

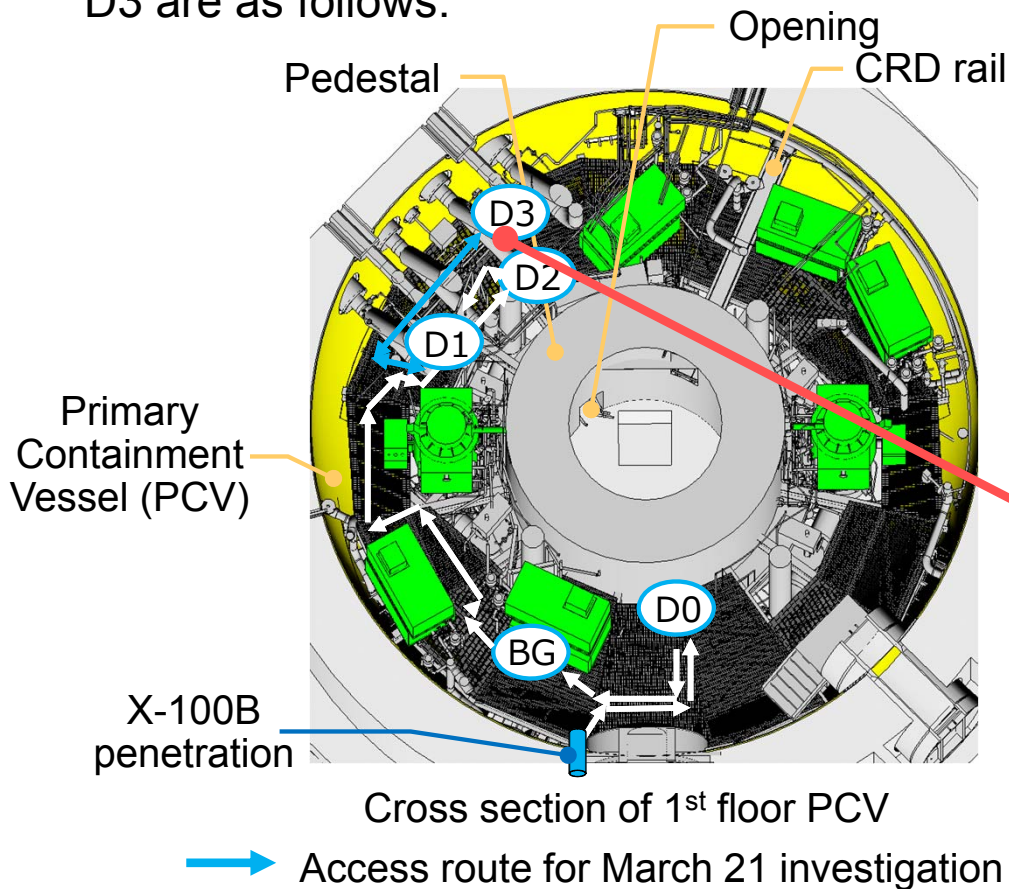
# 1. Progress of Unit 1 PCV internal investigation

(Preliminary report of March 21 investigation) 1/4

Reference  
March 22, 2017

Tokyo Electric Power Company Holdings, Inc.

- Investigation results of the measurement point D3 are as follows.



Cross section of 1<sup>st</sup> floor PCV

→ Access route for March 21 investigation



Underwater image at the measuring point D3



Radiation dose at the measurement point D3 (Provisional values)

- On metal grating: 10 Sv/h
- The lowest point: 3.0 Sv/h (About 1.6m above the PCV basement floor\*)

The conditions of PCV basement will be evaluated after organizing digital images and radiation data.

\*The exact height from the PCV basement floor will be examined later.

