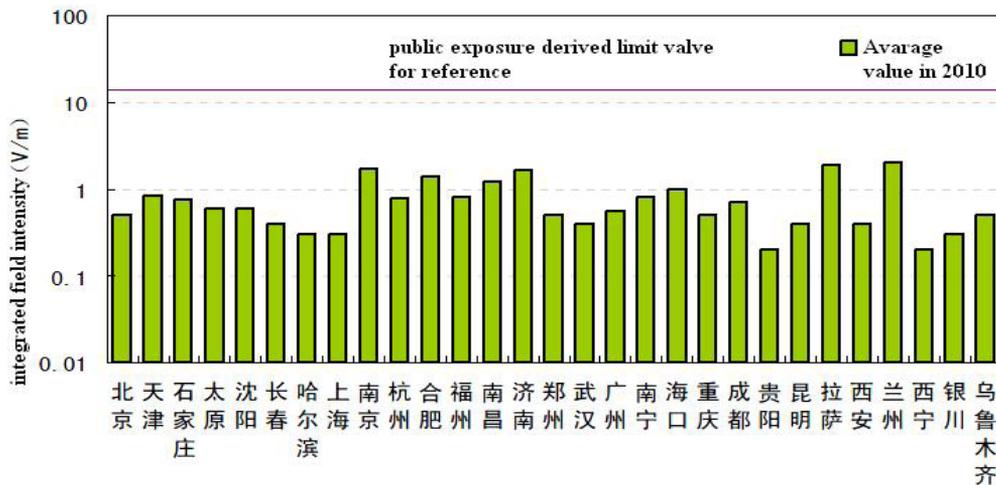


Fig.14 Environment Electromagnetic Radiation in Some Cities

◎ Emergency Response for Nuclear and radiation Accidents ◎

Regulation on of Nuclear Facility Emergency Preparedness

The NNSA effectively enhanced the regulation of nuclear facility emergency preparedness through review and re-examination of the nuclear facility on-site emergency response plans, enhancement of the inspection on the situation of routine preparation of emergency response, and inspection and evaluation of onsite integrated emergency exercises.

In 2010, NNSA completed the re-examination of the on-site emergency response plans of four nuclear facilities, and the on-site emergency response integrated exercises spot inspection of seven nuclear facilities.

Emergency plan approval

Document No.	Approval Date	Title
NNSA Notice[2010]8	2010-01-15	Notification on the consent of emergency plan of Shaanxi Uranium Enrichment Co., Ltd /CNNC
NNSA Notice[2010]26	2010-02-11	Notification on the consent of emergency plan of fuel assemblies factory of Northern Nuclear Fuel Components Ltd/CNNC
NNSA Notice[2010]62	2010-04-20	The reply on the consent of onsite emergency plan of Guangdong Daya Bay Nuclear Power Plant / Ling Ao Nuclear Power Plant before fuel loading in unit 3
NNSA Notice[2010]84	2010-05-31	The reply on the consent of onsite emergency plan of Qinshan Second Nuclear Power Plant before fuel loading in unit 3

Inspection Reports of Site Area Nuclear Comprehensive Emergency Exercise

Document No.	Approval Time	Title
NNSA Notice[2010]2	2010-01-06	The letter on the issuance of "supervision and inspection reports of Nuclear Power Institute Of China onsite comprehensive emergency exercise"
NNSA Notice[2010]40	2010-03-08	The letter on the issuance of "supervision and inspection reports of onsite comprehensive emergency exercise before first loading in unit 3 and 4 of Ling Ao Nuclear Power Plant"
NNSA Notice[2010]72	2010-04-30	The letter on the issuance of "supervision and inspection reports of onsite comprehensive emergency exercise before first loading in unit 3 of Qinshan Phase II Nuclear Power Plant"

