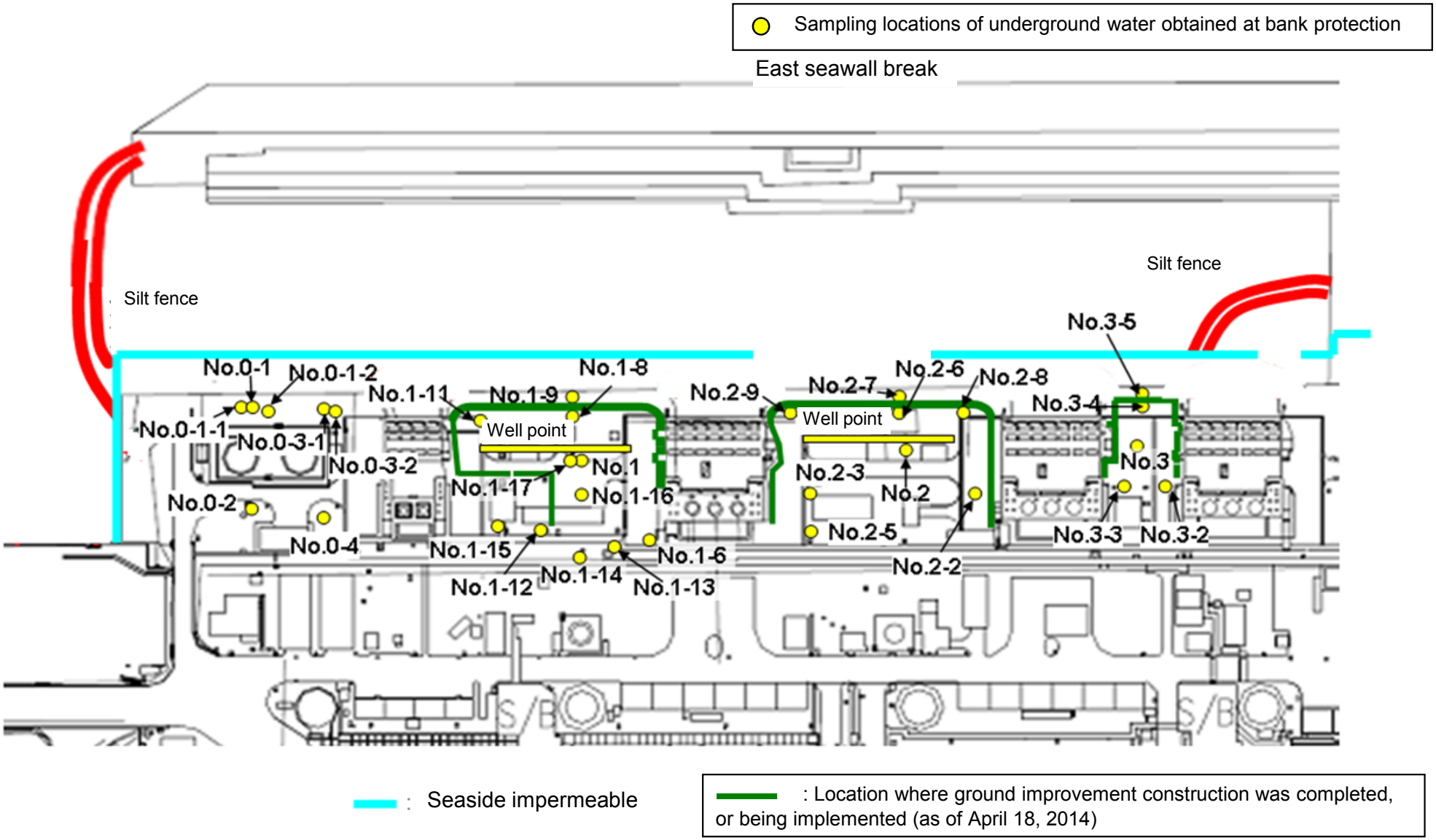
<Reference>
December 11, 2014
Tokyo Electric Power Company

# Detailed Analysis Results in the Port of Fukushima Daiichi NPS, around Discharge Channel and Bank Protection (Sampling Locations of Underground Water Obtained at Bank Protection)



