Reference

Nuclides Analysis Result of the Radioactive Materials in the Seawater
< Coast, Fukushima Daiichi Nuclear Power Station >

(Data summarized on March 1)

Place of Sampling	North of Unit 5-6 Discharge Channel at Fukushima Daiichi NPS (Approx. 30m North of Unit 5-6 Discharge Channel)		Around South Discharge Channel of Fukushima Daiichi NPS (Appox. 1.3km South of Unit 1-4 Discharge Channel)		② Density Limit Specified by the Reactor Regulation (Bq/L) (The density limit in the water outside the surrounding monitored areas is provided in section 6 of Appendix 2.)
Time of Sampling	Feb 28, 2013 6:55 AM		Feb 28, 2013 7:15 AM		
Detected Nuclides (Half-life)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	
I-131 (Approx. 8 days)	ND	-	ND	-	40
Cs-134 (Approx. 2 years)	ND	-	ND	-	60
Cs-137 (Approx. 30 years)	ND	-	ND	-	90

* The density specified by the Reactor Regulation is converted from Bq/cm^3 to Bq/L.
* Data of other nuclides is under evaluation.
* In the case of more than 2 nuclides, the sum of scaling factors to density limits is compared to 1.
* "ND" indicates that the measurement result is below the detection limit.
  I-131: Approx. 0.47Bq/L, Cs-134: Approx. 1.1Bq/L, Cs-137: Approx. 1.4Bq/L
  As the detection limit may vary depending on the detectors and sample properties, there are cases where nuclides below the detection limit are detected.

Nuclides Analysis Result of the Radioactive Materials in the Seawater < Offshore 1/3 >

(Data summarized on March 1)

Place of Sampling (Place No.)	3km Offshore of Odaka Ward (T-14)				3km Offshore of Odaka Ward (T-14)				15km Offshore of Fukushima Daiichi NPS (T-5)				② Density Limit Specified by the Reactor Regulation (Bq/L) (The density limit in the water outside the surrounding monitored areas is provided in section 6 of Appendix 2.)
	Upper Layer		Lower Layer		Upper Layer		Lower Layer		Upper Layer		Lower Layer		
Time of Sampling	Jan 25, 2013 8:56 AM		Jan 25, 2013 8:56 AM		Jan 28, 2013 9:17 AM		Jan 28, 2013 9:17 AM		Jan 21, 2013 8:10 AM		Jan 21, 2013 8:10 AM		
Detected Nuclides (Half-life)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	
Cs-134 (Approx. 2 years)	0.029	0.00	0.026	0.00	0.015	0.00	0.014	0.00	0.0098	0.00	0.011	0.00	60
Cs-137 (Approx. 30 years)	0.052	0.00	0.049	0.00	0.029	0.00	0.028	0.00	0.017	0.00	0.019	0.00	90

Place of Sampling (Place No.)	15km Offshore of Fukushima Daiichi NPS (T-5)				3km Offshore of Iwasawa Shore (T-11)				3km Offshore of Iwasawa Shore (T-11)				② Density Limit Specified by the Reactor Regulation (Bq/L) (The density limit in the water outside the surrounding monitored areas is provided in section 6 of Appendix 2.)
	Upper Layer		Lower Layer		Upper Layer		Lower Layer		Upper Layer		Lower Layer		
Time of Sampling	Jan 29, 2013 8:11 AM		Jan 29, 2013 8:11 AM		Jan 21, 2013 9:23 AM		Jan 21, 2013 9:23 AM		Jan 29, 2013 9:15 AM		Jan 29, 2013 9:15 AM		
Detected Nuclides (Half-life)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	
Cs-134 (Approx. 2 years)	0.0064	0.00	0.0051	0.00	0.026	0.00	0.029	0.00	0.055	0.00	0.043	0.00	60
Cs-137 (Approx. 30 years)	0.012	0.00	0.012	0.00	0.043	0.00	0.049	0.00	0.094	0.00	0.076	0.00	90

* The density specified by the Reactor Regulation is converted from Bq/cm^3 to Bq/L.
* In the case of more than 2 nuclides, the sum of scaling factors to density limits is compared to 1.
* Analysis results by detail analysis (Phosphomolybdic acid ammonium adsorption sampling method) are noted.
* Analyzed by: THE GENERAL ENVIRONMENTAL TECHNOS Co., LTD.

Nuclides Analysis Result of the Radioactive Materials in the Seawater < Offshore 2/3 >

(Data summarized on March 1)

Place of Sampling (Place No.)	3km Offshore of Northern Iwaki City (T-12)				1km Offshore of Natsui River (T-17-1)				3km Offshore of Toyoma (T-20)				② Density Limit Specified by the Reactor Regulation (Bq/L) (The density limit in the water outside the surrounding monitored areas is provided in section 6 of Appendix 2.)
	Upper Layer		Lower Layer		Upper Layer		Lower Layer		Upper Layer		Lower Layer		
Time of Sampling	Jan 21, 2013 6:28 AM		Jan 21, 2013 6:28 AM		Jan 21, 2013 6:55 AM		Jan 21, 2013 6:55 AM		Jan 21, 2013 7:19 AM		Jan 21, 2013 7:19 AM		
Detected Nuclides (Half-life)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	
Cs-134 (Approx. 2 years)	0.011	0.00	0.035	0.00	0.0055	0.00	0.0091	0.00	0.0069	0.00	0.025	0.00	60
Cs-137 (Approx. 30 years)	0.020	0.00	0.060	0.00	0.013	0.00	0.019	0.00	0.013	0.00	0.046	0.00	90

Place of Sampling (Place No.)	Around 1km Offshore of Ota River (T-S1)				Around 3km Offshore of Odaka Ward (T-S2)				Around 3km Offshore of Ukedo River (T-S3)				② Density Limit Specified by the Reactor Regulation (Bq/L) (The density limit in the water outside the surrounding monitored areas is provided in section 6 of Appendix 2.)
	Upper Layer		Lower Layer		Upper Layer		Lower Layer		Upper Layer		Lower Layer		
Time of Sampling	Jan 30, 2013 5:47 AM		Jan 30, 2013 5:47 AM		Jan 30, 2013 6:21 AM		Jan 30, 2013 6:21 AM		Jan 28, 2013 7:16 AM		Jan 28, 2013 7:16 AM		
Detected Nuclides (Half-life)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	
Cs-134 (Approx. 2 years)	0.020	0.00	0.015	0.00	0.019	0.00	0.018	0.00	0.028	0.00	0.021	0.00	60
Cs-137 (Approx. 30 years)	0.039	0.00	0.028	0.00	0.038	0.00	0.032	0.00	0.052	0.00	0.039	0.00	90

* The density specified by the Reactor Regulation is converted from Bq/cm^3 to Bq/L.
* In the case of more than 2 nuclides, the sum of scaling factors to density limits is compared to 1.
* Analysis results by detail analysis (Phosphomolybdic acid ammonium adsorption sampling method) are noted.
* Analyzed by: THE GENERAL ENVIRONMENTAL TECHNOS Co., LTD.

Nuclides Analysis Result of the Radioactive Materials in the Seawater < Offshore 3/3 >

(Data summarized on March 1)

Place of Sampling (Place No.)	Around 3km Offshore of Fukushima Daiichi NPS (T-S4)				Around 2km Offshore of Kido River(T-S5)				Around 2km Offshore of Fukushima Daini NPS (T-S7)				② Density Limit Specified by the Reactor Regulation (Bq/L) (The density limit in the water outside the surrounding monitored areas is provided in section 6 of Appendix 2.)
	Upper Layer		Lower Layer		Upper Layer		Lower Layer		Upper Layer		Lower Layer		
Time of Sampling	Jan 28, 2013 7:55 AM		Jan 28, 2013 7:55 AM		Jan 19, 2013 6:56 AM		Jan 19, 2013 6:56 AM		Jan 19, 2013 6:32 AM		Jan 19, 2013 6:32 AM		
Detected Nuclides (Half-life)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	
Cs-134 (Approx. 2 years)	0.016	0.00	0.014	0.00	0.077	0.00	0.049	0.00	0.19	0.00	0.18	0.00	60
Cs-137 (Approx. 30 years)	0.031	0.00	0.025	0.00	0.13	0.00	0.088	0.00	0.32	0.00	0.30	0.00	90

Place of Sampling (Place No.)													② Density Limit Specified by the Reactor Regulation (Bq/L) (The density limit in the water outside the surrounding monitored areas is provided in section 6 of Appendix 2.)
	Upper Layer		Lower Layer		Upper Layer		Lower Layer		Upper Layer		Lower Layer		
Time of Sampling													
Detected Nuclides (Half-life)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	
Cs-134 (Approx. 2 years)													60
Cs-137 (Approx. 30 years)													90

* The density specified by the Reactor Regulation is converted from Bq/cm^3 to Bq/L.
* In the case of more than 2 nuclides, the sum of scaling factors to density limits is compared to 1.
* Analysis results by detail analysis (Phosphomolybdic acid ammonium adsorption sampling method) are noted.
* Analyzed by: THE GENERAL ENVIRONMENTAL TECHNOS Co., LTD.

Nuclides Analysis Result of Radioactive Materials in the Seawater <1/2>

(Data summarized on March 1)

Place of Sampling (Place No.)	15km Offshore of Fukushima Daiichi NPS (T-5) Upper Layer		3km Offshore of Ukedo River (T-D1) Upper Layer		3km Offshore of Fukushima Daiichi NPS (T-D5) Upper Layer		② Density Limit Specified by the Reactor Regulation (Bq/L) (The density limit in the water outside the surrounding monitored areas is provided in section 6 of Appendix 2.)
Date of Sampling	Jan 11, 2013		Jan 08, 2013		Jan 04, 2013		
Detected Nuclides (Half-life)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	
Cs-134 (Approx. 2 years)	0.0044	0.00	0.020	0.00	0.013	0.00	60
Cs-137 (Approx. 30 years)	0.0089	0.00	0.039	0.00	0.022	0.00	90
H-3 (approx. 12yrs)	ND	–	ND	–	ND	–	60,000
All α	ND	–	ND	–	ND	–	–
All β	ND	–	ND	–	ND	–	–
Sr-89 (Approx. 51 days)	ND	–	ND	–	ND	–	300
Sr-90 (Approx. 29 years)	ND	–	0.067	0.00	0.018	0.00	30

* The density specified by the Reactor Regulation is converted from Bq/cm^3 to Bq/L.
* In the case of more than 2 nuclides, the sum of scaling factors to density limits is compared to 1.
* Nuclide analysis results of Cs-134 and Cs-137 were announced on February 8, 13 and 27.
* When the measurement value is below the detection limit, "ND" is marked. The detection limits are as follows.
  H-3: Approx. 3.2Bq/L，All α: Approx. 3.6Bq/L，All β: Approx. 19Bq/L，
  Sr-89: Approx. 0.03Bq/L，Sr-90: Approx. 0.009Bq/L
  As the detection limit may vary depending on the detectors and sample properties, there are cases where nuclides below the detection limit are detected.
* Nuclides analysis of Sr-89 and Sr-90 were done by Japan Chemical Analysis Center.

(Evaluation)

Although Sr-90 was detected supposedly as a result of this accident, it is less than the density limit in the water which is specified by the announcement.

Revised Edition

Nuclides Analysis Result of Radioactive Materials in the Seawater <2/2>

(Data summarized on March 1)

Place of Sampling (Place No.)	3km Offshore of Fukushima Daini NPS (T-D9) Upper Layer						② Density Limit Specified by the Reactor Regulation (Bq/L) (The density limit in the water outside the surrounding monitored areas is provided in section 6 of Appendix 2.)
Date of Sampling	Jan 10, 2013						
Detected Nuclides (Half-life)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	
Cs-134 (Approx. 2 years)	0.018	0.00					60
Cs-137 (Approx. 30 years)	0.030*	0.00					90
H-3 (approx. 12yrs)	ND	–					60,000
All α	ND	–					–
All β	ND	–					–
Sr-89 (Approx. 51 days)	ND	–					300
Sr-90 (Approx. 29 years)	0.060	0.00					30

