2.7.2.10 1,1 Dichloroethane, Lower Completion Wells

1, 1-DCA contamination was noted in well 137 at 22.6 µg/L and is likely derived from residual contamination from the South Lagoon or a historical release at the south end of Building 16. (Fig. 2.15).

The 1,1-DCA plume was also manifested by contamination in monitoring wells 18, OW-8 and pumping wells 272 and 273 at concentrations ranging from 5.6 to 16.4 µg/L. All detections of 1,1-DCA in the BRGFS lower completion wells were below the site clean-up standard of 810.

2.8 Summary

Compliance point wells 277 and 278 continued to contain vinyl chloride over the site cleanup standard of 2 µg/L in 2011 with results ranging from 2.6 to 77.4 µg/L, respectively. 1,2-DCE was also detected over site standards in well 278. However, these wells also mark the downgradient extent of contamination over site clean-up standards. No contamination was detected over site standards downgradient of the BRGFS compliance point wells.

The northern extent of BRGFS contamination over site standards was marked by pumping well 275 which detected vinyl chloride at concentrations up to 60.6 µg/L and 1,2-DCE up to 242 µg/L. A small area of vinyl chloride and 1, 2-DCE contamination was noted in monitoring wells 265, 200 and 267 immediately north of the cattail area. This contamination is effectively captured by pumping well 275.

1,2-DCE was detected in four wells along the Blue River at concentrations at or less than 1.5 µg/L, well below the site cleanup standard of 70 µg/L. These wells sporadically detect 1,2-DCE.

TCE in the BRGFS remained confined to the Old Ponds area. The absence of the compound at locations significantly downgradient of the original release areas and the presence of TCE degradation products at these downgradient locations is indicative of the age of the release and the significant attenuation that occurs at the site. It is also consistent with the site conceptual model as discussed in Section 1.4.1.

Vinyl Chloride Concentrations

- mdl to 2 µg/L
- 2 to 100 µg/L
- 100 to 1,000 µg/L
- 1,000 to 10,000 µg/L

FEET 0 50 100 200
0 25 50 METERS

- In-service monitoring well location
- In-service water level only
- In-service USACE owned well
- In-service interceptor well location

Contour Interval: 2ft.

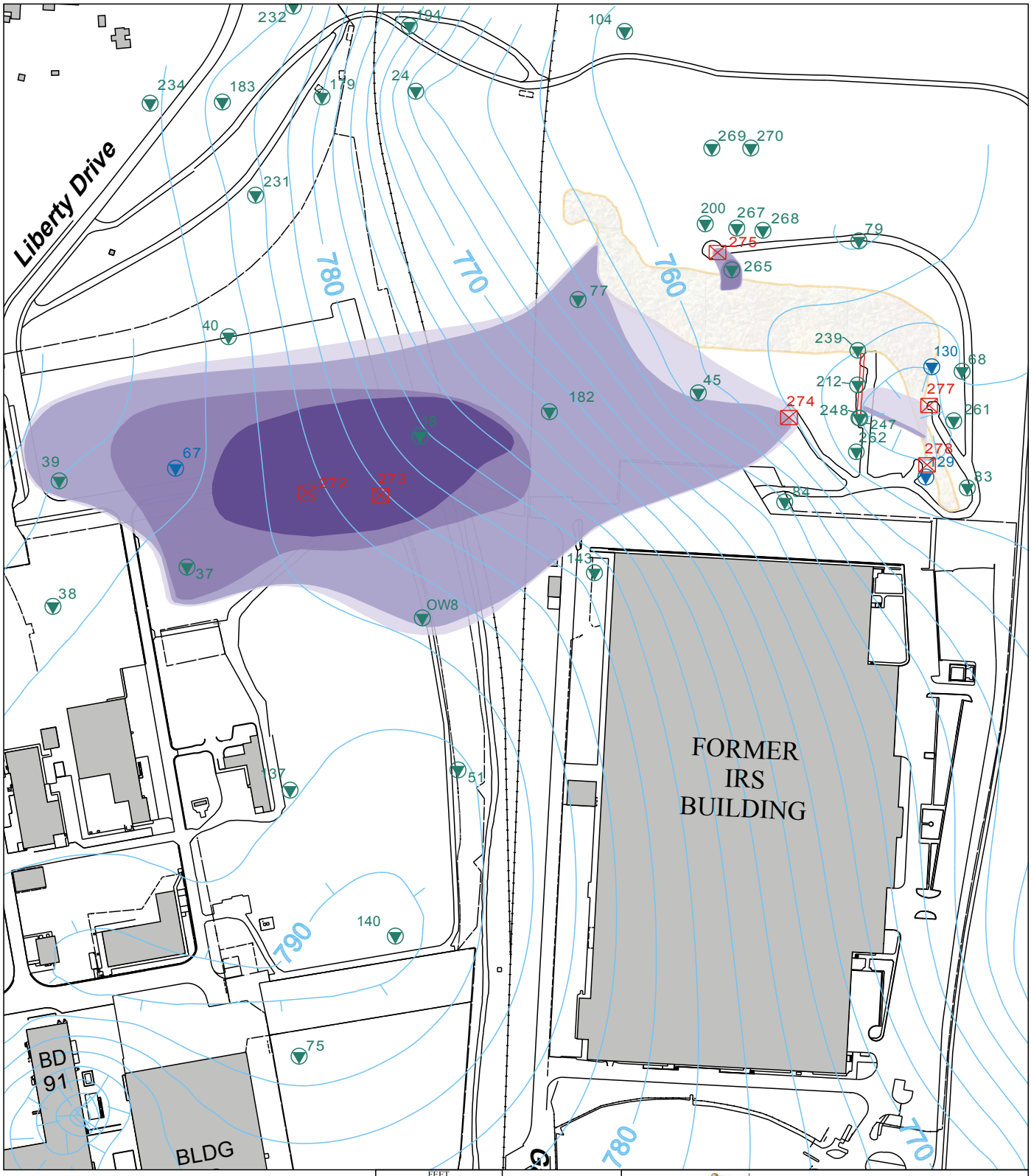
Cattails

Kansas City Plant
National Security Asset

NNSA National Nuclear Security Administration

The Kansas City Plant is operated and managed by Honeywell Federal Manufactureing & Technologies, LLC, for the NNSA.

Project Name:	2011 Annual Groundwater Corrective Action Report
Drawing Name:	Figure 2.10: Blue River Flow System Upper Completion Vinyl Chloride Contamination, Fall 2011
Date:	01/31/2012



Vinyl Chloride Concentrations

- mdl to 2 µg/L
- 2 to 100 µg/L
- 100 to 1,000 µg/L
- 1,000 to 10,000 µg/L

FEET 0 50 100 200
0 25 50 METERS

- In-service monitoring well location
- In-service water level only
- In-service USACE owned well
- In-service interceptor well location

Contour Interval: 2ft.

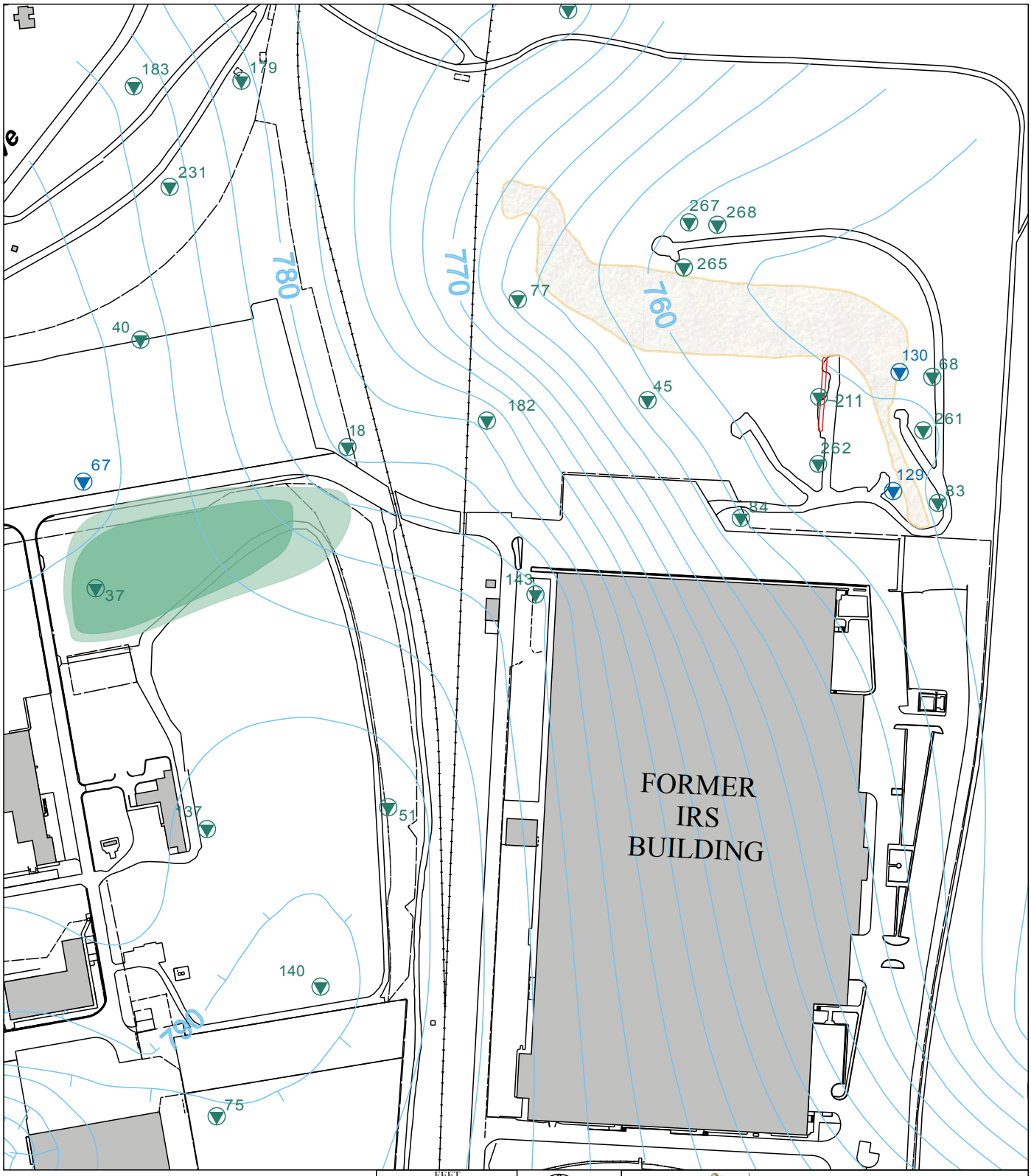
Cattails

Kansas City Plant
National Security Asset

NNSA National Nuclear Security Administration

The Kansas City Plant is operated and managed by Honeywell Federal Manufactureing & Technologies, LLC, for the NNSA.

Project Name:	2011 Annual Groundwater Corrective Action Report
Drawing Name:	Figure 2.11: Blue River Flow System Lower Completion Vinyl Chloride Contamination, Fall 2011
Date:	01/31/2012



1,1-DCE Concentrations

- mdl to 7 µg/L
- 7 to 100 µg/L

FEET 0 50 100 200
0 25 50 METERS

- In-service monitoring well location
- In-service water level only
- In-service USACE owned well
- In-service interceptor well location

Contour Interval: 2ft.

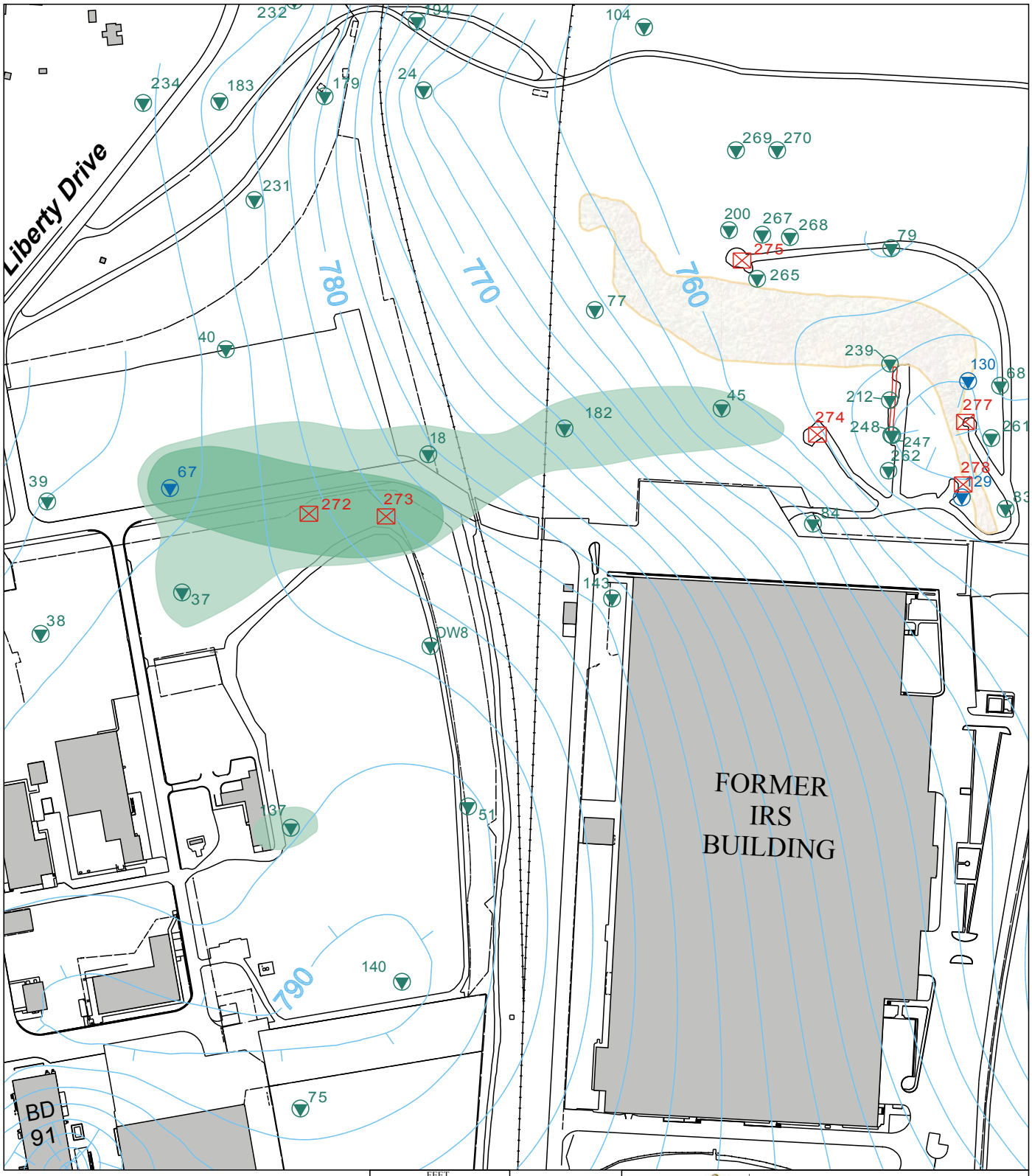
Cattails

Kansas City Plant
National Security Asset

NNSA National Nuclear Security Administration

The Kansas City Plant is operated and managed by Honeywell Federal Manufactureing & Technologies, LLC, for the NNSA.

Project Name:	2011 Annual Groundwater Corrective Action Report
Drawing Name:	Figure 2.12: Blue River Flow System Upper Completion 1,1-DCE Contamination, Fall 2011
Date:	1/31/2012



1,1-DCE Concentrations

- mdl to 7 µg/L
- 7 to 100 µg/L

FEET 0 50 100 200
METERS 0 25 50

- In-service monitoring well location
- In-service water level only
- In-service USACE owned well
- In-service interceptor well location

Contour Interval: 2ft.

Cattails

Kansas City Plant
National Security Asset

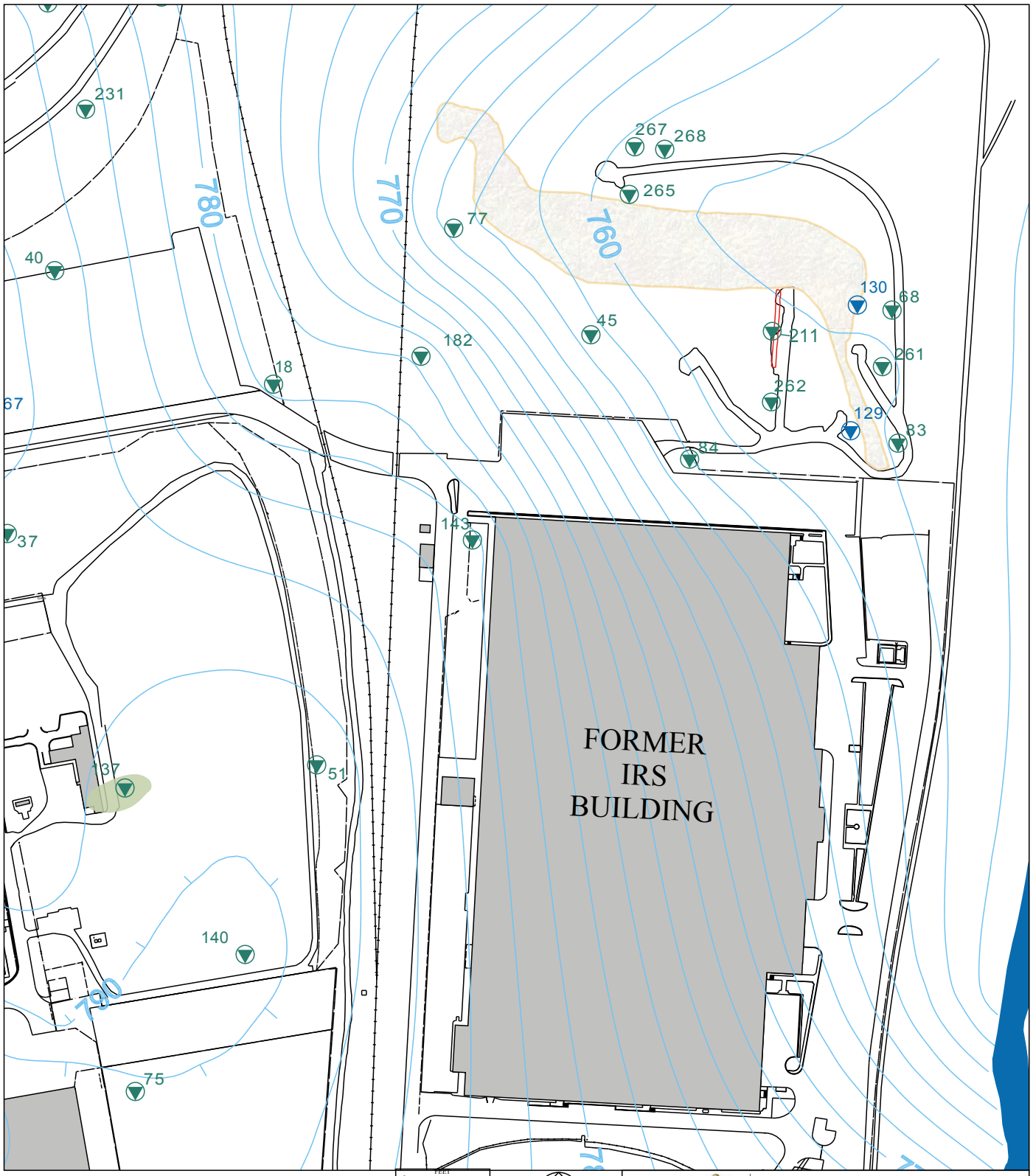
NNSA National Nuclear Security Administration

The Kansas City Plant is operated and managed by Honeywell Federal Manufactureing & Technologies, LLC, for the NNSA.

Project Name: 2011 Annual Groundwater Corrective Action Report

Drawing Name: Figure 2.13: Blue River Flow System Lower Completion 1,1-DCE Contamination, Fall 2011

Date: 01/31/2012



1,1-DCA Concentrations

mdl to 810 µg/L

0 50 100 200 FEET
0 25 50 METERS

N

In-service monitoring well location

In-service water level only

In-service USACE owned well

In-service interceptor well location

Contour Interval: 2ft.

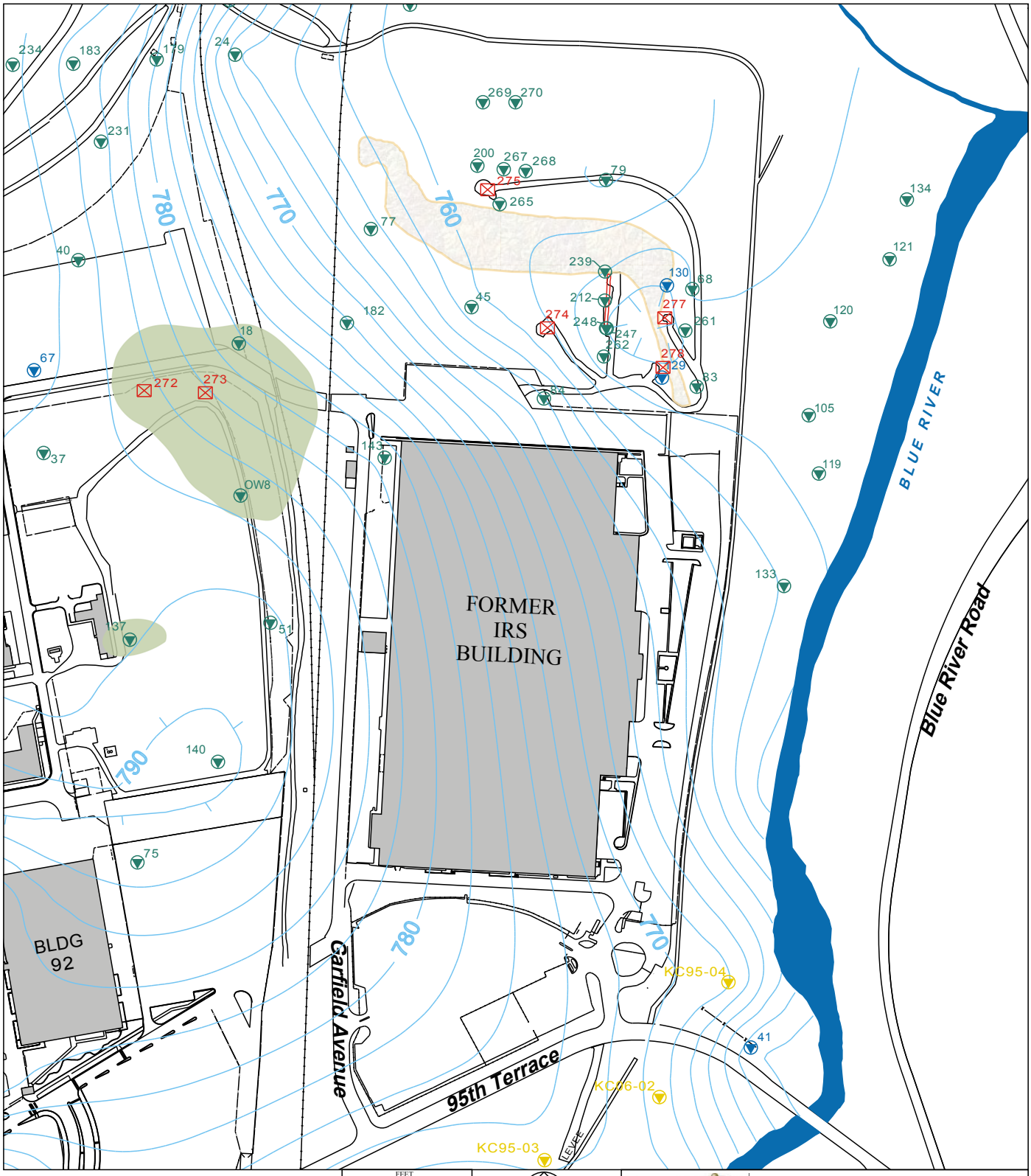
Cattails

Kansas City Plant
National Security Asset

NNSA National Nuclear Security Administration

The Kansas City Plant is operated and managed by Honeywell Federal Manufactureing & Technologies, LLC, for the NNSA.

Project Name:	2011 Annual Groundwater Corrective Action Report
Drawing Name:	Figure 2.14: Blue River Flow System Upper Completion 1,1-DCA Contamination, Fall 2011
Date:	01/31/2012



1,1-DCA Concentrations

mdl to 810 µg/L

FEET 0 50 100 200
METERS 0 25 50

In-service monitoring well location

In-service water level only

In-service USACE owned well

In-service interceptor well location

Contour Interval: 2ft.

Cattails

Kansas City Plant
National Security Asset

National Nuclear Security Administration

The Kansas City Plant is operated and managed by Honeywell Federal Manufactureing & Technologies, LLC, for the NNSA.

Project Name:	2011 Annual Groundwater Corrective Action Report
Drawing Name:	Figure 2.15: Blue River Flow System Lower Completion 1,1 DCA Contamination, Fall 2011
Date:	01/31/2012

Table 2.1 Blue River Flow System Water Level Elevations (ft/msl)

Location		GW11 1ST SEMI	GW11 2ND SEMI
KC06-01	L		765.25
KC95-01	L		758.23
KC95-02	L		771.42
KC95-03	L		773.31
KC95-03	U		773.48
KC95-04	L		769.18
KC84-015	L		764.41
KC84-016	L		763.34
KC84-018	L	780.27	778.37
KC84-018	M	780.50	778.32
KC84-018	U	790.94	779.32
KC84-024	L		766.20
KC85-037	L		786.93
KC85-037	M		787.14
KC85-037	U	789.14	787.19
KC85-038	L		788.64
KC85-038	M		788.59
KC85-038	U		787.61
KC85-039	L		789.71
KC85-039	M		790.00
KC85-039	U		789.96
KC85-040	L		787.23
KC85-040	M		787.16
KC85-040	U		787.09
KC85-041	L		758.02
KC85-041	U		778.52
KC85-042	L		758.05
KC85-043	L		769.90
KC85-043	M		769.99
KC85-043	U		791.63
KC85-045	L		760.64
KC85-045	U		762.64
KC86-047	L		787.42
KC86-047	U		786.99
KC86-051	L		788.57
KC86-051	U		789.25
KC87-060	L		793.69
KC87-060	U		790.93
KC87-067	L		788.94
KC87-067	U		789.08

Table 2.1 Blue River Flow System Water Level Elevations (ft/msl)

Location		GW11 1ST SEMI	GW11 2ND SEMI
KC87-068	L	759.03	756.62
KC87-068	U	759.10	
KC88-077	L	767.23	764.59
KC88-077	U	767.30	764.56
KC88-079	L	763.80	760.69
KC88-083	L	756.03	754.90
KC88-084	L		764.58
KC88-084	U		761.88
KC89-102	L		783.48
KC89-102	U		783.57
KC89-104	L		758.72
KC89-104	U		773.26
KC89-105	L	756.57	755.25
KC89-119	L	756.39	755.05
KC89-120	L	756.44	755.11
KC89-121	L	756.33	754.99
KC89-129	L		754.31
KC89-130	L		753.44
KC90-133	L	759.51	757.94
KC90-134	L	756.27	754.95
KC90-137	L		787.74
KC90-137	U		788.60
KC90-140	L		790.92
KC90-140	U		790.92
KC90-143	L		779.38
KC90-143	U		782.78
KC91-157	L		787.43
KC91-157	U		787.51
KC91-158	L		789.31
KC91-158	U		789.33
KC91-160	L		785.74
KC91-160	U		785.75
KC91-163	L		785.59
KC91-163	U		785.59
KC91-165	L	788.10	787.31
KC91-165	U	788.08	786.98
KC91-168	L		790.11
KC91-168	U		790.28
KC91-171	L		789.73
KC91-171	U		789.78

Table 2.1 Blue River Flow System Water Level Elevations (ft/msl)

Location		GW11 1ST SEMI	GW11 2ND SEMI
KC91-175	L		793.84
KC91-175	U		793.66
KC91-176	L		791.79
KC91-176	U		791.73
KC91-179	L		780.36
KC91-179	U		780.49
KC91-182	L	774.24	772.44
KC91-182	U	779.73	778.09
KC91-183	L		784.97
KC91-183	U		785.50
KC92-184	L		785.00
KC92-184	U		785.47
KC92-194	L	778.95	772.72
KC95-200	L	756.57	758.66
KC98-211	U	759.90	758.33
KC98-212	L	754.99	754.38
KC98-231	L		784.78
KC98-231	U		784.81
KC98-232	L		786.24
KC98-232	U		779.46
KC98-234	L		788.51
KC99-239	L		756.18
KC99-247	L	754.80	753.84
KC99-248	L	754.75	753.80
OW-008	L		785.39

Table 2.2: Blue River Flow System Contaminant Hits

(J = estimated values) **(B = blank contamination)**

Location		GW11 1ST SEMI			GW11 2ND SEMI		
KC84-018	L	1,1-Dichloroethane	7	ug/L	1,1-Dichloroethane	7.3	ug/L
		1,1-Dichloroethene	3	ug/L	1,1-Dichloroethene	4	ug/L
		1,2-Dichloroethene (Total)	1,250	ug/L	1,2-Dichloroethene (Total)	1,630	ug/L
		Benzene	15.8	ug/L	Benzene	27.1	ug/L
		Vinyl Chloride	810	ug/L	Vinyl Chloride	1,200	ug/L
KC84-018	M	1,1-Dichloroethane	3.1	ug/L	1,1-Dichloroethane	17.2	ug/L
					1,1-Dichloroethene	3.2	ug/L
		1,2-Dichloroethene (Total)	330	ug/L	1,2-Dichloroethene (Total)	1,680	ug/L
					Benzene	3.3	ug/L
					Vinyl Chloride	199	ug/L
KC85-037	L				1,1-Dichloroethene	5.3	ug/L
					1,2-Dichloroethene (Total)	3,180	ug/L
					Benzene	3.1	ug/L
					Trichloroethene	15.1	ug/L
					Vinyl Chloride	111	ug/L
KC85-037	M				1,1-Dichloroethene	6.2	ug/L
					1,2-Dichloroethene (Total)	1,840	ug/L
					Benzene	2.6	ug/L
					Vinyl Chloride	87.8	ug/L
KC85-037	U	1,1-Dichloroethane	0.85	ug/L			
					1,1-Dichloroethene	15.5	ug/L
		1,2-Dichloroethene (Total)	19,000	ug/L	1,2-Dichloroethene (Total)	30,400	ug/L
		Benzene	28.2	ug/L	Benzene	43.9	ug/L
					Toluene	3.2	ug/L
		Trichloroethene	4.6	ug/L	Trichloroethene	10.3	ug/L
					Vinyl Chloride	2,480	ug/L
KC85-039	L				1,2-Dichloroethene (Total)	46.4	ug/L
					Vinyl Chloride	23	ug/L
KC85-039	M				1,2-Dichloroethene (Total)	2.6	ug/L
					Vinyl Chloride	5.5	ug/L
KC85-040	L				1,2-Dichloroethene (Total)	1.8	ug/L
KC85-040	M				1,2-Dichloroethene (Total)	1.1	ug/L
KC85-045	L				1,1-Dichloroethene	1.5	ug/L
					1,2-Dichloroethene (Total)	552	ug/L
					Vinyl Chloride	1.9	ug/L
KC85-045	U				1,2-Dichloroethene (Total)	271	ug/L
KC86-051	U				1,2-Dichloroethene (Total)	1.2	ug/L
KC87-067	L				1,1-Dichloroethene	11.1	ug/L
					1,2-Dichlorobenzene	46.2	ug/L
					1,2-Dichloroethene (Total)	10,900	ug/L
					Acetone	68.8	ug/L
					Benzene	14.4	ug/L
					Chlorobenzene	97.1	ug/L
					Trichloroethene	5.4	ug/L
					Vinyl Chloride	645	ug/L
KC87-067	U				1,2-Dichlorobenzene	637	ug/L
					1,2-Dichloroethene (Total)	5.6	ug/L
					Chlorobenzene	916	ug/L

Table 2.2: Blue River Flow System Contaminant Hits

(J = estimated values) **(B = blank contamination)**

Location		GW11 1ST SEMI			GW11 2ND SEMI		
KC88-077	L	1,2-Dichloroethene (Total)	170	ug/L	1,2-Dichloroethene (Total)	307	ug/L
		Vinyl Chloride	45.1	ug/L	Vinyl Chloride	44.1	ug/L
KC88-077	U				1,2-Dichloroethene (Total)	1.5	ug/L
KC88-083	L	1,2-Dichloroethene (Total)	1.5	ug/L			
KC88-084	L				1,2-Dichloroethene (Total)	0.63	ug/L
KC89-105	L	1,2-Dichloroethane	1.8	ug/L	1,2-Dichloroethane	1.6	ug/L
		1,2-Dichloroethene (Total)	2	ug/L	1,2-Dichloroethene (Total)	1.5	ug/L
KC89-119	L	1,2-Dichloroethene (Total)	1.1	ug/L	1,2-Dichloroethene (Total)	1.4	ug/L
KC89-120	L				1,2-Dichloroethene (Total)	1.2	ug/L
KC89-121	L				1,2-Dichloroethene (Total)	0.95	ug/L
KC90-137	L				1,1-Dichloroethane	22.6	ug/L
					1,1-Dichloroethene	3.1	ug/L
					1,2-Dichloroethene (Total)	1.7	ug/L
KC90-137	U				1,1-Dichloroethane	7.9	ug/L
KC90-143	L				1,2-Dichloroethene (Total)	1.8	ug/L
KC91-179	L				1,2-Dichloroethene (Total)	25.9	ug/L
KC91-179	U				Chlorobenzene	7.8	ug/L
KC91-182	L	1,1-Dichloroethene	4.8	ug/L	1,1-Dichloroethene	2.8	ug/L
		1,2-Dichloroethene (Total)	1,190	ug/L	1,2-Dichloroethene (Total)	1,050	ug/L
		Benzene	2	ug/L			
		Vinyl Chloride	3.9	ug/L	Vinyl Chloride	45.9	ug/L
KC91-182	U	1,2-Dichloroethene (Total)	4.5	ug/L	1,2-Dichloroethene (Total)	6.4	ug/L
		Trichloroethene	58.5	ug/L	Trichloroethene	58.1	ug/L
KC95-200	L	1,2-Dichloroethene (Total)	2.6	ug/L	1,2-Dichloroethene (Total)	1.1	ug/L
		Vinyl Chloride	2.6	ug/L			
KC98-211	U	1,2-Dichloroethene (Total)	3	ug/L	1,2-Dichloroethene (Total)	1.6	ug/L
KC98-212	L	Vinyl Chloride	3.4	ug/L			
KC99-248	L	1,2-Dichloroethene (Total)	0.64	ug/L	1,2-Dichloroethene (Total)	0.69	ug/L
KC00-261	U	1,2-Dichloroethene (Total)	0.52	ug/L			
KC00-265	L				1,2-Dichloroethene (Total)	29.3	ug/L
					Vinyl Chloride	118	ug/L
KC00-267	L				1,2-Dichloroethene (Total)	0.85	ug/L
KC01-272	L	1,1,2-Trichloroethane	2	ug/L	1,1,2-Trichloroethane	3.1	ug/L
		1,1-Dichloroethane	8.8	ug/L	1,1-Dichloroethane	13.8	ug/L
		1,1-Dichloroethene	7.2	ug/L	1,1-Dichloroethene	11.5	ug/L
		1,2-Dichlorobenzene	2.4	ug/L			
		1,2-Dichloroethene (Total)	8,460	ug/L	1,2-Dichloroethene (Total)	14,900	ug/L
		Benzene	17.7	ug/L	Benzene	22	ug/L
		Chlorobenzene	7.6	ug/L	Chlorobenzene	1.7	ug/L
					Tetrachloroethene	0.61	ug/L
		Trichloroethene	74.6	ug/L	Trichloroethene	808	ug/L
		Vinyl Chloride	1,420	ug/L	Vinyl Chloride	1,170	ug/L
KC01-273	L	1,1,2-Trichloroethane	1.3	ug/L			
		1,1-Dichloroethane	13.3	ug/L	1,1-Dichloroethane	16.4	ug/L
		1,1-Dichloroethene	14.9	ug/L	1,1-Dichloroethene	13.8	ug/L
		1,2-Dichlorobenzene	32.8	ug/L	1,2-Dichlorobenzene	33.8	ug/L
		1,2-Dichloroethene (Total)	11,900	ug/L	1,2-Dichloroethene (Total)	9,550	ug/L

