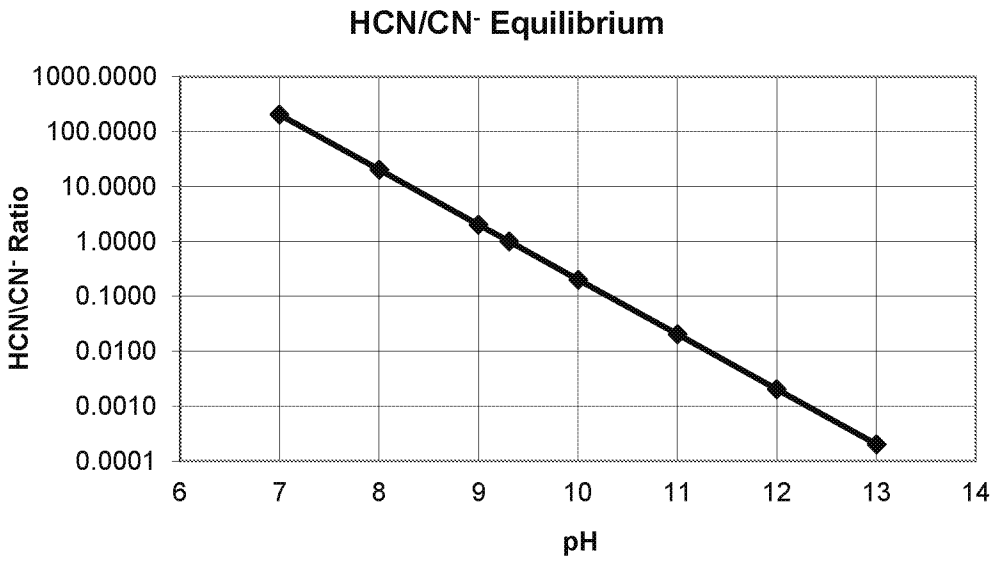
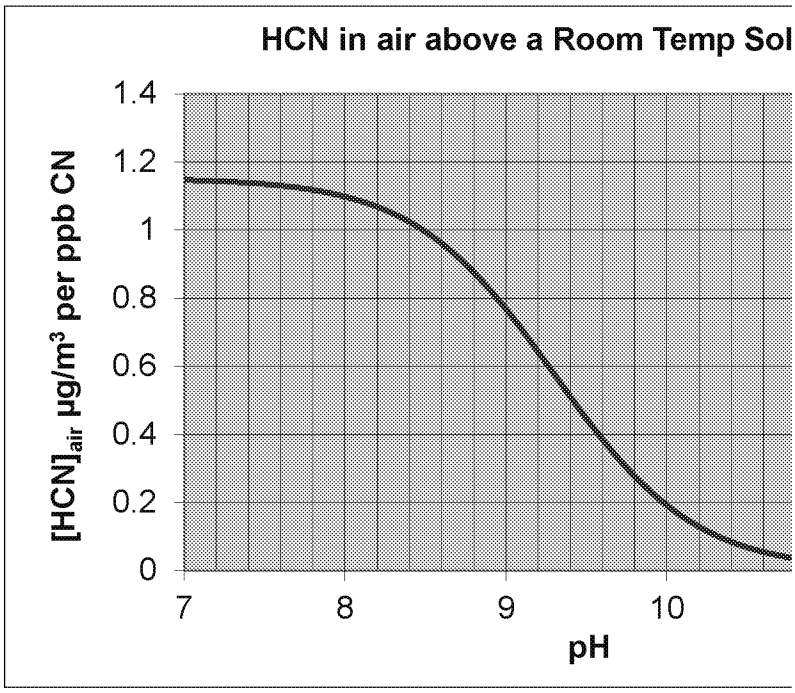
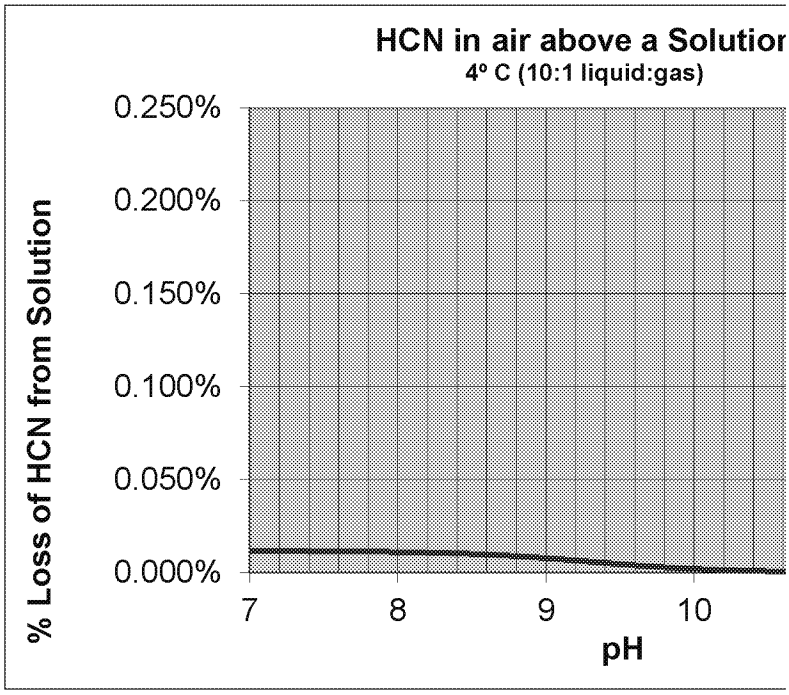
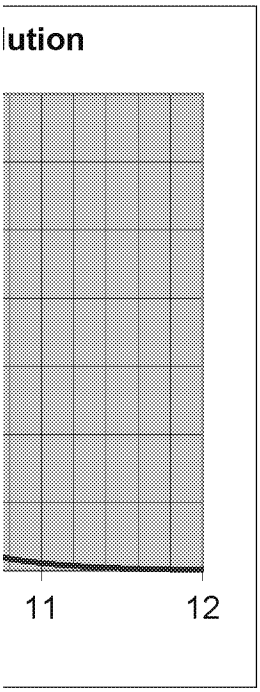
pH	HCN/CN-	
7	202.84	
8	20.28	
9	2.03	
9.307	1.00	
10	0.20	
11	0.020	
12	0.0020	
13	0.00020	
9.95	0.22759	0.891250938