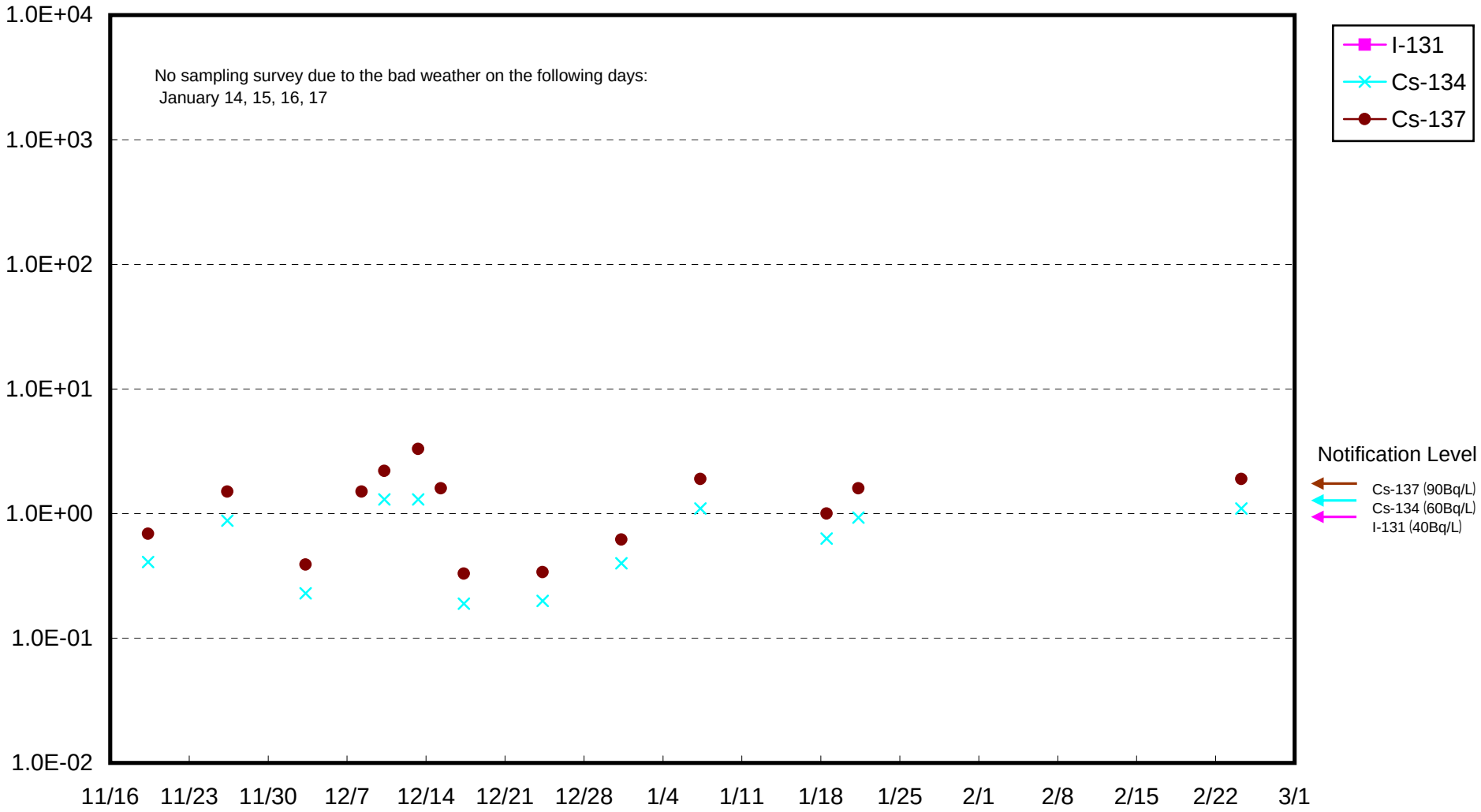
* The density specified by the Reactor Regulation is converted from Bq/cm^3 to Bq/L.
* In the case of more than 2 nuclides, the sum of scaling factors to density limits is compared to 1.
* Nuclide analysis results of Cs-134 and Cs-137 were announced on February 13.
* When the measurement value is below the detection limit, "ND" is marked.
  The detection limits are as follows.
  H-3: Approx. 3.2Bq/L, All α: Approx. 3.6Bq/L, All β: Approx. 19Bq/L,
  Sr-89: Approx. 0.03Bq/L
  As the detection limit may vary depending on the detectors and sample properties, there are cases where nuclides below the detection limit are detected.
* Nuclides analysis of Sr-89 and Sr-90 were done by Japan Chemical Analysis Center.

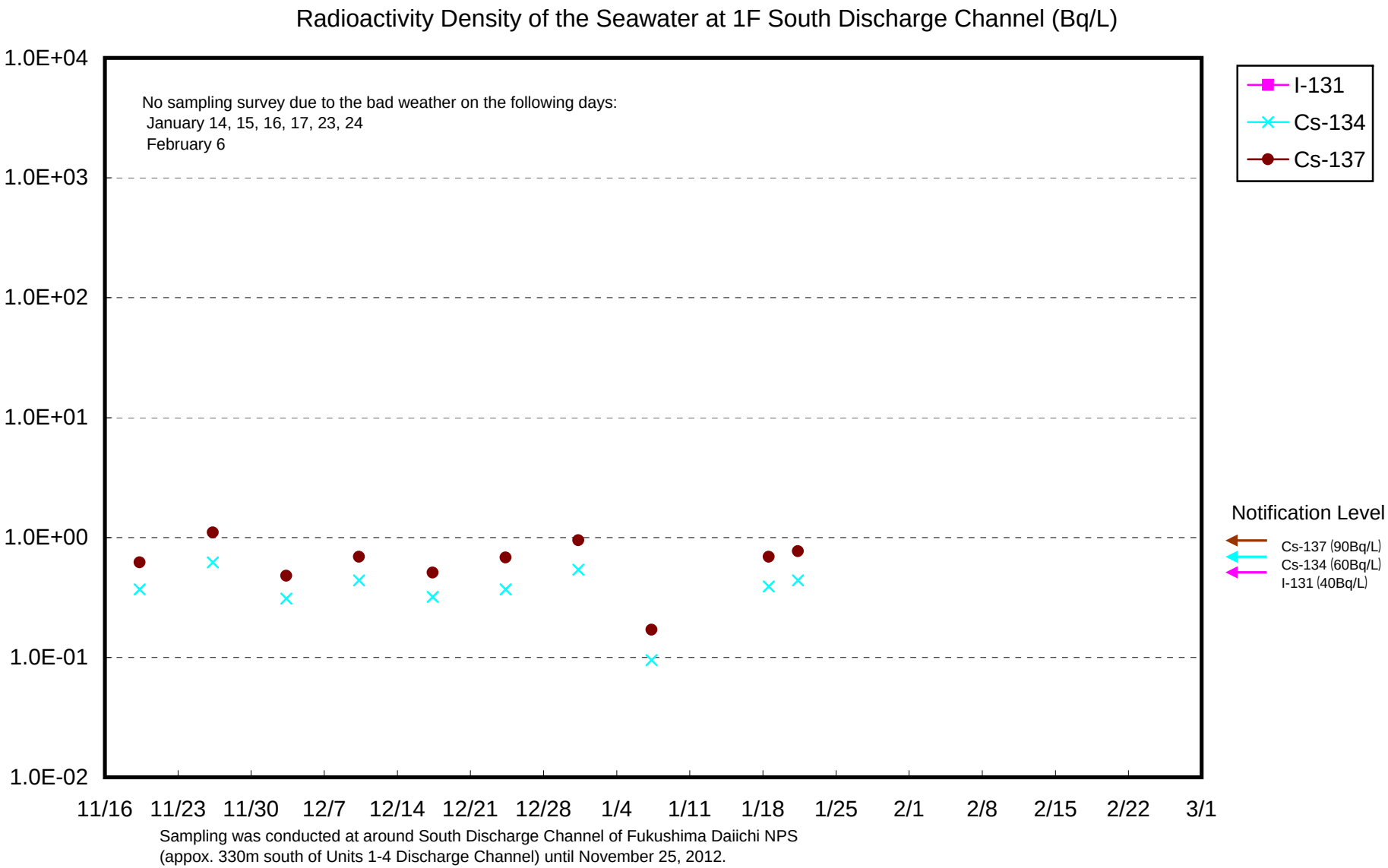
(*) Regarding the analysis result announced on March 1, 2013, it said ①Density of Sample of Cs-137 was "0.031". However, the part has been corrected to "0.030". We apologize for the mistake. (Corrected on March 4, 2013)

(Evaluation)

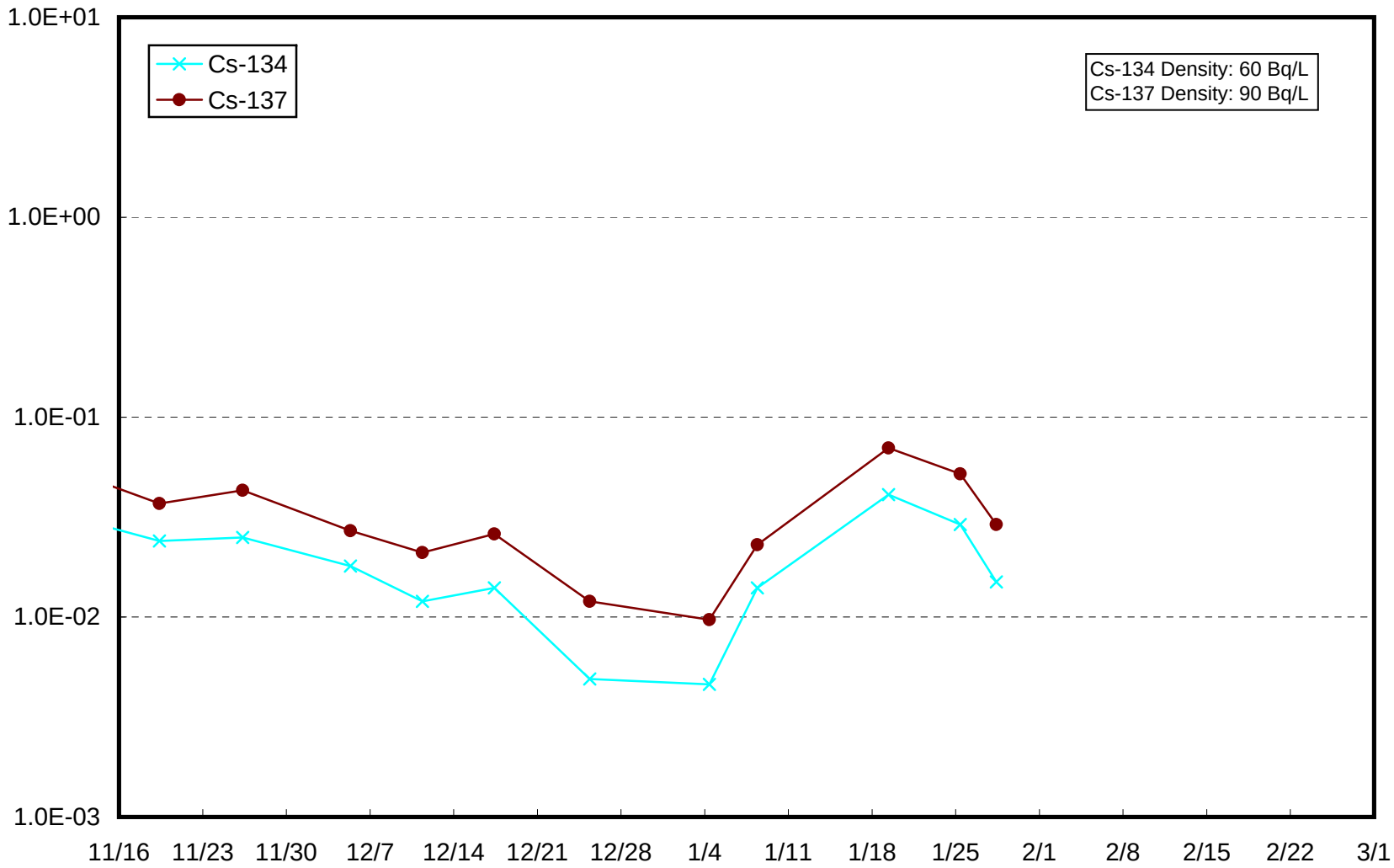
Although Sr-90 was detected supposedly as a result of this accident, it is less than the density limit in the water which is specified by the announcement.

Radioactivity Density of the Seawater at 1F Units 5-6 North Discharge Channel (Bq/L)

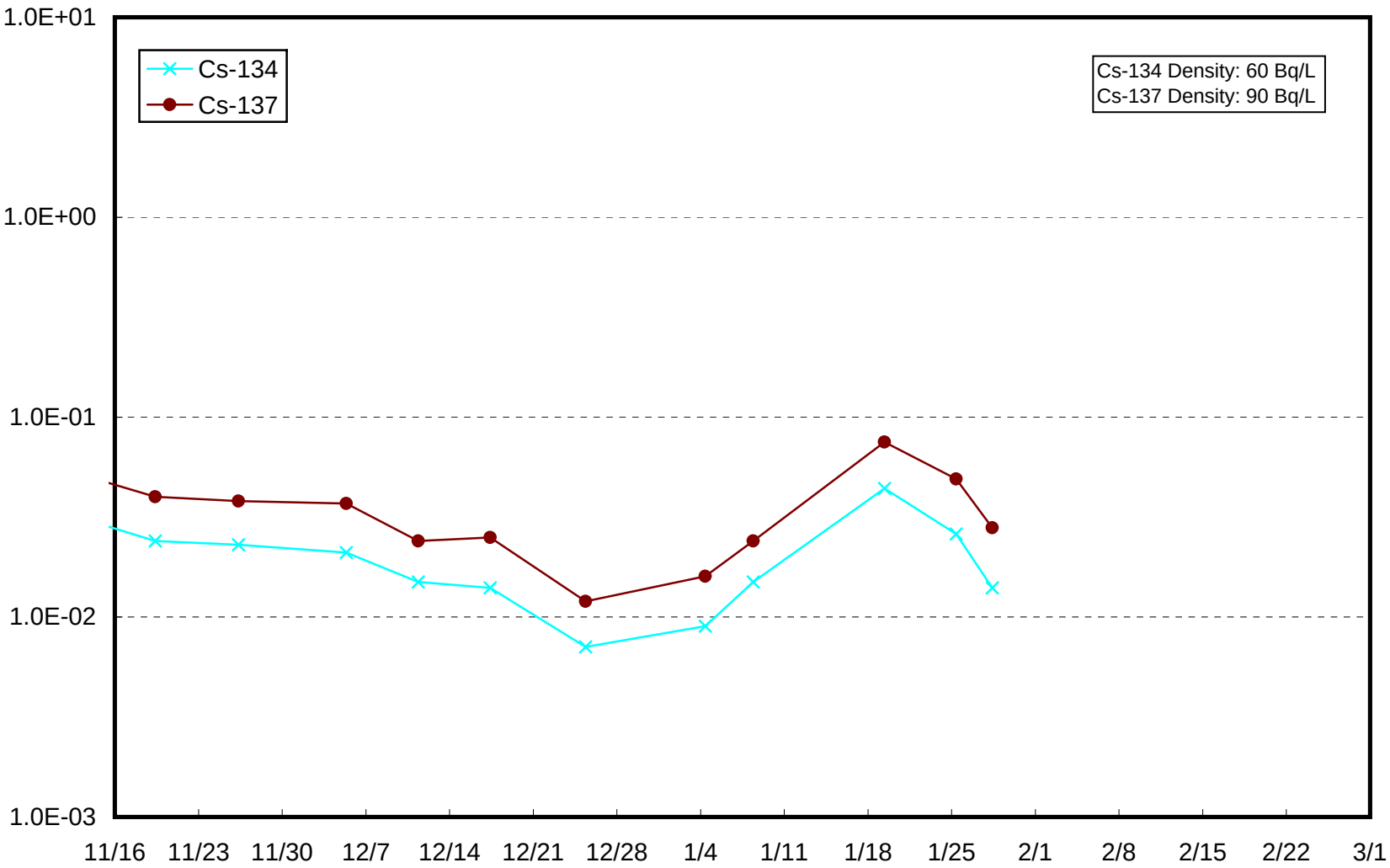



Radioactivity Density of the Seawater at 1F South Discharge Channel (Bq/L)
1.0E+04
1.0E+03
1.0E+02
1.0E+01
1.0E+00
1.0E-01
1.0E-02
No sampling survey due to the bad weather on the following days:
January 14, 15, 16, 17, 23, 24
February 6
I-131
Cs-134
Cs-137
Notification Level
Cs-137 (90Bq/L)
Cs-134 (60Bq/L)
I-131 (40Bq/L)
11/16
11/23
11/30
12/7
12/14
12/21
12/28
1/4
1/11
1/18
1/25
2/1
2/8
2/15
2/22
3/1
Sampling was conducted at around South Discharge Channel of Fukushima Daiichi NPS
(appox. 330m south of Units 1-4 Discharge Channel) until November 25, 2012.

