

## Protecting Our Water Environment

IEPA ATTACHMENT NO. BB

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### Metropolitan Water Reclamation District of Greater Chicago

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Louis Kollias, P.E., BCEE  
*Director of Research and Development*

312-751-5190

April 25, 2007

Mr. Rob Sulski  
Illinois Environmental Protection Agency  
9511 W. Harrison Street  
Des Plaines, IL 60016

Dear Mr. Sulski:

Subject: Chicago Area Waterway System Concentrations of Cadmium, Nickel and Zinc and Calculated Compliance Rates with Proposed Chronic Standards for the Respective Metals

Reference is made to your request, transmitted via electronic mail on April 3, 2007, for the subject information. The attached tables show all of the incidence of excursions from the proposed standard that were detected in the Chicago Area Waterway System (CAWs) during the Metropolitan Water Reclamation District of Greater Chicago (District) ambient water quality monitoring in 2005 and 2006. Although you requested that we provide this information for mercury excursions as well, we do not have enough data points to calculate a chronic value for mercury.

In the attached tables we have presented the hypothetical percent compliance calculated by direct comparison of the observed monitoring sample concentrations with the computed instantaneous chronic toxicity standard for each monitoring sample analyzed. We also presented compliance that would have been achieved based on the procedure outlined in Section 302.407b of the draft CAWs standards, which utilizes a "mean of quotients" approach. The data presented in our previous comments were aggregates of the direct comparison data presented here. However, the draft standards indicate that the quotient method described in Section 302.407b would become the appropriate means of computing compliance with chronic toxicity standards. Given this approach, potential noncompliance was observed for cadmium at Central Street in the North Shore Channel in 2006, at Foster Avenue in the North Shore Channel in 2006, and at Diversey Parkway in the North Branch of the Chicago River in 2006. No potential noncompliance was observed for zinc or nickel in the Chicago River System.

For the Calumet River system potential noncompliance was observed for cadmium at Ewing Avenue in the Calumet River in 2006, at 130th Street in the Calumet River in 2006, at Burnham Avenue in the Grand Calumet River in 2005, at Ashland Avenue in the Calumet-Sag

Mr. Rob Sulski

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Channel in 2006, at Cicero Avenue in the Calumet-Sag Channel, and at Route 83 in the Calumet-Sag Channel in 2006. No potential noncompliance was observed for zinc or nickel in the Calumet River System.

Should you have questions or need clarification, please contact Dr. Catherine O'Connor at (708) 588-4116.

Very truly yours,



Louis Kollias  
Director  
Research and Development

LK:CO'C:lmf  
Attachment  
cc: Granato  
O'Connor  
Abedin

TABLE 1: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED  
CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL  
BASED ON THE HARDNESS CONCENTRATION AT  
CENTRAL STREET, NORTH SHORE CHANNEL  
SAMPLING STATION 35 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
04/11/05	225.44	0.0032	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04295	0.00043	0.00992
05/09/05	140.36	0.0024	*0.0004	<MDL <sup>3</sup>	0.02875	0.00031	0.00664
06/13/05	134.34	0.0023	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02770	0.00030	0.00640
07/11/05	138.97	0.0057	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02851	0.00031	0.00659
08/08/05	132.84	0.0024	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02744	0.00030	0.00634
09/12/05	170.63	0.0013	*0.0006	<MDL <sup>3</sup>	0.03392	0.00036	0.00784
10/10/05	131.74	0.0054	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02725	0.00030	0.00630
11/14/05	146.28	0.0085	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02977	0.00032	0.00688
03/13/06	166.24	0.0040	*0.0004	<MDL <sup>3</sup>	0.03318	0.00035	0.00767
04/10/06	182.59	0.0094	0.0003	<MDL <sup>3</sup>	0.03593	0.00037	0.00830
05/08/06	132.43	0.0140	*0.0007	<MDL <sup>3</sup>	0.02737	0.00030	0.00633
06/12/06	138.02	0.0020	*0.0005	<MDL <sup>3</sup>	0.02834	0.00031	0.00655
07/10/06	131.88	0.0050	*0.0007	<MDL <sup>3</sup>	0.02727	0.00030	0.00630
08/14/06	129.67	0.0160	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02688	0.00029	0.00621
09/11/06	121.64	0.0120	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02547	0.00028	0.00589
10/09/06	130.43	0.0090	*0.0003	<MDL <sup>3</sup>	0.02702	0.00030	0.00624
11/13/06	173.36	0.0150	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03438	0.00036	0.00794

**Percent Compliance Due to Individual Violation**

2005	<b>100.0</b>	<b>75.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>44.4</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>0.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 2: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED  
CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL  
BASED ON THE HARDNESS CONCENTRATION AT  
OAKTON STREET, NORTH SHORE CHANNEL  
SAMPLING STATION 102 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
01/10/05	279.54	0.0307	<MDL <sup>2</sup>	0.0040	0.05154	0.00050	0.01190
02/14/05	240.28	*0.0533	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04534	0.00045	0.01047
03/14/05	272.71	0.0345	0.0004	0.0020	0.05047	0.00049	0.01165
04/11/05	282.24	0.0144	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.05196	0.00051	0.01200
05/09/05	144.49	0.0020	*0.0004	<MDL <sup>3</sup>	0.02946	0.00032	0.00681
06/13/05	140.41	0.0036	*0.0004	<MDL <sup>3</sup>	0.02876	0.00031	0.00665
07/11/05	139.61	0.0077	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02862	0.00031	0.00661
08/08/05	139.02	0.0075	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02852	0.00031	0.00659
09/12/05	132.77	0.0009	*0.0005	<MDL <sup>3</sup>	0.02743	0.00030	0.00634
10/10/05	133.23	0.0063	0.0003	<MDL <sup>3</sup>	0.02751	0.00030	0.00636
11/14/05	168.13	0.0271	<MDL <sup>2</sup>	0.0020	0.03350	0.00035	0.00774
12/12/05	193.89	0.0278	<MDL <sup>2</sup>	0.0080	0.03780	0.00039	0.00873
01/09/06	235.02	0.0330	<MDL <sup>2</sup>	0.0020	0.04450	0.00045	0.01028
02/14/06	213.54	0.0380	*0.0010	0.0020	0.04102	0.00042	0.00948
03/13/06	247.28	0.0270	*0.0006	<MDL <sup>3</sup>	0.04645	0.00046	0.01073
04/10/06	267.67	0.0381	0.0003	0.0020	0.04968	0.00049	0.01147
05/08/06	139.38	0.0150	*0.0008	<MDL <sup>3</sup>	0.02858	0.00031	0.00661
06/12/06	134.83	0.0040	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02779	0.00030	0.00642
07/10/06	139.22	0.0070	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02855	0.00031	0.00660
08/14/06	132.03	0.0080	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02730	0.00030	0.00631
09/11/06	157.40	*0.0405	<MDL <sup>2</sup>	0.0030	0.03168	0.00034	0.00732
10/09/06	136.41	0.0100	*0.0004	<MDL <sup>3</sup>	0.02806	0.00031	0.00649
11/13/06	210.68	0.0200	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04056	0.00041	0.00937
12/11/06	242.52	*0.0540	0.0003	<MDL <sup>3</sup>	0.04570	0.00045	0.01055

**Percent Compliance Due to Individual Violation**

2005	<b>91.7</b>	<b>75.0</b>	<b>100.0</b>
2006	<b>83.3</b>	<b>66.7</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 3: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED  
CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL  
BASED ON THE HARDNESS CONCENTRATION AT  
TOUHY AVENUE, NORTH SHORE CHANNEL  
SAMPLING STATION 36 IN 2005 AND 2006

Date	Concentrations				Chronic Standards for Soluble		
	Hardness	Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
01/10/05	268.73	0.0392	*0.0006	0.0030	0.04985	0.00049	0.01151
02/14/05	214.97	0.0241	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04126	0.00042	0.00953
03/14/05	261.49	0.0388	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04871	0.00048	0.01125
04/11/05	254.04	0.0354	<MDL <sup>2</sup>	0.0030	0.04753	0.00047	0.01098
05/09/05	204.28	0.0253	*0.0006	0.0020	0.03951	0.00040	0.00913
06/13/05	190.36	0.0255	0.0003	<MDL <sup>3</sup>	0.03722	0.00038	0.00860
07/11/05	184.40	0.0267	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03623	0.00038	0.00837
08/08/05	168.33	0.0242	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03354	0.00035	0.00775
09/12/05	170.93	0.0136	*0.0007	<MDL <sup>3</sup>	0.03397	0.00036	0.00785
10/10/05	160.43	0.0235	*0.0004	<MDL <sup>3</sup>	0.03220	0.00034	0.00744
11/14/05	173.11	*0.0344	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03434	0.00036	0.00793
12/12/05	205.04	0.0322	<MDL <sup>2</sup>	0.0050	0.03964	0.00040	0.00916
01/09/06	224.56	0.0400	<MDL <sup>2</sup>	0.0020	0.04281	0.00043	0.00989
02/14/06	212.61	*0.0420	*0.0011	0.0030	0.04087	0.00042	0.00944
03/13/06	178.50	0.0140	*0.0005	<MDL <sup>3</sup>	0.03524	0.00037	0.00814
04/10/06	292.10	0.0416	<MDL <sup>2</sup>	0.0020	0.05350	0.00052	0.01235
05/08/06	213.05	0.0370	*0.0011	<MDL <sup>3</sup>	0.04095	0.00042	0.00946
06/12/06	200.38	0.0200	*0.0008	<MDL <sup>3</sup>	0.03887	0.00040	0.00898
07/10/06	176.09	0.0230	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03484	0.00036	0.00805
08/14/06	166.93	0.0290	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03330	0.00035	0.00769
09/11/06	168.16	*0.0418	0.0003	0.0020	0.03351	0.00035	0.00774
10/09/06	221.58	0.0360	0.0004	<MDL <sup>3</sup>	0.04233	0.00043	0.00978
11/13/06	263.55	0.0410	0.0003	<MDL <sup>3</sup>	0.04903	0.00048	0.01132
12/11/06	219.53	0.0400	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04200	0.00042	0.00970

**Percent Compliance Due to Individual Violation**

2005	<b>91.7</b>	<b>66.7</b>	<b>100.0</b>
2006	<b>83.3</b>	<b>66.7</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 4: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED  
CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL  
BASED ON THE HARDNESS CONCENTRATION AT  
FOSTER AVENUE, NORTH SHORE CHANNEL  
SAMPLING STATION 101 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		mg/L			mg/L		
01/10/05	280.61	0.0382	0.0005	0.0030	0.05171	0.00050	0.01194
02/14/05	194.02	0.0217	<MDL <sup>2</sup>	0.0020	0.03782	0.00039	0.00874
03/14/05	271.56	0.0358	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.05029	0.00049	0.01161
04/11/05	286.17	0.0322	<MDL <sup>2</sup>	0.0030	0.05257	0.00051	0.01214
05/09/05	206.48	0.0245	0.0004	0.0020	0.03987	0.00041	0.00921
06/13/05	193.08	0.0274	0.0003	0.0030	0.03767	0.00039	0.00870
07/11/05	183.17	0.0242	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03602	0.00037	0.00832
08/08/05	174.36	0.0266	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03455	0.00036	0.00798
09/12/05	177.70	0.0179	*0.0008	<MDL <sup>3</sup>	0.03511	0.00037	0.00811
10/10/05	164.39	0.0245	0.0003	<MDL <sup>3</sup>	0.03287	0.00035	0.00760
11/14/05	174.41	0.0315	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03456	0.00036	0.00798
12/12/05	212.37	0.0322	<MDL <sup>2</sup>	0.0060	0.04083	0.00041	0.00943
01/09/06	230.31	0.0420	<MDL <sup>2</sup>	0.0020	0.04374	0.00044	0.01010
02/14/06	218.31	*0.0430	*0.0011	0.0020	0.04180	0.00042	0.00966
03/13/06	162.14	0.0150	*0.0007	<MDL <sup>3</sup>	0.03249	0.00034	0.00751
04/10/06	269.86	0.0345	0.0003	0.0020	0.05002	0.00049	0.01155
05/08/06	228.16	0.0390	*0.0006	<MDL <sup>3</sup>	0.04339	0.00044	0.01002
06/12/06	220.19	0.0230	*0.0011	<MDL <sup>3</sup>	0.04210	0.00043	0.00973
07/10/06	184.48	0.0210	*0.0004	<MDL <sup>3</sup>	0.03624	0.00038	0.00837
08/14/06	182.34	*0.0360	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03589	0.00037	0.00829
09/11/06	149.53	*0.0321	0.0003	0.0030	0.03033	0.00033	0.00701
10/09/06	231.41	0.0350	*0.0006	<MDL <sup>3</sup>	0.04392	0.00044	0.01014
11/13/06	277.87	0.0420	0.0003	0.0020	0.05128	0.00050	0.01184
12/11/06	228.25	*0.0450	0.0004	<MDL <sup>3</sup>	0.04341	0.00044	0.01003