Measurement image

Measurement point	Contents of estimation, etc.
D0	Estimation of presence or absence of diffusion of fuel debris from the drain sump
D1, D2	Estimation of presence or absence of diffusion of fuel debris from the opening
D3	Estimating whether or not the fuel debris is likely to have reached the PCV shell
BG	Understanding the background level corresponding to measurement of D0 - D3

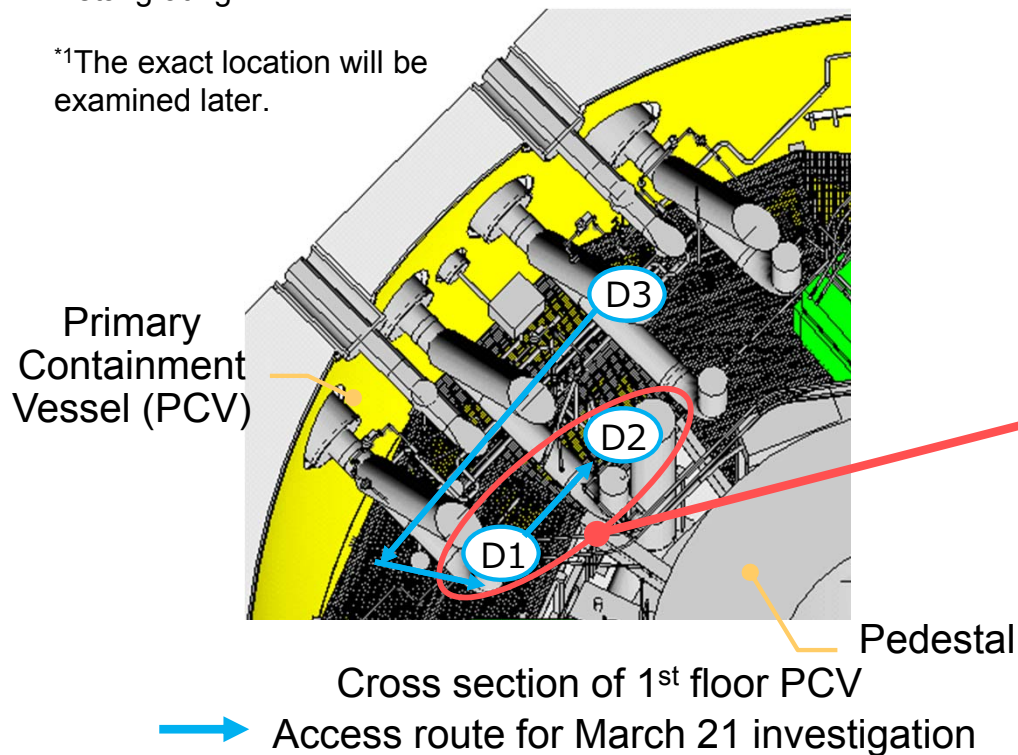
# 1. Progress of Unit 1 PCV internal investigation

(Preliminary report of March 21 investigation) 2/4

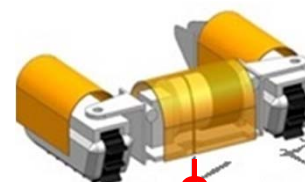
- Investigation results between the measurement points D1 and D2 are as follows.

Between the measurement points D1 and D2<sup>\*1</sup>, the device investigated the three points where it could drop the measurement unit below the metal grating.

<sup>\*1</sup>The exact location will be examined later.



Underwater image between the measurement points D1 and D2



Radiation dose between the measurement points D1 and D2 (Provisional values)

- On metal grating: 8.4 Sv/h
- The lowest point: 6.3 Sv/h (About 0.9m above the PCV basement floor<sup>\*2</sup>)

The conditions of PCV basement will be evaluated after organizing digital images and radiation data.

<sup>\*2</sup>The exact height from the PCV basement floor will be examined later.

Measurement image

Measurement point	Contents of estimation, etc.
D0	Estimation of presence or absence of diffusion of fuel debris from the drain sump
D1, D2	Estimation of presence or absence of diffusion of fuel debris from the opening
D3	Estimating whether or not the fuel debris is likely to have reached the PCV shell
BG	Understanding the background level corresponding to measurement of D0 - D3