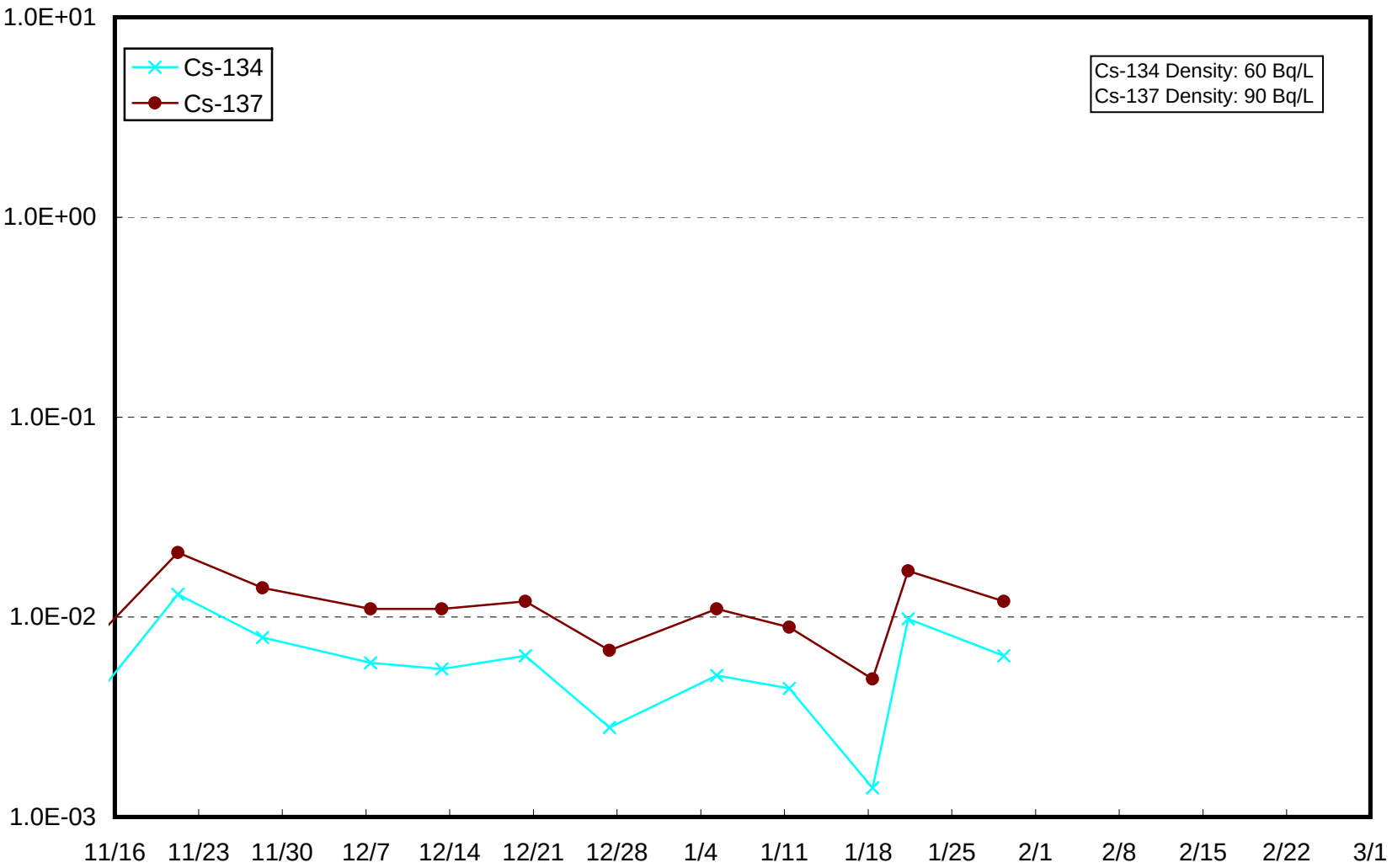
Radioactivity Density of the Seawater at 3km Offshore of Odaka Ward (T-14) Upper Layer (Bq/L)



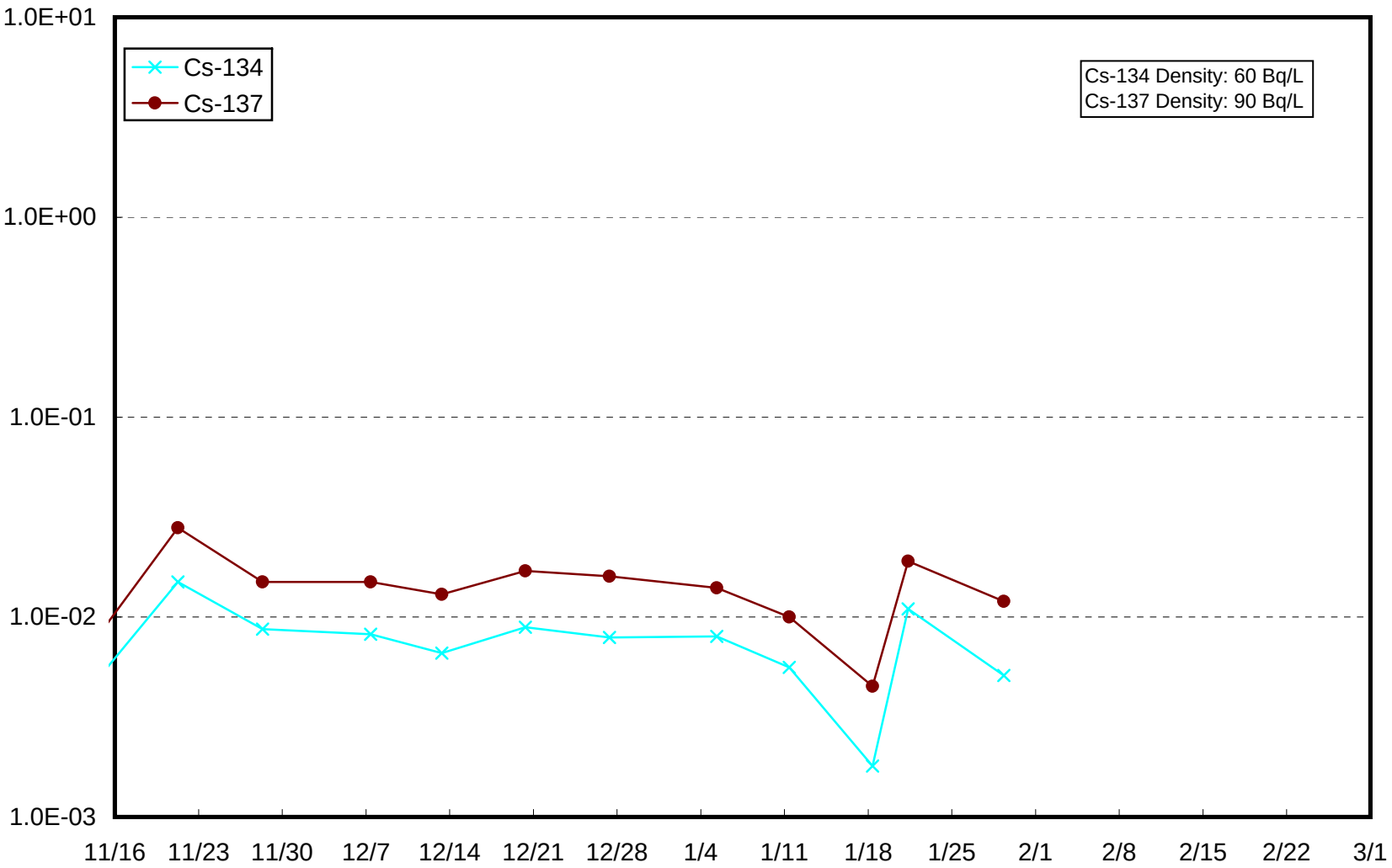
Radioactivity Density of the Seawater at 3km Offshore of Odaka Ward (T-14) Lower Layer (Bq/L)



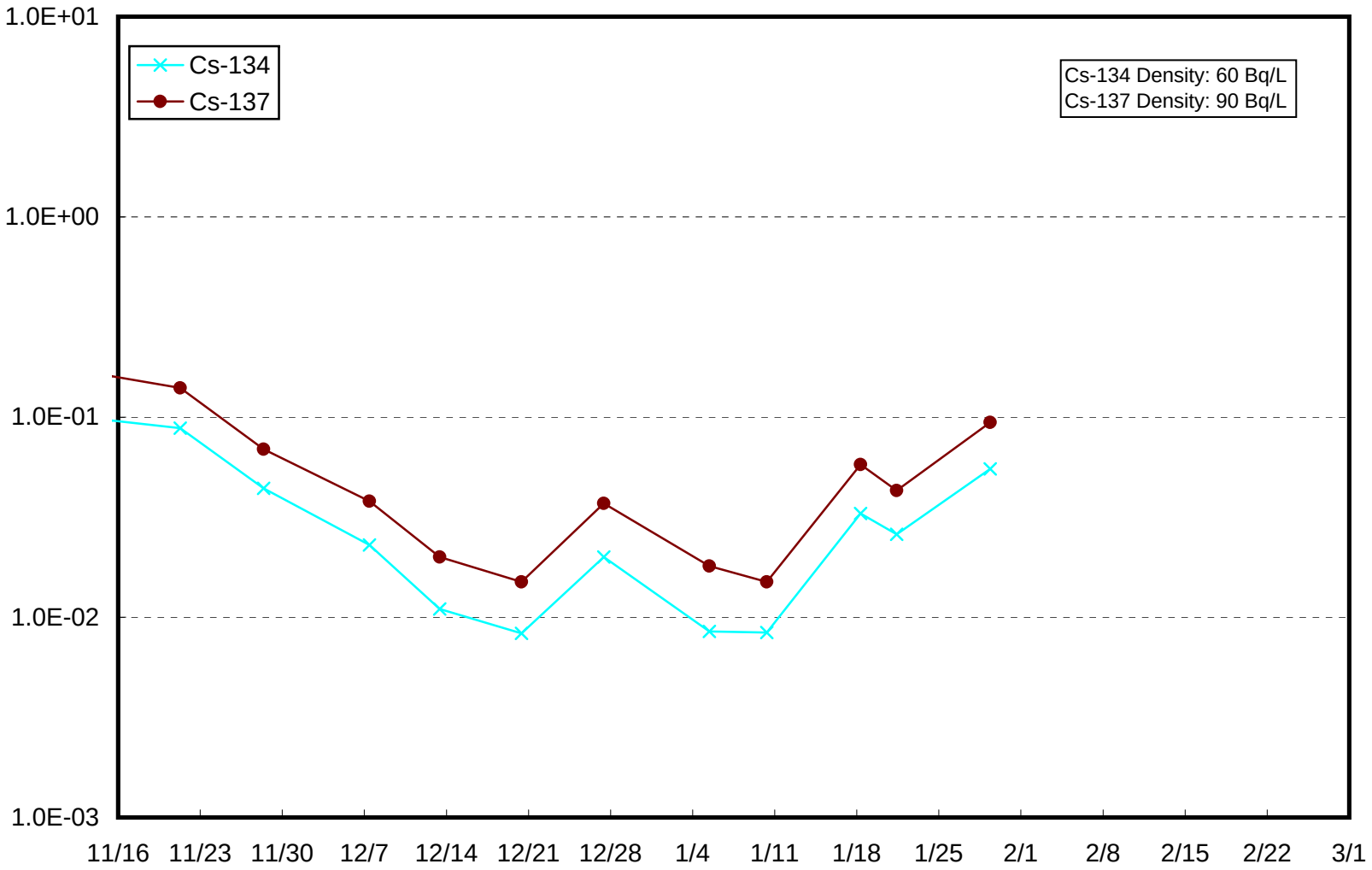
Radioactivity Density of the Seawater at 15km Offshore of Fukushima Daiichi NPS (T-5) Upper Layer (Bq/L)



