

Amendment to Ministerial Orders Concerning Nuclear Safety Regulation

November 2003

Nuclear and Industrial Safety Agency (NISA)
Ministry of Economy, Trade and Industry (METI)

Summary of Revision of Ministerial Orders Concerning Nuclear Safety Regulation

(A) Act for Regulation on Nuclear Source Material, Nuclear Fuel Material and Nuclear Reactors

- (1) The Rules Concerning Processing of Nuclear Fuel Materials
- (2) The Rules Concerning Reprocessing of Spent Fuels
- (3) The Rules for Establishment and Operation of Commercial Power Reactors, etc.
- (4) The Rules Concerning Waste Repository of Nuclear Fuel Materials or Materials Contaminated with Nuclear Fuel Materials
- (5) The Rules Concerning Waste Management of Nuclear Fuel Materials or Materials Contaminated with Nuclear Fuel Materials
- (6) The Rules Concerning Spent Fuel Storage
- (7) The Rules for the Establishment, Operation, etc. of Nuclear Power Reactors at the Stage of Research and Development
- (8) The Rules for Technical Standards Concerning Nuclear Power Generation Facilities

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(B) Electric Utility Act

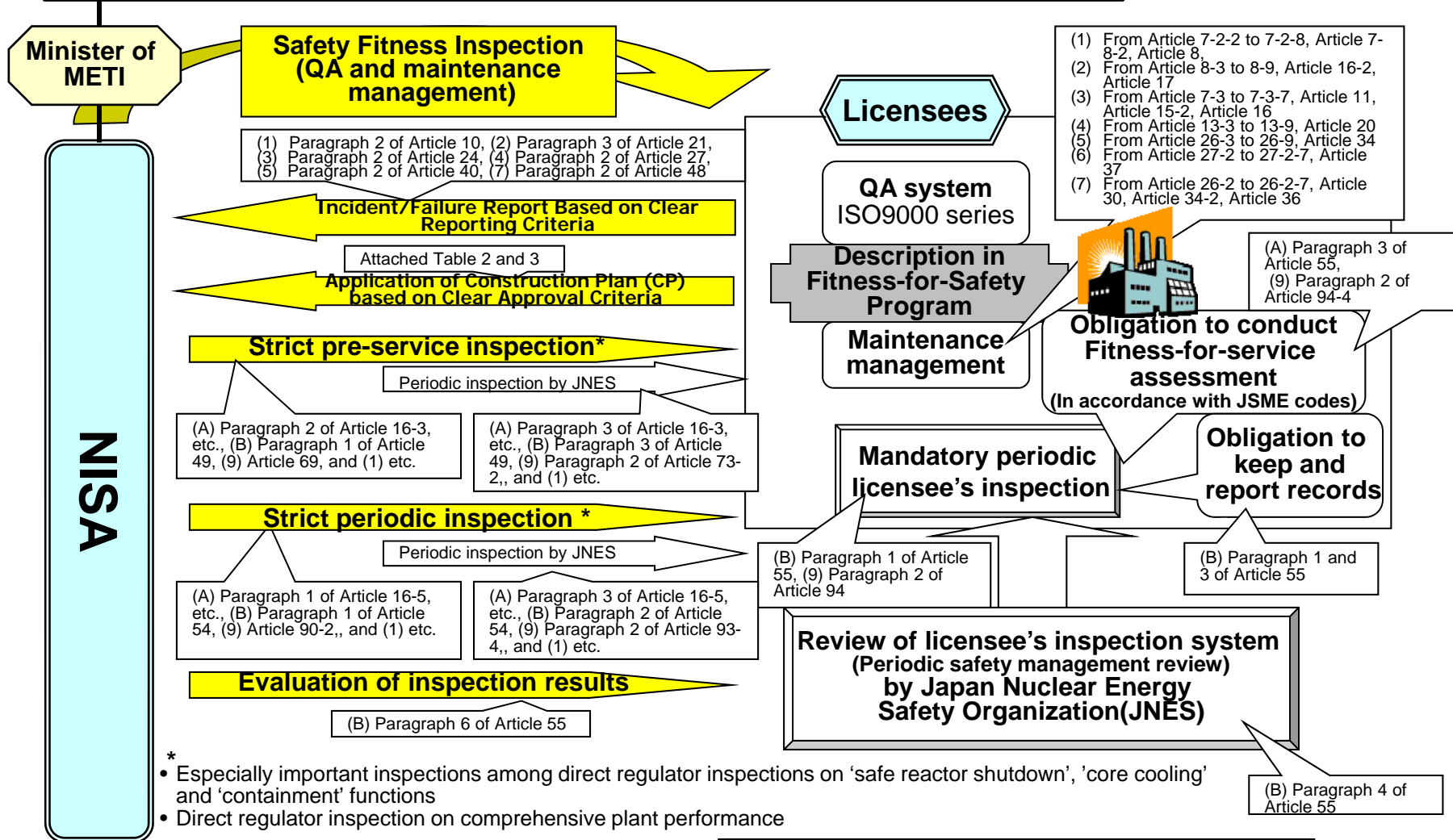
- (9) Rules for Implementation of Electric Utility Act