Table 2.2: Blue River Flow System Contaminant Hits

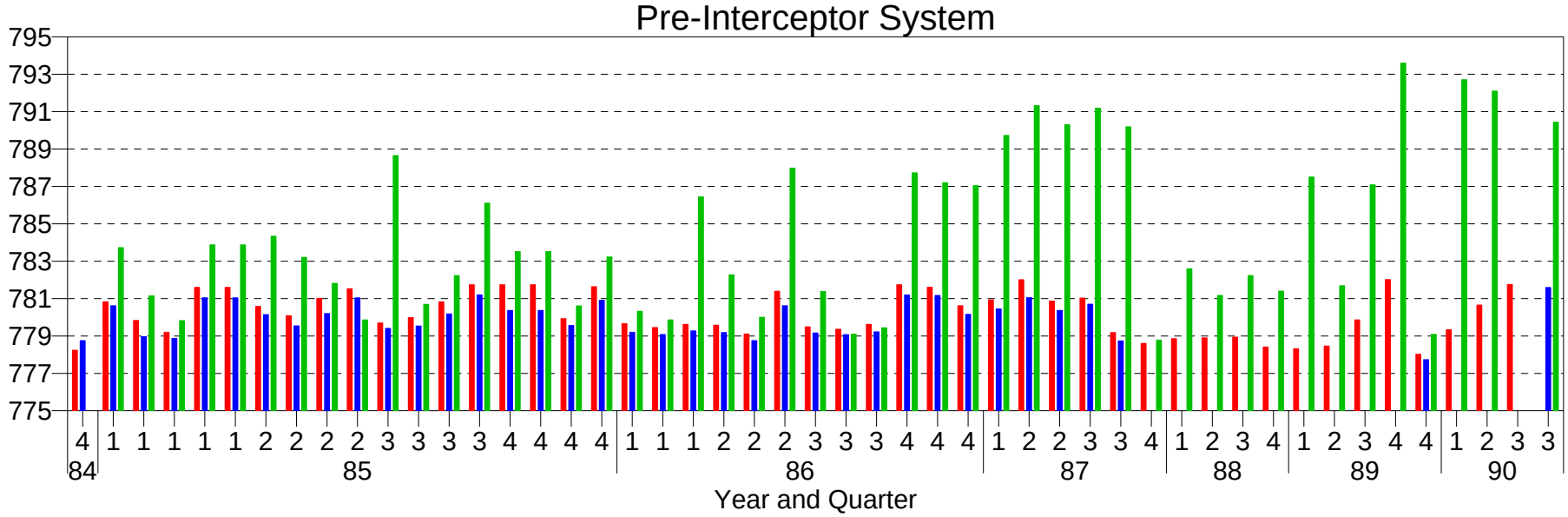
(J = estimated values) **(B = blank contamination)**

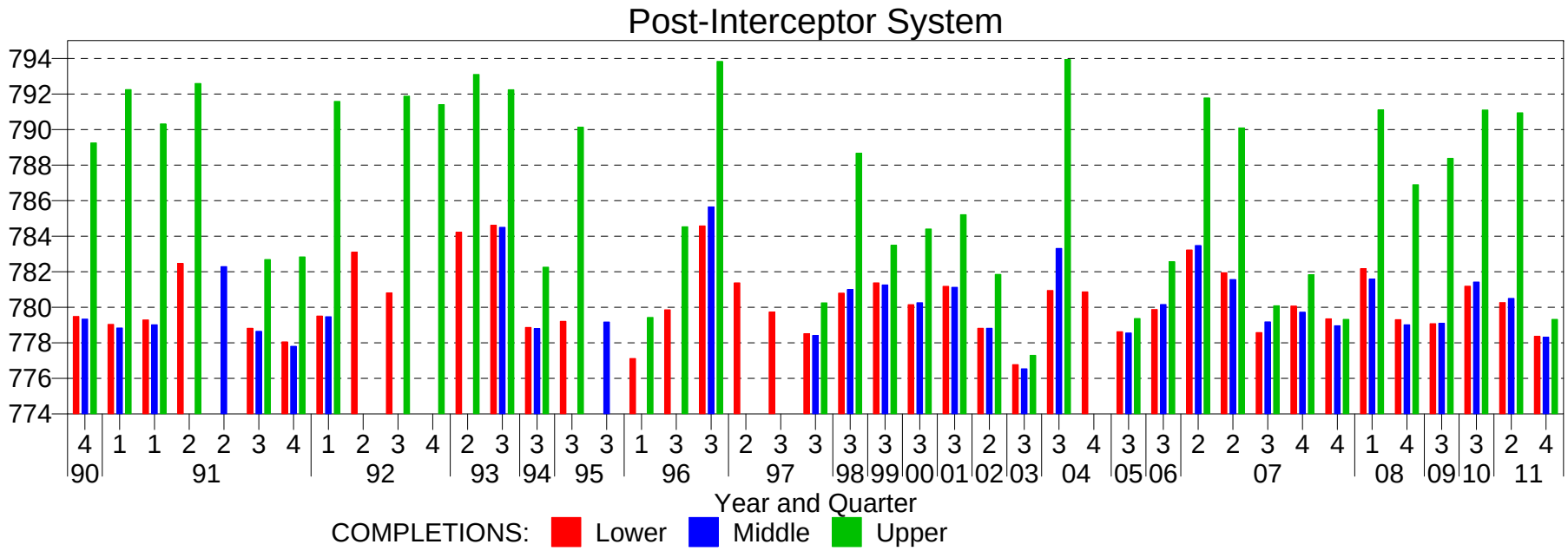
Location		GW11 1ST SEMI			GW11 2ND SEMI		
KC01-273	L	Benzene	51.2	ug/L	Benzene	42.5	ug/L
		Chlorobenzene	26.3	ug/L	Chlorobenzene	27.6	ug/L
		Toluene	2.9	ug/L	Toluene	2.3	ug/L
		Trichloroethene	126	ug/L	Trichloroethene	83.3	ug/L
		Vinyl Chloride	2,990	ug/L	Vinyl Chloride	2,490	ug/L
KC01-274	L	1,2-Dichloroethene (Total)	21.8	ug/L	1,2-Dichloroethene (Total)	239	ug/L
		Vinyl Chloride	54.7	ug/L	Vinyl Chloride	74.1	ug/L
KC01-275	L	1,2-Dichloroethene (Total)	16.6	ug/L	1,2-Dichloroethene (Total)	242	ug/L
		Vinyl Chloride	44.8	ug/L	Vinyl Chloride	60.6	ug/L
KC01-277	L	1,2-Dichloroethene (Total)	1.3	ug/L	1,2-Dichloroethene (Total)	0.53	ug/L
		Vinyl Chloride	2.7	ug/L	Vinyl Chloride	2.6	ug/L
KC01-278	L	1,2-Dichloroethene (Total)	1.1	ug/L	1,2-Dichloroethene (Total)	242	ug/L
		Vinyl Chloride	4.6	ug/L	Vinyl Chloride	77.4	ug/L
OW-008	L				1,1-Dichloroethane	5.6	ug/L
					1,2-Dichloroethene (Total)	7.9	ug/L
					Vinyl Chloride	2.1	ug/L

