

Outline of Decommissioning, Contaminated Water and Treated Water Management

Main decommissioning work and steps

Fuel removal from the spent fuel pool was completed on December 22 2014 at Unit 4 and February 28 2021 at Unit 3.

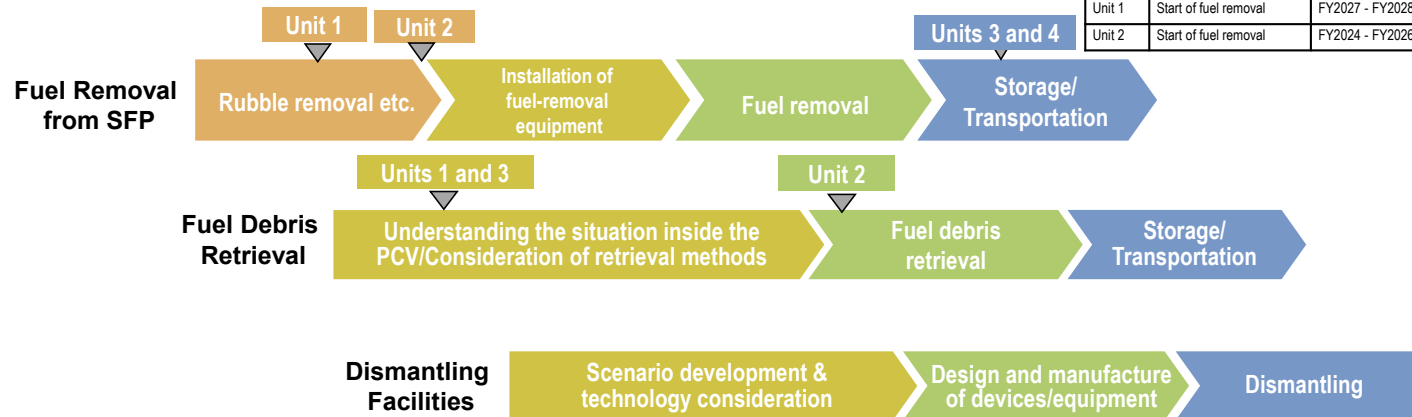
Trial fuel debris retrieval at Unit 2 commenced from September 10 2024 and a milestone of the Mid-and-Long-Term Roadmap "Commencing fuel debris retrieval at the first Unit" was achieved.

Work continues sequentially toward the start of fuel removal from Units 1 and 2 and fuel debris (Note 1) retrieval from Units 1-3.

(Note 1) Fuel assemblies having melted through in the accident with nearby metal materials etc.

<Milestones in the Mid-and-Long-Term Roadmap>

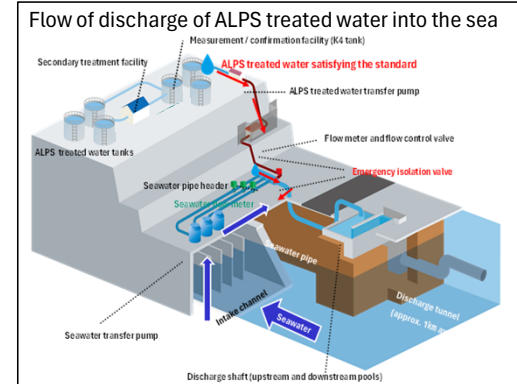
Units 1-6	Completion of fuel removal	Within 2031
Unit 1	Start of fuel removal	FY2027 - FY2028
Unit 2	Start of fuel removal	FY2024 - FY2026



Measures for treated water

Handling of ALPS treated water

Regarding the discharge of ALPS treated water into the sea, TEPCO must comply with regulatory and other safety standards to safeguard the public, the surrounding environment and agricultural, forestry and fishery products. To minimize adverse impacts on reputation, ongoing efforts will continue, including enhanced monitoring, ensuring objectivity and transparency by engaging with third-party experts and having safety checked by the IAEA. Moreover, accurate information will be disseminated with full transparency.



Contaminated water management - triple-pronged efforts -

(1) Efforts to promote contaminated water management based on the three basic policies

- "Removing" the contamination source
- "Redirecting" groundwater from the contamination source
- "Preventing leakage" of contaminated water

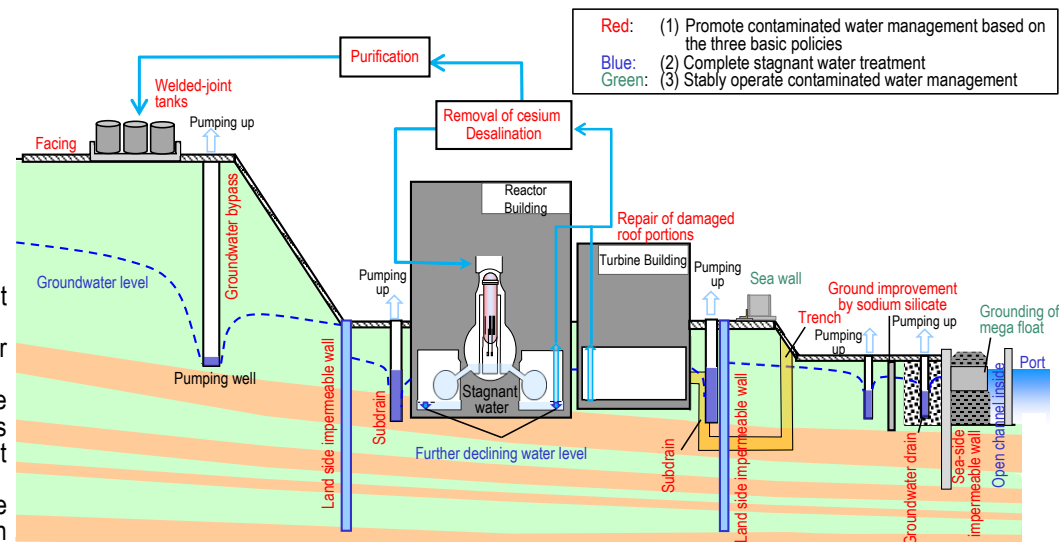
- Strontium-reduced water from other equipment is being re-treated in the Advanced Liquid Processing System (ALPS: multi-nuclide removal system) and stored in welded-joint tanks.
- Multi-layered contaminated water management measures, including land-side impermeable walls and subdrains, have stabilized the groundwater at a low level and the increased contaminated water generated during rainfall is being suppressed by repairing damaged portions of the building roofs facing onsite. Through these measures, the generation of contaminated water has been suppressed and reduced from approx. 540 m³/day (in May 2014) before implementing measures to approx. 70 m³/day (in FY2024). It was confirmed that the milestone of "suppressing the amount of contaminated water generated to 100 m³/day or less during average rainfall within FY2025," which was achieved in FY2023, has been maintained in FY2024.
- Measures will proceed to further reduce and suppress the amount of contaminated water generated to approx. 50-70 m³/day by FY2028.

(2) Efforts to complete stagnant water treatment

- To reduce the stagnant water levels in buildings as planned, work to install additional stagnant water transfer equipment is underway.
- In 2020, treatment of stagnant water in buildings was completed, except for the Units 1-3 Reactor Buildings, Process Main Building and High-Temperature Incinerator Building.
- While assessing the dust impact, measures to reduce the stagnant water level were implemented. In March 2023, the target water level in each building was achieved. For the Units 1-3 Reactor Buildings, "reducing stagnant water in the Reactor Buildings to about half the amount at the end of 2020 during the period FY2022-2024" was achieved.
- For zeolite sandbags on the basement floors of the Process Main Building and High-Temperature Incinerator Building, measures to reduce the radiation dose are being examined with stabilization in mind.

(3) Efforts to stably operate contaminated water management

- As part of the tsunami countermeasures, openings in buildings were closed and work to install sea walls was completed. As countermeasures for heavy rain, sandbags are being installed to suppress direct inflow into buildings while work to enhance drainage channels and other measures is being implemented as planned.



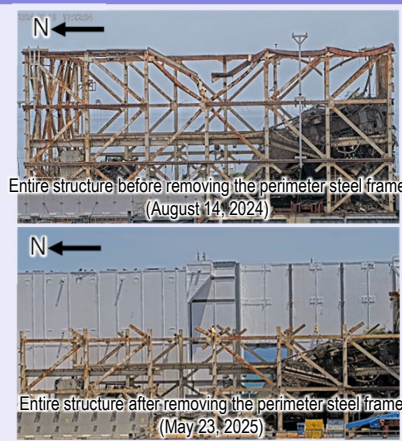
Progress status

◆ The temperatures of the Reactor and the Primary Containment Vessel of Units 1-3 have been maintained stable. There was no significant change in the concentration of radioactive materials newly released from Reactor Buildings into the air. It was concluded that the comprehensive cold shutdown state had been maintained.

Unit 1 Progress of work toward fuel removal

In preparation for installing a large cover over the Unit 1 Reactor Building, ground assembly of steel frames in the off-site yard and installation on-site are both underway. Installing a large cover will require the process to be extended. Given the fact that the detailed dose impact can be confirmed from the operating floor, shielding needs to be added as an additional means of reducing radiation exposure and work time needs to be reviewed. There are also many days when work had to be suspended due to bad weather, malfunctions in the large cranes used for the work and other reasons.

Given the potential for future process extensions for similar reasons, combined with the need to account for reduced work hours due to intense summer heat and other factors, we are revising the expected completion date for installing the large cover from around summer 2025 to within FY2025. As for the scheduled start of fuel removal (FY2027-2028), we are not currently revising this timeline, as we can shorten future processes by reviewing work procedures and other aspects once rubble removal is complete. Since we have not yet fully assessed the condition of all rubble and uncertainties remain in the process, we will consider whether to review the entire timeline after reaching the mid-stage of rubble retrieval.



Unit 6 Transportation of fresh fuel

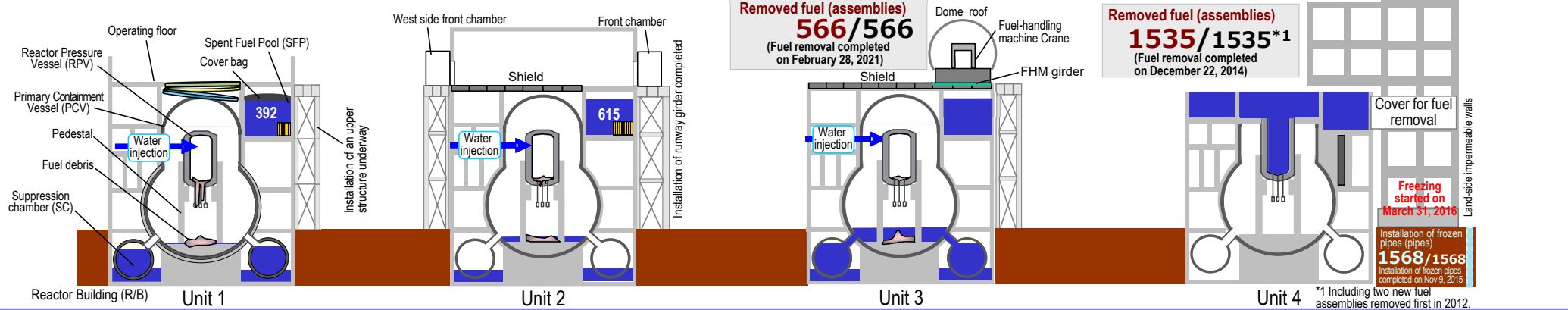
As part of work to complete the fuel removal from Units 1-6 within 2031, 1456 irradiated fuel assemblies stored in the spent fuel pool were removed in April 2025 at Unit 6.

During the next phase, 428 fresh fuel stored in the Unit 6 Reactor Building will be removed.

Among the 428 fresh fuel, 56 assemblies produced in the US will be transported to the US factory (30 assemblies in the 2nd half of FY2025, 26 assemblies in FY2026 respectively).



Transportation cask to be used (MX-6 type)



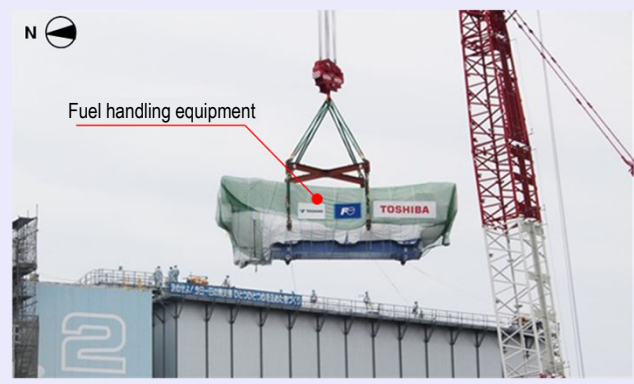
Unit 2 Progress of work toward fuel removal

At Unit 2, work is underway toward fuel removal to be commenced by FY2026.

