Steps to Be Taken Going Forward to Address the Series of Incidents Related to Nuclear Material Protection

TEPCO

April 7, 2021

Tokyo Electric Power Company Holdings, Inc.

Recent series of incidents

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Indications pertaining to nuclear material protection made by the Nuclear Regulatory Agency（March 31, 2021）

Indication details
Reference 1

- **Partial loss of function to nuclear material protection equipment**
  - TEPCO, as an organization, failed to inspect, maintain, and maintain the function of nuclear material protection equipment.
  - TEPCO took a long time to repair the aforementioned equipment and failed to implement effective substitute measures.
- **Unauthorized use of an ID card**
  - The ID card was not kept secure, and a worker was able to enter the main control room in a protected zone without his/her ID card.

Incidents involving unsuitable duty/quality management

- **Partial incompletion of safety measure renovations**
- **Responding to the earthquake that occurred off the coast of Fukushima Prefecture（February 13, 2021）**
  - There was a delay in responding to the malfunction of the Fukushima Daiichi Nuclear Power Station Unit 3 seismometer
  - There were delays in conveying information (drop in the water levels of the Units 1 and 3 primary containment vessels, etc.)　etc.

Steps to be taken going forward to address these incidents

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- A look back from now until the time of the Fukushima Daiichi NPS accident will be taken in order to examine whether safety culture and nuclear security culture has indeed taken root in all corners of the organization, and to identify organizational issues.
- A widescale investigation including not only the Kashiwazaki-Kariwa Nuclear Power Station, but also Headquarters and upper management, including the President, shall be implemented in order to identify issues throughout the entire Nuclear Power Division
- We shall aim to reconstruct the system for protecting nuclear material in order to identify and solve problems at all power stations (and comply with legal requirements, etc.).
- Transparency shall be ensured by having third parties assess (including interviews with management) the details of cause analysis and corrective actions.
- TEPCO shall not do this on its own but rather proactively incorporate best practices while receiving the guidance of external experts from other utilities and industries from both within and outside of Japan.

（1） Cause analysis①

Indications from the Nuclear Regulatory Agency relating to Nuclear Material Protection
(March 31, 2021)

Kashiwazaki-Kariwa Nuclear Power Station

- **Partial loss of function to nuclear material protection equipment**

✓ Failure to inspect, maintain, and maintain the function of nuclear material protection equipment
✓ A long time was taken to repair the aforementioned equipment and effective substitute measures were not implemented.

The focus of cause analysis

- Why wasn't equipment quickly inspected/repaired?
- How were the substitute measures deemed to be effective?
- Why were these substitute measures kept in place?
- How were power station executives involved?

- **Unauthorized use of an ID card**

✓ The ID card was not kept secure, and a worker was able to enter the main control room in a protected zone without his/her ID card.

- Why wasn’t security stricter?
- Did power station personnel fully understand the importance of nuclear material protection?
- Were the means for strict nuclear material protection sufficient?
- Was there a suitable involvement by power station executives?

（1） Cause analysis ②

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Unsuitable duty/quality management

The focus of cause analysis

Kashiwazaki-Kariwa Nuclear Power Station

- **Partial incompletion of safety measure renovations**

■ Why weren't design requirement changes reflected in renovation work?
■ Was the system for addressing requirements (project management/resource management/information management) suitable?

Fukushima Daiichi Nuclear Power Station

- **Responding to the earthquake that occurred off the coast of Fukushima Prefecture**

■ Why weren't seismometers quickly replaced?
■ Why weren't preparations made and systems put in place to address the concerns of the region?

Organizational issues in the Nuclear Power Division

In regards to the series of incidents…

■ Was involvement by Headquarters/upper management suitable?
■ What is the relationship between Headquarters and personnel in the field suitable?
■ How long has this situation persisted?
■ Was compliance with legal requirements sufficient (nuclear material protection in particular)?

