

This is an overview of the report submitted to the Nuclear Regulation Authority on March 10, 2021. For nuclear security reasons some information has been omitted.

Root Cause Analysis and Improvement Measures pertaining to the Unauthorized Use of an ID Card by a Kashiwazaki-Kariwa Nuclear Power Station Employee (Overview)

March 10, 2021

Tokyo Electric Power Company Holdings, Inc.

1. Background/Overview (Announced on February 15, 2021)

< Incident overview >

- At the Kashiwazaki-Kariwa Nuclear Power Station on the morning of September 20, 2020, main control room worker A removed the ID card of main control room worker B without permission from his locker (which was left unlocked).
- When main control room worker A attempted to gain entry by giving the name of main control room worker B, contracted security personnel and TEPCO security guard C felt that something was out of place, but granted entry.
- As decided by TEPCO security guard C, main control room worker A's identification data was recorded on main control room worker B's ID card.
- Main control room worker A used main control room worker B's ID card to pass through the surrounding protected zone and the protected zone to gain entry to the main control room.

< How the incident was discovered >

- On the morning of next day, September 21, 2020, when main control room worker B attempted to gain entry, an error occurred when authenticating his identity.
- TEPCO security guard C, who was present the previous day when main control worker A's identification data was recorded on main control room worker B's ID card, questioned main control room worker B thereby discovering that main control room worker A had used the main control room worker B's ID card. The accident was immediately reported on the same day to the Nuclear Regulatory Agency.

2. Assessment by the Nuclear Regulation Authority (NRA) and steps to be taken (Announced on February 15, 2021)

- On February 9, 2021, it was conveyed to the NRA that TEPCO does not have an opinion to state in regards to the significance assessment “White.”
- On the same day, the NRA made the “White” significance assessment official, and a notice to change the inspection category from 1 to 2 was received.
- In response to this, TEPCO will present a plan to the NRA to engage in activities to make improvements in conjunction with root cause analysis of this incident, and report on the results of the implementation of this plan by March 10*. (Report submitted on March 10)
- Going forward, TEPCO will cooperate to the best of its ability with additional inspections implemented by the Nuclear Regulatory Agency

Handling Category	Power station status
Category 1	Operator will make self-directed improvements
Category 2	Operator safety activities have degraded slightly
Category 3	Operator safety activities have degraded to a certain extent
Category 4	Operator safety activities have degraded over a long period of time and/or have seriously eroded
Category 5	Plant operation cannot be allowed

Focus of additional inspections based on Category 2

- Additional inspections shall be implemented to target operator safety activities for which performance degradation has been discovered.
- The results of root cause analysis shall be assessed, and the signs of degradation of safety culture and nuclear security culture shall be identified.

3. Primary causes and countermeasures (Announced on February 15, 2021)

Causes and countermeasures already implemented

- Lack of awareness about the importance of nuclear security
 - In order to better understand compliance with nuclear security, the unauthorized use of an ID card will be used as a case study during group discussions implemented as part of additional education.
- ID cards are not being kept secure
 - Education shall be provided to ensure that ID cards are thoroughly secured (keep locked, prohibit lending, steps to be taken if an ID card is lost, etc.).
- Insufficient handling of identification authentication errors
 - Rules for confirming identity by security managers shall be created.
 - Suspension of use of field registration equipment.

**Details
explained in
this document**

Steps to be taken in the future

- ① In order to construct a robust nuclear security system, steps to cultivate nuclear security culture, such as improving awareness of individuals/departments, behavior, and the relationship between departments, etc., shall be examined in addition to improvements made to equipment and processes.
- ② How information on incidents related to nuclear security is to be disclosed shall be examined while considering the balance of information disclosure and nuclear security. (Under deliberation)

TEPCO takes this incident very seriously and has taken disciplinary action in order to clarify managerial responsibility and thoroughly implement recurrence prevention measures.