**Percent Compliance Due to Individual Violation**

2005	<b>100.0</b>	<b>91.7</b>	<b>100.0</b>
2006	<b>66.7</b>	<b>50.0</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>0.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 5: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL BASED ON THE HARDNESS CONCENTRATION AT WILSON AVENUE, NORTH BRANCH CHICAGO RIVER SAMPLING STATION 37 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		mg/L			mg/L		
01/10/05	295.55	0.0370	0.0003	0.0030	0.05403	0.00052	0.01248
02/14/05	238.05	0.0362	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04498	0.00045	0.01039
03/14/05	298.15	0.0304	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.05443	0.00052	0.01257
04/11/05	287.59	0.0265	<MDL <sup>2</sup>	0.0030	0.05279	0.00051	0.01219
05/09/05	216.92	0.0261	*0.0006	0.0020	0.04157	0.00042	0.00960
06/13/05	198.45	0.0221	*0.0004	0.0020	0.03856	0.00040	0.00891
07/11/05	186.73	0.0233	0.0003	<MDL <sup>3</sup>	0.03662	0.00038	0.00846
08/08/05	184.57	0.0233	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03626	0.00038	0.00838
09/12/05	180.48	0.0130	*0.0009	<MDL <sup>3</sup>	0.03557	0.00037	0.00822
10/10/05	172.35	0.0195	0.0003	0.0020	0.03421	0.00036	0.00791
11/14/05	172.59	*0.0886	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03425	0.00036	0.00791
12/12/05	229.65	0.0253	<MDL <sup>2</sup>	0.0060	0.04363	0.00044	0.01008
01/09/06	258.06	0.0310	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04816	0.00047	0.01112
02/14/06	239.08	0.0310	*0.0011	<MDL <sup>3</sup>	0.04515	0.00045	0.01043
03/13/06	200.41	0.0200	*0.0009	<MDL <sup>3</sup>	0.03888	0.00040	0.00898
04/10/06	290.16	0.0282	0.0004	0.0020	0.05319	0.00052	0.01228
05/08/06	248.20	0.0400	*0.0011	<MDL <sup>3</sup>	0.04660	0.00046	0.01076
06/12/06	228.77	0.0200	*0.0009	0.0030	0.04349	0.00044	0.01004
07/10/06	196.41	0.0180	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03822	0.00039	0.00883
08/14/06	176.60	0.0270	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03493	0.00037	0.00807
09/11/06	147.14	0.0263	<MDL <sup>2</sup>	0.0020	0.02992	0.00032	0.00692
10/09/06	217.49	0.0260	*0.0005	<MDL <sup>3</sup>	0.04167	0.00042	0.00962
11/13/06	266.47	0.0270	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04949	0.00049	0.01143
12/11/06	254.15	0.0380	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04755	0.00047	0.01098

**Percent Compliance Due to Individual Violation**

2005	91.7	75.0	100.0
2006	100.0	58.3	100.0

**Percent Compliance Due to Average Quotient Violation**

2005	100.0	100.0	100.0
2006	100.0	100.0	100.0

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 6: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED  
CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL  
BASED ON THE HARDNESS CONCENTRATION AT  
DIVERSEY PARKWAY, NORTH BRANCH CHICAGO RIVER  
SAMPLING STATION 73 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
01/10/05	300.23	0.0289	*0.0006	0.0030	0.05476	0.00053	0.01264
02/14/05	229.59	0.0232	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04362	0.00044	0.01008
03/14/05	295.72	0.0284	<MDL <sup>2</sup>	0.0020	0.05406	0.00052	0.01248
04/11/05	274.73	0.0246	<MDL <sup>2</sup>	0.0040	0.05079	0.00050	0.01173
05/09/05	217.42	0.0246	0.0004	0.0020	0.04166	0.00042	0.00962
06/13/05	196.99	0.0241	*0.0004	0.0020	0.03831	0.00039	0.00885
07/11/05	191.23	0.0227	*0.0004	0.0020	0.03736	0.00039	0.00863
08/08/05	181.65	0.0187	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03577	0.00037	0.00826
09/12/05	178.78	0.0166	*0.0005	<MDL <sup>3</sup>	0.03529	0.00037	0.00815
10/10/05	173.02	0.0213	*0.0005	<MDL <sup>3</sup>	0.03433	0.00036	0.00793
11/14/05	157.52	0.0208	<MDL <sup>2</sup>	0.0020	0.03170	0.00034	0.00733
12/12/05	207.53	0.0292	<MDL <sup>2</sup>	*0.0100	0.04004	0.00041	0.00925
01/09/06	255.41	0.0350	<MDL <sup>2</sup>	0.0020	0.04774	0.00047	0.01103
02/14/06	227.87	0.0330	*0.0010	<MDL <sup>3</sup>	0.04335	0.00044	0.01001
03/13/06	230.09	0.0240	*0.0007	<MDL <sup>3</sup>	0.04370	0.00044	0.01009
04/10/06	289.22	0.0265	0.0003	0.0020	0.05305	0.00051	0.01225
05/08/06	245.00	0.0330	*0.0013	<MDL <sup>3</sup>	0.04609	0.00046	0.01064
06/12/06	207.12	0.0190	*0.0007	0.0020	0.03998	0.00041	0.00923
07/10/06	184.33	0.0200	0.0003	<MDL <sup>3</sup>	0.03622	0.00038	0.00837
08/14/06	171.57	0.0250	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03408	0.00036	0.00787
09/11/06	133.28	0.0215	0.0003	0.0020	0.02752	0.00030	0.00636
10/09/06	214.08	0.0230	0.0004	<MDL <sup>3</sup>	0.04111	0.00042	0.00950
11/13/06	273.80	0.0240	0.0003	<MDL <sup>3</sup>	0.05064	0.00049	0.01169
12/11/06	277.13	0.0420	0.0003	<MDL <sup>3</sup>	0.05116	0.00050	0.01181

**Percent Compliance Due to Individual Violation**

2005	<b>100.0</b>	<b>58.3</b>	<b>91.7</b>
2006	<b>100.0</b>	<b>66.7</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>0.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.



TABLE 7: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL BASED ON THE HARDNESS CONCENTRATION AT GRAND AVENUE, NORTH BRANCH CHICAGO RIVER SAMPLING STATION 46 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
01/10/05	303.85	0.0352	0.0005	0.0070	0.05531	0.00053	0.01277
02/14/05	317.95	0.0365	<MDL <sup>2</sup>	0.0020	0.05748	0.00055	0.01327
03/14/05	299.35	0.0325	0.0003	0.0030	0.05462	0.00053	0.01261
04/11/05	290.54	0.0272	<MDL <sup>2</sup>	0.0030	0.05325	0.00052	0.01230
05/09/05	219.79	0.0266	*0.0008	0.0030	0.04204	0.00042	0.00971
06/13/05	180.25	0.0198	*0.0007	0.0030	0.03554	0.00037	0.00821
07/11/05	191.78	0.0356	0.0003	0.0020	0.03745	0.00039	0.00865
08/08/05	178.32	0.0189	<MDL <sup>2</sup>	0.0030	0.03521	0.00037	0.00814
09/12/05	175.58	0.0164	*0.0008	0.0020	0.03476	0.00036	0.00803
10/10/05	183.14	0.0238	*0.0005	0.0030	0.03602	0.00037	0.00832
11/14/05	193.20	0.0262	<MDL <sup>2</sup>	0.0040	0.03769	0.00039	0.00871
12/12/05	211.51	0.0337	<MDL <sup>2</sup>	0.0040	0.04069	0.00041	0.00940
01/09/06	272.85	0.0370	<MDL <sup>2</sup>	0.0040	0.05049	0.00049	0.01166
02/14/06	247.46	0.0340	*0.0008	0.0030	0.04648	0.00046	0.01074
03/13/06	239.86	0.0240	*0.0009	<MDL <sup>3</sup>	0.04527	0.00045	0.01046
04/10/06	303.27	0.0275	0.0003	0.0020	0.05522	0.00053	0.01275
05/08/06	247.14	0.0350	*0.0009	0.0020	0.04643	0.00046	0.01072
06/12/06	178.90	0.0210	*0.0006	<MDL <sup>3</sup>	0.03531	0.00037	0.00816
07/10/06	189.33	0.0190	0.0003	0.0030	0.03705	0.00038	0.00856
08/14/06	167.29	0.0260	<MDL <sup>2</sup>	0.0030	0.03336	0.00035	0.00771
09/11/06	180.43	0.0293	*0.0004	0.0040	0.03557	0.00037	0.00822
10/09/06	204.04	0.0230	0.0004	<MDL <sup>3</sup>	0.03947	0.00040	0.00912
11/13/06	215.36	0.0320	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04132	0.00042	0.00954
12/11/06	297.18	0.0360	0.0003	<MDL <sup>3</sup>	0.05428	0.00052	0.01253

**Percent Compliance Due to Individual Violation**

2005	<b>100.0</b>	<b>66.7</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>58.3</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 8: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED  
CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL  
BASED ON THE HARDNESS CONCENTRATION AT  
LAKE SHORE DRIVE, CHICAGO RIVER  
SAMPLING STATION 74 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
02/22/05	235.34	0.0157	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04455	0.00045	0.01029
03/21/05	243.86	0.0227	0.0003	0.0020	0.04591	0.00046	0.01060
04/18/05	169.32	0.0089	0.0003	<MDL <sup>3</sup>	0.03370	0.00035	0.00779
05/16/05	144.61	0.0054	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02949	0.00032	0.00681
06/20/05	138.24	0.0064	*0.0004	<MDL <sup>3</sup>	0.02838	0.00031	0.00656
07/18/05	135.24	*0.0415	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02786	0.00030	0.00644
08/15/05	133.13	0.0069	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02749	0.00030	0.00635
09/19/05	133.69	0.0042	*0.0010	0.0020	0.02759	0.00030	0.00638
10/17/05	125.78	0.0038	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02620	0.00029	0.00606
11/21/05	139.89	0.0068	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02867	0.00031	0.00663
01/17/06	174.79	0.0200	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03462	0.00036	0.00800
03/20/06	212.89	0.0147	*0.0005	<MDL <sup>3</sup>	0.04092	0.00042	0.00945
04/17/06	167.12	0.0130	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03333	0.00035	0.00770
05/15/06	134.49	0.0200	*0.0005	<MDL <sup>3</sup>	0.02773	0.00030	0.00641
06/19/06	127.85	0.0040	*0.0006	<MDL <sup>3</sup>	0.02656	0.00029	0.00614
07/17/06	125.24	0.0140	<MDL <sup>2</sup>	*0.0170	0.02610	0.00029	0.00603
08/21/06	122.89	0.0067	*0.0003	<MDL <sup>3</sup>	0.02569	0.00028	0.00594
09/18/06	123.70	0.0118	*0.0004	<MDL <sup>3</sup>	0.02583	0.00029	0.00597
10/16/06	126.70	0.0080	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02636	0.00029	0.00609
11/20/06	151.44	0.0140	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03066	0.00033	0.00709
12/18/06	172.84	0.0130	*0.0004	<MDL <sup>3</sup>	0.03430	0.00036	0.00792