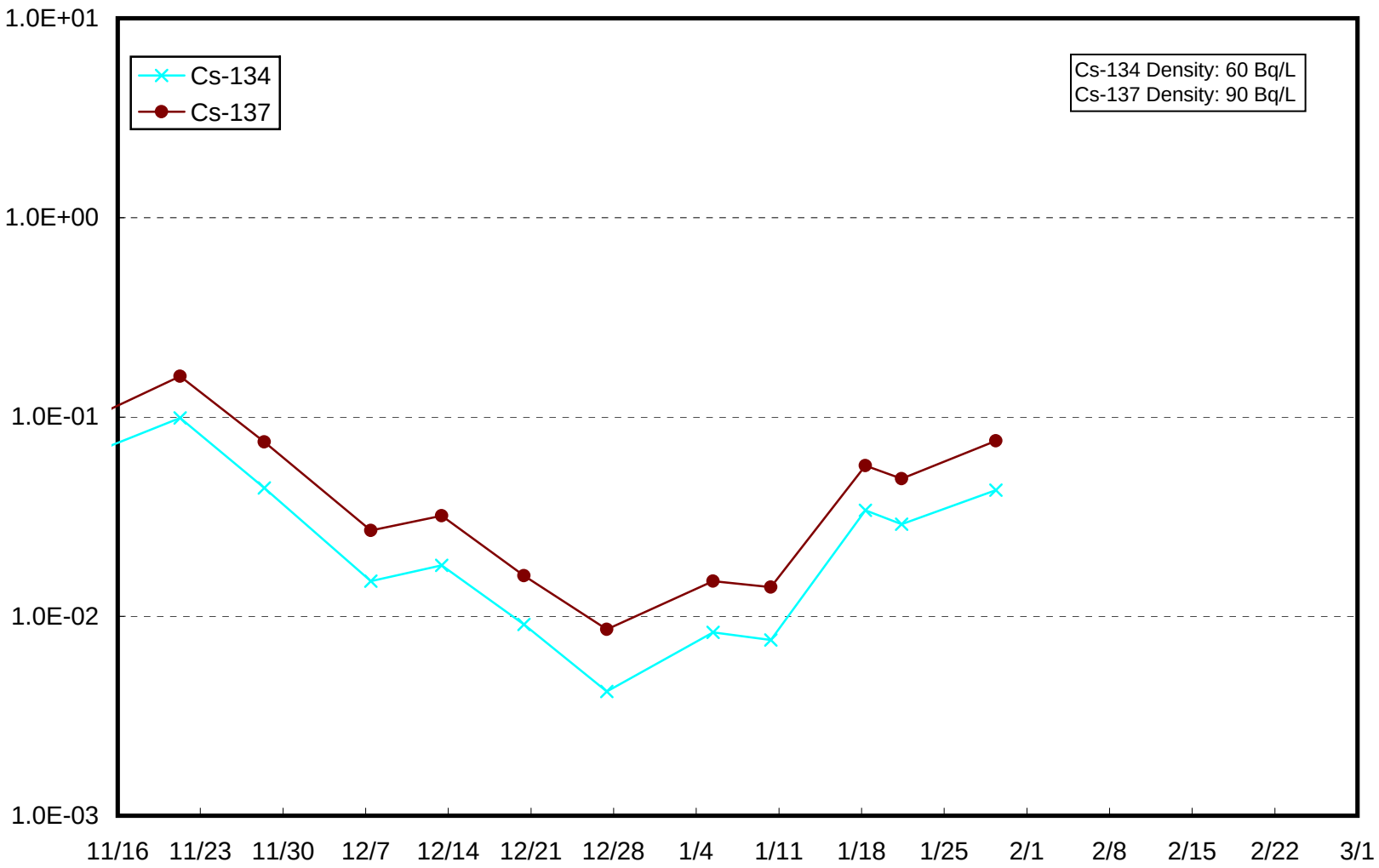
Radioactivity Density of the Seawater at 15km Offshore of Fukushima Daiichi NPS (T-5) Lower Layer (Bq/L)



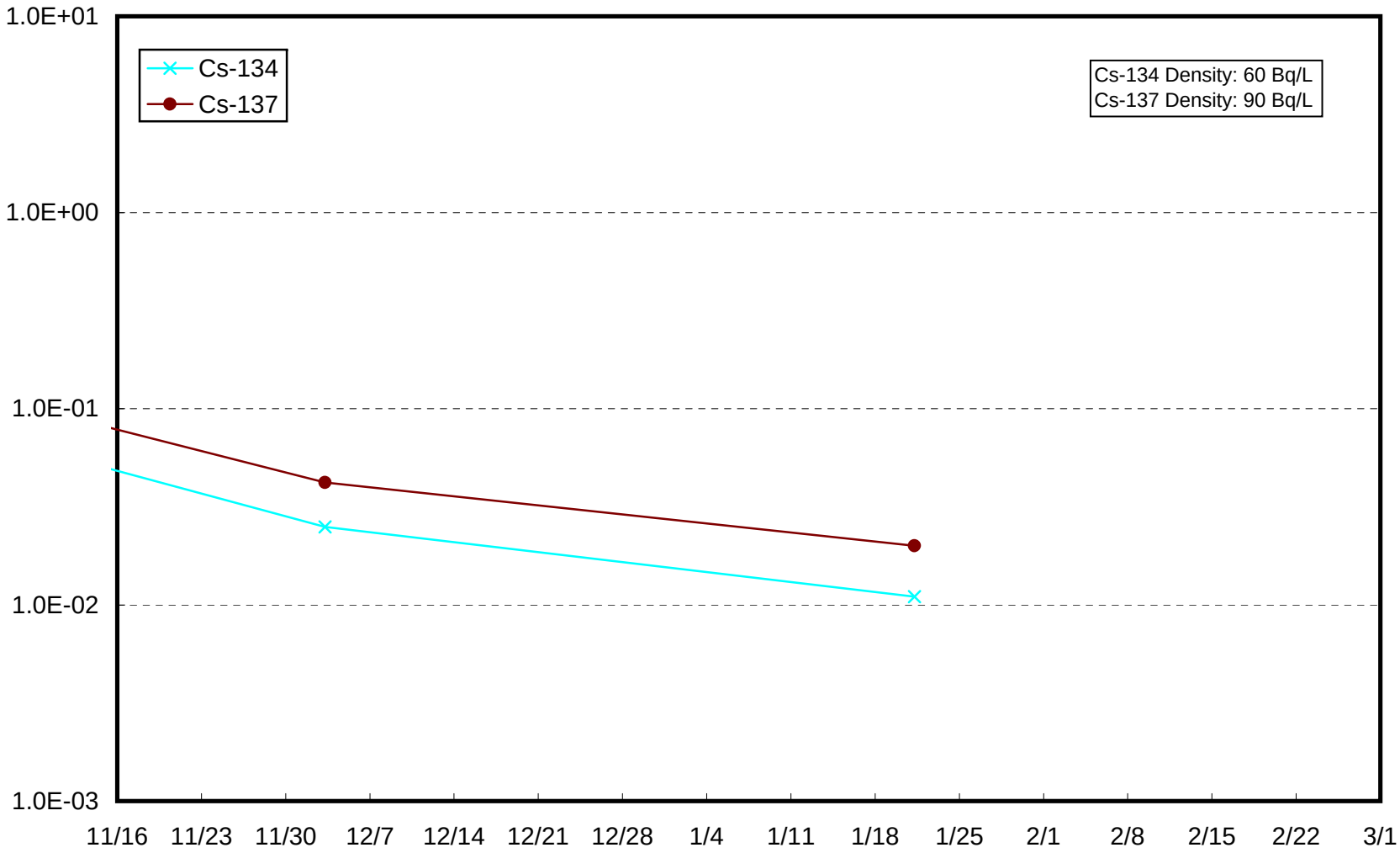
Radioactivity Density of the Seawater at 3km Offshore of Iwasawa Shore (T-11) Upper Layer (Bq/L)



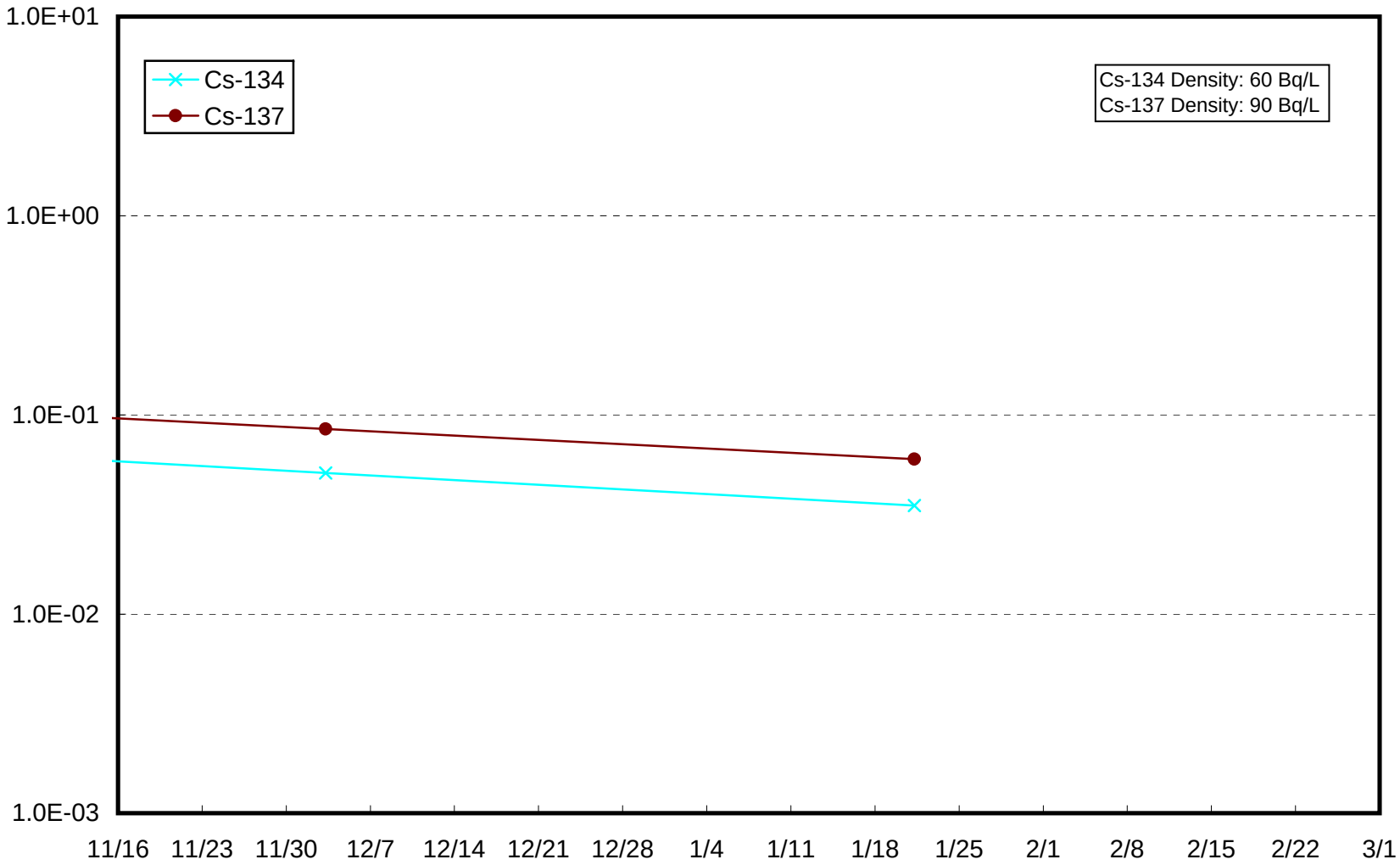
Radioactivity Density of the Seawater at 3km Offshore of Iwasawa Shore (T-11) Lower Layer (Bq/L)



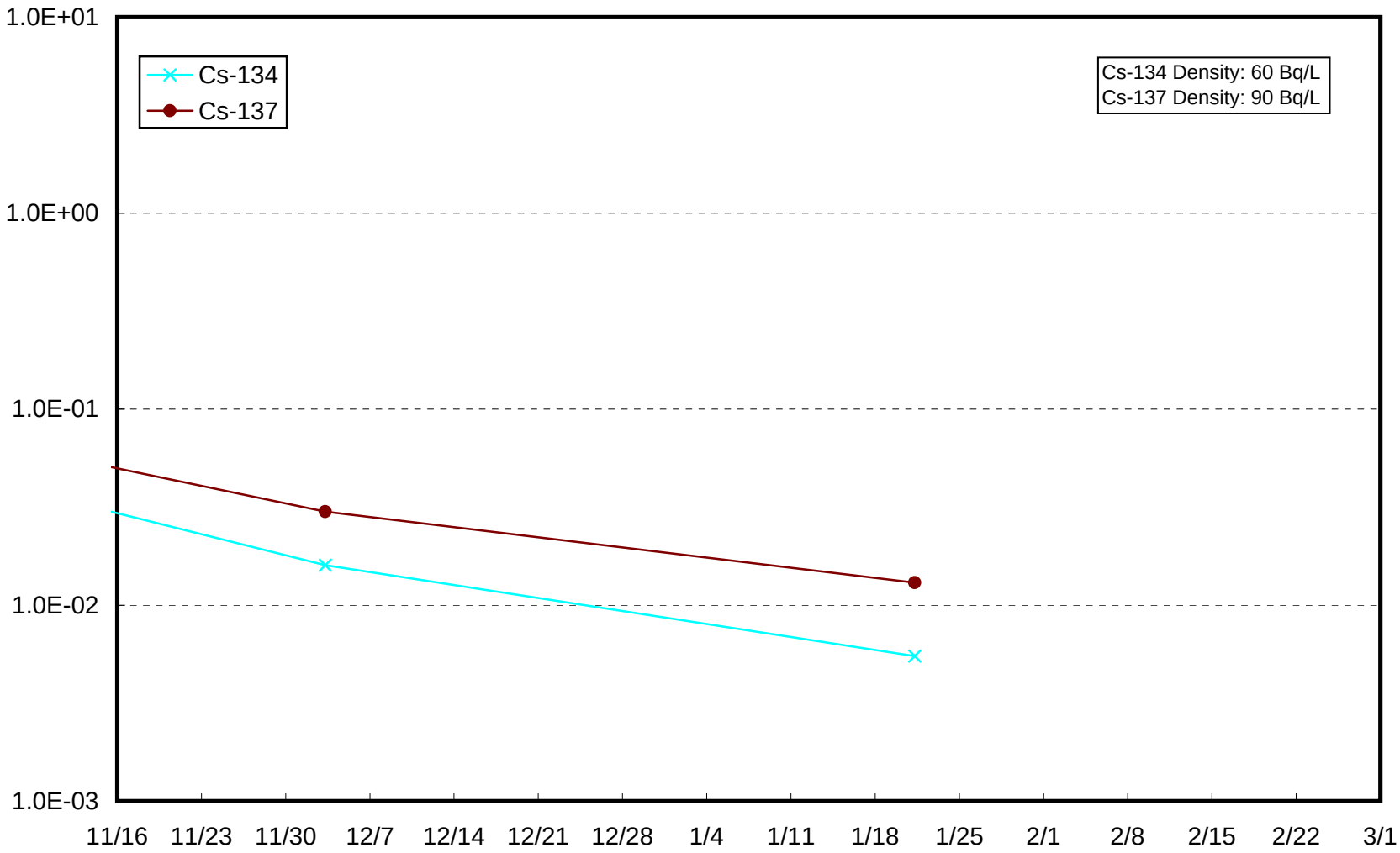
Radioactivity Density of the Seawater at 3km Offshore of North of Iwaki City(T-12) Upper Layer (Bq/L)



