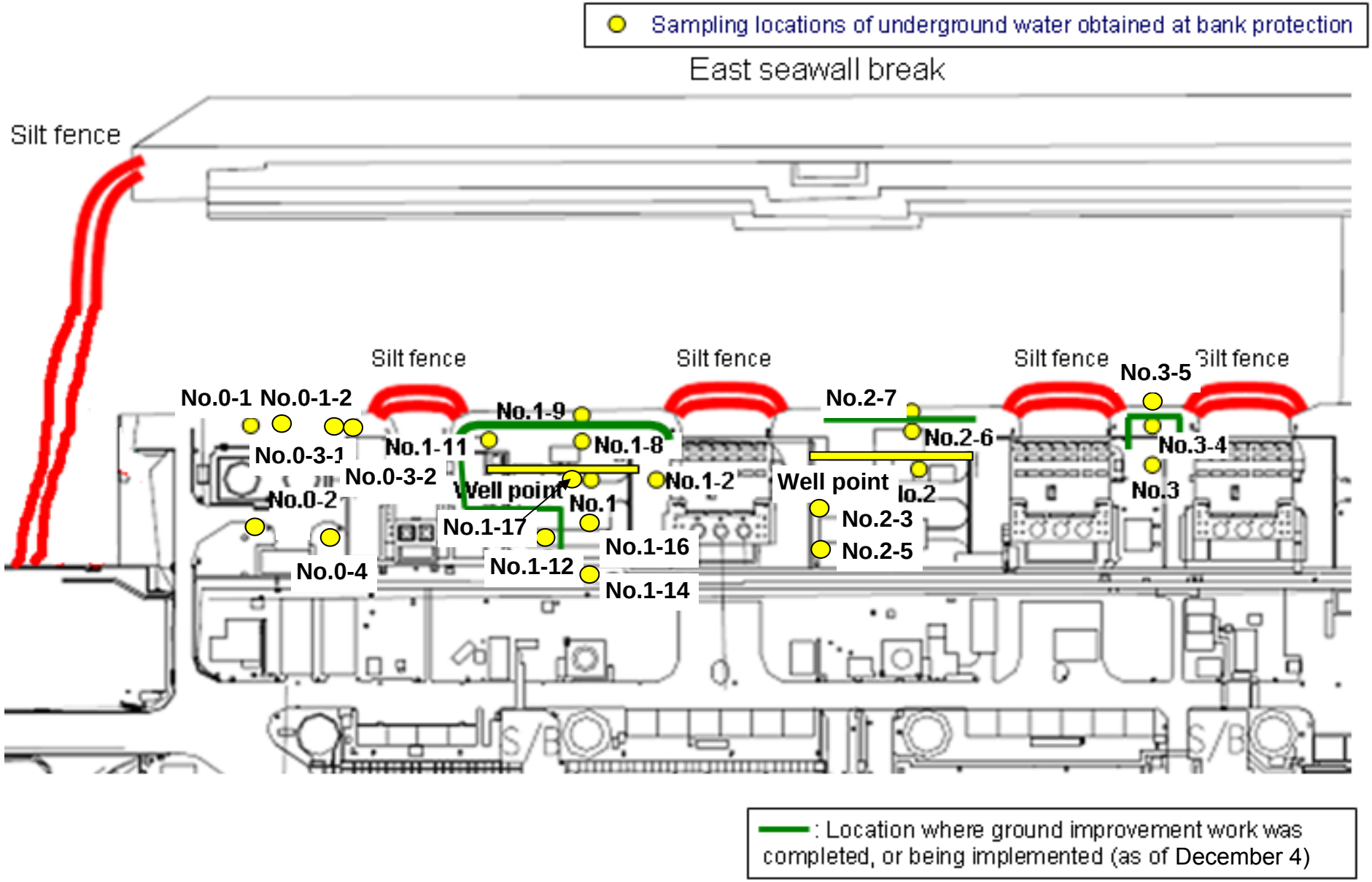
<Reference>
December 8, 2013
Tokyo Electric Power Company

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 (1/3)
Underground Water Obtained at Bank Protection

Unit: Bq/L (exclude chloride)

	Underground water observation hole No.0-1	Underground water observation hole No.0-1-1	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.1-8	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
Date of sampling		Dec 7, 2013											
Time of sampling		11:15 AM											
Chloride (unit: ppm)		-											
Cs-134 (Approx. 2 years)		ND(0.46)											
Cs-137 (Approx.30 years)		0.58											
The other γ													
Gross β		21											
H-3 (Approx. 12 years)		18,000											
Sr-90 (Approx. 29 years)		Under analysis											