Water Level Trend Graphs

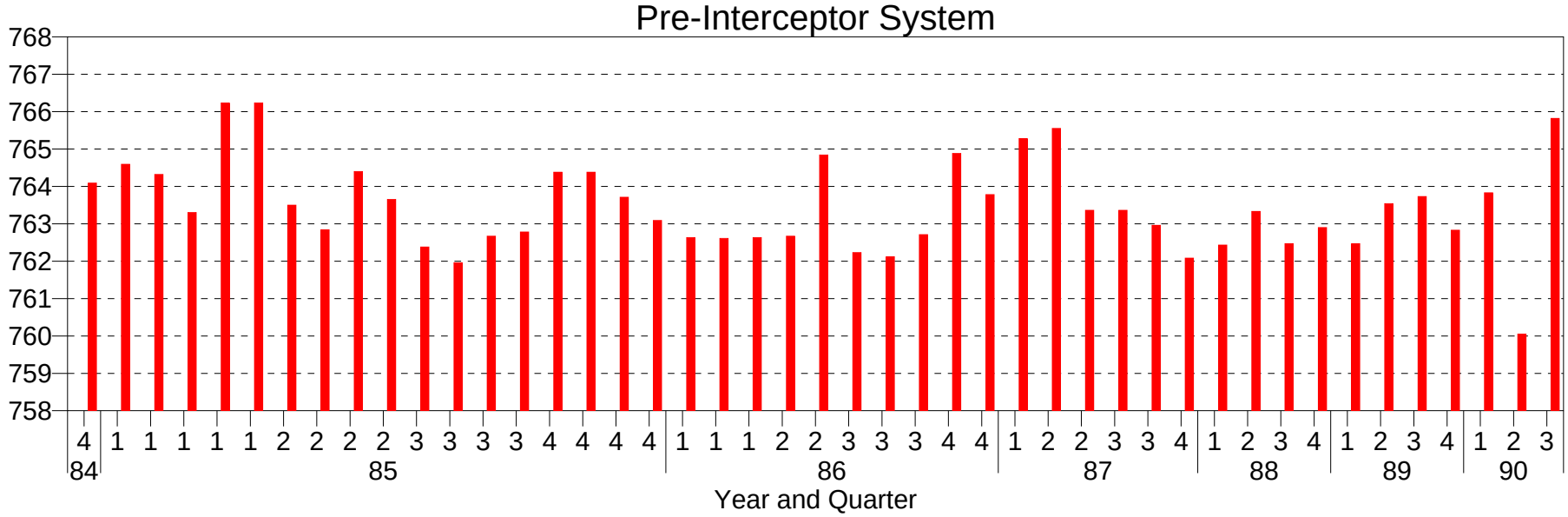
Blue River Groundwater Flow System

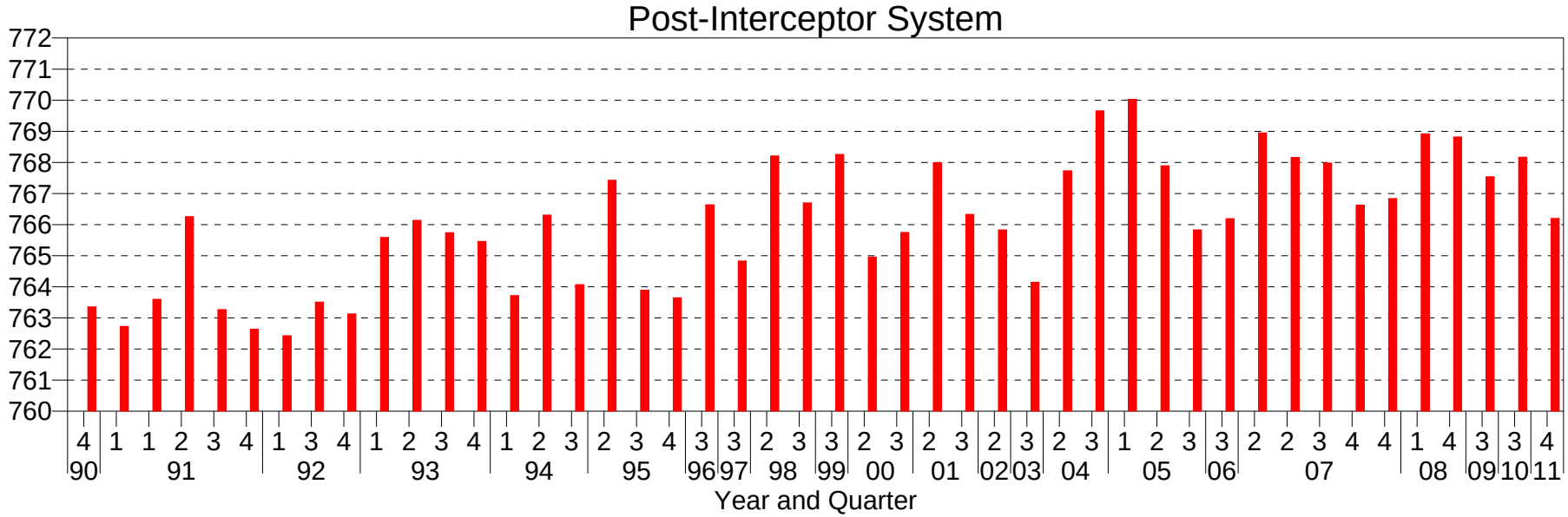
KC84-018 Water-Level Elevations, ft



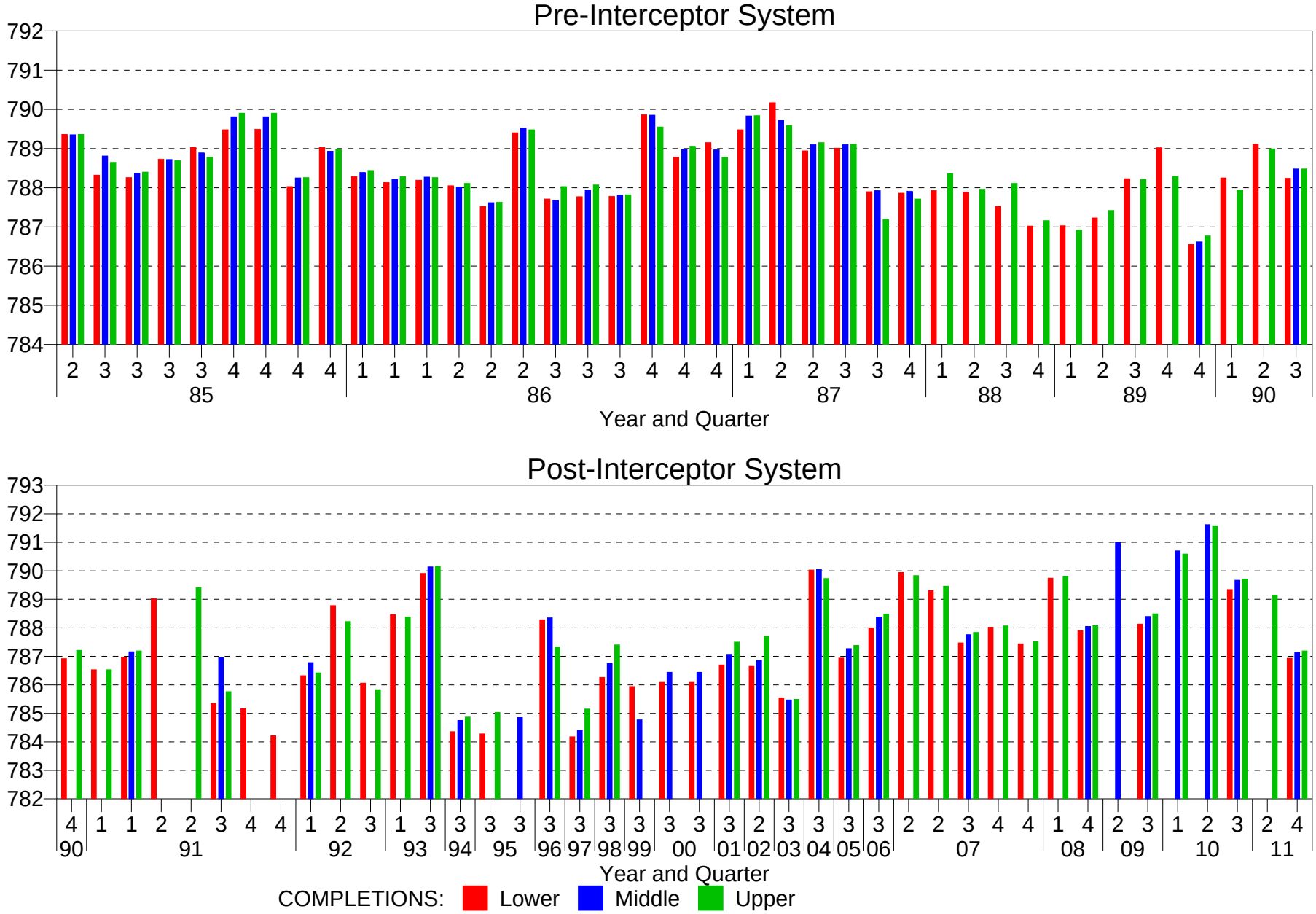


KC84-024 Water-Level Elevations, ft

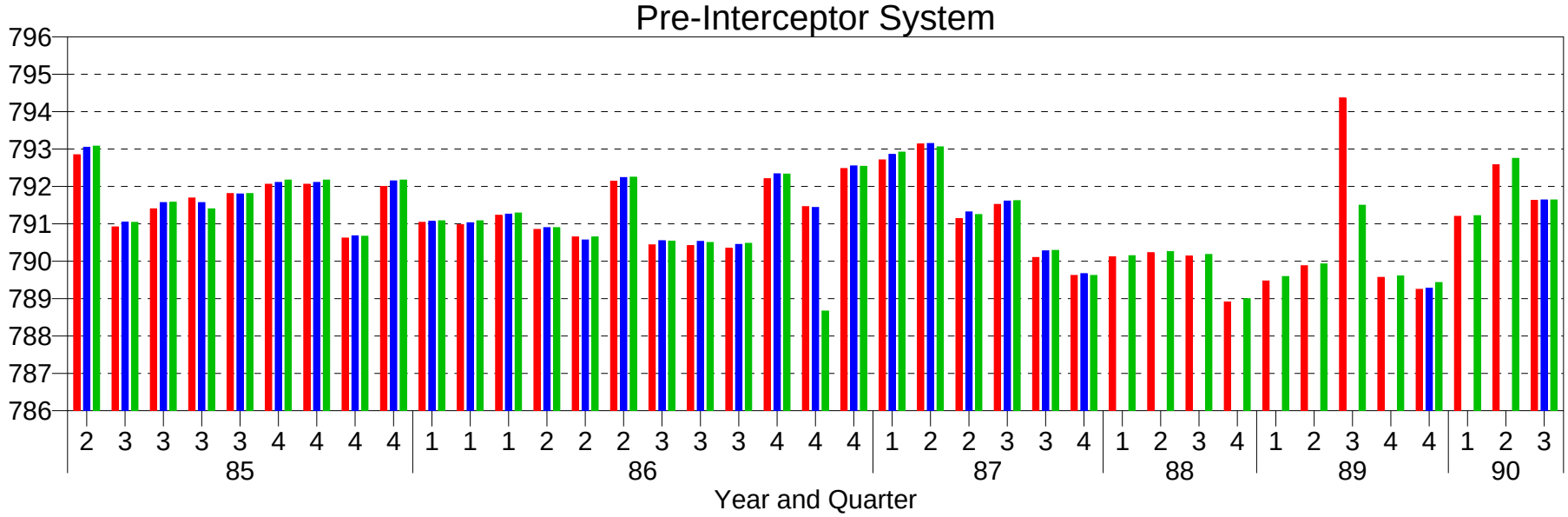


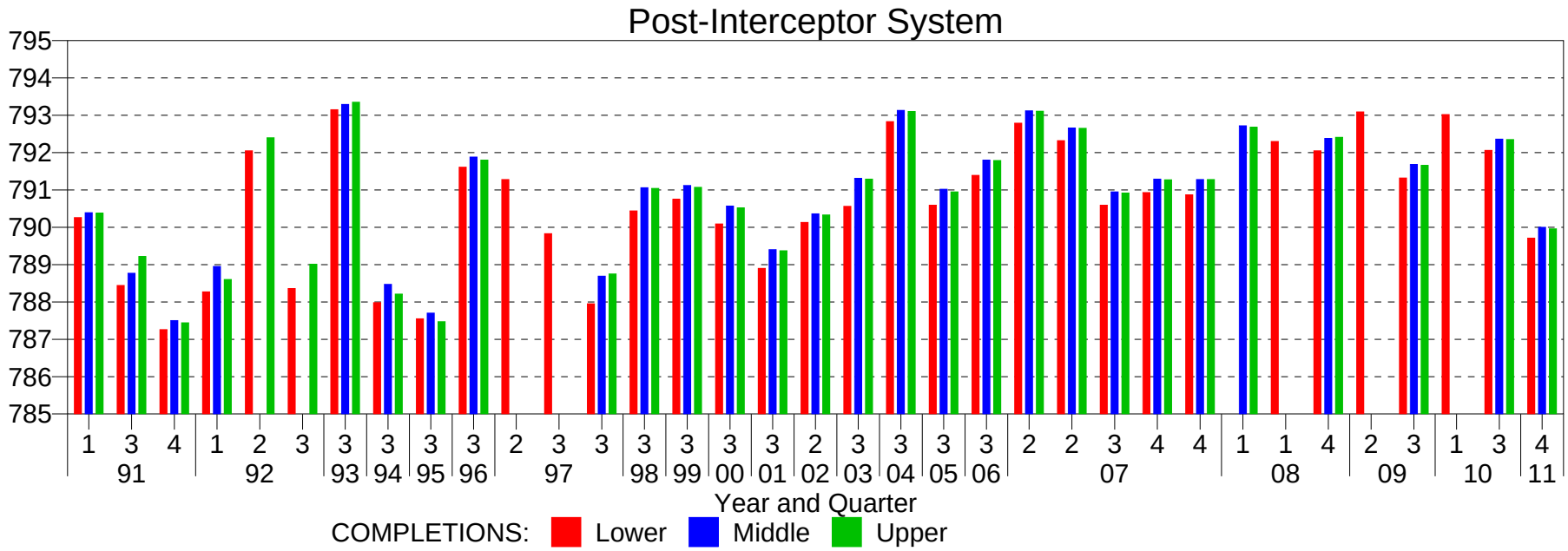


KC85-037 Water-Level Elevations, ft

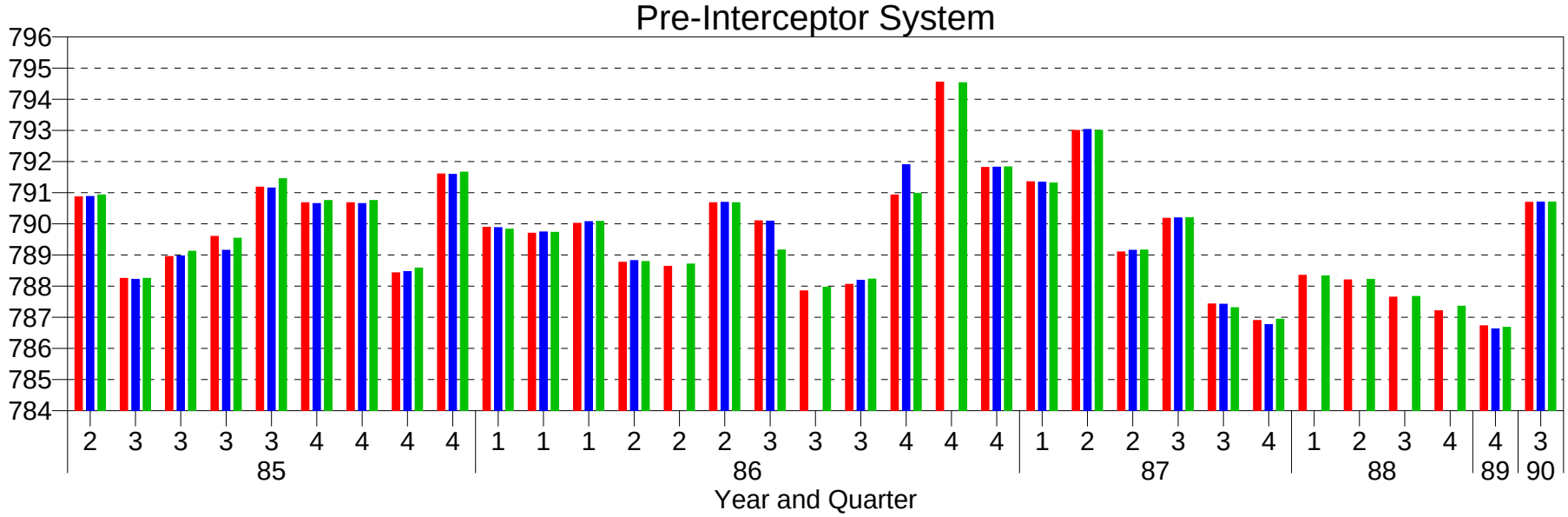


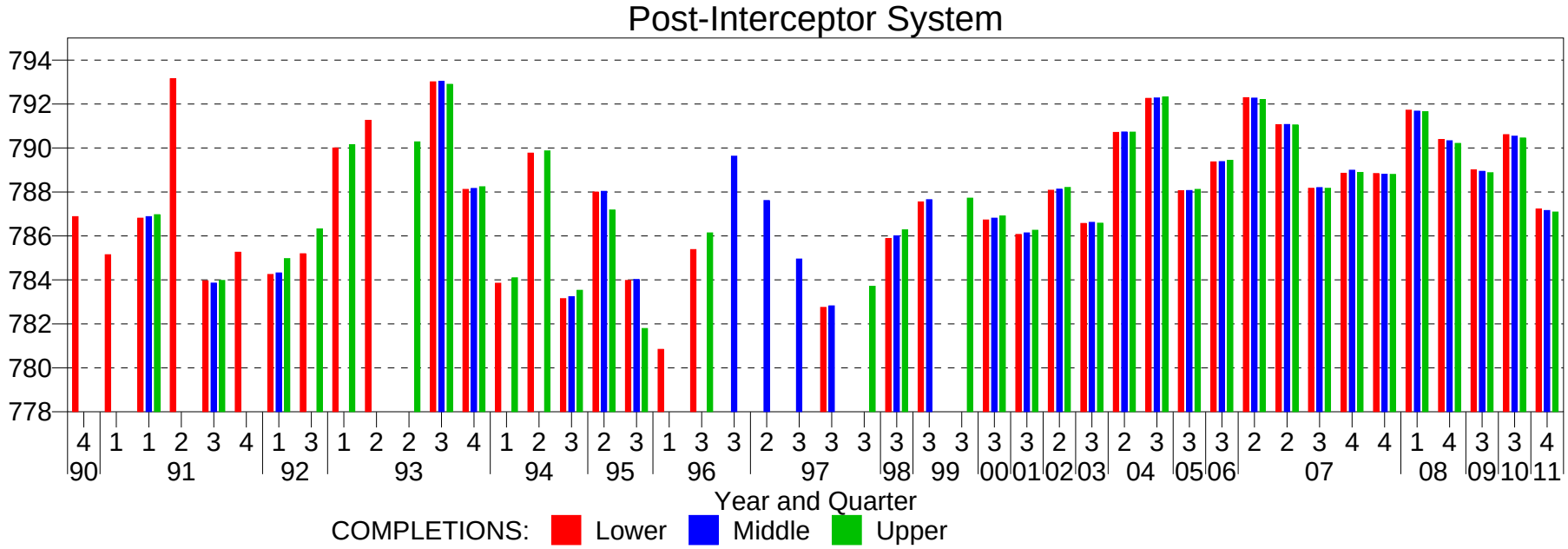
KC85-039 Water-Level Elevations, ft



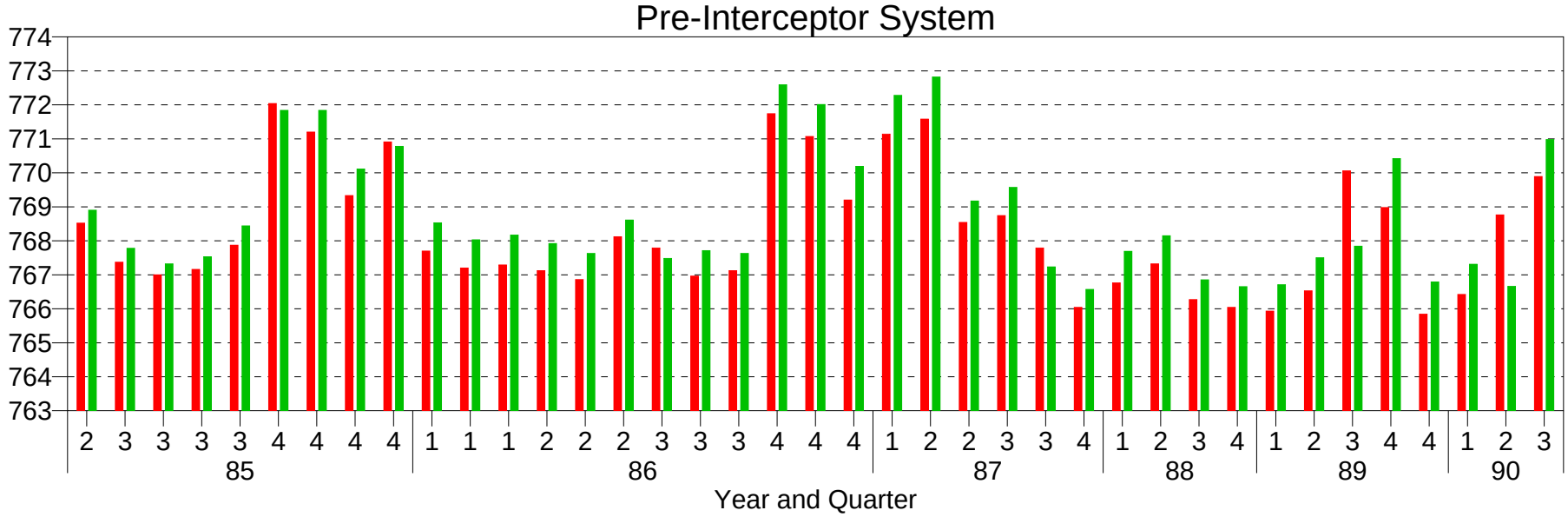


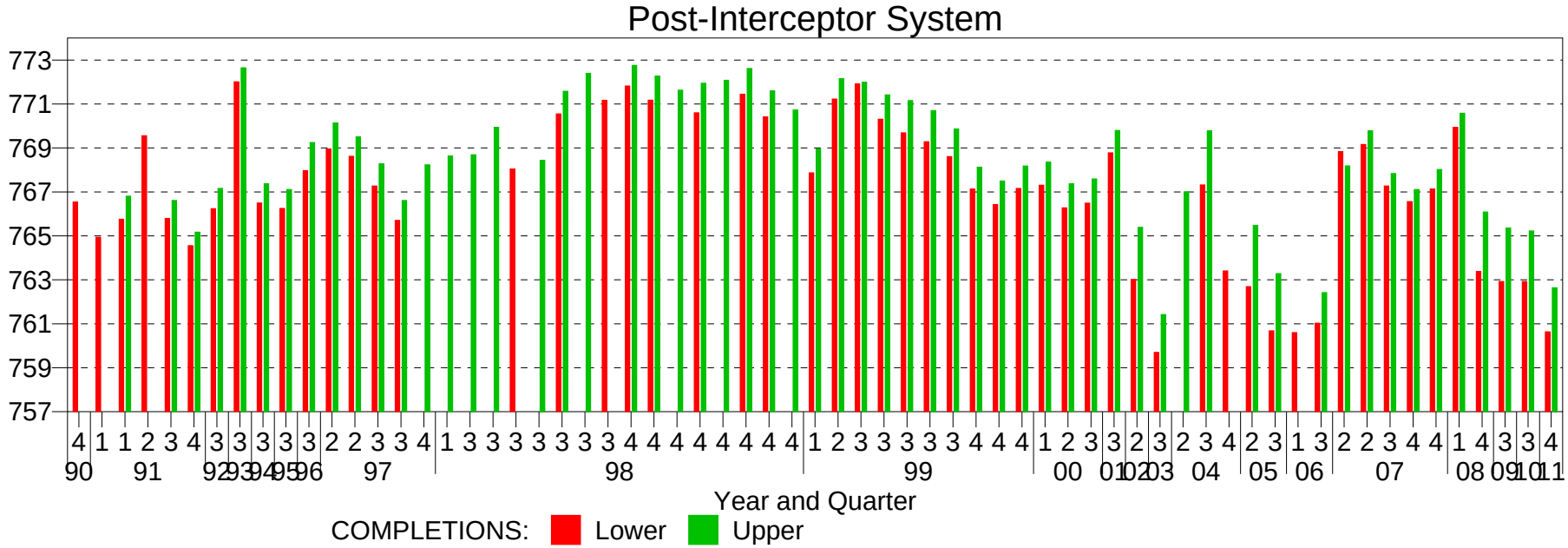
KC85-040 Water-Level Elevations, ft



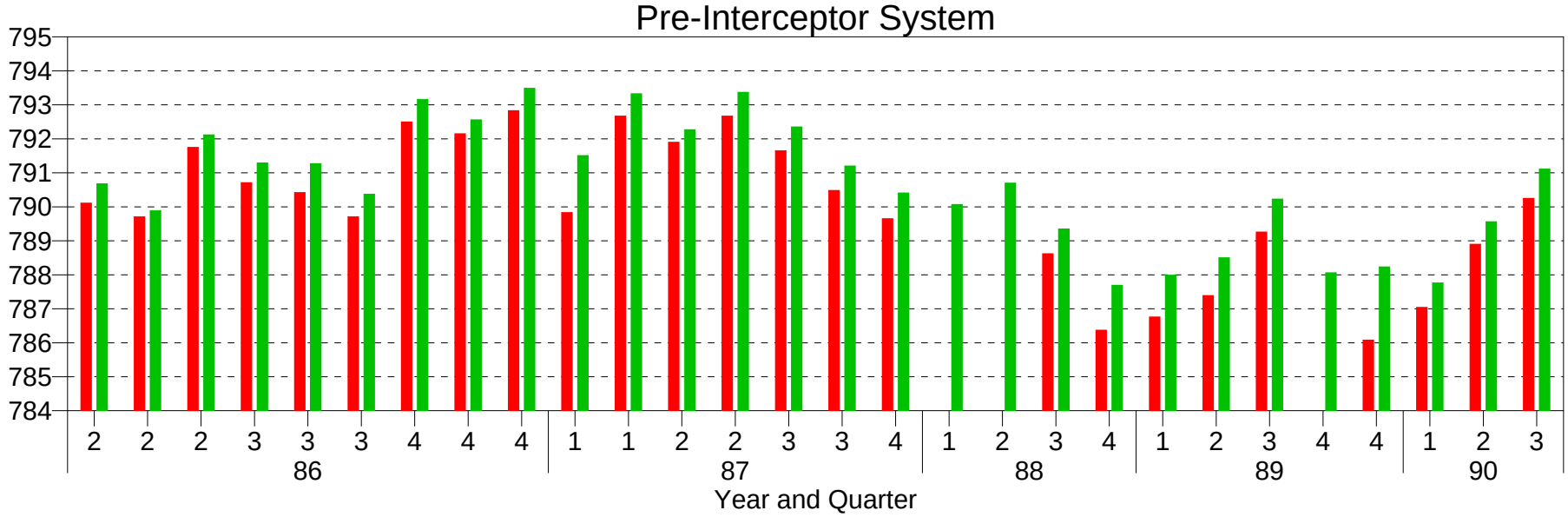


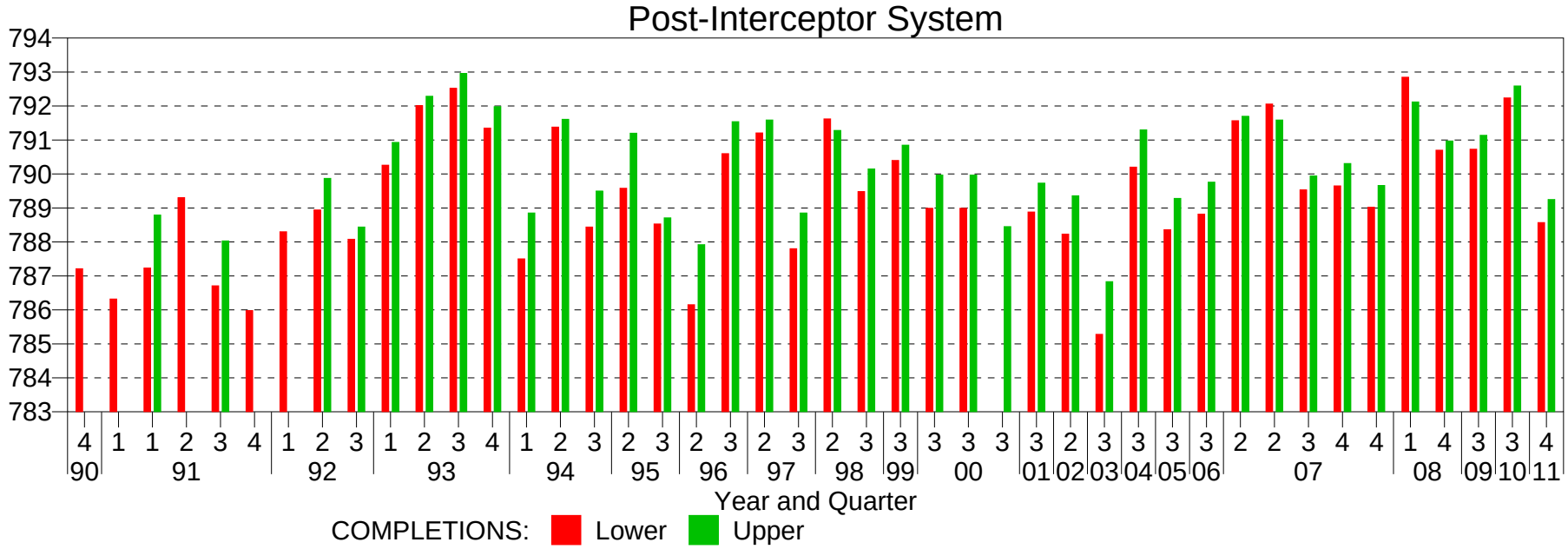
KC85-045 Water-Level Elevations, ft



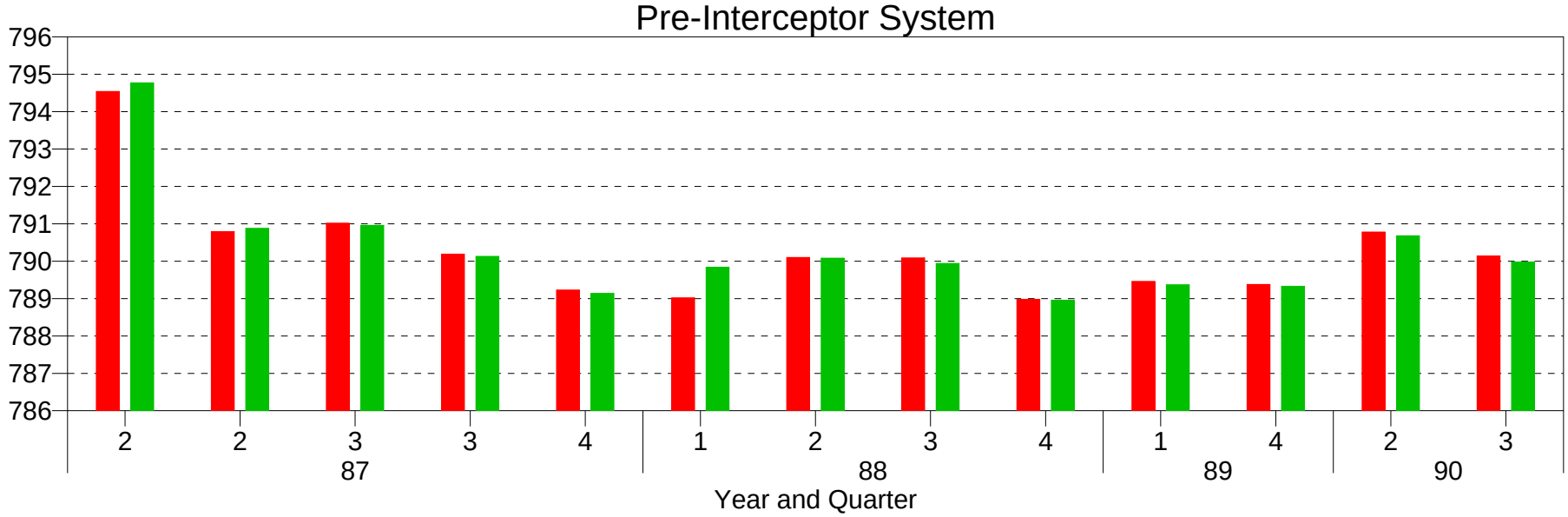


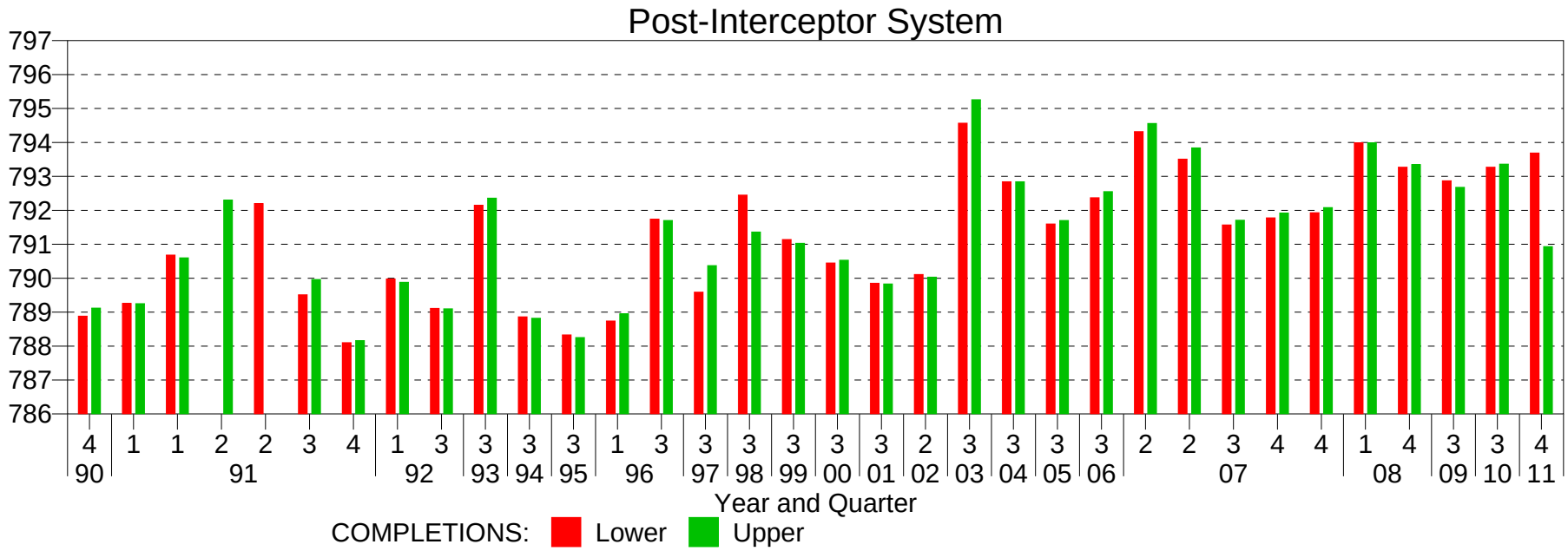
KC86-051 Water-Level Elevations, ft



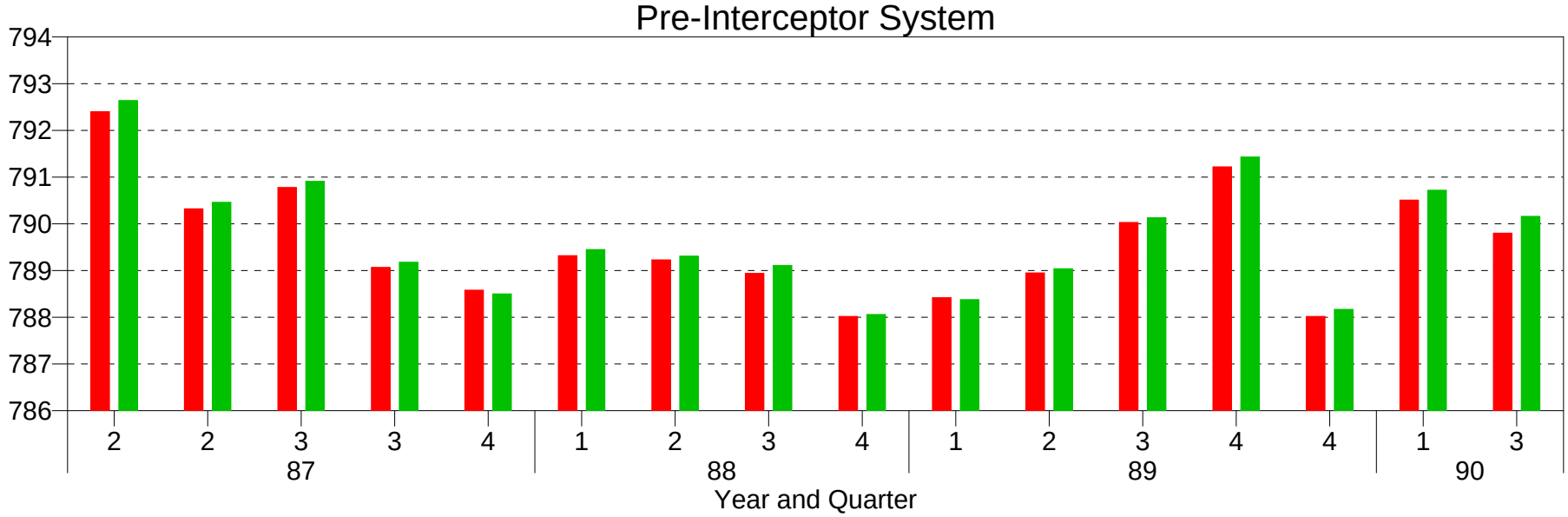


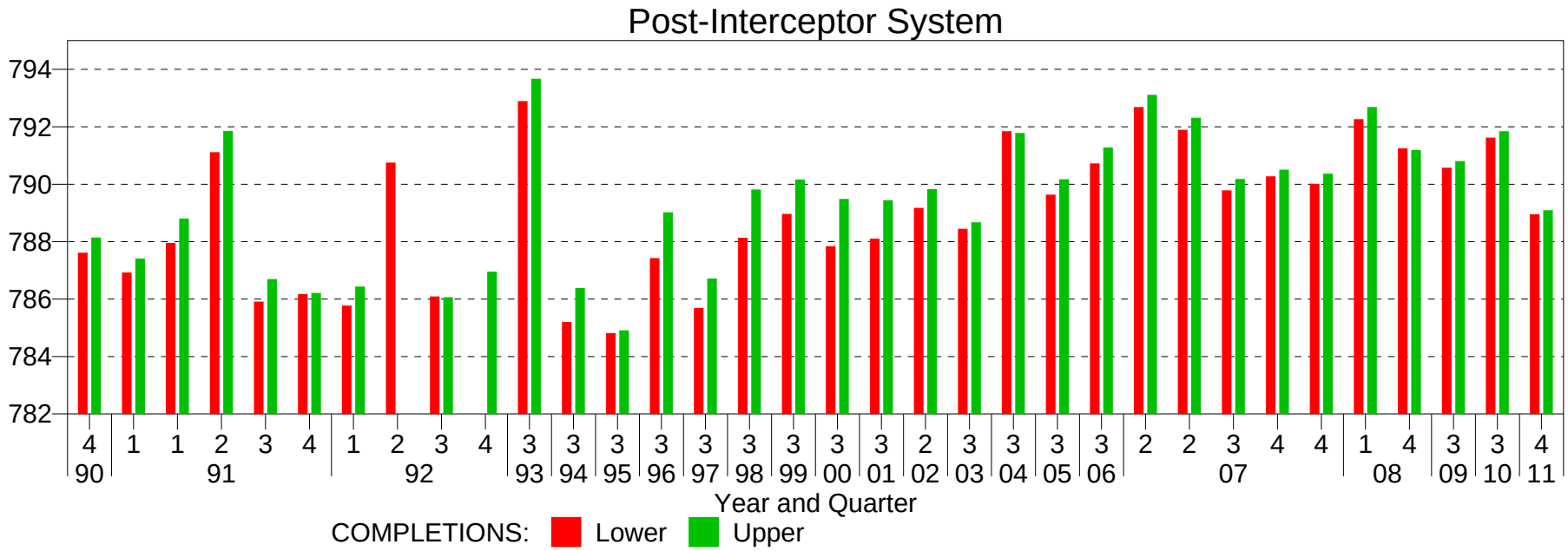
KC87-060 Water-Level Elevations, ft



