Water Flow Identified at First Floor of Unit 3 Reactor Building
-Water Flow from the Main Steam Isolation Valve Room to the Drainage Ditch on the Floor-

<Reference>
January 22, 2014
Tokyo Electric Power Company

<Reference>

[On January 18]

- At around 2:40 PM, a TEPCO employee found* a water flow from the door of the main steam isolation valve room in the northeast area on the first floor of Unit 3 Reactor Building to the nearby floor drainage ditch.

  *He was watching the live image in the screen sent by a debris-removal robot working in the Unit 3 Reactor Building.

- The water flowed into the floor drainage ditch, and hence it did not leak into the outside of Reactor Building.
- Neither remarkable changes in the indication value of the monitoring not abnormalities of the plant parameter have been found.

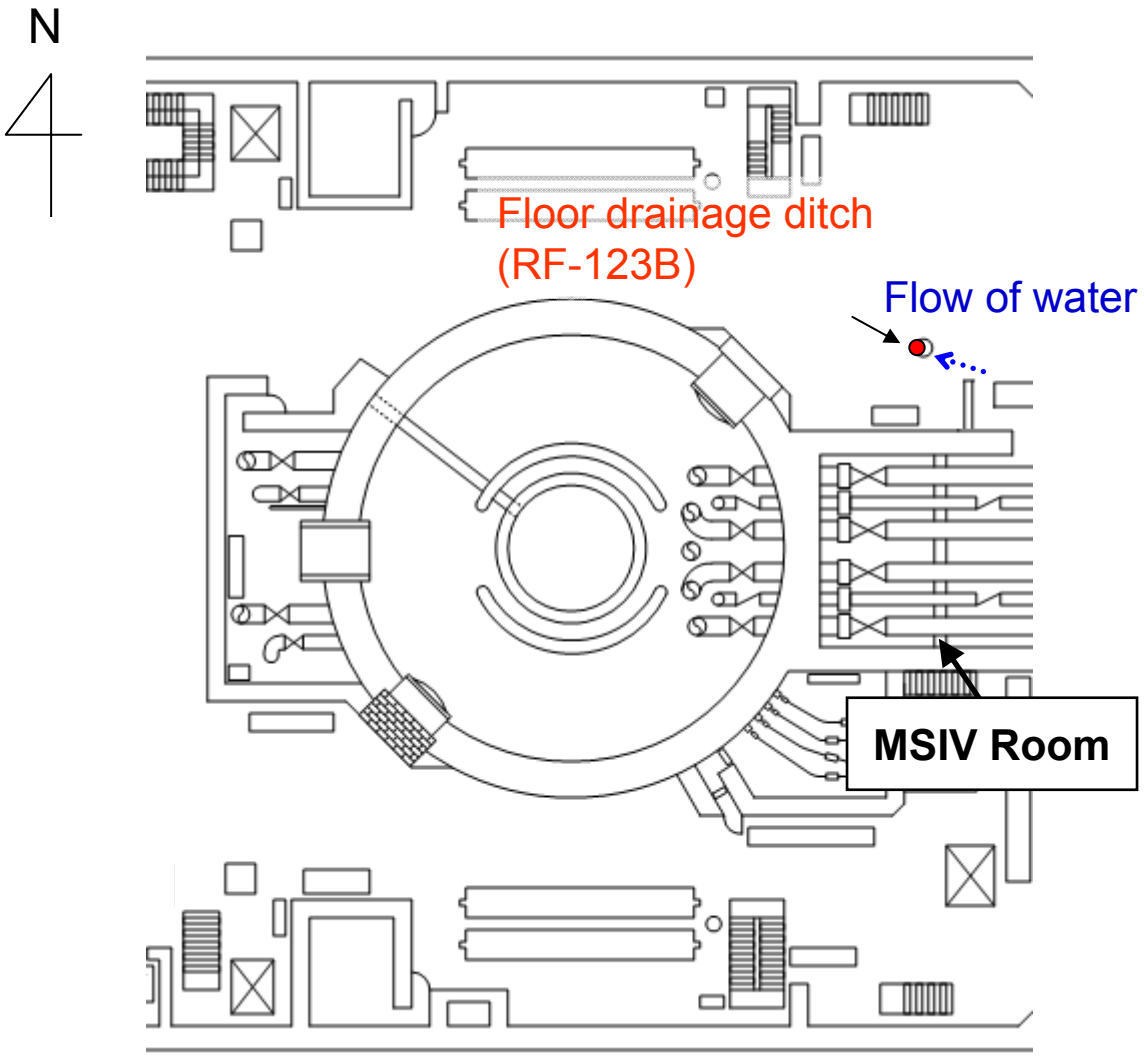
[On January 20]

