Fukushima Daiichi Nuclear Power Station Units 1 and 2
Progress of Fuel Removal from Spent Fuel Pools

March 26, 2026

Tokyo Electric Power Company Holdings, Inc.

TEPCO

1. Fuel removal from the spent fuel pool plan overview

- The 392 fuel assemblies* are being stored in the Unit 1 spent fuel pool will be removed in order to relocate them to the common pool where they can be cooled and stored in a more stable manner.

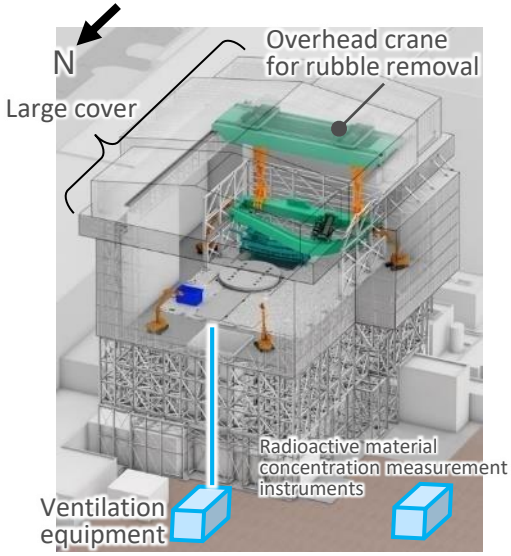
  * 292 spent fuel assemblies and 100 fresh fuel assemblies

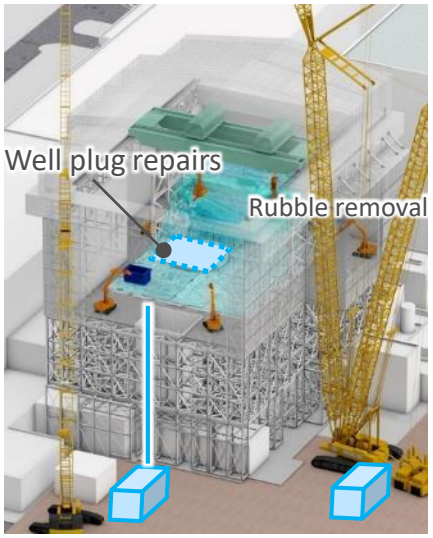
- Prior to fuel removal, a large cover that encompasses the entire reactor building is built, rubble removed from under the large cover, the operating floor decontaminated/shielded, and fuel handling equipment (fuel handling machine (FHM) and crane) installed.

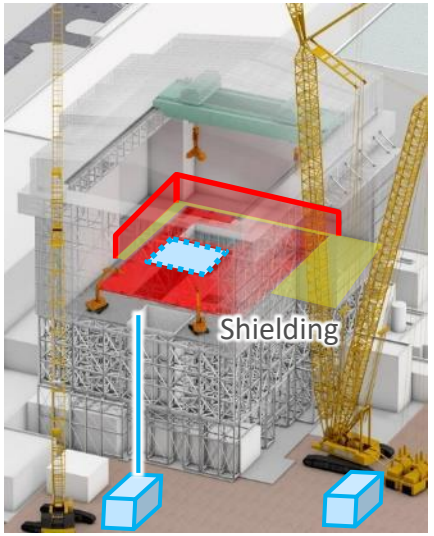
Large cover installation completed
(January 19, 2026)

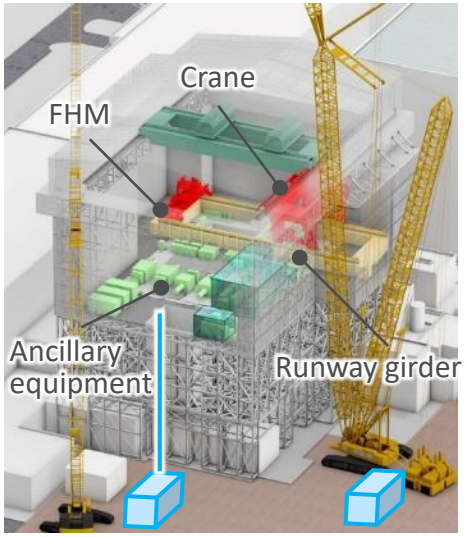
Commencement of fuel removal
(FY2027-2028)

STEP1	STEP2	STEP3	STEP4	STEP5
Install large cover	Rubble removal, etc.	Decontamination/shielding	Fuel handling equipment installation	Fuel removal









※These are just concept diagrams and actual location may differ.

2. Large cover installation status

- The pre-use inspection of the large cover was completed on March 4 and 5, 2026.
- The overhead crane for rubble removal is scheduled to undergo the completion inspection on March 19, 2026.

Temporary work platform (Completed) → Anchor hole drilling (Completed) → Baseplate installation (Completed) → Bottom framework (Completed) → Upper framework (Completed) → Box ring (Completed) → Retractable roof (Completed) → Overhead crane for rubble removal (Completed)

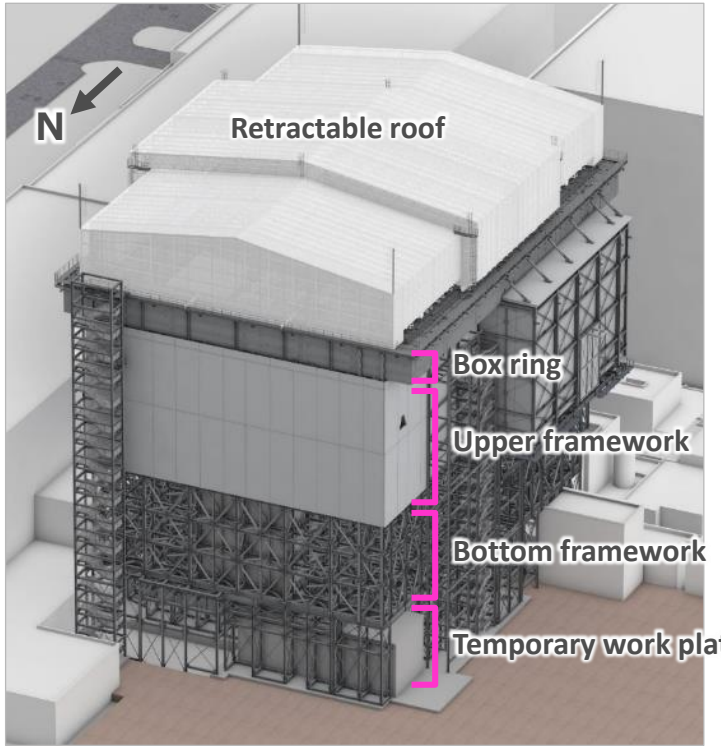
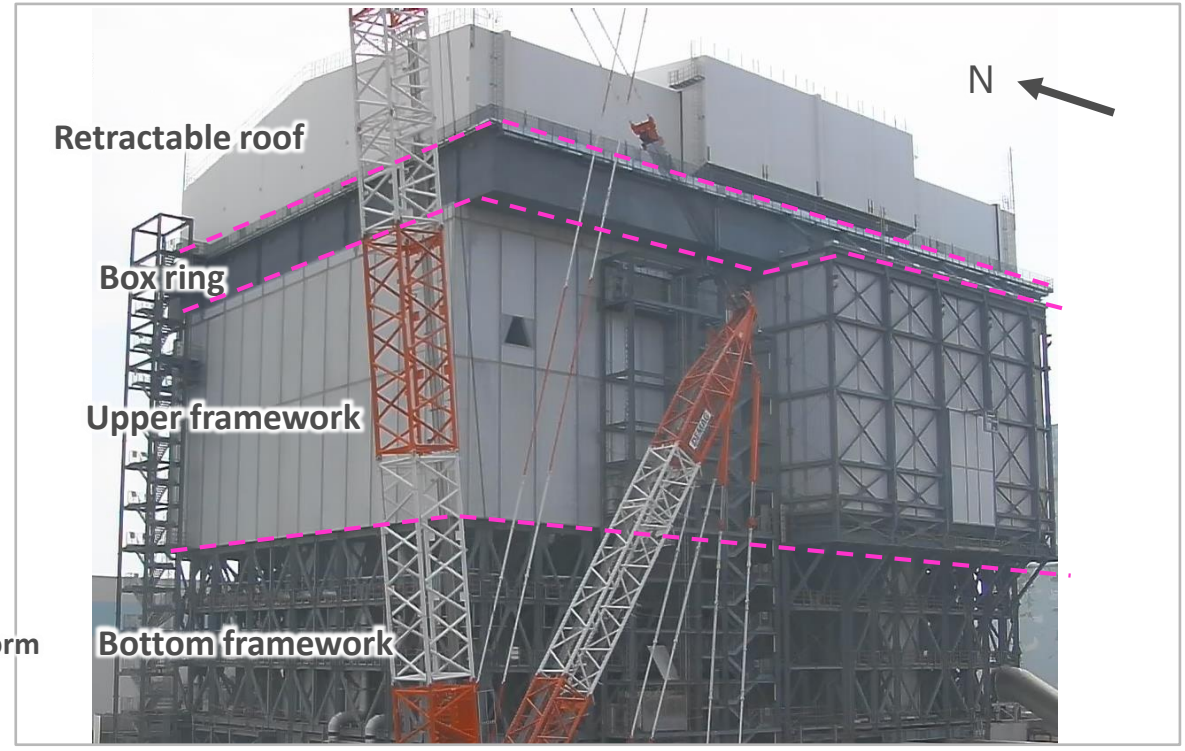


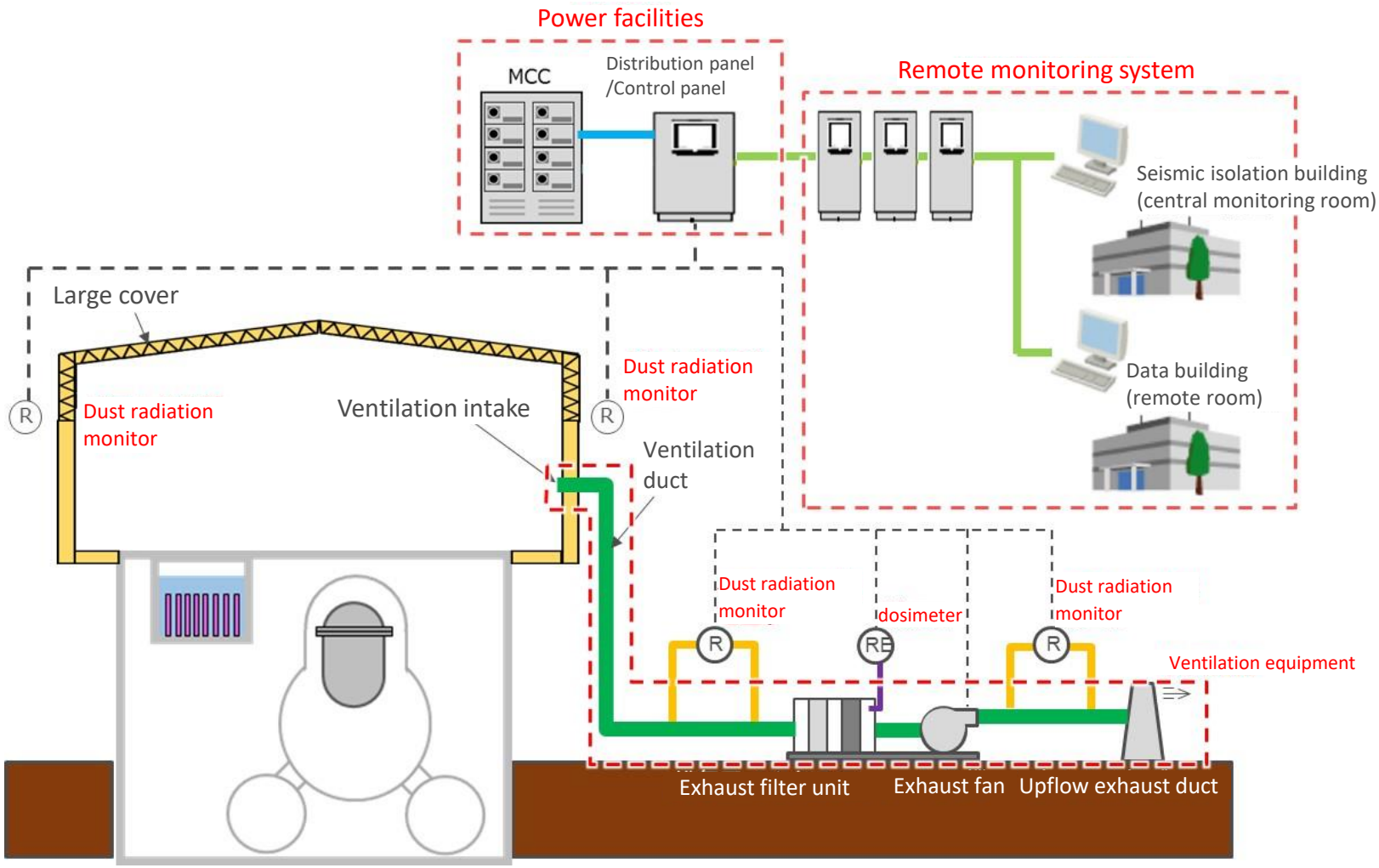
Diagram of the entire large cover



On-site conditions (Photographed on March 18, 2026)

3-1. Overview of large cover ancillary equipment

- After installation of the large cover, large cover ancillary equipment will be installed to remove rubble, etc.
- Large cover ancillary equipment include ventilation equipment, and dust radiation monitors, etc.

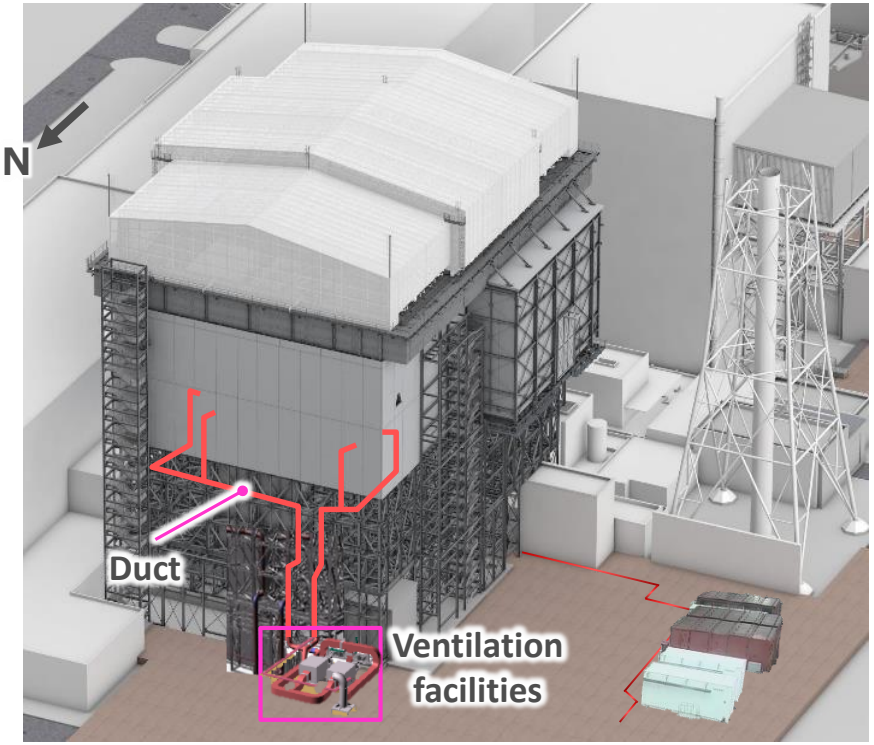


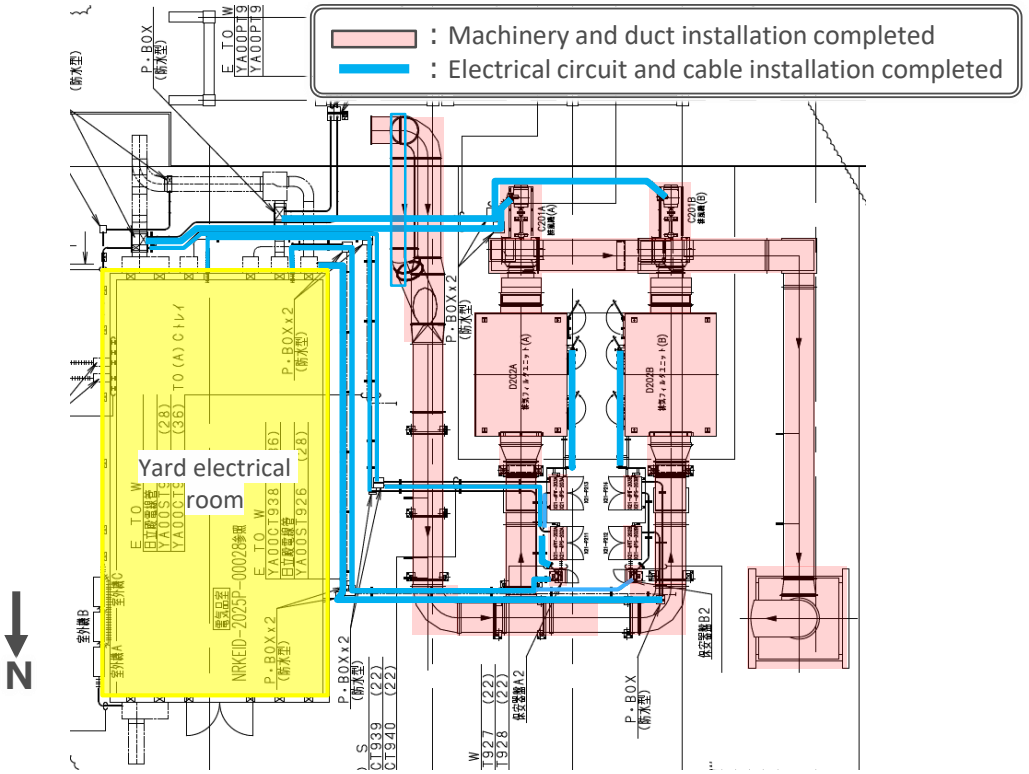
Configuration image of large cover ancillary equipment

3-2. Status of large cover ancillary equipment installation (Ventilation facilities)

- Foundation bolt installation began on July 22, 2025. Installation of these foundation bolts, installation of the ventilation fan and the filter unit (unit 2/2), and the installation of duct, duct support and cable were completed, and the trial operation adjustments were completed on March 10, 2026. The equipment is scheduled to be placed in service upon completion of the pre-use inspection and receipt of the certificate of approval.

