Reference
January 12, 2017
Tokyo Electric Power Company Holdings, Inc.

Progress of Landside Impermeable Wall freezing: the Second Stage

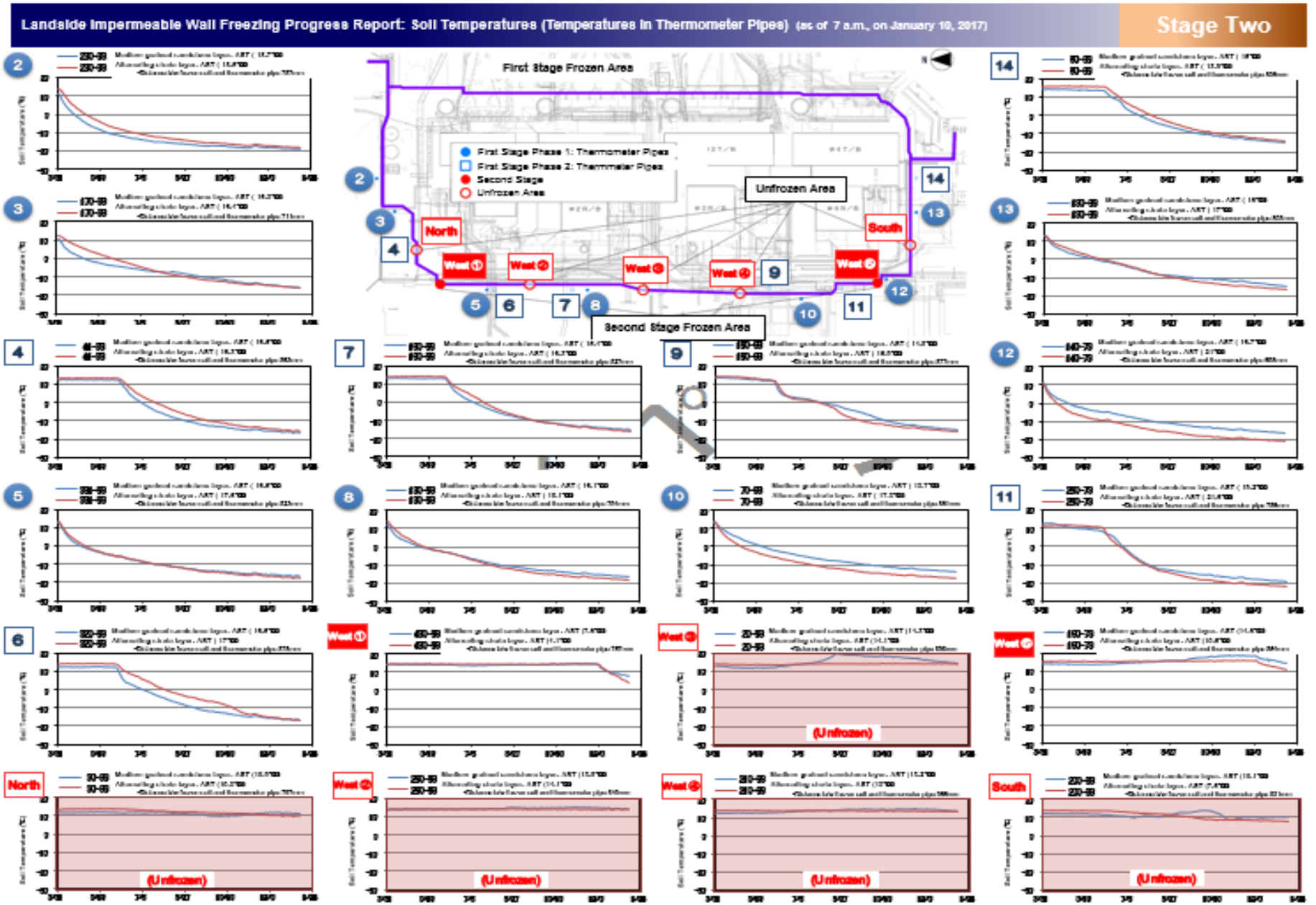
TEPCO

- The purpose of the Landside Impermeable Wall construction lies not in freezing soil to form an underground wall but in keeping groundwater from flowing into the reactor/turbine buildings and preventing new contaminated water from being generated.
- By closing part of unfrozen areas on the mountainside in the second stage following after the first stage, it is expected that the amount of groundwater flowing into the areas around the reactor/turbine buildings will be reduced. This will also keep groundwater from being contaminated.
- Throughout the second stage, how freezing of the Landside Impermeable Wall has progressed will be checked by monitoring the difference in groundwater levels inside and outside of the wall and the amount of groundwater pumped up by the Subdrain, groundwater drain, and the well point systems.

Changes in soil temperatures over time

Note
- Average Soil Temperature (AST) of medium-grained sandstone layer (blue line): average value of thermometer temperatures measured at 1m intervals except for the areas between ground surface and Ground Level 2m and the areas around the first muddy layer boarder.
- Average Soil Temperature (AST) of alternating strata layer (red line): Average value of thermometer temperatures measured at 1m intervals except for the areas around the upper and lower parts of the alternating layer boarder.

TEPCO

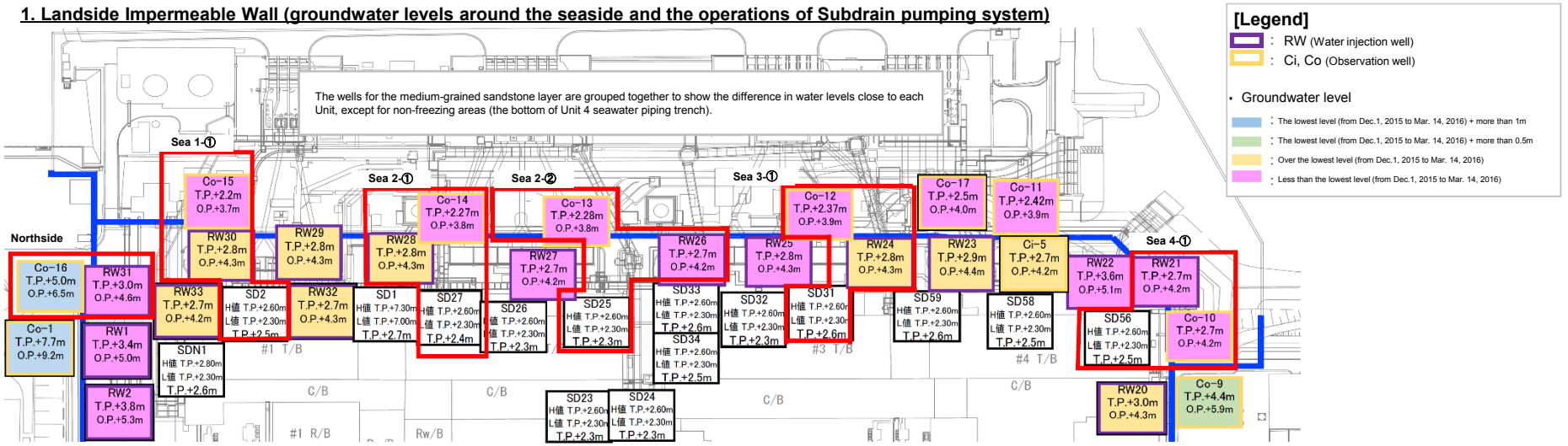


Groundwater levels and hydraulic heads
(in the medium-grained sandstone layer 1 on the seaside)