**Percent Compliance Due to Individual Violation**

2005	<b>90.0</b>	<b>80.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>45.5</b>	<b>90.9</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 9: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED  
CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL  
BASED ON THE HARDNESS CONCENTRATION AT  
WELLS STREET, CHICAGO RIVER  
SAMPLING STATION 100 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
01/18/05	209.92	0.0180	*0.0006	0.0020	0.04043	0.00041	0.00934
02/22/05	256.49	0.0193	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04792	0.00047	0.01107
03/21/05	205.91	0.0141	*0.0007	<MDL <sup>3</sup>	0.03978	0.00041	0.00919
04/18/05	227.06	0.0208	0.0003	0.0020	0.04321	0.00043	0.00998
05/16/05	160.66	0.0119	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03224	0.00034	0.00745
06/20/05	138.29	0.0083	*0.0005	<MDL <sup>3</sup>	0.02839	0.00031	0.00656
07/18/05	133.28	0.0077	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02752	0.00030	0.00636
08/15/05	132.75	0.0069	*0.0003	<MDL <sup>3</sup>	0.02742	0.00030	0.00634
09/19/05	134.63	0.0077	*0.0008	<MDL <sup>3</sup>	0.02775	0.00030	0.00641
10/17/05	137.33	0.0108	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02822	0.00031	0.00652
11/21/05	165.84	0.0227	<MDL <sup>2</sup>	0.0020	0.03311	0.00035	0.00765
12/19/05	173.69	0.0167	<MDL <sup>2</sup>	0.0030	0.03444	0.00036	0.00796
01/17/06	195.39	0.0280	<MDL <sup>2</sup>	0.0020	0.03805	0.00039	0.00879
02/21/06	177.75	0.0160	*0.0008	<MDL <sup>3</sup>	0.03512	0.00037	0.00811
03/20/06	230.61	0.0182	*0.0008	<MDL <sup>3</sup>	0.04379	0.00044	0.01011
04/17/06	210.06	0.0190	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04046	0.00041	0.00935
05/15/06	164.26	0.0210	*0.0012	<MDL <sup>3</sup>	0.03285	0.00035	0.00759
06/19/06	131.59	0.0050	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02722	0.00030	0.00629
07/17/06	126.29	0.0140	*0.0005	<MDL <sup>3</sup>	0.02629	0.00029	0.00608
08/21/06	125.24	0.0093	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02610	0.00029	0.00603
09/18/06	123.48	0.0118	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02579	0.00028	0.00596
10/16/06	134.77	0.0110	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02778	0.00030	0.00642
11/20/06	205.67	0.0210	0.0003	<MDL <sup>3</sup>	0.03974	0.00041	0.00918
12/18/06	255.69	0.0250	0.0004	<MDL <sup>3</sup>	0.04779	0.00047	0.01104

**Percent Compliance Due to Individual Violation**

2005	<b>100.0</b>	<b>58.3</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>66.7</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 10: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED  
CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL  
BASED ON THE HARDNESS CONCENTRATION AT  
MADISON STREET, SOUTH BRANCH CHICAGO RIVER  
SAMPLING STATION 39 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
01/18/05	285.64	0.0225	0.0004	0.0020	0.05249	0.00051	0.01212
02/22/05	267.79	0.0219	<MDL <sup>2</sup>	0.0020	0.04970	0.00049	0.01148
03/21/05	294.30	0.0357	*0.0007	0.0020	0.05384	0.00052	0.01243
04/18/05	257.11	0.0284	0.0003	0.0030	0.04801	0.00047	0.01109
05/16/05	196.31	0.0242	<MDL <sup>2</sup>	0.0030	0.03820	0.00039	0.00883
06/20/05	183.27	*0.0402	0.0003	0.0030	0.03604	0.00037	0.00833
07/18/05	158.27	0.0148	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03183	0.00034	0.00736
08/15/05	154.84	0.0130	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03124	0.00033	0.00722
09/19/05	150.36	0.0125	*0.0007	0.0020	0.03048	0.00033	0.00704
10/17/05	156.09	0.0157	*0.0004	0.0020	0.03146	0.00034	0.00727
11/21/05	183.16	0.0245	<MDL <sup>2</sup>	0.0030	0.03602	0.00037	0.00832
12/19/05	191.39	0.0259	<MDL <sup>2</sup>	0.0030	0.03739	0.00039	0.00864
01/17/06	220.99	0.0300	<MDL <sup>2</sup>	0.0040	0.04223	0.00043	0.00976
02/21/06	227.75	0.0200	*0.0007	<MDL <sup>3</sup>	0.04333	0.00044	0.01001
03/20/06	264.77	0.0214	*0.0005	0.0020	0.04922	0.00048	0.01137
04/17/06	237.77	0.0260	<MDL <sup>2</sup>	0.0030	0.04494	0.00045	0.01038
05/15/06	205.75	0.0240	*0.0011	<MDL <sup>3</sup>	0.03975	0.00041	0.00918
06/19/06	163.91	0.0110	*0.0008	<MDL <sup>3</sup>	0.03279	0.00035	0.00758
07/17/06	141.46	0.0190	*0.0005	<MDL <sup>3</sup>	0.02894	0.00031	0.00669
08/21/06	132.91	0.0131	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02745	0.00030	0.00634
09/18/06	157.98	0.0184	*0.0004	0.0020	0.03178	0.00034	0.00734
10/16/06	147.95	0.0140	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03006	0.00032	0.00695
11/20/06	244.89	0.0280	<MDL <sup>2</sup>	0.0030	0.04607	0.00046	0.01064
12/18/06	310.87	0.0260	0.0004	<MDL <sup>3</sup>	0.05640	0.00054	0.01302

**Percent Compliance Due to Individual Violation**

2005	91.7	75.0	100.0
2006	100.0	50.0	100.0

**Percent Compliance Due to Average Quotient Violation**

2005	100.0	100.0	100.0
2006	100.0	100.0	100.0

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 11: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL BASED ON THE HARDNESS CONCENTRATION AT LOOMIS STREET, SOUTH BRANCH CHICAGO RIVER SAMPLING STATION 108 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
01/18/05	322.61	0.0251	*0.0007	0.0020	0.05819	0.00055	0.01344
02/22/05	329.21	0.0290	<MDL <sup>2</sup>	0.0030	0.05920	0.00056	0.01367
03/21/05	290.74	0.0309	*0.0007	0.0030	0.05329	0.00052	0.01230
04/18/05	245.64	0.0263	*0.0005	0.0030	0.04619	0.00046	0.01067
07/18/05	162.01	0.0153	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03247	0.00034	0.00750
08/15/05	157.53	0.0150	0.0003	0.0020	0.03170	0.00034	0.00733
09/19/05	132.50	0.0088	*0.0008	<MDL <sup>3</sup>	0.02738	0.00030	0.00633
10/17/05	155.35	0.0128	*0.0004	0.0020	0.03133	0.00033	0.00724
11/21/05	178.78	0.0234	<MDL <sup>2</sup>	0.0030	0.03529	0.00037	0.00815
12/19/05	197.75	0.0304	<MDL <sup>2</sup>	0.0060	0.03844	0.00039	0.00888
01/17/06	176.56	*0.0370	*0.0005	0.0040	0.03492	0.00037	0.00807
02/21/06	248.66	0.0230	*0.0008	<MDL <sup>3</sup>	0.04667	0.00046	0.01078
03/20/06	292.58	0.0217	*0.0006	<MDL <sup>3</sup>	0.05357	0.00052	0.01237
04/17/06	263.52	0.0270	<MDL <sup>2</sup>	0.0040	0.04903	0.00048	0.01132
05/15/06	188.48	0.0240	*0.0008	<MDL <sup>3</sup>	0.03691	0.00038	0.00853
06/19/06	183.22	0.0180	*0.0006	<MDL <sup>3</sup>	0.03603	0.00037	0.00832
07/17/06	155.04	0.0190	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03128	0.00033	0.00723
08/21/06	156.53	0.0212	0.0003	<MDL <sup>3</sup>	0.03153	0.00034	0.00729
09/18/06	170.76	0.0193	0.0003	0.0030	0.03395	0.00036	0.00784
10/16/06	161.88	0.0180	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03244	0.00034	0.00750
11/20/06	261.08	0.0310	0.0004	0.0030	0.04864	0.00048	0.01123
12/18/06	313.37	0.0210	0.0005	<MDL <sup>3</sup>	0.05678	0.00054	0.01311

**Percent Compliance Due to Individual Violation**

2005	<b>100.0</b>	<b>50.0</b>	<b>100.0</b>
2006	<b>91.7</b>	<b>58.3</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 12: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL BASED ON THE HARDNESS CONCENTRATION AT ARCHER AVENUE, SOUTH FORK SOUTH BRANCH CHICAGO RIVER SAMPLING STATION 99 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
02/22/05	307.72	0.0219	<MDL <sup>2</sup>	0.0020	0.05591	0.00054	0.01291
03/21/05	301.98	0.0261	0.0004	0.0030	0.05502	0.00053	0.01270
04/18/05	277.27	0.0081	0.0003	0.0030	0.05119	0.00050	0.01182
05/16/05	196.98	0.0167	0.0003	0.0030	0.03831	0.00039	0.00885
06/20/05	180.83	0.0118	0.0003	0.0020	0.03563	0.00037	0.00823
07/18/05	160.92	0.0128	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03228	0.00034	0.00746
08/15/05	163.57	0.0152	0.0003	0.0020	0.03273	0.00035	0.00756
09/19/05	147.12	0.0091	*0.0005	<MDL <sup>3</sup>	0.02992	0.00032	0.00691
10/17/05	152.28	0.0149	0.0003	<MDL <sup>3</sup>	0.03081	0.00033	0.00712
11/21/05	176.35	0.0207	<MDL <sup>2</sup>	0.0030	0.03488	0.00036	0.00806
12/19/05	198.42	0.0275	<MDL <sup>2</sup>	0.0050	0.03855	0.00040	0.00891
01/17/06	226.20	0.0350	<MDL <sup>2</sup>	0.0040	0.04308	0.00043	0.00995
07/17/06	152.60	0.0150	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03086	0.00033	0.00713
08/21/06	148.75	0.0172	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03020	0.00032	0.00698
09/18/06	159.27	0.0157	0.0003	0.0020	0.03200	0.00034	0.00739
10/16/06	156.58	0.0130	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03154	0.00034	0.00729
11/20/06	262.99	0.0270	<MDL <sup>2</sup>	0.0030	0.04894	0.00048	0.01130
12/18/06	318.85	0.0180	0.0005	<MDL <sup>3</sup>	0.05762	0.00055	0.01330