- We removed garbage from the floor drainage ditch where the flowing water flowed.

[On January 21]

- We found that the volume of the flowing water greatly decreased when we were operating a robot to remove debris.
- No abnormality has been found in the related plant parameter since around 1:00 PM when we found the decrease of the amount of the flowing water.

Floor plan: Flowing water on the first floor at Unit 3 Reactor Building



Floor Plan of the first floor of Unit 3 Reactor Building

Flowing water (First detection on January 18)

Flowing water (After decrease on January 21)

Photo source: Tokyo Electric Power Company

Investigation for flow passage etc.

- Analysis of flowing water
  - We obtained a sample of the flowing water via a robot (Packbot) and analyzed it (cf. p.5 on January 19).

    → Relatively high density of cesium was found, and its organization was similar to that of accumulating groundwater in Turbine Building.
- Investigation into temperature and flow volume of the flowing water
  - We measured the temperature of the flowing water (on January 19), and estimated the flow volume based on the situation of the water flow (On January 20).

    → The temperature was approx. 20℃ . It is higher than the temperature of reactor injection water.

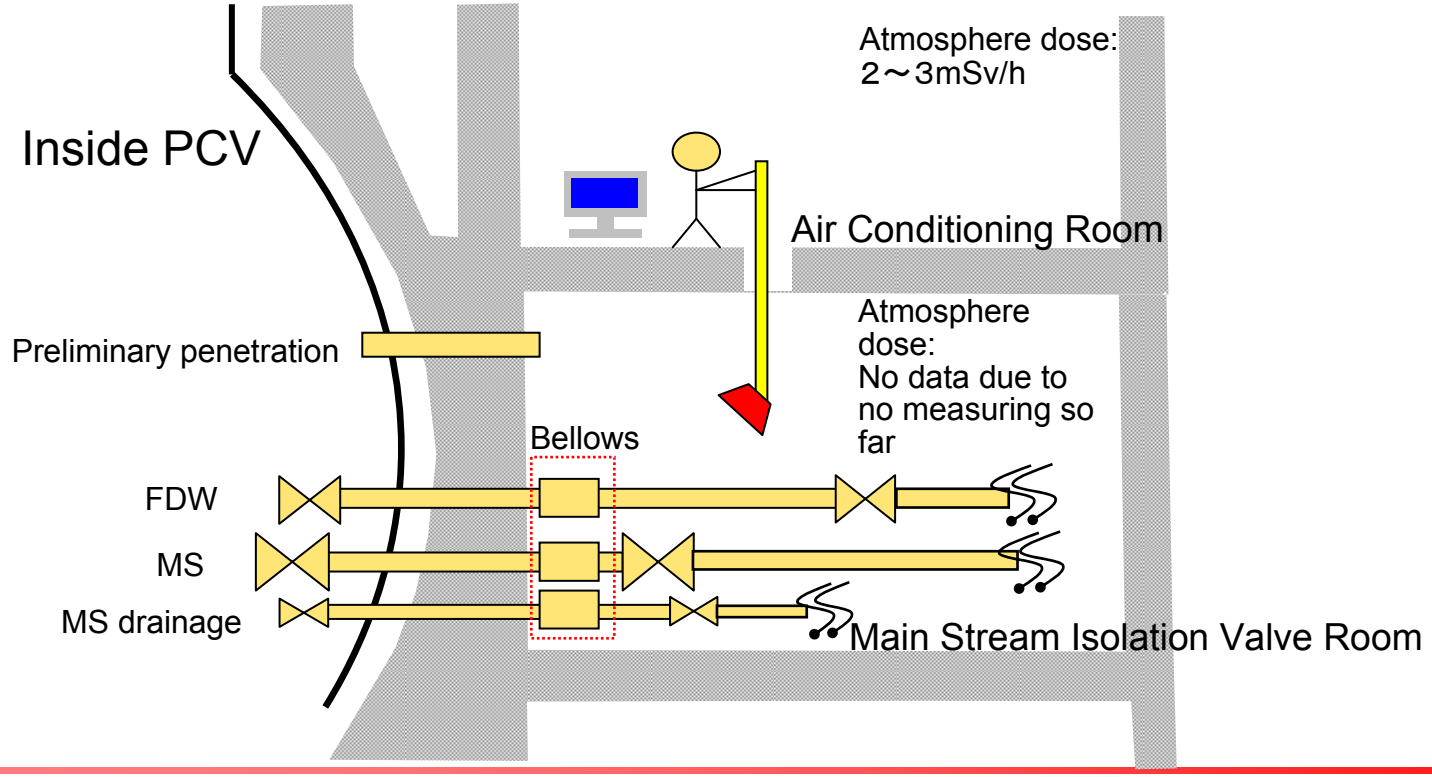
    → We estimate the flow volume is approx. 1.5m^3 (based on the velocity of floatage).

