Current Situation of TEPCO's Nuclear Power Plants

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Contents

Events Leading to the Shutdown of Nuclear Power Plants

✓ **Concealment of cracks and the falsification of inspection and maintenance records at nuclear power plants (late 1980s and early 1990s)**

- Pointed out by General Electric, TEPCO announced on August 29,2002 that there had been problems with inspection and maintenance work at nuclear power plants in self-imposed inspections.
- Regarding cracks and their indications in the core shroud founded during self-imposed inspections, TEPCO determined this matter is not seen to have serious effect on plant safety, and didn't report to national or local authorities. In addition, some of the records regarding self-imposed inspections were falsified.
- Components specified by GE, as well as plants that showed indications of cracks during the self-imposed inspection have been sequentially shut down for inspection since September 2002.

✓ **Violation of law during periodic inspections**

- During periodic inspections (legally mandated) in 1991, 1992, as a way of ensuring that the unit would pass the test, air was injected into the primary containment vessel during the leak tests on the primary containment vessel at Fukushima Daiichi Nuclear Power Station Unit-1 (interim report: Oct.25, 2002, final report: Dec.11, 2002). As a penalty, operation at Fukushima Daiichi Nuclear Power Station Unit-1 have been suspended for one year through this November.
- Apart from acts at Fukushima Daiichi Station Unit-1, no dishonest practice was found in any other leak tests conducted in the past at any nuclear power plants. TEPCO will shut down all other operating plants some time between now and April 2003 for the purpose of conducting leak tests. Tests will also be conducted at plants that had been already shut down.

Current Situation of Nuclear Power Plants

	Unit No.	Output (10MW)	Initiation date of scheduled shutdown for inspection	Planned date of next periodical inspection	Shutdown date for inspection concerning leak test on the primary containment vessel
Fukushima No.1	No.1	460		November 20, 2002	October 26, 2002
	No.2	784		March 31, 2003	
	No.3	784		July 18, 2002	
	No.4	784	September 16, 2002	December 2, 2002	
	No.5	784		February 11, 2003	
	No.6	1100			April 15, 2003
Fukushima No.2	No.1	1100		January 7, 2003	
	No.2	1100	September 3, 2002		
	No.3	1100	September 16, 2002	December 10, 2002	
	No.4	1100	October 13, 2002		
Kashiwazaki - Kariwa	No.1	1100		September 3, 2002	
	No.2	1100	September 20, 2002		
	No.3	1100		August 10, 2002	
	No.4	1100		January 7, 2003	
	No.5	1100		March 1, 2003	
	No.6	1356		January 27, 2003	
	No.7	1356			March 29, 2003

As of February 7, 2003

Note: Units shown in green had been shutdown for inspection as of February 7, 2003

Approach to Restart Operations

Preventive Measures to eliminate recurrences

<TEPCO>

- Decisive implementation of four measures to prevent a recurrence.
- Creating “a system that will never allow workers to engage in dishonest practice” and “a climate in which workers will never engage in dishonest practice”.

<Government>

- Reinforcement of inspection system
- Clear legal definition given to self-imposed inspections
- Amendment of Electric Utilities Industry Law and Law on Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors.

Comprehensive Inspection to Confirm Appropriateness of Self-imposed Inspection of Nuclear Facilities

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- Thorough inspection of past inspection and maintenance
- Rapid implementation
- Report to government

Confirming and Ensuring Plant Safety

<TEPCO>

Inspection and Analysis

<Government>

Soundness assessment by the Subcommittee for the assessment of soundness

<TEPCO>

Countermeasures decided and implemented based on government’s soundness assessment

Plant physically capable of operating

explanation

explanation

explanation

Local Stakeholders

(Local Government, Council, Residents of plant site area

Explain and seek understanding of overall response by TEPCO and government to these issues. When achieved seek to restart shutdown facilities.

Toward Restarting

Our Approach to Restore Public Trust and Prevent a Recurrence (1)

➢Preventive Measures

- Four public assurances in order to prevent a recurrence.
- Creating “a system that will never allow workers to engage in dishonest practice” and “a climate in which workers will never engage in dishonest practice”.

1. To improve transparency and the disclosure of public information

• Liaison meeting in the vicinity of its nuclear power stations

Liaison meeting to be established together with local residents, in terms of providing all pertinent information available, and confirming the operations of nuclear power plants directly by representative of local residents. The meeting will include joint inspection and free access to working areas and meetings at the nuclear power station, and thereby ensure transparency and the disclosure of public information.