# Detailed Analysis Results in the Port of Fukushima Daiichi NPS, around Discharge Channel and Bank Protection (1/2)
## Underground Water Obtained at Bank Protection

Unit: Bq/L (exclude chloride)

| | Underground water observation hole No.0-1 | Underground water observation hole No.0-1-2 | Underground water observation hole No.0-2 | Underground water observation hole No.0-3-1 | Underground water observation hole No.0-3-2 | Underground water observation hole No.0-4 | Underground water observation hole No.1 | Underground water observation hole No.1-6 | Underground water observation hole No.1-8 | Underground water observation hole No.1-9 (note) | Underground water observation hole No.1-11 | Underground water observation hole No.1-12 | Underground water observation hole No.1-14 | Underground water observation hole No.1-16 | Underground water observation hole No.1-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date of sampling | | | | | | | | | | | | | | | |
| Time of sampling | | | | | | | | | | | | | | | |
| Chloride (unit: ppm) | | | | | | | | | | | | | | | |
| Cs-134 (Approx. 2 years) | | | | | | | | | | | | | | | |
| Cs-137 (Approx.30 years) | | | | | | | | | | | | | | | |
| The other γ | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Gross β | | | | | | | | | | | | | | | |
| H-3 (Approx. 12 years) | | | | | | | | | | | | | | | |
| Sr-90（Approx. 29 years） | | | | | | | | | | | | | | | |

| | Groundwater pumped up from the well point (between Unit 1 and 2) | Underground water observation hole No.2 | Underground water observation hole No.2-2 | Underground water observation hole No.2-3 | Underground water observation hole No.2-5 (note) | Underground water observation hole No.2-6 | Underground water observation hole No.2-7 | Underground water observation hole No.2-8 | Groundwater pumped up from the well point (between Unit 2 and 3) | Underground water observation hole No.3 | Underground water observation hole No.3-2 | Underground water observation hole No.3-3 | Underground water observation hole No.3-4 | Underground water observation hole No.3-5 (note) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date of sampling | | December 07, 2014 | December 07, 2014 | December 07, 2014 | | | December 07, 2014 | December 07, 2014 | December 07, 2014 | | | | | |
| Time of sampling | | 8:45 | 10:15 | 9:04 | | | 9:31 | 9:55 | 10:00 | | | | | |
| Chloride (unit: ppm) | | – | – | – | | | 600 | – | – | | | | | |
| Cs-134 (Approx. 2 years) | | ND(0.34) | ND(2.0) | ND(0.37) | | | ND(0.39) | ND(0.37) | ND(0.44) | | | | | |
| Cs-137 (Approx.30 years) | | ND(0.49) | 3.3 | ND(0.50) | | | 0.64 | ND(0.48) | 0.81 | | | | | |
| The other γ | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Gross β | | 53 | 260 | 190 | | | 800 | 2,300 | 21,000 | | | | | |
| H-3 (Approx. 12 years) | | 520 | 310 | 1,000 | | | 650 | 780 | 1,900 | | | | | |
| Sr-90（Approx. 29 years） | | – | – | – | | | – | – | – | | | | | |

* Data announced this time is provided in a thick-frame. The other data was announced on December 8, 2014.
* "ND" indicates that the measurement result is below the detection limit, and the detection limit of each nuclide is provided in parentheses, except "the other γ".
* "-" indicates that the measurement was out of range.
(Note) As for No. 1-9, 2-5, and 3-5, γ was not measured because they are samlpled by sampler. Gross β were measured after filtation for references.