**Percent Compliance Due to Individual Violation**

2005	<b>100.0</b>	<b>90.9</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 13: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL BASED ON THE HARDNESS CONCENTRATION AT DAMEN AVENUE, CHICAGO SANITARY & SHIP CANAL SAMPLING STATION 40 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		mg/L			mg/L		
01/18/05	325.44	0.0233	*0.0006	0.0020	0.05863	0.00056	0.01353
02/22/05	314.68	0.0310	<MDL <sup>2</sup>	0.0030	0.05698	0.00054	0.01316
03/21/05	300.34	0.0398	0.0005	0.0040	0.05477	0.00053	0.01265
04/18/05	232.69	0.0250	0.0004	0.0020	0.04412	0.00044	0.01019
05/16/05	194.13	0.0211	0.0003	0.0020	0.03784	0.00039	0.00874
06/20/05	178.26	0.0224	*0.0004	0.0020	0.03520	0.00037	0.00813
07/18/05	166.00	0.0146	<MDL <sup>2</sup>	0.0020	0.03314	0.00035	0.00766
08/15/05	163.76	0.0168	*0.0006	0.0020	0.03276	0.00035	0.00757
09/19/05	139.00	0.0139	*0.0007	<MDL <sup>3</sup>	0.02851	0.00031	0.00659
10/17/05	153.47	0.0124	*0.0004	0.0020	0.03101	0.00033	0.00717
11/21/05	169.63	0.0224	<MDL <sup>2</sup>	0.0030	0.03375	0.00036	0.00780
12/19/05	197.42	0.0287	<MDL <sup>2</sup>	0.0060	0.03838	0.00039	0.00887
01/17/06	221.69	0.0380	0.0003	0.0040	0.04235	0.00043	0.00978
02/21/06	236.06	0.0220	*0.0007	<MDL <sup>3</sup>	0.04466	0.00045	0.01032
03/20/06	300.50	0.0339	0.0003	<MDL <sup>3</sup>	0.05480	0.00053	0.01265
04/17/06	244.16	0.0290	<MDL <sup>2</sup>	0.0030	0.04596	0.00046	0.01061
05/15/06	180.54	0.0190	*0.0009	<MDL <sup>3</sup>	0.03559	0.00037	0.00822
06/19/06	174.05	0.0120	*0.0005	<MDL <sup>3</sup>	0.03450	0.00036	0.00797
07/17/06	158.71	0.0200	<MDL <sup>2</sup>	0.0020	0.03190	0.00034	0.00737
08/21/06	154.28	0.0252	0.0003	<MDL <sup>3</sup>	0.03115	0.00033	0.00720
09/18/06	165.99	0.0217	*0.0004	0.0020	0.03314	0.00035	0.00766
10/16/06	160.46	0.0170	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03220	0.00034	0.00744
11/20/06	257.54	0.0300	<MDL <sup>2</sup>	0.0030	0.04808	0.00047	0.01110
12/18/06	325.48	0.0240	0.0005	<MDL <sup>3</sup>	0.05863	0.00056	0.01354

**Percent Compliance Due to Individual Violation**

2005	<b>100.0</b>	<b>58.3</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>66.7</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 14: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL BASED ON THE HARDNESS CONCENTRATION AT CICERO AVENUE, CHICAGO SANITARY & SHIP CANAL SAMPLING STATION 75 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		mg/L			mg/L		
01/18/05	321.76	0.0331	*0.0006	0.0020	0.05806	0.00055	0.01341
02/22/05	349.59	0.0303	<MDL <sup>2</sup>	0.0020	0.06229	0.00059	0.01438
03/21/05	302.56	0.0277	0.0005	0.0020	0.05511	0.00053	0.01273
04/18/05	258.92	0.0215	0.0003	0.0030	0.04830	0.00048	0.01115
05/16/05	197.98	0.0165	0.0003	0.0020	0.03848	0.00040	0.00889
06/20/05	172.61	0.0164	0.0003	0.0030	0.03426	0.00036	0.00792
07/18/05	165.23	0.0149	<MDL <sup>2</sup>	0.0020	0.03301	0.00035	0.00763
08/15/05	161.50	0.0169	0.0003	<MDL <sup>3</sup>	0.03238	0.00034	0.00748
09/19/05	146.77	0.0092	*0.0008	<MDL <sup>3</sup>	0.02986	0.00032	0.00690
10/17/05	155.77	0.0160	*0.0005	0.0020	0.03140	0.00033	0.00726
11/21/05	183.29	0.0285	<MDL <sup>2</sup>	0.0040	0.03604	0.00037	0.00833
12/19/05	188.33	0.0227	<MDL <sup>2</sup>	0.0050	0.03688	0.00038	0.00852
01/17/06	228.09	0.0380	0.0003	0.0040	0.04338	0.00044	0.01002
02/21/06	185.28	0.0270	*0.0006	0.0020	0.03638	0.00038	0.00840
03/20/06	293.75	0.0195	0.0003	<MDL <sup>3</sup>	0.05375	0.00052	0.01241
04/17/06	199.67	0.0180	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03876	0.00040	0.00895
05/15/06	171.95	0.0220	*0.0011	0.0030	0.03415	0.00036	0.00789
06/19/06	177.66	0.0120	*0.0006	0.0030	0.03510	0.00037	0.00811
07/17/06	152.52	0.0120	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03085	0.00033	0.00713
08/21/06	151.59	0.0198	0.0003	0.0020	0.03069	0.00033	0.00709
09/18/06	161.66	0.0164	*0.0005	0.0020	0.03241	0.00034	0.00749
10/16/06	174.51	0.0200	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03458	0.00036	0.00799
11/20/06	241.88	0.0250	<MDL <sup>2</sup>	0.0030	0.04559	0.00045	0.01053
12/18/06	301.24	0.0290	0.0003	<MDL <sup>3</sup>	0.05491	0.00053	0.01268

**Percent Compliance Due to Individual Violation**

2005	<b>100.0</b>	<b>75.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>66.7</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.



TABLE 15: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL BASED ON THE HARDNESS CONCENTRATION AT HARLEM AVENUE, CHICAGO SANITARY & SHIP CANAL SAMPLING STATION 41 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
01/18/05	314.12	0.0272	0.0003	0.0040	0.05689	0.00054	0.01314
02/22/05	288.06	0.0389	<MDL <sup>2</sup>	0.0050	0.05287	0.00051	0.01221
03/21/05	280.24	0.0327	0.0004	0.0060	0.05165	0.00050	0.01193
04/18/05	264.58	0.0258	0.0004	0.0050	0.04919	0.00048	0.01136
05/16/05	208.47	0.0191	0.0003	0.0040	0.04020	0.00041	0.00929
06/20/05	191.70	0.0194	*0.0004	0.0040	0.03744	0.00039	0.00865
07/18/05	181.40	0.0197	<MDL <sup>2</sup>	0.0030	0.03573	0.00037	0.00825
08/15/05	167.38	0.0176	*0.0004	0.0020	0.03338	0.00035	0.00771
09/19/05	147.11	0.0126	*0.0007	0.0020	0.02992	0.00032	0.00691
10/17/05	167.83	0.0170	*0.0005	0.0030	0.03345	0.00035	0.00773
11/21/05	183.02	0.0283	<MDL <sup>2</sup>	0.0040	0.03600	0.00037	0.00832
12/19/05	199.17	0.0235	<MDL <sup>2</sup>	*0.0100	0.03867	0.00040	0.00893
01/17/06	238.20	0.0350	<MDL <sup>2</sup>	0.0060	0.04501	0.00045	0.01039
02/21/06	227.27	0.0290	*0.0007	0.0030	0.04325	0.00043	0.00999
03/20/06	282.78	0.0261	0.0005	0.0020	0.05205	0.00051	0.01202
04/17/06	210.67	0.0210	<MDL <sup>2</sup>	0.0030	0.04056	0.00041	0.00937
05/15/06	230.61	0.0300	*0.0008	0.0040	0.04379	0.00044	0.01011
06/19/06	202.12	0.0170	*0.0011	0.0050	0.03916	0.00040	0.00905
07/17/06	173.68	0.0110	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03444	0.00036	0.00796
08/21/06	156.62	0.0173	0.0003	0.0030	0.03155	0.00034	0.00729
09/18/06	159.44	0.0209	*0.0004	0.0030	0.03203	0.00034	0.00740
10/16/06	217.42	0.0290	0.0004	0.0040	0.04166	0.00042	0.00962
11/20/06	236.55	0.0280	<MDL <sup>2</sup>	0.0060	0.04474	0.00045	0.01033
12/18/06	292.37	0.0280	0.0005	0.0030	0.05354	0.00052	0.01236

**Percent Compliance Due to Individual Violation**

2005	<b>100.0</b>	<b>66.7</b>	<b>91.7</b>
2006	<b>100.0</b>	<b>66.7</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 16: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL BASED ON THE HARDNESS CONCENTRATION AT ROUTE 83, CHICAGO SANITARY & SHIP CANAL SAMPLING STATION 42 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
01/18/05	300.25	0.0228	*0.0007	0.0030	0.05476	0.00053	0.01264
02/22/05	304.86	0.0233	<MDL <sup>2</sup>	0.0050	0.05547	0.00053	0.01281
03/21/05	294.86	0.0312	0.0004	0.0050	0.05392	0.00052	0.01245
04/18/05	281.77	0.0336	0.0003	0.0070	0.05189	0.00050	0.01198
05/16/05	191.97	0.0245	<MDL <sup>2</sup>	0.0050	0.03749	0.00039	0.00866
06/20/05	198.33	0.0243	*0.0005	0.0060	0.03854	0.00040	0.00890
07/18/05	189.66	0.0202	<MDL <sup>2</sup>	0.0050	0.03710	0.00038	0.00857
08/15/05	178.35	0.0163	0.0003	0.0050	0.03522	0.00037	0.00814
09/19/05	164.78	0.0164	*0.0007	0.0040	0.03294	0.00035	0.00761
10/17/05	186.12	0.0215	*0.0005	0.0050	0.03652	0.00038	0.00844
11/21/05	186.10	0.0262	<MDL <sup>2</sup>	0.0050	0.03651	0.00038	0.00844
01/17/06	232.98	0.0360	<MDL <sup>2</sup>	0.0060	0.04417	0.00044	0.01020
02/21/06	227.60	0.0300	*0.0007	0.0030	0.04330	0.00044	0.01000
03/20/06	278.86	0.0296	0.0005	0.0040	0.05143	0.00050	0.01188
04/17/06	247.52	0.0250	<MDL <sup>2</sup>	0.0050	0.04649	0.00046	0.01074
05/15/06	257.73	0.0320	*0.0009	0.0050	0.04811	0.00047	0.01111
06/19/06	208.67	0.0160	*0.0006	0.0060	0.04023	0.00041	0.00929
07/17/06	164.73	0.0160	0.0003	0.0030	0.03293	0.00035	0.00761
08/21/06	155.36	0.0207	<MDL <sup>2</sup>	0.0030	0.03133	0.00033	0.00724
09/18/06	173.57	0.0199	<MDL <sup>2</sup>	0.0040	0.03442	0.00036	0.00795
10/16/06	212.69	0.0300	0.0004	0.0050	0.04089	0.00042	0.00944
11/20/06	226.92	0.0260	<MDL <sup>2</sup>	0.0040	0.04319	0.00043	0.00998
12/18/06	309.02	0.0330	0.0004	0.0050	0.05611	0.00054	0.01295

**Percent Compliance Due to Individual Violation**

2005	<b>100.0</b>	<b>63.6</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>75.0</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 17: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED  
CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL  
BASED ON THE HARDNESS CONCENTRATION AT  
STEPHEN STREET, CHICAGO SANITARY & SHIP CANAL  
SAMPLING STATION 48 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
01/18/05	303.42	0.0192	0.0003	0.0030	0.05525	0.00053	0.01276
02/22/05	313.64	0.0225	<MDL <sup>2</sup>	0.0030	0.05682	0.00054	0.01312
03/21/05	325.09	0.0306	<MDL <sup>2</sup>	0.0050	0.05857	0.00056	0.01352
04/18/05	345.82	0.0284	0.0005	0.0050	0.06172	0.00058	0.01425
05/16/05	226.47	0.0277	0.0003	0.0050	0.04312	0.00043	0.00996
06/20/05	214.75	0.0201	0.0003	0.0050	0.04122	0.00042	0.00952
07/18/05	202.22	0.0189	<MDL <sup>2</sup>	0.0040	0.03917	0.00040	0.00905
08/15/05	180.71	0.0170	0.0003	0.0030	0.03561	0.00037	0.00823
09/19/05	166.62	0.0159	*0.0007	0.0030	0.03325	0.00035	0.00768
10/17/05	178.40	0.0214	*0.0006	0.0050	0.03523	0.00037	0.00814
11/21/05	197.95	0.0231	<MDL <sup>2</sup>	0.0040	0.03847	0.00040	0.00889
01/17/06	235.78	0.0340	<MDL <sup>2</sup>	0.0050	0.04462	0.00045	0.01030
02/21/06	259.02	0.0300	*0.0006	0.0020	0.04832	0.00048	0.01116
03/20/06	293.17	0.0233	0.0004	0.0020	0.05366	0.00052	0.01239
04/17/06	297.76	0.0230	<MDL <sup>2</sup>	0.0030	0.05437	0.00052	0.01255
05/15/06	237.19	0.0300	*0.0012	0.0040	0.04484	0.00045	0.01036
06/19/06	193.46	0.0160	*0.0006	0.0040	0.03773	0.00039	0.00872
07/17/06	165.49	0.0190	0.0003	0.0020	0.03306	0.00035	0.00764
08/21/06	157.61	0.0198	*0.0004	0.0030	0.03172	0.00034	0.00733
09/18/06	209.40	0.0142	0.0003	0.0030	0.04035	0.00041	0.00932
10/16/06	237.78	0.0240	<MDL <sup>2</sup>	0.0030	0.04494	0.00045	0.01038
11/20/06	261.73	0.0280	<MDL <sup>2</sup>	0.0050	0.04874	0.00048	0.01126
12/18/06	282.07	0.0270	0.0004	0.0030	0.05193	0.00051	0.01199