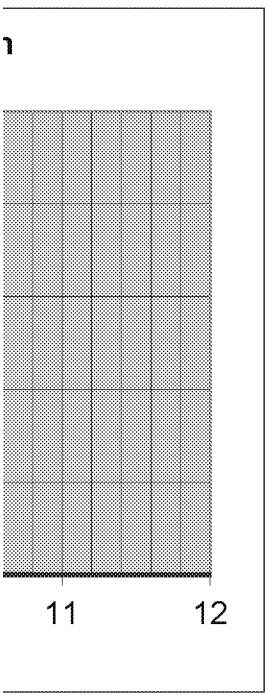


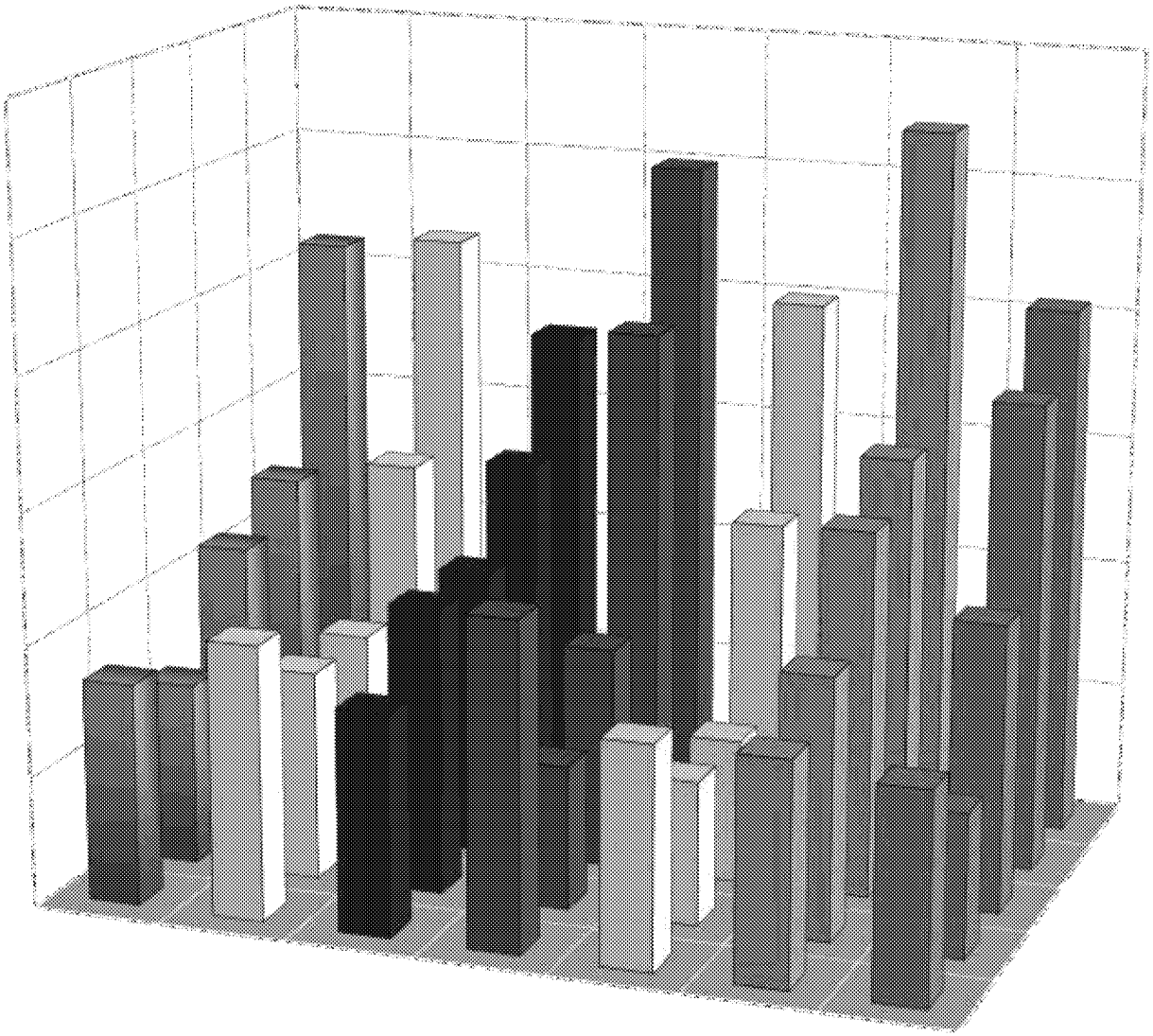
Temp	pH	HCN	
277	7	1.147466852	0.011%
277	7.25	1.143030539	0.011%
277	7.5	1.135225695	0.011%
277	7.75	1.121606639	0.011%
277	8	1.098178505	0.011%
277	8.25	1.058847892	0.011%
277	8.5	0.995449669	0.010%
277	8.75	0.899659353	0.009%
277	9	0.768203848	0.008%
277	9.25	0.609764567	0.006%
277	9.5	0.446137509	0.004%
277	9.75	0.302017328	0.003%
277	10	0.191823403	0.002%
277	10.25	0.116339644	0.001%
277	10.5	0.068444565	0.001%
277	10.75	0.039515644	0.000%
277	11	0.022559597	0.000%
277	11.25	0.012795746	0.000%
277	11.5	0.00723069	0.000%
277	11.75	0.004077304	0.000%
277	12	0.00229639	0.000%
277	12.25	0.001292481	0.000%
277	12.5	0.000727172	0.000%
277	12.75	0.000409032	0.000%
277	13	0.000230051	0.000%
277	13.25	0.000129379	0.000%



