

The Status of Nuclear Safety Reform Initiatives Status Update on Strengthening Self- assessments and Addressing Key Issues

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Tokyo Electric Power Company Holdings, Inc.

Contents of this report

- Report on efforts underway to address key issues based upon the suggestions given during the last NRMC meeting

Primary suggestions given by NRMC members (2019.1.29)

- During self-assessments we want you to be highly critical in the assessment of your own organizations and point out weaknesses, in particular. (→1)
- You need to improve internal oversight functions and continue oversight. (→1, 3)
- You need to be innovative in how you improve work efficiency while considering flexibility and priorities. (→2, 3)
- Reflecting upon the Fukushima nuclear accident, having abilities worthy of a nuclear operator, and conveying information from inside the company to external parties form the foundation of communication (→2, 3)

Report contents

- 1. Strengthening self-assessments**
- 2. Improving safety/work quality**
- 3. Improving the quality of communication**

1 . Strengthening self-assessments

- Performance monitoring and introducing focused self-assessments –

Introducing focused self-assessments (FSA)

3

- Benchmark with industry-standard self-assessment methods and create a Focused Self-Assessment (FSA) guide※

※Guide contents

Provides rules for critically examining oneself based on critical viewpoints of external parties, such as identifying areas for improvement in regards to excellence gaps

FY2016

Gaps identified that explain why self-assessments are not functioning effectively

FY2017

Industrial standards benchmarked, guide created and put into trial use during SOER 2015-02 self-assessment, effectiveness examined

FY2018

Focused Self-Assessment guide created and put into use

Create and manage FSA plan that extends two years into the future to guarantee planned implementation

Focused Self-Assessment topics:

- ✓ Management Model functional areas
- ✓ Significant Operation Experience Report (SOER)
- ✓ Pre-confirmation prior to the external reviews

As of the end of Jan. 2020:

Completed: **27**

Underway: **22**

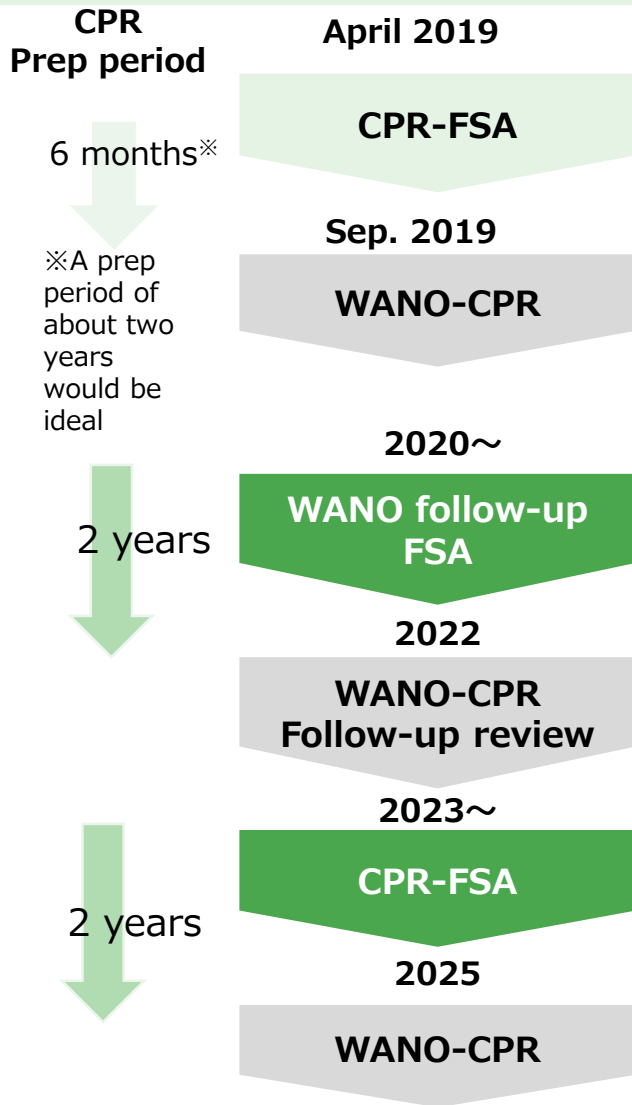
- A **CPR**[※]-FSA was implemented prior to the CPR during which **organizational weaknesses were identified**. A comparison of those results and the AFI[※] pointed out during the CPR revealed that these weaknesses were **already known for the most part**, so we believe that the FSA are being implemented **self-critically** and **effectively**.