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Overall View of Regulatory Reform

**Enhancement of functions of Nuclear Safety Commission (from April, 2003)
(request for quarterly reports, enlarged scope of investigation authority, etc.)**

(A) Article 72-3,
(B) Article 107-2



Note: Numbers etc, in parentheses of notes correspond to those of Acts and Rules in the previous slide.

Enhancement of Quality Assurance and Maintenance Management Systems

- Licensees are requested to describe the establishment of an adequate QA system and maintenance management system in their Fitness-for-Safety Programs pursuant to the requirements of the Reactor Regulation Act. (1) Article 8, (2) Article 17, (3) Article 16, (4) Article 20, (5) Article 34, (6) Article 48, (7) Article 36
- The regulatory authority confirms licensee's achievement through Safety Fitness Inspections. (A) Paragraph 5 of Article 12, Paragraph 5 of Article 22, Paragraph 5 of Article 37, Paragraph 5 of Article 34-20, Paragraph 5 of Article 50, and Paragraph 6 of Article 51-18

Establishment of quality assurance system

● Objective of QA

(1) Article 7-2-2, (2) Article 8-3, (3) Article 7-3, (4) Article 13-3, (5) Article 26-3, (6) Article 27-2, (7) Article 26-2

Quality assurance is a system to maintain and improve the quality of activities for nuclear safety assurance, which enables:

- Licensees to check their activities to maintain plant safety, and
- Licensees to obtain public understanding through fulfillment of their accountability on QA.

● QA activities

(1) From Article 7-2-4 to 7-2-8, (2) From Article 8-5 to 8-9, (3) From Article 7-3-4 to 7-3-7, (4) From Article 13-5 to 13-9, (5) From Article 26-5 to 26-9, (6) From Article 27-2-3 to 27-2-7, (7) From Article 26-2-3 to 26-2-7

- 1) Initiative by the top management,
- 2) Based on international QA standards such as ISO9001: 2000,
- 3) Continuous improvement in activities to ensure safety through repeating Plan-Do-Check-Action cycles, and
- 4) Auditing effort by independent in-house auditing bodies.

● Legal actions

- 1) Description of "QA activities" in the Fitness-for-Safety Programs pursuant to requirements of the Reactor Regulation Act
- 2) Confirmation of licensee's implementation through Safety Fitness Inspections

Establishment of maintenance management system

● Objective of maintenance management

(3) Article 11, (7) Article 26-2-3

- Maintenance management is implemented through adequate activities corresponding to the safety function and safety significance to maintain the performance, functions and safety level of nuclear power plants.

● Maintenance management activities

(3) Article 11, (7) Article 30, Article 34-2

- 1) Definition of policies and targets of the maintenance management
- 2) Definition of the component/structure classification and scope of maintenance
- 3) Development of a maintenance program for facilities and components subject to the maintenance
- 4) Implementation and assessment of maintenance activities
- 5) Implementation of necessary corrective actions: repairs, replacements and modifications
- 6) Assessment and improvement of the maintenance program

● Legal actions

- 1) Description of "maintenance management activities" in the Fitness-for-Safety Program pursuant to requirements of the Reactor Regulation Act
- 2) Confirmation of licensee's implementation through Safety Fitness Inspections

Note: Numbers etc, in parentheses of notes correspond to those of Acts and Rules in the following slide.

