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.

Note

Changes in soil temperatures over time

 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.



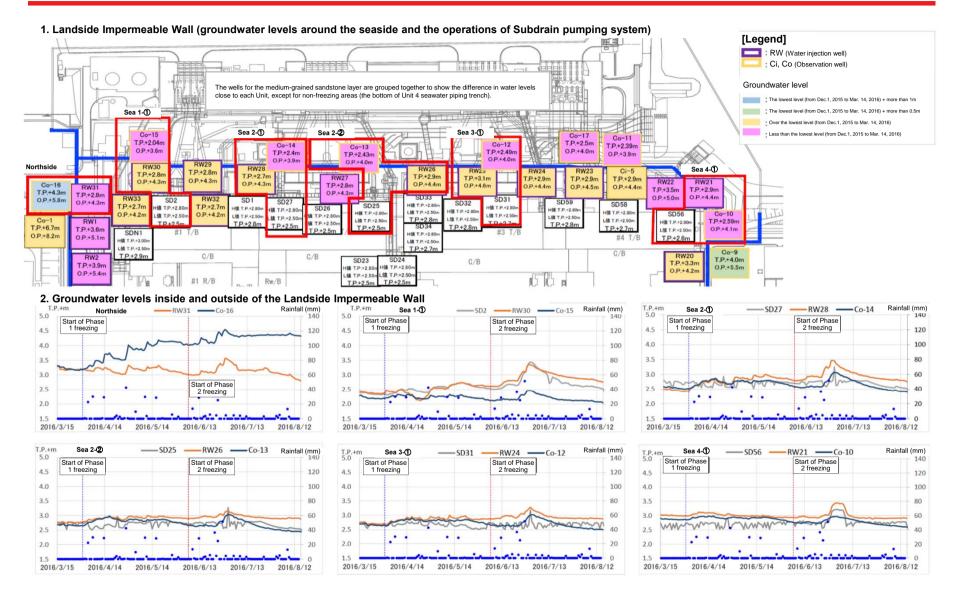
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Landside Impermeable Wall Freezing Progress Report: Soil Temperatures (Temperatures in Thermometer Pipes) (As of August 16, 2016 at 7 a.m.) Phase 2 110–1S Medium-grained sandstone layer: *AST (-16.7°C) 130-13S Medium-grained sandstone layer: *AST (-8.9°C) 1 20 18 180-11S Medium-grained sandstone layer: *AST (-11.8°C) 90-10S Medium-grained sandstone layer: *AST (-12.9°C) 16 = 110-13 Alternating strata layer: *AST (-16.3°C) 130–138 Alternating strata layer: *AST (-10.2°C) 180–113 Alternating strata layer: *AST (-10.9°C) 90–103 Alternating strata layer: *AST (-11.3°C) *Distance b/w frozen soil and thermometer pipe 794n *Distance b/w frozen soil and thermometer pipe 85 *Distance b/w frozen soil and thermometer pipe 871n 20 20 *Distance b/w frozen soil and thermometer aine 301 m 20 10 10 10 ••• c 0 -10 -10 -10 -10 . -20 -20 -20 -20 5 ₩ - 24 -30 ÷ 3/31 3/31 5/20 7/9 8/28 -30 + 3/31 3/31 4/20 5/10 5/30 6/19 7/9 7/29 8/18 9/7 4/20 5/10 5/30 6/19 7/9 7/29 8/18 9/7 5/20 7/9 8/28 500-11S Medium-grained sandstone layer: *AST (-10.6%) 500-118 Alternating strata layer: *AST (-10.8°C) 230–35 Medium-grained sandstone layer: *AST (-15.7°C) 230–35 Alternating strata layer: *AST (-13.9°C) 2 1 290-12S Medium-grained sandstone layer: *AST (-13.9°C) 17 15 50_95 Medium-grained sandstone layer: *AST (-8.8°C) Alternating strata layer: *AST (-12.2°C) 290–12S Alternating strata layer: *AST (-14.5°C) *Distance b/w frozen soil and thermometer pipe 736m 50-85 *Distance b/w frozen soil and then *Distance how fromen soil and thermomet 20 20 5 *Distance b/w frozen soil and thermometer pipe 723m 20 10 10 10 P 10 0 0 n -10 -10 -10 -10 -20 ≣ -20 _30 100 -30 + 3/31 3/31 4/20 5/10 5/30 6/19 7/9 7/29 8/18 9/3 -30 -30 5/20 7/9 8/28 3/31 4/20 5/10 5/30 6/19 7/9 7/29 0/10 9/7 5/10 5/30 6/19 7/9 7/29 8/18 4/20 3/31 9/7 Medium-grained sandstone layer: *AST (-4.4°C) Medium-grained sandstone laver: *AST (-7.5°C) 14 50-85 3 170_99 50–88 Alternating strata layer: *AST (-1.7°C) Alternating strata layer: *AST (-9.2°C) 170_99 17 1 *Distance b/w frozen soil and thermometer pipe 805mr *Distance b/w frozen soil and thermo 20 10 10 20 19 18 0 0 16 -10 -10 Freezing Areas in Phase 1 -20 #1T/B #2T/B #3T/8 #4T/B 1 -30 -30 4/20 5/10 5/30 6/19 7/9 7/29 8/18 15 3/3 4/20 5/10 5/30 6/19 7/9 7/29 8/18 9/7 3/31 9/7 2 AL FUL Medium-grained sandstone laver: *AST (-8.5°C) 4 11 41-38 Medium-grained sandstone layer: *AST (-8.2°C) #18 114 28_021 1 41-38 Alternating strata layer: *AST (-4.5°C) Alternating strata layer: *AST (-9°C) *Distance b/w frozen soil and thermo 28_021 #38/0 #4R/I #2R/8 *Distance b/w frozen soil and the pipe 863m 20 20 3 13 10 10 Advanced Freezing Areas in Phase 1 and Thermometer pipes for Phase 1 0 Freezing Areas in Phase 2 and the fo n 4 Thermometer pipes for Phase 2 -10 -10 9 -≣ -20 And the Party of Street, or other street -20 ₩ 12 6 7 5 8 -13 -30 11 -20 10 4/20 5/10 5/20 6/19 7/9 7/29 8/18 9/7 a/a 5/20 7/9 8/28 3/31 S31–5S Medium-grained sandstone layer: *AST (-11.3°C) Alternating strata layer: *AST (-11.3°C) 7 160–5S Medium-grained sandstone layer: *AST (-6.9°C) Alternating strata layer: *AST (-5.6°C) 9 150-6S Medium-grained sandstone lay er: *AST (-1.2°C) Medium-grained sandstone layer: *AST (-10.6°C) Alternating strata layer: *AST (-15.3°C) 5 140-75 1 Alternating strata layer: *AST (-2.9℃) 160-55 150-6S 140-7S *Distance b/w frozen soil and thermometer pipe 823 *Distance b/w frozen soil and thermo *Distance b/w frozen soil and thermo pipe 877mn *Distance b/w frozen soil and thermometer pipe 698 r nine 827m 20 10 10 10 10 0 0 0 -10 -10 -10 -10 -20 -20 -20 삥 100 0 -30 3/31 -30 _20 -30 3/31 3/31 5/20 7/9 8/28 4/20 5/10 5/30 6/19 7/9 7/29 8/18 3/3 5/20 7/9 8/28 5/20 7/9 8/7 8/28 6 130-55 Medium-grained sandstone laver: *AST (-10.2°C) 70-68 Medium-grained sandstone layer: *AST (-7.5°C) S20–5S Medium-grained sandstone layer: *AST (-6.4°C) 8 10 11 250-78 Medium-grained sandstone layer: *AST (-12.2℃) 130–55 Alternating strata layer: *AST (-11.6°C) Alternating strata layer: *AST (-2°C) Alternating strata layer: *AST (-11.7°C) Alternating strata layer: *AST (-13°C) 320-55 70-6S 250-78 *Distance b/w frozen soil and thermometer pipe 878m *Distance b/w frozen soil and thermometer pipe 794mm *Distance b/w frozen soil and thermometer pipe 851mm *Distance b/w frozen soil and thermost 20 20 20 10 10 10 10 0 0 n -10 -10 -10 -10 -20 ≣ -20 -20 -20 100 -30 3/31 4/20 5/10 5/30 6/19 7/9 7/29 8/18 9/7 3/31 5/20 7/0 8/28 3/31 4/20 5/10 5/30 6/19 7/9 7/29 8/18 9/7 3/31 4/20 5/10 5/30 6/19 7/9 7/29 8/18 9/7