※ Corporate Peer Review ※ Area for Improvement

- During the CPR-FSA, department weaknesses related to corporate leadership and oversight were ascertained.
 - Team comprised of executives from each power station and external organizations (WANO, JANSI, US experts) formed to critically examine Corporate performance.
 - Preparations were made three months prior to the review, documents were reviews in accordance with PO&C, meetings were observed, and the effectiveness of actions taken to address prior AFI were examined to identify organizational strengths and weaknesses.

FSA examples: Periodic implementation of CPR-FSA 5

- The period from the conclusion of FSA until CPR was insufficient for making improvements
- Continual improvements shall be made by predicting how long will be required to make improvements and periodically implementing FSA



CPR-FSA implemented between January and April 2019

WANO-CPR Headquarter review: 9/9~9/20

Plan and conduct **FSA** prior to follow-up review to check the status of AFI improvements

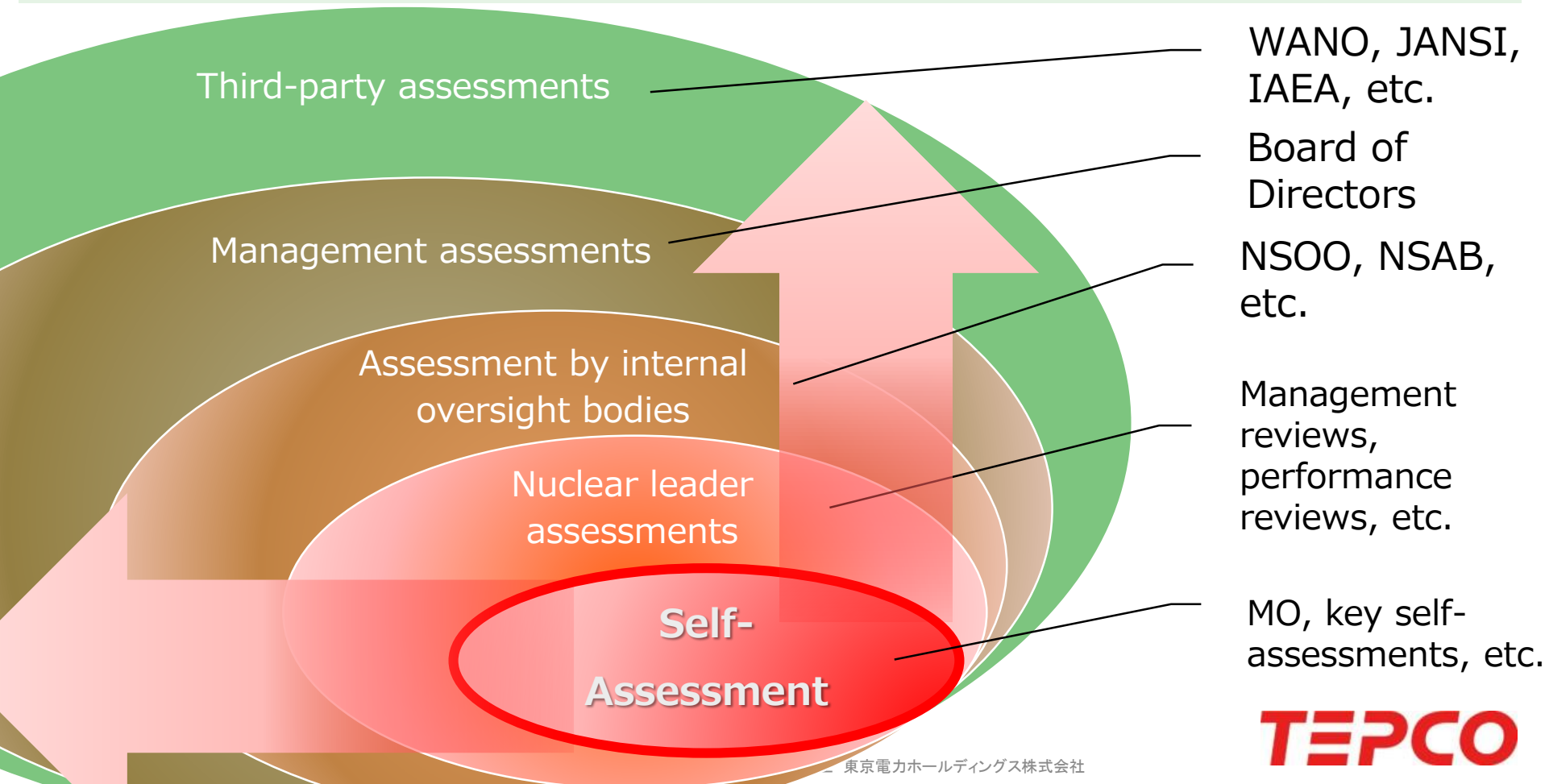
Have follow-up review conducted three years after WANO-CPR to have the progress of improvements checked

