Multi-nuclide removal equipment (ALPS) and high integrity container (HIC) exhaust filters (Update 2)

< Reference document >
September 27, 2021 Tokyo Electric Power Company Holdings, Inc. Fukushima Daiichi Decontamination & Decommissioning Engineering Company

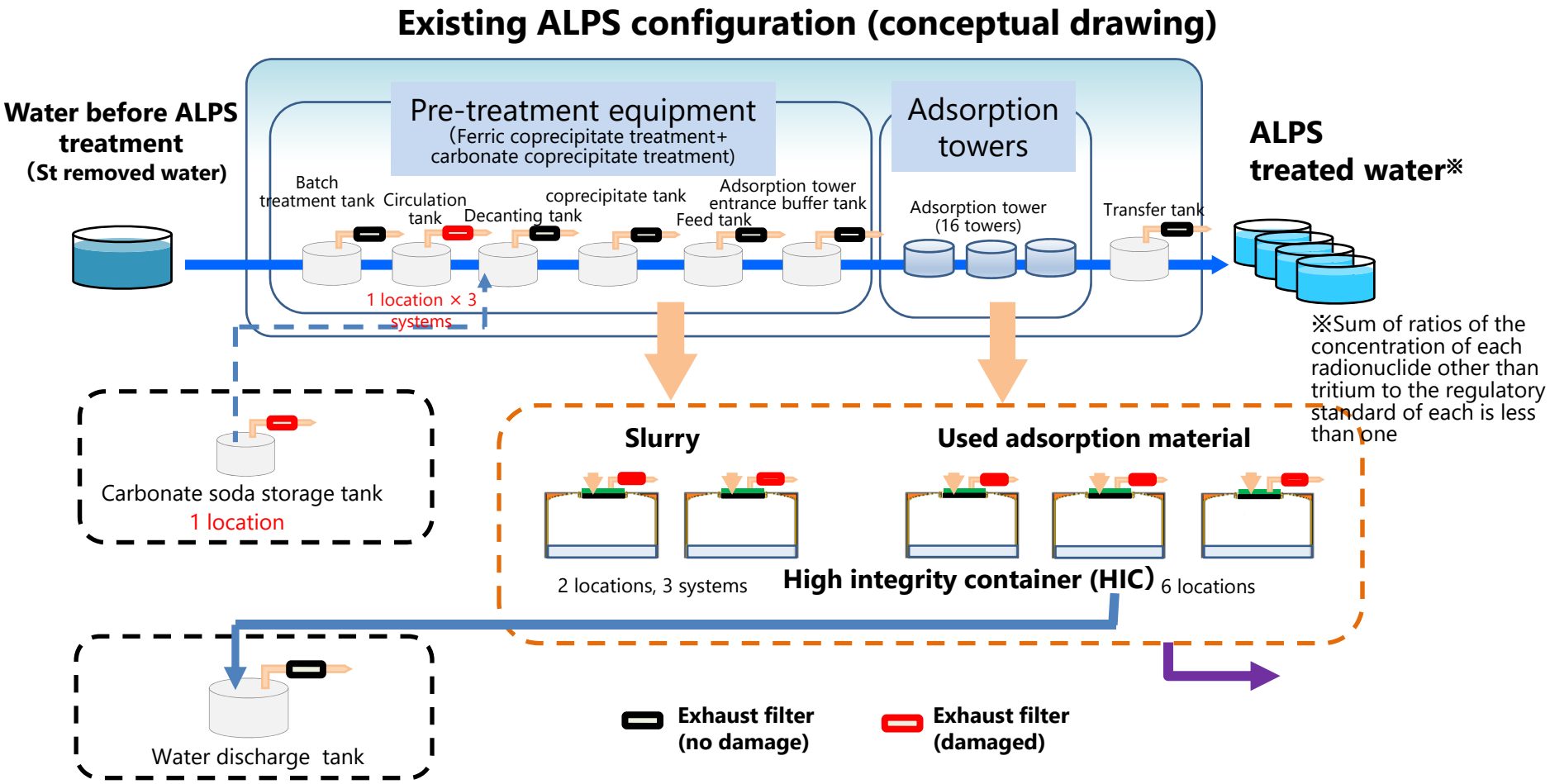
- In light of the damage sustained to the high integrity container (HIC) exhaust filters in multi-nuclide removal equipment (ALPS), inspections of the exhaust filters used in ALPS (Additionally installed ALPS: 18 locations; existing ALPS: 28 locations; high-performance ALPS: 5 locations) were started on September 17.
- Inspections for the additionally installed ALPS were completed by September 20. And filters in 4 out of the 18 locations were found to be damaged.
- Inspections of 11 out of the 28 locations have been completed for existing ALPS as of September 20 and exhaust filters in 1 location has been found to be damaged.