Groundwater levels and hydraulic heads



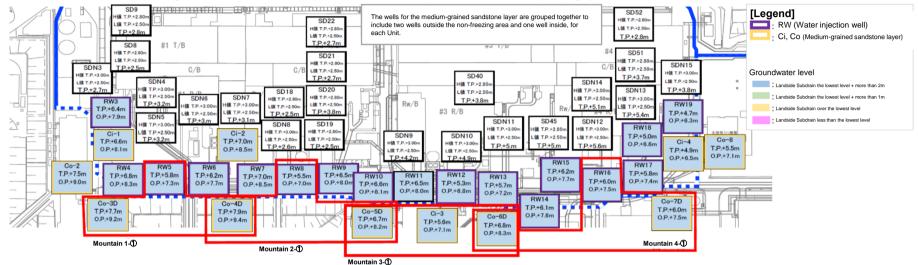
(in the medium-grained sandstone layer 1 on the seaside)



The data of groundwater levels as of 12 p.m. on August 16.

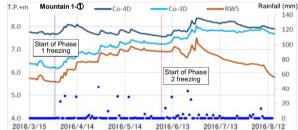
Groundwater levels and hydraulic heads (in the medium-grained sandstone layer 2 on the landside)



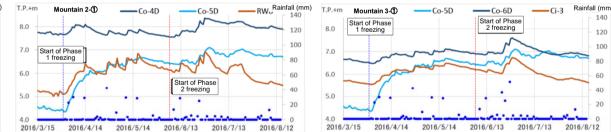


3. Landside Impermeable Wall (groundwater levels around the seaside and the operations of Subdrain pumping system)

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

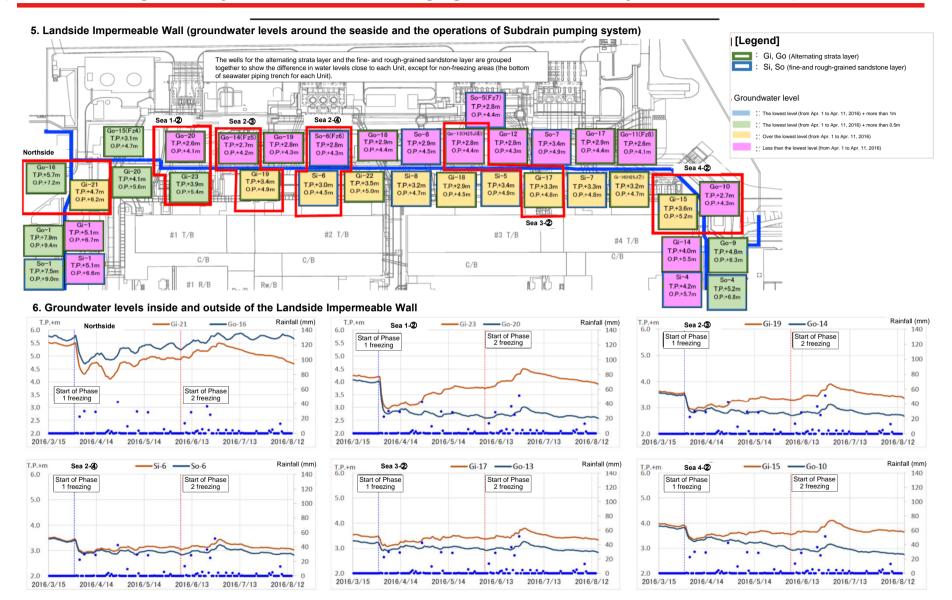






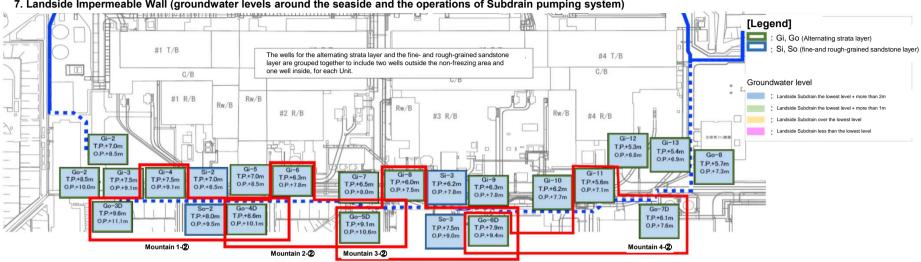
Groundwater levels and hydraulic heads

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



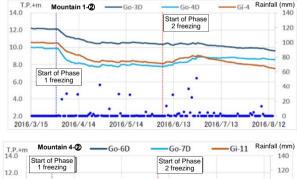
The data of groundwater levels as of 12 p.m. on August 16. 4

