Attachment No.4

Report on the Occurrence of Industrial Accidents in FY2020 and Safety Activity Plan for FY2021

April 23 2021

Tokyo Electric Power Company Holdings, Inc.

TEPCO

1．Major Initiatives on Safety Activity in FY2020

Classification	Action Plan		Status of efforts
Measures for personnel	Safety Awareness Improvement and Sharing	①Implement accident eradication campaign. ・Eliminated dangerous site activities by TEPCO and cooperative firm staff. ・Eliminated dangerous sites and displayed signs. ②Call for safety slogan、posting safety calendars, and improve the safety consciousness by holding safety rally. ③Improve the safety consciousness among staff. ・Case study on accidents ・Read through the safety operation handbook	①Eliminate dangerous site activities, in summer: prevention of heat stroke, falling and stumbling in uneven or dark sites, in winter: prevention of falling and stumbling in uneven or dark sites, falling down (618 cases in summer, 734 cases in winter). ②Foster the safety culture by safety activities for all:meeting implemented with staff of TEPCO and cooperative firm. (Distributing safety calendar, call for safety slogan and distribute them: every month, general rally for safety,etc.). ③To improve the safety consciousness activities among staff, case study on disaster examples implemented (4 times/1 year), read through the safety operation handbook.
	Upskilling safety management	①Hold study seminars on employee safety. ②Promote safety education for staff foreman and staff. ③Upskilling cooperate firm team leaders on safety management.	①Implement education programs on safety rules, Industrial Safety and Health Act, and heat stroke prevention. ②Implement foreman education program for newly assigned and continuing staff. ③Consider and prepare educational content for safety management for cooperate firm team leader for example experience the feeling of danger using VR, and group session using CG on safety education, disaster reproduction.
Measures for activities	Eradicate dangerous sites and implement 5S movement	①Strengthen and point out on each safety patrol.	①Implement eradication activities a dangerous sites through joint area keeper patrol by Safety Promotion Committee/cooperative firm and executive officers.
Measures for management	Strengthen and improve corporate safety management	①Strengthen education on safety management. ②Revise work procedure manual and improve TBM-KY (Tool Box Meeting, risk prediction) activities. ③Monitor and advise safety management.	①Implement safety education for safety promotion members and construction inspectors, disseminate accurate information on disaster cases to all, hold case study seminars on disaster. ②Introduction of good cases of other firm's KY,and implement TBM-KY measures for improvement of quality. ③Safety department and responsible division carry out work monitoring (MO) and advise to improve deficiencies in procedure manual(safety measures).
	Strengthen safety management (KY/Risk Assessment)	①Promote KY activities before staff enters the site. ②Activate TBM-KY activity. ③Cross-sectional check/evaluation of safety preliminary evaluation (risk assessment).	①Implement risk prediction activities KY sheet before entering the site (staff). ②Activate TBM-KY by active staff participation and involvement. ③Cross-sectional check/evaluation of safety preliminary evaluation (risk assessment). (Utilize disaster examples of other sites at own site, and judge PDCA if necessary).
	Heat stroke prevention activities	Implement Heat stroke prevention activities (April – October).	Measures to prevent heat stroke based on the heat stroke prevention rules. Strengthen management of using dust protective mask and introduce the new type ice pack.

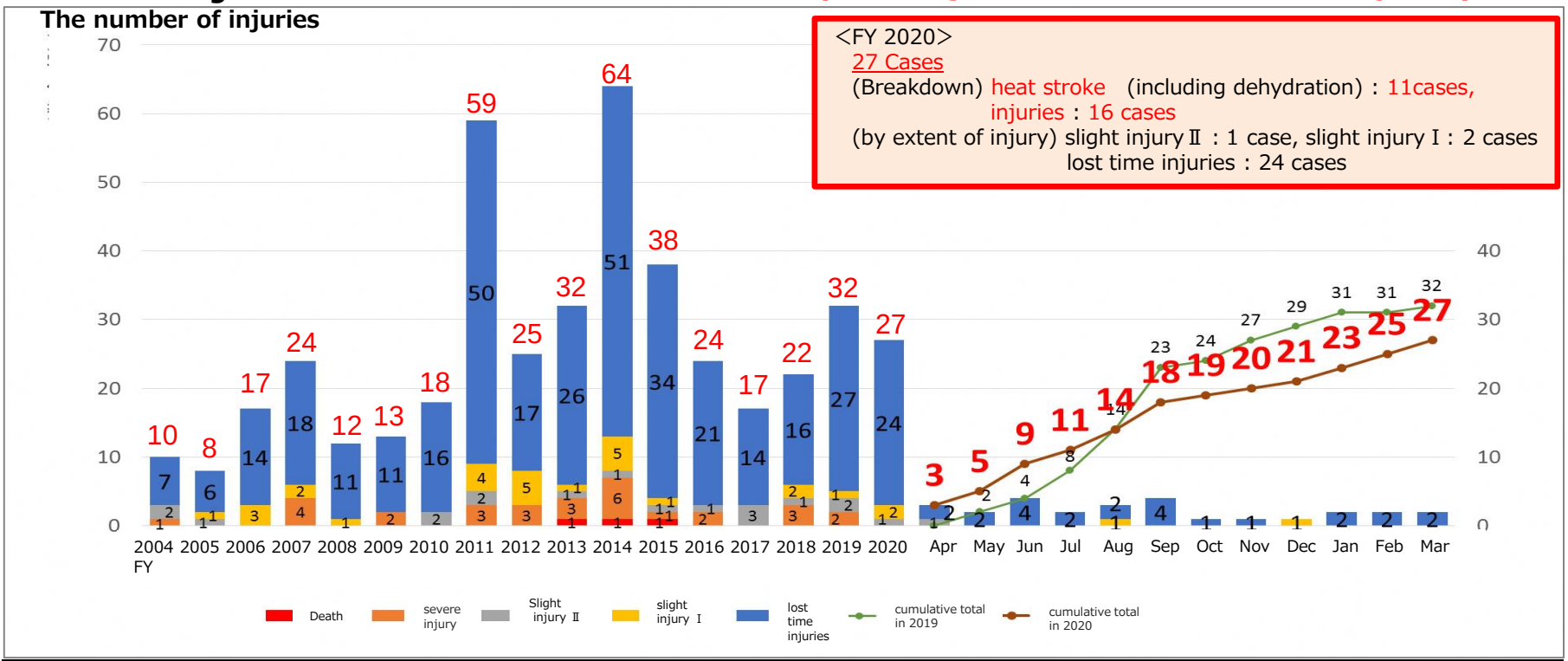
※5 S ：Seiri – orderly disposition, Seiton – orderly arrangement, Seisou – cleaning up, Seiketsu – cleanliness, Shitsuke – discipline