Acts and Rules Referred to in the Previous Slide

- (A) Act for Regulation of Nuclear Source Material, Nuclear Fuel Material and Nuclear Reactors**
- (1) The Ministerial Order to Partially Amend the Rules Concerning the Processing of Nuclear Fuel Materials**
 - (2) The Ministerial Order to Partially Amend the Rules Concerning the Reprocessing of Spent Fuels**
 - (3) The Ministerial Order to Partially Amend the Rules for Establishment and Operation of Commercial Power Reactors, etc.**
 - (4) The Ministerial Order to Partially Amend the Rules Concerning the Waste Repository of Nuclear Fuel Materials or Materials Contaminated with Nuclear Fuel Materials**
 - (5) The Ministerial Order to Partially Amend the Rules Concerning the Waste Management of Nuclear Fuel Materials or Materials Contaminated with Nuclear Fuel Materials**
 - (6) The Ministerial Order to Partially Amend the Rules Concerning Spent Fuel Storage**
 - (7) The Ministerial Order to Partially Amend the Rules for the Establishment, Operation, etc. of Nuclear Power Reactors at the Stage of Research and Development**
- (Other) The Ministerial Order to Partially Amend the Rules for Technical Standards Concerning Nuclear Power Generation Facilities**
- (B) Electric Utility Act**

Legislation of Periodic Safety Review

(1) Article 7-8-2, Article 8 (2) Article 16-2, Article 17 (3) Article 15-2, Article 16, (7) Article 34-2, Article 36

- **Periodic Safety Review (PSR), which had been conducted every 10 years to evaluate operational experiences of nuclear power plants, status of incorporating latest technical knowledge, etc. at the discretion of licensees, became a requirement of Fitness-for-Safety Program (FFSP) in accordance with the Reactor Regulation Act*.**
- **The authority confirms the conformity of the licensee's PSR procedures with the FFSP by its Safety Fitness Inspection.**

* Act for the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

PSR Item	Before Amendment	After Amendment
1) Comprehensive Evaluation of Operational Experience	at the discretion of licensees	FFSR requirement
2) Incorporation of the latest technical knowledge	at the discretion of licensees	FFSR requirement
3) Probabilistic safety assessment (PSA)	at the discretion of licensees	at the discretion of licensees
4) Aging management review	at the discretion of licensees	FFSR requirement

PSA remains as an item at the discretion of licensees, but licensees are expected to conduct PSA on an optional basis as before.

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- (1) The Ministerial Order to Partially Amend the Rules Concerning the Processing of Nuclear Fuel Materials**
- (2) The Ministerial Order to Partially Amend the Rules Concerning the Reprocessing of Spent Fuels**
- (3) The Ministerial Order to Partially Amend the Rules for Establishment and Operation of Commercial Power Reactors, etc.**
- (7) The Ministerial Order to Amend Partially the Rules for the Establishment, Operation, etc. of Nuclear Power Reactors at the Stage of Research and Development**

Incident/Failure Report Based on Clear Reporting Criteria

- Reporting criteria are provided, as clearly and quantitatively as possible, for licensees to be able to properly judge whether they should report an incident/failure of their nuclear facilities to the Authority or not. The new reporting criteria as well as the existing notification criteria are consolidated into ordinances to clarify the legal positioning.

(1) Paragraph 2 of Article 10, (2) Paragraph 3 of Article 21, (3) Paragraph 2 of Article 24, (4) Paragraph 2 of Article 27, (5) Paragraph 2 of Article 40, (7) Paragraph 2 of Article 48

New reporting criteria (Revision of Paragraph 2 of Article 24 of (A))

(1) Reactor shutdown and power restraint

- In case of reactor shutdown or power decrease due to a failure in the operating reactor facility (excluding the case of shutdown for inspection of the facility with no change in the failure status, without deviation of from the operating limit)

(2) Failure of a reactor facility

- In case of inconformity to technical standards or loss of the safety-assuring function of safety-significant components etc. of a reactor facility
- In case of failure of a safety-significant component due to fire
- In case of reactor facility failure with deviation from operating limits stipulated in Fitness-for-Safety Programs (except for minor failures)
- In case of failure of an action required by the Fitness-for-Safety Program when an operating limit is violated

