Fukushima Daiichi Nuclear Power Station
Unit 3 PCV Internal Investigation
(non-submerged area) using Micro-drones

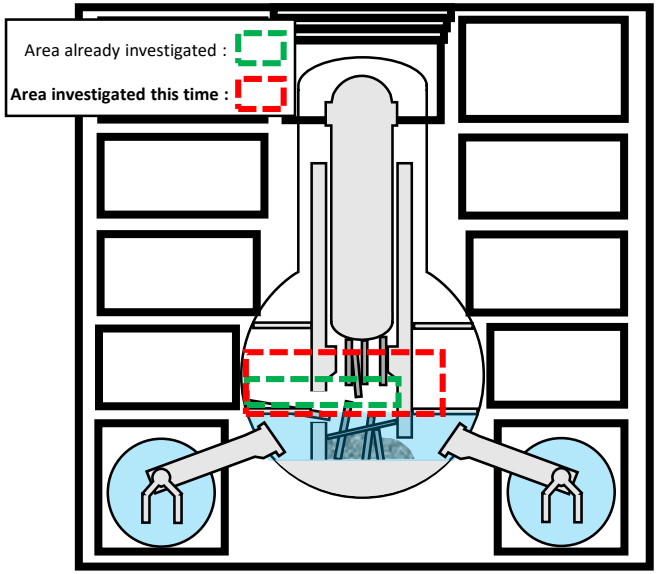
August 27, 2026

TEPCO

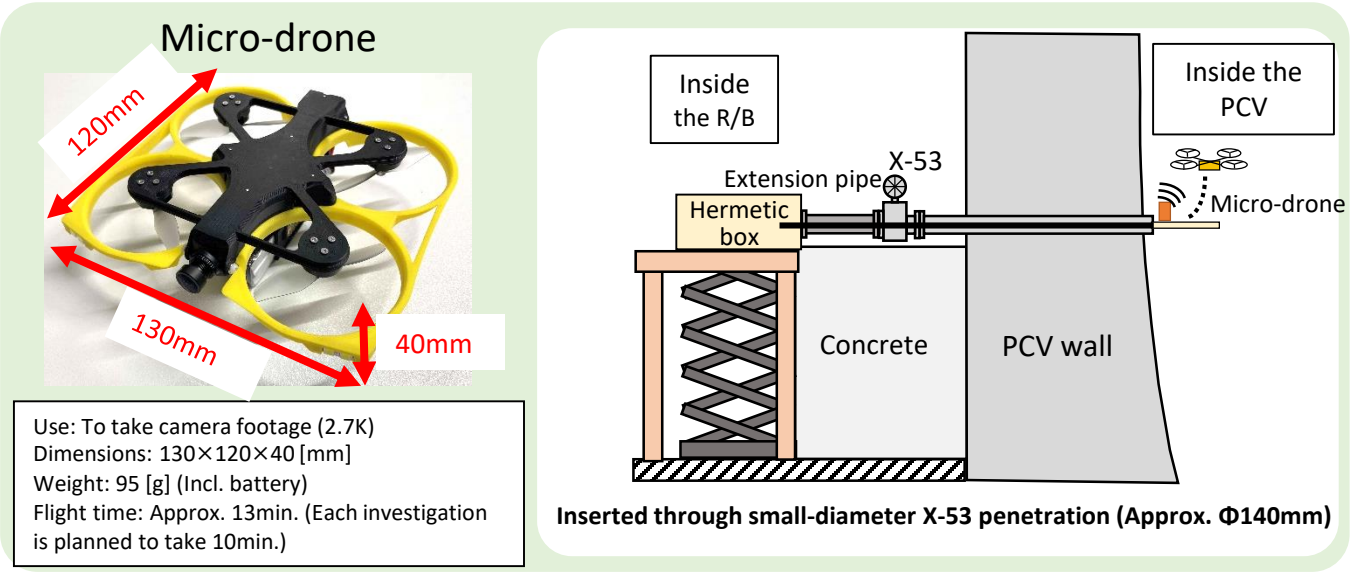
Tokyo Electric Power Company Holdings, Inc.

1. Summary

- Design deliberations pertaining to retrieving fuel debris from Unit 3 were publicly released in July 2025, **but more information about the inside of the PCV needs to be gathered in order to make preparations for full-scale debris retrieval.**
- However, since the accident the water level in the Unit 3 PCV has remained high and the penetrations that can be used are limited. **At this point in time the only one available for use is the small diameter X–53 penetration (Approx. Φ140mm)**
- It is therefore difficult to apply the same investigation methods used at other reactors to Unit 3, and a new, larger diameter access route needs to be built. However, since this will require time, **we implemented a PCV internal investigation using ultra small "micro-drones"** with which access can be gained.
- During this investigation, **the inside of the pedestal**, which was investigated using a submersible ROV in 2017, **was subjected to a more detailed investigation and we also investigated the first floor of the D/W, which up until now had yet to be investigated.**
- The footage acquired during the investigation will be used to **form point clouds and also estimate dose rates.**



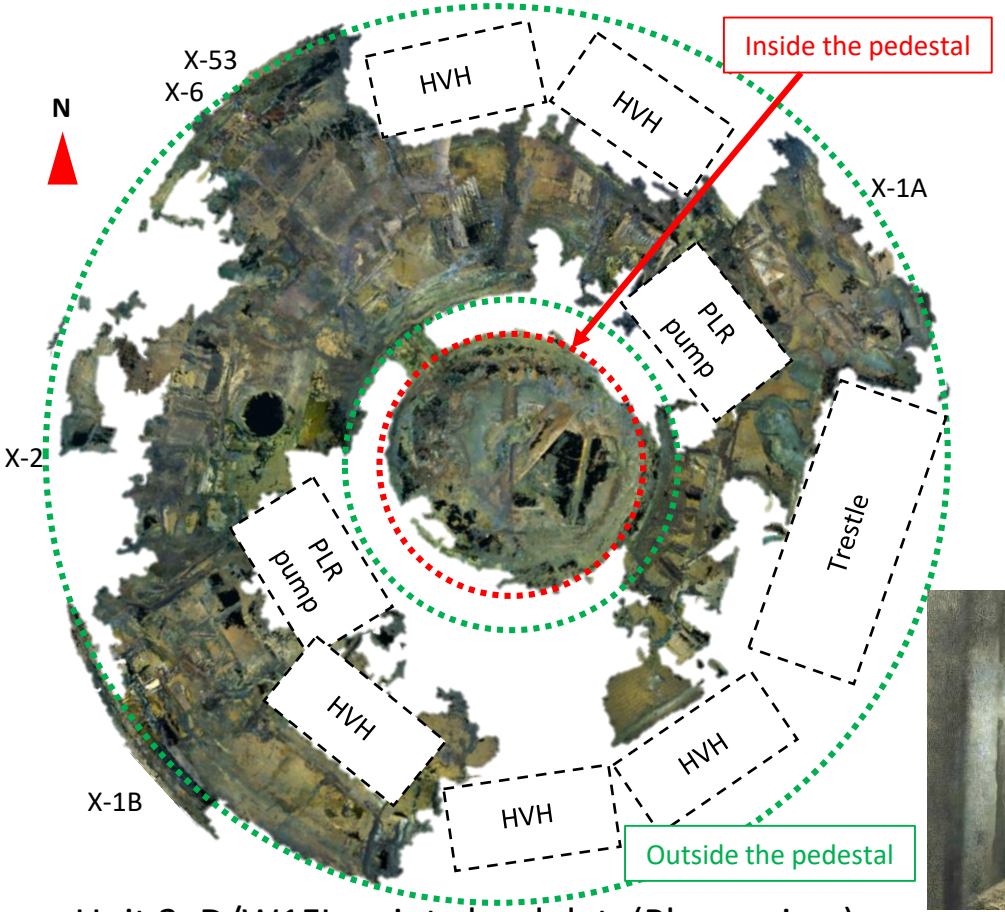
Scope of Unit 3 PCV internal investigation
(Longitudinal section schematic)



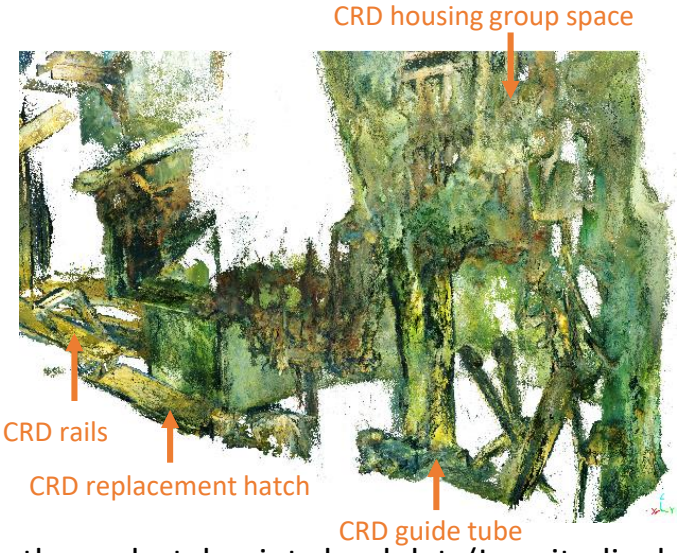
Unit 3 Micro-drone investigation concept drawing

2. Generating point clouds from footage

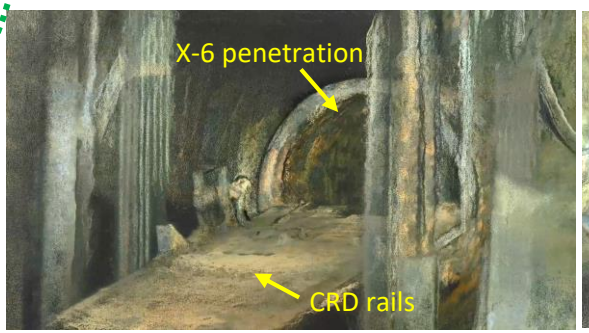
- **Structure from Motion technology was applied to the footage acquired by the micro-drones to generate point cloud data.**
- A point cloud was generated for the outside of the pedestal with the exception of the southeast side which could not be photographed, and also locations that were in shadows of structures. We were able to **acquire clear data for the area around the X-6 penetration**, in particular, which was photographed intensively.
- A point cloud was generated for the inside of the pedestal with the exception of locations in the shadow of the CRD housing group. **A point cloud was also generated not only of structures and deposits at the height of the platform, but also for the CRD housing group space that continues to the bottom of the RPV.**
- Point cloud data will be leveraged to deliberate future internal investigation plans and fuel debris retrieval methods.



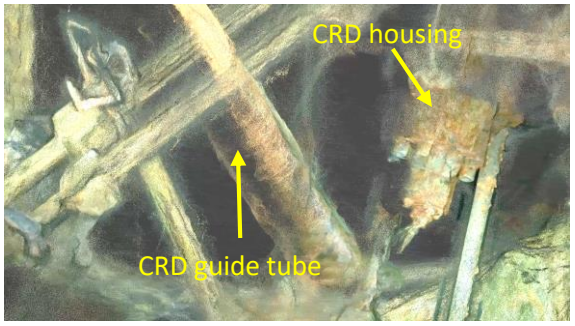
Unit 3 D/W1FL point cloud data(Planar view)



Inside the pedestal point cloud data(Longitudinal section)



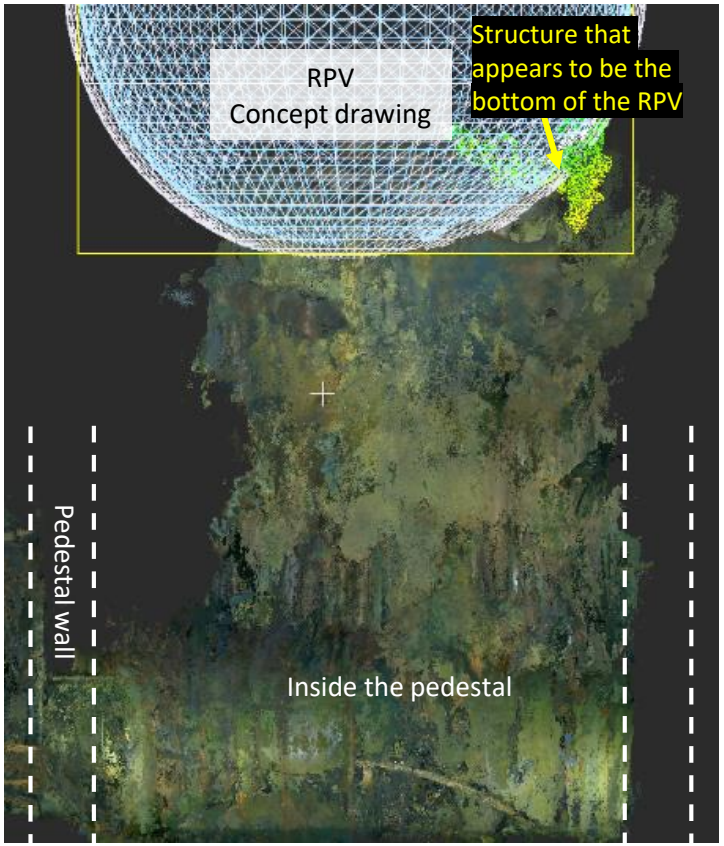
X-6 penetration point cloud data



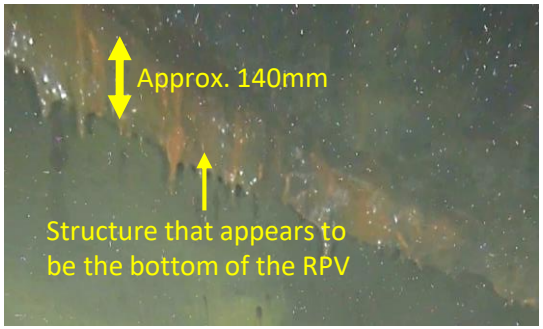
Point cloud data for structures inside the pedestal

3. Point cloud data considerations - Area around the bottom of the RPV -

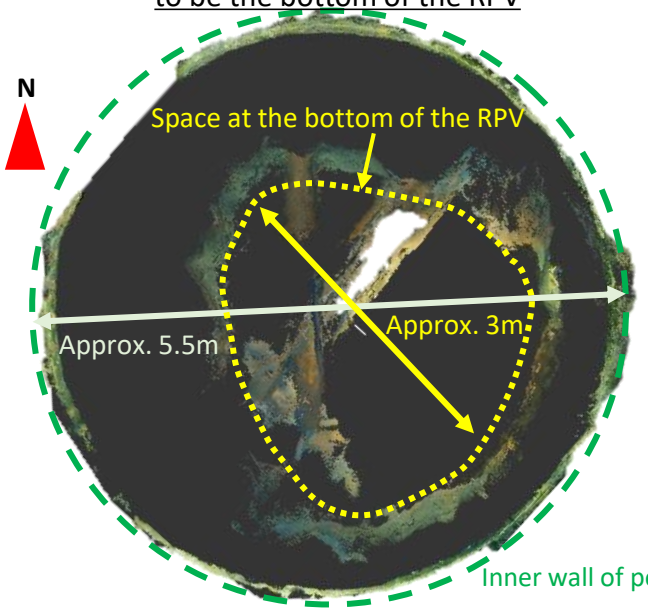
- After using the generated point cloud data to assess the dimensions of the objects seen in the footage, we have confirmed that **the structure that appears to be the bottom of the RPV is consistent both in location and thickness with the dimensions of the bottom of the RPV as shown in schematics, and it is highly likely that they are the same structures**.
- **The space at the bottom of the RPV is oval in shape and we estimate that its maximum diameter is approximately 3m.**
- Since the maximum flight height of the drone was approximately 9.4 meters from the bottom of the pedestal, we estimate that the drone temporarily flew inside the RPV.