Investigation in future

- Investigation inside the main steam isolation valve room

It is assumed that the flowing water arose from the main steam isolation valve room. Judging from the temperature of the flowing water, the water flow is probably the accumulating water inside the PCV. We will investigate into the penetrating part in the main steam isolation valve room. (The process of work is under consideration)

(Example) Investigation method via a camera under consideration



[Reference] Analysis of the flowing water

Name of sample	Time and date of sampling		Gross-β	Cs-134	Cs-137
			Bq/cm3	Bq/cm3	Bq/cm3
Leaked water obtained at the main steam isolation valve room on the first floor at the Unit 3 Reactor	Jan 19, 2014	11:20 AM	2.4E+04	7.0E+02	1.7E+03
Accumulating water on the basement floor of the Unit 3 Turbine Building	Dec 6, 2013	11:00 AM	5.7E+04	7.3E+03	1.8E+04
Water at inlet of desalination apparatus	Dec 10, 2013	10:06 AM	2.3E+04	6.2E-01	2.0E+00
Water at outlet of desalination apparatus	Dec 10, 2013	10:18 AM	2.8E+00	ND*1	ND*2

ND*1: Below 1.8 E-2
ND*2 : Below 2.7 E-2

[Reference] Results of temperature measurement

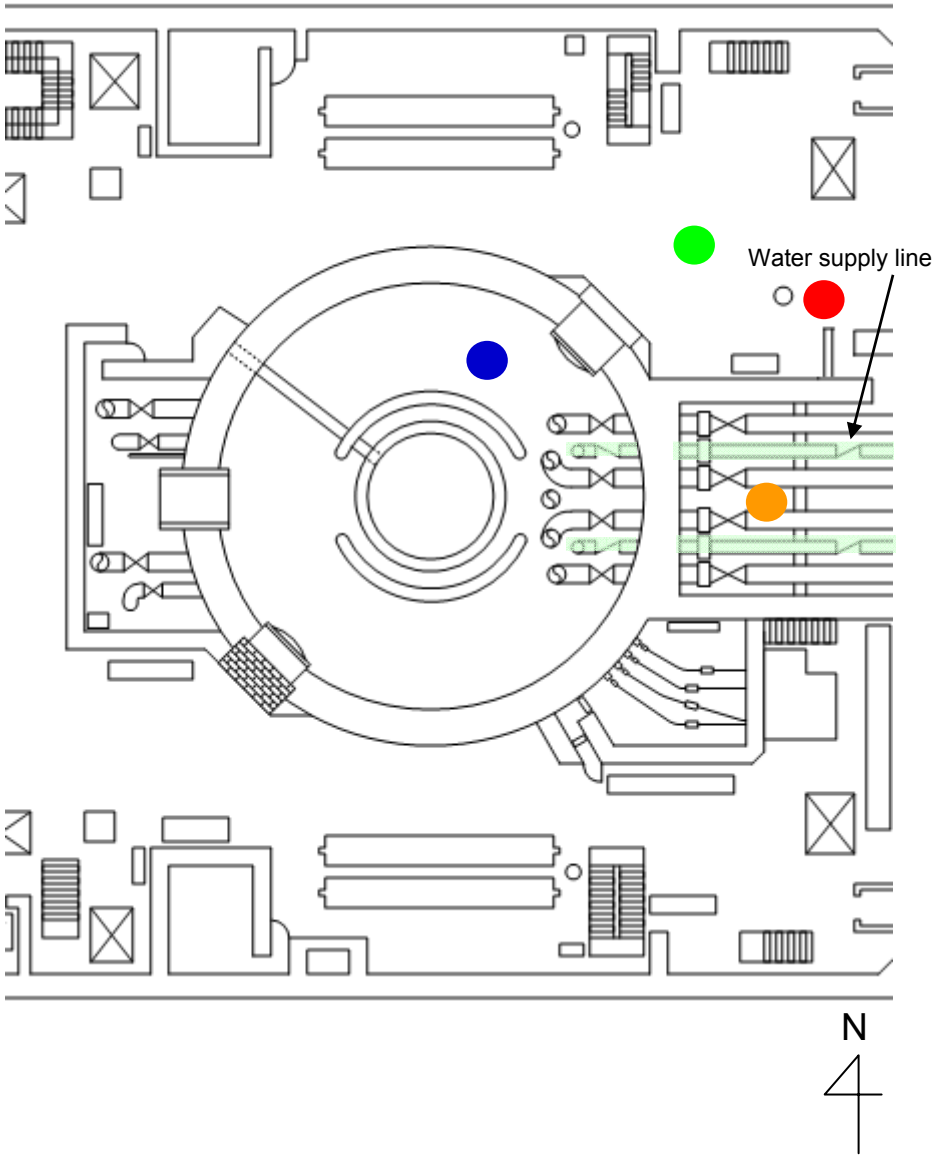
●Temperature of the flowing water:
Approx. 20℃℃