(3) Influence of an incident/failure of a reactor facility

- In cases of unplanned release of radioactive wastes, leakage of contaminated materials in controlled areas or radiation exposure due to an incident/failure of a reactor facility

(4) Radiation control

- In cases of excess release, leakage in controlled areas, or leakage outside controlled areas of radioactive wastes over the limits, and occupational radiation exposure over the dose limits

(5) Human injuries

- In case of human injuries due to an incident/failure of a reactor facility (except for minor cases not requiring hospital treatment)

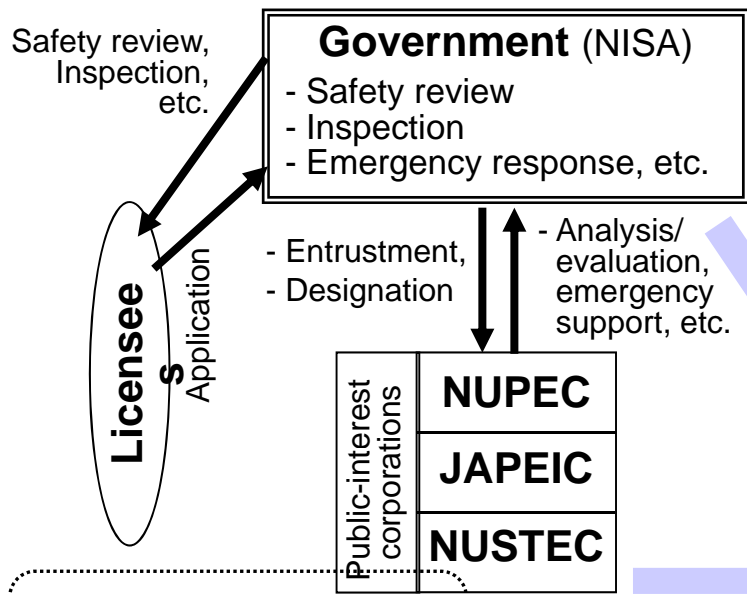
Acts and Rules Referred to in the Previous Slide

- (A) The Rules for Establishment and Operation of Commercial Power Reactors, etc.**
 - (1) The Ministerial Order to Partially Amend the Rules Concerning the Processing of Nuclear Fuel Materials**
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 - (4) The Ministerial Order to Partially Amend the Rules Concerning the Waste Repository of Nuclear Fuel Materials or Materials Contaminated with Nuclear Fuel Materials**
 - (5) The Ministerial Order to Partially Amend the Rules Concerning the Waste Management of Nuclear Fuel Materials or Materials Contaminated with Nuclear Fuel Materials**
 - (7) The Ministerial Order to Partially Amend the Rules for the Establishment, Operation, etc. of Nuclear Power Reactors at the Stage of Research and Development**
- (Other) The Notification to Define the Equipment Important to Safety in Accordance with the Provisions of the Rules for Establishment and Operation of Commercial Power Reactors, etc.**

Incorporated Administrative Agency Roles of Japan Nuclear Energy Safety Organization (JNES)

- Inspections of technical expertise portions, such as specifications of materials and components, adequacy of inspection data, conventionally conducted by NISA, were transferred to JNES.
- Authority for enforcement actions remains with NISA even for inspections conducted by JNES.

