

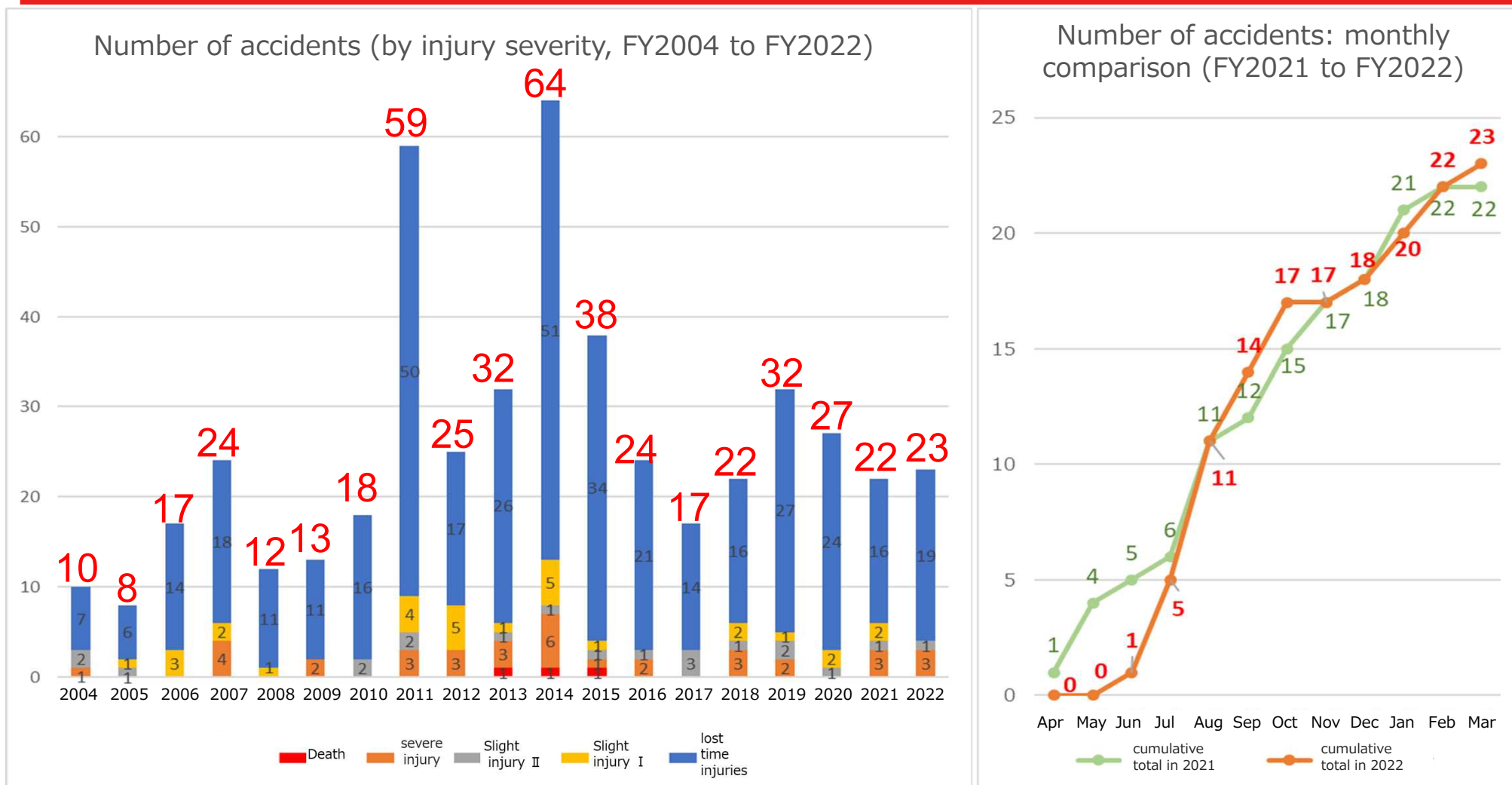
Report on the Occurrence of Industrial Accidents in FY2022 and Safety Activity Plan for FY2023

April 27 2023

Tokyo Electric Power Company Holdings, Inc.



1. Situation of industrial accidents in FY2022



- Disasters in FY2022 were **1 more** than in FY2021 (22 ⇒ 23)
- There were **2 fewer** lost-time accidents in FY2022 than in FY2021. (6 ⇒ 4)
- **The incidence rate of lost-time accidents and more severe accidents** in FY2022 was **0.31** (0.53 a year earlier), which was **lower** than the incidence rate of general contractors in 2021, or **1.39** (1.30 a year earlier)*.

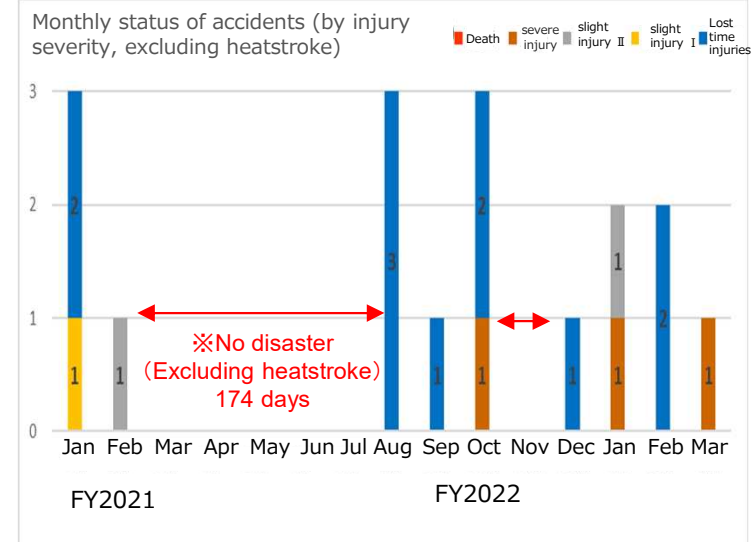
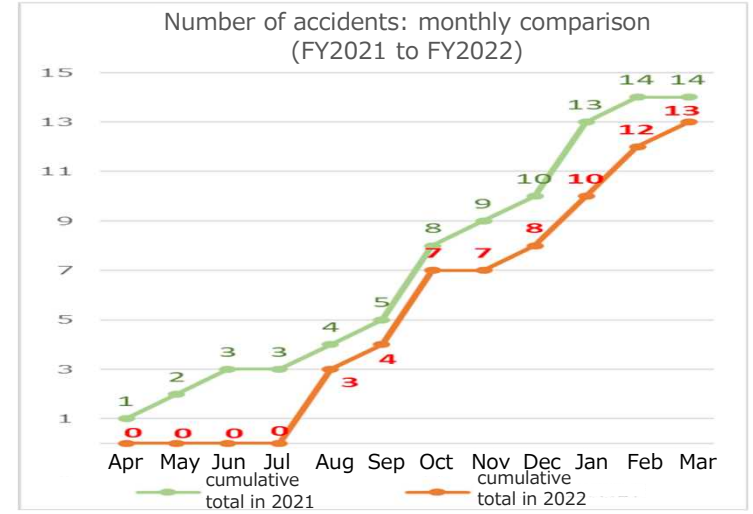
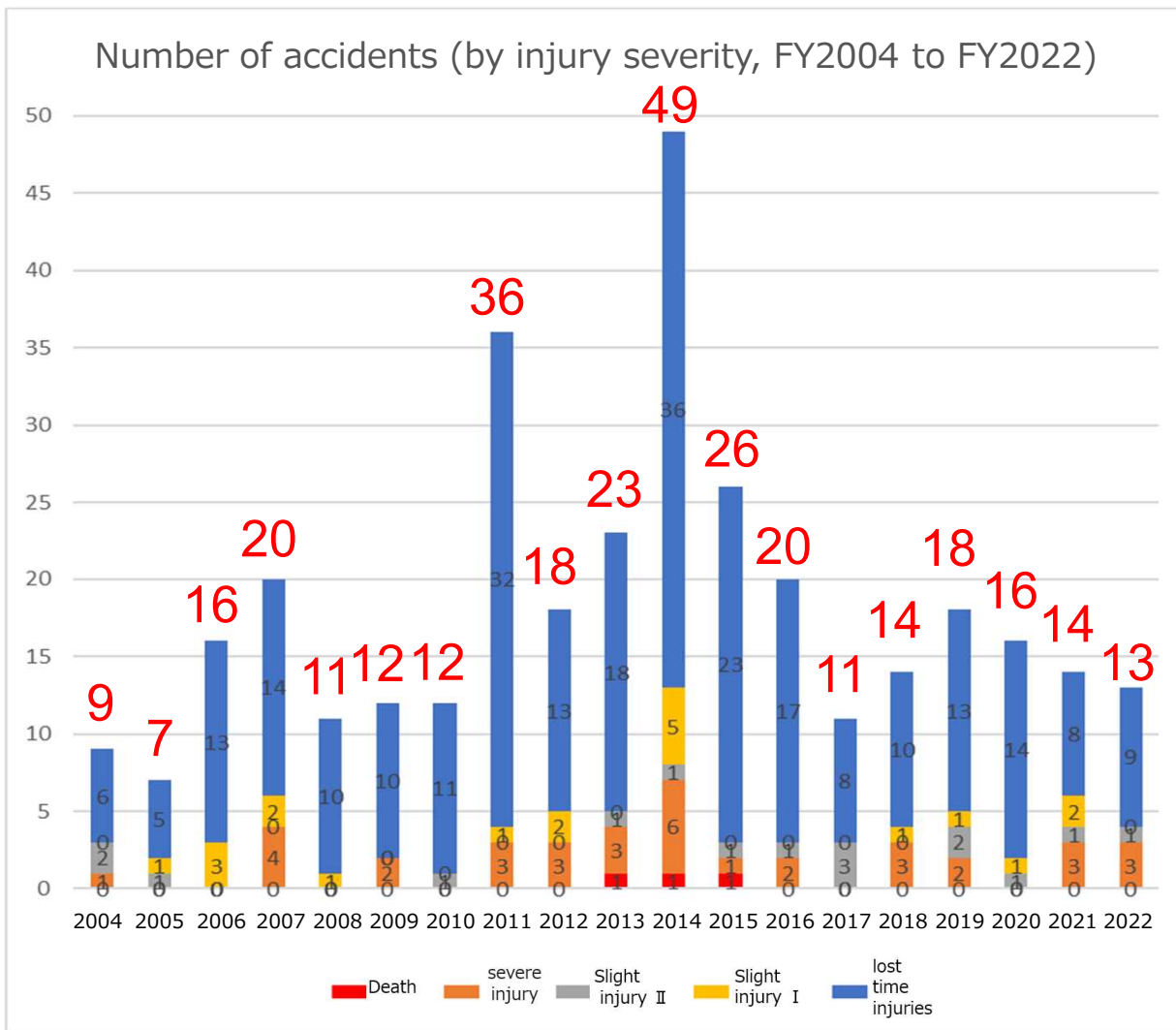
* Source: 2021 Survey on Industrial Accidents, by the Ministry of Health, Labour and Welfare in Japan