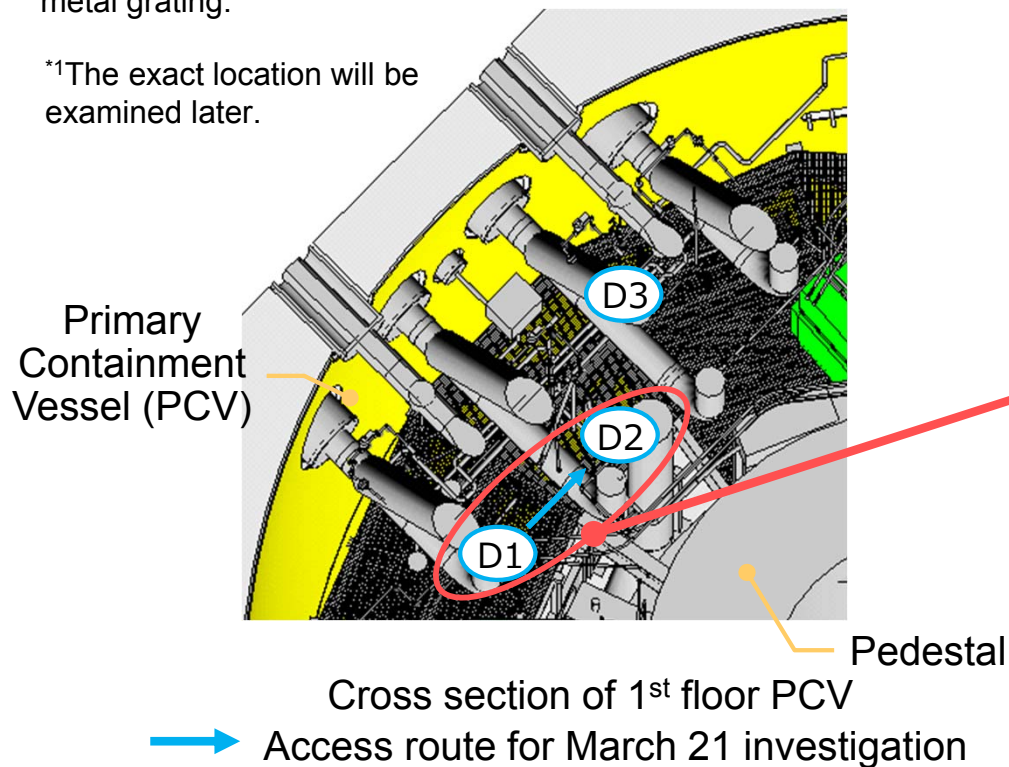
# 1. Progress of Unit 1 PCV internal investigation

(Preliminary report of March 21 investigation) 3/4

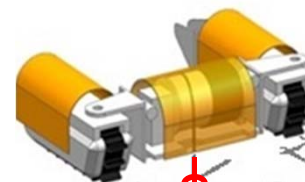
- Investigation results between the measurement points D1 and D2 are as follows.

Between the measurement points D1 and D2<sup>\*1</sup>, the device investigated the three points where it could drop the measurement unit below the metal grating.

<sup>\*1</sup>The exact location will be examined later.



Underwater image between the measurement points D1 and D2



Radiation dose between the measurement points D1 and D2 (Provisional values)

- On metal grating: 8.2 Sv/h
- The lowest point: 5.9 Sv/h (About 0.9m above the PCV basement floor<sup>\*2</sup>)

The conditions of PCV basement will be evaluated after organizing digital images and radiation data.

<sup>\*2</sup>The exact height from the PCV basement floor will be examined later.

Measurement image

Measurement point	Contents of estimation, etc.
D0	Estimation of presence or absence of diffusion of fuel debris from the drain sump
D1, D2	Estimation of presence or absence of diffusion of fuel debris from the opening
D3	Estimating whether or not the fuel debris is likely to have reached the PCV shell
BG	Understanding the background level corresponding to measurement of D0 - D3

