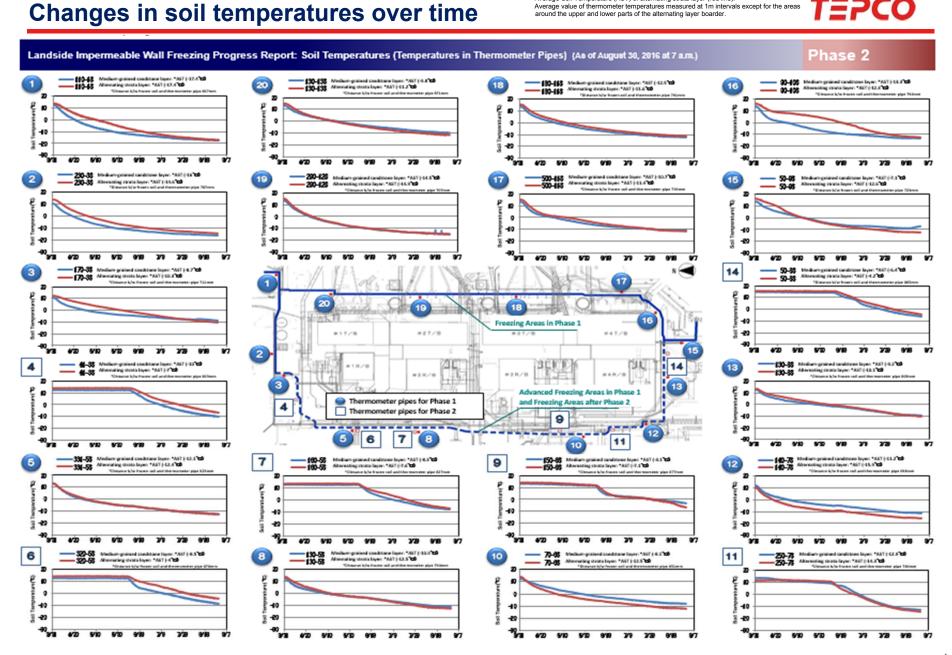
# Progress of Landside Impermeable Wall freezing: Phase 2 of the first stage



- OThe 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.
- OBy closing less than 95 percent of the mountain side of the Landside Impermeable Wall in Phase 2 of 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 help keep groundwater from being contaminated during the first stage.
- OThroughout the first 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 and groundwater drain systems and the well point system.

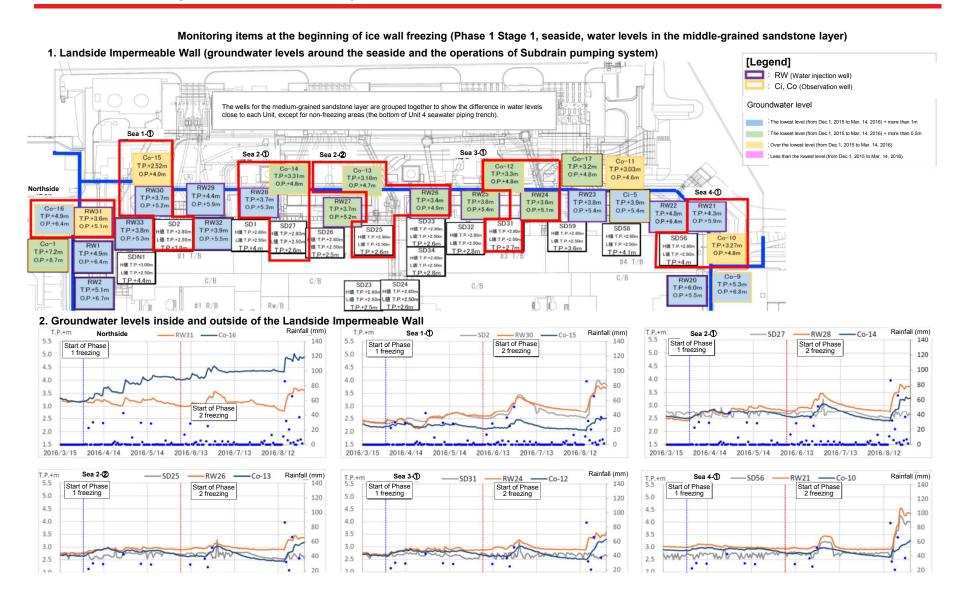
- Average Soil Temperature (AST) of medium-grained sandstone layer (blue line):
- average value of thermometer temperatures measured at 1m intervals except for the areas between ground surface and Ground Level 2m and the areas around the first muddy layer boarder.
- Average Soil Temperature (AST) of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