Document No.	Approval Time	Title
NNSA Notice[2010]174	20010-11-10	The letter on the issuance of "supervision and inspection reports of onsite comprehensive emergency exercise DNMC in 2010"
NNSA Notice[2010]186	20010-11-19	The letter on the issuance of "supervision and inspection reports of onsite comprehensive emergency exercise China Institute of Atomic Energy in 2010"
NNSA Notice[2010]187	20010-11-19	The letter on the issuance of "supervision and inspection reports of onsite comprehensive emergency exercise Jianzhong Nuclear Fuel Corporation\CNNC in 2010"
NNSA Notice[2010]213	20010-12-19	The letter on the issuance of "supervision and inspection reports of onsite comprehensive emergency exercise Qinshan Nuclear Power Plant in 2010"
NNSA Notice[2010]214	20010-12-19	The letter on the issuance of "supervision and inspection reports of onsite comprehensive emergency exercise Qinshan Phase III Nuclear Power Plant in 2010"
NNSA Notice[2010]215	20010-12-19	The letter on the issuance of "supervision and inspection reports of onsite comprehensive emergency exercise Tianwan Nuclear Power Plant in 2010"



Fig. 15 On-site Emergency Center in Qinshan Phase I Nuclear Power Plant emergency exercise

◎ Regulation of Personnel Qualification ◎

Nuclear and radiation emergency response, anti-terrorism and security standby

Under unified deployment for major events of 2010 Shanghai World Expo and Guangzhou Asian Games, NNSA implemented effective and successful work in supervision and inspection, technical support of nuclear and radiation security in the fight against terrorism. During the Expo, the Shanghai Nuclear and Radiation Safety Regional Office led the establishment of regional nuclear and radiation emergency anti-terrorism coordination mechanism of the six East China provinces and one municipality, and organized the preparation of the ‘Shanghai World Expo emergency radiation monitoring program.’ The radiation emergency monitoring vehicles (relying on large-scale mobile radiation monitoring laboratories) and the Monitoring Groups were deployed in Shanghai, Dongguan in Guangdong to perform emergency standby tasks for a period of nearly seven months. Analyzing and gathering of public opinion was focused, and the reporting system was stressed, and emergency duty and emergency drills were strengthened to respond effectively to various types of nuclear and radiation emergencies, and the anti-terrorism Security standby tasks of those major events were completed successfully.

Guidance and coordination of nuclear and radiation emergency work of Yushu earthquake in Qinghai, Zhouqu debris in Gansu was carried out.

Two events of entering the emergency standby state owing to the transient loss of off-site power at the Daya Bay Nuclear Power Plant caused by lightning on May 7th, and at the Qinshan Nuclear Power Plant due to equipment failure during maintenance on July 28th, respectively, were properly handled.

Maintaining emergency response capacity

To do nuclear accident emergency response well, 24-hour on duty system was implemented continuously.

The emergency training was organized by batches and by levels, and national emergency management personnel training workshop of civilian nuclear facilities was held in Suzhou of Jiangsu.

Regulation of Operating Personnel Qualification

‘The notification on further standardizing the post regulation of NPP Operators’ (NNSA No.[2010]86) was issued as the basis of the NPP operators regulation.

‘The procedures of qualification regulation for the nuclear power plant operators’ was issued and implemented.

Statistics of operators licenses issued in 2010:

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Licenses of Operators at Nuclear Power Plants Were issued and Renewed in 2010

Names of Nuclear Power Plant	Number of Person Obtained Licenses					Number of Person Renewed Licenses				
	Operator	Operator (Assistant Post)	Advanced Operator	Advanced Operator (Assistant Post)	Head Staff	Operator	Operator (Assistant Post)	Advanced Operator	Advanced Operator (Assistant Post)	Operator
Qinshan NPP	36	—	8	—	—	16	—	5	—	2
QinshanII NPP	23	1	—	—	—	16	2	8	2	15
QinshanII NPP, Unit3/4	26	—	23	2	6	—	—	—	—	—
QinshanIII NPP	10	—	9	1	—	21	—	17	4	10
DayaBay NPP	39	—	17	—	—	20	—	22	7	13
Ling'ao NPP	31	—	17	3	—	23	—	21	2	12
Ling'ao NPP, Unit3/4	63	—	61	4	—	—	—	—	—	—
Tianwan NPP	24	—	5	1	—	4	—	5	2	2
Total	252	1	140	11	6	100	2	78	17	54

Licenses of operators at research nuclear reactors were issued and renewed in 2010