- Incidence rate: The value obtained by dividing the number of deaths and injuries due to industrial accidents by the total working hours and by multiplying it by 1 million.

* Degree of Injury: Classification by number of days of absence

• severe injury : More than 14 days • Slight injury II : 4~13 days • Slight injury I : 1~3 days • Lost time injuries : no absences

2-1. Situation of industrial accidents in FY2022 (Excluding heatstroke)



- The number of accidents (excluding heatstroke) in FY2022 was **1 fewer** than in FY2021 (14 ⇒ 13)
- **On a monthly basis, there were no accidents in April to July and November in FY2022 (excluding heatstroke).**

Note: The number of days without an accident between February and July 2022 was 174, which set a new record in 1F.
(The record number of days without an accident: 101 days ⇒ 174 days)

2-2. Analysis of causes of industrial accidents in FY2022 (excluding heatstroke)

No.	Date of occurrence	Outline	Type	Injury severity	Cause of accident	Classification of causes				
						Unidentified risk	Insufficient measures	Failure to comply with work methods	Lack of understanding of tool use	Lack of safety awareness
1	1 Aug.	A worker who was adjusting a temporary scaffold injured his left knee when descending from a ladder.	Contract	No leave	<ul style="list-style-type: none"> Failure to do basic moves (three-point support, how to move to a ladder) As work was repeated, the awareness of its danger was diminished. Failure to make clear how to use a ladder. Failure to take measures such as scaffolding even though the workability was poor. 	✓	✓		✓	
2	6 Aug.	When carrying loads on a hand truck, a worker injured his right hand by a sharp edge of the inlet of a local exhaust fan on the passage.	Employee	No leave	<ul style="list-style-type: none"> Sharp edges were not noticed because the equipment was placed for a long period of time. The group in charge of equipment and the area management group had not put away unnecessary items. 	✓				✓
3	26 Aug.	A worker injured his left-hand fingers when cutting an equipment fastener in a commissioned task of removing rubble in a spent fuel pool.	Contract	No leave	<ul style="list-style-type: none"> The measures against the risk of a cut wound were insufficient even though the worker found that the object to cut was made of metal. The worker did the work using rubber gloves instead of using cut protection gloves. 		✓			
4	7 Sep.	A worker injured both of his hands when disposing of waste hard disks.	Employee	No leave	<ul style="list-style-type: none"> A worker did unplanned work (the injured person was not the worker there). A worker handed disks over to a non-worker, who was then injured. The risk of the cracking of disks and the countermeasures were not considered. 	✓				✓
5	1 Oct.	When placing floor iron plates for running of heavy equipment, a worker got his fingers caught between floor iron plates and was injured.	Contract	No leave	<ul style="list-style-type: none"> Being overly confident that his hand would not be caught between iron plates. a worker reached out with his hand. Failure to observe a unique rule that a separation distance should be provided using barricades. The heavy equipment operator and the injured person did not call out to each other (radio contact was possible). It was additional work for heavy equipment but had not been considered in the work procedures, etc. 	✓		✓		✓
6	3 Oct.	When processing a reinforcing bar for fixing a foundation form, a worker got his fingers caught between a bar cutter and the reinforcing bar and was injured.	Contract	No leave	<ul style="list-style-type: none"> Failure to become aware of the risk of work of cutting a reinforcing bar. The injured person and the foreman did not understand how to use an electric bar cutter appropriately (roles of the left and right hands). 	✓			✓	
7	31 Oct.	During the work of power panel replacement in a cask storage facility, a worker lost his footing on a side ditch and injured his left foot.	Contract	Serious injury	<ul style="list-style-type: none"> Some workers recognized the work as dangerous, but as not all the workers were informed, the openings on the side ditches were not covered. 	✓	✓			
8	5 Dec.	When a worker was removing rain-proof covers of tanks, a foreign body entered his left eye.	Contract	No leave	<ul style="list-style-type: none"> The worker assumed that if dirt (rust, dust, etc.) came flying at him while he was removing a clamp, wearing eyeglass-type protective goggles would protect against it. 	✓	✓			
9	13 Jan.	During steel frame assembly for a working platform for fuel unloading, a worker fell and was injured when tightening a bolt.	Contract	Minor injury II	<ul style="list-style-type: none"> The contract employees did not identify places where work is hard to do, and preparation of working environments and calling attention in hazard prediction in a tool box meeting were insufficient. The worker did not consult the foreman or other persons near him when he felt that it was hard to do the work on a work floor as planned. The worker felt that it was hard to do the work and then decided by himself to do work on a beam, which was a shortcut. 	✓	✓	✓		✓
10	15 Jan.	A guard slipped on the stairs and injured his left ankle during a patrol.	Contract	Serious injury	<ul style="list-style-type: none"> A map for calling attention was not used effectively. The guard was so preoccupied with inspection that he did not pay sufficient attention to the stairs (his step). 			✓		✓
11	3 Feb.	In a temporary cask storage facility, a worker's hand slid and he injured his left hand when he tried to lift a base plate.	Contract	No leave	<ul style="list-style-type: none"> The method of lifting a base plate was not clear. It was an iterative process, and there had been no problem, so the risk of being caught was considered to be low. 	✓	✓			
12	8 Feb.	During an on-the-spot survey associated with maintenance of protective equipment, a worker's right hand came into contact with a single-line pipe and the worker was injured.	Contract	No leave	<ul style="list-style-type: none"> The worker was overly confident that safety equipment was not necessary for work outside the premises. 	✓	✓			✓

Review timing (March): Analysis was performed from the outlines of the accidents up to the end of February.

2-3. Trends of causes of industrial accidents in FY2022

(1) Trends of causes of accidents in FY2022 (⇒Example)

○ Ten out of 12 cases were accidents due to unidentified risks

⇒ Contractor staff and our supervisor did not fully identify on-site risks.

⇒ Workers, if they felt difficulty or danger (risk), did not report it to the team leader, etc.

○ Eight out of 12 cases were accidents due to insufficient measures against risks

⇒ A worker did not wear appropriate safety equipment (such as goggles and gloves) because of past successful experience, etc.

⇒ Physical measures (such as covering of an opening) were not taken on hazards.

○ Six out of 12 cases were accidents due to lack of safety awareness

⇒ Workers overestimated that they would not have an accident.