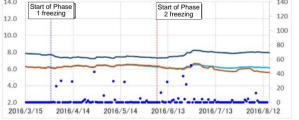
Groundwater levels and hydraulic heads (in the alternating strata layer and the fine- and rough-grained sandstone layer 2 on the landside)=PCO

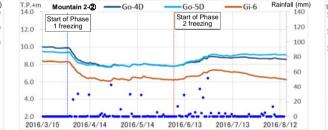


7. Landside Impermeable Wall (groundwater levels around the seaside and the operations of Subdrain pumping system)

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

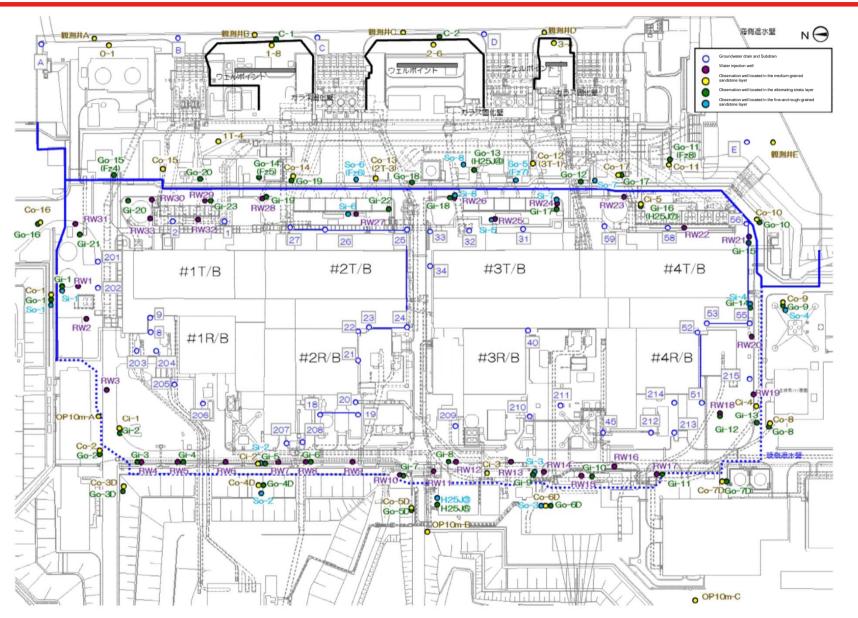






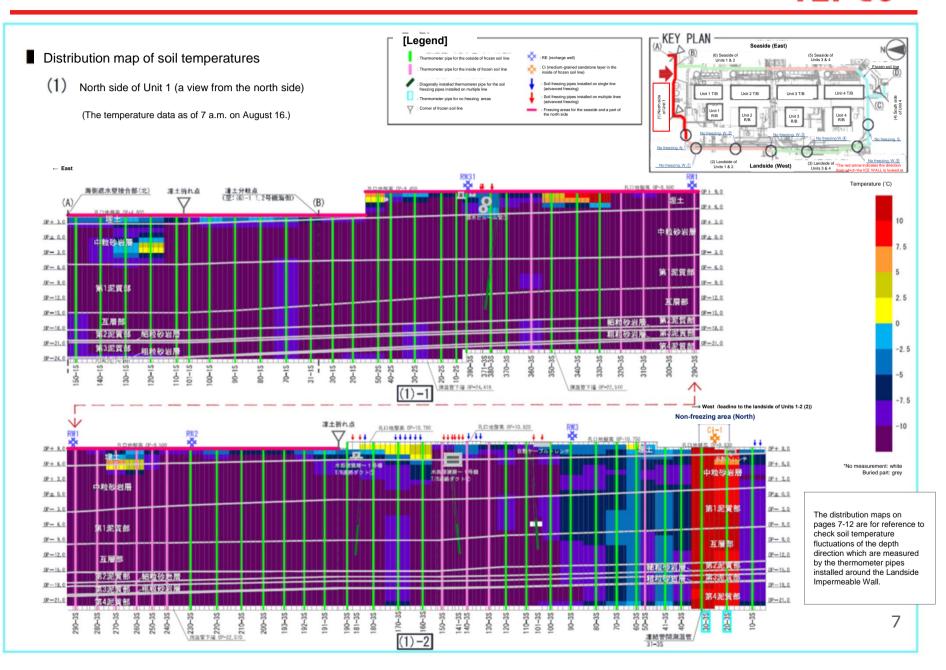


[Reference] Location map of groundwater level observation wells (as of June 2016)