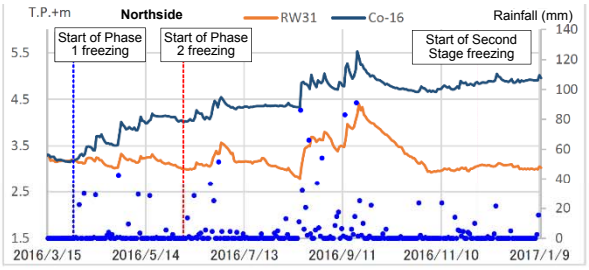
TEPCO

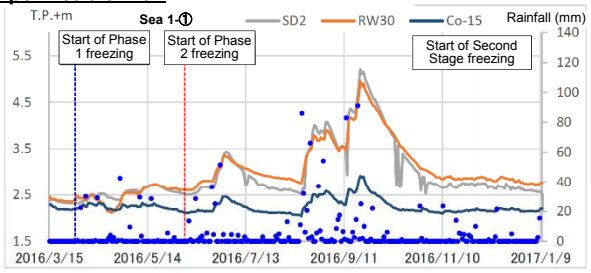
Monitoring items in an early stage of the ice wall freezing (Second Stage, seaside, water levels in the medium-grained sandstone layer)

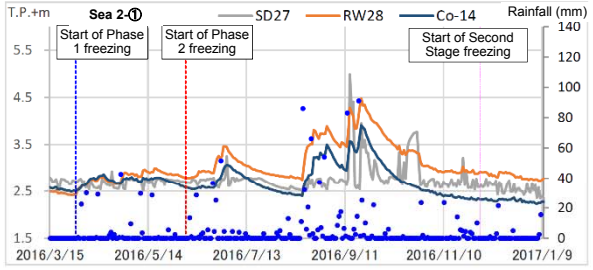
1. Landside Impermeable Wall (groundwater levels around the seaside and the operations of Subdrain pumping system)

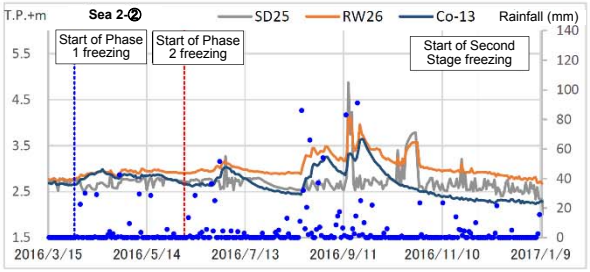


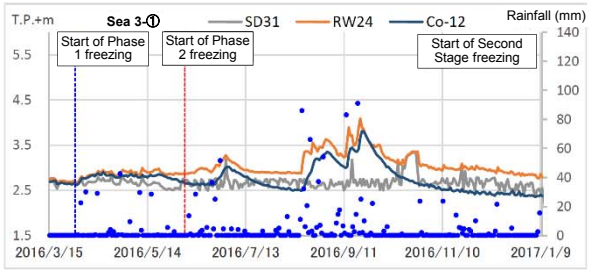
2. Groundwater levels inside and outside of the Landside Impermeable Wall

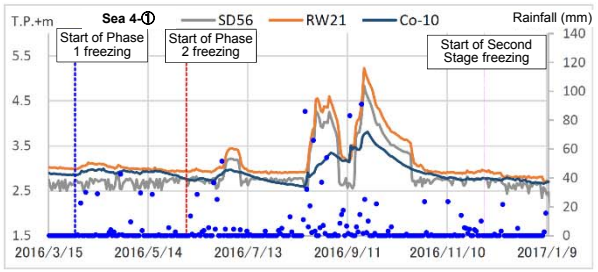










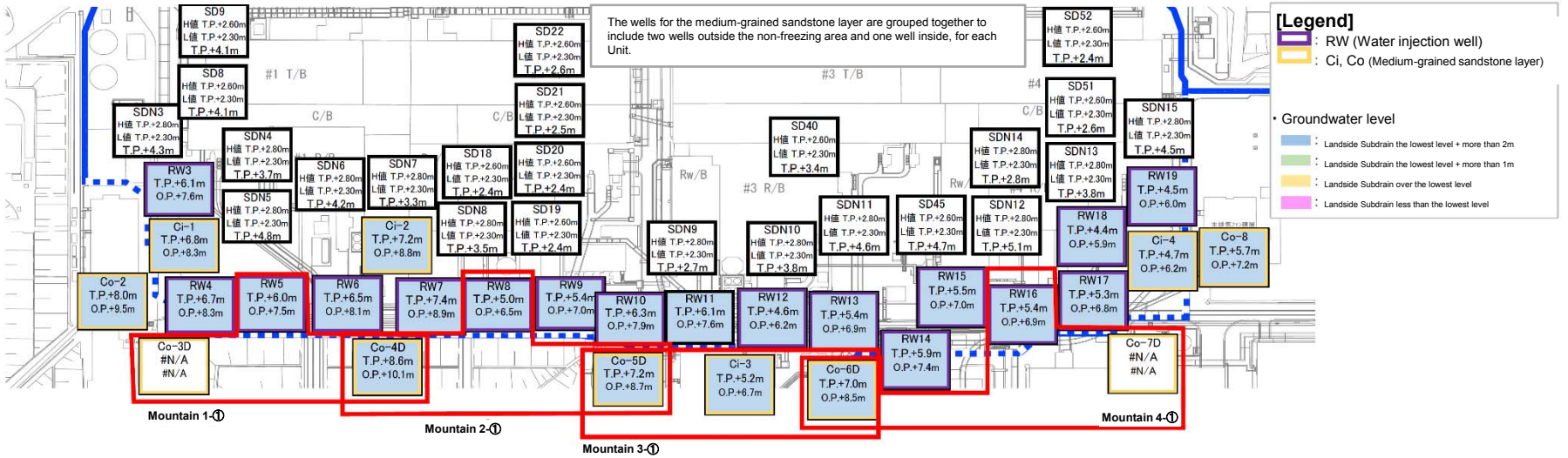


The data of groundwater levels as of 12 p.m. on January 10.