⇒ A personally determined shortcut and unplanned work

2-4. Organization of preventive measures for industrial accidents in FY2022 (excluding heatstroke)

No.	Date of occurrence	Outline	Type	Injury severity	Accident preventive measures	Classification of preventive measures					
						Clear statement in procedures	Safety measure change	Providing an opportunity to check	Hazard elimination	Education method change	Supervision enhancement
1	1 Aug.	A worker who was adjusting a temporary scaffold injured his left knee when descending from a ladder.	Contract	No leave	<ul style="list-style-type: none"> A supervisor should identify risks and call attention on the basis of detailed procedures. Ensure that all workers understand the points to be aware of when using a ladder. Before work, inform all workers of where to place a ladder. Consider and place a work platform to suit the situation of the site. 	✓	✓	✓		✓	
2	6 Aug.	When carrying loads on a hand truck, a worker injured his right hand by a sharp edge of the inlet of a local exhaust fan on the passage.	Employee	No leave	<ul style="list-style-type: none"> Remove the local exhaust fan in question. Cover similar spots, with a warning to call attention. Inform all staff members through the OE information. 				✓	✓	
3	26 Aug.	A worker injured his left-hand fingers when cutting an equipment fastener in a commissioned task of removing rubble in a spent fuel pool.	Contract	No leave	<ul style="list-style-type: none"> Describe the work details in procedures and instructions and make sure that the persons concerned check them. Check the work to do with all members in hazard prediction in a tool box meeting. Do the work with protective equipment such as cut protection gloves and aprons. If a cut surface of metal is sharp, cover it. Provide all workers with education and guidance on the 21 articles of the safety rules. Provide education and guidance regarding unplanned work. 	✓	✓	✓	✓	✓	
4	7 Sep.	A worker injured both of his hands when disposing of waste hard disks.	Employee	No leave	<ul style="list-style-type: none"> Create JIT (Just-in-Time) information and disseminate the outline of the incident and the countermeasure. Plan the acquisition of a hard-disk destruction machine. 		✓			✓	
5	1 Oct.	When placing floor iron plates for running of heavy equipment, a worker got his fingers caught between floor iron plates and was injured.	Contract	No leave	<ul style="list-style-type: none"> Through priority MO, strengthen the check of work details on the day of work and check the implementation of measures. Strengthen the safety awareness education for cooperative companies (re-education of rules). Strengthen hazard prediction in a tool box meeting (Create an environment where opinions can be shared). Provide a heavy equipment observer area (observation from the outside of the area). Review the process of creating a work plan (clarification of work points). 	✓	✓	✓		✓	✓
6	3 Oct.	When processing a reinforcing bar for fixing a foundation form, a worker got his fingers caught between a bar cutter and the reinforcing bar and was injured.	Contract	No leave	<ul style="list-style-type: none"> On-site MO to see whether the check of work details on the day of work is strengthened and whether the check points are implemented. Do a face-to-face check of tools and procedures to be used in the next day's work. Minimize on-site work (supply products processed in a factory to a work site). Review work procedures (marking for each reinforcing iron bar to cut). Strengthen the check of the methods and risks of use of tools and jigs (education). 	✓	✓	✓		✓	✓
7	31 Oct.	During the work of power panel replacement in a cask storage facility, a worker lost his footing on a side ditch and injured his left foot.	Contract	Serious injury	<ul style="list-style-type: none"> Be sure to implement preventive measures for dangerous places such as openings and steps. Check in advance the work places with all the persons concerned before on-site hazard prediction in a tool box meeting. Check whether efforts are continued by participating in on-site hazard prediction in a tool box meeting, a morning meeting, and EM. 		✓	✓			✓
8	5 Dec.	When a worker was removing rain-proof covers of tanks, a foreign body entered his left eye.	Contract	No leave	<ul style="list-style-type: none"> Change protective glasses to protective goggles. Clarify the rules concerning the wearing of protective goggles. Our company should also identify risks actively and share perceptions in after-hazard prediction, etc. Extend the work platform so that it is easy to keep a distance in order to keep working posture. 	✓	✓			✓	
9	13 Jan.	During steel frame assembly for a working platform for fuel unloading, a worker fell and was injured when tightening a bolt.	Contract	Minor injury II	<ul style="list-style-type: none"> Safety guidance in a one-on-one meeting that takes into account the characteristics of each worker. In addition to hazard prediction in a tool box meeting, perform on-site hazard prediction repeatedly after a break and when work has progressed. Check whether the execution scheme is difficult to implement from the perspective of workers. In on-site supervision, check the degree of spread of safe behavior (whether there is unsafe behavior) and safety awareness (whether on-site hazard prediction is carried out properly). 			✓		✓	✓
10	15 Jan.	A guard slipped on the stairs and injured his left ankle during a patrol.	Contract	Serious injury	<ul style="list-style-type: none"> Create a reconstruction video and use it for safety promotion activities, etc. in the premises (teach basic moves thoroughly). Use high-grip work shoes when it is fine weather (removable spiked shoes when it is rough weather). Perform after-hazard prediction for a map for calling attention and update it daily for use. 		✓	✓		✓	
11	3 Feb.	In a temporary cask storage facility, a worker's hand slid and he injured his left hand when he tried to lift a base plate.	Contract	No leave	Under consideration						
12	8 Feb.	During an on-the-spot survey associated with maintenance of protective equipment, a worker's right hand came into contact with a single-line pipe and the worker was injured.	Contract	No leave	Under consideration						

Review timing (March): Analysis was performed from the outlines of the accidents up to the end of February.

2-5. Preventive measures for industrial accidents in FY2022

(2) Preventive measures for industrial accidents in FY2022 (⇒Example)

○ **Preventive measures against “unidentified risks”**

· Through hazard prediction in a tool box meeting (on-site hazard prediction and after-hazard prediction), not only team leaders but also all the persons concerned including persons in charge of contract work and our supervisors check risks on a daily basis to take effective measures in their daily work.

⇒ Check work sites in advance with all members concerned before on-site hazard prediction in a tool box meeting.

⇒ We also actively identify risks and share perceptions through after-hazard prediction, etc.

○ **Preventive measures against “insufficient measures”**

· Measures against risks determined in hazard prediction in a tool box meeting, etc. are reflected in work instructions and procedures and other documentation and practiced in daily work.

⇒ Describe work details in procedures and instructions and make sure that the persons concerned check them.

⇒ A supervisor should identify risks on the basis of detailed procedures and call attention.

○ **Measures for “lack of safety awareness,” “lack of knowledge on tools,” and “failure to comply with procedures”**

· While improving educational methods, we are providing education on basic safe behavior, how to use tools, etc., and observation of work procedures.

⇒ Create and use a reproduction video for a safety promotion activity and other activities within the premises (ensure mastery of basic moves).

⇒ Provide education and guidance on unplanned work and how to use tools and jigs, and strengthen risk checks.

In FY2023, these are to be shared and rolled out at a 1F large meeting.