(The above was announced on September 21)

- Inspections of exhaust filters in existing ALPS and high-performance ALPS (including ancillary equipment) were continued after September 20, and all inspections were completed as of September 24.
- Inspections found that exhaust filters in 4 out of the 28 locations*1 (including the 1 location announced on September 21) were damaged. No damage was identified in the filters for high-performance ALPS (5 locations).
- Exhaust filters are an ancillary equipment that is not related to the purifying function. Damage to the exhaust filter does not affect ALPS purification performance or treatment of water.
- The exhaust filters found to be damaged here will be gradually replaced or alternative filters installed. Permanent measures will be implemented in accordance with results of an investigation for the cause of damages.

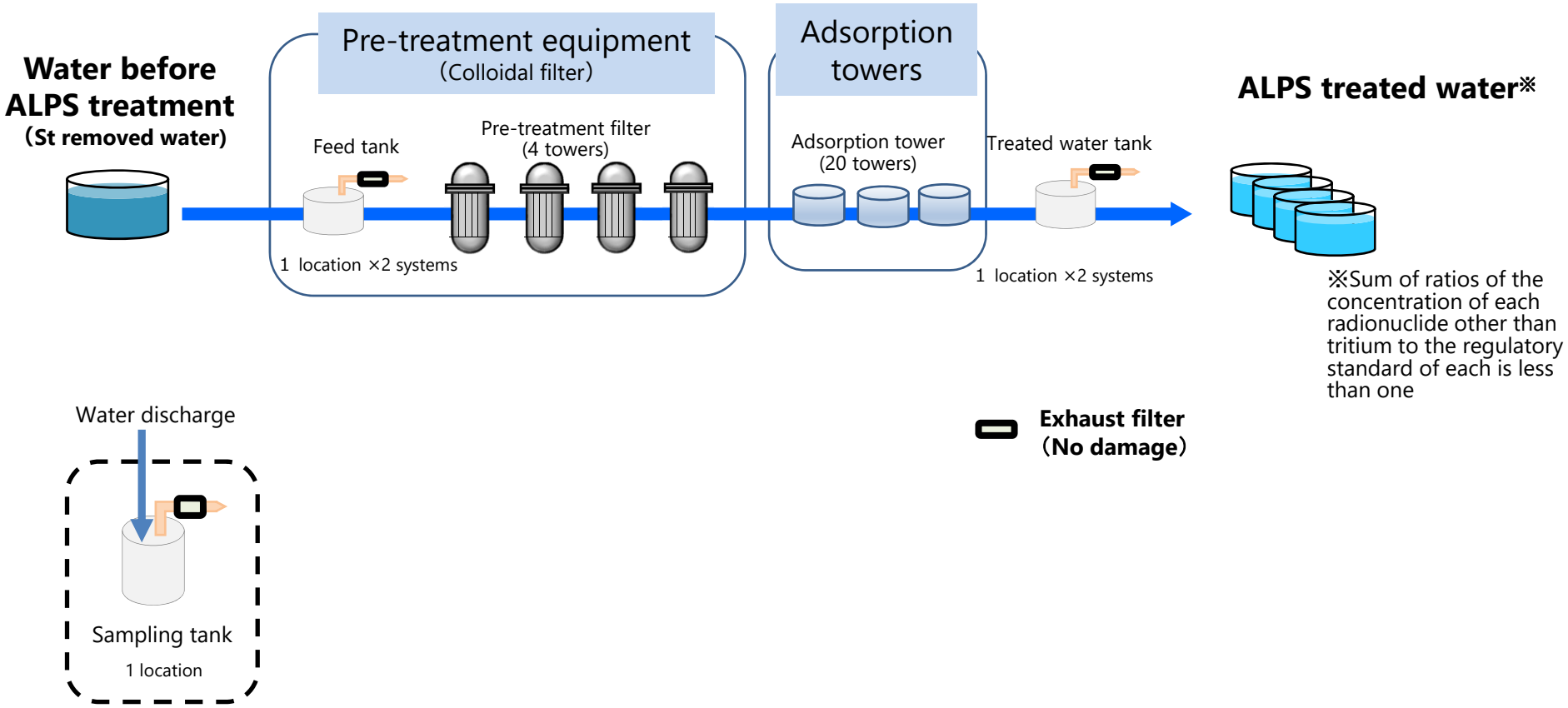
※1 Carbonate soda storage tank: Tank for supplying chemicals used in pretreatment facilities
Circulation tank A, circulation tank B, circulation tank C: tanks that feed ferric coprecipitate slurry generated in the batch processing tank to the cross flow filter