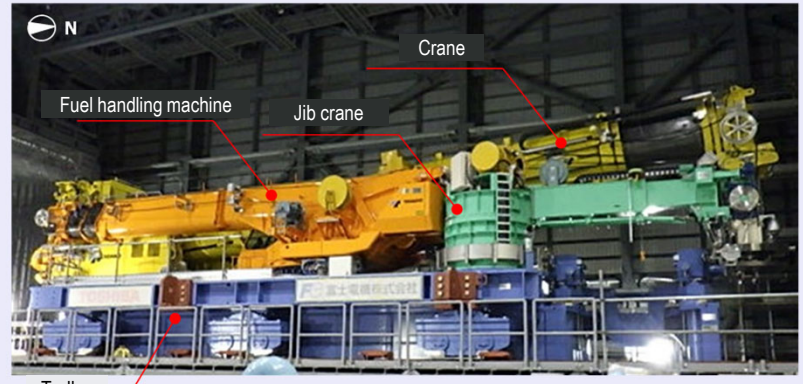
The fuel handling equipment to be used for fuel removal was carried into the site of the Fukushima Daiichi Nuclear Power Station on May 24 and hoisted within Fuel removal work platform on May 30.

At present, work to lay the power supply and control cables of the fuel handling equipment is underway.

The next phase will involve transmitting power to the fuel handling equipment, functional tests and on-site test operation.

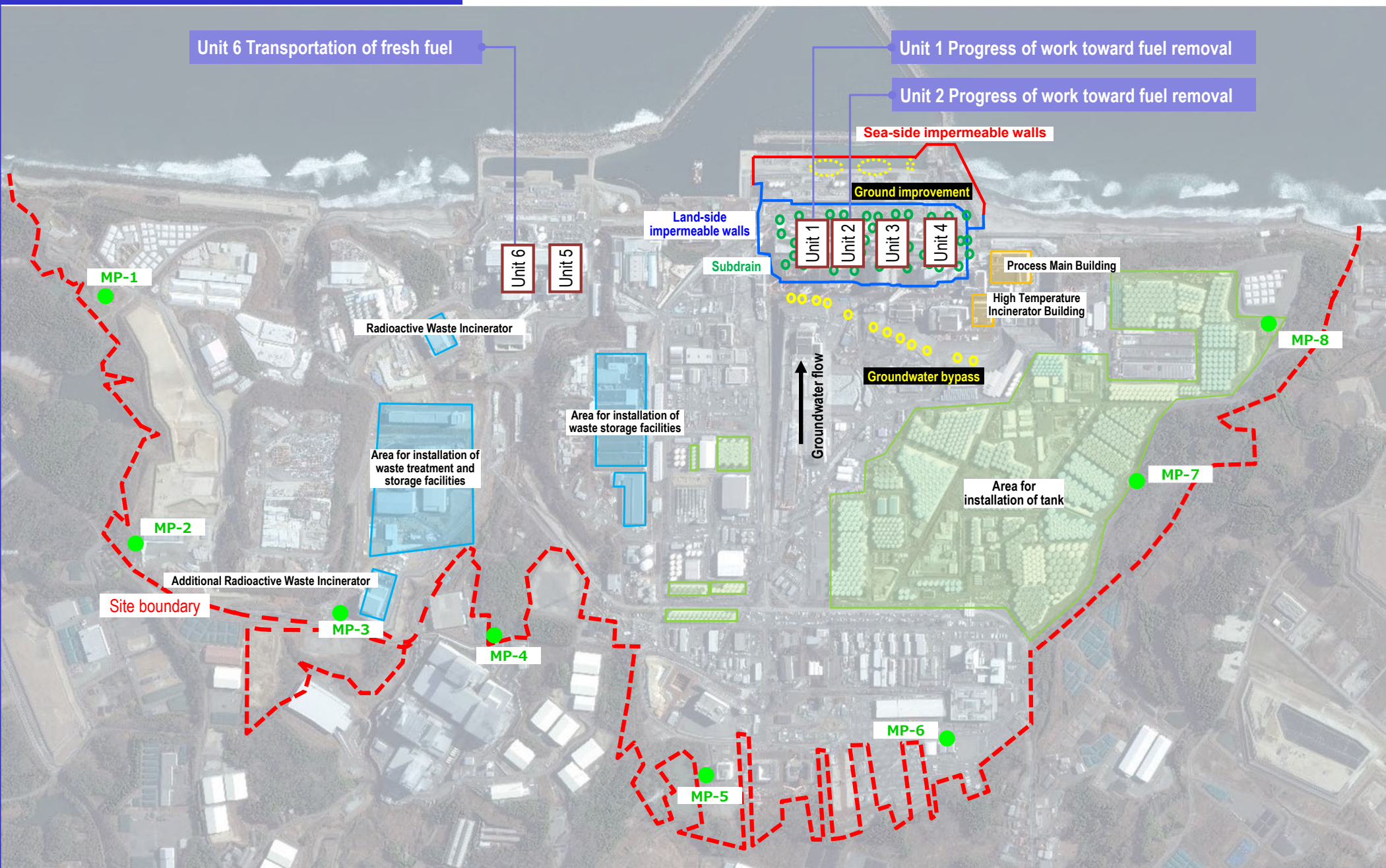


Fuel handling equipment being hoisted (outside) on May 30, 2025



After removal of packaging materials for the fuel handling equipment on June 17, 2025

Major initiatives – Locations on site

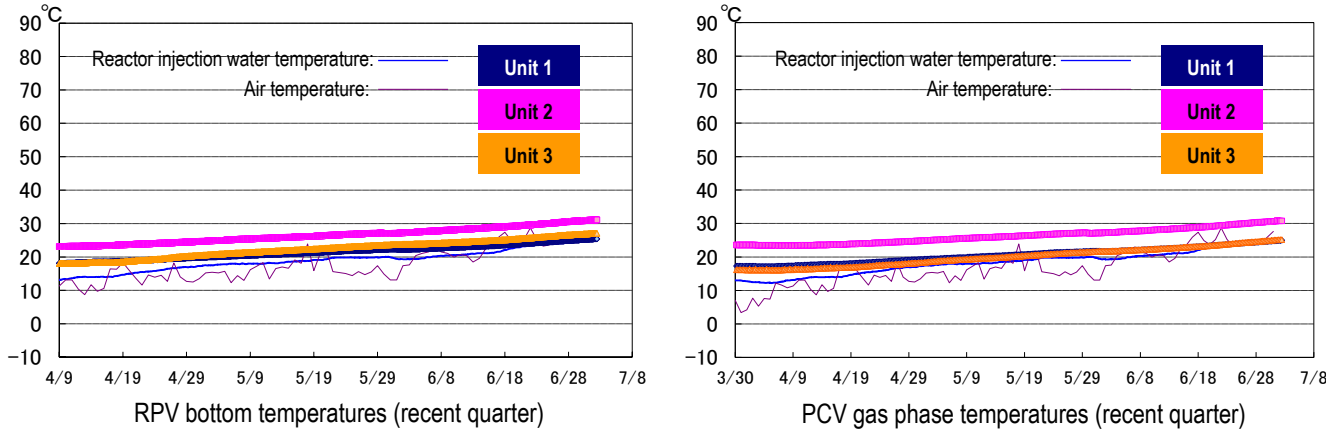


Provided by Japan Space Imaging Corp., photo taken on January 14, 2024
Product (C) [2024] Maxar Technologies.

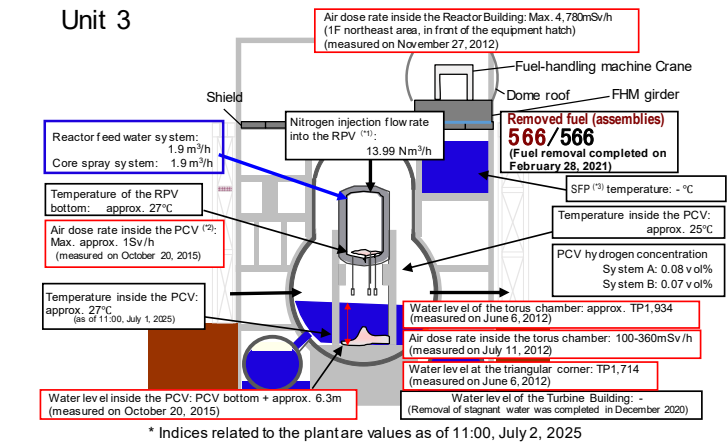
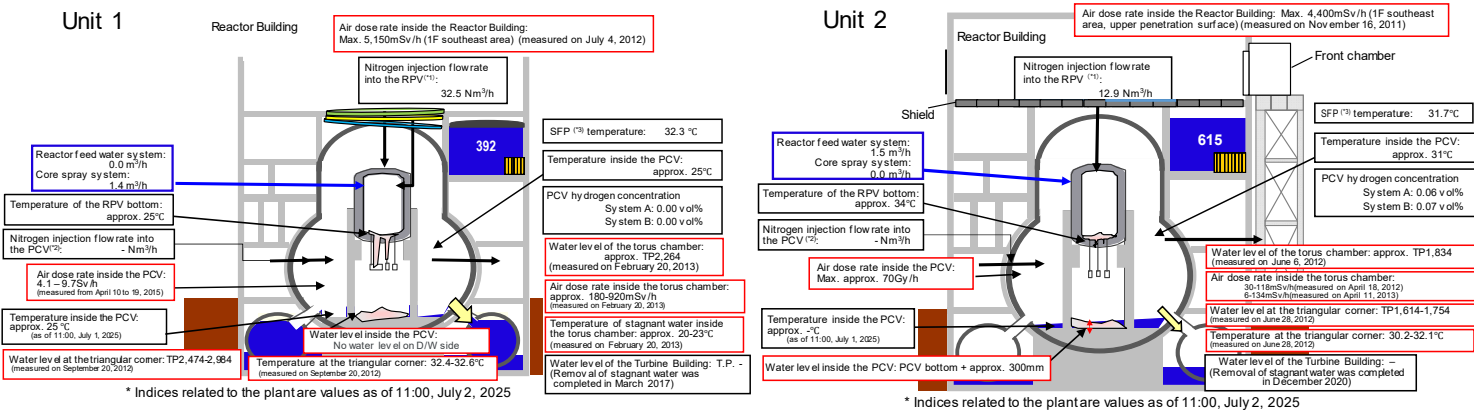
Confirmation of the reactor conditions

Temperatures inside the reactors

Through continuous reactor cooling by water injection, the temperatures of the Reactor Pressure Vessel (RPV) bottom and the Primary Containment Vessel (PCV) gas phase were maintained as shown below for recent, though they varied depending on the unit and location of the thermometer.



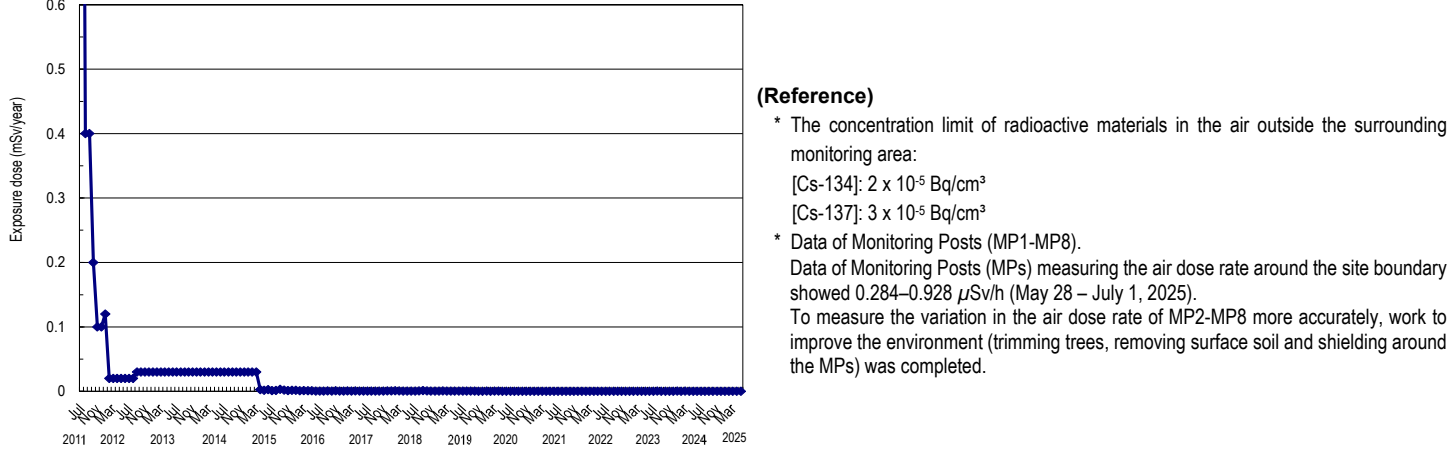
*1 The trend graphs show part of the temperature data measured at multiple points.
*2 A part of data could not be measured due to maintenance and inspection of the facility and other work.



Release of radioactive materials from the Reactor Buildings

As of May 2025, the concentration of radioactive materials newly released from Reactor Building Units 1-4 into the air and measured at the site boundary was evaluated at approx. 6.1×10^{-12} Bq/cm³ and 5.4×10^{-12} Bq/cm³ for Cs-134 and -137 respectively, while the radiation exposure dose due to the release of radioactive materials there was less than 0.00002 mSv/year.