3-1. Results of major safety activities in FY2022

Classification	Action Plan	Status of efforts in FY2022	Status of implementation
Measures for personnel	1. Activities to improve safety awareness	<p>(1) Staff and workers should make a concerted effort to set a new record of continuous zero accidents and raise safety awareness (visualizing the record of continuous zero accidents and the number of accidents, sharing of accident cases and information, etc.)</p> <p>(2) Applications for and posting safety slogans and posting safety calendars</p> <p>(3) Improving safety awareness through safety events (safety rally, etc.)</p> <p>(4) Conforming to safety rules with the use of the work safety handbook, etc.</p> <p>(5) Holding an accident prevention event, the 1F safety challenge (participated by employees and workers)</p>	<p>(1) Set a new record of continuous zero accidents: 174 days (February to July)</p> <p>(2) Implemented every month</p> <p>(3) Safety rally (January)</p> <p>(4) Used for employees and workers to check, etc.</p> <p>(5) Activity period: August to December, Commendation: January</p>
	2. Improvement in safety management skills	<p>(1) Of the education for work team leaders, the new curriculum of safety management should continue to be offered (add VR-based dangerous experience)</p> <p>(2) Providing safety education for all workers and staff</p> <p>(3) Providing safety education in accepting new workers</p>	<p>(1) Addition of VR education (from February)</p> <p>(2)(3) Use of safety education content (Use of accident case study, accident reconstruction CG, etc.)</p>
Measures for activities	3. Activities to improve work environments	<p>(1) Activities to remove hazardous areas (simultaneous 4S (Sort, Set in order, Shine, Standardize) activity, safety campaign activity, tool overhaul, directly managed activity to remove unsafe areas)</p> <p>(2) Improving work environments (Provide safety equipment and refrigerant freezers in accordance with the plans of resting places and equipment changing places of companies)</p>	<p>(1) Simultaneous 4S and thorough inspection of tools (May, August, December)</p> <p>Campaign against accidents (June, December)</p> <p>Inspection of safety passages by direct management (August)</p> <p>(2) Install new refrigerant freezers in resting places, etc. in the SB of Units 1 and 2 and the SB of Units 3 and 4.</p>
Measures for management	4. Activities to improve hazard prediction	<p>(1) Promoting on-site hazard prediction activities (identify unpredictable hazardous areas, and for predictable places, revise the procedures)</p> <p>(2) Promoting the hazard prediction before employees go to a work site (elimination of employee accidents)</p>	<p>(1)(2) Efforts were implemented by each company. (Set work rules using a work safety handbook.)</p>
	5. Elimination of hazardous areas and 5S activities	<p>(1) Activities to eliminate unsafe places through safety patrols</p> <p>(2) Cross-sectional check and evaluation in prior safety evaluation (risk assessment)</p>	<p>(1)(2) These are continuing to be implemented.</p>
	6. Independent safety and communication activities	<p>(1) Efforts to ensure safe behavior</p> <p>(2) Formulating safety activity plans specific to companies and groups (employees)</p> <p>(3) Management Observation Activity (holding safety meetings; monitoring and supervision of safety in each group by high-level executives)</p> <p>(4) Efforts to implement safety activities in close cooperation between our company and partner companies (Activities to eliminate accidents from companies where multiple accidents occurred in FY2020 and FY2021. Checking and supporting the safety activity plan (PDCA) of companies)</p> <p>(5) Safety management and guidance and communication activities at work sites through self-inspection</p> <p>(6) Building a system by which safety information is passed to on-site workers (make use of our website "1 FOR ALL JAPAN")</p>	<p>(1)(2)(3)(4) These are continuing to be implemented</p> <p>(4) Periodic progress reporting session (July, November)</p> <p>(5) To be implemented in the period from February to March</p> <p>(6) Use of safety content (End of December: 1,826 cases (Ratio to the previous year: 140.6%))</p>
	7. Heat stroke prevention activities	<p>(1) Strengthening measures for heat stroke prevention in the period from April to October (e.g., adherence to the rules for heat stroke prevention)</p> <p>(2) Preparing a heat stroke prevention plan for each original contractor and implementing heat stroke management for each type of work</p>	<p>(1) Conducted in the enhancement period from April to October (Heatstroke: 6 cases, Dehydration: 4 cases).</p> <p>(2) Strengthening of heatstroke prevention for each company: Completed</p>

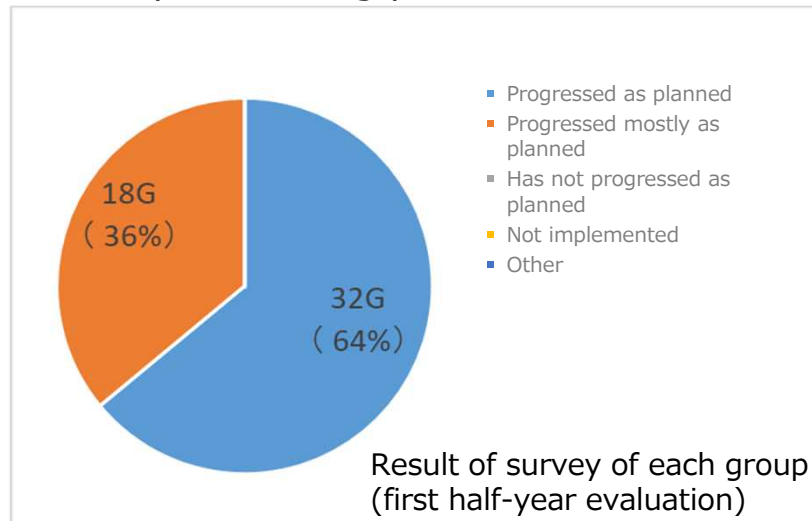
Red letter : Priority measures Blue letter : Measures to be added or reviewed

3-2. Status of key activities of safety activities in FY2022

(1) Status of key activities (results of survey of each group and responsible managers of counterparts)

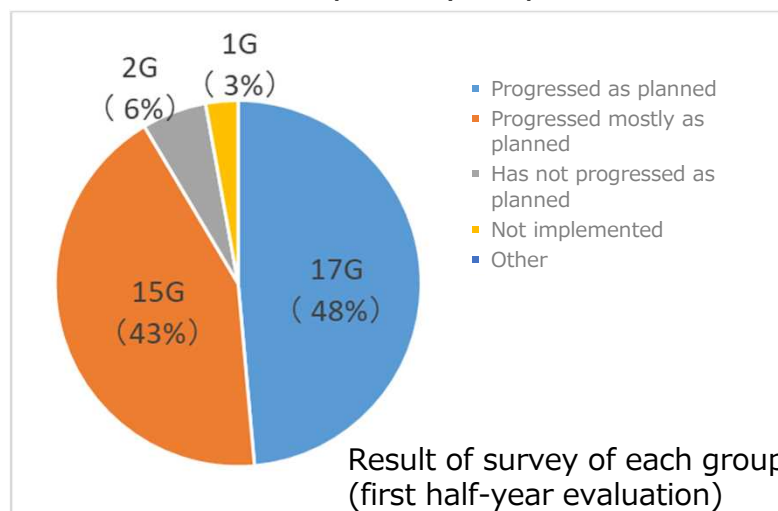
Efforts to ensure safe behavior

- The state of safety management by setting safe behavior points using protection instructions



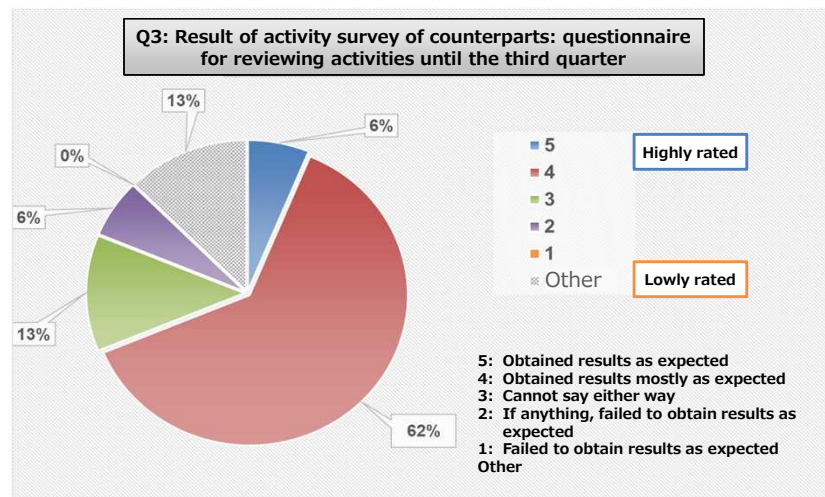
Efforts to ensure safe behavior

- The state of training of supervisors using the on-site capability improvement sheet



Efforts to conduct safety activities together with other companies

- Status of implementation of safety activities planned with contractors



Efforts to ensure safe behavior

- Formulate and implement the FY2022 safety activity plan in all groups that conduct work outsourced or under direct management.

Efforts to conduct safety activities together with other companies

- Implement safety activities planned with companies.

3-3. Reviewing safety activities in FY2022

(2) Fruits of major safety activities

1. Efforts to conduct safety activities together with other companies

- Of the 19 companies that participated in the activities to conduct together with other companies, 14 companies achieved zero accidents or a reduction in the number of accidents.

2. Safety awareness-raising activities

- The consecutive zero-accident record was broken.

[Previous record: 101 days (February to May 2018) → This time: 174 days (February to July 2022)]

- The 1F safety challenge, in which teams of employees and workers participate to achieve zero accidents and incidents, led to the improvement of safety awareness.

(Implementation period: August to December, Achievement rate → 103/128 teams: 80%, 2414/2896 people: 83%)

3. Work environment improvement activities

- Conduct a campaign against fall and stumbling accidents, and take corrective action (removal, calling attention) on dangerous places (such as steps and openings) in and around work areas and offices.

(Number of cases of correction: 348 cases in June, 224 cases in the period from December to January)

- Inspect safety passages (near resting places and equipment changing places) and take corrective action (repair).
- All companies performed a thorough inspection of tools and a 4S activity before the Golden Week holidays, the Bon holidays, and year-end and New Year holidays and were able to prevent accidents due to reasons such as poor maintenance of tools.

4. Independent safety and communication activities

- The number of uses of safety education content increased.

