

Initiatives Aimed at Improving the Overall Quality of Work at Power Stations in Light of the Incidents Involving the Unauthorized Access of a Power Station Building and the Partial Incompletion of Safety Measures at Unit 7 at the Kashiwazaki-Kariwa Nuclear Power Station

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Tokyo Electric Power Company Holdings, Inc.

TEPCO

I . RE: Unauthorized access to a power station building by a power station worker

- 1. Background/overview (already announced)**
- 2. Assessment by the Nuclear Regulation Authority (NRA) and steps to be taken**
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II . Initiatives to improve the overall quality of work at power stations

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[Reference]Initiatives to improve the overall quality of work at power stations

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- 2. Detailed review of underlying causes related to the partial incompleteness of safety measure renovations**

1. Background/overview (already announced)

<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 without permissions 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 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 ID card without permission. The accident was immediately reported on the same day to the Nuclear Regulatory Agency.

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2. Assessment by the Nuclear Regulation Authority (NRA) and steps to be taken

- 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.
- 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.

I. RE: Unauthorized access to a power station building by a power station worker**3. Primary causes and countermeasures (information that can be disclosed without impacting nuclear security)****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.

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.

TEPCO takes this incident very seriously and has taken disciplinary action in order to clarify managerial responsibility and thoroughly implement recurrence prevention measures. ※ Refer to the attachment for details

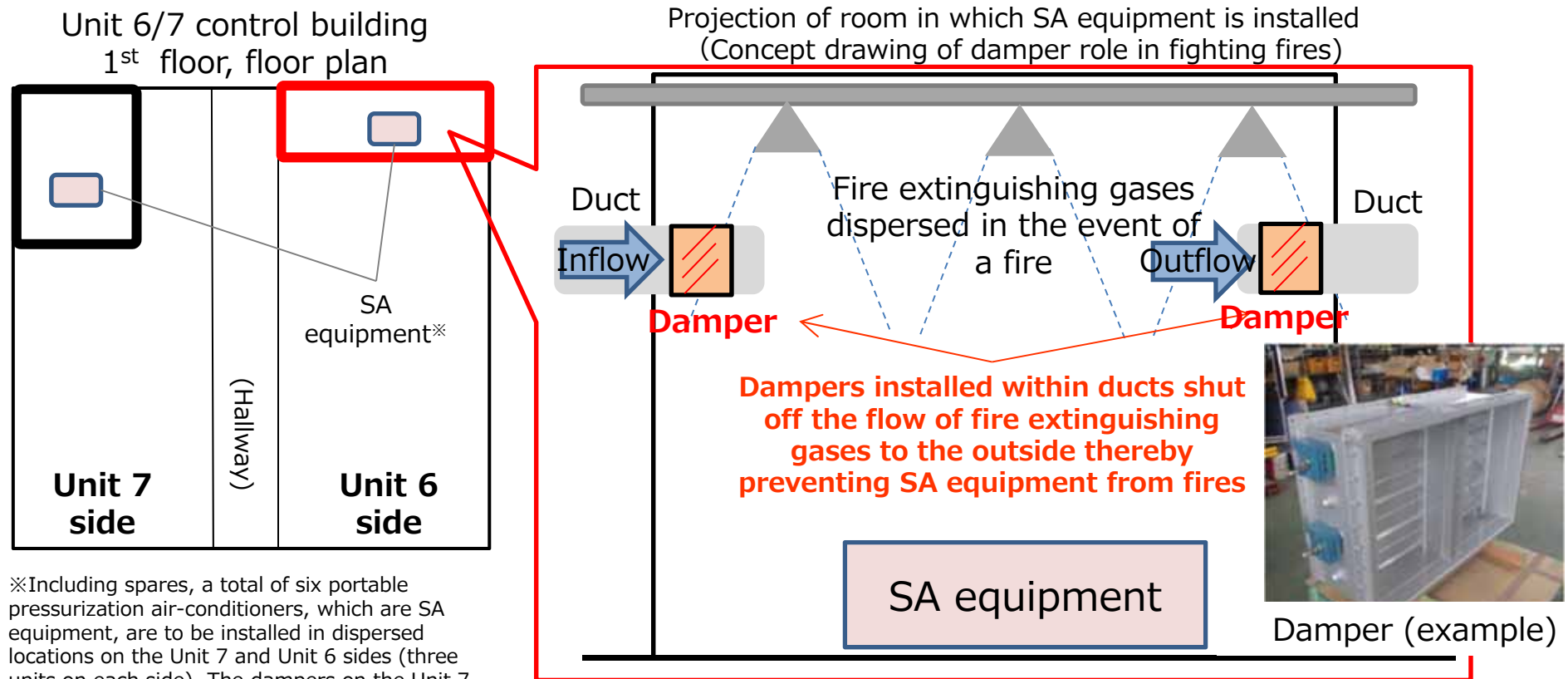
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1. Partial incompleteness of safety measure renovations at Unit 7 (already announced)