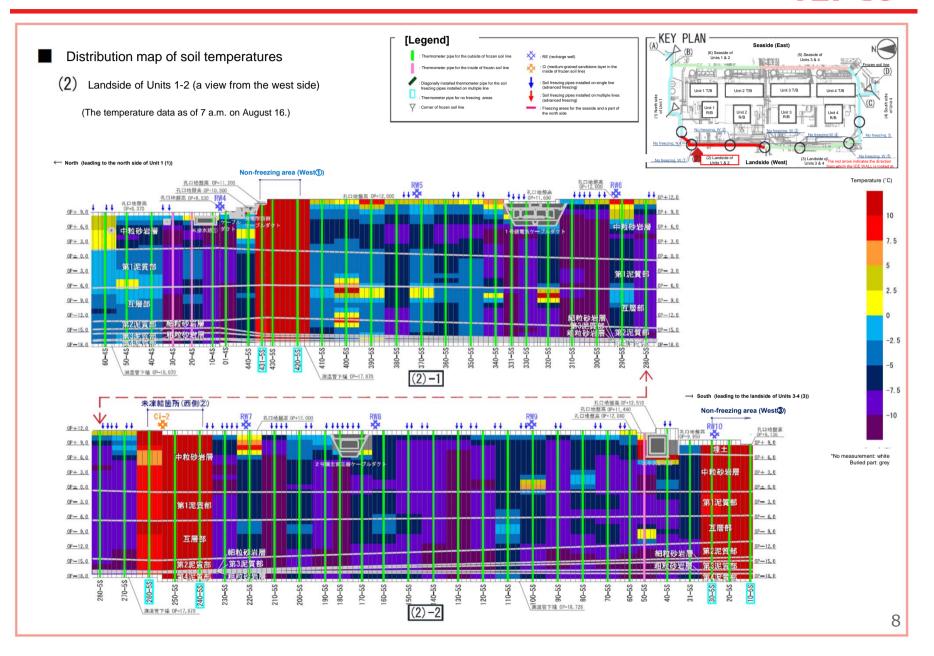


TEPCO

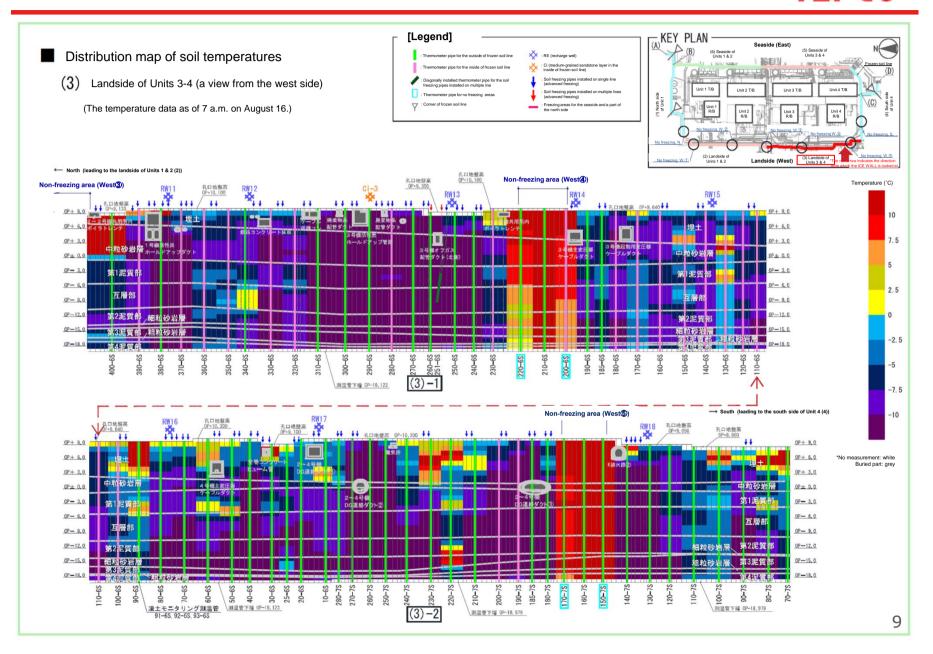
Reference: Distribution map of soil temperatures (north side of Unit 1) **TEPCO**