(in the medium-grained sandstone layer 1 on the seaside)





(in the medium-grained sandstone layer 2 on the landside)



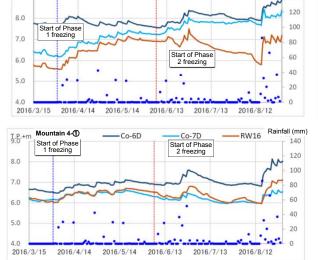
Monitoring items at the beginning of ice wall freezing (Phase 1 Stage 1, seaside, water levels in the middle-grained sandstone layer)

3. Landside Impermeable Wall (groundwater levels around the seaside and the operations of Subdrain pumping system) SD52 [Legend] The wells for the medium-grained sandstone layer are grouped together to H值 T.P.+2.80 L值 T.P.+2.50 RW (Water injection well) include two wells outside the non-freezing area and one well inside, for L値 T.P.+2.50 H信 T.P.+2.80 T.P.+3.m L债 T.P.+2.50 each Unit ; Ci, Co (Medium-grained sandstone layer) T.P.+6.m SD8 #1 T/B H值 T.P.+2.80 SD51 (情 T P +2 50e SDN15 SDN3 Groundwater level C/B L值 T.P.+2.50 L值 T.P.+2.50 (備 T P +3 0 SD40 T.P.+6.6n TP+57 SDN14 值 T.P.+2.50e L值 T.P.+2.50 H値 T.P.+2.80 (値 TP+3 00 H値 T.P.+3.00 SDN13 T.P.+6.5r SD18 L值 T.P.+2.50 Landside Subdrain the lowest level + more than 1m 值 TP+250 SDN6 H値 T.P.+2.8 T.P.+7.6n L值 T.P.+2.5 H值 T.P.+3.0 Rw/B 值 T.P.+3.0 L值 T.P.+2.5 RW19 L值 T.P.+2.5 T.P.+6.8n L値 T.P.+2.5 Landside Subdrain over the lowest level T.P.+7.5n #3 R/B L值 T.P.+2.50 OP+90n SDN5 SDN11 SD45 SDN12 SD19 SDN8 H値 T.P.+3.00 RW18 H值 T.P.+3.0 L值 T.P.+2.50 Ci-2 H值 T.P.+3.0 SDN9 SDN10 T.P.+6.7n L值 T.P.+2.5 L值 T.P.+2.50 L値 T.P.+2.50 Co-8 T.P.+7.3m T.P.+8.0n Ci-4 H值 T.P.+3.00 H値 T.P.+3.0 O.P.+8.2m TP+69n TP+72 O.P.+9.6m T.P.+6.8m L值 T.P.+2.50 T.P.+6.6m L值 T.P.+2.50 O.P.+8.4m O.P.+8.1n RW17 T.P.+8.1m TP+74m RW16 T.P.+6.7n T.P.+7.2n T.P.+7.6n TP+750 RW12 T.P.+8.1m T.P.+7.5m TP+79n **RW13** O.P.+8.9m T.P.+7.1m O.P.+8.2r O.P.+9.6m O.P.+9.1m T.P.+8.0n T.P.+7.0m O.P.+9.6m O.P.+9.0m T.P.+8.0m TP+74m O.P.+8.6n O.P.+9.5 O.P.+8.9n T.P.+7.7m T.P.+6.5m TP+84m T.P.+8.9m Ci-3 Co-6D O.P.+9.2m O.P.+8.1m O.P.+9.9m O.P.+10.4m T.P.+8.2m T.P.+7.2m T.P.+8.0m O.P.+9.7m O.P.+8.7m O.P.+9.6m Mountain 1-(1) Mountain 4-(1) Mountain 2-①

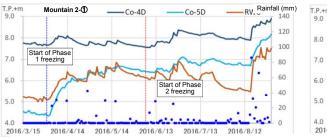
4. Groundwater levels inside and outside of the Landside Impermeable Wall

Rainfall (mm)