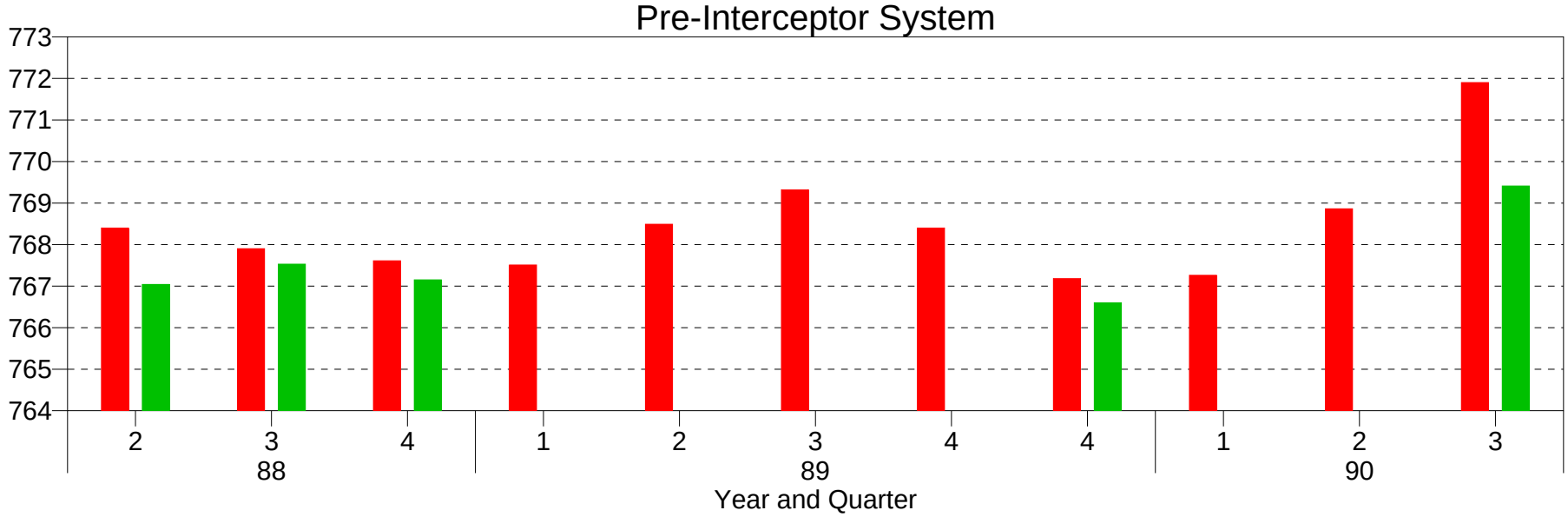


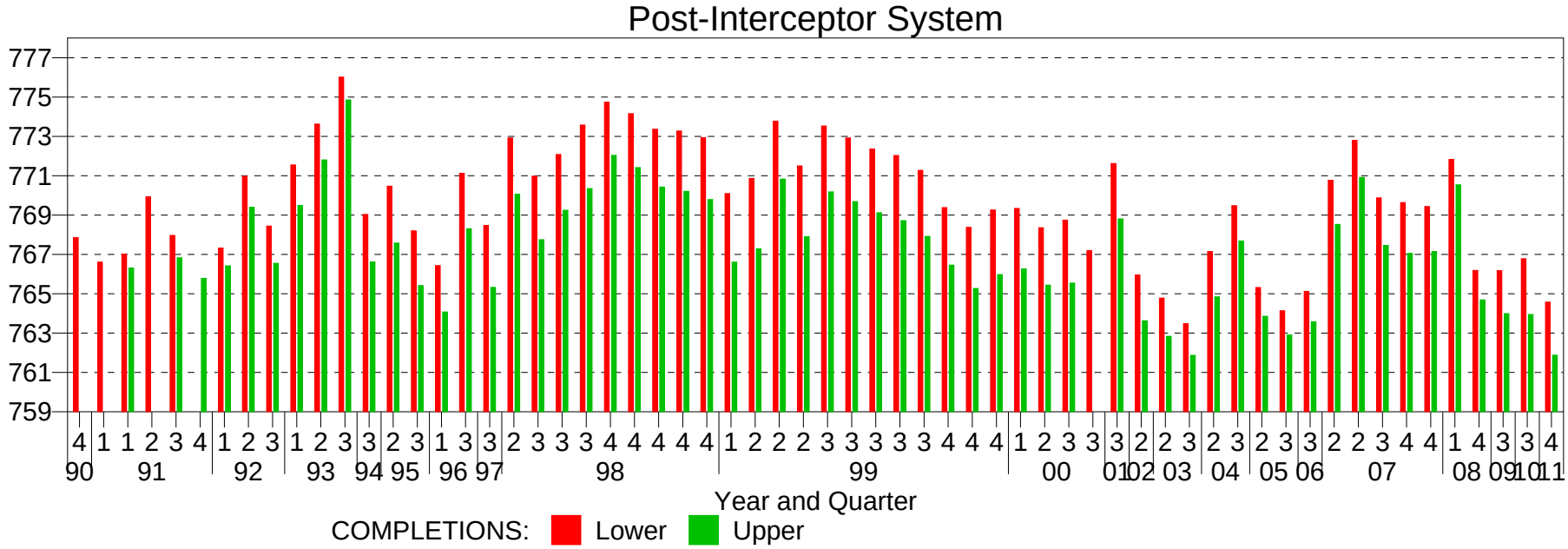
KC87-067 Water-Level Elevations, ft



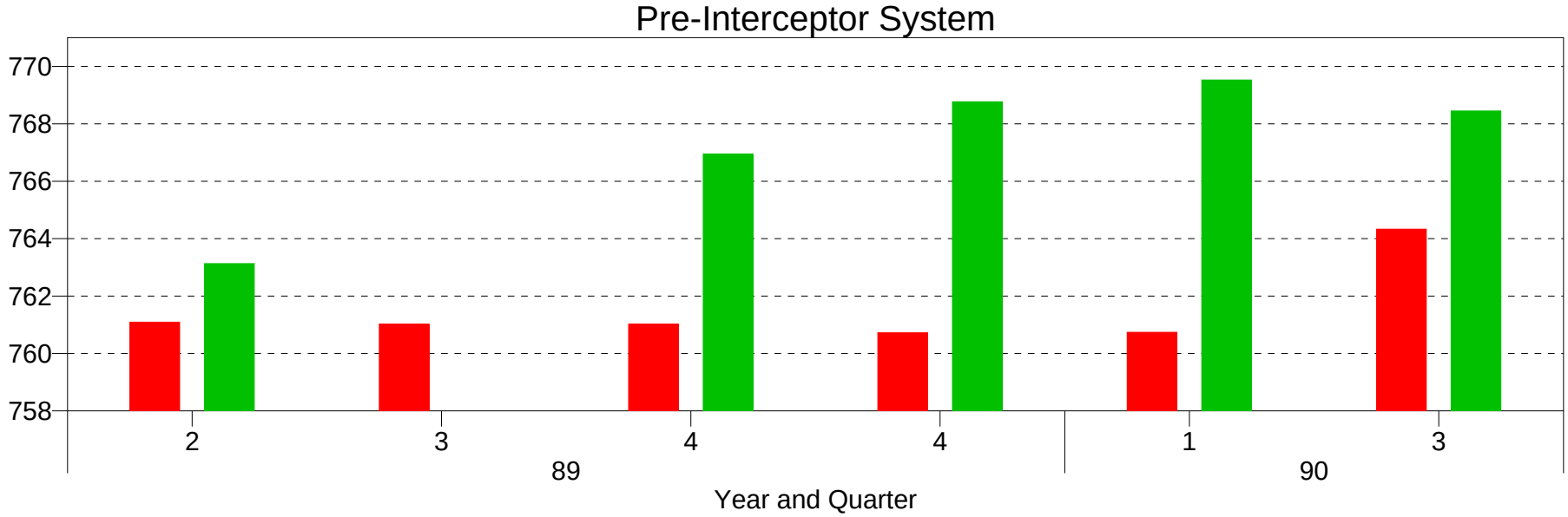


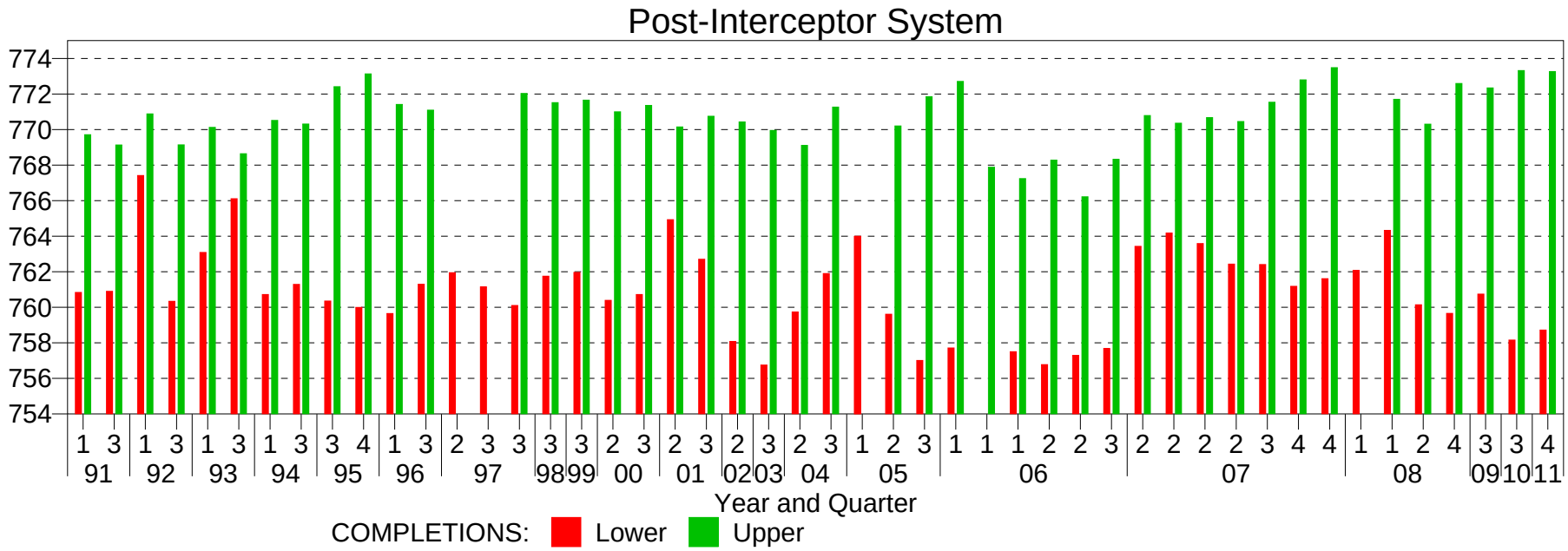
KC88-084 Water-Level Elevations, ft





KC89-104 Water-Level Elevations, ft



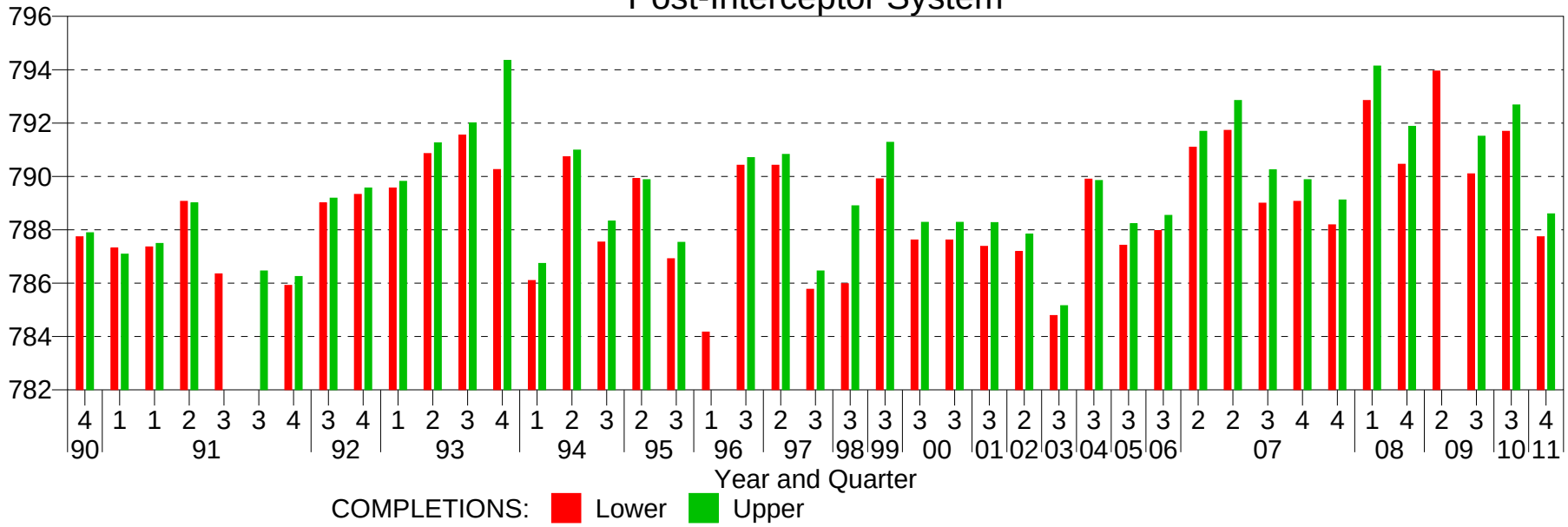


KC90-137 Water-Level Elevations, ft

Pre-Interceptor System

Not Installed

Post-Interceptor System

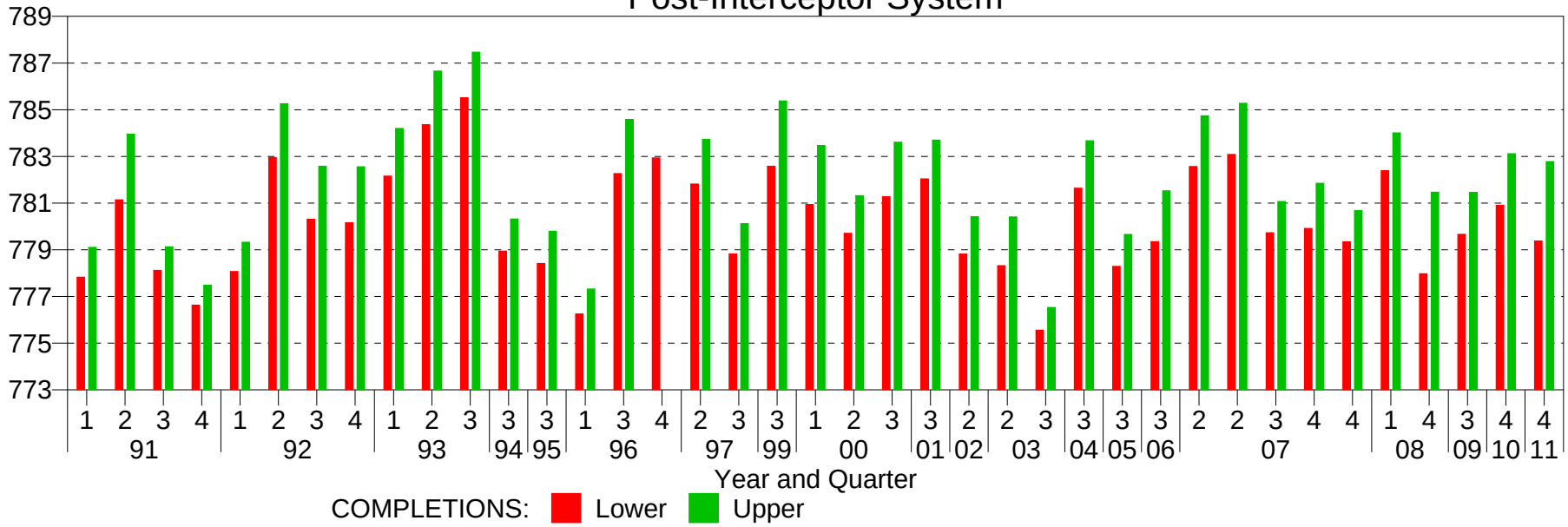


KC90-143 Water-Level Elevations, ft

Pre-Interceptor System

Not Installed

Post-Interceptor System

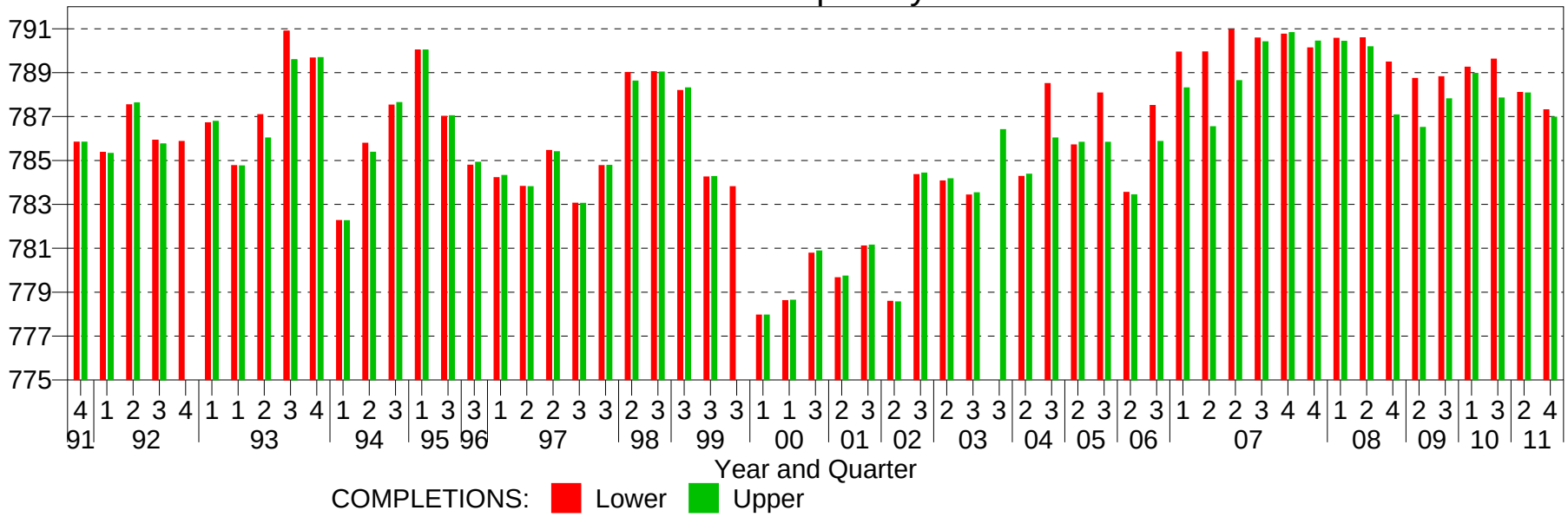


KC91-165 Water-Level Elevations, ft

Pre-Interceptor System

Not Installed

Post-Interceptor System

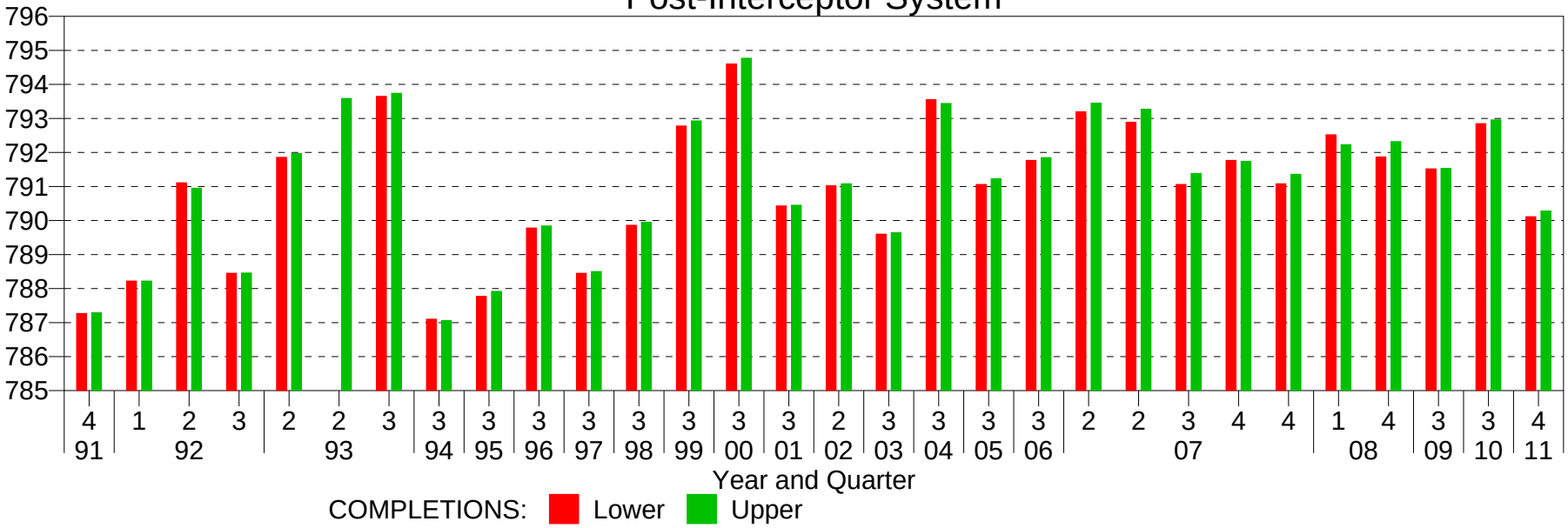


KC91-168 Water-Level Elevations, ft

Pre-Interceptor System

Not Installed

Post-Interceptor System

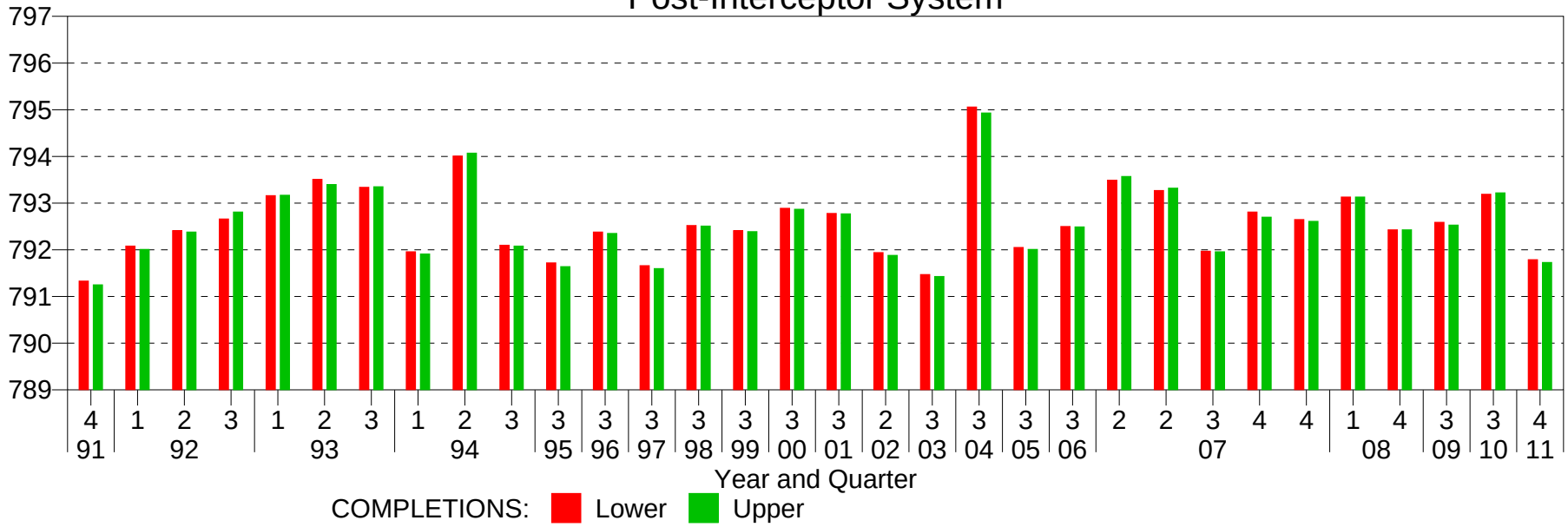


KC91-176 Water-Level Elevations, ft

Pre-Interceptor System

Not Installed

Post-Interceptor System