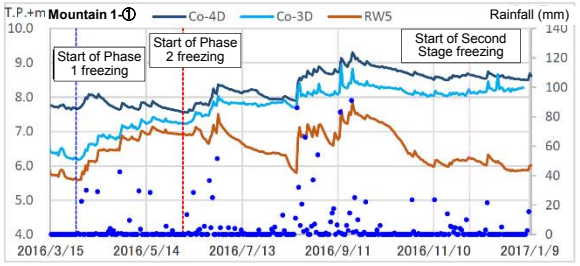
Groundwater levels and hydraulic heads
(in the medium-grained sandstone layer 2 on the landside)

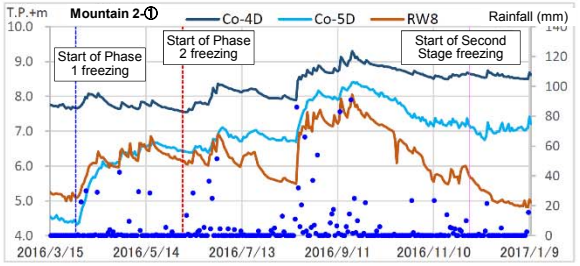
Monitoring items in an early stage of the ice wall freezing (Second Stage, seaside, water levels in the medium-grained sandstone layer)

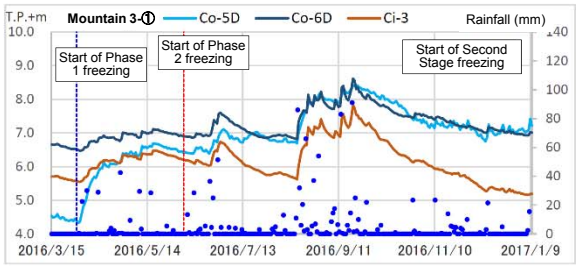
3. Landside Impermeable Wall (groundwater levels around the seaside and the operations of Subdrain pumping system)

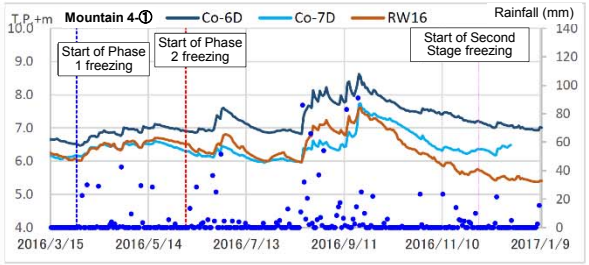


4. Groundwater levels inside and outside of the Landside Impermeable Wall









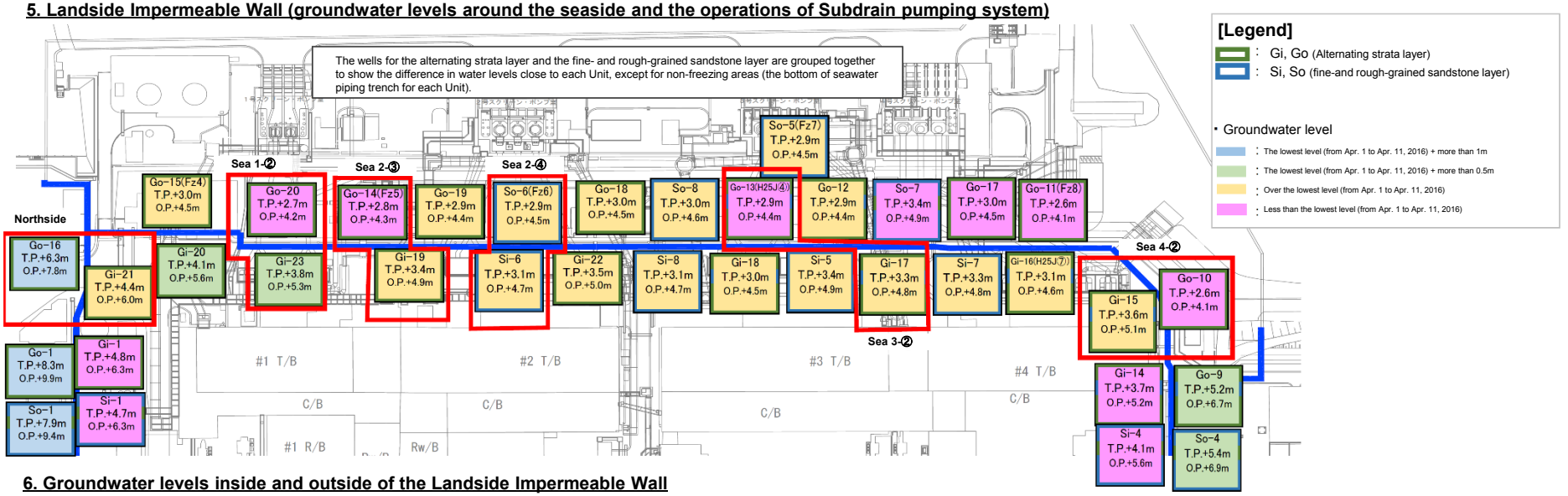
The data of groundwater levels as of 12 p.m. on January 10.

Groundwater levels and hydraulic heads

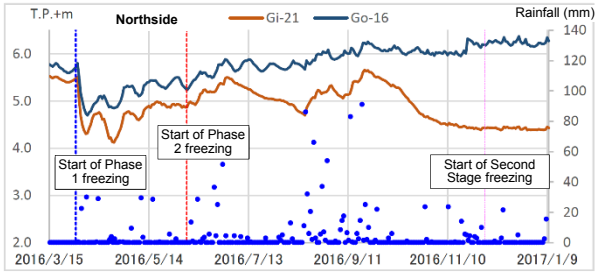
(in the alternating strata layer and the fine- and rough-grained sandstone layer 1 on the seaside)

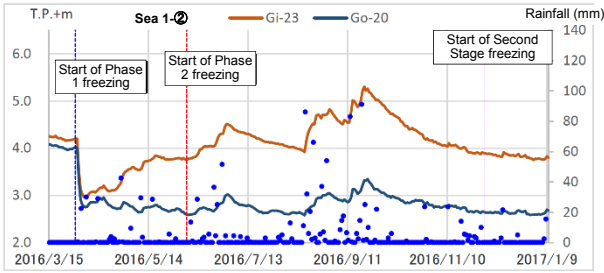
Monitoring items in an early stage of the ice wall freezing (Phase 1 Stage 1, seaside, water levels in the middle-grained sandstone layer)