KY：Kiken Yochi=accident prediction

2. Situation of industrial accidents in FY2020 (1/7)

All injuries (including heat stroke and no leave of absence)

(1) All injuries occurrence situation (including heat stroke and lost time injuries)



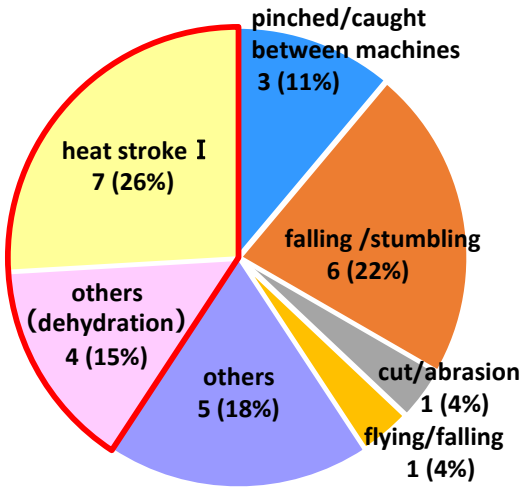
- Compared to FY2019Y, the number of injuries decreased by 15% (32 persons ⇒ 27 persons
- The frequency rate for lost time injuries or higher is "0.25(0.46 in the previous year)"which is lower than the nationwide frequency rate for FY2019 in general construction industry (Source: Ministry of Health, Labor and Welfare "FY2019 occupational accidents" "1.69(1.09 in the previous year)".(Frequency rate: Number of casualties due to occupational accidents per one million actual working hours).
- In the for occupational accidents in FY2020, the number of heat stroke was decreased by 3 persons compared to 2019 FY, "14 persons →11 persons). The number of other injuries decreased by 2persons "18 persons →16 persons, including staff injuries at 3 persons".

2．Situation of industrial accidents in FY2020 (2/7)

(2) Status of injuries by category　All injuries

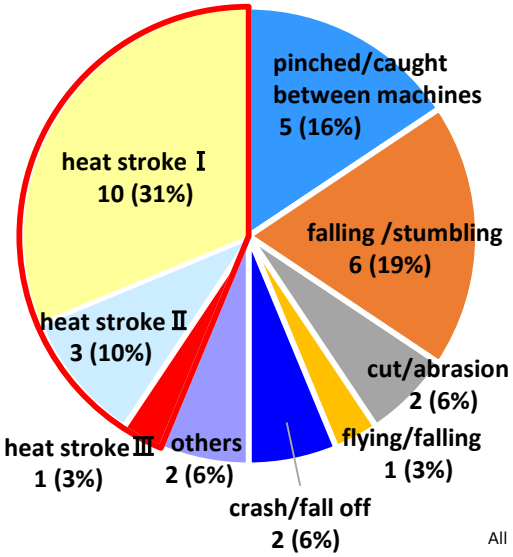
<FY2020>

The number of cases total : 27



<FY2019>

The number of cases total : 32



[Features]

- Heat stroke accounts for a high proportion of all injuries
  - 11 cases in FY2020 “41%”
  - 14 cases in FY2019 “44%”
- Other than heat stroke, “falling and stumbling” account for the same high proportion as previous year
  - 6 cases in FY2020 ”22%“
  - 6 cases in FY2019 ”19%”
- 3 cases of lost worktime accidents occurred, 1 person each due to “flying/falling”, “falling/stumbling”, and “dehydration”. There were no serious injury