**Percent Compliance Due to Individual Violation**

2005	<b>100.0</b>	<b>81.8</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>66.7</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 18: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED  
 CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL  
 BASED ON THE HARDNESS CONCENTRATION AT  
 LOCKPORT FOREBAY, CHICAGO SANITARY & SHIP CANAL  
 SAMPLING STATION 92 IN 2005 AND 2006

Date	Concentrations			Chronic Standards for Soluble			
	Hardness	Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
	----- mg/L -----			----- mg/L -----			
01/03/05	267.33	0.0324	0.0004	0.0040	0.04963	0.00049	0.01146
01/10/05	296.43	0.0287	0.0005	0.0040	0.05417	0.00052	0.01251
01/18/05	293.11	0.0211	<MDL <sup>2</sup>	0.0030	0.05365	0.00052	0.01239
01/24/05	352.09	0.0304	0.0003	0.0050	0.06267	0.00059	0.01447
01/31/05	346.62	0.0324	*0.0007	0.0050	0.06184	0.00058	0.01428
02/07/05	294.58	0.0313	<MDL <sup>2</sup>	0.0050	0.05388	0.00052	0.01244
02/14/05	324.92	0.0262	<MDL <sup>2</sup>	0.0040	0.05855	0.00056	0.01352
02/22/05	307.65	0.0252	<MDL <sup>2</sup>	0.0040	0.05590	0.00054	0.01291
02/28/05	343.81	0.0313	0.0005	0.0040	0.06142	0.00058	0.01418
03/07/05	332.76	0.0302	<MDL <sup>2</sup>	0.0060	0.05974	0.00057	0.01379
03/14/05	320.35	0.0299	<MDL <sup>2</sup>	0.0040	0.05785	0.00055	0.01336
03/21/05	328.54	0.0329	0.0004	0.0050	0.05910	0.00056	0.01364
03/28/05	293.06	0.0290	0.0005	0.0040	0.05364	0.00052	0.01239
04/04/05	294.31	0.0230	<MDL <sup>2</sup>	0.0050	0.05384	0.00052	0.01243
04/11/05	300.37	0.0264	<MDL <sup>2</sup>	0.0040	0.05478	0.00053	0.01265
04/18/05	281.10	0.0269	0.0004	0.0050	0.05178	0.00050	0.01196
04/25/05	273.52	0.0305	0.0003	0.0040	0.05060	0.00049	0.01168
05/02/05	318.53	0.0269	0.0003	0.0050	0.05757	0.00055	0.01329
05/09/05	280.41	0.0255	*0.0007	0.0050	0.05168	0.00050	0.01193
05/16/05	269.89	0.0250	0.0003	0.0040	0.05003	0.00049	0.01155
05/23/05	213.85	0.0213	<MDL <sup>2</sup>	0.0050	0.04107	0.00042	0.00949
05/31/05	235.99	0.0207	*0.0010	0.0060	0.04465	0.00045	0.01031
06/06/05	239.50	0.0248	*0.0007	0.0050	0.04521	0.00045	0.01044
06/13/05	213.05	0.0180	*0.0006	0.0040	0.04095	0.00042	0.00946
06/20/05	217.83	0.0219	*0.0006	0.0060	0.04172	0.00042	0.00964
06/27/05	203.33	0.0218	*0.0005	0.0050	0.03936	0.00040	0.00909
07/05/05	194.42	0.0209	<MDL <sup>2</sup>	0.0040	0.03789	0.00039	0.00875
07/11/05	200.75	0.0185	*0.0004	0.0040	0.03893	0.00040	0.00899
07/18/05	202.59	0.0190	<MDL <sup>2</sup>	0.0040	0.03923	0.00040	0.00906
07/25/05	205.33	0.0214	<MDL <sup>2</sup>	0.0050	0.03968	0.00041	0.00917
08/01/05	186.89	0.0168	*0.0006	0.0040	0.03664	0.00038	0.00847
08/08/05	190.22	0.0158	<MDL <sup>2</sup>	0.0040	0.03720	0.00038	0.00859

TABLE 18 (Continued): EVALUATION OF PERCENT COMPLIANCE OF PROPOSED CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL BASED ON THE HARDNESS CONCENTRATION AT LOCKPORT FOREBAY, CHICAGO SANITARY & SHIP CANAL (92) IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
08/15/05	172.47	0.0129	*0.0004	0.0040	0.03423	0.00036	0.00791
08/22/05	177.28	0.0125	*0.0016	0.0030	0.03504	0.00037	0.00810
08/29/05	181.98	0.0098	*0.0008	0.0040	0.03583	0.00037	0.00828
09/06/05	173.59	<MDL <sup>1</sup>	<MDL <sup>2</sup>	0.0030	0.03442	0.00036	0.00795
09/12/05	169.09	0.0101	*0.0009	<MDL <sup>3</sup>	0.03366	0.00035	0.00778
09/19/05	158.90	0.0159	*0.0006	0.0030	0.03194	0.00034	0.00738
09/26/05	179.93	0.0154	<MDL <sup>2</sup>	0.0030	0.03548	0.00037	0.00820
10/03/05	162.07	0.0131	<MDL <sup>2</sup>	0.0030	0.03247	0.00034	0.00750
10/10/05	183.97	0.0232	*0.0005	0.0040	0.03616	0.00038	0.00835
10/17/05	178.37	0.0210	*0.0006	0.0050	0.03522	0.00037	0.00814
10/24/05	184.29	0.0257	*0.0004	0.0040	0.03621	0.00038	0.00837
10/31/05	183.75	0.0233	0.0003	0.0050	0.03612	0.00038	0.00835
11/07/05	210.46	0.0211	<MDL <sup>2</sup>	0.0050	0.04052	0.00041	0.00936
11/14/05	193.71	0.0299	<MDL <sup>2</sup>	0.0040	0.03777	0.00039	0.00873
11/21/05	191.47	0.0232	<MDL <sup>2</sup>	0.0040	0.03740	0.00039	0.00864
11/28/05	197.43	0.0323	<MDL <sup>2</sup>	0.0060	0.03839	0.00039	0.00887
12/05/05	194.58	0.0288	<MDL <sup>2</sup>	0.0040	0.03792	0.00039	0.00876
12/12/05	223.24	0.0291	<MDL <sup>2</sup>	0.0040	0.04260	0.00043	0.00984
12/19/05	226.95	*0.0439	<MDL <sup>2</sup>	0.0060	0.04320	0.00043	0.00998
12/27/05	233.80	0.0383	<MDL <sup>2</sup>	0.0070	0.04430	0.00044	0.01023
01/03/06	237.93	0.0330	<MDL <sup>2</sup>	0.0050	0.04496	0.00045	0.01038
01/09/06	263.64	0.0310	<MDL <sup>2</sup>	0.0040	0.04905	0.00048	0.01133
01/17/06	213.49	0.0370	0.0004	0.0040	0.04102	0.00042	0.00947
01/23/06	244.92	0.0350	<MDL <sup>2</sup>	0.0050	0.04608	0.00046	0.01064
01/30/06	272.48	0.0340	*0.0009	0.0040	0.05043	0.00049	0.01165
02/06/06	263.46	0.0280	*0.0011	0.0050	0.04902	0.00048	0.01132
02/14/06	281.44	0.0380	*0.0014	0.0100	0.05184	0.00050	0.01197
02/21/06	255.63	0.0340	*0.0007	0.0040	0.04778	0.00047	0.01103
02/27/06	254.29	0.0280	*0.0005	0.0030	0.04757	0.00047	0.01099
03/06/06	271.97	0.0360	0.0004	0.0050	0.05035	0.00049	0.01163
03/13/06	257.32	0.0230	*0.0007	0.0030	0.04805	0.00047	0.01110
03/20/06	286.00	0.0236	0.0004	0.0020	0.05255	0.00051	0.01213

TABLE 18 (Continued): EVALUATION OF PERCENT COMPLIANCE OF PROPOSED CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL BASED ON THE HARDNESS CONCENTRATION AT LOCKPORT FOREBAY, CHICAGO SANITARY & SHIP CANAL (92) IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
03/27/06	312.17	0.0241	0.0005	0.0040	0.05659	0.00054	0.01307
04/03/06	290.19	0.0355	0.0003	0.0040	0.05320	0.00052	0.01228
04/10/06	255.12	0.0290	<MDL <sup>2</sup>	0.0040	0.04770	0.00047	0.01102
04/17/06	295.51	0.0240	<MDL <sup>2</sup>	0.0050	0.05403	0.00052	0.01247
04/24/06	254.37	0.0280	*0.0012	0.0030	0.04758	0.00047	0.01099
05/01/06	274.96	0.0300	*0.0015	0.0030	0.05082	0.00050	0.01174
05/08/06	263.52	0.0290	*0.0009	0.0040	0.04903	0.00048	0.01132
05/15/06	243.46	0.0270	*0.0010	0.0040	0.04585	0.00046	0.01059
05/22/06	226.51	0.0430	*0.0014	0.0040	0.04313	0.00043	0.00996
05/30/06	252.74	0.0320	*0.0010	0.0060	0.04732	0.00047	0.01093
06/05/06	214.66	0.0130	*0.0010	0.0040	0.04121	0.00042	0.00952
06/12/06	182.61	0.0140	*0.0009	0.0030	0.03593	0.00037	0.00830
06/19/06	205.84	0.0150	*0.0007	0.0040	0.03977	0.00041	0.00919
06/26/06	210.91	0.0150	*0.0017	0.0040	0.04060	0.00041	0.00938
07/05/06	203.88	0.0170	<MDL <sup>2</sup>	0.0020	0.03945	0.00040	0.00911
07/10/06	203.13	0.0240	0.0004	0.0030	0.03932	0.00040	0.00908
07/17/06	159.58	0.0120	0.0003	0.0020	0.03205	0.00034	0.00741
07/24/06	186.27	0.0150	*0.0004	0.0030	0.03654	0.00038	0.00844
07/31/06	178.01	0.0150	0.0003	0.0030	0.03516	0.00037	0.00812
08/07/06	174.07	0.0240	0.0003	0.0040	0.03450	0.00036	0.00797
08/14/06	174.38	0.0160	<MDL <sup>2</sup>	0.0020	0.03455	0.00036	0.00798
08/21/06	176.74	0.0224	<MDL <sup>2</sup>	0.0030	0.03495	0.00037	0.00808
08/28/06	175.03	0.0165	0.0003	0.0030	0.03466	0.00036	0.00801
09/05/06	194.19	0.0284	<MDL <sup>2</sup>	0.0030	0.03785	0.00039	0.00874
09/11/06	193.70	0.0269	0.0003	0.0030	0.03777	0.00039	0.00873
09/18/06	203.55	0.0189	0.0003	0.0030	0.03939	0.00040	0.00910
09/25/06	195.91	0.0210	<MDL <sup>2</sup>	0.0030	0.03814	0.00039	0.00881
10/02/06	201.91	0.0190	<MDL <sup>2</sup>	0.0020	0.03912	0.00040	0.00904
10/09/06	203.36	0.0190	0.0003	0.0030	0.03936	0.00040	0.00909
10/16/06	211.16	0.0230	<MDL <sup>2</sup>	0.0030	0.04064	0.00041	0.00939
10/23/06	226.82	0.0250	<MDL <sup>2</sup>	0.0040	0.04318	0.00043	0.00997
10/30/06	240.74	0.0300	<MDL <sup>2</sup>	0.0070	0.04541	0.00045	0.01049