Foundation bolt installation (Completed) → Equipment installation (Completed) → Support Construction (Completed) Duct Installation (Completed) Cable installation (Completed) → Trial operation adjustments (Completed)





Ventilation facilities progress: floor plan

3-3. Status of large cover ancillary equipment installation (Dust radiation monitors)

- Dust radiation monitor (dust monitors) container installation began on July 15, 2025. The installation of the dust monitor containers (unit 2/2), the installation of the remote monitoring equipment terminals, and the laying of the dust monitor pipe have been completed, and the trial operation adjustments and system switch over were completed on March 13, 2026. The equipment is scheduled to be placed in service upon completion of the pre-use inspection and receipt of the certificate of approval.

Dust monitor container installation (completed) → Dust monitor pipe laying (completed) Remote monitoring equipment terminal Installation (completed) → Trial operation adjustments (completed) → System switch over (completed)

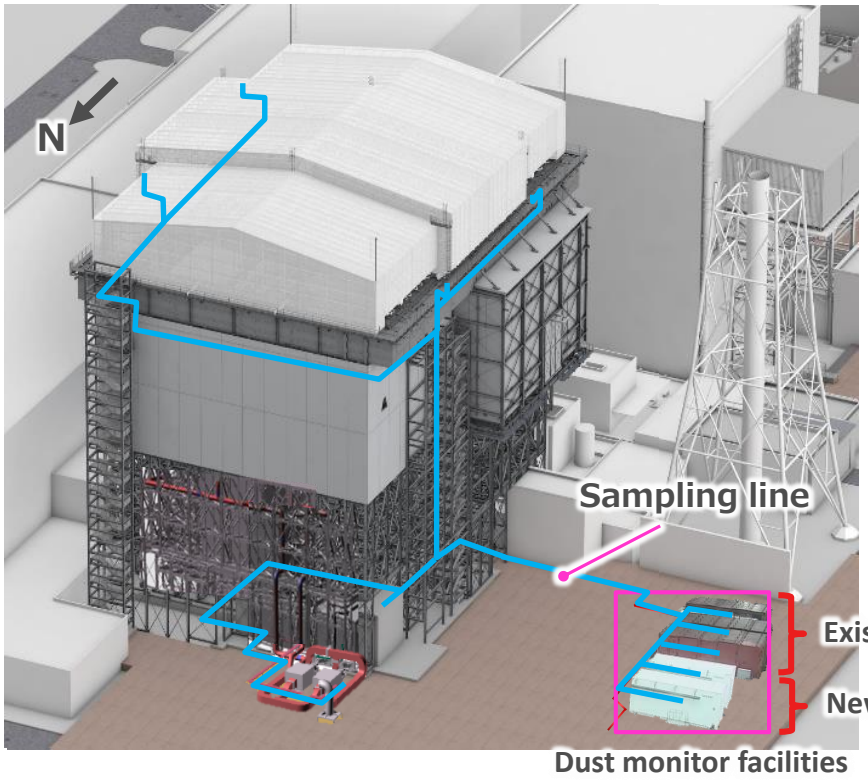
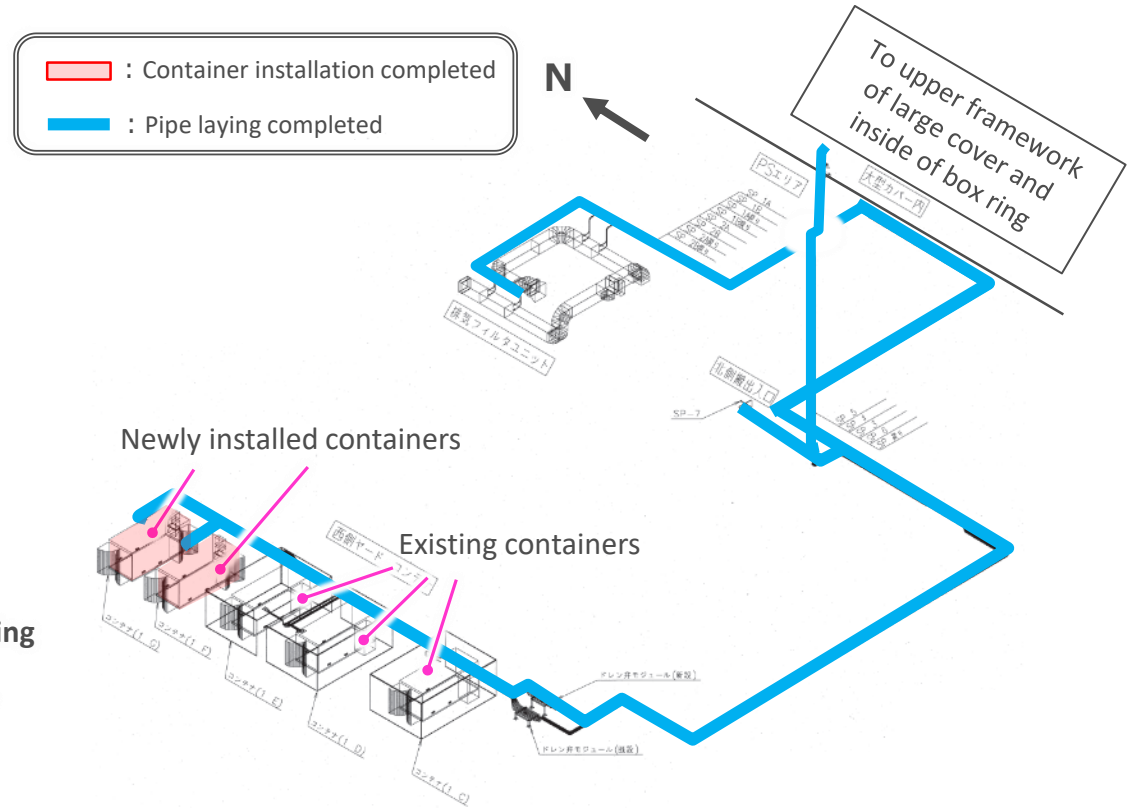


Diagram of large cover ancillary facilities



Dust monitor pipe progress: Bird's eye view

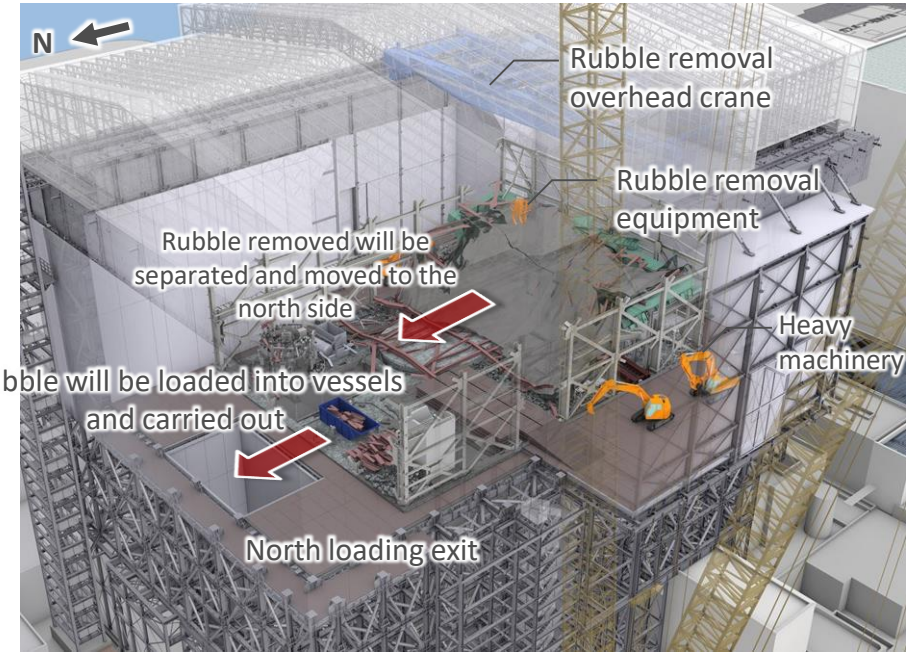
4-1. Overview of rubble removal

- Rubble removal will commence after large cover ventilation facilities and dust monitors have been put in service.
- Rubble removal will be implemented via remote operation using the rubble removal overhead crane, a 1,250 ton crawler crane, and various types of removal equipment and heavy machinery.

Large cover construction completed
(2026/1/19)

Commencement of fuel removal
(FY2027~2028)

STEP 1	**STEP 2**	STEP 3	STEP 4	STEP 5
Large cover, etc. installation	**Rubble removal, etc.**	Decontamination/ shielding	Fuel handling machine installation	Fuel removal

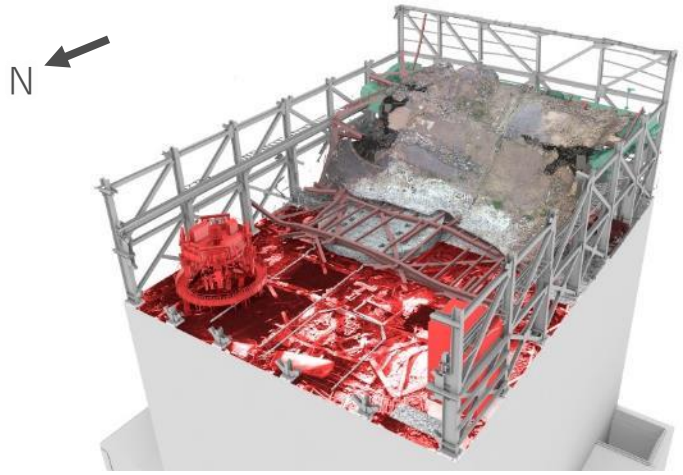
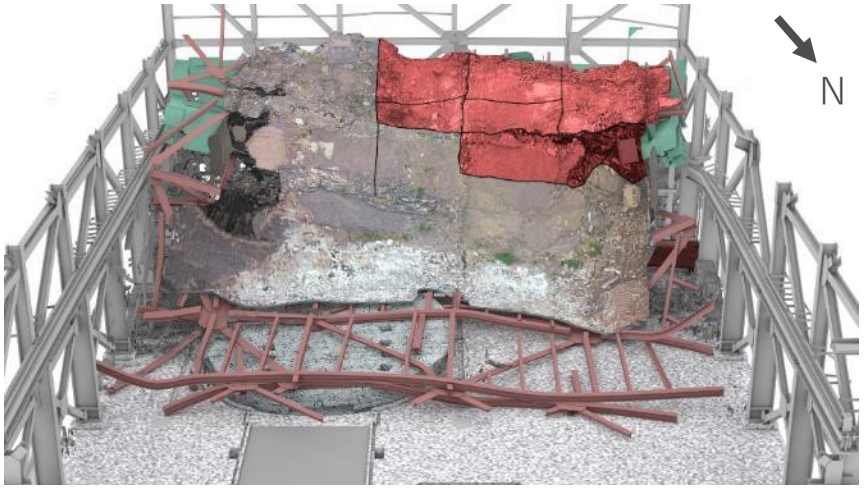
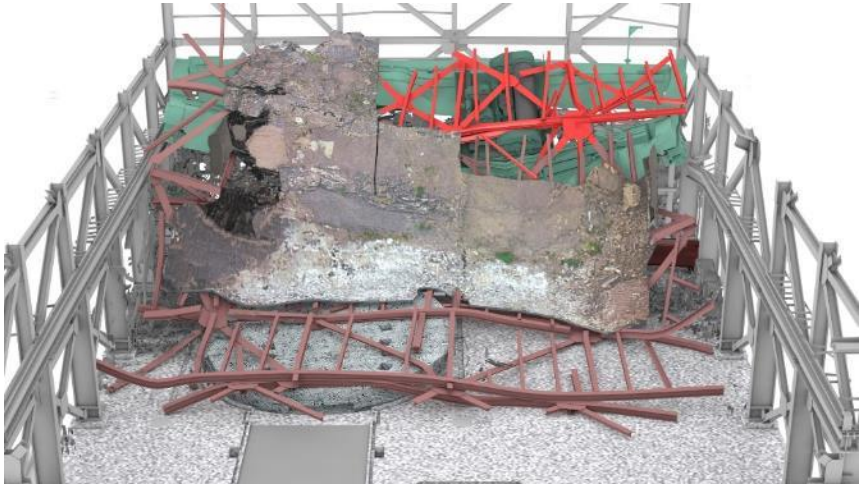
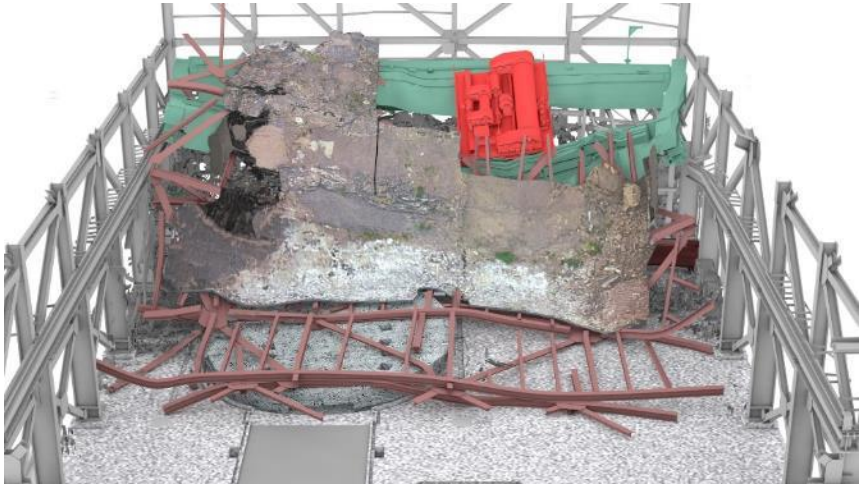


Concept diagram of rubble removal

Rubble conditions (prior to large cover installation)

4-2. Rubble removal: Step ①

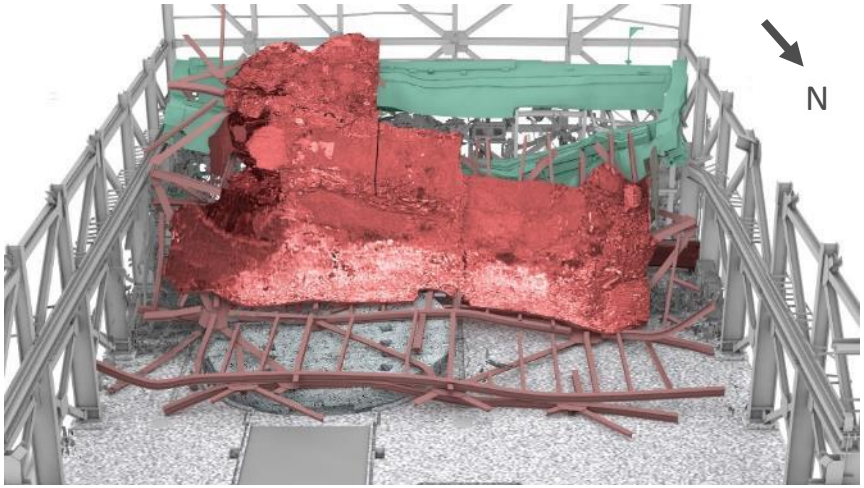
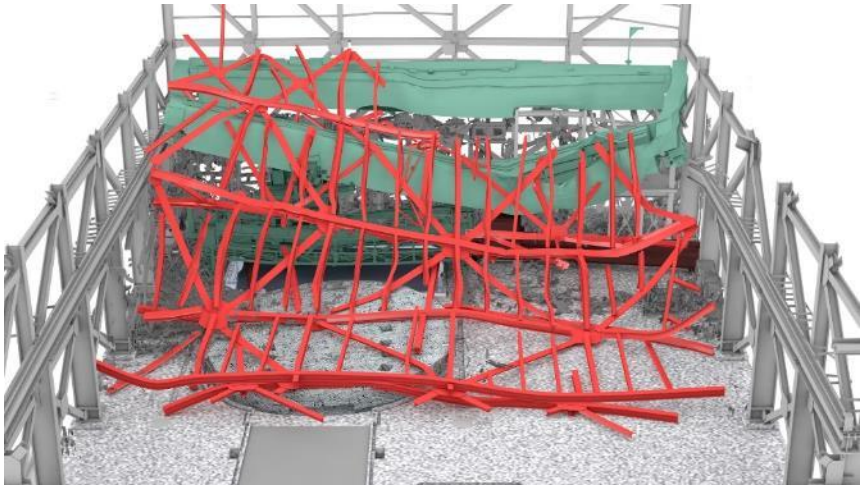
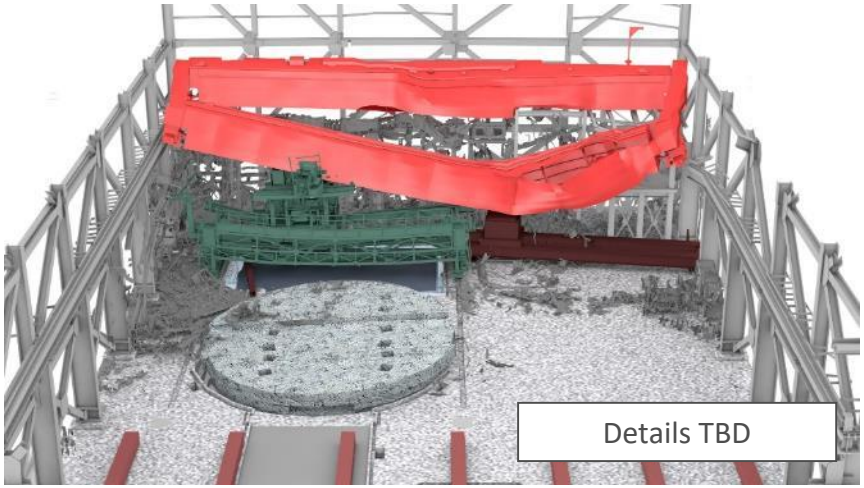
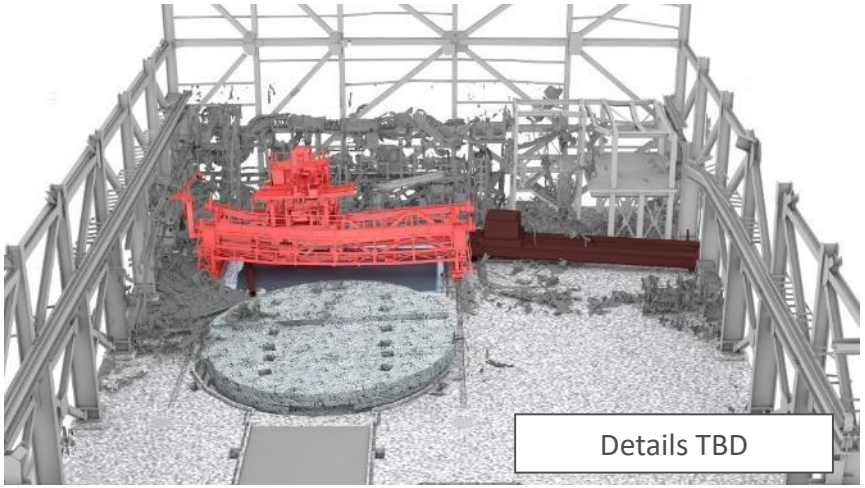
- The primary steps of rubble removal are as follows:

STEP1: Rubble removal from the north side	STEP2: Roof slab removal
	
STEP3: Roof truss removal	**STEP4: Overhead crane trolley removal**
	

※ Actual conditions may differ from concept images

4-3. Rubble removal: Step ②

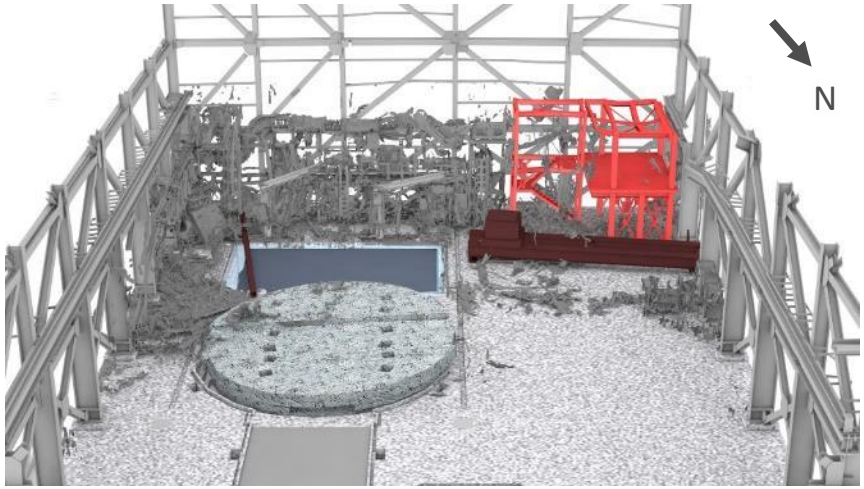
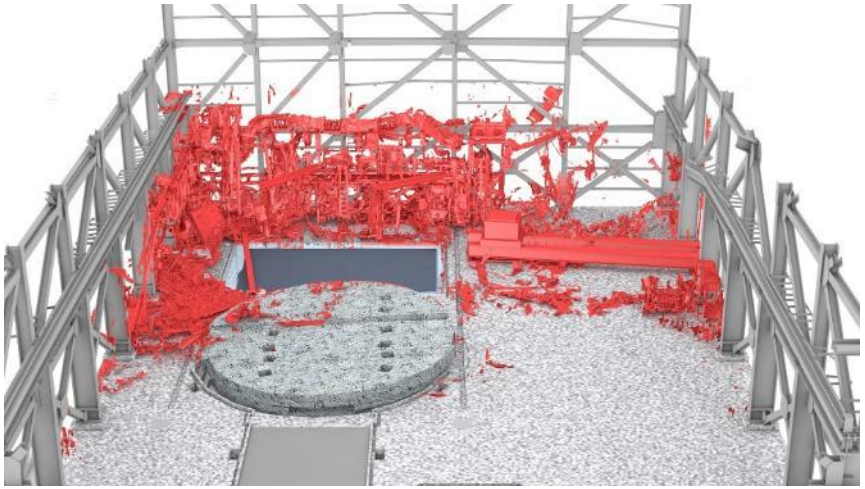
- The primary steps of rubble removal are as follows:

STEP5: Roof slab removal	STEP6: Roof truss removal
	
STEP7: Overhead crane removal	**STEP8: Fuel handling machine (FHM) removal**
	

※ Actual conditions may differ from concept images

4-4. Rubble removal: Step (3)

- The primary steps of rubble removal are as follows:

Step 9: FHM operations room removal	Step 10: Roof truss removal
	

※ Actual conditions may differ from concept images

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To decontamination/shielding

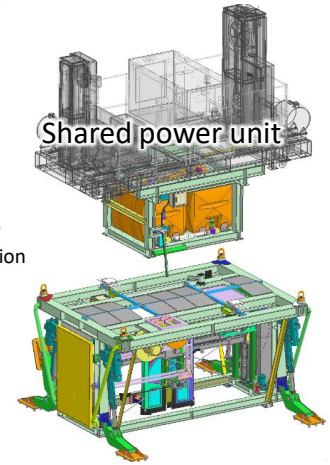
4-5. Equipment to be used

- Since the operating floor is a high dose environment, in principle, rubble will be removed via remote operations using remote controlled rubble removal equipment, etc., as shown below. However, the rigging of equipment and containers, and maintenance work, shall be done manually upon restricting the size of the work area.

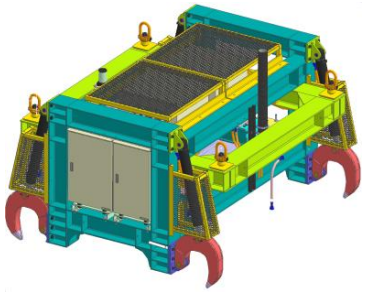
No.	Equipment name
1	Roof slab cutter
2	Roof slab gripper
3	Single roof truss cutter
4	External frame cutter (pillars/ beams)
5	Hanging unit
6	Overhead crane trolley gripper
7	Overhead crane removal device
8	FHM removal device
9	Hydraulic hanging unit ・hanging cutter ・Grab fork ・Grab bucket
10	・Dismantling heavy machinery

Under deliberation

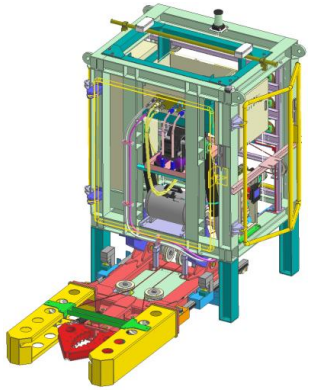
Roof slab cutter



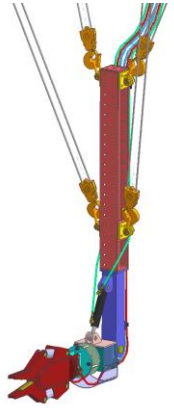
Roof slab gripper



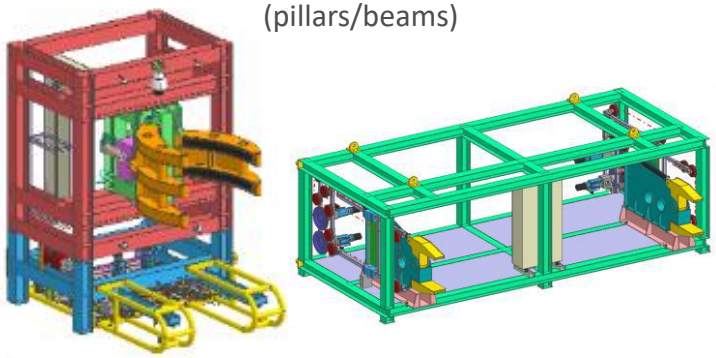
Single roof truss cutter



Hangingg unit



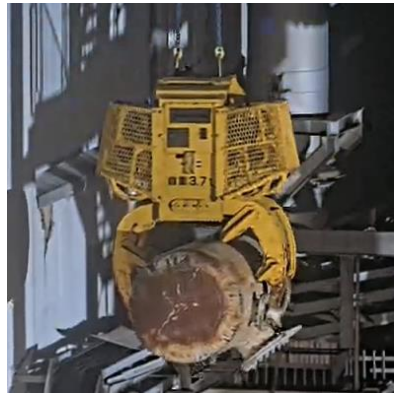
External frame cutter (pillars/beams)



Overhead crane trolley gripper

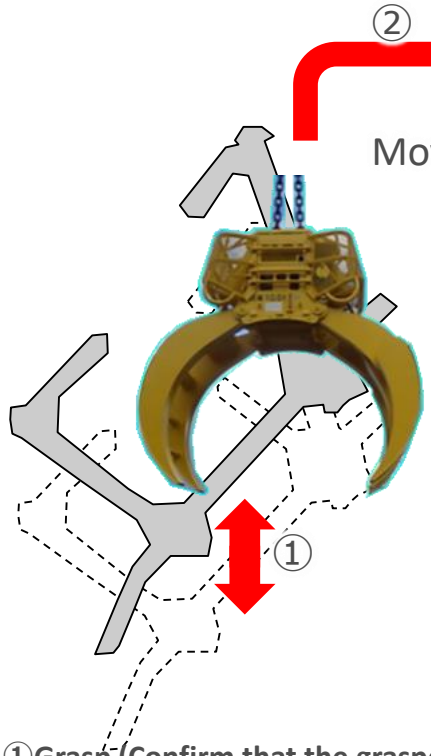
Hanging cutter

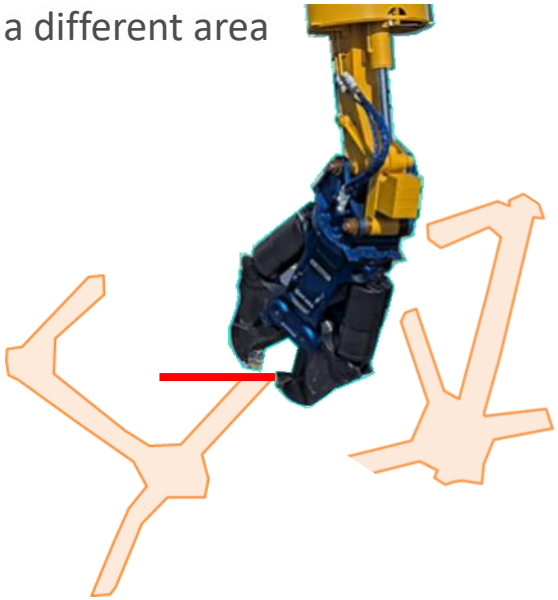
Grab fork

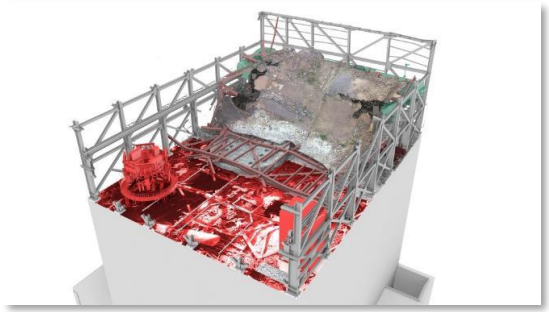


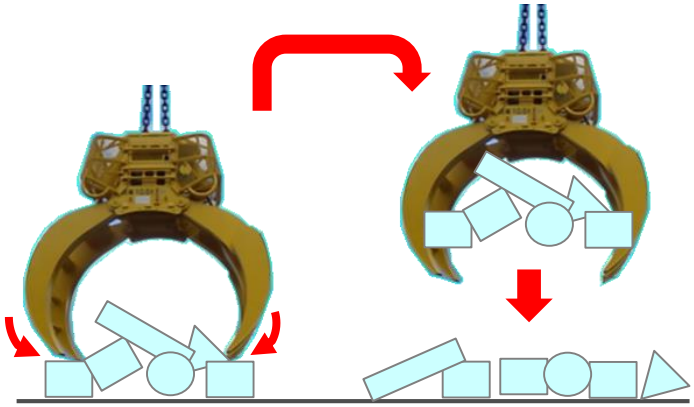
4-6. Overview of Rubble removal from the north side

- Rubble will be removed using the hanging cutter and grab fork and then accumulated on the north side of the operating floor with south side rubble in order to secure space to break it down.









①Grasp (Confirm that the grasped rubble is not attached to anything)

The grab fork will be used to raise the piece of rubble slightly in order to confirm that it is not attached to anything else.

② Relocate

After it is confirmed that the piece is not attached to anything the grab fork will be used to relocate it to a different area.

③ Cut

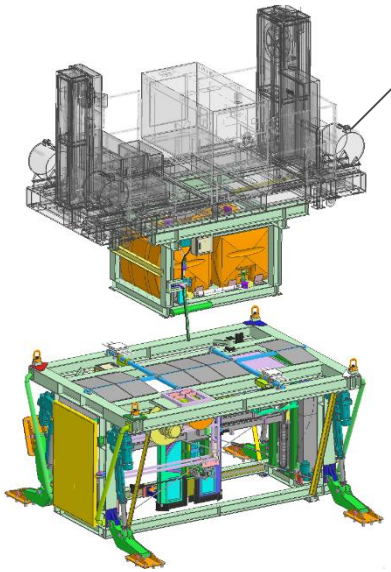
If the piece is not attached to anything else, the cutter will be used to cut the piece away at the joints.

④ Accumulate (small rubble)

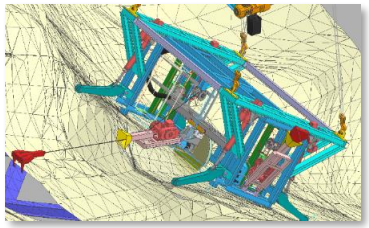
Small rubble will be grabbed with the bucket or grab fork and then accumulated in a different area in order to check the condition of the floor.

4-7. Overview of roof slab removal

- The roof slab will be cut into sections small enough to prevent it from falling from the lower truss and relocated to the north side of the operating floor. After that it will be broken down and put into vessels to be carried out.