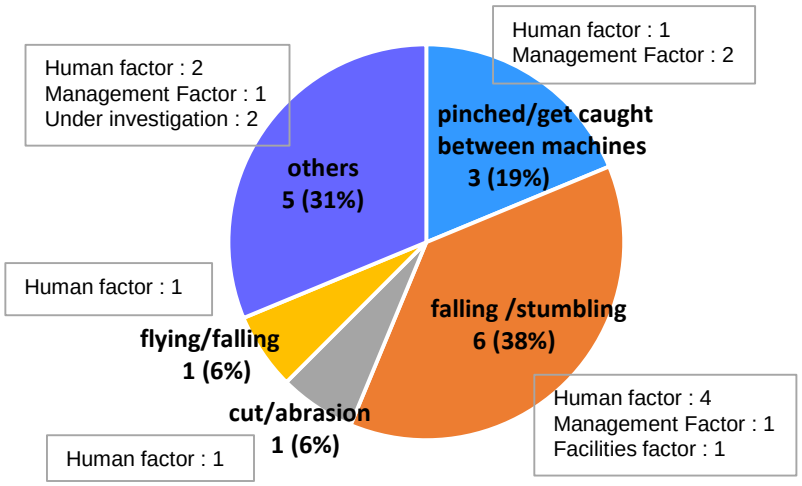
※Heat stroke severity classification

- ◆Heat stroke Ⅰ … Dizziness/syncope, muscle pain/muscle stiffness
- ◆Heat stroke Ⅱ … Headache, nausea, vomiting, malaise, collapse
- ◆Heat stroke Ⅲ … In addition to the symptom of Ⅱ, consciousness disorder, convulsions, movement disorder of limbs

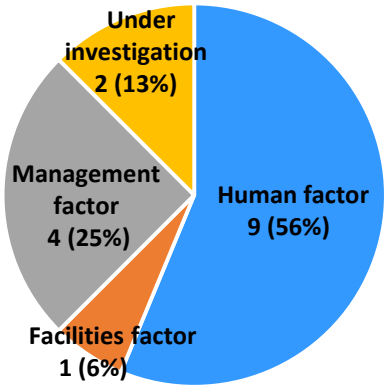
2. Situation of industrial accidents in FY2020 (3/7)

(3) Injuries other than heat stroke

a. Occurrence of injuries by category



b. Occurrence by contributing factors



[Features]

- “ 6 cases of falling and stumbling” account for 38%
- 2 cases of lost worktime accidents occurred, 1 person each due to “flying/falling”, and “falling /stumbling.
- Accidents caused by human factors account for 50% of the total 9 cases.
  Caused by lack of attention to feet doing unscheduled work, and carelessness in repeated work.

[Major examples of injuries, “falling /stumbling”]

<A worker of subcontractor engaged in the investigation of oil floating on stagnant water fell down when transporting the lead shield mat>

- Since it was the 3rd time transporting it,he was careless and did not check the feet well. [Human factor]

<Accident in 8.5m board facing construction. >

- The rule to remove foreign matters when walking on the truck bed seat was not duly observed. [Administrative]

<Left foot sprain caused by stepping off the stairs in the new office building>

- Ascending and descending stairs is usually repeated action, he unconsciously went down the stairs without looking at feet. [Human factor]

<Injury of right leg during power cable laying work>

- He abruptly changed his posture at the moment when he was called. [Human factor]

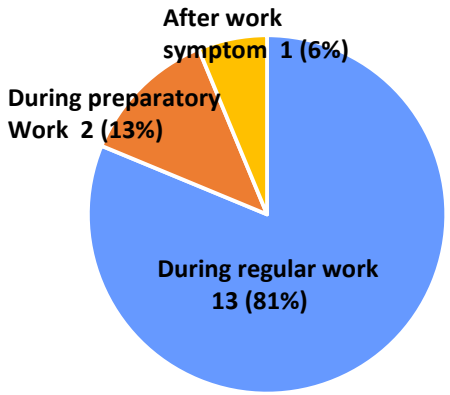
<Injury of the forehead of a person engaged in monitoring work in the entry/exit control office of Unit-1-4>

- The person did not stand up calmly from the chair. [Human factor]

2. Situation of industrial accidents in FY2020 (4/7)

c. Comparison of occurrence by work item

<FY2020>



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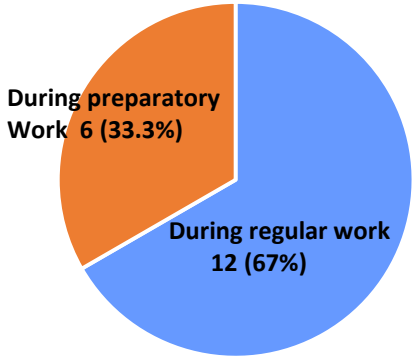

[Features]

- Since FY2015, KY activities have been carried out to always extract risk factors during preparation and tidying up work the same way as during the regular work. Since then, the number of injuries during preparation and tidying up work has decreased year by year.
- The number of injuries during preparatory work increased to 6 cases in FY2019, but it began to decrease again in FY2020.
- We will continue to extract every risk factors and take countermeasures during the preparatory work in the same way as during regular work in order to prevent injuries.

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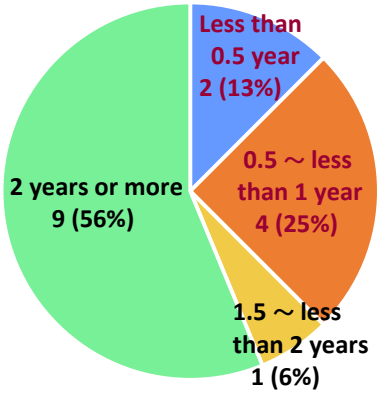
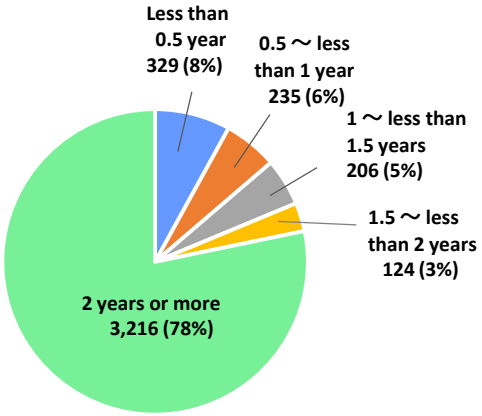
2. Situation of industrial accidents in FY2020 (5/7)