Plan and implement **FSA** 1½~2 years prior to next WANO-CPR

Undergo next WANO-CPR approximately six years later (repeat entire process)

Strengthening performance monitoring

- Critically assess one's own department and find weaknesses through daily management observation (MO) and focused self-assessments (FSA), and make improvements
- Strengthen the organization to enable weaknesses to be corrected before they are pointed out by third-party reviews while leveraging the results of checks by internal oversight departments



2. Improving safety and work quality

- Putting effort into preventing troubles before they happen -

Fukushima Daiichi

- ✓ Mortar leaked into neighboring area during filling work (July 30, 2019)
 - Sufficient consideration was not given prior to work to the impact is mortar leaked in the neighboring building
- ✓ Sole contamination when changing out of yellow shoes in controlled zone (October 11, 2019)
 - Work environment improvements have caused people to be less careful when it comes to contamination management so contamination risks were not checked
- ✓ Smoke emanates from the Unit 5/6 transmission line (Soma Line #1) (July 25, 2019)
 - A schematic that clearly shows connections was not created which led to grounding in the wrong location.
 - TEPCO omitted post-connection visual inspections

Kashiwazaki-Kariwa

- ✓ Water leak from valve flange during filling (July 11, 2019)
 - Failure to realize that the aforementioned valve had only been loosely tightened and had not been put back into service
- ✓ Alarm from manual valve opening/closing (July 19, 2019)
 - Insufficient consideration was given to the impact that valve operation would have on the system

Common causes of accidents/troubles

- The common cause of these troubles is a failure to sufficiently ascertain field conditions and the actual structures/pieces of equipment, etc. in question.

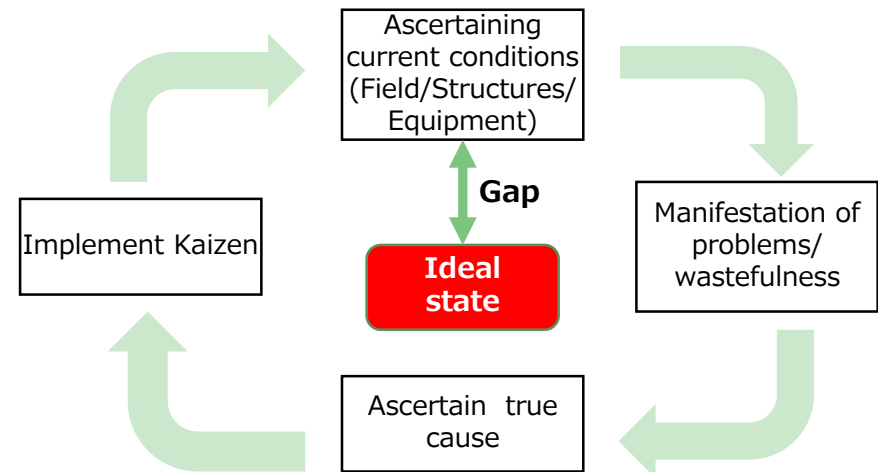
Common causes of troubles resulting from a “failure to sufficiently ascertain field conditions and the actual structures/pieces of equipment, etc. in question”