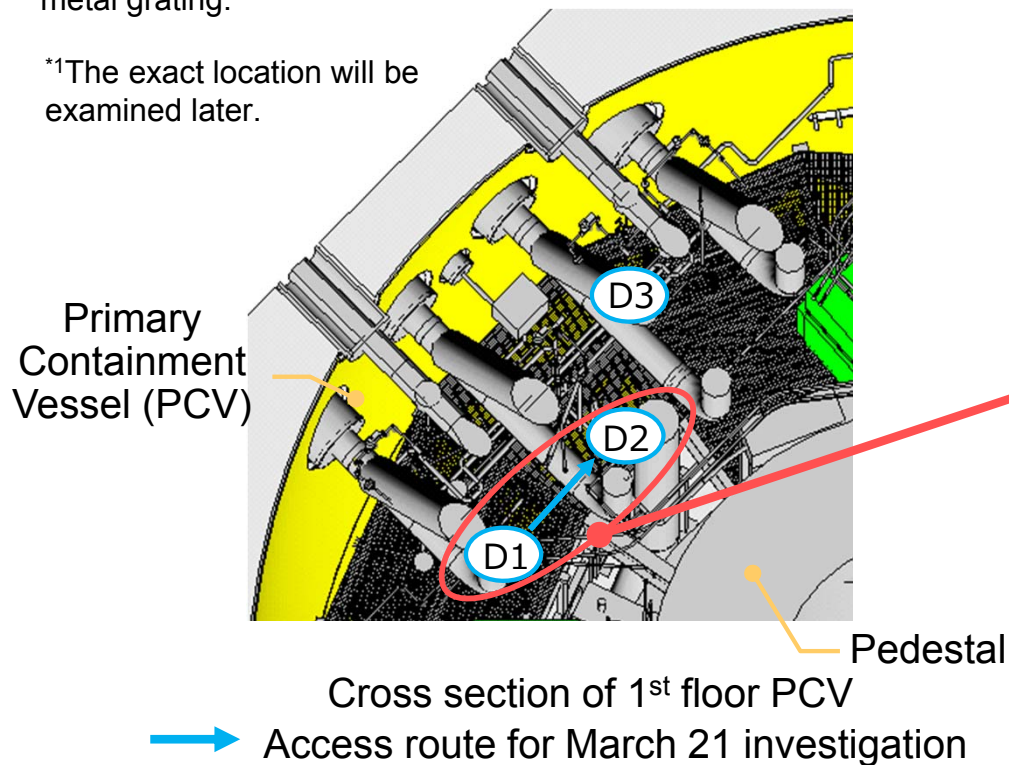
# 1. Progress of Unit 1 PCV internal investigation

(Preliminary report of March 21 investigation) 4/4

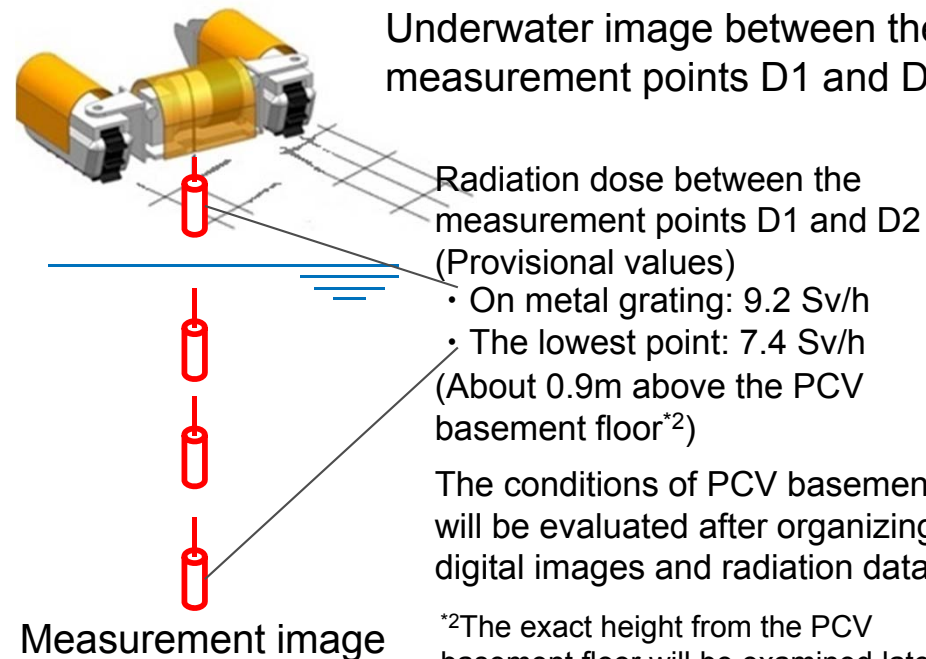
- Investigation results between the measurement points D1 and D2 are as follows.

Between the measurement points D1 and D2<sup>\*1</sup>, the device investigated the three points where it could drop the measurement unit below the metal grating.

<sup>\*1</sup>The exact location will be examined later.