[Number of uses: 1,829 (Ratio to the previous year: 140.6%)]

4. Approach to the safety activity plan in FY2023 based on the actual results of activities in FY2022

Approach to the safety activity plan in FY2023

- Through the FY2022 key activities such as efforts to ensure safe behavior and efforts to conduct safety activities together with other companies, the zero-accident record in 1F was broken, and more than half of the companies that conducted activities together with other companies achieved zero accidents or reduction in the number of accidents.
- In FY2023 as well, promote safety activities together with partners (contractors) on the basis of the two key activities with additional measures against the problems in FY2022.

■ Measures for problems in FY2022

○ Measures for unidentified risks and insufficient measures

- Unidentified risks and insufficient measures are considered as causes of accidents in FY2022.
- As countermeasures against them, all persons involved in work identify and share the risks of the work and practice concrete measures every day using on-site hazard prediction and after-hazard prediction. This is effective.
- In the safety activity plan in FY2023, include on-site hazard prediction and after-hazard prediction, which is performed in many companies, in checking safe behavior points for the key activity “efforts to ensure safe behavior” and promote them as a series of safety management efforts in order to prevent accidents due to unidentified risks and insufficient measures.

○ Measures for lack of safety awareness

- The lack of safety awareness is mentioned as a cause of accidents in FY2022.
- As a measure against it, we are providing education on basic safe behavior and how to use tools, etc. by devising education methods, etc., and there are needs for, for example, education content that reflects the latest safety information.
- Provide safety education continuously while pursuing improvement through measures to improve safety awareness and addition of education content at a 1F large meeting.

1. Efforts to ensure safe behavior

- Eliminate on-site risks thoroughly through a series of safety management activities including on-site hazard prediction and after-hazard prediction.

① Efforts to ensure safe behavior (continue)

- Set the safe behavior points (risks and measures that need particular attention in terms of work safety, radiation safety, human errors, and quality management) for the day's work using protection instructions, and make sure that all the work team members realize again the risks of the day's work and take measures (such as work procedures) for that day with simple honesty, in order to create a culture of thinking by oneself and acting by oneself.
- Using the on-site capability improvement sheet, improve the abilities of supervisors to sense danger and communicate with cooperative companies.

② On-site hazard prediction (**Naming: Last-minute, on-site, on-the-spot, check**)

- All members of a work team should take a certain amount of time at a work site to grasp the risks that cannot be recognized without seeing the site. Then, all the members should share the risks through hazard prediction and take measures immediately, thereby eliminating the risks.

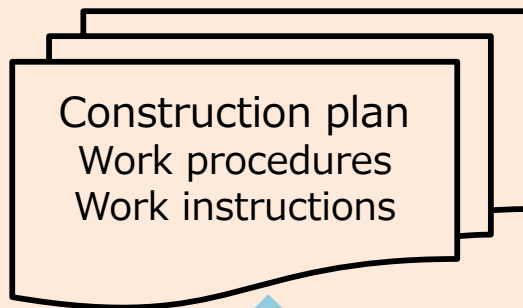
③ After-hazard prediction (added)

- Make sure that in after-hazard prediction, all the workers share near-miss incidents, dangerous environments, difficult work, and other problems that were found during work and take measures for the work from the next day (such as reviewing work procedures and reflecting results in the next day's tool box meeting), thereby eliminating the risks.

Prior consideration

Dangers you can think of in advance (imaginable dangers)

- On the basis of the past experience of nonconformities and accidents, identify risks in advance and properly consider safety measures against what seems to be dangerous (dangers imaginable).
- Create a construction plan and work procedures into which measures are incorporated so that workers can do the work safely. (Properly consider procedures such that there will be no risks.)



- If it will be safer to change the procedures so far, review the work procedures before carrying out the work for the next and subsequent days.
- Reflect the review results in not only work to be repeated in the future but also similar work.

Day of the work

Dangers you can think of in advance (imaginable dangers)

- Check the following in a tool box meeting:
 - ✓ Check again the flow and points of the day's work.
 - ✓ Check again the division of roles for the work and the layout for operation.
 - ✓ For dangers imagined in advance, check the safety measures and points as necessary.

Dangers you cannot recognize if you do not see the site (you can recognize if you see the site)

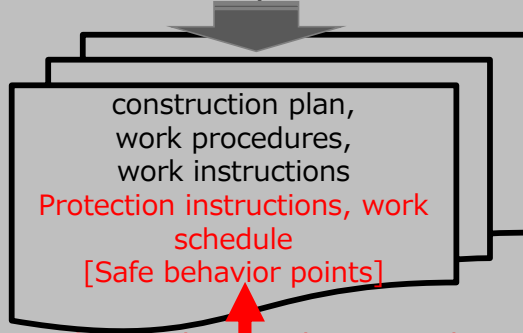
- Check the following in on-site hazard prediction (on-the-spot hazard prediction):
 - ✓ Before starting the work, look out over the work area first with all the members.
 - ✓ From the situation of the work site on the day, check whether there is any new thing that seems to be dangerous together with everyone.
 - Differences in work between yesterday and today;
 - Differences in weather conditions (such as weather, temperature, and wind);
 - Differences from the state of work at a neighboring site; and others
 - Consider specifically how to prevent newly found danger, if any, together with everyone.
 - ✓ For dangers you imagined, make additions and changes if you think that the measures are insufficient after looking at the actual work site. Note that it is always necessary to consult the supervisor when you make additions or changes.

Note: Six keywords (excerpted from Fundamentals). (1) What is the most important work procedure today? (2) What are signs of an error happening? (3) What are the lessons of past experience? (4) What is the worst-case scenario today? (5) What should be done to prevent the worst-case scenario? (6) What are the measures to mitigate and prevent risks?

Prior consideration

Dangers you can think of in advance (imaginable dangers)

- On the basis of the past experience of nonconformities and accidents, identify risks in advance and properly consider safety measures against what seems to be dangerous (dangers imaginable).
- Create a construction plan and work procedures into which measures are incorporated so that workers can do the work safely. (Properly consider procedures such that there will be no risks.)



- If it will be safer to change the procedures so far, review the work procedures before carrying out the work for the next and subsequent days.
- Reflect the review results in not only work to be repeated in the future but also similar work.

Dangers felt during work

- **Interrupt work if there is a danger that can lead directly to a fatal accident.**
 - ✓ Discuss and determine measures with the persons concerned and then resume the work.
- **Check the following in after-hazard prediction:**
 - ✓ Was there a near-miss incident?
 - ✓ Was there any work or environment that seemed to be dangerous?
 - ✓ Was there work that was hard to do?

Day of the work

Dangers you can think of in advance (imaginable dangers)

- **Check the following in a tool box meeting:**
 - ✓ Check again the flow and [safe behavior points] of the day's work.
 - ✓ Check again the division of roles for the work and the layout for operation.
 - ✓ Check again the safety measures against the dangers imagined in advance.
 - ✓ Check the dangers identified in the after-hazard prediction on the previous day and the safety measures against them.

Dangers you cannot recognize if you do not see the site (you can recognize if you see the site)

- **Check the following in on-site hazard prediction (last-minute, on-site, on-the-spot, check)**
 - ✓ Before beginning the work, take a certain amount of time to check the equipment and environment of the work site and imagine the work of that day together with everyone.
 - ✓ From the situation of the work site on the day and the work assumption, check whether there is any new thing that seems to be dangerous together with everyone.
 - Differences in work between yesterday and today;
 - Differences in weather conditions (such as weather, temperature, and wind);
 - Differences from the state of work at a neighboring site; and others
 - ✓ Consider specifically how to prevent newly found danger, if any, together with everyone.
 - ✓ For dangers you imagined, make additions and changes if you think that the measures are insufficient after looking at the actual work site. Note that it is always necessary to consult the supervisor when you make additions or changes.

Note: Six keywords (excerpted from Fundamentals). (1) What is the most important work procedure today? (2) What are signs of an error happening? (3) What are the lessons of past experience? (4) What is the worst-case scenario today? (5) What should be done to prevent the worst-case scenario? (6) What are the measures to mitigate and prevent risks?

2. Efforts for safety activities with a partner and us acting as one

- Between a director or senior staff of a partner (contractor) and the counterpart (responsible department) of our company, plan and roll out safety activities appropriate to the problems of each company with determination to prevent any fatal accidents.

① Team organization for FY2023

- More than half of the companies that carried out an activity together with other companies achieved results such as zero accidents and decrease in the number of accidents.
- Have the teams (19 companies) in FY2022 continue in FY2023 as well because good partnerships have been developed between partners (contractors) and the counterparts (responsible departments) of our company.