Annual radiation dose at site boundaries by radioactive materials (cesium) released from Reactor Building Units 1-4



(Reference)
* The concentration limit of radioactive materials in the air outside the surrounding monitoring area:
[Cs-134]: 2×10^{-5} Bq/cm³
[Cs-137]: 3×10^{-5} Bq/cm³
* Data of Monitoring Posts (MP1-MP8).
Data of Monitoring Posts (MPs) measuring the air dose rate around the site boundary showed 0.284-0.928 µSv/h (May 28 – July 1, 2025).
To measure the variation in the air dose rate of MP2-MP8 more accurately, work to improve the environment (trimming trees, removing surface soil and shielding around the MPs) was completed.

Note 1: Different formulas and coefficients were used to evaluate the radiation dose in the facility operation plan and monthly report. The evaluation methods were integrated in September 2012. As the fuel removal from the spent fuel pool (SFP) commenced for Unit 4, the radiation exposure dose from Unit 4 was added to the items subject to evaluation since November 2013. The evaluation has been changed to a method considering the values of continuous dust monitors since FY2015, with data to be evaluated monthly and announced the following month.
Note 2: Radiation dose was calculated using the evaluation values of release amount from Units 1-4 and Units 5 and 6. The radiation dose of Unit 5 and 6 was evaluated based on expected release amount during operation until September 2019 but the evaluation method was reviewed and changed to calculate based on the actual measurement results of Units 5 and 6 from October.
Note 3: Dose assessment has been changed since July 2024 due to the change of standard meteorology, etc. in the implementation plan (effective July 8, 2024).

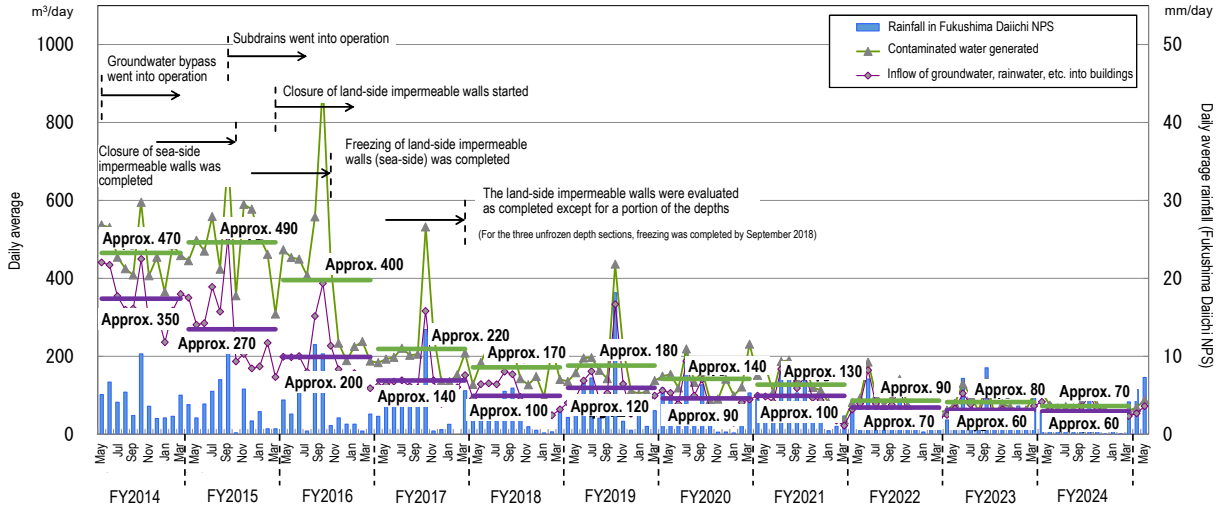
Other indices

There was no significant change in indices, including the pressure in the PCV and the PCV radioactivity density (Xe-135) for monitoring criticality, nor was any anomaly in the cold shutdown state or criticality sign detected.
Based on the above, it was confirmed that the comprehensive cold shutdown state had been maintained and the reactors remained in a stabilized condition.

II. Progress status by each plan

Measures for contaminated water and treated water

- Status of contaminated water generated
 - Multi-layered contaminated water management measures, including land-side impermeable walls and subdrains, have stabilized the groundwater at a low level and the increased contaminated water generated during rainfall is being suppressed by repairing damaged portions of building roofs facing onsite. Through these measures, the generation of contaminated water has been suppressed and reduced from approx. 540 m³/day (in May 2014) before implementing measures to approx. 70 m³/day (in FY2024). It was confirmed that the milestone of “suppressing the amount of contaminated water generated to 100 m³/day or less during average rainfall within FY2025,” which was achieved in FY2023, has been maintained in FY2024.
 - Measures will proceed to further reduce the amount of contaminated water generated and suppress to approx. 50-70 m³/day by FY2028.



*1 Values differ from those announced at the 20th Committee on Countermeasures for Contaminated Water Treatment (held on August 25, 2017) because the method of calculating the contaminated water volume generated was reviewed on March 1, 2018. Details of the review are described in the materials for the 50th and 51st meetings of the Secretariat of the Team for Countermeasures for Decommissioning and Contaminated Water Treatment.
*2: The monthly daily average is derived from the daily average from the previous Thursday to the last Wednesday, which is calculated based on the data measured at 7:00 on every Thursday

Figure 1: Changes in contaminated water generated and inflow of groundwater and rainwater into buildings

➤ Operation of the Water-Treatment Facility Special for Subdrains & Groundwater drains

- At the Water-Treatment Facility Special for Subdrains & Groundwater drains, release started from September 14, 2015, and up until June 23, 2025, 2714 release operations had been conducted. The water quality of all temporary storage tanks satisfied the operational target.

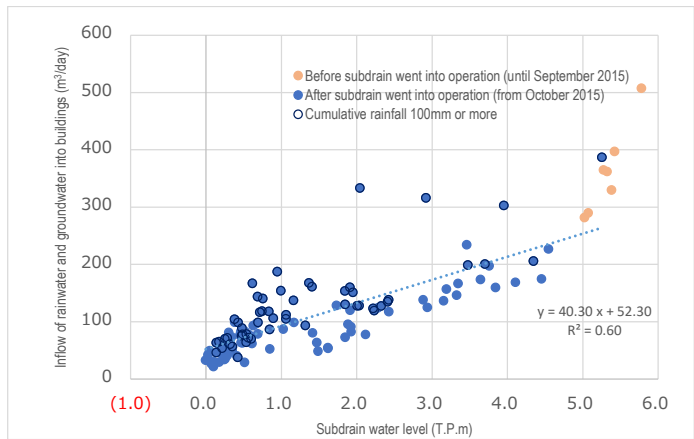


Figure 2: Correlation between inflow such as groundwater and rainwater into buildings and the water level of Units 1-4 subdrains

➤ Implementation status of facing

- Facing is a measure that involves asphaltting the on-site surface to reduce the radiation dose, prevent rainwater from infiltrating the ground and reduce the amount of underground water flowing into buildings. As of the end of May 2025, 97% of the planned area (1,450,000 m² on site) had been completed. For the area inside the land-side impermeable walls, implementation proceeds appropriately after constructing a yard from implementable zones that leave the decommissioning work unaffected. As of the end of May 2025, 55% of the planned area (60,000 m²) had been completed.

➤ Status of the groundwater level around buildings

- Regarding the groundwater level in the area inside the land-side impermeable walls, the difference between the inside and outside has remained constant, though the groundwater level on the mountain side varied due to rainfall. The groundwater level of the groundwater drain observation well remained sufficiently lower than the ground surface, at around T.P.+1.4m (the height of the ground surface: T.P.+2.5m).
- Regarding the subdrains of Units 1-4, the pumping amount varied depending on precipitation. The pumping amount in the T.P.+2.5m area remained constant after the facing in this area was completed.

➤ Operation of the multi-nuclide removal system and other water-treatment facilities

- Regarding the multi-nuclide removal system(existing), hot tests using radioactive water were conducted (System A: from March 30, 2013, System B: from June 13, 2013, System C: from September 27, 2013). On March 23, 2022, an inspection prior-to-use certificate was granted by the Nuclear Regulation Authority (NRA) and the entire inspection prior to use was completed. For the multi-nuclide removal system (additional), an inspection prior to use certificate was granted by the NRA on October 12, 2017. Regarding the multi-nuclide removal system (high-performance), hot tests using radioactive water were conducted from October 18, 2014. In March 2, 2023, an inspection prior to use certificate was granted by the NRA and the entire inspection prior to use was completed.
- Treatment measures comprising the removal of strontium by cesium-adsorption apparatus (KURION), the secondary cesium-adsorption apparatus (SARRY) and the third cesium-adsorption apparatus (SARRY II) continued. Up until June 19, 2025, approx. 792,000 m³ had been treated.

➤ Risk reduction of strontium-reduced water

- To reduce the risks of strontium-reduced water, treatment using existing, additional and high-performance multi-nuclide removal system is underway. Up until June 19, 2025, approx. 957,000 m³ had been treated.

➤ Storage status of stagnant water and amount of ALPS treated water, etc. stored in tanks

- The volume of ALPS treated water, etc. was approx. 1,280,444 m³ as of June 19, 2025.
- The total volume of ALPS treated water discharged into the sea since the discharge commenced on August 24, 2023, was approx. 93,997 m³ as of the completion of the first discharge in FY2025.

As of June 19, 2025

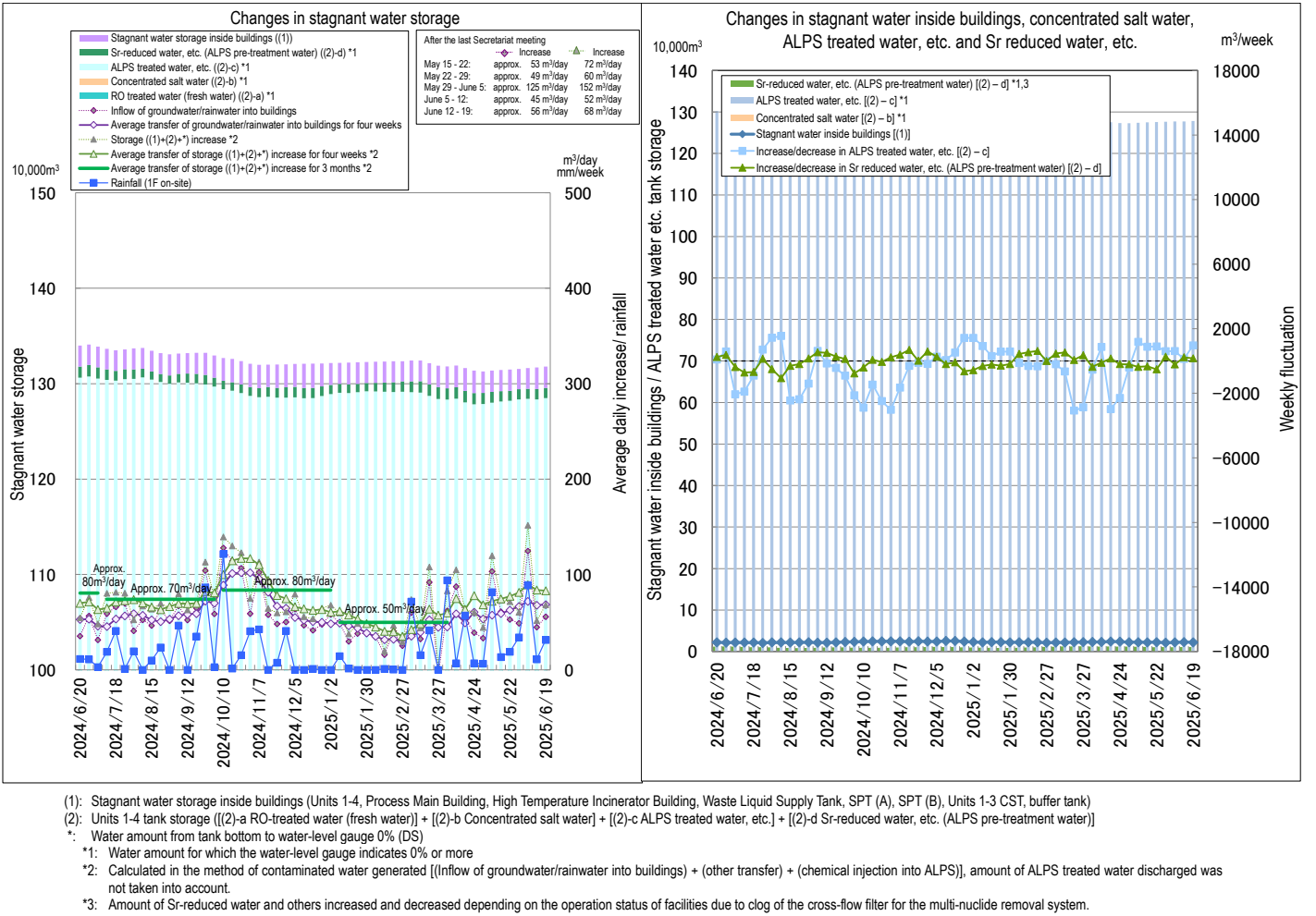


Figure 3: Status of stagnant water storage

➤ Status of discharge of ALPS treated water

As of July 2, 2025

Measurement object	Requirement and operation target	Measurement results	Compliance with requirement
[TEPCO] Tritium concentration in seawater (sea-area monitoring at 4 points within 3 km of the Power Station)	• Discharge suspension level: 700 Bq/L or less • Investigation level: 350 Bq/L or less	(Sampled on June 30) • Below the lower detection limit (less than 7.4 - 9.6 Bq/L)	○ ○
[TEPCO] Tritium concentration in seawater (sea-area monitoring at 1 point within a 10 km radius from the Power Station)	• Discharge suspension level: 30 Bq/L or less • Investigation level: 20 Bq/L or less	(Sampled on June 30) • Below the lower detection limit (less than 9.7 Bq/L)	○ ○
[Ministry of the Environment] Tritium concentration in seawater (at 3 points off the coast of Fukushima Prefecture)	• National safety requirement: 60,000 Bq/L • WHO drinking water guidelines: 10,000 Bq/L	(Sampled on June 18) • Below the lower detection limit (less than 8 Bq/L)	○ ○
[Fisheries Agency] Tritium concentration in marine products (flounder and others)	-	(Sampled on July 1) • Below the lower detection limit (less than 9.4 Bq/kg)	○
[Fukushima Prefecture] Tritium concentration in seawater (at 9 points off the coast of Fukushima Prefecture)	• National safety requirement: 60,000 Bq/L • WHO drinking water guidelines: 10,000 Bq/L	(Sampled on June 12) • Below the lower detection limit (less than 3.8 - 4.0 Bq/L)	○ ○