Names of Nuclear PowerPlant	Number of Person Obtained Licenses		Number of Person Renewed Licenses	
	Operator	Advanced operator	operator	Advanced operator
China Institute of Atomic Energy	5	3	8	8
Nuclear Power Institute of China	4	—	2	20
Institute of Nuclear and New Energy Technology of Tsing hua University	56	—	—	—
Total	65	3	10	28

Administrative Approval

Issue Code	Issue Date	Name of Issue
NNSA No.[2010]45	2010-03-31	The notification on issuing and renewing licenses of Civilian nuclear facilities operators at nuclear power qinshan joint venture Ltd.and other companys
NNSA No.[2010]98	2010-06-25	The notification on renewing licenses of Civilian nuclear facilities operators at qinshan nuclear power Ltd.
NNSA No.[2010]179	2010-12-28	The notification on the 5 th issuing and renewing licenses of civilian nuclear facilities operators in 2010
NNS No.[2010]44	2010-03-31	The notification on issuing and renewing licenses of civilian nuclear facilities operators at China institute of atomic energy and other companys
NNSA No.[2010]99	2010-06-25	the reply for renewing licenses of civilian nuclear facilities operators at China institute of atomic energy

1. The Regulation of Registered Nuclear Safety Engineer Qualification

‘The catalog of the nuclear safety related key posts (phase I)’ and ‘The notification on the work related to registered nuclear safety engineer qualification’ (NNSA.[2010]48) were issued, which further standardized the regulation of registered nuclear safety engineers.

The 2010 registrated nuclear safety engineer qualification examinations was held in September 2010, 566 passed the examination and obtained registered nuclear safety engineer qualification.

2. Qulification of Welders and Non-destructive examiners

‘The procedures of qualification for civilian nuclear components welders and welding operators’, ‘Complementary requirements on Quality Assurance for welder skill examinations’ and ‘The coding method and its applicable scope of the eligible skill of welder examinations’ were issued.

Convened welder examination starting meeting and welder examination supervising coordination meeting, held the first welder examination at Shanghai nuclear power Ltd.on 12th April. The exams were successful,4000 welder certificates were issued.

Released ‘the notification on approving the first batch of qualified non–destructive examiners for Civilian nuclear facilitie’(NNS.[2010]62), approved 1317 qualifications to 882 non–destructive examiners from 117 companys on 19th May 2010.

3. Management of Practice Units

Released ‘the notification on issuing the codes of practice units in which there are nuclear safety related persons’ in 2010, and defined that as civilian nuclear reactor operators and/or the employer of registered nuclear safety engineers, Civilian nuclear safety facilitie welders and qualified non–destructive examiners for Civilian nuclear facilitie, those units had the responsibility to recruit, train, recommend to take exam, authorize and document their personnel and had

their full responsibility on all nuclear safety related activities.

4. Trainings

Organized the 3rd , the 4th national nuclear safety inspector nuclear power trainings, 62 were trained; organized the 1st , the 2nd national nuclear safety administration novice training, 117 were trained; organized advanced nuclear safety summer vacation conference in 2010.

Released 'the notification on issuing national nuclear safety administration certificate of nuclear and radiation safety inspector' ,and issued 111 certificates on 27th July 2010.

◎ International Cooperation ◎

The IAEA carried out integrated regulatory review on the nuclear and radiation safety regulation in China.

At the request of the Chinese government, the International Atomic Energy Agency (IAEA) sent an expert team to conduct an Integrated Regulatory Review Service (IRRS) mission for China to review the Chinese nuclear and radiation safety regulation system. Headed by Mr. Mike Weightman, HM Chief Inspector of nuclear installations and Director of Health and Safety Executive of the UK, the IRRS Review Team of twenty-two senior regulatory experts from fifteen Member States and from the IAEA carried out systematic and comprehensive review of NNSA, its technical support organization and other governmental authorities in all relevant areas; the legislation system of the nuclear and radiation safety regulation, the responsibilities and functions of the regulatory body, the activities of the regulatory body including the management of the nuclear facilities including NPPs, research reactors and fuel cycling facilities, radioactive waste management, regulation of nuclear technology applications, nuclear and radiation emergency preparedness and response, international cooperation as well as the internal management system of the regulatory body. The review service was carried out through all kinds of means including group discussion, observation and witness, interview and Q&A as well as review on all related documents. The IRRS Review Team fully affirmed the achievement by the Chinese government in nuclear and radiation safety regulation, and made recommendations and suggestions that indicated where further improvements were necessary for the safety regulation in China. This review service concluded as a great success.



