Attachment

Further change in the storage level of waste water transferred to the Process Main Building (summary)

1. Summary

In regard with the large quantity of radioactive wastewater at turbine buildings of Unit 2 and 3 (hereafter stated as “high level wastewater”), we decided to urgently transfer it to the Process Main Building and High Temperature Incinerator Building, as we cannot deny the possibility of its leakage.

After that, we implemented the transfer to the Main Process Building and High Temperature Incinerator Building. As the water level reached the criterion (the first basement, floor level of the building), and transfer to the High Temperature Incinerator Building intervenes with other works, we suspended the transfer and checked the water level. As a result, the water level at the Main Process Building was stabled, however, it was confirmed that the water level at the High Temperature Incinerator Building tends to be decreasing. From later investigation, it is considered that there is a high possibility of leakage to the adjacent underground corridor, and transfer is being suspended. However, as the amount of high level wastewater at Unit 2 and 3 tended to be increasing, we decided to change the decision criteria and transfer to the Process Main Building.

After the transfer of the high level wastewater in the Turbine Building of Unit 2, the water level in the Main Process Building is expected to be the vicinity of the new decision criteria (the bottom of the penetrated area, B1). As the high level wastewater in the Turbine Buildings of Units 2 and 3 is expected to increase, we will transfer to the Process Main Building beyond the previous decision criteria of June 4, 2011.

2. The summary of modification and the reason

（1）Modification summary

【Main Process Building】

	May 15, 2011	June 4, 2011	This time
Transfer Volume	Approx. 10,000m3	Approx. 11,500m3	Approx. 14,200m3
Criteria	Up to the first basement, floor level （OP3700）	Up to the first basement, bottom of penetrated area	Up to 1.4m above the floor, B1（OP5100）

		(OP4200)	

（２）Modification reason

The water level of high level wastewater of Unit 2 and 3 tends to be increasing due to injection of water to reactors. To prevent possible leakage to the environment, transfer and storage is being carried out to/at Centralized Radiation Waste Treatment Facility, however, if the transfer is kept suspended longer, the risk of leakage will increase as the water level may increase beyond OP4000, before the Radioactivity Treatment System commences its operation (after June 15).

Therefore, we transferred 1,500m3 of the high level wastewater in the Turbine Building, Unit 2. Based on the criteria of June 4, 2011. After termination of transfer, the water level in the Turbine Building of Unit 2is expected to increase again. As such, as soon as ready, we are planning to transfer to the condenser of Unit 1. As for the wastewater in the Turbine Building of Unit 3, we are transferring to the condenser of Unit 3. The water level is showing slight decrease. While we can defer the time when the water level of the high level wastewater reach OP4000 by transferring wastewater to condensers for both Units 2 and 3, as there is a residual risk that the water level exceeds OP4000 and the water leaks to the outside of the system, we further revise the water storage level at the Process Main Building to reduce the risk of possible leakage to the outside of the system.

By making modifications to the storage level regarding the transfer to the Main Process Building as stated above and transferring 2,700m3 of high level wastewater, we can defer the time when the water level in the Turbine Buildings of Unit 2 and 3 reach OP4000 by five days and reduce the risk of possible leakage.

（３）About the criteria

With regard to the transfer of high level waste water at Unit 2 and 3, priority is put on preventing contamination by not allowing any leakage of high level waste water outside of the system.

High level wastewater is transferred from Unit 2 to the Main Process Building basement, and the water level is supposed to reach the vicinity of 1.4m above the floor of B1. From now on, in transferring beyond the initial criterion, we need to define the new criterion in order to prevent possible leakage outside of the system.

For the prevention of leakage from the building, we will use the underground water pressure. If the water level difference becomes below 90cm, and underground water level is decreasing, we will transfer in a way to decrease water level at the building.