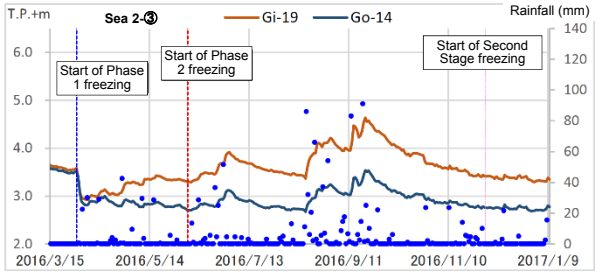
5. Landside Impermeable Wall (groundwater levels around the seaside and the operations of Subdrain pumping system)

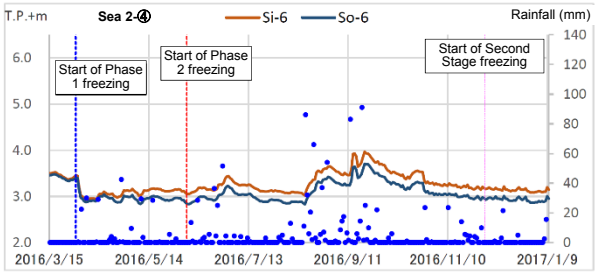


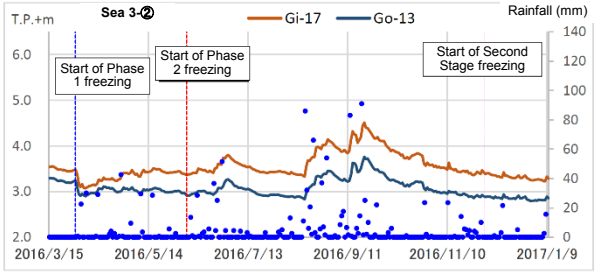
6. Groundwater levels inside and outside of the Landside Impermeable Wall

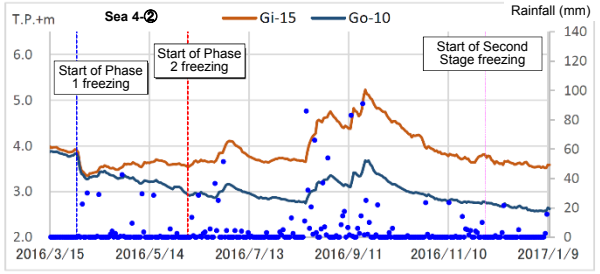










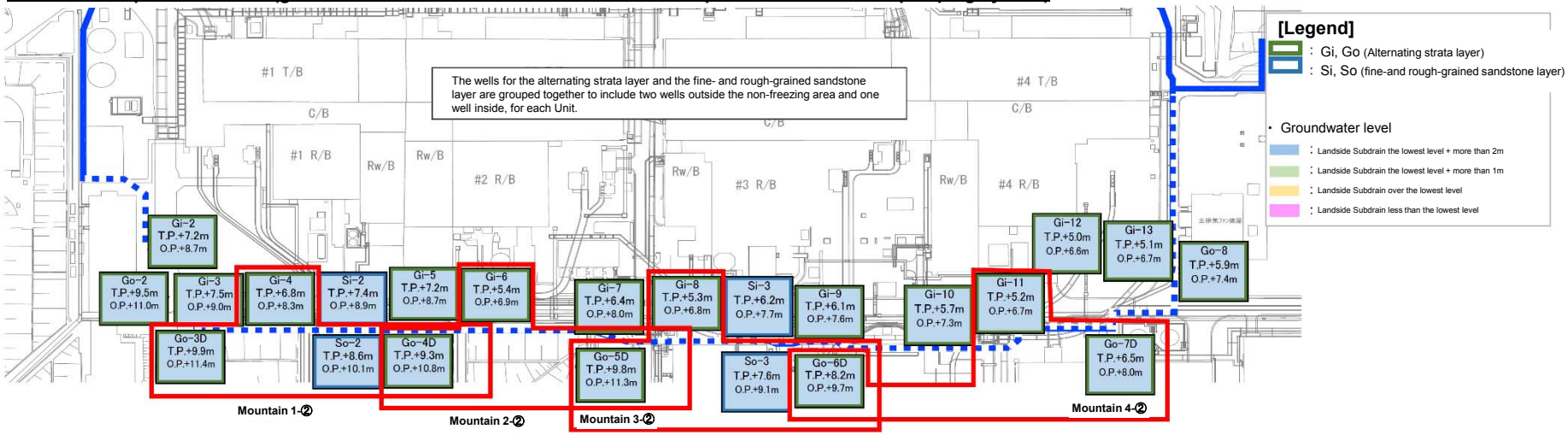


The data of groundwater levels as of 12 p.m. on January 10.

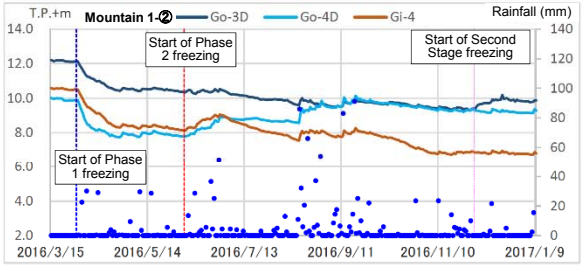
Groundwater levels and hydraulic heads
(in the alternating strata layer and the fine- and rough-grained sandstone layer 2 on the landside)

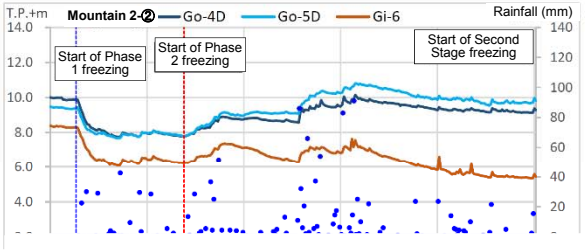
Monitoring items in an early stage of the ice wall freezing (Phase 1 Stage 1, seaside, water levels in the middle-grained sandstone layer)

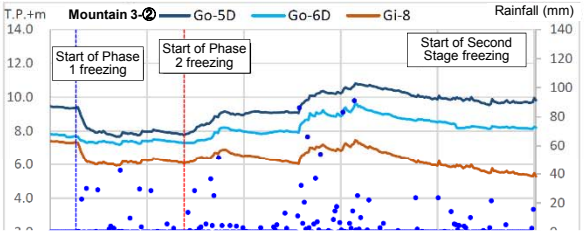
7. Landside Impermeable Wall (groundwater levels around the seaside and the operations of Subdrain pumping system)

