

Status of Initiatives Pertaining to Nuclear Material Protection at the Kashiwazaki- Kariwa Nuclear Power Station

June 10, 2021

Tokyo Electric Power Company Holdings, Inc.

1. Overview of Incidents Pertaining to Nuclear Material Protection That Occur at the Kashiwazaki-Kariwa Nuclear Power Station

● Unauthorized use of an ID card (already announced)

On September 20, 2020, a TEPCO employee used a colleague's ID card to gain access to the main control room. When the facts of this incident came to light the Nuclear Regulatory Agency was immediately notified and the following issues were pointed out.

- ID cards are not being kept secured and personnel was allowed to enter the MCR without his/her own ID card.
- ✓ On February 8, 2021, the Nuclear Regulation Authority deemed the significance level ※ of this event to be "White."
- ✓ On March 10 of the same year, a report on the root cause analysis and countermeasures for this event were reported to the Nuclear Regulation Authority

● Partial loss of function of nuclear material protection equipment (already announced)

On January 27, 2021, a piece of nuclear material protection equipment related to intruder detection was accidentally damaged. The following two issues were pointed out in regards to the status of damage of intruder detection equipment.

- Nuclear material protection equipment was not inspected/maintained, and function could not be maintained.
- Much time was required to repair the equipment and during this time effective substitute measures were not put in place.
- ✓ As a result of the issues mentioned above, the Nuclear Regulation Authority deemed the safety significance of this event to be "red," the most serious of the four categories of significance.

[TEPCO was notified that it must submit a report](#) on the direct causes and root causes of the two events mentioned above, as well as reports on any signs of degrading safety culture or nuclear security culture (including third-party assessments), and an improvement action plan [by September 23, 2021](#)

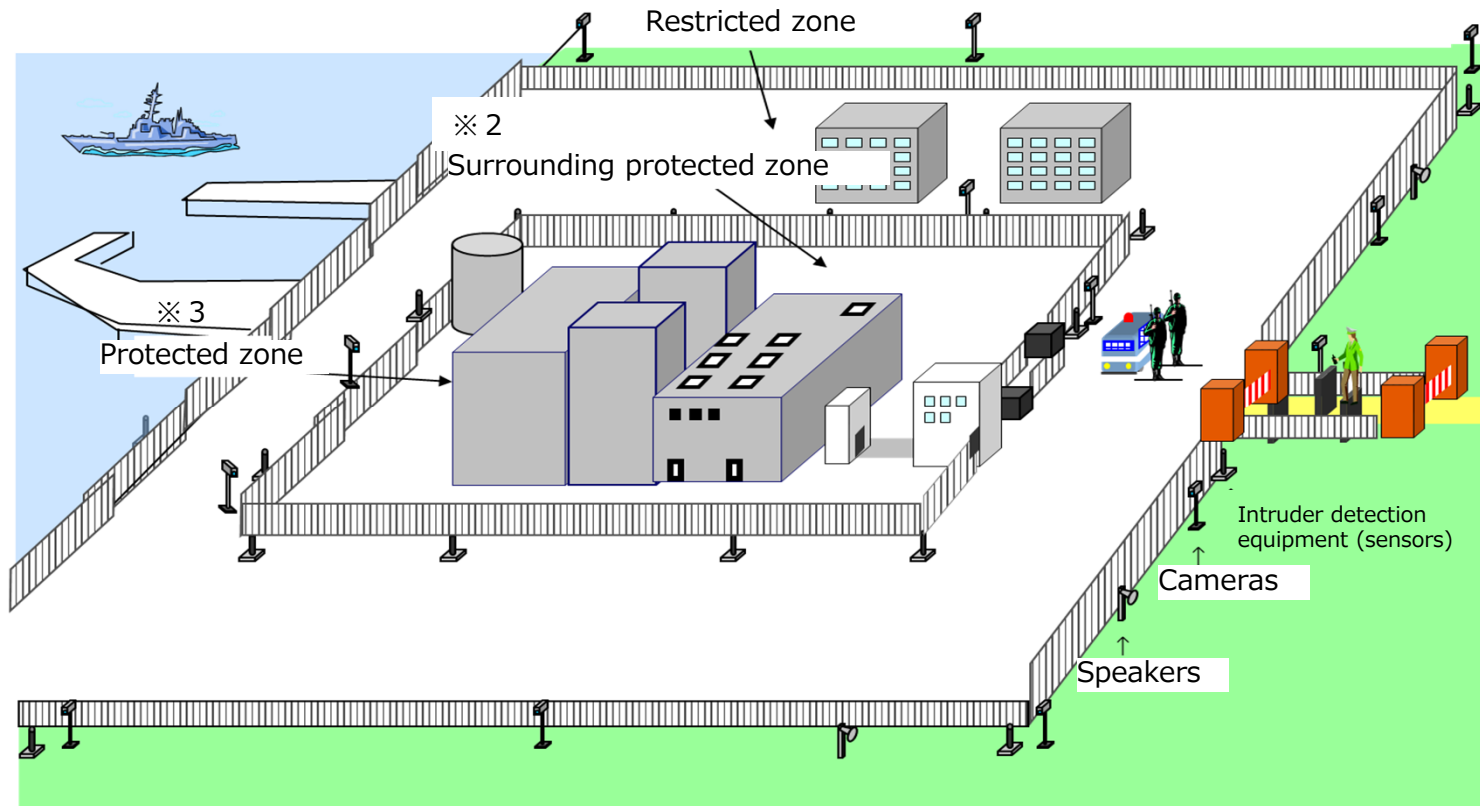
※ Significance level assessment: Safety significance is categorized by color (red, yellow, white, green) in accordance with the extent of degradation of safety at a nuclear power facility. Red indicates the most serious situation that is "at a level that has a great impact on the function or performance of measures to ensure safety," and white indicates that the event "had an impact on the functional performance of measures to ensure safety, but the decrease in safety margins was minimal, and improvements should be implemented under the supervision of regulatory agencies."