② Major responses of counterparts (responsible departments)

- Counterparts (responsible departments) should consider, together with their partners, concrete activities appropriate to the problems of each company in formulating the safety activity plan of their partner, and check (PDCA) the status of implementation during the term in cooperation with their partners.
- Conduct an MO (Management Observation) activity as a check on the status of implementation of a concrete safety activity plan.

Note: No change in the basic stance from the activities in FY2022

5-3. Of the items of the FY2022 safety activity plan, those to be added or reviewed for the FY2023 safety activity plan

Promote safety activities with items that are added and reviewed from the FY2022 safety activities on the basis of problems in FY2022 regarding action plans such as improvement of safety awareness and improvement in safety management skills, as activities that support the practice of key activities.

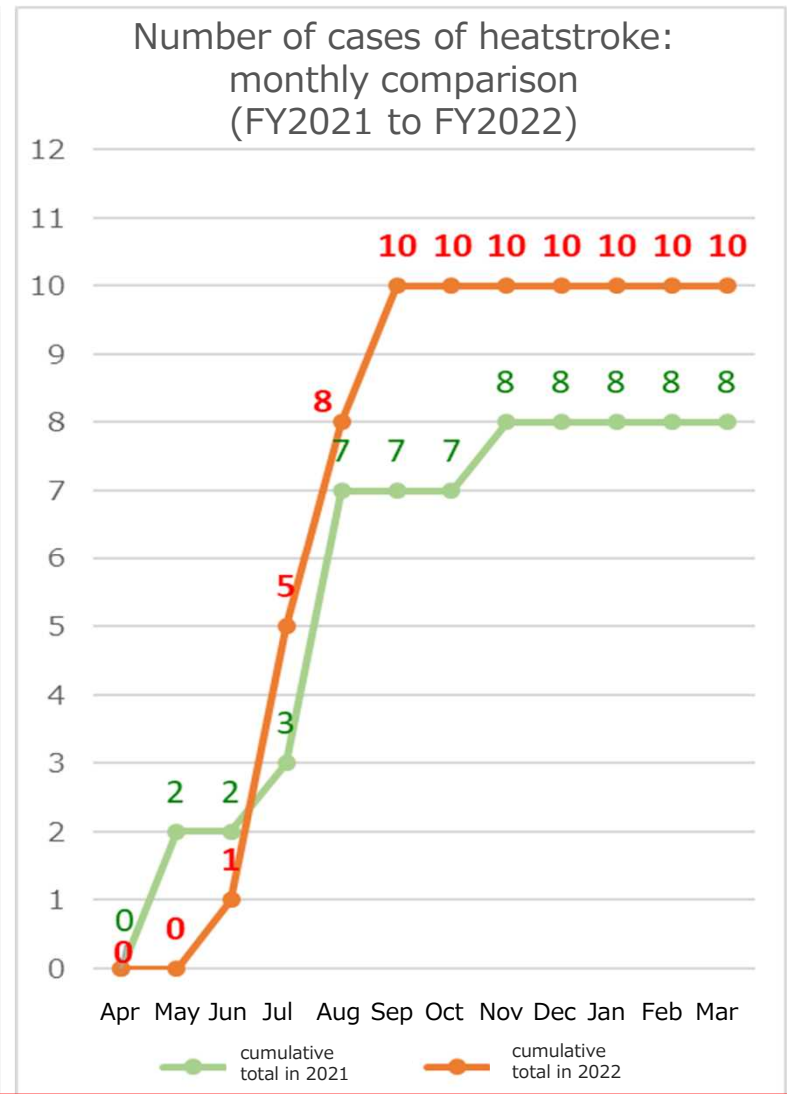
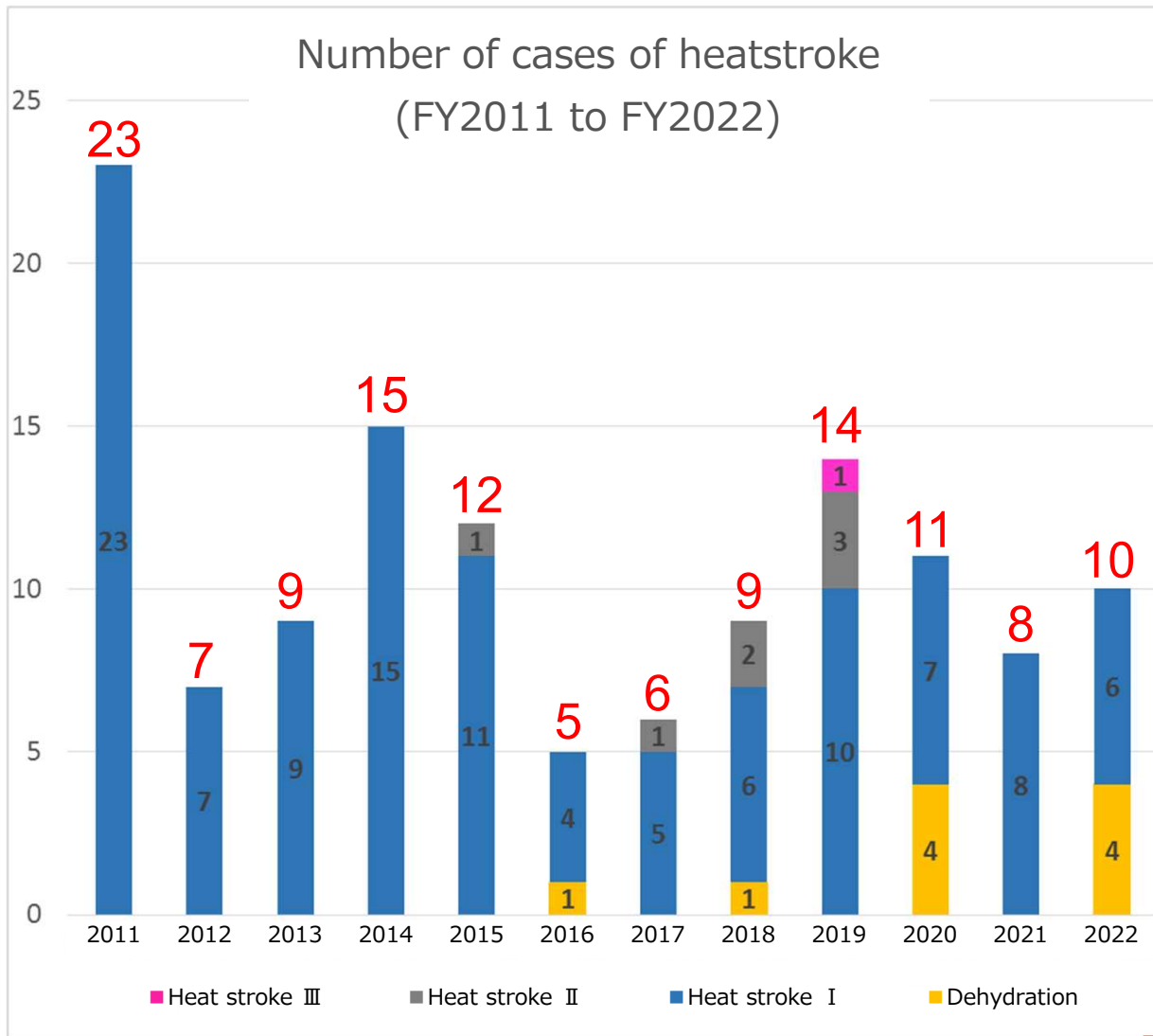
1. Raising safety awareness

- ① Provide workers with safety information using digital signage
 - Weather information, WBGT forecast, the number of days with no accident, accident cases, various kinds of information for calling attention, etc.
- ② Continue the 1F safety challenge.

2. Improvement in safety management skills (education)

- ① Enrich the menu of team leader education and add education content (reconstruction CG, VR, etc.).
- ② Provide all workers and staff with safety education.
 - Explain danger and other risks of unplanned work and shortcut behavior to teach a safety-first mindset.

6-1. Situation at the onset of heat stroke in FY2022



- In FY2022, there were **six cases of heatstroke** and **four cases of dehydration**.
- The number of cases of heatstroke (including dehydration) in FY2022 increased from FY2021 **by 2 (8 cases ⇒ 10 cases)**.