	Underground water observation hole No.1-16	Underground water observation hole No.1-17	Groundwater pumped up from the well point (between Unit 1 and 2)	Underground water observation hole No.2	Underground water observation hole No.2-3	Underground water observation hole No.2-5	Underground water observation hole No.2-6	Underground water observation hole No.2-7	Groundwater pumped up from the well point (between Unit 2 and 3)	Underground water observation hole No.3	Underground water observation hole No.3-4	Underground water observation hole No.3-5
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)												

* Data announced this time is provided in a thick-frame. The other data was announced on December 7.
* "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.

Detailed Analysis Results in the Port of Fukushima Daiichi NPS, around Discharge Channel and Bank Protection (2/3)
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													
Time of sampling													
Chloride (unit: ppm)													
Cs-134 (Approx. 2 years)													
Cs-137 (Approx.30 years)													
The other γ													
The other γ													
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.2-5	Underground water observation hole No.2-6	Underground water observation hole No.2-7	Groundwater pumped up from the well point (between Unit 2 and 3)	Underground water observation hole No.3	Underground water observation hole No.3-4	Underground water observation hole No.3-5
Date of sampling						Dec 6, 2013			
Time of sampling						10:05 AM			
Chloride (unit: ppm)						-			
Cs-134 (Approx. 2 years)						0.69			
Cs-137 (Approx.30 years)						1.7			
The other γ									
The other γ									
The other γ									
Gross β						180,000			
H-3 (Approx. 12 years)						5,100			
Sr-90 (Approx. 29 years)						-			

* Data announced this time is provided in a thick-frame. The other data was announced on December 7.
* "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.

Detailed Analysis Results in the Port of Fukushima Daiichi NPS, around Discharge Channel and Bank Protection (3/3)
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													
Time of sampling													
Chloride (unit: ppm)													
Cs-134 (Approx. 2 years)													
Cs-137 (Approx.30 years)													
The other γ													
The other γ													
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.2-5	Underground water observation hole No.2-6	Underground water observation hole No.2-7	Groundwater pumped up from the well point (between Unit 2 and 3)	Underground water observation hole No.3	Underground water observation hole No.3-4	Underground water observation hole No.3-5
Date of sampling						Dec 7, 2013			
Time of sampling						10:00 AM			
Chloride (unit: ppm)						-			
Cs-134 (Approx. 2 years)						ND(0.93)			
Cs-137 (Approx.30 years)						2.4			
The other γ									
The other γ									
The other γ									
Gross β						190,000			
H-3 (Approx. 12 years)						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.
* "-" indicates that the measurement was out of range.

<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*
Cs-134 (Approx. 2 years)		6.5 〔12/1〕	ND	ND	0.61 〔10/13〕	0.44 〔11/24〕	ND	ND	13 〔8/29〕	1.9 〔7/8〕	11,000 〔7/9〕	10 〔9/2〕	1.5 〔7/8〕	310 〔8/5〕
Cs-137 (Approx.30 years)		16 〔12/1〕	0.58 〔12/7〕	0.51 〔11/17〕	1.6 〔10/13〕	0.86 〔11/20〕	0.54 〔12/6〕	0.49 〔12/1〕	31 〔8/29〕	3.6 〔7/8〕	22,000 〔7/9〕	24 〔9/2〕	3.6 〔7/8〕	650 〔8/5〕
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
	Mn-54 (Approx. 310 days)	ND	ND	ND	ND	ND	ND	ND	ND	1.0 〔7/5〕	62 〔7/5〕	ND	ND	ND
	Co-60 (Approx. 5 years)	ND	ND	ND	ND	ND	ND	ND	0.50 〔7/19〕	ND	3.1 〔7/8〕	ND	ND	ND
	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〕
Gross β		300 〔8/22〕	21 〔12/7〕	21 〔11/10〕	87 〔10/13〕	ND	19 〔12/6〕	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〕
H-3 (Approx. 12 years)		45,000 〔8/29〕	分析中	65,000 〔12/1〕	1,100 〔12/1〕	ND	64,000 〔12/6〕	20,000 〔12/1〕	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〕
Sr-90(Approx. 29 years)		Under analysis	Under analysis	Under analysis	Under analysis	Under analysis	Under analysis	Under analysis	1,200 〔6/7〕	Under analysis	Under analysis	Under analysis	Under analysis	Under analysis