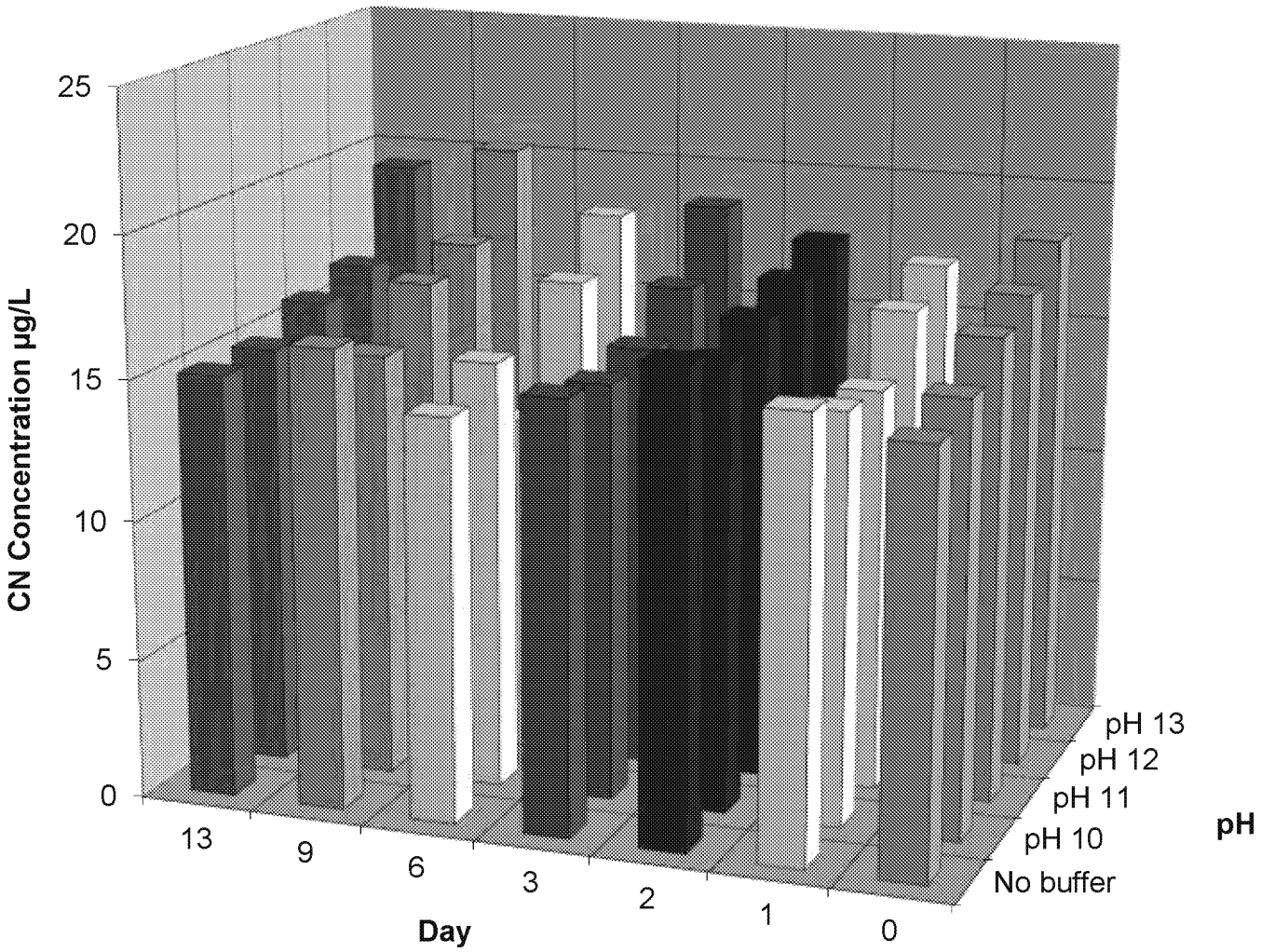


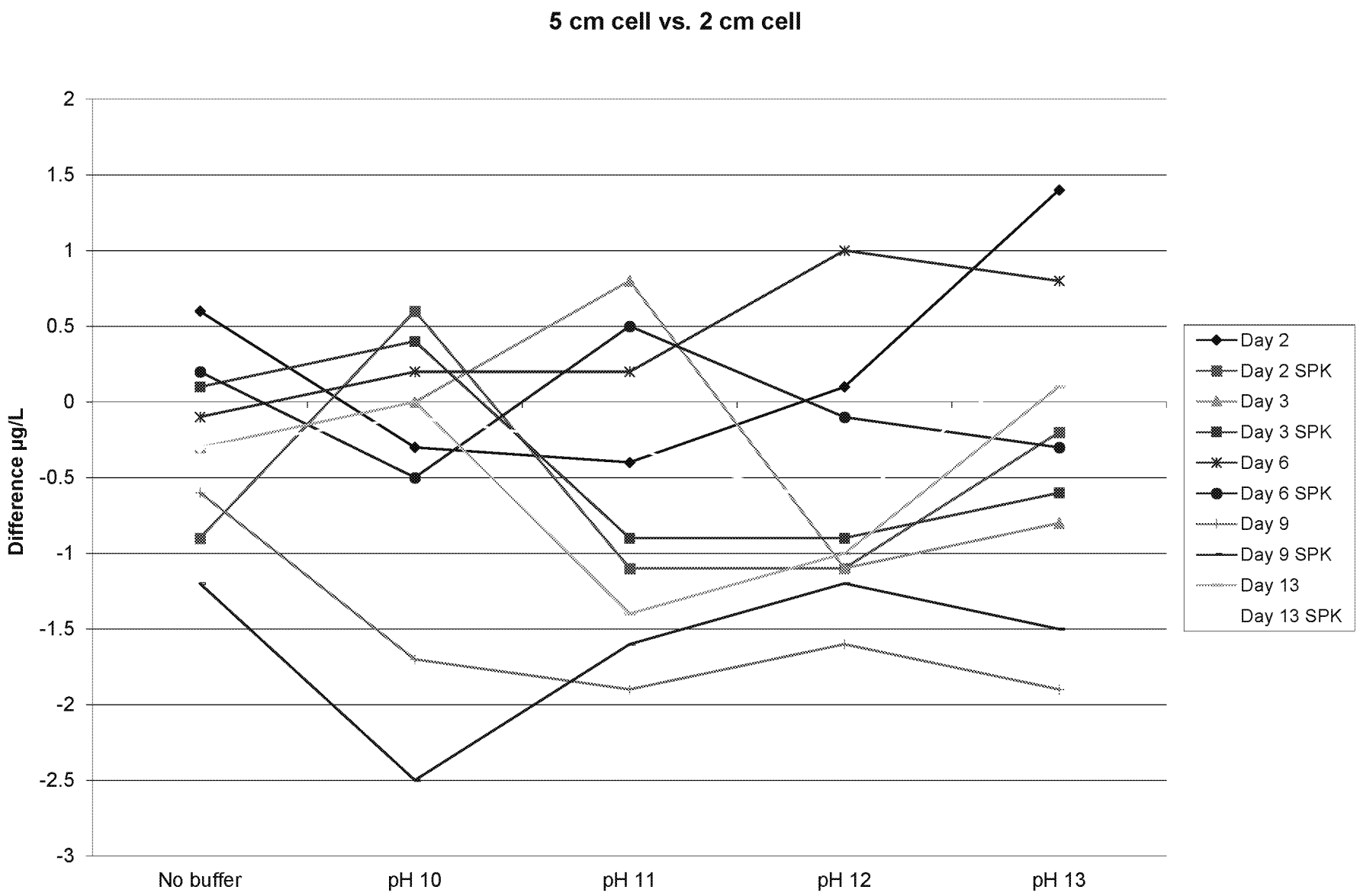

lution