- From April 10 to 28, 2025, the first discharge of ALPS treated water into the sea in FY2025 was conducted.
- Regarding the status of sea-area monitoring on handling ALPS treated water, more tritium measurement points for seawater and fish were established near the power station and off the coast of Fukushima Prefecture and

measurements of tritium and Iodine-129 of seaweed near the power station were added from April 20, 2022. As of July 2, 2025, no significant variation had been detected.

- Regarding sea-area monitoring conducted by TEPCO at 4 points within 3 km of the power station, quick measurements taken of the tritium concentration in the seawater sampled on June 30 showed concentrations under the lower detection limit (less than 7.4 - 9.6 Bq/L) at all points, which were below the TEPCO operation indices of 700 Bq/L (discharge suspension level) and 350 Bq/L (investigation level).
- Regarding sea-area monitoring conducted by TEPCO at 1 point within a 10 km radius of the power station, quick measurements taken of the tritium concentration in the seawater sampled on June 30 showed concentrations under the detection limit (less than 9.7 Bq/L), which was below the TEPCO operation indices of 30 Bq/L (discharge suspension level) and 20 Bq/L (investigation level).
- The quick measurement results obtained by each organization were as follows:
Ministry of the Environment: The analytical results (obtained via quick measurements) for seawater sampled on June 18 at 3 sampling points off the coast of Fukushima Prefecture showed tritium concentrations below the lower detection limit (less than 8 Bq/L) at all sampling points, which would have no adverse impact on human health and the environment.
Fisheries Agency: Quick analytical results for tritium in flounder sampled on July 1 showed tritium concentrations below the lower detection limit (less than 9.4 Bq/kg) in all samples.
Fukushima Prefecture: On June 12, tritium concentrations in seawater at 9 sampling points off the coast of Fukushima Prefecture below the lower detection limit were recorded (less than 3.8 – 4.0 Bq/L) at all sampling points, which would have no adverse impact on human health and the environment.

➤ Status of collection of flanged tanks in E area and sludge in D1 tank

- Estimated amount of sludge deposited in tanks was approx. 40m³. Approx. 21m³ was collected from January to end of April (total: approx. 21m³), approx. 8m³ in May (total: approx. 29m³), and approx. 4m³ in June (total: approx. 33m³, as of June 25).
- In the beginning, sludge was deposited in the entire tank, but at present, collection progressed to a state where more than half the tank bottom was exposed.
- Viscous sludge can also be collected as trained in the mockup, and work has steadily progressed. Conversely, as temperatures rise, available days for work are limited to prevent cases of heat stroke, which limits the amount that can be collected.
- Accordingly, collection will continue in and after July. Work will be conducted carefully while implementing measures to control scattering of radioactive materials and to prevent body contamination. Since we expect continued increases in work stoppages due to high temperatures and heat stroke prevention measures, we will provide updates as developments occur.
- Work will continue carefully while prioritizing safety.

Fuel removal from the spent fuel pools

Work to help remove spent fuel from the pool is progressing steadily while ensuring seismic capacity and safety.

➤ Progress of work toward fuel removal at Unit 1

- Before installing a large cover over the Reactor Building, ground assembly of steel frames in the off-site yard and installation on-site are both underway.
- In the off-site yard, ground assembly of the Temporary work platform, upper and Bottom frameworks and box ring was completed. Ground assembly of the moving roof and the overhead crane for rubble removal is underway.
- On site, the installation of the Upper framework, box rings, the large cover ventilation equipment, and other facilities is underway.
- For Unit 1, prior to fuel removal, rubble will be removed inside the large cover. To avoid the risk of the auxiliary hoist of the fuel handling equipment falling during rubble removal, an additional cover was installed over the spent fuel pool (SFP) gate on June 27, 2025.
- During the mockup test, it was confirmed that even if the auxiliary hoist fell over the additional cover, it would not affect the SFP gate.
- Installation of the large cover upper structure will complicate SFP water injection using a concrete pump truck.

Accordingly, to diversify the water injection means in addition to the existing water injection using the SFP cooling facility, a new means of water injection (via an alternative line) was installed.

- Installing a large cover will require the process to be extended. Given the fact that the detailed dose impact can be confirmed from the operating floor, shielding needs to be added as an additional means of reducing radiation exposure and work time needs to be reviewed. There are also more often days when work was forced to be suspended due to bad weather, trouble having occurred with large cranes used for work and other reasons.
- Given the potential for future process extensions for similar reasons, combined with the need to account for reduced work hours due to intense summer heat and other factors, we are revising the expected completion date for installing the large cover from around summer 2025 to within FY2025.
- For starting fuel removal (FY2027-2028), we can shorten future timelines by revising work procedures and other aspects after we complete rubble removal. Therefore, we are not currently changing the start date.
- To remove rubble effectively, we need to fully assess all rubble conditions, as uncertainties remain in the process. We will consider whether to revise the entire timeline after we reach the mid-stage of rubble retrieval.

➤ Progress of work toward fuel removal at Unit 2

- Work to install runway girders, which support the rails to be used when the fuel removal system moves between the Reactor Building and the front chamber, was completed. During the next phase, work on ancillary equipment was conducted as part of efforts to install the fuel-removal system.
- To ensure visibility during fuel removal, a purification system was installed in the spent fuel pool.
- The fuel handling equipment was transported from the factory on May 21, 2025, carried into the site of the Fukushima Daiichi Nuclear Power Station on May 24, and hoisted within Fuel removal work platform on May 30.
- At present, laying of power supply and control cables of the fuel handling equipment is underway.
- During the next phase, power will be transmitted to the fuel handling equipment, recovery tests will be conducted and on-site test operation will proceed.
- Progress toward work for the fuel removal to be commenced in FY2026 remains steady at present and work prioritizing safety will proceed.

Plans to store, process and dispose of solid waste and decommission of reactor facilities

Promoting efforts to reduce and store waste generated appropriately and R&D to facilitate adequate and safe storage, processing and disposal of radioactive waste

➤ Management status of rubble and trimmed trees

- As of the end of May 2025, the total storage volume for concrete and metal rubble was approx. 410,600 m³ (+2,500 m³ compared to the end of April with an area-occupation rate of 68%). The total storage volume of trimmed trees was approx. 68,700 m³ (-1,500 m³, with an area-occupation rate of 39%). The total storage volume of used protective clothing was approx. 9,600 m³ (-1,000 m³, with an area-occupation rate of 38%). The total storage volume of radioactive solid waste (incinerated ash and others) was approx. 38,500 m³ (a slight increase, with an area-occupation rate of 60%). The increase in rubble was due to decontamination of flanged tanks, and work related to site preparation, etc.

➤ Management status of secondary waste from water treatment

- As of June 5, 2025, the total storage volume of waste sludge was 471 m³ (area-occupation rate: 67%), while that of concentrated waste fluid was 9,459 m³ (area-occupation rate: 92%). The total number of stored spent vessels, High-Integrity Containers (HICs) for the multi-nuclide removal system and others, was 5,901 (area-occupation rate: 86%).

Reduction in radiation dose and mitigation of contamination

Effective dose-reduction at site boundaries and purification of port water to mitigate the impact of radiation on the external environment

➤ Change of alarm set value of drainage channels (improvement of leakage detection) in association with introduction of discrimination-type PSF monitors

- In each drainage channel inside the power station, daily water sampling and analysis are conducted to monitor the

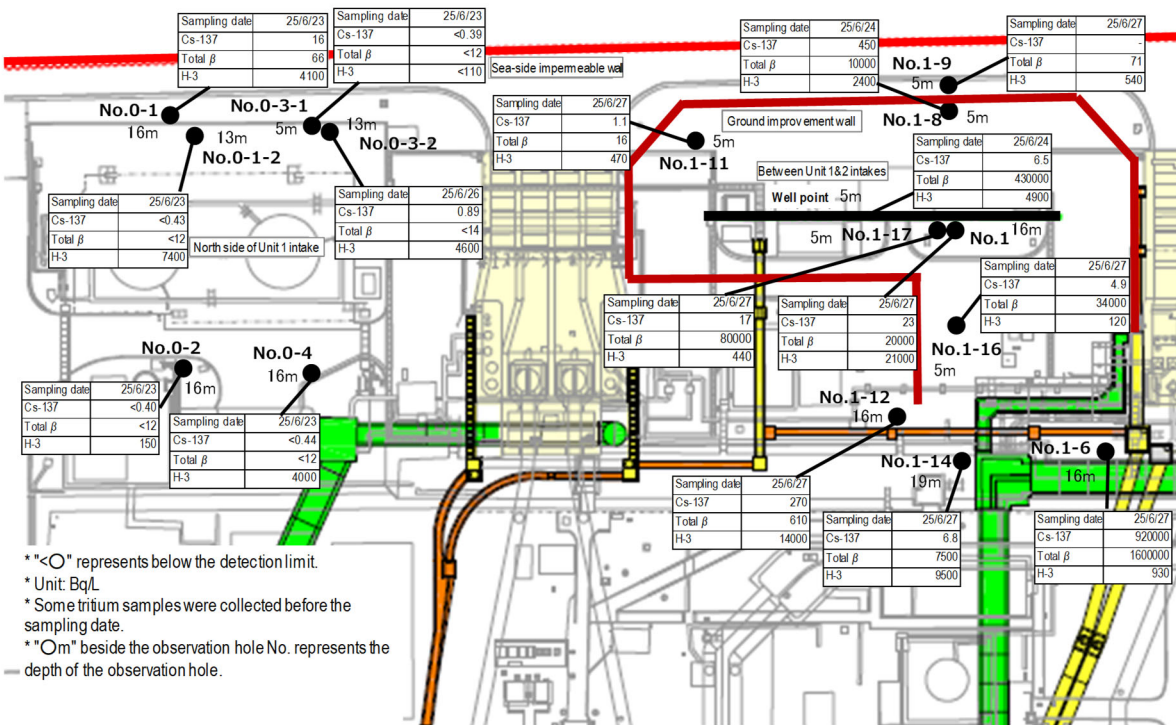
daily trend of concentration of radioactive materials, and continuous monitoring is also conducted by drainage channel monitors to detect leakage inflow from tanks and others.

- For drainage channel monitors, an alarm value is set, taking the impact of gamma-ray by fallout into account.
- Conversely, updating to discrimination-type PSF monitors, which are less susceptible to gamma rays, was conducted sequentially to improve leakage detection. Discrimination-type PSF monitors were introduced to BC drainage channels in March 2025 and introduction to all drainage channels was completed.
- To improve leakage detection, the alarm set value of all drainage channel monitors will be lowered to High-High Alarm (drainage channel close): 1,500 Bq/L and High Alarm (investigation): 750 Bq/L.