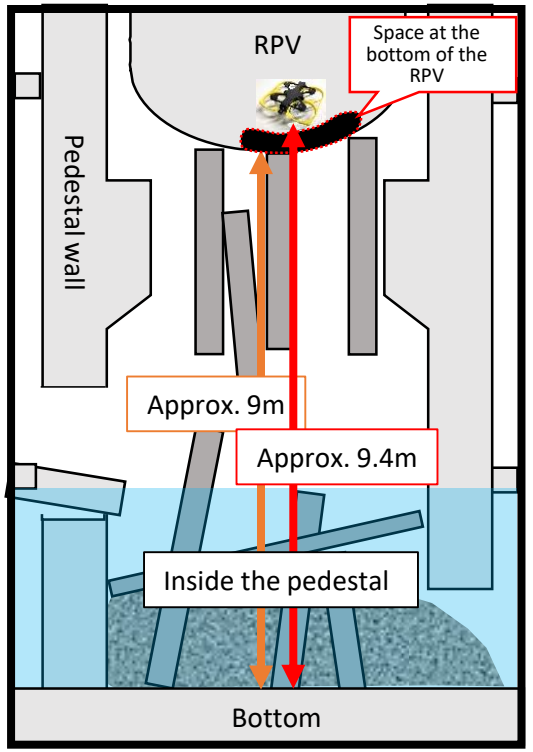
Positional comparison of structure that appears to be the bottom of the RPV (green)



Thickness of the structure that appears to be the bottom of the RPV



Shape of the space at the bottom of the RPV (Planar view)



Drone flight height concept drawing
Inside the pedestal Longitudinal section

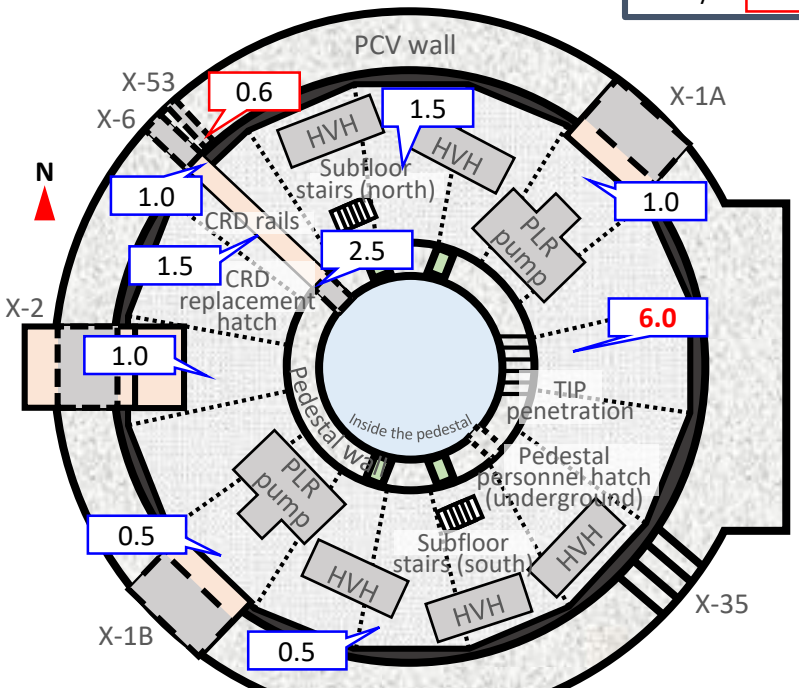
Height from the bottom of the pedestal to the bottom of the RPV

Maximum drone flight height from the bottom of the pedestal

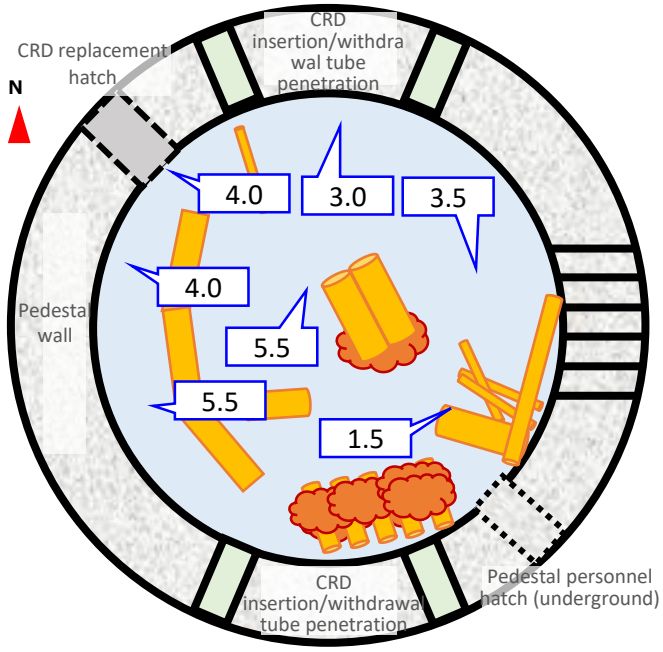
4. Dose rate estimates

- Since white noise is produced within footage when radiation hits the imaging elements of a camera, we can leverage this phenomenon to estimate dose rates by measuring the amount of noise in the footage. ※1 (The dose rates measured in the vicinity of the X-53 penetration (inside the PCV) were used as reference values)
  - Test results at irradiation facilities confirm an accuracy level of approximately ±20% and less than 10Gy/h when the radiation source is Co or Cs.
- **Dose rates outside the pedestal were estimated to be between approximately 0.5-6.0Gy/h, and highest on the east side.** The reason why dose rates are high on the east side is being deliberated. (The dose rates may be affected by MS system piping or the migration of radioactive substances caused by the flow of water from inside the PCV)
- **Dose rate estimates for the inside of the pedestal were between approximately 1.5-7.5Gy/h, and the highest dose rates were found around the bottom of the RPV.** Since dose rates increase as we approach deposits or adhesions, it is estimated that these are significant radiation sources.

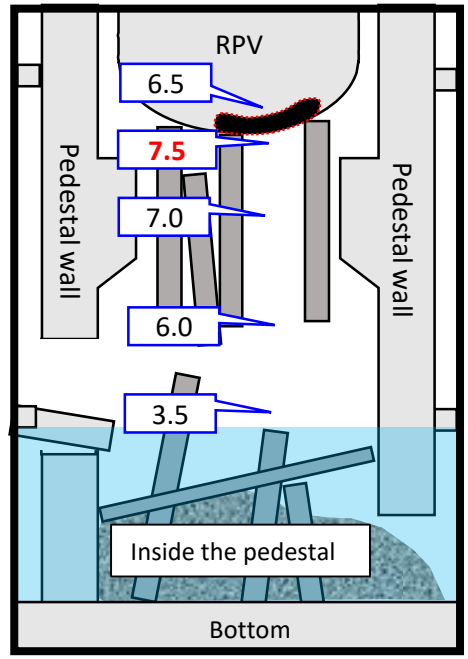
■Key : Dose rate[Gy/h](Measurement value) : Dose rate[Gy/h](Estimate) ※2



Unit 3 D/W1FL (planar schematic diagram)



Inside the pedestal (planar schematic diagram)



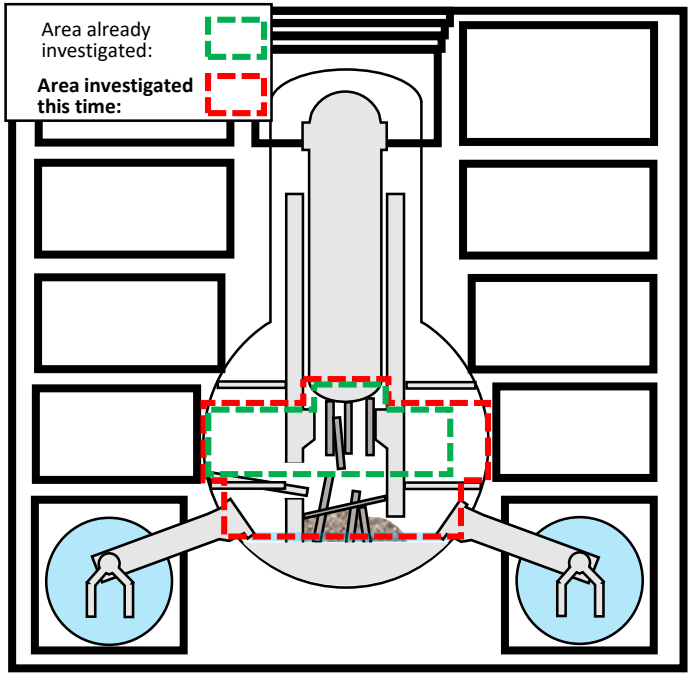
Inside the pedestal (longitudinal section diagram)

※1： Calculated assuming a proportional relationship between dose rates and the amount of footage noise caused by radiation. The proportional attributes of Co and Cs were confirmed at the irradiation facility, but it is possible that the attributes may differ due to the impact of other nuclides inside the PCV. Furthermore, based on the principle by which the estimates have been made, a divergence between the actual dose rate and the estimate is possible if the amount of noise in the footage is remarkably large, or if there are sudden changes to the brightness of the footage (halation, etc.).

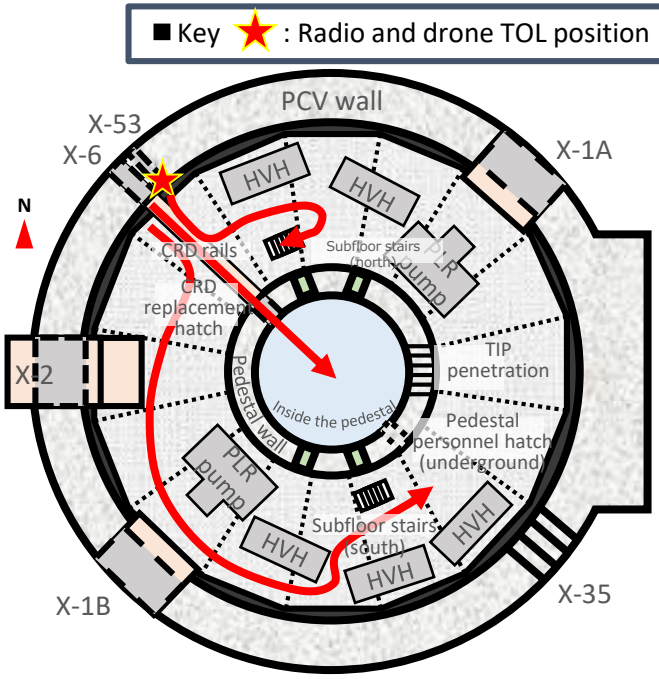
※2： Estimates use the modal value for each area and instantaneous values have been excluded. Increments of 0.5Gy/h have been used in consideration of estimate fluctuations.

5. Future Unit 3 PCV internal investigations

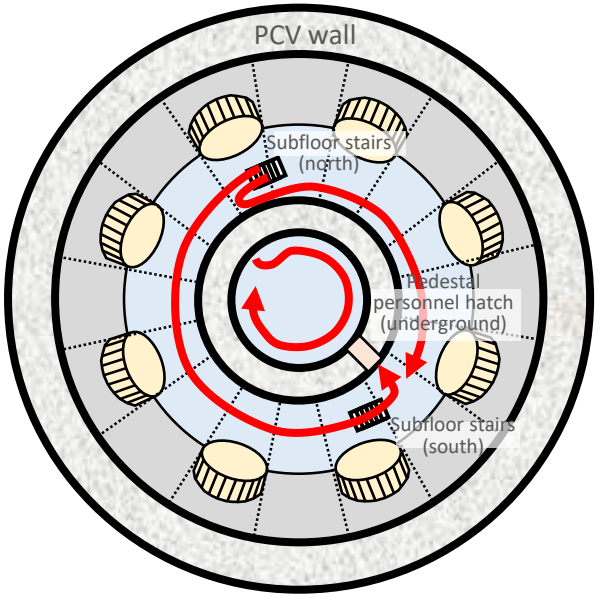
- **An investigation of the subfloors of the D/W was planned in order to ascertain data on deposit distribution and flow conditions,** which is important for deliberating the fuel debris retrieval method.
- In March 2026, when the drone investigation was implemented, the subfloors of the D/W were submerged as a result of water inside the PCV, but the **water level in the PCV has been reduced to the height of the bottom of D/W and the sub floors are now exposed to the air**.
- Since investigations using drones are possible if the area is exposed to the air **we plan to implement a Unit 3 PCV internal open air investigation (2nd micro-drone investigation) that will focus on investigating the subfloors of the D/W.**
- In order to quickly implement the investigation, in essence the same equipment as the March 2026 investigation will be used, but **since improvements in signal strength will be required to investigate the subfloors the communications functions of the micro-drones will be improved.**
- Since the communication signal strength will be improved, we will also attempt to fly above the bottom of the RPV and on the south east side of the outside of the pedestal which we were not able to fly around during the previous investigation.
- We plan to make improvements in preparations with the intent of implementing the investigation before the end of this fiscal year at the earliest.