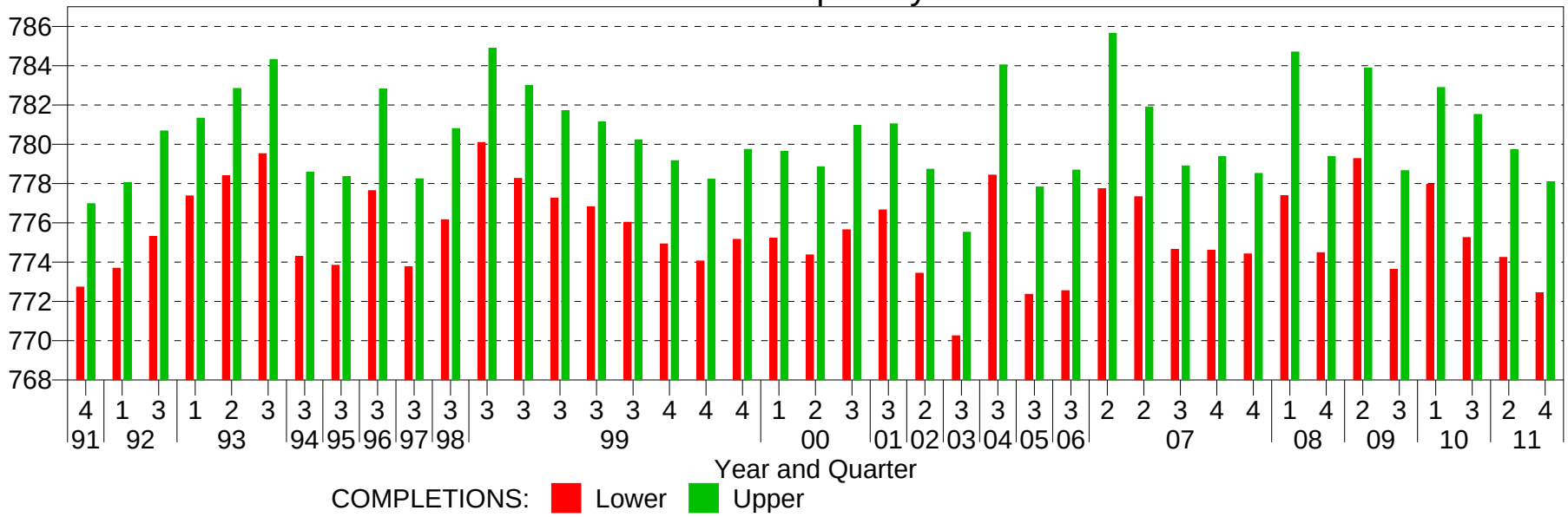


KC91-182 Water-Level Elevations, ft

Pre-Interceptor System

Not Installed

Post-Interceptor System

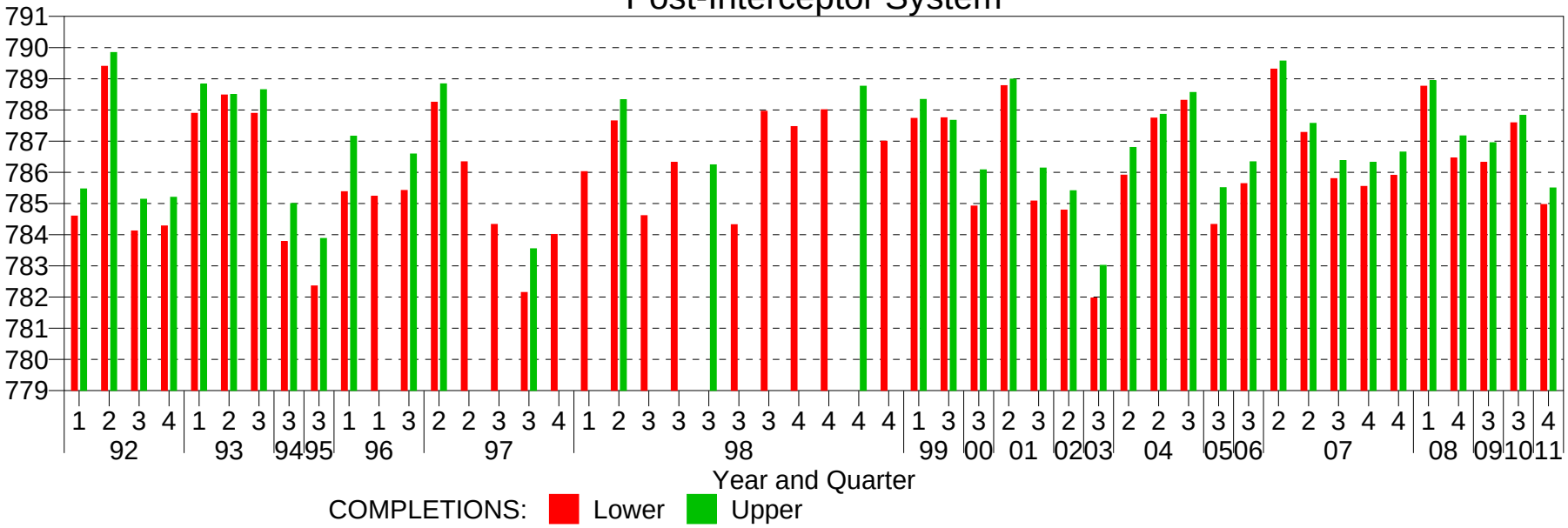


KC91-183 Water-Level Elevations, ft

Pre-Interceptor System

Not Installed

Post-Interceptor System

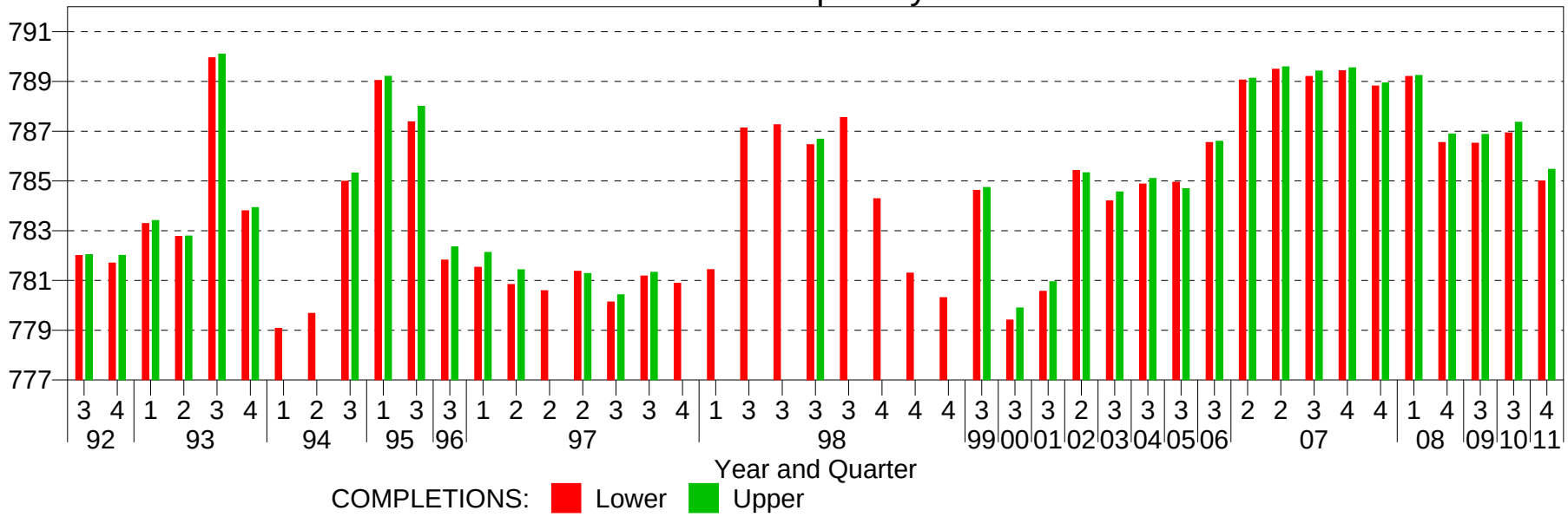


KC92-184 Water-Level Elevations, ft

Pre-Interceptor System

Not Installed

Post-Interceptor System

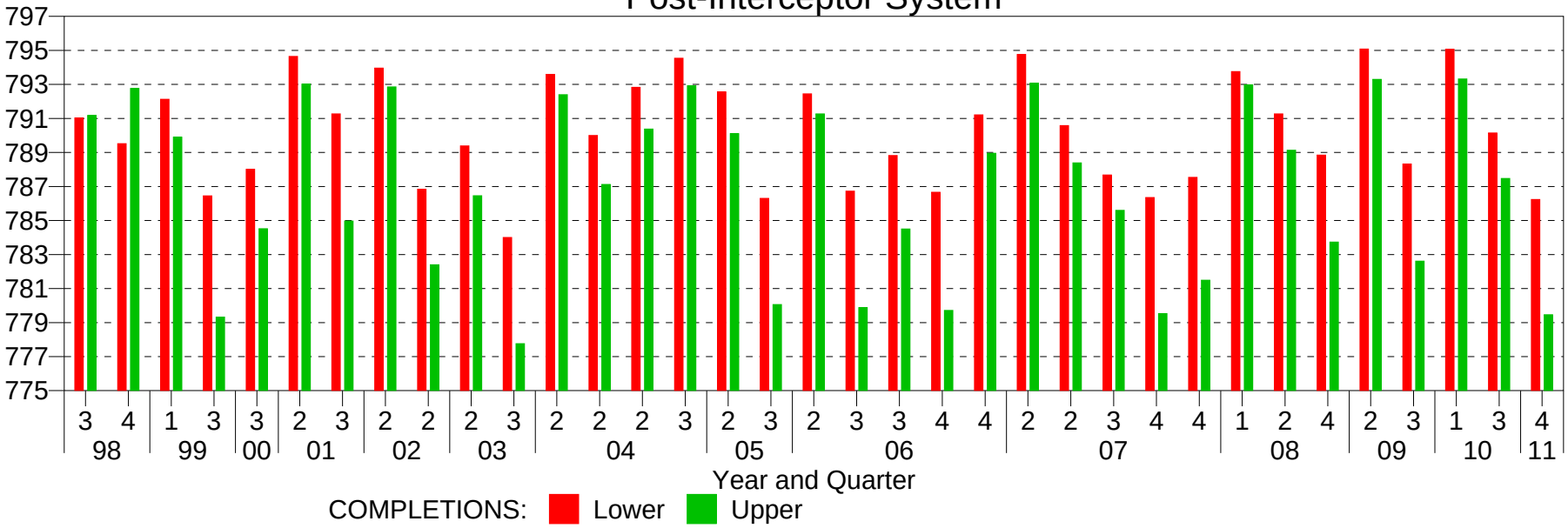


KC98-232 Water-Level Elevations, ft

Pre-Interceptor System

Not Installed

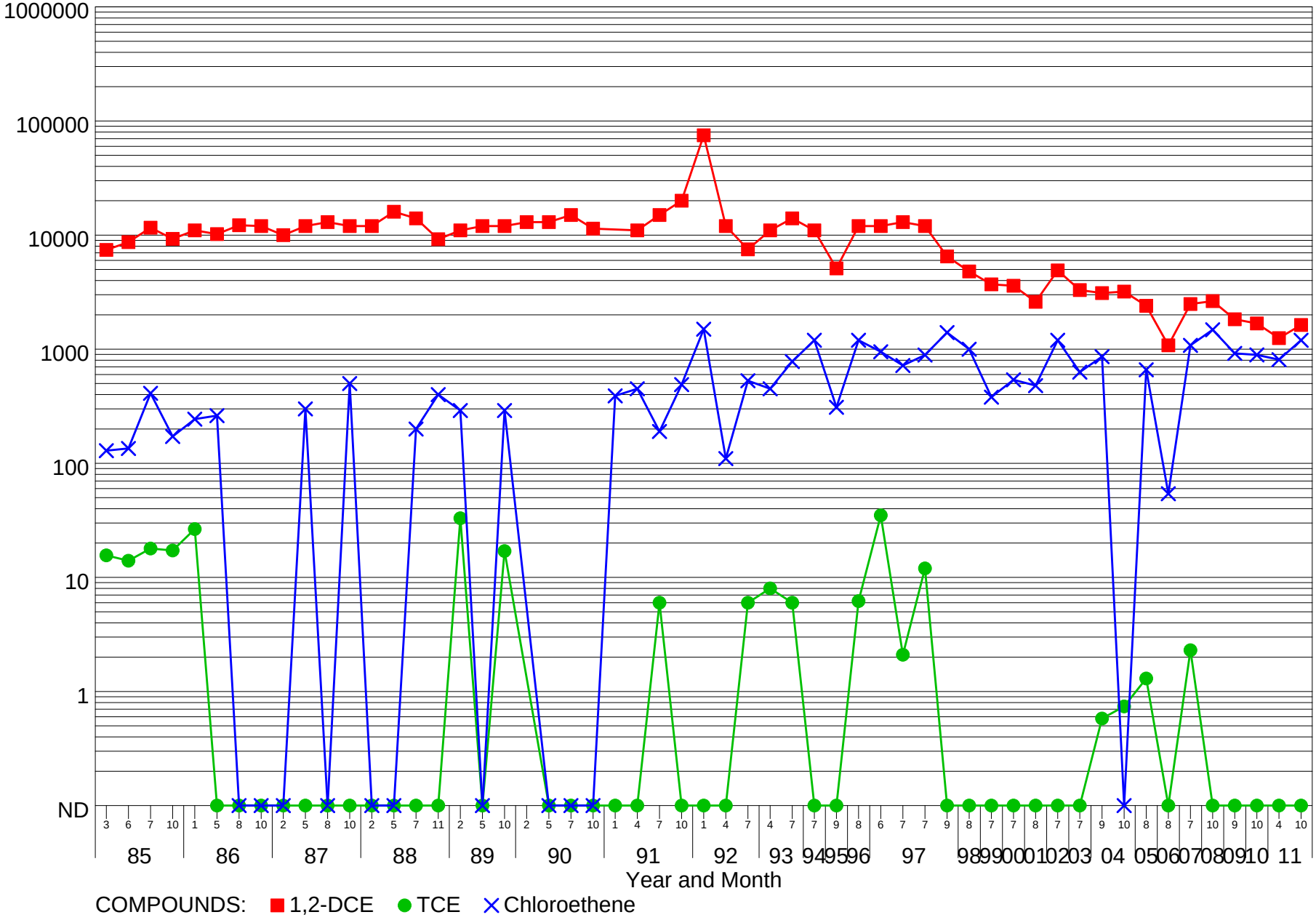
Post-Interceptor System



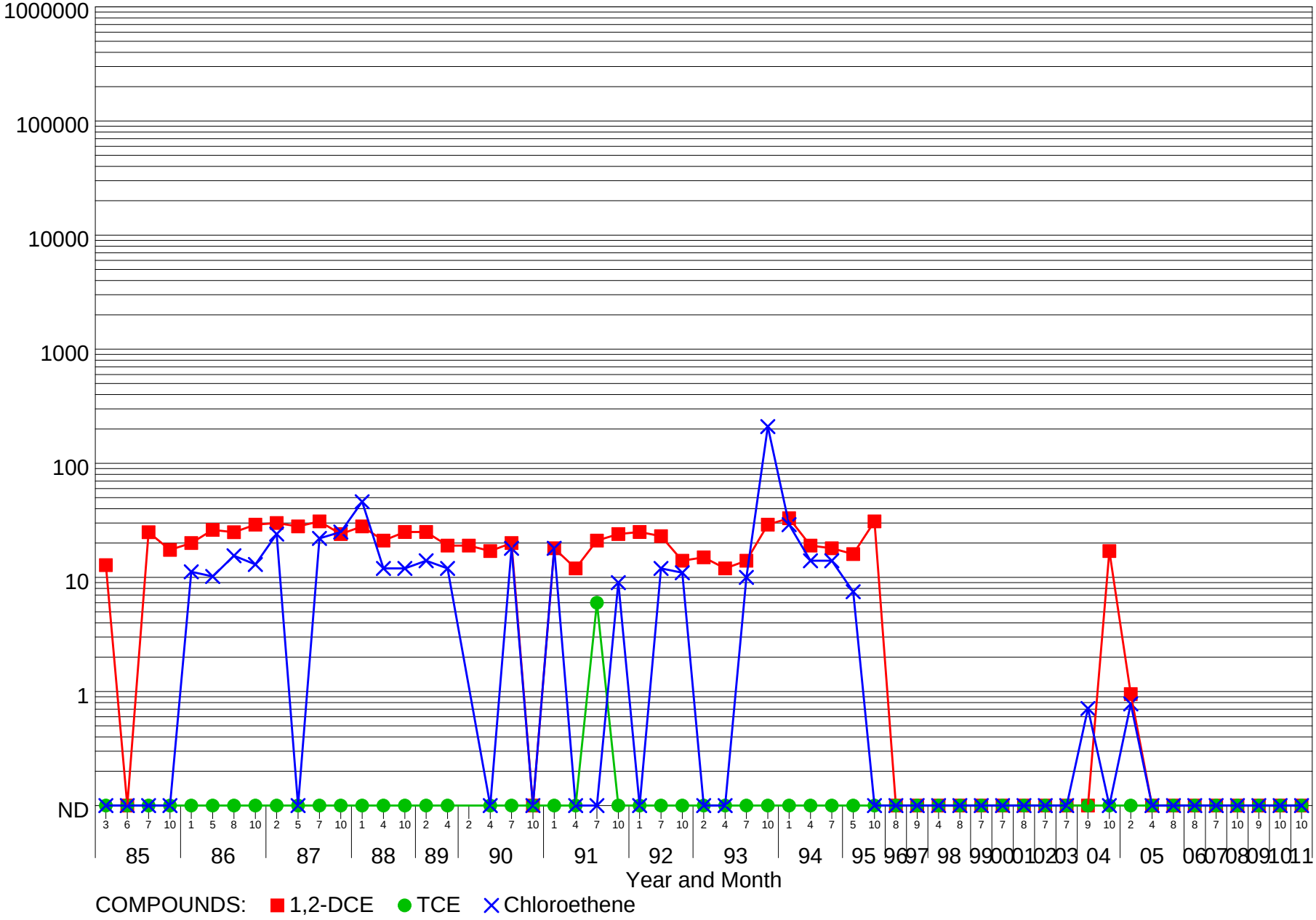
Contaminant Trend Graphs

Blue River Groundwater Flow System

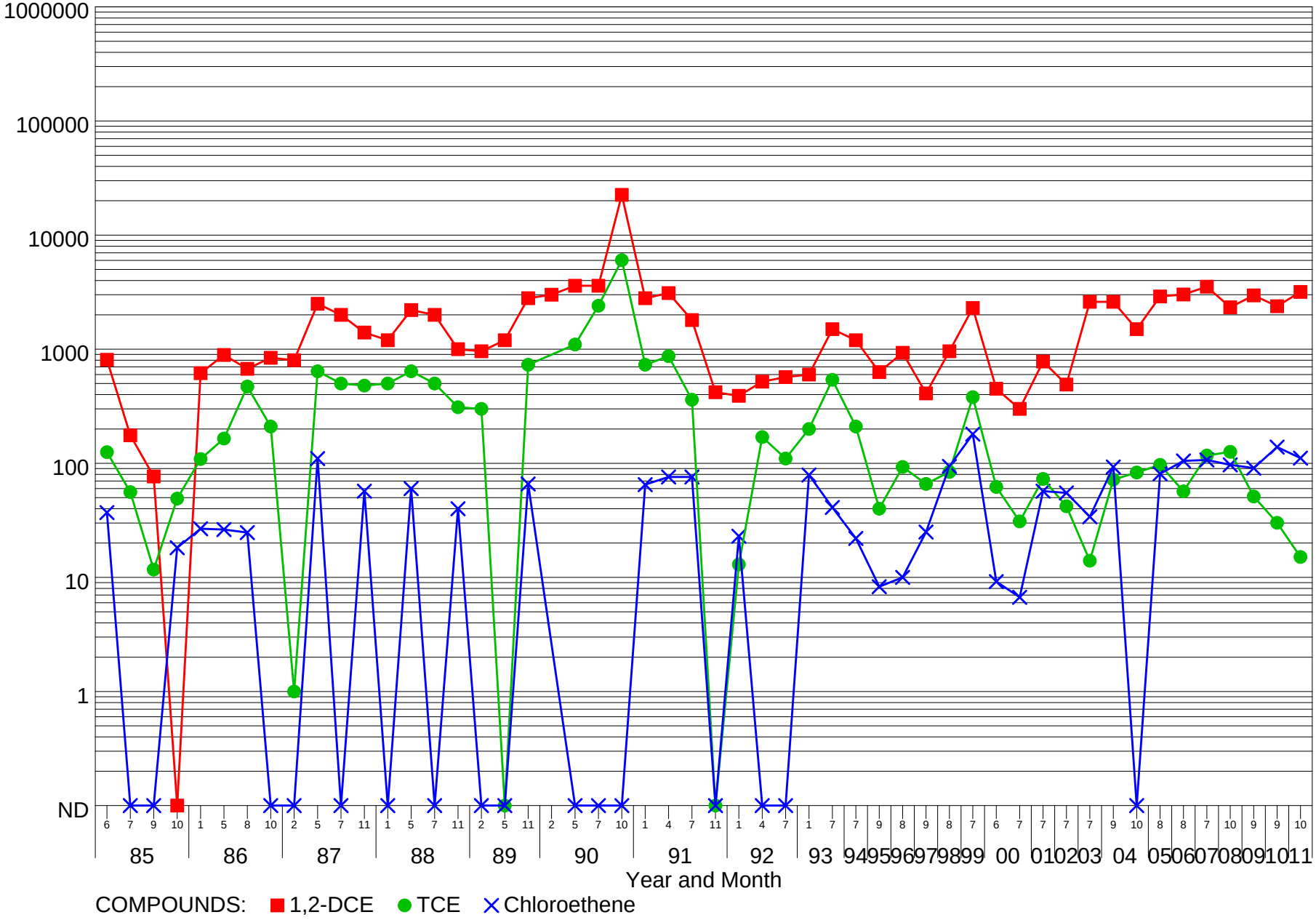
KC84-018 (L) Concentrations, ug/L



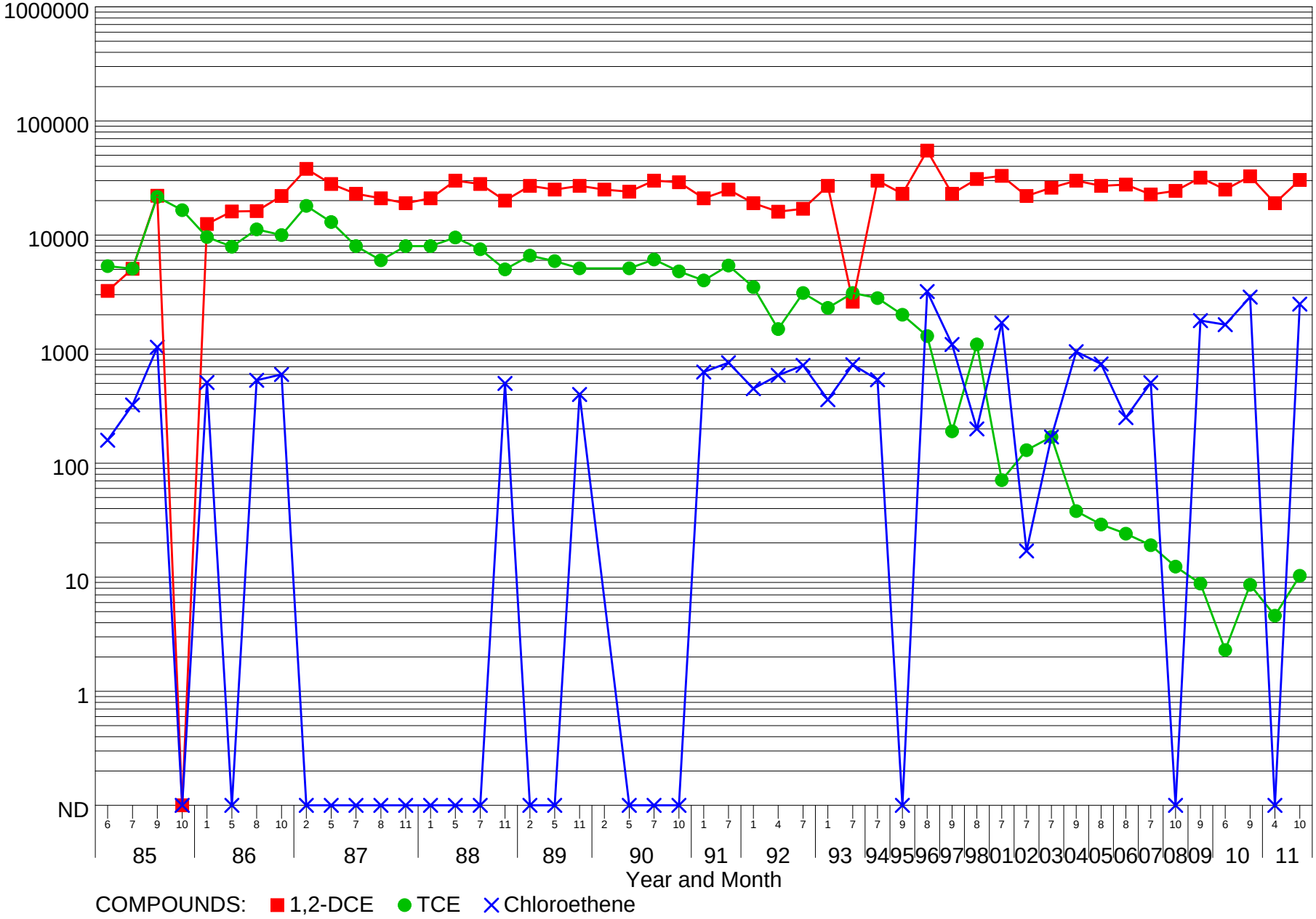
KC84-024 Concentrations, ug/L



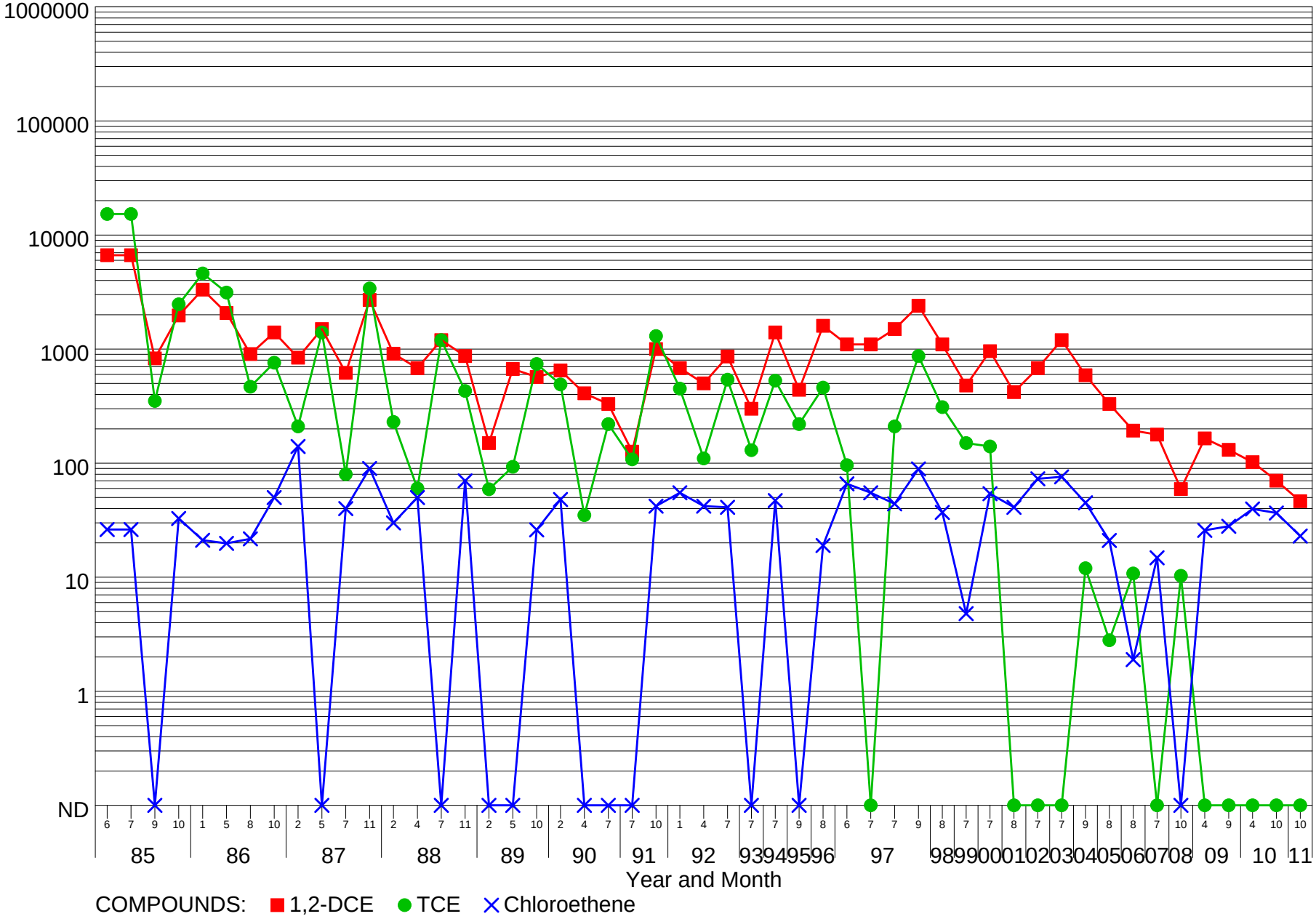
KC85-037 (L) Concentrations, ug/L



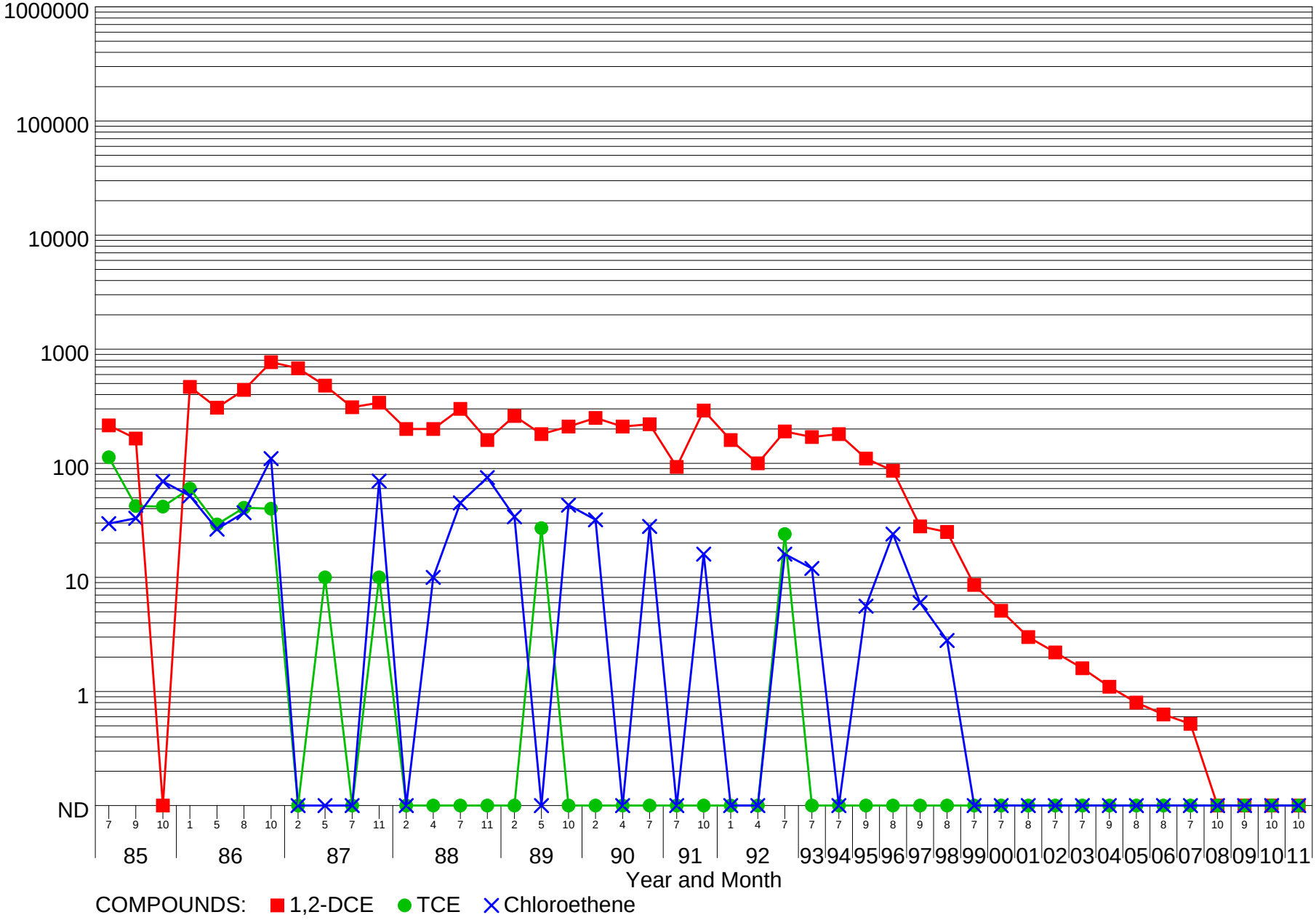