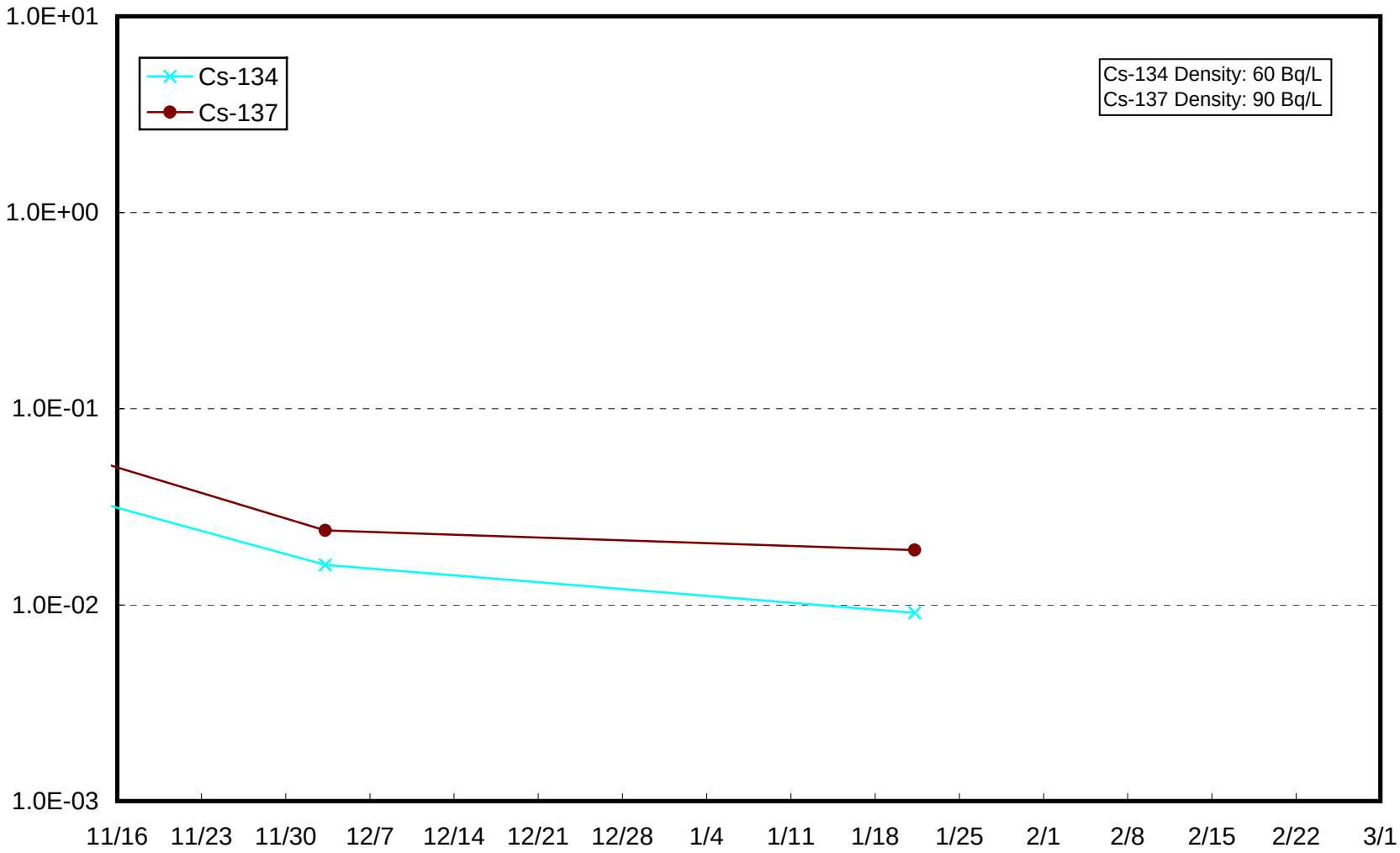
Radioactivity Density of the Seawater at 3km Offshore of North of Iwaki City(T-12) Lower Layer (Bq/L)



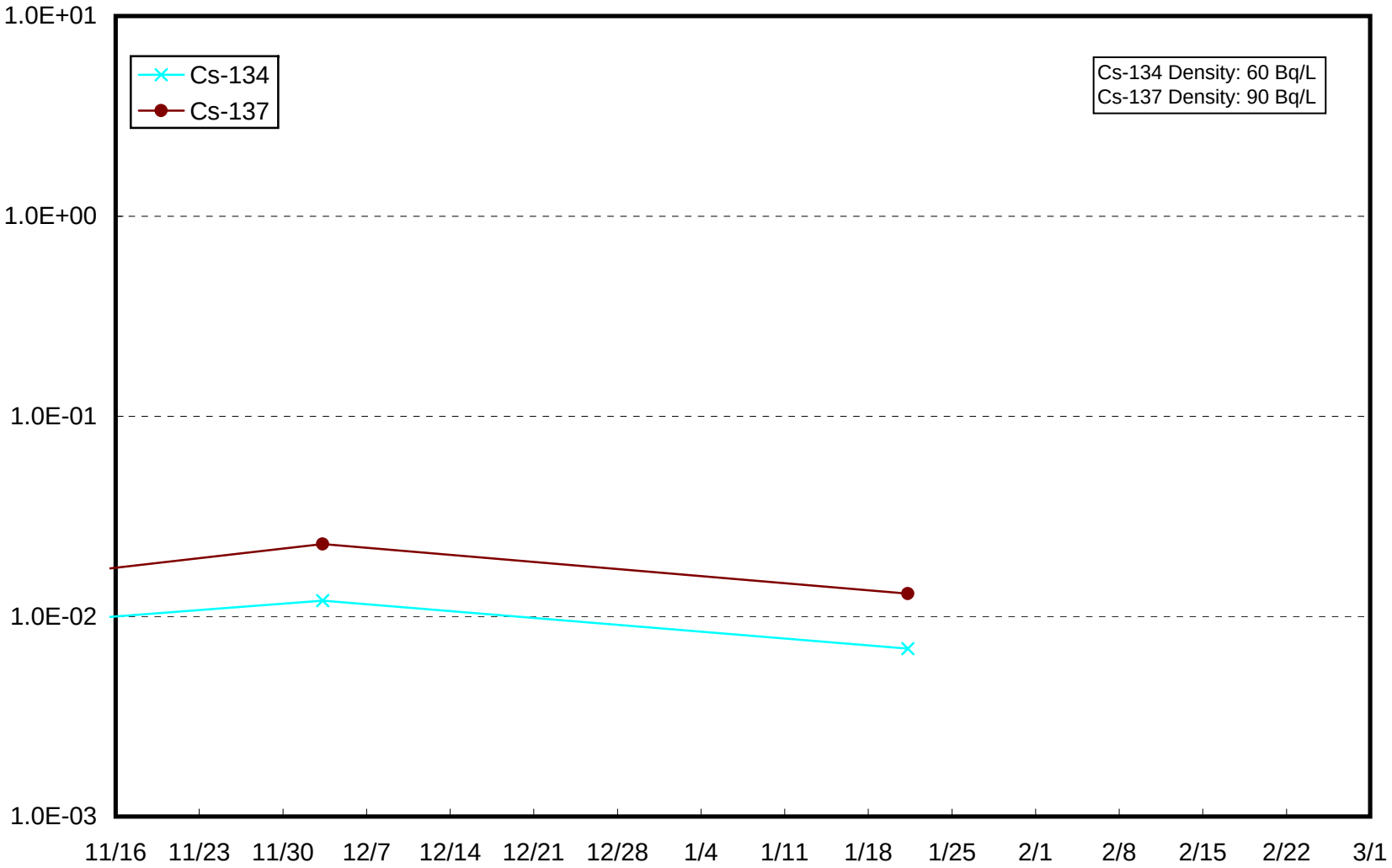
Radioactivity Density of the Seawater at 1km Offshore of Natsui River (T-17-1) Upper Layer (Bq/L)



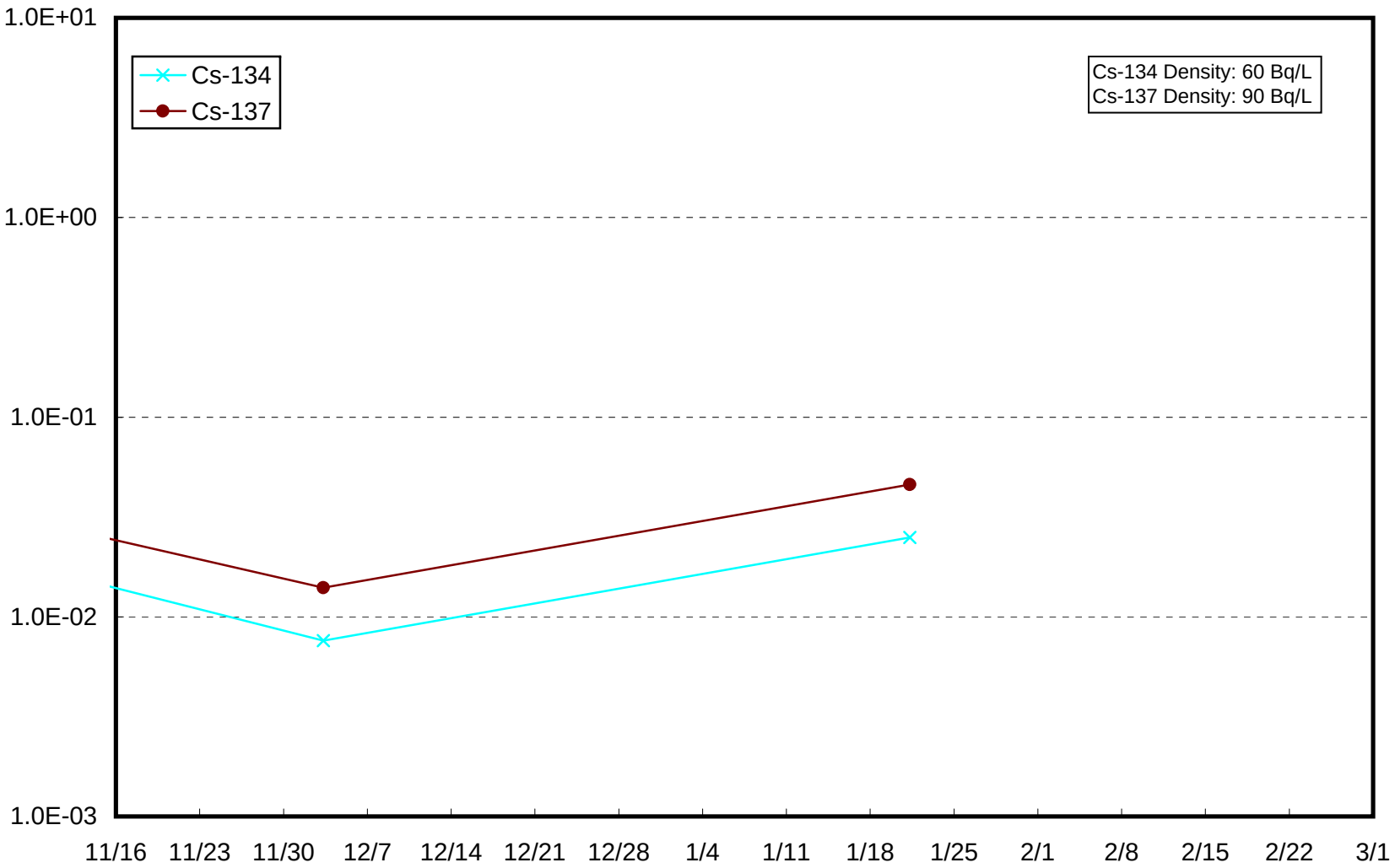
Radioactivity Density of the Seawater at 1km Offshore of Natsui River (T-17-1) Lower Layer (Bq/L)