- On January 27, it was discovered that safety measure renovations (damper^{※2} installation) to prevent severe accident equipment (SA equipment)^{※1} dispersed in the Unit 6/7 control building from fires had not been completed.
- Dampers seal off rooms in which severe accident equipment (SA equipment) is located in the event of a fire thereby preventing fire extinguishing gases from leaking.
- The aforementioned damper installation is being implemented/managed as work to prevent other safety equipment for unit 6, and renovations at unit 7 needed to be changed in conjunction with installation of SA equipment, but failure to do this resulted in this renovation being overlooked.

※ 1 : Portable pressurization air conditioners

※ 2 : Equipment that prevents fire extinguishing gases from leaking through air conditioning ducts connected to the outside. This equipment needs to be installed on air conditioning ducts at several locations in the aforementioned building.



※Including spares, a total of six portable pressurization air-conditioners, which are SA equipment, are to be installed in dispersed locations on the Unit 7 and Unit 6 sides (three units on each side). The dampers on the Unit 7 side have been installed.

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2. General inspection content

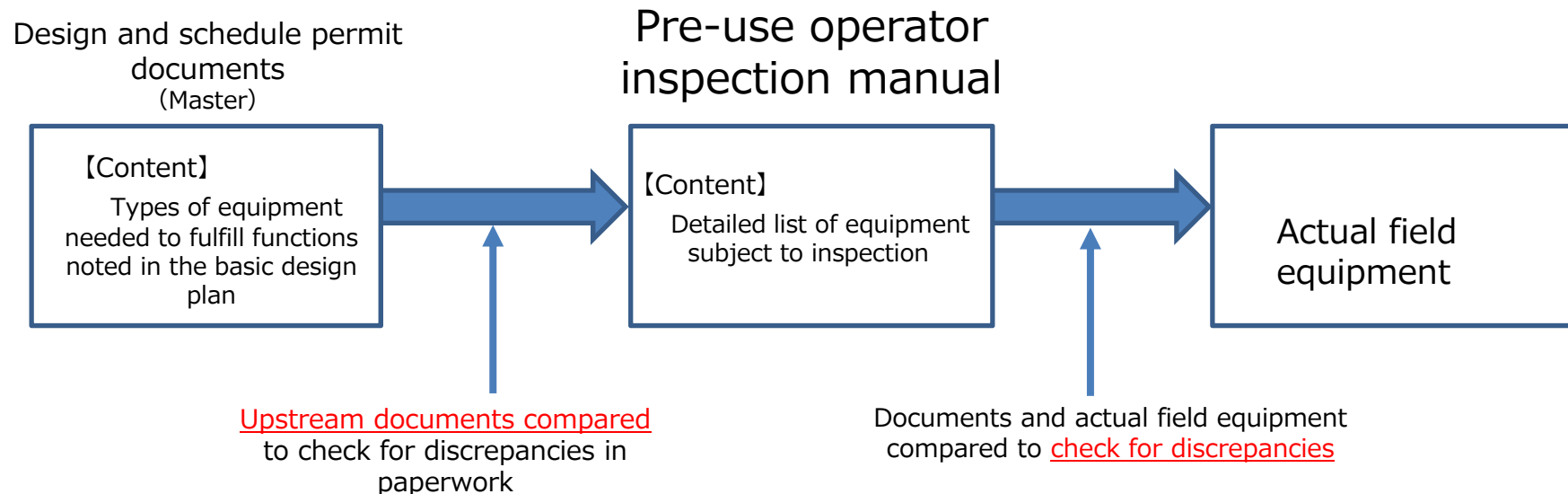
- A general inspection is being implemented under the supervision of the Reform Team in light of the partial incompleteness of safety measure renovations at Unit 7.

<General inspection content>

- ① The master design and schedule permit※ is to be compared with pre-use operator inspection manuals to check for discrepancies.
- ② After completing this, a field inspection will be conducted of equipment mentioned in the pre-use operator inspection manual.

※ Design and schedule permit: Permit for design and work plans

Comparison of design and schedule permit application with actual field conditions



Even after the general inspection, equipment integrity and functionality shall be checked during the pre-use operator inspections currently underway, and appropriate measures will be taken if any nonconformances are discovered.

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3. General inspection progress status

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- Progress with general inspections shall be reported on again at the end of February.
 - ① Approximately 70% of safety measure renovation work has been rechecked (as of February 10)
 - ② During the general inspection it was discovered that some fire detector installation has not been completed.
- Furthermore, during the review of the design and work schedule permit application conducted in conjunction with the general inspection, a singular clerical error (one location) was found on the Unit 7 design and work schedule permit application. As soon as preparations have been completed, an application for a slight change shall be submitted.