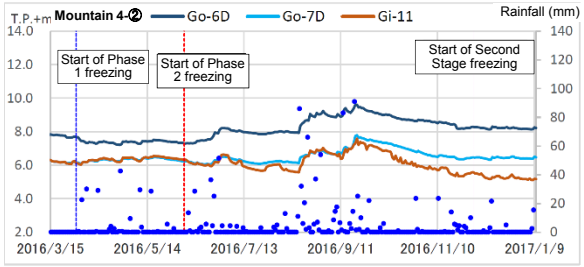


8. Groundwater levels inside and outside of the Landside Impermeable Wall



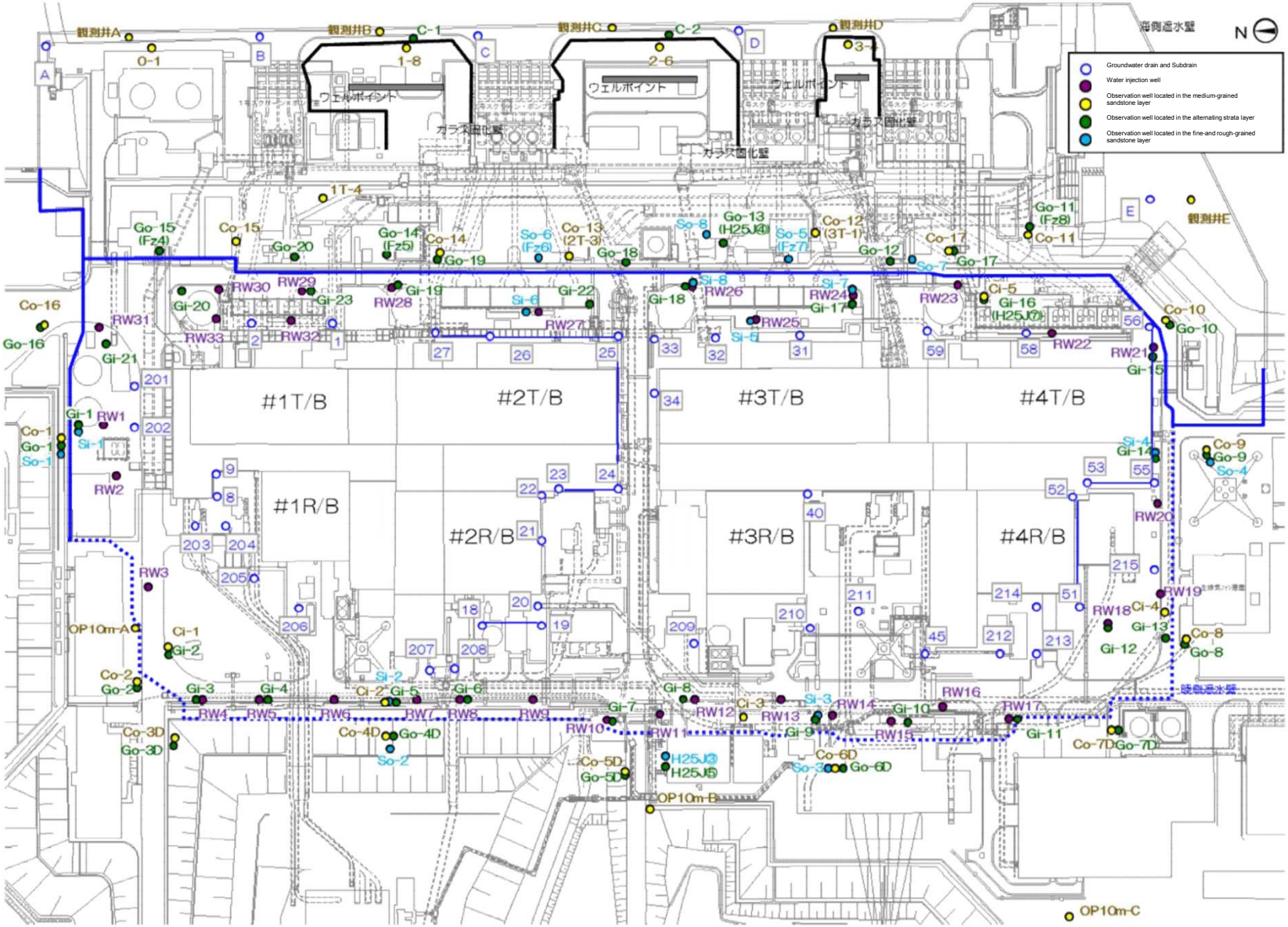






The data of groundwater levels as of 12 p.m. on January 10.