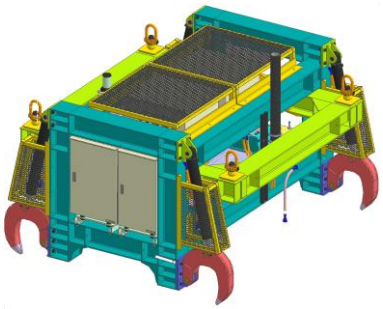


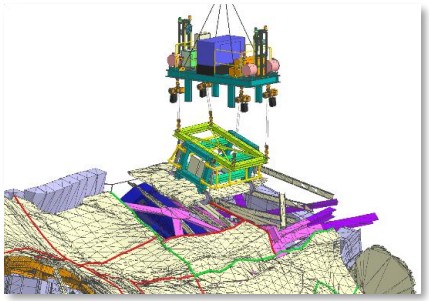
Cut with a wall saw



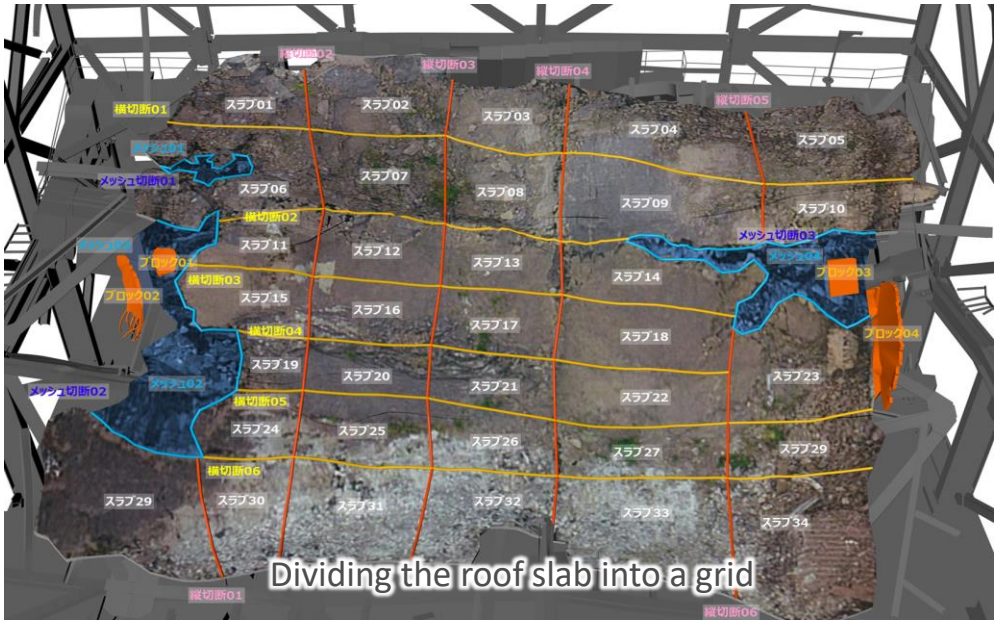
Roof slab cutter

The severed grid pieces will be grabbed and removed

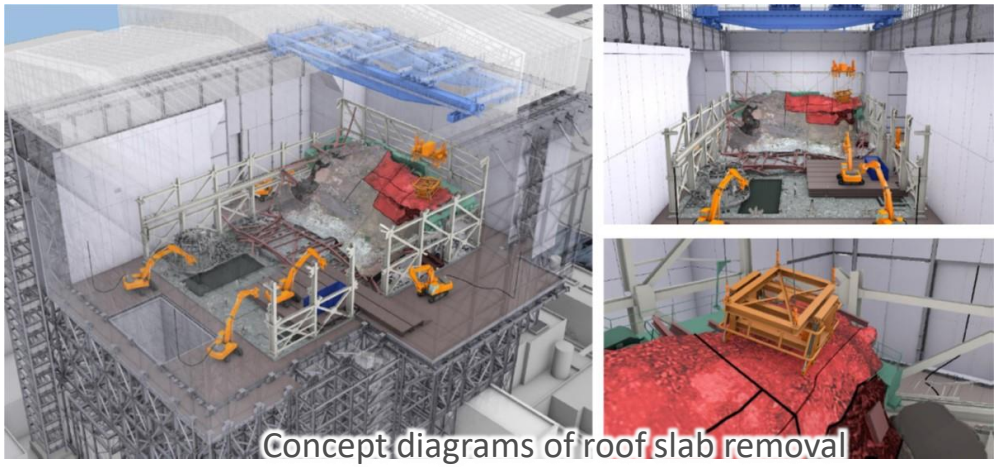




Roof slab gripper



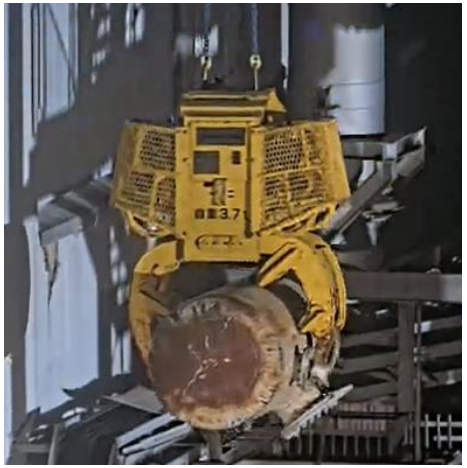
Dividing the roof slab into a grid



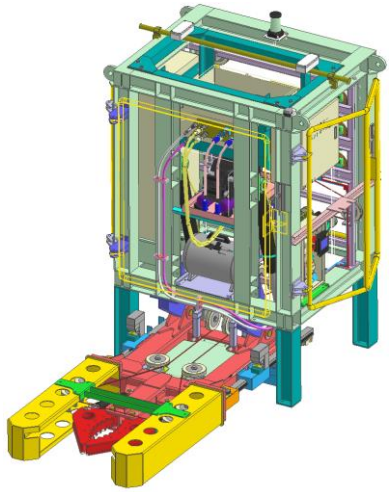
Concept diagrams of roof slab removal

4-8. Overview of roof truss removal

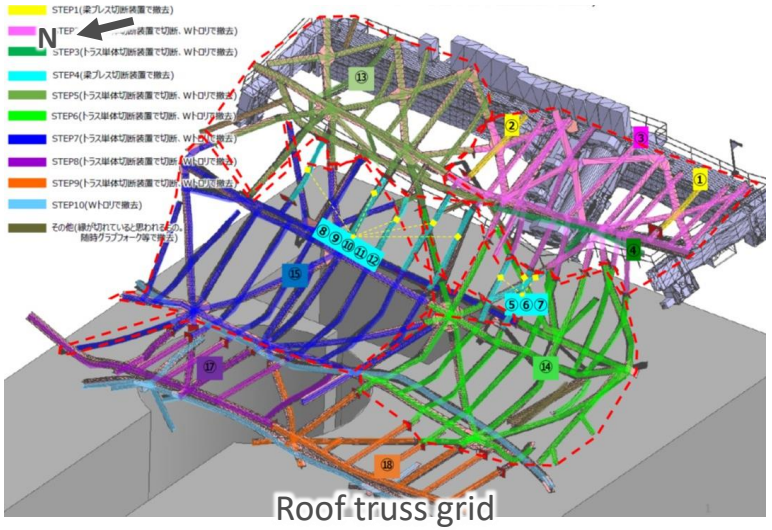
- In order to reduce cutting work on the south side, the roof truss will be moved after cutting it into large blocks as much as possible in consideration of damage and also the overhead crane and FHM that lie below it.
- After relocation, it will be processed on the north side and directly removed through the retractable roof as soon as conditions have been satisfied to open it.



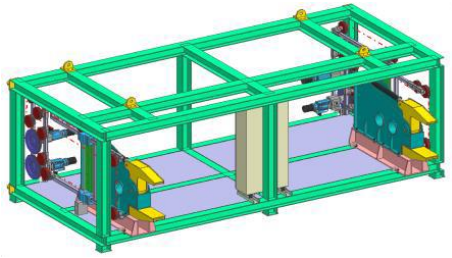
Grab fork



Single truss cutter



Roof truss grid

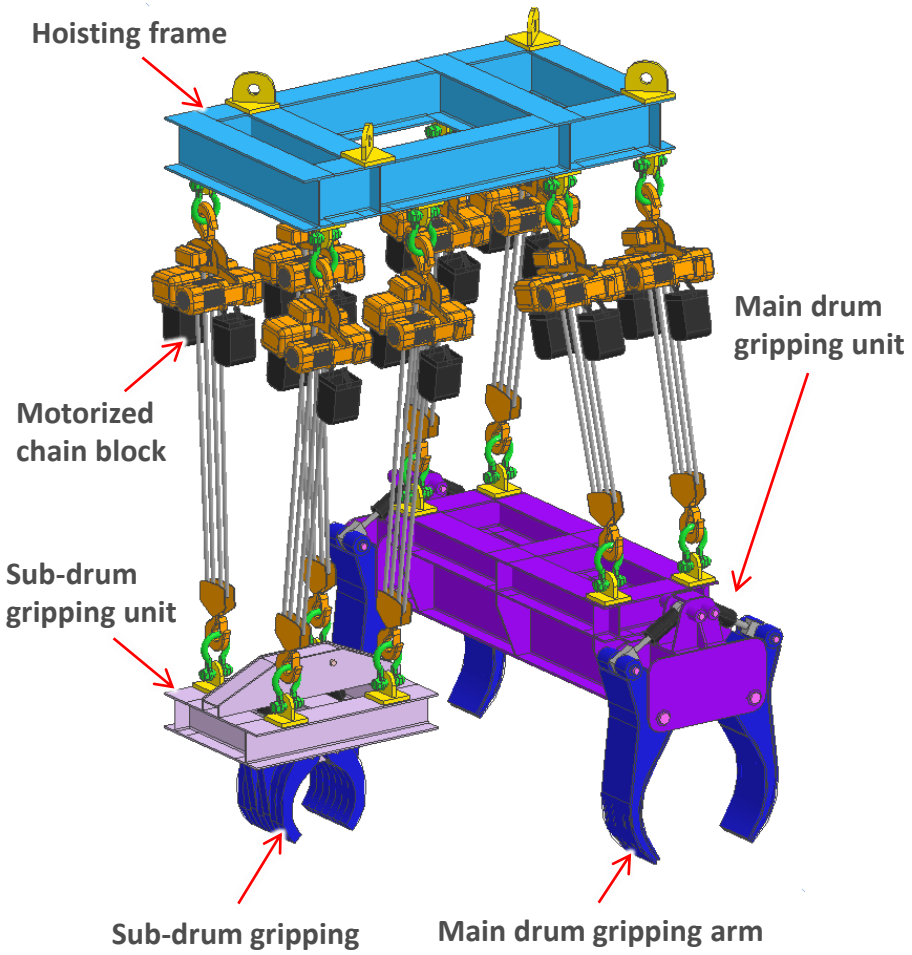


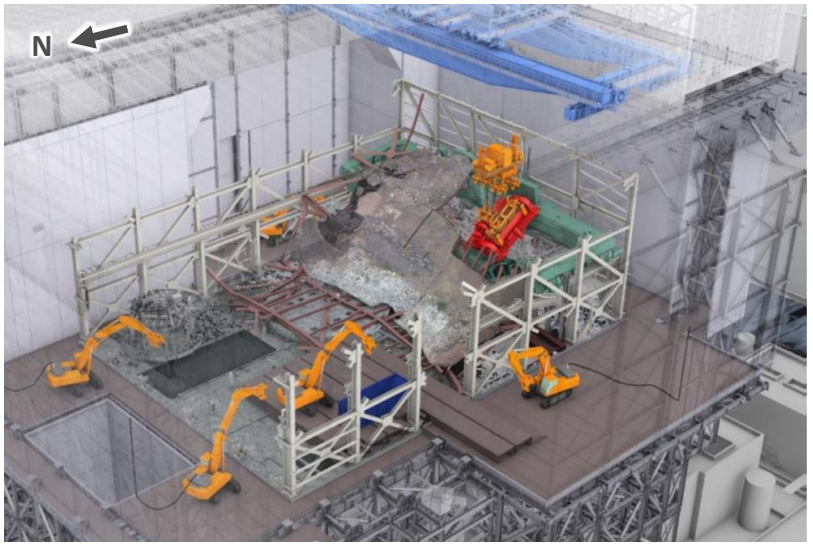
External frame cutter (also used for the roof trusses)

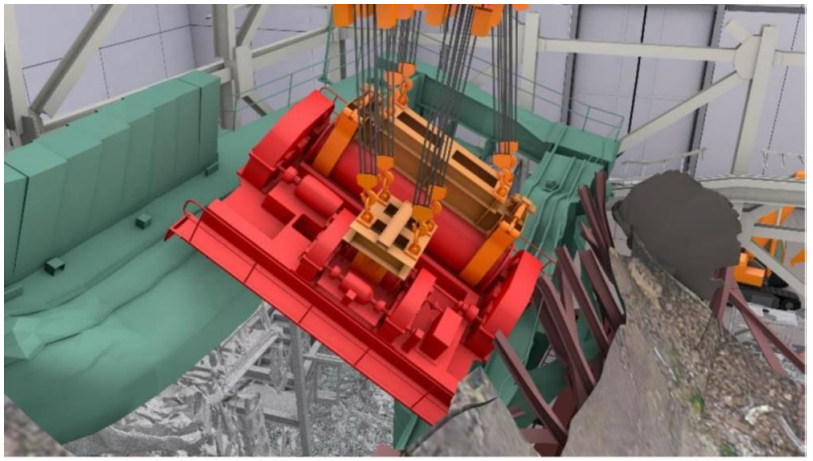
Concept diagram of removing the roof trusses from the large cover retractable roof

4-9. Overview of overhead crane trolley removal

- The overhead crane trolley remains in an unstable position on top of the girders so it will be removed after removal of the roof slab and trusses around it.
- After it is moved to the north side from its current position it will be directly removed through the retractable roof as soon as conditions have been satisfied.





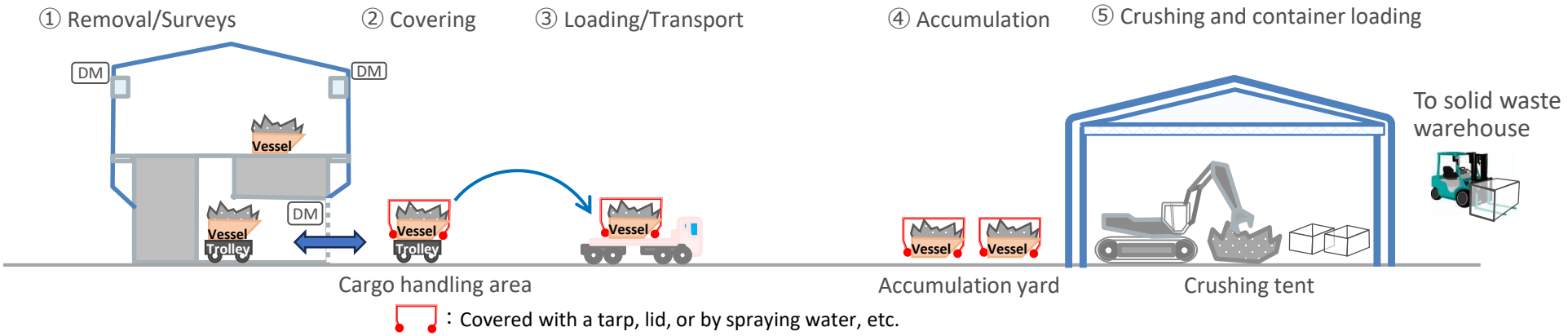


concept diagrams of Trolley removal

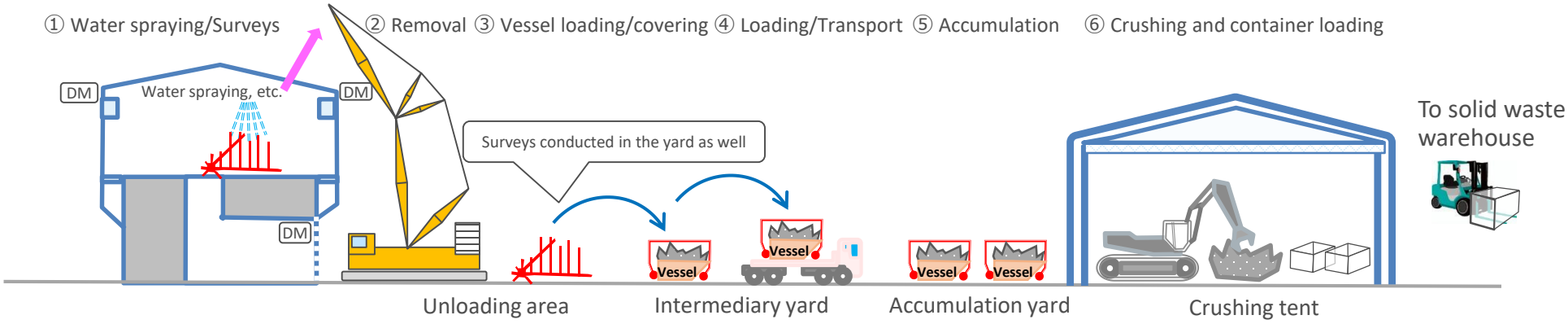
4-10. Process of rubble removal to crushing

- Rubble will be loaded into containers, such as vessels, on the operating floor and then removed via the north side shaft. However, rubble loaded into containers and large pieces of rubble, such as framework for which it has been confirmed that there is no α contamination on the surface, will be removed directly through the retractable roof.

■Removal from the north side shaft



■ Removal through the retractable roof (roof truss, overhead crane, FHM, stud tensioner, rubble stored in containers, etc.)