Underwater image between the measurement points D1 and D2

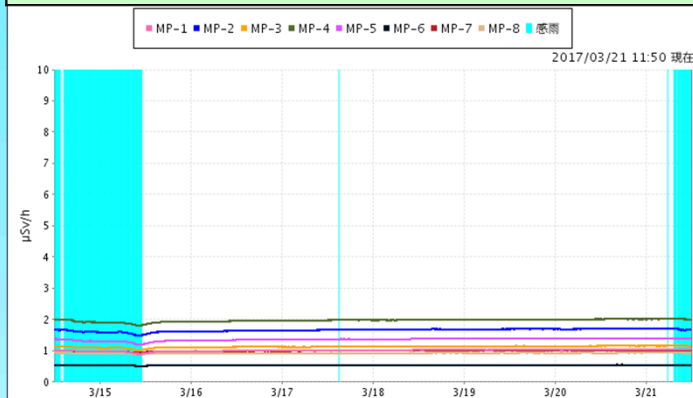


Measurement point	Contents of estimation, etc.
D0	Estimation of presence or absence of diffusion of fuel debris from the drain sump
D1, D2	Estimation of presence or absence of diffusion of fuel debris from the opening
D3	Estimating whether or not the fuel debris is likely to have reached the PCV shell
BG	Understanding the background level corresponding to measurement of D0 - D3

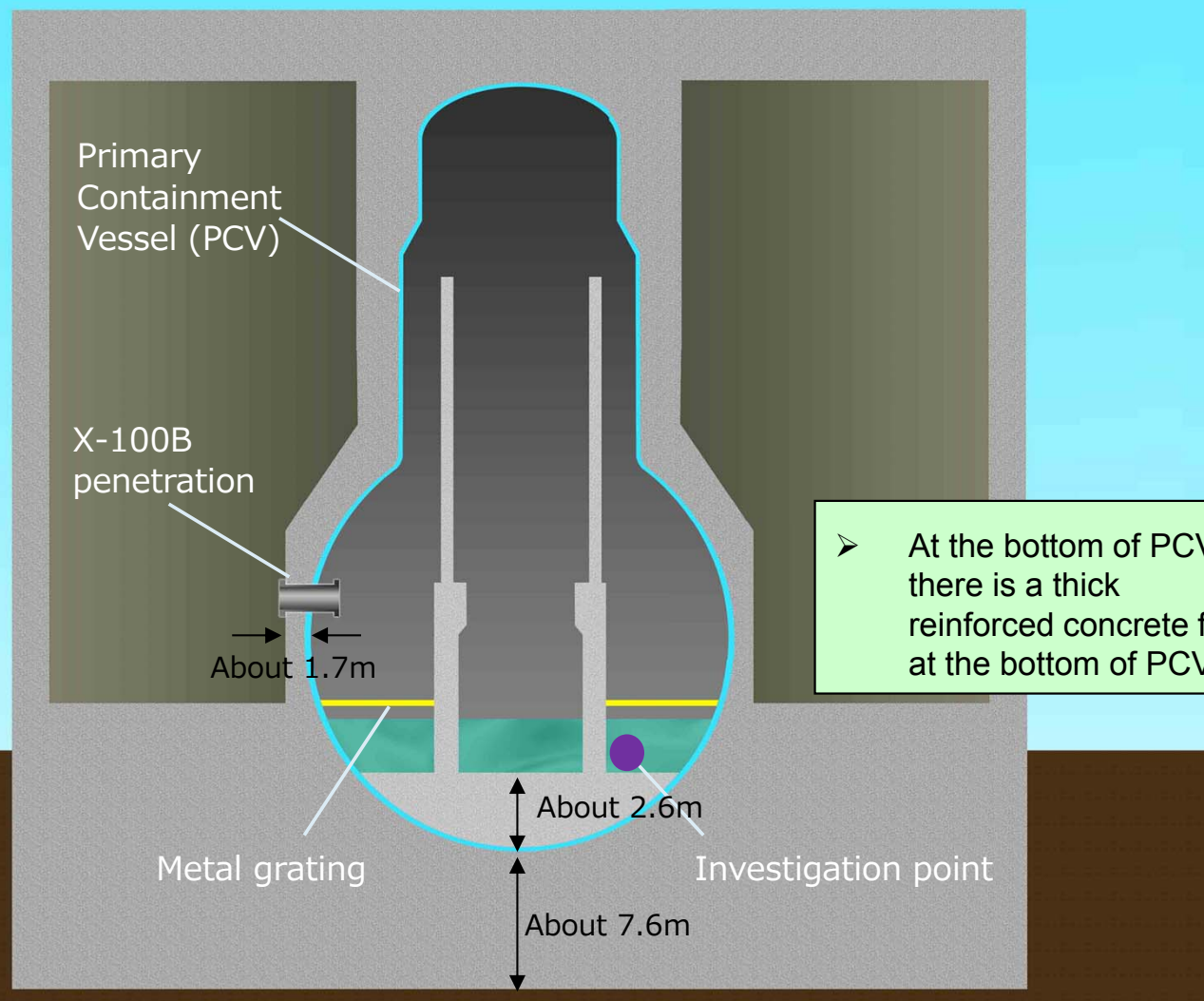
## 2. Impact to the surrounding environment (1/3)