11
12

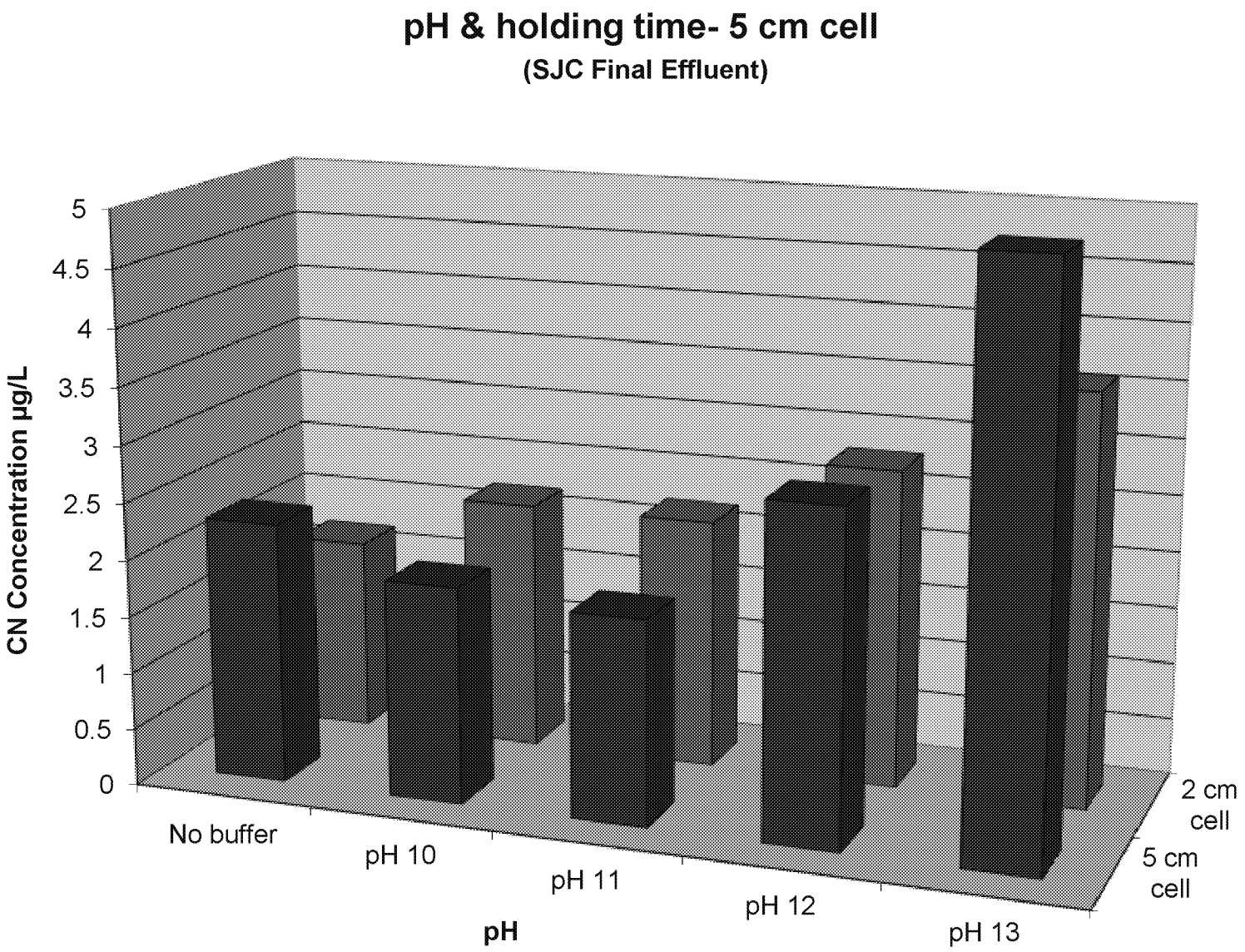

n
11
12

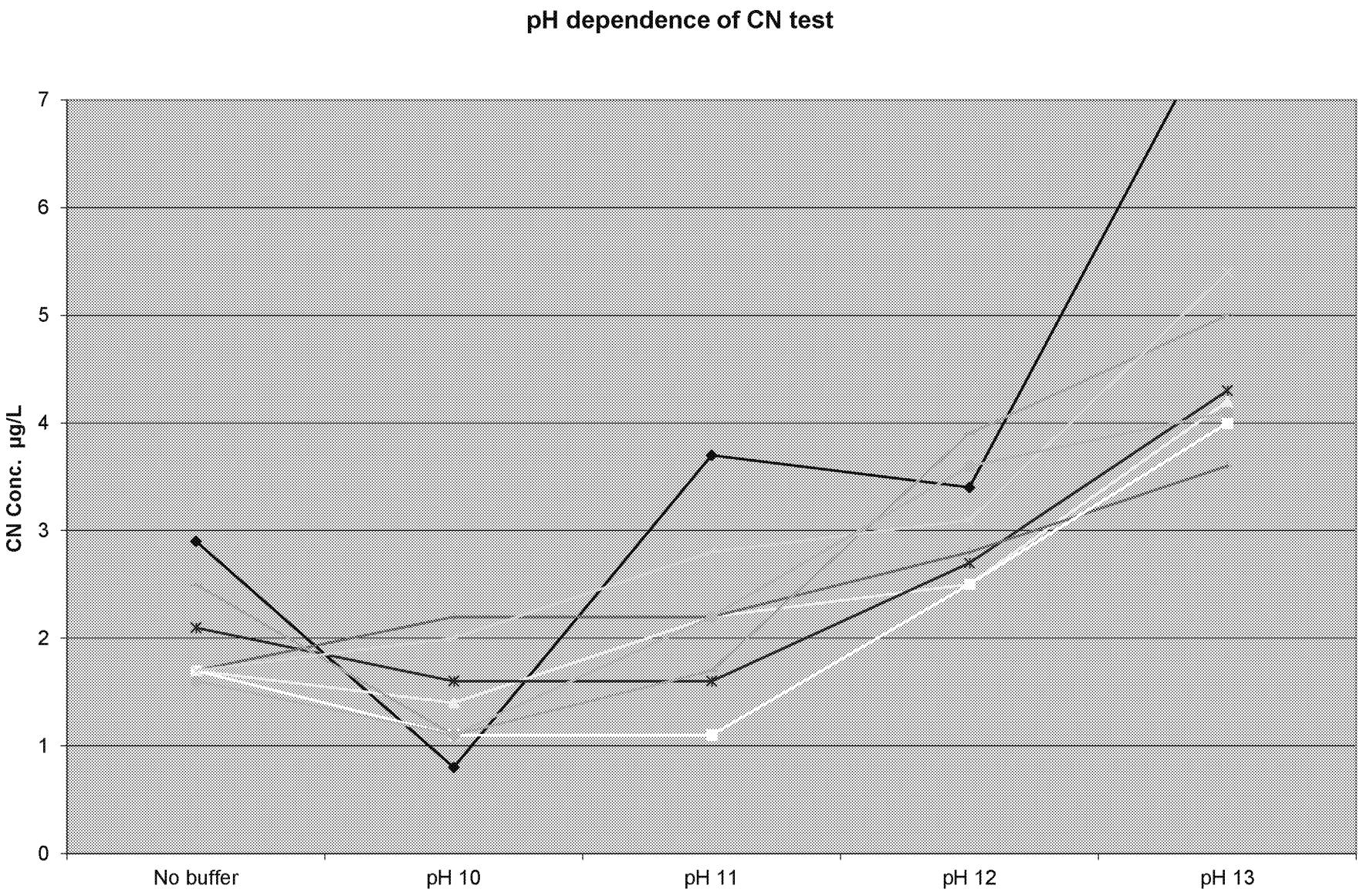