<FY2022>	<FY2021>
<u>10 cases</u>	← <u>8 cases</u>
(end of the fiscal year)	(end of the fiscal year)
Heatstroke: 6 cases	← Heatstroke : 8 cases
Dehydration: 4 cases	← Dehydration: 0 cases

6-2. Status of cases of heatstroke in FY2022

(including
dehydration)

No.	Date of occurrence	Work description	Severity of instance	Diagnosis	WBGT value	Outfit	Work situation	Past history, chronic disease, no experience in 1F work in summer
						Mask	(Elapsed time of work)	
1	16 June	Ill health of a worker who was unhooking a sling for unloading outdoors in improvement work of administration building pathways	No leave	Heatstroke I	18.1°C (after correction)	Full face mask	Outdoor work (0 hours 30 minutes)	With a chronic disease
2	1 July	Ill health of a worker who was doing a container transportation task in a miscellaneous solid waste incineration building	No leave	Heatstroke I	22.0°C (after correction)	DS2	Indoor work (2 hours 5 minutes)	Not applicable
3	25 July	Ill health of a worker who was doing fading and chipping in work of a sub-drain transmission facility, etc.	No leave	Heatstroke I	27.0°C (after correction)	DS2	Outdoor work (2 hours 30 minutes)	With a chronic disease
4	26 July	Ill health of a worker who was fixing a pipe in Unit 1/2 SGTS piping removal work	No leave	Heatstroke I	30.8°C (after correction)	Full face mask	Outdoor work (1 hour 15 minutes)	Not applicable
5	27 July	Ill health of a worker in improvement work of the shared boiler building site associated with Unit 2 fuel retrieval	No leave	Dehydration	28.5°C (after correction)	Full face mask	Outdoor work (3 hours 20 minutes)	Not applicable
6	1 August	Ill health after HIC transportation work in the outsourced maintenance work of a multi-nuclear removal facility	No leave	Dehydration	27.0°C (after correction)	Full face mask	Outdoor work (1 hour 10 minutes)	With a chronic disease
7	9 August	Ill health of a worker who was unloading safety materials in the Hamadoori distribution center (outside the 1F premises)	No leave	Heatstroke I	27.1°C (after correction)	Non-woven mask	Outdoor work (1 hour 10 minutes)	With a chronic disease
8	31 August	Ill health of a worker who was processing grout panels for steel frame erection in a backwash valve pit yard	No leave	Dehydration	24.6°C (after correction)	Full face mask	Outdoor work (1 hour 30 minutes)	Not applicable
9	2 September	Ill health after disassembling scaffolding after replacement of sensors in the first basement of a turbine building	No leave	Dehydration	24.0°C (after correction)	Full face mask	Outdoor work (1 hour 40 minutes)	Not applicable
10	14 September	Ill health of a worker who was engaged in asphalt pavement in improvement work of the shared boiler building site	No leave	Heatstroke I	26.0°C (after correction)	Full face mask	Outdoor work (1 hour 20 minutes)	With a past history

Reference: Heatstroke severity classification ◆Heatstroke I: Dizziness, faintness, muscle pains, and muscle rigidity ◆Heatstroke II: Headache, nausea, vomiting, lethargy, and dependency ◆Heatstroke III: Impairment of consciousness, convulsions, and limb movement disorder, in addition to symptoms of Class II

WBGT (Wet Bulb Globe Temperature) refers to a heat index that focuses on the exchange of heat (heat balance) between the human body and the outside air and takes into account three factors that have a significant influence on the heat balance of the human body: (1) humidity, (2) surrounding thermal environment such as solar radiation and radiant heat, and (3) temperature.

6-3. Analysis of heatstroke in FY2022

<Early in the summer period> (No. 1 and 2 in the previous sheet 19)

- Points to note: Heatstroke occurred even under an environment with a low WBGT value (including a corrected value below 22°C).
- Problems (estimated): Lack of preparation for acclimation to heat
- Direction for measures: Determine and implement a concrete method for acclimation to heat.
(Example) After holidays, take a break more frequently and make working hours longer gradually.

<Peak of the summer period> (No. 3 to 10 in the previous sheet 19)

- Points to note
 - Heatstroke occurred where more than one of the following conditions are met.
 - Work with a full face mask, outdoor work, a person who has a disease or condition that affects the onset of heatstroke (such as hypertension)
 - Heatstroke occurred even with a low WBGT value (including a corrected value below 28°C, the warning level).
 - Heatstroke occurred even in a short time (about one hour) after the start of work outdoors.
- Problems (estimated)
 - Lack of health management for those who have a past medical history or a disease or condition that affects the onset of heatstroke (such as diabetes and hypertension)
 - Possible problems in the case where heatstroke occurs even without abnormalities in physical condition check (face-to-face) in the morning
 - ⇒ It is hard to bring up minor ill health (feels ill after starting work).
 - ⇒ A worker him/herself is not aware of his/her poor health (his/her condition changes after the start of work).
 - In the case of work with a full face mask, the face of the worker is hard to see, and health management is difficult.
- Direction for measures: Take a break by checking physical condition often or by using an IoT wearable watch, etc.

<Making symptoms milder (what was good)>

- As in the last year, all cases of heatstroke were class I, a mild symptom.

Our measures for heatstroke prevention (additional measures in FY2023)

(1) Physical measures

- ① Install signage monitors to help provide weather information such as periods when the temperature is rising, temperature, and a WBGT warning in order to inform and alert workers and employees.

Install monitors at the A-gate exit in the first floor of the access administration building, and at the bus shelter.

- ② Create a new-refrigerant supply place in the resting places of the information building in the west part of Units 1 and 2.
- ③ For workers (especially those who have a past medical history or a disease) who work in the west part of Units 1 and 2, prepare Wi-Fi environments so that they can use IoT wearable devices, watches, etc.

(2) Human measures

- ① Add education content, such as accident reproduction CG (for heatstroke), to our website (1 FOR ALL JAPAN).

As heatstroke prevention measures for partners (contractors), set the following measures and have the partners practice them.

(1) Managerial measures

- ① For periods when the temperature is rising (such as the end of the rainy season), set specific measures for acclimation to heat.

Example) In a working day just after a holiday, take a break 15 minutes earlier than usual, and from the next day, make working hours longer gradually (state it clearly in the protection work schedule).

- ② Set a method of checking physical conditions before the start of work and a concrete method of giving consideration to workers concerned in order to prevent the lack of consideration to past medical histories and diseases that affect the onset of heatstroke (such as diabetes and hypertension).

- ③ Set a concrete method of giving consideration for work that meets multiple conditions: work with a full face mask, outdoor work, and a person who has a disease or condition that affects the onset of heatstroke (such as hypertension).

Example of ② and ③) Check physical conditions every 15 minutes. Take a break 15 minutes earlier.

(2) Physical measures

- ① Use a product for a physical measure (digital signage) that our company provides.

Example) Partner's (contractor's) persons in charge of safety encourage persons in charge of work, work team leaders, etc. to use weather information (for one week, the day, etc.) that we provide by digital signage.

(3) Human measures

- ① For persons in charge of work, team leaders, and workers, provide education on heatstroke prevention using accident reconstruction CG (for heatstroke), etc.

- ② Set behaviors that help acclimation to heat.

Example) Step-by-step assignment of work early in the summer period, and promotion of holiday exercise

6-6. FY2023 Heat Stroke Prevention Measures Action Plan

Heat Stroke Prevention measures (From April to October) Red letter : reviewed portion of FY2023

Policy	Purpose	Measure (Action Plan)
Improve awareness of heat stroke (Education)	Implementation of heat stroke education	Implementation of heat stroke education for TEPCO staff/cooperative companies. Confirm the education contents for heat stroke prevention measures of cooperative companies
	Planning and Dissemination of heat stroke prevention measures	Call for wearing cool vests and ice packs (WBGT value 25°C or higher). Strengthen responses by the heatstroke prevention plan of each company (e.g., consideration to people with a past medical history and new workers, and strengthening full face mask management). Use a signage monitor to call attention to heatstroke, inform of periods when the temperature is rising, and call for acclimation to heat.
	Wearing a cool vest / ice pack and take rest properly	Prevention of heat stroke and onset
Place a large WBGT display.		
Operation of WBGT measuring devices and notification of predicted WBGT values		
Secure first aid and emergency transport operation in the emergency medical room (ER).		
Provide refrigerants for resting places and equipment changing places and manage them.		
Adequate heat stroke prevention in collaboration with original contractors	Implement the total heat stroke prevention rule	Daily guidance by managers for heat stroke (health condition management, water/salt intake, wearing ice packs etc.).
		Wear ice packs and regulate continuous work, in principle. ①WBGT value less than 25–28°C (warning): 2 hours or less. ②WBGT value less than 28–31°C (strict warning) light work: 2 hours or less. ③WBGT value less than 28–31°C (strict warning) heavy work: 1 hour or less. ④WBGT value 31°C or higher (dangerous) in principle, stop work (excluding work permitted by the responsible department).
		Health condition management before work by the managers of cooperative company (measure body temperature, blood pressure, alcohol checker).
		Health check results by the managers of cooperative company, medical history confirmation including heat stroke and consideration according to the situation.
		In principle, work is prohibited during the hottest hours July 1 – August 31 (14:00–17:00).
		Confirm and manage the WBGT values of each work area.
		Strengthening management ① For fully-masked workers, add a correction value of +1°C to the WBGT value. ② For workers at risk of heat stroke*, give consideration to safety measures and add a correction value of +1°C to the WBGT value during the period from the end of the rainy season to the end of September and under high temperatures (an environment where sweating is induced regardless of the season). * Workers who have a past medical history (heat stroke, diabetes, high blood pressure, etc.) and have no experience of working at 1F in the summer season (April to October a year earlier).
		Identify “workers who have no experience of summer work (April–October) in the 1F site,” and implement through measures against heat stroke prevention.
		Face-to-face health condition management before starting work.
		Check the weather forecast in advance (WBGT value, temperature change), and when the temperature change is high, have the workers take heat stroke prevention measures before starting work.
	Reduce physical load due to changes of work environment	Promote changing equipment with less physical load according to each zone. Use air-conditioning clothes and IoT watches
Recommend the use of sunshades when working outdoors (implement specific safety measures for each work).		