[Reference] Location map of groundwater level observation wells

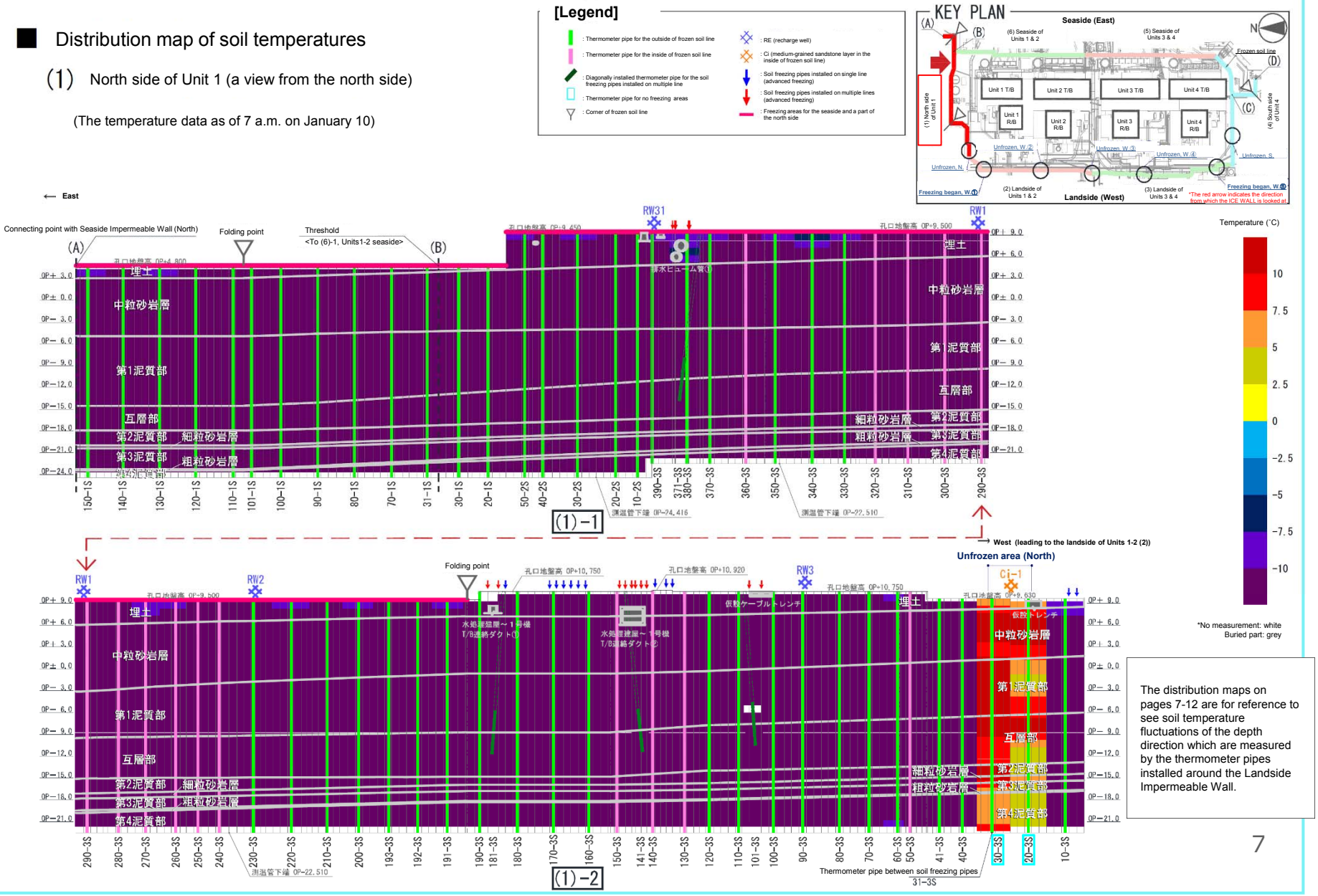


[Reference] Distribution map of soil temperatures (north side of Unit 1)

■ Distribution map of soil temperatures

(1) North side of Unit 1 (a view from the north side)

(The temperature data as of 7 a.m. on January 10)



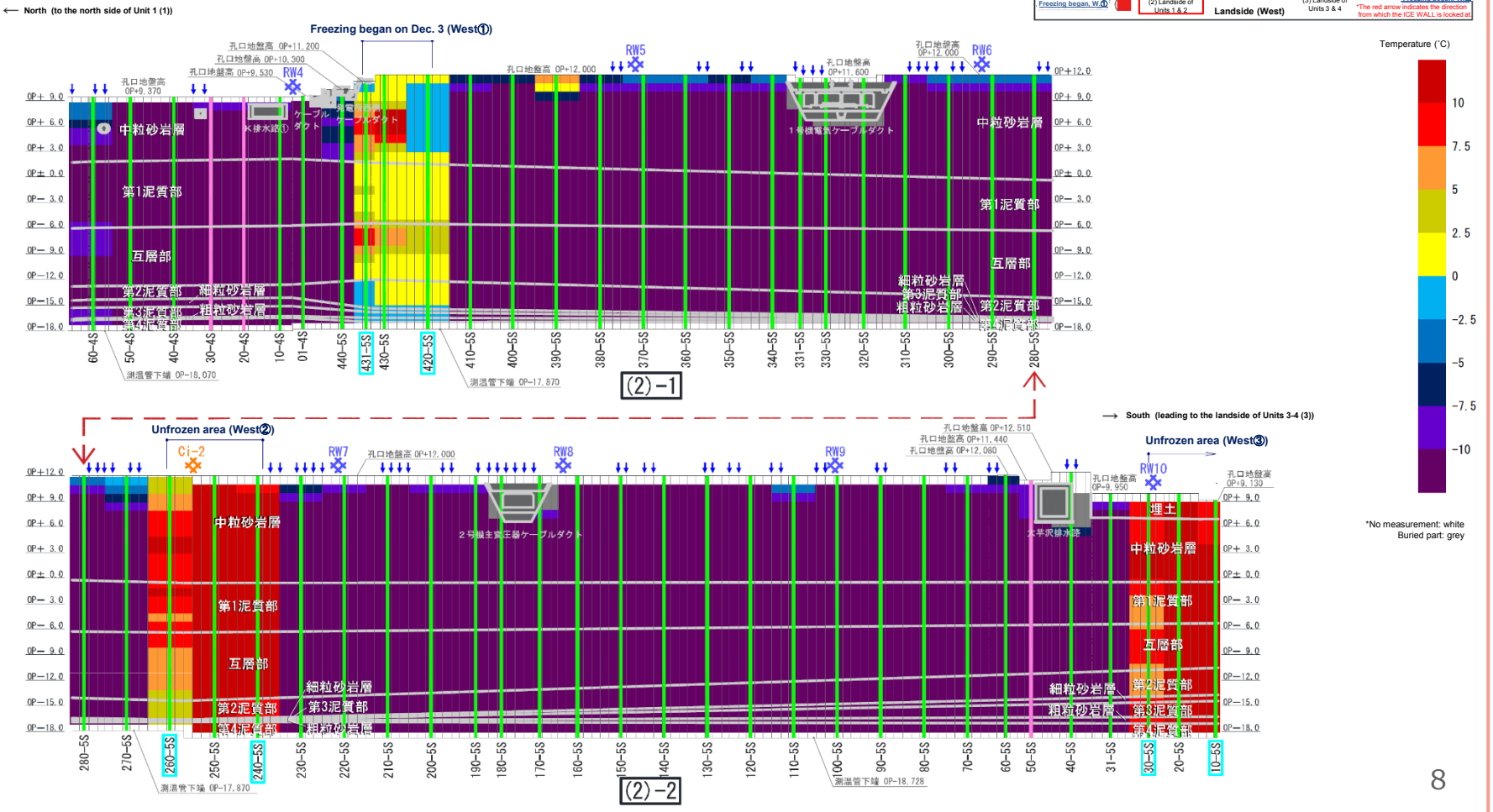
The distribution maps on pages 7-12 are for reference to see soil temperature fluctuations of the depth direction which are measured by the thermometer pipes installed around the Landside Impermeable Wall.