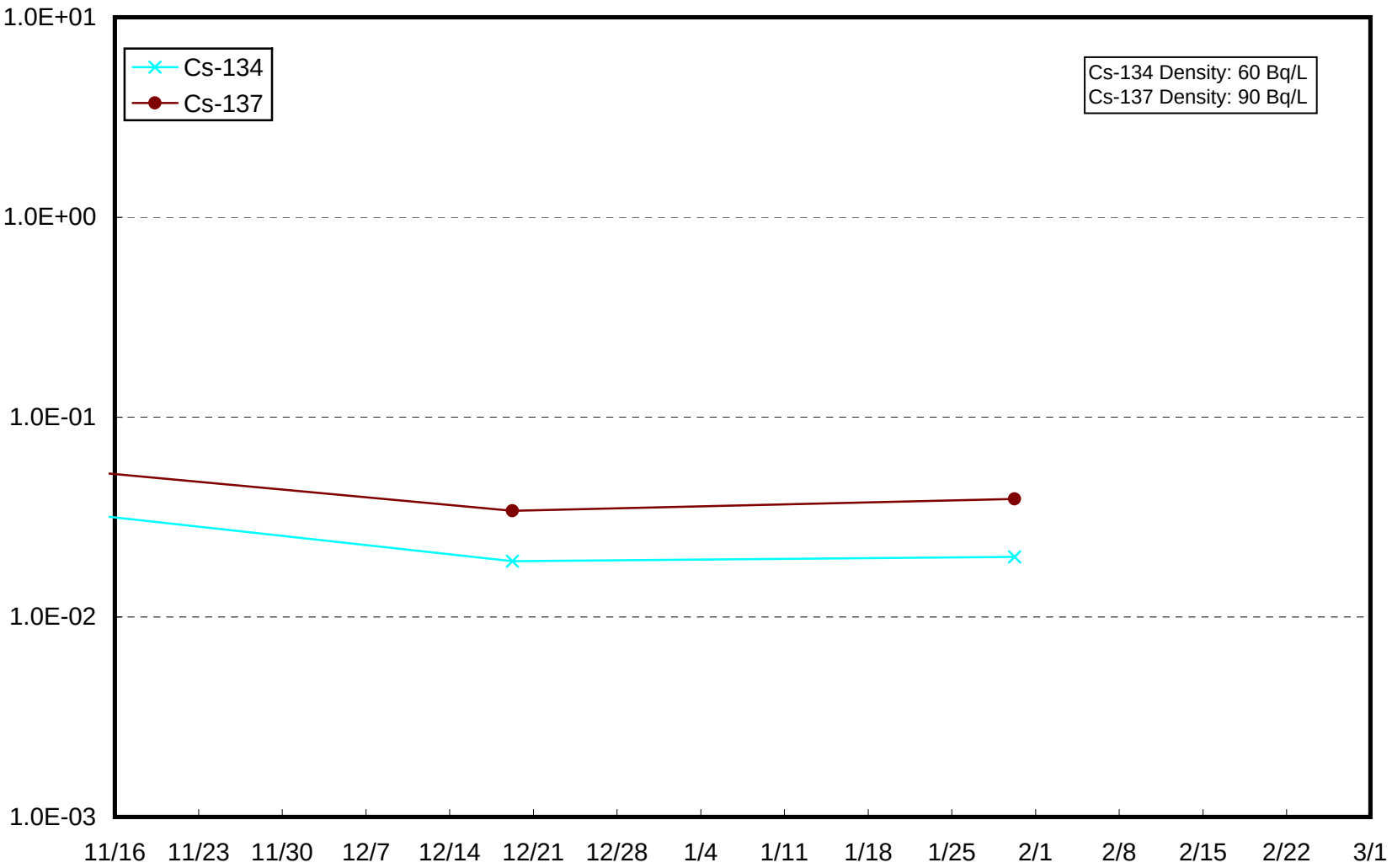
Radioactivity Density of the Seawater at 3km Offshore of Toyoma (T-20) Upper Layer (Bq/L)



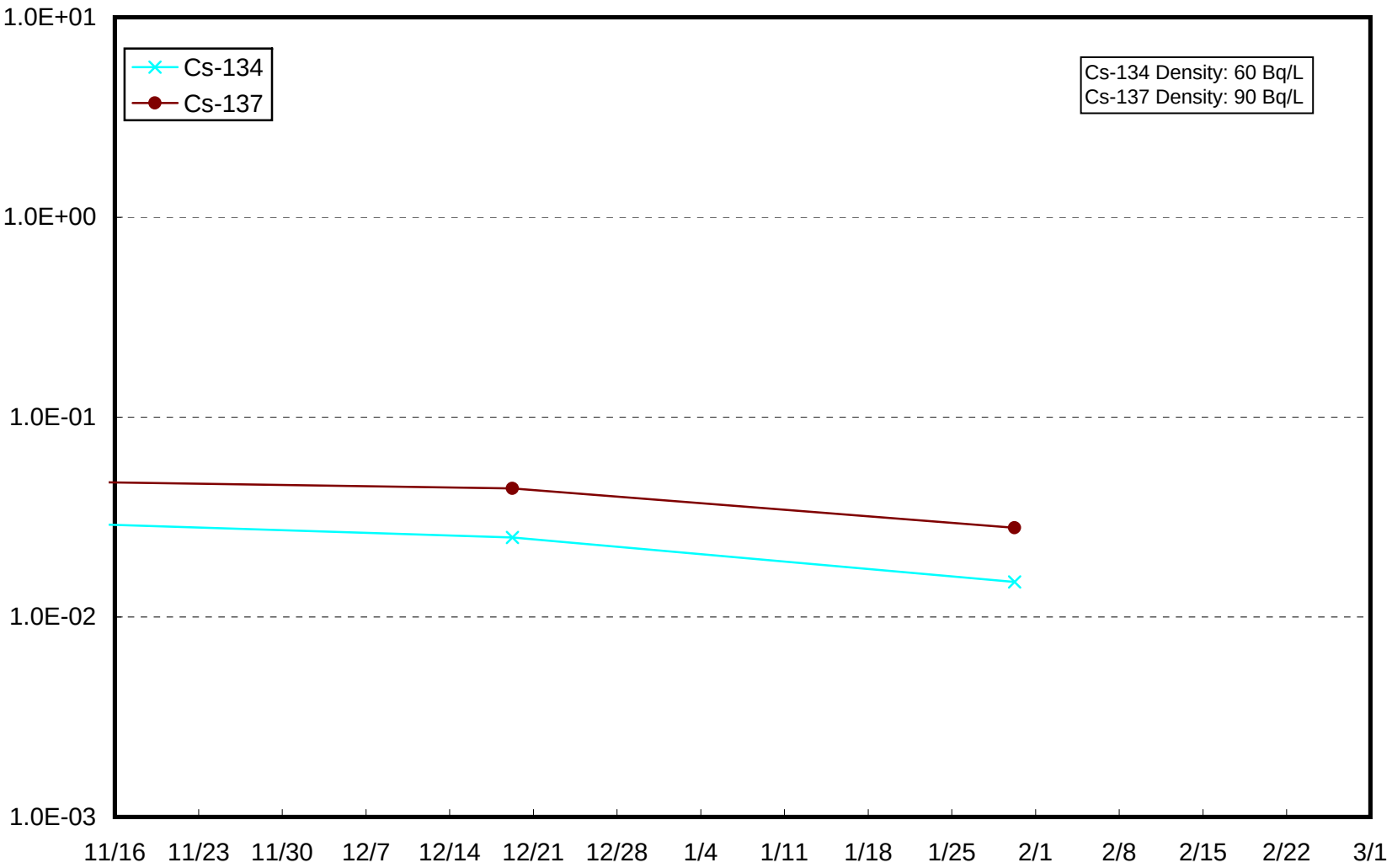
Radioactivity Density of the Seawater at 3km Offshore of Toyoma (T-20) Upper Layer (Bq/L)



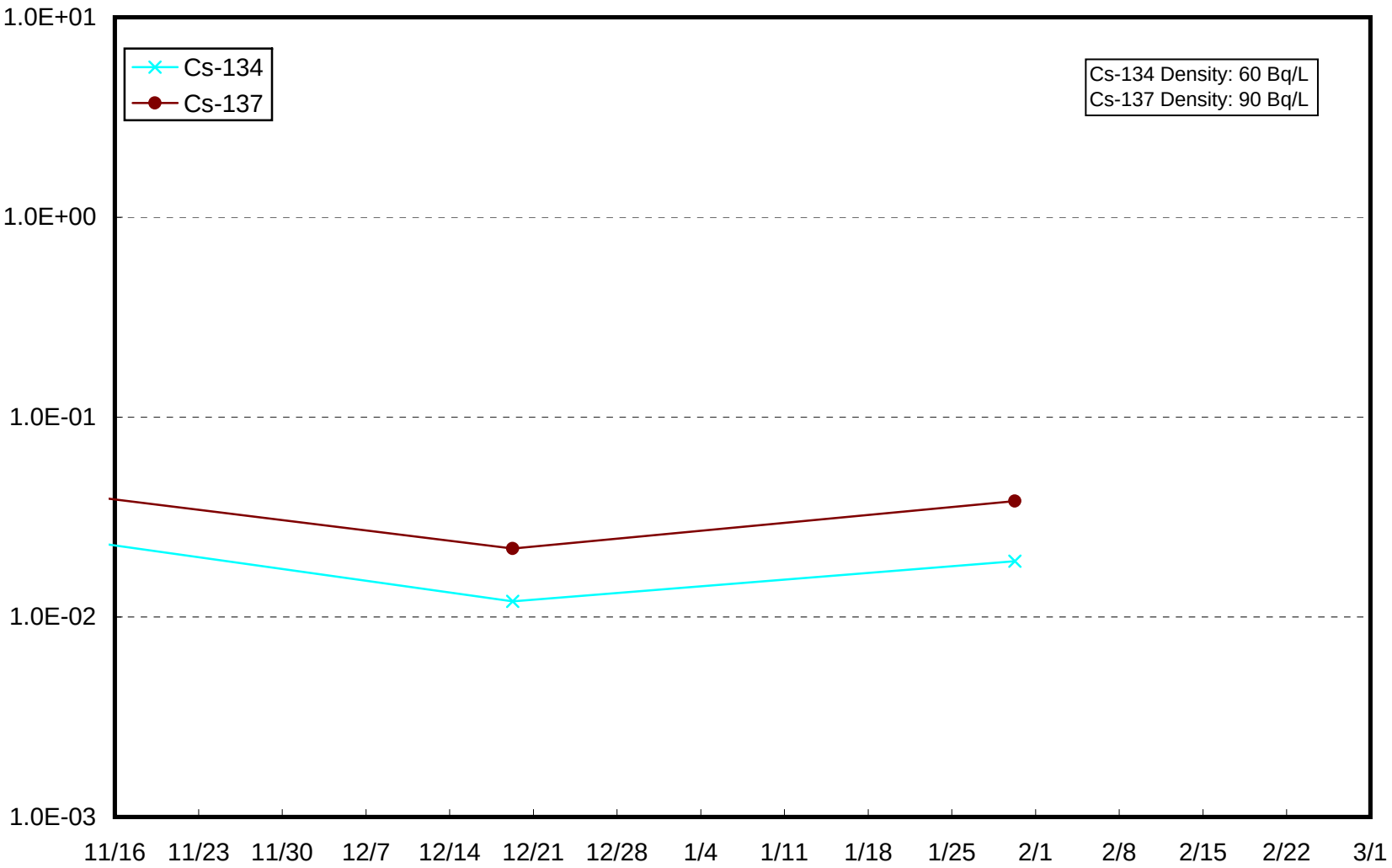
Radioactivity Density of the Seawater Around 1km Offshore of Ota River (T-S1) Upper Layer (Bq/L)



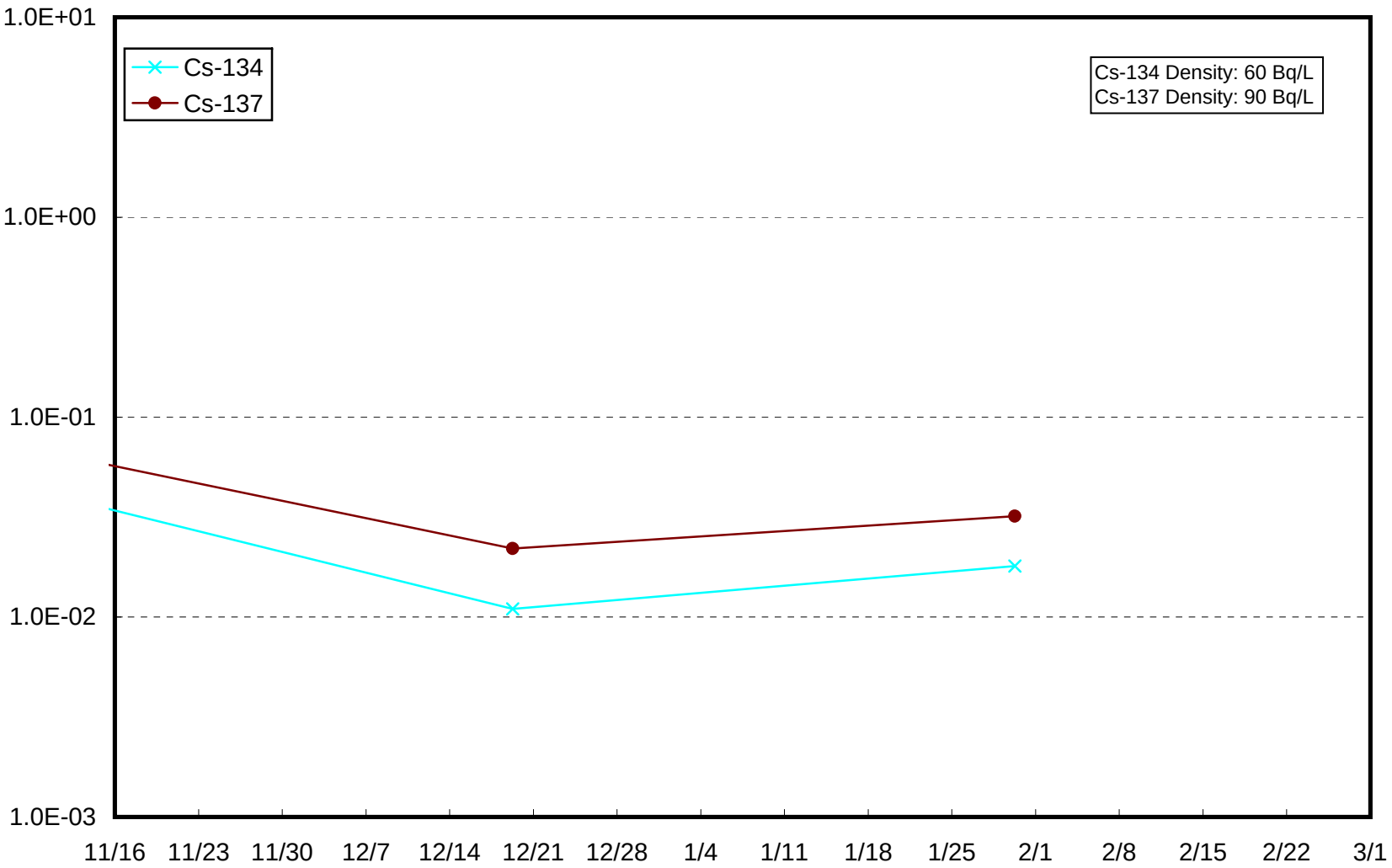
Radioactivity Density of the Seawater Around 1km Offshore of Ota River (T-S1) Lower Layer (Bq/L)