2-1. Nuclear material protection

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- In order to protect the public it is necessary to prevent nuclear material from being stolen and used maliciously, and prevent the intentional leaking of nuclear material. It is for this reason that measures for protecting nuclear material, such as **preventing intruders** from gaining access to areas inside a power station, quickly **detecting** intruders, and **responding** to such intrusions, are required by law^{※1}

※1 Article 91 of the Ministerial Ordinance for Commercial Nuclear Power Reactors concerning the Installation, Operation, etc.



※2 Surrounding protected zone: Zone established around a protected zone to ensure the protection of specific nuclear fuel material inside the protected zone.

※3 Protected zone: Zone in which equipment for using and storing specific nuclear fuel material is located

2-2. Action that must be taken when function is lost to nuclear material protection equipment

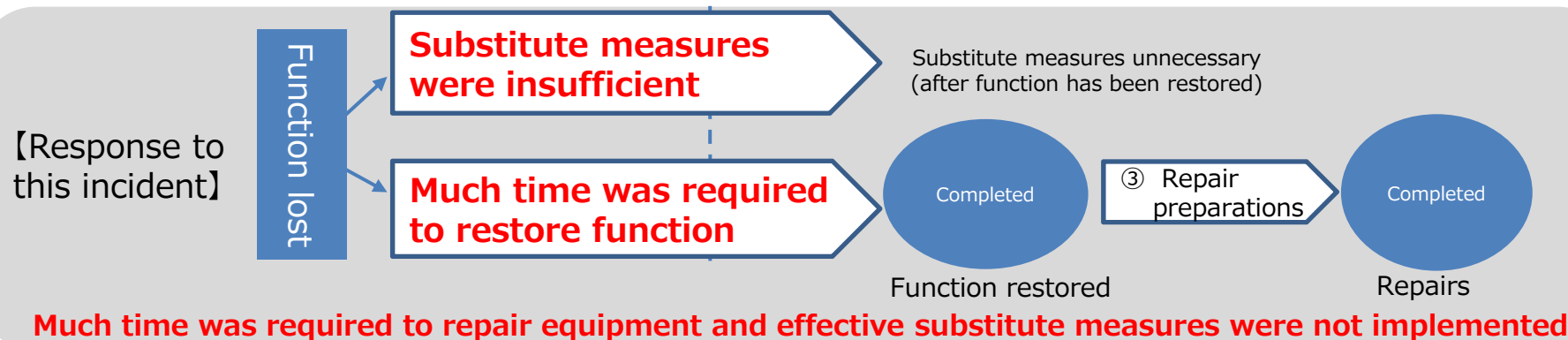
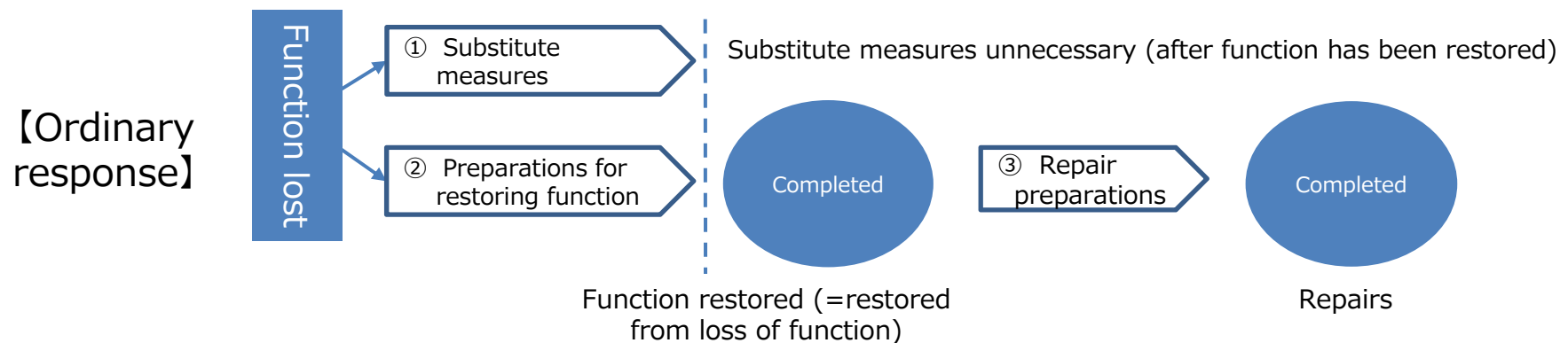
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● Action that should be taken based on legal requirements (during loss of function)