KC85-037 (U) Concentrations, ug/L



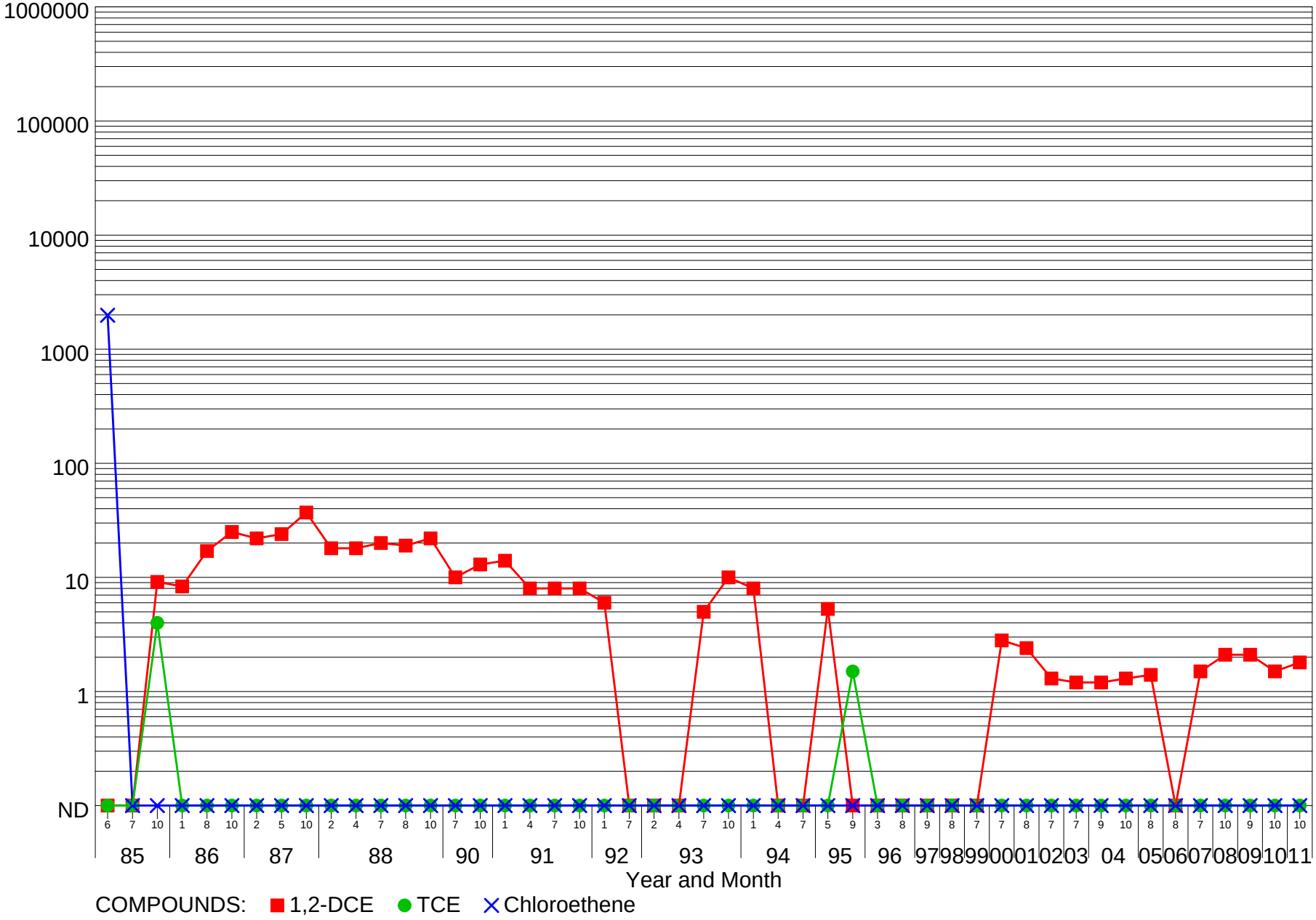
KC85-039 (L) Concentrations, ug/L



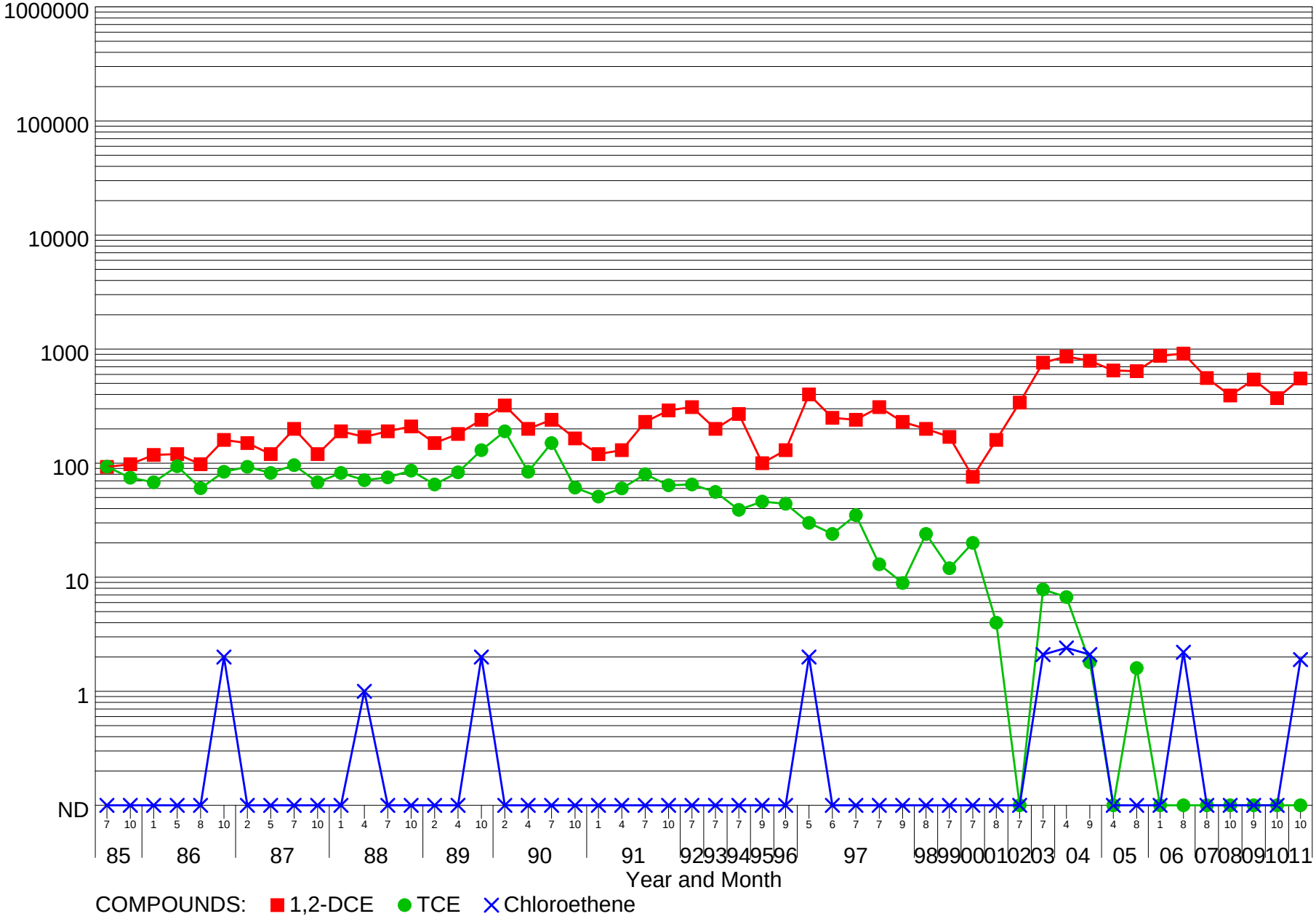
KC85-039 (U) Concentrations, ug/L



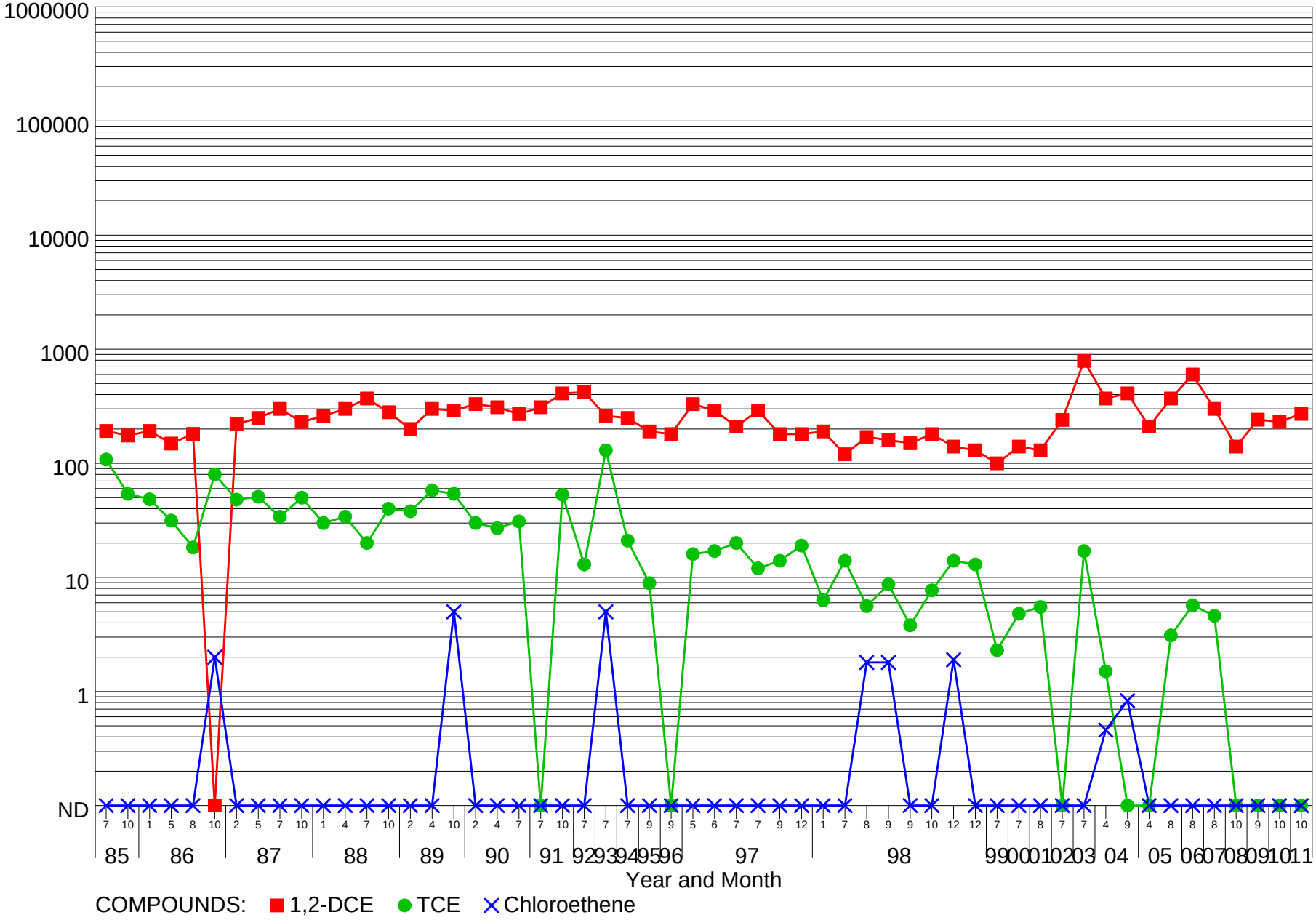
KC85-040 (L) Concentrations, ug/L



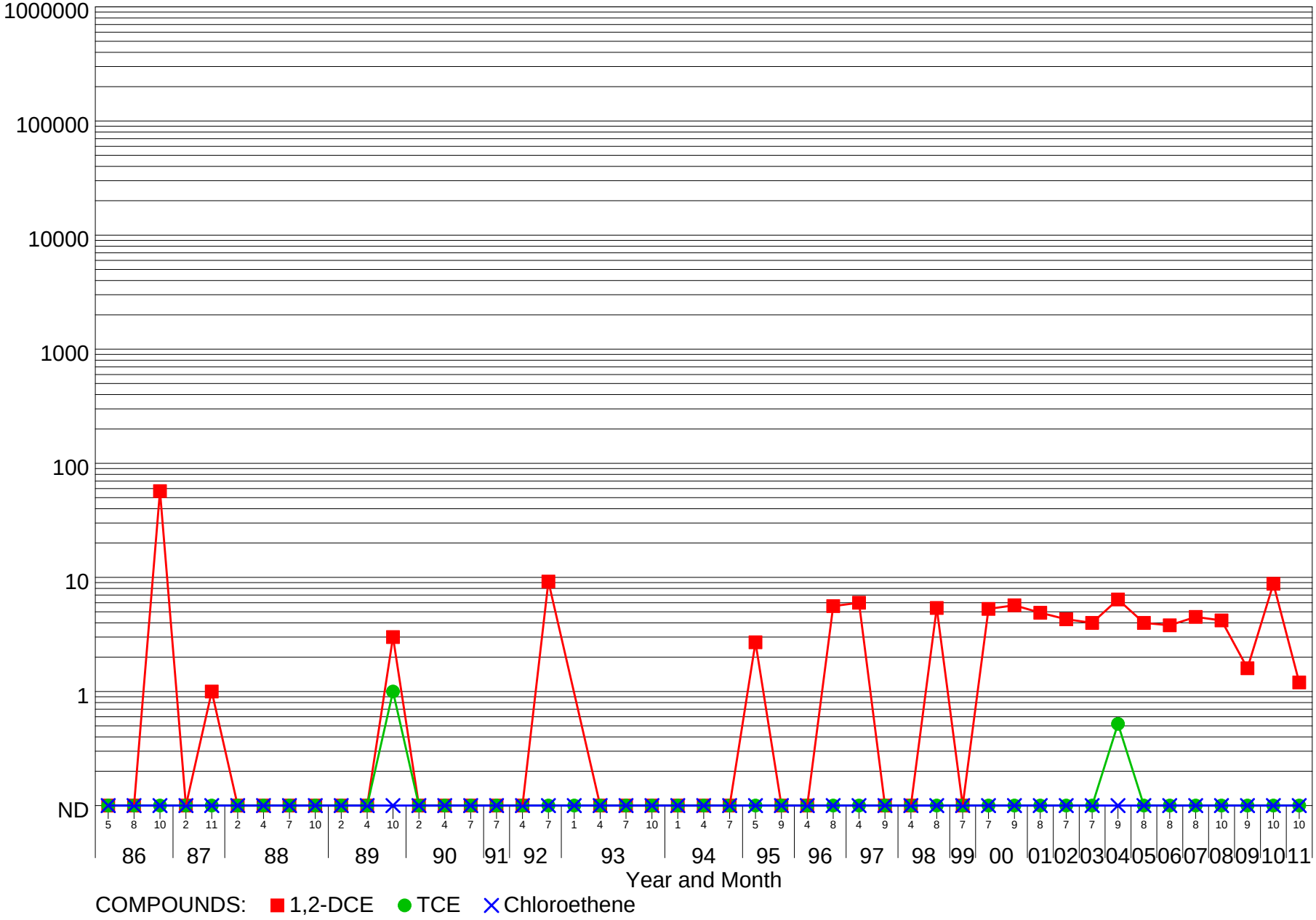
KC85-045 (L) Concentrations, ug/L



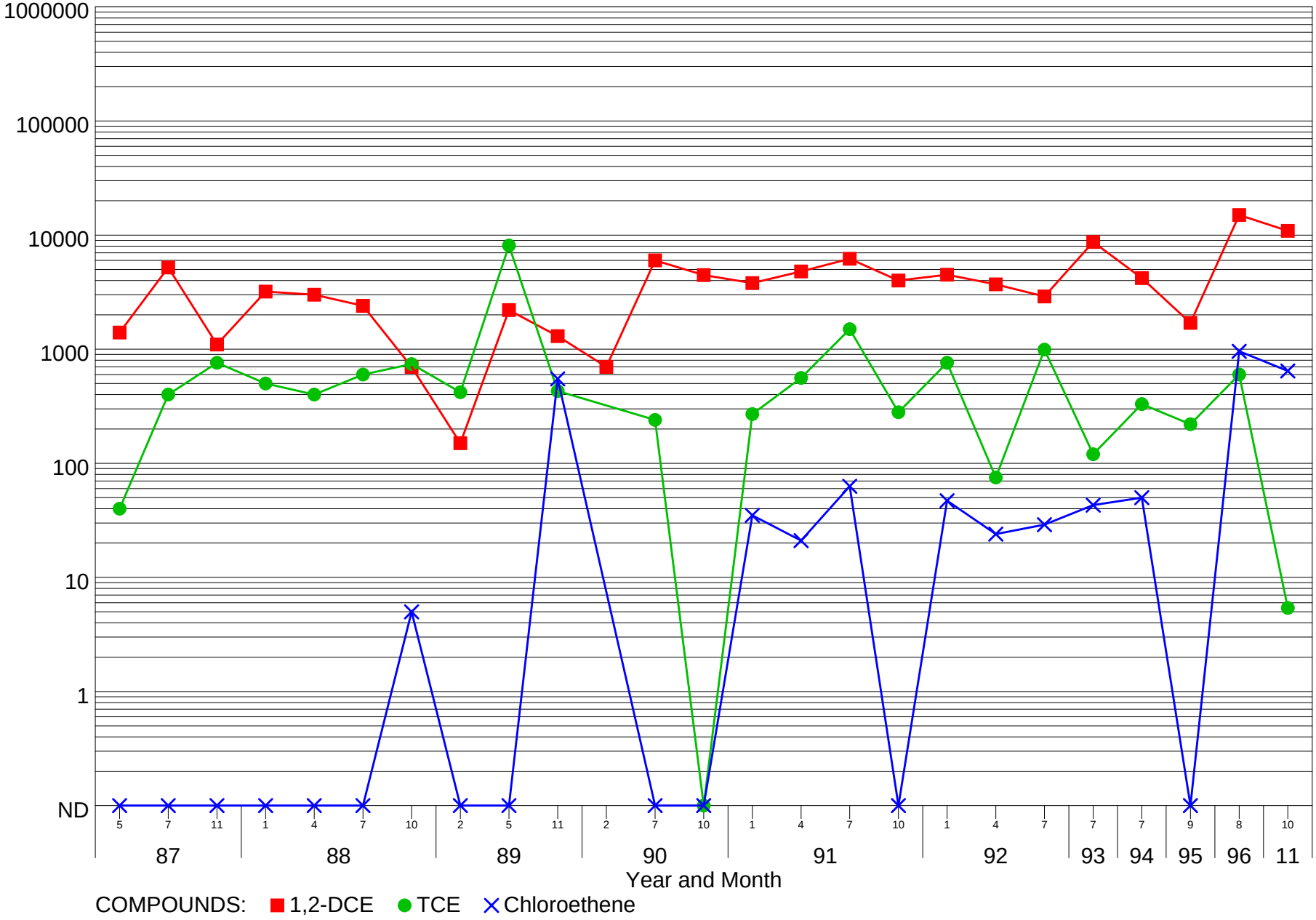
KC85-045 (U) Concentrations, ug/L



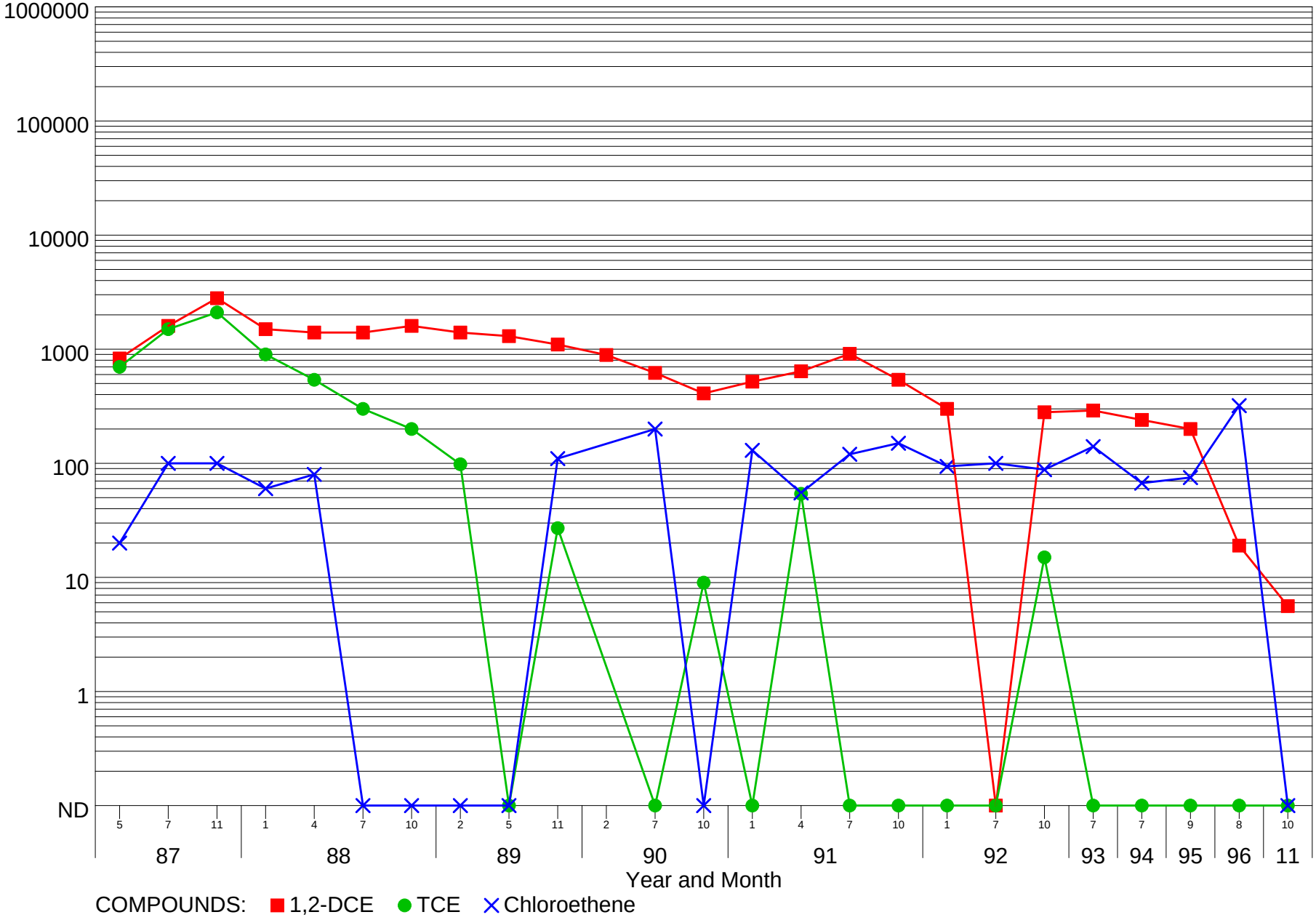
KC86-051 (U) Concentrations, ug/L



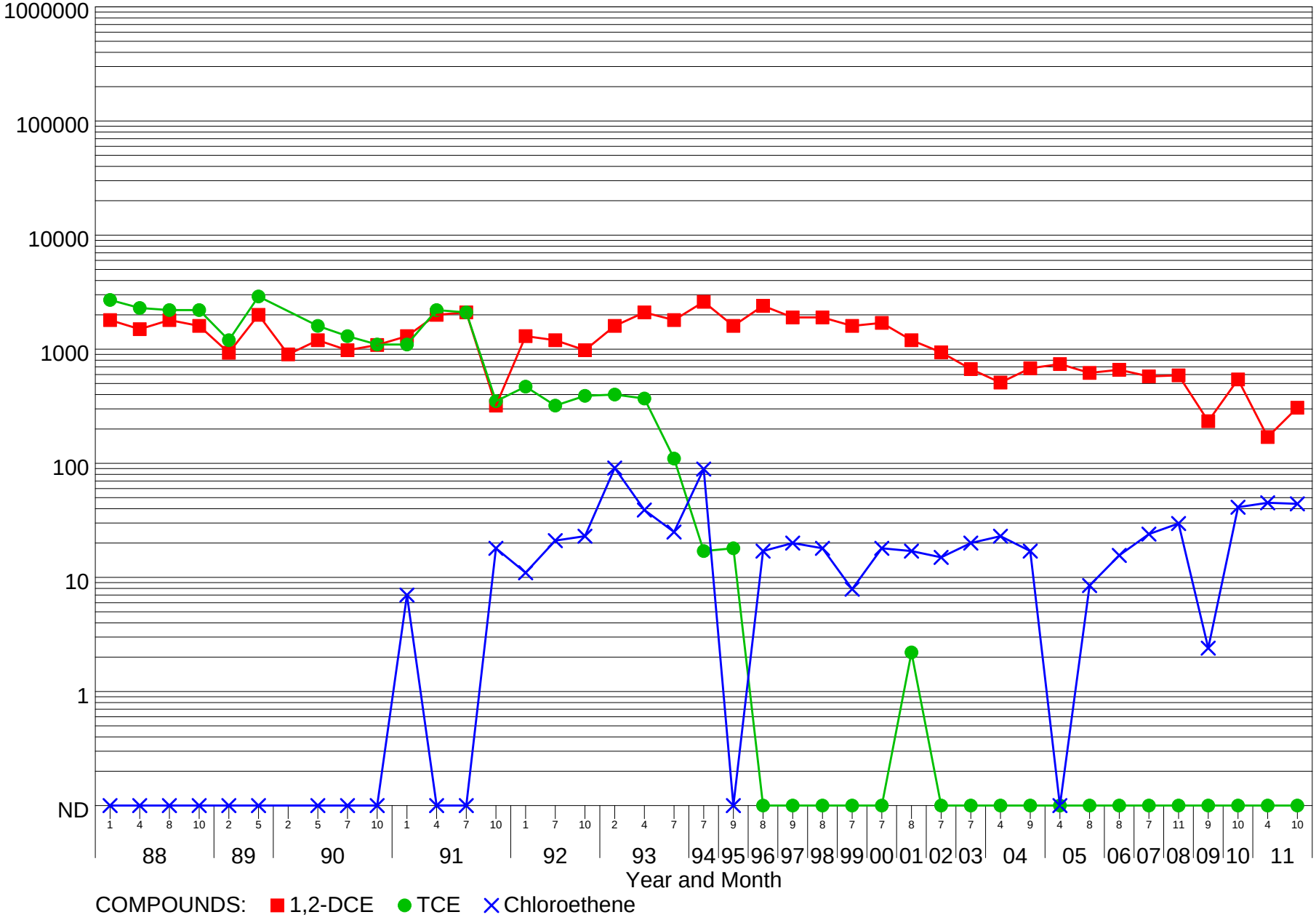
KC87-067 (L) Concentrations, ug/L



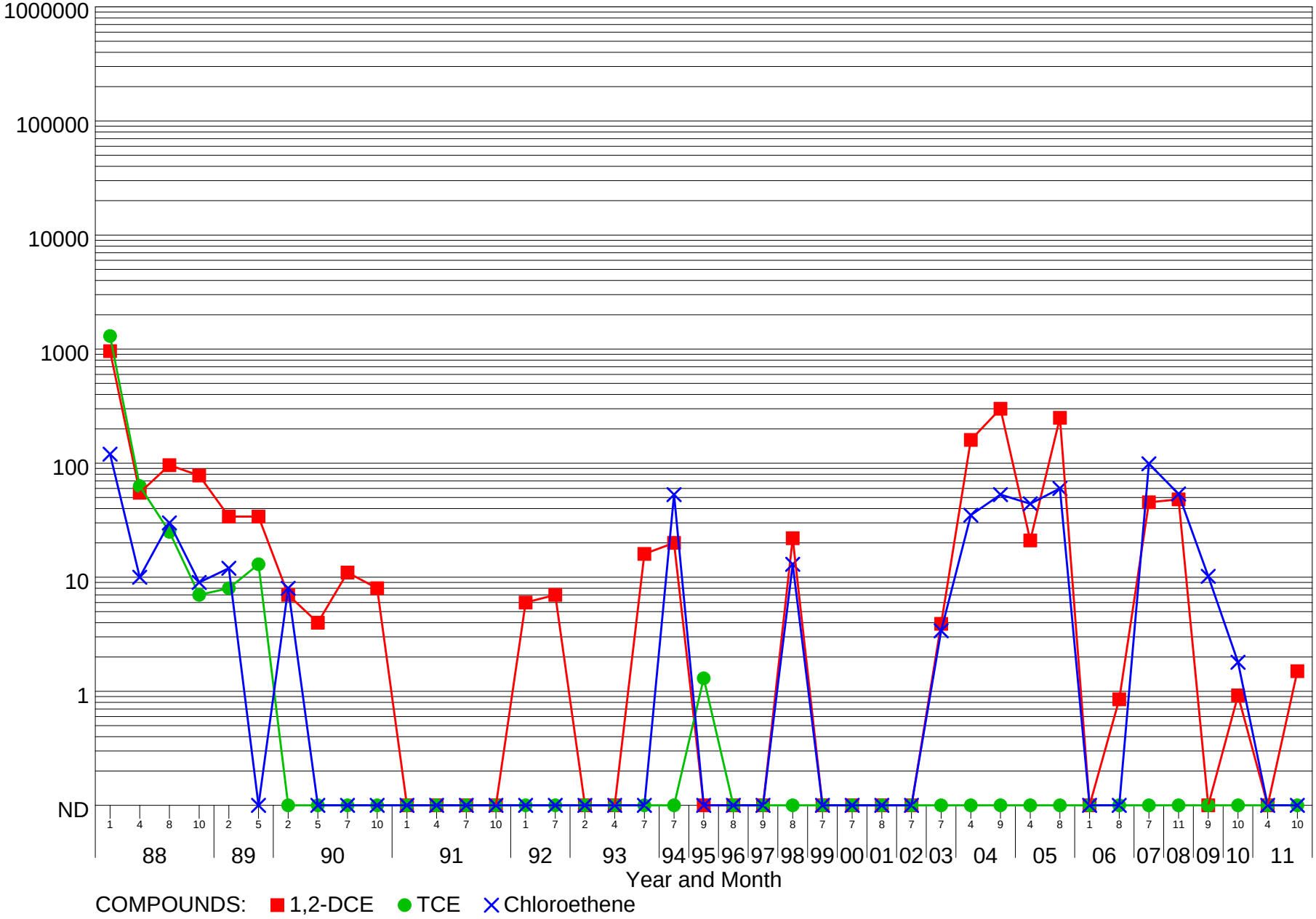
KC87-067 (U) Concentrations, ug/L



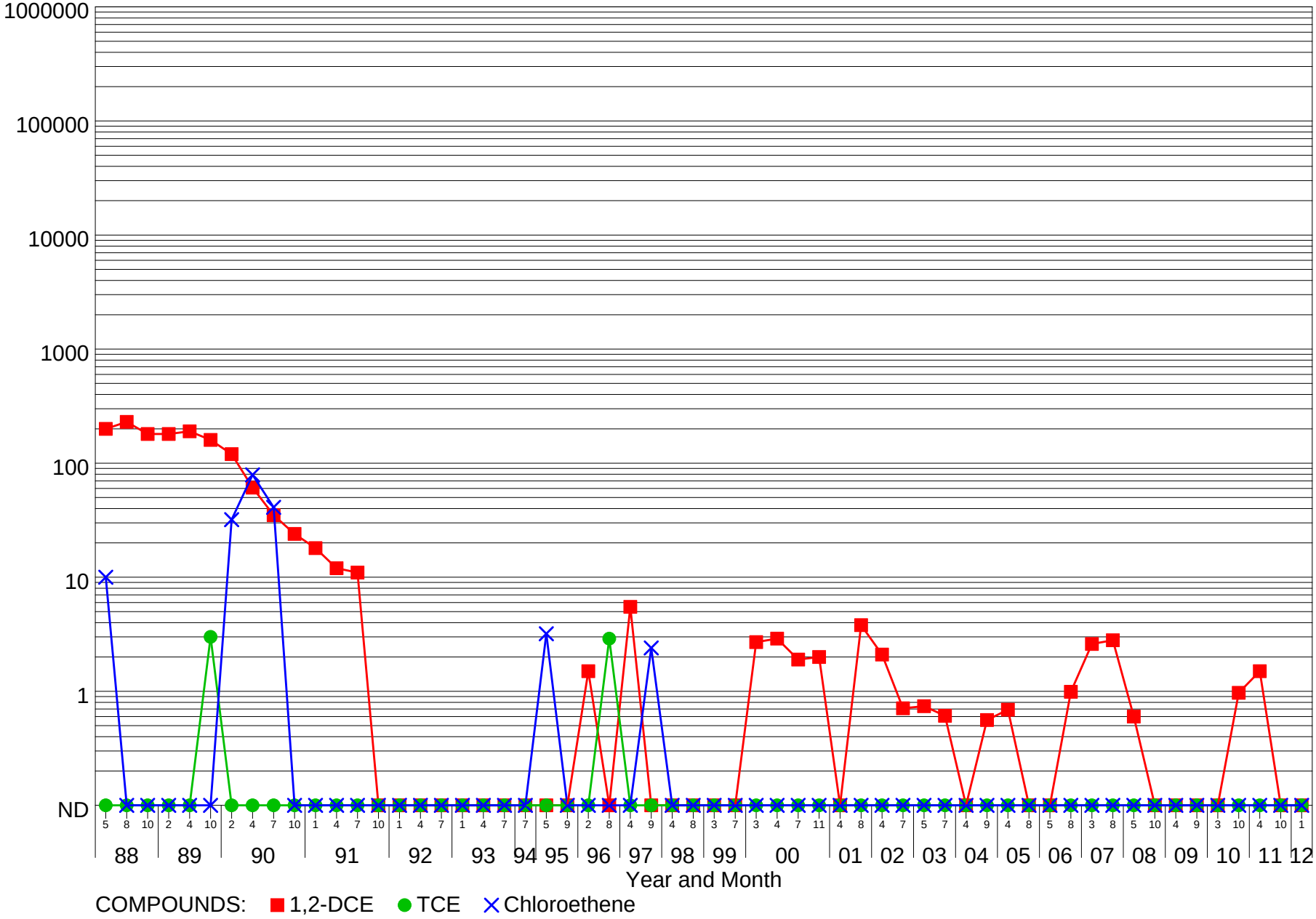
KC88-077 (L) Concentrations, ug/L



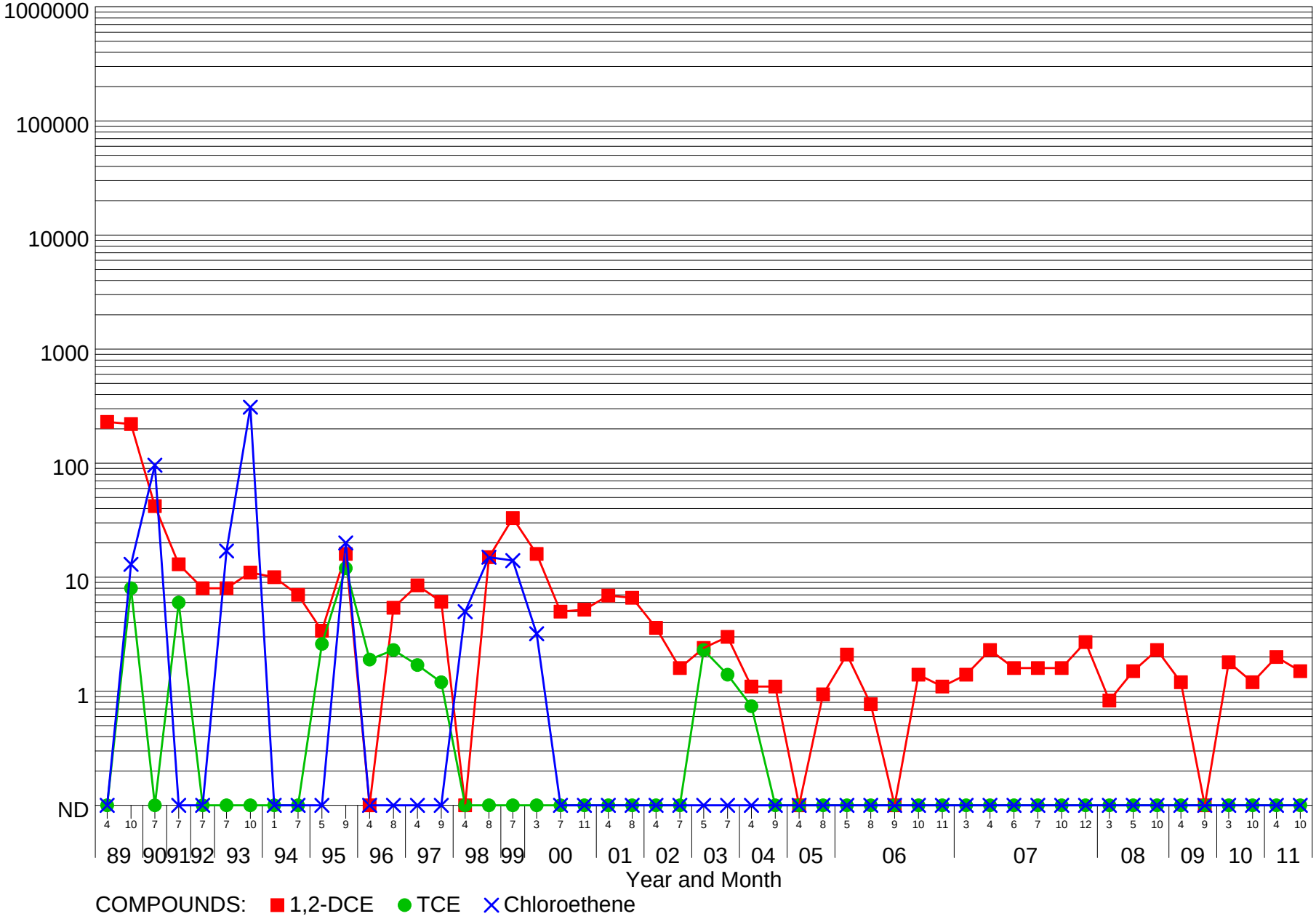
KC88-077 (U) Concentrations, ug/L



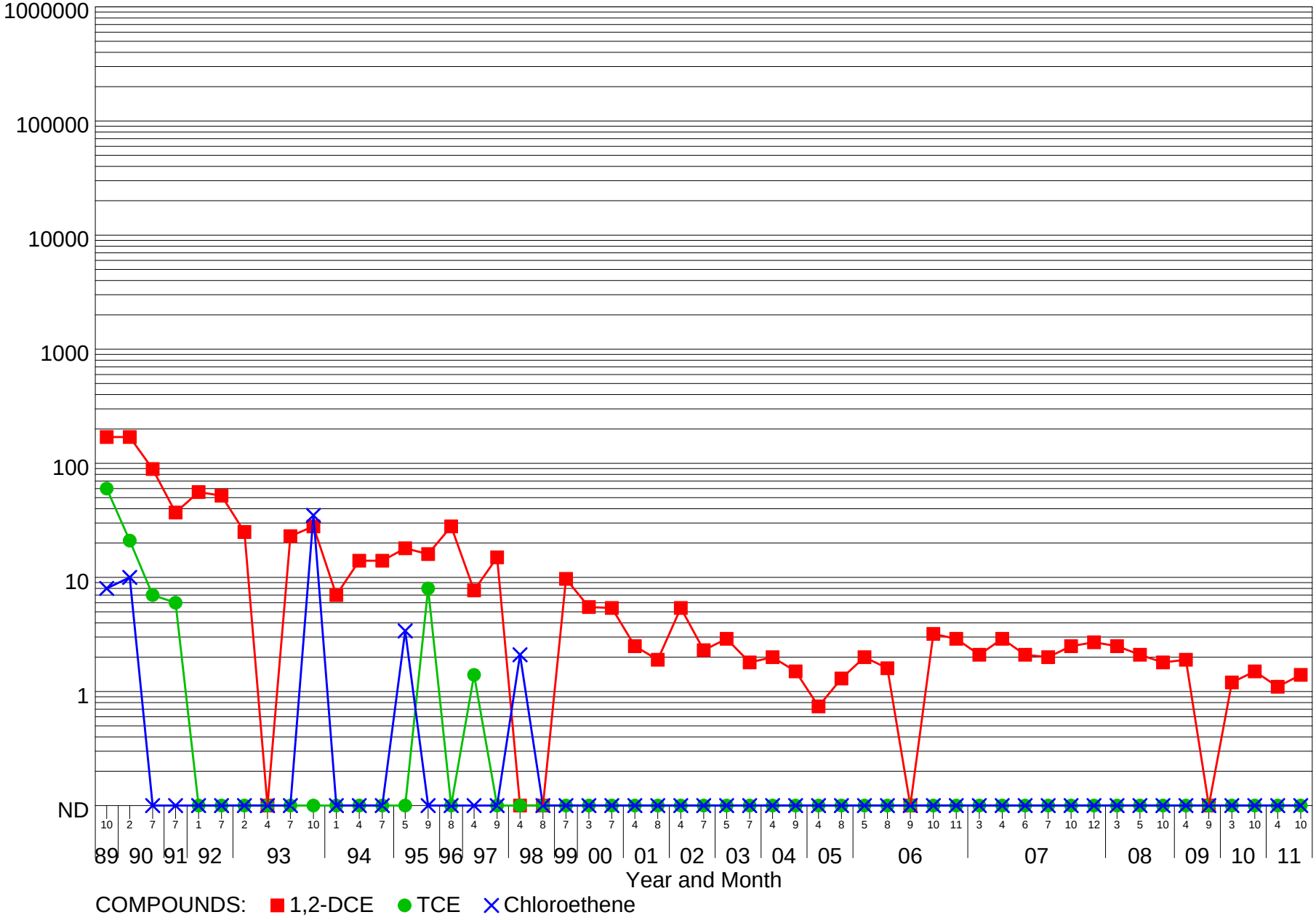
KC88-083 (L) Concentrations, ug/L



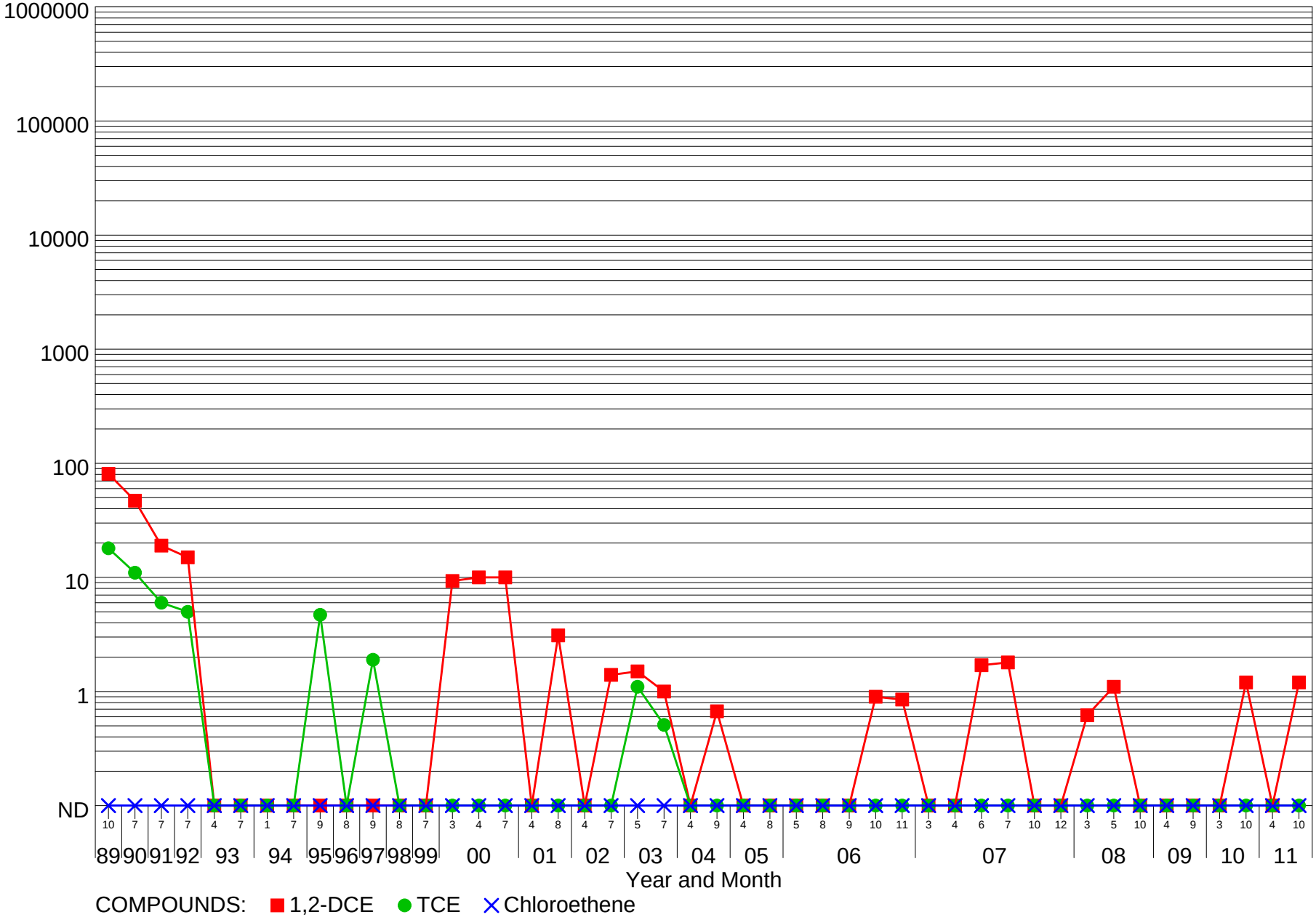
KC89-105 Concentrations, ug/L



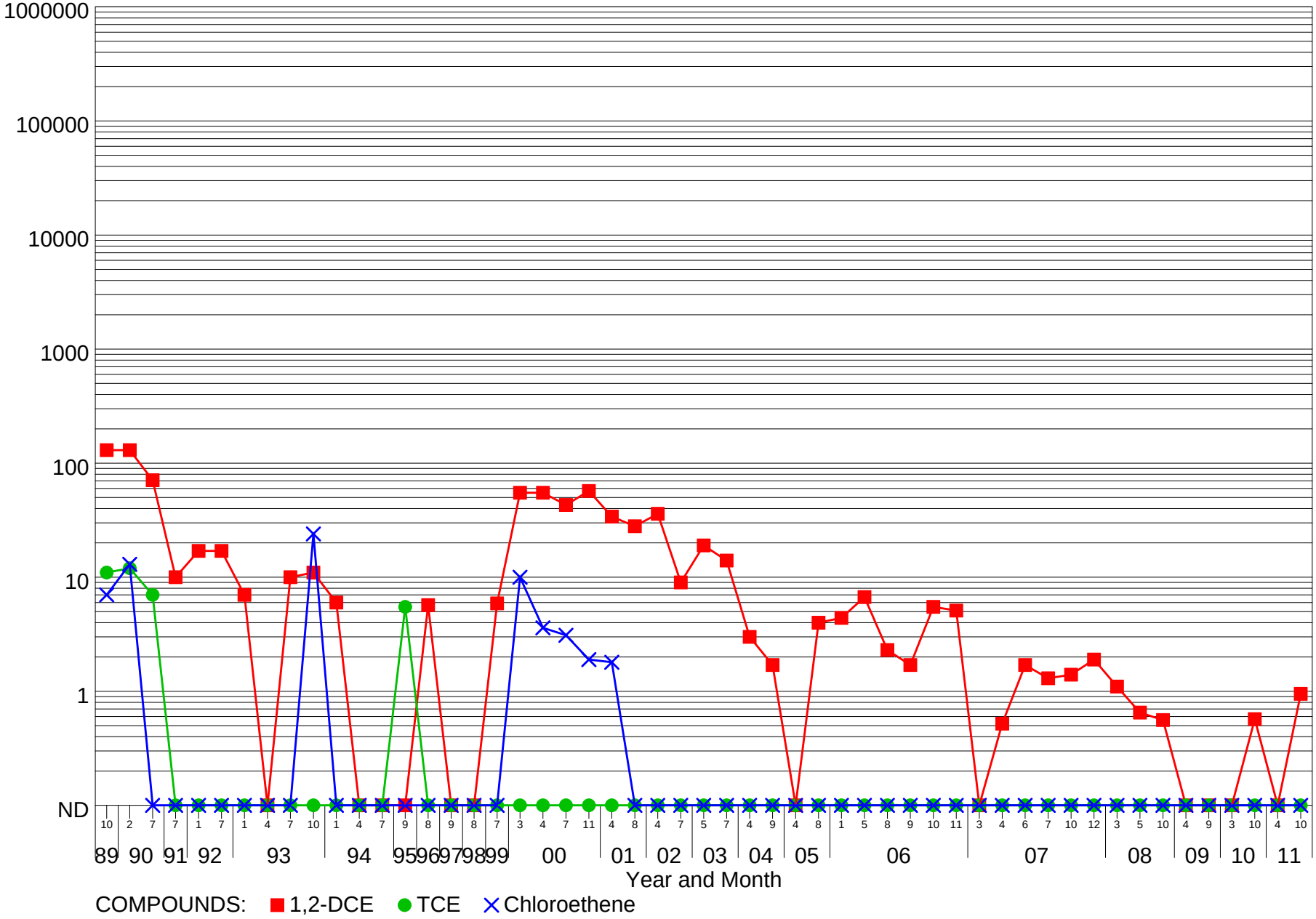