Scope of Unit 3 PCV internal investigation (longitudinal section schematic)



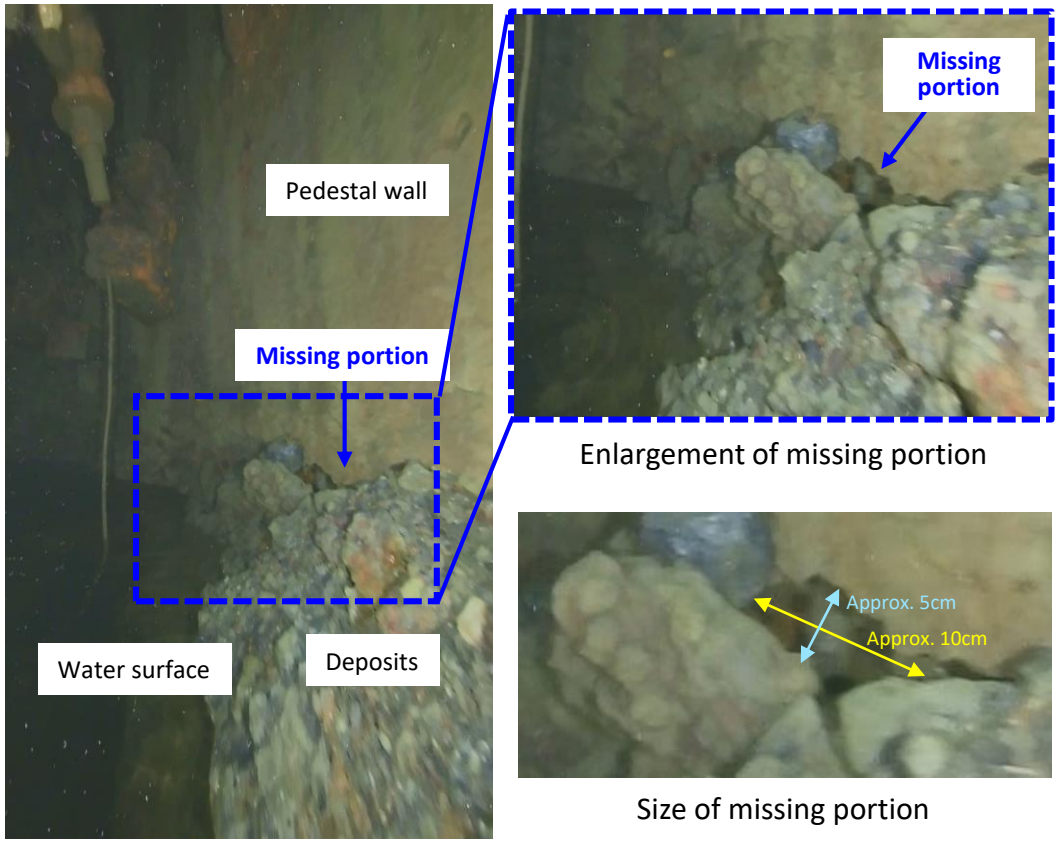
Unit 3 D/W 1FL (planar schematic diagram)



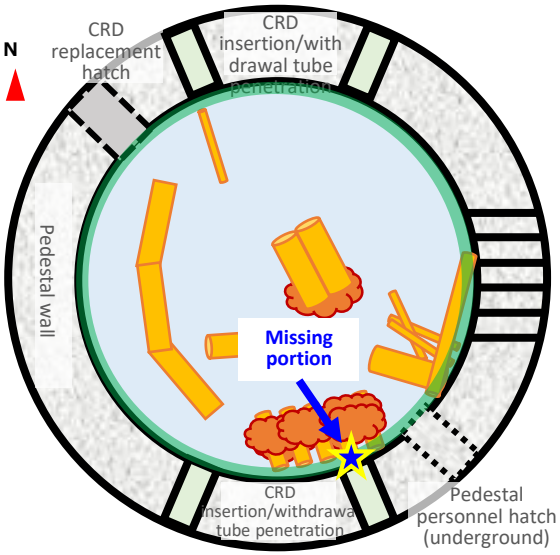
Unit 3 D/W B1 (planar schematic diagram)

[Reference] Missing portion of the pedestal wall

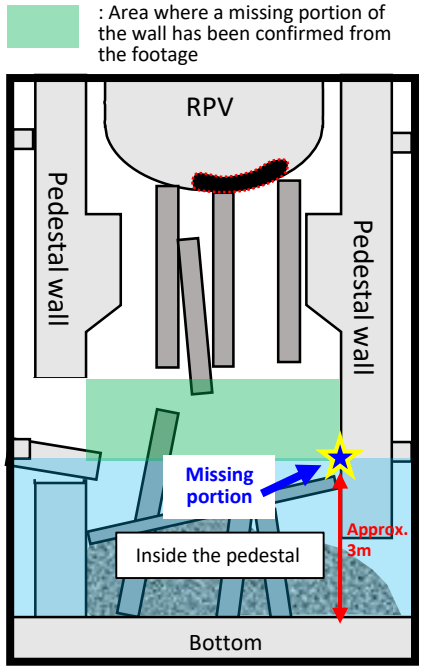
- During examination of the point cloud data we found that a portion of the pedestal wall is missing.
- The missing portion is approximately 10cm x 5cm in size, and the estimated location is approximately three meters from the floor on the south-southeast side of the inside of the pedestal (estimate).
- The footage was reviewed again to look for other missing portions of the wall, but none could be found within the scope of the footage taken.
- Since only a portion of the wall is missing, we believe that the impact on pedestal integrity is minimal, but this location will be the target of future investigations in order to expand our knowledge.



Missing portion of pedestal wall



Inside the pedestal (planar schematic diagram)



Inside the pedestal Longitudinal section diagram

[Reference] Structure from Motion technology and using point cloud data

- Structure from Motion (SfM) technology is a photogrammetry technique that builds three-dimensional (3D) data models (position and size) from images taken from various viewpoints.
- When SfM processing is completed, a point cloud, which is a type of 3D data, is generated.
- Point cloud data uses a myriad of points to create a 3D representation of objects and structures in a space which allows positional relationships to be ascertained and size measured (Data leveraged when designing equipment)
- Point cloud data Ii excellent for ascertaining the position and size of an object, but since it is a conglomeration of points it is not good for producing a visual representation.
- For this investigation we applied 3D Gaussian Splatting (3DGS) technology to the generated point cloud because it is useful for creating 3D data that provides a better visual representation.
- 3DGS technology is characteristic in that it provides a better visual representation than point cloud data, and the footage can be immediately turned into three dimensional data.

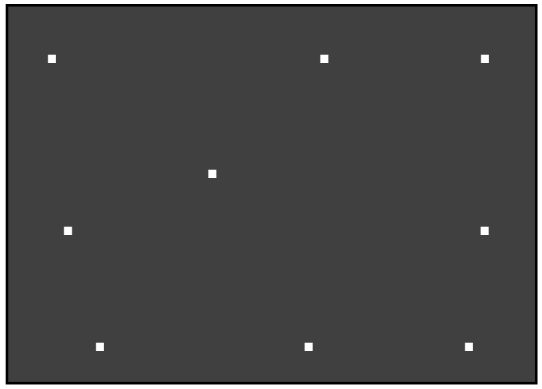
Point cloud data

3DGS

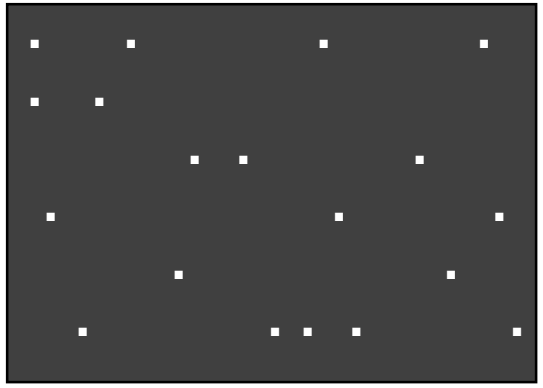
Comparison of point cloud data and 3DGS (Inside the pedestal)

[Reference] Estimating dose rates from the noise in footage created by radiation

- When radiation hits the imaging elements of a camera white noise is created in the footage.
- The amount of white noise is directly proportionate to increases in dose rate.
- By leveraging this attribute, we can estimate dose rate by measuring the amount of white noise in the footage.
- During this investigation, a regression equation was derived by comparing the dose rates measured in the vicinity of the X-53 penetration (inside the PCV) (approx. 0.6Gy/h) with the amount of white noise in the footage from the aforementioned area, thereby allowing us to calculate the dose rate for each area.
- Furthermore, in regards to the proportional attributes between white noise volume and dose rates, test results at irradiation facilities confirm an accuracy level of approximately ±20% and less than 10Gy/h when the radiation source is Co or Cs.
- But it is possible that differences in the regression equation or discrepancies may arise due to the impact of other nuclides inside the PCV.
- Furthermore, based on the principle of the estimate, large discrepancies may arise if the white noise cannot be accurately measured due to halation or because the dose rates are too high, etc.

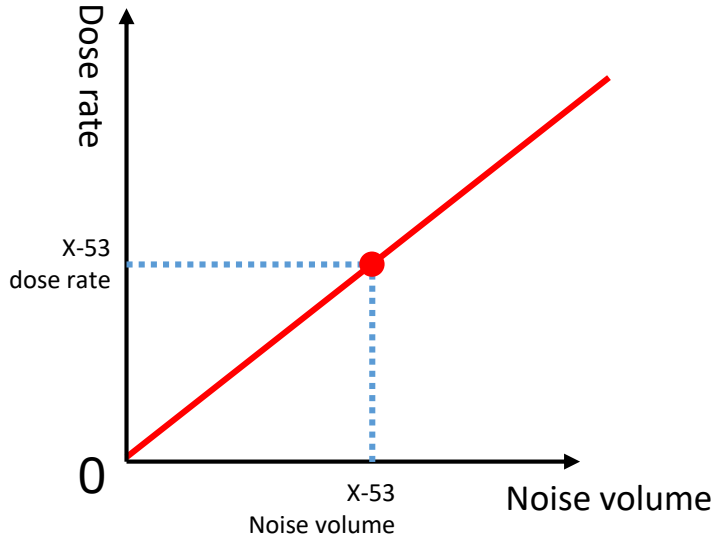


Amount of noise when dose rates are low



Amount of noise when dose rates are high

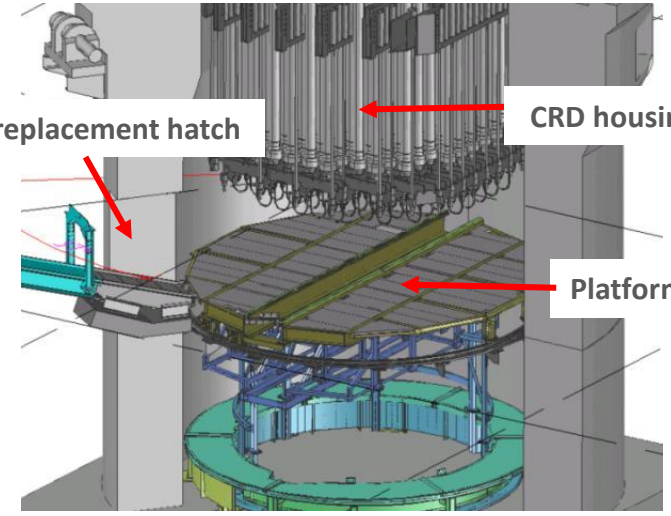
Example of the relationship between dose rate and noise volume