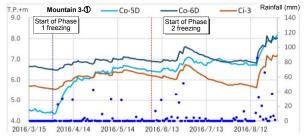
140



9.0



Mountain 3-①



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

Monitoring items at the beginning of ice wall freezing (Phase 1 Stage 1, seaside, water levels in the alternating strata layer and the fine- and rough-grained sandstone layer) 5. Landside Impermeable Wall (groundwater levels around the seaside and the operations of Subdrain pumping system) [Legend] Gi, Go (Alternating strata layer) The wells for the alternating strata layer and the fine- and rough-grained sandstone layer are grouped together to show the difference in water levels close to each Unit, except for non-freezing areas (the Si, So (fine-and rough-grained sandstone layer) bottom of seawater piping trench for each Unit) T.P.+3.5m O.P.+5.1 Sea 2-3 Sea 2-4 The lowest level (from Apr. 1 to Apr. 11, 2016) + more than 0.5m Over the lowest level (from Apr. 1 to Apr. 11, 2016) So-6(Fz6 T.P.+3.5r T.P.+3.5m T.P.+3.0m T.P.+3.6m T.P.+3.2m TP+34m T.P.+3.4m Sea 4-2 T.P.+4.7m TP+42m O.P.+7.6m T.P.+4.7m T.P.+3.6n T.P.+3.7 TP+4.1n T.P.+4.2m O.P.+6.2m T.P.+3.6m T.P.+4.1m T.P.+4.1m O.P.+5.7n T.P.+5.2n OP+52n OP+53 O.P.+5.7m O.P.+5.7n OP+57 Gi-15 O.P.+4.8m T.P.+4.7m O.P.+6.2 #2 T/B #3 T/B T.P.+8.3m #4 T/B Go-9 O.P.+9.9m TP+5.2m T.P.+5.6r C/B C/B O.P.+6.8r C/B O.P.+7.2m Si-4 O.P.+9.5r TP+516 T.P.+6.0m O.P.+6.6m O.P.+7.5m 6. Groundwater levels inside and outside of the Landside Impermeable Wall Rainfall (mm) Rainfall (mm) Rainfall (mm) Sea 2-(3) -Gi-19 -Go-14 Start of Phase Start of Phase 2 freezing Start of Phase Start of Phase 6.0 6.0 1 freezing 120 120 120 100 5.0 5.0 5.0 4.0 4.0 Start of Phase Start of Phase 60 4.0 60 1 freezing 2 freezing 3.0 3.0 3.0 2016/3/15 2016/4/14 2016/5/14 2016/6/13 2016/7/13 2016/8/12 2016/4/14 2016/5/14 2016/6/13 2016/7/13 2016/8/12 2016/3/15 2016/4/14 2016/5/14 2016/6/13 2016/7/13 2016/8/12 Rainfall (mm) Rainfall (mm) Rainfall (mm) T.P.+m Sea 2-40 Sea 3-(2) Sea 4-(2) ---So-6 ——Gi-17 ——Go-13 T.P.+m ---- Gi-15 -Go-10 140 140 140 Start of Phase 6.0 6.0 1 freezing 2 freezina 1 freezing 120 120 120 100 100 100 5.0 5.0 5.0 80 80 4.0 4.0 4.0 60 3.0 3.0 3.0 2016/4/14 2016/5/14 2016/6/13 2016/7/13 2016/8/12 2016/3/15 2016/4/14 2016/5/14 2016/6/13 2016/7/13 2016/8/12 2016/3/15 2016/4/14 2016/5/14 2016/6/13 2016/7/13 2016/8/12

(in the alternating strata layer and the fine- and rough-grained sandstone layer 2 on the landsid) = PCO

Monitoring items at the beginning of ice wall freezing (Phase 1 Stage 1, seaside, water levels in the alternating strata layer and the fine- and rough-grained sandstone layer)

7. Landside Impermeable Wall (groundwater levels around the seaside and the operations of Subdrain pumping system) [Legend] Gi, Go (Alternating strata layer) Si, So (fine-and rough-grained sandstone layer) #1 T/B The wells for the alternating strata layer and the fine- and rough-grained #4 T/B sandstone layer are grouped together to include two wells outside the nonfreezing area and one well inside, for each Unit. C/B C/B Groundwater level #1 R/B Rw/B Rw/E #2 R/B #4 R/B Landside Subdrain over the lowest level TP+66m Go-8 O.P.+8.2m T.P.+6.9n Gi-6 T.P.+7.2m Gi-10 T.P.+6.9n O.P.+9.7m TP+78 TP+75m TP+74n O.P.+8.4n O.P.+9.4m O.P.+8.9m Go-7D T.P.+9.8m T.P.+9.2n Go-5D T.P.+6.9n T.P.+10.4m O.P.+8.4m T.P.+8.7m TP+9.1m O.P.+10.2m O.P.+10.6m Mountain 4-2 Mountain 2-2 Mountain 3-2