4. Root cause analysis

- A **root cause analysis** was conducted in order to ensure that a recurrence of similar incidents is prevented (interviews with parties involved, examination of rules, ordering of the sequence of events, detailed examination of technical, human, and organizational factors that led to this incident)
- **Three underlying causes were typified in the course of the root cause analysis process**
 - 1. Insufficient means for implementing strict nuclear material protection**
 - 2. Lack of understanding about the importance of nuclear material protection**
 - 3. Corporate climate that hinders strict security measures**
- The correlation between these underlying factors was examined. On a deeper level, "weaknesses in management's ability to ascertain field conditions," and "lack of awareness about the potential for internal threats" were identified as organizational factors.

< Typification and examination of underlying factors >

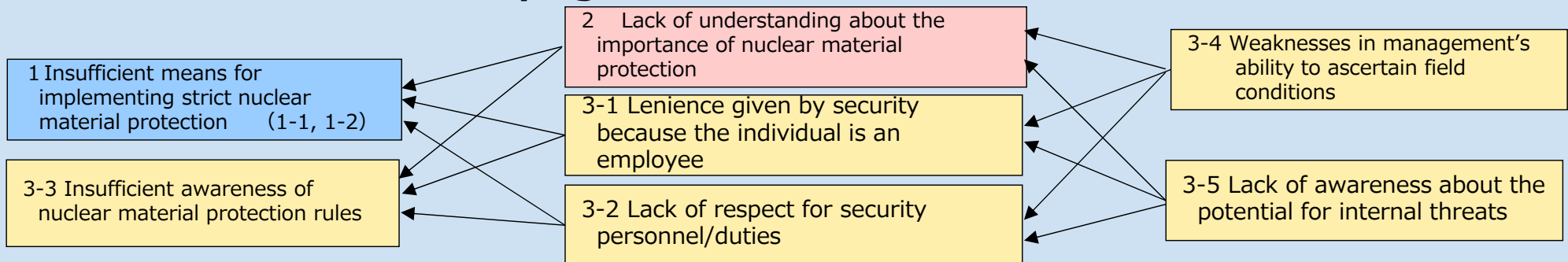
Typification of underlying factors

1. Insufficient means for implementing strict nuclear material protection

2. Lack of understanding about the importance of nuclear material protection

3. Corporate climate that hinders strict security measures

Correlation between underlying factors



5. Countermeasures based on underlying factors (list)

- Separate countermeasures shall be implemented for each underlying factor

Black: Announced on 2/15
Blue: Newly announced

Underlying factor category		Countermeasures
1. Insufficient means for implementing strict nuclear material protection	1-1 Problems with identification validation process	<ul style="list-style-type: none"> • Creation of identification validation rules by security management personnel • Termination of use of registration equipment in the field
	1-2 Problems with current equipment configuration used to validate identification	<ul style="list-style-type: none"> • Additional validation equipment • Termination of use of registration equipment in the field
2. Lack of understanding about the importance of nuclear material protection	–	<ul style="list-style-type: none"> • Nuclear material protection education (Add topics related to information leaks/prevention measures) • Interview with operators and security personnel
3. Corporate climate that hinders strict security measures	3-1 Lenience given by security because the individual is an employee	<ul style="list-style-type: none"> • Nuclear material protection education (Add topics related to information leaks/prevention measures) • Strengthening of training response drills for security personnel
	3-2 Lack of respect for security personnel/duties	<ul style="list-style-type: none"> • Strengthening security personnel and support for security personnel • Nuclear material protection education (Add topics about the importance of security)
	3-3 Insufficient awareness of nuclear material protection rules	<ul style="list-style-type: none"> • Strict management of ID cards • Mutual checks, monitoring of ID card management • Strengthening of training response drills for security personnel
	3-4 Weaknesses in management's ability to ascertain field conditions	<ul style="list-style-type: none"> • Implementation of "round-table meetings" • Improvement of the ability of managers to ascertain field conditions and actual work being done in the field
	3-5 Lack of awareness about the potential for internal threats	<ul style="list-style-type: none"> • Revision of basic policies on cultivating nuclear security culture • Revision of nuclear material protection regulations • Clarification of issues that must be managed by individuals, and root such behavior • Implementation of "round-table meetings"

