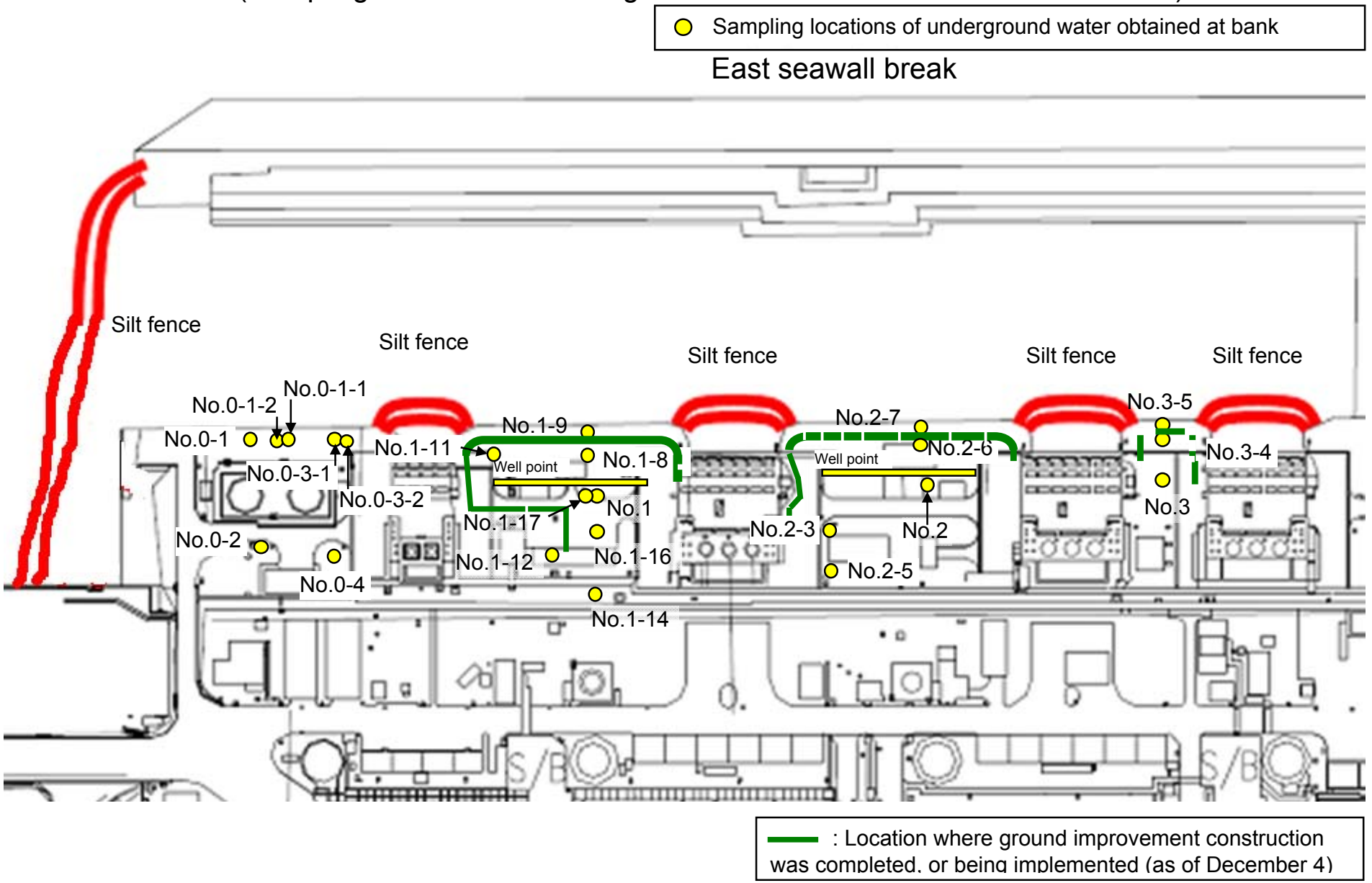
<Reference>
December 12, 2013
Tokyo Electric Power Company

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 (1/4)
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													
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)													

	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				Dec 8, 2013				Dec 8, 2013	Dec 10, 2013			
Time of sampling				9:34 AM				9:57 AM	10:10 AM			
Chloride (unit: ppm)				-				740	-			
Cs-134 (Approx. 2 years)				ND(0.42)				0.75	0.85			
Cs-137 (Approx.30 years)				ND(0.56)				1.6	0.86			
The other γ												
The other γ												
The other γ												
Gross β				370				22	170,000			
H-3 (Approx. 12 years)				870				800	4,500			
Sr-90 (Approx. 29 years)				-				-	-			

* Data announced this time is provided in a thick-frame. The other data was announced on December 9 and 11.
* "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 (2/4)
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													
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)													

	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				Dec 11, 2013	Dec 11, 2013			Dec 11, 2013	Dec 11, 2013		Dec 11, 2013	Dec 11, 2013
Time of sampling				9:15 AM	10:27 AM			9:48 AM	9:45 AM		11:02 AM	10:52 AM
Chloride (unit: ppm)				-	-			12:00 AM	-		-	180
Cs-134 (Approx. 2 years)				ND(0.40)	ND(0.47)			0.51	ND(0.87)		0.99	-
Cs-137 (Approx.30 years)				ND(0.54)	0.59			1.5	1.5		3.0	-
The other γ												-
The other γ												-
The other γ												-
Gross β				320	1,200			ND(21)	190,000		ND(21)	ND(21)
H-3 (Approx. 12 years)				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.
* "-" indicates that the measurement was out of range.
* Since the water of No.3-5 was highly turbid, only chloride, Gross 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.0-1-1	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〕	18,000 〔12/7〕	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)	8.7 〔12/9〕	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		29,000 〔12/9〕	2,100 〔11/17〕	72 〔10/3〕	730 〔10/21〕	160 〔11/21〕〔12/5〕	1,500,000 〔12/9〕	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〕	16,000 〔12/5〕	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〕	0.88 〔12/8〕	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〕	2.4 〔12/7〕	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〕	22 〔12/8〕	190,000 〔12/7〕	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〕	6,300 〔12/4〕	1,200 〔11/24〕〔11/27〕	1,000 〔11/21〕〔12/4〕	5,100 〔12/6〕	3,200 〔H24. 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 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.