TABLE 18 (Continued): EVALUATION OF PERCENT COMPLIANCE OF PROPOSED CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL BASED ON THE HARDNESS CONCENTRATION AT LOCKPORT FOREBAY, CHICAGO SANITARY & SHIP CANAL (92) IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
11/06/06	279.34	0.0250	<MDL <sup>2</sup>	0.0050	0.05151	0.00050	0.01189
11/13/06	231.05	0.0400	<MDL <sup>2</sup>	0.0040	0.04386	0.00044	0.01013
11/20/06	246.13	0.0400	<MDL <sup>2</sup>	0.0040	0.04627	0.00046	0.01069
11/27/06	281.69	0.0300	0.0003	0.0050	0.05188	0.00050	0.01198
12/04/06	207.19	0.0340	<MDL <sup>2</sup>	0.0030	0.03999	0.00041	0.00924
12/11/06	280.19	0.0390	0.0004	0.0040	0.05164	0.00050	0.01192
12/18/06	296.77	0.0390	0.0005	0.0030	0.05422	0.00052	0.01252

**Percent Compliance Due to Individual Violation**

2005	<b>98.1</b>	<b>67.3</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>66.7</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 19: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED  
CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL  
BASED ON THE HARDNESS CONCENTRATION AT  
EWING AVENUE, CALUMET RIVER  
SAMPLING STATION 49 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
02/28/05	154.20	0.0050	*0.0005	<MDL <sup>3</sup>	0.03113	0.00033	0.00719
03/28/05	153.01	0.0058	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03093	0.00033	0.00715
04/25/05	148.12	0.0011	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03009	0.00032	0.00695
05/23/05	138.42	<MDL <sup>1</sup>	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02841	0.00031	0.00657
06/27/05	131.55	0.0043	*0.0003	0.0020	0.02721	0.00030	0.00629
07/25/05	134.84	0.0050	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02779	0.00030	0.00642
08/22/05	137.50	0.0013	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02825	0.00031	0.00653
09/26/05	135.75	0.0049	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02795	0.00030	0.00646
10/24/05	131.88	0.0049	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02727	0.00030	0.00630
11/28/05	135.33	0.0116	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02787	0.00030	0.00644
12/27/05	150.23	0.0090	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03045	0.00033	0.00704
01/23/06	141.79	0.0050	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02900	0.00031	0.00670
02/27/06	143.21	0.0040	*0.0004	<MDL <sup>3</sup>	0.02924	0.00032	0.00676
03/27/06	155.23	0.0031	*0.0005	<MDL <sup>3</sup>	0.03131	0.00033	0.00724
04/24/06	143.36	0.0090	*0.0006	<MDL <sup>3</sup>	0.02927	0.00032	0.00676
05/22/06	118.60	0.0130	*0.0007	<MDL <sup>3</sup>	0.02493	0.00028	0.00576
06/26/06	128.35	0.0040	*0.0009	<MDL <sup>3</sup>	0.02665	0.00029	0.00616
07/24/06	128.15	0.0080	<MDL <sup>2</sup>	0.0020	0.02662	0.00029	0.00615
08/28/06	125.15	0.0079	*0.0010	<MDL <sup>3</sup>	0.02609	0.00029	0.00603
09/25/06	136.88	0.0130	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02814	0.00031	0.00650
10/23/06	141.20	0.0110	*0.0004	<MDL <sup>3</sup>	0.02889	0.00031	0.00668
11/27/06	143.52	0.0130	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02930	0.00032	0.00677

**Percent Compliance Due to Individual Violation**

2005	<b>100.0</b>	<b>81.8</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>36.4</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>0.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.



TABLE 20: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL BASED ON THE HARDNESS CONCENTRATION AT 130TH STREET, CALUMET RIVER SAMPLING STATION 55 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
02/28/05	228.92	0.0160	0.0004	0.0020	0.04351	0.00044	0.01005
03/28/05	219.82	0.0107	0.0003	0.0020	0.04205	0.00042	0.00971
04/25/05	222.21	0.0060	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04243	0.00043	0.00980
05/23/05	192.39	0.0120	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03756	0.00039	0.00868
06/27/05	154.77	0.0050	*0.0008	<MDL <sup>3</sup>	0.03123	0.00033	0.00722
07/25/05	140.65	0.0061	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02880	0.00031	0.00666
08/22/05	139.63	0.0035	*0.0007	<MDL <sup>3</sup>	0.02862	0.00031	0.00662
09/26/05	139.94	0.0072	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02868	0.00031	0.00663
10/24/05	133.20	0.0108	0.0003	<MDL <sup>3</sup>	0.02750	0.00030	0.00636
11/28/05	137.79	0.0103	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02830	0.00031	0.00654
12/27/05	160.62	0.0050	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03223	0.00034	0.00745
01/23/06	160.25	0.0090	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03217	0.00034	0.00743
02/27/06	180.00	0.0090	0.0003	<MDL <sup>3</sup>	0.03549	0.00037	0.00820
03/27/06	193.15	0.0058	0.0003	<MDL <sup>3</sup>	0.03768	0.00039	0.00871
04/24/06	195.94	0.0090	*0.0010	<MDL <sup>3</sup>	0.03814	0.00039	0.00881
05/22/06	174.59	0.0140	*0.0015	<MDL <sup>3</sup>	0.03459	0.00036	0.00799
06/26/06	144.37	0.0130	*0.0010	<MDL <sup>3</sup>	0.02944	0.00032	0.00680
07/24/06	132.65	0.0070	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02741	0.00030	0.00633
08/28/06	132.34	0.0074	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02735	0.00030	0.00632
09/25/06	137.82	0.0100	0.0003	<MDL <sup>3</sup>	0.02831	0.00031	0.00654
10/23/06	185.11	*0.0810	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03635	0.00038	0.00840
11/27/06	174.03	0.0250	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03450	0.00036	0.00797

**Percent Compliance Due to Individual Violation**

2005	<b>100.0</b>	<b>81.8</b>	<b>100.0</b>
2006	<b>90.9</b>	<b>72.7</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>0.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 21: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED  
CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL  
BASED ON THE HARDNESS CONCENTRATION AT  
BURNHAM AVENUE, GRAND CALUMET RIVER  
SAMPLING STATION 86 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
02/28/05	537.49	0.0395	0.0007	0.0020	0.08969	0.00079	0.02069
03/28/05	346.23	0.0288	<MDL <sup>2</sup>	0.0020	0.06179	0.00058	0.01426
04/25/05	533.47	0.0266	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.08912	0.00078	0.02056
05/23/05	414.96	0.0104	0.0003	0.0030	0.07203	0.00066	0.01662
06/27/05	441.82	0.0199	*0.0040	0.0030	0.07596	0.00069	0.01753
07/25/05	374.60	0.0173	*0.0009	0.0050	0.06605	0.00061	0.01525
08/22/05	292.40	0.0097	*0.0009	0.0020	0.05354	0.00052	0.01236
09/26/05	300.42	0.0149	0.0004	0.0040	0.05478	0.00053	0.01265
10/24/05	155.26	0.0223	<MDL <sup>2</sup>	0.0020	0.03132	0.00033	0.00724
11/28/05	138.63	0.0132	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02845	0.00031	0.00658
01/23/06	391.37	0.0330	<MDL <sup>2</sup>	0.0020	0.06855	0.00063	0.01582
02/27/06	540.30	0.0200	0.0004	0.0020	0.09008	0.00079	0.02078
03/27/06	543.49	0.0226	*0.0008	0.0020	0.09053	0.00080	0.02089
04/24/06	461.40	0.0190	*0.0016	<MDL <sup>3</sup>	0.07880	0.00071	0.01818
05/22/06	352.49	0.0280	*0.0011	<MDL <sup>3</sup>	0.06273	0.00059	0.01448
06/26/06	417.50	*0.1210	*0.0023	0.0030	0.07240	0.00066	0.01671
07/24/06	348.72	0.0130	0.0004	<MDL <sup>3</sup>	0.06216	0.00058	0.01435
08/28/06	377.76	0.0150	<MDL <sup>2</sup>	0.0030	0.06652	0.00062	0.01535
09/25/06	423.53	0.0200	<MDL <sup>2</sup>	0.0020	0.07329	0.00067	0.01691
10/23/06	480.63	0.0230	0.0003	<MDL <sup>3</sup>	0.08158	0.00073	0.01882
11/27/06	559.90	0.0220	0.0005	0.0030	0.09284	0.00081	0.02142

**Percent Compliance Due to Individual Violation**

2005	<b>100.0</b>	<b>70.0</b>	<b>100.0</b>
2006	<b>90.9</b>	<b>63.6</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>0.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 22: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL BASED ON THE HARDNESS CONCENTRATION AT INDIANA AVENUE, LITTLE CALUMET RIVER SAMPLING STATION 56 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
02/28/05	303.85	0.0221	*0.0007	0.0020	0.05531	0.00053	0.01277
03/28/05	280.96	0.0081	<MDL <sup>2</sup>	0.0020	0.05176	0.00050	0.01195
06/27/05	185.54	0.0071	0.0003	<MDL <sup>3</sup>	0.03642	0.00038	0.00841
07/25/05	152.15	0.0047	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03078	0.00033	0.00711
08/22/05	148.14	0.0019	*0.0007	<MDL <sup>3</sup>	0.03009	0.00032	0.00695
09/26/05	143.37	0.0073	<MDL <sup>2</sup>	0.0020	0.02927	0.00032	0.00677
10/24/05	152.21	0.0066	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03079	0.00033	0.00712
11/28/05	166.30	0.0090	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03319	0.00035	0.00767
12/27/05	202.68	0.0178	<MDL <sup>2</sup>	0.0020	0.03925	0.00040	0.00907
01/23/06	192.85	0.0220	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03763	0.00039	0.00869
02/27/06	228.37	0.0080	*0.0005	<MDL <sup>3</sup>	0.04343	0.00044	0.01003
03/27/06	216.39	0.0027	0.0004	<MDL <sup>3</sup>	0.04149	0.00042	0.00958
04/24/06	246.04	0.0150	*0.0011	<MDL <sup>3</sup>	0.04626	0.00046	0.01068
05/22/06	218.47	0.0150	*0.0009	<MDL <sup>3</sup>	0.04183	0.00042	0.00966
06/26/06	179.00	0.0110	*0.0013	<MDL <sup>3</sup>	0.03533	0.00037	0.00816
07/24/06	142.27	0.0080	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02908	0.00031	0.00672
08/28/06	135.40	0.0066	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02789	0.00030	0.00645
09/25/06	133.33	0.0140	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.02753	0.00030	0.00636
10/23/06	219.55	0.0210	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04200	0.00042	0.00970
11/27/06	246.77	0.0240	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04637	0.00046	0.01071

**Percent Compliance Due to Individual Violation**

2005	<b>100.0</b>	<b>77.8</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>63.6</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

**TABLE 23: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED  
CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL  
BASED ON THE HARDNESS CONCENTRATION AT  
HALSTED STREET, LITTLE CALUMET RIVER  
SAMPLING STATION 76 IN 2005 AND 2006**