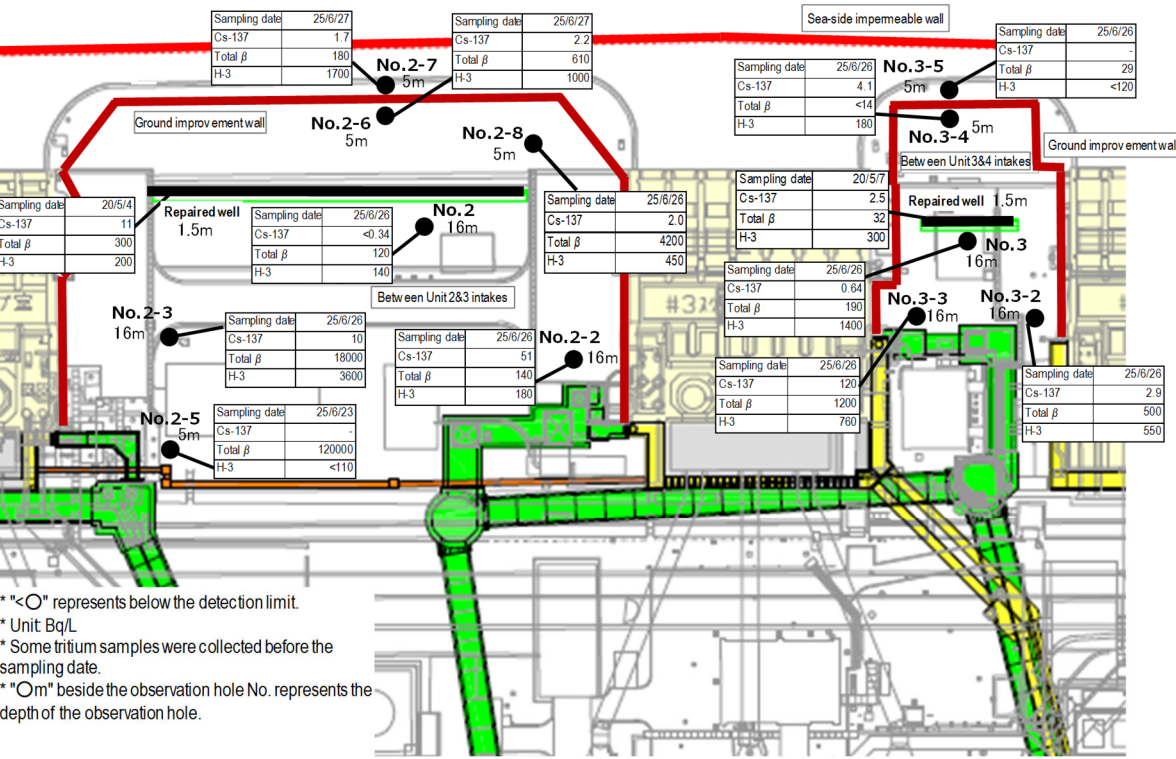
➤ Status of the groundwater and seawater on the east side of Turbine Building Units 1-4

- In the Unit 1 intake north side area, the H-3 concentration was below the legal discharge limit of 60,000 Bq/L at all observation holes and remained constant or has been declining overall. The concentration of total β radioactive materials has remained constant overall but increased temporarily from April 2020 and is even currently increasing or declining at a low concentration at observation holes including Nos. 0-1, 0-1-2, 0-2, 0-3-1, 0-3-2 and 0-4. The trend continues to be carefully monitored.
- In the area between the Units 1 and 2 intakes, the H-3 concentration has remained below the legal discharge limit of 60,000 Bq/L at all observation holes. It has been increasing or declining at Nos. 1-14 and 1-17 but has otherwise remained constant or been declining overall. The concentration of total β radioactive materials has remained constant overall but has been increasing at No. 1-6 and increasing or declining at low concentration at Nos. 1-8, 1-9, 1-11, 1-12 and 1-14. The trend continues to be carefully monitored.
- In the area between the Units 2 and 3 intakes, the H-3 concentration has been below the legal discharge limit of 60,000 Bq/L at all observation holes. It has remained constant or been declining at many observation holes overall. The concentration of total β radioactive materials has remained constant overall but has been increasing and larger fluctuation was seen at No. 2-5. The trend continues to be carefully monitored.
- In the area between the Units 3 and 4 intakes, the H-3 concentration has been below the legal discharge limit of 60,000 Bq/L at all observation holes and remained constant or been declining overall. The concentration of total β radioactive materials has remained constant overall but has been increasing or declining at Nos. 3-4 and 3-5. The trend continues to be carefully monitored.
- In the groundwater on the east side of the Turbine Buildings, as with the total β radioactive materials, the concentration of cesium has also remained constant as the overall area but been increasing or declining at observation holes with a low concentration and exceeded the previous highest record at some observation holes. Investigations will continue, including to ascertain the impact of rainfall.
- The concentration of radioactive materials in drainage channels has remained constant overall, despite increasing during rainfall. In Drainage Channel D, drainage of the low-dose area on the west side of the site started to pass from August 30, 2022. It has remained low, despite concentrations of cesium and total β radioactive materials increasing during rainfall. From November 29, 2022, continuous monitors were installed and drainage around the Units 1 and 2 switch yard started to pass.
- In the open channel area of the seawater intake for Units 1 to 4, the concentration of radioactive materials in seawater has remained below the legal discharge limit and been declining long term, despite the temporary increases in Cs-137 and Sr-90 observed during rainfall. They have also been declining following the completed installation and the connection of steel pipe sheet piles for the sea-side impermeable walls. The concentration of Cs-137 remained slightly higher in front of the south-side impermeable walls and slightly lower on the north side of the east breakwater since March 20, 2019, when the silt fence was transferred to the center of the open channel due to mega float-related construction.
- In the port area, the concentration of radioactive materials in seawater has remained below the legal discharge limit and been declining long term, despite temporary increases in Cs-137 and Sr-90 observed during rainfall. They have remained below the level of those in the Units 1-4 intake open channel area and been declining following the completed installation and connection of steel pipe sheet piles for the sea-side impermeable walls.

- In the area outside the port, regarding the concentration of radioactive materials in seawater, those of Cs-137 and Sr-90 declined and remained low after steel pipe sheet piles for the sea-side impermeable walls were installed and connected. Regarding the concentration of Cs-137, a temporary increase was sometimes observed on the north side of the Units 5 and 6 outlets and near the south outlet due to the influence of weather, marine meteorology and other factors. Regarding the concentration of Sr-90, variation was observed in FY2021 in the area outside the port (north and south outlets). Monitoring of the tendency continues, including the potential influence of weather, marine meteorology and others. During the period for which ALPS treated water was discharged, the tritium concentration increased at the sampling point near the discharge outlet, but this was considered within the assumed range based on the oceanic dispersion simulation results.



<Unit 1 intake north side, between Unit 1 and 2 intakes>



<Between Unit 2 and 3 intakes, between Unit 3 and 4 intakes>

Figure 4: Groundwater concentration on the Turbine Building east side

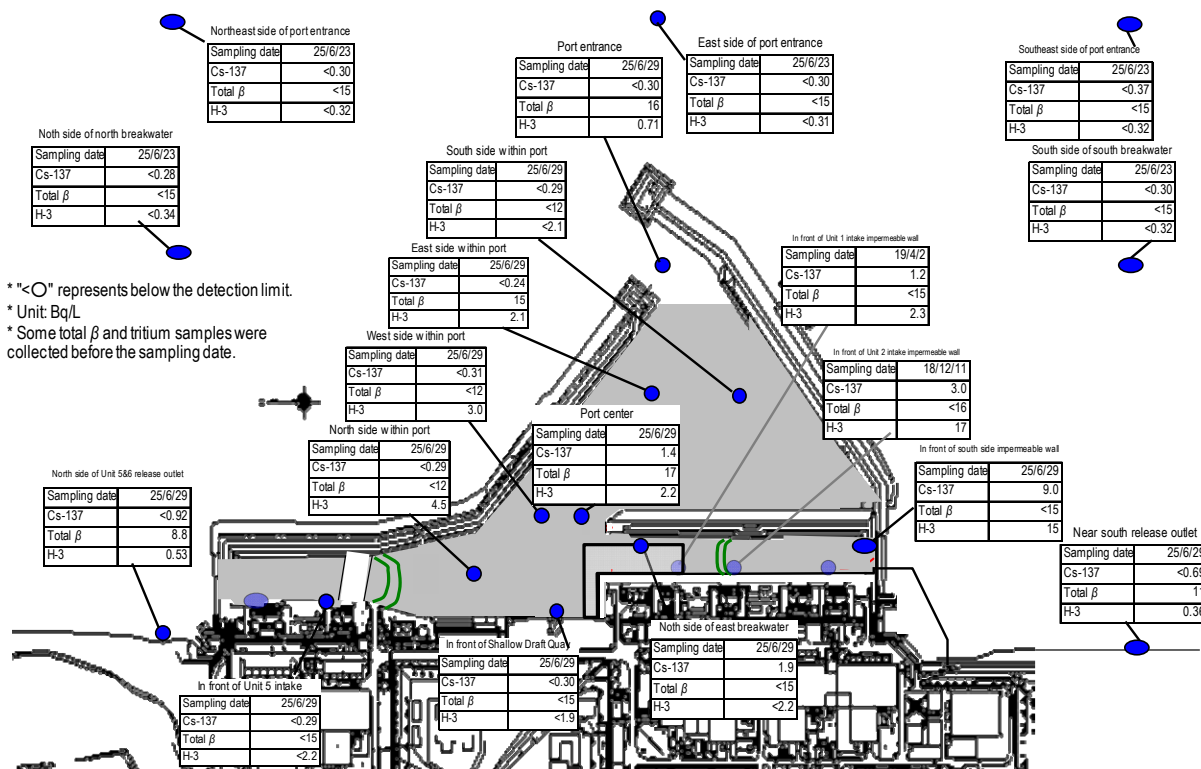


Figure 5: Seawater concentration around the port

Outlook of the number of staff required and efforts to improve the labor environment and conditions

Adequate number of staff will be secured in the long-term, while firmly implementing radiation control of workers. The work environment and labor conditions will be continuously improved by responding to the needs on the site.

➤ Staff management

- The monthly average total of personnel registered for at least one day per month to work on site during the past quarter from February – April 2025 was approx. 9,000 (cooperating company workers and TEPCO HD employees), which exceeded the monthly average workforce (approx. 7,800). Accordingly, sufficient personnel were registered to work on site.
- It was confirmed with the prime contractors that the estimated manpower necessary for the work in July 2025 (approx. 4,200 workers per day: cooperating company workers and TEPCO HD employees) would be secured at present. The average numbers of workers per day per month (actual values) for the most recent two years were maintained, at approx. 3,500 to 4,900.
- The number of workers from within Fukushima Prefecture remained constant and outside, decreased slightly. As of May 2025, the local employment ratio (cooperating company workers and TEPCO HD employees) remained constant at around 70%.
- The average exposure doses of workers were approx. 2.16, 2.18 and 2.08 mSv/person-year during FY2022, 2023 and 2024, respectively (The legal exposure dose limits are 100 mSv/person over five years and 50 mSv/person/year, the TEPCO HD management target is 20 mSv/person-year).
- For most workers, the exposure dose remained sufficiently within the limit and allowed them to continue engaging in radiation work.

Workers weekday per day

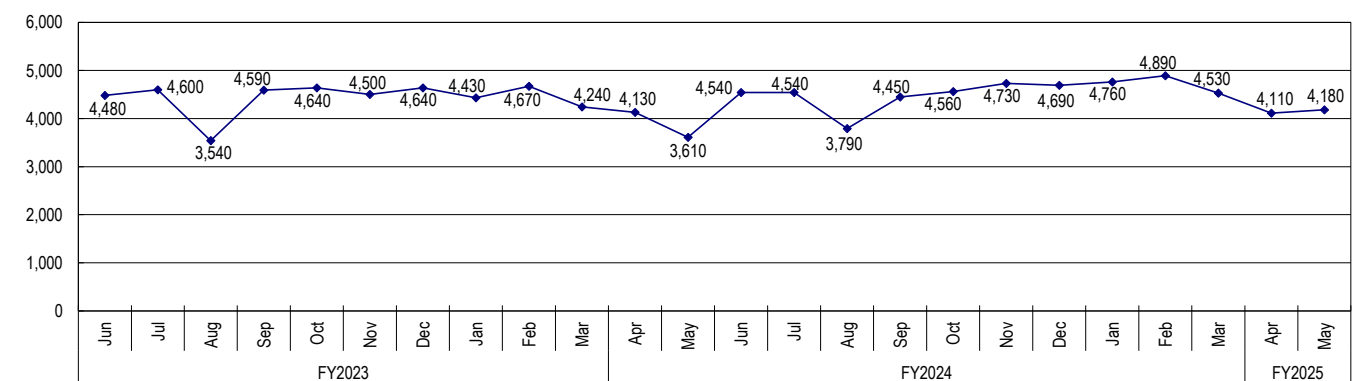


Figure 6: Changes in the average number of workers weekday per day for each month of the most recent 2 years (actual values)