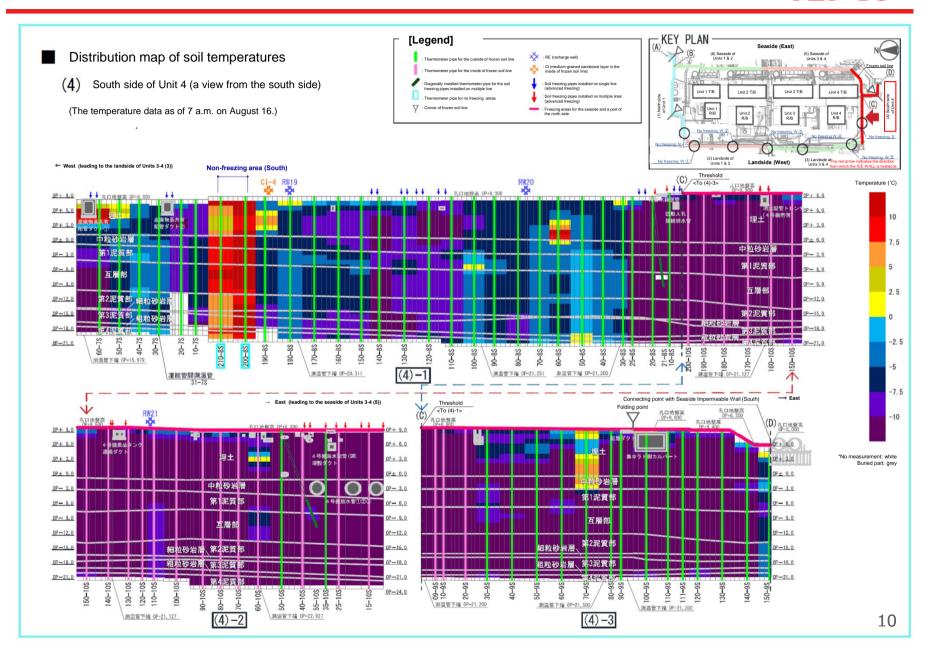
Reference: Distribution map of soil temperatures (west side of Units 1-27=PCO



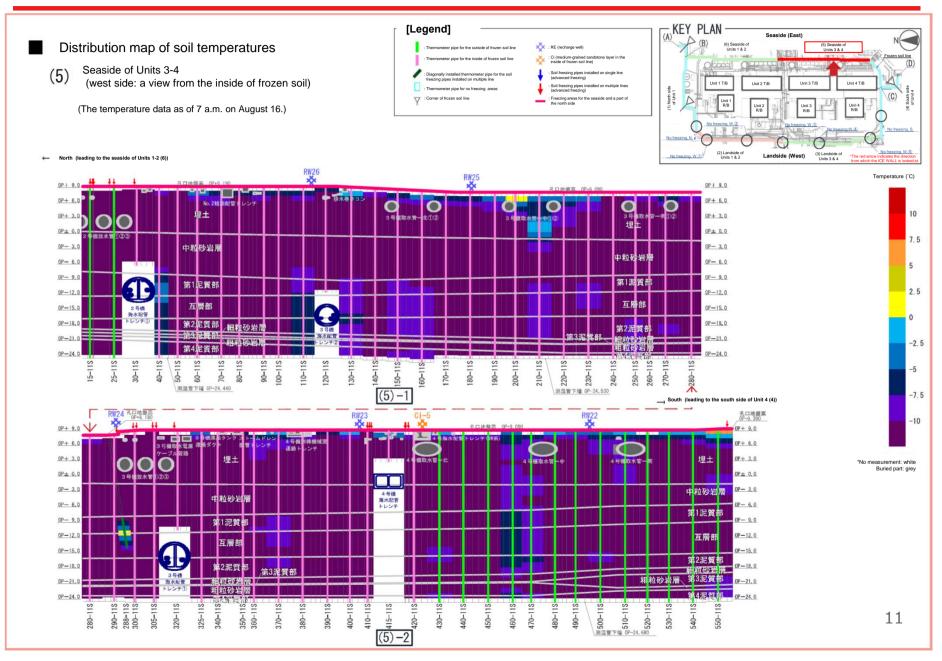
Reference: Distribution map of soil temperatures (west side of Units 3-4)



Reference: Distribution map of soil temperatures (south side of Unit 4) **TEPCO**



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



Reference: Distribution map of soil temperature (east side of Units 1-2) **TEPCO**

