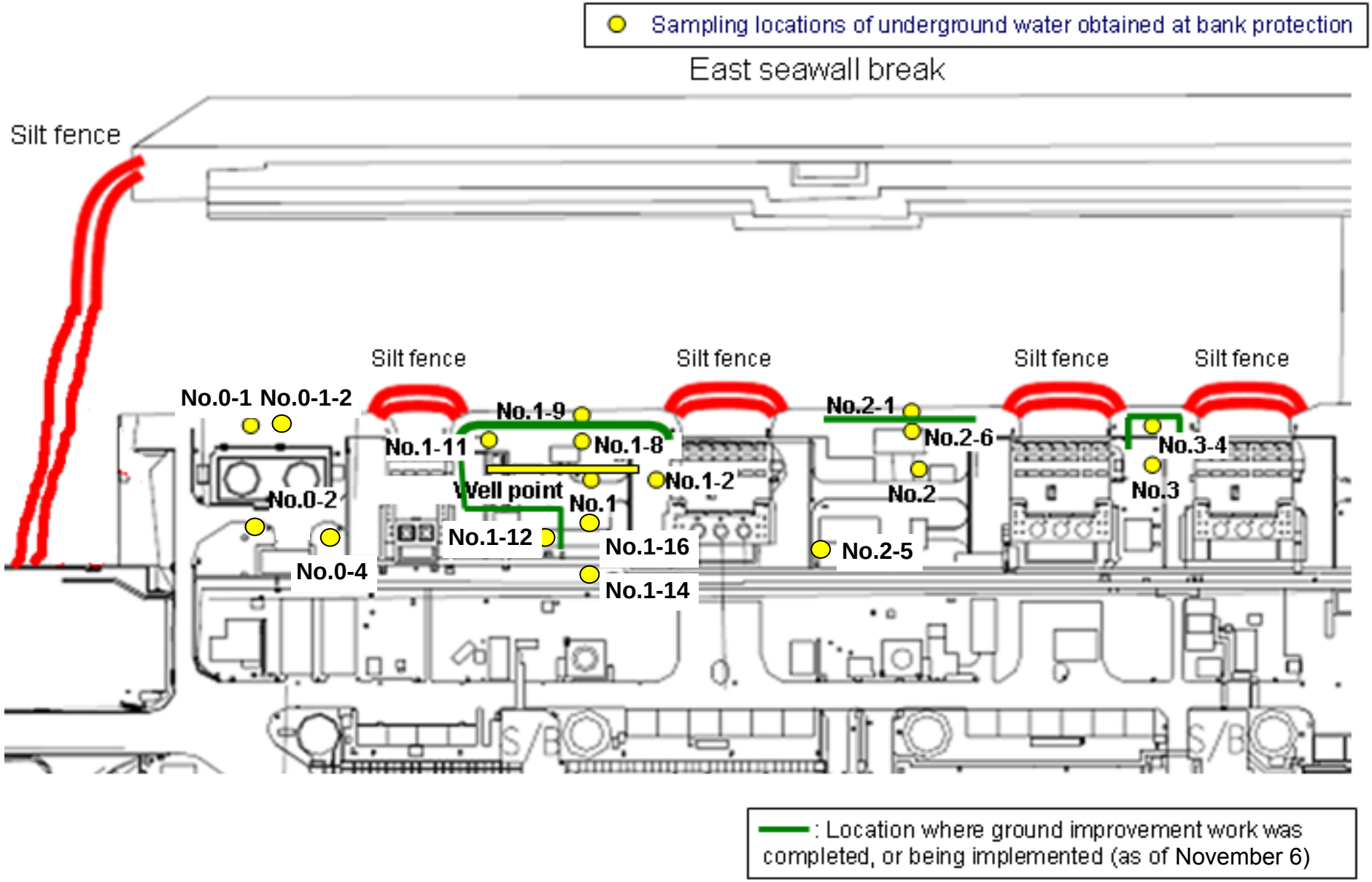
<Reference>
November 23, 2013
Tokyo Electric Power Company