- Insufficient pre-work field checks, and failure to identify risks
- TEPCO management not fully aware of field changes
- Small issues that should be checked (equipment/device status, worker/employee behavior, etc.) are not being checked
- TEPCO and contractors are not working together to sufficiently check field conditions and the actual structures/pieces of equipment, etc. in question

Kaizen activities

- Kaizen is a means for eliminating unreasonable, wasteful and unbalanced work, and improving safety and quality
- We aim to improve safety and quality by thoroughly ascertaining field conditions and the actual structures/pieces of equipment, etc., in question, and engaging in the kaizen cycle in coordination with contractors
- During the WANO-CPR “the improvement process is being widely leveraged and safety, quality and productivity are improving” was identified as a strength

- ✓ **The FDEC (1F)** has reduced exposure doses by 60% and has prevented accidents and fatalities during flanged tank dismantling work by minimizing decontamination work procedures and the number of workers needed.
- ✓ During the dismantling of the large freight entrance the **Nuclear Power & Plant Siting Division (KK)** improved safety by switching from the manual to the automatic spraying of water to prevent the dispersion of dust, and revised work procedures and methods of carrying out trash, thereby cutting the work schedule in half and ultimately completing the task without any accidents or injuries/fatalities.



3. Improving the quality of communication

- Moving from just “conveying” to “conveying information that is easily understood” -

Improving the quality of communication

- Develop versatile initiatives that include initiatives to date in light of the error made on the notification from KK
- Assign a manager to each initiative and have internal auditing departments check the status of implementation and the degree of rooting.

KK notification form errors

<Causes>

- Error-prone notification format
- Shift system that hinders the handling of escalating circumstances
- Insufficient training for shift members

<Need for the following also recognized>

- Sensitivity to society and ability to view issues through the eyes of society
- Daily work quality improvement

Initiatives since the last NRMC meeting

- The Nuclear Power Division and Corporate Communications Department regularly engage in joint training on information disclosure using past examples
- RC training dedicated to strengthening oversight functions
- Etc.

Quality improvement initiatives

1. Strengthen shifts
2. Have the quality of power station activities assessed by community residents
3. Leverage IT to revise work processes
4. Standardization and lateral dissemination



Monitoring by internal auditing departments

(Implementation status, degree of permeation)