System configuration of the existing ALPS



System configuration of high-performance ALPS

High-performance ALPS configuration (conceptual diagram)



Exhaust filter inspection results for ALPS facilities

Type of filter	Additionally installed ALPS		Existing ALPS		High-performance ALPS	
	No damage	Damaged	No damage	Damaged	No damage	Damaged
HIC exhaust filter	0	13	1	11	-	-
Other exhaust filters	14	4※2	24	4※1	5	0
Total	14	17	25	15	5	0
	31		40		5	

※1 ：Carbonate soda storage tank, circulation tank A, circulation tank B, circulation tank C.
※2 ：Carbonate soda storage tank 1, precipitation tank, feed tank, discharge tank

（Reference）Inspection of existing ALPS exhaust filters given the damage to the HIC exhaust filters （1/3）

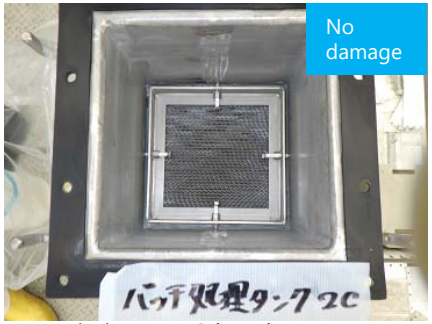
Existing ALPS batch treatment tank 1A

Existing ALPS batch treatment tank 2A

Existing ALPS batch treatment tank 1B

Existing ALPS batch treatment tank2B

Existing ALPS batch treatment tank 1C



Existing ALPS batch treatment tank 2C

Existing ALPS circulation tank A

Existing ALPS circulation tank B

Existing ALPS circulation tank C

Existing ALPS decanting tank A

Existing ALPS decanting tank B

Existing ALPS decanting tank C

（Reference）Inspection of existing ALPS exhaust filters given the damage to the HIC exhaust filters （2/3）

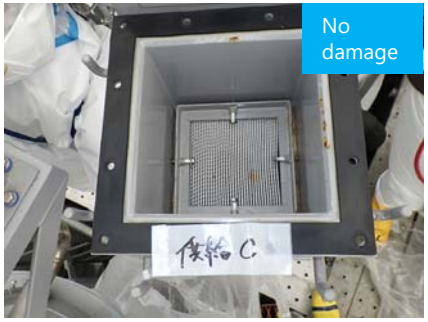
Existing ALPScoprecipitate tank A

Existing ALPS coprecipitate tank B

Existing ALPS coprecipitate tank C

Existing ALPS feed tank A

Existing ALPS feed tank B



Existing ALPS feed tank C

Existing ALPS buffer tank A

Existing ALPS buffer tank B

Existing ALPS buffer tank C

Existing ALPS transfer tank A

Existing ALPS transfer tank B

Existing ALPS transfer tank C

（Reference）Inspection of existing ALPS exhaust filters given the damage to the HIC exhaust filters（3/3）

Existing ALPS
β ray water monitor sample temporary reception tank

Existing ALPS carbonate soda storage tank

Existing ALPS backwashing water tank

Existing ALPS water discharge tank
(reposted)

Pictures of the ALPS exhaust filters (total of 28 locations) taken from down stream (does not include HIC exhaust filters (total of 12 locations))

Damage was observed in a total of 4 locations: in 3 locations in the circulation tank（A、B,C）and in the carbonate soda storage tank

（Reference） Inspection of high-performance ALPS exhaust filters given the damage to the HIC exhaust filters

High-performance ALPS feed tank A

High-performance ALPS feed tank B

High-performance ALPS treated water tank A

High-performance ALPS treated water tank B

High-performance ALPS sampling tank

Pictures of the ALPS exhaust filter taken using the fiber scope from down stream (total of 5 locations)

No damage was observed in all 5 locations