Fig. 16 IAEA Integrated Regulatory Review Service (IRRS) team members with regulatory representatives of China

Implementation of International Conventions

Implementation of the Convention on Nuclear Safety

NNSA submitted the 5th National Report of the Convention on Nuclear Safety to IAEA on August 30, 2010.

On October 13–15, 2010, as the president of the 5th Review Conference of the Convention on Nuclear Safety, Mr. Li Ganjie, MEP vice minister attended the preparatory meeting of the 5th Review Conference of the Convention on Nuclear Safety at the headquarters of IAEA, Austria, debriefed the secretariat of the Convention on the preparation of the conference, and made important arrangements for the organization and preparatory work of the conference thus ensured the smooth progress of the preparatory work of the conference.

Implementation of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

For good preparation of the 4th Review Conference of the Joint Convention, NNSA took the lead in organizing the election of the new term of the Editing and Censoring Committee of the Joint Convention and established the 2nd National Report Editing and Censoring Committee of the Joint Convention. The Committee summed up the experience of first implementation of the Joint Convention and drafted the outline and work plan for the 2nd National Report of the Joint Convention.

Bilateral Cooperation

Second Round of China–U.S Strategic and Economic Dialogue

On May 24–25, 2010, the Second Round of China–U.S Strategic and Economic Dialogue (S&ED) was held in Beijing. The MEP vice minister Li Ganjie attended the break–out session by relevant departments from the two sides on energy security and delivered a speech on the Achievements and Prospects of the China–US Cooperation on Nuclear Safety. During the Dialogue, the MEP vice minister discussed with Gregory B. Jaczko, Chairman of the U.S. Nuclear Regulatory Commission, on the cooperation of AP1000 nuclear power projects and in the field of nuclear safety of nuclear power plants in operation; decisions were made to continue working together on the above issues by the two sides and the Memorandum of Further Cooperation on Nuclear Safety for the Westinghouse AP1000 Nuclear Reactor was signed, which strongly extended and promoted the cooperation on nuclear safety between China and the US.

The 2010 China–France Steering Committee Meeting of Cooperation on Nuclear Safety

On May 11–13 2010, the China–France Steering Committee meeting of Cooperation on Nuclear Safety was held in Beijing. The MEP vice minister together with André Claude LACOSTE, Chairman of the French Nuclear Safety Authority (ASN), participated in the meeting and delivered speeches. Both sides had thorough discussion on issues of common interest including

technical issues of EPR units and the latest progress of EPR project.

The 5th China–Pakistan Steering Committee Meeting of Cooperation on Nuclear Safety

On December 11–13, 2010, the 5th China–Pakistan Steering Committee Meeting of Cooperation on Nuclear Safety was held in Haikou, Hainan province. MEP vice minister of NNSA together with Chairman Anwar Habib of Pakistan Nuclear Regulatory Authority (PNRA) attended the meeting and delivered speeches. The two parties acknowledged the importance of the China–Pakistan nuclear safety cooperation mechanism and the long history of China–Pakistan cooperation; both parties would strengthen the existing cooperation basis and continued expanding achievements of the cooperation.



Fig.17 The 5th China-Pakistan Steering Committee Meeting of Cooperation on Nuclear Safety was held in Haikou

The 11th China–Japan Seminar on Nuclear Safety

On November 27, 2010, the 11th China–Japan Seminar on Nuclear Safety was held in Beijing. Both sides had thorough discussions and exchanges on the topics such as the latest inspection system, equipment design life extension, restart of prototype fast breeder reactor (Monju) & safety regulation of FBR, sever accident research, independence of digital I&C system, licensing review of AP1000 & EPR reactors, etc.



Fig.18 The 11th China-Japan Seminar on Nuclear Safety was held in Beijing

Multi-lateral Cooperation

Nuclear Security Summit

On April 12–13, 2010, the first Nuclear Security Summit was held in Washington, DC. The participants signed the Washington Nuclear Security Summit Communiqué and the Washington Nuclear Security Summit Work Plan, and reached a consensus to strengthen nuclear safety around the world.