[Reference] Distribution map of soil temperatures (west side of Units 1-2)

■ Distribution map of soil temperatures

(2) Landside of Units 1-2 (a view from the west side)

(The temperature data as of 7 a.m. on January 10)

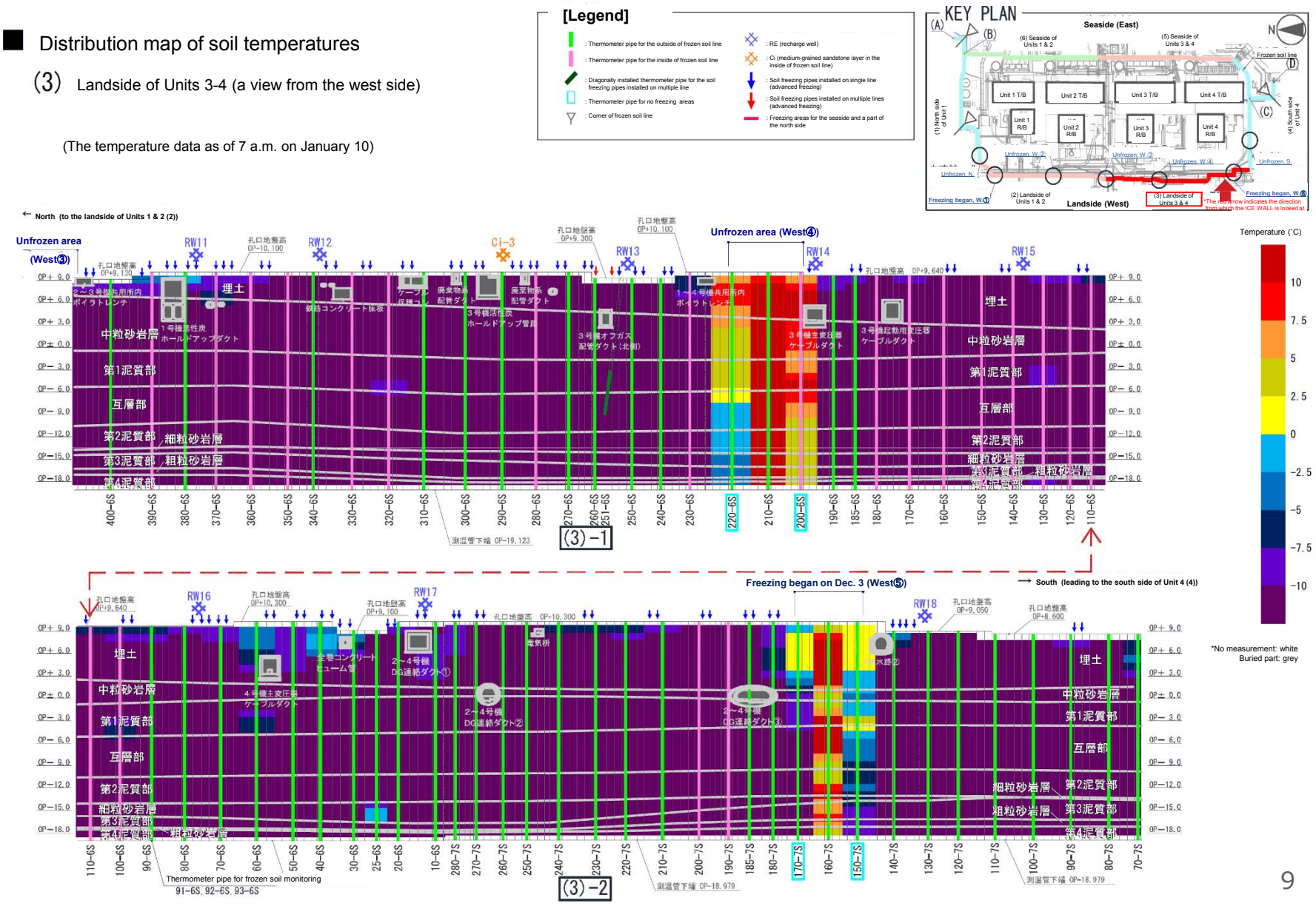


[Reference] Distribution map of soil temperatures (west side of Units 3-4)

■ Distribution map of soil temperatures

(3) Landside of Units 3-4 (a view from the west side)

(The temperature data as of 7 a.m. on January 10)