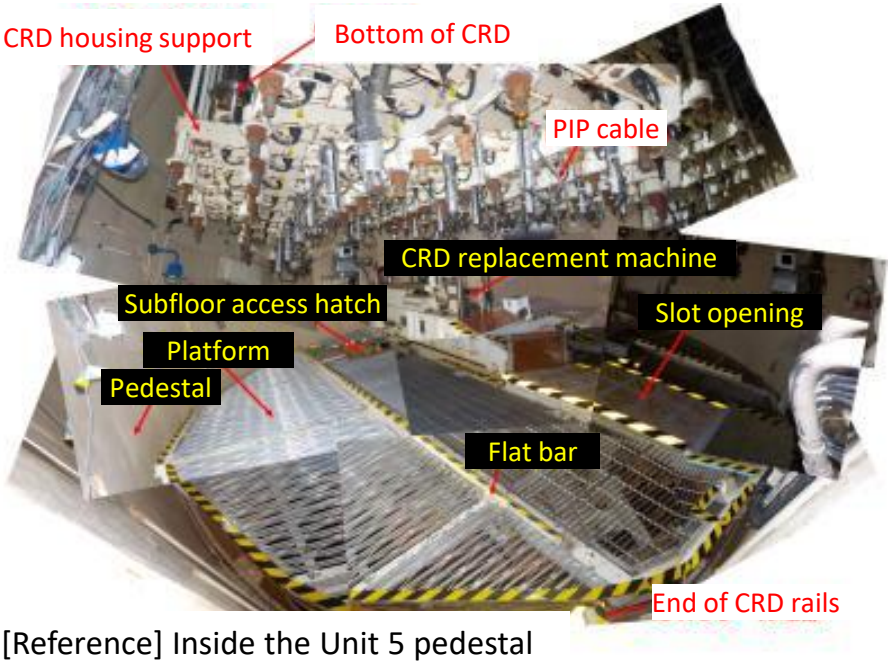


Derivation of the regression equation

[Reference] Internal structures of the pedestal and the RPV

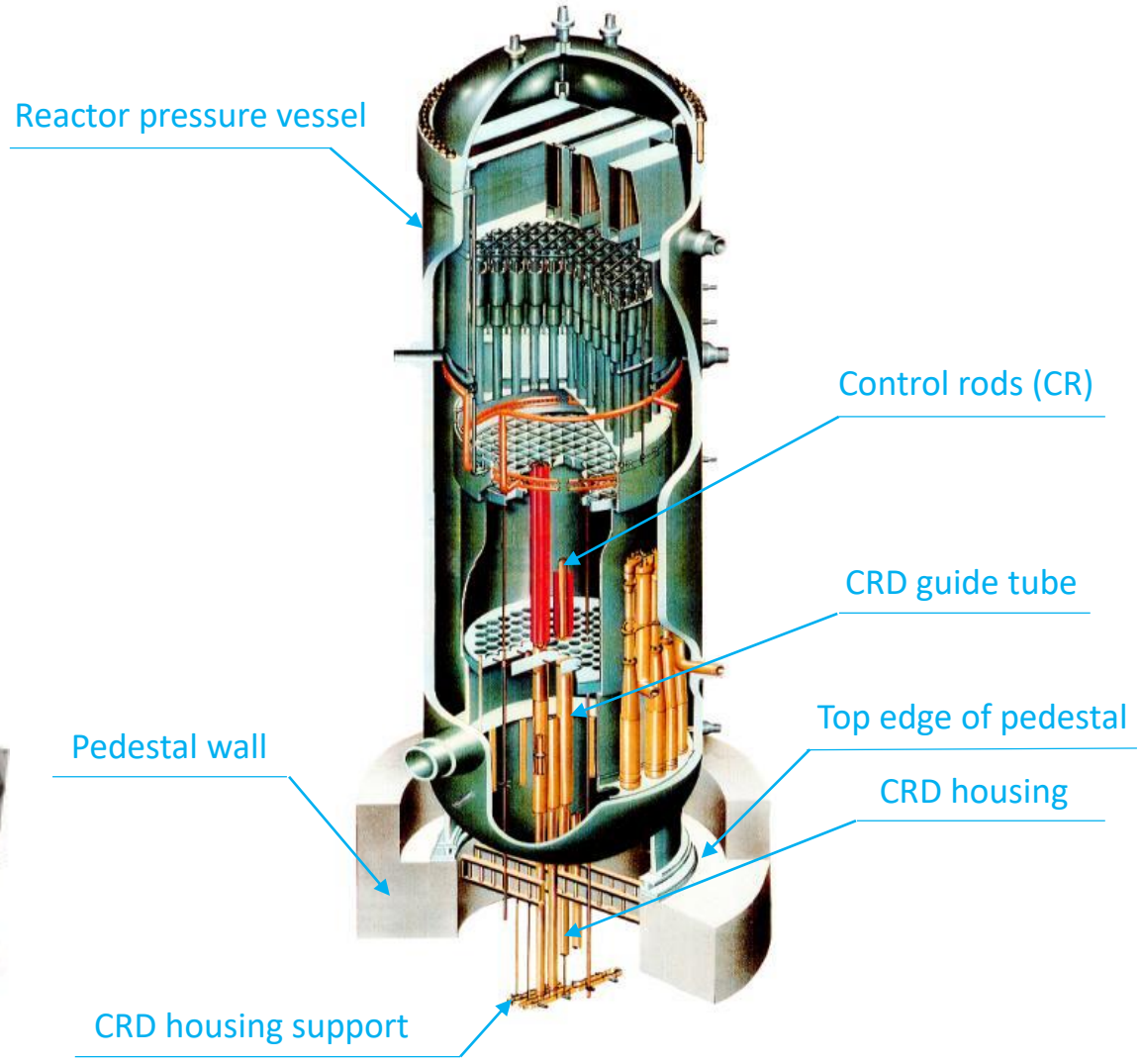
Pedestal internal structure





[Reference] Inside the Unit 5 pedestal

RPV internal structure



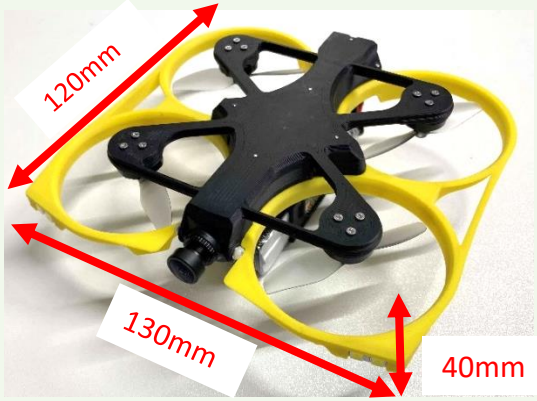
[Reference] Officially Released Video of the Unit 3 PCV Internal non-submerged area Investigation (Micro-Drone Investigation)

- 2026.03.12 Unit 3 Micro-Drone Investigation (Outside the Pedestal)
  - https://www4.tepco.co.jp/en/news/library/archive-e.html?video_uuid=15798&catid=69631
- 2026.03.19 Unit 3 Micro-Drone Investigation (Inside the Pedestal)
  - https://www4.tepco.co.jp/en/news/library/archive-e.html?video_uuid=15807&catid=69631
- 2026.03.19 Unit 3 Micro-Drone Investigation (Vicinity of the bottom of the Reactor Pressure Vessel (RPV))
  - https://www4.tepco.co.jp/en/news/library/archive-e.html?video_uuid=15806&catid=69631

[Reference] Investigation devices

- Since the area inside the PCV is cramped and dark, an extremely small and highly mobile **"micro-drone"** with photographic capabilities will be installed through the small X-53 penetration.
- As with past investigations**, a seal box will be attached to the X-53 penetration so as to allow the micro-drone to be inserted into the PCV while maintaining PCV isolation**.
- The seal box will contain a total of six drones and two drones will be able to be installed inside the PCV simultaneously (how the six drones are to be used will be determined during mockup/training).

Micro-drone



Held in the palm of the hand for size comparison

Use: Photography (2.7K)
Dimensions: 130×120×40[mm]
Weight:95[g](Including battery)
Communications method: Radio
Flight time: Approximately 13 minutes (the investigation is planned to take 10 minutes)
Camera performance: Image quality: 2.7K, frame rate: 60fps
Angle of view: diagonal 140°, Horizontal 135°, vertical 107°
Lights: 2 LEDs on the left and right sides (total: 380lm)
Radiation resistance: 200Gy
Notes: Corresponds to IP52, Two types of cameras: portrait and landscape

Seal box

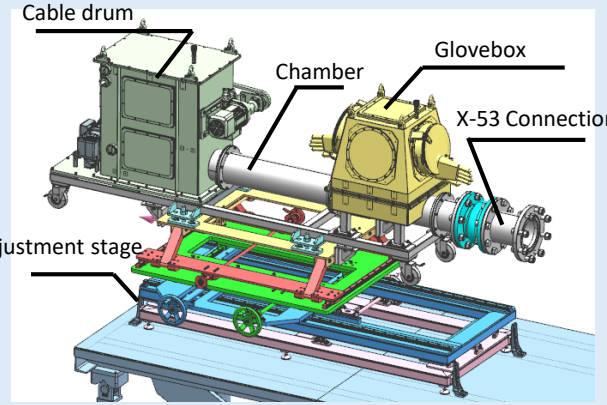


Diagram of Seal box

The drones to be installed are housed in the chamber through which they are installed into the PCV.

Standby drones and recharging equipment are inside the glove box so that drones on the liftoff/landing pad can be switched out while maintaining airtightness.

Dimensions: Approx. 2.6m×0.6m×1.1m
Weight: Approx. 315kg

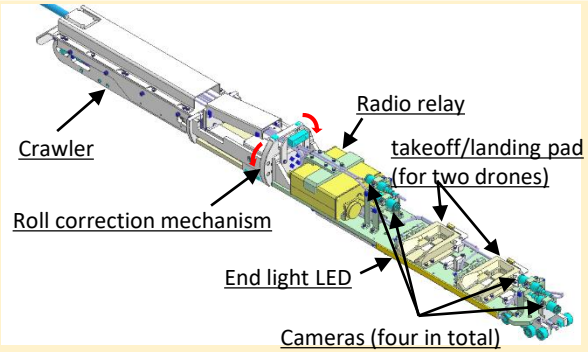


Diagram of installation equipment

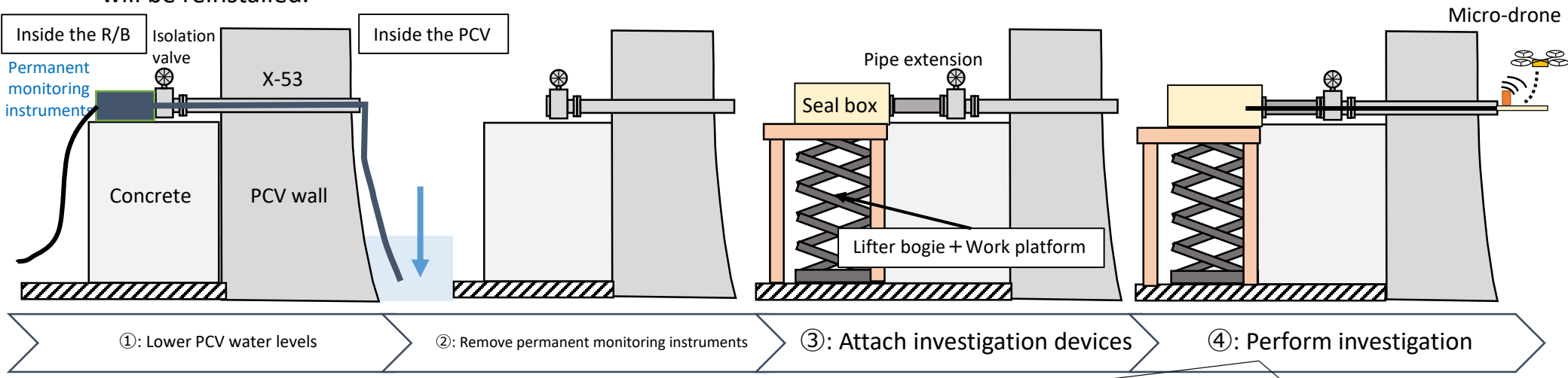
The crawler enables self-installation thereby reducing worker exposure.

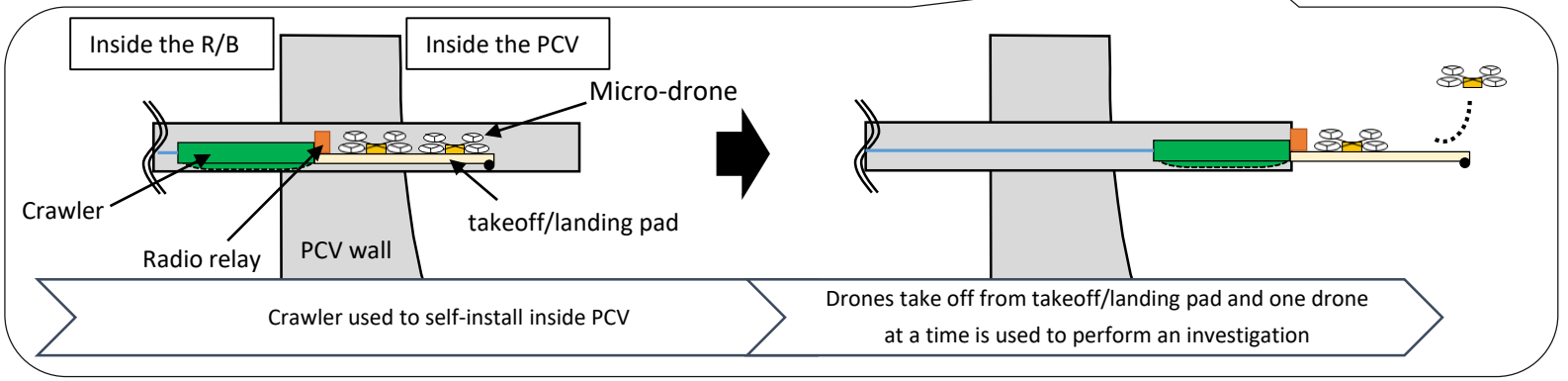
Two drones can be installed simultaneously.

Dimensions: Approx. 1.3m×Φ130mm
Weight: Approx. Approximately 20kg

[Reference] Work flow

- Permanent monitoring instruments (water level/temperature gauge) newly installed after the accident are currently inserted through the X-53 penetration.
- And, in order to fly the micro-drone inside the pedestal, the water level inside the PCV must be lowered to the bottom edge of the CRD replacement opening.
- Therefore, as preparations for the investigation, **PCV water level will be lowered and permanent monitoring instruments will be removed after which the investigation devices will be attached and the investigation performed**.
- After the investigation is completed, the investigation devices will be removed and the permanent monitoring instruments will be reinstalled.