d. Comparison of occurrence by years of experience at 1F site

<FY2020>



Years of experience of workers in FY2020



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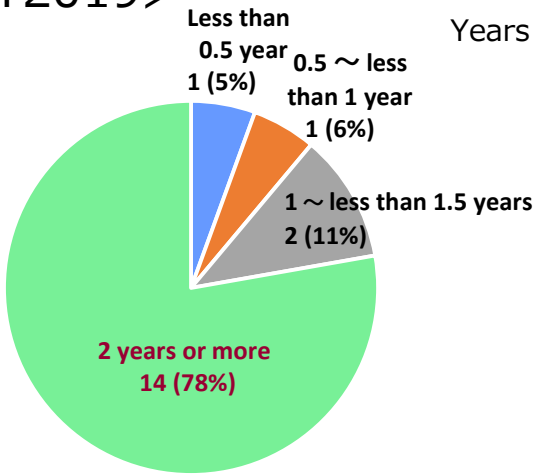
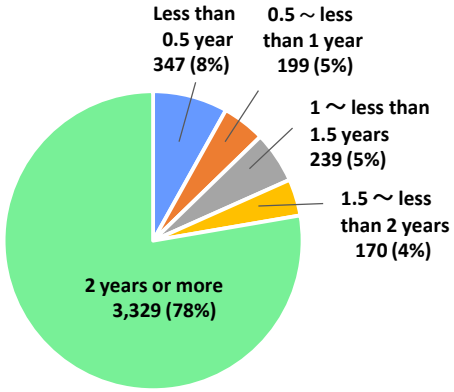


Years of experience of workers in FY2019



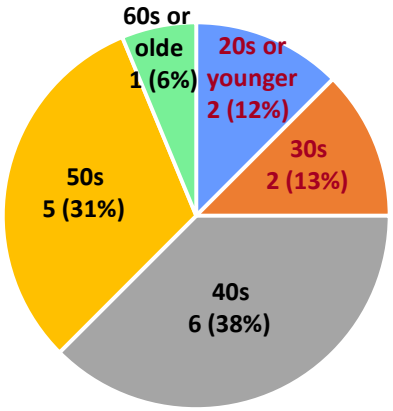
[Features]

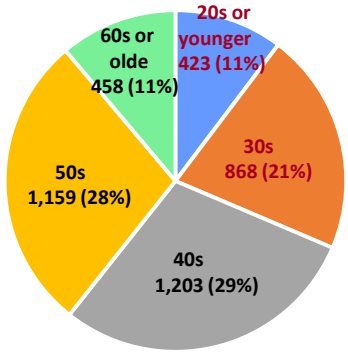
- The number of accidents for experienced 1F workers (more than 2 years) decreased at 1F site.
  FY2020 : 9 persons (56%)
  FY2019 : 14 persons (78%)
- Accidents involving inexperienced workers (less than 1 yearexperience) increased.
  FY2020 : 6 persons (38%)
  FY2019 : 2 persons (11%)
- No specific features were observed regarding the composition of workers' experience in years.

2. Situation of industrial accidents in FY2020 (6/7)

e. Comparison of occurrence by age

<FY2020>





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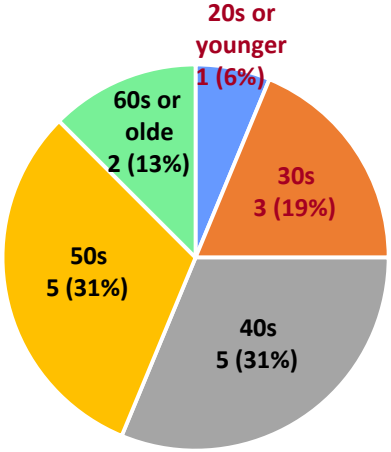
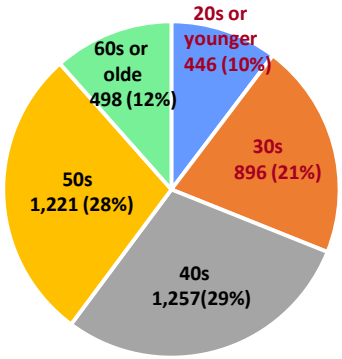




[Features]

- In both FY2020 and FY2019, there were no major features relating to the workers' age in the year of the accidents occurred and the age composition of the workers.

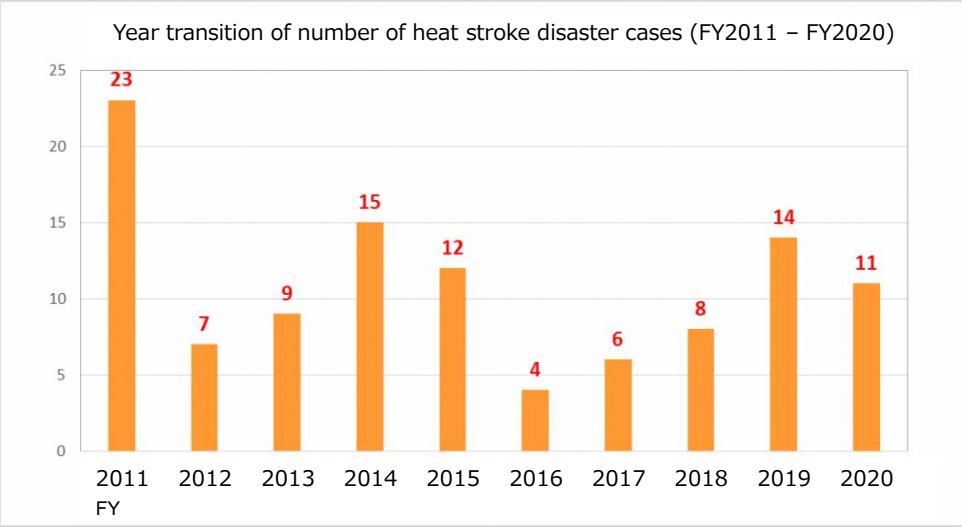
2. Situation of industrial accidents in FY2020 (7/7)