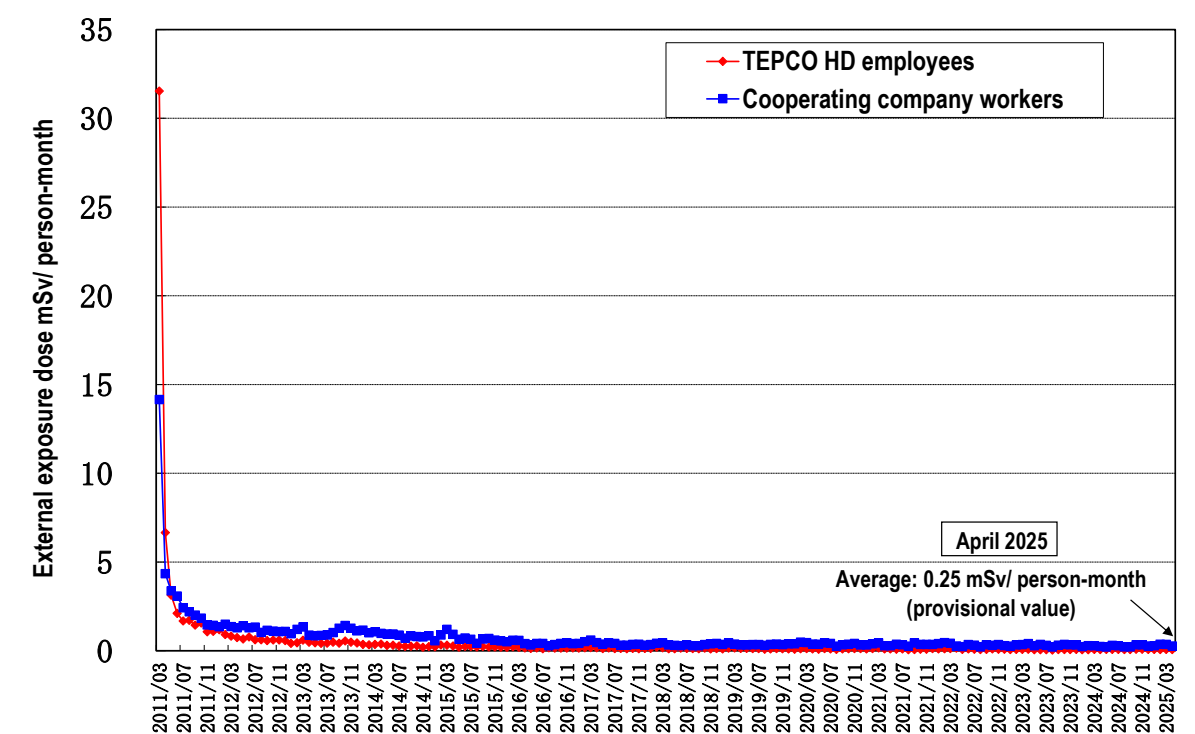


Figure 7: Changes in monthly average exposure dose of individual worker (monthly exposure dose since March 2011)

➤ Status of heat stroke cases

- In FY2025, measures to further prevent heat stroke commenced from April to cope with the hottest season.
- In FY2025, three workers suffered heat stroke due to work up until June 30 (in FY2024, two workers up until the end of June). An environment encouraging workers to report any feelings of illness will continue to be created and countermeasures will be taken to prevent heat stroke.

➤ Countermeasures for infectious diseases

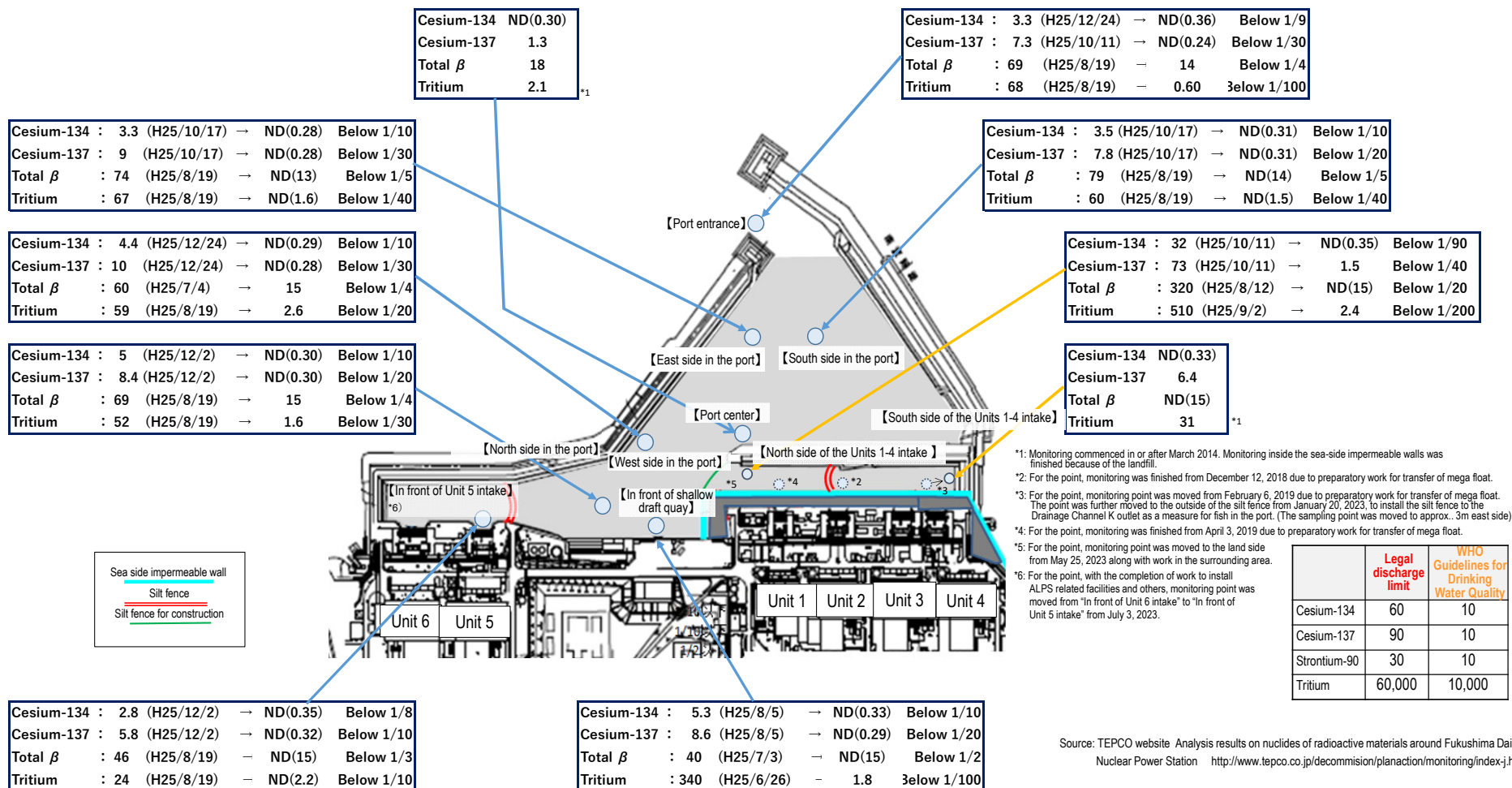
- Countermeasures for various infectious diseases (influenza, norovirus, COVID-19, etc.) depend on personal decisions and basic countermeasures (visiting medical institutions when feeling unwell, ventilation, avoidance of the "Three Cs," frequent handwashing, etc.) being implemented appropriately by each worker and TEPCO proceeds with decommissioning while prioritizing safety.

Status of seawater monitoring within the port (comparison between the highest values in 2013 and the latest values)

"The highest value" → "the latest value (sampled during June 9 - 30)"; unit (Bq/L); ND represents a value below the detection limit

Note: The Total β measurement value is the total radioactivity concentration of radioactive materials that emit β -ray (Potassium-40, Cesium-137, Strontium-90, progeny nuclide Yttrium-90, etc.). In general, approx. 12 Bq/L of natural nuclide Potassium-40 is included in seawater.

Summary of TEPCO data as of July 1, 2025



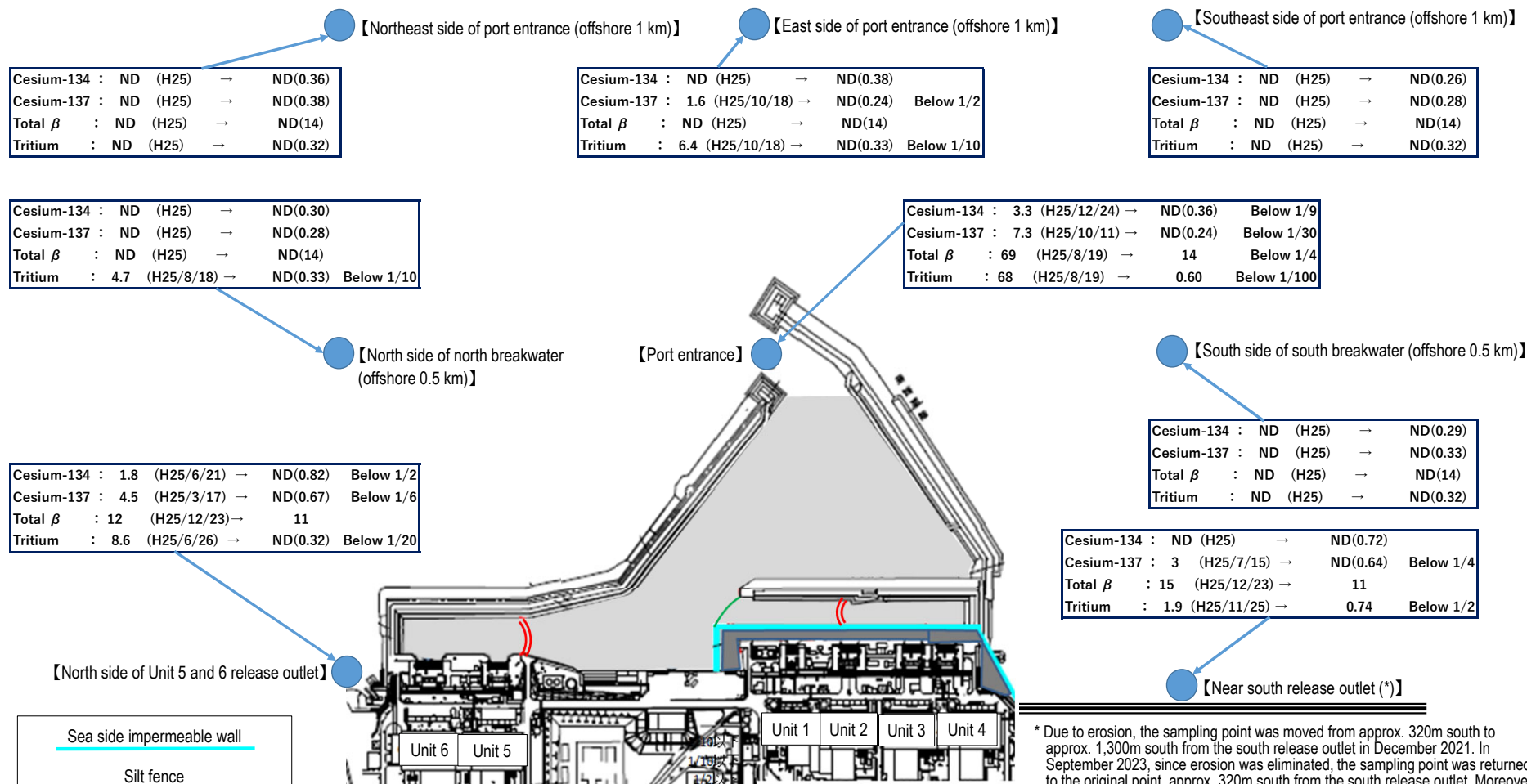
Status of seawater monitoring around outside of the port (comparison between the highest values in 2013 and the latest values)

Unit (Bq/L); ND represents a value below the detection limit; values in () represent the detection limit; ND (2013) represents ND throughout 2013

(The latest values sampled during May 26 - June 30)

Summary of TEPCO data as of July 1, 2025

	Legal discharge limit	WHO Guidelines for Drinking Water Quality
Cesium-134	60	10
Cesium-137	90	10
Strontium-90	30	10
Tritium	60,000	10,000

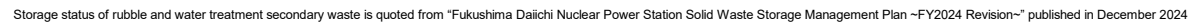


Note: The Total β measurement value is the total radioactivity concentration of radioactive materials that emit β-ray (Potassium-40, Cesium-137, Strontium-90, progeny nuclide Yttrium-90, etc.). In general, approx. 12 Bq/L of natural nuclide Potassium-40 is included in seawater.

* Due to erosion, the sampling point was moved from approx. 320m south to approx. 1,300m south from the south release outlet in December 2021. In September 2023, since erosion was eliminated, the sampling point was returned to the original point, approx. 320m south from the south release outlet. Moreover, due to erosion, the sampling point has been moved again to approx. 1,300m south from the south release outlet since June 11, 2024.