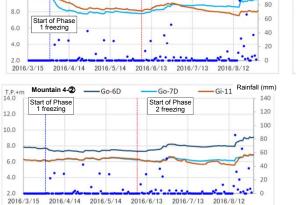
8. Groundwater levels inside and outside of the Landside Impermeable Wall

Start of Phase

140

120

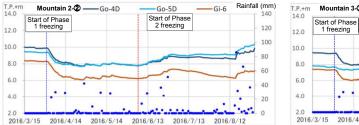
100

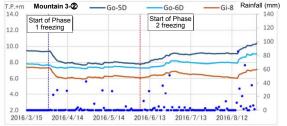


Mountain 1-2

12.0

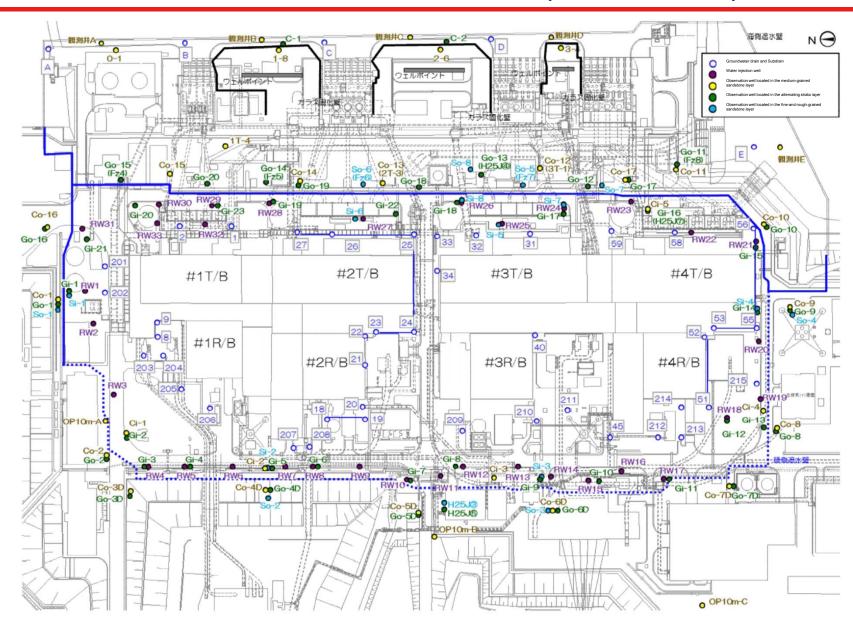
10.0