(4) Heat stroke accident

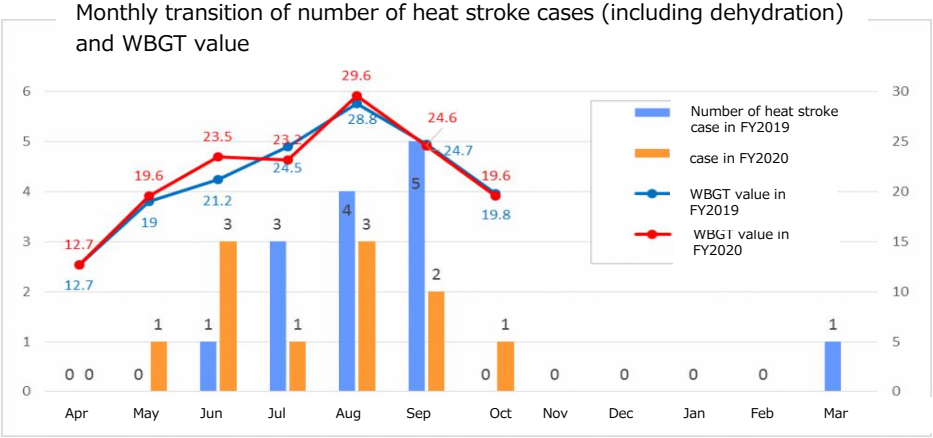
a. Situation at the onset of heat stroke

- Although it was extremely hot as last year, the number of heat stroke cases decreased by 3 persons compared to FY2019 (14 persons ⇒ 11 persons.)
- There is the tendency for onset of heat stroke in workers with prior history of heat stroke and chronic disorders in environments of rapid temperature rise.
- Onset of heat stroke in inexperienced workers (less than 1 year) increased in FY2020.

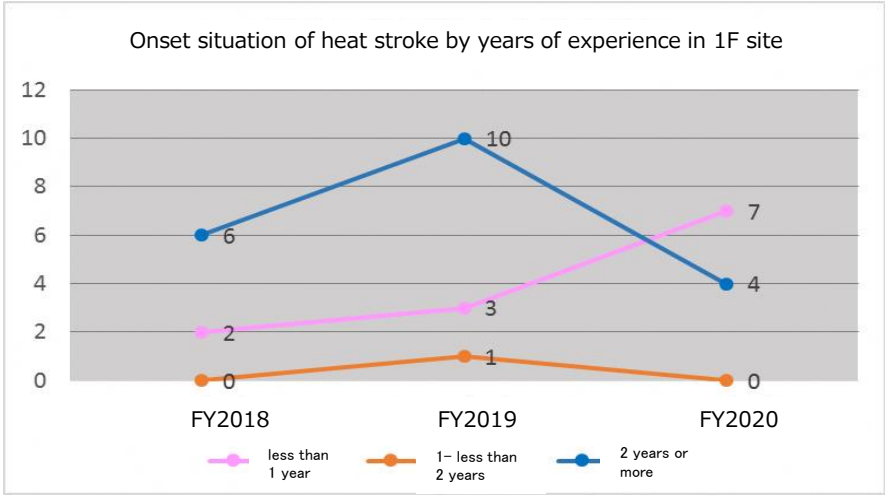
b. Number of heat stroke cases _ year transition



c. WBGT value and monthly onset status



d. Onset situation of heat stroke by years of experience in 1F site



WBGT (Wet Bulb Globe Temperature): Wet Bulb Globe Temperature is an index that focuses on the heat exchange (heat balance) between the human body and the outside air. A heat index that incorporates three factors: (1) humidity, (2) the surrounding thermal environment such as solar insolation and radiation heat, and (3) temperature, which have a large effect on the heat balance of the human body

3．Evaluation of FY2020 Safety Activity Plan

(1) Evaluation of safety activities (excluding heat stroke)