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		mg/L			mg/L		
01/24/05	355.76	0.0275	*0.0006	0.0030	0.06322	0.00059	0.01459
02/28/05	327.56	0.0264	*0.0007	0.0020	0.05895	0.00056	0.01361
03/28/05	316.94	0.0266	0.0003	<MDL <sup>3</sup>	0.05733	0.00055	0.01324
04/25/05	291.94	0.0269	0.0005	<MDL <sup>3</sup>	0.05347	0.00052	0.01235
05/23/05	252.18	0.0187	0.0003	0.0020	0.04723	0.00047	0.01091
06/27/05	211.41	0.0225	*0.0007	<MDL <sup>3</sup>	0.04068	0.00041	0.00940
07/25/05	205.02	0.0292	0.0003	0.0020	0.03963	0.00040	0.00916
08/22/05	177.78	0.0130	0.0003	0.0020	0.03512	0.00037	0.00812
09/26/05	171.48	0.0180	<MDL <sup>2</sup>	0.0020	0.03407	0.00036	0.00787
10/24/05	203.58	*0.0395	<MDL <sup>2</sup>	*0.0120	0.03940	0.00040	0.00910
11/28/05	211.40	0.0368	<MDL <sup>2</sup>	0.0020	0.04068	0.00041	0.00940
12/27/05	264.94	0.0236	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04925	0.00048	0.01137
01/23/06	263.83	0.0270	<MDL <sup>2</sup>	0.0020	0.04908	0.00048	0.01133
02/27/06	280.51	0.0360	0.0004	<MDL <sup>3</sup>	0.05169	0.00050	0.01194
03/27/06	315.95	0.0253	0.0004	0.0020	0.05717	0.00055	0.01320
04/24/06	277.91	0.0230	*0.0007	<MDL <sup>3</sup>	0.05129	0.00050	0.01184
05/22/06	286.14	0.0400	*0.0015	<MDL <sup>3</sup>	0.05257	0.00051	0.01214
06/26/06	223.18	0.0240	*0.0016	<MDL <sup>3</sup>	0.04259	0.00043	0.00984
07/24/06	173.01	0.0130	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03432	0.00036	0.00793
08/28/06	182.88	0.0169	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03598	0.00037	0.00831
09/25/06	235.87	0.0200	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04463	0.00045	0.01031
10/23/06	285.17	0.0250	0.0003	<MDL <sup>3</sup>	0.05242	0.00051	0.01210
11/27/06	308.36	0.0390	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.05601	0.00054	0.01293

**Percent Compliance Due to Individual Violation**

2005	<b>91.7</b>	<b>75.0</b>	<b>91.7</b>
2006	<b>100.0</b>	<b>72.7</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 24: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL BASED ON THE HARDNESS CONCENTRATION AT ASHLAND AVENUE, CALUMET SAG CHANNEL SAMPLING STATION 58 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
01/24/05	357.65	0.0291	0.0003	0.0030	0.06351	0.00060	0.01466
02/28/05	374.70	0.0420	*0.0008	0.0020	0.06606	0.00061	0.01525
03/28/05	314.28	0.0308	<MDL <sup>2</sup>	0.0020	0.05692	0.00054	0.01314
04/25/05	305.75	0.0240	0.0004	0.0020	0.05561	0.00053	0.01284
05/23/05	250.92	0.0285	<MDL <sup>2</sup>	0.0020	0.04703	0.00047	0.01086
06/27/05	223.22	0.0227	0.0004	0.0020	0.04260	0.00043	0.00984
07/25/05	209.38	*0.1011	*0.0005	0.0020	0.04035	0.00041	0.00932
08/22/05	181.66	*0.0365	*0.0015	<MDL <sup>3</sup>	0.03577	0.00037	0.00826
09/26/05	190.46	0.0233	<MDL <sup>2</sup>	0.0020	0.03724	0.00038	0.00860
10/24/05	213.59	0.0300	<MDL <sup>2</sup>	0.0020	0.04103	0.00042	0.00948
11/28/05	217.06	0.0354	<MDL <sup>2</sup>	0.0020	0.04160	0.00042	0.00961
12/27/05	292.61	0.0254	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.05357	0.00052	0.01237
01/23/06	254.38	0.0410	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04758	0.00047	0.01099
02/27/06	303.51	0.0330	0.0004	<MDL <sup>3</sup>	0.05526	0.00053	0.01276
03/27/06	322.32	0.0292	*0.0008	<MDL <sup>3</sup>	0.05815	0.00055	0.01342
04/24/06	301.46	0.0310	*0.0011	<MDL <sup>3</sup>	0.05495	0.00053	0.01269
05/22/06	309.05	0.0390	*0.0010	<MDL <sup>3</sup>	0.05611	0.00054	0.01296
06/26/06	228.16	0.0230	*0.0017	<MDL <sup>3</sup>	0.04339	0.00044	0.01002
07/24/06	183.65	0.0240	<MDL <sup>2</sup>	0.0020	0.03610	0.00038	0.00834
08/28/06	192.11	0.0163	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.03751	0.00039	0.00867
09/25/06	235.29	0.0210	0.0003	<MDL <sup>3</sup>	0.04454	0.00045	0.01029
10/23/06	327.90	0.0430	0.0003	0.0020	0.05900	0.00056	0.01362
11/27/06	312.95	0.0310	0.0003	<MDL <sup>3</sup>	0.05671	0.00054	0.01309

**Percent Compliance Due to Individual Violation**

2005	<b>83.3</b>	<b>75.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>63.6</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>0.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 25: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL BASED ON THE HARDNESS CONCENTRATION AT CICERO AVENUE, CALUMET SAG CHANNEL SAMPLING STATION 59 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		mg/L			mg/L		
01/24/05	386.76	0.0307	0.0003	0.0040	0.06786	0.00063	0.01566
02/28/05	370.77	0.0224	*0.0007	0.0020	0.06547	0.00061	0.01511
03/28/05	308.52	0.0227	0.0004	0.0020	0.05603	0.00054	0.01294
04/25/05	283.40	0.0185	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.05214	0.00051	0.01204
05/23/05	259.84	0.0212	0.0003	0.0020	0.04845	0.00048	0.01119
06/27/05	218.61	0.0230	*0.0007	0.0030	0.04185	0.00042	0.00967
07/25/05	207.59	0.0322	<MDL <sup>2</sup>	0.0080	0.04005	0.00041	0.00925
08/22/05	156.12	0.0100	*0.0013	<MDL <sup>3</sup>	0.03146	0.00034	0.00727
09/26/05	182.16	0.0124	<MDL <sup>2</sup>	0.0020	0.03586	0.00037	0.00828
10/24/05	206.49	0.0249	<MDL <sup>2</sup>	0.0030	0.03987	0.00041	0.00921
11/28/05	234.38	0.0279	<MDL <sup>2</sup>	0.0020	0.04439	0.00044	0.01025
12/27/05	320.11	0.0354	<MDL <sup>2</sup>	0.0020	0.05781	0.00055	0.01335
01/23/06	260.62	0.0240	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04857	0.00048	0.01122
02/27/06	318.99	0.0290	0.0004	<MDL <sup>3</sup>	0.05764	0.00055	0.01331
03/27/06	362.79	0.0240	0.0004	0.0020	0.06428	0.00060	0.01484
04/24/06	327.80	0.0280	*0.0007	0.0020	0.05899	0.00056	0.01362
05/22/06	297.99	0.0310	*0.0012	<MDL <sup>3</sup>	0.05441	0.00052	0.01256
06/26/06	242.46	0.0140	*0.0020	0.0020	0.04569	0.00045	0.01055
07/24/06	196.56	0.0160	0.0003	0.0040	0.03824	0.00039	0.00883
08/28/06	196.62	0.0213	*0.0004	0.0020	0.03825	0.00039	0.00884
09/25/06	249.26	0.0290	0.0003	<MDL <sup>3</sup>	0.04677	0.00046	0.01080
10/23/06	337.64	0.0310	0.0004	0.0020	0.06048	0.00057	0.01396
11/27/06	334.08	0.0280	0.0003	0.0020	0.05994	0.00057	0.01384

**Percent Compliance Due to Individual Violation**

2005	100.0	75.0	100.0
2006	100.0	63.6	100.0

**Percent Compliance Due to Average Quotient Violation**

2005	100.0	100.0	100.0
2006	100.0	0.0	100.0

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 26: EVALUATION OF PERCENT COMPLIANCE OF PROPOSED CHRONIC WATER QUALITY STANDARD FOR ZINC, CADMIUM, AND NICKEL BASED ON THE HARDNESS CONCENTRATION AT ROUTE 83, CALUMET SAG CHANNEL SAMPLING STATION 43 IN 2005 AND 2006

Date	Hardness	Concentrations			Chronic Standards for Soluble		
		Zinc	Cadmium	Nickel	Zinc	Cadmium	Nickel
		----- mg/L -----			----- mg/L -----		
02/28/05	382.70	0.0228	0.0006	0.0020	0.06726	0.00062	0.01552
03/28/05	332.66	0.0350	0.0003	0.0020	0.05973	0.00057	0.01379
04/25/05	337.49	0.0280	0.0004	0.0020	0.06046	0.00057	0.01396
05/23/05	266.67	0.0253	0.0004	0.0020	0.04952	0.00049	0.01144
06/27/05	225.34	0.0190	0.0004	0.0020	0.04294	0.00043	0.00992
07/25/05	206.75	0.0270	<MDL <sup>2</sup>	0.0040	0.03992	0.00041	0.00922
08/22/05	196.52	0.0123	*0.0016	<MDL <sup>3</sup>	0.03824	0.00039	0.00883
09/26/05	174.60	0.0137	<MDL <sup>2</sup>	0.0020	0.03459	0.00036	0.00799
10/24/05	198.12	0.0231	<MDL <sup>2</sup>	0.0030	0.03850	0.00040	0.00889
11/28/05	243.73	0.0313	<MDL <sup>2</sup>	0.0020	0.04589	0.00046	0.01060
12/27/05	288.34	0.0452	<MDL <sup>2</sup>	0.0020	0.05291	0.00051	0.01222
01/23/06	275.40	0.0280	<MDL <sup>2</sup>	0.0020	0.05089	0.00050	0.01175
02/27/06	350.10	0.0260	0.0003	<MDL <sup>3</sup>	0.06237	0.00059	0.01440
03/27/06	340.77	0.0168	*0.0006	<MDL <sup>3</sup>	0.06096	0.00058	0.01407
04/24/06	295.12	0.0180	*0.0012	<MDL <sup>3</sup>	0.05396	0.00052	0.01246
05/22/06	301.89	0.0300	*0.0011	<MDL <sup>3</sup>	0.05501	0.00053	0.01270
06/26/06	278.79	0.0170	*0.0020	0.0020	0.05142	0.00050	0.01187
07/24/06	185.40	0.0260	0.0003	0.0020	0.03639	0.00038	0.00841
08/28/06	179.50	0.0201	<MDL <sup>2</sup>	0.0020	0.03541	0.00037	0.00818
09/25/06	238.67	0.0290	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.04508	0.00045	0.01041
10/23/06	278.89	0.0260	<MDL <sup>2</sup>	<MDL <sup>3</sup>	0.05144	0.00050	0.01188
11/27/06	331.25	0.0300	0.0003	<MDL <sup>3</sup>	0.05951	0.00056	0.01374

**Percent Compliance Due to Individual Violation**

2005	<b>100.0</b>	<b>90.9</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>63.6</b>	<b>100.0</b>

**Percent Compliance Due to Average Quotient Violation**

2005	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2006	<b>100.0</b>	<b>0.0</b>	<b>100.0</b>

\*Concentration is a violation of the standard.

<sup>1</sup>Less than minimum detection limit of 0.0006 mg/L for zinc.

<sup>2</sup>Less than minimum detection limit of 0.0003 mg/L for cadmium.

<sup>3</sup>Less than minimum detection limit of 0.002 mg/L for nickel.