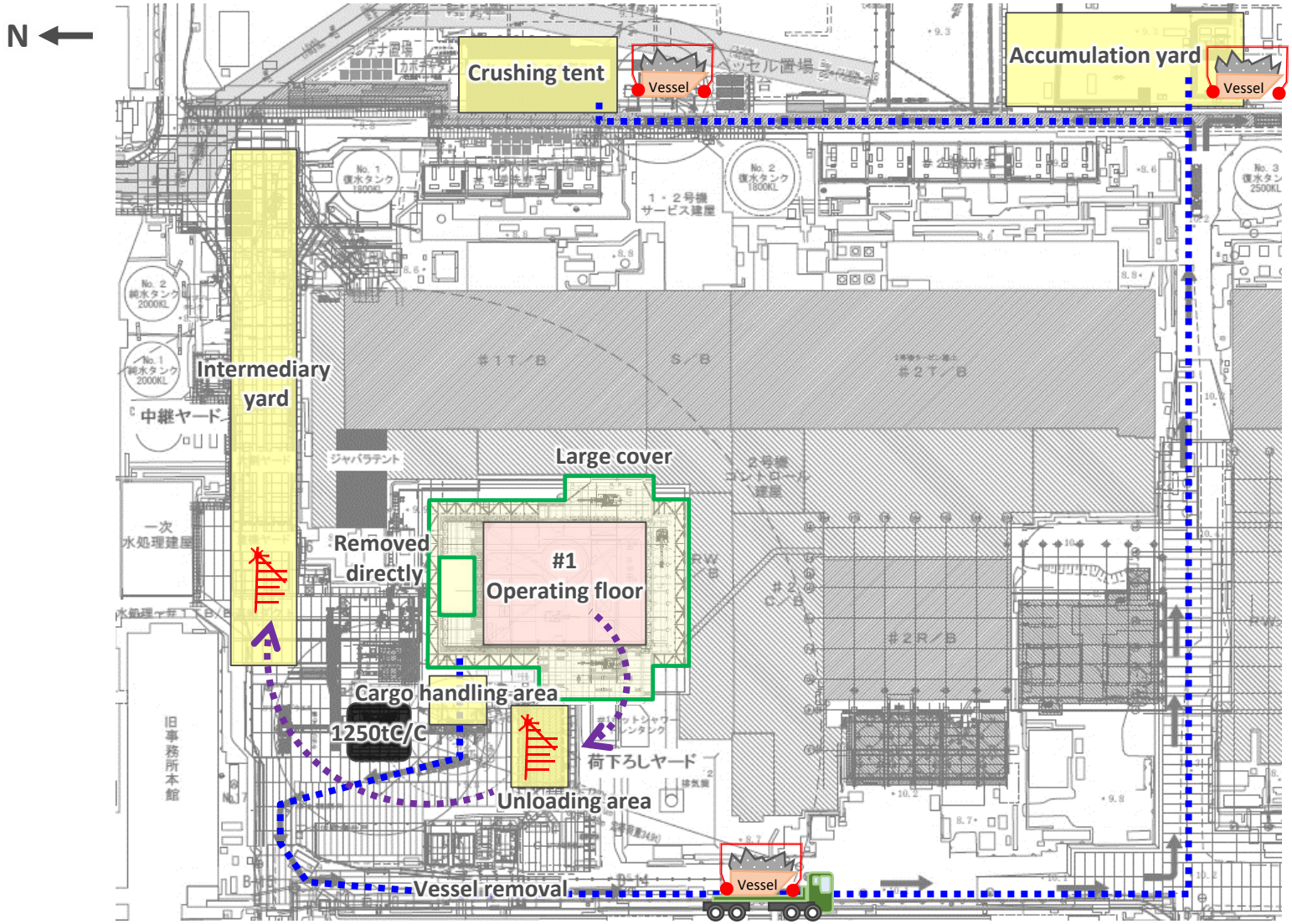


<Preconditions for opening the retractable roof>

- Dust concentrations inside and outside the large cover are below alarm values
- No cutting or pulverizing of rubble is underway on the operating floor (Carrying things in and out, and moving things around is OK)

4-11. Transport route after rubble removal

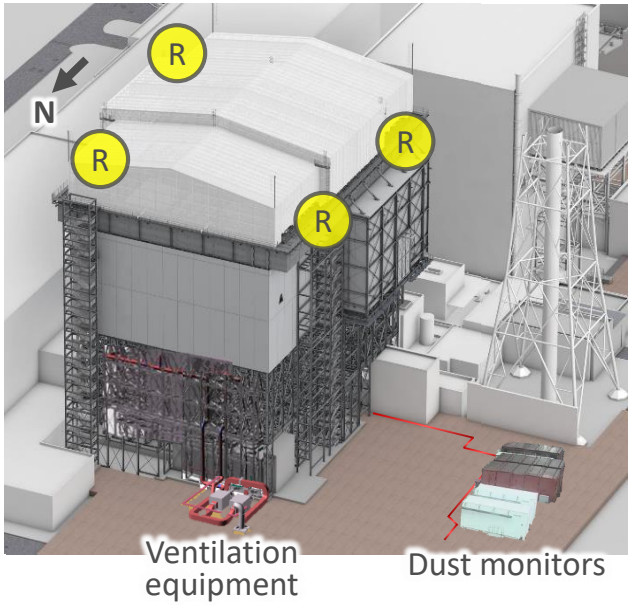
- Vessels containing rubble will be transported to the accumulation yard or the crushing tent.
- Rubble removed through the retractable roof will be stored in vessels in the intermediary yard.



4-12. Dust concentration monitoring and countermeasures

- During rubble removal, dust concentrations will be monitored at the following dust sampling locations.
- If alarms sound from outside the retractable roof (R) or from the ventilation equipment exhaust (R), work will be suspended and water will be sprayed as necessary.

High-High Alarm value: 5.0×10^{-3}Bq/cm^3
High Alarm value: 1.0×10^{-3}Bq/cm^3



R : Dust sampling locations
- Outside the retractable roof: Monitors dust leaking from the retractable roof (4 points)
- Ventilation equipment intake: Monitors dust floating inside the large cover (2 points)
- Ventilation equipment exhaust: Monitors dust discharged after passing through filters (2 points)

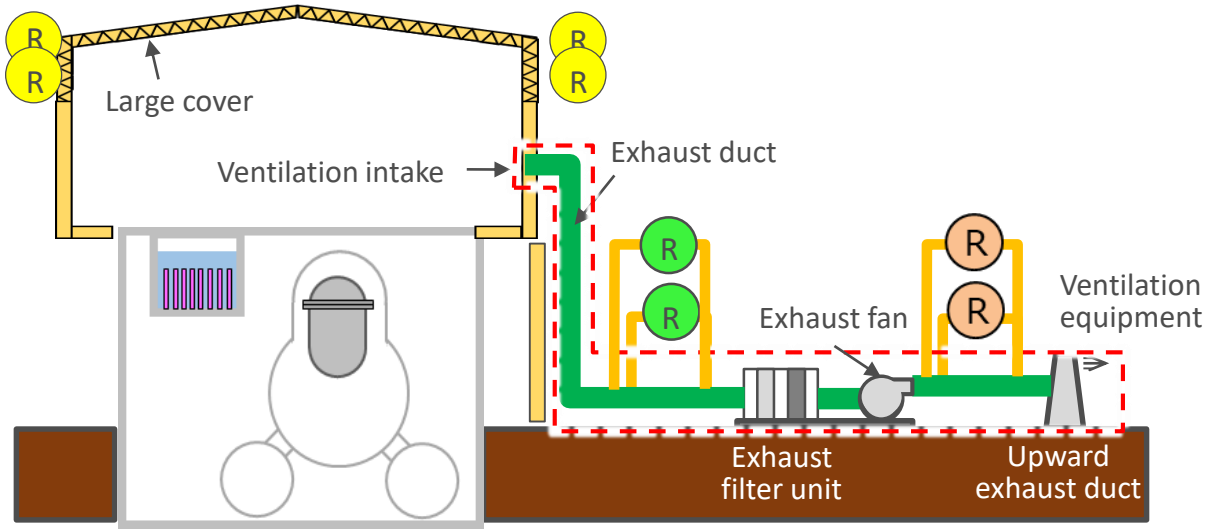
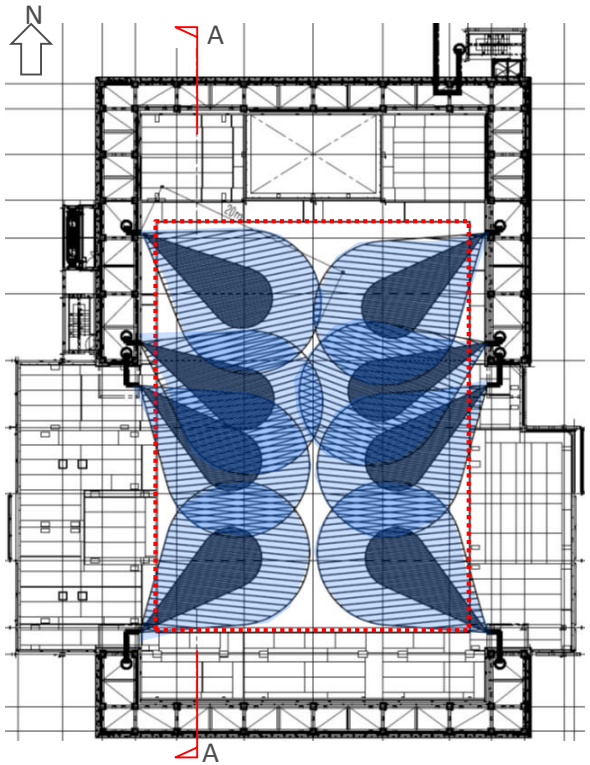


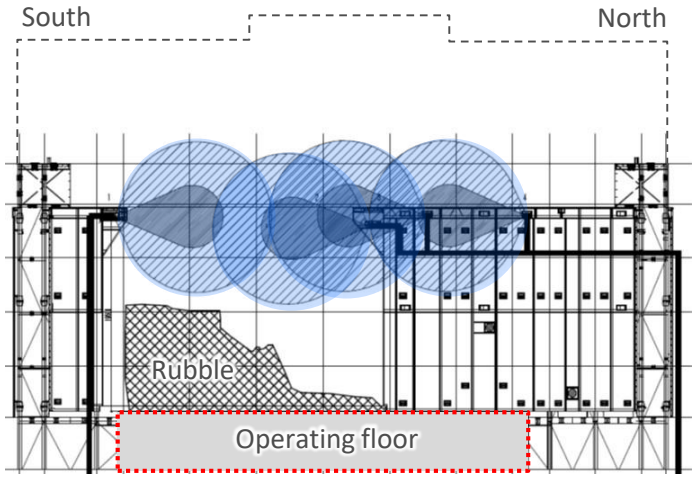
Diagram of dust sampling locations during rubble removal

4-13. Water spraying equipment operation

- If alarms from dust monitors outside the retractable roof or at the ventilation equipment exhaust sound during rubble removal, water will be sprayed from water spraying systems installed within the large cover.
- If this occurs when the retractable roof is open, it will be immediately closed.



Floor plan showing the spray range of water spraying systems



Specifications
Water spraying nozzles: 8 locations
(2 nozzles per location)
Spray capacity: 80L/min/nozzle
Spray distance: 20m to one side
Tank volume: 9m^3
Spray duration: Approx. 7 min.
※ Extended by replenishing the water

Cross-sectional diagram of the spray range of water spraying systems (A-A)

Water being sprayed inside the cover

Test spraying

4-14. Risks during rubble removal and countermeasures

- In order to reduce risk during rubble removal, we have implemented countermeasures for preventing rubble from falling into the SFP, such as by covering it, and constructed a large cover and installed ventilation systems to further suppress dust dispersion.
- If new risks are identified in conjunction with rubble removal, we will suspend operations in order to assess the risk and formulate countermeasures, after which we will revise or add countermeasures as necessary.

Risk scenario	Countermeasures
Existing overhead crane falls and disperses radioactive substances leading to an increase in dose levels at site borders	We have confirmed that even if the overhead crane falls, the increase in site border doses will still be well below the dose limit of 1mSv/year as prescribed by law. In order to further improve safety extra supports were added to the overhead crane in 2020. **Effective dose at site borders: 1.8×10^{-4}mSv/event※**
Rubble falls into the SFP thereby damaging fuel and leading to an increase in dose levels at site borders	We have confirmed that even if all the fuel is damaged, the increase in site border doses will still be well below the dose limit of 1mSv/year as prescribed by law. In order to improve safety the SFP was covered in 2020. **Effective dose at site borders: 4.8×10^{-2}mSv/event※**
Rubble falls into the SFP and damages the SFP liner thereby resulting in a leak of pool water and the exposure of fuel which results in an increase in dose levels at site borders.	We have confirmed that even if the fuel is exposed, the increase in site border doses will still be well below the dose limit of 1mSv/year as prescribed by law. Means of injecting coolant （approx. 30m^3/h） that exceeds the leak rate （27m^3/h） have been secured. **Effective dose at site borders: 5.3×10^{-3}mSv/event※**
Rubble falls on the well plug and damages, or deforms, the well plug or PCV head directly beneath thereby resulting in a discharge of radioactive substances and increasing the dose levels at site borders	We have confirmed that even if the well plug or PCV head are damaged, the increase in site border doses will still be well below the dose limit of 1mSv/year as prescribed by law. **Effective dose at site borders: 2.0×10^{-3}mSv/event※**

※ The radioactive substance trapping efficiency of a ventilation systems under the large cover have not been taken into account when calculating effective dose

5-1. Repurposing the Unit 4 fuel handling machine for Unit 1

- In order to reduce waste, the fuel handling machine installed at Unit 4 in 2013 will be sent back to the manufacturer to be refitted and repurposed as the fuel handling machine for Unit 1.
- The following considerations are to be made when repurposing:
  - ✓ The equipment transports in accordance with law.※
  - ✓ All equipment taken out resend back to 1F from the manufacturer's factory.
  - ✓ All electrical components instruments, and fuel handling machines, etc. not to be repurposed shall not be transported and stored on site.

※ Equipment will only be transported off-site after confirming that the surface contamination density does not exceed 1/10 of the limit stipulated in the Rules on the Safety and Protection of Specific Nuclear Materials and Facilities at the Tokyo Electric Power Company Holdings, Inc. Fukushima Daiichi Nuclear Power Station.

Unit 4 fuel handling machine
Mass: 59 tons

[Workflow]

5-2. Repurposing as the Unit 4 fuel handling machine for Unit 1

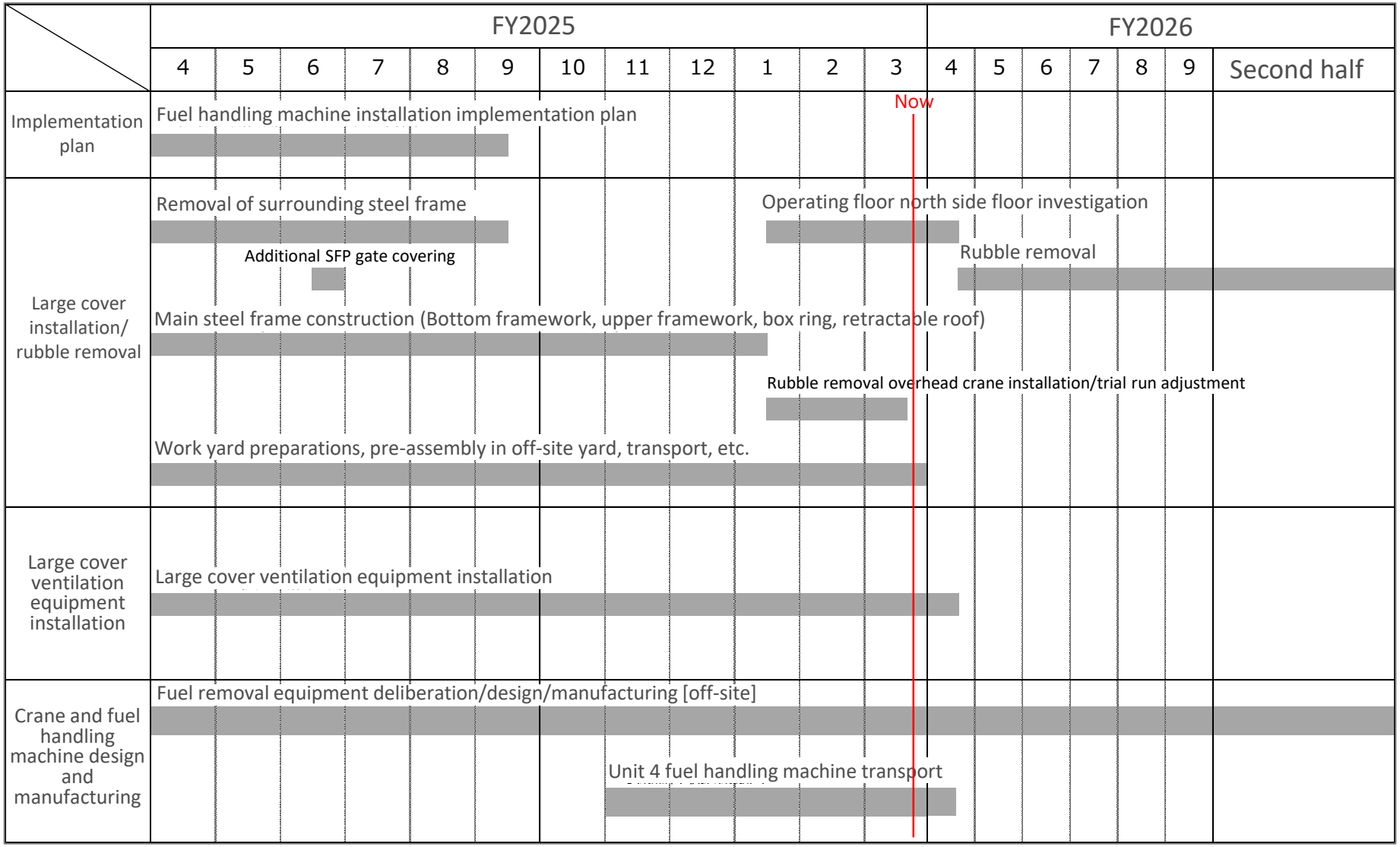
- We began dismantling and removal of the Unit 4 fuel handling machine on November 4, 2025, and completed on February 25, 2026.
- It is currently being temporarily stored outside the facility and preparations are underway for transportation to the factory. The transportation is scheduled to be completed by mid-April.

Prior to removal of the fuel handling machine
（Photographed on May 22, 2020）

After removal of the fuel handling machine
（Photographed on February 18, 2026）

6. Schedule of large cover installation work, etc.

- The completion inspection for the rubble removal overhead crane is scheduled on March 19, 2026.
- A continuous investigation of the north side floor of the operating floor is underway in preparation for starting rubble removal in late April.