●Atmosphere temperature inside Containment Vessel:
Approx. 22℃

●Atmosphere temperature inside Main Steam Isolation Valve Room:
Approx. 15℃

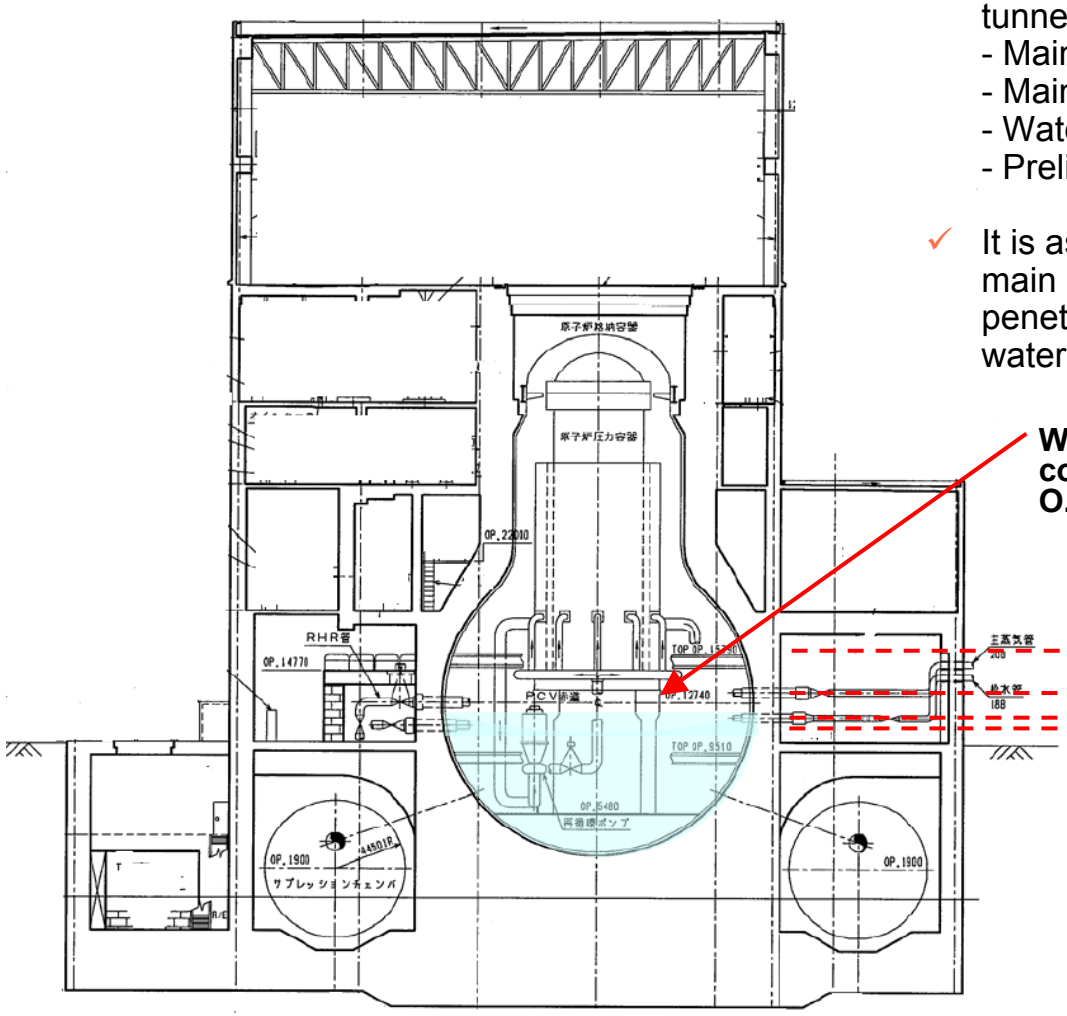
●Atmosphere temperature on the first floor in Reactor Building:
Approx. 7℃
－Temperature of water injected into Reactor Building: Approx. 7℃

*As of January 19, 2014



[Reference] Estimation of flow passage

- Pipe penetrating parts in PCV
  - ✓ There are in all 9 pipe penetrating parts in the MS tunnel room.
    - Main steam isolation system (X-7A to D)
    - Main steam isolation system drainage（X-8）
    - Water supply system (X-9A and B)
    - Preliminary penetration (X-46 and 47)
  - ✓ It is assumed that the main steam isolation system and main steam isolation system drainage (in all 5 penetrating parts) are located at the lower level than the water level in PCV.