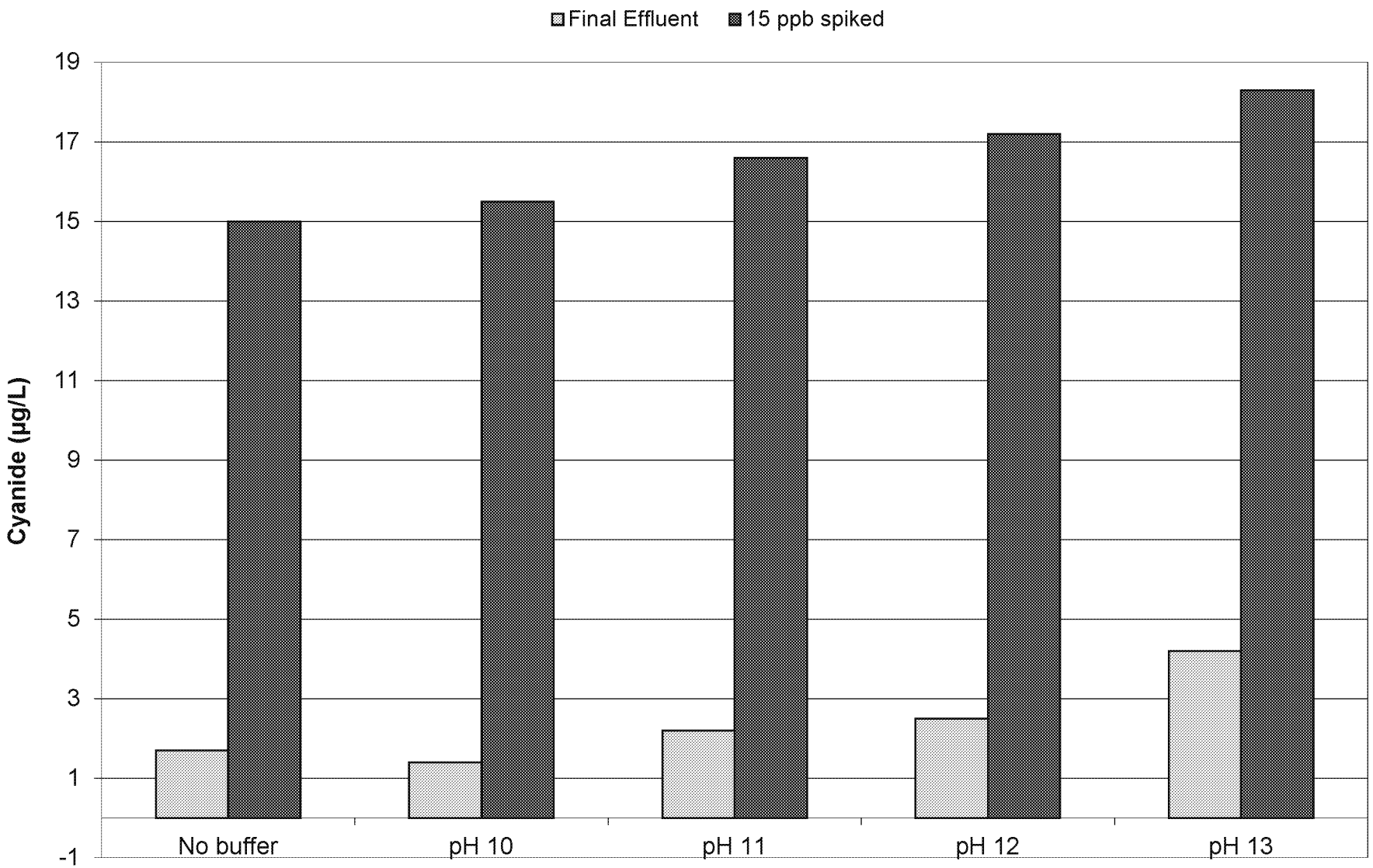
pH holding time (15 ppb Spiked SJC Final)