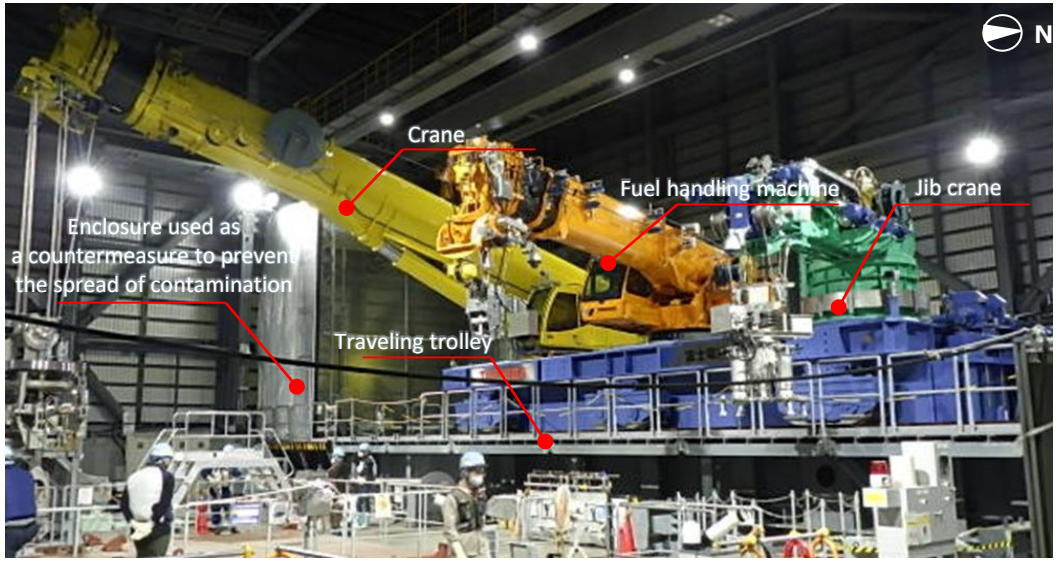
7. Unit 2 progress of fuel handling equipment installation status

- The second test operation (once-through tests※) was completed on March 4, 2026.

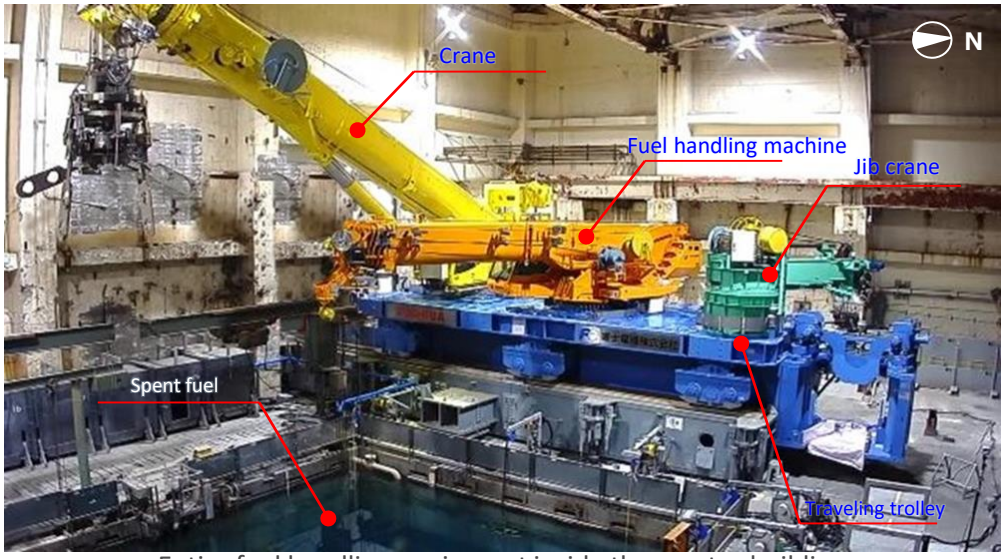
  ※ Tests to examine the fuel removal workflow using an onsite transport container (hereafter, the cask) and simulated fuel.

- The pre-use inspection was completed on March 18, 2026, and the installation of the fuel handling equipment has been completed.

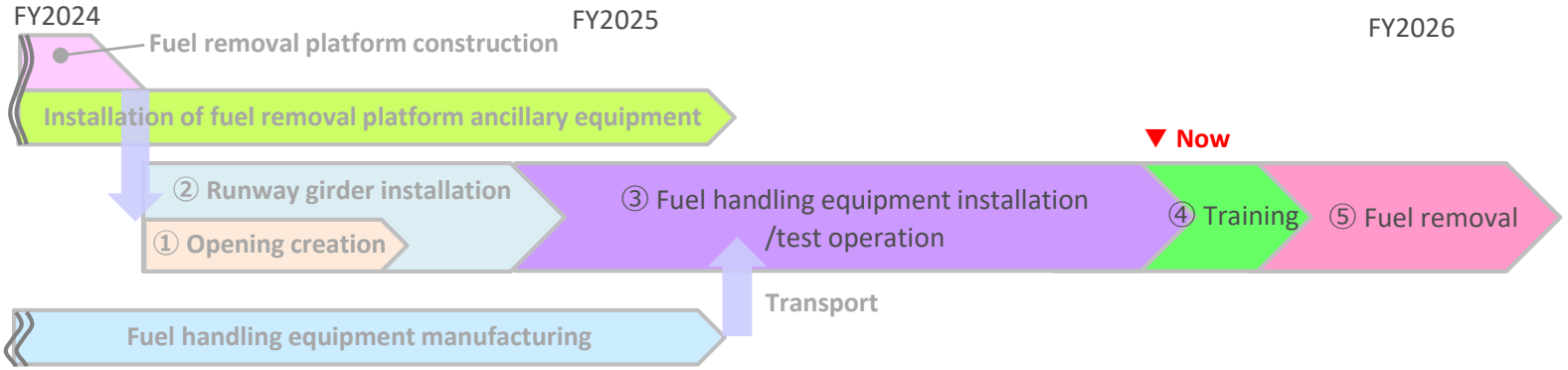
- Training began on March 25, 2026, in preparation for starting fuel removal work in the first quarter of FY2026.



Entire fuel handling equipment inside the fuel removal platform
(Photographed on September 8, 2025)



Entire fuel handling equipment inside the reactor building
(photographed with a remotely operated camera)
(Photographed on December 6, 2025)



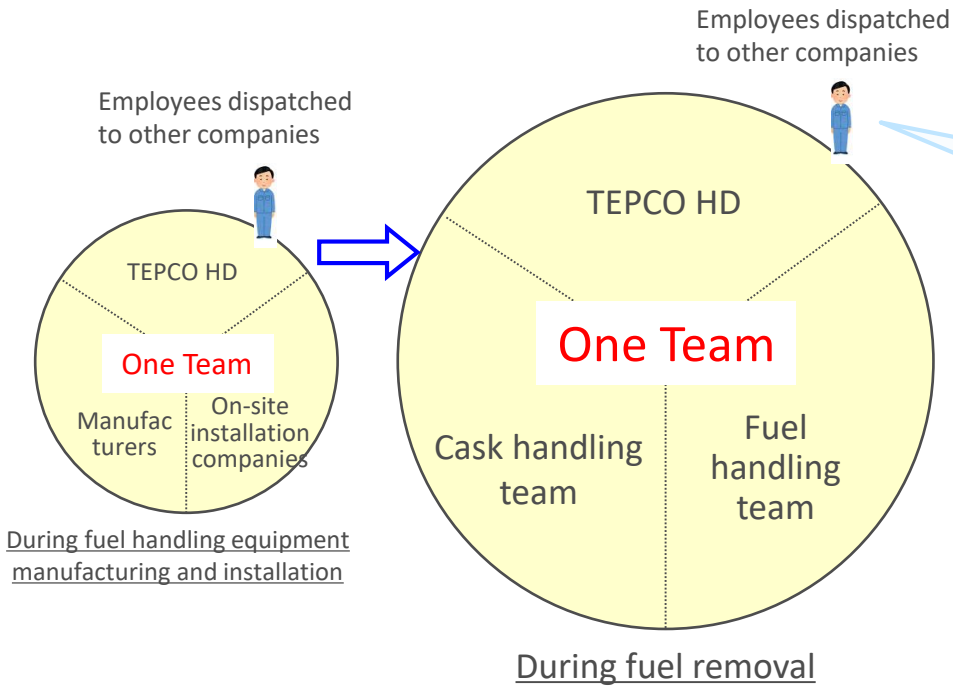
8. Unit 2 fuel removal training plan

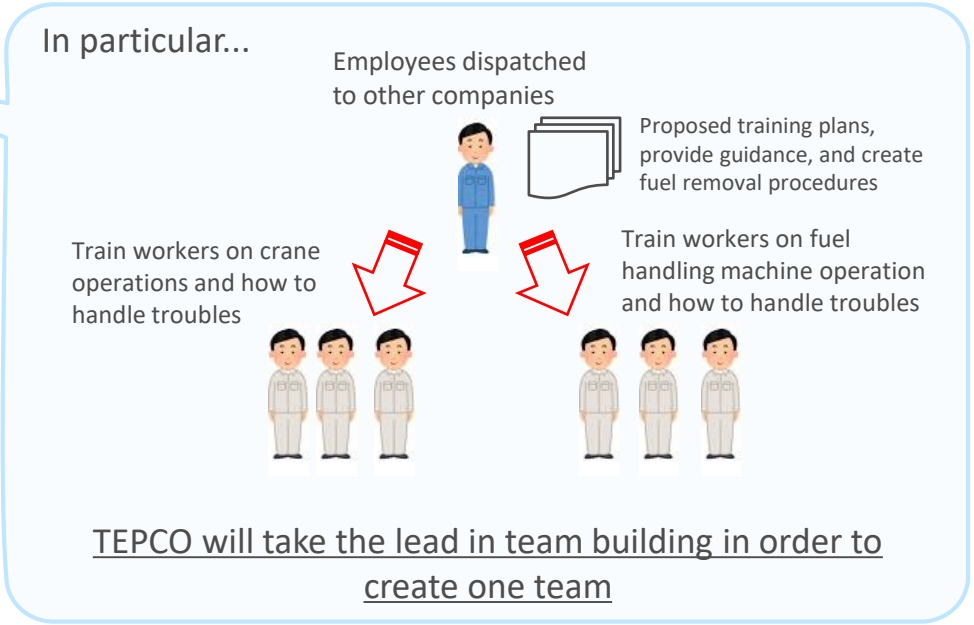
- Since the Unit 2 fuel handling equipment differs in configuration from the existing plant's overhead crane and FHM, prior to fuel removal the actual FHM and casks will be used in conjunction with simulated fuel to repeatedly practice the procedure for fuel removal in an effort to improve the skills of workers.
  - ✓ Since work on the 5th floor of the reactor building will be done via remote operations, workers on the cask handling team (4 people/team x 2 teams) and the fuel handling teams (3 people/team x 3 teams) will be trained to conduct remote operations.
  - ✓ Since the manual handling tasks on the fuel removal platform do not significantly differ from normal cask handling, primarily workers with experience will be trained.
- After training, skills will be assessed to verify that workers can remove fuel using the correct procedure within the allotted time.
- The length of training and the number of times the procedures will be repeated will fluctuate depending on the extent to which the skills are being acquired and fuel removal will commence after training has been completed.

Training contents		
①	Fuel handling equipment operations training （Remote operations, manual operations）	Review of fuel handling equipment specifications, remote operations/handling operations on-site, as well as daily inspection methods.
②	Cask handling training at the fuel removal platform (Remote operations, manual operations)	At the fuel removal platform, Hosting and lowering of the casks to, and from, the transport vehicle, cask decontamination pit and fuel handling (remote operations + manual operations), cask lid opening/closing (manual), decontamination inside the positive pressure enclosure (manual) and the cask decontamination (manual), etc.
③	Cask handling training on the 5th floor of the reactor building (Remote operations)	On the 5th floor of the reactor building, hosting and lowering casks the fuel handling equipment, inserting and removing the cask into the spent fuel pool, cask lid opening/closing and decontaminating the cask by spraying it with water.
④	Moving fuel training on the 5th floor of the reactor building (Remote operations)	On the 5th floor of the reactor building, simulated fuel will be used to practice moving fuel between the fuel pool racks and the cask.
⑤	Emergency response training (Remote operations, manual operations)	Enabling equipment inspections to be conducted on the fuel removal platform off the 5th floor of the reactor building if the fuel handling equipment stops for some reason.

9. Unit 2 Fuel removal one team initiatives

- In preparation for fuel removal at Unit 2, TEPCO has dispatched employees to manufacturer factories and on-site installation companies so that it can be deeply involved in the process from the fuel handling machine manufacturing stage.
  - ✓ Cultivate personnel that can handle initial troubles
  - ✓ Cultivate personnel that can handle the operation and maintenance of the fuel handling equipment
- Fuel removal will be carried out by a cask handling team and a fuel handling team
- TEPCO employees well versed in the equipment due to being dispatched at the aforementioned companies will implement the following:
  - ✓ Propose training plans, serve as training instructors, take the lead in creating fuel removal procedures, train workers needed for fuel removal and build teams.
  - ✓ Display leadership during fuel removal serve as the core personnel for operations and maintenance.

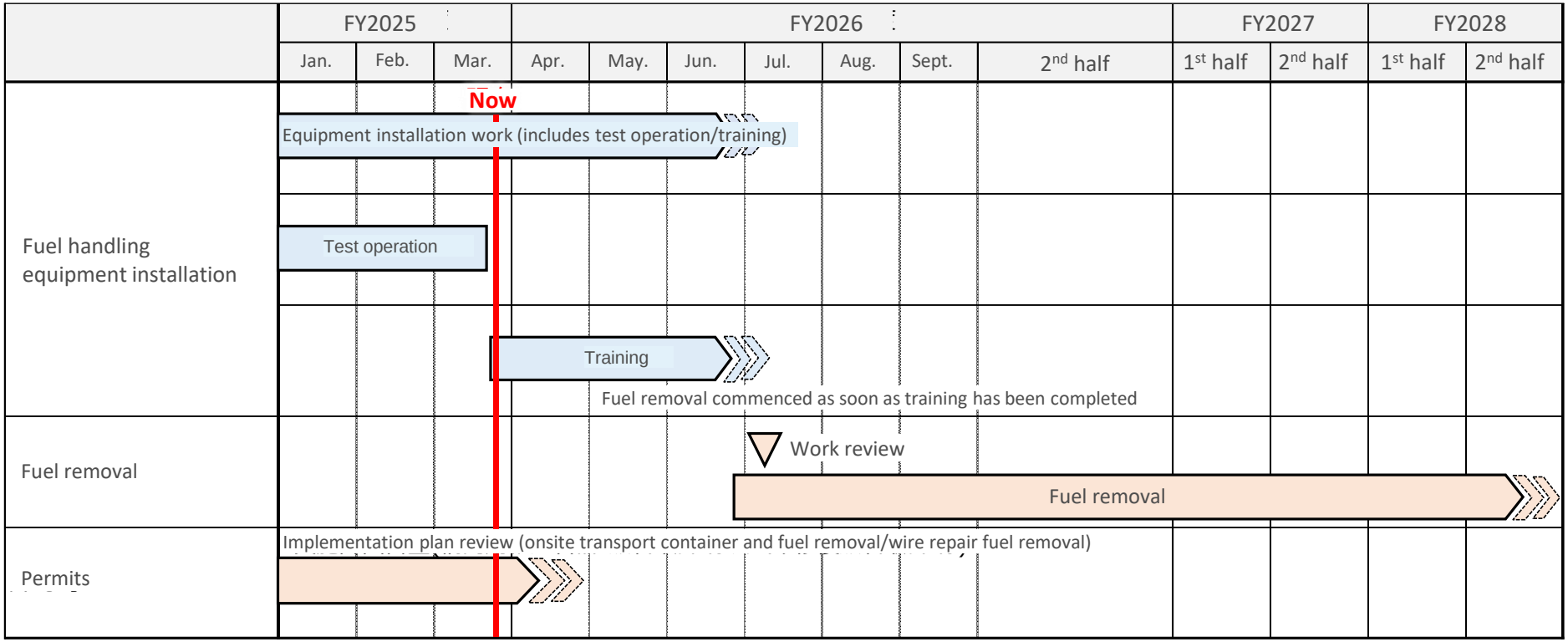




➢ The aforementioned initiatives will be continued in order to remove fuel as one team.

10. Future schedule for Unit 2 fuel removal

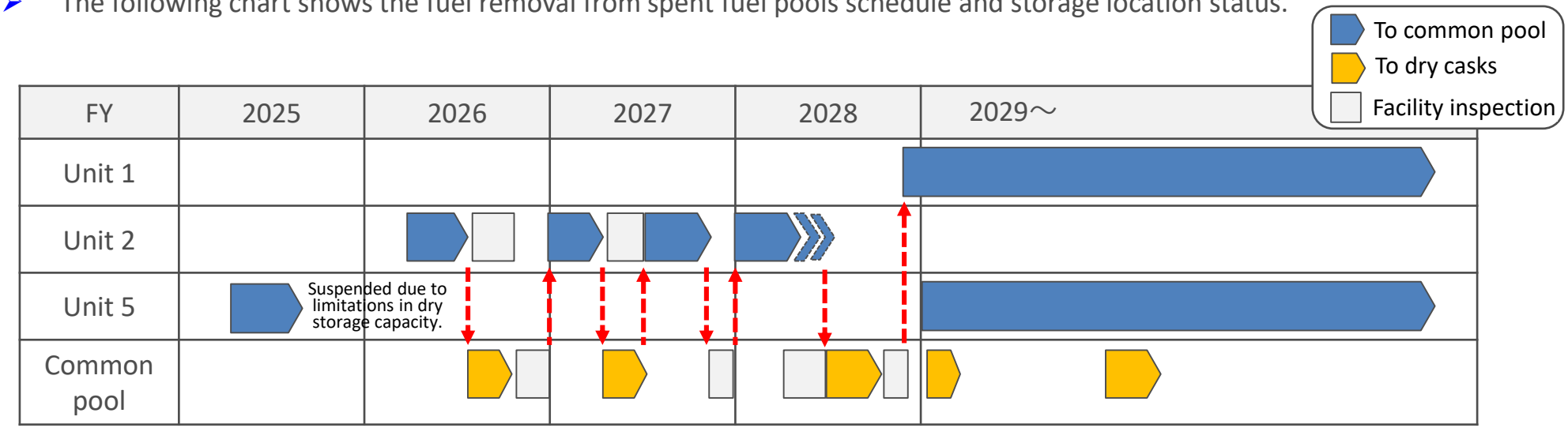
- Training is scheduled to begin on March 25, 2026, in preparation for starting fuel removal in the first quarter of FY2026.
- Unit 2 fuel removal will begin as soon as the training is completed.
- We will continue with this task while prioritizing safety.