A third-party assessment of incidents related to nuclear material protection shall be conducted by a dedicated subcommittee to be newly established

(2) Assessment/guidance by external experts

- **Back from now until the time of the Fukushima Daiichi NPS accident will be taken to analyze organizational problems at TEPCO and corrective action, after which assessment/guidance will be received from external experts**
- **We shall proactively incorporate best practices from other utilities and industries from both within and outside of Japan**

Nuclear Reform Monitoring Committee Details Reference 2

1. Nuclear Reform Monitoring Committee (Chairman: Dr. Klein, former NRC※ Chairman) 【Committee enhanced】

- Former Exelon Nuclear Executive Vice-President, Amir Shahkarami, and risk communication expert, Ms. Mariko Nishizawa, have been added to the committee as it continues to assess and provide guidance on initiatives and issues pertaining to safety reforms implemented since the Fukushima Daiichi NPS Accident

※NRC: US Nuclear Regulatory Commission

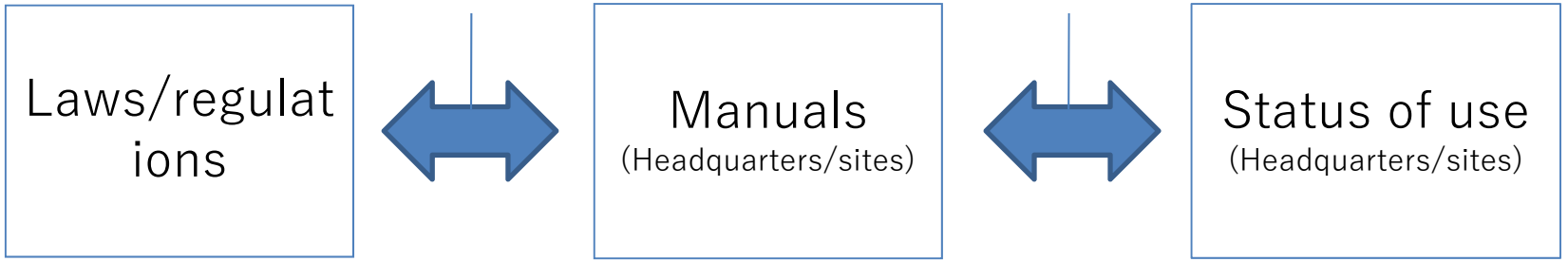
2. Leveraging knowledge and experience from within and outside of Japan, such as from other utilities

- Knowledge and experience from within and outside of Japan shall be leveraged in order to make fundamental improvements to nuclear material protection duties. Firstly, in order to raise the level of addressing nuclear material protection duties, peer reviews with other utilities shall be performed and external experts, such as ATENA, will be invited to examine conditions in order to proactively employ good practices.

※ATENA: Atomic Energy Association

(3) Fundamental revamping of nuclear material protection duties

- **In order to strictly comply with legal requirements, general inspections and the revamping of nuclear material protection duties will be implemented while examining the following, including vague interpretations**
  - ✓ The extent to which legal requirements are mentioned in manuals
  - ✓ The suitability of the implementation of duties in comparison to the main point of legal requirements
  - ✓ The suitability of interpretation
    - Are legal requirements suitably addressed?
    - Are duties effective for satisfying legal requirements?
    - Do duties sufficiently cover all requirements?
    - Is the degree of interpretation of compliance objective and suitable?



- **Inspection targets**

Kashiwazaki-Kariwa, Fukushima Daiichi, Fukushima Daini Nuclear Power Stations

Relevant laws: Article 91, paragraph 2 (Protective Measures) of the Ministerial Ordinance for Commercial Power Reactors and necessary measures pursuant to the explanation of each article (legal requirements)