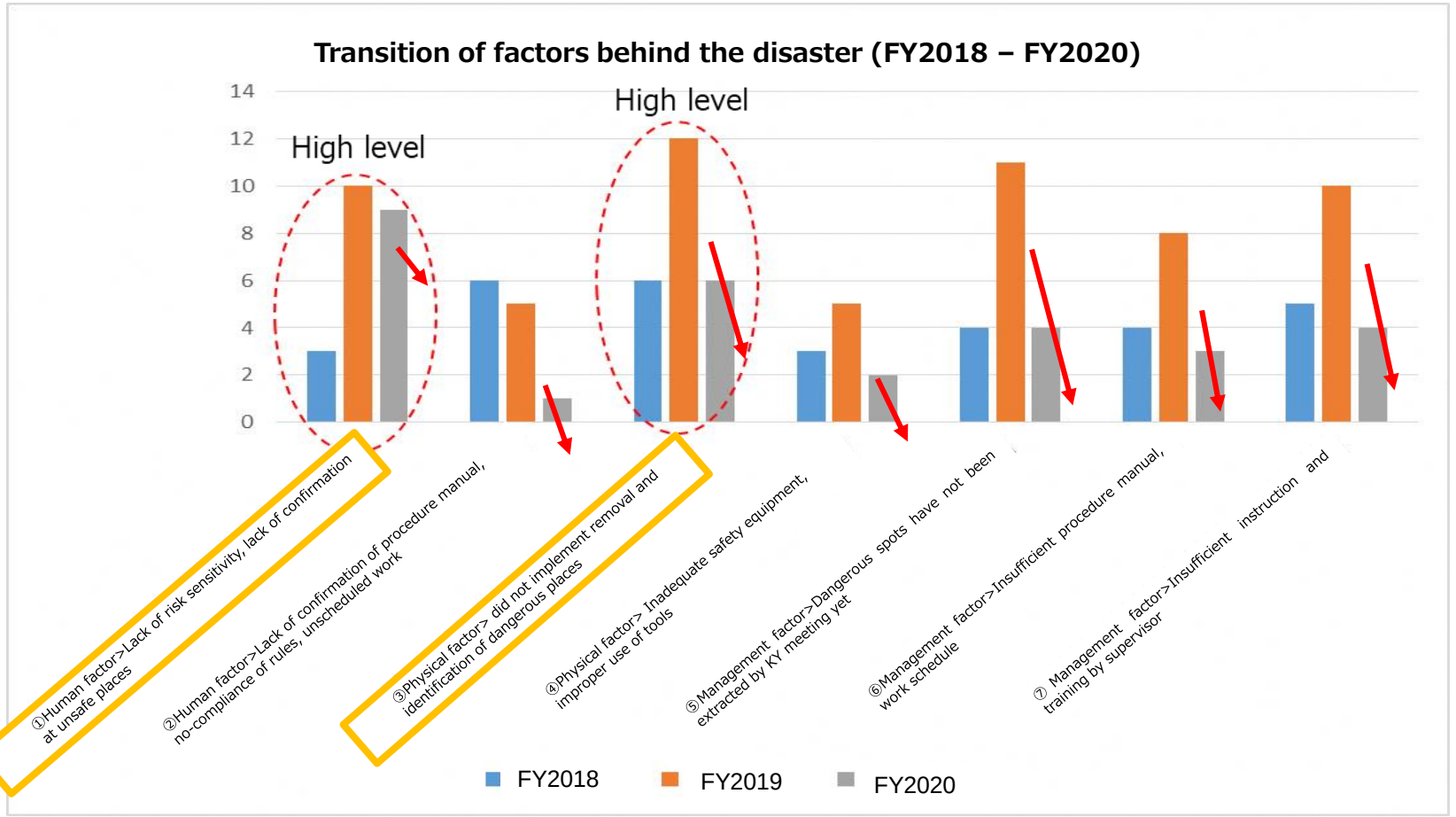
a．Look back on the FY2020 incident

	Facts (origin of incident)	Factors behind the incident in FY2020	Looking back on the incident in FY2020
Human factors	①Lack of risk sensitivity, lack of cautiousness at unsafe places [staff/ subcontracting company]	・Because vehicles and people could pass through the road, he didn't notice the gap under his foot on the road. ・Because it was the repeated work, KY activity a rut. ・Even though on truck bed, he walked without closely watching the ground beneath his feet. ・He unconsciously went down the stairs without watching the ground beneath his feet.	・Danger sensitivity lowers during simple work, moving, routine work, etc., lack of safety cautiousness likely occur. ・There is insufficient education to raise the risk sensitivity of the workers at the site. ・Because the surrounding hazards are not noticed, it is not reflected in procedure manual (safety equipment, supervisor staffing).
	②Lack of confirmation of procedures, non compliance [staff/ subcontracting company]	・Did not follow the appropriate procedure for recognizing the heavy load (unscheduled work). ・Because the subcontractor did unscheduled work, the primary contractor was unable to confirm work procedure and the supervisor staffing.	
Physical factors	③Did not identify and remove dangerous places [staff/ subcontracting company]	・There was a gap (about 15cm) in the grating wide enough for feet to slip in. ・The burden of stepping up and down was not taken into consideration when transporting heavy load. ・The step (about 45cm) was higher than the general step (about 25cm). ・The handling method was posted on the scaffolding itself, however, he did not confirm it.	・There are many hazards (steps, dark places etc.,) on the 1F premises. ・Hazard information is not managed. ・Lack of activities to eliminate dangerous places.
	④Safety equipment not installed, improper use of tools [subcontracting company]	・About 18kg of material was contained in the cloth bucket, material was heavy, however, did not know it in advance. ・The method of how to use it was only explained orally, and it was not an environment where anyone could confirm it at any time on bulletin board etc.	・Due to lack of safety confirmation by the prime contractor and by foreman, information of safety equipment was not instructed.
Management factors	⑤Dangerous points were not extracted by TBM-KY meeting [subcontracting company]	・Insufficient risk extraction in KY meeting and did not instruct to equip with protective equipment. (Example: on-site KY meeting was not implemented due to transportation work) ・Insufficient on-site safety confirmation. (Example: on truck bed, movable indoor scaffolding) ・The work continued at the same site and KY meetings became a rut (Example: Transportation of about 20kg lead shielding mat.	・Dangerous spots cannot be extracted only by KY meetings held on company premises. On-site KY meeting were almost never held. ・There are some places where on-site KY meeting is difficult to hold (Example: Y area). ・In continuing work at the same site, simple work, KY meeting get into a rut. ・There are no OA, LAN facilities at company premises, so photos required for KY meetings cannot be used.
	⑥Procedure manual, work schedule/protection instruction were not sufficient [subcontracting company]	・Did not decide the procedure manual until the curing sheet was placed on the truck bed. ・Discard materials that do not meet quality control standard (18kg of material in the cloth bucket). Because the procedure was not clear, the incident victim rushed to work.	・In simple work (vehicle operation etc.), procedure manual were not made and safety confirmation is neglected.
	⑦Under the subcontracting company, the construction staff and foreman give incomplete instruction to on site workers lack of safety education [subcontracting company]	・The use of safety equipment was left to the discretion of workers (without confirming the need to wear safety equipment). ・Did not specifically instruct the curing method to workers.	・Safety education for foreman and other staff who are responsible for on-site safety confirmation is insufficient.