Source: TEPCO website, Analysis results on nuclides of radioactive materials around Fukushima Daiichi Nuclear Power Station <http://www.tepco.co.jp/decommission/planaction/monitoring/index-j.html>

Appendix 2
July 3, 2025



- Efforts to promote contaminated water management based on three basic policies:

- "Removing" the contamination source
- "Redirecting" groundwater from the contamination source
- "Preventing leakage" of contaminated water

Milestones of the Mid- and Long-Term Roadmap (major target processes)

- [Completed] Suppressing the amount of contaminated water generated to 150 m³/day or less (within 2020)
- [Completed] Suppressing the amount of contaminated water generated to 100 m³/day or less (within 2025)
- [Completed] Treatment of stagnant water in buildings was completed* (within 2020) *Except for Units 1-3 Reactor Buildings, Process Main Building and High Temperature Incinerator Building.
- [Completed] Stagnant water in Reactor Buildings was reduced to about a half of the level at the end of 2020 (FY2022-FY2024)

		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Contaminated water management [Remove]	Contaminated water treatment facility	▽ Reception start of contaminated water to Central Waste Treatment Building ▽ Decontamination equipment (AREVA) ▽ Evaporative concentration equipment ▽ Cesium Adsorption Apparatus (KURION) ▽ 2nd Cesium Adsorption Apparatus (SARRY)		 Cesium Adsorption Apparatus (KURION)		▽ Treatment of RO-condensed salt water complete ▽ Reduction of strontium by Cesium Adsorption Apparatus (KURION) (from 2015.1.6) ▽ Reduction of strontium by 2nd Cesium Adsorption Apparatus (SARRY) (from 2014.12.26)				▽ Purification of strontium-reduced water in flanged tanks complete ▽ Purification of strontium-reduced water complete						
	Removal of contaminated water from seawater pipe trench	 Landing of the second Cesium Adsorption Apparatus (SARRY)		 Multi-nuclide removal system (ALPS)	▽ Multi-nuclide Removal System (ALPS) (System A: from 2013.3.30, System B: from 2013.6.13, System C: from 2013.9.27, hot tests conducted) ▽ Treatment start of strontium-reduced water (ALPS: from 2015.12.4, additional: from 2015.5.27, high-performance: from 2015.4.15) ▽ Multi-nuclide Removal System (additional ALPS) ▽ Multi-nuclide Removal System (high performance ALPS) (from 2014.10.18, hot tests conducted)		▽ Start of full-scale operation (from 2017.10.16)		 Unit 2 seawater pipe trench Shaft D filling work							
Contaminated water management [Redirect]	Groundwater bypass	 Pumping well	▽ Installation start of groundwater bypass		▽ Operation start of groundwater bypass (drainage started from 2014.5.21)											
	Subdrain		▽ Recovery of existing subdrain pit and start of new installation ▽ Installation start of Water-Treatment Facility special for Subdrain & Groundwater drains			▽ Operation start of subdrain (drainage started from 2015.9.14) (Treatment capacity: 1000 m³/day)		▽ Enhancement of treatment capacity (2000m³/day)								
	Land-side impermeable wall	 Land-side impermeable wall brine (refrigerant) circulation pipe		▽ Installation start of land-side impermeable walls		▽ Freezing start 東側に維持管理運転開始▽		▽ Freezing completion (except for some parts) ▽ Start of maintenance operation in all sections		In some temperature measurement tubes near the K drainage channel cross, temperature exceeded 0°C, locally Although no influence was detected on the impermeable function of the land-side impermeable walls but test investigation is underway for the stoppage effect						
	Facing	 Subdrain purification system				▽ Completion of waterproof pavement (facing) (except for around Units 1-4)										
Bank groundwater measures			▽ Installation start of radioactive materials detected from observation well of bank ▽ Installation start of seaside impermeable walls	▽ Area 2.5m above sea level - Start of ground improvement by water glass ▽ Start of pumping of water from contaminated areas (well point)		▽ Installation of seaside impermeable walls complete ▽ Operation start of groundwater drain (pumping-up started on 2015.11.5)										
Contaminated water management [Retain]	Storage facility	▽ Storage in steel square tanks ▽ Storage in flanged cylindrical tanks ▽ Water leakage (10L) from flanged tank		▽ Water leakage (300L) from flanged tank ▽ Water leakage (1000) from flanged tank ▽ Completion of fence to prevent leakage expanding ▽ Work to raise fence height complete ▽ Leakage of contaminated water from underground reservoir => Start of transfer to tanks ▽ Transfer of contaminated water to tanks complete ▽ Storage in cylindrical steel welded-joint tanks ▽ Sprinkling start of rainwater within tank fences by rainwater treatment facility (from 2014.5.21)		▽ Completion of replacement of steel square tanks ▽ Completion of purification treatment of RO concentrated salt water		▽ Purification of strontium-reduced water in flanged tanks complete ▽ Transfer and storage of all treated water in welded-joint tanks								
Treatment of stagnant water		▽ Installation of stagnant water transfer equipment/transfer start		▽ Completion of work to improve reliability of transfer line (replacement with PE pipes) ▽ Transfer start from each building to Central RW Building		▽ Start to maintain water-level difference with subdrain water level ▽ Floor exposure of Unit 1 TB ▽ Separation of stagnant water between Units 3 and 4		▽ Separation of stagnant water between Units 1 and 2 ▽ Floor exposure of Unit 1 RWB ▽ Floor exposure of Unit 2 TB, RWB ▽ Floor exposure of Unit 3 TB, RWB ▽ Floor exposure of Unit 4 RB, TB, RWB		▽ Treatment of stagnant water in buildings complete ▽ Completed lowering to target water level of Unit 2 RB ▽ Completed lowering to target water level of Units 1, 3 RB						
Countermeasures to tsunami risks	Closure of openings		▽ Examination start of measures to close building openings ▽ Work for common pool complete	▽ Work for Units 1 and 2 TB complete ▽ Work for HTI building complete				▽ Work for Process Main Building complete ▽ Work for Unit 3 TB complete		▽ Work for Units 1-3 RB complete ▽ Work for Units 1-4 RWB was completed						
	Seawall	▽ Installation of over-rise tsunami seawall complete							▽ Construction start of Chishima Trench Tsunami Seawall ▽ Completion of installation ▽ On-site start	Japan Trench tsunami seawall Japan Trench Tsunami Seawall Completion of main wall construction▽						
	Mega float							▽ Start of main construction Temporary grounding of mega float▽	▽ Internal filling complete (reduction of tsunami risks)							



3 Removal of fuel from spent pool

Milestones of the Mid- and Long-Term Roadmap (major target processes)

- Completion of Units 1-6 fuel removal (within 2031)
- Completion of installation of Unit 1 large cover (around FY2023), start of Unit 1 fuel removal (FY2027-2028)
- Start of Unit 2 fuel removal (FY2024-2026)

Reference 3/6

July 3, 2025

Secretariat of the Team for
Countermeasures for Decommissioning,
Contaminated Water and Treated Water

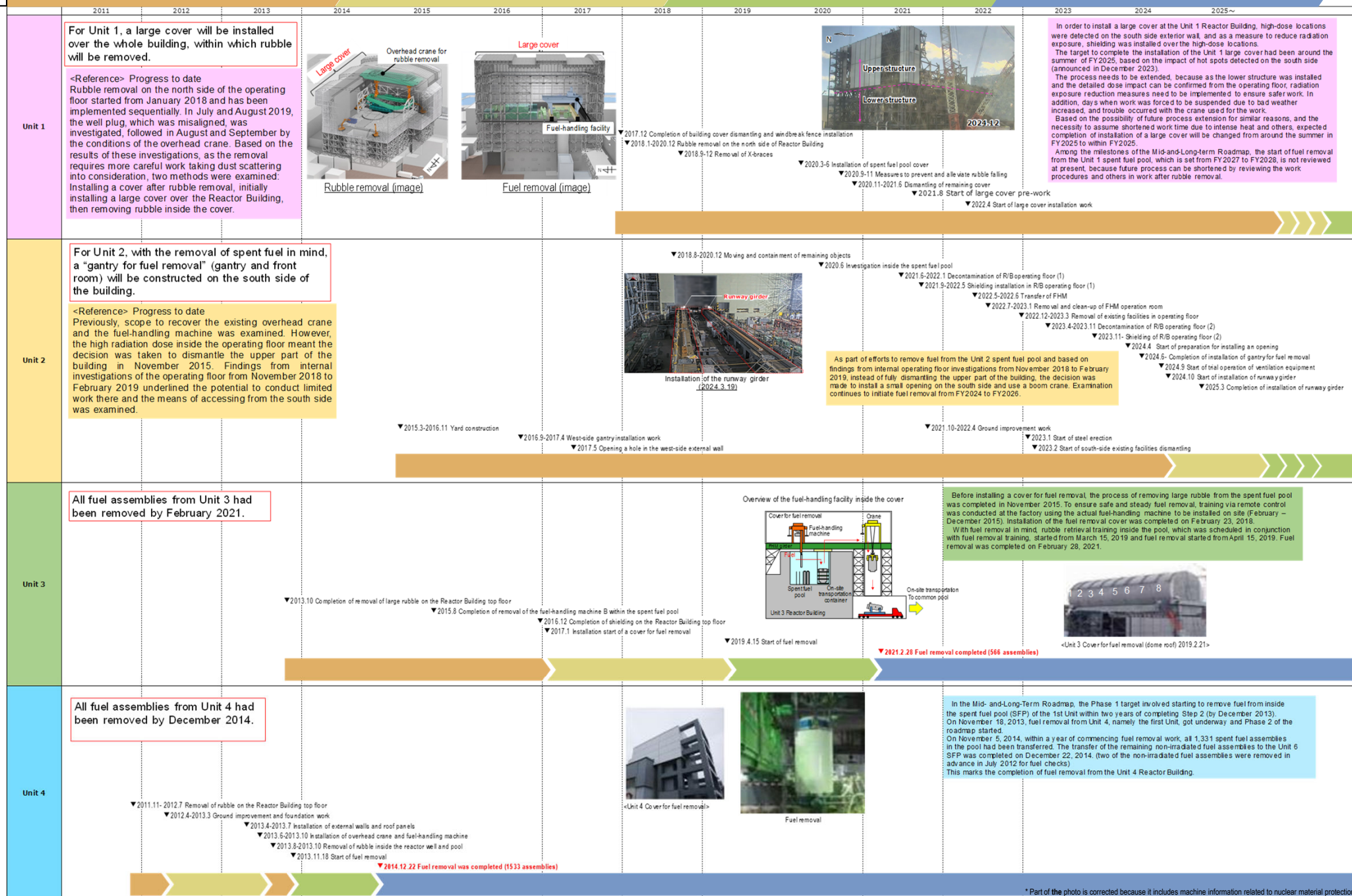
Legend

Rubble removal, etc.

Installing a fuel removal machine

Fuel removal

Storage and handling of fuel



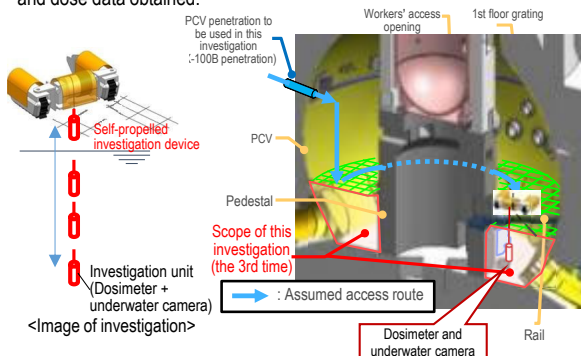
Milestones of the Mid- and Long-Term Roadmap (major target processes)

Commencement of fuel debris retrieval from the first unit (Unit 2). Expanding the scale in stages (From September 10, 2024, trial fuel debris retrieval commenced)

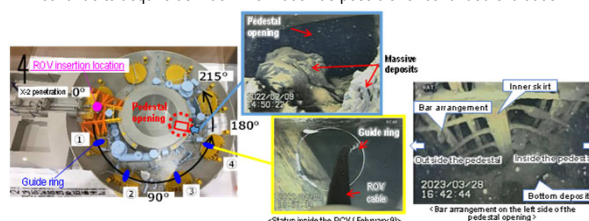
Before removing fuel debris, investigations inside the Primary Containment Vessel (PCV) are conducted to inspect the conditions there, including locations of fuel debris.

Unit 1 Investigation overview

- In April 2015, a device having entered the inside of the PCV via a narrow opening (bore:φ100 mm) collected information such as images and airborne dose inside the PCV 1st floor.
- In March 2017, an investigation using a self-propelled investigation device was conducted to inspect the spreading of debris to the basement floor outside the pedestal, with images taken of the PCV bottom status for the first time. The conditions inside the PCV will continue to be examined, based on the imagery and dose data obtained.



- In February 2022, "the guide ring" was installed to facilitate the investigation. From March 28, 2023, the investigation inside the pedestal by ROV-A2 started and confirmed that a portion of the bar arrangement was exposed. Regarding the soundness of the pedestal, based on the past earthquake resistant evaluation by the International Research Institute for Nuclear Decommissioning (IRID), it was evaluated that even though a portion of the pedestal was lost, there would be no serious risk. However, as the present information is very limited, the investigation will continue to acquire as much information as possible for continued evaluation.