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
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.0-4	Underground water observation hole No.1	Underground water observation hole No.1-8	Underground water observation hole No.1-9	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													Nov 22, 2013
Time of sampling													9:23 AM
Chloride (unit: ppm)													-
Cs-134 (Approx. 2 years)													ND(0.49)
Cs-137 (Approx.30 years)													ND(0.48)
The other γ: Co-60 (Approx. 5 years)													0.41
The other γ: Ru-106 (Approx. 370 days)													4.0
The other γ:													
All β													44
H-3 (Approx. 12 years)													9,800
Sr-90 (Approx. 29 years)													Under analysis

	Groundwater pumped up from the well point	Underground water observation hole No.2	Underground water observation hole No.2-5	Underground water observation hole No.2-6	Underground water observation hole No.2-7	Underground water observation hole No.3	Underground water observation hole No.3-4	Underground water observation hole No.3-5
Date of sampling								Nov 23, 2013
Time of sampling								9:25 AM
Chloride (unit: ppm)								145
Cs-134 (Approx. 2 years)								-
Cs-137 (Approx.30 years)								-
The other γ								-
The other γ								-
The other γ								-
All β								22
H-3 (Approx. 12 years)								Under analysis
Sr-90 (Approx. 29 years)								-

* Data of No. 1-17 is provided in a thick-frame. The other data was previously announced.
* "ND" indicates that the measurement result is below the detection limit, and the detection limit of each nuclide is provided in parentheses.
* "-" indicates that the measurement was out of range.
* Since the result of No.3-5 was too high to be measured by turbidity meter, chloride, all **β** and tritium were analyzed as a reference.

<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.0-1-2	Groundwater observation hole No.0-2	Groundwater observation hole No.0-3-1	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.1-8
Cs-134 (Approx. 2 years)		6.3 〔11/10〕	ND	0.61 〔10/13〕	ND	ND	13 〔8/29〕	1.9 〔7/8〕	11,000 〔7/9〕	10 〔9/2〕	1.5 〔7/8〕	310 〔8/5〕	43 〔10/28〕
Cs-137 (Approx.30 years)		14 〔11/10〕	0.51 〔11/17〕	1.6 〔10/13〕	0.86 〔11/20〕	0.48 〔11/10〕	31 〔8/29〕	3.6 〔7/8〕	22,000 〔7/9〕	24 〔9/2〕	3.6 〔7/8〕	650 〔8/5〕	96 〔11/18〕
The other γ	Ru-106 (Approx. 370 days)	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
	Mn-54 (Approx. 310 days)	ND	ND	ND	ND	ND	ND	1.0 〔7/5〕	62 〔7/5〕	ND	ND	ND	5.2 〔11/18〕
	Co-60 (Approx. 5 years)	ND	ND	ND	ND	ND	0.50 〔7/19〕	ND	3.1 〔7/8〕	ND	ND	ND	0.58 〔11/18〕
	Sb-125 (Approx. 3 years)	ND	ND	ND	ND	ND	1.7 〔7/11〕	ND	250 〔7/15〕	1.4 〔7/12〕〔8/26〕	ND	12 〔8/8〕	ND
All β		300 〔8/22〕	21 〔11/10〕	87 〔10/13〕	ND	ND	1,900 〔5/24〕	4,400 〔7/8〕	900,000 〔7/5〕〔7/9〕	160,000 〔8/12〕〔8/15〕	380 〔8/19〕	56,000 〔8/5〕	14,000 〔11/18〕
H-3 (Approx. 12 years)		45,000 〔8/29〕	48,000 〔11/17〕	130 〔11/17〕	ND	19,000 〔11/10〕	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〕	4,900 〔11/18〕
Sr-90(Approx. 29 years)		Under analysis	Under analysis	Under analysis	Under analysis	1,200 〔6/7〕	Under analysis	Under analysis	Under analysis	Under analysis	Under analysis	Under analysis	Under analysis