< Before establishment of JNES >

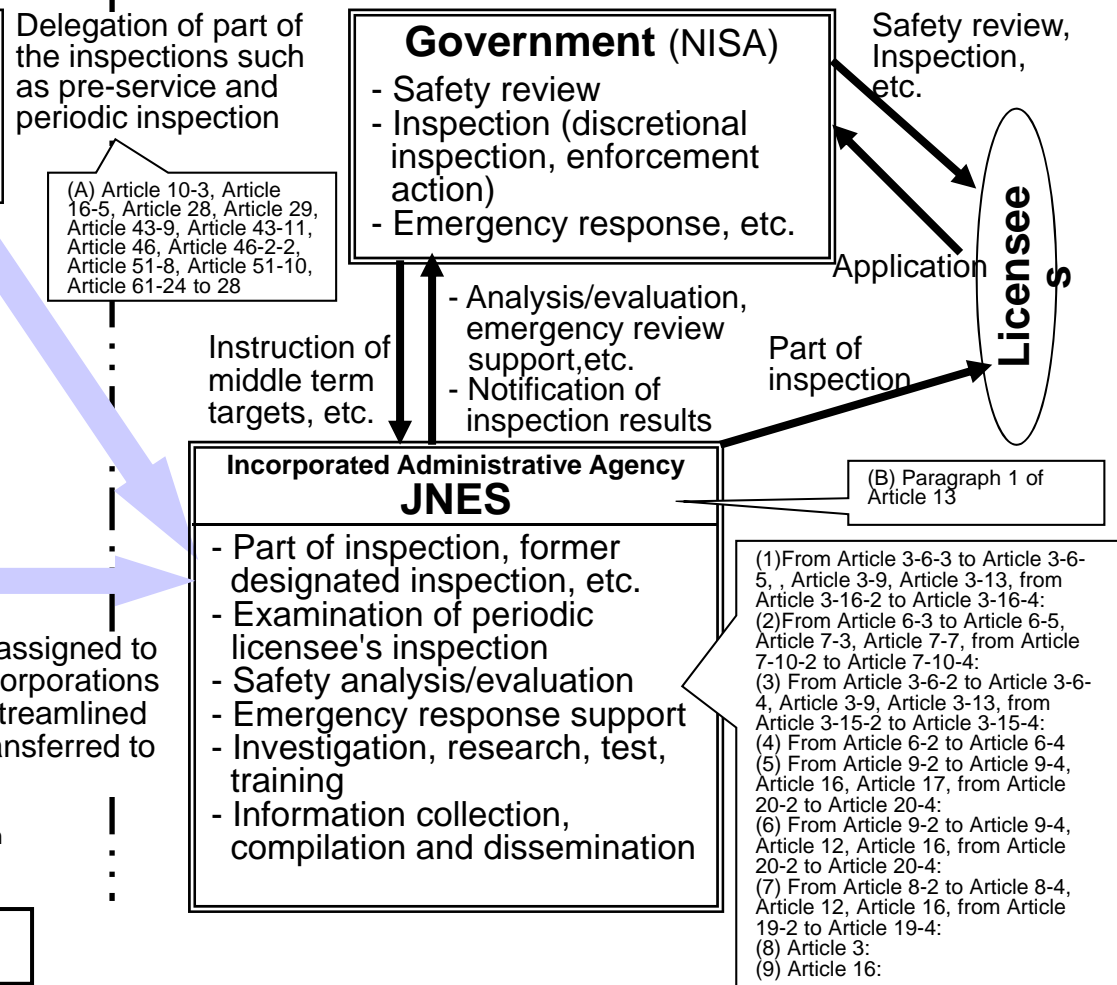


- Designated inspection
- Safety analysis/evaluation
- Emergency response support
- Research, study, test, training
- Information collection, etc.

NISA: Nuclear and Industrial Safety Agency
NUPEC: Nuclear Power Engineering Corporation
JAPEIC: Japan Power Engineering and Inspection Corporation
NUSTEC: Nuclear Safety Technology Center
JNES: Japan Nuclear Energy Safety Organization

Note: Numbers etc. in parentheses of notes correspond to those of Acts and Rules in the following slide.

< <After establishment of JNES > >



Acts and Rules Referred to in the Previous Slide (1/3)

- (A) Act for Regulation on Nuclear Source Material, Nuclear Fuel Material and Nuclear Reactors**
- (B) Act for the Incorporated Administrative Agency, Japan Nuclear Energy Safety Organization**
 - (1) The Rules Concerning Processing of Nuclear Fuel Materials**
 - (2) The Rules Concerning Reprocessing of Spent Fuels**
 - (3) The Rules for Establishment and Operation of Commercial Power Reactors, etc.**
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 - (4) The Rules Concerning Waste Repository of Nuclear Fuel Materials or Materials Contaminated with Nuclear Fuel Materials**
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 - (5) The Rules Concerning Waste Management of Nuclear Fuel Materials or Materials Contaminated with Nuclear Fuel Materials**
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 - (6) The Rules Concerning Spent Fuel Storage Business**
 - (7) The Rules for the Establishment, Operation, etc. of Nuclear Power Reactors at the Stage of Research and Development**
 - (Other) The Rules Concerning the of Nuclear Fuel Materials or Nuclear Fuel Material Refining**