In Fukushima Prefecture, the first session was held on February 6, 2003, after a preparatory meeting. In Niigata Prefecture, two preparatory meetings have already been held, and the first session is due to be held by March.

• Meeting to ensure nuclear safety and quality assurance
(Established:November 15,2002 Leader: Hideki Nariai, Professor Emeritus, Tsukuba University)

The aim of this meeting is to ensure the transparency of the operations of our entire nuclear power division, including nuclear power plants. Details are:

1.To have TEPCO’s efforts to ensure nuclear power safety and quality assurance reviewed by objective third parties.

2.To select the subject matter for audits, to examine the audit reports, and to offer suggestions for improvements.

The first session was held on December 19,2002, and the second session is scheduled for February 13,2003 at the Kashiwazaki-Kariwa Nuclear Power Station.

• Evaluation of manuals and business processes by third-party institution

Third-party institutions will evaluate the suitability of our nuclear related manuals and business processes.

• Recruitment of external experts on the safety and quality control of nuclear power stations

We recruited participants through our Internet site. We accepted 6 out of 64 applications received.

Our Approach to Restore Public Trust and Prevent a Recurrence (2)

2. To create an environment for conducting appropriate business activities
   - Establishing a contact point for consultation on compliance with laws and corporate ethics (October 2002), etc.
   - Check all its regulations and manuals.

3. To conduct more stringent internal audits and to reform the corporate culture
   - Setting up a system for quality assurance in the nuclear power division.
     Establish "Nuclear Quality Auditing Department" at head office, "Quality Auditing Department" at each nuclear power stations.
   - Revitalize internal communication in order to share awareness of issues between the different sectors
   - Promote personnel exchanges
     Personnel exchanges between the nuclear power-related sections and those which are non-nuclear-related. Young nuclear engineers to go through a training program on customer service at the sales offices.

3. Thorough approach to corporate ethics
   - Establishment of Corporate Ethics Group (October 2002)
   - Establishment of Corporate Ethics Committee (October 2002)
   - Compilation of guidelines for the Standard of Behavior for Corporate Ethics (April 2003)
   - Requirement of a corporate ethics training program (October 2002 -)

Preventive Measures by the Government

✓ Revision of the Electricity Utilities Industry Law and the Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors

(promulgated: December 18,2002)

- Clear legal definitions will be given to self-imposed inspections. Also, requirement of those inspection results be recorded and preserved.
- Introduction of Maintenance Standards

  If a defect is discovered in components, a technical assessment is made regarding safety and the need for maintenance. Operations will be allowed when safety of the facility is confirmed.Specific standards to be stipulated in ministerial ordinance, etc. including the possibility of utilizing private sector standards.

  Until now, technical standards for maintenance have been the same as those applied at the time of reactor construction. Nuclear power plants which are in operation are required to be perennially maintained in “as-new” condition.
- Establishment of heavier punishments for violation of regulations

✓ Establishment of an allegation investigation authority by the Nuclear Safety Commission

(October 2002)

This commission will audit, supervise and advise the investigation about allegation regarding the safety of nuclear facilities conducted by the Nuclear and Industrial Safety Agency.

✓ Strengthening inspection system by increasing the number of safety inspectors, etc.

(scheduled)

State of Comprehensive Checks on the Appropriateness of the Self-imposed Inspections

August 29,2002	TEPCO submitted a report, “Investigation into Inspection and Maintenance Problems at TEPCO’s Nuclear Power Plants, pointed out by GE”.
August 30,2002	Nuclear and Industrial Safety Agency directed “Comprehensive checks on the appropriateness of the self-imposed inspections”
September 20,2002	Proposal on “Comprehensive checks on the appropriateness of the self-imposed inspections” submitted (final report due for submission September 2003)
November 15,2002	Interim report on “Comprehensive checks on the appropriateness of the self-imposed inspections” submitted (date of final report advanced to March 2003)
March 2003	Final report due on “Comprehensive checks on the appropriateness of the self-imposed inspections ” (deadline)
	(TEPCO is now making all efforts to see that report is completed as soon as possible.)