KC89-119 Concentrations, ug/L



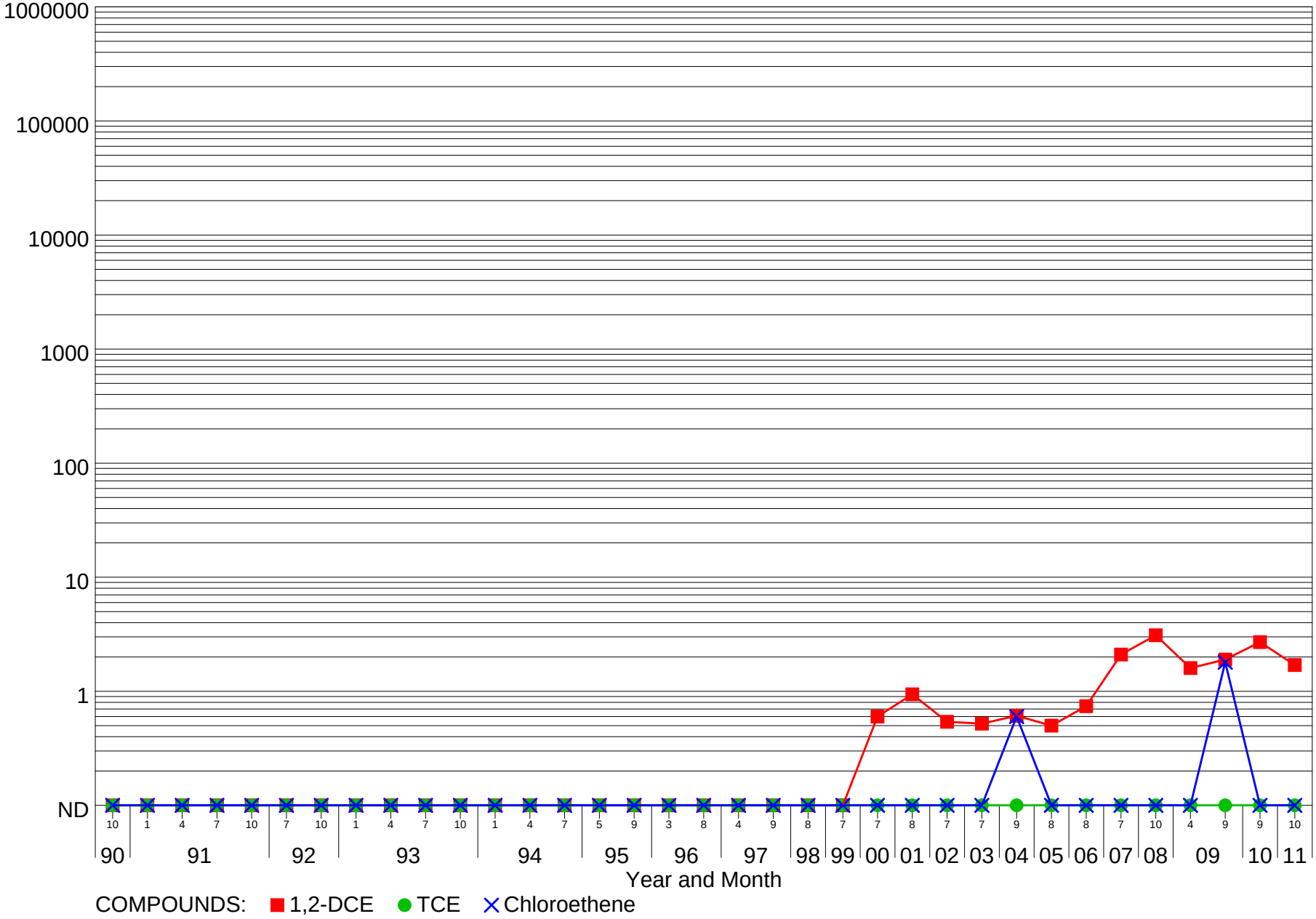
KC89-120 Concentrations, ug/L



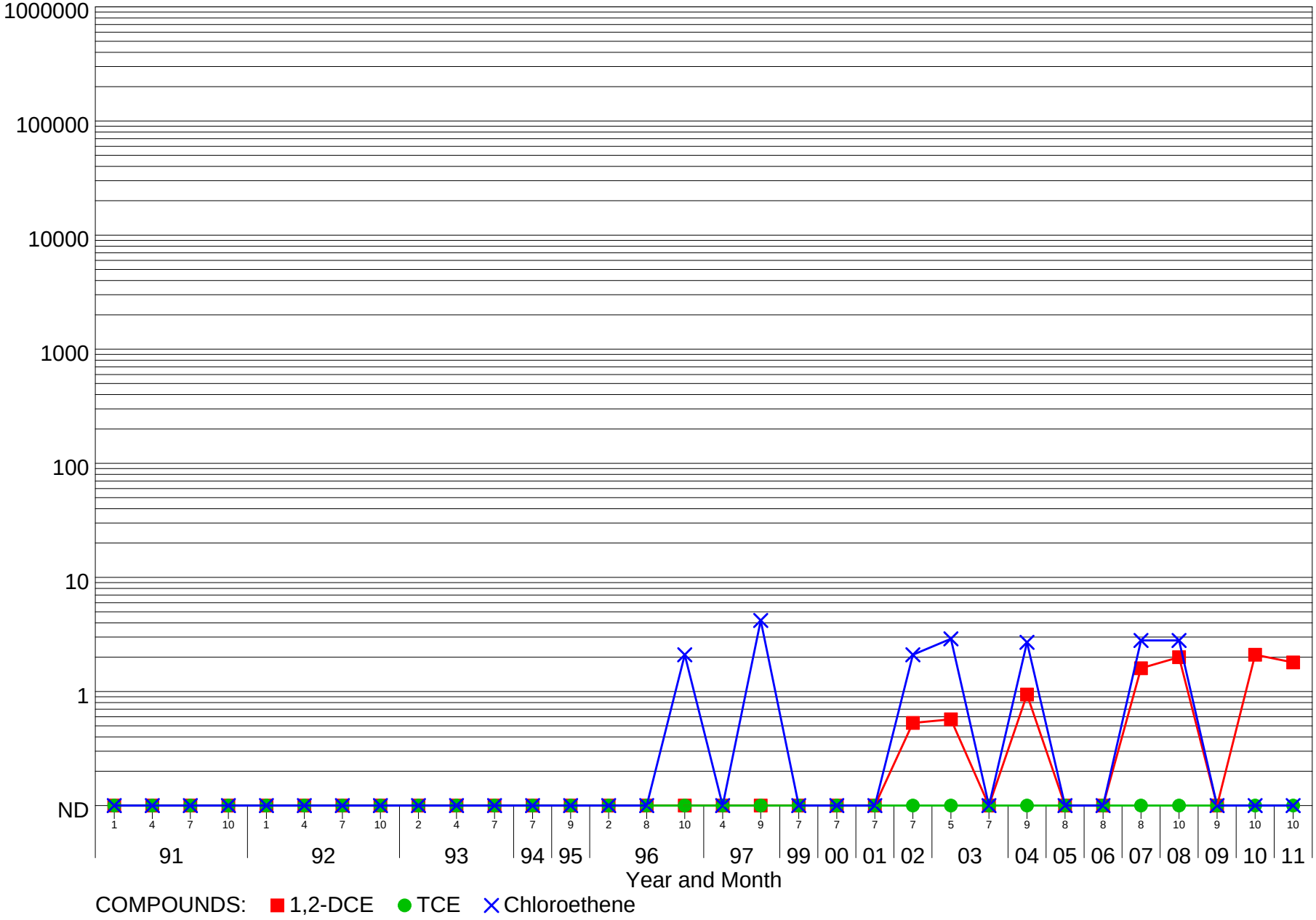
KC89-121 Concentrations, ug/L



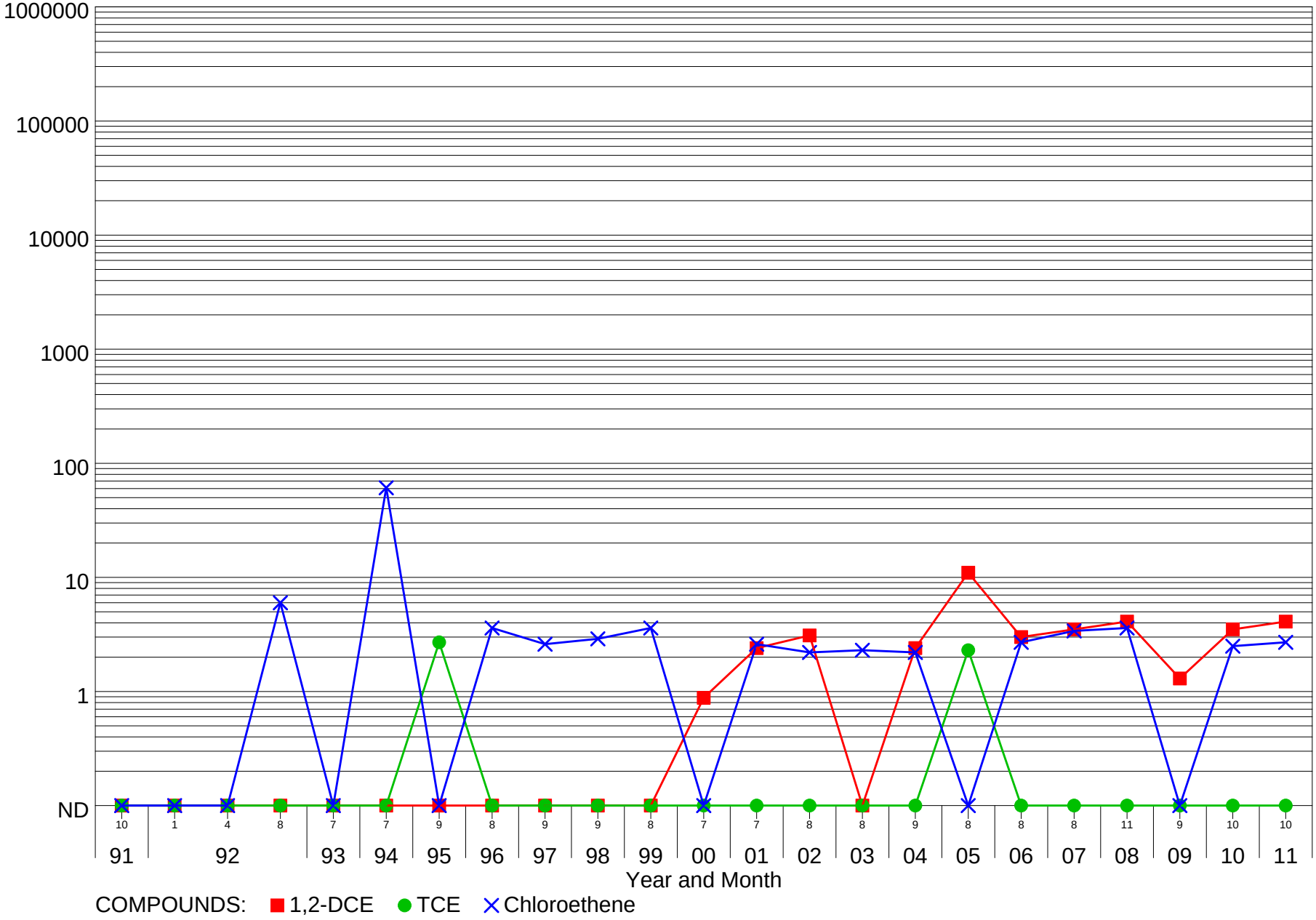
KC90-137 (L) Concentrations, ug/L



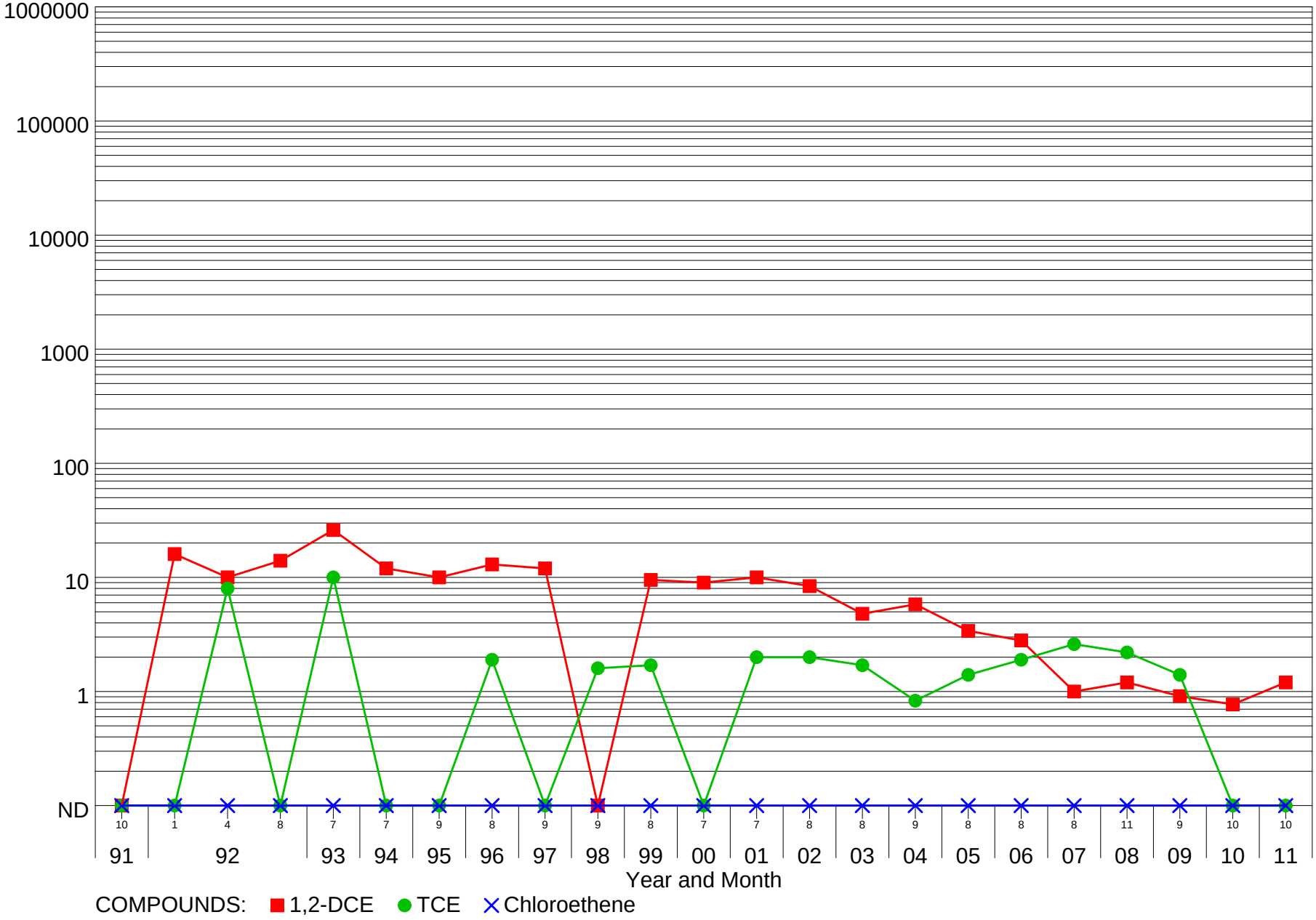
KC90-143 (L) Concentrations, ug/L



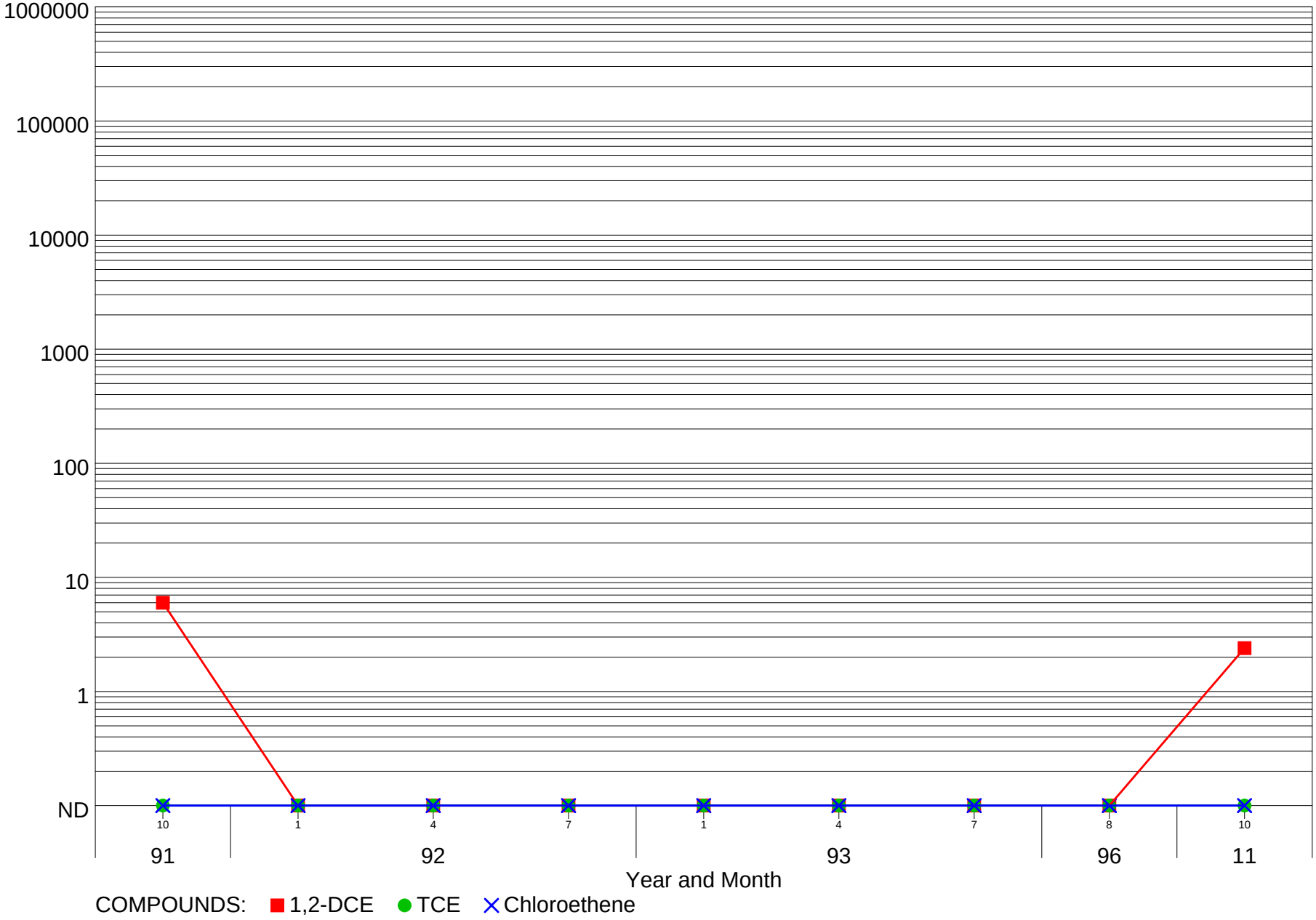
KC91-157 (L) Concentrations, ug/L



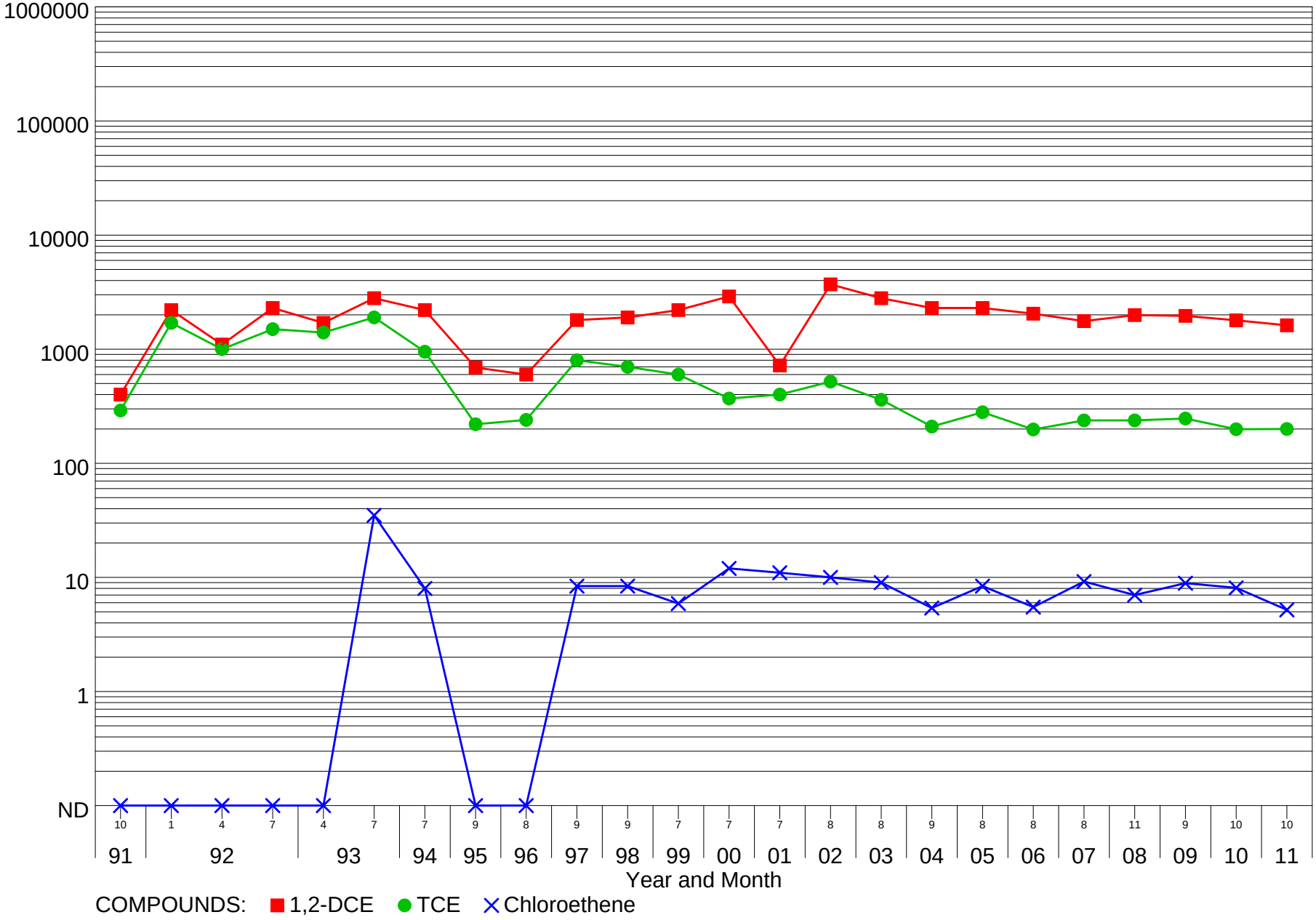
KC91-157 (U) Concentrations, ug/L



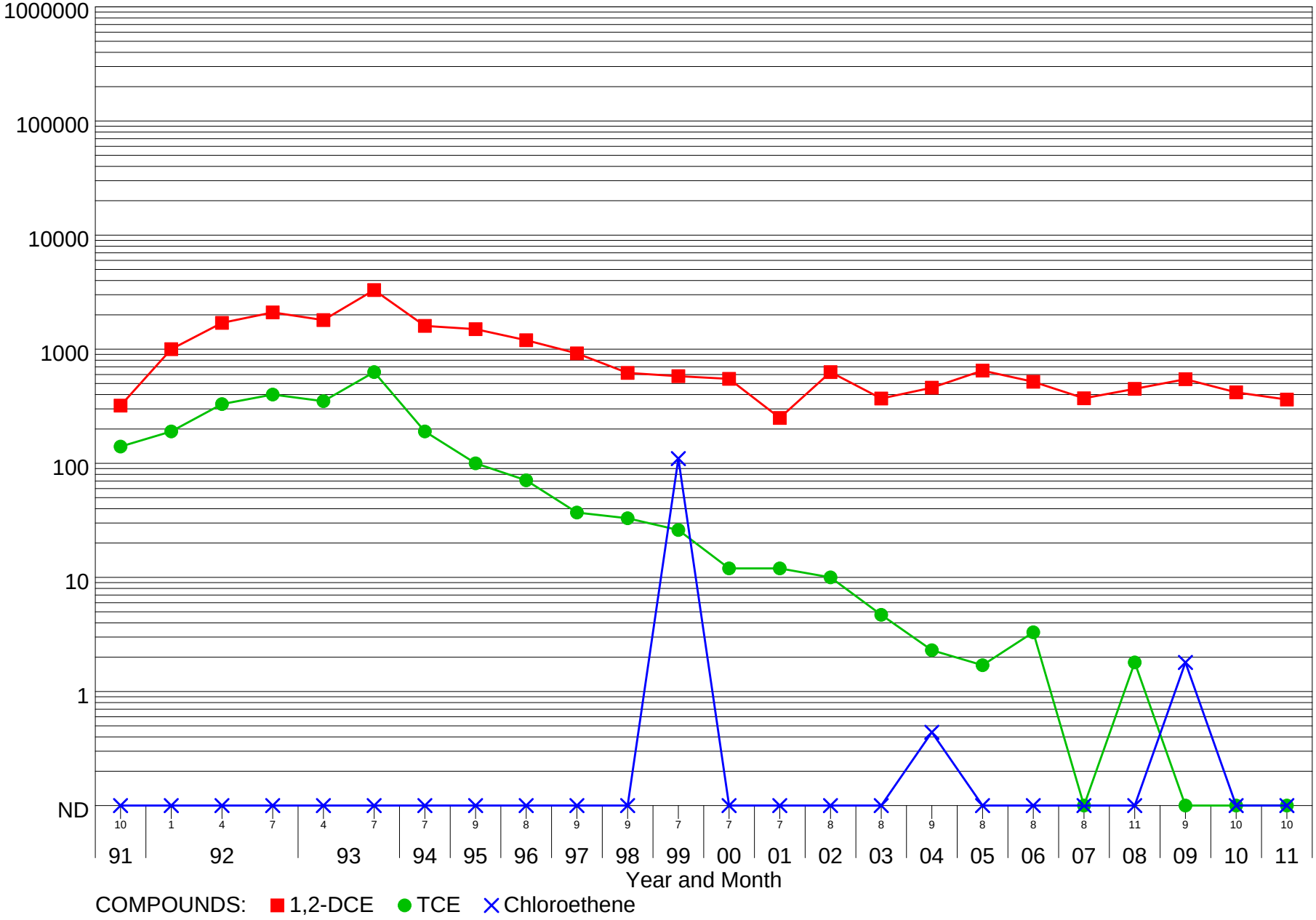
KC91-158 (L) Concentrations, ug/L



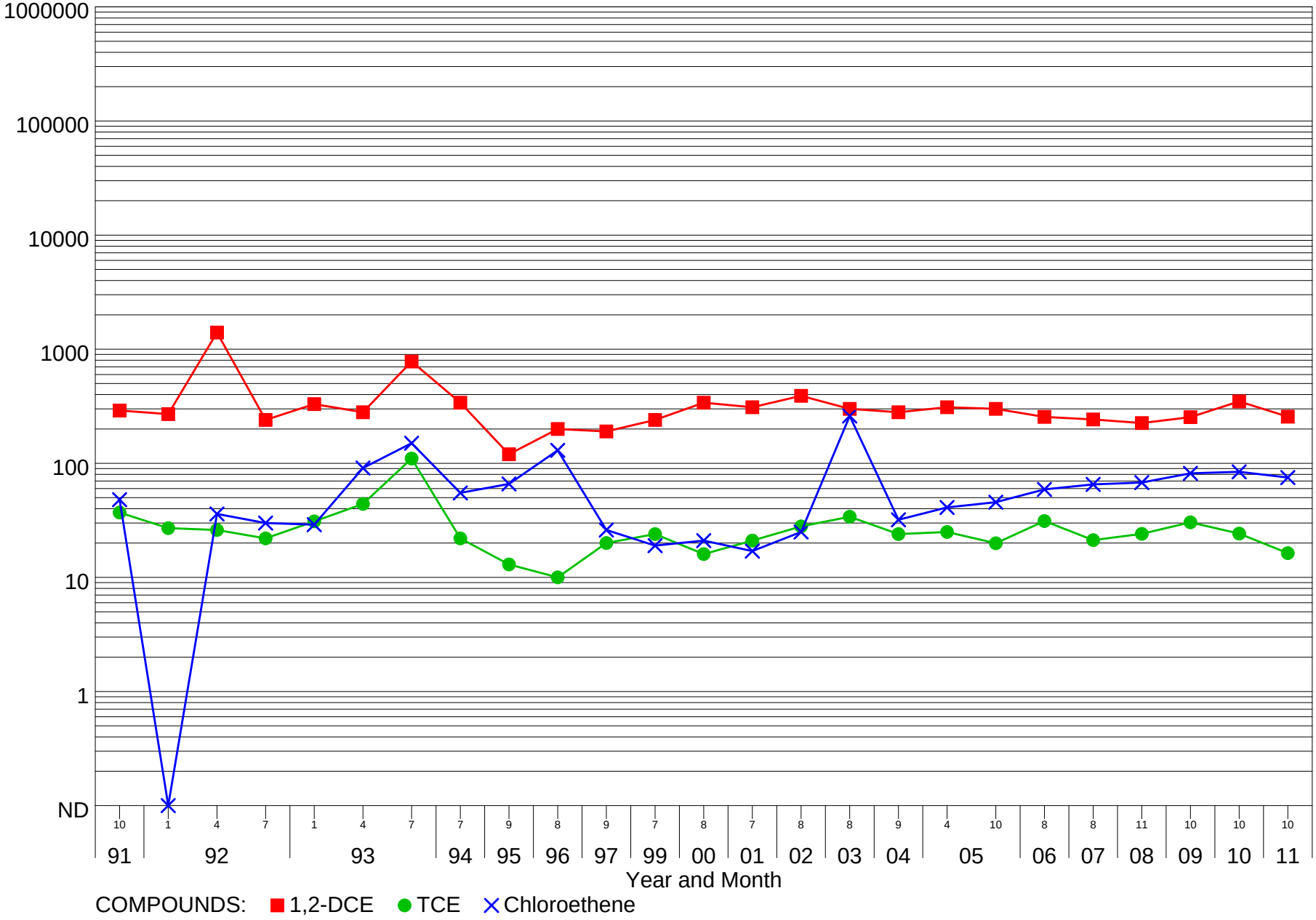
KC91-160 (L) Concentrations, ug/L



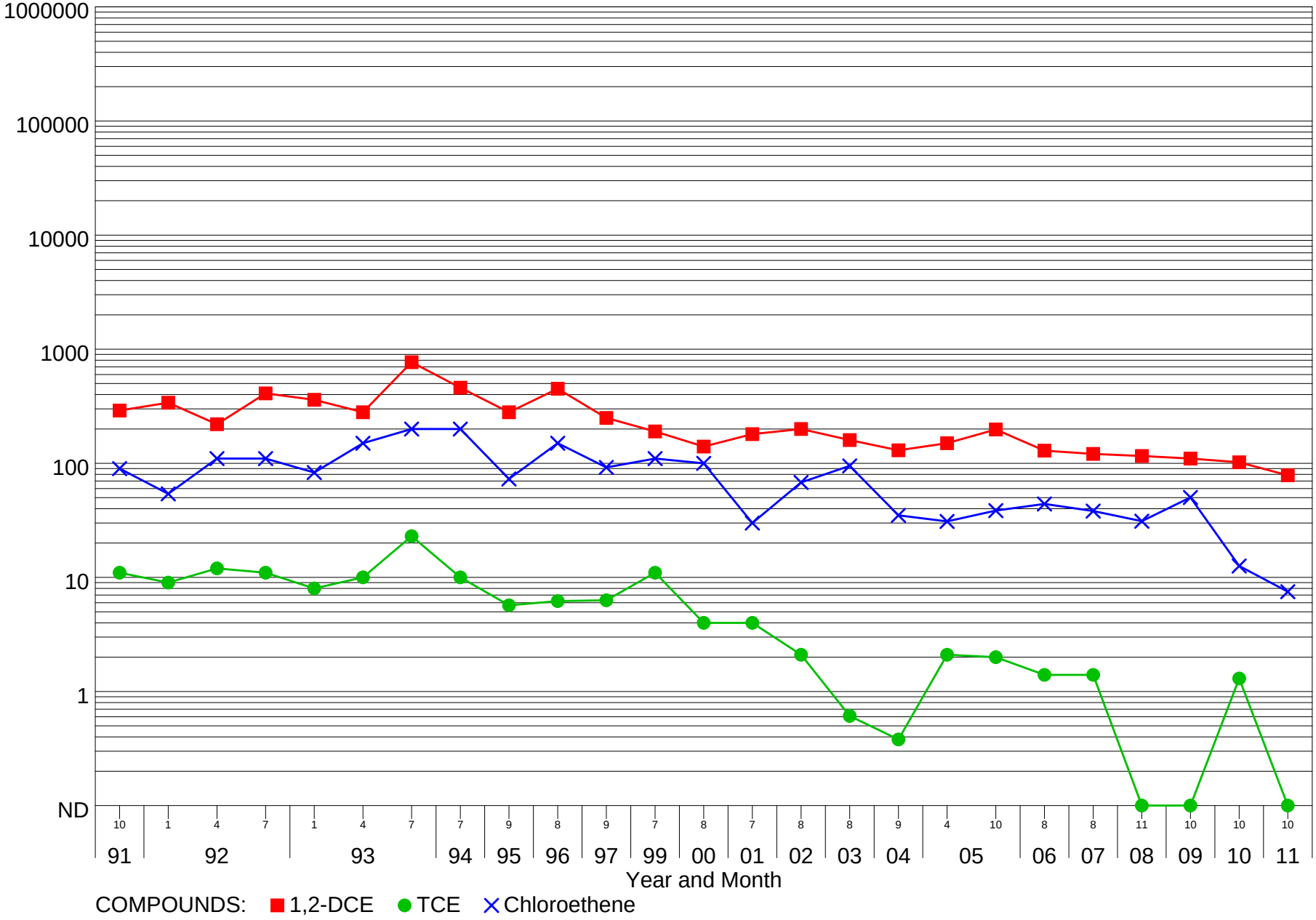
KC91-160 (U) Concentrations, ug/L



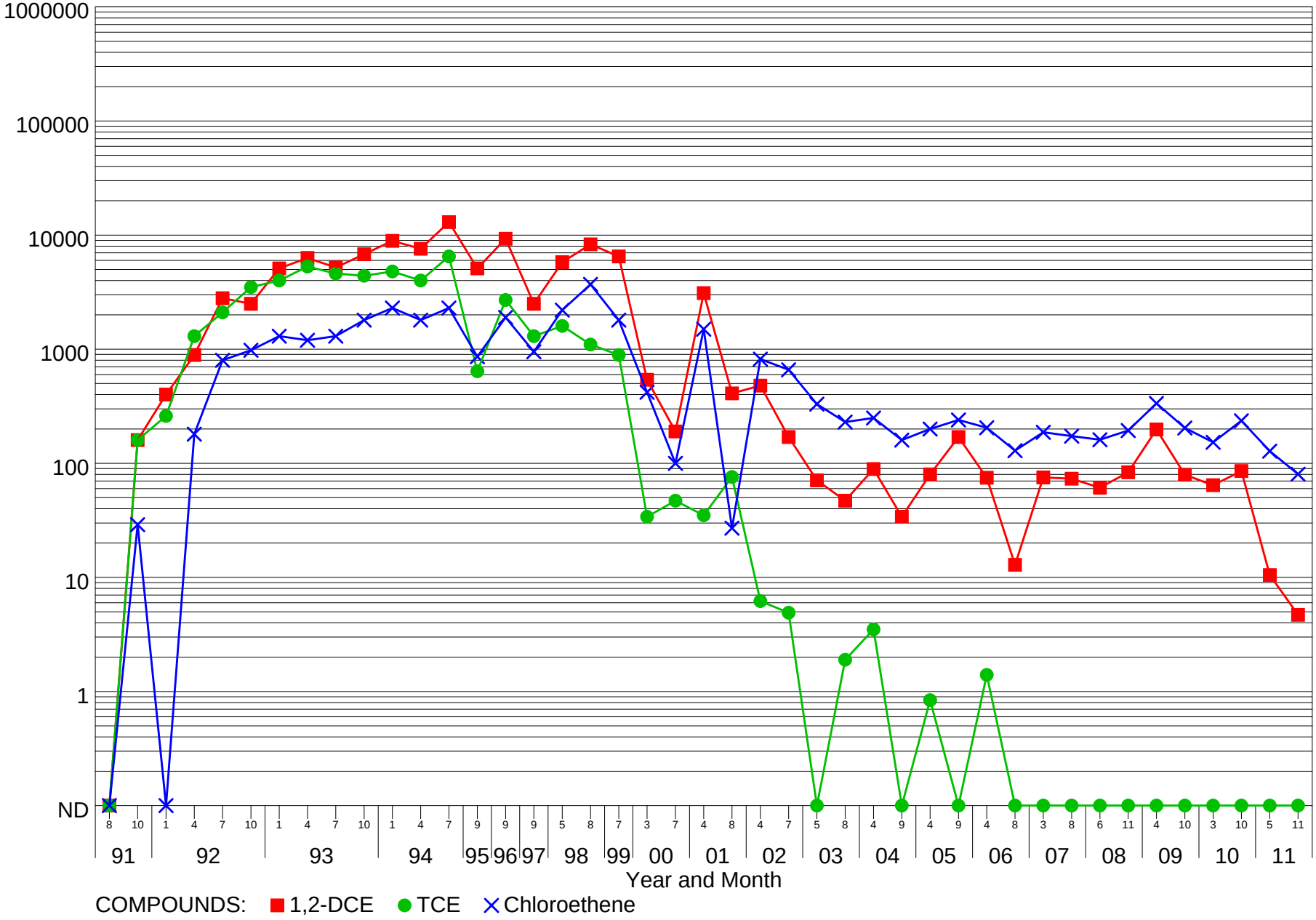
KC91-163 (L) Concentrations, ug/L



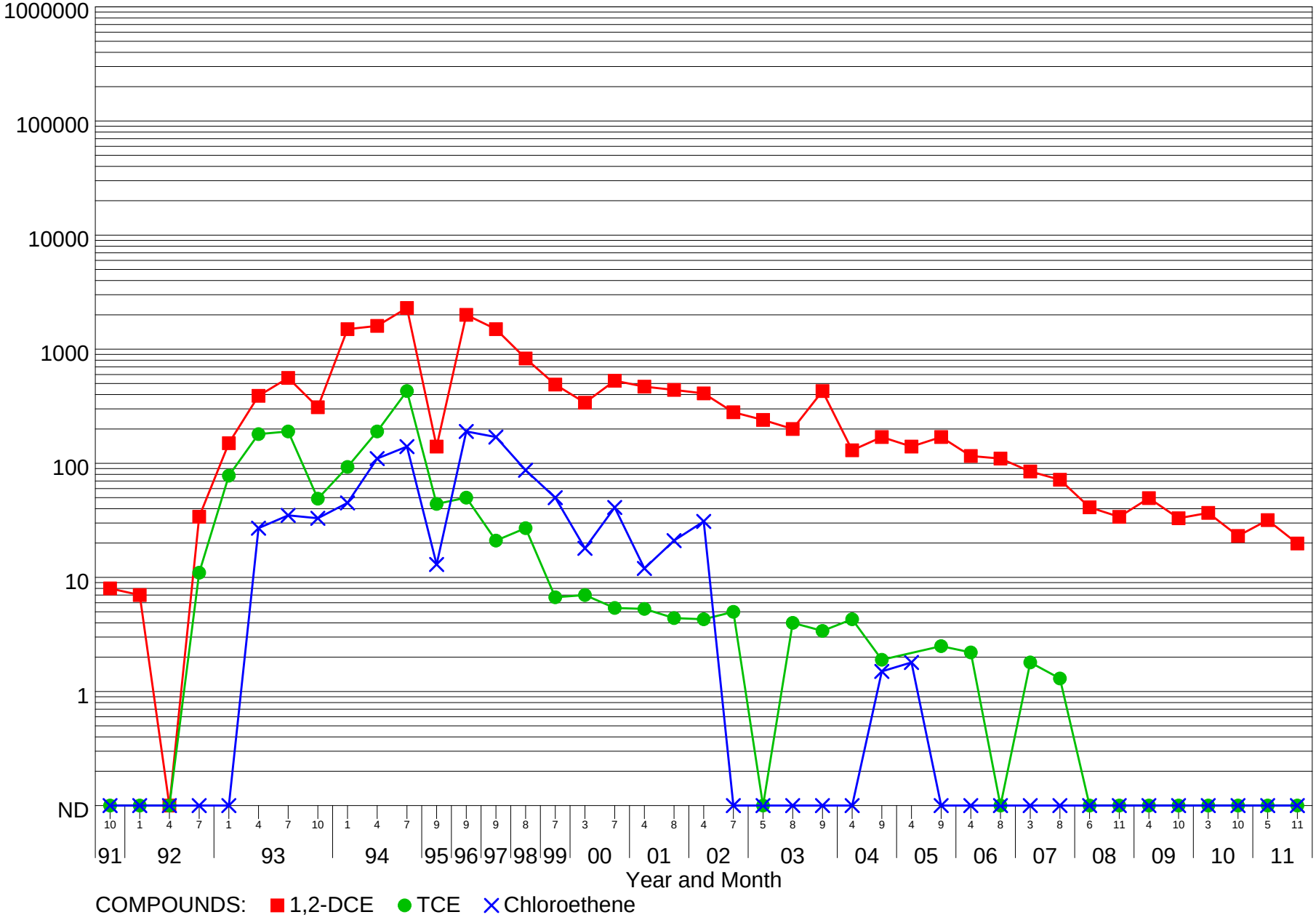
KC91-163 (U) Concentrations, ug/L



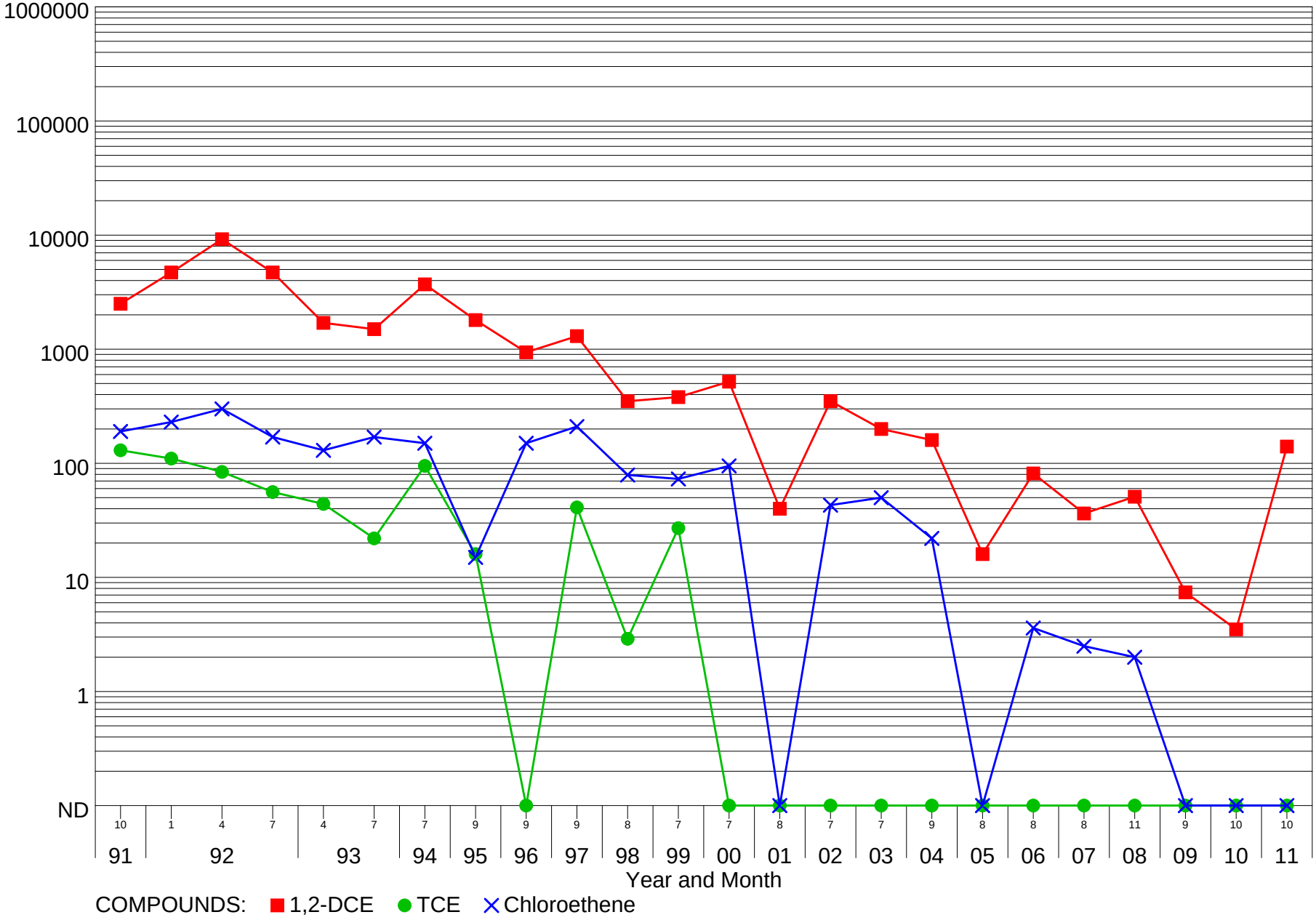
KC91-165 (L) Concentrations, ug/L



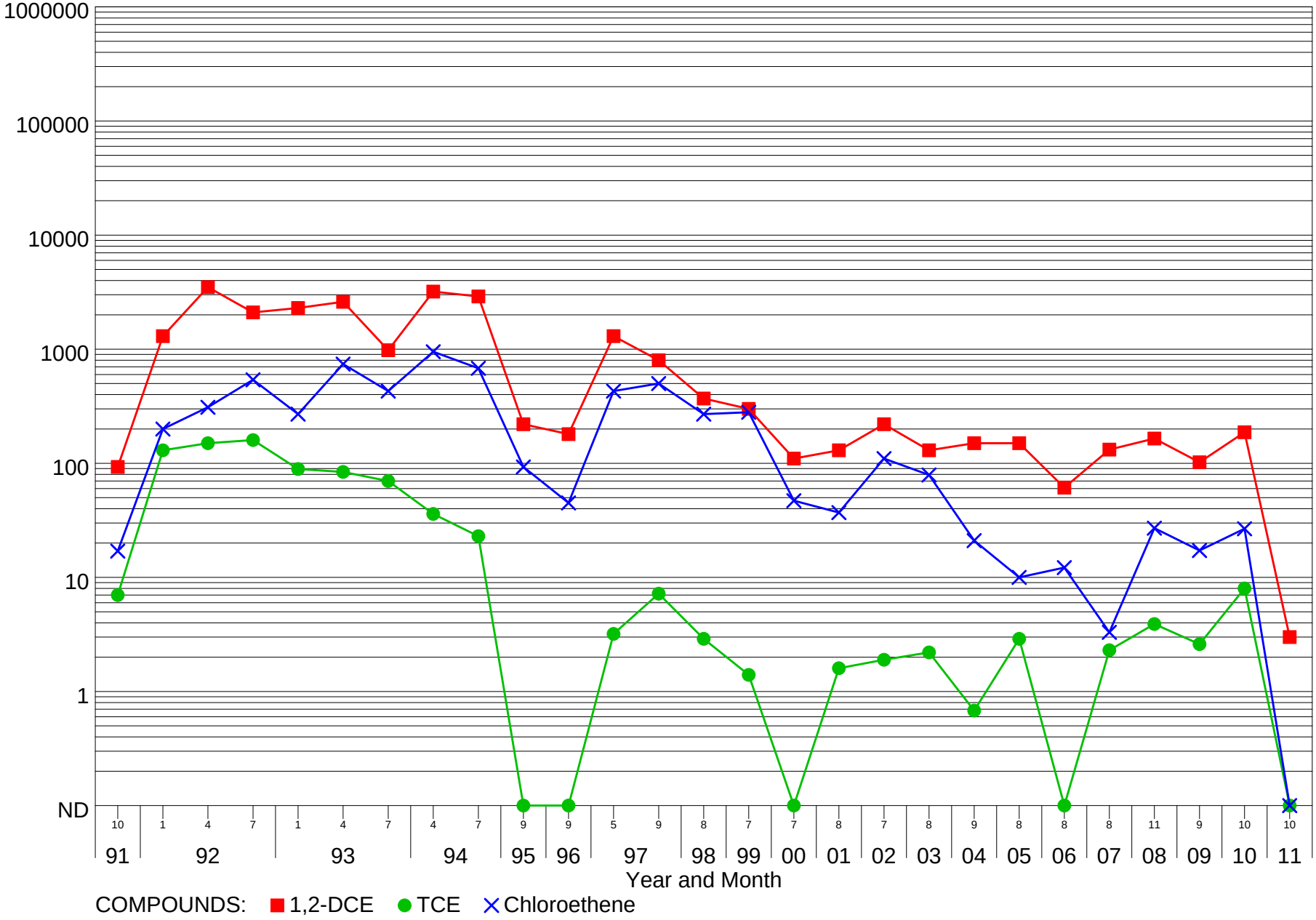
KC91-165 (U) Concentrations, ug/L