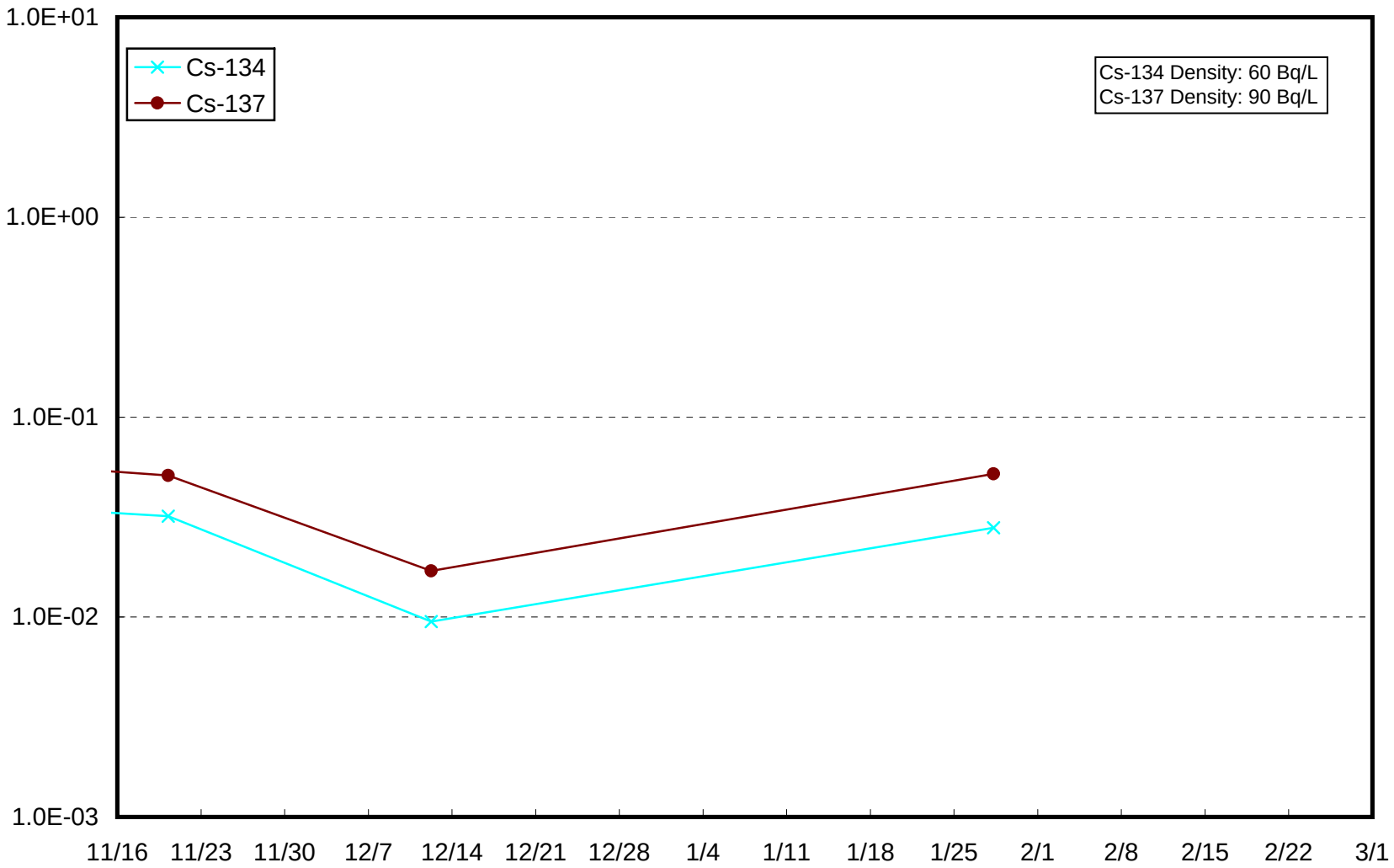
Radioactivity Density of the Seawater Around 3km Offshore of Odaka Ward (T-S2) Upper Layer (Bq/L)



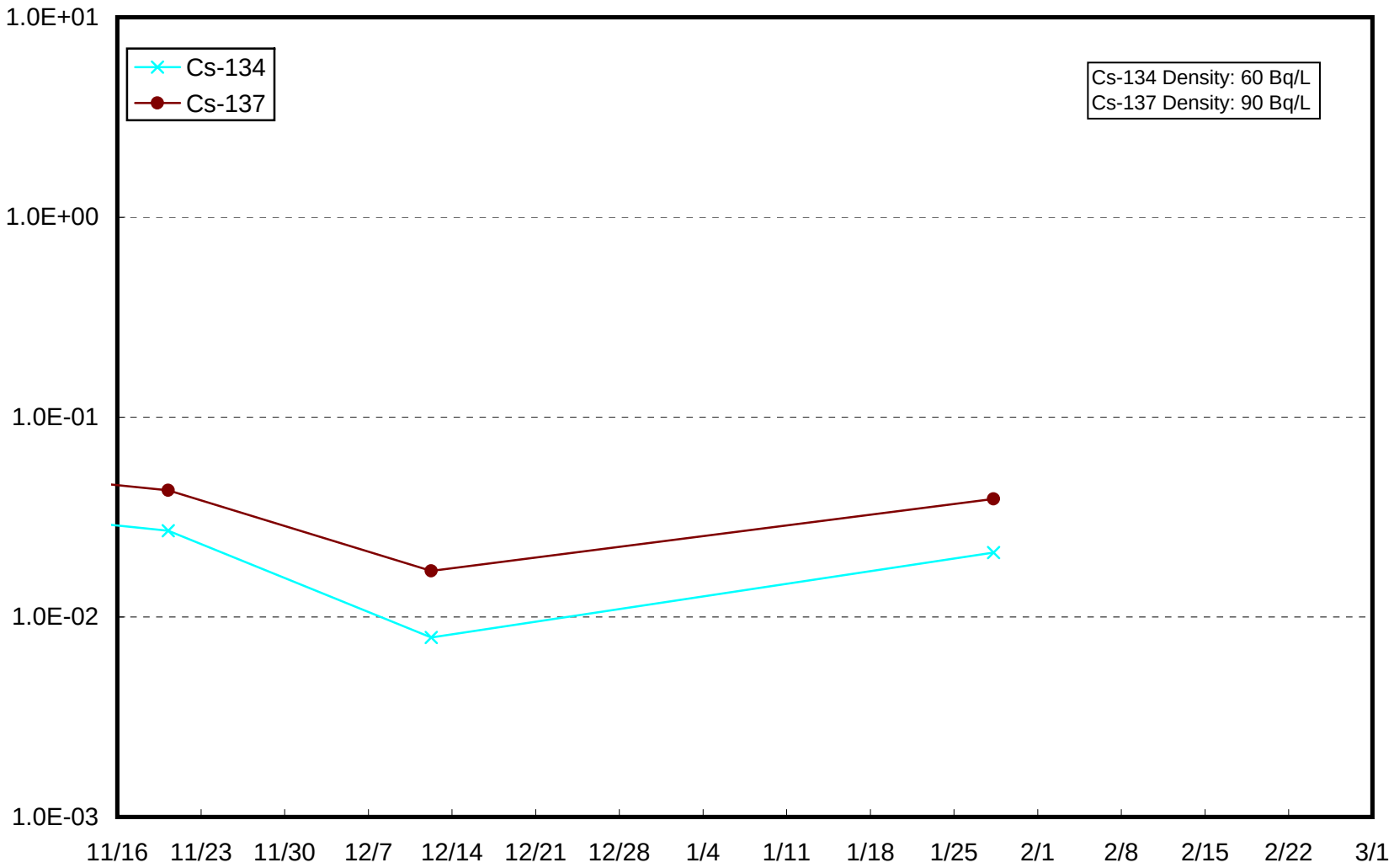
Radioactivity Density of the Seawater Around 3km Offshore of Odaka Ward (T-S2) Lower Layer (Bq/L)



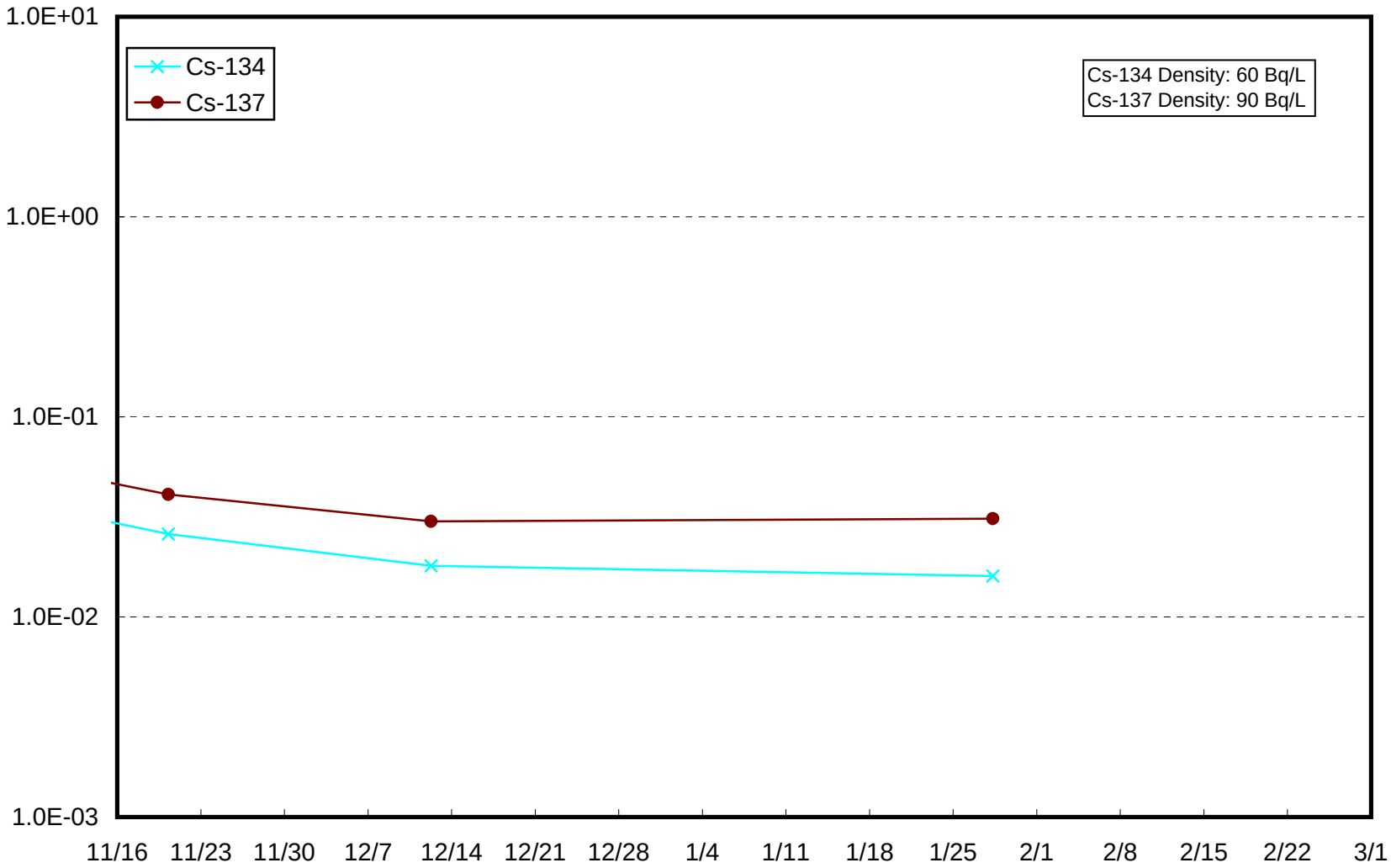
Radioactivity Density of the Seawater Around 3km Offshore of Ukedo River (T-S3) Upper Layer (Bq/L)



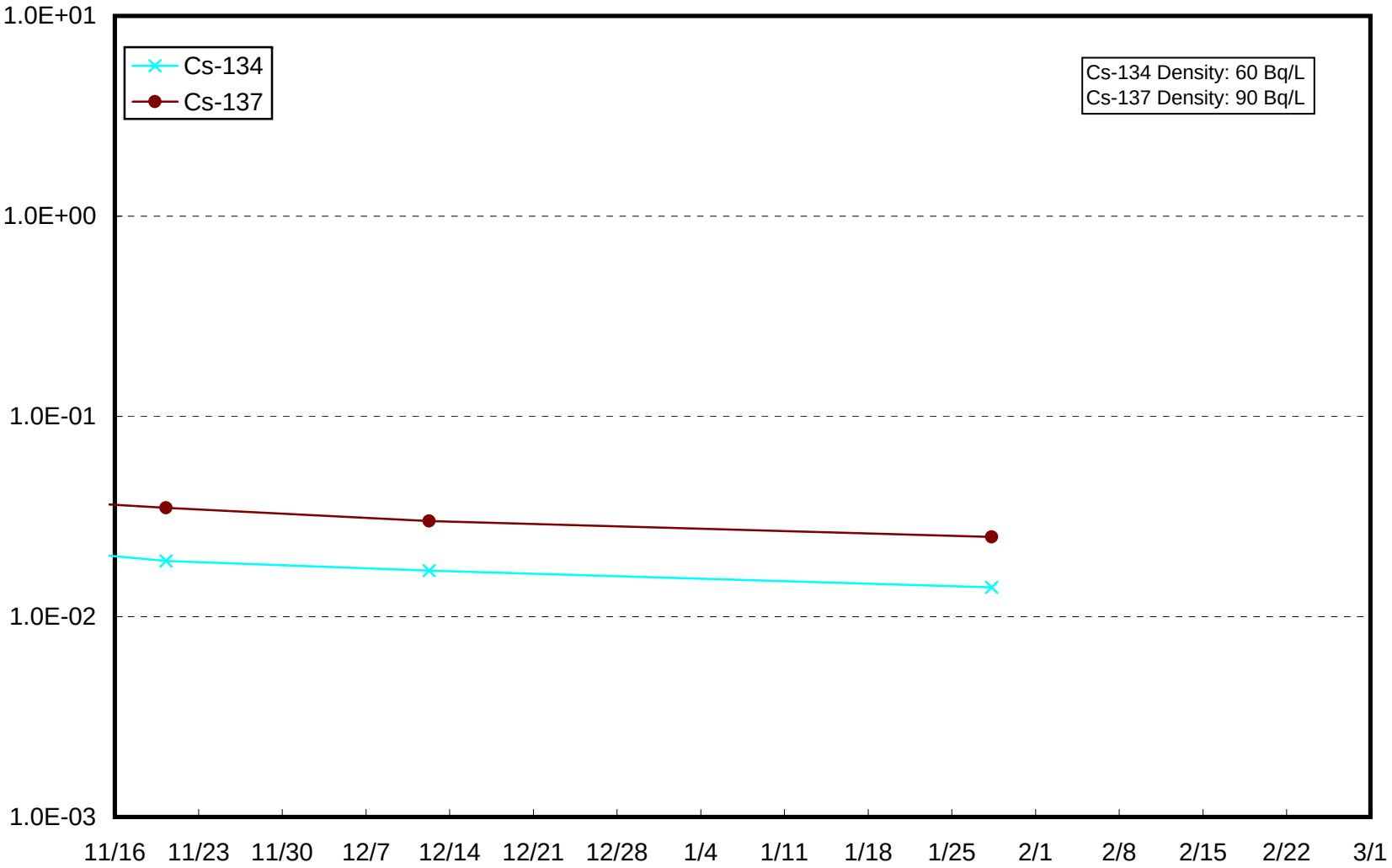
Radioactivity Density of the Seawater Around 3km Offshore of Ukedo River (T-S3) Lower Layer (Bq/L)