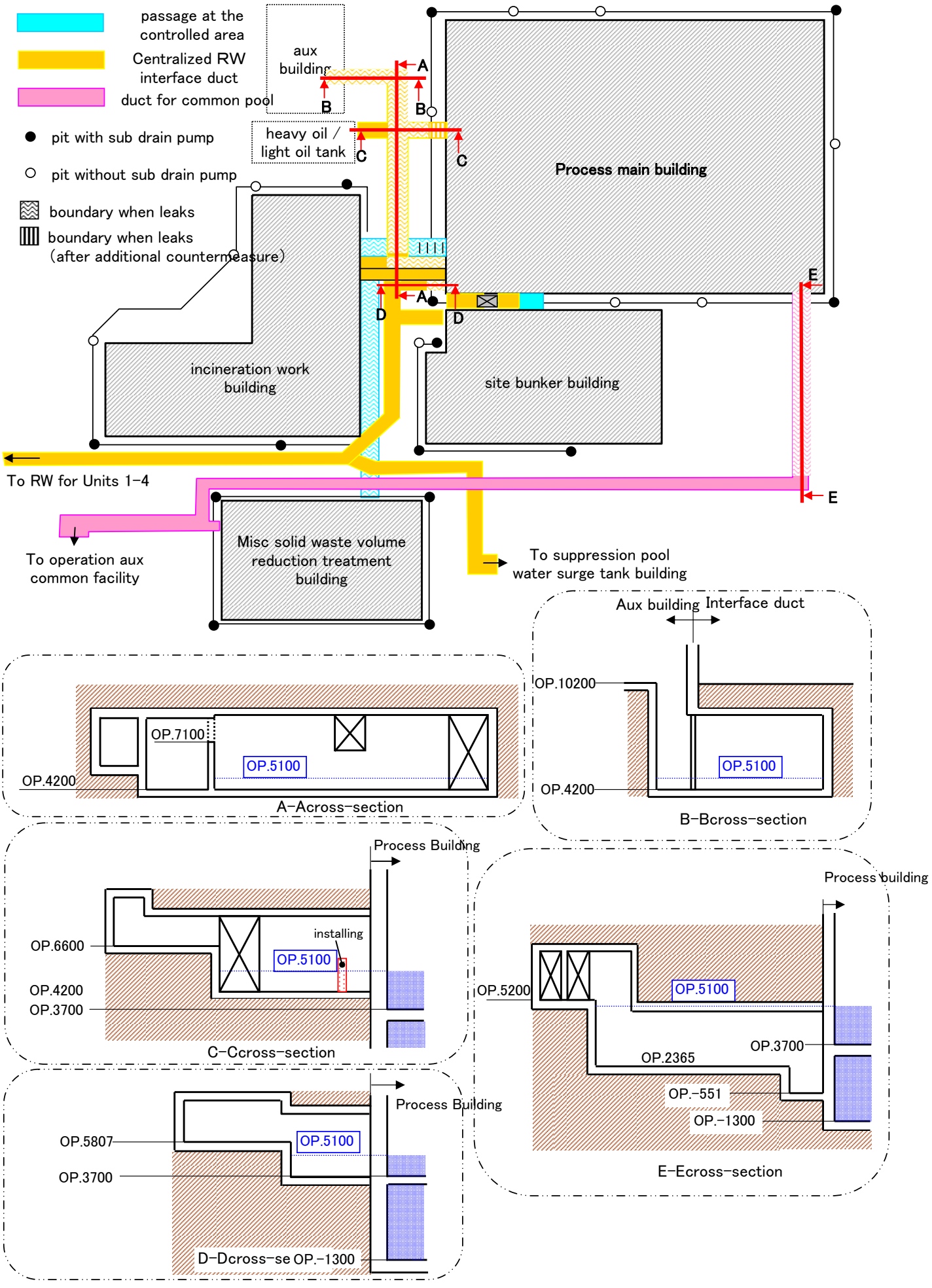
On the other hand, treatment to block water leakage at the penetrated part within and out of the Main Process Building has already been completed. However, taking account of the fact that there was a leakage from the High Temperature Incinerator Building to the adjacent underground corridor, we will examine the reliability of penetrated area of the Main Process Building.

The High Temperature Incinerator Building started receiving the high level wastewater in the Turbine Building of Unit 3. After that, as there was an interference with the other work, we stopped the transfer, checked the water level and confirmed the lowering trend. We investigated where the leaked water went. As the water level in the adjacent underground corridor was increasing, we presume that the high level wastewater in the High Temperature Incinerator Building was leaking to the underground corridor. There are several possible causes for the leakage such as shoddy workmanship at the concrete fill, shoddy workmanship of the water seal at the penetrated part of piping or conduit, or oversight of work at the penetrated part. By comparing these, leakage from the concrete fill is the likely cause.

On the other hand, as to the penetrated parts of the Process Main Building, as the water level in B2 already storing water is stable after transfer, these are reliable. As for B1, the penetrated parts lower than 90cm below the underwater level are penetration of piping (19 places). From the work record, there were no shoddy workmanship such as oversight in applying sealer or falling off of shutoff plates, these are reliable.

Should the water seal is incomplete, as the outside of the penetrated parts below OP5100 (90 cm below the underground water level plus margin) are surrounded by underground corridors with rise parts and walls, the leaked water will be contained. As such, the risk of leakage to outside of the system is sufficiently low.

As such, we store water at OP5100 (including margin) that is below OP5610 (the risk of water leakage to outside of the system is sufficiently low at this level).


passage at the controlled area
Centralized RW interface duct
duct for common pool
pit with sub drain pump
pit without sub drain pump
boundary when leaks
boundary when leaks (after additional countermeasure)
aux building
heavy oil / light oil tank
Process main building
incineration work building
site bunker building
Misc solid waste volume reduction treatment building
To RW for Units 1-4
To operation aux common facility
To suppression pool water surge tank building
A
B
C
D
E
Aux building Interface duct
OP.10200
OP.5100
OP.4200
B-Bcross-section
OP.7100
OP.5100
OP.4200
A-Across-section
Process Building
installing
OP.6600
OP.5100
OP.4200
OP.3700
C-Ccross-section
Process building
OP.5200
OP.5100
OP.3700
OP.2365
OP.-551
OP.-1300
E-Ecross-section
Process Building
OP.5807
OP.5100
OP.3700
D-Dcross-se OP.-1300