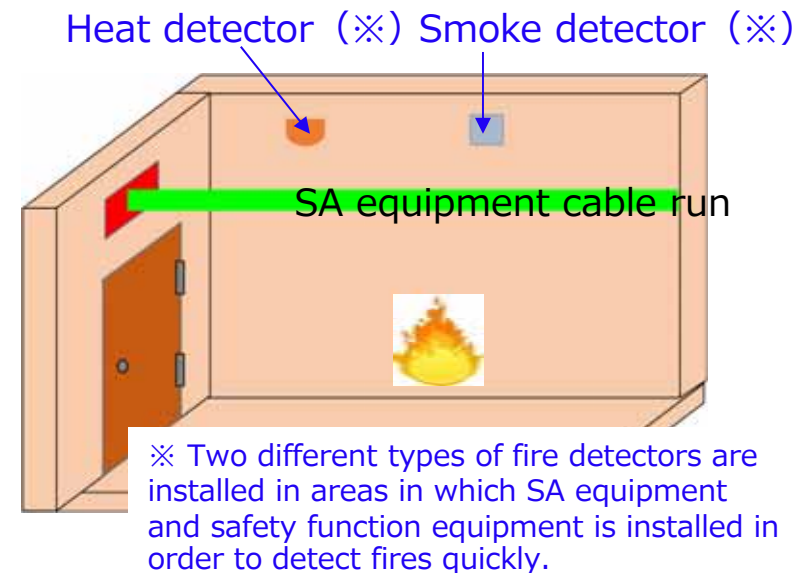
<Incomplete renovation (fire detectors)>

Overview

It was found that fire detectors have not been installed in the hallway in which cable runs for severe accident equipment (SA equipment) in the Unit 7 reactor building have been laid.

Cause

- A new wall has been built in a hallway to install fire extinguishing cylinders for the adjacent area.
- In conjunction with construction of this new wall, fire detectors need to be installed in the aforementioned area, but insufficient management of the entire project and design resulted in failure to install the aforementioned fire detectors. (= Same process that resulted in the failure to install dampers)



< Design and work schedule permit application clerical error >

Overview

Clerical error made in regards to the unit for measuring the output of flammable gas concentration control system release valves (Error) m^3/h \rightarrow (Correction) kg/h

Cause

When the design and work schedule permit application was being created, the values and units should have been corrected when making corrections to the specifications for the aforementioned equipment. However, only the values were corrected thereby causing a discrepancy between the details of the design and work schedule permit and the actual equipment specifications.

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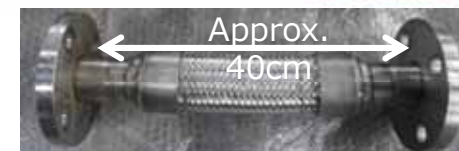
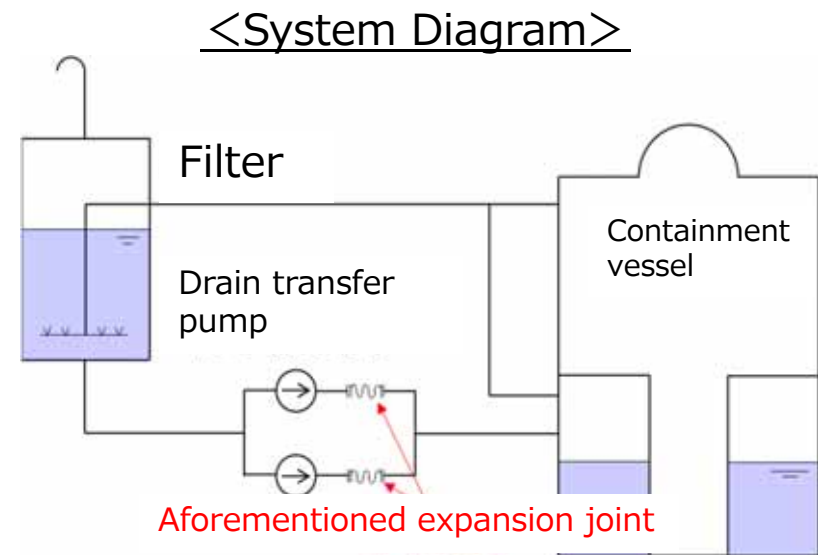
Other (nonconformances found during inspections to confirm compliance with technical standards)

- Even though this work has been completed, an issue was pointed out in regards to welding of the expansion joints on Unit 7 filter vents by the Nuclear Regulatory Agency during the course of the inspection.
- In response to this issue being pointed out, the joints will be replaced in order to improve reliability of the aforementioned equipment
- We will continue to respond appropriately to contribute to improving the integrity and reliability of equipment as nonconformances are found during the course of future inspections.