- **No radiation impact has occurred to the surrounding environment because the radiation has been reduced by the shielding of PCV concrete walls and steels.**

There are no changes in measurement values at the monitoring posts before and after the investigation.



Monitoring posts



- At the bottom of PCV, there is a thick reinforced concrete floor at the bottom of PCV.



## 2. Impact to the surrounding environment (2/3)

- The radiation level of 12 Sv/h\* was measured by a dosimeter during the March 20 investigation, but **the radiation impact has been reduced by the shielding** of PCV concrete walls and steel. **No radiation impact has been observed in the surrounding environment.**

\*The radiation rates measured on the metal grating in April 2016 were 4.7-9.7 Sv/h, almost the same levels as the measurement result this time.

- The investigation is conducted **while creating a boundary around the guiding pipe to prevent the air inside the PCV from leaking to the outside.**
- **No significant changes have been observed at the monitoring posts and dust monitors after the investigation, compared to the before.**
- **Real-time data of the monitoring posts and dust monitors along the site boundary are available on the website.**

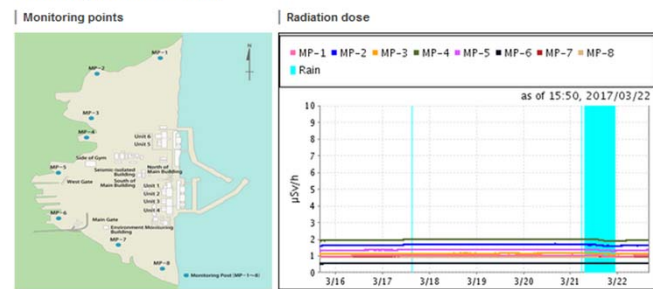
Reference URL: <http://www.tepco.co.jp/en/nu/fukushima-np/f1/index-e.html>

<http://www.tepco.co.jp/en/nu/fukushima-np/f1/dustmonitor/index-e.html>

### Radiation Dose measured at Monitoring Post of Fukushima Daiichi Nuclear Power Station

The following is the radiation doses of the air measured by the monitoring posts (MP1-8), portable monitoring posts and monitoring cars on the premises of Fukushima Daiichi Nuclear Power Station.

#### Monitoring post (MP1 - MP8)



-Measurement value (2017/03/22 15:50)

MP-1	MP-2	MP-3	MP-4	MP-5	MP-6	MP-7	MP-8	Wind Direction	Wind Velocity	Rain
1.015	1.663	1.134	1.966	1.357	0.546	0.990	0.926	north-northwest	6.9	No

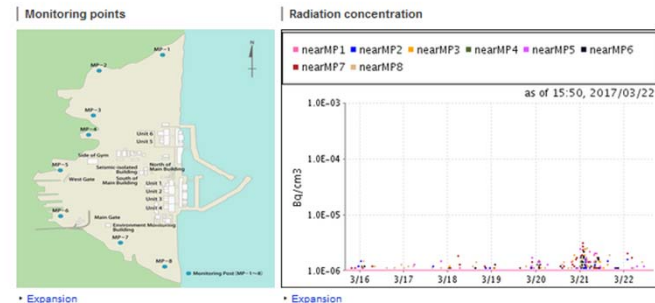
MP Unit: μSv/h Wind Velocity Unit: m/s

As of 11:30 a.m. on March 22, 2017: about 0.5-2.0 μSv/h

\*Radiation dose including the other influence than the PCV interior

### Radioactive Concentration measured at Dust Monitors near the Site Boundary of Fukushima Daiichi Nuclear Power Station

The following are radioactive concentrations in the air measured near the monitoring posts (MP1-8) at the site boundary of Fukushima Daiichi Nuclear Power Station.