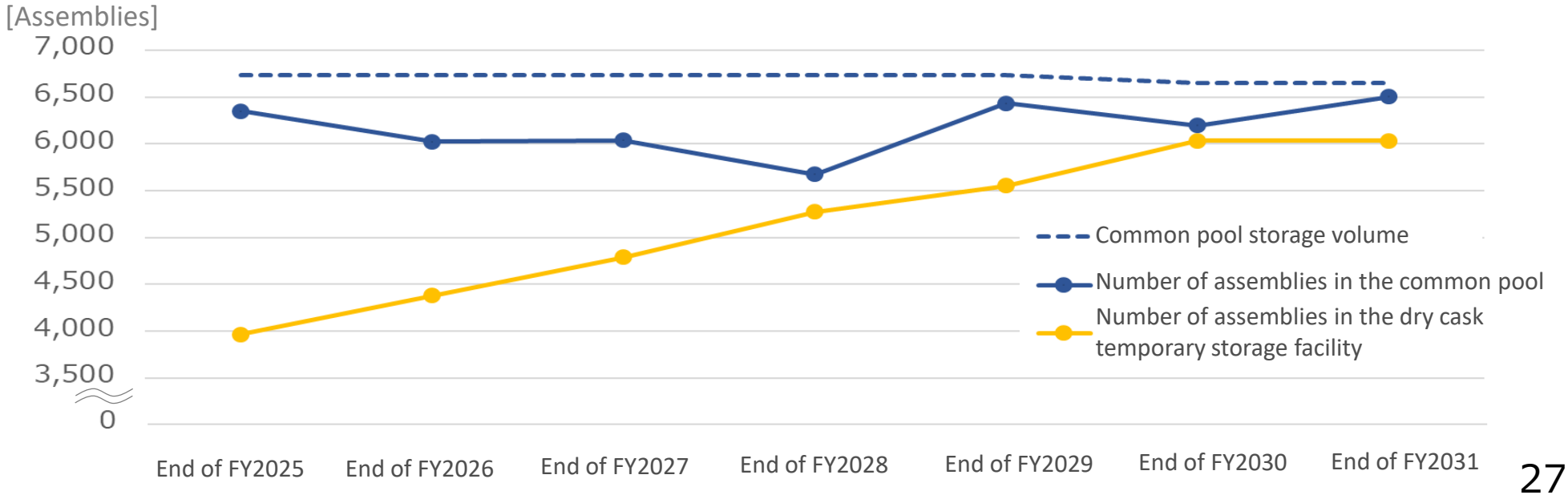
※ Changes may be made in accordance with schedule progress.
※ The line chart includes preparation and cleanup periods.

11-1. Future fuel storage plan (as of March 26, 2026)

- Fuel removal is currently underway toward the goal of completing fuel extraction for Units 1 through 6 within 2031.
- The following chart shows the fuel removal from spent fuel pools schedule and storage location status.

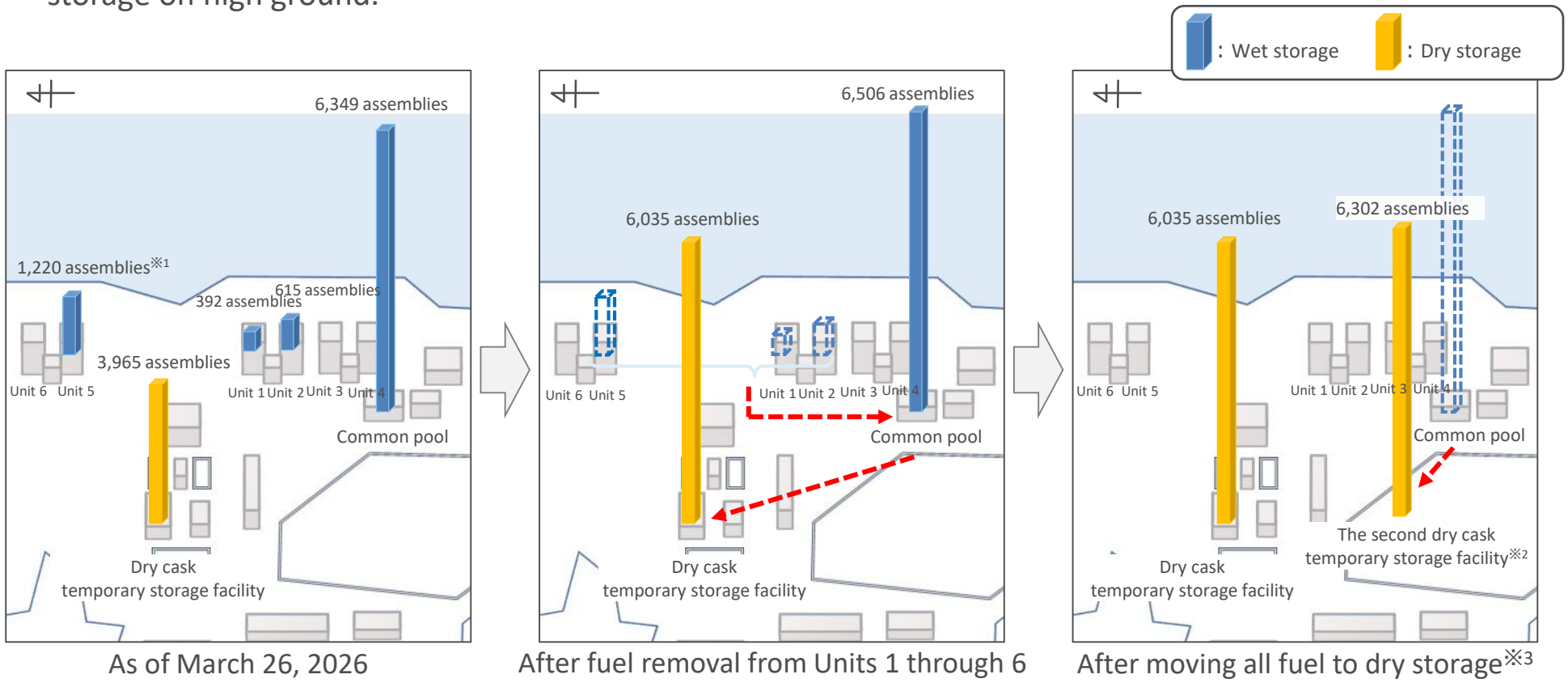


※ Fuel removal from Unit 5 will be carried out to the extent that it does not interfere with fuel removal from Units 1 and 2



11-2. Future plans of fuel removal from spent fuel pools (as of March 26, 2026)

- In order to secure space in the common pool to store fuel from units 1, 2 and 5, during fuel removal the fuel stored in the common pool will be put into dry casks and relocated to the dry cask temporary storage facility.
- The dry cask temporary storage facility is being renovated so that 30 more dry casks can be stored in it. (2,070 fuel assemblies)
- After 2031, a second dry cask temporary storage facility will be built so that all spent fuel can put in dry storage on high ground.



※1： The number of assemblies planned for removal to the common pool, excluding new fuel.
※2：The name and location of the second dry cask temporary storage facility are TBD. ※3： Considering transporting the new fuel off-site.

[Reference] Dust sampling locations (Prior to completing the large cover)

- Until now, dust was sampled from four locations (northeast, northwest, southeast, southwest) in the vicinity of the operating floor under the large cover in order to monitor dust dispersion conditions from the Unit 1 operating floor. (Announced at the February 27, 2025 Secretariat Meeting of the Committee on the Decommissioning, Contaminated Water and Treated water Management)

R : Dust sampling location
● : Dust in the vicinity of the operating floor monitored (four locations)
— : Sampling pipes

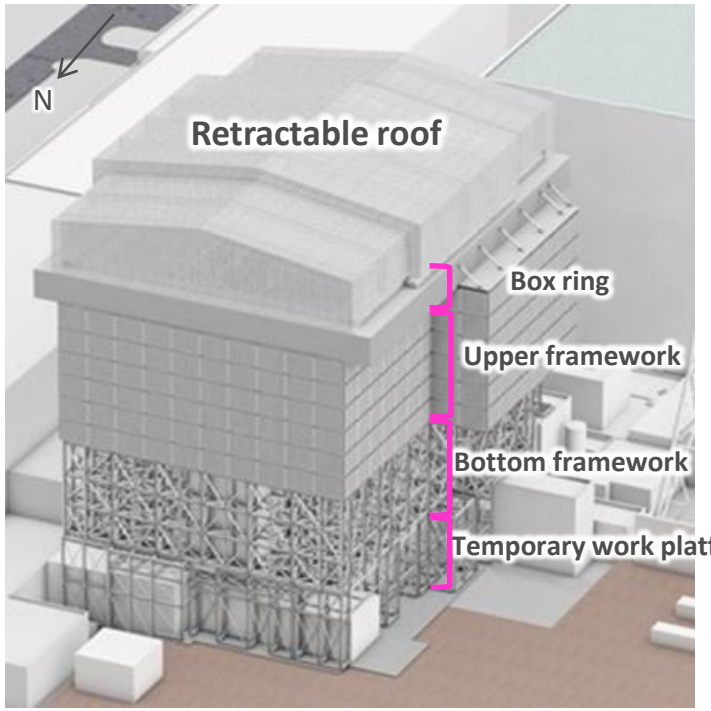


Diagram of the entire large cover

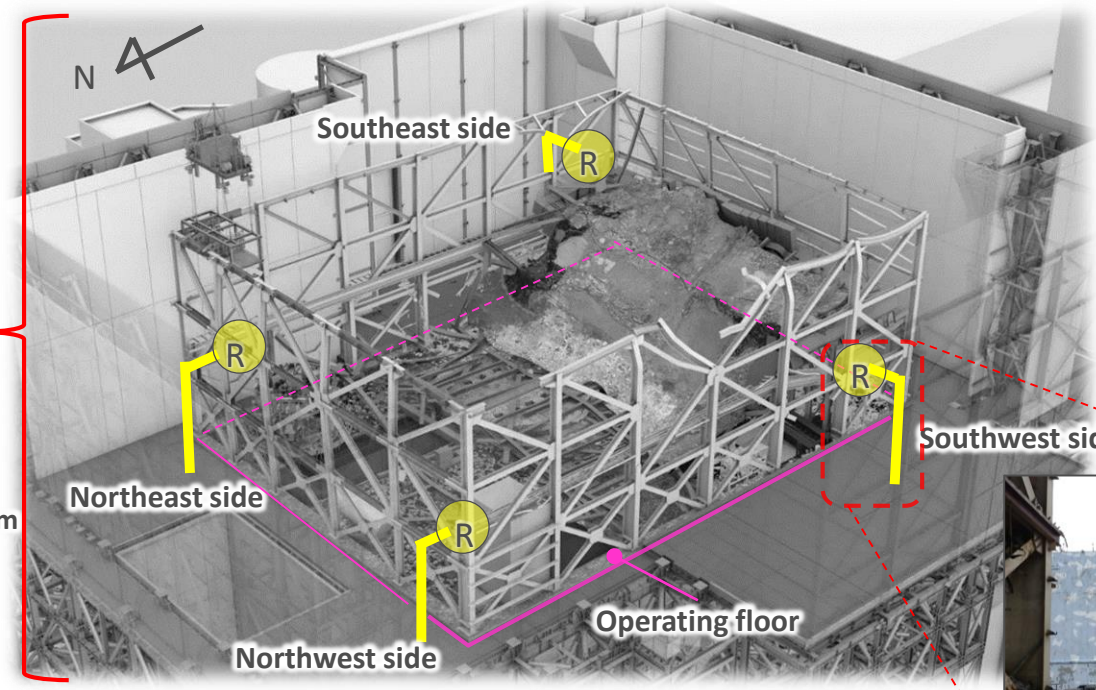


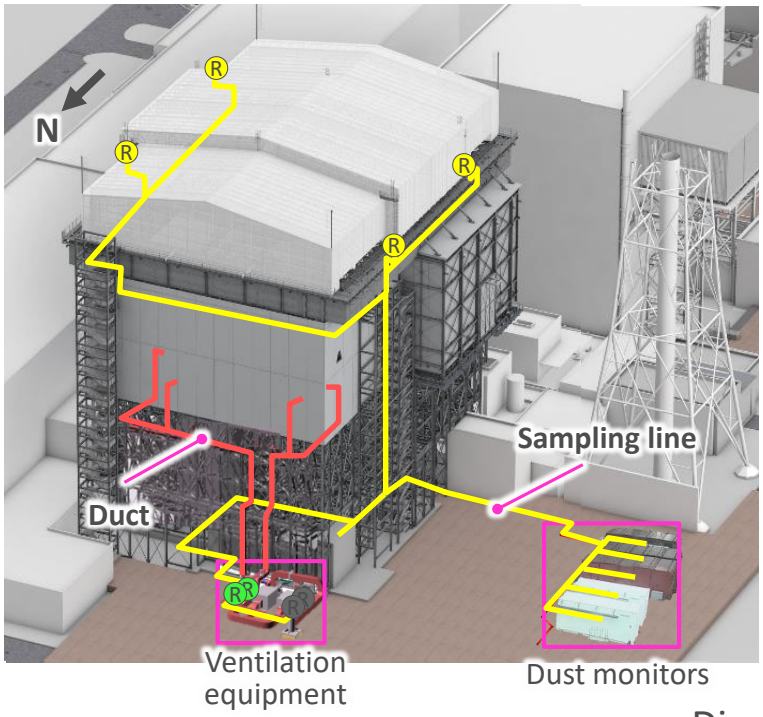
Diagram of current dust sampling locations

Photographed on February 12, 2025

[Reference] Dust sampling (Changes/additions after large cover completion)

- Since the large cover has been completed, and in light of the fact that ventilation equipment has been installed and air from inside the cover will be discharged via filters, the following changes/additions will be made to dust sampling locations.
  - 【Changes (completed)】The 4 monitoring locations on the operation floor will be moved to 4 locations on the large cover roof.
  - 【Additions (underway)】Ventilation equipment system (2 locations before the filters and 2 locations after the filters) monitoring points will be newly added.
- If alarms sound during dust monitoring work will be suspended and water will be sprayed as necessary.

R : Dust sampling locations
: Monitors dust leaking from the retractable roof (4 locations)
: Monitors dust floating inside the large cover (2 locations)
: Monitors dust discharged after passing through filters (2 locations)



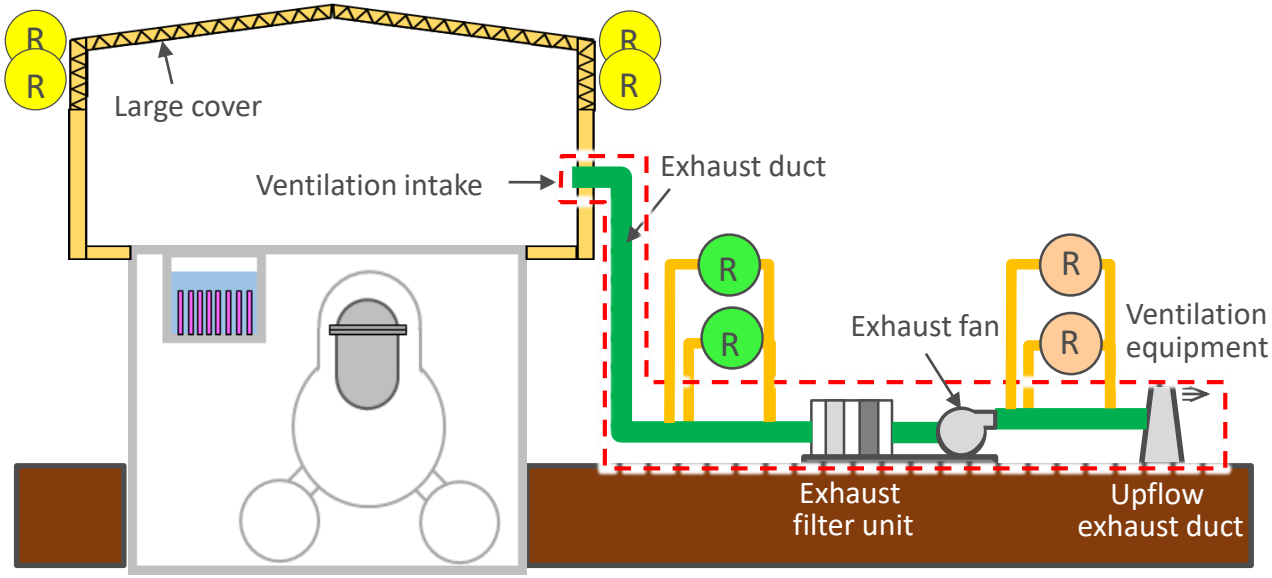


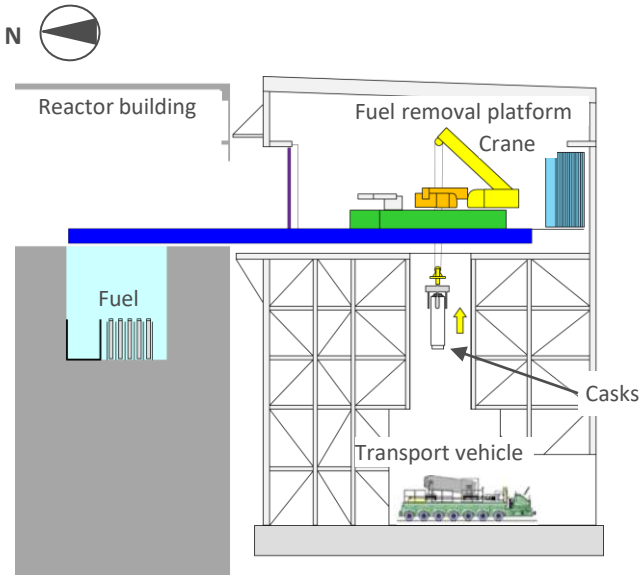
Diagram of future dust sampling locations