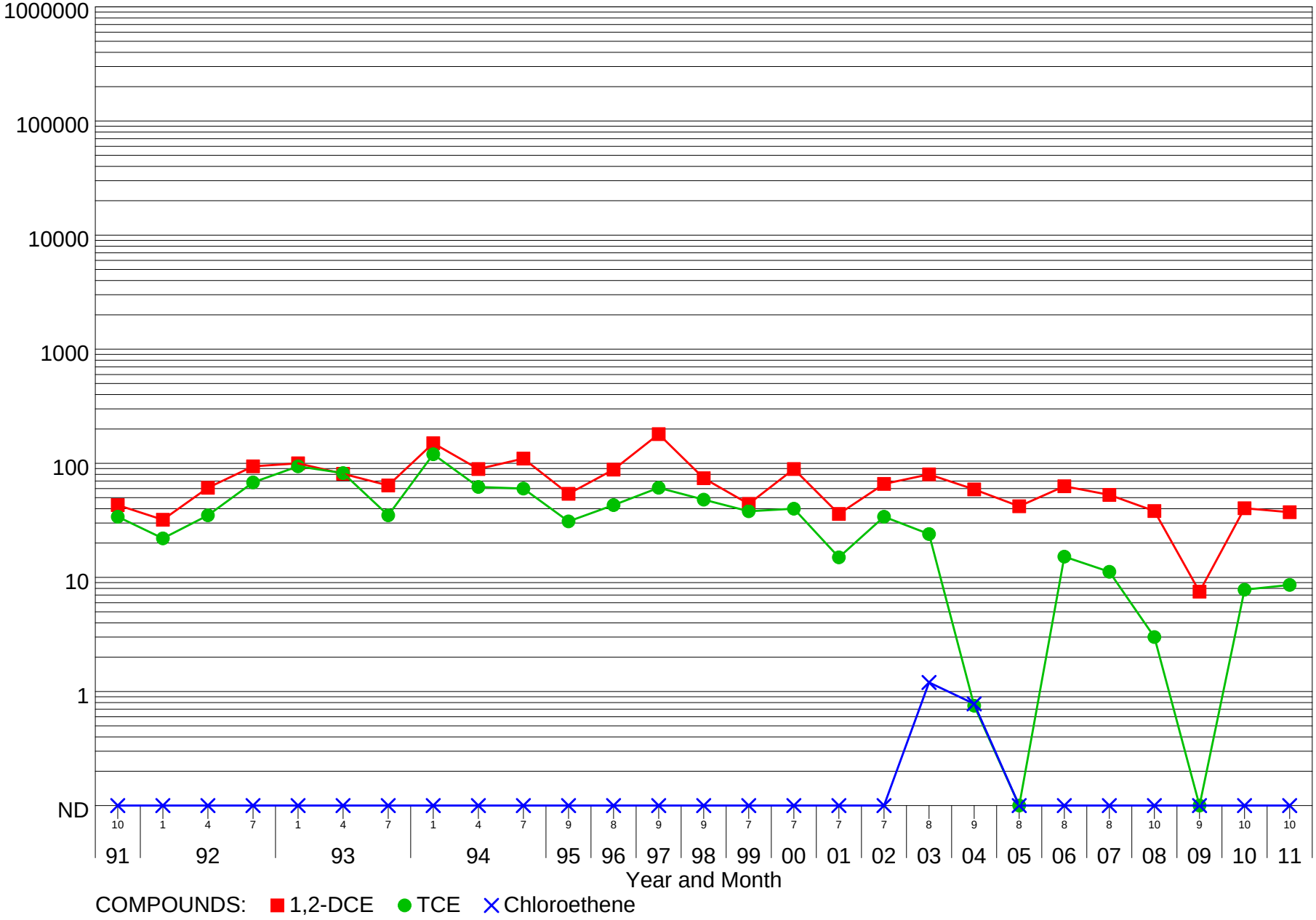
KC91-168 (L) Concentrations, ug/L



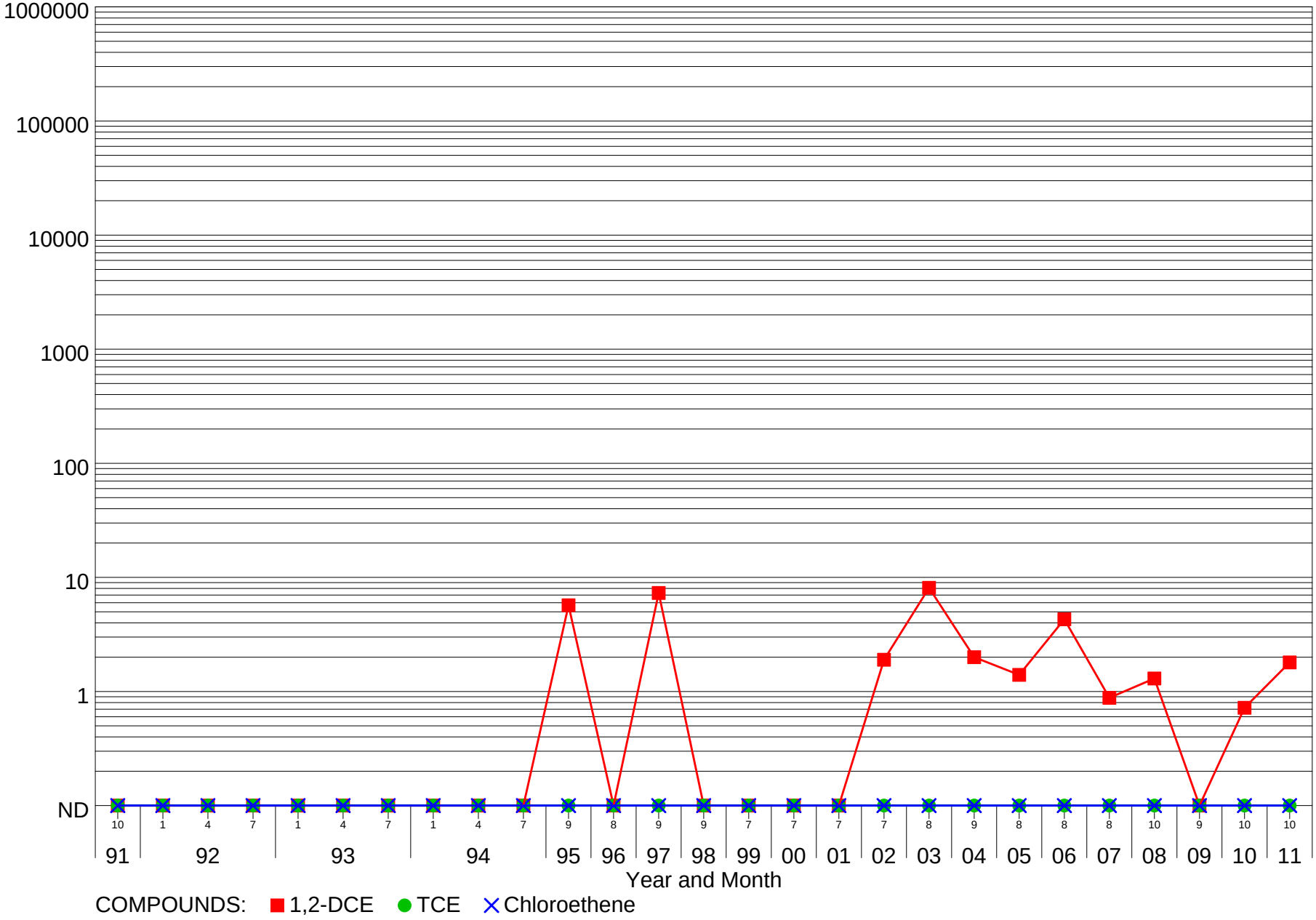
KC91-171 (L) Concentrations, ug/L



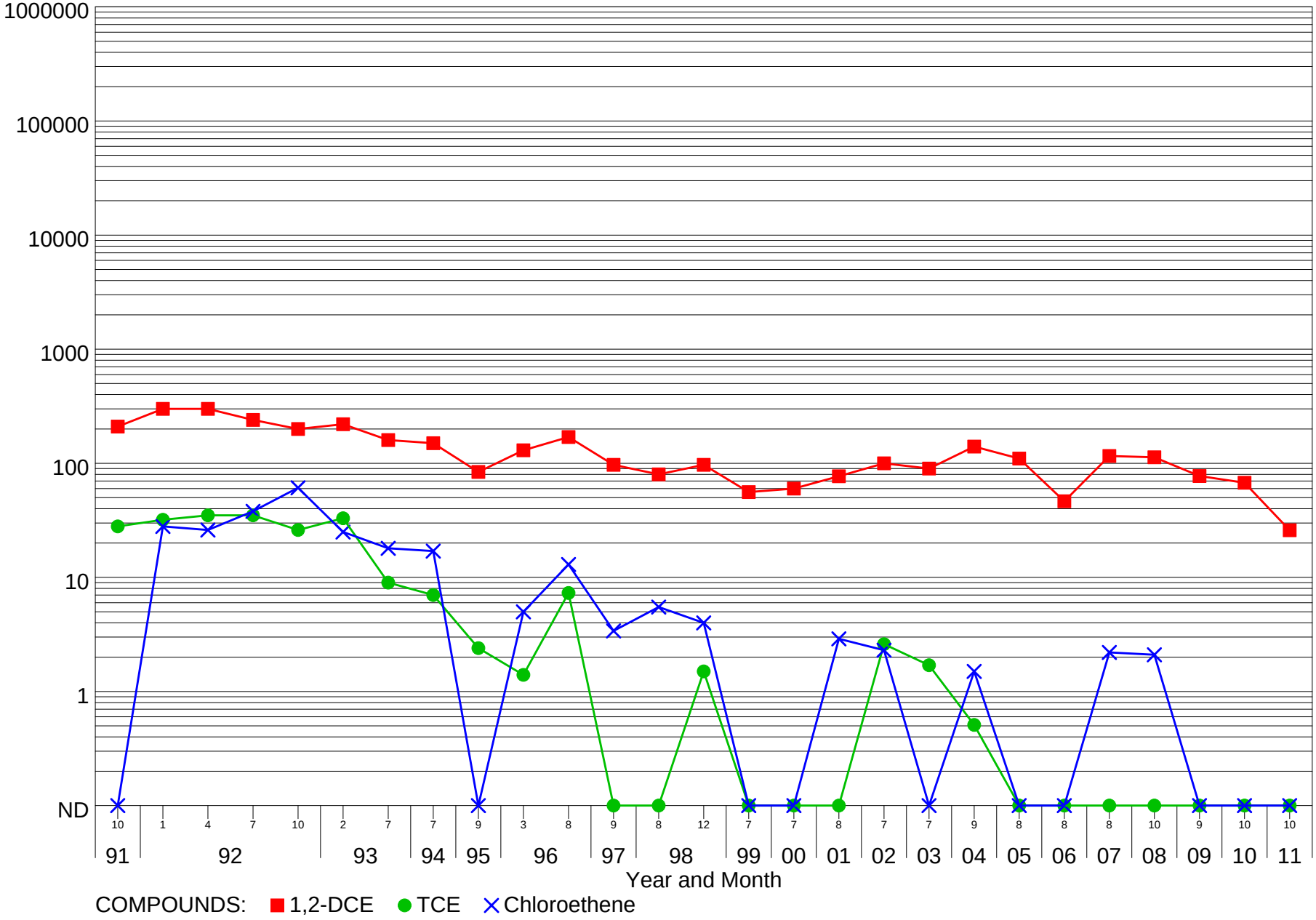
KC91-176 (L) Concentrations, ug/L



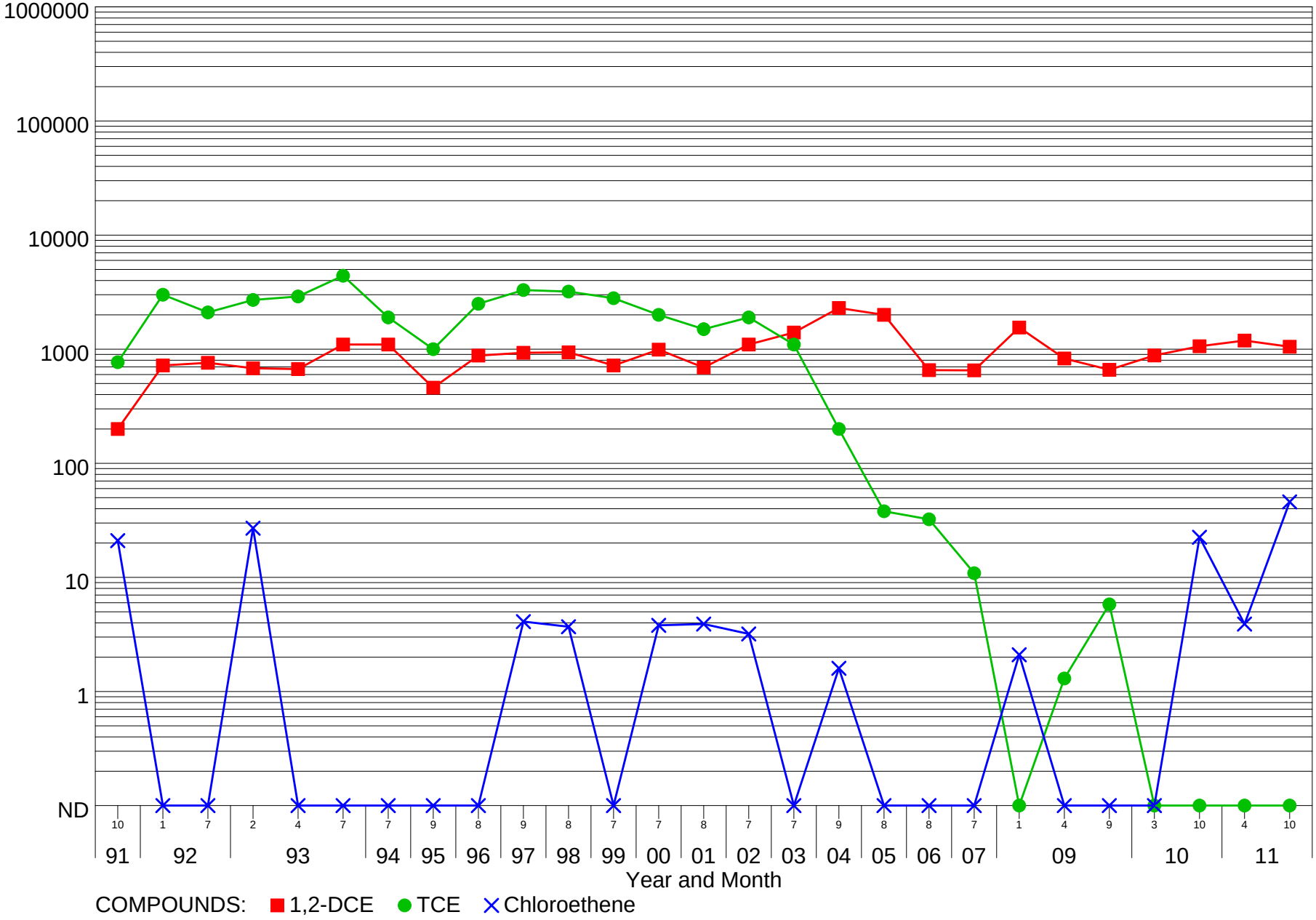
KC91-176 (U) Concentrations, ug/L



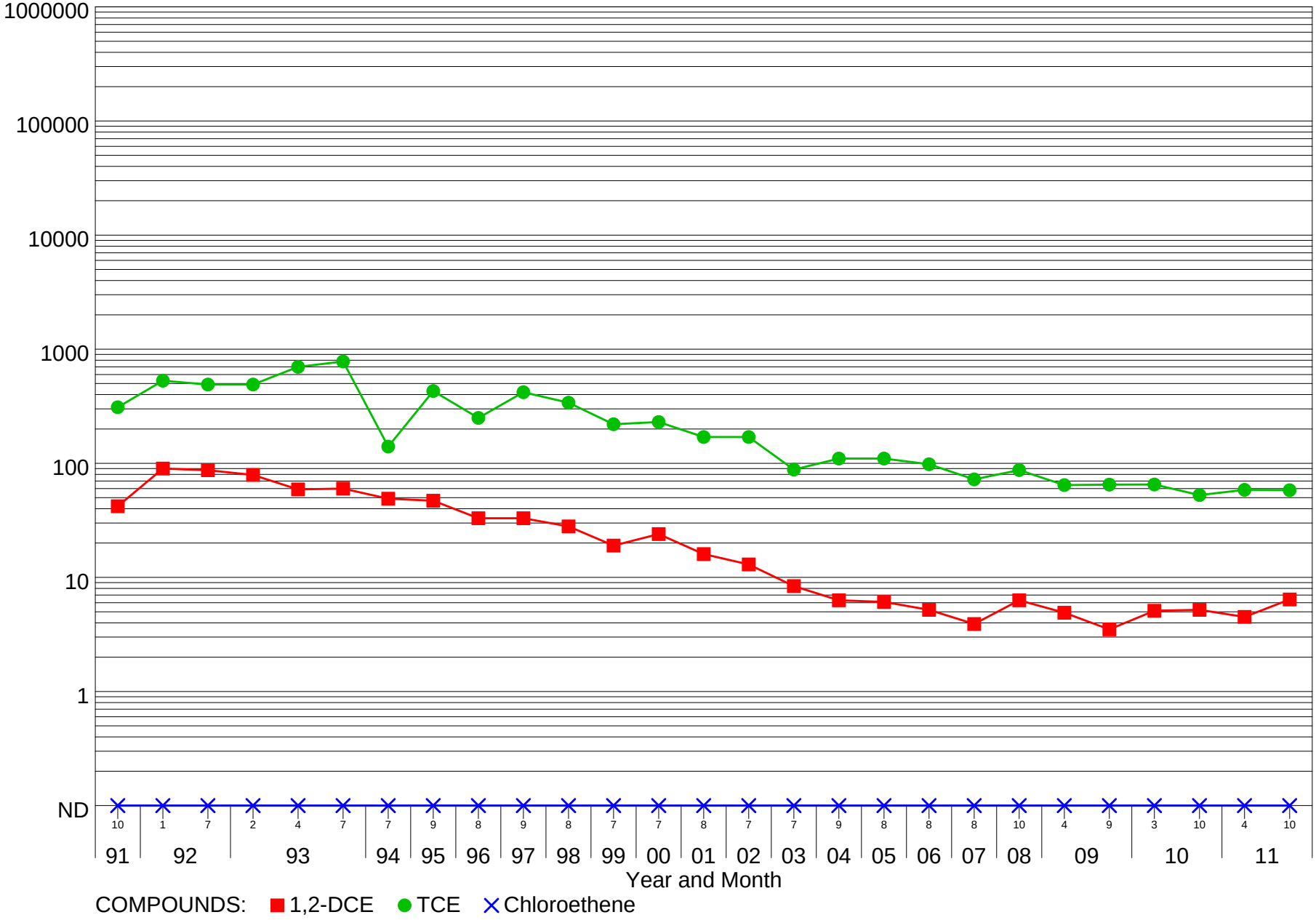
KC91-179 (L) Concentrations, ug/L



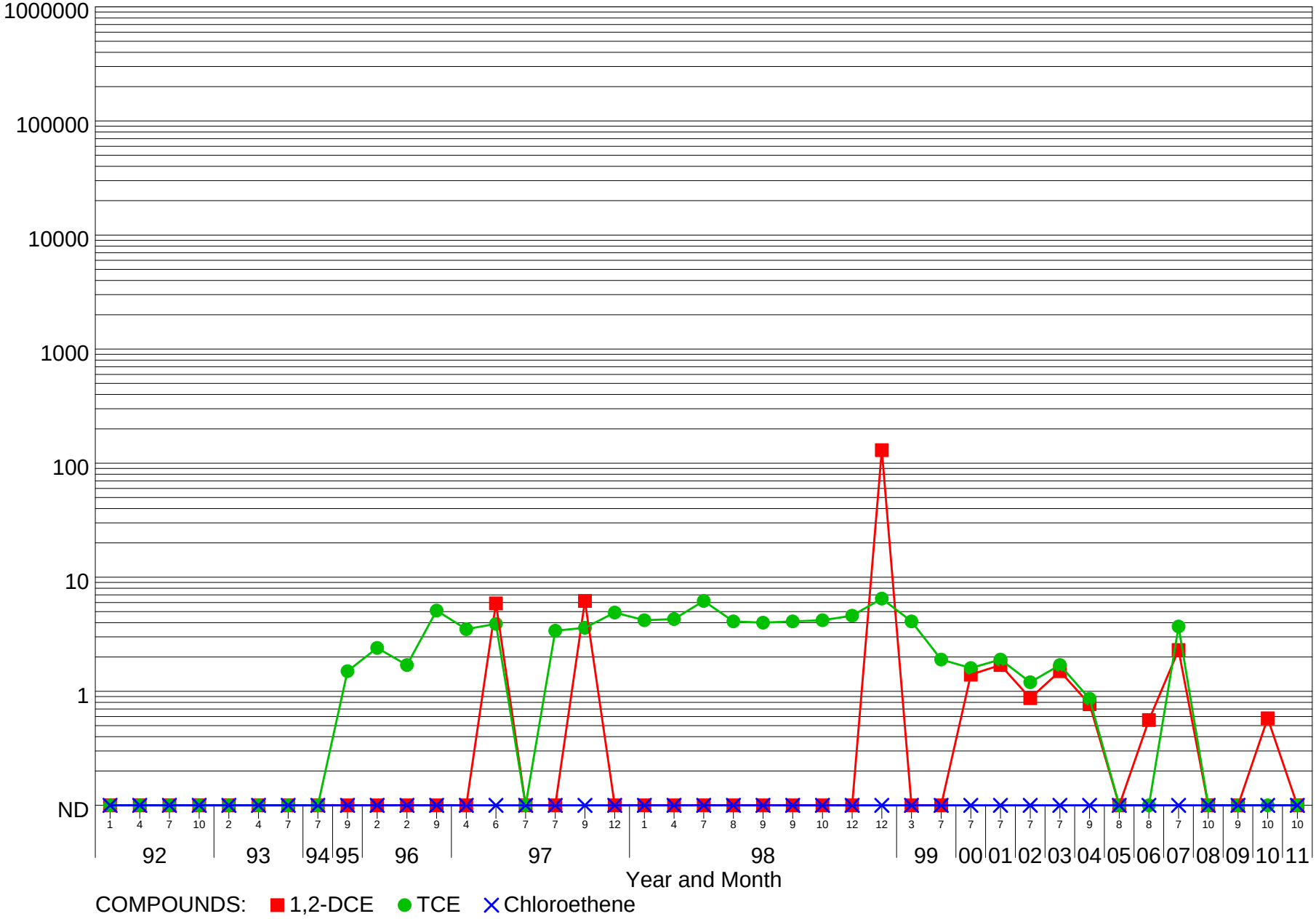
KC91-182 (L) Concentrations, ug/L



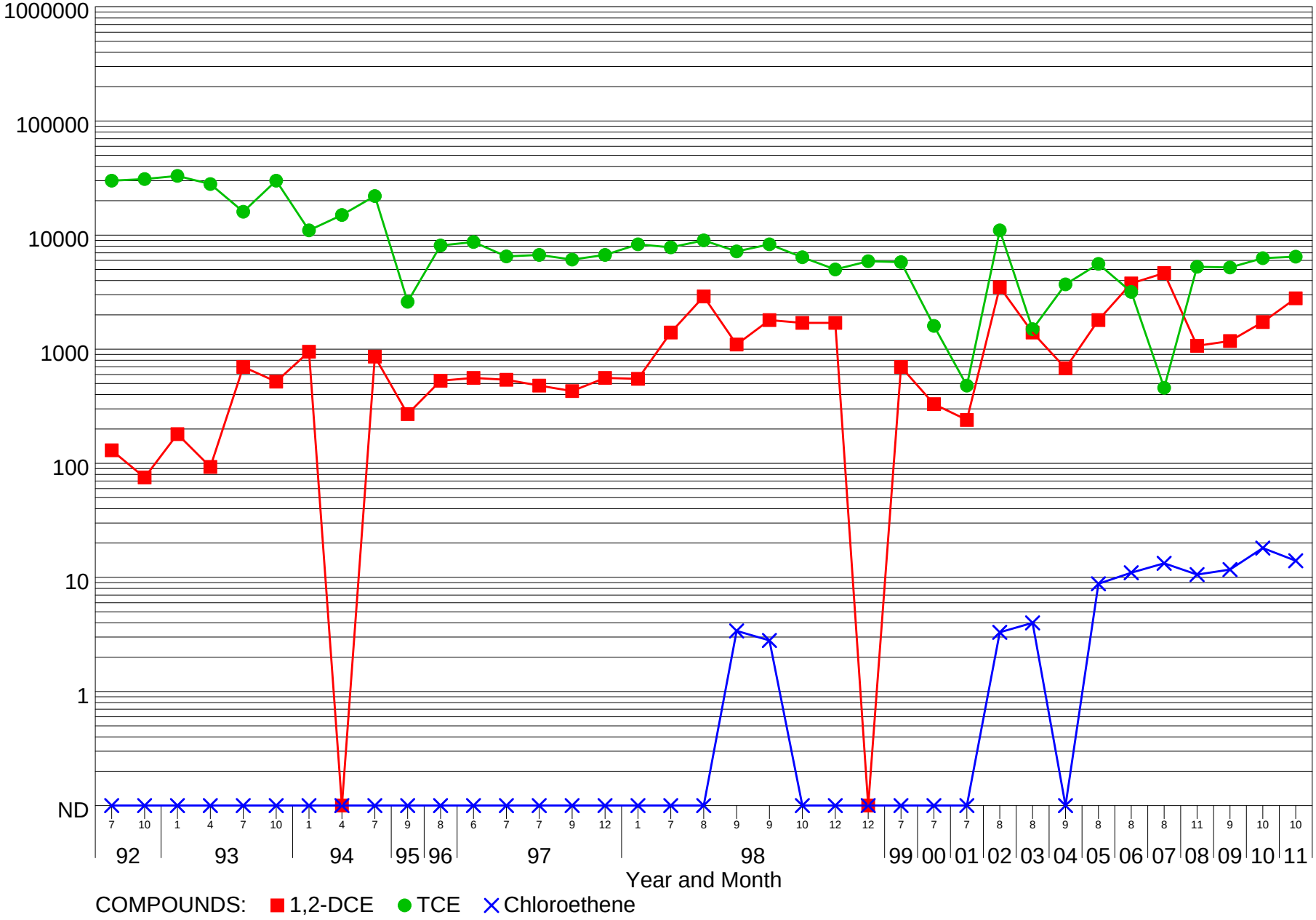
KC91-182 (U) Concentrations, ug/L



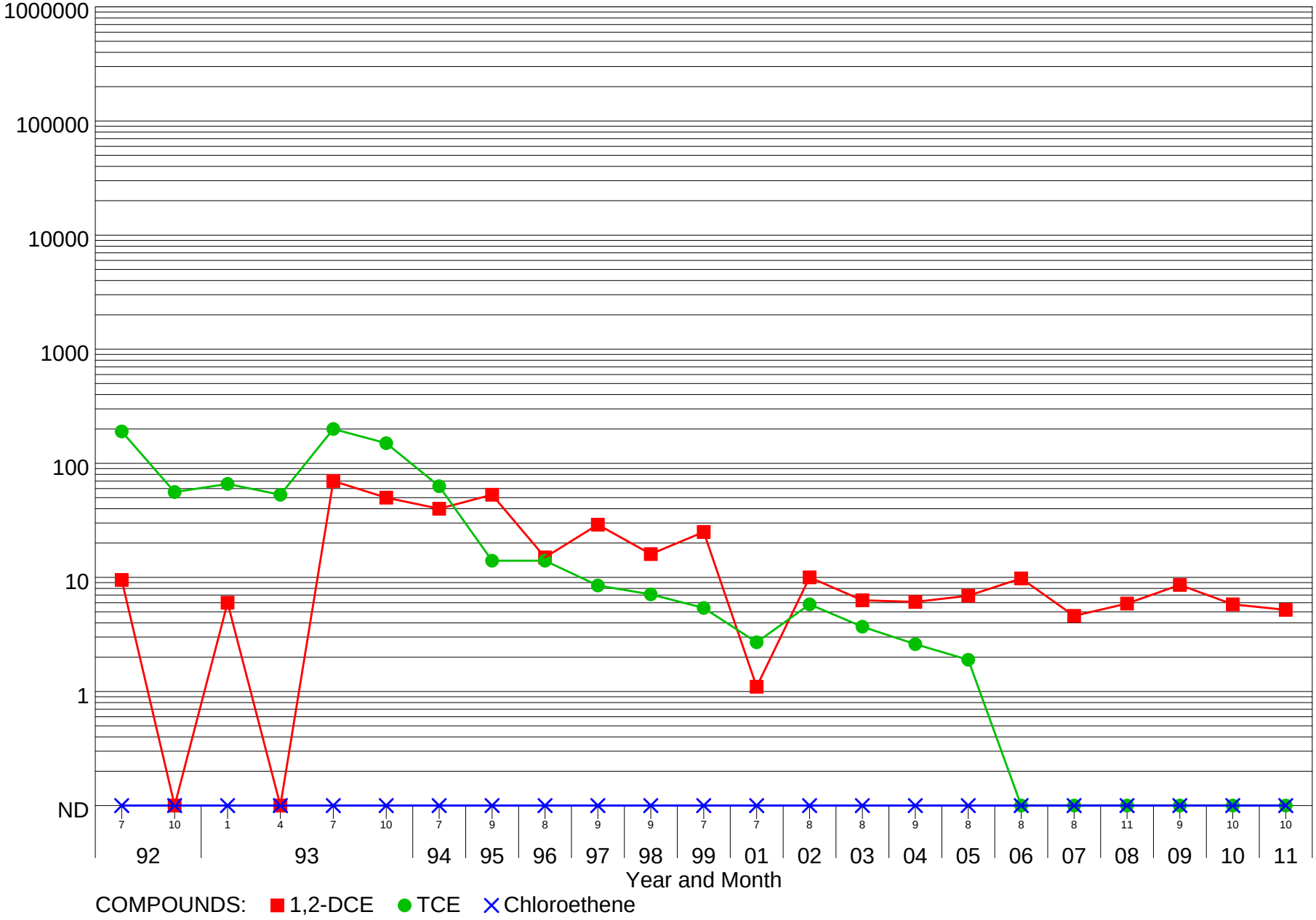
KC91-183 (L) Concentrations, ug/L



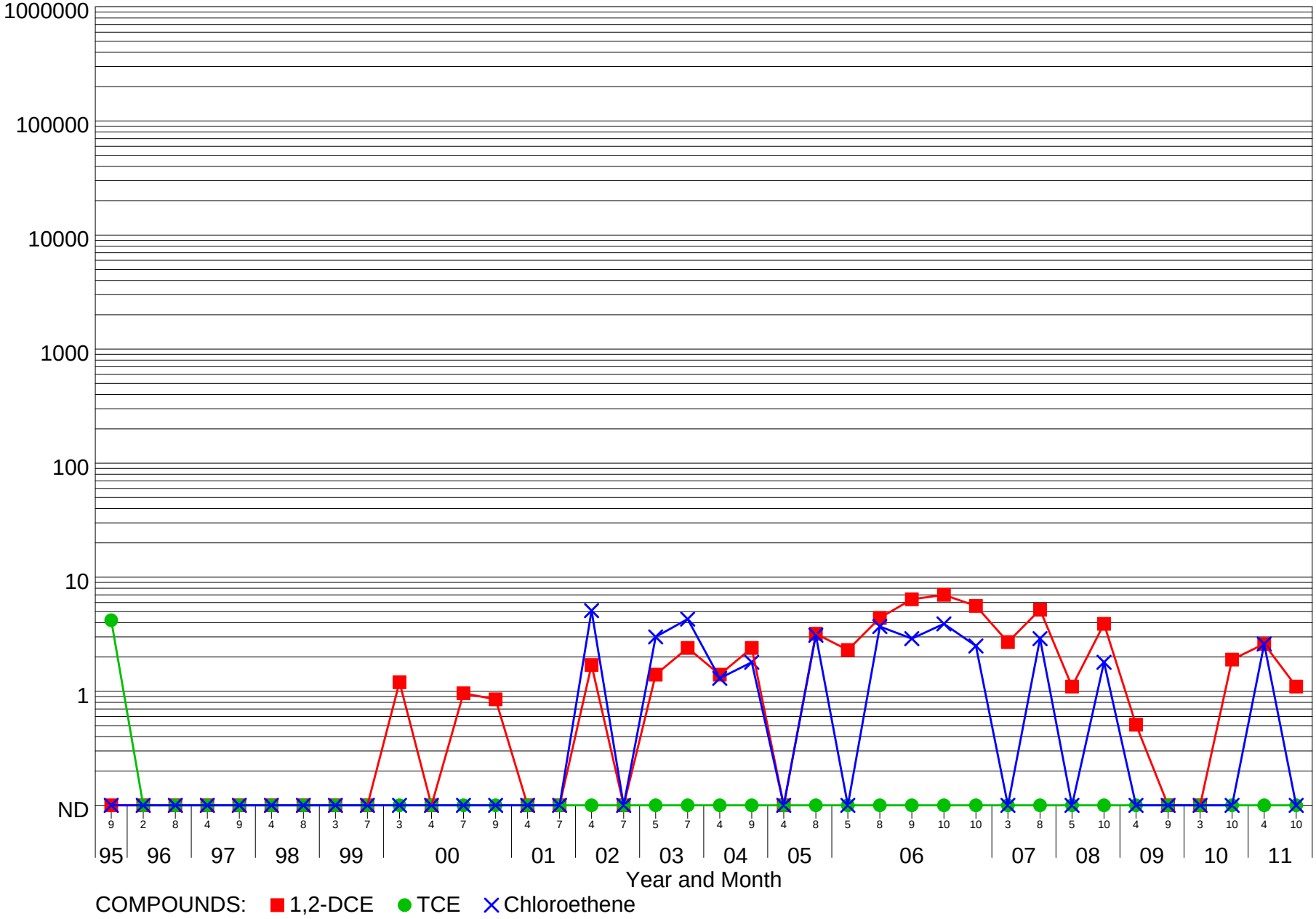
KC92-184 (L) Concentrations, ug/L



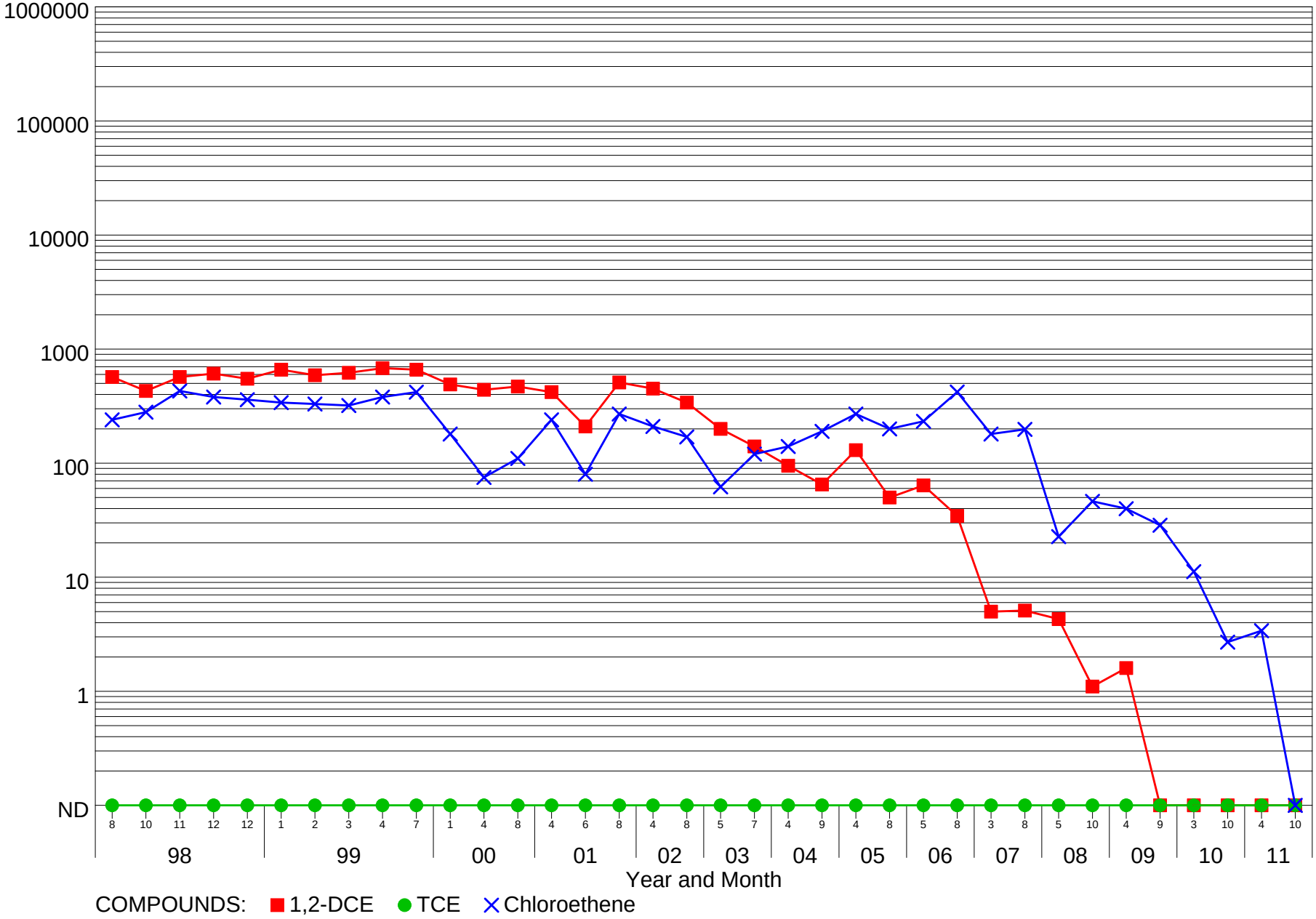
KC92-184 (U) Concentrations, ug/L



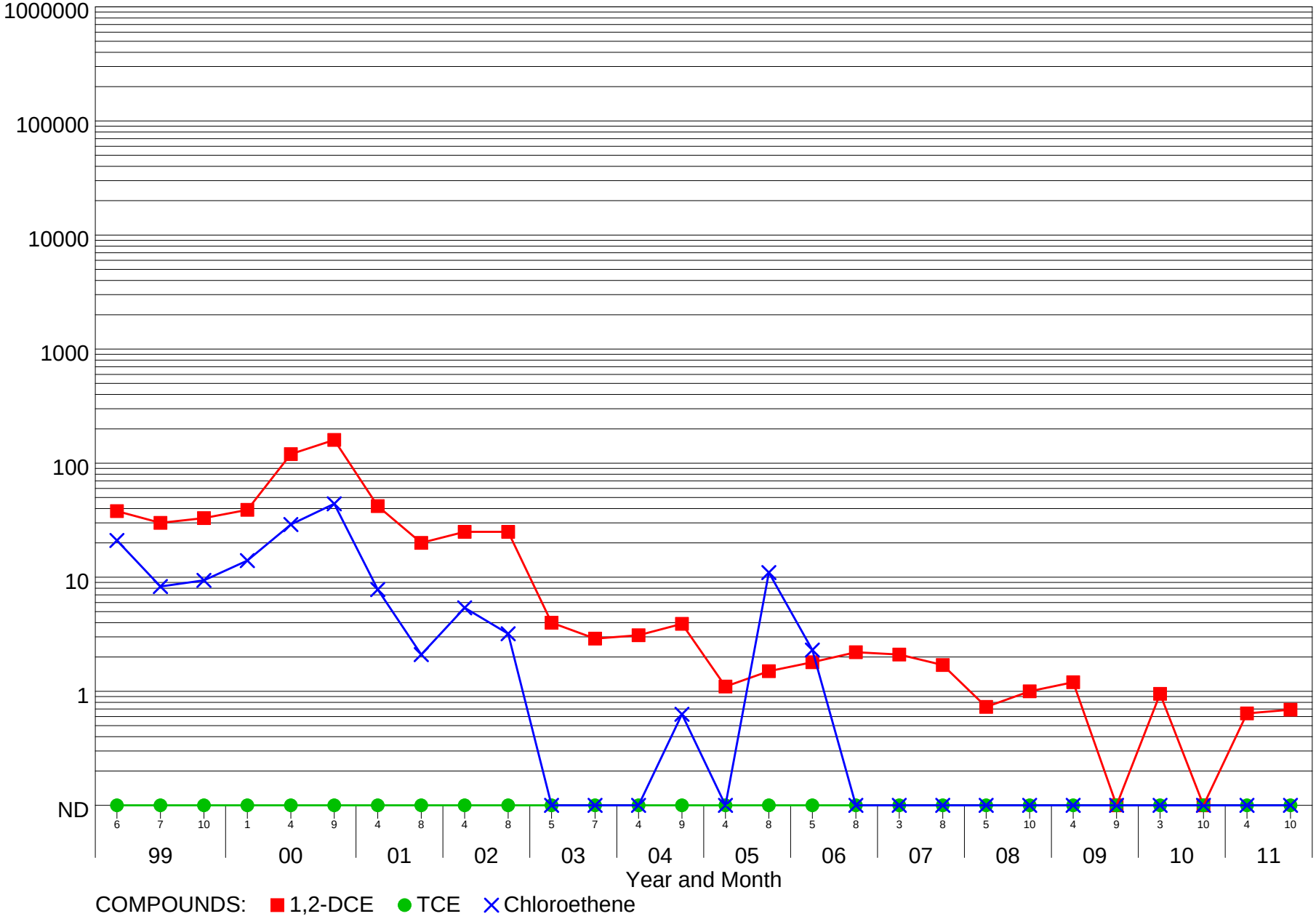
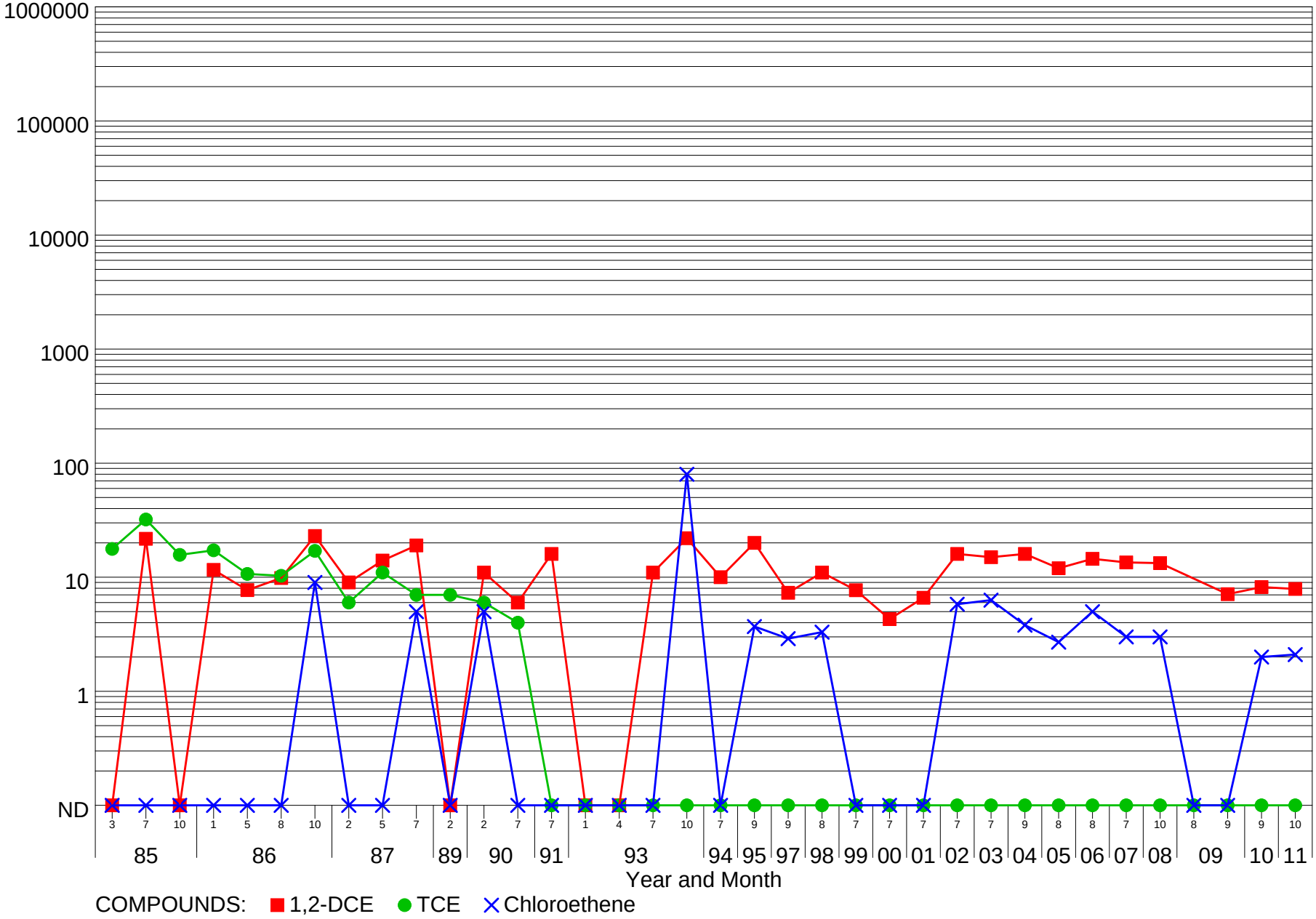
KC95-200 Concentrations, ug/L



KC98-212 Concentrations, ug/L



KC99-248 Concentrations, ug/L



OW-008 Concentrations, ug/L