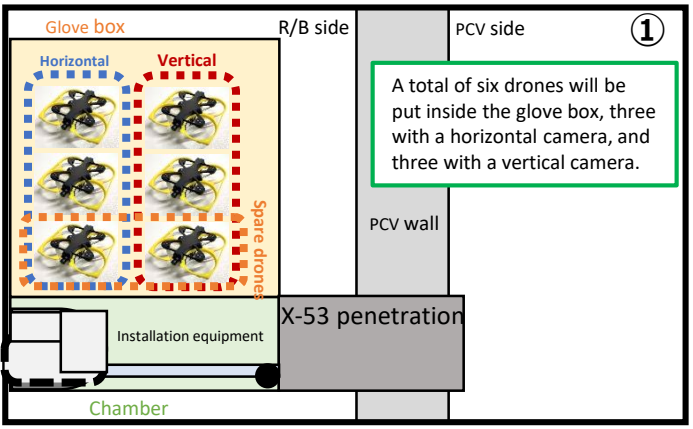
[Reference] Investigation plan - Information on the entire investigation ① -

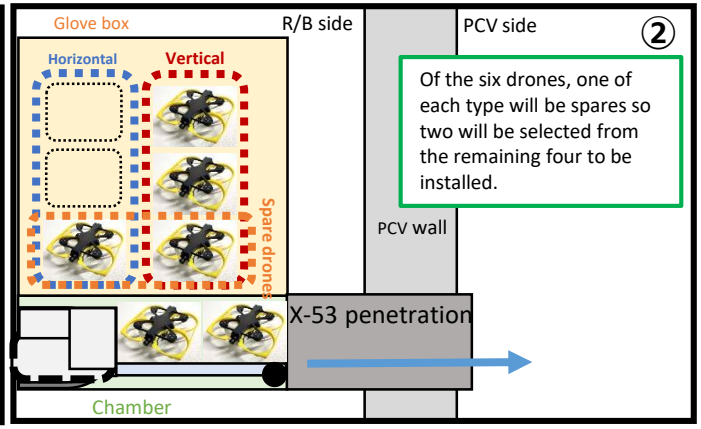
- Investigation details and flight routes will be created for each flight based on Mockup/training results.
- The method by which drones are to be used will be determined based on worker exposure doses and the radiation resistance of drones.

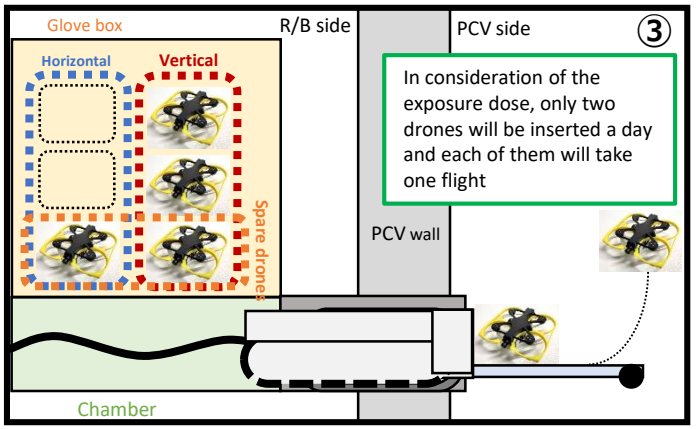
【Main objective】

Collect information in the vicinity of the X-6 penetration and inside the pedestal which will be important for accessing from the side to perform deposit investigations and retrieve fuel debris.

➢ Information to be acquired: Footage (horizontal (*landscape*)/vertical (*portrait*)), dose rates (to be estimated from radiation noise), point clouds (analyzed from footage)







Planned drone usage: One installation per day consisting of two flights with two out of the six drones to be used as spares

Investigation schedule※1(Investigation period: 11 days; Maximum number of flights: 21)

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11
Area	Outside pedestal	Outside pedestal	Outside pedestal	Outside pedestal	Inside pedestal	Inside pedestal	Inside pedestal	Added	Added	Added	Added
Type	Initial	Point cloud footage	Focal point	Focal point	Initial/ Point cloud footage	Focal point	Focal point	Added	Added	Added	Added
1st drone	Counter-clockwise (Horizontal)	South side (Horizontal)	South side (Horizontal)	CRD hatch (Horizontal)	Initial (Horizontal)	Bottom (Vertical)	Top① (Vertical)	※2	※2	※2	※2
2nd drone	Clockwise (Horizontal)	North side (Horizontal)	North side (Horizontal)	X-6 penetration (Horizontal)	Point cloud creation (Horizontal)	Middle (Vertical)	Top② (Vertical)	※2	※2	※2	※3

※1： The investigation period will be decided based on the radiation resistance of the drone. The order, number of days, and investigation details may be changed in accordance with field conditions.
※2： The scope of the additional investigation will be determined based on findings from the investigation up to the 7th day.
※3： On the final day, a dosimeter will be placed on the liftoff/landing pad for the 2nd drone, so the 2nd drone will not be flown.

[Reference] Investigation plan - Information on the entire investigation ②

- Drone flights inside and outside the pedestal on the D/W1FL (hereinafter referred to as, “outside the pedestal”) can be broadly classified as **“Initial flights,” “point cloud footage flights,” and “focal point flights.”**
  - Initial flights: Investigations performed prior to the main investigation in order to determine the range of radio communications in new flight areas.
  - Point cloud footage flights: Used to obtain footage that can be used to improve the accuracy of point cloud data.
  - Focal point flights: Conduct detailed investigations in the areas identified in advance.
- “**Additional investigations**” shall be performed after the investigations of the outside and inside of the pedestal **in accordance with conditions inside the PCV.**
  - Additional investigations: Additional investigations implemented due to new knowledge gained during the investigations of the outside and the inside of the pedestal, and to perform tasks that time did not allow for during the original schedule.

1. Investigations outside the pedestal (4 days)

i. Initial flights: One flight around the entire circumference of the pedestal and one flight to focus on the PCV walls and the pedestal walls.
ii. Point cloud footage flights: One flight on the south side and one flight on the north side to obtain point cloud data around the outside of the entire pedestal.
iii. Focal point flights: Flights on the south side, north side, and around the X-6 penetration to acquire data on predetermined the areas identified.

2. Investigations inside the pedestal (3 days)

i. Initial flights: One flight around the entire inner circumference.
ii. Point cloud footage flights: Footage taken of the entire inside of the pedestal in order to form a point cloud.
iii. Focal point flights: Flights to be flown on the bottom, middle, and top areas in order to acquire data on predetermined the areas identified.

3. Additional investigations (4 days)

i. Additional investigations on new focal points and new knowledge.
ii. Additional investigations to perform tasks that time did not allow for during the investigations of the outside and inside of the pedestal mentioned above.

※ : The order/investigation details may be changed in accordance with field conditions.

[Reference] Investigation info

- An **11-day investigation** was implemented as planned and a total of **21 flights** were flown.
- We were able to **acquire information vital for deliberating fuel debris retrieval methods (data on the area around the X-6 penetration and inside the pedestal)**, which was the main objective of this investigation, and also able to implement focused investigations.
- We did not experience any malfunctions with the inserted equipment, or drone crashes, during the course of the investigation

【Plan】 Investigation schedule (Investigation period: 11 days, 21 flights maximum)

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11
Area	Outside pedestal	Outside pedestal	Outside pedestal	Outside pedestal	Inside pedestal	Inside pedestal	Inside pedestal	Added	Added	Added	Added
Type	Initial	Point cloud	Focal point	Focal point	Initial/Point cloud	Focal point	Focal point	Added	Added	Added	Added
Drone #1	Counter-clockwise (Horizontal)	South side (Horizontal)	South side (Horizontal)	CRD hatch (Horizontal)	Initial (Horizontal)	Bottom (Vertical)	Top① (Vertical)	※1	※1	※1	※1
Drone #2	Clockwise (Horizontal)	North side (Horizontal)	North side (Horizontal)	X-6 penetration (Horizontal)	Point cloud (Horizontal)	Middle (Vertical)	Top② (Vertical)	※1	※1	※1	※2

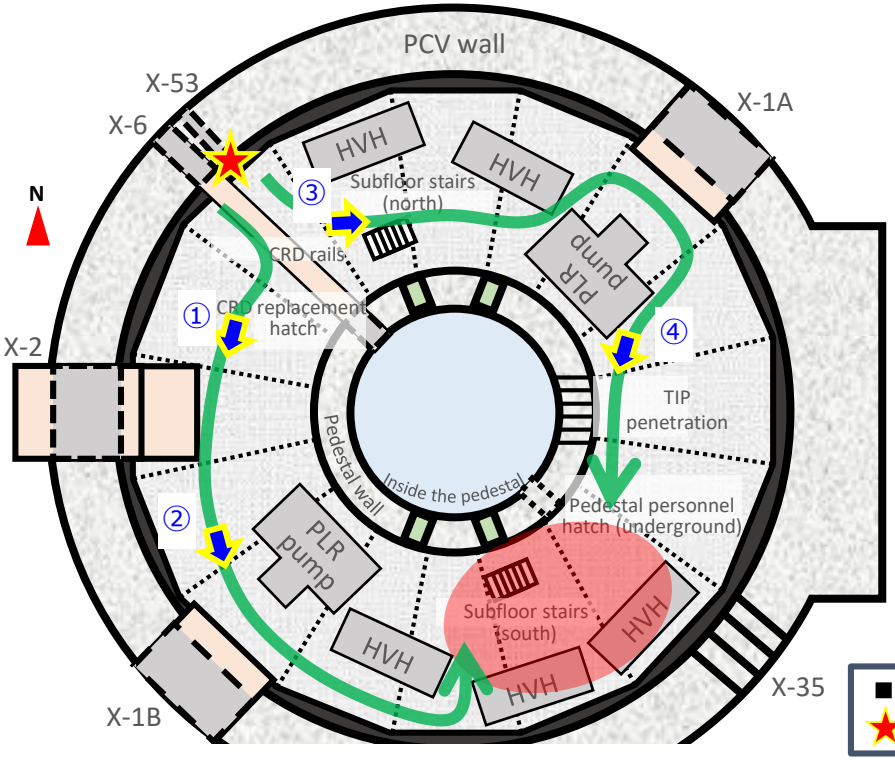
【Actual】 Investigation schedule (Investigation period: 11 days, number of flights: 21)

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11
Area	Outside pedestal	Outside pedestal	Outside pedestal	Outside pedestal	Inside pedestal	Inside pedestal	Inside pedestal	Inside/outside pedestal	Inside pedestal	Inside pedestal 外	Inside/outside pedestal
Type	Initial	Point cloud	Focal point	Focal point	Initial/Point cloud	Focal point	Focal point	Added	Added	Added	Added
Drone #1	Counter-clockwise (Horizontal)	South side (Horizontal)	South side (Horizontal)	CRD hatch (Horizontal)	Initial (Horizontal)	Bottom (Vertical)	Top① (Vertical)	Inside X-6 Outside pedestal, etc. (Vertical)	Inside pedestal Bottom Middle (Vertical)	Outside pedestal Point cloud (Vertical)	To estimate dose rates (Vertical)
Drone #2	Clockwise (Horizontal)	North side (Horizontal)	North side (Horizontal)	X-6 penetration (Horizontal)	Point cloud (Horizontal)	Middle (Vertical)	Top② (Vertical)	Inside pedestal Top (Vertical)	Around the bottom of the RPV (Vertical)	Inside pedestal Point cloud (Vertical)	※2

※1： Additional investigations were to be planned based on the results of investigations performed through day 7.
※2： A second flight was not performed on the last day in consideration of the dosimeter on the take off and landing (TOL) pad of the second drone

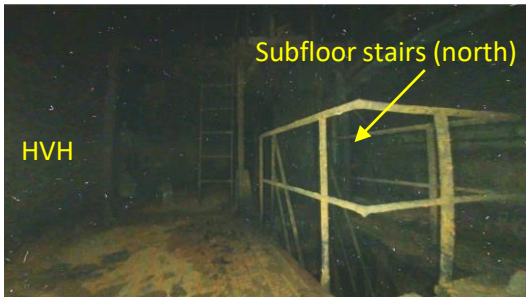
[Reference] Conditions outside the pedestal

- **Fog:** As with Unit 1, **fog was found outside the Unit 3 pedestal** (Visibility was approximately 3m)
- **Signal strength: Signal strength in the southeast area,** which is on the opposite side of the X-53 penetration where the radio was located, **was poor**.
- **Equipment/ obstructions:** No large scale damage or obstructions were seen (rust and fallen insulation was found)
- **Flight route:** With the exception of the southeast area where a signal strength was poor, flights were flown in the clockwise and counterclockwise directions on the first floor of D/W
- **Point cloud:** Footage from the landscape and portrait cameras were taken in order to create a point cloud. Point cloud processing is planned.
- **Dose rates: Dose rates in the vicinity of the X-53 penetration were approx. 0.6Gy/h(γ rays).** General dose rates outside the pedestal will be estimated from the radiation noise in the footage



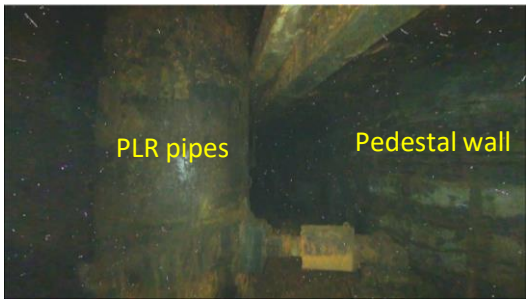
Unit 3 D/W1FL (planar schematic diagram)

①: Outside the pedestal (Northwest area)



③: Outside the pedestal (North area)

②: Outside the pedestal (Southwest area)



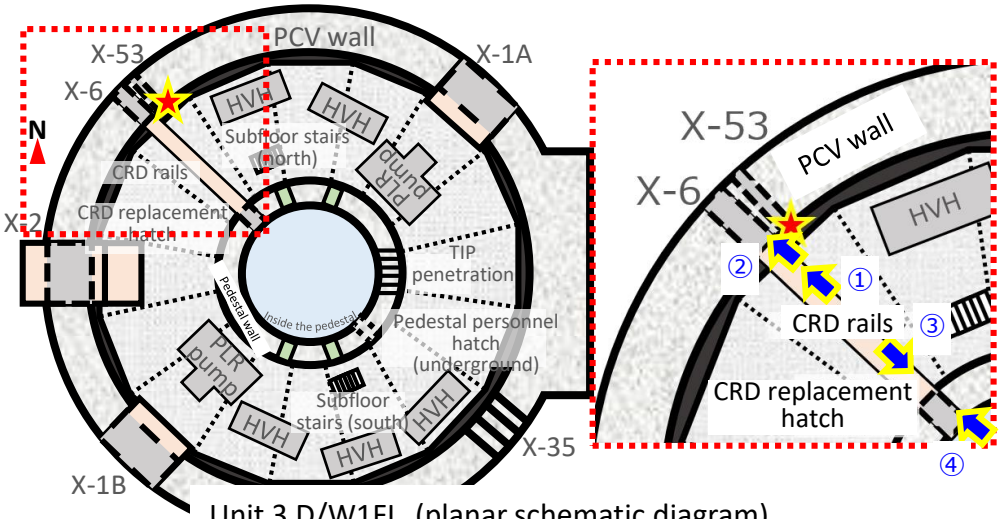
④: Outside the pedestal (East area)