Water level in PCV (estimated based on converted-pressure)
O.P.12020～12090

Preliminary: (X-46 and 47)
Height: O.P. Approx. 14800～15300

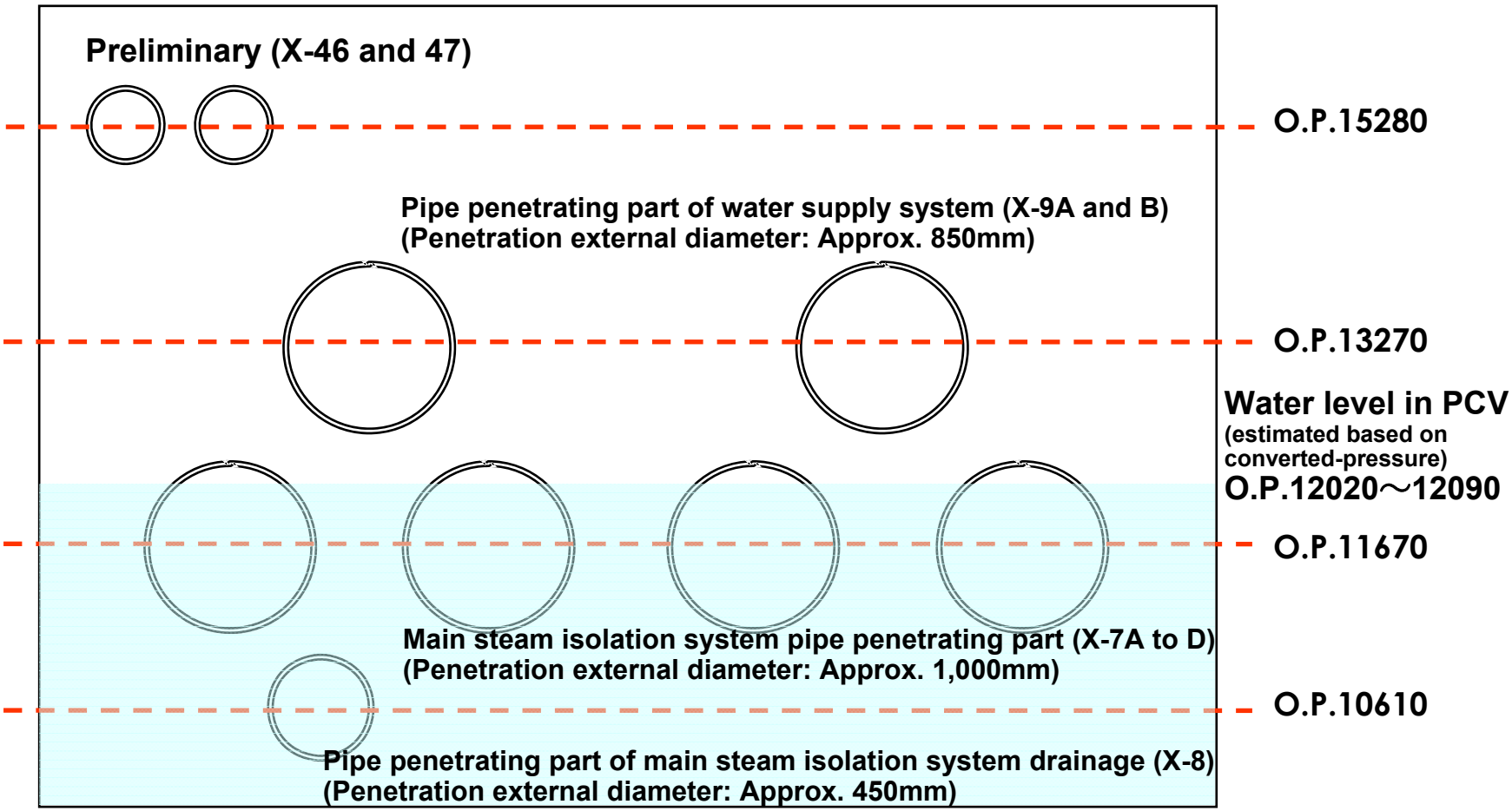
Pipe penetrating part of water supply system (X-9A and B)
Height: O.P. Approx. 12800～13700

Pipe penetrating part of main steam isolation system (X-7A to D)
Height: O.P. Approx. 11100～12200