(4) Dialogue with upper management

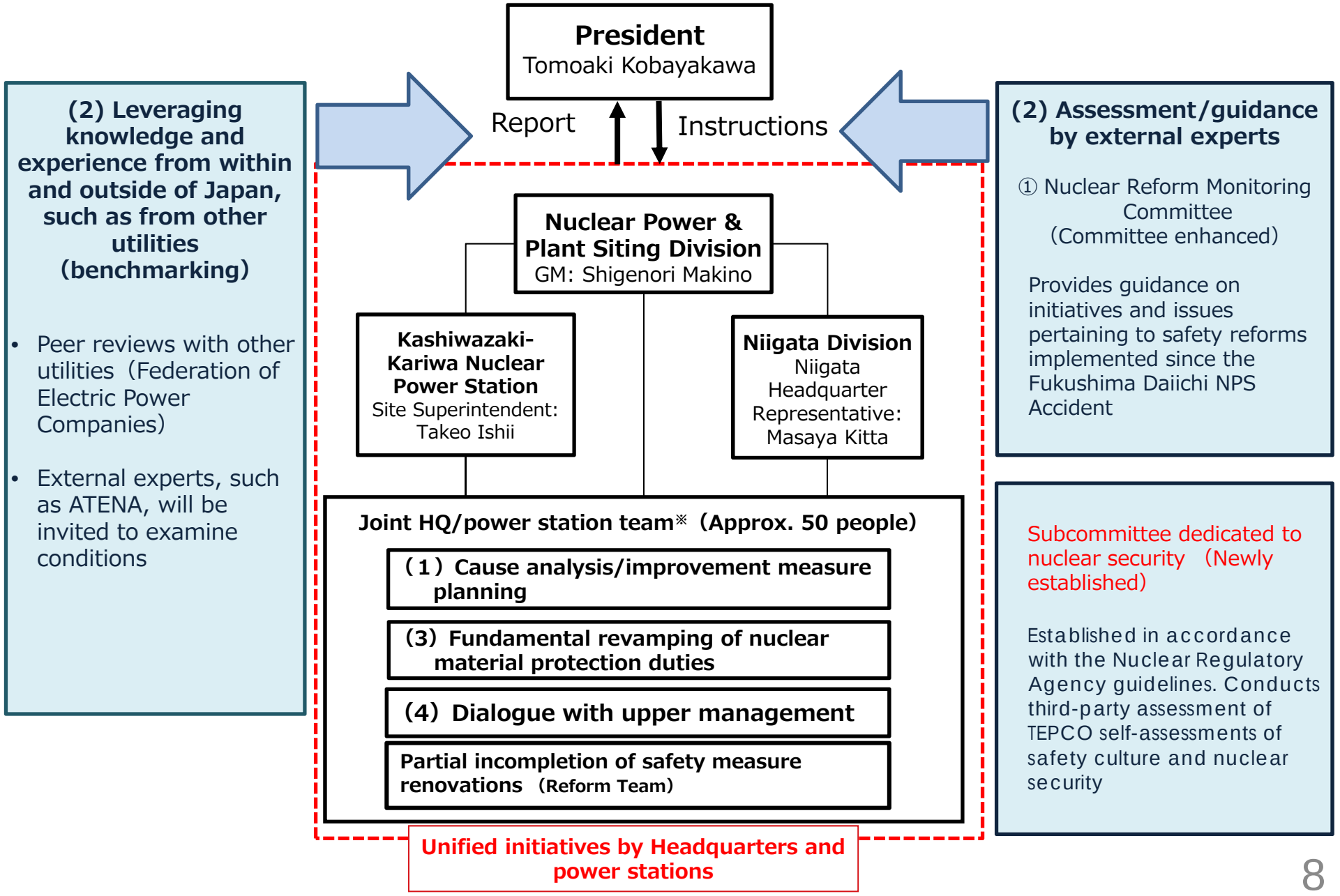
- **Upper management shall engage in direct dialogue with personnel from the Kashiwazaki-Kariwa Nuclear Power Station in order to gain insight into identifying and solving problems within the organization (personnel participating in dialogue: Approximately 1,100 people)**
- **Questionnaires shall be distributed to Headquarter employees and contractors in order to gather information on a wide variety of organizational issues.**

Insight gained through dialogue to date

- Barriers to solving vertical (supervisor-subordinate) and horizontal (cross-departmental, HQ-Power station) issues within the company
  ⇒ The relationships between departments make it difficult for them to join together to solve common issues.
  ⇒ Issues need to be approached from the perspective of the entire power station.
- Safety measure renovation project resources
  ⇒ Current methodology focuses work on only some people.
- Approach to maintenance
  ⇒ Current methodology focuses on precedents (past procedures).