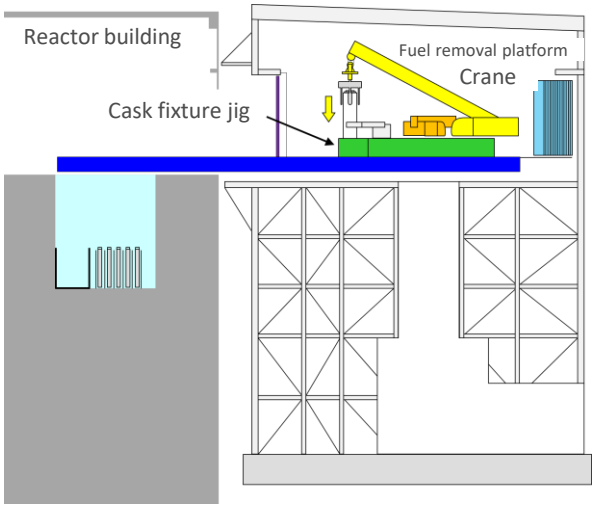
[Reference] Unit 2 fuel removal procedure overview (1/4)

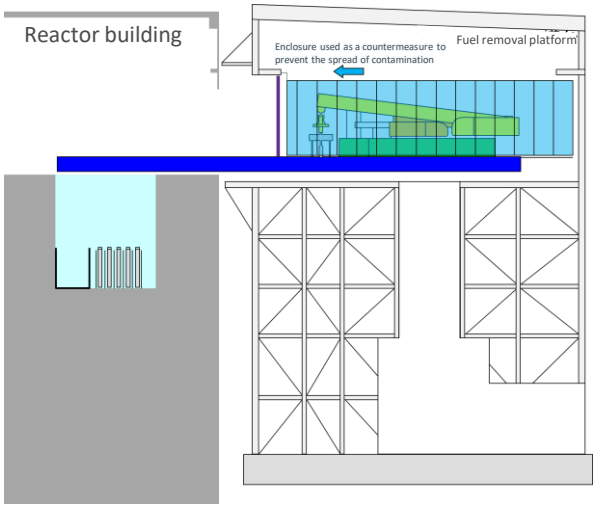
① Casks brought on to fuel removal platform

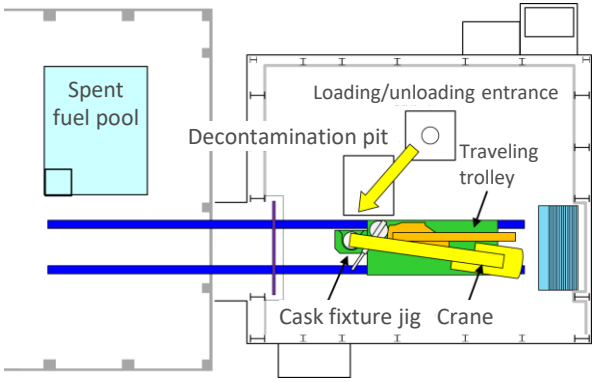
② Casks are loaded onto the cask fixture jig on the traveling trolley

③ The enclosure is being expanded to prevent the spread of contamination at the fuel removal platform.







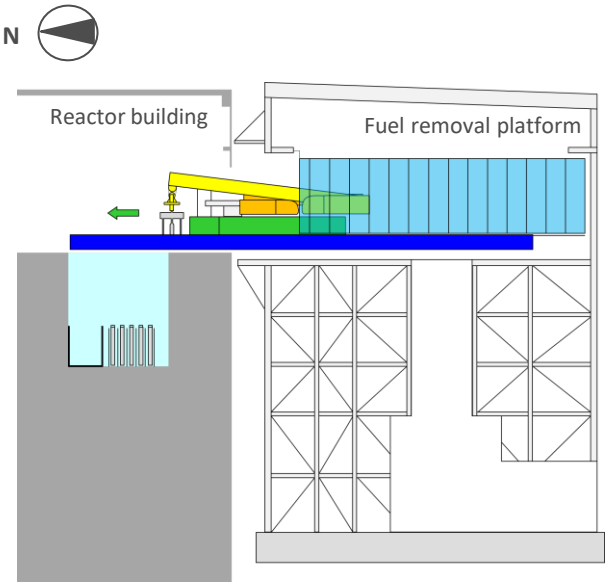


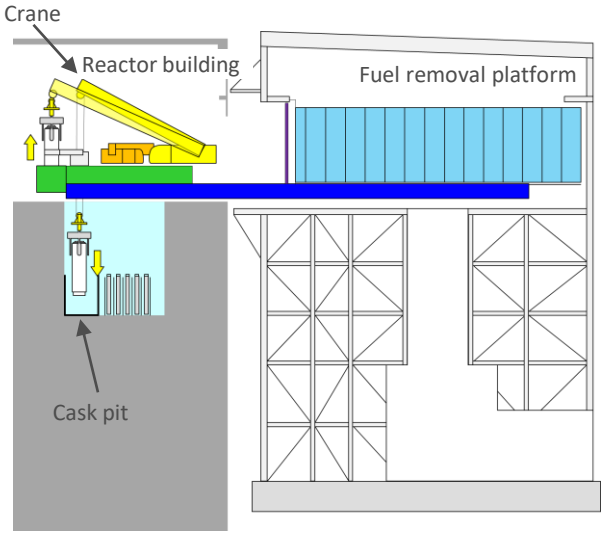
[Reference] Unit 2 fuel removal procedure overview (2/4)

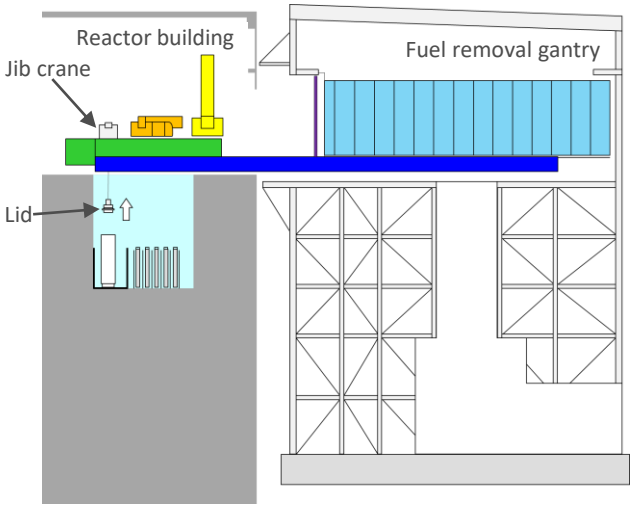
④ Fuel handling equipment moved into reactor building

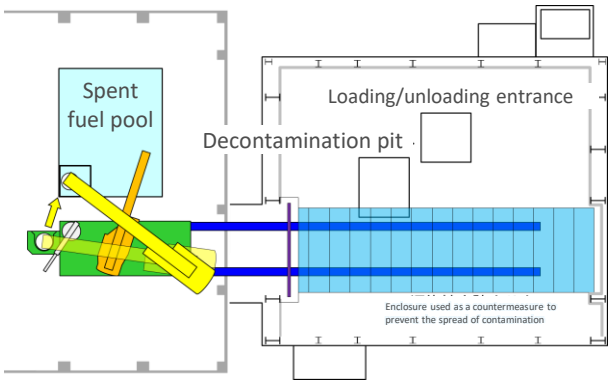
⑤ Crane used to lower the cask into the cask pit

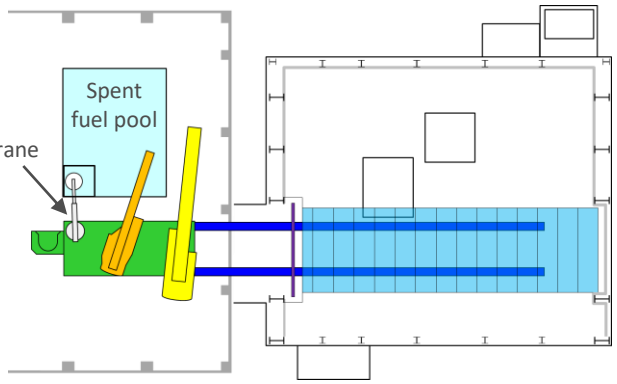
⑥ Cask lid removed with jib crane











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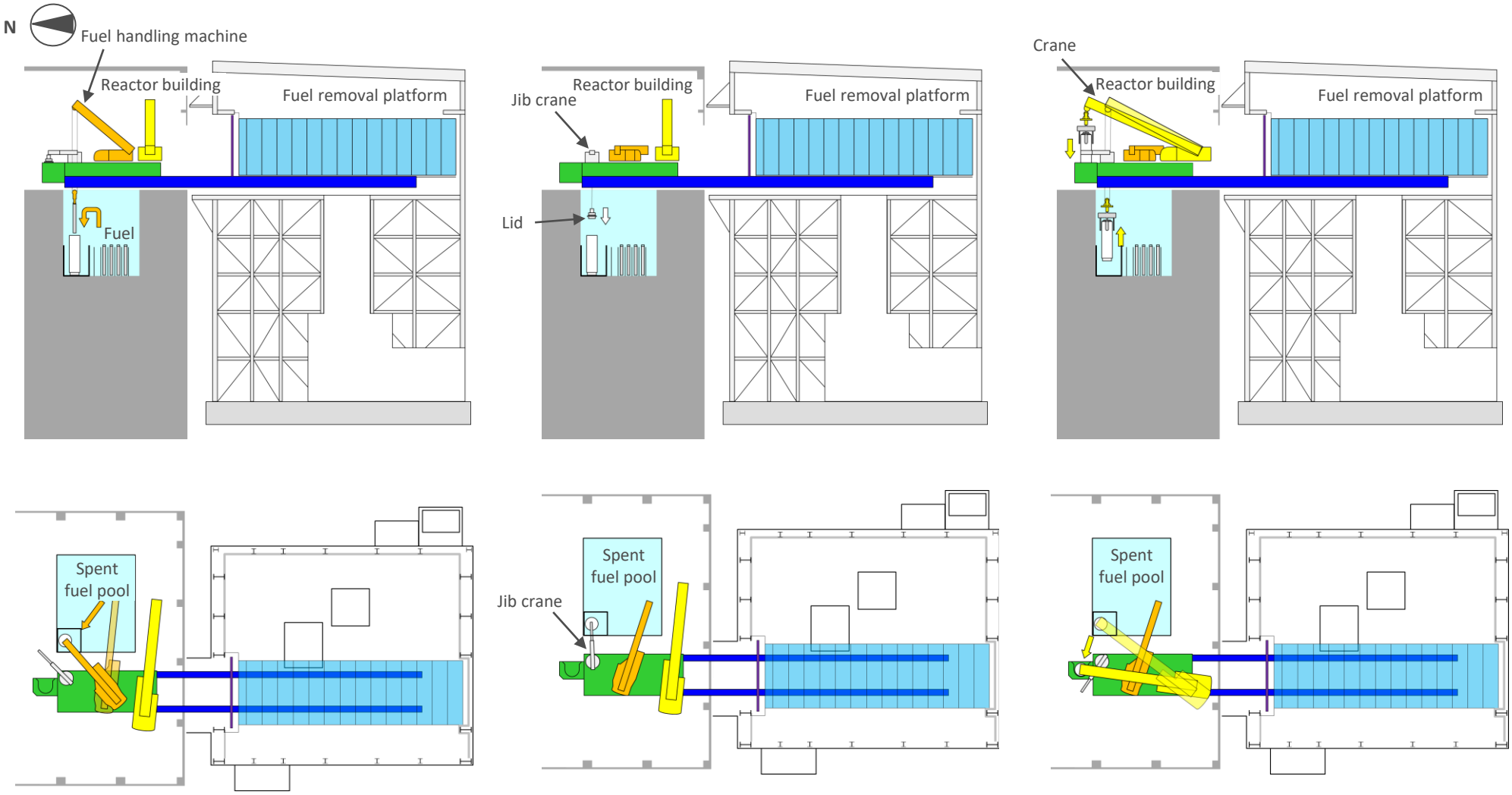
[Reference] Unit 2 fuel removal procedure overview (3/4)

TEPCO

⑦ Fuel handling machine used put fuel in the cask

⑧ Cask lid affixed with jib crane

⑨ Crane used to load the cask onto the cask fixture jig



[Reference] Unit 2 fuel removal procedure overview (4/4)

⑩ Fuel handling equipment moved back out to the fuel removal platform, checked for contamination and fold up the enclosure to prevent the spread of contamination

⑪ Crane used to move the cask into the decontamination pit where the cask is decontaminated

⑫ The cask is lowered down from fuel removal platform and carried away

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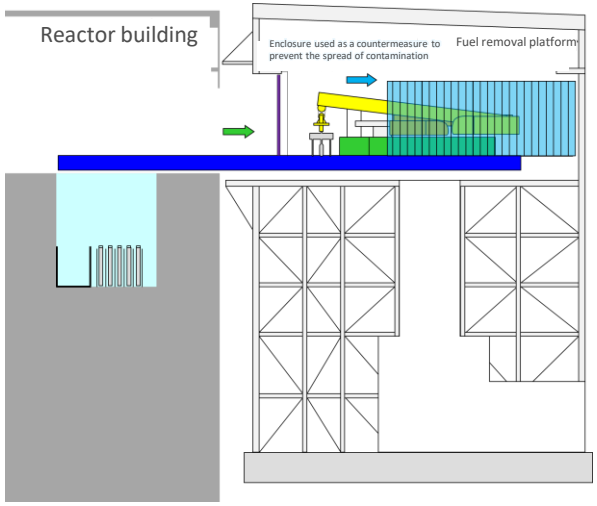

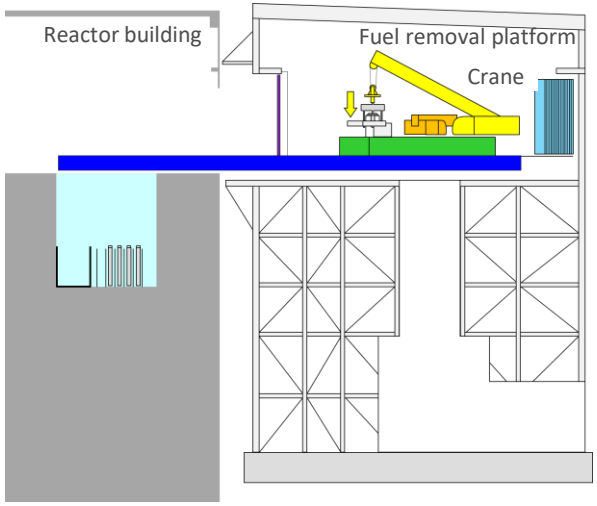

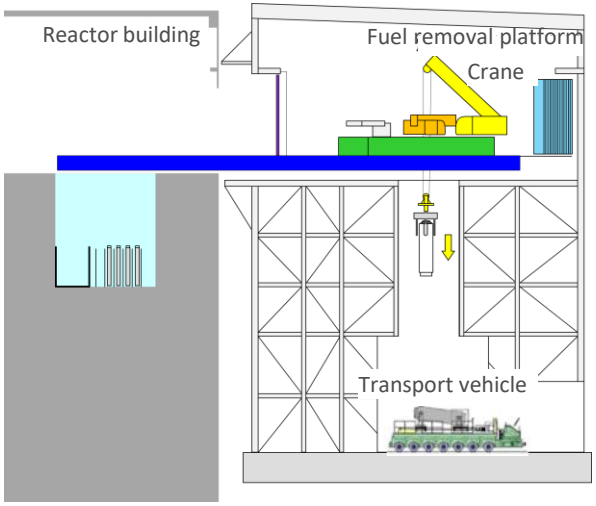

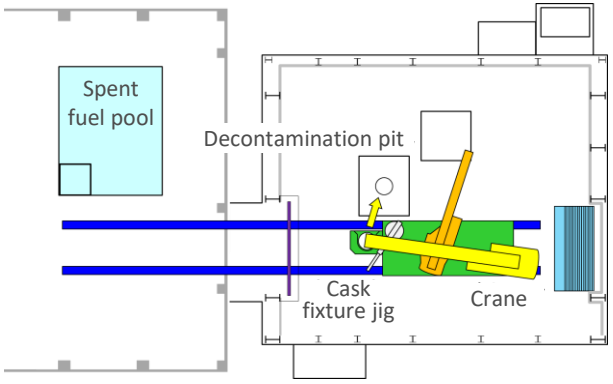

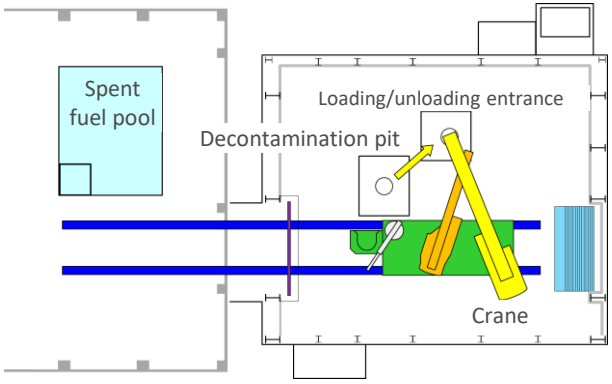

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