# Detailed Analysis Results in the Port of Fukushima Daiichi NPS, around Discharge Channel and Bank Protection (2/2)
## Underground Water Obtained at Bank Protection

Unit: Bq/L (exclude chloride)

| | Underground water observation hole No.0-1 | Underground water observation hole No.0-1-2 | Underground water observation hole No.0-2 | Underground water observation hole No.0-3-1 | Underground water observation hole No.0-3-2 | Underground water observation hole No.0-4 | Underground water observation hole No.1 | Underground water observation hole No.1-6 | Underground water observation hole No.1-8 | Underground water observation hole No.1-9 (note) | Underground water observation hole No.1-11 | Underground water observation hole No.1-12 | Underground water observation hole No.1-14 | Underground water observation hole No.1-16 | Underground water observation hole No.1-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date of sampling | | | | | | | | | | | | | | | |
| Time of sampling | | | | | | | | | | | | | | | |
| Chloride (unit: ppm) | | | | | | | | | | | | | | | |
| Cs-134 (Approx. 2 years) | | | | | | | | | | | | | | | |
| Cs-137 (Approx.30 years) | | | | | | | | | | | | | | | |
| The other γ | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Gross β | | | | | | | | | | | | | | | |
| H-3 (Approx. 12 years) | | | | | | | | | | | | | | | |
| Sr-90（Approx. 29 years） | | | | | | | | | | | | | | | |

| | Groundwater pumped up from the well point (between Unit 1 and 2) | Underground water observation hole No.2 | Underground water observation hole No.2-2 | Underground water observation hole No.2-3 | Underground water observation hole No.2-5 (note) | Underground water observation hole No.2-6 | Underground water observation hole No.2-7 | Underground water observation hole No.2-8 | Groundwater pumped up from the well point (between Unit 2 and 3) | Underground water observation hole No.3* | Underground water observation hole No.3-2 | Underground water observation hole No.3-3 | Underground water observation hole No.3-4 | Underground water observation hole No.3-5(note) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date of sampling | | December 10, 2014 | December 10, 2014 | December 10, 2014 | | | December 10, 2014 | December 10, 2014 | December 10, 2014 | December 10, 2014 | December 10, 2014 | December 10, 2014 | December 10, 2014 | December 10, 2014 |
| Time of sampling | | 9:20 | 10:57 | 9:50 | | | 10:11 | 10:31 | 10:00 | 9:27 | 10:30 | 11:00 | 9:53 | 9:00 |
| Chloride (unit: ppm) | | – | – | – | | | 600 | – | – | – | – | – | – | 600 |
| Cs-134 (Approx. 2 years) | | ND(0.40) | 2.8 | ND(0.37) | | | ND(0.45) | ND(0.33) | ND(0.62) | – | 12 | 41 | 3.1 | – |
| Cs-137 (Approx.30 years) | | 0.65 | 9.7 | ND(0.42) | | | 0.65 | ND(0.44) | 0.58 | – | 25 | 120 | 9.5 | – |
| The other γ | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Gross β | | 110 | 300 | 220 | | | 930 | 2,200 | 20,000 | ND(22) | 2,400 | 3,300 | 22 | ND(22) |
| H-3 (Approx. 12 years) | | Under analysis | Under analysis | Under analysis | | | Under analysis | Under analysis | Under analysis | Under analysis | Under analysis | Under analysis | Under analysis | Under analysis |
| Sr-90（Approx. 29 years） | | – | – | – | | | – | – | – | – | – | – | – | – |

* "ND" indicates that the measurement result is below the detection limit, and the detection limit of each nuclide is provided in parentheses, except "the other γ".
* "-" indicates that the measurement was out of range.
(Note) As for No. 1-9, 2-5, and 3-5, γ was not measured because they are samlpled by sampler. Gross β were measured after filtation for references.
*γ was not measured because the water was highly turbid. (Gross β were measured after filtration as references.)