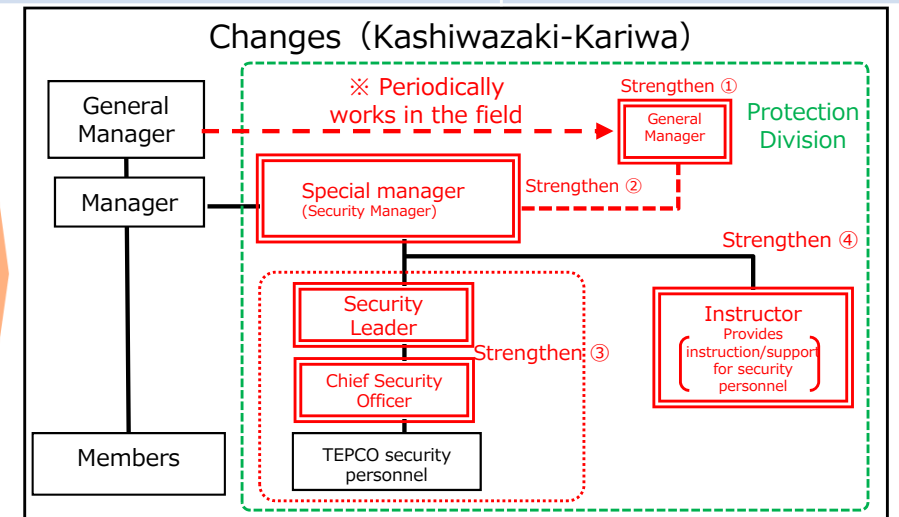
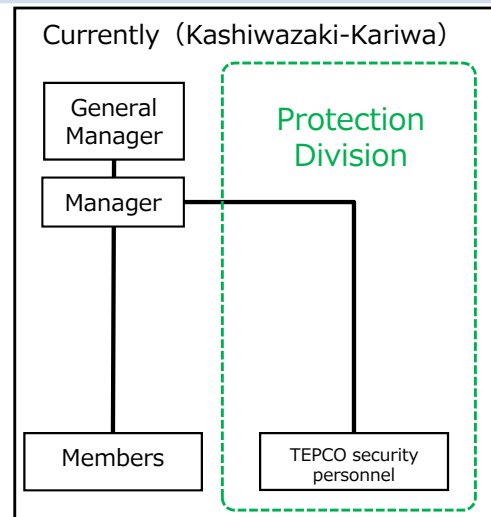
6. Countermeasures based on underlying factors (1 / 3)

● The following is an overview of the countermeasures newly announced

Underlying factor category	Countermeasures	Implementation status
1-2 Problems with current equipment configuration used to validate identification	○Additional validation equipment	February 2021~ Commencement of deliberation of procurement and usage rules
2. Lack of understanding about the importance of nuclear material protection	○Nuclear material protection education (Addition of countermeasures related to information leaks/prevention measures) · Add (develop) education on measures to be implemented if information is leaked or if actions that violate nuclear security protection are taken	March 2021~ Commencement
	○Interview with operators and security personnel · Confirm status of, and awareness about, complying with laws and regulations	March 2021~ Commencement
3-1 Lenience given by security because the individual is an employee	○Nuclear material protection education (Addition of countermeasures related to information leaks/prevention measures)	March 2021~ Commencement
	○Strengthening of training response drills for security personnel	March 2021~ Commencement
3-2 Lack of respect for security personnel/duties	○Strengthening security personnel and support for security personnel · Refer to the diagrams below	Preparations underway for deployment in April 2021