3．Evaluation of FY2020 Safety Activity Plan

b．Transition of factors behind the accident (FY2018 – FY2020)

- Transition of factors behind the accident(management/physical/human) in last 3 years follow a downward trend, so safety activities of FY2020 can be evaluated to a certain extent.
- However, "① Lack of risk sensitivity, lack of confirmation at unsafe places", "③ Physical factors> Did not identify and remove dangerous places", are still at a high level.



c． Analysis of high level factors behind accident

"① Human factors> Lack of risk sensitivity, lack of cautiousness at unsafe places".
"③ Physical factors> Did not identify and remove dangerous places" are still at a high level, so following reasons can be considered.

（a）Human factors～ Lack of risk sensitivity, lack of cautiousness at unsafe places

[TEPCO staff]

・In each case, it seems the victims themselves acted unconsciously did not check around feet and hands.

[Workers]

・Lack of consciousness for KY meeting which became a rut from the continuous work on the site (transport work by hand), due to the lack of the safety cautiousness around feet and hands and improper procedure. They considered it as the light/simple work (transportation of cloth buckets, on truck bed, operation of movable indoor scaffolding).

[Common]

・On-site unsafe places not recognized. (Lack of risk sensitivity)
・The ability of workers to judge the dangerous places on their own is insufficient. (Safety education is insufficient)
・Dangerous spots were not extracted at KY meetings.

3．Evaluation of FY2020 Safety Activity Plan

（b）Physical factors ～ Did not identify and remove dangerous places.

＜1F site Feature＞

・On roads and passages, few flat ground and many bumps laid with iron plates.
・There are many stairs (temporary/main) as passages for crossing pipes and electric lines.
・Sufficient lighting facilities are not installed outdoors and indoors.

・Condition 1> Unfamiliar with the site, elderly (decreased athletic ability).
・Condition 2＞Walking in unfitting safety boots.

The risk of falls and tripping increases !

＜Status of maintenance＞

・Responsible maintenance department unknown, there are many stairs. (temporary/main) not under management, so maintenance not yet implemented.
・The disaster eradication campaign eliminated unsafe places such as steps and dark spots (in summer: 613 cases, in winter: 734 cases), however, unsafe places still remain.

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3． Evaluation of FY2020 Safety Activity Plan

（2）Evaluation of heat stroke accident in FY2020

a． Symptom alleviation

・Though heat stroke Ⅱ degree or higher occurred in FY2018 and FY2019, they did not occur in FY2020 due to compliance with heat stroke rule and efforts to prevent heat stroke according to each company's on-site. All accidents are below I degree, symptoms did not become severe.

・Implementation of ingenuity according to work type (air-conditioned clothes + ice pack combined use, work night shift etc.) by each company.

・Actively utilize ER facility. We will continue to promote its usage.

b． Calling attention to heat acclimation

・It was effective to send a warning about the reliable implementation of preventive measures in line with the resumption of work after the long holidays (Golden Week holidays, Obon-summer holidays) and the end of rainy season.

c． Operation of new ice pack

・Introduced new type of ice pack with a cooling effect which is about three times compared to the existing ice pack, and proved to be effective in preventing the onset of heat stroke.

・On the other hand, there were some areas where the operation of ice pack was not sufficient, so we will increase the number of freezers required to improve the operation.

d． Consideration for workers with medical history or chronic illness

・Measures for workers with a history of heat stroke and chronic illness were incorporated into the heat stroke prevention plan of each company during the period. It will also be reflected in the heat stroke prevention plan for the next fiscal year along with working on prevention.