Acts and Rules Referred to in the Previous Slide (2/3)

- **The Ministerial Order to Partially Amend the Rules for Disposal of Nuclear Fuel Materials etc. Outside of the Factory or Place of Business or the Rules for Transportation of Nuclear Fuel Materials etc. Outside Factories or Places of Businesses**
 - (8) **The Rules for Transportation of Nuclear Fuel Materials etc. Outside Factories or Places of Businesses**
 - (9) **The Rules for Disposal of Nuclear Fuel Materials etc. Outside of the Factory or Place of Form for the Rules for Disposal of Nuclear Fuel Materials etc. Outside of the Factory or Place of Business or the Rules for Transportation of Nuclear Fuel Materials etc. Outside Factories or Places of Businesses**
- **The Ministerial Order Concerning Implementation of Inspection etc. by the Incorporated Administrative Agency, Japan Nuclear Energy Safety Organization (JNES) in Accordance with Provisions of the Act for the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors**
- **The Ministerial Order Concerning Implementation of Inspection etc. by the Incorporated Administrative Agency, Japan Nuclear Energy Safety Organization in Accordance with Provisions of the Electricity Utility Act**

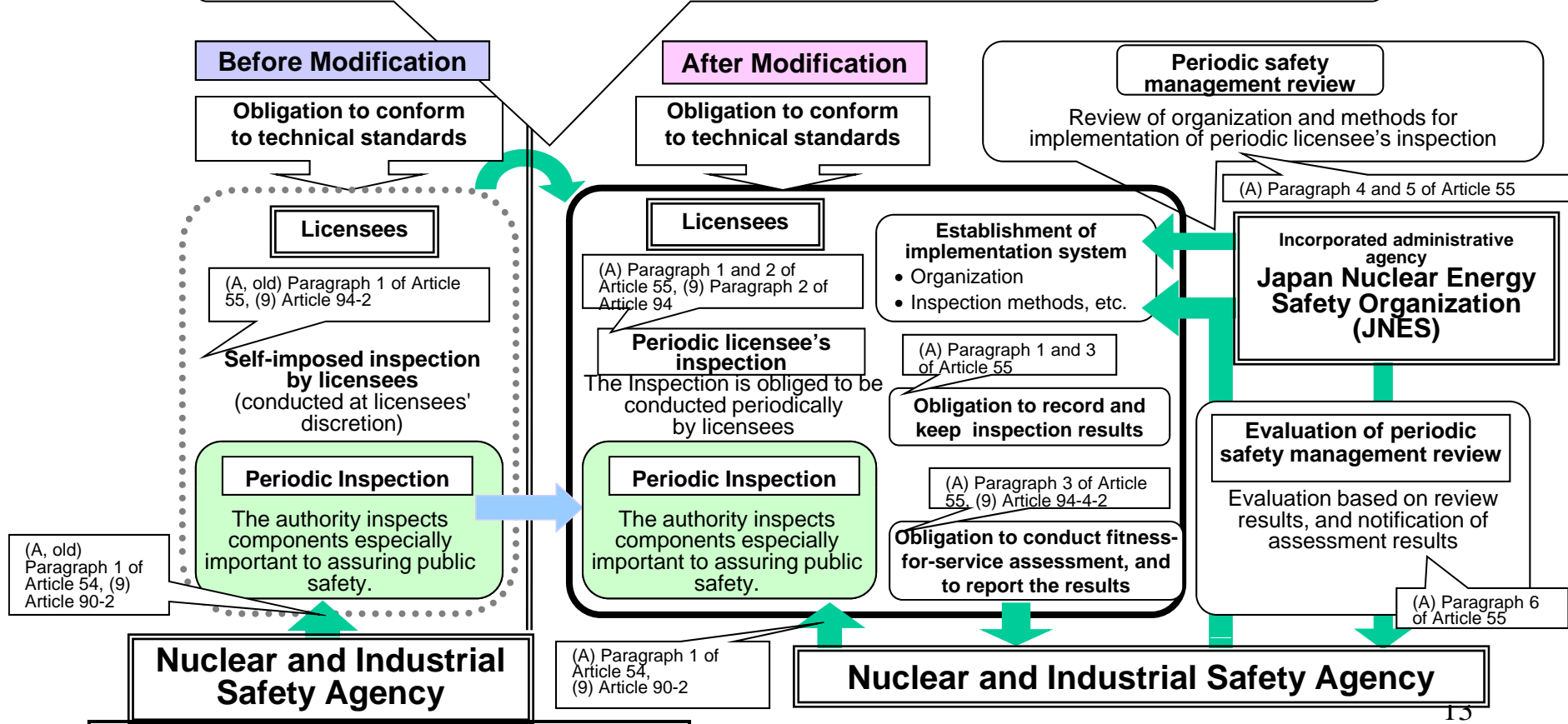
Acts and Rules Referred to in the Previous Slide (3/3)