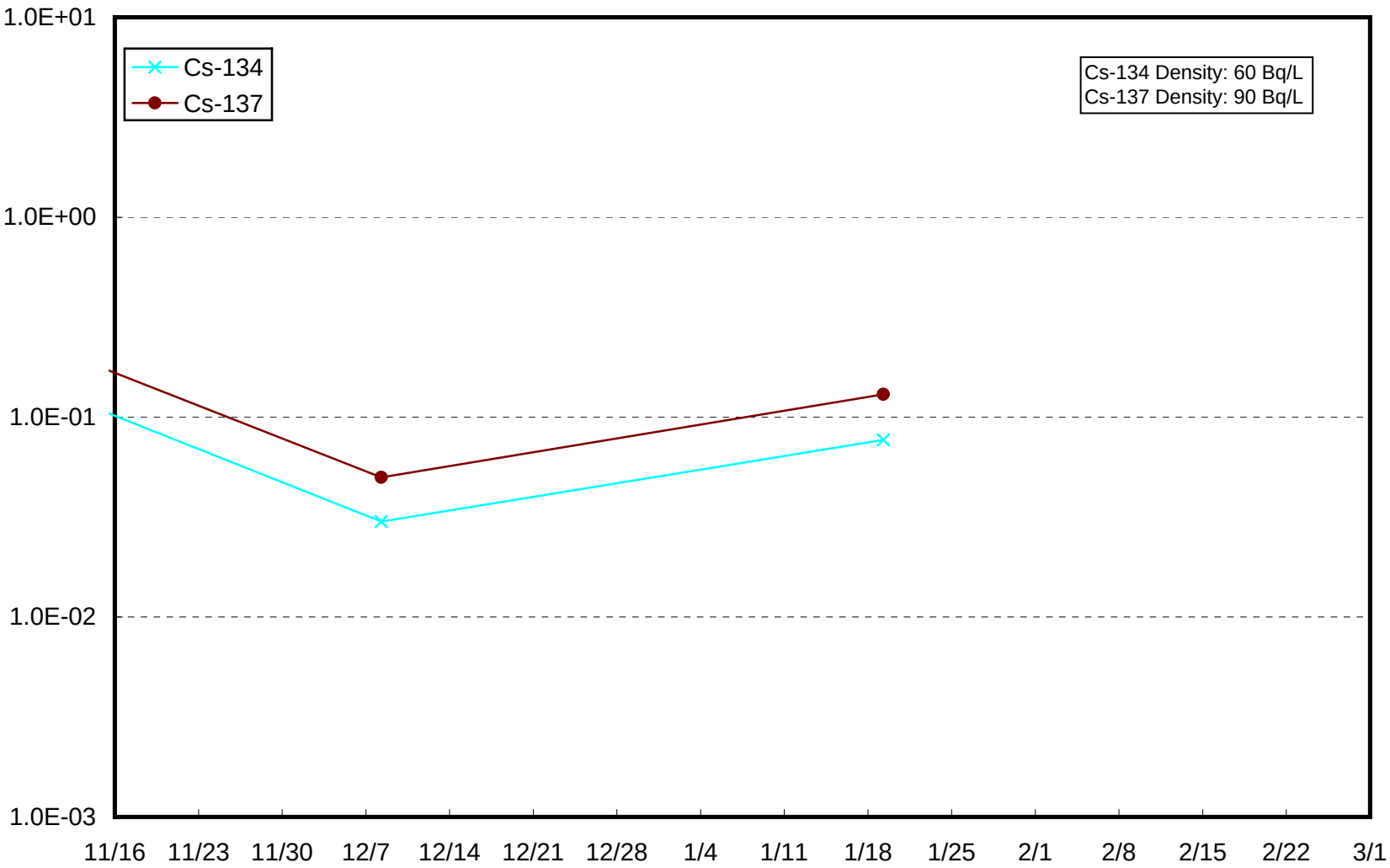
Radioactivity Density of the Seawater Around 3km Offshore of Fukushima Daiichi NPS (T-S4) Upper Layer (Bq/L)



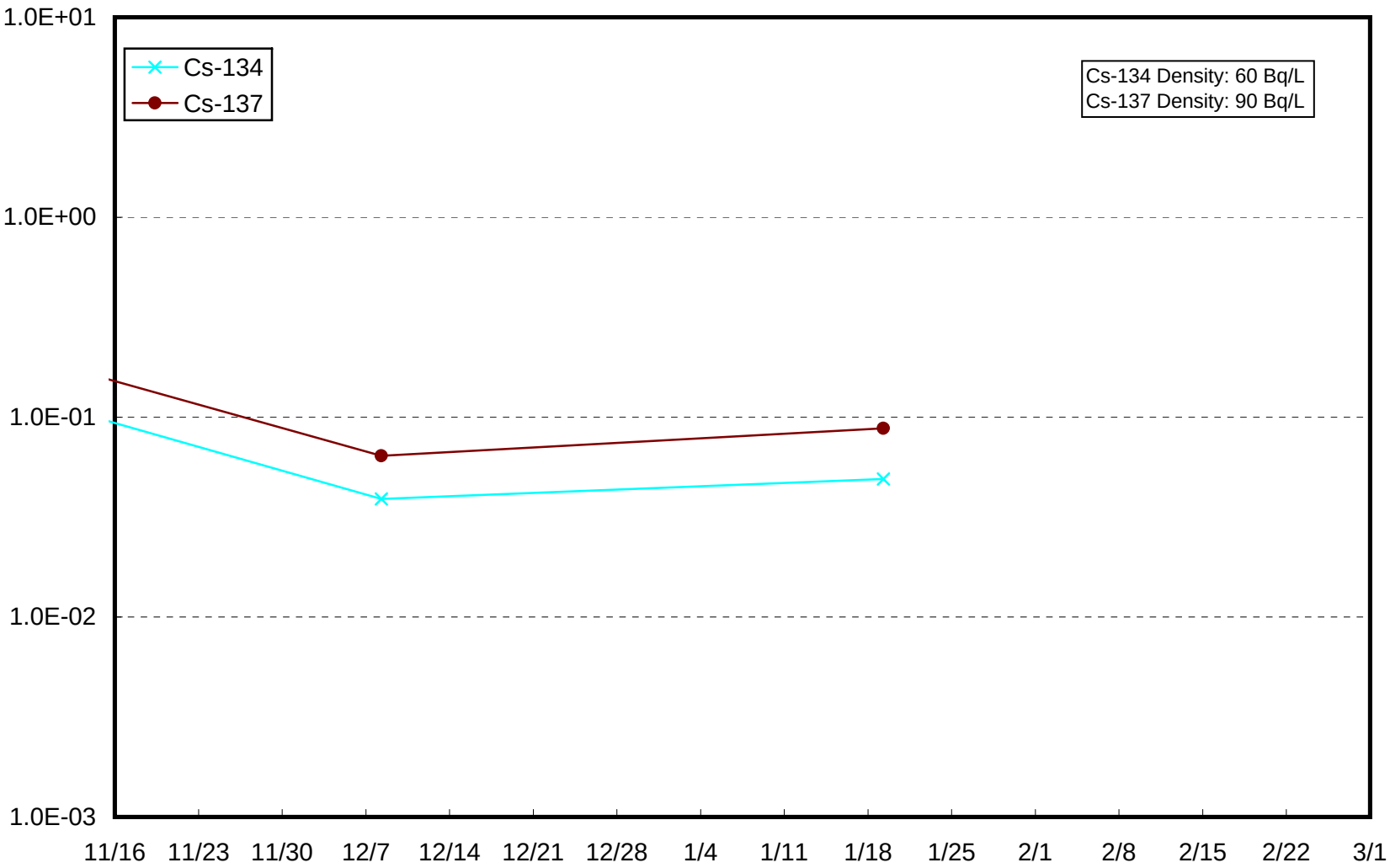
Radioactivity Density of the Seawater Around 3km Offshore of Fukushima Daiichi NPS (T-S4) Lower Layer (Bq/L)



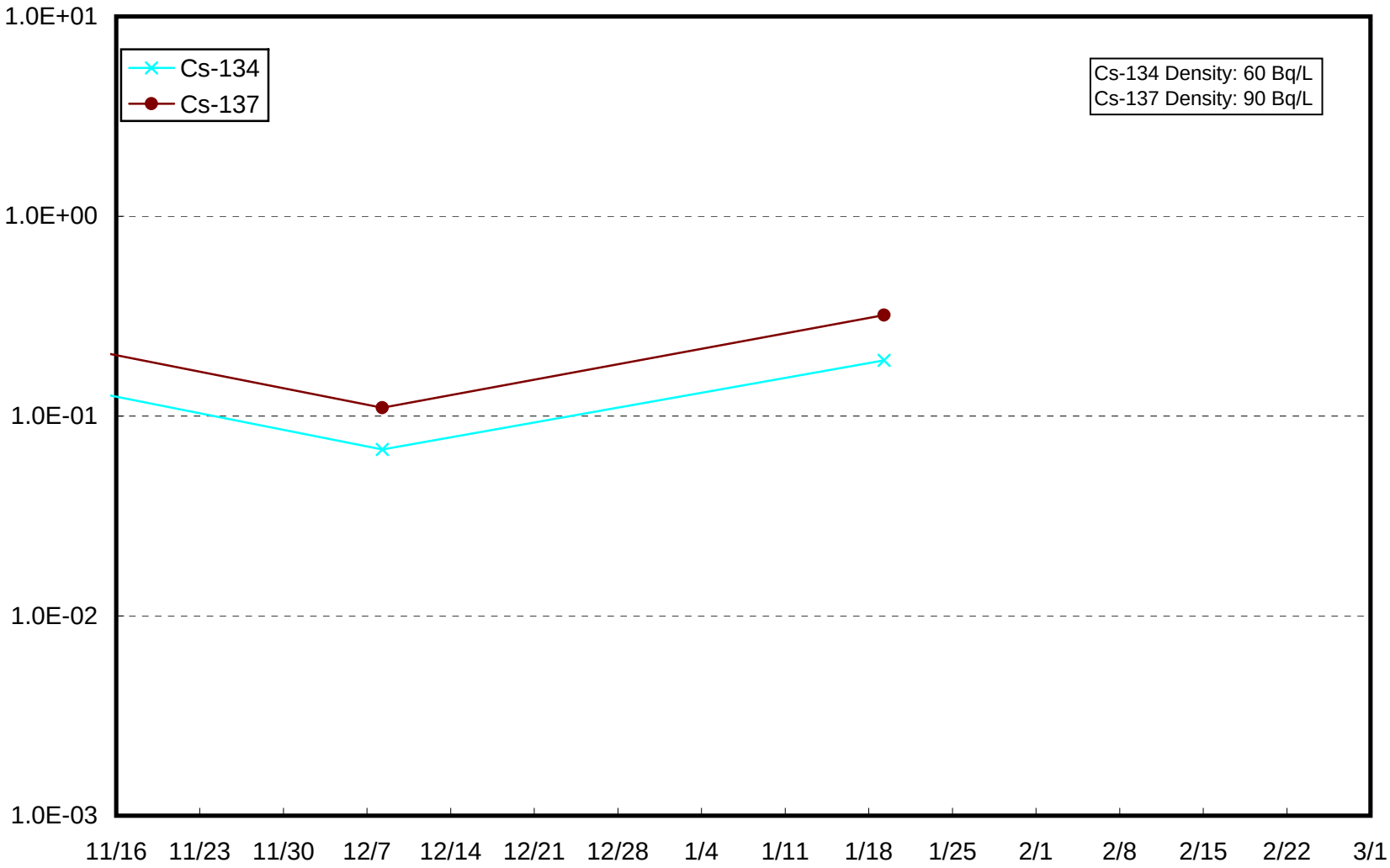
Radioactivity Density of the Seawater at 2km Offshore of Kido River (T-S5) Upper Layer (Bq/L)



Radioactivity Density of the Seawater at 2km Offshore of Kido River (T-S5) Lower Layer (Bq/L)



Radioactivity Density of the Seawater at 2km Offshore of Fukushima Daini NPS (T-S7) Upper Layer (Bq/L)



Radioactivity Density of the Seawater at 2km Offshore of Fukushima Daini NPS (T-S7) Lower Layer (Bq/L)