Unit: Bq/L

		Groundwater observation hole No.1-8	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 (between Unit 1 and 2)
Cs-134 (Approx. 2 years)		47 〔11/25〕	170 〔9/3〕	0.94 〔10/31〕	74 〔10/21〕	1.2 〔11/14〕	1.6 〔11/14〕	1.2 〔12/5〕	110 〔9/23〕
Cs-137 (Approx.30 years)		110 〔11/25〕	380 〔9/3〕	2.2 〔12/2〕	170 〔10/21〕	2.3 〔11/21〕	3.4 〔10/10〕	0.55 〔12/5〕	250 〔9/23〕
The other γ	Ru-106 (Approx. 370 days)	ND	ND	ND	5.4 〔10/28〕	ND	9.2 〔10/28〕	4.0 〔11/22〕〔11/28〕	25 〔9/2〕
	Mn-54 (Approx. 310 days)	7.1 〔11/25〕〔12/2〕	ND	ND	ND	ND	ND	ND	ND
	Co-60 (Approx. 5 years)	0.58 〔11/18〕	ND	ND	0.51 〔10/24〕	ND	0.9 〔11/7〕	0.61 〔11/25〕	ND
	Sb-125 (Approx. 3 years)	ND	ND	ND	61 〔10/21〕	ND	11 〔12/5〕	2.1 〔11/25〕	ND
Gross β		18,000 〔11/25〕	2,100 〔11/17〕	72 〔10/3〕	730 〔10/21〕	160 〔11/21〕〔12/5〕	1,400,000 〔12/5〕	130 〔12/2〕	700,000 〔9/23〕
H-3 (Approx. 12 years)		7,500 〔12/2〕	860 〔11/14〕	85,000 〔9/13〕	440,000 〔10/31〕	11,000 〔11/25〕	43,000 〔9/26〕	15,000 〔12/2〕	460,000 〔8/19〕
Sr-90(Approx. 29 years)		Under analysis	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.2-3	Groundwater observation hole No.2-5*1	Groundwater observation hole No.2-6	Groundwater observation hole No.2-7	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.3-4	Groundwater observation hole No.3-5
Cs-134 (Approx. 2 years)		0.50 〔7/9〕	0.66 〔9/1〕	ND	5.2 〔12/4〕	0.56 〔10/30〕	1.3 〔11/21〕	0.75 〔12/4〕	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〕	0.49 〔12/6〕	12 〔12/4〕	0.61 〔10/13〕	3.1 〔11/21〕	1.7 〔12/6〕	5.9 〔8/8〕	2.6 〔8/1〕	4.3 〔11/27〕	-
The other γ	Ru-106 (Approx. 370 days)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
	Mn-54 (Approx. 310 days)	ND	ND	0.29 〔12/6〕	0.87 〔12/4〕	ND	ND	ND	ND	ND	0.54 〔10/30〕	-
	Co-60 (Approx. 5 years)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
	Sb-125 (Approx. 3 years)	ND	ND	ND	26 〔9/29〕	ND	ND	ND	1.1 〔9/5〕	ND	ND	-
Gross β		1,700 〔7/8〕	380 〔7/29〕	1,500 〔12/6〕	46,000 〔9/29〕	3,200 〔12/5〕	18 〔11/21〕	180,000 〔12/6〕	1,400 〔7/11〕	180 〔8/1〕	ND	35*2 〔11/27〕
H-3 (Approx. 12 years)		850 〔6/26〕	440 〔8/26〕	1,700 〔12/6〕	3,100 〔11/7〕	1,200 〔11/24〕〔11/27〕	1,000 〔11/21〕〔12/4〕	4,800 〔12/5〕	3,200 〔2012/12/12〕	460 〔8/1〕	170 〔9/18〕	ND*2
Sr-90(Approx. 29 years)		54 〔5/31〕	Under analysis	Under analysis	Under analysis	Under analysis	Under analysis	-	8.3 〔2012/12/12〕	Under analysis	Under analysis	-

*1 The analysis result of No.2-5 obtained on September 29 is the reference value, since we could not sample groundwater by a regular procedure.
*2 Since the water of No.3-5 obtained on Novemeber 23 and 27 was highly turbid, only chloride, Gross β and tritium were analyzed as a reference.
* "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.