- **The Notification to Define the Training Provided by the Minister of Economy Trade and Industry in Accordance with the Ministerial Order Concerning Implementation of Inspection etc. by the Incorporated Administrative Agency, Japan Nuclear Energy Safety Organization in Accordance with Provisions of the Act for the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors**
- **The Notification to Define the Training Provided by the Minister of Economy Trade and Industry in Accordance with the Ministerial Order Concerning Implementation of Inspection etc. by the Incorporated Administrative Agency, Japan Nuclear Energy Safety Organization in Accordance with Provisions of the Electricity Utility Act**
- **The Ministerial Order to Partially Amend the Order for Implementation of the Act for the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors**
- **The Ministerial Order to Partially Amend the Rules of Service Charges Concerning Electricity Utility Act**

Introduction of Periodic Licensee's Inspection and Fitness-for-Service Assessment

- Facilities and components formerly subjected to self-imposed inspection are legally positioned as licensee's periodic inspection, with a clear scope of inspection.
- JNES reviews the implementation system for the inspection as part of the periodic safety management review, and the authority evaluates the review results

- Clear legal definition of the scope of periodic licensee's inspections.
- Academic and association's standards are used for subject components and methods of inspection.



Note: Numbers etc. in parentheses of notes correspond to those of Acts and Rules in the following slide.

Acts and Rules Referred to in the Previous Slide

- (A) Electric Utility Act**
- (9) The Ministerial Order to Partially Amend the Rules for Implementation of the Electric Utility Act**

Application of Construction Plan (CP) based on Clear Approval Criteria

Construction of new nuclear power plants

- Class 1 - 3* components defined in the “Significance Classification Guide for Safety Functions of Light Water Nuclear Power Reactors” are subject to “approval”, in principle

(9)
Attached table 2 (concerning Article 62 and 65 of the same rules)
Attached table 3 (concerning Article 63 and 66 of the same rules)

Modification of operating nuclear power plants

- Subject to “approval” or “notification” when the government's confirmation is necessary on consistency with the establishment permit or conformity with the technical standards, with regard to differences from the design already approved.

Modification: Construction for design change from the original as shown below:

- 1) Replacement of components etc. with different specifications from the original design
 - 2) Removal of existing components or change in number of components
- => These cases are generally subject to "approval", since the modified design must be examined.
(Class 3 components, which are relatively less safety-significant, are subject to "notification", while Class 1 and 2 components of higher importance are subject to "approval".)

Repair: Construction for maintaining or recovering the function of components in which a defect is found in its service lifetime as shown below:

- 1) Use of existing components by repairing the defect which is found in its service lifetime
 - 2) Replacement of components in use by ones with the same specifications
- => These cases are subject to "notification" to check the conformity to applicable standards considering the effects of modification on performance and the structural strength of the component, etc.
(This is applied to Class 1 and 2 components since the authority examination should concentrate on more important components, etc.)
=> In principle, the application for approval of the construction plan is not required for replacement of the component with the same specifications. However, for the components that formulate the reactor coolant pressure boundary, the authority confirms the specification submitted as "notification", and conducts pre-service inspection.

* Class 1 components: reactor pressure vessels, emergency core cooling system components, reactor containments, etc.
Class 2 components: spent fuel transportation containers, fuel handling equipment, spent fuel storage facilities, etc.
Class 3 components: stationary environment monitoring systems, fresh fuel vaults, etc.

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Acts and Rules Referred to in the Previous Slide

- (9) **The Ministerial Order to Partially Amend the Rules for Implementation of the Electric Utility Act**