-Measurement value (2017/03/22 15:50)  
The time zone when data is not displayed has occurred by adjustment, etc. of equipment.

nearMP1	nearMP2	nearMP3	nearMP4	nearMP5	nearMP6	nearMP7	nearMP8	Wind Direction	Wind Velocity
1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06	-	1.0E-06	north-northwest	4.3

Radioactive Particles Monitor Unit: Bq/cm³ Wind Velocity Unit: m/s

As of 11:30 a.m. on March 22, 2017: 1.0E-06Bq/cm³

## 2. Impact to the surrounding environment (3/3)

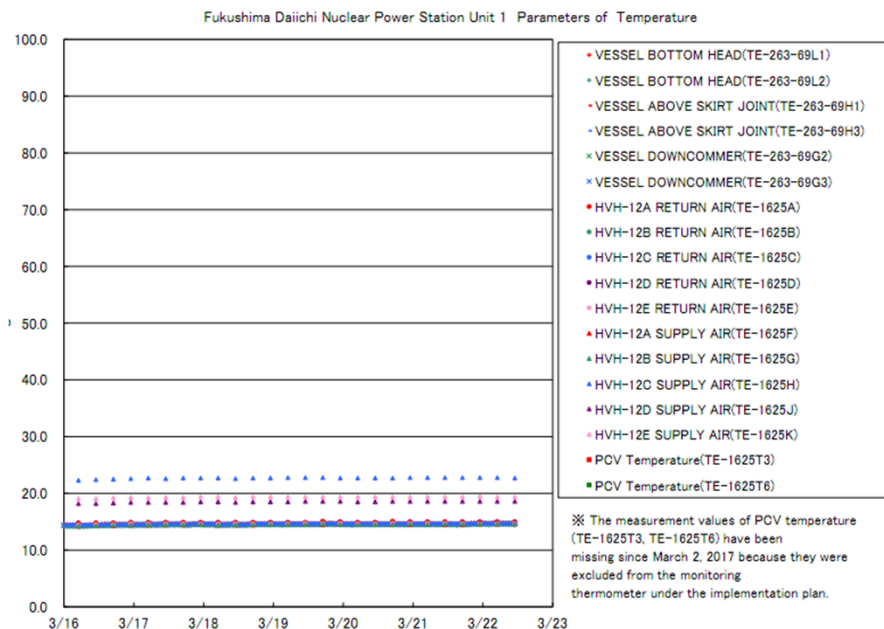
- The measurement result during the investigation does not mean that a new phenomenon has occurred in the PCV, but rather the area that has not been investigated since the March 2011 accident was investigated for the first time.

\*The radiation rates measured on the metal grating in April 2016 were 4.7-9.7 Sv/h, almost the same levels as the measurement result this time.

- Plant parameters are monitored all the time during the investigation, and no significant changes have been observed in the PCV internal temperatures after the investigation, compared to the before. The condition of cold shutdown has not been changed.

- Temperature data inside the PCV are available on the website.

Reference URL: <http://www.tepco.co.jp/en/nu/fukushima-np/f1/pla/index-e.html>



Fukushima Daiichi Nuclear Power Station Plant Parameters  
As of 11:00 on March 22 2017