Main steam isolation system drainage (X-8)
Height: O.P. Approx.10400～10800

Cross sectional: Unit 3 Reactor Building

[Reference] Estimation of flow passage

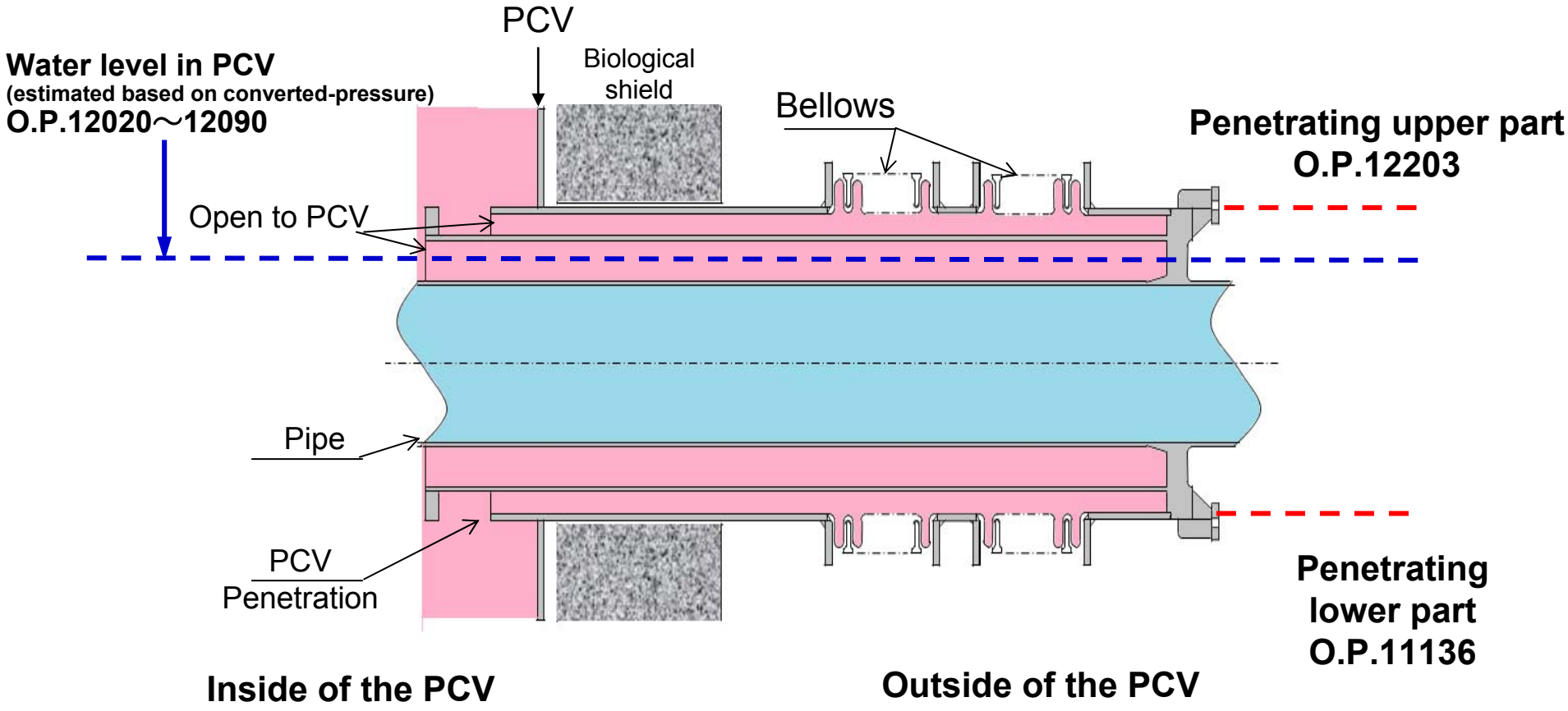


(When observed from the inside of PCV)

Cross sectional: Pipe penetrating parts inside Main Steam Isolation Valve Room

[Reference] Structure

Pipe penetrating part (Bellows style)



Pipe penetrating parts (X-7A to D) height of water level and main steam isolation system