The 54th IAEA General Conference and the Nuclear Safety Top Official Meeting

On September 20–24, 2010, the delegate of the NNSA attended the 54th IAEA General Conference and the Nuclear Safety Top Official Meeting. During the Conference, the NNSA delegate discussed with nuclear safety authorities of the major nuclear power developed countries on strengthening the cooperation in nuclear safety review and inspection, and introduced Chinese experience in nuclear safety review and inspection of AP1000, EPR and NPPs in operation.

2010 Nuclear Regulatory Cooperation Conference and MDEP Policy Group Meeting

On March 9–11, 2010, the delegate of the NNSA attended the 2010 Nuclear Regulatory Cooperation Annual Conference and the Policy Group meeting of the Multinational Design Evaluation Program (MDEP).

Regional Cooperation

The 3rd Northeast-Asia Top Regulators Meeting on Nuclear Safety and the 5th NNSA–NISA–MEST Meeting for Exchange of Information on Nuclear Power Safety

On November 25–26, 2010, the 3rd Northeast Asia Top Regulators Meeting on Nuclear Safety and the 5th NNSA–NISA–MEST Meeting for Exchange of Information on Nuclear Power Safety was held in Beijing. The delegates of the three countries exchanged views on jointly promoting the nuclear safety cooperation among China, Japan, and Korea as well as in the region of Asia.

◎ Memorabilia of 2010 ◎

On January 1, 2010, the ‘Regulations on Safe Transport of Radioactive Material’ came into force on January 1, 2010.

On January 1, 2010, the Construction Permit of Unit 3 and 4 of Fujian Ningde NPP was issued.

On February 23, 2010, the Reply to Issues on Increasing the Nuclear Safety Regulation Staffing of the Ministry of Environmental Protection (SCOPSR[2010]40) was issued by the State Commission Office for Public Sector Reform.

On April 12–13, 2010, the first Nuclear Security Summit was held in Washington, DC, and the Chinese President HU Jintao attended the meeting.

On April 15, 2010, the feeding permit to the PWR nuclear fuel fabrication line of China Northern Nuclear Fuel Corporation (CNNFC) was issued.

On April 20, 2010, the CP of Unit 1 and 2 of Hainan Changjiang NPP was issued.

On April 20, 2010, the letter of ratification for the first loading of Unit 3 in Lingao NPP was issued.

On May 31, 2010, the letter of ratification for the first loading of Unit 3 in Qinshan Phase II NPP was issued.

On May, 2010, the Five-Year Plan for Regulation System on Nuclear and Radiation Safety was published.

On June, 2010, China Experimental Fast Reactor completed first loading.

On July 18, 2010, the CP of Unit 1 and 2 of Guangxi fangchenggang NPP was issued.

On July 18–30, 2010, the International Atomic Energy Agency (IAEA) peer review expert team carried out the Integrated Regulatory Review Service (IRRS) in China and made systematic and comprehensive review on the Chinese nuclear and radiation safety regulation system.

On August 30, 2010, NNSA submitted the 5th National Report of the Convention on Nuclear Safety to the IAEA.

On September 19, 2010, the release of control point of full rated power of Unit 3 in Lingao NPP was approved.

On October 11, 2010, the release of control point of full rated power of Unit 3 in Qinshan Phase II NPP was approved.

On October 13–15, 2010, the Administrator Li Ganjie, the president of the 5th Review Conference of the Convention on Nuclear Safety, participated in the preparatory meeting for the 5th Review Conference in the IAEA headquarters in Vienna, Austria.

On November 12, 2010, the CP of Unit 3 and 4 of Yangjiang NPP in Guangdong province was issued.

On December 13, 2010, 100% hot commissioning of reprocessing facilities in the pilot plant was approved.

National Nuclear Safety Administration

On December 30, 2010, the CP of Unit 3 and 4 of Fuqing NPP in Fujian province was issued.

On December 30, 2010, the letter of ratification for the first loading of Unit 4 in LingAo NPP was issued.