## <Reference> The Highest Dose Until the Previous Measurement (Groundwater Obtained at Bank Protection)

Unit: Bq/L

| | Groundwater observation hole No.0-1 | Groundwater observation hole No.0-1-1 | Groundwater observation hole No.0-1-2 | Groundwater observation hole No.0-2 | Groundwater observation hole No.0-3-1 | Groundwater observation hole No.0-3-2 | Groundwater observation hole No.0-4 | Groundwater observation hole No.1 | Groundwater observation hole No.1-1* | Groundwater observation hole No.1-2* | Groundwater observation hole No.1-3* | Groundwater observation hole No.1-4* | Groundwater observation hole No.1-5* | Groundwater observation hole No.1-6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cs-134 (Approx. 2 years) | 29 〈5/25〉 | ND | 0.61 〈3/2〉 | 0.61 〔10/13〕 | 0.64 〈4/6〉 | 1.3 〈9/25〉 | 0.70 〈6/29〉 | 13 〔8/29〕 | 1.9 〔7/8〕 | 11,000 〔7/9〕 | 10 〔9/2〕 | 1.5 〔7/8〕 | 310 〔8/5〕 | 67,000 〈10/17〉 |
| Cs-137 (Approx.30 years) | 78 〈5/25〉 | ND | 1.5 〈3/2〉 | 2.2 〈1/12〉 | 1.1 〈4/6〉 | 5.1 〈9/25〉 | 1.6 〈6/29〉 | 31 〔8/29〕 | 3.6 〔7/8〕 | 22,000 〔7/9〕 | 24 〔9/2〕 | 3.6 〔7/8〕 | 650 〔8/5〕 | 200,000 〈10/16〉 |
| The other γ: Ru-106 (Approx. 370 days) | ND | ND | ND | ND | ND | ND | ND | 26 〔5/24〕 | 7.9 〔7/8〕 | 160 〔8/15〕 | 17 〔7/22〕 〔8/8〕 | 3.1 〔8/8〕 | ND | ND |
| The other γ: Mn-54 (Approx. 310 days) | ND | ND | ND | ND | ND | 0.64 〈2/20〉 | ND | ND | 1.0 〔7/5〕 | 62 〔7/5〕 | ND | ND | ND | 700 〈10/13〉 |
| The other γ: Co-60 (Approx. 5 years) | ND | ND | ND | ND | ND | ND | ND | 0.50 〔7/19〕 | ND | 3.1 〔7/8〕 | ND | ND | ND | 3,600 〈10/13〉 |
| The other γ: Sb-125 (Approx. 3 years) | ND | ND | ND | ND | ND | ND | ND | 1.7 〔7/11〕 | ND | 250 〔7/15〕 | 1.4 〔7/12〕 〔8/26〕 | ND | 12 〔8/8〕 | 34 〈5/19〉 |
| Gross β | 300 〔8/29〕 〈5/18〉 | 21 〔12/7〕 | 24 〈6/22〉 | 87 〔10/13〕 | ND | 74 〈10/9〉 | 44 〈6/22〉 | 1,900 〔5/24〕 | 4,400 〔7/8〕 | 9,300,000 〔7/8〕 | 160,000 〔8/12〕 〔8/15〕 | 380 〔8/19〕 | 56,000 〔8/5〕 | 7,800,000 〈10/13〉 |
| H-3 (Approx. 12 years) | 45,000 〔8/29〕 | 18,000 〔12/7〕 | 74,000 〔12/15〕 〈1/19〉 | 6,800 〈2/16〉 | ND | 76,000 〈2/6〉 | 56,000 〈2/23〉 | 500,000 〔5/24〕 〔6/7〕 | 630,000 〔7/8〕 | 430,000 〔9/16〕 | 290,000 〔7/12〕 | 98,000 〔7/11〕 | 72,000 〔8/15〕 | 110,000 *2 〈2/6〉 |
| Sr-90(Approx. 29 years) | 140 〔8/8〕 | 7.9 〔12/7〕 | 2.6 〔11/10〕 | 0.73 〔9/2〕 | 1.5 〔11/20〕 | 2.3 〔12/6〕 | ND(0.83) 〔10/27〕 | 1,300 〔8/22〕 | 2,300 〔6/28〕 | 5,000,000 〔7/5〕 | 130,000 〔8/8〕 | 200 〔7/8〕 | 5,100 〔8/22〕 | 1,100,000 〈8/4〉 〈10/2〉 |