■ Key
★: Radio and drone TOL position ▭: Signal strength (poor) →:Flight route concept drawing

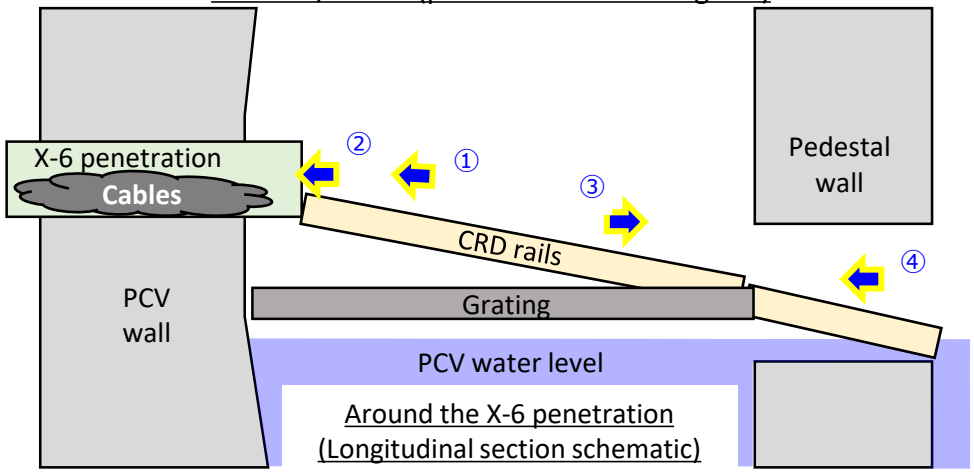
※The photos in this presentation were taken during this investigation
※The positions of the items noted in the Key as well as obstructions and the direction from which photos were taken are all approximate since a detailed examination of the photos is still underway. The names of structures noted in the photos are also assumptions.

[Reference] Results of focused investigations outside the pedestal (around the X-6 penetration)

- **X-6 penetration:** No obstructions were seen around the penetration. **There are cables around the inside of the entire penetration, but no deposits like those found at Unit 2 were seen in the scope of the footage.**
- **CRD rails: No significant damage or obstructions were found but** an uneven surface was seen
- **CRD replacement hatch: No obstructions were found in the vicinity of the hatch**

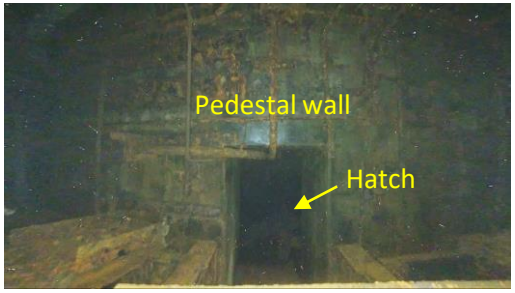


Unit 3 D/W1FL (planar schematic diagram)

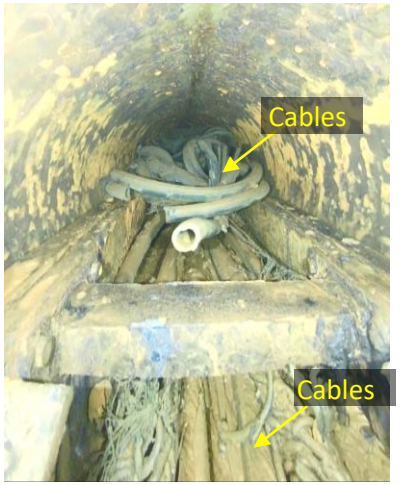


Around the X-6 penetration (Longitudinal section schematic)

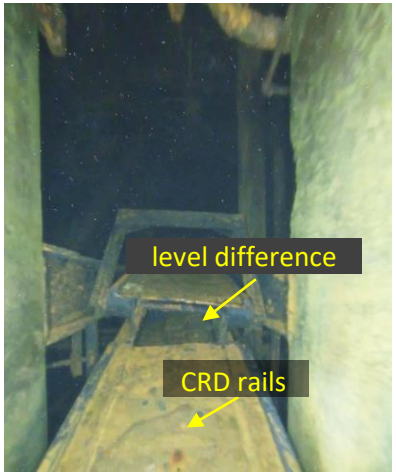
① : External view of the X-6 penetration



③ : External view of the CRD replacement hatch



② : Inside of the X-6 penetration



④ : Uneven part of CRD rails

■ Key
★ : Radio and drone TOL position

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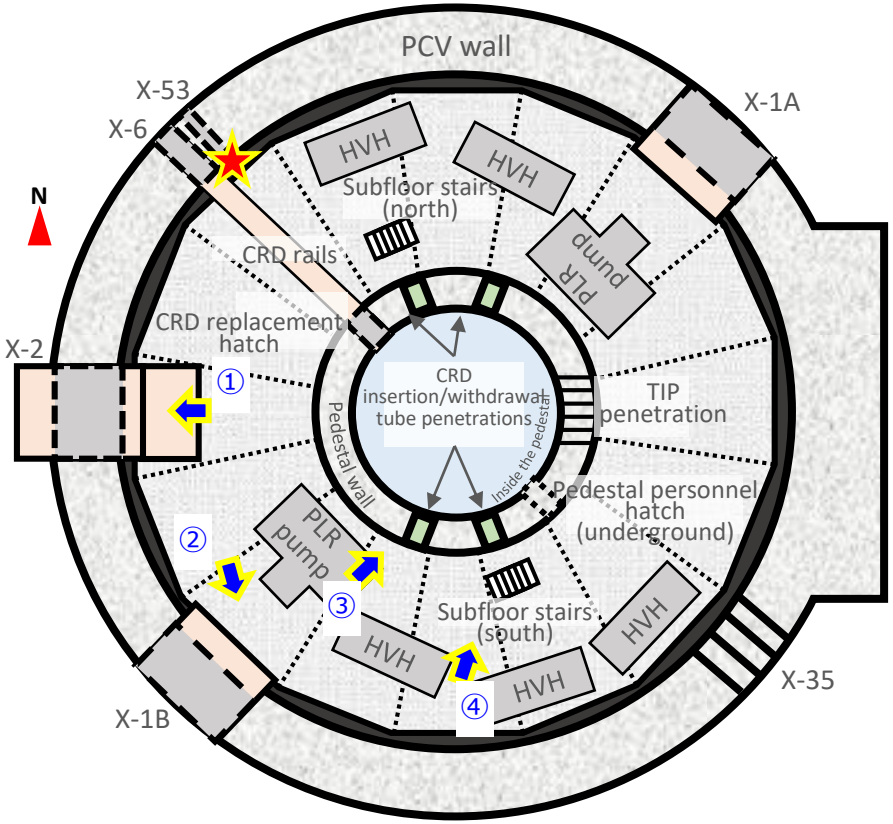
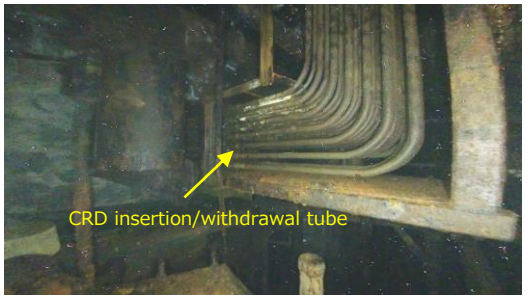
[Reference] Results of focused investigations outside the pedestal (South side area)

- **X-2 penetration, X-1B penetration: No damage, deformation of the penetration or obstructions were found**
- **CRD insertion/withdrawal tube (south): No damage or deformation of the southwest side pipes were seen.** Signal strength on the southeast side is poor and flights could not be flown so this area was not investigated
- **Subfloor stairs (south): No damage or deformation of the stairs or obstructions was seen**
- **X-35 penetration:** Signal strength in the southeast area outside the pedestal was poor thereby preventing any flights from being flown.



Unit 3 D/W1FL (planar schematic diagram)

① : X-2 penetration



③ : CRD insertion/withdrawal tube (southwest)

② : X-1B penetration

④ : Subfloor stairs (south)

■ Key
★ : Radio and drone TOL position

※The photos in this presentation were taken during this investigation
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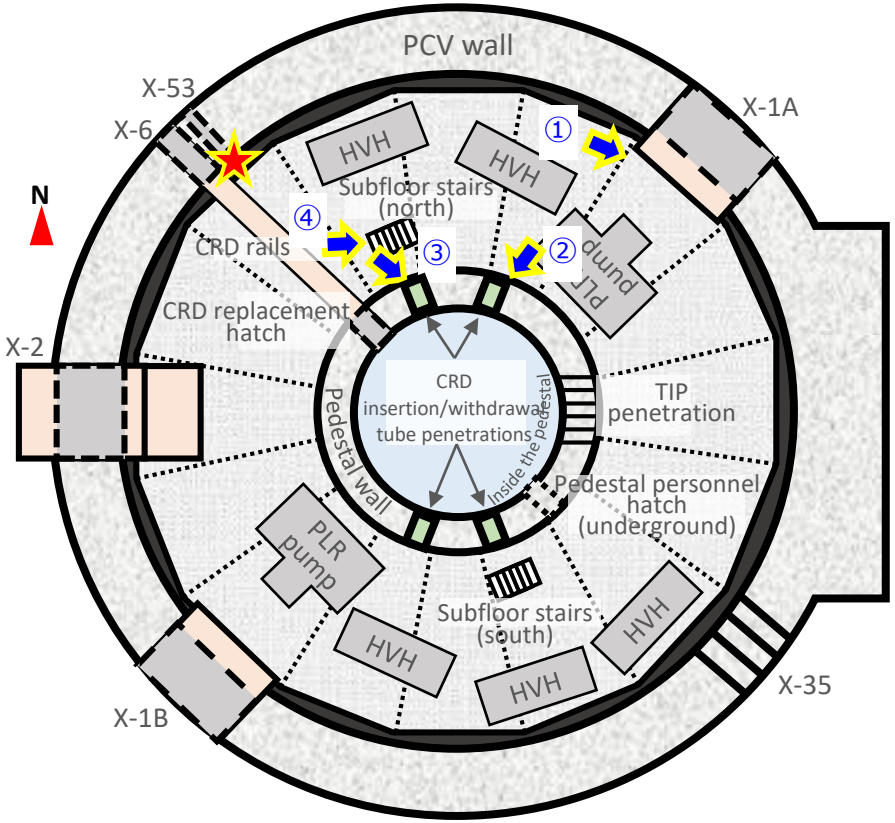
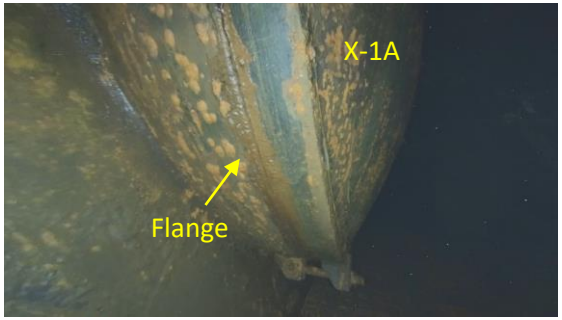
[Reference] Results of focused investigations outside the pedestal (North side area)

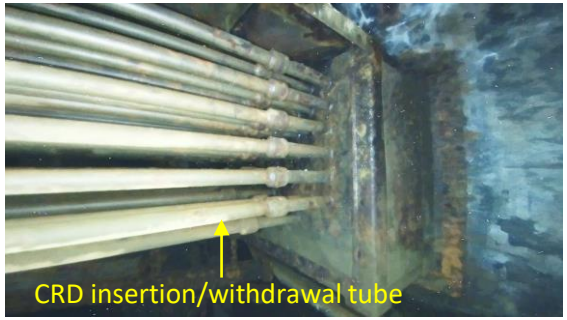
- **X-1A penetration: No damage, deformation of the penetration or obstructions were found**
- **CRD insertion/withdrawal tube (north): No damage or deformation of the pipes** on the northwest or northeast sides
- **Subfloor stairs (north): No damage or deformation of the stairs or obstructions was seen**



Unit 3 D/W1FL (planar schematic diagram)



① : X-1A penetration (Flange)



③ : CRD insertion/withdrawal tube (northwest)

② : CRD insertion/withdrawal tube (northeast)

④ : Subfloor stairs (north)