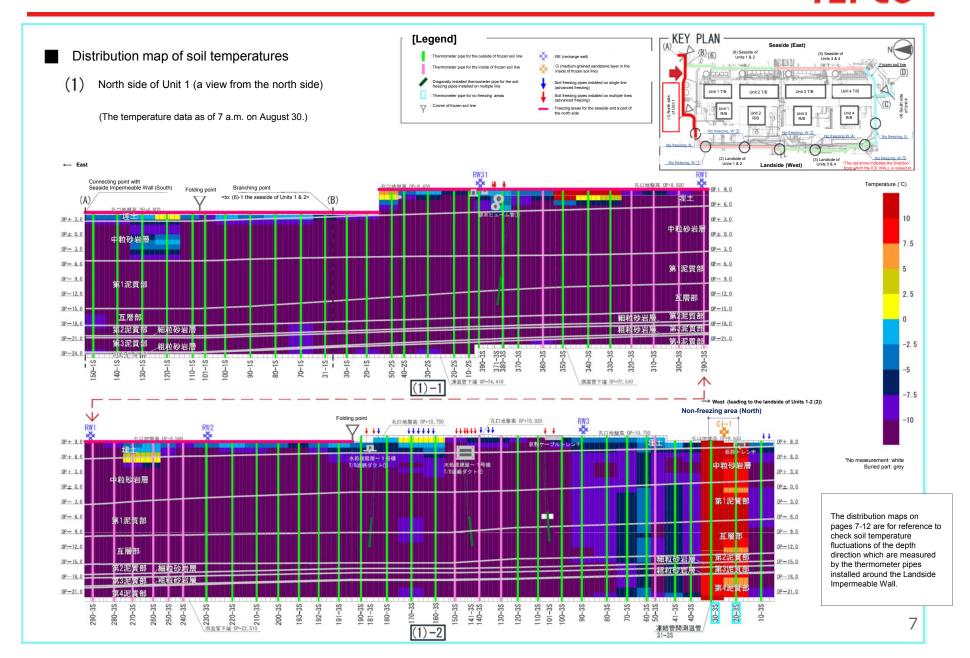


## [Reference] Location map of groundwater level observation wells (as of June 2016)

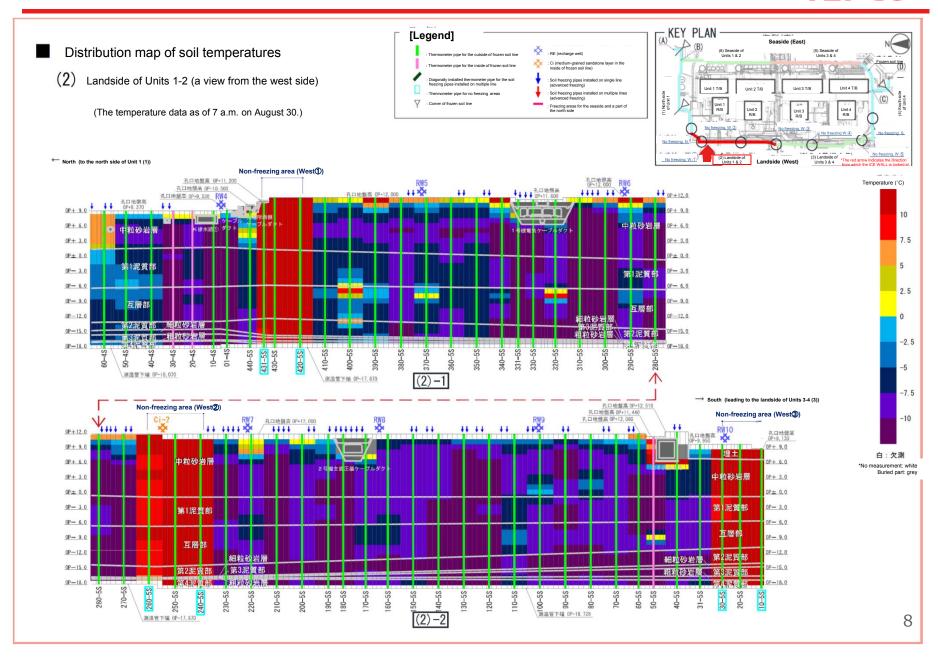




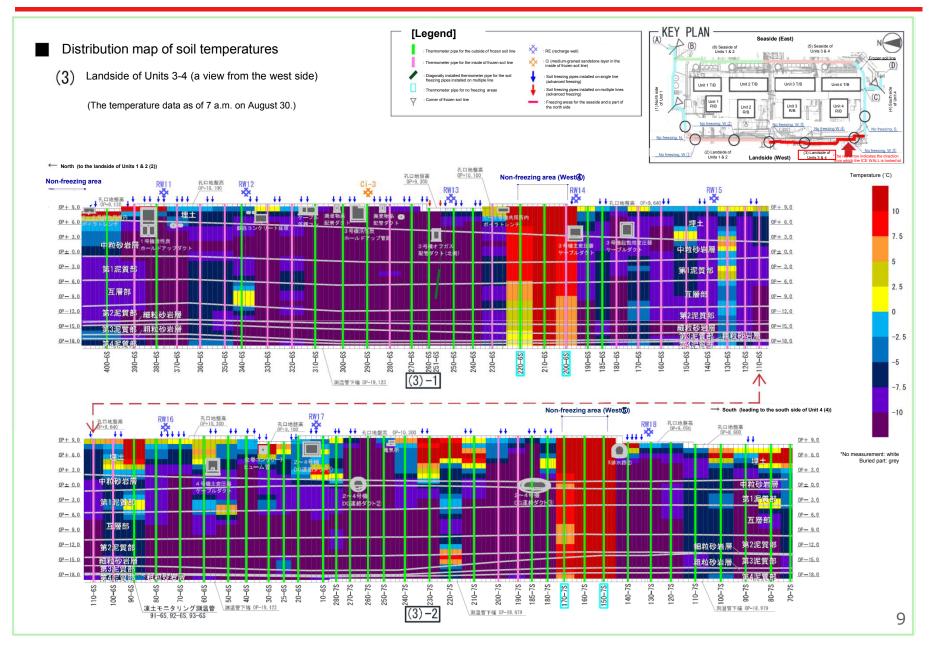
### [Reference] Distribution map of soil temperatures (north side of Unit 1) TEPCO