7-1. Key activities of safety activities in FY2023

- With this plan as a guide, partners (contractors) and each group of departments of 1F should formulate and roll out the FY2023 safety activity plan that takes into account their own problems.

	1F key activity	Description		Persons who conduct the activity
1	Efforts to ensure safe behavior	a. Grasp improvement in site supervision <ul style="list-style-type: none"> Using protection instructions, clarify safe behavior points (risks and measures that require particular attention), and thereby improve work safety, radiation safety, human errors, and quality management. Grasp the level (behavior) of on-site management by a person in charge of work and a work team leader and strengthen communications, thereby ensuring the fulfillment of roles and procedures. Have them stop if they feel doubt or difficulty and have them always report, communicate, and consult. Strengthen on-site review in on-site hazard prediction and add after-hazard prediction, and thereby eliminate on-site risks thoroughly in order to correct insufficient hazard identification, which is a major cause of accidents. 	Continue Review	Company: Responsible person in a general contractor, team leader, and all workers Our company: Responsible GM, supervisor
		b. Improvement of on-site capabilities of supervisors <ul style="list-style-type: none"> Introduce the on-site capability improvement sheet and make sure that when a supervisor inspects a construction plan and construction procedures, his/her superior checks it and communicates with him/her in order to improve his/her management skills. After completion of work, the supervisor and a responsible person of the contractor review the work together and fill in the sheet. 	Continue	Our company: Supervisor
2	Efforts for safe behavior with a partner and us acting as one	a. Eliminating accidents with a partner and us acting as one <ul style="list-style-type: none"> Between a director or senior staff of a partner (contractor) and the counterpart (responsible department) of our company, plan and roll out safety activities appropriate to the problems of each company with determination to prevent any fatal accidents. Acting as one with a partner, the counterpart (responsible department) should consider safety activities appropriate to the problems of each partner in formulating a safety activity plan and check the status of implementation (PDCA) during the term together with a partner (contractor). Conduct an MO activity, etc. to check the status of implementation of concrete activity plans. 	Continue Review	Company: Partner (general contractor) (company specified by the executive office) Our company: Counterpart (responsible department), executive office (occupational safety & fire prevention G)

<Reference>

	Headquarters	Description		Persons who conduct the activity
1	Key efforts in the nuclear sector	I. Continue and thoroughly carry out risk identification and removal activities incorporated into work processes <ul style="list-style-type: none"> Eliminate predictable hazards by reflecting the results of prior risk assessment in procedures. Eliminate unpredictable (on site-specific) hazards by ensuring safety management in the field work stage. 	Continue	Company: Responsible person in a general contractor Our company: Supervisor
		II. Strengthen and ensure the sharing of accident cases and information <ul style="list-style-type: none"> Seek causes of accidents that occurred; consider preventive measures; reflect results in procedures; ensure implementation. Eliminate risks through effective use of OE 	Continue	Company: Responsible person in a general contractor Our company: Supervisor
		III. Strengthen oversight by MO&C → Visit on-site and grasp on-site situations <ul style="list-style-type: none"> Monitoring and coaching concerning the implementation of safety activities by the responsible department and cooperative companies Grasp signs of deterioration and take remedial action by analysis and evaluation of MO results 	Continue	Company: Responsible person in a general contractor Our company: Responsible GM, supervisor, executive office

Blue color: New/review activity



7-2. Safety Action Plan for FY2023 (Overall)

■ With this plan as a guide, partners (contractors) and each group of departments of 1F should formulate and roll out the FY2023 safety activity plan that takes into account their own issues.

Classification	Action Plan	Status of efforts in FY2023	Implementation period	New/Continued
Measures for personnel	1. Activities to improve safety awareness	(1) Staff and workers should make a concerted effort to set a new record of continuous zero accidents and raise safety awareness (visualizing the record of continuous zero accidents and the number of accidents, sharing of accident cases and information, etc.) (2) Applications for and posting safety slogans and posting safety calendars (using digital signage) (3) Improving safety awareness through safety events (safety rally, etc.) (4) Conforming to safety rules with the use of the work safety handbook, etc. (5) Holding an accident prevention event, the 1F safety challenge (participated by employees and workers)	(1) Every day (2) Every month (3) Held as appropriate (4) Every day (5) Held as appropriate (6) Every day	[Continued] (1)(3)(4) [Reviewed] (2) [Added] (5)
	2. Improvement in safety management skills	(1) Of the education for work team leaders, the new curriculum of safety management should continue to be offered (for the VR-based dangerous experience, create and use the latest version of accident reconstruction CG) (2) Providing safety education for all workers and staff (promote safety-first activities every day) (3) Providing safety education in accepting new workers (use accident reconstruction CG for frequently occurring accidents)	(1) April to March (2) April to March (3) Held as appropriate	[Reviewed] (1)(2)(3)
Measures for activities	3. Activities to improve work environments	(1) Activities to remove hazardous areas (e.g., simultaneous 4S (Sort, Set in order, Shine, Standardize) activity, safety campaign activity, tool overhaul, directly managed activity to remove unsafe areas, and budgetary measure of the responsible group) (2) Improving work environments (Provide safety equipment and refrigerant freezers in accordance with the plans of resting places and equipment changing places of companies)	(1) April to March (2) April to March	[Reviewed] (1) [Continued] (2)
Measures for management	4. Activities to improve hazard prediction	(1) Identifying hazards through on-site thorough observations based on on-site hazard prediction, that is, on-site actual check just before work. Measures determined in after-hazard prediction (review) should be reflected in work procedures and a tool box meeting should be implemented from the next day. (2) Promoting hazard prediction before employees go to a work site (elimination of employee accidents)	(1) April to March (2) April to March	[Continued] (2) [Reviewed] (1)
	5. Elimination of hazardous areas and 5S activities	(1) Activities to eliminate unsafe places through safety patrols (2) Cross-sectional check and evaluation in prior safety evaluation (risk assessment)	(1) April to March (2) April to March	[Continued] (1)(2)
	6. Independent safety and communication activities	(1) Efforts to ensure safe behavior · Eliminating on-site risks thoroughly through a series of safety management including on-site hazard prediction and after-hazard prediction. (2) Formulating safety activity plans specific to companies and groups (employees) (3) MO (management observation) activity (holding safety meetings; monitoring and supervision of safety in each group by high-level executives) (4) Efforts to implement safety activities in close cooperation between our company and original contractors · Between a director or senior staff of a partner (contractor) and the counterpart (responsible department) of our company, plan and roll out safety activities appropriate to the issues of each company with determination to prevent any fatal accidents. (5) Safety management and guidance and communication activities at work sites through self-inspection (6) Informing workers of safety information using the website (1 FOR ALL JAPAN).	(1) April to March (2) April to March (3) April to March (4) April to March (5) April to March (6) April to March	[Priority] (1) (4) [Reviewed] (1) [Continued] (2)(3)(4) (5)(6)
	7. Heat stroke prevention activities	(1) Strengthening measures for heat stroke prevention in the period from April to October (e.g., adherence to the rules for heat stroke prevention) (2) Preparing a heat stroke prevention plan for each original contractor and implementing heat stroke management for each type of work (3) Providing a new-refrigerant supply place in the resting places of the information building in the west part of Units 1 and 2. (4) For workers (especially those who have a past medical history or a disease or condition) who work in the west part of Units 1 and 2, prepare Wi-Fi environments for using IoT wearable devices, watches, etc.	(1) April to October (2) Submission in April	[Continued] (1)(2)(3) [Added] (3)(4)

Red letter : Priority measures Blue letter : Measures to be added or reviewed