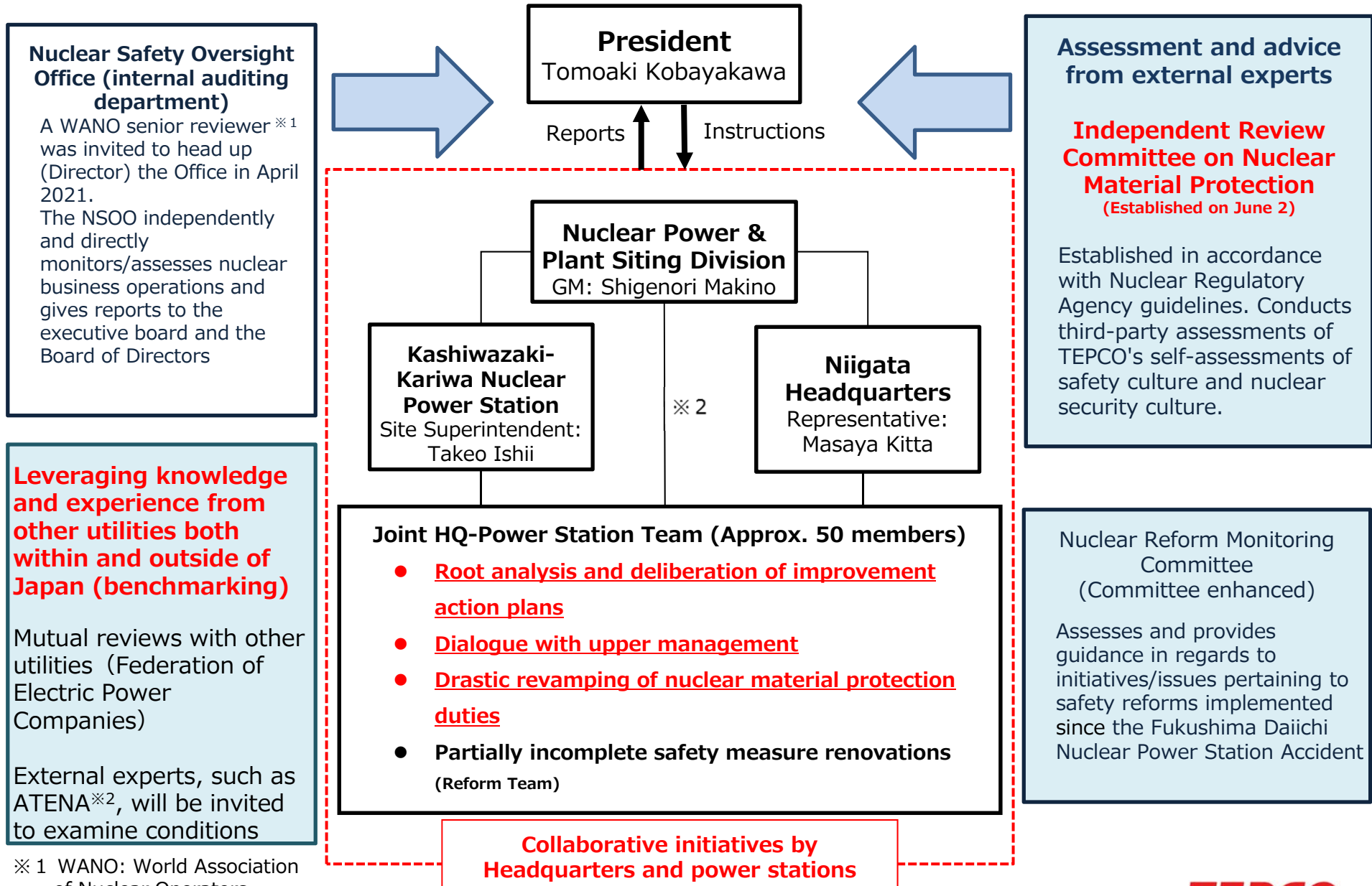
Quickly repair or replace said equipment in order to maintain function, and enhance monitoring through the use of substitute measures during repair or replacement work.

● Two problems that occurred during this incident

- Much time was required to repair the equipment to which function was lost
- Substitute measures for maintaining intruder detection equipment function were insufficient



3. Action structure



※ 1 WANO: World Association of Nuclear Operators

※ 2 ATENA: Atomic Energy Association

【Reference】 Establishment of the Independent Review Committee on Nuclear Material Protection

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- On June 2, an Independent Review Committee on Nuclear Material Protection comprised of outside members independent of TEPCO was established in order to ensure objectivity when ascertaining the causes of these incidents pertaining to nuclear material protection.
- TEPCO shall reflect the advice and recommendations received from the commission during cause analysis and when proposing countermeasures for this string of incidents as it engages in drastic reforms

Objectives

- To assess the validity of cause analysis and fact-finding investigations performed by Tokyo Electric Power Company Holdings, Inc.
- To analyze organizational factors and assess corporate culture including its safety culture and nuclear security culture, and identify signs of degradation pertaining to the incidents being investigated
- To propose remedial measures based upon the corporate culture assessment

Members

Chair-person Mr. Toshihiko Itami

<Field of Expertise> Governance, Risk and Crisis Management/Compliance

<Career History> Attorney-at-law
Former Superintending Prosecutor, Osaka High Public Prosecutors Office

Member Mr. Isao Itabashi

<Field of Expertise> Nuclear security, Risk and Crisis management

<Career History> Chief, Center for Analysis and Studies, Council for Public Policy (CPP)

Member Ms. Kyoko Ooba

<Field of Expertise> Safety culture, engineer ethics

<Career History> Deputy Chief Engineer, Japan Atomic Energy Agency; Associate Professor, Academia-Industry Research Center, Nagaoka University of Technology