TABLE 1: EVALUATION OF PERCENT COMPLIANCE WITH PROPOSED ACUTE AND CHRONIC STANDARD BASED ON HARDNESS FOR SOLUBLE CADMIUM IN THE OUTFALL OF NORTHSIDE WATER RECLAMATION PLANT DURING 2005 THROUGH 2006

Date	Concentration		Standard	
	Hardness	Cadmium	Acute	Chronic
	----- mg/L -----		----- mg/L -----	
01/04/05	227	<MDL*	0.0396	0.0004
02/01/05	198	0.0003	0.0347	0.0004
03/01/05	206	<MDL*	0.0361	0.0004
04/05/05	210	0.0003	0.0367	0.0004
05/03/05	212	0.0004	0.0371	0.0004
06/07/05	184	0.0003	0.0323	0.0004
07/05/05	198	<MDL*	0.0347	0.0004
08/02/05	202	<MDL*	0.0354	0.0004
09/06/05	198	<MDL*	0.0347	0.0004
10/04/05	202	0.0006 <sup>2</sup>	0.0354	0.0004
11/01/05	178	0.0005 <sup>2</sup>	0.0313	0.0004
12/06/05	198	0.0020 <sup>2</sup>	0.0347	0.0004
01/03/06	233	0.0019 <sup>2</sup>	0.0406	0.0004
02/07/06	251	0.0008 <sup>2</sup>	0.0437	0.0005
03/07/06	207	0.0015 <sup>2</sup>	0.0362	0.0004
04/04/06	295	0.0009 <sup>2</sup>	0.0511	0.0005
05/02/06	219	<MDL*	0.0383	0.0004
06/06/06	218	0.0004	0.0381	0.0004
07/04/06	196	<MDL*	0.0344	0.0004
08/01/06	204	<MDL*	0.0357	0.0004
09/05/06	161	<MDL*	0.0284	0.0003
10/03/06	200	<MDL*	0.0350	0.0004
11/07/06	247	<MDL*	0.0430	0.0005
12/05/06	317	<MDL*	0.0548	0.0005

**Percent Compliance Due to Individual Violation**

Year	Acute (PCT <sub>1</sub> )	Chronic (PCT <sub>2</sub> )	P-value H <sub>0</sub> : PCT <sub>1</sub> =PCT <sub>2</sub>
2005	100.0	75.0	0.000
2006	100.0	66.7	0.000

**Percent Compliance Due to Average Quotient Violation**

2005	100.0	0.0
2006	100.0	0.0

\*Less than minimum detection limit of 0.0003 mg/L.

<sup>1</sup>Violation, if any, is due to acute water quality standard.

<sup>2</sup>Violation, if any, is due to chronic water quality standard.



TABLE 2: EVALUATION OF PERCENT COMPLIANCE WITH PROPOSED ACUTE AND CHRONIC STANDARD BASED ON HARDNESS FOR SOLUBLE CADMIUM IN THE OUTFALL OF STICKNEY WATER RECLAMATION PLANT DURING 2005 THROUGH 2006

Date	Concentration		Standard	
	Hardness	Cadmium	Acute	Chronic
	----- mg/L -----		----- mg/L -----	
01/11/05	303	0.0006 <sup>2</sup>	0.0524	0.0005
02/01/05	270	0.0005 <sup>2</sup>	0.0469	0.0005
04/05/05	271	0.0006 <sup>2</sup>	0.0471	0.0005
05/10/05	217	0.0009 <sup>2</sup>	0.0379	0.0004
06/07/05	207	0.0008 <sup>2</sup>	0.0362	0.0004
07/05/05	202	0.0008 <sup>2</sup>	0.0354	0.0004
08/02/05	201	0.0007 <sup>2</sup>	0.0352	0.0004
09/06/05	194	0.0009 <sup>2</sup>	0.0340	0.0004
10/04/05	179	<MDL*	0.0315	0.0004
11/01/05	166	<MDL*	0.0292	0.0003
12/06/05	219	<MDL*	0.0383	0.0004
01/03/06	198	<MDL*	0.0347	0.0004
02/14/06	237	0.0006 <sup>2</sup>	0.0413	0.0004
03/07/06	232	0.0008 <sup>2</sup>	0.0405	0.0004
04/04/06	239	0.0010 <sup>2</sup>	0.0417	0.0005
05/02/06	221	0.0027 <sup>2</sup>	0.0386	0.0004
06/06/06	231	0.0009 <sup>2</sup>	0.0403	0.0004
07/04/06	153	<MDL*	0.0270	0.0003
08/01/06	192	0.0010 <sup>2</sup>	0.0337	0.0004
09/05/06	159	<MDL*	0.0280	0.0003
10/03/06	172	0.0005 <sup>2</sup>	0.0303	0.0004
11/07/06	232	0.0013 <sup>2</sup>	0.0405	0.0004
12/05/06	287	0.0009 <sup>2</sup>	0.0498	0.0005

**Percent Compliance Due to Individual Violation**

Year	Acute (PCT <sub>1</sub> )	Chronic (PCT <sub>2</sub> )	P-value H <sub>0</sub> : PCT <sub>1</sub> =PCT <sub>2</sub>
2005	100.0	27.3	0.000
2006	100.0	25.0	0.000

**Percent Compliance Due to Average Quotient Violation**

2005	100.0	0.0
2006	100.0	0.0

\*Less than minimum detection limit of 0.0003 mg/L.

<sup>1</sup>Violation, if any, is due to acute water quality standard.

<sup>2</sup>Violation, if any, is due to chronic water quality standard.

TABLE 3: EVALUATION OF PERCENT COMPLIANCE WITH PROPOSED ACUTE AND CHRONIC STANDARD BASED ON HARDNESS FOR SOLUBLE CADMIUM IN THE OUTFALL OF CALUMET WATER RECLAMATION PLANT DURING 2005 THROUGH 2006

Date	Concentration		Standard	
	Hardness	Cadmium	Acute	Chronic
	----- mg/L -----		----- mg/L -----	
01/04/05	269	<MDL*	0.0467	0.0005
02/01/05	271	<MDL*	0.0471	0.0005
03/01/05	321	<MDL*	0.0555	0.0006
04/05/05	336	<MDL*	0.0580	0.0006
05/03/05	308	<MDL*	0.0533	0.0005
06/07/05	241	<MDL*	0.0420	0.0005
07/05/05	248	<MDL*	0.0432	0.0005
08/02/05	219	<MDL*	0.0383	0.0004
09/06/05	249	<MDL*	0.0434	0.0005
10/04/05	224	<MDL*	0.0391	0.0004
11/01/05	207	<MDL*	0.0362	0.0004
12/06/05	254	<MDL*	0.0442	0.0005
01/03/06	288	<MDL*	0.0499	0.0005
02/07/06	315	<MDL*	0.0545	0.0005
03/07/06	275	<MDL*	0.0477	0.0005
04/04/06	278	<MDL*	0.0482	0.0005
05/02/06	257	<MDL*	0.0447	0.0005
06/06/06	312	<MDL*	0.0540	0.0005
07/04/06	214	<MDL*	0.0374	0.0004
08/01/06	261	<MDL*	0.0454	0.0005
09/05/06	196	<MDL*	0.0344	0.0004
10/03/06	190	<MDL*	0.0333	0.0004
11/07/06	307	<MDL*	0.0531	0.0005
12/05/06	332	<MDL*	0.0573	0.0006

**Percent Compliance Due to Individual Violation**

Year	Acute (PCT <sub>1</sub> )	Chronic (PCT <sub>2</sub> )	P-value H <sub>0</sub> : PCT <sub>1</sub> =PCT <sub>2</sub>
2005	100.0	100.0	1.000
2006	100.0	100.0	1.000

**Percent Compliance Due to Average Quotient Violation**

2005	100.0	100.0
2006	100.0	100.0

\*Less than minimum detection limit of 0.0003 mg/L.

<sup>1</sup>Violation, if any, is due to acute water quality standard.

<sup>2</sup>Violation, if any, is due to chronic water quality standard.

**From:** Rob Sulski  
**Subject:** Fwd: FW: WRP Soluble Cd compliance

>>> "Granato, Thomas" <Thomas.Granato@mwrdoc.dst.il.us> 5/1/2007 11:13 AM >>>  
Hi Rob. In response to your request we have attached effluent soluble Cd and hardness data for the Calumet, Stickney, and North Side WRPs for 2005 and 2006. The hardness data are used to compute a chronic Cd water quality concentration which is then compared to the effluent soluble Cd concentration in the attached tables. Soluble Cd is analyzed monthly in the effluents of these WRPs.

For the Calumet WRP, all monthly samples analyzed in 2005 and 2006 had soluble Cd concentration below the Method Detection Limit of 0.0003 mg/L which is below the computed chronic Cd water quality standards.

For the Stickney WRP 6 of the 23 monthly samples in this time period were below the MDL of 0.0003 mg/L. However, the remaining 17 samples that had detectable soluble Cd concentration all exceeded the computed chronic Cd water quality standards.

The North Side WRP had 12 of the 24 monthly samples below the MDL of 0.0003 mg/L and 5 of the remaining 12 samples had detectable soluble Cd concentrations that were below the computed chronic Cd water quality standards.

There appears to be a very poor relationship between effluent soluble Cd and violation of proposed chronic Cd water quality standards in the CAWS. For instance:

1. At NSWRP water quality violations with respect to the proposed chronic Cd limit would have occurred at Oakton St. (1st monitoring station downstream of NSWRP) in May, June and September of 2005 however effluent soluble Cd was below the proposed chronic standard for all of those months and in May and September soluble Cd concentration upstream of the NSWRP at Central St. exceeded the chronic water quality standard. In 2006, water quality violations with respect to the proposed chronic Cd limit would have occurred at Oakton St. in March, May, June, July and October. In all of these months the proposed chronic Cd water quality limit was exceeded upstream of NSWRP at Central St and only in March would the NSWRP effluent have violated the proposed chronic Cd water quality limit.
2. At CWRP there would have been 6 violations with the proposed chronic Cd limit in 2005 and 2006 despite all effluent concentrations being below the proposed limit.
3. At SWRP, water quality violations with respect to the proposed chronic Cd limit would have occurred at Harlem Ave. (1st monitoring station downstream of SWRP) in June, August, September and October 2005, but soluble Cd concentration exceeded the proposed chronic Cd standard upstream of the SWRP at Cicero Ave in September and October and effluent soluble Cd was below the proposed chronic Cd standard in October. In 2006 water quality violations with respect to the proposed chronic Cd limit would have occurred at Harlem Ave. in February, May, June, and

September, but they also occurred upstream of the SWRP in those months at Cicero Ave and effluent Cd concentration did not exceed the proposed chronic Cd standard in the September sample.

We have also included some information on Cd concentration from industrial sources for your use. Let us know if you would like a copy of R&D Report 03-17 which is referenced below. -TG

<<WRPSolCdComplianceTables.pdf>>

> -----Original Message-----

> From: O'Connor, Catherine

> Sent: Monday, April 30, 2007 2:12 PM

> To: Granato, Thomas

> Subject: FW: WRP Soluble Cd compliance

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>

> Reviewing his results, where North Side and Stickney WRPs have  
> trouble meeting the chronic standards and Calumet does not, I checked  
> the R&D Report 03-17, April 2003, "Re-evaluation of Local Pretreatment  
> Limits." In an appendix, the loading of each regulated metal to the  
> WRPs is detailed. I wonder if Rob Sulski would like to see this  
> information because the big culprits are plating facilities that  
> comply with very stringent categorical pretreatment limits set by  
> USEPA.... Also, the information presented below is consistent with Dr.  
> Abedin's analysis: Calumet receives much lower Cd loading from  
> industry.

>

> The following is the 1998 Cd loading by Significant Industrial  
> Users to:

>

> North Side WRP: 187 lbs/year (Amber Plating: 26 lbs/yr;

> Craftsman Plating and Tinning: 101 lbs/yr)

> Stickey WRP: 626 lbs/year (City of Chicago, Jardine: 29

> lbs/yr; US Plating: 106 lbs/yr; Saporito Plating: 79 lbs/yr; Belmont

> Plating: 249 lbs/yr)

> Calumet WRP: 91 lbs/year (FSC Corp:15 lbs/yr - only "double  
> digit discharger")

>

>