Improving the quality of communication

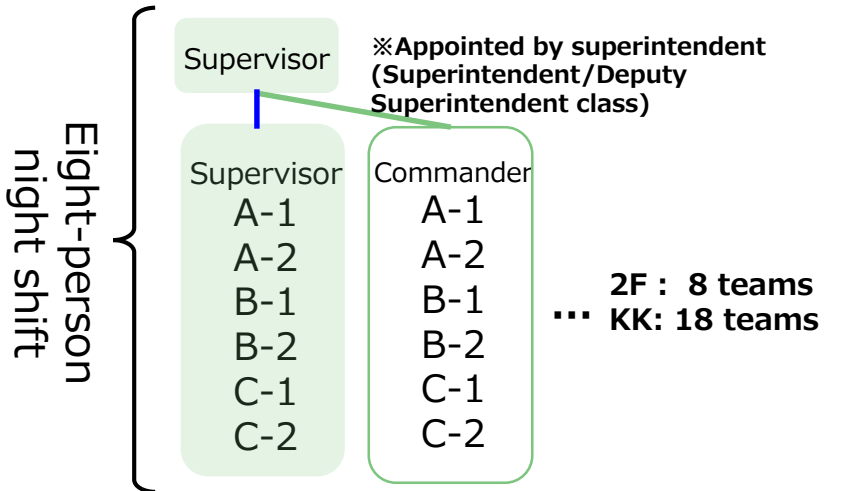
Strengthening the shift system

- Clarify who holds responsibility within the shift system and construct a team-up system
- Improve the skill of teams and individual night shift members through repeated training
- Have Headquarter monitor the degree to which skills have improved and the teaming-up of power station teams

[Photo from training]



Team-up system (2F/KK)



- ✓ The supervisor makes decisions about, and supervises notifications sent out during the night shift as the acting Site Superintendent.
- ✓ Each supervisor is responsible for improving and maintaining the skill of two teams (fixed) that have been teamed up.

Improving skill (continual training)

- P** : Secretariat selects training scenario
- D** : All teams subjected to surprise training
- C** : The skill of the night shift assessed on an individual and team basis
- A** : Individual training for shift members and training scenarios revised based upon this assessment (changes made to simulated event and level of difficulty)

Monitoring by Headquarters

- ✓ Each step in the PDCA cycle for improving skill checked by Headquarters (power station training implemented in coordination with Headquarter shift and monitored daily)

※1F: Constructed based upon a 24-hour emergency response system

Improving the quality of communication

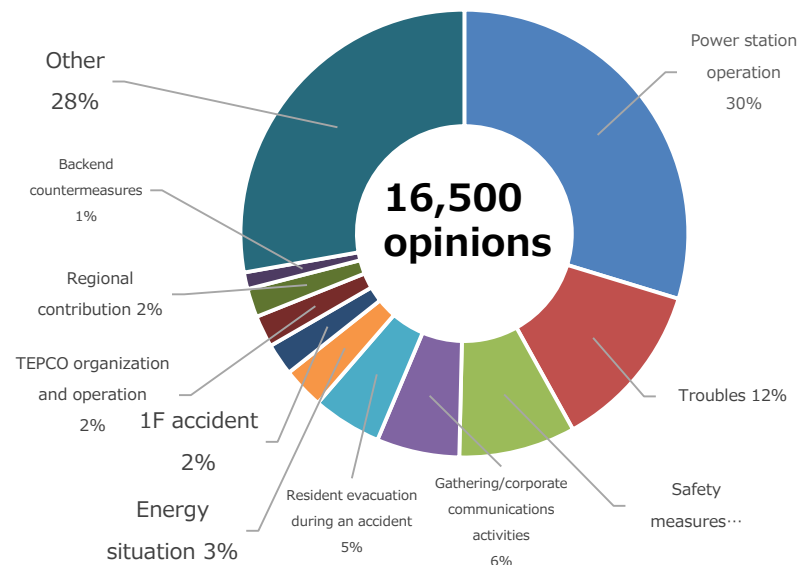
Strengthening initiatives to listen to the opinions community residents

- Strengthening initiatives, such as visits to all homes in the region, to listen to the opinions of community residents about the power station, to improve the quality of communication
- Improve the awareness of employees about disseminating information from the perspective of the community residents

Changing the awareness of employees

- Awareness that residents are most concerned with evacuation plans
- Employees made painfully aware of their lack of knowledge when they were asked technical questions that they couldn't answer.
- Importance of keeping the perspective of the community in mind when acting/behaving on a daily basis
- Employees felt the importance of the awareness and actions of individuals when presented with the opinion that, "the attitude of the company hasn't changed)

Opinions elicited during visits to all homes



Visitation Period : August 28, 2019 – December 8, 2019
Area : Kashiwa Village & Kariwa Village

Going forward

– Continually improving nuclear safety –

- We aim to continually improve daily safety and quality by engaging in duties based upon the Management Model upon clarifying the relationship between the Management Model and the Nuclear Safety Reform Plan