Unit 1 PCV internal investigation

Investigations inside the PCV	1st (2012.10)	- Acquiring images - Measuring the air temperature and dose rate - Measuring the water level and temperature - Sampling stagnant water - Installing permanent monitoring instrumentation
	2nd (2015.4)	- Confirming the status of the PCV 1st floor - Acquiring images - Measuring the air temperature and dose rate - Replacing permanent monitoring instrumentation
	3rd (2017.3)	- Confirming the status of the PCV 1st basement floor - Acquiring images - Measuring the dose rate - Sampling deposit - Replacing permanent monitoring instrumentation
	4th (From 2022.2)	- Acquiring information inside PCV (inside/outside of the pedestal) - Acquiring images - Measuring deposit thickness and sampling deposit - Detecting deposit debris, 3D mapping
Leakage points from PCV	- PCV vent pipe vacuum break line bellows (identified in 2014.5) - Sand cushion drain line (identified in 2013.11)	

Evaluation of the location of fuel debris inside the reactor by measurement using muons
Confirmed that there was no large fuel in the reactor core. (2015.2-5)

Unit 2 Investigation overview

- In January 2017, a camera was inserted from the PCV penetration to inspect the conditions of the rail on which the robot traveled. The results of a series of investigations confirmed some gratings had fallen and deformed as well as a quantity of deposit inside the pedestal.

- In January 2018, the conditions below the platform inside the pedestal were investigated. Based on the analytical results of images obtained in the investigation, deposits, probably including fuel debris, were found at the bottom of the pedestal. Moreover, multiple parts exceeding the surrounding deposits were also detected. We presumed that there were multiple instances of fuel debris falling.

- In February 2019, an investigation touching the deposits at the bottom of the pedestal and on the platform was conducted and confirmed that the pebble-shaped deposits, etc. could be moved and that hard rock-like deposits that could not be gripped may exist.



- In October 2020, a deposits contact investigation at the PCV penetration (X-6 penetration) was conducted. This confirmed that deposits inside the penetration had not deformed and come unstuck.



- From September 10, 2024, the end tool of the telescopic equipment passed through the isolation valve, and the trial fuel debris retrieval commenced. On October 30, fuel debris was gripped with the end tool, on November 2, the guide pipe was pulled off, and the telescopic equipment was stored in the enclosure. On November 7, fuel debris was carried out from the hatch on a side of the enclosure, and the trial retrieval was completed.

Unit 2 PCV internal investigation

Investigations inside the PCV	1st (2012.1)	- Acquiring images - Measuring the air temperature
	2nd (2012.3)	- Confirming water surface - Measuring the water temperature - Measuring the dose rate
	3rd (2013.2 ~ 2014.6)	- Acquiring images - Sampling stagnant water - Measuring water level - Installing permanent monitoring instrumentation
	4th (2017.1-2)	- Acquiring images - Measuring the dose rate - Measuring the air temperature
	5th (2018.1)	- Acquiring images - Measuring the dose rate - Measuring the air temperature
	6th (2019.2)	- Acquiring images - Measuring the dose rate - Measuring the air temperature - Determining characteristics of a portion of deposit
Leakage points from PCV	- No leakage from the torus chamber rooftop - No leakage from any internal/external surfaces of S/C	
<u>Evaluation of the location of fuel debris inside the reactor by measurement using muons</u> The existence of high-density materials, which were considered to constitute fuel debris, was confirmed at the bottom of RPV and in the lower part and outer periphery of the reactor core. It was assumed that a significant portion of fuel debris existed at the bottom of RPV. (2016.3-7)		

Unit 3 Investigation overview

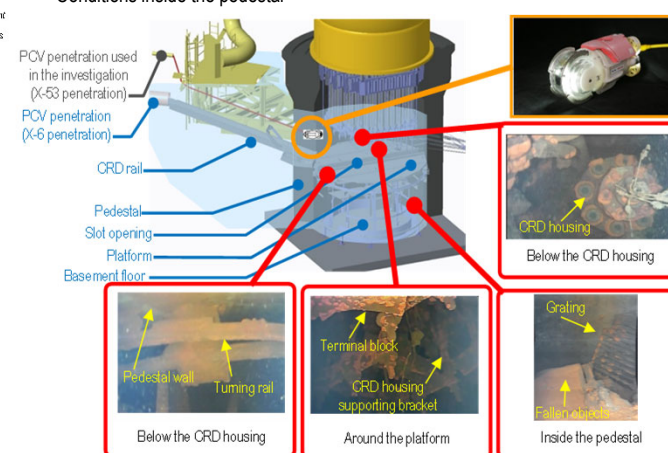
- In October 2014, the conditions of X-53 penetration, which may be under water and which is scheduled for use to investigate the inside of the PCV, were investigated via remote-controlled ultrasonic test equipment. The results showed that the penetration was not under water.

- In October 2015, to confirm the conditions inside the PCV, an investigative device was inserted into the PCV from X-53 penetration to obtain images, data on dosage and temperature and sample stagnant water. No damage to the structure and walls inside the PCV was identified and the water level was almost identical to estimated values. In addition, the dose inside the PCV was confirmed to be lower than in other Units.

- In July 2017, the inside of the PCV was investigated using the underwater ROV (remotely operated underwater vehicle) to inspect the inside of the pedestal. Analysis of the imagery obtained in the investigation identified damage to multiple structures and the supposed core internals.

- Videos obtained in the investigation were reproduced in 3D. Based on the reproduced images, the relative positions of the structures, such as the rotating platform slipping off the rail with a portion buried in deposits, were visually understood.

<Conditions inside the pedestal>



Unit 3 PCV internal investigation

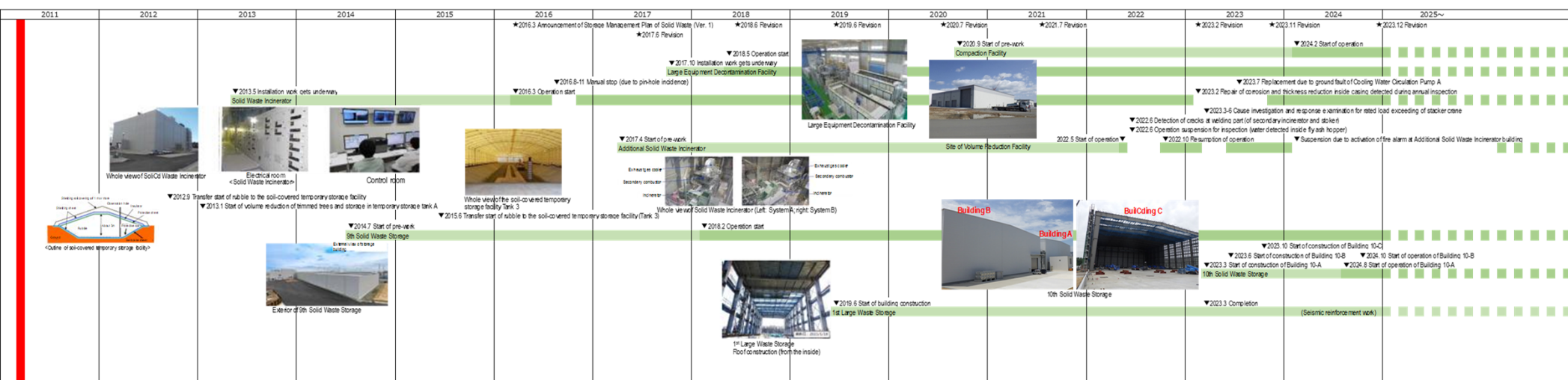
Investigations inside the PCV	1st (2015.10-12)	- Acquiring images - Measuring the air temperature and dose rate - Measuring the water level and temperature - Sampling stagnant water - Installing permanent monitoring instrumentation (2015.12)
	2nd (2017.7)	- Acquiring images - Installing permanent monitoring instrumentation (2017.8)
Leakage points from PCV	- Main steam pipe bellows (identified in 2014.5)	
<u>Evaluation of the location of fuel debris inside the reactor by measurement using muons</u> The evaluation confirmed that no large lump existed in the core area where fuel had been placed and that a portion of the fuel debris potentially existed at the bottom of the RPV. (2017.5-9)		

5 Management of solid radioactive waste

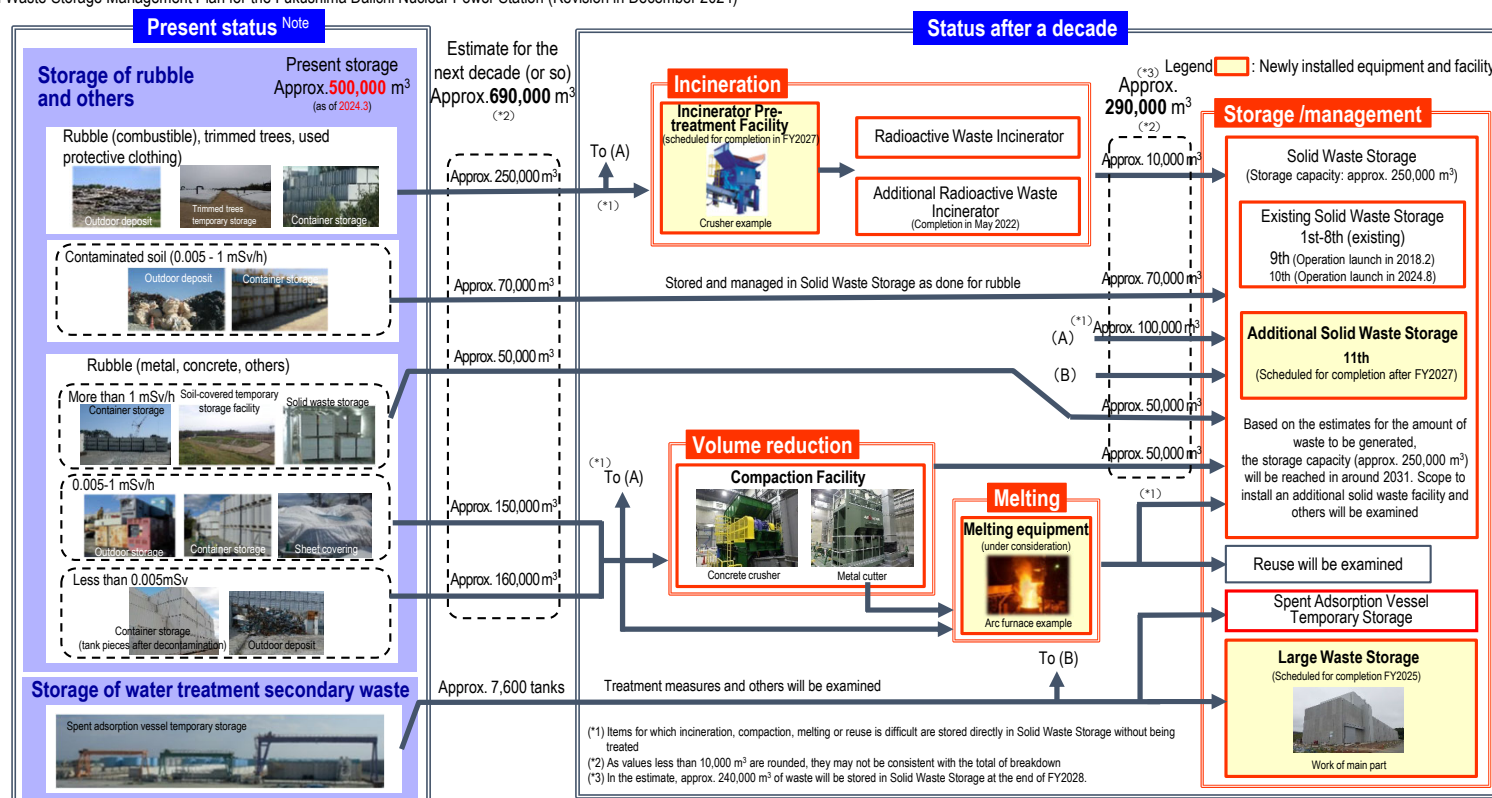
Reference 5/6
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Contaminated Water and Treated Water

Milestones of the Mid- and Long-Term Roadmap (major target processes)

Eliminating temporary outdoor storage of rubble and others * Except for secondary waste of water treatment and materials for reuse or recycling (within FY2028)



● Solid Waste Storage Management Plan for the Fukushima Daiichi Nuclear Power Station (Revision in December 2024)



- The exposure dose at the site boundaries will be reduced by aggregation to indoor storage and eliminating outdoor storage.
- The exposure dosage in exhaust gas from incinerators and at site boundaries is measured and announced on the website and others.

6 Improvement of work environment

Reference 6/6

July 3, 2025

Secretariat of the Team for Countermeasures for
Decommissioning, Contaminated Water and Treated Water

While ensuring reliable exposure dose management for workers, sufficient personnel are secured. Moreover, while getting a handle on on-site needs, the work environment and labor conditions are continuously improved.

Regarding the site-wide reduction in the radiation dose and prevention of contamination spreading, the radiation dose on site was reduced by removal of rubble, topsoil and facing. Moreover, the operation was improved to use environmentally-improved areas as a Green Zone, within which workers are allowed to wear general work clothes and disposable dust-protective masks which are less of a physical burden.