4. Status of initiatives

(1) Current initiatives

① Fact-finding investigations and cause analysis of each incident (partial loss of function to nuclear material protection equipment)

Cause analysis and a fact-finding investigation into how equipment function was maintained and the response to the partial loss of function is currently being implemented by reviewing work records/documents, interviewing personnel involved ※1, and engaging in mutual reviews with other utilities. ※2

※1 Personnel interviewed: Personnel at the power station and Headquarters engaged in nuclear material protection, and contractors

※2 Mutual review with other utilities: 13 nuclear operators shall share information on operation status, and visit each other's power stations (visits will be made to two power stations including Kashiwazaki-Kariwa, over a total of five days), through which areas for improvement shall be identified by comparing each other's rules and operations in an effort to raise the level of nuclear material protection.

Fact-finding investigation	Primary actions
① Repairs made during equipment malfunction	Mutual reviews with other utilities
② How equipment function is maintained	Analysis of equipment data from three of TEPCO's power stations
③ Awareness about substitute measures	Interviews with related personnel
④ Status of internal reports pertaining to equipment nonconformances	Review of the manuals/meeting minutes

② General inspection of nuclear material protection duties that goes beyond each incident

A general inspection will be performed with protection-related personnel from Headquarters, the Fukushima Daiichi Nuclear Power Station and the Fukushima Daini Nuclear Power Station to examine how legal requirements are covered in manuals and the suitability of the degree of interpretation.

③ Analysis of broad company issues such as company culture, business/department management, and resource allocation

- Dialogue with upper management (dialogue sessions held 60 times during which approximately 540 personnel were engaged with (implementation rate: 49%, as of June 8)
- Questionnaires on nuclear security culture distributed to employees and contractors (approximately 3,700 people) are being analyzed

(2) Future initiatives

- Interviews and an investigation on business/department management and resource allocation shall be conducted for upper management and the Headquarter Nuclear Power Division
- Company culture (safety culture/nuclear security culture) shall be assessed while looking at organizational factors that led to the string incidents as well as the results of questionnaires distributed to employees/contractors and opinions voiced during dialogue sessions, and an improvement action plan shall be formulated based on this assessment.

【Reference】 Dialogue with upper management

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● Objectives and format

- Upper management began dialogue sessions on March 26 in order to identify organizational issues and seek hints to solving them through dialogue with approximately 1,100 personnel at the Kashiwazaki-Kariwa Nuclear Power Station
- Either President Kobayakawa, GM Makino, President Kitta or Site Superintendent Ishii sit down with approximately 10 personnel from the Kashiwazaki-Kariwa Nuclear Power Station and engage in dialogue for approximately one hour.

● Performance to date

- As of June 8, 60 dialogue sessions have been held with approximately 540 personnel (implementation rate: 49%)
- Questionnaires on nuclear security culture distributed to employees and contractors (approximately 3,700 people) are being analyzed



Dialogue session with President Kobayakawa

Prominent comments from participants during dialogue sessions with management

- ① There are problems with vertical (upper management-Headquarters-power station, supervisors-subordinates) and horizontal (between groups at the power station) coordination and communication.
- ② More resources are required to meet the workload and address issues sufficiently.
- ③ Workers feel busy and it is difficult to keep motivated.
- ④ It's difficult to obtain information pertaining to nuclear material protection from other departments.

An investigation/cause analysis into business/department management and resource allocation (lack of communication, the need for more resources, maintaining motivation, etc.) shall be conducted

5. Issues to be examined going forward

Investigations, cause analysis, and countermeasure proposal for the string of incidents shall be implemented while considering the following as well as the efficacy assessment of recurrence prevention measures implemented in the past, and while receiving advice/recommendations from the Independent Review Committee on Nuclear Material Protection.

Investigation/cause analysis

- **Why did it take so much time to restore function?**

- Power station: How decisions were made about steps to restore function; Factors that enable substitute measures to be implemented for such a long period of time, etc.
- Headquarters: Status of ascertaining function restoration and problem awareness, etc.