■Key
★:Radio and drone TOL position

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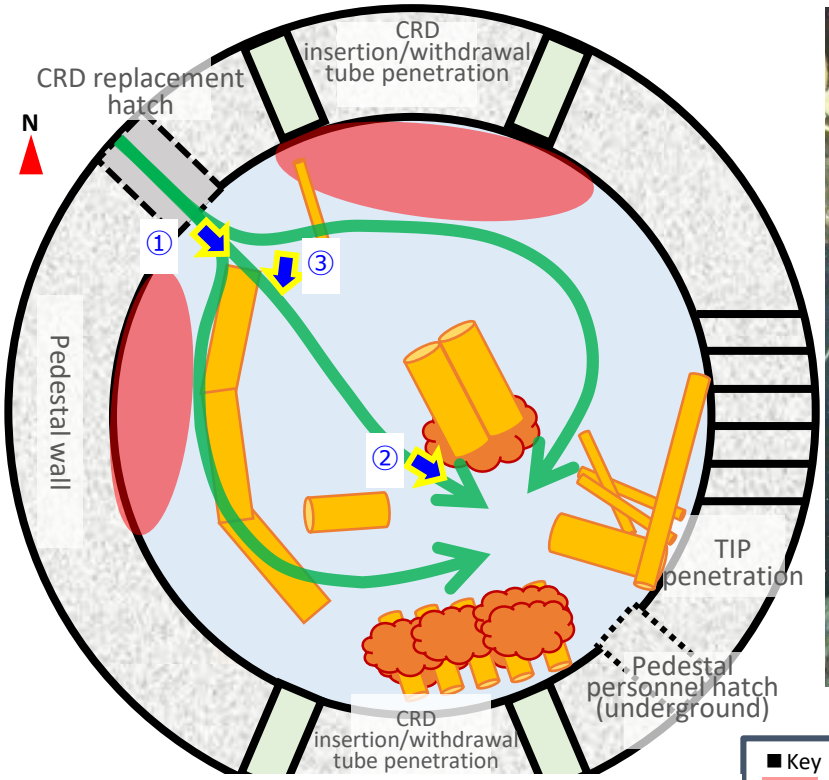
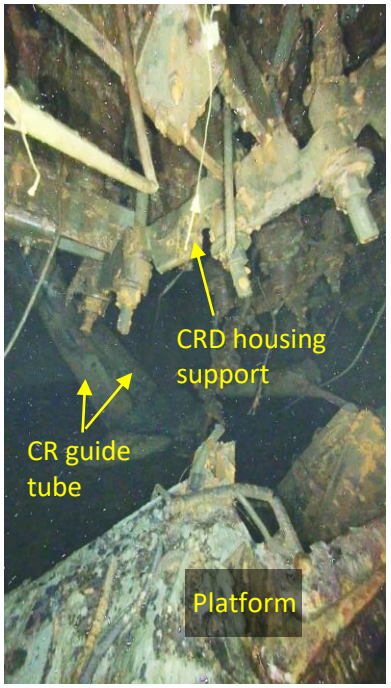
[Reference] Conditions inside the pedestal

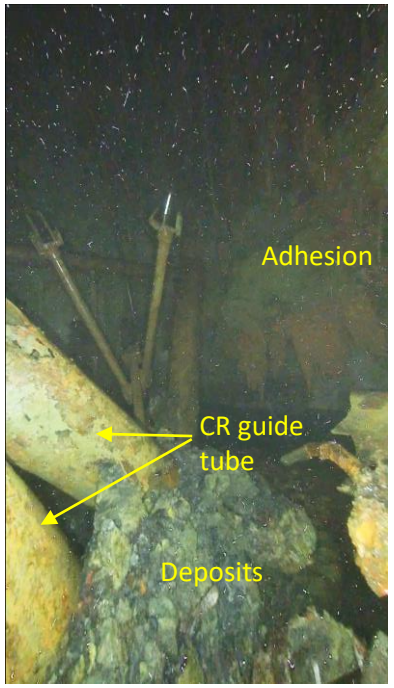
- **Fog:** As with Unit 1, **fog was found inside the Unit 3 pedestal** (Visibility was approximately 3m)
- **Signal strength: Signal strength near the CRD replacement hatch, which is in a communications dead zone, was poor**.
- **Equipment/ obstructions:** The CRD housing group and CRD guide tubes were found to have fallen (drone flights possible)
- **Flight route:** With the exception of the vicinity of the CRD replacement hatch, where signal strength was poor, flights were flown in the clockwise and counterclockwise directions and in the center.
- **Point cloud:** Footage from the landscape and portrait cameras were taken in order to create a point cloud. Point cloud processing is planned.
- **Dose rates:** Dose rates inside the pedestal will be estimated from the radiation noise in the footage



Unit 3 Inside the pedestal (planar schematic diagram)



① : Center direction



② : Southeast direction

③ : Southwest direction

■ Key
: Signal strength (poor) : Flight route concept drawing : Primary obstructions : Deposits/adhesions

※ The photos in this presentation were taken during this investigation
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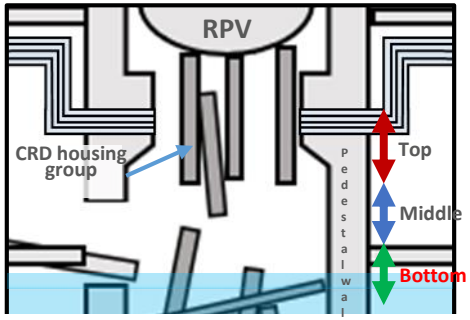
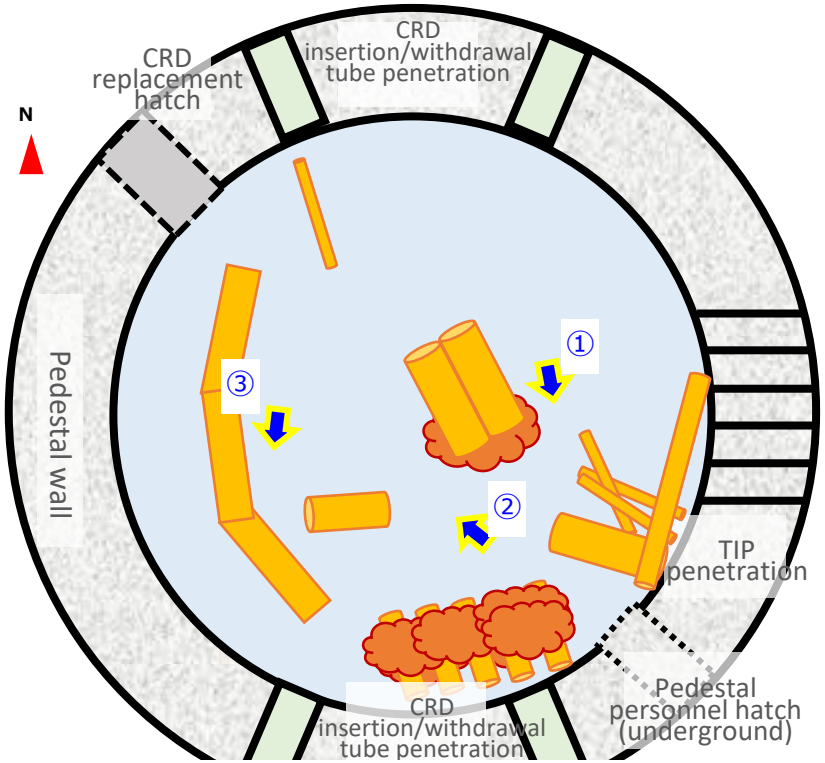
[Reference] Results of focused investigations inside the pedestal (Bottom)

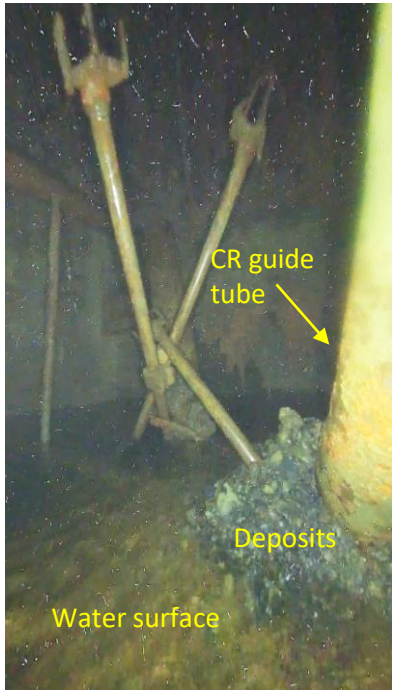
- **Deposits: Deposits were found at the bottom of the CRD guide tubes in the center.** It is assumed that some exist underwater.
- **Fallen structures: CRD guide tube,** which are RPV internal structures**, were found**
- **CRD replacement machine ancillary equipment: The platform was found to be tilted.** The footage is currently being reviewed to look for other pieces of equipment
- **PCV water levels:** By comparing the height of the water surface with the height of structures we confirmed that water level is approximately the same as the water level in the PCV calculated from the S/C pressure gauge. (The water level outside the pedestal is also approximately the same)



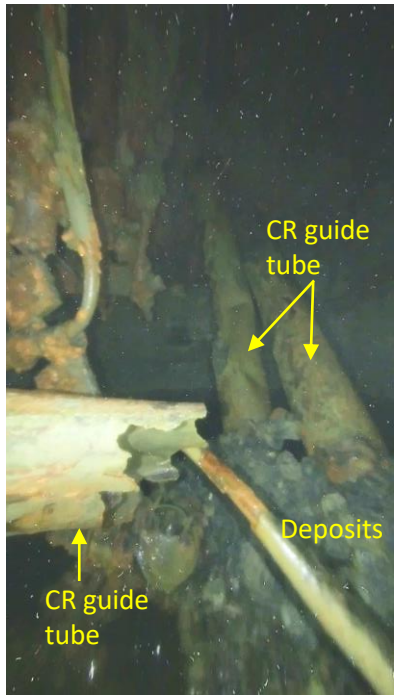
Unit 3 Inside the pedestal (longitudinal section schematic)



Unit 3 Inside the pedestal (planar schematic diagram)



① : Deposits



② : Fallen structures

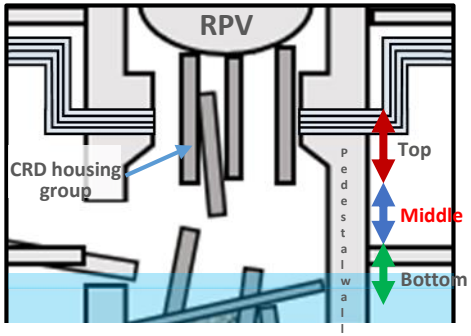
③ : CRD replacement machine ancillary equipment (Platform)

■ Key
: Primary obstructions
: Deposits/adhesions

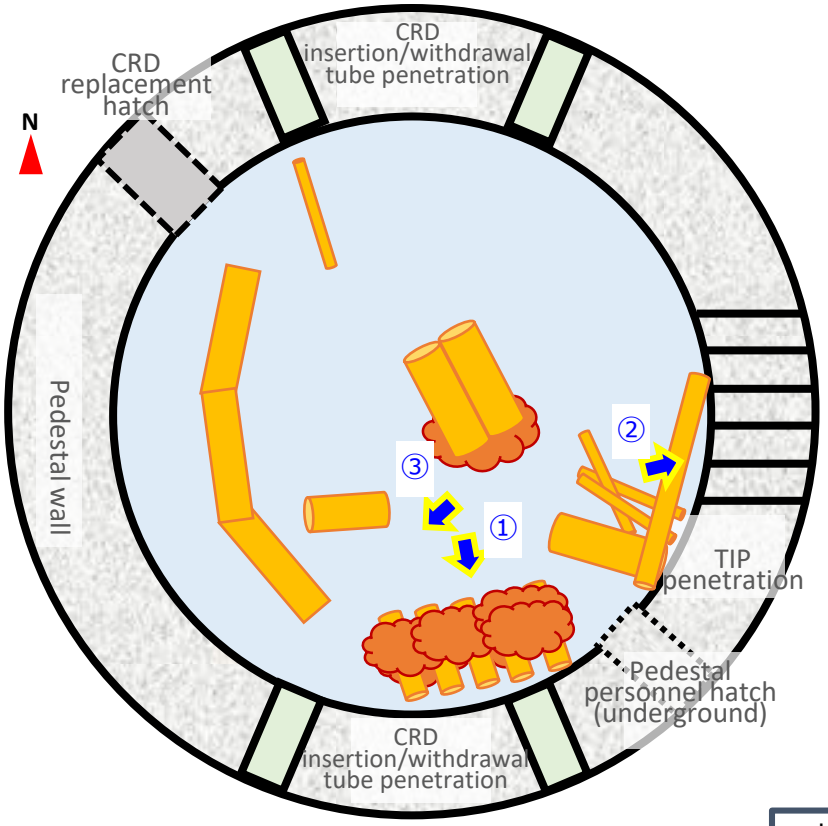
※ The photos in this presentation were taken during this investigation
※ The positions of the items noted in the Key as well as obstructions and the direction from which photos were taken are all approximate since a detailed examination of the photos is still underway. The names of structures noted in the photos are also assumptions.