	Unit 1	Unit 2	Unit 3	Unit 4
Status of water injection to the reactor	FDW line 1.5t/h CS line 1.5t/h (as of 11:00, 3/22)	FDW line 1.5t/h CS line 1.4t/h (as of 11:00, 3/22)	FDW line 1.5t/h CS line 1.4t/h (as of 11:00, 3/22)	
Temperature at the bottom of RPV	VESSEL BOTTOM HEAD (TE-263-69L1) : 14.8°C VESSEL ABOVE SKIRT JOINT (TE-263-69H1) : 14.7°C VESSEL DOWNCOMMER (TE-263-69G2) : 14.6°C (as of 11:00, 3/22)	VESSEL WALL ABOVE BOTTOM HEAD (TE-263-69W-3) : 19.2°C RPV TEMPERATURE (TE-263-69R) : 19.0°C (as of 11:00, 3/22)	VESSEL BOTTOM HEAD (TE-263-69L1) : 18.4°C VESSEL ABOVE SKIRT JOINT (TE-263-69H1) : 19.5°C VESSEL WALL ABOVE BOTTOM HEAD (TE-263-69W1) : 17.1°C (as of 11:00, 3/22)	
Temperature in PCV	HVH-12A RETURN AIR (TE-1625A) : 15.0°C HVH-12A SUPPLY AIR (TE-1625F) : 14.6°C (as of 11:00, 3/22)	RETURN AIR DRYWELL COOLER (TE-16-114B) : 19.9°C SUPPLY AIR(D/W) COOLER HVH-2-16B (TE-16-114B#1) : 19.6°C (as of 11:00, 3/22)	RETURN AIR DRYWELL COOLER (TE-16-114A) : 19.2°C SUPPLY AIR(D/W) COOLER (TE-16-114F#1) : 16.7°C (as of 11:00, 3/22)	
Pressure in PCV	0.39kPa g (as of 11:00, 3/22)	4.38kPa g (as of 11:00, 3/22)	0.24kPa g (as of 11:00, 3/22)	
Flow rate of nitrogen gas injection to Reactors	RPV : 27.93Nt/h PCV : Nt/h (as of 11:00, 3/22) ※4	RPV : 13.58Nt/h PCV : Nt/h (as of 11:00, 3/22) ※4	RPV : 16.58Nt/h PCV : Nt/h (as of 11:00, 3/22) ※4	
Outlet flow from PCV gas control system	19.84Nt/h (as of 11:00, 3/22)	16.41Nt/h (as of 11:00, 3/22)	20.83Nt/h (as of 11:00, 3/22)	
Hydrogen concentration in PCV	System A : 0.00vol% System B : 0.00vol% (as of 11:00, 3/22) ※1	System A : 0.05vol% System B : 0.06vol% (as of 11:00, 3/22)	System A : 0.04vol% System B : 0.06vol% (as of 11:00, 3/22)	
Radioactive concentration in PCV (Xe 135)	System A : indicated value 6.69E+04 detection limit 5.90E+04 Ba/orf System B : indicated value 7.90E+04 detection limit 4.70E+04 Ba/orf (as of 11:00, 3/22) ※2	System A : indicated value ND detection limit 1.7E+01 Ba/orf System B : indicated value ND detection limit 1.5E+01 Ba/orf (as of 11:00, 3/22)	System A : indicated value ND detection limit 2.5E+01 Ba/orf System B : indicated value ND detection limit 2.6E+01 Ba/orf (as of 11:00, 3/22)	
Temperature in the spent fuel pool	25.4°C (as of 11:00, 3/22)	27.8°C (as of 11:00, 3/22)	26.9°C (as of 11:00, 3/22)	14.1°C (as of 11:00, 3/22)
PCV skimmer surge tank level	2.80m (as of 11:00, 3/22)	3.80m (as of 11:00, 3/22)	3.42m (as of 11:00, 3/22)	42.69×100mm (as of 11:00, 3/22)

[Information about measurements]  
 ※1 : In case that the instrument indicates minus hydrogen density, "0%" is recorded. Because there is the possibility of minus indication due to the instrumental precision when hydrogen density is very low.  
 The nitrogen concentration in the PCV gas control system is provided.  
 ※2 : In case that the instrument reading is below measurable limit, "0%" is recorded. The radioactivity density (Xe135) in the PCV gas control system is provided.  
 ※3 : Flow rate value are adjusted according to the temperature and the pressure under leakage condition.  
 ※4 : Nitrogen gas injection is under suspension.

Note:  
Some indicators might not be functioning properly beyond the normal condition for usage affected by the earthquake and subsequent events. The corresponding evaluation situation is described at the available information from indicators and also focusing on trends taking uncertainty of indicators into consideration.

As of 11:00 p.m. on March 22, 2017: about 14-23 °C