- **Why were substitute measures insufficient?**

- Power station: Awareness about the effectiveness of substitute measures while more equipment malfunctioned, etc.
- Headquarters: Status of ascertaining the details, and effectiveness, of substitute measures; Problem awareness, etc.

- **Why couldn't the company make corrections?**

- Power station: Methodology and details of station reports; Awareness of those making reports and those being reported, etc.
- Headquarters: Status of initiatives for pointing out/correcting problems; Decisions on behalf of the entire organization in regards to nuclear material protection management and resource allocation


Countermeasure proposals

- **The countermeasures should transcend the scope of these incidents and we should examine how to enhance nuclear material protection in light of the scale of the Kashiwazaki-Kariwa Nuclear Power Station while receiving advice from external experts.**
- **What initiatives are needed throughout upper management and the entire organization in order to continually and independently improve nuclear security culture and safety culture?**

6. Countermeasures that have already begun

- Countermeasures that have already begun that are based on mutual reviews with other utilities and issues noticed during the general inspection of nuclear material protection duties are as follows.
- More detailed investigation/cause analysis shall be conducted based on the issues pointed out and advice received from the Independent Commission as we develop more countermeasures.

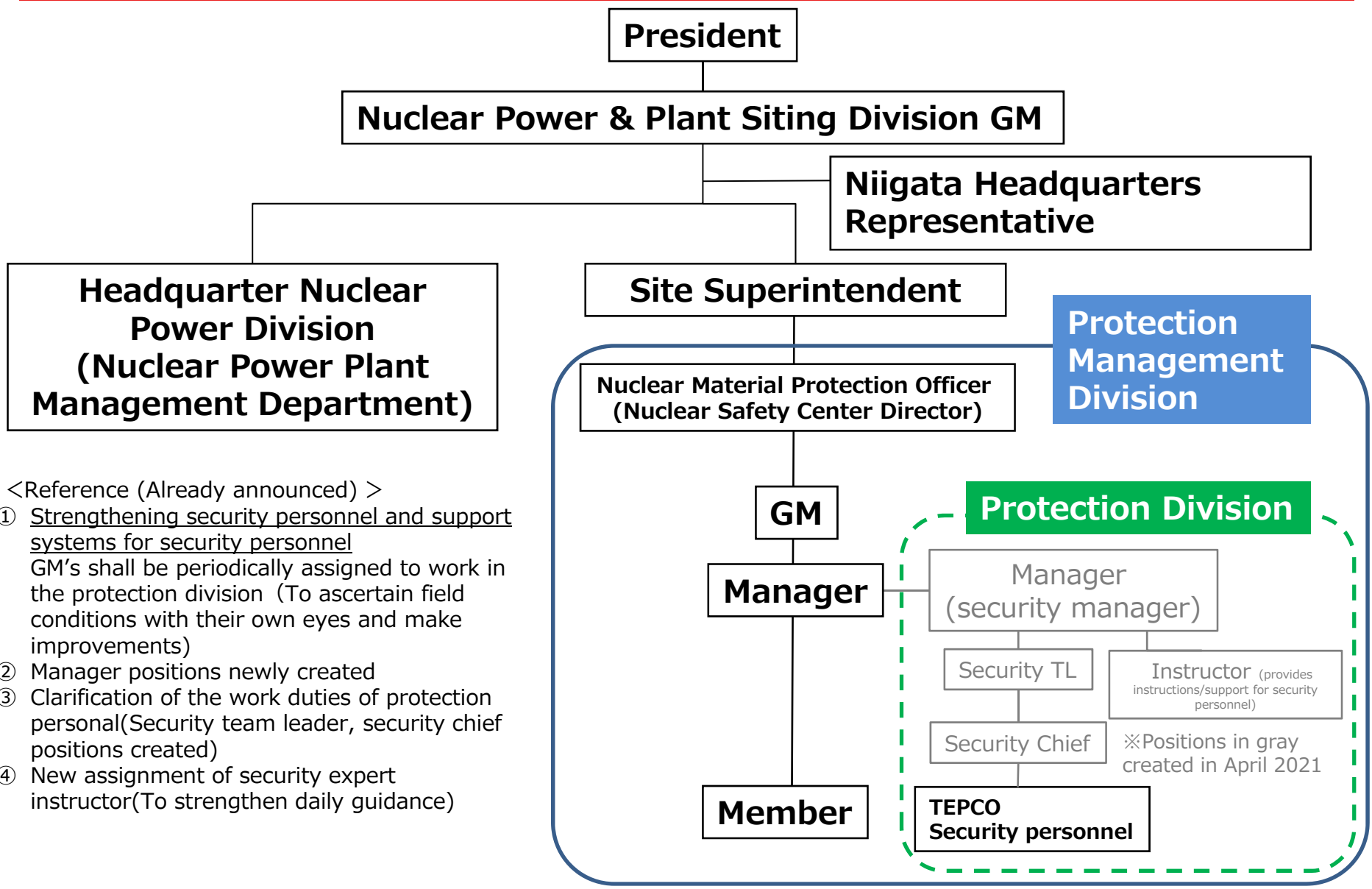
Direction	Partial loss of function of nuclear material protection equipment	Unauthorized use of ID card※
Update equipment (equipment countermeasures)	<ul style="list-style-type: none"> • Begin deliberating an equipment replacement plan 	<ul style="list-style-type: none"> • Install additional ID verification equipment (Completed) • Add more protection equipment
Construct structure for coordinating with other departments and contractors	<ul style="list-style-type: none"> • Reconstruct system for equipment maintenance with contractors • Construct system for coordination between protection management departments and maintenance departments 	<ul style="list-style-type: none"> • Strengthening security personnel and support systems for security personnel (Completed) • Further encourage managers to go into the field and ascertain actual field conditions
Clear and strict procedures	<ul style="list-style-type: none"> • Clarification of rules for handling equipment malfunctions (deadline management, etc.) • Strengthen performance assessments (trend analysis, etc.) 	<ul style="list-style-type: none"> • Strict management/mutual checks of ID cards, etc. (Completed) • Strict handling of violations • Revision of protection regulations and basic plans pertaining to nuclear security