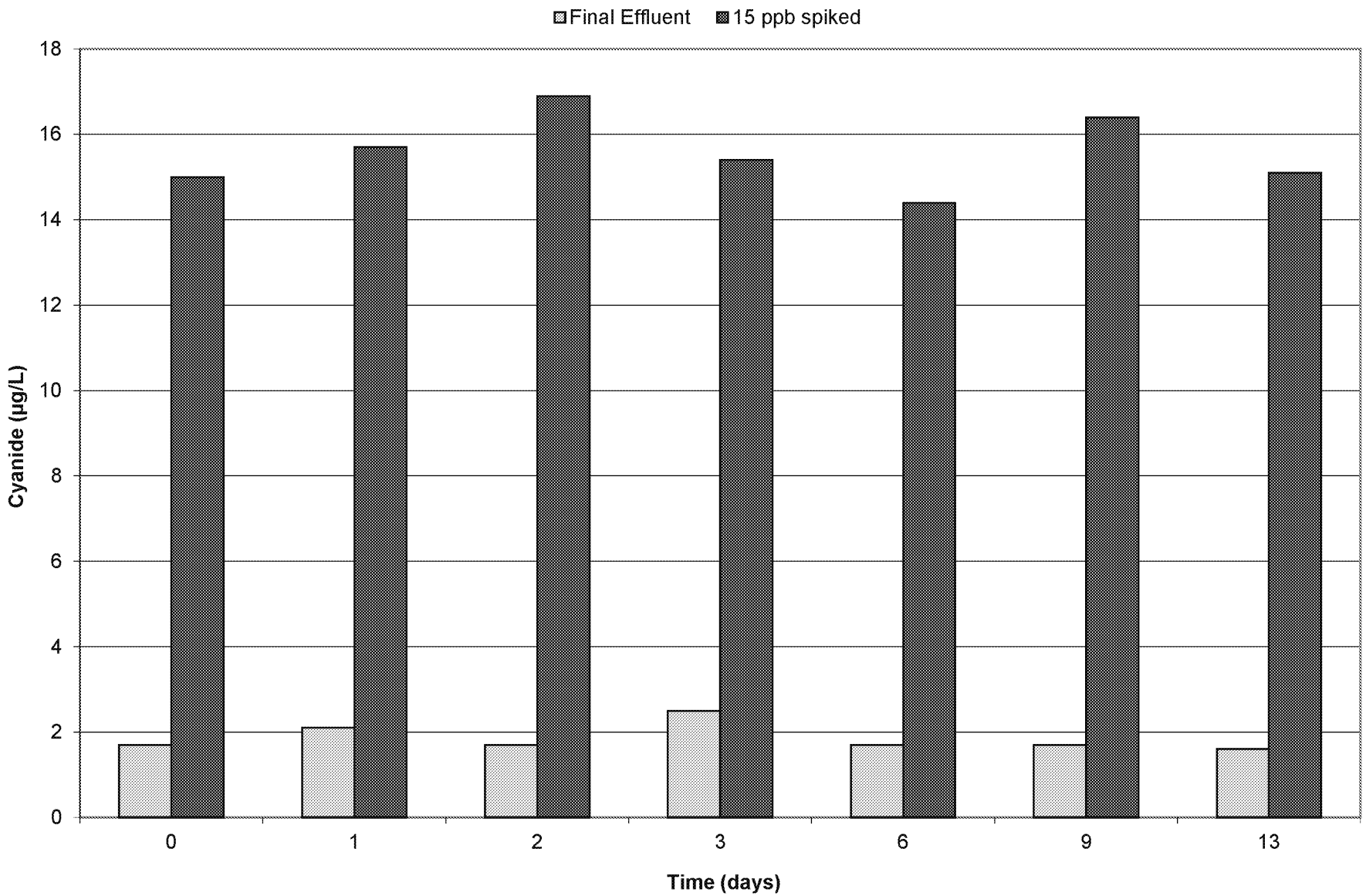



5 cm cell vs. 2 cm cell
Difference µg/L
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
No buffer
pH 10
pH 11
pH 12
pH 13
Day 2
Day 2 SPK
Day 3
Day 3 SPK
Day 6
Day 6 SPK
Day 9
Day 9 SPK
Day 13
Day 13 SPK


pH & holding time- 5 cm cell
(SJC Final Effluent)
CN Concentration µg/L
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
No buffer
pH 10
pH 11
pH 12
pH 13
pH
2 cm cell
5 cm cell


pH dependence of CN test
CN Conc. µg/L
0
1
2
3
4
5
6
7
No buffer
pH 10
pH 11
pH 12
pH 13


Final Effluent
15 ppb spiked
Cyanide (µg/L)
19
17
15
13
11
9
7
5
3
1
-1
No buffer
pH 10
pH 11
pH 12
pH 13

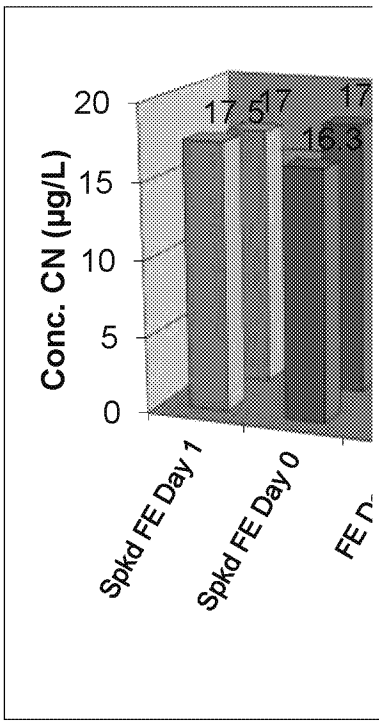

Final Effluent
15 ppb spiked
Cyanide (µg/L)
18
16
14
12
10
8
6
4
2
0
0
1
2
3
6
9
13
Time (days)

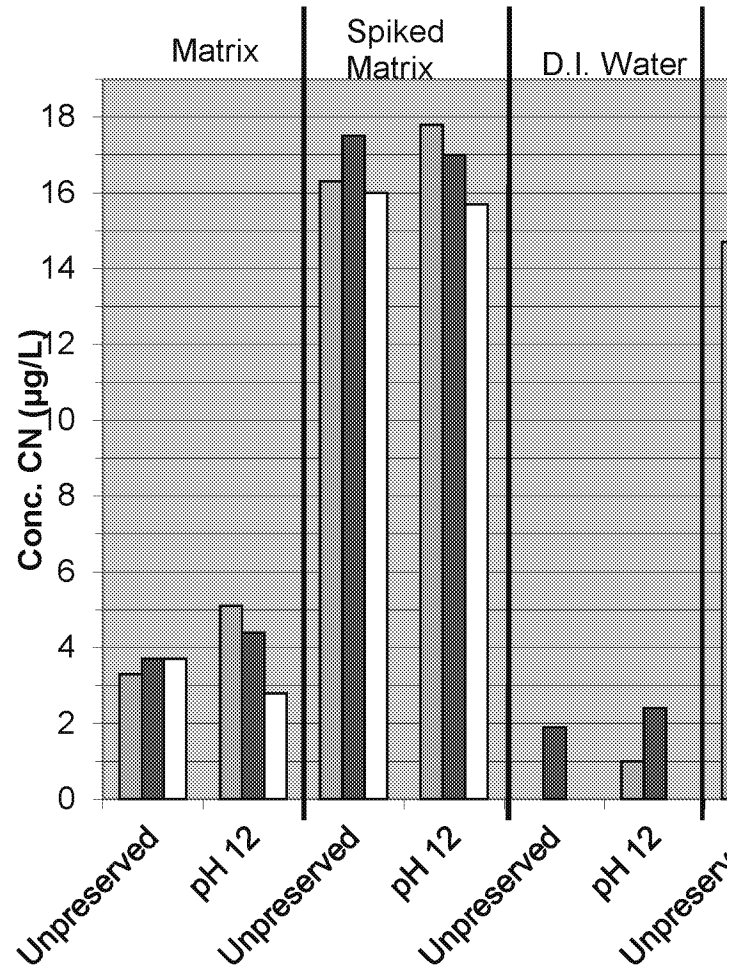
Day			0		1		2	
	Final Effluent	15 ppb spiked	Final Effluent	15 ppb spiked	FE	SPK	FE	SPK
No buffer	2.9	14.5	1.7	15	2.1	15.7	1.7	16.9
pH 10	0.8	17.2	1.4	15.5	1.6	14.7	2.2	16
pH 11	3.7	18	2.2	16.6	1.6	14.4	2.2	16.6
pH 12	3.4	18	2.5	17.2	2.7	16.3	2.8	17.1
pH 13	7.9	23	4.2	18.3	4.3	17.1	3.6	17.7
						5 cm cell	2.3	16
							1.9	16.6
							1.8	15.5
							2.9	16
							5	17.5
						Difference	0.6	-0.9
							-0.3	0.6
							-0.4	-1.1
							0.1	-1.1
							1.4	-0.2
							0.739594483	0.736885337
							0.28	-0.54