[Reference] Results of focused investigations inside the pedestal (Middle)

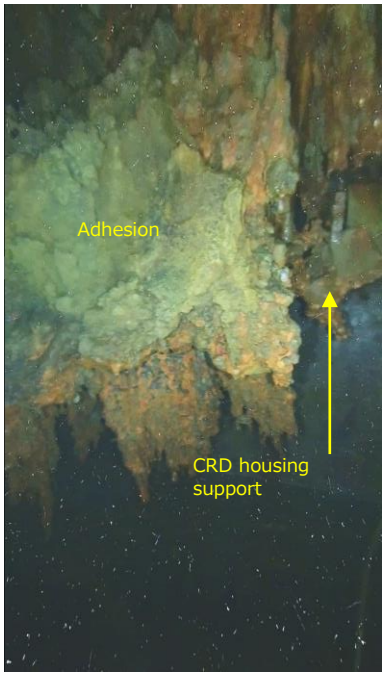
- **Adhesions: Clump-like adhesions were seen on the south side of the CRD housing group**
- **Pedestal wall surface: No remarkable damage was seen within the scope of the footage**
- **TIP penetration:** Damaged TIP guide tubes were found
- **Fallen structures:** Part of the **CRD housing group, which is a structure at the bottom of the RPV, was found to be tilted, and slightly lower than its original position.**



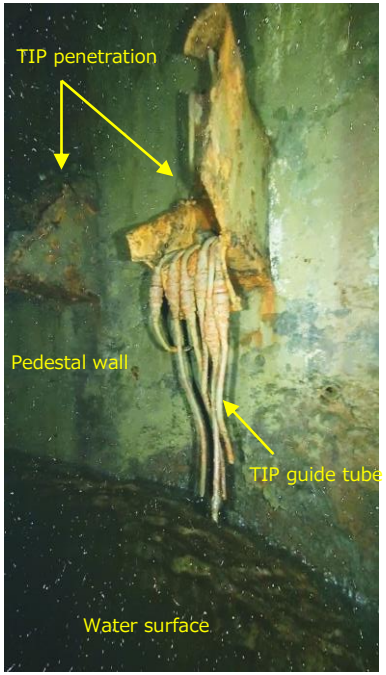
Unit 3 Inside the pedestal (longitudinal section schematic)



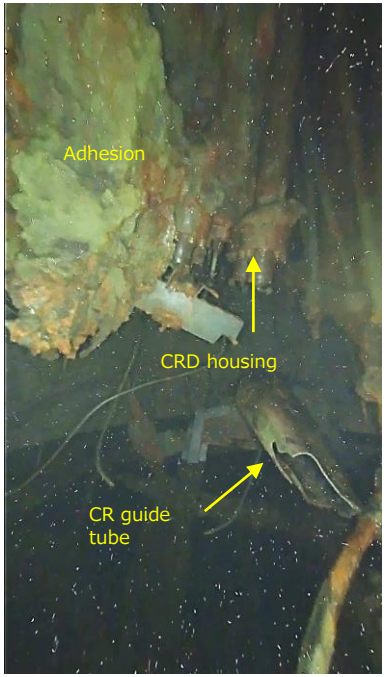
Unit 3 Inside the pedestal (planar schematic diagram)



① : Adhesion



② : TIP penetration and pedestal wall



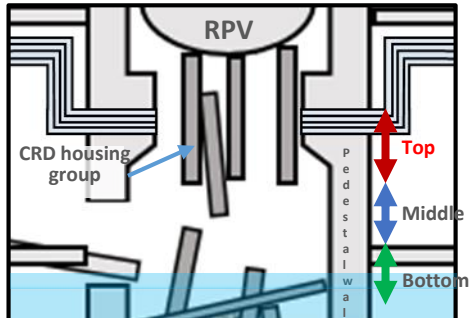
③ : Fallen upper structures (CRD housing group)

■ Key : Primary obstructions : Deposits/adhesions

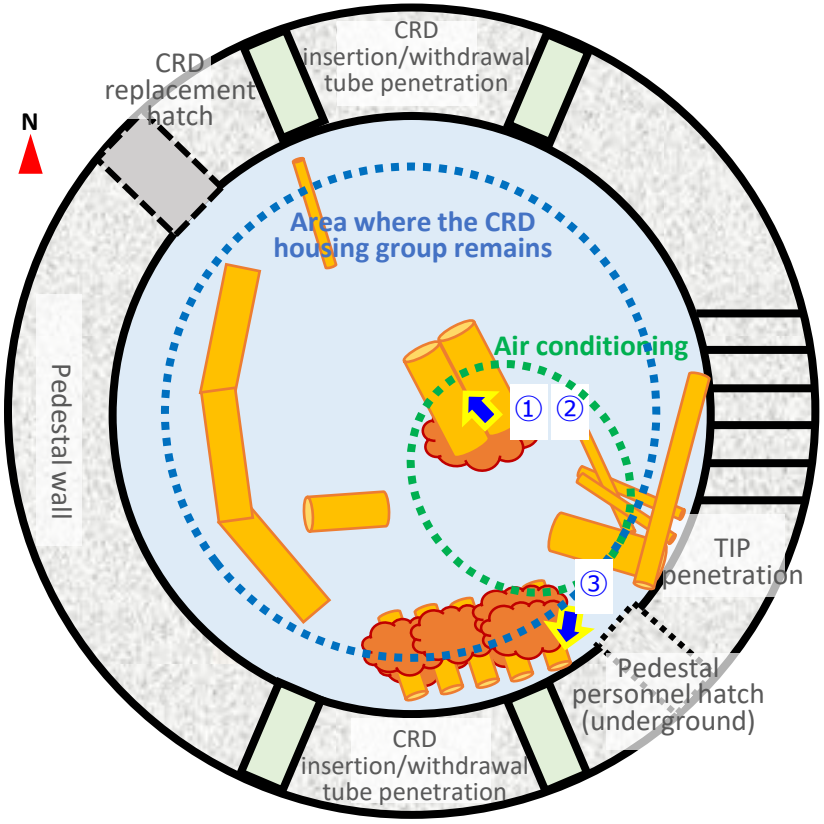
※ The photos in this presentation were taken during this investigation
※ The positions of the items noted in the Key as well as obstructions and the direction from which photos were taken are all approximate since a detailed examination of the photos is still underway. The names of structures noted in the photos are also assumptions.

[Reference] Results of focused investigations inside the pedestal (Top)

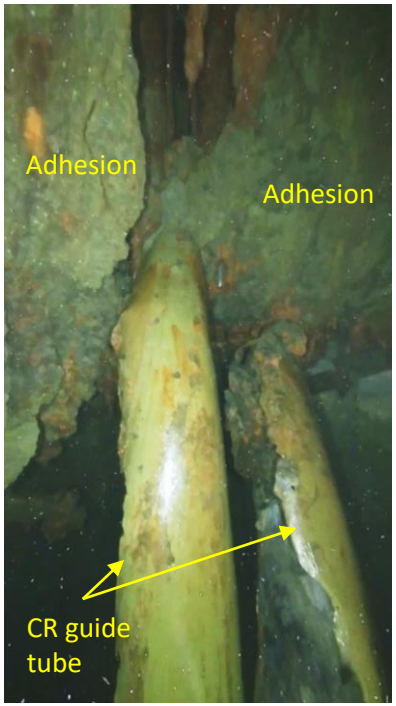
- **Adhesions: Clump-like adhesions were seen on the CRD housing group near the center and southeast side**
- **CRD housing group:** Although the CRD housing group is tilted and deformed, most of it remains in its original position. **There is a space towards the top from the center to the southeast**
- **CRD insertion/withdrawal tube:** Only the southeast portion could be photographed and **damage to the pipes was seen**



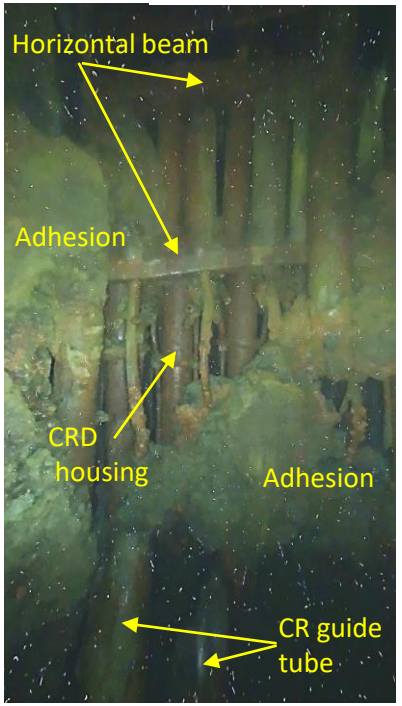
Unit 3 Inside the pedestal (longitudinal section schematic)



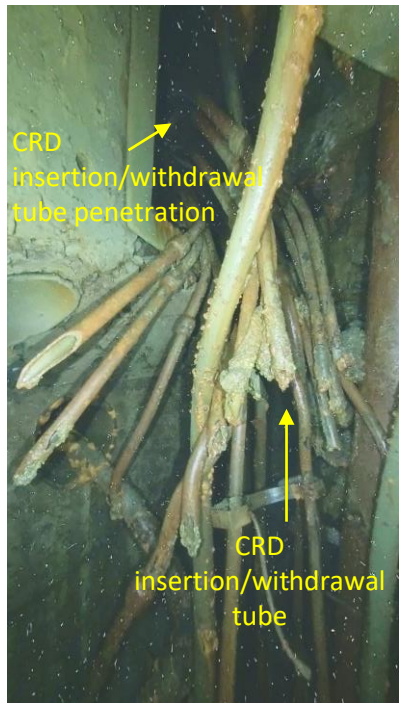
Unit 3 Inside the pedestal (planar schematic diagram)



① : Bottom of arrow



② : Top of arrow



③ : CRD insertion/withdrawal tube (southeast)

■ Key
: Primary obstructions
: Deposits/adhesions

※ The photos in this presentation were taken during this investigation
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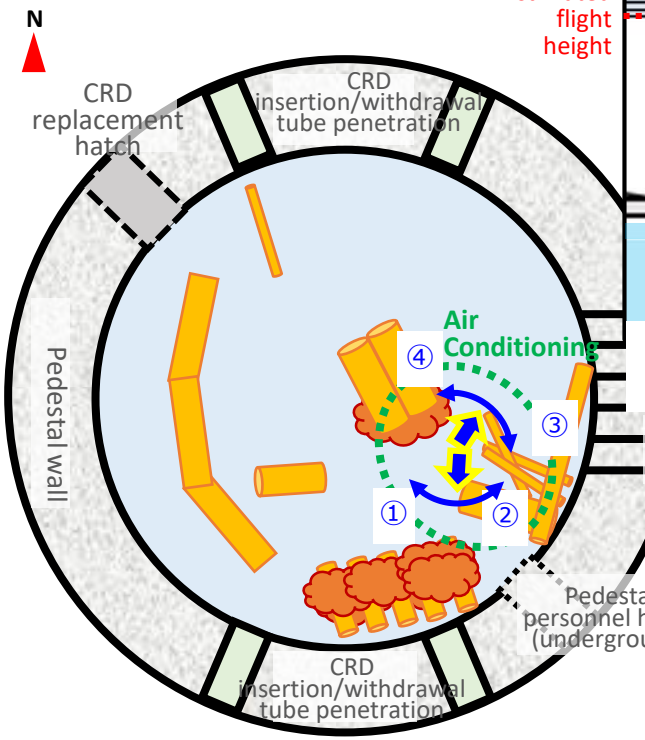
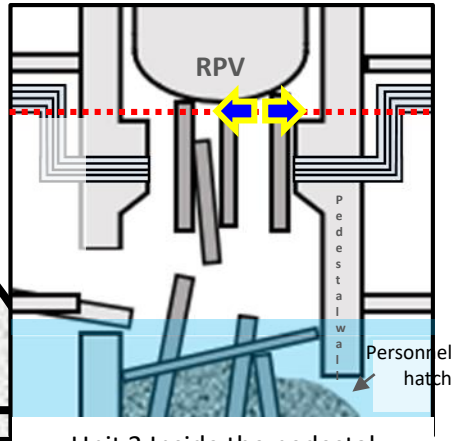
[Reference] Results of an investigation near the bottom of the RPV inside the pedestal

- The drone was flown from the space identified during the investigation of the top until the height possible with the available signal strength **and footage of the area near the bottom of the RPV was acquired**
- **A structure that appears to be the bottom of the RPV and CRD guide tubes lying about where seen**
- It is also assumed that there is a space at the top



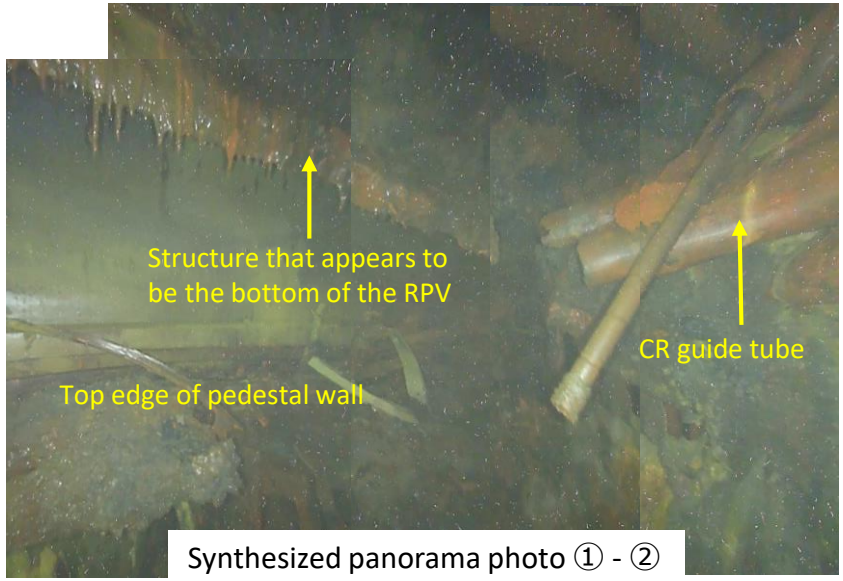
Unit 3 Inside the pedestal (planar schematic diagram)



Unit 3 Inside the pedestal (longitudinal section schematic)

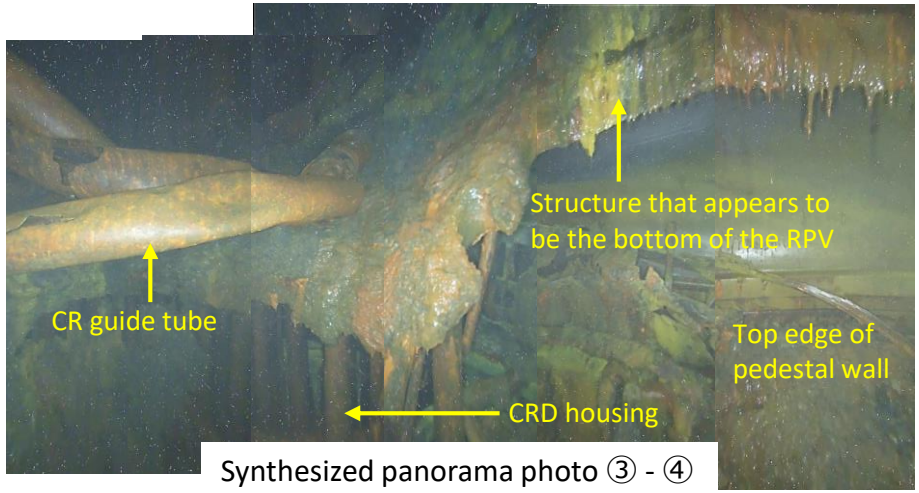
■ Key
: Primary obstructions
: Deposits/adhesions

② ①



Synthesized panorama photo ① - ②

④ ③



Synthesized panorama photo ③ - ④

※ The photos in this presentation were taken during this investigation
※ The positions of the items noted in the Key as well as obstructions and the direction from which photos were taken are all approximate since a detailed examination of the photos is still underway. The names of structures noted in the photos are also assumptions.