Unit: Bq/L

		Groundwater observation hole No.1-9	Groundwater observation hole No.1-11	Groundwater observation hole No.1-12	Groundwater observation hole No.1-14	Groundwater observation hole No.1-16	Groundwater observation hole No.1-17	Groundwater pumped up from the well point (notch tank)
Cs-134 (Approx. 2 years)		170 〔9/3〕	0.94 〔10/31〕	74 〔10/21〕	1.2 〔11/14〕	1.6 〔11/14〕	ND 〔11/22〕	110 〔9/23〕
Cs-137 (Approx.30 years)		380 〔9/3〕	2.0 〔10/10〕〔11/11〕	170 〔10/21〕	2.3 〔11/21〕	3.4 〔10/10〕	ND 〔11/22〕	250 〔9/23〕
The other γ	Ru-106 (Approx. 370 days)	ND	ND	5.4 〔10/28〕	ND	9.2 〔10/28〕	4.0 〔11/22〕	25 〔9/2〕
	Mn-54 (Approx. 310 days)	ND	ND	ND	ND	ND	ND	ND
	Co-60 (Approx. 5 years)	ND	ND	0.51 〔10/24〕	ND	0.9 〔11/7〕	0.41 〔11/22〕	ND
	Sb-125 (Approx. 3 years)	ND	ND	61 〔10/21〕	ND	8.6 〔11/18〕	ND	ND
All β		2,100 〔11/17〕	72 〔10/3〕	730 〔10/21〕	160 〔11/21〕	880,000 〔10/14〕	44 〔11/22〕	700,000 〔9/23〕
H-3 (Approx. 12 years)		860 〔11/14〕	85,000 〔9/13〕	440,000 〔10/31〕	3,600 〔11/14〕〔11/18〕	43,000 〔9/26〕	Under analysis	460,000 〔8/19〕
Sr-90(Approx. 29 years)		Under analysis	Under analysis	Under analysis 〔10/21〕	Under analysis	Under analysis	Under analysis	-

Unit: Bq/L

		Groundwater observation hole No.2	Groundwater observation hole No.2-1*	Groundwater observation hole No.2-5[*1]	Groundwater observation hole No.2-6	Groundwater observation hole No.2-7	Groundwater observation hole No.3	Groundwater observation hole No.3-1	Groundwater observation hole No.3-4
Cs-134 (Approx. 2 years)		0.50 〔7/9〕	0.66 〔9/1〕	3.9 〔11/7〕	0.56 〔10/30〕	1.3 〔11/21〕	3.5 〔7/25〕	1.2 〔7/25〕〔8/8〕	1.8 〔10/30〕
Cs-137 (Approx.30 years)		1.2 〔7/11〕〔8/1〕	1.1 〔8/29〕〔9/1〕	10 〔9/29〕	0.61 〔10/13〕	3.1 〔11/21〕	5.9 〔8/8〕	2.6 〔8/1〕	3.8 〔10/30〕
The other γ	Ru-106 (Approx. 370 days)	ND	ND	ND	ND	ND	ND	ND	ND
	Mn-54 (Approx. 310 days)	ND	ND	0.77 〔9/29〕	ND	ND	ND	ND	0.54 〔10/30〕
	Co-60 (Approx. 5 years)	ND	ND	ND	ND	ND	ND	ND	ND
	Sb-125 (Approx. 3 years)	ND	ND	26 〔9/29〕	ND	ND	1.1 〔9/5〕	ND	ND
All β		1,700 〔7/8〕	380 〔7/29〕	46,000 〔9/29〕	2,100 〔11/17〕	18 〔11/21〕	1,400 〔7/11〕	180 〔8/1〕	ND
H-3 (Approx. 12 years)		850 〔6/26〕	440 〔8/26〕	3,100 〔11/7〕	1,100 〔10/13〕〔10/17〕〔11/6〕〔11/10〕〔11/13〕	1,000 〔11/21〕	3,200 〔H24. 12/12〕	460 〔8/1〕	170 〔9/18〕
Sr-90(Approx. 29 years)		54 〔5/31〕	Under analysis	Under analysis	Under analysis	Under analysis	8.3 〔2012/12/12〕	Under analysis	Under analysis

*1 Although we previously announced the analysis result of γ and all β on September 29, we have reanalyze the sample.
The analysis result of No.2-5 is the reference value, since we could not sample groundwater by a regular procedure.
* "ND" indicates that the measurement result is below the detection limit.
* Date of sampling is provided in parentheses.
* "*" is provided next to the name of the holes where the sampling could not be performed due to the chemical injection of ground improvement.
● The underlined part was corrected on January 10, 2014.