Unit: Bq/L

| | Groundwater observation hole No.1-8 | Groundwater observation hole No.1-9 | Groundwater observation hole No.1-10 | Groundwater observation hole No.1-11 | Groundwater observation hole No.1-12 | Groundwater observation hole No.1-13 | Groundwater observation hole No.1-14 | Groundwater observation hole No.1-15 | Groundwater observation hole No.1-16 | Groundwater observation hole No.1-17 | Groundwater pumped up from the well point (between Unit 1 and 2) | Groundwater observation hole No.2 | Groundwater observation hole No.2-1* | Groundwater observation hole No.2-2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cs-134 (Approx. 2 years) | 47 〔11/25〕 | 170 〔9/3〕 | － | 1.1 〈1/13〉 | 74 〔10/21〕 | 37,000 〈2/13〉 | 130 〈10/18〉 | ND | 30 〈7/28〉 | 1.4 〈7/7〉 | 920 〈11/13〉 | 0.88 〈2/26〉 | 0.66 〔9/1〕 | 15 〈2/12〉 |
| Cs-137 (Approx.30 years) | 110 〔11/25〕 | 380 〔9/3〕 | － | 3.4 〈4/28〉 | 170 〔10/21〕 | 93,000 〈2/13〉 | 390 〈10/20〉 | 0.88 〈7/10〉 | 86 〈7/28〉 | 3.0 〈9/29〉 | 3,000 〈11/13〉 | 2.5 〈2/26〉 | 1.1 〔8/29〕 〔9/1〕 | 38 〈2/12〉 |
| The other γ: Ru-106 (Approx. 370 days) | ND | ND | － | ND | 5.4 〔10/28〕 | ND | ND | ND | 9.2 〔10/28〕 | 5.5 〈4/21〉 〈5/1〉 | 25 〔9/2〕 | ND | ND | ND |
| The other γ: Mn-54 (Approx. 310 days) | 12 〈2/3〉 | ND | － | ND | ND | ND | 3.8 〈12/1〉 | ND | 11 〈8/25〉 | ND | 110 〈11/13〉 | ND | ND | ND |
| The other γ: Co-60 (Approx. 5 years) | 1.3 〈2/3〉 | ND | － | ND | 0.51 〔10/24〕 | ND | 0.44 〈5/29〉 | ND | 0.9 〔11/7〕 | 0.61 〔11/25〕 | 3.0 〈11/24〉 | ND | ND | ND |
| The other γ: Sb-125 (Approx. 3 years) | ND | ND | － | ND | 61 〔10/21〕 | ND | ND | ND | 24 〈6/16〉 | 2.1 〔11/25〕 | ND | ND | ND | ND |
| Gross β | 59,000 〈2/3〉 | 2,100 *2 〔11/17〕 | 78 *2 〈1/27〉 | 2,300 〔12/26〕 | 1,100 〈5/5〉 | 260,000 〈2/12〉 〈2/13〉 | 31,000 〈11/20〉 〈11/24〉 〈12/1〉 | 110 〈7/10〉 | 3,100,000 〈1/20〉 〈1/30〉 〈2/3〉 | 1,200,000 〈10/9〉 | 3,200,000 〈11/13〉 | 1,700 〔7/8〕 | 380 〔7/29〕 | 600 〈4/16〉 |
| H-3 (Approx. 12 years) | 71,000 〈12/1〉 | 860 *2 〔11/14〕 | 270,000 *2 〈1/27〉 | 85,000 〔9/13〕 | 440,000 〔10/31〕 | 88,000 〈2/12〉 | 23,000 〈2/13〉 | 74,000 〈7/10〉 | 43,000 〔9/26〕 | 160,000 〈10/13〉 〈10/16〉 〈11/3〉 | 460,000 〔8/19〕 | 1,000 〈2/23〉 | 440 〔8/26〕 | 660 〈1/8〉 |
| Sr-90(Approx. 29 years) | 35,000 〈2/17〉 | 300 〔10/3〕 | — | 170 〈8/4〉 | 290 〔10/21〕 | 160,000 〈2/12〉 | 28,000 〈10/2〉 | Under analysis | 2,700,000 〈2/13〉 | 990,000 〈10/2〉 | — | 54 〔5/31〕 | 5.9 〔7/25〕 | 320 〔12/25〕 |