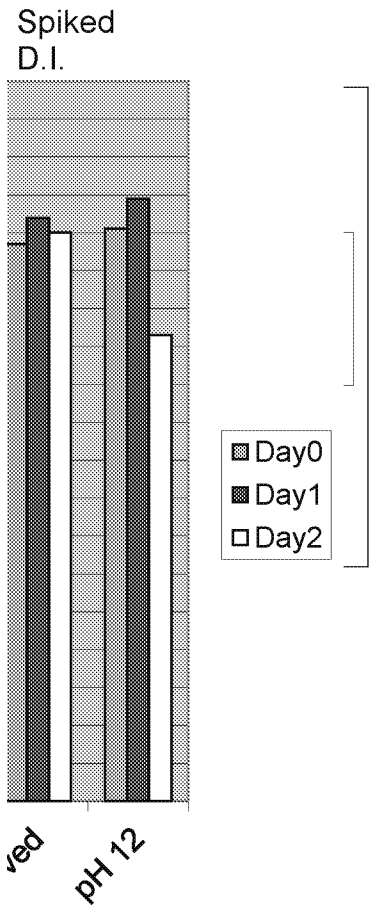
3		6		9		13	
FE	SPK	FE	SPK	FE	SPK	FE	SPK
2.5	15.4	1.7	14.4	1.7	16.4	1.6	15.1
1.1	14.9	1.1	15.3	2	15.2	1.1	15.1
1.7	15.2	1.1	12.2	2.8	16.9	2.2	15.9
3.9	16.5	2.5	16.4	3.1	17.5	3.6	16.4
5	18.7	4	18.1	5.4	20.3	4.1	19.4
2.2	15.5	1.6	14.6	1.1	15.2	1.3	14.8
1.1	15.3	1.3	14.8	0.3	12.7	1.1	15
2.5	14.3	1.3	12.7	0.9	15.3	0.8	15.6
2.8	15.6	3.5	16.3	1.5	16.3	2.6	15.7
4.2	18.1	4.8	17.8	3.5	18.8	4.2	19.8
-0.3	0.1	-0.1	0.2	-0.6	-1.2	-0.3	-0.300
0	0.4	0.2	-0.5	-1.7	-2.5	0	-0.100
0.8	-0.9	0.2	0.5	-1.9	-1.6	-1.4	-0.300
-1.1	-0.9	1	-0.1	-1.6	-1.2	-1	-0.700
-0.8	-0.6	0.8	-0.3	-1.9	-1.5	0.1	0.400
0.739594483	0.59749477	0.460434577	0.397492138	0.541294744	0.533853913	0.65345237	0.400
-0.28	-0.38	0.42	-0.04	-1.54	-1.6	-0.52	-0.200

	Sigma FE	Sigma SPK
	0.371483512	1.006479011
	0.552268051	0.418330013
	0.636396103	1.884940317
	0.571839138	0.496990946
	0.749666593	1.038267788
Avg Sigma	**0.576330679**	
	0.533853913	0.558569602
	0.572712843	1.40605832
	0.702139587	1.221474519
	0.73006849	0.327108545
	0.589915248	0.919238816
Avg Sigma	**0.625738016**	

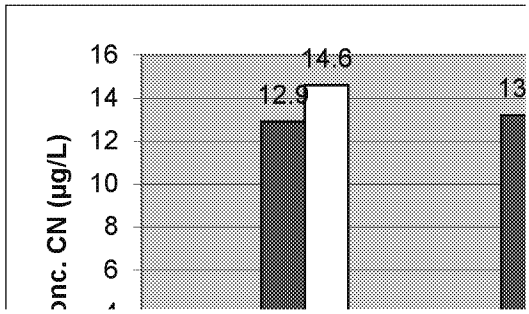
			FE Da
SJ 17771	SJCE pH 7	Unpreserved	
SJ 17772	SJCE pH 12	pH 12	
SJ 17773	SJCE pH 7 15 ppb SPK	Unpreserved	1
SJ 17774	SJCE pH 12 15 ppb SPK	pH 12	1
SJ 17775	DI pH 7	Unpreserved	
SJ 17776	DI pH 12	pH 12	
SJ 17777	DI pH 7 15 ppb SPK	Unpreserved	1
SJ 17778	DI pH 12 15 ppb SPK	pH 12	1