Equipment subject to inspection and timing of reporting

Equipment	Interim Report (November 2002)	Final Report (March 2003)
Reactor Pressure Vessel	Past 5 years	Past 14 years
Reactor core internal structure	Past 5 years	Past 14 years
Reactor water pressure boundary components	Past 5 years	Past 14 years
Reactor water re-circulation plumbing	Past 14 years	Past 14 years
Container leakage inspection data	Most recent inspection data	Most recent inspection data
Other facilities	-	Most recent inspection data

Progress of Inspections and Maintenance

Plant name	Unit No	Shroud	Jet pump (Wedge etc.)	Recycling pipes (PLR pipes)	CRD pipes
Fukushima No.1	1	Replacement completed	Replacement completed	Replacement completed	Inspection underway
	2	Replacement completed	Replacement completed	Replacement completed	Planning to inspect
	3	Replacement completed	Replacement completed	Replacement completed	Repairs underway
	4	Inspection completed Investigation of cause underway	Inspection completed Results being appraised	Removal proceeding as planned	Preparation for repair underway
	5	Replacement completed	Replacement completed	Replacement completed	Planning to inspect
	6	Inspection planned for next periodic inspection	Action points from previous periodic inspection completed	Inspection planned for next periodic inspection	Inspection planned for next periodic inspection
Fukushima No.2	1	Inspection completed No abnormalities	Inspection underway	Inspection underway	Inspection underway
	2	Inspection underway	Preparation for repair underway	Inspection underway	Inspection completed No abnormalities
	3	Inspection completed Investigation of cause underway	Inspection complete No repairs required	Inspection completed Investigation of cause underway	Inspection completed No abnormalities
	4	Inspection completed Investigation of cause underway	Inspection complete No repairs required	Inspection underway	Inspection completed No abnormalities
Kashiwazaki-Kariwa	1	Inspection underway	Preparing for inspection	Inspection underway	Inspection completed No abnormalities
	2	Inspection underway	Inspection complete No repairs required	Inspection completed Investigation of cause underway	Inspection completed No abnormalities
	3	Inspection completed Results appraisal complete	Inspection underway	Inspection underway	Inspection completed No abnormalities
	4	Preparing for inspection	Preparing for inspection	Inspection underway	Preparing for inspection
	5	Planning to inspect	Planning to inspect	Planning to inspect	Planning to inspect
	6	Preparing for inspection	No such equipment	No such equipment	Preparing for inspection
	7	(Review after result from unit 6)	No such equipment	No such equipment	Planning to inspect

Units shut down as at February 7, 2003

Inspections planned, in preparation, or underway

Measures decided, repairs underway or in preparation

Inspections complete, measures under investigation

Inspection complete and no abnormalities; no repairs required; replacement completed; no such equipment

Evaluating Appropriateness and Safety of Inspection and Maintenance Methods

✓Subcommittee on soundness assessment of nuclear power facilities

- Evaluating the soundness, including the suitability of technical standards, is ordinarily a task for licensee's to undertake. But in view of the dishonest practice, more open and transparent process will be introduced such as open deliberation by the Nuclear and Industrial Safety Agency and evaluation based on consultation with experts. To achieve this, a subcommittee for the soundness assessment of nuclear facilities will be established, under the Advisory Committee for Natural Resources and Energy Nuclear and Industrial Safety Committee. In the subcommittee, following steps will be taken for cracks and their indication at core shroud and primary loop re-circulation system:

1. Verification of appropriate inspection methods for shroud, etc.
2. Technical evaluation of soundness
3. Verification of soundness, based on specific results of inspection

✓State of deliberation by the subcommittee

(Evaluation of specific components started from the fourth session)

- The fourth session (January 21,2003)

  Evaluation of shroud at Kashiwazaki-Kariwa Unit 3 carried out.

Current strength determined to be sufficient. The subcommittee announced its view that no problems are anticipated from resumed operation of the unit even after taking anticipated cracks in five years into consideration. However, final evaluation was postponed to next session (scheduled to take place in February).

Forecast Effect of Nuclear Power Issues on Revenue and Expenditure

<As announced at time of interim results>

Forecast effect of nuclear power issues on FY2002 costs = ¥140 billion (approx.)

<Details>

✓Impact on fuel costs, etc.	Approx. ¥130 billion
• Increase in fuel costs, and cost of purchased power	Approx. ¥167 billion
• Reduced back-end costs	Approx. -¥37 billion
✓Impact on repair costs	Approx. ¥10 billion
•Costs for shutting down	Approx. ¥ 5 billion
•Costs for starting up thermal power plants	Approx. ¥ 5 billion

Revised outlook for FY2002 ordinary income: ¥220 billion (Non-consolidated)
¥210 billion(Consolidated)

- Aim to restart as many plants as possible and return operating capacity to normal levels before summer period. Exert all efforts to ensure effect on revenues and expenses is minimized in following and subsequent financial years.