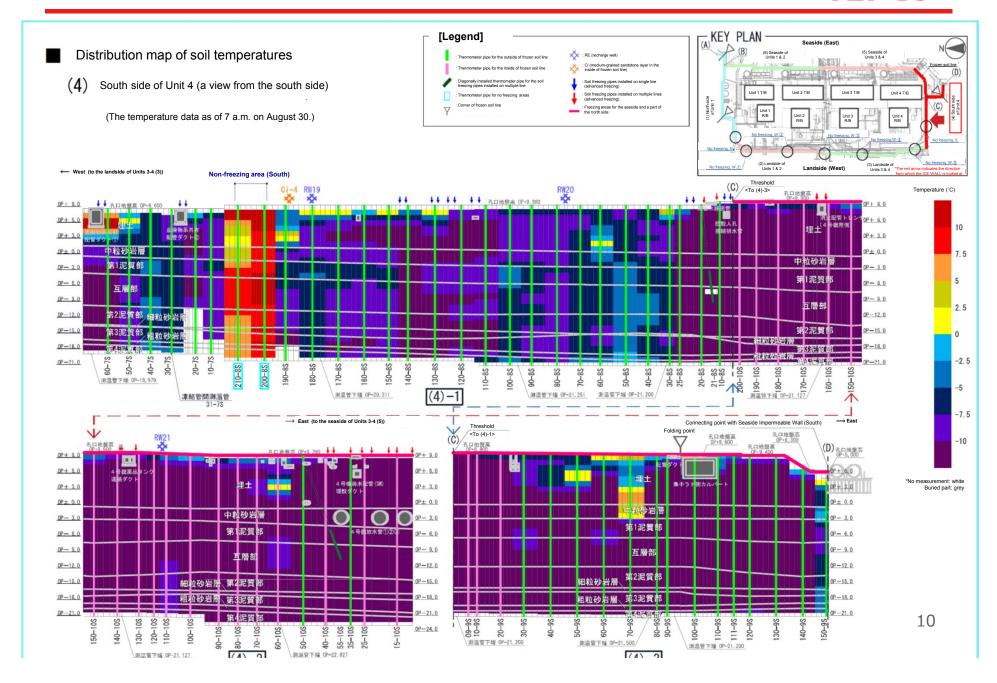
### [Reference] Distribution map of soil temperatures (west side of Units 1-7)=>CO



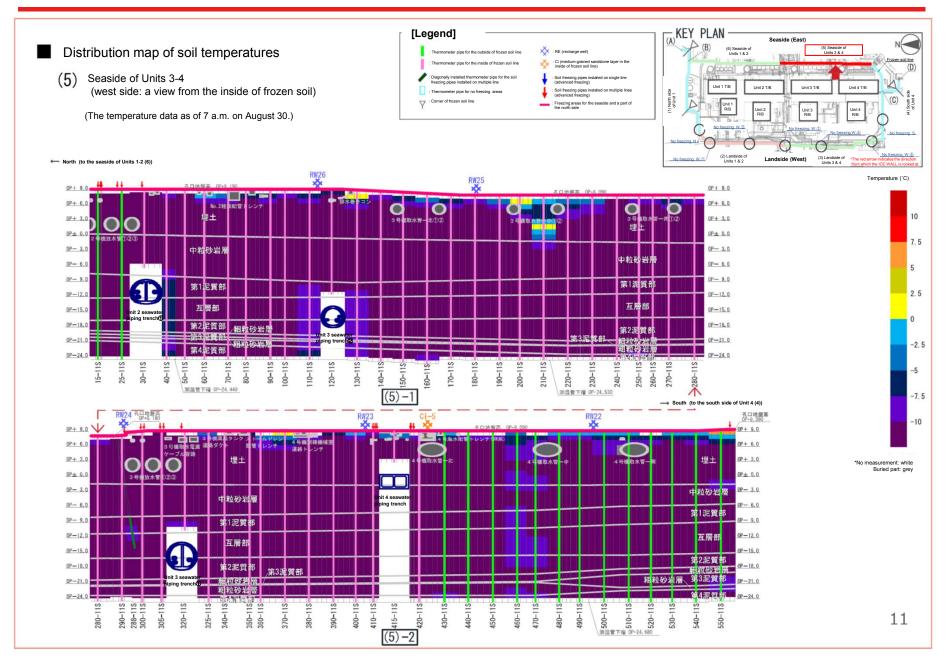
### [Reference] Distribution map of soil temperatures (west side of Units 3-4)=PCO



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



### [Reference] Distribution map of soil temperatures (east side of Units 3-47=PCO)



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