Engaging in dialogue with the President
(2021.3.26)

System structure



Disclosure policy for information related to nuclear material protection

- We are currently deliberating a policy that strikes a balance between information disclosure and nuclear material protection.
- The details of this policy shall be deliberated carefully from the following perspectives while receiving guidance from the Nuclear Regulatory Agency and listening to third-party opinions.

【Public disclosure criteria】

- ✓ Internal public disclosure criteria shall be clarified by, for example, applying current public disclosure criteria for equipment troubles (grade classification) to nuclear material protection incidents

【The scope of those authorized to handle information】

- ✓ Up until now, information pertaining to nuclear material protection could only be handled by authorized parties, but we are deliberating the inclusion of corporate communications managers and whether or not the names of these parties should be disclosed.

【Scope of disclosure】

- ✓ We shall clarify those incidents that cannot be publicly disclosed for nuclear material protection reasons

【Benchmarking】

- ✓ Employ best practices pertaining to disclosure employed by other utilities

Current approach to disclosing information pertaining to nuclear material protection

- The details of our policies for disclosing information pertaining to nuclear material protection shall be deliberated carefully while receiving guidance from the Nuclear Regulatory Agency and listening to third-party opinions.
- However, our "current approach to information disclosure" is as follows in light of the great concern and inconvenience that has been caused amongst regional residents, and society as a whole, as a result of the recent rash of improprieties.

【Current approach to information disclosure】

Any troubles pertaining to nuclear material protection shall be publicly disclosed at a suitable point in time（※） and information shall be shared to the extent that nuclear material protection weaknesses are not made public.

（※） After substitute protective measures have been implemented following the incident, or after receipt of an assessment by the Nuclear Regulation Authority, etc.

Reference 1) Nuclear Regulatory Agency indications (March 31, 2021)

※Ministerial Ordinance for Commercial Nuclear Power Reactors Concerning the Installation, Operation etc.

■ Partial loss of function to nuclear material protection equipment

- At the Kashiwazaki-Kariwa Nuclear Power Station, **partial function was lost to nuclear material protection equipment** that is required to be installed in surrounding protected zones and restricted zones in accordance with **Article 91, paragraph (2), items (ii) and (iii)** of the Regulations※ and **TEPCO, as an organization**, **failed to inspect, maintain, and maintain the function of nuclear material protection equipment** required by Article 92, paragraph (2), item (xxi) of the aforementioned Regulations.
- **Even though TEPCO was aware of the necessity to repair nuclear material protection equipment, it took a long time to do so and failed to implement effective substitute measures.**
- As a result, **in multiple locations, conditions in** which an unauthorized intruder could not be detected, **and [TEPCO] may not have been able to respond to a "threat, such as sabotage as specified separately by the Nuclear Regulation Authority" stipulated by Article 92, paragraph (2), item (xxix) of the aforementioned Regulations persisted for more than 30 days.**
- Furthermore, **TEPCO failed to perform regular assessments and improvements required to be performed annually by Article 91, paragraph (2), item (xxx) of the Regulations.**

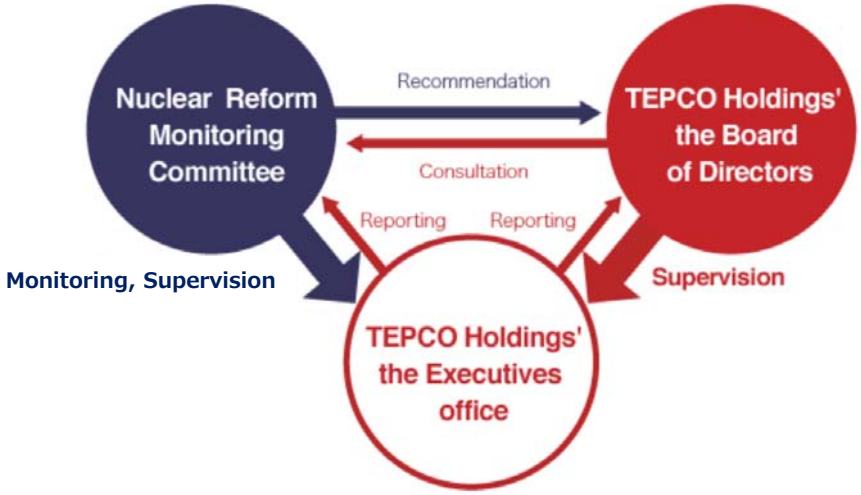
■ Unauthorized use of an ID card

- **A main control room worker entered the main control room in a protected zone without his/her identification, which must be kept secured at all times** in accordance with Article 91, paragraph (2), item (xii), (c) of the Regulations, and **which must be in the workers possession when entering a protected zone**