※ Refer to page 10 for details on countermeasures for the unauthorized use of ID cards 

【Reference】 Countermeasures currently being implemented (unauthorized use of ID card)

Underlying factors	Countermeasures	Implementation status
1. Insufficient means for strictly protecting nuclear material	Install additional ID verification equipment	Completed (May 2021~)
	Add more protection equipment	Preparations underway
2. Lack of understanding about the importance of nuclear material protection	Nuclear material protection education (add classes on information leaks and prevention measures)	Preparations underway (Planned for July 2021)
	Interview operators and security personnel	Completed (Apr. 2021~)
3. Tendencies that make it difficult to engage in strict security measures	Strengthening security personnel and support systems for security personnel	Completed (Apr. 2021~)
	Nuclear material protection education (Add classes on the importance of security)	Preparations underway (Planned for July 2021)
	Strict management of ID cards, etc.	Completed (Sep. 2020~)
	Monitoring, mutual checks of ID card management	Completed (Feb. 2021~)
	Strengthen actual response training drills for security personnel	Completed (Mar. 2021~)
	Roundtable meetings	Completed (Feb. 2021~)
	Clarify what is to be managed by individuals and define management	Completed (Feb. 2021~)
	Improve the degree to which managers understand actual field conditions and actual field equipment	Preparations underway (Under deliberation in light of the incidents pertaining to nuclear material protection equipment)
	Revise the basic plan for cultivating nuclear security culture	
Revise nuclear material protection regulations		

[Reference] Organization chart (Protection Management Department, Kashiwazaki-Kariwa Nuclear Power Station)



- <Reference (Already announced) >
- ① Strengthening security personnel and support systems for security personnel
GM's shall be periodically assigned to work in the protection division (To ascertain field conditions with their own eyes and make improvements)
 - ② Manager positions newly created
 - ③ Clarification of the work duties of protection personal(Security team leader, security chief positions created)
 - ④ New assignment of security expert instructor(To strengthen daily guidance)

Organization Chart for the Protection Management Department, Kashiwazaki-Kariwa Nuclear Power Station