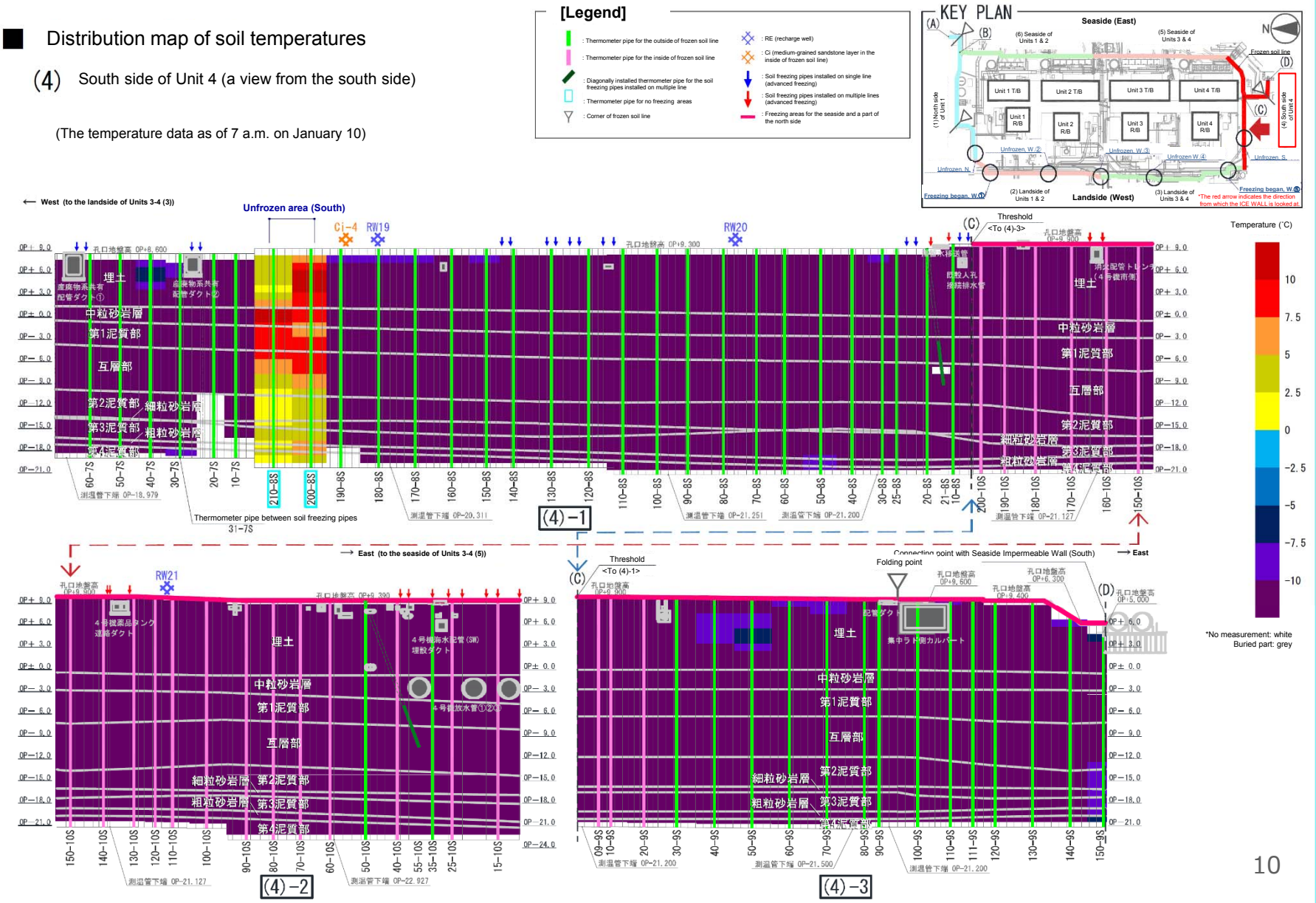


[Reference] Distribution map of soil temperatures (south side of Unit 4)

■ Distribution map of soil temperatures

(4) South side of Unit 4 (a view from the south side)

(The temperature data as of 7 a.m. on January 10)

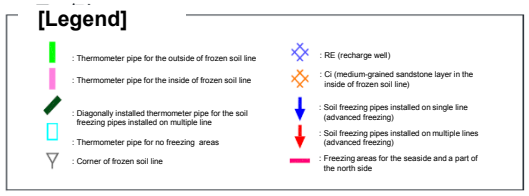


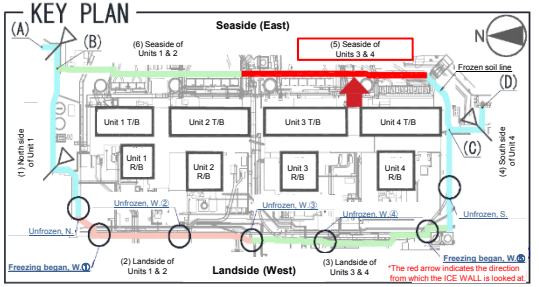
[Reference] Distribution map of soil temperatures (east side of Units 3-4)

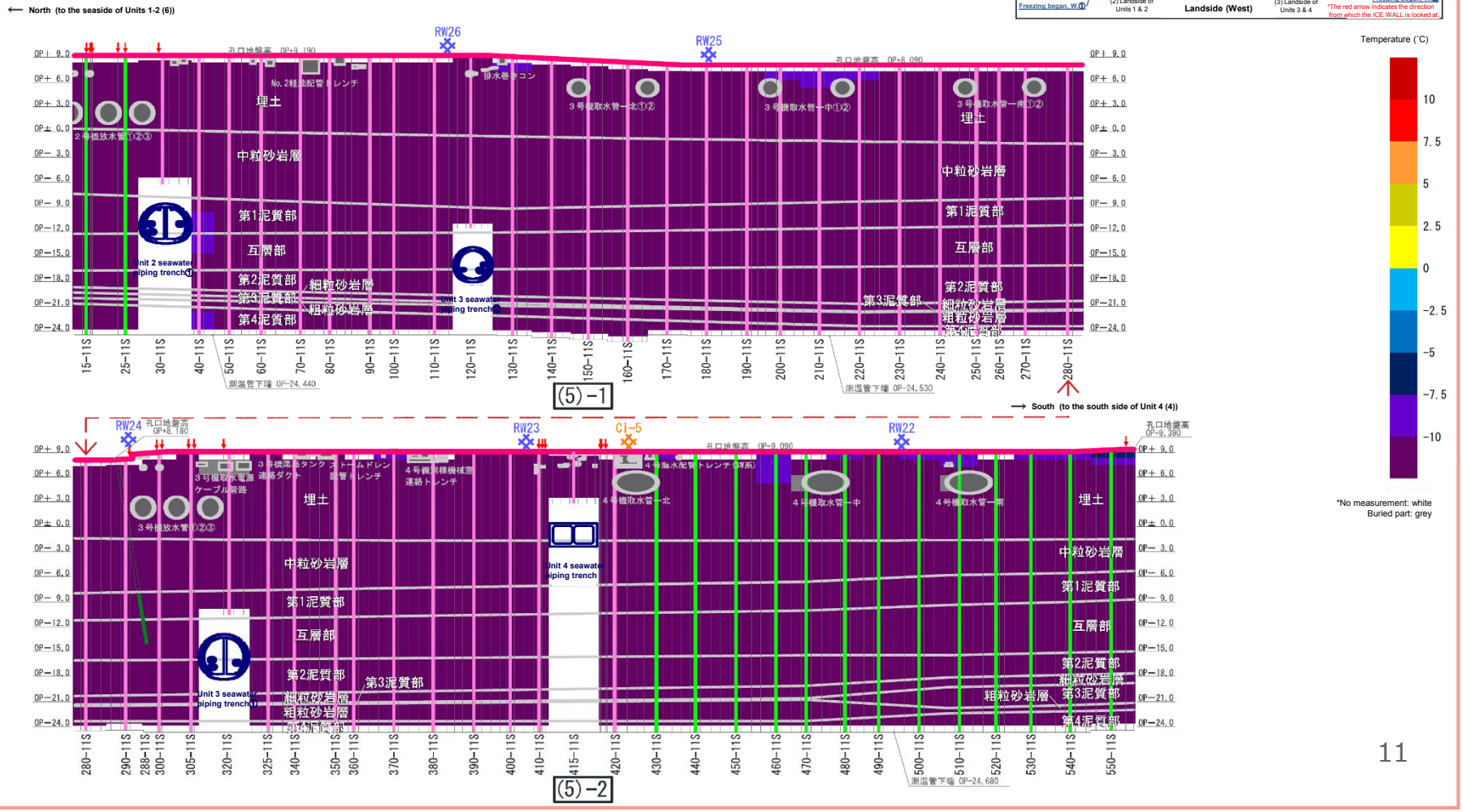
■ Distribution map of soil temperatures

(5) Seaside of Units 3-4
(west side: a view from the inside of frozen soil)

(The temperature data as of 7 a.m. on January 10)







[Reference] Distribution map of soil temperature (east side of Units 1-2)

■ Distribution map of soil temperatures

(6) Seaside of Units 1-2
(west side: a view from the inside of frozen soil)

(The temperature data as of 7 a.m. on January 10)