Overview

- ✓ It was pointed out by the Nuclear Regulatory Agency in the course of inspections to confirm compliance with technical standards※ implemented for equipment on which work began prior to issuance of the new regulatory requirements that Unit 7 filter vent expansion joint welds need to be subjected to tests based on the welding standards put forth by the Japan Society of Mechanical Engineers.
- ✓ Although the aforementioned joints were ordered as pipes that require testing based upon welding standards during the ordering stage, the contracting company manufactured the joints without performing the tests.
- ✓ TEPCO has explained to the Nuclear Regulatory Agency that it can ensure the reliability of these joints based upon new regulatory requirements through assessment that uses technical assessment methods already stipulated by TEPCO.
- ✓ In response to this issue being pointed out by the Nuclear Regulatory Agency, the joints will be replaced in order to improve reliability of the aforementioned equipment

※ It was explained that even though the equipment was installed prior to issuance of the new regulatory requirements that they conform with the new regulatory requirements.



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4. Detailed review of underlying causes and formulation of recurrence prevention measures (for partial incompleteness of safety measure renovations)

Direct Cause

- Changes are not being sufficiently managed by the design and work implementation departments when changes occur in the course of safety measure renovations at Unit 7, such as unit changes and the new construction of areas during fire protection renovations.

Underlying factors found to date

- ① There is insufficient standardization of the management (sharing of responsibilities, progress confirmation processes, change management) of projects that span various and multiple areas of construction engaged in by multiple groups and departments (fire protection, flooding, natural phenomenon, etc.)
- ② Generally speaking, at Unit 7 there is insufficient checking of upstream design and work schedule permit application details with the actual work being implemented.

Recurrence prevention measures (to be enhanced/developed during the course of investigations)

- ① The responsibility and authority of leaders in charge of projects that span various and multiple work areas (fire protection, flooding, natural phenomenon, etc.) shall be clearly written, and leaders shall see the project through to completion.
- ② From the design phase through the work implementation phase, the mechanisms for having design departments consistently manage all construction necessary in accordance with the details of design and work schedule permit applications, and having work implementation departments report on the progress and management of projects to design departments, shall be thoroughly developed.
- ③ Procedures for responding to changes made during the course of these projects shall be standardized, and related parties educated about them.
 - * The issues pointed out by the Nuclear Regulatory Agency in regards to the Unit 7 filter vents expansion joint welds shall be investigated/deliberated, and steps taken to strengthen the entire project management system.

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5. Analysis of factors common to both incidents and formulation of recurrence prevention measures

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- An investigation into factors common to both incidents (unauthorized entry and partial incompleteness of safety measures) is underway, and we shall implement recurrence prevention measures in order to improve the quality of all work at power stations.

Cause of unauthorized entry

- Lack of awareness about the importance of nuclear security
- Insufficient ID card management
- Insufficient handling of identity authentication errors

Cause of partial incompleteness of safety renovations

- Insufficient standardization of project management
- Insufficient checking of design and work schedule permit details during project management

※ The underlying causes of the issues pointed out by the Nuclear Regulatory Agency in regards to the Unit 7 filter vents expansion joint welds shall be investigated

Investigation of common factors by Reform Team

- Going forward, the investigation into common factors shall continue and recurrence prevention measures shall be formulated before a report on the plan to make improvements to prevent unauthorized entry and the results of implementation of that plan is given to the Nuclear Regulatory Agency (by March 10).
- In conjunction with this, activities shall be further developed in order to improve the level of safety culture and the nuclear security culture.

【Reference 1】Initiatives to improve the overall quality of work at power stations Information on the Reform Team

- In light of the seriousness of the unauthorized entry and the partial incompleteness of safety measure renovations at Unit 7, a Reform Team comprised of managers from Headquarters and the power station has been created.
- The overall quality of work at power stations shall be improved through the initiatives of the Reform Team.

< Reform Team Actions >

- ① **Establish investigation methods and examine the adequacy of investigation results** in order to confirm whether or not any safety measure renovations have not been completed (= implementation of general inspection)
- ② **Seriously examine the underlying causes** of the partial incompleteness of safety measure renovations, and **formulate recurrence prevention measures**
- ③ Investigate the causes of the unauthorized entry and assist with the formulation of recurrence prevention measures
- ④ **Analyze common factors** behind the unauthorized entry and the partial incompleteness of safety measures, and **formulate recurrence prevention measures, etc.**

**Leads to improvement of the overall quality of work
at power stations**

Detailed review of underlying causes related to the partial incompleteness of safety measure renovations

Unit 7 project

Project Manager

Underlying factor ② Poor overall project management and insufficient management based upon upstream design and work schedule permit application details