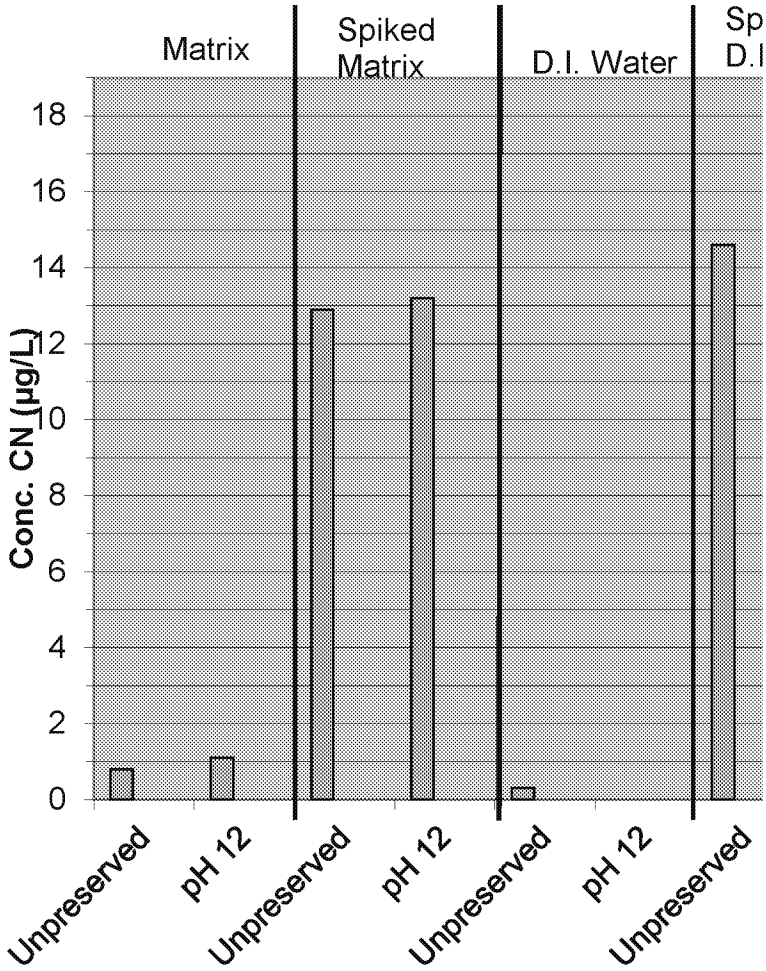


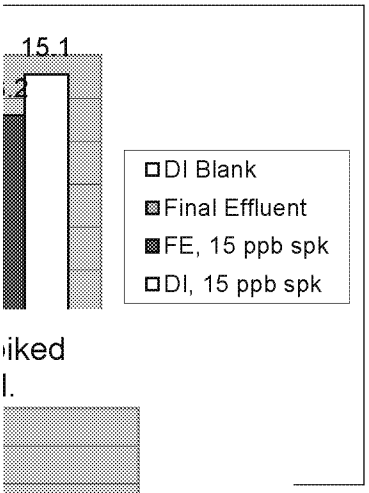


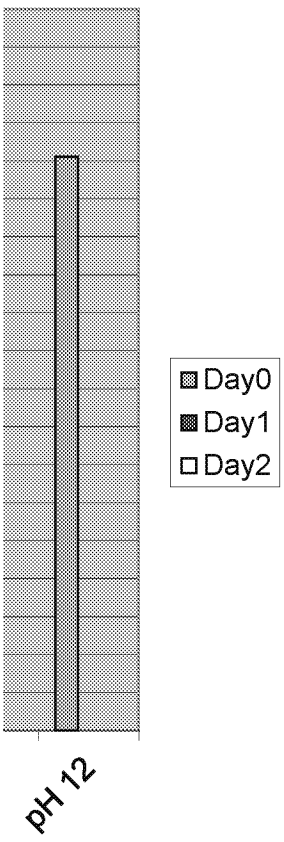

Spiked
D.I.
ved
pH 12
Day0
Day1
Day2

			FE Day0	Day1	Day2
SJ 18926	Val FE pH 7	Unpreserved	0.8		
SJ 18927	Val FE pH 12	pH 12	1.1		
SJ 18928	Val FE pH 7 15 ppb SPK	Unpreserved	12.9		
SJ 18929	Val FE pH 12 15 ppb SPK	pH 12	13.2		
SJ 18930	DI pH 7	Unpreserved	0.3		
SJ 18931	DI pH 12	pH 12	0		
SJ 18932	DI pH 7 15 ppb SPK	Unpreserved	14.6		
SJ 18933	DI pH 12 15 ppb SPK	pH 12	15.1		






15.1
DI Blank
Final Effluent
FE, 15 ppb spk
DI, 15 ppb spk


Day0
Day1
Day2
pH 12

	pH 12	pH 11	pH 10
1		4.7	2.9
2	11.1	4.3	2.5
6	11.5	2.9	1.2
12	10.2	2.6	1.4

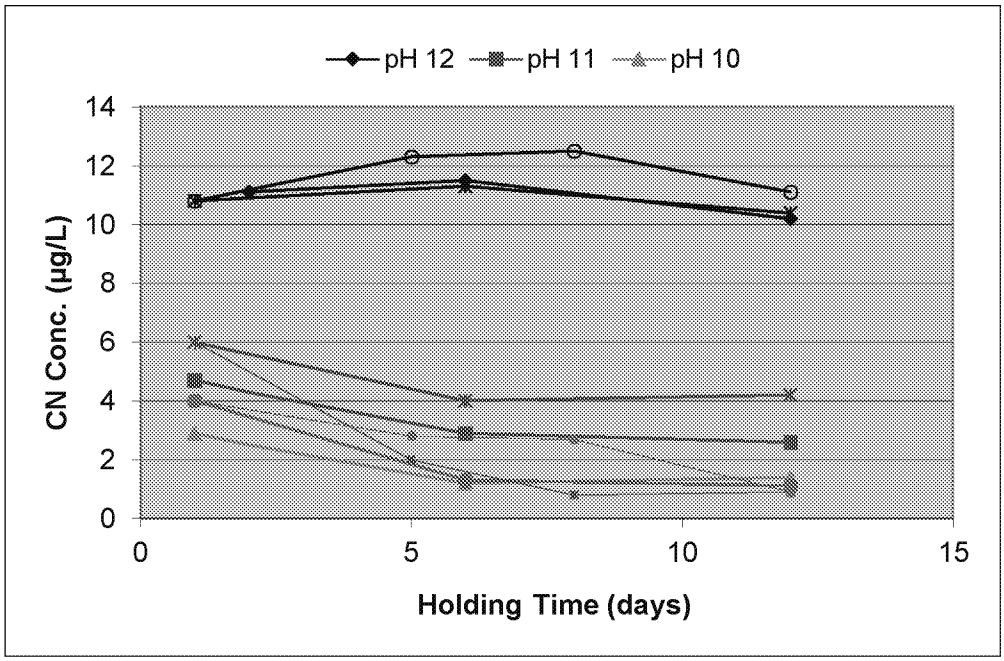
	pH 12	pH 11	pH 10
1	10.8	6	4
6	11.3	4	1.3
12	10.4	4.2	1.1

	pH 12
1	10.8
5	12.3
8	12.5
12	11.1

SJ 18714	SJ 18709	SJ 18708
SJ 19028	SJ 19027	SJ 19026
SJ 19129	SJ 19131	SJ 19130

15-Dec	Sample taken		
16-Dec	19171	19174	19173
21-Dec	19404	19407	19406
27-Dec	19463	19466	19465

22-Dec	Sample taken
23-Dec	19571
27-Dec	19617
30-Dec	19719
4-Jan	19875



pH 11	pH 10		pH 12		pH 11	pH 10	Outfall
6	4	1		6.2	3	2.4	4.9
2	2.8	5		5.4	1.5	0.9	3.1
0.8	2.7	1					
0.9	0.9	5					

		29-Dec	Sample taken				
19574	19573	30-Dec		19799	19802	19801	19800
19620	19619	3-Jan		19880	19883	19882	19881
19722	19721	30-Dec		20010	20013	20012	20011
19878	19877	4-Jan					