Strengthening security personnel and support for security personnel

- ①The General Manager will periodically work in the Protection Division (Ascertains and make improvements to field conditions personally)
- ②Special Manager newly assigned
- ③Clarification of security responsibilities of protection personnel (Create Security Leader and Chief Security Officer positions)
- ④Newly assign security expert as instructor (Strengthen security through daily instruction)



6. Countermeasures based on underlying factors (2/3)

Underlying factor category	Countermeasures	Implementation status
3-2 Lack of respect for security personnel/duties	ONuclear material protection education (Add topics about the importance of security) <ul style="list-style-type: none"> • Add (develop) education related to the positioning and importance of security personnel 	March 2021~ Commencement
3-3 Insufficient awareness of nuclear material protection rules	OMutual checks, monitoring of ID card management <ul style="list-style-type: none"> • Perform daily, mutual checks of the management status of ID cards during morning meetings and roll calls and have employees wear them at all times, etc. 	February 2021~ Commencement of mutual checks
	OStrengthening of training response drills for security personnel	March 2021~ Commencement
3-4 Weaknesses in management's ability to ascertain field conditions	OImplementation of "round-table meetings" <ul style="list-style-type: none"> • Refer to the diagram below 	February 2021~ Commencement
	OImproving the ability of managers to ascertain field conditions and actual work being done in the field <ul style="list-style-type: none"> • Having managers (General Manager and Manager) into the field and personally check the status of equipment and personnel, including all duties in addition to nuclear material protection tasks, will lead to improvements. 	March 2021~ Identification of problems

Implementation of "roundtable meetings"

- Share thoughts and ideas through office discussions between power station executives and personnel. Directly gathering opinions from field personnel will enable a speedy response to problems in the field.
- Many personnel have said that, "executives should actually go into the field and check conditions with their own eyes."



Roundtable meeting

6. Countermeasures based on underlying factors (3/3)

Underlying factor category	Countermeasures	Implementation status
3-5 Lack of awareness about the potential for internal threats	<p>ORevision of basic policies on cultivating nuclear security culture</p> <ul style="list-style-type: none"> Basic internal policies on nuclear security should be revised with detail and clarity so that each individual knows what is expected of them in order to improve awareness about the potential of internal threats 	March 2021 revision (planned)
	<p>ORevision of nuclear material protection regulations</p> <ul style="list-style-type: none"> Revise nuclear material protection regulations, which are the highest regulations for nuclear material protection 	February 2021~ Deliberation on revisions has begun
	<p>OClarify those issues that must be managed by individuals, and root such behavior</p> <ul style="list-style-type: none"> Clarify other equipment, such as work uniforms and helmets, etc., that need to be managed by each individual in addition to ID cards. 	February 2021~ Commencement of mutual checks
	<p>OImplementation of "roundtable meetings"</p> <ul style="list-style-type: none"> Increase awareness about potential internal threats through "roundtable meetings" 	February 2021~ Commencement

Conclusion

- This is an extremely serious incident that should never occur at a nuclear power company, so root cause analysis was implemented in order to ensure that similar incidents are prevented.
- Three underlying causes were typified/identified in the course of the root cause analysis process
 - ① Insufficient means for implementing strict nuclear material protection
 - ② Lack of understanding about the importance of nuclear material protection
 - ③ Corporate climate that hinders strict security measures
- And, on a deeper level, "weaknesses in management's ability to ascertain field conditions," and "lack of awareness about the potential for internal threats" were identified as organizational factors.
 - "Weaknesses in management's ability to ascertain field conditions" is a problem that affects not only nuclear material protection, but all work done at the power station. Therefore, field observation activities shall be improved to enable managers to regularly go into the field to check the condition of equipment and personnel with their own eyes and implement improvements.
 - In regards to the "lack of awareness about potential internal threats," basic policies on nuclear security culture cultivation will be revised and the actions expected of individuals shall be detailed and clarified thereby enabling each individual to carry out such actions.