Unit: Bq/L

| | Groundwater observation hole No.2-3 | Groundwater observation hole No.2-5 | Groundwater observation hole No.2-6 | Groundwater observation hole No.2-7 | Groundwater observation hole No.2-8 | Groundwater observation hole No.2-9 | Groundwater pumped up from the well point (between Unit 2 and 3) | Groundwater observation hole No.3 | Groundwater observation hole No.3-1* | Groundwater observation hole No.3-2 | Groundwater observation hole No.3-3 | Groundwater observation hole No.3-4 | Groundwater observation hole No.3-5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cs-134 (Approx. 2 years) | 2.2 〈2/26〉 | 41 〈5/7〉 | 17 〈3/11〉 | 3.5 〈2/23〉 | 1.3 〈7/20〉 | ND | 2.2 〈9/7〉 | 3.5 〔7/25〕 | 1.2 〔7/25〕 〔8/8〕 | 23 〈8/27〉 | 180 〈7/2〉 | 5.1 〈7/23〉 | 100 〈7/30〉 |
| Cs-137 (Approx.30 years) | 5.5 〈2/26〉 | 110 〈5/7〉 | 50 〈3/11〉 | 9.0 〈2/23〉 | 3.4 〈7/20〉 | 0.58 *2 〈2/11〉 | 5.7 〈9/7〉 | 5.9 〔8/8〕 | 2.6 〔8/1〕 | 68 〈9/3〉 | 500 〈7/2〉 | 16 〈8/27〉 | 310 〈7/30〉 |
| The other γ: Ru-106 (Approx. 370 days) | ND | ND | ND | ND | ND | 6.5 *2 〈2/11〉 | ND | ND | ND | ND | ND | ND | － |
| The other γ: Mn-54 (Approx. 310 days) | 0.29 〔12/6〕 | 0.95 〈6/4〉 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.54 〔10/30〕 | － |
| The other γ: Co-60 (Approx. 5 years) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | － |
| The other γ: Sb-125 (Approx. 3 years) | ND | 74 〈5/7〉 | ND | ND | ND | ND | ND | 1.6 〈1/1〉 | ND | ND | ND | ND | － |
| Gross β | 1,500 〔12/6〕 〈1/8〉 | 150,000 〈2/12〉 | 3,200 〔12/5〕 〈11/6〉 | 1,300 〈6/20〉 | 5,800 〈7/23〉 | 1,700 〈2/7〉 | 240,000 〔12/12〕 | 1,400 〔7/11〕 | 180 〔8/1〕 | 3,100 〈8/20〉 〈8/28〉 | 8,900 〈7/2〉 | 46 〈8/13〉 | 510 〈7/16〉 |
| H-3 (Approx. 12 years) | 1,700 〔12/6〕 | 7,900 〈4/9〉 | 1,900 〈8/10〉 | 1,100 〈1/19〉 | 1,700 〈4/6〉 〈8/6〉 〈8/13〉 | 13,000 *2 〈2/7〉 〈2/11〉 | 13,000 〈10/19〉 〈10/26〉 〈10/29〉 | 3,200 〔2012. 12/12〕 | 460 〔8/1〕 | 3,700 〈7/9〉 | 8,000 〈5/7〉 | 170 〔9/18〕 | 170 〈1/8〉 |
| Sr-90(Approx. 29 years) | 1,200 〔12/6〕 | 34,000 〈5/7〉 | Under analysis | ND(1.4) 〔11/21〕 | 3,900 〈3/30〉 | 1,200 *2 〈2/11〉 | － | 8.3 〔2012. 12/12〕 | 4.4 〔7/23〕 | 2000 〈4/18〉 | 3,600 〈4/30〉 | ND | 200 〈5/28〉 |

● Since some samples are still under analysis, the highest dose of the Strontium-90 is among those previously announced.
*1 Analysis result of pumped water.
*2 The results are for reference, since the water was highly turbid. (γ and Gross β were measured after filtration.)

* "ND" indicates that the measurement result is below the detection limit.
* Date of sampling is provided in parentheses. [ ]: 2013, < >: 2014
* "*" is provided next to the name of the holes where the sampling could not be performed due to the chemical injection of ground improvement.
(Note) As for No. 1-9, 2-5, and 3-5, since September 17, γ was not measured because they are samlpled by sampler. Gross β were measured after filtation for reference.