Reference 2) Nuclear Reform Monitoring Committee

TEPCO

- Overview
  - Advisory body to the Board of Directors comprised of experts from within and outside of Japan
    （ Established on September 11, 2012 ）
  - Monitors and supervises from a third-party perspective TEPCO reform initiatives aimed at becoming a nuclear power station operator with the world's highest levels of safety awareness, technological capability, and the ability to engage in dialogue with society.



Members （ As of April 2021 ）

Chairman
Dr. Dale Klein
Former Chairman of the US Nuclear Regulatory Commission

Committee Member
Mr. Masafumi Sakurai
Former member of the National Diet of the Japan Fukushima Nuclear Accident Independent Investigation Commission

Committee Member
Mr. Amir Shahkarami
Former Senior VP of Exelon Nuclear

Committee Member
Dr. Mariko Nishizawa
Representative Director of Litera Japan Corporation

Committee Member
Mr. Shoichiro Onishi
Director,Tokyo Electric Power Company Holdings
President of Frontier Management Inc.

Reference 3) Details of general inspection related to the partial incompletion of safety measure renovation

Announced on February 15

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

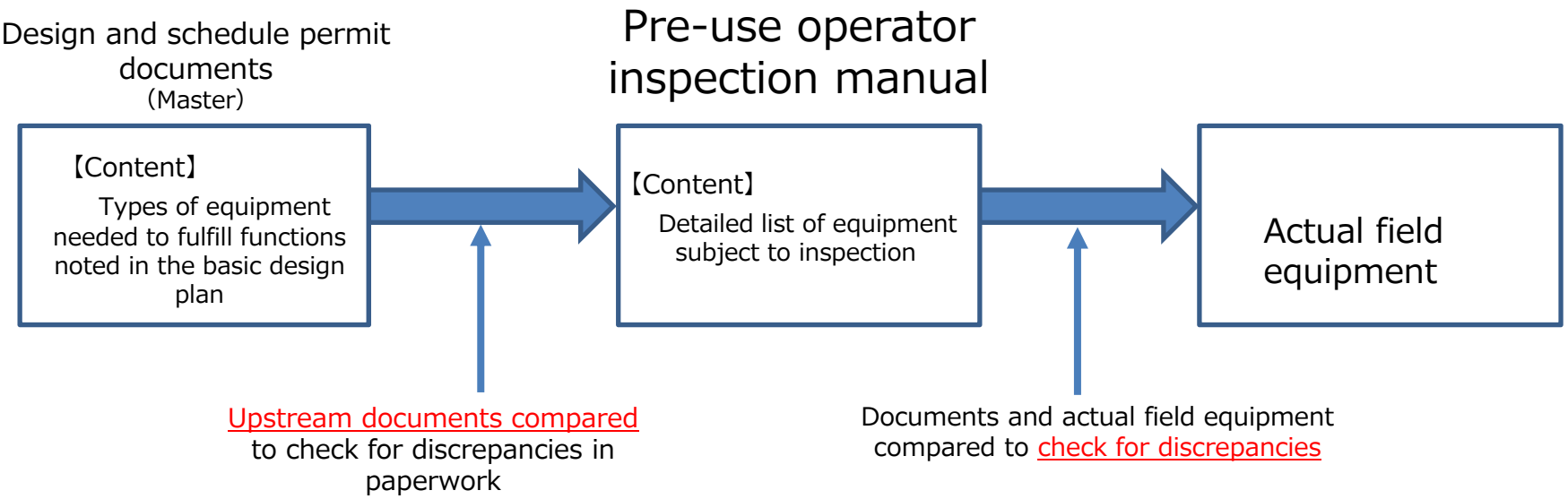
<General inspection content>

①The 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.