4. FY2021 Safety Activity Action

Classification	Action Plan	Activities in FY2021
Measures for personnel	1.Safety Awareness Improvement	①Call for safety slogan、posting safety calendar. ②Safety awareness improvement by the safety events such as a general rally for safety. ③Observe safety rules using safety operation handbook (FY2021).
	2.Upskilling safety management	①Promote total safety education (heat stroke prevention study seminars, disseminate accurate information on disaster cases to all. ②Strengthen education for team leaders (operation of new educational curriculum for team leaders). ③Promote education to improve risk sensitivity (disaster case study, improvement of risk sensitivity by adopting video contents such as CG and VR).
Measures for activities	3.Work environment improvement activities	①Visualization of on-site hazard information (drawings, photographs), examination of hazard maintenance plans. ②Elimination of dangerous places through safety overhaul and accident eradication campaigns. ③Deployment and promotion of safety equipment effective for accident eradication (full harness type fall prevention equipment, goggles type protective glasses, new ice pack, air-conditioned clothes, safety shoes, etc.). ④Develop the environment for safety education (disaster reproduction CG, etc.) utilizing 1 FOR ALL JAPAN information magazine. ⑤Consideration of OA for company rest places (develop maintenance plan in FY2021).
Measures for management	4.Improve KY activity	①Promote on-site KY activities (extract unpredictable dangerous points). ②Promote KY activities before staff enters the site. (Eradication of staff accidents)
	5.Eradicate dangerous places/ 5S	①Eliminate unsafe places through safety patrol. ②Cross sectional check/evaluation of safety pre-assessment (risk assessment).
	6.Own safety activities/communication activities	①Formulate own safety activity plan by company/group (staff). ②Strengthen governance through MO (strengthening on-site management in collaboration with cooperative companies). ③Safety management guidance and communication activities under each responsible site through self-organized inspection.
	7.Heat stroke prevention activity	①In April – October, strengthen heat stroke prevention measures (observe heat stroke prevention rules, etc.). ②Formulate heat stroke prevention plan by each prime contractor and implement heat stroke management for each work type.

5 S : Seiri – orderly disposition, Seiton – orderly arrangement, Seisou – cleaning up, seiketsu – cleanliness, shitsuke - discipline.

Red letter: Priority action items

5 .FY2021 Heat Stroke Prevention Measures Action Plan

Heat Stroke Prevention measures (From April to October)

Red letter: additional new rule

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
	Dissemination of heat stroke prevention measures	Call for wearing cool vests and ice packs (WBGT value 25°C or higher).
		Strengthen heat acclimation (management of working hours, etc.).
		Post on information boards and poster, etc.
Wearing a cool vest / ice pack and take rest properly	Prevention of heat stroke and onset	Cool vest, new type ice pack (Yellow zone – coverall clothe area, Green Zone – normal work cloths area), refrigerator deployment and management, air-conditioned clothe promotion. (Green zone)
		Install WBGT indicators, measuring instruments and indicators.
		Operate WBGT measuring instruments, indicators (solar system) and clock.
		Secure first aid and emergency transport operation in the emergency medical room (ER).
		Deployment and management of water trucks.
Adequate heat stroke prevention in collaboration with cooperative companies	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 hours 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 hottest hours July 1 – August 31 (14:00 – 17:00).
		Strengthen the management of wearing full face mask during the period from the end of rainy season to the end of September (work plan considering new employed workers, workers at age 40 and over, workers with history of heat stroke), and safety managers confirm the results.
		Confirm and manage the WBGT values of each work area.
		Identify “workers who have no experience of summer work (April – October) in the 1F site”, and implement through heat stroke.
		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 prevent heat stroke before starting work.
	Reduce physical load due to changes of work environment	Promote changing equipment with less physical load according to each zone.
		Recommend to use sunshade when working outdoor.

WBGT (Wet Bulb Globe Temperature): Wet Bulb Globe Temperature is an index that focuses on the heat exchange (heat balance) between the human body and the outside air. A heat index that incorporates three factors: (1) humidity, (2) the surrounding thermal environment such as solar insolation and radiation heat, and (3) temperature, which have a large effect on the heat balance of the human body.

6.Fukushima Daiichi Nuclear Power Plant Station Safety Policy

Safety Policy

Fukushima Daiichi Nuclear Power Plant
"Improvement of danger sensitivity"
and
"Elimination of dangerous places"
Company staff and management
will work together
to aim for
"zero industrial accident "

[Priority goals for 2021]

1. Improvement of risk sensitivity and safety awareness

"Promotion of safety education and on-site KY meeting"

2. Elimination of dangerous places

" Visualization of dangerous places and corrective plan"

April 2021

Tokyo Electric Power Company Holdings, Inc.

Fukushima Daiichi Decommissioning Promotion Company
Director, Fukushima Daiichi Nuclear Power Plant Station

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[Target action]

1. Improvement of danger sensitivity and safety awareness.

- Promote safety education to improve risk sensitivity and safety awareness for company staff, work group leaders, newly employed workers, etc.
- Promote on-site KY meeting and extract unsafe places that have not been identified until now.

2. Elimination of dangerous places

- Promote the systematic maintenance plan for aging facilities among the dangerous places extracted by accident eradication campaigns, safety overhauls, and respective patrols.

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[Reference] Specific safety measures for FY2021 (measures for human factors)

1. Activities to raise safety awareness

(1) Call for safety slogans/posting、posting safety calendar "Continued"

a. Safety slogans

Call for safety slogans with themes every month to raise safety awareness.

b. Safety calendar

Produce the safety calendar to recall the past accident information,
Raise safety awareness by using it in morning assemblies, KY meetings, etc.

(2) Improve the safety awareness by safety events (general rally for safety etc.) "Continued"

Hold safety events (general safety rally, relay road race, tug-of-war competition etc.), to declare no accident and promote the safety and health of staff and workers.

(3) Revise the work safety handbook (FY2021) etc.

a. Distribute work safety handbook (FY2021) "Continued"

Publish and distribute the "Work Safety Handbook (FY2021)"that reflects the latest accidents and additions of rules.

b. Revise "Construction Supervision Perspective" booklet "New"

Organize construction supervision know-how (safety, HE, Laws, etc.) and prepare for distribution in FY2022.

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